

MITSUBISHI MGS SERIES

DIESEL GENERATOR SET

50Hz/1500 rpm/3.3kV



MGS1200HV

50Hz/3.3kV

POWER RATING (0.8 P.F.)

STAND-BY 1475 kVA

PRIME 1350 kVA

MODEL CODE

53S-T64M

53P-T64M



MGS1200HV with typical options

CONDITIONS & DEFINITIONS

Stand-by: Code: S

Applicable for supplying emergency power at varying load in the event of the normal utility power interruption.

Fuel stop power in accordance with ISO15550, ISO3046/1, JISB8002-1, DIN6271 and BS5514.

Overload: not allowed

Prime: Code: P

Applicable for supplying emergency power at varying load in the event of normal utility power interruption. + 10% overload in accordance with ISO3046/1. Overload power in accordance with ISO15550, ISO3046/1, JIS8002-1, DIN6271 and BS5514.

Conditions:

Engine ratings are based on SAE J1349 standard conditions and also apply at ISO3046/1, DIN6271 & BS5514 standard conditions.

Fuel rates: based on ASTM D975, BS2869 and on fuel oil of 35° API (16°C or 60° F) gravity having a LHV of 42,780 kJ/kg (18,390 Btu/lb.) when used at 29°C (85° F) and weighing 838.9 g/liter (7.001lbs./U.S. gal.).

Note: * Please consult with your nearest Mitsubishi MGS dealer for additional rating requirements.

DIMENSION (Reference Data)

| | | | STAND-BY 1475 kVA | PRIME 1350 kVA |
|--------------------|------------|----|----------------------|-------------------|
| Overall dimensions | L : Length | mm | 4870 | 4870 |
| | W : Width | mm | 2160 | 2160 |
| | H : Height | mm | 2530 | 2530 |
| Total Weight (Dry) | | kg | 11000 | 11000 |
| Total Weight (Wet) | | kg | 11530 | 11530 |

MITSUBISHI MGS SERIES

DIESEL GENERATOR SET
MGS1200HV



MGS SERIES DIESEL ENGINE: MITSUBISHI S12R-PTA-S

V-12, 4 stroke-cycle water-cooled, turbocharged and aftercooled

ENGINE SPECIFICATIONS & TECHNICAL DATA

| | | |
|---|---------------------|---------|
| Bore | mm | 170 |
| Stroke | mm | 180 |
| Displacement | L | 49.03 |
| Piston speed | m/sec. | 9.0 |
| Compression ratio | | 14.0 |
| Lubricating oil capacity | L | 180 |
| Coolant capacity without/with radiator | L | 125/302 |
| Coolant pump external resistance | m water | 3.5 |
| Coolant pump flow rate | L/min | 1650 |
| Cooling fan airflow rate | m ³ /min | 1800 |
| Cooling fan air flow restriction | kPa | 0.1 |
| Ambient air temperature | °C | 40 |
| Allowable exhaust back pressure | kPa | 6.0 |
| Exhaust flange size (internal diameter) | mm | 300 |

ENGINE OPERATING DATA

| | | STAND-BY | PRIME |
|--|---------------------|----------|----------|
| | | 1475 kVA | 1350 kVA |
| Gross Engine Power* | kWm | 1260 | 1143 |
| Brake mean effective pressure | MPa | 2.1 | 1.9 |
| Regenerative absorption | kW | 105 | 105 |
| Noise Level at 1 m (excluding: intake, exhaust & fan) | dB(A) | 109 | 107 |
| Fuel consumption load 100%* | L/hr. | 311 | 286 |
| Fuel consumption load 75%* | L/hr. | 239 | 221 |
| Combustion air inlet flow rate | m ³ /min | 115 | 103 |
| Exhaust gas flow rate | m ³ /min | 305 | 274 |
| Exhaust gas temperature | °C | 520 | 510 |
| Heat rejection to coolant | kW | 841 | 755 |
| Heat rejection to exhaust | kW | 1132 | 1002 |
| Heat rejection to atmosphere from engine | kW | 101 | 91 |
| Heat rejection to atmosphere from generator | kW | 75 | 69 |

* WITH FAN basis.

Deration for engine

Note: Please consult with your nearest Mitsubishi MGS dealer

ENGINE STANDARD EQUIPMENT

Aftercooler
Turbocharger filter (For MGS-B, HV stand-by and prime)
Paper element type filter (For MGS-C, HV PRP continuous)
Structure steel base
Crankcase breather
Charging alternator
Lubricating oil cooler
Fuel filters, full flow paper element
Fuel transfer pump, gear driven, plunger type
Electronic type governor
Jacket water heater *
Jacket water pump, gear driven
Lubricating oil filter, full flow paper element
Lubricating oil pump, gear driven
Exhaust dry manifold
Radiator, blower fan, fan drive
Manual shutoff
24V DC electric starting motor
* Depending on the model, it becomes optional setting.

MITSUBISHI MGS SERIES

DIESEL GENERATOR SET
MGS1200HV



MGS SERIES 7310 MK II GENERATOR CONTROL PANEL

Features

MGS standard 7310 MK II programmable microprocessor generator control panel provides the following functions

- ◆ Start and stop control
- ◆ Engine and generator measurement items on LCD display and LED on the front panel for operation status indication
- ◆ Engine and generator shutdown and warning protection
- ◆ Generator breaker control
- ◆ Expansion module for additional output and input
- ◆ RS485 and RS232C communication for remote monitoring

Mounting

Fabricated cubicle mounted on individual bracket with anti-vibration isolator

Instrument and control accessories

- | | |
|---------------------------------|--|
| ■ Generator running indicator | ■ Selector switch (ACTIVE, PANEL LOCK, STOP/RESET) |
| ■ Manual button | ■ Mute alarm button |
| ■ Auto button | ■ Menu navigation button |
| ■ CB open button (Manual only) | ■ Common alarm indicator |
| ■ CB close button (Manual only) | ■ Voltage adjuster |
| ■ Manual start button | ■ Speed adjuster |
| ■ Manual Stop/Reset button | ■ Emergency stop pushbutton |

Measured items on LCD display

- | | |
|--|-----------------------------------|
| ■ Generator volts L1-N, L2-N, L3-N | ■ Battery volts |
| ■ Generator volts L1-L2, L2-L3, L3-L1 | ■ Engine hours run |
| ■ Generator amps L1, L2, L3 | ■ Generator Load kW, kVA, kVar |
| ■ Generator Frequency Hz | ■ Generator Load kWh, kVAh, kVarh |
| ■ Engine speed RPM | ■ Power Factor |
| ■ Engine oil pressure (PSI & Bar & kPa) | ■ Generator Phase Sequence |
| ■ Engine cooling water temperature (°C & °F) | |

Shutdown and Warning items on LCD display

- | | |
|---|--|
| ■ High coolant temperature : shutdown and warning | ■ Generator high current : shutdown (IDMT) and warning |
| ■ Low oil pressure : shutdown and warning | ■ Over voltage (AC) : shutdown and warning |
| ■ Fail to start : shutdown | ■ Under voltage (AC) : shutdown and warning |
| ■ Over-speed : shutdown and warning | ■ Over frequency : warning |
| ■ Under-speed : shutdown and warning | ■ Under frequency : warning |
| ■ Loss of speed signal : shutdown | ■ Overload : warning |
| ■ Fail to stop : warning | ■ Winding temperature high (U, V, W) : warning *1 |
| ■ Over voltage (DC) : warning | ■ Bearing temperature high : warning *1 |
| ■ Under voltage (DC) : warning | ■ Electrical trip |
| ■ Lubrication oil filter clogged : warning | ■ Emergency stop : shutdown |
| ■ High oil temperature : shutdown and warning *1 *2 | |
| ■ Oil pressure sender open circuit : shutdown | |
| ■ Charge fail : warning | |
| ■ Exhaust gas temperature high : warning *1 | |
| ■ Coolant level low : warning *1 | |
| ■ High crankcase internal pressure : shutdown *1 | |

*1 : MGS-C, HV continuous are applicable as standard. The others are applicable as option.

*2 : MGS2700 and MGS2800 are applicable as standard. The others are applicable as option.

Operation status indicated by LED

- Remote start present
- Generator ready
- Lubrication oil filter clogged
- Electrical trip

MITSUBISHI MGS SERIES

DIESEL GENERATOR SET
MGS1200HV



MGS SERIES AC GENERATOR MODEL: MG-KT64M(STAND-BY) MG-KT64M(PRIME)

Features

MGS original design, single bearing, 4 pole, screen protected, self excited, self regulating and brushless with fully connected damper windings, salient pole rotors, A.C. exciter and rotating rectifier unit. Direct coupled to engine and regreaseable bearing, direct drive centrifugal blower.

With Space heater.

Enclosure: Drip-proof IP23

T Terminal box: Totally enclosed IP44

Winding System

Standard 6 wire winding is provided. All windings are formed wound and impregnated in vacuum pressure with a special epoxy resin.

Overspeed capability: 125% for 2 minutes

Insulation: Class 'H'

Temperature rise: 150°C(Stand-by), 125°C(Prime)

Voltage Regulator

Fully sealed, 3 phase RMS sensing AVR with built-in protection against sustained over-excitation.

Voltage regulation: Less than +/- 0.5% from no load to full load at any power factor between 0.8 lagging and 1.0 allowing for a 4% engine speed variation

Voltage adjustment: +/- 6%

Wave form: Less than 5% deviation

Permanent Magnet Generator (PMG)

Separately excited system which provide isolated power supply for the AVR – sustain short circuit current approximately 250-300% under fault condition.

Sensors

Temperature sensors are provided as follows.

Stator winding, 2 per each phase, PT100

Bearing, PT100

*Generator winding and bearing temperature indication Meters are option.

Electrical Design

In accordance with ISO 8528-3, IEC60034-1/BS EN60034-1, BS5000 Part 3, VDE0530, NEMA MG1-32, CSA22-2-100 and AS1359.

Telephone Harmonic factor (THF): Less than 2.5%

Gen Set Option Features

| ENGINE | GENERATOR |
|--|--|
| Air Cleaner, paper element dry type (For MGS-B, HV stand-by and prime only) | Power Factor Regulator |
| Battery Kit | |
| Battery Charger | |
| Anchor Bolts | |
| | CONTROL PANEL |
| | Diesel Generator Integrated Communication Synthesizer (DGICS-MII) |
| | Auxiliary Control Panel |
| | |
| | Remote Monitor Interface |
| | 2157 expansion unit (Output signal module) |
| | 2130 expansion unit (Input signal module) |
| | 2133 expansion unit (RTD/Thermocouple input module) |
| | SWITCHGEAR |
| | Circuit Breaker MCCB & ACB |
| | Reverse Power Relay |
| FUEL | |
| Fuel Day Service Tank | |
| COOLING | |
| Oversize radiator | |
| Heat Exchanger | |
| Expansion Tank | |
| Removal STD Radiator, Fan & Fan Drive | |
| LUBRICATION | |
| Lub. Oil Level Regulator | |
| EXHAUST | |
| Exhaust Silencer | |
| Exhaust Flexible Pipe | |



No. 3, Tuas Avenue 12, Singapore 639024
Republic of Singapore
Phone:65-6862 2202 Fax: 65-6862 5728
URL: <http://www.mhiesa.com/>

COMPANY WITH
QUALITY SYSTEM
CERTIFIED BY DNV GL
= ISO 9001:2015 =

Mitsubishi Heavy Industries, Ltd. serves for the customers with improved products continually.
Therefore specification and some materials will be changed without notice.
The International System of units (SI) is used in this publication.