Technical Specifications

Diesel Generator Set

A-C138HS

Voltage: 220/440V
Frequency: 60Hz



enset Image for illustration purposes only

Technical Information

Standby Power (ESP)	kVA	138
	kW	110
Prime Power (PRP)	kVA	125
	kW	100
Mechanical Structure		Soundproofed
Engine Brand		Cummins
Engine Model		6BT5.9G2
Alternator Brand		Leroy Somer
Alternator Model		TAL-A44-E
Controller		Smartgen HGM6120N
Measure (L x W x H)	mm	2900 X 1080 X 1500
Empty Weight	kg	1700
Fuel Tank	L	238
Noise Level for Soundproof	dB(A) at 7m	73

Voltage (V)	Prime Power (PRP)		Standby Power (ESP)	
	(kVA)	(kW)	(kVA)	(kW)
220/127	125.0	100.0	138.0	110.4
240/138	125.0	100.0	138.0	110.4
440/254	125.0	100.0	138.0	110.4

Note:

Prime Output: Prime output is available for an unlimited number of annual hours in variable load application, in accordance with GB/T2820-97 (eqv ISO8528); a 10% overload capability is avaiable for a period of 1 hour with a 12-hours period of operation.

Standby Output: The standby output is applicable for supplying emergency power for duration of a utility power interruption. No overlad, utility parallel or negotiated outage operation capability is available at this rating.

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Itair Hosem Power Co., Ltd. is a certifited company with ISO 9001, ISO 14001 and CE Certificate.

We reserves the right to modify any characteristic of their equipment without prior warning.
Photographs representing the product range, while able to include options.
Weight and dimensions of a standard generator set.
Non-contractual document

GENERAL DESCRIPTION

Specifically developed for the industrial applications, this stationary soundproof generator set is easy to use and straightforward to maintain. The available features & options are designed to fully meet the requirements of all industrial applications. The generator set will automatically start on mains failure and cool down and stop as soon as the mains come back. The generator set also controls the load transfer between mains (utility) and generator set. It can also be start-up by means of an external signal.
It's your solution for Predictable Power.

ENGINE

Cummins diesel 4 stroke engine with 4 Cylinders in line, with turbocharger, with direct injection and engine regulation via electronic management.

Engine Brand	Cummins	Bore (mm)	102.00	
Model	6BT5.9G2	Stroke (mm)	120.00	
R.P.M.	1800	Compression Ratio	17.3 : 1	
Max. Power (kWm)	127	Type of Regulation	Electric	
Fuel	Diesel	Min. Fuel Consumption	229	g/kW.Hr
No. of Cylinder	6 Cylinder in line	Oil Pan Capacity (L)	16.40	
Engine Capacity (L)	5.9	Weight	411.00	

Cooling System

Cooling of the sleeves using cooling fluid comprised of water and glycol at 50% in a closed circuit driven by the engine pump.

Engine driven exhaust fan, radiator and expansion tank; original from the engine manufacturer.

The circuit is completed with the cooling purge system towards the outside of the bedplate and protections of all running surfaces

Flow of Air From Fan (m^3/min)	148	Coolant Capacity (L) Engine Only	28
Cooling Type	Water Cooling	Design Temp. Radiator	50 Degree Celsius

A boiler system with heating element is available as an option. An adjustable thermostat is included to maintain the temperature at optimum range and facilitate the starting of the engine.

Coolant Heater Power (W)	2000 W for optional	

Lubrication System

Gear pump lubrication system driven by the engine and with original engine manufacturer lubricant filtering system.
It is completed by an outward purge circuit by means of a manual purge pump.

Oil Pan Capacity (L)	16.4	Maximum Oil Consumption (L/Hr)	$\leq$ 0.090

Air Intake System

Air intake system for combustion with filtering device and filter change indicator; originals from the engine manufacturer. Intake air cooling after the turbo by means of an air/air exchanger.

Intake Air Flow (L/s)	134	Air Inlet Filter Type	Dry Type

Exhaust System

Interior and exterior aluminized steel exhaust silencer that is highly resistant to corrosion and with a water drainage system

T^a Gas Emission (℃)	580	Number of Exhaust	1
Gas Flow (L/s)	233.3		

Start System

Start system that uses an electrical motor, battery, battery disconnector and battery charge alternator that is driven by the engine itself. The start motor and the battery charge alternator are originals from the engine manufacturer.

Lead acid battery with sealed structure to prevent leaks, maintenance free, large start-up capacity maintaining the voltage due to its low internal resistance and small volume thanks to its rolled plates design that guarantees it will withstand many discharges with large temperature changes.

Starter Voltage System (V)	24	Battery Type	Two of Free Maintenance Battery

Fuel Supply System

The fuel intake system has a high performance decanter filter that prevents particles greater than 30 microns from passing through them.

Fuel Tank Capacity (L)	238		

Fuel Consumption Panel (Range according to the standard configuration)

Load	Prime Power (PRP)		Standby Power (ESP)	
	(L/H)	Running Time (h)	(L/H)	Running Time (h)
25%	9.4	25.3	10.5	22.7
50%	15.6	15.3	18.1	13.1
75%	22.2	10.7	25.2	9.4
100%	29.7	8.0	33.6	7.1

Alternator

Leroy Somer alternator with 4 poles, with a lifetime lasting greased bearing, H class insulation, without brushes, and AVR (Automatic Voltage Regulator)

Protection of all the windings by means of 2-part high quality polyester resin impregnation. The stator windings receive a double impregnation.

Joining of engine and alternator through flexible disc coupling.

Regulations:

- CEI 2-3
- IEC 34-1
- EN 60034-1
- VDE 0530
- BS 4999-5000
- CAN/CSA-C22.2 No14-68-No100-95
- ISO 8528:3

Low Wave distribution

- THC < 4%
- THD < 4%
- THF (IEC) < 2%
- TIF (NEMA) < 40

Incorporates electromagnetic emissions suppressor in accordance with standard VDE 0875, class H.

Brand	Leroy Somer	Voltage Stability	+-0.5%
Model	TAL-A44-E	Proformance at 75% p.f 0.8 (%)	93.8
Alternator Power (kVA)	143	Proformance at 100% p.f 0.8 (%)	92
Numbers of Wires	12 Wires	Working Temperature without Output Reduction	≤40℃
IP Alternator	IP23	Working Altitude without Output Reduction	≤1000m
Exciation System	Self Excitation	Phase	3 Phase
AVR	R150	Type	Brushless

BEDPLATE

The engine-alternator set is coupled to the bedplate by means of anti-vibration shock mounts that absorb almost all the vibrations.

The bedplate is made of a phosphate, passivated steel profile with polyester dust paint that guarantees a resistance of at least 500 hours in a saline fog chamber in accordance with standard ASM B-117-09.

The fuel tank is integrated and joined to the bedplate using hardware, which allows disassembling it for maintenance or replacement. It has a drainage plug, wide cleaning cover and filler connection with plug and key.

Includes level sensor with low fuel alarm signal that indicates the amount of fuel available in the tank to the electrical panel.

SOUNDPROOFED CANOPY

Soundproof generator set by means of cold-roll steel, phosphate steel, passivated and finish using polyester dust paint that guarantees a resistance of at least 720 hours in a saline mist chamber in accordance with standard ASM B-117-09.

Has IP44 protection, centre hoisting eyebolt and impact locks with key and door retainer.

It is lined inside with a noise-absorbing material made of mineral wool with a 30 mm thick waterproof (M0) protector veil with a density of 45 kg/m3.

It also has an emergency shutdown pushbutton that is accessible from the outside and an external fuel filler connection with cap and key.

ELECTRIC PANEL

Electrical panel integrated in the generator set with Smartgen digital control plate, quick switching of the grounding system (TT, TN or IT) and emergency shutdown pushbutton.

Has an all-pole circuit breaker, manually actuated, with thermal-magnetic protection against overloads and short-circuits.

Circuit Breaker Rated Current (A)	400	Battery Charger Model	BAC06A

Has a Smarten battery charge maintainer, designed to be permanently connected to the battery and maintains it charged to its maximum capacity.

Has no moving parts. The charger switches to floating mode when the charge is completed.

CONTROL CARD

Smartgen control plate, HGM6120N with with grid monitor that starts-up the generator set when it detects a failure in the electrical power supply from the grid and sends a signal to the switching panel to switch from the grid position to the group position . Once the power supply has been re-established, it sends an order to the switching panel to transfer the generator set power to the grid and shuts-down the generator set once it has cooled down. It also starts-up the generator set using an external signal.

Also, control plate HGM6120N checks a large number of parameters of the generator set which allows it to display information, statuses and alarms. If required, it will shutdown the generator set: Due to high coolant fluid temperature, low oil pressure, low coolant fluid level, etc.

Includes a 132x64 pixel LCD screen with lighting, 5 navigation menubuttons, independent operational mode buttons, and alarms and status indicating LEDs.

For optional: Communications via USB, RS232, RS485, as well as DSEnet® for system upgrade. Possibility of Ethernet connection (requires a separate module). MODBUS protocol available for client software. Completely configurable using a PC in Windows environment and free Scada type software in real time.

Includes reading and displaying of parameters with RMS values, real time clock, events history log up to 250 events and programming of alarms, events, start-ups and shutdowns.

Operating modes: START-UP, SHUTDOWN, AUTO, MANUAL AND TEST.



Generator

- Generator Voltage (L-N)
- Generator voltage (L-L)
- Generator frequency
- Generator current
- kW
- kVA
- kWh
- kVAh
- Power factor

Gird

- Grid voltage (L-N)
- Grid voltage (L-L)
- Grid frequency

Engine

- Turn speed
- Cooling fluid temperature
- Oil pressure
- Battery voltage
- Hour meter
- No. of start-ups
- Fuel level

Protection

- Start-up fault (generator set shutdown)
- High coolant temperature (alarm and generator set shutdown)
- Low oil pressure (alarm and generator set shutdown)
- Low fuel level (alarm)
- Low cooling fluid level (generator set shutdown)
- Overload (alarm and generator set shutdown)
- Battery voltage high (alarm)
- Battery voltage low (alarm)
- Battery charge alternator failure (alarm)
- Generator low frequency (alarm and shutdown)
- Generator high frequency (alarm and shutdown)
- Generator low voltage (alarm and shutdown)
- Generator high voltage (alarm and shutdown)
- External emergency shutdown (shutdown)
- Engine overspeed (shutdown)
- Maintenance interval (alarm)

ATS FOR OPTIONAL

Optional cabinet for switching between the grid and the generator set by means of a motorized switch with an integrated mechanical and electrical interlocking device.

Allows for the padlock locking function. Includes a Manual / Automatic mode selector and emergency manual control.

Safety switching for isolating the loads. High dynamic resistance against short-circuits.

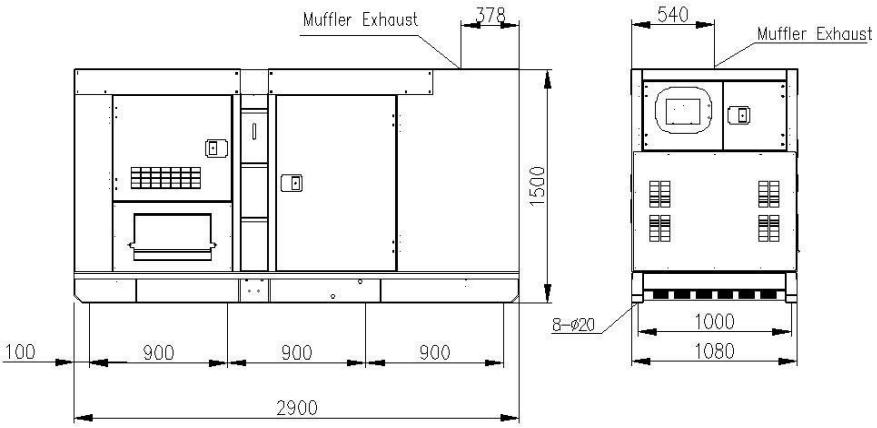
Position indicator with fully visualized cut-off. Stable positions not affected by changes in voltage and mechanical vibrations. External electrical control of the positions and test sequences.

High number of operations. IP54 protection. Connections: Lower/lower.

ATS Capacity (A)	400	

DIMENSION, WEIGHT AND DESIGN OF DIESEL GENERATOR

Length (mm)	2900
Width (mm)	1080
Height (mm)	1500
Weight (kg)	1700



PROFORMANCE CLASS

Execution class in accordance with ISO 8528/5 (2005) taking into account the behaviour of the generator set in a permanent mode of operation with different load levels, as well as in a temporary mode of operation due to shocks in the load.

Proformance Class	G3	