



Surface prep elevated

-  www.hydwin.com
-  +86 21 6076 1823
-  sales@hydwin.com.cn
-  5/F No.3, Lane 1473, Zhenguang Road, Putuo District, Shanghai , China



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This brochure contains only general descriptions or performance features, which do not always apply in the manner described in concrete application situations or may change as the products undergo further development.



Hydwin Robotics

A shipyard contractor turned provider of industrial surface preparation systems, Hydwin Robotics develops semi-automatic coating removal equipment for ship repair and storage tank maintenance and other fields that need work-at-height hydrojetting.

At Hydwin Robotics, our unique advantage lies in our dual role as both designers and operators. Not only do we create innovative solutions for surface preparation, but we also operate them daily, providing hydroblasting and coating services to shipyards. This hands-on experience allows us to design optimal solutions from a user's perspective.



The **Treatment Carrier D&X** series of **hull coating removal vehicles**, engineered by Hydwin Robotics, leverage proprietary AI-driven core algorithms and advanced ultra-high-pressure water jet technology for superior surface preparation. These innovative vehicles can effectively clean and derust **over 95%** of ship hull surfaces, making them ideal for comprehensive ship maintenance.



CCS Certification



■ Cleanliness Standards According to ISO 8501/SSPC-NACE



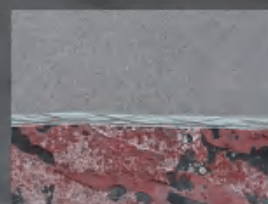
ISO Wa 1/SSPC-NACE WJ 4
Light Cleaning



ISO Wa 2/SSPC-NACE WJ 3
Thorough Cleaning



ISO Wa 2 1/2/SSPC-NACE WJ 2
Very Thorough Cleaning



Surface prepared by D&X Series
Wa 2 1/2/WJ 2 Very Thorough Cleaning

Safe & Eco-friendly

Safety, efficiency, and reduced environmental impact.



Curved Surface Adaptability

Effective cleaning of curved hull surfaces.



Treatment Carrier D Mini

1.3 - 1.8 m
Working height range

Treatment Carrier D Series

6m / 10m / 13m
Max. Working heights

Treatment Carrier X Series

25m / 28m / 32m
Max. working height

Teamwork in action

Fully automated and single-operator controlled, the D&X series delivers safer, faster, and greener hull cleaning.

- **D MINI** excels in flat bottoms,
- **D 06/10/13** adapts to curved surfaces,
- **X 25/28/32** covers the largest vessels with maximum efficiency.

The D&X series meets the diverse needs of all vessel types, covering over 95% of ship hulls with unparalleled efficiency.



Automated & Easy Operation

single-user control for efficient, automated cleaning.



Versatile Coverage

Heights ranging from 1.3 to 32 meters, covering all vessel types.

Treatment Carrier D MINI

Hull Coating Removal Vehicle

1.3-1.8_m

Working height range

50_{m²/h}

Max. Working Rate

3000_{bar}

Max. Water Pressure

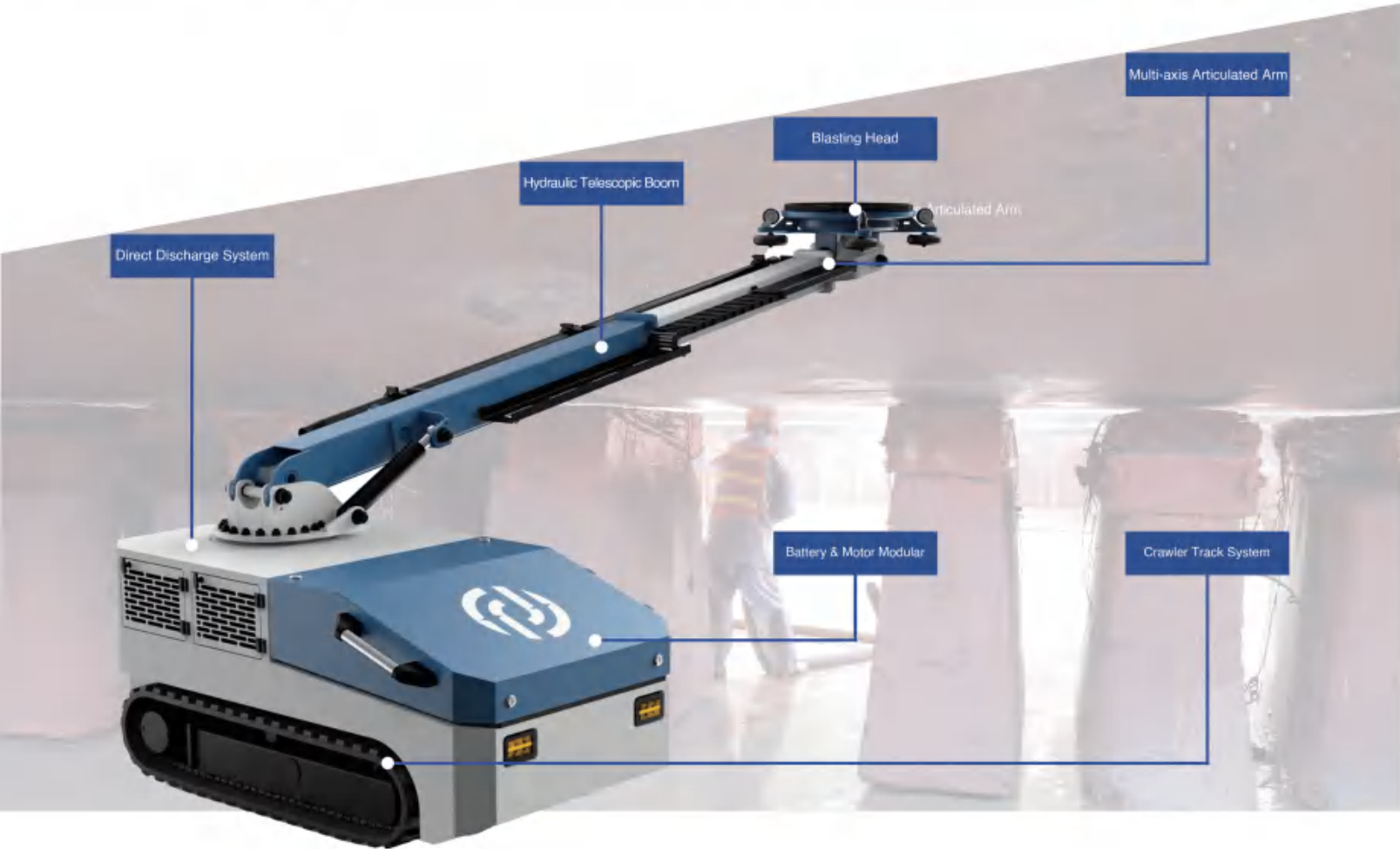
50_{l/min}

Max. Water Flow

Wa 2.5

Cleanliness Standard

Operating at a maximum water pressure of **3000 bars**, D Mini achieves an efficiency of **50 m²/h**, with a working height from **1.3 to 1.8 meters**, making it ideal for **vessel bottoms**. Its compact design allows seamless navigation between **keel blocks**, ensuring efficient operation in shipyards. With a direct discharge system, wastewater is sent straight to treatment facilities, enhancing both efficiency and environmental sustainability. Powered by a battery-electric motor, D Mini enables clean, energy-efficient operation. Featuring remote control with real-time data monitoring, AI-powered automation, and autonomous pathfinding, it delivers precision, adaptive operation, and scalable cluster deployment.



AI - powered & Safe
Autonomous path planning,
remote operation minimizes human intervention.



Efficient & Cost-saving
Quick project turnover
with reduced labor demand.

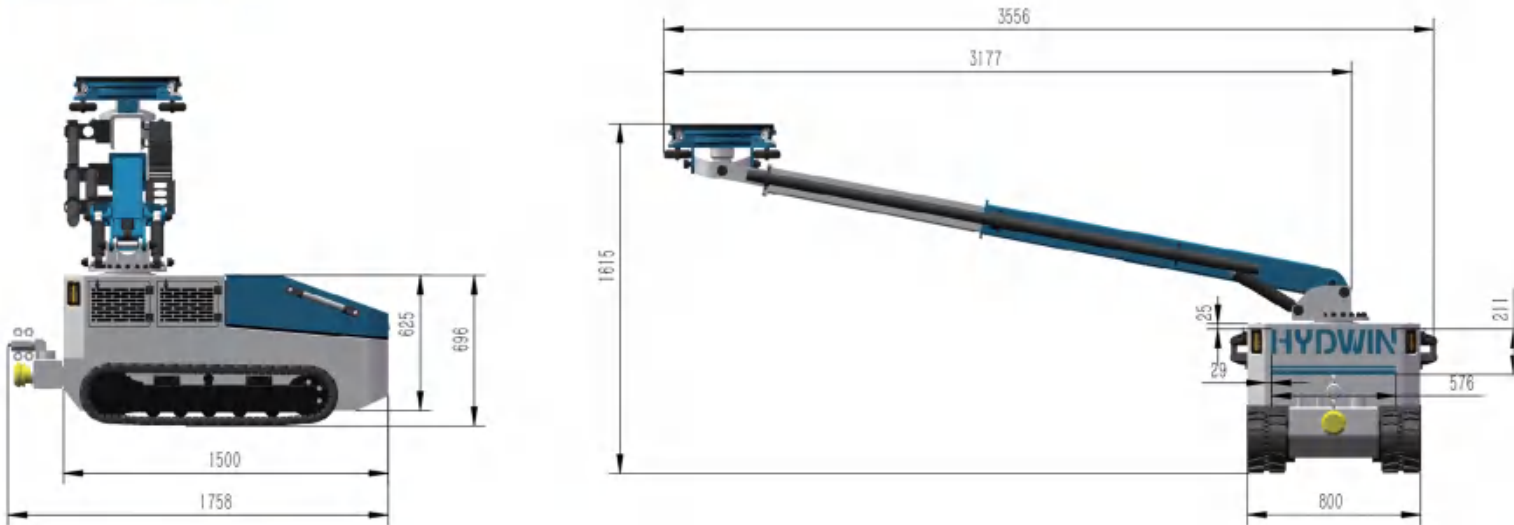


Compact & Agile
Exceptional maneuverability
in narrow spaces and between keel blocks.



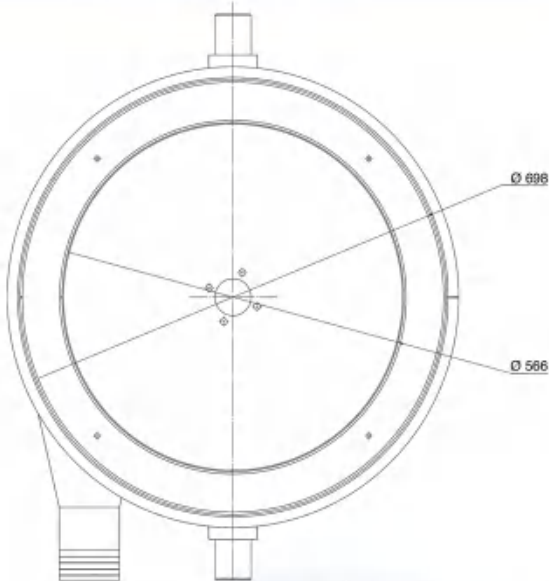
Eco-smart
Reduce emissions, direct discharge,
efficient wastewater management.

Load Chart



Item	Parameters
Dimension	1758 mm x 800 mm x 696 mm
Weight	3 T
Blasting Head	566 mm
Hydraulic Motor	12 kW
Batter Capacity	42 kWh
Speed	0 - 2.7 km/h
Battery Runtime	6 h
Efficiency	up to 50 m²
Working Height	1.3 - 1.8 m
Max. Water Pressure	3000 bar
Max. Flow Rate	50 l/min
Cleanliness Standard	≥Wa 2½ / WJ-2

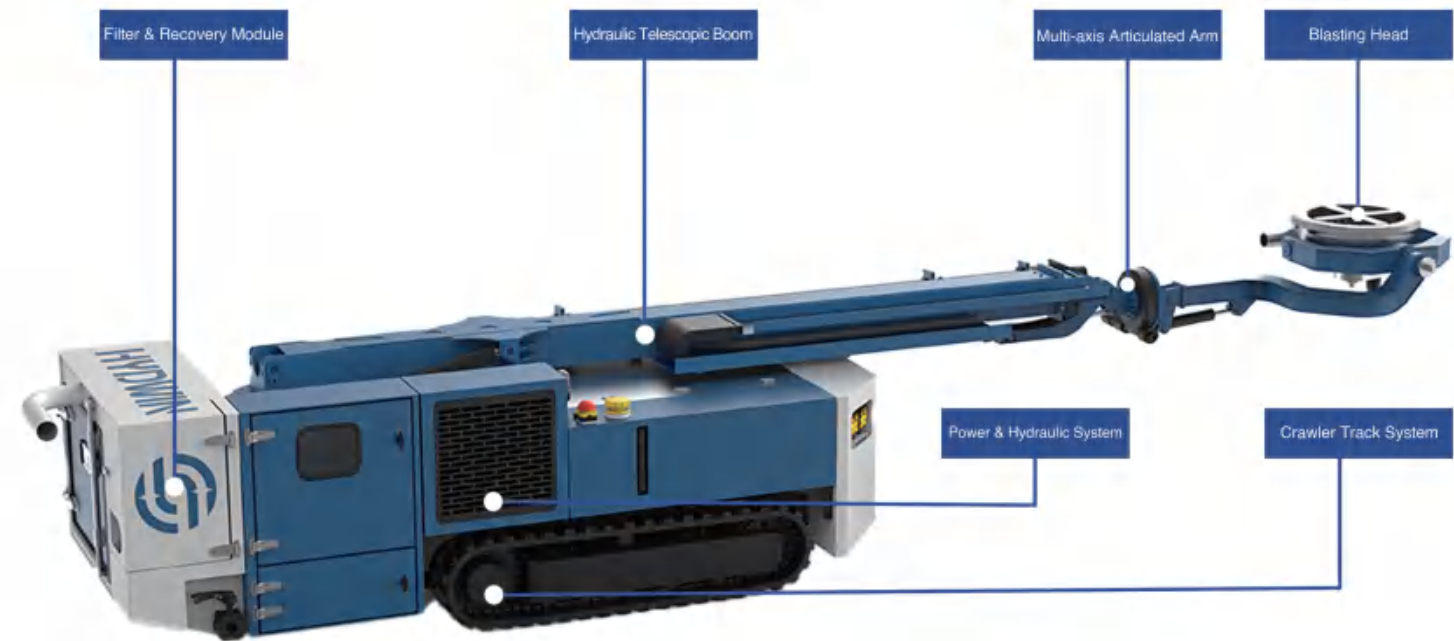
Blasting Head Chart



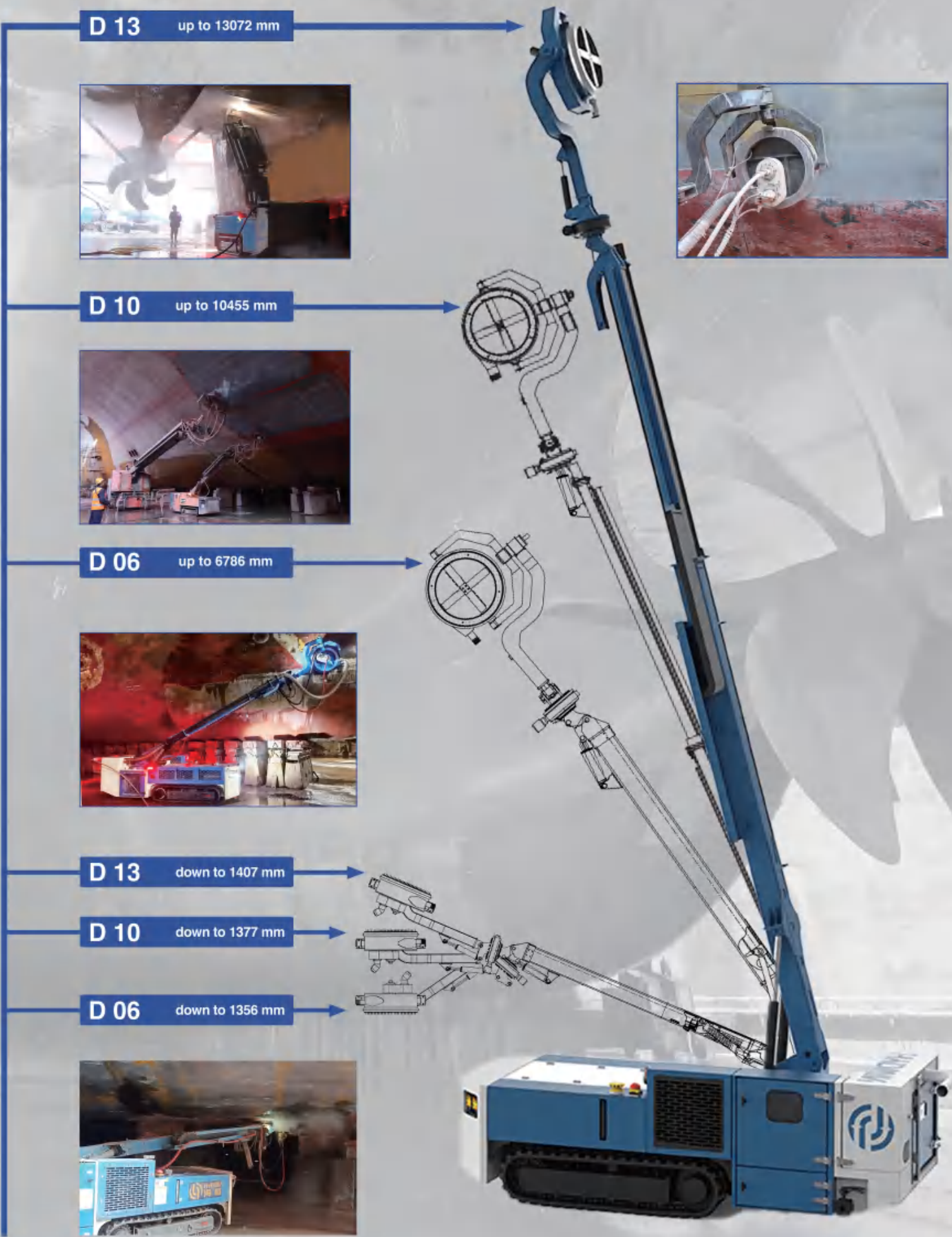
Treatment Carrier D Series

Hull Coating Removal Vehicle

Engineered for optimal performance in low and curved areas such as **flat bottoms**, **bilge keels**, and **bow** and **stern areas**, the Treatment Carrier D Series operates at a maximum water pressure of **3000 bars** with a working height range from 1.3 to 13 meters. Achieving a maximum efficiency of **50 m²/h**, the D Series conforms to the Cleanliness Standard of **WJ-2 / Wa 2½**, ensuring efficient ship hull cleaning and reliable surface preparation.



Model	Dimension	Engine Power	Working Height	Efficiency	Water Pressure	Flow Rate
D MINI	1758 x 800 x 696 (mm)	Electric	1.3 - 1.8 m	up to 50²/h	up to 3000 bar	up to 50 l/min
D 06	7318 x 1510 x 1356 (mm)	Diesel Stage EU Stage IIIA 44.7 kW@2800 rpm	1.4 - 6.0 m	up to 50²/h	up to 3000 bar	up to 50 l/min
D 10	8211 x 1510 x 1377 (mm)	Diesel Stage EU Stage IIIA 44.7 kW@2800 rpm	up to 10 m	up to 50²/h	up to 3000 bar	up to 50 l/min
D 13	8587 x 1510 x 1407 (mm)	Diesel Stage EU Stage IIIA 44.7 kW@2800 rpm	up to 13 m	up to 50²/h	up to 3000 bar	up to 50 l/min



Treatment Carrier D Series

Hull Coating Removal Vehicle



Safe



Eco-friendly



Agile



Efficient

Blasting Head

- The blasting head operates at heights from 1.3 to 13 meters, ideal for low and narrow hull areas
- The optimized nozzle layout ensures uniform high-pressure water distribution for stable and efficient cleaning
- Reinforced, sealed, and dust-proof design reduces maintenance frequency and ensures long-lasting performance



Power System

- Powered by a 4-cylinder, 2.2 l turbocharged diesel engine, offering low emissions and high efficiency for cost-effective operation
- Deliver 44.7 kW (60 HP) with fuel consumption below 6 l/h, ensuring fuel quality with complete oil-water separation to prevent engine damage
- Feature robust power, smooth startup, and flexible operation, with brake energy recovery to reduce carbon footprint



Filter & Recovery Module

- Suction solids (removed coating, rust, etc.) and wastewater from blasting, directing the mixture to the rear filter and disposal module through the suction pipe
- Pre-separate solids and liquid directly in the vehicle, collecting particles in a big bag for easy disposal
- Clean water is controlled and either drained or recycled back to the UHP pump via the vehicle-mounted clean water pump



Hydraulic System

- The hydraulically driven telescopic boom is designed for multifunctional work on flat or curved surfaces, either on the ground or overhead
- The multi-axis hydraulic control arm, with a universal joint connecting the cleaning disc at the end, ensures constant contact force
- The boom-type contact design adapts to the curvature of the ship's hull, automatically compensating for changes in the distance between the blasting head and the hull



Electronic Control Unit

- Ensure safe and easy operation with real-time data visualization, remote control, and customizable parameter presets
- Failsafe sensors detect unsafe conditions, triggering automatic stops or shutdowns
- Provide uniform feeding of the blasting head for steady paint removal, with regular operation managed via semi-automatic remote radio control



Crawler Track System

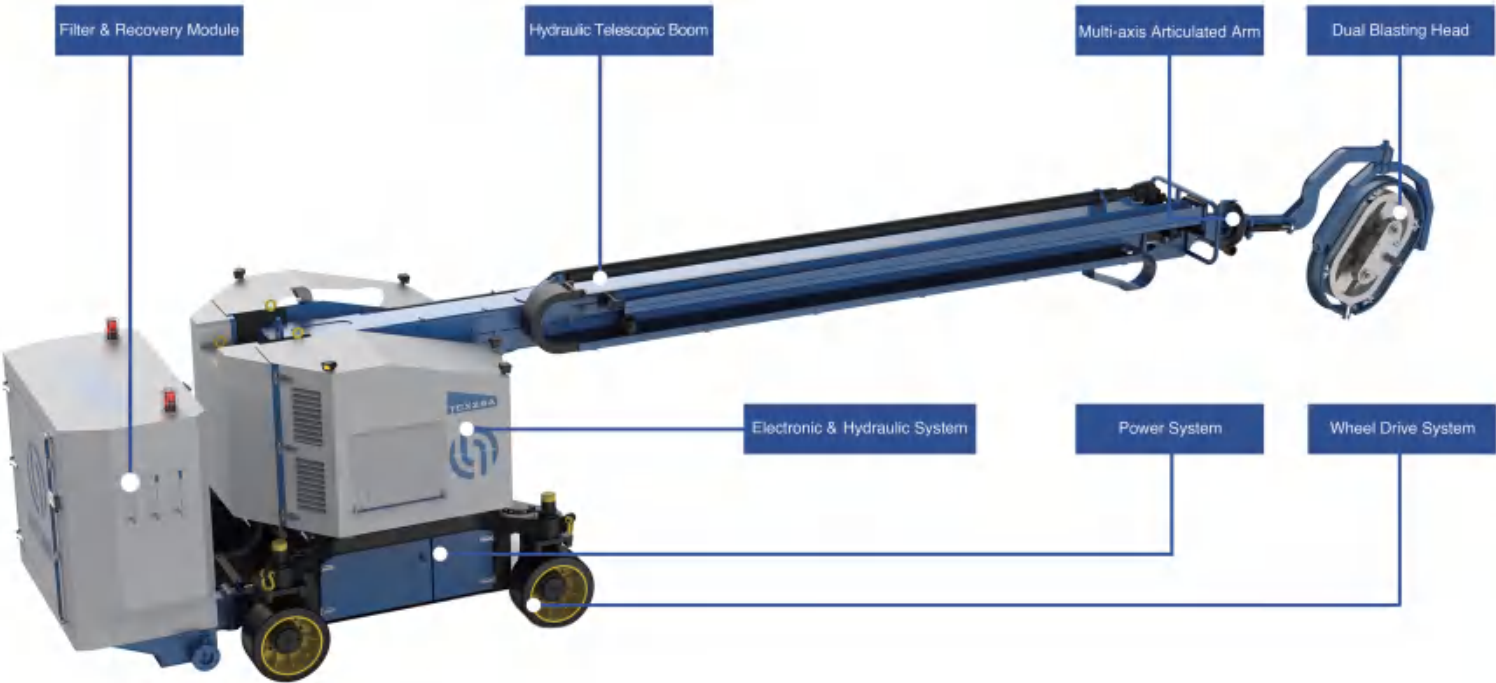
- Strong and stable performance at both low and constant speeds, easily handling bumps, potholes, and dock passageways
- Real-time monitoring of steering angle and speed for precise control and durability
- Precision system for excellent maneuverability between dock blocks, with differential steering to reduce track wear



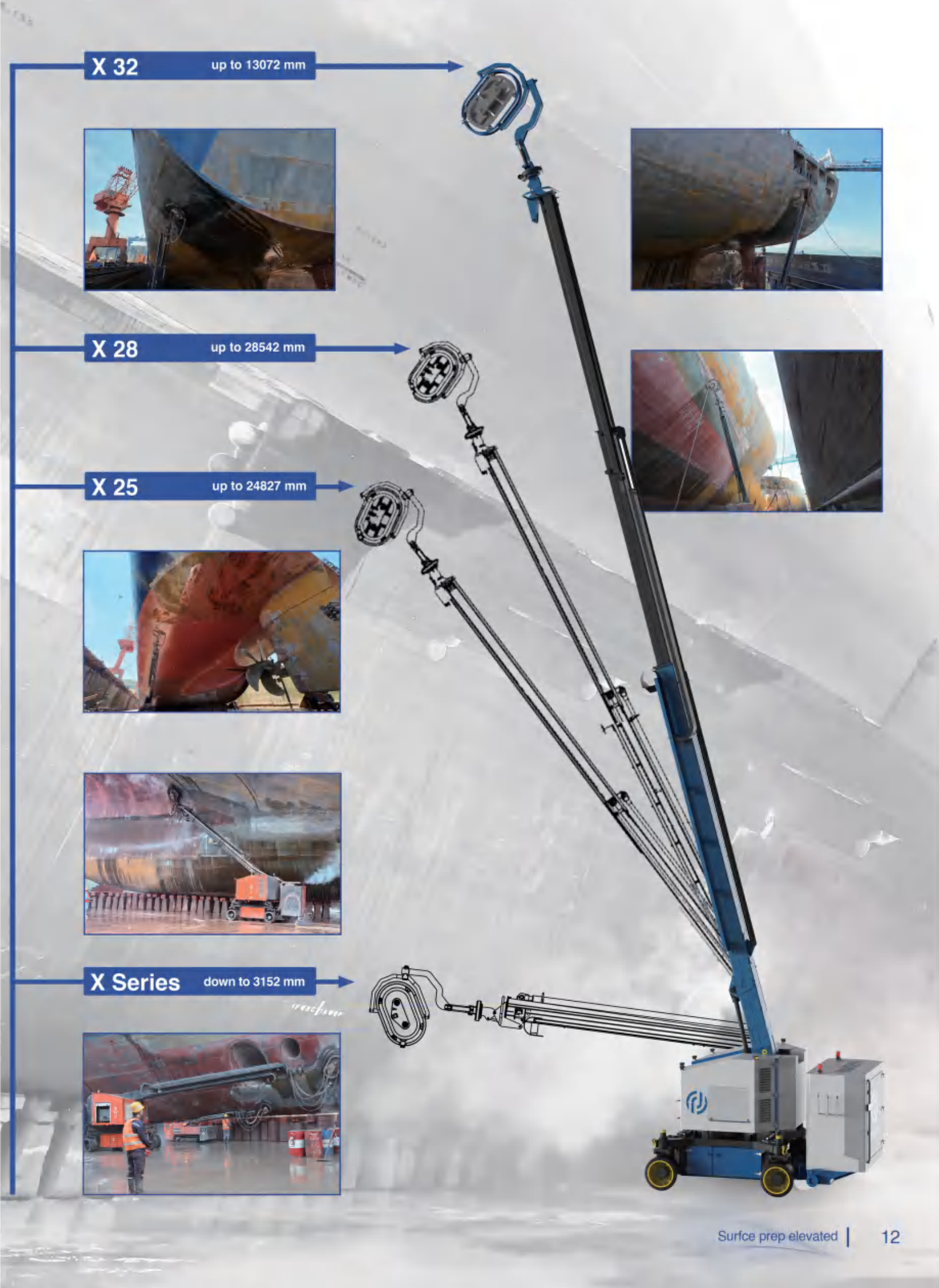
Treatment Carrier X Series

Hull Coating Removal Vehicle

Engineered for optimal performance in large flat surfaces, Treatment Carrier X Series employs ultra-high-pressure water jetting technology, utilizing Hydwin Robotics' proprietary AI-driven core algorithms and advanced high-pressure components. Operating with a working height of up to **32 meters** and at a maximum efficiency of **120 m²/h**, the X Series conforms to the Cleanliness Standard of **WJ-2 / Wa 2½**.



Model	Dimension	Engine Power	Working Height	Efficiency	Water Pressure	Flow Rate
X 25	14871 x 2727 x 3152 (mm)	Diesel Stage IV 96 kW@2500 rpm	3.2 - 25 m	up to 120 ² /h	up to 3000 bar	up to 100 l/min
X 28	16314 x 2727 x 3152 (mm)	Diesel Stage IV 96 kW@2500 rpm	up to 28 m	up to 120 ² /h	up to 3000 bar	up to 100 l/min
X 32	18405 x 2727 x 3152 (mm)	Diesel Stage IV 96 kW@2500 rpm	up to 32 m	up to 1200 ² /h	up to 3000 bar	up to 100 l/min



Treatment Carrier X Series

Hull Coating Removal Vehicle



Fit for all ships

Effective cleaning for over 95% of vessel hulls.



Increased efficiency

Allow for quicker turnaround and improved operational efficiency, boosting productivity.



Environmentally friendly

Full waste water recovery, contributing to environmental sustainability.



Enhanced safety

Reduce the need for working at height, cutting falls and accident risks.

Dual Blasting Head

- Dual spray bars, high-density brush, and optimized layout for even high-pressure impact
- Core algorithms ensure pressure and force compensation, enhancing efficiency and consistency
- Optimized nozzle layout delivers uniform high-pressure water jet for stable, efficient and dust-free operation



Power System

- Powered by a 4-cylinder, 3.9 l turbocharged diesel engine, offering low emissions and high efficiency for cost-effective operation
- Deliver 96 kW (130 HP) with fuel consumption below 14.8 l/h, ensuring fuel quality with complete oil-water separation to prevent engine damage
- Feature robust power, smooth startup, and flexible operation, with brake energy recovery to reduce carbon footprint



Filter & Recovery Module

- Suction solids (removed coating, rust, etc.) and wastewater from blasting, directing the mixture to the rear filter and disposal module through the suction pipe
- Pre-separate solids and liquid directly in the vehicle, collecting particles in a big bag for easy disposal
- Clean water is controlled and either drained or recycled back to the UHP pump via the vehicle-mounted clean water pump



Hydraulic System

- Three-section hydraulic telescopic boom with a maximum height of 32 meters, featuring a multi-axis joint and hydraulically adjustable working arm
- Sensor and hydraulic valve control ensure constant contact force between the cleaning disc and the work surface
- The boom arm adapts to the ship's curvature, compensating for distance changes during movement



Electronic Control Unit

- Ensure safe and easy operation with real-time data visualization, remote control, and customizable parameter presets
- Failsafe sensors detect unsafe conditions, triggering automatic stops or shutdowns
- Provide uniform feeding of the blasting head for steady paint removal, with regular operation managed via semi-automatic remote radio control



Wheel Drive System

- Powerful at low speeds and stable at constant speeds, easily navigating bumps, potholes, and dock passageways
- Solid rubber tires, universal four-wheel drive, and excellent maneuverability in narrow spaces
- Differential steering with real-time monitoring to improve passability and reduce tire wear



Partner



Service

Technical Support
24/7 technical assistance



Delivery Logistics
A minimum of 45 days lead time



Training
Hands on training on site



Spare parts & Maintenance
same-day dispatch for orders
Top-notch quality control



