

Technical Data D12D-E MH 550

Rating 2.

General

4-stroke direct injected, turbocharged and aftercooled diesel engine

Number of cylinders		6
No of valves		24
Displacement, total	litres 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		17.5:1
Compression pressure at 240 rpm	MPa	-
Maximum forward inclination:	°	0
Max. intermittent backward tilt while running:	°	20
Max. intermittent side tilt while running:	°	30
Idling speed	rpm	525
Rated speed	rpm	1900
Propeller selection range	rpm	1900 - 1950

Performance	Rating	r/min	1000	1200	1400	1600	1800	1900				
Crankshaft power 1), 5)	2	kW	188	276	322	358	390	405				
			hp	256	375	438	487	530	551			
Propellershaft power 1) (At full load)	2	kW	182	268	312	347	378	393				
			hp	248	364	425	472	514	534			
Propellershaft power at prop.load x 2,7	2	kW	70	114	172	247	340	393				
			hp	95	155	234	336	462	534			
Torque at crankshaft 2)	2	Nm	1795	2196	2196	2137	2069	2036				
			lbf ft	1324	1620	1620	1576	1526	1501			
Mean piston speed		m/s	5,0	6,0	7,0	8,0	9,0	9,5				
			ft/s	16,4	19,7	23,0	26,2	29,5	31,2			
Effective mean pressure 2)	2	MPa	1,86	2,28	2,28	2,21	2,14	2,11				
			psi	269,7	330,0	330,0	321,0	310,9	305,8			
Max combustion pressure 2)	2	MPa	15,5	16,4	17,7	18,2	18,1	18,5				
			psi	2248	2379	2567	2640	2625	2683			

Lubricating system

Specific lubricating oil consumption.		g/kWh	0,2
Max oil volume excl. filters at following inclination:	0 °	litres	50
Min oil volume excl. filters at following inclination:	0 °	litres	40
Max oil volume excl. filters at following inclination:	5 °	litres	43
Min oil volume excl. filters at following inclination:	5 °	litres	32
Max oil volume excl. filters at following inclination:	10 °	litres	37
Min oil volume excl. filters at following inclination:	10 °	litres	26

Fuel system	Rating	r/min	1000	1200	1400	1600	1800	1900				
Specific fuel consumption 2)	2	g/kWh	218	202	198	202	218	226				
			lb/hph	0,353	0,327	0,321	0,327	0,353	0,366			
Fuel consumption at prop. load x ^{2,7}	2	l/h	18,3	29	42,3	60,9	87,3	108				
			US gal/h	4,8	7,7	11,2	16,1	23,1	28,6			
Fuel consumption at full load	2	l/h	48,8	66,4	75,9	86,1	101	108				
			US gal/h	12,9	17,5	20,1	22,7	26,7	28,6			

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	1400	1600	1800	1900				
Specific exhaust heating effect in percent of crankshaft power	2	%	61	57	54	56	63	68				
Exhaust temperature at the exhaust pipe connecting flange after the turbo charger.	2	°C	502	429	358	326	340	364				
		°F	936	804	676	619	644	687				
Permitted back pressure in the exhaust line at rated speed. (Installed back pressure)		kPa							Max	15		
		psi								2,2		
		kPa							Min	0		
		psi										
Engine air consumption at 25°C / 77°F atmospheric pressure 100kPa and relative humidity 30%.	2	m³/min	9,7	15,8	21,7	27,6	32,7	34,2				
		cu.ft./min	342,6	558	766,3	974,7	1155	1208				
Turbo charge pressure.	2	kPa	83	152	202	246	279	282				
		psi	12,0	22,0	29,3	35,7	40,5	40,9				
Exhaust gas flow	2	m³/min	27,6	39,6	47,7	55,9	65,7	70,6				
		cu.ft./min	974,7	1398	1685	1974	2320	2493				

Cooling system	Rating	r/min	1000	1200	1400	1600	1800	1900				
Radiated heat in percent of crankshaft power.	2		7	3	1	1	1	1				
Heat rejection to after cooler in percent of crankshaft power.	2	%	7	13	19	24	29	31				
Heat rejection to engine oil cooler in percent of crankshaft power 3).	2	%	13	12	11	11	12	12				
Cooling water heating effect incl. oil and after cooler in percent of crankshaft power.	2	%	91	81	80	85	95	101				
Total pumphead freshwater circulation pump.		kPa	119	140	170	198	230	242				
		ln H ₂ O	478	562	683	795	923	972				
Highest permissible pressure drop in outer circuit at keel cooling.		kPa							50			
		ln H ₂ O							201			
Sea water pump flow.		m³/h	11,8	14,4	16,9	18,9	20,9	22,0				
		foot³/h	417	509	597	667	738	777				
Cooling water circulation pump flow		m³/h	13,1	15,7	18,3	21,2	24,0	25,0				
		foot³/h	463	554	646	749	848	883				
Max permissible temperature on fresh water circulation outlet from the engine		°C							100			
		°F							212			
Coolant content engine, incl. heat exchangers and air cooler		litres							60			
		U.S. gal.							15,85			
Thermostat, start open at		°C							76			
		°F							169			
Thermostat, fully open at		°C							86			
		°F							187			

Emissions	Rating	r/min	1000	1200	1400	1600	1800	1900				
Smoke at prop. load x 2,7	2	BSU	0,4	0,5	0,3	0,2	0,3	0,8				
Noise at prop. load x 2.7. 4)	2	dBA	108	109	111	114	115	116				

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