

Technical Data D3-190I

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 inclination:	°	20
Max. intermittent backward tilt while running:	°	20
Max. intermittent side tilt while running:	°	20
Max seawater temperature	°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	38	73	84	98	114	123	137	140	140	139
		hp	51,68	99,28	114,2	133,3	155	167,3	186,3	190,4	190,4	189
Propeller shaft power 1) (At full load) With reverse gear HS45	5	kW	36,48	70,08	80,64	94,08	109,4	118,1	131,5	134,4	134,4	133,4
		hp	49,61	95,31	109,7	127,9	148,8	160,6	178,9	182,8	182,8	181,5
Propellershaft power at prop.load x ^{2,5} With reverse gear HS45	5	kW	10	18	24	37	55	65	89	117	133	132
		hp	13	25	32	50	74	88	121	159	181	180
Propellershaft power at prop.load x ³ With reverse gear HS45	5	kW	6	12	17	29	46	57	83	115	134	133
		hp	8	17	23	39	63	77	112	157	183	181

Performance	Rating	r/min	1400	1800	2000	2400	2800	3000	3400	3800	4000	4100
Torque at crankshaft 2)	5	Nm	259,2	387,3	401,1	389,9	388,8	391,5	384,8	351,8	334,2	323,7
		lbf ft	191	286	296	288	287	289	284	259	247	239
Mean piston speed		m/s	4,3	5,6	6,2	7,5	8,7	9,3	10,6	11,8	12,4	12,7
		ft/s	14,3	18,3	20,4	24,5	28,5	30,6	34,7	38,7	40,8	41,8
Effective mean pressure 2)	5	MPa	1,36	2,03	2,10	2,04	2,03	2,05	2,01	1,84	1,75	1,69
		psi	196,7	293,9	304,4	296,0	295,1	297,2	292,1	267,0	253,7	245,7

Lubricating system

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

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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Fuel system	Rating	r/min	1400	1800	2000	2400	2800	3000	3400	3800	4000	4100
Specific fuel consumption 2)	5	g/kWh	228	217	210	209	216	213	221	228	234	239
		lb/hph	0,369	0,352	0,34	0,339	0,35	0,345	0,358	0,369	0,379	0,387
Fuel consumption at prop. load x ^{2,5}	5	l/h	3	5	6	10	15	17	25	34	39	40
		US gal/h	0,7	1,3	1,6	2,6	3,9	4,6	6,5	8,9	10,4	10,5
Fuel consumption at prop. load x ³	5	l/h	2	3	4	8	12	15	23	33	39	40
		US gal/h	0,4	0,9	1,2	2,0	3,3	4,0	6,0	8,7	10,4	10,6
Fuel consumption at full load	5	l/h	10	19	21	25	29	31	36	38	39	40
		US gal/h	2,7	5,0	5,6	6,5	7,8	8,3	9,6	10,1	10,4	10,5

Intake and exhaust system	Rating	r/min	1400	1800	2000	2400	2800	3000	3400	3800	4000	4100	
Exhaust temperature at the exhaust pipe connecting flange after the turbo charger.	5	°C	397	443	436	447	500	500	531	527	534	538	
		°F	747	829	817	837	932	932	988	981	993	1000	
Permitted back pressure in the exhaust line at rated speed. (Installed back pressure)	5	kPa									Max	30	
		psi										4,4	
Engine air consumption at 25°C / 77°F atmospheric pressure 100kPA and relative humidity 30%.	5	kPa									Min	25	
		psi										3,6	
Turbo charge pressure. at prop load exp 2.5	5	m³/min									9,4		
		cu.ft./min									332		
Exhaust gas flow	5	kPa	5	34	23	51	63	64	73	131	137		
		psi	0,7	4,9	3,3	7,4	9,1	9,3	10,6	19,0	19,9		
Exhaust gas flow	5	m³/min									21,3		
		cu.ft./min									752,2		

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. heat exchangers and air cooler	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	0,2	0,2	0,1	0,3	0,6	0,7	1,2	1,2	1,4	
Smoke at prop. load x ³	5,0	*BSU	0,2	0,2	0,1	0,3	0,6	0,7	1,2	1,2	1,4	

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

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4) Acc. to ISO 3744

5) At installed back pressure