



# DOP submersible dredge pumps

DAMEN DREDGING EQUIPMENT

**DAMEN**

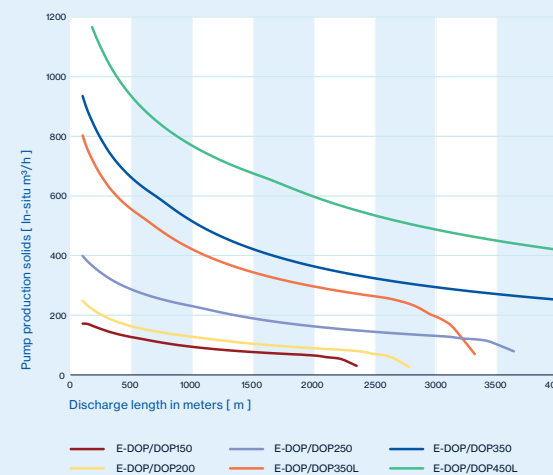


A MULTIFUNCTIONAL DREDGING TOOL

# DOP dredge pumps



Production curves DOP pumps



Fine sand,  $D_{50} = 0.11$  mm, in situ density:  $1,900 \text{ kg/m}^3$   
At 10m dredging depth and max. 30% concentration.  
Calculations based on free-flowing sand and no restriction on suction side.  
Discharge pipe is straight and horizontal with an elevation of 2 meters.



## » Fit for any dredging job

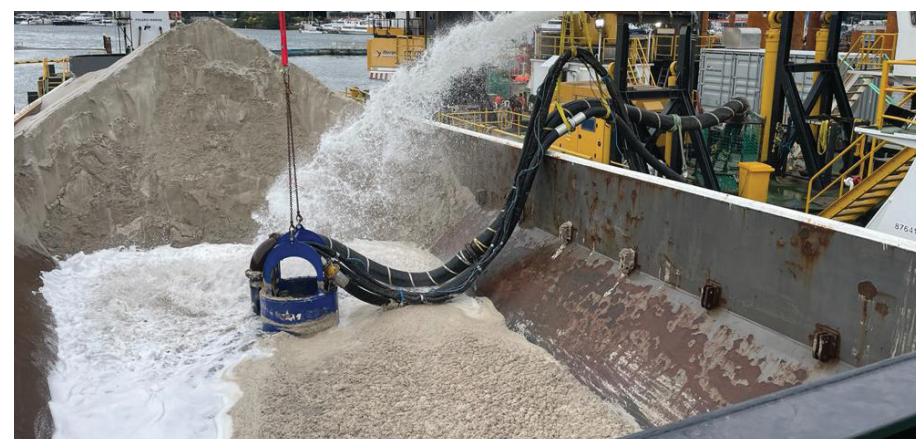
Damen offers a complete range of heavy-duty submersible dredge pumps. These compact DOP pumps are directly powered by either a hydraulic or an electric motor, mounted in a protective casing.

## » 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.



“  
The most  
efficient way  
to dredge”



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





# Hydraulically driven DOP pump



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.

- Hydraulic motor directly drives the dredge pump
- Robust casing protects hydraulic drive
- Fast mobilisation as hydraulic quick couplings are used
- DOP can run on excavator's hydraulic power unit
- Proven design: for the past 30 years, DOP pumps have been in use all over the world
- Hydraulically driven cutter unit and auger available

### Performance

|                          |           |           |             |             |             |             |
|--------------------------|-----------|-----------|-------------|-------------|-------------|-------------|
| Nominal mixture capacity | 600 m³/hr | 800 m³/hr | 1,250 m³/hr | 2,400 m³/hr | 2,400 m³/hr | 4,000 m³/hr |
| Max. total head          | 5.0 bar   | 5.0 bar   | 5.3 bar     | 3.3 bar     | 4.6 bar     | 3.5 bar     |
| Max. pump speed          | 1,300 rpm | 1,200 rpm | 900 rpm     | 625 rpm     | 580 rpm     | 470 rpm     |
| Max. power               | 80 kW     | 120 kW    | 195 kW      | 240 kW      | 360 kW      | 400 kW      |

### Hydraulic requirements

|                        |           |           |           |           |           |             |
|------------------------|-----------|-----------|-----------|-----------|-----------|-------------|
| Oil flow               | 200 l/min | 300 l/min | 483 l/min | 600 l/min | 900 l/min | 1,000 l/min |
| Oil pressure at motor* | 250 bar   | 250 bar   | 250 bar   | 250 bar   | 250 bar   | 250 bar     |

### Jet water

|                   |           |           |           |           |           |             |
|-------------------|-----------|-----------|-----------|-----------|-----------|-------------|
| Internal diameter | 80 mm     | 100 mm    | 125 mm    | 200 mm    | 200 mm    | 250 mm      |
| Advised capacity  | 125 m³/hr | 180 m³/hr | 300 m³/hr | 600 m³/hr | 600 m³/hr | 1,100 m³/hr |
| Advised pressure  | 8 bar     | 8 bar     | 8 bar     | 8 bar     | 8 bar     | 8 bar       |

### Dredge pump dimensions

|                             |        |        |        |        |        |        |
|-----------------------------|--------|--------|--------|--------|--------|--------|
| Suction internal diameter   | 150 mm | 200 mm | 250 mm | 350 mm | 350 mm | 450 mm |
| Discharge internal diameter | 180 mm | 200 mm | 250 mm | 350 mm | 350 mm | 450 mm |
| Max. spherical passage      | 77 mm  | 125 mm | 130 mm | 200 mm | 150 mm | 165 mm |

### Weight

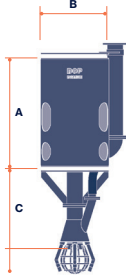
|                     |          |          |          |          |          |          |
|---------------------|----------|----------|----------|----------|----------|----------|
| Basic DOP pump unit | 1,100 kg | 1,360 kg | 2,425 kg | 4,580 kg | 5,330 kg | 7,400 kg |
|---------------------|----------|----------|----------|----------|----------|----------|

\* add for pipeline losses \*\* L in pump type stands for Low Pressure type dredge pump

## Optional suction heads

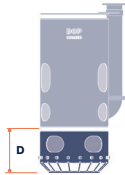
### TYPE A - STANDARD

Sand production head to fluidise the bottom material with jet water assistance.



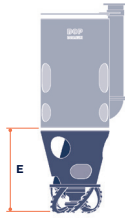
### TYPE B - LEVELLER

Flat bottom head to level the surface of the job site using jet water, for barge unloading.



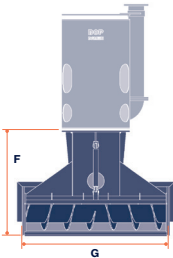
### TYPE C - CUTTER

Hydraulically driven cutter unit for loosening compacted sand.



### TYPE D - AUGER

Hydraulically driven auger head for accurate dredging of contaminated sediments.



### Cutter unit

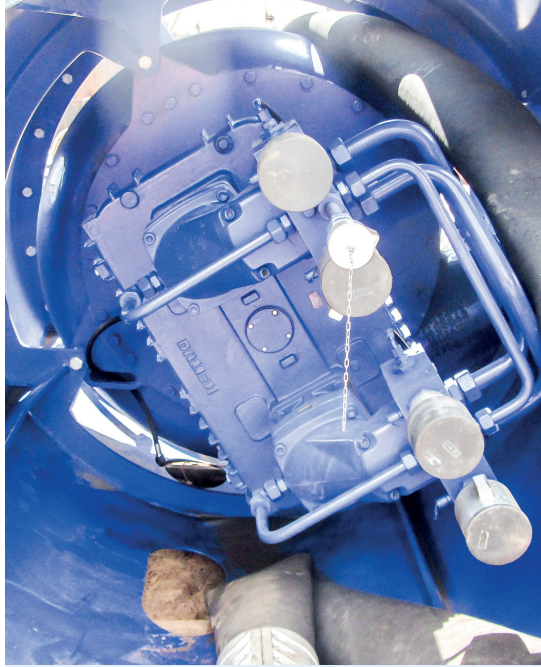
|                              |          |          |          |           |           |           |
|------------------------------|----------|----------|----------|-----------|-----------|-----------|
| Max. power                   | 13 kW    | 17 kW    | 28 kW    | 47 kW     | 47 kW     | 60 kW     |
| Oil flow                     | 35 l/min | 45 l/min | 75 l/min | 125 l/min | 125 l/min | 160 l/min |
| Oil pressure at motor*       | 250 bar  | 250 bar  | 250 bar  | 250 bar   | 250 bar   | 250 bar   |
| Total weight DOP+cutter unit | 1,233 kg | 1,576 kg | 2,755 kg | 5,430 kg  | 6,311 kg  | 9,005 kg  |

### Auger unit

|                               |          |          |           |           |           |  |
|-------------------------------|----------|----------|-----------|-----------|-----------|--|
| Max. power                    | 23 kW    | 29 kW    | 38 kW     | 58 kW     | 58 kW     |  |
| Oil flow                      | 61 l/min | 76 l/min | 100 l/min | 150 l/min | 150 l/min |  |
| Oil pressure at motor*        | 250 bar  | 250 bar  | 250 bar   | 250 bar   | 250 bar   |  |
| Total weight DOP + auger unit | 2,394 kg | 3,266 kg | 5,086 kg  | 9,310 kg  | 10,191 kg |  |

|                                  |          |          |          |          |          |          |
|----------------------------------|----------|----------|----------|----------|----------|----------|
| A (height standard DOP)          | 1,485 mm | 1,500 mm | 1,880 mm | 2,320 mm | 2,320 mm | 2,430 mm |
| B (diameter standard DOP)        | 830 mm   | 940 mm   | 1,215 mm | 1,500 mm | 1,715 mm | 1,915 mm |
| C (height standard suction head) | 1,450 mm | 1,435 mm | 1,690 mm | 2,010 mm | 2,110 mm | 2,380 mm |
| D (height leveller)              | 540 mm   | 590 mm   | 730 mm   | 980 mm   | 880 mm   | 1,245 mm |
| E (height cutter unit)           | 990 mm   | 1,140 mm | 1,495 mm | 2,190 mm | 2,210 mm | 2,230 mm |
| F (height auger head)            | 1,380 mm | 1,530 mm | 1,840 mm | 1,900 mm | 1,920 mm | 2,250 mm |
| G (length auger)                 | 1,500 mm | 1,800 mm | 2,500 mm | 3,450 mm | 3,450 mm | 5,000 mm |

\* add for pipeline losses \*\* L in pump type stands for Low Pressure type dredge 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.





# Electrically driven DOP pump

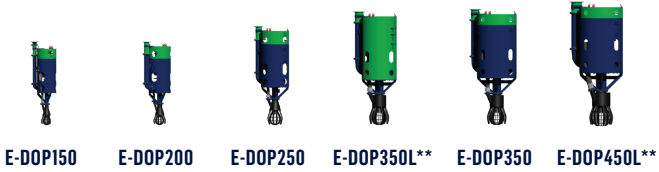


An all-electric DOP dredger.



The Damen DOP pump is also available with an electrical drive. The compact and efficient electric motor directly drives the pump shaft. This clean and silent technology is especially fit for environmentally sensitive or residential areas.

- › The silent e-drive enables full scale dredging activities in residential areas
- › Clean operations due to zero emissions
- › Most efficient submersible dredge pump on the market
- › High quality components fit for the dredging market
- › Low maintenance due to few moving parts
- › Powered by the grid or by a standard, widely available generator
- › Fast deployment world-wide
- › Fit for the future
- › Complete dredge packages including drives, hoses and instrumentation available



### Performance

|                          |           |           |             |             |             |             |
|--------------------------|-----------|-----------|-------------|-------------|-------------|-------------|
| Nominal mixture capacity | 600 m³/hr | 800 m³/hr | 1,250 m³/hr | 2,400 m³/hr | 2,400 m³/hr | 4,000 m³/hr |
| Max. total head          | 5.0 bar   | 5.0 bar   | 5.3 bar     | 3.3 bar     | 4.6 bar     | 3.5 bar     |
| Max. pump speed          | 1,300 rpm | 1,200 rpm | 900 rpm     | 625 rpm     | 580 rpm     | 470 rpm     |
| Max. power               | 80 kW     | 120 kW    | 195 kW      | 240 kW      | 360 kW      | 400 kW      |

### Electric requirements

|                           |            |            |            |            |            |            |
|---------------------------|------------|------------|------------|------------|------------|------------|
| Voltage                   | 380-440Vac | 380-440Vac | 380-440Vac | 380-440Vac | 380-440Vac | 380-440Vac |
| (by frequency converter)  | 50/60 Hz   | 50/60 Hz   | 50/60 Hz   | 50/60 Hz   | 50/60 Hz   | 50/60 Hz   |
|                           | 3Phase     | 3Phase     | 3Phase     | 3 Phase    | 3 Phase    | 3 Phase    |
| Advised generator power * | 110 kVA    | 170 kVA    | 265 kVA    | 320 kVA    | 480 kVA    | 540 kVA    |

### Jet water

|                   |           |           |           |           |           |             |
|-------------------|-----------|-----------|-----------|-----------|-----------|-------------|
| Internal diameter | 80 mm     | 100 mm    | 125 mm    | 200 mm    | 200 mm    | 250 mm      |
| Advised capacity  | 125 m³/hr | 180 m³/hr | 300 m³/hr | 600 m³/hr | 600 m³/hr | 1,100 m³/hr |
| Advised pressure  | 8 bar     | 8 bar     | 8 bar     | 8 bar     | 8 bar     | 8 bar       |

### Dredge pump dimensions

|                             |        |        |        |        |        |        |
|-----------------------------|--------|--------|--------|--------|--------|--------|
| Suction internal diameter   | 150 mm | 200 mm | 250 mm | 350 mm | 350 mm | 450 mm |
| Discharge internal diameter | 180 mm | 200 mm | 250 mm | 350 mm | 350 mm | 450 mm |
| Max. spherical passage      | 77 mm  | 125 mm | 130 mm | 200 mm | 150 mm | 165 mm |

### Weight

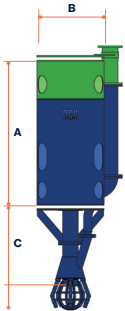
|                       |          |          |          |          |          |          |
|-----------------------|----------|----------|----------|----------|----------|----------|
| Basic E-DOP pump unit | 1,950 kg | 2,200 kg | 3,975 kg | 6,170 kg | 7,310 kg | 9,400 kg |
|-----------------------|----------|----------|----------|----------|----------|----------|

\* min required kVA \*\* L in pump type stands for Low Pressure type dredge pump

## Optional suction heads

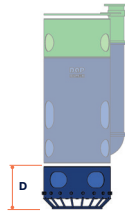
### TYPE A - STANDARD

Sand production head to fluidise the bottom material with jet water assistance.



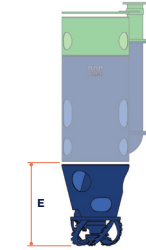
### TYPE B - LEVELLER

Flat bottom head to level the surface of the job site using jet water.



### TYPE C - CUTTER

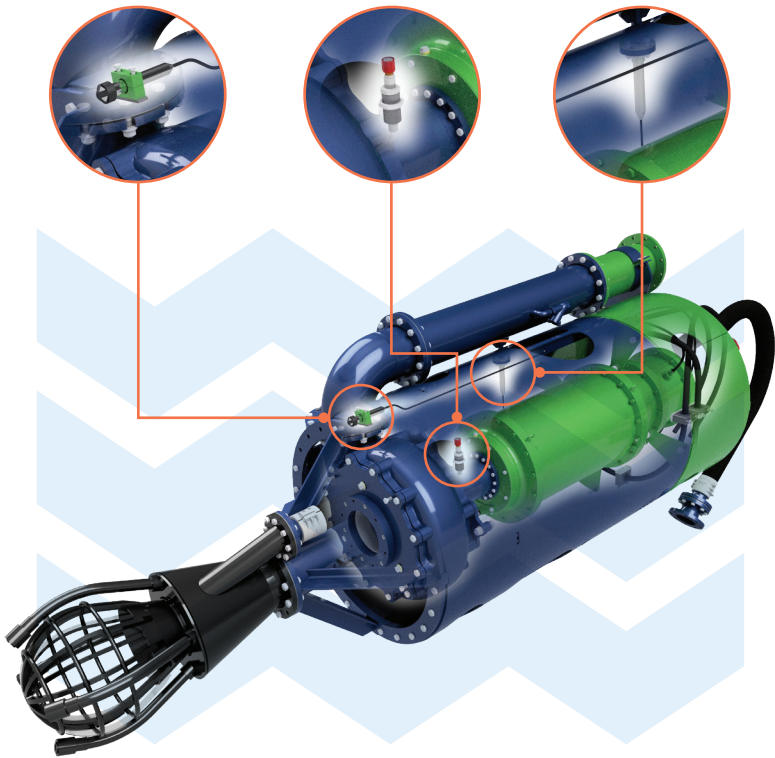
Hydraulically driven cutter unit as a standard, electric on request.



### Dimensions

|                                  |          |          |          |          |          |          |
|----------------------------------|----------|----------|----------|----------|----------|----------|
| A (height standard E-DOP)        | 1,937 mm | 2,050 mm | 2,482 mm | 2,809 mm | 2,814 mm | 2,924 mm |
| B (diameter standard E-DOP)      | 830 mm   | 940 mm   | 1,215 mm | 1,500 mm | 1,715 mm | 1,915 mm |
| C (height standard suction head) | 1,450 mm | 1,435 mm | 1,690 mm | 1,997 mm | 2,097 mm | 2,380 mm |
| D (height leveller)              | 540 mm   | 590 mm   | 710 mm   | 860 mm   | 880 mm   | 1,225 mm |
| E (height hydraulic cutter unit) | 990 mm   | 1,140 mm | 1,495 mm | 2,190 mm | 2,210 mm | 2,230 mm |

\*\* L in pump type stands for Low Pressure type dredge pump



**Silent and  
clean dredging  
on electric  
power”**

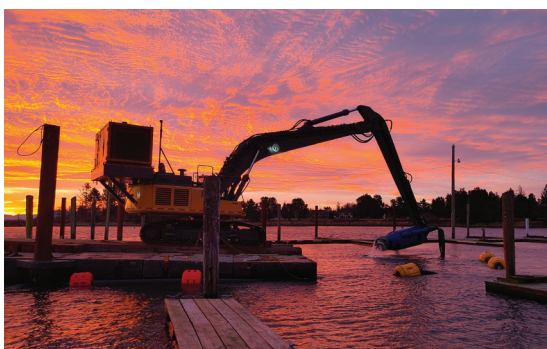


### › Dredging instrumentation

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.



## THE DOP DREDGE PUMP IS UP FOR ANY JOB



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