EXHAUST GAS CLEANING SYSTEM

SOx reduction for marine use requires a high degree of engineering. During 10 years of development, as a result of the early indicated local and global sulphur caps, the main challenge has proved to be related to materials.

One of the most difficult medias to handle in the marine industry is hot sulphuric seawater. The combination of chlorides, sulphur and heat makes ordinary stainless steel insufficient. On top of this, some of the valves in a scrubber system must sustain being subject to running dry, i.e. temperatures up to 400° C.
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VALVES FOR SOx-SCRUBBER SYSTEMS

DESIGNED FOR DURABILITY IN DEMANDING APPLICATIONS

MARINE
## Valve Recommendations Based on Media Category

<table>
<thead>
<tr>
<th>Category</th>
<th>Available valve types</th>
<th>Material types</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Hot acidic for temp. up to 400 °C</td>
<td>Metal seated high performance butterfly; Metal seated ball valve</td>
<td>Super Duplex; AISI904L; 6Mo-types</td>
</tr>
<tr>
<td>2. Acidic and warm for temp. up to 200 °C</td>
<td>As above or PTFE lined centric butterfly valves with encapsulated disc</td>
<td>As above or PTFE, Steel and nodular cast iron base</td>
</tr>
<tr>
<td>3. Acidic and cold for temp. up to 85 °C</td>
<td>Exhaust gas cleaning, sulphur oxide reduction. Scrubbing with sea water or fresh water. Acidic value pH 2.5</td>
<td>Nodular cast iron body/NBR. Disc and shaft made of Duplex 1.4462</td>
</tr>
<tr>
<td>4. Sea water</td>
<td>All types of standard valves for sea water use. Typically centric rubber lined butterfly valves are used</td>
<td>Nodular cast iron body/NBR. Disc made of Alu-Bronze</td>
</tr>
<tr>
<td>5. Fresh water</td>
<td>All types of standard valves for fresh water use. Typically centric rubber lined butterfly valves and AISI316 ball valves are used</td>
<td>Standard</td>
</tr>
</tbody>
</table>

Data sheets with detailed product information and specifications are available upon request. Sizes up to DN800 available for most types and material combinations. All valves are available with a wide range of actuator types and options.
MATERIAL CHALLENGES

TECHNOLOGIES USED

Meson is actively working to find robust, yet cost effective technical solutions that conform and excel requirements from the Classification Societies. In this respect there are two different basic technologies to work with:

- Metallic materials with high corrosion resistance.

- Nodular cast iron or cast steel with qualified lining of parts subjected to corrosive media. This method might give some limitations on the nominal operating temperature, or is limited due to specific requirements from Classification Societies.

Commonly used valve types in Scrubber systems are:

- High performance butterfly valves with metal seat
- Rubber lined centric butterfly valves with disc in Duplex 1.4462
- PTFE lined centric butterfly valves with encapsulated disc
- Check valves
- Ball valves
- Available sizes DN40 - DN150, PN16 and DN200-DN800, PN10
WHEN YOU CHOOSE MESON, YOU HAVE CHOSEN

A QUALITY PRODUCT

Valves are produced and tested to meet the high requirements given by the Class Societies and International standards. Relevant 2.2, 3.1 or 3.2 - certificates are delivered together with the products upon request.

Meson is approved by DNV, LR, RINA and RMRS to issue product certificates on their behalf.

This arrangement gives Sander Meson a high level of flexibility and ability to meet short delivery times in order to assist our customers. We have 24h service availability at +46 733 00 45 11 and can arrange the complete logistic solution. For more details about a specific product, always refer to the relevant data sheet identified by the 6-digit product code. Data sheets are available from the Sander Meson web page www.sandermeson.com.

Material qualities used in general piping systems do not meet the standards for SOx-Scrubber installations.