

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:	°	5
Max. intermittent forward inclination while running:	°	10
Max. intermittent backward inclination while running:	°	20
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	44	87	106	125	142	147	147	147
		hp	15	34	60	118	144	170	193	200	200	200
Propeller shaft power 1) (At full load) With drive	5	kW	10	24	42	83	101	119	135	140	140	140
		hp	14	32	57	112	137	162	183	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}	5	kW	2	7	14	25	39	57	80	107	140	
		hp	2	9	19	34	53	78	109	146	190	
	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	199	263	415	422	426	424	390	351	339,9
		lbf ft	111	147	194	306	311	314	313	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	1,37	2,17	2,21	2,23	2,22	2,04	1,84	1,78
		psi	113,9	151,0	199,3	315,3	320,1	323,6	321,6	296,0	266,4	258,0
Max combustion pressure 2)	5	MPa	10,1	11	13,4	16	16	15,8	15,7	15,5	15,8	15,8
		psi	1465	1595	1944	2321	2321	2292	2277	2248	2292	2292

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

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	357	264	249	218	209	213	221	227	232	235
		lb/hph	0,58	0,43	0,4	0,35	0,34	0,35	0,36	0,37	0,38	0,381
Fuel consumption, Test cycle E5	5	g/kWh	236									
		lb/hph	0,38									
Fuel consumption at prop. load x ^{2.5}	5	l/h	0,8	2,2	4,2	7,2	11,2	16,4	22,2	31,5	41,0	
		US gal/h	0,2	0,6	1,1	1,9	3,0	4,3	5,9	8,3	10,8	
Fuel consumption at full load	5	l/h	4,7	7,9	13,1	22,7	26,5	31,9	37,6	39,9	40,8	41,3
		US gal/h	1,2	2,1	3,5	6,0	7,0	8,4	9,9	10,6	10,8	10,9

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	%									85	
Exhaust temperature at the exhaust pipe connecting flange after the turbo charger.	5	°C									527	
		°F									981	
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	m ³ /min									10,9	
		cu.ft./min									385	
Charge air pressure Inlet manifold	5	kPa									264	
		psi									38,3	
Exhaust gas flow	5	m ³ /min									25,1	
		cu.ft./min									886	

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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	%									7	
Heat rejection to charge air cooler in percent of crankshaft power.	5	%									20	
Coolant heat rejection to HE in percent of crankshaft power.	5	%									53	
Coolant flow with fully open thermostat and std cooling system		l/min cu.ft./min									270 9,5	
Max. permissible temperature on coolant in engine outlet		°C °F						98 208				
Coolant volume engine, including heat exchanger		litres US gal.						8,7 2,30				
Max. additional coolant for cabin heater etc. with std. Expansion tank		litres US gal.						8 2,11				
Maximum coolant flow to cabin heater etc.		l/min cu.ft./min						20 0,71				
Thermostat, start open at		°C °F						80 176				
Thermostat, fully open at		°C °F						94 201				

Raw water circuit	rpm	700	1200	1600	2000	2400	2800	3200	3600	4000	4130
Nominal raw water design flow	l/min cu.ft./min									132 4,7	
Nominal raw water pump pressure head at design flow. (measured before and after pump)	kPa psi									125 18,1	
Maximum raw water pump suction head	kPa psi							30 4,4			
Maximum additional pressure drop excl. reverse gear oil cooler and riser	kPa psi									28 4,1	
Pressure drop over reverse gear oil cooler (optional equipment)	kPa psi									9 1,3	
Maximum raw water temperature entering charge air cooler	°C °F							30 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	0,1	0,1	0,1	0,2	0,5	0,6	
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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