IHC Dredging

# Beaver® 50E cutter suction dredger

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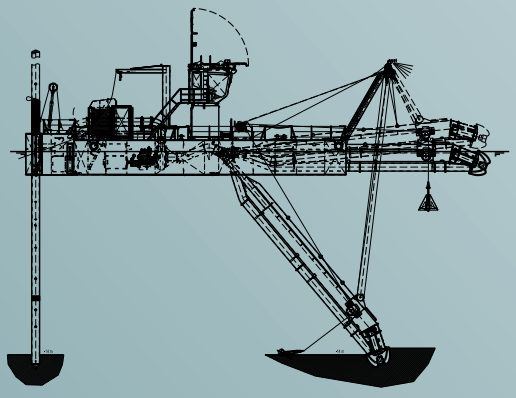
The Beaver® 50E is a fully electrically powered version of the standard Beaver®. With zero emissions and limited noise disturbance, the Beaver® E fully complies with the latest environmental regulations and is therefore also suitable to work in the most sensitive environments.

In comparison to conventional diesels powered dredgers, the electrically powered dredger is more energy efficient. The dredger is ready to go instantly, because the electrical dredge pump drive delivers its full power immediately and doesn't require pre-heating. The electrical dredge pump drive also requires less maintenance.

Sticking to the heart of the Beaver®: a highly efficient and straightforward dredger, technical changes have been kept to a minimum. The Beaver® E is suitable for all common dredging projects, such as land reclamation, maintenance dredging and aggregates dredging. All current standard Beavers® types are available in an electrical version.

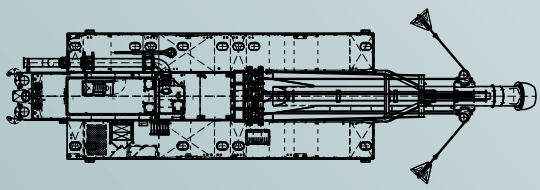


The Beaver® 50E is reliable, efficient, has low maintenance costs and is extremely productive at all dredging depths. It is equipped with state-of-the-art technology, including the following key features:

- low cost per cubic metre
- an exceptional rate of pumping power – unrivalled in its class
- improved ergonomics and diagnostics
- Cutter Special® pump that combines high efficiency and a large spherical passage to provide a high level of availability
- class certification (BV Coastal area)
- low maintenance and efficient power consumption
- environmentally friendly solutions
- enhanced safety features, such as a separate pump room
- dismountable for transport via road, rail or sea.

## Uncover the potential

Whatever the challenge, at IHC Dredging we support you to find the optimal solution. Offering a wide range of dedicated vessels, equipment and services, we improve efficiency across your entire operation and work together towards a more sustainable performance.



## Main parameters

| | |
|---|---|
| Dredging depth | 14.0m (larger depth optional) |
| Discharge diameter | 500mm (larger diameters optional) |
| Total power | 2,000kVA |

## Dimensions

| | |
|---|---|
| Length overall (ladder raised), approx. | 33.0m |
| Length over pontoons | 22.65m |
| Breadth | 7.87m |
| Depth | 2.44m |
| Side pontoons | 19.25 x 2.40 x 2.44m |
| Average draught (50% consumables) | 1.5m (approx.) |
| Maximum design draught | 1.65m |
| Maximum standard dredging depth | 14.0m |
| Suction pipe diameter | 550mm |
| Discharge pipe diameter | 500mm |
| Total installed power | 1,645kW |

## Swing width with 35° swing each side

| | |
|---|---|
| At maximum dredging depth | 29.5m |
| At minimum dredging depth | 36.5m |

## Dredge pump

| | |
|---|---|
| Type | IHC HRCS2 1200-250-500, single-walled |
| E-Motor power | 1,280kW |

## Electrical installation

| | |
|---|---|
| Power supply | 3x 6/7.2/10/11/13/15 kVac |
| Power | 2,000kVA |
| Voltage | 690Vac / 230Vac / 24V DC |
| Battery capacity | 220Ah |

## Cutter

| | |
|---|---|
| Type | IHC 10-CB-AL-1455-180-V04 |
| Power at shaft | 170kW |
| Diameter | 1,455mm |
| Maximum speed, approx. | 30rpm |

## Ladder and Swing winches

| | |
|---|---|
| Line pull, first layer | 90kN |
| Maximum line speed | 20m/min |
| Wire diameter | 22mm |
| Drum diameter | 457mm |
| Swing wires length | 100m |
| Anchor weight | 500kg |

## Spuds

| | |
|---|---|
| Length | 19.0m |
| Diameter | 559mm |
| Weight | 5,570kg |

## Spud hoisting cylinders

| | |
|---|---|
| Force | 244kN |
| Spud stroke (each time), approx. | 3.3m |

## Deck crane

| | |
|---|---|
| Lifting power | 30kN |
| Outreach | 3.25m |

## Classification

Bureau Veritas Class I, ✠ Hull • MACH Dredger - no propulsion
Coastal area

## Other features

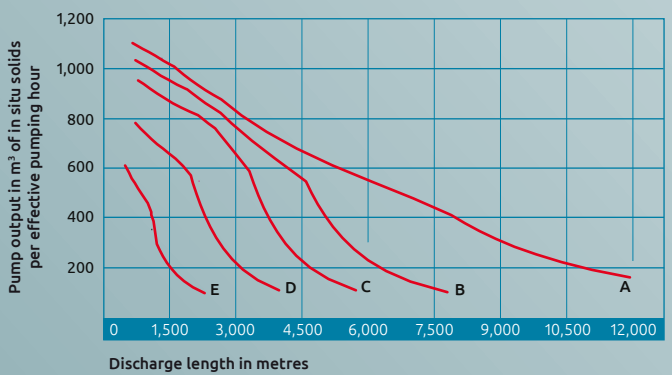
- spare parts available from stock
- fresh-water cooling system
- dredge pump driven through integrated bearing block, clutch and reduction gearbox
- white iron-wear parts for the dredge pump
- separate pump room to prevent the engine room from flooding
- cutter drive accepts temporary overload, resulting in high maximum cutter power
- reliable hydraulic system
- completely assembled and fully tested afloat before delivery
- ready for operation on arrival at site
- one-man operation
- on-board toilet
- wide range of services and auxiliary equipment available (including work boats, boosters and pipelines)
- air conditioning
- access to operations monitoring module (3 years with option to extend).

## Optional extras

- spud-carriage installation
- anchor booms
- swivel bend
- discharge and vacuum-relief valve
- Lancelot® cutterhead (special multi-blade)
- production measurement, automation and positioning system
- increased discharge pipeline diameter
- increased dredging depth
- life-cycle support packages (incl. training, technical support etc.)
- optional packages: comfort, HSE (health, safety and environment), nautical and inventory plus.

## Pump output

Discharge pipe diameter = 500mm
Dredging depth = 14.0m
Maximum volumetric concentration of in situ solids of 25%
Final elevation at end of discharge pipe = 4.0m




Output calculated for:

| Soil type | Decisive grain size | Situ density |
|---|---|---|
| **A** Fine sand | 100µm | 1,900kg/m³ |
| **B** Medium sand | 235µm | 1,950kg/m³ |
| **C** Coarse sand | 440µm | 2,000kg/m³ |
| **D** Coarse sand and gravel | 1.3mm | 2,100kg/m³ |
| **E** Gravel | 7mm | 2,200kg/m³ |

## Note

Calculated output curves only indicate pumping capacity, based on the maximum available power on the pump shaft and free-flowing material. In actual practice, properties may vary from free-flowing, easily excavated to compacted, hard-to-excavate material. When used for estimation actual outputs, the nature of the material to be dredged and local job conditions must be considered. Please consult IHC Dredging for dredging conditions outside these curves.