

# DIESEL GENERATOR SET

## AIR CHARGE-AIR COOLING

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

(Reference DP450D5S-Fuel Optimized and DP450D5S-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         | DS500D5S      | DS500D5S      | DS500D5S      |
|-----------------|---------------|---------------|---------------|
| Voltage (L-L)   | 380V          | 400V          | 415V          |
| Phase           | 3             | 3             | 3             |
| PF              | 0.8           | 0.8           | 0.8           |
| Hz              | 50            | 50            | 50            |
| kW              | 400           | 400           | 400           |
| kVA             | 500           | 500           | 500           |
| AMPS            | 760           | 722           | 696           |
| skVA@30%        |               |               |               |
| Voltage Dip     | 860           | 1100          | 1200          |
| Generator Model | 572RSL7725    | 572RSL7725    | 572RSL7727    |
| Temp Rise       | 150 °C/40 °C  | 150 °C/40 °C  | 150 °C/40 °C  |
| Connection      | 4 LEAD HI WYE | 4 LEAD HI WYE | 4 LEAD HI 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
- // 10V1600 Diesel Engine
  - 17.5 Liter Displacement
  - Common Rail Fuel Injection
  - 4-Cycle
- // Engine-generator resilient mounted
- // 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                   | 10V1600G70F            |
| Type                    | 4-Cycle                |
| Arrangement             | 10-V                   |
| Displacement: L (Cu In) | 17.5 (1,068)           |
| Bore: cm (in)           | 12.2 (4.8)             |
| Stroke: cm (in)         | 15 (5.91)              |
| Compression Ratio       | 17.5:1                 |
| Rated RPM               | 1,500                  |
| Engine Governor         | Electronic Isochronous |
| Max Power: kWm (bhp)    | 448 (601)              |
| Speed Regulation        | ±0.25%                 |
| Air Cleaner             | Dry                    |

### // Liquid Capacity (Lubrication)

|                           |         |
|---------------------------|---------|
| Total Oil System: L (gal) | 61 (16) |
|---------------------------|---------|

### // Electrical

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

### // Fuel System

|                                  |                                    |
|----------------------------------|------------------------------------|
| Fuel Supply Connection Size (in) | M 20x1.5 Male/#10 JIC Female       |
| Fuel Return Connection Size (in) | 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)   | 340.7 (90)                         |

### // Fuel Consumption

|  |             |
|--|-------------|
|  | STANDBY     |
| At 100% of Power Rating: L/hr (gal/hr) | 99.9 (26.4) |
| At 75% of Power Rating: L/hr (gal/hr)  | 78 (20.6)   |
| At 50% of Power Rating: L/hr (gal/hr)  | 56.8 (15)   |

### // 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) | 0.2 (0.8)    |
| Water Pump Capacity: L/min (gpm)  | 390 (103)    |
| Heat Rejection to Coolant: kW (BTUM)  | 216 (12,283) |
| Heat Rejection to After Cooler: kW (BTUM)   | 60 (3,412)   |
| Heat Radiated to Ambient: kW (BTUM)   | 47.9 (2,724) |
| Engine Coolant Capacity: L (gal)  | 65 (17.2)    |
| Radiator Coolant Capacity: L (gal)  | 39 (10.3)    |
| Coolant to Cooler Temperature: °C (°F)  | 95 (203)     |

### // Air Requirements

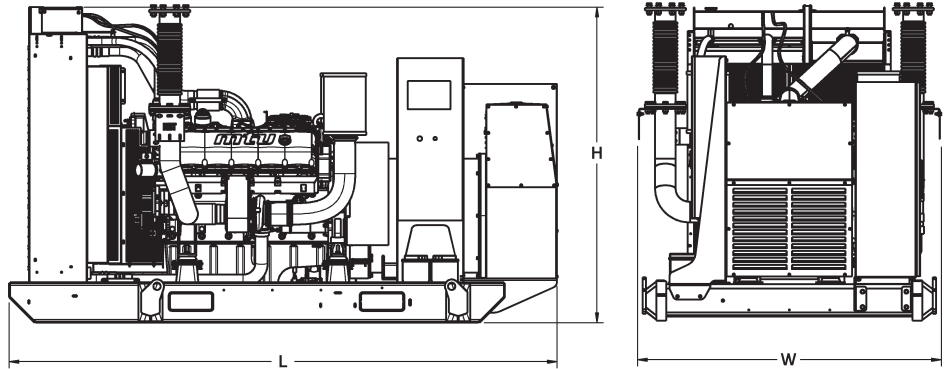
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|--|--------------|
|  | STANDBY      |
| Aspirating: *m <sup>3</sup> /min (SCFM)  | 27 (953)     |
| Air Flow Required for Rad.               |              |
| Cooled Unit: *m <sup>3</sup> /min (SCFM) | 654 (23,096) |

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

### // Exhaust System

|   |            |
|---|------------|
|   | STANDBY    |
| Gas Temp. (Stack): °C (°F)                | 520 (968)  |
| Gas Volume at Stack                       |            |
| Temp: m <sup>3</sup> /min (CFM)           | 75 (2,649) |
| 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 (L x W x H)                              | Weight (dry/less tank) |
|-----------------------|---|------------------------|
| Open Power Unit (OPU) | 3,842 x 1,858 x 1,969 mm (151.25 x 73.13 x 77.5 in) | 4,047 kg (8,922 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) | 88.3              |

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