



# DOP submersible dredge pumps

DAMEN DREDGING EQUIPMENT

**DAMEN**

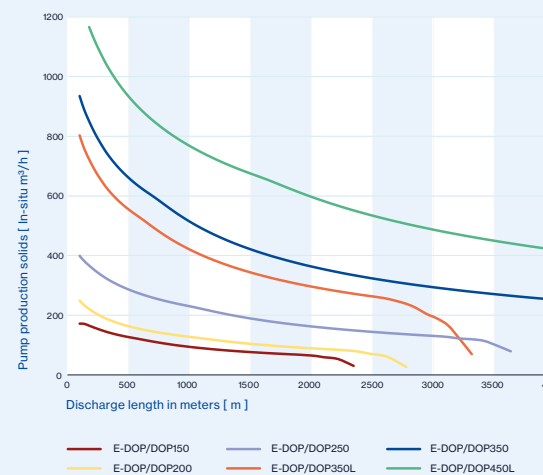


A MULTIFUNCTIONAL DREDGING TOOL

# 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

	DOP150	DOP200	DOP250	DOP350L	DOP350	DOP450L
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	3.2 bar	4.8 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

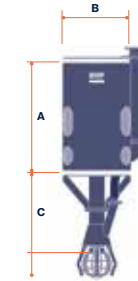
Basic DOP pump unit	1,100 kg	1,360 kg	2,425 kg	4,580 kg	5,330 kg	7,400 kg
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\* add for pipeline losses \*\* L in pump type stands for Low Pressure type dredge pump

## Optional suction heads

### TYPE A - STANDARD

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



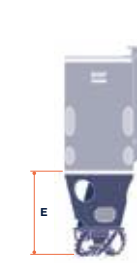
### TYPE B - LEVELLER

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



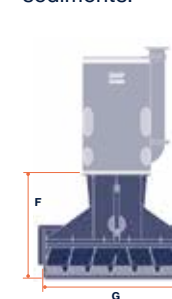
### TYPE C - CUTTER

Hydraulically driven cutter unit for loosening compacted sand.



### TYPE D - AUGER

Hydraulically driven auger head for accurate dredging of contaminated sediments.



## Cutter unit

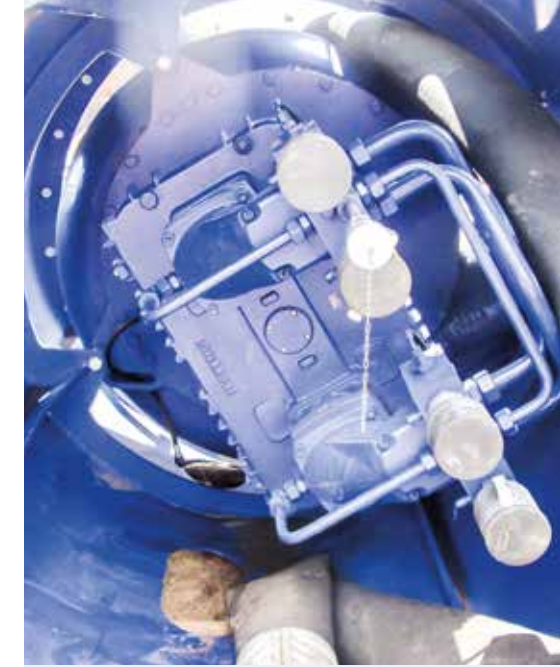
Max. power	13 kW	17 kW	28 kW	47 kW	47 kW	60 kW
Oil flow	35 l/min	45 l/min	75 l/min	125 l/min	125 l/min	160 l/min
Oil pressure at motor*	250 bar	250 bar	250 bar	250 bar	250 bar	250 bar
Total weight DOP+cutter unit	1,233 kg	1,576 kg	2,755 kg	5,430 kg	6,311 kg	9,005 kg

## 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



## Performance

Nominal mixture capacity	600 m <sup>3</sup> /hr	800 m <sup>3</sup> /hr	1,250 m <sup>3</sup> /hr	2,400 m <sup>3</sup> /hr	2,400 m <sup>3</sup> /hr	4,000 m <sup>3</sup> /hr
Max. total head	5.0 bar	5.0 bar	5.3 bar	3.2 bar	4.8 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	400 V AC	400 V AC	400 V AC	400 V AC	690 V AC	690 V AC
(by frequency converter)	50/60 Hz	50/60 Hz	50/60 Hz	50/60 Hz	50/60 Hz	50/60 Hz
	3 Phase	3 Phase	3 Phase	3 Phase	3 Phase	3 Phase
Advised generator power *	120 kVA	170 kVA	230 kVA	300 kVA	440 kVA	490 kVA

## Jet water

Internal diameter	80 mm	100 mm	125 mm	200 mm	200 mm	250 mm
Advised capacity	125 m <sup>3</sup> /hr	180 m <sup>3</sup> /hr	300 m <sup>3</sup> /hr	600 m <sup>3</sup> /hr	600 m <sup>3</sup> /hr	1,100 m <sup>3</sup> /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	2,200 kg	2,500 kg	4,100 kg	6,300 kg	7,500 kg	9,900 kg
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\* min required kVA \*\* L in pump type stands for Low Pressure type dredge pump

## Optional suction heads

### TYPE A - STANDARD

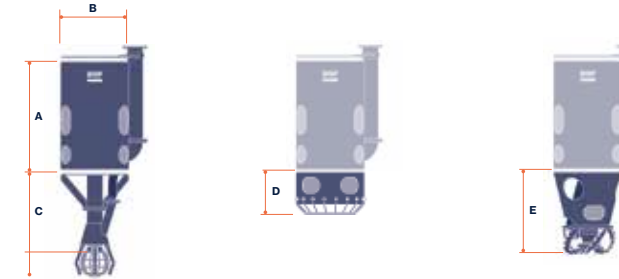
Sand production head to fluidise the bottom material with jet water assistance.

### 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)	1,485 mm	1,500 mm	1,882 mm	2,320 mm	2,320 mm	2,430 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 electric cutter unit)	989 mm	1,140 mm	1,494 mm	2,191 mm	2,191 mm	2,231 mm

\*min required kVA



**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. All data can be accessed remotely on location.



# THE DOP DREDGE PUMP IS UP FOR ANY JOB



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