

**MITSUBISHI DIESEL ENGINE
TECHNICAL INFORMATION**

ITEM No.

T0221-0013E Rev.2 (1/5)

DATE

November, 2017

Specification Sheets of S16R2-PTAW2-E Engine

Specification Sheets of S16R2-PTAW2-E Engine are enclosed herein.

For rating definitions, refer T0102-0009E.

Coupling with generator recommends remote mounted type, such as flexible coupling or rubber bush etc. with two-bearing type instead of close-coupled type with single bearing.

Torsional vibration calculation should be done.

The specifications are subject to change without notice.

Revision	First Edition : August, 2017	Engine Engineering Department		
	Rev.1: September, 2017	High Speed Engine Designing Section		
	Rev.2: November, 2017	Approved by	Checked by	Drawn by
		M.NAKAMURA	T.NISHIOKA	T.NISHIOKA

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

Electric Governor - %	±0.25 or better	
Maximum Overspeed Capacity - rpm	1750	
Moment of inertia of Rotating Components (S.I.) kg·m ² (lb·ft ²)	33.22	(788)
(Includes Std. Flywheel) (GD ²) kgf·m ² (lbf·ft ²)	132.9	(3154)
Cyclic Speed Variation with Flywheel at 1500rpm	1/182	

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)	105	(221)
Oil Capacity of Standard 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 Angle of Installation (Std. Pan) Front Down	6°	
(Engine Only) Front Up	6°	
Side to Side	25°	

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)
Standard Thermostat (modulating) Range of Air cooler- °C(°F)	42~55	(108~131)
Maximum Coolant Temperature at Engine Inlet- °C(°F) External oil cooler not used	75	(167)
Maximum Coolant Temperature at Engine Outlet- °C(°F) External oil cooler not used	83	(181)
External oil cooler used	98	(208)
Minimum Coolant Expansion Space - % of System Capacity	10	
Maximum Coolant Temperature at Air cooler Inlet, PTAW type-°C(°F)	45	(113)
(at ambient 25°C)		

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

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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	STAND-BY POWER	PRIME POWER*1		
		50Hz	50Hz		
Engine Speed	rpm	1500	1500		
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)	3257 (2430)	2961 (2209)		
Brake Mean Effective Pressure without Fan	kgf/cm ² (MPa) (psi)	24.8 (2.43) (353)	22.5 (2.21) (320)		
Mean Piston Speed	m/s (ft/min)	11.0 (2165)	11.0 (2165)		
Maximum Regenerative Power Absorption Capacity without Fan	HP (kW)	204 (152)	204 (152)		
Intake Air flow	m ³ /min (CFM)	212 (7486)	191 (6744)		
Exhaust Gas Flow	m ³ /min (CFM)	562 (19844)	506 (17867)		
Coolant Flow	liter/min (U.S. GPM)	1650 (436)	1650 (436)		
Coolant Flow to Aircooler (PTAW only)	liter/min (U.S. GPM)	920 (243)	920 (243)		
Allowable Fan Loss Horse Power	HP (kW)	134 (100)	134 (100)		
Radiated Heat to Ambient	kcal/hr (kJ/hr) (BTU/min)	160810 (673158) (10636)	144825 (606244) (9579)		
Heat Rejection to Coolant	kcal/hr (kJ/hr) (BTU/min)	879095 (3679931) (58142)	791711 (3314138) (52363)		
Heat Rejection to Air Cooler	kcal/hr (kJ/hr) (BTU/min)	594997 (2490684) (39352)	535853 (2243105) (35441)		
Heat Rejection to Exhaust	kcal/hr (kJ/hr) (BTU/min)	1636045 (6848557) (108206)	1455749 (6093830) (96281)		
Noise Level	dB(A)	TBD	TBD		

*1- Prime limited running time (500hr/yr or lower) application only. Cannot be used for unlimited running time.

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[External Oil Cooler Used]

S16R2-PTAW2-E

SPECIFICATION SHEET

MITSUBISHI

DIESEL ENGINES

ENGINE RATING

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Coolant Flow	liter/min (U.S. GPM)	1650 (436)	1650 (436)		
Coolant Flow to Aircooler (PTAW only)	liter/min (U.S. GPM)	920 (243)	920 (243)		
Oil Flow to External Oil Cooler	liter/min (U.S. GPM)	250 (66)	250 (66)		
Allowable Fan Loss Horse Power	HP (kW)	134 (100)	134 (100)		
Radiated Heat to Ambient	kcal/hr (kJ/hr) (BTU/min)	160810 (673158) (10636)	144825 (606244) (9579)		
Heat Rejection to Coolant	kcal/hr (kJ/hr) (BTU/min)	825492 (3455546) (54597)	743436 (3112056) (49170)		
Heat Rejection to Air Cooler	kcal/hr (kJ/hr) (BTU/min)	594997 (2490684) (39352)	535853 (2243105) (35441)		
Heat Rejection to External Oil Cooler (external oil cooler, mounted on radiator)	kcal/hr (kJ/hr) (BTU/min)	150089 (628279) (9927)	135170 (565828) (8940)		
Heat Rejection to Exhaust	kcal/hr (kJ/hr) (BTU/min)	1539559 (6444663) (101824)	1368854 (5730084) (90534)		
Noise Level (1 m height & distance) (excludes, Intake,Exhaust & Fan)	dB(A)	TBD	TBD		

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