<table>
<thead>
<tr>
<th>PRINCIPAL DIMENSIONS</th>
<th>TSHD 650</th>
<th>TSHD 900</th>
<th>TSHD 2000</th>
<th>TSHD 3000</th>
<th>TSHD 4000</th>
<th>TSHD 5000</th>
</tr>
</thead>
<tbody>
<tr>
<td>LENGTH O.A.</td>
<td>56.8 m</td>
<td>65.25 m</td>
<td>74.3 m</td>
<td>80.8 m</td>
<td>87.3 m</td>
<td>91.5 m</td>
</tr>
<tr>
<td>BEAM MODIFIED</td>
<td>12.00 m</td>
<td>12.00 m</td>
<td>18.2 m</td>
<td>18.2 m</td>
<td>19.6 m</td>
<td>21.0 m</td>
</tr>
<tr>
<td>DRAUGHT (DREDGING)</td>
<td>3.50 m</td>
<td>3.40 m</td>
<td>4.7 m</td>
<td>5.8 m</td>
<td>6.4 m</td>
<td>6.9 m</td>
</tr>
<tr>
<td>HOPPER CAPACITY</td>
<td>650 m³</td>
<td>900 m³</td>
<td>2,200 m³</td>
<td>3,100 m³</td>
<td>4,200 m³</td>
<td>5,000 m³</td>
</tr>
<tr>
<td>DEADWEIGHT</td>
<td>1,130 t</td>
<td>1,350 t</td>
<td>3,250 t</td>
<td>4,850 t</td>
<td>6,600 t</td>
<td>8,250 t</td>
</tr>
<tr>
<td>SUCTION PIPE (Ø)</td>
<td>400 mm</td>
<td>400 mm</td>
<td>600 mm</td>
<td>700 mm</td>
<td>800 mm</td>
<td>900 mm</td>
</tr>
<tr>
<td>SPEED AT DREDGING</td>
<td>10.3 kn</td>
<td>10.0 kn</td>
<td>11.1 kn</td>
<td>11.5 kn</td>
<td>11.9 kn</td>
<td>12.2 kn</td>
</tr>
</tbody>
</table>

**TSHD SERIES**

DAMEN TRAILING SUCTION HOPPER DREDGERS

DAMEN SHIPYARDS GROUP

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SELF-DISCHARGING

Damen offers a complete range of Trailing Suction Hopper Dredgers (TSHDs), with hopper capacities ranging from 650 m³ to 5,000 m³.

The wide standard range of TSHDs have been designed as dedicated maintenance and multi-purpose dredgers built around a modular concept, which means they are prepared for a large number of options. The basic version TSHD is a budget-friendly dredger perfect for efficient harbour and navigation channel maintenance. With the possibility of fully customising the dredgers, the standard TSHDs are highly efficient, fitted out to the latest technology standards. Durability has been a key consideration in the design process.

The Damen quality principles and procedures generate continuous feed-back from the thousands of vessels the group has built and this is then fed into the standard designs, thus ensuring that standards are improving continuously. Damen’s highly flexible concept of optional packages means that customising the standard TSHD can be carried out effortlessly. Options can be added immediately or, should a specific dredging job be contracted, later on when a vessel is already in service.

Optional packages include self-emptying systems, bow coupling units, degassing systems and others. You can choose from a broad range of options to make sure the Damen TSHD is the right tool for your dredging job.

CUSTOMISED TSHDS

Dredging is vital for economic growth; in all seasons and weather conditions waterways, navigation channels and ports have to be kept at the right depth. The TSHD range offers cost effective standard designs tailored to specific requirements. The standard TSHD is mainly designed for maintenance dredging.

However, the array of available options mean that it is easy to upgrade to dredging sand for beach replenishment jobs for example.

DEGASSING SYSTEM

Dredging in ports, cemented silt can be encountered in which gas bubbles are trapped. The amount of in situ gas can be extremely high as a result of which the efficiency of the dredge pump is badly affected. However, efficiency can be boosted using a degassing system because the system intercepts the gas before it reaches the dredge pump. Consequently harbour maintenance operations can be executed with maximum efficiency.

The possibilities include production measurement systems using density and flow meters to monitor effective dredge pump through-put and to control the Light Mixture Overflow system. State-of-the-art monitoring systems give a clear on-screen display of, for instance the trailing pipe working angles, the Load and Draught and the Tons Dry Solid or the highly accurate position.

In certain dredging conditions, a grab crane can be the right equipment to use. The TSHD650 and 900 can be fitted out with a specially designed grab crane, which is equipped with a wire-operated clamshell. The diesel-hydraulic driven crane is mounted on a pedestal integrated into the vessel, and all the crane systems are independent from the vessel’s systems. A grid is installed above the hopper for collecting large stones and debris, and for storing the grab onboard.

DREDGING INSTRUMENTATION

DREDGING POSITIONING VISUALISATION

On board dredgers, continuous control of the dredging position is of vital importance. The production measurement visualises the real time production, daily and total production. A production measurement will positively increase dredging efficiency and production.

The system is free of radiation, meaning this safety-conscious system needs no special permits.

DAMEN TSHD DESIGN PRINCIPLE

The setup and design of the TSHD range are based on modular hulls coupled with the use of standard components and systems of first class marine quality. Crucially, it is based on the proven designs of previously built vessels. And over the decades highly valued customer feedback is integrated continually into the design optimisation process. The configuration of the underwater hull, propulsion system and main engines are chosen for cost-effectiveness, durability and low maintenance.

Damen’s approach to dredging equipment has resulted in competitive price levels, short delivery times and logistical advantages for the dredger and for its spare parts during its lifetime.

MULTI PURPOSE HOPPER DREDGER

DREDGING EQUIPMENT

DAMEN SERVICES

Damen Services offers a wide-ranging portfolio of customer support and after-sales services.

The services include commissioning on site, crew training, spare parts delivery and technical assistance, renovations and conversions – all as per customer request.