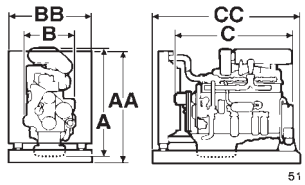
# TWD1210V

## Engine for industrial applications

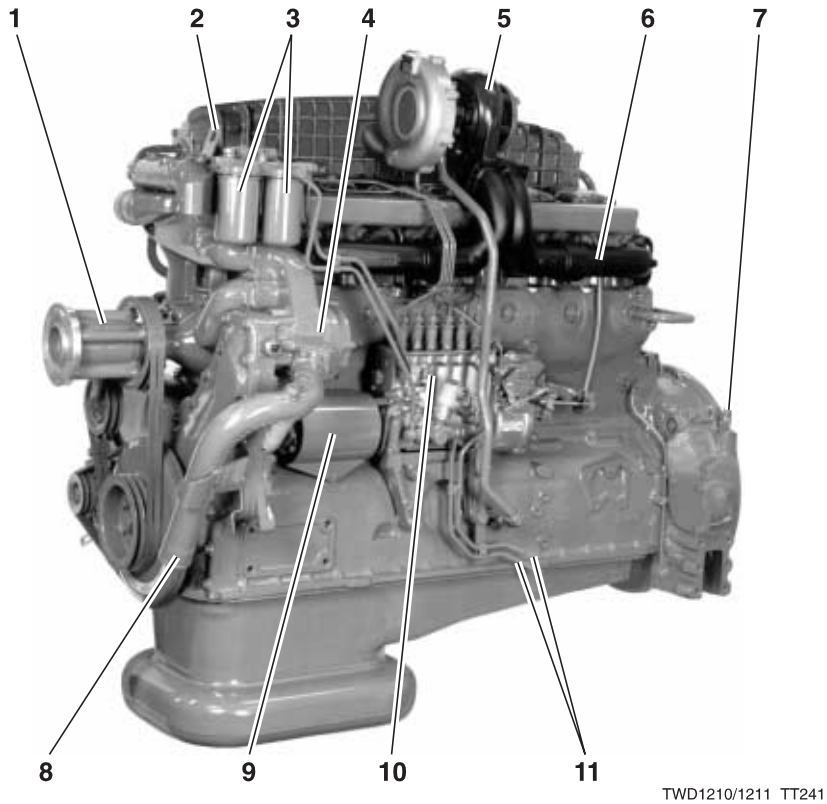
TWD 1210 V

- Turbocharged
- Water to air charge air cooler
- Diesel fuel
- Displacement indication (l)
- Generation
- Version
- Versalility engine

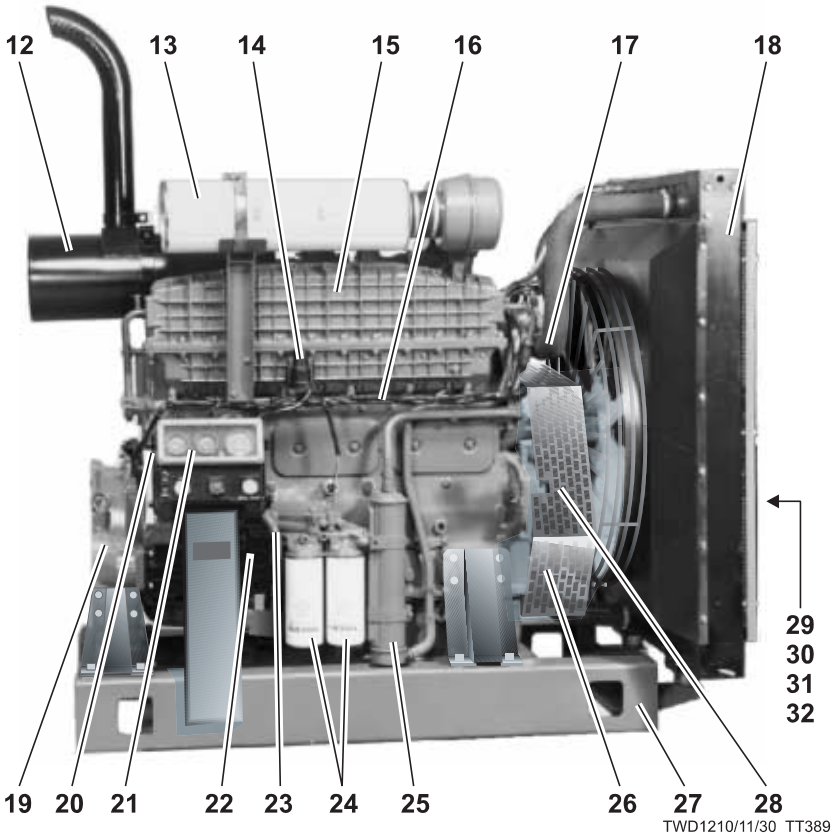



A = 1365 / 53.7 AA = 1614 / 65.5 mm / in.
B = 755 / 29.7 BB = 1002 / 39.4 mm / in.
C = 1504 / 59.2 CC = 2059 / 81.1 mm / in.

- Based on Volvo´s well proven, dependable six-in-line turbocharged engine.
- Built with a high degree of precision to withstand high outputs and at the same time correspond to high demands on operational reliability and service life.
- Low fuel consumption and low noise level.




TWD1210/1211 TT241




TWD1210/11/30 TT389

Power Pac with optional equipment

1. Fan hub
2. Radiator support
3. Twin fuel filters of throw-away type
4. Gear-driven coolant pump
5. Turbocharger
6. Air-cooled exhaust manifold
7. Lift eyelet
8. Coolant pipe, inlet
9. Pump coupling guard
10. Injection pump
11. Fuel pipes for tank connection
12. Silencer
13. Air filter
14. Relay for inlet manifold heater
15. Intercooler
16. Cable iron
17. Coolant pipe, outlet
18. Tropical radiator
19. Flywheel housing SAE 1
20. Speed control
21. Instrument panel
22. Starter motor
23. Crankcase ventilation
24. Full-flow oil filter of spin-on type
25. Oil cooler
26. Vibration damper
27. Base Frame
28. Automatic belt tensioner
29. Alternator, left hand side
30. Oil drain pump, left hand side
31. Stop solenoid, left hand side
32. Battery box, left hand side

VOLVO PENTA

# TWD 1210 V

Volvo Penta reserves the right to make changes at any time, without notice, as to technical data, prices, materials, standard equipment, specifications and models, and to discontinue models.

## Technical Data

**General**

In-line four-stroke diesel engine with direct injection
Turbocharged and water to air intercooled

| | | | |
|---|---|---|---|
| Number of cylinders | 6 | Bore | 130.17 mm / 5.12 in |
| Displacement, total | 11.98 liter / 731 $in^3$ | Stroke | 150 mm / 5.91 in |
| Firing order | 1–5–3–6–2–4 | Compression ratio | 13.3:1 |
| Rotation direction, anti-clockwise viewed towards flywheel | | Dry weight kg/lb Power Pac 1370/3020 Engine only 1105/2436 | |
| | | Wet weight kg/lb Power Pac 1460/3219 Engine only 1165/2568 | |

| **TWD 1210 V** | **Speed, rpm** | **1200** | **1500** | **1800** | **2000** |
|---|---|---|---|---|---|
| **Performance** | Test number | | 21002770 | | |
| ICFN Power | | | | | |
| without fan | kW / hp | 196 / 267 | 242 / 329 | 276 / 375 | 284 / 386 |
| with fan | kW / hp | 193 / 262 | 237 / 323 | 265 / 360 | 271 / 369 |
| Torque at | | | | | |
| ICFN Power | Nm / lbft | 1560 / 1151 | 1541 / 1137 | 1464 / 1080 | 1356 / 1000 |
| Mean piston speed | m/s / ft/sec | 6.0 / 19.7 | 7.5 / 24.6 | 9.0 / 29.0 | 10.0 / 32.8 |
| Effective mean pressure | MPa / psi | 1.64 / 238 | 1.62 / 381 | 1.54 / 223 | 1.42 / 206 |
| Max combustion pressure | MPa / psi | 11.4 / 1650 | 11.7 / 1700 | 11.6 / 1680 | 11.7 / 1700 |
| Total mass moment of inertia, J ($mR^2$) | $kgm^2$ / $lbft^2$ | | 2.80 / 66.4 | | |
| Degree of irregularity | | 1:34 | 1:69 | 1:149 | 1:269 |
| Residual speed droop | | | | | |
| at load increase from 0 to 100% | % | | | | 6–8 |
| Friction Power | kW | 24 | 32 | 40 | 48 |
| **Lubrication system** | | | | | |
| Lubricating oil consumption at 1800 rpm | liter/h / US gal/h | | 0.22 / 0.058 at ICFN Power | | |
| Oil system capacity including filters | liter / US gal | | 38 / 10 | | |
| Oil change interval VDS-2 | h | | 600 | | |
| VDS | h | | 400 | | |
| CCMC D5 | h | | 200 | | |
| **Fuel system** | | | | | |
| Specific fuel consumption at | | | | | |
| 25% of ICFN Power | g/kWh / lb/hph | 245 / 0.397 | 249 / 0.404 | 266 / 0.431 | 272 / 0.441 |
| 50% of ICFN Power | g/kWh / lb/hph | 220 / 0.357 | 218 / 0.353 | 224 / 0.363 | 228 / 0.370 |
| 75% of ICFN Power | g/kWh / lb/hph | 218 / 0.353 | 216 / 0.350 | 218 / 0.353 | 217 / 0.352 |
| 100% of ICFN Power | g/kWh / lb/hph | 217 / 0.352 | 214 / 0.347 | 216 / 0.350 | 216 / 0.350 |
| **Intake and exhaust system** | | | | | |
| Air consumption | $m^3$/ min / cfm | 11.9 / 420 | 16.8 / 590 | 22.4 / 790 | 25.6 / 900 |
| Max allowable air intake restriction | kPa / In wc | | 5 / 20 | | |
| Heat rejection to exhaust | kW / BTU/min | 181 / 10290 | 212 / 12060 | 257 / 14620 | 285 / 16210 |
| Exhaust gas temperature after turbine | °C / °F | 660 / 1220 | 600 / 1110 | 555 / 1030 | 520 / 970 |
| Max allowable back-pressure in exhaust line | kPa / In wc | 4.3 / 17.3 | 6.8 / 27.3 | 9.7 / 39.0 | 12.0 / 48.19 |
| Exhaust gas flow | $m^3$/min / cfm | 38.1 / 1350 | 48.0 / 1700 | 59.5 / 2100 | 63.2 / 2230 |
| Exhaust gas smoke | Bosch units | 3.4 | 1.6 | 1.3 | 0.7 |
| **Cooling system** | | | | | |
| Heat rejection radiation from engine | kW / BTU/min | 12 / 680 | 15 / 850 | 17 / 970 | 17 / 970 |
| Heat rejection to coolant | kW / BTU/min | 120 / 6820 | 137 / 7790 | 161 / 9160 | 173 / 9840 |

**Power Standards**

The engine performance corresponds to ISO 3046, BS 5514 and DIN 6271. The technical data applies to an engine without cooling fan and operating on a fuel with calorific value of 42.7 MJ/kg (18360 BTU/lb) and a density of 0.84 kg/liter (7.01 lb/US gal, 8.42 lb/Imp gal), also where this involves a deviation from the standards.

**Rating Guideline**

ICFN POWER rating corresponds to ISO Standard Fuel Stop Power for continuous operation at variable speed. It is intended for constant load applications with uninterrupted service at full load for extended periods of time. No overload capability is available with this rating.

**Derating**

The engine may be operated up to 1000 m altitude and 40 °C ambient air temperature without derating. For operation at higher altitudes and temperatures the power should be derated according to the following factors:

| | |
|---|---|
| Altitude derating factor <3000 m. | 4 % / 500 m. |
| Altitude derating factor >3000 m. | 6 % / 500 m. |
| Ambient temperature derating factor | 1.5 % / 5 °C. |
| Humidity | No derating |

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**AB Volvo Penta**
SE-405 08 Göteborg, Sweden