




## INDUSTRIAL RANGE

### 1 MAIN FEATURES

<b>T</b> Triphasic	 Diesel fuel	 Grupel / 4GA30D50	 Grupel / 224GB50	 Deep Sea / DSE 4520
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<b>Hz</b> 50Hz	 1500 r.p.m.	<b>V</b> 400V	<b>cos φ</b> 0,8
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Standby power (STP)	32 kVA	25 kW
Power Continuous (COP)	- kVA	- kW
Prime Power (PRP)	29 kVA	23 kW

#### OPEN SKID


Length (L)	2300 mm
Height (H)	1495 mm
Width (W)	980 mm
Weight	685 kg
Daily tank	200 L



	50Hz	60Hz
Acoustic pressure level @1m	-	-
Acoustic pressure level @7m	-	-

#### AVAILABLE VOLTAGES - 50Hz

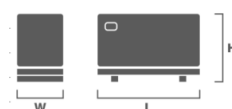
FP (cos Ø)	Phase	Voltage	COP (kVA/kW)	PRP (kVA/kW)	STP (kVA/kW)	Circuit breaker (A)
0,8	Three-phase	440	- / -	29 / 23	32 / 26	40
0,8	Three-phase	415	- / -	29 / 23	32 / 25	40
0,8	Three-phase	400	- / -	29 / 23	32 / 25	50
0,8	Three-phase	380	- / -	29 / 23	32 / 25	50
0,8	Three-phase	240	- / -	29 / 23	32 / 25	80
0,8	Three-phase	230	- / -	29 / 23	32 / 25	80
0,8	Three-phase	220	- / -	29 / 23	32 / 26	80
0,8	Single phase	240	- / -	29 / 23	32 / 25	125
1	Single phase	240	- / -	23 / 23	25 / 25	100
0,8	Single phase	230	- / -	29 / 23	32 / 25	125
1	Single phase	230	- / -	23 / 23	25 / 25	100
0,8	Single phase	220	- / -	29 / 23	32 / 25	160
1	Single phase	220	- / -	23 / 23	25 / 25	125

<b>Hz</b> 60Hz	 1800 r.p.m.	<b>V</b> 480V	<b>cos φ</b> 0,8
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Standby power (STP)	36 kVA	29 kW
Power Continuous (COP)	- kVA	- kW
Prime Power (PRP)	32 kVA	26 kW

#### SOUNDPROOF

Length (L)	2300 mm
Height (H)	1495 mm
Width (W)	980 mm
Weight	1180 kg
Daily tank	200 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 - 60Hz

FP (cos Ø)	Phase	Voltage	COP (kVA/kW)	PRP (kVA/kW)	STP (kVA/kW)	Circuit breaker (A)
0,8	Three-phase	480	- / -	32 / 26	36 / 29	40
0,8	Three-phase	460	- / -	32 / 26	35 / 28	50
0,8	Three-phase	440	- / -	32 / 26	35 / 28	50
0,8	Three-phase	416	- / -	32 / 25	35 / 28	50
0,8	Three-phase	240	- / -	32 / 26	36 / 29	80
0,8	Three-phase	230	- / -	32 / 26	35 / 28	100
0,8	Three-phase	220	- / -	32 / 26	35 / 28	100
0,8	Three-phase	208	- / -	32 / 25	35 / 28	100
0,8	Single phase	240	- / -	32 / 26	35 / 28	160
1	Single phase	240	- / -	26 / 26	28 / 28	125
0,8	Single phase	230	- / -	32 / 26	35 / 28	160
1	Single phase	230	- / -	26 / 26	28 / 28	125
0,8	Single phase	220	- / -	32 / 26	35 / 28	160
1	Single phase	220	- / -	26 / 26	28 / 28	125

## 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)	-	-	180,8	-	-	206,9
Evacuated Heat (kW)	-	-	6	-	-	7,2
Maximum back pressure (kPa)			5			
Exhaust silencer attenuation (dB)			30			
Output Diameter (mm)			90			

VENTILATION SYSTEMS	50 Hz			60 Hz		
	COP	PRP	STP	COP	PRP	STP
Combustion air flow (kg/h)	-	-	175	-	-	200
Cooling airflow (m³/min)		54			75	
Maximum load losses (Pa)			125			
RADIATION	50 Hz			60 Hz		
	COP	PRP	STP	COP	PRP	STP
Engine (kW)	-	-	5,25	-	-	6,3
Alternator (kW)	4,7	4,7	5,2	5,4	5,4	5,9

## 3 ENGINE SPECIFICATIONS

GENERAL SPECIFICATIONS	50 Hz	60 Hz
Model	4GA30D50	
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)	3,168	
Cylinder bore (mm)	98	
Cylinder stroke (mm)	105	
Compression Ratio	18:1	
Regulation	Mechanic	
Rotation speed	1500	1800
Piston Speed (m/s)	5,3	6,3
Gross power COP (kWm)	-	-
Gross power PRP (kWm)	27,5	31,12
Gross power STP (kWm)	30,2	34,14
Fan power (kWm)	1,5	2
Net Power COP (kWm)	-	-
Net Power PRP (kWm)	26	29,12
Net Power STP (kWm)	28,7	32,14
BMEP COP (kPa)	-	-
BMEP PRP (kPa)	694	655
BMEP STP (kPa)	763	718



CONSUMPTION		50Hz		60Hz	
Fuel consumption	LOAD	lt/h	g/kWh	lt/h	g/kWh
STP	110%	7,8	220	9	225
	100%	7,1	220	8,2	225
PRP	75%	5,5	225	6,7	245
	50%	4	250	4,8	260
Oil consumption		< 0,1 % of fuel consumption			
REFERENCE CONDITIONS					
Temperature (°C)			25		
Atmospheric pressure (kPa)			100		
CAPACITY					
Coolant (L)			13,1		
Oil (L)			6,5		
STARTING SYSTEM					
Voltage (V)			12		
Power (kW)			3		
Battery (Ah)			60		

## 4 ALTERNATOR SPECIFICATIONS

GENERAL SPECIFICATIONS	
Model	224GB50
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 / PMG
AVR Model (standard / option)	SX460/ MX341
Voltage Regulation (standard / option)	± 1,0%/ ± 0,5%
Icc (standard / option)	-/ 1/Xd

RATED POWER - 50Hz								RATED POWER - 60Hz							
FP (cos Ø)	Phase	Voltage (V)	Power PRP/STP (kVA)	Efficiency PRP/STP (%)	Xd	X'd	X''d	FP (cos Ø)	Phase	Voltage (V)	Power PRP/STP (kVA)	Efficiency PRP/STP (%)	Xd	X'd	X''d
0,8	Three-phase	440	48 / 53	89,0 / 89,0	2,100	0,160	0,110	0,8	Three-phase	480	60 / 66	88,8 / 88,8	2,830	0,200	0,140
0,8	Three-phase	415	50 / 55	88,5 / 88,5	2,100	0,160	0,110	0,8	Three-phase	460	60 / 66	88,2 / 88,2	2,830	0,200	0,140
0,8	Three-phase	400	50 / 55	88,2 / 88,2	2,100	0,160	0,110	0,8	Three-phase	440	60 / 66	87,8 / 87,8	2,830	0,200	0,140
0,8	Three-phase	380	50 / 55	87,8 / 87,8	2,100	0,160	0,110	0,8	Three-phase	416	60 / 66	87,1 / 87,1	2,830	0,200	0,140
0,8	Three-phase	240	50 / 55	88,5 / 88,5	2,100	0,160	0,110	0,8	Three-phase	240	60 / 66	88,8 / 88,8	2,830	0,200	0,140
0,8	Three-phase	230	50 / 55	88,2 / 88,2	2,100	0,160	0,110	0,8	Three-phase	230	60 / 66	88,2 / 88,2	2,830	0,200	0,140
0,8	Three-phase	220	48 / 53	89,0 / 89,0	2,100	0,160	0,110	0,8	Three-phase	220	60 / 66	87,8 / 87,8	2,830	0,200	0,140
0,8	Single phase	240	30 / 33	88,2 / 88,2	2,100	0,160	0,110	0,8	Three-phase	208	60 / 66	87,1 / 87,1	2,830	0,200	0,140
1	Single phase	240	30 / 33	88,2 / 88,2	2,100	0,160	0,110	0,8	Single phase	240	32 / 35	88,2 / 88,2	2,830	0,200	0,140
0,8	Single phase	230	30 / 33	88,2 / 88,2	2,100	0,160	0,110	1	Single phase	240	32 / 35	88,2 / 88,2	2,830	0,200	0,140
1	Single phase	230	30 / 33	88,2 / 88,2	2,100	0,160	0,110	0,8	Single phase	230	32 / 35	88,2 / 88,2	2,830	0,200	0,140
0,8	Single phase	220	30 / 33	88,2 / 88,2	2,100	0,160	0,110	1	Single phase	230	32 / 35	88,2 / 88,2	2,830	0,200	0,140
1	Single phase	220	30 / 33	88,2 / 88,2	2,100	0,160	0,110	0,8	Single phase	220	32 / 35	88,2 / 88,2	2,830	0,200	0,140
								1	Single phase	220	32 / 35	88,2 / 88,2	2,830	0,200	0,140

## 5 CONTROL PANEL



GENSET	Deep Sea Electronics	DSE 4520	OPTIONAL
Voltage (F-F / F-N)		• / •	• / •
Current intensity		•	•
Frequency		•	•
RMS values		•	•
Generator phase sequence		-	o
Generator earth current [a]		-	o
No. of registers events		15	250
Real time clock		•	•
PIN protection		•	•
kWh, kVAr, kVAh, kVArh, cos Ø		•	•
Synchroscope		-	o
Nº of available outputs [b]		2	6
Engine run hours		•	•
Indication of alarms on LCD		•	•
Total no. of LED indicators		3	12
No. of LED alarms		-	4
Sound signalling alarms		•	•
Scheduler		•	•
Fuel Level		•	•

Electrical network	DSE 4520	OPTIONAL
Voltage (F-F / F-N)	• / •	• / •
Current intensity [a]	-	o
Frequency	•	•
kVA, kW, cos Ø	-	o
Inversion control between main-group	-	o
Protections and Alarms	DSE 4520	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	-	o
Asymmetry between phases	-	o
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	-	o



## INDUSTRIAL RANGE

Applications	DSE 4520	OPTIONAL
Automatic or manual starting	•	•
Remote start by NO dry contact	•	•
Automatic by mains failure	•	•
Alternating with timesharing	-	o
Multi-generators synchronization and load sharing (Max. 32 generators)	-	o
Generator-Main in synchronism and load sharing (1 generator and 1 main)	-	o
Optional expansions	DSE 4520	OPTIONAL
DSE2130 (8 digital inputs) / IG-IOM (8 digital inputs / outputs + 4 analog inputs)	-	o
DSE2157 / I-RB8 (8 relay outputs)	-	o
DSE890/IL-NT-GPRS (GSM and/or GPS)	•	•
DSE891 / IB-LITE (Ethernet module)	•	•
DSE892 / IB-LITE (Ethernet module according SNMP protocol)	•	•
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	

[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