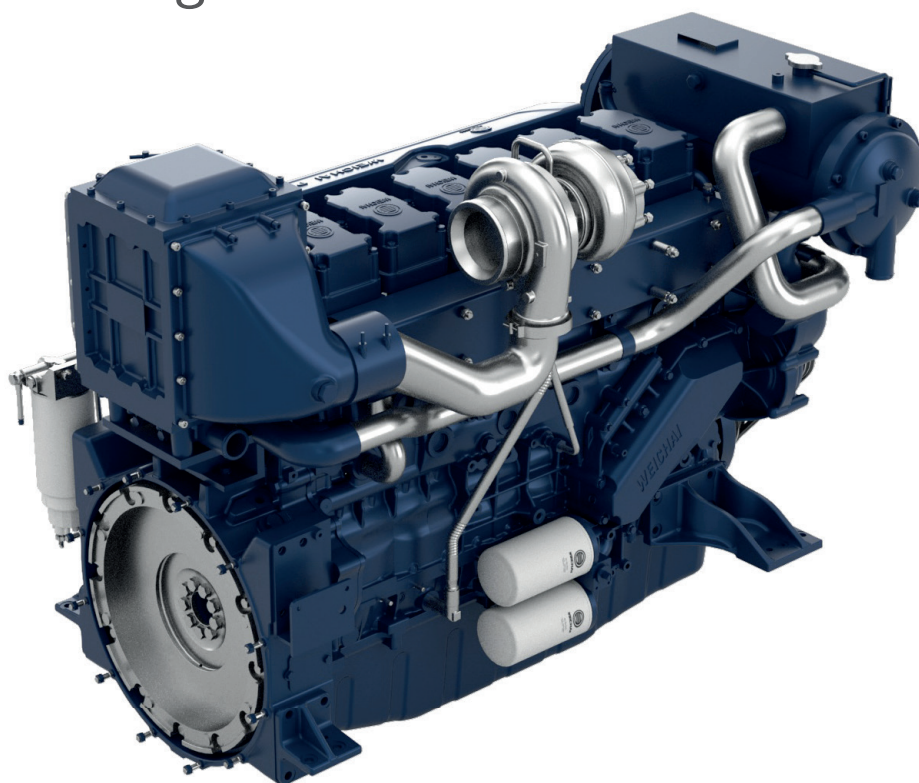


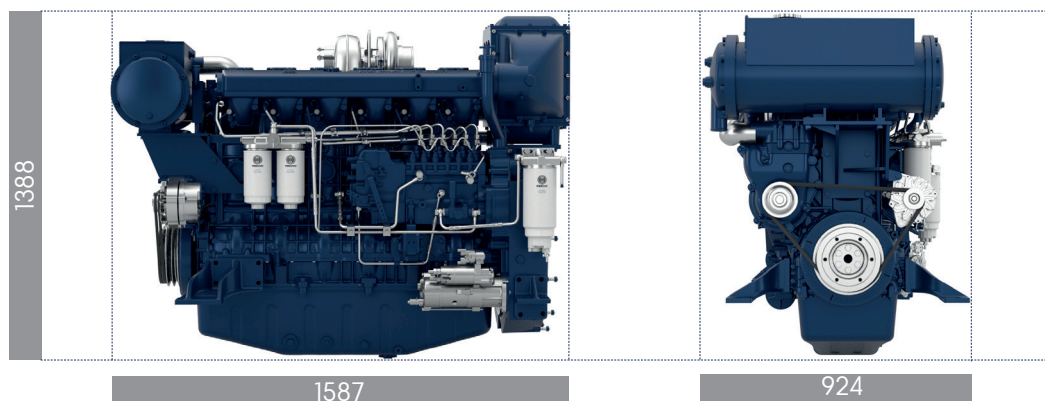
Marine Propulsion Engine



WP13

Technical Data

Engine Model	WP13C450-18	WP13C482-18
Rated power (HP/kW)	450 / 330	482 / 354
Rated speed (rpm)	1800	1800
Power class	P1	
Min. fuel consumption	215	
No. of cylinders	6 In line	
Description	4-stroke, direct injected, turbocharged diesel engine	
Bore/Stroke mm (in)	127 x 165 (5 x 6.5)	
Displacement (L)	12.54	
Compression ratio	16:1	
Dry weight bobtail (kg)	1200	
Emission compliance	IMO Tier II	
Firing order	1-5-3-6-2-4	
Idle speed (rpm)	650 ± 25	
Flywheel housing / Flywheel	SAE 1/14"	
Recommended fuel to conform to	ASTM-D975: 1-D; 2-D; DIN51601; NATO CODES F54, F57, F76, GB252 0, -10, -20, -35, -50; BS2869: A1, A2; W-F800C:DF-A, DF-1, DF-2	



Connections

Raw water inlet	Ø 42mm
Raw water outlet	2x Ø 42mm
Fuel inlet	Ø 14mm
Fuel outlet	Ø 14mm
Exhaust	Ø 121mm

Class Definition

Rating	Time at full load	Mean engine load factor	Annual working time	Typical applications
P1 Continuous Duty	unlimited	70%-100%	Recommended but not limited to 5000h - 8000h	Ocean vessel, Engineering vessel
P2 Heavy Duty	8h per 12h	40%-80%	Recommended but not limited to 5000h	Ferries, High speed passengers boats, Trawlers, Inland waterway transport boats, Tugboat, Offshore trade vessel, Purse seine vessel
P3 Intermittent Duty	4h per 12h	40%-80%	Recommended but not limited to 3000h	Offshore service boats, Seasonal cruise ship, Official vessels with high utilization rate
P4 High Output Duty	2h per 8h	60%	Recommended but not limited to 1000h	Fishery patrol ship, Maritime surveillance ship, Patrol boat, Life boat, Stormships used by local governments
P5 Light Duty	0.5h per 5h	60%	Recommended but not limited to 500h	Leisure yachts

Power Definition

Standard ISO 3046/1 - 1995 (F)

Reference Conditions

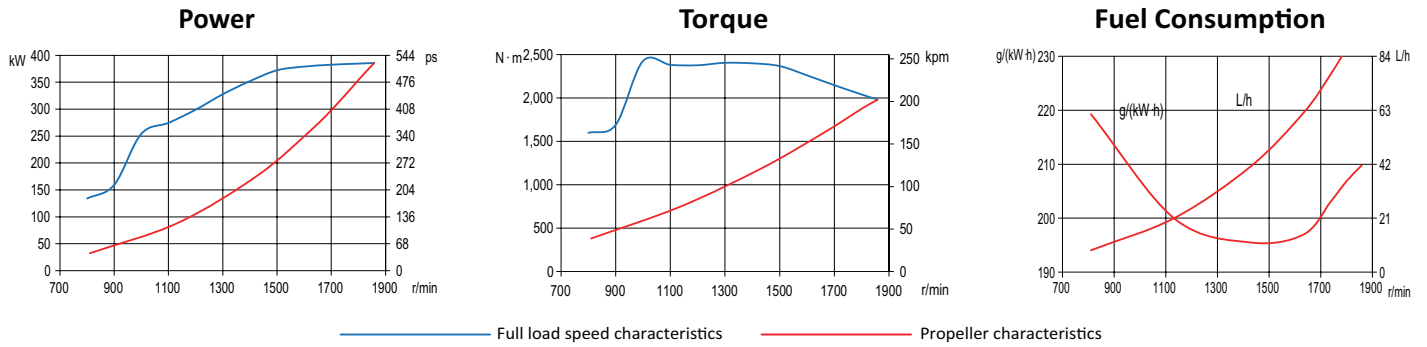
Ambient temperature	25°C / 77°F
Barometric pressure	100 kPa
Relative humidity	30%
Raw water temperature	25°C / 77°F

Fuel oil

Relative density	0,840 ± 0,005g/ml
Lower calorific power	42,700 kJ/kg
Consumption tolerance	0 ± 5%
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



Technical Description

Engine and block

- Cylinder block made of cast iron
- 4 valves per cylinder
- Steel crankshaft
- Cylinder head of integral type
- Dry cylinder liner

Electrical system

- Start motor 24V/7.5kW, double-wire system
- Alternator 28V/35A, double-wire system

Lubrication system

- Integrated oil cooler in cylinder block
- Fitted with a hand oil draining pump
- Duplex oil filter of spin-on type

Fuel system

- Anti-explosion high pressure fuel pipe with fuel leaking alarm
- 2 stop methods, electro magnet stop and electromagnetic valve
- Fuel fine filter can be changed without the engine shutdown

Air inlet and exhaust system

- Turbocharged and inter-cooled air intake system
- Engine coolant cooled turbocharger and exhaust pipe

Cooling system

- Heat exchanger and air cooler with corrosion-resistance tubes and anticorrosion Zinc bar

Instruments/controls (options)

- Local control panel and remote panel equipped
- Connectors of plug-in type

