

# 20HPEP IN/OUTBOARD MARINE ENGINE

Models: 180, 150, 120, 100, 40



## RELIABLE AND LONG-LASTING

FNM® 4-cylinder 20HPE engine is conceived according to GM B-family platform, equips a large number of small and medium size cars in Europe. The engine uses a common-rail fuel injection system controlled by an electronic control unit developed in house, especially made for it. The engine is small, powerful and reliable and the availability of spare parts make this engine suitable of.

## HIGH LEVEL PERFORMANCES

Set either for recreational use, where the engine reaches up to 129kW (175HP), or for any commercial purpose, where it can achieve up to 3000h/year, this unit guarantees excellent performances at each kind of operating condition.

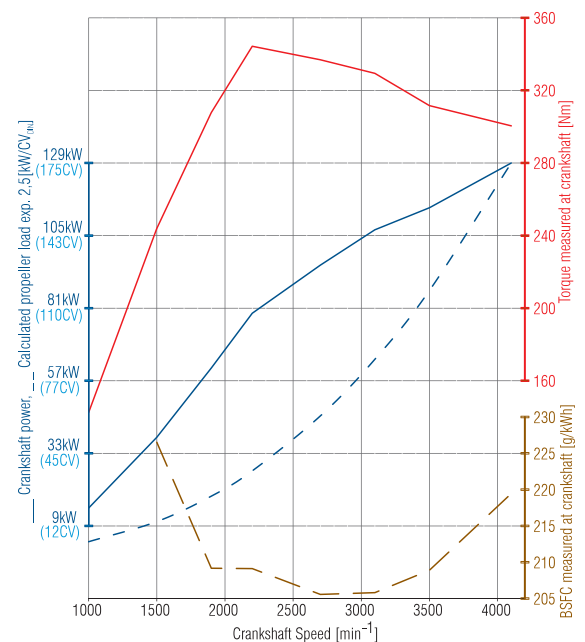
## ECU DEVELOPED IN HOUSE

The engine electronic control unit (ECU) has been conceived after a 10-year development project carried out by R&D team; it is especially designed for HPE marine engines application. The ECU controls Bosch common rail system parts and included unique control strategies which can be personalized according customers' request. It guarantees excellent performances with limited emissions.

## TECHNICAL DATA

Engine designation	20HPE 180	20HPE 150	20HPE 120	20HPE 100	20HPE 40
Crankshaft Power [kW] (hp)	129 (175)	108 (147)	88 (120)	73 (100)	29 (40)
Propeller shaft power [kW] (hp)	125 (170)	105 (143)	85 (116)	71 (97)	28 (39)
Engine speed [min <sup>-1</sup> ]	4100	4100	3800	3800	3200
Displacement [l] (in <sup>3</sup> )	2,0 (119)	2,0 (119)	2,0 (119)	2,0 (119)	2,0 (119)
Number of cylinders	4	4	4	4	4
Bore/stroke [mm] (in)	83,0/90,4 (3,27/3,56)	83,0/90,4 (3,27/3,56)	83,0/90,4 (3,27/3,56)	83,0/90,4 (3,27/3,56)	83,0/90,4 (3,27/3,56)
Compression ratio	16,5:1	16,5:1	16,5:1	16,5:1	16,5:1
Dry weight with TM 485A [kg]	301	301	301	301	301
Dry weight with ZF 485D [kg]	312	312	312	312	312
Power Rating	A	B	C	D	D
Emission compliance	RCD Stage II 2013/53/UE				

## PERFORMANCE CURVES



Referred to 20HPE 180

Engine shown in the picture could be not equal to standard engines

Technical data according ISO8665, fuel according EN590 standards. Fuel available on the market could have different specifications, influencing engine's power and consumptions. Production tolerance within 5% (on power). Not all produced models, equipments and accessories could be available in all countries.

## TECHNICAL CHARACTERISTICS

### 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
- Oil-cooled pistons with compression and scraper rings
- Automotive-class availability of service and parts
- Rubber belt timing

### LUBRICATION SYSTEM

- Oil filter
- Oil separator with filtering technology
- Integrated cooler with engine's coolant

### FUEL SYSTEM

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

### ENGINE MOUNTING

- Flexible engine mounting

### 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

- Exhaust manifold coolantcooled
- Thermostatically regulated freshwater cooling
- Thermal unit that integrates thermostat and tubular heat exchanger
- Easily accessible seawater impeller pump

### ELECTRICAL SYSTEM

- 12V standard two-pole electrical system
- 12V-2,3kW starter
- Alternator 12V-110A
- Emergency stop button on engine's ECU
- CANBUS Panel with 8m extension and digital display of engine data

## PANEL INSTRUMENT CANBUS

Panel Instrument high brightness 5" TFT display, with touchscreen and a very simple and intuitive interface and offers the following features:

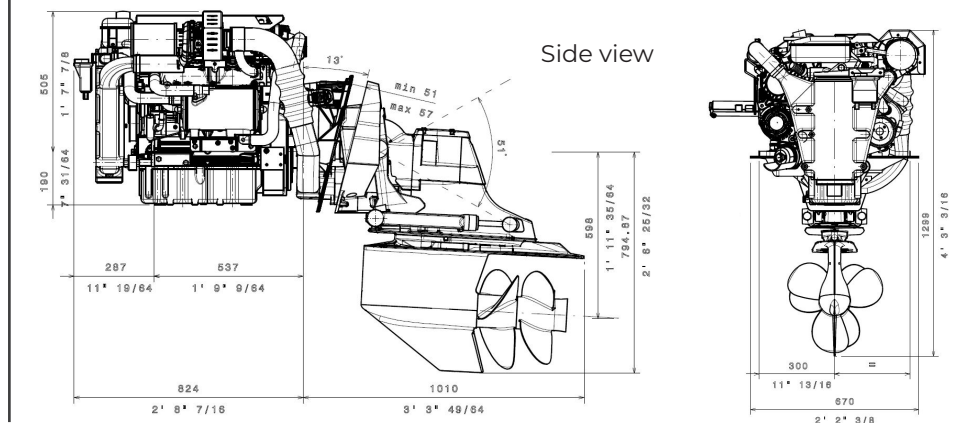
- Engine data acquisition with CANBUS J1939 interface.
- Data acquisition from traditional sensors for up to eight analog inputs, five digital inputs and one frequency input.
- Acquisition of navigation data with NMEA0183 interface.
- Up to five relay command outputs for signals and simple activations.
- 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.

## DIMENSIONAL

### FNM20HPEP BRAVO 3



## OPTIONALS AND GEAR

- 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



Find out our dealers using our QR code or call +39 393 9092265 for further informations