HIGHLY RELIABLE AND EFFICIENT SOLUTIONS

FISHING VESSELS

Engineering the Future – since 1758.
MAN Diesel & Turbo
MAN Diesel & Turbo is the world’s leading provider of large-bore diesel engines, turbo-machinery, and integrated power systems. We make four-stroke and two-stroke engines for marine and stationary applications, turbo-chargers and propellers, gas and steam turbines, compressors and chemical reactors.

Our marine systems expertise is focused on emission reduction, complete propulsion packages, electrical propulsion, dual fuel, LNG, and digitized services.

We have a long tradition of tailoring propulsion packages to the operational profiles of fishing vessels. Our overall aim is to combine the lowest possible consumption and emissions in a robust solution that will stand up to the harshest conditions.
A tough tradition
Fishing has always been a dangerous job carried out in harsh conditions. But now there are additional challenges: the growing demand for fish has to be met with more sustainable methods. This is tackled by international arrangements, strict fishing quotas, and attempts to manage fisheries scientifically. A hard job has become more complex, demanding flexible new fishing methods and equipment.

Modern fishing vessels require robust technologies that can withstand extreme weather and uninterrupted operation. Failure is not an option. Fishing vessels typically operate in environmentally sensitive areas, so emission requirements will continue to be important.

Robust systems for complex conditions
Our engines and systems have always proven up to the job. We develop our new technologies for high dynamic performance and well-balanced operation behavior while keeping down operating expenses (OPEX) and Specific Fuel Oil Consumption (SFOC). The result is not just future-looking, but efficient and reliable.
FOUR-STROKE ENGINES FOR FISHING VESSELS
Trawlers need strong engines to tow their nets plus more power for their trawl hauling gear and refrigerating equipment. Deep-sea trawlers need even stronger engines to tow the trawls at the right depth and speed.

Operating for long periods without interruption (24/7), trawlers spend weeks or even months at sea until the holds are full. Our propulsion engines and generators are designed to be robust and compact while delivering high output flexibility without pause.

- **Trawlers**
  - **MAN V175D GenSet** 1,440 – 1,920 kW
  - **MAN L27/38** 2,040 – 3,285 kW
  - **MAN L32/44CR** 3,600 – 6,000 kW

Pelagic Trawlers

- **MAN L27/38 GenSet** 1,700 – 2,600 kW
- **MAN V175D GenSet** 1,440 – 1,920 kW
- **MAN L24/38CR** 2,600 – 5,000 kW
- **MAN L27/42CR** 4,250 – 8,500 kW

- **Tuna Purse Sweepers**
  - **MAN V175D GenSet** 1,440 – 1,920 kW
  - **MAN L27/38** 2,040 – 3,285 kW
  - **MAN L32/44CR** 3,600 – 6,000 kW
  - **MAN V32/44CR** 7,200 – 12,000 kW

Trawlers catch fish by towing large nets, usually along the sea bed (bottom trawling). Vessel sizes range from the smaller fresh fish trawlers to large factory and freezer ships on which the caught fish are processed and frozen.

Towing and hauling power

Trawlers need strong engines to tow their nets plus more power for their trawl hauling gear and refrigerating equipment. Deep-sea trawlers need even stronger engines to tow the trawls at the right depth and speed.

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MAN 27/38: Robust design for reliable high power output

Heavy-duty propulsion and maneuvering power are at the core of the MAN L27/38’s performance characteristics. This solid and reliable engine delivers good performance over the entire load range with quick acceleration and immediate load response.

The proven reliability of this engine ensures long periods between overhauls and no unscheduled maintenance and repair work. Additional economic benefits derive from its low fuel and lube oil consumption – while fulfilling legal emission limits. Noise and vibration levels are also reduced, providing comfort to the crew.

Benefits
- Reliability in operation
- Solid and compact design
- Long periods between overhauls
  - 32,000 hours TBO
- Low fuel and lube oil consumption
- Thanks to efficient fuel injection
- Convenient Power Take-Off (PTO)
  - 100% PTO from either end of the engine plus optional 50 kW PTO

Environmental compliance
The MAN L27/38 is compliant with the limits specified in Tier II of the emissions legislation of the International Maritime Organization, IMO. It can comply fully with IMO Tier III in combination with the MAN Selective Catalytic Reduction.

Solid design of marine head and connection rod

Offers stiffness and high safety margins ensuring an ideal housing for a good and stable long term bearing condition.

Clean engine design
The front-end box incorporates cooling water pumps, thermostatic valves, oil pump, cooler and filter.

Jet assist
Supports rapid acceleration in partial load operation. The charge air pressure is increased and the maneuvering characteristics are improved.
Pelagic trawling is the business of catching the fish (such as herring or mackerel) that live at various levels between the sea bed and the surface. Pelagic trawlers use a wide range of advanced technologies to locate, catch and store fish in refrigerated sea water (RSW) or process and freeze the fish.

Complex power needs
Pelagic trawlers often operate over longer distances than bottom trawlers. They have to confront harsh weather conditions and comply with strict environmental regulations. Operation costs have to be kept low. And keeping noise low is important for crew comfort.

Vessels with such varied demands require highly reliable engines with a robust and compact engine design. They need power and operational flexibility for propulsion, for the winches, fish pumps and RSW systems as well as for processing and freezing.
MAN 32/44CR: Robust, adaptable performance

The load profile of the MAN 32/44CR can be completely aligned to the trawler’s operation. The result is superior performance over the entire load range. The 

\textit{EcoTH} \textit{man} \textit{agement system} can detect a load increase at an early stage and improve the response of the engine by activating a boost injection in the Common Rail control.

Low SFOC and OPEX, high reliability, ease-of-maintenance and low vibration emissions are just some of the additional advantages of the MAN 32/44CR.

\textbf{Benefits}

- Low fuel oil consumption
  
  Thanks to flexible setting of injection timing, duration and pressure for each cylinder

- Quick load acceptance

  Best dynamic ship operation in class

- Reliable IMO Tier III compliance

  With any fuel type and best economy thanks to our MAN SCR system

\textbf{Energy-efficient propulsion packages}

Maximal propulsion efficiency is essential for any fishing vessel. We tailor propulsion package performance to the ship’s operational profiles and optimize the matching of engine, gearbox, PTO, propeller blades, nozzle, rudder, and propulsion control system.

\textbf{Further power solutions}

\textbf{Robust and compact design}

Essential properties on working vessels to allow safe maneuverability in the roughest weather conditions.

\textbf{Common Rail technology}

The independent setting of injection timing, duration and pressure of any load point ensures optimum performance of the engine, especially in off-design conditions.

\textbf{ECOMAP load optimization}

With the innovative ECOMAP feature you have the flexibility to run the engine along different SFOC/power characteristics, each of them having its efficiency optimum at different load points.
Tuna purse seiners have to cover long distances on their search for tuna, even with the help of advanced technologies. When the vessel is full they have to return to the shore factory at high speed. Optimizing operation and maintenance costs and reducing the vessel's environmental impact are key challenges.

The engines face heavy duty operation in both propulsion and auxiliary tasks, so they need reliable power availability, high output, flexibility and good part load performance. Keeping fuel costs low is essential.

Tuna is one of the world’s favorite fish, making it a very important commercial catch. Millions of tons are consumed per year and about 60 percent are caught in purse seiners. Tuna purse seiners search for, catch and deliver tuna back to shore.
MAN 32/44CR: Superior load performance

The complex power demands of tuna purse seiners are perfectly met by the MAN 32/44CR with its superior load performance over the entire load range. SaCoS improves the load response significantly by activating boost injection in the Common Rail control. The optimized match for each load results in low SFOC/PEX.

Engine load profile can be completely aligned with vessel operation profile for excellent sea state capabilities.

Benefits

- Low operating costs
  - Thanks to SFOC, savings due to in-house development ECOMAP
- Low lifecycle costs
  - High reliability ensures long TBO (Time Between Overhauls)
- Long service life
  - With main overhauls only necessary every 32,000 hours, servicing downtime is kept to a minimum

MAN HyProp ECO fuel-efficient hybrid propulsion

A hybrid diesel and electric propulsion system is ideal for vessels with flexible operation profiles and running hours with both high and low power demands. MAN HyProp ECO allows several operation modes, reducing fuel consumption and emissions. Used in combination with complete propulsion packages from MAN, efficiency can be raised even further.

Further power solutions

MAN 175D GENSET MAN 27/38

Boost injection

Significantly improves load response by activating a boost injection in the Common Rail control at a very early stage when a load increase is detected. Speed drops are avoided, recovery times are short and there is no additional air consumption.

ECOMAP load optimization

With the innovative ECOMAP feature you have the flexibility to run the engine along different SFOC/power characteristics, each of them having its efficiency optimum at different load points.

High-efficiency turbocharger

The higher pressure ratio increases the efficiency of the engine and thus compensates the increase in SFOC normally associated with lower NOx emissions.
The clean and efficient MAN HyProp ECO

The fishing industry faces a major challenge in complying with strict environmental standards without sacrificing propulsion efficiency and ship performance. On vessels with flexible operation profiles and running hours with both high and low power demands, a hybrid propulsion system is often the best solution. MAN HyProp ECO overcomes the constraint on constant speed propulsion machinery by utilizing variable speed drive (VSD) technology at the shaft generator/motor. This means that the Power Take-Off/Power Take-In (PTO/PTI) operates with variable propeller speed and an optimal utilization of the diesel engine is thereby achieved, which is not possible in a conventional PTO/PTI installation with constant propeller speed.

Benefits of MAN HyProp ECO

- Reduce fuel oil consumption by 10 – 15%.
- Reduce emissions of CO₂, NOx, and SOx.
- Operate propeller with the highest efficiency at its hydrodynamic best point.
- Reduce operating hours of auxiliary GenSets resulting in lower maintenance costs.
- Reduce electrical losses in all operation modes.

Tailored, modular system for flexible operation

The system combines the CP propeller, the diesel engine and the electric shaft machine (alternator/motor). We provide MAN HyProp ECO as an optimized package solution tailored to your vessel’s needs to ensure highest efficiency at all operating modes. Our one-source solution ensures fewer interfaces with uniform design. The MAN HyProp ECO system has been successfully deployed on a 77 m purse seiner/trawler built by Karstensens Shipyard, Denmark (opposite page). The results show that lower propeller and engine speed saves fuel.

HYBRID PROPULSION
MAN PrimeServ

MAN PrimeServ is the dedicated MAN Diesel & Turbo service brand. Via a network of over 100 service centers worldwide, MAN PrimeServ provides 24/7 service across the globe. Our range of services includes technical support, consulting and OEM spare parts, as well as maintenance, repair and comprehensive individualized service plans.

MAN PrimeServ’s aim is to provide:
- Prompt delivery of high-demand OEM spare parts within 24 hours
- Fast, reliable and competent customer support
- Individually tailored O&M contracts
- Ongoing training and qualification of operators and maintenance staff
- Global service, 24 hours a day, 365 days a year
- Diagnosis and troubleshooting with our high-performance Online Service
MAN PrimeServ

We offer retrofitting and upgrade services to bring engines, turbochargers, propellers and aft ship equipment already in service up to the very latest standards of performance and efficiency. Using the latest digital technology, we enable you to maximize the performance and availability of your MAN equipment by accessing real-time data analysis, remote support and rapid solutions. We also offer an extensive range of training courses at MAN PrimeServ Academies around the world.

Fishing vessels must always be ready for action and so is our service team, offering continuous support, dedicated training and fast delivery of spare parts wherever your fishery operations take you.

For more information please visit:

www.primeserv.mandieselturbo.com
An interactive experience

Download our MAN Brochure Store app from the App Store. Use its exciting interactive features to explore our complete range of products and services.

Explore our latest news via an app

DieselFacts brings you the most recent news from the world of two-stroke and four-stroke engines, including the latest technical papers, in-depth features and videos.