GNT SERIES

GNT 11 & 13

GENPOWER GENERATOR

231/400V - 50Hz & 277/480V - 60Hz

Features and Benefits

- Half Century Experience in Generator Manufacturing
- Diesel Engines with Advanced Technology and Quality
- Alternators with Advanced Technology and Quality
- Control Panel Suitable for Flexible Application
- High Quality and Reliable Technology
- Patented Compact Designed and Soundproof Canopy
- Suitable for Heavy-Duty
- Durability
- Wide Range of Affordable Spare Parts
- Low Noise Level
- Low Exhaust Emission
- Low Operating Cost
- Low Fuel Consumption
- Low Oil Consumption
- Tropical 50°C Radiator
- Fuel Filter with Water and Particle Separator
- First Class Product Support
- Global Technical Service and Maintenance Support

Generator General Information

Generator	Frequency	Voltage	Power Factor	Speed	Diesel Engine			Alternator			Type of	Generator Output		
Model	Hz	V	CosQ	rpm	Brand	Model	Series	Brand	Model	Series	Operation	kVA	kW	A
GNT 11	50	231/400	0,8	1500	INTER	M13D	BII	GENPOWER	GNP	160S	Stand By Prime Continuous	11,0 10,0 7,0	8,8 8,0 5,6	15,9 14,5 10,1
GNT 13	60	277/480	0,8	1800						160S	Stand By Prime Continuous	13,0 11,8 8,3	10,4 9,5 6,6	18,8 17,1 12,0

INTER Diesel Engine Technical Parameters and Matching Parameters

Diesel Engine Main Technical Parameters

General		
Number of Cylinders		4
Configuration		Vertical, In Line
Aspiration		Naturally
Combustion System		Direct Injection
Compression Ratio		19.1:1
Bore	mm	85
Stroke	mm	100
Displacement	L	2,27
Governing Type		Mechanic
Governing Class		G2
Rotation		Counterclockwise
Firing Order		1-3-4-2
Emission		Tier II
Moments of Rotation Inertia		
Engine	kg • m²	0,44
Flywheel	kg • m²	2,55
Performance Rating		
Speed Droop	%	≤3
Steady State Speed Band	%	≤0,5
Test Conditions		
Ambient Temperature	%	25
Atmospheric Pressure	kPa	100
Relative Humidity	RH (%)	30
Max. Operating Intake Resistance	kPa	5
Exhaust Backpressure Limit	kPa	5
Fuel Temperature (Fuel Inlet Pump)	ºC	38 ± 2
Filters		
Air Filter		Dry Type, Replaceable
Fuel Filter		With Water Seperator
Oil Filter		Element Type, Particulate Trap
Flywhell Housing and Flex Coupling		
Flywheel Housing	SAE (J620)	4
Flex Coupling Disc	Inch (")	7,5
Overall Dimensions		
Length *	mm	1087
Width	mm	597
Height	mm	749
Dry Weight	Kg	275

* From front end of radiator to rear end of air filter

Cooling System		
Radiator Type	50ºC	Tropical
Total Coolant Capacity	L	13
Max. Perm. Coolant Outlet Temperature	ºC	103
Max. Perm. Flow Resis. (Cool. System And Piping)	bar	0,5
Max.Temperature of Coolant Warning	ºC	95
Max. Temperature of Coolant Shutdown	ºC	98
Thermostat Operation Temperature - Initial Open	ºC	68
Thermostat Operation Temperature - Full Open	ºC	72
Delivery of Coolant Pump	m ³/ h	1,60
Min. Pressure Before Coolant Pump	bar	0,15
Radiator Face Area	m²	0,21
Rows	Row	2
Matrix Density	Per / Inch	15,5
Material		Aluminum
Width of Matrix	mm	438
Height of Matrix	mm	480
Pressure Cap Setting	kPa	90
Estimated Cooling Air Flow Reserve	kPa	0,125
Engine Pre Heater Tube (with Circulation Pump)	W	1500
Lubrication System		
Total System	L	8
Minimum Oil Level	L	7
Nominal Motor Operating Temperature	ºC	40
Lubricating Oil Pressure (Rated Speed)	bar	5
Relief Valve Opens	kPa	352
Oil / Fuel Consumption Ratio	%	≤0,3
Normal Oil Temperature	ºC	110
Electrical System		
Voltage	V	12
Starter	kW	3,2
Alternator Output Ampers	A	25
Alternator Output Voltage	V	14
Batteries Capacity	Ah	55
Fan		
Diameter	mm	410
Drive Ratio		1,61:1
Number of Blades		7
Material		Plastic
Type		Blowing

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231/400V - 50Hz & 277/480V - 60Hz

Diesel Engine Matching Parameters

50 Hz @ 1500 r/min		Stand By	Prime
Gross Engine Power	kW	13,0	11,5
Net Engine Power	kW	11,0	10,0
Fan Power Consumption (Belt Pulley Driven)	kW	1,5	1,5
Other Power Loss	kW	0,5	0,5
Mean Effective Pressure	MPa	0,46	0,41
Intake Air Flow	m ³ / min	1,25	1,25
Exhaust Temperature Limit	ºC	300	300
Exhaust Flow	m ³ / min	1,30	1,15
Boost Pressure Ratio		2,18	1,98
Mean Piston Speed	m / s	5,0	5,0
Cooling Fan Air Flow	m ³ / min	46,6	46,6
Typical Generator Output Power	kVA	12	11
Heat Rejection			
Energy in Fuel (Heat of Combustion)	kW	36,9	33,2
Gross Heat to Power	kW	13,0	11,5
Energy to Coolant and Lubricating Oil	kW	11,8	10,7
Heat Dissipation Capacity*	kW	-	-
Energy to Exhaust	kW	9,7	8,8
Heat to Radiation	kW	2,4	2,2

*Intake Intercooled System

60 Hz @ 1800 r/min		Stand By	Prime
Gross Engine Power	kW	15,6	14,2
Net Engine Power	kW	13,3	12,4
Fan Power Consumption (Belt Pulley Driven)	kW	1,8	1,8
Other Power Loss	kW	0,5	0,5
Mean Effective Pressure	MPa	0,46	0,42
Intake Air Flow	m ³ / min	1,50	1,50
Exhaust Temperature Limit	ºC	360	360
Exhaust Flow	m ³ / min	1,57	1,42
Boost Pressure Ratio		2,60	2,51
Mean Piston Speed	m / s	6,0	6,0
Cooling Fan Air Flow	m ³ / min	55,9	55,9
Typical Generator Output Power	kVA	14	13
Heat Rejection			
Energy in Fuel (Heat of Combustion)	kW	44,0	38,9
Gross Heat to Power	kW	15,6	12,4
Energy to Coolant and Lubricating Oil	kW	14,2	13,2
Heat Dissipation Capacity*	kW	-	-
Energy to Exhaust	kW	11,6	10,9
Heat to Radiation	kW	2,6	2,5

*Intake Intercooled System

GENPOWER Alternator Technical Parameters and Specifications

Alternator 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	%	< 5
Overspeed	rpm	2250	Wave Form :NEMA = TIF - (*)		< 50
Air Flow	m³/sec	0.071	Wave Form :I.E.C. = THF - (*)	%	< 2
Bearing Drive	N/A	-	Bearing Non - Drive	Bearing	6306-2RZ
Rotor Winding	100%	Copper	Stator Winding	100%	Copper

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

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

Alternator Specifications

50 Hz - 231/400V - Cos Q 0,8 - 1500 rpm

Standard Using Alternator					Optional Using Alternator				
Brand/Model	**Genpower**	**160S**			**Leroy Somer**	**TAL040B**		**Stamford**	**S0L1H**
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	**10,0**	**10,0**	**11,0**	**6,6**	**11,0**	**11,0**	**12,0**	**7,5**
Output Power	kW	**8,0**	**8,0**	**8,8**	**5,3**	**8,8**	**8,8**	**9,6**	**6,0**

60 Hz - 277/480V - Cos Q 0,8 - 1800 rpm

Standard Using Alternator					Optional Using Alternator				
Brand/Model	**Genpower**	**160S**			**Leroy Somer**	**TAL040B**		**Stamford**	**PI044E - S0L1-H**
Duty		Continuous				Stand By			
Ambient	C°	40°C				27°C			
Class/Temp. Rise	C°	H / 125° K				H / 163° K			
Series Star (V)	V	416/240	440/254	480/277	1 Phase	416/240	440/254	480/277	1 Phase
Parallel Star (V)	V	208/120	220/127	240/138	-	208/120	220/127	240/138	-
Series Delta (V)	V	240	254	277	240	240	254	277	240
Output Power	kVA	**12,0**	**13,0**	**13,0**	**8,6**	**13,0**	**14,0**	**14,0**	**9,3**
Output Power	kW	**9,6**	**10,4**	**10,4**	**6,9**	**10,4**	**11,2**	**11,2**	**7,4**

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GENPOWER GENERATOR

231/400V - 50Hz & 277/480V - 60Hz

Control Panel Specifications

Powder Painted Steel Pannel with Lockable Door	Battery Charger	Control Relays	System Protection MCBs
ATS (Automatic Transfer Panel) - Optional	Emergency Stop Button	Terminal Blocks	Circuit Breaker - Optional
Control Module	Backlit, 128x64 Pixels	Load Output Terminal	LCD Screen

Control Module Technical Parameters

Brand	GENPOWER	Model	Trans-MIDIAMF.232.GP
Dimensions	120mm x 94mm	Protection Class	IP65 From the Front
Weight	260 gr.	Environmental Conditions	2000 Meters Above Sea Level
Ambient Humidity	90% max.	Ambient Temperature	-20 ° C to + 70 ° C
DC Battery Supply Voltage	8 - 32 V	Battery Voltage Measurement	8 - 32 V
Network Frequency	5 - 99,9 Hz	Mains Voltage Measurement	3 - 300 V Phase-Neutral, 5 - 99.9 Hz
Generator Voltage Measurement	3 - 300 V	Generator Frequency	5 - 99.9 Hz
Current Transformer Secondary	5A	Working Period	Continuous
Charge Alternator Voltage Measurement	8 - 32 V	Charge Alternator Excitation	210mA & 12V, 105mA & 24V Nominal 2.5W
Communication Interface	RS-232	Analog Sender Measurement	0 - 1300ohm
Generator Contactor Relay Output	5A & 250V	Mains Contactor Relay Output	5A & 250V
Solenoid Transistor Outputs	1A with DC Supply	Start Transistor Outputs	1A with DC Supply
Configurable-3 Transistor Outputs	1A with DC Supply	Configurable-4 Transistor Outputs	1A with DC Supply

Control Module Functions

Mains Voltage Level Control	Generator Voltage Level Control	3 phase Generator Protections	3 phase AMF Function	Alarm Horn
Network Frequency Level Control	Generator Frequency Level Control	- High / Low Voltage	- High / Low Frequency	Heater Tube Thermostat Control
Engine Operating Option Control	Generator Current Level Control	- High / Low Frequency	- High / Low Voltage	Modbus and SNMP
Engine Stop Option Control	Generator Power Level Control	- Current / Voltage Asymmetry	- High / Low Water Temperature	Working Hour
Engine Speed (RPM) Level Control	Generator Work Schedule and Timing Control	- Overcurrent / Overload	- High / Low Load	Ground Leakage
Battery Voltage Options Control	Oil Pressure Controllers Control	Overheat Control	Mains, Generator ATS control	Analog Modem
Check Engine Maintenance Times	Configurable Analog Inputs and Outputs	1 Phase or 3 Phase, Phase Selection	Network, Voltage, Frequency Display	Ethernet, USB, RS232, RS485
Communication Interfaces GPRS, GSM	Keeping Error Records of Past Events	Parameter Setting via Control Module	Parameter Setting via Computer	Selectable Protection Alarm / Shutdown
Engine Speed	Configurable Programmable Digital Inputs and Outputs	Water Temperature	Hours of Operation	Battery Voltage
Voltage	Current and Frequency	Phase Sequence	Earting	Oil Pressure

Control Module Alerts

Emergency Stop Malfunction	Low Generator Voltage	Low Water Temperature	Charge Alternator Error	High Oil Temperature (Optional)
High Generator Voltage	High Generator Frequency	Heat Sensor Broken	Unbalanced Load	Low Fuel Level (Optional)
Low Generator Frequency	Phase Sequence Error	Reverse Power	Maintenance Time Alarm	High Battery Voltage
Low Load	Overload	Start Error	Low Speed	Low Battery Voltage
Over Current	Low Water Level (Optional)	Stop Error	High Speed	High Water Temperature
Unbalanced Current	Low Oil Pressure	Magnetic Pickup Error	Broken Oil Sensor Cable	Electronic Canbus Errors (ECU)

Sound Proof Canopy and Base Frame (Chassis) Specifications

Special, Registered GENPOWER Design and Color	Robotic Painting with Electrostatic Powder Paint	Temperature Tests	Fuel Inlet and Return Records	Lifting and Carrying Equipments
A1 Quality DKP / HRU /Galvanized Steel	Drying and Stabilizing on 200°C Ovens	Rustproof Accessories	Impermeability Test for Fuel Tank	Internal Exhaust Mufflers (Silencers)
Sensitive Twist on Automatic Press Brake	1500 Hour Salt Test	Cable Exit Connectors and Glands	Vacummed Rubber Mounted	External Exhaust Mufflers (Silencers)
Delicate Cut on Automatic Punch and Laser Bench	Glasswool Isolation, A1 Class Material -50/+500ºC	Emergency Stop Button	High Quality Weatherstrips	Radiator Water Filling Cap
Sensitive Welding on Robotic Welding Bench	Special Covering Over Glass Wool	Fuel Level Gauge	High Quality Shock Absorbers	Daily Fuel Tank
Chemical Cleaning Nano Technology Before Painting	Best Sound Level (in dBA)	Fuel Drain Cap	Fuel Filling Cap (with ventilation)	External Fuel Tank

Special Products / Non - Standardized

Synchronised Systems	Generators - with Trailer	DC Generators	High Frequency Generators	Marine Generators
Scada Systems	Medium Voltage - MV	High Voltage - HV	Variable Speed Generators	Dual Generators
Mobile Systems	IP44-IP54 Class Generators	Power Plants	Super Silent Canopy	Automatic Voltage Stabilizers
Light Towers	Welding Machines	Trigeneration Systems	Cogeneration Systems	Electrical and Diesel Forklift
Ground Power Unit Generators	Natural Gas Generator	Biogas Generator	LPG Generator	HFO Generator

Quality Documents & Certificates

Trademark Registration Certificate	Industrial Registry Certificate	TSE 8528 - 4 Certificate	TS EN ISO 2409 Certificate	EN ISO 8528-13,2016 Certificate
Capacity Report (32400 Units / Year)	Certificate of Manufacturing Competence	TSE 8528 - 5 Certificate	TS EN ISO 4628-3 Certificate	EN ISO 12100:2010 Certificate
Made in Turkey Certificate- For Generator/1-5000 kVA	TSE- Service Adequacy Certificate	TSE 8528 - 8 Certificate	TS EN ISO 4628-4 Certificate	EN ISO 13857:2008 Certificate
Made in Turkey Certificate-For Alternator/1-5000kVA	ISO 9001 - 2015 Certificate	AB-0547-T Certificate	TS EN ISO 4628-5 Certificate	EN ISO 14120:2015 Certificate
Made in Turkey Certificate- For Engine/1-5000 kW	ISO 14001 - 2015 Certificate	EAC - GOST Certificate/ Diesel Generator	TS EN ISO 4628-8 Certificate	EN 349:1993+A1:2008 Certificate
Certificate of Competency for After Sales Services	OHSAS 18001 - 2007 Certificate	EAC - GOST Certificate/ Gasoline Generator	TS EN ISO 9227 Certificate	EN 60204-1,2018 Certificate
2014/30/EU Electromagnetic Compatibility Directive	2006/42/EC Machinery Directive	CE Certificate - EN ISO 17050-1,2004	TS 9620 EN ISO 4628-2 Certificate	EN 61000-6-2,2019 Certificate
CE Certificate - 2000/14/AT - 2000/14 EC (CE 2195)	Coatchem- Türkak 1500 Hours Corrosion Durability Test Certificate		TS EN 60034 - 1 Certificate	EN 61000-6-4,2007/A1:2011 Certificate

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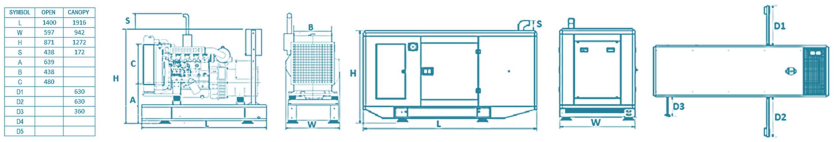
231/400V - 50Hz & 277/480V - 60Hz

Generator Dimensions

Values		Open Type Generator	Canopy Type Generator
Width	mm	597	942
Length	mm	1400	1916
Height	mm	1309	1444
Weight (Net)	Kg	522	650
Fuel Tank Capacity	L	58	40

Generator Technical Drawings



Diesel Engine and Genset Rating Classifications

The below ratings represent the engine performance capabilities to conditions specified in TS ISO 8528/1, 8528-4, 8528-5, 8528-8, BS5000, ISO 3046/1:1986, NEMA MG-1.22.1, BS 5514/1.

STAND BY POWER 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. Under no condition is an engine allowed to operate in parallel with the public utility at the Stand By Power rating. This rating should be applied where reliable utility power is available. A Stand By rated engine should be sized for a maximum of an 70% average load factor and 200 hours of operation per year. This includes less than 25 hours per year at the Stand By Power rating. Stand By ratings should never be applied except in true emergency power outages. Negotiated power outages contracted with a utility company are not considered an emergency.

PRIME POWER RATING (PRP):

Applicable for supplying electric power in lieu of commercially purchased power. Prime Power applications must be in the form of one of the following two categories:

UNLIMITED TIME RUNNING PRIME POWER (ULTP):

PRP (Prime Power) is available for an unlimited number of hours per year in a variable load application. Variable load should not exceed a 70% average of the Prime Power rating during any operating period of 250 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-hour period of operation. Total operating time at the 10% overload power shall not exceed 25 hours per year.

LIMITED TIME RUNNING PRIME POWER (LTP):

LTP (Limited Time Prime Power) is available for a limited number of hours in a nonvariable load application. It is intended for use in situations where power outages are contracted, such as in utility power curtailment. Engines may be operated in parallel to the public utility up to 750 hours per year at power levels never to exceed the Prime Power rating. The customer should be aware, however, that the life of any engine will be reduced by this constant high load operation. Any operation exceeding 750 hours per year at the Prime Power rating should use the Continuous Power rating.

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.

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.

INTER Diesel Engine Power Ratings – Fuel Consumption – Oil Recommendation and Oil Grades

INTER Diesel Engine Power Ratings

Engine Model	M13D	Engine Family	ID11	Engine Series	BII	
Speed rpm	Type of Operation	Typical Generator Output (Net)		Engine Power		
				Gross		Net	
		kVA	kWe	kWm	Hp	kWm	Hp
1500	Stand By (Maximum)	11,7	9,4	13,0	17,4	11,0	14,8
	Prime	10,6	8,5	11,5	15,4	10,0	13,4
1800	Stand By (Maximum)	14,1	11,3	15,6	20,9	13,3	17,9
	Prime	12,8	10,3	14,2	19,1	12,4	16,6

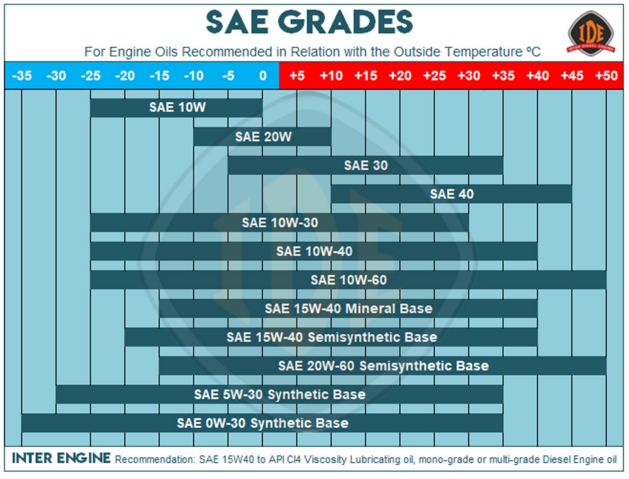
Generator powers are typical and are based on an average alternator efficiency and a power factor (Cos. Q) of 0.8

Fuel Consumption

Percent of Prime power	1500 rpm		1800 rpm	
	g/kWh	l/hr	g/kWh	l/hr
110%	245	3,2	245,0	3,9
100%	245	2,9	245,0	3,6
75%	250	2,2	250,0	2,7
50%	255	1,5	255,0	1,9

Note:The density of diesel is 0.835 kg/L

Fuel specification: BS 2869: Part 2 1998 Class A2 or (DIN EN 590) ASTM D975 D2 Diesel. The fuel must be clean and without water)



Why You Should Buy GENPOWER?

Only because it is the biggest generator factory in the World? NO!

* It is one of the most trustworthy and distinguished generator manufacturers in the world with its almost half century experience in the field.
* It has interiorized the strategy of **unconditional customer satisfaction** and has been working with this work ethic together with its whole crew.
* Customers and end users get their moneys' worth and more with every penny.
* It has become a big family with customers and users who receive durable, long-lasting and high quality products.
* It has been appreciated many times by customers and suppliers about the investments that have been made for quality enhancement.
* Both its suppliers and customers always know GENPOWER is and will always be there for them. GENPOWER on their side in bad and good days.
* In order not to harm brand reputation and recognition, each day, they work harder than the day before.
* It continues its business only with the suppliers, customers, dealers and technical services that also embrace the same mind set and work ethics.
* It proves its loyalty for quality and customer satisfaction with its mottos "**Your power is the core of our business**" and "**nothing will be left unfinished**"
* The specifications and/or modifications you can receive with extra costs by other manufacturers are included in standard production in GENPOWER
* When you purchase GENPOWER products, you are not a customer or a buyer but GENPOWER perceives and accepts you as a valuable member of its continuously growing family.

These are why you should buy from GENPOWER...

English 01-2021©2021 GNT Series Generator

GENPOWER GENERATOR

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