

## MTU – VGS2970 Open Type Generator

**3-Phase Rated  
Prime Power  
2,000 kW / 2,500 kVA**

### GENERATOR SET PERFORMANCE

#### Application

A factory designed generator set equipped with a standard AC/DC generator control panel. The generator set is ready to be connected to your fuel and power line to start up once the installation completed .

#### Applicable Definitions

Prime: Applicable for supplying emergency power at varying load in the event of normal utility power interruption. 10% overload is allowed.

#### Applicable Standard

Generator sets design, assembly and testing meet or exceed many international standards. The power rating is set in accordance with ISO 8528, ISO 3046-1 and SAEJ1995/J1349.

#### Structure Outline

The generator set has selected materials and equipment of the highest quality performance, which are durable and anti-vibration. The assembly work meets the highest quality standards. This concept of the design and manufacturing is for easy operation and maintenance, to be compact, light weight too.

The single bearing alternator frame is coupled to the engine housing directly. With one end of the rotor supported by the main bearing, and the other connected to the engine flywheel with steel laminate plates, rugged durability is achieved.

All components and necessary equipment are mounted on a common skid base.

#### Rubber Isolator Mounting

The rubber isolators are mounted between the engine, alternator and its common skid base.

#### Applicable Conditions

Installation Place	: Indoor
Ambient Temperature	: 0-40°C
Ambient Humidity	: Below 99%
Altitude	: Max 1,000 m

#### Painting Color

Engine	: MTU Blue
Alternator	: Blue / Black
Generator Control Panel	: Black
Skid Base	: Black

#### Dimensions and Weight (PPU Generator Set)

Overall Length	: 6,544 mm
Overall Width	: 2,220 mm
Overall Height	: 2,507 mm
Weight	: Approx. 14,700kg

#### Control System

Panel Model	: V500-G
Controller Model	: IG-NT
Controller Brand	: ComAp
Mounted	: Set Mounted

\* Materials and specifications are subjected to change without prior notice.

## MTU - VGS2970 Open Type Generator

### 60Hz Generator Set TECHNICAL DATA

<b>ENGINE BODY</b>	Maker and Model Rating Type Engine Output Engine Load Acceptance	MTU 16V4000G83 Prime 3,056HP 2,280 kWm 1,512 kWe (70%)
	Aspiration Cylinder Arrangement Type Bore x Stroke Piston Displacement Starting Method Charging Alternator Cooling Fan and Diameter Oil Cooler Air Cleaner Stop Solenoid Flywheel Housing / Flywheel , Flywheel, Ring Gear Teeth Battery (Lead Acid Type) Frequency Regulation, Steady State Frequency Regulation, Transient State Frequency Stable Time Frequency Waving Frequency Regulation Range	Turbocharged and Water Charge Air Cooling 16 Vee Water Cooled, 4 Cycles, Overhead Valve 170mm x 210mm 76.3 Liters Electric Motor, 24V – 9.0kW x 2 DC 24V – 35A (Brushless) 8 Blades Pusher Type, 1891mm Water Cooled, Multi-plate Type Dry Type, Single Stage Paper Element Energized to Run Mode SAE #00 / SAE #21 (Metric Tread) 182 DC 1 2V – 200Ah x 4 $\leq \pm 0.5\%$ $\leq \pm 10\%$ 2 sec $\leq \pm 0.25\%$ $\pm 5.0\%$
<b>ENGINE LUBRICANT</b>	Oil Pan (High / Low Level) Oil Filter /By-pass Filter System Total Grade	240 / 210 liters 60 liters 300 liters SAE # 15W-40 API, Class CH, CI
<b>ENGINE COOLANT</b>	Radiator and Ambient Temp. Engine Capacity Radiator Capacity Radiator Heat Rejection	Corrugated Fin Type, 40°C Forced Circulation by Centrifugal Water Pump 225 liters 330 liters 1,400kW
<b>ENGINE DATA</b>	Mean Effective Pressure (MEP) Mean Piston Speed and Level (Average at 1m) Full Load Speed Regulation Thermostat (Wax Type) Water Coolant Engine Shutdown Device Coolant Temp (Sensor Type) Oil Pressure (Sensor Type)	19.9 bar 12.6 m/s 106dBA (Engine Surface) 113dBA (Exhaust) Electronically controlled injection; Common Rail System Cracking 79C, Fully Open 87C 102 +3% (1.0 +3% bar)
<b>FUEL CONSUMPTION</b>		
	BSFC (at 100% Load) Lubricating Oil (Nom.) Fuel Rate	202 g/kWh 0.3 % 543 liter/hr

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# POWER FACTOR

## MTU - VGS2970 Open Type Generator

### 60Hz Generator Set

### TECHNICAL DATA

Model	PI734F1
Construction	Single Bearing, Self Ventilated
Control System	MX321 AVR with PMG Excited
Insulation / Temperature Rise	Class H
Protection	IP23
Rated Power Factor	0.8
Efficiency (Cont. 100%)	96.5
No of Pole and Phase	4 Poles 3 Phase 4 Wire
Stator Winding	Double Layer lab
Winding Pitch	2/3
Winding Leads	6
Voltage Regulation, Steady State	$\leq \pm 0.5$
Voltage Regulation, Transient State	+20 - -15v
Voltage Stable Time	$\leq 0.5\%$
Voltage Waving	$\leq \pm 0.5\%$
Voltage Regulation (at No Load)	95 - 105%
Voltage Waveform Distortion	< 1.5%
No Load	< 5.0%
Non-Distorted Balanced Linear Load	2250kVA
Maximum Overspeed	
Telephone Interference	THF<2 / TIF<50
Voltage Dip. at 15%	2750kVA
Voltage Dip. at 20%	3850kVA
Combustion Air Flow	186.0 m <sup>3</sup> /min
Cooling Fan Air Flow	1,920 m <sup>3</sup> /min
Alternator Air Flow	207.0 m <sup>3</sup> /min
Total	2,313.0 m <sup>3</sup> /min
Gas Flow (at Full Load)	456 m <sup>3</sup> /min
Temperature (at T/C Outlet)	465 C
Allowable Back Pressure	85 mbar
Bellow Size (Inner Diameter)	250 x 2mm
Diesel Fuel (Grade)	ASTM D975, 1-D or 2-
Pipe Size of Fuel Line	1.5
Supply / Return (Minimum)	1.0 In.
Gen Set Controller	ComAp IG-NT
Analog Measurement	Coolant Temperature Engine Oil Pressure Engine Speed Battery Voltage Hour Run Fuel Level (Optional) Gen U1 – U3 Gen I1 – I3 Gen Frequency Gen Active Power Gen Reactive Power Gen Power Consumption Mains U1 – U3 Mains Frequency Mains Voltage (L1-L2, L2-L3, L3-L1)
AC Measurement	

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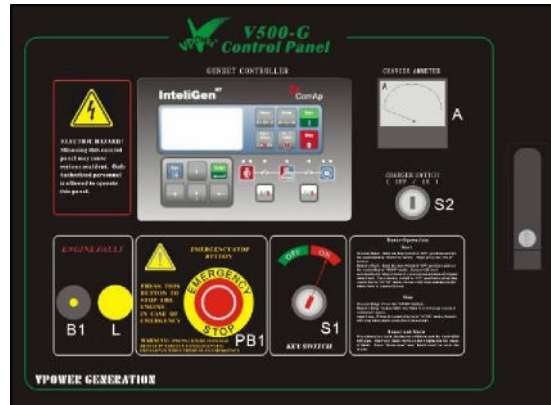
## MTU - VGS2970 Open Type Generator

### V500-G GEN SET CONTROL SYSTEM

VPOWER V500-G SYN. Control System is a comprehensive control system for both single and multiple Gensets operation in standby or parallel modes. It is equipped with ComAp IG-NT module, which supports ECU type and Actuator type engine controller. Native cooperation of up to 32 Gensets.

#### General Features:

- Set Mount or Free Standing Configuration
- Indicator and Buzzer for common alarm
- Key Switch
- Emergency Stop Button
- LCD graphical Display
- AMF Ready
- Integrated fixed and configurable protections
- Automatic synchronization and flow control
- Expandable I/O's
- Programmable Logic Control
- RS232/RS485 Communication Port



#### Synchronization:

- Fully automatic synchronization and power control
- Support speed governor and ECU
- Baseload, Import/Export control
- Peak shaving
- Voltage and PF control

#### Measurement:

- Generator: U, I, Hz, kW, kVAr, kVA, PF, kWh, kVAhr
- Mains: U, I, Hz, kW, kVAr, PF

#### Protection:

- 3P integrated genset protection (U+f)
- IDMT O/L and Short Circuit Protection
- Overload Protection
- Reverse Power Protection
- E/F Protection
- 3P integrated mains protections (U+f)
- Vector Shift Protection
- Configurable I/O setpoints

#### Display:

- LCD graphical display with HMI
- LEC indicators for operation status
- Optional remote display

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