GENERATOR SET MODEL (EM-30)

GENERATOR SET MODEL (HM-30)

Technical Data Sheet





### 240-415 V, 3 ph, 50 Hz, 1500 rpm ### 30 KVA (24 KW) ### 33 KVA (26.4 KW) ### ENGINE / TECHNICAL DATA Engine Make	OUTPUT RATINGS		PRIME	STANDBY				
Engine Make Engine Model 1103A-33G Governing Type Mechanical Number of Cylinders 3 Cylinder Arrangement Bore and Stroke Displacement / Cubic Capacity Induction System Cycle Combustion System Compression Ratio Cooling System Frequency and Engine Speed Frequency and Engine Speed Fred Consumption © 50% load © 75% load © 100% load Total Lubrication System Capacity Total Cooling Air Flow Endiator Combustion System Turbocharged, air to air aftercooled Indirect Injection	240-415 V, 3 ph, 50 Hz, <mark>150</mark> 0 rpm		30 KVA (24 KW)	33 KVA (26.4 KW)				
Engine Model 1103A-33G Governing Type Mechanical Number of Cylinders 3 Cylinder Arrangement Vertical in line Bore and Stroke 105 mm x 127 mm Displacement / Cubic Capacity 3.3 L Induction System Turbocharged, air to air aftercooled Cycle 4 stroke Combustion System Indirect Injection Compression Ratio 19.25:1 L Rotation Anti-clockwise, viewed on flywheel Cooling System Water - cooled Frequency and Engine Speed 50 Hz & 1500 rpm PRIME STANDBY Gross Engine Power 28.2 kW37.8 hp) 31.0kW (41.6hp) Fuel Consumption © 50% load 3.9 L/hr - © 15.4 L/hr - © 15.4 L/hr - Total Lubrication System Capacity 7.9 L 7.9 L Total Coolant Capacity (Inc. radiator) 10.2 L 10.2 L Exhaust Temperature 500°C 520°C Radiator Cooling Air Flow (Min) 0.88 m³/s 0.88 m³/s Combustion Air Flow 5.7 m³/min 5.8 m³/min	ENGINE / TECHNICAL DATA							
Governing Type Number of Cylinders Cylinder Arrangement Bore and Stroke Displacement / Cubic Capacity Induction System Cycle Combustion System Compression Ratio Cooling System Frequency and Engine Speed Frequency and Engine Speed Freductions System Gross Engine Power Fuel Consumption © 50% load	Engine Make		Perkins					
Number of Cylinders Cylinder Arrangement Bore and Stroke Displacement / Cubic Capacity Induction System Cycle Combustion System Compression Ratio Tourbocharged, air to air aftercooled Anti-clockwise, viewed on flywheel Cooling System Frequency and Engine Speed Gross Engine Power Fuel Consumption © 50% load ② 150% load ③ 150% load ③ 150% load ⑤ 150% load ⑤ 150% load ⑥ 150% lo	Engine Model		1103A	1103A-33G				
Cylinder Arrangement Bore and Stroke Displacement / Cubic Capacity Induction System Cycle Combustion System Compression Ratio Cooling System Frequency and Engine Speed Frequency and Engine Speed Fuel Consumption @ 50% load @ 100% load Total Lubrication System Capacity Total Coolant Capacity (Inc. radiator) Exhaust Gas Flow Possion Ratio Purious Anti-clockwise, viewed on flywheel Standby Standby Roross Engine Power Standby S	Governing Type		Mecho	Mechanical				
Bore and Stroke Displacement / Cubic Capacity Induction System Cycle Combustion System Compression Ratio Cooling System Frequency and Engine Speed Gross Engine Power Fuel Consumption © 50% load ② 150% load ③ 100% load Total Lubrication System Capacity Total Coolant Capacity (Inc. radiator) Exhaust Gas Flow Displacement / Cubic Capacity Turbocharged, air to air aftercooled Indirect Injection Anti-clockwise, viewed on flywheel Anti-clockwise, viewed on flywheel STANDBY PRIME STANDBY STANDBY 28.2 kW37.8 hp) 31.0kW (41.6hp) 3.9 L/hr - 5.4 L/hr - 7.1 L/hr 7.9 L/hr. Total Lubrication System Capacity 7.9 L 7.	Number of Cylind	ers	3	3				
Displacement / Cubic Capacity Induction System Cycle Cycle Combustion System Compression Ratio Rotation Cooling System Frequency and Engine Speed Gross Engine Power Fuel Consumption @ 50% load	Cylinder Arrangei	ment	Vertical in line					
Induction System Cycle Combustion System Compression Ratio Rotation Cooling System Frequency and Engine Speed Gross Engine Power Fuel Consumption @ 50% load	Bore and Stroke		105 mm x 127 mm					
Cycle Combustion System Indirect Injection Compression Ratio 19.25 : 1 L Rotation Anti-clockwise, viewed on flywheel Cooling System Water - cooled Frequency and Engine Speed Frequency and Engine Speed PRIME STANDBY Gross Engine Power 28.2 kW37.8 hp) 31.0kW (41.6hp) Fuel Consumption @ 50% load 3.9 L/hr - @ 75% load @ 100% load 7.1 L/hr 7.9 L/hr. Total Lubrication System Capacity 7.9 L 7.9 L Total Coolant Capacity (Inc. radiator) 10.2 L 10.2 L Exhaust Temperature 500°C 520°C Radiator Cooling Air Flow (Min) 0.88 m³/s Combustion Air Flow 2.16 m³/min 5.8 m³/min	Displacement / C	Cubic Capacity	3.3 L					
Combustion System Compression Ratio Rotation Rotation Cooling System Frequency and Engine Speed Frequency and	Induction System		Turbocharged, air to air aftercooled					
Compression Ratio Rotation Anti-clockwise, viewed on flywheel Cooling System Water - cooled Frequency and Engine Speed Frequency and Engine Speed PRIME STANDBY Gross Engine Power 28.2 kW37.8 hp) Fuel Consumption @ 50% load 3.9 L/hr - @ 75% load 3.9 L/hr - @ 100% load 7.1 L/hr Total Lubrication System Capacity Total Coolant Capacity (Inc. radiator) Exhaust Temperature 500°C Radiator Cooling Air Flow (Min) 0.88 m³/s Combustion Air Flow 5.7 m³/min 5.8 m³/min	Cycle		4 stroke					
Rotation Cooling System Frequency and Engine Speed PRIME STANDBY Gross Engine Power Fuel Consumption @ 50% load @ 75% load @ 100% load Fotal Lubrication System Capacity Total Coolant Capacity (Inc. radiator) Exhaust Temperature Fuel Consumption (Min) Fuel Consumption (Min	Combustion System		Indirect Injection					
Cooling System Frequency and Engine Speed Frequency and Engine Frequen	Compression Ratio		19.25 : 1 L					
Frequency and Engine Speed PRIME STANDBY Gross Engine Power 28.2 kW37.8 hp) 31.0kW (41.6hp) Fuel Consumption © 50% load 3.9 L/hr 075% load 5.4 L/hr 7.1 L/hr 7.9 L/hr. Total Lubrication System Capacity Total Coolant Capacity (Inc. radiator) Exhaust Temperature 500°C Radiator Cooling Air Flow (Min) 0.88 m³/s Combustion Air Flow 5.7 m³/min 5.8 m³/min	Rotation		Anti-clockwise, viewed on flywheel					
PRIME STANDBY Gross Engine Power 28.2 kW37.8 hp) 31.0kW (41.6hp) Fuel Consumption © 50% load 3.9 L/hr -	Cooling System		Water - cooled					
Gross Engine Power Fuel Consumption @ 50% load @ 75% load @ 100% load Total Lubrication System Capacity Total Coolant Capacity (Inc. radiator) Exhaust Temperature Fadiator Cooling Air Flow (Min) Combustion Air Flow Exhaust Gas Flow 28.2 kW37.8 hp) 31.0kW (41.6hp) 3.9 L/hr 7.9 L/hr. 7.9 L 7.9 L 10.2 L 10.2 L 500°C 520°C 0.88 m³/s 0.88 m³/s 2.15 m³/min 5.8 m³/min	Frequency and Engine Speed		50 Hz & 1500 rpm					
Fuel Consumption @ 50% load @ 75% load			PRIME	STANDBY				
 @ 75% load @ 100% load 7.1 L/hr Total Lubrication System Capacity Total Coolant Capacity (Inc. radiator) Exhaust Temperature Radiator Cooling Air Flow (Min) Combustion Air Flow Exhaust Gas Flow 5.4 L/hr 7.9 L 7.9 L 10.2 L 10.2 L 500°C 520°C 0.88 m³/s 0.88 m³/s 2.15 m³/min 5.8 m³/min 	Gross Engine Pow	er	28.2 kW37.8 hp)	31.0kW (41.6hp)				
 @ 100% load 7.1 L/hr 7.9 L/hr. Total Lubrication System Capacity 7.9 L 7.9 L 7.9 L 10.2 L 10.2 L Exhaust Temperature 500°C 520°C Radiator Cooling Air Flow (Min) 0.88 m³/s 0.88 m³/s Combustion Air Flow 2.16 m³/min 2.15 m³/min Exhaust Gas Flow 5.7 m³/min 5.8 m³/min 	Fuel Consumption @ 50% load		3.9 L/hr	-				
Total Lubrication System Capacity 7.9 L 7.9 L 7.9 L Total Coolant Capacity (Inc. radiator) 10.2 L Exhaust Temperature 500°C Radiator Cooling Air Flow (Min) 0.88 m³/s Combustion Air Flow 2.16 m³/min Exhaust Gas Flow 5.7 m³/min 5.8 m³/min		@ 75% load		-				
Total Coolant Capacity (Inc. radiator)10.2 L10.2 LExhaust Temperature500°C520°CRadiator Cooling Air Flow (Min)0.88 m³/s0.88 m³/sCombustion Air Flow2.16 m³/min2.15 m³/minExhaust Gas Flow5.7 m³/min5.8 m³/min		@ 100% load	7.1 L/hr	7.9 L/hr.				
Exhaust Temperature500°C520°CRadiator Cooling Air Flow (Min)0.88 m³/s0.88 m³/sCombustion Air Flow2.16 m³/min2.15 m³/minExhaust Gas Flow5.7 m³/min5.8 m³/min	Total Lubrication System Capacity		7.9 L	7.9 L				
Radiator Cooling Air Flow (Min) 0.88 m³/s 0.88 m³/s Combustion Air Flow 2.16 m³/min Exhaust Gas Flow 5.7 m³/min 5.8 m³/min	Total Coolant Capacity (Inc. radiator)		10.2 L	10.2 L				
Combustion Air Flow 2.16 m³/min 2.15 m³/min Exhaust Gas Flow 5.7 m³/min 5.8 m³/min	Exhaust Temperature		500°C	520°C				
Exhaust Gas Flow 5.7 m³/min 5.8 m³/min	Radiator Cooling Air Flow (Min)		$0.88 \text{ m}^3/\text{s}$	$0.88 \text{ m}^3/\text{s}$				
	Combustion Air Flow		2.16 m ³ /min	2.15 m ³ /min				
Fuel Tank Capacity 103 L 103 L	Exhaust Gas Flow		$5.7 \text{m}^3/\text{min}$	5.8 m ³ /min				
	Fuel Tank Capacity		103 L	103 L				

ALTERNATOR DATA					
Make	Leroy Somer				
Model	TAL 042				
No. of bearings	1				
Insulation class	Н				
Total Harmonic Content	Not on load <3%				
Wires	12				
Ingress Protection	IP23				
Excitation System	Self Excited				
Winding Pitch	2/3 (wdg 6)				
AVR Model	R120				
Overspeed	2250 mn-1				
Voltage Regulation (steady)	±0.5%				
Short Circuit Capacity	-				

GENERAL SPECIFICATIONS

1. ENGINE

Perkins four stroke heavy duty high performance industrial type diesel engine.

2. COOLING RADIATOR

Radiator and cooling fan, complete with safety guards, designed to cool the engine at high ambient temperatures. (Consult your dealer for deration factors)

3. EXHAUST SYSTEM

Heavy duty Industrial Exhaust Silence.

Silencer noise reduction level	16 (dB)
Maximum allowable back pressure	8.0 (kPa)

4. CIRCUIT BREAKER TYPE

3 pole ACB/MCCB. (Supplied disconnected and without cables)

5. FUEL SYSTEM

The base frame design can be incorporated with an integral fuel tank with a capacity of approx. 8 hours running at Full Load. The tank is supplied complete with fill cap breather, fuel feed and return lines to the Engine and drain plug.

6. ALTERNATOR

INSULATION SYSTEM

- The insulation system is Class H.
- All windings are impregnated in either a triple dip thermosetting liquid, oil and acid resisting polyester varnish or vacuum pressure impregnated with a special polyester resin.
- · Heavy coat of antitracking varnish additional protection against moisture or condensation.

AUTOMATIC VOLTAGE REGULATOR

The fully sealed Automatic Voltage Regulator maintains the Voltage Regulation at ±1%. Nominal adjustment by means of a trim pot incorpoated on the AVR.

(cont.)

Technical Data Sheet



CONTROL PANEL

Make **DEEP SEA** Model DSE4530

The DSE4530 is an Auto Start Control Module for single genset applications. It includes a backlit LCD display which clearly shows the status of the engine all the times. This module can either be programmed using the front panel or by using the DSE configuration suite PC software.

METERING AND ALARM INDICATIONS:

- Generator frequency
- Underspeed, Overspeed
- · Generator volts (L-L, L-N)
- Generator current
- · Loss of magnetic pick-up signal Optional
- Fuel level (Warning or shutdown) Optional
- Failed to reach loading voltage/frequency
- CAN diagnostics and CAN fail/error

- Engine oil pressure
- · Engine coolant temperature
- Battery volts
- Fail to start/stop
- Emergency stop
- Charge fail
- Low DC voltage
- Hours run counter

DIMENSIONS AN	DIMENSIONS AND WEIGHT						
	Length	Width	Height	Weight			
Closed Type	2322 mm	922 mm	1260 mm	110 kg			
Open Type	170 <mark>0 m</mark> m	700 mm	134 <mark>5 m</mark> m	700 kg			

RATINGS DEFINITION

Prime Power

These ratings are applicable for supplying continuous electrical power (at variable load) in lieu of commercially purchased power.

10% overload power is available for 1 hour in 12 hours continuous operation.

Standby Power

These ratings are applicable for supplying continuous electrical power (at variable load) in the event of a utility power failure. No overload is permitted on these ratings.

STANDARD REFERENCE CONDITIONS

Output ratings are presented at 25°C air inlet temperature, barometric pressure 100 kPa, relative humidity 30%. This generating set is designed to operate at high ambient temperatures (up to 55°C), humidity (up to 99%) and higher altitudes. Deration may apply, please consult your dealer for specific site ratings.

AVAILABLE OPTIONS & ACCESSORIES

We offer a range of optional features and accessories to tailor our generatin sets to meet your power needs.

OPTIONS

- · A variety of generating set control and synchronizing panels
- · Additional protection alarms and shutdowns
- · Water fuel separator
- Water jacket heater
- Battery charger

ACCESSORIES

- · Genuine spare parts
- · Load banks
- Auxiliary fuel tanks
- Manual & automatic transfer switches

GENERAL SPECIFICATIONS

MOTOR STARTING

An overload capacity equivalent to 300% of the Full Load impedance at zero Power Factor can be sustained for 10 seconds, when PMG option is fitted.

7. MOUNTING ARRANGEMENT

BASE FRAME

The complete Generating Set is mounted as a whole on a heavy duty fabricated steel Base frame.

COUPLING

The Engine and Alternator are directly coupled by means of an SAE flange.

The Engine flywheel is flexibly coupled to the Alternator rotor.

ANTI-VIBRATION MOUNTING PADS

Anti-Vibration pads are affixed between the Engine/Alternator feet and the Base frame thus ensuring complete vibration isolation of the rotating assembly.

SAFETY GUARDS

The Fan & Fan Drive along with the Battery Charging Alternator are Safety Guard protected for personnel protection.

8. FACTORY TESTS

- · The Generating set is load tested before dispatch
- · All protective devices control functions and site load conditions are simulated. The generator and it's systems are checked before dispatch.

9. EQUIPMENT FINISHING

All mild steel components are fully degreased and painted with powder coated paint to ensure maximum scuff resistance and durability.

10. DOCUMENTATIONS

The base frame design can be incorporated with an integral fuel tank with a capacity of approx. 8 hours running at Full Load. The tank is supplied complete with fill cap breather, fuel feed and return lines to the Engine and drain plug.

11. QUALITY STANDARDS

The equipment meets the following standards: BS4999, BS5000, BS5514 IEC 60034, VDE0530, NEMA MG 1.22 and ISO 8528.

12. WARRANTY

All of the Generating Sets provided by Hulool Motors are covered under a warranty policy for a period of 12 months.