

MITSUBISHI DIESEL ENGINE TECHNICAL INFORMATION

ITEM No.

T0221-0009E Rev.6 (1/5)

DATE

April, 2017

Specification Sheets of S16R2-PTAW-E Engine

Used for 2300kVA generator

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

For rating definitions, refer T0102-0009E.

The specifications are subject to change without notice.

Revision	First Edition : May, 2014	Engine Engineering Department		
	Rev. 1 : Aug, 2014	High Speed Engine Designing		
	Rev. 2 : Feb, 2015	Approved by	Checked by	Drawn by
	Rev. 3 : Oct., 2016	M.NAKAMURA	S.MADAAN	S.M
	Rev. 4 : Nov., 2016			
	Rev. 5 : Jan., 2017			
	Rev. 6 : Apr., 2017			



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	1/196	

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	
Max. Coolant Temp. at Air cooler Inlet, PTAW type- °C(°F) (at ambient 25°C)	45	(113)

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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)	3050 (2275)	2772 (2068)		
Brake Mean Effective Pressure without Fan	kgf/cm ² (MPa) (psi)	23.2 (2.28) (330)	21.1 (2.07) (300)		
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)	202 (7133)	181 (6391)		
Exhaust Gas Flow	m ³ /min (CFM)	536 (18926)	479 (16913)		
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)	94 (70)	94 (70)		
Radiated Heat to Ambient	kcal/hr (kJ/hr) (BTU/min)	153354 (641947) (10143)	137172 (574208) (9072)		
Heat Rejection to Coolant	kcal/hr (kJ/hr) (BTU/min)	715650 (2995743) (47332)	640137 (2679642) (42338)		
Heat Rejection to Air Cooler	kcal/hr (kJ/hr) (BTU/min)	587856 (2460791) (38880)	525827 (2201135) (34777)		
Heat Rejection to Exhaust	kcal/hr (kJ/hr) (BTU/min)	1698814 (7111311) (112357)	1491143 (6241991) (98622)		
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-PTAW-E

SPECIFICATION SHEET

MITSUBISHI

DIESEL ENGINES

ENGINE RATING

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Maximum Regenerative Power Absorption Capacity without Fan	HP (kW)	204 (152)	204 (152)		
Intake Air flow	m ³ /min (CFM)	202 (7133)	181 (6391)		
Exhaust Gas Flow	m ³ /min (CFM)	536 (18926)	479 (16913)		
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)	70 (18)	70 (18)		
Allowable Fan Loss Horse Power	HP (kW)	82 (61)	82 (61)		
Radiated Heat to Ambient	kcal/hr (kJ/hr) (BTU/min)	153354 (641947) (10143)	137172 (574208) (9072)		
Heat Rejection to Coolant	kcal/hr (kJ/hr) (BTU/min)	664533 (2781765) (43951)	594413 (2488239) (39314)		
Heat Rejection to Air Cooler	kcal/hr (kJ/hr) (BTU/min)	587856 (2460791) (38880)	525827 (2201135) (34777)		
Heat Rejection to External Oil Cooler	kcal/hr (kJ/hr) (BTU/min)	76677 (320973) (5071)	68586 (287104) (4536)		
Heat Rejection to Exhaust	kcal/hr (kJ/hr) (BTU/min)	1673255 (7004320) (110667)	1468281 (6146290) (97110)		
Noise Level	dB(A)	TBD	TBD		

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