POWER FACTOR

Energy Solutions for a brighter future...

MTU – VGS2970 Containerized 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.

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50Hz Generator Set

TECHNICAL DATA

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

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50Hz 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	≤±0.5
Voltage Regulation, Transient State	+20 ~ -I5v
Voltage Stable Time	≤0.5%
Voltage Waving	≤±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^3/min
Cooling Fan Air Flow	1,920 m^3/min
Alternator Air Flow	207.0 m^3/min
Total	2,313.0 m^3/min
Gas Flow (at Full Load)	456 m^3/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
AC Measurement	Gen Frequency Gen Active Power Gen Reactive Power Gen Power Consumption Mains U1 – U3 Mains Frequency Mains Voltage (L1-L2, L2-L3, L3-L1)

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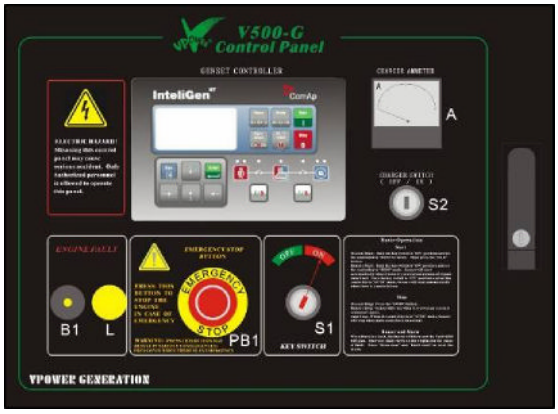
V500–G GEN SET CONTROL SYSTEM

VPOWER V500-G SYN. Control System is a comprehensive control system for both single and multiple Gensets operation in standby or parallel modes.It has 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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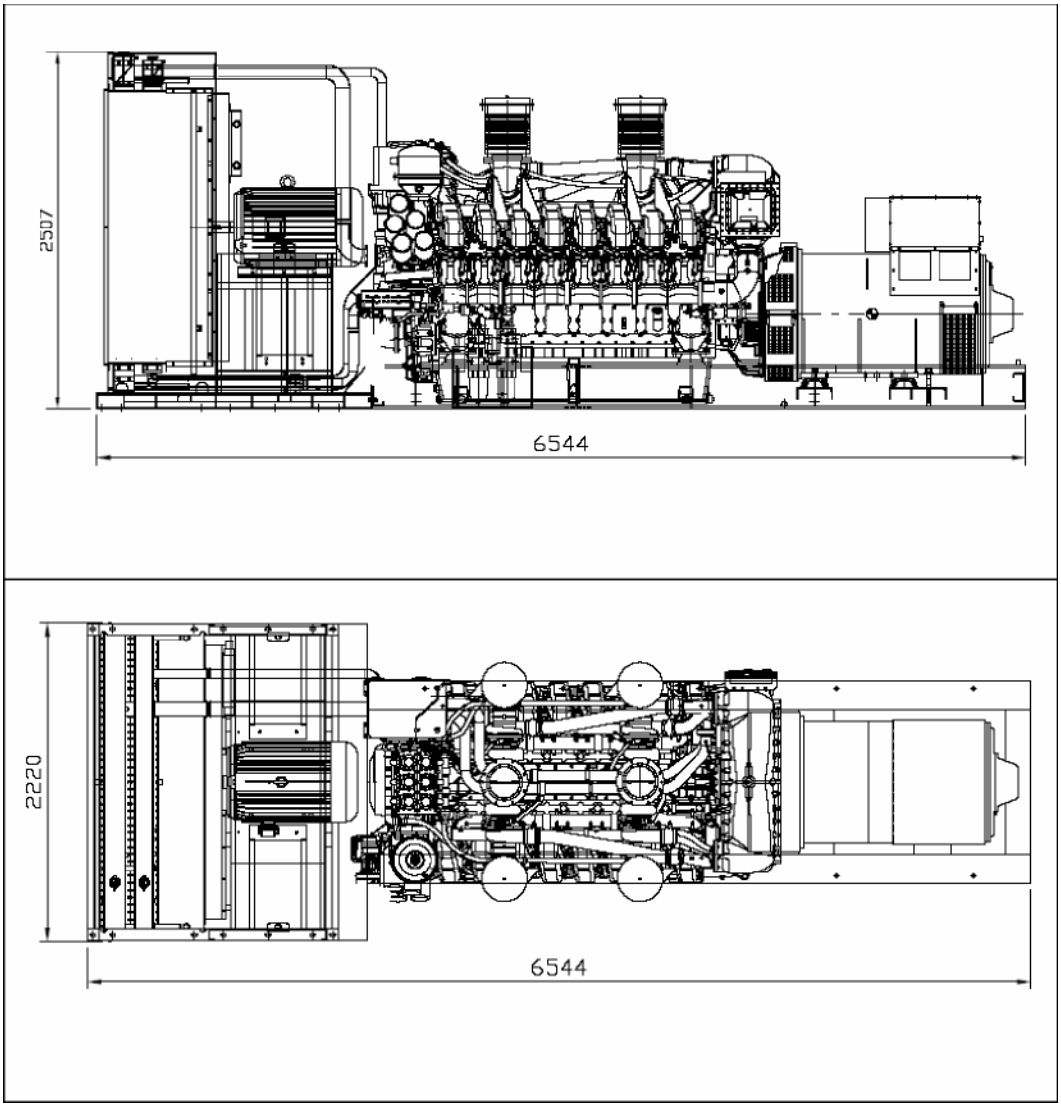

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