HAMMELMANN®

INNOVATIVE HIGH-PRESSURE TECHNOLOGY FOR THE SHIPPING INDUSTRY

Heading for the future — powerful and environmentally friendly

Pumps, units and tools

Environmentally friendly systems

Automated processes

High area performance

Economic applications

Process and drive technology

EFFICIENT CORROSION PROTECTION WITH INNOVATIVE HIGH-PRESSURE TECHNOLOGY

By using our ship cleaning systems, you work economically and environmentally friendly with future-oriented high-pressure water jet technology. The result: high-quality surface finishing and the assurance of health and safety standards.

AQUABLAST® PLUS SURFACE CLEANER
Read more on Page 28

ECONOMIC SHIP CLEANING

- Reduced docking time.
- Saving of costs and effort: The priming can be carried out after the approval of the inspector. No additional cleaning is required after surface treatment.
- Ensuring even energy distribution across the entire working width.
- Enormously increased area performance with the same pump output.
- No costs for intensive shielding of sensitive devices, reduced time for cleaning the dock. The seaworthy equipment and machinery located nearby are not damaged by water, unlike by flying sand particles.
- More efficient workflows: other trades can work close to the water jet area.
- Significantly lower disposal costs than with dry blasting. The water can be treated and reused. Only wastewater, old paint, marine growth and rust need to be collected for separation and disposal.
- Work in all weather conditions.
- Longer working times: the vacuum tank only needs to be replaced when it is filled with sludge or silt. The filtered (but untreated) water is pumped out of the vacuum system.
- Reduction in personnel costs: The amount of operating personnel required is reduced.

ENVIRONMENTALLY FRIENDLY COMPONENTS AND SYSTEMS

- No dust development as dust particles are bound in the water.
- The amount of material to be disposed of is 1/100 compared to dry blasting.
- Systems with suction devices allow the waste water and the removed paint particles to be fed directly into a post-treatment system.
- Simple waste separation for controlled disposal. Wastewater can be collected if the dock does not have central water collection and treatment facilities.
- The sludge is collected in the settling tank and can be tipped into a container. Optionally, a replacement tank for quick replacement or an XXL filter bag that can be lifted out of the settling tank can be used.

PARTIALLY AND FULLY AUTOMATED PROCESSES FOR HIGH SECURITY STANDARDS

- No risk of silicosis and other respiratory diseases.
- Less physical strain on the operating personnel compared to lifting by hand.
- No clouds of dust and dirt that endanger the health of operating personnel.
- Vacuum eliminates radiation noise.

SURFACE TREATMENT OF THE HIGHEST QUALITY

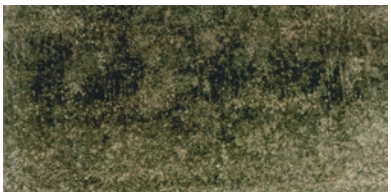
- Exposing the surface profile beneath the original coating.
- Optimum adhesion to fresh coatings, especially surface-tolerant paints.
- Consistent removal quality due to constant feed and distance between the nozzles.
- Significantly better surface quality when using UHP water jetting compared to conventional methods.
- The ship's hull remains free of foreign bodies, corrosive materials or poorly adhering coatings.
- No subsequent cleaning of the surfaces is necessary, as with other methods.
- The substrates prepared with Hammelmann systems meet the quality requirements of international paint manufacturers and standardization authorities (NACE/SSPC) for the application of new coatings.

HIGH REMOVAL RATES, HIGH CORROSION PROTECTION, NO COMPROMISES

All working functions of our corrosion protection systems are automated. They work completely dust-free and prepare surfaces according to the most demanding standards.

PERFORMANCE EXAMPLES OF OUR CORROSION PROTECTION SYSTEMS

Waterjet standards according to ISO 8501-4 - SSPC / NACE

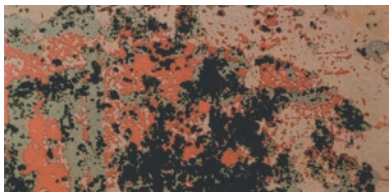


Wa 2½
Very thorough high-pressure water blasting

WJ 2
Very thorough or extensive cleaning

Wa 2
Thorough high-pressure water blasting

WJ 3
Thorough cleaning



Wa 1
Light high-pressure water jet

WJ 4
Easy cleaning

DOCKMATE
Working width: 1000 mm
Pump power: 600 kW

DOCKBOY / DOCKMATE
Working width: 520 mm
Pump power: 300 kW

SPIDERJET® M / SPIDERJET® M Edge / DOCKBOY
Working width: 374 mm
Pump power: 200 kW

AQUABLAST® PLUS
Working width: 215 mm
Pump power: 200 kW

Hand-held lance
Pump power: 100 kW

Average removal rate m² per hour in accordance with the standards listed below, depending on the existing surface condition from loose paint/rust to intact paintwork.

0 | 50 m² | 100 m² | 150 m² | 200 m² | 250 m² | 300 m² | 350 m²

DOCKBOY

Flexibility and performance for reliable results: the DOCKBOY is a modern and compact carrier vehicle for processing the sides and bottom of ships. The DOCKBOY is an irreplaceable performer, especially for work on the undersides. The vehicle height is only approx. 1.40 m with the extension arm set to the minimum and is therefore lower than most standard keel pallets! An AQUABLAST® surface cleaner is mounted at the end of the boom, which uses vacuum support to transport the solids and waste water to a disposal station. Read more on page 32.

EFFICIENT CORROSION PROTECTION WITH INNOVATIVE HIGH-PRESSURE TECHNOLOGY

Hammelmann ship cleaning systems work with the latest and most innovative high-pressure water jet technology. Their advantages are cost-effectiveness, environmental friendliness, high-quality surface finishing and extremely high health and safety standards. Find out more about the advantages of Hammelmann ship cleaning systems from page 4.

DOCKBOY MODELS AT A GLANCE

Model	Drive	Working height	Arc width	Operating pressure	Working width
DOCKBOY	Diesel Stage III	0 - 6,15 m	up to 4.69 m	up to 3000 bar	518 mm (depending on AQUABLAST®)
		0 - 13,2 m	up to 5.22 m		
DOCKBOY	Diesel Stage V	0 - 6,15 m	up to 4.69 m	up to 3000 bar	518 mm (depending on AQUABLAST®)
		0 - 13,2 m	up to 5.22 m		
DOCKBOY	Electric	0 - 6,15 m	up to 4.69 m	up to 3000 bar	518 mm (depending on AQUABLAST®)
		0 - 13,2 m	up to 5.22 m		

Working height
up to 13.2 m

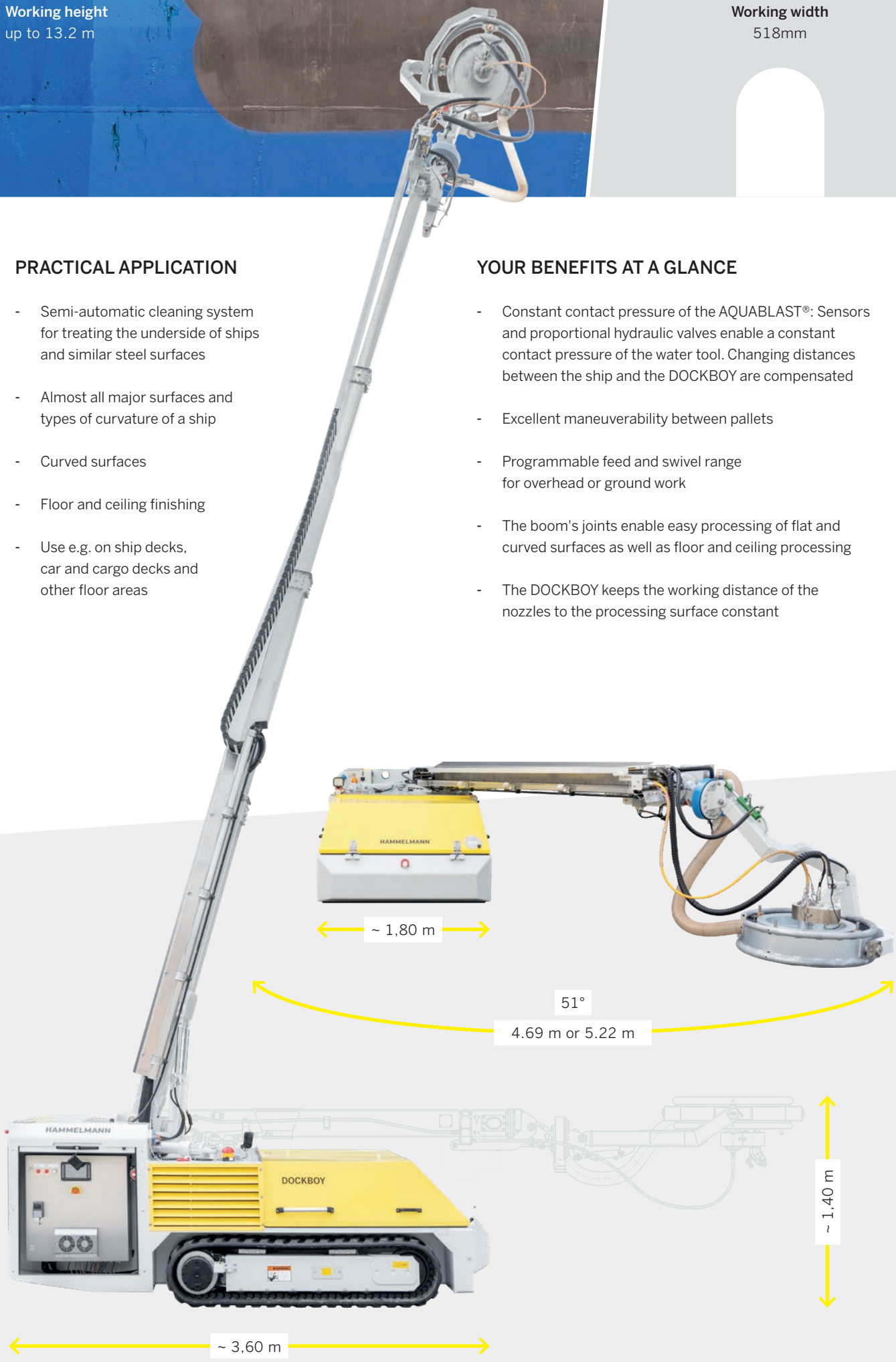
Working width
518mm

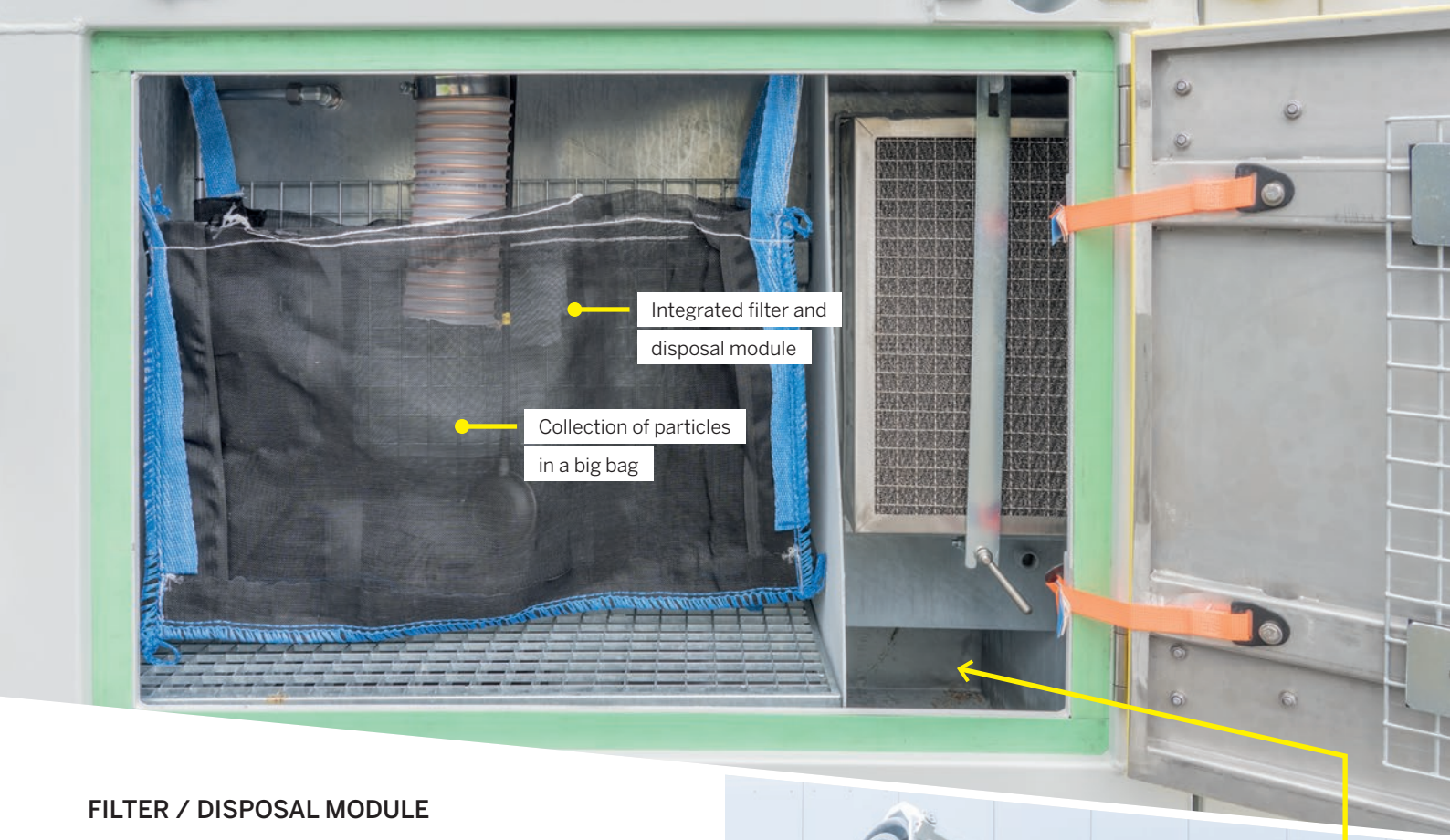
PRACTICAL APPLICATION

- Semi-automatic cleaning system for treating the underside of ships and similar steel surfaces
- Almost all major surfaces and types of curvature of a ship
- Curved surfaces
- Floor and ceiling finishing
- Use e.g. on ship decks, car and cargo decks and other floor areas

YOUR BENEFITS AT A GLANCE

- Constant contact pressure of the AQUABLAST®: Sensors and proportional hydraulic valves enable a constant contact pressure of the water tool. Changing distances between the ship and the DOCKBOY are compensated
- Excellent maneuverability between pallets
- Programmable feed and swivel range for overhead or ground work
- The boom's joints enable easy processing of flat and curved surfaces as well as floor and ceiling processing
- The DOCKBOY keeps the working distance of the nozzles to the processing surface constant



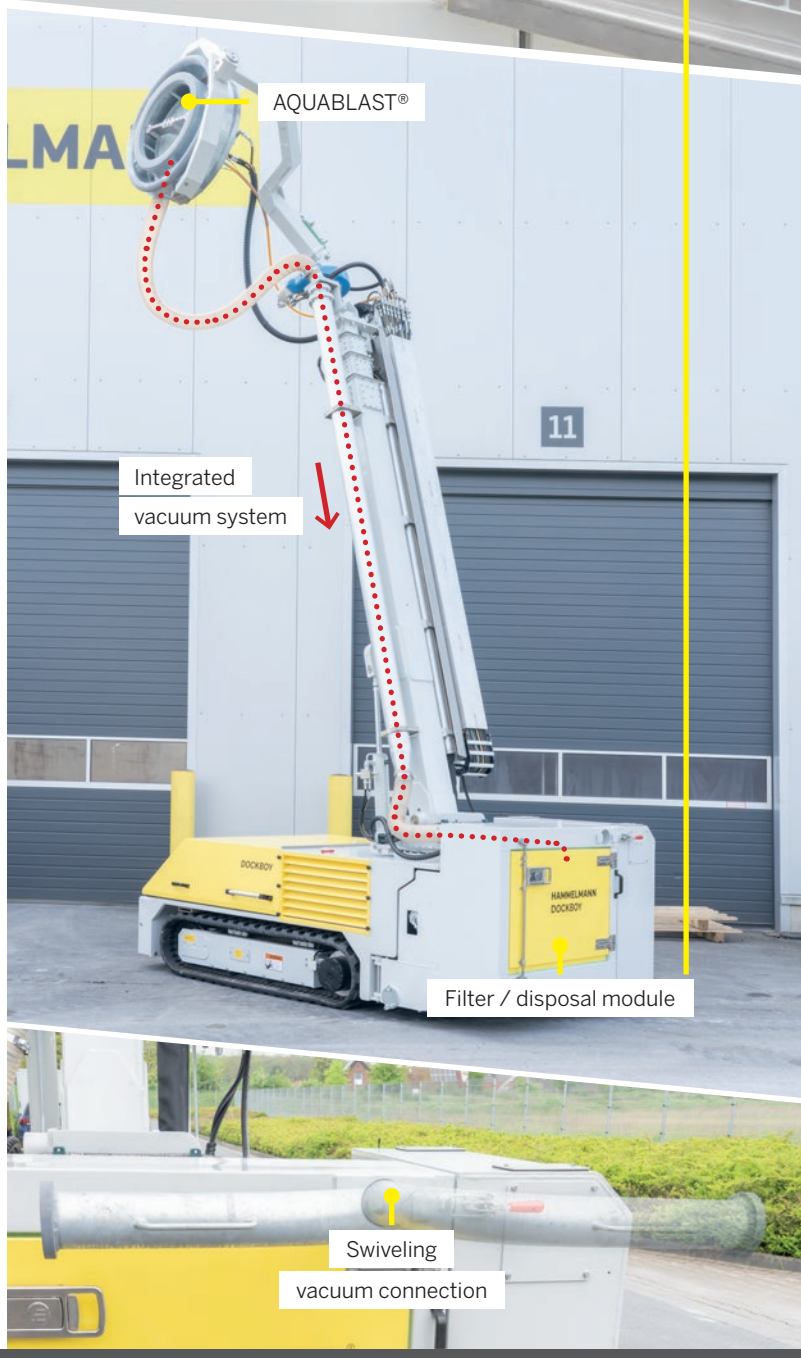


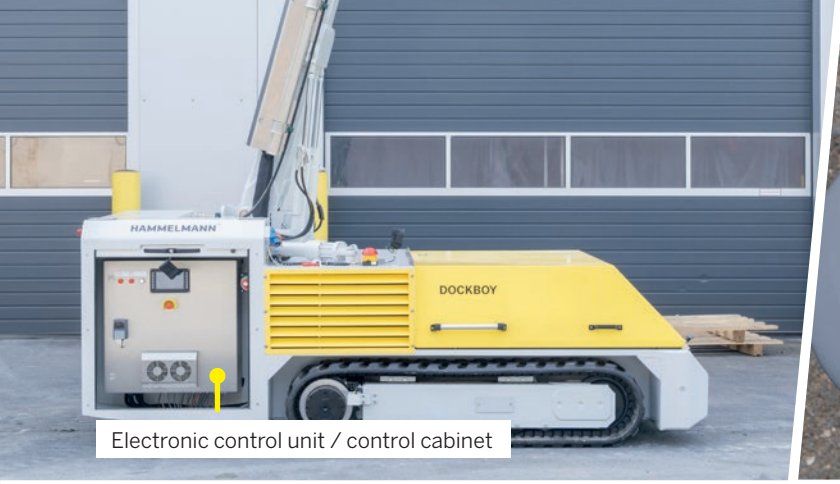
FILTER / DISPOSAL MODULE

- Collects removed material and dirty water
- Pre-separation of solids directly in the carrier vehicle
- Collection of particles in a big bag for easy disposal
- The peristaltic pump offers the possibility of supplying the process water to a controlled post-treatment. More on this from page 32.

INTEGRATED VACUUM SYSTEM

- Filters solids (removed coating, rust) and waste water directly at the work site
- Solids and waste water are transported to the disposal station using vacuum
- Clean surface through pore-deep removal of particles
- Less rust due to rapid drying of the surface
- Oil cooler with electric fan
- Swivelling





Electronic control unit / control cabinet

Radio remote control

ELECTRONIC CONTROL UNIT

- Safe and easy operation of the DOCKBOYS
- Uniform surface treatment through a constant feed of the cleaning head
- Fail-safe! Sensors detect unsafe and critical conditions and trigger automatic stops or shutdowns
- Extensive automation of operational functions
- Preselection of the main parameters on the control cabinet
- Normal operation via radio remote control

FULLY AUTOMATIC MODE FOR GROUND AND OVERHEAD OPERATION

- Adjustable stride length and speed
- Programmable swivel range through freely selectable end points
- Adjustable rotation speed
- Forward/reverse operation possible

HYDRAULIC SYSTEM

- Axial plunger pump with continuously variable flow
- 100 l/min at 200 bar – in open circuit
- Hydraulic oil capacity: 168 l
- The hydraulic system works with biodegradable lubricants (biodegradable hydraulic oil)


Kubota V2403 Stage IIIa or Stage V

or

FCMP 225 M 4/PHE

DOCKMATE

Developed for large tasks: the DOCKMATE is a modern carrier vehicle for working on the sides of ships. With working heights of almost 33 m and a large working width of 1000 mm, the DOCKMATE impresses with its unrivalled removal performance. Ship walls and all types of curves can be easily processed with the DOCKMATE. An AQUABLAST® surface cleaner is mounted at the end of the boom, which uses vacuum support to transport the solids and waste water to a disposal station. Find out more on page 32.

EFFICIENT CORROSION PROTECTION WITH INNOVATIVE HIGH-PRESSURE TECHNOLOGY

Hammelmann ship cleaning systems work with the latest and most innovative high-pressure water jet technology. Their advantages are cost-effectiveness, environmental friendliness, high-quality surface finishing and extremely high health and safety standards. Find out more about the advantages of Hammelmann ship cleaning systems on page 4.

DOCKMATE MODELS AT A GLANCE

Model	Drive	Working height	Arc width	Operating pressure	Working width
DOCKMATE	Diesel Stage III	0 - 27,97 m	up to 13.00 m	up to 3000 bar	1000 mm (depending on AQUABLAST®)
		0 - 32,92 m	up to 15.15 m		
DOCKMATE	Diesel Stage V	0 - 27,97 m	up to 13.00 m	up to 3000 bar	1000 mm (depending on AQUABLAST®)
		0 - 32,92 m	up to 15.15 m		
DOCKMATE	Electric	0 - 27,97 m	up to 13.00 m	up to 3000 bar	1000 mm (depending on AQUABLAST®)
		0 - 32,92 m	up to 15.15 m		

Working height
up to 32.92 m

Working width
1000mm

32,92 m

27,97 m

POWERFUL HYDRAULIC SYSTEM

- Axial plunger pump with continuously variable flow
- 125 l/min at 240 bar – in open circuit
- Hydraulic oil capacity: 230 l
- The hydraulic system works with biodegradable lubricants (biodegradable hydraulic oil)

FULLY AUTOMATIC MODE FOR GROUND AND OVERHEAD OPERATION

- Adjustable stride length and speed
- Programmable swivel range through freely selectable end points
- Adjustable rotation speed
- Forward/reverse operation possible

YOUR BENEFITS AT A GLANCE

- Constant contact pressure of the AQUABLAST®: Sensors and proportional hydraulic valves enable a constant contact pressure of the water tool. Changing distances between the ship and the DOCKMATE are compensated.
- Semi-automatic working width offset in the left and right processing directions.
- Automatic parallel guidance of the AQUABLAST® for optimal cleaning results
- Uncomplicated processing of flat and curved surfaces as well as floor and ceiling processing due to the joints of the boom.
- Always optimal surface contact and follow-through of curvatures due to constant working distance of the nozzles to the processing surface
- Powerful drive even at low feed speed.

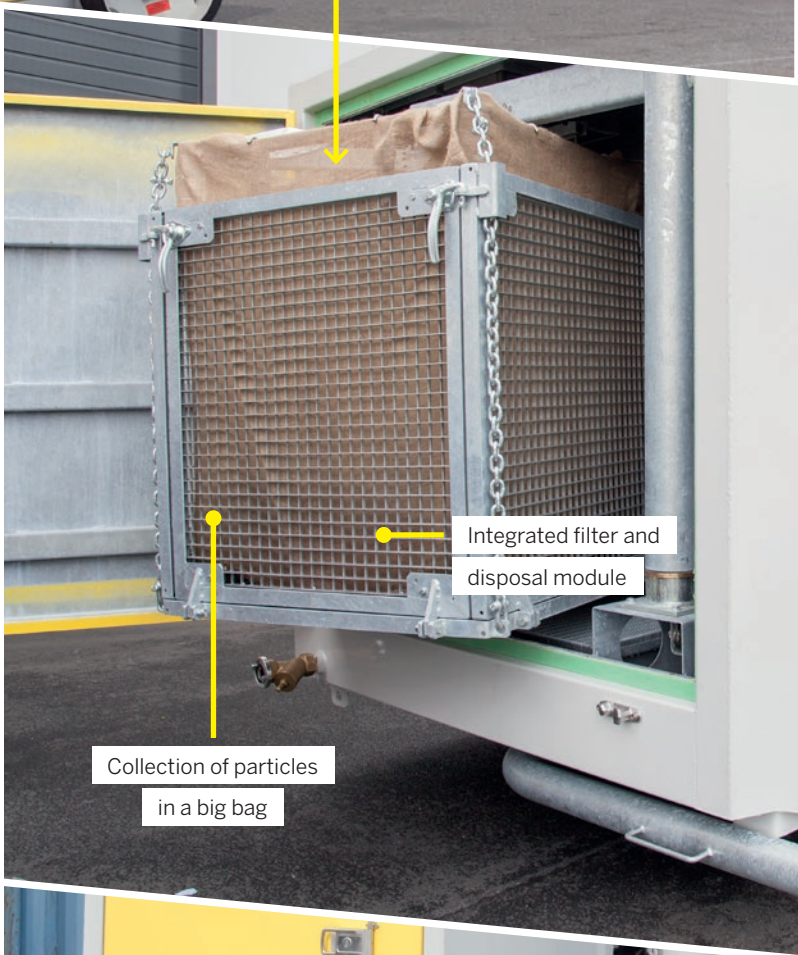
~ 3,40 m

0 m

~ 4,73 m

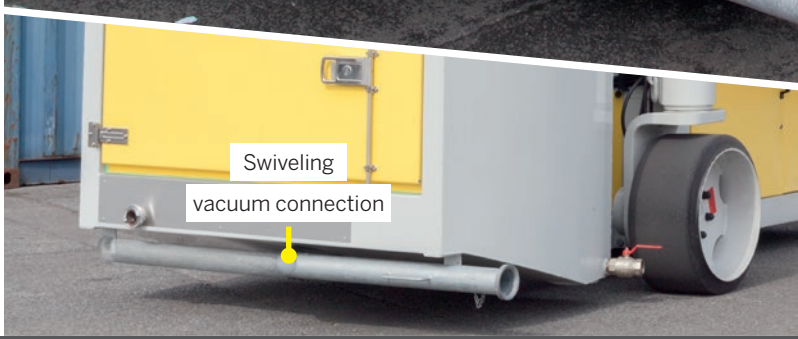
Filter / disposal module

- Collects removed material and dirty water.
- Pre-separation of solids directly in the carrier vehicle.
- Collection of particles in a big bag for easy disposal.
- The peristaltic pump offers the possibility of supplying the process water to a controlled post-treatment. More information on page 32.



INTEGRATED VACUUM SYSTEM

- Filters solids (removed coating, rust) and waste water directly at the work site
- Solids and waste water are transported to the disposal station using vacuum
- Clean surface through pore-deep removal of particles
- Less rust due to rapid drying of the surface
- Oil cooler with electric fan
- Swivelling



Electronic control unit / control cabinet

Radio remote control

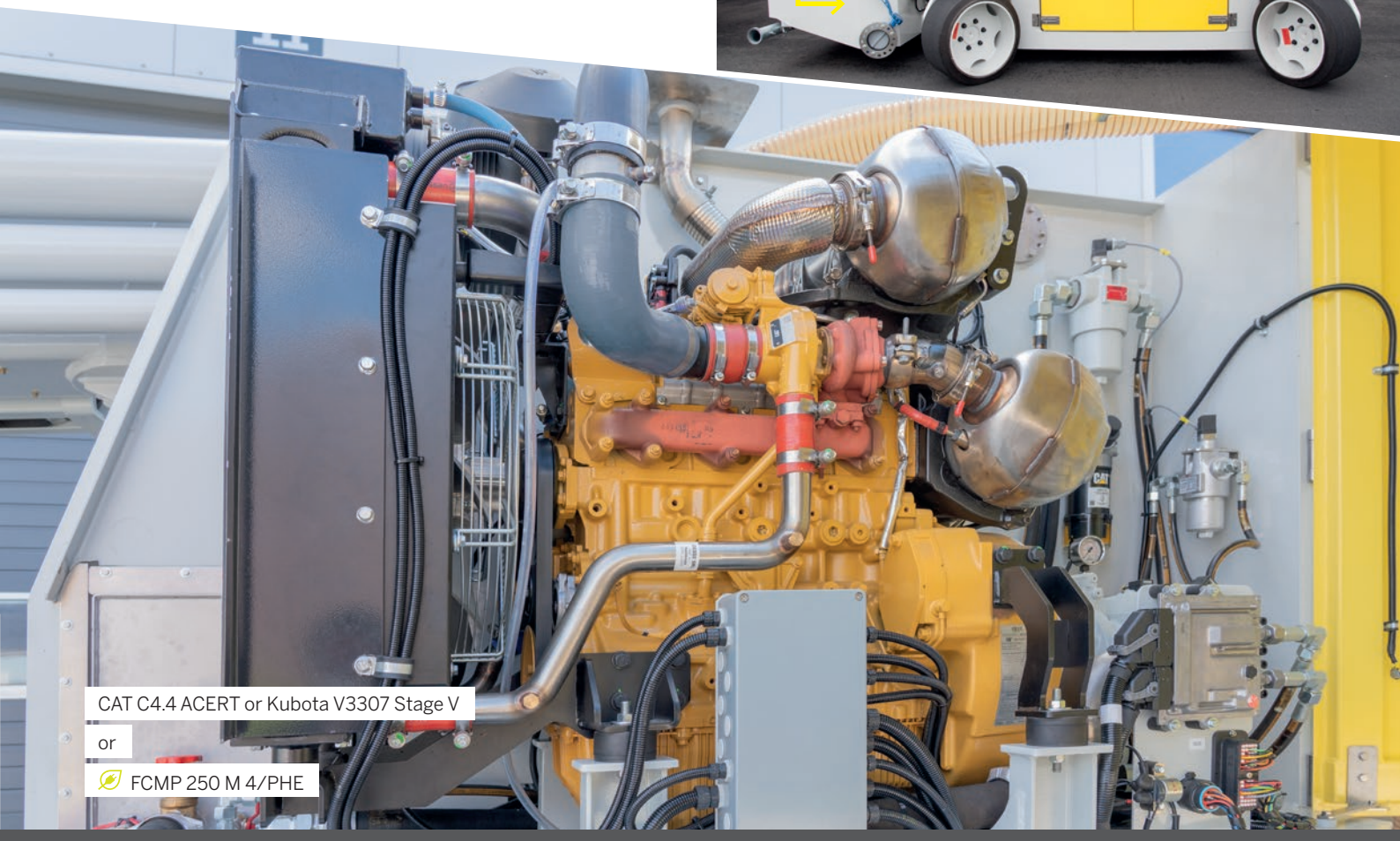
ELECTRONIC CONTROL UNIT

- Safe and easy operation of the DOCKMATE
- Uniform surface treatment through a constant feed of the cleaning head
- Fail-safe! Sensors detect unsafe and critical conditions and trigger automatic stops or shutdowns
- Extensive automation of operational functions
- Preselection of the main parameters on the control cabinet
- Normal operation via radio remote control

ALL-WHEEL DRIVE AND MAXIMUM MANEUVERABILITY

- All-wheel drive with integrated, hydraulically controlled differential.
- Powerful drive, even at low feed speed, maximum traction.
- Maximum maneuverability, even in tight spaces such as between the ship's hull and the dock wall or in dock entrances. Front and rear axles can be steered independently.
- Excellent maneuverability thanks to 4-wheel steering.

All-wheel drive



CAT C4.4 ACERT or Kubota V3307 Stage V

or

FCMP 250 M 4/PHE

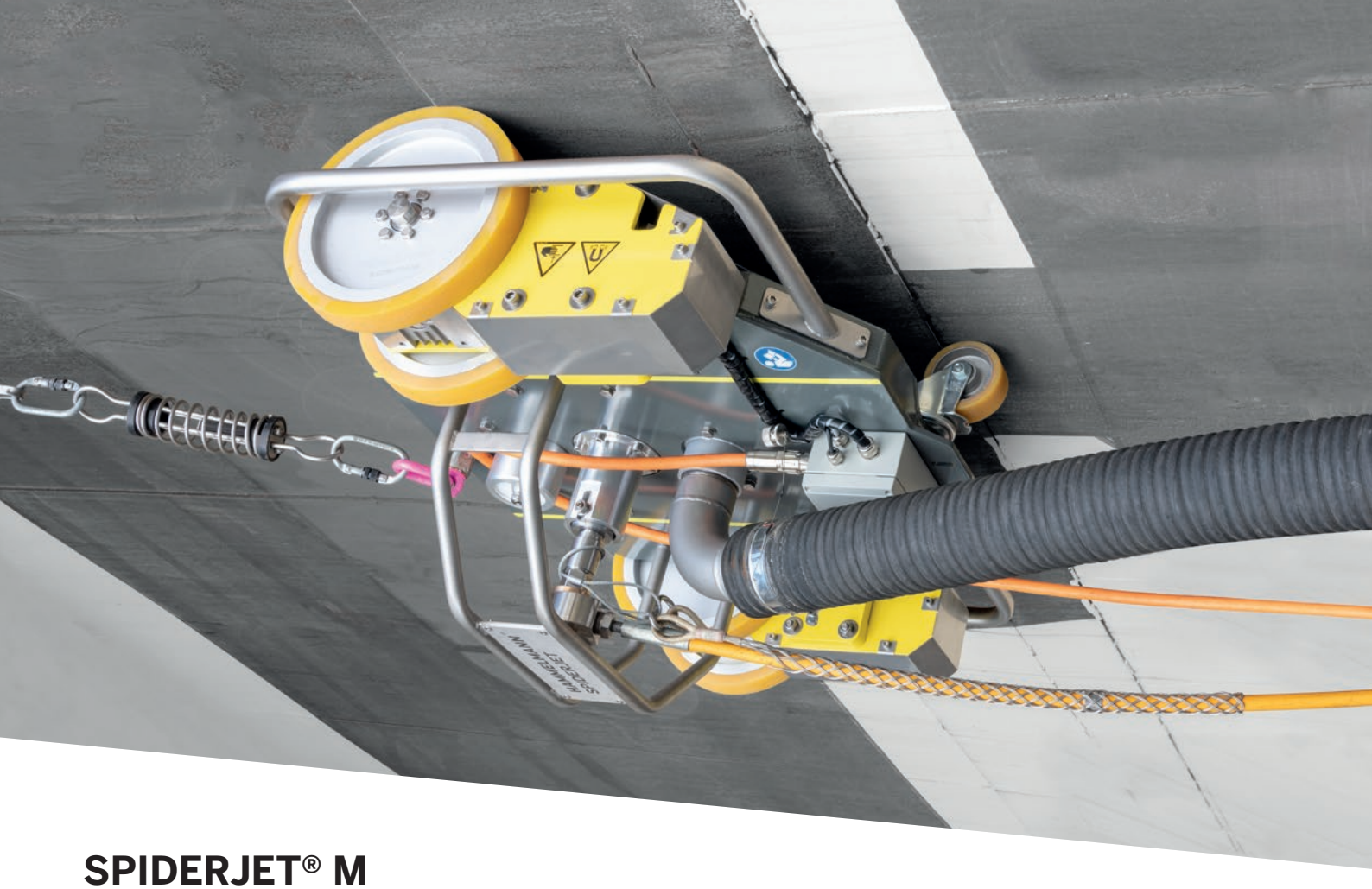

DOCKMATE
HAMMELMANN
HAMMELMANN
HAMMELMANN

THE PERFECT COUPLE

The DOCKBOY and the DOCKMATE are the perfect combination when it comes to the efficient processing of ship surfaces. Both cleaning systems are automated and safe and are operated by just one operator. Working with several devices at the same time is possible and opens up completely new dimensions of area performance!

- Environmentally friendly work through direct extraction of dust, waste water and particles
- High economic efficiency due to high area performance and parallel working
- High-quality and sustainable quality standards according to international standards (NACE/SSPC)
- High health and safety standards for operating personnel

Read more on page 4



SPIDERJET® M

Maximum mobility and versatility: Whether for cleaning, stripping or de-coating large steel structures such as ships, tanks or containers. The SPIDERJET® surface treatment devices, from which you can choose from various models, deliver fast and clean results. With the compact versions, you can easily maneuver even through the narrowest areas. Minimal set-up times ensure rapid deployment and the use of high-pressure water without additives and chemicals protects the environment. The high area performance and semi-automatic operation reduce working time and costs while increasing work safety.

- MAXIMUM MANEUVERABILITY THROUGH TWO INDIVIDUAL ELECTRIC DRIVES
- RADIO REMOTE CONTROL
- TWO SAFETY CATCHES FOR FALL PROTECTION
- HOMOGENEOUS REMOVAL PATTERN ACROSS THE ENTIRE WORKING WIDTH
- RECOIL-DRIVEN ROTARY NOZZLE BAR
- THE SPEED OF THE NOZZLE BAR CAN BE ADJUSTED BY CHANGING THE NOZZLE ANGLE
- LEAK-FREE ROTARY UNIT WITH DYNAMIC HIGH-PRESSURE SEALING FOR LONG SERVICE LIFE

THE SPIDERJET® M IN DETAIL

The SPIDERJET® M is a mobile high-pressure cleaning device with electric or pneumatic two-wheel drive, equipped with permanent magnets for adhesion to the work surface. The rotating cleaning spray bar installed in a suction bell is driven by recoil force. The direct suction enables work with high-pressure water without jet water entering the environment and supports the SPIDERJET® in adhering to the work surface. Maneuvering, working speed and high-pressure switching are controlled remotely via a portable control panel. This ensures one-man operation. The cleaning device is equipped with two safety catches to ensure safety on vertical or inclined surfaces.

Length	Width
758 mm	1171 mm
Height	**Operating pressure**
477 mm	up to 3000 bar

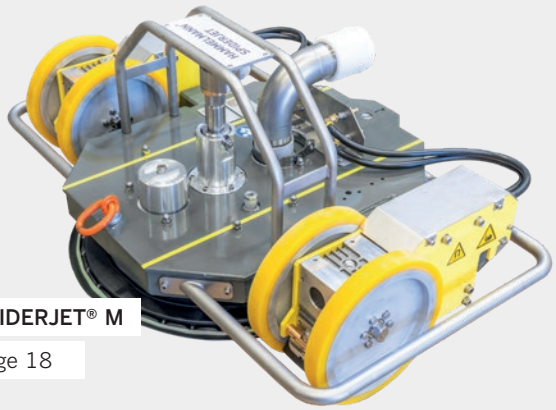
ALL SPIDERJET® MODELS AT A GLANCE

Model	Working width	Weight	Maximum pump performance	Flow rate
SPIDERJET® M	374 mm	115 kg	200 kW	50 l/min
SPIDERJET® M EX	374 mm	115 kg	200 kW	50 l/min
SPIDERJET® M Edge	374 mm	100 kg	200 kW	50 l/min
SPIDERJET® M Edge EX	374 mm	103 kg	200 kW	50 l/min
SPIDERJET® M Edge Compact	225 mm	78 kg	140 kW	50 l/min
SPIDERJET® M Edge EX	225 mm	78 kg	140 kW	50 l/min
SPIDERJET® M Swivel	141 mm - 1100 mm	131,5 kg	75 kW	20 l/min

EFFICIENT CORROSION PROTECTION WITH INNOVATIVE HIGH-PRESSURE TECHNOLOGY

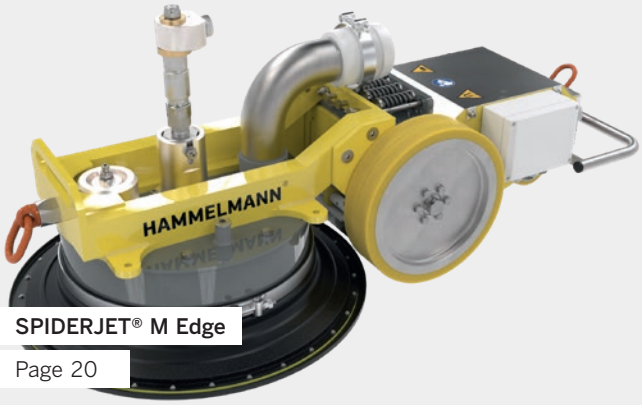
Hammelmann ship cleaning systems work with the latest and most innovative high-pressure water jet technology. Their advantages are cost-effectiveness, environmental friendliness, high-quality surface finishing and extremely high health and safety standards. Find out more about the advantages of Hammelmann ship cleaning systems on page 4.

FIND THE RIGHT SPIDERJET®



SPIDERJET® M

Page 18



SPIDERJET® M Edge

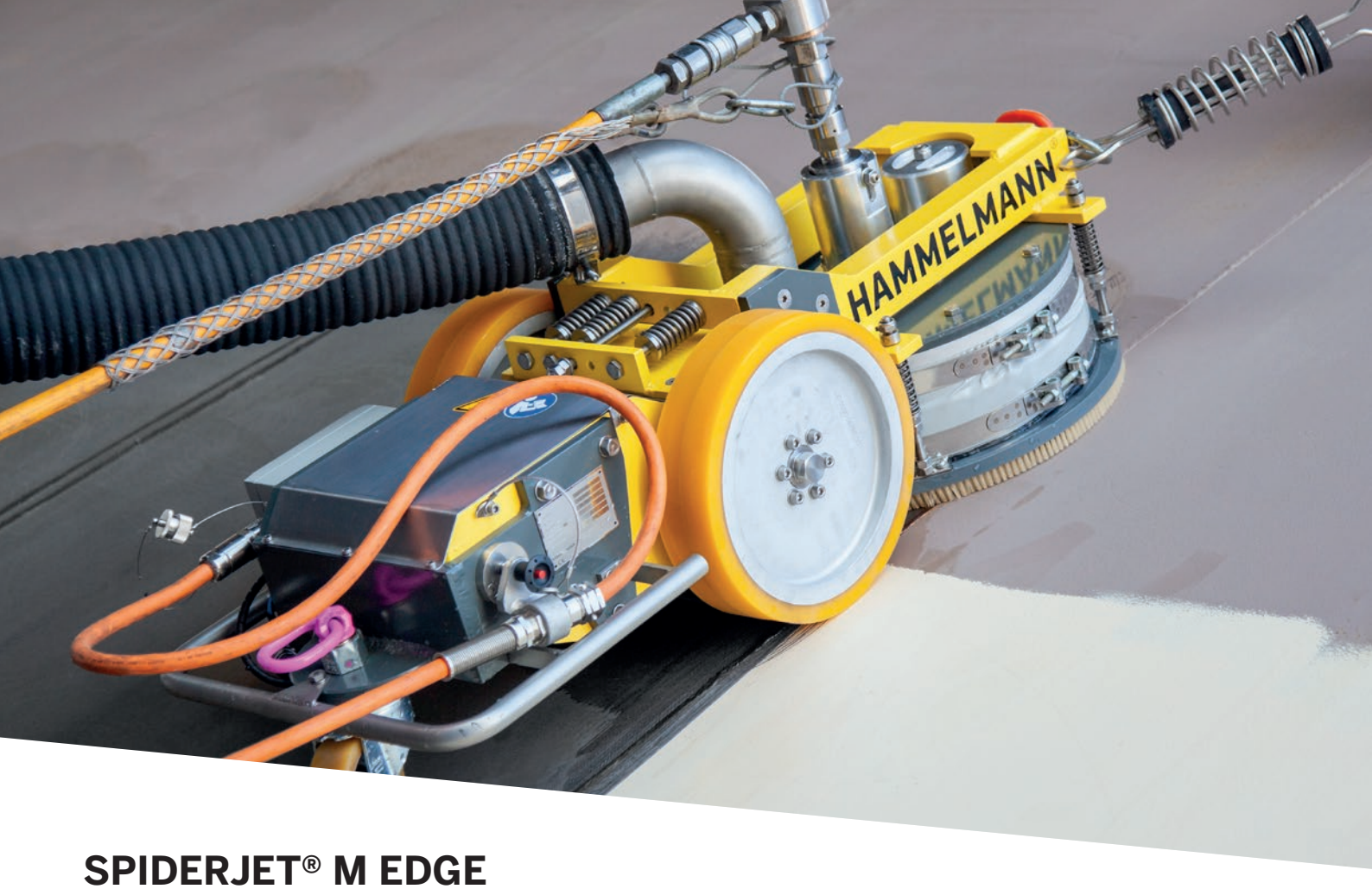
Page 20

SPIDERJET® M Edge Compact

Page 22

SPIDERJET® M Swivel

Page 24



SPIDERJET® M EDGE

With its slim design and sophisticated concept, the SPIDERJET® M Edge can reach areas right up to every edge when processing surfaces. Not only is it powerful, but it also offers a very consistent removal pattern across the entire working width of 374 mm. The wheels are located behind the water tool and are therefore always on a freshly worked surface - optimal conditions for good grip, even on slippery surfaces. The clean guidance of the water tool and ideal energy distribution ensure enormous surface performance.

374MM WORKING WIDTH - 620MM TOTAL WIDTH!	WORKING VERY CLOSE ON EDGES AND CORNERS	DIRECT EXTRACTION INTEGRATED

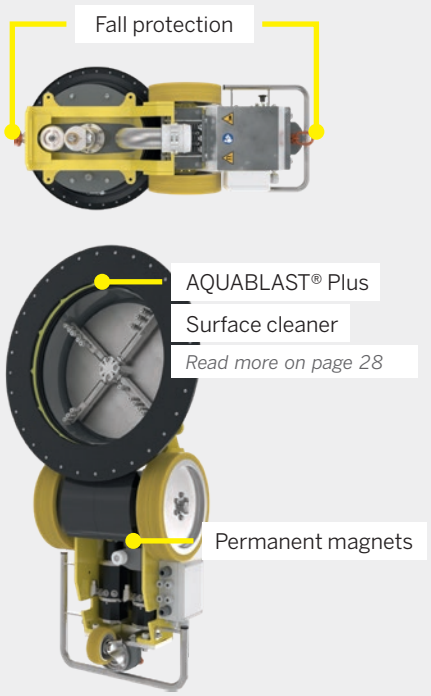
- OPTIMUM UTILIZATION OF THE WORKING WIDTH THANKS TO NARROW DESIGN
- SIGNIFICANTLY LESS MANUAL REWORK REQUIRED
- HIGH SURFACE PERFORMANCE AND SECURE HOLD
- UNIFORM REMOVAL PATTERN ACROSS THE ENTIRE SURFACE
- IDEAL SURFACE PREPARATION
- MAXIMUM MANEUVERABILITY THROUGH TWO INDIVIDUAL ELECTRIC DRIVES
- HIGH OPERATIONAL RELIABILITY AND LONG SERVICE LIFE
- EASY INSTALLATION AND MAINTENANCE
- RADIO REMOTE CONTROL AND FALL PROTECTION INCREASE OCCUPATIONAL SAFETY

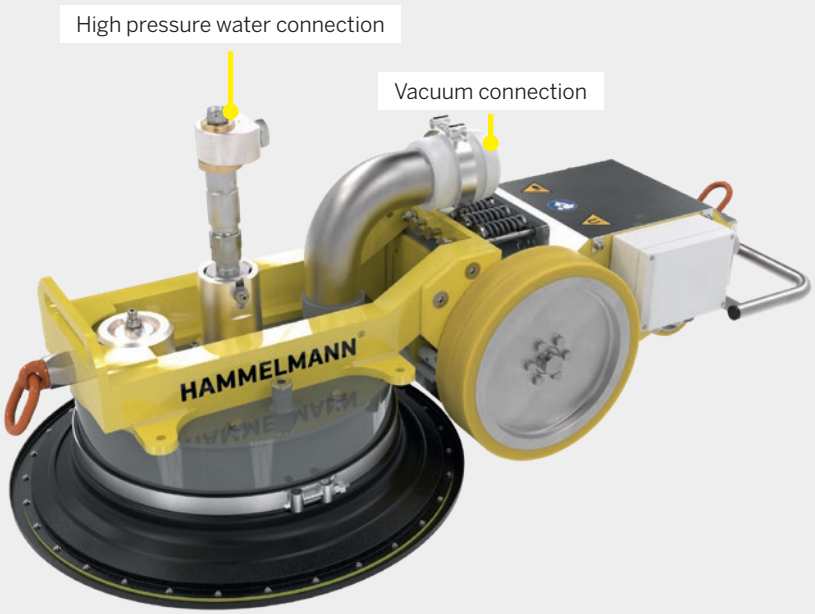
KEY DATA AT A GLANCE

Working width	Working speed	Operating pressure	Flow rate	Pump performance
374 mm	0 – 7m/min	up to 3000 bar	up to 50 l/min	200 kW

PRACTICAL TO USE

Reduce the effort of manually processing gaps, tight contours and difficult corners and edges to a minimum. Thanks to its maneuverability, the SPIDERJET® M Edge can easily reach areas that are difficult to access. It makes no compromises in terms of performance. With the drive wheels positioned directly behind the high-pressure water tool, the SPIDERJET® M Edge has a narrow structure with a maximum working width.





FAST AND VERSATILE

The SPIDERJET® M Edge works quickly and thoroughly when cleaning, stripping and de-coating a wide variety of large steel structures. It is quickly ready for use due to minimal set-up times. The use of high-pressure water protects the environment because no additives or chemicals need to be used. The high area performance and semi-automatic operation reduce working time and costs while increasing work safety. Talk to our experts and find out how you can work economically, effectively and conserve resources with Hammelmann system solutions.

Simple structure of the overall system

Compatible with many conventional vacuum systems

Radio remote control

Number of nozzles	Length	Width	Height	Weight
16	1140 mm	620 mm	501 mm	100 kg

SPIDERJET® M EDGE COMPACT

Compact, agile, thorough – with the SPIDERJET® M Edge Compact you achieve a consistent removal pattern even on the narrowest surfaces and receive reliable performance across the entire working width of 225 mm. Even on very smooth surfaces, the SPIDERJET® M Edge Compact has optimal conditions for good grip. The wheels are behind the water tool and therefore always on a freshly worked surface. The clean guidance of the water tool and ideal energy distribution ensure enormous surface performance and enable driving around very tight radii.

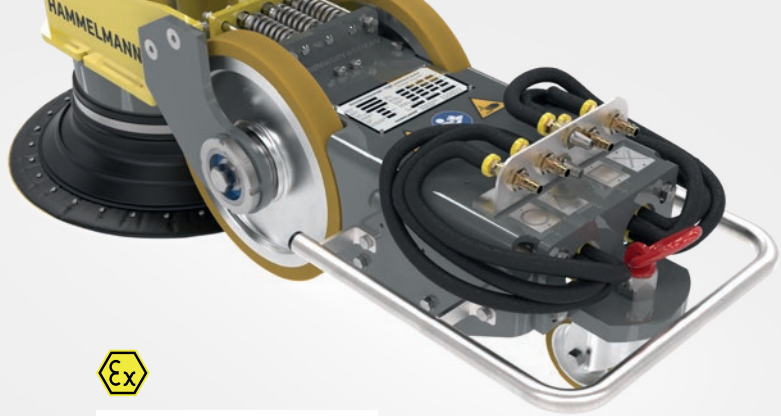
HIGH AREA PERFORMANCE IN THE NARROWEST PLACES

MAXIMUM MANEUVERABILITY

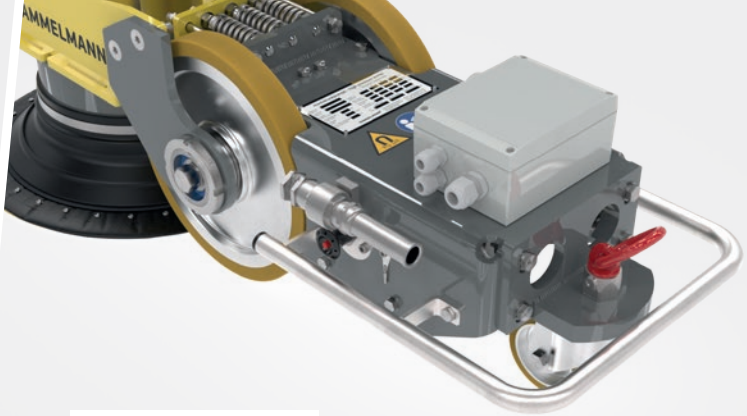
- IDEAL SURFACE PREPARATION
- SIGNIFICANTLY LESS MANUAL REWORK REQUIRED
- HIGH SURFACE PERFORMANCE AND SECURE HOLD
- UNIFORM REMOVAL PATTERN ACROSS THE ENTIRE SURFACE
- OPTIMUM UTILIZATION OF THE WORKING WIDTH THANKS TO NARROW DESIGN
- MAXIMUM MANEUVERABILITY THROUGH TWO INDIVIDUAL ELECTRIC DRIVES
- HIGH OPERATIONAL RELIABILITY AND LONG SERVICE LIFE
- EASY INSTALLATION AND MAINTENANCE
- RADIO REMOTE CONTROL AND FALL PROTECTION INCREASE OCCUPATIONAL SAFETY

KEY DATA AT A GLANCE

Working width	Working speed	Operating pressure	Flow rate	Pump performance
225 mm	0 – 7m/min	up to 3000 bar	up to 50 l/min	140 kW



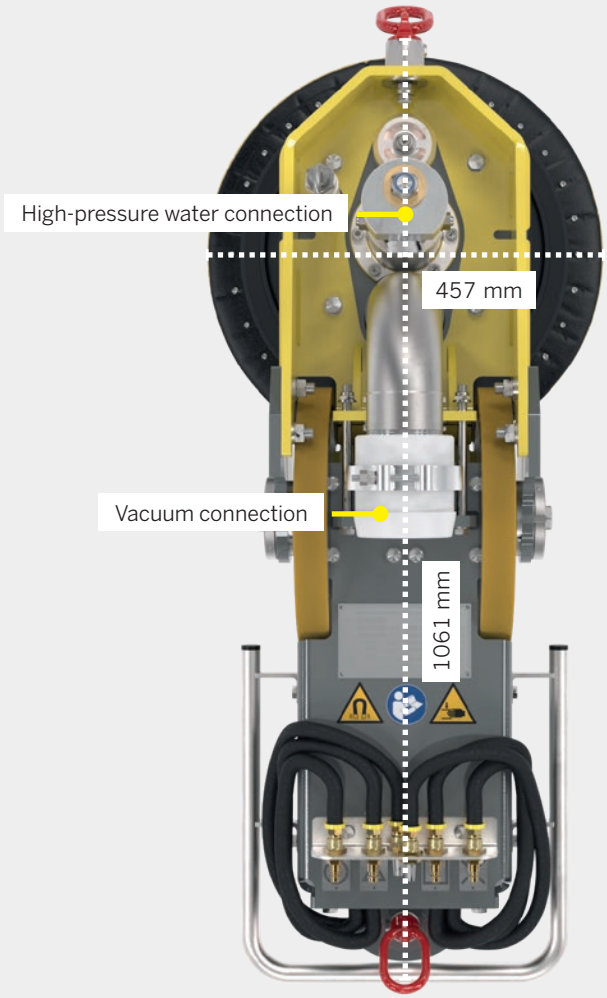
Pneumatic version



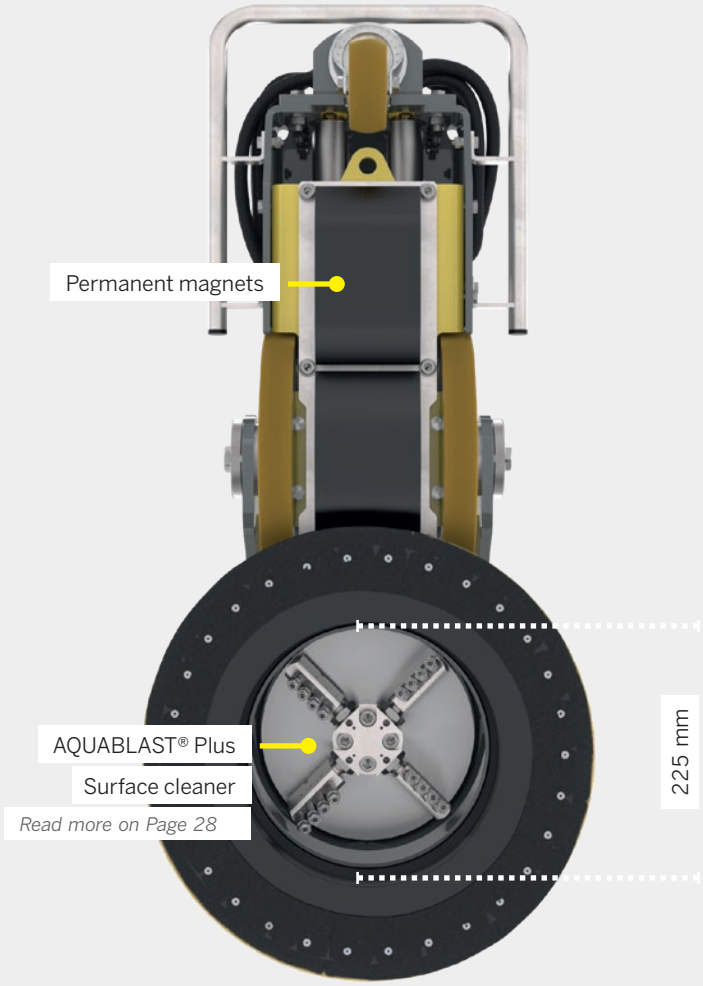
Electrical version

USE IN THE TIGHTEST SPACES

The drive wheels placed directly behind the high-pressure water tool and the particularly narrow design enable cleaning of the tightest gaps, narrow contours, difficult corners, edges and curves. The mobility of the SPIDERJET® M Edge Compact reduces the effort required for manual rework to a minimum.



View from above



Read more on Page 28

View from below

FURTHER KEY DATA

Number of nozzles	Length	Width	Height	Weight
16	1061 mm	457 mm	503 mm	78 kg

SPIDERJET® M SWIVEL

The SPIDERJET® M Swivel is a mobile high-pressure cleaning device with an extension arm to which a powerful MASTERJET rotor jet is attached. The *swivel*wiping function allows you to clean a continuously preset area from 0-120°. For example, algae or mussel growth can be removed or preparations can be made for welding.

SWIVEL ARM WITH MASTERJET ROTOR JET	REMOVAL OF MARITIME VEGETATION	120° SWIVEL RANGE

- CLEANING AND PAINT STRIPPING OF SHIP EXTERIORS
- REMOVAL OF MARINE GROWTH FROM SHIP EXTERIORS
- EXTERNAL AND INTERNAL CLEANING OF LARGE OIL STORAGE TANKS IN OIL REFINERIES

MASTERJET ROTOR JET

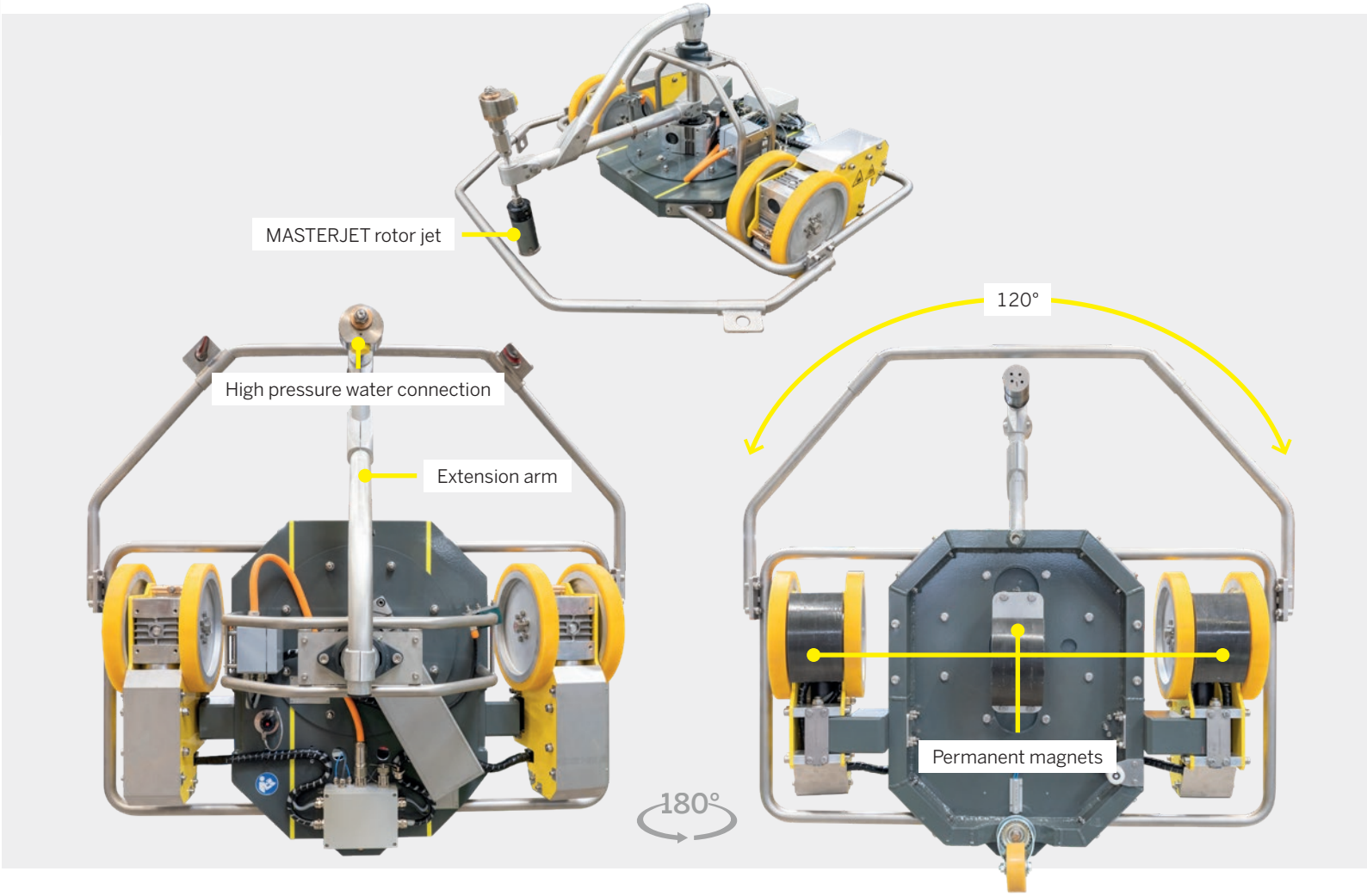
Rotor jets convert the high effectiveness of round jet nozzles into area performance through rotating nozzle heads. Different nozzle configurations and adjustable speeds open up many possibilities for surface treatment. The lightweight and compact design also enables work in hard-to-reach areas.

KEY DATA

Working width	Working speed	Operating pressure	Flow rate	Pump performance
141 - 1100 mm	0 – 7m/min	up to 3000 bar	up to 20 l/min	20 kW

COMPREHENSIVE OPERATING FUNCTIONS

Maneuvering, working speed and high-pressure switching are remote-controlled via a portable control panel, thus ensuring one-man operation. A mobile control unit regulates and monitors all functions necessary for operation and transmits them to the cleaning device via a control cable. The SPIDERJET® M Swivel is equipped with two safety catches for securing on vertical or inclined surfaces.



Number of nozzles	Length	Width	Height	Weight
8	1188 mm	1249 mm	623 mm	131,5 kg

JETMATE

Simplifying handling and increasing occupational safety – these are the requirements of the modern working world. We meet these demands through the practical, continuous development of our high-pressure systems. User-friendliness and security always have the highest priority. JETMATES are ergonomic, free-floating work aids that can clean in all directions. They enable safe and body-friendly work. They come with their own support system or can be mounted in other ways.

ABSORPTION OF RECOIL FORCES	FATIGUE-FREE WORKING	FLEXIBLE INSTALLATION FLEXIBLE APPLICATION POSSIBILITIES

- VERSATILE USE THROUGH MOUNTING ON VARIOUS CARRIER SYSTEMS
- FLEXIBLE APPLICATION POSSIBILITIES THANKS TO MODULAR DESIGN
- FATIGUE-FREE AND SAFE WORKING, EVEN WITH THE HIGHEST RECOIL FORCES (300 N)
- HIGH FREEDOM OF MOVEMENT THANKS TO TWO FREELY MOVABLE ROTATION AXES AND A PNEUMATICALLY DRIVEN LINEAR AXIS
- LOW EFFORT REQUIRED FOR OPERATION DUE TO FLOATING MOUNTING OF LANCE AND TOOL


Mobile JETMATE containers


Installation in container

Mounted on carrier system

AQUABLAST® LINE

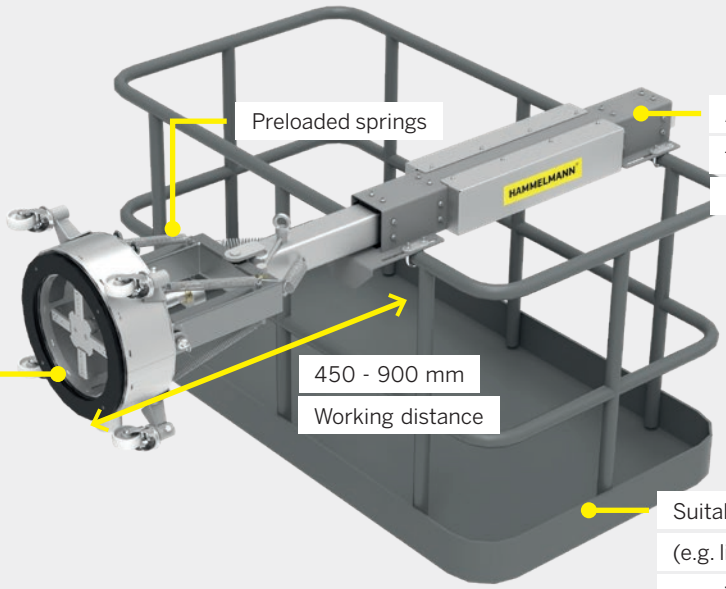
The AQUABLAST® Line is a device for cleaning and removing coatings from vertical or vertically inclined surfaces. It is particularly suitable for the treatment of rusty areas and/or surfaces with similar damage. The system can be mounted on various suitable support systems (e.g. lifting platforms, carrying baskets, work platforms, etc.). The modular, highly efficient water jet system with a working width of 250 mm ensures contact stability and smooth start-up thanks to pre-tensioned springs.

HIGH OCCUPATIONAL SAFETY

ENVIRONMENTALLY FRIENDLY WORKING

MODULAR CONCEPT FOR VERSATILE USE

Oscillating movements for optimal treatment of localized damage. The completely shielded blasting area ensures high work safety and environmentally friendly work thanks to integrated waste water extraction.



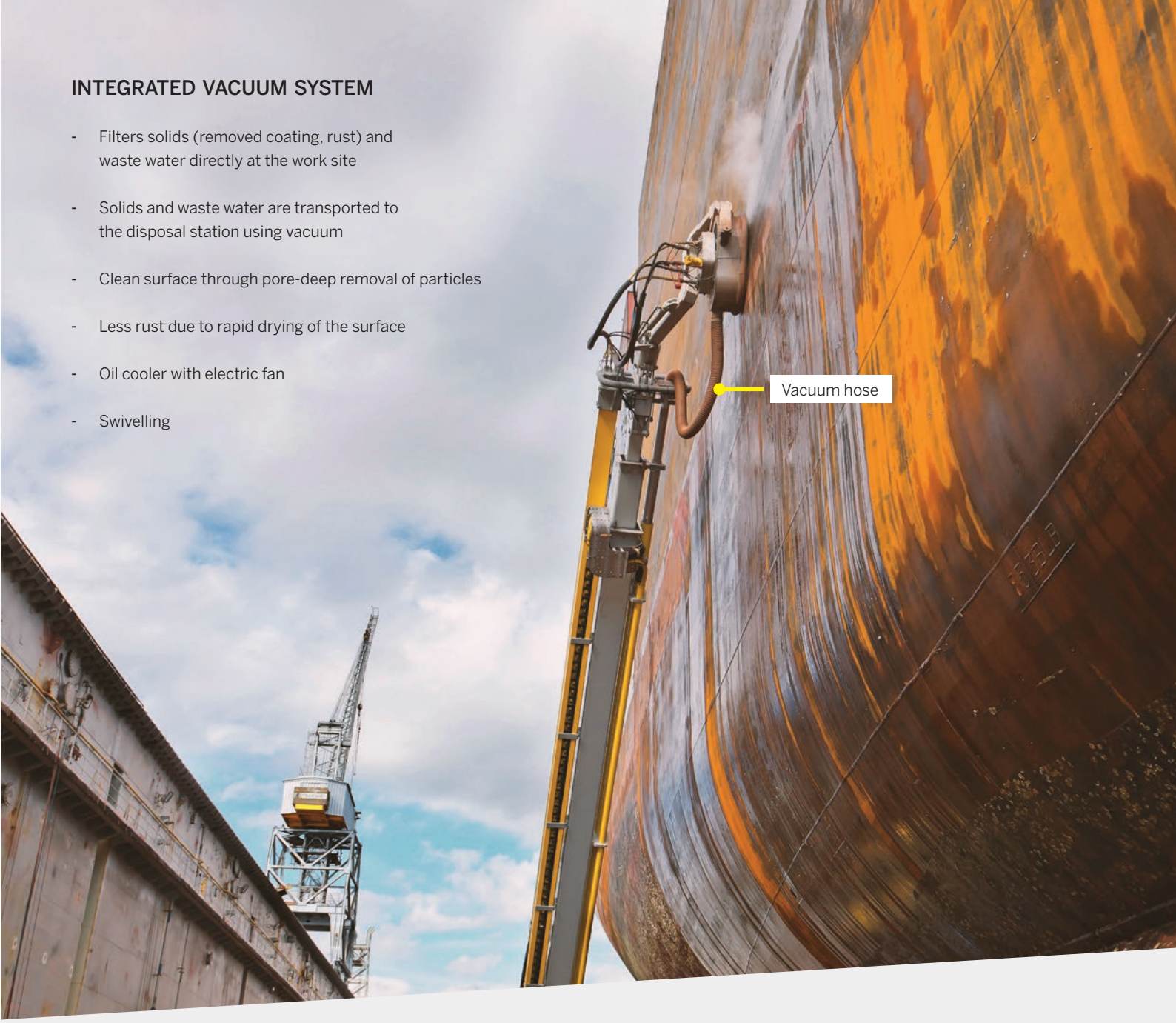
AQUABLAST® PLUS
CLEANING AND EXTRACTION SYSTEM

Cleaning and vacuuming in one step – the AQUABLAST® Plus system combines both functions. All Hammelmann ship cleaning systems are equipped with this powerful attachment. To meet individual work requirements, the systems and the associated working widths and working parameters vary depending on the product. The surface treatment of ships in combination with the AQUABLAST® Plus system is particularly environmentally friendly. Removed solids and toxic substances, rust and old coatings are immediately extracted and do not enter the environment. With an additional water treatment system, the waste water is fed directly into a container, cleaned there and can then be reused. More on the subject of waste water treatment on page 32.

- SPECIAL NOZZLE ARRANGEMENT ENSURES EVEN DISTRIBUTION OF HIGH-PRESSURE WATER ACROSS THE WORKING WIDTH
- HYDRAULICALLY DRIVEN – FOR A CONSTANT ROTATION SPEED
- CONTINUOUSLY ADJUSTABLE ROTATION SPEED FROM 100 TO 2500 RPM.
- COMPLETE SEPARATION OF OIL AND WATER – NO CONTAMINATION OF THE HYDRAULIC OIL THROUGH HIGH-PRESSURE LEAKAGE POSSIBLE
- TRIPLE POLY-V BELT DRIVE FOR LONG MAINTENANCE INTERVALS
- ROTARY UNION WITH QUICK ACCESS TO THE WEARING PARTS (HIGH-PRESSURE SEALS) FROM ABOVE
- POWERFUL, DURABLE AXIAL PISTON HYDRAULIC MOTOR
- EQUIPPED WITH A SPEED SENSOR

INTEGRATED VACUUM SYSTEM

- Filters solids (removed coating, rust) and waste water directly at the work site
- Solids and waste water are transported to the disposal station using vacuum
- Clean surface through pore-deep removal of particles
- Less rust due to rapid drying of the surface
- Oil cooler with electric fan
- Swivelling



AQUABLAST® PLUS SYSTEMS

Depending on the product, there are different AQUABLAST® systems with different working widths and working parameters.
The following examples show possible AQUABLAST® configurations.

Working width
278mm

Working parameters
50 l/min
3000 bar
Spot blasting

Working width
374mm

Working parameters
50 l/min
3000 bar

Working width
374mm

Working parameters
50 l/min
3000 bar
Spot blasting

Working width
518mm

Working parameters
50 l/min
3000 bar

Working width
1000mm

Working parameters
100 l/min
3000 bar

JETBOY

The models of the JETBOY series promote the safety and results of manual work with high-pressure water. The ergonomic work aids ensure fatigue-free handling in a wide variety of positions.

JETBOY S

The JETBOY S makes overhead work easier. An adjustable operating handle and variable working height ensure a secure stand.

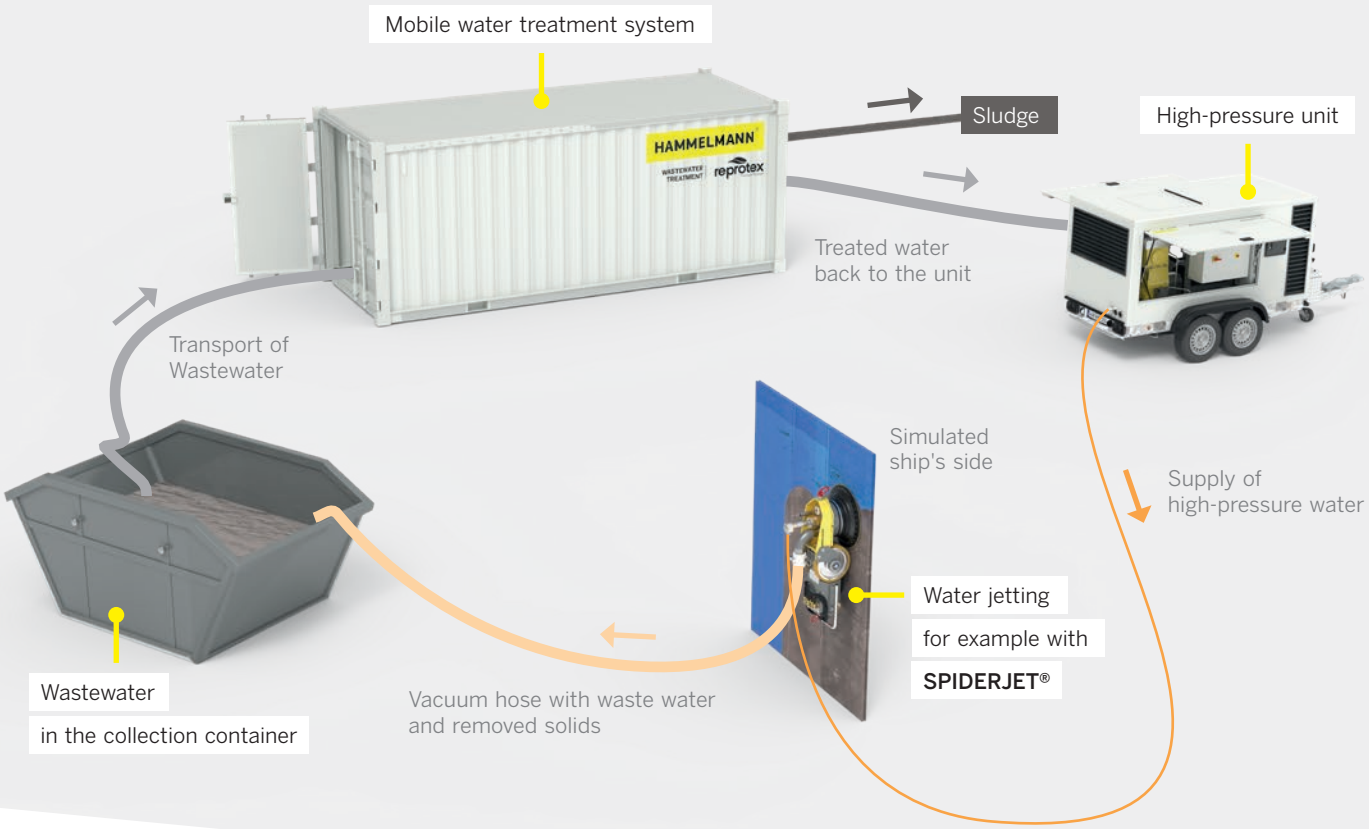
JETBOY L

The JETBOY L can be adapted to a wide variety of working positions, making it easier to clean ceilings, floors, edges and corners.

JETBOY XL

The JETBOY XL enables almost fatigue-free working and a secure stance. This leads to a significantly higher area performance.


JETBOY S



MOBILE WASTEWATER TREATMENT

The mobile system, integrated in a 20-foot container, is capable of treating process wastewater of up to 200 l/min and returning it as clear water for immediate reuse – fully automatically, flexibly and sustainably, in a closed circuit! With just a few simple steps, the fully automatic water treatment system can start operating on any construction site worldwide. Even wastewater that is difficult to filter can be treated in a single operation. Approximately 5–10% of the wastewater is separated out as liquid sludge and 90–95% is returned to the work process with a pure water quality of less than 1 µm particle size and made available to the high-pressure pump.

ENVIRONMENTALLY FRIENDLY

WATER EFFICIENT

VERSATILE AND FLEXIBLE APPLICATION POSSIBILITIES

The possible applications of mobile wastewater treatment are very extensive. In many industries where water is used as a working medium, it cannot be reused after just one use because it becomes too contaminated during the work process.

Especially in high-pressure applications, this is no longer possible due to the required water quality. But even in areas with lower pressure and as washing water, only clear water can be used. The water quality achieved when using mobile water treatment enables reuse and has a positive effect on the economic efficiency and ecological balance of the overall process.

- THE FUNCTIONAL PROCESSES OF THE CONTAINER-BASED PROCESSING SYSTEM ARE CONTROLLED FULLY AUTOMATICALLY
- THE PH VALUE IS PERMANENTLY MONITORED AND REGULATED IF NECESSARY
- THE MOBILE WASTEWATER TREATMENT SYSTEMS ARE DEVELOPED AND MANUFACTURED IN AUSTRIA

ACTING RESOURCE-EFFICIENTLY

Mobile water treatment is based on a chemical-physical process that filters the dirt particles out of the wastewater. In this process, flocculants are added to the wastewater, which lead to precipitation and subsequent floc formation. The clear and sludge phases are separated by sedimentation and the sludge is pumped out. The pre-cleaned water is then passed through several fine filter stages and is also transported outside with a residual particle size of less than 1 µm.

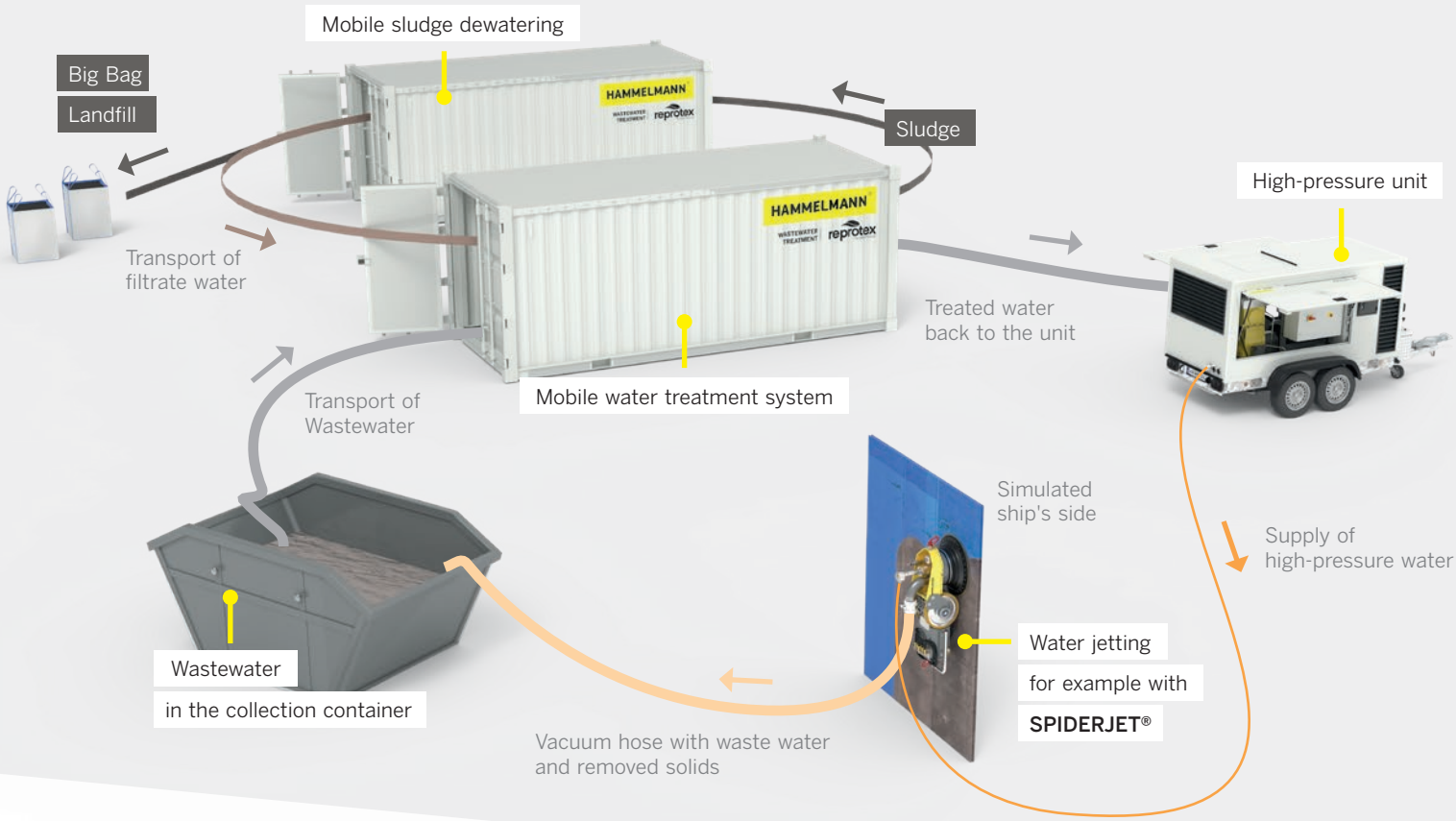
After treatment, it can be reused or discharged as clear water. The mobile water treatment system is separate from the high-pressure system as an independent connecting element between the collected wastewater and the treated clear water.

TECHNICAL DETAILS

20' LC Container (insulated)	Weight (empty)	Throughput	Filtration rate	power supply
6 m x 2,4 m x 2,6 m	~ 5000 kg	up to 200 l/min (continuously variable)	up to 1 µm (nominal)	400V, 50Hz, 16A

CHARACTERISTICS

Method	pH value neutralization	Logging	Control	Remote maintenance / access
Chemical-physical	CO_2	pH value, turbidity, throughput	Fully automated	3G/4G



MOBILE SLUDGE DEWATERING

The mobile sludge dewatering system is a compact and fully automated solution to dewater up to 12 m³/h of liquid sludge to be dewatered and then disposed of. The system, which is installed in a 20' container, separates the solids and residual water from the liquid sludge. The result is a nearly solid sludge in a landfill-compatible/incinerable form that can be easily disposed of using a big bag. The system is an ideal addition to mobile water treatment, in which industrial wastewater, primarily from high-pressure removal, is cleaned in a combined and fully automated process and separated into reusable clear water and solids.

100%	Wastewater
99%	Clear water
1%	Solids

EFFECTIVE OPERATION

The discharged liquid sludge is pumped from a collection tank into the sludge dewatering plant and there applied to an inclined bed filter. The sludge is dewatered using an individually selectable filter fleece and automatically transported into a big bag. The filtrate water is automatically fed to the treatment system depending on the fill level in the filtrate tray.

WHEN DOES A SLUDGE DEWATERING SYSTEM MAKE SENSE?

The possible applications of sludge dewatering in combination with the mobile wastewater treatment system are diverse. The greatest benefit is in applications with large amounts of wastewater and sludge. With the sludge dewatering system it is possible to reduce liquid sludge by up to 90%. In applications with high levels of pollutant contamination of the removal water and thus of the sludge, the use of the sludge dewatering system reduces disposal costs to a minimum.

COMPACT SYSTEM CONFIGURATION

The container of the mobile sludge dewatering system also offers space for the storage and transport of various operating materials (flocculation agents, flocculation aids) and other equipment of the wastewater treatment system. The container also has a holder mounted for the safe storage of an IBC for flocculants during transport. Equipment required for operating the filtration system, such as hoses and pumps, can be stored safely in storage spaces for transport.

TECHNICAL DETAILS

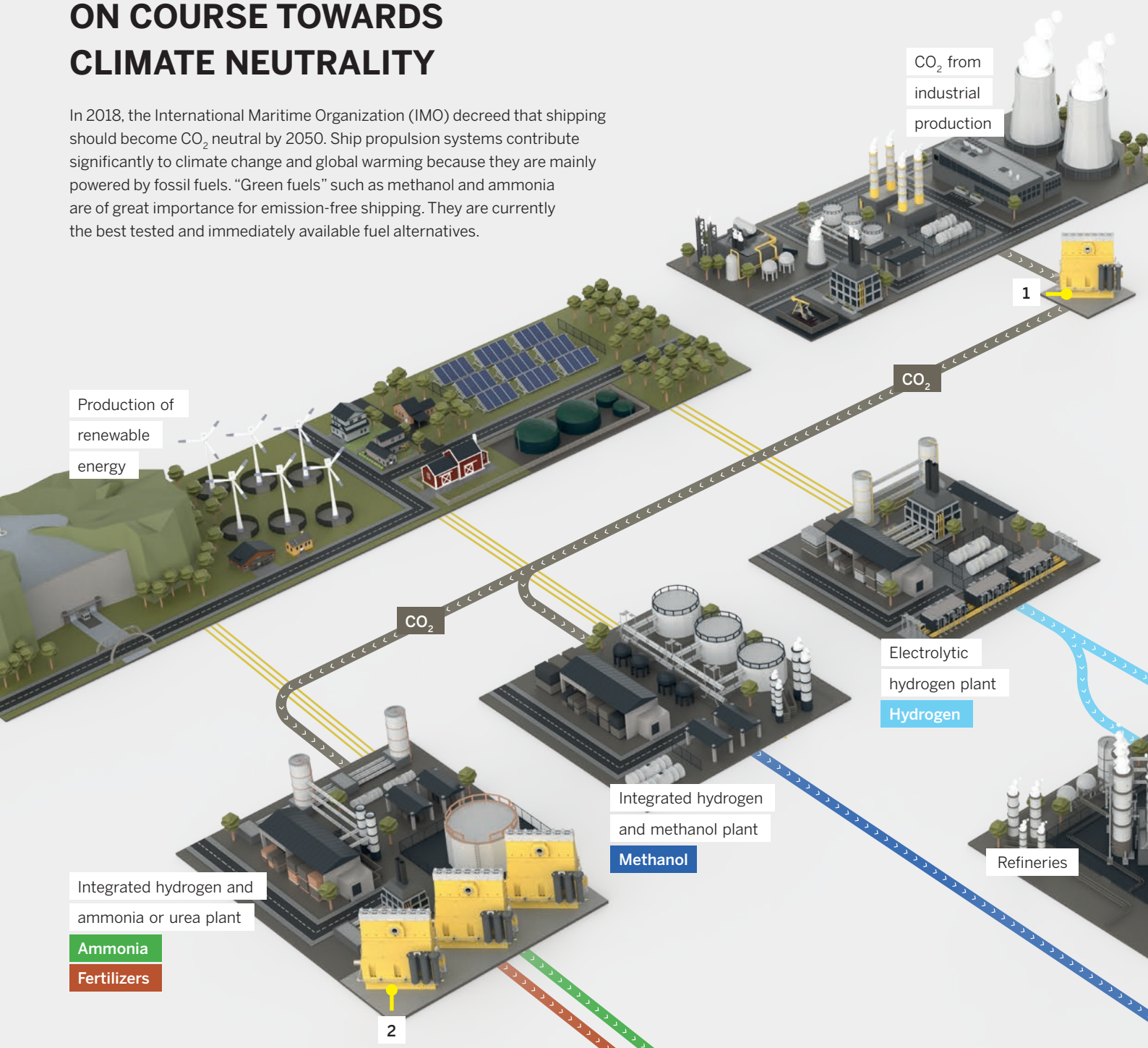
20' LC Container	Weight (empty)	Throughput	power supply
6 m x 2,4 m x 2,6 m	~ 2000 kg	up to 12 m^3/h	400 V, 50 Hz, 2 kW

CHARACTERISTICS

Operation	Product	Sludge consistency	Sludge discharge
Fully automatic	Sludge	Compact	Big Bag

ON COURSE TOWARDS CLIMATE NEUTRALITY

In 2018, the International Maritime Organization (IMO) decreed that shipping should become CO_2 neutral by 2050. Ship propulsion systems contribute significantly to climate change and global warming because they are mainly powered by fossil fuels. "Green fuels" such as methanol and ammonia are of great importance for emission-free shipping. They are currently the best tested and immediately available fuel alternatives.

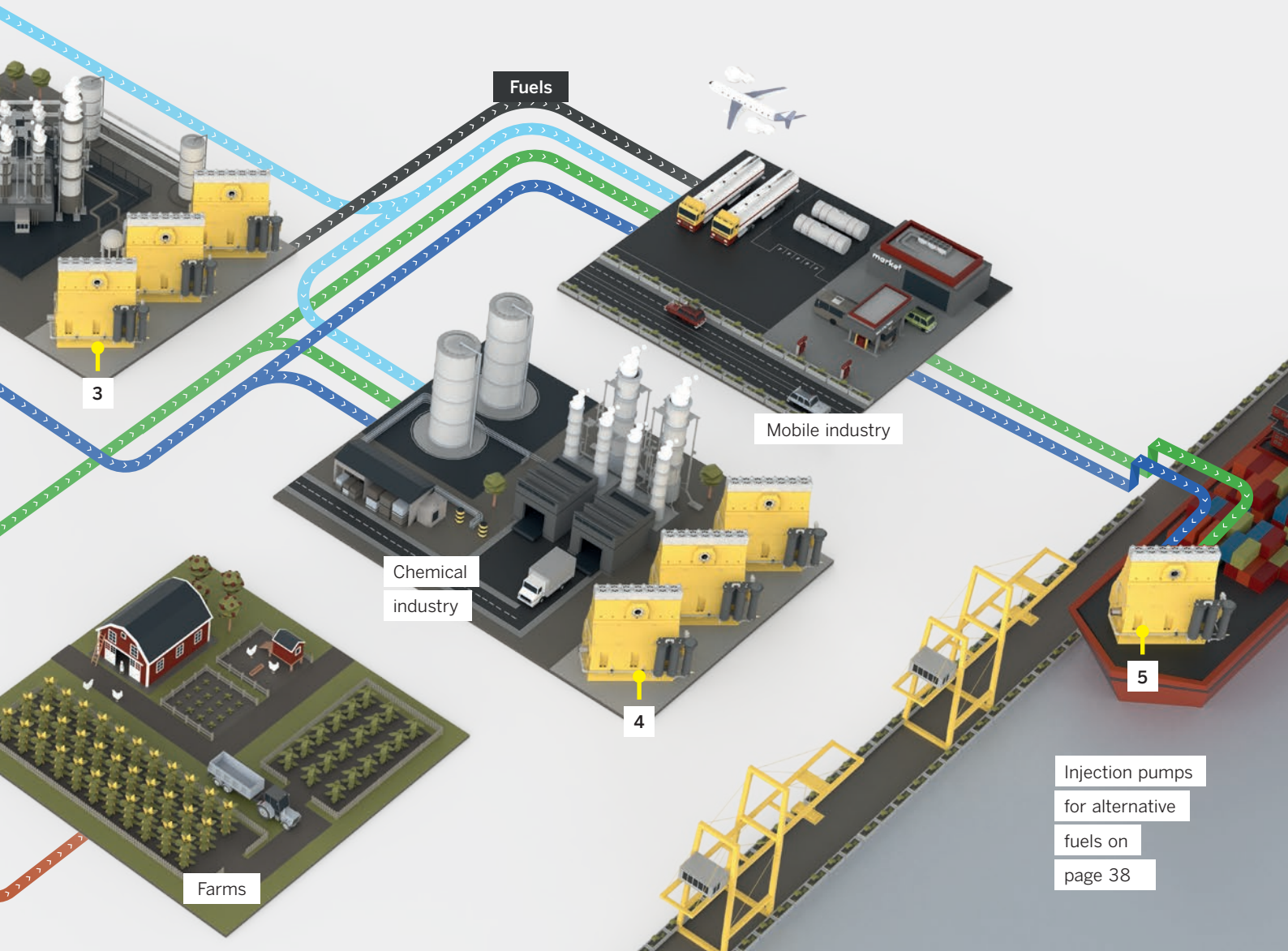


1	**CO_2 pumps for CO_2 transfer and injection**
2	**Pumps for liquid ammonia and carbonate for fertilizer production** (Haber-Bosch method)
3	**Boiler feed water pumps and wash water pumps**
4	**Pumps for chemical processes**
5	**Fuel injection pumps for liquid ammonia and methanol** (Marine engines)

ACT IN A CLIMATE-CONSCIOUS MANNER, OPERATE SUSTAINABLY

How do we at Hammelmann support international shipping in its efforts towards climate-conscious action? We invest in the development of modern technologies, constantly strive for progress and take innovative paths. Our process pumps prove themselves every day in numerous industries and sectors and in the transport of a wide variety of media. They optimize resource consumption, maximize the efficiency of conveying processes and minimize operating costs. The result – sustainable economics. We have developed our injection pumps for the effective delivery of "green fuels" in ship propulsion systems, for long-term, maintenance-friendly and reliable continuous operation.

Act in a particularly cost-efficient and sustainable manner: Make your existing ship engines fit for the future. Upgrade our injection technology for propulsion with alternative fuels.



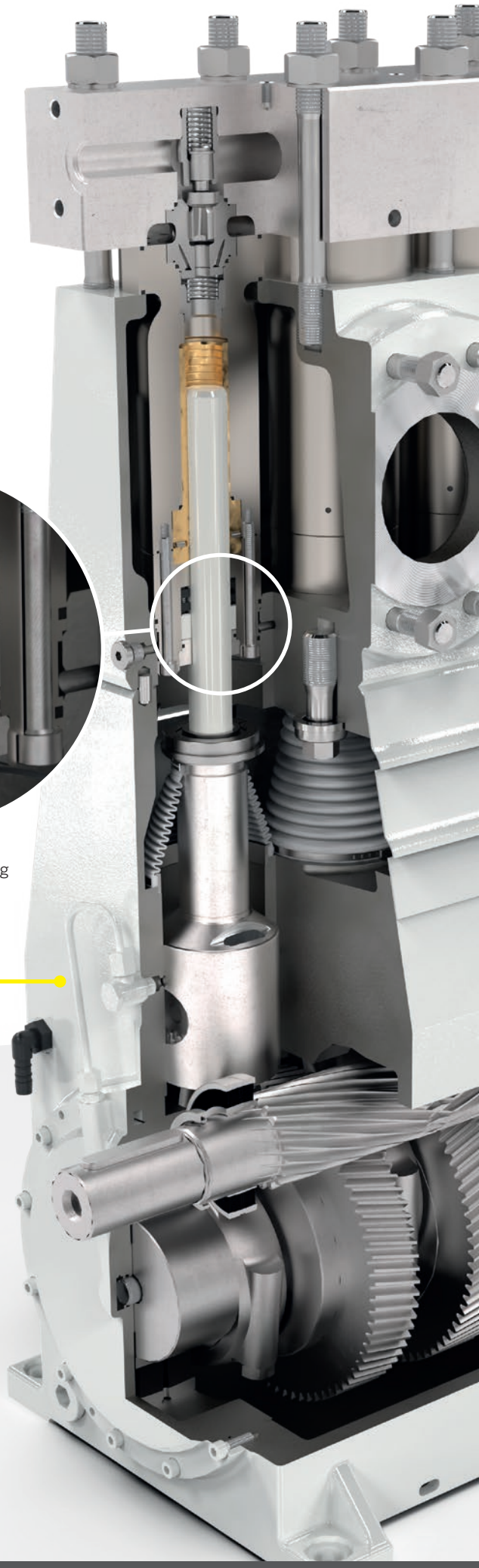
INJECTION PUMPS FOR ALTERNATIVE FUELS

Prepare for the future today with our injection pumps for alternative fuels: We accompany the international maritime industry on its course towards climate neutrality.

Our injection pumps are the right choice for pumping “green fuels” – reliable, efficient and technically sophisticated. New combustion engines are already being equipped with this pioneering technology. Existing drive systems can be converted accordingly.

Use Hammelmann injection pumps to pump the following alternative fuels:

- **METHANOL** (MeOH, CH_3OH, CH_4O)
- **ETHANOL** (C_2H_6O)
- **AMMONIA** (NH_3)



BUILT ON PROVEN TECHNOLOGY

The materials and construction used are optimized for continuous operation. The upright design, in combination with the stainless steel pump head without pressure change load, minimizes the mechanical stress on the components and ensures low wear and maximum smoothness. The plungers move the conveying medium almost pulsation-free and with an efficiency of up to 95%.

Technical characteristics

The valve block is not subject to cyclic stress and is therefore insensitive to cracking due to low-cycle fatigue. A minimal dead space volume leads to low pulsation and high volumetric efficiency.

- **VALVE HOUSING**
- **HIGH-PRESSURE LABYRINTH SEAL**
- **PTFE BELLOWS**
- **ZERO EMISSION® DESIGN**
- **THE COMPONENTS OF THE SEALING SYSTEM ARE LOCATED INSIDE THE SUCTION CHAMBER**

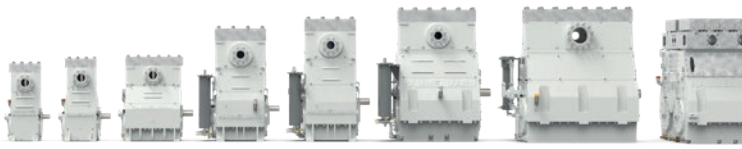
HAMPRO® 72 methanol injection pump

FROM PROJECTS

- A passenger and car ferry has been equipped with a total of 4 powerful HAMPRO® 72 methanol injection pumps since 2015. The operating pressure is 600 bar, the flow rate is 50 l/min.

ZERO EMISSION® SYSTEM

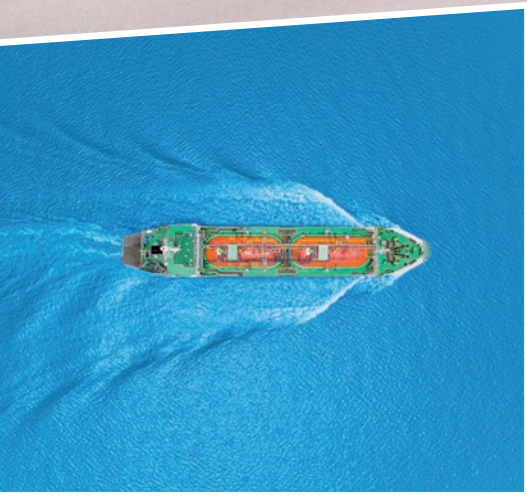
- The "Zero Emission®" design completely separates the medium from the environment, so that the pumped medium cannot escape to the outside in any operating state.



HAMPRO® OVERVIEW

Model	Flow rate	Operating pressure
HAMPRO® 10	up to 6.2 m^3/h	up to 2300 bar
HAMPRO® 20	up to 6.2 m^3/h	up to 3800 bar
HAMPRO® 40	up to 9.3 m^3/h	up to 3400 bar
HAMPRO® 70	up to 12.1 m^3/h	up to 3500 bar
HAMPRO® 140	up to 20.6 m^3/h	up to 3600 bar
HAMPRO® 200	up to 29.3 m^3/h	up to 3200 bar
HAMPRO® 340	up to 64 m^3/h	up to 4500 bar
HAMPRO® 470	up to 90 m^3/h	up to 3200 bar
HAMPRO® 500	up to 77 m^3/h	up to 3000 bar
HAMPRO® 680	up to 128 m^3/h	up to 3200 bar
HAMPRO® 800	up to 128 m^3/h	up to 3000 bar
HAMPRO® 1200	up to 179 m^3/h	up to 3000 bar
HAMPRO® 1600	up to 256 m^3/h	up to 3000 bar

Weight and dimensions refer to the pump alone, without accessories.
Binding dimensional drawings and weights on request.



CERTIFICATES

- ISO9001:2015
- ISO14001:2015
- ISO45001:2018
- ISO 50001:2018
- ASME Certificate
- SIR Certificate
- Others

The free Hammelmann app
For iOS, Android and your browser

Water Jetting Calculator: hammelmann.de/app

Hammelmann GmbH
Carl-Zeiss-Strasse 6-8
D-59302 Oelde

(0) 25 22 / 76 - 0
mail@hammelmann.de
www.hammelmann.com

HAMMELMANN®