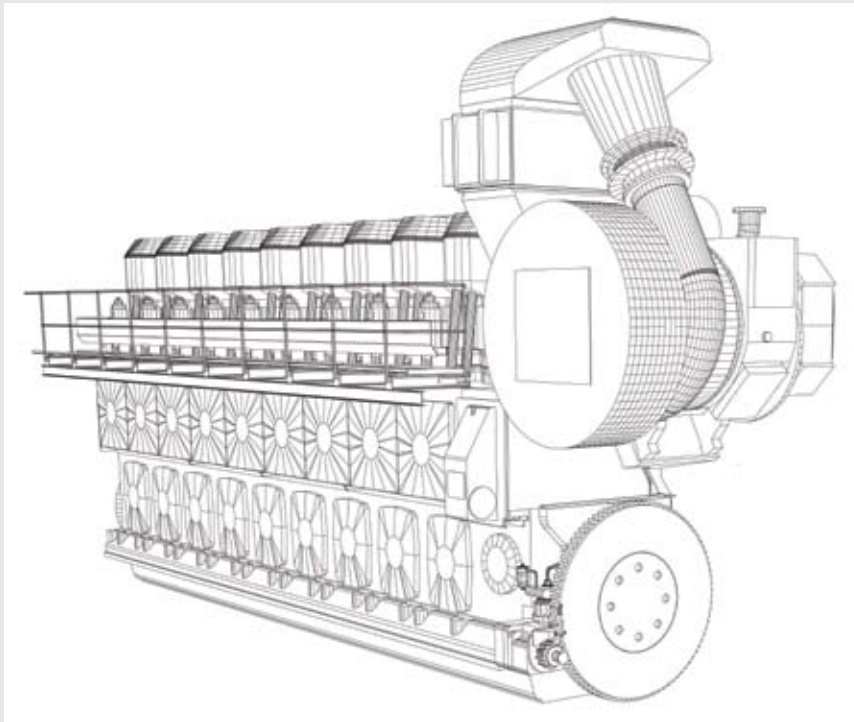


TM620

7800-12,750 kW at 400-428 min⁻¹

TOTAL SERVICE



WÄRTSILÄ ENGINES

CHARACTERISTICS

- Medium speed, pressure-charged and intercooled 6-, 8- and 9-cylinder in-line engines.
- Four stroke, direct fuel injection.
- The crankcase consists of bedplate and cylinder block.
- Cylinder head with two exhaust valves and two inlet valves.
- Uni-directional or directly reversible engine.

BENEFITS

- Proven design.
- Reliable and long life.
- Designed for operation on heavy fuel with specifications meeting ISO 8217:2005(E), ISO-F-RMH 700.



ENGINE DESCRIPTION

| | |
|-----------------------------------|---|
| Bedplate | Rigid U-shape bedplate, which is made of nodular cast iron. |
| Cylinder block | The cylinder block is made of cast iron, incorporating the camshaft casing and individual cylinder water jackets. Bedplate and cylinder block are connected by tie rods. |
| Crankshaft | The one-piece crankshaft is made of forged steel. Counterweights are fitted on each crank web. |
| Torsional vibration damper | A torsional vibration damper is fitted at the free end of the engine. |
| Cylinder liner | The cylinder liner is made of special pearlitic cast iron. The collar is equipped with bores to cool the upper liner part. |
| Connecting rod | The connecting rods are made of high-tensile steel forging. The big end has three serrated joints. |
| Piston | The two-piece piston consists of a light alloy skirt and a steel piston crown and has 5 piston rings. |
| Cylinder head | The cylinder head is made of pearlitic cast iron, with double bottom in order to withstand high thermal and mechanical loads. The cylinder head is provided with two exhaust valves in cooled exhaust valve cages and two inlet valves. It also accommodates a fuel injector and a starting air valve. Rotocaps can be fitted on the exhaust valves. |
| Camshaft | The camshaft with hardened steel cams is gear driven. The cams are hydraulically shrunk on the shaft. |
| Injection pump | Each cylinder has an individual high-pressure fuel pump. |
| Governor | The engine has a governor of the hydraulic type with pneumatic or electric speed setting device. |
| Fuel system | The fuel system consists basically of high-pressure fuel pumps, protected high-pressure fuel lines and fuel injectors with cooled nozzle tips. |
| Lubricating oil system | The lubricating oil system consists of a main lubricating oil system and a secondary lubricating oil system. <ul style="list-style-type: none">• The crankshaft, main bearings, connecting rod bearings, pistons, gear train, camshaft bearings, camshaft with valve mechanism and high-pressure fuel pumps are lubricated within the main lubricating oil system.• The cylinder liners, inlet valve seats and a part of the valve mechanism are lubricated within the secondary lubricating oil system. |
| Starting system | The engine is started by compressed air via the starting air valve on each cylinder. |
| Cooling system | The cooling water system comprises a low temperature (LT) circuit and a high temperature (HT) circuit. |
| Exhaust gas system | A casing with heat-insulating materials is mounted around the exhaust gas piping from the cylinders to the turbocharger. |
| Charge air system | The engine is equipped with a two stage charge air cooler, which consists of a HT- and LT-water section. |
| Turbocharging | The turbocharger is located at flywheel side in case of marine engines. In case of dpp engines, the turbocharger is located at free end. Cleaning devices for compressor and turbine side of the turbocharger. |
| EIAPP | The engine can be issued with an EIAPP certificate if it complies with the NO _x Technical Code according IMO regulations MARPOL 73/78 - annex VI. |

TECHNICAL DATA

| TECHNICAL DATA | | | | |
|---|-------------------|--------------------------------|-----------------|-----------------|
| Engine type | | 6TM620 | 8TM620 | 9TM620 |
| Model | | in-line | in-line | in-line |
| Number of cylinders | | 6 | 8 | 9 |
| Bore / stroke | mm | 620 / 660 | 620 / 660 | 620 / 660 |
| Displacement | l | 1194 | 1592 | 1791 |
| Direction of rotation | | Clockwise or counter-clockwise | | |
| Maximum power ratings | | | | |
| Engine speed | min ⁻¹ | 400 - 428 | 400 - 428 | 400 - 428 |
| Engine output (MCR ¹⁾) | kW | 7800 - 8500 | 10,400 - 11,330 | 11,700 - 12,750 |
| Mean effective pressure | bar | 20 | 20 | 20 |
| Mean piston speed | m/s | 8.8 - 9.4 | 8.8 - 9.4 | 8.8 - 9.4 |
| Specific fuel consumption ²⁾ | | | | |
| at 100% load | g/kWh | 174 - 175 | 174 - 175 | 174 - 175 |
| at 75% load | g/kWh | 176 - 177 | 176 - 177 | 176 - 177 |
| Lubricating oil consumption ³⁾ | l/h | 10 - 11 | 13 - 14 | 15 - 16 |
| Idling speed | min ⁻¹ | 150 | 150 | 150 |

1) Maximum Continuous Rating.

2) According to ISO 3046/1, lower calorific value 42,700 kJ/kg, at nominal engine speed. Tolerance +5%.

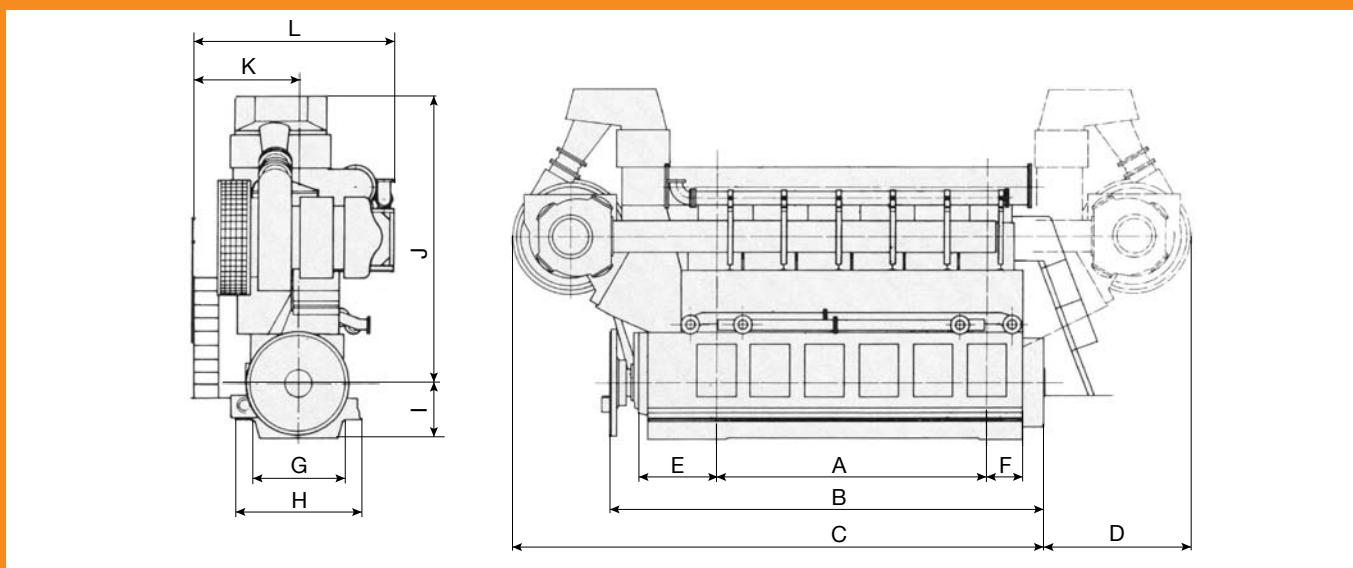
3) Lubricating oil consumption at 100% load. Tolerance approximately 25%.

Note:

The values given in this document are for information purposes only and not binding.



DIMENSIONS



PRINCIPAL ENGINE DIMENSIONS (mm) AND WEIGHTS (t)

| Engine type | A | B | C | D | E | F | G | H | I | J | K | L | Weight |
|-------------|------|--------|--------|------|------|-----|------|------|------|------|------|------|--------|
| 6TM620 | 5150 | 8255 | 9883 | 2569 | 1445 | 665 | 1790 | 2450 | 1085 | 5350 | 2000 | 3760 | 175 |
| 8TM620 | 7210 | 10,315 | 12,182 | 2808 | 1445 | 665 | 1790 | 2450 | 1085 | 5350 | 2000 | 3760 | 225 |
| 9TM620 | 8240 | 11,345 | 13,212 | 2808 | 1445 | 665 | 1790 | 2450 | 1085 | 5350 | 2000 | 3760 | 260 |

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