

mitsubishi MITSUBISHI DIESEL ENGINE TECHNICAL INFORMATION	ITEM No.	T0221-0002E Rev.5 (1/5)
	DATE	January, 2017

Specification Sheets of S16R2-PTAW Engine

Specification Sheets of S16R2-PTAW Engine are enclosed herein.

The specifications are subject to change without notice.

Revision	First Edition : January, 2011	Engine Engineering Department High Speed Engine Designing		
	Rev.1 : February, 2012			
	Rev.2 : May, 2012	Approved by	Checked by	Drawn by
	Rev.3 : March, 2013	M.NAKAMURA	S.MADAAN	S.M
	Rev.4 : Oct., 2016			
	Rev.5 : Jan., 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)	132.88	(3154)
Cyclic Speed Variation with Flywheel at 1500rpm	1/206	

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 External Friction Head at External Oil Cooler - kgf/cm ² (psi)	0.82	(11.7)
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)
Max. Coolant Temperature at Engine Inlet- °C(°F) External oil cooler not used	75	(167)
Max. 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 40°C)	65	(149)

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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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[External Oil Cooler Not Used]
 Standard Model [2000kWe/50Hz]
S16R2-PTAW

SPECIFICATION SHEET

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 DIESEL ENGINES

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	CONTINUOUS C	CONTINUOUS D
		50Hz	50Hz	50Hz	50Hz
Engine Speed	rpm	1500	1500	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)	2905 (2167)	2627 (1960)	2252 (1680)	2001 (1493)
Brake Mean Effective Pressure without Fan	kgf/cm ² (MPa) (psi)	22.1 (2.17) (314)	20.0 (1.96) (284)	17.1 (1.68) (243)	15.2 (1.49) (216)
Mean Piston Speed	m/s (ft/min)	11.0 (2165)	11.0 (2165)	11.0 (2165)	11.0 (2165)
Maximum Regenerative Power Absorption Capacity without Fan	HP (kW)	204 (152)	204 (152)	204 (152)	204 (152)
Intake Air flow	m ³ /min (CFM)	191 (6744)	170 (6003)	143 (5049)	127 (4484)
Exhaust Gas Flow	m ³ /min (CFM)	506 (17867)	451 (15925)	377 (13312)	335 (11829)
Coolant Flow	liter/min (U.S. GPM)	1650 (436)	1650 (436)	1650 (436)	1650 (436)
Coolant Flow to Aircooler (PTAW only)	liter/min (U.S. GPM)	920 (243)	920 (243)	920 (243)	920 (243)
Allowable Fan Loss Horse Power	HP (kW)	82 (61)	82 (61)	82 (61)	82 (61)
Radiated Heat to Ambient	kcal/hr (kJ/hr) (BTU/min)	144740 (605888) (9573)	129104 (540435) (8539)	108075 (452407) (7148)	96045 (402049) (6352)
Heat Rejection to Coolant	kcal/hr (kJ/hr) (BTU/min)	699575 (2928452) (46269)	624001 (2612096) (41271)	522361 (2186626) (34548)	464217 (1943233) (30703)
Heat Rejection to Air Cooler	kcal/hr (kJ/hr) (BTU/min)	482465 (2019620) (31910)	430345 (1801443) (28462)	360249 (1508018) (23826)	320150 (1340162) (21174)
Heat Rejection to Exhaust	kcal/hr (kJ/hr) (BTU/min)	1634619 (6842588) (108112)	1434736 (6005869) (94892)	1167290 (4886328) (77203)	1037360 (4342435) (68610)
Noise Level	dB(A)	TBD	TBD	TBD	TBD

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 Standard Model [2000kWe/50Hz]
S16R2-PTAW

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Brake Mean Effective Pressure without Fan	kgf/cm ² (MPa) (psi)	22.1 (2.17) (314)	20.0 (1.96) (284)	17.1 (1.68) (243)	15.2 (1.49) (216)
Mean Piston Speed	m/s (ft/min)	11.0 (2165)	11.0 (2165)	11.0 (2165)	11.0 (2165)
Maximum Regenerative Power Absorption Capacity without Fan	HP (kW)	204 (152)	204 (152)	204 (152)	204 (152)
Intake Air flow	m ³ /min (CFM)	191 (6744)	170 (6003)	143 (5049)	127 (4484)
Exhaust Gas Flow	m ³ /min (CFM)	506 (17867)	451 (15925)	377 (13312)	335 (11829)
Coolant Flow	liter/min (U.S. GPM)	1650 (436)	1650 (436)	1650 (436)	1650 (436)
Coolant Flow to Aircooler (PTAW only)	liter/min (U.S. GPM)	920 (243)	920 (243)	920 (243)	920 (243)
Oil Flow to External Oil Cooler	liter/min (U.S. GPM)	70 (18)	70 (18)	70 (18)	70 (18)
Allowable Fan Loss Horse Power	HP (kW)	82 (61)	82 (61)	82 (61)	82 (61)
Radiated Heat to Ambient	kcal/hr (kJ/hr) (BTU/min)	144740 (605888) (9573)	129104 (540435) (8539)	108075 (452407) (7148)	96045 (402049) (6352)
Heat Rejection to Coolant	kcal/hr (kJ/hr) (BTU/min)	651328 (2726488) (43078)	580966 (2431950) (38424)	486336 (2035824) (32166)	432202 (1809217) (28585)
Heat Rejection to Air Cooler	kcal/hr (kJ/hr) (BTU/min)	482465 (2019620) (31910)	430345 (1801443) (28462)	360249 (1508018) (23826)	320150 (1340162) (21174)
Heat Rejection to External Oil Cooler	kcal/hr (kJ/hr) (BTU/min)	72370 (302944) (4786)	64552 (270218) (4269)	54037 (226201) (3574)	48022 (201022) (3176)
Heat Rejection to Exhaust	kcal/hr (kJ/hr) (BTU/min)	1610496 (6741608) (106516)	1413219 (5915798) (93468)	1149278 (4810929) (76012)	1021352 (4275425) (67551)
Noise Level	dB(A)	TBD	TBD	TBD	TBD

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