

Technical Data D3-160A

Rating 5

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		17,3:1
Maximum forward tilt while running	°	20
Max.backward tilt while running:	°	20
Max. side tilt while running:	°	20
Max seawater temp.	° C	30
Idling speed	rpm	700 ± 10
Rated speed	rpm	4000
Propeller selection range	rpm	3800-4100
Dry weight engine BT	kg lb	227 500

Performance	Rating	r/min	1400	1800	2000	2400	2800	3000	3400	3800	4000	4100
Crankshaft power 1), 5)	5	kW hp	36 48,96	60 81,6	72 97,92	86 117	100 136	109 148,2	118 160,5	118 160,5	120 163,2	118,5 161,2
Propeller shaft power 1) (At full load)	5	kW hp	31 42,54	55 74,53	67 90,52	80 109,2	94 127,8	103 139,8	112 151,8	112 151,8	114 154,5	112 152,5
Propellershaft power at prop.load x ^{2,5}	5	kW hp	8 11	15 21	20 27	32 43	47 63	55 75	76 103	100 136	114 154	112 152
Torque at crankshaft 2)	5	Nm lbf ft	245,6 181	318,3 235	343,8 254	342,2 252	341 252	347 256	331,4 244	296,5 219	286,5 211	276 204
Mean piston speed		m/s ft/s	4,3 14,3	5,6 18,3	6,2 20,4	7,5 24,5	8,7 28,5	9,3 30,6	10,6 34,7	11,8 38,7	12,4 40,8	12,7 41,8
Effective mean pressure 2)	5	MPa psi	1,29 186	1,67 242	1,80 261	1,79 260	1,78 259	1,82 263	1,73 252	1,55 225	1,50 217	1,44 209

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

Technical Data D3-160A

Rating 5

Lubricating system

Specific lubricating oil consumption.		g/kWh	0,1
Max oil volume incl. filter at following inclination:	0°	litres	6,8
		US gal	1,80
Min oil volume incl.. filter at following inclination:	0°	litres	4,8
		US gal	1,27

Fuel system

	Rating	r/min	1400	1800	2000	2400	2800	3000	3400	3800	4000	4100
Specific fuel consumption 2)	5	g/kWh	220	209	206	206	210	207	219	238	244	246
		lb/hph	0,356	0,339	0,334	0,334	0,34	0,335	0,355	0,386	0,395	0,399
Fuel consumption at prop. load x ^{2.5}	5	l/h	3	5	6	9	13	16	22	30	35	35
		US gal/h	0,7	1,2	1,6	2,4	3,5	4,3	5,9	8,0	9,2	9,1
Fuel consumption at full load	5	l/h	9	15	18	21	25	27	31	34	35	35
		US gal/h	2,5	4,0	4,7	5,6	6,6	7,1	8,2	8,9	9,3	9,2

Intake and exhaust system

	Rating	r/min	1400	1800	2000	2400	2800	3000	3400	3800	4000	4100
Exhaust temperature at the exhaust pipe con. flange after the turbo	5	°C	365	370	370	370	425	430	470	510	525	515
		°F	689	698	698	698	797	806	878	950	977	959
Permitted back pressure in the exhaust line at rated speed. (Installed back pressure)	5	kPa									Max	25
		psi										3,6
		kPa									Min	20
		psi										2,9
Engine air consumption at 25°C / 77°F atmospheric pressure 100kPa and relative humidity 30%.	5	m³/min										9,2
		cu.ft./min										324,9
Turbo charge pressure. at prop load exp 2.5	5	kPa	5	15	25	60	95	95	105	115	115	
		psi	0,7	2,2	3,6	8,7	13,8	13,8	15,2	16,7	16,7	
Exhaust gas flow	5	m³/min									19,9	
		cu.ft./min									702,8	

Cooling system

	Rating	r/min	1400	1800	2000	2400	2800	3000	3400	3800	4000	4100
Sea water pump flow.	5	m³/h									7,7	
		foot³/h									272	
Fresh water circulation pump flow	5	m³/h									9,4	
		foot³/h									332	
Coolant content engine, incl heatexchanger	5	litres	8,2									
		U.S.gal.	2,17									
Thermostat, start open at	5	°C	80									
		°F	176									
Thermostat, fully open at	5	°C	95									
		°F	203									

Emissions

	Rating	r/min	1400	1800	2000	2400	2800	3000	3400	3800	4000	4100
Smoke at prop. load x ^{2.5}	5	*BSU	0,1	0,1	0,1	0,1	0,3	0,4	0,7	1,1	1,4	

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

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