

## DATA SHEET

DIESEL GENERATOR 1200KW

MODEL#FDK-M1500/H1

50HZ/1500RPM

mitsubishi MODEL: S12R-PTA2-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-M1500/H1
Prime Power	1100KW/1375KVA
Standby Power	1200KW/1500KVA
Output Frequency / Rated speed	50Hz/1500rpm
Rated Voltage	230V/400V

Engine Make	Mitsubishi China
Engine Model	S12R-PTA2-C
Alternator model	Stamford PI734B
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	S12R-PTA2-C
Engine Manufacturer	Mitsubishi China
Cylinder quantity	12
Cylinder Arrangement	V type
Cycle	Four stroke

Aspiration	Turbo charged
Bore x Stroke (mm x mm)	170×180
Displacement	49.03L
Compression Ratio	13.5:1
Prime power / Speed (KW/RPM)	1165/1500
Standby power/ Speed (KW/RPM)	1285/1500



Speed governor	Electronic	Fuel Consumption at 100% load	N.A.
Piston Speed	9m/s		
Maximum Regenerative Power	105kw	Starter motor	24V
Total Lubrication System Capacity (L)	180	Alternator	24V
Coolant Capacity Engine Only (L)	125	Maximum Overspeed Capacity	2100RPM

## Alternator Specifications

Alternator model	PI734B	Number of phase	3
Alternator manufacturer	STAMFORD	Rated voltage	400V (Available with custom requirements)
Exciter type	Single bearing, Brushless, Self-excited	Power factor	0.8
Rated output prime power	1400 KVA	Voltage regulation NL-FL	≤±1%
Rated speed	1500 rmp	Insulation grade	H
Rated frequency	50Hz	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.



ISO9001:2008

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

## Optional

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)	4900×2150×2450
Weight (kg)	9600

### Soundproof Version

Overall Size: L×W×H (mm)	40FT CONTAINER
Weight (kg)	18200

## 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.**



SPECIFICATION  
OF  
MITSUBISHI DIESEL ENGINE  
MODEL : S12R-PTA2-C  
FOR DIESEL GENERATOR SET

THE INFORMATION HEREON IS THE PROPERTY OF MITSUBISHI HEAVY INDUSTRIES, LTD.  
WITHOUT WRITTEN PERMISSION, ANY COPYING, TRANSMITTAL TO OTHERS, AND ANY USE EXCEPT  
THAT FOR WHICH IT IS LOANED, IS PROHIBITED.

								APPROVED BY	DRAWN BY
				△					
				DATE	2013.07.18				

## 1. GENERAL

Object and use	:	Diesel generator
Color of painting	:	GB02(GSB05-1426-2001)
Applicable conditions		
Ambient temperature	:	5°C ~ 40°C
Altitude	:	1500m above sea level
Max ,humidity	:	85%
Place of installation	:	In door

### Shop test

Diesel engine running tests shall be carried out by the following items.

#### Starting test

Load test	:	1/4, 2/4, 3/4 Load each
	:	4/4 Load

Governor test	:	Governor test should be done along with respective governor controller
---------------	---	---

#### Safety stop device test

### Standard

All items, unless otherwise specified, are in accordance with JIS, GB and manufacturer's standards.

## 2. PRINCIPAL PARTICULARS

Model	:	S12R-PTA2-C
Type	:	4cycle stroke, water cooled diesel engine
Combustion chamber	:	Direct injection type
Aspiration	:	Turbocharged with after cooler
Number of cylinders	:	12-V
Bore × stroke	:	170mm × 180mm
Total displacement	:	49.03liter
Compression ratio	:	13.5 : 1
firing order	:	1 - 12 - 5 - 8 - 3 - 10 - 6 - 7 - 2 - 11 - 4 - 9
Direction of rotation	:	Counter clockwise as viewed from flywheel side
Engine dimensions (Approx.)	:	Length           Apx. 2568mm
	:	width            Apx. 1401mm
	:	Height           Apx. 1592mm
Dry weight (Approx.)	:	5400kg (without accessories)
Fuel oil	:	ASTM D975 No. 2 - D or BS 2869 class A or GB 252-0
Lubricating oil	:	API service CF class or CH-4 class
Output at ISO 8528 standard air conditions (25°C, 100kPa, 30% Humid)		
Stand-by rating	:	1285kW/1500min <sup>-1</sup>
Prime rating	:	1165kW/1500min <sup>-1</sup>

### 3. STANDARD EQUIPMENTS

#### (1) power line system

Flywheel	:	DWG.NO.38E96-21001 SAE J620d 21in, except screw size
Flywheel housing	:	DWG.NO.38E96-21001 SAE J617c No.00, except screw size
Engine mounting	:	DWG.NO.38E96-14001 4 points mounting, C = 250mm
Torsional vibration damper	:	Viscous type × 2pcs

#### (2) Air intake system

Air cleaner	:	DWG.NO.38E96-30305 loose supply DWG.NO.S35-1032 2pcs Paper element type without inlet cap
Turbocharger	:	MITSUBISHI TD Type Model : TD13L
Air cooler	:	Jacket water cooled type Plated element type
Air heater	:	Not supply

#### (3) Exhaust system

Exhaust manifold	:	Air cooled type with heat insulator
Muffler	:	Not supply
Flexible pipe	:	DWG.NO.S37-1021 loose supply JIS 300A, L = 370mm, weight 70kg
Companion flange	:	Not supply
Breather	:	DWG.NO.38E96-43012 Up side direction type For blow - off to outside of engine room

#### (4) Lubricating system

Oil pump	:	Gear pump type
Capacity of oil pump	:	480L/min ( at Engine Speed 1500min <sup>-1</sup> )
Lub. oil pressure	:	0.5~0.65 Mpa
Quantity of oil (Approx.)	:	Oil pan full level : 150 liter low level : 110 liter Others (filter etc.) : 30 liter Total : 180 liter
Lub. oil filter (Full flow)	:	DWG.NO.38E96-40001 Paper element cartridge type × 4pcs filter mesh : 20 μ with by - pass alarm switch
Lub. oil filter (By - pass flow)	:	DWG.NO.38E96-40001 Paper element cartridge type × 1pc filter mesh : 2 μ
Lub. oil cooler	:	Water cooled corrugated type with by - pass valve

#### (5) Cooling system

Water pump	:	Gear drive centrifugal type
Capacity of water pump	:	1650 L/min (at Engine Speed 1500min <sup>-1</sup> )
Thermostat	:	Wax pellet type Open at 71°C ~ 85°C
Fan	:	Pusher type steel fan 1524 diameter, Gear drive Fan speed ratio i = 0.672
Quantity of Coolant	:	Approx.125L (only Engine)

#### (6) Fuel system

Fuel inlet pipings	:	DWG.NO.38E96-62112 loose supply flexible hose (Rc 3/4 joint)
Fuel return pipings	:	DWG.NO.38E96-61312 loose supply flexible hose (Rc 3/4 joint)
Fuel overflow of Inj. Pump and fuel leak - off of Nozzle have to return to fuel tank		
Injection pump	:	Bosch type "PS6A" without timer
Feed pump	:	Piston type with priming pump
Injection Nozzle	:	Hole type 0.31mm × 10 holes
Fuel filter	:	DWG, No.38E96-62002 Paper element cartridge type filter mesh : 5 μ



(7) Control system

- Governor : **DWG.NO.38E96-63005**  
Electronic speed governor  
Speed droop : 0 ~ 5% adjustable
- Actuator : DWG.NO.S13-1761  
Supply voltage : DC24V± 20%  
Current consumption  
At starting : 13A  
Normal operation : 0.5 ~ 2A  
Min. Supply voltage : DC16V50%ED
- Controller : DWG.NO.S13-1042 loose supply  
Model : XS-400B-03 (04410-33100)  
Supply voltage : DC24V± 20%
- Potentiometer : **PM10kΩ, For low idling speed setting**  
Not supply
- Potentiometer : **PM10kΩ, For rated speed setting**  
Not supply
- Connector : DWG.NO.S13-1022 loose supply  
From actuator to controller  
5000mm length
- Magnetic pick up : DWG.NO.S13-2011  
With connector
- Cable : DWG.NO.S13-2020 loose supply  
From magnetic pick up to controller  
4300mm length

(8) Starting system

- Starter switch : with key, with heat position  
Not supply
- Starting motor : **DWG.NO.38E96-66001**  
DC24V, 7.5KW × 2pcs  
Reduction type with safety relay  
with 2 poles connector (DWG.NO.S14-0320)

Safety relay	: Not supply
	The following Starter Protection functions shall be provided by Customer.
	1) Function for concurrent engagement of the two Starter.
	2) Function for engagement operation again when engagement of pinion gear fails.
Current of starter	: Rush            1250A Cranking        400A (Ambient temp : 5°C, Lub. oil : SAE No. 30)
Fuel limit solenoid	: DWG.NO.38E96-87503 DWG.NO.S13-0282 Fuel limit at engine starting Energized to fuel control until rated speed
Alternator	: DWG.NO.S10-0540 DC24V, 30A, with voltage regulator with 2 poles connector (DWG.NO.S10-0550)
Recommended battery capacity	: DC24V, 400AH Not supply
Battery switch	: Not supply
(9) Stopping system	: DWG.NO.38E96-87503
Automatic stop	Automatically shut - down by stop solenoid and electronic governor power off simultaneously
Stop solenoid	: DWG.NO.S13-0282 Energized to run type DC24V, 30.7A(pull), 0.58A(hold)
Manual stop	: By stop lever
(10) Safety device	
Alarm switches	: DWG.NO.38E96-90206
Alarm and trip	
Low oil press. switch	: DWG.NO.S11-0796 (04442-45400) Diaphragm type : 0.15 MPa switch on
High water temp. switch	: DWG.NO.S11-0551 (04442-34500) Wax type : 98°C switch on

## Alarm

- Oil filter alarm switch : DWG.NO.S11-1371  
Piston type : 0.15 MPa switch on
- Oil filter alarm lamp : Not supply
- Air filter alarm indicator : DWG.NO.S11-0920 loose supply  
Mechanical type : 635mmH<sub>2</sub>O switch on

## (11) Instrument

- Meter and sensor : DWG.NO.38E96-90119
- Tachometer : Pulse type for engine speed  
With electrical hour meter  
Not supply
- Magnetic pick up : DWG.NO.S13-2011  
For tachometer, pin-joint type
- Cable : For magnetic pick up, 4300mm length  
Not supply
- Thermometer : Electrical type for jacket water and lub. oil temp.  
Not supply
- Pressure gage : Electrical type for lub. oil press.  
Not supply  
With 2 poles connector (DWG.NO.S14-0330)
- Thermometer : For exhaust gas temp.  
Not supply

## (12) Others

- Turning device : DWG.NO.38E96-71001  
Gear type, for maintenance
- Tools : Not supply

### Declaration:

To maintain and optimize product performance and reliability, we will do some necessary change timely to product or parts in this specification without altering the basic parameters. If you need more information, please refer to our comp

4. ACCESSORIES (Loose supply parts)

NO.	PARTS NO.	PATRS NAME	Q'TY	DWG.NO.	
1	47220-47703	AIR CLEANER ASSY.	2	S35-1032	38E96-30305
2	47220-47600	HOSE, ELBOW	2	S35-0701	
3	47510-77300	DUCT, AIR	2		
4	47220-47300	HOSE, RUBBER	2	S35-0711	
5	05317-52001	CLAMP	4		
6	05317-52801	CLAMP	4		
7	47910-81400	FLEXIBLE PIPE	1	S37-1021	
8	45955-22160	HOSE	1		38E96-43012
9	05317-51001	CLAMP	4		
10	47510-50700	PIPE, BREATHER	1		
11	45950-51700	PIPE, FLEXIBLE	1		38E96-61312
12	45950-11300	CONNECTOR	1		
13	45950-51700	PIPE, FLEXIBLE	1		38E96-62113
14	45950-11300	CONNECTOR	1		
15	04410-33100	CONTROLLER	1	S13-1042	38E96-63005
16	04410-32902	CONNECTOR, ACTUATOR	1	S13-1022	
17	04410-43500	CABLE, PICK UP	1	S13-2020	
18	F8665-02100	CONNECTOR	2	S14-0320	for starter
19	32B90-00300	CONNECTOR	1	S10-0550	for alternator
20	MH052231	CONNECTOR	1	S14-0330	38E96-90119
21	47220-34401	INDICATOR	4	S11-0920	38E96-90206

## 5. DRAWINGS

NO.	DWG. NO.	DWG. NAME	REV.
1	38E96-00230	ENGINE OUTLINE	
2	38E96-01001	JOINT DETAIL	
3	38E96-04029	WIRING DIAGRAM	
4	38E96-14001	MOUNTING DETAIL	
5	38E96-21001	FLYWHEEL & HOUSING DETAIL	
6	38E96-30305	AIR CLEANER	
7	38E96-40001	OIL FILTER	
8	38E96-43012	BREATHER	
9	38E96-61312	FUEL RETURN PIPING	
10	38E96-62002	FUEL FILTER	
11	38E96-62112	FUEL INLET PIPING	
12	38E96-63005	GOVERNOR	
13	38E96-66001	STARTING MOTOR	
14	38E96-71001	TURNING GEAR	
15	38E96-87503	STOP & FUEL LIMIT SOLENOID	
16	38E96-90119	METER & SENSOR	
17	38E96-90206	ALARM SWITCH	
18	S10-0540	ALTERNATOR	
19	S10-0550	CONNECTOR	
20	S11-0551	THERMO SWITCH	
21	S11-0796	PRESSURE SWITCH	
22	S11-0920	INDICATOR	
23	S11-1371	FILTER ALARM SWITCH	
24	S13-0282	SOLENOID	
25	S13-1022	CONNECTOR	
26	S13-1042	CONTROLLER	
27	S13-1761	ACTUATOR	
28	S13-2011	MAGNETIC PICK UP	
29	S13-2020	CABLE, PICK UP	
30	S14-0320	CONNECTOR	
31	S14-0330	CONNECTOR	
32	S35-0701	HOSE, ELBOW	
33	S35-0711	HOSE, RUBBER	
34	S35-1032	AIR CLEANER ASSY.	
35	S37-1021	FLEXBLE PIPE	