



**MITSUBISHI DIESEL ENGINE
TECHNICAL INFORMATION**

ITEM NO.

T0221-0004E Rev.2 (1/4)

DATE

Dec, 2011

Specification Sheets of S16R2-T2MPTAW Engine (IMO-Tier 2 Certified Engine)

Specification Sheets of S16R2-T2MPTAW Engine that is satisfied with IMO-Tier 2 certified engine are enclosed herein.

Revision	First Edition : Dec., 2011	Engine Engineering Department Engine System Designing Section		
	Rev.1 : Mar., 2012			
	Rev.2 : Jan., 2013	Approved by	Checked by	Drawn by
		T.HASHIGUCHI	T.TSUKAMOTO	K.NAKAMURA

GENERAL ENGINE DATA

Type	4-Cycle, Water Cooled	
Aspiration	Turbo-Charged, Aircooler (Fresh Water)	
Cylinder Arrangement	60°V	
No. of Cylinders	16	
Bore mm(in.)	170	(6.69)
Stroke mm(in.)	220	(8.66)
Displacement liter(in ³)	79.90	(4876)
Compression Ratio	14.0:1	
Dry Weight - Engine only - kg(lb)	7750	(17089)
Wet Weight - Engine only - kg(lb)	8200	(18081)

PERFORMANCE DATA

Steady State Speed Stability Band at any Constant Load(Generator Use)		
Hydraulic (std.) or Electric Governor - %	±0.25 or better	
Idling Speed -rpm	600~650	
Maximum Overspeed Capacity - rpm	1750	
Moment of inertia of Rotating Components - kgf·m ² (lbf·ft ²)	131.7	(3126)
(Includes Std.Flywheel)		
Cyclic Speed Variation with Flywheel a 1500rpm	1/230	
1200rpm	1/150	

ENGINE MOUNTING

Maximum Bending Moment at Rear Face of Flywheel Housing - kgf·m(lbf·ft)	450	(3256)
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AIR INLET SYSTEM

Maximum Intake Air Restriction (Includes piping)		
With Clean Filter Element - mm H ₂ O (in.H ₂ O)	400	(15.7)
With Dirty Filter Element - mm H ₂ O (in.H ₂ O)	635	(25.0)

EXHAUST SYSTEM

Maximum Allowable Back Pressure - mm H ₂ O (in.H ₂ O)	600	(23.6)
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LUBRICATION SYSTEM

Oil Pressure at Idle - kgf/cm ² (psi)	2~3	(29~43)
at Rate Speed - kgf/cm ² (psi)	4~6	(57~86)
Maximum Oil Temperature - °C(°F)	110	(230)
Oil Capacity of Marine Pan High - liter (U.S.gal)	260	(68.7)
Low - liter (U.S.gal)	200	(52.8)
Total System Capacity (Includes Oil Filter) - liter (U.S.gal)	290	(76.6)
Maximum Installation Angle Front Up	9.5°	
Front Down	10.5°	
Maximum Instantaneous Operating Angle Front Up	30°	
(Engine Level) Front Down	30°	
Side to Side	22.5°	

COOLING SYSTEM

Coolant Capacity of Jacket (Engine Only) - liter (U.S.gal)	157	(41.5)
Coolant Capacity of Air Cooler (Engine Only) - liter (U.S.gal)	33	(8.7)
Maximum External Friction Head at Engine Outlet - kgf/cm ² (psi)	0.35	(5.0)
Maximum Static Head of Coolant above Crankshaft Center - m(ft)	10	(32.8)
Standard Thermostat (modulating)Range of Jacket- °C(°F)	71~85	(160~185)
Maximum Coolant Temperature at Engine Inlet- °C(°F)	77	(171)
Maximum Coolant Temperature at Engine Outlet- °C(°F)	95	(203)
Recommended Coolant Temperature at Engine outlet- °C (°F)	80	(176)
Minimum Coolant Expansion Space - % of System Capacity	10	
Maximum Coolant Temperature at Air cooler Inlet, PTAW type- °C(°F)	see page 4/4	

FUEL SYSTEM

Fuel Injector	Mitsubishi PS8 Type × 2
Maximum Suction Head of Feed Pump - mm Hg (in. Hg)	75 (3.0)
Maximum Static Head of Return & Leak Pipe - mm Hg (in.Hg)	150 (5.9)

STARTING SYSTEM

Battery Charging Alternator - V-Ah	24-35
Starting Motor Capacity - V -kW	24-7.5×2
Maximum Allowable Resistance of Cranking Circuit - m Ω	1.5
Recommended Minimum Battery Capacity	
At 5°C(41°F) and above - Ah	400
Below 5°C(41°F) through - 5°C(23°F)	600
Cranking Ampere of Starter at 5°C (41°F) / -5°C (23°F)	
Static Ampere -A	410 × 2 / 540 × 2
Momentary Ampere -A	780 × 2 / 1040 × 2

ACCESSORY EQUIPMENT

Air Cleaner	Silencer Type
Exhaust Manifold	Air Cooled
Turbocharger	Air Cooled
Air Cooler	Fresh Water Cooled
Breather	Conduction Type
Governor	Hydraulic PSG Type
Fuel Injection Pump	
Fuel Feed Pump	
Fuel Injection Pipe	Double walled Type
Fuel Injection Nozzle	
Fuel Filter	Paper Element Type
Lubricating Oil Pump	
Lubricating Oil Cooler	
Lubricating Oil Filter(Full-Flow)	Paper Element Type
Lubricating Oil Filter(By-Pass Flow)	Paper Element Type
Oil Pan	Large Capacity,steel
Cooling Water Pump (Jacket water)	
Cooling Water Thermostat(Jacket water)	
Starter	Earth Float Type
Alternator	Earth Float Type
Stop Solenoid	DC24V-15A
Engine Support	Marine Type
Accessory Drive	Front Drive Pulley

ACCESSORY EQUIPMENT(LOOSE SUPPLY)

Relay Safety	For Starter
Jack Bolt	
Companion Flange	
Standard Tools	
Standard Spare Parts	

The specifications are subject to change without notice.

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ENGINE RATING

All data represent net performance with standard accessories such as air cleaner, inlet /exhaust manifolds, fuel oil system, L.O. pump, etc. under the condition of 100kPa(29.6inHg) barometric pressure, 77°F(25°C) ambient temperature and 30% relative humidity.

ITEM	UNIT	Propulsion use			Generator use	
		L	M	H	50Hz	60Hz
Engine Speed	rpm	1500	1400	1350	1500	1200
No. of Cylinders		16				
Bore	mm (in.)	170 (6.69)				
Stroke	mm (in.)	220 (8.66)				
Displacement	liter (in. ³)	79.9 (4876)				
Brake Horse power without Fan	HP (kW)	2527 (1885)	2145 (1600)	1944 (1450)	2627 (1960)	2102 (1568)
Brake Mean Effective Pressure	kgf/cm ² (MPa)	19.2 (1.88)	17.5 (1.72)	16.4 (1.61)	20.0 (1.96)	20.0 (1.96)
without Fan	(psi)	(273)	(249)	(233)	(284)	(284)
Mean Piston Speed	m/s (ft/min)	11.0 (2165)	10.3 (2028)	9.9 (1949)	11.0 (2165)	8.8 (1732)
Maximum Regenerative Power	HP	204	190	183	204	163
Absorption Capacity without Fan	(kW)	(152)	(142)	(137)	(152)	(121)
Intake Air flow	m ³ /min (CFM)	168 (5932)	142 (5014)	127 (4484)	172 (6073)	134 (4732)
Exhaust Gas Flow	m ³ /min (CFM)	444 (15678)	376 (13277)	336 (11864)	454 (16031)	355 (12535)
Coolant Flow	liter/min (U.S. GPM)	1650 (436)	1540 (407)	1460 (386)	1650 (436)	1300 (343)
Coolant Flow to Aircooler (Max. Flow: 1340L/min)	liter/min (U.S. GPM)	810 (214)	810 (214)	810 (214)	890 (235)	680 (180)
Coolant(Jacket water) Pressure (water pump outlet)	kgf/cm ² (MPa) (psi)	1.4 (0.14) (20)	1.25 (0.12) (18)	1.15 (0.11) (16)	1.4 (0.14) (20)	0.9 (0.09) (13)
Oil Flow	kJ/hr (BTU/min)	566 (149)	528 (139)	509 (134)	566 (149)	453 (120)
Radiated Heat to Ambient	kcal/hr (kJ/hr) (BTU/min)	127155 (532276) (8410)	107573 (450305) (7115)	96241 (402869) (6365)	130091 (544567) (8604)	101575 (425197) (6718)
Heat Rejection to Coolant	kcal/hr (kJ/hr) (BTU/min)	635776 (2661387) (42049)	537866 (2251531) (35574)	481204 (2014341) (31826)	650455 (2722834) (43020)	507873 (2125979) (33590)
Heat Rejection to Air Cooler	kcal/hr (kJ/hr) (BTU/min)	432328 (1809744) (28594)	365749 (1531042) (24190)	327219 (1369753) (21642)	442309 (1851525) (29254)	345354 (1445667) (22841)
Heat Rejection to Exhaust	kcal/hr (kJ/hr) (BTU/min)	1422466 (5954506) (94080)	1198857 (5018469) (79291)	1056607 (4423004) (69883)	1428242 (5978685) (94462)	1082804 (4532666) (71615)
Cooling system	Direct Sea Water Cooling	N/A				
	Max. sea water temp. at inter cooler inlet	N/A				
	Intermediate Fresh Water Cooling	Max. 38°C				
	Max. fresh water temp. at inter cooler inlet	(When sea water temp. 32°C)				
Radiator Cooling		N/A	N/A	N/A	Max. 45°C	
	Max. coolant temp. at inter cooler inlet	(When air temp. 25°C)				
Noise Level (1 m height & distance) (excludes, Intake, Exhaust & Fan)	dB(A)	-	-	-	-	-
Maximum No Load Governed Speed	rpm	1613	1505	1451	1575	1260

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