N45 TE1F

80 kW (1500 rpm)

1/ GENERAL		1500 rpm
Engine model		N45 TE1F
Basic engine		F4HE0485C*J101 - 5801451512XY
Number cylinders		4
Firing order (N°1 nearest to fan)		1-3-4-2
Cylinder arrangement		in line
Valves per cylinder		4
Type		diesel 4 stroke
Injection system		direct common rail
Electronic engine control unit		BOSCH EDC7 UC31
Induction System		Turbocharged aftercooled air/air
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^2	0,14
flywheel only	kgm^2	0,71
Degree of irregulariry at PRP		0,057
BMEP		
Prime Power	bar/kPa	17,8 / 1777
Stand-by Power	bar/kPa	16,2 / 1617
Dry weight (including cooling package)	kg	~500
Energy to coolant	kcal/kWh	416
Energy to charge cooler	kcal/kWh	115
Energy to radiation	kcal/kWh	84
Dimensions L x W x H	mm	1367 X 753 X 1086

2/ PERFORMANCES			1500 rpm
Continuous Power	(gross)	kWm	60
Prime Power	(gross)	kWm	74,5
Stand-By Power	(gross)	kWm	82
Fan consumption		kWm	1,8
Continuous Power	(net)	kWm	58
Prime Power	(net)	kWm	72,5
Stand-By Power	(net)	kWm	80
Performance conditions			
temperature		°C	≤ 40
altitude s.l.m		m	≤ 1000
Derating			
temperature > T 40°C		%/5°C	2%
altitude >1000 <3000 m		%/500m	3%
altitude >3000 m		%/500m	6%

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3/ COOLING PACKAGE

			1500 rpm
Type			liquid
Recommanded coolant			water + 50%paraflu 11
Coolant capacity			
	motor only	liter	8,5
	radiator and hose	liter	10
Coolant pump flow		l/min	103,3
Engine cooling outlet (max power)		°C	90
Engine cooling inlet (max power)		°C	85
Thermostat: start to open		°C	80
Thermostat: fully open		°C	96
Pression cap setting		kPa (bar)	75 (0,75)
Shutdown switch setting		°C	103
maximal additional restriction		Pa	150
Air To Boil	Prime Power	°C	65
Fan			
	diameter	mm	500
	number of blades		10
	drive ratio		1,41 : 1
	speed	rpm	2115
	air flow	m^3/s	2,2
	power consumption	kWm	1,8

4/ LUBRICATION SYSTEM

		1500 rpm
Oil sump capacity		
max	liter	8,5
min	liter	5,5
Oil system capacity including filters	liter	12,8
Oil pressure at rated speed	kPa	300-500
Oil temperature		
normal	°C	---
max	°C	120
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

		1500 rpm
Air consumption at 100% of load	Kg/h	500
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		1500 rpm
Gas flow at stand by power	kg/h	517
Max temperature at PRP (25°C)	°C	430
Max allowable back pressure	kPa (mbar)	5 (50)
Energy to exhaust	kcal/kWh	630

7/ FUEL SYSTEM		1500 rpm
Fuel consumption at		
Stand-By	gr/kWh (l/h) [kg/h]	209,7 (20,5) [17,2]
full load	gr/kWh (l/h) [kg/h]	212,5 (18,8) [15,8]
80%	gr/kWh (l/h) [kg/h]	220 (15,7) [13,2]
50%	gr/kWh (l/h) [kg/h]	234,5 (11,5) [9,6]
Fuel specifications		EN 590
Fuel pump max suction head	m	---

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	Amp	1580
	cranking current	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)		
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_x	Oxides of nitrogen	gr/kWh	-
HC	Hydrocarbons	gr/kWh	-
No_x+HC		gr/kWh	3,46
CO	Carbon monoxide	gr/kWh	1,14
PT	Particles	gr/kWh	0,128