## 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 penalities as described in the Clean Air Act.

## General

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

| | | | |
|---|---|---|---|
| Number of cylinders | | | 6 |
| Displacement, total | | liters<br>$in^3$ | 16,12<br>984 |
| Firing order | | | 1-5-3-6-2-4 |
| Bore | | mm<br>in | 144<br>5,67 |
| Stroke | | mm<br>in | 165<br>6,50 |
| Compression ratio | | | 16.8 |
| Wet weight<br>(Not including after treatment system) | Engine only | kg<br>lb | 1440<br>3175 |
| | Power pac | kg<br>lb | 1840<br>4057 |

| Performance | | | | rpm | 1200 | 1500 | 1800 | 1900 |
|---|---|---|---|---|---|---|---|---|
| IFN Power 450 kW | | without fan | | kW | 366 | 450 | 450 | 424 |
| | | | | hp | 497 | 612 | 612 | 577 |
| | | with fan 890 mm | | kW | 362 | 443 | 438 | 411 |
| | | | | hp | 493 | 603 | 596 | 558 |
| ICFN Power | | without fan | | kW | See diagram for fan power consumption | | | |
| | | | | hp | | | | |
| | | with fan 890 mm | | kW | See diagram for fan power consumption | | | |
| | | | | hp | | | | |
| Torque at: | | IFN Power 450 kW | | Nm | 2910 | 2865 | 2387 | 2131 |
| | | | | lbf ft | 2146 | 2113 | 1761 | 1572 |
| | | ICFN Power | | Nm | | | | |
| | | | | lbf ft | | | | |
| Max torque at engine speed | IFN Power | | 1200 rpm | Nm | 2910 | | | |
| | | | | lbf ft | 2146 | | | |
| Power tolerance | | | | % | ±2% | | | |
| Mean piston speed | | | | m/s | 6,6 | 8,3 | 9,9 | 10,5 |
| | | | | ft/sec | 21,7 | 27,1 | 32,5 | 34,3 |
| Effective mean pressure at: | | IFN Power 450 kW | | MPa | 2,27 | 2,23 | 1,86 | 1,66 |
| | | | | psi | 329 | 324 | 270 | 241 |
| Max combustion pressure at: | | IFN Power 450 kW | | MPa | 15,3 | 15,8 | 14,9 | 13,9 |
| | | | | psi | 2219 | 2291 | 2161 | 2016 |
| Total mass moment of inertia, J ($mR^2$) (not including flywheel) | | | | kgm² | 4,1 | | | |
| | | | | lbft² | 97,3 | | | |
| Friction Power | | | | kW | 26 | 39 | 58 | 65 |
| | | | | hp | 35 | 53 | 79 | 88 |
| **Derating see Technical Diagrams** | | | | | | | | |

| Engine brake performance (only engines with VCB) | | rpm | 1200 | 1500 | 1900 | 2200 |
|---|---|---|---|---|---|---|
| Maximum Brake Power: | without fan | kW | 85 | 152 | 284 | 345 |
| | | hp | 116 | 207 | 386 | 469 |
| Maximum Brake Torque: | without fan | Nm | 676 | 968 | 1427 | 1498 |
| | | lbf ft | 499 | 714 | 1053 | 1104 |
| Brake Power:<br>Dependent on operation before activation. | without fan | kW | 83 | 146 | 273 | 341 |
| | | hp | 113 | 199 | 371 | 464 |
| Brake Torque:<br>Dependent on operation before activation. | without fan | Nm | 660 | 929 | 1372 | 1480 |
| | | lbf ft | 487 | 685 | 1012 | 1092 |
| Engine speed range for VCB activation: | | rpm | 1000-2200 | | | |
| Minimum engine speed with VCB still active: | | rpm | 900 | | | |
| Minimum oil temperature for VCB activation: | | °C | 55 | | | |

**Cold start performance**

| | | | | |
|---|---|---|---|---|
| *Cold start limit temperature | without starting aid | °C | -10 | |
| | | °F | 14 | |
| | with manifold heater 4 kW | °C | -25 | |
| | | °F | -13 | |
| | with manifold heater 4 kW and block heater | °C | -30 | |
| | | °F | -22 | |
| *Specify oil and fuel quality | Oil: VDS3 10W/30, Fuel: MK1 | | | |
| Block heater type | Make | Power kW | Engaged hours | Cooling water temp engine block |
| Self circulating | Volvo 3828864 | 2 | 12 | 1°C<br>34°F |

* See also general section in the sales guide

**Lubrication system**

| | | | | |
|---|---|---|---|---|
| Lubricating oil consumption at max rpm at: | IFN Power 450 kW | liter/h | 0,03 | |
| | | US gal/h | 0,007 | |
| Oil system capacity including filters | | liter | 48 | |
| | | US gal | 12,68 | |
| Oil sump capacity: | Max | liter | 42 | |
| | | US gal | 11,10 | |
| | Min | liter | 32 | |
| | | US gal | 8,45 | |
| Oil change intervals/specifications | VDS3 | h | 600 | |
| | | h | | |
| Engine angularity limits: | front up | ° | 30 | |
| | front down | ° | 30 | |
| | side tilt | ° | 30 | |
| Oil pressure at rated speed | | kPa | 300 - 650 | |
| | | psi | 44 - 94 | |
| Oil pressure shut down switch setting | | kPa | N/A | |
| | | psi | | |

**Lubrication system**

| | | | | |
|---|---|---|---|---|
| Lubrication oil temperature in sump: | max | °C | 130 | |
| | | °F | 266 | |
| Oil filter micron size | | µ | 40 | |

**Fuel system**

| | | |
|---|---|---|
| System supply flow at max. speed | liter/h<br>US gal/h | 165<br>43,6 |
| Fuel supply line max. restriction<br>(Measured at fuel inlet connection) | kPa<br>psi | 10<br>1,5 |
| Fuel supply line max. pressure, during engine stand still<br>(meassured at fuel inlet connection) | kPa<br>psi | 16,5<br>2,4 |
| System return flow at max. speed | liter/h<br>US gal/h | 25,0<br>6,6 |
| Fuel return line max. restriction<br>(Measured at fuel return connection) | kPa<br>psi | 20<br>2,9 |
| Max. allowable inlet fuel temp<br>(Measured at fuel inlet connection) | °C<br>°F | 60<br>140 |
| Prefilter / Water separator micron size | µ | 10 |
| Fuel filter micron size | µ | 5 |
| Governor type/make, standard | Volvo/EMS2.2 | |
| Injection pump type/make | Delphi E3 | |

| Intake and exhaust system | | Inlet air temp | rpm | 1200 | 1500 | 1800 | 1900 |
|---|---|---|---|---|---|---|---|
| Air consumption at: (+25°C and 100kPa) | IFN Power 450 kW | | m³/min | 26,4 | 31,6 | 35,2 | 35,5 |
| | | | cfm | 932 | 1116 | 1243 | 1254 |
| ⚠ **See front page for important information** Max allowable air intake restriction including piping | | | kPa | | | 5 | |
| | | | psi | | | 0,7 | |
| Heat rejection to exhaust at: | IFN Power 450 kW | | kW | 260 | 356 | 398 | 382 |
| | | | BTU/min | 14786 | 20245 | 22634 | 21724 |
| Exhaust gas temperature after turbine at: | IFN Power 450 kW | | °C | 459 | 511 | 519 | 494 |
| | | | °F | 858 | 952 | 966 | 921 |
| ⚠ **See front page for important information** The supplied turbine outlet flow restrictor must be used. Pipe dimension Ø: 125 mm | | | | | | | |
| Max allowable back pressure in exhaust line (after flow restrictor) | | | kPa | 9 | 13 | 15 | 15 |
| | | | psi | 1,3 | 1,9 | 2,2 | 2,2 |
| Min allowable back pressure in exhaust line at maximum power (after flow restrictor). | | | kPa | | | 7 | |
| | | | psi | | | 1,0 | |
| Exhaust gas flow at: (temp and pressure after turbine at the corresponding power setting) | IFN Power 450 kW | | m³/min | 66,4 | 85,4 | 94,1 | 92,1 |
| | | | cfm | 2345 | 3016 | 3323 | 3253 |
| | | | m³/min | | | | |
| Exhaust gas smoke | IFN Power 450 kW | | *Bosch Units | 0,065 | 0,063 | 0,076 | 0,076 |
| | | | | | | | |

| Cooling system | | | rpm | 1200 | 1500 | 1800 | 1900 |
|---|---|---|---|---|---|---|---|
| Heat rejection radiation from engine at: | IFN Power 450 kW | | kW | 8 | 10 | 10 | 10 |
| | | | BTU/min | 455 | 569 | 569 | 569 |
| Heat rejection to coolant at: | IFN Power 450 kW | | kW | 144 | 175 | 195 | 195 |
| | | | BTU/min | 8189 | 9952 | 11089 | 11089 |
| Radiator cooling system type | | | | Closed circuit | | | |
| Standard radiator core area | | | m² | 1,42 | | | |
| | | | foot² | 15,28 | | | |
| HD radiator core area | | | m² | 0,87 | | | |
| | | | foot² | 9,36 | | | |
| Fan diameter | 890 mm | | mm | 890 | | | |
| | | | in | 35,04 | | | |
| | 890 mm | | mm | 890 | | | |
| | | | in | 35,04 | | | |
| Fan power consumption | 890 mm | | kW | See diagram for actual fan drive ratio power. | | | |
| | | | hp | | | | |
| Fan drive ratio | fan Ø890 | | | See diagram for cooling performance | | | |
| Coolant capacity: | Engine | | liter | 24 | | | |
| | | | US gal | 6,3 | | | |
| | STD.1,42m² radiator with hoses Pusher syst. Core thickness 63mm | | liter | 37 | | | |
| | | | US gal | 9,8 | | | |
| | STD. 1,42m² radiator with hoses Puller syst. Core thickness 41mm | | liter | 30 | | | |
| | | | US gal | 7,9 | | | |
| | HD 0,87m² radiator with hoses | | liter | 32 | | | |
| | | | US gal | 8,5 | | | |
| Coolant pump | | | drive/ratio | belt/1,77:1 | | | |
| Coolant flow with standard system | | | l/s | 4,7 | 5,8 | 7 | 7,3 |
| | | | US gal/s | 1,2 | 1,5 | 1,8 | 1,9 |
| Minimum coolant flow | | | l/s | 4,2 | 5,3 | 6,5 | 6,8 |
| | | | US gal/s | 1,1 | 1,4 | 1,7 | 1,8 |
| Maximum outer circuit restriction incl. piping | | | kPa | 85,0 | | | |
| | | | psi | 12,3 | | | |
| 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 | | | | |

| Charge air cooler system | | rpm | 1200 | 1500 | 1800 | 1900 |
|---|---|---|---|---|---|---|
| Heat rejection to charge air cooler | IFN Power 450 kW | kW | 72 | 86 | 99 | 100 |
| | | BTU/min | 4095 | 4891 | 5630 | 5687 |
| | ICFN Power | kW | 72 | 86 | 99 | 100 |
| | | BTU/min | 4095 | 4891 | 5630 | 5687 |
| Charge air mass flow | IFN Power 450 kW | kg/s | 0,52 | 0,63 | 0,7 | 0,71 |
| | ICFN Power | kg/s | 0,52 | 0,63 | 0,7 | 0,71 |
| Charge air inlet temp. (Charge air temp after turbo compressor) | IFN Power 450 kW | °C | 179 | 181 | 190 | 189 |
| | | °F | 354 | 358 | 374 | 372 |
| | ICFN Power | °C | 179 | 181 | 190 | 189 |
| | | °F | 354 | 358 | 374 | 372 |
| ⚠ **See front page for important information** Max allowable Charge air outlet temp. (Charge air temp after charge air cooler) | IFN Power 450 kW | °C | 42 | 47 | 50 | 50 |
| | | °F | 108 | 117 | 122 | 122 |
| | ICFN Power | °C | 42 | 47 | 50 | 50 |
| | | °F | 108 | 117 | 122 | 122 |
| ⚠ **See front page for important information** Maximum pressure drop over charge air cooler incl. piping | | kPa | 14 | | | |
| | | psi | 2,03 | | | |
| Charge air pressure (After charge air cooler) | | kPa | 180 | | | |
| | | psi | 26,11 | | | |
| Standard charge air cooler core area | | m² | 1,3 | | | |
| | | foot² | 13,99 | | | |

**Cooling performance: STD cooling package 1,42m² radiator and suction 890mm electronically controlled visco 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.

**Visco fan drive, pully ratio 1:0,88**

| Engine speed | Engine power | Air on temp | | Air flow | | External restriction | |
|---|---|---|---|---|---|---|---|
| rpm | kW hp | °C | °F | $m^3/s$ | $ft^3/s$ | Pa | psi |
| 1800 | 450 | 60 | 140 | 7,2 | 254,3 | 330 | 0,048 |
| | 612 | 61 | 142 | 7,4 | 261,3 | 295 | 0,043 |
| | | 64 | 147 | 8 | 282,5 | 150 | 0,022 |
| | | 65 | 149 | 8,2 | 289,6 | 100 | 0,015 |
| | | 67 | 153 | 8,7 | 307,2 | 0 | |

**Cooling performance: STD cooling package 1,42m² radiator and suction 890mm 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.

**Fix fan drive ratio 1:0,88**

| Engine speed | Engine power | Air on temp | | Air flow | | External restriction | |
|---|---|---|---|---|---|---|---|
| rpm | kW hp | °C | °F | $m^3/s$ | $ft^3/s$ | Pa | psi |
| 1800 | 450 | 62 | 144 | 7,6 | 268,4 | 320 | 0,046 |
| | 612 | 63 | 145 | 7,8 | 275,5 | 270 | 0,039 |
| | | 65 | 149 | 8,2 | 289,6 | 170 | 0,025 |
| | | 66 | 151 | 8,4 | 296,6 | 115 | 0,017 |
| | | 68 | 154 | 8,9 | 314,3 | 0 | |

**Cooling performance: STD cooling package 1,42 m² radiator and pusher 890mm 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.

**Fix fan drive ratio 1:1,13**

| Engine speed | Engine power | Air on temp | | Air flow | | External restriction | |
|---|---|---|---|---|---|---|---|
| rpm | kW hp | °C | °F | $m^3/s$ | $ft^3/s$ | Pa | psi |
| 1800 | 450 | 67 | 153 | 9,9 | 349,3 | 450 | 0,065 |
| | 612 | 68 | 155 | 10,0 | 352,8 | 300 | 0,044 |
| | | 69 | 157 | 10,5 | 372,2 | 150 | 0,022 |
| | | 70 | 158 | 10,9 | 384,2 | 0 | |

**Fix fan drive ratio 1:1,04**

| Engine speed | Engine power | Air on temp | | Air flow | | External restriction | |
|---|---|---|---|---|---|---|---|
| rpm | kW hp | °C | °F | $m^3/s$ | $ft^3/s$ | Pa | psi |
| 1800 | 450 | 63 | 146 | 9,0 | 319,2 | 450 | 0,065 |
| | 612 | 64 | 147 | 9,3 | 329,8 | 300 | 0,044 |
| | | 67 | 153 | 9,9 | 348,2 | 150 | 0,022 |
| | | 68 | 155 | 10,3 | 362,3 | 0 | |

**Cooling performance: STD cooling package 1,42 m² radiator and pusher 890mm 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.

**Fix fan drive ratio 1:0,97**

| Engine speed | Engine power | Air on temp | | Air flow | | External restriction | |
|---|---|---|---|---|---|---|---|
| rpm | kW hp | °C | °F | $m^3/s$ | $ft^3/s$ | Pa | psi |
| 1800 | 450 | 63 | 146 | 8,0 | 281,8 | 450 | 0,065 |
| | 612 | 64 | 147 | 8,4 | 294,9 | 300 | 0,044 |
| | | 66 | 150 | 8,9 | 313,2 | 150 | 0,022 |
| | | 66 | 152 | 9,3 | 326,7 | 0 | |

**Fix fan drive ratio 1:0,88**

| Engine speed | Engine power | Air on temp | | Air flow | | External restriction | |
|---|---|---|---|---|---|---|---|
| rpm | kW hp | °C | °F | $m^3/s$ | $ft^3/s$ | Pa | psi |
| 1800 | 450 | 60 | 140 | 7,2 | 253,6 | 450 | 0,065 |
| | 612 | 61 | 142 | 7,5 | 265,2 | 300 | 0,044 |
| | | 63 | 145 | 8,0 | 281,1 | 150 | 0,022 |
| | | 63 | 146 | 8,2 | 290,6 | 0 | |

**Cooling performance: STD cooling package 1,42m² radiator and pusher 890mm electronically controlled visco 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.

**Visco fan drive, pully ratio 1:0,88**

| Engine speed | Engine power | Air on temp | | Air flow | | External restriction | |
|---|---|---|---|---|---|---|---|
| rpm | kW hp | °C | °F | $m^3/s$ | $ft^3/s$ | Pa | psi |
| 1800 | 450 | 59 | 139 | 7,0 | 247,6 | 450 | 0,065 |
| | 612 | 61 | 141 | 7,4 | 259,9 | 300 | 0,044 |
| | | 62 | 144 | 7,8 | 275,5 | 150 | 0,022 |
| | | 63 | 145 | 8,0 | 283,9 | 0 | |

**Cooling performance: HD cooling package 0,87m² radiator and pusher 890mm 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.

**Fix fan drive ratio 1:0,88**

| Engine speed | Engine power | Air on temp | | Air flow | | External restriction | |
|---|---|---|---|---|---|---|---|
| rpm | kW hp | °C | °F | $m^3/s$ | $ft^3/s$ | Pa | psi |
| 1800 | 450 | 69 | 156 | 10,7 | 378,1 | 0 | |
| | 612 | 67 | 153 | 10,1 | 357,8 | 100 | 0,015 |
| | | 65 | 148 | 9,3 | 329,9 | 200 | 0,029 |
| | | 62 | 144 | 8,7 | 307,2 | 300 | 0,044 |
| | | 59 | 139 | 8,0 | 284,2 | 400 | 0,058 |

**Cooling performance: HD cooling package 0,87m² radiator and suction 890mm 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.

**Fix fan drive ratio 1:0,88**

| Engine speed | Engine power | Air on temp | | Air flow | | External restriction | |
|---|---|---|---|---|---|---|---|
| rpm | kW hp | °C | °F | $m^3/s$ | $ft^3/s$ | Pa | psi |
| 1800 | 450 | 66 | 151 | 9,9 | 349,0 | 0 | |
| | 612 | 64 | 147 | 9,2 | 326,5 | 100 | 0,015 |
| | | 62 | 143 | 8,7 | 306,8 | 200 | 0,029 |
| | | 59 | 138 | 8,1 | 286,4 | 300 | 0,044 |
| | | 57 | 134 | 7,6 | 268,9 | 400 | 0,058 |

**Engine management system**

| Functionality | Alternatives | | | Default setting |
|---|---|---|---|---|
| Governor mode | | Isochronus | | |
| Governor droop | | 0% | | |
| Governor response | Adjustable PI-constants | | | 1,000 |
| Idle speed | | 600-900 rpm | | 700,000 |
| Stop function | Energize to Run/Stop | | | |
| Preheating function | | On/Off | | |
| Lamp test | | On/Off | | |
| | | | | |
| | | | | |

| Engine sensors and switch settings | | | Alarm level | | Engine protection | |
|---|---|---|---|---|---|---|
| Parameter | | Unit | Setting range | Default setting | Level | Action. Default/Alternative |
| Oil temp | | °C | | 125°C | Setting +5°C | Shut down. ON/OFF* |
| Oil pressure | Low idle | kPa | | 50 kPa | 25 kPa | Shut down. ON/OFF* |
| | Rated speed | kPa | | 300 kPa | 275 kPa | Shut down. ON/OFF* |
| Oil level | | | | Min Level | - | - |
| Piston cooling pressure >1000 rpm | | kPa | | | | |
| Coolant temp | | °C | | 105°C | 107°C | Shut down. ON/OFF* |
| Coolant level | | | | - | | - |
| Fuel feed pressure | Low idle | kPa | | 100 kPa | | - |
| | 1200 rpm | | | 250 kPa | | - |
| Water in fuel | | | | | | - |
| Crank case pressure | | kPa | | Press inc. | | Shut down. ON/OFF* |
| Air filter pressure drop | | | | 5 kPa | | - |
| Altitude, above sea | | m | | | | Automatic derating, see section derating |
| Charge air temp | | °C | | 80°C | 85°C | Shut down. ON/OFF* |
| Charge air pressure | | kPa | | Warning map | Alarm map value + | Shut down. ON/OFF* |
| Engine speed | | rpm | 100 - 120% of rated speed | 120% of rated speed | Alarm level | Shut down. ON/OFF* |
| | | | | | | |

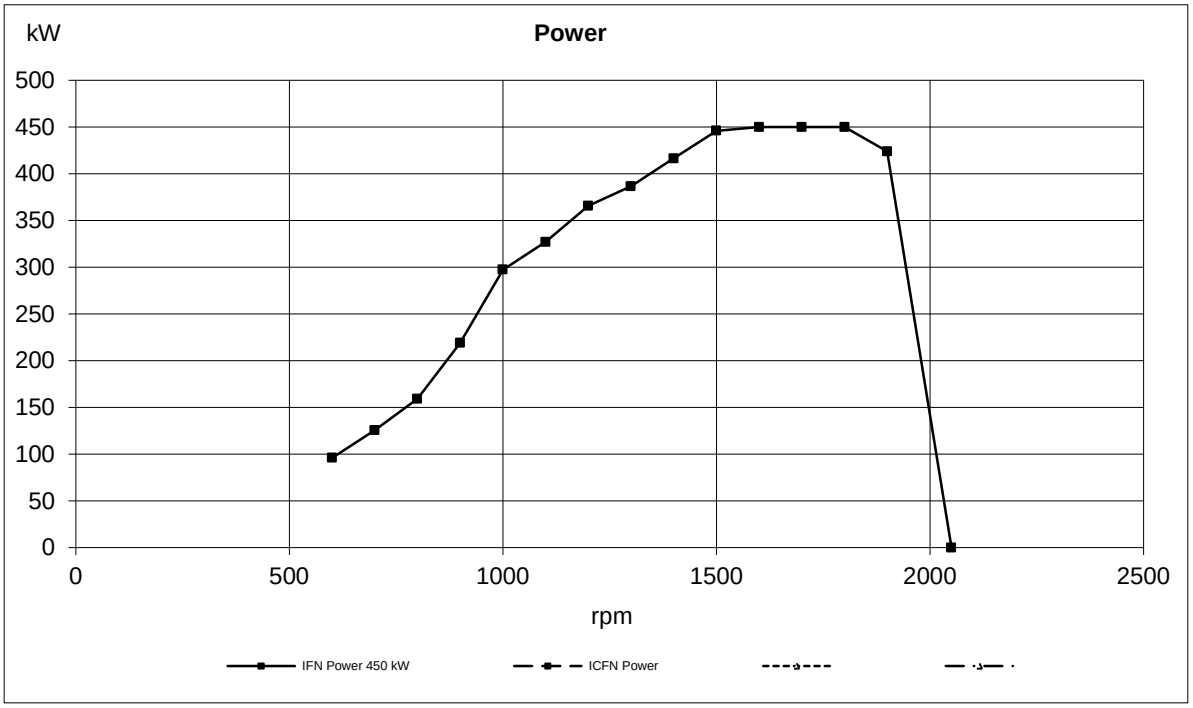
* Off means no shut down, alarm only

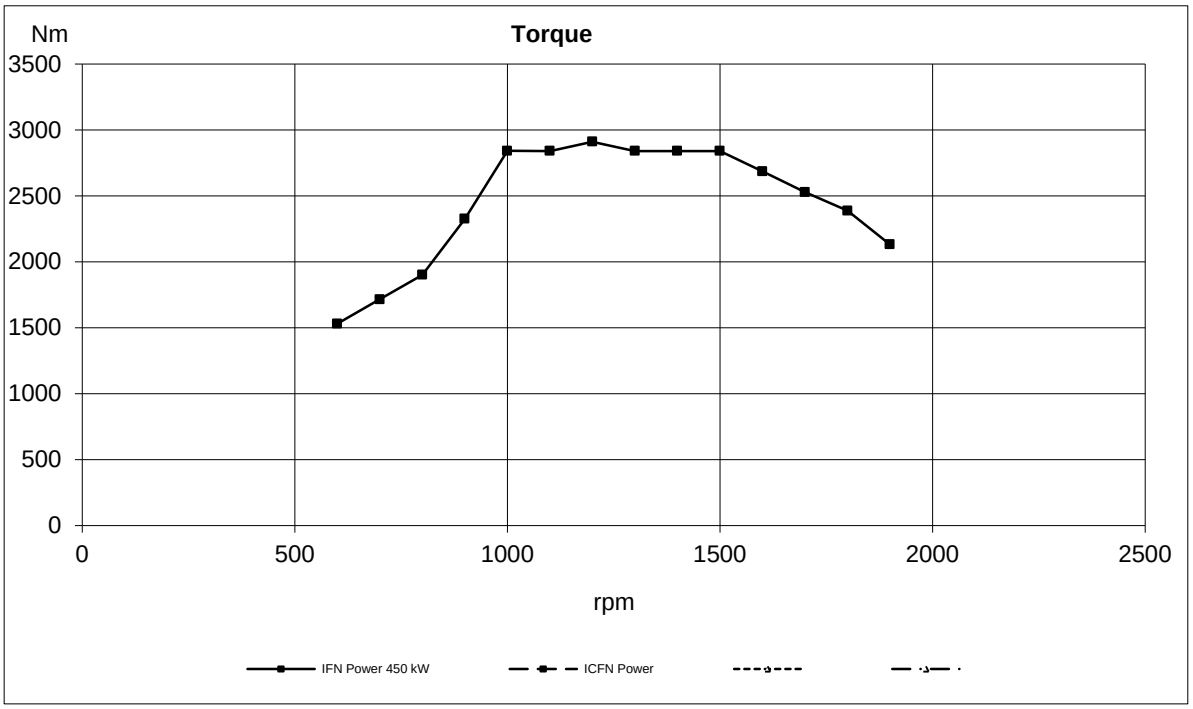
| Parameter | Warning | Alarm | Derated 0% to engine protection map | Derated 100% to engine protection map | Fill in forced idle value | Fill in forced shut down value |
|---|---|---|---|---|---|---|
| Coolant temp | 105°C | 107°C | 107°C | 108°C | N/A | N/A |
| Oil temp | 125°C | 127°C | 127°C | 130°C | N/A | N/A |
| Low oil pressure | Warning | Alarm | N/A | N/A | N/A | Alarm map value |
| High charge air temp | 80°C | 85°C | 85°C | 86°C | N/A | N/A |
| High charge air pressure | Warning map value | Alarm map value | Alarm map value | Alarm map value | N/A | N/A |
| Parameters | Yellow | Red | Derate 70% to | | Forced idle after 5 | Forced shut down after 15 |
| | | | | | | |
| | | | | | | |

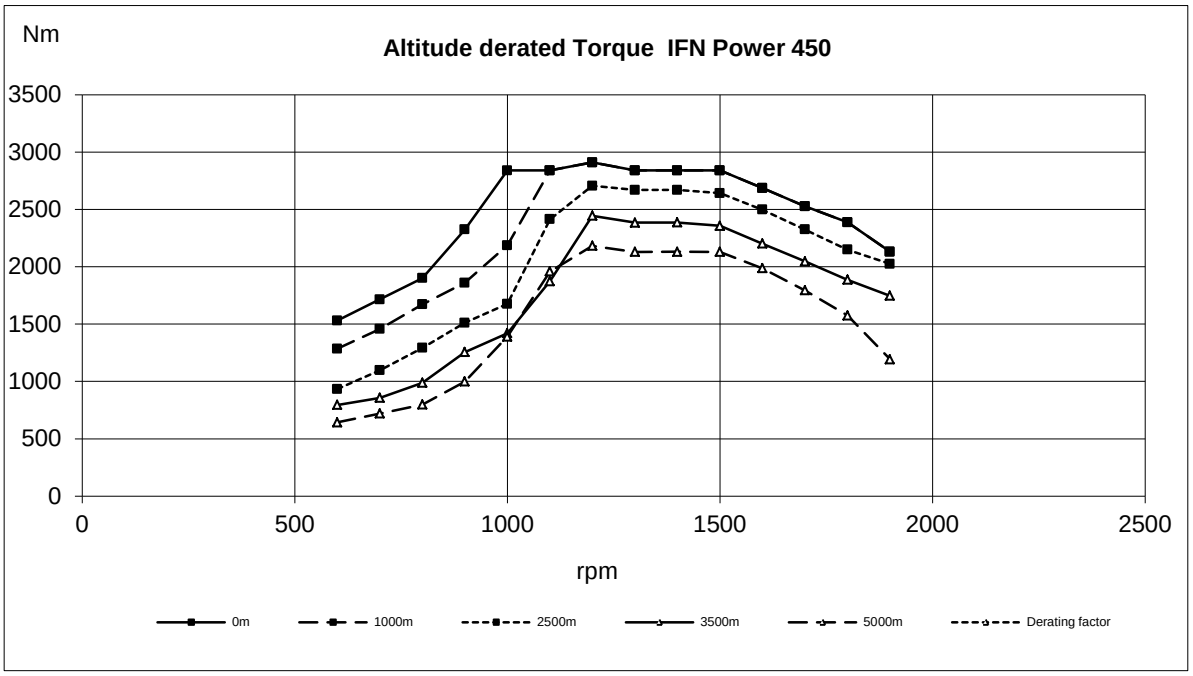
**Electrical system**

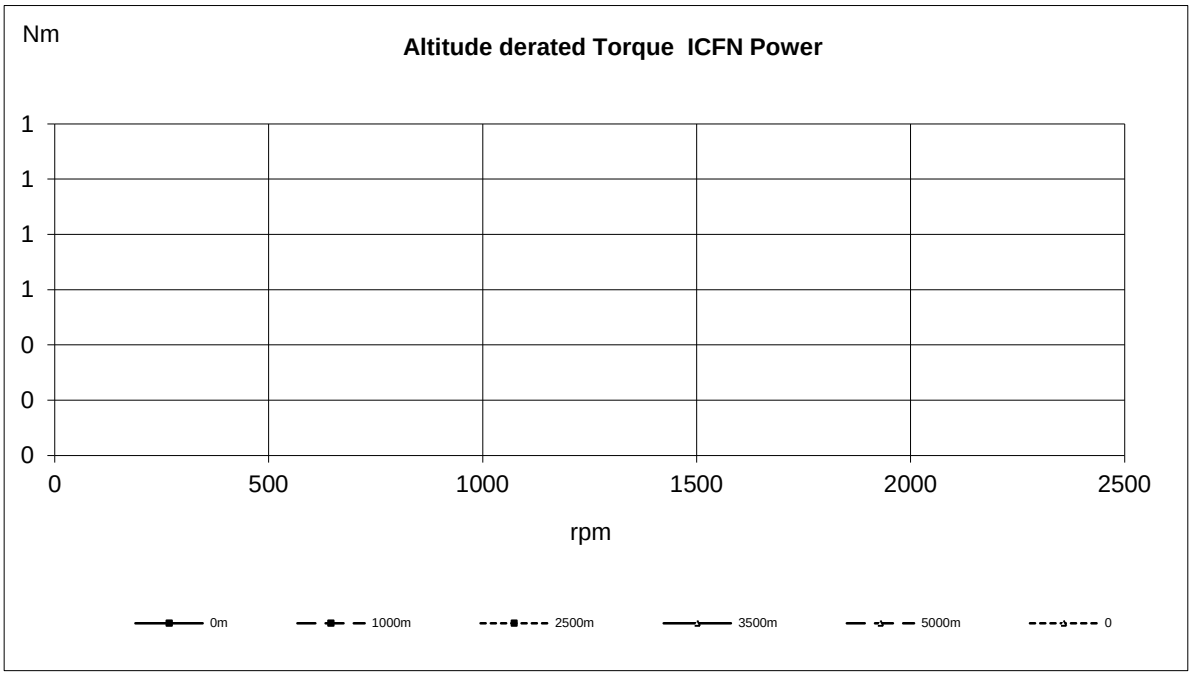
| | | | | |
|---|---|---|---|---|
| Voltage and type | | | | 24 V |
| Alternator: | make | | | Bosch |
| | output | A | | 80 |
| | tacho output | Hz/alternator rev. | | 6 |
| | drive ratio | | | 3.9:1 |
| Starter motor: | | make | | Melco |
| | | type | | 105P70 |
| | | output | kW | 7 |
| | | | hp | 9,5 |
| Number of teeth on: | | flywheel | | 153 |
| | | starter motor | | 12 |
| Max wiring resistance main circuit | | | mΩ | 2 |
| Cranking current at +20°C | | | A | 280 |
| Crank engine speed at 20°C | | | rpm | 150 |
| Starter motor battery capacity | | max | Ah/A | 2x225 |
| | | min at +5°C | Ah/A | - |
| Inlet manifold heater (at 20 V) | | | kW | 4 |
| Power relay for the manifold heater | | | A | 1 |

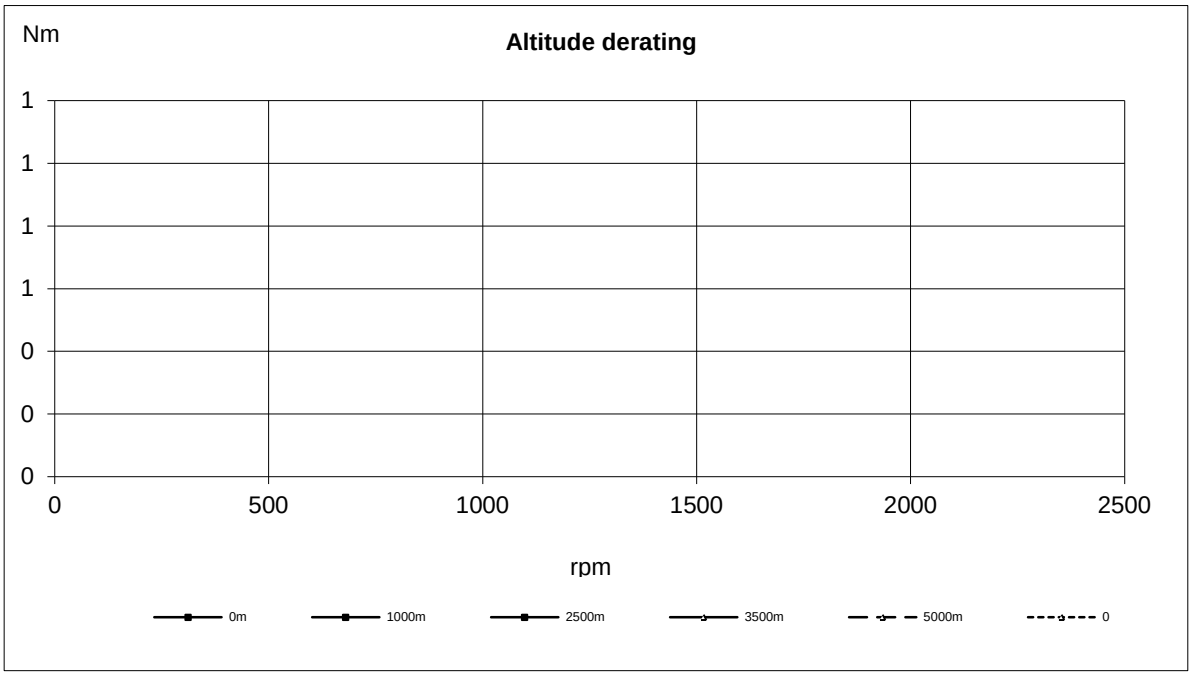
| **Power take off** | | **rpm** | **1200** | **1500** | **1800** | **1900** |
|---|---|---|---|---|---|---|
| Front end in line with crank shaft max: | | Nm | TBD | | | |
| | | lbf ft | | | | |
| Front end belt pulley load. Direction of load viewed from flywheel side: | max left | kW | 26 | 33 | 40 | |
| | | hp | 35 | 45 | 54 | |
| | max down | kW | 60 | 75 | 90 | |
| | | hp | 82 | 102 | 122 | |
| | max right | kW | 26 | 33 | 40 | |
| | | hp | 35 | 45 | 54 | |
| Timing gear at compressor PTO max: | | Nm | 300 | | | |
| | | lbf ft | 221 | | | |
| Speed ratio direction of rotation viewed from flywheel side | | | 1.31:1/ ccw | | | |
| Timing gear at servo pump max: | | Nm | 100 | | | |
| | | lbf ft | 74 | | | |
| Speed ratio direction of rotation viewed from flywheel side | | | 1,75:1 / ccw | | | |
| Max allowed bending moment in flywheel housing | | Nm | 15000 | | | |
| | | lbf ft | 11063 | | | |
| Max. rear main bearing load | | N | 5000 | | | |
| | | lbf | 1124,0 | | | |

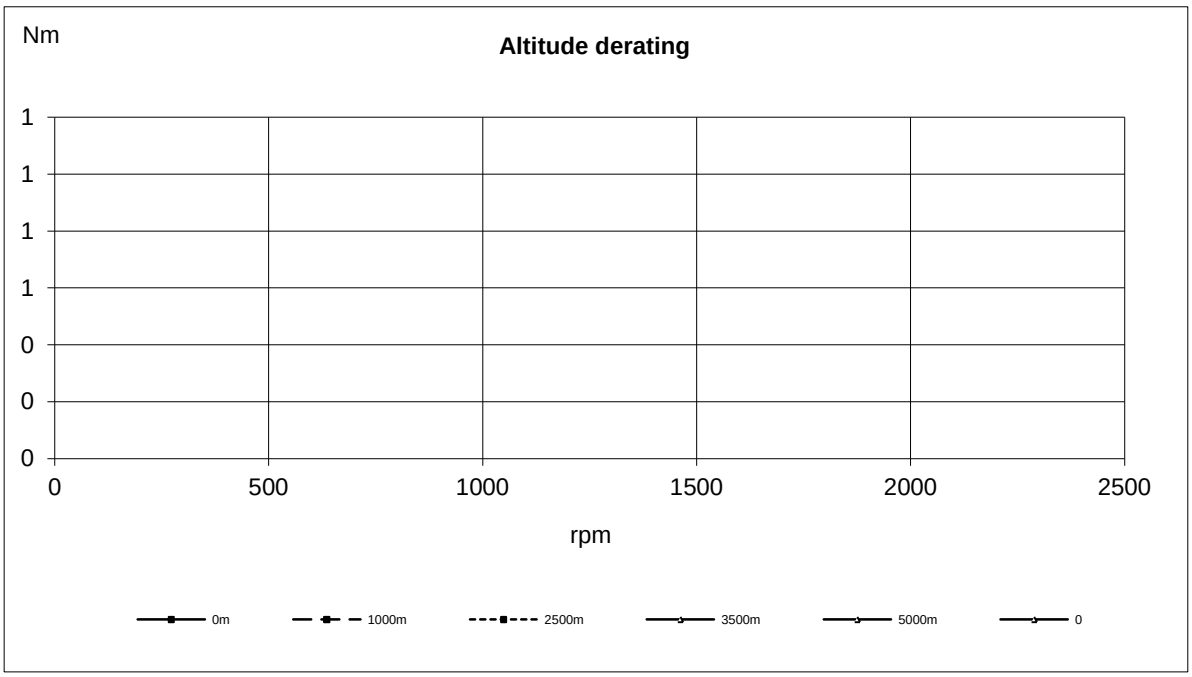

kW
Power
500
450
400
350
300
250
200
150
100
50
0
0
500
1000
1500
2000
2500
rpm
IFN Power 450 kW
ICFN Power

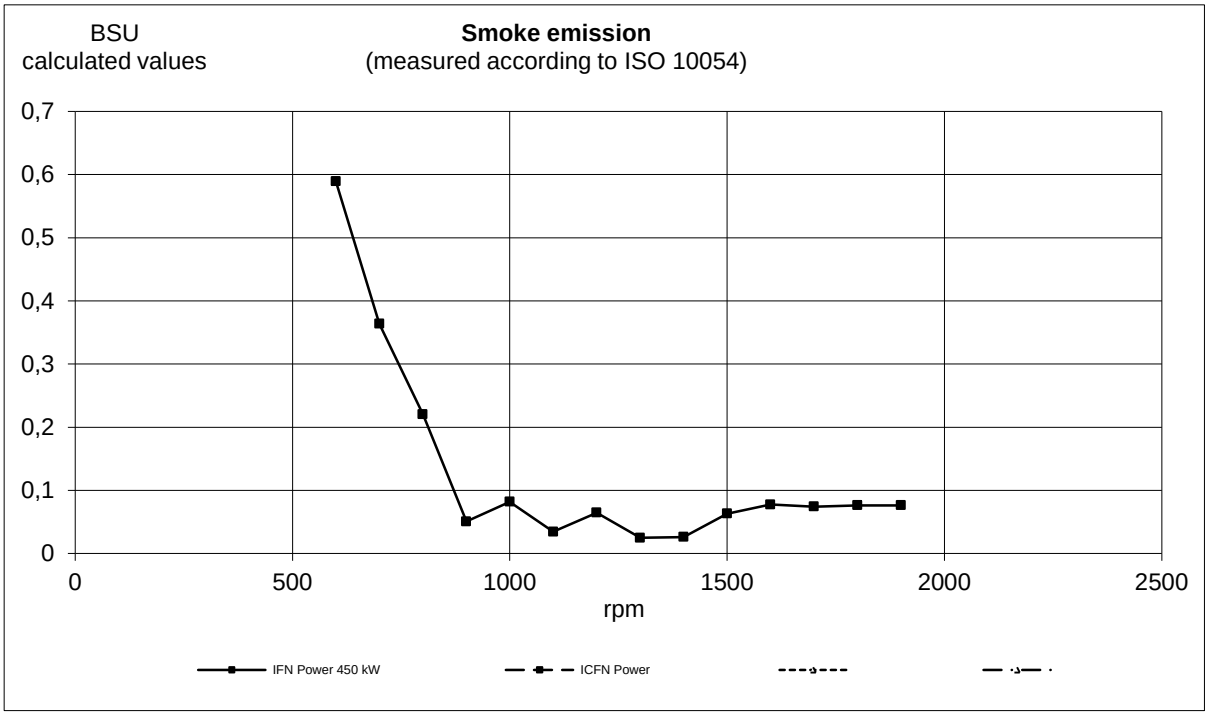

Nm
Torque
3500
3000
2500
2000
1500
1000
500
0
0
500
1000
1500
2000
2500
rpm
IFN Power 450 kW
ICFN Power

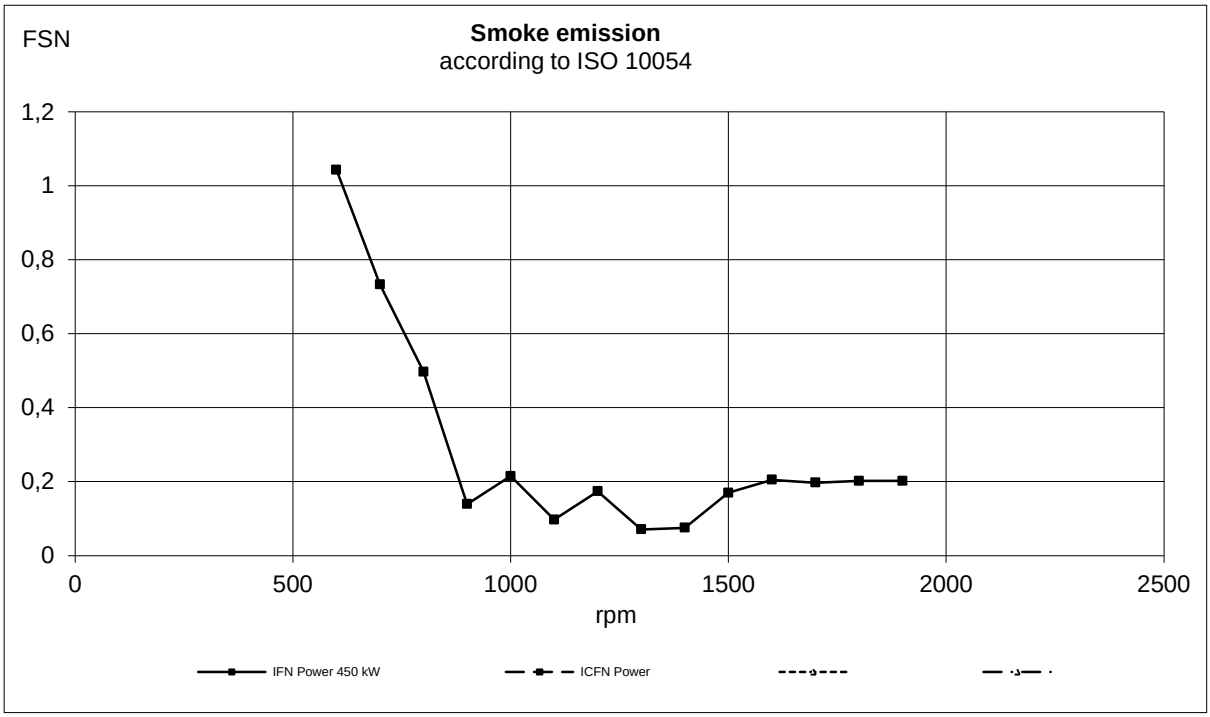

Nm
Altitude derated Torque IFN Power 450
3500
3000
2500
2000
1500
1000
500
0
0
500
1000
1500
2000
2500
rpm
0m
1000m
2500m
3500m
5000m
Derating factor

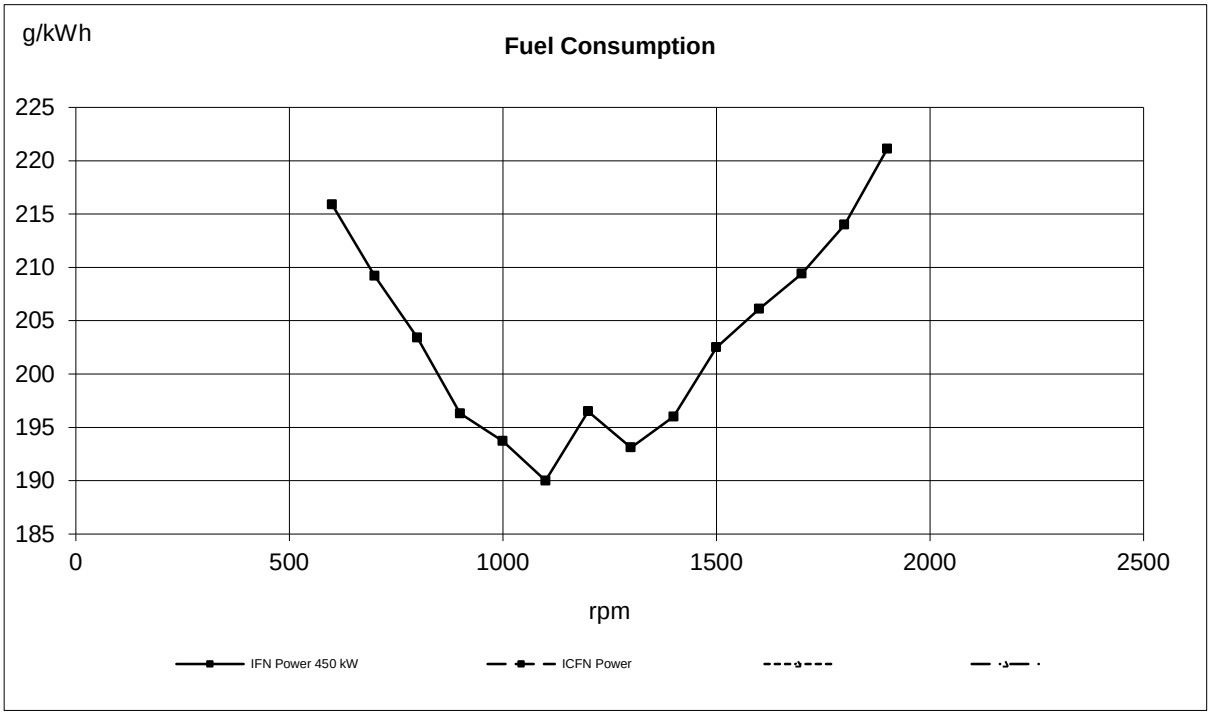

Nm
Altitude derated Torque ICFN Power
1
1
1
1
0
0
0
0
500
1000
1500
2000
2500
rpm
0m
1000m
2500m
3500m
5000m
0

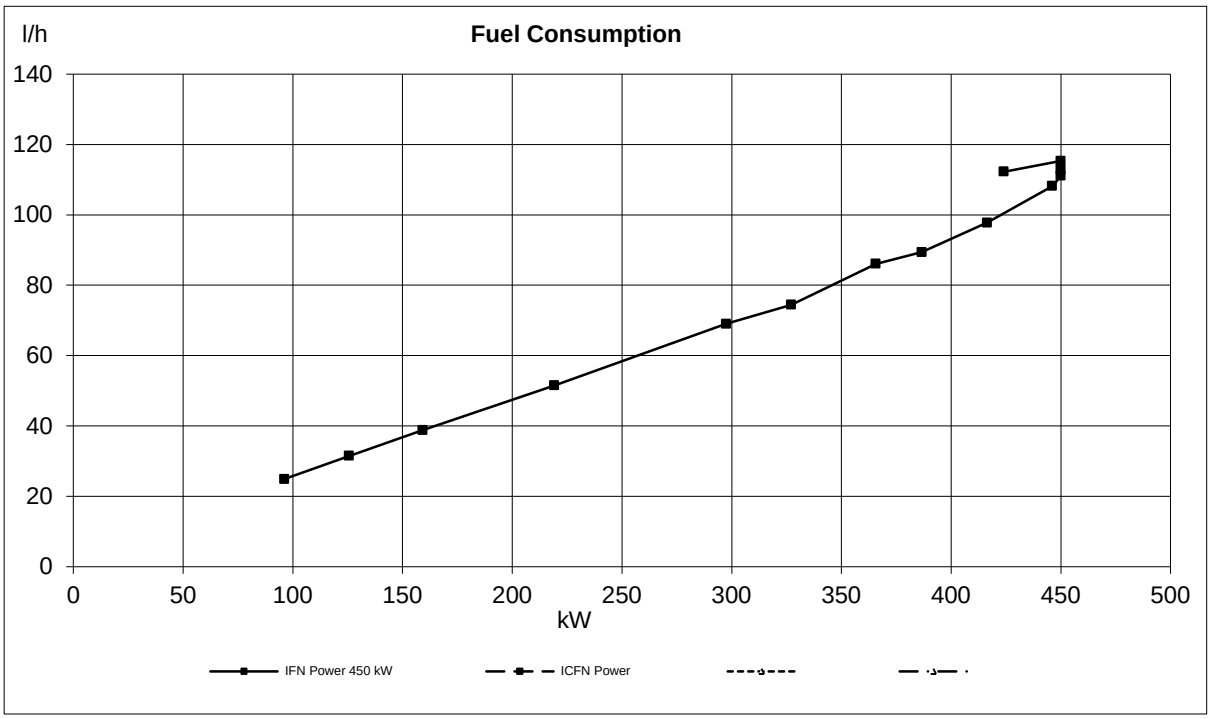

Nm
Altitude derating
1
1
1
1
0
0
0
0
500
1000
1500
2000
2500
rpm
0m
1000m
2500m
3500m
5000m
0

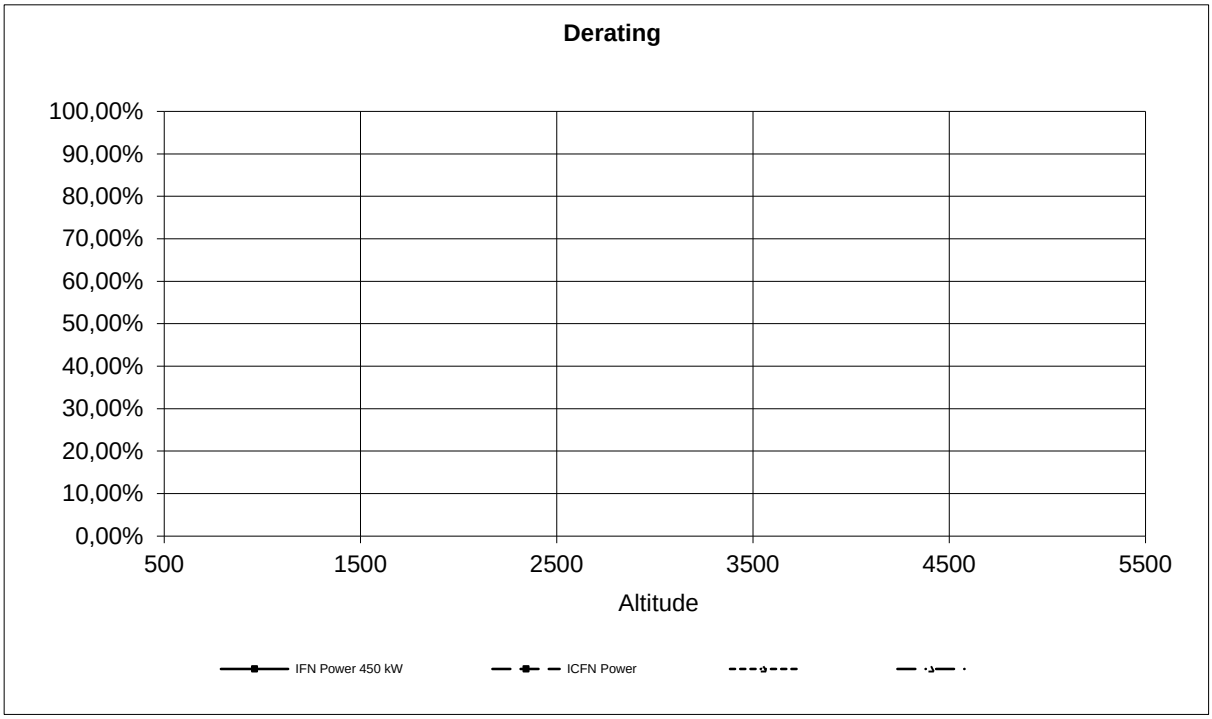

Nm
Altitude derating
1
1
1
1
0
0
0
0
500
1000
1500
2000
2500
rpm
0m
1000m
2500m
3500m
5000m
0

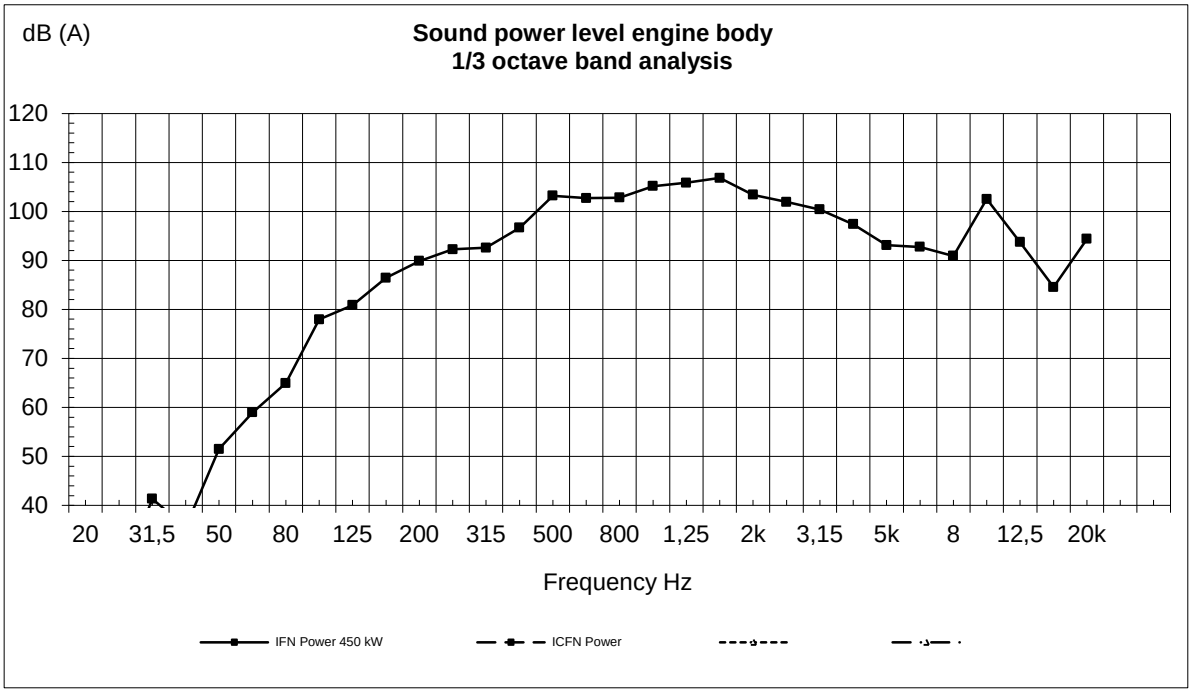

BSU
calculated values
Smoke emission
(measured according to ISO 10054)
0,7
0,6
0,5
0,4
0,3
0,2
0,1
0
0
500
1000
1500
2000
2500
rpm
IFN Power 450 kW
ICFN Power

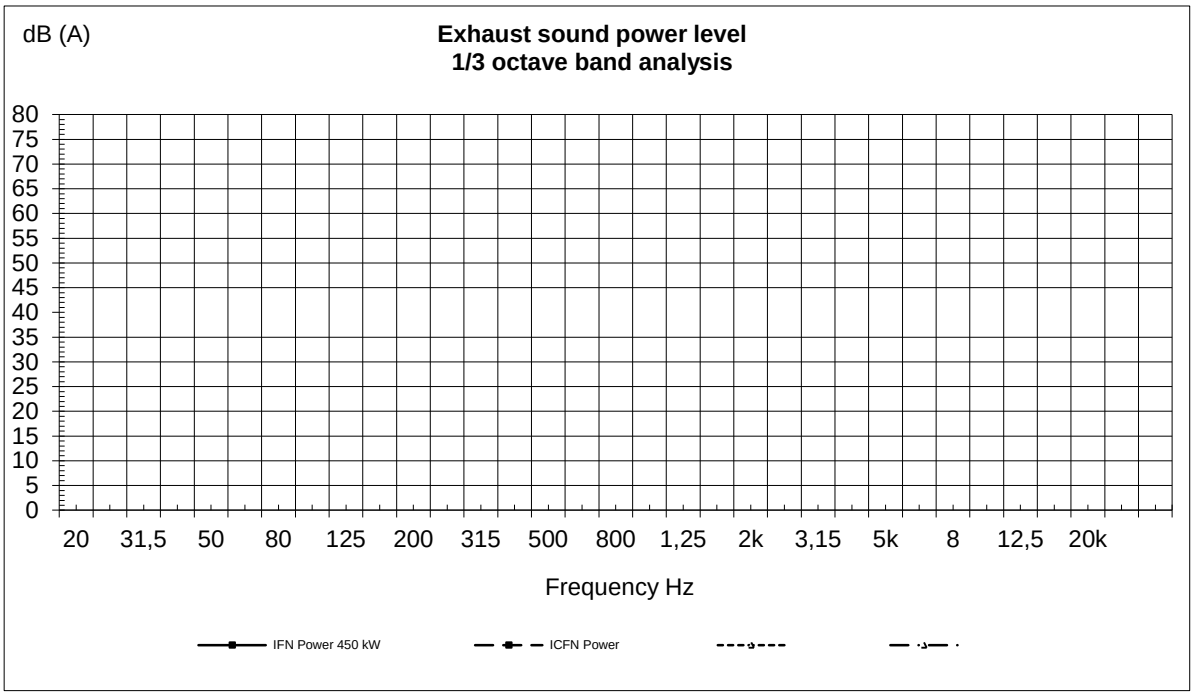

FSN
Smoke emission
according to ISO 10054
1,2
1
0,8
0,6
0,4
0,2
0
0
500
1000
1500
2000
2500
rpm
IFN Power 450 kW
ICFN Power

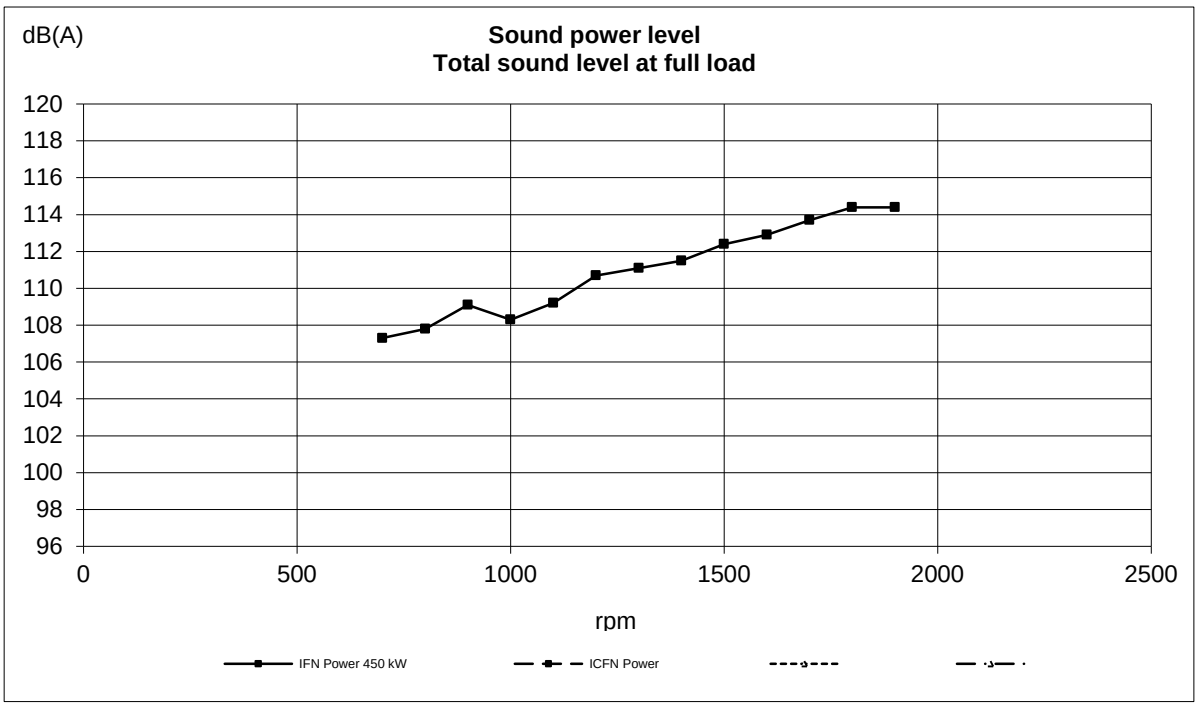

g/kWh
Fuel Consumption
225
220
215
210
205
200
195
190
185
0
500
1000
1500
2000
2500
rpm
IFN Power 450 kW
ICFN Power

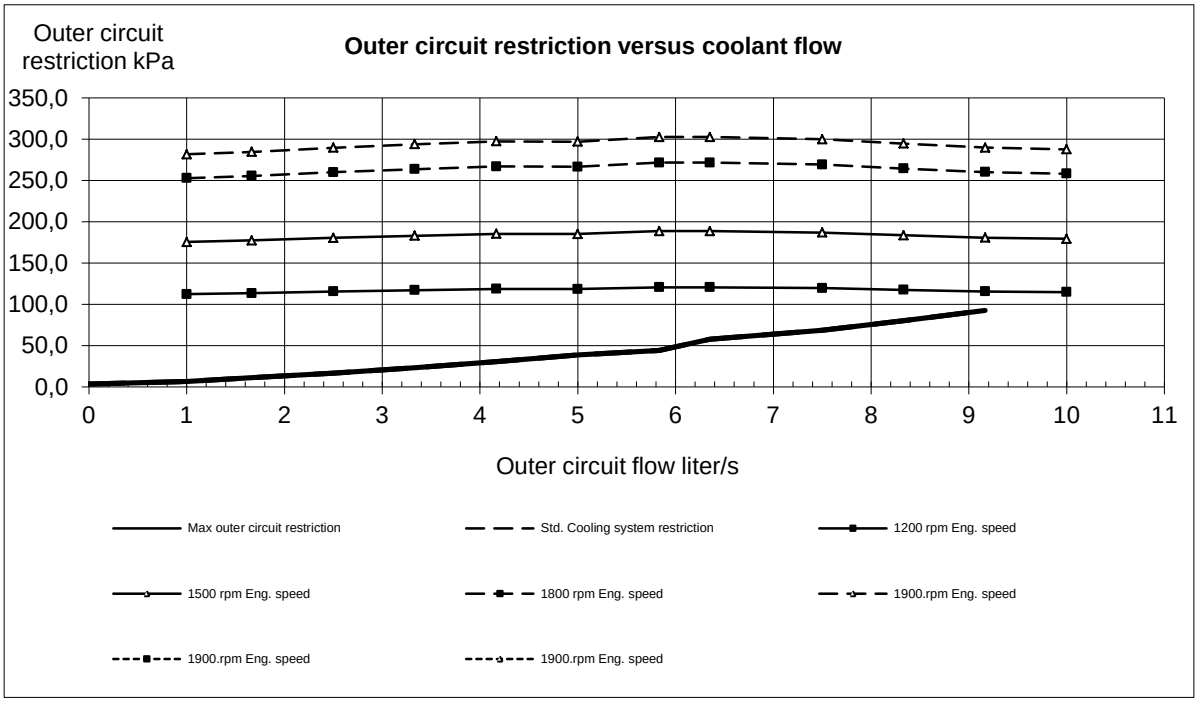

l/h
Fuel Consumption
140
120
100
80
60
40
20
0
0
50
100
150
200
250
300
350
400
450
500
kW
IFN Power 450 kW
ICFN Power

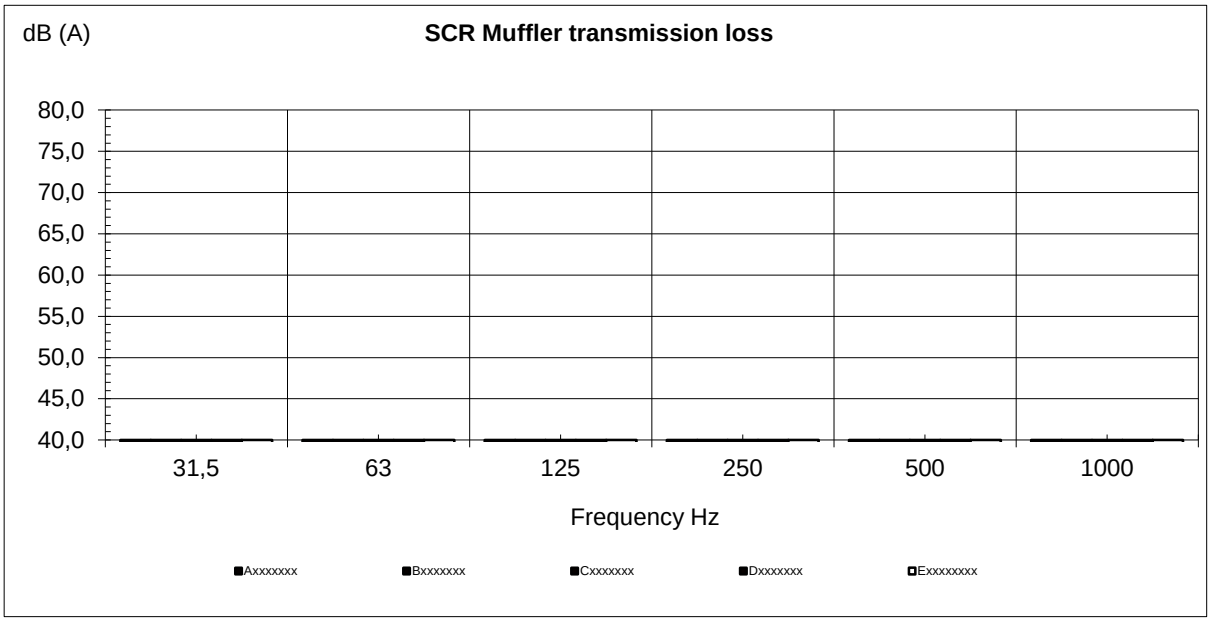

Derating
100,00%
90,00%
80,00%
70,00%
60,00%
50,00%
40,00%
30,00%
20,00%
10,00%
0,00%
500
1500
2500
3500
4500
5500
Altitude
IFN Power 450 kW
ICFN Power


dB (A)
Sound power level engine body
1/3 octave band analysis
120
110
100
90
80
70
60
50
40
20
31,5
50
80
125
200
315
500
800
1,25
2k
3,15
5k
8
12,5
20k
Frequency Hz
IFN Power 450 kW
ICFN Power

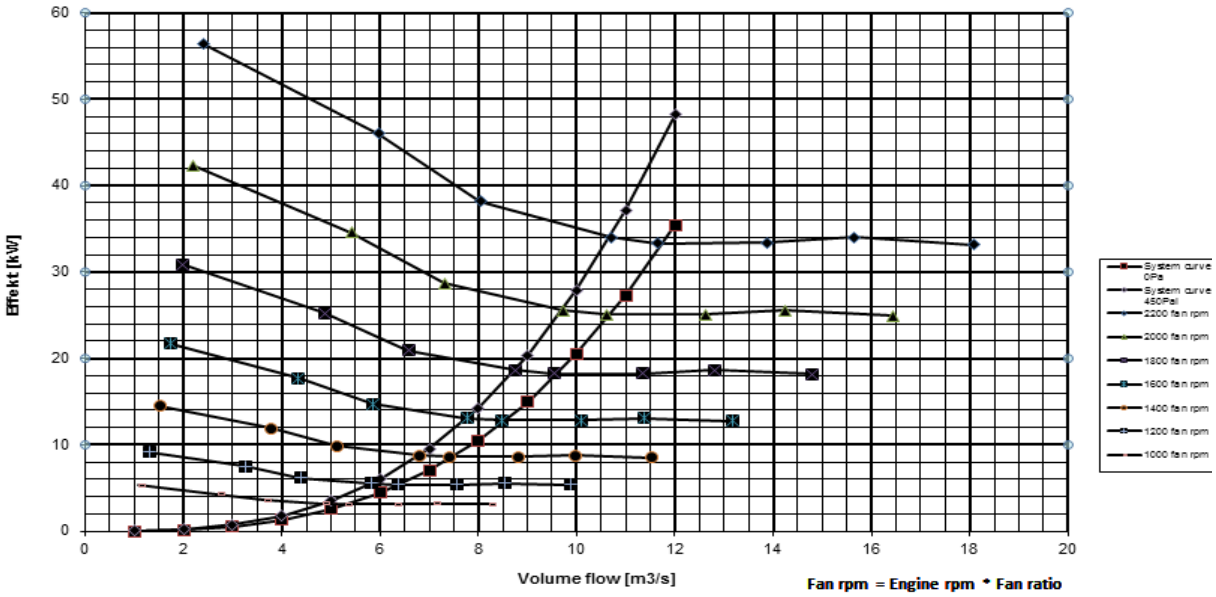

dB (A)
Exhaust sound power level
1/3 octave band analysis
80
75
70
65
60
55
50
45
40
35
30
25
20
15
10
5
0
20
31,5
50
80
125
200
315
500
800
1,25
2k
3,15
5k
8
12,5
20k
Frequency Hz
IFN Power 450 kW
ICFN Power


dB(A)
Sound power level
Total sound level at full load
120
118
116
114
112
110
108
106
104
102
100
98
96
0
500
1000
1500
2000
2500
rpm
IFN Power 450 kW
ICFN Power

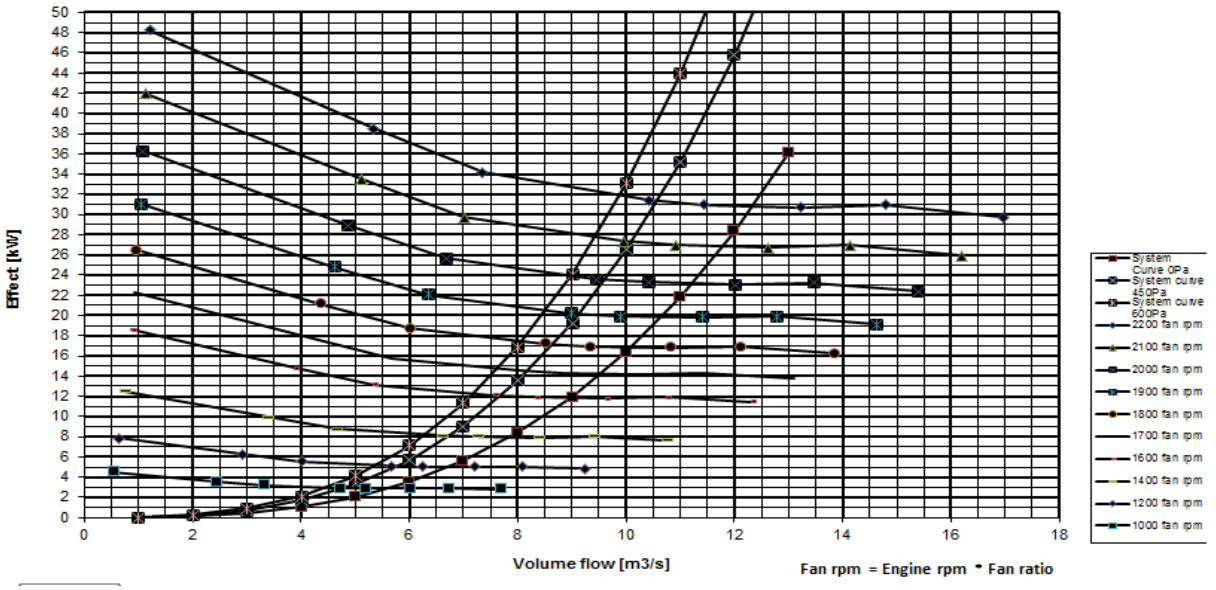

Outer circuit restriction kPa
Outer circuit restriction versus coolant flow
350,0
300,0
250,0
200,0
150,0
100,0
50,0
0,0
0
1
2
3
4
5
6
7
8
9
10
11
Outer circuit flow liter/s
Max outer circuit restriction
Std. Cooling system restriction
1200 rpm Eng. speed
1500 rpm Eng. speed
1800 rpm Eng. speed
1900.rpm Eng. speed
1900.rpm Eng. speed
1900.rpm Eng. speed

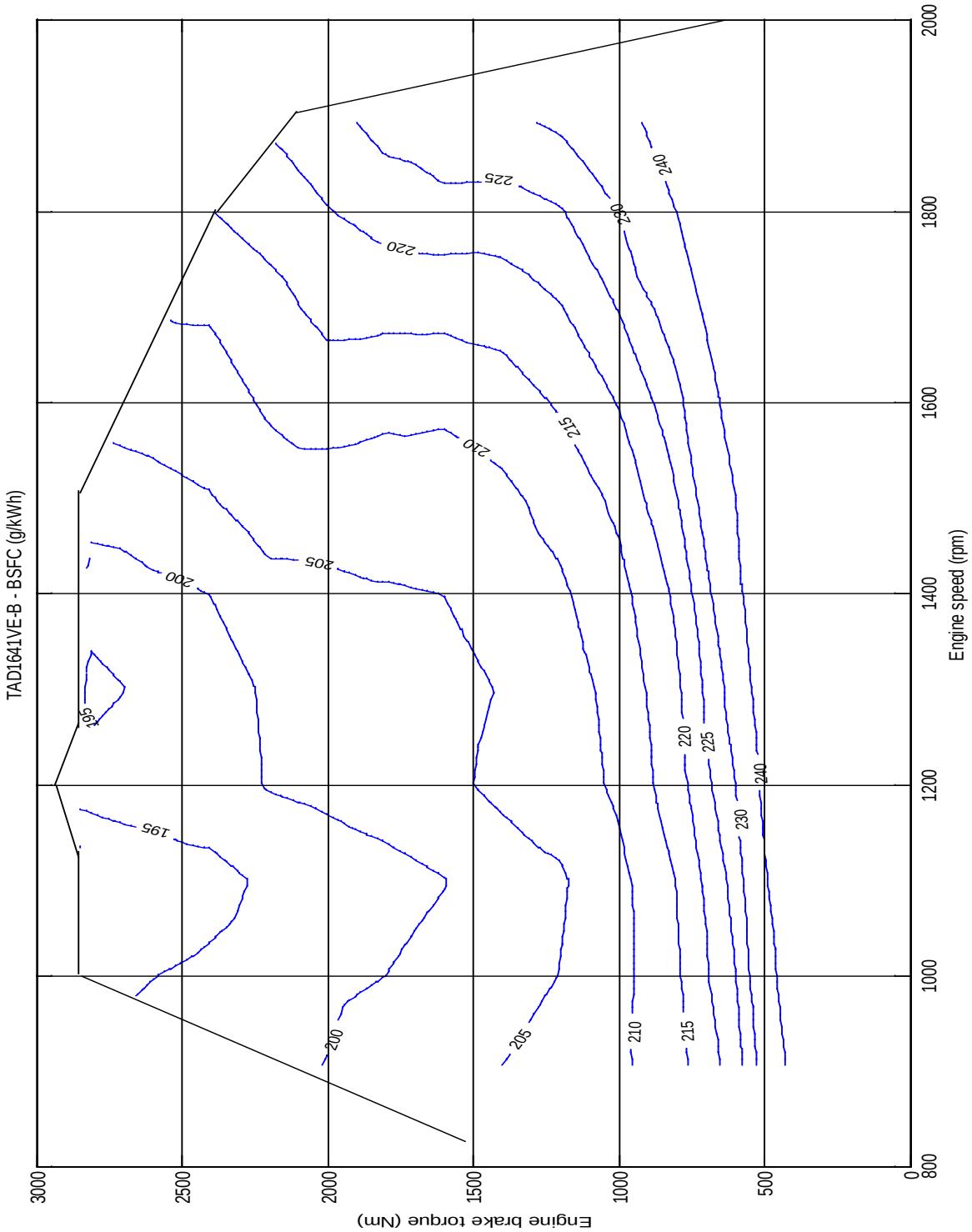

dB (A)
SCR Muffler transmission loss
80,0
75,0
70,0
65,0
60,0
55,0
50,0
45,0
40,0
31,5
63
125
250
500
1000
Frequency Hz
Axxxxxxx
Bxxxxxxx
Cxxxxxxx
Dxxxxxxx
Exxxxxxxx

Fan power 890mm Pusher fan




Fan power 890mm Puller fan




TAD16411VE-B - BSFC (g/kWh)
Engine brake torque (Nm)
Engine speed (rpm)
3000
2500
2000
1500
1000
500
0
800
1000
1200
1400
1600
1800
2000
195
200
205
210
215
220
225
230
240