

Technical Data D2-60

Rating 44,1kW(60Hp)

General

4-stroke indirect injected, naturally aspirated diesel engine

Number of cylinders		4
No of valves		4
Displacement, total	litres in ³	2,216 135,2
Firing order		1342
Rotational direction, viewed from the front		Clockwise
Bore	mm in	84 3,31
Stroke	mm in	100 3,94
Compression ratio		22,3:1
Compression pressure at 250 rpm	MPa	2,95
Maximum continuous forward inclination:	°	10
Max. continuous backward tilt while running:	°	35
Max. continuous side tilt while running:	°	35
Idling speed	rpm	850 ± 25
Rated speed	rpm	3000
Propeller selection range	rpm	2700-3000

Performance	r/min	1200	1400	1600	2000	2400	2800	3000
Crankshaft power 1), 5)	kW	19,2	23,5	27,8	35,4	40,8	44,1	44,1
	hp	26,15	31,99	37,44	48,10	55,53	60,0	60,0
Propellershaft power 1) (At full load)	kW	18,5	22,6	26,6	34,0	39,2	42,4	42,3
	hp	25,10	30,71	36,23	46,18	53,31	57,61	57,56
Propellershaft power at prop.load x ³	kW	2,7	4,3	6,4	12,5	21,7	34,4	42,3
	hp	3,68	5,85	8,73	17,05	29,47	46,80	57,56
Torque at crankshaft 2)	Nm	153,0	160,5	165,7	168,9	162,5	150,5	140,4
	lbf ft	112,85	118,38	122,2	124,58	119,9	111,0	103,6
Mean piston speed	m/s	4,0	4,7	5,3	6,7	8,0	9,3	10,0
	ft/s	13,12	15,42	17,38	21,98	26,24	30,50	32,8
Effective mean pressure 2)	MPa	0,87	0,91	0,94	0,96	0,92	0,85	0,80
	psi	126,2	132,0	136,3	139,2	133,4	123,3	116,0

Lubricating system

Specific lubricating oil consumption.		g/kWh
Max oil volume excl. filters at following inclination:	0 °	litres 10,6
Min oil volume excl. filters at following inclination:	0 °	litres 8,9
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

1) ISO 3046 fuel temp 40°C.

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) Acc. to ISO 3046

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	r/min	1200	1600	2000	2400	2800	3000
Specific fuel consumption 2)	g/kWh	231,0	228,7	237,6	252,7	277,2	290,3
Fuel consumption at prop. load x ³	L/h	0,8	1,09	3,8	7,0	12,1	15,1
	US gal/h	0,21	0,50	1,00	1,84	3,19	3,99
Fuel consumption at full load	L/h	5,4	7,8	10,3	12,6	14,9	15,1
	US gal/h	1,43	2,06	2,72	3,33	3,94	3,99

Intake and exhaust system	r/min	1200	1400	1600	2000	2400	2800	3000
Exhaust temperature in exhaust pipe (-60 cm from engine).	°C	394	397	398	407	456	496	492
Permitted back pressure in the exhaust line at rated speed. (Installed back pressure)	kPa							20 Max 15,0 Min
	psi							2,9 Max 2,2 Min
Engine air consumption at 25°C / 77°F atmospheric pressure 100kPA and relative humidity 30%.	m ³ /h	78	96	120	162	198	222	228
Exhaust gas flow	m ³ /h	174	222	270	360	438	504	510

Cooling system	r/min	1200	1400	1600	2000	2400	2800	3000
Radiated heat in percent of crankshaft power.	%	19	19	19	20	21	23	24
Cooling water heating effect in percent of crankshaft power.	%	103	102	95	100	105	121	130
Sea water pump flow.	m ³ /h	1,6	1,8	2,1	2,6	3,1	3,6	3,8
Cooling water circulation pump flow	m ³ /h	3,4	3,8	4,4	5,5	6,3	7,3	7,7
Coolant content engine	litres	8,8						
Thermostat, start open at	°C	82						
Thermostat, fully open at	°C	95						

Emissions	r/min	1400	1600	2000	2400	2800	3000
Smoke at prop. load x ³	FSN	0,37	0,35	0,48	0,42	0,41	1,29

1) ISO 3046 fuel temp 40°C.

2) At power according to 1).

3) If reverse gear is used 1% in heat rejection will be added for its oil cooler.

4) Acc. to ISO 3744

5) According to ISO 15851