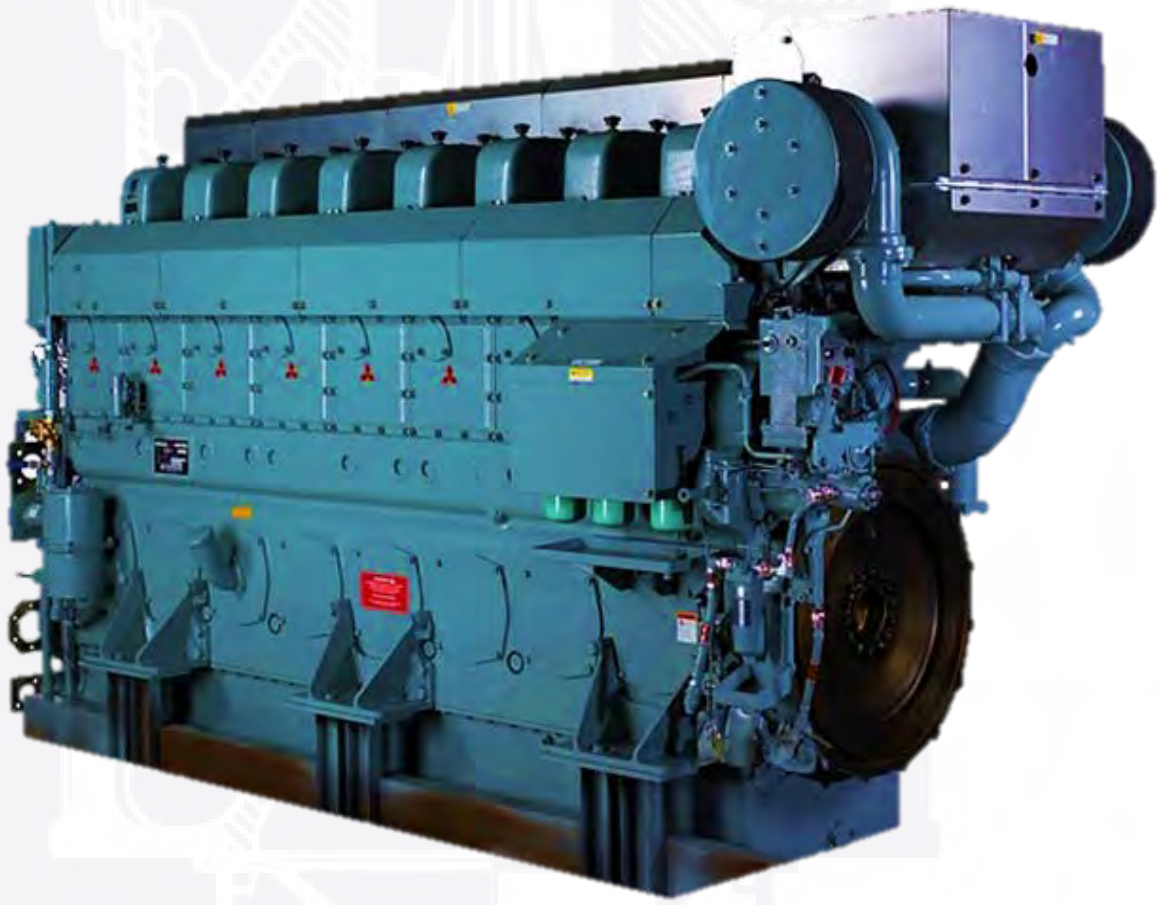
Mitsubishi medium speed marine engines: SU series 1,007 kWm to 3,580 kWm



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MHI MITSUBISHI HEAVY INDUSTRIES / GROUP

SU series

Output selection list for Mitsubishi medium speed diesel engines,
SU models, for marine auxiliary generator and propulsion use.

Engine Type			S6U-MPTK	S6U2-MPTK	S8U-MPTK	S12U-MPTK	S16U-MPTK
Type			4 stroke cycle, water cooled, diesel engine turbocharged with air-cooler (inter coolertype)				
Combustion type			Direct injection	Direct injection	Direct injection	Direct injection	Direct injection
Application		Engine speed (rpm)	MPTK	MPTK	MPTK	MPTK	MPTK
Generator drive, marine auxiliary use		900	1,150	1,250	1,533	2,299	2,065
		1,000	1,270	1,363	1,693	2,541	3,388
		1,200	1,343	N/A	1,790	2,685	3,580
Diesel electric continuous		900	1,045	1,161	1,394	2,090	2,787
		1,000	1,142	1,234	1,522	2,283	3,045
		1,200	1,205	N/A	1,608	2,412	3,215
Diesel electric intermittent		900	1,150	1,250	1,533	2,299	3,065
		1,000	1,270	1,363	1,693	2,541	3,388
		1,200	1,343	N/A	1,790	2,685	3,580
Propulsion use (General)	**Medium Duty**	960	-	1,156	-	-	-
		1,100	1,119	N/A	1,492	2,238	2,984
	Heavy Duty	930	-	1,040	-	-	-
		1,060	1,007	N/A	1,343	2,014	2,686
Propulsion use (Harbour tugboat)	**Harbour Tug Boat rating**	1,150	1,103	N/A	1,470	2,205	2,940
Fuel oil			ISO8217, DMX-class				
Engine starting			Compressed air starting				
Lubrication system			Forced lubrication by gear pump				
Cylinder arrangement			In-line type	In-line type	In-line type	V-type	V-type
Number of cylinders			6	6	8	12	16
Bore x Stroke			240 x 260	240 x 300	240 x 260	240 x 260	240 x 260
Displacement ltr.			71	81	94	141	188
Compression ratio			12.7 (13.5)	12.4 (13.4)	12.7 (13.5)	12.7 (13.5)	12.7 (13.5)
Fuel injection pump			Bosch type unit pump, 1 unit per cylinder				
Fuel injection lines			Double walled, equal shaped				
Total lub. oil capacity ltr.			370	370	490	450	600
Total coolant capacity ltr.			270	270	260	520	700
Max. inclination angle, std. oil pan	**front down**		14°	14°	14°	14°	14°
	front up		14°	14°	14°	14°	14°
	side to side		25°	25°	25°	25°	25°
Dry weight kg			8,400	8,600	11,000	16,600	20,500

Specifications other than the standard specifications mentioned above may be available on request.

Rating information: all outputs mentioned in kW, valid up to 45°C without derating. Compression ratio related to engine application.

Application

Auxiliary generator - Main power supply: average load factor is 60 - 80% of rated power. 100% of rated power is available intermittently for less than 3 h per every 12 h operation. Operating hours: 3,000 - 4,000 h per year. Overload: 110% is available for max. 25 h per year on emergency basis.

Diesel-electric propulsion - Continuous operation: Allowable load factor is less than 100% of rated power. Operating hours are unlimited per year. Overload: 110% is available for max. 25 h per year on emergency basis.

Diesel-electric propulsion - Intermittent operation: Average load factor is 60 - 80% of rated power. 100% of rated power is available intermittently for less than 3 h per every 12 h operation. Operating hours: 3,000 - 4,000 h per year. Overload: 110% is available for max. 25 h per year on emergency basis.

Propulsion - Heavy duty: Allowable load factor is less than 100% of rated power. Allowable cruising speed is less than 100% of rated speed. Operating hours are less than 8,000 h per year.

Propulsion - Medium duty: Allowable load factor is up to 83% of rated power. Allowable cruising speed is up to 94% of rated speed. 100% of rated power is available intermittently for 4 h per every 12 h operation. Operating hours are less than 3,000 h per year.

Propulsion - Light duty: Allowable load factor is up to 75% of rated power. Allowable cruising speed is up to 90% of rated speed. 100% of rated power is available intermittently for 1 h per every 6 h operation. Operating hours are less than 1,000 h per year.

Propulsion - Heavy duty tugboat: 100% of rated power is available intermittently for 8 h per every 24 h operation. Operating hours are less than 6,000 h per year. Average load factor is 60 - 80% of rated power.

All information is subject to change without prior notice.

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- Robust
- Powerful propulsion
- Highly reliable
- Easy to mount and maintain

SU series, tough marine engine solutions

The SU inherits all the very best of Mitsubishi's proprietary technologies which have been developed for over half a century. Mitsubishi's reliable mechanism generates a powerful propulsion, yet compact style makes the engine easy to mount and maintain.

Robust, rigid structure and low fuel consumption ratio - key requirements for the main engine of tugboats and other heavy applications. The SU engine is built to deliver reliable service for many years and to satisfy the exacting demands of professional boat operators.

High Reliability

An intermediate shelf is provided in the cylinder head to enhance rigidity and efficiently cool the combustion area. The exhaust valve is made of heat-resistant alloys and its seat area is reinforced cobalt-based heat-resistant alloy to prevent high temperature corrosion and wear. Tufftlide treatment is applied to the cylinder liners for excellent wear resistance. The piston comprises a high strength, heat-resistant steel crown and a high strength, tough forged aluminum body. The durability of the piston at high outputs has been improved by the use of a forced cooling system.The constant temperature cooling system with thermostat gives optimum combustion.

Low Fuel Consumption

Fuel consumption at rated output is around 200 g/kWhr. The high-pressure injection pump together with optimum cam profiles and injection nozzles realizes high-pressure injection of 1,500 kgf/cm2 and reduces
the injection period to further increase combustion efficiency. NOx emissions and smoke have been reduced by improving the integration between the piston combustion chamber shape, compression ratio and fuel injection timing.

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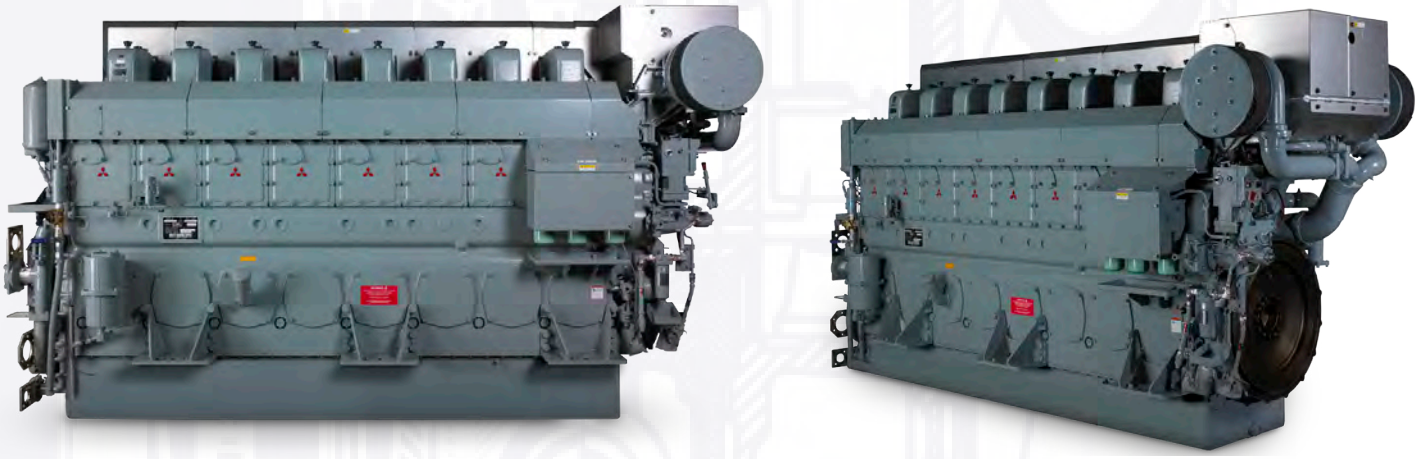
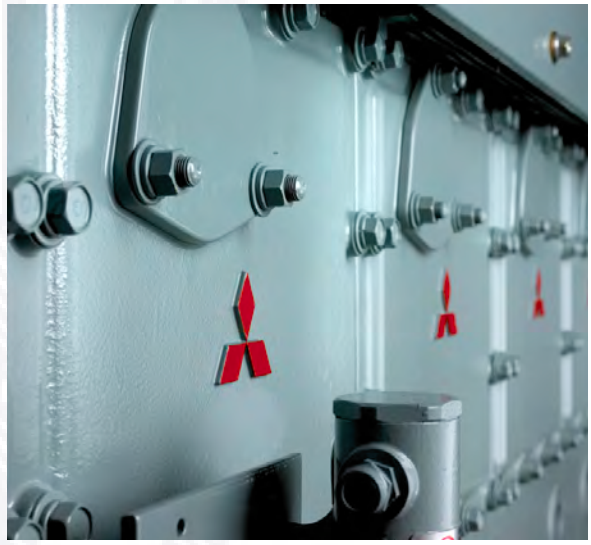


Mitsubishi Marine Engines, S6U/S6U2/S8U/S12U/S16U-series

Easy Maintenance

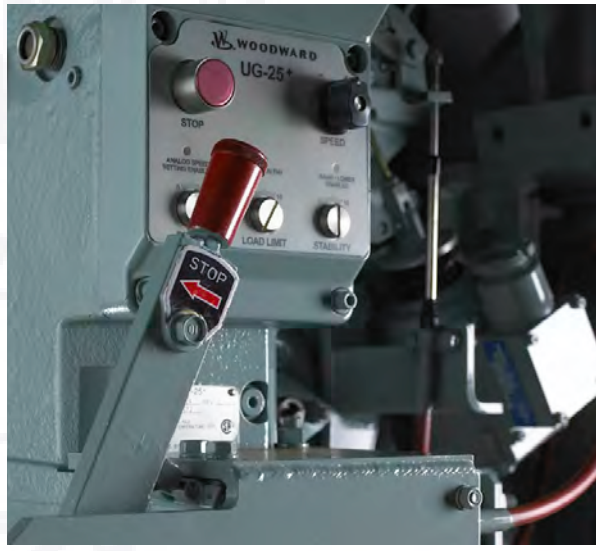
All maintenance and servicing of the equipment, including the fuel injection system, is located on one side while the exhaust and cooling water pipings are installed on the other for easier access. The main bearing and cylinder head can be tightened easily and securely using an hydraulic device.
A large inspection area is provided to enable assembly and disassembly of the piston and main bearing inboard. The major component parts are light enough and split into smaller components for easier handling.
Rocker arms, pumps and turbochargers are forced lubricated with oil from the engine oil pan to reduce the daily maintenance.



Cam chamber cover

Space - Saving

All pumps, oil coolers and filters in the cooling water, lubrication and fuel systems are compactly installed on the engine enhancing comfort in the working area and provide an affordable space. The overlap distance between the crankshaft main journal and pins has been increased to reduce the cylinder pitch, thus reducing the overall engine length.



Manual stop lever

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