



# WD10C278-18 Marine propulsion engine



## Basic engine specifications

Rating .....	P1
Rated power-kW .....	205
Rated speed-rpm .....	1800
Overload power-kW .....	225.5
Overload speed-rpm .....	1858
Rated power tolerance-% .....	±3
Low idle speed -rpm .....	650
High idle speed-rpm .....	1980
N° of Cylinders / Valves .....	6/12
Cylinders arrangement .....	In-line
Thermodynamic cycle .....	4 stroke
Bore × Stroke-mm(in) .....	126×130 (4.96×5.12)
Compression ratio .....	17:1
Displacement-L(in <sup>3</sup> ) .....	9.726 (593.5)
Fuel system .....	Mechanical
Injection system .....	Direct injection
Aspiration .....	Turbocharged and aftercooled
Flywheel housing/Flywheel/N° of teeth on flywheel ring gear(standard) .....	SAE 1/14"/136
Flywheel housing/Flywheel/N° of teeth on flywheel ring gear(optional) .....	/
Firing order .....	1-5-3-6-2-4
Rotation(from flywheel end) .....	Counterclockwise
Overall dimensions(L×W×H)-mm(in) .....	1532×814×1076 (60.3×32.0×42.4)
Dry weight-kg(lb) .....	1056 (2328)
Wet weight-kg(lb) .....	1151 (2537)
Max. output power of front end-kW(Ps) .....	92.96 (126.0)
Emission compliance .....	IMO Tier II
Lifting cylinder height- m(ft) .....	1 (3.28)

## Rating definitions

### Continuous Duty (P1)

The engine can run at full load continuously. The average load factor is 70% to 100%. Annual working time is recommended but not limited to 5000h~8000h.

### Heavy Duty (P2)

The engine can run at full load for 8h every 12h. The average load factor is 40% to 80%. Annual working time is recommended but not limited to 5000h.

### Intermittent Duty (P3)

The engine can run at full load for 4h every 12h. The average load factor is 40% to 80%. Annual working time is recommended but not limited to 3000h.

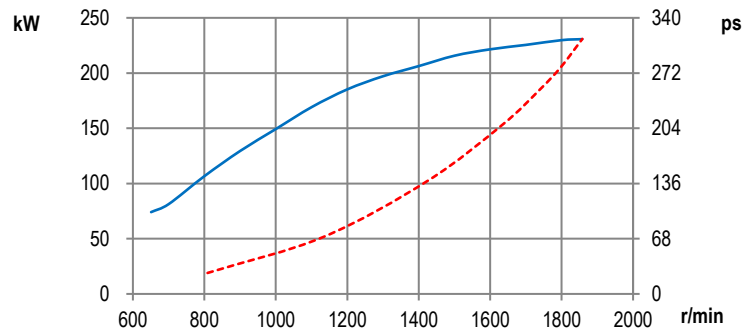
### Light Duty (P4)

The engine can run at full load for 2h every 8h. The average load factor is about 60%. Annual working time is recommended but not limited to 1000h.

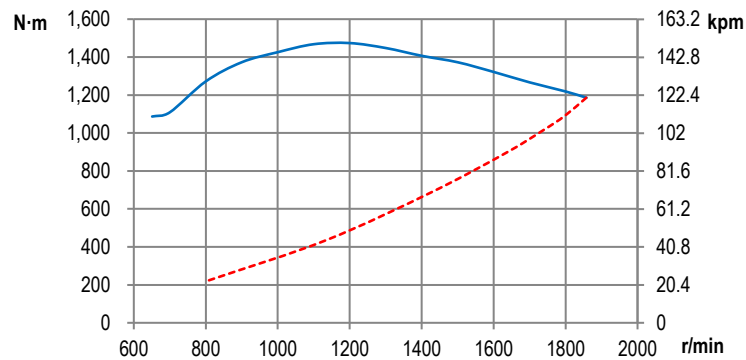
### High Performance Duty (P5)

The engine can run at full load for 0.5h every 5h. The average load factor is about 60%. Annual working time is recommended but not limited to 500h.

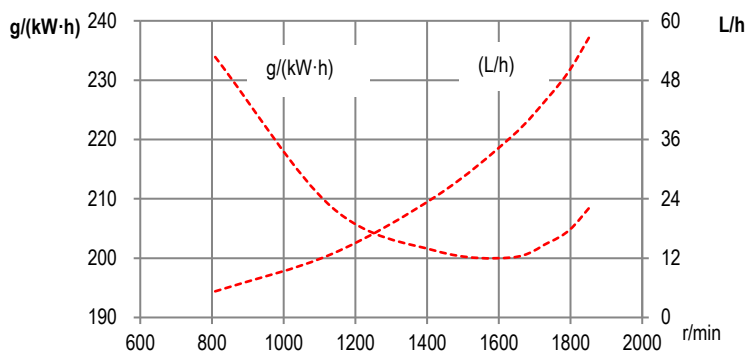
## Power



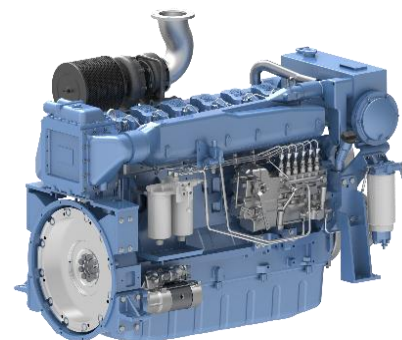
## Torque



## Fuel consumption



— Full load speed characteristics  
 - - - Propeller characteristics





## Air intake system

Intake air flow-m <sup>3</sup> /min(cfm)	16.6 (593.9)
Max. allowable intake air restriction- kPa(in H <sub>2</sub> O)	7 (28.1)
Intake air temperature up to-°C(°F)	55±5 (131±41)
Heat rejection to atmosphere-kW(BTU/min)	24.8(1410.4)

## Cooling system

Coolant capacity of the engine-L(gal)	73(16.06)
Max. sea water strainer mesh hole diameter- mm(in)	2 (0.08)
Sea water pump flow-m <sup>3</sup> /h(gal/h)	18 (3960)
Head of sea water pump -m(ft)	17(55.7736)
Max. self-priming height of sea water pump- m(ft)	2(6.5616)
Expansion tank pressure cap- kPa(psi)	50(7.3)
Heat dissipating to heat exchanger- kW(BTU/min)	112.3(6386.5)
Coolant flow-m <sup>3</sup> /h(gal/h)	18(3960)
Temperature range of engine outlet -°C(°F)	61-95(141.8-203)
Temperature range of thermostat-°C(°F)	71-86(159.8-186.8)

## Exhaust system

Exhaust flow-m <sup>3</sup> /min(cfm)	46.0 (1642.14)
Max. exhaust back pressure-kPa(in H <sub>2</sub> O)	6 (24.10)
Max. exhaust temperature before turbocharger-°C(°F)	/ (/)
Max. exhaust temperature after turbocharger-°C(°F)	550(1022)
Max. bending moment of turbocharger flange- N·m(ft·lbs)	19(14.0)
Exhaust smoke-FSN	≤1.5

## Lubricating system

Max. install angle(fore-aft)	10°
Max. install angle(athwart ship)	15°
Max. operating angle(fore-aft)	30°
Max. operating angle(athwart ship)	30°
Sump type	Wet
Oil capacity Low/High-L(gal)	19/24 (4.18/5.28)
Oil consumption -g/(kW·h)	≤0.3
Oil flow- L/min(gal/min)	/ (/)
Oil pressure of idle speed- kPa(in H <sub>2</sub> O)	100~250(401.6~1003.9)
Oil pressure of rated speed- kPa(in H <sub>2</sub> O)	330~550(1325.19~2208.66)

## Fuel system

Fuel flow supply line- L/h(gal/h)	50.1 (11.0)
Fuel flow return line- L/h(gal/h)	/ (/)
Max. Allowable fuel supply restriction -kPa(in H <sub>2</sub> O)	18 (72.3)
Fuel supply restriction on engine-kPa(in H <sub>2</sub> O)	10 (40.2)
Allowable fuel restriction of shipyard supplied components-kPa(in H <sub>2</sub> O)	8 (32.1)
Max. fuel return restriction-kPa(in H <sub>2</sub> O)	22 (88.4)
Max. self-priming height of fuel delivery pump-m(ft)	1 (3.28)
Max. fuel inlet temperature-°C(°F)	50 (122)
Max. fuel inlet pressure- kPa(in H <sub>2</sub> O)	0(0)

## Starting system

Electrical system voltage(2-pole)-V	24
Electric starter power-kW(Ps)	7.5 (10.2)
Recommended battery capacity- A·h	165×2
Alternator working current-A	55/35

## Security parameters

Alarm speed-rpm	2070
Shut down speed-rpm	2160
Alarm oil pressure-MPa	0.12
Shut down oil pressure-MPa	0.08
Alarm oil temperature-°C(°F)	105(221)
Alarm coolant temperature-°C(°F)	97(206.6)

## Noise

Noise(SPL)- dB(A)	110.9
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## General remarks

- The origin of coordinates is at the center of the flywheel housing back end surface. X axis directs from flywheel to front, Z axis directs vertical up, Y axis direction is defined by right-hand rule.
- All ratings are based on operating conditions under ISO 8665, ISO 3046-1.
- Curves represent net engine performance in accordance with ISO 3046/1 with standard accessories such as fuel injection pump, water pump and L.O. pump under the condition of 25°C/77°F ambient temperature, 100kPa[29.612 in Hg] barometric pressure, 30% relative humidity and 25°C/77°F raw water temperature at inlet.

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Materials and specifications are subject to change without notice.