



STANDARD MANEUVERING SOLUTIONS



DYNAMIC POSITIONING | MANEUVERING & POSITIONING SYSTEMS | CONTROL SYSTEMS | THRUSTERS | DECK EQUIPMENT | STEERING GEARS



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PMH supplies products and complete solutions for dynamic positioning, steering gears, maneuvering systems, hydraulic systems, deck equipment and thrusters.

Our customers consider PMH products as stable and robust. We have produced and supplied high quality solutions for maritime vessels for over 50 years.

Our employees are rich in know-how, solutions-oriented, receptive and have a wide range of mechanical, hydraulic, electrical and technical skills.

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MANEUVERING & POSITIONING SYSTEMS

Flexible and innovative maneuvering and positioning systems that ensure your complete control of the vessel.

Our maneuvering systems for thrusters and main propulsion can be adjusted, customised and adapted to your needs.

Maneuvering and positioning systems from PMH ensure that the vessel can operate in demanding environments and tough conditions.

For maximum and cost-effective performance and reliability, the choice is simple: **maneuvering, positioning and control systems from PMH.**

Read more about our
maneuvering and positioning
systems on the next pages



DYNAMIC POSITIONING

PMH's DP system
Keep Position



Keep Position was developed by us to keep vessels in an absolute position based on satellite-based navigation systems, stay positioned relative to a ROV or other objects in motion or moving in a given direction.

Keep Position is easily integrated with our maneuvering systems, but also with third party systems.

The system can make use of a wind sensor, MRU or other environmental sensing equipment to compensate in realtime before any deviation is registered.

Highly competitively priced, Keep Position is available in three different versions: **KP 100**, **KP 200** and **KP 300**.

Each model has a variety of functionality and can also be customised according to specific needs:

KP 100

KP 100 is our basic and least expensive version. KP-mode holds the vessel in a given position and heading. Target position and heading can be adjusted in given steps using the joystick.

Joystick mode enables simple control of the vessel's propulsion and maneuvering systems using fingertip control.

The control panel presents a display of deviation, target heading, distance in metres to target, course to target, vessel's deviation from position, and heading deviation. The same system also includes an array of alarms.

KP 200

KP 200 has all the same functions as KP 100 – and more!

It includes **auto-mode**, allowing you to maneuver the vessel in a given direction with fixed heading compensating for drift.

The operator's screen presents vessel position, parameter and alarms. You can step the target position and heading using the joystick and view the actual position in relation to the target position on the display.

KP 300

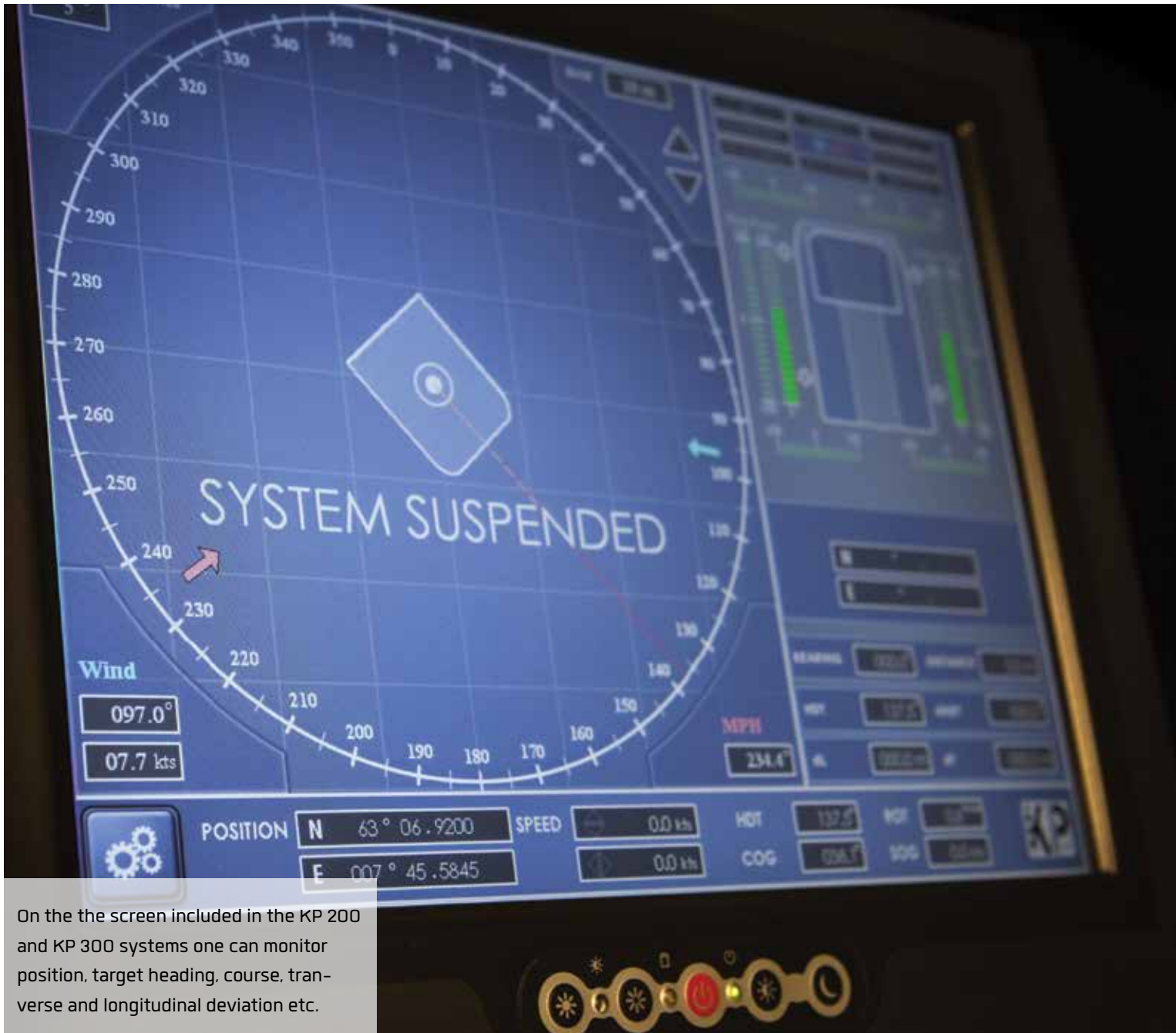
KP 300 is a complete system for dynamic positioning and maneuvering. It has the same functions as KP 100 and 200 – plus several other modes:

Go-To-Target mode. Simply enter target position's GPS coordinates and lock speed and heading.

Follow-Route mode enables following of a given route based on the vessel's chartplotter. The system integrates well with all well-known chartplotter systems available.

Follow-ROV mode allows positioning relative to a moving vessel or object with fixed distance, heading and speed.

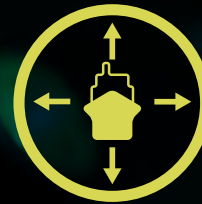
Eco mode reduces the wear and tear on the machinery and contributes to lower running costs by lowering fuel consumption, because of lower RPMs, slacker positioning and higher deviation tolerance.



On the the screen included in the KP 200 and KP 300 systems one can monitor position, target heading, course, transverse and longitudinal deviation etc.



Motor, Pitch & Thruster Control



MPTC

Complete control of the vessel maneuvering from a simple control panel. MPTC (Motor, Pitch & Thruster Control) is a system for controlling thrusters, rudder, propeller pitch, gear, and engine throttle – indoor and outdoor.

The operator's screen presents command values, system parameters and alarms.

MPTC works equally well with electric or hydraulic thrusters – and can be adapted to all types of engines, thrusters and propellers.

Each installation is customised to the vessel, ensuring top performance for machinery and maneuvering equipment. The system is available with multiple maneuvering positions, and is easy serviceable through remote diagnostic and parametrization.

MPTC gives you:

- thruster control
- rudder control with electronic synchronizing of twin rudders
- control of throttle and pitch
- automatic disconnection of pumps with critically low oil level
- feedback from rudder and main engine
- simple interface with PMH's own DP system, Keep Position
- support for simple integration to other DP systems
- logging and monitoring of data from the system
- signal monitoring of shorting and breaks
- indoor and outdoor control stations

Engine & Pitch Control

EPC

A simple maneuvering system for engine and pitch. EPC (Engine & Pitch Control) is a flexible and user-friendly maneuvering system for all types of vessels.

The operator panel has one lever for each engine and one for each controllable pitch propeller.

The product is developed as a plug n'play solution. Our customers can therefore mount and start it themselves without help from PMH's service personnel.

Up to three maneuvering positions can be supplied - both for indoor and outdoor use.

EPC can be connected to the DP system, Keep Position - it is suitable for single or dual engines, newbuilding and retrofit of vessels, and is easy to install.



EPC gives you:

- ✦ easy control of engine throttle and propeller pitch
- ✦ automatic signal monitoring on the control panel
- ✦ warnings of errors in the system
- ✦ simple interface with PMH's own DP system, Keep Position
- ✦ support for simple integration to other DP systems
- ✦ control of up to two engines



Thruster Control Systems

TCP & STC

A robust and user-friendly thruster control system. STC (Side Thruster Control) from PMH can be easily adapted and works well with existing systems.

TCP-11 and TCP-12

For effective control of thrusters up to 50 horsepower. Only available for thrusters with hydraulic drive.

STC-Single and STC-Dual

Control of thrusters mainly from 50 horsepower and above. Can be adapted to both electrical and hydraulic thrusters. Features multiple alarm and monitoring functions.

TCP and STC gives you:

- simple control of thrusters from 15 horsepower and above
- control of up to four thrusters - two in pairs when run manually
- control of any number of thrusters can be customised
- simple interface with PMH's own DP system, Keep Position*
- support for simple integration to other DP systems*
- multiple maneuvering positions available

* Only available on STC



STEERING GEARS

STEERING GEARS

Robust and stable steering gears for precise rudder control. Built for long-term performance – and based on our extensive expertise within hydraulic and electrical solutions.

Ram-type steering gears with two double acting cylinders on each rudder, provide a strong, reliable and redundant steering solution.

The combination of hydraulics and electrical control gives precise long-term stability and unbeatable reliability.

The steering gears can be complemented by manual hydraulic wheel pumps.

Our steering gears meet type approval from DNV GL and the latest requirements from the Norwegian Maritime Authority.



Steering gears from PMH gives you:

- ↻ support for single and dual rudders
- ↻ connection to autopilot and joystick in the control system
- ↻ torque from 500 to 4000 kg/m
- ↻ board to board in maximum 25 seconds
- ↻ rudder indicator and control system
- ↻ autostop of pumps to reduce runtime and costs

CONTROL SYSTEMS

Various control systems are often asked for, easing tasks onboard.

The vessel crew should be safe. We have solutions to ensure safe control of all equipment above and below deck.

Our control systems are built to industry standards and have maritime approvals. Everyone on deck are kept safe and efficient with PMH equipment on board.

CUSTOMISED

We can customise everything within control systems for all sorts of vessels. We develop safe, robust solutions for control of all equipment on the boat.

Our systems make remote support simple, as they can be remotely linked. Data logging with optional data export is standard.

OUR SOLUTIONS FOR CONTROL SYSTEMS:

Winch control

- ↻ input from remote control
- ↻ readings for load/weighing cells
- ↻ emergency release
- ↻ emergency stop
- ↻ manual control from bridge with joystick
- ↻ load limiting
- ↻ data logging throughout operation
- ↻ operator's screen for displaying load etc.

Safety equipment control

- ↻ control panel on bridge, remote control on deck
- ↻ emergency release of towing pins and shark jaw
- ↻ output for alarms and status lights
- ↻ touch screen operator display for mode selection, alarm handling and settings

See page 18 for more details on safe deck equipment.

PROJECT ENGINEERING

HYDRAULICS, ELECTRONICS AND MECHANICS

Our technicians and engineers are experts in everything from advanced equipment on the bridge, to simple mechanical structures such as the propeller underwater. We know how each part works and how they interact with each other on the vessel.

PMH designs systems to fulfil your requirements for any job, all of them with simple, customised and refined solutions in accordance with current directives and certifications.

Hydraulics

Our reliable hydraulic systems have been developed to ensure that the capacity and power any job requires, always is available.

Wherever possible, we use standard parts and products in our hydraulic systems, to keep repairs and maintenance simple and efficient when needed.

Electronics and automation

Our electrical engineers build systems based on high quality standard components.

Our expertise within advanced electronics and automation has been developed over decades of supplying solutions to maritime vessels – and is the foundation of many of our most successful products. We are happy to dedicate our expertise and time to you.

Mechanics

With 50 years of experience from developing mechanical equipment within the maritime, aquaculture and commercial fishing industries, and together with our expertise within other fields, we can customise a wide range of products for our customers.

We want to solve the individual problems faced by our customers, rather than having the customer adapt to given products.

We are Parker distributor and offer all Parker's trademarks. We have our own Parker Store.



PMH meets the requirements and certifications of recognised approval authorities.





THRUSTERS



Our thrusters have a simple yet robust design, are very flexible and can be fitted to all types of hulls. They are highly durable machines in aluminium, fibre glass or steel.

Our customers know our thrusters as robust, easy to maintain and long lasting. We have supplied over 1000 tough and effective thrusters to the commercial fishing, transport and aquaculture industries over the last 30 years.

Our thrusters are prepared for integration with control systems such as our MPTC and dynamic positioning systems such as our Keep Position.

Better cooling and lubrication are necessary when thrusters are exposed to demanding work – PMH supplies the equipment and expertise to ensure that everything works as intended. Our thrusters can be supplied with certificates of approval if required.

Our thrusters meet the requirements and certifications of recognised approval authorities.

We supply two types of thruster solutions: ST and STR. The ST design has a curved tunnel whilst the STR design has a straight tunnel.

ST DESIGN

The ST design has a direct drive line through propellers and motor, meaning minimal complications and moving parts. The construction is service-friendly

and easy to adapt to all hull types, and is especially suited to catamarans.

PMH supplies ST thrusters from 15 to 500 horsepower – electric or hydraulic.

STR DESIGN

The motor is mounted perpendicular to the tunnel with a 90 degree gear, making it ideal for fitting under the main propeller shaft. The STR design is delivered with the motor directly placed on the tunnel or on an intermediate shaft in the hydraulic and electrical versions. Both are supplied with 150 or 250 horsepower. Versions with 500 horsepower are in the making.

THRUSTERS IN COMBINATION WITH COMPLETE MANEUVERING SYSTEMS

We supply thrusters, pump systems, valves and maneuvering systems, oil, tanks, filters, and cooling for hydraulic-powered thrusters. We also supply frequency converters and control systems for electrically-driven thrusters.



PMH's system for
deck equipment



DECK EQUIPMENT

Safe, flexible and adaptable winches, capstans and safety equipment you can trust.

Deck equipment from PMH is ideal for harsh environments, tough conditions and heavy work.



CAPSTANS

We supply rail- and deck-mounted capstans, with lift capacity from 1 to 10 tons. All our capstans are hydraulically powered and proportionately controlled with levers or foot pedals to give the operator full control over line speed and power.

Supplied in steel or aluminium. Capstans with a pulling load up to 2 tons are supplied with direct motor drive, whilst from 3 tons and over they are driven via gear.

AW ANCHOR WINCHES – FOR 15 METRE LONG BOATS AND ABOVE

AW winches have a pulling load from 1 to 5 tons. Stall load from 6 to 20 tons.

- ↻ AW1-6 ↻ AW2-20E
- ↻ AW1.5-10 ↻ AW2-20H

DW DRUM WINCHES – ALL-ROUND WINCHES

The large, powerful drum can be used for everything from hauling in tarpaulins to rope storage and for towing.

Available with tension control for controlled pulling power.

Our DW drum winches come with 5 to 80 tons pulling load and a brake factor of minimum 1.25.



ANCHOR HANDLING WINCHES FOR HEAVY ANCHOR LIFTS

When extra power is needed, our anchor handling winch has the strength you need. An extra rope chamber means you can pull in the last part of the anchor rope.

Available from 20 ton pulling load and above, and designed in accordance with ISO 7365.

DRUM WINCH FOR TOWING

- ↻ DW 60/20
- ↻ DW 80/20

DW 80/20 is the biggest towing winch we offer to the market.

The DW 60/20 and 80/20 are both supplied with emergency release and tension control, with split or common drum. Both models can also be adapted to individual requirements.

Our winches are optimised to meet all requirements and guidelines from the Norwegian Maritime Authority, relevant ISO standards and approval authorities.

SAFE DECK EQUIPMENT

PMH supply everything you need for safe mooring and anchor handling.

We work closely with our expert partners to develop and produce new products and solutions focusing on safe deck work as top priority.

Our equipment meets the requirements and certifications from DNV GL.

WE CAN CURRENTLY OFFER:

- ↻ Shark jaw
- ↻ Twister
- ↻ Stern roller
- ↻ Towing pins
- ↻ Chain Lock
- ↻ Mooring
- ↻ Plate clamp
- ↻ Rope Lock
- ↻ Multihandler
- ↻ Compacthandler
- ...and a lot of other products

TOTAL CONCEPT SOLUTIONS





Installing thrusters, deck equipment, hydraulics, control systems and automation from PMH results in a robustly equipped vessel ready for any environment.

TOTAL CONCEPT SOLUTIONS

Experience shows that it is important to think widely when it comes to equipping a boat. PMH can take project responsibility for all supplied equipment, making them

work together and as intended. A total concept solution from PMH guarantees that all the equipment in the boat works harmoniously and optimally.

Our total concept projects ensures the best coordination between all our products, including deck equipment and hydraulics, winches, cranes, capstans, safety equipment, thrusters and our maneuvering systems.

Our bridge systems provide complete overview and control the equipment.

PMH has built up excellent working relationships with shipping lines and yards at home and abroad over the years.

WE ENSURE:

- ↻ total engineering planning of boat equipment
- ↻ technical drawings of equipment supplied (hydraulic and electronic)
- ↻ installation support
- ↻ control and assistance for startup
- ↻ service documentation
- ↻ 24/7 service in line with the customer's needs. Call us:

PHONE 24/7: +47 917 60 919



SERVICE AND MAINTENANCE

Prevention is better than the cure.

PMH service means that you can be confident that all your equipment will work when it matters.

Our ultimate aim is to avoid breakdowns, outage/stoppages and damaged equipment. The simplest way to achieve this is preventive maintenance and fixed service intervals on your equipment.

REGULAR INSPECTIONS

Since we cannot always be there exactly when an accident happens, we offer the best possible proactive and damage-limiting service provisions.

Our service personnel can make regular inspections to advise upon scheduled services, instead of risking failures during operation and causing costly downtime.

RELIABILITY PAYS

Preventive service maintains the quality of equipment. PMH products are always of high quality, and become even more reliable if taken good care of. Keeping them in good condition also increases their value the day you come to sell the boat or equipment.

SKILLED TECHNICIANS

The backbone of our Service Department is our skilled service technicians. They are cross trained and have in-depth knowledge of electronics, automation, hydraulics and mechanics.

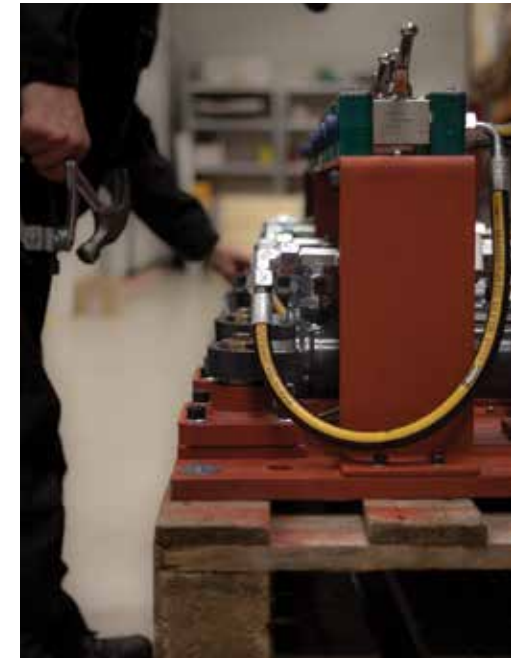
They draw, build and fit advanced hydraulic and electrical systems every day. Experts of this calibre perform high quality service work domestic and abroad.

SERVICE AGREEMENTS

- ↻ service analysis - analysis and identification of service requirements
- ↻ extremely skilled personnel within hydraulics, electronics and machinery
- ↻ periodical inspection and maintenance service
- ↻ oil analysis and filter change
- ↻ software updates

SUPPORT AGREEMENTS

- ↻ 24/7 telephone support
- ↻ online support
- ↻ on-site support
- ↻ in-stock guarantee for certain parts
- ↻ short response time



Contact us to arrange or coordinate service:

Service Department PMH

email: service@pmh.no

tel: +47 917 60 919



STANDARD
MANEUVERING
SOLUTIONS



**«We have supplied products and solutions to hundreds of
customers all over the world, and done so with pride and confidence
on every occasion»**

Jon Terje Knudsen, CEO PMH

STANDARD MANEUVERING SOLUTIONS

We have produced and supplied high quality solutions for maritime vessels for over 50 years. PMH has built up excellent working relationships with shipowners and yards at home and abroad.

Our customers know PMH products as stable and robust. Our employees have broad mechanical, electrical, hydraulic and technical skills, are solution-oriented and helpful.

Equipment from PMH is supplied to customers within the offshore, passenger transport, fishing, freight and aquaculture industries.

Our products include control systems, maneuvering and DP systems, hydraulics, thrusters, capstans, winches and a wide range of deck equipment.



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