

MP | 20 | -L | 16 KW INDUSTRIAL DIESEL GENERATOR SET

Prime Power Rating*

20 kVA | 16 KW | 50 Hz

Standby Power Rating

22 kVA | 18 KW | 50 Hz

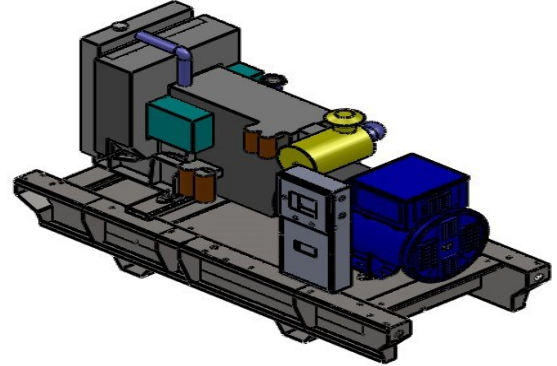
Prime Power Rating*

NA kVA | NA KW | 60 Hz

Standby Power Rating

NA kVA | NA KW | 60 Hz

Voltage is 230/400 V, @ 0.8 pf for all ratings



Codes and Standards

METS Energy products are designed to the following standards:



ISO 3046, 7637, 8528, 9001

Electrical Generating Systems
Association

Powering Ahead

Since 1987, METS Energy specialized in the manufacturing, sales and rental of power generating sets, has been generating and providing power solutions to partnering clients in more than forty countries in the construction, industrial, residential and telecom sectors.

METS Energy is also a provider of Sound Proof Canopies, Electrical Panels, Synchronizing Systems, and Spare Parts.

METS Energy has differentiated itself from the various players in the industry with lasting and mutually beneficial relationships built on trust, service, and care with both suppliers and clients.

METS Energy will continue to conduct its business and extend its market boundaries with the highest standards of quality, ethics, and integrity to let customer proud, secure, and satisfied by providing dynamic products and services that meet customer needs.

*Prime power:

Variable load. Unlimited hours usage with an average load factor of 80% of the published prime power over 24 hours period. A 10% overload is available for 1 hour in every 12 hours operation

Baseload power:

Unlimited hours usage with an average load factor of 100% of the published Baseload rating. A 10% overload is available for 1 hour in every 12 hours of operation.

Standby power:

The power limited to 500 hours annual usage with an average load factor of 80% of the published standby power rating over each 24-hour period. Up to 300 hours of annual usage may be run continuously. No overload is permitted on standby power.

Due to continuous product development, we reserve the right to change specifications at any time without prior notice.

STANDARD FEATURES

ENGINE SYSTEM

- Oil Drain Extension
- Air Cleaner
- Fan Guard
- Stainless Steel Flexible Connection
- Factory Filled Oil
- Exhaust Silencer (SPC)
- Industrial Exhaust Silencer (Open Set)

ALTERNATOR SYSTEM (A/C)

- Class H Insulation Material
- Vented Rotor
- 2/3 Pitch
- Skewed Stator
- Auxiliary Voltage Regulator Power
- Sealed Bearing
- Rotor Dynamically Spin Balance
- Amortisseur Winding
- Full Load Capacity Alternator

GENERATOR SET & ENCLOSURE (if selected)

- Insulated Exhaust Piping
- Internal Genset Vibration Isolation
- Separation of Circuits - High/Low Voltage
- Main Line Circuit Breaker
- Battery Cables and tray
- Rust-Proof with Nylon Washers
- Sound-Absorbing Material (L1 & L2)
- Gasketed Doors
- Stainless Steel Lift Off Door Hinges (For SM)
- Stainless Steel Lockable Handles (For SM)

TANK & FUEL SYSTEM

- Flexible Fuel Lines
- Primary Fuel Filter
- Air Outlets Vent
- Drain Valves
- Protected Level Gauge
- Primary paint protection against corrosion

COOLING SYSTEM

- Factory-Installed Radiator
- Factory Antifreeze filling
- Closed Coolant Recovery System
- Radiator Drain Extension
- Antifreeze Ready Mix -25°C

CONTROL SYSTEM

- 21-Light Remote Annunciator
- Remote Relay Panel (8 or 16)
- 10A Run Relay
- Remote Emergency Stop (Surface Mount)
- Remote Communication-Modem/Ethernet
- Oil Temperature Sender & Indication Alarm

ENGINEERED OPTIONS

ENGINE SYSTEM

- Oil Make-Up System
- Oil Heater
- Coolant Heater Ball Valves
- Industrial Exhaust Silencer (Open Set)
- Jacket Water Heater
- Fuel Water Separator

ALTERNATOR SYSTEM

- Alternator Upsizing
- Tropical Coating
- Anti Condensation Heater

CONTROL SYSTEM

- Battery Disconnect Switch
- Spare Inputs (x4)/Outputs (x4) - H

ELECTRICAL SYSTEM

- Battery Charging A/C Alternator
- Rubber Engine Electrical Connections
- Solenoid Activated Starter Motor
- 10A UL Battery Charger
- 2.5A Battery Charger
- Battery Warmer

TANKS

- Horizontal Cylindrical or Cubical type
- Single/Double Wall Fuel Tanks
- Ground Support Base Frame
- Electric Fuel Level
- Mechanical Fuel Level
- Extended vent system

CIRCUIT BREAKER OPTIONS

- Shunt Trip and Auxiliary Contact
- Electronic Trip Breakers

ENCLOSURE

- SSW- Super Silent Welded
- SW- Silent Welded
- SM- Silent Modular
- Sand Proof Enclosure
- Weather Proof

GENERATOR SET

- METS Remote Monitoring Software
- Extended Factory Testing
- Vibration Test
- Warranty and Maintenance Program
- Special Testing

FEATURES

- Motorized Dampers
- Door Switch for Intrusion Alarm
- Enclosure Ambient Heaters

CONTROL SYSTEM

Type	
Deep Sea	
6110 MKIII	
	
1. Indications • Operating Hours • 3 Phase Generator Voltage Sensing & Monitoring • Current Protection & Monitoring • Power Measurement (kW, kVA, kVAR, kWh, kVAh, kVAh, pf) • Frequency Monitoring (Hz) • Oil Pressure • Coolant Temperature/Fuel Level • Battery Voltage Monitoring • Alarm Acknowledge • All Phase AC Voltage-current • Date/Time Fault History (Event Log) • Alarm Information Automatically Comes Up On the Display	2. Warning & Shutdown Alarms • Generator Over/Under Voltage & Frequency • Crank Disconnect (Failure to Start) • Under/Over Speed • Over Current • Low oil pressure • High Water Temperature • Low Fuel Level • Low Water Level • Engine Speed (Pre-Programmed Over Speed Shut- down) • Battery Voltage Warning • Alarms & Warnings Time and Date • Alarms & Warnings for Transient and Steady State Conditions
4. Control • Auto/Start/Stop Control • Emergency Stop Pushbutton/Alarm Acknowledge • Engine Cool Down Timer • Warm-up Timer • Load Switching Timer • Engine Cycle Crank • USB connectivity and fully configurable via PC software	3.Features • 132 x 64 pixel LCD display • Configurable display languages • Five-key menu navigation • Durable soft touch membrane buttons • Easy access diagnostic page • Waterproof/Sealed Connectors • Audible Alarms and Shutdowns • Auto/Off/Manual Switch • Set maintenance periods can be configured

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INDUSTRIAL DIESEL GENERATOR SET



APPLICATION AND ENGINEERING DATA

GENERAL

Manufacturer	Perkins
Engine Model	404A-22G1
Cylinder # / Type	4 In-Line
Displacement - L	2.216
Bore - mm (in)	84 3.31
Stroke - mm (in)	100 4
Compression Ratio	23.3:1
Aspiration	Naturally

ELECTRICAL SYSTEM

System Voltage (V)	12 V
Ground Polarity	Negative
Battery Size & Qty	1*55Ah
Battery Voltage (V)	12 V
Battery Charger Alternator	Std

ENGINE

		Prime-50 Hz	Prime-60 Hz
Engine Speed	rpm	1500	1800
Horsepower	hp	21.5	NA
Piston Speed	m/s	5.0	6.0
Exhaust Flow	m3/min	3.64	NA
Combustion Air	m3/min	1.45	NA

FUEL SYSTEM

Fuel Type	Diesel
Fuel Specifications	ASTM
Fuel Filtering	5 (microns)
Total Fuel Pump Flow (l/hr)	63

FUEL CONSUMPTION

Percent Load	Prime- 50Hz		Prime- 60Hz	
	L/h	g/kwh	L/h	g/kwh
100%	5.3	237	NA	NA
75%	4	238	NA	NA
50%	2.9	259	NA	NA

Technical data operating on a fuel with density of 0.89 Kg/Liter

Oil Pump Type	Gear
Oil pan Capacity (L)	10.6
Recommended Lube Oil	15W40 API CH4/ CI4
Maximum Lube Oil Temperature-°C	110

COOLING SYSTEM

		Prime- 50Hz	Prime- 60Hz
Coolant Flow	(l/min)	40.3	NA
Heat Rejection to Coolant	(KW)	17.0	NA
Inlet Air	(m3/sec)	0.7	NA
Cooling System Type	Closed Recovery		
Max. Operating Radiator Air Temp	(°C)	55.0	
Coolant Capacity	(l)	7.0	

Backpressure (kpa)	10.2
Exhaust Gas Temp°C	445
Exhaust Outlet Size (in)	2
Governor	Mechanical

ALTERNATOR SPECIFICATIONS

Manufacturer	TAL	Standard Excitation	Brushless with auxiliary coil
Alternator Model	TAL040F	Bearings	Single Sealed Cartridge
Poles	4	Coupling	Direct, Flexible Disc
Insulation Class - Rotor	H	Voltage Regulator	Analog/ Digital
Protection	IP 23	Harmonic Distortion	<5% Telephone Interference Factor

PRIME POWER RATINGS (3 phase 240/300 volt-0.8 pf)

	Prime-50 Hz
Three-Phase 230/400 VAC @0.8pf	16 KW
	Prime-60 Hz
Three-Phase 230/400 VAC @0.8pf	NA KW

For single phase ratings, please refer to Engineering team.

Due to continuous product development, we reserve the right to change specifications at any time without prior notice.

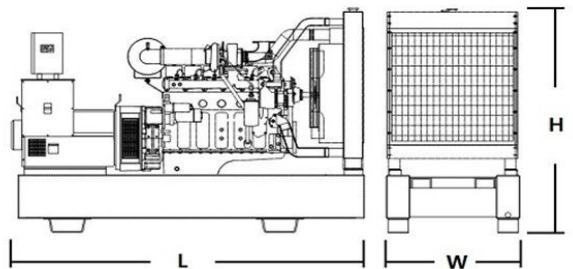
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DIMENSIONS AND WEIGHTS*

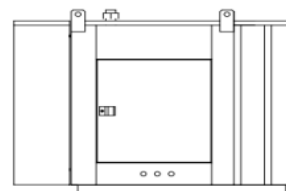
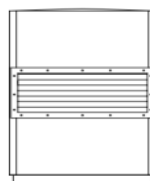
OPEN SET

L x W x H				Weight	
1420	650	1140	mm	427	Kg
55.9	25.6	44.9	in	941.4	lbs



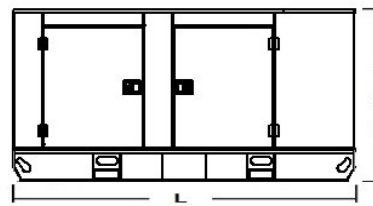
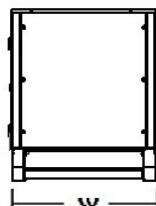
MP| 20| -L /SSW 65 db(A) @ 1m

L x W x H				Weight	
2000	1050	1600	mm	992	Kg
78.7	41.3	63.0	in	2187.0	lbs



MP| 20| -L /SM 70 db(A) @ 1m

L x W x H				Weight	
2000	780	1320	mm	667	Kg
78.7	30.7	52.0	in	1470.5	lbs



* All measurements are approximate and for estimation purposes only.

Sound level is measured in db(A) at open space and full load.

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