

Technical Data D7A TA

Version D7A-B TA

Rating 1, rated speed 1900 rpm

General

In-line four stroke diesel engine with direct injection.

Number of cylinders		6
No of valves		2
Displacement, total	litres	7,15
	in ³	436,0
Firing order		1-5-3-6-2-4
Rotational direction, viewed towards flywheel		Anti-clockwise
Bore	mm	108
	in	4,25
Stroke	mm	130
	in	5,12
Compression ratio		19
Compression pressure at 240 rpm	MPa	3 - 3,8
Maximum forward inclination under duty:	°	10
Max. intermittent backward tilt while running:	°	
Max. intermittent side tilt while running:	°	
Idling speed	rpm	750 ± 25
Rated speed	rpm	1900
Propeller selection range	rpm	1875-1925

	Rating	r/min	1000	1200	1500	1800	1900						
Crankshaft power 1), 5)	1	kW	60	80	108	127	130						
		hp	82	109	147	173	177						
Propellershaft power 1) (At full load)	1	kW	58	78	105	123	126						
		hp	79	106	142	168	171						
Propellershaft power at prop.load x ^{2,5}	1	kW	25	40	70	110	126						
		hp	34	54	95	150	171						
Propellershaft power at prop.load x ³	1	kW	18	32	62	107	126						
		hp	24	44	84	146	171						
Torque at crankshaft 2)	1	Nm	573	636,6	687,5	673,8	653,4						
		lbf ft	423	470	507	497	482						
Mean piston speed		m/s	4,3	5,2	6,5	7,8	8,2						
		ft/s	14,2	17,1	21,3	25,6	27,0						
Effective mean pressure 2)	1	MPa	1,01	1,12	1,21	1,18	1,15						
		psi	146,1	162,4	175,4	171,9	166,7						
Max combustion pressure 2)	1	MPa			11,2	11,5	11,7						
		psi			1624	1668	1697						

Lubricating system

Specific lubricating oil consumption.		g/kWh	0,3 % of fuel consumption
Max oil volume excl. filters at following inclination:	0 °	litres	16
Min oil volume excl. filters at following inclination:	0 °	litres	13
Max oil volume excl. filters at following inclination:	°	litres	
Min oil volume excl. filters at following inclination:	°	litres	
Max oil volume excl. filters at following inclination:	°	litres	
Min oil volume excl. filters at following inclination:	°	litres	

	Rating	r/min	1000	1200	1500	1800	1900						
Specific fuel consumption 2)	1	g/kWh	218	218	211	211	213						
		lb/hph	0,353	0,353	0,342	0,342	0,345						
Fuel consumption at prop. load x ^{2,5}	1	l/h	6	10	18	28	32						
		US gal/h	1,7	2,7	4,6	7,3	8,4						
Fuel consumption at prop. load x ³	1	l/h	5	8	16	27	32						
		US gal/h	1,2	2,2	4,1	7,1	8,4						
Fuel consumption at full load	1	l/h	16	21	27	32	33						
		US gal/h	4,1	5,5	7,2	8,4	8,7						

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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Intake and exhaust system	Rating	r/min	1000	1200	1500	1800	1900						
Specific exhaust heating effect in percent of crankshaft power	1	%			64	64	65						
Exhaust temperature (at the exhaust pipe connecting flange after the turbo charger)	1	°C			380	335	320						
		°F			716	635	608						
Permitted back pressure in the exhaust line at rated speed. (Installed back pressure)		kPa						Max	7,5				
		psi							1,1				
		kPa						Min	0				
		psi							0				
Engine air consumption at 25°C / 77°F atmospheric pressure 100kPa and relative humidity 30%	1	m³/min			8,3	11,6	12,6						
		cu.ft./min			293,1	409,7	445						
Charge air pressure after aftercooler.	1	kPa			81	127	122						
		psi			11,7	18,4	17,7						
Exhaust gas flow (behind turbine)	1	m³/min			19	26	29						
		cu.ft./min			667,4	914,6	1035						

Cooling system	Rating	r/min	1000	1200	1500	1800	1900						
Radiated heat in percent of crankshaft power.	1	%			5,3	5,3	5,3						
Heat rejection to after cooler in percent of crankshaft power.	1	%			9	15	17						
Cooling water heating effect incl. oil cooler in percent of crankshaft power 3).	1	%			81	75	71						
Total pumphead freshwater circulation pump.		kPa			59	85	95						
Highest permissible pressure drop in outer circuit at keel cooling.		kPa			21	31	35						
Sea water pump flow.		m³/h			5,0	6,8	7,3						
		foot³/h			177	240	258						
Cooling water circulation pump flow		m³/h			9,4	11,3	11,9						
		foot³/h			332	399	420						
Max permissible temperature on fresh water circulation outlet from the engine		°C						105					
		°F						221					
Coolant volyme in engine with raw water.		litres						26					
		U.S. gal.						6,87					
Thermostat, start open at		°C						83					
		°F						181					
Thermostat, fully open at		°C						98					
		°F						208					

Emissions	Rating	r/min	1000	1200	1500	1800	1900						
Smoke at prop. load x ^{2,5}	1	BSU	0,5	0,6	0,5	0,3	0,3						
Smoke at prop. load x ³	1	BSU	0,6	0,6	0,4	0,3	0,3						
Noise at full load	1	dBA			91	93	94						

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5) At installed back pressure