

# GCC SERIES

**GENPOWER**  
GENERATOR

When you need

**GCC 170**



## General Specifications

Genset Model		GCC 170	Fuel		Diesel
Stand By Power	kVA / kW	170 / 136	Stand By Ampers	Amp.	246
Prime Power	kVA / kW	155 / 124	Prime Ampers	Amp.	223
Continuous Power	kVA / kW	108 / 87	Continuous Ampers	Amp.	156
Engine Brand		CUMMINS	Engine Model		6BTAA5.9G7
Alternator Brand		GENPOWER	Alternator Model		GNP 270 S2
Speed	rpm	1500	Frequency	Hz	50
Voltage	V	231 / 400	Power Factor	Cos φ	0,8
Cooling System		Water Cooled	Usage Type		Automatic / Manual

## Genset Rating Classifications

The below ratings represent the engine performance capabilities to conditions specified in ISO 8528/1, ISO 3046/1:1986, BS 5514/1.

### CONTINUOUS POWER RATING - COP

COP is the power that the engine can continue to use under the prescribed speed and the specified environment condition in the normal maintenance period stipulated in the manufacturing plant. And continuous power is applicable for supplying utility power at a constant 100% load for an unlimited number of hours per year. No overload capability is available for this rating.

### LIMITED TIME RUNNING POWER - LTP

Gensets with a limited-time power rating are designed to operate at a maximum of 500 hours per year, although they can effectively manage an average load factor of up to 100 percent.

### PRIME POWER RATING - PRP

PRP is available for unlimited hours per year in variable load application. Variable load should not exceed an average of 70% of the Prime Power rating during any operating period of 24 hours. The Total operating time at 100% Prime Power shall not exceed 500 hours per year. A 10% overload capability is available for a period of 1 hour within a 12 hours period of operation. Total operating time at the 10% overload power shall not exceed 25 hours per year.

### STAND BY POWER (EMERGENCY) RATING - ESP

ESP is applicable for supplying emergency power for the duration of the utility power outage. No overload capability is available for this rating. A standby rated engine should be sized for a maximum of a 70% average load factor and 200 hours of operation per year. This includes less than 25 hours per year at the Standby Power rating.

### PAY ATTENTION to the points below in picking and using the generator

\* Generators can work on Continuous power at 70% of Prime power value if only all maintenances are done on time with original spare parts and high quality oils that manufacturer advice.

\* Generators should not operate below 50% of prime power value. In such a case, the engine will burn excessive oil and eventually have irreparable damage.

\* If your need is 1000 kVA or above, you should prefer synchronic systems with 2-3 generators with failure back up and simultaneous aging.

\* These points will provide advantage for you with purchasing and operating the generator.



ISO 9001:2008  
OHSAS 18001:2007  
ISO 14001:2004





# GENPOWER®

GENERATOR

environment friendly

DIESEL ENGINE

## Engine Technical Specifications

### Technical Parameters

Number Of Cylinders	6
Configuration	Vertical, in line
Aspiration	Turbo Charged&Aftercooled
Combustion System	Direct injection
Compression Ratio	16.5:1
Bore	mm 102
Stroke	mm 120
Displacement	L 5,9
Governing Type	Electronic
Governing Class	G3
Rotation	Counterclockwise
Firing order	1-5-3-6-2-4
Emission	Non-Regulated

Gross Engine Power	kW	160
Net Engine Power	kW	156
Fan and belt Power Consumption	kW	4
Other Power Loss	kW	-
Mean Effective Pressure	kPa	2169
Intake Air Flow	m <sup>3</sup> /min.	12,42
Exhaust Temperature Limit	°C	533
Exhaust Flow	m <sup>3</sup> /min.	32,46
Heat Rejection To Ambient (Radiated )	kW	17
Mean Piston Speed	m/s	6
Cooling Fan Air Flow	m <sup>3</sup> /min.	162
Typical Generator Output Power	kVA	177
Generator Efficiency	%	91

### Electrical System

Voltage	V	12
Starter	kW	4,5
Alternator Output Amperes	A	55
Alternator Output Voltage	V	14
Batteries Capacity	Ah	85

### Heat Rejection

Energy In Fuel (Heat Of Combustion)	kW	372
Gross Heat To Power	kW	160
Energy To Coolant And Lubricating Oil	kW	88,52
Energy To Exhaust	kW	107
Heat To Radiation	kW	17

### Fuel Consumption

Standby - Load 100%	(L/h)	41
Prime - Load 100%	(L/h)	37
Prime - Load 75%	(L/h)	29
Prime - Load %50	(L/h)	19

### Cooling System

Radiator Type	50°C	Tropical
Total Coolant Capacity	L	21,4
Max. Perm. Coolant Outlet Temperature	°C	100
Max. Perm. Flow Resis. (Cool. System And Piping)	bar	0,5
Max. Temperature Of Coolant Warning	°C	95
Max. Temperature Of Coolant Shutdown	°C	98
Thermostat operation temperature- Initial Open	°C	84
Thermostat operation temperature- Full Open	°C	95
Delivery Of Coolant Pump	Lt/sec.	3,1
Min. Pressure Before Coolant Pump	bar	0,35
Radiator Face area	m <sup>2</sup>	0,4
Rows	Row	2
Matrix Density	Per/Inch	15
Material		Aluminum
Width Of Matrix	mm	628
Height Of Matrix	mm	650
Pressure Cap Setting	kPa	90
Estimated Cooling Air Flow Reserve	kPa	0,125
Engine Pre Heater Tube (with Circulation Pump)	W	2000

**Note:**The density of diesel is 0.835 kg/L

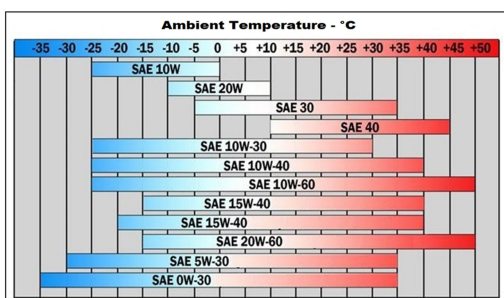
Fuel specification: BS 2869: Part 2 1998 Class A2 or ASTM D975 D2 Diesel.

The fuel must be clean and without water

### Lubrication System

Total System	L	16,4
Minimum Oil Level	L	12
Nominal Motor Operating Temperature	°C	50
Lubricating Oil Pressure	bar	4,5
Relief Valve Opens	kPa	200-220
Oil, Fuel Consumption Ratio	%	<0,1
Normal Oil Temperature	°C	120

Recommendation: SAE 15W40 to API CI4 Viscosity Lubricating oil, mono-grade or multi-grade oil



### Fan

Diameter	mm	450
Drive Ratio		1.1:1
Number Of Blades		7
Material		Plastic
Type		Blowing

### Filters

Air Filter	Dry Type, replaceable
Fuel Filter	With water separator
Oil Filter	Element type, particulate trap

STANDARD SPECIFICATIONS

TECHNICAL SPECIFICATIONS



ISO 9001:2008  
OHSAS 18001:2007  
ISO 14001:2004





legend of *power*

## ALTERNATOR CANOPY & BASE FRAME

### Alternator Technical Specifications

#### Technical Parameters

Insulation Class		H	Field Control system		Self excited
Winding Pitch		2/3 - (N° 6)	A.V.R. Model	Standard	SX460
Wires		12	Voltage Regulation	%	± 1
Protection		IP 23	Sustained Short-Circuit Current	10 sec	300% (3 IN)
Altitude	m	1000	Total Harmonic (*) TGH / THC	%	< 4
Overspeed	rpm	2250	Wave Form : NEMA = TIF - (*)		< 50
Air Flow	m³/sec	0.514	Wave Form : I.E.C. = THF - (*)	%	< 2
Bearing Drive	N/A	-	Bearing Non - Drive	Bearing	6310-2RZ
Rotor Winding	100%	Copper	Stator Winding	100%	Copper

(\*) Total harmonic content line to line, at no load or full rated linear and balanced load

#### Specifications

Standard: Genpower / GNP270S2 - Optionally: Leroy Somer / TAL044J & Stamford / UC274F								Frequency- Hz	50
								Power Factor- CosQ	0,8
Duty		Continuous				Stand By			
Ambient	C°	40°C				27°C			
Class/Temp. Rise	C°	H / 125° K				H / 163° K			
Series Star (V)	V	380/220	400/231	415/240	1 Phase	380/220	400/231	415/240	1 Phase
Parallel Star (V)	V	190/110	200/115	208/120	220	190/110	200/115	208/120	220
Series Delta (V)	V	220	230	240	230	220	230	240	230
Output Power	kVA	159	159	165	-	175	175	181	-
	kW	127	127	132	-	140	140	145	-

Genpower synchron alternators are produced according to TSE 60034-1; IEC 60034-22; GB755; BS4999-5000; NEMA MG 1.22 standards

### Sound Proof Canopy Specifications

#### General Specifications

Special and registered Genpower Design  
A1 quality DKP / HRU / Galvanized Steel  
Sensitive twist on automatic Press Brake  
Spray system chemical cleaning in 11 pools with nano technology before painting  
Provide homogeneity on 280 meters of conveyor line  
Glasswool isolation with A1 quality material with -50/+500C temperature durability  
Hinges, locks, bolts, nuts made from rustproof material  
Temperature tests for different environments  
Cable exit connectors and conduits  
Emergency stop button  
Radiator water filling cap

Special and registered Genpower Color  
Delicate Cut on Automatic Punch and Laser bench  
Sensitive welding on robotic welding bench  
Robotic painting with electrostatic powder paint  
Drying and stabilizing on 200°C ovens  
Special covering over glass wool  
1500 hour salt test (accredited laboratory certificated)  
Best sound level (in dBA)  
Lifting and carrying equipments  
High quality weatherstrips and shock absorbers  
Internal and/or external exhaust mufflers (silencers)

### Base Frame (Chasis) Specifications

#### General Specifications

Special and registered Genpower Design  
A1 quality DKP / HRU / Galvanized Steel  
Sensitive twist on automatic Press Brake  
Spray system chemical cleaning in 11 pools with nano technology before painting  
Provide homogeneity on 280 meters of conveyor line  
Standart fuel tank is in the chasis (external tank is used for some models)  
Fuel level gauge  
Fuel drain cap  
Lifting and carrying equipments

Special and registered Genpower Color  
Delicate Cut on Automatic Punch and Laser bench  
Sensitive welding on robotic welding bench  
Robotic painting with electrostatic powder paint  
Drying and stabilizing on 200°C ovens  
Impermeability test for fuel tank with special equipments  
Fuel filling cap  
Fuel inlet and return records  
Vibration absorbing and vacuumed feet under chasis



**GENPOWER**<sup>®</sup>  
GENERATOR

*time to restart*

## CONTROL PANEL & MODULE

### Control Panel Specifications

#### General Specifications

Powder painted steel panel with lockable door  
Emergency stop button  
ATS (automatic transfer panel) - optional (internal and/or external)  
Load output terminal  
Control relays

Control module - backlit LCD screen 128x64 pixels  
Battery charger  
Circuit breaker - optional (internal and/or external)  
System protection MCB's  
Terminal Blocks

#### Control Module Technical Parameters

Brand GENPOWER  
Dimensions 120mm x 94mm  
Weight 260 gr.  
Ambient Humidity 90% max.  
DC Battery Supply Voltage 8 - 32 V  
Network Frequency 5 - 99,9 Hz  
Generator Voltage Measurement 3 - 300 V  
Current Transformer Secondary 5A  
Charge Alternator Voltage Measurement 8 - 32 V  
Communication Interface RS-232  
Generator contactor Relay Output 5A & 250V  
Solenoid Transistor Outputs 1A with DC supply  
Configurable-3 Transistor Outputs 1A with DC supply

Model Trans-MIDIAMF.232.GP  
Protection Class IP65 from the front  
Environmental conditions 2000 meters above sea level  
Ambient temperature -20 ° C to + 70 ° C  
Battery Voltage Measurement 8 - 32 V  
Mains Voltage Measurement 3 - 300 V Phase-Neutral, 5 - 99.9 Hz  
Generator Frequency 5 - 99.9 Hz  
Working Period Continuous  
Charge Alternator Excitation 210mA & 12V, 105mA & 24V Nominal 2.5W  
Analog Sender Measurement 0 - 1300ohm  
Mains contactor Relay Output 5A & 250V  
Start Transistor Outputs 1A with DC supply  
Configurable-4 Transistor Outputs 1A with DC supply

#### Control Module Functions

Mains Voltage Level Control  
Network Frequency Level Control  
Engine Operating Option Control  
Engine Stop Option Control  
Engine Speed (RPM) level Control  
Battery Voltage Options Control  
Check Engine Maintenance Times  
Keeping error records of past events  
Communication interfaces GPRS, GSM  
Analog Modem  
Selectable protection alarm / shutdown  
Configurable analog inputs and outputs  
3 phase Generator protections  
- High / low voltage  
- High / low frequency  
- Current / voltage asymmetry  
- Overcurrent / overload

Working Hour  
Ground Leakage  
Engine Speed, Oil Pressure, Water Temperature, Hours of Operation, Battery Voltage Display  
Generator, Voltage, Current, Frequency, Phase Sequence, Earthing Display

Generator Voltage Level Control  
Generator Frequency Level Control  
Generator Current Level Control  
Generator Power Level Control  
Generator Work Schedule and Timing Control  
Oil Pressure Controllers Control  
Overheat Control  
Mains, Generator ATS control  
Ethernet, USB, RS232, RS485  
Modbus and SNMP  
Easy Parameter Setting via control module or computer  
Configurable programmable digital inputs and outputs  
3 phase AMF function  
- High / low frequency  
- High / low voltage  
- High / low water temperature  
- High / low load

Alarm Horn  
Heater Tube Thermostat control  
Single-Phase or Three-Phase, Phase Selection  
Network, Voltage, Frequency Display

#### Control Module Alerts

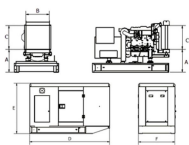
Emergency Stop Malfunction  
High Generator Voltage  
Low Generator Frequency  
Low Load  
Over Current  
Unbalanced Current  
Oil Sensor Broken  
Magnetic Pickup Error

Low Generator Voltage  
High Generator Frequency  
Phase Sequence Error  
Overload  
Low Water Level (Optional)  
Low Oil Pressure  
High Water Temperature  
Low Fuel Level (Optional)

Low Water Temperature  
Heat Sensor Broken  
Reverse Power  
Start Error  
Stop Error  
High Battery Voltage  
Low Battery Voltage  
Electronic Canbus Errors (ECU Engines)

Charge Alternator Error  
Unbalanced Load  
Maintenance Time Alarm  
Low Speed  
High speed  
High Oil Temperature (Optional)





# GENPOWER®

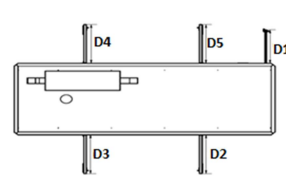
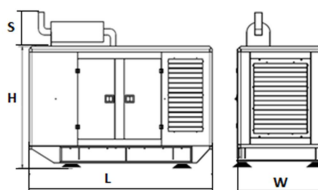
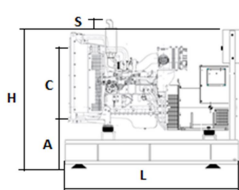
GENERATOR

beyond the lines

**GENERAL DIMENSIONS  
SPECIAL PRODUCTS & CERTIFICATES**

## General Dimensions

SYMBOL	OPEN TYPE	CANOPY TYPE
L	2400	2960
W	900	1110
H	1643	1727
S	95	500
A	500	0
B	628	0
C	650	0
D1	0	520
D2	0	604
D3	0	604
D4	0	604
D5	0	604



## Open Type Generator Dimensions

Width	mm	900
Length	mm	2400
Height	mm	1643
Weight (Net)	Kg	1446
Fuel Tank Capacity	L	256

## Canopy Type Generator Dimensions

Width	mm	1110
Length	mm	2960
Height	mm	1727
Weight (Net)	Kg	1587
Fuel Tank Capacity	L	376

## Special Products / Non - Standardized

Synchronised Systems  
Scada Systems  
Mobile Systems - On Trucks and Bus  
Light Towers  
Welding Machines - Generators  
High Frequency Generators - 100-200-400-800-1000 Hz  
Variable speed Generators  
Super Silent Canopy  
Ground Power Unit Generators - Mobile or Stationary

Generators - with Trailer  
Medium Voltage - MV Generators  
High Voltage - HV Generators  
IP44-IP54 Class Generators  
Marine Generators  
Dual Generators  
Direct Current - DC Generators  
Power Plants  
Cogeneration Systems  
Trigeneration Systems

Generators - with Heavy Oil Engines  
Generators - with Natural Gas Engines  
Generators - with Biogas Engines  
Generators - with Dual Fuel Engines  
Generators - with LPG Engines  
UPS Systems  
Electrical Forlift / 0,5 - 3,5 Tons  
Diesel Forklift / 1 -7,5 Tons  
Automatic Voltage Stabilizers / 1-5000 kVA

## Quality Documents & Certificates

ISO 9001 - 2015 Certificate  
OHSAS 18001 - 2007 Certificate  
TSE 8528 - 8 Certificate  
Trademark Registration Certificate  
Capacity Report (32400 Units / Year)  
Made in Turkey Certificate- For Generator/ 1 - 5000 kVA  
Made in Turkey Certificate-For Alternator/ 1-5000kVA  
Made in Turkey Certificate- For Engine/1-5000 kW  
2006/42/EC Machinery Directive  
EN ISO 12100:2010 Certificate  
EN 349:1993+A1:2008 Certificate  
EN 61000-6-2:2019 Certificate  
TS EN ISO 9227 Certificate  
TS EN ISO 4628-5 Certificate  
EAC - GOST Certificate/ For Diesel Generators and parts  
EAC - GOST Certificate/ For Gasoline Generators and parts  
EN ISO 8528-13:2016 Certificate  
EN ISO 13857:2008 Certificate  
Coatchem- Türkak 1500 hours Corrosion Durability Test Certificate

ISO 14001 - 2015 Certificate  
TSE 8528 - 4 Certificate  
TSE 8528 - 5 Certificate  
Industrial Registry Certificate  
Certificate of Competency for After Sales Services  
Certificate of Manufacturing Competence  
TSE- Service Adequacy Certificate  
2014/30/EU Electromagnetic Compatibility Directive  
EN 60204-1:2018 Certificate  
EN ISO 14120:2015 Certificate  
CE Certificate - EN ISO 17050-1:2004  
TS EN ISO 4628-3 Certificate  
TS EN ISO 4628-8 Certificate  
TS EN 60034 - 1 Certificate  
TS EN ISO 4628-4 Certificate  
TS EN ISO 2409 Certificate  
AB-0547-T Certificate  
EN 61000-6-4:2007/A1:2011 Certificate  
TS 9620 EN ISO 4628-2 Certificate

CE Certificate - 2000/14/AT - 2000/14 EC (CE 2195- Noise Emission in the Environment by Equipment for use Outdoors)

STANDARD SPECIFICATIONS

TECHNICAL SPECIFICATIONS



ISO 9001:2008  
OHSAS 18001:2007  
ISO 14001:2004





# GLOBAL BRAND



## TECHNICAL SPECIFICATIONS



**GENPOWER<sup>®</sup>**  
GENERATOR

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ISO 9001:2008  
OHSAS 18001:2007  
ISO 14001:2004



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