MITSUBISHI MGS SERIES
DIESEL GENERATOR SET
60Hz/1800 rpm/480V

MGS0900B

POWER RATING (0.8 P.F.) MODEL CODE
STAND-BY  870 kW  6S-H6H
PRIME    790 kW  6P-H6H

Voltage Variation
- Standard Voltage  3Phase 4 Wires
  480V
- Voltages Available  3Phase 4 Wires
  480, 460, 450, 440, 416, 240, 230, 220 and 208V
  Note: Outputs for optional voltages may differ from standard output mentioned above.

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: * For conditions of prime power (P.R.P.) and additional rating requirements, please consult your nearest Mitsubishi MGS dealer.

DIMENSION (Reference Data)

<table>
<thead>
<tr>
<th>Overall dimensions</th>
<th>L: Length (mm)</th>
<th>4060</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>W: Width (mm)</td>
<td>1715</td>
</tr>
<tr>
<td></td>
<td>H: Height (mm)</td>
<td>2100</td>
</tr>
<tr>
<td>Total Weight (Dry)</td>
<td>kg</td>
<td>6600</td>
</tr>
<tr>
<td>Total Weight (Wet)</td>
<td>kg</td>
<td>7000</td>
</tr>
</tbody>
</table>
# MGS SERIES DIESEL ENGINE: MITSUBISHI S12A2-PTA2-S

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

## ENGINE SPECIFICATIONS & TECHNICAL DATA

<table>
<thead>
<tr>
<th>Specification</th>
<th>Unit</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bore</td>
<td>mm</td>
<td>150</td>
</tr>
<tr>
<td>Stroke</td>
<td>mm</td>
<td>160</td>
</tr>
<tr>
<td>Displacement</td>
<td>L</td>
<td>33.9</td>
</tr>
<tr>
<td>Piston speed</td>
<td>m/sec.</td>
<td>9.6</td>
</tr>
<tr>
<td>Compression ratio</td>
<td></td>
<td>15.3</td>
</tr>
<tr>
<td>Lubricating oil capacity</td>
<td>L</td>
<td>120</td>
</tr>
<tr>
<td>Coolant capacity without radiator</td>
<td>L</td>
<td>100</td>
</tr>
<tr>
<td>Coolant pump external resistance</td>
<td>m water</td>
<td>5.0</td>
</tr>
<tr>
<td>Coolant pump flow rate</td>
<td>L/min</td>
<td>1100</td>
</tr>
<tr>
<td>Cooling fan airflow rate</td>
<td>m³/min</td>
<td>1380</td>
</tr>
<tr>
<td>Cooling fan airflow restriction</td>
<td>kPa</td>
<td>0.1</td>
</tr>
<tr>
<td>Ambient air temperature</td>
<td>°C</td>
<td>40</td>
</tr>
<tr>
<td>Allowable exhaust back pressure</td>
<td>kPa</td>
<td>6.0</td>
</tr>
<tr>
<td>Exhaust flange size (internal diameter)</td>
<td>mm</td>
<td>200</td>
</tr>
</tbody>
</table>

## ENGINE OPERATING DATA

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gross Engine Power*</td>
<td>920 kW</td>
</tr>
<tr>
<td>Brake mean effective pressure</td>
<td>1.9 MPa</td>
</tr>
<tr>
<td>Regenerative absorption</td>
<td>93 kW</td>
</tr>
<tr>
<td>Noise Level at 1 m (excluding: intake, exhaust &amp; fan)</td>
<td>103 dB(A)</td>
</tr>
<tr>
<td>Fuel consumption load 100%*</td>
<td>246 L/hr.</td>
</tr>
<tr>
<td>Fuel consumption load 75%*</td>
<td>184 L/hr.</td>
</tr>
<tr>
<td>Combustion air inlet flow rate</td>
<td>85 m³/min</td>
</tr>
<tr>
<td>Exhaust gas flow rate</td>
<td>223 m³/min</td>
</tr>
<tr>
<td>Exhaust gas temperature</td>
<td>510 °C</td>
</tr>
<tr>
<td>Heat rejection to coolant</td>
<td>613 kW</td>
</tr>
<tr>
<td>Heat rejection to exhaust</td>
<td>817 kW</td>
</tr>
<tr>
<td>Heat rejection to atmosphere from engine</td>
<td>74 kW</td>
</tr>
<tr>
<td>Heat rejection to atmosphere from generator</td>
<td>47 kW</td>
</tr>
</tbody>
</table>

* WITH FAN basis.

Deration for engine

Note: Please consult with your nearest Mitsubishi MGS dealer

## ENGINE STANDARD EQUIPMENT

- Aftercooler
- Turbocharger filter
- 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 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
MITSUBISHI MGS SERIES
DIESEL GENERATOR SET
MGS0900B

MGS SERIES 7310 GENERATOR CONTROL PANEL

Type & Design
MGS standard 7310 programmable microprocessor control-automatic start/stop panel, generator breaker control, indicating the operational status and fault conditions; automatically shutting down the engine and indicating the engine failure by means of LCD display and LEDs on the front panel.

Controls & Monitoring
◆ Mode selection & start engine button with interlock key switch system
◆ Menu navigation button
◆ LCD display for: AC amperage-each phase and earth current, AC voltage-each phase and neutral, Frequency Hz, Operation hours run, Lub. Oil pressure, Cooling water temperature, Generator Load kW/kVA/kVar, Generator Load kWh/kVAh/kVarh
◆ Operation status LED indicators
◆ CB control buttons
◆ Mute/Lamp test button
◆ Voltage adjuster
◆ Speed adjuster
◆ Emergency stop pushbutton
◆ Provided 5 outputs for status as standard equipment (Programmable 8 outputs available as option)

Safety Shutdown Protection and LED Indicators
High engine temperature, Low oil pressure, Fail to start, Generator Over Speed/Frequency, Generator Under Speed/Frequency
Generator High Voltage, Generator Low Voltage, Oil pressure sender circuit, Loss of Speed signal, Emergency stop,

Mounting
Fabricated cubicle mounted on individual bracket with anti-vibration isolator

Electrical Design
In accordance with BS EN 60950 Low Voltage Directive, BS EN 61006-2 and 61006-4 EMC Directive. The optional interface can provide real time diagnostic facilities.

Generator Control Panel Description
- 3 position operation mode control key switch
  (ACTIVE, PANEL LOCK, STOP/RESET)
- Manual button
- Auto button
- CB open button (Manual only)
- CB close button (Manual only)
- Start engine button (Manual only)
- LCD display accessed by scroll pushbutton
  Generator volts L1-N, L2-N, L3-N
  Generator volts L1-L2, L2-L3, L3-L1
  Generator amps L1, L2, L3
  Generator Earth Current
  Generator Frequency Hz
  Engine speed RPM
  Engine oil pressure (PSI & Bar)
  Generator volts L1 - L2, L2 - L3, L3 - L1
  Engine cooling water temperature (°C & °F)
  Battery volts
  Engine hours run
  Generator Load kW, kVA, kVar
  Generator Load kWh, kVAh, kVarh
  Power Factor
  Generator Phase Sequence
- Visual indicators on LCD display
  Shutdown alarm
  Warning alarm
  High coolant temperature
  Low oil pressure
  Charge fail
  Over-speed
  Under-speed
  Electrical trip
  Fail to stop
  Generator high current
  Over voltage (AC)
  Under voltage (AC)
  Over voltage (DC)
  Under voltage (DC)
  Auxiliary indication
  Common alarm
  Over frequency
  Under frequency
- Visual indication alarm and automatically shutdown
  High engine temperature
  Low oil pressure
  Fail to start
  Over-speed
  High voltage
  Low voltage
  Over frequency
  Under frequency
  Oil pressure sender open circuit
  Loss of speed signal
  High Crankcase internal pressure (MGS-C Continuous only)
  Emergency Stop
- Operation status indicated by LED
  Remote start present
  Generator ready
  Lubrication oil filter clogged
  Electrical trip
- Pre-Programmed Starting Unit
  Automatic start/stop sequence timing and delay systems configured via MS-Windows based software.
MITSUBISHI MGS SERIES
DIESEL GENERATOR SET
MGS0900B

MGS SERIES AC GENERATOR MODEL: MG-HC6H

Type & Design
MGS original design, single bearing, 4 pole, screen protected, self-exciting, self-regulating and brushless with fully connected damper windings, salient pole rotors, A.C. exciter and rotating rectifier unit. Direct coupled to engine and pre-lubricated maintenance free bearing, direct drive centrifugal blower.

Enclosure: Drip-proof IP23

Winding System
Standard 12 wire reconnectable winding provides a wide range of 3 phase voltage. All windings are impregnated in vacuum pressure impregnated with a special polyester resin.

Overspeed capability: 125% for 2 minutes
Insulation: Class ‘H’ of IEC
Temperature rise: Class ‘H’

Voltage Regulator
Fully sealed, 3 phase RMS sensing AVR with built-in protection against sustained over-excitation. This de-excites the generator after a minimum of 5 seconds.

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)
Electrically isolated from the main alternator stator windings powers AVR - sustaining approx. 250～300% of short circuit current at the AC generator output terminals for not more than 10 seconds by means of excitation voltage via AVR

Electrical Design
In accordance with BS5000 Part 3, VDE0530, UTE51100, NEMA MG1-22, CEMA, IEC34-1, CSA22.2, AS1359 and JEC2100.

Telephone Influence Factor (TIF): Less than 50
Telephone Harmonic factor (THF): Less than 2%
Radio interference: Suppression is in line with the provision of BS800 and VDE Class G and N

Gen Set Option Features

- ENGINE
  Air Cleaner, paper element dry type
  Battery Kit
  Battery Charger
  Anchor Bolts

- FUEL
  Fuel Day Service Tank

- COOLING
  Oversize radiator
  Heat Exchanger
  Expansion Tank
  Jacket Water Heater
  Removal STD Radiator, Fan & Fan Drive

- LUBRICATION
  Lub. Oil Priming Pump

- EXHAUST
  Exhaust Silencer
  Exhaust Flexible Pipe

- GENERATOR
  Space Heater
  3 phase Sensing Auto Voltage Regulator
  Power Factor Regulator

- CONTROL PANEL
  Diesel Generator Integrated Communication Synthesizer (DGICS-MII)
  Auxiliary Control Panel
  Remote Monitor Interface

- SWITCHGEAR
  Circuit Breaker MCCB & ACB
  Reverse Power Relay

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.