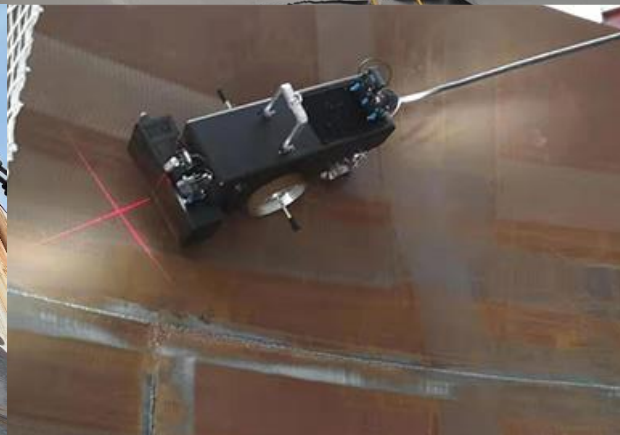
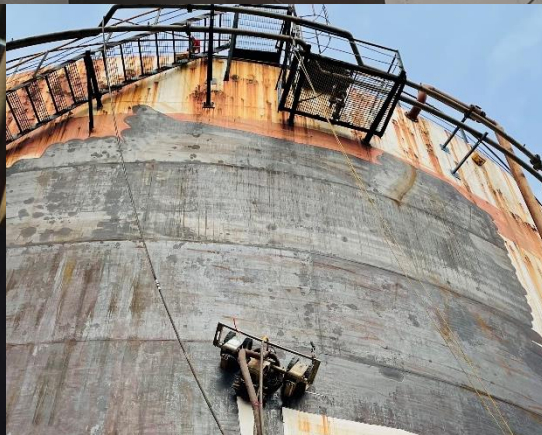
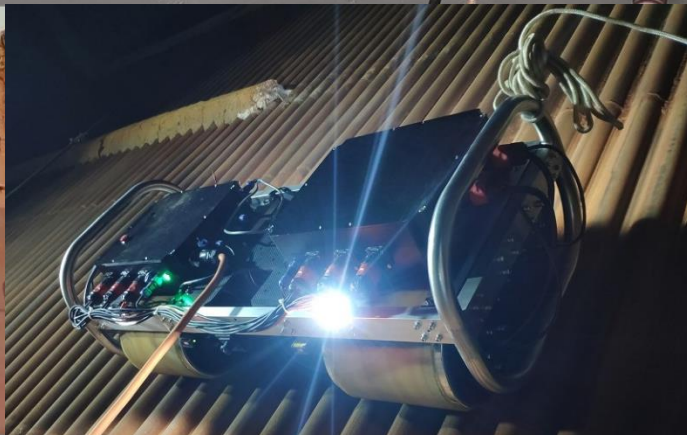


ROBOT  
PlusPlus



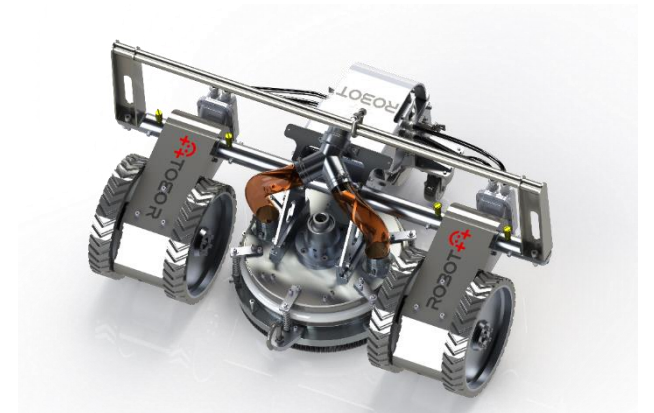
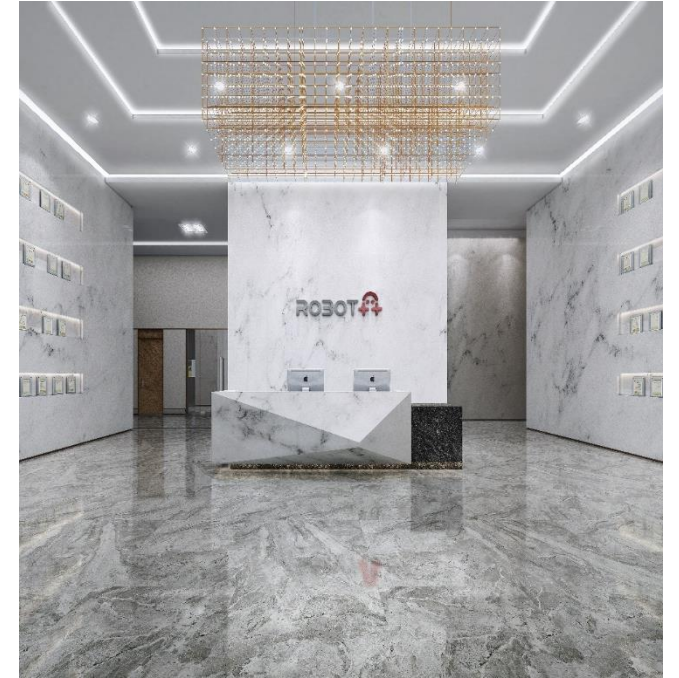
Empowering humans with robots



## Introduction of ROBOT++

We design, manufacture and operate the robots. We know them.

- Founded in 2015 and headquartered in Beijing, China
- Specialist in robotic solutions for working at height
- > 200 employees, >50% of the staff working on engineering and R&D
- Product portfolio: Industrial and Commercial robots.
- Adaptable for other applications as platform
- IP: +300 patents
- >500 robots in use
- Serving more than 100 clients
- Operating the robots as a service for some Chinese asset owners





## Our goal: Derisking and Optimizing Industrial Maintenance

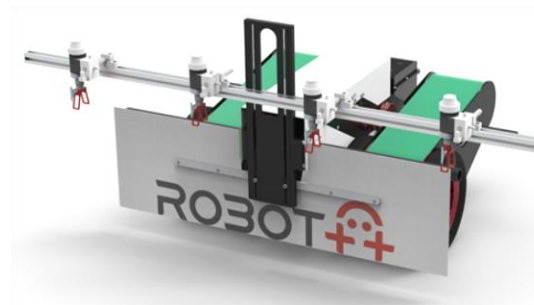
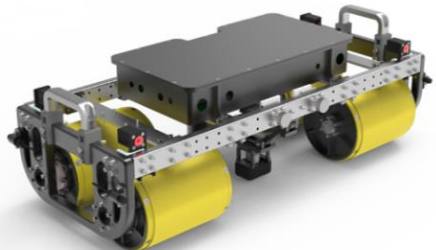
Inspection and Maintenance is a risky activity that can involve:

- work at height
- work in confined space
- Simultaneous activities



=> Robots can reduce both likelihood and impact of incidents using engineering solution while delivering superior results and saving time & money.

# Robot Family



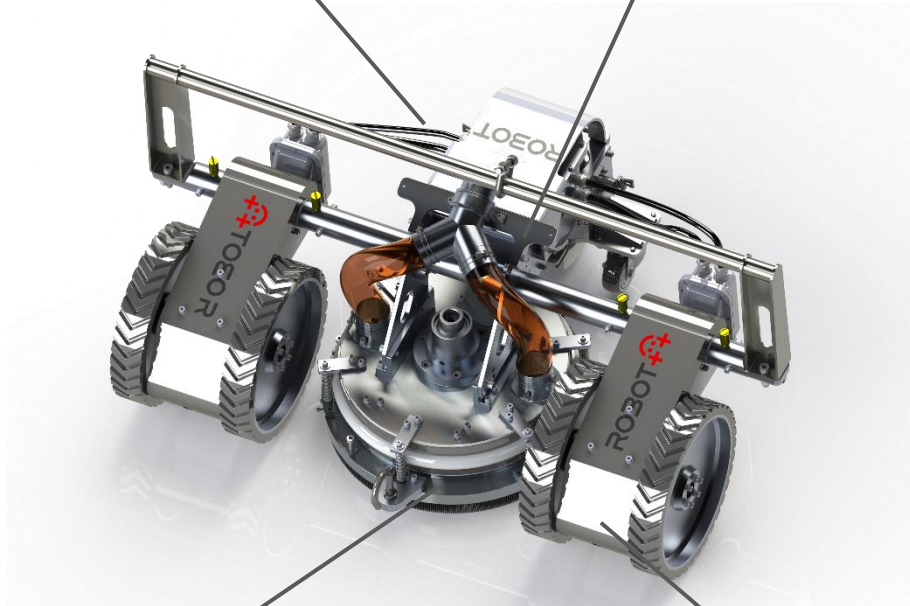
ROBOT  
PlusPlus



# Surface Preparation Robots – HighMate Ex v1.0

Intelligent control system

Flexible climbing mobile platform



Integrated cleaning & recovery unit

Integrated drive & control unit

## Description

The permanent magnet wall-climbing robot developed by ROBOT++ for the work in explosive area (zone 1 equivalent) can clean, strip paint and derust the exterior and interior of the ship and tanks using hydro blasting technique. Both spot and continuous blasting are available with the same robot.

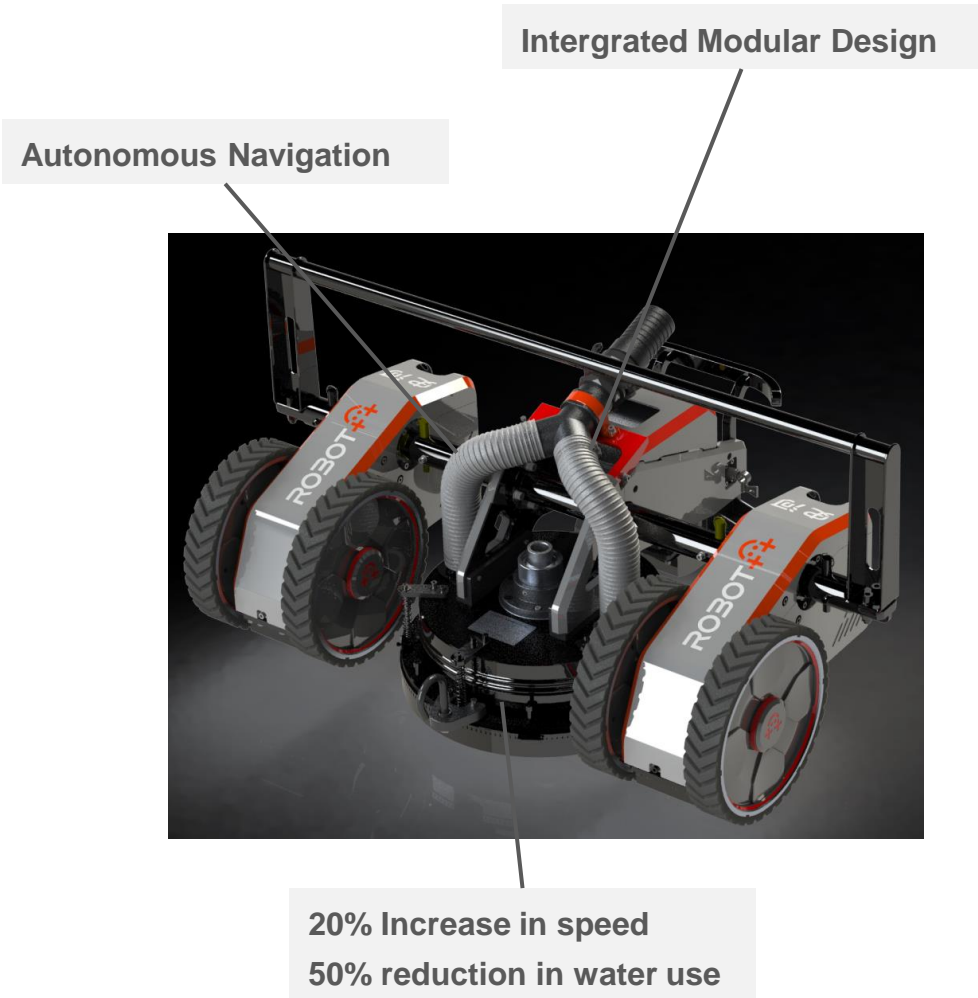
## Specifications

Size	740 ×1018 × 510 mm			
Weight	100 kg		SWL	120 kg
Cleaning width	300 mm		Obstacle crossing	< 15 mm
Min curvature radius	8 m		Rating	Ex d ib IIB T4 Gb
Production Rate	20 - 70 m²/h (Efficiency varies with parameters such as operators 'proficiency, coating type, and water pressure)			
Control mode	Remote control – Autonomous on development			
Derust quality	WJ1/2/3		Vacuum Pump Spec	0.46 Bar
Pump requirement	Pressure	1000 – 3,000 Bars		Flow 30 - 45 l/min

[Video Link](#)



# Surface Preparation Robots – HighMate V40



## Description

HighMate V40 is improved on the basis of HighMate V30. It is more advanced, not only showed by its 20% higher efficiency, but also because of the autonomous navigation system which enables an unmanned operation. On the other hand, the upgraded modular design and less consumables make it easier for maintenance as well. This is available as standard without the automation and as pro with new feature.

## Specifications

Size	810 ×1154 × 552 mm			
Weight	91 kg		SWL	150 kg
Cleaning width	300 mm		Obstacle crossing	≤ 18 mm
Min curvature radius	7.5 m		Max speed	8 m/min
Production Rate	30 - 100 m²/h (Efficiency varies with parameters such as operators 'proficiency, coating type, and water pressure)			
Control mode	Remote control – Manual / Semi-autonomous / Autonomous			
Surface prep	WJ 1/2/3/4		Vacuum Pump Spec	0.4 Bar
Pump requirement	Pressure	1000 - 3,000 Bars	Flow	18 - 52 l/min

[Video Link](#)

# Surface Preparation Robots – HighMate V40E

Smaller size, more flexible

Full protection frame



20% Increase in speed

## Description

HighMate Mini is specially designed for cleaning the narrower area of the working surface. The smaller platform allows in to go across the space between dock blocks easily, which a high cleaning efficiency up to 65 m<sup>2</sup>/hour. The cleaning dome is put in front for a better adaptability.

## Specifications

Dimension	1105 * 575 * 526 mm		
Weight	86 kg	Power	1.2 kW
Cleaning width	310 mm	Power Supply	220V AC
Production Rate	45 - 65 m <sup>2</sup> /h (WJ2.0/WJ2.5) (Efficiency varies with parameters such as operators 'proficiency, coating type, and water pressure)		
Remote control range	80 m	Working Temperature	0 – 55 °C
Protection Grade	IP 68	Motor Power	48V DC
Max Flow Rate	52 L/min	Max Pressure	3000 bar

[Video link](#)

# Surface Preparation Robots – HighMate V45



Flexible hinge design

Full protection frame



20% Increase in speed

[Video Link](#)

## Description

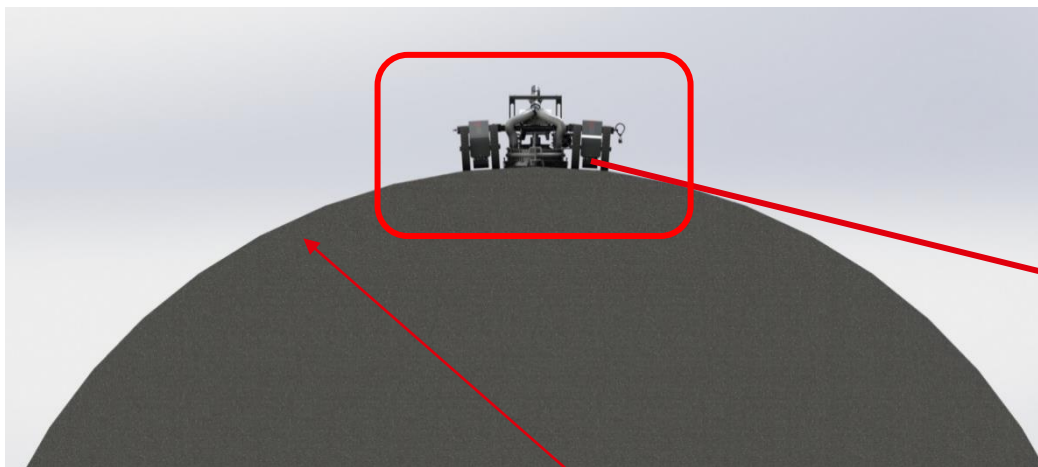
HighMate V45 is improved from V40. Besides the auto navigation system brought by V40, the flexible hinge system and modular design are further improved. The whole module now can be installed or disassembled as a whole, therefore make it much easier and faster in the maintenance process or during operation. The flexible hinge system allows it to be even more stable when crossing any obstacle or welding seams.

## Specifications

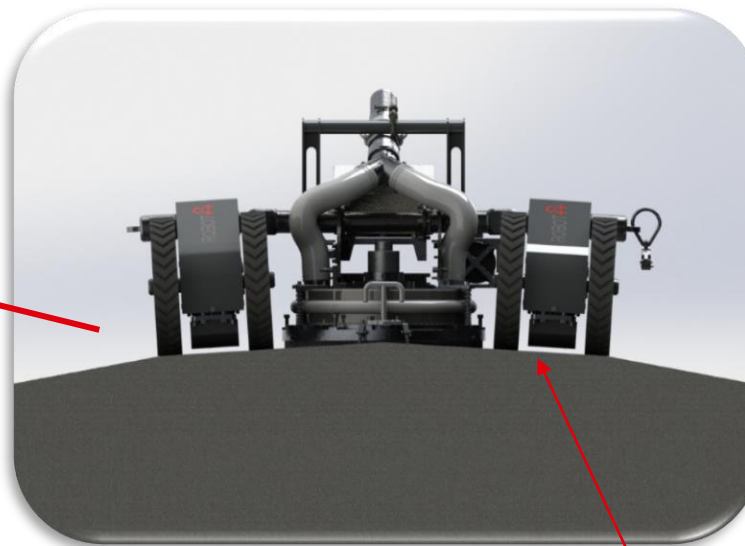
Size	1200 x 825 x 525 mm		
Weight	97 kg	Power	1.2 Kw AC220V/50Hz
Cleaning width	310 mm	Obstacle crossing	≤ 18 mm
Min curvature radius	4 m	Max speed	10 m/min
Production rate	45 - 65 m <sup>2</sup> /h (WJ2.0/WJ2.5) (Efficiency varies with parameters such as operators 'proficiency, coating type, and water pressure/flow)		
Control mode	Remote control – Manual / Semi-autonomous / Autonomous		
Surface prep quality	WJ1 to 4	Maximal load capacity	120 kg
Pump requirement	Pressure	1000 – 3,000 Bars	Flow 18 - 50 l/min



## Surface Preparation Robots – HighMate V45



• **R=4m**



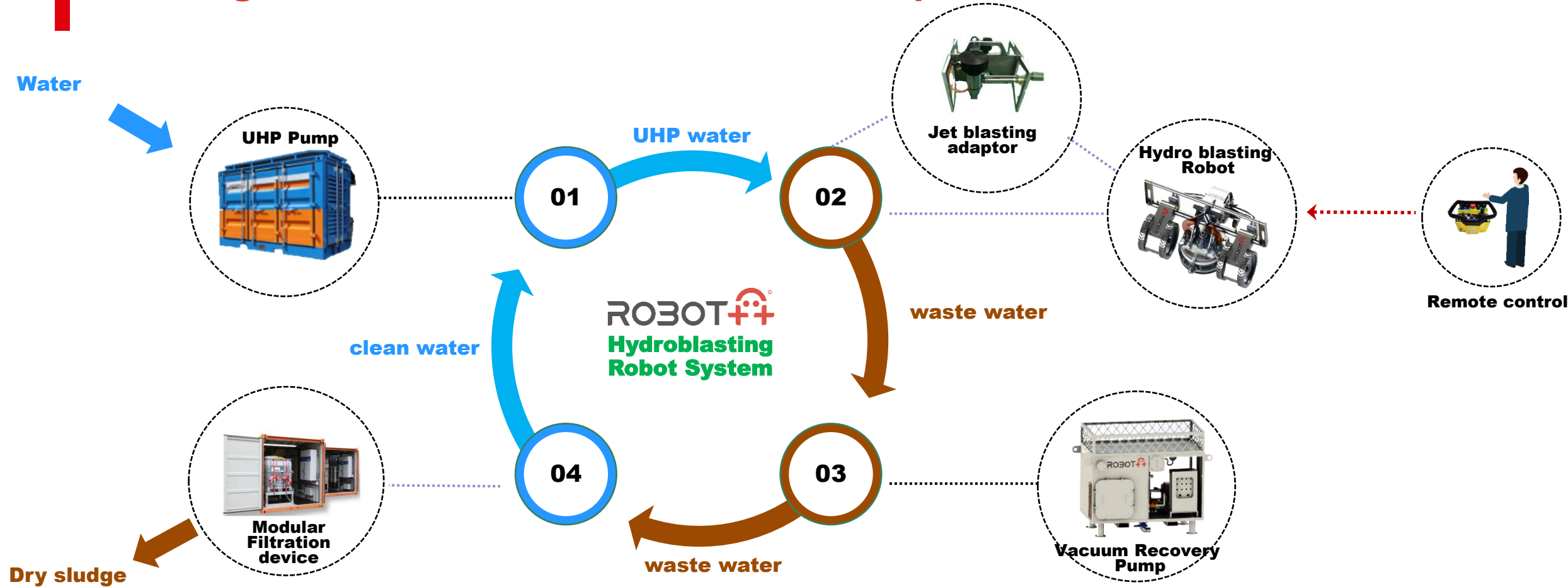
**Flexible hinge joint to fit the curvature**



- 3 recovery hoses for better recovery and less flash rust

Customized design to applicable on the steel tube surface with the diameter 8 m or less

# An integrated solution for reduced waste operation



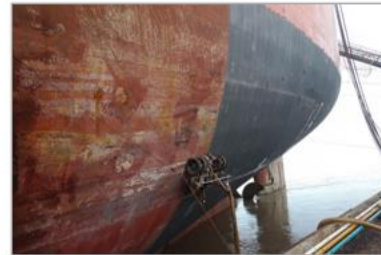
1. One operator to control one robot using a remote-control system.
2. Clean fresh water is supplied by an industrial water pipe or storage tank.
3. The robot is supplied with UHP water, recovered at 99% with the waste by the vacuum pump.
4. Wastewater is processed in the filtration unit and can be reused by the UHP.

[One drive folder link](#)

## In Action on Ships

What do the operators says about it:

- Efficient: Average 70% cost reduction & 25% dry docking time saved. deployable while the water is drained out of the dock.
- HSE: No work at height. Less people on site. Easy simultaneous operations planning.
- Sustainable: Reduced water consumption. Better surface preparation for long lasting coating.



The result:  
- Near white metal  
- Ready for coating

SA2.5

7 x



=

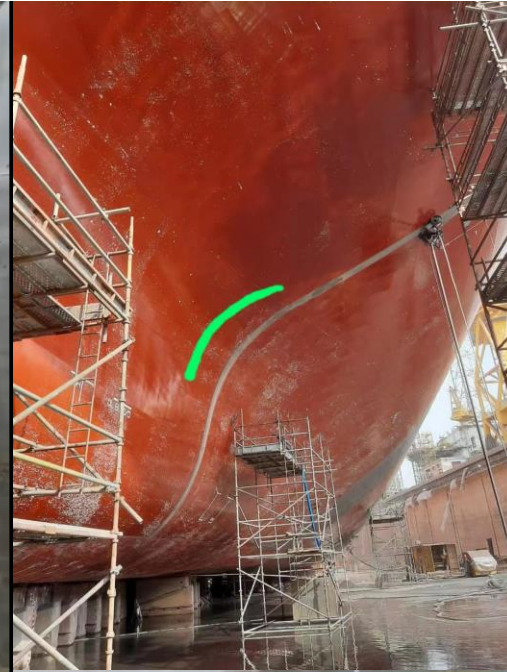
1x



With an average speed of 35 m2/hr.



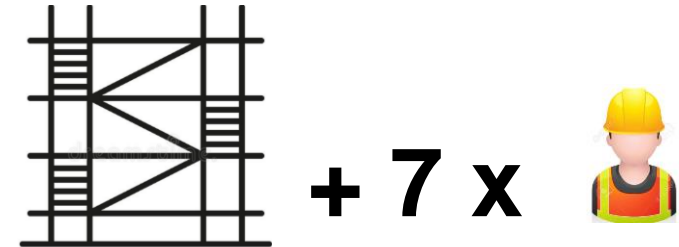
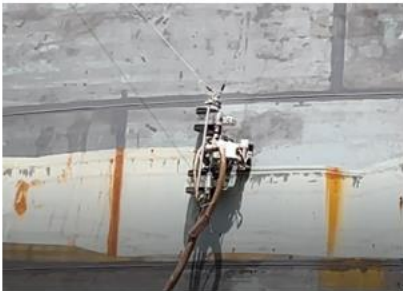
## Some results





## In Action on Tanks

- Efficient: Smaller crew. Less time. No scaffold or man lift
- HSE: No work at height. Less people on site.
- Sustainable: Reduced water consumption. Better surface preparation for long lasting coating.



The result:  
- Near white metal  
- Ready for coating

SA2.5

=

1x



With an average speed of 35 m<sup>2</sup>/hr.

# Cargo Hold Surface Prep Robot – Highmate C10

Curvature Adaptability  
High Load

Smart System Control



Flexible Recovery Dome  
Integration Design

## Description

HighMate C10 is designed for cargo hold surface preparation jobs. For the complicated environment of the cargo hold, Highmate C10 is able to cross over most corners and narrow area. The robot uses water, along with a vacuum, instead of abrasive blasting, which is much cleaner and allows other inspection to be done at the swiftly after. The compact design helps the operator to deploy it easily, and improves the safety of the workers.

## Specifications

Dimension	830*540*480 mm	Derusting Efficiency	20 – 30 m <sup>2</sup> /h
Weight	91 kg	Speed	9 m/min
Power Supply	220V AC / 50 Hz	Cleaning Width	320 mm
Cleaning Result	Wa 2.5 / WJ 2.0	Power	1800 W
Maximum Load	50 kg	Protection Level	IP 68
Obstacle Crossing	Minimum 120°	Working Temperature	0 – 55 °C

[Video Link](#)





# Bottom Preparation Robot – DockMini

Changeable Cleaning Dome

Range Extender Design



Swing / Fixed Mode  
Interchangeable

[Video link](#)

## Description

RPP DockMini is specially designed for surface preparation operation in the flat bottom area. It is equipped with a range-extender to help prolong the operation period, which allows a much easier fuel refill process. High efficiency cleaning dome can be adjusted to fit different flow rate and pressure ranges, to help achieve a maximum efficiency at different working conditions.

## Specifications

Dimension (L×W×H)	2800 × 815 × 1400 mm		
Weight	1200 kg	Power Supply	Generator / Battery
Cleaning Width	475 mm	Speed	0 – 15 m/min
Production Rate	35 - 55 m <sup>2</sup> /h (WJ2.0/WJ2.5) (Efficiency varies with parameters such as operators 'proficiency, coating type, and water pressure)		
Remote Control Range	100 m	Working Height	1.4 – 1.9 meters
Protection Grade	IP 55	Battery Mode Life	4 hours
Max Flow Rate	52 L/min	Max Pressure	3000 bar

## Bottom Preparation Robot – DockMini

### Flexible & Stable Bottom Blasting Operation

- Electrical lifting module and swing arm module, applicable to more areas
- Margin left only 30-60 mm
- Cleaning dome size can be changed to fit different pump
- 50 kg load ability
- Remote control, user-friendly





# Swing Arm Blasting Robots – HighMate A Hydrdo 10/15 Abrasive 20/25

Flexible climbing mobile platform

Intelligent Navigation and Tracking System



Carbon fiber reinforced composite swing arm

## Description

Swing Arm Robot HighMate A serie is a compact open blasting (hydro/abrasive/dry-ice/wet) and cleaning robot. The modular design allows one man to replace the open cleaning module with a vacuum dome module on a V40/V45 in 20 minutes. The swing speed and span can be adjustable. Two versions are available for high and low curvature. The A10/A15 are with the hydroblasting attachment and the A20/25 with abrasive extension, the system is modular and there is the possibility to start with A10 or A20 and add the flexible joint, the hydro attachment or abrasive extension.

## Specifications

Size	1127 × 915 × 587 mm		
Weight	85 kg	Power	1.2 Kw AC220V/50Hz
Cleaning width	1400 mm	Obstacle crossing	≤ 18 mm
Min curvature radius	8m A10 3.5m A15	Max speed	10 m/min
Production rate	20 - 150 m <sup>2</sup> /h (Efficiency varies with parameters such as coating type, cleaning/blasting level and water pressure/flow)		
Control mode	Remote control – Manual / Semi-autonomous / Autonomous		
Surface prep quality	WJ1-4 SA3 to SA1	Maximal load capacity	150 kg
Water Pump requirement	Pressure	300 - 3,000 Bars	Flow
			18 - 150 l/min
Air pressure	Dependent on # of nozzles and their size		

[Hydro Video Link](#) & [Abrasive Video Link](#)

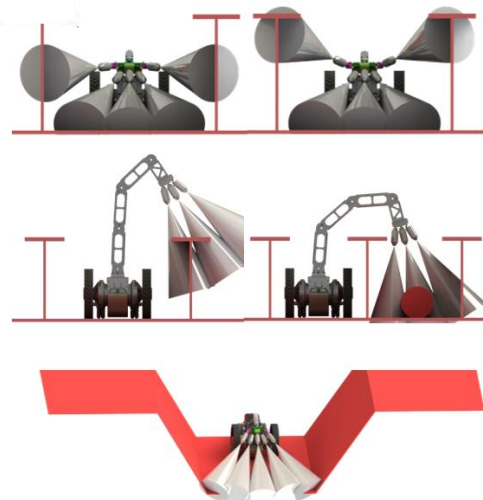
# Cargo Hold/Tank Cleaning Robot – Highmate C20

Strong cleaning module

Integration System



Mini Platform,  
smart and compact



## Description

HighMate C30 is specially designed for cleaning the hull surface for ships or storage tanks. The smaller Mini platform series has the advantage of compact design, small in size, high loading ability, with smart and automatic functions which allows auto navigation and lane-changing. The flexible modular design not only makes it easy for maintenance, but also allows the robot to change the position of the cleaning brushes. HighMate C30 is a perfect solution for surface cleaning jobs in the ship and oil & gas industries.

## Specifications

Dimension	630 * 418 * 410 mm		
Weight	46 kg	Speed	28 m/min
Power Supply	220V AC / 48 DC	Protection Grade	IP 68
Power Consumption	1.5 KW	Obstacle crossing	<15mm
Production Rate	400-1000 m2/h		
Pump requirement	Up to 500 bar / 30 lpm		

[Video Link](#)



ROBOT  
PlusPlus

**Strong Cleaning Ability**



# Surface Cleaning Robot – Highmate C30

Strong cleaning module

Integration System



Mini Platform,  
smart and compact

## Description

HighMate C30 is specially designed for cleaning the hull surface for ships or storage tanks. The smaller Mini platform series has the advantage of compact design, small in size, high loading ability, with smart and automatic functions which allows auto navigation and lane-changing. The flexible modular design not only makes it easy for maintenance, but also allows the robot to change the position of the cleaning brushes. HighMate C30 is a perfect solution for surface cleaning jobs in the ship and oil & gas industries.

## Specifications

Dimension	810 * 385 * 385 mm		
Weight	30 kg	Speed	10 m/min
Power Supply	220V AC / 50 Hz	Protection Grade	IP 68
Production Rate	150 – 200 m <sup>2</sup> /h (Efficiency varies with parameters such as operators 'proficiency, coating type, and water pressure)		

[Video Link](#)



# Abrasive Blasting Robot HighMATE B10

Curvature Adaptability  
Automatic Control

Smart System  
Self-Navigation



Efficient blasting  
Environmental-friendly

## Description

HighMate B10 is specially designed for ship-building industries, using for grinding the weld seam for mega block assembly. It is 5 times more efficient than traditional manual way, with a perfect roughness of 50-90  $\mu\text{m}$ . Using the robot allows the user to save cost from building scaffoldings and using construction basket, which also improves the safety of the operator to a large extent. The visual system let the user observe the cleaning process clearly, and the smart system makes it easy to operate in an automatic way.

## Specifications

Size	905 x 500 x 500 mm		
Weight	72 kg	Max speed	10 m/min
Power	3.8 kW	Working width	160 - 180 mm
Production rate	11 m <sup>2</sup> /h	Abrasive Consumption	100g/m <sup>2</sup>
Abrasive	Steel, 1mm, 7.5kg	Minimum curvature	5 m
Vacuum	0.06 bar	Surface prep quality	>SA2.5

[Video Link](#)



## Abrasive blasting solution

### There is still a need to create a profile

While erecting or repairing, the new metal sheet might need a profile creation for the coating application.  
And some tanks are too corroded for hydroblasting only.

Enclosed abrasive allows safe and clean deployment even at sea.



# Surface-roughening Robot – Highmate B20

Flexible Cleaning Module  
Better Disc Contact

Integration System  
Self-Navigation



Mini Platform  
Smart and Compact  
High Loading

## Description

HighMate B20 is another remarkable robot in the ship-building industries. It is used before the final paint is applied, to do a cleaning and roughening job on the ship hull, to make sure the paint stays long and well. The smart robot makes it possible for one operator to monitor two robots at the same time by using auto-navigation and lane-changing functions. B20 solves the problem of dangerous traditional manual work, and it is a perfect environmental-friendly solution for the maritime industry.

### Specifications

Dimension	760*494*437 mm	Rated Air Pressure	0.6 – 0.8 MPa
Weight	59 kg	Speed	10 m/min
Power Supply	220V AC / 50 Hz	Cleaning Width	315 mm
Efficiency	150 – 200 m <sup>2</sup> /h		

[Video Link](#)





# Pipe Shot Blasting Robot – Highmate® B40 U/D

Sa2.5  
Roughness  $\geq 70\mu\text{m}$

Flexible wheel sets



**B40 Upwards**



**B40 Downwards**

Dust Recovery,  
Environment-friendly

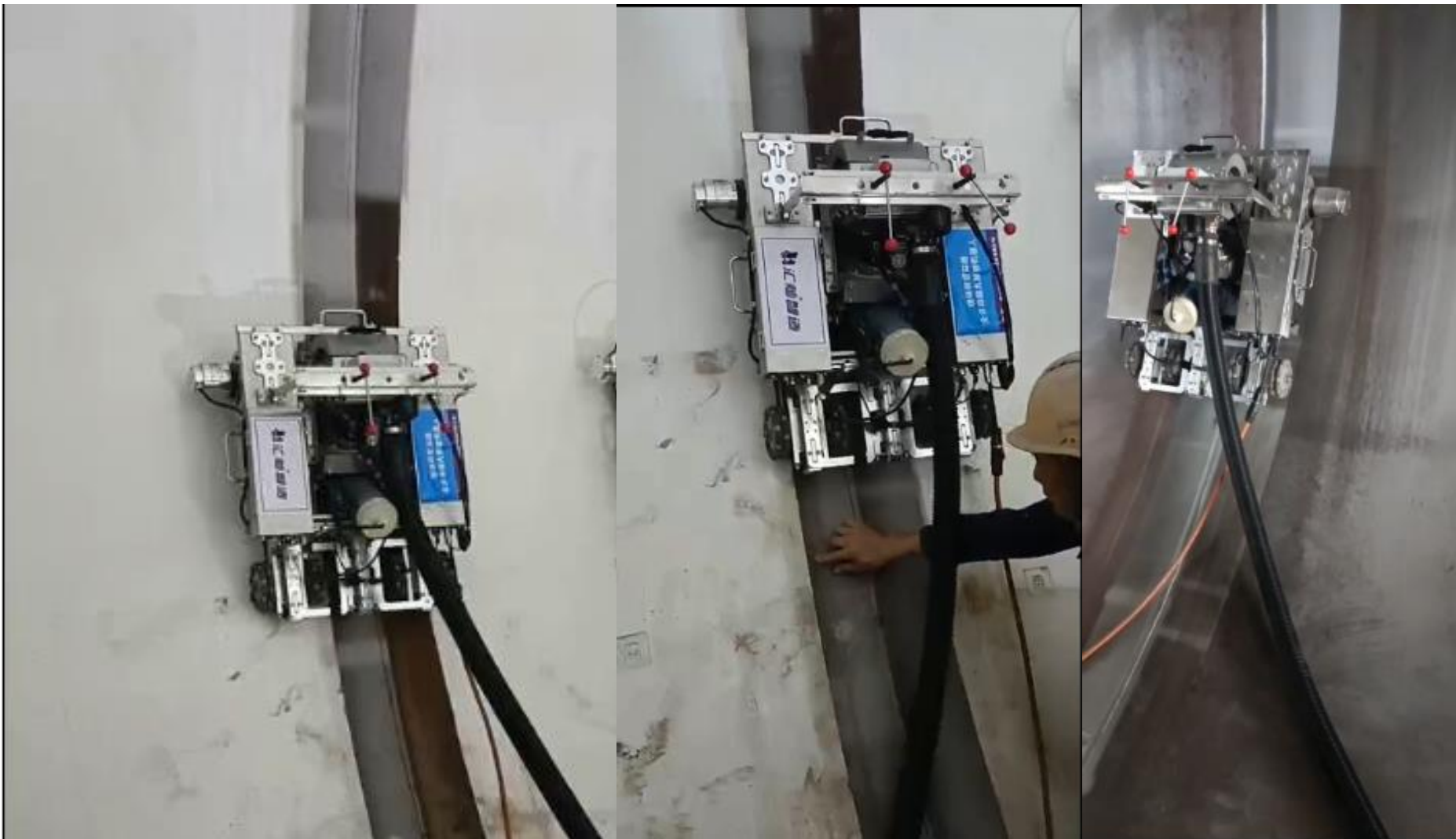
## Description

HighMate B40U & B40D are robot pairs using shot blasting mainly used for pipeline industries. The robots are suitable for most curved and cylindrical surfaces, both inner and outer circle circumferences. The robot pairs are used in different scenarios, for blasting upward direction surfaces and weld seam and downward direction surfaces and weld seam respectively. It can be also applied in other industries like wind towers and large steel surfaces, used as a perfect environment-friendly replacement for traditional abrasive blasting method.

## Specifications

Dimension	770*850*430 mm	Power	3000 W
Weight	80 kg	Speed	12 m/min
Power Supply	220V AC / 50 Hz	Minimum Curvature	3.6 m Diameter
Surface Roughness	$\geq 70\mu\text{m}$ / Sa 2.5	Abrasive	CW1.0 Steel Grit

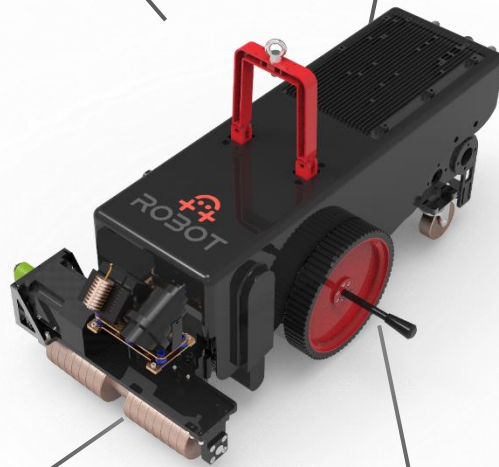
[Video Link](#)



# HighMATE B50 - Grinding and Deburring Robot

Intelligent control system

Flexible climbing mobile platform



Multi-purpose Grinding Unit

- Powerful roll grinder
- Curvature adaptability

Easy lifting

## Description

Equipped with a multi-functional grinding unit, it is capable of grinding welded seams, deburring. It is applicable to grinding the exterior and interior surfaces. The robot is used to prepare the surface for the inspection of welded seams.

Product presentation [video](#)

## Specifications

Size	330 x 370 x 720 mm		
Weight	39 kg	Obstacle crossing	< 5 mm
Cleaning width	220 mm	Max speed	4 m/min
Min curvature radius	6 m		
Grinding efficiency	0.5 m /min		
Derust quality	SA 3		
Control mode	Remote control – Autonomous on development		
Features	<ul style="list-style-type: none"> <li>• Video camera to assess the work</li> <li>• Laser guide</li> </ul>		

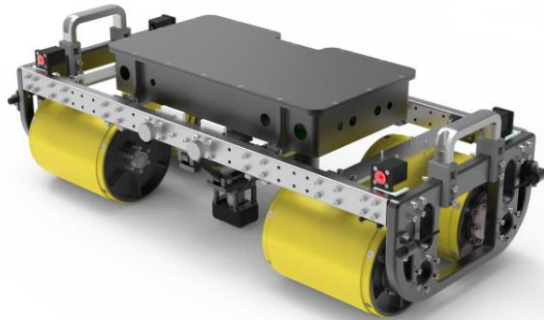
[Video Link](#)



# Cleaning and Inspection Robot I10

Intelligent control system

Flexible climbing mobile platform



Multi-purpose Grinding Unit

- Powerful roll grinder
- Curvature adaptability

Easy lifting

## Description

This robot is designed for the cleaning and the NDT inspection of large metallic surfaces such as tanks or boiler internals.

Its strong magnet and light design ensure a safe adherence and the electric motor a precise movement for the NDT inspection.

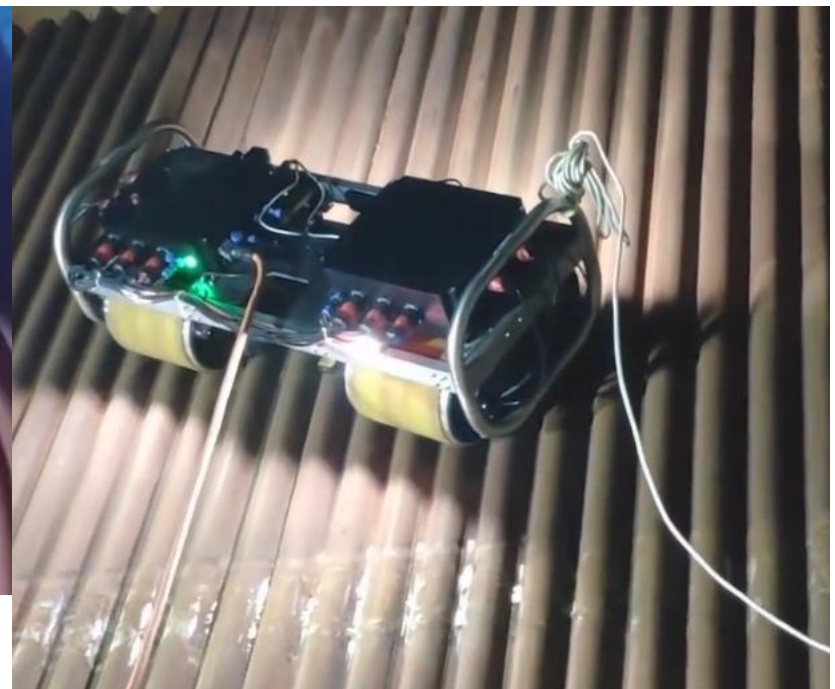
## Specifications

Size	280 x 350 x 850 mm		
Weight	45 kg	Obstacle crossing	< 5 mm
Power	1500 W	Max speed	10 m/min
Currently available sensor	Electromagnetic / Piezoelectric		
Testing area	0.01mm		
Testing speed	> 1,500 measurement /h		
Control mode	Remote control – Autonomous on development		
Features	<ul style="list-style-type: none"> <li>• Video camera to assess the work</li> <li>• Water jet to clean</li> </ul>		

[Video Link](#)

## In Action

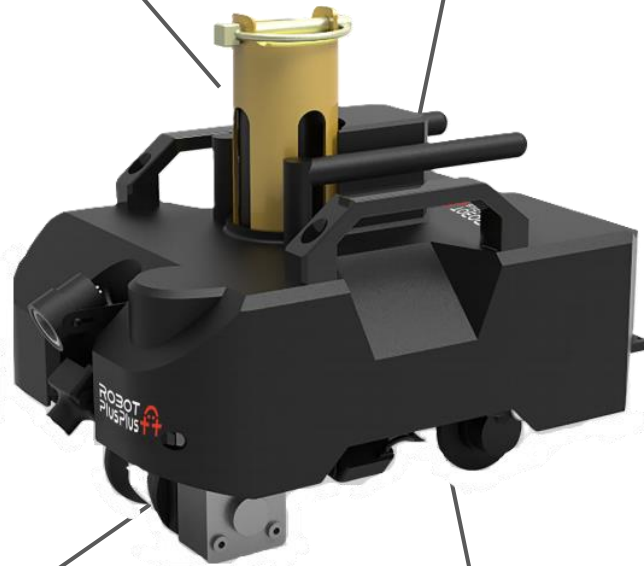
- Eliminate the need for rope access and combine cleaning and inspection



# NDT Inspection Robot I20

Intelligent control system

Flexible climbing mobile platform



Multi-purpose Sensor Unit  
Mobile sensor  
Modular mounting unit

Lightweight

## Description

The NDT Inspection robot is a lightweight robot with a flexible unit to install any sensors within the hollow unit. It can be operated on all kinds of metal surfaces with its compact and flexible design. The robot is a perfect solution for the inspection of coating and wall thickness for metals, pipelines, contains or tanks.

## Specifications

Size	306 x 180 x 223mm		
Weight	5 kg	Obstacle crossing	Axial > 50 mm Circumferential > 100 mm
Power	12 V 6 Ah	Max speed	6 m/min
Current sensors	Electromagnetic		
Control mode	Remote control – Autonomous on development		
Features	<ul style="list-style-type: none"> <li>Video camera to assess the work</li> </ul>		

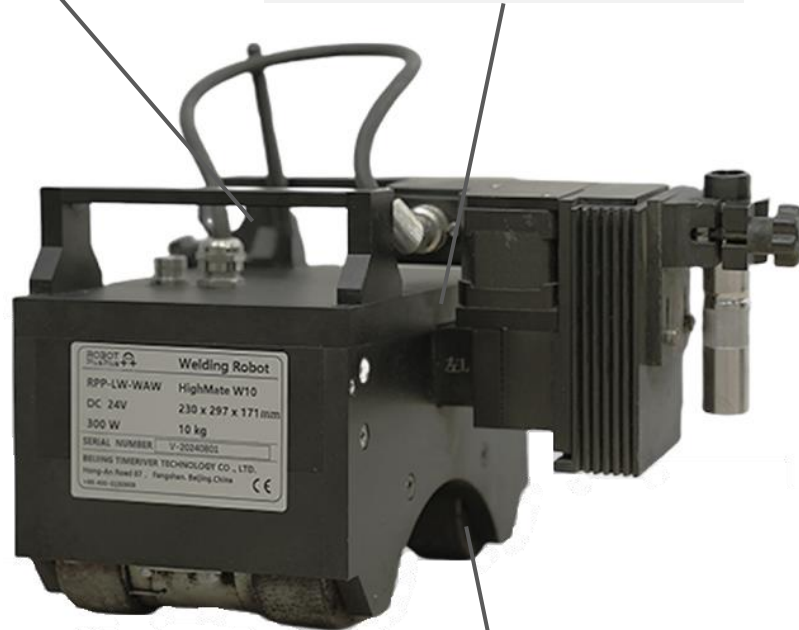
[Video Link](#)



# Welding Robot W10

Intelligent control system

Flexible climbing mobile platform



Lightweight

## Description

The Welding robot is a lightweight robot with a flexible unit to install any sensors within the hollow unit. It can be operated on all kinds of metal surfaces with its compact and flexible design. The robot is a perfect solution for the inspection of coating and wall thickness for metals, pipelines, contains or tanks.

The robot uses sensor to ensure a stable welding speed and welding parameter with automatic arc start/stop.

## Specifications

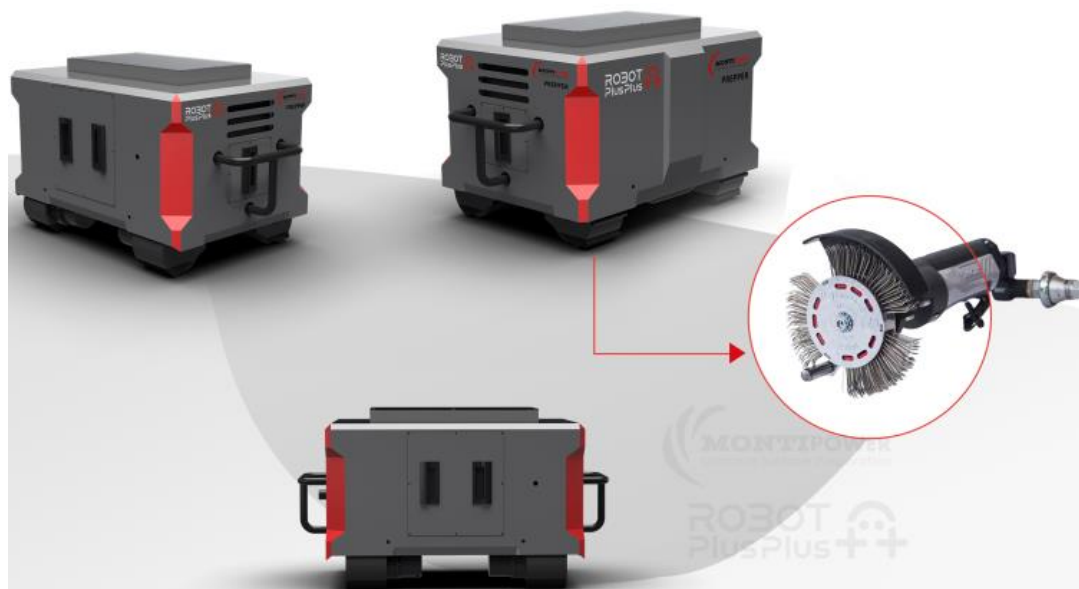
Size	230 x 297 x 171 mm		
Weight	10 kg	Obstacle crossing	Pipe diameter > 130 mm Wall thickness 4-50mm
Power	DC 24 V 300W	Welding speed	10-600 mm/min
Control mode	Remote control – Autonomous on development		
Features	• Video camera to assess the work		

Video Link

# Bristle Robot Prepper



Flexible mobile platform



Lightweight

## Description

The Bristle blasting robot is the collaboration of MontiPower and RobotPlusPlus for automatizing the bristle blasting. The bristle blasting is ideal for small area or repair. In this configuration the robot is deployed on weld seam between pipeline joint. The system is lighter and cheaper than the abrasive blasting tent otherwise used, working without pollution and no PPE required.

## Specifications

Size	650 x 450 x 450 mm		
Weight	49 kg	Working Width	300 mm
Surface Roughness achieved	>40 um		
Force Range	0-100 N		
Position range	0 – 50 mm		
Bristle Width	40 mm		
Applicable pipe	> 500 mm diameter		
Feature	Video camera to review the brush work		

[Video Link](#)

# Wind Turbine Inspection Robot I30

## Description

The NDT robot is designed to inspect the pile of windmills. Using laser guidance, it can continuously aligned with weld seam and provide a clear vision of issues or defect. The robot can move vertically or horizontally without need to set up special wheels or fall arresters.



## Specifications

Size	800 * 565 * 440 mm		
Weight	30 kg	Obstacle crossing	< 10 mm
Curvature	> 1 m	Max speed	8 m/min
Control mode	Remote control – Autonomous on weld seam		
Features	<ul style="list-style-type: none"><li>• Video camera to assess the work</li><li>• Positioning device</li></ul>		

[Video Link](#)





# Power Tool robot



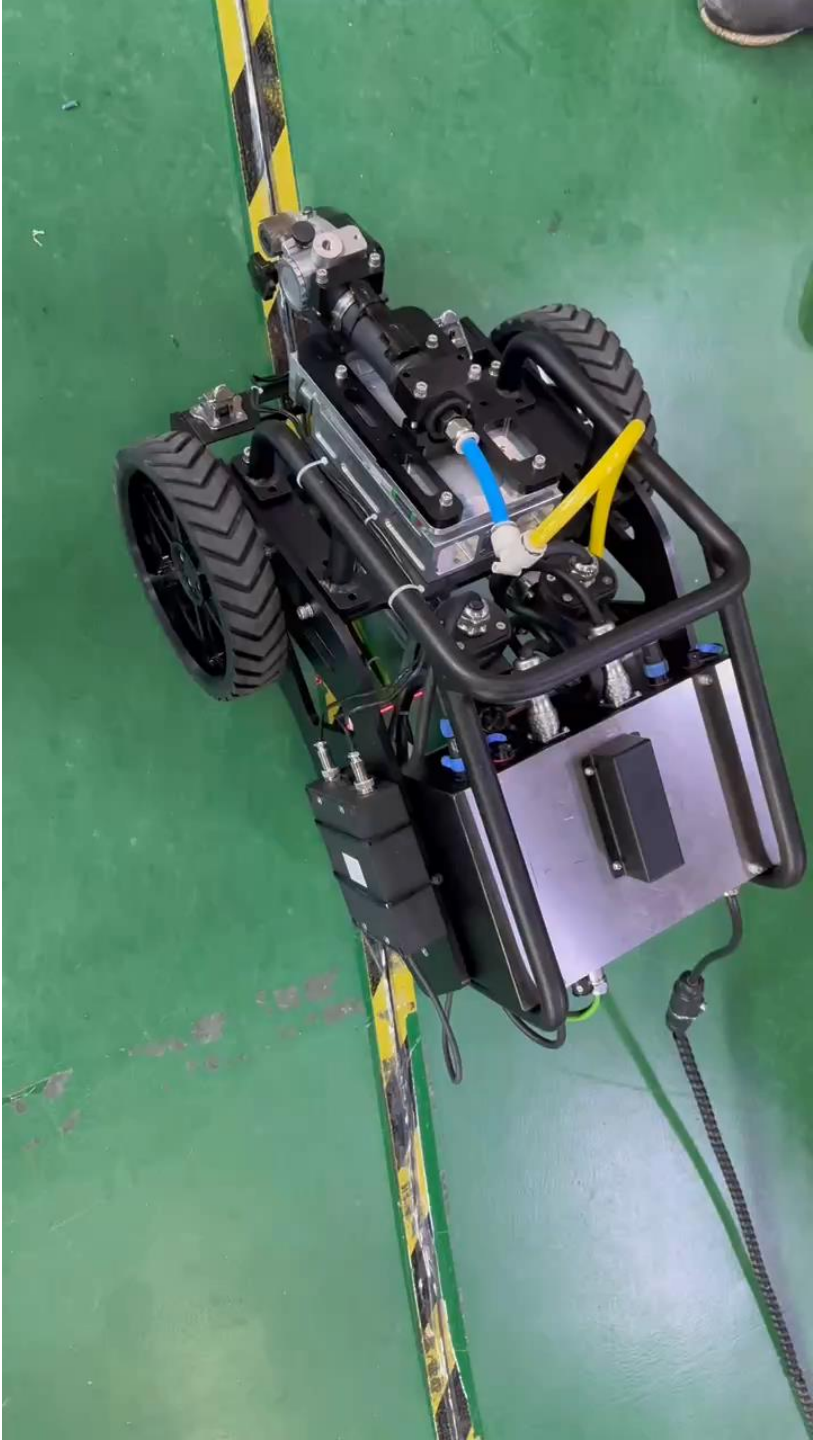
## Description

The Power tool robot is a small robot to set power tool (mill, angle grinder ...) pneumatic or electric options. It allows to not put personnel at risk on rope-access or set expensive scaffold. It is equipped with a laser guidance to follow welding seam or a camera for other works. Its small size allows navigation to the hardest-to-reach areas.

## Specifications

Size	630 x 443 x 415 mm		
Weight	35 kg	Max speed	10 m/min
Power	500 W @ 48DC or 220 AC Otion		
Air Pressure	0.5 – 0.7 Mpa (for power tool)		
Control mode	Remote control – Autonomous on development		
Features	<ul style="list-style-type: none"><li>• Video camera to assess the work</li><li>• Laser guidance</li></ul>		

[Video Link](#)





## Platform Robots

We are expert in robots, you are the expert of your industry. What do you do that we can improve together.

R++ offers its robots for your application. Some inquiries customers have investigated: Ice blasting, Waterjet cutting, Welding, NDT, Spraying ....

P40 XL Platform	P30 L Platform	P20 M Platform	P10 S Platform
			
<ul style="list-style-type: none"> <li>• Weight: 80 kg</li> <li>• Curvature: 7.5m</li> <li>• Speed: 10m/min</li> <li>• Add. Workload: 150kg</li> </ul>	<ul style="list-style-type: none"> <li>• Weight: 65 kg</li> <li>• Curvature: 5 m</li> <li>• Speed: 10m/min</li> <li>• Add. Workload: 80kg</li> </ul>	<ul style="list-style-type: none"> <li>• Weight: 50 kg</li> <li>• Curvature: 5 m</li> <li>• Speed: 10m/min</li> <li>• Add. Workload: 50kg</li> </ul>	<ul style="list-style-type: none"> <li>• Weight: 35 kg</li> <li>• Curvature: 3 m</li> <li>• Speed: 10m/min</li> <li>• Add. Workload: 30kg</li> </ul>

# Beebot Pro V20

## Description

Beebot Pro V20 employs a dual cable backup system, ensuring safety at all-times. The robot is equipped with a vacuum to ensure full attachment of the robot to the surface and to recover the water to limit traces and lengthen the time at work. The robot is equipped with video camera and capable of crossing obstacle of

## Specifications

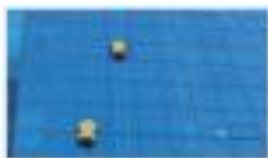
Size	1240 x 835 x 355 mm		
Weight	57 kg	Max speed	15 m/min
Power	220 V AC Option		
Work Height	0-150 m		
Production rate	900 m2/day		
Water Cycle	1.5h		



### Applicable Scenarios:



Semi-hidden Frame



Flat Glass



Stone-based Facade



Metal-based Facade

[Video Link](#)

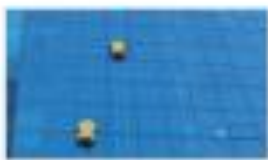
# Beebot Mini V10



## Applicable Scenarios:



Semi-hidden Frame



Flat Glass



Stone-based Facade



Metal-based Facade

## Description

Beebot Mini V10 employs a dual cable backup system, ensuring safety at all-times. The robot is equipped with a vacuum to ensure full attachment of the robot to the surface and to recover the water to limit traces and lengthen the time at work. The robot is equipped with video camera and capable of crossing obstacle of

## Specifications

Size	812 x 516 x 230 mm		
Weight	23 kg	Max speed	10 m/min
Power	220 V AC Option		
Work Height	0-30 m		
Production rate	800 m2/day		
Water Cycle	1h		

[Video Link](#)

# Flat Glass Cleaning – Beebot XS



[Beebot XS Video](#)

## Description

Beebot XS is designed for flat glass.

It is the most economical robot. Battery powered or using a power cord for longer work.

It is equipped with a water tank that can accommodate cleaning products.

## Specifications

Dimension	650 x 475 x 150 mm		
Weight	15 kg	Speed	28 m/min
Power	200 W	Battery Life	1h
Production Rate	50 M2/h		
Water Tank	3.5 L equivalent to 30min of work		



# Beebot Industrial V10



[Beebot Indus](#)

## Description

Beebot Industrial is designed for the cleaning of industrial building made of various materials. The machine is equipped with large brushes for fast cleaning and large fans for quick drying and ensure a suction of the machine against the surface. The machine is secure by two ropes that it uses for movement along the surface.

The machine can be adapted to smaller widths.

## Specifications

Dimension	1950 x 700 x 1100 mm		
Weight	120 kg	Speed	16 m/h
Cleaning width	1500 mm	Obstacle Crossing	50 mm
Power	3 kW	Mobile Winch	800 W
Production Rate	400 m2/h		
Water Pump	Up to 15 l/min Max 100 bar		



COSCO SHIPPING Shipyard (Nantong) Co., Ltd

Address: No.1 Zhongyuan Roa, Nantong, Jiangsu Province, 226006

Phone: 0513-85056200

Email: chen.zhen2@coscoshipping.com

Dear Robotplusplus,

Please accept our thank you for having been the partner of our success for the past 2023. The robots and the after sales services you provided have been keys to our transition to hydroblasting. We embarked in it with reluctance as we were accustomed to the use of manual labor and abrasive blasting which we thought were cost-efficient and offering good quality. Your first demonstration and now our full implementation have shown us that robotic hydroblasting offers an even better cost efficiency and that the surface preparation is excellent as consistently approved by coating inspectors, manufacturers and ship owners. So you changed our mind.

You have been very responsive into the support to our operation and maintenance teams. I've seen that you have released new equipment that could be of interest. Let's get in touch.

Regards

Chen Zhen

Head of Surface Preparation Technology Engineering Center

COSCO SHIPPING shipyard (Nantong) Co., Ltd



## 2019 年中国石油大连石化公司钢制拱顶型储罐外表面 爬壁机器人搭载高压水射流除锈工艺测试报告

委托单位(公章):

中油管道防腐工程有限责任公司

负责人签字:

测试单位(公章):

北京史河科技有限公司

负责人签字:

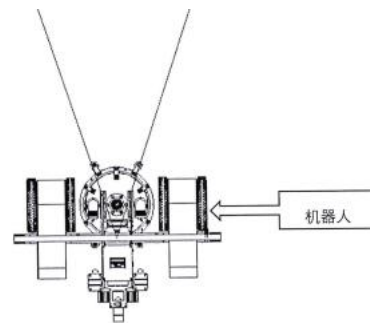


图 安全挂载

日期:2019 年 12 月

3、测试试验用设备如下表:

编号	名称	型号	参数
1	除锈爬壁机器人	RPP-MW-SR-02	轮式永磁回收盘式除锈器人
2	超高压水泵	250TJ3	柴油式 2800bar 水泵, 最大流量 42L/min
3	旋转超高压喷头		高速旋转体, 10 喷嘴/3.5mm

CNPC  
performance  
and  
validation  
report

## Letter of Thanks

Aftersales Team of Beijing TimeRiver Co. Ltd.,

We would like to thank you for the hard work provided by the company's aftersales team at Shanghai Huarun Dadong Dockyard. All team members are honest and polite, and have great service and patience. The skilled team is very responsible and thinks in our shoes. During the dock operation, they are on duty 24\*7. When there is a lack of team members, the ones on site continuously stand by for 48 hours and are there wherever we encounter any difficulties. Even during hot summer and freezing-cold winter, the aftersales team is still on duty all the time, sometimes one member can support more than 10 equipment, working so hard just to help us to make the equipment operate normally. Whenever our operator has any misoperation, the team will patiently explain the correct and safe operation procedures again, just to help us avoid unnecessary losses caused by the misoperation, which makes great contributions to our precious dock period. They are such dedicated, customer-centric, fast and accurate in the repairing and recovery of the equipment.

Therefore, we are writing this letter to specially express our gratitude to the aftersales team at Huarun Dadong Dockyard, for their action in keeping the operation smooth and high-efficiency services.

We would like to thank you again to all the members of the aftersales team. We hope that in the coming new year, the team will continue to support our on-site operation.

Yuhe Marine Engineering (Xuzhou) Co., Ltd

Dec 28th, 2023



HUARUN DADONG DOCKYARD CO., LTD.

9131000060726685XN

Address: No.1 Dadong Road, Chengqiao, Chongming, Shanghai, China

Tel: 021-59699888

Dear Robotplusplus service team,

Please accept our gratitude for your continuous service at our facility in Huarun Dadong Shipyard. Your company has been of great assistance into optimizing the coating removal on the ship over the past 2 years.

Prior to use Robotplusplus, we have been using abrasive blasting and manual labor to complete the tasks. Your equipment's efficiency and reliability have allowed us to reassign resources and lead to significant savings in time and money.

Thanks to the use of the robots, we reduced our TRI (total recordable incidents) which used to be of great concern for these activities with work at height.

During the service, your service team has smooth communication with our on-site engineering staff, and has a quick response and cooperates with us to troubleshoot equipment faults. During the operation, your service team can help us find hidden problems, reduce consumables, and fully ensure the working progress.

Regards

Liang Bin

tzq@hrdd.com.cn

Head of surface preparation and coating department

HUARUN DADONG DOCKYARD CO., LTD.

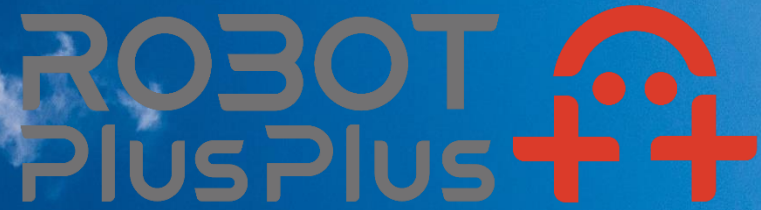


## Endorsed by Clients and Partners

ROBOT  
PlusPlus







# Empowering Humans with Robots

<http://en.robotplusplus.com>

<https://www.linkedin.com/company/robotplusplus>

Charles Marcotte

[Charles.marcotte@robotplusplus.cn](mailto:Charles.marcotte@robotplusplus.cn)

+86 153 0108 8312