

Technical Data D12D-E MH 400

Rating 1.

General

4-stroke direct injected, turbocharged and aftercooled diesel engine

Number of cylinders		6
No of valves		24
Displacement, total	litres	12,13
	in ³	740,2
Firing order		1-5-3-6-2-4
Rotational direction, viewed from the front		Clockwise
Bore	mm	131
	in	5,16
Stroke	mm	150
	in	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	1800
Propeller selection range	rpm	1800 - 1850

Performance	Rating	r/min	1000	1200	1400	1600	1800						
Crankshaft power 1), 5)	1	kW	168	228	266	284	294						
		hp	228	310	362	386	400						
Propellershaft power 1) (At full load)	1	kW	163	221	258	275	285						
		hp	222	301	351	375	388						
Propellershaft power at prop.load x ³	1	kW	49	84	134	200	285						
		hp	67	114	182	272	388						
Torque at crankshaft 2)	1	Nm	1604	1814	1814	1695	1560						
		lbf ft	1183	1338	1338	1250	1150						
Mean piston speed		m/s	5,0	6,0	7,0	8,0	9,0						
		ft/s	16,4	19,7	23,0	26,2	29,5						
Effective mean pressure 2)	1	MPa	1,66	1,88	1,88	1,76	1,62						
		psi	241,0	272,6	272,6	254,7	234,3						
Max combustion pressure 2)	1	MPa	15,2	16,1	16,8	17	16,8						
		psi	2205	2335	2437	2466	2437						

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						
Specific fuel consumption 2)	1	g/kWh	216	201	196	198	207						
		lb/hph	0,35	0,326	0,318	0,321	0,335						
Fuel consumption at prop. load x ³	1	l/h	13,4	22	34,6	50,2	72,3						
		US gal/h	3,5	5,8	9,1	13,3	19,1						
Fuel consumption at full load	1	l/h	43,2	54,6	62,1	66,9	72,3						
		US gal/h	11,4	14,4	16,4	17,7	19,1						

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						
Specific exhaust heating effect in percent of crankshaft power	1	%	60	55	54	54	59						
Exhaust temperature at the exhaust pipe connecting flange after the turbo charger.	1	°C	479	416	356	309	293						
		°F	894	781	673	588	559						
Permitted back pressure in the exhaust line at rated speed. (Installed back pressure)		kPa psi						Max	15				
		kPa psi						Min	0				
Engine air consumption at 25°C / 77°F atmospheric pressure 100kPa and relative humidity 30%.	1	m³/min	8,9	13,2	18	22,6	27						
		cu.ft./min	314,3	466,2	635,7	798,1	953,5						
Turbo charge pressure.	1	kPa	68	109	145	174	200						
		psi	9,9	15,8	21,0	25,2	29,0						
Exhaust gas flow	1	m³/min	24,4	32,4	38,8	43,7	49,2						
		cu.ft./min	861,7	1144	1370	1543	1737						

Cooling system	Rating	r/min	1000	1200	1400	1600	1800						
Radiated heat in percent of crankshaft power.	1	%	6	2	1	1	1						
Heat rejection to after cooler in percent of crankshaft power.	1	%	7	11	15	20	26						
Heat rejection to engine oil cooler in percent of crankshaft power 3).	1	%	15	11	12	12	12						
Cooling water heating effect incl. oil and after cooler in percent of crankshaft power.	1	%	93	82	79	81	86						
Total pumphead freshwater circulation pump.		kPa	119	140	170	198	230						
		In H ₂ O	478	562	683	795	923						
Highest permissible pressure drop in outer circuit at keel cooling.		kPa						50					
		In H ₂ O						201					
Sea water pump flow.		m³/h	11,8	14,4	16,9	18,9	20,9						
		foot³/h	417	509	597	667	738						
Cooling water circulation pump flow		m³/h	12,9	15,6	18,2	20,9	23,7						
		foot³/h	456	551	643	738	837						
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						
Smoke at prop. load x ³	1	BSU	0,2	0,3	0,4	0,3	0,2						
Noise at prop. load x ³ . 4)	1	dBA	107	108	111	113	115						

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