

# DIESEL GENERATOR SET

## AIR CHARGE-AIR COOLING

650 kVA / 50 Hz / Standby (Fuel-Optimized)  
380 - 415V

(Reference DP590D5S-Fuel Optimized and DP590D5S-Exhaust Optimized for Prime Rating Technical Data)

### BENEFITS

- // Low installment cost
- // Best fuel consumption values
- // Long maintenance intervals
- // High-efficiency components
- // Best-in-class reliability and availability



### SYSTEM RATINGS

Standby	DS650D5S	DS650D5S	DS650D5S
Voltage (L-L)	380V	400V	415V
Phase	3	3	3
PF	0.8	0.8	0.8
Hz	50	50	50
kW	520	520	520
kVA	650	650	650
AMPS	988	938	904
skVA@30%			
Voltage Dip	1450	1600	1750
Generator Model	572RSL7731	573RSL7733	573RSL7733
Temp Rise	150 °C/40 °C	150 °C/40 °C	150 °C/40 °C
Connection	4 LEAD WYE	4 LEAD WYE	4 LEAD WYE

\* Power available up to 40°C / 400 m

### CERTIFICATIONS AND STANDARDS

// **Engine-generator set is designed and manufactured in facilities certified to standards ISO 9001:2008 and ISO 14001:2004**

// **Performance Assurance Certification (PAC)**

- Engine-Generator Set Tested to ISO 8528-5 for Transient Response
- Verified product design, quality and performance integrity
- All engine systems are prototype and factory tested

// **Power Rating**

- Permissible average power output during 24 hours of operation is approved up to 85%.

## STANDARD FEATURES\*

- // The generator set complies to G2
- // Engine-generator set tested to ISO 8528-5 for transient response
- // Accepts rated load in one step per NFPA 110
- // All engine-generator sets are prototype and factory tested
- // MTU Onsite Energy is a single source supplier
- // Global Product Support
- // 2 Year Standard Warranty
- // 12V1600 Diesel Engine
  - 21.0 Liter Displacement
  - Common Rail Fuel Injection
  - 4-Cycle
- // Complete Range of Accessories
- // Permanent Magnet Generator (PMG)
  - Brushless, Rotating Field Generator
  - 300% Short Circuit Capability
  - 2/3 Pitch Windings
- // Cooling System 50° C
  - Integral Set-Mounted
  - Engine Driven Fan
- // Terminal Box

## STANDARD EQUIPMENT\*

### // Engine

Air Cleaners  
 Oil Pump  
 Oil Drain Extension & S/O Valve  
 Full Flow Oil Filters  
 Closed Crankcase Ventilation  
 Jacket Water Pump  
 Thermostat  
 Exhaust Manifold - Dry  
 Blower Fan & Fan Drive  
 Radiator - Unit Mounted  
 Electric Starting Motor - 24V  
 Governor – Electronic Isochronous  
 Base - Formed Steel  
 SAE Flywheel & Bell Housing  
 Charging Alternator - 24V  
 Flexible Fuel Connectors  
 Fuel System: Common Rail

### // Customer Interface

Smart Connect

### // Generator

NEMA MG1, IEEE and ANSI standards compliance for temperature rise and motor starting  
 VDE 0530, IEC 34.1, BS5000, CSA C22.2-100, AS1359  
 Sustained short circuit current of up to 300% of the rated current for up to 10 seconds  
 Self-Ventilated  
 Superior Voltage Waveform  
 Digital, Solid State, Volts-per-Hertz Regulator  
 No Load to Full Load Regulation  
 Brushless Alternator with Brushless Pilot Exciter  
 4 Pole, Rotating Field  
 150 °C Maximum Standby Temperature Rise  
 1 Bearing, Sealed  
 Flexible Coupling  
 Full Amortisseur Windings  
 125% Rotor Balancing  
 3-Phase Voltage Sensing  
 ±0.25% Voltage Regulation  
 100% of Rated Load - One Step  
 3% Maximum Harmonic Content  
 Insulation Class H  
 Protection Class IP20

\* Represents standard product only. Consult Factory/MTU Onsite Energy Distributor for additional configurations.

## APPLICATION DATA

### // Engine

Manufacturer	MTU
Model	12V1600G70F
Type	4-Cycle
Arrangement	12-V
Displacement: L (Cu In)	21 (1,281)
Bore: cm (in)	12 (4.72)
Stroke: cm (in)	15 (5.91)
Compression Ratio	17.5:1
Rated RPM	1,500
Engine Governor	Electronic Isochronous
Max Power: kWm (bhp)	576 (772)
Speed Regulation	±0.25%
Air Cleaner	Dry

### // Liquid Capacity (Lubrication)

Total Oil System: L (gal)	73 (19.3)
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### // Electrical

Electric Volts DC	24
Cold Cranking Amps Under -17.8 °C (0 °F)	1,000

### // Fuel System

Fuel Supply Connection Size	M 20x1.5 Male/#10 JIC Female
Fuel Return Connection Size	M 14x1.5 Male/#6 JIC Female
Maximum Fuel Lift: m (ft)	5 (16)
Recommended Fuel	see MTU Fluids & Lubrication Spec.
Total Fuel Flow: L/hr (gal/hr)	341.8 (90.3)

### // Fuel Consumption

	STANDBY
At 100% of Power Rating: L/hr (gal/hr)	129.8 (34.3)
At 75% of Power Rating: L/hr (gal/hr)	99.9 (26.4)
At 50% of Power Rating: L/hr (gal/hr)	69.6 (18.4)

### // Cooling - Radiator System

	STANDBY
Ambient Capacity of Radiator: °C (°F)	50 (122)
Max. Restriction of Cooling Air, Intake, and Discharge Side of Rad.: kPa (in. H <sub>2</sub> O)	0.125 (0.5)
Water Pump Capacity: L/min (gpm)	433 (115)
Heat Rejection to Coolant: kW (BTUM)	236 (13,421)
Heat Rejection to After Cooler: kW (BTUM)	104 (5,914)
Heat Radiated to Ambient: kW (BTUM)	59.4 (3,378)
Engine Coolant Capacity: L (gal)	65 (17.2)
Radiator Coolant Capacity: L (gal)	41 (10.8)
Coolant to Cooler Temperature: °C (°F)	95 (203)

### // Air Requirements

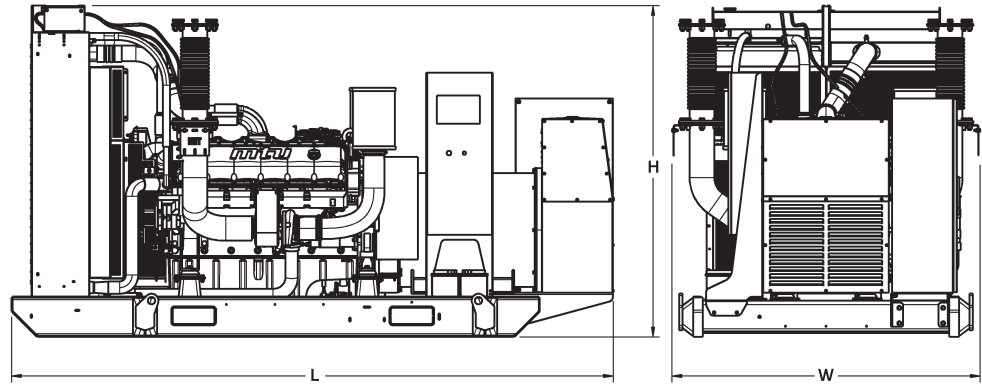
	STANDBY
Aspirating: *m <sup>3</sup> /min (SCFM)	48 (1,695)
Air Flow Required for Rad. Cooled Unit: *m <sup>3</sup> /min (SCFM)	803 (28,350)
Remote Cooled Applications; Air Flow Required for Dissipation of Radiated Gen-set Heat for a Max of 25 °F Rise: *m <sup>3</sup> /min (SCFM)	216 (7,618)

\* Air density = 1.184 kg/m<sup>3</sup> (0.0739 lbm/ft<sup>3</sup>)

### // Exhaust System

	STANDBY
Gas Temp. (Stack): °C (°F)	484 (903)
Gas Volume at Stack Temp: m <sup>3</sup> /min (CFM)	126 (4,450)
Maximum Allowable Back Pressure: kPa (in. H <sub>2</sub> O)	15 (60.2)

## WEIGHTS AND DIMENSIONS



Drawing above for illustration purposes only, based on standard open power 400 volt engine-generator set. Lengths may vary with other voltages. Do not use for installation design. See website for unit specific template drawings.

System	Dimensions (LxWxH)	Weight (dry/less tank)
Open Power Unit (OPU)	3,738 x 1,902 x 2,137 mm (147.13 x 74.875 x 84.13 in)	4,545 kg (10,020 lbs)

Weights and dimensions are based on open power units and are estimates only. Consult the factory for accurate weights and dimensions for your specific engine-generator set.

## SOUND DATA

Unit Type	Standby Full Load
Level 0: Open Power Unit (dBA)	C/F

Sound data is provided at 7 m (23 ft). Engine-generator set tested in accordance with ISO 8528-10 and with infinite exhaust.

## EMISSIONS DATA

NO <sub>x</sub> + NMHC	CO	PM
C/F	C/F	C/F

## RATING DEFINITIONS AND CONDITIONS

- // Standby ratings apply to installations served by a reliable utility source. The standby rating is applicable to varying loads for the duration of a power outage. No overload capability for this rating. Ratings are in accordance with ISO 8528-1, ISO-3046-1, BS 5514, AS 2789, and DIN 6271.
- // Deration Factor:
  - Altitude:** Consult your local MTU Onsite Energy Distributor for altitude derations.
  - Temperature:** Consult your local MTU Onsite Energy Distributor for temperature derations.

Materials and specifications subject to change without notice.

C/F = Consult Factory/MTU Onsite Energy Distributor