

# V20 TE1

610 kW (1500 rpm) - 670 kW (1800 rpm)

Engine V20 TE1

1/ GENERAL			1500 rpm	1800 rpm
Engine type			V20 TE1	
Basic engine type			FVAE2885X*A100 - 504094915 XY	
Number cylinder			8	
Firing order (N°1 nearest to fan)			1-3-7-2-6-5-4-8	
Cylinder arrangement			V form 90°	
Valves per cylinder			4	
Cycle			diesel 4 stroke	
Injection system			direct common rail	
Electronic engine control unit			CAT ADEM III	
Induction System			Turbo aftercooler air/air	
Bore	mm		145	
Stroke	mm		152	
Total displacement	liter		20,08	
Mean piston speed	m/s		7,6	9,12
Compression ratio			16,01	
Flywheel rotation			anti clockwise viewed on flywhell	
Housing flywheel			SAE 0	
Flywheel			18"	
Moment of inertia				
	without flywheel	Nm <sup>2</sup>	1,41	
	flywheel only	Nm <sup>2</sup>	4,46	
BMEP				
	Prime Power	bar/kPa	22,9 / 2288	21,2 / 2120
	Stand-by Power	bar/kPa	25,2 / 2520	23,3 / 2334
Dry weight (including cooling package)	kg		~ 2118	
Energy to coolant	kcal/kWh		305	295
Energy to charge cooler	kcal/kWh		154	169
Energy to radiation	kcal/kWh		35	39
Dimensions L x W x H	mm		2359 x 1563 x 2079	

2/ PERFORMANCES			1500 rpm	1800 rpm
Continuous Power	(gross)	kWm	458	509
Prime Power	(gross)	kWm	572	636
Stand-By Power	(gross)	kWm	630	700
Fan consumption		kWm	20	30
Continuous Power	(net)	kWm	438	479
Prime Power	(net)	kWm	552	606
Stand-By Power	(net)	kWm	610	670
Performance conditions				
	temperature	°C	≤ 40	
	altitude asl	m	≤ 1000	

3/ COOLING PACKAGE			1500 rpm	1800 rpm
Type			liquid	
Recomanded coolant			water + 50% paraflu 11	
Coolant capacity				
engine only	liter		35	
radiator and hoses	liter		62	
Coolant pump flow	l/min		600	800
Pression cap setting	kPa (bar)		70 (0,7)	
Shutdown switch setting	°C		105	
Maximal additional restriction	Pa		250	
Air To Boil	Prime Power	°C	52	-
Fan				
diameter	mm		1050	
number of pale			12	
drive ratio			1 : 1	
speed	rpm		1500	1800
air flow	m <sup>3</sup> /s		12,36	15,27
power consumption	kWm		20	30

4/ LUBRICATION			1500 rpm	1800 rpm
Oil sump capacity				
max	liter		80	
min	liter		21	
Oil system capacity including filters	liter		85	
Oil pressure at rated speed	kPa		300-500	
Oil temperature				
normale	°C		89	
max	°C		120	
Engine angularity				
longitudinale	degrees		0°	
trasverse	degrees		0°	
Servicing intervall	hours		1000	
Oil specification			ACEA E3/ E5	
Oil consumption	%fuel		< 0,1	

5/ INTAKE SYSTEM			1500 rpm	1800 rpm
Air consumption at 100 % of load	m <sup>3</sup> /h (kg/h)		2330 (2800)	2500 (3000)
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	1800 rpm
Gas flow at stand by power	kg/h		2923	3146
Max temperature at PRP (25°C)	°C		518	510
Max allowable back pressure	kPa (mbar)		8 (80)	
Exhaust gas temperature	kcal/kWh		560	555

7/ FUEL SYSTEM			1500 giri	1800 giri
Fuel consumption at				
Stand-By	gr/kWh (l/h) [kg/h]		202,4 (147,6) [123,45]	215,0 (174,8) [146,2]
full load	gr/kWh (l/h) [kg/h]		209,8 (138,8) [116,2]	216,1 (160) [133,8]
80%	gr/kWh (l/h) [kg/h]		199,2 (105,7) [88,5]	215,8 (127,6) [106,8]
50%	gr/kWh (l/h) [kg/h]		212,4 (70,2) [58,8]	228,5 (84,2) [70,8]
Fuel specifications				EN 590
Feed pump max suction head		m	-	

8/ ELECTRIC SYSTEM			1500 rpm	1800 rpm
Voltage (negative to ground)		V	24	
Starter motor				
make			DENSO	
power		kW	8,5	
pull current		Amp		
hold current		Amp		
break away current		Amp		
cranking current		Amp		
Number of teeth on starter motor			14	
Number of teeth on flywheel			172	
Starting batteries				
recommended capacity	Ah	2 x	220	
discharge current		Amp	1200	
(EN 50342)				
Alternator				
voltage		V	28	
charge		Amp	90	

9/ COLD STARTING			1500 rpm	1800 rpm
Without air preheating		°C	-10	
With air preheating		°C	-25	

10/ EMISSION GASEOUS PARTICLES			1500 rpm (TA LUFT-2002)	1800 rpm
No <sub>x</sub>	Oxyde of nitrogen	mg/m <sup>3</sup>	1982	-
CHOH	Formaldehyde	mg/m <sup>3</sup>	6,17	-
CO	Carbon monoxide	mg/m <sup>3</sup>	133	-
PT	Particles	mg/m <sup>3</sup>	18,1	-