

General Engine Data		IF05AH-F	IF05ATH-F	IF05ATIH-F	IF05BTIH-F
Type		4 cycle, 4 Cylinder In Line, Water cooled			
Aspiration		Naturally	Turbo charged	Turbo charged,	Intercooled
Cylinder Type		Replaceable dry liner			
Bore x Stroke	mm	104 x 132			
Displacement	litre	4.483			
Compression Ratio		17.5 : 1			
Valves per Cylinder	- Intake	1			
	- Exhaust	1			
Valve Timing	- Intake	Opening: 15° BTDC - Close: 35° ABDC			
	- Exhaust	Opening: 69° BBDC - Close: ATDC			
Valves lashes at cold	- Intake mm	0.25 ±0.5			
	- Exhaust mm	0.50 ±0.5			
Combustion Type		Direct Injection			
Firing Order		1 – 3 – 4 – 2			
Rotation		Counter Clockwise, viewed from flywheel			
Dimension L x W x H (L=Construction Length)	± mm	955 x 955 x 1,497	955 x 955 x 1,529	977 x 955 x 1,537	977 x 955 x 1,537
Dry Weight	Approx. kg	600		620	

Engine Rating		1,760	2,100	2,200	2,350	2,600	2,800	2,940
IF05AH-F	kW	52	55	55	56	58	59	60
IF05ATH-F	kW	74	86	90	95	97	97	98
IF05ATIH-F	kW	91	118	122	125	130	131	132
IF05BTIH-F	kW	-	-	-	-	144	144	144

Although our FM ratings are shown at specific speeds, De Maas FFE engines can be applied at any intermediate speed. To determine the intermediate speed power; make a linear interpolation from the applicable De Maas power curves.

Fuel System					
Injection Pump		StanaDyne Rotary Pump type			
Governor		Fixed speed control			
Fuel Lift Pump		Exclusive (Electric version as an Option)			
Fuel Filter		Full flow, cartridge type			
Used Fuel		Diesel fuel according EN 590			
Fuel consumption at Full Load Approx. at 2,940 rpm		266	228	220	247
Fuel consumption information at other Revs.		See table no. 03.400.06FCEN03			
Standard Supply line Size	mm	Ø 10			
Standard Return line Size	mm	Ø 10			

Electrical System		24 Volts (Nominal)	
Starter motor	kW	3	
Battery Min. capacity recommended	Ah	180 (12 Volts)	
Quantity per battery bank		2	
Battery Cold Cranking Amperes	@ -18°C	950	
Charging Alternator Output	Amp.	90	
Engine stop device build in fuel pump		Energized to Stop	

Air Induction System		IF05AH-F	IF05ATH-F	IF05ATIH-F	IF05BTIH-F
Air Cleaner Type		Dry			
Engine Air Flow	m <sup>3</sup> /min	4.7	10.2	11.0	12.2
Air Inlet Restriction Dirty	kPa	6.5			
Air Inlet Restriction Clean	kPa	3.5			
Turbo charging pressure at full load/rated speed	kPa	-	150	140	
Turbo charging air inlet maximum temperature	°C	-	55		

Cooling system with DE MAAS std heat exchanger		IF05AH-F	IF05ATH-F	IF05ATIH-F	IF05BTIH-F
Heat Exchanger Minimum Flow	<i>l/min / kW installed</i>	0.9	0.6	0.7	0.7
Water Pump		Centrifugal type driven by belt			
Engine Radiated Heat	<i>kW</i>	See table no. 03.400.06VLEN03			
Water Pump Capacity	<i>litre/min.</i>	158.3			
Heat Exchanger Raw water system					
Maximum Pressure	<i>kPa</i>	1,500	1500	2,000	2,000
Flow (maximum)	<i>litre/min.</i>	59	59	93	101
Maximum Temperature	<i>°C (°F)</i>	37.8 (100)	37.8 (100)	37.8 (100)	37.8 (100)
Thermostat, Start to Open	<i>°C</i>	83			
Fully Opened	<i>°C</i>	95			
Coolant Capacity <i>Approximately</i>	<i>litre</i>	18		20	
Coolant Pressure Cap	<i>kPa</i>	100			
Maximum Raw Water Supply pipe					
Std Connection Heat Exchanger IN	<i>inch</i>	1 ½" BSP			
Maximum Raw Water Discharge pipe					
Std Connection Heat Exchanger OUT	<i>inch</i>	1 ½" BSP			
Maximum Engine H <sub>2</sub> O Temperature	<i>°C</i>	103			
Pressure loss Engine Cooling Circuit	<i>kPa</i>	10			
Header tank capacity (Fresh water system)	<i>litre</i>	4.12		6.5	
Cooling Loop Sizing	<i>Depending on application</i>	Consult De Maas			

Lubrication System		
Lubrication Method		Fully Forced pressure feed type
Oil Pump		Gear type driven by crankshaft
Oil Filter		Full Flow, Cartridge type
Oil pressure Range, normal	<i>kPa</i>	70 at idle 350 at maximum speed
Maximum Oil Temperature	<i>°C</i>	120 @ 2,940 rpm
Total Capacity	<i>litre</i>	9.5
Oil consumption at max. rating	<i>%</i>	0.1 (Of fuel consumption)

Exhaust System		IF05AH-F	IF05ATH-F	IF05ATIH-F	IF05BTIH-F
Exhaust Gas Flow at max output	<i>kg/h</i>	360	740	800	900
Exhaust Gas Temperature at max rating/power	<i>°C</i>	670	540	550	620
Max. Allowable Back Pressure	<i>kPa</i>	5			
Minimum Exhaust Pipe Diameter	<i>mm(inch)*</i>	75 (3")			
Exhaust compensator with counter flange		Excluded	Included		
*Based on Nominal System. Flow analysis must be done to assure adherence to system limitations! (Minimum exhaust pipe diameter is based on 6 metre (15 ft.) of pipe, one elbow, and a silencer. Pressure drop no greater than one half the max. allowable back pressure)					

Heater System		
Wattage (Nominal)	<i>W</i>	1,500
Voltage AC	<i>V</i>	230

Miscellaneous		
Flywheel housing	<i>SAE</i>	3
Flywheel	<i>SAE</i>	11 ½
Number of teeth starter ring		125

Engine Performance Data		
All data is based on the engine operating with fuel system, lubricating oil pump, air cleaner, and alternator; not included are compressor, fan, optional equipment, and driven components. Data is based on operation at SAE standard J1394 conditions of 300ft (91,4m) altitude, 29.61 in.(752mm) Hg dry barometer, and 77°F (25°C) intake air temperature, using No.2 diesel or a fuel corresponding to ASTM-D2.		
Altitude above which output should be Limited	<i>m</i>	91.4
Correction Factor per 305m. above Altitude Limit		3 %
Temperature above which output should be Limited	<i>°C</i>	25

Note: All the hereof technical information is, unless stated otherwise, based on the maximum speed of 2,940 rpm