

Technical data TAD1032GE

General

In-line four stroke diesel engine with direct injection. Rotation direction, anti-clockwise viewed towards flywheel. Turbocharged

Number of cylinders		6
Displacement, total	litre in ³	9,6 585,8
Firing order		1-5-3-6-2-4
Bore	mm in	120,65 4,75
Stroke	mm in	140 5,51
Compression ratio		17,0:1

Performance		r/min	1500	1800
Prime Power:	without fan	kW hp	270 367	269 366
	with fan	kW hp	266 362	262 356
Standby Power:	without fan	kW hp	296 403	294 400
	with fan	kW hp	292 397	287 390
Torque at:	Prime Power	Nm lbft	1719 1268	1427 1052
	Standby Power	Nm lbft	1884 1390	1560 1150
Mean piston speed		m/s ft/sec	7,0 23,0	8,4 27,6
	Effective mean pressure at Prime Power	MPa psi	2,46 357	1,86 270
Max combustion pressure at Prime Power		MPa psi	16,5 2393	13,9 2016
	Total mass moment of inertia, J (mR ²)	kgm ² lbft ²		2,63 62,4
Degree of irregularity at Prime Power			1:75	1:103
Residual speed droop at load increase from 0 to 100%		%		-
Friction Power		kW	22	31

Engine noise emission

Test Standards: ISO 3744-1981 (E)

sound power (without fan, intake and exhaust noise)

Tolerans ± 0.75 dB(A)

		r/min	1500	1800
Measured sound power L _w	No load	dB(A)	N/A	N/A
	Prime Power	dB(A)	112,2	112,7
	Standby Power	dB(A)	112,6	113,3
Calculated sound pressure L _p at 1 m	No load	dB(A)	N/A	N/A
	Prime Power	dB(A)	100,2	100,7
	Standby Power	dB(A)	100,6	101,3

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Unsilenced exhaust noise

Data calculated as sound pressure Lp.

Assumed microphone distance 1 m

	r/min	1500	1800
Prime Power	dB(A)	N/A	N/A
Standby Power	dB(A)	N/A	N/A

Load acceptance

Test condition: Warm engine. Load acceptance performance can vary due to actual alternator inertia, voltage regulator, type of load and local ambient conditions.

Single step load performance at 1500 rpm

Load (%)	Speed diff (%)		Recovery time (s)		Remaining load (%)	Speed diff (%)		Recovery time (s)	
	Prime	Standby	Prime	Standby		Prime	Standby	Prime	Standby
0-20	2.2	2.4	1.2	1.5	60-100	8.1		2.6	
0-40	3.6	3.9	1.3	1.3					
0-58	-	10.0	-	2.3					
0-60	9.6	19.1	2.4	3.3					
0-64	10.0	-	2.2	-					
0-100									
100-0	2.6	8.1	1.2	1.4					

Single step load performance at 1800 rpm

Load (%)	Speed diff %		Recovery time (s)		Remaining load (%)	Speed diff (%)		Recovery time (s)	
	Prime	Standby	Prime	Standby		Prime	Standby	Prime	Standby
0-20	1.8	1.6	1.5	1.2	20-100	17.7		4.1	
0-40	3.1	2.9	1.2	1.2	40-100	3.9	9.9	2.2	5.7
0-60	4.5	4.5	1.1	1.4	60-100	2.5	2.5	1.1	1.1
0-70	-	10,0	-	2.4					
0-80	9.2	13.8	2.3	2.7	80-100	1.3	1.9	1.1	3.0
0-82	10.0	-	2.2	-					
0-100									
100-0	5.7	5.6	1.3	1.2					

Cold start performance

		r/min	1500	1800	
Time from start to no load speed at ambient temperature:	°C	20	s	3,0	4,0
		0	s	23,0	30,0
		-20*	s	22,0	30,0
Time from start to stay within 0.8% of no load speed at ambient temperature:	°C	20	s	N/A	N/A
		0	s	N/A	N/A
		-20*	s	N/A	N/A

* With manifold heater engaged, lubrication oil 15W/40 and block heater

Derating

The engine may be operated up to 1000 m altitude and 40°C ambient air temperature without derating. For operation at higher altitudes and temperatures the power should be derated according to the following factors:

	r/min	1500	1800
Altitude derating factor < 3000 m	% / m	4 / 500	
Altitude derating factor > 3000 m	% / m	6 / 500	
Ambient temperature derating factor	% / °C	1,5 / 5°C	
Humidity	%	No derating	

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Lubrication system		r/min	1500	1800
Lubricating oil consumption	Prime Power	liter/h	0,05	0,04
		US gal/h	0,013	0,011
	Standby Power	liter/h	0,06	0,05
		US gal/h	0,016	0,013
Oil system capacity including filters		liter	36	
		US gal	9,5	
Oil sump capacity:	max	liter	32	
		US gal	8,5	
	min	liter	22	
		US gal	5,8	
Oil change intervals/specifications:				
VDS-2*		h	600	
VDS, ACEA, E3*		h	400	
ACEA E2, API CD, CF, CF-4, CG-4*		h	200	
Engine angularity limits:	front up	°	20	
	front down	°	28	
	side tilt	°	40	
Oil pressure at rated speed		kPa	300-500	
Oil pressure shut down switch setting		kPa	70	
Lubrication oil temperature:	normal	°C	110	
	max	°C	120	
Oil filter micron size		mm	0,040	

* See also general section in the sales guide

Fuel system		r/min	1500	1800
Prime Power. Specific fuel consumption at:	25%	g/kWh	228	242
		lb/hph	0,370	0,392
	50%	g/kWh	203	210
		lb/hph	0,329	0,340
	75%	g/kWh	199	202
		lb/hph	0,323	0,327
	100%	g/kWh	200	204
		lb/hph	0,324	0,331
Standby Power. Specific fuel consumption at:	25%	g/kWh	221	210
		lb/hph	0,358	0,340
	50%	g/kWh	199	203
		lb/hph	0,323	0,329
	75%	g/kWh	199	204
		lb/hph	0,323	0,331
	100%	g/kWh	205	207
		lb/hph	0,332	0,336
Recommended fuel to conform to		ASTM-D975-No1 and 2-D JIS KK 2204, EN 590		
Total fuel flow		liter/h	150	
Feed pump pressure		kPa	100-150	
Feed pump max suction head		m	2	
Fuel filter micron size		mm	0,008	
Governor type/make, standard		Electronic, GAC		
Injection pump type/make		P 7000/Bosch		
Injection timing	std.	°B.T.D.C	11	12
Injection timing		°B.T.D.C		

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Intake and exhaust system		r/min	1500	1800	
Air consumption:	Prime Power at:	25°C	m ³ /min cfm	17,9 632	21,6 763
	Standby Power at:	25°C	m ³ /min cfm	20,1 710	23,3 823
Air intake restriction, clean filter(s)			kPa in wc	0,5 2,0	0,65 2,6
Max allowable air intake restriction			kPa in wc	5 20,1	5 20,1
Air filter type			Single stage paper cartridge		
Air filter cleaning efficiency			%	99,85	
Heat rejection to exhaust at:	Prime Power		kW BTU/min	208 11829	224 12739
	Standby Power		kW BTU/min	238 13535	250 14217
Exhaust gas temperature after turbine at:	Prime Power		°C °F	510 950	480 896
	Standby Power		°C °F	520 968	490 914
Max allowable back pressure in exhaust line			kPa In wc	10 40,2	10 40,2
Exhaust gas flow at:	Prime Power		m ³ /min cfm	46,0 1624	52,0 1836
	Standby Power		m ³ /min cfm	52,0 1836	57,3 2024

Cooling system		r/min	1500	1800	
Heat rejection radiation from engine at:	Prime Power		kW BTU/min	14 796	15 853
	Standby Power		kW BTU/min	16 910	17 967
Heat rejection to coolant at:	Prime Power		kW BTU/min	105 5971	107 6085
	Standby Power		kW BTU/min	112 6369	115 6540
Recommended coolant		Volvo coolant or Volvo anticorrosion additive together with clean fresh water			

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Radiator cooling system type		Closed circuit	
Radiator core area (std. size)		m ²	0,8
		foot ²	8,61
Radiator core thickness (std. size)		mm	73
		in	2,87
Intercooler core area (std. Size)		m ²	0,75
		foot ²	8,07
Intercooler core thickness (std. Size)		mm	68
		in	2,68
Fan diameter		mm	750
		in	29,53
Fan power consumption		kW	4
		hp	5
Fan drive ratio			7
Coolant capacity,		1,00:1	
engine		liter	16
		US gal	4,23
std radiator with hoses		liter	21
		US gal	5,55
Coolant pump		drive/ratio	gear / 1.58:1
Coolant flow with standard system		l/s	4,8
		US gal/s	1,27
Minimum coolant flow		l/s	4,8
		US gal/s	1,27
Maximum external coolant system restriction		kPa	30,0
		in wc	120
Thermostat,		start to open	
		°C	86
fully open		°F	187
		°C	96
Maximum static pressure head		°F	205
		kPa	50
Pressure cap setting on standard radiator		in wc	201
		kPa	70
Maximum top tank temperature		in wc	281
		°C	103
Minimum temperature entering engine		°F	217
		°C	68
Shutdown switch setting		°F	154
		°C	103
Recommended draw down capacity		10% of total cooling system capacity	
		°F	
		217	

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Cooling performance

Cooling air flow and maximum additional external restriction at different radiator air temperatures based on 103°C TTT and 50% antifreeze (radiator and cooling fan, see optional equipment)

Engine speed rpm	Air on temp °C	110% OF PRIME POWER		STANDBY POWER	
		Air flow m ³ /s	Max additional external restriction Pa	Air flow m ³ /s	Max additional ext. restriction Pa
1500	35	3,30	550	3,30	550
	45	4,00	300	4,00	300
	52	5,50	0	5,50	0
1800	35	3,70	950	3,70	950
	45	4,20	600	4,20	600
	55	6,70	0	6,70	0

Electrical system

		r/min	1500	1800
Voltage and type		24V / insulated from earth		
Alternator:	make/output	Amp	Valeo / 60	
	tacho output	Hz/alt. Rev	6	
	drive ratio		4,26:1	
Starter motor	make	Bosch		
	type	KB		
	kW	5,4		
Starter motor solenoid,	pull current	Amp	12	
	hold current	Amp	6	
Number of teeth on:	flywheel	156		
	starter motor	11		
Inrush current at +20°C		Amp	850	
Cranking current at +20°C		Amp	350	
Crank engine speed at 20°C		rpm	200	
Starter motor battery capacity:	max	Ah	2x143	
	min at +5°C	Ah	2x88	
Stop solenoid,	pull current	Amp	35	
	hold current	Amp	0,4	
Inlet manifold heater (at 20 V)		kW	4,0	
Power relay for the manifold heater		Amp	1	

Power take off

		r/min	1500	1800
Front end in line with crank shaft max:		Nm	590	
Front end belt pulley load. Direction of load viewed from flywheel side:	max left	kW		40
	max down	kW		31
	max right	kW		46
Timing gear at compressor PTO max:		Nm	100	
Speed ratio direction of rotation viewed from flywheel side			0,90:1 / clockwise	
Timing gear at servo pump PTO max:		Nm	35	
Speed ratio direction of rotation viewed from flywheel side			1,58:1 / clockwise	
Timing gear at hydraulic pump PTO max:		Nm	-	
Speed ratio direction of rotation viewed from flywheel side			-	