



SMART RANGE

1 MAIN FEATURES

T Triphasic
 Diesel fuel
 Grupel / 4GA22D50
 Grupel / 164GB18
 / G-545

Hz 50Hz
 1500 r.p.m.
V 400V
cos φ 0,8

Standby power (STP)	20 kVA	16 kW
Prime Power (PRP)	18 kVA	14 kW
Power Continuous (COP)	- kVA	- kW

Hz 60Hz
 1800 r.p.m.
V 480V
cos φ 0,8

Standby power (STP)	22 kVA	18 kW
Prime Power (PRP)	21 kVA	17 kW
Power Continuous (COP)	- kVA	- kW

OPEN SKID

Length (L)	1700 mm
Height (H)	1110 mm
Width (W)	960 mm
Weight	408 kg
Daily tank	150 L

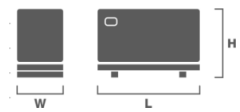


50Hz 60Hz

Acoustic pressure level @1m	-	-
Acoustic pressure level @7m	-	-

SOUNDPROOF

Length (L)	1950 mm
Height (H)	1110 mm
Width (W)	800 mm
Weight	608 kg
Daily tank	40 L



50Hz 60Hz

Acoustic pressure level @1m	74 dB(A)	76 dB(A)
Acoustic pressure level @7m	61 dB(A)	63 dB(A)

AVAILABLE VOLTAGES - 50Hz

FP (cos Ø)	Phase	Voltage	COP (kVA/kW)	PRP (kVA/kW)	STP (kVA/kW)	Circuit breaker (A)
0,8	Three-phase	440	- / -	18 / 14	19 / 15	25
0,8	Three-phase	415	- / -	18 / 14	19 / 15	25
0,8	Three-phase	400	- / -	18 / 14	20 / 16	32
0,8	Three-phase	380	- / -	18 / 14	19 / 15	32
0,8	Three-phase	240	- / -	18 / 14	19 / 15	50
0,8	Three-phase	230	- / -	18 / 14	19 / 15	50
0,8	Three-phase	220	- / -	18 / 14	19 / 15	50
0,8	Single phase	240	- / -	11 / 8	12 / 9	50
1	Single phase	240	- / -	8 / 8	9 / 9	40
0,8	Single phase	230	- / -	11 / 8	12 / 9	50
1	Single phase	230	- / -	8 / 8	9 / 9	40
0,8	Single phase	220	- / -	11 / 8	12 / 9	50
1	Single phase	220	- / -	8 / 8	9 / 9	40

AVAILABLE VOLTAGES - 60Hz

FP (cos Ø)	Phase	Voltage	COP (kVA/kW)	PRP (kVA/kW)	STP (kVA/kW)	Circuit breaker (A)
0,8	Three-phase	480	- / -	21 / 17	22 / 18	25
0,8	Three-phase	460	- / -	20 / 16	22 / 18	32
0,8	Three-phase	440	- / -	20 / 16	22 / 18	32
0,8	Three-phase	416	- / -	20 / 16	22 / 18	32
0,8	Three-phase	240	- / -	21 / 17	22 / 18	50
0,8	Three-phase	230	- / -	20 / 16	22 / 18	63
0,8	Three-phase	220	- / -	20 / 16	22 / 18	63
0,8	Three-phase	208	- / -	20 / 16	22 / 18	63
0,8	Single phase	240	- / -	12 / 9	13 / 10	50
1	Single phase	240	- / -	12 / 12	13 / 13	50
0,8	Single phase	230	- / -	12 / 9	13 / 10	50
1	Single phase	230	- / -	12 / 12	13 / 13	50
0,8	Single phase	220	- / -	12 / 9	13 / 10	63
1	Single phase	220	- / -	12 / 12	13 / 13	63


2 ROOM INSTALLATION

EXHAUST SYSTEM	50 Hz			60 Hz		
	COP	PRP	STP	COP	PRP	STP
Exhaust gas temperature (°C)	-	-	550	-	-	550
Exhaust gas flow (kg/h)	-	-	103,4	-	-	126,8
Evacuated Heat (kW)	-	-	4,08	-	-	4,8
Maximum back pressure (kPa)	5					
Exhaust silencer attenuation (dB)	30					
Output Diameter (mm)	65					

VENTILATION SYSTEMS	50 Hz			60 Hz		
	COP	PRP	STP	COP	PRP	STP
Combustion air flow (kg/h)	-	-	98	-	-	120
Cooling airflow (m³/min)	42,5			51		
Maximum load losses (Pa)	125					
RADIATION	50 Hz			60 Hz		
	COP	PRP	STP	COP	PRP	STP
Engine (kW)	-	-	3,57	-	-	4,2
Alternator (kW)	2,5	2,5	2,9	2,9	2,9	3,2

3 ENGINE SPECIFICATIONS


GENERAL SPECIFICATIONS	50 Hz	60 Hz
Model	4GA22D50	
Emissions	Not satisfy 97/68/EC	
Performance grade	G1	
Operating method	Four stroke	
Fuel type	Diesel fuel	
Refrigeration system	Water/antifreeze Closed Circuit	
Aspiration system	Natural	
Injection system	Direct	
No. and Cylinder arrangement	4 In-Line	
Displacement (L)	2,156	
Cylinder bore (mm)	85	
Cylinder stroke (mm)	95	
Compression Ratio	18:1	
Regulation	Mechanic	
Rotation speed	1500	1800
Piston Speed (m/s)	4,8	5,7
Gross power COP (kWm)	-	-
Gross power PRP (kWm)	19	17,95
Gross power STP (kWm)	20,5	19,66
Fan power (kWm)	1,5	2
Net Power COP (kWm)	-	-
Net Power PRP (kWm)	17,5	19,95
Net Power STP (kWm)	19	21,66
BMEP COP (kPa)	-	-
BMEP PRP (kPa)	686	651
BMEP STP (kPa)	761	720



CONSUMPTION		50Hz		60Hz	
Fuel consumption	LOAD	lt/h	g/kWh	lt/h	g/kWh
STP	100%	5,8	240	6,7	245
	100%	5,2	240	6,1	245
	75%	3,8	235	4,4	235
PRP	50%	2,8	255	3,2	255
	100%	-	-	-	-
	75%	-	-	-	-
COP	50%	-	-	-	-
Oil consumption	< 0,1% of fuel consumption				
REFERENCE CONDITIONS					
Temperature (°C)	25				
Atmospheric pressure (kPa)	100				
CAPACITY					
Coolant (L)	11,1				
Oil (L)	6,5				
STARTING SYSTEM					
Voltage (V)	12				
Power (kW)	3				
Battery (Ah)	60				

4 ALTERNATOR SPECIFICATIONS

GENERAL SPECIFICATIONS	
Model	164GB18
Phases No.	Triphasic
Protection	IP23
Insulation	H
Temperature Rise	H
50Hz R.F.I. telephone interference	THF<2%
60Hz R.F.I. telephone interference	TIF<50
R.F.I. Suppression	BS EN 61000-6-2 /6-4, VDE 0875G, VDE 0875N.
Coupling	Semi-Flexible
Support	Single bearing



Wave form distortion with no load	< 1,5%
Wave form distortion with balanced linear load	< 5%
Winding Leads	12
Excitation (standard / option)	Self-excited / -
AVR Model (standard / option)	SX460/ -
Voltage Regulation (standard / option)	± 1,0%/ -



SMART RANGE

RATED POWER - 50Hz								RATED POWER - 60Hz							
FP (cos Ø)	Phase	Voltage (V)	Power		Efficiency			FP (cos Ø)	Phase	Voltage (V)	Power		Efficiency		
			PRP/STP (kVA)	PRP/STP (%)	PRP/STP (%)	Xd	X'd				X''d	PRP/STP (kVA)	PRP/STP (%)	PRP/STP (%)	Xd
0,8	Three-phase	440	18 / 19	83,0 / 83,0	1,711	0,174	0,109	0,8	Three-phase	480	21 / 23	82,8 / 82,8	2,112	0,216	0,136
0,8	Three-phase	415	18 / 19	82,5 / 82,5	1,711	0,174	0,109	0,8	Three-phase	460	21 / 23	81,9 / 81,9	2,112	0,216	0,136
0,8	Three-phase	400	18 / 20	82,1 / 82,1	1,711	0,174	0,109	0,8	Three-phase	440	21 / 23	81,5 / 81,5	2,112	0,216	0,136
0,8	Three-phase	380	18 / 19	81,6 / 81,6	1,711	0,174	0,109	0,8	Three-phase	416	21 / 23	80,8 / 80,8	2,112	0,216	0,136
0,8	Three-phase	240	18 / 19	82,5 / 82,5	1,711	0,174	0,109	0,8	Three-phase	240	21 / 23	82,8 / 82,8	2,112	0,216	0,136
0,8	Three-phase	230	18 / 19	82,1 / 82,1	1,711	0,174	0,109	0,8	Three-phase	230	21 / 23	81,9 / 81,9	2,112	0,216	0,136
0,8	Three-phase	220	18 / 19	83,0 / 83,0	1,711	0,174	0,109	0,8	Three-phase	220	21 / 23	81,5 / 81,5	2,112	0,216	0,136
0,8	Single phase	240	11 / 12	81,7 / 81,7	1,711	0,174	0,109	0,8	Three-phase	208	21 / 23	80,8 / 80,8	2,112	0,216	0,136
1	Single phase	240	11 / 12	81,7 / 81,7	1,711	0,174	0,109	0,8	Single phase	240	12 / 13	81,7 / 81,7	2,112	0,216	0,136
0,8	Single phase	230	11 / 12	81,7 / 81,7	1,711	0,174	0,109	1	Single phase	240	12 / 13	81,7 / 81,7	2,112	0,216	0,136
1	Single phase	230	11 / 12	81,7 / 81,7	1,711	0,174	0,109	0,8	Single phase	230	12 / 13	81,7 / 81,7	2,112	0,216	0,136
0,8	Single phase	220	11 / 12	81,7 / 81,7	1,711	0,174	0,109	1	Single phase	230	12 / 13	81,7 / 81,7	2,112	0,216	0,136
1	Single phase	220	11 / 12	81,7 / 81,7	1,711	0,174	0,109	0,8	Single phase	220	12 / 13	81,7 / 81,7	2,112	0,216	0,136
								1	Single phase	220	12 / 13	81,7 / 81,7	2,112	0,216	0,136

5

CONTROL PANEL



GENSET	GRUPEL G-545	OPTIONAL
Voltage (Ph-Ph / Ph-N)	• / •	• / •
Current intensity	•	•
Frequency	•	•
RMS values	•	•
Generator phase sequence	•	•
Generator earth current [a]	•	•
No. of registers events	400	250
Real time clock	•	•
PIN protection	•	•
kWh, kVAr, kVAh, kVAh, cos Ø	•	•
Synchroscope (m)	o	o
Nº of available outputs [b]	4	6
Engine run hours	•	•
Indication of alarms on LCD	•	•
Total no. of LED indicators	15	12
No. of LED alarms	4	4
Sound signalling alarms	-	o
Scheduler	•	•
Fuel Level	•	•

Electrical network	GRUPEL G-545	OPTIONAL
Voltage (Ph-Ph / Ph-N)	• / •	• / •
Current intensity [a]	o	o
Frequency	•	•
kVA, kW, cos Ø (a)	o	o
Inversion control between main-group	•	•
Protections and Alarms	GRUPEL G-545	OPTIONAL
High / low battery voltage	A	o
Failure in Battery Charge Alternator	A	o
Failure to stop	A/S	A/S
Failure to start	A/S	A/S
Low fuel level	A/S	A/S
Overload	A/S	A/S
Earth leakage	A/S	A/S
Asymmetry between phases	A/S	A/S
Maintenance	A/S	A/S
High / Low generator frequency	A/S	A/S
Engine overspeed	A/S	A/S
Engine underspeed	A/S	A/S
Generator overvoltage	A/S	A/S
Generator undervoltage	A/S	A/S
ECU Alert (if applicable)	A/S	A/S
Low oil pressure	A/S	A/S
Low level of radiator water [f]	A/S	A/S
Engine high temperature	A/S	A/S
Fuel leakage/ theft	A	o

6 CONTROL PANEL

Engine	GRUPEL G-545	OPTIONAL
Engine Speed	•	•
Low oil pressure protection	•	•
Oil pressure reading [c]	o	o
High temperature engine protection	•	•
Engine temperature reading [c]	o	o
Engine battery voltage	•	•
Intensity of the engine battery [d]	o	o
Fuel Consumption [e]	•	•
Low level of radiator water [f]	o	o
Engine maintenance scheduled	•	•
Communication	GRUPEL G-545	OPTIONAL
USB female type B plug (Max. 6m) [g]	•	•
USB female type A plug (n)	o	o
RS232 port (Max. 15m) (n)	o	o
RS485 port (Max. 1,2Km) [h]	•	•
Ethernet port RJ45 [i]	o	o
GSM and/or GPS [j]	o	o
ModBus RTU protocol [h]	•	•
ModBus TCP protocol [i]	o	o
SNMP protocol [l]	o	o
CAN port (Max. 40m)	•	•
MSC port (Max. 240m) (m)	o	o
PLC functionality	•	•

Applications	GRUPEL G-545	OPTIONAL
Automatic or manual starting	•	•
Remote start by NO dry contact	•	•
Automatic by mains failure	•	•
Alternating with timesharing	•	•
Multi-generators synchronization and load sharing (Max. 32 generators) (m)	o	o
Generator-Main in synchronism and load sharing (1 generator and 1 main) (m)	o	o
Optional expansions	GRUPEL G-545	OPTIONAL
DSE2130 (8 inputs dig.) IG-IOM (8 in/outputs dig. + 4 inputs anal.) G-08 (8 inputs dig.)	•	•
DSE2157 I-RB8 G-06 (8 relay outputs)	•	•
DSE890 IL-NT-GPRS G-GSM (GSM and/or GPS)	•	•
DSE891 IB-LITE G-ETH (ethernet module)	•	•
DSE892 IB-LITE - (ethernet module according SNMP protocol)	-	o
DSE2548 IGL-RA15 - (expansion with 8 additional LEDs)	-	o
DSE2510 / 20 (mirror controller, maximum distance 1km)	-	o
Standards		
Working temperature		-30 -> 70°C
Protection index (when assembled with sealing gasket)		IP65
Degree of humidity (during 48hr)		93% / 40°C

Legend

•	Available
o	Optional
-	Not available
A	Warning Alarm
S	Stop alarm
[a]	Need additional CT
[b]	No. of outputs available for standard configuration. The outputs do not include relays and additional terminal connections.
[c]	If the information is not provided by the engine-ECU, you need an additional sensor

[d]	Needs additional ammeter
[e]	If information provided by the engine ECU
[f]	Required additional sensor
[g]	Requires the addition of the IL-NT-S-USB module
[h]	Requires the addition of the IL-NT-RS232-485 module
[i]	DeepSea: Requires the addition of the DSE891 module/ ComAp: Requires the addition of the IB-LITE module
[j]	DeepSea: Requires the addition of the DSE890 module/ ComAp: Requires the addition of the IL-NT-GPRS module
[l]	DeepSea: Requires the addition of the DSE892 module/ ComAp: Requires the addition of the IB-LITE module

Indicative weights and dimensions. Reference ambient conditions: 100kPa, 25°C, 30% relative humidity and fuel temperature below 40°C. Power in accordance with ISO 8528: Continuous power (PRP): Maximum available power to feed a variable electrical load for an unlimited period. The average of load factor in 24h of operation, shall not exceed 70% of the PRP. Admits 10% of overload during the maximum period of 1h every 12h of operation. The operation under overload shall not exceed 25h/year. Emergency Power (STP): Maximum available power to feed variable electrical load for a maximum period of 200h/year. The average of load factor in 24h of operation shall not exceed 70% of the STP. No overload. These specifications are subject to change without notice.

Distribuidor