DOOSAN
MARINE
DIESEL ENGINES

Doosan Infracore
Engine
Doosan Infracore ranks among the world’s leading makers of construction equipment, machine tools and engines required to build and maintain infrastructure. We were founded in 1937 and have since achieved an unrivalled position in the world. In the 1990s, we have grown to become a truly global player through technological advancements, acquisitions and new product developments.

Doosan Infracore built a global network of large production facilities and sales subsidiaries, along with extensive dealer networks in all regions of the world including North America, Europe and China. Doosan Infracore continues to secure the latest products and technologies in line with the growing demand for green engines and boosting customer value.

**Introduction of Engine Business Group**

The history of the Doosan Infracore Engine BG goes back to 1958 by offering diesel engines, and the unit today produces and supplies diesel and natural gas engines with high performance and fuel-efficiency for commercial vehicles, military vehicles, construction equipment, generators and ships around the world. Doosan Infracore is emerging as a global engine producer by developing a full line-up of diesel and gas models that meet increasingly strict environmental regulatory standards.

With the introduction of our new compact diesel Tier 4 final and EU Stage IIIB & IV compliant engines, Doosan Infracore is positioned to become one of the world’s top 5 engine makers with advanced environmentally-friendly technologies.
**POWER RATINGS OF DOOSAN ENGINES**

Marine rating to ISO 3046

(1) Heavy Duty
- Operation hours: unlimited per year, unlimited per day
- Average load application: up to 90%
- Percentages of time at full load: up to 80%
- Typical gearbox ratio: 2.5~6
  *Application: Fishing trawler, Tug boat, Pushing vessel, Cargo boat, Freighter

(2) Medium Duty
- Operation hours: up to 3,000hr per year, up to 10hrs per day
- Average load application: up to 70%
- Percentages of time at full load: up to 30%
- Typical gearbox ratio: 2~3.5
  *Application: Pilot boat, Escort boat, Passenger boat, Freighter, Ferry, Cruising vessel

(3) Light Duty
- Operation hours: up to 1,000hr per year, up to 5hrs per day
- Average load application: up to 50%
- Percentages of time at full load: up to 20%
- Typical gearbox ratio: 1~2.5
  *Application: Yacht, Cruising vessel, Fast boat, Fire pump

**Conversion data**

<table>
<thead>
<tr>
<th>1 hp</th>
<th>0.7457 kW</th>
<th>1 PS</th>
<th>0.98632 hp</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 hp</td>
<td>1.01387 PS</td>
<td>1 PS</td>
<td>0.7355 kW</td>
</tr>
<tr>
<td>1 lbft</td>
<td>0.138255 kgf</td>
<td>1 kgf = 9.8066 Nm</td>
<td></td>
</tr>
<tr>
<td>760 mmHg</td>
<td>1,013 mbar</td>
<td>101.3 kPa</td>
<td></td>
</tr>
<tr>
<td>1 kgf/cm²</td>
<td>98 kPa</td>
<td>1 cid = 16.38 cm³</td>
<td></td>
</tr>
<tr>
<td>1 g/PS-h</td>
<td>1.359 g/kW·h</td>
<td>1 Lb/hph = 447.38 g/PS·h</td>
<td></td>
</tr>
</tbody>
</table>

\[
T(Nm) = \frac{9549.3 \times P(kW)}{N(\text{min}^{-1})} \\
T(kgf) = \frac{716.2 \times P(PS)}{N(\text{min}^{-1})} \\
T(lbft) = \frac{5252 \times P(hp)}{N(\text{min}^{-1})}
\]
## Marine Propulsion Engines

<table>
<thead>
<tr>
<th>Model</th>
<th>Type</th>
<th>No. of Cyl.</th>
<th>Aspiration</th>
<th>Displacement (Liter)</th>
<th>Bore x Stroke (mm)</th>
<th>Output kW/ps@1800rpm</th>
<th>Heavy Duty</th>
<th>Medium Duty</th>
<th>Light Duty</th>
<th>Dimension (L x W x H) (mm)</th>
<th>Dry Weight (kg)</th>
<th>Emissions</th>
</tr>
</thead>
<tbody>
<tr>
<td>L066TI</td>
<td>L6</td>
<td>TI</td>
<td>5.8</td>
<td>102*118</td>
<td>132(180) / 2,200</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1,352 * 800 * 917</td>
<td>535</td>
<td>TIER-II</td>
</tr>
<tr>
<td>L136</td>
<td>L6</td>
<td>NA</td>
<td>8.1</td>
<td>111*139</td>
<td>118(160) / 2,200</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1,266 * 875 * 937</td>
<td>743</td>
<td>TIER-I</td>
</tr>
<tr>
<td>L136T</td>
<td>L6</td>
<td>TC</td>
<td>8.1</td>
<td>111*139</td>
<td>147(200) / 2,200</td>
<td>-</td>
<td>-</td>
<td>177(240) / 2,500</td>
<td>-</td>
<td>1,351 * 893 * 937</td>
<td>748</td>
<td>TIER-I</td>
</tr>
<tr>
<td>L136TI</td>
<td>L6</td>
<td>TI</td>
<td>8.1</td>
<td>111*139</td>
<td>169(230) / 2,200</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>748</td>
<td>1,364 * 911 * 937</td>
<td>773</td>
<td>TIER-II</td>
</tr>
<tr>
<td>L086TI</td>
<td>L6</td>
<td>TI</td>
<td>8.1</td>
<td>111*139</td>
<td>210(285) / 2,100</td>
<td>232(315) / 2,300</td>
<td>265(360) / 2,500</td>
<td>265</td>
<td>1,364 * 919 * 965</td>
<td>790</td>
<td>TIER-II</td>
<td></td>
</tr>
<tr>
<td>MD196TI</td>
<td>L6</td>
<td>TC</td>
<td>11.1</td>
<td>123*155</td>
<td>206(280) / 2,000</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1,397 * 931 * 1,077</td>
<td>975</td>
<td>TIER-I</td>
</tr>
<tr>
<td>MD196TI</td>
<td>L6</td>
<td>TI</td>
<td>11.1</td>
<td>123*155</td>
<td>235(320) / 2,000</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1,397</td>
<td>1,397 * 933 * 1,077</td>
<td>1,009</td>
<td>TIER-II</td>
</tr>
<tr>
<td>L126TI</td>
<td>L6</td>
<td>TI</td>
<td>11.1</td>
<td>123*155</td>
<td>265(360) / 2,000</td>
<td>294(400) / 2,100</td>
<td>-</td>
<td>-</td>
<td>1,414</td>
<td>1,414 * 933 * 1,077</td>
<td>1,060</td>
<td>TIER-II</td>
</tr>
<tr>
<td>V158TI</td>
<td>V8</td>
<td>TI</td>
<td>14.6</td>
<td>128*142</td>
<td>353(480) / 1,800</td>
<td>397(540) / 2,100</td>
<td>500(680) / 2,300</td>
<td>500</td>
<td>1,657 * 1,226 * 1,397</td>
<td>1,350</td>
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<tr>
<td>V180TI</td>
<td>V10</td>
<td>TI</td>
<td>18.3</td>
<td>128*142</td>
<td>441(600) / 1,800</td>
<td>478(650) / 2,100</td>
<td>603(820) / 2,300</td>
<td>603</td>
<td>1,815 * 1,227 * 1,576</td>
<td>1,550</td>
<td>TIER-II</td>
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<tr>
<td>V222TI</td>
<td>V12</td>
<td>TI</td>
<td>21.9</td>
<td>128*142</td>
<td>530(720) / 1,800</td>
<td>588(800) / 2,100</td>
<td>736(1,000) / 2,300</td>
<td>736</td>
<td>1,973 * 1,233 * 1,606</td>
<td>1,750</td>
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<td>4V158TI</td>
<td>V8</td>
<td>TI</td>
<td>14.6</td>
<td>128*142</td>
<td>390(530) / 1,800</td>
<td>441(600) / 2,100</td>
<td>588(800) / 2,300</td>
<td>588</td>
<td>1,558 * 1,237 * 1,334</td>
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<tr>
<td>4V222TI</td>
<td>V12</td>
<td>TI</td>
<td>21.9</td>
<td>128*142</td>
<td>588(800) / 1,800</td>
<td>647(880) / 2,100</td>
<td>883(1,200) / 2,300</td>
<td>883</td>
<td>1,874 * 1,243 * 1,548</td>
<td>1,920</td>
<td>TIER-II</td>
<td></td>
</tr>
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</table>

## Marine Auxiliary Engines

<table>
<thead>
<tr>
<th>Model</th>
<th>Type</th>
<th>No. of Cyl.</th>
<th>Aspiration</th>
<th>Displacement (Liter)</th>
<th>Bore x Stroke (mm)</th>
<th>Output kW@1800rpm</th>
<th>Heavy Duty</th>
<th>Medium Duty</th>
<th>Light Duty</th>
<th>Dimension (L x W x H) (mm)</th>
<th>Dry Weight (kg)</th>
<th>Emissions</th>
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<tbody>
<tr>
<td>AD066TI</td>
<td>L6</td>
<td>TI</td>
<td>5.8</td>
<td>102*118</td>
<td>110(150)</td>
<td>96(130)</td>
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<td>800 * 891</td>
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<td>AD136</td>
<td>L6</td>
<td>NA</td>
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<td>111*139</td>
<td>93(126)</td>
<td>77(105)</td>
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<td>770 * 925</td>
<td>735</td>
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<tr>
<td>AD136T</td>
<td>L6</td>
<td>TC</td>
<td>8.1</td>
<td>111*139</td>
<td>125(170)</td>
<td>107(145)</td>
<td>1,182</td>
<td>770 * 925</td>
<td>748</td>
<td>TIER-I</td>
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<td></td>
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<tr>
<td>AD136TI</td>
<td>L6</td>
<td>TI</td>
<td>8.1</td>
<td>111*139</td>
<td>138(188)</td>
<td>115(157)</td>
<td>1,182</td>
<td>825 * 925</td>
<td>773</td>
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<td></td>
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<td>L6</td>
<td>TI</td>
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<td>111*139</td>
<td>186(253)</td>
<td>151(205)</td>
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<td>825 * 962</td>
<td>790</td>
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<td></td>
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<tr>
<td>AD196TI</td>
<td>L6</td>
<td>TC</td>
<td>11.1</td>
<td>123*155</td>
<td>181(246)</td>
<td>154(210)</td>
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<td>854 * 1,072</td>
<td>975</td>
<td>TIER-I</td>
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<tr>
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<td>L6</td>
<td>TI</td>
<td>11.1</td>
<td>123*155</td>
<td>199(270)</td>
<td>173(235)</td>
<td>1,193</td>
<td>854 * 1,072</td>
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<td></td>
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<tr>
<td>AD126TI</td>
<td>L6</td>
<td>TI</td>
<td>11.1</td>
<td>123*155</td>
<td>247(336)</td>
<td>206(280)</td>
<td>1,193</td>
<td>854 * 1,072</td>
<td>1,060</td>
<td>TIER-II</td>
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<td></td>
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<tr>
<td>AD158TI</td>
<td>V8</td>
<td>TI</td>
<td>14.6</td>
<td>128*142</td>
<td>353(480)</td>
<td>302(410)</td>
<td>1,037</td>
<td>1,222 * 1,074</td>
<td>1,295</td>
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<td></td>
</tr>
<tr>
<td>AD180TI</td>
<td>V10</td>
<td>TI</td>
<td>18.3</td>
<td>128*142</td>
<td>441(600)</td>
<td>357(485)</td>
<td>1,195</td>
<td>1,222 * 1,169</td>
<td>1,545</td>
<td>TIER-II</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AD222TI</td>
<td>V12</td>
<td>TI</td>
<td>21.9</td>
<td>128*142</td>
<td>530(720)</td>
<td>446(606)</td>
<td>1,353</td>
<td>1,222 * 1,199</td>
<td>1,735</td>
<td>TIER-II</td>
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<td></td>
</tr>
<tr>
<td>4AD158TI</td>
<td>V8</td>
<td>TI</td>
<td>14.6</td>
<td>128*142</td>
<td>390(530)</td>
<td>325(442)</td>
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<td></td>
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<tr>
<td>4AD222TI</td>
<td>V12</td>
<td>TI</td>
<td>21.9</td>
<td>128*142</td>
<td>588(800)</td>
<td>491(667)</td>
<td>1,521</td>
<td>1,243 * 1,236</td>
<td>1,920</td>
<td>TIER-II</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
DOOSAN MARINE DIESEL ENGINES LINE-UP

DOOSAN MARINE DIESEL ENGINES LINE-UP
IN-LINE TYPE

L066TI
L136T
L136TI
L136
L086TI
MD196T
MD196TI
L126TI
**DOOSAN MARINE DIESEL ENGINES**

**L066TI Specification**

<table>
<thead>
<tr>
<th>Engine Specification</th>
<th>Units</th>
<th>L066TI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engine type</td>
<td></td>
<td>4 cycle, In line, direct- injection, water cooled with turbo charger &amp; inter-cooler</td>
</tr>
<tr>
<td>Rating output (B.H.P)</td>
<td>PS(kW)/rpm</td>
<td>180(132)/2,200</td>
</tr>
<tr>
<td>Displacement</td>
<td>cc</td>
<td>5,785</td>
</tr>
<tr>
<td>Cylinder number - bore(ø) x stroke</td>
<td>mm</td>
<td>6 - ø102 x 118</td>
</tr>
<tr>
<td>Flywheel housing &amp; fly wheel (inch)</td>
<td>SAE 3 &amp; 11 1/2</td>
<td></td>
</tr>
<tr>
<td>Low idling rpm</td>
<td>rpm</td>
<td>725 ± 25</td>
</tr>
<tr>
<td>No load max. rpm</td>
<td>rpm</td>
<td>below2,530</td>
</tr>
<tr>
<td>Compression ratio</td>
<td>rpm</td>
<td>19.5 : 1</td>
</tr>
<tr>
<td>Firing order</td>
<td></td>
<td>1 - 5 - 6 - 2 - 4</td>
</tr>
<tr>
<td>Governor type of injection pump</td>
<td></td>
<td>Mechanical all speed (R.S.V)</td>
</tr>
<tr>
<td>Fuel consumption (only Ref)</td>
<td>g/PS.h</td>
<td>166.8</td>
</tr>
<tr>
<td>@ rated power</td>
<td>lit. / h</td>
<td>35.87</td>
</tr>
<tr>
<td>Starting system</td>
<td></td>
<td>Electric Starting by starter motor</td>
</tr>
<tr>
<td>Starter motor capacity</td>
<td>V-kW</td>
<td>24 - 4.5</td>
</tr>
<tr>
<td>Alternator capacity</td>
<td>V-A</td>
<td>24 - 45</td>
</tr>
<tr>
<td>Battery</td>
<td>V-Ah</td>
<td>24 - 100</td>
</tr>
<tr>
<td>Cooling system</td>
<td></td>
<td>Indirect sea water cooling with heat exchanger</td>
</tr>
<tr>
<td>Cooling water capacity</td>
<td>Max. / Min.</td>
<td>lit.</td>
</tr>
<tr>
<td>Fresh water pump type</td>
<td></td>
<td>Centrifugal type, driven by V-belt</td>
</tr>
<tr>
<td>Sea water pump type</td>
<td></td>
<td>Rubber impeller type driven by V-belt</td>
</tr>
<tr>
<td>Lubricating oil(Engine)</td>
<td>pan capacity</td>
<td>lit.</td>
</tr>
<tr>
<td></td>
<td>pressure</td>
<td>kg/cm²</td>
</tr>
<tr>
<td>Direction of revolution</td>
<td>crankshaft</td>
<td></td>
</tr>
<tr>
<td>Engine size(L x W x H)</td>
<td>without M/G</td>
<td>mm</td>
</tr>
<tr>
<td>Engine dry weight</td>
<td>without M/G</td>
<td>kg</td>
</tr>
</tbody>
</table>

**MODEL**

- **L066TI (HEAVY DUTY)**
  - 180PS (132kW) / 2,200rpm

**Performance Curve**

- **Engine Dimension**

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*Doosan Infracore Engine*
DOOSAN MARINE DIESEL ENGINES

L136

• MODEL
  - L136 (HEAVY DUTY)
    : 160PS (118kW) / 2,200rpm

L136 Specification

<table>
<thead>
<tr>
<th>Engine Specification</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td>L136</td>
</tr>
<tr>
<td>Engine type</td>
<td>4 cycle, In line, direct-injection, water cooled aspirated naturally</td>
</tr>
<tr>
<td>Rating output (B.H.P)</td>
<td>PS(kW)/rpm 160(118)/2,200</td>
</tr>
<tr>
<td>Displacement</td>
<td>cc</td>
</tr>
<tr>
<td>Cylinder number - bore(ø) x stroke (mm)</td>
<td>6-ø111 x 139</td>
</tr>
<tr>
<td>Flywheel housing &amp; fly wheel (inch)</td>
<td>SAE 2 &amp; 11 1/2</td>
</tr>
<tr>
<td>Low idling rpm</td>
<td>rpm</td>
</tr>
<tr>
<td>No load max. rpm</td>
<td>rpm</td>
</tr>
<tr>
<td>Compression ratio</td>
<td></td>
</tr>
<tr>
<td>Firing order</td>
<td></td>
</tr>
<tr>
<td>Governor type of injection pump</td>
<td>Mechanical all speed (R.S.V)</td>
</tr>
<tr>
<td>Fuel consumption (only Ref.)</td>
<td>g/PS,h</td>
</tr>
<tr>
<td>@ rated power</td>
<td>lit. / h</td>
</tr>
<tr>
<td>Starting system</td>
<td>Electric Starting by starter motor</td>
</tr>
<tr>
<td>Starter motor capacity</td>
<td>V - kW</td>
</tr>
<tr>
<td>Alternator capacity</td>
<td>V - A</td>
</tr>
<tr>
<td>Battery</td>
<td>V - Ah</td>
</tr>
<tr>
<td>Cooling system</td>
<td></td>
</tr>
<tr>
<td>Cooling water capacity</td>
<td>Max. / Min. lit.</td>
</tr>
<tr>
<td>Fresh water pump type</td>
<td>Centrifugal type, driven by V-belt</td>
</tr>
<tr>
<td>Sea water pump type</td>
<td>Rubber impeller type driven by gear</td>
</tr>
<tr>
<td>Lubricating Oil (Engine)</td>
<td>pan capacity lit.</td>
</tr>
<tr>
<td></td>
<td>pressure kg/cm²</td>
</tr>
<tr>
<td>Direction of revolution</td>
<td>crankshaft</td>
</tr>
<tr>
<td>Engine size (L x W x H)</td>
<td>without M/G mm</td>
</tr>
<tr>
<td>Engine dry weight</td>
<td>without M/G kg</td>
</tr>
</tbody>
</table>

Performance Curve

Engine Dimension

- MODEL
  - L136 (HEAVY DUTY)
    : 160PS (118kW) / 2,200rpm

- Engine Dimension
  - L136
**DOOSAN MARINE DIESEL ENGINES**

**L136T**

- **MODEL**
  - L136T (HEAVY DUTY): 200PS (147kW) / 2,200rpm
  - L136TL (LIGHT DUTY): 240PS (177kW) / 2,500rpm

### L136T Specification

<table>
<thead>
<tr>
<th>Engine Specification</th>
<th>Units</th>
<th>L136T</th>
<th>L136TL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engine type</td>
<td></td>
<td>4 cycle, In line, direct- injection, water cooled with turbo charger</td>
<td></td>
</tr>
<tr>
<td>Rating output (B.H.P)</td>
<td>PS(kW)/rpm</td>
<td>200(147)/2,200</td>
<td>240(177)/2,500</td>
</tr>
<tr>
<td>Displacement</td>
<td>cc</td>
<td>8,071</td>
<td></td>
</tr>
<tr>
<td>Cylinder number - bore(ø) x stroke</td>
<td>mm</td>
<td>6 -ø111 x 139</td>
<td></td>
</tr>
<tr>
<td>Flywheel housing &amp; fly wheel (inch)</td>
<td>SAE 2 &amp; 11 1/2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low idling rpm</td>
<td>rpm</td>
<td>725 ± 25</td>
<td></td>
</tr>
<tr>
<td>No load max. rpm</td>
<td>rpm</td>
<td>below 2,530</td>
<td>below 2,875</td>
</tr>
<tr>
<td>Compression ratio</td>
<td></td>
<td>16.7 : 1</td>
<td>16.7 : 1</td>
</tr>
<tr>
<td>Firing order</td>
<td></td>
<td>1 - 5 - 3 - 6 - 2 - 4</td>
<td></td>
</tr>
<tr>
<td>Governor type of injection pump</td>
<td></td>
<td>Mechanical all speed (R.S.V)</td>
<td></td>
</tr>
<tr>
<td>Fuel consumption(only Ref.)</td>
<td>g/PS.h</td>
<td>155</td>
<td>167</td>
</tr>
<tr>
<td>@ rated power</td>
<td>lit./h</td>
<td>37</td>
<td>48</td>
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<tr>
<td>Starting system</td>
<td></td>
<td>Electric Starting by starter motor</td>
<td></td>
</tr>
<tr>
<td>Starter motor capacity</td>
<td>V- kW</td>
<td>24 - 4.5</td>
<td></td>
</tr>
<tr>
<td>Alternator capacity</td>
<td>V- A</td>
<td>24 - 50</td>
<td></td>
</tr>
<tr>
<td>Battery</td>
<td>V- Ah</td>
<td>24 - 100</td>
<td></td>
</tr>
<tr>
<td>Cooling system</td>
<td></td>
<td>Indirect sea water cooling with heat exchanger</td>
<td></td>
</tr>
<tr>
<td>Cooling water capacity</td>
<td>Max. / Min.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fresh water pump type</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sea water pump type</td>
<td></td>
<td>Centrifugal type, driven by V- belt</td>
<td></td>
</tr>
<tr>
<td>Lubricating Oil (Engine)</td>
<td>pan capacity</td>
<td></td>
<td>Max : 23 , Min : 17 ( Engine total : 25 )</td>
</tr>
<tr>
<td>pressure</td>
<td>kg/cm²</td>
<td>Full : 3.5, Idle : 1.2</td>
<td></td>
</tr>
<tr>
<td>Direction of revolution</td>
<td>crankshaft</td>
<td></td>
<td>Counter clockwise viewed from stern side</td>
</tr>
<tr>
<td>Engine size(L x W x H)</td>
<td>mm</td>
<td>1,351 x 893 x 937</td>
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</tr>
<tr>
<td>Engine dry weight</td>
<td>kg</td>
<td>748</td>
<td></td>
</tr>
</tbody>
</table>

### Performance Curve

- [HEAVY DUTY](#)
- [LIGHT DUTY](#)

### Engine Dimension

- [Diagram](#)
**L136TI Specification**

<table>
<thead>
<tr>
<th>Model</th>
<th>Units</th>
<th>L136TI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engine type</td>
<td></td>
<td>4 cycle, In line, direct- injection, water cooled with turbo charger &amp; inter-cooler</td>
</tr>
<tr>
<td>Rating output (B.H.P)</td>
<td>PS(kW)/rpm</td>
<td>230(169)/2,200</td>
</tr>
<tr>
<td>Displacement</td>
<td>cc</td>
<td>8,071</td>
</tr>
<tr>
<td>Cylinder number - bore(ø) x stroke</td>
<td>mm</td>
<td>6 - ø111 x 139</td>
</tr>
<tr>
<td>Flywheel housing &amp; fly wheel (inch)</td>
<td>SAE 2 &amp; 11 1/2</td>
<td></td>
</tr>
<tr>
<td>Low idling rpm</td>
<td>rpm</td>
<td>775 ± 25</td>
</tr>
<tr>
<td>No load max. rpm</td>
<td>rpm</td>
<td>below 2,530</td>
</tr>
<tr>
<td>Compression ratio</td>
<td>rpm</td>
<td>16.7 : 1</td>
</tr>
<tr>
<td>Firing order</td>
<td></td>
<td>1 - 5 - 3 - 6 - 2 - 4</td>
</tr>
<tr>
<td>Governor type of injection pump</td>
<td></td>
<td>Mechanical all speed (R.S.V)</td>
</tr>
<tr>
<td>Fuel consumption (only Ref.)</td>
<td>g/PS.h</td>
<td>161.7</td>
</tr>
<tr>
<td>@ rated power</td>
<td>lit. / h</td>
<td>44.43</td>
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<tr>
<td>Starting system</td>
<td></td>
<td>Electric Starting by starter motor</td>
</tr>
<tr>
<td>Starter motor capacity</td>
<td>V- kW</td>
<td>24 - 4.5</td>
</tr>
<tr>
<td>Alternator capacity</td>
<td>V- A</td>
<td>24 - 50</td>
</tr>
<tr>
<td>Battery</td>
<td>V- Ah</td>
<td>24 - 100</td>
</tr>
<tr>
<td>Cooling system</td>
<td></td>
<td>Indirect sea water cooling with heat exchanger</td>
</tr>
<tr>
<td>Cooling water capacity</td>
<td>Max. / Min.</td>
<td>27 / 25</td>
</tr>
<tr>
<td>Fresh water pump type</td>
<td></td>
<td>Centrifugal type, driven by V- belt</td>
</tr>
<tr>
<td>Sea water pump type</td>
<td></td>
<td>Rubber impeller type driven by gear</td>
</tr>
<tr>
<td>Lubricating Oil (Engine)</td>
<td>pan capacity</td>
<td>Max : 23 , Min : 17 (Engine total : 25 )</td>
</tr>
<tr>
<td></td>
<td></td>
<td>pressure kg/cm²</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Full : 3.5 , Idle : 1.2</td>
</tr>
<tr>
<td>Direction of revolution</td>
<td>crankshaft</td>
<td>Counter clockwise viewed from stem side</td>
</tr>
<tr>
<td>Engine size(L x W x H)</td>
<td>without M/G</td>
<td>mm</td>
</tr>
<tr>
<td>Engine dry weight</td>
<td>without M/G</td>
<td>kg</td>
</tr>
</tbody>
</table>

**Performance Curve**

**Engine Dimension**
**DOOSAN MARINE DIESEL ENGINES**

**L086TI**

- **MODEL**
  - L086TIH (HEAVY DUTY): 285PS (210kW) / 2,100rpm
  - L086TIM (MEDIUM DUTY): 315PS (232kW) / 2,300rpm
  - L086TIL (LIGHT DUTY): 360PS (265kW) / 2,500rpm

---

### L086TI Specification

<table>
<thead>
<tr>
<th>Engine Specification</th>
<th></th>
<th>L086TIH</th>
<th>L086TIM</th>
<th>L086TIL</th>
</tr>
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<tbody>
<tr>
<td>Model</td>
<td>Units</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Engine type</td>
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<td>4 cycle, In line, direct- injection, water cooled with wet turbo charger &amp; inter-cooler</td>
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</tr>
<tr>
<td>Rating output (B.H.P)</td>
<td>PS(kW)/rpm</td>
<td>285(210)/2,100</td>
<td>315(232)/2,300</td>
<td>360(265)/2,500</td>
</tr>
<tr>
<td>Displacement</td>
<td>cc</td>
<td>8,071</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cylinder number - bore(ø) x stroke</td>
<td>mm</td>
<td>6 - ø111 x 139</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flywheel housing &amp; fly wheel (inch)</td>
<td>SAE 2 &amp; 11 1/2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low idling rpm</td>
<td>rpm</td>
<td>750 ± 25</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No load max. rpm</td>
<td>rpm</td>
<td>below 2,415</td>
<td>below 2,645</td>
<td>below 2,875</td>
</tr>
<tr>
<td>Compression ratio</td>
<td></td>
<td>16.7 : 1</td>
<td>16.7 : 1</td>
<td>15.3:1</td>
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<tr>
<td>Firing order</td>
<td></td>
<td>1 - 5 - 3 - 6 - 2 - 4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Governor type of injection pump</td>
<td></td>
<td>Mechanical all speed (R.S.V)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fuel consumption(only Ref.) @ rated power</td>
<td>g/PS.h</td>
<td>166</td>
<td>172.6</td>
<td>166.5</td>
</tr>
<tr>
<td></td>
<td>lit. / h</td>
<td>56.52</td>
<td>64.96</td>
<td>71.61</td>
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<tr>
<td>Starting system</td>
<td></td>
<td>Electric Starting by starter motor</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Starter motor capacity</td>
<td>V-kW</td>
<td>24 - 4.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alternator capacity</td>
<td>V-A</td>
<td>24 - 50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Battery</td>
<td>V-Ah</td>
<td>24 - 100</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cooling system</td>
<td></td>
<td>Indirect sea water cooling with heat exchanger</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cooling water capacity</td>
<td>Max. / Min.</td>
<td>lit.</td>
<td>27 / 25</td>
<td></td>
</tr>
<tr>
<td>Fresh water pump type</td>
<td></td>
<td>Centrifugal type, driven by V- belt</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sea water pump type</td>
<td></td>
<td>Rubber impeller type driven by gear</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lubricating oil (Engine) pan capacity pressure</td>
<td>lit.</td>
<td>Max : 23, Min : 17 ( Engine total : 25)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>kg/cm²</td>
<td>Full : 3.5, Idle : 1.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Direction of revolution</td>
<td>crankshaft</td>
<td>Counter clockwise viewed from stem side</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Engine size(L x W x H) without M/G</td>
<td>mm</td>
<td>1,364 x 919 x 965</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Engine dry weight without M/G</td>
<td>kg</td>
<td>790</td>
<td></td>
<td></td>
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</tbody>
</table>

---

**Performance Curve**

- **HEAVY DUTY**
- **MEDIUM DUTY**
- **LIGHT DUTY**

**Engine Dimension**

---

18 / Doosan Marine Diesel Engines

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Doosan Infracore Engine / 19
**MD196T Specification**

<table>
<thead>
<tr>
<th>Model</th>
<th>Units</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engine type</td>
<td>4 cycle, In line, direct- injection, water cooled with wet turbo charger</td>
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</tr>
<tr>
<td>Rating output (B.H.P)</td>
<td>PS(kW)/rpm</td>
<td>280(206)/2,000</td>
</tr>
<tr>
<td>Displacement</td>
<td>cc</td>
<td>11,051</td>
</tr>
<tr>
<td>Cylinder number - bore(ø) x stroke</td>
<td>mm</td>
<td>6 - ø123 x 155</td>
</tr>
<tr>
<td>Flywheel housing &amp; fly wheel (inch)</td>
<td>SAE 1 &amp; 14</td>
<td></td>
</tr>
<tr>
<td>Low idling rpm</td>
<td>rpm</td>
<td>725 ± 25</td>
</tr>
<tr>
<td>No load max. rpm</td>
<td>rpm</td>
<td>below 2,300</td>
</tr>
<tr>
<td>Compression ratio</td>
<td></td>
<td>17.1 : 1</td>
</tr>
<tr>
<td>Firing order</td>
<td></td>
<td>1 - 5 - 3 - 6 - 2 - 4</td>
</tr>
<tr>
<td>Governor type of injection pump</td>
<td></td>
<td>Mechanical variable speed (R.S.V)</td>
</tr>
<tr>
<td>Fuel consumption (only Ref.)</td>
<td>g/PS.h</td>
<td>156</td>
</tr>
<tr>
<td>@ rated power</td>
<td>lit. / h</td>
<td>49</td>
</tr>
<tr>
<td>Starting system</td>
<td></td>
<td>Electric Starting by starter motor</td>
</tr>
<tr>
<td>Starter motor capacity</td>
<td>V- kW</td>
<td>24 - 6.0</td>
</tr>
<tr>
<td>Alternator capacity</td>
<td>V- A</td>
<td>24 - 50</td>
</tr>
<tr>
<td>Battery</td>
<td>V- Ah</td>
<td>24 - 150</td>
</tr>
<tr>
<td>Cooling system</td>
<td></td>
<td>Indirect sea water cooling with heat exchanger</td>
</tr>
<tr>
<td>Cooling water capacity</td>
<td>Max. / Min.</td>
<td>lit.</td>
</tr>
<tr>
<td>Fresh water pump type</td>
<td></td>
<td>Centrifugal type, driven by gear</td>
</tr>
<tr>
<td>Sea water pump type</td>
<td></td>
<td>Rubber impeller type driven by gear</td>
</tr>
<tr>
<td>Lubricating oil (Engine)</td>
<td>Pan capacity</td>
<td>lit.</td>
</tr>
<tr>
<td>Pressure</td>
<td>kg/cm²</td>
<td>Full : 3.5, Idle : 1.2</td>
</tr>
<tr>
<td>Direction of revolution</td>
<td>Crankshaft</td>
<td>Counter clockwise viewed from stern side</td>
</tr>
<tr>
<td>Engine size(L x W x H)</td>
<td>Without M/G</td>
<td>mm</td>
</tr>
<tr>
<td>Engine dry weight</td>
<td>Without M/G</td>
<td>kg</td>
</tr>
</tbody>
</table>

**Performance Curve**

![Performance Curve](image)

**Engine Dimension**

![Engine Dimension](image)
**MD196TI Specification**

<table>
<thead>
<tr>
<th>Engine Specification</th>
<th>MD196TI</th>
</tr>
</thead>
<tbody>
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<td><strong>Model</strong></td>
<td>MD196TI</td>
</tr>
<tr>
<td>Engine type</td>
<td>4 cycle, Inline, direct-injection, water cooled with wet turbo charger &amp; inter-cooler</td>
</tr>
<tr>
<td>Rating output (B.H.P)</td>
<td>320(235)/2,000</td>
</tr>
<tr>
<td>Displacement</td>
<td>cc 11,051</td>
</tr>
<tr>
<td>Cylinder number - bore(ø) x stroke</td>
<td>mm 6-ø123 x 155</td>
</tr>
<tr>
<td>Flywheel housing &amp; fly wheel (inch)</td>
<td>SAE 1 &amp; 14</td>
</tr>
<tr>
<td>Low idling rpm</td>
<td>rpm 725 ± 50</td>
</tr>
<tr>
<td>No load max. rpm</td>
<td>rpm below 2,300</td>
</tr>
<tr>
<td>Compression ratio</td>
<td>16.5 : 1</td>
</tr>
<tr>
<td>Firing order</td>
<td>1 - 5 - 3 - 6 - 2 - 4</td>
</tr>
<tr>
<td>Governor type of injection pump</td>
<td>Mechanical variable speed (R.S.V)</td>
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<tr>
<td>Fuel consumption</td>
<td>g/PS.h 153.3</td>
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<tr>
<td>@ rated power</td>
<td>lit. / h 58.61</td>
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<tr>
<td>Starting system</td>
<td>Electric Starting by starter motor</td>
</tr>
<tr>
<td>Starter motor capacity</td>
<td>V-kW 24 - 6.0</td>
</tr>
<tr>
<td>Alternator capacity</td>
<td>V-A 24 - 50</td>
</tr>
<tr>
<td>Battery</td>
<td>V-Ah 24 - 150</td>
</tr>
<tr>
<td>Cooling system</td>
<td>Indirect sea water cooling with heat exchanger</td>
</tr>
<tr>
<td>Cooling water capacity</td>
<td>Max. / Min. lit. 24 / 19</td>
</tr>
<tr>
<td>Fresh water pump type</td>
<td>Centrifugal type, driven by gear</td>
</tr>
<tr>
<td>Sea water pump type</td>
<td>Rubber impeller type driven by gear</td>
</tr>
<tr>
<td>Lubricating oil(Engine)</td>
<td>Pan capacity lit. Max: 25, Min: 19 (Engine total: 27)</td>
</tr>
<tr>
<td>Pressure</td>
<td>kg/cm² Full: 3.5, Idle: 1.2</td>
</tr>
<tr>
<td>Direction of revolution</td>
<td>Crankshaft Counter clockwise viewed from stern side</td>
</tr>
<tr>
<td>Engine size(L x W x H)</td>
<td>Without M/G mm 1,397 x 933 x 1,077</td>
</tr>
<tr>
<td>Engine dry weight</td>
<td>Without M/G kg 1,009</td>
</tr>
</tbody>
</table>

**Profile**

- **MODEL**
  - MD196TI (HEAVY DUTY)
  : 320PS (235kW) / 2,000rpm

**Performance Curve**

[Graph showing performance curve]

**Engine Dimension**

[Diagram of the engine dimensions]
**L126TI Specification**

<table>
<thead>
<tr>
<th>Engine Specification</th>
<th>L126TIH</th>
<th>L126TIM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td>L126TIH</td>
<td>L126TIM</td>
</tr>
<tr>
<td>Engine type</td>
<td>4 cycle, In line, direct- injection, water cooled with wet turbo charger &amp; inter-cooler</td>
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</tr>
<tr>
<td>Rating output (B.H.P)</td>
<td>360(265)/2,000</td>
<td>400(294)/2,100</td>
</tr>
<tr>
<td>Displacement</td>
<td>cc</td>
<td>cc</td>
</tr>
<tr>
<td>Cylinder number - bore(ø) x stroke</td>
<td>11,051</td>
<td>6 - ø123 x 155</td>
</tr>
<tr>
<td>Flywheel housing &amp; fly wheel (inch)</td>
<td>SAE 1 &amp; 14</td>
<td></td>
</tr>
<tr>
<td>Low idling rpm</td>
<td>rpm 725 ± 25</td>
<td></td>
</tr>
<tr>
<td>No load max. rpm</td>
<td>rpm below 2,300</td>
<td>rpm below 2,415</td>
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<tr>
<td>Compression ratio</td>
<td>17 : 1</td>
<td>17 : 1</td>
</tr>
<tr>
<td>Firing order</td>
<td>1 - 5 - 6 - 2 - 4</td>
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</tr>
<tr>
<td>Governor type of injection pump</td>
<td>Mechanical variable speed (R.S.V)</td>
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</tr>
<tr>
<td>Fuel consumption(only Ref.)</td>
<td>g/PS.h 153.3</td>
<td>g/PS.h 161</td>
</tr>
<tr>
<td>@ rated power</td>
<td>l. / h 65.94</td>
<td>l. / h 76.94</td>
</tr>
<tr>
<td>Starting system</td>
<td>Electric Starting by starter motor</td>
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</tr>
<tr>
<td>Starter motor capacity</td>
<td>V - kW 24 - 6.0</td>
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<tr>
<td>Alternator capacity</td>
<td>V - A 24 - 50</td>
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<tr>
<td>Battery</td>
<td>V - Ah 24 - 150</td>
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<td>Cooling system</td>
<td>Indirect sea water cooling with heat exchanger</td>
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</tr>
<tr>
<td>Cooling water capacity</td>
<td>Max. / Min. lit. 24 / 19</td>
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</tr>
<tr>
<td>Fresh water pump type</td>
<td>Centrifugal type, driven by gear</td>
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</tr>
<tr>
<td>Sea water pump type</td>
<td>Rubber impeller type driven by gear</td>
<td></td>
</tr>
<tr>
<td>Lubricating oil (Engine)</td>
<td>Max : 25, Min : 19 ( Engine total : 27)</td>
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</tr>
<tr>
<td>Pressure</td>
<td>kg/cm² Full : 3.5, Idle : 1.2</td>
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</tr>
<tr>
<td>Direction of revolution</td>
<td>Crankshaft</td>
<td></td>
</tr>
<tr>
<td>Engine size(L x W x H)</td>
<td>Without M/G mm 1,414 x 933 x 1,077</td>
<td></td>
</tr>
<tr>
<td>Engine dry weight</td>
<td>Without M/G kg 1,060</td>
<td></td>
</tr>
</tbody>
</table>

**Performance Curve**

**Engine Dimension**

**MODEL**

- **L126TIH (HEAVY DUTY)**
  : 360PS (265kW) / 2,000rpm
- **L126TIM (MEDIUM DUTY)**
  : 400PS (294kW) / 2,100rpm
DOOSAN MARINE DIESEL ENGINES LINE-UP

DOOSAN MARINE DIESEL ENGINES LINE-UP
V TYPE

V158TI
V180TI
V222TI
4V158TI
4V222TI
DOOSAN MARINE DIESEL ENGINES

V158TI

MODEL
- V158TIH (HEAVY DUTY)
  : 480PS (353kW) / 1,800rpm
- V158TIM (MEDIUM DUTY)
  : 540PS (397kW) / 2,100rpm
- V158TIL (LIGHT DUTY)
  : 680PS (500kW) / 2,300rpm

Performance Curve

<table>
<thead>
<tr>
<th>Model</th>
<th>Units</th>
<th>V158TIH</th>
<th>V158TIM</th>
<th>V158TIL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engine type</td>
<td></td>
<td>4 cycle, V type, direct-injection, water cooled with wet turbo charger &amp; inter-cooler</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rating output (B.H.P)</td>
<td>PS(kW)/rpm</td>
<td>480(353)/1,800</td>
<td>540(397)/2,100</td>
<td>680(500)/2,300</td>
</tr>
<tr>
<td>Displacement</td>
<td>cc</td>
<td>14,618</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cylinder number - bore(ø) x stroke</td>
<td>mm</td>
<td>8 - ø128 x 142</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flywheel housing &amp; fly wheel (inch)</td>
<td>SAE 1 &amp; 14</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low idling rpm</td>
<td>rpm</td>
<td>725 ± 25</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No load max. rpm</td>
<td>rpm</td>
<td>below 2,070</td>
<td>below 2,415</td>
<td>below 2,645</td>
</tr>
<tr>
<td>Compression ratio</td>
<td></td>
<td>15 : 1</td>
<td>15:1</td>
<td>14:6:1</td>
</tr>
<tr>
<td>Firing order</td>
<td></td>
<td>1 - 5 - 7 - 2 - 6 - 3 - 4 - 8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Governor type of injection pump</td>
<td></td>
<td>Mechanical variable speed (R.Q.V)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fuel consumption (only Ref.)</td>
<td>g / PS.h</td>
<td>163.5</td>
<td>169.7</td>
<td>185.4</td>
</tr>
<tr>
<td>@ rated power</td>
<td>lit. / h</td>
<td>93.76</td>
<td>109.48</td>
<td>177.20</td>
</tr>
<tr>
<td>Starting system</td>
<td></td>
<td>Electric Starting by starter motor</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Starter motor capacity</td>
<td>V – kW</td>
<td>24 - 6.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alternator capacity</td>
<td>V – A</td>
<td>24 - 50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Battery</td>
<td>V – Ah</td>
<td>24 - 200</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cooling system</td>
<td></td>
<td>Indirect sea water cooling with heat exchanger</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cooling water capacity</td>
<td>Max. / Min.</td>
<td>lit.</td>
<td>89 / 78</td>
<td></td>
</tr>
<tr>
<td>Fresh water pump type</td>
<td></td>
<td>Centrifugal type, driven by belt</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sea water pump type</td>
<td></td>
<td>Bronze impeller type driven by belt</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lubricating oil (Engine)</td>
<td>pan capacity</td>
<td>lit.</td>
<td>Max : 31, Min : 25 (Engine total : 35)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>pressure</td>
<td>kg/cm²</td>
<td>Full : 3.5, Idle : 1.2</td>
<td></td>
</tr>
<tr>
<td>Direction of revolution</td>
<td>crankshaft</td>
<td>Counter clockwise viewed from stern side</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Engine Size (L x W x H)</td>
<td>without M/G</td>
<td>mm</td>
<td>1,657 x 1,226 x 1,397</td>
<td></td>
</tr>
<tr>
<td>Engine dry weight</td>
<td>without M/G</td>
<td>kg</td>
<td>1,350</td>
<td>1,350</td>
</tr>
</tbody>
</table>

Engine Dimension

Option: Dry Air Cleaner
**V180TI Specification**

**Engine Specification**

<table>
<thead>
<tr>
<th>Model</th>
<th>Units</th>
<th>V180TIH</th>
<th>V180TIM</th>
<th>V180TIL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engine type</td>
<td>4 cycle, V type, direct-injection, water cooled with wet turbo charger &amp; inter-cooler</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rating output (B.H.P)</td>
<td>PS(kW)/rpm</td>
<td>600(441)/1,800</td>
<td>650(478)/2,100</td>
<td>820(603)/2,300</td>
</tr>
<tr>
<td>Displacement</td>
<td>cc</td>
<td>18,273</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cylinder number - bore(ø) x stroke</td>
<td>mm</td>
<td>10 - ø128 x 142</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flywheel housing &amp; fly wheel (inch)</td>
<td></td>
<td>SAE 1 &amp; 14</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low idling rpm</td>
<td>rpm</td>
<td>725 ± 25</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No load max. rpm</td>
<td>rpm</td>
<td>below 2,070</td>
<td>below 2,415</td>
<td>below 2,645</td>
</tr>
<tr>
<td>Compression ratio</td>
<td></td>
<td>15:1</td>
<td>15:1</td>
<td>14.6:1</td>
</tr>
<tr>
<td>Firing order</td>
<td>1 - 6 - 5 - 10 - 2 - 7 - 3 - 8 - 4 - 9</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Governor type of injection pump</td>
<td></td>
<td>Mechanical variable speed (R.Q.V)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fuel consumption (only Ref.)</td>
<td>g / PS.h</td>
<td>156.2</td>
<td>167.5</td>
<td>176.6</td>
</tr>
<tr>
<td>@ rated power</td>
<td>lit. / h</td>
<td>111.97</td>
<td>130.08</td>
<td>173.01</td>
</tr>
<tr>
<td>Starting system</td>
<td></td>
<td>Electric Starting by starter motor</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Starter motor capacity</td>
<td>V – kW</td>
<td>24 - 6.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alternator capacity</td>
<td>V – A</td>
<td>24 - 50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Battery</td>
<td>V – Ah</td>
<td>24 - 200</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cooling system</td>
<td></td>
<td>Indirect sea water cooling with heat exchanger</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cooling water capacity</td>
<td>Max. / Min.</td>
<td>92 / 81</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fresh water pump type</td>
<td></td>
<td>Centrifugal type, driven by belt</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sea water pump type</td>
<td></td>
<td>Bronze impeller type driven by belt</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lubricating oil (Engine)</td>
<td>pan capacity</td>
<td>lit.</td>
<td>Max: 35, Min: 28 (Engine total: 38)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>pressure</td>
<td>kg/cm²</td>
<td>Full: 3.5, Idle: 1.2</td>
<td></td>
</tr>
<tr>
<td>Direction of revolution</td>
<td>crankshaft</td>
<td>Counter clockwise viewed from stem side</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Engine Size (L x W x H)</td>
<td>without M/G</td>
<td>mm</td>
<td>1,815 x 1,227 x 1,576</td>
<td></td>
</tr>
<tr>
<td>Engine dry weight</td>
<td>without M/G</td>
<td>kg</td>
<td>1,550</td>
<td>1,550</td>
</tr>
</tbody>
</table>

**Engine Dimension**

- **HEAVY DUTY**
  - V180TIH (HEAVY DUTY)
    - 600PS (441kW) / 1,800rpm
  - V180TIM (MEDIUM DUTY)
    - 650PS (478kW) / 2,100rpm
  - V180TIL (LIGHT DUTY)
    - 820PS (603kW) / 2,300rpm

- **Performance Curve**

- **Engine Speed (rpm)**
  - V180TIH: 1,200 - 1,600
  - V180TIM: 1,300 - 1,700
  - V180TIL: 1,400 - 1,800

- **Fuel Consumption (g/PS.h)**
  - V180TIH: 152 - 163
  - V180TIM: 145 - 160
  - V180TIL: 150 - 165
**DOOSAN MARINE DIESEL ENGINES**

**V222TI**

- **MODEL**
  - V222TIH (HEAVY DUTY): 720PS (530kW) / 1,800rpm
  - V222TIM (MEDIUM DUTY): 800PS (588kW) / 2,100rpm
  - V222TIL (LIGHT DUTY): 1,000PS (736kW) / 2,300rpm

---

**V222TI Specification**

<table>
<thead>
<tr>
<th>Engine Specification</th>
<th>Units</th>
<th>V222TIH</th>
<th>V222TIM</th>
<th>V222TIL</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Model</strong></td>
<td></td>
<td>4 cycle, V type, direct-injection, water cooled with wet turbo charger &amp; inter-cooler</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Rating output (B.H.P)</strong></td>
<td>PS(kW)/rpm</td>
<td>720(530)/1,800</td>
<td>800(588)/2,100</td>
<td>1,000(736)/2,300</td>
</tr>
<tr>
<td><strong>Displacement</strong></td>
<td>cc</td>
<td>21,927</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Cylinder number - bore(ø) x stroke</strong></td>
<td>mm</td>
<td>12 - ø128 x 142</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Flywheel housing &amp; fly wheel (inch)</strong></td>
<td></td>
<td>SAE 1 &amp; 14</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Low idling rpm</strong></td>
<td>rpm</td>
<td>725 ± 25</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>No load max. rpm</strong></td>
<td>rpm</td>
<td>below 2,070</td>
<td>below 2,415</td>
<td>below 2,645</td>
</tr>
<tr>
<td><strong>Compression ratio</strong></td>
<td></td>
<td>15 : 1</td>
<td>15 : 1</td>
<td>14.6 : 1</td>
</tr>
<tr>
<td><strong>Firing order</strong></td>
<td></td>
<td>1 - 12 - 5 - 8 - 3 - 10 - 6 - 7 - 2 - 11 - 4 - 9</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Governor type of injection pump</strong></td>
<td></td>
<td>Mechanical variable speed (R.Q.V)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Fuel consumption (only Ref.) @ rated power</strong></td>
<td>g / PS.h</td>
<td>159.2</td>
<td>167.3</td>
<td>176.9</td>
</tr>
<tr>
<td></td>
<td>lit. / h</td>
<td>136.95</td>
<td>159.90</td>
<td>211.35</td>
</tr>
<tr>
<td><strong>Starting system</strong></td>
<td></td>
<td>Electric starting by starter motor</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Starter motor capacity</strong></td>
<td>V – kW</td>
<td>24 - 6.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Alternator capacity</strong></td>
<td>V – A</td>
<td>24 - 50</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Battery</strong></td>
<td>V – Ah</td>
<td>24 - 200</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Cooling system</strong></td>
<td></td>
<td>Indirect sea water cooling with heat exchanger</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Cooling water capacity</strong></td>
<td>Max. / Min.</td>
<td>lit.</td>
<td>98 / 87</td>
<td></td>
</tr>
<tr>
<td><strong>Fresh water pump type</strong></td>
<td></td>
<td>Centrifugal type, driven by belt</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Sea water pump type</strong></td>
<td></td>
<td>Bronze impeller type driven by belt</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Lubricating oil (Engine) pan capacity</strong></td>
<td></td>
<td>Max : 40, Min : 33 (Engine total : 43)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>pressure</td>
<td>kg/cm²</td>
<td>Full : 3.5, Idle : 1.2</td>
<td></td>
</tr>
<tr>
<td><strong>Direction of revolution</strong></td>
<td>crankshaft</td>
<td>Counter clockwise viewed from stem side</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Engine Size (L x W x H)</strong></td>
<td>without M/G</td>
<td>mm</td>
<td>1,973 x 1,233 x 1,606</td>
<td></td>
</tr>
<tr>
<td><strong>Engine dry weight</strong></td>
<td>without M/G</td>
<td>kg</td>
<td>1,750</td>
<td>1,750</td>
</tr>
</tbody>
</table>

---

**Performance Curve**

- **[HEAVY DUTY]**
  - Engine speed [rpm]
  - Power [PS]
  - Fuel Consumption [g/hr]

- **[MEDIUM DUTY]**
  - Engine speed [rpm]
  - Power [PS]
  - Fuel Consumption [g/hr]

- **[LIGHT DUTY]**
  - Engine speed [rpm]
  - Power [PS]
  - Fuel Consumption [g/hr]

---

**Engine Dimension**

- **Option: Dry Air Cleaner**
  - 1,233
  - 1,973
**DOOSAN MARINE DIESEL ENGINES**

**4V158TI**

- **MODEL**
  - 4V158TIH (HEAVY DUTY): 530PS (390kW) / 1,800rpm
  - 4V158TIM (MEDIUM DUTY): 600PS (441kW) / 2,100rpm
  - 4V158TIL (LIGHT DUTY): 800PS (588kW) / 2,300rpm

---

**4V158TI Specification**

<table>
<thead>
<tr>
<th>Engine Specification</th>
<th>Units</th>
<th>4V158TIH</th>
<th>4V158TIM</th>
<th>4V158TIL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engine type</td>
<td></td>
<td>4 valve, 4 cycle, V type, direct-injection, water cooled with wet turbo charger &amp; inter-cooler</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rating output (B.H.P)</td>
<td>PS(kW)/rpm</td>
<td>530(390)/1,800</td>
<td>600(441)/2,100</td>
<td>800(588)/2,300</td>
</tr>
<tr>
<td>Displacement</td>
<td>cc</td>
<td>14,618</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cylinder number - bore(ø) x stroke</td>
<td>mm</td>
<td>8 - ø128 x 142</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flywheel housing &amp; fly wheel (inch)</td>
<td>SAE 1 &amp; 14</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low idling rpm</td>
<td>rpm</td>
<td>725 ± 25</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No load max. rpm</td>
<td>rpm</td>
<td>below 2,070</td>
<td>below 2,415</td>
<td>below 2,645</td>
</tr>
<tr>
<td>Compression ratio</td>
<td></td>
<td>14.3 : 1</td>
<td>14.3:1</td>
<td>14.3:1</td>
</tr>
<tr>
<td>Firing order</td>
<td></td>
<td>1 - 5 - 7 - 2 - 6 - 3 - 4 - 8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Governor type of injection pump</td>
<td></td>
<td>Mechanical variable speed (R.Q.V)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fuel consumption (only Ref.)</td>
<td>g/PS.h</td>
<td>160.4</td>
<td>168</td>
<td>180.6</td>
</tr>
<tr>
<td>Fuel consumption @ rated power</td>
<td>lit./h</td>
<td>101.57</td>
<td>120.43</td>
<td>172.62</td>
</tr>
<tr>
<td>Starting system</td>
<td></td>
<td>Electric Starting by starter motor</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Starter motor capacity</td>
<td>V – kW</td>
<td>24 - 6.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alternator capacity</td>
<td>V – A</td>
<td>24 - 55</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Battery</td>
<td>V – Ah</td>
<td>24 - 200</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cooling system</td>
<td></td>
<td>Indirect sea water cooling with heat exchanger</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cooling water capacity</td>
<td>Max. / Min.</td>
<td>94 / 83</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fresh water pump type</td>
<td></td>
<td>Centrifugal type, driven by belt</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sea water pump type</td>
<td></td>
<td>Bronze impeller type driven by belt</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lubricating oil (Engine)</td>
<td>pan capacity</td>
<td>lit.</td>
<td>Max : 31, Min : 25</td>
<td>Engine total : 35</td>
</tr>
<tr>
<td>Lubricating oil (Engine)</td>
<td>pressure</td>
<td>kg/cm²</td>
<td>Full : 3.5, Idle : 1.2</td>
<td></td>
</tr>
<tr>
<td>Direction of revolution</td>
<td>crankshaft</td>
<td>Counter clockwise viewed from stern side</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Engine Size (L x W x H)</td>
<td>mm</td>
<td>1,558 x 1,237 x 1,334</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Engine dry weight</td>
<td>kg</td>
<td>1,540</td>
<td>1,540</td>
<td>1,580</td>
</tr>
</tbody>
</table>

---

**Engine Dimension**

- **Engine Size (L x W x H)**: 1,558 x 1,237 x 1,334
- **Engine dry weight**: 1,540 kg
- **Option: Dry Air Cleaner**

---

**Performance Curve**

- **HEAVY DUTY**
  - Output (PS)
  - Engine speed (rpm)

- **MEDIUM DUTY**
  - Output (PS)
  - Engine speed (rpm)

- **LIGHT DUTY**
  - Output (PS)
  - Engine speed (rpm)
**DOOSAN MARINE DIESEL ENGINES**

**4V222TI**

- **MODEL**
  - 4V222TIH (HEAVY DUTY)  : 800PS (588kW) / 1,800rpm
  - 4V222TIM (MEDIUM DUTY) : 880PS (647kW) / 2,100rpm
  - 4V222TIL (LIGHT DUTY)  : 1,200PS (883kW) / 2,300rpm

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**Performance Curve**

<table>
<thead>
<tr>
<th>Engine speed [rpm]</th>
<th>Output[PS]</th>
<th>Output[g/ps.h]</th>
</tr>
</thead>
<tbody>
<tr>
<td>950</td>
<td>1100</td>
<td>1300</td>
</tr>
<tr>
<td>1050</td>
<td>1200</td>
<td>1500</td>
</tr>
<tr>
<td>1150</td>
<td>1300</td>
<td>1700</td>
</tr>
<tr>
<td>1250</td>
<td>1400</td>
<td>1900</td>
</tr>
</tbody>
</table>

---

**4V222TI Specification**

<table>
<thead>
<tr>
<th>Engine Specification</th>
<th>Units</th>
<th>4V222TIH</th>
<th>4V222TIM</th>
<th>4V222TIL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engine type</td>
<td></td>
<td>4 valve, 4 cycle, V type, direct-injection, water cooled with wet turbo charger &amp; inter-cooler</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rating output (B.H.P)</td>
<td>PS(kW)/rpm</td>
<td>800(588)/1,800</td>
<td>880(647)/2,100</td>
<td>1,200(883)/2,300</td>
</tr>
<tr>
<td>Displacement</td>
<td>cc</td>
<td>21,927</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cylinder number - bore(ø) x stroke</td>
<td>mm</td>
<td>12 - ø128 x 142</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flywheel housing &amp; fly wheel (inch)</td>
<td>SAE 1 &amp; 14</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low idling rpm</td>
<td>rpm</td>
<td>725 ± 25</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No load max. rpm</td>
<td>rpm</td>
<td>below 2,070</td>
<td>below 2,165</td>
<td>below 2,645</td>
</tr>
<tr>
<td>Firing order</td>
<td></td>
<td>1 - 12 - 5 - 8 - 3 - 10 - 6 - 7 - 2 - 11 - 4 - 9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Compression ratio</td>
<td></td>
<td>14.3 : 1</td>
<td>14.3 : 1</td>
<td>14.3 : 1</td>
</tr>
<tr>
<td>Governor type of injection pump</td>
<td></td>
<td>Mechanical variable speed (R.Q.V)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fuel consumption(only Ref.)</td>
<td>g / PS.h</td>
<td>153</td>
<td>160</td>
<td>168</td>
</tr>
<tr>
<td>@ rated power</td>
<td>lit. / h</td>
<td>146.24</td>
<td>168.22</td>
<td>200.72</td>
</tr>
<tr>
<td>Starting system</td>
<td></td>
<td>Electric Starting by starter motor</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Starter motor capacity</td>
<td>V – kW</td>
<td>24 - 6.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alternator capacity</td>
<td>V – A</td>
<td>24 - 55</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Battery</td>
<td>V – Ah</td>
<td>24 - 200</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cooling system</td>
<td></td>
<td>Indirect sea water cooling with heat exchanger</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cooling water capacity</td>
<td>Max. / Min.</td>
<td>103 / 92</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fresh water pump type</td>
<td></td>
<td>Centrifugal type, driven by belt</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sea water pump type</td>
<td></td>
<td>Bronze impeller type driven by belt</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lubricating oil (Engine)</td>
<td>pan capacity</td>
<td>lit.</td>
<td>Max : 40, Min : 33 (Engine total : 43)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>pressure</td>
<td>kg/cm²</td>
<td>Full : 3.5, Idle : 1.2</td>
<td></td>
</tr>
<tr>
<td>Direction of revolution</td>
<td>crankshaft</td>
<td>Counter clockwise viewed from stern side</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Engine Size (L x W x H)</td>
<td>without M/G</td>
<td>mm</td>
<td>1,874 x 1,243 x 1,548</td>
<td></td>
</tr>
<tr>
<td>Engine dry weight</td>
<td>without M/G</td>
<td>kg</td>
<td>1,920</td>
<td>1,920</td>
</tr>
</tbody>
</table>

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**Engine Dimension**

- 1,243
- 1,146
- 1,874

Option: Dry Air Cleaner