www.fnm-marine.it

FNM Marine Diesel Engine

Marine diesel engines and innovative solutions
for the marine ecosystem safeguard.

A LONG ITALIAN HISTORY

Our history reminds us of the immense progress we have made as a Company.

CMD - Costruzioni Motori Diesel S.p.A. is born thanks to the experience and strong passion for engines of the Negri's family.

1930

Corrado Negri and Italo Balbo's transoceanic flight

CMD/FNM's history begins in 30s when Corrado Negri, an eminent member of Italian Air Force, took part in the transoceanic flight of Italo Balbo, an italian politician involved in promoting Italian aviation in the world.

1971

Launching "Fratelli Negri Motori"

The company was founded in 1971 by Negri family as "FNM".
The first CMD business activity was focused on earth-moving machines overhaul and, later, in diesel engines installation on used cars.

1979

CMD starts a collaboration with FIAT

CMD starts a first partnership with FIAT (now STELLANTIS), becoming supplier of precision milling for automotive components.
After few years CMD has developed its own high precision parts and components production, becoming leading supplier of the biggest international groups in the automotive field such as ALFA ROMEO, AUDI-VW and FORD, in addition to the collaboration with FIAT, which still represents a meaningful part of the company's business.

1984

First FNM marine diesel engine on the market

FNM, under FNM marine brand, launches the first diesel engine for the marine market.

1991

From FNM to CMD (Costruzioni Motori Diesel) S.p.A.

C.M.D. Costruzioni Motori Diesel Spa is formally set up, including also FNM division and its know-how. It has been the turning point for the company expansion and production activities diversification.

2000

Business diversification and development

Over the years the team has grown and the skills have increased, as the sectors in which we operate.
In the 2000s CMD expands its production and technology field opening 2 plants in Atella (PZ).
During these years CMD starts some new important projects:

- new range of JTD marine engines implementation;
- two engines for General Aviation and ultralight aircrafts design;
- Micro-CHP systems fed by wooden biomass development

2013

Elite Program

CMD is selected by Italian Stock Exchange to join the Elite Program, a program of support for private companies seeking expansion and access to the capital markets and aimed at identify the most promising Italian SME. Elite Program has been successfully completed one year later.

2017

CMD and Loncin Motor Co Ltd becomes business partner

Loncin Motor Co Ltd, a Chinese multinational company listed on the Shanghai Stock Exchange, specialized in research, development, production and distribution of motorcycles, general products and power machineries, become business partner.

TODAY

A sustainable company: our efforts for energy transition

Our goal in 2022 has been to promote the "Green Revolution": sustainability and energy transition are important topics for our company (even if they have always been), focusing the skills of each BU on the solutions design for environmental safeguard.
Our company focuses its activities on hybridization and hydrogen.

Today FNM is the only company to offer a complete range of diesel/hybrid engines with powers ranging from 13 to 25 kW.

We are still putting lots of passion in our work, which is why we continue to expand our company, building new production plants and hiring new human resources. We are a company that has made itself over the time, but the key concept, the real engine which will continue to push the entire business mechanism will always and only remain the concept of family, to which we are deeply attached.

FNM MARINE designs, develops, produces and distributes worldwide cutting edge in-outboard diesel marine diesel engines.
Reliability and high performances are our most important engines features.

Founded by **Negri's family**, **FNM Marine** is a brand of CMD's Group (Costruzioni Motori Diesel) SPA, involved in design, prototyping and production of marine engines and innovative solution for automotive, marine and aeronautical fields.

Our goal is to **find solutions for customers who share what we believe in**, and work with them to realize our aspirations.
Customers and partners choose us because we provide tailor-made and cutting-edge solutions.

Our main purpose is to give a precious contribute for guaranteeing a comfortable, fast and safety navigation, safeguarding at same time the environment, thanks to continuous technological evolution.

We can do it not only through marine diesel engines production, that ensure to each boat the right balance between power and reliability, but even through efficient solutions for a “zero emissions” navigation.

For this reason, over the years, FNM Marine has become a worldwide reference for all marine field.

You can find our brand in each part of the world.

When you choose a FNM Marine engine, you can be sure to choose **cutting edge technology and performances**. Our reputation for reliability is based on a solid dedication to innovative engineering and manufacturing excellence.

Our company combines experience, competences and passion during the development of each engine.
Our commitment to provide the best propulsion solutions for our customers never stops, even when an engine leaves the production line.

Thanks to our FNM Marine **service centers network** located in each part of the world, our company is renowned for its expert and localized **after-sales support** for you can rely on them.

Production plants

We have always supported **the sustainability in production processes, in the emission standards respect and in principles of the economy of consumption**.
These guidelines are precious for us and our work and they are always present in our Engine Development and Production Technical Center.

A **modern and cutting-edge facility**, where about 60 people work, all with proven experience in the nautical sector.
This allows us to achieve a high-level production, which is based on complex procedures.
Before the delivery, every single engine is tested to certify the quality and reliability.

FNM®

MARINE DIESEL ENGINES

DIESEL MARINE ENGINES CATALOGUE

MARINE DIESEL ENGINES

INBOARD MARINE ENGINE

13HPE

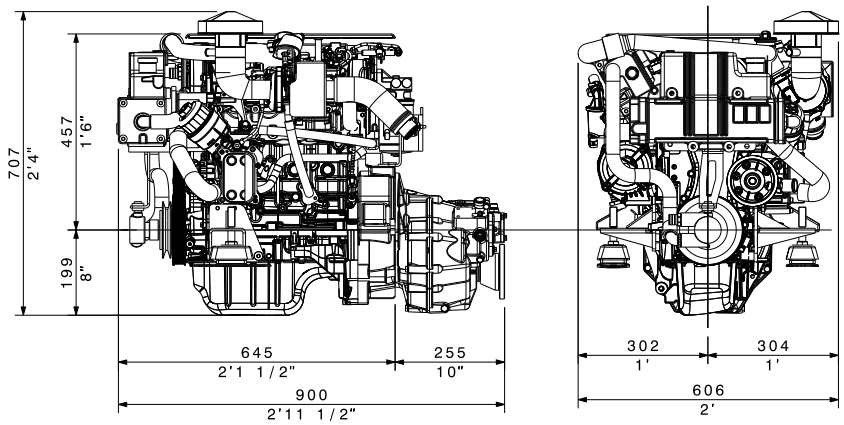
Models:

13HPE 110 - 13HPE 80 - 13HPE 40

FNM® 4-cylinder 13HPE marine engine is built according to **1,3 Multijet II** propulsion features, a key product for small diesel engines in automotive industry. **The engine uses a common-rail fuel injection system** controlled by an **ECU** (Electronic Control Unit), made specifically for this unit.

Dimensions

FNM13HPE with TM345 gearbox



Technical data

Engine model	13 HPE 110	13 HPE 80	13 HPE 40
Crankshaft Power [kW] (hp)	81 (110)	59 (80)	29 (40)
Propeller shaft power [kW] (hp)	78 (107)	57 (78)	27 (38)
Engine speed [min-1]	4400	4000	4000
Displacement [l] - (cc)	1.3 - 1248		
Number of cylinders	4		
Bore/stroke [mm] - (in)	[69,6/82] - (2,74/3,23)		
Compression ratio	17,6:1		
Dry weight with TM 345 [kg]	215		
Dry weight with ZF 25 [kg]	214		
Emission compliance	Directive 2013/53/UE		

Technical data according to ISO8665. Fuel complies EN590. Merchant fuel may differ in specification and may influence engine power output and consumption. Production tolerance within 5% (of power). Not all models, standard equipment and accessories are available in all countries. All specifications are subject to change without notice.

Gears

ANGLED GEARBOXES

- TM345A (8°): R. 1,54:1, 2,00:1, 2,47:1
- ZF25A (8°): R. 1,55:1, 1,93:1, 2,48:1, 2,29:1, 2,71:1

IN-LINE AND COAXIAL GEARBOXES

- TM345 (in line): R. 1,54:1, 2,00:1, 2,47:1
- ZF25 (in line): R. 1,97:1, 2,80:1

INBOARD MARINE ENGINE

13HPE

MARINE DIESEL ENGINES

Standard technical equipment

ENGINE BLOCK AND HEAD

- Cylinder block made of cast-iron
- Cylinder head made of aluminium
- 4-valve per cylinder technology with hydraulic lash adjusters
- Double overhead camshafts
- Automotive-class availability of service and parts
- Metal chain gear

ENGINE MOUNTING

- Flexible engine mounting

LUBRICATION SYSTEM

- Easily replaceable oil filter, on top of engine
- Easily to inspect or replace oil separator
- Oil vapour filter
- Integrated cooler with engine's coolant

FUEL SYSTEM

- Common rail fuel injection system
- CMD proprietary ECU
- Fuel filter with water separator and alarm

AIR INLET AND EXHAUST SYSTEM

- Air filter
- Oil vapours vented into inlet air
- Exhaust elbow or raiser depending on application
- Variable geometry turbocharger
- Raw-water cooled intercooler

COOLING SYSTEM

- Thermostatically regulated freshwater cooling
- Thermal unit that integrates tubular heat exchanger and expansion tank
- Easily accessible seawater impeller pump

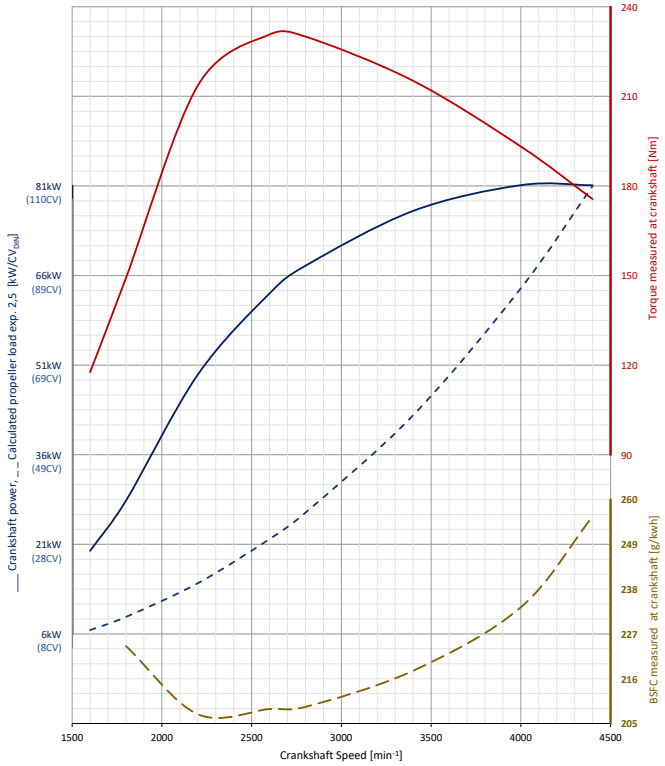
ELECTRICAL SYSTEM

- 12V standard two-pole electrical system
- 12V-1,3kW starter
- Alternator 12V-90A
- Emergency stop button on engine's ECU
- Engine information indicator panel

Optionals

- Single or double electronic CANBUS control station
- Boiler kit for heating
- Various length panel extension
- Second control panel for flybridge installations
- RACOR and Mediterraneo filters
- Trolling Valve
- NMEA2000 compatibility kit
- Wide range of additional instruments

Performance curves



Referred to **13HPE 110**

Indicator Technical Specification Ø85mm - OmniLink type

- Hole mounting: Ø86mm;
- Dial: Black or White backlighted;
- Bezel: Round in black plastic;
- Cover lens: RQ - Anti-fog plexiglass;
- Case material: Polyamide PA66 White color;
- Mounting: Flush mounting (backpanel);
- Backlight: With LED and light diffuser internal;
- Power supply: 9 ÷ 32Vdc;
- Absorption: <100mA with backlight;
- Connection: M12 - 5 pin connector - M12 - 12 pins connector
- Protection grade: IP65 on the front
- Operating temperature: -20 ÷ 70°C
- Technical reference: IEC60945 (Vibration, climatic and elettromagnetic compatibility)

MARINE DIESEL ENGINES

IN/OUTBOARD MARINE ENGINE JETDRIVE

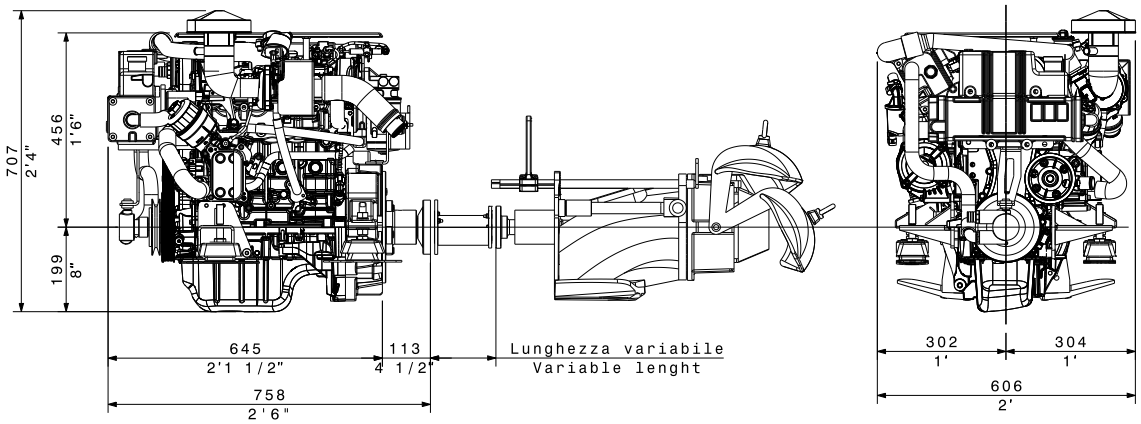
13HPE JD

Models:
13HPE 110

FNM® 4-cylinder 13HPE marine engine is built according to **1,3 Multijet II** propulsion features, a key product for small diesel engines in automotive industry. **The engine uses a common-rail fuel injection system** controlled by an **ECU** (Electronic Control Unit), made specifically for this unit.

Dimensions

FNM 13HPE with Jet Drive 160



Technical data

Engine model	13 HPE 110
Crankshaft Power (kW) (hp)	81 (110)
Propeller shaft power (kW) (hp)	78 (107)
Engine speed (min-1)	4400
Displacement (l) - (cc)	1,3 - 1248
Number of cylinders	4
Bore/stroke (mm) (in)	(69,6/82) - (2,74/3,23)
Compression ratio	17,6:1
Dry weight without Jetdrive (kg)	195
Dry weight with Jetdrive (kg)	235
Emission compliance	Directive 2013/53/UE

Technical data according to ISO8665. Fuel complies EN590. Merchant fuel may differ in specification and may influence engine power output and consumption. Production tolerance within 5% (of power). Not all models, standard equipment and accessories are available in all countries. All specifications are subject to change without notice.

Gears

IN-LINE AND COAXIAL GEARBOXES

- ZF45C (coaxial): R. 1,00:1
- Alamarin jet-160

IN/OUTBOARD MARINE ENGINE JETDRIVE

13HPE JD

FNM® MARINE DIESEL ENGINES

Standard technical equipment

ENGINE BLOCK AND HEAD

- Cylinder block made of cast-iron
- Cylinder head made of aluminium
- 4-valve per cylinder technology with hydraulic lash adjusters
- Double overhead camshafts
- Automotive-class availability of service and parts
- Metal chain gear

ENGINE MOUNTING

- Flexible engine mounting

LUBRICATION SYSTEM

- Easily replaceable oil filter, on top of engine
- Easily to inspect or replace oil separator
- Oil vapour filter
- Integrated cooler with engine's coolant

FUEL SYSTEM

- Common rail fuel injection system
- CMD proprietary ECU
- Fuel filter with water separator and alarm

AIR INLET AND EXHAUST SYSTEM

- Air filter
- Oil vapours vented into inlet air
- Exhaust elbow or raiser depending on application
- Variable geometry turbocharger
- Raw-water cooled intercooler

COOLING SYSTEM

- Thermostatically regulated freshwater cooling
- Thermal unit that integrates tubular heat exchanger and expansion tank
- Easily accessible seawater impeller pump

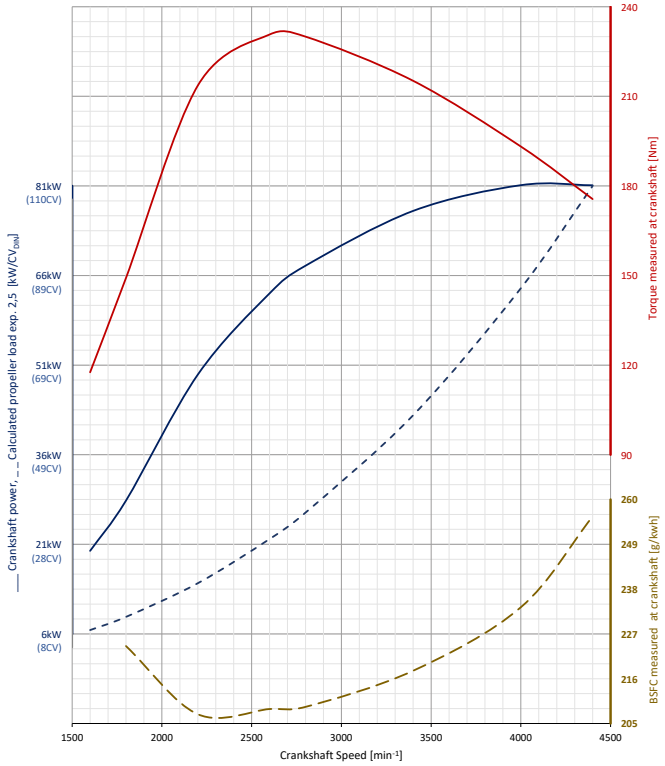
ELECTRICAL SYSTEM

- 12V standard two-pole electrical system
- 12V-1,3kW starter
- Alternator 12V - 90A
- Emergency stop button on engine's ECU
- CANBUS Panel with 8m extension and digital display of engine data

Optionals

- Single or double electronic CANBUS control station
- Boiler kit for heating
- Various length panel extension
- Second control panel for flybridge installations
- RACOR and Mediterraneo filters
- Trolling Valve
- NMEA2000 compatibility kit
- Wide range of additional instruments

Performance curves



Referred to **13HPE 110**

Panel instrument CANBUS

Panel Instrument **high brightness 5 "TFT display**, with **touchscreen** and a very simple and intuitive interface.

- Engine data acquisition with CANBUS J1939 interface.
- Data acquisition from traditional sensors for up to eight analog inputs, five digital inputs and one frequency input
- Acquisition of navigation data with NMEA0183 interface
- Up to five relay command outputs for signals and simple activations
- Alarm monitoring according to approved safety standards
- Automatic brightness adjustment and day / night mode
- USB local connectivity for firmware update and configuration

The unit is supplied already programmed and ready to work.

MARINE DIESEL ENGINES

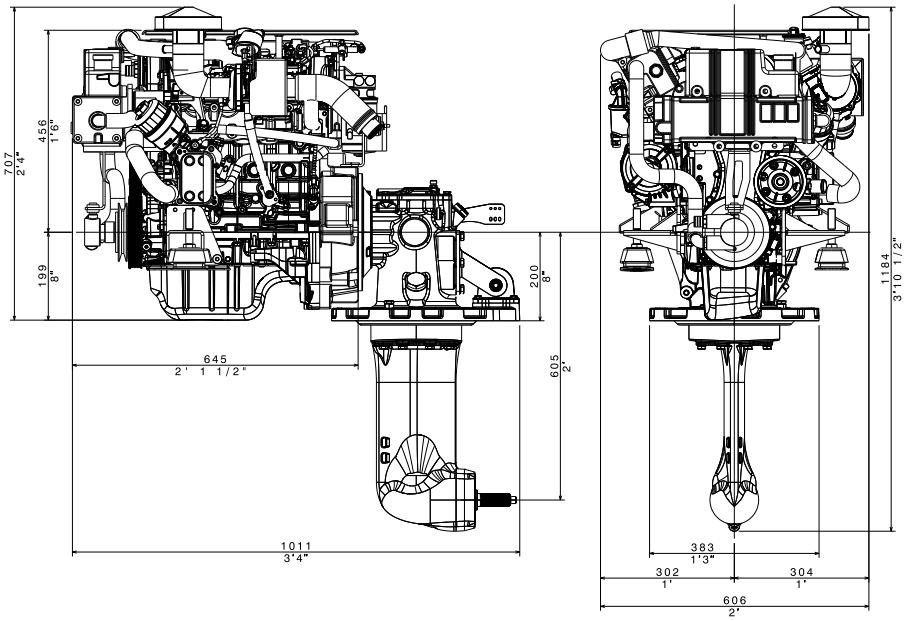
SAIL DRIVE MARINE ENGINE

13HPE SD

Models:
13HPE 80

FNM® 4-cylinder 13HPE marine engine is built according to **1,3 Multijet II** propulsion features. It has always been a key product for small diesel engines in automotive industry. **The engine uses a common-rail fuel injection system** controlled by an **ECU** (Electronic Control Unit), made specifically for this unit.

Dimensions | *FNM 13HPE SD with SEA PROP 60*



Technical data

Engine designation	13 HPE 80
Crankshaft Power (kW) (hp)	59 (80)
Propeller shaft power (kW) (hp)	57 (78)
Propeller shaft power (min-1)	3800
Displacement (l) - (cc)	1,3 - 1248
Number of cylinders	4
Bore/stroke (mm) (in)	(69,6/82) - (2,74/3,23)
Compression ratio	17,6:1
Dry weight with Sail Drive (kg)	230
Emission compliance	Directive 2013/53/UE

Technical data according to ISO8665. Fuel complies EN590. Merchant fuel may differ in specification and may influence engine power output and consumption. Production tolerance within 5% (of power). Not all models, standard equipment and accessories are available in all countries. All specifications are subject to change without notice.

Gears

- Saildrive SP60

SAIL DRIVE
MARINE ENGINE

13HPE SD

FNM®
MARINE DIESEL ENGINES

Standard technical equipment

ENGINE BLOCK AND HEAD

- Cylinder block made of cast-iron
- Cylinder head made of aluminium
- 4-valve per cylinder technology with hydraulic lash adjusters
- Double overhead camshafts
- Automotive-class availability of service and parts
- Metal chain gear

ENGINE MOUNTING

- Flexible engine mounting

LUBRICATION SYSTEM

- Easily replaceable oil filter, on top of engine
- Easily to inspect or replace oil separator
- Oil vapour filter
- Integrated cooler with engine's coolant

FUEL SYSTEM

- Common rail fuel injection system
- CMD proprietary ECU
- Fuel filter with water separator and alarm

AIR INLET AND EXHAUST SYSTEM

- Air filter
- Oil vapours vented into inlet air
- Exhaust elbow or raiser depending on application
- Variable geometry turbocharger
- Raw-water cooled intercooler

COOLING SYSTEM

- Thermostatically regulated freshwater cooling
- Thermal unit that integrates tubular heat exchanger and expansion tank
- Easily accessible seawater impeller pump

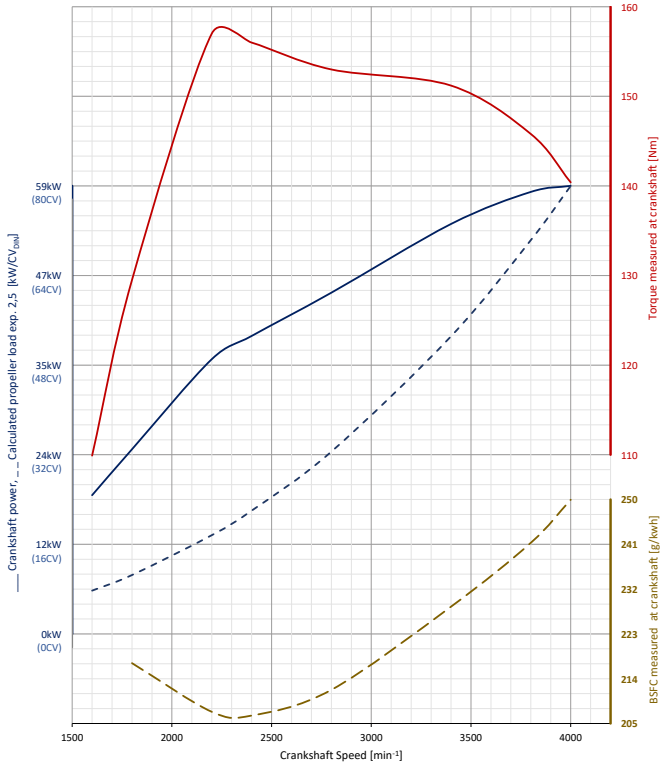
ELECTRICAL SYSTEM

- 12V standard two-pole electrical system
- 12V-1,3kW starter
- Alternator 12V - 90A
- Emergency stop button on engine's ECU
- CANBUS Panel with 8m extension and digital display of engine data

Optionals

- Spinner for fixed blade propellers
- VTR Tecnodrive engine base
- Boats template
- Single or double electronic CANBUS control station
- Boiler kit for heating
- Various length panel extension
- Second control panel for flybridge installations
- RACOR and Mediterraneo filters
- Wide range of additional instruments
- Flange for application without VTR base
- Water Sensor

Performance curves



Referred to **13HPE SD 80**

Panel instrument CANBUS

Panel Instrument **high brightness 5 "TFT display**, with **touchscreen** and a very simple and intuitive interface.

- Engine data acquisition with CANBUS J1939 interface.
- Data acquisition from traditional sensors for up to eight analog inputs, five digital inputs and one frequency input
- Acquisition of navigation data with NMEA0183 interface
- Up to five relay command outputs for signals and simple activations
- Alarm monitoring according to approved safety standards
- Automatic brightness adjustment and day / night mode
- USB local connectivity for firmware update and configuration

The unit is supplied already programmed and ready to work.

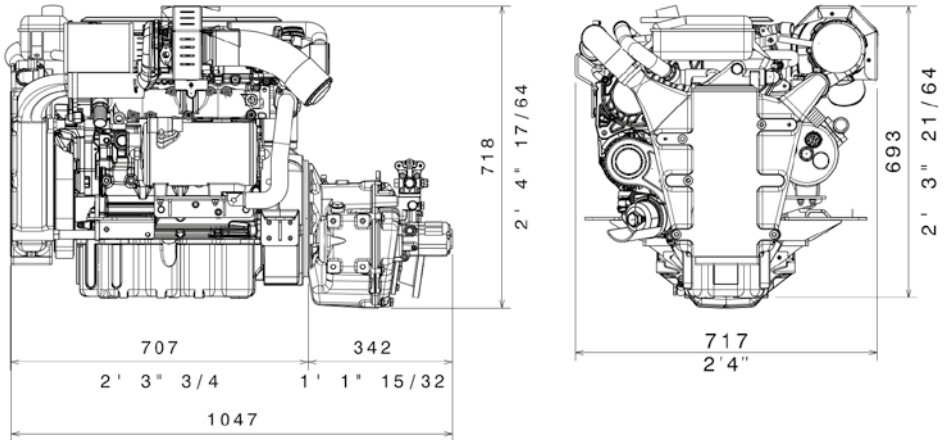
MARINE DIESEL ENGINES

INBOARD MARINE ENGINE
20HPE

Models:
20HPE 180 - 20HPE 150 - 20HPE 120

FNM® 4-cylinder 20HPE marine engine is based on the **new 2LT Multijet engine**, that equips a large number of small and medium size cars in Europe. **The engine uses a common-rail fuel injection system** controlled by an **ECU** (Electronic Control Unit), especially made for it. The engine is small and powerful, its wide distribution is the proof of its **reliability** and **wide availability of spare parts**.

Dimensions | *FNM 20HPE with TM485A gearbox*



Technical data

Engine designation	20 HPE 180	20 HPE 150	20 HPE 120
Crankshaft Power (kW) (hp)	129 (175)	108 (147)	88 (120)
Propeller shaft power (kW) (hp)	125 (170)	105 (143)	85 (116)
Engine speed (min-1)	4100	4100	3800
Displacement (l) - (cc)	2,0 - 1956,5		
Number of cylinders	4		
Bore/stroke (mm) (in)	(83,0/90,4) - (3,27/3,56)		
Compression ratio	16,5:1		
Dry weight with TM 485 (kg)	290		
Dry weight with ZF 45 (kg)	280		
Emission compliance	Directive 2013/53/UE		

Technical data according to ISO8665. Fuel complies EN590. Merchant fuel may differ in specification and may influence engine power output and consumption. Production tolerance within 5% (of power). Not all models, standard equipment and accessories are available in all countries. All specifications are subject to change without notice.

Gears

ANGLED GEARBOXES

- TM485A1 (8°): R. 1,51:1, 2,09:1, 2,40:1
- ZF45A (8°): R. 1.26:1, 1,51:1, 2,03:1, 2,43:1

V-LINE GEARBOXES

- ZF48-IV (20°): R. 1,46:1, 1,72:1, 1,95:1

IN-LINE AND COAXIAL GEARBOXES

- ZF45-1 (in line): R. 2,20:1, 2,51:1, 3,03:1, 3,74:1
- ZF45C (coaxial): R. 1,00:1

INBOARD MARINE ENGINE

20HPE

MARINE DIESEL ENGINES

Standard technical equipment

ENGINE BLOCK AND HEAD

- Cylinder block made of cast-iron
- Cylinder head made of aluminium
- 4-valve per cylinder technology with hydraulic lash adjusters
- Double overhead camshafts
- Automotive-class availability of service and parts
- Metal chain gear

ENGINE MOUNTING

- Flexible engine mounting

LUBRICATION SYSTEM

- Easily replaceable oil filter, on top of engine
- Easily to inspect or replace oil separator
- Oil vapour filter
- Integrated cooler with engine's coolant

FUEL SYSTEM

- Common rail fuel injection system
- CMD proprietary ECU
- Fuel filter with water separator and alarm

AIR INLET AND EXHAUST SYSTEM

- Air filter
- Oil vapours vented into inlet air
- Exhaust elbow or raiser depending on application
- Variable geometry turbocharger
- Raw-water cooled intercooler

COOLING SYSTEM

- Thermostatically regulated freshwater cooling
- Thermal unit that integrates tubular heat exchanger and expansion tank
- Easily accessible seawater impeller pump

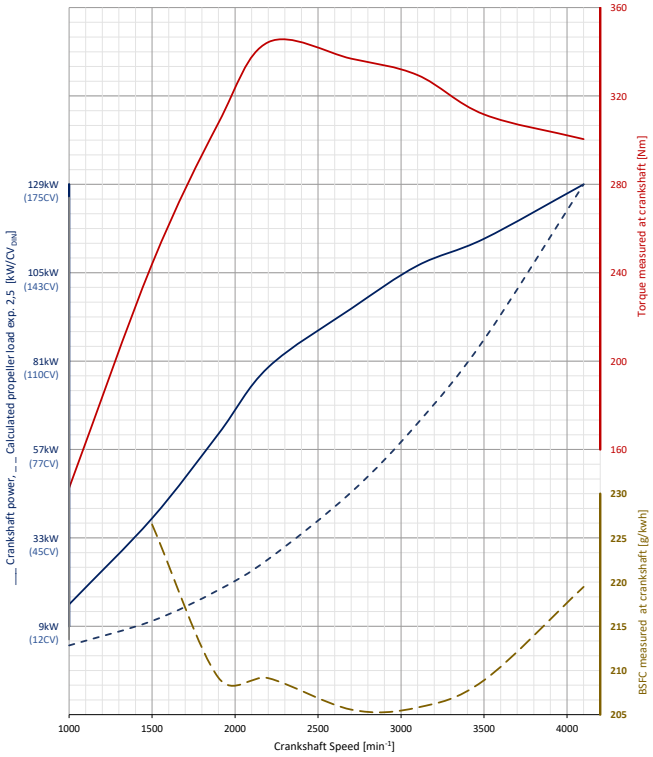
ELECTRICAL SYSTEM

- 12V standard two-pole electrical system
- 12V-1,8kW starter
- Alternator 12V - 105A
- Emergency stop button on engine's ECU
- CANBUS Panel with 8m extension and digital display of engine data

Optionals

- Single or double electronic CANBUS control station
- Boiler kit for heating
- Various length panel extension
- Second control panel for flybridge instal-lations
- RACOR and Mediterraneo filters
- Trolling Valve
- NMEA2000 compatibility kit
- Wide range of additional instruments

Performance curves



Referred to **20HPE 180**

Panel instrument CANBUS

Panel Instrument **high brightness 5 "TFT display**, with **touchscreen** and a very simple and intuitive interface.

- Engine data acquisition with CANBUS J1939 interface.
- Data acquisition from traditional sensors for up to eight analog inputs, five digital inputs and one frequency input
- Acquisition of navigation data with NMEA0183 interface
- Up to five relay command outputs for signals and simple activations
- Alarm monitoring according to approved safety standards
- Automatic brightness adjustment and day / night mode
- USB local connectivity for firmware update and configuration

The unit is supplied already programmed and ready to work.

MARINE DIESEL ENGINES

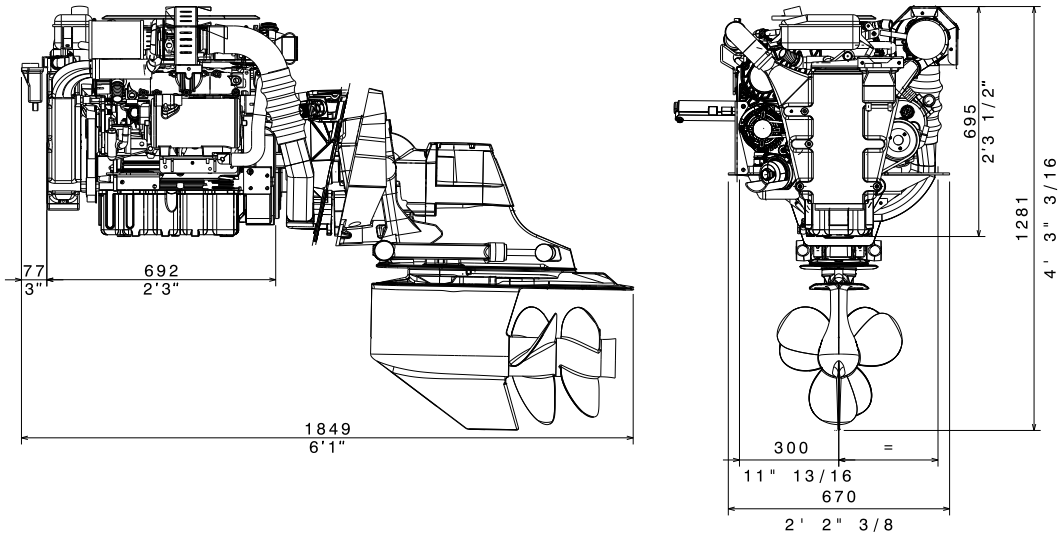
IN/OUTBOARD
MARINE ENGINE

20HPEP

Models:
20HPEP 180 - 20HPEP 150 - 20HPEP 120

FNM® 4-cylinder 20HPEP marine engine is based on the **new 2LT Multijet engine**, that equips a large number of small and medium size cars in Europe. **The engine uses a common-rail fuel injection system** controlled by an **ECU** (Electronic Control Unit), especially made for it. The engine is small and powerful, its wide distribution is the proof of its **reliability** and **wide availability of spare parts**.

Dimensions | *FNM 20HPEP with BRAVO 3*



Technical data

Engine designation	20 HPEP 180	20 HPEP 150	20 HPEP 120
Crankshaft Power (kW) (hp)	129 (175)	108 (147)	88 (120)
Propeller shaft power (kW) (hp)	125 (170)	105 (143)	85 (116)
Engine speed (min-1)	4100	4100	3800
Displacement (l) - (cc)	2,0 - 1956,5		
Number of cylinders	4		
Bore/stroke (mm) (in)	(83,0/90,4) - (3,27/3,56)		
Compression ratio	16,5:1		
Dry weight without Bravo (kg)	290		
Emission compliance	Directive 2013/53/UE		

Technical data according to ISO8665. Fuel complies EN590. Merchant fuel may differ in specification and may influence engine power output and consumption. Production tolerance within 5% (of power). Not all models, standard equipment and accessories are available in all countries. All specifications are subject to change without notice.

IN/OUTBOARD
MARINE ENGINE

20HPEP

MARINE DIESEL ENGINES

Standard technical equipment

ENGINE BLOCK AND HEAD

- Cylinder block made of cast-iron
- Cylinder head made of aluminium
- 4-valve per cylinder technology with hydraulic lash adjusters
- Double overhead camshafts
- Automotive-class availability of service and parts
- Metal chain gear

ENGINE MOUNTING

- Flexible engine mounting

LUBRICATION SYSTEM

- Easily replaceable oil filter, on top of engine
- Easily to inspect or replace oil separator
- Oil vapour filter
- Integrated cooler with engine's coolant

FUEL SYSTEM

- Common rail fuel injection system
- CMD proprietary ECU
- Fuel filter with water separator and alarm

AIR INLET AND EXHAUST SYSTEM

- Air filter
- Oil vapours vented into inlet air
- Exhaust elbow or raiser depending on application
- Variable geometry turbocharger
- Raw-water cooled intercooler

COOLING SYSTEM

- Thermostatically regulated freshwater cooling
- Thermal unit that integrates tubular heat exchanger and expansion tank
- Easily accessible seawater impeller pump

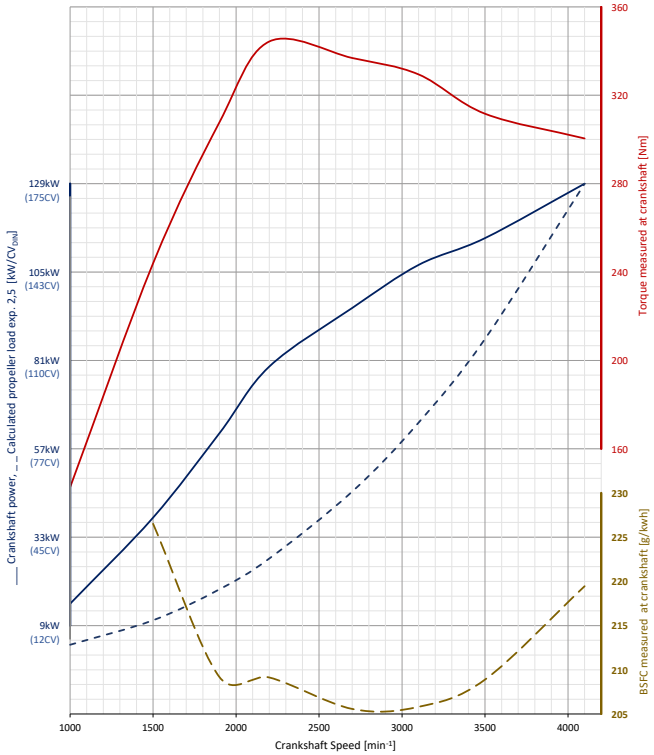
ELECTRICAL SYSTEM

- 12V standard two-pole electrical system
- 12V-1,8kW starter
- Alternator 12V - 105A
- Emergency stop button on engine's ECU
- CANBUS Panel with 8m extension and digital display of engine data

Optionals

- Single or double electronic CANBUS control station
- Boiler kit for heating
- Various length panel extension
- Second control panel for flybridge installations
- RACOR and Mediterraneo filters
- Trolling Valve
- Additional PTO (ISO4183 Z/SPZ)
- Steering pump
- NMEA2000 compatibility kit
- Wide range of additional instruments
- BRAVO X-1 stern drive Red. 1,65:1 or BRAVO 2 Red.2:1 - BRAVO 3 Red. 2:1
- Stainless steel propeller for BRAVO X-1
- Aluminium propeller for BRAVO X-2
- Stainless steel propeller for BRAVO X-3
- Multiple Sterndrive Steering Tie for twin-engine
- Alignment tool
- Volvo coupler kit

Performance curves



Referred to **20HPEP 180**

Panel instrument CANBUS

Panel Instrument **high brightness 5 "TFT display**, with **touchscreen** and a very simple and intuitive interface.

- Engine data acquisition with CANBUS J1939 interface.
- Data acquisition from traditional sensors for up to eight analog inputs, five digital inputs and one frequency input
- Acquisition of navigation data with NMEA0183 interface
- Up to five relay command outputs for signals and simple activations
- Alarm monitoring according to approved safety standards
- Automatic brightness adjustment and day / night mode
- USB local connectivity for firmware update and configuration

The unit is supplied already programmed and ready to work.

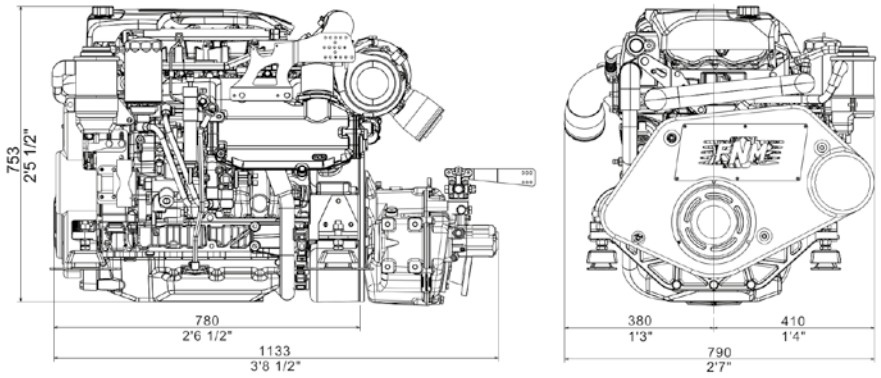
MARINE DIESEL ENGINES

INBOARD MARINE ENGINE
30HPE

Models:
30HPE 270 - 30HPE 250
30HPE 225 - 30HPE 180

FNM® 30HPE engine is based on the tested **FPT 30 4-cylinder Common Rail engine**.
This inboard marine engine uses a common-rail fuel injection system controlled by an **ECU** especially made for it.
The result is a high power-to-displacement ratio unit.

Dimensions | *FNM 30HPE with TM485A gearbox*



Technical data

Engine model	30 HPE 270	30 HPE 250	30 HPE 225	30 HPE 180
Max Power	198,5 kW 270 HP 4100 rpm	184 kW 250 HP 4100 rpm	165 kW 225 HP 4100 rpm	132 kW 180 HP 3800 rpm
Max Torque	560 Nm 2600 rpm	553 Nm 2600 rpm	520 Nm 2300 rpm	N.D.
Number of cylinders	4 in line			
Displacement (l) - (cc)	3 - 2.988			
Bore and Stroke (mm) - (in)	(95,8x104) - (3,77x4,09)			
Dry weight (kg)	330			
Cooling	Water			
Combustion	Direct Injection Common Rail			
Induction	Turbocharged and itercooled			
Emission compliance	Directive 2013/53/UE			

Technical data according to ISO8665. Fuel complies EN590. Merchant fuel may differ in specification and may influence engine power output and consumption. Production tolerance within 5% (of power). Not all models, standard equipment and accessories are available in all countries. All specifications are subject to change without notice.

Gears

ANGLED GEARBOXES

- TM880A (10°): R. 1,53:1, 2,08:1, 2,60:1
- TM485A (8°): R. 1,51:1, 2,09:1, 2,4:1

V-LINE GEARBOXES

- ZF68-IV (12°): R. 1,29:1, 1,56:1, 1,75:1, 1,99:1 2,48:1

IN-LINE AND COAXIAL GEARBOXES

- ZF68 (in line): R. 1,26:1, 1,51:1, 1,75:1, 1,93:1, 2,48:1, 2,78:1

INBOARD
MARINE ENGINE

30HPE

MARINE DIESEL ENGINES

Standard technical equipment

ENGINE BLOCK AND HEAD

- Cylinder block made of cast-iron
- Cylinder head made of aluminium
- 4-valve per cylinder technology with hydraulic lash adjusters
- Double overhead camshafts
- Automotive-class availability of service and parts
- Metal chain gear

ENGINE MOUNTING

- Flexible engine mounting

LUBRICATION SYSTEM

- Easily replaceable oil filter, on top of engine
- Easily to inspect or replace oil separator
- Double oil vapour filter technology
- Integrated cooler with engine's coolant

FUEL SYSTEM

- Common rail fuel injection system
- CMD proprietary ECU
- Fuel filter with water separator and alarm

AIR INLET AND EXHAUST SYSTEM

- Air filter
- Oil vapours vented into inlet air
- Exhaust elbow or raiser depending on application
- Coolant-cooled turbocharger
- Raw-water cooled intercooler

COOLING SYSTEM

- Thermostatically regulated freshwater cooling
- Thermal unit that integrates tubular heat exchanger and expansion tank
- Easily accessible seawater impeller pump

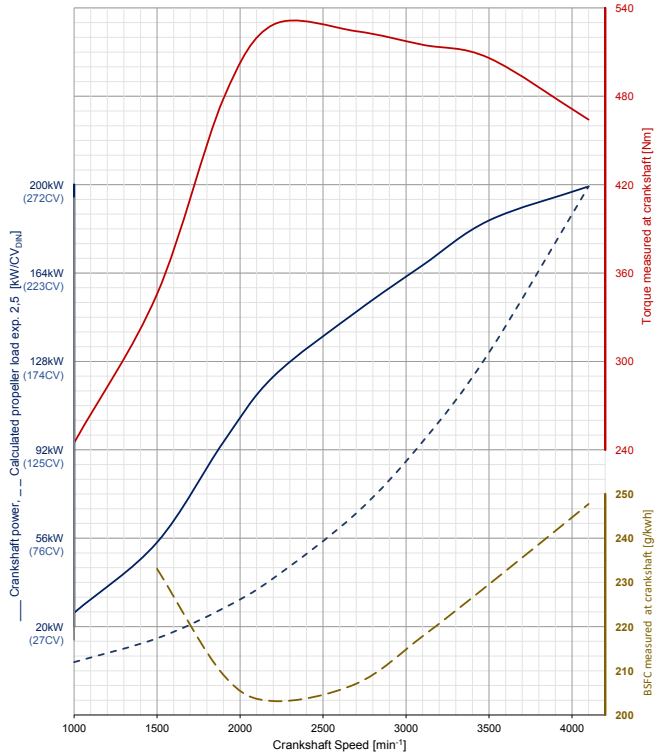
ELECTRICAL SYSTEM

- 12V standard two-pole electrical system
- 12V-1,8kW starter
- Alternator 12V-140A
- Emergency stop button on engine's ECU
- CANBUS Panel with 8m extension and digital display of engine data

Optionals

- Single or double electronic CANBUS control station
- Boiler kit for heating
- Various length panel extension
- Second control panel for flybridge installations
- RACOR and Mediterraneo filters
- Trolling Valve
- Additional PTO (ISO4183 Z/SPZ)
- Steering pump
- NMEA2000 compatibility kit
- Wide range of additional instruments

Performance curves



Referred to **30HPE 270**

Panel instrument CANBUS

Panel Instrument **high brightness 5 "TFT display**, with **touchscreen** and a very simple and intuitive interface.

- Engine data acquisition with CANBUS J1939 interface.
- Data acquisition from traditional sensors for up to eight analog inputs, five digital inputs and one frequency input
- Acquisition of navigation data with NMEA0183 interface
- Up to five relay command outputs for signals and simple activations
- Alarm monitoring according to approved safety standards
- Automatic brightness adjustment and day / night mode
- USB local connectivity for firmware update and configuration

The unit is supplied already programmed and ready to work.

MARINE DIESEL ENGINES

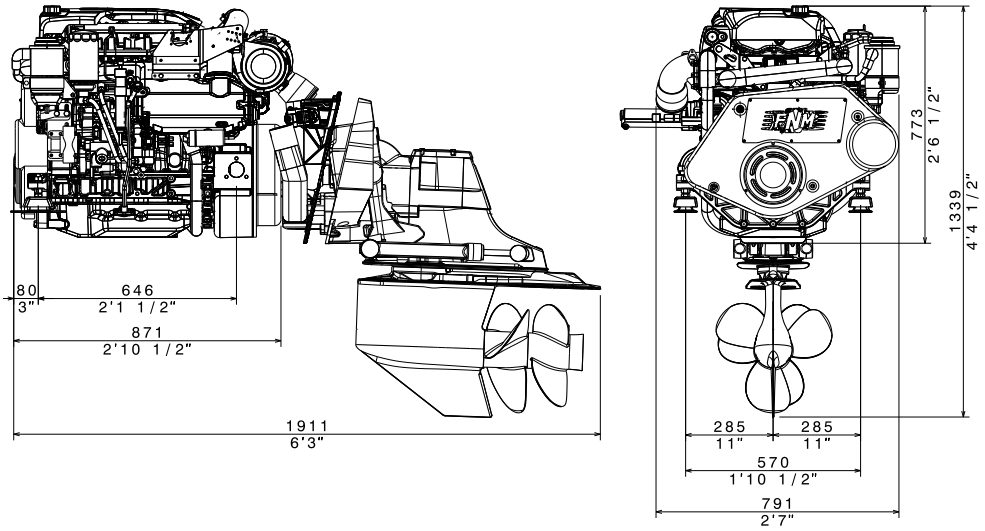
IN/OUTBOARD
MARINE ENGINE

30HPEP

Models:
30HPEP 270 - 30HPEP 250
30HPEP 225 - 30HPEP 180

FNM® 30HPEP engine is based on the tested **FPT 30 4-cylinder Common Rail engine**.
This marine engine uses a common-rail fuel injection system controlled by an **ECU** specifically made for it. The result is a high power-to-displacement ratio unit.

Dimensions | *FNM 30HPEP with BRAVO 3*



Technical data

Engine model	30 HPEP 270	30 HPEP 250	30 HPEP 225	30 HPEP 180
Max Power	198,5 kW 270 HP 4100 rpm	184 kW 250 HP 4100 rpm	165 kW 225 HP 4100 rpm	132 kW 180 HP 3800 rpm
Max Torque	560 Nm 2600 rpm	553 Nm 2600 rpm	520 Nm 2300 rpm	N.D.
Number of cylinders	4 in line			
Displacement (l) - (cc)	3 - 2.988			
Bore and Stroke (mm) - (in)	(95,8x104) - (3,77x4,09)			
Dry weight (kg)	330			
Cooling	Water			
Combustion	Direct Injection Common Rail			
Induction	Turbocharged and itercooled			
Emission compliance	Directive 2013/53/UE			

Technical data according to ISO8665. Fuel complies EN590. Merchant fuel may differ in specification and may influence engine power output and consumption. Production tolerance within 5% (of power). Not all models, standard equipment and accessories are available in all countries. All specifications are subject to change without notice.

IN/OUTBOARD
MARINE ENGINE

30HPEP

MARINE DIESEL ENGINES

Standard technical equipment

ENGINE BLOCK AND HEAD

- Cylinder block made of cast-iron
- Cylinder head made of aluminium
- 4-valve per cylinder technology with hydraulic lash adjusters
- Double overhead camshafts
- Automotive-class availability of service and parts
- Metal chain gear

ENGINE MOUNTING

- Flexible engine mounting

LUBRICATION SYSTEM

- Easily replaceable oil filter, on top of engine
- Easily to inspect or replace oil separator
- Double oil vapour filter technology
- Integrated cooler with engine's coolant

FUEL SYSTEM

- Common rail fuel injection system
- CMD proprietary ECU
- Fuel filter with water separator and alarm

AIR INLET AND EXHAUST SYSTEM

- Commercial-grade air filter
- Oil vapours vented into inlet air
- Exhaust elbow or raiser depending on application
- Coolant-cooled turbocharger
- Raw-water cooled intercooler

COOLING SYSTEM

- Thermostatically regulated freshwater cooling
- Thermal unit that integrates tubular heat exchanger and expansion tank
- Easily accessible seawater impeller pump

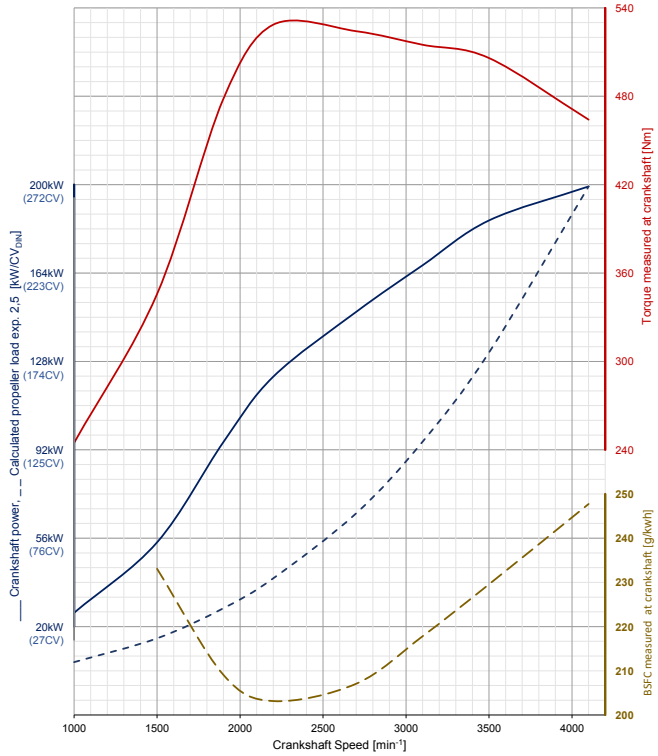
ELECTRICAL SYSTEM

- 12V standard two-pole electrical system
- 12V-1,8kW starter
- Alternator 12V-140A
- Emergency stop button on engine's ECU
- CANBUS Panel with 8m extension and digital display of engine data

Optionals

- Single or double electronic CANBUS control station
- Boiler kit for heating
- Various length panel extension
- Second control panel for flybridge installations
- RACOR and Mediterraneo filters
- Trolling Valve
- Additional PTO (ISO4183 Z/SPZ)
- Steering pump
- NMEA2000 compatibility kit
- Wide range of additional instruments
- BRAVO X-1 stern drive Red. 1,65:1 or BRAVO 2
- Red.2:1 - BRAVO 3 Red. 2:1
- Stainless steel propeller for BRAVO X-1
- Aluminium propeller for BRAVO X-2
- Stainless steel propeller for BRAVO X-3
- Multiple Sterndrive Steering Tie for twinengine
- Alignment tool
- Volvo coupler kit

Performance curves



Referred to **30HPE 270**

Panel instrument CANBUS

Panel Instrument **high brightness 5 "TFT display**, with **touchscreen** and a very simple and intuitive interface.

- Engine data acquisition with CANBUS J1939 interface.
- Data acquisition from traditional sensors for up to eight analog inputs, five digital inputs and one frequency input
- Acquisition of navigation data with NMEA0183 interface
- Up to five relay command outputs for signals and simple activations
- Alarm monitoring according to approved safety standards
- Automatic brightness adjustment and day / night mode
- USB local connectivity for firmware update and configuration

The unit is supplied already programmed and ready to work.

MARINE DIESEL ENGINES

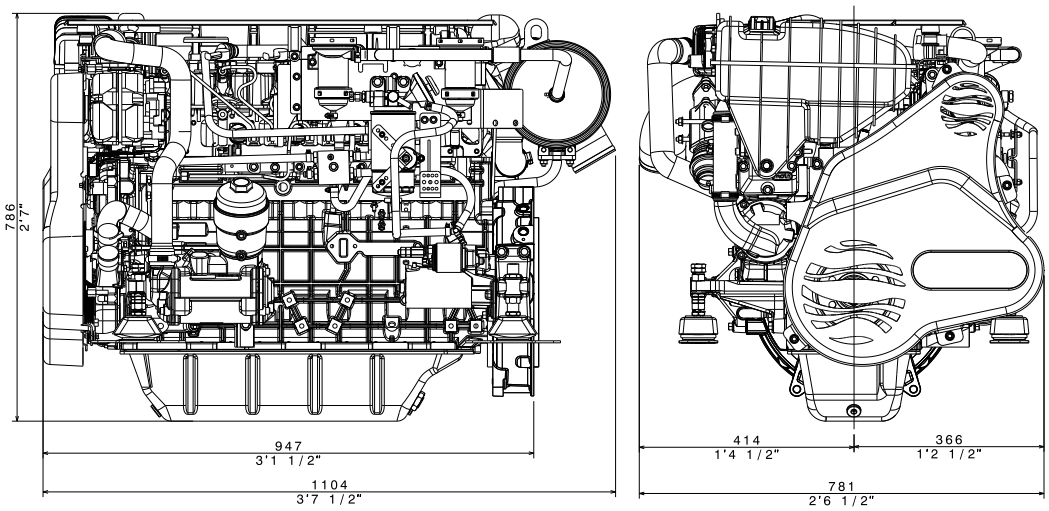
INBOARD MARINE ENGINE
42HPE

Models:

42HPE 350 - 42HPE 330 - 42HPE 300
42HPE 280 - 42HPE 250 - 42HPE 150

The 42HPE engine was developed on a VM engine basis.

Dimensions | FNM 42HPE



Technical data

Engine model	42 HPE 350	42 HPE 330	42 HPE 300	42 HPE 280	42 HPE 250	42 HPE 150
Max Power	257 kW 350 HP 3800 rpm	242,6 kW 330 HP 3800 rpm	220,6 kW 300 HP 3800 rpm	206 kW 280 HP 3800 rpm	184 kW 250 HP 3800 rpm	110 kW 150 HP 3800 rpm
Max Torque	700 Nm 71.4 Kgm 2700 rpm	657 Nm 67 Kgm 2700 rpm	657 Nm 67 Kgm 2700 rpm	657 Nm 67 Kgm 2700 rpm	530 Nm 54 Kgm 2700 rpm	330 Nm 33.6 Kgm 2700 rpm
Number of cylinders	6 in line					
Displacement (l) - (cc)	4,2 - 4.164					
Bore and Stroke (mm) - (in)	(94x100) - (3,7x4,09)					
Dry Weight (kg)	460					
Cooling	Water					
Combustion	Direct Injection Common Rail					
Induction	Turbocharged and intercooled					
Emission compliance	Directive 2013/53/UE					

Technical data according to ISO8665. Fuel complies EN590. Merchant fuel may differ in specification and may influence engine power output and consumption. Production tolerance within 5% (of power). Not all models, standard equipment and accessories are available in all countries. All specifications are subject to change without notice.

Gears

ANGLED GREARBOXES

- TM880 A (10°): R. 1,53:1, 2,08:1, 2,60:1
- ZF68 A (8°): R. 1,21:1, 1,56:1, 2,03:1, 2,52:1, 2,68:1

V-LINE GEARBOXES

- ZF68-IV (12°): R. 1,29:1, 1,56:1, 1,75:1, 1,99:1, 2,48:1

IN-LINE AND COAXIAL GEARBOXES

- ZF63C (coaxial): R. 1,00:1

INBOARD MARINE ENGINE

42HPE

MARINE DIESEL ENGINES

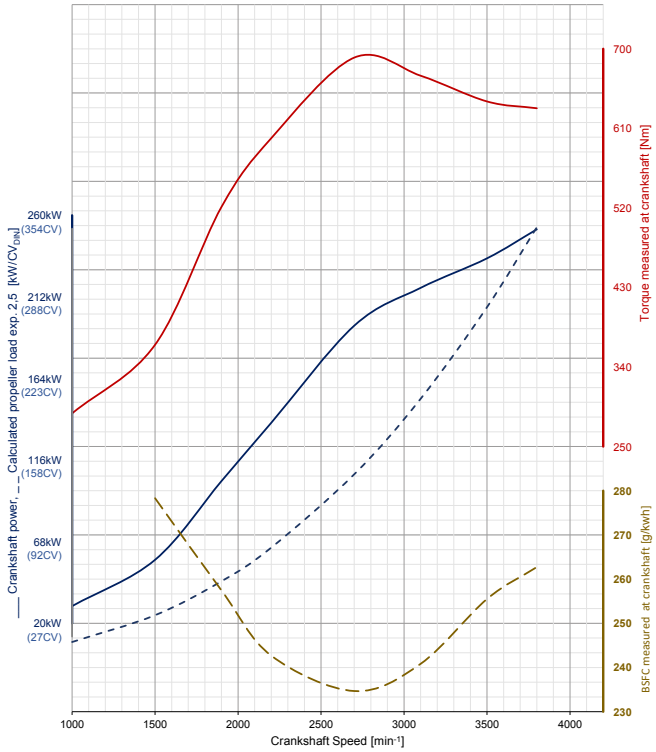
Standard technical equipment

- SAE flywheel housing
- Starter motor 12V - 2,3kW
- Alternator 12V-110A
- Oil and fuel filters
- Air filter
- Freshwater engine cooling system with seawater heat exchanger
- Engine lubricating oil cooled by heat exchanger seawater cooled
- Freshwater cooled exhaust manifold and freshwater turbocharger
- Bronze seawater circulating pump with impeller in special rubber
- Centrifugal pump for freshwater circulation
- Drain oil pump
- Expansion tank integrated
- Stainless steel exhaust gas/seawater mixer
- Flexible mounts
- Electrical instrument panel with alarms
- 8 m. panel cable extention
- White paint finish

Optionals

- Single or double electronic CANBUS
- Boiler kit for heating
- Various lenght panel extension
- Second control panel for flybridge installations
- Fuel and seawater filters
- Power steering pump
- Trolling Valve
- NMEA2000 compatibility kit
- Wide range of additional instruments

Performance curves



Referred to **42HPE 350**

Panel instrument CANBUS

Panel Instrument **high brightness 5 "TFT display**, with **touchscreen** and a very simple and intuitive interface.

- Engine data acquisition with CANBUS J1939 interface.
- Data acquisition from traditional sensors for up to eight analog inputs, five digital inputs and one frequency input
- Acquisition of navigation data with NMEA0183 interface
- Up to five relay command outputs for signals and simple activations
- Alarm monitoring according to approved safety standards
- Automatic brightness adjustment and day / night mode
- USB local connectivity for firmware update and configuration

The unit is supplied already programmed and ready to work.

MARINE DIESEL ENGINES

IN/OUTBOARD
MARINE ENGINE

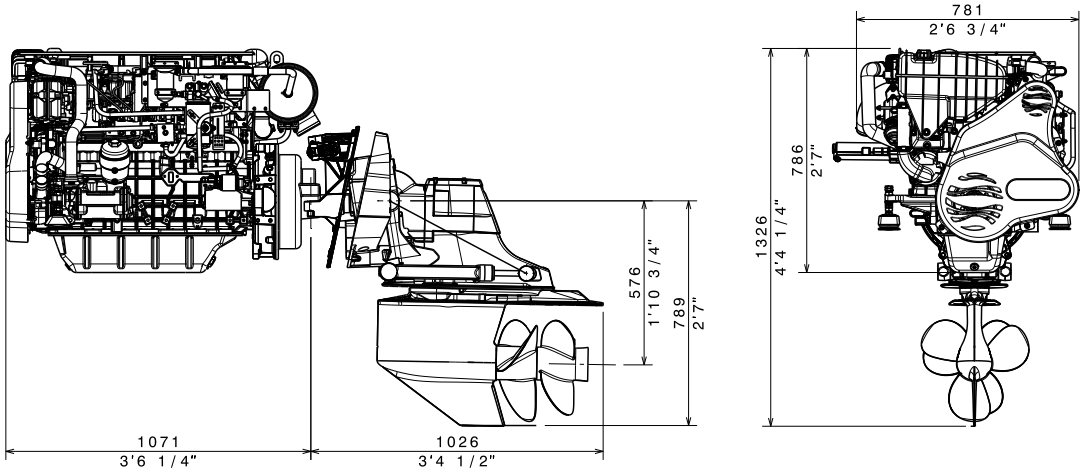
42HPEP

Models:

42HPEP 350 - 42HPEP 330 - 42HPEP 300
42HPEP 280 - 42HPEP 250 - 42HPEP 150

The 42HPEP engine was developed on a VM engine basis.

Dimensions | *FNM 42HPEP with BRAVO 3*



Technical data

Engine model	42 HPEP 350	42 HPEP 330	42 HPEP 300	42 HPEP 280	42 HPEP 250	42 HPEP 150
Max Power	257 kW 350 HP 3800 rpm	242,6 kW 330 HP 3800 rpm	220,6 kW 300 HP 3800 rpm	206 kW 280 HP 3800 rpm	184 kW 250 HP 3800 rpm	110 kW 150 HP 3800 rpm
Max Torque	700 Nm 71.4 Kgm 2700 rpm	657 Nm 67 Kgm 2700 rpm	657 Nm 67 Kgm 2700 rpm	657 Nm 67 Kgm 2700 rpm	530 Nm 54 Kgm 2700 rpm	330 Nm 33.6 Kgm 2700 rpm
Number of cylinders	6 in line					
Displacement (l) - (cc)	4,2 - 4.164					
Bore and Stroke (mm) - (in)	(94x100) - (3,7x4,09)					
Dry weight (kg)	460					
Cooling	Water					
Combustion	Direct Injection Common Rail					
Induction	Turbocharged and intercooled					
Emissions compliance	Directive 2013/53/UE					

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IN/OUTBOARD
MARINE ENGINE

42HPEP

FNM®
MARINE DIESEL ENGINES

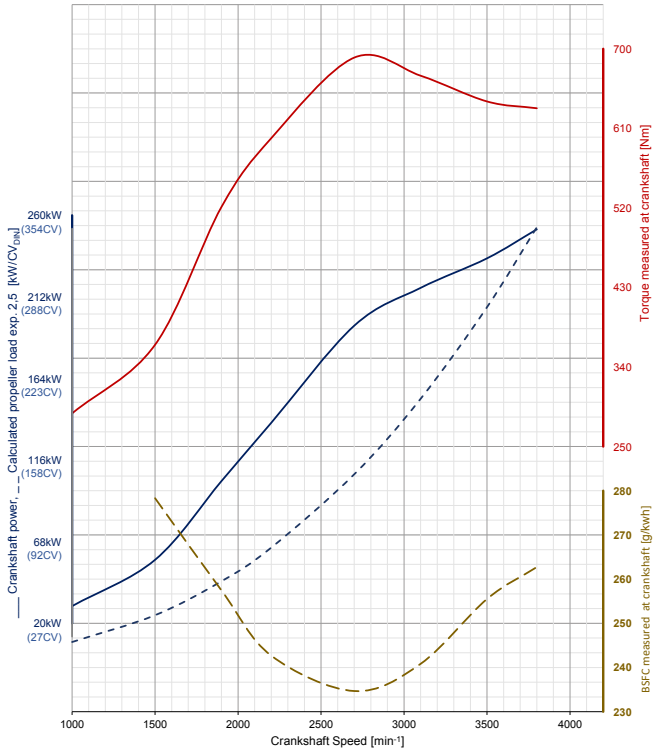
Standard technical equipment

- SAE flywheel housing
- Starter motor 12V - 2,3kW
- Alternator 12V-110A
- Oil and fuel filters
- Air filter
- Freshwater engine cooling system with seawater heat exchanger
- Engine lubricating oil cooled by heat exchanger seawater cooled
- Freshwater cooled exhaust manifold and freshwater tubocharger
- Bronze seawater circulating pump with impeller in special rubber
- Centrifugal pump for freshwater circulation
- Drain oil pump
- Expansion tank integrated
- Stainless steel exhaust gas/seawater mixer
- Flexible mounts
- Electrical instrument panel with alarms
- 8m. panel cable extension
- White paint finish

Optionals

- Single or double electronic CANBUS
- Boiler kit for heating
- Various lenght panel extension
- Second control panel for flybridge installations
- Fuel and seawater filters
- BRAVO X-1 stern drive Red. 1,65:1 or BRAVO 2 Red. 2:1 - BRAVO 3 Red. 2:1
- Stainless steel propeller for BRAVO X-1
- Aluminium propeller for BRAVO X-2
- Stainless steel propeller for BRAVO X-3
- Multiple Sterndrive Steering Tie for twin-engine
- Alignment tool
- Coupler kit
- NMEA2000 compatibility kit
- Wide range of additional instruments

Performance curves



Referred to **42HPE 350**

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- Acquisition of navigation data with NMEA0183 interface
- Up to five relay command outputs for signals and simple activations
- Alarm monitoring according to approved safety standards
- Automatic brightness adjustment and day / night mode
- USB local connectivity for firmware update and configuration

The unit is supplied already programmed and ready to work.

ECU
(Electronic Control Unit)

13HPE
Models:
13HPE 110 - 13HPE 80 - 13HPE 40

ECU (Electronic Control Unit)
ECU has been developed entirely in house

- This unit guarantees excellent performances with low emissions
- It has been conceived after a 10-year development project carried out by R&D team
- It is especially designed for HPE marine engines application
- It controls common rail system parts
- It includes unique control stategies which can be personalized according customers' request

20HPE
Models:
20HPE 180 - 20HPE 150 - 20HPE 120

ECU (Electronic Control Unit)
ECU has been developed entirely in house

- This unit guarantees excellent performances with low emissions
- It has been conceived after a 10-year development project carried out by R&D team
- It is especially designed for HPE marine engines application
- It controls Bosch common rail system parts
- It includes unique control stategies as: anti-shut-down in situations of gear engagement for installations with high inertia or rapid gear changes

30HPE
Models:
30HPE 270 - 30HPE 250 - 30HPE 225 - 30HPE 180

ECU (Electronic Control Unit)
ECU has been developed entirely in house

- It controls Bosch common rail system parts
- It includes unique control stategies as: anti-shut-down in situations of gear engagement for installations with high inertia or rapid gear changes
- It guarantees excellent performances with low emissions

42HPE
Models:
42HPE 350 - 42HPE 330 - 42HPE 300 - 42HPE 280 - 42HPE 250 - 42HPE 150

ECU (Electronic Control Unit)
ECU has been developed entirely in house

- 4 stroke turbocharged and aftercooled, direct injection diesel engine with electronically controlled common rail injection.
- Cooling controlled by separate fresh and salt water circuits, with extractable hoses for easy maintenance.
- Lube oil, water and air circuits designed to reduce external flexible pipes to a minimum to reduce loss of liquids in the bilge.
- Auxiliary devices driven by Poly-V belt to ensure excellent power transfer and long life compared to traditional versions
- Electrical circuit protected by reactivateable valves.

NOTE

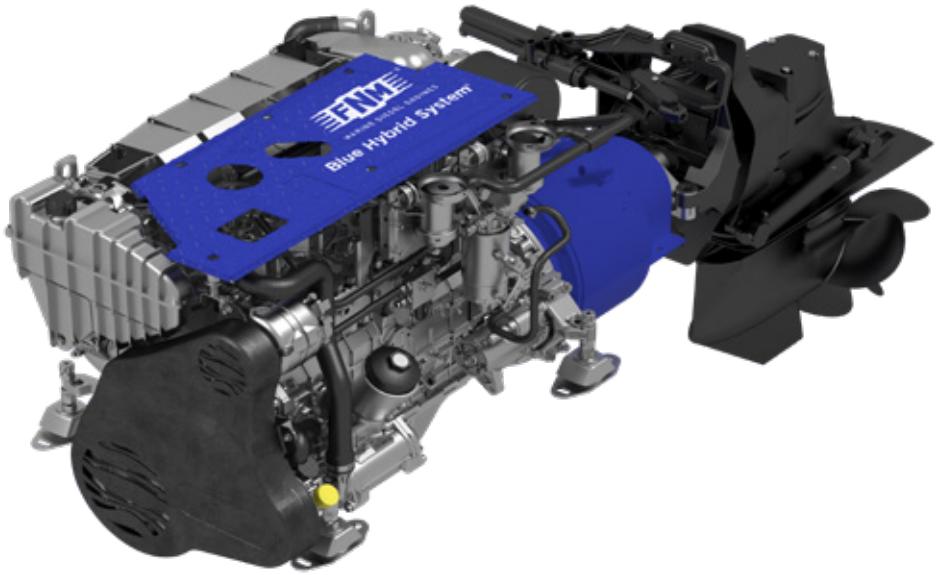
HYBRID POWERTRAINS RANGE

13HPE BHS 13.7kW @ 48V

20HPE/P BHS 25kW @96V

30HPE/P BHS 25kW @96V

42HPE/P BHS 25kW @96V



The pleasure of silent navigation and low-emission mobility.

It's the perfect combination of all advantages between conventional drive system and an electric motor.

The Hybrid system **combines a traditional marine endothermic engine and an electric motor with batteries and on-board units**, exploring new opportunities
to incorporate varying degrees of hybrid power into recreational or commercial boats.

*Thanks to our high technology, powertrain management and **full electric / endothermic propulsion mode changing** take place in easy and fast way through the **HCU** (Hybrid Control Unit) supervision device entirely designed by CMD.*

Specific algorithms, implemented on the HCU control system, allow to navigate:

- In **Full Electric** propulsion: 6/7 knots max;
- In endothermic propulsion: **automatically recharging batteries**.

HCU additional features

Start/stop function

Battery Recharge management during the navigation

Electric recharge management on dockside

On-board units management, cooling pump, hydroguide pumps

Management of CANBUS parameters sent to the supplied display

High safety and no distractions during navigation.

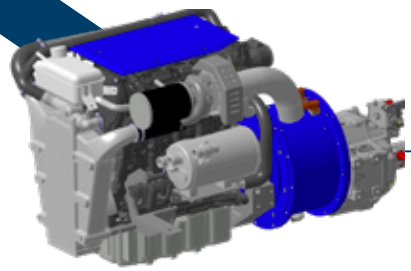
RANGE DIESEL / HYBRID POWER

Blue Hybrid System®

HYBRID KIT FOR MARINE ENGINES

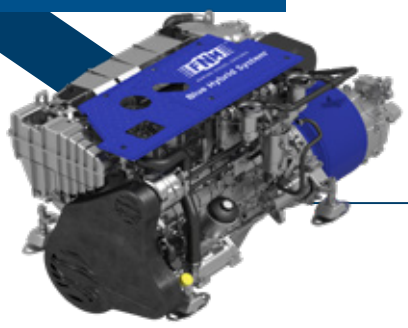
13 HPE BHS 48Vdc

20 HPE BHS 96Vdc



30 HPE BHS 96Vdc

42 HPE BHS 96Vdc



CAN BUS SIGNAL

CHARGING SIGNAL

ACQUARIUS BOX

THROTTLE

BATTERY

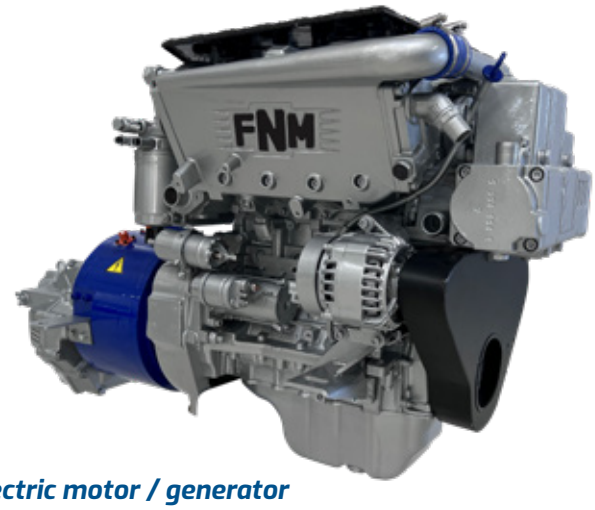
DISPLAY SIMRAD

The perfect combination
between conventional drive system
and electric motor.

We are the green future of sailing.

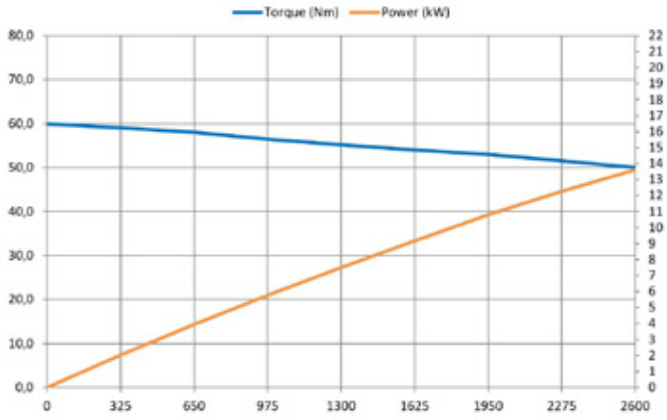
TECHNICAL DATA | Blue Hybrid System® | 13 HPE BHS 48Vdc

FNM MARINE DIESEL ENGINES HYBRID



Electric motor / generator

Type	Brushless
Cooling	Liquid cooled
Number of poles	12
Nominal speed	2600 RPM
Nominal power	13.7 kW @ 48V
Nominal torque	50 Nm
Nominal current	260 A
Efficiency	96 %



Acquarius BOX is composed by

- Inverter specifications	
Type	AC motor controller
Cooling	Liquid cooled
Nominal Voltage	48 VDC
Minimum - Maximum voltage	36-120 VDC
IP Grade	IP66
Continuous current (60min)	460 A
- Safety contactor, internal wiring, relays and fuses	
- Supervision control system (HCU - Hybrid Control Unit)	

Battery specification

Type	LiNMC
BMS	Included
Nominal Voltage	48,1 Vdc
Capacity	150 Ah
Standard / Quick discharge	0,5 C / 1,25 C
Maximum discharge for 30s	1,3 C
Energy density	96 Wh/kg
Dimensions	685x375x265 mm (L x W x H)
Weight	approx. 75 Kg
Certificate	Yes

DC / DC Converter

Typical input voltage	48 Vdc
Typical output voltage	12 Vdc
Output power	300 W
IP Grade	IP67

Display

Brand	SIMRAD
Series	GO XSE con OP box
Standard screen	9 inches
Internal App (BHS System)	Visualization of all system parameters (electrical and endothermic)

Throttle Remote control

Type	Electronic, top mounting, CAN bus
Series	Flexball 4500
Control Area	Both endothermic engine and electric motor are managed by the same throttle
Communication TYPE	CAN Open

Battery Charger

Type	sealed single-phase standard
Input voltage	230Vac (95-265 Vac)
Input frequency	50-60 Hz
Charging Power	2.5 Kw
IP Grade	IP65
Location	On board
Dimensions	324x204x142mm
Weight	8 kg

Wiring

Standard lenght	Up to 8m boats
Extension harness	Available
Type	Power, signal

Cooling system (external)

Equipment	Heat exchanger Seawater pump Coolant circulation pump(s)

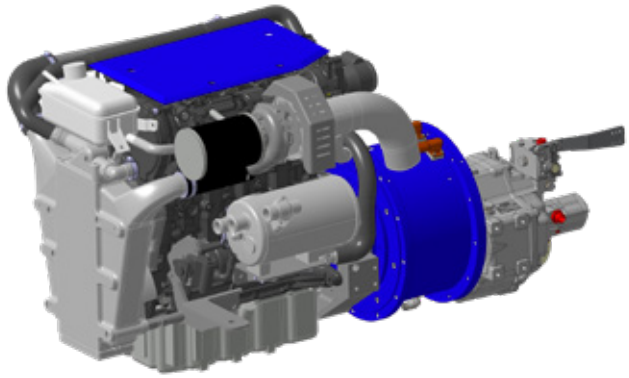
FNM®

FNM MARINE DIESEL ENGINES HYBRID

TECHNICAL DATA

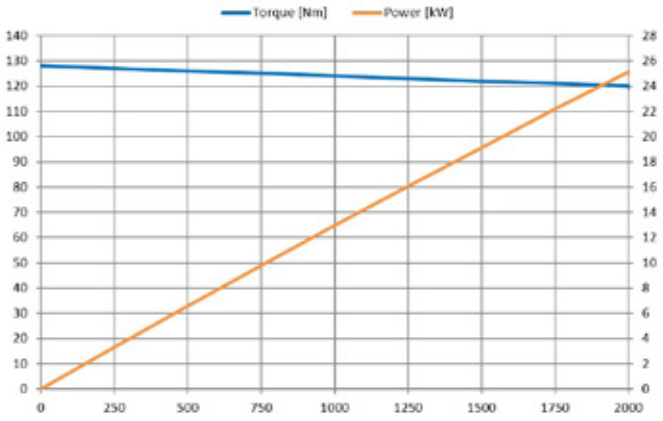
Blue Hybrid System®

20 HPE BHS 96 Vdc



Electric motor / generator

Type	Brushless
Cooling	Liquid cooled
Number of poles	12
Nominal speed	2000 RPM
Nominal power	25kW @ 2000 rpm @ 96V
Nominal torque	120 Nm
Nominal current	256A
Efficiency	96 %



Acquarius BOX is composed by

- Inverter specifications	
Type	AC motor controller
Cooling	Liquid cooled
Nominal Voltage	96 VDC
Minimum - Maximum voltage	39-116 V
IP Grade	IP66
Continuous current (60min)	220A
- Safety contactor, internal wiring, relays and fuses	
- Supervision control system (HCU - Hybrid Control Unit)	

Wiring

Standard lenght	Up to 8m boats
Type	Power, signal

Battery specifications

Type	LiNMC
BMS	Included
Nominal voltage	88,8 Vdc
Capacity	200 Ah
Standard/fast discharge	0,5 C / 1C
Maximum discharge	1,3 C
Energy density	148 Wh/kg
Dimensions	1158x310x339 mm (L x W x H)
Weight	approx. 150 Kg
Certificate	YES

DC / DC Converter

Typical input voltage	96 Vdc
Typical output voltage	12 Vdc
Output power	500 W
IP Grade	IP67

Display

Brand	SIMRAD
Series	GO XSE con OP box
Standard screen	9 inches
Internal App (BHS System)	Visualization of all system parameters (electrical and endothermic)

Throttle Remote control

Type	Electronic, top mounting, CAN bus
Series	Flexball 4500
Control Area	Both endothermic engine and electric motor are managed by the same throttle. CAN Open

Battery Charger

Type	sealed single-phase standard
Input voltage	230Vac (95-265 Vac)
Input frequency	50-60 Hz
Charging Power	3 Kw
IP Grade	IP65
Location	On board
Dimensions	324x204x142mm
Weight	8 kg

Cooling system (external)

Equipment	Heat exchanger Seawater pump Coolant circulation pump(s)

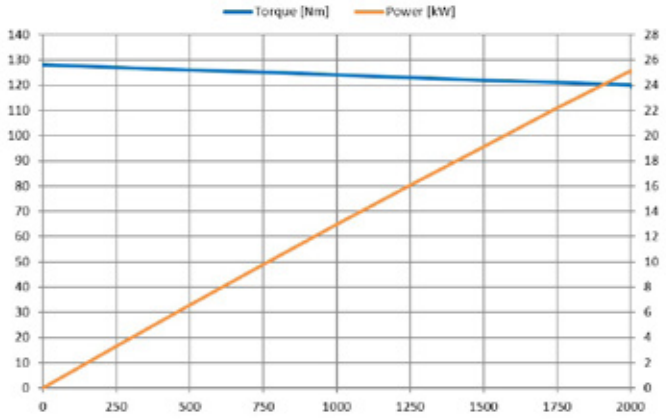
FNM®

TECHNICAL DATA | Blue Hybrid System® | 30 HPE BHS 96 Vdc

FNM MARINE DIESEL ENGINES HYBRID

Electric motor / generator

Type	Brushless
Cooling	Liquid cooled
Number of poles	12
Nominal speed	2000 RPM
Nominal power	25kW @ 2000 rpm @ 96V
Nominal torque	120 Nm
Nominal current	256A
Efficiency	96 %



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IP Grade	IP65
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Dimensions	324x204x142mm
Weight	8 kg

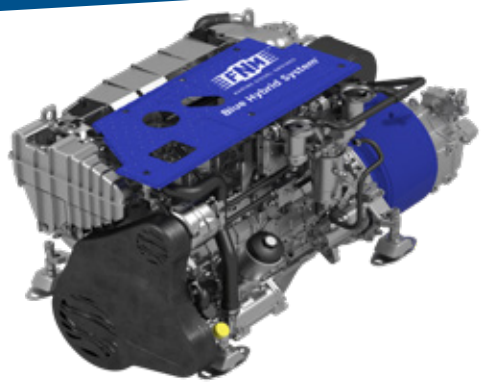
Wiring

Standard lenght	Up to 8m boats
Extension harness	Available
Type	Power, signal

FNM®

FNM MARINE DIESEL ENGINES HYBRID

TECHNICAL DATA — Blue Hybrid System® — 42 HPE BHS 96 Vdc



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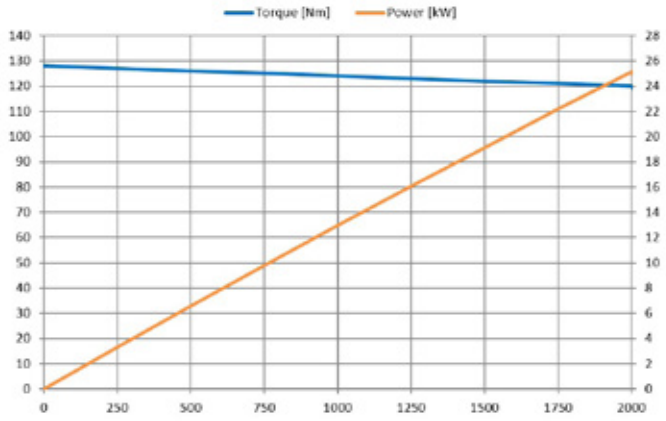

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FNM

TECHNICAL DATA

Blue Hybrid System®

HYBRID KIT FOR MARINE ENGINES

Everything under control

Thanks to the collaboration with SYMRAD, an innovative app has been developed for showing you the main information during navigation:

- engine/generator data
- battery status
- all parameters necessary to navigation and whole system's control.

Everything is under control and clearly visible through the supplied display.

Choose your navigation style

The entire powertrain is managed by a single engine throttle enable to switch from endothermic to electric navigation with a simple action.

ECU developed in house

All system is controlled by a CMD ECU entirely designed by CMD. This control unit uses CANBUS technology to communicate with all powertrain's components and decides the operating status of the hybrid system.

Operating time

The battery capacity can be customized according to the customer's navigation needs. Protected and insulated in an inox box of 1.5mm thickness, LiNMC batteries cells ensure great reliability. CMD uses an advanced systems simulation software to define the right battery pack capacity based on the mission profile such as: MATLAB / SIMULINK.

Technical data according to ISO8665. Fuel complies EN590. Merchant fuel may differ in specification and may influence engine power output and consumption. Production tolerance within 5% (of power). Not all models, standard equipment and accessories are available in all countries. All specifications are subject to change without notice.

For listening **only the sea sound**,
you can choose now.

FNM®

MARINE DIESEL ENGINES

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