DOP SUBMERSIBLE DREDGE PUMPS

DAMEN DREDGING EQUIPMENT
THE DOP SUBMERSIBLE DREDGE PUMP, A MULTIFUNCTIONAL DREDGING TOOL

Damen offers a complete range of heavy-duty submersible dredge pumps. These compact DOP pumps are directly powered by either a hydraulic or an electric motor, mounted in a protective casing.

A highly efficient, wear resistant dredge pump with a large spherical passage is at the heart of the DOP pump. It has excellent suction properties and reaches extremely high mixture densities. The DOP pump has been designed for highly abrasive dredging environments.

- Efficient transport of sand / water mixture
- Wear resistant pump parts fit for an abrasive environment
- Compact and robust design
- Easily exchangeable suction heads
- Large sphere passage in impeller
- Maintenance friendly mechanical shaft seal - grease or gland water not required
- High mixture density due to submersed use
- Unlimited operating depth
- User-friendly ‘plug & play’ design
- Complete dredge package delivery including auxiliaries available

THE DOP PUMP DESIGN

DOP pumps are designed to be user friendly and easy to maintain. For instance, a cartridge-type mechanical shaft seal that does not require grease or gland water is fitted. Inspections of the impeller can be made simply by using the inspection hatch, which is integrated into the suction pipe.

FIT FOR ANY DREDGING JOB

THE MOST EFFICIENT WAY TO DREDGE

INDISPENSABLE ACCESSORIES

A large array of optional suction heads and accessories makes the DOP pump indispensable for your dredging job.
THE HYDRAULICALLY DRIVEN DOP SUBMERSIBLE DREDGE PUMP

The hydraulically driven DOP pump has been designed to efficiently dredge a sand/water mixture. It has been fitted out with its own built-in motor, which can be driven by either the excavator’s power unit or by a separate diesel-hydraulic power pack.

On the lower casing, different types of suction heads can be flange-mounted. This easily interchangeable system ensures the fast mobilisation of the DOP submersible dredge pump and makes it fit for any dredging job.

OPTIONAL SUCTION HEADS

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type A</td>
<td>Standard Sand production head to fluidise the bottom material with jet water assistance</td>
</tr>
<tr>
<td>Type B</td>
<td>Leveller Flat bottom head to level the surface of the job site using jet water</td>
</tr>
<tr>
<td>Type C</td>
<td>Cutter Hydraulically driven cutter unit for loosening compacted sand</td>
</tr>
<tr>
<td>Type D</td>
<td>Auger Hydraulically driven auger head for accurate dredging of polluted sediments</td>
</tr>
</tbody>
</table>

HYDRAULICALLY DRIVEN DOP PUMP

TURN YOUR EXCAVATOR INTO AN INSTANT DREDGER

DREDGE PACKAGE

With your DOP we can supply a separate drive, being a diesel-hydraulic power pack. For the water-assisted heads standard diesel-driven jet packs are available. Complete turnkey dredge package deliveries can be arranged including hydraulic hoses, discharge hoses, different suction heads and dredging instrumentation.

PERFORMANCE

<table>
<thead>
<tr>
<th>DOP150</th>
<th>DOP200</th>
<th>DOP250</th>
<th>DOP350L</th>
<th>DOP350</th>
<th>DOP450L</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal mixture capacity</td>
<td>600 m³/hr</td>
<td>800 m³/hr</td>
<td>1,250 m³/hr</td>
<td>2,400 m³/hr</td>
<td>2,400 m³/hr</td>
</tr>
<tr>
<td>Max. total head</td>
<td>5.0 bar</td>
<td>5.0 bar</td>
<td>5.3 bar</td>
<td>3.2 bar</td>
<td>4.8 bar</td>
</tr>
<tr>
<td>Max. pump speed</td>
<td>1,300 rpm</td>
<td>1,200 rpm</td>
<td>900 rpm</td>
<td>625 rpm</td>
<td>580 rpm</td>
</tr>
<tr>
<td>Max. power at shaft</td>
<td>80 kW</td>
<td>120 kW</td>
<td>195 kW</td>
<td>240 kW</td>
<td>360 kW</td>
</tr>
</tbody>
</table>

HYDRAULIC REQUIREMENTS

<table>
<thead>
<tr>
<th>DOP150</th>
<th>DOP200</th>
<th>DOP250</th>
<th>DOP350L</th>
<th>DOP350</th>
<th>DOP450L</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oil flow</td>
<td>200 l/min</td>
<td>300 l/min</td>
<td>483 l/min</td>
<td>600 l/min</td>
<td>900 l/min</td>
</tr>
<tr>
<td>Oil pressure at motor*</td>
<td>250 bar</td>
<td>250 bar</td>
<td>250 bar</td>
<td>250 bar</td>
<td>250 bar</td>
</tr>
</tbody>
</table>

JET WATER

<table>
<thead>
<tr>
<th>DOP150</th>
<th>DOP200</th>
<th>DOP250</th>
<th>DOP350L</th>
<th>DOP350</th>
<th>DOP450L</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internal diameter</td>
<td>80 mm</td>
<td>100 mm</td>
<td>125 mm</td>
<td>200 mm</td>
<td>200 mm</td>
</tr>
<tr>
<td>Advised capacity</td>
<td>125 m³/hr</td>
<td>180 m³/hr</td>
<td>300 m³/hr</td>
<td>600 m³/hr</td>
<td>600 m³/hr</td>
</tr>
<tr>
<td>Advised pressure</td>
<td>8 bar</td>
<td>8 bar</td>
<td>8 bar</td>
<td>8 bar</td>
<td>8 bar</td>
</tr>
</tbody>
</table>

DREDGE PUMP DIMENSIONS

<table>
<thead>
<tr>
<th>DOP150</th>
<th>DOP200</th>
<th>DOP250</th>
<th>DOP350L</th>
<th>DOP350</th>
<th>DOP450L</th>
</tr>
</thead>
<tbody>
<tr>
<td>Suction internal diameter</td>
<td>150 mm</td>
<td>200 mm</td>
<td>250 mm</td>
<td>350 mm</td>
<td>350 mm</td>
</tr>
<tr>
<td>Discharge internal diameter</td>
<td>180 mm</td>
<td>200 mm</td>
<td>250 mm</td>
<td>350 mm</td>
<td>350 mm</td>
</tr>
<tr>
<td>Max. spherical passage</td>
<td>77 mm</td>
<td>125 mm</td>
<td>130 mm</td>
<td>200 mm</td>
<td>150 mm</td>
</tr>
</tbody>
</table>

WEIGHT

<table>
<thead>
<tr>
<th>DOP150</th>
<th>DOP200</th>
<th>DOP250</th>
<th>DOP350L</th>
<th>DOP350</th>
<th>DOP450L</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic DOP pump unit</td>
<td>1,100 kg</td>
<td>1,360 kg</td>
<td>2,425 kg</td>
<td>4,580 kg</td>
<td>5,330 kg</td>
</tr>
</tbody>
</table>

* add for pipeline losses  ** L in pump type stands for Low Pressure type dredge pump
The Damen DOP pump is also available with an electrical drive. The compact permanent magnet motor directly drives the pump shaft. The clean and silent technology is especially fit for environmentally sensitive or residential areas.

The DOP has been designed for efficient sand/water transport. Its electric or hydraulic drive are exchangeable so that the DOP can do its job on any site.

The silence of the e-drive enables full scale dredging activities in residential areas.
- The clean operation due to zero waste gas emission of the e-drive.
- High efficiency of the e-drive up to 90%.
- Compact Permanent Magnet e-drive minimises submerged dredge pump size.
- Low maintenance due to few moving parts.
- Swift connection to generator.
- Dedicated frequency converter included in delivery.
- Power cables included in delivery.

### DOP SUBMERSIBLE DREDGE PUMP

**THE ELECTRICALLY DRIVEN DOP SUBMERSIBLE DREDGE PUMP**

**DEVELOPMENT**

- **E (height electric cutter unit)**
- **D (height leveller)**
- **C (height standard suction head)**
- **B (diameter standard EDOP)**

**PERFORMANCE**

- **Nominal mixture capacity**
  - EDOP150: 600 m³/hr
  - EDOP200: 800 m³/hr
  - EDOP250: 1,250 m³/hr
  - EDOP350L: 2,020 m³/hr
  - EDOP350: 2,400 m³/hr
  - EDOP450L: 4,000 m³/hr

- **Max. total head**
  - EDOP150: 5.8 bar
  - EDOP200: 5.8 bar
  - EDOP250: 6.5 bar
  - EDOP350L: 4.1 bar
  - EDOP350: 6.8 bar
  - EDOP450L: 4.2 bar

- **Max. pump speed**
  - EDOP150: 1,440 rpm
  - EDOP200: 1,300 rpm
  - EDOP250: 1,000 rpm
  - EDOP350L: 700 rpm
  - EDOP350: 700 rpm
  - EDOP450L: 500 rpm

- **Max. power at shaft**
  - EDOP150: 100 kW
  - EDOP200: 140 kW
  - EDOP250: 260 kW
  - EDOP350L: 310 kW
  - EDOP350: 470 kW
  - EDOP450L: 430 kW

**ELECTRIC REQUIREMENTS**

- **Voltage (by frequency converter)**
  - EDOP150: 6,900 V AC
  - EDOP200: 6,900 V AC
  - EDOP250: 6,900 V AC
  - EDOP350L: 6,900 V AC
  - EDOP350: 6,900 V AC
  - EDOP450L: 6,900 V AC

- **Max. current**
  - EDOP150: 100 A
  - EDOP200: 130 A
  - EDOP250: 250 A
  - EDOP350L: 280 A
  - EDOP350: 450 A
  - EDOP450L: 400 A

- **Advised generator power**
  - EDOP150: 130 kVA
  - EDOP200: 185 kVA
  - EDOP250: 360 kVA
  - EDOP350L: 360 kVA
  - EDOP350: 600 kVA
  - EDOP450L: 600 kVA

**JET WATER**

- **Internal diameter**
  - EDOP150: 80 mm
  - EDOP200: 100 mm
  - EDOP250: 125 mm
  - EDOP350L: 200 mm
  - EDOP350: 200 mm
  - EDOP450L: 200 mm

- **Advised capacity**
  - EDOP150: 125 m³/hr
  - EDOP200: 180 m³/hr
  - EDOP250: 300 m³/hr
  - EDOP350L: 600 m³/hr
  - EDOP350: 600 m³/hr
  - EDOP450L: 1,100 m³/hr

- **Advised pressure**
  - EDOP150: 8 bar
  - EDOP200: 8 bar
  - EDOP250: 8 bar
  - EDOP350L: 8 bar
  - EDOP350: 8 bar
  - EDOP450L: 8 bar

**DREDGE PUMP DIMENSIONS**

- **Suction internal diameter**
  - EDOP150: 150 mm
  - EDOP200: 200 mm
  - EDOP250: 250 mm
  - EDOP350L: 350 mm
  - EDOP350: 350 mm
  - EDOP450L: 450 mm

- **Discharge internal diameter**
  - EDOP150: 180 mm
  - EDOP200: 200 mm
  - EDOP250: 250 mm
  - EDOP350L: 350 mm
  - EDOP350: 350 mm
  - EDOP450L: 450 mm

- **Max. spherical passage**
  - EDOP150: 77 mm
  - EDOP200: 125 mm
  - EDOP250: 130 mm
  - EDOP350L: 200 mm
  - EDOP350: 150 mm
  - EDOP450L: 165 mm

**WEIGHT**

- **Basic EDOP pump unit**
  - EDOP150: 1,700 kg
  - EDOP200: 1,900 kg
  - EDOP250: 3,400 kg
  - EDOP350L: 6,100 kg
  - EDOP350: 7,500 kg
  - EDOP450L: 9,700 kg

*Add for pipeline losses **LP pump type stands for Low Pressure type dredge pump.

### ELECTRICALLY DRIVEN DOP PUMP

**SILENT AND CLEAN DREDGING ON ELECTRIC POWER**

**OPTIONAL SUCTION HEADS**

**TYPE A - STANDARD**
- Sand production head to fluidise the bottom material with jet water assistance.

**TYPE B - LEVELLER**
- Flat bottom head to level the surface of the job site using jet water.

**TYPE C - CUTTER**
- Electrically-driven cutter unit for finesetting compacted sand.

### CUTTER DRIVE

- **Max. power at shaft**
  - EDOP150: 17 kW
  - EDOP200: 17 kW
  - EDOP250: 28 kW
  - EDOP350L: 47 kW
  - EDOP350: 47 kW
  - EDOP450L: 60 kW

- **Voltage (by frequency converter)**
  - EDOP150: 690 V AC
  - EDOP200: 690 V AC
  - EDOP250: 690 V AC
  - EDOP350L: 690 V AC
  - EDOP350: 690 V AC
  - EDOP450L: 690 V AC

- **Max. current**
  - EDOP150: 18 A
  - EDOP200: 18 A
  - EDOP250: 29 A
  - EDOP350L: 49 A
  - EDOP350: 49 A
  - EDOP450L: 62 A

- **Advised generator power**
  - EDOP150: 25 kVA
  - EDOP200: 25 kVA
  - EDOP250: 40 kVA
  - EDOP350L: 65 kVA
  - EDOP350: 65 kVA
  - EDOP450L: 85 kVA

**DREDGING INSTRUMENTATION**

Each DOP submersible dredge pump can be fitted out with monitoring equipment.

This equipment can be pump-related monitoring such as revolutions, depth and pressure indication. Moreover, the dredging process can be monitored using flow and density meters, vacuum measurement etc. All data can be accessed remotely on location.
THE DOP PUMP IS UP FOR ANY JOB