Dragheads

Optimal dredging efficiency

The draghead on a trailing suction hopper dredger is the first mechanical point of contact with the materials at the bottom. Its design, quality and sturdiness are critical to the dredging process. IHC Parts & Services has invested many years of practical experience and testing to create optimal draghead solutions, which are capable of extracting the maximum amount of soil from the bottom within the shortest possible time and at minimal cost.

While the production of excavated soil is primarily governed by visor width, penetration depth and trailing speed, other factors can also play a role. Draghead design is closely related to all the other key components of the dredging process.

Economic and technical considerations dictate the widest possible draghead consistent with other operational factors. The large degree of freedom of visor movement (up to 50°) increases the effectiveness of the suction pipe, and raises the level of production in both shallow and deep-water conditions. Optimal dredging efficiency at minimal lifetime cost is the key factor in the design challenge.

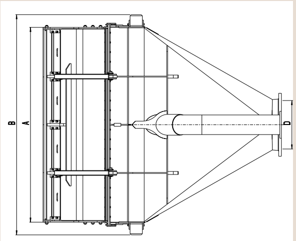
Benefits

- optimal draghead-bottom contact
- effective loosening of the bottom
- maximum use of vacuum
- minimal resistance to flow
- reduced blockages
- optimal production/wear ratio
- designed for easy maintenance
- rubber seals raise mixture density.

IHC Wild Dragon® draghead

The technology innovator.

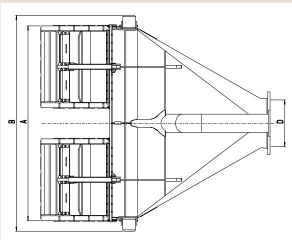
Draghead types



IHC type

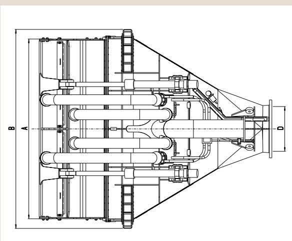
The IHC-type draghead in its simplest form consists of a fixed part connected to the suction pipe with a self-adjusting visor mounted on it. It has a multi-purpose design and is therefore suitable for excavating all types of soil, from silt to compact sand and gravel.

Jet nozzles and teeth on the draghead ensure the most efficient method to loosen and liquify the compact bottom material. This means the full available vacuum produced by the dredge pump can be applied to transport the mixture and maximum productivity can be achieved. Water inlet valves ensure that the dredging process can be highly controlled. Grids reduce the possibility of pump blockages. To further improve the dredging process, the draghead can be fitted with hydraulically operated equipment for visor adjustment.



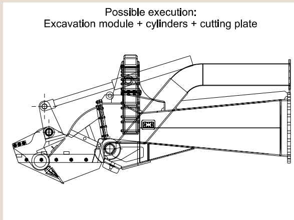
California type

This type of draghead is designed on the basis of the erosion theory. The two visors are relatively long, creating a large inlet area where the erosion process takes place. Splits between the wearing blocks allow water to enter the visor, due to the low pressure inside the draghead. The water velocity starts the erosion process and pulls the particles loose from the bottom. The mixture of the water and loose bottom soil is transported through the visors via the fixed part and into the suction tube. It is most suitable for coarse sand and gravel, particularly for dredgers with a limited trailing force.



Wild Dragon®

Studies of cutting in waterbeds have demonstrated that double rows of cutting teeth with incorporated water jets were the best tools for the job. The integrated design of the Wild Dragon®, in which the sizes and positions of cavities, cutting hardware and jets are finely tuned to optimise the sediment-softening qualities of the device, made it a success. Though productivity is increased for all soil types, it performs especially well in densely packed fine sands, which are extremely hard to excavate with other dragheads.



GeoDrag®

The GeoDrag® is a draghead with a modular design. It can be adapted to suit every requirement, whether it be hard-packed fine sand or gravel with large particles and clay. The GeoDrag® is composed of several modules, which can be selected to suit each specific job.

Initially, a set of vessel-specific options can be chosen on the fixed part and the visor body. Several different excavation modules and the two side modules are arbitrarily attachable to the visor body. In this way, the draghead can be optimised for every specific situation to increase the output and performance of the dredger, as well as to minimise unnecessary wear and downtime.

Range

Standard draghead pipe connection diameters vary from 400 to 1,200mm. Customised versions ranging from 300 to 1,400mm have also been built.

There is a wide range of options, and with the benefits of 3D modelling and simulation, most customer requirements can be met relatively quickly. Simulation helps to optimise total mixture flow from the bottom to the pump. The optimal flow pattern, complemented by Maxidur® 5 durable resistance blocks, helps to minimise the extraordinary level of wear associated with this activity.

The technology innovator.

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