

# N45 AM1A

46 kW (1500 g/1')

Engine N45 AM1A

## 1/ GENERAL

1500 rpm

Engine model	N45 AM1A-5	
Basic engine type	F4GE0405A*F650 - 504253582	
Number cylinders	4	
Firing order (N° 1 nearest to fan)	1-3-4-2	
Cylinder arrangement	in line	
Valves per cylinder	2	
Cycle	diesel 4 stroke	
Injection system	direct	
Induction System	Natural aspirated	
Bore	mm	104
Stroke	mm	132
Total displacement	lit	4,5
Mean piston speed	m/s	6,6
Compression ratio	17,5 : 1	
Flywheel rotation	anti clockwise viewed on flywheel	
Housing flywheel	SAE 3	
Flywheel	11"1/2	
Moment of inertia		
without flywheel	kgm <sup>2</sup>	0,14
flywheel only	kgm <sup>2</sup>	0,71
BMEP gross		
Prime Power	bar/kPa	7,7 / 7700
Stand-by Power	bar/kPa	8,75 / 8750
Dry weight (including cooling package)	kg	~400
Energy to coolant	kcal/kWh	650
Energy to radiation	kcal/kWh	130
Dimensions L x W x H	mm	1035 x 640 x 965

## 2/ PERFORMANCES

1500 rpm

Continuous Power	(gross)	kWm	34,1
Prime Power	(gross)	kWm	42,7
Stand-By Power	(gross)	kWm	47
Fan consumption		kWm	1,15
Continuous Power	(net)	kWm	32,9
Prime Power	(net)	kWm	41,5
Stand-By Power	(net)	kWm	45,8
Performance condition			
temperature	°C		≤ 40
altitude a.s.l	m		≤ 1000
Derating			
temperature > T 40°C	%/5°C		300%
altitude >1000 <3000 m	%/500m		400%

<b>3/ COOLING SYSTEM</b>			<b>1500 rpm</b>
Type			liquid
Recommended coolant			water - paraflu 50%
Coolant capacity			
engine only	liter		8,5
radiator and hoses	liter		10
Coolant pump flow	l/min		103,26
Pressure cap setting	kPa (bar)		70 (0,7)
Shutdown switch setting	°C		103
Maximum additional restriction	Pa		46
Air To Boil	Prime Power	°C	57
Fan			
diameter	mm		450
number of blades			8
drive ratio			1,41 : 1
speed	rpm		2115
air flow	m <sup>3</sup> /s		1,8
power consumption	kWm		1,15

<b>4/ LUBRICATION SYSTEM</b>			<b>1500 rpm</b>
Oil sump capacity			
max	liter		8,5
min	liter		5,5
Oil system capacity including filter	liter		12,8
Oil pressure at rated speed	kPa		300 - 500
Oil temperature			
normal	°C		---
max	°C		120
Engine angularity			
longitudinal	degrees		25°
transverse	degrees		25°
Servicing interval	hours		600
Oil specification			ACEA E3 / E5
Oil consumption	%fuel		< 0,1

<b>5/ INTAKE SYSTEM</b>			<b>1500 rpm</b>
Air consumption at 100 % of load	m <sup>3</sup> /h (Kg/h)		172(211)
Air intake restriction, clean filter	kPa (mbar)		2 (20)
Air intake restriction, dirty filter	kPa (mbar)		5 (50)
Air filter type			dry

<b>6/ EXHAUST SYSTEM</b>			<b>1500 rpm</b>
Gas flow at stand-by Power	kg/h		221
Max temperature at PRP (25°C)	°C		620
Max allowable back pressure	kPa (mbar)		10 (100)
Energy to exhaust	kcal/kWh		658

### 7/ FUEL SYSTEM

1500 rpm

Fuel consumption at			
Stand-By	gr/kWh (l/h) [kg/h]		224,9 (12,58) [10,57]
Full load	gr/kWh (l/h) [kg/h]		223(11,3) [9,5]
80%	gr/kWh (l/h) [kg/h]		228,6 (9,2) [7,8]
50%	gr/kWh (l/h) [kg/h]		235,9 (6,4) [5,3]
Fuel specifications			EN 590
Feed pump max suction head	m		---
Injection pump	type STANADYNE		DB 44

### 8/ ELECTRIC SYSTEM

1500 rpm

Voltage (negative to ground)	V		12
Starter motor			
make			Bosch
power	kW		3
pull current	Amp		60
hold current	Amp		12
break away current <sup>+20°C</sup>	Amp		1580
cranking current <sup>+20°C</sup>	Amp		0
Number of teeth on starter motor			10
Number of teeth on flywheel			125
Starting batteries			
recommended capacity	Ah	1x	100
discharge current	Amp		650
(EN 50342)			
Stop solenoid energized to run	Amp		---
Alternator			
voltage	V		14
charge	Amp		90

### 9/ COLD STARTING

1500 rpm

Without air preheating	°C		-10
With air preheating	°C		-25

### 10/ EMISSION GASEOUS AND PARTICLES

1500 rpm

No <sub>x</sub>	Oxides of nitrogen	gr/kWh	6,17
HC	Hydrocarbons	gr/kWh	0,43
No <sub>x</sub> +HC		gr/kWh	6,6
CO	Carbon monoxide	gr/kWh	2,36
PT	Particles	gr/kWh	0,145