



MITSUBISHI MGS-R SERIES

DIESEL GENERATOR SET MGS2000R

MGS2000R / 50Hz

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

STANDBY : 2000 kVA / 7PF

(ESP) : Emergency Standby Power

PRIME(PRP) : 1800 kVA / 7PF

: 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	5435
	W : Width	mm	2160
	H : Height	mm	2635
Total Weight (Dry)		kg	13300
Total Weight (Wet)		kg	13970

*Dimension may be smaller





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MGS-R SERIES DIESEL ENGINE: MITSUBISHI S16R-PTAR

V-16, 4 stroke-cycle water-cooled, turbocharged and after-cooled

ENGINE SPECIFICATIONS & TECHNICAL DATA

Bore	mm	170
Stroke	mm	180
Displacement	L	65.37
Piston speed	m/sec.	9.0
Compression ratio		14.0
Lubricating oil capacity	L	230
Coolant capacity without radiator / with radiator	L	170/383
Coolant pump external resistance	PSI	5.0
Coolant pump flow rate	L/min	1650
Cooling fan airflow rate	m3/min	1950
Cooling fan air flow restriction	kPa	0.1
Ambient air temperature	°C	40
Allowable exhaust back pressure	kPa	6.0
Exhaust flange size		JIS 350A

ENGINE OPERATING DATA

		STANDBY(ESP) 2000 kVA	PRIME(PRP) 1800 kVA
Gross Engine Power*	kWm	1678	1523
Brake mean effective pressure	MPa	2.1	1.9
Regenerative absorption	kW	140	140
Noise Level at 1 m (excluding: intake, exhaust & fan)	dB(A)	111	109
Fuel consumption load 100%*	L/hr.	407	369
Fuel consumption load 75%*	L/hr.	312	284
Combustion air inlet flow rate	m3/min	143	130
Exhaust gas flow rate	m3/min	379	345
Exhaust gas temperature	°C	530	520
Heat rejection to coolant	kW	1046	951
Heat rejection to exhaust	kW	1304	1185
Heat rejection to atmosphere from engine	kW	126	114
Heat rejection to atmosphere from generator	kW	75	66

*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
 - Dual starter (24V DC electric starting system)
 - 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-7PF

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 6 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, three 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: 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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