DOOSAN INFRACORE INDUSTRIAL ENGINE
D24

<table>
<thead>
<tr>
<th>Intermittent rating kW(HP) / rpm</th>
<th>Max. torque N.m(kg.m) / rpm</th>
</tr>
</thead>
<tbody>
<tr>
<td>37 (49) / 2600</td>
<td>175 (17.8) / 1800</td>
</tr>
<tr>
<td>46 (61) / 2600</td>
<td>225 (22.9) / 1800</td>
</tr>
<tr>
<td>49 (66) / 2600</td>
<td>245 (25.0) / 1800</td>
</tr>
<tr>
<td>54 (74) / 2600</td>
<td>280 (28.6) / 1800</td>
</tr>
</tbody>
</table>

◎ MECHANICAL SYSTEM
- Engine Model: D24
- Engine Type: In-line 4 cycle Diesel, water cooled, Turbo-intercooler
- Combustion type: Direct injection
- Cylinder Type: Linerless
- Number of cylinders: 4
- Bore x stroke: 90 x 94 mm
- Displacement: 2.392 lit.
- Compression ratio: 17.0 : 1
- Firing order: 1-3-4-2
- Dry weight: 233 kg (w/o starter, alternator, aftertreatment)
- Dimension: 840.4 x 553.8 x 774.7 mm (with DOC)
- Rotation: Counter clockwise viewed from Flywheel
- Flywheel housing: SAE NO.4M(SAE J617)
- Flywheel: Clutch 10"(SAE J620)
- Number of teeth: 104

◎ FUEL SYSTEM
- Injection pump: DELPHI DFP 4.4
- Governor: Controlled by ECU
- Feed pump: N/A
- Injection nozzle: Multi hole type
- Fuel filter: Full flow, cartridge type
- Used fuel: EN590

◎ LUBRICATION SYSTEM
- Lub. Method: Fully forced pressure feed type
- Oil pump: Gear type driven by crankshaft
- Oil filter: Full flow, cartridge type
- Oil pan capacity: High level 8.6 liters, Low level 4.5 liters
- Angularity limit: 35 deg all around
- Lub. Oil: 10W30 CJ-4 (Refer to Operation Manual)
- Maximum oil temp: 135℃ at main oil gallery
- Lub oil pressure: Idle Speed : Min 100 kPa

◎ ENGINEERING DATA
- Water flow: 105 liters/min @2,600 rpm (74HP)
- Heat rejection: 9.5 kcal/sec @2,600 rpm (74HP)
- to CAC: 2.0 kcal/sec @2,600 rpm (74HP)
- Air flow: 4,603 liter/min @2,600 rpm (74HP)
- Exhaust gas temp. 750 ℃ @2,600 rpm
- Max. permissible restrictions
  - Intake system: 2.16 kPa clean filter
  - Exhaust system: 6.23 kPa dirty filter
  - Exhaust system: 15 kPa max.

◎ COOLING SYSTEM
- Cooling method: Fresh water forced circulation
- Water capacity: Approx. 4 lit (engine only)
- Water pump: Centrifugal type driven by belt
- Thermostat: Wax – pellet type Opening temp. 82℃ Full open temp. 97℃
- Cooling fan: -
- Water Temperature 110℃ (max.)

◎ VALVE SYSTEM
- Type: Over head valve
- Number of valve: Intake 2, exhaust 2 per cylinder
- Valve lashes
  - Intake: 0.4mm (@ cold)
  - Exhaust: 0.45mm
**ELECTRICAL SYSTEM**

- **Battery Charging**: 12V x 90A
- **Alternator**: Built-in type IC regulator
- **Starting motor**: 12V x 2.7kW
- **Battery Voltage**: 12V
- **Battery Capacity**: 100 Ah, 950CCA (recommended)
- **Starting Aid**: Glow plug

### Graphs

**37kW (49HP)**

<table>
<thead>
<tr>
<th>Speed (rpm)</th>
<th>Power [kW]</th>
<th>Torque [Nm]</th>
<th>[Nm]</th>
</tr>
</thead>
<tbody>
<tr>
<td>600</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>1200</td>
<td>2.9</td>
<td>45.0</td>
<td>120.0</td>
</tr>
<tr>
<td>1800</td>
<td>8.0</td>
<td>140.0</td>
<td>200.0</td>
</tr>
</tbody>
</table>

**46kW (61HP)**

<table>
<thead>
<tr>
<th>Speed (rpm)</th>
<th>Power [kW]</th>
<th>Torque [Nm]</th>
<th>[Nm]</th>
</tr>
</thead>
<tbody>
<tr>
<td>600</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>1200</td>
<td>38.0</td>
<td>190.0</td>
<td>280.0</td>
</tr>
<tr>
<td>1800</td>
<td>120.0</td>
<td>250.0</td>
<td>340.0</td>
</tr>
</tbody>
</table>

**49kW (66HP)**

<table>
<thead>
<tr>
<th>Speed (rpm)</th>
<th>Power [kW]</th>
<th>Torque [Nm]</th>
<th>[Nm]</th>
</tr>
</thead>
<tbody>
<tr>
<td>600</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>1200</td>
<td>56.0</td>
<td>210.0</td>
<td>300.0</td>
</tr>
<tr>
<td>1800</td>
<td>130.0</td>
<td>300.0</td>
<td>400.0</td>
</tr>
</tbody>
</table>

**54kW (74HP)**

<table>
<thead>
<tr>
<th>Speed (rpm)</th>
<th>Power [kW]</th>
<th>Torque [Nm]</th>
<th>[Nm]</th>
</tr>
</thead>
<tbody>
<tr>
<td>600</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>1200</td>
<td>70.0</td>
<td>260.0</td>
<td>350.0</td>
</tr>
<tr>
<td>1800</td>
<td>150.0</td>
<td>400.0</td>
<td>500.0</td>
</tr>
</tbody>
</table>
o Dimension (LxWxH) 840.4 x 553.8 x 774.7 mm (with DOC)

◆ CONVERSION TABLE

- in. = mm x 0.0394
- lb/ft = N.m x 0.737
- PS = kW x 1.3596
- U.S. gal = lit. x 0.264
- psi = kg/cm² x 14.22
- in³ = lit. x 61.02
- lb/PS.h = g/kW.h x 0.00162
- hp = PS x 0.98635
- cfm = m³/min x 35.336
- lb = kg x 2.20462

Revised : 30th, June, 2016

※ Specifications are subject to change without prior notice