

Technical Data D12D-F MP

Rating 5.

General

4-stroke direct injected, turbocharged and aftercooled diesel engine

Number of cylinders		6
No of valves		24
Displacement, total	liters in ³	12,13 740,2
Firing order		1-5-3-6-2-4
Rotational direction, viewed from the front		Clockwise
Bore	mm in	131 5,16
Stroke	mm in	150 5,91
Compression ratio		16.5:1
Compression pressure at 240 rpm, MPa		3,6
Maximum forward inclination, °C		0
Max. backward tilt while running, °C		13
Max. side tilt while running, °C		22,5
Idling speed, rpm		525
Full speed range, rpm		2350

Performance	r/min	1000	1200	1400	1600	1800	2000	2200	2300
Crankshaft power 1), 5)	kW	147	300	425	486	526	526	526	526
	hp	200	408	578	661	715	715	715	715
Propellershaft power 1)	kW	143	291	412	471	510	510	510	510
	hp	194	396	561	641	694	694	694	694
Torque at crankshaft 2)	Nm	1404	2387	2899	2901	2791	2512	2283	2184
	kpm	143	244	296	296	285	256	233	223
Medium piston speed	m/s	5,0	6,0	7,0	8,0	9,0	10,0	11,0	11,5
Effective mean pressure 2)	bar	14,5	24,7	30,0	30	28,9	26,0	23,7	22,6
Max burn pressure 2)	bar	130	170	200	200	200	200	200	200

Lubricating system	r/min	1000	1200	1400	1600	1800	2000	2200	2300
Specific lubricating oil consumption.	g/kWh	0,2							
Oil volume excl. filters, Max at 0° inclination	litres	38							
Oil volume excl. filters, Min at 0° inclination	litres	24							
Oil volume excl. filters, Max at 3° inclination	litres	33							
Oil volume excl. filters, Min at 3° inclination	litres	21							
Oil volume excl. filters, Max at 8° inclination	litres	27							
Oil volume excl. filters, Min at 8° inclination	litres	15							

Fuel system	r/min	1000	1200	1400	1600	1800	2000	2200	2300
Specific fuel consumption 2)	g/kWh	251	227	210	210	217	213	214	213
Fuel consumption at prop. load x ^{2,5}	L/h	21	26	38	51	68	90	116	131
	US gal/h	5,5	6,9	10,0	13,5	18,0	23,8	30,6	34,6
Fuel consumption at full load	L/h	44	81,3	107	122	136	134	134	134
	US gal/h	11,6	21,5	28,1	32,2	36,0	35,3	35,5	35,3

- 1) ISO 3046, fuel temperature 40 degrees
- 2) At power according to 1).
- 3) If reverse gear is used, 4% in heat rejection will be added for it's oil cooler.
- 4) Acc. to ISO 3744
- 5) At exhaust backpressure 15 kPa

Intake and exhaust system	r/min	1000	1200	1400	1600	1800	2000	2200	2300
Specific exhaust heating effect in percent of crankshaft power	%	81	73	64	62	65	63	63	65
Exhaust temperature at the exhaust pipe connecting flange after the turbo charger.	°C	610	570	470	420	410	380	380	400
Permitted back pressure in the exhaust line.	bar	0,15							
Engine air consumption at 25°C(77F) atmospheric pressure 100kPA and relative humidity 30%.	m3/h	500	980	1530	1940	2270	2370	2400	2390
Turbo charge pressure.	bar	0,5	1,5	2,3	2,8	3,1	2,9	2,6	2,4
Exhaust gas flow.	m3/h	1650	3010	3930	4480	4930	4930	4880	4960

Cooling system	r/min	1000	1200	1400	1600	1800	2000	2200	2300
Radiated heat in percent of crankshaft power.	%	11	9	6	1	1	1	2	1
Heat rejection to after cooler in percent of crankshaft power.	%	7	16	22	28	32	33	33	32
Heat rejection to engine oil cooler in percent of crankshaft power 3).	%	25	16	16	16	15	18	19	18
Cooling water heating effect incl. oil and after cooler in percent of crankshaft power.	%	119	99	91	93	99	99	98	96
Total pumphead freshwater circulation pump.	bar	0,8	1,1	1,3	1,7	2,1	2,4	2,6	2,8
Highest permissible pressure drop in outer circuit at keel cooling.	bar								
Sea water pump flow.	m3/h	11,5	14,1	16,4	18,5	20,6	22,6	24,4	25,2
Fresh water circulation pump flow	m3/h	11,9	12,4	13,4	16,1	18,7	22,4	24,5	27,2
Max permissible temperature on fresh water circulation outlet from the engine	°C	95							
Coolant capacity engine	litres	65							

Emissions	r/min	1000	1200	1400	1600	1800	2000	2200	2300
Smoke at prop. load $x^{2,5}$.	BSU	0,2	0,3	0,2	0,1	0,1	0,1	0,2	0,3
Noise at prop. load $x^{2,5}$. 4)	dba								

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