

DATA SHEET

DIESEL GENERATOR 2000KW

MODEL#FDK-M2500/H1

50HZ/1500RPM

MITSUBISHI MODEL: S16R-PTAW-C



General Features:

- ◆ All qualified generator sets are subjected to a comprehensive performance test which includes 50% load, 70% load, 100% load, 110% load and to check, verify that all control systems, alarm and shut-down protection.
- ◆ Equipped with battery charger and 24V high performance maintenance-free lead-acid starting batteries and connecting cables.
- ◆ Stainless galvanized zinc plates with strong corrosion-proof.
- ◆ Vibration isolators between the engine/alternator and base frame.
- ◆ Equipped with industrial silencer and flexible exhaust hose.
- ◆ Designed to comply with ISO8528/GB2820.
- ◆ Powered by Mitsubishi engine and coupled with Stamford alternator.
- ◆ Water jacket preheater, oil heater and double air cleaner, etc. are available.

FDK Diesel Generator Set Data

Genset Model	FDK-M2500/H1
Prime Power	1800KW/2250KVA
Standby Power	2000KW/2500KVA
Output Frequency / Rated speed	50Hz/1500rpm
Rated Voltage	230V/400V

Engine Make	Mitsubishi China
Engine Model	S16R-PTAW-C
Alternator model	Stamford PI734H
Control System	DSE7320
Phase	Three

(1) **Prime power:** The rating is available for an unlimited of annual operating hours in variable load applications, in accordance with ISO8528-1.A 10% overload is available for a period of 1 hour within 12-hour period of operation, in accordance with ISO 3046-1.

(2) **Standby power:** The rating is applicable for supplying emergency power in variable load applications for up to 200 hours per year in accordance with ISO8528-1. Overload is not allowed.

(3) **Rated voltage:** available with customer requirement.

Engine Specifications (DETAILED in APPENDIX)

Engine Model	S16R-PTAW-C
Engine Manufacturer	Mitsubishi China
Cylinder quantity	16
Cylinder Arrangement	V type
Cycle	Four stroke
Aspiration	Turbo charged

Bore x Stroke (mm x mm)	170×220
Displacement	79.9L
Compression Ratio	14.0:1
Prime power / Speed (KW/RPM)	1960/1500
Standby power/ Speed (KW/RPM)	2167/1500
Speed governor	Electronic



Piston Speed	9m/s
Maximum Regenerative Power	152kw
Total Lubrication System Capacity (L)	290
Coolant Capacity Engine Only (L)	157

Fuel Consumption at 100% load	464
Starter motor	24V
Alternator	24V
Maximum Overspeed Capacity	2100RPM

Alternator Specifications

Alternator model	PI734H
Alternator manufacturer	STAMFORD
Exciter type	Single bearing, Brushless, Self-excited
Rated output prime power	2325KVA
Rated speed	1500 rpm
Rated frequency	50Hz

Number of phase	3
Rated voltage	400V (Available with custom requirements)
Power factor	0.8
Voltage regulation NL-FL	≤±1%
Insulation grade	H
Protection grade	IP23

Alternator option: Leroy Somer, MECC, Marathon, Engga, Faraday

Control System DSE7320 (DETAILED in INSTRUCTION)

DSE7320 is an advanced control module based on micro-processor, containing all necessary functions for protection of the genset and the breaker control. It can monitor the mains supply, breaker control and automatically start the engine when the mains are abnormal. Accurately measure various operational parameters and display all values and alarms information on the LCD. In addition, the control module can automatically shut down the engine and indicate the engine failure.

FEATURES

- ♦ Microprocessor control, with high stability and credibility.
- ♦ Monitoring and measuring operational parameters of the mains supply and genset.
- ♦ Indicating operation status, fault conditions, all parameters and alarms.
- ♦ Multiple protections; multiple parameters display, like pressure, temp. etc.
- ♦ Manual, automatic and remote work mode selectable.
- ♦ Real time clock for time and date display, overall runtime display, 250 log entries.
- ♦ Overall power output display.
- ♦ Integral speed/frequency detecting, telling status of start, rated operation, overspeed etc.
- ♦ Communication with PC via RS485 OR RS232 interface, using MODBUS protocol.

Soundproof Enclosure Specification

FDK silent generator is designed by professional acoustic engineers based on years of experience. Now we can make the noise of the generator less than 80-85dB(A) at 1m, or 70-75dB(A) at 7m, 60-65dB(A) at 15m.

FEATURES

- ♦ Multi-way air intake and exhaust guarantee the power performance of the generator.
- ♦ Large-scale impedance combined type silencer effectively reduce noise of the generator.
- ♦ Internal high performance rubber damper and flexible materials reduce vibration.
- ♦ Base mounted fuel tank supports the generator running for 8 hours.

Optional



ISO9001:2008

FDK reserves the right to change the specifications and designs without notice.

Generator set	Alternator	Low environment Temp	ATS
<input type="checkbox"/> Open generator set <input type="checkbox"/> Silent generator set <input type="checkbox"/> Trailer generator set <input type="checkbox"/> ABB MCCB circuit breaker	<input type="checkbox"/> Stamford <input type="checkbox"/> Marathon <input type="checkbox"/> Mecc Alte <input type="checkbox"/> Leroy Somer <input type="checkbox"/> Farady <input type="checkbox"/> Engga	<input type="checkbox"/> Water heater <input type="checkbox"/> Oil heater <input type="checkbox"/> Battery heater	<input type="checkbox"/> CHINT <input type="checkbox"/> SCHNEIDER <input type="checkbox"/> ABB
Fuel system	Control system	Voltage	Synchronized system
<input type="checkbox"/> 12hrs base tank <input type="checkbox"/> 24hrs base tank <input type="checkbox"/> Dual wall base fuel tank <input type="checkbox"/> Outside fuel tank	<input type="checkbox"/> AMF function <input type="checkbox"/> ATS control cabinet <input type="checkbox"/> DSE7320 <input type="checkbox"/> DSE7510 <input type="checkbox"/> GU620A	<input type="checkbox"/> 415/240V <input type="checkbox"/> 400/230V <input type="checkbox"/> 380/220V <input type="checkbox"/> 220/127V <input type="checkbox"/> 200/115V	<input type="checkbox"/> CHINT Cabinet <input type="checkbox"/> SCHNEIDER Cabinet <input type="checkbox"/> DSE8610 Module <input type="checkbox"/> COMAQ Module <input type="checkbox"/> DEIF Module

Dimension & Weight

Open

Overall Size: L×W×H (mm)	6500×2150×3500
Weight (kg)	12400

Soundproof Version

Overall Size: L×W×H (mm)	40FT CONTAINER
Weight (kg)	23000

Sales Promises

- ◆ FDK provides a full line of brand new and high quality products. Each and every unit is strictly factory tested before shipment.
- ◆ Quality warranty is according to our standard conditions: 12 months from BL date or 1000 running hours, whichever comes first.
- ◆ Service and parts are available from FDK or distributors in your location.
- ◆ FDK guarantee use **BRAND NEW & GENUINE MACHINE.**



**MITSUBISHI DIESEL ENGINE
TECHNICAL INFORMATION**

ITEM No.

T0221-0015E (1/4)

DATE

July, 2018

Specification Sheets of S16R2-PTAW-C Engine

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

御参考用

The specifications are subject to change without notice.

Revision	First Edition : July, 2018	Engine Engineering Department High Speed Engine Designing Section		
		Approved by	Checked by	Drawn by
		T.HASHIGUCHI	M.OGAWA T.OKUBO	N.Y

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)

The specifications are subject to change without notice.

APPLICATION : GENERATOR

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御参考用

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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

御参考用

The specifications are subject to change without notice.

APPLICATION : GENERATOR

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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		
		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)	2905 (2167)	2627 (1960)		
Brake Mean Effective Pressure without Fan	kgf/cm ² (MPa) (psi)	22.1 (2.17) (314)	20.0 (1.96) (284)		
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)	191 (6744)	170 (6003)		
Exhaust Gas Flow	m ³ /min (CFM)	506 (17867)	451 (15925)		
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)	144740 (605888) (9573)	129104 (540435) (8539)		
Heat Rejection to Coolant	kcal/hr (kJ/hr) (BTU/min)	651328 (2726488) (43078)	580966 (2431950) (38424)		
Heat Rejection to Air Cooler	kcal/hr (kJ/hr) (BTU/min)	482465 (2019620) (31910)	430345 (1801443) (28462)		
Heat Rejection to External Oil Cooler	kcal/hr (kJ/hr) (BTU/min)	72370 (302944) (4786)	64552 (270218) (4269)		
Heat Rejection to Exhaust	kcal/hr (kJ/hr) (BTU/min)	1610496 (6741608) (106516)	1413219 (5915798) (93468)		
Noise Level	dB(A)	TBD	TBD		

御参考用

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APPLICATION : GENERATOR

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