Technical Data IPS900

Rating 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	2350
Propeller selection range	rpm	2300 - 2400
Recommended WOT range	rpm	2300 - 2400
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**	**2350**
Crankshaft power 1), 5)	5	kW	108	170	220	334	386	436	488	515	515	515
		hp	147	231,2	299,2	454,2	525	593	663,7	700,4	700,4	700
Propeller shaft power 1) (At full load)	5	kW	102	161	208	316	365	412	461	487	487	487
With drive IPS		hp	139	218	283	429	496	560	627	662	662	662
Propellershaft power at prop. load $x^{2,5}$	5	kW	24	44	73	111	158	217	286	367	461	487
With drive IPS		hp	32	60	99	151	215	295	389	500	627	662
Torque at crankshaft 2)	5	Nm	1473	1804	1910	2453	2457	2449	2453	2342	2138	2093
		lbf ft	1087	1330	1409	1810	1812	1806	1809	1727	1577	1544
Mean piston speed		m/s	3,5	4,6	5,6	6,6	7,6	8,6	9,6	10,6	11,7	11,9
		ft/s	11,6	15,0	18,3	21,6	24,9	28,3	31,6	34,9	38,2	39,1
Effective mean pressure 2)	5	MPa	1,71	2,09	2,21	2,85	2,85	2,84	2,84	2,72	2,48	2,43
		psi	247,8	303,4	321,2	412,6	413,3	411,9	412,5	393,9	359,6	352,0

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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Rating 5

Lubricating system

Specific lubricating oil consumption.	g/kWh	0,1
Max. oil volume including filters for 0 installation inclination	litres	36
	US gal	9,51
Max. oil volume excluding filters for 0 installation inclination	litres	30
	US gal	7,93
Min. oil volume excluding filters for 0 installation inclination:	litres	24
	US gal	6,34
Max. oil volume including filters for 7 installation inclination	litres	30
	US gal	7,93
Max. oil volume excluding filters for 7 installation inclination	litres	25
	US gal	6,60
Min. oil volume excluding filters for 7 installation inclination:	litres	21
	US gal	5,55

Fuel system	**Rating**	**r/min**	**700**	**900**	**1100**	**1300**	**1500**	**1700**	**1900**	**2100**	**2300**	**2350**
Specific fuel consumption 2)	5	g/kWh	233	244	244	210	202	205	211	215	217	218
		lb/hph	0,377	0,395	0,395	0,34	0,327	0,332	0,342	0,348	0,352	0,353
Fuel consumption at prop. load x [2,5]	5	l/h	7,396	12,86	20,77	30,28	41,9	56,2	73,85	98,1	125,5	134,3
		US gal/h	2,0	3,4	5,5	8,0	11,1	14,8	19,5	25,9	33,1	35,5
Fuel consumption at full load	5	l/h	30,09	49,61	64,2	83,88	93,25	106,9	123,1	132,4	133,6	134,3
		US gal/h	7,9	13,1	17,0	22,2	24,6	28,2	32,5	35,0	35,3	35,5

Intake and exhaust system	**Rating**	**r/min**	**700**	**900**	**1100**	**1300**	**1500**	**1700**	**1900**	**2100**	**2300**	**2350**
Specific exhaust heating effect in percent of crankshaft power	5	%	78	91	90	77	74	78	82	84	84	85
Exhaust temperature at the exhaust pipe connecting flange after the turbo charger.	5	°C	545	677	689	609	552	554	568	563	547	548
		°F	1013	1251	1272	1128	1026	1029	1054	1045	1017	1018
Permitted back pressure in the exhaust line at rated speed. (Installed back pressure)		kPa							Max		15	
		psi									2,2	
		kPa							Min			
		psi										
Engine air consumption at 25°C / 77°F atmospheric pressure 100kPA and relative humidity 30%.	5	m³/min	7	9	12	18	22	27	31	34	35	35
		cu.ft./min	247,2	317,8	423,8	635,7	776,9	953,5	1095	1201	1236	1236
Turbo charge pressure.	5	kPa	87	108	117	178	200	216	232	230	220	218
		psi	12,6	15,7	17,0	25,8	29,0	31,3	33,6	33,4	31,9	31,6
Exhaust gas flow	5	m³/min	19,7	32,6	41,6	55,2	63,1	72,8	83,4	88,8	90,2	91,1
		cu.ft./min	695,1	1149	1470	1949	2227	2570	2945	3135	3185	3217

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Rating 5

Cooling system	**Rating**	**r/min**	**700**	**900**	**1100**	**1300**	**1500**	**1700**	**1900**	**2100**	**2300**	**2350**
Radiated heat in percent of crankshaft power.	5	%	12	6	3,6	2,4	1,9	1,6	1,4	1,4	1,5	1,5
Heat rejection to charge air cooler in percent of crankshaft power.	5	%	2	6	8	13	12	15	15	16	14	11
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	57
Sea water pump flow.		l/min	120	155	191	230	258	286	310	330	340	335
		cu.ft./min	4,2	5,5	6,7	8,1	9,1	10,1	10,9	11,7	12,0	11,8
Coolant flow with fully open thermostat and std cooling system		l/min	248	332	421	506	582	661	736	803	857	875
		cu.ft./min	8,8	11,7	14,9	17,9	20,6	23,3	26,0	28,4	30,3	30,9
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**	**2350**
Smoke at prop. load $x^{2,5}$	5	*BSU	0,0	0,1	0,3	0,6	0,6	0,3	0,1	0,2	0,5	0,8
Noise at prop. load $x^{2,5}$. 4)	5	dBA	105,6	108,9	110,1	111,5	112,9	113,7	115,4	117,0	118,5	119,2

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

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5) At installed back pressure

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