

MITSUBISHI MGS DC SERIES

DIESEL GENERATOR SET
MGS2500HV-DC



MGS2500HV-DC



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

CP : 2000 kW / P80R63

DCP : 1800 kW / P80R63

CP : CRITICAL POWER

DCP : DATA CENTER POWER

*For illustration purpose

CONDITIONS & DEFINITIONS

SYM	NAME OF RATING	OVERLOAD OPERATION (RACK SET)	DEFINITION	LOAD/OPERATING HOUR*		
				AVE. LOAD FACTOR	AVE.LOAD	OPERATING
DCP	Data Center Continuous Power	+ 10% (E)	For generator in Data Center application (where reliable grid is available)	100% load is allowed in case of grid failure. Overload operation (≤ 100%) is allowed for 1Hr per 12Hr).	Maximum 100%	Unlimited
CP	Critical Power Operation	Not Allowed	For stand-by continuous operation usage in Data Center	-	100% or Lower	Unlimited

*Average load factor (per 24Hr or year) shall be calculated as per the formula in ISO 8528-1:2018 'average power output (Ppp)'.

*This rating shall be applicable to Data center application ONLY.

*UPTIME compliant: This DCP rating meets the requirement of a TierIII and TierIV data center site with no runtime limitation when the operation is loaded to 'N' demand for the engine generator set.

*10% overload is not recognized by Uptime for Tier Certification. Agreement between manufacturer and customer when use in tier system.

*DCP rating does not have +10% overload defined in ISO8528-1:2018.

DIMENSION (Reference Data)

Overall dimensions	L : Length	mm	6080
	W : Width	mm	2410
	H : Height	mm	3555
Total Weight (Dry)		kg	17300
Total Weight (Wet)		kg	17990

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MGS DC SERIES DIESEL ENGINE: MITSUBISHI S16R-PTAA2

V-16, 4 stroke-cycle water-cooled, turbocharged and air-to-air cooling system

Bore	mm	170
Stroke	mm	180
Displacement	L	65.37
Piston speed	m/sec.	10.8
Compression ratio		14.0
Lubricating oil capacity	L	230
Coolant capacity without/with radiator	L	170/399
Coolant pump external resistance	PSI	5.0
Coolant pump flow rate	L/min	1850
Cooling fan airflow rate	m ³ /min	2500
Cooling fan air flow restriction	kPa	0.1
Ambient air temperature	□	40
Allowable exhaust back pressure	kPa	6.0
Exhaust flange size (internal diameter)	mm	350

ENGINE SPECIFICATIONS & TECHNICAL DATA

ENGINE OPERATING DATA

		CP 2000 kW	DCP 1800 kW	*WI TH FAN basis
Gross Engine Power*	kWm	2105	1895	
Brake mean effective pressure	MPa	2.2	2.0	
Regenerative absorption	kW	192	192	
Noise Level at 1 m (excluding: intake, exhaust & fan)	dB(A)	116	114	
Fuel consumption load 100%*	L/hr.	536	484	
Fuel consumption load 75%*	L/hr.	407	370	
Combustion air inlet flow rate	m ³ /min	194	175	
Exhaust gas flow rate	m ³ /min	514	464	
Exhaust gas temperature	°C	530	530	
After-cooler			716	
Paper element type filter			1643	
ENGINE STANDARD EQUIPMENT				
Crankcase breather			154	
Charging alternator			75	

- Lubricating oil cooler
- Manual shutoff
- Fuel transfer pump, gear driven, plunger type
- Digital Electric Type Governor (Woodward ProAct)
- 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
- 24V DC electric starting motor

MGS DC 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

Shutdown and Warning items on LCD

- 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 |

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 |
| | ■ Generator Phase Sequence |

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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
- *1: As Option
- 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

Operation status indicated by LED

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

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MGS DC SERIES AC GENERATOR MODEL: MG-P80R63/R91

Features

MGS original design, double 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.

With space heater and Cross Current Compensate Transformer (CCT)

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 'F'

Temperature rise: Class F Peak (CP), Class F (DCP)

Voltage Regulator

Fully sealed, 3 phase RMS sensing DAVR 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 <3.0%

Permanent Magnet Generator (PMG)

Separately excited system which provide isolated power supply for the DAVR – 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 Influence Factor (TIF): Less than 50

Gen Set Option Features

■GENERATOR

Power Factor Regulator

■ENGINE

Dual starter (24V DC electric starting system)

Battery Kit

Battery Charger

Anchor Bolts

■CONTROL PANEL

Auxiliary Control Panel

2157 expansion unit (Output signal module)

2130 expansion unit (Input signal module)

2133 expansion unit (RTD/Thermocouple Input)

■LUBRICATION

Lub. Oil Level Regulator

■FUEL

Fuel Day Service Tank

■COOLING

Heat Exchanger

Expansion Tank

■EXHAUST

Exhaust Silencer

Exhaust Flexible Pipe

■SWITCHGEAR

Reverse Power Relay

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