

# F32 TM1A

51,5 kW (1500 g/1')

Engine F32 TM1A

1/ GENERAL			1500 rpm
Engine model			F32TM1A
Basic engine type			F5CE0485A*B001 - 504351907XY
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 aftercooled air/air
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 <sup>2</sup>	0,28
	flywheel only	kgm <sup>2</sup>	0,79
BMEP gross			
	Prime Power	bar/kPa	11,8/1180
	Stand-by Power	bar/kPa	13/1300
Dry weight (including cooling package)			kg
Energy to coolant			kcal/kWh
Energy to charge cooler			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	37,8
Prime Power	(gross)	kWm	47,3
Stand-By Power	(gross)	kWm	52
Fan consumption			kWm
			0,5
Continuous Power	(net)	kWm	37,3
Prime Power	(net)	kWm	46,8
Stand-By Power	(net)	kWm	51,5
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

<b>3/ COOLING SYSTEM</b>			<b>1500 rpm</b>
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		72
Air To Boil	Prime Power	°C	50
Fan			
diameter	mm		500
number of blades			10
drive ratio			1,01 : 1
speed	rpm		1515
air flow	m <sup>3</sup> /s		1,6
power consumption	kWm		0,5

<b>4/ LUBRICATION SYSTEM</b>			<b>1500 rpm</b>
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		105
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

<b>5/ INTAKE SYSTEM</b>			<b>1500 rpm</b>
Air consumption at 100 % of load	m <sup>3</sup> /h (Kg/h)		183 (237)
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		248
Max temperature at PRP (25°C)	°C		548
Max allowable back pressure	kPa (mbar)		5 (50)
Energy to exhaust	kcal/kWh		493

7/ FUEL SYSTEM			1500 rpm
Fuel consumption at			
Stand-By	gr/kWh (l/h) [kg/h]		217,8 (13,7) [11,3]
Full load	gr/kWh (l/h) [kg/h]		219 (12,6) [10,35]
80%	gr/kWh (l/h) [kg/h]		220 (10,2) [8,3]
50%	gr/kWh (l/h) [kg/h]		225,5 (6,5) [5,3]
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 <sup>+20°C</sup>	Amp		-
cranking current <sup>+20°C</sup>	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 <sub>x</sub>	Oxides of nitrogen	gr/kWh	6,11
HC	Hydrocarbons	gr/kWh	0,11
No <sub>x</sub> +HC		gr/kWh	-
CO	Carbon monoxide	gr/kWh	0,75
PT	Particles	gr/kWh	0,109