

F32 SM1A

41,5 kW (1500 g/1')

Engine F32 SM1A

1/ GENERAL			1500 rpm
Engine model			F32SM1A
Basic engine type			F5CE0455A*B001 - 504351902XY
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			Turbocharged
Bore	mm		99
Stroke	mm		104
Total displacement	lit		3,2
Mean piston speed	m/s		5,2
Compression ratio			17:1
Flywheel rotation			anti clockwise viewed on flywheel
Housing flywheel			SAE 3
Flywheel			11"1/2
Moment of inertia			
	without flywheel	kgm ²	0,28
	flywheel only	kgm ²	0,79
BMEP gross			
	Prime Power	bar/kPa	9,5/950
	Stand-by Power	bar/kPa	10,5/1050
Dry weight (including cooling package)			kg
Energy to coolant			kcal/kWh
Energy to radiation			kcal/kWh
Dimensions L x W x H			mm
			1200 x 600 x 930

2/ PERFORMANCES			1500 rpm
Continuous Power	(gross)	kWm	30,5
Prime Power	(gross)	kWm	38,2
Stand-By Power	(gross)	kWm	42
Fan consumption			kWm
			0,5
Continuous Power	(net)	kWm	30
Prime Power	(net)	kWm	37,7
Stand-By Power	(net)	kWm	41,5
Performance condition			
	temperature	°C	≤ 40
	altitude a.s.l	m	≤ 1000
Derating			
	temperature > T 40°C	%/5°C	1
	altitude >1000 <3000 m	%/500m	2
	altitude >3000 m	%/500m	4

3/ COOLING SYSTEM			1500 rpm
Type			liquid
Recommended coolant			water - paraflu 50%
Coolant capacity			
engine only	liter		4,27
radiator and hoses	liter		15
Coolant pump flow	l/min		95
Pressure cap setting	kPa (bar)		100 (1,0)
Shutdown switch setting	°C		103
Maximum additional restriction	Pa		55
Air To Boil	Prime Power	°C	62
Fan			
diameter	mm		500
number of blades			10
drive ratio			1,01 : 1
speed	rpm		1515
air flow	m ³ /s		1,6
power consumption	kWm		0,5

4/ LUBRICATION SYSTEM			1500 rpm
Oil sump capacity			
max	liter		8,5
min	liter		6,5
Oil system capacity including filter	liter		10,5
Oil pressure at rated speed	kPa		300
Oil temperature			
normal	°C		101
max	°C		115
Engine angularity			
longitudinal	degrees		45°
transverse	degrees		45°
Servicing interval	hours		600
Oil specification			ACEA E3/E5
Oil consumption	%fuel		< 0,1

5/ INTAKE SYSTEM			1500 rpm
Air consumption at 100 % of load	m ³ /h (Kg/h)		163,5 (211)
Air intake restriction, clean filter	kPa (mbar)		2 (20)
Air intake restriction, dirty filter	kPa (mbar)		5 (50)
Air filter type			dry

6/ EXHAUST SYSTEM			1500 rpm
Gas flow at stand-by Power	kg/h		221
Max temperature at PRP (25°C)	°C		523
Max allowable back pressure	kPa (mbar)		5 (50)
Energy to exhaust	kcal/kWh		593

7/ FUEL SYSTEM			1500 rpm
Fuel consumption at			
Stand-By	gr/kWh (l/h) [kg/h]		229,3 (11,7) [9,6]
Full load	gr/kWh (l/h) [kg/h]		228,7 (10,6) [8,7]
80%	gr/kWh (l/h) [kg/h]		230 (8,5) [7,0]
50%	gr/kWh (l/h) [kg/h]		241 (5,6) [4,6]
Fuel specifications			EN 590
Feed pump max suction head	m		---
Injection pump	type DELPHI		Type Rotare DPGE

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 ^{+20°C}	Amp		-
cranking current ^{+20°C}	Amp		-
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		95

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	5,8
HC	Hydrocarbons	gr/kWh	0,2
No _x +HC		gr/kWh	-
CO	Carbon monoxide	gr/kWh	2,24
PT	Particles	gr/kWh	0,291