

General

4-stroke direct injected, turbocharged and aftercooled diesel engine

Number of cylinders		5
No of valves		20
Displacement, total	litres in ³	2,40 146,5
Firing order		1-2-4-5-3
Rotational direction, viewed from the front		Clockwise
Bore	mm in	81 3,19
Stroke	mm in	93,2 3,67
Compression ratio		16,5
Max. static forward inclination:	°	0
Max. static backward inclination:	°	10
Max. intermittent forward inclination while running:	°	20
Max. intermittent backward inclination while running:	°	10
Max. intermittent side inclination while running:	°	20
Idling speed	rpm	700 + 50
Rated speed R5	rpm	4000
Propeller selection range R5	rpm	3900-4130
Dry weight engine BT	kg lb	260 573

Performance	Rating	rpm	700	1200	1600	2000	2400	2800	3200	3600	4000	4130
Crankshaft power 1), 5)	5	kW	11	25	47	87	107	125	141	147	147	147
		hp	15	34	64	118	146	170	192	200	200	200
Propeller shaft power 1) (At full load) With drive	5	kW	10	24	45	83	102	119	134	140	140	140
		hp	14	32	61	112	138	162	182	190	190	190
With reverse gear	5	kW	11	24	45	84	103	120	135	141	141	141
		hp	14	33	61	114	140	163	184	192	192	192
Propellershaft power at prop. load x ^{2,5} With drive	5	kW	2	7	14	25	39	57	80	107	140	
		hp	2	9	19	34	53	78	109	146	190	
With reverse gear	5	kW	2	7	14	25	39	58	81	108	141	
		hp	2	9	19	34	54	79	110	147	192	
Torque at crankshaft 2)	5	Nm	150,1	198,9	280,5	415,4	425,7	426,3	420,8	389,9	350,9	339,9
		lbf ft	111	147	207	306	314	314	310	288	259	251
Mean piston speed		m/s	2,2	3,7	5,0	6,2	7,5	8,7	9,9	11,2	12,4	12,8
		ft/s	7,1	12,2	16,3	20,4	24,5	28,5	32,6	36,7	40,8	42,1
Effective mean pressure 2)	5	MPa	0,79	1,04	1,47	2,17	2,23	2,23	2,20	2,04	1,84	1,78
		psi	113,9	151,0	212,9	315,3	323,1	323,6	319,4	296,0	266,4	258,0
Max combustion pressure 2)	5	MPa	9,7	10,9	14,6	15,4	15,7	15,8	15,6	14,6	14,7	14,6
		psi	1407	1581	2118	2234	2277	2292	2263	2118	2132	2118

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

D3-200 Inboard and I/O
21760202
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Lubricating system

Specific lubricating oil consumption.	g/kWh	0,29
Max. oil volume including filters for all allowed installation inclinations:	litres	6,3
	US gal	1,66
Max. oil volume excluding filters for all allowed installation inclinations:	litres	5,8
	US gal	1,53
Min. oil volume excluding filters for all allowed installation inclinations:	litres	4,3
	US gal	1,14

Fuel system

	Rating	rpm	700	1200	1600	2000	2400	2800	3200	3600	4000	4130
Specific fuel consumption 2)	5	g/kWh	360	264	242	217	212	215	223	234	238	241
		lb/hph	0,583	0,428	0,392	0,352	0,343	0,348	0,361	0,379	0,386	0,39
Fuel consumption, Test cycle E5	5	g/kWh	238									
		lb/hph	0,39									
Fuel consumption at prop. load x ^{2.5}	5	l/h	0,9	2,3	4,3	7,3	11,4	16,6	22,5	31,5	41,5	
		US gal/h	0,2	0,6	1,1	1,9	3,0	4,4	5,9	8,3	11,0	
Fuel consumption at full load	5	l/h	4,7	7,9	13,6	22,6	27,1	32,2	37,6	41,2	41,9	42,4
		US gal/h	1,3	2,1	3,6	6,0	7,2	8,5	9,9	10,9	11,1	11,2

Intake and exhaust system

	Rating	rpm	700	1200	1600	2000	2400	2800	3200	3600	4000	4130
Specific exhaust heating effect in percent of crankshaft power	5	%	65	68	68	65	67	71	80	87	90	92
Exhaust temperature at the exhaust pipe connecting flange after the turbo charger.	5	°C	387	458	485	511	522	551	593	582	568	566
		°F	729	856	905	952	972	1024	1099	1080	1054	1051
Permitted back pressure in the exhaust line at rated speed. (Installed back pressure)		kPa									Max	27
		psi										3,9
		kPa									Min	5
		psi										0,7
Engine air consumption at 25°C / 77°F atmospheric pressure 100kPA and relative humidity 30%.	5	m³/min	0,8	1,6	2,9	4,7	5,9	6,9	8,1	9,5	10,2	10,4
		cu.ft./min	28,25	56,5	102,4	166	208,4	243,7	286	335,5	360,2	367,3
Charge air pressure	5	kPa	105	127	171	230	238	243	244	254	250	250
Inlet manifold		psi	15,2	18,4	24,8	33,4	34,5	35,2	35,4	36,8	36,3	36,3
Exhaust gas flow	5	m³/min	1,9	4,2	9,8	12,9	15,9	18,7	22,1	24,1	24,7	25,1
		cu.ft./min	67,1	148,3	346,1	455,6	561,5	660,4	780,5	851,1	872,3	886,4

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Cooling system	Rating	rpm	700	1200	1600	2000	2400	2800	3200	3600	4000	4130
Radiated heat in percent of crankshaft power.	5	%				8	6	6	6	3	2	1
Heat rejection to charge air cooler in percent of crankshaft power.	5	%	2	5	10	13	14	14	14	16	17	18
Coolant heat rejection to HE in percent of crankshaft power.	5	%	0	91	81	79	73	71	74	77	78	80
Coolant flow with fully open thermostat and std cooling system		l/min	45	70	94	116	140	165	190	211	237	246
		cu.ft./min	1,6	2,5	3,3	4,1	4,9	5,8	6,7	7,5	8,4	8,7
Max. permissible temperature on coolant in engine outlet		°C	98									
		°F	208									
Coolant volume engine, including heat exchanger		litres	8,7									
		US gal.	2,30									
Max. additional coolant for cabin heater etc. with std. Expansion tank		litres	8									
		US gal.	2,11									
Maximum coolant flow to cabin heater etc.		l/min	20									
		cu.ft./min	0,71									
Thermostat, start open at		°C	80									
		°F	176									
Thermostat, fully open at		°C	94									
		°F	201									

Raw water circuit	rpm	700	1200	1600	2000	2400	2800	3200	3600	4000	4130
Nominal raw water design flow	l/min	27	46	61	76	89	102	114	125	135	137
	cu.ft./min	1,0	1,6	2,2	2,7	3,1	3,6	4,0	4,4	4,8	4,8
Nominal raw water pump pressure head at design flow. (measured before and after pump)	kPa	19	26	36	48	62	77	93	109	125	130
	psi	2,8	3,8	5,2	7,0	9,0	11,2	13,5	15,8	18,1	18,9
Maximum raw water pump suction head	kPa	30									
	psi	4,4									
Maximum additional pressure drop excl. reverse gear oil cooler and riser	kPa	0	1	3	5	8	12	17	22	28	30
	psi		0,1	0,4	0,7	1,2	1,7	2,5	3,2	4,1	4,4
Pressure drop over reverse gear oil cooler (optional equipment)	kPa	2	3	4	5	6	7	7	8	9	9
	psi	0,2	0,4	0,6	0,7	0,9	1,0	1,0	1,2	1,3	1,3
Maximum raw water temperature entering charge air cooler	°C	30									
	°F	86									

Emissions	Rating	rpm	700	1200	1600	2000	2400	2800	3200	3600	4000	4130
Smoke at prop. load x ^{2,5}	5	*BSU	0,0	0,0	0,0	0,2	0,2	0,2	0,1	0,1	0,8	
Noise at prop. load x ^{2,5} . 4)	5	dBA	92	94	99	105	110	110	110	110	112	

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

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