WP7C240-18E120 Marine propulsion engine

WEICHAI

Basic engine specifications

Rating	P1
Rated power-kW	176
Rated speed-rpm	1800
Overload power-kW	194
Overload speed-rpm	1858
Rated power tolerance-%	5
Idle speed-rpm	650
High idle speed-rpm	1980
Nº of Cylinders / Valves	6/24
Cylinders arrangement	In-line
Thermodynamic cycle	4 stroke
Bore × Stroke-mm(in)	108×136 (1.25×5.35)
Compression ratio	18:1
Displacement-L(in^3)	7.47 (455.82)
Fuel system	Common rail
Injection system	Direct injection
Aspiration	Turbochared and aftercooled
Flywheel housing/Flywheel/N° of teeth on flywheel ring gear(standard)	SAE 1/14#/159
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)	1398×865×980 (55.0×34.1×38.6)
Dry weight-kg(lb)	900±50 (1984±110)
Wet weight-kg(lb)	960±50 (2116±110)
Max. output power of front end-kW(ps)	47 (63.9)
Max. output torque of front end- N.m(ft-lbs)	/ (/)
Inertia of flywheel- kg.m^2(lb.ft^2)	1.00 (23.73)
Inertia of crankshaft- kg.m^2(lb.ft^2)	1.50 (35.60)
Max. bending moment @ flywheel housing- N.m(ft-lbs)	11700 (8633.43)
Location of GC-mm[in]	（573,-26,134） [（22.6,1.02,5.28）]
Emission compliance	IMO Tier II

Security parameters

Alarm speed-rpm	2070
Shut down speed-rpm	2160
Alarm oil pressure-MPa	0.1
Shut down oil pressure-MPa	0.08
Alarm oil temperature-°C(°F)	105(221)
Alarm coolant temperature-°C(°F)	97(206.6)

Noise

Diesel engine noise(Acoustic power level)- dB(A)	109.2

Rating definitions

Continuous power (P1)

The engine can run at full load continuously. The average load factor is 70% to 100%. Annual working time is more than 4000h.

Heavy duty power (P2)

The engine can run at full load for 8h every 12h. The average load factor is 40% to 80%. Annual working time is 2000h to 4000h.

Pleasure vessels in commercial operation (P3)

The engine can run at full load for 4h every 12h. The average load factor is 50% to 70%. Annual working time is 500h to 2000h.

Government vessels (P4)

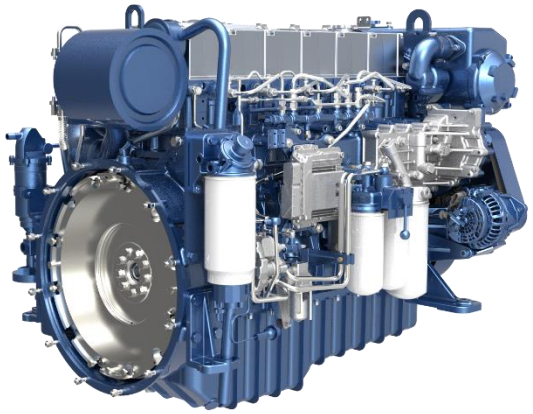
The engine can run at full load for 2h every 8h. The average load factor is 70% to 90%. Annual working time is less than 500h.

Light duty power (P5)

The engine can run at full load for 0.5h every 5h. The average load factor is 60%. Annual working time is less than 300h.

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.
- Reference document: D000210202.



This picture is for reference only and does not represent the actual product status.

WP7C240-18E120 Marine propulsion engine

WEICHAI

Air intake system

- Intake air flow-m^3/min(cfm) ····· 13.51 (0.38)
- Max. allowable intake air restriction(include pipe and air filter)- kPa(in H_2O) ····· 3 (12)
- Intake air temperature up to-°C(°F) ····· 60 (140)
- Heat rejection to atmosphere-kW(BTU/min) ····· 21 (1194.2)

Cooling system

- Coolant capacity of the engine-L(gal) ····· 36 (7.92)
- Max. sea water strainer mesh hole diameter- mm(in) ····· 2 (0.08)
- Sea water pump power-kW(ps) ····· / (/)
- Expansion tank pressure cap- kPa(in H_2O) ····· 50 (7.2)
- Heat dissipating to heat exchanger- kW(BTU/min) ····· 101 (5743.7)
- Coolant flow-m^3/h(gal/h) ····· 17 (3.74)
- Recommended outlet water temperature-°C(°F) ····· 75~95 (167~203)

Exhaust system

- Exhaust flow-m^3/min(cfm) ····· 23.76 (0.67)
- Max. exhaust back pressure-kPa(in H_2O) ····· 7.5 (30.1)
- 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) ····· 10 (7.4)
- Exhaust smoke-FSN ····· ≤1.0

Lubricating system

- Max. install angle(fore-aft) ····· 5
- Max. install angle(athwart ship) ····· 15
- Max. operating angle(fore-aft) ····· 7.5
- Max. operating angle(athwart ship) ····· 22.5
- Sump type ····· Wet
- Oil capacity Low/High-L(gal) ····· 20/24 (4.4/5.3)
- Oil fuel consumption ratio based on engine fuel consumption data-% ····· ≤0.1
- Oil flow- L/min(gal/min) ····· / (/)

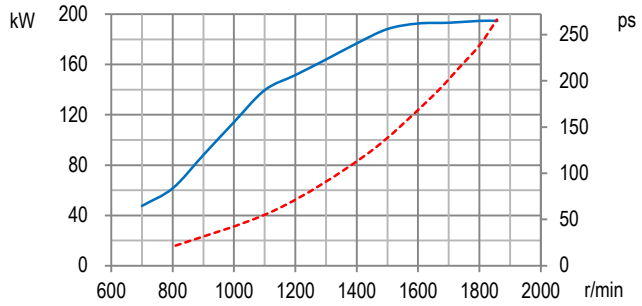
Fuel system

- Fuel flow supply line- L/h(gal/h) ····· 240 (52.80)
- Fuel flow return line- L/h(gal/h) ····· 130 (28.6)
- Max. Allowable fuel supply restriction -kPa(in H_2O) ····· 65 (261.0)
- Fuel supply restriction on engine-kPa(in H_2O) ····· 10 (40.2)
- Allowable fuel restriction of shipyard supplied components-kPa(in H_2O) ····· 55 (220.8)
- Max. fuel return restriction-kPa(in H_2O) ····· 20 (80.3)
- Max. self-priming height of fuel delivery pump-m(ft) ····· 3 (9.8)
- Max. fuel inlet temperature-°C(°F) ····· 70 (158)

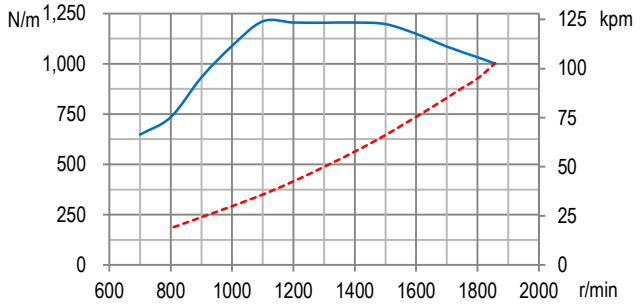
Electric system

- Electrical system voltage(2-pole)-V ····· 24
- Starter power-kW(ps) ····· 6 (8.2)
- Recommended battery capacity(5°C and above)- A.h ····· 180×2
- Recommended battery capacity(-5°C and above) - A.h ····· /
- Alternator working current-A ····· 120

Power



Torque



Fuel consumption