

REMOTELY OPERATED CONFINED SPACE CLEANING ROBOTS

FOR USE IN:

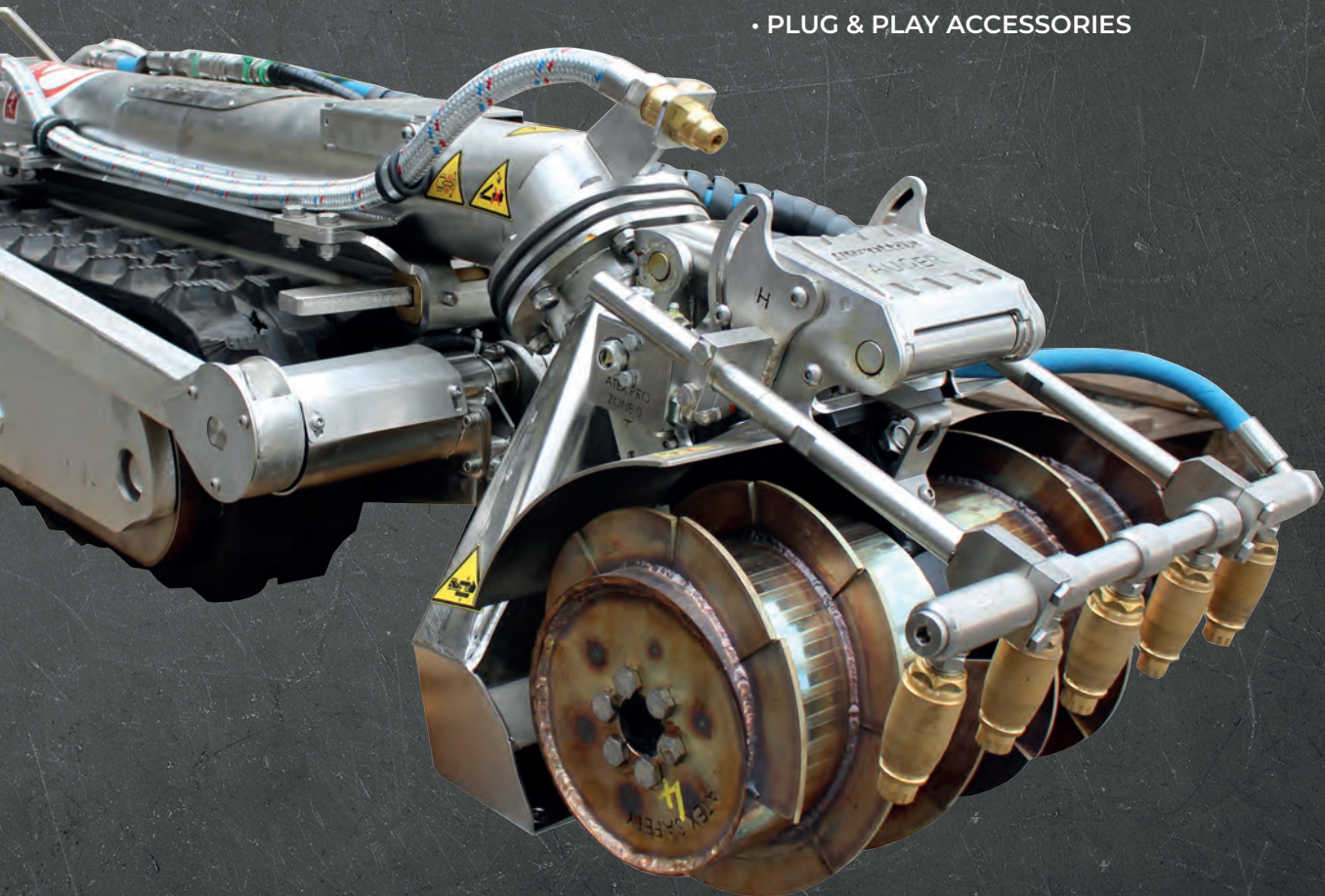
- TANKS, SETTLING PONDS, BASINS, PITS & MINES
- SEWERS, CALVITS, & LARGE PIPES
- FLOOD PREVENTION & CLEAN UP
- SOLIDS & LIQUID TRANSFER

BENEFITS:

- NO RISK TO LIFE OR LIMB
- NO HUMAN EXPOSURE TO TOXIC WASTE
- NO VENTING THE AREA
- LESS MANPOWER, CLEANING TIME IS REDUCED

FEATURES:

- FULLY CERTIFIED CLEANING ROBOTS
- REMOTELY OPERATED WITH LIGHTS & CAMERAS
- DEPLOYED WITH OR WITHOUT A VACUUM TRUCK
- PLUG & PLAY ACCESSORIES



ABOUT US

Asia Waterjet Equipment was formed out of a passion for solving problems in challenging environments whether they be hazardous areas, difficult to clean applications or difficult to pump product.

Our mission today is to bring safer and more efficient solutions to the markets we serve in the Middle East and Asia. From our headquarters in Dubai and via our base in Singapore, we have built over 900 of the most robust water-jetting and centrifugal pump packages in the region. Renowned for our flexibility, reliability and support AWE continues to be a leader in our field.

We are also proud to be partners with some of the leaders of their industry segment. Our vision is to bring the best technology available that improves safety and brings more productive solutions than conventional methods and blend it with our knowledge and support in the local markets we serve. We understand being close to the customer matters and we aim to be there when you need us.

As the technology in our industries and our partnerships continue to evolve, our values, at the core of how we operate, remains the same. We understand that our reputation is built on how we perform, and we will not stop improving how we operate, to serve our customers.

Delivering all of this to you is a team of professionals with a depth of industry knowledge and functional expertise and importantly, local market presence. We thrive on challenges and are motivated by excellence in what we do.

We're here to help you protect and perform!

HOW MINI ROBOT EXCAVATORS WORK



Vacuum Trucks and Suction Excavators are special vehicles created for sucking liquid or muddy material and, in the case of Suction Excavators, even solids.

These two types of machines, composed of a container mounted on a chassis and of a suction hose, work in a simple way: depending on the vehicle, a pump or a ventilator system creates the vacuum, so the material is sucked through the hose and then collected inside the container. In most cases, these operations are carried out by hand by workers who could be exposed to chemical agents, dangerous substances and explosive atmospheres.

To avoid any risk during suction works, Mini Robot Excavators have been developed that, connected to the suction hose of Vacuum Trucks and Suction Excavators, are remote controlled by an operator placed at a safe distance.

ADVANTAGES:

- Safe operations in confined spaces;
- Reduction of risks associated with manual labour;
- Time saving;
- Safety of operators;
- Operating costs reduction;
- No plant stoppage;
- Increased production.





LOMBRICO S/XXS



LOMBRICO RC



**GATTO /
GATTO RC**



EASY DOZER



DOZER RC



**THE BULL /
MINI BULL**



WARTHOG

Double-tracked Mini Robot Excavator, driven from an external hydraulic source and controlled through a hydraulic manual manifold.

Suitable for cleaning operations under conveyor belts, in tanks, sewers and for confined spaces activities.

Radio remote-controlled, double-tracked Mini Robot Excavator driven from an external hydraulic source.

Suitable for cleaning tanks, collectors and ducts in dangerous atmospheres.

Double-tracked Mini Robot Excavator equipped with a hydraulic arm and a suction hose (optional). It can be maneuvered by the operator onboard or remote controlled.

Suitable to work in confined spaces, such as tanks, underground pipes and siphons.

Mini wheel-loader which can be either remote controlled or manually driven by the operator onboard.

Created for moving debris in building yards and removing sludge from tanks' bottoms.

Radio remote-controlled Mini Loader, suitable for moving heavy material in narrow and height-limited spaces.

Suitable for working in mines, steel companies, for tanks remediation and cleaning operations under conveyor belts.

Mini tracked underwater ROVs, equipped with dredging pumps and frontal brushes.

Suitable to remove mud settled on the bottoms of cooling towers' tanks, cisterns and drain tunnels.

Double-tracked Mini Robot Excavator, hydraulically driven from an external hydraulic source and controlled through a manual manifold.

Suitable for under pipe-lines cleaning and all the applications with very height-limited environments.

LOMBRICO S/XXS

Lombrico is a tracked Mini Robot Excavator designed to be attached to the hose of a suction machine with a diameter from Ø 80 mm [3"] up to Ø250 mm [10"]. It is perfect to reach the most narrow and dangerous places, in fact it is maneuvered from a safe distance through a hydraulic manual distributor and it is suitable for cleaning operations under conveyor belts, in tanks, confined spaces and sewer pipes. Depending on the diameter of the pipe to be cleaned, Lombrico is available in two versions: the S model, suitable to enter manhole from Ø 600 mm [24"], and the XXS model, to enter manholes from Ø 450 mm [18"] and above.



TECHNICAL DATA

LOMBRICO S

SUCTION HOSE

Ø 6" - 150 mm

MANHOLE

Ø 24" - 600 mm

DIMENSIONS

L	67" - 1680 mm
H	19" - 470 mm
W	19" - 470mm
▲	551 lb - 250 kg

FEATURES:

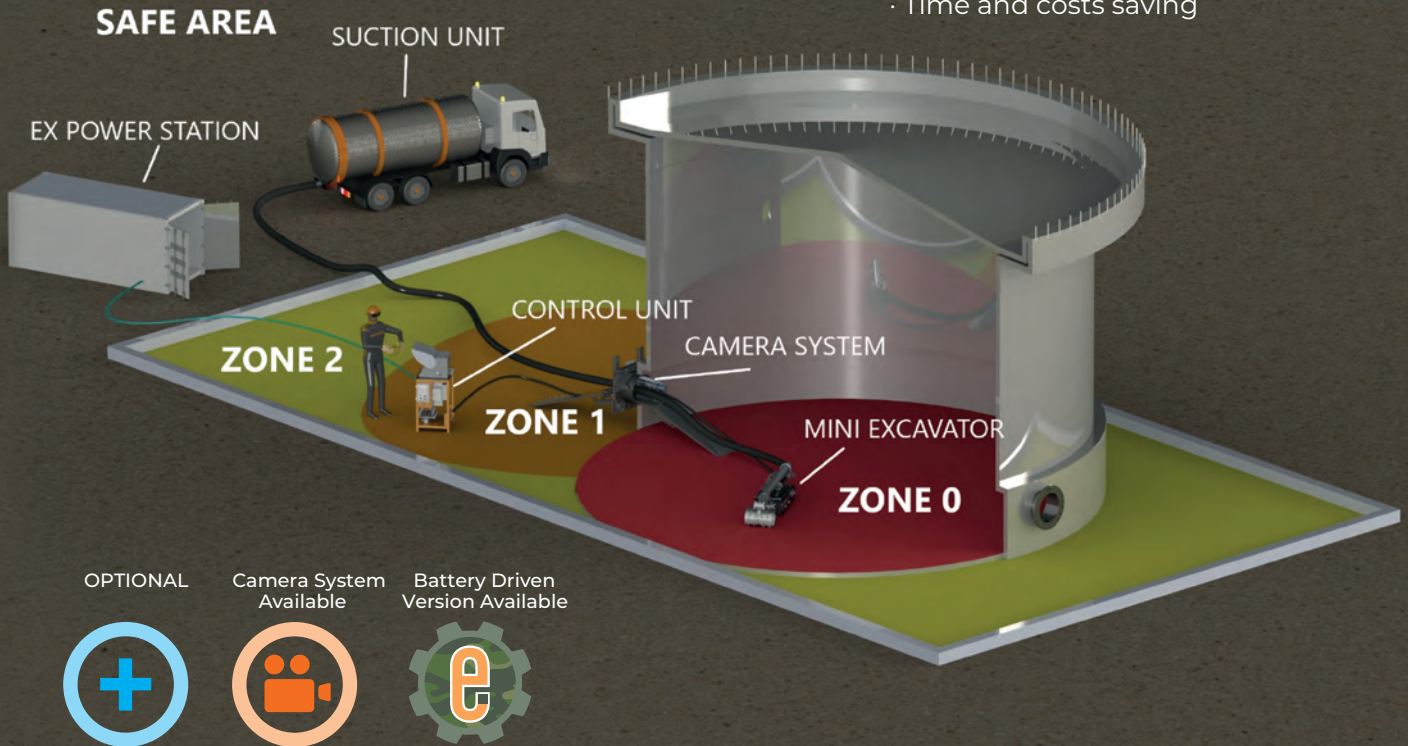
- Two hydraulic driven rubber tracks
- Hydraulic manual manifold to control all the movements of the machine
- Quick connection system to the external hydraulic source
- Video Inspection System
- Various tools available

· The images and technical data refer to machine already in production.
· The R&D Department is at disposal to customize the products according to the most various needs.



ADVANTAGES

- Operator stands in a safe position
- Manual labour reduction
- Excellent manoeuvrability
- Time and costs saving



TECHNICAL DATA

LOMBRICO XXS

SUCTION HOSE

Ø 4" - 100 mm

MANHOLE

Ø 18" - 450 mm

DIMENSIONS

L	42" - 1060 mm
H	13" - 330 mm
W	16" - 400 mm
▲	243 lb - 110 kg

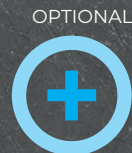
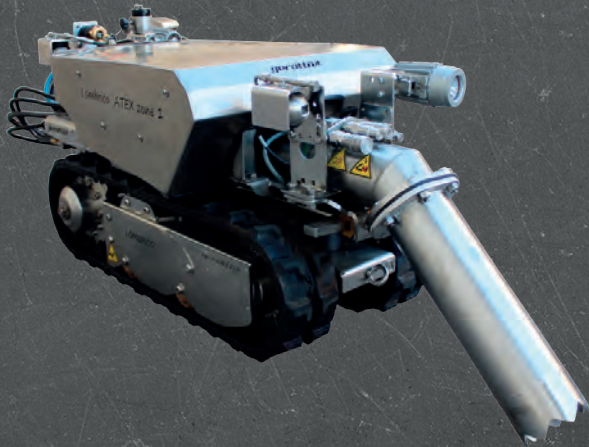
APPLICATIONS

Ideal for cleaning:

- DUCTS/COLLECTORS/TUNNELS
- LARGE AND SMALL TANKS
- UNDER CONVEYOR BELTS



LOMBRICO RS



Camera System
Available



Lombrico RC is a remote-controlled, hydraulic Mini Robot Excavator specifically developed for safely cleaning conduits and tanks where potentially dangerous gases are present.

It is therefore particularly suitable to work in refineries and petrochemical plants, where gas emissions from the sludge are frequent.



TECHNICAL DATA

SUCTION HOSE

Ø 6" - 150 mm

MANHOLE

Ø 28" - 700 mm

DIMENSIONS

L	64,5" - 1610 mm
H	19" - 470 mm
W	21" - 520 mm
▲	1058 lb - 480 kg

FEATURES

- Two hydraulic driven rubber tracks
- Long-distance remote control system
- Various frontal attachments available
- Video-inspection system

ADVANTAGES

- Safe operations
- Time saving
- No plant stoppage
- Reduction of manual labour

APPLICATIONS

Ideal for cleaning:

- **COLLECTORS AND DUCTS**
- **TANKS**

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OPTIONS LOMBRICO MODELS



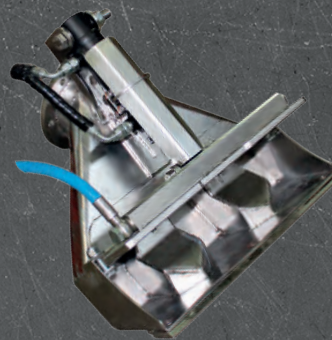
SKID FOR
HANDLING AND CONTROL

Our Research and Development department is constantly at work to develop new solutions for cleaning operations in industrial, environmental and construction sectors. For this reason, several frontal suction tools are available to make the Robot suitable to remove different materials such as mud, liquid, gravel, oil, etc. Moreover, optional equipment is available to simplify the transport of the whole system inside and outside of the working site.

Contact our sales department to discover the complete range of accessories.



AUGER



SHOVEL NOZZLE



SLUDGE SUCTION NOZZLE

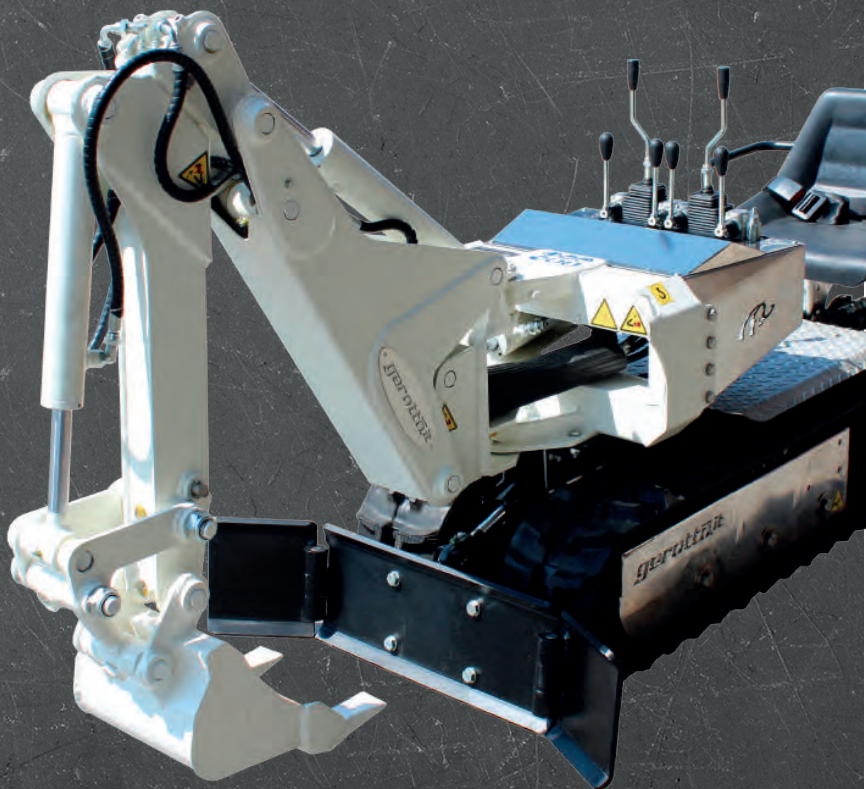


HIGH PRESSURE WATER NOZZLES

GATTO


Gatto is an innovative and versatile Mini Robot Excavator suitable for both construction and remediation activities. The machine shows its best skills working in confined spaces and areas suspected of pollution and contamination.

Gatto can be equipped with a suction hose passing between the two tracks for the aspiration of the material while connected to any suction unit (Vacuum Trucks, Suction Excavators, Industrial Pumps, etc.).




TECHNICAL DATA

STANDARD CONFIGURATION

L	83,5" - 2090 mm
H	44" - 1100 mm
W	21,5" - 540 mm
	926 lb - 420 kg

SUCTION CONFIGURATION

L	83,5" - 2090 mm
H	44" - 1100 mm
W	31" - 780 mm
	1102 lb - 500 kg

STANDARD SUCTION HOLE

	10" - 250 mm
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FEATURES

- Two hydraulic driven rubber tracks
- Hydraulic Manual Manifold mounted on board
- Man-on-board or remote-control configurations available
- Quick connection system to the hydraulic source

APPLICATIONS

Ideal for cleaning:

- TUNNELS
- SIPHONS
- BIG SEWER PIPES
- TANKS



OPTIONAL



Camera System
Available



GATTO RC

Battery Driven
Version Available




ADVANTAGES

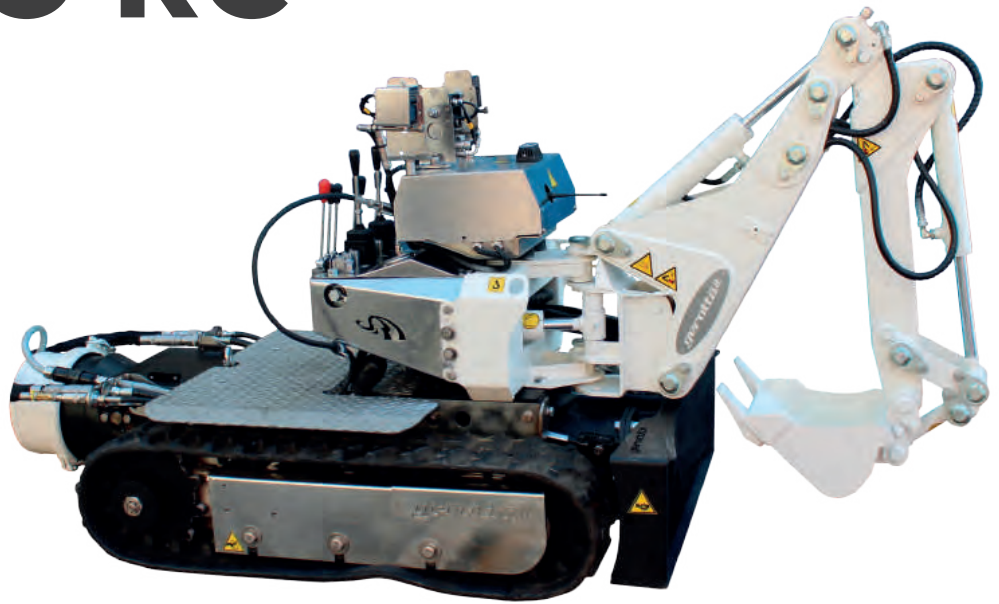
- Reduction of manual labour
- Working time reduction
- Safe operations in confined spaces
- High precision interventions

GATTO RC

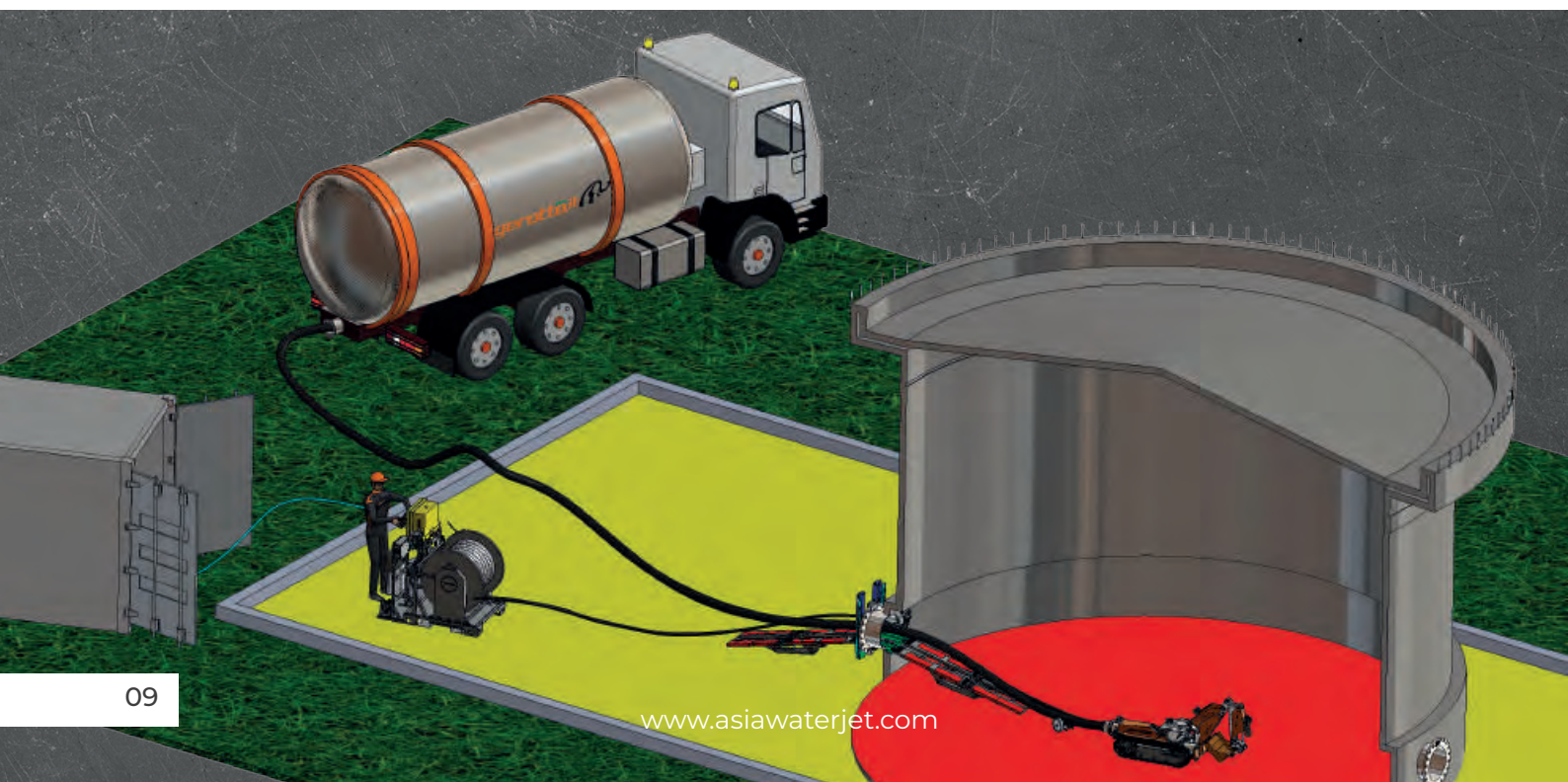
TECHNICAL DATA

STANDARD CONFIGURATION

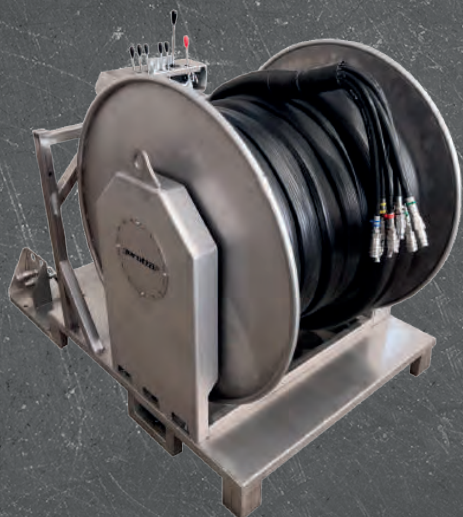
L	83,5" - 2090	mm
H	44" - 1100	mm
W	31" - 780	mm
	1376 lb - 620 kg	



The remote-controlled version of Gatto, Gatto RC, allows the operator to control the robot from a safe distance, far from the machine, without entering the confined space. A CCTV System, composed of cameras and leds, to be installed on the machine is available to enable the operator to survey on real-time the working operations.

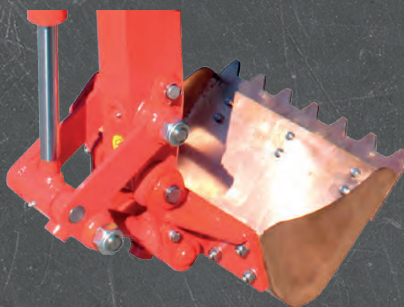


OPTION GATTO MODELS



HOSE REEL

Gatto models can be equipped with different accessories: some of these can be mounted on the mechanical arm and are designed to better remove specific types of material; some others modify the structure of the robot, adapting it to different working environments.



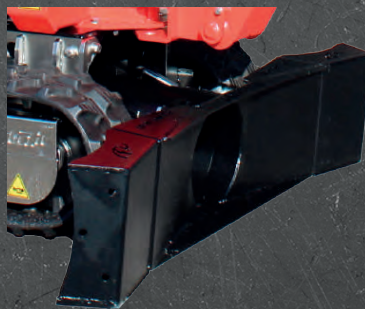
BRONZE BUCKET



HYDRAULIC CUTTING HEAD



SUCTION CONFIGURATION



FRONTAL STABILIZERS

ADVANTAGES

- Possibility to choose manual control or radio control
- Small dimensions to work in narrow spaces
- Ability to work with wheels fully covered in water or sludge

OPTIONAL



Camera System
Available




EASY DOZER

Easy Dozer is a mini wheel-loader designed for sludge and debris removal in building yards, tanks and in narrow spaces. The robot is remote-controlled from a safe distance whenever the personnel is not allowed to access the area, or controlled by the operator on-board of the machine through a manual control levers system.

TECHNICAL DATA

DIMENSIONS

L	88" - 2200 mm
H	54" - 1350 mm
W	40" - 1000 mm
	2094 lb - 950 kg



FEATURES

- Gas detector
- Muffler with water purifier
- Interchangeable bucket

APPLICATIONS

IDEAL FOR CLEANING:

- CONSTRUCTION YARDS
- TANKS
- CONCRETE BOX CULVERTS

The images and technical data refer to machine already in production.

The R&D Department is at disposal to customize the products according to the most various needs.



OPTIONAL

Camera System
Available

EPA Engine
Available




DOZER RC

The Dozer RC mini loader is totally radio-controlled, designed to work in high risk areas. The operator maneuvers the robot from a safe distance, thus reducing working time and increasing productivity. Dozer RC is perfect to work, even in functioning plants, in hazardous and confined spaces, such as under conveyor belts, potlines and tanks.



TECHNICAL DATA

DIMENSIONS

L	89" - 2230 mm
H _{min}	20" - 500 mm
H _{max}	28" - 700 mm
W	40" - 1000 mm
	1940 lb - 880 kg



FEATURES

- 8 hours autonomy
- Wide range of action of the remote control
- Liftable engine compartment
- Ability to work with tracks immersed in water

ADVANTAGES

- Safe radio-controlled operations
- Excellent manoeuvrability
- No Plant Stoppage
- Accurate and precise interventions in confined spaces

APPLICATIONS

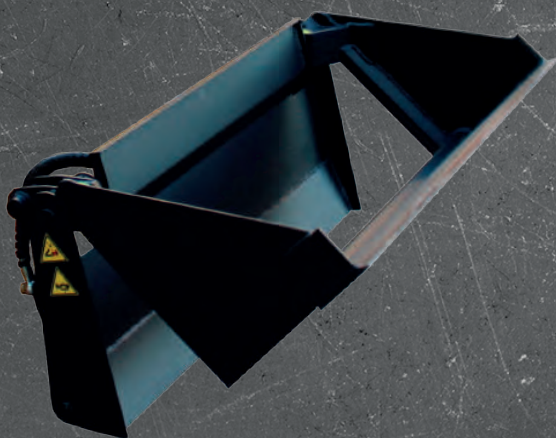
Ideal for cleaning:

- MINES
- UNDER CONVEYOR BELTS
- TANKS

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OPTION DOZER MODELS RC



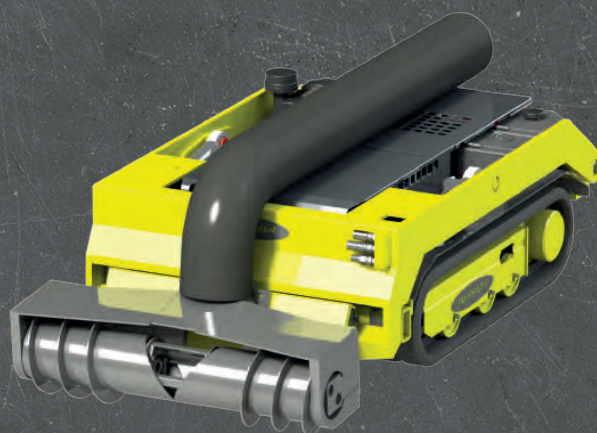
3+1 BUCKET



SUCTION CONFIGURATION

Gerotto's Dozer RC is designed to easily mount different types of bucket. It can also be equipped with a suction configuration, composed of a hose carrier and a frontal accessory, which adapts the machine to the material to be removed (sludge, liquids, oils, etc.).

Gerotto's R&D Department is constantly designing new solutions for cleaning operations in narrow spaces with remote-controlled robots.

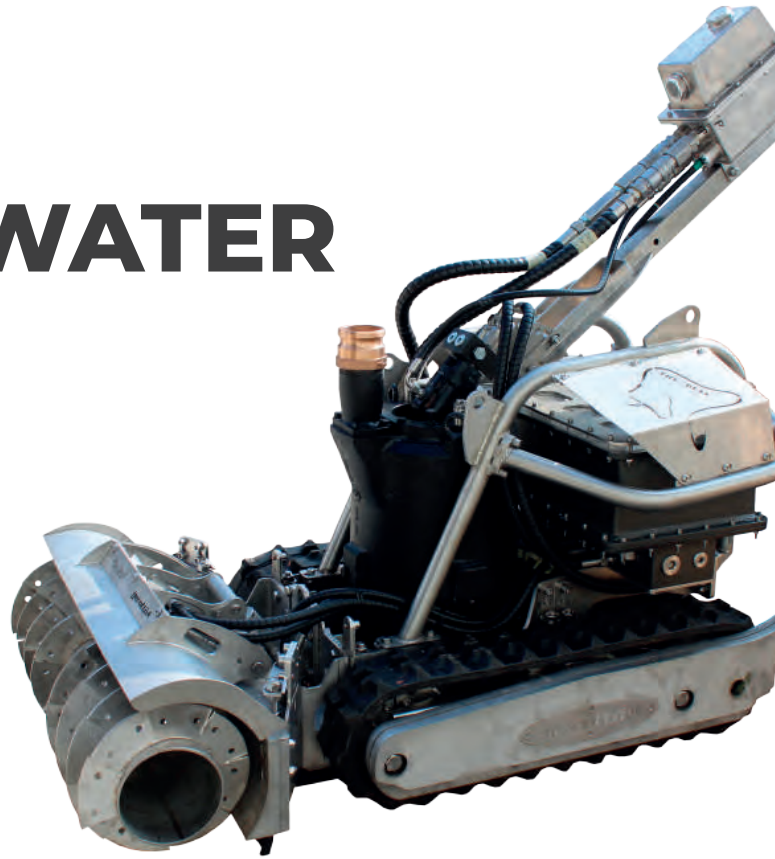


SUCTION CONFIGURATION
WITH AUGER

ROV UNDERWATER THE BULL

The Bull is an underwater ROV (Remotely Operated Vehicle) suitable for cleaning water drain pipes and in-service cooling towers basins.

Thanks to the special dredging pump mounted onboard, it sucks up debris settled on the flat bottoms of underwater environments and can even work immersed in abrasive fluids. The Bull is radio-controlled so the operator can monitor operations from a safe distance.



TECHNICAL DATA

SUCTION HOSE

Ø 3" - 80 mm

MANHOLE

Ø 45" - 1140 mm

DIMENSIONS

L	58" - 1450 mm
H	35" - 870 mm
W	34" - 850 mm
▲	1643 lb - 745 kg

FEATURES

- Two hydraulic driven rubber tracks
- Remote controlled operations
- Dredging pump mounted onboard
- Interchangeable frontal tools

APPLICATIONS

Ideal for cleaning:

- COOLING TOWERS BASINS
- IN-SERVICE WATER PIPES
- UNDERGROUND SEWER DRAINS
- TANKS IN INDUSTRIAL PLANTS

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MINI BULL

TECHNICAL DATA


SUCTION HOSE

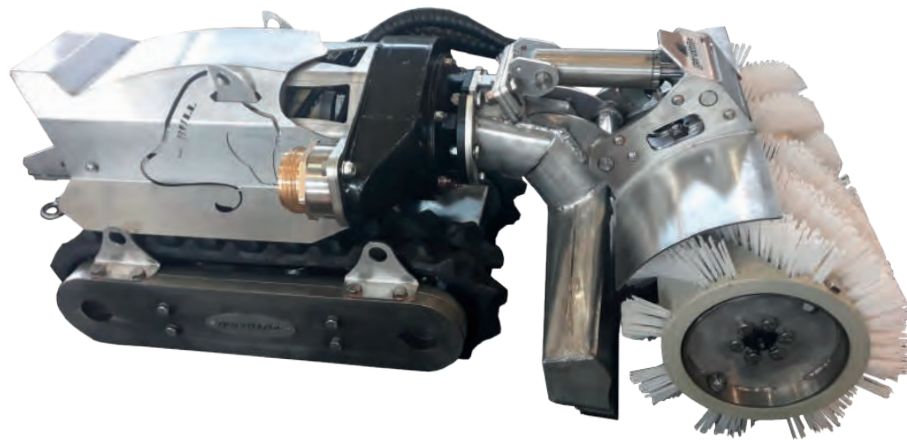
Ø 3" - 80 mm

MANHOLE

Ø 25" - 630 mm

DIMENSIONS

L	47" - 1170 mm
H	17" - 420 mm
W	21,5" - 540 mm
	529 lb - 240 kg



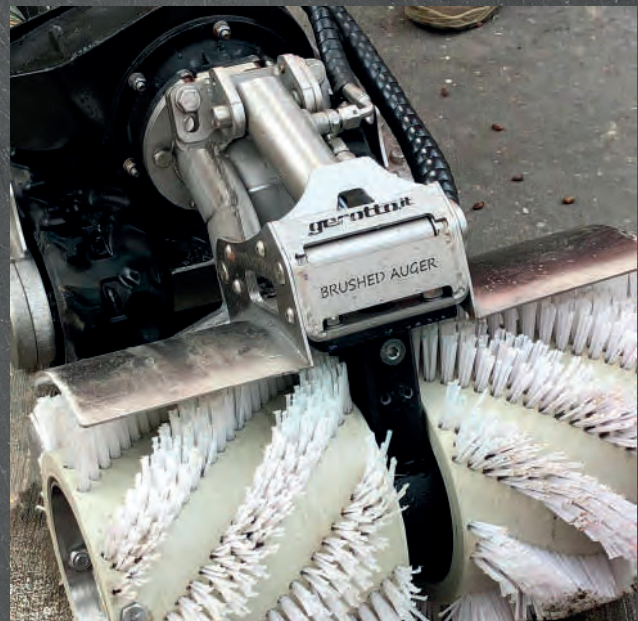
FEATURES

- Two hydraulic driven rubber tracks
- Hydraulic distributor to control the machine
- Centrifugal pump mounted onboard

ADVANTAGES

- No need for plant stoppage
- No man entry in confined spaces
- Limited mixing of sediment with water

Mini Bull is the smallest underwater robot created by Gerotto. It is composed of a centrifugal pump for removing debris from the bottom of tanks and basins, mounted on a tracked undercarriage, to easily move on the surface and overstep small obstacles. The rotating frontal brush conveys the debris towards the suction nozzle of the robot and remove encrustations.




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WARTHOG

TECHNICAL DATA

VERTICAL CUTTING WHEELS CONFIGURATION

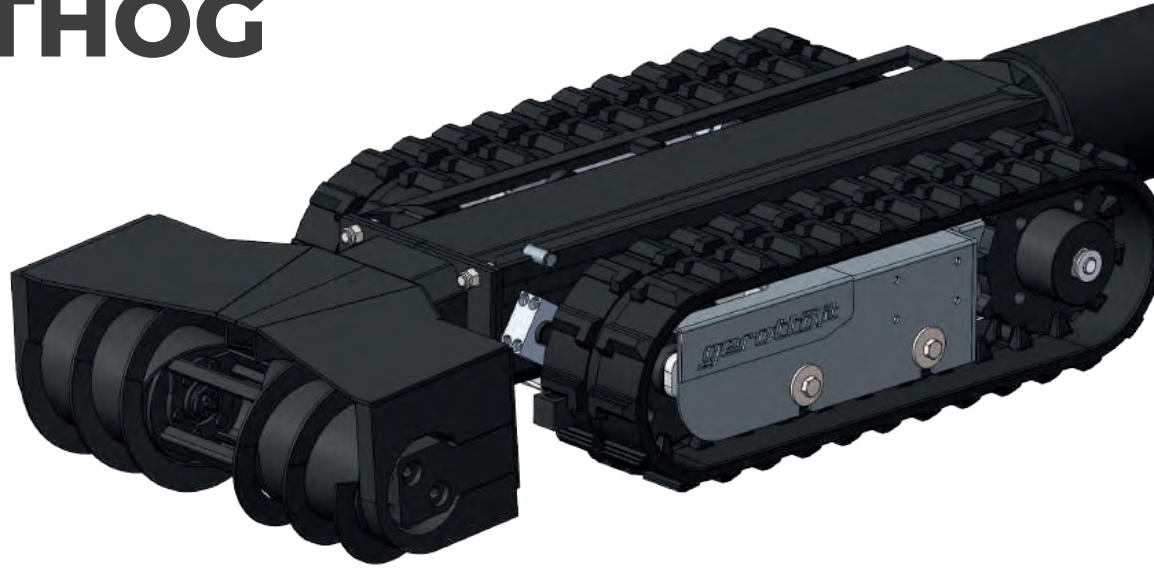
L	71" - 1800 mm
H	18" - 450 mm
W	33" - 830 mm
	1169 lb - 530 kg

AUGER CONFIGURATION

L	73,5" - 1840 mm
H	15,5" - 390 mm
W	35" - 880 mm
	1169 lb - 530 kg

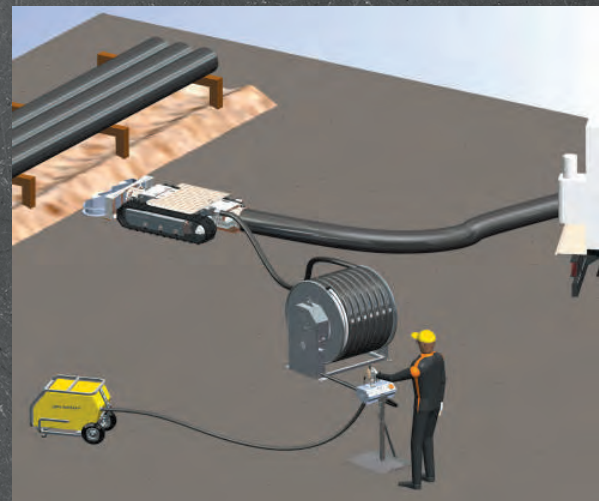
SUCTION HOSE

Ø 10" - 250 mm



Warthog is a double tracked Mini Robot Excavator, driven from an external hydraulic source and controlled through a manual manifold.

It was especially designed for under pipe-lines cleaning and for all the applications in very height-limited environments. It can be equipped with a frontal auger or with cutting wheels, suitable to crush solid materials.



FEATURES

- Two hydraulic driven rubber tracks
- Hydraulic manual manifold to control all the movements of the machine
- Various frontal tools available

ADVANTAGES

- Safe operations
- Time saving
- No plant stoppage
- Reduction of manual labour

APPLICATIONS

Ideal for cleaning:

- PIPELINES

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TRACKED UNDERCARRIAGES

The tracked undercarriages have been designed for creating customized Mini Robot Excavators, adaptable to the most different working environments. All undercarriages can go on sloping surfaces up to 30° and reach a speed of 5 km/h on level surface.

Tracked undercarriages are made of stainless steel, to better resist wear and work in the presence of corrosive chemical agents.



	LENGTH	HEIGHT	WIDTH	▲
XXS	29"	8"	15,5"	132 lb
	730 mm	200 mm	390 mm	60 Kg
S	39"	11"	18,5"	320 lb
	970 mm	280 mm	465 mm	145 Kg
L	47"	12"	20"	375 lb
	1170 mm	300 mm	500 mm	170 Kg

VIDEO INSPECTION SYSTEM



We have accurately selected the best components in order to create a reliable system, which consists of one or more cameras with integrated water nozzles for cleaning the lenses. It allows the operator to have a complete vision and constantly monitor the Mini Robot Excavators from a safe position.

Remote controlled operations are also ensured in dark and confined spaces, thanks to high performance LED lights, installed together with the cameras. The images can be shown on different kinds of screens, with the possibility to record the working activities. The Video Inspection System can be personalized depending on customer needs; on the working environment and on the settings of the Mini Robot

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REMOTELY OPERATED CONFINED SPACE CLEANING ROBOTS

Contact Details:

Dubai

Asia Waterjet Equipment

Warehouse TA-1 & TA-2
PO Box 18412
Jebel Ali Freezone
Dubai, United Arab Emirates

Tel +971 4 881 0060
Fax +971 4 881 0061
Email sales@asiawaterjet.com

Abu Dhabi

Asia Waterjet Equipment Trading LLC

Khalidiya Pharmacy Building,
Office M02Khalidiya
Abu Dhabi, United Arab Emirates

Tel +971 2 634 0888
Fax +971 2 679 6555
Email sales@asiawaterjet.com

Bahrain

Asia Waterjet Equipment

Office No: 409, Building No 743
Road 831, Block 408
Sanabis, Manama
Kingdom of Bahrain

Tel +973 3 966 0857
Email sales@asiawaterjet.com

Saudi Arabia

Asia Waterjet Equipment Saudi for Maintenance Co

Office No: 314, 3rd Floor
Kinan Alsharq Business Centre
Khalid Bin Al Waleed Street
Dammam 34225
Kingdom of Saudi Arabia

Tel +973 3 966 0857
Email sales@asiawaterjet.com

Singapore

Asia Waterjet Equipment PTE Ltd

1 Bukit Batok Crescent
#07-52 WCEGA Plaza
658064
Singapore

Tel +65 65708023
Fax +65 65708024
Email asiasales@asiawaterjet.com

