

# PRODUCT CATALOG

**20,000<sup>PSI</sup>**  
1,379 BAR



Streator, IL  
(815) 672-6028

Toledo, OH  
(888) 415-7368

New Brunswick, NJ  
(732) 448-7830

Highland, IN  
(219) 924-3180

Lexington, SC  
(803) 996-0741

Leeds, AL  
(800) 822-8785

Williston, ND  
(701) 572-7421

La Porte, TX  
(281) 674-8668

Gonzales, LA  
(225) 647-0660

Midland, TX  
(432) 563-4450

Salt Lake City, UT  
(801) 808-4590

Long Beach, CA  
(866) 515-9891

Lakewood, WA  
(253) 584-0653

Jetstream has the most comprehensive products, service, rental, and training in the industry. Whether you are looking to purchase or rent water blasting equipment, or if you need service and support for your existing equipment, we've got you covered with the most experienced and customer-focused team in the industry.

In the United States, our products are serviced by FS Solutions. With 13 convenient locations, FS Solutions provides high-performance parts and accessories, Jetstream rentals, repair and rebuild, and safety training services. In Canada, Joe Johnson Equipment (JJE) is there to handle your every need.

Jetstream is a subsidiary of Federal Signal Corporation and has the financial strength, backing, and network of distributors around the world to support any customer.

## INTERNATIONAL DISTRIBUTORS

Santiago, Chile  
Orbitec

Glasgow, Scotland  
Powerjet Rentals

Dubai, UAE  
Asia Waterjet

Johannesburg, South Africa  
Total Blasting

Adelaide, Australia  
Metco

Shanghai, China  
FS Asia

Singapore  
Asia Waterjet

## JETSTREAM OF HOUSTON

5905 THOMAS ROAD  
HOUSTON, TEXAS 77041

(832) 590-1300

(800) 231-8192





# WORLDWIDE LEADER

## IN TOTAL WATER BLASTING SOLUTIONS

Jetstream of Houston is a leading supplier of innovative water blasting solutions for a wide range of applications, including industrial cleaning, surface preparation, hydro-demolition and abrasive waterjet cutting.

Jetstream is committed to providing customers with safe, sure, simple solutions in everything we do. Our total water blasting solutions include:

- Manufacture and distribution of quality industrial high-pressure water blasting units, pumps, parts and accessories; that are built to last and easy to maintain
- Leading the way with an approved Visual Safety System (VSS) color-coding on most water blasting components for safer operation within each pressure range
- Providing a wide range of application appropriate automation tools - for safe, hands-free cleaning
- Sharing Application Expertise with customers for the best total solution approach for maximum productivity
- Training - operators on the application, product operation and safety
- Rentals for short-term or rent to own - units, accessories, automation tools - complete with training
- Service equipment with experienced technicians, provide 24/7 support by telephone and ship parts quickly (most same day)

### TOTAL WATER BLASTING SOLUTIONS



### 24/7 SERVICE AND SUPPORT TAILORED TO YOU

The 24/7 Support Program provides Jetstream customers uninterrupted access to critical parts and accessories, service and expertise to keep the job running, no matter what time of day.

**800.231.8192**  
**832.590.1300**

Jetstream Support Standard business hours  
7 am – 6 pm CST

**832.590.1369**  
After Hours Support Hotline









Jetstream TwinForce 800HP Unit

#### SOME INDUSTRIES WE SERVE:

- CHEMICAL
- PETROCHEMICAL
- STEEL MILLS
- POWER GENERATION
- MARINE / SHIPYARDS
- CONSTRUCTION
- MINING
- OIL AND GAS
- INFRASTRUCTURE
- AUTOMOTIVE
- AEROSPACE
- PULP AND PAPER
- SWIMMING POOLS

#### TYPICAL APPLICATIONS:

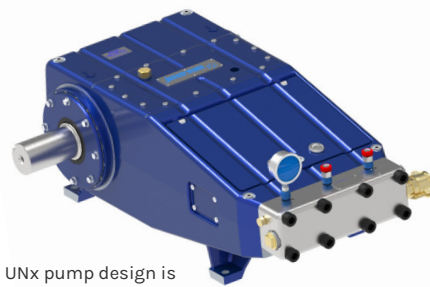
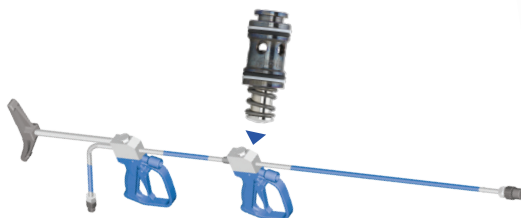
- TUBE AND TUBE BUNDLE CLEANING
- PIPE CLEANING
- TANK / STACK / COOLING TOWER CLEANING
- SURFACE PREPARATION
- COATINGS REMOVAL
- SHIP DECK AND HULL CLEANING
- CONCRETE DEMOLITION
- HYDROSTATIC TESTING
- AUTOMOTIVE PAINT BOOTH CLEANING
- AIRPORT TARMAC
- POOL RESURFACING
- FACILITIES MAINTENANCE
- GRATE AND FLOOR CLEANING
- KILN CLEANING
- BOP TESTING
- UNDERWATER CLEANING
- WATERJET CUTTING

## INNOVATIVE ENGINEERED SOLUTIONS

Jetstream pioneered the use of valve cartridges to allow accessories to be repaired in the field in minutes.



Nozzles that spin on a bearing of water.



The UNx pump design is the easiest to maintain and operate.

# TOOL RENTALS

Jetstream provides pumps, parts, and tool rentals for all the demands of your job. You can pick up the equipment you need, or we can deliver it straight to your job site. Our tools are ready to work the second they arrive on-site and are backed by our world-class customer support team and highly trained technicians that are committed to the success of your project.

## BEST-IN-CLASS SERVICE AND SUPPORT, TAILORED TO YOU

Jetstream is a subsidiary of Federal Signal Corporation's Environmental Solutions Group. Member companies include Vactor Manufacturing, TRUVAC, Guzzler Manufacturing, Westech Vac Systems, Ltd., and Elgin Sweeper Company.



If you need service and support for your equipment, Jetstream has you covered with the most experienced and customer-focused team in the industry.

In the United States, our products are serviced by FS Solutions. With 13 convenient locations, FS Solutions provides high-performance parts and accessories, Jetstream rentals, repair and rebuild, and safety training services. In Canada, Joe Johnson Equipment (JJE) is there to handle your every need.

Whatever your needs may be, Jetstream offers a full range of products, services, and customized solutions designed to keep your products and projects running smoothly, effectively, and efficiently!



## VALVE REBUILD PROGRAM

Get same as new performance and reliability for your valves with Jetstream's Valve Rebuild Program (VRP).

The program utilizes OEM parts and processes to maximize the value of your equipment by:

- ▶ Reducing hourly operational costs
- ▶ Boosting up-time
- ▶ Optimizing reliability
- ▶ Restoring original system performance
- ▶ Increasing return on investment

We guarantee to provide new seals, springs, suction/discharge valve, and lapping with every rebuild.

## TRADE-IN PROGRAM

The Trade-In Program offers customers an opportunity to exchange any competitor tools for credit towards Jetstream Signature Series Premium Kits. Tools do not have to be functional, but they must be a complete part.

*\*Discounts applied at the time of trade-in.*

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NLB, Butterworth-Partek, Gardner-Denver, Woma, JobBox, Turtleskin, TST, Sonetics, Blue Goop, Loctite, Cordura, Tritan, Weatherford, Wheatley, Union, Universal Minerals, Sharpjet, MaxxStrip, SofStrip, Swagelok, DuPont, Teflon, Partek, Warwick Mills, North Safety, and American Aero are trademarked and/or registered tradenames of their respective companies. Jetstream disclaims any and all rights to these marks.

Jetstream reserves the right to suspend or discontinue the sale of any product contained herein or perform any modifications to product design without prior notification.

# UNITS

Jetstream provides a comprehensive selection of waterblasters that can be tailored to suit specific demands. These waterblasters are thoughtfully engineered to serve various sectors, such as automobile manufacturing, food processing, infrastructure development, maritime operations, mining, paper production, power generation, petroleum and gas, and steel manufacturing, and many more.

All Jetstream waterblasters employ UNx™ Fluid End technology along with a variety of innovative features to achieve superior performance, greater flexibility in the field, and reduced downtime and maintenance (see page B-23 for details).

## HORSEPOWER CHART

| COMMON ENGINE POWERS         |     | PUMP DISPLACEMENT*<br>AT 20,000 PSI (1,379 BAR) |       |
|------------------------------|-----|-------------------------------------------------|-------|
| hp                           | kW  | gpm                                             | lpm   |
| <b>TWINFORCE</b>             |     |                                                 |       |
| 800                          | 597 | 62.2                                            | 235.4 |
| 650                          | 484 | 42.8                                            | 162.0 |
| <b>MODEL 5220 QUINTUPLEX</b> |     |                                                 |       |
| 650                          | 484 | 42.8                                            | 162.0 |
| <b>MODEL 6020</b>            |     |                                                 |       |
| 600                          | 447 | 46.1                                            | 174.5 |
| <b>MODEL 5220</b>            |     |                                                 |       |
| 400                          | 300 | 31.1                                            | 117.7 |
| 344                          | 256 | 26.5                                            | 100.3 |
| <b>MODEL 4220</b>            |     |                                                 |       |
| 325                          | 242 | 25.2                                            | 95.4  |
| 275                          | 205 | 21.6                                            | 81.8  |
| 250                          | 186 | 19.4                                            | 73.4  |
| <b>MODEL 3620</b>            |     |                                                 |       |
| 270                          | 201 | 21.5                                            | 81.4  |
| 200                          | 149 | 15.4                                            | 58.2  |
| 170                          | 127 | 12.2                                            | 46.2  |
| <b>MODEL 3020</b>            |     |                                                 |       |
| 200                          | 149 | 15.5                                            | 58.7  |
| 150                          | 116 | 11.2                                            | 42.4  |
| 100                          | 75  | 7.4                                             | 28.0  |

\*Displacement (flow) values represented refer to "theoretical" flow, neglecting inefficiency resulting from compressibility of water and expansion of pressure-bearing components.

The chart above is for diesel engines. Contact Jetstream for an electric unit chart.

## TWINFORCE™ UNITS

The TwinForce series was engineered to outperform other high-flow units by providing a multi-functional product to enhance the utilization of two waterblasting units on one single trailer.

- ▶ Two 325 or 400 hp high performance diesel engines
- ▶ Pilot bearing free PTOs and covered banded belt drives
- ▶ Dual Slave Control Panels for multiple control of both engines from either side
- ▶ Dual Water Filters
- ▶ High pressure discharge from both units combined into a single control station
- ▶ Dual Fuel Tanks
- ▶ Tier 4 Engines



## 5200 QUINTUPLEX UNITS

Building on the success and innovation of the Jetstream X-Series units, the 5200 Quintuplex waterblast unit offers high flow capability and premium features on an ergonomic and capable integrated trailer with a low deck height and easy towing.

- ▶ 700 hp Cummins or John Deere engines
- ▶ Quintuplex (five plunger) Jetstream UNx Pump
- ▶ 4 speed transmission with integrated gear drive
- ▶ Guardian tripple filter system allows for filter changes without stopping operation.
- ▶ Low deck integrated gooseneck trailer with storage, steps and crane
- ▶ Pressurized and cooled oil system for extended run timesStandard Charge Pump



## 6000 SERIES UNITS

The 6000 Series waterblasting system is engineered to outperform and outlast any other unit of its kind.

- ▶ 600 hp Volvo Tier 4 engines without the need for a diesel particulate filter.
- ▶ Pressure Lubricated Gear Drive Power End
- ▶ High-Capacity Aluminum Fuel Tank (Canadian Certified)
- ▶ Triple Filtration System - First in its class
- ▶ Standard Charge Pump
- ▶ Patented Jetstream UNx Fluid End system



## X-SERIES UNITS

From the innovative UNx pump down to the EZ-Lube wheel bearings, every detail of the X-Series was engineered to minimize maintenance and provide contractors with the most productive and versatile waterblaster on the market today.



- ▶ 80 to 400 hp (59 to 300 kW) high performance diesel engines
- ▶ Pilot bearing free PTOs and covered banded belt drives
- ▶ Guardian Waterblast Filtration System extends component life and increases uptime with built-in filtration
- ▶ Available as a skid or low profile trailer with balanced weight distribution for stable towing
- ▶ State-of-the-art controls
- ▶ Electronic throttle control
- ▶ Hand-adjustable bypass valve
- ▶ Shutdown system to protect both the engine and the pump

## ELECTRIC UNITS

For waterblast applications within process plants, industrial operations, military and government facilities, automotive manufacturing and other environments, electric waterblasters are available as stationary skids or steerable in-plant trailers. Jetstream offers a diverse range of electric waterblaster models designed specifically for in-plant installations that are tailored to meet the unique requirements of each user.



- ▶ 60 to 700 hp (45 to 522 kW)
- ▶ Patented Jetstream UNx Fluid End system
- ▶ Totally Enclosed Fan-Cooled (TEFC) or explosion proof motors (inquire for rating)
- ▶ Soft-start or VFD starters
- ▶ Galvanized skid with forklift channels standard
- ▶ Charge pump system for reliable pump operation

▶

▶ Stationary skid





# HYDROFORCE™ UNITS

## JETSTREAM OIL & GAS EQUIPMENT

Hydrostatic testing is a crucial aspect of the oil and gas industry, and Jetstream is dedicated to offering a comprehensive solution for this task. In addition to HydroForce™ waterblasting units that can reach pressures of up to 22,500 psi, Jetstream also provides all the necessary tools for accurate blow-out pipe-line (BOP) and wellhead testing. With our complete solution, you can perform hydrostatic testing with confidence.

- ▶ 80 hp to 325 hp (59 to 242 kW) high performance diesel engines (Electric unit option available)
- ▶ Options including: Heavy duty lifting frame, 10,000 psi hydraulic system for torque tools, a JobBox, a digital or manual chart recorder, hydraulic hose reel or auxiliary hose stand



# CUSTOM UNITS

In addition to a wide selection of standard units and options, close collaboration between Jetstream solutions providers and engineers provide almost unlimited custom options to meet specific needs.

Common requests include:

- ▶ Custom trailers and skids
- ▶ Special control devices (pneumatic, electronic, hydraulic)
- ▶ Customizable to meet special plant requirements  
Jetstream can build the perfect unit for any job



# AUTOMATED WATERBLASTING SOLUTIONS

Automation is a rapidly growing waterblast solution for tube cleaning, tank and boiler cleaning, surface preparation and hydro-demolition. Hands-free operation is key to a safe work environment. Positioning the operator at a distance, away from the work area, is the number one benefit to utilizing automated tools. This placement away from direct contact with the high pressure application allows for quick reaction time and decreases the possibility for employee injury.

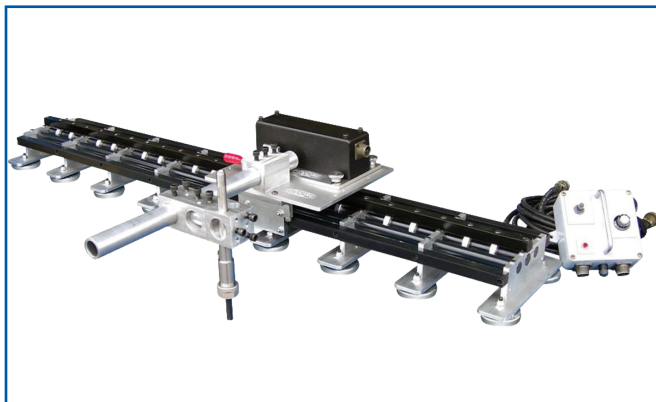


To enhance operator safety, productivity and efficiency, Jetstream has partnered with strategic manufacturers of specialty equipment in automated and robotic tools and accessories. These alliances allow Jetstream to provide a total solution to the customer, from the waterblasting unit to the tools needed to perform the job safely and efficiently.

Offering the broadest range of automation solutions for industrial cleaning contractors, Jetstream provides:

- ▶ The broadest offering of hands free cleaning solutions
- ▶ Innovative, automated and robotic tools and accessories
- ▶ On-site solutions provided by regional automation specialists
- ▶ Rent or purchase options on a variety of state-of-the-art tooling
- ▶ Convenience with availability through Jetstream and FS Solutions rental centers
- ▶ Robotic and mechanical hydro-demolition solutions available for rent
- ▶ Application and safety training

For a list of products offered, contact your Regional Sales Manager or Inside Sales Technician for more details.



# TRAINING



In order to ensure customer satisfaction, Jetstream has developed the Right Start program, a four-step plan designed to provide the owners and operators of new Jetstream waterblast units with the knowledge and support needed to feel familiar, confident and satisfied with Jetstream equipment and personnel.



## 1. Transportation

Once a new waterblaster is built and thoroughly tested, the Shipping Manager contacts the new owner to arrange for the unit's arrival to the right place at the right time.



## 2. Training

All new waterblasters include personal training by the Right Start Technician. Training involves both classroom and "hands-on" instruction to make sure that each operator is thoroughly familiar with the design and function of the unit and accessories, enabling him to safely put the new equipment to optimal use.



## 3. Follow-up

Within thirty days of delivery, and again within sixty days, the Solutions Provider will call to answer any questions and ensure complete satisfaction.



## 4. Trust

If any questions or problems ever arise, the Jetstream team is available and committed to providing prompt answers and solutions.

## CLASSES OFFERED

### PUMP OPERATION & MAINTENANCE

The course combines extensive hands-on training with classroom instruction and is recommended for maintenance personnel, operator and supervisors.

**Class Length:** 3 days

**Class Size:** 10 maximum

**Location:** Jetstream Manufacturing  
Training Center  
Houston, TX

Call for class schedules and availability. Classes can be tailored to those in attendance.

This course covers:

- ▶ Safe waterblast operation
- ▶ Unit maintenance and troubleshooting
- ▶ Physical application and related safety issues
- ▶ Safe pump operation
- ▶ Pump maintenance
- ▶ The UNx System (10K, 20K and 40K)
- ▶ Swapping fluid ends
- ▶ Waterblast guns
- ▶ Pedals and accessories
- ▶ Uni-valves
- ▶ Proper packing, disassembly, repair and re-lapping
- ▶ Hoses, lances, nozzles
- ▶ Recommended spare parts
- ▶ Preventative maintenance and winterization

### SAFETY-FS SOLUTIONS

As the experts on waterblast and industrial vacuum equipment, FS Solutions makes OSHA training and compliance more convenient than ever through hands on courses developed by Gary Toothe, whose significant contributions and 25 years of experience are well-known in the waterblast and industrial vacuum industries.

### ONLINE WITH FEDERAL SIGNAL ESG UNIVERSITY

- ▶ Work at your pace and convenience
- ▶ Remain compliant with OSHA training
- ▶ Safety increase productivity
- ▶ Decrease risk of future liability

#### Additional Tools

- ▶ Jetstream Safety Manual Part No. 62113



# UNx™ BARESHAFT PUMPS

## UNRIVALED STRENGTH AND DURABILITY

The Jetstream 20,000 psi UNx Bareshaft Pump provides unrivaled durability and strength. The pump is capable of power inputs up to 700 horsepower and, coupled with the best Jetstream UNx fluid end, provides flow rates\* up to one-hundred thirty-six gallons per minute. Jetstream bareshaft pumps are the best choice for those building their own system or replacing a complicated, worn, or unreliable pump.

The following UNx Bareshaft Pumps are available:

- ▶ 6000 Series (6020): 600HP @ 46.1 gpm
- ▶ 5200Q Series (5220Q): 700HP @ 136.2 gpm
- ▶ 5200 Series (5220): 400HP @ 31.1 gpm
- ▶ 4200 Series (4220): 325HP @ 25.3 gpm
- ▶ 3600 Series (3620): 270HP @ 21.5 gpm
- ▶ 3000 Series (3020): 200HP @ 15.5 gpm
- ▶ 2000 Series (2020): 75HP @ 5.8 gpm

Six different pump displacement levels are available within the six series. See pages B-2, B-5, B-10, B-13, B-16, B-19 and B-22 for further details.

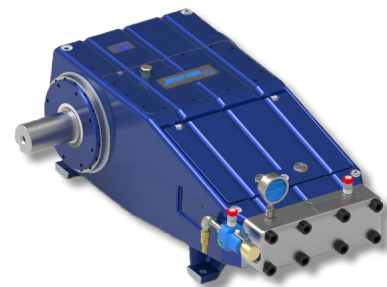
## FEATURES AND BENEFITS

- ▶ The strongest ductile iron power frame in the industry is made tough to last
- ▶ A heat-treated billet alloy steel crankshaft delivers superior performance at high power inputs
- ▶ The largest bearings of any pump on the market to prevent overheating
- ▶ Components designed to be easily serviced and maintained to reduce downtime
- ▶ Locking rod box for increased safety
- ▶ Use of simple, bolt-on Jetstream UNx™ Fluid Ends for fast in-the-field pressure range conversions to allow one pump to perform multiple applications
- ▶ See more UNx Fluid End features and benefits on page B-26

An optional gear drive is available on the 3000, 3600, 4200 and 5200 Series Bareshaft Pumps. Several configurations are available. See pages B-11, B-14, B-17, and B-20 for ratio information. Clotching position required when ordering.



Please refer to the [Jetstream Bareshaft Pump Operation Manual](#) for general installation guidelines. Contact Jetstream Engineering for detailed technical guidance and design review before installing any Jetstream bareshaft pump.

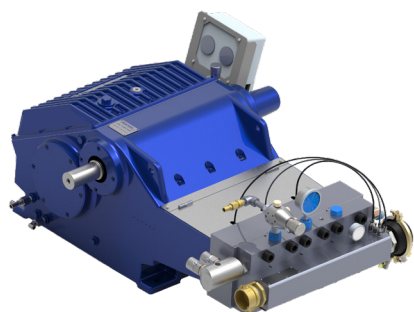


### NOTE

The customer can specify the placement of the crankshaft (right-hand or left-hand side) and paint color for a bareshaft pump. Standard paint color is blue. Other paint colors are available upon request.

\*Displacement (flow) values represented refer to "theoretical" flow, neglecting inefficiency resulting from compressibility of water and expansion of pressure-bearing components.





# MODEL 6020

## UNx™ BARESHAFT PUMP

The Jetstream model 6020 waterblast pump is capable of power input of up to 600 horsepower (447 kW). It is the most advanced and efficient compact waterblast pump in the industry. Combining the strength and durability of a proven power end workhorse with the unparalleled simplicity, serviceability and versatility of the UNx fluid end design, Jetstream bareshaft pumps are the best choice for those building their own system or replacing a complicated, worn, or unreliable pump.

- ▶ Up to 600 horsepower (447 kW)
- ▶ Three plunger (triplex) design

### KEY FEATURES

- ▶ Internal Gear Drive
- ▶ Maximum Flow: 46.1 gpm (174.5 lpm) at 20,000 psi (1379 bar)\*\*

### POWER END SPECS

| PLUNGERS |        |     | CONNECTION<br>TYPE<br>(DISCHARGE) | PUMP<br>SPEED<br>RANGE | MAX. POWER<br>INPUT |     | MAX.<br>FRAME LOAD |     | TOTAL WEIGHT |       | PUMP OIL** |          |     |
|----------|--------|-----|-----------------------------------|------------------------|---------------------|-----|--------------------|-----|--------------|-------|------------|----------|-----|
| #        | STROKE |     |                                   |                        |                     |     |                    |     |              |       | TYPE       | CAPACITY |     |
|          | in     | mm  |                                   |                        | RPM*                | hp  | kW                 | lb  | kN           | lb    |            | kg       | gal |
| 3        | 5.51   | 140 | Jetstream HHP                     | 100-457                | 600                 | 447 | 28,775             | 128 | 2800         | 1,270 | ISO-320*   | 11.9     | 45  |

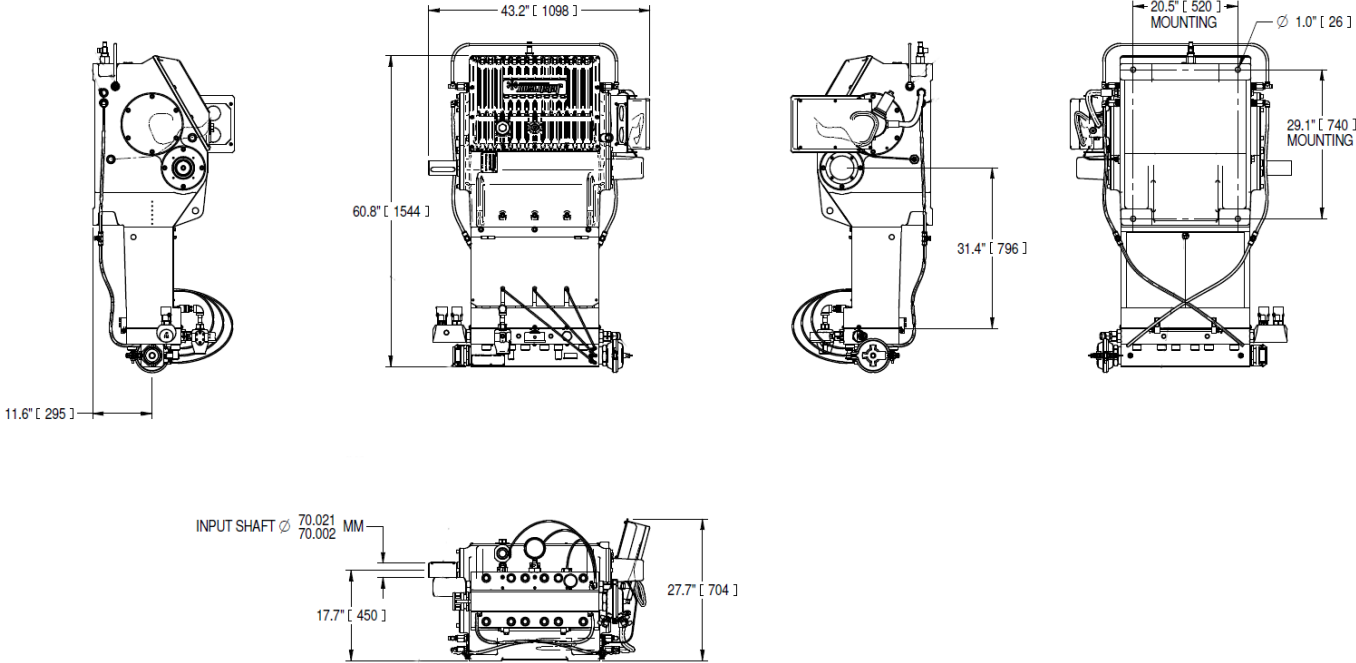
\*Crank shaft speed after gear reduction. \*\*See manual for list of approved oils.

### FLUID END SPECS

| PUMP AY<br>PART NO. | PLUNGER SIZE |          |       | GEAR<br>RATIO | PUMP DISPLACEMENT AT SPECIFIED INPUT SPEEDS** |     |          |     |          |     |          |     |          |     |          | MAX.<br>OPERATING<br>PRESSURE |        |       |  |  |
|---------------------|--------------|----------|-------|---------------|-----------------------------------------------|-----|----------|-----|----------|-----|----------|-----|----------|-----|----------|-------------------------------|--------|-------|--|--|
|                     | NO.          | DIAMETER |       |               | 1200 RPM                                      |     | 1400 RPM |     | 1600 RPM |     | 1800 RPM |     | 2000 RPM |     | 2100 RPM |                               | psi    | bar   |  |  |
|                     |              | in       | mm    |               | gpm                                           | lpm | gpm      | lpm | gpm      | lpm | gpm      | lpm | gpm      | lpm |          |                               |        |       |  |  |
|                     |              |          |       |               |                                               |     |          |     |          |     |          |     |          |     |          |                               |        |       |  |  |
| 66506               | #13          | 1.34     | 34.04 | 3.96 LH       | 30.6                                          | 116 | 35.7     | 135 | 40.8     | 154 | 45.9     | 174 | --       | --  | --       | --                            | 20,000 | 1,379 |  |  |
| 65026               |              |          |       | 3.96 RH       |                                               |     |          |     |          |     |          |     |          |     |          |                               |        |       |  |  |
| 66507               |              |          |       | 4.60 LH       | 26.3                                          | 100 | 30.7     | 116 | 35.1     | 133 | 39.5     | 150 | 43.9     | 166 | 46.1     | 175                           |        |       |  |  |
| 66508               |              |          |       | 4.60 RH       |                                               |     |          |     |          |     |          |     |          |     |          |                               |        |       |  |  |

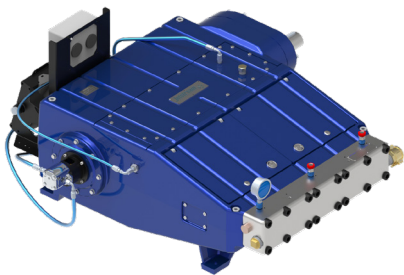
\*\*Flow values represented refer to "theoretical" flow, neglecting inefficiency resulting compressibility of water and expansion of pressure-bearing components.

# MODEL 6020 UNx™ BARESHAFT PUMP DIAGRAMS



PUMPS &  
FLUID ENDS





# MODEL 5220Q

## UNx™ BARESHAFT PUMP

The Jetstream model 5220Q waterblast pump is capable of power input of up to 700 horsepower (522 kW). It is the most advanced and efficient compact waterblast pump in the industry. Combining the strength and durability of a proven power end workhorse with the unparalleled simplicity, serviceability and versatility of the UNx fluid end design, Jetstream bareshaft pumps are the best choice for those building their own system or replacing a complicated, worn, or unreliable pump.

- ▶ Up to 700 horsepower (522 kW)
- ▶ Five plunger (quintuplex) design

### KEY FEATURES

- ▶ Next generation Jetstream pump design
- ▶ Locking rod box designed for ultimate safety, protection, and ease of service
- ▶ Crankshaft supported by four bearings for long life operation
- ▶ Pressurized and filtered oiling system with cooling fan and high temperature and low pressure shutdown system
- ▶ Internal packing lube system protected inside the rod box
- ▶ Fully Integrated precision gear drive with shared oil sump
- ▶ Quintuplex design for reduced pulsation and vibration
- ▶ Maximum Flow: 55.1 gpm (208 lpm) at 20,000 psi (1379 bar)

### POWER END SPECS

| MAX. POWER INPUT |     | PLUNGERS |        |     | CONNECTION TYPE (DISCHARGE) | PUMP RPM RANGE | MAX. FRAME LOAD |    | TOTAL WEIGHT |      | PUMP OIL* |          |     |
|------------------|-----|----------|--------|-----|-----------------------------|----------------|-----------------|----|--------------|------|-----------|----------|-----|
|                  |     | #        | STROKE |     |                             |                |                 |    |              |      | TYPE      | CAPACITY |     |
| hp               | kW  |          |        | in  |                             |                | mm              | lb | kN           | lb   |           | kg       | gal |
| 700              | 522 | 5        | 5.25   | 133 | Jetstream HHP               | 200-547        | 17,716          | 79 | 5000         | 2268 | 80W-90*   | 27       | 102 |

\*See manual for list of approved oils.

### FLUID END SPECS

| PUMP PART NO. | PLUNGER SIZE |          | INPUT RPM | GEAR RATIO | MAX. POWER INPUT |     | FLOW AT SPECIFIED PUMP SPEEDS** |      |         |      | COOLING FAN VOLTAGE | MAX. OPERATING PRESSURE |        |       |
|---------------|--------------|----------|-----------|------------|------------------|-----|---------------------------------|------|---------|------|---------------------|-------------------------|--------|-------|
|               | NO.          | DIAMETER |           |            |                  |     | 538 RPM                         |      | 547 RPM |      |                     |                         |        |       |
|               |              | in       |           |            |                  |     | mm                              |      |         | hp   |                     |                         |        | kW    |
| 69253-3.3-12V | #11          | 1.062    | 26.97     | 1800       | 3.3              | 700 | 522                             | --   | --      | 55.1 | 208                 | 12V                     | 20,000 | 1,379 |
| 69253-3.3-24V |              |          |           |            |                  |     |                                 | --   | --      |      |                     | 24V                     |        |       |
| 69253-3.9-12V | #11          | 1.062    | 26.97     | 2100       | 3.9              |     |                                 | 54.2 | 205     | --   | --                  | 12V                     |        |       |
| 69253-3.9-24V |              |          |           |            |                  |     |                                 | --   | --      | --   | --                  | 24V                     |        |       |

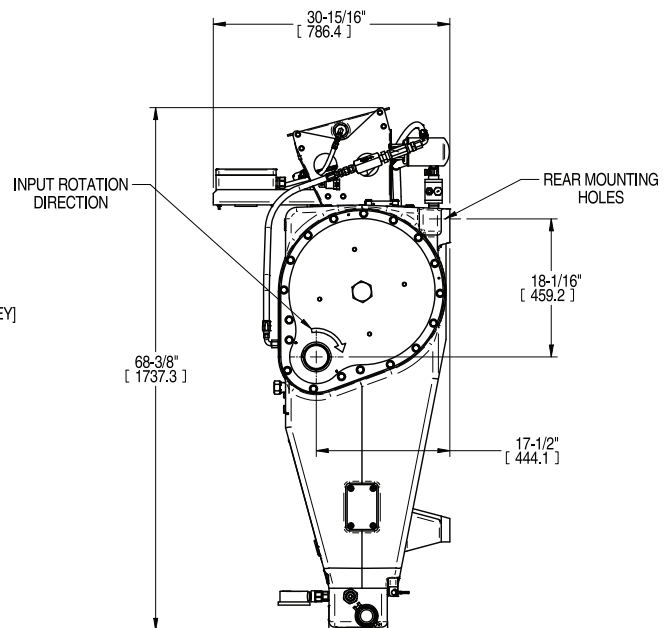
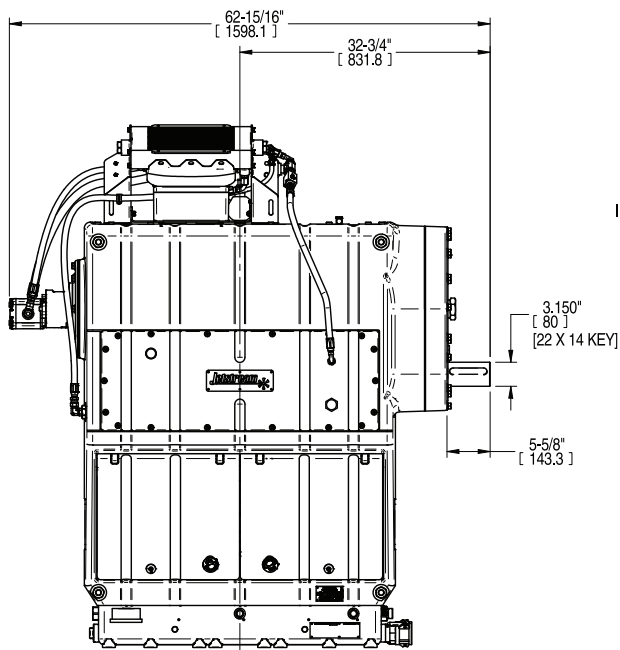
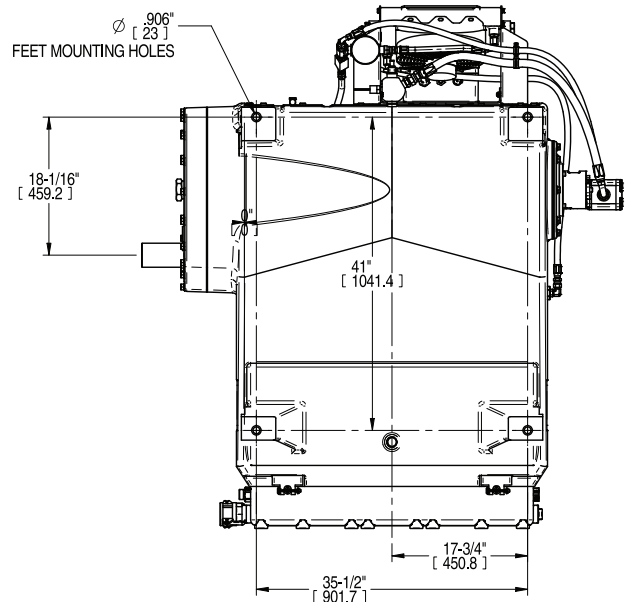
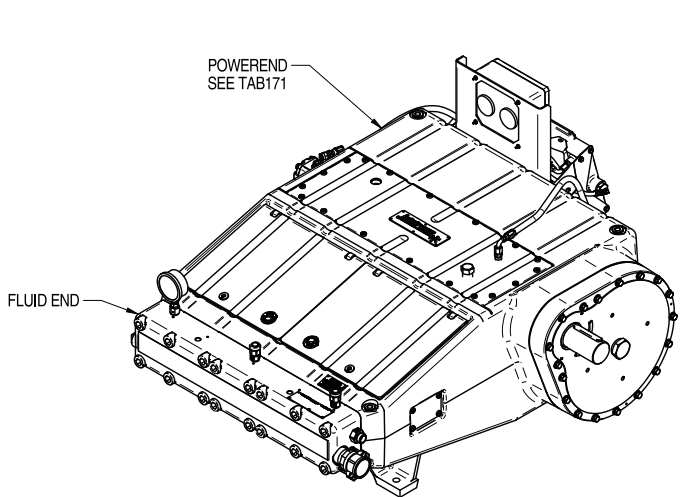
\*\*Flow values represented refer to "theoretical" flow, neglecting inefficiency resulting compressibility of water and expansion of pressure-bearing components. Actual values may vary

# MODEL 5220Q

## UNx™ BARESHAFT PUMP

### DIAGRAMS

PUMPS &  
FLUID ENDS

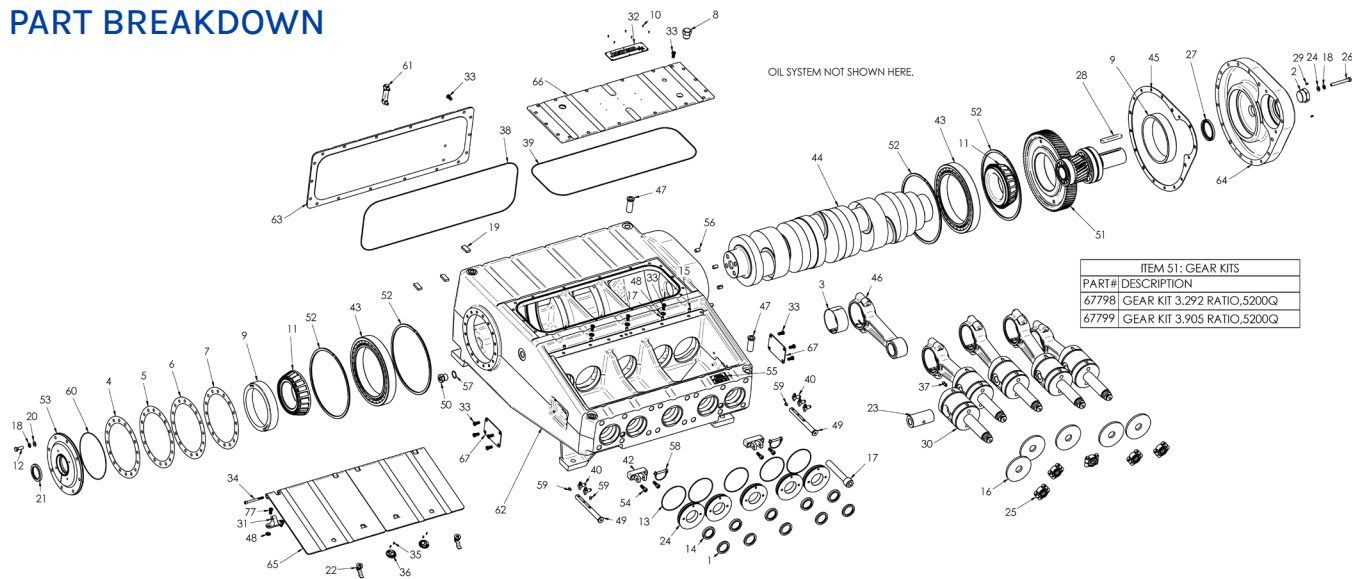




# MODEL 5220Q

## UNx™ BARESHAFT PUMP

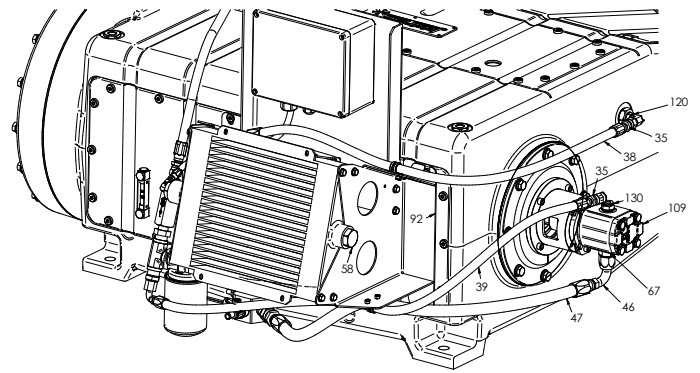
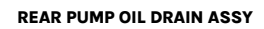
### PART BREAKDOWN

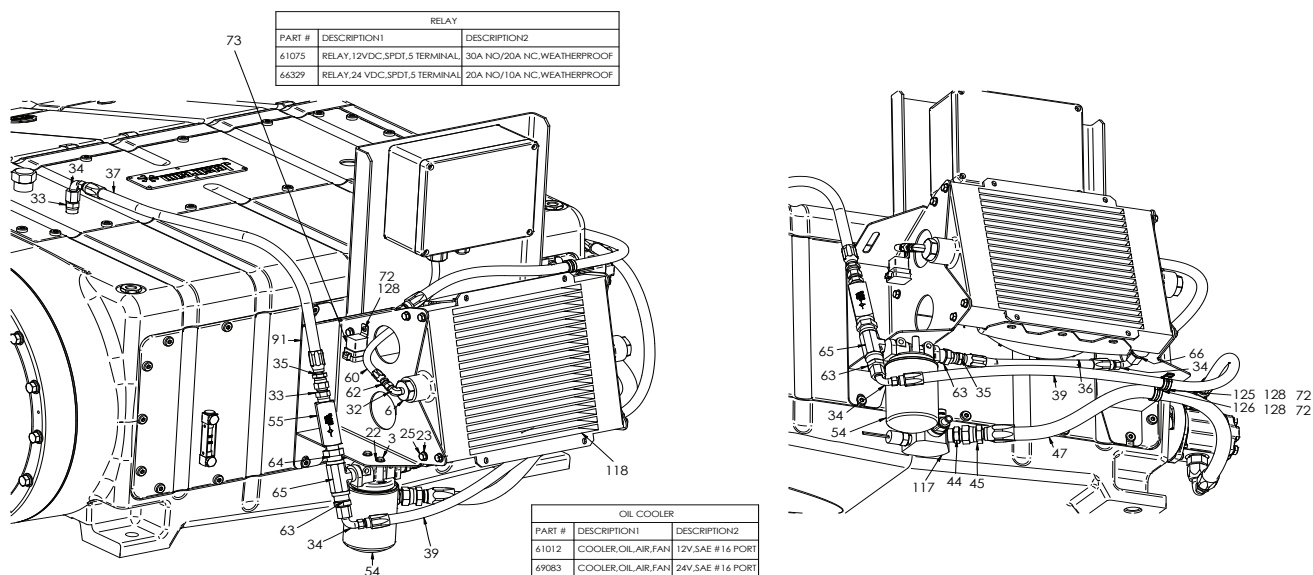


### PART BREAKDOWN

| ITEM | PART NO. | DESCRIPTION           | ITEM | PART NO. | DESCRIPTION           | ITEM | PART NO.  | DESCRIPTION          |
|------|----------|-----------------------|------|----------|-----------------------|------|-----------|----------------------|
| 1    | 04101    | Oil Seal, Outboard    | 23   | 51534    | Crosshead Pin         | 46   | 67757     | Connecting Rod Assy  |
| 2    | 08130    | Plug                  | 24   | 51713    | Oil Seal Plate        | 47   | 67763     | Lifting Adapter      |
| 3    | 26051    | Journal Bearing       | 25   | 51736    | Plunger Coupling      | 48   | 67780     | Washer               |
| 4    | 26259    | Shim, End Cap, Yellow | 26   | 58422    | Capscrew              | 49   | 67781     | Lube Line Adapter    |
| 5    | 26259-1  | Shim, End Cap, Brown  | 27   | 59248    | Oil Seal              | 50   | 67784     | Oil Adapter          |
| 6    | 26259-2  | Shim, End Cap, White  | 28   | 59260    | Key                   | 51   | See Table | Kit, Pinion Gear     |
| 7    | 26259-3  | Shim, End Cap, Blue   | 29   | 60350    | Setscrew              | 52   | 67804     | Retaining Ring       |
| 8    | 26360    | Breather Cap          | 30   | 67076    | Crosshead Assy        | 53   | 68910     | Cap, Frame, Outboard |
| 9    | 26376    | Bearing, Race         | 31   | 67299    | Hinge, Rod Box Cover  | 54   | 69056     | Capscrew             |
| 10   | 26379    | Setscrew              | 32   | 67305    | Logo Plate            | 55   | 69063     | Identification Plate |
| 11   | 26390    | Bearing, Cone         | 33   | 67341    | Capscrew, .5C x 1.0   | 56   | 67805     | Hollow Dowel         |
| 12   | 26435    | Capscrew              | 34   | 67342    | Capscrew, .38C x 4.5  | 57   | 69066     | Washer, M32          |
| 13   | 26479    | O-Ring                | 35   | 67343    | Capscrew, #6-32 x .50 | 58   | 69068     | Clevis Pin, Locking  |
| 14   | 26481    | Oil Seal, Inboard     | 36   | 69832    | Lift Handle           | 59   | 69249     | Plug                 |
| 15   | 26482    | Setscrew              | 37   | 67348    | Setscrew              | 60   | 71017     | O-Ring               |
| 16   | 26487    | Deflector             | 38   | 67349    | Rear Cover O-Ring     | 61   | 71318     | Gauge, Oil Level     |
| 17   | 26500    | Capscrew              | 39   | 67349    | Top Cover O-Ring      | 62   | 67639     | Power Frame          |
| 18   | 26558    | Washer                | 40   | 67412    | Needle Valve          | 63   | 67645     | Rear Cover           |
| 19   | 26705    | Magnet                | 42   | 67687    | Trunnion Block        | 64   | 67642     | Gear Box Cover       |
| 20   | 26798    | Washer                | 43   | 67735    | Cylindrical Roller    | 65   | 67751     | Rod Box Cover        |
| 21   | 29623    | Oil Seal Adapter      | 44   | 67752    | Crankshaft            | 66   | 67644     | Top Cover            |
| 22   | 29829    | Locking Pawl Latch    | 45   | 67753    | Gasket                | 67   | 67298     | Side Access Plate    |

## PUMPS & FLUID ENDS





## PART BREAKDOWN

| ITEM | PART NO. | DESCRIPTION       | ITEM | PART NO.  | DESCRIPTION            | ITEM | PART NO.  | DESCRIPTION             |
|------|----------|-------------------|------|-----------|------------------------|------|-----------|-------------------------|
| 3    | 25264    | Capscrew          | 54   | 60663     | Filter Assy            | 97   | 67785     | Manifold, Banjo         |
| 4    | 25610    | O-Ring            | 55   | 61011     | Check Valve            | 98   | 67786     | Bolt, Banjo             |
| 22   | 26709    | Washer            | 56   | 61129     | Cord Grip              | 99   | 67787     | Oil Supply Tube, Side   |
| 23   | 26789    | Washer            | 57   | 61152     | Gauge w/ Enclosure     | 100  | 67788     | Oil Supply Tube, Center |
| 25   | 27250    | Capscrew          | 58   | 61166     | Plug                   | 101  | 67789     | Oil Supply Tube, Center |
| 26   | 27449    | Nut, Nylok        | 59   | 61167     | Reusable Hose End      | 105  | 68007     | Manifold End, Banjo     |
| 27   | 27698    | Nut, Hex          | 60   | 61168     | Fuel Hose              | 107  | 68911     | Crank Adapter           |
| 28   | 25250    | Capscrew          | 61   | 61169     | Adapter                | 109  | 69057     | Oil Pump                |
| 29   | 27876    | Capscrew          | 62   | 61171     | Reusable Hose End      | 110  | 69059     | Hub Coupling            |
| 32   | 29831    | Elbow             | 63   | 61173     | Adapter                | 111  | 69060     | Spider Coupling         |
| 33   | 29847    | Adapter           | 64   | 61174     | Adapter                | 112  | 69061     | Pump Mount              |
| 34   | 29848    | Reusable Hose End | 65   | 61175     | Tee                    | 114  | 69066     | Washer, M32             |
| 35   | 29851    | Reusable Hose End | 66   | 61178     | Adapter                | 115  | 69067     | Washer, M14             |
| 36   | 29906    | Fuel Hose, 1 ft   | 67   | 61179     | Adapter                | 117  | 69077     | Oil Manifold            |
| 37   | 29906    | Fuel Hose, 2.5 ft | 68   | 62247     | Switch, Pressure       | 118  | See Table | Oil Cooler Fan          |
| 38   | 29906    | Fuel Hose, 4 ft   | 69   | 62248     | Switch, Temperature    | 119  | 69096     | Lock Washer             |
| 39   | 29906    | Fuel Hose, 4 ft   | 70   | 62252     | Cable Gland, Split     | 120  | 69180     | Fitting, 90°            |
| 44   | 58493    | Adapter           | 71   | 62337     | Adapter                | 121  | 69181     | Drain Valve             |
| 45   | 58497    | Reusable Hose End | 72   | 63282     | Nut, Loc               | 122  | 69184     | Switch, Temperature     |
| 46   | 58498    | Reusable Hose End | 73   | See Table | Relay                  | 123  | 69200     | Key                     |
| 47   | 58499    | Fuel Hose         | 91   | 67779-01  | Oil Cooler Bracket, LH | 125  | 69250     | Loop Clamp, 3/4"        |
| 48   | 58547    | Nipple            | 92   | 67779-02  | Oil Cooler Bracket, RH | 128  | 71066     | Capscrew                |
| 49   | 58576    | Locknut           | 93   | 67779-03  | Bracket, Oil Gauges    | 130  | 71502     | Adapter                 |
| 50   | 58577    | Connector Cord    | 96   | 67784     | Oil Adapter            | 131  | J70804    | Washer                  |



# MODEL 5220

## UNx™ BARESHAFT PUMP

The Jetstream model 5220 waterblast pump is capable of power input of up to 400 horsepower (298 kW). It is the most advanced and efficient compact waterblast pump in the industry. Combining the strength and durability of a proven power end workhorse with the unparalleled simplicity, serviceability and versatility of the UNx fluid end design, Jetstream bareshaft pumps are the best choice for those building their own system or replacing a complicated, worn, or unreliable pump.

- Up to 400 horsepower (298 kW)
- Three plunger (triplex) design

### KEY FEATURES

- Ductile iron power frame is the strongest in the industry
- Crankshaft machined from high-tech forged alloy for superior performance at higher power input
- Largest bearings of any comparable pump on the market
- Maximum Flow: 31.1 gpm (118 lpm) at 20,000 psi (1379 bar)

### POWER END SPECS

| MAX. POWER INPUT |     | PLUNGERS |        |     | CONNECTION TYPE (DISCHARGE) | PUMP RPM RANGE | MAX. FRAME LOAD |          | TOTAL WEIGHT |     | PUMP OIL* |   |     |
|------------------|-----|----------|--------|-----|-----------------------------|----------------|-----------------|----------|--------------|-----|-----------|---|-----|
|                  |     | #        | STROKE |     |                             |                | TYPE            | CAPACITY |              |     |           |   |     |
| hp               | kW  |          |        | in  | mm                          |                |                 | lb       | kN           | lb  | kg        |   | gal |
| 400              | 300 | 3        | 5.25   | 133 | 20K Port Female             | 183-518        | 17,750          | 79       | 2100         | 954 | 80W-90*   | 9 | 34  |

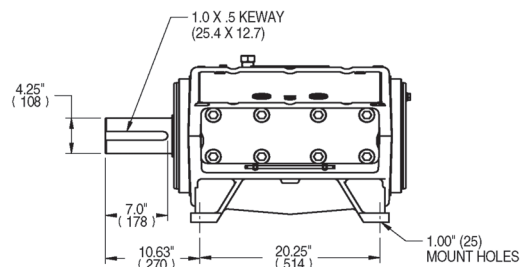
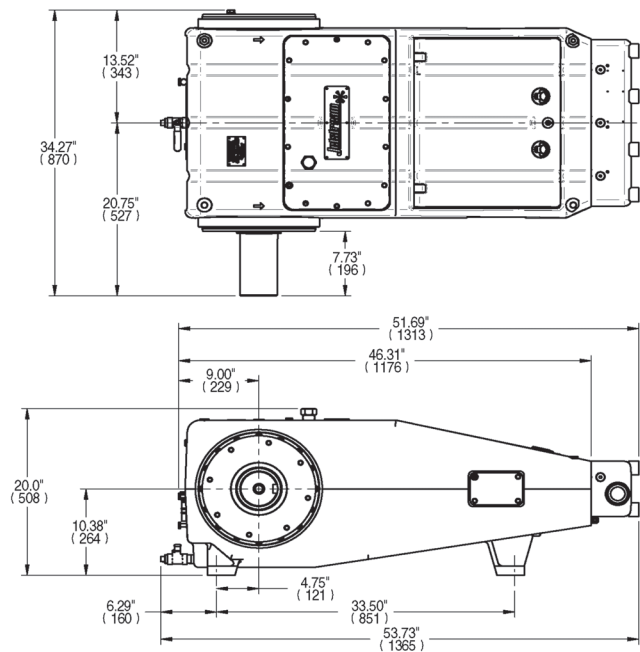
\*See manual for list of approved oils.

### FLUID END SPECS

| PUMP<br>PART<br>NO. | PLUNGER SIZE |          |       | MAX.<br>POWER<br>INPUT |     | FLOW AT SPECIFIED PUMP SPEEDS** |     |         |     |         |     |         |     |         |     |         |     | MAX.<br>OPERATING<br>PRESSURE |       |
|---------------------|--------------|----------|-------|------------------------|-----|---------------------------------|-----|---------|-----|---------|-----|---------|-----|---------|-----|---------|-----|-------------------------------|-------|
|                     | NO.          | DIAMETER |       |                        |     | 183 RPM                         |     | 200 RPM |     | 300 RPM |     | 400 RPM |     | 500 RPM |     | 518 RPM |     |                               |       |
|                     |              | in       | mm    | hp                     | kW  | gpm                             | lpm | gpm     | lpm | gpm     | lpm | gpm     | lpm | gpm     | lpm | gpm     | lpm | psi                           | bar   |
| 67371               | #9           | .900     | 22.86 | 290                    | 216 | 7.5                             | 28  | 8.7     | 33  | 13.0    | 49  | 17.4    | 66  | 21.7    | 82  | 22.4    | 85  | 20,000                        | 1,379 |
| 67372               | #10          | .980     | 24.89 | 344                    | 256 | 8.9                             | 34  | 10.3    | 39  | 15.4    | 58  | 20.6    | 78  | 25.7    | 97  | 26.5    | 100 | 20,000                        | 1,379 |
| 67373               | #11          | 1.062    | 26.97 | 400                    | 300 | 10.5                            | 40  | 12.1    | 46  | 18.1    | 69  | 24.2    | 92  | 30.2    | 114 | 31.1    | 118 | 20,000                        | 1,379 |

\*\*Flow values represented refer to "theoretical" flow, neglecting inefficiency resulting compressibility of water and expansion of pressure-bearing components.

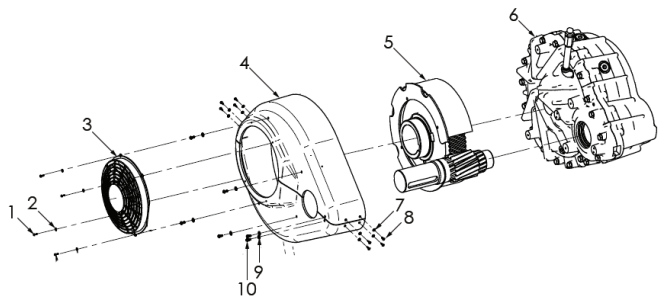
MODEL 5220  
UNx™ BARESHAFT PUMP  
DIAGRAMS



GEAR DRIVE

An optional fan-cooled Gear Drive can be added to the 5220 Bareshaft Pump. Several options are available, as well as the specific clocking position needed. Contact your Jetstream Sales Manager for more information.

| PART NO.        | DRIVE RATIO | MAX. INPUT SPEED |
|-----------------|-------------|------------------|
| 12V             |             |                  |
| 59100-16-69-12V | 4.31:1      | 2230 RPM         |
| 59100-17-68-12V | 4.00:1      | 2070 RPM         |
| 59100-19-67-12V | 3.53:1      | 1825 RPM         |
| 59100-22-64-12V | 2.91:1      | 1500 RPM         |
| 24V             |             |                  |
| 59100-16-69-24V | 4.31:1      | 2230 RPM         |
| 59100-17-68-24V | 4.00:1      | 2070 RPM         |
| 59100-19-67-24V | 3.53:1      | 1825 RPM         |
| 59100-22-64-24V | 2.91:1      | 1500 RPM         |



PART BREAKDOWN

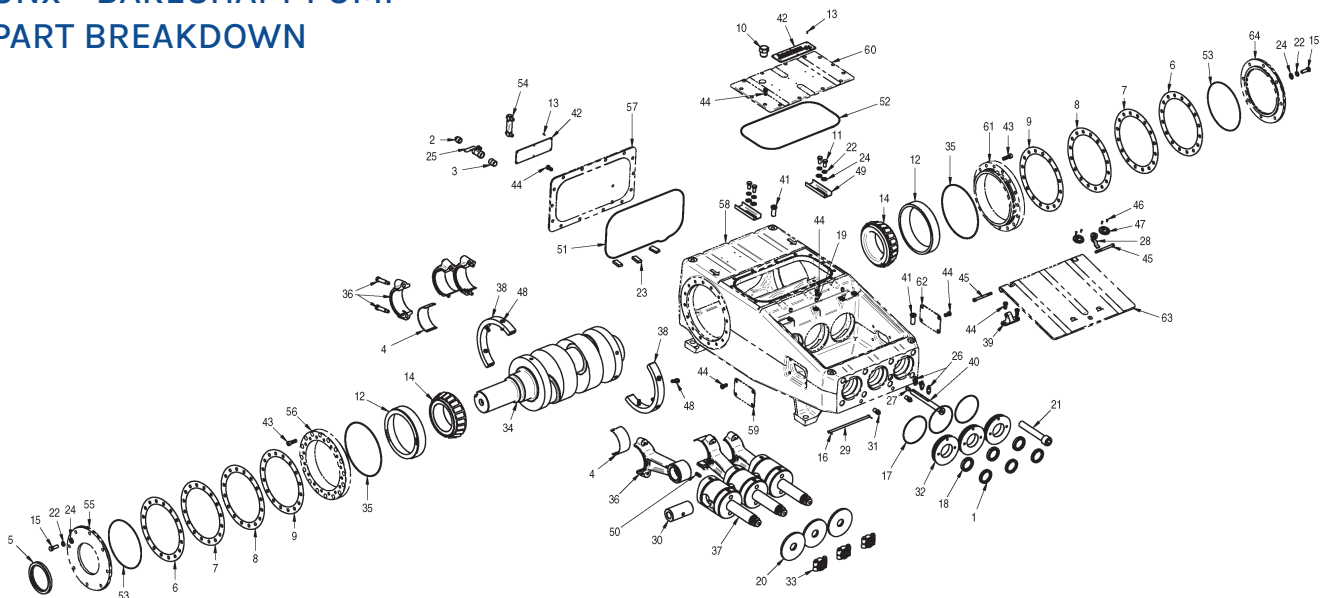
| ITEM | PART NO. | DESCRIPTION                                         | ITEM | PART NO. | DESCRIPTION                 |
|------|----------|-----------------------------------------------------|------|----------|-----------------------------|
| 1    | 65082    | Screw                                               | 6    | 59101    | Gear Drive Kit Common Parts |
| 2    | 57244    | Washer                                              | 7    | 57244    | Washer                      |
| 3    | Various  | Fan                                                 | 8    | 65082    | Screw                       |
| 4    | 64883    | Fan Shroud                                          | 9    | 70206    | Washer                      |
| 5    | Various  | Gear Drive Kit, dependent on gear ratio and voltage | 10   | 63790    | Capscrew                    |



# MODEL 5220

## UNx™ BARESHAFT PUMP

### PART BREAKDOWN



| ITEM | PART NO. | DESCRIPTION           | ITEM | PART NO. | DESCRIPTION          | ITEM | PART NO. | DESCRIPTION            |
|------|----------|-----------------------|------|----------|----------------------|------|----------|------------------------|
| 1    | 04101    | Oil Seal, Outboard    | 23   | 26705    | Magnet               | 45   | 67342    | Capscrew, .38C x 4.5   |
| 2    | 25928    | Plug                  | 24   | 26798    | Washer               | 46   | 67343    | Capscrew, #6-32 x .50  |
| 3    | 25946    | Nipple                | 25   | 27101    | Ball Valve           | 47   | 69832    | Lift Handle            |
| 4    | 26051    | Journal Bearing       | 26   | 67412    | Needle Valve         | 48   | 67346    | Capscrew, .5F x 1 3/8" |
| 5    | 26208    | Crankshaft Seal       | 27   | 25120    | Plug                 | 49   | 67347    | Oil Trough             |
| 6    | 26259    | Shim, End Cap, Yellow | 28   | 29829    | Locking Pawl Latch   | 50   | 67348    | Setscrew               |
| 7    | 26259-1  | Shim, End Cap, Brown  | 29   | 50295    | Trunnion Rod         | 51   | 67349    | O-Ring                 |
| 8    | 26259-2  | Shim, End Cap, White  | 30   | 51534    | Crosshead Pin        | 52   | 67349    | O-Ring                 |
| 9    | 26259-3  | Shim, End Cap, Blue   | 31   | 51659    | Trunnion             | 53   | 71017    | O-Ring                 |
| 10   | 26360    | Breather Cap          | 32   | 51713    | Oil Seal Plate       | 54   | 71318    | Gauge, Oil Level, 3.5" |
| 11   | 26361    | Capscrew              | 33   | 51736    | Plunger Coupling     | 55   | 51538    | Cap, Frame, Inboard    |
| 12   | 26376    | Bearing, Race         | 34   | 66087    | Crankshaft           | 56   | 66089    | Bearing Adapter        |
| 13   | 26379    | Setscrew              | 35   | 66112    | O-Ring               | 57   | 67613    | Rear Cover             |
| 14   | 26390    | Bearing, Cone         | 36   | 66964    | Connecting Rod Assy  | 58   | 66961    | Power Frame            |
| 15   | 26435    | Capscrew              | 37   | 67076    | Crosshead Assy       | 59   | 67298    | Side Access Plate      |
| 16   | 26468    | Cotter Pin            | 38   | 67078    | Weight, Narrow       | 60   | 67588    | Top Cover              |
| 17   | 26479    | O-Ring                | 39   | 67299    | Hinge, Rod Box Cover | 62   | 67298    | Side Access Plate      |
| 18   | 26481    | Oil Seal, Inboard     | 40   | 67781    | Lube Line Adapter    | 63   | 67614    | Rod Box Cover          |
| 19   | 26482    | Setscrew              | 41   | 67301    | Lifting Adapter      | 64   | 51536    | Cap,Frame,Outboard     |
| 20   | 26487    | Deflector             | 42   | 67305    | Logo Plate           |      |          |                        |
| 21   | 26500    | Capscrew              | 43   | 67340    | Capscrew, .5C x 1.5  |      |          |                        |
| 22   | 26558    | Washer                | 44   | 67341    | Capscrew, .5C x 1.0  |      |          |                        |

# MODEL 4220

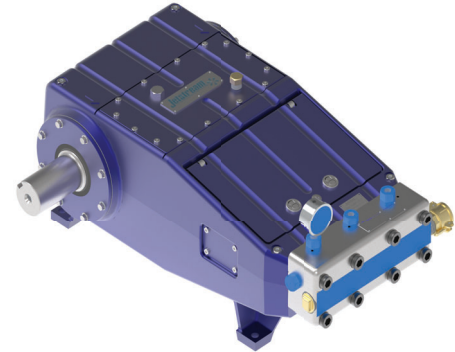
## UNx™ BARESHAFT PUMP

The Jetstream model 4220 waterblast pump is capable of power input of up to 325 horsepower (242 kW). It is the most advanced and efficient waterblast pump of its size in the industry. Combining the strength and durability of a proven power end workhorse with the unparalleled simplicity, serviceability and versatility of the UNx fluid end design, Jetstream bareshaft pumps are the best choice for those building their own system or replacing a complicated, worn or unreliable pump.

- 190 to 325 horsepower (142 to 252 kW)
- Three plunger (triplex) design

### KEY FEATURES

- Ductile iron power frame is the strongest in the industry
- Crankshaft machined from high-tech forged alloy for superior performance at higher power input
- Largest bearings of any comparable pump on the market
- Maximum Flow: 25.3 gpm (96 lpm) at 20,000 psi\*\* (1379 bar)



### POWER END SPECS

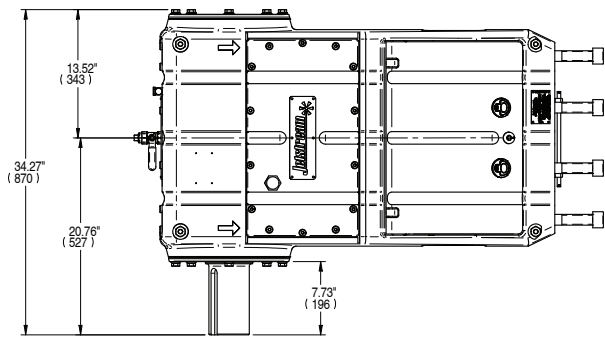
| PLUNGERS |        |     | CONNECTION TYPES* |                       | PUMP SPEED RANGE | MAX. POWER INPUT |     | MAX. FRAME LOAD |        | TOTAL WEIGHT |     | PUMP OIL |          |    |
|----------|--------|-----|-------------------|-----------------------|------------------|------------------|-----|-----------------|--------|--------------|-----|----------|----------|----|
| #        | STROKE |     | DISCHARGE PORTS   | TOP PORTS (ACCESSORY) | RPM              | hp               | kW  | lb              | N      | lb           | kg  | TYPE     | CAPACITY |    |
|          | in     | mm  |                   |                       |                  |                  |     |                 |        |              |     |          | gal      | l  |
| 3        | 4.25   | 108 | 20K Port Fml      | 20K Port Fml          | 173 – 518        | 325              | 242 | 17,750          | 78,950 | 1,800        | 820 | 80W-90   | 9        | 34 |

\*See details on all connection types in Section I.

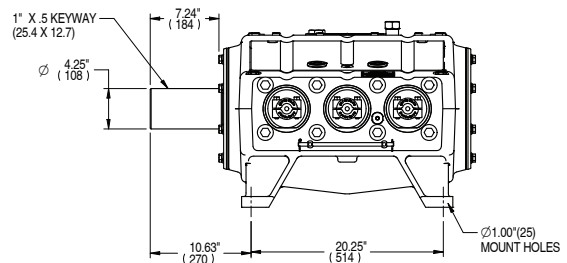
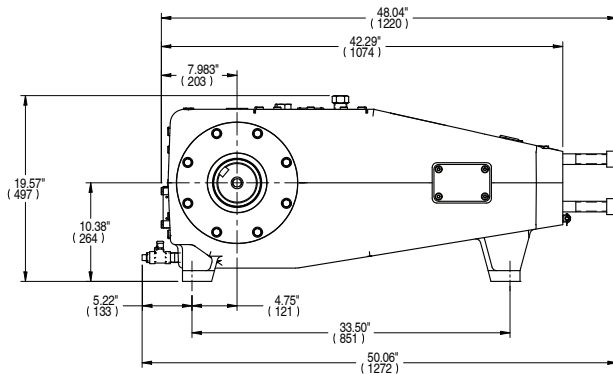
### FLUID END SPECS

| PUMP<br>PART<br>NO. | PLUNGER SIZE |          |       | POWER INPUT |     | FLOW AT SPECIFIED INPUT SPEEDS** |     |         |     |         |     |         |     |         |     | MAX. OPERATING<br>PRESSURE |       |
|---------------------|--------------|----------|-------|-------------|-----|----------------------------------|-----|---------|-----|---------|-----|---------|-----|---------|-----|----------------------------|-------|
|                     | NO.          | DIAMETER |       |             |     | 173 RPM                          |     | 200 RPM |     | 300 RPM |     | 400 RPM |     | 518 RPM |     |                            |       |
|                     |              | in       | mm    | hp          | kW  | gpm                              | lpm | gpm     | lpm | gpm     | lpm | gpm     | lpm | gpm     | lpm | psi                        | bar   |
| 69262               | #8           | .800     | 20.32 | 190         | 142 | 4.9                              | 19  | 5.6     | 21  | 8.3     | 32  | 11.1    | 42  | 14.4    | 54  | 20,000                     | 1,379 |
| 69263               | #9           | .900     | 22.86 | 250         | 186 | 6.1                              | 23  | 7.0     | 27  | 10.5    | 40  | 14.1    | 53  | 18.2    | 69  | 20,000                     | 1,379 |
| 69264               | #10          | .980     | 24.89 | 275         | 205 | 7.3                              | 28  | 8.3     | 32  | 12.5    | 47  | 16.7    | 63  | 21.6    | 82  | 20,000                     | 1,379 |
| 69265               | #11          | 1.062    | 26.97 | 325         | 242 | 8.5                              | 32  | 9.8     | 37  | 14.7    | 56  | 19.6    | 74  | 25.3    | 96  | 20,000                     | 1,379 |

\*\*Flow values represented refer to "theoretical" flow, neglecting inefficiency resulting from compressibility of water and expansion of pressure-bearing components.



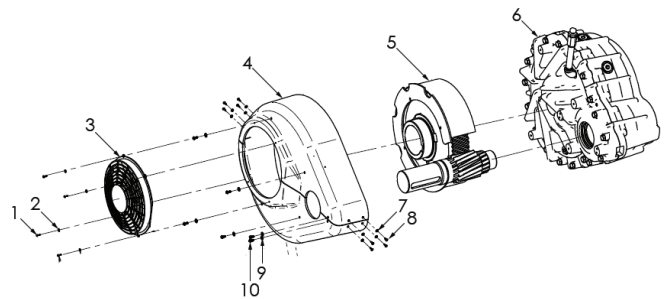
## MODEL 4220 UNx™ BARESHAFT PUMP DIAGRAMS



### GEAR DRIVE

An optional fan-cooled Gear Drive can be added to the 4220 Bareshaft Pump. Several options are available, as well as the specific clocking position needed. Contact your Jetstream Sales Manager for more information.

| PART NO.        | DRIVE RATIO | MAX. INPUT SPEED |
|-----------------|-------------|------------------|
| <b>12V</b>      |             |                  |
| 59100-16-69-12V | 4.31:1      | 2230 RPM         |
| 59100-17-68-12V | 4.00:1      | 2070 RPM         |
| 59100-19-67-12V | 3.53:1      | 1825 RPM         |
| 59100-22-64-12V | 2.91:1      | 1500 RPM         |
| <b>24V</b>      |             |                  |
| 59100-16-69-24V | 4.31:1      | 2230 RPM         |
| 59100-17-68-24V | 4.00:1      | 2070 RPM         |
| 59100-19-67-24V | 3.53:1      | 1825 RPM         |
| 59100-22-64-24V | 2.91:1      | 1500 RPM         |



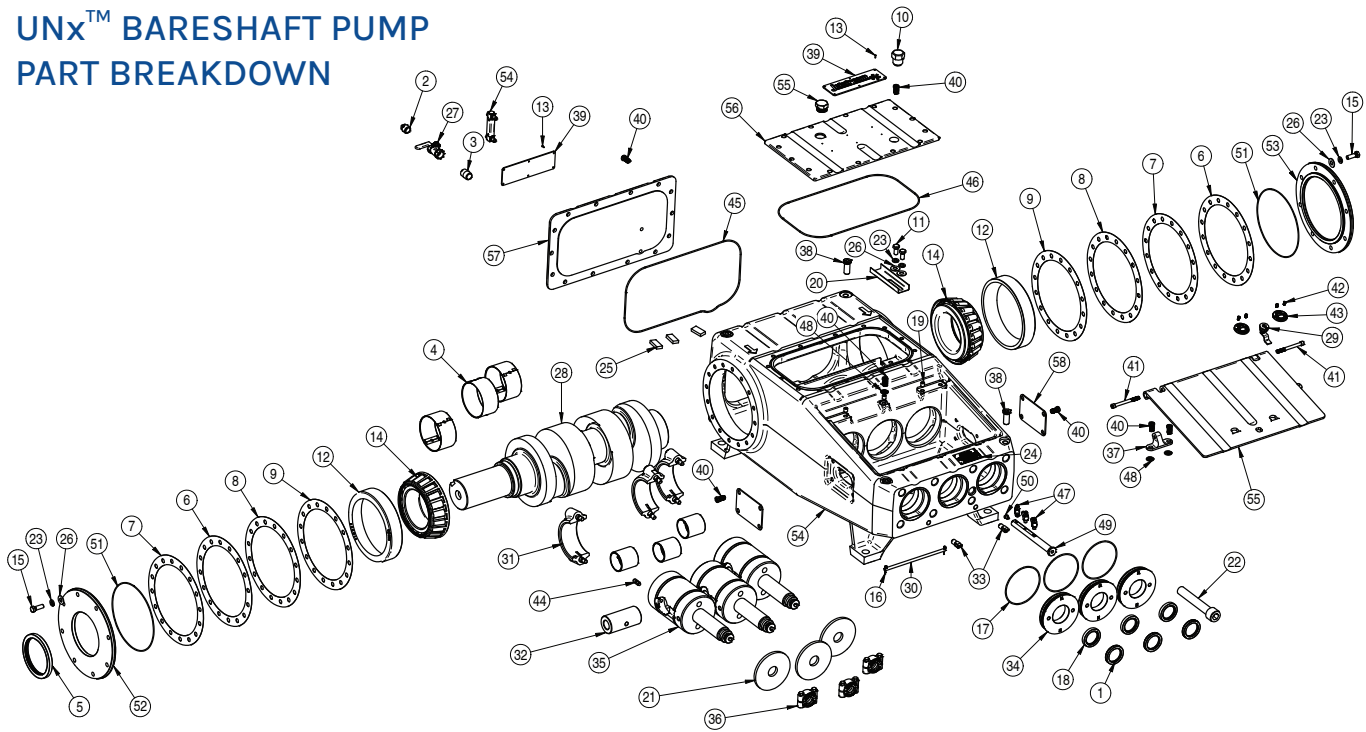
### PART BREAKDOWN

| ITEM | PART NO. | DESCRIPTION                                         | ITEM | PART NO. | DESCRIPTION                 |
|------|----------|-----------------------------------------------------|------|----------|-----------------------------|
| 1    | 65082    | Screw                                               | 6    | 59101    | Gear Drive Kit Common Parts |
| 2    | 57244    | Washer                                              | 7    | 57244    | Washer                      |
| 3    | Various  | Fan                                                 | 8    | 65082    | Screw                       |
| 4    | 64883    | Fan Shroud                                          | 9    | 70206    | Washer                      |
| 5    | Various  | Gear Drive Kit, dependent on gear ratio and voltage | 10   | 63790    | Capscrew                    |

# MODEL 4220

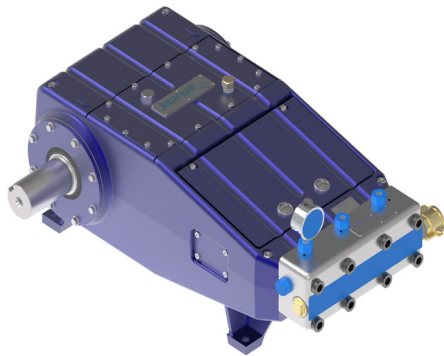
## UNx™ BARESHAFT PUMP

### PART BREAKDOWN



PUMPS &  
FLUID ENDS

| ITEM | PART NO. | DESCRIPTION           | ITEM | PART NO. | DESCRIPTION          | ITEM | PART NO. | DESCRIPTION         |
|------|----------|-----------------------|------|----------|----------------------|------|----------|---------------------|
| 1    | 04101    | Oil Seal, Outboard    | 21   | 26487    | Deflector            | 41   | 67342    | Capscrew            |
| 2    | 25928    | 3/4" NPT Plug         | 22   | 26500    | Capscrew             | 42   | 67343    | Capscrew            |
| 3    | 25946    | 3/4" NIP Nipple       | 23   | 26558    | Washer               | 43   | 69832    | Rod Box Handle      |
| 4    | 26051    | Journal Bearing       | 24   | 26590    | Identification Plate | 44   | 67348    | Setscrew            |
| 5    | 26208    | Crankcase Oil Seal    | 25   | 26705    | Magnet               | 45   | 67349    | Rear Cover Seal     |
| 6    | 26259    | Shim, End Cap, Yellow | 26   | 26798    | Washer               | 46   | 67349    | Top Cover Seal      |
| 7    | 26259-1  | Shim, End Cap, Brown  | 27   | 27101    | Ball Valve           | 47   | 67412    | Needle Valve        |
| 8    | 26259-2  | Shim, End Cap, White  | 28   | 28826    | Crankshaft           | 48   | 67780    | Washer              |
| 9    | 26259-3  | Shim, End Cap, Blue   | 29   | 29829    | Lid Latch            | 49   | 67781    | Lube Line Adapter   |
| 10   | 26360    | Breather Vent         | 30   | 50295    | Trunnion Rod         | 50   | 69249    | Brass NPT Plug      |
| 11   | 26361    | Capscrew              | 31   | 51487    | Connecting Rod Assy  | 51   | 71017    | O-Ring              |
| 12   | 26376    | Race Bearing          | 32   | 51534    | Crosshead Pin        | 52   | 71318    | Oil Level Indicator |
| 13   | 26379    | Drive Screw           | 33   | 51659    | Trunnion             | 53   | 69366    | Top Cover Oil Plug  |
| 14   | 26390    | Cone Bearing          | 34   | 51713    | Oil Seal Plate       | 54   | 51538    | Inboard Cap         |
| 15   | 26435    | Capscrew              | 35   | 51731    | Crosshead Assembly   | 55   | 51536    | Outboard Cap        |
| 16   | 26468    | Cotter Pin            | 36   | 51736    | Plunger Coupling     | 56   | 67835    | Powerframe          |
| 17   | 26479    | O-Ring                | 37   | 67299    | Rod Box Hinge        | 57   | 67842    | Rod Box Cover       |
| 18   | 26481    | Oil Seal, Inboard     | 38   | 67301    | Lifting Adapter      | 58   | 67588    | Top Cover Plate     |
| 19   | 26482    | Setscrew              | 39   | 67305    | Logo Plate           | 59   | 67613    | Rear Cover Plate    |
| 20   | 26484    | Oil Trough            | 40   | 67341    | Capscrew             | 60   | 67298    | Side Access Plate   |



# MODEL 3620

## UNx™ BARESHAFT PUMP

The Jetstream model 3620 waterblast pump is capable of power input of up to 270 horsepower (201 kW). It is the most advanced and efficient medium horsepower waterblast pump in the industry. Combining the strength and durability of a proven power end workhorse with the unparalleled simplicity, serviceability and versatility of the UNx fluid end design, Jetstream bareshaft pumps are the best choice for those building their own system or replacing a complicated, worn or unreliable pump.

- ▶ Three plunger (triplex) design
- ▶ Up to 270 horsepower

### KEY FEATURES

- ▶ Ductile iron power frame is the strongest in the industry
- ▶ Crankshaft machined from high-tech forged alloy for superior performance at higher power input
- ▶ Largest bearings of any comparable pump on the market
- ▶ Maximum Flow: 21.5 gpm (81 lpm) at 20,000 psi\*\* (1379 bar)

### POWER END SPECS

| PLUNGERS |        |    | CONNECTION TYPES* |                       | PUMP SPEED RANGE | MAX. POWER INPUT |     | MAX. FRAME LOAD |    | TOTAL WEIGHT |     | PUMP OIL |          |    |
|----------|--------|----|-------------------|-----------------------|------------------|------------------|-----|-----------------|----|--------------|-----|----------|----------|----|
| NO.      | STROKE |    | DISCHARGE PORTS   | TOP PORTS (ACCESSORY) | RPM              | hp               | kW  | lb              | kN | lb           | kg  | TYPE     | CAPACITY |    |
|          | in     | mm |                   |                       |                  |                  |     |                 |    |              |     |          | gal      | l  |
| 3        | 3.60   | 92 | 20K Port Fml      | 20K Port Fml          | 183 - 518        | 270              | 201 | 17,750          | 79 | 1,720        | 780 | 80W-90   | 9        | 34 |

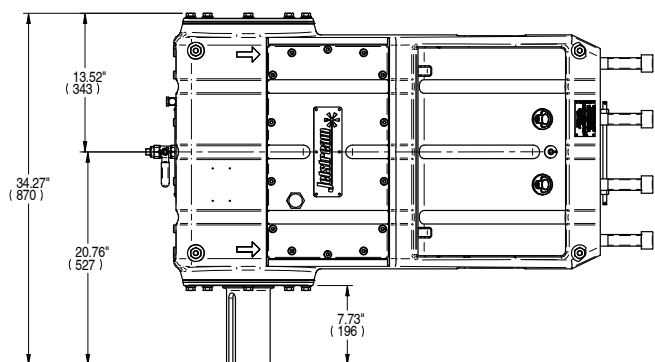
\*See details on all connection types in Section I.

### FLUID END SPECS

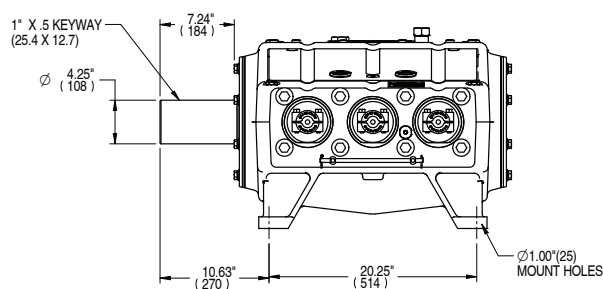
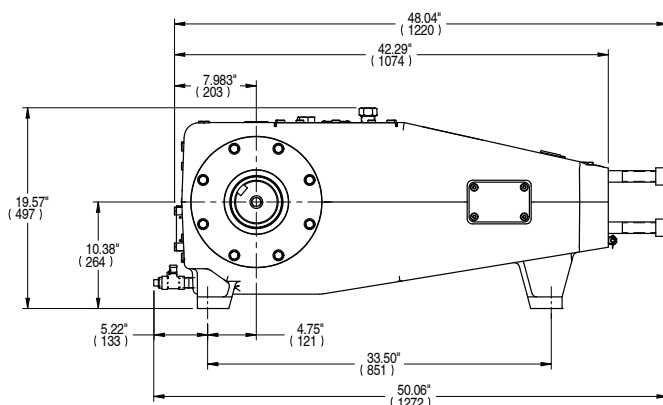
| PUMP<br>PART NO. | PLUNGER SIZE |          |       | POWER<br>INPUT |     | FLOW AT SPECIFIED INPUT SPEEDS** |     |         |     |         |     |         |     |         |     |         |     | MAX.<br>OPERATING<br>PRESSURE |       |
|------------------|--------------|----------|-------|----------------|-----|----------------------------------|-----|---------|-----|---------|-----|---------|-----|---------|-----|---------|-----|-------------------------------|-------|
|                  | NO.          | DIAMETER |       |                |     | 183 RPM                          |     | 200 RPM |     | 300 RPM |     | 400 RPM |     | 500 RPM |     | 518 RPM |     |                               |       |
|                  |              | in       | mm    | hp             | kW  | gpm                              | lpm | gpm     | lpm | gpm     | lpm | gpm     | lpm | gpm     | lpm | gpm     | lpm | psi                           | bar   |
| 69822            | #8           | .800     | 20.32 | 170            | 127 | 4.3                              | 16  | 4.7     | 18  | 7.1     | 27  | 9.4     | 36  | 11.8    | 44  | 12.2    | 46  | 20,000                        | 1,379 |
| 69823            | #9           | .900     | 22.86 | 200            | 149 | 5.4                              | 21  | 6.0     | 23  | 8.9     | 34  | 11.9    | 45  | 14.9    | 56  | 15.4    | 58  | 20,000                        | 1,379 |
|                  |              |          |       | 190            | 142 |                                  |     |         |     |         |     |         |     |         |     |         |     | 18,000                        | 1,241 |
|                  |              |          |       | 170            | 127 |                                  |     |         |     |         |     |         |     |         |     |         |     | 16,000                        | 1,103 |
| 69824            | #10          | .980     | 24.89 | 235            | 175 | 6.5                              | 24  | 7.1     | 27  | 10.6    | 40  | 14.1    | 53  | 17.6    | 67  | 18.3    | 69  | 20,000                        | 1,379 |
|                  |              |          |       | 190            | 142 |                                  |     |         |     |         |     |         |     |         |     |         |     | 15,000                        | 1,034 |
| 69825            | #11          | 1.06     | 26.97 | 270            | 201 | 7.6                              | 29  | 8.3     | 31  | 12.4    | 47  | 16.6    | 63  | 20.7    | 78  | 21.5    | 81  | 20,000                        | 1,379 |

\*\*Flow values represented refer to "theoretical" flow, neglecting inefficiency resulting from compressibility of water and expansion of pressure-bearing components.





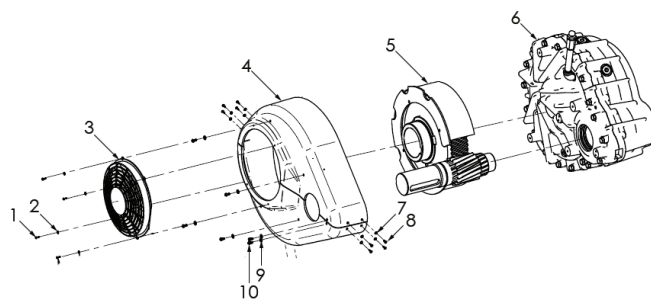
## MODEL 3620 UNx™ BARESHAFT PUMP DIAGRAMS



## GEAR DRIVE

An optional fan-cooled Gear Drive can be added to the 3620 Bareshaft Pump. Several options are available, as well as the specific clocking position needed. Contact your Jetstream Sales Manager for more information.

| PART NO.        | DRIVE RATIO | MAX. INPUT SPEED |
|-----------------|-------------|------------------|
| <b>12V</b>      |             |                  |
| 59100-16-69-12V | 4.31:1      | 2230 RPM         |
| 59100-17-68-12V | 4.00:1      | 2070 RPM         |
| 59100-19-67-12V | 3.53:1      | 1825 RPM         |
| 59100-22-64-12V | 2.91:1      | 1500 RPM         |
| <b>24V</b>      |             |                  |
| 59100-16-69-24V | 4.31:1      | 2230 RPM         |
| 59100-17-68-24V | 4.00:1      | 2070 RPM         |
| 59100-19-67-24V | 3.53:1      | 1825 RPM         |
| 59100-22-64-24V | 2.91:1      | 1500 RPM         |



## PART BREAKDOWN

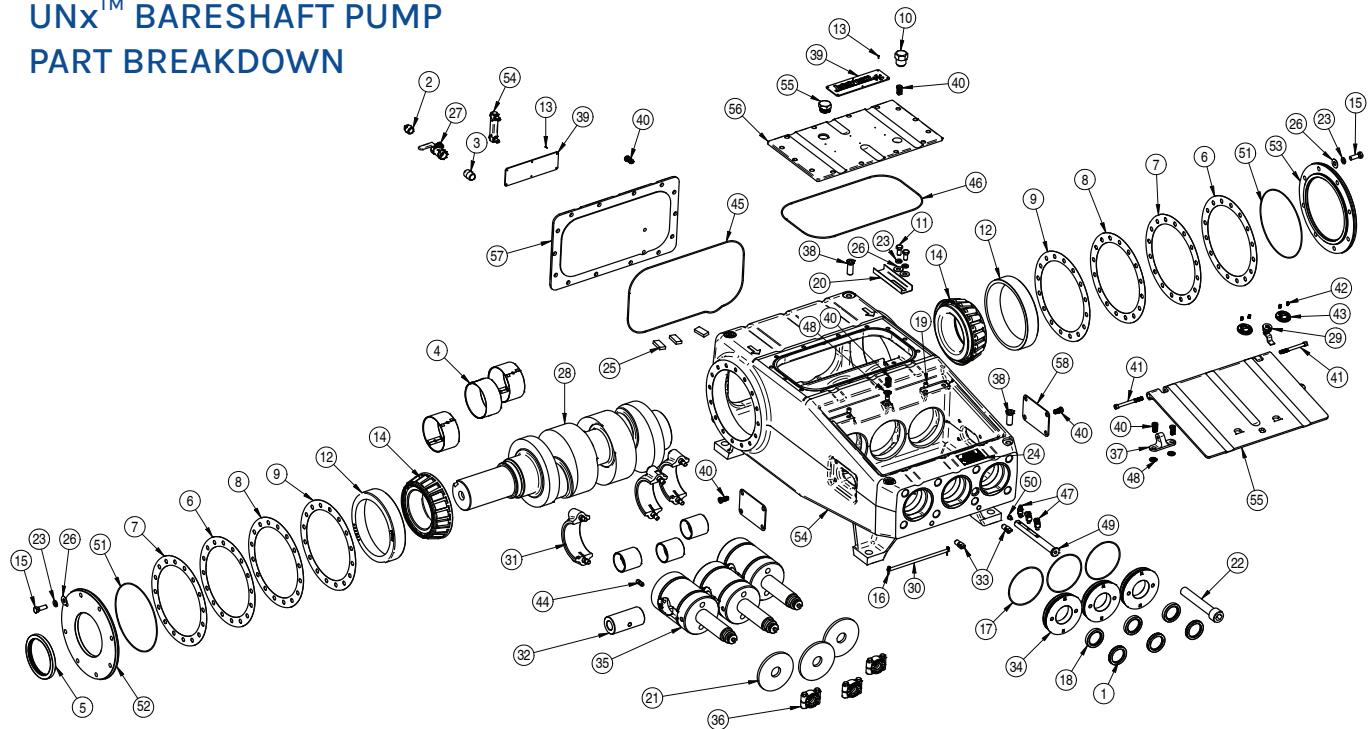
| ITEM | PART NO. | DESCRIPTION                                         | ITEM | PART NO. | DESCRIPTION                 |
|------|----------|-----------------------------------------------------|------|----------|-----------------------------|
| 1    | 65082    | Screw                                               | 6    | 59101    | Gear Drive Kit Common Parts |
| 2    | 57244    | Washer                                              | 7    | 57244    | Washer                      |
| 3    | Various  | Fan                                                 | 8    | 65082    | Screw                       |
| 4    | 64883    | Fan Shroud                                          | 9    | 70206    | Washer                      |
| 5    | Various  | Gear Drive Kit, dependent on gear ratio and voltage | 10   | 63790    | Capscrew                    |

# MODEL 3620

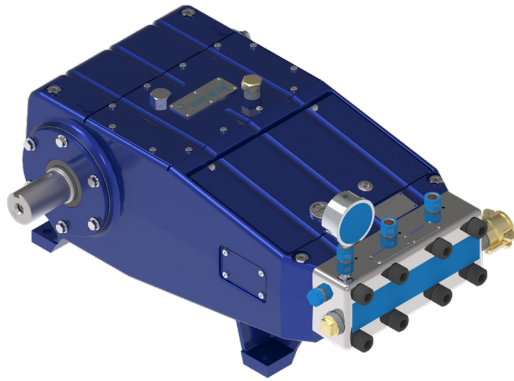
## UNx™ BARESHAFT PUMP

### PART BREAKDOWN

PUMPS &  
FLUID ENDS



| ITEM | PART NO. | DESCRIPTION           | ITEM | PART NO. | DESCRIPTION          | ITEM | PART NO. | DESCRIPTION         |
|------|----------|-----------------------|------|----------|----------------------|------|----------|---------------------|
| 1    | 04101    | Oil Seal, Outboard    | 21   | 26487    | Deflector            | 41   | 67342    | Capscrew            |
| 2    | 25928    | 3/4" NPT Plug         | 22   | 26500    | Capscrew             | 42   | 67343    | Capscrew            |
| 3    | 25946    | 3/4" NIP Nipple       | 23   | 26558    | Washer               | 43   | 69832    | Rod Box Handle      |
| 4    | 26051    | Journal Bearing       | 24   | 26590    | Identification Plate | 44   | 67348    | Setscrew            |
| 5    | 26208    | Crankcase Oil Seal    | 25   | 26705    | Magnet               | 45   | 67349    | Rear Cover Seal     |
| 6    | 26259    | Shim, End Cap, Yellow | 26   | 26798    | Washer               | 46   | 67349    | Top Cover Seal      |
| 7    | 26259-1  | Shim, End Cap, Brown  | 27   | 27101    | Ball Valve           | 47   | 67412    | Needle Valve        |
| 8    | 26259-2  | Shim, End Cap, White  | 28   | 28826    | Crankshaft           | 48   | 67780    | Washer              |
| 9    | 26259-3  | Shim, End Cap, Blue   | 29   | 29829    | Lid Latch            | 49   | 67781    | Lube Line Adapter   |
| 10   | 26360    | Breather Vent         | 30   | 50295    | Trunnion Rod         | 50   | 69249    | Brass NPT Plug      |
| 11   | 26361    | Capscrew              | 31   | 51487    | Connecting Rod Assy  | 51   | 71017    | O-Ring              |
| 12   | 26376    | Race Bearing          | 32   | 51534    | Crosshead Pin        | 52   | 71318    | Oil Level Indicator |
| 13   | 26379    | Drive Screw           | 33   | 51659    | Trunnion             | 53   | 69366    | Top Cover Oil Plug  |
| 14   | 26390    | Cone Bearing          | 34   | 51713    | Oil Seal Plate       | 54   | 51538    | Inboard Cap         |
| 15   | 26435    | Capscrew              | 35   | 51731    | Crosshead Assembly   | 55   | 51536    | Outboard Cap        |
| 16   | 26468    | Cotter Pin            | 36   | 51736    | Plunger Coupling     | 56   | 67835    | Powerframe          |
| 17   | 26479    | O-Ring                | 37   | 67299    | Rod Box Hinge        | 57   | 67842    | Rod Box Cover       |
| 18   | 26481    | Oil Seal, Inboard     | 38   | 67301    | Lifting Adapter      | 58   | 67588    | Top Cover Plate     |
| 19   | 26482    | Setscrew              | 39   | 67305    | Logo Plate           | 59   | 67613    | Rear Cover Plate    |
| 20   | 26484    | Oil Trough            | 40   | 67341    | Capscrew             | 60   | 67298    | Side Access Plate   |



# MODEL 3020

## UNx™ BARESHAFT PUMP

The Jetstream model 3020 waterblast pump is capable of power input up to 200 horsepower and displacement of 15.5 gallons per minute at 20,000 psi. It is the most advanced and efficient compact waterblast pump in the industry. Combining the strength and durability of a proven power end workhorse with the unparalleled simplicity, serviceability, and versatility of the UNx™ fluid end design, Jetstream bareshaft pumps are the best choice for those building their own system or replacing a complicated, worn, or unreliable pump.

- ▶ Up to 200 horsepower (149 kW)
- ▶ Three plunger (triplex) design

### KEY FEATURES

- ▶ Ductile iron power frame is the strongest in the industry
- ▶ Largest bearings of any comparable pump on the market
- ▶ Max Flow: 15.5 gallons per minute at 20,000 psi\*

### POWER END SPECS

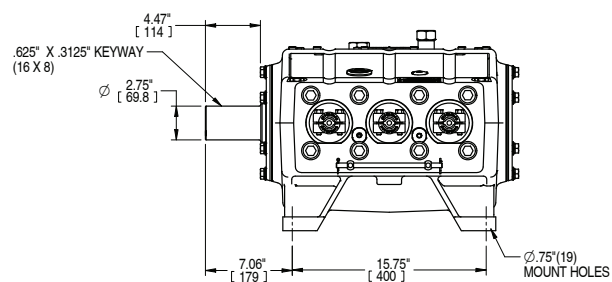
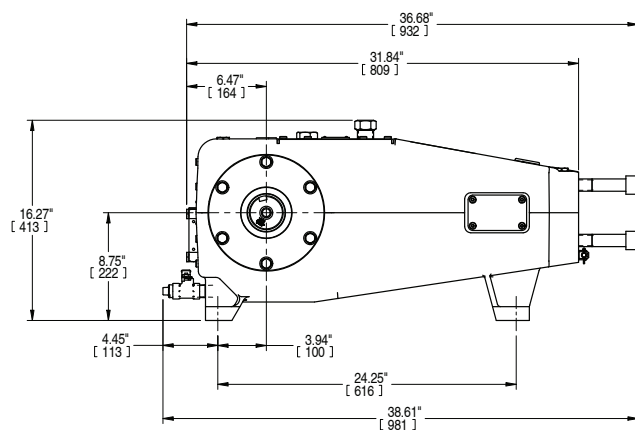
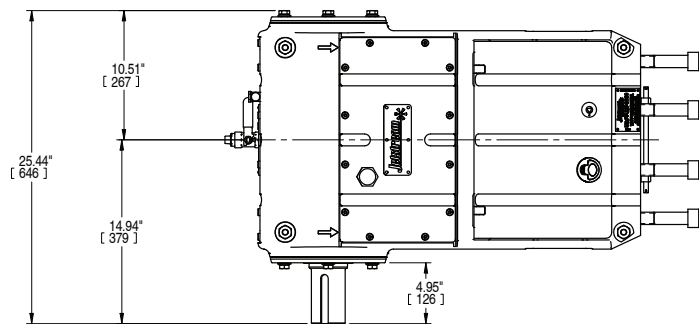
| PLUNGERS |        |      | CONNECTION TYPES* |                    | PUMP<br>SPEED<br>RANGE | MAX.<br>POWER<br>INPUT |     | MAX. FRAME<br>LOAD |        | TOTAL<br>WEIGHT |     | PUMP OIL |          |      |
|----------|--------|------|-------------------|--------------------|------------------------|------------------------|-----|--------------------|--------|-----------------|-----|----------|----------|------|
| #        | STROKE |      |                   |                    |                        |                        |     |                    |        |                 |     | TYPE     | CAPACITY |      |
|          | in     | mm   | TOP<br>PORTS      | DISCHARGE<br>PORTS | RPM                    | hp                     | kW  | lb                 | N      | lb              | kg  |          | gal      | l    |
| 3        | 3.00   | 76.2 | 20K Port Female   | 20K Port Female    | 200 - 600              | 200                    | 149 | 13,000             | 57,827 | 970             | 440 | 80W-90   | 5.0      | 19.0 |

### FLUID END SPECS

| PUMP<br>PART<br>NO. | PLUNGER SIZE |          |       | MAX POWER<br>INPUT |     | PUMP DISPLACEMENT AT SPECIFIED INPUT SPEEDS** |     |         |     |         |     |         |     |         |     | MAX.<br>OPERATING<br>PRESSURE |       |
|---------------------|--------------|----------|-------|--------------------|-----|-----------------------------------------------|-----|---------|-----|---------|-----|---------|-----|---------|-----|-------------------------------|-------|
|                     | NO.          | DIAMETER |       |                    |     | 200 RPM                                       |     | 300 RPM |     | 400 RPM |     | 500 RPM |     | 600 RPM |     |                               |       |
|                     |              | in       | mm    | hp                 | kW  | gpm                                           | lpm | gpm     | lpm | gpm     | lpm | gpm     | lpm | gpm     | lpm | psi                           | bar   |
| 69357               | #6           | .635     | 16.13 | 100                | 75  | 2.5                                           | 9   | 3.7     | 14  | 4.9     | 19  | 6.2     | 24  | 7.4     | 28  | 20,000                        | 1,379 |
| 69358               | #7           | .700     | 17.78 | 120                | 89  | 3.0                                           | 11  | 4.5     | 17  | 6.0     | 23  | 7.5     | 28  | 9.0     | 34  | 20,000                        | 1,379 |
| 69359               | #8           | .780     | 19.86 | 150                | 112 | 3.7                                           | 14  | 5.6     | 21  | 7.5     | 28  | 9.3     | 35  | 11.2    | 42  | 20,000                        | 1,379 |
| 69360               | #9           | .920     | 23.37 | 200                | 149 | 5.2                                           | 20  | 7.8     | 30  | 10.4    | 39  | 12.9    | 49  | 15.5    | 59  | 20,000                        | 1,379 |

\*See details on all connection types in Section I.

\*\*Displacement (flow) values represented refer to "theoretical" flow, neglecting inefficiency resulting from compressibility of water and expansion of pressure-bearing components.



## GEAR DRIVE

An optional Gear Drive can be added to the 3020 Bareshaft Pump. Several options are available, as well as the specific clocking position needed. Contact your Jetstream Sales Manager for more information.

| PART NO.                                     | DRIVE RATIO | MAX. INPUT SPEED |
|----------------------------------------------|-------------|------------------|
| <b>MODELS WITHOUT COOLING COIL (≤150 HP)</b> |             |                  |
| 58501-17-68                                  | 4.00:1      | 2400 RPM         |
| 58501-18-66                                  | 3.67:1      | 2200 RPM         |
| 58501-21-63                                  | 3.00:1      | 1800 RPM         |
| 58501-24-60                                  | 2.50:1      | 1500 RPM         |
| <b>MODELS WITH COOLING COIL (200 HP)*</b>    |             |                  |
| 68453-17-68                                  | 4.00:1      | 2400 RPM         |
| 68453-18-66                                  | 3.67:1      | 2200 RPM         |
| 68453-21-63                                  | 3.00:1      | 1800 RPM         |
| 68453-24-60                                  | 2.50:1      | 1500 RPM         |

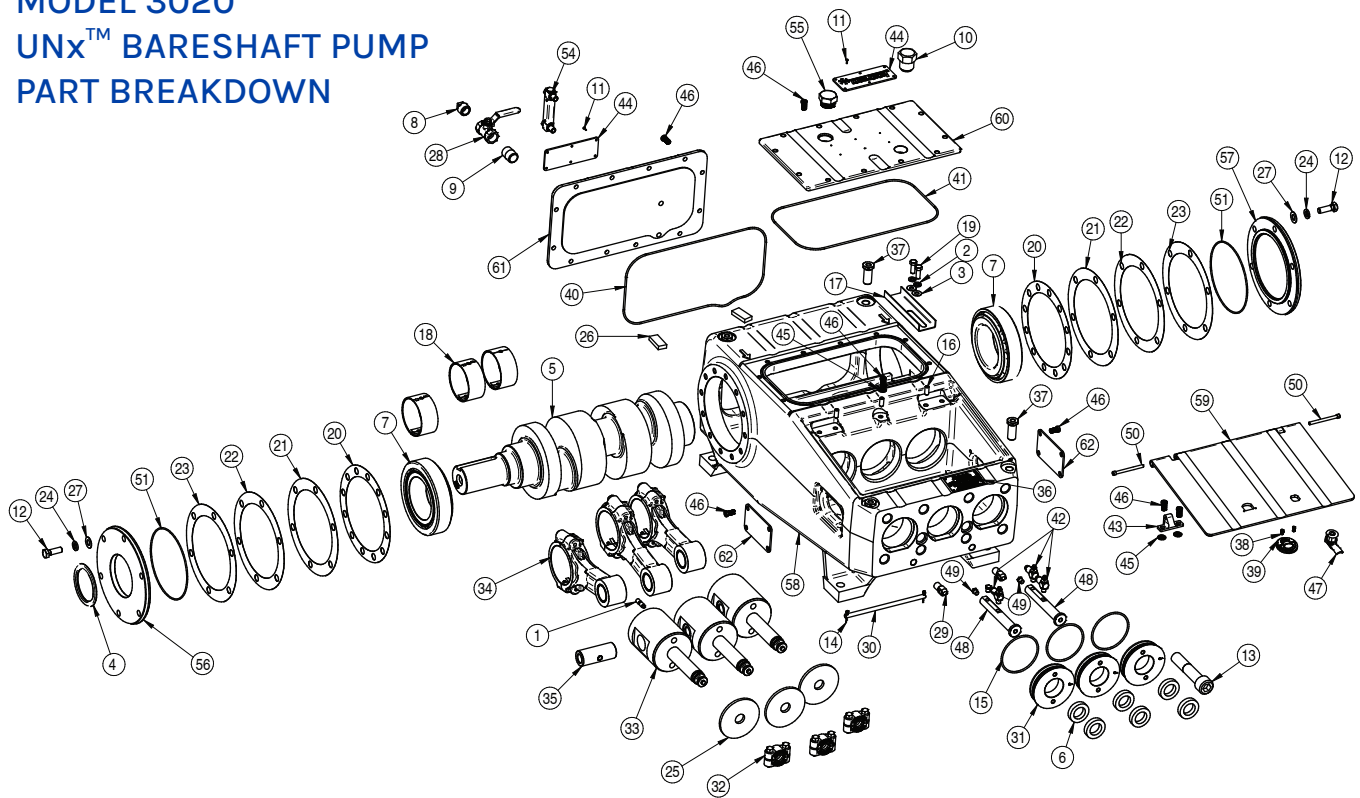
\* Cooling coil recommended for high temperature applications.



# MODEL 3020

## UNx™ BARESHAFT PUMP

### PART BREAKDOWN



PUMPS &  
FLUID ENDS

| ITEM | PART NO. | DESCRIPTION           | ITEM | PART NO. | DESCRIPTION          | ITEM | PART NO. | DESCRIPTION        |
|------|----------|-----------------------|------|----------|----------------------|------|----------|--------------------|
| 1    | 25132    | Setscrew              | 21   | 26495-1  | Shim, End Cap, Brown | 41   | 67349    | Top Plate Gasket   |
| 2    | 25249    | Washer                | 22   | 26495-2  | Shim, End Cap, White | 42   | 67412    | Needle Valve       |
| 3    | 25251    | Washer                | 23   | 26495-3  | Shim, End Cap, Blue  | 43   | 68601    | Rod Box Hinge      |
| 4    | 25428    | Oil Seal              | 24   | 26558    | Washer               | 44   | 69155    | Logo Plate         |
| 5    | 25508    | Crankshaft            | 25   | 26623    | Deflector            | 45   | 69173    | Washer             |
| 6    | 25536    | Crosshead Oil Seal    | 26   | 26705    | Magnet               | 46   | 69174    | Capscrew           |
| 7    | 25541    | Bearing Assembly      | 27   | 26798    | Washer               | 47   | 69185    | Locking Latch      |
| 8    | 25928    | Plug                  | 28   | 27101    | Ball Valve           | 48   | 69203    | Lube Line Adapter  |
| 9    | 25946    | Nipple                | 29   | 51659    | Trunnion             | 49   | 69249    | Brass Plug         |
| 10   | 26360    | Vent Breather         | 30   | 51666    | Trunnion Rod         | 50   | 69272    | Capscrew           |
| 11   | 26379    | Screw                 | 31   | 51712    | Oil Seal Plate       | 51   | 71016    | O-Ring             |
| 12   | 26435    | Capscrew              | 32   | 51737    | Plunger Coupling     | 52*  | 71147-17 | Oil Decal          |
| 13   | 26462    | Fluid End Capscrew    | 33   | 51738    | Crosshead Assembly   | 53*  | 71147-24 | Caution Decal      |
| 14   | 26468    | Cotter Pin            | 34   | 51749    | Connecting Rod       | 54   | 71318    | Oil Level Gage     |
| 15   | 26478    | O-Ring                | 35   | 52077    | Pin                  | 55   | 69366    | Oil Fill Plug      |
| 16   | 26483    | Setscrew              | 36   | 60727    | ID Plate             | 56   | 51732    | Inboard Frame Cap  |
| 17   | 26484    | Oil Trough            | 37   | 67301    | Lifting Adapter      | 57   | 51733    | Outboard Frame Cap |
| 18   | 26486    | Journal Bearing       | 38   | 67343    | Capscrew             | 58   | 67848    | Powerframe         |
| 19   | 26492    | Capscrew              | 39   | 69832    | Lfit Handle          | 59   | 68674    | Rod Box Cover      |
| 20   | 26495    | Shim, End Cap, Yellow | 40   | 67349    | Rear Plate Gasket    | 60   | 68675    | Top Cover          |
|      |          |                       |      |          |                      | 61   | 68676    | Rear Cover         |
|      |          |                       |      |          |                      | 62   | 69204    | Side Access Plate  |



# MODEL 2020

## UNx™ BARESHAFT PUMP

The Jetstream model 2020 is a powerful compact waterblasting pump with all the features and benefits of a Jetstream UNx Fluid End design.

### Key Features

- ▶ Up to 75 horsepower (55 kW)
- ▶ Three Plunger (triplex) design
- ▶ Locking rod box for increased safety
- ▶ Shares Uni-Valves with Jetstream 3000 Series Pumps
- ▶ Ductile iron power frame is the strongest in the industry
- ▶ Largest bearings of any comparable pump on the market
- ▶ Maximum Flow: 5.8 gpm (21.8 lpm) at 20,000 psi (1379 bar)

### POWER END SPECS

| PLUNGERS |        |      | CONNECTION TYPES*  |                          | PUMP<br>SPEED<br>RANGE | MAX. POWER<br>INPUT |    | MAX. FRAME<br>LOAD |      | TOTAL<br>WEIGHT |     | OIL<br>TYPE | PUMP OIL<br>CAPACITY |     |   |
|----------|--------|------|--------------------|--------------------------|------------------------|---------------------|----|--------------------|------|-----------------|-----|-------------|----------------------|-----|---|
| #        | STROKE |      | DISCHARGE<br>PORTS | TOP PORTS<br>(ACCESSORY) |                        | RPM                 | hp | kW                 | lb   | N               | lb  |             | kg                   | gal | l |
|          | in     | mm   |                    |                          |                        |                     |    |                    |      |                 |     |             |                      |     |   |
| 3        | 2.00   | 50.8 | Jetstream LF       | 1200 Series              | 267-800                | 75                  | 55 | 5561               | 1250 | 325             | 147 | 80W-90      | 1                    | 3.8 |   |

\*See details on all connection types in Section I.

### FLUID END SPECS

| PUMP<br>AY<br>PART<br>NO.* | PLUNGER SIZE |          |       | MAX.<br>POWER<br>INPUT |    | RPM |     |     |      |     |      |     |      |     |      |     |      | MAX.<br>OPERATING<br>PRESSURE |      |
|----------------------------|--------------|----------|-------|------------------------|----|-----|-----|-----|------|-----|------|-----|------|-----|------|-----|------|-------------------------------|------|
|                            | NO.          | DIAMETER |       |                        |    | 267 |     | 400 |      | 500 |      | 600 |      | 700 |      | 800 |      |                               |      |
|                            |              | in       | mm    | hp                     | kW | gpm | lpm | gpm | lpm  | gpm | lpm  | gpm | lpm  | gpm | lpm  | gpm | lpm  | psi                           | bar  |
| 69740                      | 6            | 0.595    | 15.11 | 75                     | 55 | 1.9 | 7.3 | 2.9 | 10.9 | 3.6 | 13.7 | 4.3 | 16.4 | 5.1 | 19.1 | 5.8 | 21.8 | 20,000                        | 1379 |

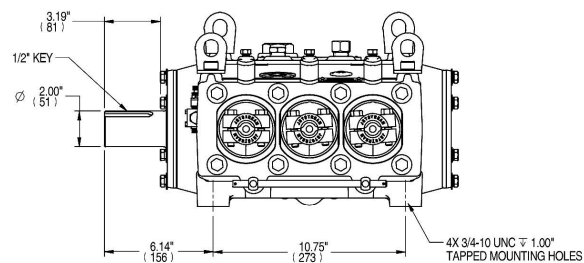
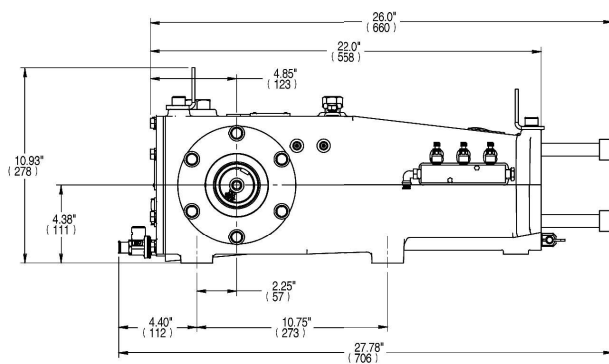
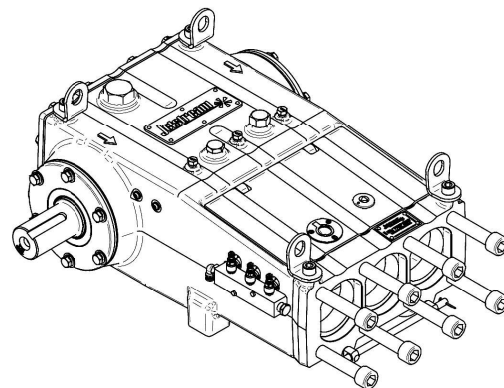
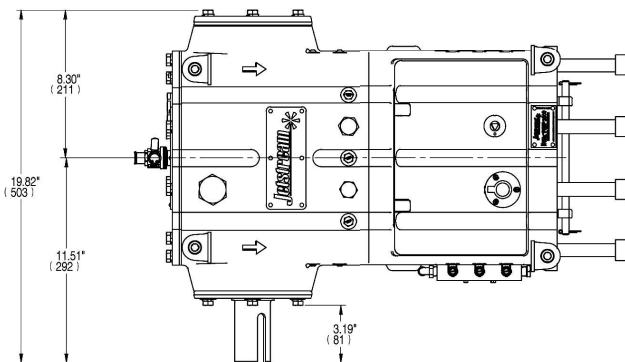
\*\* Flow values represented refer to "theoretical" flow, neglecting inefficiency resulting from compressibility of water and expansion of pressure bearing components..



# MODEL 2020

## UNx™ BARESHAFT PUMP

### DIAGRAMS

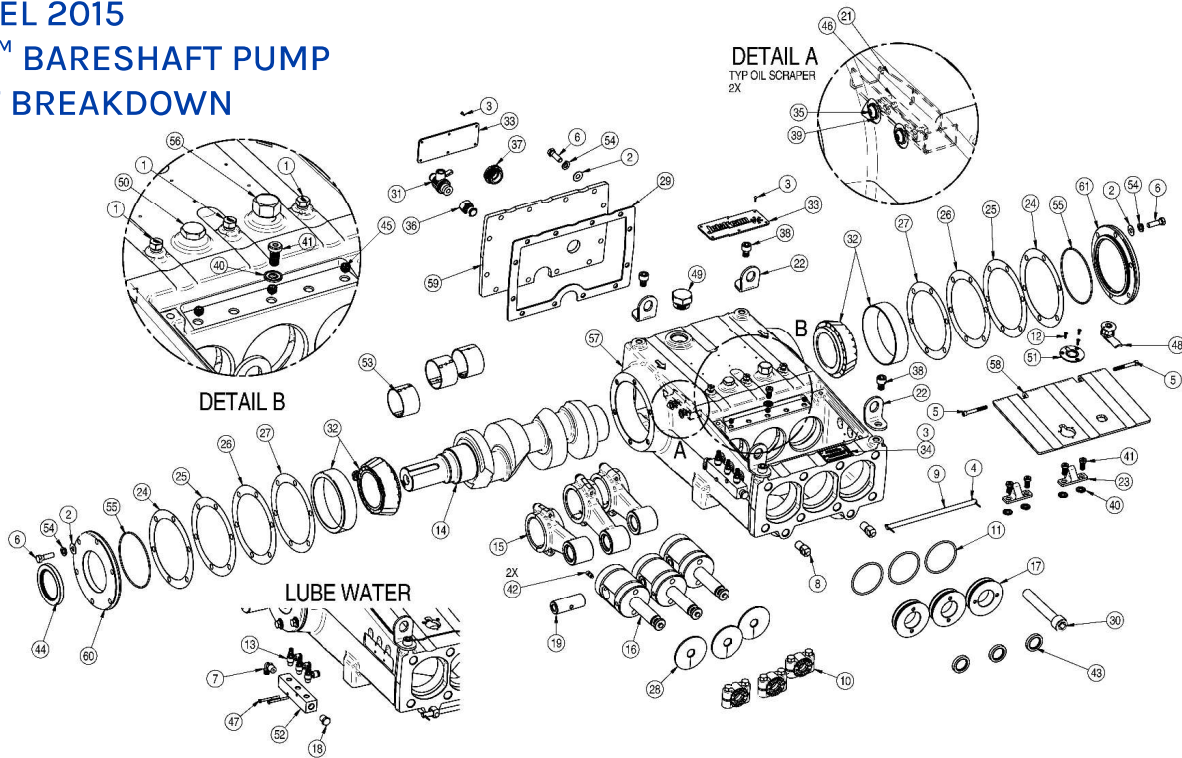


# MODEL 2015

## UNx™ BARESHAFT PUMP

### PART BREAKDOWN

PUMPS &  
FLUID ENDS



| ITEM | PART NO. | DESCRIPTION       | ITEM | PART NO. | DESCRIPTION          | ITEM | PART NO. | DESCRIPTION        |
|------|----------|-------------------|------|----------|----------------------|------|----------|--------------------|
| 1    | 25120    | Plug              | 21   | 68592-R  | Right Oil Scraper    | 41   | 69174    | Capscrew           |
| 2    | 25251    | Washer            | 22   | 68593    | Lifting Bracket      | 42   | 69175    | Setscrew           |
| 3    | 26379    | Screw             | 23   | 68601    | Hinge                | 43   | 69176    | Crosshead Oil Seal |
| 4    | 26468    | Cotter Pin        | 24   | 68622    | Shim, Yellow         | 44   | 69177    | Crankshaft Seal    |
| 5    | 26690    | Capscrew          | 25   | 68622-1  | Shim, Yellow         | 45   | 69178    | Setscrew           |
| 6    | 27126    | Capscrew          | 26   | 68622-2  | Shim, Yellow         | 46   | 69179    | Oil Scraper Plate  |
| 7    | 28367    | Elbow             | 27   | 68622-3  | Shim, Yellow         | 47   | 69183    | Capscrew           |
| 8    | 51659    | Manifold Trunnion | 28   | 68623    | Deflector            | 48   | 69185    | Latch              |
| 9    | 51666    | Trunnion Rod      | 29   | 68624    | Rear Gasket          | 49   | 69366    | Oil Plug           |
| 10   | 51737    | Plunger Coupling  | 30   | 69137    | Capscrew             | 50   | 69812    | Plug               |
| 11   | 60611    | O-Ring            | 31   | 69138    | Drain Valve          | 51   | 69832    | Lift Handle        |
| 12   | 67343    | Capscrew          | 32   | 69153    | Bearing Assembly     | 52   | 69833    | Lube Manifold      |
| 13   | 67412    | Needle Valve      | 33   | 69155    | Logo Plate           | 53   | 69993    | Journal Bearing    |
| 14   | 68077    | Crankshaft        | 34   | 69156    | Identification Plate | 54   | 71360    | Washer             |
| 15   | 68093    | Connecting Rod    | 35   | 69165    | Capscrew             | 55   | 71450    | O-Ring             |
| 16   | 68095    | Crosshead         | 36   | 69166    | Adapter              | 56   | J70439   | Breather Vent      |
| 17   | 68105    | Oil Seal Plate    | 37   | 69167    | Oil Sight Glass      | 57   | 68076    | Power Frame        |
| 18   | 28369    | Plug              | 38   | 69168    | Capscrew             | 58   | 68590    | Rod Box Cover      |
| 19   | 68589    | Pin               | 39   | 69172    | Washer               | 59   | 68591    | Rear Cover         |
| 20   | 68592-L  | Left Oil Scraper  | 40   | 69173    | Washer               | 60   | 68594    | Inboard Frame Cap  |
|      |          |                   |      |          |                      | 61   | 68600    | Outboard Frame Cap |





**15-MINUTE VALVE  
REPLACEMENT**



**5-MINUTE  
PACKING CHANGE**



**SLIDE-OUT  
STUFFING BOXES**

# UNx™ FLUID ENDS

## FEATURES AND BENEFITS

The Jetstream 20,000 psi UNx Fluid End is standard on every Jetstream 20,000 psi unit or bareshaft pump. It is also available as a conversion package for popular pump models or as an addition to an existing Jetstream UNx™ pump. Please refer to the catalog pages that follow for details on available models.

## THE UNx™ ADVANTAGE SERVICEABILITY

- ▶ Reduced downtime and maintenance
- ▶ Five minute packing change
- ▶ Fifteen minute pop-out valve cartridge change
- ▶ No special tools or equipment required
- ▶ Plungers clamped, NOT threaded

## SIMPLICITY

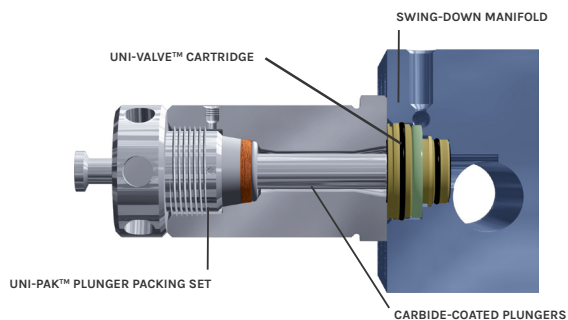
- ▶ Fewer parts than other 20,000 psi fluid ends
- ▶ Uni-Valve™ one-piece cartridges include suction & discharge valves, seats, springs, and seals
- ▶ Swing-down manifold for easy access to components

## VERSATILITY

- ▶ Fast in-the-field pressure range conversion with simple bolt-on Jetstream UNx Fluid Ends
- ▶ Convertibility of the UNx design allows one unit to do the work that another manufacturer would require multiple units or several hours of downtime to perform

## OTHER FEATURES

- ▶ Water lubricated packing set
- ▶ Colmonoy coated plungers (ceramic available upon request)
- ▶ High volumetric efficiency
- ▶ All pressure-bearing components precision machined high quality stainless steel
- ▶ Pulsation dampener built into the manifold

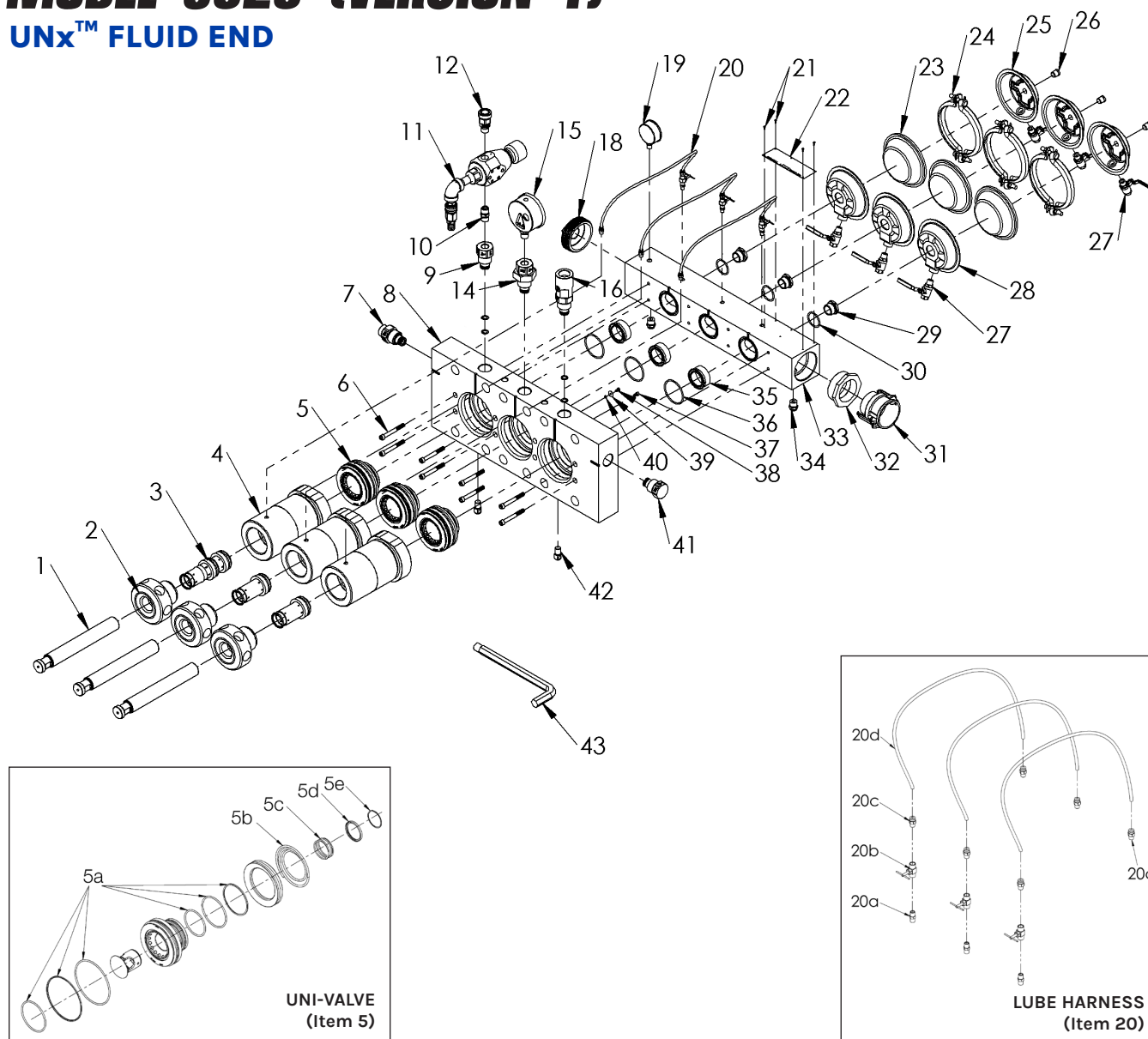




# MODEL 6020 (VERSION 1)

UNx™ FLUID END

PUMPS &  
FLUID ENDS



## FLUID END SPECS

| FLUID<br>END<br>PART<br>NO. | CONNECTION TYPES* | PLUNGER SIZE |          |       | PLUNGER<br>STROKE |     | MAX.<br>CRANK<br>SPEED<br>RPM | MAX. FLOW |     | MAX. OPERATING<br>PRESSURE |      |
|-----------------------------|-------------------|--------------|----------|-------|-------------------|-----|-------------------------------|-----------|-----|----------------------------|------|
|                             |                   | NO.          | DIAMETER |       |                   |     |                               | gpm       | lpm | psi                        | bar  |
|                             |                   |              | in       | mm    | in                | mm  |                               |           |     |                            |      |
| 62519                       | Jetstream HHP     | 13           | 1.34     | 34.04 | 5.51              | 140 | 457                           | 46.1      | 175 | 20,000                     | 1379 |



# MODEL 6020 (VERSION 1)

## UNx™ FLUID END

### PART BREAKDOWN

| ITEM | PART NO. | DESCRIPTION                    | ITEM | PART NO. | DESCRIPTION                    |
|------|----------|--------------------------------|------|----------|--------------------------------|
| 1    | 60905    | #13 Plunger                    | 21   | 26379    | Screw Drive                    |
| 2    | 60925    | #13 Gland Nut                  | 22   | 26589    | Plate, Caution                 |
| 3    | 62748    | #13 Packing Set                | 23   | 61142    | Diaphragm, Pulsation Dampener  |
| 4    | 60906    | #13 Stuffing Box               | 24   | 61143    | Kit, Clamp, Pulsation Dampener |
| 5    | 61210    | Uni-Valve                      | 25   | 61141    | Housing, Air Brake             |
| 5a   | 62746    | Uni-Valve Seal Kit             | 26   | 26148    | Plug                           |
| 5b   | 61253    | Discharge Spring               | 27   | 61145    | Ball Valve                     |
| 5c   | 61214    | Suction Spring                 | 28   | 61264    | Housing, Pulsation Dampener    |
| 5d   | 61236    | Retainer, Suction Valve Spring | 29   | 60758    | Adapter, Pulsation Dampener    |
| 5e   | 61232    | Retaining Ring                 | 30   | 25566    | O-Ring                         |
| 6    | 60821    | Capscrew                       | 31   | 29461    | Coupler                        |
| 7    | 62741    | Adapter                        | 32   | J70914   | Bushing                        |
| 8    | 61267    | Manifold, Discharge            | 33   | 61974    | Manifold, Suction              |
| 9    | 54593    | Adapter                        | 34   | 62471    | Adapter                        |
| 10   | 70173    | Nipple                         | 35   | 62379    | Insert, Flow Straightening     |
| 11   | 54592    | Bypass Valve                   | 36   | 60611    | O-Ring                         |
| 12   | 52035    | Rupture Disc Assy              | 37   | 62267    | Capscrew                       |
| 13*  | 51837    | Burst Disc 27K Psi             | 38   | 62212    | Capscrew                       |
| 14   | 62289    | Adapter Assy                   | 39   | 60265    | Washer                         |
| 15   | 52498    | Pressure Gauge                 | 40   | 62210    | Washer                         |
| 16   | 62291    | Rupture Disc Assembly, 6015    | 41   | 54847    | Plug Assy                      |
| 17*  | 51838    | Burst Disc 24K Psi             | 42   | 51659    | Trunnion                       |
| 18   | 60903    | Plug                           | 43   | 50889    | Wrench, 7/8 Hex Key            |
| 19   | 27779    | Gage                           | 44*  | 26562    | Nut                            |
| 20   | 62194    | Lube Harness                   | 45*  | 27233    | Capscrew                       |
| 20a  | 26465    | Nipple                         | 46*  | 62254    | Deflector                      |
| 20b  | 27475    | Needle Valve                   |      |          |                                |
| 20c  | 27732    | Hose Fitting                   |      |          |                                |
| 20d  | 27740    | Hose (order in feet)           |      |          |                                |

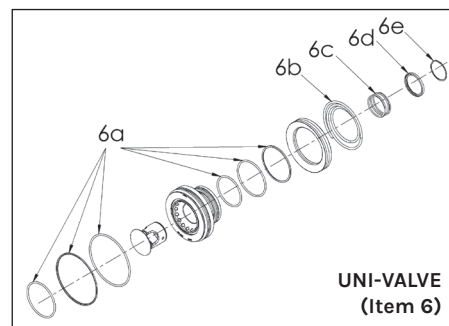
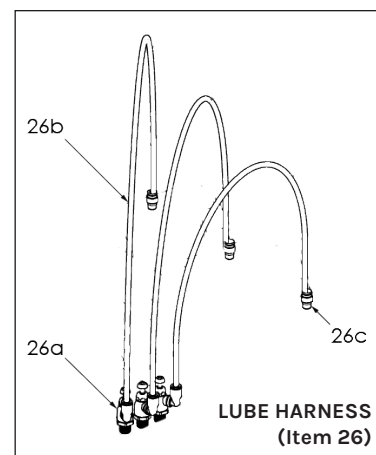
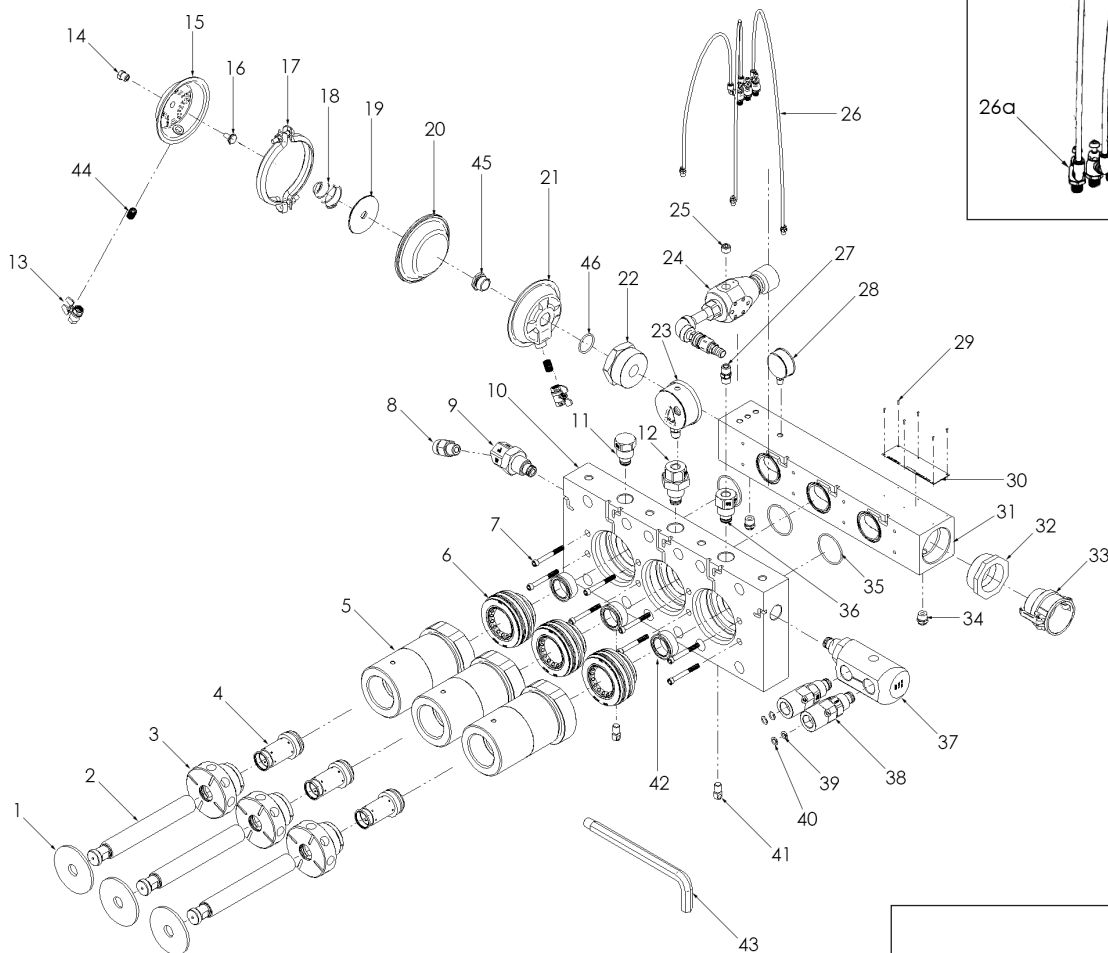
\*Not shown.

\*\*Optional ceramic plungers available for corrosive applications

# MODEL 6020 (VERSION 3)

UNx™ FLUID END

PUMPS &  
FLUID ENDS



## FLUID END SPECS

| FLUID<br>END<br>PART<br>NO. | CONNECTION TYPES*<br>(HIGH PRESSURE<br>PORTS) | PLUNGER SIZE |          |       | PLUNGER<br>STROKE |     | MAX.<br>CRANK<br>SPEED<br>RPM | MAX. FLOW |     | MAX. OPERATING<br>PRESSURE |      |
|-----------------------------|-----------------------------------------------|--------------|----------|-------|-------------------|-----|-------------------------------|-----------|-----|----------------------------|------|
|                             |                                               | NO.          | DIAMETER |       |                   |     |                               |           |     |                            |      |
|                             |                                               |              | in       | mm    | in                | mm  |                               | gpm       | lpm | psi                        | bar  |
| 65024                       | Jetstream HHP                                 | 13           | 1.34     | 34.04 | 5.51              | 140 | 457                           | 46.1      | 175 | 20,000                     | 1379 |

# MODEL 6020 (VERSION 3)

## UNx™ FLUID END

### PART BREAKDOWN

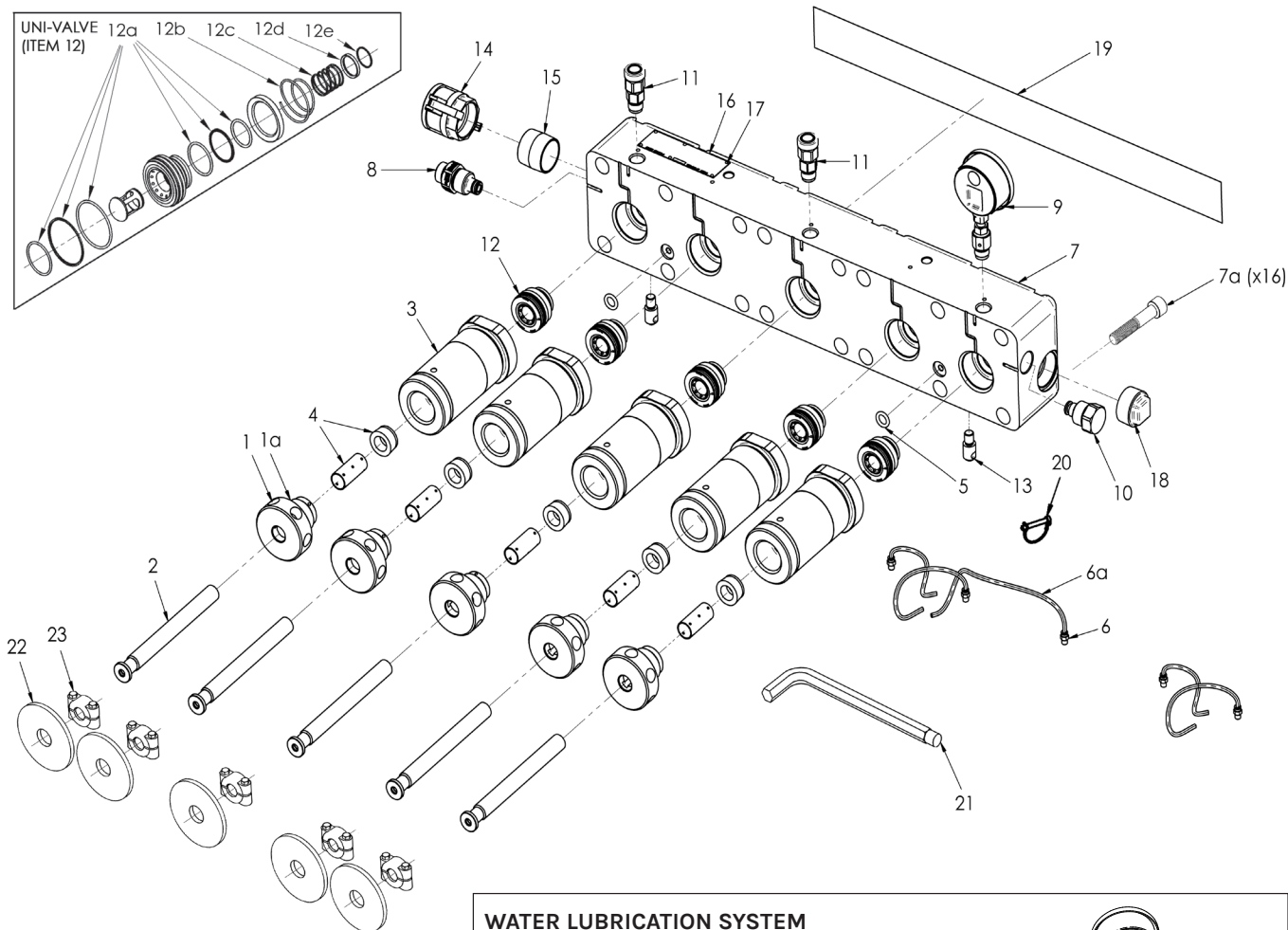
| ITEM | PART NO. | DESCRIPTION                            | ITEM | PART NO. | DESCRIPTION                   |
|------|----------|----------------------------------------|------|----------|-------------------------------|
| 1*   | 62254    | Deflector                              | 23   | 52498    | Pressure Gauge                |
| 2    | 60905    | #13 Plunger                            | 24   | 54592    | Bypass Valve                  |
| 3    | 60925    | #13 Gland Nut                          | 25   | 52076    | Plug                          |
| 4    | 62748    | #13 Packing Set                        | 26   | 63111    | Lube Harness                  |
| 5    | 60906    | #13 Stuffing Box                       | 26a  | 63019    | Flow Control Valve            |
| 6    | 61210    | Uni-Valve                              | 26a  | 27740    | Hose (order in feet)          |
| 6a   | 62746    | Uni-Valve Seal Kit                     | 26c  | 27732    | Adapter                       |
| 6b   | 61253    | Discharge Spring                       | 27   | 63888    | Nipple                        |
| 6c   | 61241    | Suction Spring                         | 28   | 27779    | Gauge                         |
| 6d   | 61236    | Retainer, Suction Valve Spring         | 29   | 26379    | Screw Drive                   |
| 6e   | 61232    | Retaining Ring                         | 30   | 26589    | Plate, Caution                |
| 7    | 60821    | Capscrew                               | 31   | 63068    | Manifold, Suction             |
| 8    | 28786    | 3/4" NPT Male Adapter x 1-5/16" Type M | 32   | J70914   | Bushing                       |
| 9    | 62741    | Adapter, Clockable                     | 33   | 29461    | Coupler                       |
| 10   | 63093    | Manifold, Discharge                    | 34   | 62471    | Adapter                       |
| 11   | 54847    | Plug Assy                              | 35   | 60611    | O-Ring                        |
| 12   | 62289    | Adapter Assy                           | 36   | 54593    | Adapter                       |
| 13   | 63114    | Ball Valve, T-Handle                   | 37   | 63058    | Adapter, Dual Burst Disc      |
| 14   | 63178    | Plug                                   | 38   | 62291    | Rupture Disc Assembly, 6020   |
| 15   | 61141    | Housing, Air Brake                     | 39   | Various  | Standard 20K Rupture Discs    |
| 16   | 63179    | Retainer, Conical Spring               | 40   | 62747    | Diffuser, Rupture Disc Holder |
| 17   | 61143    | Kit, Clamp, Pulsation Dampener         | 41   | 51659    | Trunnion                      |
| 18   | 63177    | Spring, Conical                        | 42   | 62379    | Insert, Flow Straightening    |
| 19   | 63115    | Pusher, Pulsation Dampener             | 43   | 50889    | Wrench, 7/8 Hex Key           |
| 20   | 61142    | Diaphragm, Pulsation Dampener          | 44   | 63156    | Nipple                        |
| 21   | 61264    | Housing, Pulsation Dampener            | 45   | 60758    | Adapter                       |
| 22   | 62981    | Adapter, Pulsation Dampener            | 46   | 25566    | O-Ring                        |

\*Power end component included in drawing for convenience. Not included with new fluid ends.

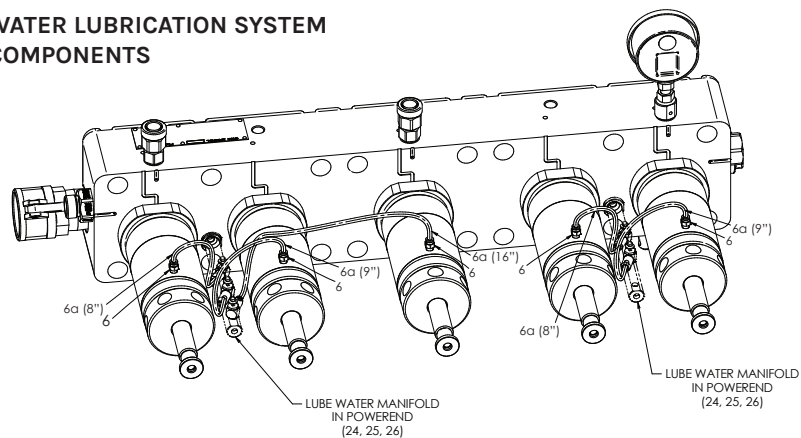
\*\*Optional ceramic plungers available for corrosive applications

# MODEL 5220Q

## UNx™ FLUID END



### WATER LUBRICATION SYSTEM COMPONENTS



## FLUID END SPECS

| FLUID<br>END<br>PART<br>NO. | CONNECTION TYPES*<br>(HIGH PRESSURE<br>PORTS) | PLUNGER SIZE |          |       | PLUNGER<br>STROKE |     | MAX.<br>CRANK<br>SPEED<br>RPM | MAX. FLOW |     | MAX. OPERATING<br>PRESSURE |       |
|-----------------------------|-----------------------------------------------|--------------|----------|-------|-------------------|-----|-------------------------------|-----------|-----|----------------------------|-------|
|                             |                                               | NO.          | DIAMETER |       |                   |     |                               |           |     |                            |       |
|                             |                                               |              | in       | mm    | in                | mm  |                               | gpm       | lpm | psi                        | bar   |
| 69071                       | Jetstream HHP                                 | 11           | 1.062    | 26.97 | 5.25              | 133 | 547                           | 55.1      | 208 | 20,000                     | 1,379 |

\*See details on all connection types in Section I.

# MODEL 5220Q

## UNx™ FLUID END

### PART BREAKDOWN

| ITEM | PART NO. | DESCRIPTION            | ITEM | PART NO.  | DESCRIPTION          |
|------|----------|------------------------|------|-----------|----------------------|
| 1    | 54828    | #11 Gland Nut          | 12c  | 26549     | Suction Valve Spring |
| 1a   | 26416    | O-Ring                 | 12d  | 67440     | Spring Retainer      |
| 2    | 67046    | #11 Plunger            | 12e  | 26546     | Retaining Ring       |
| 3    | 67074    | #10, #11 Stuffing Box  | 13   | 67686     | Trunnion             |
| 4    | J55877   | #11 Packing Set        | 14   | 27539     | Coupler              |
| 5    | 67548    | O-Ring                 | 15   | 27114     | Nipple               |
| 6    | 27732    | Adapter                | 16   | 26589     | Identifying Plate    |
| 6a   | 67808    | Tubing                 | 17   | 26379     | Screw                |
| 7    | 67770    | Manifold               | 18   | 25036     | Plug                 |
| 7a*  | 26500    | Capscrew               | 19   | 68714-BLU | 20K Manifold Decal   |
| 8    | 54844    | Adapter Assy           | 20*  | 69068     | Cotter Pin           |
| 9    | 52497    | Gauge                  | 21   | 50889     | Pump Wrench          |
| 10   | 54847    | Port Plug              | 22*  | 26487     | Deflector            |
| 11   | 52035    | Rupture Disc Assy      | 23*  | 51736     | Plunger Coupling     |
| 12   | 67612    | Uni-Valve              | 24*  | 67781     | Lube Line Adapter    |
| 12a  | 50465    | Uni-Valve Seal Kit     | 25*  | 67412     | Needle Valve         |
| 12b  | 26550    | Discharge Valve Spring | 26*  | 25120     | Plug                 |

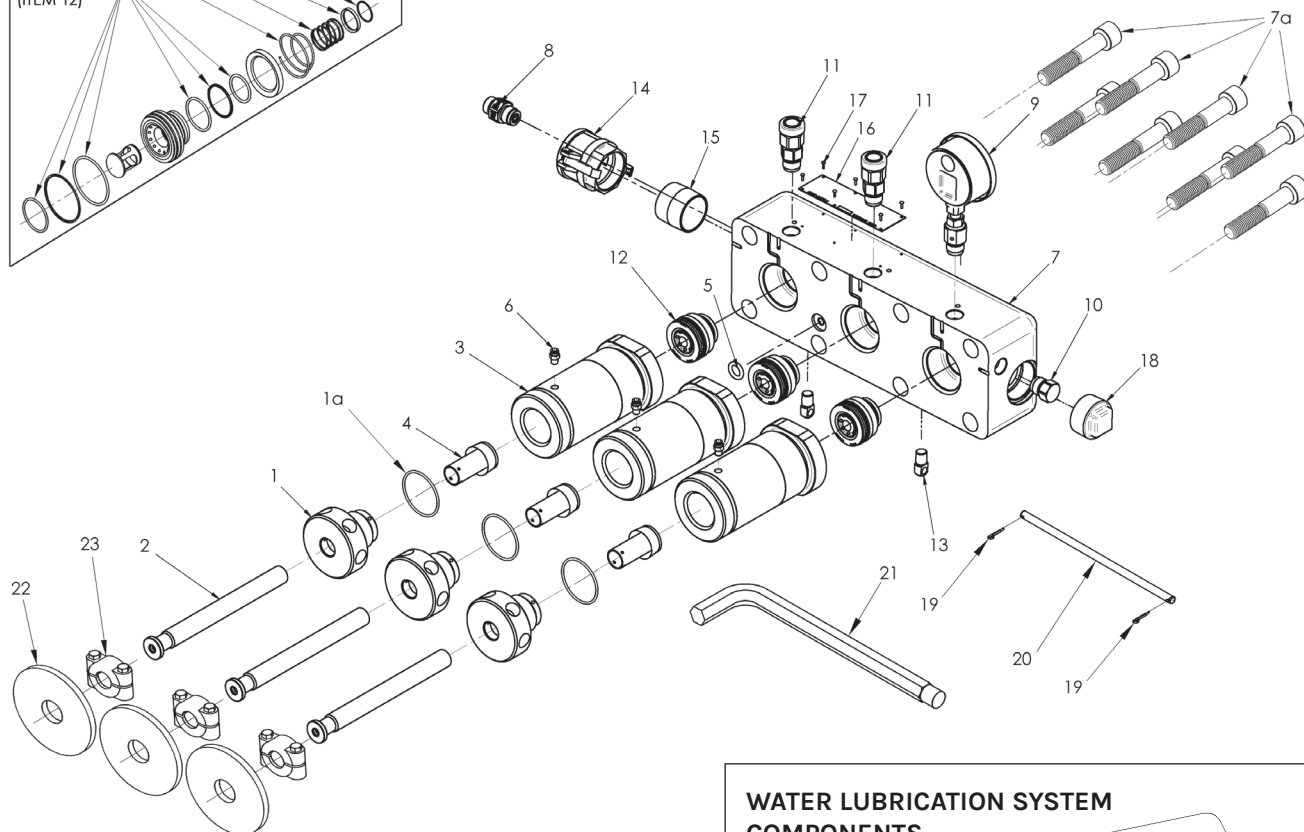
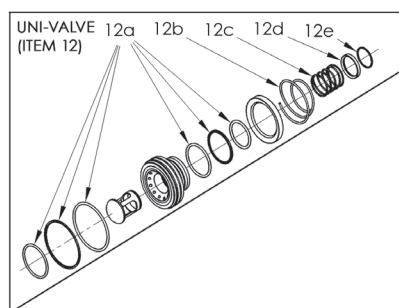
\*Power end component included in drawing for convenience. Not included with new fluid ends

\*\*Optional ceramic plungers available for corrosive applications.

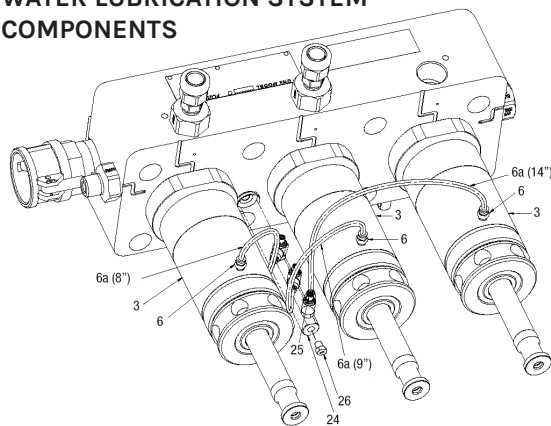
# MODEL 5220

## UNx™ FLUID END

PUMPS &  
FLUID ENDS



### WATER LUBRICATION SYSTEM COMPONENTS



## FLUID END SPECS

| FLUID<br>END<br>PART<br>NO. | CONNECTION TYPES*<br>(HIGH PRESSURE<br>PORTS) | PLUNGER SIZE |          |       | PLUNGER<br>STROKE |     | MAX.<br>CRANK<br>SPEED<br>RPM | MAX. FLOW |     | MAX. OPERATING<br>PRESSURE |       |
|-----------------------------|-----------------------------------------------|--------------|----------|-------|-------------------|-----|-------------------------------|-----------|-----|----------------------------|-------|
|                             |                                               | NO.          | DIAMETER |       |                   |     |                               | gpm       | lpm | psi                        | bar   |
|                             |                                               |              | in       | mm    |                   |     |                               |           |     |                            |       |
| 67384                       | 20K Port Female                               | 9            | .900     | 22.86 | 5.25              | 133 | 518                           | 22.4      | 85  | 20,000                     | 1,379 |
| 67385                       |                                               | 10           | .980     | 24.89 |                   |     |                               | 26.5      | 100 |                            |       |
| 67386                       |                                               | 11           | 1.062    | 26.97 |                   |     |                               | 31.1      | 118 |                            |       |



# MODEL 5220

## UNx™ FLUID END

### PART BREAKDOWN

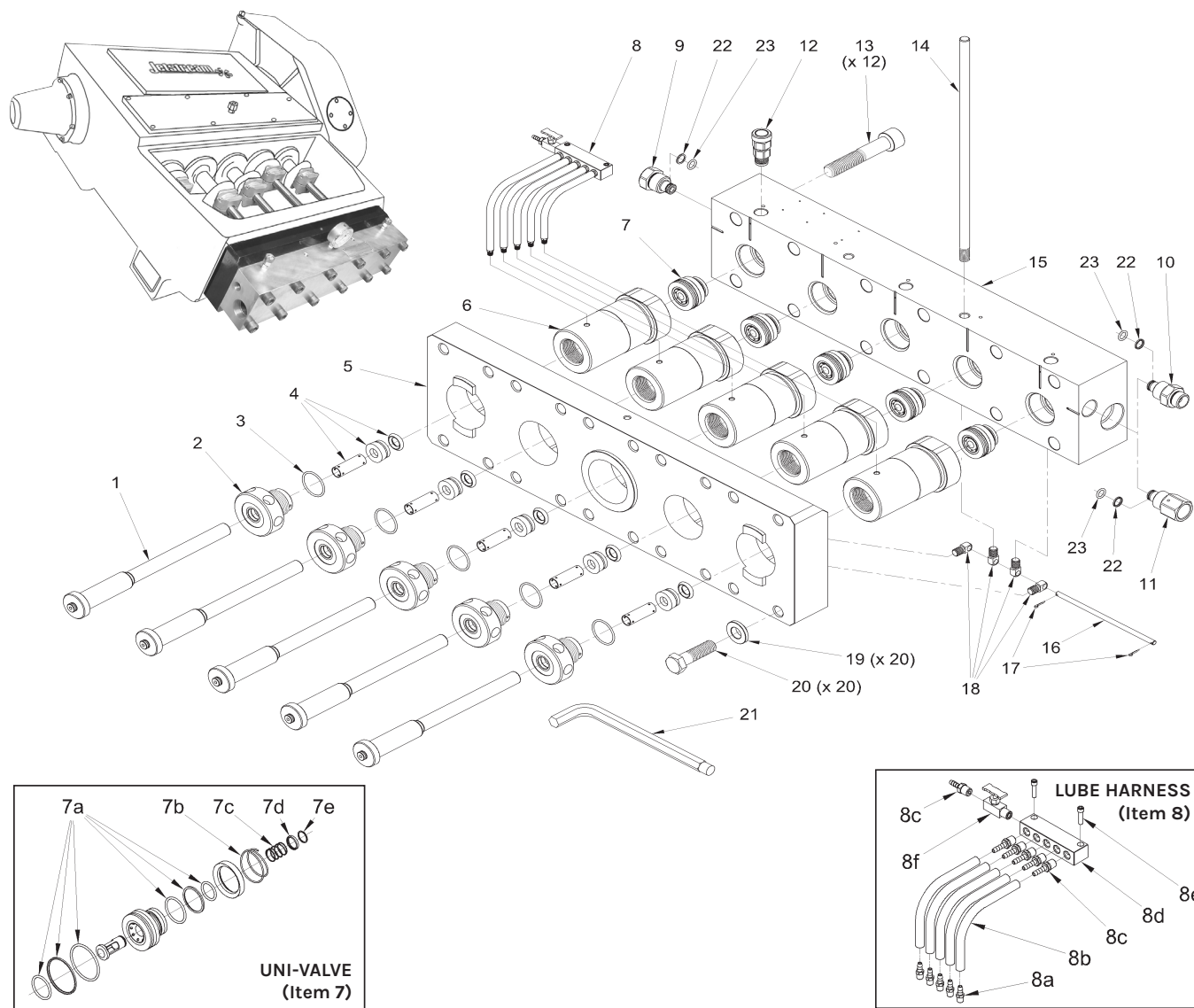
| ITEM | PART NO. | DESCRIPTION           | ITEM | PART NO. | DESCRIPTION            |
|------|----------|-----------------------|------|----------|------------------------|
| 1    | 51829    | #9 Gland Nut          | 12   | 67612    | Uni-Valve              |
|      | 52501    | #10 Gland Nut         | 12a  | 50465    | Uni-Valve Seal Kit     |
|      | 54828    | #11 Gland Nut         | 12b  | 26550    | Discharge Valve Spring |
| 1a   | 26416    | O-Ring                | 12c  | 26549    | Suction Valve Spring   |
| 2    | 67044    | #9 Plunger            | 12d  | 67440    | Spring Retainer        |
|      | 67045    | #10 Plunger           | 12e  | 26546    | Retaining Ring         |
|      | 67046    | #11 Plunger           | 13   | 51659    | Trunnion               |
| 3    | 67073    | #9 Stuffing Box       | 14   | 27539    | Coupler                |
|      | 67074    | #10, #11 Stuffing Box | 15   | 27114    | Nipple                 |
|      | 51826    | #9 Packing Set        | 16   | 26589    | Identifying Plate      |
| 4    | 52509    | #10 Packing Set       | 17   | 26379    | Screw                  |
|      | J55877   | #11 Packing Set       | 18   | 25036    | Plug                   |
| 5    | 67548    | O-Ring                | 19*  | 26468    | Cotter Pin             |
| 6    | 27732    | Adapter               | 20*  | 50295    | Trunnion Rod           |
| 6a   | 67808    | Tubing                | 21   | 50889    | Pump Wrench            |
| 7    | 67278    | Manifold              | 22*  | 26487    | Deflector              |
| 7a*  | 26500    | Capscrew              | 23*  | 51736    | Plunger Coupling       |
| 8    | 53284    | Adapter Assy          | 24*  | 67781    | Lube Line Adapter      |
| 9    | 52497    | Gauge                 | 25*  | 67412    | Needle Valve           |
| 10   | 52076    | Port Plug             | 26*  | 25120    | Plug                   |
| 11   | 52035    | Rupture Disc Assy     |      |          |                        |

\*Power end component included in drawing for convenience. Not included with new fluid ends

\*\*Optional ceramic plungers available for corrosive applications.

# MODEL 5020Q

## UNx™ FLUID END



## FLUID END SPECS

| PART NO. | CONNECTION TYPES* |                     | PLUNGER SIZE |          |       | PLUNGER STROKE |     | MAX. RPM | MAX. FLOW** |     | MAX. OPERATING PRESSURE |       |
|----------|-------------------|---------------------|--------------|----------|-------|----------------|-----|----------|-------------|-----|-------------------------|-------|
|          |                   |                     | NO.          | DIAMETER |       |                |     |          |             |     |                         |       |
|          | TOP PORTS         | DISCHARGE PORTS     |              |          | in    | mm             | in  |          | mm          | gpm | lpm                     | psi   |
| 54825*** | 20K Port Female   | 20K HHP Port Female | #11          | 1.062    | 26.97 | 5.00           | 127 | 413      | 39.6        | 150 | 20,000                  | 1,379 |
| 54880    |                   |                     |              |          |       |                |     |          |             |     |                         |       |

\*See details on all connection types in Section I.

\*\*Displacement (flow) values represented refer to "theoretical" flow, neglecting inefficiency resulting from compressibility of water and expansion of pressure-bearing components.

\*\*\*With adapter plate and mounting hardware.

# MODEL 5020Q

## UNx™ FLUID END

### PART BREAKDOWN

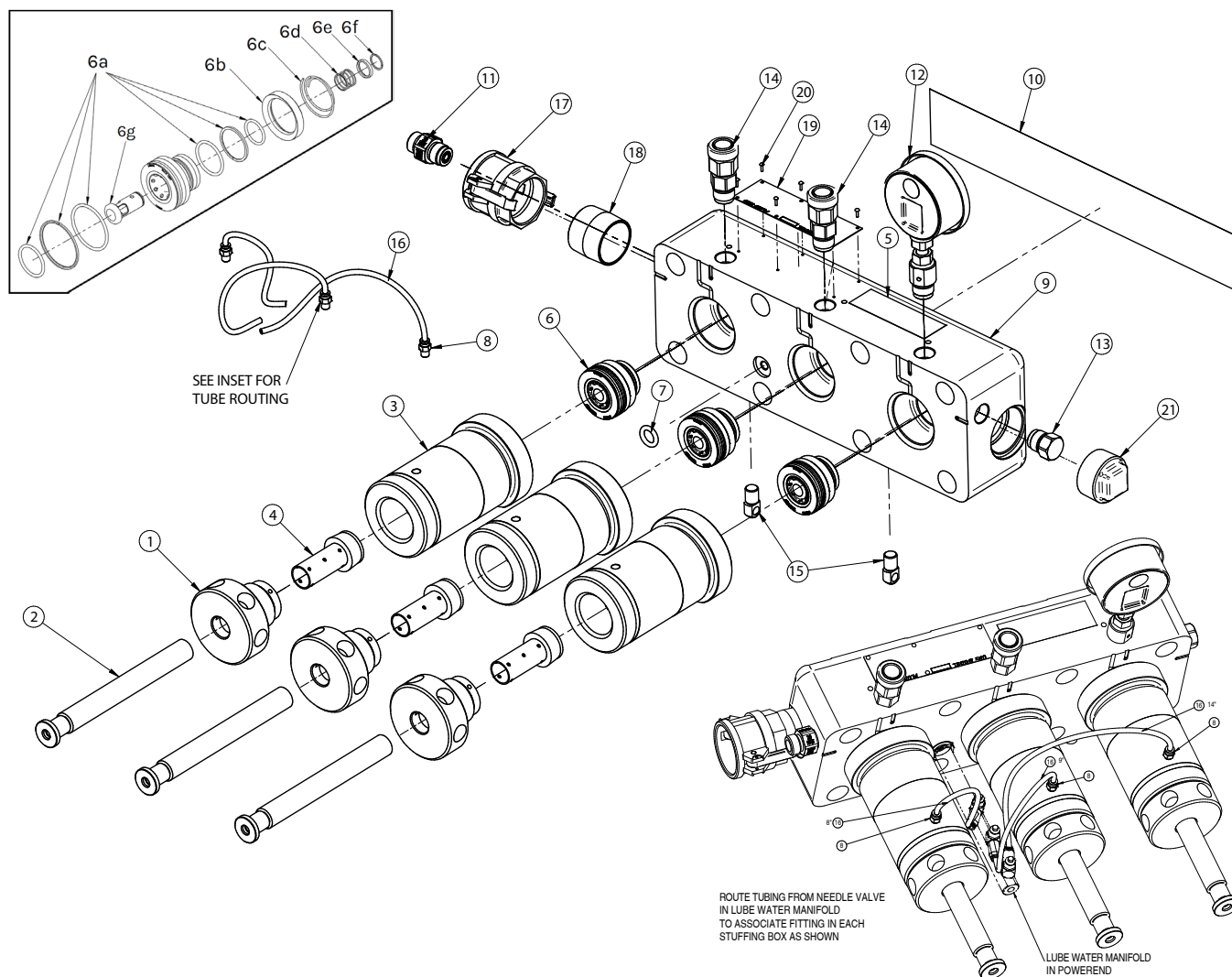
| ITEM | PART NO. | DESCRIPTION            | ITEM | PART NO. | DESCRIPTION                                       |
|------|----------|------------------------|------|----------|---------------------------------------------------|
| 1    | 54827    | #11 Plunger            | 8f   | 26876    | Needle Valve                                      |
| 2    | 54828    | #11 Gland Nut          | 9    | 54847    | Plug, 20K HHP Port Male                           |
| 3    | 26416    | O-Ring                 | 10   | 54844    | Adapter, 20K HHP Port Male x 1- 5/16" Type M Male |
| 4    | J55877   | #11 Packing Set        | 11   | 54846    | Adapter, 20K HHP Port Male x 1" MP Female         |
| 5    | 54627    | Adapter Plate          | 12   | 52035    | Rupture Disc Holder                               |
| 6    | 54826    | #11 Stuffing Box       | 13   | 26500    | Manifold Bolt                                     |
| 7    | 51790    | Uni-Valve              | 14   | 52114    | Lifting Rod                                       |
| 7a   | 50465    | Uni-Valve Seal Kit     | 15   | 54824    | Manifold                                          |
| 7b   | 26550    | Discharge Valve Spring | 16   | 50295    | Trunnion Rod                                      |
| 7c   | 26549    | Suction Valve Spring   | 17   | 26468    | Cotter Pin                                        |
| 7d   | 51814    | Spring Retainer        | 18   | 51659    | Trunnion                                          |
| 7e   | 26546    | Retaining Ring         | 19   | 54638    | Washer                                            |
| 8    | 54690    | Lube Harness Assy      | 20   | 60248    | Adapter Plate Bolt                                |
| 8a   | 27732    | Hose Fitting           | 21   | 50889    | Pump Wrench                                       |
| 8b   | 27740    | Hose (Order in feet)   | 22   | 54854    | Backup Ring, HHP Port Fitting                     |
| 8c   | J70518   | Hose Fitting           | 22   | 26523    | O-Ring, HHP Port Fitting                          |
| 8d   | 52494    | Lube Manifold          | 24*  | 70179    | Valve Extraction Tool                             |
| 8e   | 27671    | Capscrew               |      |          |                                                   |

\*Optional ceramic plungers available for corrosive applications

# MODELS 4220 & 3620

## UNx™ FLUID END

PUMPS &  
FLUID ENDS



### 3620 FLUID END SPECS

| PART NO. | CONNECTION TYPES** |                 | PLUNGER SIZE |          |       | PLUNGER STROKE |    | MAX. RPM | MAX. FLOW* |     | MAX. OPERATING PRESSURE |       |
|----------|--------------------|-----------------|--------------|----------|-------|----------------|----|----------|------------|-----|-------------------------|-------|
|          |                    |                 | NO.          | DIAMETER |       |                |    |          | gpm        | lpm | psi                     | bar   |
|          | TOP PORTS          | DISCHARGE PORTS |              | in       | mm    | in             | mm |          |            |     |                         |       |
| 51995    | 20K Port Female    | 20K Port Female | #8           | .800     | 20.32 | 3.63           | 92 | 550      | 12.9       | 49  | 20,000                  | 1,379 |

### 4220 FLUID END SPECS

| PART NO. | CONNECTION TYPES** |                 | PLUNGER SIZE |          | PLUNGER STROKE |      | MAX. RPM | MAX. FLOW* |      | MAX. OPERATING PRESSURE |        |       |
|----------|--------------------|-----------------|--------------|----------|----------------|------|----------|------------|------|-------------------------|--------|-------|
|          |                    |                 | NO.          | DIAMETER |                |      |          |            |      |                         |        |       |
|          | TOP PORTS          | DISCHARGE PORTS |              | in       | mm             | in   |          | mm         | gpm  | lpm                     | psi    | bar   |
| 69282    | 20K Port Female    | 20K Port Female | #8           | .800     | 20.32          | 4.25 | 108      | 518        | 14.3 | 53                      | 20,000 | 1,379 |
| 69283    |                    |                 | #9           | .900     | 22.86          | 4.25 | 108      | 518        | 18.1 | 66                      | 20,000 | 1,379 |
| 69284    |                    |                 | #10          | .980     | 24.89          | 4.25 | 108      | 518        | 21.4 | 79                      | 20,000 | 1,379 |
| 69285    |                    |                 | #11          | 1.06     | 26.92          | 4.25 | 108      | 518        | 25.2 | 93                      | 20,000 | 1,379 |

## MODELS 4220 & 3620

### UNx™ FLUID END

### PART BREAKDOWN

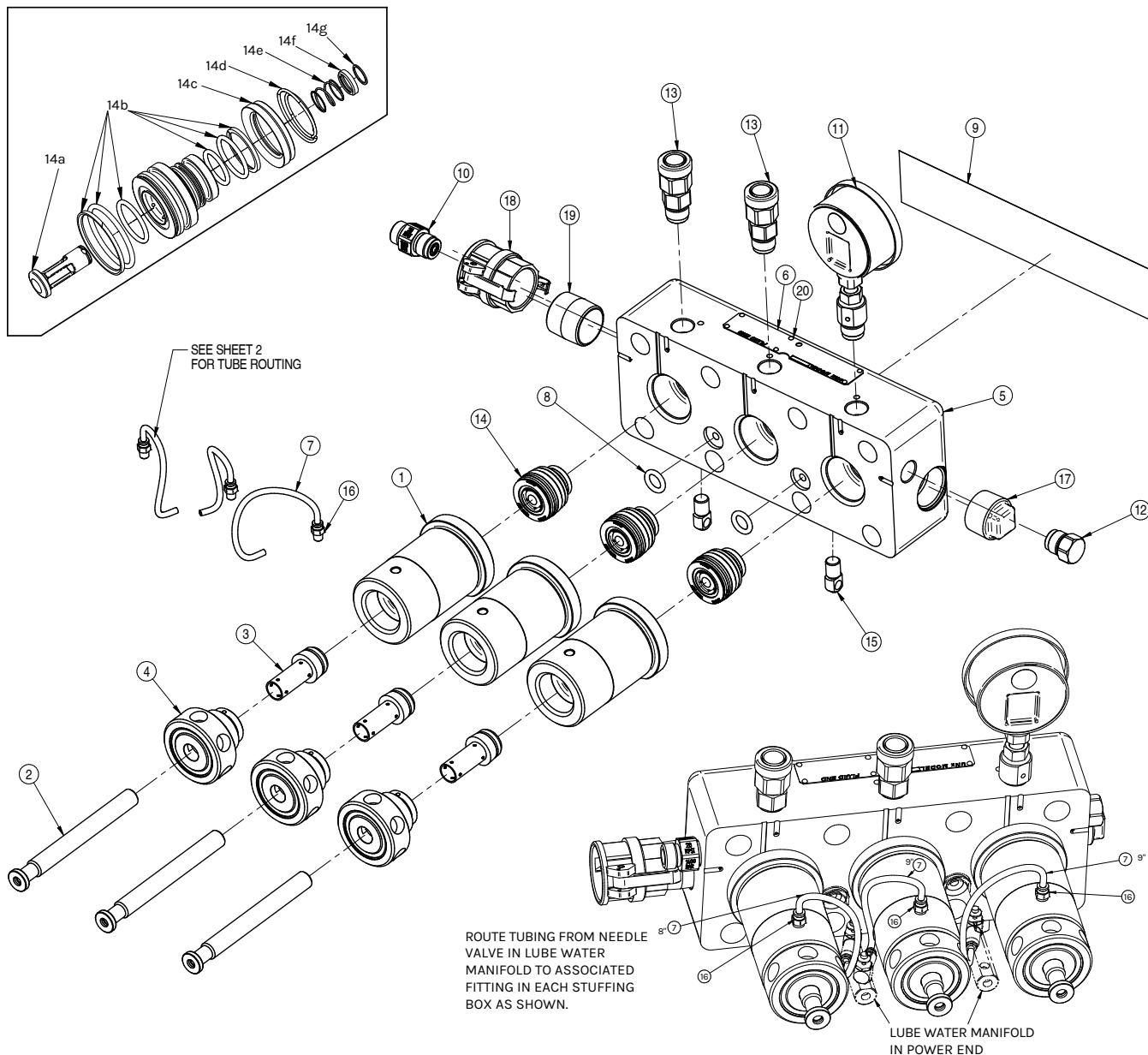
| ITEM | PART NO. | DESCRIPTION            | ITEM | PART NO.  | DESCRIPTION                      |
|------|----------|------------------------|------|-----------|----------------------------------|
| 1    | 51832    | #8 Gland Nut           | 6d   | 26549     | Suction Valve Spring             |
|      | 51829    | #9 Gland Nut           | 6e   | 51814     | Spring Retainer                  |
|      | 52501    | #10 Gland Nut          | 6f   | 26546     | Retaining Ring                   |
|      | 54828    | #11 Gland Nut          | 6g   | 51813     | Suction Valve                    |
| 2*   | 50301    | #8 Plunger             | 7    | 67548     | O-Ring                           |
|      | 51828    | #9 Plunger             | 8    | 27732     | Adapter                          |
|      | 52504    | #10 Plunger            | 9    | 67278     | Manifold                         |
|      | 54966    | #11 Plunger            | 10   | 62172-BLU | 20k Decal                        |
| 3    | 50306    | #8 - #9 Stuffing Box   | 11   | 53284     | Adapter                          |
|      | 52502    | #10 - #11 Stuffing Box | 12   | 52497     | Pressure Gage                    |
|      | 51857    | #8 Packing Set         | 13   | 52076     | Plug                             |
| 4    | 51826    | #9 Packing Set         | 14   | 52035     | Rupture Disc Assembly            |
|      | 52509    | #10                    | 15   | 51659     | Trunnion                         |
|      | J55877   | #11 Packing Set        | 16   | 67808     | Lube Line Tubing (Order in Feet) |
| 5    | 71147-7  | Warning Decals         | 17   | 27539     | Cam-Lok Coupling                 |
| 6    | 51790    | Uni-Valve              | 18   | 27114     | Nipple                           |
| 6a   | 50465    | Uni-Valve Seal Kit     | 19   | 26589     | Caution Plate                    |
| 6b   | 51812    | Discharge Valve        | 20   | 26379     | Screw                            |
| 6c   | 26550    | Discharge Valve Spring | 21   | 25036     | Brass Plug                       |

\*Optional ceramic plungers available for corrosive applications.

# MODEL 3020

## UNx™ FLUID END

PUMPS &  
FLUID ENDS



## FLUID END SPECS

| FLUID END<br>PART NO. | CONNECTION TYPES** |                 | PLUNGER SIZE |          |       | PLUNGER<br>STROKE |      | MAX.<br>RPM | MAX. FLOW* |     | MAX. OPERATING<br>PRESSURE |       |
|-----------------------|--------------------|-----------------|--------------|----------|-------|-------------------|------|-------------|------------|-----|----------------------------|-------|
|                       |                    |                 | NO.          | DIAMETER |       |                   |      |             |            |     |                            |       |
|                       | TOP PORTS          | DISCHARGE PORTS |              | in       | mm    | in                | mm   |             | gpm        | lpm | psi                        | bar   |
| 69321                 | 20K Port Female    | 20K Port Female | #6           | .635     | 16.13 | 3.00              | 76.2 | 600         | 7.4        | 28  | 20,000                     | 1,379 |
| 69322                 |                    |                 | #7           | .700     | 17.78 | 3.00              | 76.2 | 600         | 9.0        | 34  | 20,000                     | 1,379 |
| 69323                 |                    |                 | #8           | .780     | 19.83 | 3.00              | 76.2 | 600         | 11.2       | 42  | 20,000                     | 1,379 |
| 69324                 |                    |                 | #9           | .920     | 23.37 | 3.00              | 76.2 | 600         | 15.5       | 59  | 20,000                     | 1,379 |

\*Displacement (flow) values represented refer to "theoretical" flow, neglecting inefficiency resulting from compressibility of water and expansion of pressure bearing components.

\*\*See details on all connection types in Section I.



# MODEL 3020

## UNx™ FLUID END

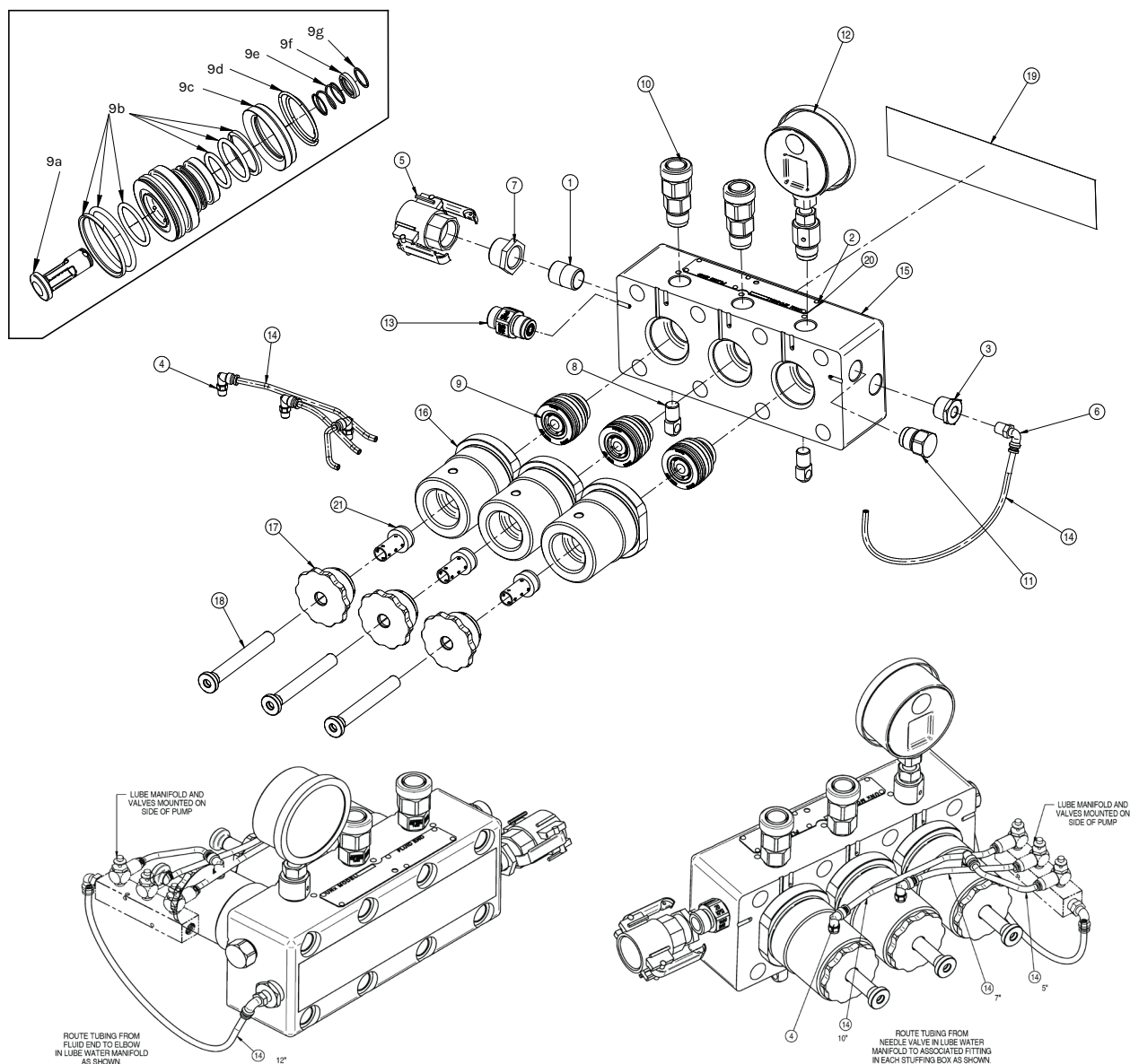
### PART BREAKDOWN

| ITEM | PART NO. | DESCRIPTION                      | ITEM | PART NO.  | DESCRIPTION            |
|------|----------|----------------------------------|------|-----------|------------------------|
| 1    | 51431    | #6 - #7 Stuffing Box             | 9    | 62171-BLU | 20k Decal              |
|      | 55468    | #8 Stuffing Box                  | 10   | 53284     | Adapter                |
|      | 67830    | #9 Stuffing Box                  | 11   | 52497     | Pressure Gage          |
| 2*   | 51849    | #6 Plunger                       | 12   | 52076     | Plug                   |
|      | 51739    | #7 Plunger                       | 13   | 52035     | Rupture Disc Assembly  |
|      | 55466    | #8 Plunger                       | 14   | 51780     | Uni-Valve              |
|      | 67827    | #9 Plunger                       | 14a  | 51757     | Suction Valve          |
| 3    | 51786    | #6 Packing Set                   | 14b  | 51968     | Uni-Valve Seal Kit     |
|      | 51787    | #7 Packing Set                   | 14c  | 51759     | Discharge Valve        |
|      | 55475    | #8 Packing Set                   | 14d  | 25908     | Discharge Valve Spring |
|      | 68460    | #9 Packing Set                   | 14e  | 26145     | Suction Valve Spring   |
| 4    | 51761    | #6 Gland Nut                     | 14f  | 51758     | Spring Retainer        |
|      | 51851    | #7 Gland Nut                     | 14g  | 26501     | Retaining Ring         |
|      | 55467    | #8 Gland Nut                     | 15   | 51659     | Trunnion               |
|      | 68062    | #9 Gland Nut                     | 16   | 27732     | Adapter                |
| 5    | 69301    | Manifold                         | 17   | 27693     | Brass Plug             |
| 6    | 69298    | Caution Plate                    | 18   | 27547     | Cam-Lok Coupling       |
| 7    | 67808    | Lube Line Tubing (Order in Feet) | 19   | 26631     | Nipple                 |
| 8    | 67548    | O-Ring                           | 20   | 26379     | Screw                  |

\*Optional ceramic plungers available for corrosive applications

# MODEL 2020

## UNx™ FLUID END



### FLUID END SPECS

| FLUID<br>END<br>PART<br>NO.* | CONNECTION TYPES    |                               | PLUNGER SIZE |      |       | PLUNGER<br>STROKE |      | MAX.<br>RPM | MAX. FLOW |      | MAX.<br>OPERATING-<br>PRESSURE |      | TYPICAL<br>DIESEL POWER |    |
|------------------------------|---------------------|-------------------------------|--------------|------|-------|-------------------|------|-------------|-----------|------|--------------------------------|------|-------------------------|----|
|                              |                     |                               | DIAMETER     |      |       |                   |      |             |           |      |                                |      |                         |    |
|                              | TOP PORTS           | DISCHARGE/<br>SUPPLY<br>PORTS | NO.          | in   | mm    | in                | mm   |             | gpm       | lpm  | psi                            | bar  | hp                      | kW |
| 69739                        | 1200 Series<br>Port | Jetstream LF                  | 6            | .595 | 15.11 | 2.0               | 50.8 | 800         | 5.8       | 21.8 | 20,000                         | 1379 | 75                      | 56 |

\*\*Displacement (flow) values represented refer to "theoretical" flow, neglecting inefficiency resulting compressibility of water and expansion of pressure-bearing components. Performance data is based on power end specifications published by the original equipment manufacturer; however, some power ends may differ from those used to determine the values above. Contact a Jetstream Solutions Provider for help with fluid end selection.

## PART BREAKDOWN

| ITEM | PART NO. | DESCRIPTION            | ITEM | PART NO. | DESCRIPTION                      |
|------|----------|------------------------|------|----------|----------------------------------|
| 1    | 25946    | Nipple                 | 10   | 52035    | Rupture Disc Assembly            |
| 2    | 26379    | Screw                  | 11   | 52076    | Plug                             |
| 3    | 27558    | Bushing                | 12   | 52497    | Gage                             |
| 4    | 27733    | Elbow                  | 13   | 53284    | Adapter                          |
| 5    | 28132    | Coupler                | 14   | 67808    | Lube Line Tubing (Order in Feet) |
| 6    | 28367    | Elbow                  | 15   | 68111    | Manifold                         |
| 7    | 29451    | Bushing                | 16   | 68706    | #6 Stuffing Box                  |
| 8    | 51659    | Trunnion               | 17   | 68707    | #6 Gland Nut                     |
| 9    | 51780    | Uni-Valve              | 18   | 68710    | #6 Plunger                       |
| 9a   | 51757    | Suction Valve          | 19   | 68713-BL | Decal                            |
| 9b   | 51968    | Uni-Valve Seal Kit     | 20   | 69298    | Caution Plate                    |
| 9c   | 51759    | Discharge Valve        | 21   | 69738    | #6 Packing Set                   |
| 9d   | 25908    | Discharge Valve Spring |      |          |                                  |
| 9e   | 26145    | Suction Valve Spring   |      |          |                                  |
| 9f   | 51758    | Spring Retainer        |      |          |                                  |
| 9g   | 26501    | Retaining Ring         |      |          |                                  |

\*Optional ceramic plungers available for corrosive applications



# UNx™ FLUID END UPGRADES

## BRINGING THE UNX™ ADVANTAGE TO YOUR EXISTING PUMP

Jetstream has created a wide variety of UNx Fluid Ends conversions to adapt to your existing competitor pump. The upgrade delivers all of the benefits of the UNx Fluid End design:

- ▶ Pressures from 5,000 psi to 40,000 psi
- ▶ Superior performance to optimize productivity
- ▶ Greater flexibility in the field
- ▶ Quick serviceability reducing downtime and maintenance in the field
- ▶ Most major competitor conversions available
- ▶ Easily converted while on the job
- ▶ Water lubricated packing set

See Fluid End features and benefits on page B-26. Contact Jetstream for questions regarding the upgrade required.

## JETSTREAM FLUID END CONVERSIONS

| FLUID END PART NO. | FLUID END MODEL | DESCRIPTION                   | MANUFACTURER                 | MANUFACTURER MODEL                                                        |
|--------------------|-----------------|-------------------------------|------------------------------|---------------------------------------------------------------------------|
| 52095              | 3020B           | #6 Triplex                    | Butterworth®/Gardner Denver® | L-74/L-300                                                                |
| 68122              | 3020BC          | #6 Triplex                    | Butterworth®/Gardner Denver  | T-300H                                                                    |
| 68123              | 3020BC          | #7 Triplex                    |                              |                                                                           |
| 68124              | 3020BC          | #8 Triplex                    |                              |                                                                           |
| 52545*             | 3720B           | #8 Triplex                    | Butterworth/Gardner Denver   | L-375, T-375, I-375, TF-375, L-130                                        |
| 54790*             | 3720B           | #9 Triplex                    |                              |                                                                           |
| 59489*             | 3720B           | #11 Triplex                   |                              |                                                                           |
| 54820*             | 3720B           | #9 Triplex w/o Mounting Pkg.  |                              |                                                                           |
| 59487*             | 3720B           | #11 Triplex w/o Mounting Pkg. |                              |                                                                           |
| 52090*             | 4520B           | #8 Triplex                    | Butterworth/Gardner Denver   | L-450, TF-450                                                             |
| 54780*             | 4520B           | #9 Triplex                    |                              |                                                                           |
| 53660*             | 4520B           | #10 Triplex                   |                              |                                                                           |
| 55263*             | 4520B           | #11 Triplex                   |                              |                                                                           |
| 54830*             | 4520B           | #9 Triplex w/o Mounting Pkg.  |                              |                                                                           |
| 52105              | 3020N           | #7 Triplex                    | NLB®                         | 1012                                                                      |
| 52160*             | 4220N           | #8 Triplex                    | NLB                          | 20153, 20156, 20203, 20225, 20305, 24155, 24205, 24225 and other / TD-120 |
| 54795*             | 4220N           | #9 Triplex                    |                              |                                                                           |
| 59687*             | 4220N           | #10 Triplex                   |                              |                                                                           |
| 54870*             | 4220N           | #9 Triplex w/o Mounting Pkg.  |                              |                                                                           |
| 59688*             | 4220N           | #10 Triplex w/o Mounting Pkg. |                              |                                                                           |
| 53580*             | 4220QN          | #8 Quintuplex                 | NLB                          | 20253                                                                     |
| J55885*            | 4220QN          | #9 Quintuplex                 |                              |                                                                           |
| J55890*            | 4220QN          | #10 Quintuplex                |                              |                                                                           |
| 59463*             | 4220QN          | #11 Quintuplex                |                              |                                                                           |
| 52780              | 3120T           | #6 Triplex                    | Tritan®                      | P.313                                                                     |
| 52100              | 3020W           | #6 Triplex                    | Weatherford®                 | FE85/TD60                                                                 |
| 52155              | 3020Q           | #6 Quintuplex                 | Weatherford                  | FE105, QD100, MB10125                                                     |

\*Detailed information to follow on pages B-47 to B-56.

## JETSTREAM FLUID END CONVERSIONS (continued)

| FLUID END PART NO. | FLUID END MODEL | DESCRIPTION   | MANUFACTURER     | MANUFACTURER MODEL |
|--------------------|-----------------|---------------|------------------|--------------------|
| 52085              | 3520Q           | #6 Quintuplex | Wheatley®/Tritan | W:HP125/T:5127     |
| 54565*             | 3720W           | #7 Triplex    | Woma®            | 1502, 1503         |
| 55290              | 3720WZ          | #7 Triplex    | Woma             | 150-Z              |

\*Detailed information to follow on pages B-47 to B-56.

## EUROPEAN JETSTREAM FLUID END CONVERSIONS

| FLUID END PART NO. | FLUID END MODEL | DESCRIPTION    | MANUFACTURER | EURO MODEL INCLUDES                                                                                  |
|--------------------|-----------------|----------------|--------------|------------------------------------------------------------------------------------------------------|
| 55337              | 3020            | #6 Triplex     | Jetstream    | Euro Lube Harness<br>Dual Gauge<br>Euro Bypass Valve<br>Hydrothrottle Package<br>Spare Tools Package |
| 55187              | 3020            | #7 Triplex     |              |                                                                                                      |
| 55362              | 3020            | #8 Triplex     |              |                                                                                                      |
| 55191              | 3620            | #8 Triplex     |              |                                                                                                      |
| 55350              | 4220            | #9 Triplex     |              |                                                                                                      |
| 55195              | 4220            | #10 Triplex    |              |                                                                                                      |
| 55199              | 4220            | #11 Triplex    |              |                                                                                                      |
| 55357              | 5020            | #11 Quintuplex |              |                                                                                                      |



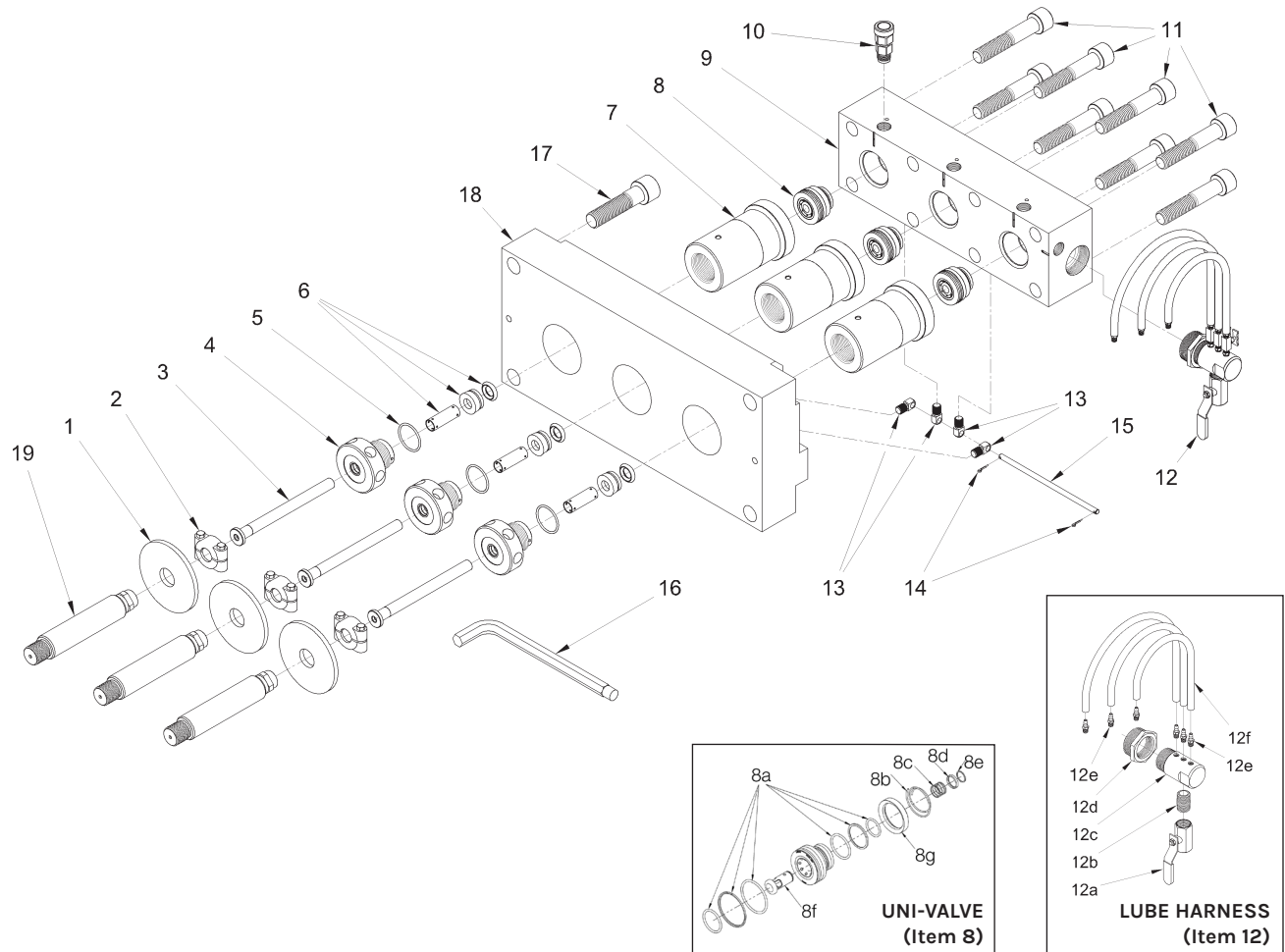
# MODEL 4520B

UNx™ FLUID END UPGRADE

BUTTERWORTH® | GARDNER-DENVER®

L-450, TF-450 PUMPS

PUMPS &  
FLUID ENDS



## FLUID END SPECS

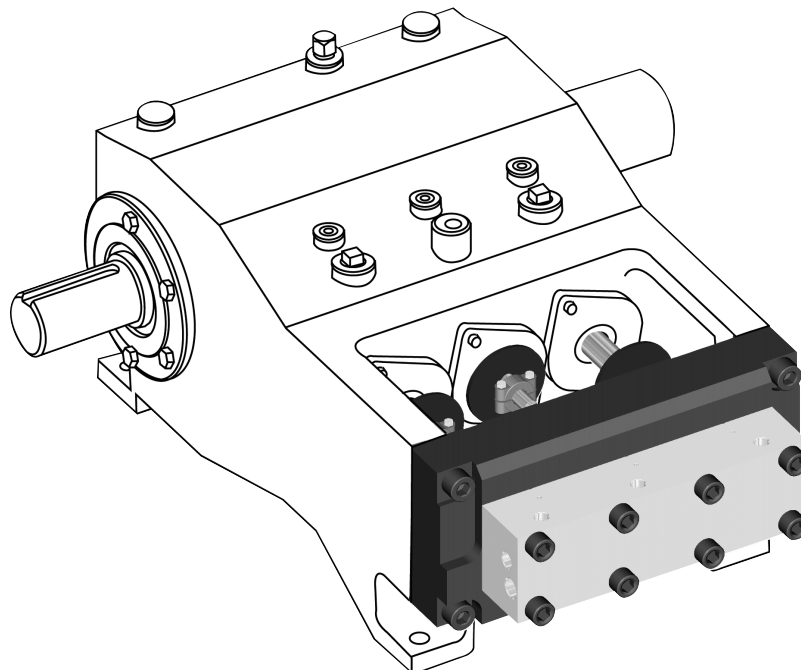
| PART NO. | PLUNGER SIZE |          |       | CONNECTION TYPES** |                 | PUMP DISPLACEMENT AT SPECIFIED PUMP SPEEDS* |     |         |     |         |     |         |     | MAX. OPERATING PRESSURE |       |
|----------|--------------|----------|-------|--------------------|-----------------|---------------------------------------------|-----|---------|-----|---------|-----|---------|-----|-------------------------|-------|
|          | NO.          | DIAMETER |       |                    |                 | 200 RPM                                     |     | 300 RPM |     | 400 RPM |     | 514 RPM |     |                         |       |
|          |              | in       | mm    | TOP PORTS          | DISCHARGE PORTS | gpm                                         | lpm | gpm     | lpm | gpm     | lpm | gpm     | lpm | psi                     | bar   |
| 52090    | #8           | .800     | 20.32 | 20K Port Female    | 20K Port Female | 5.9                                         | 22  | 8.8     | 33  | 11.8    | 44  | 14.7    | 55  | 20,000                  | 1,379 |
| 54780    | #9           | .900     | 22.86 |                    |                 | 7.4                                         | 28  | 11.2    | 42  | 14.9    | 56  | 18.6    | 70  | 20,000                  | 1,379 |
| 53660    | #10          | .980     | 24.89 |                    |                 | 8.8                                         | 33  | 13.2    | 50  | 17.6    | 67  | 22.1    | 83  | 20,000                  | 1,379 |
| 55263    | #11          | 1.06     | 26.92 |                    |                 | 10.4                                        | 39  | 15.5    | 59  | 20.7    | 78  | 25.9    | 98  | 20,000                  | 1,379 |

\*Displacement (flow) values represented refer to "theoretical" flow, neglecting inefficiency resulting from compressibility of water and expansion of pressure-bearing components.

\*\* See details on all connection types in Section I.

## PART BREAKDOWN

| ITEM | PART NO. | DESCRIPTION            | ITEM | PART NO. | DESCRIPTION          |
|------|----------|------------------------|------|----------|----------------------|
| 1    | 26487    | Deflector              | 8d   | 51814    | Spring Retainer      |
| 2    | 51736    | Plunger Coupling       | 8e   | 26546    | Retaining Ring       |
| 3    | 50301    | #8 Plunger             | 8f   | 51813    | Suction Valve        |
|      | 51828    | #9 Plunger             | 8g   | 51812    | Discharge Valve      |
|      | 52504    | #10 Plunger            | 9    | 51974    | Manifold             |
|      | 54966    | #11 Plunger            | 10   | 52035    | Rupture Disc Holder  |
| 4    | 51832    | #8 Gland Nut           | 11   | 25607    | Manifold Bolt        |
|      | 51829    | #9 Gland Nut           | 12   | 51955    | Lube Harness         |
|      | 52501    | #10 Gland Nut          | 12a  | 27101    | Ball Valve           |
|      | 54828    | #11 Gland Nut          | 12b  | 25946    | Nipple               |
| 5    | 26416    | O-Ring                 | 12c  | 53242    | Lube Manifold        |
| 6    | 51857    | #8 Packing Set         | 12d  | 26802    | Reducing Bushing     |
|      | 51826    | #9 Packing Set         | 12e  | 27732    | Hose Fitting         |
|      | 52509    | #10 Packing Set        | 12f  | 27740    | Hose (order in feet) |
|      | J55877   | #11 Packing Set        | 13   | 51659    | Trunnion             |
| 7    | 51991    | #8, #9 Stuffing Box    | 14   | 26468    | Cotter Pin           |
|      | 53296    | #10, #11 Stuffing Box  | 15   | 50295    | Trunnion Rod         |
| 8    | 51790    | Uni-Valve              | 16   | 50889    | Pump Wrench          |
| 8a   | 50465    | Uni-Valve Seal Kit     | 17   | 26212    | Adapter Plate Bolt   |
| 8b   | 26550    | Discharge Valve Spring | 18   | 51714    | Adapter Plate        |
| 8c   | 26549    | Suction Valve Spring   | 19   | 51719    | Plunger Adapter      |



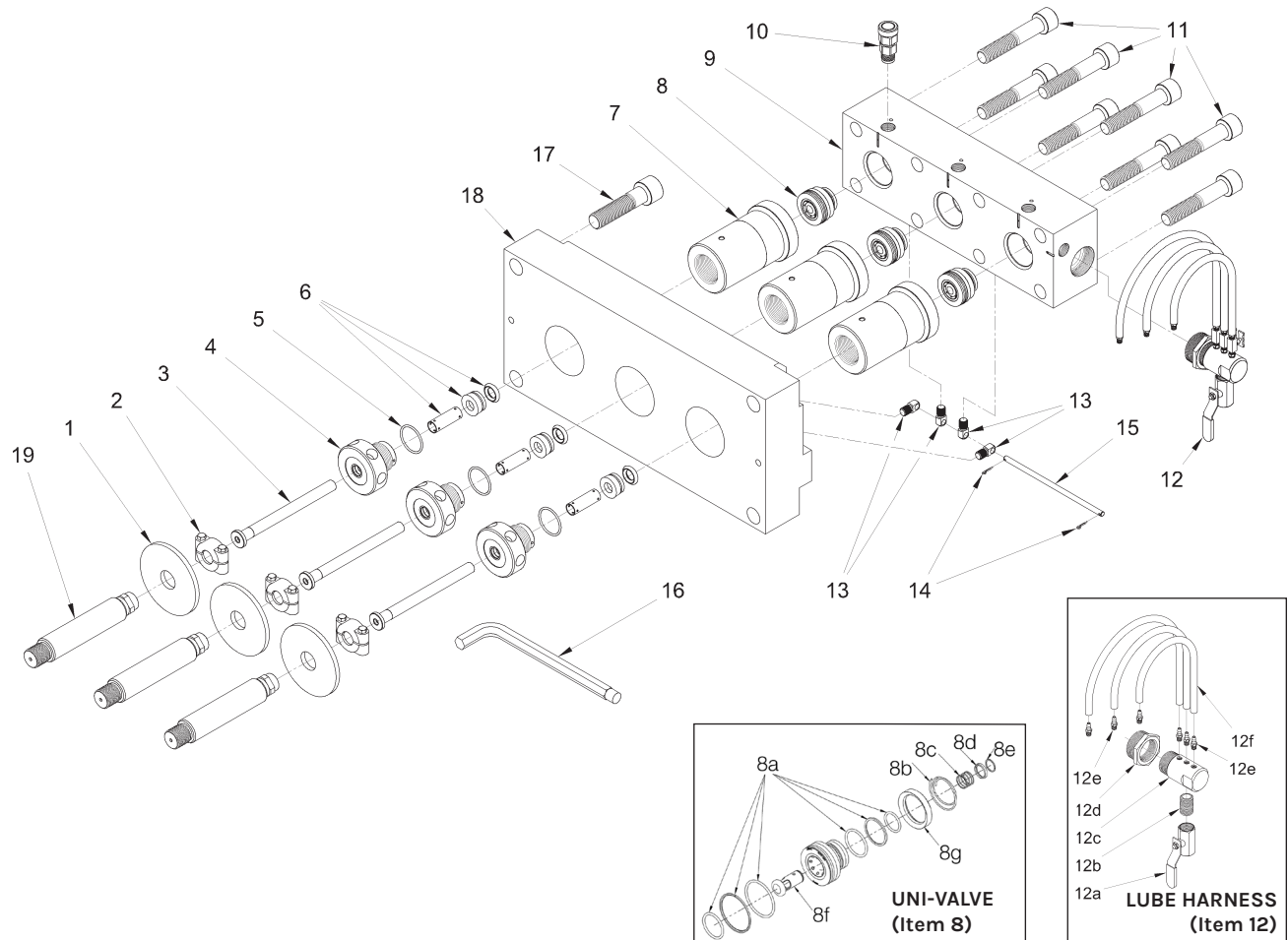
# MODEL 3720B

UNx™ FLUID END UPGRADE

BUTTERWORTH® | GARDNER-DENVER®

L-375, TF-375 PUMPS

PUMPS &  
FLUID ENDS



## FLUID END SPECS

| PART NO.           | PLUNGER SIZE |          |       | CONNECTION TYPES** |                 | PUMP DISPLACEMENT AT SPECIFIED PUMP SPEEDS* |     |         |     |         |     |         |     | MAX. OPERATING PRESSURE |       |
|--------------------|--------------|----------|-------|--------------------|-----------------|---------------------------------------------|-----|---------|-----|---------|-----|---------|-----|-------------------------|-------|
|                    | NO.          | DIAMETER |       |                    |                 | 200 RPM                                     |     | 300 RPM |     | 400 RPM |     | 500 RPM |     |                         |       |
|                    |              | in       | mm    | TOP PORTS          | DISCHARGE PORTS | gpm                                         | lpm | gpm     | lpm | gpm     | lpm | gpm     | lpm | psi                     | bar   |
| 52545              | #8           | .800     | 20.32 | 20K Port Female    | 20K Port Female | 4.9                                         | 18  | 7.3     | 28  | 9.8     | 37  | 12.2    | 46  | 20,000                  | 1,379 |
| 54790              | #9           | .900     | 22.86 |                    |                 | 6.2                                         | 23  | 9.3     | 35  | 12.4    | 47  | 15.5    | 59  | 20,000                  | 1,379 |
| 59489              | #11          | 1.06     | 26.92 |                    |                 | 8.6                                         | 32  | 12.9    | 49~ | 17.3    | 65  | 21.6    | 82  | 20,000                  | 1,379 |
| 54820 <sup>A</sup> | #9           | .900     | 22.86 |                    |                 | 6.2                                         | 23  | 9.3     | 35  | 12.4    | 47  | 15.5    | 59  | 20,000                  | 1,379 |
| 59487 <sup>A</sup> | #11          | 1.06     | 26.92 |                    |                 | 8.6                                         | 32  | 12.9    | 49  | 17.3    | 65  | 21.6    | 82  | 20,000                  | 1,379 |

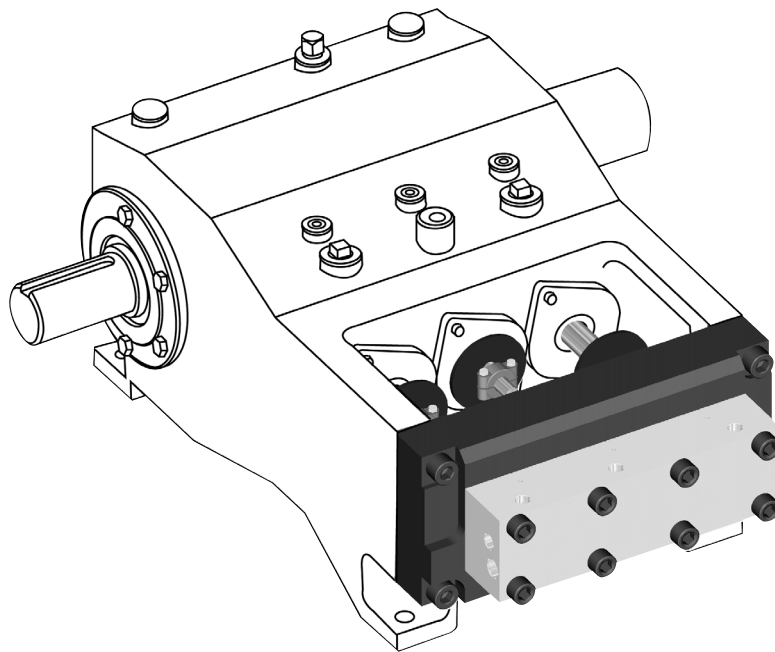
\*Displacement (flow) values represented refer to "theoretical" flow, neglecting inefficiency resulting from compressibility of water and expansion of pressure-bearing components.

\*\*See details on all connection types in Section I.

<sup>A</sup> Fluid End connections without the mounting package.

## PART BREAKDOWN

| ITEM | PART NO. | DESCRIPTION            | ITEM | PART NO. | DESCRIPTION          |
|------|----------|------------------------|------|----------|----------------------|
| 1    | 26487    | Deflector              | 8g   | 51812    | Discharge Valve      |
| 2    | 51736    | Plunger Coupling       | 9    | 52487    | Manifold             |
| 3    | 50301    | #8 Plunger             | 10   | 52035    | Rupture Disc Holder  |
|      | 51828    | #9 Plunger             | 11   | 25607    | Manifold Bolt        |
|      | 54966    | #11 Plunger            | 12   | 51955    | Lube Harness         |
| 4    | 51832    | #8 Gland Nut           | 12a  | 27101    | Ball Valve           |
|      | 51829    | #9 Gland Nut           | 12b  | 25946    | Nipple               |
|      | 54828    | #11 Gland Nut          | 12c  | 53242    | Lube Manifold        |
| 5    | 26416    | O-Ring                 | 12d  | 26802    | Reducing Bushing     |
| 6    | 51857    | #8 Packing Set         | 12e  | 27732    | Hose Fitting         |
|      | 51826    | #9 Packing Set         | 12f  | 27740    | Hose (order in feet) |
|      | J55877   | #11 Packing Set        | 12g  | 27475    | Needle Valve         |
| 7    | 50306    | #8, #9 Stuffing Box    | 12h  | 26465    | Nipple               |
|      | 52502    | #11 Stuffing Box       | 13   | 51659    | Trunnion             |
| 8    | 51790    | Uni-Valve              | 14   | 26468    | Cotter Pin           |
| 8a   | 50465    | Uni-Valve Seal Kit     | 15   | 50295    | Trunnion Rod         |
| 8b   | 26550    | Discharge Valve Spring | 16   | 50889    | Pump Wrench          |
| 8c   | 26549    | Suction Valve Spring   | 17   | 26220    | Adapter Plate Bolt   |
| 8d   | 51814    | Spring Retainer        | 18   | 52197    | Adapter Plate        |
| 8e   | 26546    | Retaining Ring         | 19   | 52196    | Plunger Adapter      |
| 8f   | 51813    | Suction Valve          |      |          |                      |

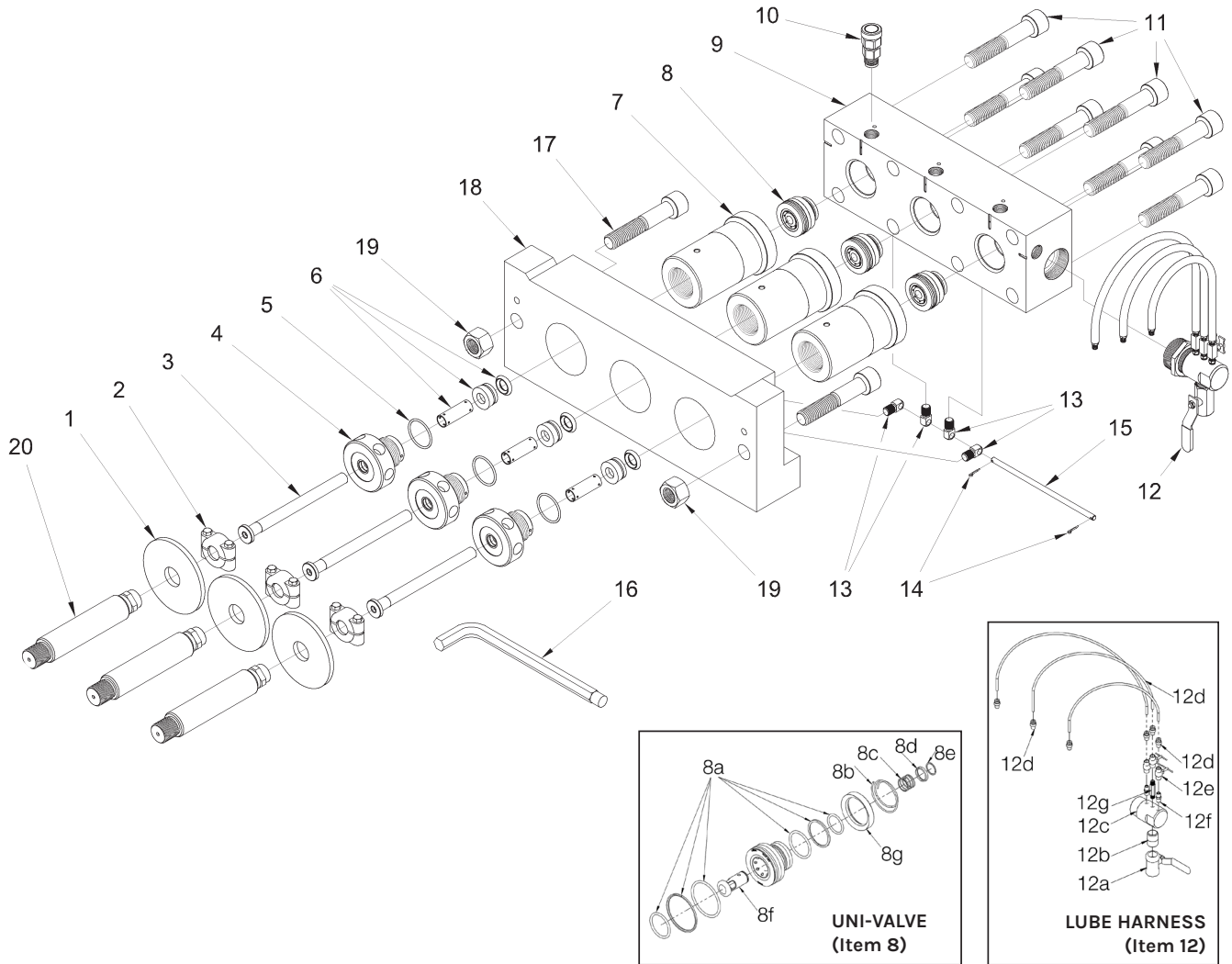


# MODEL 4220N

UNx™ FLUID END UPGRADE

NLB® TRIPLEX PUMPS 150 TO 225 HORSEPOWER

PUMPS &  
FLUID ENDS



## FLUID END SPECS

| PART NO.           | PLUNGER SIZE |          |       | CONNECTION TYPES** |                 | PUMP DISPLACEMENT AT SPECIFIED PUMP SPEEDS* |     |         |     |         |     |         |     | MAX. OPERATING PRESSURE |       |
|--------------------|--------------|----------|-------|--------------------|-----------------|---------------------------------------------|-----|---------|-----|---------|-----|---------|-----|-------------------------|-------|
|                    | NO.          | DIAMETER |       |                    |                 | 200 RPM                                     |     | 300 RPM |     | 400 RPM |     | 500 RPM |     |                         |       |
|                    |              | in       | mm    | TOP PORTS          | DISCHARGE PORTS | gpm                                         | lpm | gpm     | lpm | gpm     | lpm | gpm     | lpm | psi                     | bar   |
| 52160              | #8           | .800     | 20.32 | 20K Port Female    | 20K Port Female | 4.6                                         | 21  | 8.3     | 31  | 11.1    | 42  | 13.9    | 52  | 20,000                  | 1,379 |
| 54795              | #9           | .900     | 22.86 |                    |                 | 7.0                                         | 27  | 10.5    | 40  | 14.1    | 53  | 17.6    | 66  | 20,000                  | 1,379 |
| 59687              | #10          | .980     | 24.89 |                    |                 | 8.3                                         | 31  | 12.5    | 47  | 16.7    | 63  | 20.8    | 79  | 20,000                  | 1,379 |
| 54870 <sup>A</sup> | #9           | .900     | 22.86 |                    |                 | 7.0                                         | 27  | 10.5    | 40  | 14.1    | 33  | 17.6    | 66  | 20,000                  | 1,379 |
| 59688 <sup>A</sup> | #10          | .980     | 24.89 |                    |                 | 8.3                                         | 31  | 12.5    | 47  | 16.7    | 63  | 20.8    | 79  | 20,000                  | 1,379 |

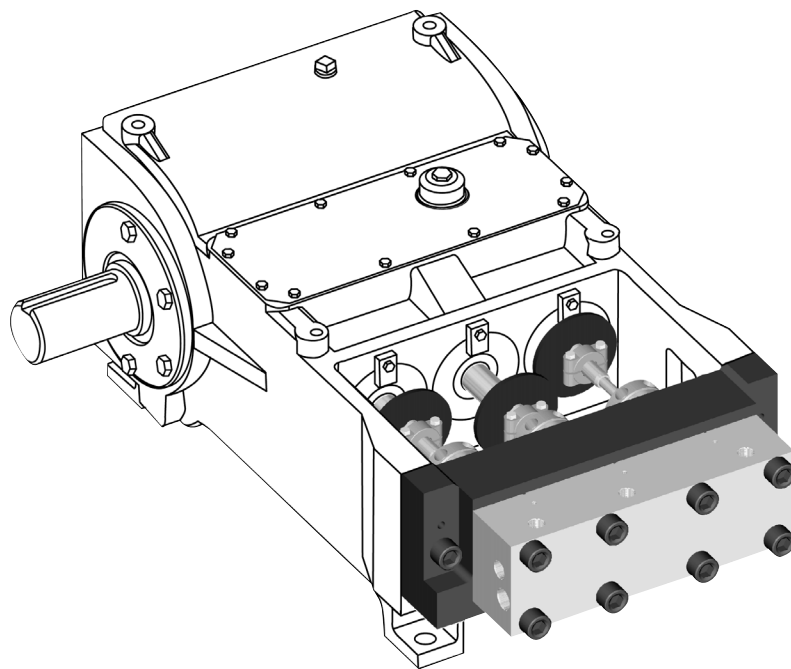
\*Displacement (flow) values represented refer to "theoretical" flow, neglecting inefficiency resulting from compressibility of water and expansion of pressure-bearing components.

\*\*See details on all connection types in Section I.

<sup>A</sup>Fluid End conversion without mounting package.

## PART BREAKDOWN

| ITEM | PART NO. | DESCRIPTION            | ITEM | PART NO. | DESCRIPTION          |
|------|----------|------------------------|------|----------|----------------------|
| 1    | 26487    | Deflector              | 8g   | 51812    | Discharge Valve      |
| 2    | 51736    | Plunger Coupling       | 9    | 51818    | Manifold             |
| 3    | 50301    | #8 Plunger             | 10   | 52035    | Rupture Disc Holder  |
|      | 51828    | #9 Plunger             | 11   | 25607    | Manifold Bolt        |
|      | 52504    | #10 Plunger            | 12   | 51955    | Lube Harness         |
| 4    | 51832    | #8 Gland Nut           | 12a  | 27101    | Ball Valve           |
|      | 51829    | #9 Gland Nut           | 12b  | 25946    | Nipple               |
|      | 52501    | #10 Gland Nut          | 12c  | 53242    | Lube Manifold        |
| 5    | 26416    | O-Ring                 | 12d  | 26802    | Reducing Bushing     |
| 6    | 51857    | #8 Packing Set         | 12e  | 27732    | Hose Fitting         |
|      | 51826    | #9 Packing Set         | 12f  | 27740    | Hose (order in feet) |
|      | 52509    | #10 Packing Set        | 12g  | 27475    | Needle Valve         |
| 7    | 50306    | #8, #9 Stuffing Box    | 12h  | 26465    | Nipple               |
|      | 52502    | #10 Stuffing Box       | 13   | 51659    | Trunnion             |
| 8    | 51790    | Uni-Valve              | 14   | 26468    | Cotter Pin           |
| 8a   | 50465    | Uni-Valve Seal Kit     | 15   | 50295    | Trunnion Rod         |
| 8b   | 26550    | Discharge Valve Spring | 16   | 50889    | Pump Wrench          |
| 8c   | 26549    | Suction Valve Spring   | 17   | 26500    | Adapter Plate Bolt   |
| 8d   | 51814    | Spring Retainer        | 18   | 50293    | Adapter Plate        |
| 8e   | 26546    | Retaining Ring         | 19   | 26669    | Adapter Plate Nut    |
| 8f   | 51813    | Suction Valve          | 20   | 51766    | Plunger Adapter      |



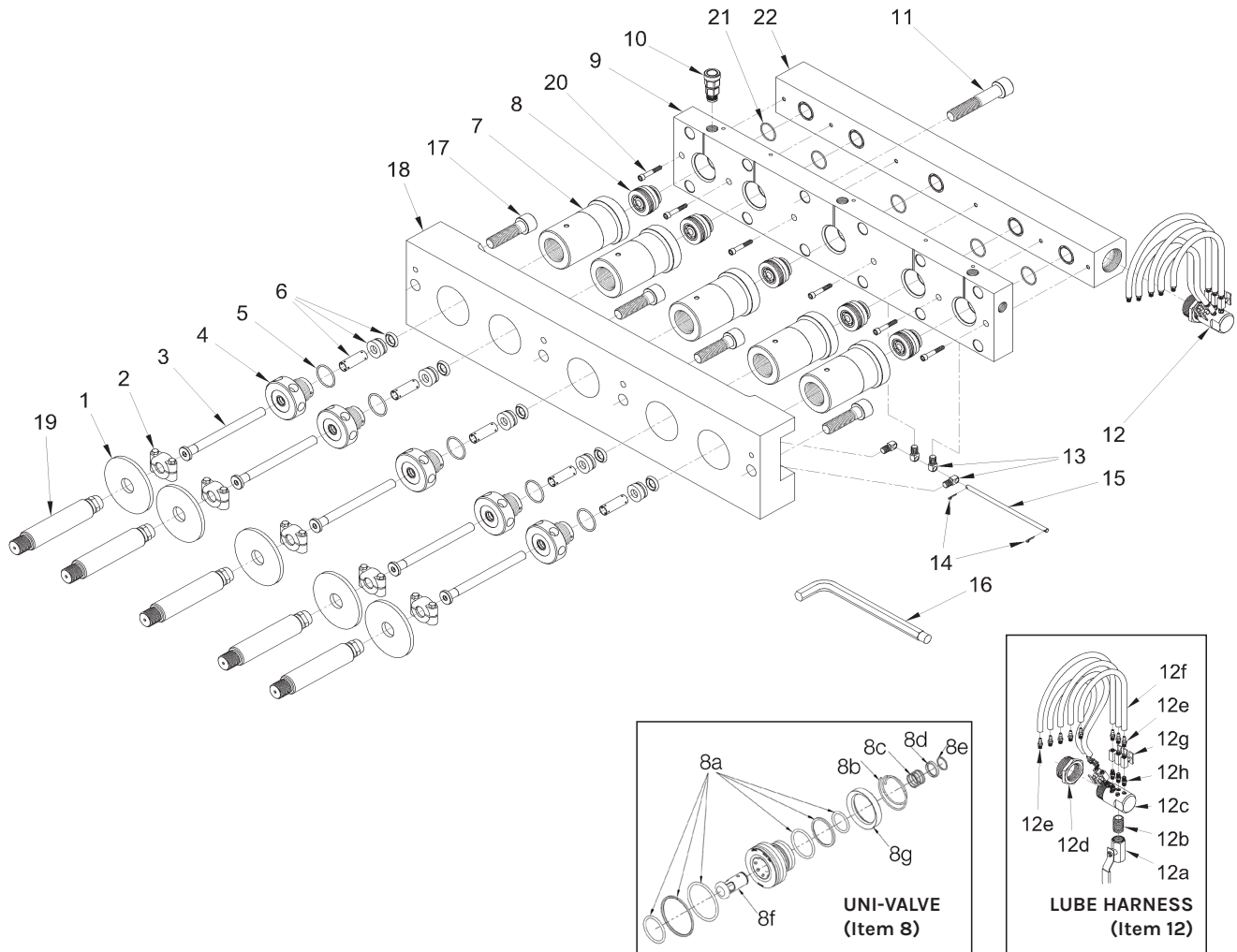


# MODEL 4220QN

UNx™ FLUID END UPGRADE

NLB® QUINTUPLEX PUMPS UP TO 250 HORSEPOWER

PUMPS &  
FLUID ENDS



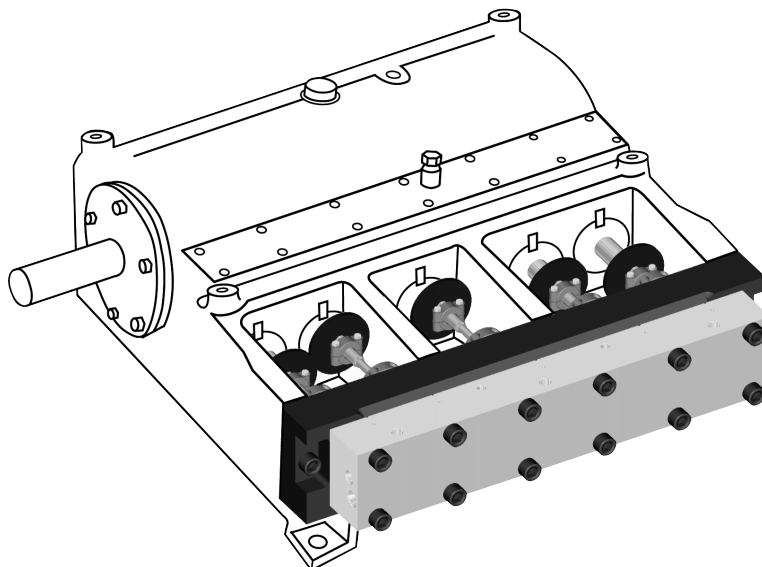
## FLUID END SPECS

| PART NO. | PLUNGER SIZE |          |       | CONNECTION TYPES** |                 | PUMP DISPLACEMENT AT SPECIFIED PUMP SPEEDS* |     |         |     |         |     |         |     | MAX. OPERATING PRESSURE |       |
|----------|--------------|----------|-------|--------------------|-----------------|---------------------------------------------|-----|---------|-----|---------|-----|---------|-----|-------------------------|-------|
|          | NO.          | DIAMETER |       |                    |                 | 150 RPM                                     |     | 200 RPM |     | 300 RPM |     | 400 RPM |     |                         |       |
|          |              | in       | mm    | TOP PORTS          | DISCHARGE PORTS | gpm                                         | lpm | gpm     | lpm | gpm     | lpm | gpm     | lpm | psi                     | bar   |
| 53580    | #8           | .800     | 20.32 | 20K Port Female    | 20K Port Female | 6.9                                         | 26  | 9.3     | 35  | 13.9    | 52  | 18.5    | 70  | 20,000                  | 1,379 |
| J55885   | #9           | .900     | 22.86 |                    |                 | 11.7                                        | 44  | 17.6    | 67  | 23.4    | 88  | 29.3    | 111 | 20,000                  | 1,379 |
| J55890   | #10          | .980     | 24.89 |                    |                 | 13.9                                        | 53  | 20.8    | 79  | 27.8    | 105 | 34.7    | 131 | 20,000                  | 1,379 |
| 59463    | #11          | 1.06     | 26.92 |                    |                 | 16.3                                        | 62  | 24.5    | 93  | 32.6    | 123 | 40.8    | 154 | 20,000                  | 1,379 |

\*Displacement (flow) values represented refer to "theoretical" flow, neglecting inefficiency resulting from compressibility of water and expansion of pressure-bearing components.  
 \*\*See details on all connection types in Section I.

## PART BREAKDOWN

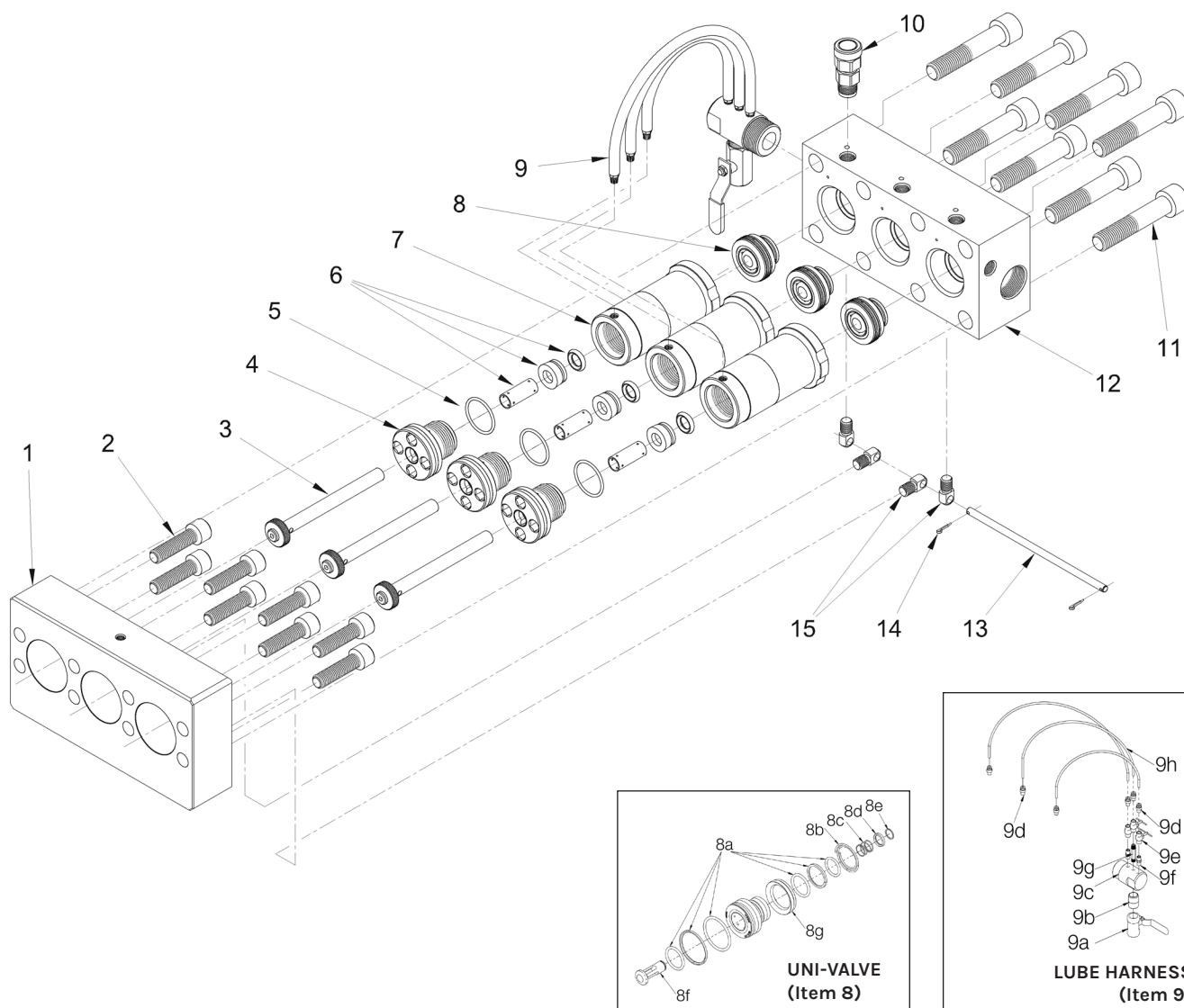
| ITEM | PART NO. | DESCRIPTION            | ITEM | PART NO. | DESCRIPTION           |
|------|----------|------------------------|------|----------|-----------------------|
| 1    | 26487    | Deflector              | 8g   | 51812    | Discharge Valve       |
| 2    | 51736    | Plunger Coupling       | 9    | 53599    | Manifold              |
| 3    | 50301    | #8 Plunger             | 10   | 52035    | Rupture Disc Holder   |
|      | 51828    | #9 Plunger             | 11   | 27550    | Manifold Bolt         |
|      | 52504    | #10 Plunger            | 12   | 53590    | Lube Harness          |
|      | 54966    | #11 Plunger            | 12a  | 27101    | Ball Valve            |
| 4    | 51832    | #8 Gland Nut           | 12b  | 25946    | Nipple                |
|      | 51829    | #9 Gland Nut           | 12c  | 53793    | Lube Manifold         |
|      | 52501    | #10 Gland Nut          | 12d  | 27729    | Reducing Bushing      |
|      | 54828    | #11 Gland Nut          | 12e  | 26874    | Hose Fitting          |
| 5    | 26416    | O-Ring                 | 12f  | 26469    | Hose (order in feet)  |
| 6    | 51857    | #8 Packing Set         | 12g  | 27475    | Needle Valve          |
|      | 51826    | #9 Packing Set         | 12h  | 26465    | Nipple                |
|      | 52509    | #10 Packing Set        | 13   | 51659    | Trunnion              |
|      | J55877   | #11 Packing Set        | 14   | 26468    | Cotter Pin            |
| 7    | 50306    | #8, #9 Stuffing Box    | 15   | 50295    | Trunnion Rod          |
|      | 52502    | #10, #11 Stuffing Box  | 16   | 50889    | Pump Wrench           |
| 8    | 51790    | Uni-Valve              | 17   | 27550    | Adapter Plate Bolt    |
| 8a   | 50465    | Uni-Valve Seal Kit     | 18   | 53602    | Adapter Plate         |
| 8b   | 26550    | Discharge Valve Spring | 19   | 51766    | Plunger Adapter       |
| 8c   | 26549    | Suction Valve Spring   | 20   | 27551    | Suction Manifold Bolt |
| 8d   | 51814    | Spring Retainer        | 21   | 25566    | O-Ring                |
| 8e   | 26546    | Retaining Ring         | 22   | 53601    | Suction Manifold      |
| 8f   | 51813    | Suction Valve          |      |          |                       |



# MODEL 3720WZ

## UNx™ FLUID END UPGRADE

### WOMA® 150 SERIES PUMPS



## FLUID END SPECS

| PART NO. | PLUNGER SIZE |          |       | CONNECTION TYPES** |                 | PUMP DISPLACEMENT AT SPECIFIED PUMP SPEEDS* |       |                 |                 |         |     |         |     | MAX. OPERATING PRESSURE |       |
|----------|--------------|----------|-------|--------------------|-----------------|---------------------------------------------|-------|-----------------|-----------------|---------|-----|---------|-----|-------------------------|-------|
|          | NO.          | DIAMETER |       |                    |                 | 150 RPM                                     |       | 200 RPM         |                 | 300 RPM |     | 400 RPM |     |                         |       |
|          |              | in       | mm    | TOP PORTS          | DISCHARGE PORTS | gpm                                         | lpm   | gpm             | lpm             | gpm     | lpm | gpm     | lpm | psi                     | bar   |
|          |              | 54565    | #7    |                    |                 | .700                                        | 17.78 | 20K Port Female | 20K Port Female | 3.7     | 14  | 5.6     | 21  | 7.5                     | 28    |
| 55290    | #7           | .708     | 17.98 | 3.7                | 14              | 5.6                                         | 21    |                 |                 | 7.5     | 28  | 9.4     | 35  | 20,000                  | 1,379 |

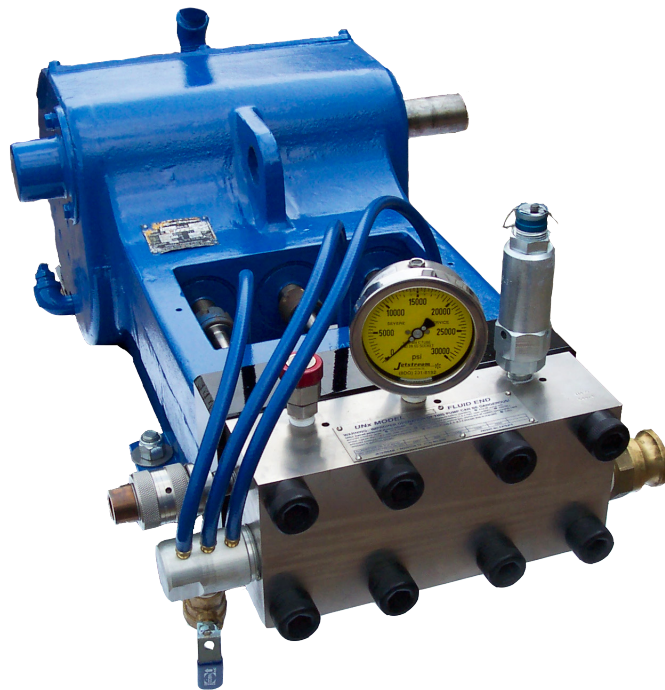
\*Displacement (flow) values represented refer to "theoretical" flow, neglecting inefficiency resulting from compressibility of water and expansion of pressure-bearing components.

\*\*See details on all connection types in Section I.

## PART BREAKDOWN

| ITEM | PART NO. | DESCRIPTION            | ITEM | PART NO. | DESCRIPTION          |
|------|----------|------------------------|------|----------|----------------------|
| 1    | 54426    | Adapter Plate          | 9a   | 27101    | Ball Valve           |
| 2    | 28616    | Capscrew               | 9b   | 25946    | Nipple               |
| 3    | 54504    | #7 Plunger             | 9c   | 53242    | Lube Manifold        |
| 4    | 54509    | #7 Gland Nut           | 9d   | 27732    | Hose Fitting         |
| 5    | 59305    | O-Ring                 | 9e   | 27475    | Needle Valve         |
| 6    | 51787    | #7 Packing Set         | 9f   | 26465    | Nipple               |
| 7    | 54498    | #7 Stuffing Box        | 9g   | 60815    | Nipple, 7/6 Hx       |
| 8    | 51780    | Uni-Valve              | 9h   | 27740    | Hose (Order in feet) |
| 8a   | 51968    | Uni-Valve Seal Kit     | 10   | 52035    | Rupture Disc Holder  |
| 8b   | 25908    | Discharge Valve Spring | 11   | 28462    | Capscrew             |
| 8c   | 26145    | Suction Valve Spring   | 12   | 55274    | Manifold             |
| 8d   | 51758    | Spring Retainer        | 13   | 51666    | Trunnion Rod         |
| 8e   | 26501    | Retainer Ring          | 14   | 26468    | Cotter Pin           |
| 8f   | 51757    | Suction Valve          | 15   | 29748    | Capscrew             |
| 8g   | 51759    | Discharge Valve        | 16*  | 26544    | 5/8" Hex Wrench      |
| 9    | 51695    | Lube Harness           | 17*  | 25421    | 3/4" Hex Wrench      |

\*Not shown





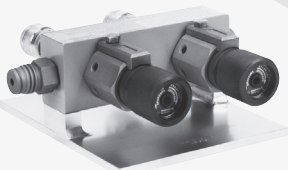
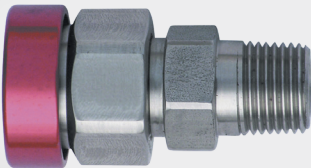
# PUMP ACCESSORIES

## EVERYTHING YOU NEED TO SUCCEED

Jetstream offers recommended pump and fluid end parts to ensure a safe and uninterrupted workday. From spare parts packages to filters to pump tools, necessary and optional parts associated with the bareshaft pump and fluid end are provided in this section. These parts are the skeleton to the functionality of the fluid end. Easily maintained parts ensure the pump is performing at required pressures throughout the entire job.

The Pump Accessories section includes the following parts and packages:

- ▶ Fluid End Spare Parts Packages
- ▶ Pump Tools (Wrenches, Studs, Lubricants)
- ▶ Filters and Filter Assemblies
- ▶ Pressure Gauges
- ▶ Rupture Disc Assembly and Discs
- ▶ Valves (Bypass, Air-Operated, Hydraulic, Multi-Gun Valves)
- ▶ Hydro-Throttle Assemblies
- ▶ Multi-Unit Manifold
- ▶ Hydrostatic Test Valve
- ▶ 20K Check Valve



**PACKAGING NOTES:**

|                  |                                                                                                                      |
|------------------|----------------------------------------------------------------------------------------------------------------------|
| # of Plungers    | S1 or SP   S1=1 plunger   SP=3 plungers                                                                              |
| Fluid End Model  | 302 or 422                                                                                                           |
| Working Pressure | 20                                                                                                                   |
| Plunger Size     | 6, 7, 8, 9, 10 or 11                                                                                                 |
| Burst Discs      | B or S   B=five discs at primary and secondary relief pressures;<br>S=ten discs for use with secondary relief device |

# SPARE PARTS PACKAGES

## FOR UNx™ FLUID ENDS

A must-have for field repairs, these packages include all major fluid end replacement parts packaged together for easy transport and storage.

- ▶ Available for most 20K UNx fluid ends.
- ▶ Packaged in a top-of-the-line, waterproof Pelican® case with tough custom foam inlay.

## PACKAGE CONTENTS

- ▶ 1 or Multiple Plungers
- ▶ 3 Uni-Valves
- ▶ 3 Packing Sets
- ▶ 3 Uni-Valve Seal Kits
- ▶ 10 Burst Discs (five each at primary and secondary relief pressures, or ten at the same relief pressure if only one rupture disc holder is used)
- ▶ Locking waterproof case and keys

## 5220 QUINTUPLEX SPARE PARTS PACKAGES

### 1 PLUNGER PACKAGES

| PART NO.       | PRESSURE (PSI) | DESCRIPTION |
|----------------|----------------|-------------|
| S1522Q-20-10-B | 20,000         | 5220Q #10   |
| S1522Q-20-10-S | 20,000         | 5220Q #10   |
| S1522Q-20-11-B | 20,000         | 5220Q #11   |
| S1522Q-20-11-S | 20,000         | 5220Q #11   |

### 5 PLUNGER PACKAGES

| PART NO.       | PRESSURE (PSI) | DESCRIPTION |
|----------------|----------------|-------------|
| SP522Q-20-10-B | 20,000         | 5220Q #10   |
| SP522Q-20-10-S | 20,000         | 5220Q #10   |
| SP522Q-20-11-B | 20,000         | 5220Q #11   |
| SP522Q-20-11-S | 20,000         | 5220Q #11   |

## 5220 SPARE PARTS PACKAGES

### 1 PLUNGER PACKAGES

| PART NO.      | PRESSURE (PSI) | DESCRIPTION |
|---------------|----------------|-------------|
| S1522-20-9-B  | 20,000         | 5220 #9     |
| S1522-20-9-S  | 20,000         | 5220 #9     |
| S1522-20-10-B | 20,000         | 5220 #10    |
| S1522-20-10-S | 20,000         | 5220 #10    |
| S1522-20-11-S | 20,000         | 5220 #11    |

### 3 PLUNGER PACKAGES

| PART NO.      | PRESSURE (PSI) | DESCRIPTION |
|---------------|----------------|-------------|
| SP522-20-9-B  | 20,000         | 5220 #9     |
| SP522-20-9-S  | 20,000         | 5220 #9     |
| SP522-20-10-B | 20,000         | 5220 #10    |
| SP522-20-10-S | 20,000         | 5220 #10    |
| SP522-20-11-B | 20,000         | 5220 #11    |
| SP522-20-11-S | 20,000         | 5220 #11    |



## 4220 SPARE PARTS PACKAGES

### 1 PLUNGER PACKAGES

| PART NO.      | PRESSURE (PSI) | DESCRIPTION | PART NO.      | PRESSURE (PSI) | DESCRIPTION |
|---------------|----------------|-------------|---------------|----------------|-------------|
| S1422-20-8-B  | 20,000         | 4220 #8     | SP422-20-8-B  | 20,000         | 4220 #8     |
| S1422-20-8-S  | 20,000         | 4220 #8     | SP422-20-8-S  | 20,000         | 4220 #8     |
| S1422-20-9-B  | 20,000         | 4220 #9     | SP422-20-9-B  | 20,000         | 4220 #9     |
| S1422-20-9-S  | 20,000         | 4220 #9     | SP422-20-9-S  | 20,000         | 4220 #9     |
| S1422-20-10-B | 20,000         | 4220 #10    | SP422-20-10-B | 20,000         | 4220 #10    |
| S1422-20-10-S | 20,000         | 4220 #10    | SP422-20-10-S | 20,000         | 4220 #10    |
| S1422-20-11-B | 20,000         | 4220 #11    | SP422-20-11-B | 20,000         | 4220 #11    |
| S1422-20-11-S | 20,000         | 4220 #11    | SP422-20-11-S | 20,000         | 4220 #11    |

## 3020 SPARE PARTS PACKAGES

### 1 PLUNGER PACKAGES

| PART NO.     | PRESSURE (PSI) | DESCRIPTION | PART NO.     | PRESSURE (PSI) | DESCRIPTION |
|--------------|----------------|-------------|--------------|----------------|-------------|
| S1302-20-6-B | 20,000         | 3020 #6     | SP302-20-6-B | 20,000         | 3020 #6     |
| S1302-20-6-S | 20,000         | 3020 #6     | SP302-20-6-S | 20,000         | 3020 #6     |
| S1302-20-7-B | 20,000         | 3020 #7     | SP302-20-7-B | 20,000         | 3020 #7     |
| S1302-20-7-S | 20,000         | 3020 #7     | SP302-20-7-S | 20,000         | 3020 #7     |
| S1302-20-8-B | 20,000         | 3020 #8     | SP302-20-8-B | 20,000         | 3020 #8     |

## 2020 SPARE PARTS PACKAGES

### 1 PLUNGER PACKAGES

| PART NO.     | PRESSURE (PSI) | DESCRIPTION | PART NO.     | PRESSURE (PSI) | DESCRIPTION |
|--------------|----------------|-------------|--------------|----------------|-------------|
| S1202-20-6-B | 20,000         | 2020 #6     | SP202-20-6-B | 20,000         | 2020 #6     |
| S1202-20-6-S | 20,000         | 2020 #6     | SP202-20-6-S | 20,000         | 2020 #6     |

# TOOLS

## PUMP WRENCHES

The only special tool needed to work on a Jetstream UNx pump. For use with manifold and gland nut.



| SIZE 7/8"<br>PART NO. 50889 |        | SIZE 3/4"<br>PART NO. 50064 | SIZE 5/8"<br>PART NO. 26544 |
|-----------------------------|--------|-----------------------------|-----------------------------|
| 5020Q                       | 4020B  | 3020                        | 3120T                       |
| 4220                        | 4220N  | 3020B                       | 3520Q                       |
| 3620                        | 4220QN | 3020N                       | 3720W                       |
| 3720B                       | 4520B  | 3020Q                       | 3720WZ                      |
|                             |        | 3020W                       |                             |

## MANIFOLD MOUNTING STUDS

For easy and safe removal of manifolds during pressure conversions that require a manifold change (e.g. 10,000psi-40,000psi). To use, replace the top two outer manifold bolts with the mounting studs. Then, remove all bolts and the trunnion rod (hinge rod). The manifold can then be easily slid out and replaced with another. Sold individually.



| FOR USE WITH THE FOLLOWING MODELS |                |                |
|-----------------------------------|----------------|----------------|
| PART NO. 62093                    | PART NO. 54261 | PART NO. 56742 |
| 6020                              | 5020Q          | 3020           |
|                                   | 4520B          | 3020B          |
|                                   | 4220           | 3020N          |
|                                   | 4220N          | 3020Q          |
|                                   | 4220QN         | 3020W          |
|                                   | 4020B          | 3120T          |
|                                   | 3720B          | 3520Q          |
|                                   | 3620           | 3720W          |
|                                   |                | 3720WZ         |

## OIL SEAL PULLER PLATES

For easy and safe removal of oil seals on bareshaft pumps.



| PART NO. | PUMP SERIES    |
|----------|----------------|
| 56949    | 3600/4200/5200 |
| 56950    | 3000           |
| 70398    | 2000           |

## BELT TENSION GAUGE

Ensure pump drive belts are properly tensioned for proper pump operation and maximum belt life. For use with V-belts.  
**Part No. 26993**



## BELT TENSION GAUGE

For use with Power Band and synchronous belts.  
**Part No. 62140**



## VALVE PULLER

The perfect tool for easily extracting uni-valves from the manifold. Sold individually.  
**Part No. 70179**



## O-RING PICK

6-7/8" length with cushioned grip  
**Part No. 63443**



## 3/16" T-WRENCH (HEX KEY)

Hex key for ease of nozzle maintenance. Short Length with comfort handle.  
**Part No. 63442**



## 1/4" T-WRENCH (HEX KEY)

Hex key for ease of nozzle maintenance. Short Length with comfort handle.  
**Part No. 63814**



## GLAND NUT TOOL

3/4" Drive tool for ease of gland nut removal for pumps.

| PART NO. | PUMP SERIES |
|----------|-------------|
| 62110    | 4200/5000   |
| 66607    | 3000        |
| 66608    | 6000        |



## 20K PILL SEAL PULLER

Tool for removing pill seals.  
**Part No. 59915**





# DUMP-STYLE DIVERTER VALVES

## AIR-OPERATED

The Air-Operated Diverter Valve allows an operator to remotely control pressure in 20,000 psi cleaning applications, specially in automated cleaning processes. Reduces operator fatigue by actuating the system pneumatically rather than mechanically.

When air is sent to the cylinder, the valve closes and allows the system to build pressure. The valve opens when the air is exhausted, reducing system pressure to near atmospheric.

- ▶ Quick cartridge overhaul for easy field maintenance
- ▶ Remote operation for added operator convenience and safety
- ▶ Pneumatic operation for reduced operator fatigue

| ASSEMBLY<br>PART NO.* | MOUNTING<br>STYLE | CONNECTION TYPE |        | MAXIMUM<br>FLOW RATE | MAX. OPERATING<br>PRESSURE |       | INLET AIR PRESSURE |     |      |     |
|-----------------------|-------------------|-----------------|--------|----------------------|----------------------------|-------|--------------------|-----|------|-----|
|                       |                   |                 |        |                      |                            |       | MIN.               |     | MAX. |     |
|                       |                   | INLET           | OUTLET | gpm                  | psi                        | bar   | psi                | bar | psi  | bar |
| 53445                 | Pump              | 20K Port Female |        | 30-35                | 20,000                     | 1,379 | 70                 | 4.8 | 125  | 8.6 |
| 63631                 | Base              |                 |        |                      |                            |       |                    |     |      |     |
| J55780                | Pump              | 3/4" MP Female  |        | 50                   | 20,000                     | 1,379 | 70                 | 4.8 | 125  | 8.6 |
| 57292                 | Base              |                 |        |                      |                            |       |                    |     |      |     |
| 62281                 | Pump              | 1" MP Female    |        | 80                   | 22,000                     | 1,516 | 70                 | 4.8 | 125  | 8.6 |

\*Additional high-flow options available upon request.

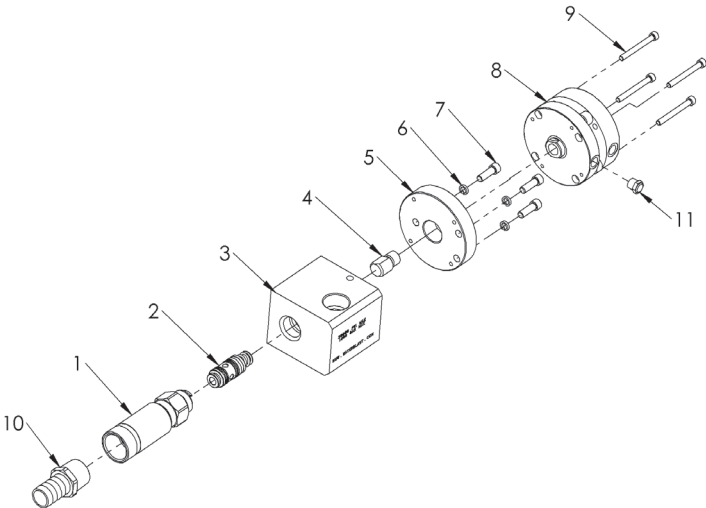
### REPLACEMENT CARTRIDGE



Diverter valve utilizes a cartridge, to completely rebuild the dump valve in about 30 seconds.

**Part No. 51869**  
(for 53445)

**Part No. 52750**  
(for J55780 & 57292)

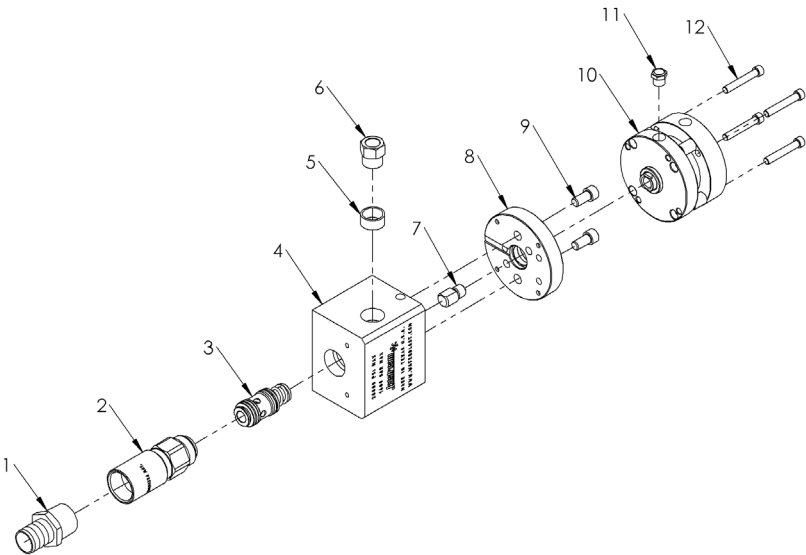


### PART BREAKDOWN (PART NO. 53445)

| ITEM | PART NO. | DESCRIPTION         | ITEM | PART NO. | DESCRIPTION     |
|------|----------|---------------------|------|----------|-----------------|
| 1    | 51864    | Diffuser            | 7    | 25206    | Capscrew        |
| 2    | 51869    | Cartridge           | 8    | 27251    | 2" Air Cylinder |
| 3    | 53369    | Body                | 9    | 27107    | Capscrew        |
| 4    | 56999    | Pusher Air Cylinder | 10   | 25796    | Hose Barb       |
| 5    | J56366   | Adapter Plate       | 11   | 58848    | Muffler         |
| 6    | J70633   | Washer              |      |          |                 |

DIVERTER VALVE

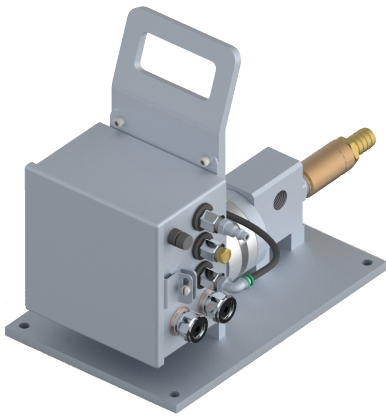
AIR-OPERATED (DUMP) HI-FLOW



PART BREAKDOWN (PART NO. J55780)

| ITEM | PART NO. | DESCRIPTION    | ITEM | PART NO. | DESCRIPTION          |
|------|----------|----------------|------|----------|----------------------|
| 1    | 29722    | Hose Barb      | 9    | 27714    | Capscrew             |
| 2    | 51638    | Diffuser       | 10   | 54342    | Air Cylinder, 2.5"   |
| 3    | 52750    | Cartridge      | 11   | 28364    | Muffler              |
| 4    | 55411    | Body, Mag      | 12   | 28399    | Capscrew             |
| 5    | 28384    | Collar         | 13*  | 53788    | Spacer Block (57292) |
| 6    | 28383    | Gland Nut      | 14*  | 53384    | Base Plate (57292)   |
| 7    | 53424    | Pusher         | 15*  | 26689    | Capscrew (52792)     |
| 8    | 54321    | Mounting Plate |      |          |                      |

\*Not shown.



# DUMP STYLE DIVERTER VALVE

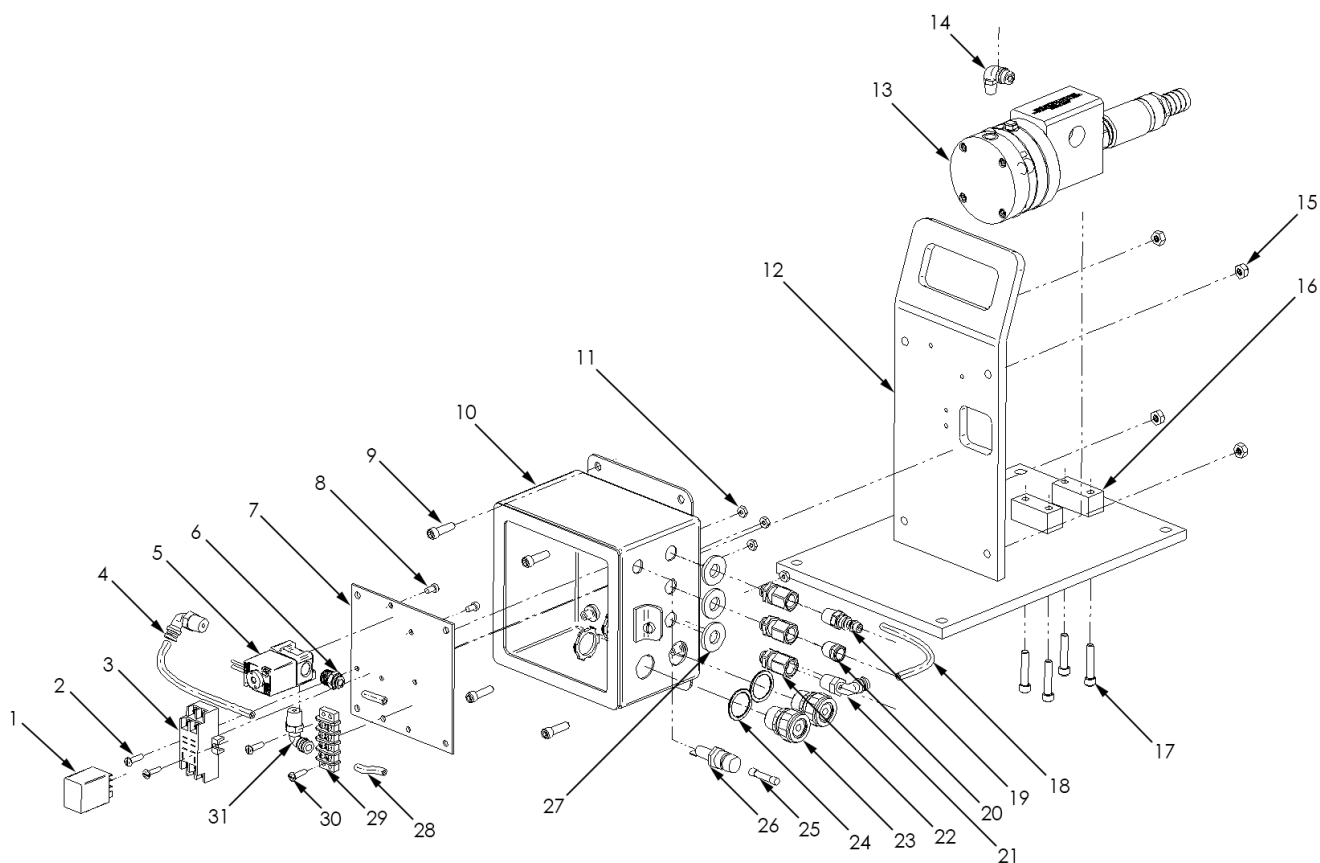
## ELECTRIC/AIR-OPERATED

The Electric/Air-Operated Diverter Valve allows an operator to remotely control pressure in cleaning applications up to 20,000 psi, specifically in automated cleaning processes. Reduces operator fatigue by actuating the system electronically rather than mechanically.

When electric voltage is present, the valve opens to allow water to the nozzle. The valve closes when the voltage is removed, preventing the water from reaching the nozzle while maintaining system pressure.

- ▶ Quick cartridge overhaul for easy field maintenance
- ▶ Remote operation for added operator convenience and safety
- ▶ Electric operation for reduced operator fatigue

| ASSEMBLY<br>PART NO. | VOLTAGE | MOUNTING<br>STYLE | INLET & OUTLET<br>CONNECTIONS | MAXIMUM<br>FLOW RATE |         | MAX.<br>OPERATING<br>PRESSURE |       | DIMENSIONS<br>(H X W X D) |                 | WEIGHT |    |
|----------------------|---------|-------------------|-------------------------------|----------------------|---------|-------------------------------|-------|---------------------------|-----------------|--------|----|
|                      |         |                   |                               | gpm                  | lpm     | psi                           | bar   | in                        | mm              | lb     | kg |
| 53690                | 12 VDC  | Base              | 20K Port Female               | 30-35                | 114-132 | 20,000                        | 1,379 | 12 X 8 X 17               | 305 x 203 x 432 | 36     | 16 |
| 57296                | 12 VDC  | Panel             | 3/4" MP Female                | 50                   | 189     | 20,000                        | 1,379 |                           |                 |        |    |



## PART BREAKDOWN

| ITEM | PART NO. | DESCRIPTION                | ITEM | PART NO. | DESCRIPTION      |
|------|----------|----------------------------|------|----------|------------------|
| 1    | 27349    | Relay, 12VDC               | 17   | 26126    | Capscrew         |
| 2    | 58864    | Capscrew                   | 18   | 27740    | Plastic Tubing   |
| 3    | 29158    | Relay Socket               | 19   | 28223    | Nipple, Q.D.     |
| 4    | 27740    | Plastic Tubing             | 20   | 28364    | Muffler          |
| 5    | 65002    | Valve, 3 Way, 12VDC        | 21   | 28367    | Elbow            |
| 6    | J70518   | Adapter                    | 22   | 65011    | Bulkhead Fitting |
| 7    | 58868    | Mounting Panel             | 23   | 64998    | Gland            |
| 8    | 27380    | Capscrew                   | 24   | 64999    | Washer           |
| 9    | 58865    | Capscrew                   | 25   | 27348    | Fuse             |
| 10   | 58867    | Electrical Box             | 26   | 25644    | Fuse Holder      |
| 11   | 29799    | Nut                        | 27   | 65012    | Washer           |
| 12   | 53203    | Mounting Base              | 28   | 27740    | Plastic Tubing   |
| 13   | 53615    | Air-Operated Valve (53690) | 29   | 27347    | Block, Terminal  |
|      | 57094    | Air-Operated Valve (57296) | 30   | 58864    | Capscrew         |
| 14   | 28367    | Elbow                      | 31   | 28367    | Elbow            |
| 15   | 26711    | Nut                        | 30   | 58864    | Capscrew         |
| 16   | 53203    | Mounting Base              | 31   | 28367    | Elbow            |





Part No. 60078



Part No. 62025

#### REPLACEMENT CARTRIDGE



Diverter valve utilizes a cartridge, to completely rebuild the dump valve in about 30 seconds.

**Part No. 52750**

# DUMP STYLE DIVERTER VALVE

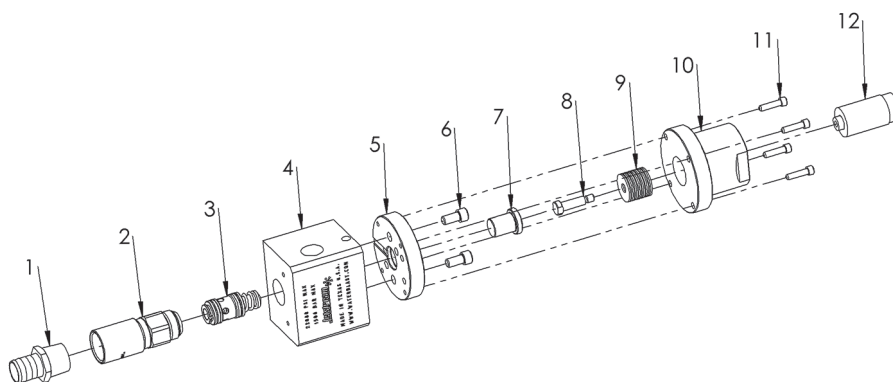
## HYDRAULIC-OPERATED

The Hydraulic-Operated Diverter Valve allows an operator to remotely control pressure in 20,000 psi cleaning applications, specifically in automated cleaning processes. Reduces operator fatigue by actuating the system hydraulically rather than mechanically.

When hydraulic pressure sent to the cylinder, the valve closes and allows the system to build pressure. The valve opens when the hydraulic pressure is exhausted, reducing system pressure to near atmospheric.

- Quick cartridge overhaul for easy field maintenance
- Remote operation for added operator convenience and safety
- Hydraulic operation for reduced operator fatigue

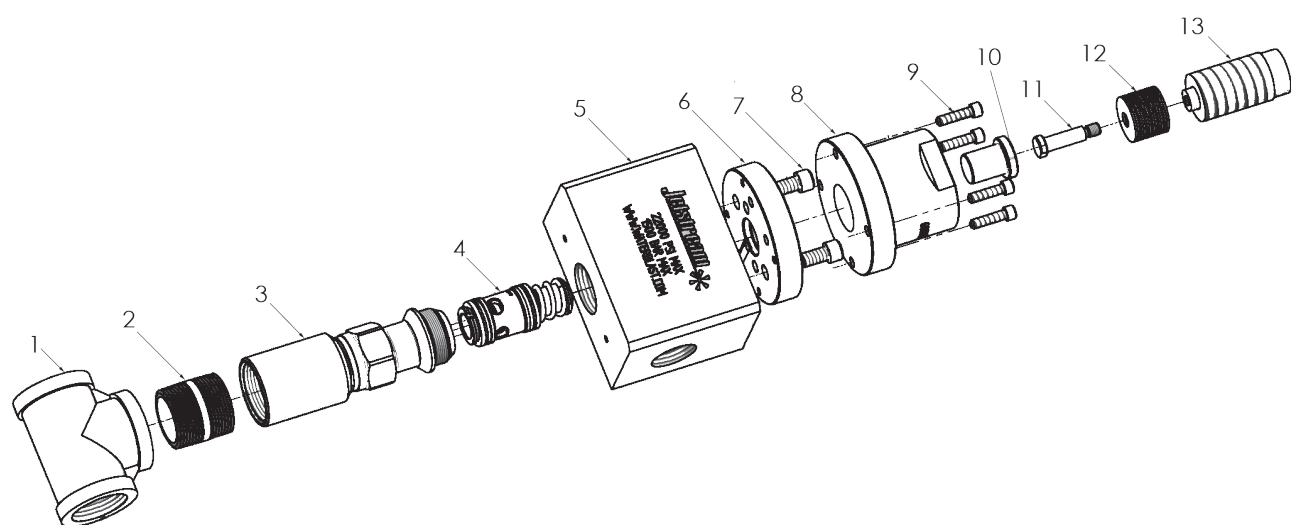
| PART NO. | STYLE                 | CONNECTION TYPE | MAX OPERATING PRESSURE |       | INLET HYDRAULIC PRESSURE | LENGTH |       |
|----------|-----------------------|-----------------|------------------------|-------|--------------------------|--------|-------|
|          |                       |                 | psi                    | bar   |                          | in     | mm    |
| 60078    | Single Acting         | 3/4" MP Female  | 22,000                 | 1,516 | 500-5,000 psi            | 13.3   | 339.0 |
| 60024    | Double Acting         | 3/4" MP Female  | 22,000                 | 1,516 |                          | 13.2   | 337.3 |
| 62025    | Single Acting HI-FLOW | 1" MP Female    | 20,000                 | 1,379 |                          |        |       |



## PART BREAKDOWN

| ITEM | PART NO. | DESCRIPTION        | ITEM | PART NO. | DESCRIPTION           |
|------|----------|--------------------|------|----------|-----------------------|
| 1*   | 29722    | Hose Barb          | 7    | 60025    | Diverter Valve        |
| 2    | 51638    | Diffuser           | 8    | 60027    | Guide Spring          |
|      | 53959    | Diffuser, Hi-Flow  | 9    | 60026    | Spring                |
| 3    | 52750    | Cartridge          | 10   | 60075    | Hyd. Adapter, Single  |
|      | 53915    | Cartridge, Hi-Flow |      | 60023    | Hyd. Adapter, Dual    |
| 4    | 59383    | Body               | 11   | 26689    | Capscrew              |
|      | 62026    | Body, Hi-Flow      | 12   | 60079    | Hyd. Cylinder, Single |
| 5    | 54321    | Adapting Plate     |      | 60022    | Hyd. Cylinder, Dual   |
| 6    | 27714    | Capscrew           |      |          |                       |

\*For Std only, Hi-Flow includes 62259 (Tee) and 57432 (Nipple).



PART BREAKDOWN (PART NO. 62025)

| ITEM | PART NO. | DESCRIPTION     | ITEM | PART NO. | DESCRIPTION                 |
|------|----------|-----------------|------|----------|-----------------------------|
| 1    | 62259    | Tee, 1-1/4" NPT | 8    | 60075    | Adapter, Hydraulic Cylinder |
| 2    | 57432    | Nipple          | 9    | 26689    | Capscrew                    |
| 3    | 53959    | Diffuser        | 10   | 60025    | Pusher, Hydraulic Cylinder  |
| 4    | 53915    | Cartridge       | 11   | 60027    | Guide, Spring               |
| 5    | 62026    | Body            | 12   | 60026    | Spring, Disc                |
| 6    | 54321    | Mounting Plate  | 13   | 60079    | Hydraulic Cylinder          |
| 7    | 27714    | Capscrew        |      |          |                             |





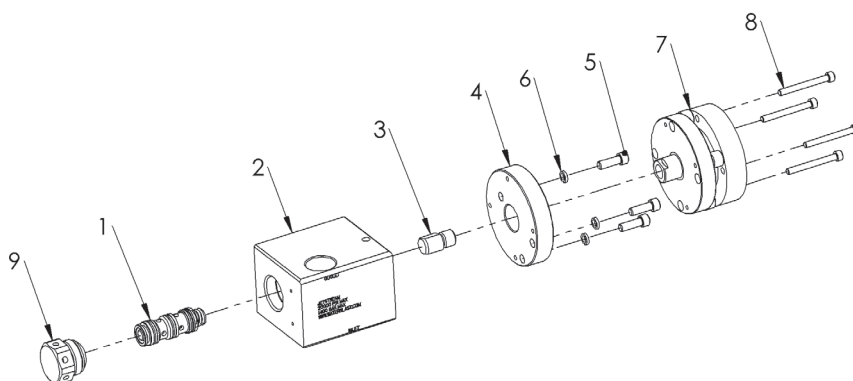
# SHUT-IN STYLE DIVERTER VALVE

## AIR-OPERATED

Shut-In, Air-Operated Diverter Valves allow an operator to remotely control pressure in cleaning applications up to 15,000 psi. When air is sent to the cylinder, the valve opens to allow water to the nozzle. The valve closes when the air is exhausted, preventing water reaching the nozzle while maintaining system pressure.

- ▶ 30 second field replaceable cartridge design for minimal downtime
- ▶ Remote pneumatic operation for reduced operator fatigue and added convenience and safety
- ▶ Specially designed inlet and outlet connections are superior to industry standard connections and use a replaceable seal rather than metal to metal contact
- ▶ Heavy duty air cylinder
- ▶ All pressure-bearing components are stainless steel
- ▶ Available with or without plated steel base
- ▶ Valve operates at air pressures between 70-125 psi (4.8-8.6 bar)

| ASSEMBLY<br>PART NO. | MOUNTING<br>STYLE | CONNECTION TYPE |        | MAXIMUM<br>FLOW RATE | MAX. OPERATING<br>PRESSURE |       | INLET AIR PRESSURE |     |      |     |
|----------------------|-------------------|-----------------|--------|----------------------|----------------------------|-------|--------------------|-----|------|-----|
|                      |                   | INLET           | OUTLET |                      |                            |       | MIN.               |     | MAX. |     |
| J55868               | Pump              | 20K Port Female |        | gpm                  | psi                        | bar   | psi                | bar | psi  | bar |
| J55870               | Base              |                 |        | 30-35                | 20,000                     | 1,379 | 70                 | 4.8 | 125  | 8.6 |



### REPLACEMENT CARTRIDGE



20,000 psi Shut-in Style Diverter Valves utilize the CPSi-20 cartridge, shown above, to completely rebuild the gun in about 30 seconds! **Part No. 60420**

### PART BREAKDOWN

| ITEM | PART NO. | DESCRIPTION         | ITEM | PART NO. | DESCRIPTION           |
|------|----------|---------------------|------|----------|-----------------------|
| 1    | 60420    | Cartridge           | 7    | 27251    | 2" Air Cylinder       |
| 2    | 54392    | Body                | 8    | 27107    | Capscrew              |
| 3    | 56999    | Pusher Air Cylinder | 9    | 52543    | Plug Assy             |
| 4    | J56366   | Adapter Plates      | 10*  | 53788    | Spacer Block (J55870) |
| 5    | 25206    | Capscrew            | 11*  | 53384    | Base Plate (J55870)   |
| 6    | J70633   | Washer              | 12*  | 26126    | Capscrew (J55870)     |

\*Not shown.



**BASE MOUNTED**  
**Part No. 52685**

# BYPASS VALVE

## HAND ADJUSTABLE

A bypass valve diverts a portion of pump flow to a low-pressure outlet and is used on diesel and electric units. For diesel engines, it is used to prevent bogging the engine when using flows at the low end of the pump’s capability. A bypass valve is required on electric units due to the non-adjustability of motor speed.

- ▶ Two minute field-replaceable cartridge design for minimal downtime.
- ▶ Hand adjustment—no wrench needed.
- ▶ Pump mount models connects to fluid end manifold using connection package (PN 56606) - sold separately.
- ▶ Base mount model connects in-line downstream and includes a protective cage and a pressure gauge for remote adjustment.
- ▶ All pressure-bearing components precision machined from stainless steel.
- ▶ Specially designed inlet connections are superior to industry standard connections and use a replaceable seal rather than metal to metal contact.



**PUMP-MOUNTED**  
**Part No. 54592**



**5220 SERIES PUMP  
SIDE-MOUNTED**  
**Part No. 67393**

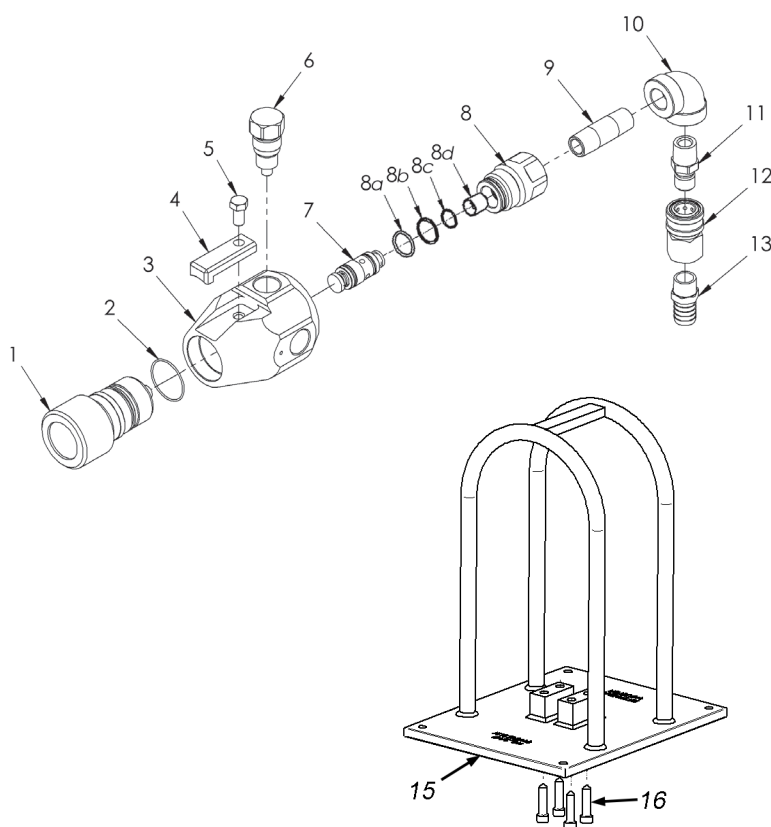


**REPLACEMENT CARTRIDGE**  
**Part No. 52255**

The Bypass valve utilizes a cartridge to completely rebuild the valve in about 30 seconds.

| PART NO. | MOUNTING<br>STYLE | PRESSURE<br>GAUGE<br>INCLUDED | INLET<br>CONNECTIONS* | LOW PRESSURE<br>OUTLET<br>CONNECTION | DIMENSIONS |     |          |     | WEIGHT |    | MAX. OPERATING<br>PRESSURE |       |
|----------|-------------------|-------------------------------|-----------------------|--------------------------------------|------------|-----|----------|-----|--------|----|----------------------------|-------|
|          |                   |                               |                       |                                      | LENGTH     |     | DIAMETER |     |        |    |                            |       |
|          |                   |                               |                       |                                      | in         | mm  | in       | mm  | lbs    | kg | psi                        | bar   |
| 54592    | Pump              | No                            | 20K Port Female       | 1/2" NPTF                            | 10.0       | 254 | 4.5      | 114 | 11     | 5  | 20,000                     | 1,379 |
| 52685    | Base              | Yes                           | 20K Port Female       | 1/2" NPTF                            | 10.0       | 254 | 4.5      | 79  | 28     | 12 | 20,000                     | 1,379 |
| 67393**  | Pump - Side       | No                            | HF Port               | 1/2" NPTF                            | 10.0       | 254 | 4.5      | 114 | 11     | 5  | 20,000                     | 1,379 |

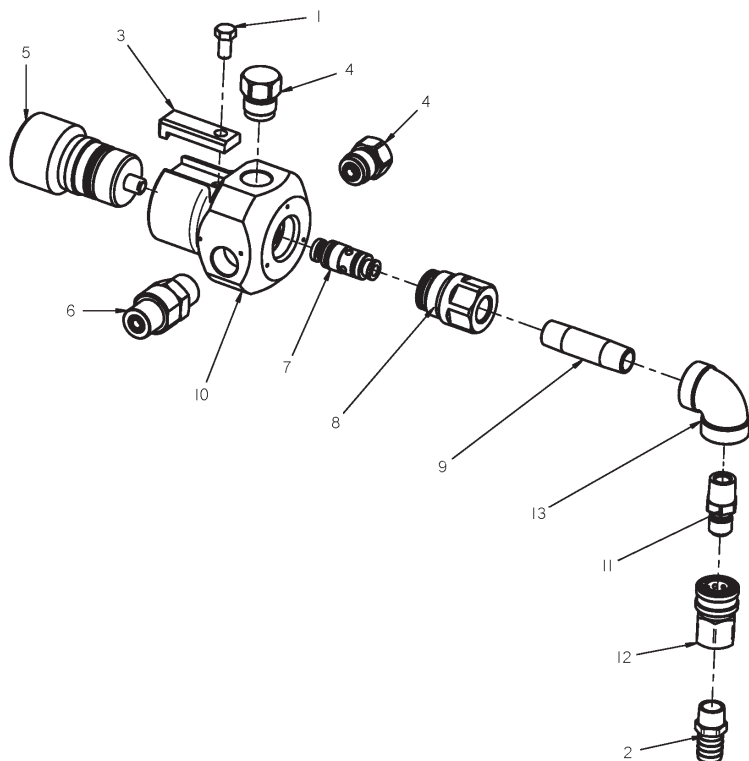
\*See details on all connection types in Section I.  
\*\*5220 series pumps only.



## PART BREAKDOWN (PNs 54592, 52685)

| ITEM | PART NO. | DESCRIPTION              |
|------|----------|--------------------------|
| 1    | 52144    | Adjuster                 |
| 2    | 25603    | O-Ring, Adjuster*        |
| 3    | 54584    | Body                     |
| 4    | 50795    | Arm Adjuster             |
| 5    | 25593    | Capscrew                 |
| 6    | 52076    | Port Plug                |
| 7    | 52255    | Cartridge                |
| 8    | 54593    | Outlet Adapter           |
| 8a   | 25229    | O-Ring                   |
| 8b   | 54591    | Backup Ring              |
| 8c   | 26782    | O-Ring                   |
| 8d   | 52201    | Diffuser                 |
| 9    | 71495    | Nipple                   |
| 10   | 71496    | Elbow                    |
| 11   | 70173    | Nipple, Quick Disconnect |
| 12   | 70174    | Coupler                  |
| 13   | 27350    | Hose Barb                |
| 14** | 52497    | Pressure Gauge (52685)   |
| 15   | 52486    | Base Assy (52685)        |
| 16   | 25700    | Capscrew (52685)         |

\*Included on adjuster. \*\* Not shown.



## PART BREAKDOWN (PN 67393)

| ITEM | PART NO. | DESCRIPTION              |
|------|----------|--------------------------|
| 1    | 25593    | Capscrew                 |
| 2    | 27350    | Hose Barb                |
| 3    | 50795    | Arm Adjuster             |
| 4    | 52076    | Port Plug                |
| 5    | 52144    | Adjuster                 |
| 6    | 52209    | Adapter                  |
| 7    | 52255    | Cartridge                |
| 8    | 54593    | Outlet Adapter           |
| 9    | 63888    | Nipple                   |
| 10   | 67265    | Body                     |
| 11   | 70173    | Nipple, Quick Disconnect |
| 12   | 70174    | Coupler                  |
| 13   | 71496    | Elbow                    |



# REGULATOR VALVE

## LONG HANDLE

Required for use with shut-in systems on plunger pumps, the regulator valve maintains constant system pressure when operating one or more shut-in guns from a single pump. When a gun is disengaged, the regulator “senses” the reduction in flow downstream and shifts open just enough to divert water to a low pressure for other operators without over-pressurizing the system.

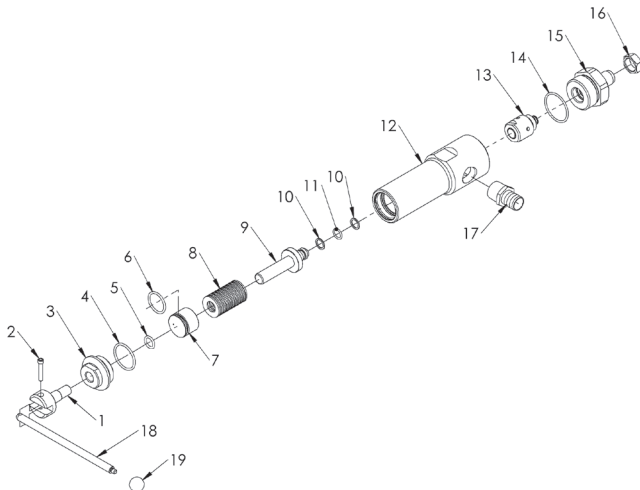
- ▶ Two minute field-repairable cartridge design for minimal downtime
- ▶ Hand Adjustment—no wrench needed
- ▶ Specially designed inlet connections are superior to industry standard connections and use a replaceable seal rather than metal to metal contact

### REPLACEMENT CARTRIDGE



Regulator valve utilizes a cartridge, to completely rebuild the valve in about 30 seconds.  
**Part No. 55540**

| PART NO. | STYLE       | CONNECTION TYPE | MAX OPERATING PRESSURE |       | LENGTH |       |
|----------|-------------|-----------------|------------------------|-------|--------|-------|
|          |             |                 | psi                    | bar   | in     | mm    |
| 55520    | Long Handle | 1" MP Male      | 20,000                 | 1,379 | 15.9   | 403.8 |
| 55570    | Long Handle | 20K Port Male   | 20,000                 | 1,379 | 14.7   | 373.3 |



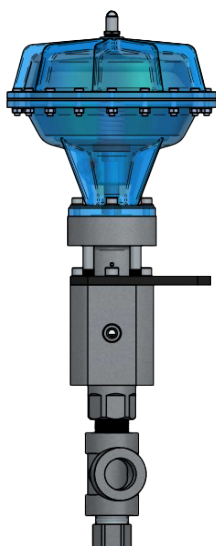
### PART BREAKDOWN



| ITEM | PART NO. | DESCRIPTION    | ITEM | PART NO. | DESCRIPTION  |
|------|----------|----------------|------|----------|--------------|
| 1    | 55524    | Adjuster       | 12   | 55521    | Body         |
| 2    | 27680    | Capscrew       | 13   | 55540    | Cartridge    |
| 3    | 55523    | End Cap        | 14   | 26416    | O-Ring       |
| 4    | 25165    | O-Ring         | 15   | 55517    | Base (55520) |
| 5    | 25212    | O-Ring         |      | 55567    | Base (55570) |
| 6    | 25125    | O-Ring         | 16   | 21929    | Jam Nut      |
| 7    | 55522    | Pusher, Spring | 17   | 29722    | Hose Barb    |
| 8    | 70127    | Spring Disc*   | 18   | 55531    | Handle       |
| 9    | 55519    | Plunger        | 19   | 70130    | Knob, Handle |
| 10   | 70125    | Backup Ring    | 20** | 51929    | Nut (55570)  |
| 11   | 25740    | O-Ring         |      |          |              |

\*Sold individually      \*\*Not shown.





# 22K AIR-OPERATED REGULATOR

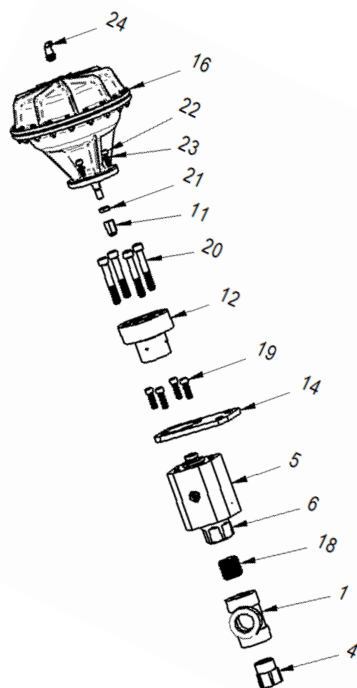
The 22K Air-Operated Regulator maintains constant system pressure when operating one or more guns or tools in a shut-in system.

After supplying it with a source of regulated low-pressure air, it will automatically adjust its bypass flow to maintain a constant system pressure. This system pressure will be maintained even through changes in the operation of the guns or tools, nozzle wear, or changes in engine speed. Once supplied with an initial charge of air, the regulator does not consume any air during operation. Because of this, a very small compressor can be used.

Features of the 22K Air-Operated Regulator include:

- ▶ High-strength ceramic valve components for long life and low maintenance.
- ▶ High flow capacity (up to 60 gpm).
- ▶ Outstanding control properties.
- ▶ Can be retrofitted to any unit.

| PART NO. | STYLE        | CONNECTION TYPE   | MAX OPERATING PRESSURE |       | LENGTH |     |
|----------|--------------|-------------------|------------------------|-------|--------|-----|
|          |              |                   | psi                    | bar   | in     | mm  |
| 67158    | Air-Operated | 3/4" MP AE Female | 22,000                 | 1,517 | 30.8   | 782 |



## PART BREAKDOWN

| ITEM | PART NO. | DESCRIPTION       | ITEM | PART NO.  | DESCRIPTION      |
|------|----------|-------------------|------|-----------|------------------|
| 1    | 08282    | 1-1/2" Tee        | 13*  | 67143     | Plunger          |
| 2*   | 25165    | O-Ring            | 14   | 67148-008 | Mounting Bracket |
| 3*   | 25638    | O-Ring            | 15*  | 67328     | Disc Spring      |
| 4    | 62413    | Plug              | 16   | 67329     | Diaphragm        |
| 5    | 64149    | Valve Body        | 17*  | 67681     | Cartridge Seat   |
| 6    | 64150    | Outlet Adapter    | 18*  | 67844     | Nipple           |
| 7*   | 64153    | Guide Bushing     | 19   | 68158     | Capscrew         |
| 8*   | 64154    | Seal              | 20   | 68159     | Capscrew, M16    |
| 9*   | 64158    | Seal Support Ring | 21   | 68160     | Nut              |
| 10*  | 65857    | Support Disc      | 22   | 68161     | Capscrew, M10    |
| 11   | 66957    | Pusher Tip        | 23   | 68162     | Washer           |
| 12   | 66958    | Spacer            | 24   | 68166     | Adapter          |

\* Not shown.



# ELECTRONIC HYDRO-THROTTLE

## THROTTLE CONTROLS FOR DUMP SYSTEMS

The Jetstream hydro-throttle automatically reduces the engine to idle speed and relieves the system of high pressure when the dump gun trigger (or foot pedal) is released—saving water and fuel, while reducing wear on the engine and pump.

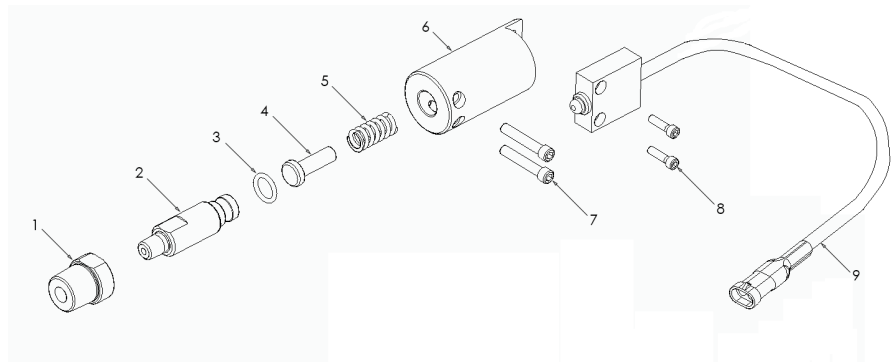
- ▶ Electronic hydro-throttle assembly is standard on current models and includes the actuator assembly, cartridge and electrical plug to connect to the engine control panel
- ▶ Replaceable cartridge for fast field service or conversion to another pressure range

| TYPE       | PART NO. | LENGTH<br>(LESS CORD) |     | HOSE CONNECTION<br>THREAD | DIAMETER |      | WEIGHT |     | MAX. OPERATING<br>PRESSURE |       |
|------------|----------|-----------------------|-----|---------------------------|----------|------|--------|-----|----------------------------|-------|
|            |          | in                    | mm  |                           | in       | mm   | lbs    | kg  | psi                        | bar   |
| ELECTRONIC | J56372   | 7.2                   | 182 | 9/16" JS Lance Male       | 1.75     | 44.5 | 1.6    | 0.7 | 20,000                     | 1,379 |

### REPLACEMENT CARTRIDGE



Hydro-Throttle utilizes a cartridge, to completely rebuild in about 30 seconds.  
**Part No. 51963**



### PART BREAKDOWN

| ITEM | PART NO. | DESCRIPTION     | ITEM | PART NO. | DESCRIPTION                 |
|------|----------|-----------------|------|----------|-----------------------------|
| 1    | 57043    | Reducer Bushing | 7    | 53447    | Capscrew                    |
| 2    | 51963    | Cartridge       | 8    | 27716    | Capscrew                    |
| 3    | 26426    | O-Ring          | 9    | 57970    | Switch Assy (after 9/2008)  |
| 4    | 53444    | Plunger         |      | 56551    | Switch Assy (2007 - 9/2008) |
| 5    | 25279    | Spring          |      | 53446    | Switch Assy (before 2007)   |
| 6    | 53443    | Body            |      |          |                             |

### RELATED ITEMS

**53816-00640671**  
Hose (Required)

**54570**  
Kit includes: adapter and cartridge

For other connection types, see Section E, Fittings.



# MECHANICAL HYDRO-THROTTLE

## THROTTLE CONTROLS FOR DUMP SYSTEMS

The Jetstream hydro-throttle enables the operator to reduce the engine to idle speed and relieve the system of high pressure when the dump gun trigger (or foot pedal) is released—saving water and fuel, while reducing wear on the engine and pump.

- Mechanical hydro-throttle parts can be purchased and include the control unit, cartridge and control cable
- Replaceable cartridge for fast field service or conversion to another pressure range

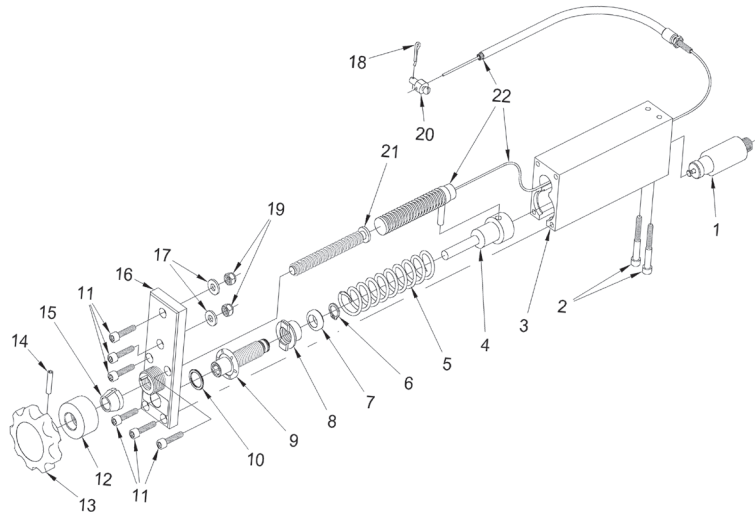
| TYPE       | PART NO. | CONTROL CABLE LENGTH |     | HOSE CONNECTION THREAD | CONTROL UNIT SIZE (L X W X H) |                  | WEIGHT |     | MAX. OPERATING PRESSURE |       |
|------------|----------|----------------------|-----|------------------------|-------------------------------|------------------|--------|-----|-------------------------|-------|
|            |          | ft                   | m   |                        | in                            | mm               | lbs    | kg  | psi                     | bar   |
| MECHANICAL | 52050    | 2                    | 0.6 | 9/16" JS Lance Male    | 11.7 x 1.75 x 5.6             | 297 x 44.5 x 142 | 4      | 1.8 | 20,000                  | 1,379 |
|            | 52050A   | 5                    | 1.5 |                        |                               |                  |        |     |                         |       |

### REPLACEMENT CARTRIDGE



Hydro-Throttle utilizes a cartridge, to completely rebuild in about 30 seconds.

**Part No. 51963**



### PART BREAKDOWN

| ITEM | PART NO. | DESCRIPTION               | ITEM | PART NO. | DESCRIPTION             |
|------|----------|---------------------------|------|----------|-------------------------|
| 1    | 51963    | Cartridge                 | 12   | 51887    | Friction Adjustment Nut |
| 2-21 | 52894    | Throttle Control Unit     | 13   | 51879    | Hand Knob               |
| 2    | 26690    | Capscrew                  | 14   | 26688    | Pin                     |
| 3    | 51877    | Body                      | 15   | 51888    | Friction Ring           |
| 4    | 51822    | Spring Retainer           | 16   | 51908    | Face Plate              |
| 5    | 26682    | Return Spring             | 17   | 25247    | Washer                  |
| 6    | 54293    | Retaining Spring          | 18   | 26468    | Cotter Pin              |
| 7    | 54272    | Adjuster Stop Ring        | 19   | 25314    | Nut                     |
| 8    | 54269    | Pressure Adjustment Nut   | 20   | 26728    | Pivot Terminal          |
| 9    | 54268    | Pressure Adjustment Screw | 21   | 51885    | Adjustment Screw        |
| 10   | 54271    | Thrust Washer             | 22   | 51903A   | 5' (1.5m) Ctrl Cable    |
| 11   | 26689    | Capscrew                  |      | 51903    | 2' (0.6m) Ctrl Cable    |

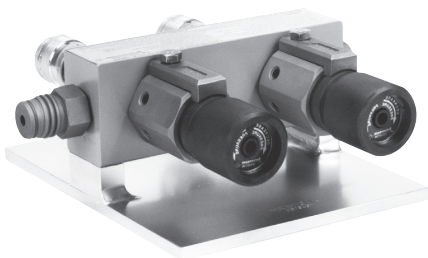
### REPLACEMENT PARTS

**51963** Cartridge

**51903** Control Cable,  
2 ft. solid wire

**51903A** Control Cable,  
5 ft. braided wire

**55256** Kit includes: adapter,  
cartridge and hose



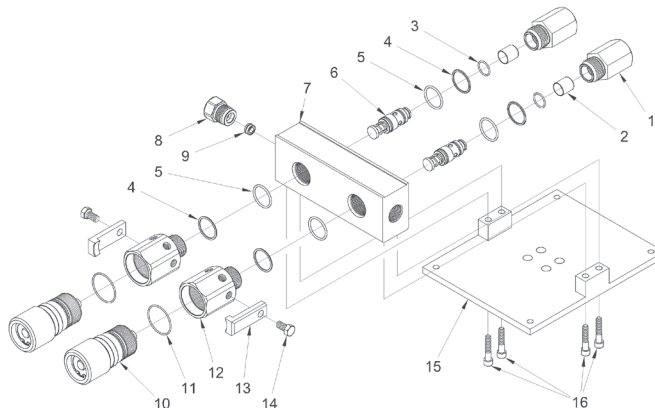
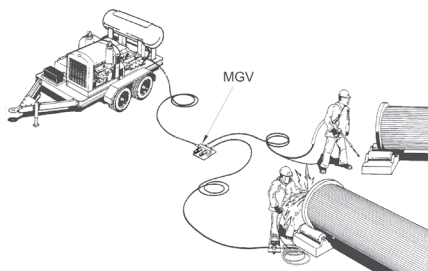
# MULTI-GUN VALVE (MGV)

The Multi-Gun Valve (MGV) allows two dump style waterblast guns to be operated independently when connected to one waterblast pump. The MGV will divide the pump's total flow between the guns and will maintain system pressure when either or both guns are dumping. The maximum flow through the MGV is 25 gpm (95 lpm).

- ▶ Setup using two hand adjustment dials is fast and simple.
- ▶ Utilizes two valve cartridges that can be easily replaced to completely rebuild the valve in the field in only three minutes.
- ▶ All pressure-bearing components are stainless steel.
- ▶ Zinc-plated base for corrosion resistance.
- ▶ Specially designed inlet and outlet connections are superior to industry standard connections and use a replaceable seal rather than metal to metal contact.
- ▶ Additional Multi-Gun Valves can be added to a system to further increase the number of tools in operation by a single waterblast unit.

| PART NO. | INLET & OUTLET CONNECTIONS* | OUTLET (GAUGE) CONNECTIONS* | DIMENSIONS         |     |           |     |           |     | WEIGHT |    | MAX. OPERATING PRESSURE |       |
|----------|-----------------------------|-----------------------------|--------------------|-----|-----------|-----|-----------|-----|--------|----|-------------------------|-------|
|          |                             |                             | (GUN) CONNECTIONS* |     | WIDTH (W) |     | DEPTH (D) |     |        |    |                         |       |
|          |                             |                             | in                 | mm  | in        | mm  | in        | mm  | lbs    | kg | psi                     | bar   |
| 52190    | 20K Port Female             | 20K Port Female             | 4.3                | 109 | 8.0       | 203 | 10.8      | 275 | 29     | 13 | 20,000                  | 1,379 |
| J55800   | 3/4" MP Female              | 3/4" MP Female              | 4.3                | 109 | 8.0       | 203 | 10.8      | 275 | 29     | 13 | 20,000                  | 1,379 |

\*See details on all connection types in Section I.



## PART BREAKDOWN

REPLACEMENT CARTRIDGE

MGV utilizes a cartridge to completely rebuild the valve in about 30 seconds.  
**Part No. 52255**

| ITEM | PART NO. | DESCRIPTION             | ITEM | PART NO. | DESCRIPTION      |
|------|----------|-------------------------|------|----------|------------------|
| 1    | 52202    | Outlet Adapter          | 8    | 52076    | Plug             |
|      | J55802   | Outlet Adapter (J55800) |      | J28383   | Plug (J55800)    |
| 2    | 52201    | Diffuser                | 9    | 52040    | 20K Seal         |
| 3    | 26782    | O-Ring                  | 10   | 50900    | Adjuster         |
| 4    | 52348    | Backup Ring             | 11   | 25603    | O-Ring           |
| 5    | 26776    | O-Ring                  | 12   | 52221    | Adjuster Adapter |
| 6    | 52255    | Cartridge               | 13   | 50795    | Locking Arm      |
| 7    | 52206    | Manifold                | 14   | 25593    | Capscrew         |
|      | J55801   | Manifold (J55800)       | 15   | 50811    | Base             |
|      |          |                         | 16   | 25700    | Capscrew         |



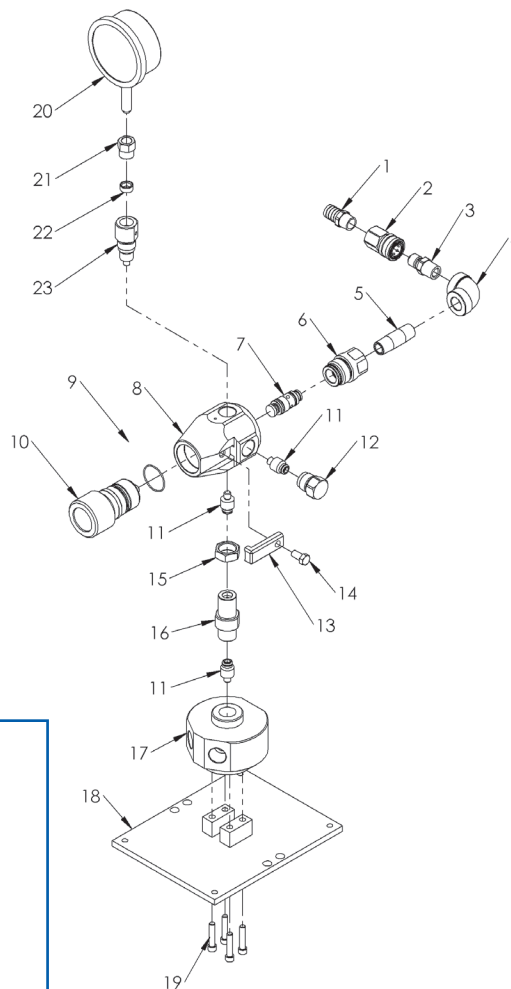
# MULTI-UNIT MANIFOLD (MUM)

The Multi-Unit Manifold, or MUM, was designed to provide large flows through the utilization of two waterblaster pumps to one end source. The MUM provides a single device joining the water flows created through the use of two waterblasting systems while pump pressure is stabilized.

- ▶ One complete system including the bypass Valve and pressure gauge
- ▶ Ease of maintenance through a cartridge change on the bypass valve
- ▶ Specially designed inlet and outlet connections are superior to industry standard connections and use a replaceable seal rather than metal to metal contact

| PART NO. | INLET & OUTLET CONNECTIONS* | OUTLET         | OUTLET (GAUGE) CONNECTIONS* | DIMENSIONS |           |    |     | MAX. OPERATING PRESSURE |       |
|----------|-----------------------------|----------------|-----------------------------|------------|-----------|----|-----|-------------------------|-------|
|          |                             |                |                             | WIDTH (W)  | DEPTH (D) |    |     | psi                     | bar   |
|          |                             |                |                             | in         | mm        | in | mm  |                         |       |
| 57164    | 3/4" MP Female              | 1/2" MP Female | 20K Port Female             | 8          | 203.2     | 10 | 254 | 20,000                  | 1,379 |

\*See details on all connection types in Section I.



## PART BREAKDOWN

| ITEM | PART NO. | DESCRIPTION       |
|------|----------|-------------------|
| 1    | 27350    | Hose Barb         |
| 2    | 70174    | Coupler, 1/2" NPT |
| 3    | 70173    | Nipple, 1/2" NPT  |
| 4    | 71496    | Elbow             |
| 5    | 71495    | Nipple            |
| 6    | 54593    | Outlet Adapter    |
| 7    | 52255    | Cartridge         |
| 8    | 54584    | Body-Bypass       |
| 9    | 25603*   | O-Ring, Adapter   |
| 10   | 52144    | Adjuster          |
| 11   | 52040    | Seal              |
| 12   | 51918    | Port Plug         |
| 13   | 50795    | Adjuster, Arm     |
| 14   | 25593    | Capscrew, Bypass  |
| 15   | 51929    | Nut, Jam          |
| 16   | 52209    | Adapter Assy      |
| 17   | 57157    | Y-Fitting         |
| 18   | 55304    | Base              |
| 19   | 25700    | Capscrew, Base    |
| 20   | 25037    | Pressure Gauge    |
| 21   | 26645    | Gland             |
| 22   | 26635    | Collar            |
| 23   | 52044    | Adapter Assy      |

\*Included in 52144 Adjuster.

### REPLACEMENT CARTRIDGE



MUM utilizes a cartridge to completely rebuild the valve in about 30 seconds.

**Part No. 52255**

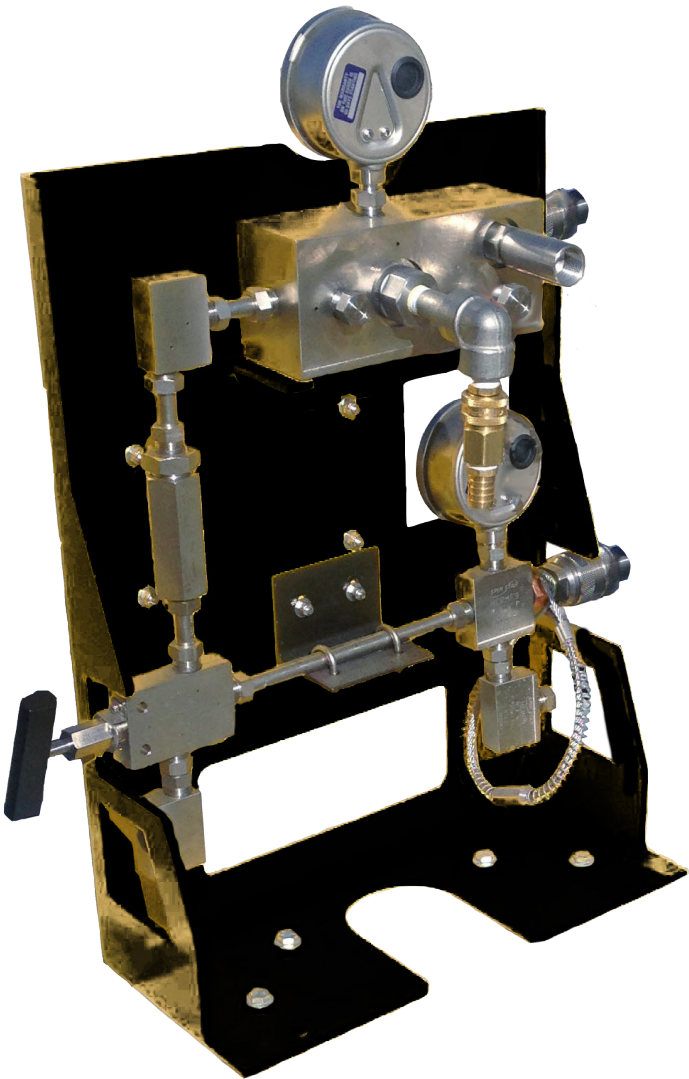
# HYDROSTATIC TEST VALVE (HTV)

The Jetstream Hydrostatic Test Valve (HTV) is used for the pressure testing of pipes or other vessels. This valve allows one operator to control the filling, pressurizing and pressure bleeding from a central location. Included in this valve is the hand lever, which eliminates the need to “feather” the clutch on the Waterblasting unit.

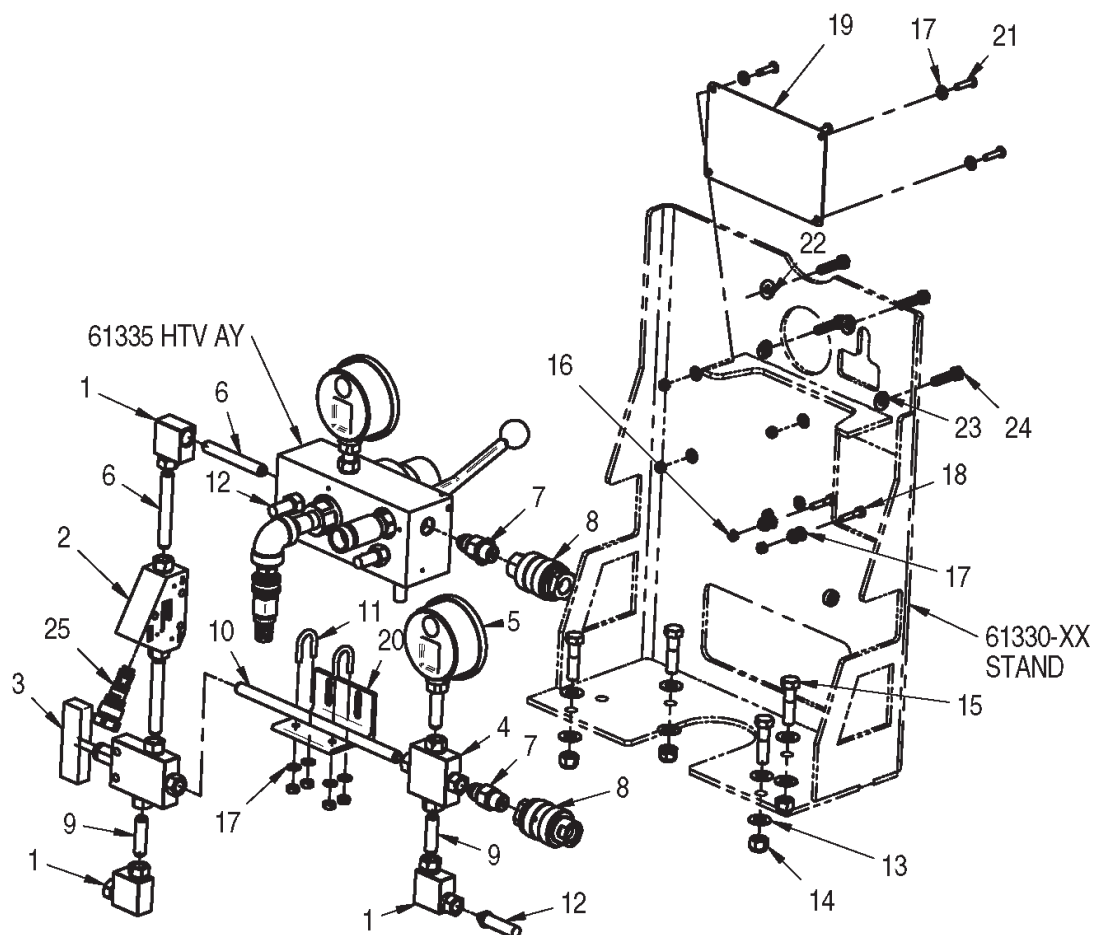
- ▶ Two-minute field replaceable cartridge design for minimal downtime
- ▶ Hand controls for high pressure filling and bleeding, without the use of a wrench
- ▶ Stainless steel pressure bearing components
- ▶ Internal ball check valve
- ▶ Adapts to various data acquisition apparatuses

| PART NO.* | INLET CONNECTION** | OUTLET (TEST DEVICE) CONNECTION** | OUTLET (CHART RECORDER) CONNECTION** | OUTLET (BLEED BACK TANK) CONNECTION* | WEIGHT |      | MAX. OPERATING PRESSURE |       |
|-----------|--------------------|-----------------------------------|--------------------------------------|--------------------------------------|--------|------|-------------------------|-------|
|           |                    |                                   |                                      |                                      | lbs    | kg   | psi                     | bar   |
| 61376-XX  | 1/2" NPT Female    | 1/2" NPT Female                   | 9/16" MP Female                      | 9/16" MP Female                      | 100    | 45.3 | 20,000                  | 1,379 |

\* The HTV is available in several paint colors, which are specified using a two digit code in the part number. 61376-01 is yellow, 61376-02 is blue, and 61376-08 is black.  
\*\*See details on all connection types in Section I.



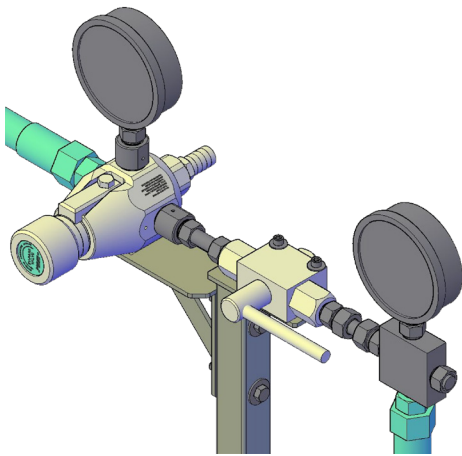




## PART BREAKDOWN

| ITEM | PART NO. | DESCRIPTION                | ITEM | PART NO. | DESCRIPTION           |
|------|----------|----------------------------|------|----------|-----------------------|
| 1    | 28184    | Elbow                      | 14   | 29904    | Nut                   |
| 2    | 61993    | Check Valve                | 15   | 27122    | Capscrew              |
| 3    | 28025    | Needle Valve, 3-Way        | 16   | 25314    | Nut                   |
| 4    | 27969    | Cross, 4-Way               | 17   | 25247    | Washer                |
| 5    | 25037    | Pressure Gauge             | 18   | 26565    | Capscrew              |
| 6    | 27968-04 | Nipple 4"                  | 19   | 61331    | Plate, Instruction    |
| 7    | 27971    | Adapter                    | 20   | 61686-08 | Bracket               |
| 8    | 50989    | Coupling, Quick Disconnect | 21   | 26707    | Capscrew              |
| 9    | 27968-03 | Nipple, 3"                 | 22   | 25251    | Flat, Washer          |
| 10   | 27968-11 | Nipple, 11"                | 23   | 25249    | Lock, Washer          |
| 11   | 61687    | U-Bolt                     | 24   | 61378    | Capscrew              |
| 12   | 27973    | Plug                       | 25   | 60765    | Check Valve Cartridge |
| 13   | 26798    | Washer                     |      |          |                       |





# HYDROSTATIC TEST VALVE (HTV)

## FOR USE WITH FOOT VALVE

The Jetstream Hydrostatic Test Valve (HTV) is used for the pressure testing of pipes or other vessels. This valve allows one operator to easily control test pressure without “feathering” the clutch on the Waterblasting unit.

- ▶ Up to 20,000 psi
- ▶ Precise hand-adjustable pressure setting
- ▶ Severe-duty ball valve eliminates need to manually hold pressure during test and requires only 1/4 turn to depressurize
- ▶ Used with foot valve for safe and absolute control of the system and vessel pressures
- ▶ Separate gauges to monitor system and test pressure
- ▶ Optional port for chart recorder
- ▶ Mounting bracket for easy installation

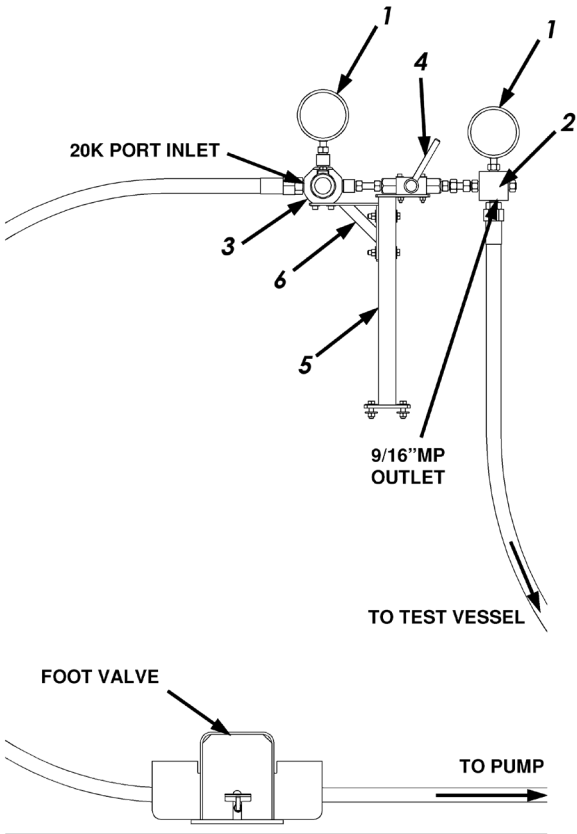
| PART NO.* | INLET CONNECTION** | OUTLET (TEST DEVICE) CONNECTION** | OUTLET (CHART RECORDER) CONNECTION** | WEIGHT |      | MAX. OPERATING PRESSURE |       |
|-----------|--------------------|-----------------------------------|--------------------------------------|--------|------|-------------------------|-------|
|           |                    |                                   |                                      | lbs    | kg   | psi                     | bar   |
| 57169     | 20K Port           | 9/16" MP Female                   | 9/16" MP Female                      | 50     | 22.7 | 20,000                  | 1,379 |

\*\*See details on all connection types in Section I.

### PART BREAKDOWN

| ITEM | PART NO. | DESCRIPTION               |
|------|----------|---------------------------|
| 1    | 25037    | Pressure Gauge            |
| 2    | 27969    | Cross, 9/16" MP           |
| 3    | 54592    | Bypass Valve              |
| 4    | 71706    | Ball Valve                |
| 5    | 71716    | Bracket, Hydrostatic Test |
| 6    | 71717    | Bracket, Bypass Mounting  |

**Note:** Foot valve, hoses, and adapters sold separately.





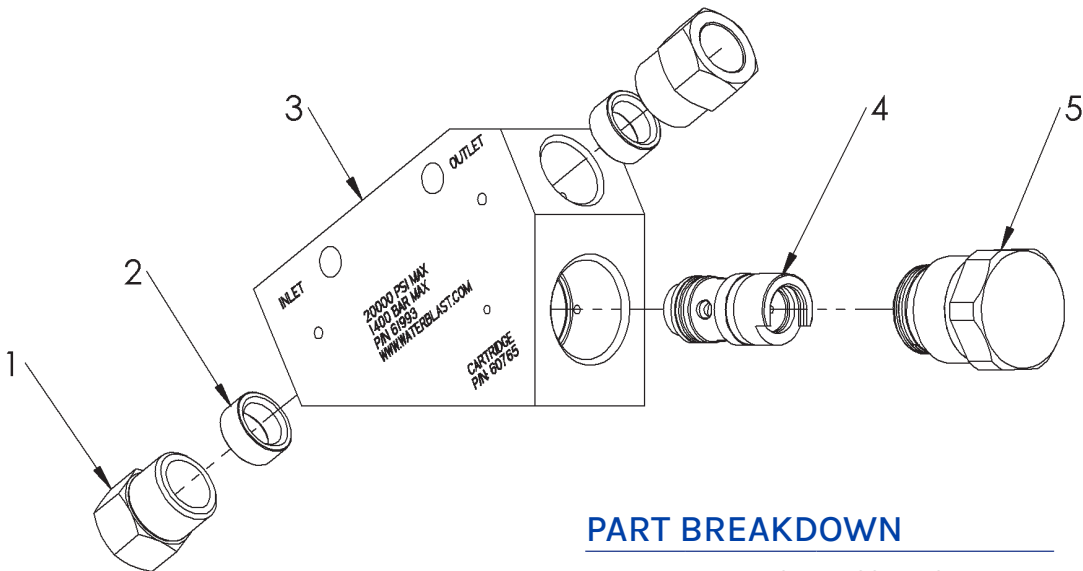
# 20K CHECK VALVE

The 20K Check Valve was designed to protect components by ensuring flow in one direction only. This tool is ideal for the hydrostatic testing market; however, can be utilized in many other applications.

- ▶ 30 second field repairable cartridge design for minimal downtime
- ▶ Prevents removal of high pressure connections if valve maintenance is required
- ▶ Ball-style with low crack pressure

| PART NO. | INLET & OUTLET CONNECTIONS* | LENGTH |       | WEIGHT |     | MAX. OPERATING PRESSURE |       | MAX FLOW |       |
|----------|-----------------------------|--------|-------|--------|-----|-------------------------|-------|----------|-------|
|          |                             | in     | mm    | lbs    | kg  | psi                     | bar   | gpm      | lpm   |
| 61993    | 9/16" Female MP             | 4      | 101.6 | 3.8    | 1.7 | 20,000                  | 1,379 | 10-15    | 38-57 |

\*See details on all connection types in Section I.



## REPLACEMENT CARTRIDGE



The check valve utilizes a cartridge, to completely rebuild in about 30 seconds.  
**Part No. 60765**

## PART BREAKDOWN

| ITEM | PART NO. | DESCRIPTION           |
|------|----------|-----------------------|
| 1    | 26645    | Gland                 |
| 2    | 26635    | Collar                |
| 3    | 61904    | Inline Valve          |
| 4    | 60765    | Check Valve Cartridge |
| 5    | 60766    | Plug Assy             |

# NOZZLE SHUT-OFF VALVE (NSOV)

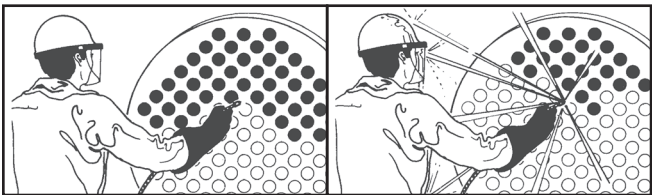
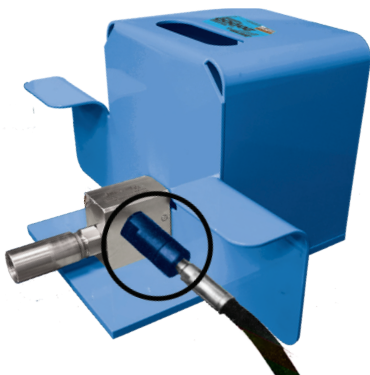


The Nozzle Shut Off Valve (NSOV) is designed for use with dump style foot guns. The Nozzle Shut Off Valve completely stops all water flow to the cleaning nozzle in a waterblast operation while the foot valve is in its dump mode.

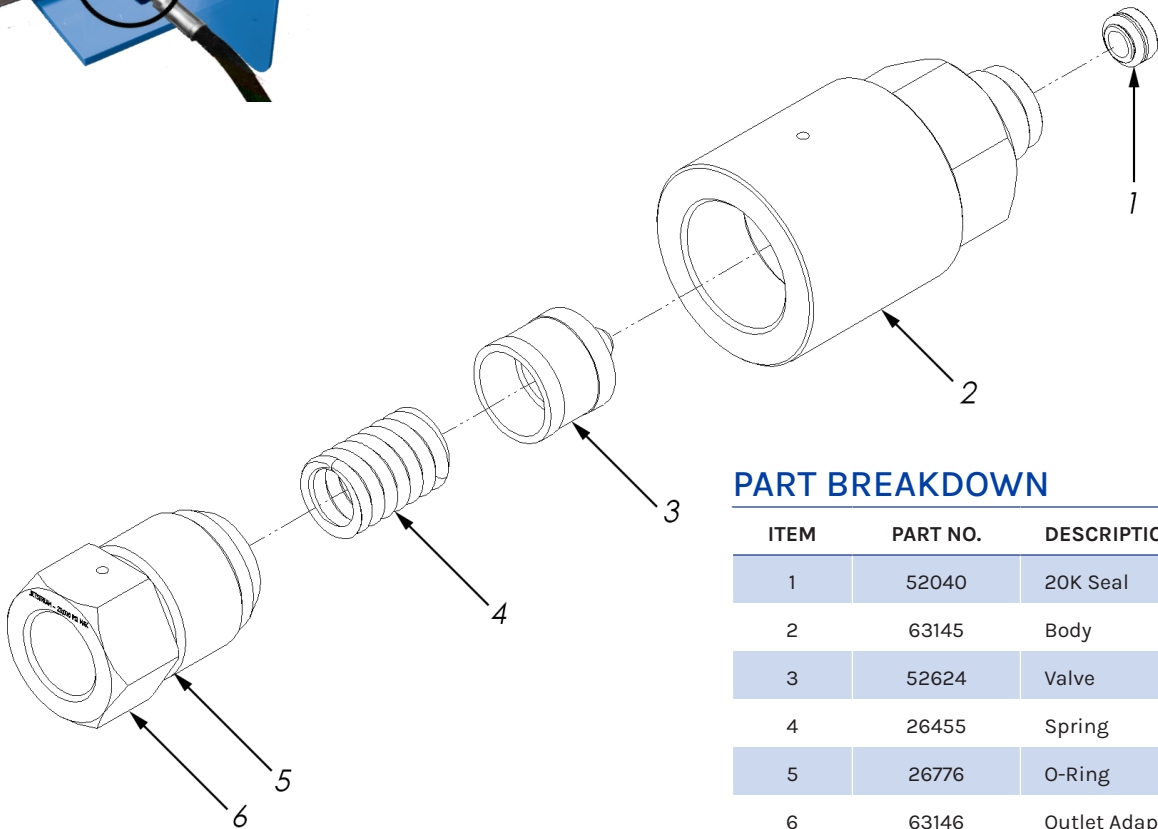
- ▶ Allows the operator to freely move the nozzle without impairment of vision caused by spray back (shown below).
- ▶ Opens fully for unimpeded flow to the nozzle when blasting.
- ▶ Mounts between lance and foot gun (shown at right).
- ▶ All pressure-bearing components precision machined from stainless steel.

| PART NO. | INLET CONNECTION* | OUTLET CONNECTION* | DIMENSIONS |     |          |      | WEIGHT |    | MAX. OPERATING PRESSURE |       |
|----------|-------------------|--------------------|------------|-----|----------|------|--------|----|-------------------------|-------|
|          |                   |                    | LENGTH     |     | DIAMETER |      |        |    |                         |       |
|          |                   |                    | in         | mm  | in       | mm   | lbs    | kg | psi                     | bar   |
| 63143    | 20K Port Male     | 20K Port Female    | 4.25       | 108 | 1.75     | 44.5 | 2      | 1  | 20,000                  | 1,379 |

\* See details on all connection types in Section I.



WITH NSOV INSTALLED      WITHOUT NSOV INSTALLED



## PART BREAKDOWN

| ITEM | PART NO. | DESCRIPTION    |
|------|----------|----------------|
| 1    | 52040    | 20K Seal       |
| 2    | 63145    | Body           |
| 3    | 52624    | Valve          |
| 4    | 26455    | Spring         |
| 5    | 26776    | O-Ring         |
| 6    | 63146    | Outlet Adapter |

# STANDARD FILTERS

Available for a range of flows to meet all needs, Jetstream filters provide the necessary protection to even the most versatile waterblast system. The severe condition of 20,000 psi pumps require a higher degree of protection, and it is recommended that water is filtered to 10 microns by a primary filter and then by a secondary 1 micron filter before entering the pump.



**GUARDIAN SYSTEM**  
**Part No. 67776**



**Part No. 70968**



**Part No. 61607**



**Part No. 60740**

| PART NO. | INLET/OUTLET<br>DRAIN CONNECTIONS | MAX. FLOW<br>RATE |     | DIMENSIONS                              |     |        |      | WEIGHT |      | MAX. OPERATING<br>PRESSURE |     |
|----------|-----------------------------------|-------------------|-----|-----------------------------------------|-----|--------|------|--------|------|----------------------------|-----|
|          |                                   |                   |     | DIAMETER                                |     | HEIGHT |      |        |      |                            |     |
|          |                                   | gpm               | lpm | in                                      | mm  | in     | mm   | lb     | kg   | psi                        | bar |
| 67776    | 1 ½" / 3" / 2" NPT                | -                 | -   | 18 5/16" deep x 47 5/8" wide x 50" tall |     |        |      | 185    | 83.9 | 100                        | 6.8 |
| 61607    | 1 ½" NPT                          | 40                | 150 | 4.0                                     | 102 | 20     | 510  | 7.5    | 3.4  | 150                        | 10  |
| 70968    | 2" NPT                            | 200               | 750 | 8.5                                     | 216 | 36     | 910  | 40     | 18   | 150                        | 10  |
| 60740*   | 2" NPT                            | 200               | 750 | 8.63                                    | 219 | 47.2   | 1199 | 65     | 29.4 | 150                        | 10  |

\*For use with the 6000 Series Units

## Filter Bags



| FILTER<br>STYLE | BAG DIAMETER |     | BAG LENGTH |      | NOMINAL FILTRATION BAGS (MICRON) |             |           |           |
|-----------------|--------------|-----|------------|------|----------------------------------|-------------|-----------|-----------|
|                 | in           | mm  | in         | mm   | 5 micron                         | 10 micron** | 25 micron | 50 micron |
| 67776           | 7            | 180 | 42         | 1070 | 71254                            | J56204**    | J70917    | -         |
| 70968           | 7            | 180 | 32         | 810  | 27688                            | 26765**     | 26766     | 27497     |
| 61607           | 4            | 100 | 14         | 360  | 69911                            | 69912**     | 69915     | 69914     |
| 60740*          | 7            | 180 | 32         | 810  | -                                | 62652       | -         | -         |

\*For use with the 6000 Series units.

\*\*RECOMMENDED MICRON SIZE.

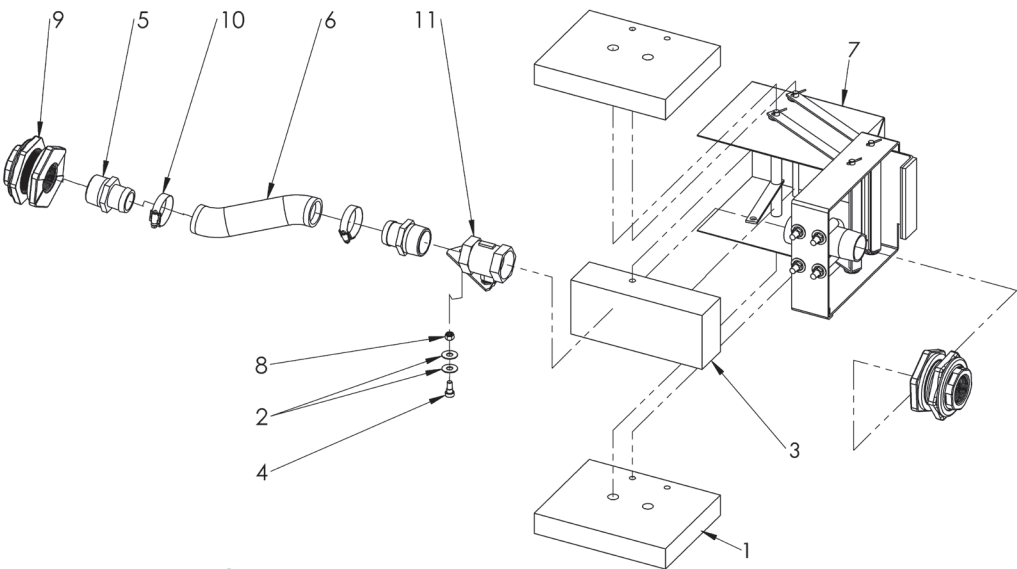
### RELATED ITEMS

|                 |                                                  |
|-----------------|--------------------------------------------------|
| <b>58414</b>    | Retrofit Float Assy for non-Guardian Water Tanks |
| <b>28519</b>    | Low Water Level Switch                           |
| <b>28480MOD</b> | Float Valve Modified (plastic floats)            |
| <b>57888</b>    | Float Assembly - Guardian Tank                   |

# GUARDIAN TANK FILL VALVE ASSEMBLY

The new durable design for the fill valve assembly is constructed of stainless steel to withstand the rigor of transport. This valve assembly is used on all Jetstream units and is built to supply water for varying pressures. Part No. 57858

An alternative fill valve assembly to fit non-Guardian tanks (PN 58414), is available with a 1-1/2" connection.



## PART BREAKDOWN

| ITEM | PART NO. | DESCRIPTION   | ITEM | PART NO. | DESCRIPTION        |
|------|----------|---------------|------|----------|--------------------|
| 1    | 57853    | Float Segment | 7    | 58305    | Frame              |
| 2    | 71202    | Washer        | 8    | 27698    | Nut                |
| 3    | 58044    | Float Segment | 9    | 29374    | Fitting, Bulkhead  |
| 4    | 57856    | Screw, Shldr  | 10   | 25221    | Clamp, Hose        |
| 5    | 58002    | Nipple, King  | 11   | 58314    | Valve Ay, Modified |
| 6    | 58000    | Hose          |      |          |                    |



# DESSICANT BREATHER

The dessicant breather filters out small particulates and removes moisture from the incoming air to ensure reliable and effective operation of the pump. Reduces downtime and costly repairs by minimizing abrasive wear, rust or corrosion. 1" NPT female connection.  
**Part No. 71671**



# PRESSURE GAUGE

- ▶ 4" high visibility face with laminated safety glass dial cover
- ▶ Glycerin-filled for protection against pulsation and vibration
- ▶ Blow-out back panel pressure relief in the event of Bourdon tube failure for maximum safety
- ▶ Pointer zero adjustment

| PART NO. | GAUGE TYPE | INLET CONNECTION | RANGE (PSI) | MAX. WORKING PRESSURE |       |
|----------|------------|------------------|-------------|-----------------------|-------|
|          |            |                  |             | psi                   | bar   |
| 52497    | psi        | 20K Port Male    | 0-35,000    | 20,000                | 1,379 |
| 52498*   | psi        | 9/16" MP Male    | 0-35,000    | 20,000                | 1,379 |
| 61627**  | psi        | 20K Port Male    | 0-35,000    | 20,000                | 1,379 |

\*Anti-vibration gland set not included. \*\*Certified & Calibrated



# RUPTURE DISC HOLDERS

For protection from dangerous over-pressurization, rupture discs function in a waterblast system similar to the function of fuses in an electrical circuit. When the system pressure exceeds that of the burst disc, the disc fails and allows water to flow out of the holder's cap, relieving the system of high pressure.

- May be used as primary and/or secondary relief device
- Tamper-resistant design
- Discs are quickly and easily replaceable

**NOTE:** Burst disc not included with assembly.

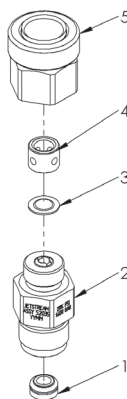
| PART NO. | CONNECTION TYPE         | OVERALL LENGTH |      | DISC BLOW OUT DIAMETER |      | FLATS |      | MAX. WORKING PRESSURE |       |
|----------|-------------------------|----------------|------|------------------------|------|-------|------|-----------------------|-------|
|          |                         | in             | mm   | in                     | mm   | in    | mm   | psi                   | bar   |
| 51890    | 9/16" MP Male           | 3.16           | 80.3 | .40                    | 10.2 | 1.25  | 31.8 | 20,000                | 1,379 |
| 52035    | Jetstream 20K Port Male | 3.03           | 77.0 | .40                    | 10.2 | 1.25  | 31.8 | 20,000                | 1,379 |



PART NO. 51890



PART NO. 52035



## PART BREAKDOWN

| ITEM | PART NO.  | DESCRIPTION    |
|------|-----------|----------------|
| 1    | 52040     | Seal Assy      |
| 2    | 52043     | Base for 52035 |
|      | 51774     | Base for 51890 |
| 3    | See chart | Burst Disc     |
| 4    | 51773     | Ring           |
| 5    | 51772     | Cap            |

# BURST DISCS

## DISC SELECTION

For **primary** relief devices, select disc with burst pressure of approximately 1.2 times desired operating pressure.

**Example:** For operating pressure of 20,000 psi, desired burst pressure is  $20,000 \times 1.2 = 24,000$  psi. Select 24,000 psi Burst Disc, Part No. 51838.

For **secondary** relief devices, select disc with burst pressure of approximately 1.4 times desired operating pressure.

**Example:** For operating pressure of 20,000 psi, desired burst pressure is  $20,000 \times 1.4 = 28,000$  psi. Select 27,000 psi Burst Disc, Part No. 51837 or 29,000 psi Burst Disc, Part No. 51836.

| PART NO. | BURST DISC PRESSURE |       |
|----------|---------------------|-------|
|          | psi                 | bar   |
| 51838    | 24,000              | 1,655 |
| 51837    | 27,000              | 1,861 |
| 51836    | 29,000              | 2,000 |
| 54328    | 18,000              | 1,241 |







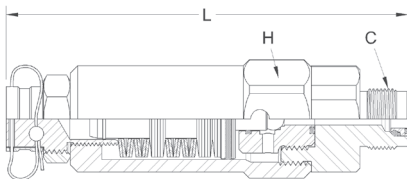
# SEVERE SERVICE RELIEF VALVE

For use as a primary relief device to protect waterblast systems and operators from dangerous over-pressurization, the Severe Service Relief Valve opens to safely bypass some of the system flow in circumstances where the operating pressure exceeds the factory set opening pressure of the valve.

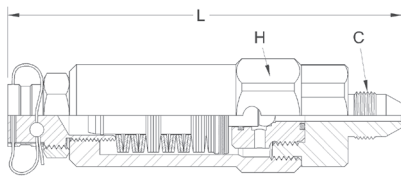
- ▶ Designed for rigorous service and low maintenance.
- ▶ Valve constructed with carbide ball and hardened stainless steel seat for long service life.
- ▶ Precise machining and cartridge design of ball-seat valve assembly and spring assembly allows quick and simple field repair without disturbing the valve pressure setting.
- ▶ Shipped from the factory preset and tested at customer specified opening (relief) pressure.
- ▶ Factory set opening pressure is stamped into anti-tamper ring which is installed to prevent set pressure from being changed without evidence.

| PART NO. | CONNECTION TYPE* (C)       | OVERALL LENGTH (L) |       | FLOW DIAMETER |     | MAX. RELIEF PRESSURE (FACTORY SET) |       | MAX. WORKING PRESSURE |       |
|----------|----------------------------|--------------------|-------|---------------|-----|------------------------------------|-------|-----------------------|-------|
|          |                            | in                 | mm    | in            | mm  | psi                                | bar   | psi                   | bar   |
| 50131    | 9/16" Medium Pressure Male | 6.75               | 171.5 | .203          | 5.2 | 24,000                             | 1,655 | 20,000                | 1,379 |
| 52030    | Jetstream 20K Port Male    | 6.62               | 168.1 | .203          | 5.2 | 24,000                             | 1,655 | 20,000                | 1,379 |

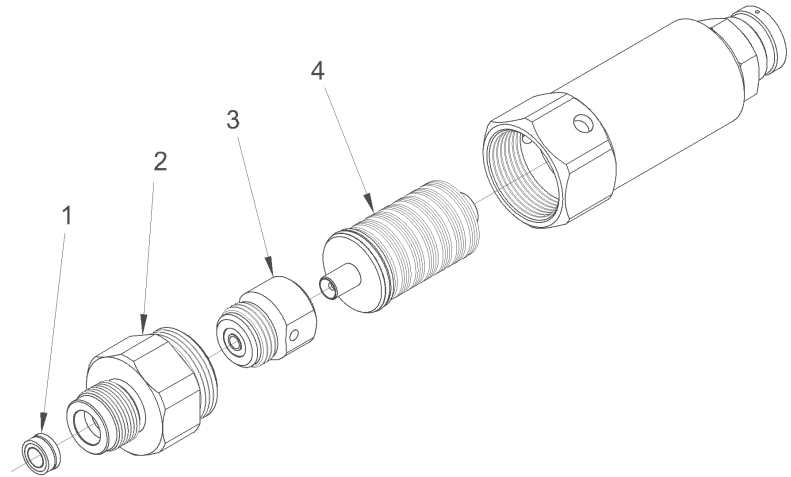
\* See details on all connection types in Section I.



PART NO. 52030



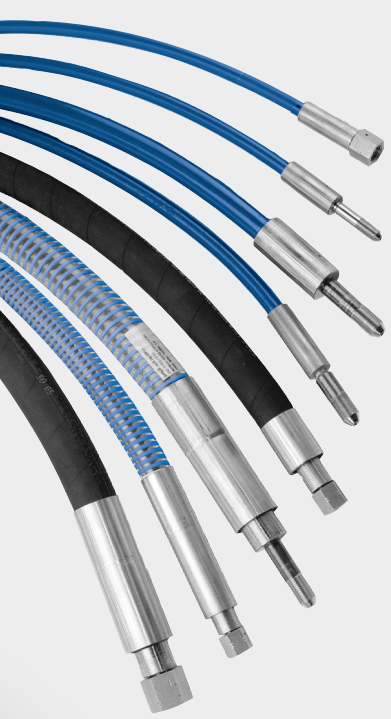
PART NO. 50131



## PART BREAKDOWN

| ITEM | PART NO. | DESCRIPTION                      |
|------|----------|----------------------------------|
| 1    | 52040    | Seal Assy                        |
| 2    | 50148    | Base, 9/16" Medium Pressure Male |
|      | 52042    | Base, Jetstream 20K Male Port    |
| 3    | 50133    | Ball-Seat Cartridge Assy         |
| 4    | 50134    | Spring Cartridge Assy            |





Thermoplastic  
Hoses & Flex Lances



Rigid  
Lances

# HOSES & LANCES

Jetstream provides a full arrangement of hoses and flex lances for ultra high pressure waterblasting. The hoses and lances are designed to be durable and reliable for any 20,000 psi application. A large selection of 25', 35' and 50' hoses and lances are kept in inventory, while a wide variety of lengths can be ordered.

All hoses and flex lances are constructed of a plastic core reinforced with high tensile steel wire and enclosed in a durable, flexible thermoplastic jacket. The smooth plastic core minimizes pressure loss and offers maximum resistance to damage caused by aging, moisture absorption and changing environmental factors. As an added safety benefit, all supply hoses with the abrasion cover spiral will be colored blue. All flex lances supplied will be blue from end to end.

A key element of the thermoplastic supply hose is the heavy-duty abrasion cover. This cover prevents excess damage caused by vibration and movement of the hose on rough or uneven surfaces when connecting from the pump to an intermediary high pressure tool, such as a foot gun.

The flex lances are uncovered lances used for the cleaning of small diameter tubes found in heat exchangers, condensers and boilers. The use of smaller flex lances allows for easy passage through bends due to great flexibility and minimal bend radius.

HOSES &  
LANCES

## HOW TO ORDER JETSTREAM HOSES & FLEX LANCES 28347-AAABBCCX

- |   |                                                                                                                                                                              |          |
|---|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| 1 | <b>Specify Series Number</b><br>Insert dash after Series Number.                                                                                                             | 28347    |
| 2 | <b>Specify Desired Length in Feet (AAA) (000 - 999)</b><br>Example: 050 for a 50 ft. long hose.                                                                              | AAA      |
| 3 | <b>Specify End Fitting Codes (BB &amp; CC)</b><br>For a hose or lance requiring two different end fittings, list the codes in numerical order when creating the part number. | BB<br>CC |
| 4 | <b>Specify Cover Options Code (X)</b><br>Leave blank if no cover is desired.<br>Cover Option Codes:<br>1      Abrasion Cover Guard<br>2      Burst Shield Guard              | X        |



# THERMOPLASTIC HOSES

These premium hoses provide the most durable and reliable means of connecting system components.

- ▶ Constructed of a plastic core reinforced by four or six spiral layers of high tensile steel wire enclosed in a tough, flexible polyamide jacket.
- ▶ Smooth plastic core minimizes pressure loss and offers the maximum resistance to damage caused by aging, moisture absorption, and changing environmental factors.
- ▶ Stainless steel end fittings with industry standard connections.
- ▶ For special lengths, end fittings, or cover options, see custom order instructions on page D-4.
- ▶ See pages D-8-D-10 for pressure drop graphs.

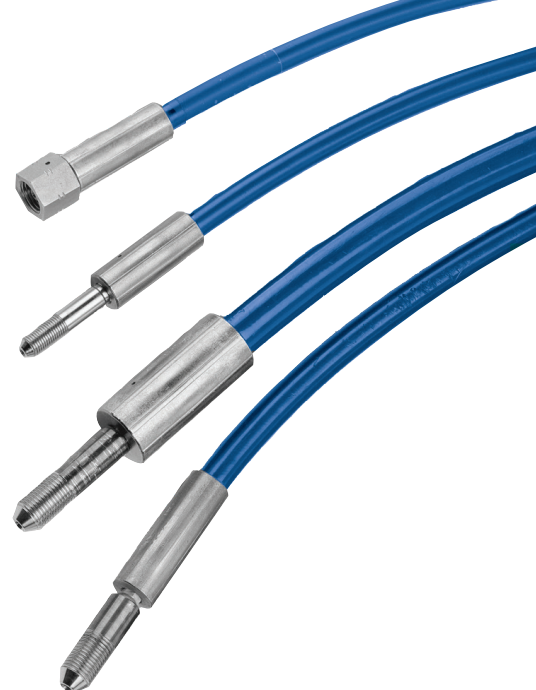
| NOMINAL<br>HOSE I.D. |    | PART NO.       | END FITTING<br>CONNECTIONS* | LENGTH |      | INSIDE<br>DIAMETER |      | MAX. OPERATING<br>PRESSURE |       | MINIMUM<br>BEND RADIUS |     |
|----------------------|----|----------------|-----------------------------|--------|------|--------------------|------|----------------------------|-------|------------------------|-----|
| in                   | mm |                |                             | ft     | mm   | in                 | mm   | psi                        | bar   | in                     | mm  |
| 3/4"                 | 20 | 29120-02544441 | 1-5/16" Type M Female       | 25     | 7.6  | .74                | 18.8 | 20,300                     | 1,400 | 13.8                   | 350 |
|                      |    | 29120-05044441 | 1-5/16" Type M Female       | 50     | 15.2 | .74                | 18.8 | 20,300                     | 1,400 | 13.8                   | 350 |
|                      |    | 29120-02530301 | 1" MP Tube Nipple           | 25     | 7.6  | .74                | 18.8 | 20,300                     | 1,400 | 13.8                   | 350 |
|                      |    | 29120-05030301 | 1" MP Tube Nipple           | 50     | 15.2 | .74                | 18.8 | 20,300                     | 1,400 | 13.8                   | 350 |
| 1/2"                 | 13 | 28347-02542421 | 1" Type M Female            | 25     | 7.6  | .50                | 12.8 | 20,300                     | 1,400 | 8.0                    | 200 |
|                      |    | 28347-05042421 | 1" Type M Female            | 50     | 15.2 | .50                | 12.8 | 20,300                     | 1,400 | 8.0                    | 200 |
|                      |    | 28347-02529291 | 3/4" MP Tube Nipple         | 25     | 7.6  | .50                | 12.8 | 20,300                     | 1,400 | 8.0                    | 200 |
|                      |    | 28347-05029291 | 3/4" MP Tube Nipple         | 50     | 15.2 | .50                | 12.8 | 20,300                     | 1,400 | 8.0                    | 200 |
|                      |    | 28347-02528281 | 9/16" MP Tube Nipple        | 25     | 7.6  | .50                | 12.8 | 20,300                     | 1,400 | 8.0                    | 200 |
|                      |    | 28347-05028281 | 9/16" MP Tube Nipple        | 50     | 15.2 | .50                | 12.8 | 20,300                     | 1,400 | 8.0                    | 200 |
|                      |    | 70941-05042421 | 1" Type M Female            | 50     | 15.2 | .50                | 12.8 | 20,400                     | 1,406 | 7.8                    | 198 |
| 13/32"               | 10 | 28690-0504040  | 3/4" Type M Female          | 50     | 15.2 | .39                | 9.9  | 21,750                     | 1,500 | 7.8                    | 198 |
| 5/16"                | 8  | 53816-02540401 | 3/4" Type M Female          | 25     | 7.6  | .32                | 8.0  | 21,750                     | 1,500 | 8.0                    | 200 |
|                      |    | 53816-05040401 | 3/4" Type M Female          | 50     | 15.2 | .32                | 8.0  | 21,750                     | 1,500 | 8.0                    | 200 |
|                      |    | 53816-02528281 | 9/16" MP Tube Nipple        | 25     | 7.6  | .32                | 8.0  | 21,750                     | 1,500 | 8.0                    | 200 |
|                      |    | 53816-05028281 | 9/16" MP Tube Nipple        | 50     | 15.2 | .32                | 8.0  | 21,750                     | 1,500 | 8.0                    | 200 |
| 1/4"                 | 6  | 51954-02539391 | 9/16" Type M Female         | 25     | 7.6  | .25                | 6.3  | 21,750                     | 1,500 | 7.0                    | 180 |
|                      |    | 51954-05039391 | 9/16" Type M Female         | 50     | 15.2 | .25                | 6.3  | 21,750                     | 1,500 | 7.0                    | 180 |

\*See details on all connection types in Section I. Medium Pressure (MP) Tube Nipple connections do not include gland nuts and collars.

# THERMOPLASTIC FLEX LANCES

Flex lances are uncovered hoses used for the cleaning of small diameter tubes such as those found in heat exchangers, condensers, and boilers.

- ▶ Flex lances have a small minimum bend radius which allows them to pass through bends in the tubes.
- ▶ Constructed of plastic core reinforced by four spiral layers of high tensile steel wire enclosed in a tough, flexible polyamide jacket.
- ▶ Smooth plastic core minimizes pressure loss and offers the maximum resistance to damage caused by aging, moisture absorption, and changing environmental factors.
- ▶ Stainless steel end fittings.
- ▶ See pages D-8-D-10 for pressure drop graphs.
- ▶ Custom lengths and end fitting combinations are available upon request.



| NOMINAL HOSE I.D. |    | PART NO.*<br>XXX = LENGTH (FT) | END FITTING CONNECTIONS** |                           | INSIDE DIAMETER |     | OUTSIDE DIAMETER*** |      | MAX. OPERATING PRESSURE |       | MIN. BEND RADIUS |     |
|-------------------|----|--------------------------------|---------------------------|---------------------------|-----------------|-----|---------------------|------|-------------------------|-------|------------------|-----|
| in                | mm |                                | INLET SIDE                | NOZZLE SIDE               | in              | mm  | in                  | mm   | psi                     | bar   | in               | mm  |
| 5/16"             | 8  | 28690-XXX4052                  | 3/4" Type M Female        | 9/16" MP Nozzle Nipple LH | .39             | 9.9 | .72                 | 18.4 | 21,750                  | 1,500 | 7.8              | 198 |
|                   |    | 53816-XXX4072†                 | 3/4" Type M Female        | 9/16" MP Nozzle Nipple LH | .32             | 8.0 | .67                 | 17.0 | 21,750                  | 1,500 | 8.0              | 200 |
|                   |    | 53816-XXX4075†                 | 3/4" Type M Female        | 9/16" MP Nozzle Nipple RH | .32             | 8.0 | .67                 | 17.0 | 21,750                  | 1,500 | 8.0              | 200 |
|                   |    | 53816-XXX4067                  | 3/4" Type M Female        | 9/16" JS Lance Female     | .32             | 8.0 | .74                 | 18.8 | 21,750                  | 1,500 | 8.0              | 200 |
|                   |    | 53816-XXX6767                  | 3/4" JS Lance Female      | 9/16" JS Lance Female     | .32             | 8.0 | .74                 | 18.8 | 21,750                  | 1,500 | 8.0              | 200 |
| 1/4"              | 6  | 51954-XXX3971†                 | 9/16" Type M Female       | 3/8" MP Nozzle Nipple LH  | .25             | 6.3 | .57                 | 14.4 | 21,750                  | 1,500 | 7.0              | 180 |
|                   |    | 51954-XXX3974†                 | 9/16" Type M Female       | 3/8" MP Nozzle Nipple RH  | .25             | 6.3 | .57                 | 14.4 | 21,750                  | 1,500 | 7.0              | 180 |
|                   |    | 51954-XXX3966                  | 9/16" Type M Female       | 3/8" JS Lance Female      | .25             | 6.3 | .62                 | 15.7 | 21,750                  | 1,500 | 7.0              | 180 |
|                   |    | 51954-XXX6666                  | 3/8" JS Lance Female      | 3/8" JS Lance Female      | .25             | 6.3 | .62                 | 15.7 | 21,750                  | 1,500 | 7.0              | 180 |
| 3/16"             | 5  | 51953-XXX3971†                 | 9/16" Type M Female       | 3/8" MP Nozzle Nipple LH  | .20             | 5.0 | .49                 | 12.5 | 26,100                  | 1,800 | 6.0              | 150 |
|                   |    | 51953-XXX3974†                 | 9/16" Type M Female       | 3/8" MP Nozzle Nipple RH  | .20             | 5.0 | .49                 | 12.5 | 26,100                  | 1,800 | 6.0              | 150 |
|                   |    | 51953-XXX3966                  | 9/16" Type M Female       | 3/8" JS Lance Female      | .20             | 5.0 | .57                 | 14.5 | 26,100                  | 1,800 | 6.0              | 150 |
|                   |    | 51953-XXX6666                  | 3/8" JS Lance Female      | 3/8" JS Lance Female      | .20             | 5.0 | .57                 | 14.5 | 26,100                  | 1,800 | 6.0              | 150 |
| 5/32"             | 4  | 51952-XXX3970†                 | 9/16" Type M Female       | 1/4" MP Nozzle Nipple LH  | .16             | 4.0 | .50                 | 12.7 | 31,320                  | 2,160 | 5.0              | 130 |
|                   |    | 51952-XXX3973†                 | 9/16" Type M Female       | 1/4" MP Nozzle Nipple RH  | .16             | 4.0 | .50                 | 12.7 | 31,320                  | 2,160 | 5.0              | 130 |
|                   |    | 51952-XXX3965                  | 9/16" Type M Female       | 1/4" JS Lance Female      | .16             | 4.0 | .50                 | 12.7 | 31,320                  | 2,160 | 5.0              | 130 |
|                   |    | 51952-XXX6565                  | 1/4" JS Lance Female      | 1/4" JS Lance Female      | .16             | 4.0 | .50                 | 12.7 | 31,320                  | 2,160 | 5.0              | 130 |
|                   |    | 66045-XXX3970†                 | 9/16" Type M Female       | 1/4" MP Nozzle Nipple LH  | .16             | 4.0 | .39                 | 9.8  | 20,300                  | 1,400 | 2.9              | 75  |
|                   |    | 66045-XXX3973†                 | 9/16" Type M Female       | 1/4" MP Nozzle Nipple RH  | .16             | 4.0 | .39                 | 9.8  | 20,300                  | 1,400 | 2.9              | 75  |
| 1/8"              | 3  | 28699-XXX3970†                 | 9/16" Type M Female       | 1/4" MP Nozzle Nipple LH  | .13             | 3.4 | .31                 | 8.0  | 29,000                  | 2,000 | 4.3              | 110 |
|                   |    | 28699-XXX3973†                 | 9/16" Type M Female       | 1/4" MP Nozzle Nipple RH  | .13             | 3.4 | .31                 | 8.0  | 29,000                  | 2,000 | 4.3              | 110 |

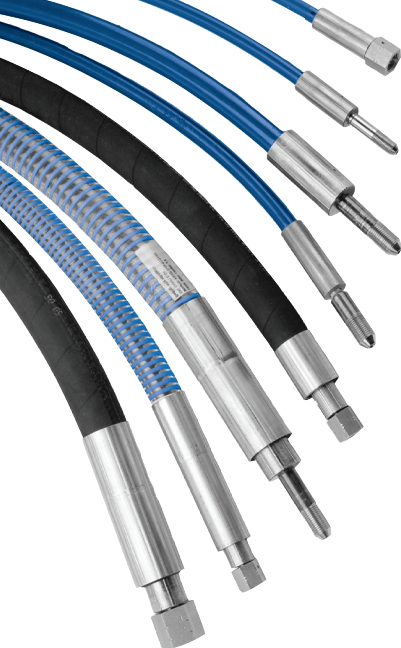
\*Specify flex lance length in feet. For example, specify "050" for a fifty foot long flex lance.

\*\*See details on end fittings for these assemblies on page D-5 and specifications for all connection types in Section I.

\*\*\*Outside diameter of end fitting sleeve on nozzle end of flex lance.

†End fittings must only be used for tube cleaning operations inside the tube. They are not designed for use outside of tubes.



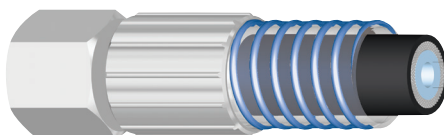


# THERMOPLASTIC HOSES & FLEX LANCES

## CUSTOM ORDER

All Jetstream 20,000 psi thermoplastic hoses and flex lances are available in custom lengths or with special end fitting combinations or covers. Common lengths and configurations are available on the two preceding pages.

- ▶ Constructed of plastic core reinforced by four or six spiral layers of high tensile steel wire enclosed in a tough, flexible polyamide jacket.
- ▶ Smooth plastic core minimizes pressure loss and offers the maximum resistance to damage caused by aging, moisture absorption, and changing environmental factors.
- ▶ Stainless steel end fittings.
- ▶ See pages D-8-D-10 for pressure drop graphs.
- ▶ Use charts and instructions below to build a custom hose or flex lance.

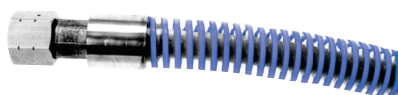


| NOMINAL HOSE I.D. |    | HOSE SERIES | INSIDE DIAMETER (A) |      | OUTSIDE DIAMETER (B)* |      | BURST PRESSURE |       | MAX. OPERATING PRESSURE |       | MINIMUM BEND RADIUS |     | WEIGHT |      |
|-------------------|----|-------------|---------------------|------|-----------------------|------|----------------|-------|-------------------------|-------|---------------------|-----|--------|------|
| in                | mm |             | in                  | mm   | in                    | mm   | psi            | bar   | psi                     | bar   | in                  | mm  | lbs/ft | kg/m |
| 3/4"              | 20 | 29120       | .74                 | 18.8 | 1.24                  | 31.4 | 50,760         | 3,500 | 20,300                  | 1,400 | 13.8                | 350 | 1.29   | 1.92 |
| 1/2"              | 13 | 28347       | .50                 | 12.7 | .87                   | 22.0 | 50,760         | 3,500 | 20,300                  | 1,400 | 8.0                 | 200 | .59    | .88  |
| 1/2"              | 13 | 70941       | .50                 | 12.8 | .88                   | 22.3 | 50,750         | 3,500 | 20,400                  | 1,406 | 7.8                 | 200 | .63    | .28  |
| 5/16"             | 10 | 28690       | .39                 | 9.9  | .72                   | 18.4 | 55,100         | 3,799 | 21,750                  | 1,500 | 7.8                 | 200 | .46    | .69  |
| 5/16"             | 8  | 53816       | .32                 | 8.0  | .57                   | 14.6 | 55,100         | 3,800 | 21,750                  | 1,500 | 8.0                 | 200 | .26    | .39  |
| 1/4"              | 6  | 51954       | .25                 | 6.3  | .50                   | 12.7 | 55,100         | 3,800 | 21,750                  | 1,500 | 7.0                 | 180 | .20    | .30  |
| 3/16"             | 5  | 51953       | .20                 | 5.0  | .44                   | 11.2 | 65,250         | 4,500 | 26,100                  | 1,800 | 6.0                 | 150 | .18    | .26  |
| 5/32"             | 4  | 51952       | .16                 | 4.0  | .41                   | 10.4 | 78,300         | 5,400 | 31,320                  | 2,160 | 5.0                 | 130 | .16    | .23  |
| 5/32"             | 4  | 66045       | .16                 | 4.0  | .39                   | 9.8  | 50,750         | 3,500 | 20,300                  | 1,400 | 2.9                 | 75  | .07    | .11  |
| 1/8"              | 3  | 28699       | .13                 | 3.4  | .31                   | 8.0  | 72,500         | 5,000 | 29,000                  | 2,000 | 4.3                 | 110 | .09    | .13  |

\*Outside diameter shown is for hose material. For maximum OD, see sleeve diameters listed in charts on the following page.

### HOSE COVER OPTIONS

#### Abrasion Cover Guard (Code 1)



Constructed of a clear PVC or heavy-duty vinyl and reinforced with a rigid helix coil. The Abrasion Cover Guard helps protect the hose from excessive wear due to scuffing or rough surfaces, and also provides additional protection from external objects.

#### Burst Shield Guard (Code 2)



Constructed of steel wire reinforced heavy-duty synthetic rubber. The Burst Shield Guard helps protect the user and/or surrounding areas from hose failures.

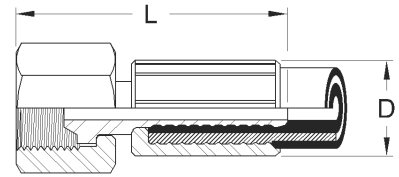
# THERMOPLASTIC HOSES & FLEX LANCES

## END FITTINGS

Use the information contained in the charts below to select the fitting codes for the connection types desired. See specifications for all connection types in Section I.

### TYPE M FEMALE

| HOSE<br>SERIES NO. | CONNECTION            | CODE | LENGTH (L) |     | SLEEVE OD (D) |      |
|--------------------|-----------------------|------|------------|-----|---------------|------|
|                    |                       |      | in         | mm  | in            | mm   |
| 29120              | 1 5/16" Type M (M-21) | 44   | 4.29       | 109 | 1.69          | 42.9 |
| 28347              | 1" Type M (M-16)      | 42   | 3.70       | 94  | 1.16          | 29.5 |
| 70941              | 1" Type M (M-16)      | 42   | 3.70       | 94  | 1.16          | 29.5 |
| 53816              | 3/4" Type M (M-12)    | 40   | 3.37       | 86  | .80           | 20.3 |
| 28690              | 3/4" Type M (M-12)    | 40   | 3.37       | 86  | .80           | 20.3 |
| 51954              | 9/16" Type M (M-9)    | 39   | 2.80       | 71  | .65           | 16.4 |
| 51953              | 9/16" Type M (M-9)    | 39   | 2.76       | 70  | .61           | 15.5 |
| 51952              | 9/16" Type M (M-9)    | 39   | 2.77       | 70  | .58           | 14.7 |

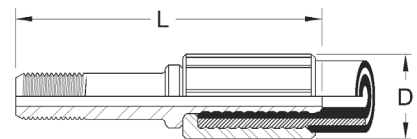


HOSES &  
LANCES

### MEDIUM PRESSURE MALE TUBE NIPPLES

Male left-hand threaded end fittings designed for connection to other medium pressure fittings and ports using the appropriate gland nuts and collars.

| HOSE<br>SERIES NO. | CONNECTION       | CODE | LENGTH (L) |     | SLEEVE OD (D) |      |
|--------------------|------------------|------|------------|-----|---------------|------|
|                    |                  |      | in         | mm  | in            | mm   |
| 29120              | 1" MP Tube LH    | 30   | 6.00       | 152 | 1.69          | 42.9 |
| 28347              | 3/4" MP Tube LH  | 29   | 5.36       | 136 | 1.16          | 29.5 |
|                    | 9/16" MP Tube LH | 28   | 4.67       | 119 | 1.16          | 29.5 |
| 53816              | 9/16" MP Tube LH | 28   | 4.10       | 104 | .80           | 20.3 |
| 51954              | 3/8" MP Tube LH  | 27   | 3.55       | 90  | .65           | 16.4 |
| 51953              | 9/16" MP Tube LH | 28   | 4.06       | 103 | .61           | 15.5 |
|                    | 3/8" MP Tube LH  | 27   | 3.54       | 90  | .61           | 15.5 |
|                    | 1/4" MP Tube LH  | 26   | 3.27       | 83  | .61           | 15.5 |
| 51952              | 3/8" MP Tube LH  | 27   | 3.62       | 92  | .58           | 14.7 |
|                    | 1/4" MP Tube LH  | 26   | 3.31       | 84  | .58           | 14.7 |
| 28690              | 9/16" MP Tube LH | 72   | 4.06       | 103 | .61           | 15.5 |
| 28699 <sup>†</sup> | 9/16" MP Tube LH | 70   | 4.06       | 103 | .61           | 15.5 |

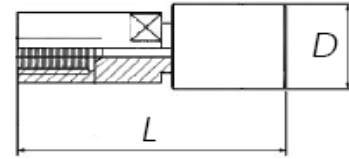


<sup>†</sup> End fittings must only be used for tube cleaning operation inside the tube. They are not designed for use outside of tubes.



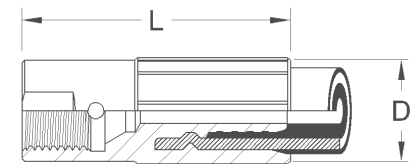
## MEDIUM PRESSURE FEMALE

| HOSE<br>SERIES NO. | CONNECTION | CODE |    | LENGTH (L) |    | SLEEVE OD (D) |      |
|--------------------|------------|------|----|------------|----|---------------|------|
|                    |            | LH   | RH | in         | mm | in            | mm   |
| 51952              | 1/4" MP    | 76   | 79 | 1.74       | 45 | .49           | 12.4 |
| 51953              | 1/4" MP    | 76   | 79 | 1.74       | 45 | .49           | 12.4 |
|                    | 3/8" MP    | 77   | 80 | 1.97       | 50 | .57           | 14.5 |
| 51954              | 3/8" MP    | 77   | 80 | 1.97       | 50 | .57           | 14.5 |
| 53816              | 9/16" MP   | 78   | 81 | 2.32       | 59 | .67           | 17.0 |



## JETSTREAM LANCE FEMALE

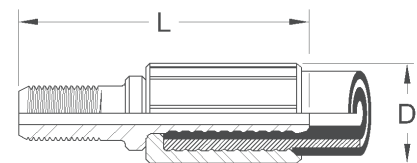
| HOSE<br>SERIES NO. | CONNECTION            | CODE | LENGTH (L) |    | SLEEVE OD (D) |      |
|--------------------|-----------------------|------|------------|----|---------------|------|
|                    |                       |      | in         | mm | in            | mm   |
| 53816              | 9/16" JS Lance Female | 67   | 2.06       | 52 | .74           | 18.8 |
| 51954              | 3/8" JS Lance Female  | 66   | 1.72       | 44 | .62           | 15.7 |
| 51953              | 3/8" JS Lance Female  | 66   | 1.70       | 43 | .57           | 14.5 |
| 51952              | 1/4" JS Lance Female  | 65   | 1.50       | 38 | .50           | 12.7 |



## MEDIUM PRESSURE NOZZLE NIPPLES†

Connect directly to nozzles with female left or right hand medium pressure tube or nozzle nipple connections.

| HOSE<br>SERIES NO. | SIZE*                  | CODE |    | LENGTH (L) |    | SLEEVE OD (D) |      |
|--------------------|------------------------|------|----|------------|----|---------------|------|
|                    |                        | LH   | RH | in         | mm | in            | mm   |
| 53816              | 9/16" MP Nozzle Nipple | 72   | 75 | 2.36       | 60 | .67           | 17.0 |
| 51954              | 3/8" MP Nozzle Nipple  | 71   | 74 | 2.10       | 53 | .57           | 14.4 |
| 51953              | 3/8" MP Nozzle Nipple  | 71   | 74 | 2.05       | 52 | .49           | 12.5 |
|                    | 1/4" MP Nozzle Nipple  | 70   | 73 | 1.82       | 46 | .49           | 12.5 |
| 51952              | 1/4" MP Nozzle Nipple  | 70   | 73 | 1.82       | 46 | .45           | 11.4 |

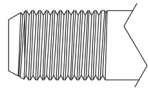


† End fittings must only be used for tube cleaning operation inside the tube. They are not designed for use outside of tubes.

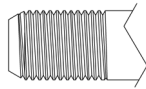
\* MP Tube and Nozzle Nipple connection thread sizes are interchangeable. See Section I for details on the connections.

# RIGID LANCES

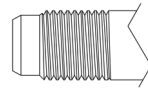
- ▶ For use in manual or automatic tube cleaning applications.
- ▶ Machined from high tensile strength, cold drawn stainless steel.
- ▶ Three connection types available:
- ▶ Left Hand Medium Pressure Tubing (MP Tube LH). Can be used with glands and collars or with tube nozzles. Available in 1/4" to 3/4" sizes.
- ▶ Right Hand Medium Pressure Tubing (MP Tube RH). Available in 1/4" to 3/4" sizes.
- ▶ Jetstream Lance Connections (JS Lance). Available in 1/4", 3/8", & 9/16" sizes.
- ▶ See pressure drop graphs on page D-11.



MP TUBE LH CONNECTION



MP TUBE RH CONNECTION



JS LANCE CONNECTION

To order, use five digit part number followed by a dash (-) and length in feet (up to 25 ft).

HOSES &  
LANCES

| PART NO.*<br>XX = LENGTH<br>(FT) | CONNECTION TYPES* |                   | OUTSIDE<br>DIAMETER |      | INSIDE<br>DIAMETER |      | MAX. OPERATING<br>PRESSURE |       | LENGTH |       |
|----------------------------------|-------------------|-------------------|---------------------|------|--------------------|------|----------------------------|-------|--------|-------|
|                                  | CONNECTION 1 (C1) | CONNECTION 2 (C2) | in                  | mm   | in                 | mm   | psi                        | bar   | ft     | m     |
| 54731-XX                         | 3/4" MP Tube LH   | 3/4" MP Tube LH   | .740                | 18.8 | .438               | 11.1 | 20,000                     | 1,379 | 25     | 7.62  |
| 54732-XX                         | 3/4" MP Tube LH   | 3/4" MP Tube RH   | .740                | 18.8 | .438               | 11.1 | 20,000                     | 1,379 | 25     | 7.62  |
| 54733-XX                         | 3/4" MP Tube RH   | 3/4" MP Tube RH   | .740                | 18.8 | .438               | 11.1 | 20,000                     | 1,379 | 25     | 7.62  |
| 54223-XX                         | 9/16" MP Tube LH  | 9/16" MP Tube LH  | .553                | 14.0 | .312               | 7.9  | 20,000                     | 1,379 | 35     | 10.66 |
| 54388-XX                         | 9/16" MP Tube LH  | 9/16" MP Tube RH  | .553                | 14.0 | .312               | 7.9  | 20,000                     | 1,379 | 35     | 10.66 |
| 54801-XX                         | 9/16" MP Tube LH  | 9/16" JS Lance    | .553                | 14.0 | .312               | 7.9  | 20,000                     | 1,379 | 35     | 10.66 |
| 54802-XX                         | 9/16" MP Tube RH  | 9/16" MP Tube RH  | .553                | 14.0 | .312               | 7.9  | 20,000                     | 1,379 | 35     | 10.66 |
| 54803-XX                         | 9/16" MP Tube RH  | 9/16" JS Lance    | .553                | 14.0 | .312               | 7.9  | 20,000                     | 1,379 | 35     | 10.66 |
| 51936-XX                         | 9/16" JS Lance    | 9/16" JS Lance    | .553                | 14.0 | .312               | 7.9  | 20,000                     | 1,379 | 35     | 10.66 |
| 54222-XX                         | 3/8" MP Tube LH   | 3/8" MP Tube LH   | .368                | 9.3  | .203               | 5.2  | 20,000                     | 1,379 | 35     | 10.66 |
| 54387-XX                         | 3/8" MP Tube LH   | 3/8" MP Tube RH   | .368                | 9.3  | .203               | 5.2  | 20,000                     | 1,379 | 35     | 10.66 |
| 54797-XX                         | 3/8" MP Tube LH   | 3/8" JS Lance     | .368                | 9.3  | .203               | 5.2  | 20,000                     | 1,379 | 35     | 10.66 |
| 54798-XX                         | 3/8" MP Tube RH   | 3/8" MP Tube RH   | .368                | 9.3  | .203               | 5.2  | 20,000                     | 1,379 | 35     | 10.66 |
| 54799-XX                         | 3/8" MP Tube RH   | 3/8" JS Lance     | .368                | 9.3  | .203               | 5.2  | 20,000                     | 1,379 | 35     | 10.66 |
| 51934-XX                         | 3/8" JS Lance     | 3/8" JS Lance     | .368                | 9.3  | .203               | 5.2  | 20,000                     | 1,379 | 35     | 10.66 |
| 54389-XX                         | 1/4" MP Tube LH   | 1/4" MP Tube LH   | .245                | 6.2  | .109               | 2.8  | 20,000                     | 1,379 | 35     | 10.66 |
| 54386-XX                         | 1/4" MP Tube LH   | 1/4" MP Tube RH   | .245                | 6.2  | .109               | 2.8  | 20,000                     | 1,379 | 35     | 10.66 |
| 54793-XX                         | 1/4" MP Tube LH   | 1/4" JS Lance     | .245                | 6.2  | .109               | 2.8  | 20,000                     | 1,379 | 35     | 10.66 |
| 54794-XX                         | 1/4" MP Tube RH   | 1/4" MP Tube RH   | .245                | 6.2  | .109               | 2.8  | 20,000                     | 1,379 | 35     | 10.66 |
| 54796-XX                         | 1/4" MP Tube RH   | 1/4" JS Lance     | .245                | 6.2  | .109               | 2.8  | 20,000                     | 1,379 | 35     | 10.66 |
| 51933-XX                         | 1/4" JS Lance     | 1/4" JS Lance     | .245                | 6.2  | .109               | 2.8  | 20,000                     | 1,379 | 35     | 10.66 |

\*See details on all connection types in Section I.

# PRESSURE DROP DATA

The charts shown are used to approximate how much pressure will be lost through a particular hose or lance at a given flow rate. Because of frictional forces, the water exiting a hose or lance could be at a significantly lower pressure than at entry. In some cases, especially when using smaller hoses and lances such as Series 51952 & 51953, the flow rate that can be used is determined by pressure drop through a lance rather than the pump's maximum output.

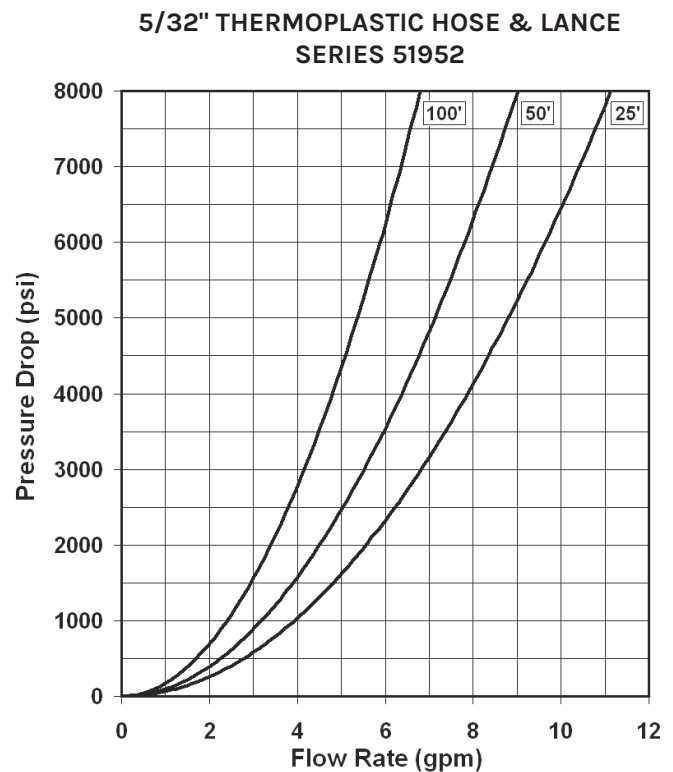
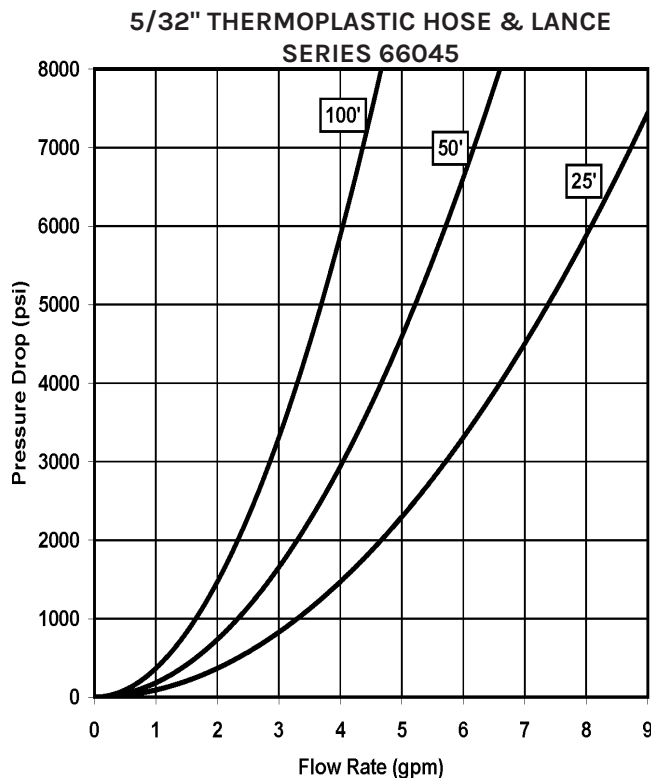
## PRESSURE DROP & NOZZLE SIZING

Pressure drop is especially important to understand when sizing nozzles. Use the following procedure for correct nozzle sizing:

1. Determine the pressure needed for a particular cleaning operation and subtract that amount from the desired pump operating pressure. The result is the desired pressure drop.
2. Consult pressure drop chart for the hose to be used to determine what flow rate will result in the intended pressure drop.
3. If this flow rate exceeds the maximum flow of the pump, use the chart to find the pressure drop at the maximum pump flow and subtract that amount from the desired pump operating pressure to get the pressure at the nozzle. Then use the flow charts provided for the desired nozzle to select a nozzle, or nozzles, matching the desired flow and pressure.
4. If this flow rate is within the capability of the pump, use the flow charts provided for the desired nozzle to select a nozzle, or nozzles, matching the desired flow and pressure.

**NOTE:** Doubling the length of a hose or lance will result in approximately twice the pressure drop at the same flow rate.

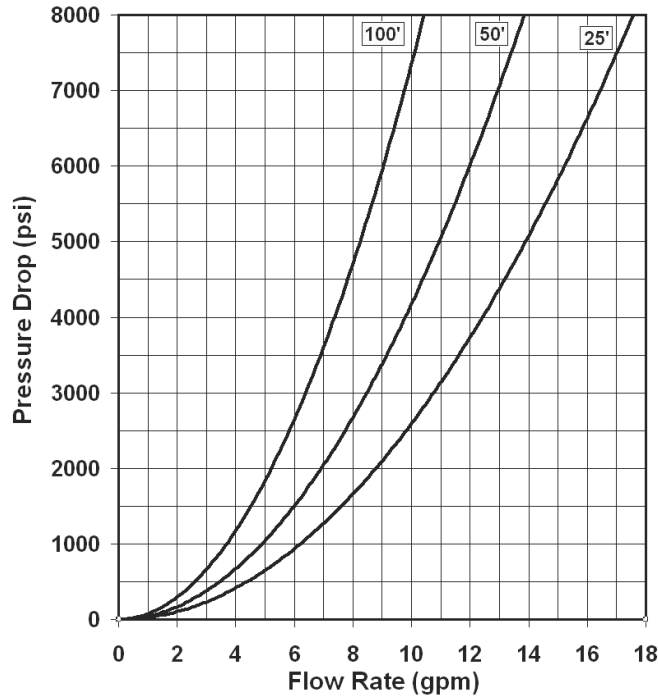
## HOSES & FLEX LANCES



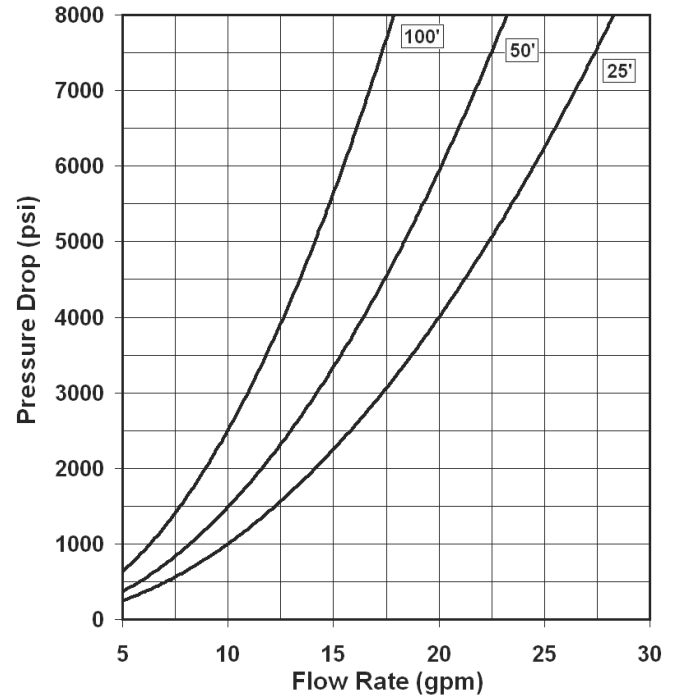
# PRESSURE DROP DATA

## HOSES & FLEX LANCES

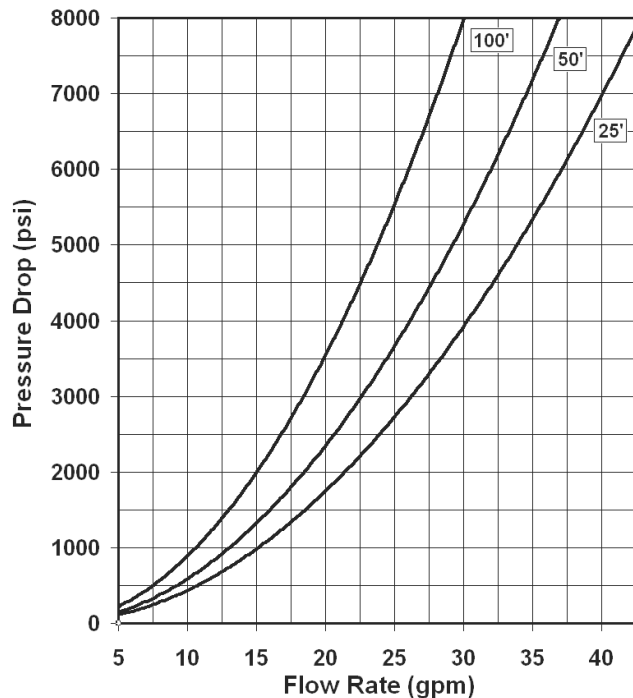
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SERIES 51953



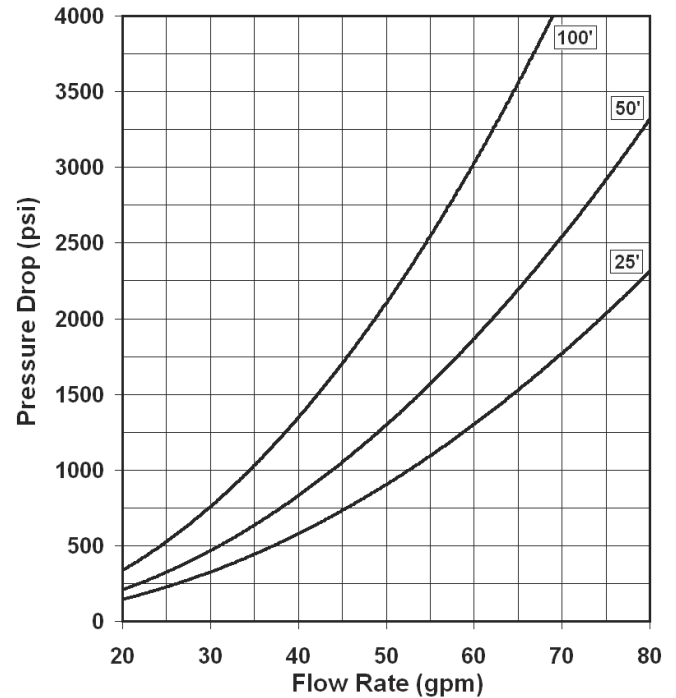
1/4" THERMOPLASTIC HOSE & LANCE  
SERIES 51954



5/16" THERMOPLASTIC HOSE & LANCE  
SERIES 53816



1/2" THERMOPLASTIC HOSE  
SERIES 28347 & 70941

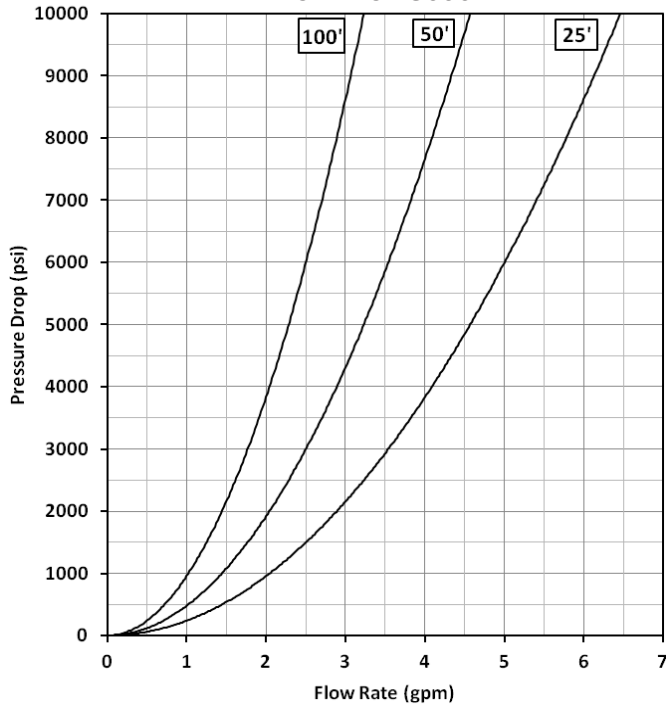


# PRESSURE DROP DATA

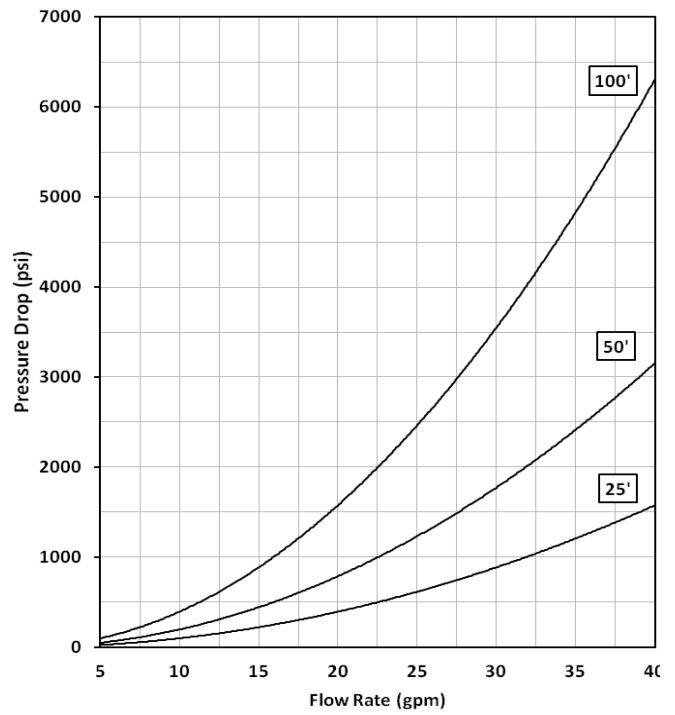
## HOSES & FLEX LANCES

HOSES &  
LANCES

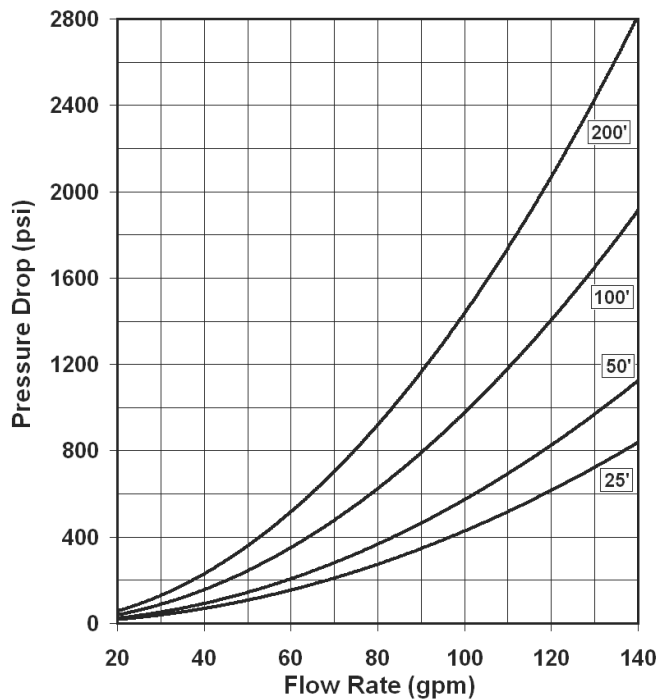
9/16" THERMOPLASTIC LANCE  
SERIES 28699



3/4" THERMOPLASTIC HOSE & LANCE  
SERIES 28690



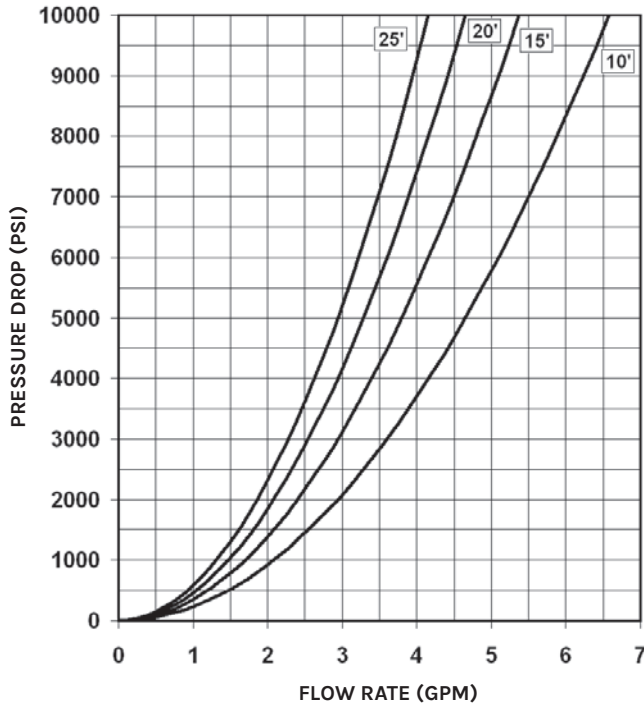
3/4" THERMOPLASTIC HOSE  
SERIES 29120



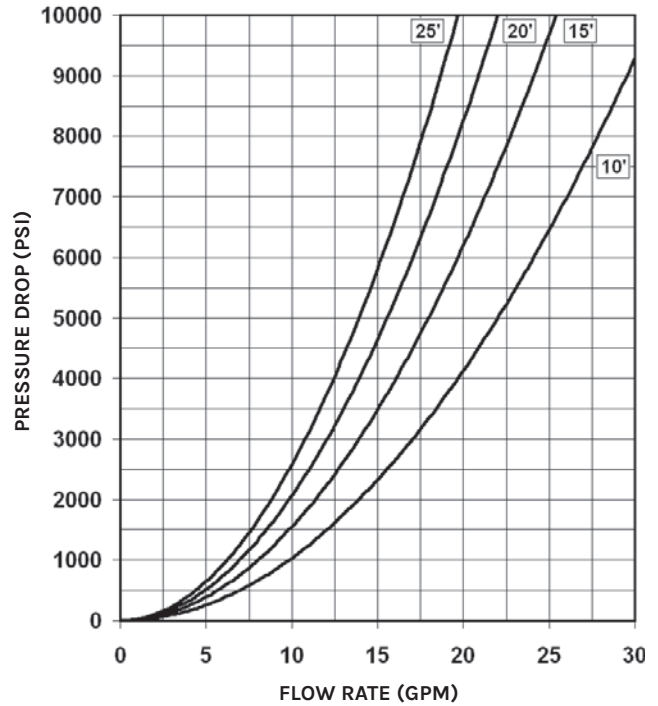
# PRESSURE DROP DATA

## RIGID LANCES

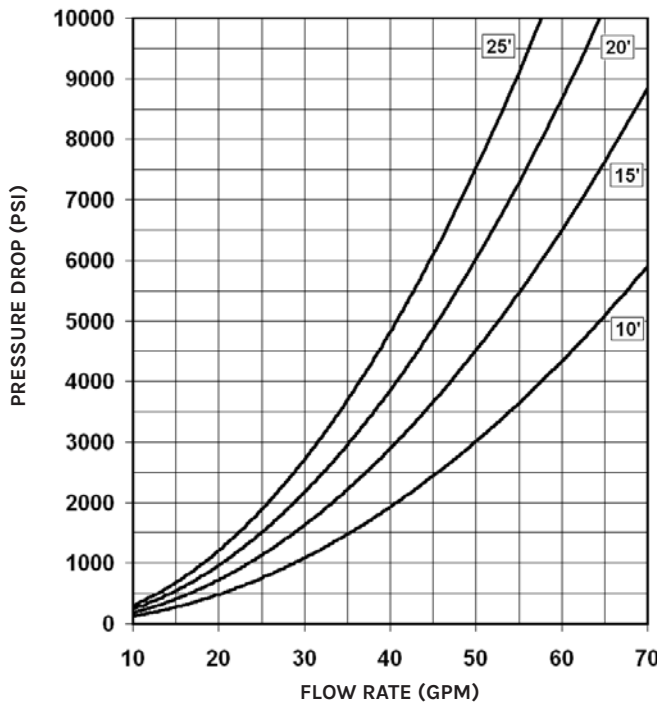
RIGID LANCES – 1/4" PIPE  
SERIES 5438X, 5479X, 51933



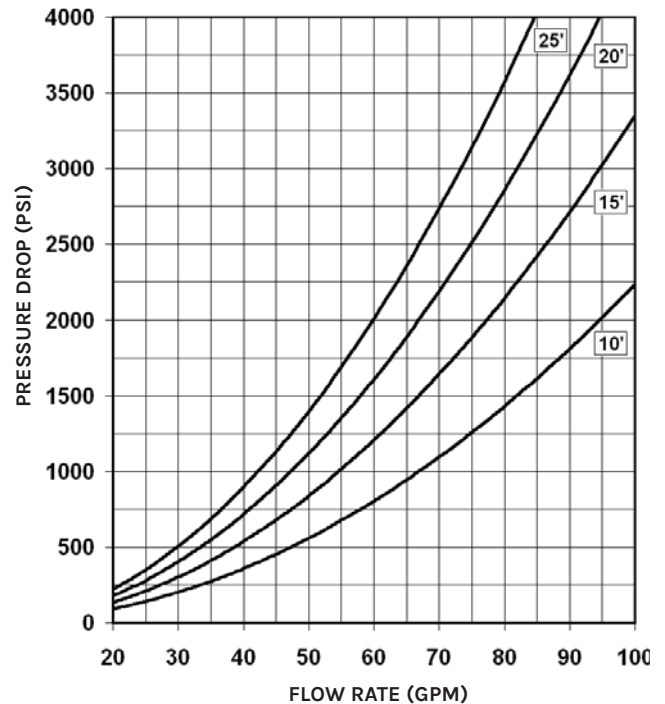
RIGID LANCES – 3/8" PIPE  
SERIES 54222, 54387, 5479X, 51934



RIGID LANCES – 9/16" PIPE  
SERIES 54233, 54388, 5480X & 51936

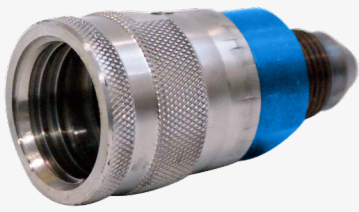


RIGID LANCES – 3/4" PIPE  
SERIES 5473X





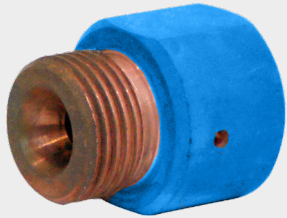




# FITTINGS

Jetstream offers a wide variety of fittings with various connection types to fit your 20,000 psi application needs. The standard connection types, Type M, MP, and MP Tube lance, are available in standard thread sizes. A benefit that Jetstream brings to the fittings realm is the invention of our proprietary 20K Port fitting. This connector was specially designed to help prevent leakage and wear at the fluid end manifold.

\*See details on all connection types in Section I.



## THREAD LUBRICANTS & TEFLON TAPE

Thread Lubricants prevent threaded connections from galling together or seizing up.



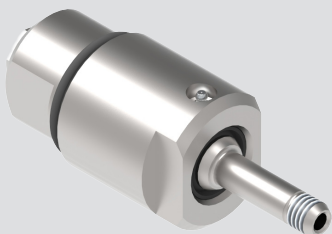
**Part No. 27721**

Blue Goop Thread Lubricant  
2 oz. Tube



**Part No. 28197**

Nickel-Based Anti-Seize  
1 lb. Brush Top Can



**Part No. 29057**

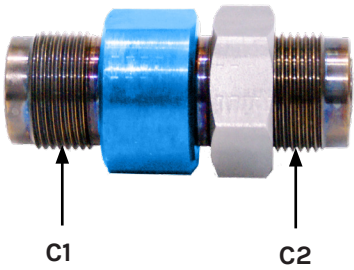
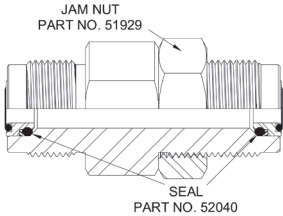
Silver-Based Anti-Seize  
7 oz. Stick

# PORT MALE NIPPLE

| PART NO. | CONNECTION TYPE |               | MAX. OPERATING PRESSURE |       |
|----------|-----------------|---------------|-------------------------|-------|
|          | CONNECTION 1    | CONNECTION 2  | psi                     | bar   |
| 52209    | 20K Port Male   | 20K Port Male | 20,000                  | 1,379 |

## Replacement Parts

|       |                       |
|-------|-----------------------|
| 52040 | 20K Seal              |
| 51929 | Jam Nut               |
| 59915 | 20K Seal Removal Tool |

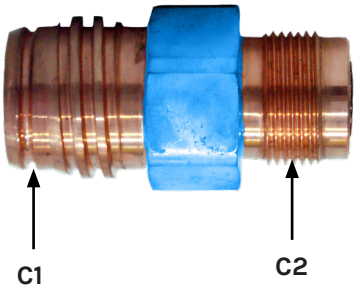
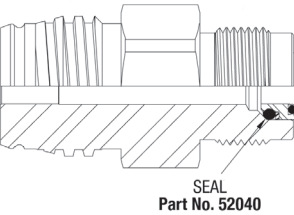


# PORT MALE TO QUICK DISCONNECT MALE ADAPTER

| PART NO. | CONNECTION TYPE |               | MAX. OPERATING PRESSURE |       |
|----------|-----------------|---------------|-------------------------|-------|
|          | CONNECTION 1    | CONNECTION 2  | psi                     | bar   |
| 51917    | 20K QD Male     | 20K Port Male | 20,000                  | 1,379 |

## Replacement Parts

|       |                       |
|-------|-----------------------|
| 52040 | 20K Seal              |
| 59915 | 20K Seal Removal Tool |

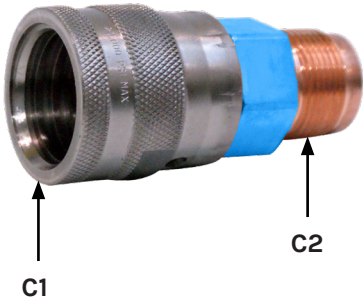
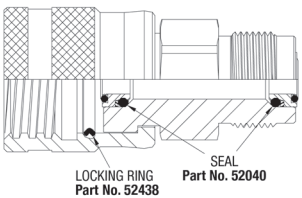


# PORT MALE TO QUICK DISCONNECT FEMALE ADAPTER

| PART NO. | CONNECTION TYPE |               | MAX. OPERATING PRESSURE |       |
|----------|-----------------|---------------|-------------------------|-------|
|          | CONNECTION 1    | CONNECTION 2  | psi                     | bar   |
| 52041    | 20K QD Female   | 20K Port Male | 20,000                  | 1,379 |

## Replacement Parts

|       |                       |
|-------|-----------------------|
| 52040 | 20K Seal              |
| 52438 | Locking Ring          |
| 59915 | 20K Seal Removal Tool |

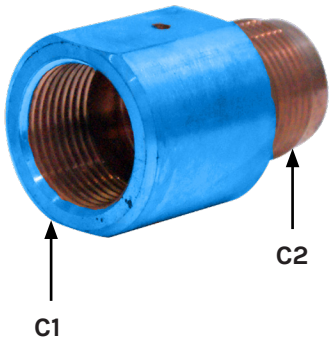


# PORT MALE TO MEDIUM PRESSURE FEMALE ADAPTERS

| PART NO. | CONNECTION TYPE |               | MAX. OPERATING PRESSURE |       |
|----------|-----------------|---------------|-------------------------|-------|
|          | CONNECTION 1    | CONNECTION 2  | psi                     | bar   |
| 54737    | 3/4" MP Female  | 20K Port Male | 20,000                  | 1,379 |
| 52044    | 9/16" MP Female | 20K Port Male | 20,000                  | 1,379 |

## Replacement Parts

|       |                       |
|-------|-----------------------|
| 52040 | 20K Seal              |
| 51929 | Jam Nut               |
| 59915 | 20K Seal Removal Tool |

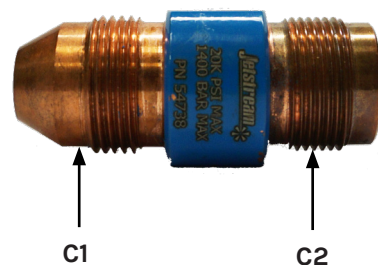
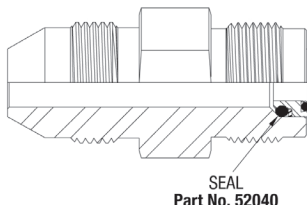


## PORT MALE TO MEDIUM PRESSURE MALE ADAPTERS

| PART NO. | CONNECTION TYPE |               | MAX. OPERATING PRESSURE |       |
|----------|-----------------|---------------|-------------------------|-------|
|          | CONNECTION 1    | CONNECTION 2  | psi                     | bar   |
| 54738    | 3/4" MP Male    | 20K Port Male | 20,000                  | 1,379 |
| 52354    | 9/16" MP Male   | 20K Port Male | 20,000                  | 1,379 |

### Replacement Parts

52040 20K Seal  
59915 20K Seal Removal Tool

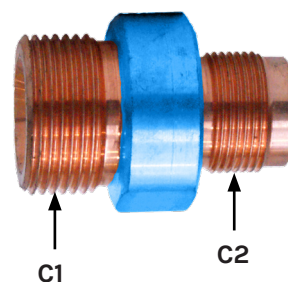
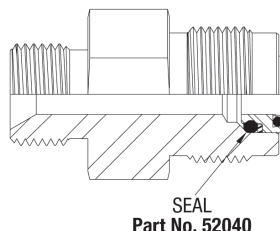


## PORT MALE TO TYPE M MALE ADAPTERS

| PART NO. | CONNECTION TYPE     |               | MAX. OPERATING PRESSURE |       |
|----------|---------------------|---------------|-------------------------|-------|
|          | CONNECTION 1        | CONNECTION 2  | psi                     | bar   |
| 54749    | 1 5/16" Type M Male | 20K Port Male | 20,000                  | 1,379 |
| 53284*   | 1" Type M Male      | 20K Port Male | 20,000                  | 1,379 |
| 54741*   | 3/4" Type M Male    | 20K Port Male | 20,000                  | 1,379 |
| 54739*   | 9/16" Type M Male   | 20K Port Male | 20,000                  | 1,379 |

### Replacement Parts

52040 20K Seal  
59915 20K Seal Removal Tool

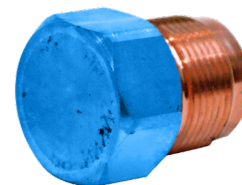
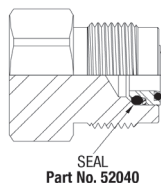


## PORT PLUG

| PART NO. | CONNECTION TYPE | MAX. OPERATING PRESSURE |       |
|----------|-----------------|-------------------------|-------|
|          |                 | psi                     | bar   |
| 52076    | 20K Port Male   | 20,000                  | 1,379 |

### Replacement Parts

52040 20K Seal  
59915 20K Seal Removal Tool

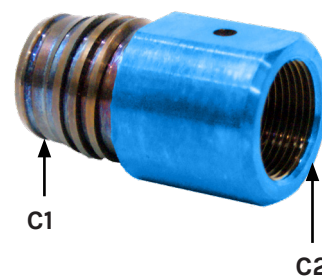


## PORT FEMALE TO QUICK DISCONNECT MALE ADAPTER

| PART NO. | CONNECTION TYPE |                 | MAX. OPERATING PRESSURE |       |
|----------|-----------------|-----------------|-------------------------|-------|
|          | CONNECTION 1    | CONNECTION 2    | psi                     | bar   |
| 53038    | 20K QD Male     | 20K Port Female | 20,000                  | 1,379 |

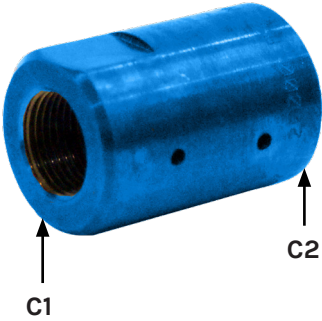
### Replacement Parts

52040 20K Seal  
59915 20K Seal Removal Tool



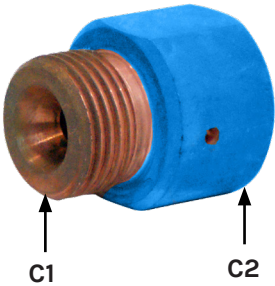
# PORT FEMALE TO MEDIUM PRESSURE FEMALE ADAPTERS

| PART NO. | CONNECTION TYPE |                 | MAX. OPERATING PRESSURE |       |
|----------|-----------------|-----------------|-------------------------|-------|
|          | CONNECTION 1    | CONNECTION 2    | psi                     | bar   |
| 54746    | 3/4" MP Female  | 20K Port Female | 20,000                  | 1,379 |
| 53037    | 9/16" MP Female | 20K Port Female | 20,000                  | 1,379 |



# PORT FEMALE TO TYPE M MALE ADAPTERS

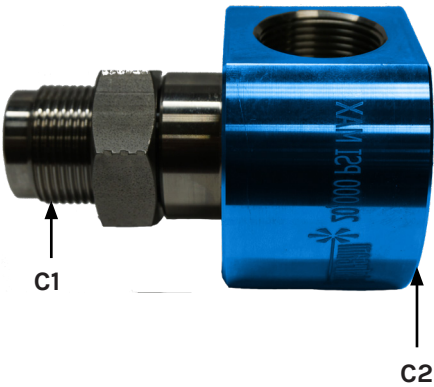
| PART NO. | CONNECTION TYPE   |                 | MAX. OPERATING PRESSURE |       |
|----------|-------------------|-----------------|-------------------------|-------|
|          | CONNECTION 1      | CONNECTION 2    | psi                     | bar   |
| 54743    | 1" Type M Male    | 20K Port Female | 20,000                  | 1,379 |
| 54744    | 3/4" Type M Male  | 20K Port Female | 20,000                  | 1,379 |
| 54748    | 9/16" Type M Male | 20K Port Female | 20,000                  | 1,379 |



# MULTI-PORT ADAPTER

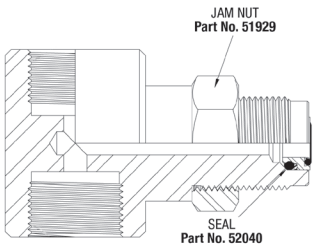
This fitting has a male 20K Port Connection that fits into a discharge port of the 20,000 psi UNx Fluid End and two female port outlet connections to split flow or add an accessory device. Ideal for shut-in (regulator operated systems).

| PART NO. | CONNECTION TYPE |                 | MAX. OPERATING PRESSURE |       |
|----------|-----------------|-----------------|-------------------------|-------|
|          | CONNECTION 1    | CONNECTION 2    | psi                     | bar   |
| 52073    | 20K Port Male   | 20K Port Female | 20,000                  | 1,379 |



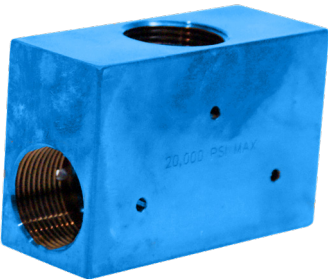
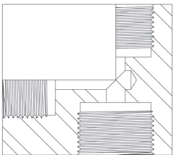
## Replacement Parts

- 52040 20K Seal
- 51929 Jam Nut
- 59915 20K Seal Removal Tool



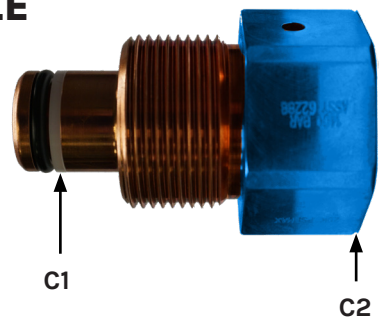
# MULTI-PORT ADAPTER

| PART NO. | CONNECTION TYPE | MAX. OPERATING PRESSURE |       |
|----------|-----------------|-------------------------|-------|
|          |                 | psi                     | bar   |
| 54747    | 20K Port Female | 20,000                  | 1,379 |



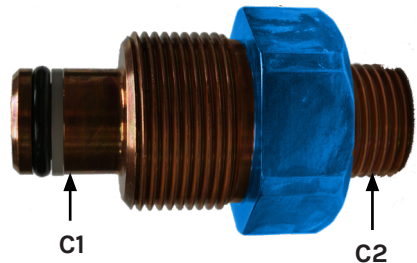
## HIGH PRESSURE HHP MALE TO PORT FEMALE

| PART NO. | CONNECTION TYPE |                 | MAX. OPERATING PRESSURE |       |
|----------|-----------------|-----------------|-------------------------|-------|
|          | CONNECTION 1    | CONNECTION 2    | psi                     | bar   |
| 62288    | HHP Male        | 20K Port Female | 20,000                  | 1,379 |



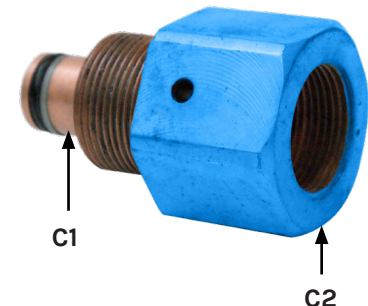
## HIGH PRESSURE HHP MALE TO TYPE M MALE ADAPTERS

| PART NO. | CONNECTION TYPE |                     | MAX. OPERATING PRESSURE |       |
|----------|-----------------|---------------------|-------------------------|-------|
|          | CONNECTION 1    | CONNECTION 2        | psi                     | bar   |
| 54844    | HHP Male        | 1 5/16" Type M Male | 20,000                  | 1,379 |
| 55296    | HHP Male        | 1" Type M Male      | 20,000                  | 1,379 |



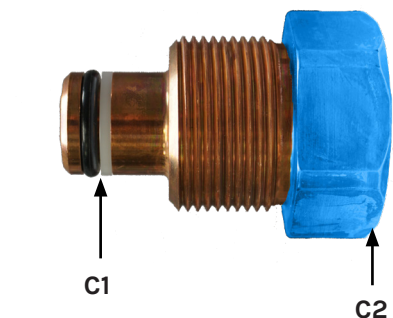
## HIGH PRESSURE HHP MALE TO MEDIUM PRESSURE FEMALE ADAPTER

| PART NO. | CONNECTION TYPE |               | MAX. OPERATING PRESSURE |       |
|----------|-----------------|---------------|-------------------------|-------|
|          | CONNECTION 1    | CONNECTION 2  | psi                     | bar   |
| 54846    | HHP Male        | 1" MP Female  | 20,000                  | 1,379 |
| 62290    | HHP Male        | 9/16" MP Male | 20,000                  | 1,379 |



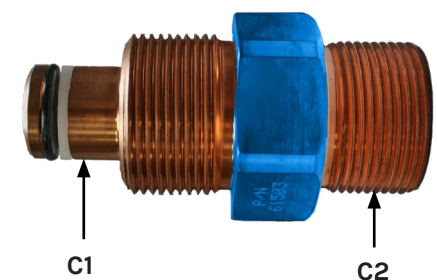
## HIGH PRESSURE HHP MALE TO JETSTREAM LANCE FEMALE ADAPTER

| PART NO. | CONNECTION TYPE |                       | MAX. OPERATING PRESSURE |       |
|----------|-----------------|-----------------------|-------------------------|-------|
|          | CONNECTION 1    | CONNECTION 2          | psi                     | bar   |
| 54938    | HHP Male        | 9/16" JS Lance Female | 20,000                  | 1,379 |



## HIGH PRESSURE HHP MALE TO METRIC

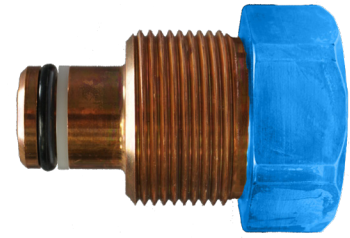
| PART NO. | CONNECTION TYPE |                 | MAX. OPERATING PRESSURE |       |
|----------|-----------------|-----------------|-------------------------|-------|
|          | CONNECTION 1    | CONNECTION 2    | psi                     | bar   |
| 61503    | HHP Male        | Metric M36 Male | 20,000                  | 1,379 |





## HIGH PRESSURE HHP MALE PLUG

| PART NO. | CONNECTION TYPE | MAX. OPERATING PRESSURE |       |
|----------|-----------------|-------------------------|-------|
|          |                 | psi                     | bar   |
| 54847    | HHP Male        | 20,000                  | 1,379 |

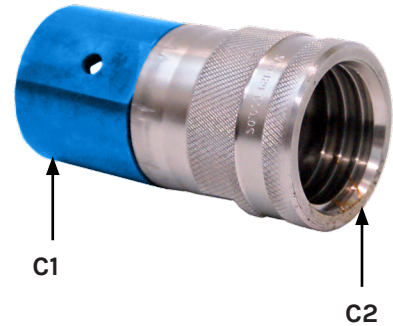
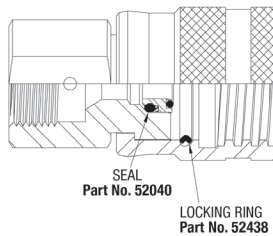


## QUICK DISCONNECT FEMALE TO MEDIUM PRESSURE FEMALE ADAPTERS

| PART NO. | CONNECTION TYPE |               | MAX. OPERATING PRESSURE |       |
|----------|-----------------|---------------|-------------------------|-------|
|          | CONNECTION 1    | CONNECTION 2  | psi                     | bar   |
| 52193    | 3/4" MP Female  | 20K QD Female | 20,000                  | 1,379 |
| 52039    | 9/16" MP Female | 20K QD Female | 20,000                  | 1,379 |

### Replacement Parts

52040 20K Seal  
52438 Locking Ring  
59915 20K Seal Removal Tool

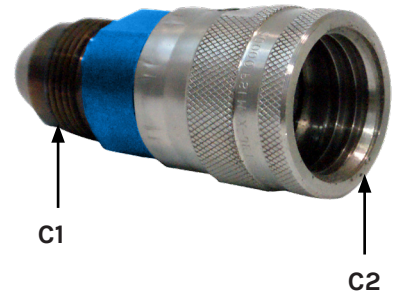
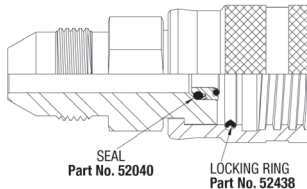


## QUICK DISCONNECT FEMALE TO MEDIUM PRESSURE MALE ADAPTERS

| PART NO. | CONNECTION TYPE |               | MAX. OPERATING PRESSURE |       |
|----------|-----------------|---------------|-------------------------|-------|
|          | CONNECTION 1    | CONNECTION 2  | psi                     | bar   |
| 52187    | 3/4" MP Male    | 20K QD Female | 20,000                  | 1,379 |
| 52038    | 9/16" MP Male   | 20K QD Female | 20,000                  | 1,379 |

### Replacement Parts

52040 20K Seal  
52438 Locking Ring  
59915 20K Seal Removal Tool

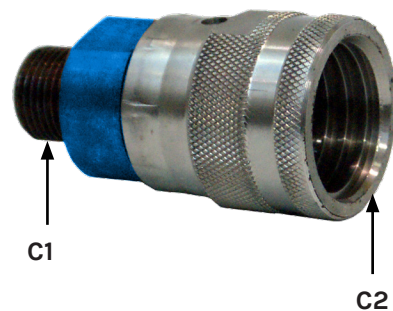
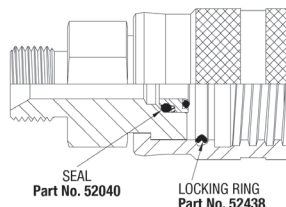


## QUICK DISCONNECT FEMALE TO TYPE M MALE ADAPTERS

| PART NO. | CONNECTION TYPE   |               | MAX. OPERATING PRESSURE |       |
|----------|-------------------|---------------|-------------------------|-------|
|          | CONNECTION 1      | CONNECTION 2  | psi                     | bar   |
| 52189    | 1" Type M Male    | 20K QD Female | 20,000                  | 1,379 |
| 52188    | 3/4" Type M Male  | 20K QD Female | 20,000                  | 1,379 |
| 52668    | 9/16" Type M Male | 20K QD Female | 20,000                  | 1,379 |

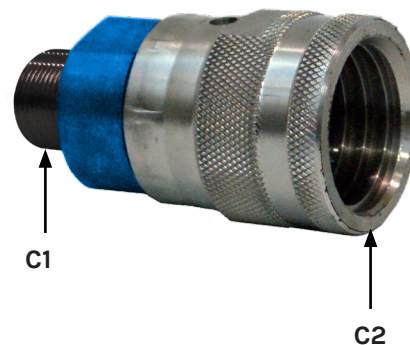
### Replacement Parts

52040 20K Seal  
52438 Locking Ring  
59915 20K Seal Removal Tool



## QUICK DISCONNECT FEMALE TO METRIC MALE ADAPTER

| PART NO. | CONNECTION TYPE      |               | MAX. OPERATING PRESSURE |       |
|----------|----------------------|---------------|-------------------------|-------|
|          | CONNECTION 1         | CONNECTION 2  | psi                     | bar   |
| 53219    | Metric Male 24 x 1.5 | 20K QD Female | 20,000                  | 1,379 |

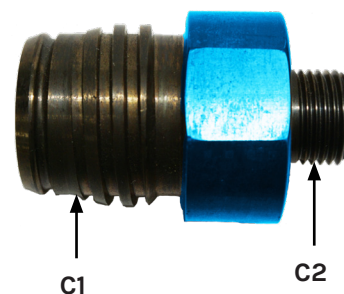


## QUICK DISCONNECT MALE TO MP TUBE LANCE FEMALE ADAPTER

| PART NO. | CONNECTION TYPE |                     | MAX. OPERATING PRESSURE |       |
|----------|-----------------|---------------------|-------------------------|-------|
|          | CONNECTION 1    | CONNECTION 2        | psi                     | bar   |
| 51912    | 20K QD Male     | 3/8" MP Tube Female | 20,000                  | 1,379 |

### Replacement Parts

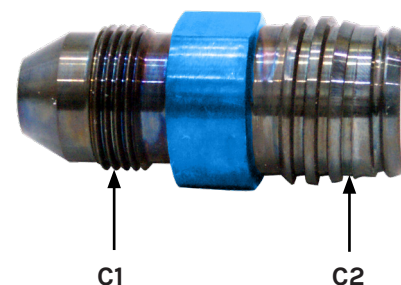
|       |                       |
|-------|-----------------------|
| 52040 | 20K Seal              |
| 52438 | Locking Ring          |
| 59915 | 20K Seal Removal Tool |



FITTINGS

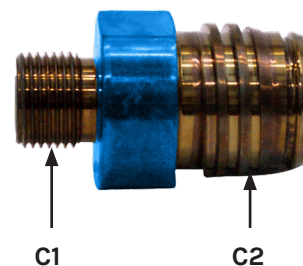
## QUICK DISCONNECT MALE TO MEDIUM PRESSURE MALE ADAPTERS

| PART NO. | CONNECTION TYPE |              | MAX. OPERATING PRESSURE |       |
|----------|-----------------|--------------|-------------------------|-------|
|          | CONNECTION 1    | CONNECTION 2 | psi                     | bar   |
| 54753    | 1" MP Male      | 20K QD Male  | 20,000                  | 1,379 |
| 52179    | 3/4" MP Male    | 20K QD Male  | 20,000                  | 1,379 |
| 52031    | 9/16" MP Male   | 20K QD Male  | 20,000                  | 1,379 |



## QUICK DISCONNECT MALE TO TYPE M MALE ADAPTERS

| PART NO. | CONNECTION TYPE   |              | MAX. OPERATING PRESSURE |       |
|----------|-------------------|--------------|-------------------------|-------|
|          | CONNECTION 1      | CONNECTION 2 | psi                     | bar   |
| 52182    | 1" Type M Male    | 20K QD Male  | 20,000                  | 1,379 |
| 52181    | 3/4" Type M Male  | 20K QD Male  | 20,000                  | 1,379 |
| 52667    | 9/16" Type M Male | 20K QD Male  | 20,000                  | 1,379 |

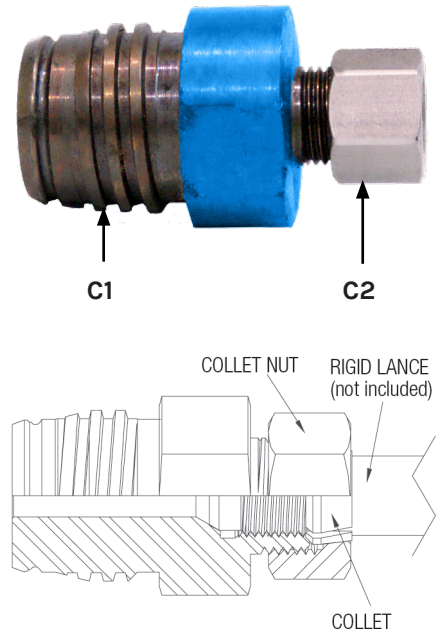




## QUICK DISCONNECT MALE RIGID LANCE HOLDERS

- ▶ Connect rigid lances that feature Jetstream Lance connections to hoses that have Jetstream Quick Disconnect end fittings
- ▶ Support collet prevents lance breakage by reducing stress on lance threads

| PART NO. | CONNECTION TYPE |                       | REPLACEMENT PART NO. |            | MAX. WORKING PRESSURE |       |
|----------|-----------------|-----------------------|----------------------|------------|-----------------------|-------|
|          | CONNECTION 1    | CONNECTION 2          | COLLET               | COLLET NUT | psi                   | bar   |
| 52648    | 20K QD Male     | 9/16" JS Lance Female | 52087                | 52083      | 20,000                | 1,379 |
| 52647    | 20K QD Male     | 3/8" JS Lance Female  | 52086                | 52082      | 20,000                | 1,379 |
| 52646    | 20K QD Male     | 1/4" JS Lance Female  | 52084                | 52081      | 20,000                | 1,379 |

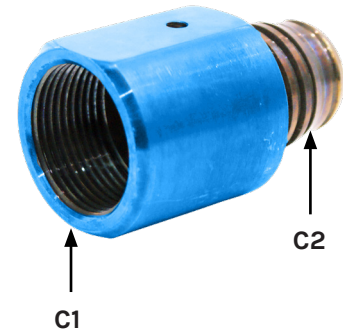


## QUICK DISCONNECT MALE TO MEDIUM PRESSURE FEMALE ADAPTERS

| PART NO. | CONNECTION TYPE |              | MAX. OPERATING PRESSURE |       |
|----------|-----------------|--------------|-------------------------|-------|
|          | CONNECTION 1    | CONNECTION 2 | psi                     | bar   |
| 54752    | 1" MP Female    | 20K QD Male  | 20,000                  | 1,379 |
| 52191    | 3/4" MP Female  | 20K QD Male  | 20,000                  | 1,379 |
| 52032    | 9/16" MP Female | 20K QD Male  | 20,000                  | 1,379 |

### Replacement Parts

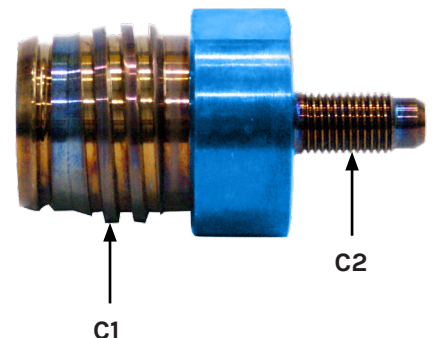
|       |                       |
|-------|-----------------------|
| 52040 | 20K Seal              |
| 52438 | Locking Ring          |
| 59915 | 20K Seal Removal Tool |



## QUICK DISCONNECT MALE FLEX LANCE CONNECTORS

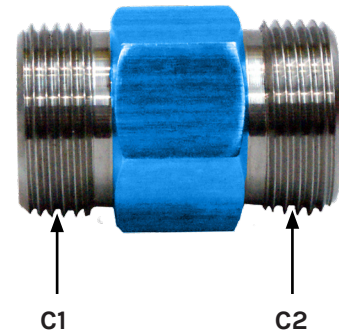
Connect flex lances that feature female Jetstream Lance connections to hoses that have Jetstream Quick Disconnect end fittings.

| PART NO. | CONNECTION TYPE |                     | MAX. WORKING PRESSURE |       |
|----------|-----------------|---------------------|-----------------------|-------|
|          | CONNECTION 1    | CONNECTION 2        | psi                   | bar   |
| 53967    | 20K QD Male     | 9/16" JS Lance Male | 20,000                | 1,379 |
| 51916    | 20K QD Male     | 3/8" JS Lance Male  | 20,000                | 1,379 |



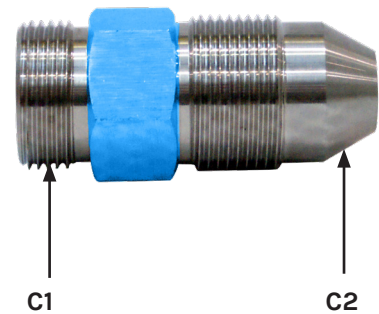
## TYPE M MALE CONNECTORS

| PART NO. | CONNECTION TYPE     |                     | MAX. OPERATING PRESSURE |       |
|----------|---------------------|---------------------|-------------------------|-------|
|          | CONNECTION 1        | CONNECTION 2        | psi                     | bar   |
| 29058*   | 1 5/16" Type M Male | 1 5/16" Type M Male | 20,000                  | 1,379 |
| 29059    | 1 5/16" Type M Male | 1" Type M Male      | 20,000                  | 1,379 |
| 29060    | 1 5/16" Type M Male | 3/4" Type M Male    | 20,000                  | 1,379 |
| 29061*   | 1" Type M Male      | 1" Type M Male      | 20,000                  | 1,379 |
| 28854    | 1" Type M Male      | 7/8" Type M Male    | 20,000                  | 1,379 |
| 28101    | 1" Type M Male      | 3/4" Type M Male    | 20,000                  | 1,379 |
| 29019    | 1" Type M Male      | 9/16" Type M Male   | 20,000                  | 1,379 |
| 28196    | 3/4" Type M Male    | 3/4" Type M Male    | 20,000                  | 1,379 |
| 29062    | 3/4" Type M Male    | 9/16" Type M Male   | 20,000                  | 1,379 |
| 27527    | 9/16" Type M Male   | 9/16" Type M Male   | 40,000                  | 2,758 |



## TYPE M MALE TO MEDIUM PRESSURE MALE CONNECTORS

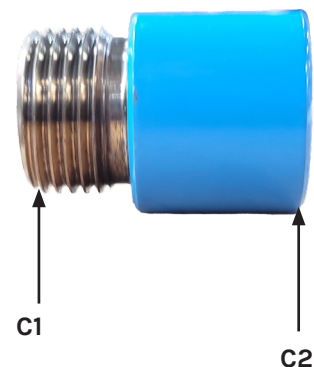
| PART NO. | CONNECTION TYPE     |               | MAX. OPERATING PRESSURE |       |
|----------|---------------------|---------------|-------------------------|-------|
|          | CONNECTION 1        | CONNECTION 2  | psi                     | bar   |
| 28330    | 1 5/16" Type M Male | 1" MP Male    | 20,000                  | 1,379 |
| 28786*   | 1 5/16" Type M Male | 3/4" MP Male  | 20,000                  | 1,379 |
| 28299    | 1 5/16" Type M Male | 9/16" MP Male | 20,000                  | 1,379 |
| 28433    | 1" Type M Male      | 1" MP Male    | 20,000                  | 1,379 |
| 28629*   | 1" Type M Male      | 3/4" MP Male  | 20,000                  | 1,379 |
| 28631    | 1" Type M Male      | 9/16" MP Male | 20,000                  | 1,379 |
| 29063    | 3/4" Type M Male    | 1" MP Male    | 20,000                  | 1,379 |
| 29064    | 3/4" Type M Male    | 3/4" MP Male  | 20,000                  | 1,379 |
| 28350    | 3/4" Type M Male    | 9/16" MP Male | 20,000                  | 1,379 |
| 29065    | 3/4" Type M Male    | 3/8" MP Male  | 20,000                  | 1,379 |
| 29066    | 9/16" Type M Male   | 1" MP Male    | 20,000                  | 1,379 |
| 28804    | 9/16" Type M Male   | 3/4" MP Male  | 20,000                  | 1,379 |
| 28193    | 9/16" Type M Male   | 9/16" MP Male | 20,000                  | 1,379 |
| 28192    | 9/16" Type M Male   | 3/8" MP Male  | 20,000                  | 1,379 |
| 28328    | 9/16" Type M Male   | 1/4" MP Male  | 20,000                  | 1,379 |



FITTINGS

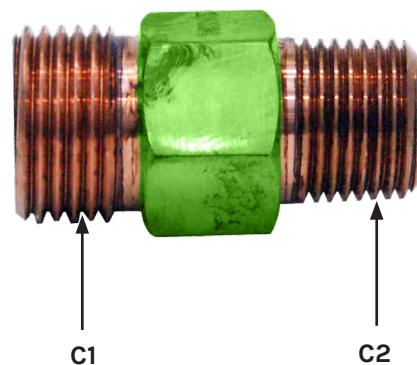
## TYPE M MALE TO MEDIUM PRESSURE FEMALE CONNECTORS

| PART NO. | CONNECTION TYPE  |                 | MAX. OPERATING PRESSURE |       |
|----------|------------------|-----------------|-------------------------|-------|
|          | CONNECTION 1     | CONNECTION 2    | psi                     | bar   |
| 57125    | 3/4" Type M Male | 9/16" MP Female | 20,000                  | 1,379 |
| 57126    | 1" Type M Male   | 9/16" MP Female | 20,000                  | 1,379 |



## TYPE M MALE TO NPT MALE ADAPTER

| PART NO. | CONNECTION TYPE   |               | MAX. OPERATING PRESSURE |       |
|----------|-------------------|---------------|-------------------------|-------|
|          | CONNECTION 1      | CONNECTION 2  | psi                     | bar   |
| 29342    | 1" Type M Male    | 1/2" NPT Male | 15,000                  | 1,034 |
| J55707   | 9/16" Type M Male | 3/4" NPT Male | 15,000                  | 1,034 |



## SCREW TYPE QUICK CONNECT COUPLINGS

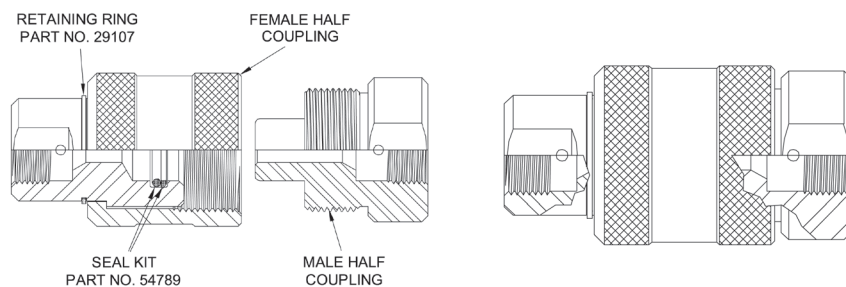
| PART NO. | CONNECTION TYPE  | COUPLING HALVES |       | MAX. OPERATING PRESSURE |       |
|----------|------------------|-----------------|-------|-------------------------|-------|
|          |                  | FEMALE          | MALE  | psi                     | bar   |
| 54754*   | 1" Type M Male   | 54762           | 54763 | 20,000                  | 1,379 |
| 54767*   | 3/4" Type M Male | 54758           | 54764 | 20,000                  | 1,379 |
| 54768*   | 9/16" MP Female  | 54761           | 54766 | 20,000                  | 1,379 |
| 56547    | 3/4" MP Female   | 56616           | 56614 | 20,000                  | 1,379 |

\* All size halves are interchangeable except for 3/4" MP coupling.



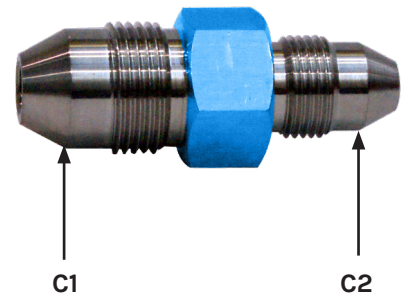
### Replacement Parts

54789 Seal Kit  
25690 Retaining Ring



## MEDIUM PRESSURE MALE CONNECTORS

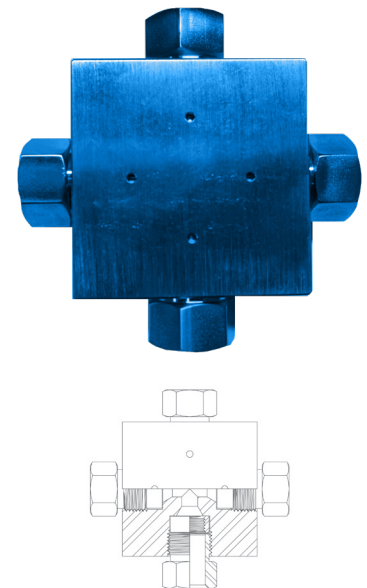
| PART NO. | CONNECTION TYPE |               | MAX. OPERATING PRESSURE |       |
|----------|-----------------|---------------|-------------------------|-------|
|          | CONNECTION 1    | CONNECTION 2  | psi                     | bar   |
| 29085    | 1" MP Male      | 1" MP Male    | 20,000                  | 1,379 |
| 29086    | 1" MP Male      | 3/4" MP Male  | 20,000                  | 1,379 |
| 29087    | 1" MP Male      | 9/16" MP Male | 20,000                  | 1,379 |
| 29088    | 3/4" MP Male    | 3/4" MP Male  | 20,000                  | 1,379 |
| 29089    | 3/4" MP Male    | 9/16" MP Male | 20,000                  | 1,379 |
| 29090    | 3/4" MP Male    | 3/8" MP Male  | 20,000                  | 1,379 |
| 29091    | 9/16" MP Male   | 9/16" MP Male | 20,000                  | 1,379 |
| 29092    | 9/16" MP Male   | 3/8" MP Male  | 20,000                  | 1,379 |
| 29093    | 9/16" MP Male   | 1/4" MP Male  | 20,000                  | 1,379 |
| 28191    | 3/8" MP Male    | 3/8" MP Male  | 20,000                  | 1,379 |
| 28190    | 3/8" MP Male    | 1/4" MP Male  | 20,000                  | 1,379 |
| 29094    | 1/4" MP Male    | 1/4" MP Male  | 20,000                  | 1,379 |
| 02173    | 9/16" MP Male   | 9/16" HP Male | 20,000                  | 1,379 |



## MEDIUM PRESSURE CROSSES

All medium pressure crosses include gland, nuts, and collars.

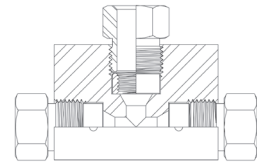
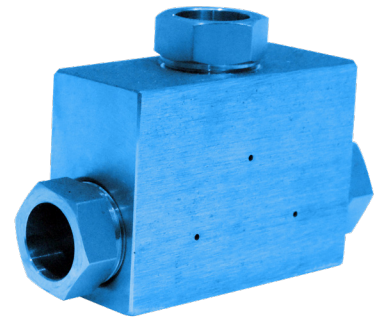
| PART NO. | CONNECTION TYPE | MAX. OPERATING PRESSURE |       |
|----------|-----------------|-------------------------|-------|
|          |                 | psi                     | bar   |
| 28301    | 1" MP Female    | 20,000                  | 1,379 |
| 29067    | 3/4" MP Female  | 20,000                  | 1,379 |
| 27969    | 9/16" MP Female | 20,000                  | 1,379 |
| 29068    | 3/8" MP Female  | 20,000                  | 1,379 |
| 29069    | 1/4" MP Female  | 20,000                  | 1,379 |



## MEDIUM PRESSURE TEES

All medium pressure tees include gland, nuts, and collars.

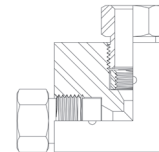
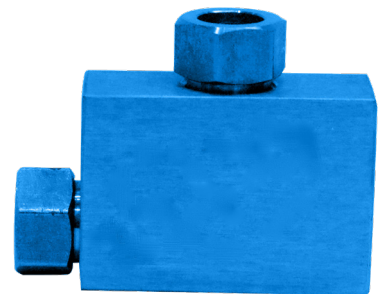
| PART NO. | CONNECTION TYPE | MAX. OPERATING PRESSURE |       |
|----------|-----------------|-------------------------|-------|
|          |                 | psi                     | bar   |
| 29070    | 1" MP Female    | 20,000                  | 1,379 |
| 29071    | 3/4" MP Female  | 20,000                  | 1,379 |
| 27966    | 9/16" MP Female | 20,000                  | 1,379 |
| 27964    | 3/8" MP Female  | 20,000                  | 1,379 |
| 29072    | 1/4" MP Female  | 20,000                  | 1,379 |



## MEDIUM PRESSURE ELBOWS

All medium pressure elbows include gland, nuts, and collars.

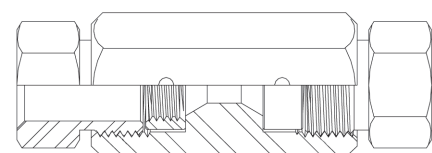
| PART NO. | CONNECTION TYPE | MAX. OPERATING PRESSURE |       |
|----------|-----------------|-------------------------|-------|
|          |                 | psi                     | bar   |
| 29073    | 1" MP Female    | 20,000                  | 1,379 |
| 29074    | 3/4" MP Female  | 20,000                  | 1,379 |
| 28184    | 9/16" MP Female | 20,000                  | 1,379 |
| 27997    | 3/8" MP Female  | 20,000                  | 1,379 |
| 29075    | 1/4" MP Female  | 20,000                  | 1,379 |



## MEDIUM PRESSURE STRAIGHT COUPLINGS

All medium pressure couplings include gland, nuts, and collars.

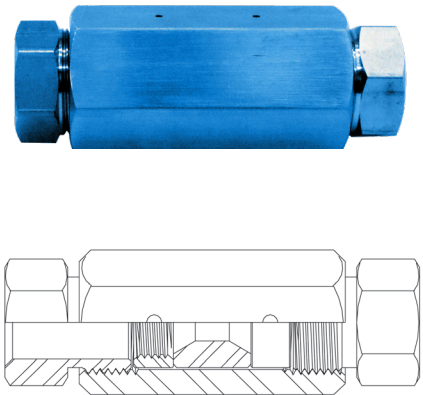
| PART NO. | CONNECTION TYPE |                 | MAX. OPERATING PRESSURE |       |
|----------|-----------------|-----------------|-------------------------|-------|
|          | CONNECTION 1    | CONNECTION 2    | psi                     | bar   |
| 28341    | 1" MP Female    | 1" MP Female    | 20,000                  | 1,379 |
| 29076    | 1" MP Female    | 3/4" MP Female  | 20,000                  | 1,379 |
| 29077    | 1" MP Female    | 9/16" MP Female | 20,000                  | 1,379 |
| 28382    | 3/4" MP Female  | 3/4" MP Female  | 20,000                  | 1,379 |
| 29078    | 3/4" MP Female  | 9/16" MP Female | 20,000                  | 1,379 |
| 29079    | 3/4" MP Female  | 3/8" MP Female  | 20,000                  | 1,379 |
| 27009    | 9/16" MP Female | 9/16" MP Female | 20,000                  | 1,379 |
| 28189    | 9/16" MP Female | 3/8" MP Female  | 20,000                  | 1,379 |
| 28188    | 9/16" MP Female | 1/4" MP Female  | 20,000                  | 1,379 |
| 28185    | 3/8" MP Female  | 3/8" MP Female  | 20,000                  | 1,379 |
| 28187    | 3/8" MP Female  | 1/4" MP Female  | 20,000                  | 1,379 |
| 29080    | 1/4" MP Female  | 1/4" MP Female  | 20,000                  | 1,379 |



## MEDIUM PRESSURE UNION COUPLINGS

Union couplings feature a removable seat insert that allows the fitting to slip over one end of the tubing for ease installation in confined spaces or rigid piping applications. All medium pressure couplings include gland, nuts, and collars.

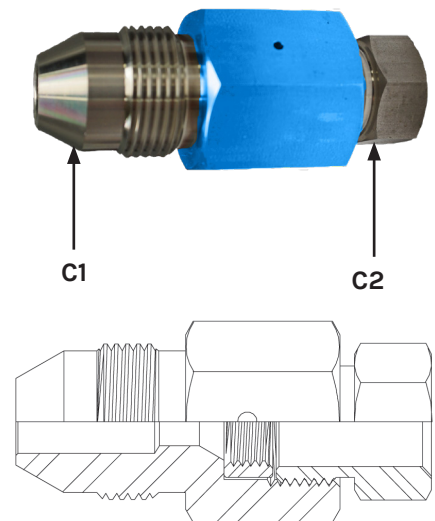
| PART NO. | CONNECTION TYPE | MAX. OPERATING PRESSURE |       |
|----------|-----------------|-------------------------|-------|
|          |                 | psi                     | bar   |
| 29081    | 1" MP Female    | 20,000                  | 1,379 |
| 29082    | 3/4" MP Female  | 20,000                  | 1,379 |
| 29083    | 9/16" MP Female | 20,000                  | 1,379 |
| 29084    | 3/8" MP Female  | 20,000                  | 1,379 |
| 29119    | 1/4" MP Female  | 20,000                  | 1,379 |



## MEDIUM PRESSURE MALE TO MEDIUM PRESSURE FEMALE CONNECTIONS

Fittings include gland nut and collar for female connection.

| PART NO. | CONNECTION TYPE |                 | MAX. OPERATING PRESSURE |       |
|----------|-----------------|-----------------|-------------------------|-------|
|          | CONNECTION 1    | CONNECTION 2    | psi                     | bar   |
| 29095    | 1" MP Male      | 3/4" MP Female  | 20,000                  | 1,379 |
| 28797    | 1" MP Male      | 9/16" MP Female | 20,000                  | 1,379 |
| 28462    | 3/4" MP Male    | 9/16" MP Female | 20,000                  | 1,379 |
| 29096    | 3/4" MP Male    | 3/8" MP Female  | 20,000                  | 1,379 |
| 28186    | 9/16" MP Male   | 3/8" MP Female  | 20,000                  | 1,379 |
| 28726    | 9/16" MP Male   | 1/4" MP Female  | 20,000                  | 1,379 |
| 29097    | 3/8" MP Male    | 1/4" MP Female  | 20,000                  | 1,379 |



FITTINGS

## MEDIUM PRESSURE GLAND, NUTS, COLLARS, AND PLUGS

| CONNECTION TYPE* | PART NUMBERS |        |       |
|------------------|--------------|--------|-------|
|                  | GLAND NUT    | COLLAR | PLUG  |
| 1" MP Male       | 28731        | 28732  | 29100 |
| 3/4" MP Male     | 28383        | 28384  | 29101 |
| 9/16" MP Male    | 26645        | 26635  | 27973 |
| 3/8" MP Male     | 28181        | 28180  | 28229 |
| 1/4" MP Male     | 29098        | 29099  | 29102 |

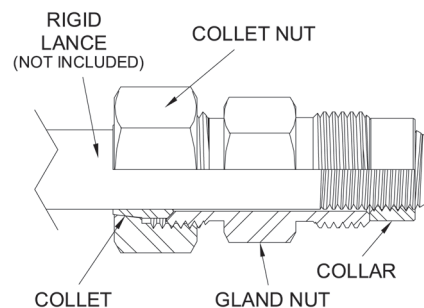




## MEDIUM PRESSURE ANTI-VIBRATION GLAND ASSEMBLIES

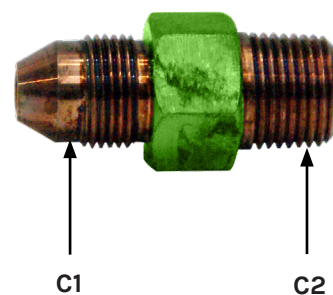
Used to reduce stress on tubing threads in conditions where bending or vibration are present, anti-vibration gland assemblies feature a collet that clamps onto the tubing when the connection is tightened to provide extra support and strength.

| PART NO. | CONNECTION TYPE | COLLAR PART NUMBER |
|----------|-----------------|--------------------|
| 29103    | 1" MP Male      | 28732              |
| 29104    | 3/4" MP Male    | 28384              |
| 28268    | 9/16" MP Male   | 26635              |
| 29105    | 3/8" MP Male    | 28180              |
| 29106    | 1/4" MP Male    | 29099              |



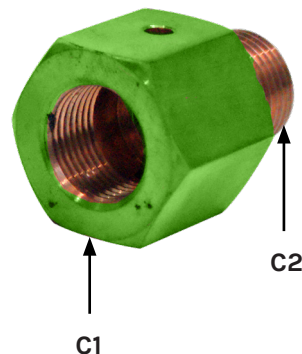
## MEDIUM PRESSURE MALE TO NPT MALE CONNECTORS

| PART NO. | CONNECTION TYPE |               | MAX. OPERATING PRESSURE |       |
|----------|-----------------|---------------|-------------------------|-------|
|          | CONNECTION 1    | CONNECTION 2  | psi                     | bar   |
| 27971    | 9/16" MP Male   | 1/2" NPT Male | 15,000                  | 1,034 |
| 28261    | 3/4" MP Male    | 1/2" NPT Male | 15,000                  | 1,034 |
| 29253    | 3/4" MP Male    | 3/4" NPT Male | 15,000                  | 1,034 |
| 29669    | 3/4" MP Male    | 1" NPT Male   | 15,000                  | 1,034 |
| 28610    | 3/8" MP Male    | 1/4" NPT Male | 15,000                  | 1,034 |
| 29000    | 3/8" MP Male    | 1/2" NPT Male | 15,000                  | 1,034 |



## MEDIUM PRESSURE FEMALE TO NPT MALE ADAPTERS

| PART NO. | CONNECTION TYPE |               | MAX. OPERATING PRESSURE |       |
|----------|-----------------|---------------|-------------------------|-------|
|          | CONNECTION 1    | CONNECTION 2  | psi                     | bar   |
| 28092    | 9/16" MP Female | 1/2" NPT Male | 15,000                  | 1,034 |





# NIPPLES

- ▶ High tensile strength, cold drawn stainless steel
- ▶ Glands and collars not included
- ▶ Three connection types available

## Left Hand Medium Pressure Tubing (MP Tube LH):

Used in standard medium pressure connections (using glands and collars) or with lance fittings (no glands and collars) or tube nozzles that have medium pressure left-handed female threads.

Available in 1/4" to 1" sizes.

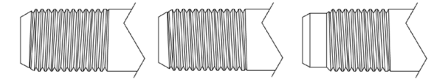
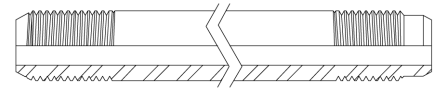
## Right Hand Medium Pressure Tubing (MP Tube RH):

Used with lance fittings (no glands and collars) or tube nozzles that have medium pressure right-handed female threads.

Available in 1/4" to 3/4" sizes.

## Jetstream Lance Connections (JS Lance):

Right-handed connections for use with Jetstream's popular tube nozzles and lance fittings. Available in 1/4", 3/8", and 9/16" sizes.



**MP TUBE LH CONNECTION    MP TUBE RH CONNECTION    JS LANCE CONNECTION**

**TO ORDER:** Use five digit part number corresponding to the desired connection types, followed by a dash (-), and ending with two digits representing the length, in inches.

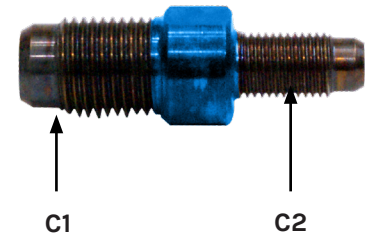
**EXAMPLE:** A 6" nipple with a 9/16" MP Tube LH connection on one end and a 9/16" JS Lance connection on the other would be ordered as **Part No. 53279-06**.

| PART NO.<br>SPECIFY<br>LENGTH IN<br>INCHES, IN<br>PLACE OF<br>"XX" | CONNECTION TYPES      |                       | OUTER<br>DIAMETER |      | INNER<br>DIAMETER |      | MAX. WORKING<br>PRESSURE |       | LENGTH |        |
|--------------------------------------------------------------------|-----------------------|-----------------------|-------------------|------|-------------------|------|--------------------------|-------|--------|--------|
|                                                                    | CONNECTION 1          | CONNECTION 2          | in                | mm   | in                | mm   | psi                      | bar   | in     | mm     |
| 29013-XX                                                           | 1" MP Tube LH Male    | 1" MP Tube LH Male    | .990              | 25.1 | .688              | 17.5 | 20,000                   | 1,379 | 3-24   | 76-609 |
| 29108-XX                                                           | 3/4" MP Tube LH Male  | 3/4" MP Tube LH Male  | .740              | 18.8 | .438              | 11.1 | 20,000                   | 1,379 | 3-24   | 76-609 |
| 29109-XX                                                           | 3/4" MP Tube LH Male  | 3/4" MP Tube RH Male  | .740              | 18.8 | .438              | 11.1 | 20,000                   | 1,379 | 3-24   | 76-609 |
| 29110-XX                                                           | 3/4" MP Tube RH Male  | 3/4" MP Tube RH Male  | .740              | 18.8 | .438              | 11.1 | 20,000                   | 1,379 | 3-24   | 76-609 |
| 27968-XX                                                           | 9/16" MP Tube LH Male | 9/16" MP Tube LH Male | .553              | 14.0 | .312              | 7.9  | 20,000                   | 1,379 | 3-24   | 76-609 |
| 54769-XX                                                           | 9/16" MP Tube LH Male | 9/16" MP Tube RH Male | .553              | 14.0 | .312              | 7.9  | 20,000                   | 1,379 | 3-24   | 76-609 |
| 53279-XX                                                           | 9/16" MP Tube LH Male | 9/16" JS Lance Male   | .553              | 14.0 | .312              | 7.9  | 20,000                   | 1,379 | 3-24   | 76-609 |
| 54781-XX                                                           | 9/16" MP Tube RH Male | 9/16" MP Tube RH Male | .553              | 14.0 | .312              | 7.9  | 20,000                   | 1,379 | 3-24   | 76-609 |
| 54782-XX                                                           | 9/16" MP Tube RH Male | 9/16" JS Lance Male   | .553              | 14.0 | .312              | 7.9  | 20,000                   | 1,379 | 3-24   | 76-609 |
| 53063-XX                                                           | 9/16" JS Lance Male   | 9/16" JS Lance Male   | .553              | 14.0 | .312              | 7.9  | 20,000                   | 1,379 | 3-24   | 76-609 |
| 27960-XX                                                           | 3/8" MP Tube LH Male  | 3/8" MP Tube LH Male  | .368              | 9.3  | .203              | 5.2  | 20,000                   | 1,379 | 3-24   | 76-609 |
| 54783-XX                                                           | 3/8" MP Tube LH Male  | 3/8" MP Tube RH Male  | .368              | 9.3  | .203              | 5.2  | 20,000                   | 1,379 | 3-24   | 76-609 |
| 53280-XX                                                           | 3/8" MP Tube LH Male  | 3/8" JS Lance Male    | .368              | 9.3  | .203              | 5.2  | 20,000                   | 1,379 | 3-24   | 76-609 |
| 54784-XX                                                           | 3/8" MP Tube RH Male  | 3/8" MP Tube RH Male  | .368              | 9.3  | .203              | 5.2  | 20,000                   | 1,379 | 3-24   | 76-609 |
| 54786-XX                                                           | 3/8" MP Tube RH Male  | 3/8" JS Lance Male    | .368              | 9.3  | .203              | 5.2  | 20,000                   | 1,379 | 3-24   | 76-609 |
| 51921-XX                                                           | 3/8" JS Lance Male    | 3/8" JS Lance Male    | .368              | 9.3  | .203              | 5.2  | 20,000                   | 1,379 | 3-24   | 76-609 |
| 54787-XX                                                           | 1/4" MP Tube LH Male  | 1/4" MP Tube LH Male  | .245              | 6.2  | .109              | 2.8  | 20,000                   | 1,379 | 3-24   | 76-609 |
| 54788-XX                                                           | 1/4" MP Tube LH Male  | 1/4" MP Tube RH Male  | .245              | 6.2  | .109              | 2.8  | 20,000                   | 1,379 | 3-24   | 76-609 |
| 53281-XX                                                           | 1/4" MP Tube LH Male  | 1/4" JS Lance Male    | .245              | 6.2  | .109              | 2.8  | 20,000                   | 1,379 | 3-24   | 76-609 |
| 54789-XX                                                           | 1/4" MP Tube RH Male  | 1/4" MP Tube RH Male  | .245              | 6.2  | .109              | 2.8  | 20,000                   | 1,379 | 3-24   | 76-609 |
| 54791-XX                                                           | 1/4" MP Tube RH Male  | 1/4" JS Lance Male    | .245              | 6.2  | .109              | 2.8  | 20,000                   | 1,379 | 3-24   | 76-609 |
| 51919-XX                                                           | 1/4" JS Lance Male    | 1/4" JS Lance Male    | .245              | 6.2  | .109              | 2.8  | 20,000                   | 1,379 | 3-24   | 76-609 |

## LANCE CLOSE NIPPLES

- Used to connect tube cleaning nozzles, fittings, and lances that have Jetstream Lance connections
- Wrench flats for easy connection and removal

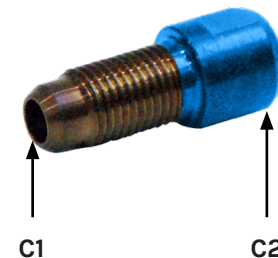
| PART NO. | CONNECTION TYPE     |                     | MAX. OUTER DIAMETER |      | MAX. WORKING PRESSURE |       |
|----------|---------------------|---------------------|---------------------|------|-----------------------|-------|
|          | CONNECTION 1        | CONNECTION 2        | in                  | mm   | psi                   | bar   |
| 53221    | 9/16" JS Lance Male | 9/16" JS Lance Male | .750                | 19.1 | 20,000                | 1,379 |
| 53149    | 9/16" JS Lance Male | 3/8" JS Lance Male  | .750                | 19.1 | 20,000                | 1,379 |
| 54792    | 9/16" JS Lance Male | 1/4" JS Lance Male  | .750                | 19.1 | 20,000                | 1,379 |
| 52088    | 3/8" JS Lance Male  | 3/8" JS Lance Male  | .500                | 12.7 | 20,000                | 1,379 |
| 52521    | 3/8" JS Lance Male  | 1/4" JS Lance Male  | .500                | 12.7 | 20,000                | 1,379 |
| 52437    | 1/4" JS Lance Male  | 1/4" JS Lance Male  | .375                | 9.5  | 20,000                | 1,379 |



## SLIMLINE MALE TO FEMALE TUBE ADAPTERS

Used to connect components with female Jetstream Lance connectors to those with male left-handed medium pressure tubing connections without the use of glands and collars.

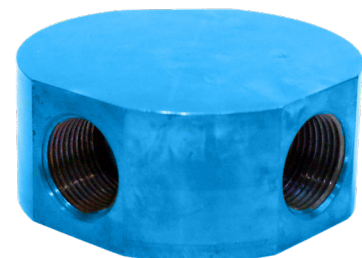
| PART NO. | CONNECTION TYPE     |                         | MAX. OUTER DIAMETER |      | MAX. WORKING PRESSURE |       |
|----------|---------------------|-------------------------|---------------------|------|-----------------------|-------|
|          | CONNECTION 1        | CONNECTION 2            | in                  | mm   | psi                   | bar   |
| 52552    | 9/16" JS Lance Male | 9/16" MP Tube LH Female | .750                | 19.1 | 20,000                | 1,379 |
| 54174    | 3/8" JS Lance Male  | 3/8" MP Tube LH Female  | .500                | 12.7 | 20,000                | 1,379 |
| 54176    | 1/4" JS Lance Male  | 1/4" MP Tube LH Female  | .375                | 9.5  | 20,000                | 1,379 |



## Y-FITTINGS

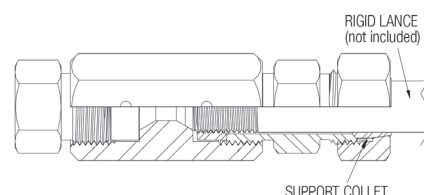
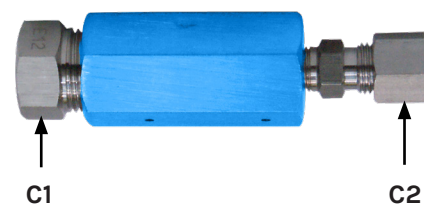
Stainless steel.

| PART NO. | CONNECTION TYPE | MAX. OPERATING PRESSURE |       |
|----------|-----------------|-------------------------|-------|
|          |                 | psi                     | bar   |
| 62417    | 1" MP Female    | 20,000                  | 1,379 |
| 58568    | 3/4" MP Female  | 20,000                  | 1,379 |



# MEDIUM PRESSURE RIGID LANCE HOLDERS

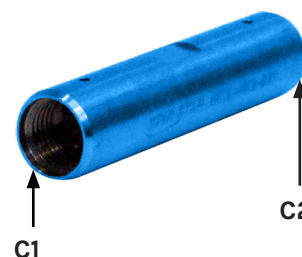
The Jetstream medium pressure rigid lance holder is used to provide reduced stress on the rigid lance to flexible lance connection, greatly reducing lance breakage and increasing safety. The rigid lance is inserted into the support tube and screwed into the female threaded connection.



| PART NO. | CONNECTION TYPE |                         | MAX. WORKING PRESSURE |       |
|----------|-----------------|-------------------------|-----------------------|-------|
|          | CONNECTION 1    | CONNECTION 2            | psi                   | bar   |
| 29116    | 9/16" MP Female | 9/16" MP Tube LH Female | 20,000                | 1,379 |
| 29117    | 9/16" MP Female | 3/8" MP Tube LH Female  | 20,000                | 1,379 |
| 29118    | 9/16" MP Female | 1/4" MP Tube LH Female  | 20,000                | 1,379 |

# SLIMLINE LANCE COUPLINGS

- Used to couple rigid and flex lances without the use of glands and collars to allow them to fit into tubes
- Can be used with MP Tube, Nozzle Nipple, or JS Lance connections.
- Additional couplings available upon request



| PART NO. | CONNECTION TYPE*        |                         | MAX. OUTER DIAMETER |      | MAX. WORKING PRESSURE |       |
|----------|-------------------------|-------------------------|---------------------|------|-----------------------|-------|
|          | CONNECTION 1            | CONNECTION 2            | in                  | mm   | psi                   | bar   |
| 28668    | 9/16" MP Tube LH Female | 9/16" MP Tube LH Female | .750                | 19.1 | 20,000                | 1,379 |
| 29111    | 9/16" MP Tube LH Female | 9/16" MP Tube RH Female | .750                | 19.1 | 20,000                | 1,379 |
| 52767    | 9/16" MP Tube LH Female | 9/16" JS Lance Female   | .750                | 19.1 | 20,000                | 1,379 |
| 29112    | 9/16" MP Tube RH Female | 9/16" MP Tube RH Female | .750                | 19.1 | 20,000                | 1,379 |
| 52766    | 9/16" JS Lance Female   | 9/16" JS Lance Female   | .750                | 19.1 | 20,000                | 1,379 |
| 28349    | 9/16" MP Tube LH Female | 3/8" MP Tube LH Female  | .750                | 19.1 | 20,000                | 1,379 |
| 28314    | 9/16" MP Tube RH Female | 3/8" MP Tube RH Female  | .750                | 19.1 | 20,000                | 1,379 |
| 28667    | 3/8" MP Tube LH Female  | 3/8" MP Tube LH Female  | .500                | 12.7 | 20,000                | 1,379 |
| 29113    | 3/8" MP Tube LH Female  | 3/8" MP Tube RH Female  | .500                | 12.7 | 20,000                | 1,379 |
| 53282    | 3/8" MP Tube LH Female  | 3/8" JS Lance Female    | .500                | 12.7 | 20,000                | 1,379 |
| 29114    | 3/8" MP Tube RH Female  | 3/8" MP Tube RH Female  | .500                | 12.7 | 20,000                | 1,379 |
| 52373    | 3/8" JS Lance Female    | 3/8" JS Lance Female    | .500                | 12.7 | 20,000                | 1,379 |
| 28315    | 3/8" MP Tube RH Female  | 1/4" MP Tube RH Female  | .500                | 12.7 | 20,000                | 1,379 |
| 28666    | 1/4" MP Tube LH Female  | 1/4" MP Tube LH Female  | .375                | 9.5  | 20,000                | 1,379 |
| 28700    | 1/4" MP Tube LH Female  | 1/4" MP Tube RH Female  | .375                | 9.5  | 20,000                | 1,379 |
| 53283    | 1/4" MP Tube LH Female  | 1/4" JS Lance Female    | .375                | 9.5  | 20,000                | 1,379 |
| 29115    | 1/4" MP Tube RH Female  | 1/4" MP Tube RH Female  | .375                | 9.5  | 20,000                | 1,379 |
| 52374    | 1/4" JS Lance Female    | 1/4" JS Lance Female    | .375                | 9.5  | 20,000                | 1,379 |

\* MP Tube and Nozzle Nipple connection thread sizes are interchangeable. See Section I for details on the connections.

# ROTO LINK™

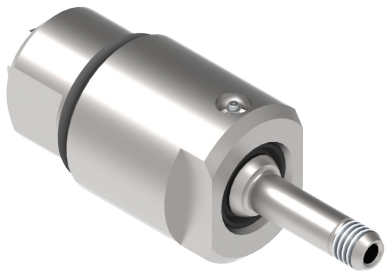
RotoLink™ series swivels are compact rotary couplings designed to deliver high pressure water from a stationary line to a rotating or twisting assembly. These durable swivels are ideal for preventing hose kink and can be used in a variety of applications including floor cleaners, lance machines, hose reels, and shot guns. A variety of inlet options and configurations are available.

RotoLinks are easily maintained in the field using available wear kits that contain a high pressure seal and seat. Rebuild kits include all the components in the wear kit, along with bearings and lip seals needed to completely overhaul the coupling.

| SERIES | TYPICAL APPLICATIONS                                                                                                                                                                                                                                                               |
|--------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| JSG    | Rotating manifold and nozzle assemblies can be mounted to output shaft. The swivel is also used on hose reels and connecting high pressure hose to a maneuverable jet. Commonly used in powered rotary surface cleaners, large hose reels, and automated surface cleaning systems. |
| JSL    | Standard on rigid lance machines or used as an inlet swivel to a handgun.                                                                                                                                                                                                          |

| PART NO. | SERIES | INLET CONNECTION TYPE* | INLET ANGLE (DEG) | SHAFT          | WEAR KIT | REBUILD KIT | MAX. OPERATING PRESSURE |      |
|----------|--------|------------------------|-------------------|----------------|----------|-------------|-------------------------|------|
|          |        |                        |                   |                |          |             | psi                     | bar  |
| 66655    | JSL    | 9/16" MP               | 0                 | 9/16" AV       | 66755    | 67522       | 22,000                  | 1517 |
| 66656    | JSG    | 3/4" MP                | 0                 | 3/4" MP        | 66756    | 67519       |                         |      |
| 67456    | JSL    | 9/16" MP               | 90                | 9/16" MP, Long | 66755    | 67523       |                         |      |
| 67457    | JSL    | 9/16" MP               | 90                | 9/16" AV       | 66755    | 67523       |                         |      |
| 67458    | JSL    | 9/16" MP               | 0                 | 9/16" MP, Long | 66755    | 67522       |                         |      |
| 67459    | JSG    | 3/4" MP                | 90                | 3/4" MP        | 66756    | 67519       |                         |      |

\*See details on all connection types in Section I.



JSG SERIES  
Part No. 66656



JSL SERIES  
Part No. 66655

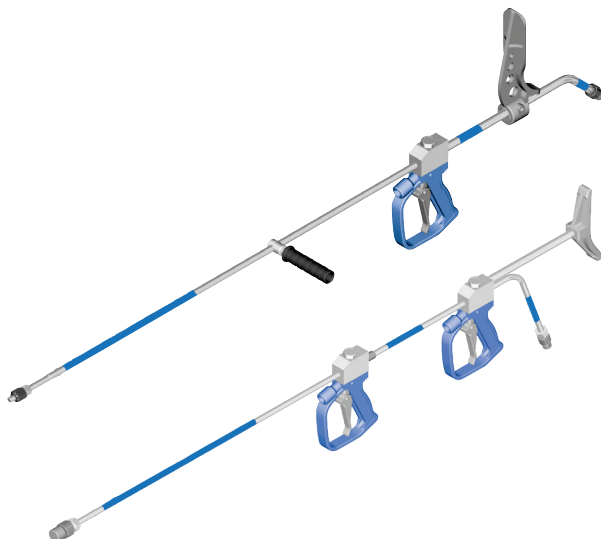
# CONTROL GUNS

## HAND-OPERATED, ZERO-THRUST, AND FOOT OPERATED

Control guns are a necessity in any hand lancing application. Jetstream offers several control gun options for 20,000 psi waterblasting. Standard and Field-Repairable Hand Guns, Zero-Thrust (or Sub-Sea) Guns and several Foot-operated gun options for various cleaning needs.

### DURASAFE™ HAND GUNS (STANDARD AND FIELD-REPAIRABLE)

Designed with safety, comfort and simplicity in mind, the 20,000 psi control guns are used for a variety of surface cleaning applications. The DCP models feature fully adjustable body pads for maximum operator comfort in any position (shoulder, hip, chest, etc.). The DCPx models showcase an ergonomically designed shoulder stock. In addition to the standard welded guns, Jetstream offers a field repairable option for barrel replacement to be performed in the field. Both standard and field repairable guns are offered in single or dual trigger, dump or shut-in style. All guns are color-coded in blue for the 20,000 psi (1379 bar) rating.



### ZERO-THRUST GUN

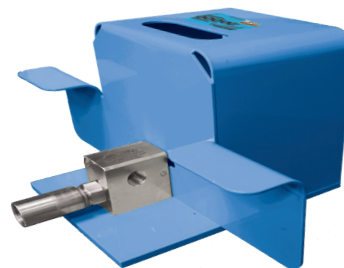
The Zero-Thrust gun is primarily designed for underwater cleaning in a marine environment. Due to no thrust, the operator is able to sustain a standard distance from the material needing to be cleaned without being propelled away.



### DURASAFE™ FOOT GUNS

The Durasafe foot gun is ideal for numerous tube cleaning applications. A recent upgrade was the larger opening for easier boot clearance, which is now standard on all Jetstream foot guns. Both dump or shut-in style come standard in blue color for 20,000 psi (1379 bar).

- ▶ Fast field replaceable cartridge design for minimal downtime
- ▶ All pressure bearing components are stainless steel





# DURASAFE™ HAND GUNS

## DUMP STYLE

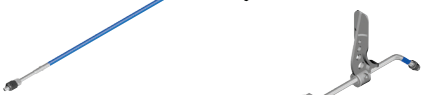
DuraSafe™ 20,000 psi hand-operated dump style control guns allow the operator to have complete control of the pressure at all times. Designed with safety, comfort, and simplicity in mind, they are used for a variety of surface cleaning applications and are available in four standard configurations.

- ▶ 30 second field replaceable cartridge design for minimal downtime.
- ▶ 48" distance from primary trigger to end of barrel to ensure maximum operator safety.\*\*
- ▶ Lightweight.
- ▶ DCP models feature fully adjustable body pad for maximum operator comfort in any position (shoulder, hip, chest, etc.), while an ergonomically designed shoulder stock is included with DCPx models.
- ▶ Adjustable secondary grip included with single trigger models.
- ▶ Dual trigger models require both triggers to be engaged in order to build system pressure for maximum operator safety.
- ▶ All pressure-bearing components are stainless steel.
- ▶ Equipped with holder for single nozzle. Ideal for use with the Jetstream Orbi-Jet self-rotating nozzles. A nozzle holder (Part No. 28523) is available for use with NPT nozzles.
- ▶ All Jetstream Hand Guns are color-coded blue for added safety at 20,000 psi (1379 bar).

DCP-20  
PART NO. 53305



DCPx-20  
PART NO. 54375



DCP-20DD  
PART NO. 53230



DCPx-20D  
PART NO. 54425

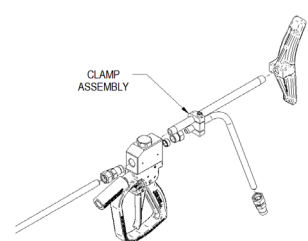
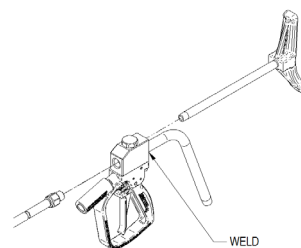
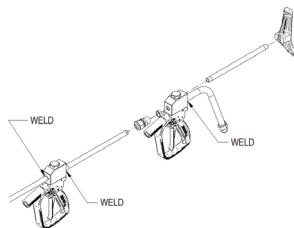
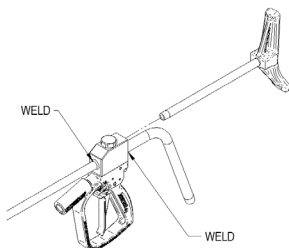


STANDARD, WELDED

DUAL TRIGGER, CLOCKABLE

PARTIALLY FIELD REPAIRABLE

FULLY FIELD REPAIRABLE



**NOTE:** The Jetstream P1082 Safety Pamphlet Section 'CONTROL GUNS AND DEVICES' Item 5:

The use of a Safety Shroud and Safety Whip Hose with handheld control guns is strongly recommended for additional operator protection against a burst occurring in the high pressure hose connected to the gun. Use of Hand Grip and Shoulder Stock in hand-held control guns will provide greater operator comfort and safety.

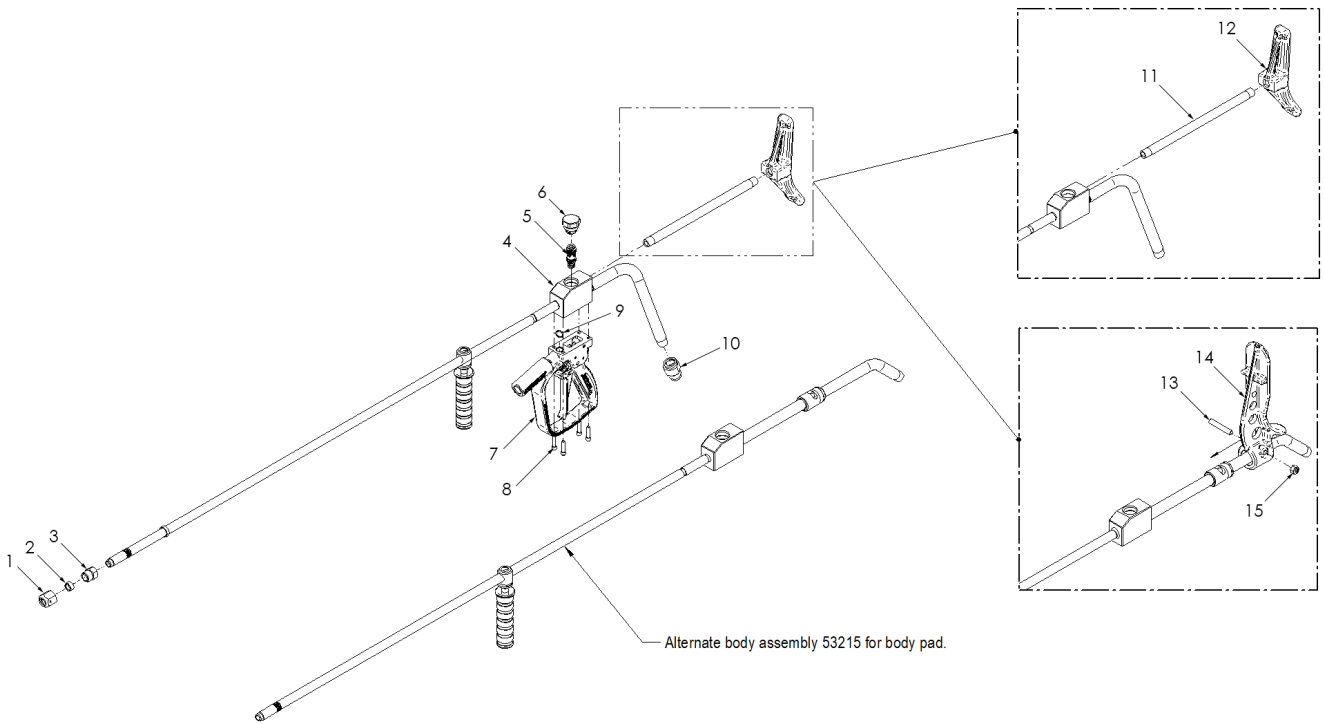
# DURASAFE™ HAND GUNS

## DUMP STYLE

### STANDARD, WELDED GUN

| PART NO. | MODEL   | TRIGGER ACTUATION | REST TYPE      | INLET CONNECTION* | OUTLET CONNECTION | LENGTH |      | MAX. OPERATING PRESSURE |       |
|----------|---------|-------------------|----------------|-------------------|-------------------|--------|------|-------------------------|-------|
|          |         |                   |                |                   |                   | in     | mm   | psi                     | bar   |
| 53305    | DCP-20  | Single            | Body Pad       | 20K Port Male     | 9/16" MP Male     | 71     | 1803 | 20,000                  | 1,379 |
| 54375    | DCPx-20 | Single            | Shoulder Stock |                   |                   | 66     | 1676 | 20,000                  | 1,379 |
| 69350    | DCPx-20 | Single            | Shoulder Stock | 1" Type M         | 9/16" MP Male     | 66     | 1676 | 20,000                  | 1,379 |

\*Adapters available for other connection types. See details on all connection types in Section I.



## PART BREAKDOWN

| ITEM | PART NO. | DESCRIPTION        | ITEM | PART NO. | DESCRIPTION                              |
|------|----------|--------------------|------|----------|------------------------------------------|
| 1    | 51874    | Nozzle Sleeve, HPO | 10   | 54409    | Gland, 3/4" MP (53305, 54375)            |
| 2    | 26635    | Collar, 9/16" MP   |      | 54936    | Gland, 1" Type M (69350)                 |
| 3    | 26645    | Gland, 9/16" MP    | 11   | 50127    | Extension, Shoulder Stock (54375, 69350) |
| 4    | 54365    | Body Assy (53305)  | 12   | 65808    | Shoulder Stock (54375, 69350)            |
|      | 53215    | Body Assy (54375)  | 13   | 53303    | Stud (53305)                             |
|      | 69334    | Body Assy (69350)  | 14   | 53304    | Body Pad (53305)                         |
| 5    | 51869    | Cartridge          | 15   | 25296    | Nut (53305)                              |
| 6    | 53175    | Cartridge Plug     | 16*  | 65999    | Decal, Front Barrel, Blue                |
| 7    | 57956-67 | Handle Assy, Blue  | 17*  | 64267    | Decal, Rear Barrel, Blue                 |
| 8    | 26689    | Capscrew           | 18*  | 71743    | Decal, Body, Blue                        |
| 9    | 25193    | O-Ring             | 19*  | 66332    | Cushion, Shoulder Stock (54375, 69350)   |

\*Not shown.



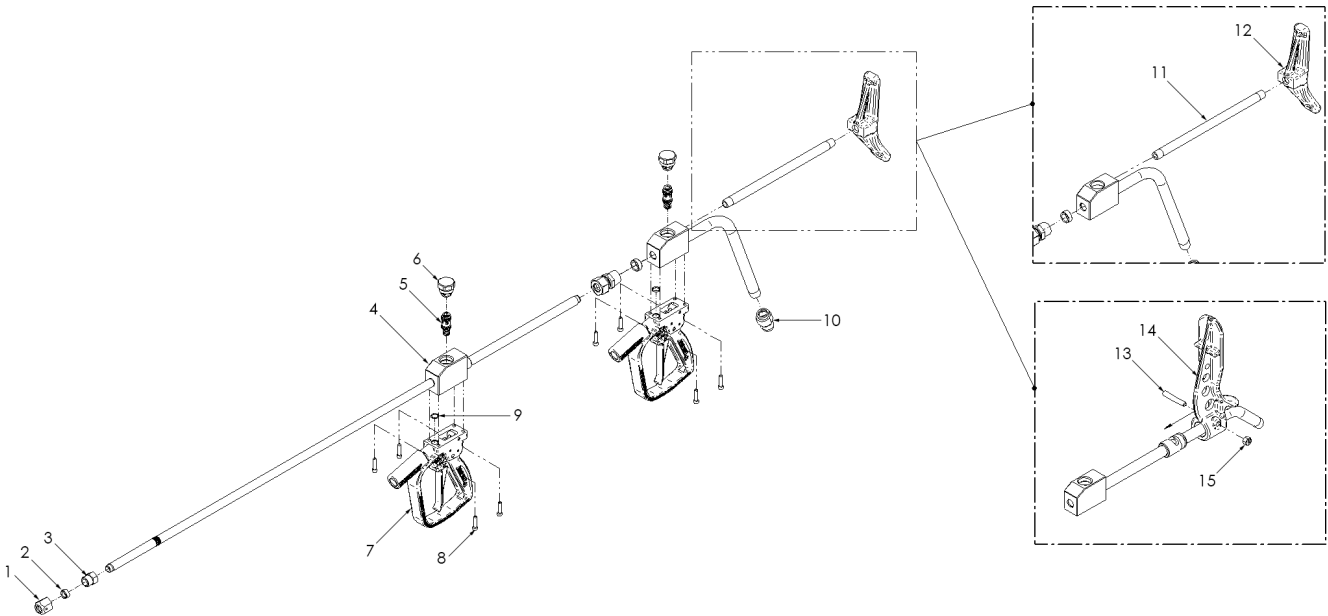
# DURASAFE™ HAND GUNS

## DUMP STYLE

### DUAL TRIGGER, CLOCKABLE GUN

| PART NO. | MODEL    | TRIGGER ACTUATION | REST TYPE      | INLET CONNECTION* | OUTLET CONNECTION | LENGTH |      | MAX. OPERATING PRESSURE |       |
|----------|----------|-------------------|----------------|-------------------|-------------------|--------|------|-------------------------|-------|
|          |          |                   |                |                   |                   | in     | mm   | psi                     | bar   |
| 53230    | DCP-20DD | Dual              | Body Pad       | 20K Port Male     | 9/16" MP Male     | 75     | 1905 | 20,000                  | 1,379 |
| 54425    | DCPx-20D | Dual              | Shoulder Stock |                   |                   | 70     | 1778 | 20,000                  | 1,379 |

\*Adapters available for other connection types. See details on all connection types in Section I.



## PART BREAKDOWN

| ITEM | PART NO. | DESCRIPTION        | ITEM | PART NO. | DESCRIPTION                       |
|------|----------|--------------------|------|----------|-----------------------------------|
| 1    | 51874    | Nozzle Sleeve, HPO | 10   | 54409    | Gland, 3/4" MP                    |
| 2    | 26635    | Collar, 9/16" MP   | 11   | 50127    | Extension, Shoulder Stock (54425) |
| 3    | 26645    | Gland, 9/16" MP    | 12   | 65808    | Shoulder Stock (54425)            |
| 4    | 55294    | Body Assy (54425)  | 13   | 53303    | Stud (53230)                      |
|      | 55317    | Body Assy (53230)  | 14   | 53304    | Body Pad (53230)                  |
| 5    | 51869    | Cartridge          | 15   | 25296    | Nut (53230)                       |
| 6    | 53175    | Cartridge Plug     | 16*  | 65999    | Decal, Front Barrel, Blue         |
| 7    | 57956-67 | Handle Assy, Blue  | 17*  | 64267    | Decal, Rear Barrel, Blue          |
| 8    | 26689    | Capscrew           | 18*  | 71743    | Decal, Body, Blue                 |
| 9    | 25193    | O-Ring             | 19*  | 66332    | Cushion, Shoulder Stock (54425)   |

\*Not shown.

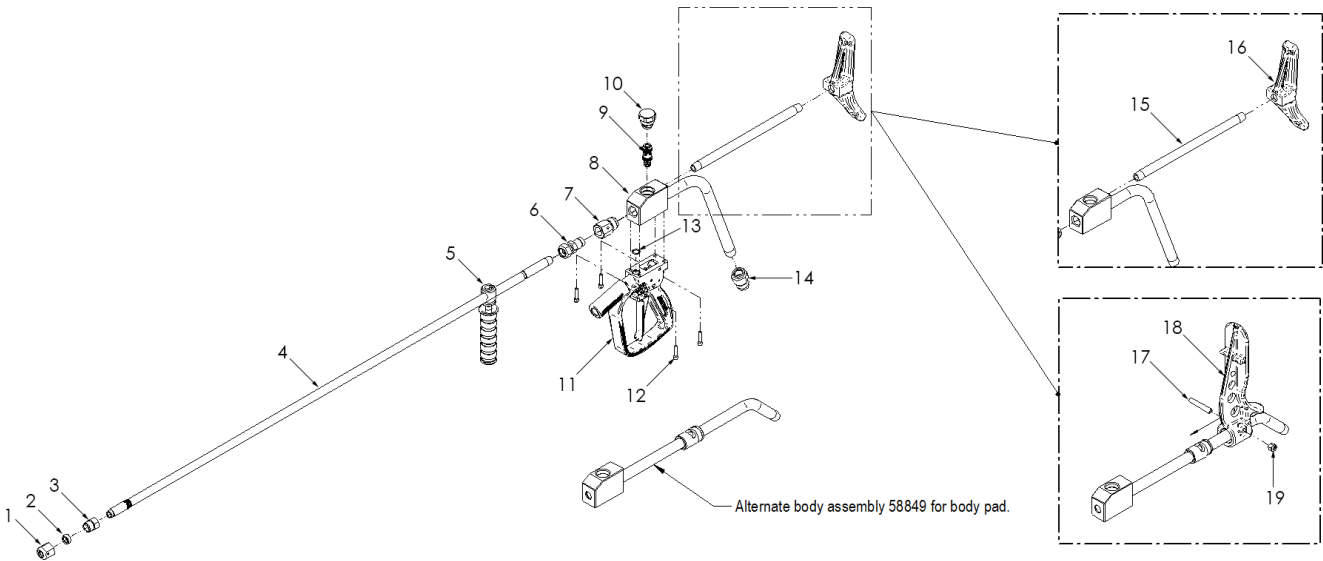
# DURASAFE™ HAND GUNS

## DUMP STYLE

### PARTIALLY FIELD REPAIRABLE GUN

| PART NO. | MODEL    | TRIGGER ACTUATION | REST TYPE      | INLET CONNECTION* | OUTLET CONNECTION | LENGTH |      | MAX. OPERATING PRESSURE |       |
|----------|----------|-------------------|----------------|-------------------|-------------------|--------|------|-------------------------|-------|
|          |          |                   |                |                   |                   | in     | mm   | psi                     | bar   |
| 54915    | DCPx-20X | Single            | Shoulder Stock | 20K Port Male     | .56 MP Female     | 66     | 1676 | 20,000                  | 1,379 |
| 58818    | DCP-20x  | Single            | Body Pad       | 9/16" MP Male     | 9/16" MP Male     | 71     | 1803 | 20,000                  | 1,379 |
| 58124    | DCPx-20X | Single            | Shoulder Stock |                   |                   | 66     | 1676 | 20,000                  | 1,379 |

\*Adapters available for other connection types. See details on all connection types in Section I.



## PART BREAKDOWN

| ITEM | PART NO. | DESCRIPTION              | ITEM | PART NO. | DESCRIPTION                              |
|------|----------|--------------------------|------|----------|------------------------------------------|
| 1    | 51874    | Nozzle Sleeve, HPO       | 12   | 26689    | Capscrew                                 |
| 2    | 26635    | Collar, 9/16" MP         | 13   | 25193    | O-Ring                                   |
| 3    | 26645    | Gland, 9/16" MP          | 14   | 54409    | 3/4" MP Gland (54915)                    |
| 4    | 27968-48 | Barrel, Front            |      | 28268    | 9/16" MP Anti-Vibe Gland (58818, 58124)  |
| 5    | 53464    | Grip Assy                | 15   | 50127    | Extension, Shoulder Stock (54915, 58124) |
| 6    | 28268    | 9/16" MP Anti-Vibe Gland | 16   | 65808    | Shoulder Stock (54915, 58124)            |
| 7    | 52044    | Port Adapter (54915)     | 17   | 53303    | Stud (58818)                             |
| 8    | 54475    | Body Assy (54915)        | 18   | 53304    | Body Pad (58818)                         |
|      | 58131    | Body Assy (58124)        | 19   | 25296    | Nut (58818)                              |
|      | 58819    | Body Assy (58818)        | 20*  | 65999    | Decal, Front Barrel, Blue                |
| 9    | 51869    | Cartridge                | 21*  | 64267    | Decal, Rear Barrel, Blue                 |
| 10   | 53175    | Cartridge Plug           | 22*  | 71743    | Decal, Body, Blue                        |
| 11   | 57956-67 | Handle Assy, Blue        | 23*  | 66332    | Cushion, Shoulder Stock (54915, 58124)   |

\*Not shown.

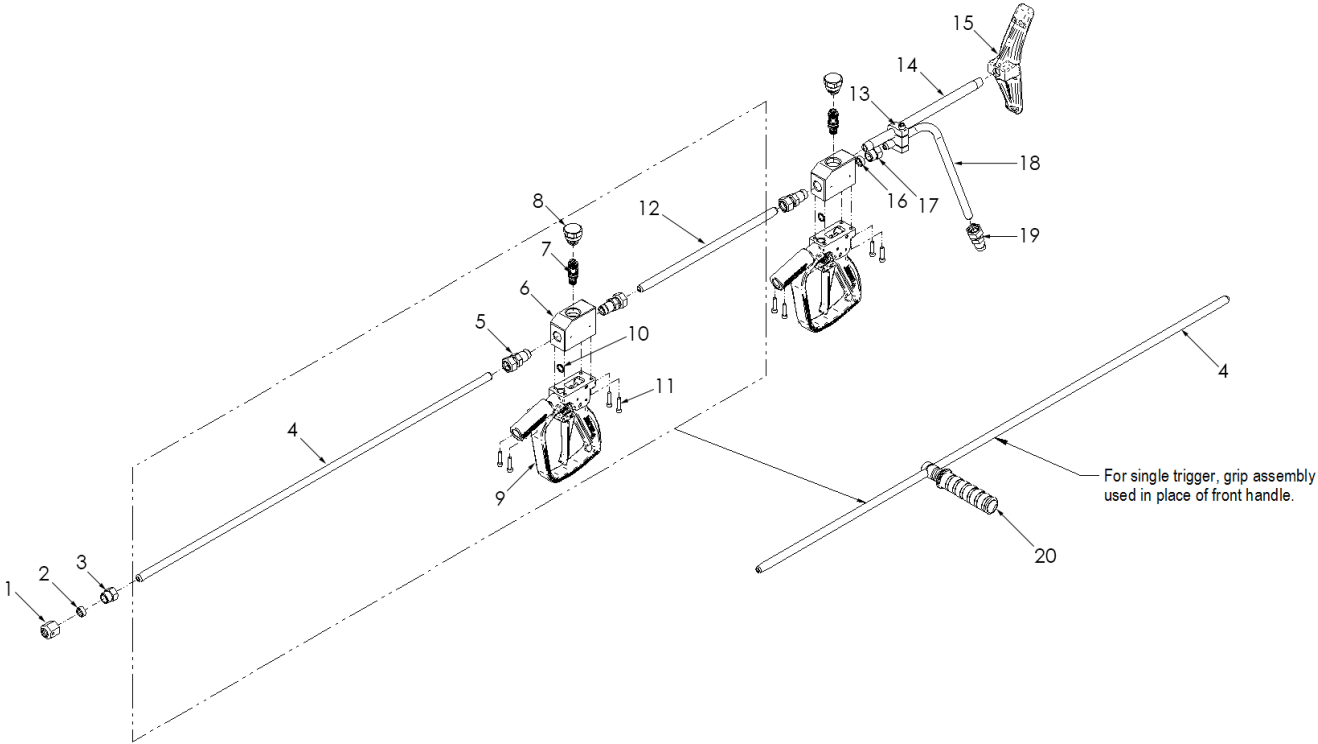
# DURASAFE™ HAND GUNS

## DUMP STYLE

### FIELD REPAIRABLE GUN

| PART NO. | MODEL   | TRIGGER ACTUATION | REST TYPE      | INLET CONNECTION* | OUTLET CONNECTION | LENGTH |      | MAX. OPERATING PRESSURE |       |
|----------|---------|-------------------|----------------|-------------------|-------------------|--------|------|-------------------------|-------|
|          |         |                   |                |                   |                   | in     | mm   | psi                     | bar   |
| 56988    | FR-20SD | Single            | Shoulder Stock | 9/16" MP          | 9/16" MP Male     | 66     | 1676 | 20,000                  | 1,379 |
| 56983    | FR-20DD | Dual              | Shoulder Stock |                   |                   | 70     | 1778 | 20,000                  | 1,379 |

\*Adapters available for other connection types. See details on all connection types in Section I.



## PART BREAKDOWN

| ITEM | PART NO. | DESCRIPTION               | ITEM | PART NO. | DESCRIPTION               |
|------|----------|---------------------------|------|----------|---------------------------|
| 1    | 51874    | Nozzle Sleeve, HPO        | 13   | 61881    | Clamp                     |
| 2    | 26635    | Collar                    | 14   | 50127    | Extension, Shoulder Stock |
| 3    | 26645    | Gland                     | 15   | 65808    | Shoulder Stock            |
| 4    | 27968-48 | Front Barrel, 48" (56988) | 16   | 26635    | Collar, 9/16" MP          |
|      | 27968-36 | Front Barrel, 36" (56983) | 17   | 26645    | Gland, 9/16" MP           |
| 5    | 28268    | Anti-Vibe Adapter         | 18   | 57095    | Rear Barrel               |
| 6    | J55768   | Body                      | 19   | 28268    | 9/16" MP Anti-Vibe Gland  |
| 7    | 51869    | Cartridge                 | 20   | 53464    | Grip Assy (56988)         |
| 8    | 53175    | Cartridge Plug            | 21*  | 65999    | Decal, Front Barrel, Blue |
| 9    | 57956-67 | Handle Assy, Blue         | 22*  | 64267    | Decal, Rear Barrel, Blue  |
| 10   | 25193    | O-Ring                    | 23*  | 71743    | Decal, Body, Blue         |
| 11   | 26689    | Capscrew                  | 24*  | 66332    | Cushion, Shoulder Stock   |
| 12   | 27968-14 | Nipple (56983)            |      |          |                           |

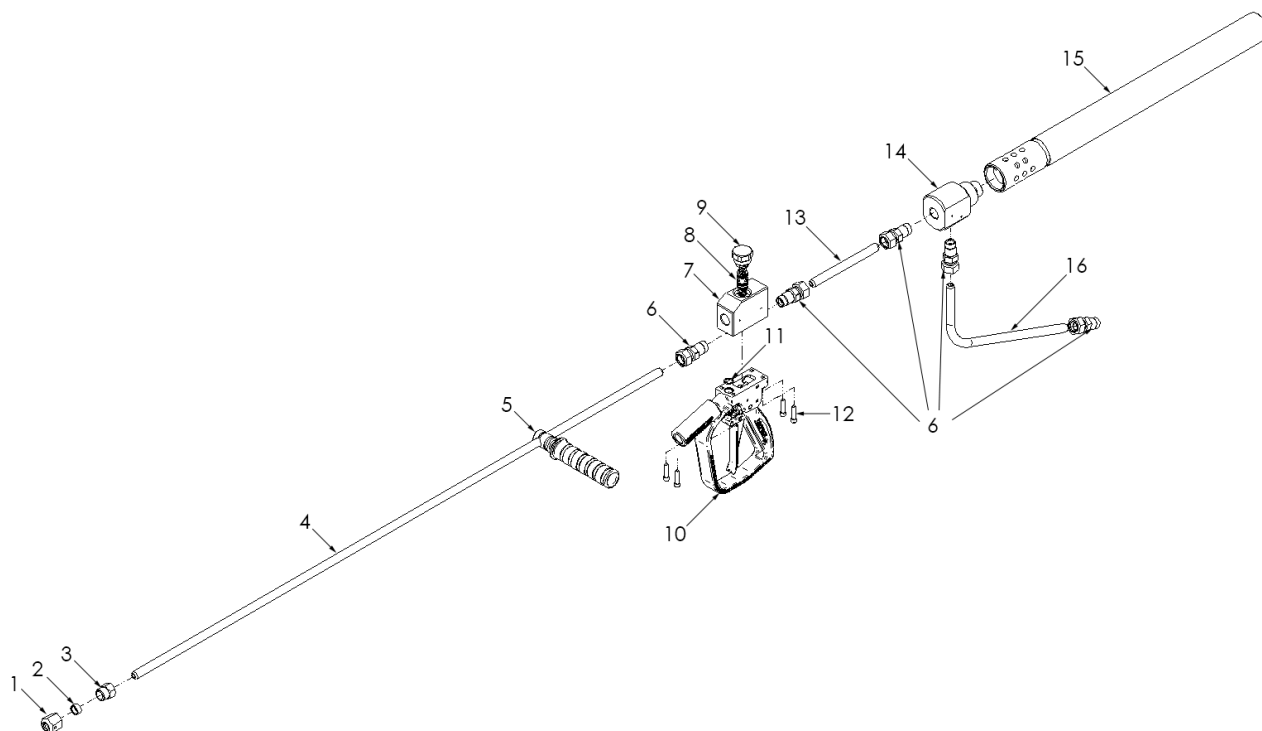
\*Not shown.

# ZERO THRUST HAND GUNS

The Zero-Thrust gun is primarily designed for underwater cleaning in a marine environment. The gun uses two nozzles, one HPO nozzle facing forward and one RM or RMS nozzle installed in the rear adapter (item 14), to neutralize thrust. Due to no thrust, the operator is able to sustain a standard distance from the material needed to be cleaned without being propelled away. **Part No. 58396**

| PART NO. | MODEL | TRIGGER ACTUATION | REST TYPE | INLET CONNECTION* | BARREL SIZE      | LENGTH |      | MAX. OPERATING PRESSURE |      |
|----------|-------|-------------------|-----------|-------------------|------------------|--------|------|-------------------------|------|
|          |       |                   |           |                   |                  | in     | mm   | psi                     | bar  |
| 58396    | ZT-20 | Single            | None      | 9/16" MP Male     | 9/16" MP LH Male | 85     | 2159 | 20,000                  | 1379 |

\*Adapters available for other connection types. See details on all connection types in Section I.



## PART BREAKDOWN

| ITEM | PART NO. | DESCRIPTION        | ITEM | PART NO. | DESCRIPTION               |
|------|----------|--------------------|------|----------|---------------------------|
| 1    | 51874    | Nozzle Sleeve, HPO | 11   | 25193    | O-Ring                    |
| 2    | 26635    | Collar             | 12   | 26689    | Capscrew                  |
| 3    | 26645    | Gland              | 13   | 27968-06 | Middle Barrel, 6"         |
| 4    | 27968-48 | Front Barrel, 48"  | 14   | 58398    | Baffle Tube Adapter       |
| 5    | 53464    | Grip Assy          | 15   | 50511    | Sub Sea Tube Baffle       |
| 6    | 28268    | Anti-Vibe Assy     | 16   | 57095    | Rear Barrel               |
| 7    | J55768   | Body, Durasafe     | 17*  | 65999    | Decal, Front Barrel, Blue |
| 8    | 51869    | Cartridge          | 18*  | 64267    | Decal, Rear Barrel, Blue  |
| 9    | 53175    | Cartridge Plug     | 19*  | 71743    | Decal, Body, Blue         |
| 10   | 57956-67 | Handle Assy, Blue  |      |          |                           |

\*Not shown.

**NOTE:** The Jetstream PI082 Safety Pamphlet Section 'CONTROL GUNS AND DEVICES' Item 5:

The use of a Safety Shroud and Safety Whip Hose with handheld control guns is strongly recommended for additional operator protection against a burst occurring in the high pressure hose connected to the gun. User of Hand Grip and Shoulder Stock in hand-held control guns will provide greater operator comfort and safety.

### REPLACEMENT CARTRIDGE



Zero Thrust Hand Gun utilizes a cartridge to completely rebuild in about 30 seconds.

**Part No. 51869**

# DURASAFE™ HAND GUNS

## SHUT-IN STYLE



DCPxiSi-20  
PART NO. 54395



FR-20Si  
PART NO. 56984



FR-20Si  
PART NO. 59299



DuraSafe™ 20,000 psi hand-operated shut-in style control guns allow the operator to have complete control of the pressure at all times. Designed with safety, comfort, and simplicity in mind, they are used for a variety of surface cleaning applications and are available in standard configurations.

- ▶ Shut-in style control guns do not dump water when the trigger is released. Useful in applications where excess water spillage and disposal are concerns. Use with plunger style pumps such as the UNx™ require the installation of a Shut-In Regulator Valve (see page C-16).
- ▶ 30 second field replaceable cartridge design for minimal downtime.
- ▶ 48" distance from primary trigger to end of barrel to ensure maximum operator safety.\*\*
- ▶ Lightweight.
- ▶ DCPxiSi model features a fully adjustable body pad for maximum operator comfort in any position (shoulder, hip, chest, etc.)
- ▶ DCPxiSi model includes an ergonomically designed shoulder stock.
- ▶ Adjustable secondary hand grip.
- ▶ All pressure-bearing components are stainless steel.
- ▶ Equipped with holder for single nozzle. Ideal for use with the Jetstream Orbi-Jet self-rotating nozzles. A nozzle holder (Part No. 28523) is available for use with NPT nozzles.
- ▶ All Jetstream Hand Guns are color-coded blue for added safety at 20,000 psi (1379 bar).

### REPLACEMENT CARTRIDGE



All 20,000 psi DuraSafe Shut-in Style Control Guns utilize the CPSi-20 cartridge, shown above, to completely rebuild the gun in about 30 seconds! **Part No. 60420**

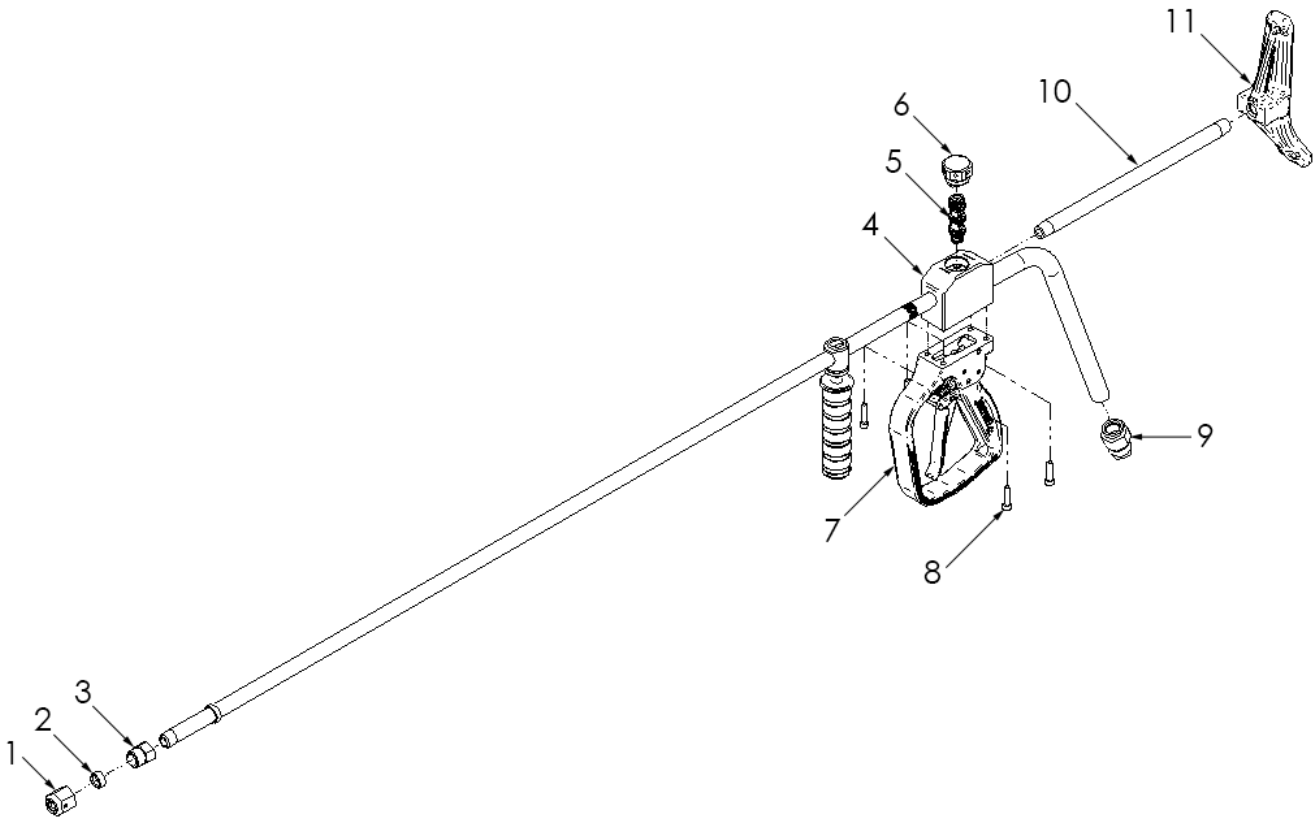
# DURASAFE™ HAND GUNS

## SHUT-IN STYLE

### STANDARD, WELDED GUN

| PART NO. | MODEL     | REST TYPE      | INLET CONNECTION* | OUTLET (NOZZLE) CONNECTION | LENGTH |      | WEIGHT |     | MAX. OPERATING PRESSURE |       |
|----------|-----------|----------------|-------------------|----------------------------|--------|------|--------|-----|-------------------------|-------|
|          |           |                |                   |                            | in     | mm   | lbs    | kg  | psi                     | bar   |
| 54395    | DCPxSi-20 | Shoulder Stock | 20K Port Male     | 9/16" MP Male              | 70     | 1778 | 11.4   | 5.2 | 20,000                  | 1,379 |

\*Adapters available for other connection types. See details on all connection types in Section I.



## PART BREAKDOWN

| ITEM | PART NO. | DESCRIPTION        | ITEM | PART NO. | DESCRIPTION               |
|------|----------|--------------------|------|----------|---------------------------|
| 1    | 51874    | Nozzle Sleeve, HPO | 9    | 54409    | Gland, 3/4" MP            |
| 2    | 26635    | Collar, 9/16" MP   | 10   | 50127    | Shoulder Stock Extension  |
| 3    | 26645    | Gland, 9/16" MP    | 11   | 65808    | Shoulder Stock            |
| 4    | 54400    | Body               | 12*  | 65999    | Decal, Front Barrel, Blue |
| 5    | 60420    | Cartridge          | 13*  | 64267    | Decal, Rear Barrel, Blue  |
| 6    | 52543    | Cartridge Plug     | 14*  | 71743    | Decal, Body, Blue         |
| 7    | 57956-67 | Handle Assy, Blue  | 15*  | 66332    | Cushion, Shoulder Stock   |
| 8    | 26689    | Capscrew           |      |          |                           |

\*Not shown.

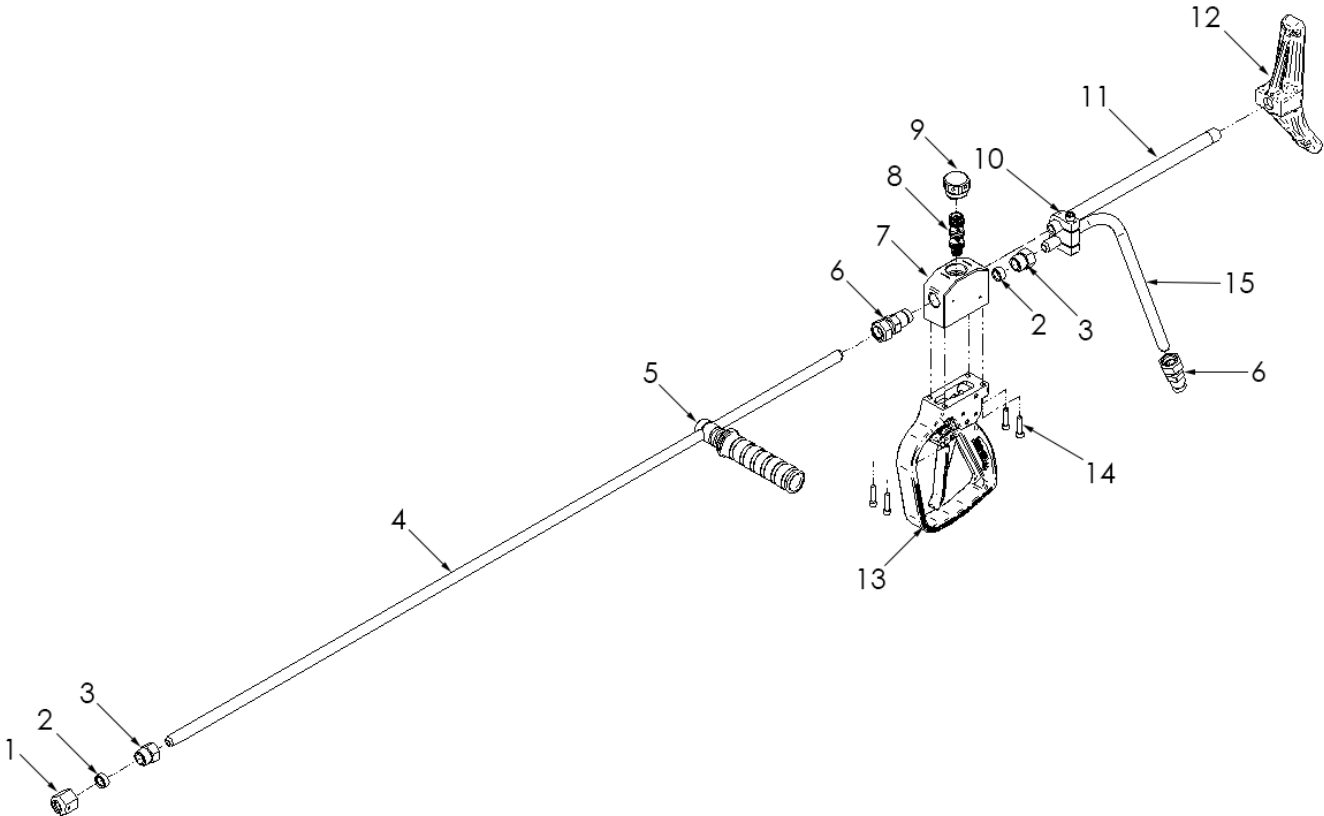
# DURASAFE™ HAND GUNS

## SHUT-IN STYLE

### FIELD REPAIRABLE GUN

| PART NO. | MODEL   | REST TYPE      | INLET CONNECTION* | OUTLET (NOZZLE) CONNECTION | LENGTH |      | WEIGHT |     | MAX. OPERATING PRESSURE |       |
|----------|---------|----------------|-------------------|----------------------------|--------|------|--------|-----|-------------------------|-------|
|          |         |                |                   |                            | in     | mm   | lbs    | kg  | psi                     | bar   |
| 59299    | FR-20Si | Shoulder Stock | 9/16" MP Male     | 9/16" MP Male              | 70     | 1778 | 11.4   | 5.2 | 20,000                  | 1,379 |

\*Adapters available for other connection types. See details on all connection types in Section I.

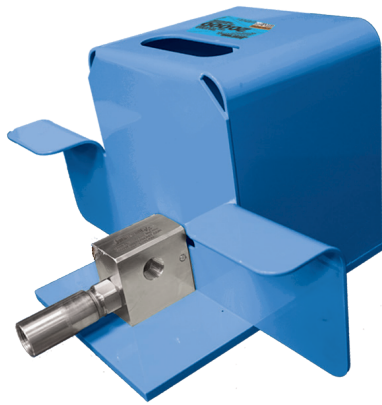


## PART BREAKDOWN

| ITEM | PART NO. | DESCRIPTION        | ITEM | PART NO. | DESCRIPTION               |
|------|----------|--------------------|------|----------|---------------------------|
| 1    | 51874    | Nozzle Sleeve, HPO | 11   | 50127    | Shoulder Stock Extension  |
| 2    | 26635    | Collar, 9/16" MP   | 12   | 65808    | Shoulder Stock            |
| 3    | 26645    | Gland, 9/16" MP    | 13   | 57956-67 | Handle Assy, Blue         |
| 4    | 27968-48 | Barrel, Front      | 14   | 26689    | Capscrew                  |
| 5    | 53464    | Grip Assy          | 15   | 57095    | Rear Barrel               |
| 6    | 28268    | Anti-Vibe Gland    | 16*  | 65999    | Decal, Front Barrel, Blue |
| 7    | 57000    | Body               | 17*  | 64267    | Decal, Rear Barrel, Blue  |
| 8    | 60420    | Cartridge          | 18*  | 71743    | Decal, Body, Blue         |
| 9    | 52543    | Cartridge Plug     | 19*  | 66332    | Cushion, Shoulder Stock   |
| 10   | 61881    | Clamp Assy         |      |          |                           |

\*Not shown.





# DURASAFE™ FOOT GUNS

## DUMP STYLE

Ideal for a variety of waterblast tube cleaning applications, the DCF-20 DuraSafe™ foot-operated dump style control gun allows the operator to have complete control of the pressure at all times.

- ▶ 30 second field replaceable cartridge design for minimal downtime.
- ▶ Safest gun in the industry! Custom safety cage and thick blast wall protect operator better than any foot control gun in the industry.
- ▶ Specially designed inlet and outlet connections are superior to industry standard connections and use a replaceable seal rather than metal to metal contact.
- ▶ Built in “wings” protect high pressure end fittings from external damage.
- ▶ All pressure-bearing components are stainless steel.
- ▶ Threaded diffuser to route dump water for collection or disposal.
- ▶ All Jetstream foot guns are color-coded blue for added safety at 20,000 psi (1379 bar).

### REPLACEMENT CARTRIDGE

All 20,000 psi DuraSafe Dump Style Control Guns utilize a cartridge to completely rebuild the gun in about 30 seconds!



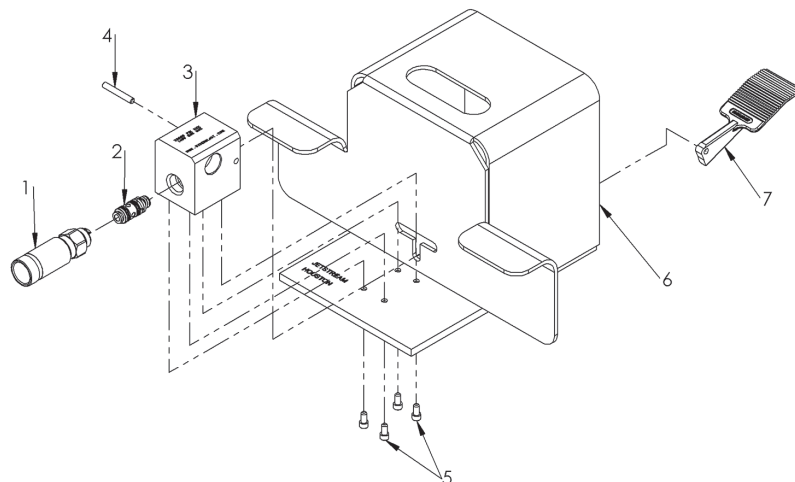
PART NO. 51869 (59372)



PART NO. 52750 (59379)

| PART NO. | MODEL      | INLET & OUTLET CONNECTION* | FLOW  |                   | DIMENSIONS<br>(H X W X D) | MAX. OPERATING<br>PRESSURE |       |
|----------|------------|----------------------------|-------|-------------------|---------------------------|----------------------------|-------|
|          |            |                            | gpm   | in                |                           | psi                        | bar   |
| 59372    | DCF-20     | 20K Port Female            | 30-35 | 8.8 x 16.7 x 9.25 | 223 x 424 x 235           | 20,000                     | 1,379 |
| 59379    | DCF-20 Mag | 3/4" MP Female             | 50    | 8.8 x 16.7 x 9.25 | 223 x 424 x 235           | 20,000                     | 1,379 |

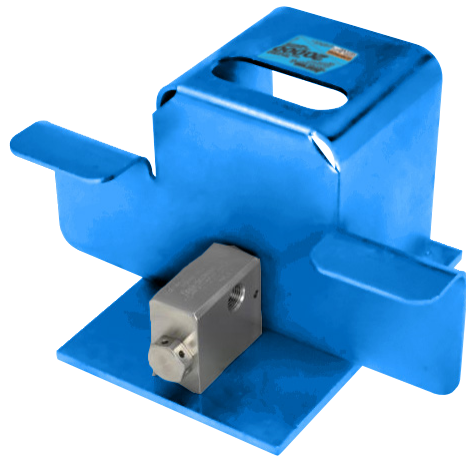
\*See details on all connection types in Section I.



### PART BREAKDOWN

| ITEM | PART NO. | DESCRIPTION            |
|------|----------|------------------------|
| 1    | 51864    | Diffuser               |
|      | 51638    | Diffuser (59379)       |
| 2    | 51869    | Cartridge              |
|      | 52750    | Cartridge (59379)      |
| 3    | 53369    | Body                   |
|      | 55411    | Body (59379)           |
| 4    | 26453    | Pin                    |
| 5    | 25261    | Capscrew               |
| 6    | 55432    | Base                   |
| 7    | 53373    | Pedal                  |
| 8*   | RM-PLUG  | Plug & O-Ring for Body |

\*Not shown.



#### REPLACEMENT CARTRIDGE



20,000 psi Shut-in Style Diverter Valves utilize the CPSi-20 cartridge, shown above, to completely rebuild the gun in about 30 seconds! **Part No. 60420**

# DURASAFE™ FOOT GUNS

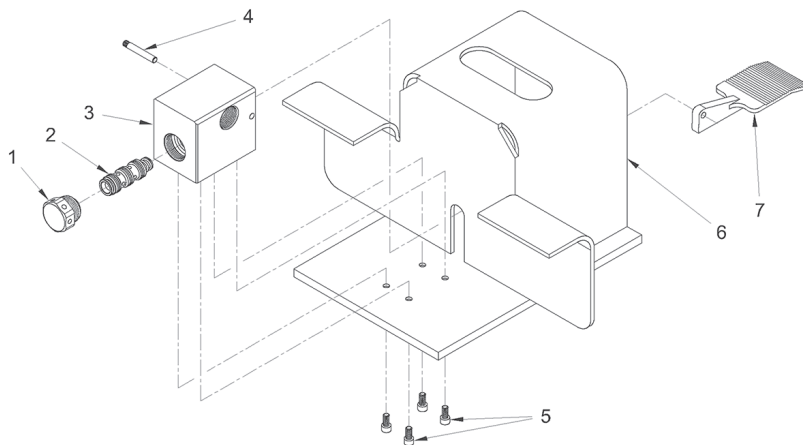
## SHUT-IN STYLE

Ideal for a variety of waterblast tube cleaning applications, the DCFSi-20 DuraSafe™ foot-operated shut-in style control gun allows the operator to have complete control of the pressure at all times.

- ▶ Shut-in style control guns do not dump water when the trigger is released. Useful in applications where excess water spillage and disposal are concerns. Use with plunger style pumps such as the UNx™ require the installation of a Shut-In Regulator Valve (see page C-16).
- ▶ 30 second field replaceable cartridge design for minimal downtime.
- ▶ Safest gun in the industry! Custom safety cage and thick blast wall protect operator better than any foot control gun in the industry.
- ▶ Specially designed inlet and outlet connections are superior to industry standard connections and use a replaceable seal rather than metal to metal contact.
- ▶ All pressure-bearing components are stainless steel.
- ▶ Built in “wings” protect high pressure and fittings from external damage.

| PART NO. | MODEL    | INLET & OUTLET CONNECTIONS* | DIMENSIONS (H X W X D) |                 | MAX. OPERATING PRESSURE |       |
|----------|----------|-----------------------------|------------------------|-----------------|-------------------------|-------|
|          |          |                             | in                     | mm              | psi                     | bar   |
| 59378    | DCFSi-20 | 20K Port Female             | 8.8 x 16.7 x 9.2       | 223 x 424 x 235 | 20,000                  | 1,379 |

\*See details on all connection types in Section I.



## PART BREAKDOWN

| ITEM | PART NO. | DESCRIPTION            |
|------|----------|------------------------|
| 1    | 52543    | Cartridge Plug         |
| 2    | 60420    | CPSi-20 Cartridge      |
| 3    | 54392    | Body                   |
| 4    | 26453    | Pin                    |
| 5    | 25261    | Capscrew               |
| 6    | 55432    | Base                   |
| 7    | 53373    | Pedal                  |
| 8*   | 52390    | Plug & O-Ring for Body |

\*Not shown.

# ROTARY, STRAIGHT, PIPE & TUBE CLEANING TOOLS & NOZZLES

Jetstream provides tools for different 20,000 psi applications in surface preparation, pipe cleaning and tube cleaning. All of our nozzles are made of stainless steel, hardened steel, or tungsten carbide and treated to withstand high pressures.

The Orbi-Jet™ X22 tool is a self-powered rotating tool that utilizes up to four rotating jets. The four-jet tool can use either four or two nozzles, and includes a magnetic braking system for maximum control. There is minimal wear for longer run-time hours. Maintenance is made easy through a rebuild kit.

Replacement nozzle tips are available in various connection sizes and orifice materials.

Jetstream's HP Series surface cleaning nozzles provide a powerful, stream-lined jet for tough cleaning applications. These nozzles come in carbide and sapphire orifices with a zero degree pattern. (A fifteen degree pattern is also offered in the carbide nozzles.) Many orifice sizes are available.

Pipe cleaning tools adapt to various diameter pipes. Our RotoMag™ X22 is a self-powered rotating, eight port tool designed specifically for larger diameter pipes. For smaller pipes, two static nozzles are available with up to sixteen ports.

Jetstream J-Force™ two, three, four, and six-inch rotating tools are self-powered with nozzles designed to easily navigate and clean two, three, four, and six-inch pipes with bends.

Tube cleaning nozzles are drilled for each order and are designed for use at the end of a flex lance or rigid lance. The configurations and flow ratings are customized to each specific request per the job requirements. Jetstream has put together eighteen standard patterns; however, these can be drilled in any pattern requested, once deemed the nozzle will perform efficiently. These drilled nozzles can also be enhanced with the addition of a tube spinner.

**NOTE:** Jetstream is an authorized reseller for many vendors and offers specialized rotary, abrasive cutting surface preparation, pipe and tube cleaning nozzles upon request.





Orbi-Jet X22 shown with Twis-Lok shroud.



Premium Kit (Part No. 63305).

# ORBI-JET™ X22

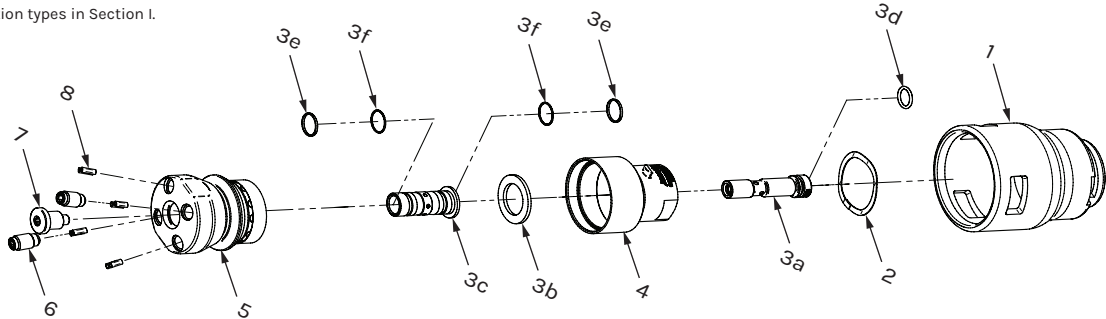
## ROTARY SURFACE PREPARATION TOOL

The Jetstream Orbi-Jet X22 is a rugged, self-powered, rotating tool utilizing up to four compound angle, hard-hitting, replaceable nozzles, rated up to 22,000 psi. The tool rotates in multiple 360° user-selectable patterns to provide maximum surface coverage and superior cleaning.

- ▶ Each of the four powerful, compound-angle, rotating jets follows a different cleaning path to provide greater coverage and less streaking.
- ▶ Three tools in one: use two nozzles for a narrow path, two nozzles for a wide path, or all four nozzles for a complete clean
- ▶ Magnetic braking system controls rotational speed for minimal wear and maximum impact without streaking.
- ▶ Jetstream light-weight, Twis-Lok™ shroud protects the tool from damage during operation and provides safer water displacement.
- ▶ Rebuild kit allows seven minute overhaul of wear components right in the field using two standard hex wrenches.
- ▶ Use with Tungsten Carbide OX Series, Sapphire UHPX/UHPXi Series, or tetraCORE™ Synthetic Diamond UHPXD Series nozzles
- ▶ **Premium Kit (PN. 63305)** and **Starter Kit (PN. 63392)** available for full product tools. **15K Adapter (PN. 28386)** included in Premium & 15K Kit (**PN 63306**). **Note:** The Starter kit does NOT come with the adapter.

| PART NO. | INLET CONNECTION* | SPEED RANGE | DIAMETER (LESS SHROUD) |    | ASSEMBLY LENGTH (WITH ADAPTER) |    | ASSEMBLY WEIGHT |      | MAX. FLOW RATE (HAND GUN) |      | MAX. OPERATING PRESSURE |      |
|----------|-------------------|-------------|------------------------|----|--------------------------------|----|-----------------|------|---------------------------|------|-------------------------|------|
|          |                   | RPM         | in                     | mm | in                             | mm | lbs             | kg   | gpm                       | lpm  | psi                     | bar  |
| 63230    | 9/16" MP Female   | 1000-1500   | 2.0                    | 51 | 3.7                            | 94 | 2.1             | 0.95 | 7.5                       | 28.4 | 22,000                  | 1517 |

\*See details on all connection types in Section I.



## PART BREAKDOWN

| ITEM | PART NO. | DESCRIPTION                  | ITEM | PART NO.   | DESCRIPTION     |
|------|----------|------------------------------|------|------------|-----------------|
| 1    | 63202    | Twis-Lok Shroud              | 7    | UHPX-PLUG  | Plug            |
| 2    | 26762    | Shroud Retaining Ring        | 8    | 54276      | Retaining Screw |
| 3    | 52305    | Rebuild Kit (Items 3a to 3g) | 9*   | 28386      | 15K Adapter     |
| 4    | 63207    | Body                         | 10*  | 63302      | Maintenance Kit |
| 5    | 54277    | Rotor                        | 11*  | 26758N (S) | Magnets         |
| 6    | 28435    | Straightening Vane           |      |            |                 |

\*Not shown.

## ORBI-JET™ X22 ACCESSORIES

### NOZZLE EXTENSIONS

Extensions are installed into the Orbi-Jet X22 tool to provide a wider cleaning pattern and serve as flow straighteners, further reducing turbulence for more aggressive waterjets. Sold Individually.

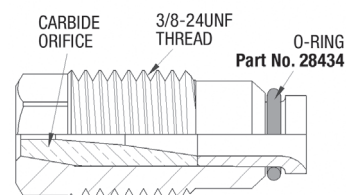
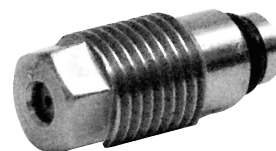
Part No. 53844



## ORBI-JET™ X22 NOZZLES

### OX SERIES—CARBIDE NOZZLES

- High productivity carbide nozzles designed for use in the Orbi-Jet X22.
- Specially engineered carbide orifices provide the most aggressive waterjets available.
- Efficient design reduces turbulence and orifice wear.
- Select nozzles from the charts below by choosing operating pressure, desired flow, and two or four nozzle operation.



FOUR OX NOZZLES



| PART NO. | ORIFICE DIAMETER |     | 12,500 PSI (862 BAR) |      | 15,000 PSI (1,034 BAR) |      | 17,500 PSI (1,207 BAR) |      | 20,000 PSI (1,379 BAR) |      | 22,500 PSI (1,551 BAR) |      |
|----------|------------------|-----|----------------------|------|------------------------|------|------------------------|------|------------------------|------|------------------------|------|
|          | in               | mm  | gpm                  | lpm  | gpm                    | lpm  | gpm                    | lpm  | gpm                    | lpm  | gpm                    | lpm  |
| OX-018   | .018             | .46 | 5.4                  | 20.4 | 5.8                    | 22.0 | 6.1                    | 23.1 | 6.4                    | 24.2 | 6.7                    | 25.4 |
| OX-025   | .025             | .64 | 9.2                  | 34.8 | 9.9                    | 37.5 | 10.6                   | 40.1 | 11.2                   | 42.4 | 11.8                   | 44.7 |
| OX-029   | .029             | .74 | 11.9                 | 45.0 | 12.9                   | 48.8 | 13.8                   | 52.2 | 14.6                   | 55.3 | 15.4                   | 58.3 |
| OX-033   | .033             | .84 | 15.0                 | 56.8 | 16.3                   | 61.7 | 17.5                   | 66.2 | 18.6                   | 70.4 | 19.6                   | 74.2 |
| OX-038   | .038             | .92 | 19.4                 | 73.4 | 21.2                   | 80.3 | 22.7                   | 85.9 | 24.2                   | 91.6 | 25.5                   | 96.5 |

TWO OX NOZZLES



|        |      |      |      |      |      |      |      |      |      |      |      |      |
|--------|------|------|------|------|------|------|------|------|------|------|------|------|
| OX-018 | .018 | .46  | 3.4  | 12.9 | 3.6  | 13.6 | 3.7  | 14.0 | 3.9  | 14.8 | 4.0  | 15.1 |
| OX-025 | .025 | .64  | 5.3  | 20.1 | 5.6  | 21.2 | 6.0  | 22.7 | 6.3  | 23.8 | 6.5  | 24.6 |
| OX-029 | .029 | .74  | 6.6  | 25.0 | 7.1  | 26.9 | 7.6  | 28.8 | 8.0  | 30.3 | 8.4  | 31.8 |
| OX-033 | .033 | .84  | 8.2  | 31.0 | 8.8  | 33.3 | 9.4  | 35.6 | 9.9  | 37.5 | 10.4 | 39.4 |
| OX-038 | .038 | .92  | 10.4 | 39.4 | 11.3 | 42.8 | 12.0 | 45.4 | 12.7 | 48.1 | 13.4 | 50.7 |
| OX-042 | .042 | 1.01 | 12.4 | 46.9 | 13.4 | 50.7 | 14.4 | 54.5 | 15.3 | 57.9 | 16.1 | 60.9 |
| OX-046 | .046 | 1.11 | 14.6 | 55.3 | 15.9 | 60.2 | 17.0 | 64.4 | 18.1 | 68.5 | 19.1 | 72.3 |

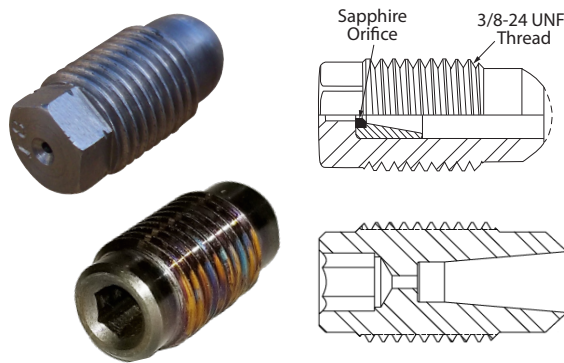


**WARNING:** Flow rates greater than 7.5 gpm (28.4 lpm) are not recommended for use in hand gun cleaning operations with an Orbi-Jet X22 due to excessive thrust.



## ORBI-JET X22 NOZZLES

### UHPX/UHPXi/UHPXD SERIES NOZZLES



- Premium high productivity sapphire (UHPX and UHPXi) and synthetic diamond (UHPXD) nozzles for use in the Orbi-Jet X22.
- Tapered orifice retainer reduces turbulence and provides a cohesive, aggressive waterjet.
- Select nozzles from the charts below by choosing operating pressure, desired flow, and two or four nozzle operation.
- UHPX and UHPXD have 5/16" external hex, UHPXi have 5/32" internal hex

#### FOUR UHPX/UHPXi/UHPXD NOZZLES

| UHPX<br>PART NO. | UHPXi<br>PART NO. | UHPXD<br>PART NO. | ORIFICE<br>DIAMETER |      | 12,500 PSI<br>(862 BAR) |      | 15,000 PSI<br>(1,034 BAR) |      | 17,500 PSI<br>(1,207 BAR) |      | 20,000 PSI<br>(1,379 BAR) |      | 22,500 PSI<br>(1,551 BAR) |      |
|------------------|-------------------|-------------------|---------------------|------|-------------------------|------|---------------------------|------|---------------------------|------|---------------------------|------|---------------------------|------|
|                  |                   |                   | in                  | mm   | gpm                     | lpm  | gpm                       | lpm  | gpm                       | lpm  | gpm                       | lpm  | gpm                       | lpm  |
| UHPX-018         | UHPXi-018         | UHPXD-018         | .018                | 0.46 | 4.2                     | 15.9 | 4.5                       | 17.0 | 4.8                       | 18.2 | 5.0                       | 18.9 | 5.2                       | 19.7 |
| UHPX-019         | UHPXi-019         | UHPXD-019         | .019                | 0.48 | 4.6                     | 17.4 | 4.9                       | 18.5 | 5.2                       | 19.7 | 5.4                       | 20.4 | 5.6                       | 21.2 |
| UHPX-020         | UHPXi-020         | UHPXD-020         | .020                | 0.51 | 4.9                     | 18.5 | 5.3                       | 20.1 | 5.6                       | 21.2 | 5.8                       | 22.0 | 6.1                       | 23.1 |
| UHPX-021         | UHPXi-021         | UHPXD-021         | .021                | 0.53 | 5.3                     | 20.1 | 5.7                       | 21.6 | 6.0                       | 22.7 | 6.3                       | 23.8 | 6.6                       | 25.0 |
| UHPX-022         | UHPXi-022         | UHPXD-022         | .022                | 0.56 | 5.7                     | 21.6 | 6.1                       | 23.1 | 6.5                       | 24.6 | 6.8                       | 25.7 | 7.1                       | 26.9 |
| UHPX-023         | UHPXi-023         | UHPXD-023         | .023                | 0.58 | 6.1                     | 23.1 | 6.5                       | 24.6 | 6.9                       | 26.1 | 7.3                       | 27.6 | 7.6                       | 28.8 |
| UHPX-024         | UHPXi-024         | UHPXD-024         | .024                | 0.61 | 6.5                     | 24.6 | 7.0                       | 26.5 | 7.4                       | 28.0 | 7.8                       | 29.5 | 8.2                       | 31.0 |
| UHPX-025         | UHPXi-025         | UHPXD-025         | .025                | 0.64 | 6.9                     | 26.1 | 7.5                       | 28.4 | 7.9                       | 29.9 | 8.4                       | 31.8 | 8.8                       | 33.3 |
| UHPX-026         | UHPXi-026         | UHPXD-026         | .026                | 0.66 | 7.4                     | 28.0 | 8.0                       | 30.3 | 8.5                       | 32.2 | 9.0                       | 34.1 | 9.4                       | 35.6 |
| UHPX-027         | UHPXi-027         | UHPXD-027         | .027                | 0.69 | 7.9                     | 29.9 | 8.5                       | 32.2 | 9.0                       | 34.1 | 9.6                       | 36.3 | 10.0                      | 37.9 |
| UHPX-028         | UHPXi-028         | UHPXD-028         | .028                | 0.71 | 8.4                     | 31.8 | 9.0                       | 34.1 | 9.6                       | 36.3 | 10.2                      | 38.6 | 10.7                      | 40.5 |
| UHPX-029         | UHPXi-029         | UHPXD-029         | .029                | 0.74 | 8.9                     | 33.7 | 9.6                       | 36.3 | 10.2                      | 38.6 | 10.8                      | 40.9 | 11.4                      | 43.2 |
| UHPX-030         | UHPXi-030         | UHPXD-030         | .030                | 0.76 | 9.4                     | 35.6 | 10.2                      | 38.6 | 10.9                      | 41.3 | 11.5                      | 43.5 | 12.1                      | 45.8 |
| UHPX-031         | UHPXi-031         | UHPXD-031         | .031                | 0.79 | 9.9                     | 37.5 | 10.8                      | 40.9 | 11.5                      | 43.5 | 12.2                      | 46.2 | 12.8                      | 48.5 |
| UHPX-032         | UHPXi-032         | UHPXD-032         | .032                | 0.81 | 10.5                    | 39.7 | 11.4                      | 43.2 | 12.2                      | 46.2 | 12.9                      | 48.8 | 13.6                      | 51.5 |
| UHPX-033         | UHPXi-033         | UHPXD-033         | .033                | 0.84 | 11.1                    | 42.0 | 12.0                      | 45.4 | 12.9                      | 48.8 | 13.6                      | 51.5 | 14.4                      | 54.5 |
| UHPX-034         | UHPXi-034         | UHPXD-034         | .034                | 0.86 | 11.7                    | 44.3 | 12.7                      | 48.1 | 13.6                      | 51.5 | 14.4                      | 54.5 | 15.2                      | 57.5 |
| UHPX-035         | UHPXi-035         | UHPXD-035         | .035                | 0.89 | 12.3                    | 46.6 | 13.4                      | 50.7 | 14.3                      | 54.1 | 15.2                      | 57.5 | 16.0                      | 60.6 |
| UHPX-036         | UHPXi-036         | UHPXD-036         | .036                | 0.91 | 12.9                    | 48.8 | 14.0                      | 53.0 | 15.0                      | 56.8 | 16.0                      | 60.6 | 16.8                      | 63.6 |
| UHPX-037         | UHPXi-037         | UHPXD-037         | .037                | 0.94 | 13.6                    | 51.5 | 14.8                      | 56.0 | 15.8                      | 59.8 | 16.8                      | 63.6 | 17.7                      | 67.0 |
| UHPX-038         | UHPXi-038         | UHPXD-038         | .038                | 0.97 | 14.3                    | 54.1 | 15.5                      | 58.7 | 16.6                      | 62.8 | 17.6                      | 66.6 | 18.6                      | 70.4 |
| UHPX-039         | UHPXi-039         | UHPXD-039         | .039                | 0.99 | 15.0                    | 56.8 | 16.3                      | 61.7 | 17.4                      | 65.9 | 18.5                      | 70.0 | 19.5                      | 73.8 |
| UHPX-040         | UHPXi-040         | UHPXD-040         | .040                | 1.02 | 15.7                    | 59.4 | 17.0                      | 64.4 | 18.3                      | 69.3 | 19.4                      | 73.4 | 20.5                      | 77.6 |
| UHPX-042         | UHPXi-042         | UHPXD-042         | .042                | 1.07 | 17.1                    | 64.7 | 18.6                      | 70.4 | 20.0                      | 75.7 | 21.3                      | 80.6 | 22.5                      | 85.2 |

\*Orifice size (or equivalent for fan types) is denoted in the part number (-018, etc.).

Flow charts on this page are applicable only to the Orbi-Jet™ X22 tool which uses a portion of the water to provide a bearing for nozzle rotation. Lower flow rates available and are listed in the Product Instructions.



**WARNING:** Flow rates greater than 7.5 gpm (28.4 lpm) are not recommended for use in hand gun cleaning operations with an Orbi-Jet X22 due to excessive thrust.

## ORBI-JET X22 NOZZLES

### TWO UHPX/UHPXI/UHPXD NOZZLES

| UHPX<br>PART NO. | UHPXI<br>PART NO. | UHPXD<br>PART NO. | ORIFICE<br>DIAMETER |      | 12,500 PSI<br>(862 BAR) |      | 15,000 PSI<br>(1,034 BAR) |      | 17,500 PSI<br>(1,207 BAR) |      | 20,000 PSI<br>(1,379 BAR) |      | 22,500 PSI<br>(1,551 BAR) |      |
|------------------|-------------------|-------------------|---------------------|------|-------------------------|------|---------------------------|------|---------------------------|------|---------------------------|------|---------------------------|------|
|                  |                   |                   | in                  | mm   | gpm                     | lpm  | gpm                       | lpm  | gpm                       | lpm  | gpm                       | lpm  | gpm                       | lpm  |
| UHPX-025         | UHPXI-025         | UHPXD-025         | .025                | 0.64 | 4.1                     | 15.5 | 4.4                       | 16.7 | 4.6                       | 17.4 | 4.8                       | 18.2 | 5.0                       | 18.9 |
| UHPX-026         | UHPXI-026         | UHPXD-026         | .026                | 0.66 | 4.4                     | 16.7 | 4.7                       | 17.8 | 4.9                       | 18.5 | 5.1                       | 19.3 | 5.3                       | 20.1 |
| UHPX-027         | UHPXI-027         | UHPXD-027         | .027                | 0.69 | 4.6                     | 17.4 | 4.9                       | 18.5 | 5.2                       | 19.7 | 5.4                       | 20.4 | 5.7                       | 21.6 |
| UHPX-028         | UHPXI-028         | UHPXD-028         | .028                | 0.71 | 4.9                     | 18.5 | 5.2                       | 19.7 | 5.5                       | 20.8 | 5.7                       | 21.6 | 6.0                       | 22.7 |
| UHPX-029         | UHPXI-029         | UHPXD-029         | .029                | 0.74 | 5.1                     | 19.3 | 5.5                       | 20.8 | 5.8                       | 22.0 | 6.1                       | 23.1 | 6.3                       | 23.8 |
| UHPX-030         | UHPXI-030         | UHPXD-030         | .030                | 0.76 | 5.4                     | 20.4 | 5.8                       | 22.0 | 6.1                       | 23.1 | 6.4                       | 24.2 | 6.7                       | 25.4 |
| UHPX-031         | UHPXI-031         | UHPXD-031         | .031                | 0.79 | 5.6                     | 21.2 | 6.1                       | 23.1 | 6.4                       | 24.2 | 6.7                       | 25.4 | 7.1                       | 26.9 |
| UHPX-032         | UHPXI-032         | UHPXD-032         | .032                | 0.81 | 5.9                     | 22.3 | 6.4                       | 24.2 | 6.7                       | 25.4 | 7.1                       | 26.9 | 7.4                       | 28.0 |
| UHPX-033         | UHPXI-033         | UHPXD-033         | .033                | 0.84 | 6.2                     | 23.5 | 6.7                       | 25.4 | 7.1                       | 26.9 | 7.5                       | 28.4 | 7.8                       | 29.5 |
| UHPX-034         | UHPXI-034         | UHPXD-034         | .034                | 0.86 | 6.5                     | 24.6 | 7.0                       | 26.5 | 7.4                       | 28.0 | 7.8                       | 29.5 | 8.2                       | 31.0 |
| UHPX-035         | UHPXI-035         | UHPXD-035         | .035                | 0.89 | 6.8                     | 25.7 | 7.4                       | 28.0 | 7.8                       | 29.5 | 8.2                       | 31.0 | 8.6                       | 32.6 |
| UHPX-036         | UHPXI-036         | UHPXD-036         | .036                | 0.91 | 7.1                     | 26.9 | 7.7                       | 29.1 | 8.2                       | 31.0 | 8.6                       | 32.6 | 9.1                       | 34.4 |
| UHPX-037         | UHPXI-037         | UHPXD-037         | .037                | 0.94 | 7.5                     | 28.4 | 8.1                       | 30.7 | 8.6                       | 32.6 | 9.1                       | 34.4 | 9.5                       | 36.0 |
| UHPX-038         | UHPXI-038         | UHPXD-038         | .038                | 0.97 | 7.8                     | 29.5 | 8.4                       | 31.8 | 9.0                       | 34.1 | 9.5                       | 36.0 | 10.0                      | 37.9 |
| UHPX-039         | UHPXI-039         | UHPXD-039         | .039                | 0.99 | 8.2                     | 31.0 | 8.8                       | 33.3 | 9.4                       | 35.6 | 9.9                       | 37.5 | 10.4                      | 39.4 |
| UHPX-040         | UHPXI-040         | UHPXD-040         | .040                | 1.02 | 8.5                     | 32.2 | 9.2                       | 34.8 | 9.8                       | 37.1 | 10.4                      | 39.4 | 10.9                      | 41.3 |
| UHPX-042         | UHPXI-042         | UHPXD-042         | .042                | 1.07 | 9.2                     | 34.8 | 10.0                      | 37.9 | 10.7                      | 40.5 | 11.3                      | 42.8 | 11.9                      | 45.0 |
| UHPX-046         | UHPXI-046         | UHPXD-046         | .046                | 1.17 | 10.8                    | 40.9 | 11.7                      | 44.3 | 12.5                      | 47.3 | 13.3                      | 50.3 | 14.0                      | 53.0 |

\*Orifice size (or equivalent for fan types) is denoted in the part number (-018, etc.).

Flow charts on this page are applicable only to the Orbi-Jet™ X22 tool which uses a portion of the water to provide a bearing for nozzle rotation. Lower flow rates available and are listed in the Product Instructions.



**WARNING:** Flow rates greater than 7.5 gpm (28.4 lpm) are not recommended for use in hand gun cleaning operations with an Orbi-Jet X22 due to excessive thrust.



These resources contain additional technical information about the Orbi-Jet™ X22.

Click or scan the QR code.



Quick Start Guide  
QSG-077



Product Instruction  
PI-077



Jetting Calculator



# 2" J-FORCE™

## PIPE CLEANING TOOL

The Jetstream 2-inch J-Force™ tool is a self-powered rotating tool designed to easily navigate and clean pipes with two-inch bends. The 2-inch J-Force™ tool has front, side, and rear jets that clear blockages, clean, and provide thrust to propel the tool down the pipe for maximum cleaning power and minimum wear. Water provides the rotational motion and creates the bearing on which the nozzles spin. No oil or ball bearings to replace!

- ▶ Equipped with three forward-facing ports at 15°/30°/45°, two radial ports at 90°, and two rearward-facing ports at 132°.
- ▶ Seven non-replaceable nozzles are factory installed and must be purchased separately at the time of order.
- ▶ The tool is not designed to be repairable in the field.



2" J-FORCE™ TOOL  
(JF2X22)

| PART NO. | INLET CONNECTION* | SPEED RANGE | DIAMETER |    | ASSEMBLY LENGTH |    | ASSEMBLY WEIGHT |     | MAX. FLOW RATE |     | MAX.OPERATING PRESSURE |      |
|----------|-------------------|-------------|----------|----|-----------------|----|-----------------|-----|----------------|-----|------------------------|------|
|          |                   | RPM         | in       | mm | in              | mm | lbs             | kg  | gpm            | lpm | psi                    | bar  |
| JF2X22   |                   |             |          |    |                 |    |                 |     |                |     |                        |      |
| 65272    | 3/8" MP LH        | 1000-2000   | 1.36     | 35 | 2.02            | 51 | .5              | 1.1 | 20             | 75  | 22,000                 | 1516 |
| 65273    | 3/8" MP RH        | 1000-2000   | 1.36     | 35 | 2.02            | 51 | .5              | 1.1 | 20             | 75  | 22,000                 | 1516 |
| 65274    | 9/16" MP LH       | 1000-2000   | 1.36     | 35 | 2.02            | 51 | .5              | 1.1 | 20             | 75  | 22,000                 | 1516 |
| 65275    | 9/16" MP RH       | 1000-2000   | 1.36     | 35 | 2.02            | 51 | .5              | 1.1 | 20             | 75  | 22,000                 | 1516 |

\*See details on all connection types in Section I.



These resources contain additional technical information about the 2" J-Force™.

Click or scan the QR code.



Quick Start Guide  
QSG-176

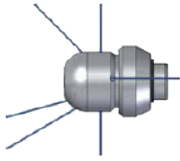


Product Instruction  
PI-176



Jetting Calculator

## 2" J-FORCE™ NOZZLES



- Tool is equipped with seven nozzles: three forward-facing ports at 15°/30°/45°, two radial ports at 90°, and two rearward-facing ports at 132°.
- Non-replaceable nozzles are factory installed and must be purchased separately at the time of order.

| UNIVERSAL CONFIGURATION* |               |                      |        |          |               |                      |        |          |               |                      |        |          |
|--------------------------|---------------|----------------------|--------|----------|---------------|----------------------|--------|----------|---------------|----------------------|--------|----------|
| FLOW<br>(GPM)            | 10000 PSI     |                      |        |          | 12500 PSI     |                      |        |          | 15000 PSI     |                      |        |          |
|                          | PULL<br>(LBF) | NOZZLE DIAMETER (IN) |        |          | PULL<br>(LBF) | NOZZLE DIAMETER (IN) |        |          | PULL<br>(LBF) | NOZZLE DIAMETER (IN) |        |          |
|                          |               | FWD x 3              | 90 X 2 | REAR x 2 |               | FWD x 3              | 90 X 2 | REAR x 2 |               | FWD x 3              | 90 X 2 | REAR x 2 |
| 7                        |               |                      |        |          |               |                      |        |          |               |                      |        |          |
| 8                        |               |                      |        |          |               |                      |        |          |               |                      |        |          |
| 9                        | -6            | 0.016                | 0.016  | 0.029    |               |                      |        |          |               |                      |        |          |
| 10                       | -6            | 0.016                | 0.020  | 0.029    | -5            | 0.020                | 0.024  | 0.039    |               |                      |        |          |
| 11                       | -7            | 0.018                | 0.018  | 0.032    | -8            | 0.018                | 0.032  | 0.039    |               |                      |        |          |
| 12                       | -7            | 0.018                | 0.024  | 0.032    | -8            | 0.022                | 0.029  | 0.042    | -6            | 0.016                | 0.016  | 0.026    |
| 13                       | -8            | 0.020                | 0.02   | 0.035    | -9            | 0.018                | 0.018  | 0.032    | -6            | 0.016                | 0.022  | 0.026    |
| 14                       | -8            | 0.020                | 0.024  | 0.035    | -9            | 0.018                | 0.024  | 0.032    | -6            | 0.018                | 0.020  | 0.029    |
| 15                       | -8            | 0.020                | 0.029  | 0.035    | -9            | 0.018                | 0.026  | 0.032    | -7            | 0.018                | 0.024  | 0.029    |
| 16                       | -8            | 0.020                | 0.032  | 0.035    | -7            | 0.022                | 0.022  | 0.035    | -7            | 0.02                 | 0.020  | 0.032    |
| 17                       | -7            | 0.024                | 0.026  | 0.039    | -7            | 0.022                | 0.024  | 0.035    | -7            | 0.02                 | 0.024  | 0.032    |
| 18                       | -7            | 0.024                | 0.029  | 0.039    | -7            | 0.022                | 0.029  | 0.035    | -7            | 0.02                 | 0.026  | 0.032    |
| 19                       | -7            | 0.024                | 0.032  | 0.039    | -7            | 0.022                | 0.032  | 0.035    | -8            | 0.022                | 0.024  | 0.035    |
| 20                       | -7            | 0.026                | 0.029  | 0.042    |               |                      |        |          | -8            | 0.022                | 0.026  | 0.035    |
| FLOW<br>(GPM)            | 17500 PSI     |                      |        |          | 20000 PSI     |                      |        |          | 22000 PSI     |                      |        |          |
|                          | PULL<br>(LBF) | NOZZLE DIAMETER (IN) |        |          | PULL<br>(LBF) | NOZZLE DIAMETER (IN) |        |          | PULL<br>(LBF) | NOZZLE DIAMETER (IN) |        |          |
|                          |               | FWD x 3              | 90 X 2 | REAR x 2 |               | FWD x 3              | 90 X 2 | REAR x 2 |               | FWD x 3              | 90 X 2 | REAR x 2 |
| 7                        |               |                      |        |          |               |                      |        |          |               |                      |        |          |
| 8                        |               |                      |        |          |               |                      |        |          |               |                      |        |          |
| 9                        |               |                      |        |          |               |                      |        |          |               |                      |        |          |
| 10                       |               |                      |        |          |               |                      |        |          |               |                      |        |          |
| 11                       |               |                      |        |          |               |                      |        |          |               |                      |        |          |
| 12                       |               |                      |        |          |               |                      |        |          |               |                      |        |          |
| 13                       | -7            | 0.016                | 0.016  | 0.026    |               |                      |        |          |               |                      |        |          |
| 14                       | -7            | 0.016                | 0.02   | 0.026    |               |                      |        |          |               |                      |        |          |
| 15                       | -7            | 0.018                | 0.018  | 0.029    | -8            | 0.016                | 0.018  | 0.026    |               |                      |        |          |
| 16                       | -7            | 0.018                | 0.022  | 0.029    | -8            | 0.016                | 0.022  | 0.026    | -9            | 0.016                | 0.018  | 0.026    |
| 17                       | -7            | 0.018                | 0.024  | 0.029    | -8            | 0.018                | 0.020  | 0.029    | -9            | 0.016                | 0.022  | 0.026    |
| 18                       | -8            | 0.02                 | 0.022  | 0.032    | -8            | 0.018                | 0.024  | 0.029    | -9            | 0.018                | 0.020  | 0.029    |
| 19                       | -8            | 0.02                 | 0.024  | 0.032    | -8            | 0.018                | 0.026  | 0.029    | -9            | 0.018                | 0.022  | 0.029    |
| 20                       | -8            | 0.02                 | 0.026  | 0.032    |               |                      |        |          | -9            | 0.018                | 0.026  | 0.029    |

\* Jetstream does not recommend operating the 2" J-Force tool at pressure/configuration combinations indicated in dark gray.

# 3" J-FORCE™

## PIPE CLEANING TOOL

The Jetstream J-Force™ 3" tool is a self-powered rotating tool designed to easily navigate and clean pipes with three-inch bends. The 3-inch J-Force tool has front, side, and rear jets that clear blockages, clean, and provide thrust to propel the tool down the pipe for maximum cleaning power and minimum wear. Water provides the rotational motion and creates the bearing on which the nozzles spin. No oil or ball bearings to replace!

- ▶ Equipped with two forward-facing ports at 10°, 2 two radial ports at 45° and two at 100°, and two rearward-facing ports at 135° that accept Jetstream **P1** and **P1SO** type nozzles.
- ▶ Designed with an eddy-current braking system which controls rotation speed for maximum cleaning power and minimum wear.
- ▶ Completely field repairable in less than 5 minutes!
- ▶ **Premium Kits** and **Starter Kits** are available for full product tools (see table below). Premium kits include a rebuild kit with a replacement mandrel, O-rings, bushings, a thrust bearing, and sealant required to completely rebuild the tool quickly and easily.



**3" J-FORCE™ TOOL**  
(JF3X22)

| PART NO. | INLET CONNECTION* | SPEED RANGE | DIAMETER |    | ASSEMBLY LENGTH |    | ASSEMBLY WEIGHT |      | MAX. FLOW RATE |     | MAX. OPERATING PRESSURE |      |
|----------|-------------------|-------------|----------|----|-----------------|----|-----------------|------|----------------|-----|-------------------------|------|
|          |                   | RPM         | in       | mm | in              | mm | lbs             | kg   | gpm            | lpm | psi                     | bar  |
| JF3X22   |                   |             |          |    |                 |    |                 |      |                |     |                         |      |
| 67860    | 9/16" Type M Male | 1000-2000   | 1.98     | 50 | 2.87            | 73 | 1.45            | 0.66 | 30             | 114 | 22,000                  | 1516 |
| 67861    | 3/8" MP Tube LH   | 1000-2000   | 1.98     | 50 | 2.87            | 73 | 1.45            | 0.66 | 30             | 114 | 22,000                  | 1516 |
| 67862    | 3/8" MP Tube RH   | 1000-2000   | 1.98     | 50 | 2.87            | 73 | 1.45            | 0.66 | 30             | 114 | 22,000                  | 1516 |
| 67863    | 9/16" MP Tube LH  | 1000-2000   | 1.98     | 50 | 2.87            | 73 | 1.45            | 0.66 | 30             | 114 | 22,000                  | 1516 |
| 67864    | 9/16" MP Tube RH  | 1000-2000   | 1.98     | 50 | 2.87            | 73 | 1.45            | 0.66 | 30             | 114 | 22,000                  | 1516 |

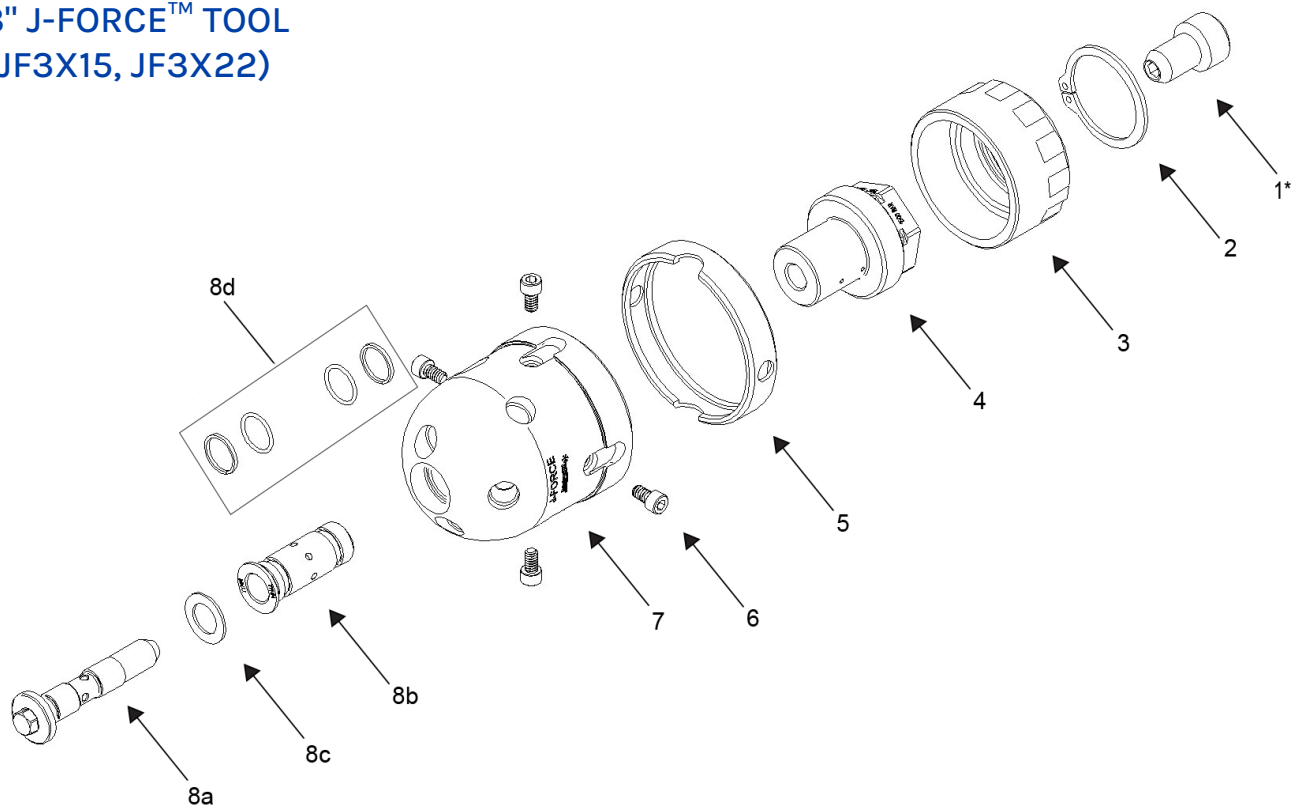
\*See details on all connection types in Section I.



## TOOL KITS

| PART NO. | KIT TYPE | INLET CONNECTION  |
|----------|----------|-------------------|
| 67873    | Starter  | 9/16" Type M Male |
| 67874    | Premium  | 9/16" Type M Male |
| 67875    | Starter  | 3/8" MP Tube LH   |
| 67876    | Premium  | 3/8" MP Tube LH   |
| 67877    | Starter  | 3/8" MP Tube RH   |
| 67878    | Premium  | 3/8" MP Tube RH   |
| 67879    | Starter  | 9/16" MP Tube LH  |
| 67880    | Premium  | 9/16" MP Tube LH  |
| 67881    | Starter  | 9/16" MP Tube RH  |
| 67882    | Premium  | 9/16" MP Tube RH  |

## 3" J-FORCE™ TOOL (JF3X15, JF3X22)



## PART BREAKDOWN

| ITEM | PART NO. | DESCRIPTION                     | ITEM | PART NO. | DESCRIPTION            |
|------|----------|---------------------------------|------|----------|------------------------|
| 1    | 67101    | Connector, Mandrel (67860 only) | 5    | 67094    | Wear Ring              |
| 2    | 67823    | Retaining Ring                  | 6    | 67822    | Wear Ring Screws       |
| 3    | 67093    | Brake Adjuster                  | 7    | 68130    | Head Assy              |
| 4    | 67103    | Inlet Nut, 1/4" NPT (67859)     | 8    | 67870    | Rebuild Kit            |
|      | 67102    | Inlet Nut, 9/16" Type M (67860) | 8a   | 67088    | Mandrel                |
|      | 67100    | Inlet Nut, 3/8" MP LH (67861)   | 8b   | 67090    | Flange Bushing         |
|      | 67491    | Inlet Nut, 3/8" MP RH (67862)   | 8c   | 67089    | Thrust Bearing         |
|      | 67095    | Inlet Nut, 9/16" MP LH (67863)  | 8d   | 67869    | O-Ring Maintenance Kit |
|      | 67821    | Inlet Nut, 9/16" MP RH (67864)  |      |          |                        |

## 3" J-FORCE™ NOZZLES

### P1 / P1SO NOZZLES



P1

P1SO



- ▶ Low profile design for unobstructed pipe cleaning
- ▶ Stainless steel (P1) and sapphire (P1SO) orifices
- ▶ Tapered geometry provides highly cohesive, distortion-free waterjets for concentrated, work saving cleaning and cutting power
- ▶ Straight (0°) patterns
- ▶ 1/16" NPT Male connection
- ▶ 22,000 psi (1516 bar) maximum working pressure

#### UNIVERSAL CONFIGURATION\*

| FLOW<br>(GPM) | 10000 PSI     |                             |       |             |       | 12500 PSI     |                             |       |             |       | 15000 PSI     |                             |       |             |       |
|---------------|---------------|-----------------------------|-------|-------------|-------|---------------|-----------------------------|-------|-------------|-------|---------------|-----------------------------|-------|-------------|-------|
|               | PULL<br>(LBF) | NOZZLE DIAMETER (IN)**      |       |             |       | PULL<br>(LBF) | NOZZLE DIAMETER (IN)**      |       |             |       | PULL<br>(LBF) | NOZZLE DIAMETER (IN)**      |       |             |       |
|               |               | FRONT, FWD x 2,<br>SIDE x 2 |       | REAR<br>x 2 |       |               | FRONT, FWD x 2,<br>SIDE x 2 |       | REAR<br>x 2 |       |               | FRONT, FWD x 2,<br>SIDE x 2 |       | REAR<br>x 2 |       |
| 12            |               |                             |       |             |       | -13           | 0.018                       | 0.018 | 0.018       | 0.046 | -10           | 0.018                       | 0.018 | 0.018       | 0.038 |
| 13            | -13           | 0.018                       | 0.026 | 0.018       | 0.062 | -14           | 0.018                       | 0.018 | 0.026       | 0.046 | -15           | 0.018                       | 0.018 | 0.018       | 0.042 |
| 14            | -17           | 0.018                       | 0.018 | 0.018       | 0.067 | -18           | 0.018                       | 0.018 | 0.018       | 0.052 | -15           | 0.018                       | 0.018 | 0.024       | 0.042 |
| 15            | -19           | 0.018                       | 0.018 | 0.018       | 0.070 | -21           | 0.018                       | 0.018 | 0.018       | 0.055 | -19           | 0.018                       | 0.018 | 0.018       | 0.046 |
| 16            | -21           | 0.018                       | 0.018 | 0.018       | 0.073 | -22           | 0.018                       | 0.018 | 0.026       | 0.055 | -21           | 0.018                       | 0.018 | 0.026       | 0.046 |
| 17            | -21           | 0.018                       | 0.018 | 0.026       | 0.073 | -22           | 0.018                       | 0.018 | 0.029       | 0.055 | -27           | 0.018                       | 0.018 | 0.018       | 0.052 |
| 18            | -25           | 0.018                       | 0.018 | 0.018       | 0.078 | -29           | 0.018                       | 0.018 | 0.018       | 0.062 | -32           | 0.018                       | 0.018 | 0.018       | 0.055 |
| 19            | -25           | 0.018                       | 0.018 | 0.029       | 0.078 | -29           | 0.018                       | 0.018 | 0.026       | 0.062 | -29           | 0.018                       | 0.018 | 0.029       | 0.052 |
| 20            | -24           | 0.020                       | 0.022 | 0.029       | 0.078 | -35           | 0.018                       | 0.018 | 0.018       | 0.067 | -33           | 0.018                       | 0.018 | 0.026       | 0.055 |
| 21            | -26           | 0.018                       | 0.018 | 0.038       | 0.078 | -35           | 0.018                       | 0.018 | 0.026       | 0.067 | -34           | 0.018                       | 0.018 | 0.029       | 0.055 |
| 22            | -26           | 0.018                       | 0.018 | 0.042       | 0.078 | -38           | 0.018                       | 0.018 | 0.018       | 0.070 | -43           | 0.018                       | 0.018 | 0.018       | 0.062 |
| 23            | -27           | 0.018                       | 0.018 | 0.046       | 0.078 | -42           | 0.018                       | 0.018 | 0.018       | 0.073 | -44           | 0.018                       | 0.018 | 0.026       | 0.062 |
| 24            | -27           | 0.018                       | 0.018 | 0.052       | 0.078 | -43           | 0.018                       | 0.018 | 0.026       | 0.073 | -45           | 0.018                       | 0.018 | 0.029       | 0.062 |
| 25            | -28           | 0.018                       | 0.018 | 0.055       | 0.078 | -43           | 0.018                       | 0.018 | 0.029       | 0.073 | -41           | 0.020                       | 0.022 | 0.029       | 0.062 |
| 26            | -26           | 0.018                       | 0.018 | 0.067       | 0.073 | -49           | 0.018                       | 0.018 | 0.018       | 0.078 | -47           | 0.018                       | 0.026 | 0.018       | 0.067 |
| 27            | -29           | 0.018                       | 0.018 | 0.062       | 0.078 | -50           | 0.018                       | 0.018 | 0.026       | 0.078 | -48           | 0.018                       | 0.026 | 0.026       | 0.067 |
| 28            | -29           | 0.018                       | 0.018 | 0.067       | 0.078 | -47           | 0.018                       | 0.026 | 0.026       | 0.078 | -49           | 0.018                       | 0.026 | 0.029       | 0.067 |
| 29            | -30           | 0.018                       | 0.018 | 0.070       | 0.078 | -48           | 0.018                       | 0.024 | 0.032       | 0.078 | -49           | 0.018                       | 0.018 | 0.046       | 0.062 |
| 30            | -27           | 0.018                       | 0.029 | 0.067       | 0.078 | -43           | 0.026                       | 0.026 | 0.029       | 0.078 | -48           | 0.026                       | 0.024 | 0.024       | 0.070 |

\* Jetstream does not recommend operating the 3" J-Force tool at pressure/configuration combinations indicated in dark gray.

\*\* Nozzle part numbers are P1-XXX and P1SO-XXX, where -XXX is the orifice size.

## 3" J-FORCE™ NOZZLES

| UNIVERSAL CONFIGURATION* |               |                             |       |             |       |               |                             |       |             |       |               |                             |       |             |       |
|--------------------------|---------------|-----------------------------|-------|-------------|-------|---------------|-----------------------------|-------|-------------|-------|---------------|-----------------------------|-------|-------------|-------|
| FLOW<br>(GPM)            | 17500 PSI     |                             |       |             |       | 20000 PSI     |                             |       |             |       | 22500 PSI     |                             |       |             |       |
|                          | PULL<br>(LBF) | NOZZLE DIAMETER (IN)**      |       |             |       | PULL<br>(LBF) | NOZZLE DIAMETER (IN)**      |       |             |       | PULL<br>(LBF) | NOZZLE DIAMETER (IN)**      |       |             |       |
|                          |               | FRONT, FWD x 2,<br>SIDE x 2 |       | REAR<br>x 2 |       |               | FRONT, FWD x 2, SIDE<br>x 2 |       | REAR<br>x 2 |       |               | FRONT, FWD x 2,<br>SIDE x 2 |       | REAR<br>x 2 |       |
| 15                       | -11           | 0.018                       | 0.018 | 0.020       | 0.032 | -12           | 0.018                       | 0.018 | 0.018       | 0.032 |               |                             |       |             |       |
| 16                       | -17           | 0.018                       | 0.018 | 0.018       | 0.035 | -13           | 0.018                       | 0.018 | 0.020       | 0.032 |               |                             |       |             |       |
| 17                       | -24           | 0.018                       | 0.018 | 0.018       | 0.038 | -11           | 0.018                       | 0.020 | 0.022       | 0.032 |               |                             |       |             |       |
| 18                       | -16           | 0.018                       | 0.020 | 0.024       | 0.035 | -27           | 0.018                       | 0.018 | 0.018       | 0.038 | -11           | 0.018                       | 0.018 | 0.029       | 0.029 |
| 19                       | -34           | 0.018                       | 0.018 | 0.018       | 0.042 | -19           | 0.018                       | 0.020 | 0.024       | 0.035 | -30           | 0.018                       | 0.018 | 0.018       | 0.038 |
| 20                       | -20           | 0.020                       | 0.020 | 0.024       | 0.038 | -29           | 0.018                       | 0.018 | 0.024       | 0.038 | -25           | 0.018                       | 0.018 | 0.026       | 0.035 |
| 21                       | -36           | 0.018                       | 0.018 | 0.024       | 0.042 | -39           | 0.018                       | 0.018 | 0.018       | 0.042 | -20           | 0.018                       | 0.018 | 0.032       | 0.032 |
| 22                       | -45           | 0.018                       | 0.018 | 0.018       | 0.046 | -32           | 0.018                       | 0.018 | 0.029       | 0.038 | -26           | 0.018                       | 0.022 | 0.024       | 0.038 |
| 23                       | -38           | 0.018                       | 0.018 | 0.029       | 0.042 | -42           | 0.018                       | 0.018 | 0.026       | 0.042 | -35           | 0.018                       | 0.018 | 0.029       | 0.038 |
| 24                       | -48           | 0.018                       | 0.018 | 0.026       | 0.046 | -44           | 0.018                       | 0.018 | 0.029       | 0.042 | -28           | 0.020                       | 0.020 | 0.029       | 0.038 |
| 25                       | -49           | 0.018                       | 0.018 | 0.029       | 0.046 | -24           | 0.018                       | 0.024 | 0.032       | 0.038 | -14           | 0.020                       | 0.024 | 0.032       | 0.035 |
| 26                       | -28           | 0.020                       | 0.024 | 0.032       | 0.042 | -42           | 0.018                       | 0.020 | 0.032       | 0.042 | -23           | 0.024                       | 0.018 | 0.032       | 0.038 |
| 27                       | -43           | 0.018                       | 0.018 | 0.038       | 0.042 | -21           | 0.018                       | 0.018 | 0.046       | 0.029 | -41           | 0.018                       | 0.018 | 0.038       | 0.038 |
| 28                       | -28           | 0.018                       | 0.020 | 0.046       | 0.035 | -49           | 0.018                       | 0.018 | 0.038       | 0.042 | -23           | 0.018                       | 0.018 | 0.046       | 0.029 |
| 29                       | -45           | 0.018                       | 0.018 | 0.042       | 0.042 | -20           | 0.022                       | 0.024 | 0.038       | 0.038 | -28           | 0.020                       | 0.020 | 0.042       | 0.035 |
| 30                       | -16           | 0.024                       | 0.024 | 0.042       | 0.038 | -11           | 0.029                       | 0.018 | 0.038       | 0.038 | -44           | 0.018                       | 0.018 | 0.042       | 0.038 |

\* Jetstream does not recommend operating the 3" J-Force tool at pressure/configuration combinations indicated in dark gray.

\*\* Nozzle part numbers are PI-XXX and PISO-XXX, where -XXX is the orifice size.



These resources contain additional technical information about the 3" J-Force™.

Click or scan the QR code.



Quick Start Guide  
QSG-198



Product Instruction  
PI-198



Jetting Calculator

# 4" J-FORCE™ GEN III

## PIPE CLEANING TOOL

The Jetstream J-Force™ 4" Gen III tool is a self-powered rotating tool designed to easily navigate and clean pipes with four-inch bends. The 4-inch J-Force Gen III tool has front, side, and rear jets that clear blockages, clean, and provide thrust to propel the tool down the pipe for maximum cleaning power and minimum wear. Water provides the rotational motion and creates the bearing on which the nozzles spin. No oil or ball bearings to replace!

- ▶ Equipped with two forward-facing ports at 10° and two at 45°, two radial ports at 100°, and two rearward-facing ports at 135° that accept Jetstream **JS2**, **JS2D** and **P2TCS** type nozzles.
- ▶ Designed with an eddy-current braking system which controls rotation speed for maximum cleaning power and minimum wear.
- ▶ Completely field repairable in less than 5 minutes!
- ▶ **Premium Kits** and **Starter Kits** are available for full product tools (see table below). Premium kits include a rebuild kit with a replacement mandrel, O-rings, bushings, a thrust bearing, and sealant required to completely rebuild the tool quickly and easily.



4" J-FORCE™ GEN III TOOL  
(JF4X22)

| PART NO. | INLET CONNECTION* | SPEED RANGE | DIAMETER |    | ASSEMBLY LENGTH |    | ASSEMBLY WEIGHT |      | MAX. FLOW RATE |     | MAX. OPERATING PRESSURE |      |
|----------|-------------------|-------------|----------|----|-----------------|----|-----------------|------|----------------|-----|-------------------------|------|
|          |                   | RPM         | in       | mm | in              | mm | lbs             | kg   | gpm            | lpm | psi                     | bar  |
| JF4X22   |                   |             |          |    |                 |    |                 |      |                |     |                         |      |
| 67030    | 3/4" Type M       | 1000-2000   | 2.75     | 70 | 3.85            | 98 | 3.90            | 1.77 | 40             | 150 | 22,000                  | 1516 |
| 67031    | 9/16" MP LH       | 1000-2000   | 2.75     | 70 | 3.85            | 98 | 3.90            | 1.77 | 40             | 150 | 22,000                  | 1516 |
| 67032    | 9/16" MP RH       | 1000-2000   | 2.75     | 70 | 3.85            | 98 | 3.90            | 1.77 | 40             | 150 | 22,000                  | 1516 |

\*See details on all connection types in Section I.

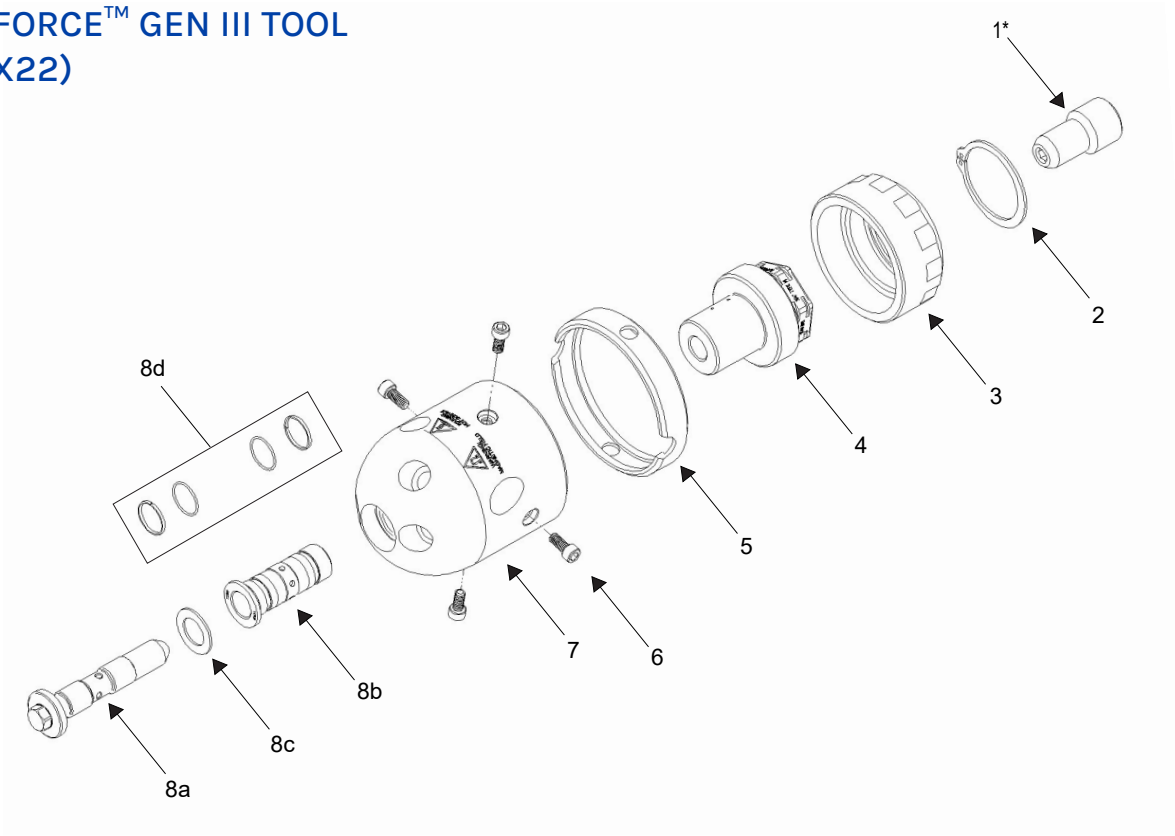


## TOOL KITS

| PART NO. | KIT TYPE | INLET CONNECTION |
|----------|----------|------------------|
| 67629    | Starter  | Type M           |
| 67631    | Starter  | 9/16" MP LH      |
| 67633    | Starter  | 9/16" MP RH      |
| 67630    | Premium  | Type M           |
| 67632    | Premium  | 9/16" MP LH      |
| 67634    | Premium  | 9/16" MP RH      |



# 4" J-FORCE™ GEN III TOOL (JF4X22)



## PART BREAKDOWN

| ITEM | PART NO. | DESCRIPTION                     | ITEM | PART NO. | DESCRIPTION            |
|------|----------|---------------------------------|------|----------|------------------------|
| 1    | 65923    | Connector, Mandrel (67030 only) | 6    | 66220    | Wear Ring Screws       |
| 2    | 64864    | Retaining Ring                  | 7    | 67028    | Head Assy              |
| 3    | 64007    | Brake Adjuster                  | 8    | 66248    | Rebuild Kit            |
| 4    | 65922    | Inlet Nut, 3/4" Type M (67030)  | 8a   | 66336    | Mandrel                |
|      | 65921    | Inlet Nut, 9/16" MP LH (67031)  | 8b   | 52349    | Flange Bushing         |
|      | 65919    | Inlet Nut, 9/16" MP RH (67032)  | 8c   | 64100    | Thrust Bearing         |
| 5    | 64103    | Wear Ring                       | 8d   | 66249    | O-Ring Maintenance Kit |

TOOLS &  
NOZZLES

## 4" J-FORCE™ GEN III NOZZLES

### JS2 / P2TCS NOZZLES



JS2

P2TCS



- ▶ Low profile design for unobstructed pipe cleaning with short inlet
- ▶ Stainless steel (JS2) and carbide (P2TCS) nozzles
- ▶ Tapered geometry provides highly cohesive, distortion-free waterjets for concentrated, work saving cleaning and cutting power
- ▶ Straight (0°) patterns
- ▶ 1/8" NPT Male connection
- ▶ 22,000 psi (1517 bar) maximum working pressure

#### UNIVERSAL CONFIGURATION\*

| FLOW<br>(GPM) | 10000 PSI     |                        |          | 12500 PSI     |                        |          | 15000 PSI     |                        |          |
|---------------|---------------|------------------------|----------|---------------|------------------------|----------|---------------|------------------------|----------|
|               | PULL<br>(LBF) | NOZZLE DIAMETER (IN)** |          | PULL<br>(LBF) | NOZZLE DIAMETER (IN)** |          | PULL<br>(LBF) | NOZZLE DIAMETER (IN)** |          |
|               |               | FWD x 4, SIDE x 2      | REAR x 2 |               | FWD x 4, SIDE x 2      | REAR x 2 |               | FWD x 4, SIDE x 2      | REAR x 2 |
| 21            | -27           | 0.020                  | 0.047    |               |                        |          |               |                        |          |
| 22            |               |                        |          | -38           | 0.018                  | 0.047    |               |                        |          |
| 23            | -40           | 0.018                  | 0.052    |               |                        |          | -27           | 0.020                  | 0.042    |
| 24            | -37           | 0.020                  | 0.052    | -34           | 0.020                  | 0.047    |               |                        |          |
| 25            | -33           | 0.022                  | 0.052    | -29           | 0.022                  | 0.047    | -46           | 0.018                  | 0.047    |
| 26            | -51           | 0.018                  | 0.057    |               |                        |          | -41           | 0.020                  | 0.047    |
| 27            | -48           | 0.020                  | 0.057    | -46           | 0.020                  | 0.052    |               |                        |          |
| 28            | -44           | 0.022                  | 0.057    | -42           | 0.022                  | 0.052    | -35           | 0.022                  | 0.047    |
| 29            |               |                        |          | -64           | 0.018                  | 0.057    | -56           | 0.020                  | 0.052    |
| 30            | -40           | 0.024                  | 0.057    | -60           | 0.020                  | 0.057    |               |                        |          |
| 31            | -36           | 0.026                  | 0.057    |               |                        |          |               |                        |          |
| 32            | -59           | 0.022                  | 0.063    | -31           | 0.026                  | 0.052    |               |                        |          |
| 34            | -29           | 0.029                  | 0.057    |               |                        |          |               |                        |          |
| 35            | -51           | 0.026                  | 0.063    |               |                        |          |               |                        |          |
| FLOW<br>(GPM) | 17500 PSI     |                        |          | 20000 PSI     |                        |          | 22000 PSI     |                        |          |
|               | PULL<br>(LBF) | NOZZLE DIAMETER (IN)** |          | PULL<br>(LBF) | NOZZLE DIAMETER (IN)** |          | PULL<br>(LBF) | NOZZLE DIAMETER (IN)** |          |
|               |               | FWD x 4, SIDE x 2      | REAR x 2 |               | FWD x 4, SIDE x 2      | REAR x 2 |               | FWD x 4, SIDE x 2      | REAR x 2 |
| 23            | -38           | 0.018                  | 0.042    |               |                        |          |               |                        |          |
| 24            |               |                        |          |               |                        |          | -33           | 0.018                  | 0.038    |
| 25            | -32           | 0.020                  | 0.042    | -43           | 0.018                  | 0.042    | -26           | 0.020                  | 0.038    |
| 26            |               |                        |          |               |                        |          | -47           | 0.018                  | 0.042    |
| 27            | -26           | 0.022                  | 0.042    | -36           | 0.020                  | 0.042    |               |                        |          |
| 28            | -48           | 0.020                  | 0.047    |               |                        |          |               |                        |          |

\* Jetstream does not recommend operating the 4" J-Force Gen III tool at pressure/configuration combinations indicated in dark gray. Refer to Product Instruction for additional configurations.

\*\* Nozzle part numbers are JS2-XXX and P2TCS-XXX, where -XXX is the orifice size.

## 4" J-FORCE™ GEN III NOZZLES

### JS2D NOZZLES



- ▶ Low profile design for unobstructed pipe cleaning with short inlet
- ▶ High productivity synthetic diamond nozzles
- ▶ Tapered geometry provides highly cohesive, distortion-free waterjets for concentrated, work saving cleaning and cutting power
- ▶ Straight (0°) patterns
- ▶ 1/8" NPT Male connection
- ▶ 22,000 psi (1517 bar) maximum working pressure
- ▶ Please use the Jetting Calculator on the web site or contact your Jetstream Representative to determine the proper nozzle configuration for your application

\*\* Nozzle part numbers are JS2D-XXX, where -XXX is the orifice size.



These resources contain additional technical information about the 4" J-Force™ Gen III.

Click or scan the QR code.



Quick Start Guide  
QSG-197



Product Instruction  
PI-197



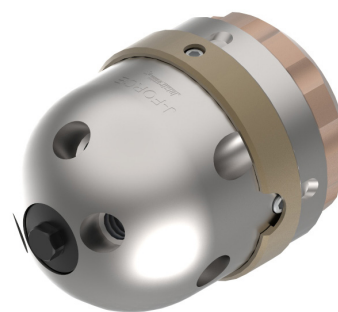
Jetting Calculator

# 6" J-FORCE™ GEN II

## PIPE CLEANING TOOL

The Jetstream J-Force™ 6" Gen II tool is a self-powered rotating tool designed to easily navigate and clean pipes with six-inch bends. The 6-inch J-Force Gen II tool has front, side, and rear jets that clear blockages, clean, and provide thrust to propel the tool down the pipe for maximum cleaning power and minimum wear. Water provides the rotational motion and creates the bearing on which the nozzles spin. No oil or ball bearings to replace!

- ▶ Equipped with two forward-facing ports at 10°, two radial ports at 45° and two at 100°, and two rearward-facing ports at 135° that accept Jetstream **P4TC**, **JS4F** and **JS4FD** type nozzles.
- ▶ Designed with an eddy-current braking system which controls rotation speed for maximum cleaning power and minimum wear.
- ▶ Completely field repairable in less than 5 minutes!
- ▶ **Premium Kits** and **Starter Kits** are available for full product tools (see table below). Premium kits include a rebuild kit with a replacement mandrel, O-rings, bushings, a thrust bearing, and sealant required to completely rebuild the tool quickly and easily.



**6" J-FORCE™ GEN II TOOL**  
(JF6X22)

| PART NO. | INLET CONNECTION* | SPEED RANGE | DIAMETER |    | ASSEMBLY LENGTH |     | ASSEMBLY WEIGHT |     | MAX. FLOW RATE |     | MAX. OPERATING PRESSURE |      |
|----------|-------------------|-------------|----------|----|-----------------|-----|-----------------|-----|----------------|-----|-------------------------|------|
|          |                   | RPM         | in       | mm | in              | mm  | lbs             | kg  | gpm            | lpm | psi                     | bar  |
| JF6X22   |                   |             |          |    |                 |     |                 |     |                |     |                         |      |
| 68884    | 9/16" MP          | 800-1000    | 3.75     | 95 | 5.34            | 136 | 11.0            | 5.0 | 60             | 226 | 22,000                  | 1516 |
| 68885    | M24               | 800-1000    | 3.75     | 95 | 5.34            | 136 | 11.0            | 5.0 | 60             | 226 | 22,000                  | 1516 |

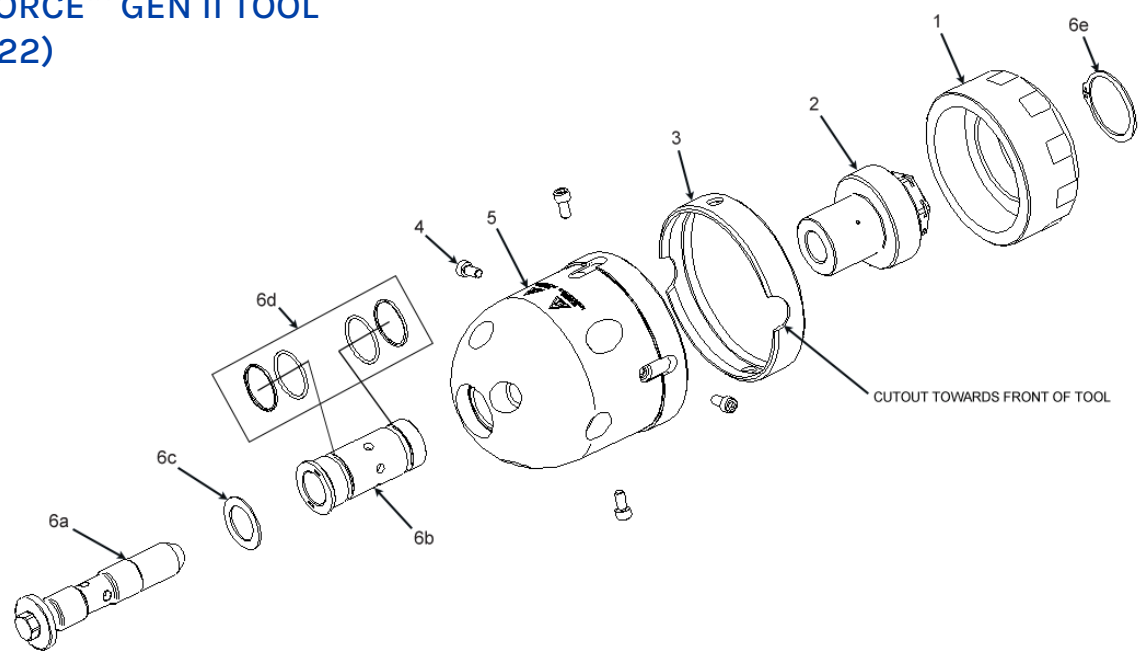
\*See details on all connection types in Section I.



## TOOL KITS

| PART NO. | KIT TYPE | INLET CONNECTION |
|----------|----------|------------------|
| 68888    | Starter  | 9/16" MP         |
| 68889    | Premium  | 9/16" MP         |
| 68890    | Starter  | M24              |
| 68891    | Premium  | M24              |

# 6" J-FORCE™ GEN II TOOL (JF6X22)



## PART BREAKDOWN

| ITEM | PART NO. | DESCRIPTION                 | ITEM | PART NO. | DESCRIPTION            |
|------|----------|-----------------------------|------|----------|------------------------|
| 1    | 64827    | Brake Adjuster              | 6    | 65388    | Rebuild Kit            |
| 2    | 66348    | Inlet Nut, 9/16" MP (65380) | 6a   | 66347    | Mandrel                |
|      | 66741    | Inlet Nut, M24 (65381)      | 6b   | 66137    | Flange Bushing         |
| 3    | 68656    | Wear Ring                   | 6c   | 64823    | Thrust Bearing         |
| 4    | 68898    | Wear Ring Screws            | 6d   | 65387    | O-Ring Maintenance Kit |
| 5    | 68889    | Head Assy                   | 6e   | 64864    | Retaining Ring         |

# 6" J-FORCE™ GEN II NOZZLES

## JS4FD NOZZLES

JS4FD



- ▶ Low profile design for unobstructed pipe cleaning with short inlet
- ▶ High productivity synthetic diamond (JS4FD) orifice
- ▶ Tapered geometry provides highly cohesive, distortion-free waterjets for concentrated, work saving cleaning and cutting power
- ▶ Straight (0°) patterns
- ▶ 1/4" NPT Male connection
- ▶ 22,000 psi (1517 bar) maximum working pressure
- ▶ Please use the Jetting Calculator on the web site or contact your Jetstream Representative to determine the proper nozzle configuration for your application

\* Jetstream does not recommend operating the 6" J-Force Gen II tool at pressure/configuration combinations indicated in dark gray.  
 \*\* Nozzle part numbers are JS4FD-XXX, where -XXX is the orifice size.

## 6" J-FORCE™ GEN II NOZZLES

### JS4F / P4TC NOZZLES



JS4F

P4TC



- ▶ Low profile design for unobstructed pipe cleaning
- ▶ Stainless steel (JS4F) and carbide (P4TC) nozzles
- ▶ Tapered geometry provides highly cohesive, distortion-free waterjets for concentrated, work saving cleaning and cutting power
- ▶ Straight (0°) patterns
- ▶ 1/4" NPT Male connection
- ▶ 22,000 psi (1517 bar) maximum working pressure

| UNIVERSAL CONFIGURATION* |               |                        |          |               |                        |          |               |                            |
|--------------------------|---------------|------------------------|----------|---------------|------------------------|----------|---------------|----------------------------|
| FLOW<br>(GPM)            | 10000 PSI     |                        |          | 12500 PSI     |                        |          | 15000 PSI     |                            |
|                          | PULL<br>(LBF) | NOZZLE DIAMETER (IN)** |          | PULL<br>(LBF) | NOZZLE DIAMETER (IN)** |          | PULL<br>(LBF) | NOZZLE DIAMETER (IN)**     |
|                          |               | FWD x 4, SIDE x 2      | REAR x 2 |               | FWD x 4, SIDE x 2      | REAR x 2 |               | FWD x 4, SIDE x 2 REAR x 2 |
| 29                       |               |                        |          |               |                        |          | -41           | 0.020 0.047                |
| 30                       |               |                        |          |               |                        |          | -35           | 0.022 0.047                |
| 31                       |               |                        |          | -64           | 0.018                  | 0.057    |               |                            |
| 32                       | -40           | 0.024                  | 0.057    | -37           | 0.024                  | 0.052    | -29           | 0.024 0.047                |
| 33                       | -63           | 0.020                  | 0.063    |               |                        |          |               |                            |
| 34                       | -59           | 0.022                  | 0.063    | -31           | 0.026                  | 0.052    | -77           | 0.018 0.057                |
| 35                       |               |                        |          | -82           | 0.018                  | 0.063    | -44           | 0.024 0.052                |
| 36                       | -29           | 0.029                  | 0.057    |               |                        |          |               |                            |
| 37                       | -69           | 0.022                  | 0.067    | -78           | 0.020                  | 0.063    | -67           | 0.022 0.057                |
| 38                       |               |                        |          | -74           | 0.022                  | 0.063    |               |                            |
| 39                       | -93           | 0.018                  | 0.073    |               |                        |          | -61           | 0.024 0.057                |
| 40                       | -43           | 0.029                  | 0.063    | -102          | 0.018                  | 0.069    | -94           | 0.020 0.063                |
| 41                       |               |                        |          | -87           | 0.022                  | 0.067    | -54           | 0.026 0.057                |
| 42                       | -96           | 0.020                  | 0.075    | -63           | 0.026                  | 0.063    |               |                            |
| 43                       | -108          | 0.018                  | 0.078    | -94           | 0.022                  | 0.069    |               |                            |
| 44                       | -105          | 0.020                  | 0.078    | -26           | 0.032                  | 0.057    |               |                            |
| 45                       | -78           | 0.026                  | 0.073    | -54           | 0.029                  | 0.063    |               |                            |
| 46                       | -27           | 0.035                  | 0.063    |               |                        |          |               |                            |
| 47                       | -97           | 0.024                  | 0.078    |               |                        |          |               |                            |
| 48                       |               |                        |          |               |                        |          |               |                            |
| 49                       | -37           | 0.035                  | 0.067    |               |                        |          |               |                            |

\* Jetstream does not recommend operating the 6" J-Force Gen II tool at pressure/configuration combinations indicated in dark gray.

\*\* Nozzle part numbers are JS4F-XXX and P4TC-XXX, where -XXX is the orifice size.

## 6" J-FORCE™ GEN II NOZZLES

| UNIVERSAL CONFIGURATION* |               |                        |          |               |                        |          |               |                        |
|--------------------------|---------------|------------------------|----------|---------------|------------------------|----------|---------------|------------------------|
| FLOW<br>(GPM)            | 17500 PSI     |                        |          | 20000 PSI     |                        |          | 22000 PSI     |                        |
|                          | PULL<br>(LBF) | NOZZLE DIAMETER (IN)** |          | PULL<br>(LBF) | NOZZLE DIAMETER (IN)** |          | PULL<br>(LBF) | NOZZLE DIAMETER (IN)** |
|                          |               | FWD x 4, SIDE x 2      | REAR x 2 |               | FWD x 4, SIDE x 2      | REAR x 2 |               | FWD x 4, SIDE x 2      |
| 27                       |               |                        |          |               |                        |          | -33           | 0.018                  |
| 28                       | -32           | 0.020                  | 0.042    | -43           | 0.018                  | 0.042    | -26           | 0.020                  |
| 29                       | -53           | 0.018                  | 0.047    |               |                        |          | -47           | 0.018                  |
| 30                       |               |                        |          | -36           | 0.020                  | 0.042    |               |                        |
| 31                       | -48           | 0.020                  | 0.047    | -61           | 0.018                  | 0.047    | -40           | 0.020                  |
| 32                       |               |                        |          |               |                        |          |               |                        |
| 33                       | -71           | 0.018                  | 0.052    | -54           | 0.020                  | 0.047    | -32           | 0.022                  |
| 34                       | -65           | 0.020                  | 0.052    |               |                        |          |               |                        |
| 35                       | -34           | 0.024                  | 0.047    | -81           | 0.018                  | 0.052    | -60           | 0.020                  |
| 36                       | -59           | 0.022                  | 0.052    |               |                        |          |               |                        |
| 37                       | -27           | 0.026                  | 0.047    | -39           | 0.024                  | 0.047    | -52           | 0.022                  |
| 38                       | -52           | 0.024                  | 0.052    |               |                        |          |               |                        |
| 39                       |               |                        |          |               |                        |          |               |                        |
| 40                       | -44           | 0.026                  | 0.052    |               |                        |          |               |                        |

\* Jetstream does not recommend operating the 6" J-Force Gen II tool at pressure/configuration combinations indicated in dark gray.

\*\* Nozzle part numbers are JS4F-XXX and P4TC-XXX, where -XXX is the orifice size.



These resources contain additional technical information about the 6" J-Force™ Gen II.

Click or scan the QR code.



Quick Start Guide  
QSG-202



Product Instruction  
PI-202



Jetting Calculator



# ROTOMAG™ X22

## PIPE CLEANING TOOL

The Jetstream RotoMag X22 and RotoMag X22N are self-powered rotating tools designed for cleaning stacks, sewer lines, drains, tanks, on-line boilers, and other large diameter pipes.

- ▶ Water provides the rotational motion and creates the bearing on which the nozzles spin. No oil or ball bearings to replace!
- ▶ Up to eight flush mounted nozzle inserts provide low profile for cleaning small pipes. Extensions are available for larger pipes, allowing the Rotomag to clean pipes ranging from 3-1/2 to 60 inches in diameter.
- ▶ The RotoMag X22 uses Tungsten Carbide **RM Series**, Sapphire **RMS Series** or tetraCORE™ Synthetic Diamond **RMD Series** nozzles. The RotoMag X22N uses Tungsten Carbide **P4TC Series** or tetraCORE™ Synthetic Diamond **JS4FD Series** nozzles.
- ▶ Magnetic braking system controls rotational speed for minimal wear and maximum impact without streaking.
- ▶ Rebuild kit allows five minute replacement of wear components right in the field using two standard hex wrenches.
- ▶ Includes six nozzle port plugs.
- ▶ **Premium Kits** and **Starter Kits** are available for full product tools. **15K Adapter (PN. 29534)** included in Premium Kits.



## TOOL KITS

| PART NO. | KIT TYPE | ASSY NO. |
|----------|----------|----------|
| 63811    | Starter  | 63945    |
| 63813    | Premium  | 63945    |
| 65129    | Starter  | 65095    |
| 65130    | Premium  | 65095    |

| MODEL | PART NO. | INLET CONNECTION* | NOZZLE SIZE  | SPEED RANGE | DIAMETER (LESS SHROUD) |    | ASSEMBLY LENGTH (WITH ADAPTER) |     | ASSEMBLY WEIGHT |     | MAX. FLOW RATE |     | MAX. OPERATING PRESSURE |      |
|-------|----------|-------------------|--------------|-------------|------------------------|----|--------------------------------|-----|-----------------|-----|----------------|-----|-------------------------|------|
|       |          |                   |              | RPM         | in                     | mm | in                             | mm  | lbs             | kg  | gpm            | lpm | psi                     | bar  |
| X22   | 63945    | 3/4" MP Female    | 1/2"-28 UNEF | 50-300      | 2.75                   | 70 | 8.65                           | 225 | 6               | 2.7 | 80             | 303 | 22,500                  | 1551 |
| X22N  | 65095    |                   | 1/4" NPT     |             |                        |    |                                |     |                 |     |                |     |                         |      |

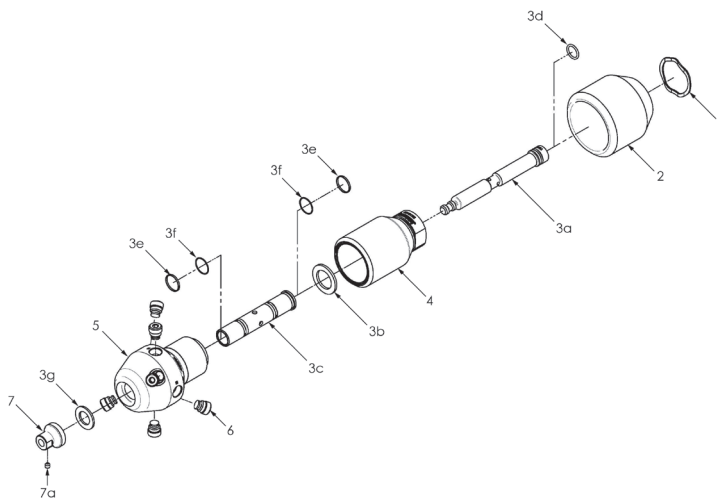
\*See details on all connection types in Section I.

## PART BREAKDOWN

| ITEM | PART NO. | DESCRIPTION      |
|------|----------|------------------|
| 1    | 27072    | Retaining Ring   |
| 2    | 52803    | Shroud           |
| 3    | 54535    | Rebuild Kit      |
| 4    | 54452    | Body             |
| 5    | 63944    | Rotor (X22)      |
|      | 65094    | Rotor (X22N)     |
| 6    | RM-PLUG  | Plug (X22)       |
|      | 64682    | Plug (X22N)      |
| 6a*  | 26759    | O-Ring           |
| 7    | 66170**  | Tow Ring, No Eye |
| 7a   | 26869    | Setscrew         |
| 8*   | 29534    | 15K Adapter      |

\*Not Shown. Reference page G-21.

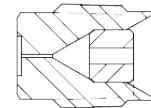
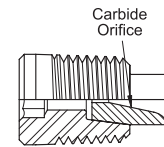
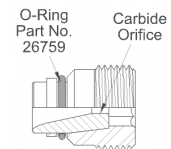
\*\*Standard. Tow Ring with Eye (52386) included with Premium kits only.



## ROTOMAG™ X22 NOZZLES

### RM / P4TC / JS4F SERIES NOZZLES

- ▶ High productivity nozzles designed for use in the RotoMag.
- ▶ Precision honed carbide (RM and P4TC Series) and stainless steel (JS4F Series) orifices.
- ▶ Low profile design mounts flush with the outside diameter of the RotoMag.
- ▶ Tapered geometry provides highly cohesive, distortion-free waterjets for concentrated, work-saving cleaning and cutting power.
- ▶ Select nozzles from the charts below by choosing operating pressure, desired flow, and two, four, six or eight nozzle operation.
- ▶ 1/2"-28 UNEF Male connection (RM Series) or 1/4" NPT Male (P4TC and JS4F Series).



EIGHT RM / P4TC / JS4F NOZZLES

| RM<br>PART<br>NO. | P4TC<br>PART<br>NO. | JS4F<br>PART<br>NO. | ORIFICE<br>DIAMETER |      | 10,000 PSI<br>(690 BAR) |       | 12,500 PSI<br>(862 BAR) |       | 15,000 PSI<br>(1,034 BAR) |       | 17,500 PSI<br>(1,207 BAR) |       | 20,000 PSI<br>(1,379 BAR) |       | 22,500 PSI<br>(1,551 BAR) |       |
|-------------------|---------------------|---------------------|---------------------|------|-------------------------|-------|-------------------------|-------|---------------------------|-------|---------------------------|-------|---------------------------|-------|---------------------------|-------|
|                   |                     |                     | in                  | mm   | gpm                     | lpm   | gpm                     | lpm   | gpm                       | lpm   | gpm                       | lpm   | gpm                       | lpm   | gpm                       | lpm   |
| RM-018            | P4TC-018            | JS4F-018            | .018                | .46  | 9.0                     | 34.1  | 10.1                    | 38.2  | 11.0                      | 41.6  | 11.9                      | 45.0  | 12.7                      | 48.1  | 13.5                      | 51.1  |
| RM-024            | P4TC-024            | JS4F-024            | .024                | .61  | 14.4                    | 54.5  | 16.1                    | 60.9  | 17.7                      | 67.0  | 19.1                      | 72.3  | 20.4                      | 77.2  | 21.7                      | 82.1  |
| RM-029            | P4TC-029            | JS4F-029            | .029                | .74  | 20.2                    | 76.5  | 22.5                    | 85.1  | 24.7                      | 93.5  | 26.7                      | 101.1 | 28.5                      | 107.9 | 30.2                      | 114.3 |
| RM-032            | P4TC-032            | JS4F-032            | .032                | .81  | 24.1                    | 91.2  | 27.0                    | 102.2 | 29.5                      | 111.7 | 31.9                      | 120.8 | 34.1                      | 129.1 | 36.2                      | 137.0 |
| RM-038            | P4TC-038            | JS4F-038            | .038                | .92  | 33.2                    | 125.7 | 37.1                    | 140.4 | 40.6                      | 153.7 | 43.9                      | 166.2 | 46.9                      | 177.5 | 49.8                      | 188.5 |
| RM-042            | P4TC-042            | JS4F-042            | .042                | 1.01 | 40.1                    | 151.8 | 44.8                    | 169.6 | 49.1                      | 185.9 | 53.1                      | 201.0 | 56.7                      | 214.6 | 60.2                      | 227.9 |
| RM-047            | P4TC-047            | JS4F-047            | .047                | 1.19 | 49.7                    | 188.1 | 55.6                    | 210.5 | 60.9                      | 230.5 | 65.8                      | 249.1 | 70.3                      | 266.1 | 74.6                      | 282.4 |
| RM-052            | P4TC-052            | JS4F-052            | .052                | 1.32 | 60.4                    | 228.6 | 67.5                    | 255.5 | 74.0                      | 280.1 | 79.9                      | 302.4 |                           |       |                           |       |
| RM-057            | P4TC-057            | JS4F-057            | .057                | 1.45 | 72.2                    | 273.3 |                         |       |                           |       |                           |       |                           |       |                           |       |

SIX RM / P4TC / JS4F NOZZLES

|        |          |          |      |      |      |       |      |       |      |       |      |       |      |       |      |       |
|--------|----------|----------|------|------|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|
| RM-018 | P4TC-018 | JS4F-018 | .018 | .46  |      |       |      |       |      |       | 9.6  | 36.3  | 10.3 | 39.0  | 10.9 | 41.3  |
| RM-024 | P4TC-024 | JS4F-024 | .024 | .61  |      |       | 12.7 | 48.1  | 13.9 | 52.6  | 15.0 | 56.8  | 16.0 | 60.6  | 17.0 | 64.4  |
| RM-029 | P4TC-029 | JS4F-029 | .029 | .74  | 15.6 | 59.1  | 17.5 | 66.2  | 19.1 | 72.3  | 20.7 | 78.4  | 22.1 | 83.7  | 23.4 | 88.6  |
| RM-032 | P4TC-032 | JS4F-032 | .032 | .81  | 18.6 | 70.4  | 20.8 | 78.7  | 22.8 | 86.3  | 24.6 | 93.1  | 26.3 | 99.6  | 27.9 | 105.6 |
| RM-038 | P4TC-038 | JS4F-038 | .038 | .92  | 25.4 | 96.1  | 28.4 | 107.5 | 31.1 | 117.7 | 33.6 | 127.2 | 35.9 | 135.9 | 38.1 | 144.2 |
| RM-042 | P4TC-042 | JS4F-042 | .042 | 1.01 | 30.6 | 115.8 | 34.2 | 129.5 | 37.4 | 141.6 | 40.4 | 152.9 | 43.2 | 163.5 | 45.9 | 173.8 |
| RM-047 | P4TC-047 | JS4F-047 | .047 | 1.19 | 37.8 | 143.1 | 42.2 | 159.7 | 46.3 | 175.2 | 50.0 | 189.3 | 53.4 | 202.1 | 56.7 | 214.6 |
| RM-052 | P4TC-052 | JS4F-052 | .052 | 1.32 | 45.8 | 173.4 | 51.2 | 193.8 | 56.1 | 212.3 | 60.6 | 229.4 | 64.8 | 245.3 | 68.7 | 260.0 |
| RM-057 | P4TC-057 | JS4F-057 | .057 | 1.45 | 54.6 | 206.7 | 61.1 | 231.3 | 66.9 | 253.2 | 72.3 | 273.7 |      |       |      |       |
| RM-063 | P4TC-063 | JS4F-063 | .063 | 1.59 | 66.3 | 250.9 | 74.1 | 280.5 |      |       |      |       |      |       |      |       |
| RM-067 | P4TC-067 | JS4F-067 | .067 | 1.70 | 74.7 | 282.7 |      |       |      |       |      |       |      |       |      |       |
| RM-069 | P4TC-069 | JS4F-069 | .069 | 1.75 | 79.1 | 299.4 |      |       |      |       |      |       |      |       |      |       |



These resources contain additional technical information about the Rotomag X22.

Click or scan the QR code.



Quick Start Guide  
QSG-078



Product Instruction  
PI-078



Jetting Calculator

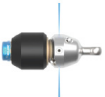
# ROTOMAG™ X22 NOZZLES

## FOUR RM / P4TC / JS4F NOZZLES

| RM<br>PART<br>NO. | P4TC<br>PART<br>NO. | JS4F<br>PART<br>NO. | ORIFICE<br>DIAMETER |      | 10,000 PSI<br>(690 BAR) |       | 12,500 PSI<br>(862 BAR) |       | 15,000 PSI<br>(1,034 BAR) |       | 17,500 PSI<br>(1,207 BAR) |       | 20,000 PSI<br>(1,379 BAR) |       | 22,500 PSI<br>(1,551 BAR) |       |      |      |      |      |  |  |  |  |  |  |  |  |
|-------------------|---------------------|---------------------|---------------------|------|-------------------------|-------|-------------------------|-------|---------------------------|-------|---------------------------|-------|---------------------------|-------|---------------------------|-------|------|------|------|------|--|--|--|--|--|--|--|--|
|                   |                     |                     | in                  | mm   | gpm                     | lpm   | gpm                     | lpm   | gpm                       | lpm   | gpm                       | lpm   | gpm                       | lpm   | gpm                       | lpm   |      |      |      |      |  |  |  |  |  |  |  |  |
| RM-020            | P4TC-020            | JS4F-020            | .020                | .51  |                         |       |                         |       |                           |       |                           |       | 8.9                       | 33.7  | 9.5                       | 36.0  |      |      |      |      |  |  |  |  |  |  |  |  |
| RM-022            | P4TC-022            | JS4F-022            | .022                | .56  |                         |       |                         |       |                           |       |                           |       | 9.6                       | 36.3  | 10.2                      | 38.6  | 10.8 | 40.9 |      |      |  |  |  |  |  |  |  |  |
| RM-024            | P4TC-024            | JS4F-024            | .024                | .61  |                         |       |                         |       |                           |       |                           |       | 10.1                      | 38.2  | 10.9                      | 41.3  | 11.6 | 43.9 | 12.3 | 46.6 |  |  |  |  |  |  |  |  |
| RM-026            | P4TC-026            | JS4F-026            | .026                | .66  | 9.3                     | 35.2  | 10.4                    | 39.4  | 11.4                      | 43.1  | 12.3                      | 46.6  | 13.2                      | 50.0  | 14.0                      | 53.0  |      |      |      |      |  |  |  |  |  |  |  |  |
| RM-029            | P4TC-029            | JS4F-029            | .029                | .74  | 11.1                    | 42.0  | 12.4                    | 46.9  | 13.6                      | 51.5  | 14.7                      | 55.6  | 15.7                      | 59.4  | 16.6                      | 62.8  |      |      |      |      |  |  |  |  |  |  |  |  |
| RM-032            | P4TC-032            | JS4F-032            | .032                | .81  | 13.1                    | 49.6  | 14.6                    | 55.3  | 16.0                      | 60.6  | 17.3                      | 65.5  | 18.5                      | 70.0  | 19.6                      | 74.2  |      |      |      |      |  |  |  |  |  |  |  |  |
| RM-035            | P4TC-035            | JS4F-035            | .035                | .89  | 15.2                    | 57.5  | 17.0                    | 64.3  | 18.7                      | 70.8  | 20.1                      | 76.1  | 21.5                      | 81.4  | 22.8                      | 86.3  |      |      |      |      |  |  |  |  |  |  |  |  |
| RM-038            | P4TC-038            | JS4F-038            | .038                | .92  | 17.6                    | 66.6  | 19.7                    | 74.6  | 21.5                      | 81.4  | 23.3                      | 88.2  | 24.9                      | 94.3  | 26.4                      | 99.9  |      |      |      |      |  |  |  |  |  |  |  |  |
| RM-042            | P4TC-042            | JS4F-042            | .042                | 1.01 | 21.1                    | 79.9  | 23.5                    | 89.0  | 25.8                      | 97.7  | 27.8                      | 105.2 | 29.8                      | 112.8 | 31.6                      | 119.6 |      |      |      |      |  |  |  |  |  |  |  |  |
| RM-047            | P4TC-047            | JS4F-047            | .047                | 1.19 | 25.9                    | 98.0  | 28.9                    | 109.4 | 31.7                      | 120.0 | 34.2                      | 129.5 | 36.6                      | 138.5 | 38.8                      | 146.9 |      |      |      |      |  |  |  |  |  |  |  |  |
| RM-052            | P4TC-052            | JS4F-052            | .052                | 1.32 | 31.2                    | 118.2 | 34.9                    | 132.1 | 38.2                      | 144.6 | 41.3                      | 156.3 | 44.1                      | 166.9 | 46.8                      | 177.1 |      |      |      |      |  |  |  |  |  |  |  |  |
| RM-057            | P4TC-057            | JS4F-057            | .057                | 1.45 | 37.1                    | 140.4 | 41.5                    | 157.1 | 45.4                      | 171.9 | 49.1                      | 185.9 | 52.5                      | 198.7 | 55.6                      | 210.5 |      |      |      |      |  |  |  |  |  |  |  |  |
| RM-063            | P4TC-063            | JS4F-063            | .063                | 1.59 | 44.9                    | 170.0 | 50.2                    | 190.0 | 54.9                      | 207.8 | 59.4                      | 224.9 | 63.4                      | 240.0 | 67.3                      | 254.8 |      |      |      |      |  |  |  |  |  |  |  |  |
| RM-067            | P4TC-067            | JS4F-067            | .067                | 1.70 | 50.5                    | 191.1 | 56.4                    | 213.5 | 61.8                      | 233.9 | 66.8                      | 252.8 | 71.4                      | 270.2 | 75.7                      | 286.5 |      |      |      |      |  |  |  |  |  |  |  |  |
| RM-069            | P4TC-069            | JS4F-069            | .069                | 1.75 | 53.4                    | 202.1 | 59.7                    | 226.0 | 65.4                      | 247.5 | 70.7                      | 267.6 | 75.5                      | 285.8 |                           |       |      |      |      |      |  |  |  |  |  |  |  |  |
| RM-073            | P4TC-073            | JS4F-073            | .073                | 1.85 | 59.6                    | 225.6 | 66.6                    | 252.1 | 72.9                      | 275.9 | 78.8                      | 298.3 |                           |       |                           |       |      |      |      |      |  |  |  |  |  |  |  |  |
| RM-075            | P4TC-075            | JS4F-075            | .075                | 1.91 | 62.8                    | 237.7 | 70.2                    | 265.7 | 76.9                      | 291.1 |                           |       |                           |       |                           |       |      |      |      |      |  |  |  |  |  |  |  |  |
| RM-078            | P4TC-078            | JS4F-078            | .078                | 1.98 | 67.7                    | 256.2 | 75.7                    | 286.5 |                           |       |                           |       |                           |       |                           |       |      |      |      |      |  |  |  |  |  |  |  |  |
| RM-082            | P4TC-082            | JS4F-082            | .082                | 2.08 | 74.6                    | 282.4 |                         |       |                           |       |                           |       |                           |       |                           |       |      |      |      |      |  |  |  |  |  |  |  |  |

## TWO RM / P4TC / JS4F NOZZLES

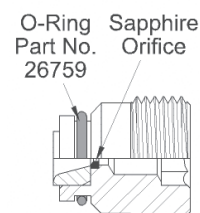
|        |          |          |      |      |      |       |      |       |      |       |      |       |      |       |      |       |
|--------|----------|----------|------|------|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|
| RM-029 | P4TC-029 | JS4F-029 | .029 | .74  |      |       |      |       |      |       |      |       | 9.3  | 35.2  | 9.8  | 37.1  |
| RM-032 | P4TC-032 | JS4F-032 | .032 | .81  |      |       |      |       | 9.2  | 34.8  | 10.0 | 37.9  | 10.6 | 40.1  | 11.3 | 42.8  |
| RM-035 | P4TC-035 | JS4F-035 | .035 | .89  |      |       | 9.6  | 36.3  | 10.6 | 40.1  | 11.4 | 43.1  | 12.2 | 46.2  | 12.9 | 48.8  |
| RM-038 | P4TC-038 | JS4F-038 | .038 | .92  |      |       | 11.0 | 41.6  | 12.0 | 45.4  | 13.0 | 49.2  | 13.9 | 52.6  | 14.7 | 55.6  |
| RM-042 | P4TC-042 | JS4F-042 | .042 | 1.01 | 11.5 | 43.5  | 12.9 | 48.8  | 14.1 | 53.4  | 15.2 | 57.5  | 16.3 | 61.7  | 17.3 | 65.5  |
| RM-047 | P4TC-047 | JS4F-047 | .047 | 1.19 | 13.9 | 52.6  | 15.6 | 59.1  | 17.1 | 64.7  | 18.4 | 69.7  | 19.7 | 74.6  | 20.9 | 79.1  |
| RM-052 | P4TC-052 | JS4F-052 | .052 | 1.32 | 16.6 | 62.8  | 18.6 | 70.4  | 20.3 | 76.8  | 22.0 | 83.3  | 23.5 | 88.9  | 24.9 | 94.2  |
| RM-057 | P4TC-057 | JS4F-057 | .057 | 1.45 | 19.5 | 73.8  | 21.9 | 82.9  | 23.9 | 90.5  | 25.9 | 98.0  | 27.6 | 104.5 | 29.3 | 110.9 |
| RM-063 | P4TC-063 | JS4F-063 | .063 | 1.59 | 23.4 | 88.6  | 26.2 | 99.2  | 28.7 | 108.6 | 31.0 | 117.3 | 33.1 | 125.3 | 35.1 | 132.9 |
| RM-067 | P4TC-067 | JS4F-067 | .067 | 1.70 | 26.2 | 99.2  | 29.3 | 110.9 | 32.1 | 121.5 | 34.7 | 131.4 | 37.1 | 140.4 | 39.4 | 149.1 |
| RM-069 | P4TC-069 | JS4F-069 | .069 | 1.75 | 27.7 | 104.9 | 31.0 | 117.3 | 33.9 | 128.3 | 36.7 | 138.9 | 39.2 | 148.4 | 41.6 | 157.5 |
| RM-073 | P4TC-073 | JS4F-073 | .073 | 1.85 | 30.8 | 116.6 | 34.4 | 130.2 | 37.7 | 142.7 | 40.7 | 154.0 | 43.5 | 164.6 | 46.2 | 174.9 |
| RM-075 | P4TC-075 | JS4F-075 | .075 | 1.91 | 32.4 | 122.6 | 36.2 | 137.0 | 39.7 | 150.3 | 42.8 | 162.0 | 45.8 | 173.4 | 48.6 | 184.0 |
| RM-078 | P4TC-078 | JS4F-078 | .078 | 1.98 | 34.9 | 132.1 | 39.0 | 147.6 | 42.7 | 161.6 | 46.1 | 174.5 | 49.3 | 186.6 | 52.3 | 198.0 |
| RM-082 | P4TC-082 | JS4F-082 | .082 | 2.08 | 38.3 | 145.0 | 42.8 | 162.0 | 46.9 | 177.5 | 50.7 | 191.9 | 54.2 | 205.1 | 57.5 | 217.6 |
| RM-090 | P4TC-090 | JS4F-090 | .090 | 2.29 | 45.7 | 173.0 | 51.1 | 193.4 | 56.0 | 212.0 | 60.5 | 229.0 | 64.7 | 244.9 | 68.6 | 259.7 |
| RM-093 | P4TC-093 | JS4F-093 | .093 | 2.36 | 48.7 | 184.3 | 54.5 | 206.3 | 59.7 | 226.0 | 64.4 | 243.8 | 68.9 | 260.8 | 73.1 | 276.7 |
| RM-098 | P4TC-098 | JS4F-098 | .098 | 2.49 | 53.9 | 204.0 | 60.2 | 227.9 | 66.0 | 249.8 | 71.3 | 269.9 | 76.2 | 288.4 |      |       |
| RM-106 | P4TC-106 | JS4F-106 | .106 | 2.69 | 62.7 | 237.3 | 70.1 | 265.3 | 76.8 | 290.7 |      |       |      |       |      |       |
| RM-110 | P4TC-110 | JS4F-110 | .110 | 2.79 | 67.3 | 254.7 | 75.3 | 285.0 |      |       |      |       |      |       |      |       |
| RM-115 | P4TC-115 | JS4F-115 | .115 | 2.92 | 73.4 | 277.8 |      |       |      |       |      |       |      |       |      |       |



# ROTOMAG™ X22 NOZZLES

## RMS / RMD NOZZLES

- ▶ High productivity sapphire (RMS) or synthetic diamond (RMD) nozzles designed for use in the RotoMag
- ▶ More durable than tungsten carbide for longer service life and lower operating cost
- ▶ Low profile design mounts flush with the outside diameter of the RotoMag
- ▶ Select nozzles from the charts below by choosing operating pressure, desired flow, and two, four, six or eight nozzle operation



### EIGHT RMS / RMD NOZZLES

| PART NO. | ORIFICE DIAMETER |      | 10,000 PSI (690 BAR) |       | 12,500 PSI (862 BAR) |       | 15,000 PSI (1,034 BAR) |       | 17,500 PSI (1,207 BAR) |       | 20,000 PSI (1,379 BAR) |       | 22,500 PSI (1,551 BAR) |       |
|----------|------------------|------|----------------------|-------|----------------------|-------|------------------------|-------|------------------------|-------|------------------------|-------|------------------------|-------|
|          | in               | mm   | gpm                  | lpm   | gpm                  | lpm   | gpm                    | lpm   | gpm                    | lpm   | gpm                    | lpm   | gpm                    | lpm   |
| RMS-018  | .018             | 0.46 | 7.2                  | 27.3  | 8.0                  | 30.3  | 8.8                    | 33.4  | 9.5                    | 36.0  | 10.2                   | 38.7  | 10.8                   | 40.9  |
| RMS-025  | .025             | 0.64 | 12.0                 | 45.5  | 13.4                 | 50.8  | 14.7                   | 55.7  | 15.9                   | 60.3  | 17.0                   | 64.4  | 18.0                   | 68.2  |
| RMS-029  | .029             | 0.74 | 15.5                 | 58.7  | 17.3                 | 65.6  | 18.9                   | 71.6  | 20.4                   | 77.3  | 21.9                   | 83.0  | 23.2                   | 87.9  |
| RMS-033  | .033             | 0.84 | 19.4                 | 73.5  | 21.7                 | 82.2  | 23.8                   | 90.2  | 25.7                   | 97.4  | 27.5                   | 104.2 | 29.1                   | 110.3 |
| RMS-038  | .038             | 0.97 | 25.1                 | 95.1  | 28.1                 | 106.5 | 30.7                   | 116.4 | 33.2                   | 125.8 | 35.5                   | 134.5 | 37.7                   | 142.9 |
| RMS-042  | .042             | 1.07 | 30.2                 | 114.5 | 33.8                 | 128.1 | 37.0                   | 140.2 | 40.0                   | 151.6 | 42.7                   | 161.8 | 45.3                   | 171.7 |
| RMS-046  | .046             | 1.17 | 35.9                 | 136.1 | 40.1                 | 152.0 | 43.9                   | 166.4 | 47.4                   | 179.6 | 50.7                   | 192.2 | 53.8                   | 203.9 |
| RMS-052  | .052             | 1.32 | 45.3                 | 171.7 | 50.6                 | 191.8 | 55.4                   | 210.0 | 59.9                   | 227.0 | 64.0                   | 242.6 | 67.9                   | 257.3 |

### SIX RMS / RMD NOZZLES

|         |      |      |      |       |      |       |      |       |      |       |      |       |      |       |
|---------|------|------|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|
| RMS-018 | .018 | 0.46 |      |       |      |       | 7.2  | 27.3  | 7.8  | 29.6  | 8.3  | 31.5  | 8.8  | 33.4  |
| RMS-025 | .025 | 0.64 | 9.5  | 36.0  | 10.6 | 40.2  | 11.6 | 44.0  | 12.6 | 47.8  | 13.4 | 50.8  | 14.3 | 54.2  |
| RMS-029 | .029 | 0.74 | 12.1 | 45.9  | 13.5 | 51.2  | 14.8 | 56.1  | 16.0 | 60.6  | 17.1 | 64.8  | 18.1 | 68.6  |
| RMS-033 | .033 | 0.84 | 15.1 | 57.2  | 16.8 | 63.7  | 18.5 | 70.1  | 19.9 | 75.4  | 21.3 | 80.7  | 22.6 | 85.7  |
| RMS-038 | .038 | 0.97 | 19.3 | 73.1  | 21.6 | 81.9  | 23.7 | 89.8  | 25.6 | 97.0  | 27.3 | 103.5 | 29.0 | 109.9 |
| RMS-042 | .042 | 1.07 | 23.2 | 87.9  | 25.9 | 98.2  | 28.4 | 107.6 | 30.6 | 116.0 | 32.8 | 124.3 | 34.8 | 131.9 |
| RMS-046 | .046 | 1.17 | 27.4 | 103.8 | 30.6 | 116.0 | 33.5 | 127.0 | 36.2 | 137.2 | 38.7 | 146.7 | 41.1 | 155.8 |
| RMS-052 | .052 | 1.32 | 34.4 | 130.4 | 38.5 | 145.9 | 42.2 | 159.9 | 45.6 | 172.8 | 48.7 | 184.6 | 51.7 | 195.9 |

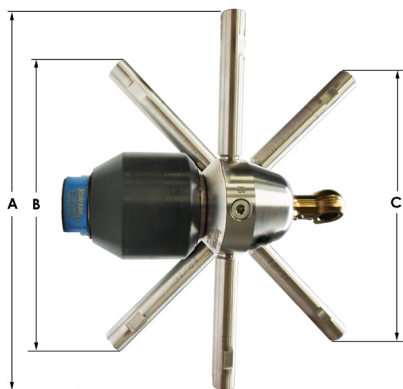
### FOUR RMS / RMD NOZZLES

|         |      |      |      |      |      |       |      |       |      |       |      |       |      |       |
|---------|------|------|------|------|------|-------|------|-------|------|-------|------|-------|------|-------|
| RMS-018 | .018 | 0.46 |      |      |      |       |      |       |      |       | 6.5  | 24.6  | 6.9  | 26.2  |
| RMS-025 | .025 | 0.64 |      |      | 7.8  | 29.6  | 8.6  | 32.6  | 9.3  | 35.2  | 9.9  | 37.5  | 10.5 | 39.8  |
| RMS-029 | .029 | 0.74 | 8.7  | 33.0 | 9.8  | 37.1  | 10.7 | 40.6  | 11.5 | 43.6  | 12.3 | 46.6  | 13.1 | 49.6  |
| RMS-033 | .033 | 0.84 | 10.7 | 40.6 | 12.0 | 45.5  | 13.1 | 49.6  | 14.2 | 53.8  | 15.1 | 57.2  | 16.1 | 61.0  |
| RMS-038 | .038 | 0.97 | 13.6 | 51.5 | 15.2 | 57.6  | 16.6 | 62.9  | 17.9 | 67.8  | 19.2 | 72.8  | 20.3 | 76.9  |
| RMS-042 | .042 | 1.07 | 16.1 | 61.0 | 18.0 | 68.2  | 19.7 | 74.7  | 21.3 | 80.7  | 22.8 | 86.4  | 24.2 | 91.7  |
| RMS-046 | .046 | 1.17 | 18.9 | 71.6 | 21.2 | 80.3  | 23.2 | 87.9  | 25.0 | 94.8  | 26.8 | 101.6 | 28.4 | 107.6 |
| RMS-052 | .052 | 1.32 | 23.6 | 89.4 | 26.4 | 100.1 | 28.9 | 109.5 | 31.3 | 118.6 | 33.4 | 126.6 | 35.4 | 134.2 |

### TWO RMS / RMD NOZZLES

|         |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|---------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| RMS-025 | .025 | 0.64 |      |      |      |      |      |      |      |      | 6.4  | 24.3 | 6.8  | 25.8 |
| RMS-029 | .029 | 0.74 |      |      |      |      |      |      | 7.1  | 26.9 | 7.6  | 28.8 | 8.0  | 30.3 |
| RMS-033 | .033 | .84  |      |      |      |      | 7.8  | 29.6 | 8.4  | 31.8 | 9.0  | 34.1 | 9.5  | 36.0 |
| RMS-038 | .038 | .92  |      |      | 8.7  | 33.0 | 9.5  | 36.0 | 10.3 | 39.0 | 11.0 | 41.7 | 11.7 | 44.3 |
| RMS-042 | .042 | 1.01 | 9.1  | 34.5 | 10.1 | 38.3 | 11.1 | 42.1 | 12.0 | 45.5 | 12.8 | 48.5 | 13.6 | 51.5 |
| RMS-046 | .046 | 1.17 | 10.5 | 39.8 | 11.7 | 44.3 | 12.8 | 48.5 | 13.8 | 52.3 | 14.8 | 56.1 | 15.7 | 59.5 |
| RMS-052 | .052 | 1.32 | 12.8 | 48.5 | 14.3 | 54.2 | 15.7 | 59.5 | 17.0 | 64.4 | 18.1 | 68.6 | 19.2 | 72.8 |

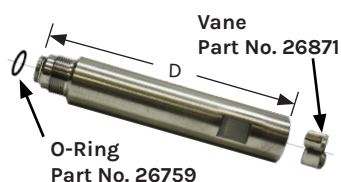
## ROTOMAG™ X22 ACCESSORIES



### NOZZLE EXTENSIONS

- ▶ Available in two connection types and three lengths and can be coupled.
- ▶ 52320-XX part numbers for 1/2"-28 UNEF ports (X22, High Flow)
- ▶ 65166-XX part numbers for 1/4" NPT ports (X22N)
- ▶ Puts nozzles closer to the inner surface of large pipes for more effective cleaning.

| PART NO.            | DIAMETER "A" |     | DIAMETER "B" |     | DIAMETER "C" |     | INDIVIDUAL LENGTH "D" |     |
|---------------------|--------------|-----|--------------|-----|--------------|-----|-----------------------|-----|
|                     | in           | mm  | in           | mm  | in           | mm  | in                    | mm  |
| 52320-05 / 65166-05 | 5.0          | 127 | 4.3          | 109 | 4.3          | 109 | 1.25                  | 32  |
| 52320-10 / 65166-10 | 10.0         | 254 | 7.9          | 201 | 7.8          | 198 | 3.75                  | 95  |
| 52320-15 / 65166-15 | 15.0         | 381 | 11.4         | 290 | 11.3         | 287 | 6.25                  | 159 |



#### REPLACEMENT PARTS (FOR 52320-XX)

| PART NO. | DESCRIPTION |
|----------|-------------|
| 26759    | O-Ring      |
| 26871    | Vane        |

**NOTE:** Diameter includes two extensions plus rotor diameter. Individual length is the length of single extension when installed. When stacking extensions, add individual lengths to "A" dimension to reach desired diameter. New diameter =  $A + 2 \times D$ . Contact Jetstream representative for assistance.



PART NO. 66170



PART NO. 52386

### TOW RINGS

- ▶ Eye-less tow ring (PN. 66170) standard with all RotoMag X22/X22N assemblies
- ▶ Optional tow ring with eye (PN. 52386) included in all Premium Kits.

### NOZZLE PLUGS

Used to close unused RotoMag nozzle ports.



| PART NO.  | CONNECTION TYPE                        |
|-----------|----------------------------------------|
| RM-PLUG   | 1/2"- 28 UNEF (X22, High Flow)         |
| 64682     | 1/4" NPT Internal Hex (X22N, standard) |
| JS4F-PLUG | 1/4" NPT External Hex (X22N)           |

#### REPLACEMENT PARTS

| PART NO. | DESCRIPTION |
|----------|-------------|
| 26759    | O-Ring      |

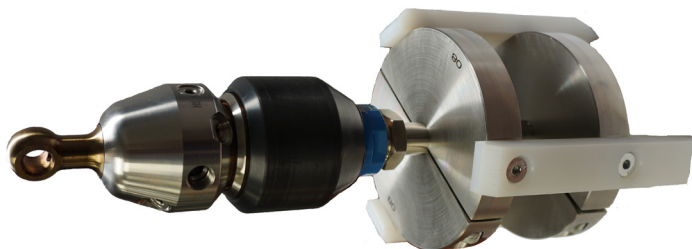
## ROTOMAG™ X22 ACCESSORIES

### CENTRALIZERS

- ▶ Three models are available.
- ▶ Supports the tool while providing a controlled, even cleaning along with damage protection.

### SKID STYLE

Used in pipes with and without elbows up to 10 in. (250 mm) in diameter.



| PART NO.      | DIAMETER |     |
|---------------|----------|-----|
|               | in       | mm  |
| 63842-ROTO-6  | 6.0      | 150 |
| 63842-ROTO-8  | 8.0      | 200 |
| 63842-ROTO-10 | 10.0     | 250 |

**NOTE:** Does not include nipple or fittings.

### REPLACEMENT RUNNERS

Three plastic runners and six screws.

| PART NO. | DIAMETER |     |
|----------|----------|-----|
|          | in       | mm  |
| 66104-06 | 6.0      | 150 |
| 66104-08 | 8.0      | 200 |
| 66104-10 | 10.0     | 250 |

### RELATED ITEMS

Use 20K fittings listed below and adapt to 15K hose using proper fittings.

| PART NO.  | DESCRIPTION                                          |
|-----------|------------------------------------------------------|
| 29108-08  | 3/4" MP LH Tube Nipple                               |
| 29095     | 3/4" MP Female x 1" MP Male Adapter (Nipple to Tool) |
| 28383 (2) | 3/4" MP Gland                                        |
| 28384 (2) | 3/4" MP Collar                                       |

### CAGE STYLE

Recommended for navigating complex piping arrangements to clean built up debris.



| PART NO.   | DIAMETER |     |
|------------|----------|-----|
|            | in       | mm  |
| 63843-ROTO | 18.75    | 475 |

**NOTE:** Does not include nipple or fittings.

### RELATED ITEMS

| PART NO. | DESCRIPTION                                          |
|----------|------------------------------------------------------|
| 29108-08 | 8 long 3/4" MP LH Tube Nipple                        |
| 29095    | 3/4" MP Female x 1" MP Male Adapter (Nipple to Tool) |
| 28383    | 3/4" MP Gland                                        |
| 28384    | 3/4" MP Collar                                       |

RotoMag X22 shown with optional Nozzle Extensions

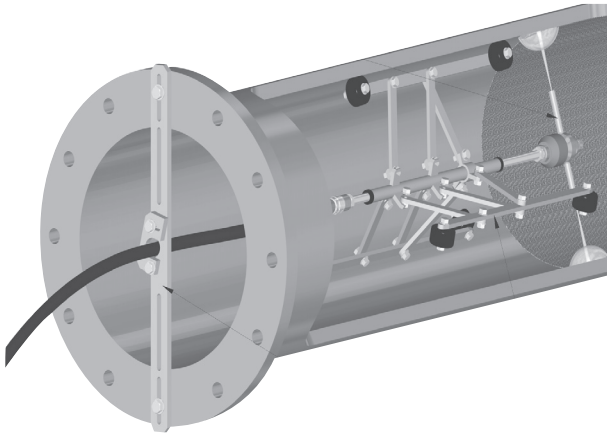


# ROTOMAG™ X22 ACCESSORIES

## SCISSOR STYLE

Designed for straight pipe runs only. The adjustable frames allow for an effective pipe clean anywhere from 9-60 inches (230-1500 mm) in diameter. Compatible with most tools. Comes with a central lance (shown at right) for mounting tools.

| PART NO.                                 | CONNECTION        | PRESSURE | WEIGHT         | LENGTH           |
|------------------------------------------|-------------------|----------|----------------|------------------|
| SMALL 9-18" [230-460 MM] PIPE DIAMETER   |                   |          |                |                  |
| 64452-S20                                | 3/4" MP Male Tube | 20K PSI  | 20 lb. (9 kg)  | 36 in. (915 mm)  |
| MEDIUM 13-40" [330-1000MM] PIPE DIAMETER |                   |          |                |                  |
| 64452-M20                                | 3/4" MP Male Tube | 20K PSI  | 32 lb. (15 kg) | 48 in. (1220 mm) |
| LARGE 16-60" [410-1500 MM] PIPE DIAMETER |                   |          |                |                  |
| 64452-L20                                | 3/4" MP Male Tube | 20K PSI  | 40 lb. (18 kg) | 72 in. (1850 mm) |



## THE WARDEN™

Backout preventers are safety devices that mount to pipe flanges to prevent the RotoMag from backing out in the event of an unexpected and sudden shift in thrust that could result in injury to operators. Fits around hoses from 1/4" to 1" I.D.  
 Part No. 61447





# SWIVEL X22

## PIPE CLEANING SWIVEL TOOL

The Jetstream Swivel X22 is a self-powered, 360° rotating swivel tool designed for cleaning medium to large diameter pipes.

- ▶ Rotational speed of the nozzle head is controlled by the internal oil pump assembly on the swivel
- ▶ Stainless steel swivel and head with flows up to 50 gpm (189.2 lpm). Flow rate calculated by multiplying number of nozzles used by the flow rate.
- ▶ Uses two, four, six or seven Tungsten Carbide **RM Series**, Sapphire **RMS Series**, or tetraCORE™ Synthetic Diamond **RMD Series** nozzles
- ▶ Typical seal and oil life over 100 hours
- ▶ No Silicone needed
- ▶ Low seal replacement cost and quick change, with the seal shaft and cartridge all in one piece
- ▶ Speed adjustment without oil change or spillage
- ▶ A **Mega Kit (PN 66004)**, **Premium Kits (PNs. 65045-XXXXX)** and **Starter Kits (PNs. 65044-XXXXX)** are available for full product tools. The Mega Kit contains all of the available nozzle holder configurations shown below; other kits contain one of the available nozzle holder configurations. See chart for the dash number for the kit.
- ▶ **Oil Kit (PN. 64180)** and **Rebuild Kit (PN. 64247)** available for full servicing tools.



| PART NO. | INLET CONNECTION* | SPEED RANGE | DIAMETER |    | ASSEMBLY LENGTH |     | ASSEMBLY WEIGHT |    | MAX. FLOW RATE |     | MAX. OPERATING PRESSURE |      |
|----------|-------------------|-------------|----------|----|-----------------|-----|-----------------|----|----------------|-----|-------------------------|------|
|          |                   | RPM         | in       | mm | in              | mm  | lbs             | kg | gpm            | lpm | psi                     | bar  |
| 63983**  | 3/4" MP Female    | 50-1000     | 3-5/8"   | 92 | 9.5             | 241 | 11              | 5  | 50             | 189 | 22,000                  | 1516 |

\*See details on all connection types in Section I.

\*\*Swivel only, no nozzle holder. See below for available nozzle holder configurations.

## NOZZLE HOLDERS

| HEAD PART NO.* | NUMBER OF PORTS | HEAD STYLE | ORIFICE SIZE   | KIT PART DASH NO. (-XXXXX) |
|----------------|-----------------|------------|----------------|----------------------------|
| 63970          | 6               | R44        | 1/2" - 28 UNEF | -6RM44                     |
| 65330          | 6               | R22        | 1/2" - 28 UNEF | -6RM22                     |
| 65331          | 7               | R44        | 1/2" - 28 UNEF | -7RM44                     |
| 65332          | 7               | R22        | 1/2" - 28 UNEF | -7RM22                     |

\*Refer to PI-179 for information on selecting head and nozzle configurations.



Part No. 65330



Part No. 65331



These resources contain additional technical information about the Swivel X22.

Click or scan the QR code.



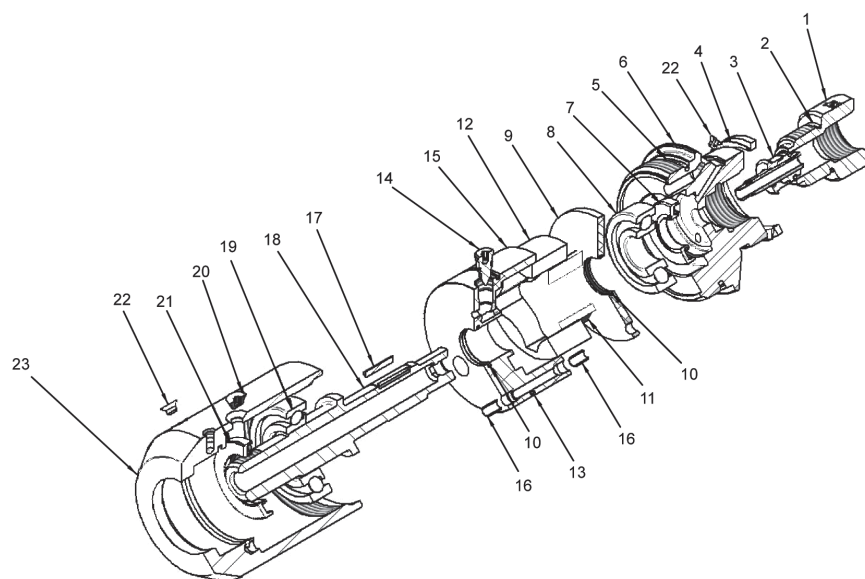
Quick Start Guide  
QSG-179



Product Instruction  
PI-179



Jetting Calculator



## PART BREAKDOWN

| ITEM | PART NO. | DESCRIPTION      | ITEM | PART NO. | DESCRIPTION            | ITEM | PART NO.   | DESCRIPTION    |
|------|----------|------------------|------|----------|------------------------|------|------------|----------------|
| 1    | 53397    | Seal Cap         | 11   | 52762    | Inner Rotor            | 21   | 27043      | Outer Oil Seal |
| 2    | 25229    | O-Ring           | 12   | 27040    | Outer Rotor            | 22   | 64054      | Seal Screw     |
| 3    | 53410    | 15K Seal Assy    | 13   | 27204    | O-Ring                 | 23   | 52753      | Swivel Body    |
| 4    | 27042    | V-ring Seal      | 14   | 52757    | Speed Adjustment Screw | 24*  | 64180      | Oil Kit, 6 oz. |
| 5    | 65816    | O-Ring           | 15   | 52764    | Oil Pump Body          | 25** | 66199      | Syringe Assy   |
| 6    | 53395    | Swivel Cap       | 16   | 52958    | Hollow Dowel           | 26** | Various*** | Nozzle Holder  |
| 7    | 27044    | Inner Oil Seal   | 17   | 27038    | Dowel Pin              | 27** | 52965      | Tow Ring       |
| 8    | 27048    | Radial Bearing   | 18   | 53398    | Swivel Shaft           | 28** | 65978      | Plug           |
| 9    | 52756    | Pump Cover Plate | 19   | 27049    | Thrust Bearing         |      |            |                |
| 10   | 27046    | O-Ring           | 20   | 52819    | Seal Screw             |      |            |                |

\*Not Shown \*\*Only included with kits. \*\*\* See table on previous page.

## SWIVEL X22 ACCESSORIES

### TOW RING (PN. 52965)



### PLUG (PN. RM-PLUG)



### NOZZLE EXTENSIONS

| PART NO.   | DIAMETER* (IN.) |
|------------|-----------------|
| 67147-31** | 31              |
| 52320-15** | 15              |
| 52320-10** | 10              |
| 52320-05** | 5               |

\*Diameter includes tool. See G-24 for information on stacking extensions.

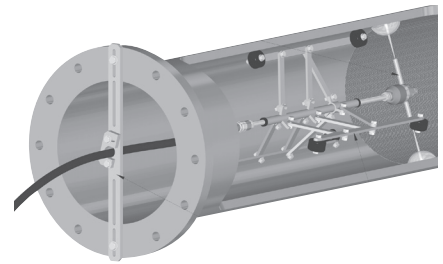
\*\*Sold as set of two.



## SWIVEL X22 ACCESSORIES

### CENTRALIZERS

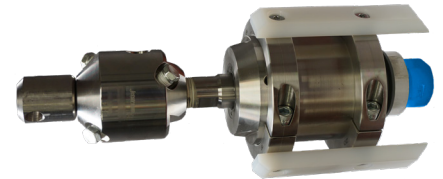
- ▶ Three models are available.
- ▶ Supports the tool while providing a controlled, even cleaning along with damage protection.



### SKID STYLE

Used in pipes with and without elbows up to 10 in. (250 mm) in diameter.

| PART NO.      | DIAMETER |     |
|---------------|----------|-----|
|               | in       | mm  |
| 63842-SWVL-6  | 6.0      | 150 |
| 63842-SWVL-8  | 8.0      | 200 |
| 63842-SWVL-10 | 10.0     | 250 |



### REPLACEMENT RUNNERS

Three plastic runners and six screws.

| PART NO. | DIAMETER |     |
|----------|----------|-----|
|          | in       | mm  |
| 66104-06 | 6.0      | 150 |
| 66104-08 | 8.0      | 200 |
| 66104-10 | 10.0     | 250 |

### CAGE STYLE

Recommended for navigating complex piping arrangements to clean built up debris.

| PART NO.   | DIAMETER |     |
|------------|----------|-----|
|            | in       | mm  |
| 63843-SWVL | 18.75    | 475 |



### SCISSOR STYLE

Designed for straight pipe runs only. The adjustable frames allow for an effective pipe clean anywhere from 9-60 inches (230-1500 mm) in diameter. Compatible with most tools. Comes with a central lance (shown below) for mounting tools.



| PART NO.                                        | CONNECTION   | PRESSURE | WEIGHT         | LENGTH           |
|-------------------------------------------------|--------------|----------|----------------|------------------|
| <b>SMALL 9-18" [230-460 MM] PIPE DIAMETER</b>   |              |          |                |                  |
| 64452-S20                                       | 3/4" MP Male | 20K PSI  | 20 lb. (9 kg)  | 36 in. (915 mm)  |
| <b>MEDIUM 13-40" [330-1000MM] PIPE DIAMETER</b> |              |          |                |                  |
| 64452-M20                                       | 3/4" MP Male | 20K PSI  | 32 lb. (15 kg) | 48 in. (1220 mm) |
| <b>LARGE 16-60" [410-1500 MM] PIPE DIAMETER</b> |              |          |                |                  |
| 64452-L20                                       | 3/4" MP Male | 20K PSI  | 40 lb. (18 kg) | 72 in. (1850 mm) |

# H<sub>3</sub>ORBITER™

## 3-D CLEANING TOOL

The H<sub>3</sub>Orbiter (H<sub>3</sub>O) is a 3-D waterblasting tool designed to effectively and efficiently clean tanks and vessels. The rotation of the nozzles and body allow the tool to perform a complete 360 degree clean at pressures up to 22,000 psi (1500 bar). Flow rates required are controlled through four different manifold options that provide 10 to 80 gpm (37 to 302 lpm): High Flow, Medium Flow, Low Flow, and Extra Low Flow. A maintenance-free magnetic brake is used to control rotation speed.

- ▶ Made from stainless steel
- ▶ Enhanced components for longer life
- ▶ Rotational speed controlled by a maintenance-free magnetic brake
- ▶ Four manifolds offered for application precision: High (50 to 80 gpm), Medium (28 to 55 gpm), Low (16 to 30 gpm), and Extra Low Flow (10 to 18 gpm)
- ▶ Wide range of accessories are available including cage centralizers and extensions. Only 1" or 2" extensions can be used when the H<sub>3</sub>Orbiter is installed in the centralizer.
- ▶ For pipe cleaning, the H<sub>3</sub>Orbiter can be placed in a centralizer with an optional kick plate. When installed with the centralizer, the kick plate allows for self generated forward movement with each 180° rotation of the manifold.
- ▶ A **Premium Kit (PN. 65634)** and **Starter Kits (PN. 65633-XXX; XXX** designates the manifold flow rate) are available for full product tools.
- ▶ Premium kit includes the adapters listed in the table below:

| PART NO. | DESCRIPTION                 |
|----------|-----------------------------|
| 28335    | 1" MP Male x 1/2" NPT Male  |
| 28433    | 1" MP Male x 1" Type M Male |

- ▶ A Tool Kit (PN. 66339) is available for full servicing tools.



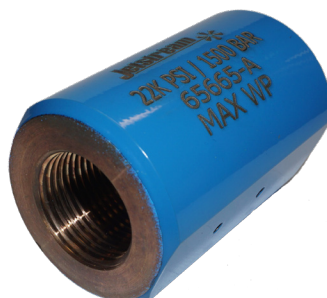
Premium Kit (Part No. 65634).

| PART NO. | CONNECTION*<br>(MALE) | SPEED RANGE          | DIAMETER |     | ASSEMBLY LENGTH |     | ASSEMBLY WEIGHT |    | MAX. FLOW RATE |     | MAX. OPERATING PRESSURE |      |
|----------|-----------------------|----------------------|----------|-----|-----------------|-----|-----------------|----|----------------|-----|-------------------------|------|
|          |                       | RPM                  | in       | mm  | in              | mm  | lbs             | kg | gpm            | lpm | psi                     | bar  |
| 65367    | 1-1/8" ORS Male       | Adjustable; 8-50 rpm | 4        | 100 | 16.65           | 423 | 35              | 16 | 80             | 307 | 22,000                  | 1500 |

\*Shaft on tool is a 1-1/8" ORS Male connection. Inlet connection is made with female x female adapter, which is not included with the tool. Inlet adapters are listed in the table below. See details on all connection types in Section I.

## INLET ADAPTERS

| PART NO. | DESCRIPTION        |
|----------|--------------------|
| 65664    | 3/4" MP Female     |
| 65665    | 1" MP Female       |
| 65666    | 3/4" NPT Female    |
| 65667    | 1" NPT Female      |
| 65233    | Replacement O-Ring |



1" MP Female (Part No. 65665)



1" NPT Female (Part No. 65667)

## MANIFOLD ASSEMBLY

There are four manifold options depending on required flow rate. Consult charts in the Product Instructions/Quick Start Guide to select the correct manifold.

| PART NO. | FLOW RATE |         | DESIGNATION<br>(-XXX) |
|----------|-----------|---------|-----------------------|
|          | gpm       | lpm     |                       |
| 65675    | 50-80     | 189-303 | -030 (R30)            |
| 65676    | 28-55     | 106-208 | -050 (R50)            |
| 65677    | 16-30     | 61-114  | -090 (R90)            |
| 65678    | 10-18     | 38-68   | -150 (R150)           |



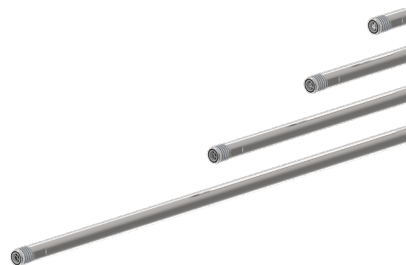
## TOW RING

(PART NO. 65729)



## NOZZLE EXTENSIONS

| PART NO. | LENGTH (IN.) |
|----------|--------------|
| 65456-01 | 1            |
| 65456-02 | 2            |
| 65456-06 | 6            |
| 65456-12 | 12           |
| 65456-24 | 24           |
| 65456-30 | 30           |
| 65456-36 | 36           |



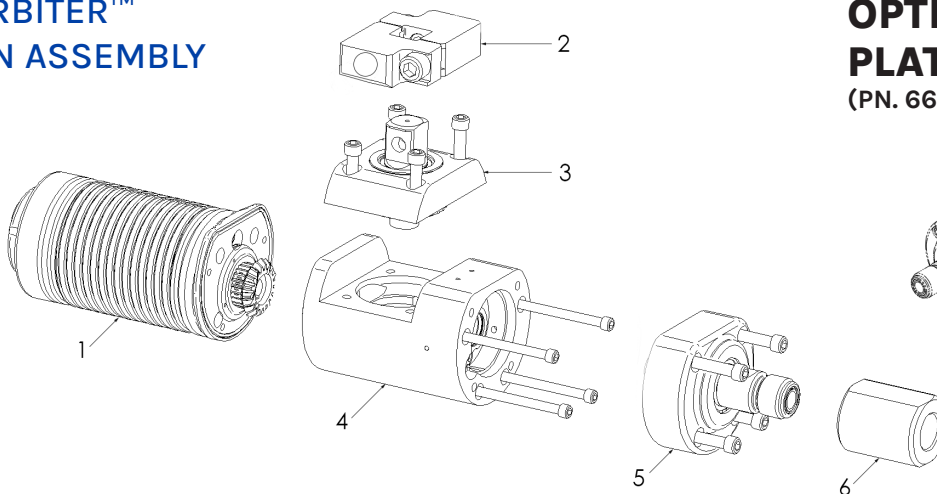
## CENTRALIZER

(PN. 63843-H30)

(shown with H<sub>3</sub>Orbiter and optional Kick Plate Assy)

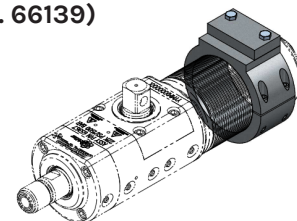


## H<sub>3</sub>ORBITER™ MAIN ASSEMBLY



## OPTIONAL KICK PLATE ASSY

(PN. 66139)



## PART BREAKDOWN

| ITEM | PART NO. | DESCRIPTION      | ITEM | PART NO.  | DESCRIPTION   |
|------|----------|------------------|------|-----------|---------------|
| 1    | 66359    | Brake Assy       | 4    | 66358     | Elbow Assy    |
| 2    | Various* | Manifold Assy    | 5    | 66360     | Inlet Assy    |
| 3    | 66361    | Cross Shaft Assy | 6    | Various** | Inlet Adapter |

\*See table above. \*\* See table on G-30.

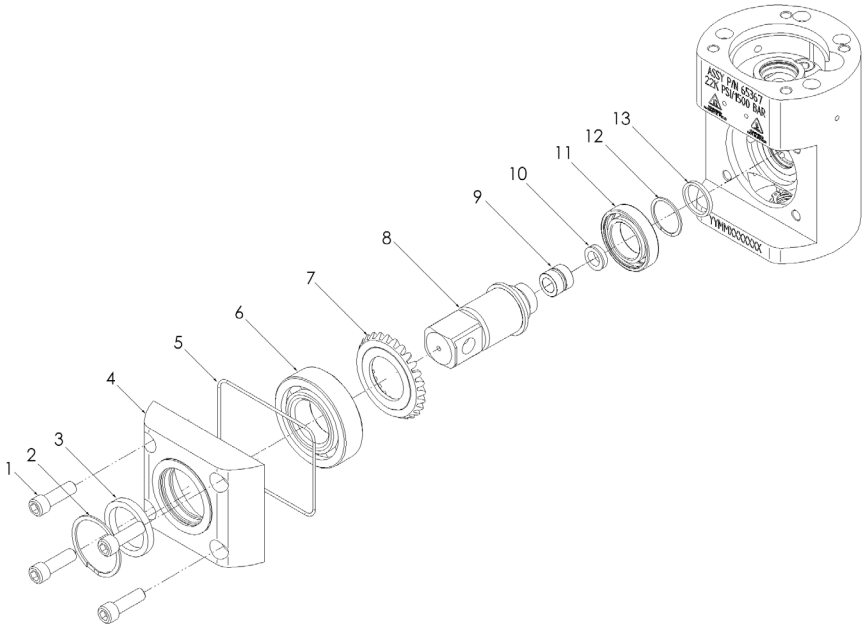


# H<sub>3</sub>ORBITER™

## CROSS SHAFT ASSEMBLY (PART NO. 66361)

### PART BREAKDOWN

| ITEM | PART NO. | DESCRIPTION                   |
|------|----------|-------------------------------|
| 1    | 65240    | Capscrew                      |
| 2    | 65229    | Retaining Ring                |
| 3    | 65220    | Oil Seal, Double Lip          |
| 4    | 65410    | Output Shaft Cover            |
| 5    | 65454    | O-Ring                        |
| 6    | 65215    | Ball Bearing, Angular Contact |
| 7    | 65292    | Gear, Bevel                   |
| 8    | 65298    | Discharge Shaft               |
| 9    | 69950    | Seal Assy, Swivel             |
| 10   | 65463    | Seat, Carbide                 |
| 11   | 65214    | Ball Bearing, Deep Groove     |
| 12   | 65230    | Retaining Ring                |
| 13   | 65221    | Oil Seal, Single Lip          |

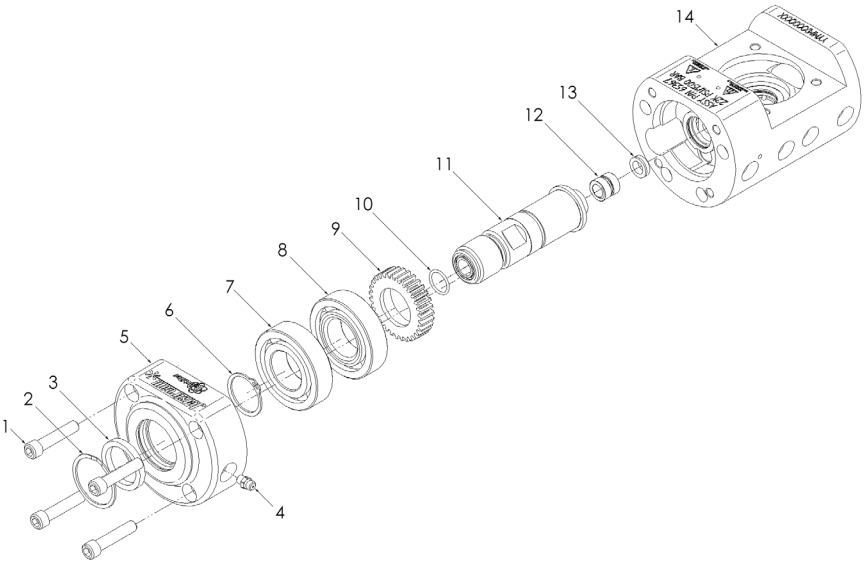


# H<sub>3</sub>ORBITER

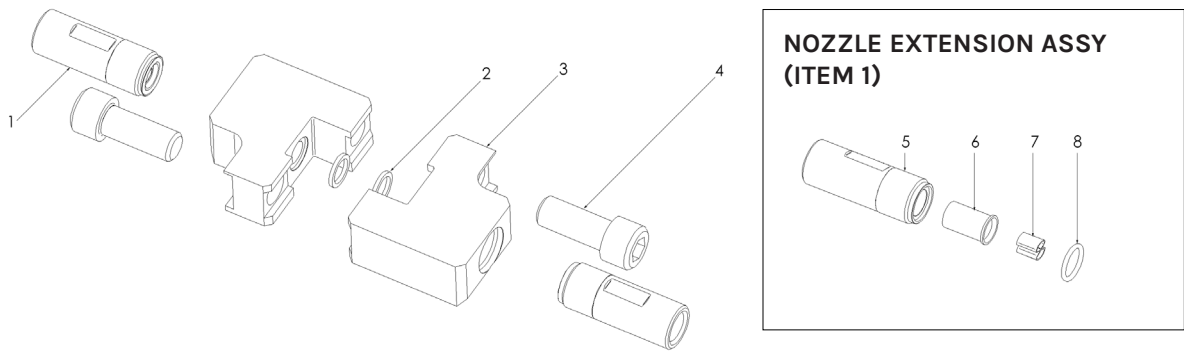
## INLET ASSEMBLY (PART NO. 66360)

### PART BREAKDOWN

| ITEM | PART NO. | DESCRIPTION                   |
|------|----------|-------------------------------|
| 1    | 65239    | Capscrew                      |
| 2    | 65229    | Retaining Ring                |
| 3    | 65220    | Oil Seal, Double Lip          |
| 4    | 27492    | Grease Zerk                   |
| 5    | 65409    | Inlet Cap                     |
| 6    | 65226    | Retaining Ring                |
| 7    | 65217    | Ball Bearing, Deep Groove     |
| 8    | 65215    | Ball Bearing, Angular Contact |
| 9    | 65290    | Gear, Spur                    |
| 10   | 65233    | O-Ring                        |
| 11   | 65297    | Inlet Shaft                   |
| 12   | 69950    | Seal Assy, Swivel             |
| 13   | 65463    | Seat, Carbide                 |
| 14   | 65333    | Elbow Body                    |



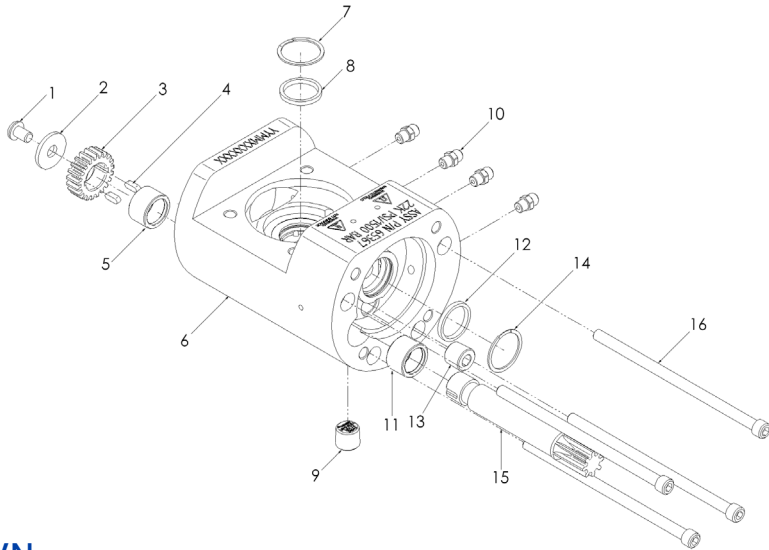
**H<sub>3</sub>ORBITER™**  
**MANIFOLD ASSEMBLY**



**PART BREAKDOWN**

| ITEM | PART NO. | DESCRIPTION           | ITEM | PART NO. | DESCRIPTION              |
|------|----------|-----------------------|------|----------|--------------------------|
| 1    | 65456-XX | Nozzle Extension Assy | 5    | 65300-XX | Nozzle Extension         |
| 2    | 65402    | HP Manifold Seal      | 6    | 65301    | Flow Straightener Insert |
| 3    | Various  | Half Manifold         | 7    | 26871    | Vane                     |
| 4    | 65250    | Capscrew              | 8    | 69949    | O-Ring                   |

**H<sub>3</sub>ORBITER**  
**ELBOW ASSEMBLY (PART NO. 66358)**

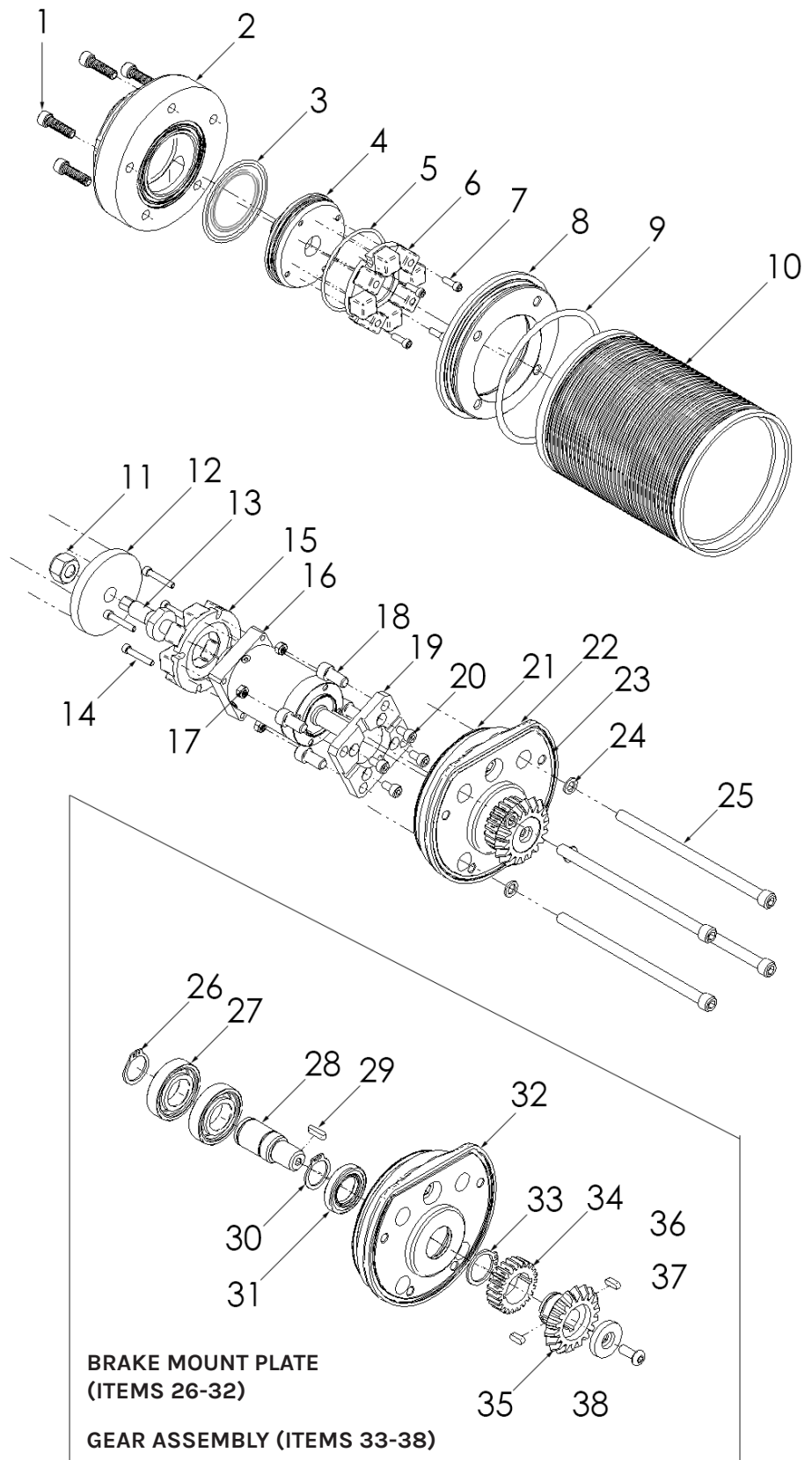


**PART BREAKDOWN**

| ITEM | PART NO. | DESCRIPTION          | ITEM | PART NO. | DESCRIPTION          |
|------|----------|----------------------|------|----------|----------------------|
| 1    | 25782    | Capscrew             | 9    | 64682    | Plug                 |
| 2    | 65248    | Flat Washer          | 10   | 27492    | Grease Zerk          |
| 3    | 65207    | Change Gear          | 11   | 65218    | Needle Bearing       |
| 4    | 65237    | Key                  | 12   | 65221    | Oil Seal, Single Lip |
| 5    | 65218    | Needle Bearing       | 13   | 64682    | Plug                 |
| 6    | 65333    | Elbow Body           | 14   | 65230    | Retaining Ring       |
| 7    | 65230    | Retaining Ring       | 15   | 65291    | Shaft, Pinion        |
| 8    | 65221    | Oil Seal, Single Lip | 16   | 65241    | Capscrew             |



**H<sub>3</sub>ORBITER™  
BRAKE ASSEMBLY  
(PART NO. 66359)**



## PART BREAKDOWN

| ITEM | PART NO.      | DESCRIPTION           | ITEM | PART NO. | DESCRIPTION               |
|------|---------------|-----------------------|------|----------|---------------------------|
| 1    | 65453         | Capscrew              | 20   | 65242    | Capscrew                  |
| 2    | 65414         | Cap, Pulling Ring     | 21   | 65816    | O-Ring                    |
| 3    | 57927 / 65234 | O-Rings               | 22   | 65411    | Brake Mount Plate         |
| 4    | 65415         | Cap, Speed Adjust     | 23   | 65454    | O-Ring                    |
| 5    | 57927         | O-Ring                | 24   | 65247    | Copper Seal Washer        |
| 6    | 65455         | Magnetic Brake Assy 1 | 25   | 65452    | Capscrew                  |
| 7    | 65243         | Capscrew              | 26   | 65227    | Retaining Ring            |
| 8    | 65413         | Lower Brake Cover     | 27   | 65216    | Ball Bearing, Deep Groove |
| 9    | 65816         | O-Ring                | 28   | 65416    | Brake Input Shaft         |
| 10   | 65412         | Brake Housing         | 29   | 65238    | Key                       |
| 11   | 25296         | Nut                   | 30   | 65227    | Retaining Ring            |
| 12   | 65420         | Brake Rotor           | 31   | 65219    | Oil Seal, Double Lip      |
| 13   | 65419         | Shaft, Brake Rotor    | 32   | 65411    | Brake Mount Plate         |
| 14   | 65244         | Capscrew              | 33   | 65228    | Retaining Ring            |
| 15   | 65455         | Magnetic Brake Assy 2 | 34   | 65289    | Brake Spur Gear           |
| 16   | 65213         | Gearbox               | 35   | 65293    | Brake Bevel Gear          |
| 17   | 65246         | Nut                   | 36   | 65237    | Key                       |
| 18   | 25782         | Capscrew              | 37   | 65421    | Gearbox Input Retainer    |
| 19   | 65417         | Gearbox Adapter Plate | 38   | 65245    | Capscrew                  |



These resources contain additional technical information about the H<sub>3</sub>Orbiter™.

Click or scan the QR code.



[Quick Start Guide](#)  
QSG-177



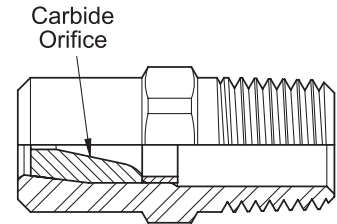
[Product Instruction](#)  
PI-177



[Jetting Calculator](#)

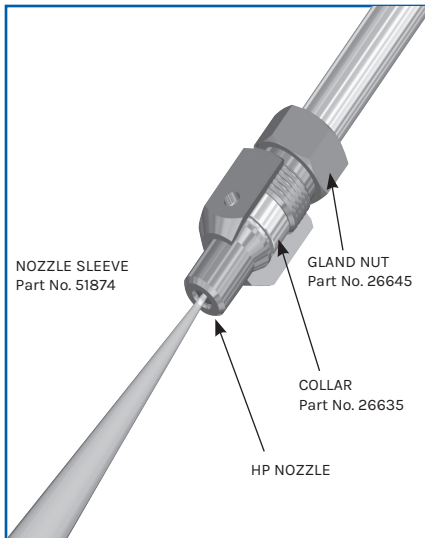
## HHTC SERIES—CARBIDE NOZZLES

- ▶ Tungsten carbide orifice inserts significantly outlast conventional nozzle orifice material
- ▶ Tapered geometry provides highly cohesive, distortion-free waterjets for concentrated, work saving cleaning and cutting power
- ▶ Enables more work to be done in less time
- ▶ Straight (0°) and fan patterns available
- ▶ 1/4" NPT Male connection\*
- ▶ 22,000 psi (1516 bar) maximum working pressure



TWO HHTC NOZZLES

| HHTCO<br>PART NO. | HHTC15<br>(15° FAN JET)<br>PART NO. | HHTC25<br>(25° FAN JET)<br>PART NO. | HHTC50<br>(50° FAN JET)<br>PART NO. | ORIFICE<br>DIAMETER |      | 10,000 PSI<br>(690 BAR) |       | 15,000 PSI<br>(1,034 BAR) |       | 20,000 PSI<br>(1,379 BAR) |       |      |      |
|-------------------|-------------------------------------|-------------------------------------|-------------------------------------|---------------------|------|-------------------------|-------|---------------------------|-------|---------------------------|-------|------|------|
|                   |                                     |                                     |                                     | in                  | mm   | gpm                     | lpm   | gpm                       | lpm   | gpm                       | lpm   |      |      |
| HHTCO-035         | --                                  | --                                  | --                                  | .035                | .889 |                         |       |                           |       | 10.0                      | 37.8  |      |      |
| HHTCO-038         | HHTC15-038                          | --                                  | --                                  | .038                | .965 |                         |       |                           |       | 10.0                      | 37.8  | 11.0 | 41.6 |
| HHTCO-042         | HHTC15-042                          | --                                  | --                                  | .042                | 1.06 |                         |       |                           |       | 12.0                      | 45.4  | 13.0 | 49.2 |
| HHTCO-047         | HHTC15-047                          | HHTC25-047                          | --                                  | .047                | 1.19 | 12.0                    | 45.4  | 15.0                      | 56.7  | 17.0                      | 64.3  |      |      |
| HHTCO-052         | --                                  | --                                  | --                                  | .052                | 1.32 | 15.0                    | 56.7  | 18.0                      | 68.1  | 20.0                      | 75.7  |      |      |
| HHTCO-057         | HHTC15-057                          | HHTC25-057                          | HHTC50-057                          | .057                | 1.44 | 17.0                    | 64.3  | 21.0                      | 79.4  | 24.0                      | 90.8  |      |      |
| HHTCO-063         | HHTC15-063                          | HHTC25-063                          | HHTC50-063                          | .063                | 1.60 | 22.0                    | 83.2  | 27.0                      | 102.2 | 30.0                      | 113.5 |      |      |
| HHTCO-069         | HHTC15-069                          | HHTC25-069                          | HHTC50-069                          | .069                | 1.75 | 26.0                    | 98.4  | 31.0                      | 117.3 | 36.0                      | 136.2 |      |      |
| HHTCO-075         | --                                  | --                                  | --                                  | .075                | 1.90 | 30.0                    | 113.5 | 37.0                      | 140.0 | 42.0                      | 158.9 |      |      |
| HHTCO-082         | HHTC15-082                          | --                                  | --                                  | .082                | 2.08 | 36.0                    | 136.2 | 44.0                      | 166.5 | 51.0                      | 193.0 |      |      |
| HHTCO-090         | HHTC15-090                          | --                                  | --                                  | .090                | 2.28 | 42.0                    | 158.9 | 52.0                      | 196.8 | 60.0                      | 227.1 |      |      |
| HHTCO-098         | --                                  | --                                  | --                                  | .098                | 2.48 | 50.0                    | 189.2 | 61.0                      | 230.9 | 70.0                      | 264.9 |      |      |
| HHTCO-105         | --                                  | --                                  | --                                  | .105                | 2.66 | 57.0                    | 215.7 | 70.0                      | 264.9 | 81.0                      | 306.6 |      |      |
| HHTCO-115         | --                                  | --                                  | --                                  | .115                | 2.92 | 66.0                    | 249.8 | 81.0                      | 306.6 |                           |       |      |      |
| HHTCO-125         | --                                  | --                                  | --                                  | .125                | 3.17 | 76.0                    | 287.6 |                           |       |                           |       |      |      |
| HHTCO-135         | --                                  | --                                  | --                                  | .135                | 3.42 |                         |       |                           |       |                           |       |      |      |
| HHTCO-145         | --                                  | --                                  | --                                  | .145                | 3.68 |                         |       |                           |       |                           |       |      |      |
| HHTCO-155         | --                                  | --                                  | --                                  | .155                | 3.93 |                         |       |                           |       |                           |       |      |      |
| HHTCO-165         | --                                  | --                                  | --                                  | .165                | 4.19 |                         |       |                           |       |                           |       |      |      |



# HP SURFACE CLEANING NOZZLES

HP Series Nozzles produce well defined, hard hitting jets for concentrated, work saving cleaning power.

- ▶ Available with **carbide (HPO and HP15)** or **sapphire (HPS0)** orifices.
- ▶ Attach directly to the end of any control gun or nipple that uses a 9/16" medium pressure male connection.
- ▶ 20,000 psi (1,379 bar) maximum working pressure.

## HPO CARBIDE NOZZLES



- ▶ Tungsten carbide orifice inserts significantly outlast conventional nozzle orifice material
- ▶ Tapered geometry provides highly cohesive, distortion-free waterjets for concentrated, work saving cleaning and cutting power
- ▶ Straight (0°) patterns
- ▶ 9/16 MP Male connection\*
- ▶ 22,000 psi (1516 bar) maximum working pressure

### HPO STRAIGHT JET

|                                                                                       | PART NO.** |         |
|---------------------------------------------------------------------------------------|------------|---------|
|                                                                                       |            |         |
|  | HPO-018    | HPO-073 |
|                                                                                       | HPO-020    | HPO-075 |
|                                                                                       | HPO-022    | HPO-078 |
|                                                                                       | HPO-024    | HPO-082 |
|                                                                                       | HPO-026    | HPO-090 |
|                                                                                       | HPO-029    | HPO-093 |
|                                                                                       | HPO-032    | HPO-098 |
|                                                                                       | HPO-035    | HPO-106 |
|                                                                                       | HPO-038    | HPO-110 |
|                                                                                       | HPO-042    | HPO-115 |
|                                                                                       | HPO-047    | HPO-125 |
|                                                                                       | HPO-052    | HPO-135 |
|                                                                                       | HPO-057    | HPO-145 |
|                                                                                       | HPO-063    | HPO-155 |
|                                                                                       | HPO-067    | HPO-165 |
|                                                                                       | HPO-069    |         |

\*See details on all connection types in Section I.

\*\*Orifice size (or equivalent for fan types) is denoted in the part number (-018, etc.)

For nozzle flow rates, see Orifice Group C chart, page G-44.

## HP SURFACE CLEANING NOZZLES

### HP15 CARBIDE NOZZLES



- ▶ Tungsten carbide orifice inserts significantly outlast conventional nozzle orifice material
- ▶ Tapered geometry provides highly cohesive, distortion-free waterjets for concentrated, work saving cleaning and cutting power
- ▶ Fan (15°) patterns create wide waterjets without significant reduction in power.
- ▶ 9/16 MP Male connection\*
- ▶ 22,000 psi (1516 bar) maximum working pressure

| HP15 FAN JET                                                                        |            |
|-------------------------------------------------------------------------------------|------------|
|  | PART NO.** |
|                                                                                     | HP15-029   |
|                                                                                     | HP15-038   |
|                                                                                     | HP15-042   |
|                                                                                     | HP15-047   |
|                                                                                     | HP15-057   |
|                                                                                     | HP15-063   |
|                                                                                     | HP15-067   |
|                                                                                     | HP15-069   |
|                                                                                     | HP15-073   |
|                                                                                     | HP15-078   |

\*See details on all connection types in Section I.  
 \*\*Orifice size (or equivalent for fan types) is denoted in the part number (-018, etc.)  
 For nozzle flow rates, see Orifice Group C chart, page G-44.

### HPSO SAPPHIRE NOZZLES

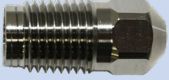


- ▶ Sapphire orifice inserts more durable than carbide for longer service life and lower operating cost
- ▶ Tapered geometry provides highly cohesive, distortion-free waterjets for concentrated, work saving cleaning and cutting power
- ▶ Straight (0°) patterns
- ▶ 9/16 MP Male connection\*
- ▶ 22,000 psi (1516 bar) maximum working pressure

| HPSO STRAIGHT JET                                                                     |            |
|---------------------------------------------------------------------------------------|------------|
|  | PART NO.** |
|                                                                                       | HPSO-018   |
|                                                                                       | HPSO-025   |
|                                                                                       | HPSO-029   |
|                                                                                       | HPSO-033   |
|                                                                                       | HPSO-038   |
|                                                                                       | HPSO-042   |
|                                                                                       | HPSO-046   |
|                                                                                       | HPSO-052   |

\*See details on all connection types in Section I.  
 For nozzle flow rates, see Orifice Group C chart, page G-44.

## REPLACEABLE NOZZLE TIPS – QUICK REFERENCE CHART

| NOZZLE SIDE VIEW                                                                    | NOZZLE                                     | CONNECTION*   | TYPE/USE      | ORIFICE MATERIAL  | PATTERNS                                  | PAGE           |
|-------------------------------------------------------------------------------------|--------------------------------------------|---------------|---------------|-------------------|-------------------------------------------|----------------|
|    | HHTC0/<br>HHTC15/<br>HHTC25/<br><br>HHTC50 | 1/4" NPT Male | Hard Hitter   | Tungsten Carbide  | Straight<br>15° Fan<br>25° Fan<br>50° Fan | G-47           |
|                                                                                     | HHD                                        | 1/4" NPT Male | Hard Hitter   | Synthetic Diamond | Straight                                  | G-48           |
|                                                                                     | P4TC                                       | 1/4" NPT Male | Low Profile   | Tungsten Carbide  | Straight                                  | G-53           |
|                                                                                     | P2TCS                                      | 1/8" NPT Male | Low Profile   | Tungsten Carbide  | Straight                                  | G-53           |
|    | JS2                                        | 1/8" NPT Male | Low Profile   | Stainless Steel   | Straight                                  | G-54           |
|                                                                                     | JS2D                                       | 1/8" NPT Male | Low Profile   | Synthetic Diamond | Straight                                  | G-54           |
|    | JS4                                        | 1/4" NPT Male | Hard Hitter   | Stainless Steel   | Straight                                  | G-56           |
|    | JS4F                                       | 1/4" NPT Male | Low Profile   | Stainless Steel   | Straight                                  | G-55           |
|                                                                                     | JS4FD                                      | 1/4" NPT Male | Low Profile   | Synthetic Diamond | Straight                                  | G-56           |
|  | HP0/<br>HP15                               | 9/16" MP Male | Hard Hitter   | Tungsten Carbide  | Straight<br>15° Fan                       | G-37 /<br>G-38 |
|                                                                                     | HPS0                                       | 9/16" MP Male | Hard Hitter   | Sapphire          | Straight                                  | G-38           |
|  | OX                                         | 3/8" - 24UNEF | Orbi-Jet™ X22 | Tungsten Carbide  | Straight                                  | G-49           |
|  | UHPX                                       | 3/8" - 24UNF  | Orbi-Jet™ X22 | Sapphire          | Straight                                  | G-50           |
|                                                                                     | UHPXD                                      | 3/8" - 24 UNF | Orbi-Jet™ X22 | Synthetic Diamond | Straight                                  | G-51           |
|  | UHPXi                                      | 3/8" - 24 UNF | Orbi-Jet™ X22 | Sapphire          | Straight                                  | G-52           |
|  | RM                                         | 1/2" - 28UNEF | RotoMag™ X22  | Tungsten Carbide  | Straight                                  | G-57           |
|                                                                                     | RMD                                        | 1/2" - 28UNEF | RotoMag™ X22  | Synthetic Diamond | Straight                                  | G-58           |
|  | RMS                                        | 1/2" - 28UNEF | RotoMag™ X22  | Sapphire          | Straight                                  | G-58           |

\*See details on all connection types in Section I.

# REPLACEABLE NOZZLE TIPS

## ORIFICE GROUP A



HHSO/HHD  
(PAGE G-48)



JS2D  
(PAGE G-54)



JS4FD  
(PAGE G-56)



RMD/RMS  
(PAGE G-58)



UHPX/UHPXD/UHPXi  
(PAGE G-50/G-51/G-52)

| ORIFICE SIZE* |      | FLOW AT SPECIFIED PRESSURES (PSI / BAR) |      |        |      |        |      | AVAILABLE SERIES |     |      |       |     |     |      |      |       |
|---------------|------|-----------------------------------------|------|--------|------|--------|------|------------------|-----|------|-------|-----|-----|------|------|-------|
| in            | mm   | 10,000                                  | 689  | 12,500 | 862  | 15,000 | 1034 | HHSO             | HHD | JS2D | JS4FD | RMD | RMS | UHPX | UHPD | UHPXi |
|               |      | gpm                                     | lpm  | gpm    | lpm  | gpm    | lpm  |                  |     |      |       |     |     |      |      |       |
| .006          | .15  | 0.1                                     | 0.3  | 0.1    | 0.3  | 0.1    | 0.3  |                  |     |      |       |     |     | •    | •    | •     |
| .007          | .17  | 0.1                                     | 0.4  | 0.1    | 0.4  | 0.1    | 0.5  |                  |     |      |       |     |     | •    | •    | •     |
| .008          | .20  | 0.1                                     | 0.5  | 0.1    | 0.5  | 0.2    | 0.6  |                  |     |      |       |     |     | •    | •    | •     |
| .009          | .22  | 0.2                                     | 0.6  | 0.2    | 0.7  | 0.2    | 0.8  |                  |     |      |       |     |     | •    | •    | •     |
| .010          | .25  | 0.2                                     | 0.8  | 0.2    | 0.8  | 0.2    | 0.9  |                  |     |      |       |     |     | •    | •    | •     |
| .011          | .27  | 0.2                                     | 0.9  | 0.3    | 1.0  | 0.3    | 1.1  |                  |     |      |       |     |     | •    | •    | •     |
| .012          | .30  | 0.3                                     | 1.1  | 0.3    | 1.2  | 0.4    | 1.3  |                  |     |      |       |     |     | •    | •    | •     |
| .013          | .33  | 0.3                                     | 1.3  | 0.4    | 1.4  | 0.4    | 1.6  |                  |     |      |       |     |     | •    | •    | •     |
| .014          | .35  | 0.4                                     | 1.5  | 0.4    | 1.7  | 0.5    | 1.8  |                  |     |      |       |     |     | •    | •    | •     |
| .015          | .38  | 0.5                                     | 1.7  | 0.5    | 1.9  | 0.6    | 2.1  |                  |     |      |       |     |     | •    | •    | •     |
| .016          | .40  | 0.5                                     | 1.9  | 0.6    | 2.2  | 0.6    | 2.4  |                  |     |      |       |     |     | •    | •    | •     |
| .017          | .43  | 0.6                                     | 2.2  | 0.6    | 2.4  | 0.7    | 2.7  |                  |     |      |       |     |     | •    | •    | •     |
| .018          | .45  | 0.6                                     | 2.5  | 0.7    | 2.7  | 0.8    | 3.0  |                  |     | •    |       | •   | •   | •    | •    | •     |
| .019          | .48  | 0.7                                     | 2.7  | 0.8    | 3.1  | 0.9    | 3.3  |                  |     |      |       |     |     | •    | •    | •     |
| .020          | .50  | 0.8                                     | 3.0  | 0.9    | 3.4  | 1.0    | 3.7  |                  |     | •    |       |     |     | •    | •    | •     |
| .021          | .53  | 0.9                                     | 3.3  | 1.0    | 3.7  | 1.1    | 4.1  |                  |     |      |       |     |     | •    | •    | •     |
| .022          | .55  | 1.0                                     | 3.7  | 1.1    | 4.1  | 1.2    | 4.5  |                  |     | •    |       |     |     | •    | •    | •     |
| .023          | .58  | 1.1                                     | 4.0  | 1.2    | 4.5  | 1.3    | 4.9  |                  |     |      |       |     |     | •    | •    | •     |
| .024          | .60  | 1.2                                     | 4.4  | 1.3    | 4.9  | 1.4    | 5.3  |                  |     | •    |       |     |     | •    | •    | •     |
| .025          | .63  | 1.3                                     | 4.7  | 1.4    | 5.3  | 1.5    | 5.8  |                  |     |      |       | •   | •   | •    | •    | •     |
| .026          | .66  | 1.4                                     | 5.1  | 1.5    | 5.7  | 1.7    | 6.3  |                  |     | •    |       |     |     | •    | •    | •     |
| .027          | .68  | 1.5                                     | 5.5  | 1.6    | 6.2  | 1.8    | 6.8  |                  |     |      |       |     |     | •    | •    | •     |
| .028          | .71  | 1.6                                     | 5.9  | 1.8    | 6.6  | 1.9    | 7.3  |                  |     |      |       |     |     | •    | •    | •     |
| .029          | .73  | 1.7                                     | 6.4  | 1.9    | 7.1  | 2.1    | 7.8  | •                |     | •    |       | •   | •   | •    | •    | •     |
| .030          | .76  | 1.8                                     | 6.8  | 2.0    | 7.6  | 2.2    | 8.3  |                  |     |      |       |     |     | •    | •    | •     |
| .031          | .78  | 1.9                                     | 7.3  | 2.1    | 8.1  | 2.4    | 8.9  |                  |     |      |       |     |     | •    | •    | •     |
| .032          | .81  | 2.0                                     | 7.8  | 2.3    | 8.7  | 2.5    | 9.5  |                  |     | •    | •     |     |     | •    | •    | •     |
| .033          | .83  | 2.2                                     | 8.2  | 2.4    | 9.2  | 2.7    | 10.1 |                  |     |      |       | •   | •   | •    | •    | •     |
| .034          | .86  | 2.3                                     | 8.8  | 2.6    | 9.8  | 2.8    | 10.7 |                  |     | •    | •     |     |     | •    | •    | •     |
| .035          | .89  | 2.5                                     | 9.3  | 2.7    | 10.4 | 3.0    | 11.4 |                  |     | •    | •     |     |     | •    | •    | •     |
| .036          | .91  | 2.6                                     | 9.8  | 2.9    | 11.0 | 3.2    | 12.0 |                  |     |      |       |     |     | •    | •    | •     |
| .037          | .93  | 2.7                                     | 10.4 | 3.1    | 11.6 | 3.4    | 12.7 |                  |     | •    | •     |     |     | •    | •    | •     |
| .038          | .96  | 2.9                                     | 10.9 | 3.2    | 12.2 | 3.5    | 13.4 | •                | •   |      |       | •   | •   | •    | •    | •     |
| .039          | .99  | 3.0                                     | 11.5 | 3.4    | 12.9 | 3.7    | 14.1 |                  |     |      |       |     |     | •    | •    | •     |
| .040          | 1.02 | 3.2                                     | 12.1 | 3.6    | 13.5 | 3.9    | 14.8 |                  |     |      |       |     |     | •    | •    | •     |
| .042          | 1.06 | 3.5                                     | 13.4 | 3.9    | 14.9 | 4.3    | 16.4 | •                | •   | •    | •     | •   | •   | •    | •    | •     |
| .046          | 1.16 | 4.2                                     | 16.0 | 4.7    | 17.9 | 5.2    | 19.6 |                  | •   | •    |       | •   | •   | •    | •    | •     |
| .052          | 1.32 | 5.4                                     | 20.5 | 6.0    | 22.9 | 6.6    | 25.0 |                  | •   |      |       | •   | •   | •    | •    | •     |
| .067          | 1.70 | 9.0                                     | 34.0 | 10.0   | 38.0 | 11.0   | 42.0 |                  | •   |      |       |     |     | •    | •    | •     |

\*Orifice size (or equivalent for fan types) is denoted in the part number (-018, etc.)



## REPLACEABLE NOZZLE TIPS

### ORIFICE GROUP A



HHSO/HHD  
(PAGE G-48)



JS2D  
(PAGE G-54)



JS4FD  
(PAGE G-56)



RMD/RMS  
(PAGE G-58)



UHPX/UHPXD/UHPXi  
(PAGE G-50/G-51/G-52)

| ORIFICE SIZE* |      | FLOW AT SPECIFIED PRESSURES (PSI / BAR) |      |        |      |        |      | AVAILABLE SERIES |     |      |       |     |     |      |      |       |
|---------------|------|-----------------------------------------|------|--------|------|--------|------|------------------|-----|------|-------|-----|-----|------|------|-------|
| in            | mm   | 17,500                                  | 1207 | 20,000 | 1379 | 22,500 | 1551 | HHSO             | HHD | JS2D | JS4FD | RMD | RMS | UHPX | UHPD | UHPXi |
|               |      | gpm                                     | lpm  | gpm    | lpm  | gpm    | lpm  |                  |     |      |       |     |     |      |      |       |
| .006          | .15  | 0.1                                     | 0.4  | 0.1    | 0.4  | 0.1    | 0.4  |                  |     |      |       |     |     | •    | •    | •     |
| .007          | .17  | 0.1                                     | 0.5  | 0.1    | 0.5  | 0.1    | 0.6  |                  |     |      |       |     |     | •    | •    | •     |
| .008          | .20  | 0.2                                     | 0.6  | 0.2    | 0.7  | 0.2    | 0.7  |                  |     |      |       |     |     | •    | •    | •     |
| .009          | .22  | 0.2                                     | 0.8  | 0.2    | 0.9  | 0.2    | 0.9  |                  |     |      |       |     |     | •    | •    | •     |
| .010          | .25  | 0.3                                     | 1.0  | 0.3    | 1.1  | 0.3    | 1.1  |                  |     |      |       |     |     | •    | •    | •     |
| .011          | .27  | 0.3                                     | 1.2  | 0.3    | 1.3  | 0.4    | 1.4  |                  |     |      |       |     |     | •    | •    | •     |
| .012          | .30  | 0.4                                     | 1.4  | 0.4    | 1.5  | 0.4    | 1.6  |                  |     |      |       |     |     | •    | •    | •     |
| .013          | .33  | 0.4                                     | 1.7  | 0.5    | 1.8  | 0.5    | 1.9  |                  |     |      |       |     |     | •    | •    | •     |
| .014          | .35  | 0.5                                     | 2.0  | 0.6    | 2.1  | 0.6    | 2.2  |                  |     |      |       |     |     | •    | •    | •     |
| .015          | .38  | 0.6                                     | 2.3  | 0.6    | 2.4  | 0.7    | 2.6  |                  |     |      |       |     |     | •    | •    | •     |
| .016          | .40  | 0.7                                     | 2.6  | 0.7    | 2.7  | 0.8    | 2.9  |                  |     |      |       |     |     | •    | •    | •     |
| .017          | .43  | 0.8                                     | 2.9  | 0.8    | 3.1  | 0.9    | 3.3  |                  |     |      |       |     |     | •    | •    | •     |
| .018          | .45  | 0.9                                     | 3.2  | 0.9    | 3.5  | 1.0    | 3.7  |                  |     | •    |       | •   | •   | •    | •    | •     |
| .019          | .48  | 1.0                                     | 3.6  | 1.0    | 3.9  | 1.1    | 4.1  |                  |     |      |       |     |     | •    | •    | •     |
| .020          | .50  | 1.1                                     | 4.0  | 1.1    | 4.3  | 1.2    | 4.5  |                  |     | •    |       |     |     | •    | •    | •     |
| .021          | .53  | 1.2                                     | 4.4  | 1.2    | 4.7  | 1.3    | 5.0  |                  |     |      |       |     |     | •    | •    | •     |
| .022          | .55  | 1.3                                     | 4.8  | 1.4    | 5.2  | 1.5    | 5.5  |                  |     | •    |       |     |     | •    | •    | •     |
| .023          | .58  | 1.4                                     | 5.3  | 1.5    | 5.7  | 1.6    | 6.0  |                  |     |      |       |     |     | •    | •    | •     |
| .024          | .60  | 1.5                                     | 5.8  | 1.6    | 6.2  | 1.7    | 6.5  |                  |     | •    |       |     |     | •    | •    | •     |
| .025          | .63  | 1.7                                     | 6.3  | 1.8    | 6.7  | 1.9    | 7.1  |                  |     |      |       | •   | •   | •    | •    | •     |
| .026          | .66  | 1.8                                     | 6.8  | 1.9    | 7.2  | 2.0    | 7.7  |                  |     | •    |       |     |     | •    | •    | •     |
| .027          | .68  | 1.9                                     | 7.3  | 2.1    | 7.8  | 2.2    | 8.3  |                  |     |      |       |     |     | •    | •    | •     |
| .028          | .71  | 2.1                                     | 7.9  | 2.2    | 8.4  | 2.4    | 8.9  |                  |     |      |       |     |     | •    | •    | •     |
| .029          | .73  | 2.2                                     | 8.4  | 2.4    | 9.0  | 2.5    | 9.5  | •                |     | •    |       | •   | •   | •    | •    | •     |
| .030          | .76  | 2.4                                     | 9.0  | 2.5    | 9.6  | 2.7    | 10.2 |                  |     |      |       |     |     | •    | •    | •     |
| .031          | .78  | 2.5                                     | 9.6  | 2.7    | 10.3 | 2.9    | 10.9 |                  |     |      |       |     |     | •    | •    | •     |
| .032          | .81  | 2.7                                     | 10.3 | 2.9    | 11.0 | 3.1    | 11.6 |                  |     | •    | •     |     |     | •    | •    | •     |
| .033          | .83  | 2.9                                     | 10.9 | 3.1    | 11.7 | 3.3    | 12.4 |                  |     |      |       | •   | •   | •    | •    | •     |
| .034          | .86  | 3.1                                     | 11.6 | 3.3    | 12.4 | 3.5    | 13.1 |                  |     | •    | •     |     |     | •    | •    | •     |
| .035          | .89  | 3.2                                     | 12.3 | 3.5    | 13.1 | 3.7    | 13.9 |                  |     | •    | •     |     |     | •    | •    | •     |
| .036          | .91  | 3.4                                     | 13.0 | 3.7    | 13.9 | 3.9    | 14.7 |                  |     |      |       |     |     | •    | •    | •     |
| .037          | .93  | 3.6                                     | 13.7 | 3.9    | 14.7 | 4.1    | 15.5 |                  |     | •    | •     |     |     | •    | •    | •     |
| .038          | .96  | 3.8                                     | 14.5 | 4.1    | 15.5 | 4.3    | 16.4 | •                | •   |      |       | •   | •   | •    | •    | •     |
| .039          | .99  | 4.0                                     | 15.2 | 4.3    | 16.3 | 4.6    | 17.3 |                  |     |      |       |     |     | •    | •    | •     |
| .040          | 1.02 | 4.2                                     | 16.0 | 4.5    | 17.1 | 4.8    | 18.2 |                  |     |      |       |     |     | •    | •    | •     |
| .042          | 1.06 | 4.7                                     | 17.7 | 5.0    | 18.9 | 5.3    | 20.0 | •                | •   | •    | •     | •   | •   | •    | •    | •     |
| .046          | 1.16 | 5.6                                     | 21.2 | 6.0    | 22.7 | 6.3    | 24.0 |                  | •   | •    |       | •   | •   | •    | •    | •     |
| .052          | 1.32 | 7.2                                     | 27.1 | 7.6    | 29.0 | 8.1    | 31.0 |                  | •   |      |       | •   | •   | •    | •    | •     |
| .067          | 1.70 | 12.0                                    | 45.0 | 13.0   | 48.0 | 13.0   | 51.0 |                  | •   |      |       |     |     | •    | •    | •     |

\*Orifice size (or equivalent for fan types) is denoted in the part number (-018, etc.)



## REPLACEABLE NOZZLE TIPS

### ORIFICE GROUP B



JS2  
(PAGE G-54)



P2TCS  
(PAGE G-53)

| ORIFICE SIZE* |      | FLOW AT SPECIFIED PRESSURES (PSI / BAR) |       |        |       |        |       |        |       |        |       |        |       | AVAILABLE SERIES |       |
|---------------|------|-----------------------------------------|-------|--------|-------|--------|-------|--------|-------|--------|-------|--------|-------|------------------|-------|
| in            | mm   | 10,000                                  | 689   | 12,500 | 862   | 15,000 | 1034  | 17,500 | 1207  | 20,000 | 1379  | 22,500 | 1551  | JS2              | P2TCS |
|               |      | gpm                                     | lpm   | gpm    | lpm   | gpm    | lpm   | gpm    | lpm   | gpm    | lpm   | gpm    | lpm   |                  |       |
| .018          | .46  | 0.8                                     | 3.0   | 0.9    | 3.4   | 1.0    | 3.7   | 1.1    | 4.0   | 1.1    | 4.2   | 1.2    | 4.5   | •                | •     |
| .020          | .51  | 1.0                                     | 3.7   | 1.1    | 4.1   | 1.2    | 4.5   | 1.3    | 4.9   | 1.4    | 5.2   | 1.5    | 5.6   | •                | •     |
| .022          | .56  | 1.2                                     | 4.5   | 1.3    | 5.0   | 1.5    | 5.5   | 1.6    | 5.9   | 1.7    | 6.3   | 1.8    | 6.7   | •                | •     |
| .024          | .61  | 1.4                                     | 5.3   | 1.6    | 6.0   | 1.7    | 6.5   | 1.9    | 7.1   | 2.0    | 7.6   | 2.1    | 8.0   | •                | •     |
| .026          | .66  | 1.7                                     | 6.3   | 1.9    | 7.0   | 2.0    | 7.7   | 2.2    | 8.3   | 2.3    | 8.9   | 2.5    | 9.4   | •                | •     |
| .029          | .74  | 2.1                                     | 7.8   | 2.3    | 8.7   | 2.5    | 9.6   | 2.7    | 10.3  | 2.9    | 11.0  | 3.1    | 11.7  | •                | •     |
| .032          | .81  | 2.5                                     | 9.5   | 2.8    | 10.6  | 3.1    | 11.6  | 3.3    | 12.6  | 3.5    | 13.4  | 3.8    | 14.2  | •                | •     |
| .035          | .89  | 3.0                                     | 11.4  | 3.4    | 12.7  | 3.7    | 13.9  | 4.0    | 15.0  | 4.2    | 16.1  | 4.5    | 17.0  | •                | •     |
| .038          | .97  | 3.5                                     | 13.4  | 4.0    | 15.0  | 4.3    | 16.4  | 4.7    | 17.7  | 5.0    | 18.9  | 5.3    | 20.1  | •                | •     |
| .042          | 1.07 | 4.3                                     | 16.4  | 4.8    | 18.3  | 5.3    | 20.0  | 5.7    | 21.6  | 6.1    | 23.1  | 6.5    | 24.5  | •                | •     |
| .047          | 1.19 | 5.4                                     | 20.5  | 6.1    | 22.9  | 6.6    | 25.1  | 7.2    | 27.1  | 7.7    | 29.0  | 8.1    | 30.7  | •                | •     |
| .052          | 1.32 | 6.6                                     | 25.1  | 7.4    | 28.0  | 8.1    | 30.7  | 8.8    | 33.2  | 9.4    | 35.5  | 9.9    | 37.6  | •                | •     |
| .057          | 1.45 | 8.0                                     | 30.1  | 8.9    | 33.7  | 9.7    | 36.9  | 10.5   | 39.9  | 11.3   | 42.6  | 11.9   | 45.2  | •                | •     |
| .063          | 1.60 | 9.7                                     | 36.8  | 10.9   | 41.1  | 11.9   | 45.1  | 12.9   | 48.7  | 13.8   | 52.1  | 14.6   | 55.2  | •                | •     |
| .069          | 1.75 | 11.7                                    | 44.1  | 13.0   | 49.4  | 14.3   | 54.1  | 15.4   | 58.4  | 16.5   | 62.4  | 17.5   | 66.2  | •                | •     |
| .075          | 1.91 | 13.8                                    | 52.2  | 15.4   | 58.3  | 16.9   | 63.9  | 18.2   | 69.0  | 19.5   | 73.8  | 20.7   | 78.2  | •                | •     |
| .082          | 2.08 | 16.5                                    | 62.4  | 18.4   | 69.7  | 20.2   | 76.4  | 21.8   | 82.5  | 23.3   | 88.2  | 24.7   | 93.5  | •                | •     |
| .090          | 2.29 | 19.8                                    | 75.1  | 22.2   | 84.0  | 24.3   | 92.0  | 26.3   | 99.4  | 28.1   | 106.2 | 29.8   | 112.7 | •                | •     |
| .098          | 2.49 | 23.5                                    | 89.1  | 26.3   | 99.6  | 28.8   | 109.1 | 31.1   | 117.8 | 33.3   | 126.0 | 35.3   | 133.6 | •                | •     |
| .106          | 2.69 | 27.5                                    | 104.2 | 30.8   | 116.5 | 33.7   | 127.6 | 36.4   | 137.8 | 38.9   | 147.4 | 41.3   | 156.3 | •                | •     |
| .110          | 2.79 | 29.6                                    | 112.2 | 33.1   | 125.5 | 36.3   | 137.4 | 39.2   | 148.4 | 41.9   | 158.7 | 44.5   | 168.3 | •                | •     |
| .115          | 2.92 | 32.4                                    | 122.6 | 36.2   | 137.1 | 39.7   | 150.2 | 42.9   | 162.2 | 45.8   | 173.4 | 48.6   | 184.0 | •                | •     |
| .125          | 3.18 | 38.3                                    | 144.9 | 42.8   | 162.0 | 46.9   | 177.5 | 50.6   | 191.7 | 54.1   | 204.9 | 57.4   | 217.3 | •                | •     |
| .135          | 3.43 | 44.7                                    | 169.0 | 49.9   | 189.0 | 54.7   | 207.0 | 59.1   | 223.6 | 63.1   | 239.0 | 67.0   | 253.5 | •                |       |
| .145          | 3.68 | 51.5                                    | 195.0 | 57.6   | 218.0 | 63.1   | 238.8 | 68.1   | 257.9 | 72.8   | 275.7 | 77.3   | 292.5 | •                |       |

\*Orifice size (or equivalent for fan types) is denoted in the part number (-018, etc.)

## REPLACEABLE NOZZLE TIPS

### ORIFICE GROUP C



HHTC  
(PAGE G-47)



HP  
(PAGE G-37)



JS4  
(PAGE G-56)



JS4F  
(PAGE G-55)



P4TC  
(PAGE G-53)



RM  
(PAGE G-57)

| ORIFICE SIZE* |      | FLOW AT SPECIFIED PRESSURES (PSI / BAR) |       |        |       |        |       | AVAILABLE SERIES |    |     |      |      |    |
|---------------|------|-----------------------------------------|-------|--------|-------|--------|-------|------------------|----|-----|------|------|----|
| in            | mm   | 10,000                                  | 689   | 12,500 | 862   | 15,000 | 1034  | HHTC             | HP | JS4 | JS4F | P4TC | RM |
|               |      | gpm                                     | lpm   | gpm    | lpm   | gpm    | lpm   |                  |    |     |      |      |    |
| .018          | 0.46 | 0.9                                     | 3.3   | 1.0    | 3.7   | 1.1    | 4.1   | •                | •  | •   | •    | •    | •  |
| .020          | 0.51 | 1.1                                     | 4.1   | 1.2    | 4.6   | 1.3    | 5.0   | •                | •  | •   | •    | •    | •  |
| .022          | 0.56 | 1.3                                     | 4.9   | 1.5    | 5.5   | 1.6    | 6.1   | •                | •  | •   | •    | •    | •  |
| .024          | 0.61 | 1.6                                     | 5.9   | 1.7    | 6.6   | 1.9    | 7.2   | •                | •  | •   | •    | •    | •  |
| .026          | 0.66 | 1.8                                     | 6.9   | 2.0    | 7.7   | 2.2    | 8.5   | •                | •  | •   | •    | •    | •  |
| .029          | 0.74 | 2.3                                     | 8.6   | 2.5    | 9.6   | 2.8    | 10.5  | •                | •  | •   | •    | •    | •  |
| .032          | 0.81 | 2.8                                     | 10.5  | 3.1    | 11.7  | 3.4    | 12.8  | •                | •  | •   | •    | •    | •  |
| .035          | 0.89 | 3.3                                     | 12.5  | 3.7    | 14.0  | 4.1    | 15.3  | •                | •  | •   | •    | •    | •  |
| .038          | 0.97 | 3.9                                     | 14.8  | 4.4    | 16.5  | 4.8    | 18.1  | •                | •  | •   | •    | •    | •  |
| .042          | 1.07 | 4.8                                     | 18.0  | 5.3    | 20.2  | 5.8    | 22.1  | •                | •  | •   | •    | •    | •  |
| .047          | 1.19 | 6.0                                     | 22.6  | 6.7    | 25.2  | 7.3    | 27.6  | •                | •  | •   | •    | •    | •  |
| .052          | 1.32 | 7.3                                     | 27.6  | 8.2    | 30.9  | 8.9    | 33.8  | •                | •  | •   | •    | •    | •  |
| .057          | 1.45 | 8.8                                     | 33.2  | 9.8    | 37.1  | 10.7   | 40.7  | •                | •  | •   | •    | •    | •  |
| .063          | 1.60 | 10.7                                    | 40.6  | 12.0   | 45.3  | 13.1   | 49.7  | •                | •  | •   | •    | •    | •  |
| .067          | 1.70 | 12.1                                    | 45.9  | 13.6   | 51.3  | 14.8   | 56.2  | •                | •  |     |      | •    | •  |
| .069          | 1.75 | 12.9                                    | 48.7  | 14.4   | 54.4  | 15.7   | 59.6  | •                | •  | •   | •    | •    | •  |
| .073          | 1.85 | 14.4                                    | 54.5  | 16.1   | 60.9  | 17.6   | 66.7  | •                | •  |     |      | •    | •  |
| .075          | 1.90 | 15.2                                    | 57.5  | 17.0   | 64.3  | 18.6   | 70.4  | •                | •  | •   | •    | •    | •  |
| .078          | 1.98 | 16.4                                    | 62.2  | 18.4   | 69.5  | 20.1   | 76.1  | •                | •  |     |      | •    | •  |
| .082          | 2.08 | 18.2                                    | 68.7  | 20.3   | 76.8  | 22.2   | 84.2  | •                | •  | •   | •    | •    | •  |
| .090          | 2.29 | 21.9                                    | 82.8  | 24.5   | 92.5  | 26.8   | 101.4 | •                | •  | •   | •    | •    | •  |
| .093          | 2.36 | 23.4                                    | 88.4  | 26.1   | 98.8  | 28.6   | 108.3 | •                | •  |     |      | •    | •  |
| .098          | 2.49 | 25.9                                    | 98.1  | 29.0   | 109.7 | 31.8   | 120.2 | •                | •  | •   | •    | •    | •  |
| .106          | 2.69 | 30.3                                    | 114.8 | 33.9   | 128.4 | 37.2   | 140.6 | •                | •  | •   | •    | •    | •  |
| .110          | 2.79 | 32.7                                    | 123.7 | 36.5   | 138.3 | 40.0   | 151.4 | •                | •  |     |      | •    | •  |
| .115          | 2.92 | 35.7                                    | 135.2 | 39.9   | 151.1 | 43.7   | 165.5 | •                | •  | •   | •    | •    | •  |
| .125          | 3.18 | 42.2                                    | 159.7 | 47.2   | 178.5 | 51.7   | 195.6 | •                | •  | •   | •    | •    | •  |
| .135          | 3.43 | 49.2                                    | 186.3 | 55.0   | 208.2 | 60.3   | 228.1 | •                | •  | •   | •    | •    | •  |
| .145          | 3.68 | 56.8                                    | 214.9 | 63.5   | 240.2 | 69.5   | 263.2 | •                | •  | •   | •    | •    | •  |
| .155          | 3.94 | 64.9                                    | 245.5 | 72.5   | 274.5 | 79.4   | 300.7 | •                | •  | •   | •    | •    | •  |
| .165          | 4.19 | 73.5                                    | 278.2 | 82.2   | 311.1 | 90.0   | 340.8 | •                | •  | •   | •    | •    | •  |

\*Orifice size (or equivalent for fan types) is denoted in the part number (-018, etc.)

## REPLACEABLE NOZZLE TIPS

### ORIFICE GROUP C



HHTC  
(PAGE G-47)



HP  
(PAGE G-37)



JS4  
(PAGE G-56)



JS4F  
(PAGE G-55)



P4TC  
(PAGE G-53)



RM  
(PAGE G-57)

| ORIFICE SIZE* |      | FLOW AT SPECIFIED PRESSURES (PSI / BAR) |       |        |       |        |       | AVAILABLE SERIES |    |     |      |      |    |
|---------------|------|-----------------------------------------|-------|--------|-------|--------|-------|------------------|----|-----|------|------|----|
| in            | mm   | 17,500                                  | 1207  | 20,000 | 1379  | 22,500 | 1551  | HHTC             | HP | JS4 | JS4F | P4TC | RM |
|               |      | gpm                                     | lpm   | gpm    | lpm   | gpm    | lpm   |                  |    |     |      |      |    |
| .018          | 0.46 | 1.2                                     | 4.4   | 1.2    | 4.7   | 1.3    | 5.0   | •                | •  | •   | •    | •    | •  |
| .020          | 0.51 | 1.4                                     | 5.4   | 1.5    | 5.8   | 1.6    | 6.1   | •                | •  | •   | •    | •    | •  |
| .022          | 0.56 | 1.7                                     | 6.5   | 1.8    | 7.0   | 2.0    | 7.4   | •                | •  | •   | •    | •    | •  |
| .024          | 0.61 | 2.1                                     | 7.8   | 2.2    | 8.3   | 2.3    | 8.8   | •                | •  | •   | •    | •    | •  |
| .026          | 0.66 | 2.4                                     | 9.1   | 2.6    | 9.8   | 2.7    | 10.4  | •                | •  | •   | •    | •    | •  |
| .029          | 0.74 | 3.0                                     | 11.4  | 3.2    | 12.2  | 3.4    | 12.9  | •                | •  | •   | •    | •    | •  |
| .032          | 0.81 | 3.7                                     | 13.8  | 3.9    | 14.8  | 4.1    | 15.7  | •                | •  | •   | •    | •    | •  |
| .035          | 0.89 | 4.4                                     | 16.6  | 4.7    | 17.7  | 5.0    | 18.8  | •                | •  | •   | •    | •    | •  |
| .038          | 0.97 | 5.2                                     | 19.5  | 5.5    | 20.9  | 5.8    | 22.1  | •                | •  | •   | •    | •    | •  |
| .042          | 1.07 | 6.3                                     | 23.8  | 6.7    | 25.5  | 7.1    | 27.0  | •                | •  | •   | •    | •    | •  |
| .047          | 1.19 | 7.9                                     | 29.9  | 8.4    | 31.9  | 8.9    | 33.9  | •                | •  | •   | •    | •    | •  |
| .052          | 1.32 | 9.7                                     | 36.6  | 10.3   | 39.1  | 11.0   | 41.5  | •                | •  | •   | •    | •    | •  |
| .057          | 1.45 | 11.6                                    | 43.9  | 12.4   | 47.0  | 13.2   | 49.8  | •                | •  | •   | •    | •    | •  |
| .063          | 1.60 | 14.2                                    | 53.7  | 15.2   | 57.4  | 16.1   | 60.8  | •                | •  | •   | •    | •    | •  |
| .067          | 1.70 | 16.0                                    | 60.7  | 17.1   | 64.9  | 18.2   | 68.8  | •                | •  |     |      | •    | •  |
| .069          | 1.75 | 17.0                                    | 64.4  | 18.2   | 68.8  | 19.3   | 73.0  | •                | •  | •   | •    | •    | •  |
| .073          | 1.85 | 19.0                                    | 72.0  | 20.3   | 77.0  | 21.6   | 81.7  | •                | •  |     |      | •    | •  |
| .075          | 1.90 | 20.1                                    | 76.0  | 21.5   | 81.3  | 22.8   | 86.2  | •                | •  | •   | •    | •    | •  |
| .078          | 1.98 | 21.7                                    | 82.3  | 23.2   | 87.9  | 24.6   | 93.3  | •                | •  |     |      | •    | •  |
| .082          | 2.08 | 24.0                                    | 90.9  | 25.7   | 97.2  | 27.2   | 103.1 | •                | •  | •   | •    | •    | •  |
| .090          | 2.29 | 28.9                                    | 109.5 | 30.9   | 117.1 | 32.8   | 124.2 | •                | •  | •   | •    | •    | •  |
| .093          | 2.36 | 30.9                                    | 116.9 | 33.0   | 125.0 | 35.0   | 132.6 | •                | •  |     |      | •    | •  |
| .098          | 2.49 | 34.3                                    | 129.8 | 36.7   | 138.8 | 38.9   | 147.2 | •                | •  | •   | •    | •    | •  |
| .106          | 2.69 | 40.1                                    | 151.9 | 42.9   | 162.4 | 45.5   | 172.2 | •                | •  | •   | •    | •    | •  |
| .110          | 2.79 | 43.2                                    | 163.6 | 46.2   | 174.9 | 49.0   | 185.5 | •                | •  |     |      | •    | •  |
| .115          | 2.92 | 47.2                                    | 178.8 | 50.5   | 191.1 | 53.6   | 202.7 | •                | •  | •   | •    | •    | •  |
| .125          | 3.18 | 55.8                                    | 211.2 | 59.7   | 225.8 | 63.3   | 239.5 | •                | •  | •   | •    | •    | •  |
| .135          | 3.43 | 65.1                                    | 246.4 | 69.6   | 263.4 | 73.8   | 279.4 | •                | •  | •   | •    | •    | •  |
| .145          | 3.68 | 75.1                                    | 284.2 | 80.3   | 303.9 | 85.2   | 322.3 | •                | •  | •   | •    | •    | •  |
| .155          | 3.94 | 85.8                                    | 324.8 | 91.7   | 347.2 | 97.3   | 368.3 | •                | •  | •   | •    | •    | •  |
| .165          | 4.19 | 97.2                                    | 368.1 | 104.0  | 393.5 | 110.3  | 417.3 | •                | •  | •   | •    | •    | •  |

\*Orifice size (or equivalent for fan types) is denoted in the part number (-018, etc.)

## REPLACEABLE NOZZLE TIPS

### OX SERIES CARBIDE ORIFICES



OX  
(PAGE G-49)

| ORIFICE SIZE* |      | FLOW AT SPECIFIED PRESSURES (PSI / BAR) |      |        |      |        |      |        |      |        |      |        |      |
|---------------|------|-----------------------------------------|------|--------|------|--------|------|--------|------|--------|------|--------|------|
| in            | mm   | 10,000                                  | 689  | 12,500 | 862  | 15,000 | 1034 | 17,500 | 1207 | 20,000 | 1379 | 22,500 | 1551 |
|               |      | gpm                                     | lpm  | gpm    | lpm  | gpm    | lpm  | gpm    | lpm  | gpm    | lpm  | gpm    | lpm  |
| .018          | 0.46 | 0.9                                     | 3.4  | 1.0    | 3.8  | 0.9    | 3.4  | 1.2    | 4.5  | 1.3    | 4.9  | 1.4    | 5.2  |
| .025          | 0.64 | 1.8                                     | 6.6  | 2.0    | 7.4  | 1.8    | 6.6  | 2.3    | 8.8  | 2.5    | 9.4  | 2.6    | 9.9  |
| .029          | 0.74 | 2.4                                     | 8.9  | 2.6    | 10.0 | 2.4    | 8.9  | 3.1    | 11.8 | 3.3    | 12.6 | 3.5    | 13.4 |
| .033          | 0.84 | 3.0                                     | 11.5 | 3.4    | 12.9 | 3.0    | 11.5 | 4.0    | 15.3 | 4.3    | 16.3 | 4.6    | 17.3 |
| .038          | 0.97 | 4.0                                     | 15.3 | 4.5    | 17.1 | 4.0    | 15.3 | 5.3    | 20.2 | 5.7    | 21.6 | 6.1    | 23.0 |
| .042          | 1.07 | 4.9                                     | 18.7 | 5.5    | 20.9 | 4.9    | 18.7 | 6.5    | 24.7 | 7.0    | 26.4 | 7.4    | 28.0 |
| .046          | 1.17 | 5.9                                     | 22.4 | 6.6    | 25.1 | 5.9    | 22.4 | 7.8    | 29.7 | 8.4    | 31.7 | 8.9    | 33.6 |

\*Orifice size (or equivalent for fan types) is denoted in the part number (-018, etc.)

### NOZZLE NUMBER CROSS-REFERENCE CHART

Historically, Jetstream has used a random 5-digit part number with a 'Flow Number' to designate specific orifice sizes. Nozzle part numbers have since been updated to include the nozzle series and orifice size directly in the part number (i.e. JS2-018 for a JS2 series nozzle with a .018" diameter orifice). The charts below give a cross reference between the old 'Flow Number' and orifice diameter.

| NO. | IN   | MM   |
|-----|------|------|
| 000 | .018 | 0.46 |
| 00  | .025 | 0.64 |
| 0   | .029 | 0.74 |
| 1   | .033 | 0.84 |
| 2   | .038 | 0.97 |

| NO. | IN   | MM   |
|-----|------|------|
| 3   | .042 | 1.07 |
| 4   | .046 | 1.17 |
| 5   | .055 | 1.40 |
| 6   | .063 | 1.60 |
| 7   | .067 | 1.70 |

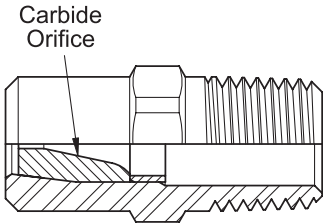
| NO. | IN   | MM   |
|-----|------|------|
| 8   | .070 | 1.78 |
| 9   | .073 | 1.85 |
| 10  | .078 | 1.98 |
| 12  | .082 | 2.08 |
| 14  | .090 | 2.28 |

| NO. | IN   | MM   |
|-----|------|------|
| 15  | .093 | 2.36 |
| 20  | .110 | 2.79 |
| 30  | .125 | 3.18 |

# REPLACEABLE NOZZLE TIPS

## HHTC NOZZLES

- ▶ Tungsten carbide orifice inserts significantly outlast conventional nozzle orifice material
- ▶ Tapered geometry provides highly cohesive, distortion-free waterjets for concentrated, work saving cleaning and cutting power
- ▶ Enables more work to be done in less time
- ▶ Straight (0°) and fan patterns available
- ▶ 1/4" NPT Male connection\*
- ▶ 22,000 psi (1516 bar) maximum working pressure



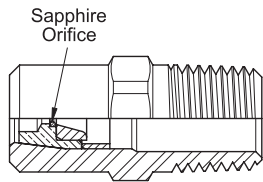
| HHTC0 STRAIGHT JET                                                                |           | HHTC15 15° FAN JET                                                                |  | HHTC25 25° FAN JET                                                                 |  | HHTC50 50° FAN JET                                                                  |  |
|-----------------------------------------------------------------------------------|-----------|-----------------------------------------------------------------------------------|--|------------------------------------------------------------------------------------|--|-------------------------------------------------------------------------------------|--|
|  |           |  |  |  |  |  |  |
| PART NO.**                                                                        |           | PART NO.**                                                                        |  | PART NO.**                                                                         |  | PART NO.**                                                                          |  |
| HHTC0-018                                                                         | HHTC0-073 | HHTC15-029                                                                        |  | HHTC25-047                                                                         |  | HHTC50-057                                                                          |  |
| HHTC0-020                                                                         | HHTC0-075 | HHTC15-038                                                                        |  | HHTC25-057                                                                         |  | HHTC50-063                                                                          |  |
| HHTC0-022                                                                         | HHTC0-078 | HHTC15-042                                                                        |  | HHTC25-063                                                                         |  | HHTC50-067                                                                          |  |
| HHTC0-024                                                                         | HHTC0-082 | HHTC15-047                                                                        |  | HHTC25-067                                                                         |  | HHTC50-069                                                                          |  |
| HHTC0-026                                                                         | HHTC0-090 | HHTC15-057                                                                        |  | HHTC25-069                                                                         |  | HHTC50-073                                                                          |  |
| HHTC0-029                                                                         | HHTC0-093 | HHTC15-063                                                                        |  | HHTC25-073                                                                         |  | HHTC50-078                                                                          |  |
| HHTC0-032                                                                         | HHTC0-098 | HHTC15-067                                                                        |  | HHTC25-078                                                                         |  |                                                                                     |  |
| HHTC0-035                                                                         | HHTC0-106 | HHTC15-069                                                                        |  |                                                                                    |  |                                                                                     |  |
| HHTC0-038                                                                         | HHTC0-110 | HHTC15-073                                                                        |  |                                                                                    |  |                                                                                     |  |
| HHTC0-042                                                                         | HHTC0-115 | HHTC15-078                                                                        |  |                                                                                    |  |                                                                                     |  |
| HHTC0-047                                                                         | HHTC0-125 | HHTC15-082                                                                        |  |                                                                                    |  |                                                                                     |  |
| HHTC0-052                                                                         | HHTC0-135 | HHTC15-090                                                                        |  |                                                                                    |  |                                                                                     |  |
| HHTC0-057                                                                         | HHTC0-145 | HHTC15-093                                                                        |  |                                                                                    |  |                                                                                     |  |
| HHTC0-063                                                                         | HHTC0-155 |                                                                                   |  |                                                                                    |  |                                                                                     |  |
| HHTC0-067                                                                         | HHTC0-165 |                                                                                   |  |                                                                                    |  |                                                                                     |  |
| HHTC0-069                                                                         |           |                                                                                   |  |                                                                                    |  |                                                                                     |  |

\*See details on all connection types in Section I.  
 \*\*Orifice size (or equivalent for fan types) is denoted in the part number (-018, etc.)  
 For nozzle flow rates, see Orifice Group C chart, page G-44.



# REPLACEABLE NOZZLE TIPS

## HHSO NOZZLES



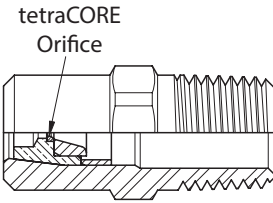
- ▶ Precision honed sapphire orifice inserts are twice as durable as tungsten carbide
- ▶ Tapered orifice retainer provides highly cohesive, distortion-free waterjets for concentrated, work saving cleaning and cutting power
- ▶ Straight (0°) patterns
- ▶ 1/4" NPT Male connection\*
- ▶ 22,000 psi (1516 bar) maximum working pressure

### HHSO STRAIGHT JET

|  | PART NO.** |
|--|------------|
|  | HHSO-025   |
|  | HHSO-029   |
|  | HHSO-033   |
|  | HHSO-038   |
|  | HHSO-042   |
|  | HHSO-046   |
|  | HHSO-055   |

\*See details on all connection types in Section I.  
\*\*Orifice size (or equivalent for fan types) is denoted in the part number (-018, etc.)  
For nozzle flow rates, see Orifice Group A chart, page G-40.

## HHD NOZZLES



- ▶ tetraCORE™ synthetic diamond orifice inserts are 10-15x as durable as sapphire
- ▶ Tapered orifice retainer provides highly cohesive, distortion-free waterjets for concentrated, work saving cleaning and cutting power
- ▶ Straight (0°) patterns
- ▶ 1/4" NPT Male connection\*
- ▶ 22,000 psi (1516 bar) maximum working pressure

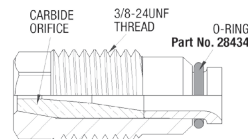
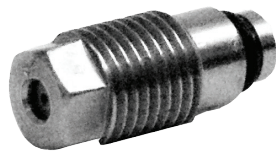
### HHD STRAIGHT JET

|  | PART NO.** |
|--|------------|
|  | HHD-038    |
|  | HHD-042    |
|  | HHD-047    |
|  | HHD-052    |
|  | HHD-057    |
|  | HHD-063    |
|  | HHD-069    |
|  | HHD-073    |
|  | HHD-078    |

\*See details on all connection types in Section I.  
\*\*Orifice size (or equivalent for fan types) is denoted in the part number (-018, etc.)  
For nozzle flow rates, see Orifice Group A chart, page G-40.

# REPLACEABLE NOZZLE TIPS

## OX NOZZLES



- ▶ High productivity carbide nozzles designed for use in the Orbi-Jet X22 tool
- ▶ Specially engineered carbide orifices provide the most aggressive waterjets available
- ▶ Efficient design reduces turbulence and orifice wear

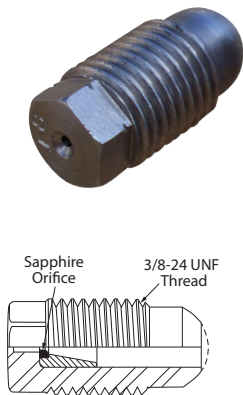
### OX STRAIGHT JET

|  | PART NO.** |
|-------------------------------------------------------------------------------------|------------|
|                                                                                     | OX-018     |
|                                                                                     | OX-025     |
|                                                                                     | OX-029     |
|                                                                                     | OX-033     |
|                                                                                     | OX-038     |
|                                                                                     | OX-042     |
|                                                                                     | OX-046     |
|                                                                                     | OX-055     |
|                                                                                     |            |

\*See details on all connection types in Section I.  
\*\*Orifice size (or equivalent for fan types) is denoted in the part number (-018, etc.)  
For nozzle flow rates, see the OX Series Carbide Orifices chart, page G-46.

# REPLACEABLE NOZZLE TIPS

## UHPX NOZZLES



- ▶ Premium high productivity sapphire nozzles
- ▶ Tapered orifice retainer reduces turbulence and provides a cohesive, aggressive waterjet.
- ▶ 5/16" external hex
- ▶ 22,000 psi (1516 bar) maximum working pressure

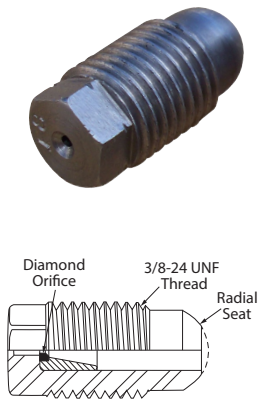
### UHPX STRAIGHT JET

|  | PART NO.** |          |
|--|------------|----------|
|  |            |          |
|  | UHPX-005   | UHPX-025 |
|  | UHPX-006   | UHPX-026 |
|  | UHPX-007   | UHPX-027 |
|  | UHPX-008   | UHPX-028 |
|  | UHPX-009   | UHPX-029 |
|  | UHPX-010   | UHPX-030 |
|  | UHPX-011   | UHPX-031 |
|  | UHPX-012   | UHPX-032 |
|  | UHPX-013   | UHPX-033 |
|  | UHPX-014   | UHPX-034 |
|  | UHPX-015   | UHPX-035 |
|  | UHPX-016   | UHPX-036 |
|  | UHPX-017   | UHPX-037 |
|  | UHPX-018   | UHPX-038 |
|  | UHPX-019   | UHPX-039 |
|  | UHPX-020   | UHPX-040 |
|  | UHPX-021   | UHPX-042 |
|  | UHPX-022   | UHPX-046 |
|  | UHPX-023   | UHPX-052 |
|  | UHPX-024   | UHPX-057 |
|  |            | UHPX-067 |

\*See details on all connection types in Section I.  
\*\*Orifice size (or equivalent for fan types) is denoted in the part number (-018, etc.)  
For nozzle flow rates, see Orifice Group A chart, page G-40.

# REPLACEABLE NOZZLE TIPS

## UHPXD NOZZLES



- ▶ Premium high productivity tetraCORE™ synthetic diamond nozzles
- ▶ Tapered orifice retainer reduces turbulence and provides a cohesive, aggressive waterjet.
- ▶ 5/16" external hex
- ▶ 22,000 psi (1516 bar) maximum working pressure

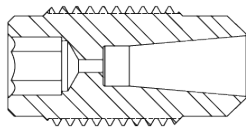
### UHPXD STRAIGHT JET

|                                                                                     | PART NO.** |           |
|-------------------------------------------------------------------------------------|------------|-----------|
|                                                                                     |            |           |
|  | UHPXD-005  | UHPXD-025 |
|                                                                                     | UHPXD-006  | UHPXD-026 |
|                                                                                     | UHPXD-007  | UHPXD-027 |
|                                                                                     | UHPXD-008  | UHPXD-028 |
|                                                                                     | UHPXD-009  | UHPXD-029 |
|                                                                                     | UHPXD-010  | UHPXD-030 |
|                                                                                     | UHPXD-011  | UHPXD-031 |
|                                                                                     | UHPXD-012  | UHPXD-032 |
|                                                                                     | UHPXD-013  | UHPXD-033 |
|                                                                                     | UHPXD-014  | UHPXD-034 |
|                                                                                     | UHPXD-015  | UHPXD-035 |
|                                                                                     | UHPXD-016  | UHPXD-036 |
|                                                                                     | UHPXD-017  | UHPXD-037 |
|                                                                                     | UHPXD-018  | UHPXD-038 |
|                                                                                     | UHPXD-019  | UHPXD-039 |
|                                                                                     | UHPXD-020  | UHPXD-040 |
|                                                                                     | UHPXD-021  | UHPXD-042 |
|                                                                                     | UHPXD-022  | UHPXD-046 |
|                                                                                     | UHPXD-023  | UHPXD-052 |
|                                                                                     | UHPXD-024  | UHPXD-067 |

\*See details on all connection types in Section I.  
\*\*Orifice size (or equivalent for fan types) is denoted in the part number (-018, etc.)  
For nozzle flow rates, see Orifice Group A chart, page G-40.

# REPLACEABLE NOZZLE TIPS

## UHPXi NOZZLES



- ▶ Premium high productivity sapphire nozzles
- ▶ Tapered orifice retainer reduces turbulence and provides a cohesive, aggressive waterjet.
- ▶ 5/32" internal hex
- ▶ 22,000 psi (1516 bar) maximum working pressure

### UHPXi STRAIGHT JET

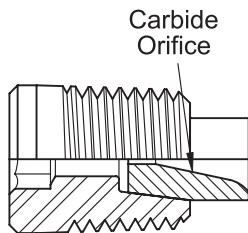
|  | PART NO.** |           |
|--|------------|-----------|
|  |            |           |
|  | UHPXi-005  | UHPXi-025 |
|  | UHPXi-006  | UHPXi-026 |
|  | UHPXi-007  | UHPXi-027 |
|  | UHPXi-008  | UHPXi-028 |
|  | UHPXi-009  | UHPXi-029 |
|  | UHPXi-010  | UHPXi-030 |
|  | UHPXi-011  | UHPXi-031 |
|  | UHPXi-012  | UHPXi-032 |
|  | UHPXi-013  | UHPXi-033 |
|  | UHPXi-014  | UHPXi-034 |
|  | UHPXi-015  | UHPXi-035 |
|  | UHPXi-016  | UHPXi-036 |
|  | UHPXi-017  | UHPXi-037 |
|  | UHPXi-018  | UHPXi-038 |
|  | UHPXi-019  | UHPXi-039 |
|  | UHPXi-020  | UHPXi-040 |
|  | UHPXi-021  | UHPXi-042 |
|  | UHPXi-022  | UHPXi-046 |
|  | UHPXi-023  | UHPXi-052 |
|  | UHPXi-024  | UHPXi-067 |

\*See details on all connection types in Section I.

\*\*Orifice size (or equivalent for fan types) is denoted in the part number (-018, etc.)  
For nozzle flow rates, see Orifice Group A chart, page G-40.

# LOW PROFILE NOZZLE TIPS

## P4TC PIPE CLEANING NOZZLES

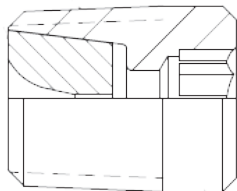


- ▶ Low profile design for unobstructed pipe cleaning
- ▶ Tungsten carbide orifice inserts significantly outlast conventional nozzle orifice material
- ▶ Tapered geometry provides highly cohesive, distortion-free waterjets for concentrated, work-saving cleaning and cutting power
- ▶ Straight (0°) patterns
- ▶ 1/4" NPT Male connection\*
- ▶ 22,000 psi (1516 bar) maximum working pressure

| P4TC STRAIGHT JET                                                                   |                   |
|-------------------------------------------------------------------------------------|-------------------|
|                                                                                     | PART NO.**        |
|  | P4TC-018 P4TC-073 |
|                                                                                     | P4TC-020 P4TC-075 |
|                                                                                     | P4TC-022 P4TC-078 |
|                                                                                     | P4TC-024 P4TC-082 |
|                                                                                     | P4TC-026 P4TC-090 |
|                                                                                     | P4TC-029 P4TC-093 |
|                                                                                     | P4TC-032 P4TC-098 |
|                                                                                     | P4TC-035 P4TC-106 |
|                                                                                     | P4TC-038 P4TC-110 |
|                                                                                     | P4TC-042 P4TC-115 |
|                                                                                     | P4TC-047 P4TC-125 |
|                                                                                     | P4TC-052 P4TC-135 |
|                                                                                     | P4TC-057 P4TC-145 |
|                                                                                     | P4TC-063 P4TC-155 |
|                                                                                     | P4TC-067 P4TC-165 |
|                                                                                     | P4TC-069          |

\*See details on all connection types in Section I.  
 \*\*Orifice size (or equivalent for fan types) is denoted in the part number (-018, etc.)  
 For nozzle flow rates, see Orifice Group C chart, page G-44.

## P2TCS PIPE CLEANING NOZZLES



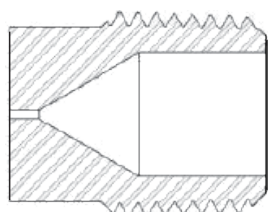
- ▶ Low profile design for unobstructed pipe cleaning with short inlet
- ▶ Tungsten carbide orifice inserts significantly outlast conventional nozzle orifice material
- ▶ Tapered geometry provides highly cohesive, distortion-free waterjets for concentrated, work saving cleaning and cutting power
- ▶ Straight (0°) patterns
- ▶ 1/8" NPT Male connection\*
- ▶ 22,000 psi (1516 bar) maximum working pressure

| P2TCS STRAIGHT JET                                                                    |                     |
|---------------------------------------------------------------------------------------|---------------------|
|                                                                                       | PART NO.**          |
|  | P2TCS-018 P2TCS-067 |
|                                                                                       | P2TCS-020 P2TCS-069 |
|                                                                                       | P2TCS-022 P2TCS-073 |
|                                                                                       | P2TCS-024 P2TCS-075 |
|                                                                                       | P2TCS-026 P2TCS-078 |
|                                                                                       | P2TCS-029 P2TCS-082 |
|                                                                                       | P2TCS-032 P2TCS-090 |
|                                                                                       | P2TCS-035 P2TCS-093 |
|                                                                                       | P2TCS-038 P2TCS-098 |
|                                                                                       | P2TCS-042 P2TCS-106 |
|                                                                                       | P2TCS-047 P2TCS-110 |
|                                                                                       | P2TCS-052 P2TCS-115 |
|                                                                                       | P2TCS-057 P2TCS-125 |
|                                                                                       | P2TCS-063           |

\*See details on all connection types in Section I.  
 \*\*Orifice size (or equivalent for fan types) is denoted in the part number (-018, etc.)  
 For nozzle flow rates, see Orifice Group B chart, page G-43.

# LOW PROFILE NOZZLE TIPS

## JS2 PIPE CLEANING NOZZLES



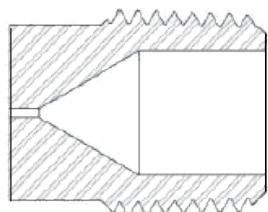
- ▶ Low profile design for unobstructed pipe cleaning with short inlet
- ▶ Stainless steel
- ▶ Precision drilled orifice
- ▶ Tapered geometry provides highly cohesive, distortion-free waterjets for concentrated, work saving cleaning and cutting power
- ▶ Straight (0°) patterns
- ▶ 1/8" NPT Male connection\*
- ▶ 22,000 psi (1516 bar) maximum working pressure

### JS2 STRAIGHT JET

|  | PART NO.** |          |
|--|------------|----------|
|  | JS2-018    | JS2-063  |
|  | JS2-020    | JS2-069  |
|  | JS2-022    | JS2-075  |
|  | JS2-024    | JS2-082  |
|  | JS2-026    | JS2-090  |
|  | JS2-029    | JS2-098  |
|  | JS2-032    | JS2-106  |
|  | JS2-035    | JS2-115  |
|  | JS2-038    | JS2-125  |
|  | JS2-042    | JS2-135  |
|  | JS2-047    | JS2-145  |
|  | JS2-052    | JS2-PLUG |
|  | JS2-057    |          |

\*See details on all connection types in Section I.  
\*\*Orifice size (or equivalent for fan types) is denoted in the part number (-018, etc.)  
For nozzle flow rates, see Orifice Group B chart, page G-43.

## JS2D PIPE CLEANING NOZZLES



- ▶ Low profile design for unobstructed pipe cleaning with short inlet
- ▶ tetraCORE™ synthetic diamond orifice inserts are 10-15x as durable as sapphire
- ▶ Precision drilled orifice
- ▶ Tapered geometry provides highly cohesive, distortion-free waterjets for concentrated, work saving cleaning and cutting power
- ▶ Straight (0°) patterns
- ▶ 1/8" NPT Male connection\*
- ▶ 22,000 psi (1516 bar) maximum working pressure

### JS2D STRAIGHT JET

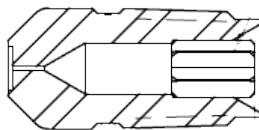
|  | PART NO.** |  |
|--|------------|--|
|  | JS2D-018   |  |
|  | JS2D-020   |  |
|  | JS2D-022   |  |
|  | JS2D-024   |  |
|  | JS2D-026   |  |
|  | JS2D-029   |  |
|  | JS2D-032   |  |
|  | JS2D-035   |  |
|  | JS2D-038   |  |
|  | JS2D-042   |  |
|  | JS2D-052   |  |
|  | JS2D-057   |  |
|  | JS2D-063   |  |
|  | JS2D-078   |  |

\*See details on all connection types in Section I.  
\*\*Orifice size (or equivalent for fan types) is denoted in the part number (-018, etc.)  
For nozzle flow rates, see Orifice Group A chart, page G-40.



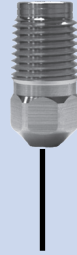
# LOW PROFILE NOZZLE TIPS

## JS4 PIPE CLEANING NOZZLES



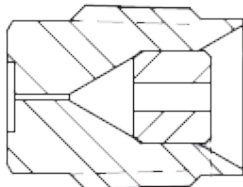
- ▶ Low profile design for unobstructed pipe cleaning with short inlet
- ▶ Stainless steel
- ▶ Precision drilled orifice
- ▶ Tapered geometry provides highly cohesive, distortion-free waterjets for concentrated, work saving cleaning and cutting power
- ▶ Straight (0°) patterns
- ▶ 1/4" NPT Male connection\*
- ▶ 22,000 psi (1516 bar) maximum working pressure

### JS4 STRAIGHT JET

|  | PART NO.** |         |
|-------------------------------------------------------------------------------------|------------|---------|
|                                                                                     | JS4-018    | JS4-063 |
|                                                                                     | JS4-020    | JS4-069 |
|                                                                                     | JS4-022    | JS4-075 |
|                                                                                     | JS4-024    | JS4-082 |
|                                                                                     | JS4-026    | JS4-090 |
|                                                                                     | JS4-029    | JS4-098 |
|                                                                                     | JS4-032    | JS4-106 |
|                                                                                     | JS4-035    | JS4-115 |
|                                                                                     | JS4-038    | JS4-125 |
|                                                                                     | JS4-042    | JS4-135 |
|                                                                                     | JS4-047    | JS4-145 |
|                                                                                     | JS4-052    | JS4-155 |
|                                                                                     | JS4-057    | JS4-165 |

\*See details on all connection types in Section I.  
\*\*Orifice size (or equivalent for fan types) is denoted in the part number (-018, etc.)  
For nozzle flow rates, see Orifices Group C chart, page G-44.

## JS4F PIPE CLEANING NOZZLES



- ▶ Flush mount design
- ▶ Stainless steel
- ▶ Precision drilled orifice
- ▶ Tapered geometry provides highly cohesive, distortion-free waterjets for concentrated, work saving cleaning and cutting power
- ▶ Straight (0°) patterns
- ▶ 1/4" NPT Male connection\*
- ▶ 22,000 psi (1516 bar) maximum working pressure

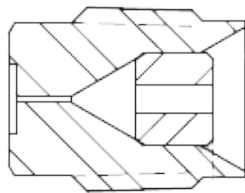
### JS4F STRAIGHT JET

|  | PART NO.** |          |
|---------------------------------------------------------------------------------------|------------|----------|
|                                                                                       | JS4F-018   | JS4F-063 |
|                                                                                       | JS4F-020   | JS4F-069 |
|                                                                                       | JS4F-022   | JS4F-075 |
|                                                                                       | JS4F-024   | JS4F-082 |
|                                                                                       | JS4F-026   | JS4F-090 |
|                                                                                       | JS4F-029   | JS4F-098 |
|                                                                                       | JS4F-032   | JS4F-106 |
|                                                                                       | JS4F-035   | JS4F-115 |
|                                                                                       | JS4F-038   | JS4F-125 |
|                                                                                       | JS4F-042   | JS4F-135 |
|                                                                                       | JS4F-047   | JS4F-145 |
|                                                                                       | JS4F-052   | JS4F-155 |
|                                                                                       | JS4F-057   | JS4F-165 |
|                                                                                       | JS4F-PLUG  |          |

\*See details on all connection types in Section I.  
\*\*Orifice size (or equivalent for fan types) is denoted in the part number (-018, etc.)  
For nozzle flow rates, see Orifice Group C chart, page G-44.

LOW PROFILE NOZZLE TIPS

JS4FD PIPE CLEANING NOZZLES



- ▶ Flush mount design
- ▶ tetraCORE™ synthetic diamond orifices are 10-15x as durable as sapphire
- ▶ Precision drilled orifice
- ▶ Tapered geometry provides highly cohesive, distortion-free waterjets for concentrated, work saving cleaning and cutting power
- ▶ Straight (0°) patterns
- ▶ 1/4" NPT Male connection\*
- ▶ 22,000 psi (1516 bar) maximum working pressure

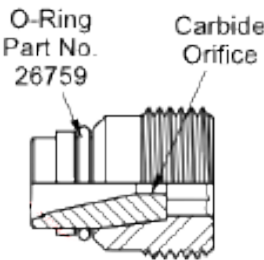
JS4FD STRAIGHT JET

|  | PART NO.** |
|-------------------------------------------------------------------------------------|------------|
|                                                                                     | JS4FD-032  |
|                                                                                     | JS4FD-035  |
|                                                                                     | JS4FD-038  |
|                                                                                     | JS4FD-042  |
|                                                                                     | JS4FD-047  |
|                                                                                     | JS4FD-052  |
|                                                                                     | JS4FD-057  |
|                                                                                     | JS4FD-075  |
|                                                                                     |            |

\*See details on all connection types in Section I.  
\*\*Orifice size (or equivalent for fan types) is denoted in the part number (-018, etc.)  
For nozzle flow rates, see Orifice Group A chart, page G-40.

FLUSH MOUNT NOZZLE TIPS

RM PIPE CLEANING NOZZLES



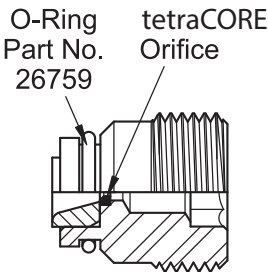
- ▶ Flush mount design
- ▶ Tapered geometry provides highly cohesive, distortion-free waterjets for concentrated, work saving cleaning and cutting power
- ▶ Enables more work to be done in less time
- ▶ Straight (0°) patterns
- ▶ 1/2"-28UNEF male connection
- ▶ 22,000 psi (1516 bar) maximum working pressure

| RM STRAIGHT JET                                                                     |                |
|-------------------------------------------------------------------------------------|----------------|
|  | PART NO.**     |
|                                                                                     | RM-018 RM-073  |
|                                                                                     | RM-020 RM-075  |
|                                                                                     | RM-022 RM-078  |
|                                                                                     | RM-024 RM-082  |
|                                                                                     | RM-026 RM-090  |
|                                                                                     | RM-029 RM-093  |
|                                                                                     | RM-032 RM-098  |
|                                                                                     | RM-035 RM-106  |
|                                                                                     | RM-038 RM-110  |
|                                                                                     | RM-042 RM-115  |
|                                                                                     | RM-047 RM-125  |
|                                                                                     | RM-052 RM-135  |
|                                                                                     | RM-057 RM-145  |
|                                                                                     | RM-063 RM-155  |
|                                                                                     | RM-067 RM-165  |
|                                                                                     | RM-069 RM-PLUG |

\*See details on all connection types in Section I.  
\*\*Orifice size (or equivalent for fan types) is denoted in the part number (-018, etc.)  
For nozzle flow rates, see Orifice Group C chart, page G-44.

# FLUSH MOUNT NOZZLE TIPS

## RMD PIPE CLEANING NOZZLES



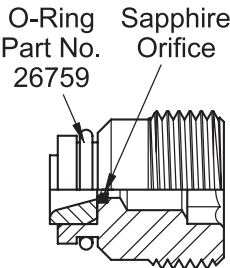
- ▶ Flush mount design
- ▶ tetraCORE™ synthetic diamond orifices are 10-15x as durable as sapphire
- ▶ Tapered geometry provides highly cohesive, distortion-free waterjets for concentrated, work saving cleaning and cutting power
- ▶ Enables more work to be done in less time
- ▶ Straight (0°) patterns
- ▶ 1/2"-28UNEF male connection
- ▶ 22,000 psi (1516 bar) maximum working pressure

### RM STRAIGHT JET

|                                                                                     | PART NO.** |
|-------------------------------------------------------------------------------------|------------|
|                                                                                     |            |
|  | RMD-018    |
|                                                                                     | RMD-025    |
|                                                                                     | RMD-029    |
|                                                                                     | RMD-033    |
|                                                                                     | RMD-038    |
|                                                                                     | RMD-042    |
|                                                                                     | RMD-046    |
|                                                                                     | RMD-052    |

\*See details on all connection types in Section I.  
 \*\*Orifice size (or equivalent for fan types) is denoted in the part number (-018, etc.)  
 For nozzle flow rates, see Orifice Group A chart, page G-40.

## RMS PIPE CLEANING NOZZLES

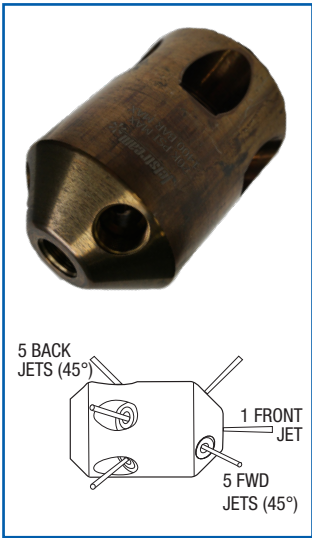


- ▶ Flush mount design
- ▶ Precision-honed sapphire orifice inserts are twice as durable as tungsten carbide
- ▶ Tapered orifice retainer provides highly cohesive, distortion-free waterjets for concentrated, work-saving cleaning and cutting power
- ▶ Straight (0°) patterns
- ▶ 1/2"-28UNEF male connection\*
- ▶ 22,000 psi (1516 bar) maximum working pressure

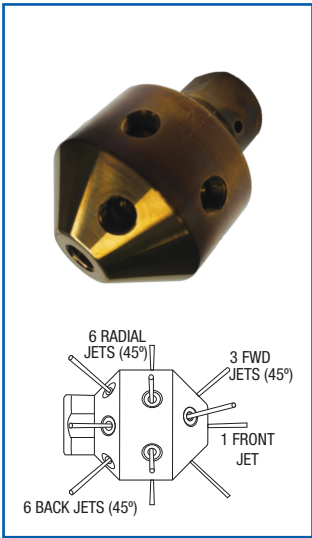
### RMS STRAIGHT JET

|                                                                                       | PART NO.** |
|---------------------------------------------------------------------------------------|------------|
|                                                                                       |            |
|  | RMS-018    |
|                                                                                       | RMS-025    |
|                                                                                       | RMS-029    |
|                                                                                       | RMS-033    |
|                                                                                       | RMS-038    |
|                                                                                       | RMS-042    |
|                                                                                       | RMS-046    |
|                                                                                       | RMS-052    |

\*See details on all connection types in Section I.  
 \*\*Orifice size (or equivalent for fan types) is denoted in the part number (-018, etc.)  
 For nozzle flow rates, see Orifice Group A chart, page G-40.



PART NOS. 52644, 64959



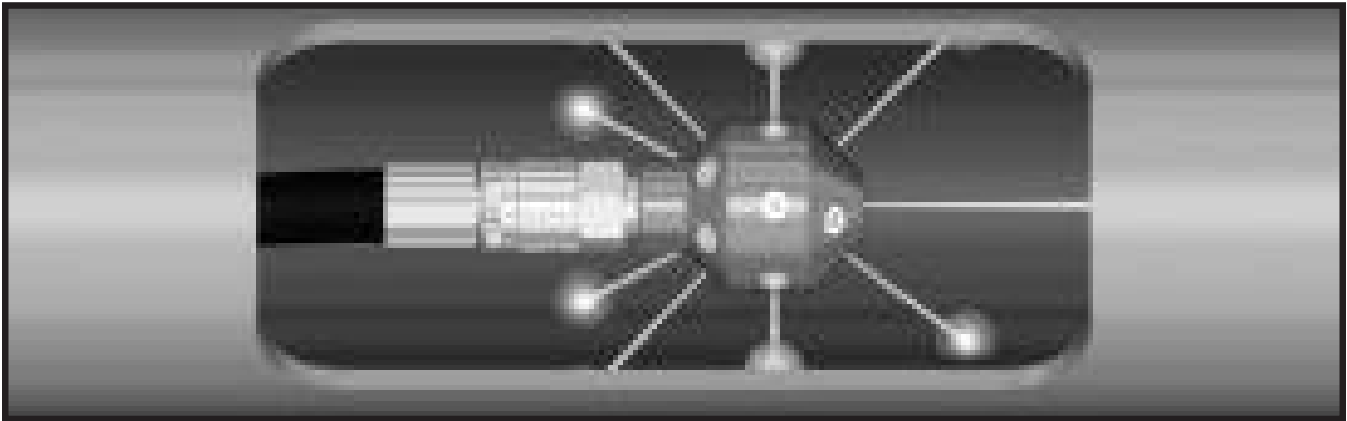
PART NO. 54887

# PIPE CLEANING NOZZLES

- ▶ Two models available
- ▶ Uses up to sixteen flush mounted RM Series Tungsten Carbide nozzles or RMS Series Sapphire nozzles
- ▶ Flush mounted nozzle inserts provide low profile for cleaning small pipes while extensions are available for larger pipes
- ▶ Heat treated stainless steel

| PART NO.* | INLET CONNECTION* | NOZZLE INSERT TYPE | JET CONFIGURATION                                | LENGTH |    | DIAMETER |    | MAX.OPERATING PRESSURE |       |
|-----------|-------------------|--------------------|--------------------------------------------------|--------|----|----------|----|------------------------|-------|
|           |                   |                    |                                                  | in     | mm | in       | mm | psi                    | bar   |
| 52644     | 20K Port Female   | RM/RMS             | 1 Front, 3 Forward (45°), 5 Back (45°)           | 3.25   | 83 | 2.0      | 51 | 20,000                 | 1,379 |
| 54887     | 3/4" MP Female    | RM/RMS             | 1 Front, 3 Forward (45°), 6 Radial, 6 Back (45°) | 3.75   | 95 | 2.75     | 70 | 20,000                 | 1,379 |
| 64959     | 3/4" MP Female    | RM/RMS             | 1 Front, 3 Forward (45°), 5 Back (45°)           | 3.25   | 83 | 2.0      | 51 | 20,000                 | 1,379 |

\*See details on all connection types in Section I.



TOOLS & NOZZLES





## DRILLJET™

### TUBE CLEANING NOZZLES

The DrillJet™ is a self-powered rotating nozzle used for removing deposits in tubes. The main rotor (with four orifices - two front facing and two radial), the only rotating component in the DrillJet, spins at ultra-high rpms. The nozzle can be used with either rigid or flexible lances.

- ▶ Designed for unplugging and cleaning tubes found in heat exchangers and industrial tube bundles
- ▶ Water bearing design - no bearings, seals, or lubricants to replace!
- ▶ 9.5 mm, 13 mm, 18 mm, 24 mm, and 33 mm sizes available
- ▶ Different inlet and orifice configurations are available for working pressures up to 20,000 psi (1379 bar)
- ▶ The tool is not designed to be repairable in the field.

#### NOZZLE PART NUMBERING

Example Part Number **DJ13-MP6R-322-22-10**

SIZE (mm)

INLET CONFIGURATION

NOZZLE COUNT (forward/side/rear)

PRESSURE (Kpsi)

FLOW (gpm)



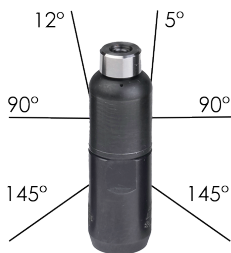
UNIVERSAL 7-JET PATTERN  
9.5 and 13 mm



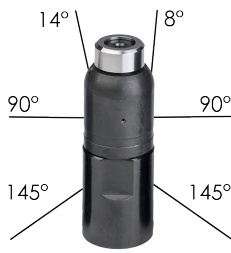
UNIVERSAL 7-JET PATTERN  
18 and 24 mm



UNIVERSAL 7-JET PATTERN  
33 mm



UNIVERSAL 6-JET PATTERN  
9.5 and 13 mm



UNIVERSAL 6-JET PATTERN  
18 and 24 mm



UNIVERSAL 6-JET PATTERN  
33 mm



# DRILLJET™ TUBE CLEANING NOZZLES

| ASSEMBLY PART NO.    | TUBE ID RANGE |       | INLET CONNECTIONS* | OUTSIDE DIAMETER |     | LENGTH |    | FLOW AT MAX OPERATING PRESSURE |     | MAX OPERATING PRESSURE |      | PULL |  |  |
|----------------------|---------------|-------|--------------------|------------------|-----|--------|----|--------------------------------|-----|------------------------|------|------|--|--|
|                      | in            | mm    |                    | in               | mm  | in     | mm | gpm                            | lpm | psi                    | bar  |      |  |  |
| UNIVERSAL 7-JET      |               |       |                    |                  |     |        |    |                                |     |                        |      |      |  |  |
| DJ9.5-M7-322-22-8    | .47-.63       | 12-16 | M7                 | 0.37             | 9.5 | 1.54   | 39 | 8                              | 30  | 22,000                 | 1517 | 5    |  |  |
| DJ9.5-MP4L-322-22-8  |               |       | 1/4" MP LH         |                  |     |        |    |                                |     |                        |      |      |  |  |
| DJ9.5-MP4R-322-22-8  |               |       | 1/4" MP RH         |                  |     |        |    |                                |     |                        |      |      |  |  |
| DJ13-MP4L-322-22-10  | .60-1.0       | 15-25 | 1/4" MP LH         | 0.50             | 13  | 1.65   | 42 | 10                             | 38  | 22,000                 | 1517 | 3    |  |  |
| DJ13-MP4R-322-22-10  |               |       | 1/4" MP RH         |                  |     |        |    |                                |     |                        |      |      |  |  |
| DJ13-MP6L-322-22-10  |               |       | 3/8" MP LH         |                  |     |        |    |                                |     |                        |      |      |  |  |
| DJ13-MP6R-322-22-10  |               |       | 3/8" MP RH         |                  |     |        |    |                                |     |                        |      |      |  |  |
| DJ18-BSPP4-322-20-14 | .87-1.3       | 22-33 | 1/4" BSPP          | 0.71             | 18  | 2.16   | 55 | 14                             | 53  | 20,000                 | 1379 | 3    |  |  |
| DJ18-MP9L-322-22-14  |               |       | 9/16" MP LH        |                  |     |        |    |                                |     | 22,000                 | 1517 |      |  |  |
| DJ18-MP9R-322-22-14  |               |       | 9/16" MP RH        |                  |     |        |    |                                |     |                        |      |      |  |  |
| DJ24-BSPP6-322-22-11 | 1.1-2.0       | 28-51 | 3/8" BSPP          | 0.94             | 24  | 2.54   | 65 | 11                             | 42  | 22,000                 | 1517 | 4    |  |  |
| DJ24-MP9L-322-22-11  |               |       | 9/16" MP LH        |                  |     |        |    |                                |     |                        |      |      |  |  |
| DJ24-MP9R-322-22-11  |               |       | 9/16" MP RH        |                  |     |        |    |                                |     |                        |      |      |  |  |
| DJ24-BSPP6-322-22-14 |               |       | 3/8" BSPP          |                  |     |        |    | 14                             | 53  |                        |      | 6    |  |  |
| DJ24-MP9L-322-22-14  |               |       | 9/16" MP LH        |                  |     |        |    |                                |     |                        |      |      |  |  |
| DJ24-MP9R-322-22-14  |               |       | 9/16" MP RH        |                  |     |        |    |                                |     |                        |      |      |  |  |
| DJ24-BSPP6-322-22-19 |               |       | 3/8" BSPP          |                  |     |        |    | 19                             | 72  |                        |      | 7    |  |  |
| DJ24-MP9L-322-22-19  |               |       | 9/16" MP LH        |                  |     |        |    |                                |     |                        |      |      |  |  |
| DJ24-MP9R-322-22-19  |               |       | 9/16" MP RH        |                  |     |        |    |                                |     |                        |      |      |  |  |
| DJ33-BSPP8-322-22-12 | 1.5-2.4       | 38-61 | 1/2" BSPP          | 1.30             | 33  | 3.30   | 84 | 12                             | 45  | 22,000                 | 1517 | 7    |  |  |
| DJ33-MP9-322-22-12   |               |       | 9/16" MP GLAND     |                  |     |        |    |                                |     |                        |      |      |  |  |
| DJ33-BSPP8-322-22-15 |               |       | 1/2" BSPP          |                  |     |        |    | 15                             | 57  |                        |      | 6    |  |  |
| DJ33-MP9-322-22-15   |               |       | 9/16" MP GLAND     |                  |     |        |    |                                |     |                        |      |      |  |  |
| DJ33-BSPP8-322-22-19 |               |       | 1/2" BSPP          |                  |     |        |    | 19                             | 72  |                        |      | 8    |  |  |
| DJ33-MP9-322-22-19   |               |       | 9/16" MP GLAND     |                  |     |        |    |                                |     |                        |      |      |  |  |
| DJ33-BSPP8-322-22-25 |               |       | 1/2" BSPP          |                  |     |        |    | 25                             | 95  |                        |      | 8    |  |  |
| DJ33-MP9-322-22-25   |               |       | 9/16" MP GLAND     |                  |     |        |    |                                |     |                        |      |      |  |  |

\* See details on all connection types in Section I.

# DRILLJET™ TUBE CLEANING NOZZLES

| ASSEMBLY PART NO.    | TUBE ID RANGE |       | INLET CONNECTIONS* | OUTSIDE DIAMETER |     | LENGTH |    | FLOW AT MAX OPERATING PRESSURE |     | MAX OPERATING PRESSURE |      | PULL |        |      |    |
|----------------------|---------------|-------|--------------------|------------------|-----|--------|----|--------------------------------|-----|------------------------|------|------|--------|------|----|
|                      | in            | mm    |                    | in               | mm  | in     | mm | gpm                            | lpm | psi                    | bar  |      |        |      |    |
| UNIVERSAL 6-JET      |               |       |                    |                  |     |        |    |                                |     |                        |      |      |        |      |    |
| DJ9.5-M7-222-22-8    | .47-.63       | 12-16 | M7                 | 0.37             | 9.5 | 1.54   | 39 | 8                              | 30  | 22,000                 | 1517 | 12.5 |        |      |    |
| DJ9.5-MP4L-222-22-8  |               |       | 1/4" MP LH         |                  |     |        |    |                                |     |                        |      |      |        |      |    |
| DJ9.5-MP4R-222-22-8  |               |       | 1/4" MP RH         |                  |     |        |    |                                |     |                        |      |      |        |      |    |
| DJ13-MP4L-222-22-10  | .60-1.0       | 15-25 | 1/4" MP LH         | 0.50             | 13  | 1.65   | 42 | 10                             | 38  |                        |      |      |        |      |    |
| DJ13-MP4R-222-22-10  |               |       | 1/4" MP RH         |                  |     |        |    |                                |     |                        |      |      |        |      |    |
| DJ13-MP6L-222-22-10  |               |       | 3/8" MP LH         |                  |     |        |    |                                |     |                        |      |      |        |      |    |
| DJ13-MP6R-222-22-10  |               |       | 3/8" MP RH         |                  |     |        |    |                                |     |                        |      |      |        |      |    |
| DJ18-BSPP4-222-20-14 | .87-1.3       | 22-33 | 1/4" BSPP          | 0.71             | 18  | 2.16   | 55 | 14                             | 53  |                        |      |      | 20,000 | 1379 | 14 |
| DJ18-MP9L-222-22-14  |               |       | 9/16" MP LH        |                  |     |        |    |                                |     |                        |      |      | 22,000 | 1517 |    |
| DJ18-MP9R-222-22-14  |               |       | 9/16" MP RH        |                  |     |        |    |                                |     |                        |      |      |        |      |    |
| DJ24-BSPP6-222-22-11 | 1.1-2.0       | 28-51 | 3/8" BSPP          | 0.94             | 24  | 2.54   | 65 | 11                             | 42  | 22,000                 | 1517 | 13   |        |      |    |
| DJ24-MP9L-222-22-11  |               |       | 9/16" MP LH        |                  |     |        |    |                                |     |                        |      |      |        |      |    |
| DJ24-MP9R-222-22-11  |               |       | 9/16" MP RH        |                  |     |        |    |                                |     |                        |      |      |        |      |    |
| DJ24-BSPP6-222-22-14 |               |       | 3/8" BSPP          |                  |     |        |    | 14                             | 53  |                        |      | 20   |        |      |    |
| DJ24-MP9L-222-22-14  |               |       | 9/16" MP LH        |                  |     |        |    |                                |     |                        |      |      |        |      |    |
| DJ24-MP9R-222-22-14  |               |       | 9/16" MP RH        |                  |     |        |    |                                |     |                        |      |      |        |      |    |
| DJ24-BSPP6-222-22-19 |               |       | 3/8" BSPP          |                  |     |        |    | 19                             | 72  |                        |      |      | 18     |      |    |
| DJ24-MP9L-222-22-19  |               |       | 9/16" MP LH        |                  |     |        |    |                                |     |                        |      |      |        |      |    |
| DJ24-MP9R-222-22-19  |               |       | 9/16" MP RH        |                  |     |        |    |                                |     |                        |      |      |        |      |    |
| DJ33-BSPP8-222-22-12 | 1.5-2.4       | 38-61 | 1/2" BSPP          | 1.30             | 33  | 3.30   | 84 | 12                             | 45  | 22,000                 | 1517 |      | 14     |      |    |
| DJ33-MP9-222-22-12   |               |       | 9/16" MP GLAND     |                  |     |        |    |                                |     |                        |      |      |        |      |    |
| DJ33-BSPP8-222-22-15 |               |       | 1/2" BSPP          |                  |     |        |    | 15                             | 57  |                        |      |      | 15     |      |    |
| DJ33-MP9-222-22-15   |               |       | 9/16" MP GLAND     |                  |     |        |    |                                |     |                        |      |      |        |      |    |
| DJ33-BSPP8-222-22-19 |               |       | 1/2" BSPP          |                  |     |        |    | 19                             | 72  |                        |      | 22   |        |      |    |
| DJ33-MP9-222-22-19   |               |       | 9/16" MP GLAND     |                  |     |        |    |                                |     |                        |      |      |        |      |    |
| DJ33-BSPP8-222-22-25 |               |       | 1/2" BSPP          |                  |     |        |    | 25                             | 95  |                        |      | 27   |        |      |    |
| DJ33-MP9-222-22-25   |               |       | 9/16" MP GLAND     |                  |     |        |    |                                |     |                        |      |      |        |      |    |

\* See details on all connection types in Section I.



These resources contain additional technical information about the DrillJet™ tube cleaning nozzles.

Click or scan the QR code.



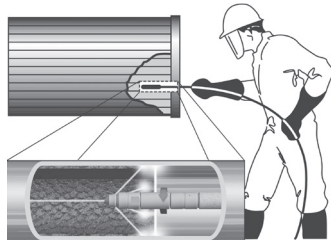
Quick Start Guide  
QSG-180



Product Instruction  
PI-180



NOTE: Cap nozzles sold separately.



# TUBE SPINNER™

## TUBE CLEANING NOZZLES

Jetstream Tube Spinner nozzles provide the most thorough cleaning of tube walls. Maximum impact and the elimination of streaking result from having two larger spinning jets rather than several smaller non-rotating jets.

- ▶ Self-rotating sleeve has two radial jets that spin at high speed for complete coverage.
- ▶ Simple two piece design features a nozzle body, specially coated for maximum lubricity and surface hardness, and a stainless steel sleeve, hardened to extend orifice life and precision honed to prevent galling.
- ▶ A thin layer of water between the nozzle body and sleeve provides a liquid bearing on which the sleeve spins. No ball bearings to replace!
- ▶ HPFR/HPFL or HPER/HPEL tube cleaning nozzles are connected to the tube spinner nozzle to add forward jets for unplugging tubes and/or rearward jets to pull nozzles and flex lance through tube (sold separately.)
- ▶ HPFR/HPFL nozzle blanks, sold below, can be installed in place of HPFR/HPFL or HPER/HPEL nozzles when no forward or rearward jets are required.
- ▶ Tube Spinner outside diameters are the same as standard tube cleaning nozzles.
- ▶ Custom flow rates available for special applications.

| ASSEMBLY PART NO. | FLOW RATE NO. | CONNECTIONS*<br>FEMALE INLET X<br>MALE OUTLET* | OUTSIDE DIAMETER |      | LENGTH<br>(WITH HPF NOZZLE)** |        | FLOW AT SPECIFIED PRESSURES (PSI/ BAR)*** |      |                         |      |                           |      |                           |      |                           |      |
|-------------------|---------------|------------------------------------------------|------------------|------|-------------------------------|--------|-------------------------------------------|------|-------------------------|------|---------------------------|------|---------------------------|------|---------------------------|------|
|                   |               |                                                |                  |      |                               |        | 10,000 PSI<br>(690 BAR)                   |      | 12,500 PSI<br>(862 BAR) |      | 15,000 PSI<br>(1,034 BAR) |      | 17,500 PSI<br>(1,207 BAR) |      | 20,000 PSI<br>(1,379 BAR) |      |
|                   |               |                                                | in               | mm   | in                            | mm     | gpm                                       | lpm  | gpm                     | lpm  | gpm                       | lpm  | gpm                       | lpm  | gpm                       | lpm  |
| 64199             | 1             | 1/4" MP LH                                     | .375             | 9.5  | 2.22/2.57                     | 55/65  | 2.3                                       | 8.7  | 2.7                     | 10.2 | 3.0                       | 11.4 | 3.4                       | 12.9 | 3.8                       | 14.4 |
| 64200             | 1             | 1/4" MP RH                                     | .375             | 9.5  | 2.22/2.57                     | 55/65  | 2.3                                       | 8.7  | 2.7                     | 10.2 | 3.0                       | 11.4 | 3.4                       | 12.9 | 3.8                       | 14.4 |
| 64201             | 1             | 3/8" MP LH                                     | .500             | 12.7 | 2.57/2.99                     | 65/76  | 3.3                                       | 12.5 | 3.9                     | 14.8 | 4.5                       | 17.0 | 5.1                       | 19.3 | 5.7                       | 21.6 |
| 64202             | 1             | 3/8" MP RH                                     | .500             | 12.7 | 2.57/2.99                     | 65/76  | 3.3                                       | 12.5 | 3.9                     | 14.8 | 4.5                       | 17.0 | 5.1                       | 19.3 | 5.7                       | 21.6 |
| 64203             | 1             | 9/16" MP LH                                    | .750             | 19.1 | 3.55/4.02                     | 90/102 | 4.5                                       | 17.0 | 5.5                     | 20.8 | 6.4                       | 24.2 | 7.4                       | 28.0 | 8.5                       | 32.2 |
| 64204             | 1             | 9/16" MP RH                                    | .750             | 19.1 | 3.55/4.02                     | 90/102 | 4.5                                       | 17.0 | 5.5                     | 20.8 | 6.4                       | 24.2 | 7.4                       | 28.0 | 8.5                       | 32.2 |
| 64205             | 2             | 9/16" MP LH                                    | .750             | 19.1 | 3.55/4.02                     | 90/102 | 8.8                                       | 33.3 | 10.3                    | 39.0 | 11.7                      | 44.3 | 13.1                      | 49.6 | 14.6                      | 55.3 |
| 64206             | 2             | 9/16" MP RH                                    | .750             | 19.1 | 3.55/4.02                     | 90/102 | 8.8                                       | 33.3 | 10.3                    | 39.0 | 11.7                      | 44.3 | 13.1                      | 49.6 | 14.6                      | 55.3 |

\*See details on all connection types in Section I.

\*\*MP connection uses HPFR/HPFL/HPER/HPEL cap nozzle. Lengths are HPFR and HPFL/HPER and HPEL respectively. SOLD SEPARATELY.

\*\*\* Flow rates do not include additional flow if a drilled cap nozzle is used.

| ASSEMBLY PART NO. | SLEEVE PART NO. | BODY PART NO. | ASSEMBLY PART NO. | SLEEVE PART NO. | BODY PART NO. |
|-------------------|-----------------|---------------|-------------------|-----------------|---------------|
| 64199             | 51956           | 64193         | 64203             | 52551           | 64197         |
| 64200             | 51956           | 64194         | 64204             | 52551           | 64198         |
| 64201             | 51958           | 64195         | 64205             | 54256           | 64197         |
| 64202             | 51958           | 64196         | 64206             | 54256           | 64198         |



These resources contain additional technical information about the Tube Spinner™ tube cleaning nozzles.

Click or scan the QR code.



Quick Start Guide  
QSG-123



Product Instruction  
PI-123

# TUBE CLEANING NOZZLES

## HPFR/HPFL SERIES TUBE CLEANING NOZZLES

- ▶ Designed for use with flex or rigid lances.
- ▶ HPFR nozzles feature right-hand female medium pressure tube connections.
- ▶ HPFL nozzles feature left-hand female medium pressure tube connections.
- ▶ Recessed orifices provide protection from surface abrasion that could distort waterjets.
- ▶ Both series have three sizes with six patterns each and fourteen flow ratings to choose.
- ▶ Custom patterns and flows available.



HPFR1 & HPFL1



HPFR2 & HPFL2



HPFR3 & HPFL3

## HPER/HPEL SERIES TUBE CLEANING NOZZLES

- ▶ Designed for use with flex or rigid lances.
- ▶ HPER nozzles feature right-hand female medium pressure tube connections.
- ▶ HPEL nozzles feature left-hand female medium pressure tube connections.
- ▶ Two rows for rearward jets provide extra flushing power while special nose design allows for a greater number and optimal positioning of forward jets for unplugging.
- ▶ Both series have three sizes with six patterns each and fourteen flow ratings to choose.
- ▶ Custom patterns and flows available.



HPER1 & HPEL1



HPER2 & HPEL2



HPER3 & HPEL3

## HPM SERIES TUBE CLEANING NOZZLES

- ▶ Designed specifically for use with Jetstream flex lances.
- ▶ Right-hand threaded male Jetstream Lance connections.
- ▶ Compact design easily navigates sharp bends.
- ▶ Three sizes with six patterns each and fourteen flow ratings to choose.
- ▶ Custom patterns and flows available.



HPM1



HPM2



HPM3

Nozzles shown as actual size.

## HPFR/HPFL • HPER/HPEL • HPM NOZZLE FLOW RATINGS

| FLOW RATE NO. | 10,000 PSI<br>(690 BAR) |       | 12,000 PSI<br>(827 BAR) |       | 14,000 PSI<br>(965 BAR) |       | 16,000 PSI<br>(1,103 BAR) |       | 18,000 PSI<br>(1,241 BAR) |       | 20,000 PSI<br>(1,379 BAR) |       |
|---------------|-------------------------|-------|-------------------------|-------|-------------------------|-------|---------------------------|-------|---------------------------|-------|---------------------------|-------|
|               | gpm                     | lpm   | gpm                     | lpm   | gpm                     | lpm   | gpm                       | lpm   | gpm                       | lpm   | gpm                       | lpm   |
| 2             | 2.7                     | 10.3  | 3.0                     | 11.3  | 3.2                     | 12.2  | 3.5                       | 13.1  | 3.7                       | 13.9  | 3.9                       | 14.6  |
| 3             | 3.3                     | 12.6  | 3.7                     | 13.8  | 3.9                     | 14.9  | 4.2                       | 16.0  | 4.5                       | 16.9  | 4.7                       | 17.8  |
| 4             | 4.1                     | 15.5  | 4.5                     | 16.9  | 4.8                     | 18.3  | 5.2                       | 19.6  | 5.5                       | 20.8  | 5.8                       | 21.9  |
| 5             | 5.7                     | 21.6  | 6.3                     | 23.7  | 6.8                     | 25.6  | 7.2                       | 27.4  | 7.7                       | 29.0  | 8.1                       | 30.6  |
| 6             | 7.4                     | 27.9  | 8.1                     | 30.6  | 8.7                     | 33.1  | 9.3                       | 35.3  | 9.9                       | 37.5  | 10.4                      | 39.5  |
| 7             | 8.5                     | 32.1  | 9.3                     | 35.2  | 10.0                    | 38.0  | 10.7                      | 40.6  | 11.4                      | 43.1  | 12.0                      | 45.4  |
| 8             | 9.3                     | 35.1  | 10.1                    | 38.4  | 11.0                    | 41.5  | 11.7                      | 44.3  | 12.4                      | 47.0  | 13.1                      | 49.6  |
| 9             | 10.1                    | 38.1  | 11.0                    | 41.8  | 11.9                    | 45.1  | 12.7                      | 48.2  | 13.5                      | 51.1  | 14.2                      | 53.9  |
| 10            | 11.5                    | 43.5  | 12.6                    | 47.7  | 13.6                    | 51.5  | 14.5                      | 55.1  | 15.4                      | 58.4  | 16.3                      | 61.6  |
| 12            | 12.4                    | 46.9  | 13.6                    | 51.4  | 14.7                    | 55.5  | 15.7                      | 59.4  | 16.6                      | 63.0  | 17.5                      | 66.4  |
| 14            | 15.0                    | 56.7  | 16.4                    | 62.1  | 17.7                    | 67.0  | 18.9                      | 71.7  | 20.1                      | 76.0  | 21.2                      | 80.1  |
| 15            | 16.3                    | 61.9  | 17.9                    | 67.8  | 19.3                    | 73.2  | 20.7                      | 78.3  | 21.9                      | 83.0  | 23.1                      | 87.5  |
| 20            | 22.9                    | 86.6  | 25.1                    | 94.8  | 27.1                    | 102.4 | 28.9                      | 109.5 | 30.7                      | 116.1 | 32.3                      | 122.4 |
| 40            | 29.5                    | 111.8 | 32.3                    | 122.4 | 34.9                    | 132.3 | 37.4                      | 141.4 | 39.6                      | 150.0 | 41.8                      | 158.1 |

## ORDERING HPFR/HPFL • HPER/HPEL • HPM NOZZLES

**HPX L 3 4 - 7**

### 1 NOZZLE SERIES

**HPX**

### 2 THREADS

L = Left hand medium pressure threads.  
Omit for right hand Jetstream lance threads.

**L**

### 3 SIZE

1 = 1/4" Threads  
2 = 3/8" Threads  
3 = 9/16" Threads

**3**

### 4 PATTERN

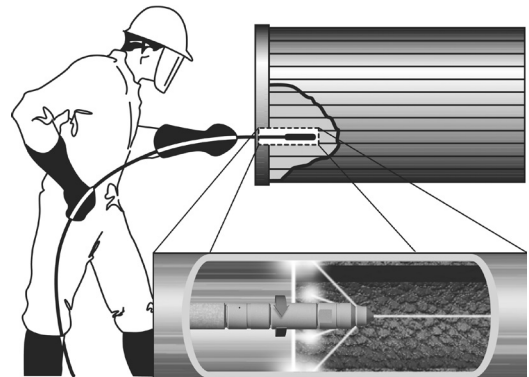
Specify number corresponding to  
desired pattern from chart above

**4**

### 5 FLOW RATING

See flow rating chart.  
**Example:** a flow rating number of  
7 will flow 10.7 gpm (40.6 lpm)  
at 16,000 psi (1,103 bar).

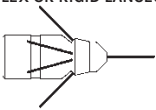
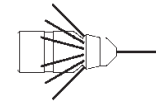
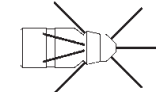
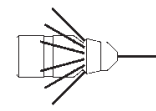
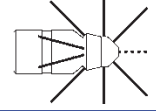
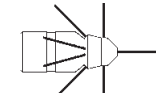
**7**



## HPFR/HPFL TUBE CLEANING NOZZLES

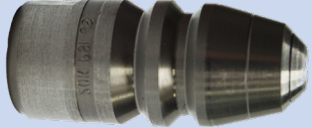
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|---------------------------------|-----------------------------------------------------------------------------------|---------------------------|------------------------------------------------------------------------------------|---------------------------|-------------------------------------------------------------------------------------|----------------------------|
| NOZZLES SHOWN<br>AS ACTUAL SIZE |  |                           |  |                           |  |                            |
|                                 |                                                                                   |                           |                                                                                    |                           |                                                                                     |                            |
| PART NO.                        | HPFR1                                                                             | HPFL1                     | HPFR2                                                                              | HPFL2                     | HPFR3                                                                               | HPFL3                      |
| HPF BLANK<br>PART NO.           | 64259                                                                             | 54242                     | 64260                                                                              | 54243                     | 64261                                                                               | 54244                      |
| INLET<br>CONNECTION*            | 1/4" MP Tube RH<br>Female                                                         | 1/4" MP Tube LH<br>Female | 3/8" MP Tube RH<br>Female                                                          | 3/8" MP Tube LH<br>Female | 9/16" MP Tube RH<br>Female                                                          | 9/16" MP Tube LH<br>Female |
| OVERALL LENGTH                  | .71 in   18.0 mm                                                                  | .71 in   18.0 mm          | .87 in   22.1 mm                                                                   | .87 in   22.1 mm          | 1.15in   29.2 mm                                                                    | 1.15in   29.2 mm           |
| OUTSIDE<br>DIAMETER             | .375 in   9.5 mm                                                                  |                           | .50 in   12.7 mm                                                                   |                           | .75 in   19.1 mm                                                                    |                            |

### PATTERNS - NUMBER OF JETS BY LOCATION

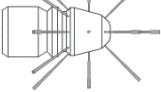
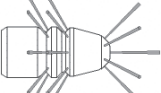
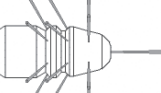
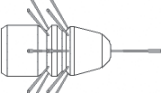
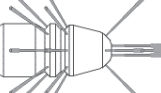
|                                                                                                                                 |                                                       |                                                       |                                                       |
|---------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------|-------------------------------------------------------|-------------------------------------------------------|
| <b>PATTERN 1</b><br>FLEX OR RIGID LANCES<br>   | 1 Front<br>6 Back<br><b>Min Flow #3</b>               | 1 Front<br>6 Back<br><b>Min Flow #3</b>               | 1 Front<br>8 Back<br><b>Min Flow #4</b>               |
| <b>PATTERN 2</b><br>FLEX OR RIGID LANCES<br> | 1 Front<br>8 Back<br><b>Min Flow #4</b>               | 1 Front<br>8 Back<br><b>Min Flow #4</b>               | 1 Front<br>12 Back<br><b>Min Flow #5</b>              |
| <b>PATTERN 3</b><br>FLEX OR RIGID LANCES<br> | 1 Front<br>3 Forward<br>6 Back<br><b>Min Flow #4</b>  | 1 Front<br>3 Forward<br>6 Back<br><b>Min Flow #4</b>  | 1 Front<br>3 Forward<br>8 Back<br><b>Min Flow #5</b>  |
| <b>PATTERN 4</b><br>FLEX OR RIGID LANCES<br> | 1 Front<br>3 Forward<br>8 Back<br><b>Min Flow #5</b>  | 1 Front<br>3 Forward<br>8 Back<br><b>Min Flow #5</b>  | 1 Front<br>3 Forward<br>12 Back<br><b>Min Flow #6</b> |
| <b>PATTERN 5</b><br>FLEX OR RIGID LANCES<br> | 3 Forward<br>3 Radial<br>6 Back<br><b>Min Flow #5</b> | 4 Forward<br>4 Radial<br>6 Back<br><b>Min Flow #5</b> | 4 Forward<br>4 Radial<br>8 Back<br><b>Min Flow #6</b> |
| <b>PATTERN 6</b><br>FLEX OR RIGID LANCES<br> | 1 Front<br>3 Radial<br>6 Back<br><b>Min Flow #4</b>   | 1 Front<br>4 Radial<br>6 Back<br><b>Min Flow #5</b>   | 1 Front<br>4 Radial<br>8 Back<br><b>Min Flow #5</b>   |

\*See details on all connection types in Section I.

## HPER/HPEL TUBE CLEANING NOZZLES

|                                 |                                                                                   |                           |                                                                                    |                           |                                                                                     |                            |
|---------------------------------|-----------------------------------------------------------------------------------|---------------------------|------------------------------------------------------------------------------------|---------------------------|-------------------------------------------------------------------------------------|----------------------------|
| NOZZLES SHOWN<br>AS ACTUAL SIZE |  |                           |  |                           |  |                            |
|                                 |                                                                                   |                           |                                                                                    |                           |                                                                                     |                            |
| PART NO.                        | HPER1                                                                             | HPEL1                     | HPER2                                                                              | HPEL2                     | HPER3                                                                               | HPEL3                      |
| HPE BLANK<br>PART NO.           | 64262                                                                             | 54249                     | 64263                                                                              | 54251                     | 64264                                                                               | 54252                      |
| INLET<br>CONNECTION*            | 1/4" MP Tube RH<br>Female                                                         | 1/4" MP Tube LH<br>Female | 3/8" MP Tube RH<br>Female                                                          | 3/8" MP Tube LH<br>Female | 9/16" MP Tube RH<br>Female                                                          | 9/16" MP Tube LH<br>Female |
| OVERALL LENGTH                  | 1.06 in   26.9 mm                                                                 | 1.06 in   26.9 mm         | 1.28 in   32.5 mm                                                                  | 1.28 in   32.5 mm         | 1.62 in   41.1 mm                                                                   | 1.62 in   41.1 mm          |
| OUTSIDE<br>DIAMETER             | .375 in   9.5 mm                                                                  |                           | .50 in   12.7 mm                                                                   |                           | .75 in   19.1 mm                                                                    |                            |

### PATTERNS - NUMBER OF JETS BY LOCATION

|                                                                                                                                 |                                                                        |                                                                        |                                                                            |
|---------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------|------------------------------------------------------------------------|----------------------------------------------------------------------------|
| <b>PATTERN 1</b><br>FLEX OR RIGID LANCES<br>   | 1 Front<br>2 Forward<br>2 Radial<br>6 Back (45°)<br><b>Min Flow #5</b> | 1 Front<br>3 Forward<br>3 Radial<br>8 Back (45°)<br><b>Min Flow #5</b> | 1 Front<br>4 Forward<br>4 Radial<br>8 Back (45°)<br><b>Min Flow #6</b>     |
| <b>PATTERN 2</b><br>FLEX OR RIGID LANCES<br> | 1 Front<br>3 Forward<br>8 Back (30°)<br><b>Min Flow #5</b>             | 1 Front<br>4 Forward<br>12 Back (30°)<br><b>Min Flow #6</b>            | 1 Front<br>6 Forward<br>16 Back (30°)<br><b>Min Flow #8</b>                |
| <b>PATTERN 3</b><br>FLEX OR RIGID LANCES<br> | 1 Front<br>3 Radial<br>8 Back (30°)<br><b>Min Flow #5</b>              | 1 Front<br>4 Radial<br>8 Back (30°)<br><b>Min Flow #5</b>              | 1 Front<br>6 Radial<br>12 Back (30°)<br><b>Min Flow #7</b>                 |
| <b>PATTERN 4</b><br>FLEX OR RIGID LANCES<br> | 1 Front<br>2 Forward<br>3 Radial<br>6 Back (30°)<br><b>Min Flow #5</b> | 1 Front<br>3 Forward<br>3 Radial<br>8 Back (30°)<br><b>Min Flow #6</b> | 1 Front<br>4 Forward<br>6 Radial<br>12 Back (30°)<br><b>Min Flow #8</b>    |
| <b>PATTERN 5</b><br>FLEX OR RIGID LANCES<br> | 1 Front<br>12 Back (30°)<br><b>Min Flow #5</b>                         | 1 Front<br>12 Back (30°)<br><b>Min Flow #5</b>                         | 1 Front<br>16 Back (30°)<br><b>Min Flow #6</b>                             |
| <b>PATTERN 6</b><br>FLEX OR RIGID LANCES<br> | 2 Front<br>3 Forward<br>8 Back (45°)<br><b>Min Flow #5</b>             | 3 Front<br>3 Forward<br>10 Back (45°)<br><b>Min Flow #6</b>            | 3 Front<br>4 Forward<br>8 Back (30°)<br>8 Back (45°)<br><b>Min Flow #8</b> |

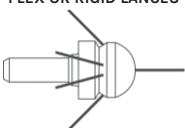
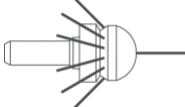
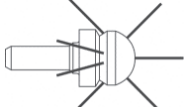
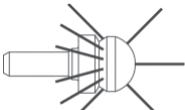
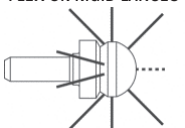
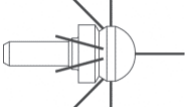
\*See details on all connection types in Section I.



## HPM TUBE CLEANING NOZZLES

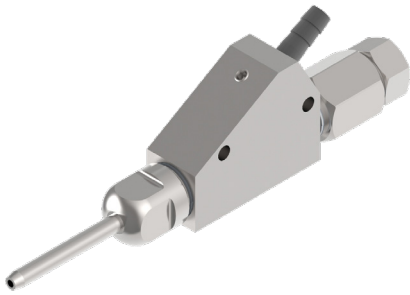
|                                 |                                                                                   |                                                                                    |                                                                                     |
|---------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| NOZZLES SHOWN<br>AS ACTUAL SIZE |  |  |  |
| PART NO.                        | HPM1                                                                              | HPM2                                                                               | HPM3                                                                                |
| HPM BLANK<br>PART NO.           | 52239                                                                             | 52238                                                                              | 54311                                                                               |
| INLET<br>CONNECTION*            | 1/4" JS Lance Female                                                              | 3/8" JS Lance Female                                                               | 9/16" JS Lance Female                                                               |
| OVERALL LENGTH                  | 1.06 in   26.9 mm                                                                 | 1.17 in   29.7 mm                                                                  | 1.42 in   36.1 mm                                                                   |
| OUTSIDE<br>DIAMETER             | .475 in   12.1 mm                                                                 | .550 in   14.0 mm                                                                  | .730 in   18.5 mm                                                                   |

### PATTERNS - NUMBER OF JETS BY LOCATION

|                                                                                                                                 |                                                       |                                                       |                                                       |
|---------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------|-------------------------------------------------------|-------------------------------------------------------|
| <b>PATTERN 1</b><br>FLEX OR RIGID LANCES<br>   | 1 Front<br>6 Back<br><b>Min Flow #3</b>               | 1 Front<br>6 Back<br><b>Min Flow #3</b>               | 1 Front<br>8 Back<br><b>Min Flow #4</b>               |
| <b>PATTERN 2</b><br>FLEX OR RIGID LANCES<br> | 1 Front<br>8 Back<br><b>Min Flow #4</b>               | 1 Front<br>8 Back<br><b>Min Flow #4</b>               | 1 Front<br>12 Back<br><b>Min Flow #5</b>              |
| <b>PATTERN 3</b><br>FLEX OR RIGID LANCES<br> | 1 Front<br>3 Forward<br>6 Back<br><b>Min Flow #4</b>  | 1 Front<br>3 Forward<br>6 Back<br><b>Min Flow #4</b>  | 1 Front<br>3 Forward<br>8 Back<br><b>Min Flow #5</b>  |
| <b>PATTERN 4</b><br>FLEX OR RIGID LANCES<br> | 1 Front<br>3 Forward<br>8 Back<br><b>Min Flow #5</b>  | 1 Front<br>3 Forward<br>8 Back<br><b>Min Flow #5</b>  | 1 Front<br>3 Forward<br>12 Back<br><b>Min Flow #6</b> |
| <b>PATTERN 5</b><br>FLEX OR RIGID LANCES<br> | 3 Forward<br>3 Radial<br>6 Back<br><b>Min Flow #5</b> | 4 Forward<br>4 Radial<br>6 Back<br><b>Min Flow #5</b> | 4 Forward<br>4 Radial<br>8 Back<br><b>Min Flow #6</b> |
| <b>PATTERN 6</b><br>FLEX OR RIGID LANCES<br> | 1 Front<br>3 Radial<br>6 Back<br><b>Min Flow #4</b>   | 1 Front<br>4 Radial<br>6 Back<br><b>Min Flow #5</b>   | 1 Front<br>4 Radial<br>8 Back<br><b>Min Flow #5</b>   |

\*See details on all connection types in Section I.

# ABRASIVE CUTTING NOZZLE

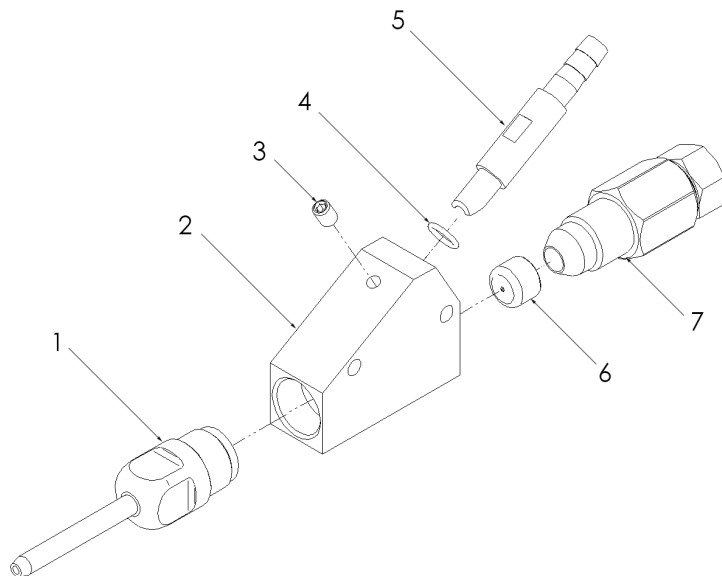
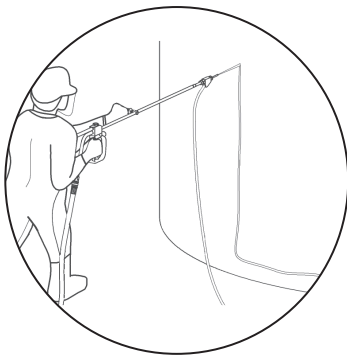
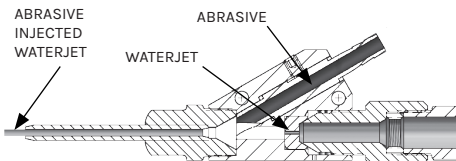


Designed for cutting of materials by injection of an abrasive solid into a high velocity waterjet, the Abrasive Cutting Nozzle is ideal where conventional cutting methods are unsuitable.

- ▶ Nozzle can be attached directly to the end of a hand control gun or mounted to an automated cutting system.
- ▶ Durable sapphire orifice creates a high velocity waterjet which creates suction force to pull abrasive into waterjet.
- ▶ Stainless steel body, nozzle holder, and gun adapter.
- ▶ Abrasive feed tube protects nozzle body from damage.
- ▶ Tungsten carbide slurry nozzle features a funnel to aid in mixing abrasive with water and a long orifice to create an extremely cohesive and powerful cutting jet.
- ▶ Maximum Working Pressure: 20,000 psi (1,379 bar).
- ▶ Additional nozzle sizes available for other flow rates.

| PART NO. | INLET CONNECTION* (FEMALE) | OVERALL LENGTH |     | WEIGHT |     | 10,000 PSI (690 BAR) |      | 12,500 PSI (862 BAR) |      | 15,000 PSI (1,034 BAR) |      | 17,500 PSI (1,207 BAR) |      | 20,000 PSI (1,379 BAR) |      |
|----------|----------------------------|----------------|-----|--------|-----|----------------------|------|----------------------|------|------------------------|------|------------------------|------|------------------------|------|
|          |                            | in             | mm  | lbs    | kg  | gpm                  | lpm  | gpm                  | lpm  | gpm                    | lpm  | gpm                    | lpm  | gpm                    | lpm  |
| 28484    | 9/16" MP Female            | 6.0            | 153 | 1.5    | 0.7 | 3.4                  | 12.8 | 3.8                  | 14.3 | 4.1                    | 15.6 | 4.5                    | 16.9 | 4.8                    | 18.1 |

\*See details on all connection types in Section I.



## PART BREAKDOWN

| ITEM | PART NO. | DESCRIPTION   | ITEM | PART NO. | DESCRIPTION              |
|------|----------|---------------|------|----------|--------------------------|
| 1    | 28547    | Slurry Nozzle | 5    | 28562    | Abrasive Feed Tube       |
| 2    | 54888    | Body          | 6    | 29030    | .040" Sapphire Orifice   |
| 3    | 29032    | Setscrew      | 7    | 54889    | Adapter, 9/16" MP Female |
| 4    | 29033    | O-Ring        |      |          |                          |



# SAFETY APPAREL & EQUIPMENT

**SAFETY.** The one word every organization places at the top of the list when thinking about an employee. Jetstream understands the importance of conducting a safe environment when working in any high pressure waterblasting application. From personal protective equipment (PPE) to caution tape and signage, Jetstream provides a complete line of safety products to ensure a well protected job site and operator safety.

Products included in this section:

## VISUAL SAFETY SYSTEM

- ▶ Jetstream's pioneered Visual Safety System
- ▶ Safety Protection through color coding of parts
- ▶ Guns, Foot Guns, Hoses, Lances, Fittings, and Decals

## SAFETY SHROUDS

- ▶ Standard Waterblasting Safety Shrouds
- ▶ TST<sup>®</sup> Hose Shrouds
- ▶ TST Hose Connection Covers
- ▶ Covered Safety Whips

## FLEX LANCE SAFETY

- ▶ Hand-Held Lance Grip and Accessories
- ▶ Pipe and Tube Cleaning Exit Safety Devices

## PERSONAL PROTECTIVE EQUIPMENT (PPE)

- ▶ TurtleSkin<sup>®</sup> WaterArmor
- ▶ TST Waterjet Protection

## SAFETY ACCESSORIES

- ▶ Sonetics<sup>®</sup> APEX wireless headsets
- ▶ Safety Glasses, Goggles, Boots, and Gloves
- ▶ Face Shield, Hard Hats, and Ear Protection
- ▶ Protection Suits

## SAFETY TAPE, SIGNS AND DECALS

## SAFETY HOSE CHECKS

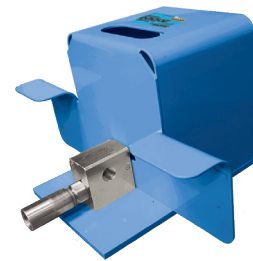
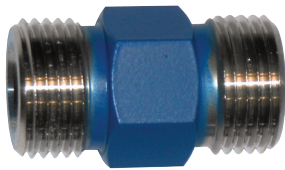
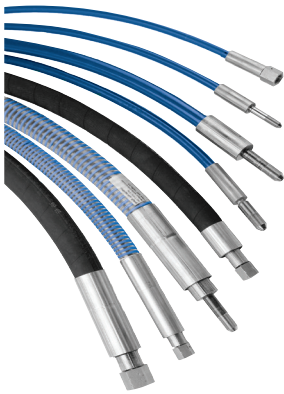
- ▶ Nylon
- ▶ Stainless Steel





## VISUAL SAFETY SYSTEM DECALS

are highly visible and brightly colored to provide operators and supervisors with visual confirmation that all waterblast components, not colored, are appropriately matched to pressure ratings.  
**Part No. 71743**



# VISUAL SAFETY SYSTEM

## PROTECT YOUR WORKERS AND THE WATERBLASTING EQUIPMENT WITH JETSTREAM'S VISUAL SAFETY SYSTEM.

Ensuring the operator is using the correct equipment is now identifiable from a distance. Jetstream's Visual Safety System uses highly visible and color-matched decals and additional markers to clearly show waterblast components in use are correctly and safely suited to current pump pressures.

Jetstream is now following the WJTA recommended colors to visually identify the pressure being used on a job site:

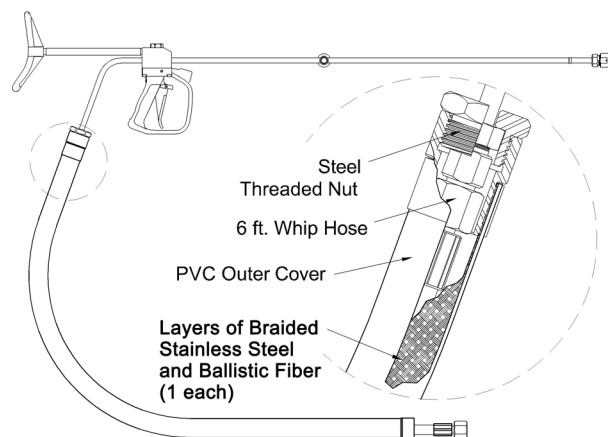
- ▶ 15,000 psi - GREEN
- ▶ 20,000 psi - BLUE
- ▶ 40,000 psi - ORANGE

All 20K psi rated Jetstream lances, adapters, couplers and connectors are color-coded blue to represent 20,000 psi (1379 bar) working pressure.

# SAFETY SHROUDS

Designed for use with 20,000 psi control guns that have medium pressure inlet connections (non-DuraSafe™), these safety shroud assemblies improve operator protection in the event of a hose or end fitting failure by completely enclosing the hose and connection fittings. Assemblies include shroud, nut, and a six foot whip hose, or items can be purchased individually.

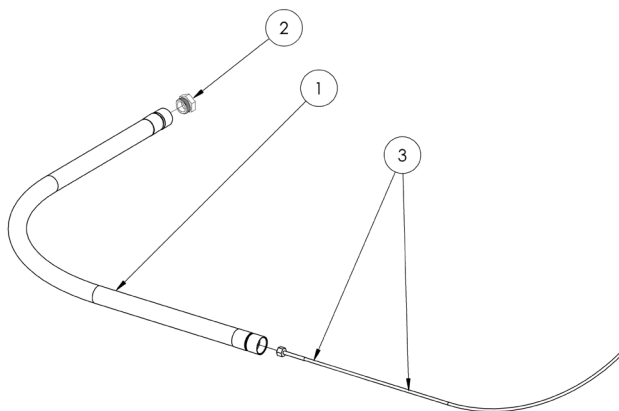
- ▶ Shroud is constructed of a wire braided stainless steel inner core, surrounded by strands of woven ballistic fiber and a durable, fiber reinforced, abrasion resistant thermoplastic outer cover for maximum protection and flexibility.
- ▶ Shroud is easily fastened or removed from rear barrel of control gun by a steel nut which fits over connection fittings.
- ▶ Whip hoses are lengths of waterblast hose designed to be a cost effective solution for ensuring operator safety. They are meant to be replaced at regular intervals to ensure that the hose nearest the operator's body is always in good condition.
- ▶ Contact factory for connection types other than those listed below



| PART NO. | LENGTH |     | HOSE CONNECTION* | HOSE I.D. |      | REPLACEMENT PARTS |       |               |               | MAX. OPERATING PRESSURE |       |
|----------|--------|-----|------------------|-----------|------|-------------------|-------|---------------|---------------|-------------------------|-------|
|          | ft     | m   |                  | in        | mm   | SHROUD            | NUT   | WHIP HOSE**   | WHIP MATERIAL | psi                     | bar   |
| J56223   | 6      | 1.8 | 1" Type M Female | .50       | 12.7 | 28860             | 55265 | 28347-0064242 | Rubber        | 20,000                  | 1,379 |
| 55259    | 6      | 1.8 | 20K Port Female  | .39       | 9.9  | 28860             | 55265 | 28690-0064040 | Plastic       | 20,000                  | 1,379 |
| 54740    | 6      | 1.8 | 1" Type M Female | .50       | 12.7 | 28860             | 2886  | 28347-0064242 | Plastic       | 20,000                  | 1,379 |
| 56735    | 10     | 3.0 | 1" Type M Female | .50       | 12.7 | 28860-10          | 55265 | 28347-0104242 | Plastic       | 20,000                  | 1,379 |

\*See Section I for a description of each connection type.

\*\*Whip Hoses listed do not have abrasion or burst shield guards and are not intended for use near an operator without a safety shroud.



## PART BREAKDOWN

| ITEM | PART NO.  | DESCRIPTION    |
|------|-----------|----------------|
| 1    | 28860     | Shroud, 6 ft.  |
|      | 28860-10  | Shroud, 10 ft. |
| 2    | 55265     | Nut            |
| 3    | See Above | Whip Hose      |

## RELATED PARTS

**Part No. 57126** 9/16" MP Female x 1" Type M adapter (used with field repairable guns)

**Part No. 57125** 9/16" MP Female x 3/4" Type M adapter (used with field repairable guns)

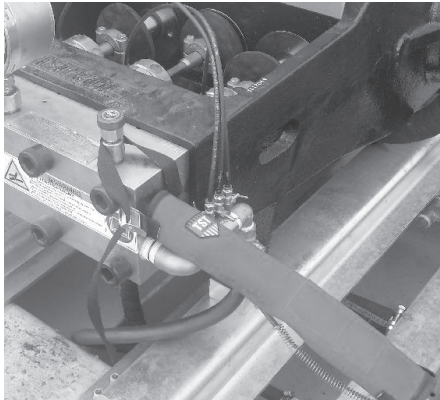
**Part No. 52181** (used with 55259 shroud)



# TST HOSE SHROUDS



| PART NO. | SIZE                         |
|----------|------------------------------|
| 59008    | 36mm ID x 750mm long         |
| 59009    | 36mm ID x 1400mm long        |
| 59010    | 36mm ID x 180mm long         |
| 59011    | 47mm ID x 1400mm long swivel |
| 59012    | 59mm ID x 750mm long         |
| 59013    | 59mm ID x 1400mm long        |
| 59014    | 59mm ID x 1800mm long        |



## HOSE CONNECTION COVER

Perfect use to protect connections on pumps or foot panels. The cover has an adjustable strap and the other end has two loops for flexible use.

| PART NO. | SIZE                 |
|----------|----------------------|
| 62257    | 50mm ID x 400mm long |

## STRAIN RELIEF HOSE

Used for flex lance applications, the strain relief hose prevents kinking of the flex lance to extend service life.

- ▶ Rubber hose material is more flexible and manageable than thermoplastic flex lance material.
- ▶ Connects the foot control gun and the flex lance.



| PART NO. | LENGTH |     | INLET CONNECTION*<br>(TO FOOT GUN) | OUTLET CONNECTION*<br>(TO FLEX LANCE) | HOSE I.D. |     | MAX. OPERATING PRESSURE |       |
|----------|--------|-----|------------------------------------|---------------------------------------|-----------|-----|-------------------------|-------|
|          | ft     | m   |                                    |                                       | in        | mm  | psi                     | bar   |
| 55260    | 3      | 0.9 | Jetstream 20K QD Male              | 9/16" Jetstream 20K QD Male           | .39       | 9.9 | 20,000                  | 1,379 |

\*See Section I for a description of each connection type.

\*\*Part No. 52041 needed to connect to foot gun.

# SAFETY HOSE CHECKS



## NYLON HOSE CHECK - HIGH STRENGTH

One Size Fits All.

Part No. 66743



## CONTAINMENT GRIP HOSE CHECK

Coated, Galvanized Carbon Steel

| PART NO. | HOSE O.D.     |
|----------|---------------|
| 63210    | 3/4" - 1 1/4" |
| 59291    | 1 1/4" - 2"   |
| 61255    | 2" - 2 3/4"   |



## SHACKLE ANCHOR FOR CONTAINMENT GRIP HOSE CHECKS

Part No. 65670



## LOCKING COTTER PIN FOR SHACKLE ANCHOR

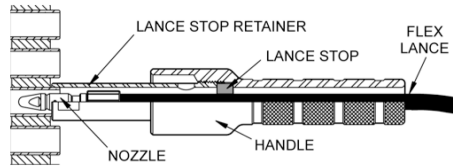
Part No. 65671





# FLEX LANCE SAFETY GRIP

For use in flex lance tube cleaning operations, the safety grip prevents a nozzle from unexpectedly exiting a tube by providing a stop through which the sleeve of the flex lance will not pass. Package includes handle, lance stop retainer for use on tubes up to 3/4" O.D. Choose lance stop below (not included). **Part No. 54164**



Flex Lance Safety Grip Part Number 51024

## SAFETY GRIP ACCESSORIES

### LANCE STOPS

Choose lance stops below based on flex lance ID.

### LANCE STOP RETAINERS

Choose lance stop retainers based on the outside diameter of the tube to be cleaned.



### SAFETY GRIP SHIELD

Clear, plastic shield attaches to the safety grip handle to deflect water exiting the tube. **Part No. J55785**

| LANCE STOP PART NO. | FLEX LANCE SERIES NUMBER | FLEX LANCE NOMINAL I.D. |     |
|---------------------|--------------------------|-------------------------|-----|
|                     |                          | in                      | mm  |
| 51044               | 51952                    | .16                     | 4.0 |
| 51038               | 51953                    | .20                     | 5.0 |
| 51038               | 51954                    | .25                     | 6.3 |
| 51779               | 53816                    | .32                     | 8.0 |

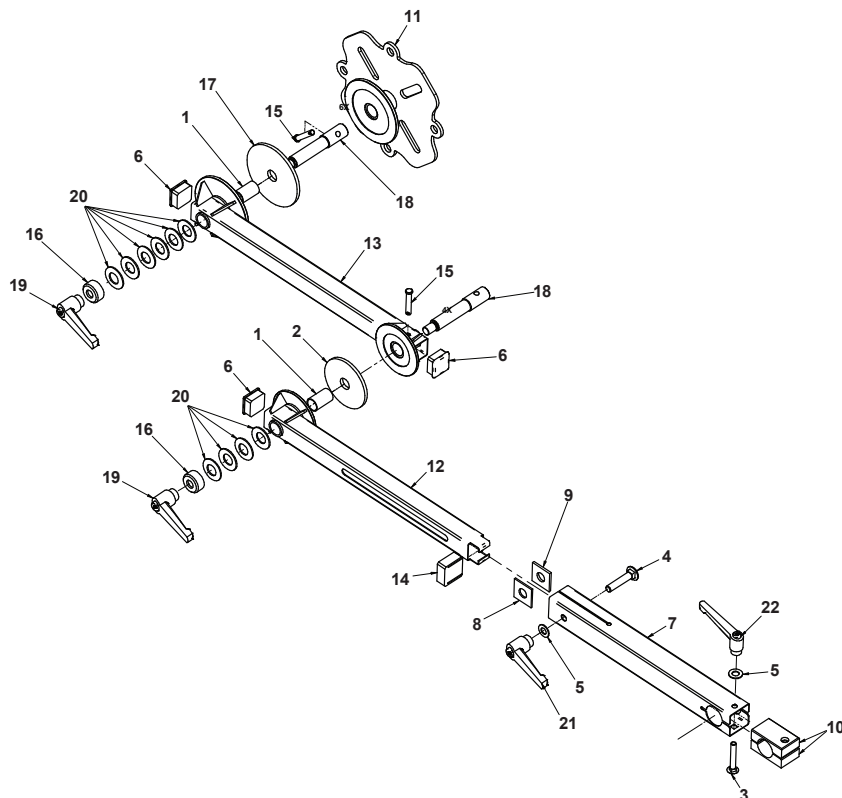
\*Included in package above.

| PART NO. | LENGTH                                                |
|----------|-------------------------------------------------------|
| 51055    | for tubes up to 3/4" O.D. (included with safety grip) |
| 51425    | for tubes up to 1" O.D.                               |
| 51427    | for tubes up to 2" O.D.                               |

# FLEXSTOP™

The FlexStop Lance Safety Device protects the operator from a flex lance exiting a tube sheet during cleaning operations in either a horizontal or vertical application. An articulating arm, two friction disc hubs and a telescoping tube allow for a wide range of adjustment and positioning possibilities. Durable stainless steel construction. **Part No. 66288**

The FlexStop Kit contains the articulating arm, the safety grip assembly with Lexan splash guard, all four lance stops, both guide bushings, an extension tube, and two flange clamps. **Part No. 61374**



## LANCE STOPS



| LANCE STOP<br>PART NO. | FLEX LANCE<br>NOMINAL I.D. |    | HOSE<br>TYPE |
|------------------------|----------------------------|----|--------------|
|                        | in                         | mm |              |
| 51036                  | .325                       | 8  | 4/2 & 3/2    |
| 51038                  | .445                       | 11 | 5/2          |
| 51044                  | .510                       | 13 | 6/2 & 6/4    |
| 51779                  | .610                       | 15 | 8/2 & 8/6    |

## GUIDE BUSHINGS



| GUIDE<br>BUSHING<br>PART NO. | NOMINAL I.D. |    |
|------------------------------|--------------|----|
|                              | in           | mm |
| 60288                        | .550         | 14 |
| 60289                        | .780         | 20 |

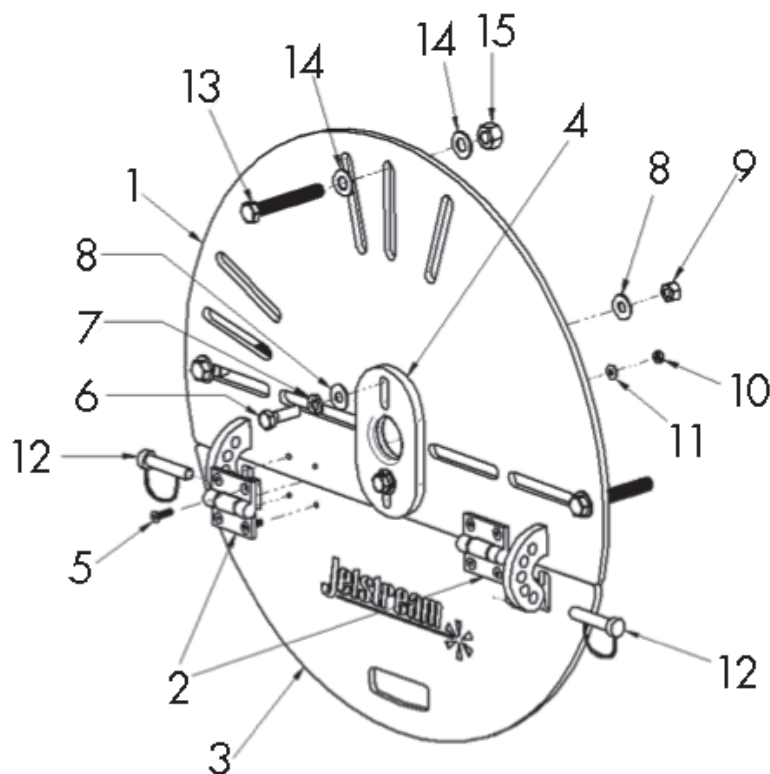
## PART BREAKDOWN

| ITEM | PART NO. | DESCRIPTION                    | ITEM | PART NO. | DESCRIPTION            |
|------|----------|--------------------------------|------|----------|------------------------|
| 1    | 60311    | Sleeve Bearing                 | 12   | 66298    | Outer Arm              |
| 2    | 60998    | 4" Friction Element            | 13   | 66299    | Inner Arm              |
| 3    | 61046    | Capscrew                       | 14   | 66300    | Centering Block        |
| 4    | 61050    | Capscrew                       | 15   | 66302    | Clevis Pin             |
| 5    | 61148    | Thrust Washer                  | 16   | 66865    | Friction Plate Plunger |
| 6    | 66274    | Finishing Plug                 | 17   | 66866    | 5" Friction Element    |
| 7    | 66291    | Outer Telescoping Arm          | 18   | 66867    | Pivot Pin              |
| 8    | 66293    | Spacer, Telescoping Arm, Thin  | 19   | 66870    | Adjustment Handle      |
| 9    | 66294    | Spacer, Telescoping Arm, Thick | 20   | 66871    | Disc Spring            |
| 10   | 66296    | Clamp Block                    | 21   | 66889    | Adjustment Handle      |
| 11   | 66297    | Mounting Plate                 | 22   | 66890    | Adjustment Handle      |

# THE WARDEN™

The Jetstream Warden is an anti-withdrawal device used for pipe cleaning applications with pipes ranging from 5"-18". With the multiple mounting location points, the pipe shield provides complete pipe coverage with a lockable shutter to allow large debris removal.

**Part No. 61447**

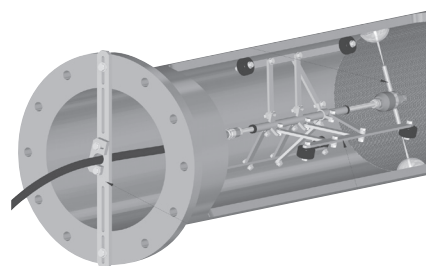


## PART BREAKDOWN

| ITEM | PART NO. | DESCRIPTION                 | ITEM | PART NO. | DESCRIPTION             |
|------|----------|-----------------------------|------|----------|-------------------------|
| 1    | 61283    | Pipe Cover Wldt, 1-19" Dia. | 9    | 26562    | Nut .38 C,Hx            |
| 2    | 61448    | Shield Door Hinge           | 10   | 27449    | Nut #10-24,Hx,Nylok     |
| 3    | 61284    | Tilt Panel Wldt             | 11   | J70804   | Washer #10 Flat         |
| 4    | 61288    | Dia. Adjustment Plate       | 12   | 61449    | .375" Dia. Locking Pin  |
| 5    | 61461    | Capscrew #10-24 X .87       | 13   | 61450    | Capscrew .43 C X 3.0 SS |
| 6    | 27126    | Capscrew .38 C X 1.25       | 14   | 59229    | Washer .44 Flat         |
| 7    | 25249    | Washer .38 Lock             | 15   | 26834    | Nut .44 F,Hx Lock       |
| 8    | 25251    | Washer .38 Flat             |      |          |                         |

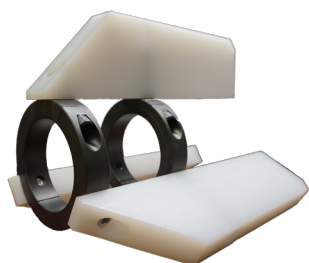
# CENTRALIZERS

- ▶ Three styles are available.
- ▶ Supports the tool while providing a controlled, even cleaning along with damage protection.

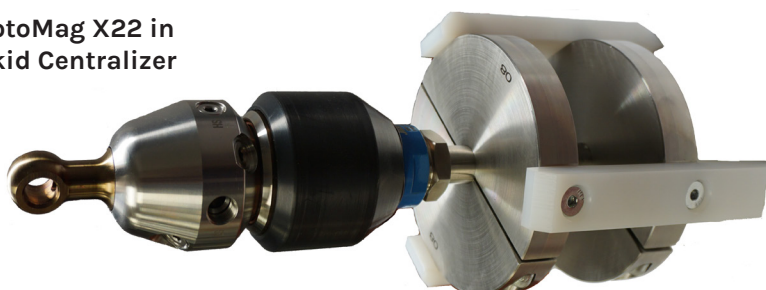


## SKID STYLE

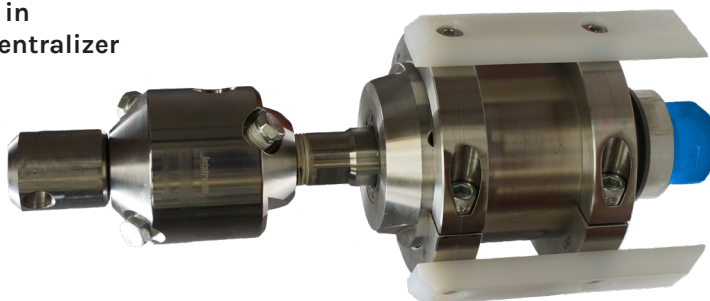
Used in pipes with and without elbows up to 10 in. (250 mm) in diameter. Designed to be used with RotoMag™ X22 and Swivel X15/X22.



RotoMag X22 in  
Skid Centralizer



Swivel in  
Skid Centralizer



## REPLACEMENT RUNNERS

Three plastic runners and six screws.

| PART NO. | DIAMETER |     |
|----------|----------|-----|
|          | in       | mm  |
| 66104-06 | 6.0      | 150 |
| 66104-08 | 8.0      | 200 |
| 66104-10 | 10.0     | 250 |

## ROTOMAG X22

| PART NO.      | DIAMETER |     |
|---------------|----------|-----|
|               | in       | mm  |
| 63842-ROTO-6  | 6.0      | 150 |
| 63842-ROTO-8  | 8.0      | 200 |
| 63842-ROTO-10 | 10.0     | 250 |

NOTE: Does not include nipple or fittings.

## RELATED ITEMS

Use 20K fittings listed below and adapt to 15K hose using proper fittings.

| PART NO.  | DESCRIPTION            |
|-----------|------------------------|
| 29108-08  | 3/4" MP LH Tube Nipple |
| 28383 (2) | 3/4" MP Gland          |
| 28384 (2) | 3/4" MP Collar         |

## SWIVEL X15/X22

| PART NO.      | DIAMETER |     |
|---------------|----------|-----|
|               | in       | mm  |
| 63842-SWVL-6  | 6.0      | 150 |
| 63842-SWVL-8  | 8.0      | 200 |
| 63842-SWVL-10 | 10.0     | 250 |

# CAGE STYLE

Recommended for navigating complex piping arrangements to clean built up debris. Designed for RotoMag X22 (clamp to nipple), Swivel X15/X22 (clamp to tool), and H<sub>3</sub>Orbiter (clamp to tool).



RotoMag X22 with  
Nozzle Extensions  
in Cage Centralizer



## ROTOMAG X22

| PART NO.   | DIAMETER |     |
|------------|----------|-----|
|            | in       | mm  |
| 63843-ROTO | 18.75    | 475 |

63843-ROTO does not include nipple or fittings:

## RELATED ITEMS

| PART NO. | DESCRIPTION                    |
|----------|--------------------------------|
| 29108-08 | 8" long 3/4" MP LH Tube Nipple |
| 28383    | 3/4" MP Gland                  |
| 28384    | 3/4" MP Collar                 |

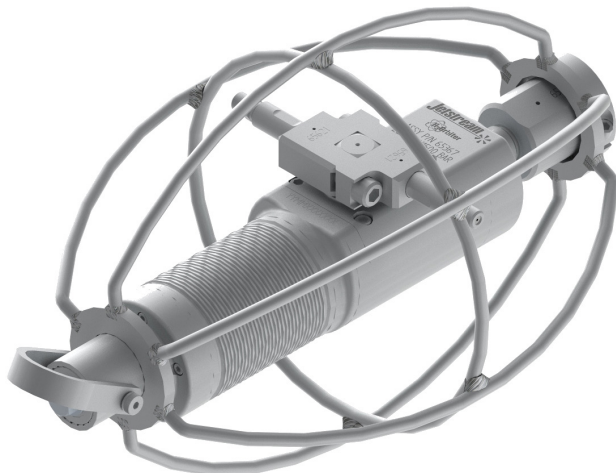
Swivel in  
Cage Centralizer



## SWIVEL X15, X22

| PART NO.   | DIAMETER |     |
|------------|----------|-----|
|            | in       | mm  |
| 63843-SWVL | 18.75    | 475 |

# CAGE STYLE



## H<sub>3</sub> ORBITER

| PART NO.  | DIAMETER |     |
|-----------|----------|-----|
|           | in       | mm  |
| 63843-H30 | 11.75    | 298 |

# SCISSOR STYLE

Designed for straight pipe runs only. The adjustable frames allow for an effective pipe clean anywhere from 9-60 inches (230-1500 mm) in diameter. Compatible with most tools. Comes with a central lance (shown below) for mounting tools.

| PART NO.                                        | CONNECTION         | PRESSURE | WEIGHT         | LENGTH           |
|-------------------------------------------------|--------------------|----------|----------------|------------------|
| <b>SMALL 9-18" [230-460 MM] PIPE DIAMETER</b>   |                    |          |                |                  |
| 64452-S15-8                                     | 1/2" NPT           | 15K PSI  | 20 lb. (9 kg)  | 36 in. (915 mm)  |
| 64452-S15-12                                    | 3/4" NPT           | 15K PSI  | 20 lb. (9 kg)  | 36 in. (915 mm)  |
| 64452-S20                                       | 3/4" MP Male Tube  | 20K PSI  | 20 lb. (9 kg)  | 36 in. (915 mm)  |
| 64452-S40                                       | 9/16" HP Male Tube | 40K PSI  | 20 lb. (9 kg)  | 36 in. (915 mm)  |
| <b>MEDIUM 13-40" [330-1000MM] PIPE DIAMETER</b> |                    |          |                |                  |
| 64452-M15-8                                     | 1/2" NPT           | 15K PSI  | 32 lb. (15 kg) | 48 in. (1220 mm) |
| 64452-M15-12                                    | 3/4" NPT           | 15K PSI  | 32 lb. (15 kg) | 48 in. (1220 mm) |
| 64452-M20                                       | 3/4" MP Male Tube  | 20K PSI  | 32 lb. (15 kg) | 48 in. (1220 mm) |
| 64452-M40                                       | 9/16" HP Male Tube | 40K PSI  | 32 lb. (15 kg) | 48 in. (1220 mm) |
| <b>LARGE 16-60" [410-1500 MM] PIPE DIAMETER</b> |                    |          |                |                  |
| 64452-L15-8                                     | 1/2" NPT           | 15K PSI  | 40 lb. (18 kg) | 72 in. (1850 mm) |
| 64452-L15-12                                    | 3/4" NPT           | 15K PSI  | 40 lb. (18 kg) | 72 in. (1850 mm) |
| 64452-L20                                       | 3/4" MP Male Tube  | 20K PSI  | 40 lb. (18 kg) | 72 in. (1850 mm) |
| 64452-L40                                       | 9/16" HP Male Tube | 40K PSI  | 40 lb. (18 kg) | 72 in. (1850 mm) |



SAFETY





# VERSABOOM™

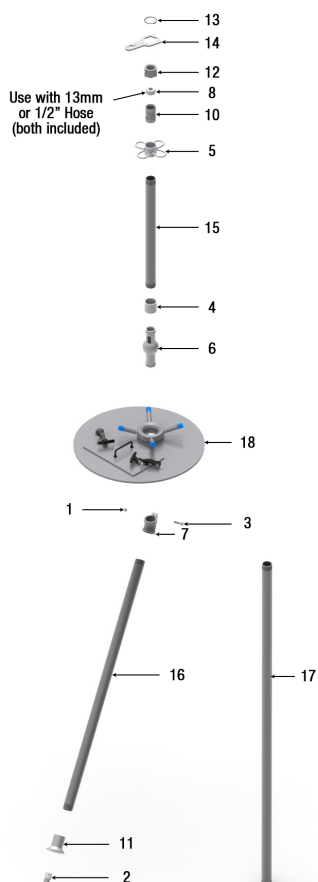
Large tanks and vessels can be challenging to clean. They come in all shapes and sizes, and they often have limited access, making it hard to get a cleaning tool into the proper position to ensure a complete cleaning.

The Versaboom™ is a positioning device designed to hold a 3D waterblast tool in a desired location inside tanks and vessels with limited access. **(Part No. 67901)**

- ▶ Adjustable extensions make it easy to extend or retract the cleaning tool to a variety of insertion depths and angles for optimal cleaning
- ▶ Aluminum mounting plate clamps to the tank or vessel during cleaning, increasing operator safety
- ▶ Access hatch in the mounting plate allows the operator to visually position the cleaning tool and check cleaning progress
- ▶ Easy to set up and operate; no special tools are required



| PART NO. | MAX. HOSE I.D. |      | MAX. END FITTING |      | WEIGHT |    |
|----------|----------------|------|------------------|------|--------|----|
|          | in             | mm   | in               | mm   | lbs    | kg |
| 67901    | .50            | 12.7 | 1.5              | 38.1 | 80     | 36 |



## PART BREAKDOWN

| ITEM | PART NO. | DESCRIPTION        |
|------|----------|--------------------|
| 1    | 25296    | Lock Nut           |
| 2    | 26065    | Bushing            |
| 3    | 27091    | Capscrew           |
| 4    | 67908    | Coupler            |
| 5    | 67919    | Coupling, Anchor   |
| 6    | 67920    | 1" Ball Pipe       |
| 7    | 67921    | Elbow              |
| 8    | 67922    | Collet, 13mm       |
| 9    | 67923    | Collet, 1/2" NPT   |
| 10   | 67924    | Nipple             |
| 11   | 67925    | Outlet Fitting     |
| 12   | 67926    | Gland              |
| 13   | 67927    | Retaining Ring     |
| 14   | 67928    | Gland Wrench       |
| 15   | 67929    | Tube Extension, 2' |
| 16   | 67930    | Tube Extension, 4' |
| 17   | 67931    | Tube Extension, 6' |
| 18   | 67936    | Base Plate Assy    |

# SONETICS® APEX WIRELESS HEADSET



Headset  
Part No. 64299 (wireless)  
65911 (wireless w/Bluetooth)



Wireless Base Station  
Part No. 66090



Portable Com Hub  
Part No. 64298 (5/100)  
65644 (10/100)



Charging Cases  
Part No. 64300 (5-user)  
65925 (10-user)

Sonetics APEX wireless headsets provide a communication solution for all members on your team. Operators today rely on eye-contact and hand signals to communicate when operating large, noisy machinery, including waterblasting systems.

What if you could know word-for-word what the other operator needs in an instant with NO interpretation required? Sonetics developed a headset that provides a piece-of-mind in an instant through actual voice communication, noise reduction, and noise filtration with an industry first in integrated personal sound dosimeter. Built to withstand extreme environments, Sonetics wireless systems are dust proof, watertight, and ready to perform in the same tough conditions you face every day.

## FEATURES

- ▶ Secure interference-free communication with excellent range (up to 1,600 feet)
- ▶ EPA NRR of 20dB in both behind-the-head and hard-hat configurations
- ▶ Front microphones to provide situational awareness limited to no higher than 82dB
- ▶ Personal sound dosimeter measures the exposure to sound over time and adjusts headset volume to keep the operator's ears safe
- ▶ Auto-leveling microphone with automatic voice adjustments for exterior noise
- ▶ Noise suppression limits high impulse events from transmission
- ▶ Convertible headband to allow over-the-head or behind the head wear
- ▶ Customizable ruggedized colors available to aid in identification of team members
- ▶ Integration with wired or wireless two-way portable radios
- ▶ Optional bluetooth integration for communication with cell phones, MP3 players, mobile radios, and computers
- ▶ In-case charging of headsets available when not in use

Contact your Jetstream Sales Manager for more details about the system that's right for you.

# TST® WORKPLACE SAFETY SOLUTIONS

TST Workplace Safety Solutions (WSS) provide protection to sensitive equipment, machinery, or people from water, water jetting, gravel spray, and ricochets! They are made with an extremely strong outer protective fabric called TECHSTEEL™, which can withstand up to 43,500 psi (3000 bar) at a stand-off distance of 5 ft (1.5 m).

## WSS OPERATOR BOOTH

Inflatable body with floor to protect operator. Can be connected to protective walls and curtains. Easy to transport and store.

Part No. 66649



## WSS PROTECTIVE CURTAIN

Practical curtains which can be put together to form a protective wall of desired length. Each section is approximately 5 x 8.2 ft.

Part No. 66650



## WSS PROTECTIVE WALL

Protective Wall is a stand alone solution. Several walls can be connected together indefinitely. The wall can be disassembled for easy transport and storage. Each section is approximately 5.5 x 7.2 ft. Comes with aluminum frame, feet, protective fabric and bottom flap.

Part No. 66651



## WSS PROTECTIVE WALL CONNECTING PANEL

Connecting panels use waterproof Keder connections to connect WSS Protective Walls, Curtains, and Booths.



| PART NO. | CONNECTION TYPE                                   |
|----------|---------------------------------------------------|
| 67659    | Keder Between Walls                               |
| 67660    | Female Keder Between Walls and Curtains or Booths |
| 67661    | Male Keder Between Walls and Curtains or Booths   |

## WSS SCUFFGUARD

Protect valuable hoses from wear and tear. The 6.6 ft. version is easy to mount with hooks and loops. The 16.4 ft. version is like a tube. Inner diameter is approximately 2.2 in. Eyelets are used for fastening at the ends.



| PART NO. | LENGTH       |
|----------|--------------|
| 66652    | 6.6 ft (2m)  |
| 66653    | 16.4 ft (5m) |



# TST® WATERJET PROTECTION

TST products provide protection to the operator without compromising on comfort or quality. Two levels of protection are offered depending on the protection needs and working pressures. See chart below for specific protection levels.

| PROTECTION LEVEL* | COLOR IDENTIFIER | SINGLE JET          | ROTARY JET          |
|-------------------|------------------|---------------------|---------------------|
| 10/28             | YELLOW           | 14,500 psi/1000 bar | 40,600 psi/2800 bar |
| 20/30             | ORANGE           | 30,000 psi/2000 bar | 43,500 psi/3000 bar |

\*Protection levels are located on all articles for quick identification.



## TST ALFA KIT

Waistcoat and apron with hand protection. One size fits all.

### PROTECTION LEVEL 10/28

PART NO.

67445

### PROTECTION LEVEL 20/30

PART NO.

67446



## TST GAMMA KIT

Trousers and jacket with integrated hand protection.

### PROTECTION LEVEL 10/28

| PART NO. | VENTILATED PART NO.* | SIZE    |
|----------|----------------------|---------|
| 58962    | 58962-V              | S/M     |
| 58901    | 58901-V              | L/XL    |
| 58902    | 58902-V              | 2XL/3XL |
| 59873    | 59873-V              | 4XL/5XL |
| 59875    | 59875-V              | 6XL     |

### PROTECTION LEVEL 20/30

| PART NO. | VENTILATED PART NO.* | SIZE    |
|----------|----------------------|---------|
| 58963    | 58963-V              | S/M     |
| 58964    | 58964-V              | L/XL    |
| 58965    | 58965-V              | 2XL/3XL |
| 59874    | 59874-V              | 4XL/5XL |
| 59876    | 59876-V              | 6XL     |

\*Ventilated products consist of tubing throughout the suit with holes every five inches for complete coverage. (A cooling tube will need to be purchased with this system, as well. See page H-19.)

## TST® DELTA KIT

Trousers, waistcoat, and hand protection.

### PROTECTION LEVEL 10/28

| PART NO. | VENTILATED PART NO.* | SIZE    |
|----------|----------------------|---------|
| 58956    | 58956-V              | S/M     |
| 58957    | 58957-V              | L/XL    |
| 58958    | 58958-V              | 2XL/3XL |

### PROTECTION LEVEL 20/30

| PART NO. | VENTILATED PART NO.* | SIZE    |
|----------|----------------------|---------|
| 58959    | 58959-V              | S/M     |
| 58960    | 58960-V              | L/XL    |
| 58961    | 58961-V              | 2XL/3XL |

\*Ventilated products consist of tubing throughout the suit with holes every five inches for complete coverage. (A cooling tube will need to be purchased with this system, as well. See page H-19.)



## TST SIGMA KIT

Waistcoat & overall with integrated hand protection.

### PROTECTION LEVEL 10/28

| PART NO. | SIZE |
|----------|------|
| 58944    | S    |
| 58945    | M    |
| 58946    | L    |
| 58947    | XL   |
| 58948    | 2XL  |
| 58949    | 3XL  |

### PROTECTION LEVEL 20/30

| PART NO. | SIZE |
|----------|------|
| 58950    | S    |
| 58951    | M    |
| 58952    | L    |
| 58953    | XL   |
| 58954    | 2XL  |
| 58955    | 3XL  |



## TST TROUSERS

Individual item.

### PROTECTION LEVEL 10/28

| PART NO. | VENTILATED PART NO.* | SIZE    |
|----------|----------------------|---------|
| 58966    | 58966-V              | S/M     |
| 58967    | 58967-V              | L/XL    |
| 58968    | 58968-V              | 2XL/3XL |

### PROTECTION LEVEL 20/30

| PART NO. | VENTILATED PART NO.* | SIZE    |
|----------|----------------------|---------|
| 58969    | 58969-V              | S/M     |
| 58970    | 58970-V              | L/XL    |
| 58971    | 58971-V              | 2XL/3XL |

\*Ventilated products consist of tubing throughout the suit with holes every five inches for complete coverage. (A cooling tube will need to be purchased with this system, as well. See page H-19.)



SAFETY





## TST® JACKET

Integrated hand protection. Individual item.

### PROTECTION LEVEL 10/28

| PART NO. | SIZE    |
|----------|---------|
| 58972    | S/M     |
| 58973    | L/XL    |
| 58974    | 2XL/3XL |

### PROTECTION LEVEL 20/30

| PART NO. | SIZE    |
|----------|---------|
| 58975    | S/M     |
| 58976    | L/XL    |
| 58977    | 2XL/3XL |
| 59492    | 4XL/5XL |



## TST WAISTCOAT

Individual item.

### PROTECTION LEVEL 10/28

| PART NO. | SIZE  |
|----------|-------|
| 58978    | M-2XL |
| 58979    | 3XL   |

### PROTECTION LEVEL 20/30

| PART NO. | SIZE  |
|----------|-------|
| 58980    | M-2XL |
| 58981    | 3XL   |



## TST OVERALL

Integrated hand protection. Individual item.

### PROTECTION LEVEL 10/28

| PART NO. | SIZE |
|----------|------|
| 58982    | S    |
| 58983    | M    |
| 58984    | L    |
| 58985    | XL   |
| 58986    | 2XL  |
| 58987    | 3XL  |

### PROTECTION LEVEL 20/30

| PART NO. | SIZE |
|----------|------|
| 58988    | S    |
| 58989    | M    |
| 58990    | L    |
| 58991    | XL   |
| 58992    | 2XL  |
| 58993    | 3XL  |

## TST® HAND PROTECTION

One size fits all. Sold in pairs.

| PART NO. | PROTECTION LEVEL |
|----------|------------------|
| 67526    | 10/28            |
| 67527    | 20/30            |



## TST APRON

One size fits all. Individual Item.

| PART NO. | PROTECTION LEVEL |
|----------|------------------|
| 58903    | 10/28            |
| 58997    | 20/30            |



## TST WAISTCOAT WITH APRON

One size fits all. Individual Item.

| PART NO. | PROTECTION LEVEL |
|----------|------------------|
| 58955    | 10/28            |
| 58996    | 20/30            |



## TST BOOTS 3000

| PART NO. | SIZE APPROX. US MEN |
|----------|---------------------|
| 59000    | 9                   |
| 59001    | 9.5                 |
| 59002    | 10                  |
| 58932    | 10.5                |
| 59003    | 11                  |
| 59004    | 12                  |
| 59005    | 13                  |



## TST GAITERS

One size fits all. Pair.

| PART NO. | PROTECTION LEVEL |
|----------|------------------|
| 59007    | 20/30            |



## TST BALACLAVA

Comfort accessory for use under protective gear. One size fits all.

| PART NO. | PROTECTION LEVEL |
|----------|------------------|
| 59006    | N/A              |



## VORTEX COOLER TUBE

(Not shown.) Personal Air Conditioner. For full body cooling, a 25cfm or 35cfm tube is recommended. If the tube is not sized for the available air supply, it will perform poorly.

| PART NO. | CFM    |
|----------|--------|
| 61415    | 25 CFM |
| 51416    | 35 CFM |

## TST GREASE REMOVER

| PART NO. | L   |
|----------|-----|
| 59015    | 0.5 |
| 59016    | 2.5 |







## TST HEAD PROTECTION

Helmet with visor and hearing protectors. One size fits all.

| PART NO. | PROTECTION LEVEL |
|----------|------------------|
| 65498    | 20/30            |



## TST HELMET

Helmet with CE marking approved to SS-EN397:2012. Adjustable. One size fits all.

| PART NO. | PROTECTION LEVEL |
|----------|------------------|
| 66645    | 20/30            |



## TST HEARING PROTECTION

One size fits all. Adjustable.  
Part No. 66647



## TST BLUETOOTH ADAPTER

Enables wireless communication while using TST Hearing Protection.  
Part No. 67658



## TST VISOR HOLDER

Visor holder for TST Head Protection.  
Part No. 66646



## TST VISORS (10 PACK)

10 pack of replaceable visors for TST Head Protection.  
Part No. 67657



## TST® CHIN STRAP

3-point chin strap for use with TST Head Protection.  
Part No. 66648



# TURTLESKIN® WATERARMOR

Provides waterblast operators with a high level of protection from high-pressure waterjets.

- ▶ Proven protection up to 40,000 psi (2750 bar)
- ▶ Lightweight, hinged panel design provides flexibility without fatigue
- ▶ Modular design—buy only what you need
- ▶ Open back keeps operator cooler longer

| ITEM(S)                      | PART NO. | DESCRIPTION                  |
|------------------------------|----------|------------------------------|
| <b>TURTLESKIN MAIN PARTS</b> |          |                              |
| A                            | 27885    | Safety Suit—Torso & Chaps    |
| B                            | 27884    | Gaiters (Shins & Feet)       |
| C                            | 28589    | Gauntlets (Hands & Forearms) |
| <b>REPAIR KITS</b>           |          |                              |
| -                            | 71613    | Torso                        |
| -                            | 71614    | Chaps                        |
| -                            | 71615    | Gaiters                      |

# SAFETY ACCESSORIES



## SAFETY GLASSES PREMIUM

Clear/Gray anti-fog lens, adjustable nose pad, scratch resistant, UV-blocking, Z87+ approved.  
**Part No. J70316**

## SAFETY GLASSES PREMIUM

Gray/Gray anti-fog lens, adjustable nose pad, scratch resistant, UV-blocking, Z87+ approved.  
**Part No. J70317**

## SAFETY GLASSES ECONOMY

Scratch resistant, UV-blocking.  
**Part No. J70318**



## SAFETY GOGGLES

Soft frame with impact and chemical splash protection, anti-fog lens, Neoprene strap, Z87+ approved.  
**Part No. 25620**



## FACE SHIELD

Multiple Mounting Slots. Polycarbonate.  
**Part No. 26255**

## FACE SHIELD

Multiple Mounting Slots. Polycarbonate.  
**Part No. 26255T**

## FACE SHIELD

Multiple Mounting Slots with Velcro strip. Polycarbonate.  
**Part No. 26255V**



## EAR PLUGS

Uncorded with noise reduction rating: 33. Molded Polyurethane Foam.  
**Part No. J70321**

## UNIVERSAL FACE SHIELD BRACKET

Fits the brim of most hard hats. Plastic.  
**Part No. 25621**



## HARD HAT

White, six-point nylon suspension with ratchet knob. Hard Plastic.  
**Part No. J70315**

## HARD HAT

White, six-point nylon suspension with pin-lock adjustment. Hard Plastic.  
**Part No. 25625**



## EAR PLUGS

Corded with noise reduction rating: 30. Molded Polyurethane Foam.  
**Part No. J70322**



## PREMIUM 16" BOOTS

Steel toe, waterproof, meets ANSI Z41 PT99 Sect 1, 2, & 5. Size 6 to 14. Black/Yellow Rubber.  
**Part No. J70324-size**

## ECONOMY 16" BOOTS

Steel toe, waterproof. Size 7 to 13. Black Rubber.  
**Part No. 27168-size**

## 12" BOOTS

Steel toe, waterproof, meets ANSI Z41 PT99 Sect 1. Size 6 to 14. Copper/Tan Neoprene.  
**Part No. J70326-size**



## SHIN & FOOT GUARDS

Padded instep and nylon straps. Aluminum.  
**Part No. 26894**

## WATER PROTECTION SUITS

Jacket, bib overall pants & face shield bib. PVC/Polyester. Sizes M-5XL  
**Part No. J70323-size**

## WATER PROTECTION SUITS

Jacket and bib overall pants. PVC/Polyester. Size M-7XL  
**Part No. 25617-size**



## GLOVES

14" PVC/NITRILE. Chemical resistant with rough finish. Fully coated with jersey lining. Size 10.  
**Part No. 25624**

## GLOVES

12" PVC Rough Finished gloves. Cotton Lining. Size 10.  
**Part No. J70327**



# SAFETY TAPE, SIGNS AND DECALS



HEALTH HAZARD  
CAUTION SIGN

8½" x 11"  
Part No. 26247



RESTRICTED  
CAUTION SIGN

8½" x 11"  
Part No. 26253



WATERBLASTING  
DANGER SIGN

8½" x 11"  
Part No. 25614



SAFETY WARNING  
STICKER

Part No. 28501



SAFETY TAPE  
"CAUTION:  
WATERBLASTING  
IN PROGRESS"

Dimensions:  
3"x 300ft  
75mm x 90 m  
Part No. 57998



SAFETY TAPE  
"DANGER: HYDRO-  
BLASTING"

Dimensions:  
3" x 1000ft  
75mm x 300 m  
Part No. J70413



SAFETY WARNING  
DECAL SET  
(UNIT AND FLUID  
END)

Part No. 71147



SAFETY WARNING  
DECAL SET  
(FLUID END ONLY)

Part No. 71147-FE



20K COLOR CODED  
PRESSURE DECAL

Part No. 71743



JETSTREAM UNIT  
DECAL - BLUE

Part No. 29956



JETSTREAM UNIT  
DECAL - WHITE

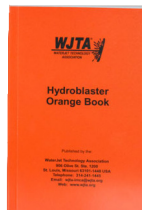
Part No. 26717

# SAFETY LITERATURE AND MEDIA



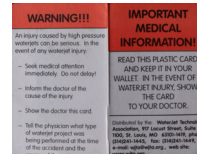
WJTA® INDUSTRY  
BEST PRACTICES  
FOR HIGH  
PRESSURE  
WATERJETTING  
EQUIPMENT

Part No. 64625



WJTA®  
HYDROBLASTER  
ORANGE BOOK

Pocket sized.  
Part No. 66858



SAFETY WARNING  
MEDICAL CARD

Part No. 29263



# TECHNICAL

## UNIT CONVERSIONS & FORMULAS

| MEASUREMENT         | CONVERSION             | EXAMPLE                           |
|---------------------|------------------------|-----------------------------------|
| LENGTH              | 1 in. = 25.4 mm        | 12 in. x 25.4 = 304.8 mm          |
|                     | 1 in. = .0254 m        | 120 in. x .0254 = 3.05 m          |
|                     | 1 ft. = .3048 m        | 12 ft. x .3048 = 3.68 m           |
|                     | 1 mm = .0394 in.       | 100 mm x .0394 = 3.94 in.         |
|                     | 1 m = 39.37 in.        | 10 m x 39.37 = 393.7 in.          |
|                     | 1 m = 3.281 ft.        | 10 m x 3.281 = 32.81 ft.          |
| VOLUME              | 1 gal = 3.785 l        | 10 gal x 3.785 = 37.85 l          |
|                     | 1 liter = .2642 gal    | 100 liters x .2642 = 26.42 gal    |
| WEIGHT              | 1 lb. = .454 kg        | 10 lbs. x .454 = 4.54 kg          |
|                     | 1 kg = 2.205 lbs.      | 10 kg x 2.205 = 22.05 lbs.        |
| PRESSURE            | 1 psi = .06895 bar     | 40,000 psi x .06895 = 2,750 bar   |
|                     | 1 bar = 14.503 psi     | 2,750 bar x 14.503 = 40,000 psi   |
| FLOW                | 1 gpm = 3.785 lpm      | 30 gpm x 3.785 = 113.55 lpm       |
|                     | 1 lpm = .2642 gpm      | 100 lpm x .264 = 26.42 gpm        |
| FORCE               | 1 lb. = 4.448 N        | 100 lbs. x 4.448 = 444.8 N        |
|                     | 1 N = .2248 lbs.       | 900 N x .2248 = 202.32 lbs.       |
| TORQUE              | 1 lb.-ft. = 1.3567 N-m | 100 lb.-ft. x 1.3567 = 135.67 N-m |
|                     | 1 N-m = .737 lb.-ft.   | 100 N-m x .737 = 73.7 lb.-ft.     |
| POWER               | 1 hp = .7457 kW        | 50 hp x .7457 = 37.29 kW          |
|                     | 1 kW = 1.341 hp        | 50 kW x 1.341 = 67.05 hp          |
| FORMULA             | ENGLISH UNITS          | METRIC UNITS                      |
| POWER REQUIREMENTS* | hp = gpm x psi / 1550  | kW = lpm x bar / 540              |

\*Formulas assume 90% mechanical efficiency

# CONNECTION TYPES

Several connection types are available for use with Jetstream 20,000 PSI products. The purpose of this section is to allow users to identify the connections needed and provide information on the features and proper use of each.

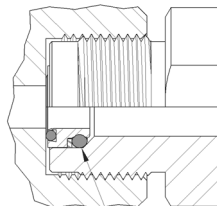


**NOTE:** Always apply thread lubricant (anti-seize) to male threads before assembling Jetstream 20K Port connections. See Section E. Fittings, for thread lubricants available from Jetstream.

## JETSTREAM 20K PORT

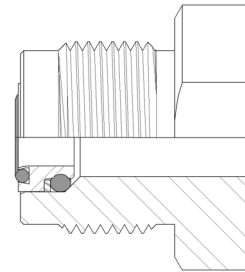
- Specially designed to prevent leakage and wear frequently associated with standard connections by incorporating a replaceable seal assembly that is hydraulic biased to increase sealing force as pressure increases.
- Repairing leaks requires only replacement of the seal, compared with standard connections which often require re-coning or component replacement
- Utilized in most Jetstream 20,000 psi products

| CONNECTION<br>THREAD | RECOMMENDED<br>TORQUE |     |
|----------------------|-----------------------|-----|
|                      | ft-lbs                | N-m |
| 1" - 16UN            | 50                    | 68  |



SEAL  
Part No. 52040

### Actual Size Reference Chart



Jetstream 20k Port Male



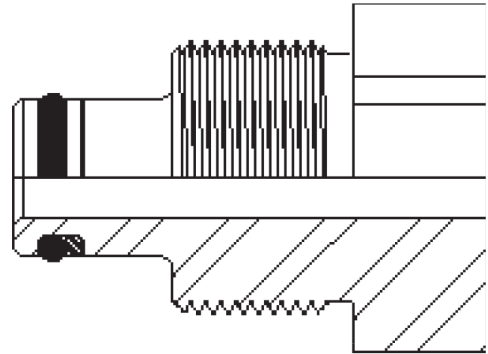
## CONNECTION TYPES

### JETSTREAM HHP MALE ADAPTERS

For use with 6020 and 5020Q pumps, the Jetstream HHP connection features an easily replaceable seal to prevent wear or damage to the manifold and a large bore to minimize pressure drop through fittings.

- ▶ Copper plated for galling resistance
- ▶ Stainless steel

Actual Size Reference Chart

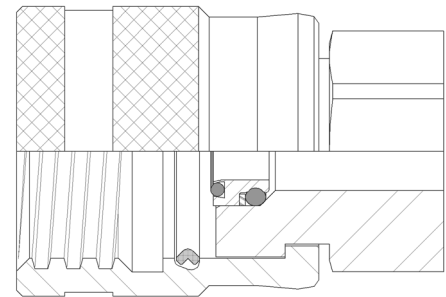


### JETSTREAM 20K QUICK DISCONNECT

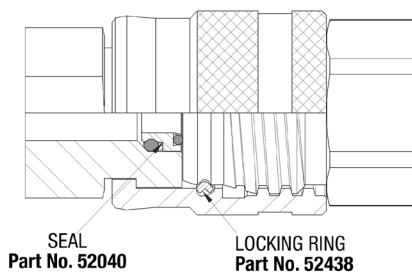
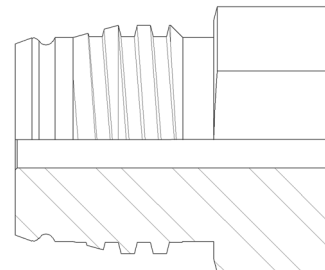
- ▶ Enables fast connection and removal of 20,000 psi tools
- ▶ Utilizes the same hydraulically-biased replaceable seal as the Jetstream 20K Port Connection
- ▶ Hand-tightening is all that is required. A locking ring in the female swivel fitting holds the male fitting in place
- ▶ Repairing leaks requires only replacement of the seal, compared with standard connections which often require re-coning or component replacement
- ▶ Available on Jetstream 20,000 psi rubber hoses
- ▶ Connectors are available to use the Quick Disconnect fitting with any 20,000 psi product

Actual Size Reference Chart

Jetstream 20K QD Female



Jetstream 20K QD Male

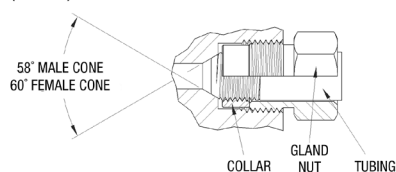


## CONNECTION TYPES

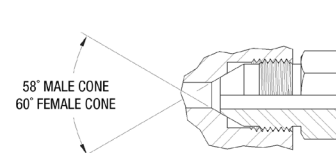
### MEDIUM PRESSURE (MP)

- ▶ Industry standard connection for 20,000 psi applications.
- ▶ Connections exist in two different forms:
  1. Used to connect medium pressure tubing with a conical male seat and left-handed threads to a female port using a gland nut and left-hand threaded collar (Gland, Collar & Tubing).
  2. For many medium pressure male fittings, the geometry of the gland, collar, and tubing is combined into one component that connects directly to a medium pressure female port (Single-Piece Style).
- ▶ With proper care, this connection is suitable for repetitive connection/disconnection.
- ▶ Damage from repeated or improper use can often be repaired using reconing tools. For details on tubing preparation and repair equipment, contact Jetstream Sales.

THREE-PIECE MALE CONNECTION  
(standard)



SINGLE-PIECE MALE CONNECTION



| SIZE     | GLAND CONNECTION THREAD | TUBING THREAD* LEFT-HAND | RECOMMENDED TORQUE |     |
|----------|-------------------------|--------------------------|--------------------|-----|
|          |                         |                          | ft-lbs             | N-m |
| 1/4" MP  | 7/16" - 20UNF           | 1/4" - 28UNF             | 20                 | 27  |
| 3/8" MP  | 9/16" - 18UNF           | 3/8" - 24UNF             | 30                 | 41  |
| 9/16" MP | 13/16" - 16UNF          | 9/16" - 18UNF            | 85                 | 15  |
| 3/4" MP  | 3/4" - 14NPSM           | 3/4" - 16UNF             | 90                 | 122 |
| 1" MP    | 1-3/8" - 12UNF          | 1" - 14UNF               | 125                | 170 |

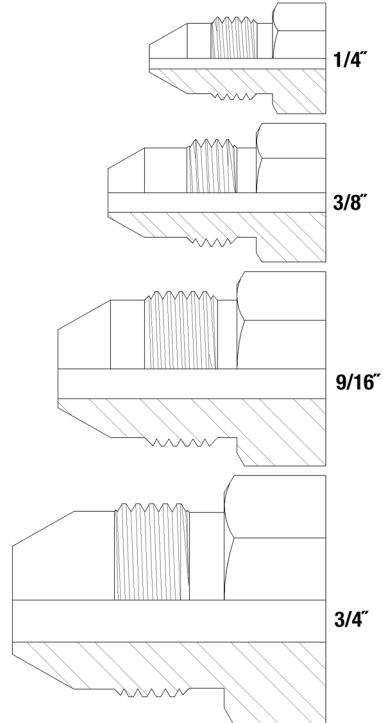
\*For three-piece connection styles only

### CONNECTION INSTRUCTIONS

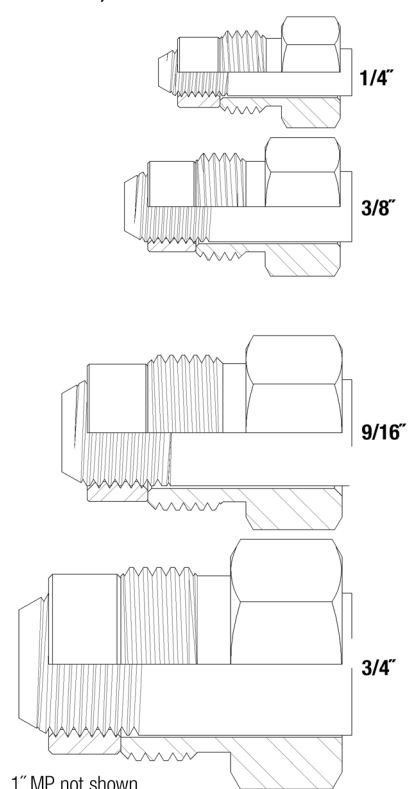
1. **3 pc. Male Connection Style Only** — Liberally apply anti-seize to male tubing threads to prevent thread galling.
2. **3 pc. Male Connection Style Only** — Slide gland nut over tubing and thread collar (left-hand threaded) onto tubing until it is past the first one or two full threads of the tubing.
3. **Both Styles** — Liberally apply anti-seize to male connection threads and male cone.
4. **Both Styles** — Install male connection into female port and tighten according to torque specification in chart above.

### Actual Size Reference Chart

#### SINGLE PIECE STYLE



#### GLAND, COLLAR & TUBING



## CONNECTION TYPES

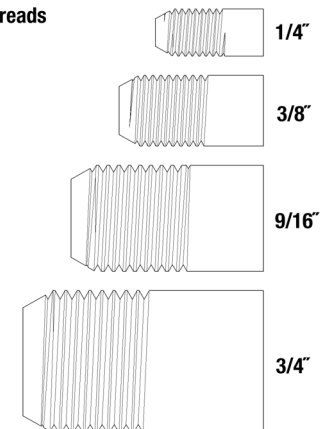
### MEDIUM PRESSURE TUBE (MP TUBE)

- ▶ Industry standard connection for 20,000 psi applications.
- ▶ Left-hand threaded connections are used in standard medium pressure three-piece connection style.
- ▶ Both left- and right-hand threaded connections are used in tube cleaning applications in which the male connection is inserted directly into a female connection without use of a gland and collar. For use where standard connections are too large in diameter.

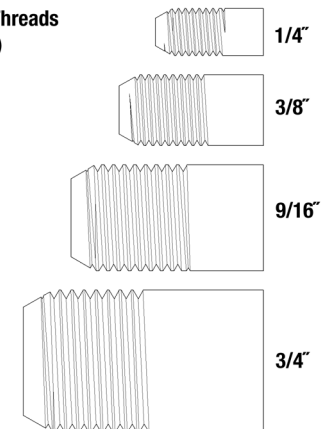
| SIZE             | TUBE<br>CONNECTION<br>THREAD | RECOMMENDED<br>TORQUE |     |
|------------------|------------------------------|-----------------------|-----|
|                  |                              | ft-lbs                | N-m |
| 1/4" MP Tube LH  | 1/4"-28UNF-LH                | 15                    | 20  |
| 1/4" MP Tube RH  | 1/4"-28UNF-RH                |                       |     |
| 3/8" MP Tube LH  | 3/8"-24UNF-LH                | 25                    | 34  |
| 3/8" MP Tube RH  | 3/8"-24UNF-RH                |                       |     |
| 9/16" MP Tube LH | 9/16"-18UNF-LH               | 30                    | 41  |
| 9/16" MP Tube RH | 9/16"-18UNF-RH               |                       |     |
| 3/4" MP Tube LH  | 3/4"-16UNF-LH                | 45                    | 61  |
| 3/4" MP Tube RH  | 3/4"-16UNF-RH                |                       |     |
| 1" MP Tube LH    | 1"-14UNF-LH                  | 70                    | 95  |

Actual Size Reference Chart

Left-Hand Threads  
(MP Tube LH)

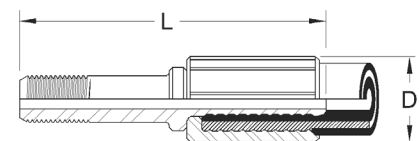


Right-Hand Threads  
(MP Tube RH)

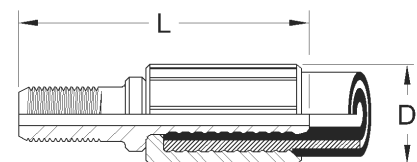


### MP TUBE VS. MP NOZZLE NIPPLE

- ▶ Male MP Nozzle nipples and Male MP Tube connections have identical threads and only differ in length of tubing after the threads.
- ▶ Both can be used with MP Tube female connections.
- ▶ Male MP Tube connections have extra length after the threads for the optional use of a gland and collar.
- ▶ Male MP Nozzle nipples are designed to connect directly to nozzles with female left- or right-hand medium pressure tube connections. These cannot be used with gland and collar.
- ▶ Female connections are all MP Tube - any female connection denoted nozzle nipple is simply a terminology difference.



MP Tube

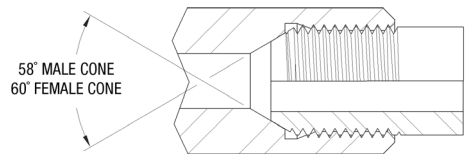


MP Nozzle Nipple

CONNECTION TYPES

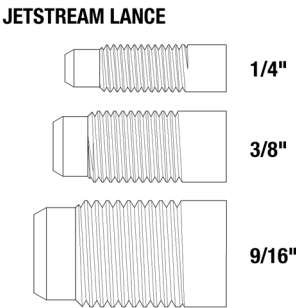
JETSTREAM LANCE

- ▶ Formerly known as Jetstream's "Rigid Lance" connection.
- ▶ Commonly found in Jetstream flex and rigid lances and tube nozzles.
- ▶ Male Jetstream Lance connections will fit into female right hand medium pressure tube connections, but female Jetstream Lance connections cannot be used with male medium pressure tube connections.



| SIZE           | LANCE<br>CONNECTION<br>THREAD | RECOMMENDED<br>TORQUE |     |
|----------------|-------------------------------|-----------------------|-----|
|                |                               | ft-lbs                | N-m |
| 1/4" JS Lance  | 1/4"-28UNF                    | 15                    | 20  |
| 3/8" JS Lance  | 3/8"-24UNF                    | 25                    | 34  |
| 9/16" JS Lance | 9/16"-18UNF                   | 30                    | 41  |

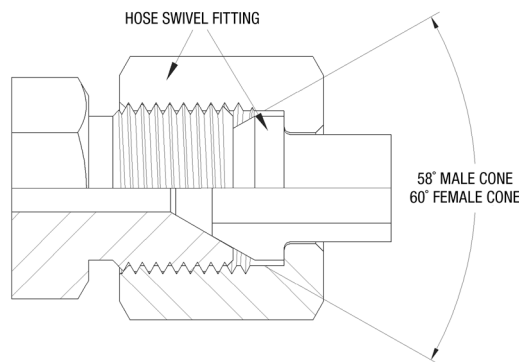
Actual Size Reference Chart



# CONNECTION TYPES

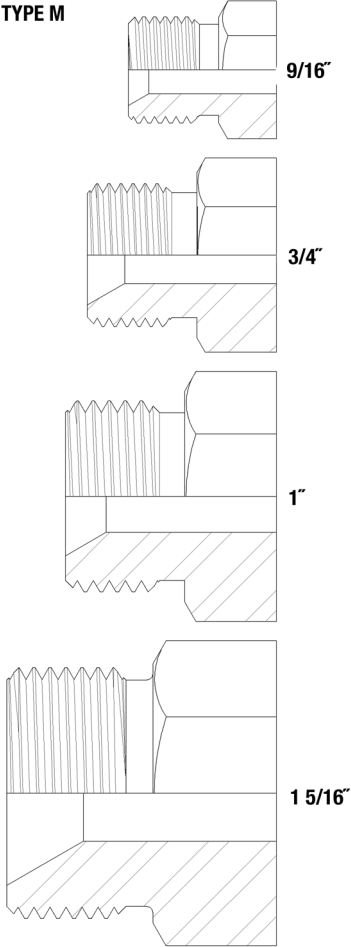
## TYPE M

- ▶ Industry standard connection.
- ▶ Designed for fast, simple connection of waterblast hoses and lances to waterblast equipment.
- ▶ Male conical seat protected from damage by the hose swivel nut.
- ▶ Unlike medium pressure connections, the seating surfaces do not rotate against each other when connections are made, resulting in a more reliable, longer lasting connection.
- ▶ Verify pressure rating of Type M hoses and fittings before use as the connection type is used for a wide range of pressures due to its ease of use and reliability.



| SIZE           |     | GLAND<br>CONNECTION<br>THREAD | RECOMMENDED<br>TORQUE |     |
|----------------|-----|-------------------------------|-----------------------|-----|
|                |     |                               | ft-lbs                | N-m |
| 9/16" Type M   | M9  | 9/16" - 18UNF                 | 30                    | 41  |
| 3/4" Type M    | M12 | 3/4" - 16UNF 1"               | 45                    | 61  |
| 7/8" Type M    | M14 | 7/8" - 14UNF                  | 50                    | 67  |
| 1" Type M      | M16 | 1" - 12UNF                    | 75                    | 95  |
| 1 5/16" Type M | M21 | 1-5/16" - 12UN                | 110                   | 149 |

## Actual Size Reference Chart



7/8" Type M not shown.

# THREADING AND CONING TOOLS

## MP CONNECTIONS



THREADING TOOL



CONING TOOL

- ▶ Coning tool assemblies include tool as well as cutter and collet specific to the connection size and type needed.
- ▶ Threading tool assemblies include tool (consisting of housing and handle) as well as die and guide bushing specific to connection size needed.

### NOTE:

- ▶ 1/4" & 3/8" coning tools use the same tool with differing cutters & collets.
- ▶ 9/16" coning tools use the same tool with differing cutters.
- ▶ All threading tool assemblies include LH die and all use the same handle and housing.

## CONING

| CONNECTION TYPE | CONING TOOL AY | CONING CUTTER | CONING COLLET |
|-----------------|----------------|---------------|---------------|
| 1/4" MP         | 71077          | 71082         | 71088         |
| 3/8" MP         | 28784          | 71083         | 71089         |
| 3/4" MP         | 71270          | -             | -             |
| 9/16" MP        | 71078          | 71084         | 71090         |

## THREADING

| CONNECTION TYPE | THREAD TOOL AY | LH DIE | RH DIE | BUSHING |
|-----------------|----------------|--------|--------|---------|
| 1/4" MP         | 71091          | 71092  | 71095  | 71097   |
| 3/8" MP         | 28783          | 71093  | 71096  | 71098   |
| 3/4" MP         | 71271          | -      | -      | -       |
| 9/16" MP        | 28872          | 71094  | 28873  | 71099   |

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| 29033 .....   | G-70      | 29114 .....   | E-17                                         | 51538.....  | B-12,B-15,B-18                                                                       |
| 29058 .....   | E-9       | 29115 .....   | E-17                                         | 51638.....  | C-7,C-10,F-11                                                                        |
| 29059 .....   | E-9       | 29116 .....   | E-17                                         | 51659.....  | B-12,B-15,B-18,B-21,B-25,B-29,B-31,B-35,B-37,B-39,B-41,B-45,B-48,B-50,B-52,B-54,B-56 |
| 29060 .....   | E-9       | 29117.....    | E-17                                         | 51666.....  | B-21,B-49,B-56                                                                       |
| 29061.....    | E-9       | 29118 .....   | E-17                                         | 51695.....  | B-56                                                                                 |
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