



STEERPROP

**Driven by
our Resolve
to Perform**

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STEERPROP – DECADES OF PROPULSION EXPERIENCE

Steerprop is a leading designer and manufacturer of azimuth propulsion systems for the most demanding applications and toughest conditions.

Since our founding in Finland in 2000, we have delivered fit-for-purpose units for hundreds of vessels, including every third azimuth icebreaker in operation around the world.

Our fit-for-purpose solutions and unrivaled arctic experience are a testament to our commitment to continuous development, steadfast dedication to meet our customers' needs and our unwavering resolve to perform.

OUR PURPOSE: Resolve to Perform

We come from a place where only perfect will do. A seafaring tradition, where there is little margin for error and nothing can be left to chance. Where the difference between success and failure can mean pretty drastic outcomes. We come from a place where your experience and ability account for a lot. Where finding practical solutions for anticipated and surprising situations requires agility, understanding and ingenuity. We come from a place where the resolve to perform is key.

Our culture is built on working for a purpose. On designing and delivering things that have a real impact and make a real difference. We take pride in our skills, our experience, our understanding of what must get done. But we remain humble, always eager to learn more, looking at things from a new perspectives, driven to discover ever better solutions.

OUR PROMISE: We resolve challenges that add critical value to our customers' business

We come from a culture of curiosity for our customers' business and of applying our enthusiasm, experience and innovation to improve it. A culture of working together, not just with our colleagues, but with our customers. We believe that while standing on the shoulders of giants we always need to pull others up, too. Our culture is built on our resolve to perform.

OUR ATTITUDE:**Steerprop – when “Will Do” Won’t Do**

We believe our future lies where our inherent strengths add true value. Where nothing less than perfect is acceptable, where good enough is not enough. Where “will do” just won’t do. We thrive on those challenges, relish the hardest solutions. We are at our best where there is no room for failure, where reliability is at the core and excuses just can’t exist. Our future is guided by our resolve to perform.

We seek partners who share our focus on the critical tasks and targets at hand. And who understand value beyond pure cost calculations. Partners who, like us, view expensive as a measure of waste, of saving in the wrong place for the wrong reason. And valuable as the benefit of acquiring what you truly need. We seek partners who value the resolve to perform.



**We're driven
by our resolve
to perform.**

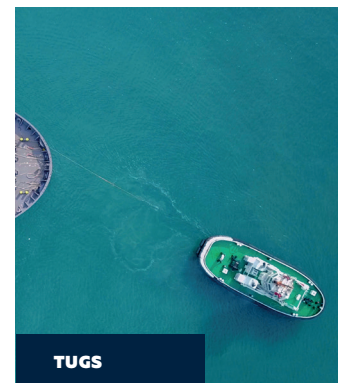
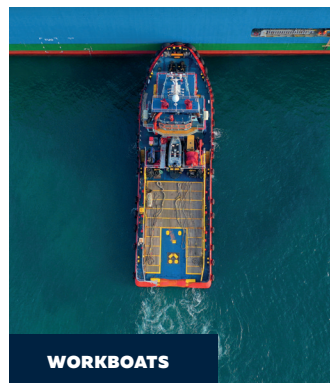
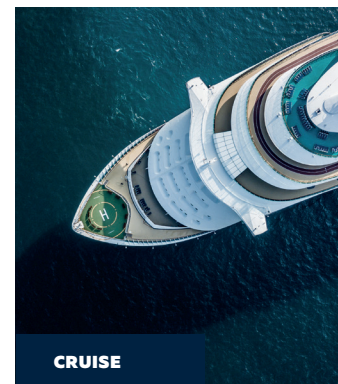
SUPPORTING WIDE RANGE OF APPLICATIONS

At Steerprop, we provide solutions that not only address your challenges but also add critical value to your business. Our commitment begins in the early stages of ship design, where we actively support and advise you to find the optimal propulsion solution tailored to the specific purpose and operational profile of your vessel.

Throughout the ship design phase, we prioritize system engineering to ensure that the propulsion solution seamlessly aligns with the unique requirements of your vessel. Our support spans from early operational analysis to proposing the most suitable solution, and it extends through maintenance and service during the entire lifecycle of your vessel.

In addition to our comprehensive services, we emphasize flexibility. We go the extra mile to tailor a solution that not only meets but exceeds your expectations, delivering the very best performance for your vessel.

Steerprop is your reliable partner, committed to delivering a full propulsion package that covers everything from main propulsion to bow thrusters. Our dedication to system engineering underscores our commitment to providing integrated and efficient solutions for your maritime needs. Trust us to be the partner that not only supports your current requirements but also anticipates and adapts to your future needs.





Arctic and Ice Infested Sea Areas – Relentless Performance for Unrelenting Conditions

Icebreakers operate in harsh ice conditions, where the operational environment poses formidable challenge or when reliable year-round marine transport is not a luxury but a necessity. When ice becomes an obstacle, modern society depends on icebreakers to keep waterways open. These vessels operate relentlessly in the face of challenging ice and weather conditions. In these challenging environments, the demand for reliable, safe, and efficient performance is essential.

When designing propulsors for optimal performance and fuel efficiency in ice operations, it's vital to consider how ice loads impact the vessel and the propulsor. It is essential to understand the distinct requirements for each ice class. Equally important is to understand the specific operational profile and area. Propulsors should be designed to align with the customer's needs and the vessel's operational profile. Consideration must be given to the existing ice conditions and operational areas, such as the high Arctic or the heavily trafficked Baltic Sea.

The Steerprop team has decades of experience in designing propulsors for the polar and ice environments. We have delivered more than 90 propulsion

units for ice-classed vessels and have operational experience from icebreakers operating in the Baltic Sea, the Arctic Ocean and other ice infested areas. In fact, every third icebreaker equipped with azimuth propulsion relies on Steerprop technology.

Steerprop solutions for the Arctic and Infested Sea Areas

Azimuth propulsors have become the industry standard for ice-going vessels. One important benefit our azimuth solutions provide is their ability to direct the vectored thrust from the propeller (slipstream) in a full 360 degrees. This allows the vessel to use the thrust itself not only to open and widen fairways but also to clear ice ridges and free merchant vessels and Arctic offshore installations from ice pressure.

Steerprop provides a high level of assurance by predicting the lifecycle costs and guaranteeing efficient performance and long-lasting durability for icebreakers operating in demanding ice-covered terrains. Steerprop’s ARC and Steerprop PULL ARC azimuth propulsors are designed for dependable icebreaker operation in harsh arctic environments. These advanced propulsors combine ice-breaking power with mechanical reliability and modern automation technology. The CRP takes ice breaking and ice management operations to a new level due to its remarkable narrow and effective slip stream. An industry best for non-clogging open ice units.

To further ensure safe and efficient operations, Steerprop propulsion units always include a

condition monitoring system, Steerprop Care, as a fully integrated part of the delivery. Such integration enhances operational predictability and reliability, a critical factor in operating in remote areas like the Arctic.

These Steerprop solutions are especially suitable for harsh Arctic conditions:



Selected References

ICEBREAKER WITH WORLDS LARGEST MECHANICAL PROPULSORS

Classification: RS Icebreaker 7
Power per unit: 9,000 kW
Main propulsion:
2 x SP 110 PULL ARC
Delivery year: 2014

OBLIQUE ICEBREAKER

Classification: RMRS Icebreaker 6
Power per unit: 2,500 kW
Main propulsion:
3 x SP 60 PULL
Delivery year: 2013

MULTI-PURPOSE ICEBREAKER

Classification: RMRS LL7
Power per unit: 8,400 kW
Main propulsion:
2 x SP O 4.5 ARC
Delivery year: 2008

ICE-BREAKING SUPPLY VESSEL

Classification: RMRS LU7
Power per unit: 5,200 kW
Main propulsion:
2 x SP O 4.0 ARC
Delivery year: 2007



Cruise and Ferry – Ensuring Smooth and Safe Voyages

Embarking on a memorable cruise or ferry voyage demands seamless operations and unwavering safety. These vessels must adhere to precise schedules, as any disruption can result in significant financial and reputational losses. Ensuring the well-being of passengers and crew stands as the paramount concern. These vessels need to comply with stringent emission regulations in their areas of operation, as well as ensure passenger comfort through maintaining low noise and vibration levels. Additionally, energy efficiency and low operating and maintenance costs are critical to ensure economic viability in an increasingly competitive market.

That's where Steerprop's groundbreaking solutions come into play. With our 360-degree rotating azimuth propulsors, we not only meet but exceed these demanding standards. Our solutions offer cruise and ferry operators the high reliability they require, excellent energy efficiency, safe operations with precise maneuverability, and all of this with low lifecycle costs.

Steerprop Solutions for the Cruise & Ferry Market

Steerprop's innovative contra-rotating propellers (CRP) offer excellent energy efficiency and combine the exceptional maneuverability of azimuth propulsors with low pressure pulses and noise levels.

The integrated vertical permanent magnet motor ensures reliable high-power propulsion, leading to increased fuel savings and reduced emissions. Our strong track record of reliability and efficiency has been built through numerous CRP deliveries over the past 20 years, and through continuous improvement and development to meet customers' needs.

To further ensure safe and efficient operations in cruise and ferry vessels, Steerprop propulsion units always include our condition monitoring system, Steerprop Care, as a fully integrated part of the delivery.

These Steerprop solutions are especially suitable ferries and cruise ships:



SP CRP

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SP CRP ECO

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Selected References



Photo: Relais Nordik



Ferry

TIIU – DOUBLE-ENDED FERRY

Classification: DNV ICE-1A
Power per unit: 2,150 kW
Built by: Sefine Shipyard
Owner: Port of Tallinn
Main propulsion: 2 x SP 45 CRP

BELLA DESGAGNÉS – PASSENGER VESSEL

Classification: LR 1A FS
Power per unit: 2,200 kW
Built by: Kraljevica Shipyard
Owner: Desgagnés
Main propulsion: 2 x SP 45

PROSTVIK – PASSENGER AND CAR FERRY

Classification: FSICR 1A
Power per unit: 413 kW
Built by: Suomenlahden Telakka
Owner: Finferries
Main propulsion: 2 x SP 10 CRP LM

Cruise

CELEBRITY FLORA – EXPEDITION MEGA YACHT

Classification: LR 100A1
Power per unit: 1,250 kW
Built by: Shipyard De Hoop
Owner: Celebrity Cruises
Main propulsion: 2 x SP 20 CRP

SILVER ORIGIN – CRUISE SHIP

Classification: LR 100A1
Power per unit: 1,250 kW
Built by: Shipyard De Hoop
Owner: Silversea Cruises
Main propulsion: 2 x SP 20 CRP

A photograph of an offshore wind farm at sea. Several wind turbines are visible, silhouetted against a clear sky. The water is dark and calm. The turbines are arranged in a line, with one in the foreground and others receding into the distance.

Offshore – Where safety and reliability is key

In the demanding world of offshore operations, where the forces of nature continually challenge the boundaries of technology, safety and efficient performance aren't merely a choice – they're necessity. Whether a vessel serves the offshore renewables, or oil & gas sectors, the need for reliability and safety is paramount. Any interruption in the operation can lead to significant financial losses and pose a risk to personnel and the environment.

Modern installation and service operation vessels and offshore support vessels have undergone a remarkable transformation. These vessels must be efficient, resilient, and high performing. Given their multifaceted role, supporting activities such as serving floating drilling rigs, moored or fixed production platforms, and offshore wind farms, the expectations for propulsion solutions in these vessels are extremely high.

Steerprop stands ready to fulfill vessel's requirements. We offer robust and fit-for-purpose azimuthing and station-keeping main propulsion systems, tunnel thrusters, and retractable thrusters for all vessels working with offshore operation. Our solutions not only ensure maximum maneuverability but also deliver enhanced efficiency, unparalleled reliability, and enhanced safety.

Steerprop's substantial experience in developing propulsion solutions for harsh arctic operations has proven instrumental when developing solutions for challenging weather conditions and open waters offshore. Our strength lies in our ability to understand the customers' unique needs, customer-centric collaboration, and finding the optimal propulsion solution for the specific purpose and operational profile of the vessel.

Steerprop solutions for Offshore

Fit-for-purpose Steerprop W Series azimuth propulsors utilize the latest technologies in hydrodynamics and power trains to meet the most stringent customer needs. When high bollard pull or DP (dynamic positioning) thrust is your main requirement, a ducted propulsor with the high-performance Steerprop HJ4 nozzle will be your best choice. This solution increases thrust and improves high-speed efficiency compared to a traditional nozzle.

If free-running efficiency is your top priority, explore our contra-rotating propellers (CRP). The Steerprop dual-end CRP combines the benefits of pulling propeller and contra-rotating propeller technology, resulting in unmatched efficiency in transit. Moreover, the CRP's thrust in DP operations significantly outperforms that of a single open propeller of similar size. For vessels striving for advanced open-water performance combined with excellent DP performance, Steerprop's next generation of CRP is the perfect fit.

These Steerprop solutions are especially suitable for offshore conditions:



SP W SERIES

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SP CRP

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SP CRP ECO

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Selected References



Photo: Uavpic.com

ESVAGT SCHELDE - WINDFARM SERVICE VESSEL

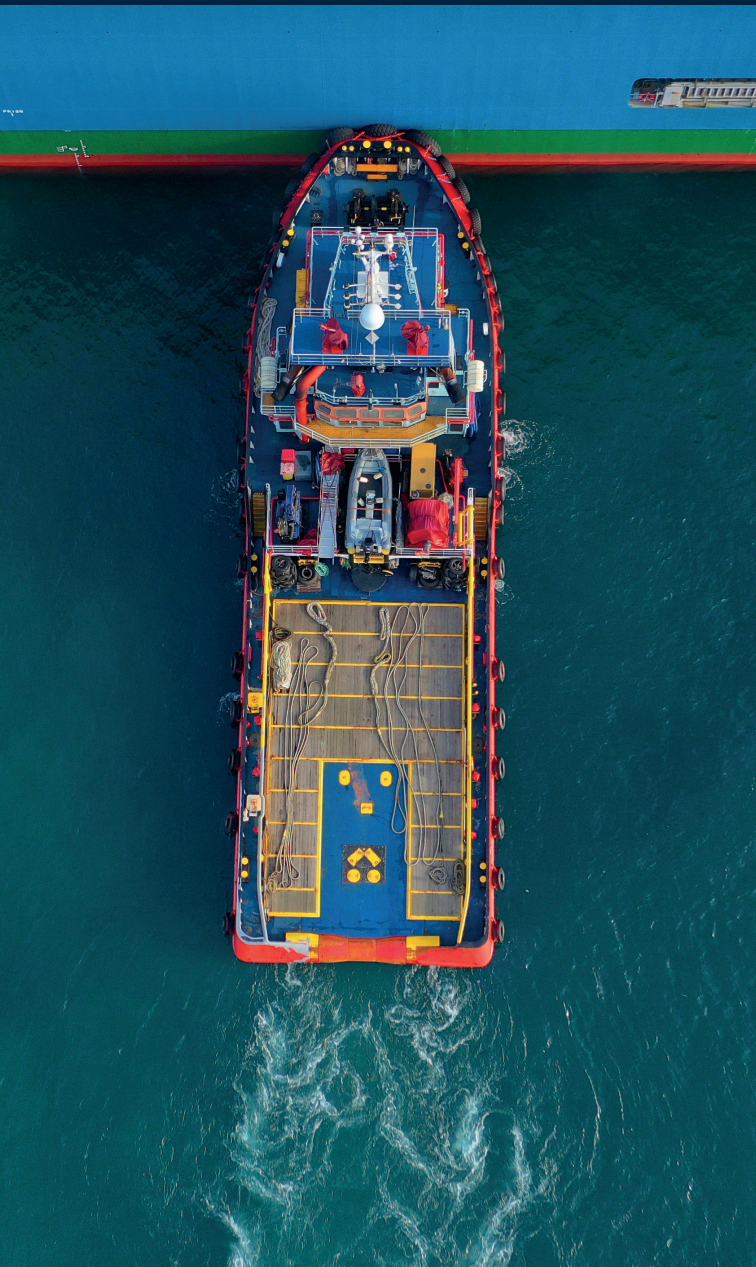
Classification: BV
Power per unit: 1,100 kW
Built by: Havyard Ship Technology AS
Owner: Esvagt
Main propulsion: 2 x SP 20 W D LM



Photo: Portalmorski.pl

COEY VIKING - PLATFORM SUPPLY VESSEL

Classification: DNV ICE-1C
Power per unit: 2,200 kW
Built by: Remontowa Shipbuilding S.A.
Owner: Viking Supply Ships AB
Main propulsion: 2 x SP 35 CRP



Tugs and Workboats – When Trust is a Must

In the ever-evolving landscape of global marine transport, the call for compact, powerful, and highly maneuverable tugs with increased bollard pull has become the industry standard. These versatile vessels play a crucial role in a wide range of operations throughout their lifetime, from assisting large cargo vessels in bustling harbors to tackling challenging river currents. They often operate in sensitive areas with stringent environmental regulations both above and below the waterline. In the dynamic world of tugs and workboats, where trust is a must, Steerprop's azimuth propulsors solutions stand as beacons of reliability and efficiency.

Propulsion units designed for tugs and workboats must be robust, efficient, and reliable under all circumstances, and have excellent manoeuvring capabilities in the most cost-efficient way. Steerprop's azimuth propulsors meet this industry's complex demands and relentless need for value. As minimum downtime of equipment is of the greatest importance in the tug and workboat market, we're happy to offer the Steerprop Care condition monitoring system, with a simplified set-up to suit the tug industry's needs.

Steerprop solutions for Tugs and Workboats

The Steerprop W Series propulsors are designed to meet and exceed the required performance levels in the challenging operating environments of tugs and workboats. Every vessel has its own performance requirements and thanks to the modular design, customers can select various configurations to match their specific needs.

Building on the experience and references of the SP W Series, the development of the SP T Series azimuth propulsors is evidence of our commitment to the tug market. These robust and hydrodynamically efficient propulsors can adapt to changing configurations and versatile operations with mechanical, hybrid, or electrical prime movers while focusing on simplicity and cost-effectiveness. If your tug or workboat will operate in tough ice conditions, our Steerprop contra-rotating propellers (CRP) is the solution. They take icebreaking capability, ice-management, manoeuvrability, and performance to new levels unattained by conventional ducted or single-open thrusters.

To find the optimal propulsion solution for the specific purpose and operational profile of your vessel, we are happy to support and advise you from the beginning of the ship design phase. Steerprop is your trusted partner in the journey of tugs and workboats, always steering you toward success.

These Steerprop solutions are especially suitable for tugs and workboats:



SP W SERIES

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SP T SERIES

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SP CRP

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Selected References



Photo: Portalmorski.pl

ZODIAK II – MULTI-PURPOSE WORKBOAT

Classification: PRS L1
Power per unit: 1,400 kW
Built by: Remontowa Shipbuilding S.A.
Owner: Maritime Office in Szczecin
Main propulsion: 2 x SP 25 W D



RED FOX - ESCORT TUG

Classification: GL 100A5
Power per unit: 2,380 kW
Built by: Astilleros Balenciaga S.A.
Owner: Remolcadores de Puerto y Altura, S.A.
Main propulsion: 2 x SP 35 D

STEERPROP FIT-FOR-PURPOSE SOLUTIONS

Azimuth propulsors have, due to their superior manoeuvrability and operational versatility, become the propulsion norm for various ship types. The agility expected in ship-assist tugs or the novel operation modes of most modern icebreakers, like ice-milling and ice management, can only be achieved with azimuthal propulsion units.

The Steerprop azimuth propulsors are designed and tailor-made to meet the most stringent customer needs. To ensure safe and efficient operations, Steerprop propulsion units always include our condition monitoring system, Steerprop Care, as a fully integrated part of the delivery.



SP CRP



SP CRP ECO



SP CRP ECO ARC



SP W SERIES



SPT SERIES



SP ARC



SP PULL ARC



SPT T



SPR



Explore Steerprop's
Drawing Database

SP W SERIES PROPULSORS



Design that takes efficiency to the next level

The Steerprop W Series propulsors are tailor-made to meet the most stringent customer needs. The W Series azimuth propulsors utilize the latest technologies in hydrodynamics and power trains, so that our customers can meet, and exceed, the required performance levels of today's operating environments.

The W Series employs carefully selected manufacturing methods to fulfil the latest requirements and improve design flexibility with modularization and scalability. Every vessel has its own performance requirements and thanks to the modular design, customers can select various configurations to match their specific needs. The W Series comes with a choice of two options: one with a Z-drive and one with an integrated permanent magnet motor. Both options include a power range from 900 to 9,000 kW and are also available in shallow draft versions for superior manoeuvrability to suit your vessel type.

Steerprop's extensive design experience ensures a thoroughly optimized, hydrodynamically efficient and robust construction with carefully selected individual components. This is what we call the next generation of propulsors; they have been developed to be maintenance-friendly and they always come with Steerprop Care condition monitoring as a standard.

FEATURES	MAIN BENEFITS
MODULARITY AND FLEXIBILITY	Flexibility to adapt to different operations with mechanical, hybrid or electrical configurations.
	New improved nozzle design enhances performance.
	Available for tough ice classes.
	Enables higher input speeds to use new high-speed engines that comply with Tier 4 environmental regulations.
HIGH HYDRO- DYNAMIC EFFICIENCY	Exceptional for its class due to the optimized housing shape.
	No sacrificial anodes on nozzle, instead an added hydrodynamically shaped anode reduces flow separation from nozzle outer surface.
	High-efficiency nozzles for increased bollard pull.
MECHANI- CALLY ROBUST AND SIMPLIFIED CONSTRUC- TION	Electrical turning gear as standard.
	Lower body of cast steel for better hydrodynamic performance and high durability.
	All auxiliaries are built as modular units and tested during FAT.

		SP 10 W	SP 14 W	SP 20 W	SP 25 W	SP 30 W	SP 35 W	SP 40 W	SP 45 W	SP 50 W
Maximum power [kW]		900	1250	1650	2000	2250	2525	3000	3500	4500
Input speed [rpm]*		1000-2000	750-2000	750-2000	750-2000	750-2000	750-2000	750-1900	900-1200	750-1200
Maximum Bollard Pull, two units [MT]		29	41	54	65	75	85	100	115	148
Propeller diameter [m]**	Ducted Std.	1.6	1.9	2.2	2.4	2.6	2.8	3.0	3.2	3.6
Prime mover	Z-DRIVE	Diesel or electric								
	LM	Electric, integrated								
Dry weight [t]	Z-DRIVE	7	10	14	19	22,3	26	34	38	42
	LM	10	14	18	23	30	37	42	47	53
Steering type	Z-DRIVE	Hydraulic or electric								
	LM	Electric								
Lubrication	Standard	Electro-hydraulic								
	Optional	Hydraulic								
Maximum ice class (DNV-GL)***	OPEN	None	None	ICE-1B	ICE-1B	ICE-1B	ICE-1A	ICE-1A Super	ICE-1A Super	ICE-1A
	DUCTED	None	None	ICE-1B	ICE-1B	ICE-1B	ICE-1A	ICE-1A Super	ICE-1A Super	ICE-1A
Installation options		Bolted, bottom-well cover or welded								

* Other RPM on request.
** The impact of propeller diameter to power to be checked case by case.
*** Ice class impact on power is checked case by case.

The table displays product specifications for units up to 4,500 kW. For units exceeding this capacity, reaching up to 9,000 kW with a maximum propeller diameter of 5.5 meters, are customized to meet specific project requirements.
We reserve the right to modify the information above at any time without notice.

SP T SERIES PROPULSORS



Robust design made to last

The development of the Steerprop T Series azimuth propulsors is evidence of our commitment to the tug market. The SP T Series meets our customers' most stringent demands. The new design has improved flexibility, increased modularization and scalability, while maximizing the bollard pull per engine's power input. These robust and hydro-dynamically efficient propulsors are able to adapt to different requirements, configurations and versatile operations with mechanical, hybrid or electrical prime movers.

The SP T Series is designed with simplicity and ease of serviceability in mind, and thanks to Steerprop's core philosophy, maintenance arrangements are flexible and cost efficient, with seamless remote support. To further ensure safe and efficient operations, SP T Series propulsion units can include our condition monitoring system, Steerprop Care, as a fully integrated part of the delivery, with a simplified set-up to suit the tug industry's needs.

FEATURES	MAIN BENEFITS
MODULARITY AND FLEXIBILITY	Flexibility to adapt to different operations with mechanical, dual-input hybrid or electrical prime movers. Adaptability to changing configurations and tailored requirements i.e. shallow-draft applications. Suits a wide range of input speeds, even high-speed engines that comply with Tier 4 environmental regulations.
HIGH EFFICIENCY	Exceptional hydrodynamics due to optimized lower housing shape. No sacrificial anodes on nozzle, instead an added hydrodynamically shaped anode reduces flow separation from nozzle outer surface. High-efficiency nozzles and larger propellers for increased bollard pull. Spray-lubricated upper gear for enhanced mechanical efficiency.
ROBUST AND SIMPLE CONSTRUCTION	Rated for unlimited tug use of gears and main components. Serviceability as a key design driver. Lower body of cast steel for better hydrodynamic performance and high durability. All auxiliaries are built-in as modular units and tested in-house during FAT.

		SP 175 T	SP 250 T	SP 325 T	SP 400 T	SP 425 T	SP 450 T	SP 550 T
Maximum power [kW]		1150	1600	2000	2525	2700	3000	3300
Input speed [rpm]*		1200-1800	1000-2000	900-1800	900-1800	900-1800	900-1800	900-1800
Maximum Bollard Pull, two units [MT]		36	52	66	81	89	100	112
Propeller diameter [m]**	Ducted Std.	1.7	2.1	2.4	2.6	2.8	3.0	3.2
		Other diameters available by request						
Prime mover	Standard	Z-Drive - Diesel						
	Optional	Z-Drive - Electric J-Drive - Dual-input Hybrid LM - Electric, Vertically integrated						
Clutch	Standard	Hydraulic - On/Off						
	Optional	LD Integrated, HD Integrated, HD External - Hydraulic & Electro-hydraulic						
Lubrication	Standard	Hydraulic						
	Optional	Electro-hydraulic						
Steering	Standard	Hydraulic						
	Optional	Electric & Electro-hydraulic						
Installation options	Standard	2-piece bolted						
	Optional	1-piece bolted, bottom-well cover or welded						

* Other RPM on request.
** The impact of propeller diameter to power to be checked case by case.

We reserve the right to modify the information above at any time without notice.

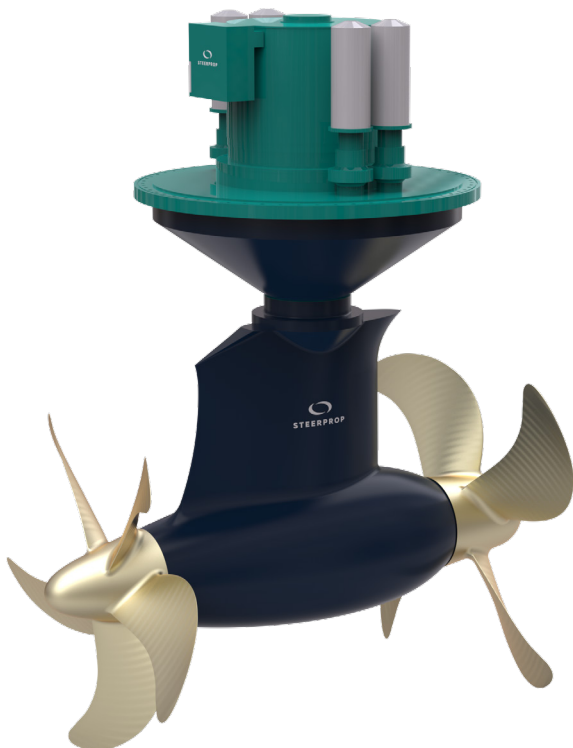
SP CRP PROPULSORS

The next generation of CRPs focuses on overall energy efficiency and reliability

Discover the next generation of contra-rotating propulsor (CRP) – a fusion of over 20 years of proven expertise and cutting-edge R&D. These units represent an improved generation of CRPs with a focus on overall energy efficiency and reliability.

In CRP technology, a double gear contact divides the propulsion load between the two propellers, and the opposite rotation direction recovers energy. If your vessel operates in shallow rivers or pushes through ice, the optimal solution might require both high performance and smaller propellers. The Steerprop CRP series has smaller propeller options for ice-class or reinforcement needs, without compromising the highest efficiency demands. The propellers can also have a larger diameter and operate in slow-turning mode to ensure an outstanding propulsion efficiency. The design has been tested and verified in action worldwide for decades.

Take your vessel's open water capabilities to new heights with Steerprop's new generation of CRP – the summit of experience and innovation in CRP technology.



Steerprop next generation of CRP showcase -
design principles, facts, and key benefits

DESIGN PRINCIPLES
Parametric design and optimal sizing to achieve the best possible performance and cost-effectiveness
Project-based design and optimization of propellers
Applications: cruises, ferries, offshore vessels, tugs, merchants and naval vessels
FACTS
Designed for integrated permanent megnent (PM) motor
Next generation lubrication system
New housing shape is verified by model testing and CFD
MAIN BENEFITS
Proven, robust and reliable technology
Optimal CAPEX as the Steerprop’s next generation of CRPs is a perfect fit - no compromises between two sizes
Low OPEX due to best-in-class mechanical and hydrodynamic effenciencies

	SP 10 CRP	SP 12 CRP	SP 14 CRP	SP 18 CRP	SP 20 CRP	SP 25 CRP	SP 30 CRP	SP 35 CRP	SP 40 CRP	SP 45 CRP	SP 50 CRP
Maximum power [kW]	900	1050	1200	1400	1650	1900	2200	2550	3000	3500	4000
Propeller diameter [mm]	1800	1950	2100	2300	2500	2700	2900	3100	3300	3550	3800
Prime mover	Integrated Electric										
Steering type	Electric										

We reserve the right to modify the information above at any time without notice.

SP CRP ECO PROPULSORS

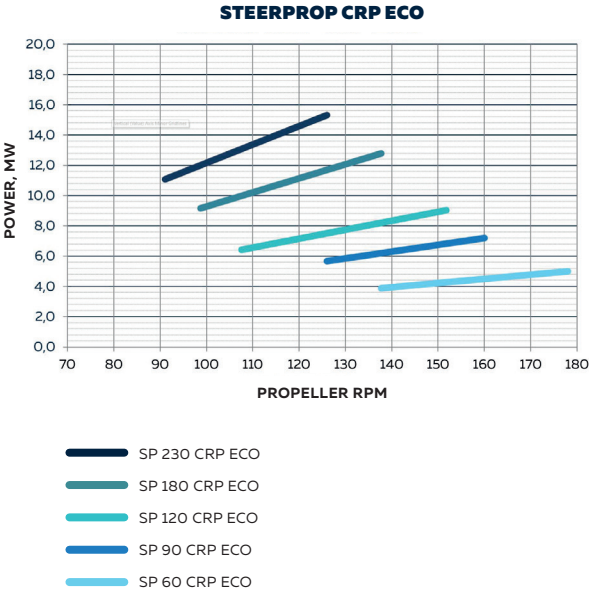


For the ultimate efficiency

Being fuel-efficient doesn't necessarily mean you need to compromise on performance or reliability. Steerprop contra-rotating propulsor (CRP) ECO is designed to deliver excellent propulsive efficiency, reliability and manoeuvrability with low lifecycle costs and considerable savings in fuel consumption.

Steerprop CRP ECO ARC brings you unrivalled ice management and manoeuvrability, with unique propeller flow while enhancing the vessel's stern-first icebreaking ability.

FEATURES	MAIN BENEFITS
POWER SPLIT BETWEEN TWO SETS OF PROPELLERS, SHAFT AND GEARS	Lightly loaded propellers. Low propeller RPM and tip speed. Good cavitation performance. Highest possible free running efficiency. High thrust in bollard/DP. Low underwater noise.
RELIABLE AND ENVIRONMENTALLY SAFE OPERATION	Long lifetime roller bearings – High reliability. No electric motor underwater. All auxiliaries are built as modular units and tested at FAT Non-polluting propeller shaft seal with pressurized air and drain line. No oil-to-water barrier – US EPA compliant.
OPTIMIZED INSTALLATION, SERVICEABILITY AND LIFECYCLE COSTS	Lubrication and seal systems built on the propulsor reduce external piping and large air coolers. Installation from underneath at late stage of ship building. Optimized modular structure and electrical motor inside hull ensures easy serviceability. Planned docking interval 5 years for replacement of seal and anodes. Long time between overhauls; 15 years / 100000 hours. Condition monitoring system enables trend follow-up for preventive maintenance.



Propeller RPM and power to be verified by Steerprop.
Maximum power subject to class rules.

We reserve the right to modify the information above at any time without notice.

**SP TT SERIES
THRUSTERS**



Holistic tunnel thruster solution for maximizing performance

Tunnel thrusters are commonly used in the maritime industry but they are often installed on vessels without proper performance analysis. This can result in uncertainty about whether they are too weak or too powerful for their intended use.

Tunnel thrusters play a crucial role in a vessel's maneuverability, performance, and comfort. To ensure optimal operation, it's important to move beyond guesswork and invest in thorough tunnel thruster optimization.

DESIGN PRINCIPLES

- Fit-for-purpose solutions for each vessel, aligning them precisely with the required performance and comfort criteria
- The holistic optimization approach covers every aspect from the vessel's hull to tunnel parametrics

FACTS

- Power range from 500 to 7,000 kW
- L-drive or integrated permanent magnet motor drive
- Ice class availability

MAIN BENEFITS

- Moving beyond guesswork
- Precision in maneuvering
- Comprehensive optimization approach - maximizing performance, comfort, efficiency and maneuverability

**SP R SERIES
THRUSTERS**



**Retractable thrusters
that set the benchmark
for Dynamic Position (DP)
performance**

Steerprop's retractable thrusters not only adhere to industry standards but also maintain Steerprop's stringent criteria, prioritizing energy efficiency, top-notch quality, dependability, and ease of use and maintenance. These retractable azimuthal thrusters signify a remarkable leap in enhancing DP performance, establishing new industry benchmarks, and elevating the overall capabilities of propulsion systems.

DESIGN PRINCIPLES
Designed for demanding DP applications
Designed for high speed DP
Compact design
FACTS
Power range from 850 to 3,500 kW
L-drive or integrated permanent magnet (PM) motor drive
Hydraulic retracting and locking
MAIN BENEFITS
Minimized need for maintenance
Possibility to select the propeller diameter based on the performance requirement and space available - max 3.2 m
High steering performance

SP ARC PROPULSORS



FEATURES

AVAILABLE UP
TO 12 MW IN
THE MOST
DEMANDING
POLAR
ICE-CLASSES

PUSHING OPEN
OR DUCTED
PROPELLER

HIGH BOLLARD
PULL WITH
DUCTED
PROPELLER

PRESSURE
LUBRICATION
- HIGH MECH.
EFFICIENCY

For the most extreme operating conditions

Dependability is especially critical in harsh arctic environments. The Steerprop ARC and PULL ARC azimuth propulsor lines have been designed and built with multiple layers of redundancies and

SP PULL ARC PROPULSORS



FEATURES

AVAILABLE UP
TO 12 MW IN
THE MOST
DEMANDING
POLAR
ICE-CLASSES

PULLING OPEN
PROPELLER

EFFECTIVE ICE
MANAGEMENT
WITH PROPEL-
LER WASH

ICE MILLING
WITH PULLING
PROPELLER

PRESSURE
LUBRICATION
- HIGH MECH.
EFFICIENCY

fail-safes for reliable, efficient and safe operations in the most extreme operating conditions. These advanced propulsors combine ice-breaking power with the reliability of mechanical construction and the accurate controls of modern automation technology.

Steerprop control system

Operational reliability for those who are in control

When it comes to the best operability with high quality, Steerprop Control System is your choice. Operational reliability is ensured with a full follow-up backup control lever. Tailor made control mode functions provide flexibility and ensure a user-friendly experience.

As part of Steerprop's quality assurance, the entire control system, with its controllers, cabinets and control panels, are tested together with the propulsor. Our skilled personnel work closely with you to ensure the best support and results throughout the entire process.

Steerprop Control System always comes with a possibility for remote service connection, so you are never left alone. A modern solution with an excellent level of redundancy, Steerprop Control System gives you full assurance of being in control at all times.

Maneuvering with Steerprop's advanced control modes gives you a first-class steering experience. With the motorized control lever, captains can create their own personalized control profile according to preferences. Steerprop provides solutions that are a perfect fit for those who seek the best results.

Our control system with all these features is also available as a retrofit installation for all existing propulsion systems.

Multiple clear and simple views from which the captain can check real-time statuses

High quality touchscreen provides a simple and intuitive user interface

Display contents can be modified according to needs

Integrated alarm view

Integrated backup system activation

Physical push buttons and indications for critical functions

Full follow-up backup control from main azimuth lever

All connected control panels and displays can be dimmed together

All levers feature redundant, maintenance-free sensors for azimuth operation and speed control

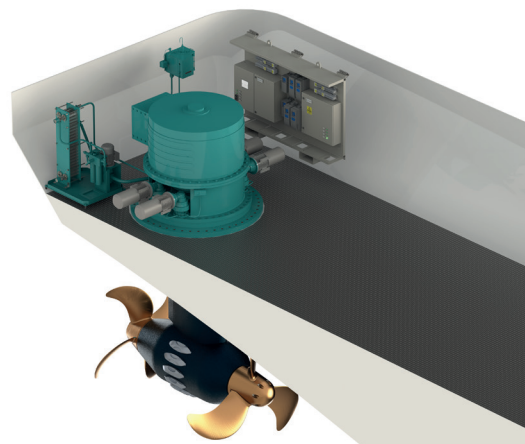


Configurations

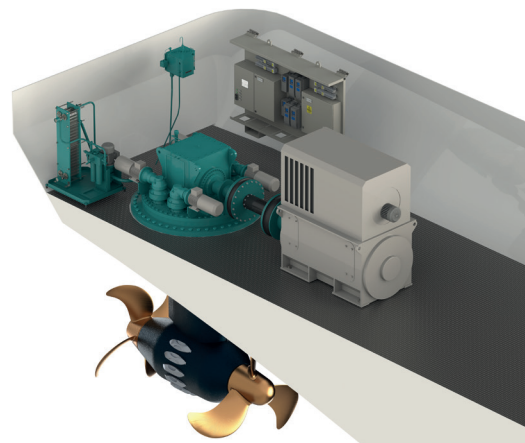
Steerprop units with permanent magnet motor (LM) - compact design and small space requirements

Steerprop propulsors are available in two different configurations: an LM unit with an integrated permanent magnet motor or a Z-drive with a horizontal motor. Both solutions offer the highest level of redundancy and flexibility in engine and propulsion room arrangements.

The Steerprop LM unit uses an integrated permanent magnet (PM) motor that is more silent and offers better efficiency compared to a traditional induction electric motor. Moreover, by replacing the upper gear with an LM motor, we reduce weight and get more room in the ship for other components, and we can avoid upper gear excitations in the ship hull. Additionally, having all instrumentation inside the ship hull means easy maintenance and increased reliability.



LM unit with integrated permanent magnet motor.



Z-drive with horizontal motor.

Auxiliary modules

All auxiliary modules are preassembled and tested at our factory. This ensures quick and easy installation, thus minimising time, risk and labour costs.



Shaft seal system.



Lubrication unit.



Steerprop assembly board (SAB).

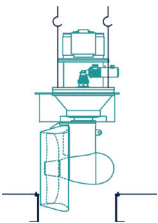
Control system and all its auxiliaries are collected to a single assembly board.

Mounting options

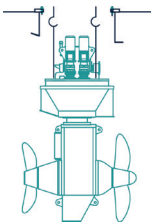
There are a few options on how our solutions are installed. Depending on the unit, it can be mounted in one or a few parts, from underneath or from above. Our skilled personnel are happy to give you more information about the particular mounting options for our different solutions.

BOLTED MOUNTING

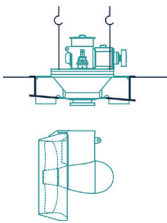
WELDED MOUNTING



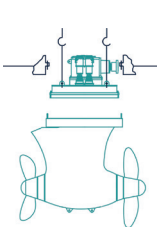
Bottom-well cover, in 1 piece



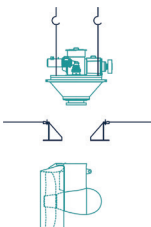
Standard, in 1 piece



Large, in 2 pieces



ECO, in 2 pieces



Standard, in 2 pieces

STEERPROP SERVICES

We support our customers whenever, wherever, to assure their propulsion assets stay operative. The utility and performance of our customer's assets is our primary concern. We believe well maintained assets are a key component of our customer's success. We take pride in fast, professional response, always on call – that's our resolve to perform.

Steerprop Services comprises:

- Original Spare Parts
- Lifecycle Solutions
- Steerprop Care.

Original Spare Parts

Steerprop is dedicated to supplying OEM quality spare parts or replacement parts for our supplied units during their entire lifecycle. We maintain a healthy stock of consumables in our warehouse in Rauma. In addition, we stock a variety of long lead-time items to ensure shortest possible downtime to our customer's assets.

Lifecycle Solutions

Our aim is to make the fleet manager's job as easy as possible. We do this by providing access to on-line technical documentation for the Steerprop scope of supply of every vessel we have ever equipped. Our service can be reached 24/7 to assist in distress, wherever your asset may be, whenever.

We are your reliable and trusted partner when it comes to OEM-level service skills for scheduled maintenance. We can provide you with whatever services you may need in upkeeping your asset's operational capability.

We provide solutions to extend your asset's lifecycle. Our solutions are not limited only to Steerprop propulsion equipment, but can equally be provided to practically any maker's equipment as a retrofit of the main propulsion control system and bridge controls. Steerprop Retrofit adds value by extending vessel lifetime, minimizing the risk of vessel downtime, improving redundancy and enabling monitoring of the vessel's systems.

Steerprop Care

The Steerprop Care condition monitoring system offers shipowners and crew the highest possible reliability, based on enhanced predictability, safety and productivity. By taking a proactive approach, costly breakdowns and downtime can be avoided.

Steerprop Care is included as a fully integrated part of every propulsor delivery, which allows crew members to follow machinery trends and detect any deviation that could affect the propulsion system in advance.

Steerprop Care is available on three levels:

- **Care Standalone**
Included in every Steerprop propulsion delivery.
- **Care Plus**
Additional sensors and online monitoring performed by Steerprop personnel.
- **Care Premium**
Oil quality control added to the online monitoring performed by Steerprop personnel.



OUR RESOLVE TO PERFORM WITH RESPONSIBILITY AND QUALITY

At the very core of Steerprop is our Resolve to Perform – providing propulsion solutions to operations and conditions where “will do” just simply won’t do. Where capability, quality and reliability must never be compromised.

Dedication to this attitude defines our approach in everything, including acknowledging and fulfilling our responsibility to all our stakeholders, to society in general, as well as the environment.

Commitment to responsibility

Our long-term strategy remains grounded in sustaining our competitive edge in an increasingly challenging business and regulation environment through responsible actions and behavior.

We embrace all advances in providing an inspiring, safe, diverse, and responsive working environment.

We are committed to applying and promoting sustainable technology, manufacturing methods, products, and services throughout the entire value chain.

A sustainable mutual future

This commitment to continuously develop our responsibility program serves not only Steerprop’s goals, but the wellbeing and prosperity of our employees and customers as well.

Providing outstanding, reliable and energy-efficient solutions also helps our customers realize their sustainability goals. And solidifies Steerprop’s value as a partner, employer and active member of the community far into the future.

Quality throughout all operations

Steerprop follows a management system that enables us to effectively manage our responsibilities and maintain the quality of our work on a daily basis.

Steerprop is certified according to the ISO 9001 (quality management system), the ISO 45001 (occupational health and safety management system) and the ISO 14001 (environmental management system).

This gives us a systematic approach to continuous measurement and improvement of our operations, and our long-term endeavor toward economic, environmental and social sustainability.

Moving forward

We know from experience that conditions and demands vary over time and circumstance, but never accept that as an excuse to sway from our principles.

We are on a quest to constantly improve our performance – beyond the progress and goals already achieved. We maintain complete transparency throughout our sustainability and responsibility practices and records.

We are driven by our **Resolve to Perform**: always curious to learn, eager to improve, and willing to evolve. Unwillingness to compromise and embracing constant development maintain our position as the standard of the industry, where “will-do” just simply won’t do.



COMPANY WITH
MANAGEMENT SYSTEM
CERTIFIED BY DNV
ISO 9001 • ISO 14001
ISO 45001

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You can also send us a message via WhatsApp!

In non-urgent service requests, please contact our services personnel.

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We reserve the right to modify the information at any time without notice. For the latest information, please visit our website: www.steerprop.com



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