### CUTTER SUCTION DREDGERS

**DAMEN DREDGING EQUIPMENT**

**CSD250**
- Length o.a. (incl. ladder & spudkeepers): 19.00 m
- Length over pontoons: 11.50 m
- Beam o.a.: 4.20 m
- Depth: 1.50 m
- Draught (bunkers full, approx): 4.00 m
- Air draught (spud removed, ladder up): 3.80 m
- Total weight: 30 tons

**CSD350**
- Length o.a. (incl. ladder & spudkeepers): 26.00 m
- Length over pontoons: 16.50 m
- Beam o.a.: 6.60 m
- Depth: 2.00 m
- Draught (bunkers full, approx): 1.80 m
- Air draught (spud removed, ladder up): 4.70 m
- Total weight: 55 tons

**CSD450**
- Length o.a. (incl. ladder & spudkeepers): 33.15 m
- Length over pontoons: 22.60 m
- Beam o.a.: 6.95 m
- Depth: 1.00 m
- Draught (bunkers full, approx): 1.15 m
- Air draught (spud removed, ladder up): 6.10 m
- Total weight: 115 tons

**CSD500**
- Length o.a. (incl. ladder & spudkeepers): 38.50 m
- Length over pontoons: 25.50 m
- Beam o.a.: 7.95 m
- Depth: 2.80 m
- Draught (bunkers full, approx): 1.00 m
- Air draught (spud removed, ladder up): 6.40 m
- Total weight: 140 tons

**CSD650**
- Length o.a. (incl. ladder & spudkeepers): 61.20 m
- Length over pontoons: 49.30 m
- Beam o.a.: 10.50 m
- Depth: 10.50 m
- Draught (bunkers full, approx): 1.65 m
- Air draught (spud removed, ladder up): 9.55 m
- Total weight: 545 tons

### PRINCIPAL DIMENSIONS

<table>
<thead>
<tr>
<th></th>
<th>CSD250</th>
<th>CSD350</th>
<th>CSD450</th>
<th>CSD500</th>
<th>CSD650</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Length o.a.</strong></td>
<td>19.00 m</td>
<td>26.00 m</td>
<td>33.15 m</td>
<td>38.50 m</td>
<td>61.20 m</td>
</tr>
<tr>
<td><strong>Length over pontoons</strong></td>
<td>11.50 m</td>
<td>16.50 m</td>
<td>22.60 m</td>
<td>25.50 m</td>
<td>49.30 m</td>
</tr>
<tr>
<td><strong>Beam o.a.</strong></td>
<td>4.20 m</td>
<td>6.60 m</td>
<td>6.95 m</td>
<td>7.95 m</td>
<td>10.50 m</td>
</tr>
<tr>
<td><strong>Depth</strong></td>
<td>1.50 m</td>
<td>2.00 m</td>
<td>1.80 m</td>
<td>2.80 m</td>
<td>2.80 m</td>
</tr>
<tr>
<td><strong>Draught</strong></td>
<td>4.00 m</td>
<td>1.80 m</td>
<td>1.15 m</td>
<td>1.00 m</td>
<td>1.65 m</td>
</tr>
<tr>
<td><strong>Air draught</strong></td>
<td>3.80 m</td>
<td>4.70 m</td>
<td>6.10 m</td>
<td>6.40 m</td>
<td>9.55 m</td>
</tr>
<tr>
<td><strong>Total weight</strong></td>
<td>30 tons</td>
<td>55 tons</td>
<td>115 tons</td>
<td>140 tons</td>
<td>545 tons</td>
</tr>
</tbody>
</table>

### DREDGING FEATURES

- Min/max dredging depth (ladder angle 5°/45°)
- Dredging width (40° swing angle/max depth)
- Maximum mixture capacity

### DREDGING INSTALLATION

- Damen dredge pump type
- Suction/discharge internal pipe diameter
- Cutter power

### ENGINE INSTALLATION

- Total installed power
- Dredge pump diesel Caterpillar
- Continuous power rating (A-rating)
- Fuel oil tank capacity (approx 100 running hrs)

### DECK MACHINERY

- Ladder hoisting
- Side winches (2x)
- Spud hoisting (2x)
- Hydraulic cylinder 50 kN, 0-15 m/min
- Winch 120 t/m, 0-15 m/min
- Winch 270 t/m, 0-15 m/min

### PRINCIPAL DIMENSIONS

<table>
<thead>
<tr>
<th></th>
<th>CSD250</th>
<th>CSD350</th>
<th>CSD450</th>
<th>CSD500</th>
<th>CSD650</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Length o.a.</strong></td>
<td>19.00 m</td>
<td>26.00 m</td>
<td>33.15 m</td>
<td>38.50 m</td>
<td>61.20 m</td>
</tr>
<tr>
<td><strong>Length over pontoons</strong></td>
<td>11.50 m</td>
<td>16.50 m</td>
<td>22.60 m</td>
<td>25.50 m</td>
<td>49.30 m</td>
</tr>
<tr>
<td><strong>Beam o.a.</strong></td>
<td>4.20 m</td>
<td>6.60 m</td>
<td>6.95 m</td>
<td>7.95 m</td>
<td>10.50 m</td>
</tr>
<tr>
<td><strong>Depth</strong></td>
<td>1.50 m</td>
<td>2.00 m</td>
<td>1.80 m</td>
<td>2.80 m</td>
<td>2.80 m</td>
</tr>
<tr>
<td><strong>Draught</strong></td>
<td>4.00 m</td>
<td>1.80 m</td>
<td>1.15 m</td>
<td>1.00 m</td>
<td>1.65 m</td>
</tr>
<tr>
<td><strong>Air draught</strong></td>
<td>3.80 m</td>
<td>4.70 m</td>
<td>6.10 m</td>
<td>6.40 m</td>
<td>9.55 m</td>
</tr>
<tr>
<td><strong>Total weight</strong></td>
<td>30 tons</td>
<td>55 tons</td>
<td>115 tons</td>
<td>140 tons</td>
<td>545 tons</td>
</tr>
</tbody>
</table>

© No part of this series may be reproduced in any form, by print, photo print, microfilm, or any other means, without written permission from Damen Dredging Equipment.
Damen Dredging Equipment offers an extensive standard range of efficient and robustly constructed cutter suction dredgers. The dismountable dredgers offer a high productivity combined with a reliable operation. The dredgers can be customized effortlessly due to the large number of available options.

The non-self propelled dredgers consist of an ergonomically designed operating cabin, a main pontoon housing the diesel engine and the dredge pump, plus side pontoons, the cutter ladder and the spud poles. The pontoons are fitted out with a simple yet heavy duty coupling system enabling rapid and straightforward dismantling and reassembly on land and afloat. All elements of the cutter suction dredger can be transported by road, rail or sea. The spacious operating cabin has dark tinted windows all around providing excellent view on the essential deck equipment. The well insulated cabin is mounted on shock absorbers for improved comfort and low noise levels. The ergonomic design shows in the two separate control panels between which the dredge masters chair is located. The dredger is designed for one-man operation. The cutter suction dredgers are well powered by modern computer-controlled Caterpillar diesel engines with low fuel consumption and low emissions, enabling all functions to operate simultaneously. The engines are connected to a closed fresh water cooling system with box coolers.

The Damen standard range consist of five types of dredgers. The standard design has resulted in a short delivery time and competitive pricing. All cutter suction dredgers are completely assembled and fully tested at the yard before delivery, and they thus are immediately ready for operation on arrival at site.

The Damen approach to dredging equipment

Damen Dredging Equipment 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.

THE DAMEN APPROACH TO DREDGING EQUIPMENT

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.

Damen can ship a complete dredge package with your CSD to your job site, including the pipe line and a matching booster station. Standard booster stations are fitted out with:
- Radiator cooled diesel engine with constant power over large speed range
- Standard container sized frame and casing for practical housing and transport

Modular design

The CSD’s all are of a modular design. The practical dimensions of all elements enable transport by road, rail or sea. The manageable weight of the modular elements ensure straightforward dismantling and reassembly on land and afloat.

All Damen CSD’s can be equipped with numerous options

Anchor booms, made of heavy gauge pipe, are used to swiftly reposition the anchors.

Jib crane:
A jib crane can be mounted on the portside aft pontoon to handle pump parts and spares.

Day accommodation:
Fitted underneath the operating cabin: a day room with galley, sanitary space and airco.

Spud carriage pontoon:
A spud carriage pontoon can be added to the main pontoon to increase efficiency.

Swivel connection:
Re-orientates the floating pipe line with minimal resistance.

Valves:
A dredge valve or non-return valve which can be placed in the discharge piping.

Navigation lights:
A foldable mast with navigations lights can be added to the operating cabin.

Swivel connection:
Re-orientates the floating pipe line with minimal resistance.

Valves:
A dredge valve or non-return valve which can be placed in the discharge piping.

Swivel connection:
Re-orientates the floating pipe line with minimal resistance.

Valves:
A dredge valve or non-return valve which can be placed in the discharge piping.

Dredging instrumentation:
Production measurement system visualizes the real time production on a cross needle screen and logs this production using counters.

Heavy duty cutter:
A heavy duty cutter can be mounted for consolidated soils.

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.

Cutter suction dredger production curves

Cutter suction dredger production curves

Damen can ship a complete dredge package with your CSD to your job site, including the pipe line and a matching booster station. Standard booster stations are fitted out with:
- Radiator cooled diesel engine with constant power over large speed range
- Standard container sized frame and casing for practical housing and transport