MARINE PROPULSION DIESEL ENGINE

General Catalog

DAIHATSU
DAIHATSU DIESEL MFG.CO., LTD.
Creating next-generation propulsion systems

Our clean and powerful “e-Diesel” is packed with top-level quality and technologies that Daihatsu Diesel has accumulated and refined over many years since the foundation of the company in 1907. Daihatsu Diesel’s history is marked by relentless challenges toward achieving the engine performance demanded by the changing times and meeting new needs. This challenging spirit is unchanged today and will continue into the future. Daihatsu’s e-Diesel is constantly advancing in order to deliver the ultimate performance that only the continually evolving company can attain.
for reduced CO₂ emissions.
## Output chart

<table>
<thead>
<tr>
<th>Model</th>
<th>500</th>
<th>1000</th>
<th>1500</th>
<th>2000</th>
<th>2500</th>
</tr>
</thead>
<tbody>
<tr>
<td>6DEM-18</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>510~810kWm</td>
<td>900min⁻¹</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6DKM-20e</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>740~1020kWm</td>
<td>900min⁻¹</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6DEM-23</td>
<td></td>
<td></td>
<td>750min⁻¹</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>950~1200kWm</td>
<td>750min⁻¹</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>900min⁻¹</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1180~1440kWm</td>
<td>900min⁻¹</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6DKM-26e</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1330~1820kWm</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6DEM-28</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1850~2240kWm</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6DCM-32e</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6DEM-33</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8DCM-32e</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8DEM-33</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Model (600min⁻¹)</th>
<th>500</th>
<th>1000</th>
<th>1500</th>
<th>2000</th>
<th>2500</th>
</tr>
</thead>
<tbody>
<tr>
<td>6DKM-36e</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8DKM-36e</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12DKM-36e</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Output Chart</td>
<td>Gear</td>
<td>Reduction Gear</td>
<td>Specifications</td>
<td>Dimensions</td>
<td>Examples</td>
</tr>
<tr>
<td>-------------</td>
<td>-----</td>
<td>----------------</td>
<td>---------------</td>
<td>------------</td>
<td>----------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>500<del>1020kWm(1005</del>1385PS)/900min⁻¹</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>510<del>810kWm(690</del>1100PS)/900min⁻¹</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>950<del>1200kWm(1290</del>1630PS)/750min⁻¹</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1180<del>1440kWm(1600</del>1955PS)/900min⁻¹</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1330<del>1820kWm(1805</del>2470PS)/750min⁻¹</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1850<del>2240kWm(2515</del>3045PS)/750min⁻¹</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2500<del>2900kWm(3395</del>3940PS)/750min⁻¹</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2150<del>3390kWm(2920</del>4605PS)/750min⁻¹</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2900<del>3860kWm(3940</del>5240PS)/750min⁻¹</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3250<del>4520kWm(4415</del>6145PS)/750min⁻¹</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4400<del>4650kWm(5980</del>6320PS)/600min⁻¹</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5830<del>6660kWm(7925</del>9055PS)/600min⁻¹</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**Multiple-Geared Diesel Engine**

**A Wide Variation to Meet a Wide Range of Needs**

Daihatsu’s geared diesel engines come in a wide line-up from single-engine single-shaft systems to large multiple-input systems. Customers can choose the best system based on ship size, fuel, usage, etc.

---

**Multiple-Geared Configuration**

Daihatsu Diesel’s multiple-geared configuration is ideal for ships with twin-shaft propellers or low ceiling engine rooms. We offer a wide selection to choose from including the twin-engine single-shaft system, single-engine twin-shaft system, four-engine twin-shaft system, four-engine single-shaft system, and eight-engine twin-shaft system. Selective engine cut-off is also possible for various power requirements.

---

**Single-Engine Twin-Shaft System for Double-Bow Ships**

Daihatsu Diesel engines are at work onboard double-bow ships navigating narrow channels or short routes, or which operate as sightseeing boats on river cruises, etc. A single engine drives the propellers on the bow and stern. Any combination of single-engine twin-shaft system and Daihatsu’s remote control system can be selected according to steering demands and guarantees improved navigation.

---

**Optimal propeller for various hull designs**

With an optimal sized propeller rotating at an rpm 10% lower than conventional propellers, fuel consumption can be decreased by as much as 3%. Daihatsu Diesel’s geared diesel engine sets can utilize the propeller that best matches the hull design thus offering greatly improved propulsion efficiency.
CRASH ASTERN System

With a low-rpm large-diameter propeller, engine stalling is always a problem when moving astern because of increased torque and engine overload. For this reason, Daihatsu geared diesel engines employ our own CRASH ASTERN system. It can also be effectively operated from the bridge.

Ship equipped with CRASH ASTERN system

Full ahead

“Go Astern” command

Full stop

Ship not equipped with CRASH ASTERN system

Full ahead

Neutral

“Go Astern” command

Full stop

* Performance will vary according to ship speed, type of vessel and sea conditions.

Power Take-Off & Engine Layout

With Daihatsu’s geared diesel engines, generators, cargo oil pumps and other machinery can be driven using power drawn through the front engine block and reduction gear. This system greatly reduces fuel consumption. What’s more, one of the generators used in conventional systems can be omitted, which enables more effective use of dead space. In addition, this kind of system reduces labor and costs in running and maintenance.
Daihatsu's Reduction Gears

One Supporting Element of High-Reliability Engines

Our reduction gears have a built-in main thrust bearing and wet hydraulic clutch, and can be incorporated in the CRASH ASTERN system. We also have a wide selection of speed-increasing and reduction gears for driving any type of machinery, which can be used on the engine front end block.

DRA Type Reversible Reduction Gear

Propeller Thrust Bearing
- White metal
- Mitchell's system

Shaft
- Forged steel
- With precision finish
- Highly rigid

Gear Case
- Cast-iron
- Highly rigid. Lower vibration.

Hydraulic Clutch
- High heat-resistant lining
- Shockless mesh because of hydraulic control

Gears
- Induction quenched carbon steel and alloyed steel
- Precision ground finish
- 25° pressure angle
- Crowning gear

Bearing
- White metal
- Precision fit
- Long-lasting
- Reduced maintenance costs

2-Speed Reduction Gears

The 2-speed reduction gear enables ordinary high-speed ocean travel when both low-speed power and high propulsion are required. Meeting these two conditions, Daihatsu offers a line-up of 2-speed reduction gears (2 speeds forward, 1 speed reverse) that provide highly efficient operation. A special handle for smooth clutch switching of these gears is also available for single-lever, 1 or 2-speed forward or reverse operation. Combined with an electronic clutch control system, this enables shockless clutch operation. These speed reducers are extremely popular for various ships, including merchant and fishing vessels.
Electronic clutch control system

The electronic clutch control system performs optimal control of the clutch fluid to achieve shockless clutch meshing and to slip the clutch for dead-slow sailing.

**Features**

1. Raises the clutch fluid pressure in an optimal pattern for clutch meshing to reduce shocks and black smoke formation during transient stages of the main engine.
2. Slips the clutch to enable dead-slow sailing and improved navigation at a desired propeller rpm below the idling rpm.

Main Engine Vibration Reduction

Daihatsu began the in-house development and marketing of main engine vibration reduction systems in the 1970s. In addition to lowering noise in the ship's crew quarters and reducing vibration in various sections, we aimed to reduce underwater sound radiation. Rather than ordinary single-layer vibration resistance, we offer a variety of vibration-reducing systems, including 2-layer systems. Vessels using these systems presently include research ships, training ships, fishing ships, and ferries. The systems are highly acclaimed.
## Specifications

<table>
<thead>
<tr>
<th>Engine model</th>
<th>Output kWm</th>
<th>Output PS</th>
<th>Engine revs. min⁻¹</th>
<th>Bore mm</th>
<th>Stroke mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>6DEM-18</td>
<td>510–810</td>
<td>690–1100</td>
<td>900</td>
<td>185</td>
<td>280</td>
</tr>
<tr>
<td>6DKM-20e</td>
<td>740–1020</td>
<td>1005–1385</td>
<td>900</td>
<td>200</td>
<td>300</td>
</tr>
<tr>
<td>6DEM-23</td>
<td>950–1200</td>
<td>1290–1630</td>
<td>750</td>
<td>230</td>
<td>320</td>
</tr>
<tr>
<td></td>
<td>1180–1440</td>
<td>1600–1955</td>
<td>900</td>
<td>230</td>
<td>320</td>
</tr>
<tr>
<td>6DKM-26e</td>
<td>1330–1820</td>
<td>1805–2470</td>
<td>750</td>
<td>260</td>
<td>380</td>
</tr>
<tr>
<td>6DKM-28e</td>
<td>1440–2160</td>
<td>1955–2935</td>
<td>750</td>
<td>280</td>
<td>390</td>
</tr>
<tr>
<td>6DEM-28</td>
<td>1850–2240</td>
<td>2515–3045</td>
<td>750</td>
<td>285</td>
<td>390</td>
</tr>
<tr>
<td>8DKM-28e</td>
<td>2360–2880</td>
<td>3205–3915</td>
<td>750</td>
<td>280</td>
<td>390</td>
</tr>
<tr>
<td>6DCM-32e</td>
<td>2500–2900</td>
<td>3395–3940</td>
<td>750</td>
<td>320</td>
<td>400</td>
</tr>
<tr>
<td>8DCM-32e</td>
<td>2900–3860</td>
<td>3940–5240</td>
<td>750</td>
<td>320</td>
<td>400</td>
</tr>
<tr>
<td>6DEM-33</td>
<td>2150–3390</td>
<td>2920–4605</td>
<td>750</td>
<td>330</td>
<td>440</td>
</tr>
<tr>
<td>8DEM-33</td>
<td>3250–4520</td>
<td>4415–6145</td>
<td>750</td>
<td>330</td>
<td>440</td>
</tr>
<tr>
<td>6DKM-36e</td>
<td>2950–3500</td>
<td>4010–4755</td>
<td>600</td>
<td>360</td>
<td>480</td>
</tr>
<tr>
<td>8DKM-36e</td>
<td>4400–4650</td>
<td>5980–6320</td>
<td>600</td>
<td>360</td>
<td>480</td>
</tr>
<tr>
<td>12DKM-36e</td>
<td>5830–6660</td>
<td>7925–9055</td>
<td>600</td>
<td>360</td>
<td>460</td>
</tr>
</tbody>
</table>

Maximum output varies depending on usage conditions.
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>DRA-11J</td>
<td>2.615</td>
<td>344</td>
<td>1970</td>
<td>1920</td>
<td>130</td>
<td>165</td>
</tr>
<tr>
<td></td>
<td>DRB-11J</td>
<td>2.690</td>
<td>335</td>
<td>2010</td>
<td>1950</td>
<td>145</td>
<td>185</td>
</tr>
<tr>
<td>6</td>
<td>DRB-19J</td>
<td>3.022</td>
<td>298</td>
<td>2260</td>
<td>2190</td>
<td>2220</td>
<td>2150</td>
</tr>
<tr>
<td>6</td>
<td>DRA-25J</td>
<td>2.941</td>
<td>306</td>
<td>2500</td>
<td>2420</td>
<td>2420</td>
<td>2350</td>
</tr>
<tr>
<td>6</td>
<td>DRB-19J</td>
<td>2.840</td>
<td>264</td>
<td>2500</td>
<td>2430</td>
<td>2430</td>
<td>2350</td>
</tr>
<tr>
<td>6</td>
<td>DRA-25J</td>
<td>3.198</td>
<td>281</td>
<td>2500</td>
<td>2430</td>
<td>2430</td>
<td>2350</td>
</tr>
<tr>
<td>6</td>
<td>DRB-25J</td>
<td>3.258</td>
<td>276</td>
<td>2530</td>
<td>2460</td>
<td>2460</td>
<td>2350</td>
</tr>
<tr>
<td>6</td>
<td>DRA-30J</td>
<td>2.837</td>
<td>264</td>
<td>2760</td>
<td>2660</td>
<td>2760</td>
<td>2650</td>
</tr>
<tr>
<td>6</td>
<td>DRB-35J</td>
<td>3.030</td>
<td>248</td>
<td>2850</td>
<td>2760</td>
<td>2760</td>
<td>2650</td>
</tr>
<tr>
<td>6</td>
<td>DRB-45J</td>
<td>3.294</td>
<td>228</td>
<td>3080</td>
<td>2990</td>
<td>3080</td>
<td>2990</td>
</tr>
<tr>
<td>6</td>
<td>DRA-40J</td>
<td>3.266</td>
<td>230</td>
<td>3070</td>
<td>2970</td>
<td>3070</td>
<td>2970</td>
</tr>
<tr>
<td>6</td>
<td>DRB-45J</td>
<td>3.294</td>
<td>228</td>
<td>3080</td>
<td>2990</td>
<td>3080</td>
<td>2990</td>
</tr>
<tr>
<td>6</td>
<td>DRA-80J</td>
<td>3.720</td>
<td>202</td>
<td>3510</td>
<td>3410</td>
<td>3510</td>
<td>3410</td>
</tr>
<tr>
<td>6</td>
<td>DRB-80J</td>
<td>3.273</td>
<td>229</td>
<td>3290</td>
<td>3200</td>
<td>3290</td>
<td>3200</td>
</tr>
<tr>
<td>6</td>
<td>DRA-80J</td>
<td>3.720</td>
<td>202</td>
<td>3510</td>
<td>3410</td>
<td>3510</td>
<td>3410</td>
</tr>
<tr>
<td>6</td>
<td>DRB-80J</td>
<td>3.273</td>
<td>229</td>
<td>3290</td>
<td>3200</td>
<td>3290</td>
<td>3200</td>
</tr>
<tr>
<td>6</td>
<td>DRA-100J</td>
<td>3.995</td>
<td>188</td>
<td>3880</td>
<td>3770</td>
<td>3880</td>
<td>3770</td>
</tr>
<tr>
<td>6</td>
<td>DRB-100J</td>
<td>2.972</td>
<td>252</td>
<td>3250</td>
<td>3150</td>
<td>3250</td>
<td>3150</td>
</tr>
<tr>
<td>6</td>
<td>DRA-100J</td>
<td>3.544</td>
<td>212</td>
<td>3350</td>
<td>3200</td>
<td>3350</td>
<td>3200</td>
</tr>
<tr>
<td>6</td>
<td>DRB-100J</td>
<td>3.014</td>
<td>249</td>
<td>3050</td>
<td>2900</td>
<td>3050</td>
<td>2900</td>
</tr>
<tr>
<td>8</td>
<td>DRA-120J</td>
<td>4.256</td>
<td>176</td>
<td>3950</td>
<td>3750</td>
<td>3950</td>
<td>3750</td>
</tr>
<tr>
<td>8</td>
<td>DRB-120J</td>
<td>3.722</td>
<td>202</td>
<td>3650</td>
<td>3450</td>
<td>3650</td>
<td>3450</td>
</tr>
<tr>
<td>8</td>
<td>DRA-80J</td>
<td>3.023</td>
<td>198</td>
<td>3470</td>
<td>3560</td>
<td>3470</td>
<td>3560</td>
</tr>
<tr>
<td>8</td>
<td>DRB-80J</td>
<td>3.273</td>
<td>183</td>
<td>3850</td>
<td>3740</td>
<td>3850</td>
<td>3740</td>
</tr>
<tr>
<td>8</td>
<td>DRA-100J</td>
<td>3.188</td>
<td>188</td>
<td>3990</td>
<td>3870</td>
<td>3990</td>
<td>3870</td>
</tr>
<tr>
<td>12V</td>
<td>DRA-150J</td>
<td>3.175</td>
<td>189</td>
<td>4290</td>
<td>4170</td>
<td>4290</td>
<td>4170</td>
</tr>
<tr>
<td>12V</td>
<td>DRB-150J</td>
<td>3.026</td>
<td>198</td>
<td>4170</td>
<td>4050</td>
<td>4170</td>
<td>4050</td>
</tr>
</tbody>
</table>

The values above are reference values.
### Dimensions and Mass

<table>
<thead>
<tr>
<th>Engine model</th>
<th>R/G model</th>
<th>L</th>
<th>L1</th>
<th>L2</th>
<th>B</th>
<th>B1</th>
<th>H1</th>
<th>H2</th>
</tr>
</thead>
<tbody>
<tr>
<td>6DEM-18*1</td>
<td>DRA-11J</td>
<td>4759</td>
<td>3019</td>
<td>1740</td>
<td>1590</td>
<td>840</td>
<td>1500</td>
<td>290</td>
</tr>
<tr>
<td></td>
<td>DRB-11J</td>
<td>4619</td>
<td>3019</td>
<td>1600</td>
<td>1590</td>
<td>840</td>
<td>1500</td>
<td>290</td>
</tr>
<tr>
<td>6DKM-20e</td>
<td>DRA-19J</td>
<td>4790</td>
<td>2860</td>
<td>1930</td>
<td>1737</td>
<td>960</td>
<td>1860</td>
<td>365</td>
</tr>
<tr>
<td></td>
<td>DRB-16J</td>
<td>4560</td>
<td>2860</td>
<td>1700</td>
<td>1737</td>
<td>960</td>
<td>1860</td>
<td>365</td>
</tr>
<tr>
<td>6DEM-23</td>
<td>DRA-25J</td>
<td>5203</td>
<td>3233</td>
<td>2070</td>
<td>1727</td>
<td>1050</td>
<td>1870</td>
<td>350</td>
</tr>
<tr>
<td>750min⁻¹</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>DRB-19J</td>
<td>5098</td>
<td>3233</td>
<td>1865</td>
<td>1727</td>
<td>1050</td>
<td>1870</td>
<td>350</td>
</tr>
<tr>
<td></td>
<td>DRA-25J</td>
<td>5303</td>
<td>3233</td>
<td>2070</td>
<td>1727</td>
<td>1050</td>
<td>1870</td>
<td>350</td>
</tr>
<tr>
<td>900min⁻¹</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>DRB-25J</td>
<td>5253</td>
<td>3233</td>
<td>2020</td>
<td>1727</td>
<td>1050</td>
<td>1870</td>
<td>350</td>
</tr>
<tr>
<td>6DEM-26e</td>
<td>DRA-30J</td>
<td>5735</td>
<td>3395</td>
<td>2340</td>
<td>1961</td>
<td>1180</td>
<td>2338</td>
<td>400</td>
</tr>
<tr>
<td></td>
<td>DRB-35J</td>
<td>5485</td>
<td>3395</td>
<td>2090</td>
<td>1961</td>
<td>1180</td>
<td>2338</td>
<td>400</td>
</tr>
<tr>
<td>6DEM-28</td>
<td>DRA-40J</td>
<td>5985</td>
<td>3545</td>
<td>2440</td>
<td>2002</td>
<td>1220</td>
<td>2532</td>
<td>430</td>
</tr>
<tr>
<td></td>
<td>DRB-45J</td>
<td>5980</td>
<td>3545</td>
<td>2435</td>
<td>2002</td>
<td>1220</td>
<td>2532</td>
<td>430</td>
</tr>
<tr>
<td>6DKM-28e</td>
<td>DRA-40J</td>
<td>5985</td>
<td>3545</td>
<td>2440</td>
<td>2002</td>
<td>1220</td>
<td>2532</td>
<td>430</td>
</tr>
<tr>
<td></td>
<td>DRB-45J</td>
<td>5980</td>
<td>3545</td>
<td>2435</td>
<td>2002</td>
<td>1220</td>
<td>2532</td>
<td>430</td>
</tr>
<tr>
<td>8DKM-28e</td>
<td>DRA-80J</td>
<td>7502</td>
<td>4467</td>
<td>3035</td>
<td>2018</td>
<td>1220</td>
<td>2532</td>
<td>430</td>
</tr>
<tr>
<td></td>
<td>DRB-80J</td>
<td>7437</td>
<td>4467</td>
<td>2970</td>
<td>2018</td>
<td>1220</td>
<td>2532</td>
<td>430</td>
</tr>
<tr>
<td>6DCM-32e</td>
<td>DRA-80J</td>
<td>7054</td>
<td>4189</td>
<td>2865</td>
<td>1993</td>
<td>1450</td>
<td>3042</td>
<td>500</td>
</tr>
<tr>
<td></td>
<td>DRB-80J</td>
<td>6889</td>
<td>4189</td>
<td>2700</td>
<td>1993</td>
<td>1450</td>
<td>3042</td>
<td>500</td>
</tr>
<tr>
<td>8DCM-32e</td>
<td>DRA-100J</td>
<td>8852</td>
<td>5189</td>
<td>3663</td>
<td>2669</td>
<td>1450</td>
<td>3077</td>
<td>500</td>
</tr>
<tr>
<td></td>
<td>DRB-100J</td>
<td>8164</td>
<td>5189</td>
<td>2975</td>
<td>2669</td>
<td>1450</td>
<td>3077</td>
<td>500</td>
</tr>
<tr>
<td>6DEM-33</td>
<td>DRA-100J</td>
<td>8350</td>
<td>4480</td>
<td>3870</td>
<td>2680</td>
<td>1550</td>
<td>2750</td>
<td>500</td>
</tr>
<tr>
<td></td>
<td>DRB-100J</td>
<td>8150</td>
<td>4480</td>
<td>3670</td>
<td>2680</td>
<td>1550</td>
<td>2750</td>
<td>500</td>
</tr>
<tr>
<td>8DEM-33</td>
<td>DRA-120J</td>
<td>9240</td>
<td>5540</td>
<td>3700</td>
<td>2830</td>
<td>1550</td>
<td>2950</td>
<td>500</td>
</tr>
<tr>
<td></td>
<td>DRB-120J</td>
<td>8800</td>
<td>5540</td>
<td>3260</td>
<td>2830</td>
<td>1550</td>
<td>2950</td>
<td>500</td>
</tr>
<tr>
<td>6DKM-36e</td>
<td>DRA-80J</td>
<td>7895.5</td>
<td>4595</td>
<td>3300.5</td>
<td>1994</td>
<td>1680</td>
<td>3070</td>
<td>605</td>
</tr>
<tr>
<td></td>
<td>DRB-80J</td>
<td>7845</td>
<td>4595</td>
<td>3250</td>
<td>1994</td>
<td>1680</td>
<td>3070</td>
<td>605</td>
</tr>
<tr>
<td>8DKM-36e</td>
<td>DRA-100J</td>
<td>9422.5</td>
<td>5722</td>
<td>3700.5</td>
<td>2245</td>
<td>1680</td>
<td>3267</td>
<td>605</td>
</tr>
<tr>
<td></td>
<td>DRB-100J</td>
<td>8982</td>
<td>5722</td>
<td>3260</td>
<td>2245</td>
<td>1680</td>
<td>3267</td>
<td>605</td>
</tr>
<tr>
<td>12DKM-36e*1</td>
<td>DRA-150J</td>
<td>11878</td>
<td>7378</td>
<td>4500</td>
<td>3224</td>
<td>1920</td>
<td>3372</td>
<td>605</td>
</tr>
<tr>
<td></td>
<td>DRB-150J</td>
<td>11378</td>
<td>7378</td>
<td>4000</td>
<td>3224</td>
<td>1920</td>
<td>3372</td>
<td>605</td>
</tr>
</tbody>
</table>

*Engine models indicated by the "*" mark are forward turbine models. Please ask your dealer about the L1 and L2 dimensions for the values above are reference values.*
The values above are reference values. Engine models indicated by the “

<table>
<thead>
<tr>
<th>H3</th>
<th>H4</th>
<th>D</th>
<th>H5</th>
<th>H6</th>
<th>H7</th>
<th>H8</th>
<th>H9</th>
<th>B2</th>
<th>B3</th>
</tr>
</thead>
<tbody>
<tr>
<td>1400</td>
<td>750</td>
<td>1020</td>
<td>70</td>
<td>453</td>
<td>1046</td>
<td>1100</td>
<td>1455</td>
<td>990</td>
<td></td>
</tr>
<tr>
<td>1660</td>
<td>820</td>
<td>1050</td>
<td>120</td>
<td>565</td>
<td>1224</td>
<td>1580</td>
<td>1620</td>
<td>1300</td>
<td></td>
</tr>
<tr>
<td>1700</td>
<td>830</td>
<td>1200</td>
<td>90</td>
<td>640</td>
<td>1279</td>
<td>1350</td>
<td>1950</td>
<td>1240</td>
<td></td>
</tr>
<tr>
<td>2065</td>
<td>875</td>
<td>1310</td>
<td>100</td>
<td>680</td>
<td>1387</td>
<td>1740</td>
<td>1820</td>
<td>1360</td>
<td></td>
</tr>
<tr>
<td>2295</td>
<td>1030</td>
<td>910</td>
<td>250</td>
<td>800</td>
<td>1532</td>
<td>1800</td>
<td>2020</td>
<td>1600</td>
<td></td>
</tr>
<tr>
<td>2570</td>
<td>1030</td>
<td>1580</td>
<td>250</td>
<td>900</td>
<td>1750</td>
<td>2300</td>
<td>1770</td>
<td>2050</td>
<td></td>
</tr>
<tr>
<td>2930</td>
<td>1065</td>
<td>1300</td>
<td>250</td>
<td>800</td>
<td>1532</td>
<td>1800</td>
<td>2060</td>
<td>1600</td>
<td></td>
</tr>
<tr>
<td>2930</td>
<td>1065</td>
<td>1300</td>
<td>250</td>
<td>830</td>
<td>1583</td>
<td>1880</td>
<td>2060</td>
<td>2000</td>
<td></td>
</tr>
<tr>
<td>2930</td>
<td>1065</td>
<td>960</td>
<td>250</td>
<td>850</td>
<td>1696</td>
<td>2250</td>
<td>2060</td>
<td>1870</td>
<td></td>
</tr>
<tr>
<td>2710</td>
<td>1305</td>
<td>350</td>
<td>1300</td>
<td>1850</td>
<td>2600</td>
<td>1150</td>
<td>2645</td>
<td>2700</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Engine mass</th>
<th>R/G mass</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.0</td>
<td>2.0</td>
</tr>
<tr>
<td>11</td>
<td>1.8</td>
</tr>
<tr>
<td>14</td>
<td>2.8</td>
</tr>
<tr>
<td>14</td>
<td>3.8</td>
</tr>
<tr>
<td>18</td>
<td>3.8</td>
</tr>
<tr>
<td>22</td>
<td>3.9</td>
</tr>
<tr>
<td>22</td>
<td>5.5</td>
</tr>
<tr>
<td>28</td>
<td>5.5</td>
</tr>
<tr>
<td>35</td>
<td>8.8</td>
</tr>
<tr>
<td>42</td>
<td>11</td>
</tr>
<tr>
<td>38</td>
<td>12</td>
</tr>
<tr>
<td>47</td>
<td>13</td>
</tr>
<tr>
<td>51</td>
<td>18</td>
</tr>
<tr>
<td>67</td>
<td>21</td>
</tr>
<tr>
<td>80</td>
<td>23</td>
</tr>
</tbody>
</table>

These models.
Examples of delivered products

Nippon Maru, training ship, Japan agency of Maritime Education and Training for Seafarers
6DSM-28N(L) × 2, Sumitomo Heavy Industries, Ltd.

Hamayu, ferry, Kampu Ferry Co., Ltd.
8DLM-40A(L) × 2, Shimonoseki Shipyard & Machinery Works, Mitsubishi Heavy Industries, Ltd.

Nippon Maru, training ship, Japan agency of Maritime Education and Training for Seafarers
6DSM-28N(L) × 2, Sumitomo Heavy Industries, Ltd.

Ryofu Maru, research vessel, Japan Meteorological Agency
6DLM-40AL × 1, Ishikawajima-Harima Heavy Industries Co., Ltd.

Mizunagi, training ship, Kyoto Marine High School
6DEM-23FL × 1, Niigata Shipbuilding & Repair, Inc.

Mirai, research vessel, Japan Marine Science & Technology Center
6DKM-28FL(L)S × 4, Shimonoseki Shipyard & Machinery Works, Mitsubishi Heavy Industries, Ltd.

Shioji Maru, training ship, Tokyo University of Marine Science and Technology
6DLM-26SL × 1, Tokyo Works, Ishikawajima-Harima Heavy Industries Co., Ltd.

Yuge Maru, training ship, Yuge National College of Maritime Technology
6DLM-26S × 1, Mitsui Engineering & Shipbuilding Co., Ltd.

Fukae Maru, training ship, Kobe University
6DLM-26S × 1, Mitsui Engineering & Shipbuilding Co., Ltd.

Kumamoto Maru, training ship, Kumamoto Prefectural Amakusa Takushin High School
6DKM-26F × 1, Nagasaki Shipyard Co., Ltd.

Fukae Maru, training ship, Kobe University
6DLM-26S × 1, Mitsui Engineering & Shipbuilding Co., Ltd.

Kumamoto Maru, training ship, Kumamoto Prefectural Amakusa Takushin High School
6DKM-26F × 1, Nagasaki Shipyard Co., Ltd.

Kumamoto Maru, training ship, Kumamoto Prefectural Amakusa Takushin High School
6DKM-26F × 1, Nagasaki Shipyard Co., Ltd.

Hamayu, ferry, Kampu Ferry Co., Ltd.
8DLM-40AL(L) × 2, Shimonoseki Shipyard & Machinery Works, Mitsubishi Heavy Industries, Ltd.

Susu and Amakusa, support vessels, Ministry of Defense
6DK(ML)-28 × 2, Keihin Shipyard, Universal Shipbuilding Co., Ltd.

Mirai, research vessel, Japan Marine Science & Technology Center
6DKM-28FL(L)S × 4, Shimonoseki Shipyard & Machinery Works, Mitsubishi Heavy Industries, Ltd.

Kaiyo, research vessel, Japan Coast Guard
6DLM-24S(L) × 2, Shimonoseki Shipyard & Machinery Works, Mitsubishi Heavy Industries, Ltd.

Hokuo Maru, fishery control boat, Hokkaido Government
6DKM-28FL × 2, Narasaki Shipbuilding Co., Ltd.

Kumamoto Maru, training ship, Kumamoto Prefectural Amakusa Takushin High School
6DKM-26F × 1, Nagasaki Shipyard Co., Ltd.

Hamayu, ferry, Kampu Ferry Co., Ltd.
8DLM-40AL(L) × 2, Shimonoseki Shipyard & Machinery Works, Mitsubishi Heavy Industries, Ltd.
Ferry Tokashiki, ferry, Tokashiki village office, Okinawa
6DKM-28e(L) × 2, Watanabe Shipbuilding Co., Ltd.

Manyo, ferry, Kyushu Shosen Co., Ltd.
6DCM-32(L) × 2, Naikai Zosen Corporation

Asakaze 21, ferry, Seikan-Ferry Co., Ltd.
6DRM-34(L) × 2, Yamanashi Corporation

Akatsuki Maru, ferry, Uwajima Unyu Ferries
6DKM-36e(L) × 2, Naikai Zosen Corporation

Ferry Oki, ferry, Oki Kisen Co., Ltd.
6DKM-36(L) × 2, Shimonoseki Shipyard & Machinery Works, Mitsubishi Heavy Industries, Ltd.

Emerald Karatsu, ferry, Kyushu Yusen K.K.
6DRM-28(L) × 2, Kumamoto Dock Co., Ltd.

Saiplia Soya, ferry, Heart Land Ferry Co., Ltd.
6DKM-28(L) × 2, Naikai Zosen Corporation

New Koshiki, ferry, Koshikishima Shosen Co., Ltd.
6DKM-28(L) × 2, Kanda Shipbuilding Co., Ltd.

Taiko, ferry, Nomo Shosen K.K.
6DCM-32e(L) × 2, Usuki Shipbuilding Co., Ltd.

Ieshima, ferry, Ie village office, Okinawa
6DKM-28e(L) × 2, Kumamoto Dock Co., Ltd.

Hayabusa, ferry, Kyoei Unyu Co., Ltd.
6DKM-36e(L) × 2, Hakodate Dock Co., Ltd.

Hagoshima, ferry, Hagi City
6DEM-18FL(L) × 2, Mitsubishi Heavy Industries, Ltd.

Ferry Ryukyu, ferry, Kume-Shousen Co., Ltd.
8DKM-28e(L) × 2, Usuki Shipbuilding Co., Ltd.

Daiko Maru 21, pure car carrier, Kokoku Kaiun K.K.
6DKM-36 × 1, Hashihama Dockyard, Co., Ltd.

Tokuyama Maru, cement tanker, Tokuyama Kairiku Unso K.K.
6DEM-23F × 1, Yamanaka Shipbuilding Co., Ltd.
Examples of delivered products

Yamatai, heavy cargo ship, NYK Bulk & Projects Carriers Ltd.
6DKM-36e(L) × 2, Nagasaki Shipyard & Machinery Works, Mitsubishi Heavy Industries, Ltd.

Kosei Maru No. 8, tanker, Fujiitsuna Kaiun K. K.
6DCM-32F × 1, Yamanaka Shipbuilding Co., Ltd.

Kosha Maru No. 8, tanker, Fujitsu'su Kaiun K. K.
6DKM-28eL × 1, Yamanaka Shipbuilding Co., Ltd.

Kinyo Maru No. 15, LPG tanker, Tada Shipping Co., Ltd.
6DKM-26eL × 1, Hakata Shipbuilding Co., Ltd.

Fukko Maru, liquid tanker, Nakaei Marine Co., Ltd.
6DEM-23L × 1, Sasaki Shipbuilding Co., Ltd.

Morning Breeze, LPG tanker, Toda Kisen K.K.
6DKM-36 × 1, Nakatani Shipbuilding Co., Ltd.

Koryu Maru, liquid tanker, Koryu Shipping Co., Ltd.
6DKM-28eL × 1, Sasaki Shipbuilding Co., Ltd.

Shouzan Maru, Ube-Mitsubishi Cement Corporation private ship, Yamaki trasportation Ltd.
6DKM-36eF × 1, Miura Shipbuilding Co., Ltd.

Kiyoyasu Maru, Ube-Mitsubishi Cement Corporation private ship, Ube Shipping & Logistics, Ltd.
8DKM-36eF × 1, Kyokuyo Shipyard Corporation

Mikage, container carrier, Imoto Lines, Ltd.
6DKM-28eL × 1, Koike Shipbuilding & Shipping Co., Ltd.

Ryunan III, cargo, KIKLINE Co., Ltd.
6DKM-28eL × 1, Yamanaka Shipbuilding Co., Ltd.

Tensho Maru #2, tanker, Tanba Kisen K.K.
6DKM-26L × 1, Maehata Shipbuilding Co., Ltd.

Tensho Maru #2, tanker, Tanba Kisen K.K.
6DKM-28eL × 1, Maehata Shipbuilding Co., Ltd.

Kinyo Maru No. 15, LPG tanker, Tada Shipping Co., Ltd.
6DKM-26eL × 1, Hakata Shipbuilding Co., Ltd.

Mikage, container carrier, Imoto Lines, Ltd.
6DKM-28eL × 1, Koike Shipbuilding & Shipping Co., Ltd.
Environmentally friendly electric propulsion system — A proposal from Daihatsu Diesel

The electric propulsion system uses electric motors to drive the propellers, unlike the conventional system, which uses diesel engines to directly drive propellers. Thus, the electric propulsion system is superior in terms of economical efficiency, steerability and safety, and also boasts high energy-saving performance. The electric propulsion system proposed by Daihatsu Diesel is gentle to the ship, people and the global environment.

Examples of delivered electric propulsion systems

MV CBO ATLANTICA – PSV
Kaimei – Research Vessel
Tachibana-maru – Ferry/Hybrid system

749 Gross Tonnage Type Electric Propulsion System Container Ship “Futaba”

This ship was selected for the “Innovative Energy-Saving Marine Transport System Verification Project” by Agency for Natural Resources and Energy.

Awardee, Small Cargo Ship Category, Ship of the Year 2014
The DAIHATSU-DEC Marine SCR System engineered to achieve the highest levels of space saving and running cost reduction

Marine diesel engines installed on ocean-going vessels must be gentle to the global environment at all times. Daihatsu SCR system reduces NOx contained in the engine exhaust gas through chemical reactions, to produce a clean exhaust. Daihatsu Diesel adopted a patented bypass-integrated structure and optimized the electronic control and operation devices to enable easy onboard installation, save installation space and reduce running cost.

1. **NOx removal performance compliant with IMO NOx Tier III standards**
2. **Compact design for easy onboard installation**
   - The SCR reactor can be mounted vertically or horizontally.
   - Horizontal mounting is possible for models up to SCR81B.
   - A unique nozzle sprays aqueous urea microparticles to reduce the vaporization distance.
   - A built-in auto-switching bypass damper reduces duct connection to only two locations: inlet and outlet.
3. **Low running cost**
   - The unique nozzle and electronically controlled auto-operation optimize the amount of aqueous urea spraying.
4. **High vibration resistance**
   - Anti-vibration support for the SCR reactor.

**Diagram:**

- **Catalyst**
  The catalyst causes a chemical reaction between the ammonia and NOx to eliminate harmful NOx.
- **Bypass damper**
  The bypass damper performs switching operations automatically according to the operating condition of the SCR system. The bypass damper is installed immediately before the SCR reactor to enable the use of only one existing duct.
- **Bypass duct**
  The bypass duct is built into the SCR reactor so that only one exhaust duct needs to be connected.
- **Exhaust duct**
  (with built-in mixer)
- **Aqueous urea spraying nozzle**
- **Dust blower**
- **Temperature sensor**
- **Service hatch**
- **Controller and control panel**
- **Reactor** (with built-in catalyst)
- **Aqueous urea pump unit**
Inboard production of high-purity urea water from urea powder and pure water

A device that produces on-board the aqueous urea solution that is required as a reducing agent for the SCR (Selective Catalytic Reduction) system has been developed. Since it generates only the necessary amount of aqueous urea solution at the necessary time from pure water and urea powder, there are no concerns about degradation, and a solution of consistently stable quality can be supplied. Also, because there is no need for large tanks to store the solution in liquid form, it offers space-saving storage, and the procurement of urea powder is economical.

1 Dispense with large, space-consuming AUS storage tanks
   • Large on-board tanks storing the entire voyage's quota of AUS are no longer needed. Although a buffer tank will be required to provide AUS this tank is far smaller than the aforementioned storage tanks.
   • The space of urea powder up less than half the space of AUS.

2 Save money on your AUS
   • AUS produced from urea powder is cheaper than buying AUS already in its liquid form.

3 Loading urea powder is easier than loading AUS
   • In order to load AUS, an Intermediate Bulk Container (IBC) and pump are required to transfer the AUS from the container to the tank. With powder these are not needed.

4 The same high quality AUS every time
   • Storing AUS for extended periods risks exposing it to temperature fluctuations that decrease its quality and shelf-life. Producing AUS from powdered urea when it is needed maintains the AUS quality and helps to prevent the SCR's catalyst from becoming stained or obstructed.

Structure

The material of pipe, valve, and fittings shall be made of stainless steel from urea solution outlet to shipyard storage tank.
The Next-Generation Solution

CMAXS LC-A

Cloud-based engine condition monitoring and diagnostic solution

CMAXS LC-A is an abnormality diagnosis and maintenance assist system with a multiple capability for monitoring the main engine, power generator and auxiliary equipment in the main engine room. It achieves early detection of abnormal trends and prevents malfunctions by promoting proper maintenance. By utilizing cloud services, it makes it possible to grasp engine conditions at sea or on land.

1 Self-contained onboard engine support
   - Early identification of potential faults through continuous engine diagnosis
   - Troubleshooting guides assist with the customer’s own maintenance work.

2 Simple and easy operation
   - Integrated operation of the main engine, auxiliary engine and auxiliary devices.
   - User-friendly operation through photographs, graphs, image data, alarm monitoring functions and an intuitive user interface.

3 Onboard and onshore engine “visualization”
   - Fleet overviews and targeted vessel monitoring through the CMAXS Web Service.
   - Ascertain a vessel’s condition and activate any measures necessary via the onshore “Ship Data Center”.
   - Retrieve a target vessel’s data at any time thanks to safe Cloud storage.

4 A total support solution
   - Direct analysis of engine data allows DAIHATSU to provide quick and relevant support.
   - Periodic diagnostic reports provide reassurance for customers.

System Overview

Data is obtained from sensors mounted to the engines and used to automatically diagnose the engine condition. This allows appropriate maintenance to be provided quickly to prevent engine trouble.

Diagnosis function

Check details of an engine’s condition via the diagnosis screen.

Troubleshooting function

Displays the part that is most likely to have caused a failure, as well as measures to be taken.

CMAXS provides service as a member of the NK-CMAXS Alliance

Improving engine reliability
An engine safety/control system for next-generation engines

The engine safety/control system ensures safe and reliable engine operation based on the control/safety sequence verified by Daihatsu. The circuits are protected so as to prevent faulty operation even if a mistake is made in the installation. The system automatically saves the record of engine control device operations (events) and the trend data. This enables accurate understanding of symptoms when engine trouble occurs, thus allowing swift and efficient investigation of the problem causes.

Since the product was developed for a long-term use, there is no need for replacement parts.

Pursuit of safety, security, and ease of use for the owner and the crew
1. Ease of operation and safety circuits ensure security during engine operation.
2. If a problem occurs with the controller, recovery is simple and quick. Simply replace the main assembly and insert a new memory card.
3. A web server is provided as a standard feature. Connect a browser to the server for easy checking of the engine condition.
4. Engine condition data can be downloaded easily in the event of an engine problem. Sending the data to Daihatsu allows our service personnel to conduct a preliminary investigation before visiting the site.

Meeting the users’ needs
1. The engine controller has an industry standard Modbus-RTU/RS422 communication port to connect to the Alarm Monitoring System (AMS) to reduce wiring.
2. The priming pump control panel is engine-mounted as a standard feature to eliminate the need for separate procurement.
3. The safety and control functions provided on the engine controller simplify commissioning. Simplified generator panels cut costs and reduce the installation space required.
4. An Ethernet port is provided as a standard feature to flexibly meet future needs of shipbuilders, such as connection with onboard LAN and server and interaction with sea-land communication systems.

Engine controller input/output features
■ Engine controller input/output features
■ Connection to inboard system
Oil mist detector

MD-SX (Sensor type)

Oil mist detectors for crankcase monitoring are required by classification societies as devices for the protection of internal combustion engines. Daihatsu Diesel’s MD-SX oil mist detector is type-approved by NK, DNV GL, BV, LR, ABS, CCS, KR and LINA. The MD-SX responds better and is easier to install and maintain than the conventional pipe type. The standard model can be connected with up to 16 sensor points. The MD-SX II (connection of up to 9 sensor points) is designed exclusively for 4-stroke engines and provides excellent protection using a fewer sensor units.

MD-SX II

This product estimates the mist level in a crankcase not installed with a sensor unit from the data obtained from the sensors installed in the adjacent crankcases on both sides. Since it is highly responsive even with a reduced number of sensor units, installation costs can be minimized. The MD-SX II is also equipped with a self-diagnosis function to facilitate maintenance and provide extra safety assurance.

The optional sensor checker enables confirmation of the effectiveness of cleaning during maintenance and verification of proper operation of sensors. It is also possible to add a logging function to record oil mist concentration. Consequently, the MD-SX oil mist detector not only raises an alarm in a conventional manner when the oil mist concentration increases, but also enables the diagnosis and prediction of failure using log data.

Oil mist detector

MD-SX / DOMM

Oil mist monitor

DOMM

The DOMM installed in an engine room detects oil mist leakage at an early stage.

It helps prevent fire resulting from the ignition of oil mist and also helps keep inboard environment safe and clean by preventing oil mist from adhering to equipment and walls to cause oil stains.

The International Organization for Standardization (ISO) established the inspection standard for inboard oil mist detectors, "Atmospheric oil mist detectors for ship," in August 2012.

The DOMM can also be used any place in a ship where oil mist is generated. Since the sensors and controller are equipped with a self-diagnosis function just like our oil mist detector, the DOMM facilitates maintenance and provides extra safety assurance.
Daihatsu Diesel’s Moriyama Factory manufactures products using the production system that takes full advantage of our expertise and experience accumulated over many years, in order to assure high levels of quality and performance in engines that will set out on journeys around the world. On the environmental front, we take all possible environmental measures commensurate with our environmentally friendly engines, such as use of gas engines for the generation of electricity used inside the factory and complete recycling of factory water. The high quality of the factory underlies the high quality of our products. The same high quality underpins the new manufacturing facility under construction. Daihatsu Diesel is building a new factory in Himeji that faces the Seto Inland Sea, where a new page in the history of Daihatsu Diesel will begin.

From Moriyama and Himeji to the world

Mechanics in Training Centers worldwide conduct training in environments that allow trainees to disassemble and assemble actual engines in response to customer requests.
Specifications

Dimensions

Examples

Equipment

Factories

Network

Shipping Port (Himeji Factory)

Assembly Shop (Himeji Factory)

Trial Area (Himeji Factory)

Painting Area (Himeji Factory)

Himeji Factory

Singapore Training Center

Hamburg / Germany Training Center

Dubai / UAE Training Center
<table>
<thead>
<tr>
<th>Service Network</th>
<th>Overseas</th>
</tr>
</thead>
</table>

**NORTH, SOUTH AMERICA**
- **U.S.A.**
  - **DAIHATSU DIESEL (AMERICA), INC.**
    - Phone: +1-516-822-3485  Fax: +1-516-822-3484
e-mail: ddai@amco.com
  - **MOTOR-SERVICES HUDO STAMP, INC.**
    - Phone: +1-956-763-3660  Fax: +1-956-763-2872
e-mail: service@mhs.com
  - **ACME INDUSTRIAL, INC.**
    - Phone: +1-718-720-5522  Fax: +1-718-273-6942
e-mail: info@acmerparex.com

<table>
<thead>
<tr>
<th>CANADA</th>
</tr>
</thead>
</table>
- **HASSIE TRADING (CANADA) LTD.**
  - Suite 785, 1111 West Hastings Street Vancouver BC, V6E 2J3 Canada
  - Phone: +1-604-801-9988  Fax: +1-604-801-9984
e-mail: hassie@hcan Rogers.com
  - **MARINE TECH IND. LTD.**
    - Phone: +61-2-922-3307, 3308  Fax: +61-2-922-3306  e-mail: andrew@marine-tech.com

**EASTERN EUROPE**
- **U.K.**
  - **DAIHATSU DIESEL (EUROPE) LTD.**
    - 28th Floor, One Canada Square, Canary Wharf, London E14 5AA, United Kingdom
    - Phone: +44-20-3871-5000  Fax: +44-20-7512-9291
e-mail: sales@hcanst.co.uk
  - **JAMES TROPO & CO LIMITED**
    - 6 Davy Road, Actmoor Industrial Estate Runcorn, Cheshire WA7 1PZ, U.K.
    - Phone: +44-1928-566170  Fax: +44-1928-577314
e-mail: sales@jamesstrop.co.uk
  - **THE NETHERLANDS**
    - **GOLTEN ROTTERDAM B.V.**
      - Lorentzweg 29, 3208 LJ, Spijkenisse, The Netherlands
      - Phone: +31-10-9921390  Fax: +31-10-9921391
      - e-mail: petra.angel@goltens.com
  - **DENMARK**
    - **MARCO MARINE A/S**
      - (www.marcomarine.com)
      - Timvej 16, DK-3060 Espergærde, Denmark
      - Phone: +45-13-901000  Fax: +45-13-901001
e-mail: marcamarine@marcomarine.com
  - **NORWAY**
    - **SKAMEK POWER AS**
      - (www.skamek.com)
      - Sørenskriver Bullsgt 9C 6002 Alesund, Norway
      - Phone: +45-49-136900  Fax: +45-49-136902
e-mail: power@skamek.com

**ASIA**
- **SINGAPORE**
  - **DAIHATSU DIESEL (ASIA PACIFIC) PTE., LTD.**
    - 6 Collyer Quay, Income, Raffles Place, Singapore 049218
    - Phone: +65-689-9510  Fax: +65-6536-4786
e-mail: dpa@dsdsg.com
  - **DAIKAI ENGINEERING PTE, LTD.**
    - (www.daikei.com)
    - 128 Poinse Road, Singapore 639586
    - Phone: +65-6863-2856  Fax: +65-6863-2876
e-mail: sales@daikei.com.sg
  - **PHILIPPINES**
    - **DAIHATSU DIESEL PHILIPPINES CORPORATION**
      - Warehouse 2 Dowjones Compound, KM 19 West Service Road, Sucat Paranaque, Philippines 1700
      - Phone: +63-2-817-1285  Fax: +63-2-817-1285
  - **INDONESIA**
    - **P.T. OYAMA LTD.**
      - Jl. Gajah Meda No.115-116, Jakarta-11130, Indonesia
      - Phone: +62-21-6297836  Fax: +62-21-6297837
  - **THAILAND**
    - **DAIKAI ENGINEERING (THAILAND) PTE., LTD.**
      - (http://www.daikei.com)
      - Unit 11B, 11th Floor, President Tower 971, 973, Ploenchit Road, Kwaeng, Bangkok 10330, Thailand
      - Phone: +66-8524-8777  Fax: +66-2181-4179
e-mail: sales@daikei.com

**BANGLADESH**
- **DAIKAI ENGINEERING PTE LTD.**
  - House No.505, 5th Floor, Nazirul Islam Avenue, Kawrann Bazaar, Dhaka-1215, Bangladesh
  - Phone: +88-02-8112046  Fax: +88-02-8112047

**INDIA**
- **DAIKAI ENGINEERING (INDIA) PVT. LTD.**
  - (www.daikei.com)
  - 12, Jeeiter, Khet Pathumwan, Bangkok 10330, Thailand
  - Phone: +91-22-2800-9713
e-mail: india@daikei.com

**BANGLADESH**
- **DAIKAI ENGINEERING PTE LTD.**
  - House No.505, 5th Floor, Nazirul Islam Avenue, Kawrann Bazaar, Dhaka-1215, Bangladesh
  - Phone: +88-02-8112046  Fax: +88-02-8112047

**THAILAND**
- **DAIKAI ENGINEERING (THAILAND) PTE., LTD.**
  - (http://www.daikei.com)
  - Unit 11B, 11th Floor, President Tower 971, 973, Ploenchit Road, Kwaeng, Bangkok 10330, Thailand
  - Phone: +66-8524-8777  Fax: +66-2181-4179
e-mail: sales@daikei.com

**BANGLADESH**
- **DAIKAI ENGINEERING PTE LTD.**
  - House No.505, 5th Floor, Nazirul Islam Avenue, Kawrann Bazaar, Dhaka-1215, Bangladesh
  - Phone: +88-02-8112046  Fax: +88-02-8112047

**INDIA**
- **DAIKAI ENGINEERING (INDIA) PVT. LTD.**
  - (www.daikei.com)
  - 12, Jeeiter, Khet Pathumwan, Bangkok 10330, Thailand
  - Phone: +91-22-2800-9713
e-mail: india@daikei.com

**U.A.E.**
- **KEITOUKU MIDDLE EAST LLC.**
  - Al Quze Industrial Area, Office No.2, P.O.Box 115226 Dubai, U.A.E.
  - Phone: +91-4-349181  Fax: +91-4-3406518
e-mail: sales@keitoku.com
All information contained in this pamphlet is correct at the time of printing, but may be subject to change without notice.