

Technical Data D7A TA

Version D7A-B TA

Rating 2, 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)	2	kW	61	90	126	149	153						
		hp	83	122	171	203	208						
Propellershaft power 1) (At full load)	2	kW	59	87	122	145	148						
		hp	80	119	166	197	202						
Propellershaft power at prop.load x ^{2,5}	2	kW	30	47	82	129	148						
		hp	41	64	112	175	201						
Propellershaft power at prop.load x ³	2	kW	22	37	73	126	148						
		hp	30	50	99	171	201						
Torque at crankshaft 2)	2	Nm	582,5	716,2	802,1	790,5	769						
		lbf ft	430	528	592	583	567						
Mean piston speed	2	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)	2	MPa	1,02	1,26	1,41	1,39	1,35						
		psi	148,6	182,7	204,6	201,6	196,1						
Max combustion pressure 2)	2	MPa			12,3	12,5	12,7						
		psi			1784	1813	1842						

Lubricating system

Specific lubricating oil consumption.		g/kWh	Approx 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)	2	g/kWh	218	220	211	211	213						
		lb/hph	0,353	0,356	0,342	0,342	0,345						
Fuel consumption at prop. load x ^{2,5}	2	l/h	8	12	21	32	38						
		US gal/h	2,1	3,3	5,4	8,6	9,9						
Fuel consumption at prop. load x ³	2	l/h	6	10	18	32	38						
		US gal/h	1,5	2,6	4,8	8,4	9,9						
Fuel consumption at full load	2	l/h	16	24	32	37	39						
		US gal/h	4,2	6,2	8,4	9,9	10,2						

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	2	%			65	64	65						
Exhaust temperature (at the exhaust pipe connecting flange after the turbo charger)	2	°C			400	345	335						
		°F			752	653	635						
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%	2	m³/min			9,08	13,16	14,33						
		cu.ft./min			320,7	464,7	506,1						
Charge air pressure after aftercooler.	2	kPa			99	144	152						
		psi			14,4	20,9	22,0						
Exhaust gas flow (behind turbine)	2	m³/min			22	28	31						
		cu.ft./min			759,3	1003	1095						

Cooling system	Rating	r/min	1000	1200	1500	1800	1900						
Radiated heat in percent of crankshaft power.	2	%			5,3	5,3	5,3						
Heat rejection to after cooler in percent of of crankshaft power.	2	%			9	17	19						
Cooling water heating effect incl. oil cooler in percent of crankshaft power 3).	2	%			78	73	72						
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}	2	BSU	0,7	0,7	0,5	0,3	0,3						
Smoke at prop. load x ³	2	BSU	0,7	0,6	0,5	0,3	0,3						
Noise at full load	2	dBA			91	93	94						

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5) At installed back pressure