



# MITSUBISHI MGS R SERIES

## DIESEL GENERATOR SET MGS0700R

### MGS0700R / 50Hz

**POWER RATING (0.8 P.F.) / Alternator Model**

**STANDBY** : 690 kVA / H5F  
**(ESP)** : Emergency Standby Power

**PRIME(PRP)** : 625 kVA / H5F  
: Prime Power

#### Voltage Variation

- Standard Voltage 3Phase 4 Wires  
380V
- Voltages Available 3Phase 4 Wires  
400V, 415V and 440V



\*For illustration purpose

**Note:** Outputs for optional voltages may differ from standard output mentioned above.

## CONDITIONS & DEFINITIONS

SYM	NAME OF RATING	DEFINITION	LOAD/OPERATING HOUR*		
			AVE. LOAD FACTOR /24hr	AVE.LOAD /yr	OPERATING Hr/yr
STANDBY (ESP)	Emergency Standby Power	Rated power of an emergency generator as Stand-by that supplies power in case of a failure of main power source or commercial power.	Maximum 80%. (100% in emergency)	Maximum 70%	Maximum 500Hr
PRIME (PRP)	Prime Power	For generators with variable load and unlimited operating hour.	Maximum 80%. Overload operation ( $\leq 110\%$ ) is limited to a max. of 1 hour per 12 hours. Over 90% load operation is limited to a max. of 3 hours per 12 hours	Maximum 70%	Unlimited

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

Conditions are consistent with the requirements under ISO 8528-1:2018

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.).

## DIMENSION (Reference Data)

Overall dimensions*	L : Length	mm	3600
	W : Width	mm	1800
	H : Height	mm	1940
Total Weight (Dry)		kg	5500
Total Weight (Wet)		kg	5780

\*Dimension may be smaller





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### **MGS R SERIES DIESEL ENGINE: MITSUBISHI S6R-PTAR**

L-6, 4 stroke-cycle water-cooled, turbocharged and after-cooled

### **ENGINE SPECIFICATIONS & TECHNICAL DATA**

Bore	mm	170
Stroke	mm	180
Displacement	L	24.51
Piston speed	m/sec.	9.0
Compression ratio		14.0
Lubricating oil capacity	L	100
Coolant capacity without radiator / with radiator	L	50/151
Coolant pump external resistance	PSI	5.0
Coolant pump flow rate	L/min	670
Cooling fan airflow rate	m3/min	582
Cooling fan air flow restriction	kPa	0.1
Ambient air temperature	°C	40
Allowable exhaust back pressure	kPa	6.0
Exhaust flange size		JIS 300A

### **ENGINE OPERATING DATA**

		STANDBY(ESP) 690 kVA	PRIME(PRP) 625 kVA
Gross Engine Power*	kWm	586	530
Brake mean effective pressure	MPa	2.0	1.8
Regenerative absorption	kW	53	53
Noise Level at 1 m (excluding: intake, exhaust & fan)	dB(A)	108	106
Fuel consumption load 100%*	L/hr.	147	135
Fuel consumption load 75%*	L/hr.	115	106
Combustion air inlet flow rate	m3/min	51	47
Exhaust gas flow rate	m3/min	136	123
Exhaust gas temperature	°C	520	510
Heat rejection to coolant	kW	375	340
Heat rejection to exhaust	kW	480	435
Heat rejection to atmosphere from engine	kW	45	41
Heat rejection to atmosphere from generator	kW	34	30

\*WITH FAN basis



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### ENGINE STANDARD EQUIPMENT

After-cooler  
Structure steel base  
Crankcase breather  
Charging alternator  
Lubricating oil cooler  
Manual shutoff  
Fuel transfer pump, gear driven, plunger type  
Digital Electric Type Governor (Woodward ProAct)  
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  
24V DC electric starting motor



### MGS R 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

#### Shutdown and Warning items on LCD display

- 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

#### 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                        |



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### Measured Items on LCD Display

- Generator volts L1-N, L2-N, L3-N
- Generator volts L1-L2, L2-L3, L3-L1
- Generator amps L1, L2, L3
- Generator Frequency Hz
- Engine speed RPM
- Engine oil pressure (PSI & Bar & kPa)
- 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

### Shutdown and Warning items on LCD

- Over-speed : shutdown and warning
- Under-speed : shutdown and warning
- Emergency stop pushbutton
- Loss of speed signal : shutdown
- Fail to stop : warning
- Over voltage (DC) : warning
- Under voltage (DC) : warning
- Lubrication oil filter clogged : warning
- High oil temperature : shutdown and warning \*1
- 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
- Generator high current : shutdown (IDMT) and warning
- Over voltage (AC) : shutdown and warning
- Under voltage (AC) : shutdown and warning
- Over frequency : warning
- Under frequency : warning
- Overload : warning
- Winding temperature high (U, V, W) : warning \*1
- Bearing temperature high : warning \*1
- Electrical trip
- Emergency stop : shutdown
- High coolant temperature : shutdown and warning
- Low oil pressure : shutdown and warning
- Fail to start : shutdown

\*1: As Option

### Operation status indicated by LED

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

### Gen Set Option Features

- GENERATOR
  - Power Factor Regulator
  - Generator Space Heater
  - Winding / Bearing RTD
- ENGINE
  - Battery Kit
  - Battery Charger
  - Air Cleaner, paper element dry type
  - Anchor Bolts
  - Jacket Water Heater
- CONTROL PANEL
  - Auxiliary Control Panel
  - Cross Current Compensate Transformer (CCT)
  - 2157 expansion unit (Output signal module)
  - 2130 expansion unit (Input signal module)
  - 2133 expansion unit (RTD/Thermocouple module)
- LUBRICATION
  - Lub. Oil Level Regulator
  - Lube oil Priming Pump
- FUEL
  - Fuel Day Service Tank
- COOLING
  - Heat Exchanger
  - Expansion Tank
- EXHAUST
  - Exhaust Silencer
  - Exhaust Flexible Pipe
- SWITCHGEAR
  - Reverse Power Relay



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### MGS R SERIES AC GENERATOR MODEL: MG-H5F

#### Features

MGS original design, single bearing, 4 pole, screen protected, 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.

Compliance to 100% step load.

Enclosure: Drip-proof IP23

#### Winding System

Standard 12 wire winding provides 3 phase voltage. All windings are impregnated in vacuum pressure impregnated with a special polyester resin.

Over speed capability: 125% for 2 minutes

Insulation: Class 'H'

Temperature rise: Class H Peak (Standby), Class H (Prime(PRP))

#### Voltage Regulator

Fully sealed, single phase 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: No load <1.5% Non-distorting balanced linear load <5.0%

#### 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.

#### Electrical Design

In accordance with ISO 8528-3, IEC60034-1/BS EN60034-1, BS5000 Part 3, VDE0530, NEMA MG1-32, CSA22-2-100, AS1359 and UL1446.

Telephone Harmonic factor (THF): Less than 2%



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