

General Engine Data		IF05AH-N	IF05ATH-N	IF05ATIH-N	IF05BTIH-N
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 IF05AH-N & IF05ATH-N (L x W x H) ± mm		955 x 796 x 1,532			
Dimension IF05ATIH-N & IF05BTIH-N (L x W x H) ± mm		977 x 828 x 1,538			
Dry Weight	Approx. kg	580		600	

Engine Rating	1,470	1,760	2,100	2,200	2,350	2,600	2,800	2,940
IF05AH-N kW	49	60	68	69	72	74	73	73
IF05ATH-N kW	70	82	98	100	105	108	108	109
IF05ATIH-N kW	NA	105	130	134	138	143	144	145
IF05BTIH-N kW	NA	NA	NA	NA	NA	158	160	164

**Power :** At flywheel according to 97/68 EC, after 50 hours running, 3% tolerance, fuel Diesel EN 590

**Test conditions :** ISO 3046/1, 25 ° Celsius air temperature, 100 kPa atmospheric pressure, 30 % relative humidity – Applicable also to DIN 6271, BS 5514, SAE J1349 Standards.

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. 03.400.06FCEN.03
Standard Fuel Pump Supply Connection mm	M 16x1.5
Standardd Fuel Pump Return Connection mm	M 16x1.5

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-N	IF05ATH-N	IF05ATIH-N	F05BTIH-N
Air Cleaner Type	Dry			
Engine Air Flow <i>m³/min</i>	5.2	11.3	12.2	13.5
Air Inlet Restriction Dirty <i>kPa</i>	6.5			
Air Inlet Restriction Clean <i>kPa</i>	3.5			
Turbo charging pressure at full load/rated speed <i>kPa</i>	-	150	140	
Turbo charging air inlet maximum temperature <i>°C</i>	-	55		

Cooling system with DE MAAS std heat exchanger	IF05AH-N	IF05ATH-N	IF05ATIH-N	IF05BTIH-N
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. 03.400.06VLEN.03			
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 <i>(maximum)</i> <i>litre/min.</i>	66	66	102	115
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	

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-N	IF05ATH-N	IF05ATIH-N	IF05BTIH-N
Exhaust Gas Flow at max output	kg/h	390	810	880	990
Exhaust Gas Temperature at max rating/power	°C	735	490	590	640
Max. Allowable Back Pressure	kPa	5			
Minimum Exhaust Pipe Diameter	mm(inch)*	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