VOLVO PENTA

Document No 21500328 Issue Index 01

IPS800
Rating 4/5

General

4-stroke direct injected, turbocharged and aftercooled diesel engine

Number of cylinders		6
No of valves		24
Displacement, total	litres in³	10,84 661,3
Firing order		1-5-3-6-2-4
Rotational direction, viewed from the front		Clockwise
Bore	mm in	123 4,84
Stroke	mm in	152 5,98
Compression ratio		16,5:1
Compression pressure at 240 rpm	MPa psi	
Max. static forward inclination:	°	0
Max. static backward inclination:	°	7
Max. intermittent forward inclination while running:	°	10
Max. intermittent backward inclination while running:	°	17
Max. intermittent side inclination while running:	°	30
Idling speed	rpm	600 (-50 / +50)
Rated speed	rpm	2300
Propeller selection range	rpm	2250 - 2350
Recommended WOT range	rpm	2250 - 2350
Dry weight engine BT	kg lb	1175 2590
Dry weight with drive IPS	kg lb	1800 3968

Performance	**Rating**	**r/min**	**700**	**900**	**1100**	**1300**	**1500**	**1700**	**1900**	**2100**	**2300**
Crankshaft power 1), 5)	5	kW	108	172	225	303	354	401	441	441	441,2
		hp	147	233,9	306	412,1	481,4	545,4	599,8	599,8	600
Propeller shaft power 1) (At full load)	5	kW	102	163	213	286	335	379	417	417	417
With drive IPS		hp	139	221	289	389	455	515	567	567	567
Propellershaft power at prop. load $x^{2,5}$	5	kW	21	40	66	100	143	196	259	332	417
With drive IPS		hp	29	54	90	136	195	266	352	452	567
Torque at crankshaft 2)	5	Nm	1473	1825	1953	2226	2254	2253	2216	2005	1832
		lbf ft	1087	1346	1441	1642	1662	1661	1635	1479	1351
Mean piston speed		m/s	3,5	4,6	5,6	6,6	7,6	8,6	9,6	10,6	11,7
		ft/s	11,6	15,0	18,3	21,6	24,9	28,3	31,6	34,9	38,2
Effective mean pressure 2)	5	MPa	1,71	2,12	2,27	2,58	2,61	2,61	2,57	2,33	2,12
		psi	247,8	306,9	328,5	374,3	379,0	378,8	372,8	337,3	308,1

1) ISO 3046, fuel temp 40°C.
ISO 8665 (=SAE J 1228=ICOMIA 28-83)
2) At power according to 1).
3) If reverse gear is used, 4% in heat rejection will be added for its oil cooler.
4) Acc. to ISO 3744
5) At installed back pressure

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Lubricating system

Specific lubricating oil consumption.	g/kWh	0,1
Max. oil volume including filters for 0 installation inclination	litres US gal	38 10,04
Max. oil volume excluding filters for 0 installation inclination	litres US gal	33 8,72
Min. oil volume excluding filters for 0 installation inclination:	litres US gal	29 7,66
Max. oil volume including filters for 7 installation inclination	litres US gal	30 7,93
Max. oil volume excluding filters for 7 installation inclination	litres US gal	25 6,60
Min. oil volume excluding filters for 7 installation inclination:	litres US gal	21 5,55

Fuel system	**Rating**	**r/min**	**700**	**900**	**1100**	**1300**	**1500**	**1700**	**1900**	**2100**	**2300**
Specific fuel consumption 2)	5	g/kWh lb/hph	227 0,368	240 0,389	243 0,394	211 0,342	201 0,326	202 0,327	208 0,337	212 0,343	219 0,355
Fuel consumption at prop. load x [2,5]	5	l/h US gal/h	6,848 1,8	11,72 3,1	19,11 5,0	27,75 7,3	38,6 10,2	51,05 13,5	67,41 17,8	87,42 23,1	115,5 30,5
Fuel consumption at full load	5	l/h US gal/h	29,32 7,7	49,37 13,0	65,39 17,3	76,46 20,2	85,09 22,5	96,87 25,6	109,7 29,0	111,8 29,5	115,5 30,5

Intake and exhaust system	**Rating**	**r/min**	**700**	**900**	**1100**	**1300**	**1500**	**1700**	**1900**	**2100**	**2300**
Specific exhaust heating effect in percent of crankshaft power	5	%	77	90	90	78	73	76	80	83	87
Exhaust temperature at the exhaust pipe connecting flange after the turbo charger.	5	°C °F	540 1004	677 1251	690 1274	604 1119	525 977	518 964	529 984	512 954	508 946
Permitted back pressure in the exhaust line at rated speed. (Installed back pressure)		kPa psi							Max	15 2,2	
		kPa psi							Min		

Intake and exhaust system	**Rating**	**r/min**	**700**	**900**	**1100**	**1300**	**1500**	**1700**	**1900**	**2100**	**2300**
Engine air consumption at 25°C / 77°F atmospheric pressure 100kPA and relative humidity 30%.	5	m³/min cu.ft./min	6,65 234,8	9,467 334,3	12,12 427,9	16,75 591,5	21,83 771	25,78 910,5	29,52 1042	31,82 1124	33,68 1190
Turbo charge pressure.	5	kPa psi	87 12,6	108 15,7	120 17,4	158 22,9	191 27,7	206 29,9	216 31,3	212 30,7	206 29,9
Exhaust gas flow	5	m³/min cu.ft./min	19,6 690,4	32,7 1154	42,1 1486	50,9 1798	58,9 2081	67,1 2370	76,2 2690	79,0 2790	82,2 2904

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Cooling system	Rating	r/min	700	900	1100	1300	1500	1700	1900	2100	2300
Radiated heat in percent of crankshaft power.	5	%	12	6	3,6	2,4	1,9	1,6	1,4	1,4	1,5
Heat rejection to charge air cooler in percent of crankshaft power.	5	%	2	6	8	13	12	15	15	16	14
Coolant heat rejection to HE, incl. engine oil cooler and excl. charge air cooler, in percent of crankshaft power.	5	%	82	82	59	62	55	53	55	55	59
Sea water pump flow.		l/min	120	155	191	230	258	286	310	330	340
		cu.ft./min	4,2	5,5	6,7	8,1	9,1	10,1	10,9	11,7	12,0
Coolant flow with fully open thermostat and std cooling system		l/min	248	332	421	506	582	661	736	803	857
		cu.ft./min	8,8	11,7	14,9	17,9	20,6	23,3	26,0	28,4	30,3
Max. permissible temperature on coolant in engine outlet		°C	96								
		°F	205								
Coolant volume engine, including heat exchanger and charge air cooler		litres	46								
		US gal.	12,15								
Max. additional coolant for cabin heater etc. with std. Expansion tank		litres	40								
		US gal.	10,57								
Thermostat, start open at		°C	76								
		°F	169								
Thermostat, fully open at		°C	86								
		°F	187								

Emissions	Rating	r/min	700	900	1100	1300	1500	1700	1900	2100	2300
Smoke at prop. load $x^{2,5}$	5	*BSU	0,0	0,2	1,0	1,1	0,7	0,4	0,1	0,1	0,7
Noise at prop. load $x^{2,5}$. 4)	5	dBA	105,6	108,9	110,1	111,4	112,8	113,4	115,1	116,7	118,2

***NB.!** BSU are calculated values. Measured values are acc. to ISO 10054 in FSN units

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