SUPERIOR HONING ACCESSORIES

THE OPTIMUM SOLUTION

HONING SPARES & CONSUMABLES
Several medium-speed engine makers enforce honing / deglazing during piston overhauls to avoid running in problems after the overhaul. Another desirable effect from honing is that oil consumption decreases (medium-speed). This is of particular interest in Otto-cycle gas engines since these engines will experience knocking problems if the oil consumption is too high.

For unworn engines with glazed or polished cylinder liners (running on MGO, gas or other low-Sulphur fuels) it is sufficient to refresh the running surface without changing the cylinder geometry. This process is called deglazing.

When the cylinder liners are worn (e.g. at the second piston overhaul for engines operating on HFO), ovality and wear edge must be removed for optimal conditions. This process is called honing and is more time-consuming than deglazing.

Honing time and stone consumption increases with cylinder diameter and stroke length. Diamond stones have superior endurance and remove material faster than ceramic stones.

They are therefore suitable for coarse honing of large engines or highly worn smaller engines. Ceramic stones provide superior oil retaining properties for the cylinder liner and are therefore mandatory when finishing the running surface structure.

Chris-Marine® honing stones have been selected, tested and proven for most engine types.

Contact us and we will recommend the best solution for you and estimate your consumption.

Chris-Marine can recommend the most efficient choice of honing stones and calculate your consumption and cost.

**LOW-SPEED CONSUMPTION EXAMPLE:**
Full honing of six MAN B&W 6S70 engines during second dry-docking (requires 8-arm honing head):
Total cylinders: $6 \times 6 = 36$ cylinders.
Total honing time: $\sim 10$ hours/cyl $\times 36$ cyls $\sim = 360$ hours

<table>
<thead>
<tr>
<th>Description</th>
<th>No. of stones</th>
<th>Parts number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rough diamond for removing wear edge, scoring marks and ovality for Ra 3-6 um</td>
<td>32</td>
<td>11373-30-03</td>
</tr>
<tr>
<td>Medium diamond for Ra 1.5-2.5 um</td>
<td>8 stones</td>
<td>11373-30-04</td>
</tr>
<tr>
<td>Fine ceramic for Ra 0.5-1.5 um</td>
<td>96 stones (12 boxes)</td>
<td>11373-20-16</td>
</tr>
</tbody>
</table>

Price: $\sim 390$ EUR/cylinder, 10 hours/cylinder

**MEDIUM-SPEED CONSUMPTION EXAMPLE:**
Five W 12V46F engines during second overhaul (4-arm honing head, 2 hours/cylinder):
Total cylinders: $5 \times 12 = 60$ cylinders.
Total honing time with ceramic stones: $\sim 2$ hours/cyl $\times 60$ cyls = 120 hours or 60 hours with diamond stone.

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</thead>
<tbody>
<tr>
<td>Coarse ceramic for removing wear edge and ovality for Ra 0.7-2.0 um</td>
<td>240 stones (30 boxes)</td>
<td>11373-20-01</td>
</tr>
<tr>
<td>Fine ceramic for Ra 0.4-0.8 um</td>
<td>120 stones (15 boxes)</td>
<td>11373-20-36</td>
</tr>
</tbody>
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**Optional:**
Medium diamond for Ra 1.2-2.2 um (faster than 11373-20-01 for worn liners):
16 stones | 11373-30-07 |

Price: $\sim 88$ EUR/cylinder, 2 hours/cylinder with ceramic stones or $\sim 113$ EUR/cylinder, 1 hour/cylinder with diamond stones.
A honing process is normally performed in two or more steps:

- **Rough honing:**
  Removes ovality, scratches and blemishes.
  Use rough stones (grain size 36 – 80) or diamond stones.

- **Plateau honing:**
  Results in a good running surface for the piston rings.
  Use fine stones (grain size 100 – 500).

Chris-Marine supplies these types of stones in a variety of grain sizes and qualities.

**STONE HOLDERS**
We recommend using at least two sets of detachable stone holders, because it makes it possible to pair stone holder and stone with the arm.

This improves the final result because of a well centered honing head during honing and it also saves set time.

Finally, it eliminates the risk for interruptions caused by cracked stones.

**HONING LIQUID**
Chris-Marine honing liquid ensures shortest possible honing time by preventing residues from clogging the stones. It also provides corrosion resistance for the cylinder liner.

In addition to superior performance, Chris-Marine honing liquid is less hazardous and more environmentally friendly than alternatives such as kerosene or diesel fuel.

**CLEANING BRUSHES**
Cleaning brushes are used after honing for thorough cleaning off debris in the running surface.

Make sure to use fresh brushes for the cleanest possible result.

**SERVICE KITS FOR HONING MACHINES**
Our service kits contain wear parts for driving motor and unit. Chris-Marine can also carry out the service in our workshops.
SOLUTIONS FOR THE FUTURE

For five decades we have designed, manufactured and sold maintenance machines for diesel engines. Today these machines are world-renowned for being operator friendly and of high quality. Now and since the 1960's, quality, reliability and usability remain to be our key trademarks.

We are constantly growing and are represented with offices worldwide and well-equipped workshops in Singapore, Shanghai, Sweden and Denmark. A close cooperation with local agents also helps us to serve our customers independent of their location.

WELL EDUCATED AND DEDICATED STAFF

100 well-educated men and women worldwide are working to improve our products and services. They are constantly increasing the quality, the hallmarks of Chris-Marine® and IOP Marine.