VOLVO PENTA INDUSTRIAL DIESEL

TAD734**G**E

250kW (340 hp) at 1500 rpm, 263 kW (357 hp) at 1800 rpm, acc. to ISO 3046

The TAD734GE is a powerful, reliable and economical Generating Set Diesel Engine built on the dependable in-line six design.

Durability & low noise

Designed for easiest, fastest and most economical installation. Well-balanced to produce smooth and vibration-free operation with low noise level.

To maintain a controlled working temperature in cylinders and combustion chambers, the engine is equipped with piston cooling. The engine is also fitted with replaceable cylinder liners and valve seats/guides to ensure maximum durability and service life of the engine.

Low exhaust emission

The state of the art, high-tech injection and charging system with low internal losses contributes to excellent combustion and low fuel consumption.

The TAD734GE complies with EU Stage 2 exhaust emission regulations.

Easy service & maintenance

Easily accessible service and maintenance points contribute to the ease of service of the engine.

Technical description

Engine and block

- Optimized cast iron cylinder block with optimum distribution of forces
- Piston cooling for low piston temperature and reduced ring temperature
- Drop forged steel connecting rods
- Crankshaft hardened bearing surfaces and fillets for moderate load on main and bigend bearings
- Keystone top compression rings for long service life
- Replaceable valve guides and valve seats
- Three PTO positions at flywheel end
- Lift eyelets
 Flywheel housing with connection acc. to SAE 2
- Flywheel for flexplate
- Fixed integrated radiator front engine suspension
- Transport brackets, rear

Lubrication system

- Full flow cartrigde insert filter
- Rotary displacement oil pump driven by the crankshaft
- Deep front oil sump
- Oil filler on top
- Oil dipstick, short in frontIntegrated full flow oil cooler, side-mounted



Features

- Electronic governing, EMS2
- CAN bus communication
- Compact design for the power class
- High power to weight ratio
- Emission compliant
- Noise optimized engine design
- Dual speed

Fuel system

- Common rail
- Gear driven fuel feed pump
- Six hole fuel injection nozzles
- Electronic governor
- Fuel prefilter with water separator
- Fine fuel filter of cartridge insert type

Intake and exhaust system

- Connection flange for exhaust line
 Waste gate turbo charger, centre low with exhaust flange
- Two-stage air filter, with cyclon
- Heater flange in charge air inlet (with relay)

Cooling system

- Belt driven, maintenance-free coolant pump with high degree of efficiency
- Efficient cooling with accurate coolant control through a water distribution duct in the cylinder block
- Reliable thermostat with minimum pressure drop

- Pusher fan

Electrical system

- Engine Management System 2 (EMS 2), an electronically controlled processing system which optimizes engine performance. It also includes advanced facilities for diagnostics and fault tracing
- The instruments and controls connect to the engine via the CAN SAE J1939 interface, either through the Control Interface Unit (CIU) or the Display Control Unit (DCU).
 The CIU converts the digital CAN bus signal to an anolog signal, making it possible to connect a variety of instruments. The DCU is a control panel with display, engine control, monitoring, alarm, parameter setting and diagnostic functions. The DCU also presents error codes in clear text.
- Sensors for oil pressure, boost pressure, boost temp, exhaust temp, coolant temp, water in fuel, fuel pressure and two speed sensors.



TAD734GE

Technical Data

General Engine designation No. of cylinders and configuration Method of operation Bore, mm (in.) Stroke, mm (in.) Displacement, I (in ³) Compression ratio Dry weight, excl. cooling system, kg Wet weight, excl. cooling system, kg	(lb)	
Performance with fan, kW (hp) at:	1500 rpm	1800 rpm
Prime Power Max Standby Power	213 (290) 238 (324)	216 (294) 243 (330)
Lubrication system Oil consumption, liter/h (US gal/h) a	1500 rpm	1800 rpm
Prime Power Max Standby Power Oil system capacity incl filters, liter	0.03 (0.008) 0.03 (0.008)	0.03 (0.008) 0.03 (0.008)
Fuel system Specific fuel consumption at: Prime Power g/kWh (lh/hob)	1500 rpm	1800 rpm
25 %	244 (0.396)	257 (0.417)
50 % 75 %	233 (0.378) 217 (0.352)	222 (0.384)
100 % Max Standby Power, g/kWh (lb/hph)	204 (0.331)	205 (0.332)
25 % 50 %	247 (0.400)	259 (0.420)
75 %	217 (0.352)	225 (0.365)
100 %	205 (0.332)	207 (0.336)
Intake and exhaust system Air consumption at 27°C m ³ /min (c	1500 rpm	1800 rpm
Prime Power Max Standby Power	16.1 (569)	18.3 (646)
Max allowable air intake restriction,	10.3 (570)	18.9 (007)
kPa (In wc) Heat rejection to exhaust,	3.0 (12.0)	3.0 (12.0)
kW (BTU/min) at:	160 (9099)	174 (9895)
Max Standby Power	177 (10066)	189 (10748)
Exhaust gas temperature after turbine, °C (°F) at:		
Prime Power Max Standby Power	495 (923) 550 (1022)	475 (887) 510 (950)
Max allowable back-pressure in	10 (1022)	10 (10.0)
Exhaust line, kPa (In wc) Exhaust gas flow, m ³ /min (cfm) at:	10 (40.2)	10 (40.2)
Prime power Max Standby Power	33.0 (1165) 33.4 (1180)	36.7 (1296) 37.9 (1338)
Cooling system Heat rejection radiation from engine,	1500 rpm	1800 rpm
Prime Power	24 (1365)	25 (1422)
Max Standby Power Heat rejection to coolant kW (BTU/r	26 (1479) nin)	28 (1592)
Prime Power Max Standby Power	117 (6654) 128 (7279)	124 (7052) 137 (7791)
Fan power consumption, kW (hp)	11.6 (16)	20.0 (27)

Standard equipment

Engine	
Automatic belt tensioner	•
Lift eyelets	•
Flywheel	
Flywheel housing with conn. acc. to SAE 2	•
Flywheel 10" and 11.5" disc	•
Vibration damper	•
Engine suspension	
Fixed integrated radiator front engine suspension	•
Lubrication system	
Oil dipstick	•
Full-flow oil filter of cartridge type	•
Oil cooler, side mounted	•
Fuel system	
Common rail	•
Fuel filters of cartridge type	•
Pre-filter with water separator	•
Intake and exhaust system	
Two-stage air filter with cyclon	•
Connecting flange for exhaust pipe	•
Turbo charger, low left side	•
Cooling system	
Tropical radiator incl intercooler	•
Belt driven coolant pump	•
Fan hub	•
Pusher fan	•
Fan guard	•
Belt guard	•
Control system	
Engine Management System (EMS) with CAN-bus	
interface SAE J1939 and stand alone interface	•
Alternator	
Alternator 100A / 24 V	•
Starting system	
Starter motor, 5.0kW, 24 V	•
Instruments and senders	
Temp and oil pressure for automatic	
stop/alarm	•
Engine Packing	
Plastic wrapping	•
1) must be ordered, se order specification	

- optional equipment or not applicable

included in standard specification

Dimensions TAD734GE

Note! Not all models, standard equipment and accessories are available in all countries.

All specifications are subject to change without notice.

The engine illustrated may not be entirely identical to production standard engines.

Power Standards

The engine performance corresponds to ISO 3046, BS 5514 and DIN 6271. The technical data applies to an engine without cooling fan and operating on a fuel with calorific value of 42.7 MJ /kg (18360 BTU/lb) and a density of 0.84 kg/liter (7.01 lb/US gal), also where this involves a deviation from the standards. Power output guaranteed within 0 to +2% att rated ambient conditions at delivery. Ratings are based on ISO 8528.

Engine speed governing in accordance with ISO 3046/IV, class A1 and ISO 8528-5 class G3 $\,$

Exhaust emissions

The engine complies with EU stage 2 emission legislation according to the Non Road Directive EU 97/68/EC.

Rating Guidelines

PRIME POWER rating corresponds to ISO Standard Power for continuous operation. It is applicable for supplying electrical power at variable load for an unlimited number of hours instead of commercially purchased power. A10 % overload capability for govering purpose is available for this rating. MAXIMUM STANDBY POWER rating corresponds to ISO Standard Fuel Stop Power. It is applicable for supplying standby electric

MAXIMUM SIANDBY POWER rating corresponds to ISO Standard Fuel Stop Power. It is applicable for supplying standby electric al power at variable load in areas with well established electrical networks in the event of normal utility power failure. No overload capability is available for this rating. 1 hp = 1 kW x 1.36 Information

For more technical data and information, please look in the Generating Set Engines Sales Guide.



AB Volvo Penta SE-405 08 Göteborg, Sweden www.volvopenta.com

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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	7.15
		in ³	436.0
Firing order			1-5-3-6-2-4
Bore		mm	108
		in	4.25
Stroke	mm	130	
	in	5.12	
Compression ratio		17	
Dry weight	Engine only, excluding cooling	kg	764
	system	lb	1684
	Including cooling system	kg	954
		lb	2103
Wet weight	Engine only, excluding cooling	kg	788
_	system	lb	1737
	GenPac	kg	1021
		lb	2251

Performance			r/min	1500	1800	
Standby Power		without fan	kW	250	263	
			hp	340	357	
		with fan	kW	238	243	
			hp	324	330	
Prime Power		without fan	kW	225	236	
			hp	306	321	
		with fan	kW	213	216	
			hp	290	294	
Torque at:	Standby F	ower	Nm	1592	1393	
			lbft	1174	1027	
	Prime Power		Nm	1432	1252	
			lbft	1056	923	
Mean piston speed	m/s	6.5	7.8			
			ft/sec	21.4	25.7	
Effective mean pressure at: Standb		ower	MPa	2.8	2.4	
				406	355	
Effective mean pressure at:	Prime Pov	ver	MPa	2.5	2.2	
			psi	365	319	
Max combustion pressure at:	Standby F	ower	MPa	19.6	19.7	
			psi	2843	2857	
Max combustion pressure at:	Prime Pov	ver	MPa			
			psi			
Total mass moment of inertia, J (mR ²)			kgm ²		2.60	
			lbft ²	lbft ² 61.7		
Degree of irregularity at:	Standby F	ower				
	Prime Pov	ver				
Friction Power			kW	17	23	
			hp	22.576	31.552	

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Engine noise emission

Test Standards: ISO 3744-1981 (E) sound power (without fan, intake and exhaust noise)

Tolerance ± 0.75 dB(A)		r/min	1500	1800
Measured sound power Lw	No load	dB(A)	87	89.5
	Standby Power	dB(A)	93.5	94.5
		dB(A)		
Calculated sound pressure Lp at 1 m	No load	dB(A)	99	104.5
	Standby Power	dB(A)	108.5	109.5
		dB(A)		

Unsilenced exhaust noise

Data calculated as sound pressure Lp.			
Assumed microphone distance 1 m	r/min	1500	1800
Standby Power	dB(A)	116.7	118.2
	dB(A)		

Test conditions for load acceptance data

Warm engine.	Generator	Model	Type of AVR
	mecc alte spa	ECO 38-2L/4	

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	l diff (%)	Recovery	r time (s)	Remaining load	Speed	d diff (%)	Recove	ry time (s)
	Prime	Standby	Prime	Standby	(%)	Prime	Standby	Prime	Standby
0-20	2.3	2.6	1.5	1.4	30-100	8.3	-	2.0	-
0-40	4.2	4.7	1.5	1.5	40-100	6.3	6.2	1.5	3.3
0-50	5.1	6.9	1.5	1.7	50-100	4.7	5.3	1.5	3.0
0-60	7.8	10.0	2.0	2.1	60-100	4.0	4.5	1.0	2.5
0-70	11.9	16.9	2.5	3.1	70-100	3.3	3.5	0.5	2.0
0-80	17.7	21.7	3.5	3.6					
0-90	20.7	-	4.0	-					
100-0	7.7	8.3	2.0	2.0					

Single step load performance at 1800 rpm

Load (%)	Speed	d diff %	Recover	y time (s)	Remaining load	Speed of	liff (%)	Recover	y time (s)
	Prime	Standby	Prime	Standby	(%)	Prime	Standby	Prime	Standby
0-20	1.7	1.8	1.0	1.0	20-100	8.0	8.7	3.1	3.5
0-40	2.8	2.9	1.5	1.3	40-100	4.1	5.2	2.3	3.0
0-50	3.9	4.1	1.4	1.6	60-100	2.9	2.9	1.3	2.0
0-60	4.5	5.3	1.4	1.6	80-100	2.3	2.3	1.0	1.8
0-70	6.3	7.7	1.7	2.0	90-100	0.9	1.0	1.0	1.0
0-80	7.7	9.2	2.0	2.0					
0-90	9.9	13.3	2.3	2.4					
100-0	5.8	6.5	2.0	2.0	0-100	12.1	16.0	2.3	3.9

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Cold start performance			r/min	1500	1800
Time from start to no load speed at ambient	°C	20	S	6.6	7.6
temperature:		5	s	7.0	8.4
		-15*	s	10.5	12.0
Time from start to stay within 0.5% of no load speed at	°C	20	s	6.0	7.0
ambient temperature:		5	s	6.2	7.7
		-15*	S	9.6	11.5

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

Dia ale la actan tema	Malia	Devue a LVA/		
Usage of manifold heater.	Time preneating, minutes	Time post heating, h	inutes	

Block heater type	Make	Power kW	Engaged hours	Cooling water temp engine block

Lubrication system			r/min	1500	1800
Lubricating oil consumption	St	andby Power	litre/h	0.03	0.03
			US gal/h	0.008	0.008
	Pr	ime Power	litre/h		
			US gal/h		
Oil system capacity including filters			litre	2	9
			US gal	7	.7
Oil sump capacity:		max	litre	2	24
			US gal	6	.3
		min	litre	2	20
			US gal	5	.3
Oil change intervals/specifications:			h	5	00
			h		
			h		
Engine angularity limits:		front up	0	1	0
		front down	0	1	0
		side tilt	0	1	0
Oil pressure at rated speed			kPa	420	- 450
			psi	61	- 65
Oil pressure shut down switch setting			kPa	1	00
			psi	1	5
Lubrication oil temperature in oil sump:		max	°C	1:	30
			°F	2	66
Oil filter micron size			μ	17.	000

* See also general section in the Sales Support Tool

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Fuel system		r/min	1500	1800	
Specific fuel consumption at:	25%	g/kWh	247	259	
		lb/hph	0.400	0.420	
	50%	g/kWh	235	239	
		lb/hph	0.381	0.387	
	75%	g/kWh	217	225	
		lb/hph	0.352	0.365	
	100%	g/kWh	205	207	1
		lb/hph	0.332	0.336	
Prime Power	25%	g/kWh	244	257	
Specific fuel consumption at:		lb/hph	0.396	0.417	
	50%	g/kWh	233	237	
		lb/hph	0.378	0.384	
	75%	g/kWh	217	222	1
		lb/hph	0.352	0.360	

g/kWh lb/hph

204

0.331

205

0.332

100%

Fuel system	r/min	1500	1800	
Fuel to conform to				
	EN 590	EN 590 / 2-D (US)		
System supply flow at:	litre/h	164.0	197.0	
	US gal/h	43.3	52.0	
Fuel supply line max restriction (rel.)	kPa	35.0	35.0	
	psi	5.1	5.1	
Fuel supply line max pressure, engine stopped	kPa	35.0	35.0	
	psi	5.1	5.1	
System return flow	litre/h	102.6	132.0	
	US gal/h	27.1	34.9	
Fuel return line max restriction (rel.)	kPa	50.0	50.0	
	psi	7.3	7.3	
Maximum allowable inlet fuel temp	D°	70	70	
	°F	158	158	
Prefilter / Water separator micron size	μ	10.	.000	
Fuel filter micron size	μ	5.(000	
Governor type/make, standard		EMS II		
Injection pump type/make		EMS II		
Injection timing std.	°B.T.D.C	5	9	
Injection timing	°B.T.D.C			

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Intake and exhaust system			r/min	1500	1800
Air consumption at:	Standby Power		m ³ /min	16.3	18.9
			cfm	576	667
	Prime Power		m ³ /min	16.1	18.3
			cfm	569	646
Max allowable air intake restriction including piping			kPa	3	3
			in wc	12.0	12.0
Air filter type				?	
Air filter cleaning efficiency			%		?
Heat rejection to exhaust at:		Standby Power	kW	177	189
			BTU/min	10066	10748
		Prime Power	kW	160	174
			BTU/min	9099	9895
Exhaust gas temperature after turb	ine at:	Standby Power	°C	550	510
			°F	1022	950
		Prime Power	°C	495	475
			°F	923	887
Max allowable back pressure in ext	naust line		kPa	10.0	10.0
			In wc	40.2	40.2
Exhaust gas flow at:		Standby Power	m ³ /min	33.4	37.9
			cfm	1180	1338
			m ³ /min	33.0	36.7
			cfm	1165	1296

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Heat rejection radiation from engine at: Standby Power RW 26 28 Prime Power RW 1479 1592 Prime Power RW 136 1422 Heat rejection to coolant at: Standby Power RW 118 1422 Heat rejection to coolant at: Standby Power RW 117 124 Rediator cooling system type Standby Power RW 117 124 Radiator cooling system type Standby Power RW 116 0654 7.05 Radiator cooling system type Standby Power mP ² 0.65 0.07 0.05 Fan diameter mP ² 10.65 7.00 0.07 0.00 0.06 2.00 Fan dive ratio Coolant capacity, KW 11.6 2.0 2.0 2.1 2.0 Fan dive ratio KW 11.6 2.0 2.1 2.1 2.1 2.1 2.1 2.1 2.1 2.1 2.1 2.1 2.1 2.1 2.1 2.1	Cooling system		r/min	1500	1800	
$ \begin{array}{ c c c c } \mbox{black} \m$	Heat rejection radiation from engine at:	Standby Power	kW	26	28	
$\begin{array}{ c c c c } \mbox{Prime Power} & W & 24 & 25 \\ \mbox{BTU/min} & 1365 & 1422 \\ \mbox{BTU/min} & 1365 & 1422 \\ \mbox{BTU/min} & 7279 & 7791 \\ \mbox{Prime Power} & W & 117 & 124 \\ \mbox{BTU/min} & 7279 & 7791 \\ \mbox{Prime Power} & W & 117 & 124 \\ \mbox{BTU/min} & 6654 & 7052 \\ \mbox{Colant} & & & & & & & & & & & & & & & & & & &$			BTU/min	1479	1592	
$ \begin{array}{ c c c c } \mbox{Heat rejection to coolant at:} \\ \mbox{Radiator cooling system type} \\ \mbox{Radiator cooling system type} \\ \mbox{Radiator core area} \\ \mbox{Heat rejection core area} \\ Heat rejection core$		Prime Power	kW	24	25	
Heat rejection to coolant at: Standby Power RW 128 137 BTU/min 7279 7791 Prime Power RW 117 124 Colant 8TU/min 6654 7052 Colant 8TU/min 6654 7052 Radiator cooling system type Closed circuit ************************************			BTU/min	1365	1422	
$ \begin{array}{ c c c c } \mbox{Prime Power} & RIU/min & 7279 & 7791 & 7279 & 7791 & 7279 & 7791 & 7279 & 7791 & 7279 & 7279 & 7279 & 7279 & 7279 & 7279 & 7279 & 7279 & 7279 & 7291 & 7259 & 70555 & 70555 & 70555 & 70555 & 70555 & 70555 & 70555 & 70555 & 705$	Heat rejection to coolant at:	Standby Power	kW	128	137	
Prime Power kW 117 124 7052 Coolant BTU/min 6654 7052 Radiator cooling system type Standard radiator core area m² 0.65 Fan diameter mm 0.67 7.00 Fan diameter mm 0.67 7.00 Fan diameter mm 0.67 7.00 <			BTU/min	7279	7791	
End BTU/min 6654 7052 Coolant 705 Radiator cooling system type m² 0.65 Standard radiator core area m² 0.65 Fan diameter mm 870 in 34.25 Fan diameter kW 11.6 20 hp 16 27 Fan drive ratio kW 11.6 27 1 20 hp 16 27 1 20 1 16 27 1 20 1 16 20 1 16 27 16 27 16 20 1 16 20 16 34 21 1 16 36 4.4 33 16 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1		Prime Power	kW	117	124	
CoolantRadiator cooling system typeClosed circuitStandard radiator core aream²0.65fool²7.0Fan diametermm87.0Fan diametermm87.0Fan diametermm87.0Fan drive ratioKW11.6Coolant capacity,litre2.7Fan drive ratio0.5Coolant capacity,litre2.1Coolant capacity,litre2.1Coolant pumpVis 4.084.91US gal6.3Coolant flow with standard systemVis 4.084.91US gal/s0.951.16Maximum collar flowVis 4.084.91US gal/s0.951.16Maximum collar flowVis 4.084.91US gal/s0.951.16Maximum collar flowVis 4.084.91Us gal/s0.951.16Maximum collar flowVis 4.084.91 </td <td></td> <td></td> <td>BTU/min</td> <td>6654</td> <td>7052</td>			BTU/min	6654	7052	
Radiator cooling system type Closed circuit Standard radiator core area m ² 0.65 foot ² 7.00 Fan diameter mm 870 Fan diameter kW 11.6 Fan drive ratio KW 1.1 Coolant capacity, engine litre 8 Coolant capacity, engine litre 2.1 Coolant pump Coolant pump V drive/ratio 2.56 Coolant pump V drive/ratio 2.56 Coolant flow with standard system V/S 3.3 4.5 Minimum coolant flow V/S 3.3 4.5 Minimum coolant flow V/S 3.3 4.5 Minimum colspan="2" <th colsp<="" td=""><td>Coolant</td><td></td><td></td><td></td><td></td></th>	<td>Coolant</td> <td></td> <td></td> <td></td> <td></td>	Coolant				
Radiator cooling system type m² $Closed circuit Standard radiator core area m² 0.65 foot² 7.0 in 34.25 Fan diameter kW 11.6 20 fan diameter kW 11.6 20 Fan diameter kW 11.6 20 Fan drive ratio 1 20 Coolant capacity, engine litre 8 Coolant capacity, engine US gal 6.34 Coolant pump US gal 6.34 1.30 Coolant flow with standard system V/s 4.08 4.91 Minimum coolant flow V/s 3.6 4.4 Maximum outer circuit restriction, including piping V/s 3.6 4.4 Thermostat start to open °C 83 fully open °C 83 45 fully open °C 83 45 fully open °C 83 181 <$						
$\begin{array}{c c c c c c c } \mbox{Standard radiator core area} & m^2 & 0.65 \\ \hline \begin{tabular}{ c c c c c c } \mbox{foot}^2 & 7.0 \\ \hline \begin{tabular}{ c c c c c c } \mbox{foot}^2 & 7.0 \\ \hline \begin{tabular}{ c c c c c } \mbox{foot}^2 & 7.0 \\ \hline \begin{tabular}{ c c c c c c } \mbox{foot}^2 & 7.0 \\ \hline \begin{tabular}{ c c c c c } \mbox{foot}^2 & 7.0 \\ \hline \begin{tabular}{ c c c c c } \mbox{foot}^2 & 7.0 \\ \hline \begin{tabular}{ c c c c c c } \mbox{foot}^2 & 7.0 \\ \hline \begin{tabular}{ c c c c c c c } \mbox{foot}^2 & 7.0 \\ \hline \begin{tabular}{ c c c c c c c } \mbox{foot}^2 & 7.0 \\ \hline \begin{tabular}{ c c c c c c c c c c c c c } \mbox{foot}^2 & 7.0 \\ \hline \begin{tabular}{ c c c c c c c c c c c c c c c c c c c$	Radiator cooling system type		Clo	osed circuit		
$ \begin{array}{ c c c c } Fan diameter & mm & 870 \\ \hline \mbox{ nn } 34.25 \\ \hline $	Standard radiator core area		m²	0.	65	
Fan diameter inm 870 in 34.25 Fan power consumption in 34.25 Fan drive ratio kW 11.6 20 Fan drive ratio hp 16 27 Fan drive ratio engine litre 8 Coolant capacity, engine litre 2.11 std radiator with hoses litre 2.4 US gal 6.34 2.56 Coolant pump 2.56 2.56 Coolant flow with standard system 1/5 4.08 4.91 Minimum coolant flow 1/5 3.6 4.4 Maximum outer circuit restriction, including piping 1/5 3.6 4.4 Maximum static pressure head kPa 33 45 fully open °C 83 181 Minimum static pressure head kPa 85 11.6 (expansion tank height + pressure cap setting) in wc 341 Minimum static pressure head kPa 75 (expansion tank height + pressure cap setting) in wc 301 Standard pressure cap setting) in wc 301 Maximum top tank temperature °C 103 °C 103 °F 2			foot ²	7.	00	
In 33,425 Fan power consumption kW 11.6 20 Fan drive ratio kW 11.6 27 Fan drive ratio Iltre 8 27 Coolant capacity, engine Iltre 8 US gal 2.11 std radiator with hoses Iltre 24 Coolant pump drive/ratio 2.56 5 Coolant flow with standard system 1/8 4.08 4.91 US gal/s 1.08 1.30 Minimum coolant flow 1/8 3.6 4.4 US gal/s 0.95 1.16 Maximum outer circuit restriction, including piping 1/8 1.32 181 Thermostat start to open °C 83 45 fully open °C 103 °F 181 Minimum static pressure head kPa 85 6 (expansion tank height + pressure cap setting) in wc 301 1 Maximum top tank temperature in wc 301 1	Fan diameter		mm	87	70	
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$\begin{array}{ c c c c } \mbox{Part drive ratio} & \begin{tabular}{ c c c } \hline \begin{tabular}{ c c } \hline \hline \begin{tabular}{ c c } \hline \hline \begin{tabular}{ c c } \hline \hline \begin{tabular}{ c c c } \hline \hline \begin{tabular}{ c c c } \hline \hline \begin{tabular}{ c c } \hline \hline \begin{tabular}$			hp	16	27	
$ \begin{array}{ c c c c c c } Logal control capacity, control capacity$	Fan drive ratio		Pt		1	
$ \begin{array}{ c c c c } \hline \begin{tabular}{ c c } \hline \hline \begin{tabular}{ c c } \hline tabular$	Coolant capacity,	engine	litre	3	3	
$ \begin{array}{ c c c c c c } \mbox{Std radiator with hoses} & \mbox{Ifffe} & \mbox{24} \\ US gal & \mbox{6.34} \\ US gal & \mbox{6.34} \\ \mbox{Coolant pump} & \mbox{drive/ratio} & \mbox{2.56} \\ \mbox{Coolant flow with standard system} & \mbox{I/s} & \mbox{4.08} & \mbox{4.91} \\ US gal/s & \mbox{1.08} & \mbox{1.30} \\ \mbox{Ill minum coolant flow} & \mbox{Ill s} & \mbox{3.6} & \mbox{4.4} \\ \mbox{US gal/s} & \mbox{0.95} & \mbox{1.16} \\ \mbox{Maximum outer circuit restriction, including piping} & \mbox{kPa} & \mbox{33} & \mbox{45} \\ \mbox{in wc} & \mbox{132} & \mbox{181} \\ \mbox{Thermostat} & \mbox{start to open} & \mbox{°C} & \mbox{83} \\ \mbox{result ressure head} & \mbox{°F} & \mbox{24} \\ \mbox{(expansion tank height + pressure cap setting)} & \mbox{in wc} & \mbox{341} \\ \mbox{Minimum static pressure head} & \mbox{kPa} & \mbox{75} \\ \mbox{(expansion tank height + pressure cap setting)} & \mbox{in wc} & \mbox{301} \\ \mbox{Standard pressure cap setting} & \mbox{kPa} & \mbox{75} \\ \mbox{in wc} & \mbox{301} \\ \mbox{Maximum top tank temperature} & \mbox{°C} & \mbox{103} \\ result resu$			US gai	2.	11	
Coolant pump OS gal 6.34 Coolant pump drive/ratio 2.56 Coolant flow with standard system I/s 4.08 4.91 US gal/s 1.08 1.30 Minimum coolant flow I/s 3.6 4.4 US gal/s 0.95 1.16 Maximum outer circuit restriction, including piping kPa 33 45 In wc 132 181 Thermostat start to open °C 83 fully open °F 181 Maximum static pressure head kPa 85 (expansion tank height + pressure cap setting) in wc 341 Minimum static pressure head kPa 75 (expansion tank height + pressure cap setting) in wc 301 Standard pressure cap setting in wc 301 Standard pressure cap setting kPa 75 in wc 301 °F 217 Maximum top tank temperature °C 103 °F 217 003 °		std radiator with noses		2	4	
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$ \begin{array}{c c c c c c } \hline \begin{tabular}{ c c c } \hline US gal/s & 1.08 & 1.30 \\ \hline US gal/s & 1.08 & 1.30 \\ \hline US gal/s & 0.95 & 1.16 \\ \hline \begin{tabular}{ c c c c } \hline US gal/s & 0.95 & 1.16 \\ \hline \begin{tabular}{ c c c } \hline \begin{tabular}{ c } \hline \end{tabular} \\ \hline \end{tabular} \\ \hline \begin{tabular}{ c } \hline \end{tabular} \\ \hline \end{tabular} \\ \hline \end{tabular} \\ \hline \end{tabular} \\ \hline \begin{tabular}{ c } \hline \end{tabular} \\ \hline \en$	Coolant pump			4.09	00 / 01	
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$\frac{1}{100} = \frac{1}{100} = \frac{1}$	Minimum coolant flow		03 gai/s	3.6	1.50	
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	Maximum outer circuit restriction, including piping		kPa	33	45	
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Naximum static pressure head (expansion tank height + pressure cap setting)°F217Maximum static pressure head (expansion tank height + pressure cap setting)in wc341Minimum static pressure head (expansion tank height + pressure cap setting)kPa75Standard pressure cap settingkPa75Standard pressure cap settingkPa75Maximum top tank temperature°C103Draw down capacity		fully open	°C	1(03	
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(expansion tank height + pressure cap setting)in wc341Minimum static pressure headkPa75(expansion tank height + pressure cap setting)in wc301Standard pressure cap settingkPa75in wc301301Maximum top tank temperature°C103Draw down capacity217	Maximum static pressure head		kPa	8	5	
Minimum static pressure head kPa 75 (expansion tank height + pressure cap setting) in wc 301 Standard pressure cap setting kPa 75 in wc 301 Maximum top tank temperature °C 103 Draw down capacity 217	(expansion tank height + pressure cap setting)		in wc	34	41	
(expansion tank height + pressure cap setting) in wc 301 Standard pressure cap setting kPa 75 in wc 301 Maximum top tank temperature °C 103 Oraw down capacity	Minimum static pressure head		kPa	7	5	
Standard pressure cap setting kPa 75 in wc 301 Maximum top tank temperature °C 103 °F 217	(expansion tank height + pressure cap setting)		in wc	30	01	
in wc 301 Maximum top tank temperature °C 103 °F 217 Draw down capacity	Standard pressure cap setting		kPa	7	5	
Maximum top tank temperature °C 103 °F 217	-		in wc	30	01	
°F 217 Draw down capacity	Maximum top tank temperature		°C	1(03	
Draw down capacity			°F	2	17	
	Draw down capacity					

VOLVO PENTA	Document No	Issue Index
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Charge air cooler system		r/min	1500	1800
Heat rejection to charge air cooler	Standby Power	kW	48	55.3
		BTU/min	2730	3145
	Prime Power	kW	46.9	55.1
		BTU/min	2667	3133
	Continuous Satndby Power	kW	44.8	53.4
		BTU/min	2548	3037
Charge air mass flow	Standby Power	kg/s	0.3	0.35
	Prime Power	kg/s	0.29	0.34
	Continuous Satndby Power	kg/s	0.29	0.34
Charge air inlet temp.	Standby Power	°C	207	205
(Charge air temp after turbo compressor)		°F	405	401
	Prime Power	°C	198	199
		°F	388	390
Charge air outlet temp.	Standby Power	°C	43	42
(Charge air temp after intercooler)		°F	109	107
	Prime Power	°C	40	40
		°F	103	104
Maximum pressure droop over charge air cooler incl	. piping	kPa	1	5
		psi	2.	18
Charge air pressure 1500rpm		kPa	2	50
(After charge air cooler)		psi	36	.26
Charge air pressure 1800rpm		kPa	24	40
(After charge air cooler)		psi	34	.81
Standard charge air cooler core area		m²	0.5	512
		foot ²	5.	51

Cooling performance

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

Engine speed	Air on temp	PRIM	PRIME POWER		POWER
rpm	°C	Air flow	External restriction	Air flow	External restriction
		kg/s	Pa	kg/s	Ра
1500	52	3.8	410	3.9	350
	57	4.0	310	4.6	170
	61			5.2	0
	62	4.8	90		
	64	5.2	0		
1800	57	4.4	500	5.0	500
	62	5.1	460	5.6	230
	65	5.7	230	6.5	0
	68	6.5	0		

Note! Calculated values >0 Pa

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21373062

02

Engine management system

Functionality	Alternatives	Default setting
Governor mode	Isochronous/droop switchable	Isochronous
Governor droop	Trpm/10Nm - Trpm/127Nm	Trpm/25Nm
Governor response	NA	NA
Idle speed	550-800 rpm	600 rpm
Stop function	Energized to run / stop	Energized to stop
Preheating on ignition	ON/OFF*	OFF*
Lamp test	ON/OFF	ON

* Option

Engine protections

Parameter	"Yellow lamp"	"Red lamp"	Derate 0 % to engine protection map	Derate 100% to engine protectio n map	Forced idle after 5sec	Forced shut down after 15sec]
Coolant						
temperature	104°C	106°C	106°C	113°C	>113°C	>113°C
	10000	120%	120%	12500		
Oli temperature	120 C	130 C	130 C	135 0		
High boost temp	75°C	80°C	80°C	85°C	>85°C	>85°C
	"Yellow		Derate 50 % to engine protection		Forced idle after	Forced shut down after
Parameter	lamp"	"Red lamp"	map		5sec	15sec]
High boost						
pressure	380kpa	390kpa	390kpa		>395kpa	>395kpa
Parameter	"Yellow	"Red lamp"	Derate 70		Forced idle after	Forced shut
Low oil	l insit	80kpa <	80kpa <			O Elmon dissit
pressure	Limit	limit	limit		оэкра < iimit	оэкра < iimit

* Off means no shut down, alarm only

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02

Electrical system		r/min	1500	1800
Voltage and type		24V / insulated from earth		
Alternator:	make/output	Amp	100	
	tacho output	Hz/alt. Rev		
	drive ratio		3	
Starter motor		make	Me	elco
		type	M008	Г62471
		kW	5	.0
Number of teeth on:	flywheel	1		29
	starter motor		1	0
Inrush current at +20°C		Amp	17	750
Cranking current at +20°C		Amp	4	00
Crank engine speed at 20°C		rpm	200	
Starter motor battery capacity:	max	Ah	1	35
	min at +5°C	Ah		
Inlet manifold heater (at 20 V)	· · · ·	kW		
Power relay for the manifold heater		Amp		2

Power take off		r/min	1500	1800	
ont end in line with crank shaft max:		Nm	12	1200	
		lbft	88	35	
Front end belt pulley load. Direction of load viewed from flywheel	max left	kW			
side:		hp			
	max down	kW			
		hp			
	max right	kW			
		hp			
Timing gear at compressor PTO max:		Nm 187		37	
		lbft	13	38	
Speed ratio direction of rotation viewed from flywheel side			1,116 ccw		
Timing gear at servo pump PTO max:	ning gear at servo pump PTO max:				
		lbft			
Speed ratio direction of rotation viewed from flywheel side					
Timing gear at hydraulic pump PTO max:		Nm			
		lbft			
Speed ratio direction of rotation viewed from flywheel side					
Max allowed bending moment in flywheel housing		Nm	11	00	
		lbft	8	11	
Max. rear main bearing load		N	50	00	
		lbf	112	24.0	