

Technical Data IPS400

Rating 4 310 hp (228 kW)

General

4-stroke direct injected, turbocharged and aftercooled diesel engine

Number of cylinders		6
No of valves		24
Displacement, total	litres	5,50
	in ³	335,6
Firing order		1-5-3-6-2-4
Rotational direction, viewed from the front		Clockwise
Bore	mm	103
	in	4,06
Stroke	mm	110
	in	4,33
Compression ratio		17,5:1
Compression pressure at 240 rpm	MPa psi	
Maximum forward inclination installed:	°	0
Maximum backward inclination installed:	°	10
Max. intermittent forward inclination while running:	°	10
Max. intermittent backward inclination while running:	°	20
Max. intermittent side tilt while running:	°	30 for max 30 sec.
Idling speed	rpm	600 - 750
Rated speed	rpm	3500
Propeller selection range	rpm	3400-3600
Dry weight engine BT	kg	580
	lb	1279
Dry weight with IPS	kg	863
	lb	1903

Performance		Rating	r/min	1500	2000	2500	3000	3500				
Crankshaft power 1), 5)	4	kW		90	155	195	223	228				
		hp		122,4	210,8	265,2	303,3	310				
Propellershaft power 1) For IPS (At full load)	4	kW		85,5	147,3	185,3	211,9	216				
		hp		116,3	200,3	251,9	288,1	293,8				
Propellershaft power at prop.load x ^{2,5} For IPS	4	kW		26	53	93	147	216				
		hp		35	72	126	200	294				
Torque at crankshaft 2)	4	Nm		573	740,1	744,8	709,8	622,1				
		lbf ft		423	546	549	524	459				
Mean piston speed		m/s		5,5	7,3	9,2	11,0	12,8				
		ft/s		18,0	24,1	30,1	36,1	42,1				
Effective mean pressure 2)	4	MPa		1,31	1,69	1,70	1,62	1,42				
		psi		189,9	245,3	246,9	235,3	206,2				
Max combustion pressure 2)	4	MPa		14,6	16	15,6	16,7	16,2				
		psi		2118	2321	2263	2422	2350				

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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Lubricating system

Specific lubricating oil consumption.		g/kWh	0,2
Max oil volume excl. filters at following inclination:	0°	litres	20
		US gal	5,28
Min oil volume excl. filters at following inclination:	0°	litres	16,5
		US gal	4,36
Max oil volume excl. filters at following inclination:		litres	
		US gal	
Min oil volume excl. filters at following inclination:		litres	
		US gal	
Max oil volume excl. filters at following inclination:		litres	
		US gal	
Min oil volume excl. filters at following inclination:		litres	
		US gal	

Fuel system

	Rating	r/min	1500	2000	2500	3000	3500				
Specific fuel consumption 2)	4	g/kWh lb/hph	228,6 0,37	212 0,343	207 0,335	219 0,355	235 0,381				
Fuel consumption at prop. load x ^{2,5}	4	l/h	7,1	14,8	24,7	40,3	63,5				
		US gal/h	1,9	3,9	6,5	10,6	16,8				
Fuel consumption at full load	4	l/h	24,41	38,98	47,88	57,93	63,5				
		US gal/h	6,4	10,3	12,6	15,3	16,8				

Intake and exhaust system

	Rating	r/min	1500	2000	2500	3000	3500					
Exhaust temperature at the exhaust pipe connecting flange after the turbo charger. At prop. load exp. 2,5	4	°C	235	296	310	314	380					
		°F	455	565	590	597	716					
Permitted back pressure in the exhaust line at rated speed. (Installed back pressure)		kPa						Max	30			
		psi							4,4			
		kPa						Min	10			
		psi							1,5			
Engine air consumption at 25°C / 77°F atmospheric pressure 100kPA and relative humidity 30%.	4	m ³ /min					21,3					
		cu.ft./min					752,2					
Turbo charge pressure. At prop. load exp. 2,5	4	kPa	10	28	70	130	184					
		psi	1,5	4,1	10,2	18,9	26,7					
Exhaust gas flow	4	m ³ /min					37					
		cu.ft./min					1307					

Cooling system

	Rating	r/min	1500	2000	2500	3000	3500				
Sea water pump flow.		m ³ /h					12,9				
		foot ³ /h					456				
Coolant content engine, incl. heat exchangers and air cooler		litres						16			
		U.S. gal.						4,23			
Thermostat, start open at		°C						82			
		°F						180			
Thermostat, fully open at		°C						92			
		°F						198			

Emissions

	Rating	r/min	1500	2000	2500	3000	3500				
Smoke at prop. load x ^{2,5}	4	BSU	0,2	0,1	0,1	0,2	0,5				

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