

# DIESEL ENGINE-GENERATOR SET

## 20-JS6DT4

20 ekW / 60 Hz / Standby  
208 - 600V



### SYSTEM RATINGS

#### Standby

Voltage (L-L)	240V**	208V**	240V**	480V**	600V**
Phase	1	3	3	3	3
PF	1.0	0.8	0.8	0.8	0.8
Hz	60	60	60	60	60
kW	20	20	20	20	20
kVA	20	25	25	25	25
AMPS	83	69	60	30	24
skVA@30%					
Voltage Dip	35	52	52	75	123
Generator Model	283CSL1506	283CSL1506	283CSL1506	283CSL1506	284PSL1752
Temp Rise	130°C/27°C	130°C/27°C	130°C/27°C	130°C/27°C	125°C/40°C
Connection	12 LEAD ZIG-ZAG	12 LEAD LOW WYE	12 LEAD HI DELTA	12 LEAD HI WYE	4 LEAD WYE

\*\* UL2200 Offered

### FACTS

- // EPA Tier 4 Certified
- // Engine-Generator Set Tested to ISO 8528-5 for Transient Response
- // UL2200, CSA Listing Offered
- // Accepts Rated Load in One Step Per NFPA 110, Level 1
- // All engine-generator sets are prototype and factory tested
- // MTU Onsite Energy is a single source supplier
- // Global Product Support
- // 2 Year Standard Warranty
- // 4024TF281 Diesel Engine
  - 2.4 Liter Displacement
  - 4-Cycle
- // Complete Range of Accessories
- // Permanent Magnet Generator (PMG) - Optional
  - Brushless, Rotating Field
  - 300% Short Circuit Capability
  - 2/3 Pitch Windings
- // Digital Control Panel(s)
  - UL Recognized, cULus, NFPA 110
  - Complete System Metering
  - LCD Display
- // Cooling System
  - Integral Set-Mounted
  - Engine Driven Fan

## STANDARD EQUIPMENT


### // Engine

Air Cleaner  
 Oil Pump  
 Full Flow Oil Filter  
 Jacket Water Pump  
 Closed Crankcase Vent  
 Thermostats  
 Exhaust Manifold - Dry  
 Blower Fan & Fan Drive  
 Radiator - Unit Mounted  
 Electric Starting Motor - 12V  
 Governor - Electric Isochronous  
 Base - Formed Steel  
 SAE Flywheel & Bell Housing  
 Charging Alternator - 12V  
 Battery Box & Cables  
 Flexible Fuel Connectors  
 Flexible Exhaust Connection  
 EPA Certified Engine

### // Generator

NEMA MG1, IEEE and ANSI standards compliance for temperature rise and motor starting  
 Sustained short circuit current of up to 300% of the rated current for up to 10 seconds  
 Self-Ventilated and Drip-Proof  
 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  
 130°C Standby Temperature Rise  
 1 Bearing, Sealed  
 Flexible Coupling  
 Full Amortisseur Windings  
 125% Rotor Balancing  
 3-Phase Voltage Sensing  
 ±1% Voltage Regulation  
 100% of Rated Load - One Step  
 3% Maximum Harmonic Content

### // Digital Control Panel(s)

Digital Metering  
 Engine Parameters  
 Generator Protection Functions  
 Engine Protection  
 SAE J1939 Engine ECU Communications  
 Windows-Based Software  
 Multilingual Capability  
 Remote Communications to our RDP-110 Remote Annunciator  
 16 Programmable Contact Inputs  
 7 Contact Outputs  
 UL Recognized, us, CE Approved  
 Event Recording  
 IP 54 Front Panel Rating with Integrated Gasket  
 NFPA110 Level Compatible

### // Additional Features

Oil Drain Extension & S/O Valve  
 Flexible Fuel Connector  
 Battery Cables  
 Vibration Isolation Pads  
 Jacket Water Heater: -20° F  
 Mainline Circuit Breaker  
 UL2200 Listed  
 Steel Sub-Base  
 Radiator Duct Flange (OPU)  
 Lube Oil & Antifreeze  
 Operator's and Owner's Manual  
 2 Year/3000 Hour Warranty  
 Factory Tested at 0.8 PF (3 PH)

### // Optional Features

Battery Charger: 6 Amp or 10 Amp  
 Battery: 12 Volt w/ Rack  
 Circuit Breaker: Standard or 100%  
 Muffler (OPU only)  
 Sub-Base Fuel Tank w/ Electrical Stub-Up Area  
 Weatherproof Enclosure  
 Sound Attenuation  
 - 1 1/2" Foam  
 - Sound Scoops  
 Remote Annunciator  
 Isochronous Governor

## APPLICATION DATA

### // Engine

Manufacturer	John Deere
Model	4024TF281
Type	4-Cycle
Arrangement	4-Inline
Displacement: Cu In (lit)	149 (2.4)
Bore: in (cm)	3.4 (8.6)
Stroke: in (cm)	4.1 (10.5)
Compression Ratio	20.5:1
Rated RPM	1,800
Engine Governor	Electric Isochronous
Max Power: Standby: bhp (kWm)	49 (36)
Regulation	±1%
Frequency	60 Hz
Air Cleaner	Dry

### // Liquid Capacity (Lubrication)

Total Oil System: gal (lit)	2.1 (8)
Engine Jacket Water Capacity: gal (lit)	0.675 (2.6)
System Coolant Capacity: gal (lit)	2.29 (8.7)

### // Electrical

Electric Volts DC	12
Cold Cranking Amps Under 0°F (-17.8°C)	750

### // Fuel System

Fuel Supply Connection Size	3/8" NPT
Fuel Return Connection Size	3/8" NPT
Maximum Fuel Lift: ft (m)	10 (3)
Recommended Fuel	Diesel #2
Total Fuel Flow: gal/hr (lit/hr)	26.4 (100)

### // Fuel Consumption

At 100% of Power Rating: gal/hr (lit/hr)	1.9 (7.2)
At 75% of Power Rating: gal/hr (lit/hr)	1.4 (5.3)
At 50% of Power Rating: gal/hr (lit/hr)	1 (3.8)

### // Cooling - Radiator System

Ambient Capacity of Radiator: °F (°C)	122 (50)
Max. Restriction of Cooling Air, Intake, and Discharge Side of Rad.: in. H <sub>2</sub> O (kPa)	0.5 (0.12)
Water Pump Capacity: gpm (lit/min)	24 (91)
Heat Rejection to Coolant: BTUM (kW)	1,412 (25)
Heat Radiated to Ambient: BTUM (kW)	376 (7)

### // Air Requirements

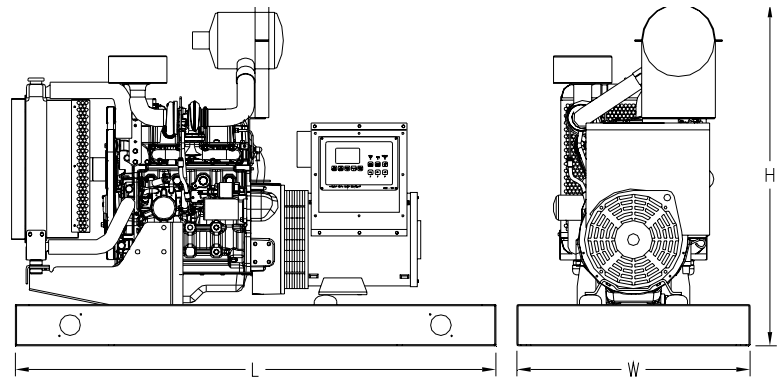
Aspirating: *SCFM (m <sup>3</sup> /min)	106 (3)
Air Flow Required for Rad.	
Cooled Unit: *SCFM (m <sup>3</sup> /min)	2,645 (75)
Air Flow Required for Heat Exchanger/Remote Rad. based on 25°F Rise: *SCFM (m <sup>3</sup> /min)	650 (18.4)

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

### // Exhaust System

Gas Temp. (Stack): °F (°C)	1,026 (552)
Gas Volume at Stack Temp: CFM (m <sup>3</sup> /min)	283 (8)
Maximum Allowable Back Pressure: in. H <sub>2</sub> O (kPa)	30 (7.5)

## WEIGHTS AND DIMENSIONS



Drawing above for illustration purposes only, based on standard open power 480 volt generator. Lengths may vary with other voltages. Do not use for installation design.

System	Dimensions (L x W x H)	Height w/Tank 24hr.	Weight (less tank)
OPU	70 x 34 x 52 in (1,780 x 860 x 1,320 mm)	76 in (1,930 mm)	1,684 lb (764 kg)
EPU	70 x 34 x 59 in (1,780 x 860 x 1,500 mm)	83 in (2,110 mm)	2,338 lb (1,060 kg)

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

## SOUND DATA

Unit Type	Standby Full Load	Standby No Load
OPU w/ Critical Grade Muffler (dBA)	83	74
Sound Attenuated Enclosure (dBA)	76	66

Measurements for sound data are taken at 23 ft (7 m).

## EMISSIONS DATA

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

### All units are in g/hp-hr and are EPA D2 cycle values.

Emission levels of the engine may vary as a function of ambient temperature, barometric pressure, humidity, fuel type and quality, installation parameters, measuring instrumentation, etc. The data provided are laboratory results from one engine representing this rating. The data was obtained under controlled environmental conditions with calibrated instrumentation traceable to the United States National Bureau of Standards and in compliance with US EPA regulations found within 40 CFR Part 89. The weighted cycle value from each engine is guaranteed to be below the US EPA Standards at the US EPA defined conditions.

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## RATING DEFINITIONS AND CONDITIONS

- // Ambient capability factor at 984 ft (300 m). Consult your local MTU Onsite Energy Power Generation Distributor for other altitudes.
- // 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-3046/1, BS 5514, AS 2789, and DIN 6271.
- // Deration Factor:
  - Altitude:** 0.5% per 1,000 ft (305 m) above 5,000 ft (1,524 m) and 4% per 1,000 ft (305 m) above 7,000 ft (2,286 m).
  - Temperature:** 0.5% per 10°F (5.5°C) above 77°F (25°C).

Materials and specifications subject to change without notice.