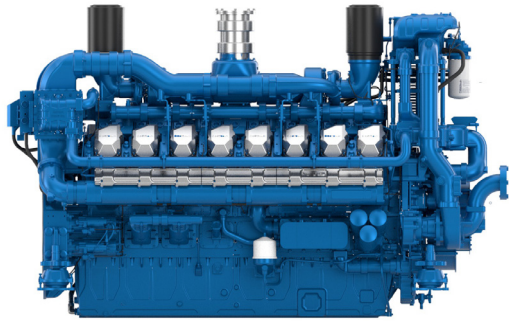


16M33.3

Propulsion Diesel Engine



Number of cylinders	16
Bore and stroke (mm)	150 x 185
Total displacement (L)	52.3
Cylinders	16V
Engine rotation	counter clockwise
Idle speed (rpm)	600
Flywheel housing	SAE 00
Flywheel	SAE 21"

Customer benefits

Genuine marine design with simple solutions and routine maintenance accessibility

Continuous compact power with top-tier performance in category

Global environmental care: low exhaust emissions, noise reduction, and controlled fuel consumption

Latest safe technology integration: electronic injection dynamic redundancy, high-efficiency ball bearing turbocharger

Emphasis on life cycle cost efficiency with extended MTBO and modular design reducing components and interfaces

Rated power - Fuel consumption

Duty	kW	HP	RPM	Fuel consumption			IMO
				Optimum value	Rated power		
				g/kWh	g/kWh	l/h	
P1	1287	1750	1600	204	218	338	II
	1434	1950	1800	209	213	368	II
P2	1361	1850	1600	203	218	358	II
	1545	2100	1800	207	217	406	II

	P1	P2	P3	P4
Application	Unrestricted	Continuous (Heavy)	Intermittent	Light
Engine load variations	Not important	Important	Important	Very important
Average Engine load factor	80-100%	30-80%	60%	60%
Annual working time	5000 - 7000h	3000-5000h	1000-3000h	Less than 1500h
Time at full load	12h each 12h	8h each 12h	2h each 12h	1h each 12h

P1 Continuous Duty

- Deep sea trawlers
- Shrimps trawlers
- Sea going tug boats
- River tug boats
- Push boats
- Freighters
- Dredges
- LCT
- Ferries

P2 Heavy Duty

- Deep sea trawlers
- Shrimps trawlers
- Sea going tug boats
- River tug boats
- Push boats
- Freighters
- Dredges
- LCT
- Ferries

P3 Intermittent Duty

- Seasonal passenger vessels
- Fishing boats
- Pilot boats
- Commercial pleasure boats
- Pump boats
- Displacement sailboats
- Trawlers
- Bow thrusters

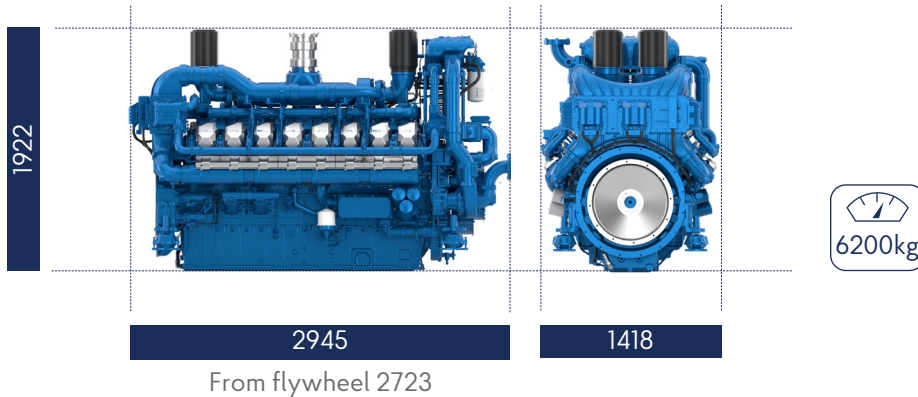
P4 Light Duty

- Private pleasure boats
- Multi-hull pleasure boats
- Survey or rescue fast vessels
- Military fast vessels.

P5 High performance Duty

- Private pleasure boats
- Multi-hull pleasure boats

Dimensions and dry weight (mm/kg)



Standard equipment

Engine & Block

Cast iron cylinder block, with replaceable cylinder liners
 Separate cast iron cylinder heads
 Replaceable valves guides and seats
 Steel forged crankshaft with 7 bearings
 Lube oil cooled light steel piston with 3 high performance piston rings

Cooling System

Two - stage cooling circuit with built - in HT thermostatic valve
 Integrated fresh water expansion tank
 High efficiency tubular heat exchanger
 Gear driven centrifugal raw water pump
 Self priming raw water pump with bronze impeller

Lubrication System

Full flow lube oil filters duplex type
 Fresh water cooled lube oil heat exchanger

Fuel System

Common-rail electronic injection
 High pressure pump with shielded high pressure injection rail and pipes
 Fuel oil filter duplex type

Intake Air and Exhaust System

Double flow raw water cooled intake air heat exchanger module
 High efficiency dry turbocharger with ball bearing technology

Electrical System

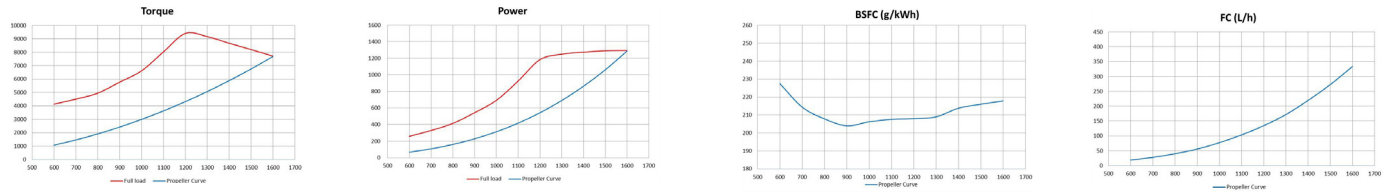
Voltage: 24V DC insulated
 Electrical starter
 190A battery alternator

Optional Equipment

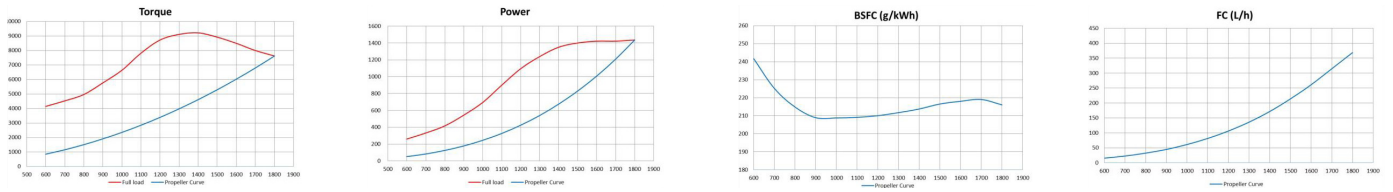
Wet exhaust
 PTO elastic coupling
 Additional pulley
 Electric drain system
 Standard PTO for hydraulic pump
 Different alternators possible - including
 12V Electrical rotary actuator
 External fuel pre-filter with water separator

Performance

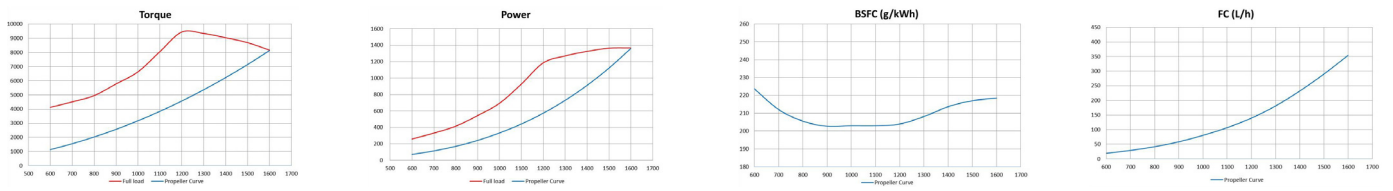
P1 1287kW - 1600rpm



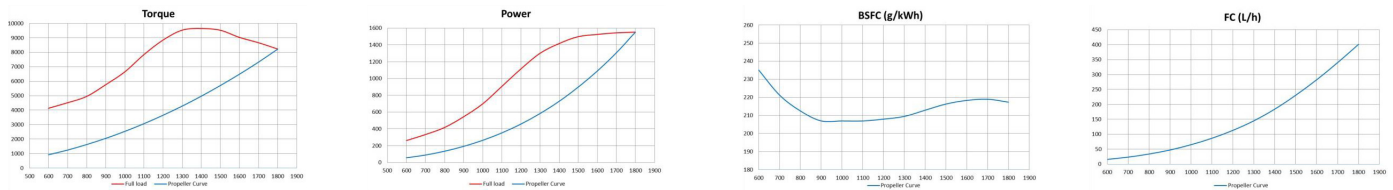
P1 1434kW - 1800rpm



P2 1361kW - 1600rpm



P2 1545kW - 1800rpm



Power definition

(Standard ISO 3046/1 - 1995 (F))

Reference conditions

Ambient temperature	25°C / 77°F
Barometric pressure	100 kPa
Relative humidity	30%R
Raw water temperature	25°C / 77°F

Fuel oil

Relative density	0,840 ± 0,005
Lower calorific power	42 700 kJ/kg
Consumption tolerances	+ 5%
	(DIN ISO 3046-1)
Inlet limit temperature	35°C / 95°F

Our ratings also comply with classification societies maximum temperature definition without power derating.

Ambient temperature	45°C / 113°F
Raw water temperature	32°C / 90°F