



**TSHD 650      TSHD 1000      TSHD 1500      TSHD 2000      TSHD 2500**

PRINCIPAL DIMENSIONS					
Length o.a.	55.85 m	62.60 m	73.10 m	72.35 m	80.35 m
Beam moulded	12.00 m	14.00 m	14.00 m	16.20 m	16.20 m
Draught	3.18 m	4.30 m	4.60 m	5.10 m	5.10 m
Draught with open doors	5.85 m	6.95 m	7.25 m	7.70 m	7.70 m
Depth	4.00 m	5.00 m	5.00 m	5.60 m	5.60 m
Hopper capacity	650 m <sup>3</sup>	1,000 m <sup>3</sup>	1,500 m <sup>3</sup>	2,000 m <sup>3</sup>	2500 m <sup>3</sup>
Dead weight	1,000 ton	1,685 ton	2,235 ton	3,030 ton	3,755 ton

DREDGING FEATURES					
Suction pipe (Ø)	400 mm	500 mm	600 mm	700 mm	750 mm
Dredging depth	15 m	20 m	20 m	25 m	25 m
Dredge pump capacity	2,700 m <sup>3</sup> /hr	3,700 m <sup>3</sup> /hr	5,300 m <sup>3</sup> /hr	7,780 m <sup>3</sup> /hr	8100 m <sup>3</sup> /hr
Jetwater pump capacity @ 8 bar	700 m <sup>3</sup> /hr	1,150 m <sup>3</sup> /hr	1,520 m <sup>3</sup> /hr	2,150 m <sup>3</sup> /hr	2500 m <sup>3</sup> /hr

ENGINE INSTALLATION					
Dredge pump power	254 kW	254 kW	447 kW	559 kW	634 kW
Total installed power	1,700 kW	3,225 kW	3,526 kW	3,875 kW	4,062 kW



TSHD700 'GAMBE D'AMFARD' IS A FULLY CUSTOMISED DREDGER



TSHD2500 FITTED OUT FOR MAINTENANCE DREDGING JOBS



TSHD750 RAINBOWING USING ITS BOW COUPLING CONNECTION



TSHD750 EQUIPPED WITH DOUBLE TRAILING PIPE



TSHD600 WITH A GRAB FITTED FOR DREDGING COMPACTED SEDIMENTS



# TRAILING SUCTION HOPPER DREDGERS

## DAMEN TSHD SERIES

- ▲ A TSHD1000 EQUIPPED WITH BOW COUPLING UNIT AND GRAB CRANE
- ▼ A TSHD2500 IS FITTED OUT WITH A Ø 750 MM TRAILING PIPE

## DAMEN TRAILING SUCTION HOPPER DREDGERS

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## THE DAMEN APPROACH TO DREDGING EQUIPMENT

Damen offers a complete range of Trailing Suction Hopper Dredgers (TSHDs), with hopper capacities ranging from 650 m<sup>3</sup> to 2,500 m<sup>3</sup>.

The wide standard range of TSHDs have been designed as dedicated maintenance 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 customizing 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, particularly silt handling. However, the array of available options mean that it is easy to upgrade to dredging sand for beach replenishment jobs for example.



### 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 lifecycle.



### 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.

## ALL DAMEN TSHD'S CAN BE EQUIPPED WITH NUMEROUS OPTIONS



### SELF-DISCHARGING

Apart from the standard feature of discharging the hopper cargo through the bottom doors, a discharge system using the dredge pump can be added. This self-discharging system includes a suction line along the hopper length and a bow coupling unit with rainbow nozzle. Therefore, the standard maintenance dredger is upgraded effortlessly to a powerful dredger perfect for beach replenishments.



### DEGASSING SYSTEM

During maintenance 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.



### DREDGING INSTRUMENTATION

A large range of optional Damen dredging instrumentation packages are available to ensure cost effective dredging. The possibilities include production measurement systems using density and flow meters to monitor effective dredge pump through-put and to control the Light Mixture Overboard 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.



### GRAB CRANE

In certain dredging conditions, a grab crane can be the right equipment to use. The TSHD650 and 1000 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 on-board.



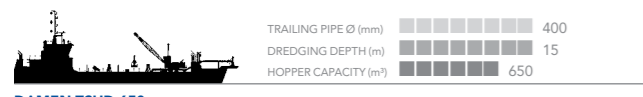
### HIGH PRESSURE IN BOARD DREDGE PUMP

Damen has its own extensive range of dredge pumps for every dredging situation: low pressure dredge pumps for hopper loading, medium pressure dredge pumps when there is only room for one pump which has to fill and discharge the cargo and high pressure dredge pumps for discharging the sand cargo over significant distances.

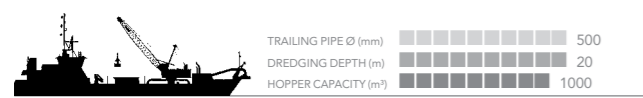


### BOW THRUSTER

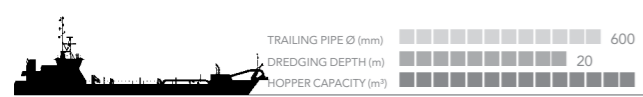
Maintenance dredgers have a notoriously difficult job: keeping all corners of the harbour clean, no matter how hard they are to reach. To optimise the manoeuvrability of the TSHD, as an option a dedicated bow thruster can be added. The bow thruster's fixed pitch propeller is diesel driven and the unit is a two channel type, with suction via the bottom of the vessel. Silted spots can then be reached effortlessly.



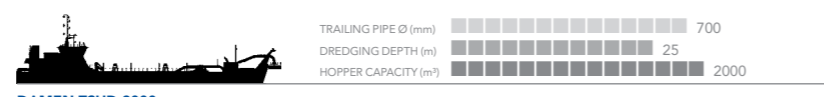
DAMEN TSHD 650



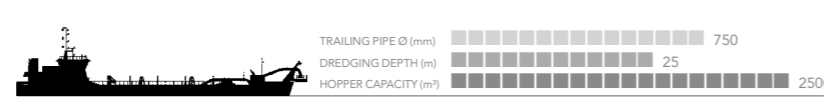
DAMEN TSHD 1000



DAMEN TSHD 1500



DAMEN TSHD 2000



DAMEN TSHD 2500



TRAILING SUCTION PIPE IN GANGWAY



DAMEN OFFERS A COMPLETE DREDGE PUMP RANGE



TELESCOPIC OVERFLOW

# DAMEN