

N45 SM1X

57 kW (1800 rpm)

Engine N45 SM1X

1/ GENERAL

1800 rpm

Engine model	N45 SM1X	
Basic engine	F4GE9455B*J600 - 504274128XY	
Number cylinders	4	
Firing order (N°1 nearest to fan)	1-3-4-2	
Cylinder arrangement	in line	
Valves per cylinder	2	
Type	diesel 4 stroke	
Injection system	direct	
Induction System	Turbocharged	
Bore	mm(in)	104(4,1)
Stroke	mm(in)	132(5,2)
Total displacement	lit(in ³)	4,5(275)
Mean piston speed	m/s(ft/s)	7,9(25,9)
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 ² (lbft ²)	0,19(4,49)
flywheel only	Kgm ² (lbft ²)	0,71(16,8)
BMEP		
Prime Power	bar(psi)	7,9(114,6)
Stand-by Power	bar(psi)	8,7(126,18)
Dry weight (including cooling package)	kg(lb)	~450(~992)
Energy to coolant	kcal/kWh	604
Energy to radiation	kcal/kWh	215
Dimensions L x W x H	mm(in)	1180 x 657 x 1016 (46,46 x 25,9 x 40)

2/ PERFORMANCES

1800 rpm

Continuous Power	(gross)	kWm(hp)	42,9(57,6)
Prime Power	(gross)	kWm(hp)	53,6(71,9)
Stand-By Power	(gross)	kWm(hp)	59(79,12)
Fan consumption		kWm(hp)	2(2,68)
Continuous Power	(net)	kWm(hp)	42(56,33)
Prime Power	(net)	kWm(hp)	52,5(70,4)
Stand-By Power	(net)	kWm(hp)	57(76,4)
Performance conditions			
temperature		°C(°F)	≤ 40(104)
altitude s.l.m		m(ft)	≤ 1000(3281)
Derating			
temperature > T 40°C		%/5°C	2
altitude >1000 <3000 m		%/500m	2
altitude >3000 m		%/500m	4

3/ COOLING PACKAGE

1800 rpm

Type		liquid
Recommended coolant		water + 50%paraflu 11
Coolant capacity		
motor only	liter(US gal)	8,5(1,9)
radiator and hose	liter(US gal)	10(2,64)
Coolant pump flow	l/min(US gal/min)	123,91(32,73)
Pression cap setting	kPa (bar)	70 (0,7)
Shutdown switch setting	°C (°F)	103(217,4)
maximal additional restriction	Pa(psi)	147(0,02)
Air To Boil	Prime Power	°C (°F)
Fan		
diameter	mm(in)	450(17,72)
number of pale		8
drive ratio		1,4 : 1
speed	rpm	2538
air flow	m ³ /s	2,3
power consumption	kWm(hp)	2(2,68)

4/ LUBRICATION SYSTEM

1800 rpm

Oil sump capacity		
max	liter(US gal)	8,5(1,9)
min	liter(US gal)	5,5(1,45)
Oil system capacity including filters	liter(US gal)	12,8(3,4)
Oil pressure at rated speed	kPa(psi)	300-500(43,5-72,6)
Oil temperature		
normal	°C (°F)	---
max	°C (°F)	120(248)
Engine angularity		
longitudinal	degrees	25°
trasverse	degrees	25°
Servicing intervall	hours	600
Oil specification		ACEA E3 /E5
Oil consumption	%fuel	< 0,1

5/ INTAKE SYSTEM

1800 rpm

Air consumption at 100% of load	m ³ /h (Kg/h)	464 (385)
Air intake restriction clean filter	kPa (mbar)	2 (20)
Air intake restriction dirty filter	kPa (mbar)	5 (50)
Air filter type		dry

6/ EXHAUST SYTEM

1800 rpm

Gas flow at stand by power	kg/h	399
Max temperature at PRP (25°C)	°C	438
Max allowable back pressure	kPa (mbar)	5 (50)
Energy to exhaust	kcal/kWh	721

7/ FUEL SYSTEM

1800 rpm

Fuel consumption at

Stand-By	gr/kWh (l/h) [kg/h]	234,3 (16,49) [13,85]
full load	gr/kWh (l/h) [kg/h]	235,7 (15,05) [12,64]
80%	gr/kWh (l/h) [kg/h]	240,7 (12,7) [10,69]
50%	gr/kWh (l/h) [kg/h]	258,1 (8,9) [7,49]
Fuel specifications		EN 590
Fuel pump max suction head	m	-
Injection pump	type STANADYNE	0

8/ ELECTRIC SYSTEM

1800 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	Amp	1580
cranking current	Amp	0
Number of teeth on Starter motor		10
Number of teeth on flywheel		125
Starting batteries		
recommended capacity	Ah	100
discharge current	Amp	650
(EN 50342)		
Stop solenoid energized to run	Amp	0
Alternator		
voltage	V	14
charge	Amp	90

9/ COLD STARTING

1800 rpm

Without air preheating	°C(°F)	-10(14)
With air preheating	°C(°F)	-25(-13)

10/ EMISSION GASEOUS AND PARTICLES

1800 rpm

No _x	Oxides of nitrogen	gr/kWh	-
HC	Hydrocarbons	gr/kWh	-
NMHC + NO _x		gr/kWh	4,3
CO	Carbon monoxide	gr/kWh	1,4
PT	Particulate	gr/kWh	0,33