

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	3000
Propeller selection range R5	rpm	2900-3130
Dry weight engine BT	kg lb	260 573

Performance	Rating	rpm	700	1200	1600	2000	2200	2400	2600	2800	3000	3130
Crankshaft power 1), 5)	5	kW	11	25	43	62	69	80	80	81	81	81
		hp	15	34	58	84	94	109	109	110	110	110
Propeller shaft power 1) (At full load) With reverse gear	5	kW	11	24	41	60	66	77	77	78	78	78
		hp	14	33	56	81	90	104	104	106	106	106
Propellershaft power at prop. load x ^{2,5}	5	kW	2	8	16	28	35	44	54	65	77	
		hp	3	11	22	38	48	60	73	88	105	
Torque at crankshaft 2)	5	Nm	150	199	257	296	300	318	294	276	258	247,1
		lbf ft	111	147	189	218	221	235	217	204	190	182
Mean piston speed		m/s	2,2	3,7	5,0	6,2	6,8	7,5	8,1	8,7	9,3	9,7
		ft/s	7,1	12,2	16,3	20,4	22,4	24,5	26,5	28,5	30,6	31,9
Effective mean pressure 2)	5	MPa	0,79	1,04	1,34	1,55	1,57	1,67	1,54	1,45	1,35	1,29
		psi	113,9	151,0	194,8	224,7	227,3	241,6	223,0	209,7	195,7	187,6
Max combustion pressure 2)	5	MPa	10,2	10,7	11	10,8	11,4	11,7	11,3	10,9	10,7	10,4
		psi	1479	1552	1595	1566	1653	1697	1639	1581	1552	1508

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

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

Fuel system	Rating	rpm	700	1200	1600	2000	2200	2400	2600	2800	3000	3130
Specific fuel consumption 2)	5	g/kWh	350	251	243	214	211	213	214	214	218	220
		lb/hph	0,57	0,41	0,39	0,35	0,34	0,35	0,35	0,35	0,35	0,356
Fuel consumption, Test cycle E5	5	g/kWh	232									
		lb/hph	0,38									
Fuel consumption at prop. load x ^{2,5}	5	l/h	0,8	2,4	4,7	7,9	9,9	12,4	14,8	17,8	21,0	
		US gal/h	0,2	0,6	1,2	2,1	2,6	3,3	3,9	4,7	5,6	

Fuel system	Rating	rpm	700	1200	1600	2000	2200	2400	2600	2800	3000	3130
Fuel consumption at full load	5	l/h	4,6	7,5	12,5	15,9	17,4	20,4	20,5	20,7	21,1	21,3
		US gal/h	1,2	2,0	3,3	4,2	4,6	5,4	5,4	5,5	5,6	5,6

Intake and exhaust system	Rating	rpm	700	1200	1600	2000	2200	2400	2600	2800	3000	3130
Specific exhaust heating effect in percent of crankshaft power	5	%									70	
Exhaust temperature at the exhaust pipe connecting flange after the turbo charger.	5	°C									422	
		°F									792	
Permitted back pressure in the exhaust line at rated speed. (Installed back pressure)		kPa									Max	10
		psi										1,5
		kPa									Min	5
		psi										0,7
Engine air consumption at 25°C / 77°F atmospheric pressure 100kPa and relative humidity 30%.	5	m³/min									6,5	
		cu.ft./min									230	
Charge air pressure Inlet manifold	5	kPa									198	
		psi									28,7	
Exhaust gas flow	5	m³/min									14,5	
		cu.ft./min									512	

Cooling system	Rating	rpm	700	1200	1600	2000	2200	2400	2600	2800	3000	3130
Radiated heat in percent of crankshaft power.	5	%									6	
Heat rejection to charge air cooler in percent of crankshaft power.	5	%									15	
Coolant heat rejection to HE in percent of crankshaft power.	5	%									57	
Coolant flow with fully open thermostat and std cooling system		l/min									208	
		cu.ft./min									7,3	
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

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Raw water circuit		rpm	700	1200	1600	2000	2200	2400	2600	2800	3000	3130
Nominal raw water design flow	l/min cu.ft/min										105 3,7	
Nominal raw water pump pressure head at design flow. (measured before and after pump)	kPa psi										85 12,3	
Maximum raw water pump suction head	kPa psi	30 4,4										
Maximum additional pressure drop excl. reverse gear oil cooler and riser	kPa psi										14 2,0	
Pressure drop over reverse gear oil cooler (optional equipment)	kPa psi										7 1,0	
Maximum raw water temperature entering charge air cooler	°C °F	30 86										

Emissions		Rating	rpm	700	1200	1600	2000	2200	2400	2600	2800	3000	3130
Smoke at prop. load x ^{2,5}	5	*BSU		0,0	0,0	0,1	0,2	0,1	0,2	0,1	0,1	0,1	
Noise at prop. load x ^{2,5} . 4)	5	dBA		92	94	99	107	109	111	110	109	110	

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

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