


**Important**

This Technical Data Sheet and the corresponding Installation Instructions provide important information to ensure the installed engine will operate according to the design specification in the Volvo Penta application for certification.

Requirements marked with  are considered as critical for exhaust emissions compliance according to the design specification in the Volvo Penta application for certification.

Failing to follow and meet these instructions and requirements when installing a certified engine in a piece of nonroad equipment for use in the United States violates U.S. federal law (40 CFR 1068.105(b)), subject to fines or other penalties as described in the Clean Air Act.

**General**

In-line four stroke diesel engine with direct injection. Rotation direction, counterclockwise viewed towards flywheel

Number of cylinders			6
Displacement, total		liters	10,84
		in <sup>3</sup>	661
Firing order			1-5-3-6-2-4
Bore		mm	123
		in	4,84
Stroke		mm	152
		in	5,98
Compression ratio			17,0:1
Wet weight	Engine only (Estimated) (excl after treatment comp.)	kg	1072
		lb	2363
	Power pac	kg	1351
		lb	2978

**Performance**

				rpm	1400	1800	2000	2100
IFN Power	265 kW	without fan		kW	256	265	265	265
				hp	348	360	360	360
		with fan		kW	248	247	241	237
		890 mm		hp	337	336	328	322
Torque at:		IFN Power 265 kW		Nm	1746	1406	1265	1205
				lbf ft	1288	1037	933	889
Max torque at engine speed		rpm	1260 rpm	Nm	1750			
				lbf ft	1291			
Power tolerance				%	±2			
Mean piston speed				m/s	7,1	9,1	10,1	10,6
				ft/sec	23,3	29,9	33,2	34,9
Effective mean pressure at:		IFN Power 265 kW		MPa	2,02	1,63	1,47	1,40
				psi	294	236	213	203
Max combustion pressure at:		IFN Power 265 kW		MPa	16	15	15	12
				psi	2320	2175	2175	1740
Total mass moment of inertia, J (mR <sup>2</sup> ) (not including flywheel)				kgm <sup>2</sup>	1,034			
				lbft <sup>2</sup>	24,5			
Friction Power				kW	20	29	36	49
				hp	27	39	49	67

**Derating see Technical Diagrams**

**Engine brake performance (only engines with VCB)**

		rpm	1200	1500	1900	2200
Brake power:	without fan	kW	70	120	170	185
		hp	95	163	231	252
Brake torque:	without fan	Nm	557	764	854	803
		lbf ft	411	563	630	592
Engine speed range for VCB activation:		rpm	1000-2200			
Min engine speed with VCB still active:		rpm	900			
Min oil temperature for VCB activation:		°C	55			

**Cold start performance**

*Cold start limit temperature	without starting aid	°C	-15		
		°F	5		
	with manifold heater 3 kW	°C	-25		
		°F	-13		
	with manifold heater 3 kW and block heater	°C	-35		
		°F	-31		
*Specify oil and fuel quality	T>-15°C Oil VDS3 or VDS4 15W/40 T<-15°C Oil VDS3 or VDS4 5W/40				
Block heater type	Make	Power kW	Engaged hours (-30°C)	Cooling water temp engine block	
Self circulating	Volvo	1,2	12	-1°C 30°F	

\* See also general section in the sales guide




**Lubrication system**

Lubricating oil consumption (average)		Vol%	0,05		
Oil system capacity including filters		liter	37		
		US gal	9,77		
Oil pan capacity: (both variants)	Max	liter	32		
		US gal	8,45		
	Min	liter	27		
		US gal	7,00		
Oil change intervals/specifications	VDS3	h	1000		
	VDS4	h	1000		
Engine angularity limits:	front up	°	30		
	front down	°	30		
	side tilt	°	30		
Oil pressure at rated speed		kPa	350 - 600		
		psi	51 - 87		
Lubrication oil temperature in sump:	max	°C	130		
		°F	266		
Oil filter filtration efficiency (in accordance with ISO 4548-12)	99%	μ	38		
	50%	μ	14		
Oil filter micron size		μ	40		

**Fuel system**



System supply flow at max. Speed	liter/h US gal/h	108 28,5
Fuel supply line max. restriction (measured at fuel inlet connection)	kPa psi	20 2,9
Fuel supply line max. pressure, during engine stand still (measured at fuel inlet connection and high tank/low tank positions)	kPa psi	16,5 2,4
Fuel supply line min. pressure, during engine stand still (measured at fuel inlet connection and high tank/low tank positions)	kPa psi	-12,5 -1,8
System return flow at max. Speed	liter/h US gal/h	30,0 7,9
Fuel return line max. restriction (measured at fuel return connection)	kPa psi	20 2,9
Max. allowable inlet fuel temp (Measured at fuel inlet connection)	°C °F	60 140
Prefilter / Water separator micron size	μ	10
Governor type/make, standard	Volvo/EMS2.3	
Injection pump type/make		
Specific UREA consumption in Nonroad Transient Cycle (NRTC)	Vol%	5,0
Fuel to conform to	Fuel equal to or better than EN590:2009 or ASTM D975-09 and Max sulphur 15ppm	

**Intake and exhaust system**

		rpm	1400	1800	2000	2100
Charge air consumption at: (+25°C and 100kPa)	IFN Power 265 kW	m³/min cfm	18,7 660	21,1 745	22,2 784	23 812
 <b>See front page for important information</b>						
Max allowable air intake restriction including piping		kPa psi		6 0,9		
Heat rejection to exhaust at:	IFN Power 265 kW	kW BTU/min	178 10123	222 12625	242 13762	246 13990
Exhaust gas temperature after turbine at:	IFN Power 265 kW	°C °F	426 799	467 873	484 903	476 889
 <b>See front page for important information</b>						
Max allowable back pressure in exhaust line (after turbine) Pipe dimension Ø: 125 mm		kPa psi	17 2,5	18 2,6	18 2,6	18 2,6
 <b>See front page for important information</b>						
Max allowable temperature drop between turbine and SCR muffler inlet.		Δ°C Δ°F	10 18	10 18	10 18	10 18
SCR muffler pressure drop (at exhaust gas flow and exhaust temp given)		kPa psi	12 1,7	11 1,6	10 1,5	10 1,5
Pre-catalyst pressure drop		kPa psi	N/A	N/A	N/A	N/A
Exhaust gas flow at: (temp and pressure after turbine at the corresponding power setting)	IFN Power 265 kW	m³/min cfm	40,2 1420	47,6 1681	51 1801	52,6 1858

**Cooling system**

			<b>rpm</b>	<b>1400</b>	<b>1800</b>	<b>2000</b>	<b>2100</b>
Heat rejection radiation from engine at:	IFN Power 265 kW	kW		7	8	9	9
		BTU/min		398	455	512	512
		kW BTU/min					
Heat rejection to coolant at:	IFN Power 265 kW	kW		113	130	140	150
		BTU/min		6426	7393	7962	8530
		kW BTU/min					
Coolant		Yellow Volvo Coolant Solution (VCS)					
Radiator cooling system type		Closed circuit					
Standard radiator core area		m <sup>2</sup>	0,8				
		foot <sup>2</sup>	8,61				
Fan diameter	890mm	mm	890				
		in	35,04				
Fan power consumption	890mm	mm	890				
		in	35,04				
Fan drive ratio	fan Ø890		1,01:1 ccw				
Coolant capacity:	engine	liter	17				
		US gal	4,5				
Coolant pump	std. 0,8m <sup>2</sup> radiator with hoses	liter	21				
		US gal	5,5				
Coolant flow with standard system		drive/ratio	belt/1,41:1 cw				
Minimum coolant flow		l/s	4,8	6,2	6,8	7,1	
		US gal/s	1,3	1,6	1,8	1,9	
Maximum outer circuit restriction incl. piping		l/s	2,1	2,5	2,5	2,7	
		US gal/s	0,6	0,7	0,7	0,7	
Thermostat:	start to open	kPa	55,0				
		psi	8,0				
Thermostat:	start to open	°C	82				
		°F	180				
	fully open	°C	92				
		°F	198				
Maximum static pressure head (expansion tank height + pressure cap setting)		kPa	100				
		psi	14,5				
Minimum static pressure head (expansion tank height + pressure cap setting)		kPa	70				
		psi	10,2				
Standard pressure cap setting		kPa	75				
		psi	10,9				
Maximum top tank temperature		°C	107				
		°F	225				
Recommended Draw down capacity. The difference between min coolant level in the expansion tank and the lowest level where the engine's coolant system still are functioning		liter	2				
		US gal	0,5				

<b>Charge air cooler system</b>		<b>rpm</b>	<b>1400</b>	<b>1800</b>	<b>2000</b>	<b>2100</b>
Heat rejection to charge air cooler	IFN Power 265 kW	kW	49	50	52	55
		BTU/min	2787	2843	2957	3128
Charge air mass flow	IFN Power 265 kW	kg/s	0,37	0,42	0,44	0,46
Charge air inlet temp. (Charge air temp after turbo compressor)	IFN Power 265 kW	°C	174	165	164	169
		°F	345	329	327	336
 <b>See front page for important information</b> Max allowable Charge air outlet temp. (Charge air temp after charge air cooler)		°C	45	48	49	50
		°F	113	118	120	122
 <b>See front page for important information</b> Maximum pressure drop over charge air cooler incl. piping		kPa	12			
		psi	1,74			
Charge air pressure (After charge air cooler)		kPa	204	179	171	172
		psi	29,59	25,96	24,80	24,95
Standard charge air cooler core area		m <sup>2</sup>	0,8			
		foot <sup>2</sup>	8,61			

**Cooling performance: 0,8 m<sup>2</sup> radiator and 890 fan**

Cooling air flow and maximum additional external restriction at different radiator air temperatures based on 107°C TTT and 40% coolant. Valid at 1 atm.

Engine speed	Engine power	Air on temp		Air flow		External restriction	
				m <sup>3</sup> /s	ft <sup>3</sup> /s	Pa	psi
rpm	hp	°C	°F				
2100 (fix 1,01)	265	73	163	8,5	300,2	0	0,000
		71	160	8	282,5	100	0,015
		68	154	7,5	264,9	200	0,029

**Engine management system**

Functionality	Alternatives			Default setting
Governor mode	Droop	Isochronous		Isochronous
Governor droop	10	127	Nm/rpm	
Governor response	Adjustable PI constants			
Idle speed	600	900	rpm	700
Preheating function	Ignition	Request	Request + temp	If preheat is available, preheat will be active at ignition on if temp low or demanded by driver.
Ignition off stops engine	Yes	No		No

Engine sensors and switch settings		Engine protection action				
Parameter	Unit	Warning setting (Yellow)	Alarm setting	Default	Optional (Module or)	
Oil temp	°C	125	130	Derate	Shut down.	
Oil pressure	Low idle	kPa	80	55,0	Shut down	Shut down.
	Rated speed	kPa	300	275	Shut down	Shut down.
Oil level		Low level	N/A	Fault code only	Fault code only	
Piston cooling pressure >1000 rpm	kPa	Not available on this engine				
Coolant temp	°C	105	107	Derate	Shut down.	
Coolant level		N/A	Low level	Derate	Shut down.	
Fuel feed pressure	Low idle	kPa	See Fuel pressure limits	N/A	Fault code only	
	Rated speed			N/A	Fault code only	
Water in fuel		Alarm when closed	N/A	Fault code only	Fault code only	
EGR temp	°C	N/A	N/A	N/A	N/A	
Air filter pressure drop	kPa	5	N/A	Fault code only	Fault code only	
Altitude, above sea	m	N/A	N/A	Automatic derating, see section derating	Automatic derating, see section derating	
Crank case pressure		N/A	Alarm at	Shut down	Shut down.	
Charge air temp	°C	120	125	Derate	Shut down.	
Charge air pressure	kPa	See Charge air pressure limits		Derate	Shut down.	
SCR temp	°C	N/A	N/A	Automatic derating	Automatic derating	
Engine overspeed	rpm	2400	N/A	Fault code only	Fault code only	

Derate parameters	Derated 0% to engine protection map	Derated 100% to engine protection map	Forced idle after 5 sec	Forced shut down after 0 sec
Oil temp	130°C	132°C	N/A	N/A
Coolant temp	107°C	108°C	N/A	N/A
Charge air temp	125°C	126°C	N/A	N/A
EGR temp	N/A	N/A	N/A	N/A
Low oil pressure	See Oil pressure limits		N/A	At alarm
Charge air pressure	See Charge air pressure limits		N/A	N/A

**VOLVO PENTA**

TAD1171VE

Document No

**22294508**

Issue Index

**08****Electrical system**

Voltage and type				24V		
Alternator:	output	A		110/150		
	tacho output	Hz/alternator rev.		6		
	drive ratio			5,25		
Starter motor:	type			90P55 / (105P70 ISS för start/stop)		
	output	kW hp		5,5 / (7,0)		
Number of teeth on:	flywheel			153		
	starter motor			11		
Inlet manifold heater (at 20 V)		kW		3		
Power relay for the manifold heater		A		1		
Max wiring resistance main circuit		mΩ		3		
<b>Conditions:</b>		<b>Temperature</b>		<b>°C</b>		
(4 mΩ main circuit resistance@		<b>Battery</b>		<b>Ah / CCA</b>		
				<b>25      0      -15</b>		
Crank speed		rpm		<b>140/800    140/800    145 / 1050</b>		
Crank current		A		165    150    100		
Starter input power during crank		kW		240    310    370		
Battery power during crank		kW		5    6,1    6,3		
Min battery @ 0°C		Ah / CCA		5,3    6,5    6,8		
				140/800		

<b>Power take off - Front</b>	<b>rpm</b>	<b>1400</b>	<b>1800</b>	<b>2000</b>	<b>2100</b>	
Front end in line with crank shaft max:*	Nm	1700	1370	1250	1200	
(with a total added mass moment of inertia, J (mR2)≤0,05 kgm <sup>2</sup> )	lbf ft	1254	1010	922	885	
Front end belt pulley load. Direction of load viewed from flywheel side:	max side	kW	13	17	19	20
		hp	18	23	26	27
Pulley diameter 201mm with distance 190mm from main bearing 1	max down	kW	13	17	19	20
		hp	18	23	26	27
	max up	kW	34	47	52	55
		hp	46	64	71	75
<b>Power take off - Rear with Flywheel housing Standard</b>						
Continuous torque on timing gear at rear PTO*	Nm	300				
SAE B spline	lbf ft	221				
Continuous torque on timing gear at rear PTO*	Nm	650				
DIN 5462 spline	lbf ft	479				
Speed ratio direction of rotation viewed from flywheel side		1,08:1/ ccw				
Continuous torque on timing gear at compressor PTO*	Nm	300				
SAE B spline	lbf ft	221				
Speed ratio direction of rotation viewed from flywheel side		1,29:1 / ccw				
Max allowed bending moment in flywheel housing	Nm	7000				
	lbf ft	5163				
Max. rear main bearing load	N	3000				
	lbf	674,4				

**Power take off - Rear with Flywheel housing Twin PTO**

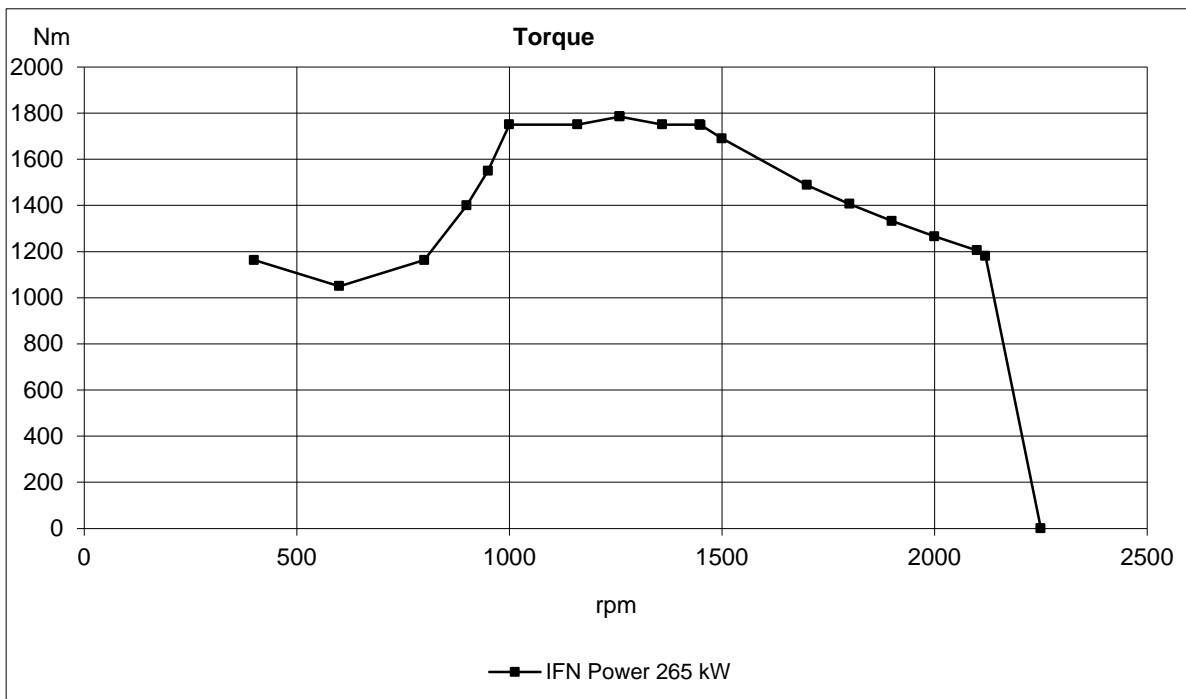
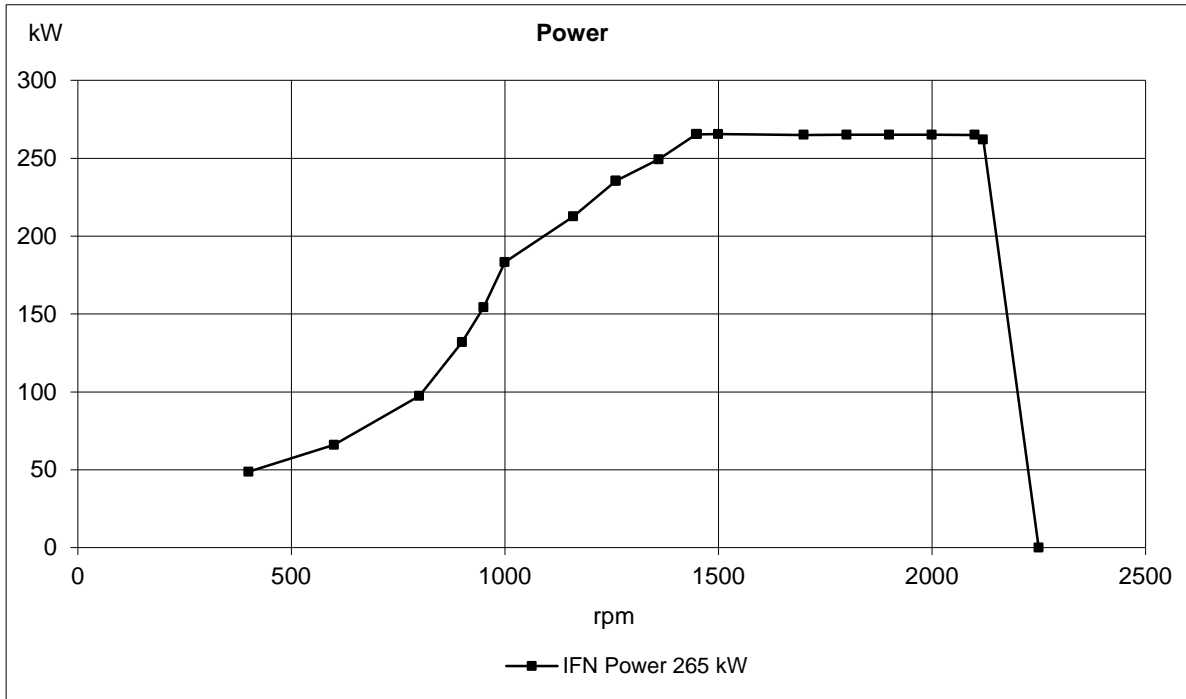
Drive front LHS / RHS	1x11031509, 1" / 1x11031017, 7/8"				
Drive rear	2x11031509, 1"				
Pump flange	4xSAE B				
Gear ratio engine / PTO	1:1,222				
Max PTO power output: **	kW / rpm	135 / 2100			
Torque used at max PTO power output: *	Nm	616			
	lbf ft	454			
Continous power output: ***	kW	40,5			
Torque used at 1200 rpm with allowed continuous power output	Nm	322			
	lbf ft	237			
Continuous torque on timing gear at rear PTO*	Nm	300			
SAE B spline	lbf ft	221			
Continuous torque on timing gear at rear PTO*	Nm	650			
DIN 5462 spline	lbf ft	479			
Speed ratio direction of rotation viewed from flywheel side		1,08:1/ ccw			
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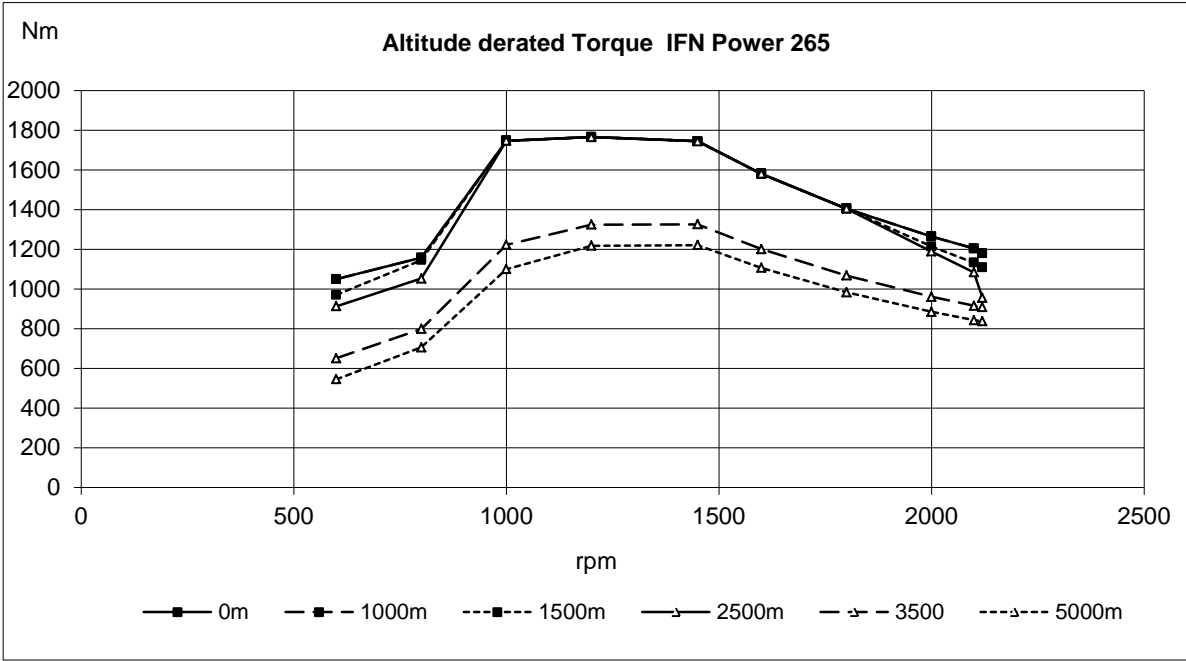
\* **Maximum allowed torque at individual PTO's.**

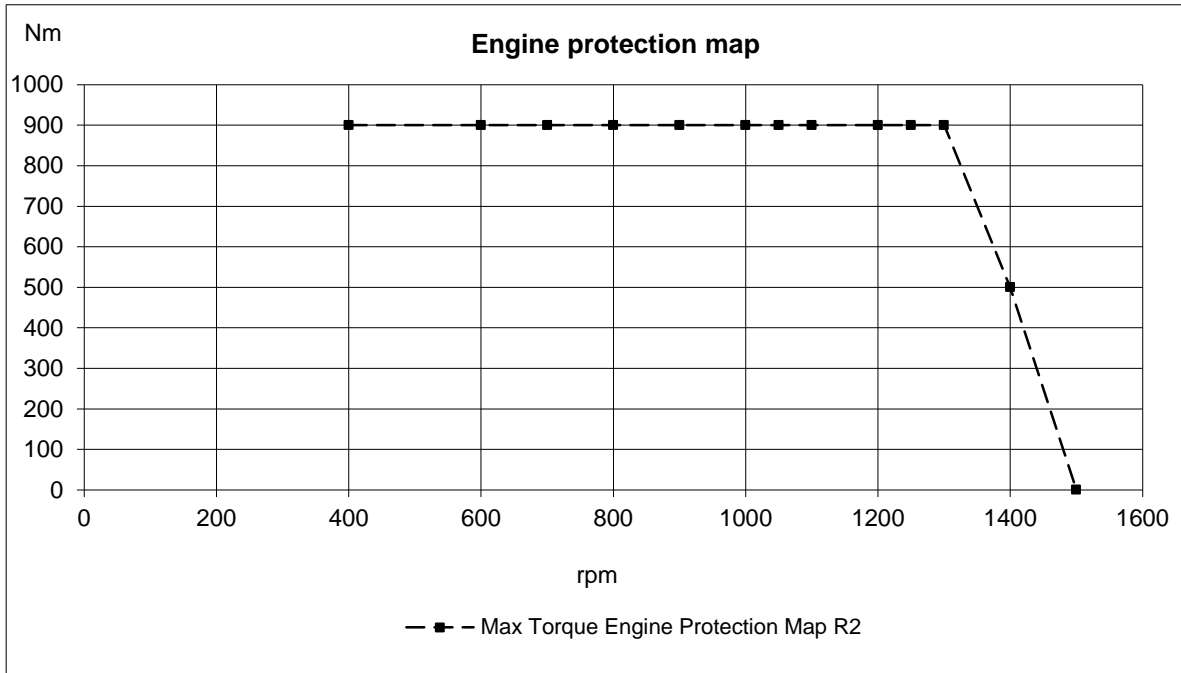
**If more than one PTO output is used simultaneously, calculations needs to be performed to determine available maximum. Available torque depends on application inertia.**

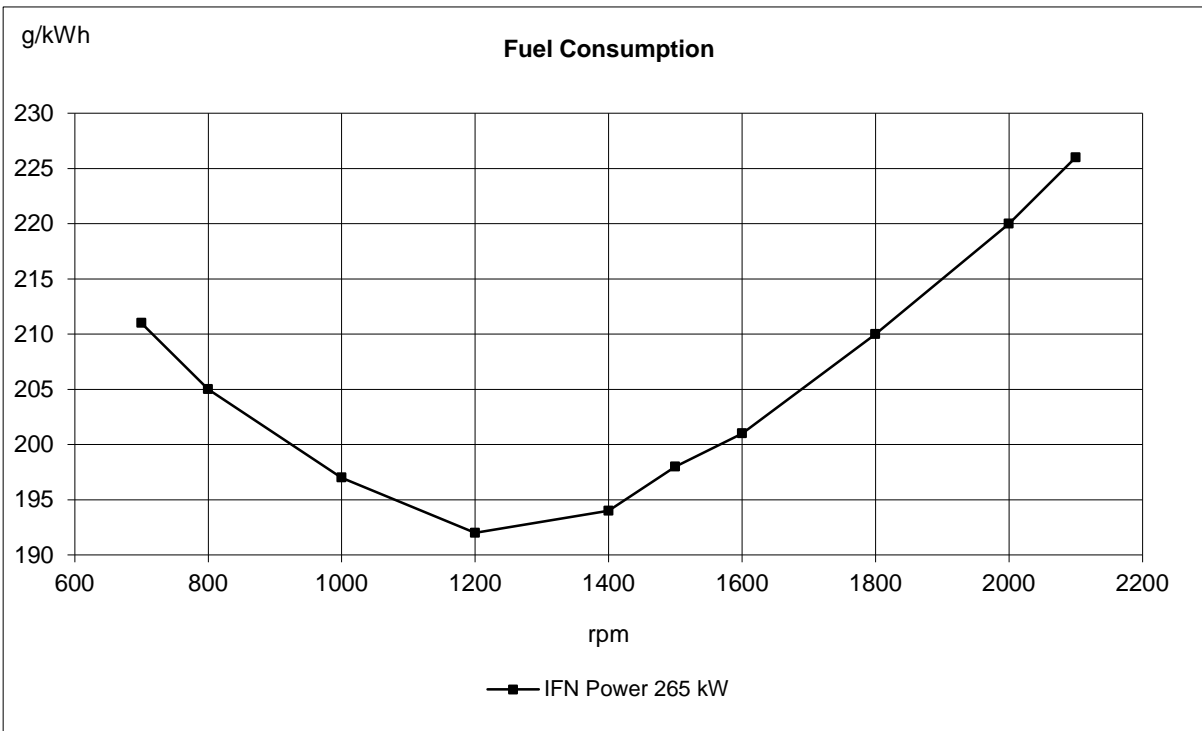
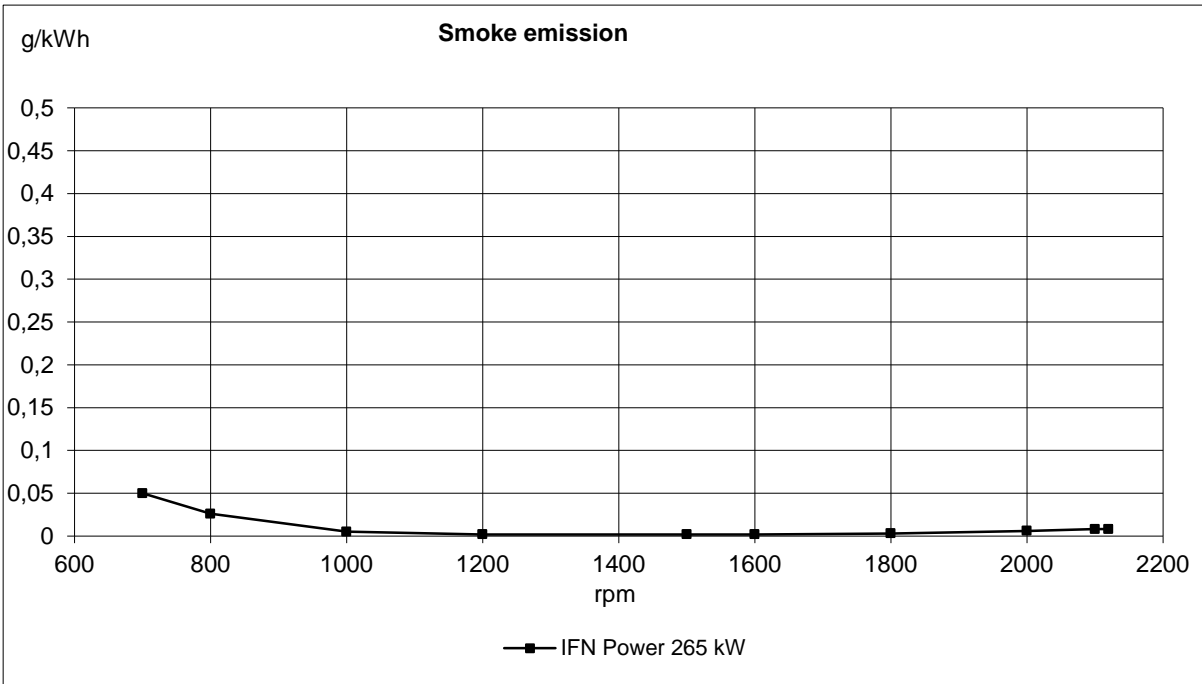
\*\* **During maximum 5 seconds, 10 times/hour.**

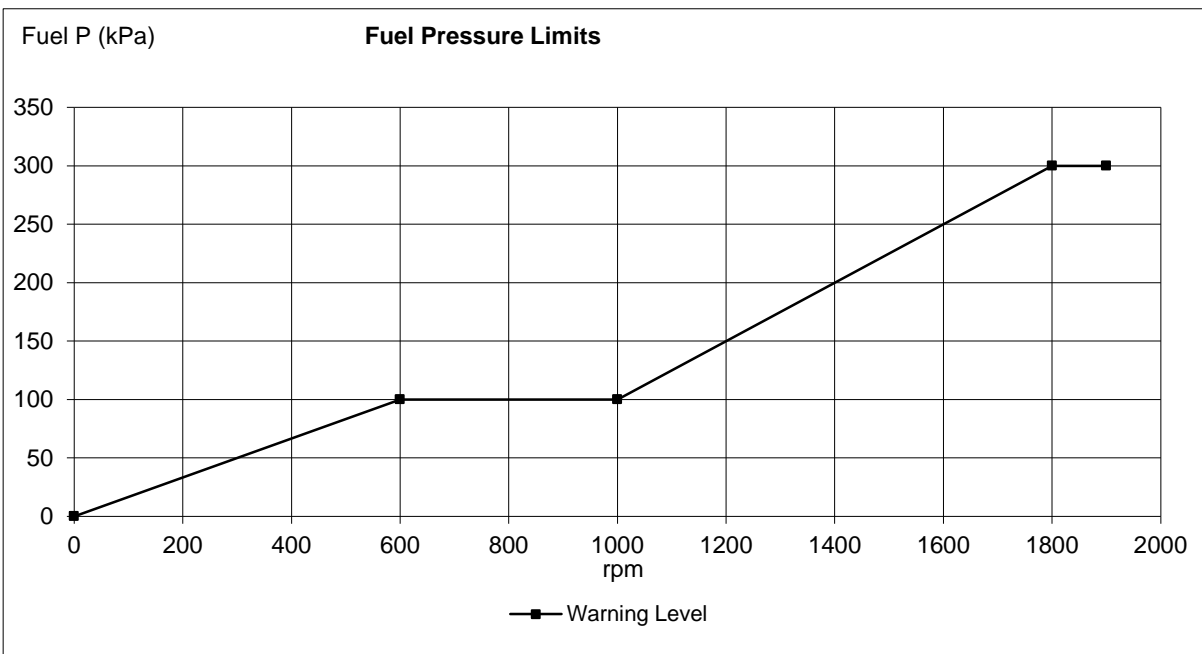
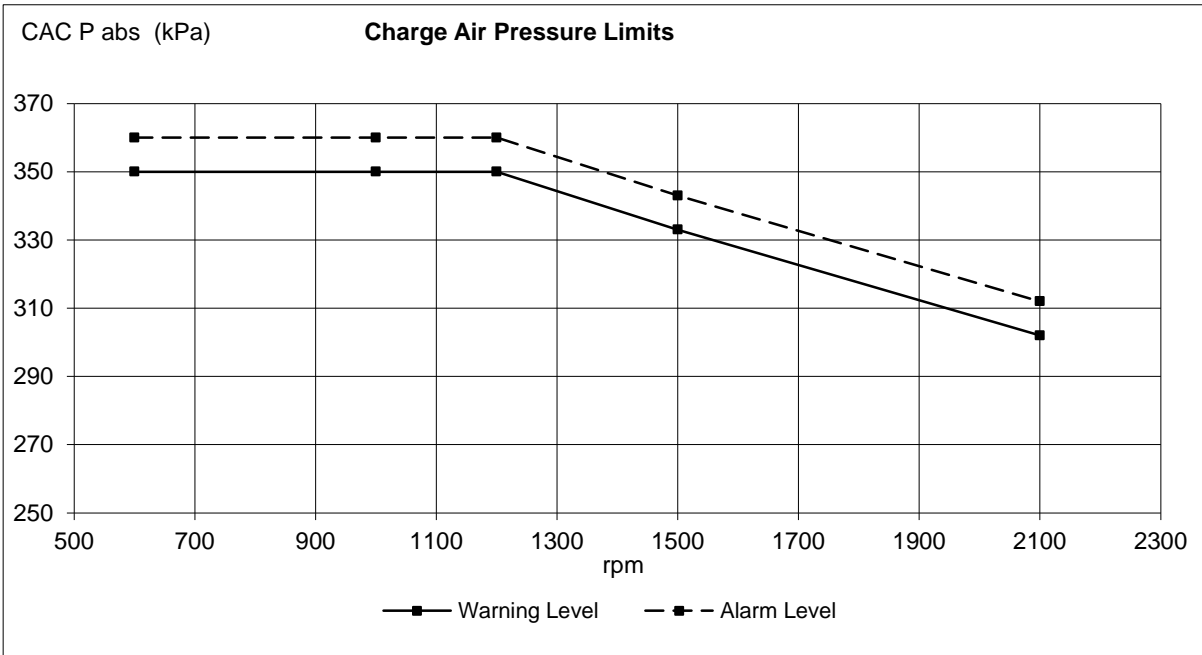
\*\*\* **Maximum 20,25 kW per LHS PTO's and RHS PTO's. The difference in output load must not exceed 15 kW between LHS PTO's and RHS PTO's.**

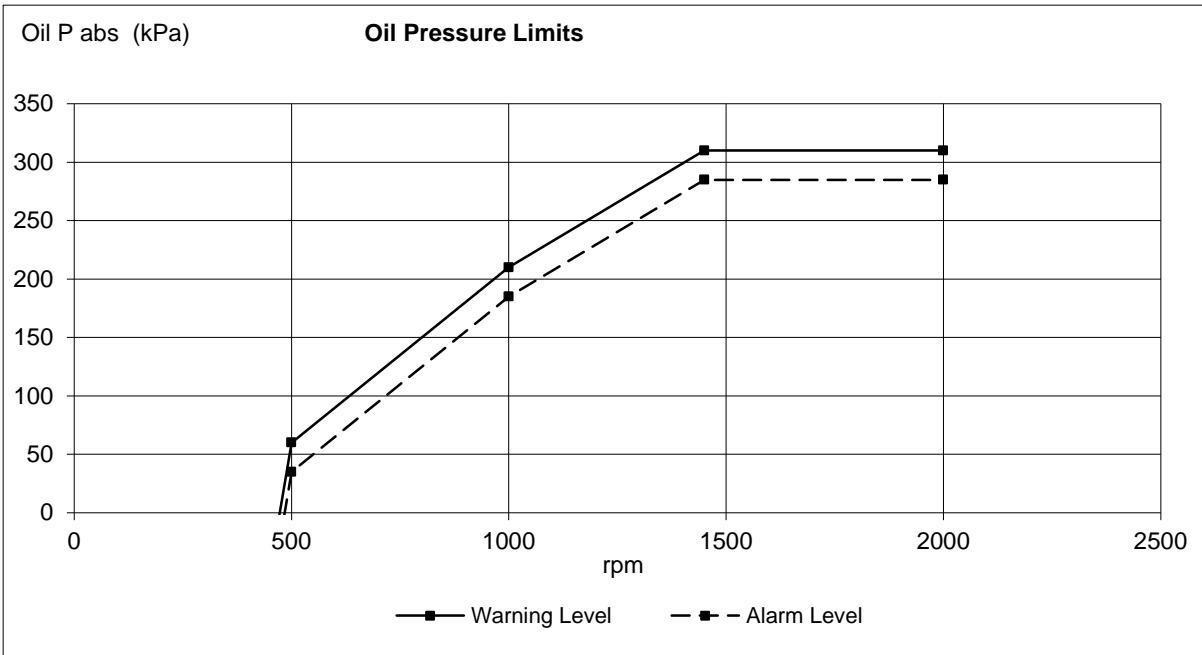


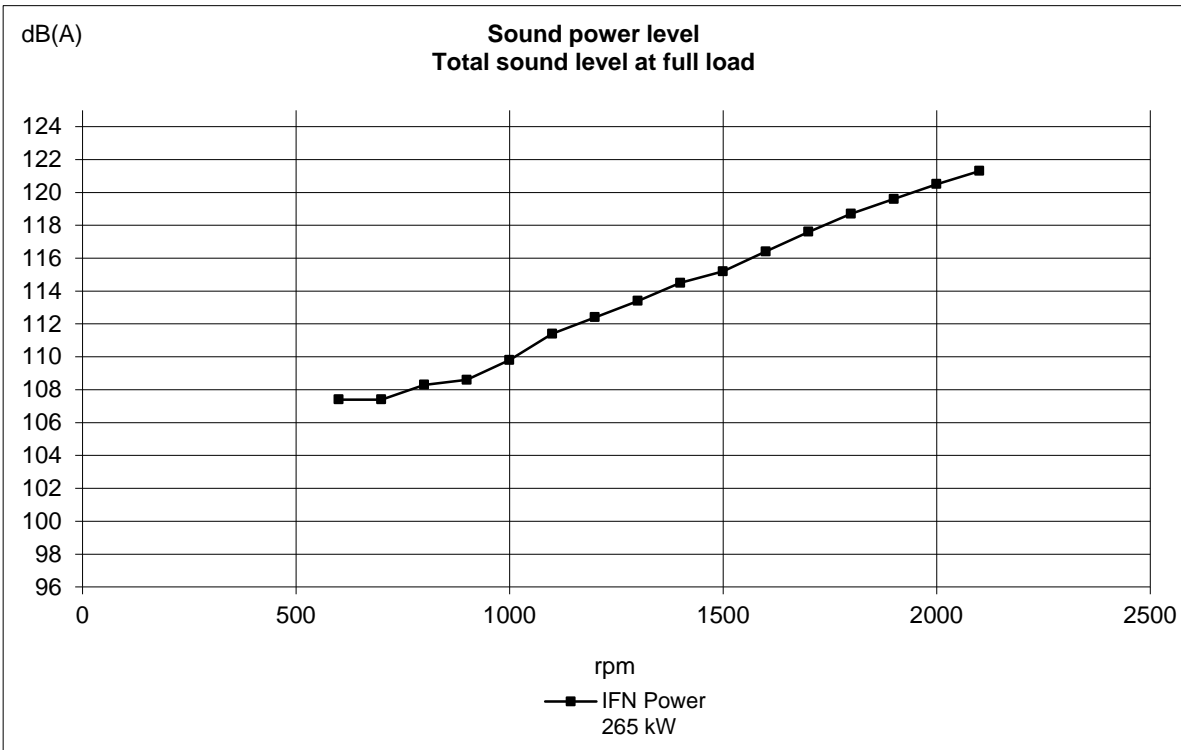
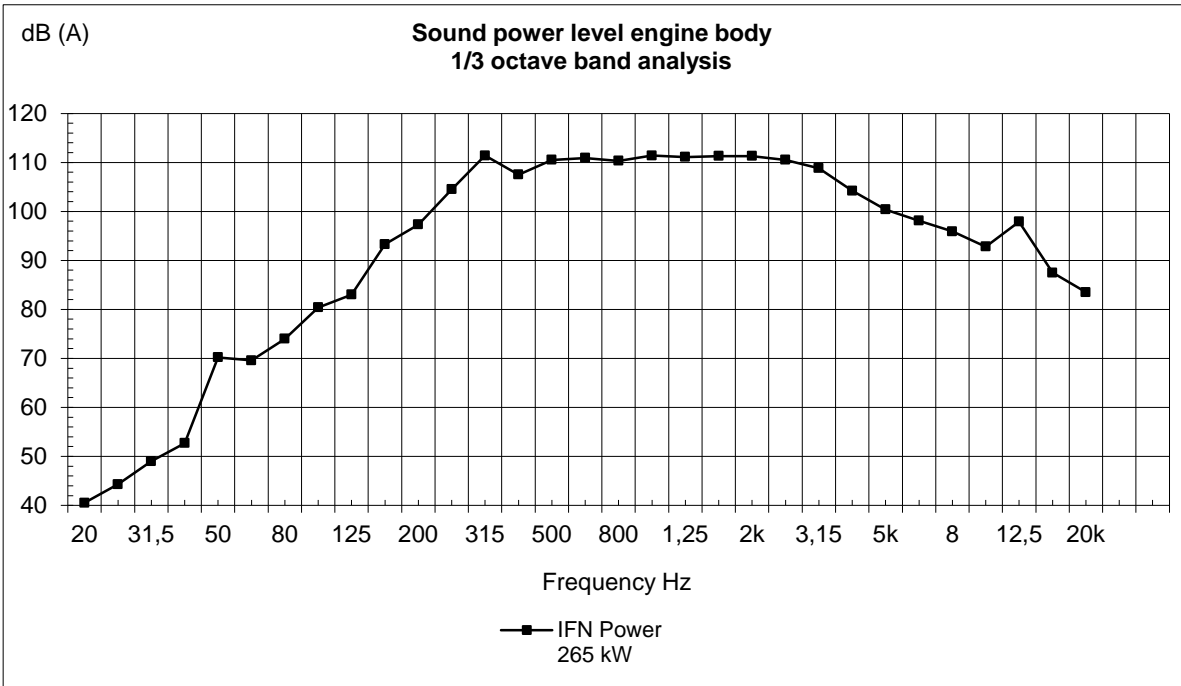


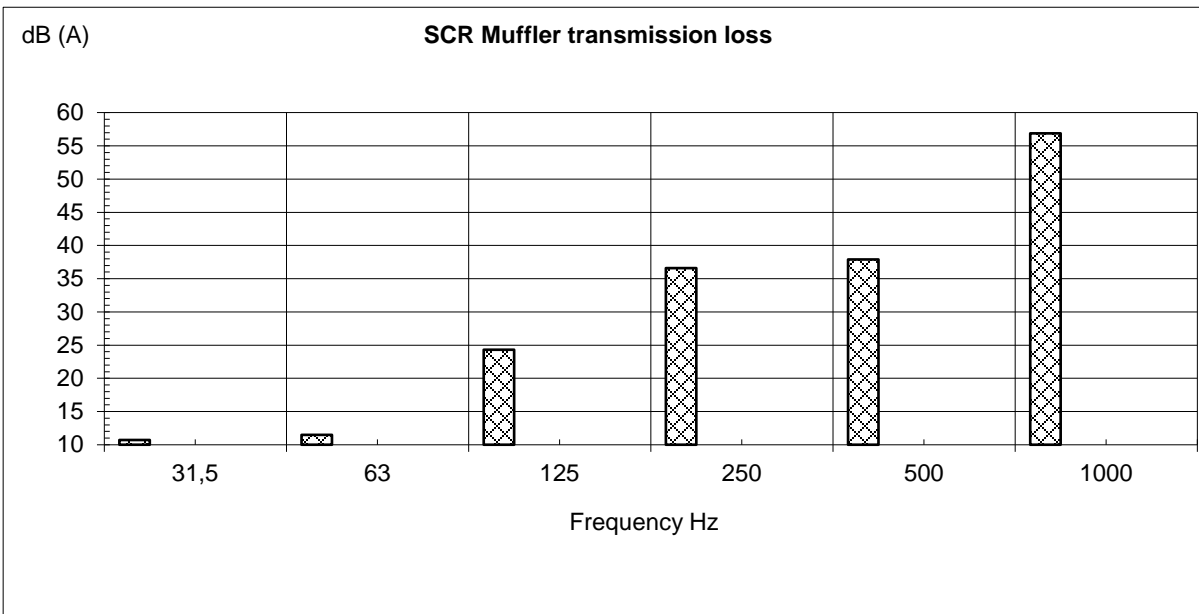
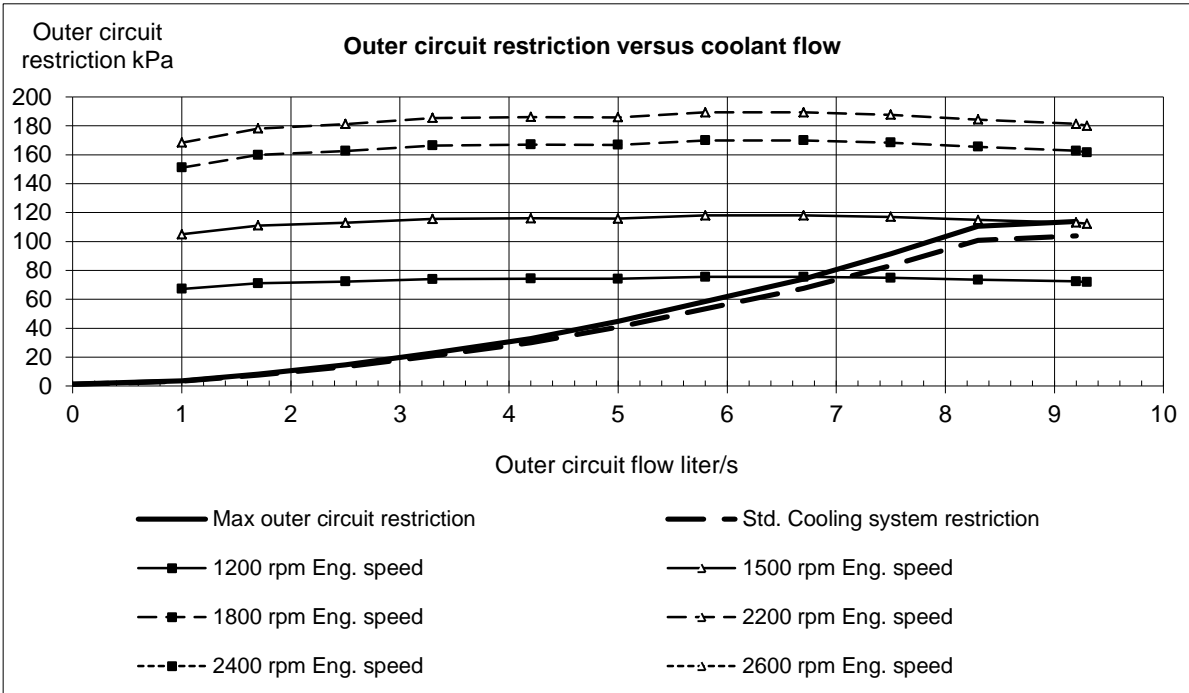


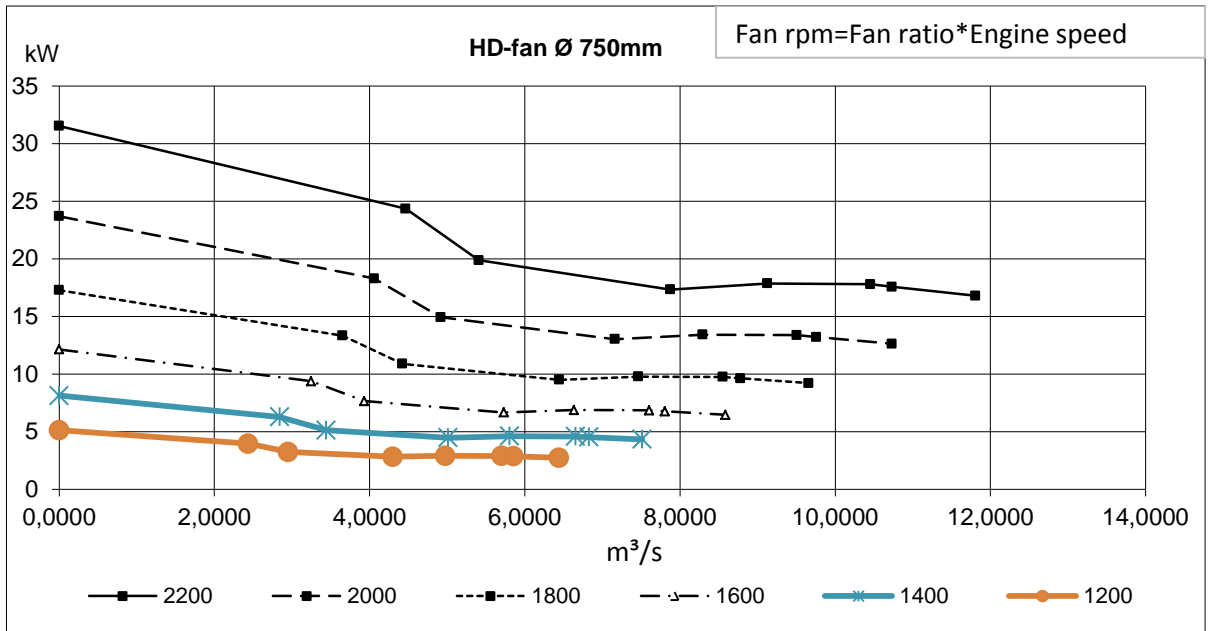
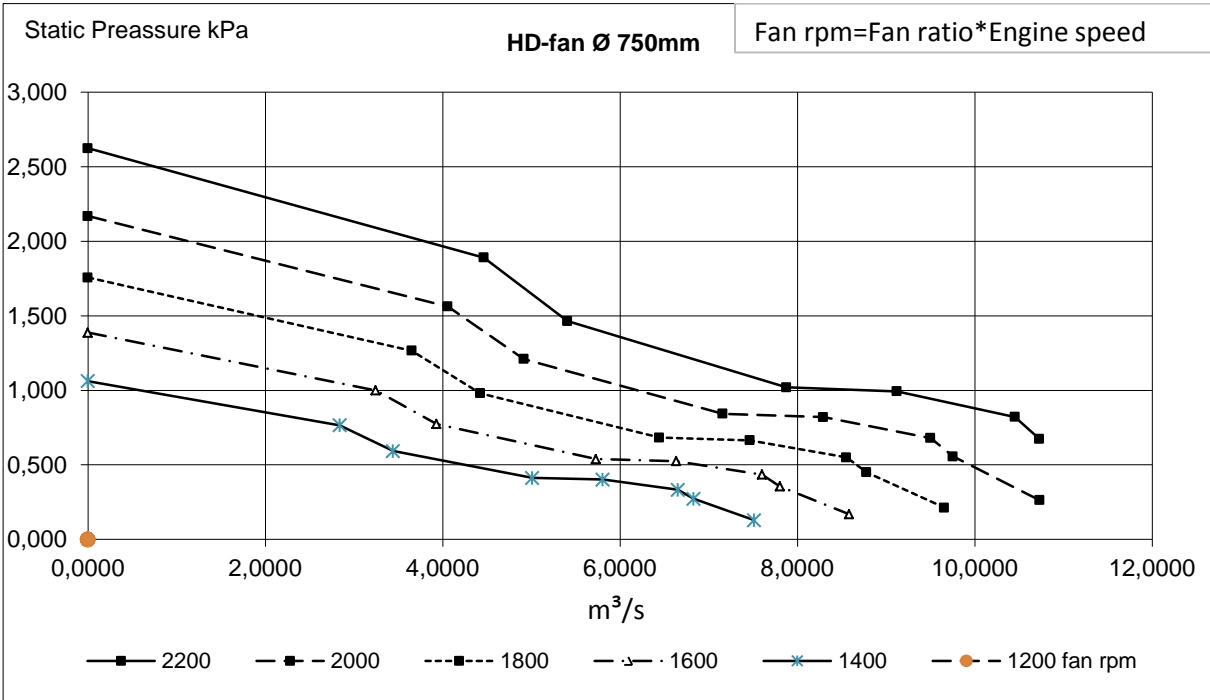


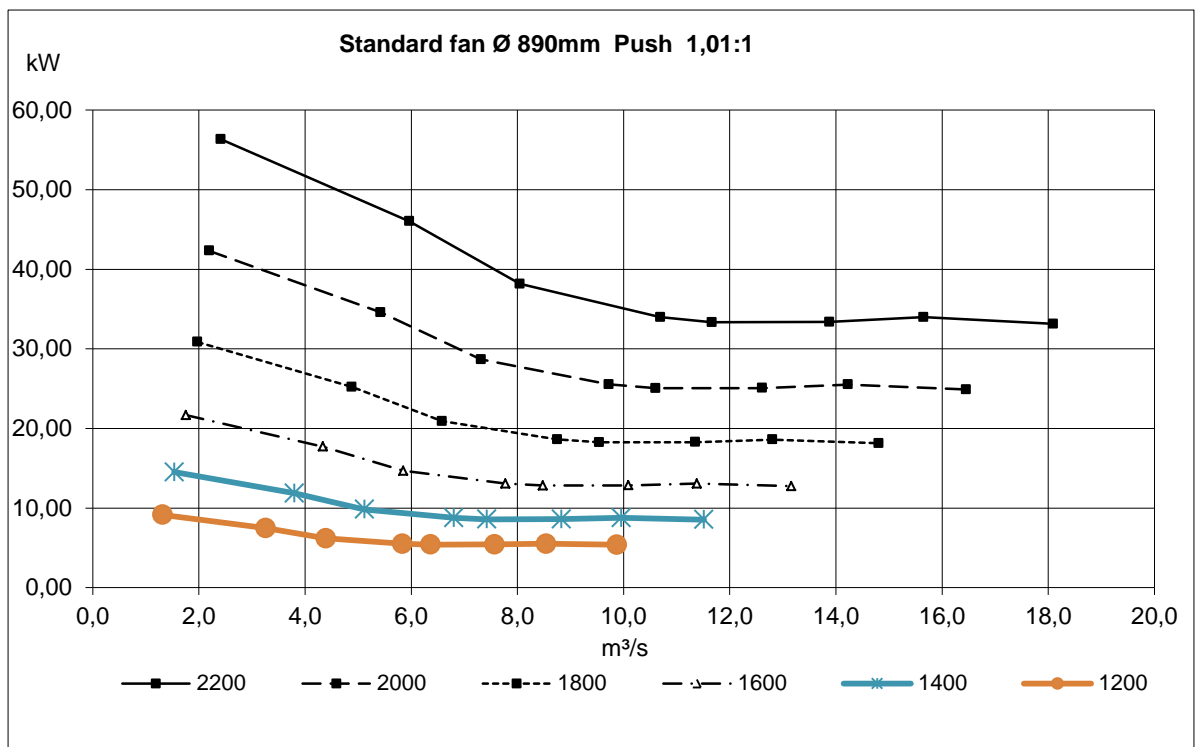
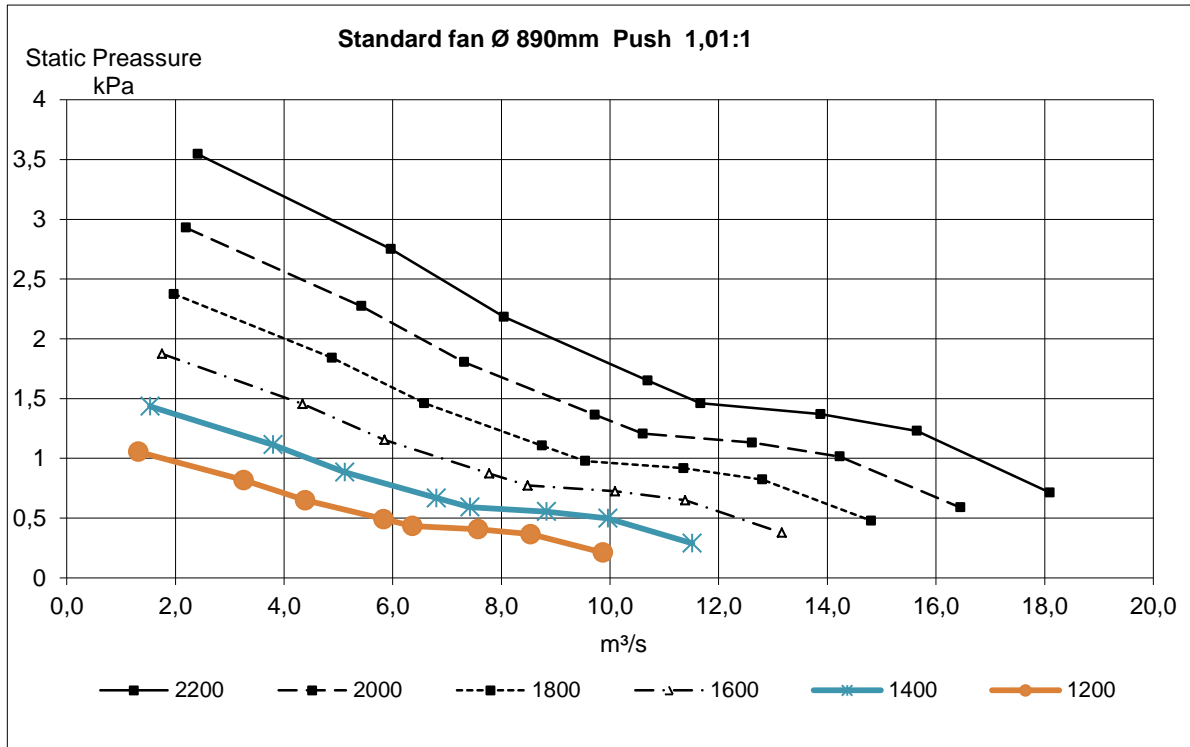




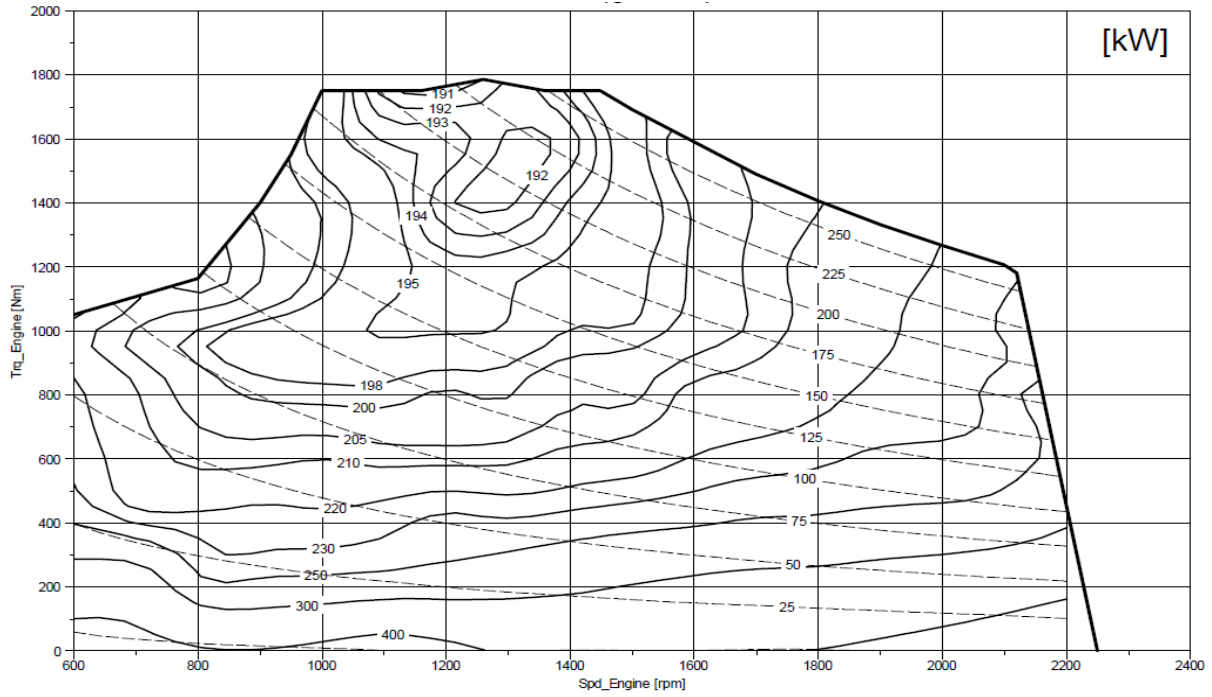








BSFC [g/kWh]



Fuel consumption [l/h]

