



SCHIFFSTECHNIK

Maritime Equipment from your Exclusive Sales & Service Partner



Photo: Bundeswehr/Philipp Schäfer



Photo: Krey Schifffahrt



Photo: AIDAnova, Hermann Ijsseling



Photo: DLRG Wedel e.V.

- MANOEUVRING
- PROPULSION
- VACUUM SANITARY SYSTEMS
- WATER TREATMENT

Your Trusted Premium Partner for Marine Solutions and Support

We provide tailored project management and comprehensive technical support for all products we offer. Along with certified service and genuine spare parts, this makes us the preferred choice for designers, shipyards and owners.



Project Management

Project planning and handling throughout the inquiry and order phase.



Maintenance and Repair

Maintenance and repair service for all products we sell. 24/7 Brunvoll service support!



Aftersales and Service

Aftersales service for the entire life cycle of the vessel.



Warehouse

An own large stock of spare parts and special tools.



Commissioning

Commissioning at shipyards and during sea trials by our experts.



Training

We offer operator training by specialists on board.



SI Schiffstechnik - Experts for Ship Equipment since 1998

SI Schiffstechnik was founded in 1998 by Dipl.-Ing Jörg Steinbach under the former company name Steinbach Ingenieurtechnik. We provide high-quality marine equipment and professional services for the maritime industry as an exclusive Sales and Service Partner for leading brands specializing in:

Propulsion & Manoeuvring Systems

- Brunvoll AS – Propulsion and Manoeuvring Systems, DP, Automation and Control
- HamiltonJet – Superior Waterjets and Controls

Vacuum Sanitary Systems & Water Treatment

- Jets® Vacuum AS – Vacuum Sanitary Systems and Sewage Treatment Plants
- Poloplast GmbH & Co. KG – Vacuum Piping Systems
- Norwegian Greentech AS – Compact Ballast Water Management Systems

We offer customized project handling, technical support for the products we supply, certified service and genuine spare parts.

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Brunvoll - a Package Supplier

With over 110 years of experience, Brunvoll is a trusted Norwegian technology leader driving innovation in maritime propulsion. While internationally renowned for its high-performance thrusters, the company also delivers a broad range of integrated propulsion and manoeuvring solutions tailored to meet the evolving demands of the global maritime industry. Based on Norway's harsh coastline, Brunvoll develops and tests greener maritime solutions, including thrusters, shaftline propulsion, electric and hybrid systems, automation, controls, and advanced dynamic positioning systems.



Photo: VARD3



Manoeuvring

Tunnel Thruster

A true Brunvoll standard, designed for the most demanding requirements.



Modell	Propeller diameter [mm]	Power range [kW]	Modell	Propeller diameter [mm]	Power range [kW]
FU 37	850	75 - 200	FU 84	2.250	1.200 - 2.000
	1.000	100 - 250	FU 93	2.500	1.400 - 2.200
FU 45	1.225	185 - 300	FU 100	2.750	1.800 - 2.500
	1.375	275 - 450	FU 105	2.750	2.000 - 3.350
FU 63	1.550	400 - 700	FU 115	3.000	2.500 - 3.500
	1.750	600 - 950	FU 125	3.250	3.300 - 4.400
FU 74	2.000	800 - 1.400	FU 135	3.500	4.000 - 5.000
FU 80	2.250	1.000 - 1.500			

Low Noise Tunnel Thruster

Resiliently mounted with full length double tunnel results in a noise reduction of 11 to 15 dB(A).



Modell	Propeller diameter [mm]	Power range [kW]
FU 37	1.000	100 - 250
FU 45	1.375	200 - 450
FU 63	1.750	400 - 900
FU 74	2.000	800 - 1.400
FU 80	2.250	1.000 - 1.500
FU 93	2.500	1.500 - 2.200
FU 100	2.750	1.800 - 2.300

Rim Driven Thruster RDT

Electrical driven with a permanent magnet (PM) motor. Also available as Low Noise RDT.

Power up to 1.800 kW
Various sizes on request



Resiliently Well-Mounted Tunnel Thruster

Lower noise and vibration levels; shaft mounting allows for efficient installation, serviceable without drydocking.

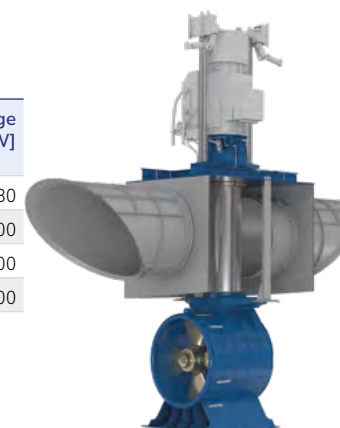
Modell	Propeller diameter [mm]	Power range [kW]
FW 74R	2.000	800 - 1.400
FW 84R	2.250	1.200 - 2.000
FW 93R	2.500	1.400 - 2.200
FW 105R	2.750	2.000 - 3.350



Retractable Azimuth-Combi Thruster

Works as a tunnel thruster in upper position and as an azimuth thruster in lower position.

Modell	Propeller diameter [mm]	Power range [kW]
AR 63	1.750	500 - 880
AR 80	2.100	1.000 - 1.500
AR 100	2.600	1.800 - 2.500
AR 115	2.900	2.500 - 3.500



Retractable Azimuth Thruster

For dynamic positioning, manoeuvring, slow speed propulsion and as standby and take-home propulsion thruster. Available in shock qualified design.

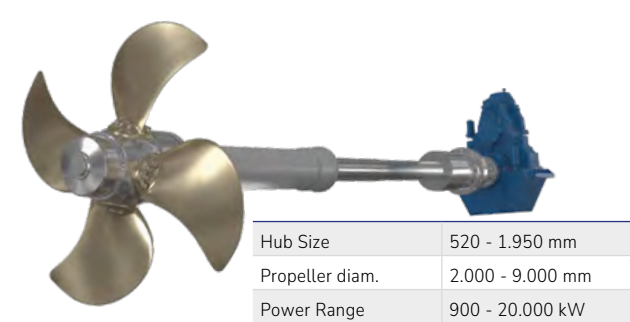
Modell	Propeller diameter [mm]	Power range [kW]
AR 63	1.650	500 - 880
AR 74	2.100	800 - 1.650
AR 80	2.100	1.000 - 1.500
AR 84	2.300	1.200 - 2.140
AR 100	2.600	1.800 - 2.500
AR 105	2.900	1.200 - 3.040
AR 115	2.900	2.500 - 3.500



Propulsion

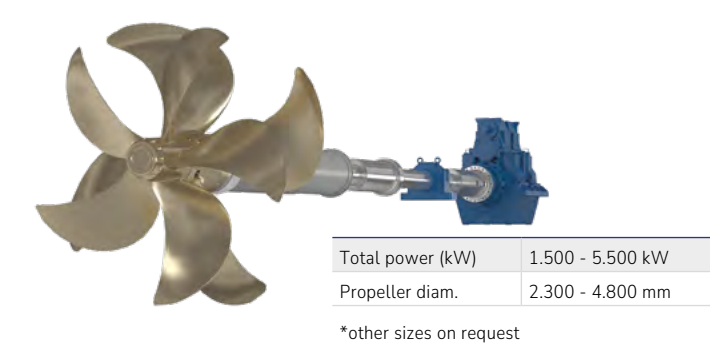
CP Propeller

Optimized for the specific vessel to obtain highest efficiency. Propeller blades of NiAlBronze and propeller hub of stainless steel as standard. Feathering propellers are also available.



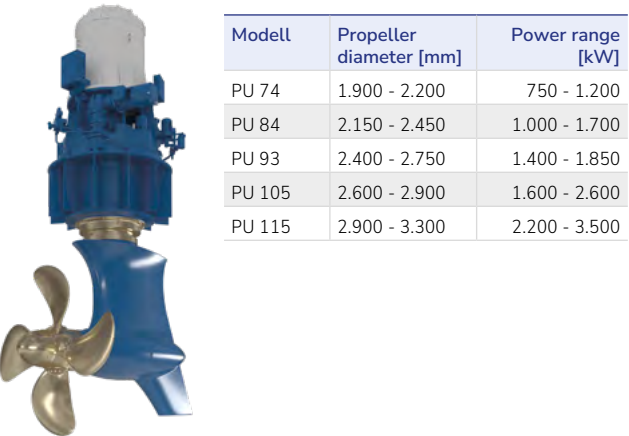
Contra Rotation Propeller (CRP)

FP propellers are driven individually via a unique 'shaft-in-shaft' system. Any type of electric motor can be used to drive them.



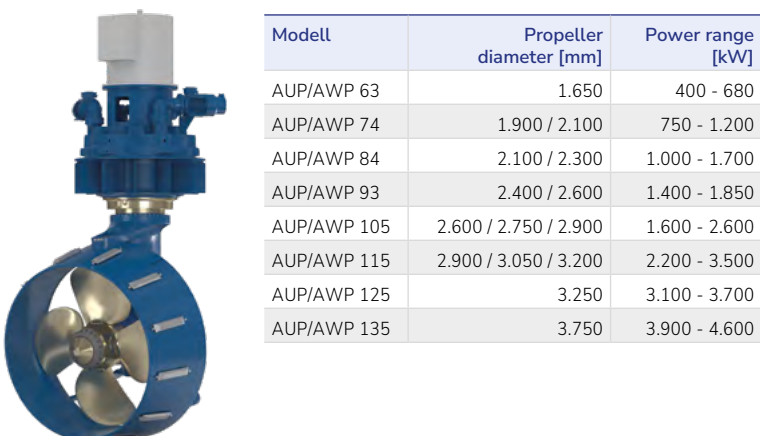
Propulsion Azimuth Thruster, Pull open

Slim, streamlined gearbox for maximum propulsion efficiency. Substantial rudder area for optimal steering capacity and course stability.



Propulsion Azimuth Thruster, Push Ducted

Emphasize on maximum propulsion efficiency, bollard pull and optimal DP capacity.



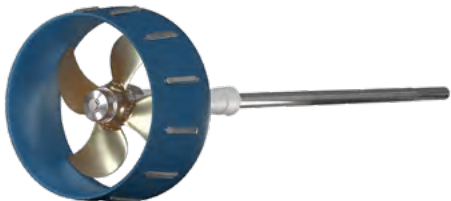
Integrated Costa Propulsion

Twisted leading-edge rudder with Costa bulb and hub cap. Various rudder types available on request.



Propeller Nozzles

Brunvoll high efficiency nozzle for improved bollard pull and speed. A ducted propeller gives up to 30 % higher thrust at low speed compared to an open propeller.



Reduction Gearboxes

All Brunvoll gearboxes are customized for various operational modes.

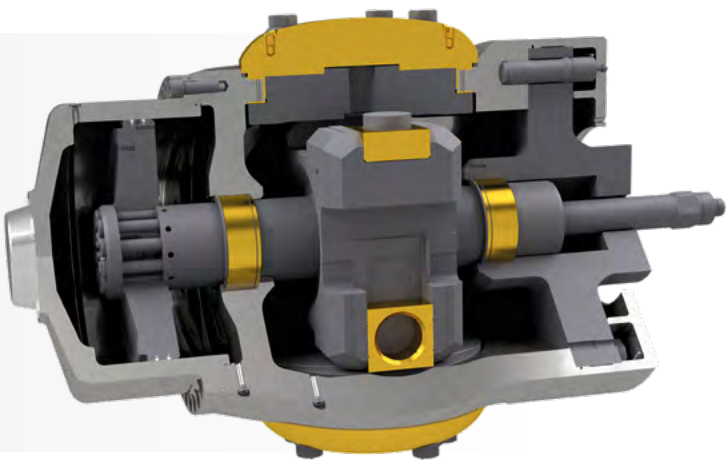
A wide range of gearbox models and configurations are available in power range up to approx. 20.000 kW output range.

- One of the most extensive product portfolios in the market
- Power range up to 20 000 kW
- All gearboxes are configured to specific requirements and operating profiles
- Module-based design gives unique flexibility
- Horizontal and vertical types with or without clutch solutions
- 2-speed gearboxes
- The gearbox may have multiple PTIs/PTOs, giving high flexibility/redundancy
- Suit any make/type of engines and electric motors regardless of energy source



Deva CP blade bearings

- Easy maintenance and quick repair
- No wear on the hub or propeller blades, but on the line bearings
- Therefore, no machining of blade seating or hub required
- Bearings can be exchanged easily
- Available in main propulsions and thruster



Electric & Hybrid Propulsion



Brunvoll, specialized in compact and light weight hybrid solutions, is taking full responsibility for the system integration:

Control systems for propulsion and manoeuvring, E-motors for propulsion, generator sets, battery package, frequency drives, converters DCDC DCAC, Triton-EMS energy management system, BMS battery management system, transformers and charging system integration.

BruCon Control & Automation Platform

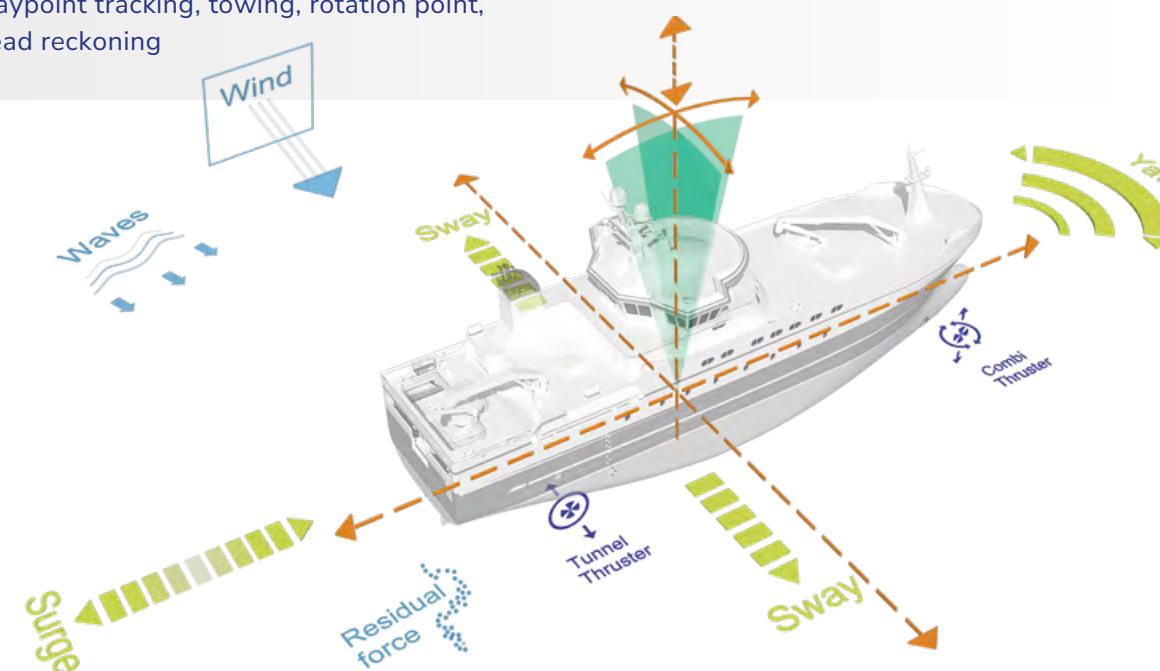


- Propulsion and manoeuvring control
- Operates all thrusters, Azimuth- and propeller drives
- Joystick and DP control
- Condition Monitoring System
- Responsive system with no time lag between command and response or feedback signal
- Optimizes propulsion thrust and engine load across the vessels operational profile
- Integrates additional propulsion (sail assist) into the optimization program
- Optimization model includes: hydrodynamic propeller model, engine load, shaft generator load, fuel consumption and flow, torque

Dynamic Positioning System

BruCon DP may either be locked to a fixed point over the seabed, or relative to a moving object like another ship or an underwater vehicle. One may also position the ship at a favourable angle towards wind, waves and current. BruCon DP follows our long traditions for in-house development and plays an important role in Brunvoll's strategy for autonomous vessel operation.

- Human centred interface design based on open bridge design standard
- Operational modes for manual heading auto heading, auto positioning, target tracking, waypoint tracking, towing, rotation point, dead reckoning
- Available for DP0, DP1, DP2 and DP3
- Sensor interfaces for gyro, DGNSS, wind, speed, draft, motion reference units, laser and radar position references, hydro acoustics, inertial measurement units



Dynamic Positioning System – Refit

BruCon DP has a small footprint and can easily be retrofitted on sailing ships. It integrates all kind of thruster and propulsion types.

- Our service inspects the ship to ensure full compatibility of existing sensors
- Existing DP sensors, position reference units, UPS and cables can be used in retrofitted BruCon DP systems
- Flexible and tailored bridge integration
- Proven track record of refit installations on Platform Supply Vessels, Anchor Handling Tugs, Cruise Liners, Research and Fish Farming Vessels



HamiltonJet - Pioneer and Market Leader in Waterjets

HamiltonJet is a New Zealand-based company headquartered in Christchurch. In 1954, HamiltonJet pioneered the development of the first commercial waterjet propulsion system. Seventy years on, HamiltonJet remains the market leader in waterjet propulsion and vessel control systems. All research, development and manufacturing takes place in-house at a modern facility equipped with state-of-the-art machining equipment, including its own foundries for stainless steel and aluminum, as well as comprehensive testing and inspection procedures.

With over 440 employees worldwide, a global network comprising three regional offices in Europe, Asia and the Americas, and 55 sales partners, HamiltonJet is the largest manufacturer of waterjet propulsion systems.



8.4 metre search and rescue vessel of the German Maritime Search and Rescue Service (DGzRS) – Photo: DGzRS



HamiltonJet Series

HamiltonJet's current range of waterjet propulsion systems includes des models with power outputs ranging from 150 kW to 5.500 kW, dsigned for vessels typically up to 90 metres in length.



HJ Series

Total waterjet solutions. HJ series provide superior thrust, efficiency and cavitation performance.

Power: 260 to 900 kW



HM Series

Highly efficient propulsion for high-speed vessels operating in the world's most demanding marine environments.

Power: 1.000 to 3.500 kW



HT Series

Developed from the highly successful HamiltonJet HM waterjet range, HT series waterjets incorporate improved efficiency and cavitation performance.

Power: 4.000 to 5.500 kW



HJX Series

Hydrodynamic design for increased efficiency and materials. HJX offers exceptional control and ease of installation, HamiltonJet's most durable and high-performing waterjet to date.

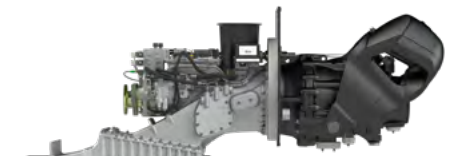
Power: 350 to 450 kW



HTX Series

New hydrodynamics and advanced materials for redefined performance, enhanced durability and even easier installation. Conical impellers for high-speed applications.

Power: 570 to 3.100 kW



LTX Series

Low-speed efficient, light-weight, and lean. LTX is the first waterjet to rival the performance, energy efficiency and bollard pull of the very best propeller systems at low to medium speeds (0-30 knots).

Power: 310 to 672 kW

Jet Types - Technical Data

5,5 to 18 m

Type	kW
HJ214	260
HJ215	260
HJ241	260
HJX27	353
HJX29	440
HJ322	500
HTX30	570
HJ364	670
HJ403	900
HM422	1.000

18 to 50 m

Type	kW
HTX42	1.300
HTX47	1.630
HTX52	1.950
HM651	2.200
HTX58	2.491
HM721	2.700
HTX65	3.100
HM811	3.500

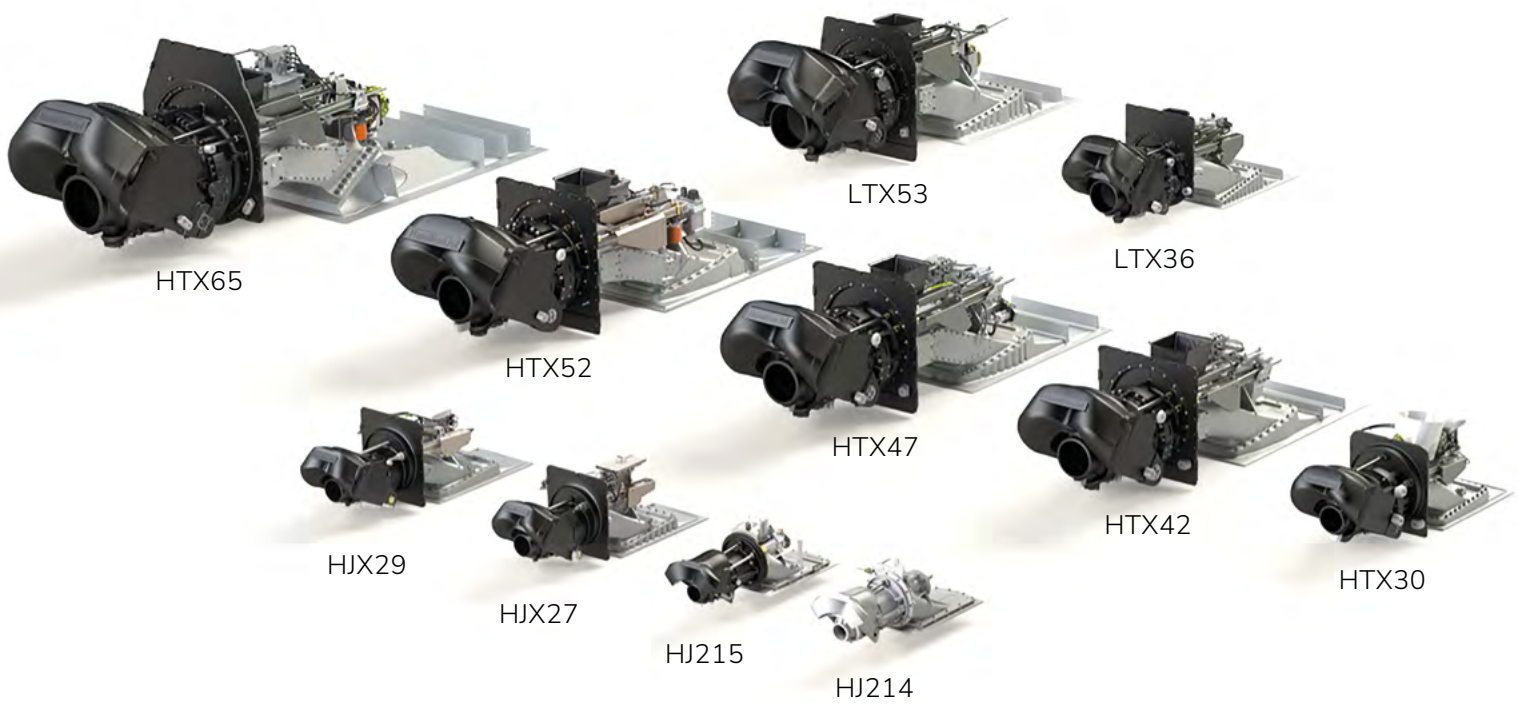
9 to 40 m

Type	kW
HT810	4.000
HT900	5.000
HT1000	5.500

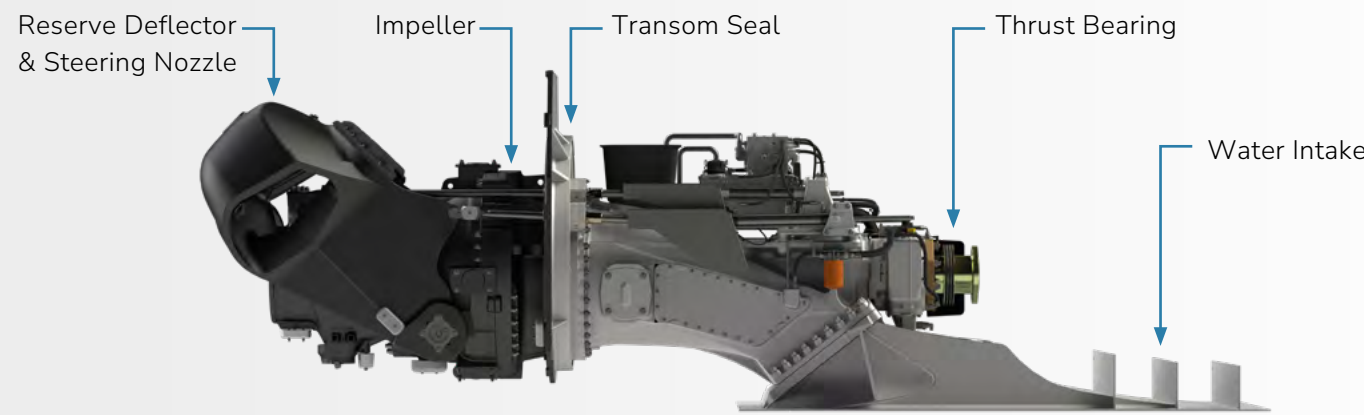
Low Speed Series

Type	kW
LTX36	310
LTX53	672

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Parts of the Jet



Reverse Deflector & Steering Nozzle:

The steering nozzle directs the jet stream to either side and is used for course alterations and turning the vessel. When the reverse deflector is lowered, it redirects the stream through the split duct under the hull, to stop the vessel, go in reverse or even to move sideways.

Impeller:

Within each model range 4, 5 & 6 bladed impellers are available to cover the range of power inputs for each jet. The coupling is manufactured specifically for the driveline chosen.

Transom Seal:

It creates a watertight barrier that seals the gap where the jet intake passes through the transom, protecting the inside of your hull from taking in water.

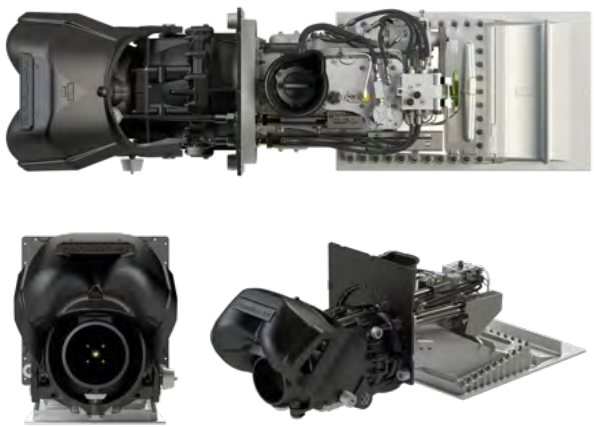
Thrust Bearing:

Is integrated into the waterjet unit and absorbs the thrust forces from the Impeller, that are transferred through the water intake duct into the hull structure, without loading thrust forces on the transom.

LTX Series - Waterjet technology reimaged

LTX features an ultra-compact inboard footprint, narrow jet-spacing, low-profile and lightweight design. The compact size of the entire LTX series means all models are capable of being installed late in the build, reducing overall vessel installation costs.

Our newly optimized mixed flow design increases low to medium speed efficiency for speeds of up to 30 knots. This delivers greater bollard pull for better position holding capability, manoeuvrability and acceler. LTX is designed to work with AVX and AVXexpress.



Controls

HamiltonJet develops and manufactures hydraulic and electronic control systems for all waterjet propulsion models. Hydraulic components are built into the waterjet and can be operated from the helm via manual cables, a hydraulic control system or the AVX or AVXexpress electronic control system.

AVX – Advances Vessel Controls



- AVX can be configured for two to six control stations, and is able to control two to six waterjets
- Class approved for larger vessels

The AVX platform is a modular system that can be cost-effectively scaled. HamiltonJet redefined marine waterjet control with the modular AVX suite, allowing you to configure a network of controls to meet the demands of your build.

AVXexpress



- AVXexpress can be configured with two control stations and two waterjets; a wide range of options is also available
- Optimized for smaller vessels

AVXexpress is our next-generation range of electronic control systems and is designed for robustness, durability and reliability. It redefines the user experience and gives you the confidence you need, even under the toughest conditions.



JetLink - Interface System for Autonomous Vesseljet

JetLink is our modern autonomous remote control interface. It uses a proprietary CAN protocol to allow external systems to command the driveline and perform most of the functions of an on board skipper.

JetAnchor – Vessel Positioning System

When JETanchor is selected with our latest AVX control system it can be used in close proximity with other vessels and fixed objects. Station Keeping will simply hold position around the dock, however the real magic happens when you start to move the vessel with the manoeuvring joystick or Mouseboat unit.

JetFighter – Controls Interface for FIFI vessel

JETfighter (AVX and MECS) is a highly advanced control interface providing system integration for fire-fighting (FiFi) vessels.

It automates and manages control of the main engine driving firefighting pumps while also allowing the main engine to control the vessel even when automatically Station Keeping.

Control Options

HamiltonJet understand that your vessel's performance is mission critical. That's why their mission is to deliver systems that work in any situation you face.

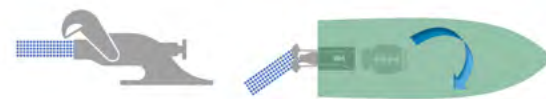
Forward



Side Thrust/Diagonally



Starboard



Zero Speed



Full Reverse



Norwegian Greentech - Water Treatment Systems

Norwegian Greentech AS, a Norway-based company founded in 2010 in Fosnavåg, is a proud member of the HAV Group. Their primary focus is on developing water treatment systems tailored for the maritime industry.

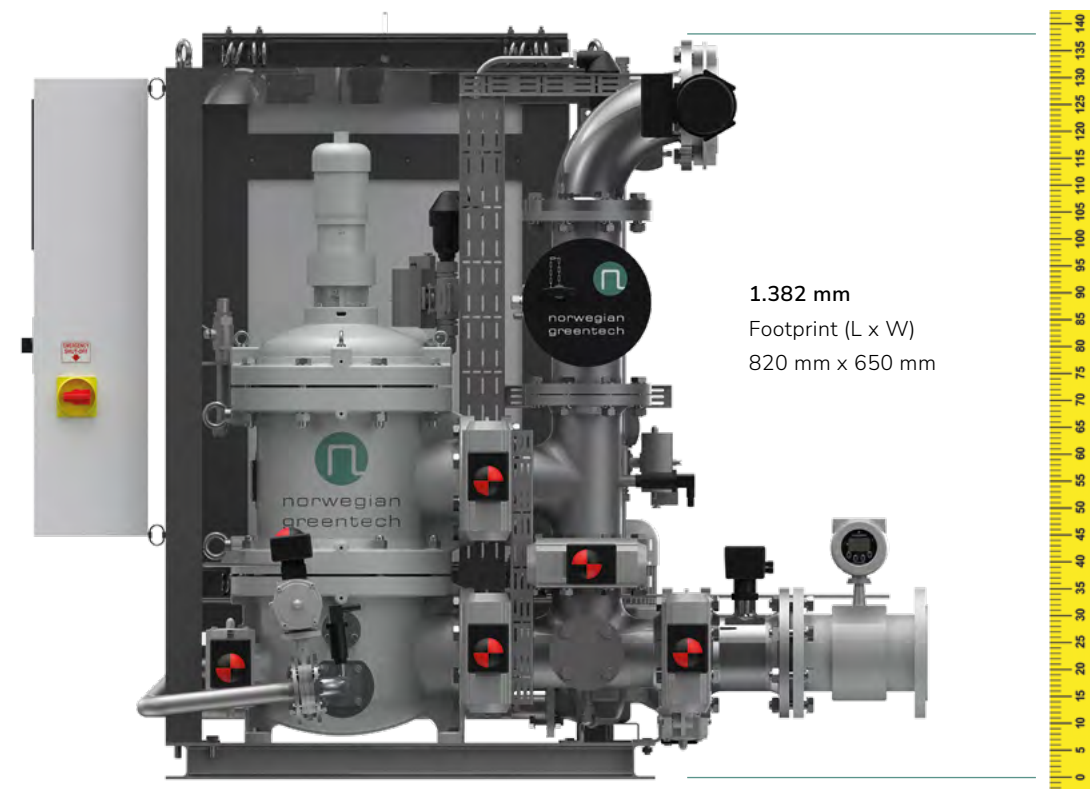
NGT is an industry pioneer in small footprint BWMS who understood early the ship owners' demanding requirements in the field.



Photo: Siem Helix1



BWMS – The most compact Ballast Water Management System on the Market



- The smallest unit in the market
- Lowest power consumption in the market
- No CIP unit needed to clean the UV lamps
 - Remote connection is possible
 - Suitable for Modbus TCP/IP communication
 - User friendly HMI
- Available capacities: 25 – 1.274 m3/h

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We have developed our system in response to market demands and, as a result, we offer one of the most compact systems with the lowest power consumption currently available on the market. The system can be installed in separate components, especially relevant for retrofit. Skid can be made to meet special requirements.

Jets® Vacuum - a Smarter Sanitary System for any Vessel

Jets® develops and manufactures vacuum toilets, vacuum systems and sewage treatment plants. The company is headquartered in Hareid, Norway.

Jets® vacuum systems are renowned worldwide for their reliability and high standards. The simple design of a Jets® vacuum system ensures reliable operation on board.



Photo: AIDAnova, Hermann Ijsseling



Vacuamarator® Pumps

The unique Vacuamarator® pump is at the heart of every Jets® system. It creates a vacuum, breaks down the waste water and discharges it – all in a single operation. Thanks to its small footprint and light weight, it offers unrivalled flexibility during installation. The Vacuamarator® pump is the most reliable vacuum generator for vacuum toilet systems and ensures unrivalled system performance.

- Edge S 13 m³/h 50 % vacuum at 50Hz
- Edge M 30 m³/h 50 % vacuum at 50Hz
- Edge L 62 m³/h 50 % vacuum at 50Hz
- Edge XL 78 m³/h 50 % vacuum at 50Hz



Jets® Product Image Vacuamarator® pump Edge XL

Vacuamarator® Units

Vacuamarator® units are available in four different sizes, corresponding to the sizes of the Vacuamarator® pumps (S, M, L, XL), and can be supplied with one, two or three pumps (Mono, Duo, Trio).

- Added redundance
- Increased vacuum generation capacity
- Operational reliability
- Automated monitoring and control of vacuum levels



Jets® Product Image Vacuum unit Edge Large Duo unit

Jets® Vacuum Toilets and Urinals

Jets® Vacuum toilets have a number of advantages over traditional water-flushing toilets, as they use air instead of water to transport sewage.

- Flexible installation: vertical and horizontal pipes
- Only 1 litre of water per flush
- No ventilation required
- Porcelain and stainless steel options
- More than 10 different designs, wall + floor mounted



Jets® Pearl

- Nozzle flushing
- Ergonomic design
- Low water consumption
- Soft closing seat and cover



Jets® Opal – Toto Electronic Bidet

- Filled with Toto electronic bidet
- Optimal hygiene and comfort
- Warm water nozzle
- Heated seat
- Deodorizer & Dryer
- Requires a mains power connection and a separate water supply for the seat



Jets® 720

- Stainless steel
- Low weight
- Low water consumption

Jets® Vacuum RagBox™

The new and revolutionary RagBox™ catches foreign objects, which can be removed quickly and easily before they enter the vacuum pipe system. Its compatibility with the Jets® descaling dosing device simplifies maintenance and saves you valuable time.



Jets® Grey Water Interface

The Jets® Grey Water Interface allows greywater to be channeled effortlessly through your vacuum system.

- Connects grey water pipes (e.g. from showers and washbasins) to the vacuum sanitation system
- Available in 14 different sizes and capacities
- No moving parts, ensuring particularly reliable and trouble-free operation
- Tank capacities ranging from 7 to 15 litres
- Material options: PE or AISI 316 stainless steel



Jets® Grey Water Interface Unit

Ecomotive® Sewage Treatment Plants

Based on the same MBBR (Moving Bed Bio Reactor) technology, both Ecomotive® STP Flex and Ecomotive® STP Compact by Jets® are space efficient, safe and environmentally friendly.

- Easy maintenance
- UV-light disinfection
- Automatic sludge removal
- Maceration feed pump
- Self-cleaning

Ecomotive® STP Flex Benefits

- Material stainless steel; 14 sizes and capacities
- USCG type approved range

Ecomotive® STP Compact Benefits

- Material stainless steel or black steel; 4 different sizes



Ecomotive® STP Flex

Vacuum Pipes – Three Layers for Eternity

POLOPLAST GmbH & Co KG is an Austrian company with headquarter in Leonding. POLOPLAST develops, produces and sells reinforced, multi-layer plastic pipe systems. The innovative pipe systems have proven themselves in modern and sustainable applications for more than 60 years. The three-layer, reinforced polypropylene (PP) vacuum piping system is suitable for both black and grey water applications.



Couplings

Coupling POLOPLAST PP pipes

The POLO-KAL NG is a dismountable and reusable push-fit pipe system. It's really easy to assemble and to install: Always use an appropriate lubricant when making the pipe connection.

Connecting POLOPLAST pipes to flanged fittings or components

Flange couplings are used to connect PP with pipes of different materials and valves or other flanged fittings.

PP pipe coupling and threaded accessories

In some cases it is necessary to connect PP pipe elements to threaded fittings. Adapters are available in DN 40 and DN 50 with either male or female threads.

Push-fit connection

POLOPLAST offers push-in sleeves according to EN 1451-1 with factory-mounted EPDM lip seals.



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Advantages over Stainless Steel Pipes

	POLO-KAL NG Vacuum	Stainless Steel Pipes	Advantages
Weight 3 m DN50	1,12 kg	3,8 - 6,4 kg (6,4 kg + 3,8 kg)/2 = 5,1 kg	Low weight material
Total weight 20.000 m	1,12 kg * 20.000 m / 3 m = 7.500 kg	5,1 kg * 20.000 m / 3 m ≈ 34.000 kg	Save nearly 80 % of weight
System price factor pipe, couplings, fasteners	1	3	Pay three times less
Ease of installation and safety	Quick and secure push-fit system	Complex and error-prone gluing process	Save Installation time
Installation flexibility	Quickly adjustable and expandable	Stiff and inflexible	Stay flexible while installation
Eco-Friendliness	No toxic gases 100% recyclable	Toxic gases during the installation process (gluing)	Sustainable solution



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