

Pumps general

The heart of the dredging challenge



The cost-effectiveness of dredging today depends to a great extent on the performance of pumps – dredge pumps, submerged pumps and jet pumps also in high efficiency versions. Targeting the efficient transport of either the dredging mixture or water, they are critical components in almost all types of dredging systems. Their capacity has to be adapted to the task in hand, and their effective operating life in often difficult operating conditions maximised. Optimal design, reducing the effects of wear, and ensuring easy repair and replacement all play key roles. In other words in upgrading pump quality to the highest level possible and minimising overall lifetime costs.

The back-up resources

IHC Parts & Services has been addressing this challenge for many decades and has achieved an enviable resource of practical experience and technical know-how in the design, manufacture and maintenance of pumps for dredging. The company has an advanced design department allied to the latest in manufacturing and testing facilities. More Parts & Services pumps are operating in the world of dredging today than any other.

The programme

The Parts & Services pump programme consists of conventional economy and heavy duty pumps, high efficiency pumps (efficiency to 92%) and specifically customised pumps. All are designed and made to respond to the needs of future working conditions which include:

- type of material to be transported
- depth from which material is to be pumped
- pumping distance
- environmental requirements
- optimised production and hopper loading
- operational uptime
- variations in production due to varying depth and material type



upgrading pump quality to the highest level possible.



Each pump build assignment is preceded by an advisory study based on criteria provided by the customer.

Inboard dredge pumps are the primary power source for transporting the mixture to the hopper or discharge location. Submerged dredge pumps in the suction pipe lift mixture cost-effectively from greater depths. High efficiency pumps are those that receive extra design refinement to reduce flow resistance. Jet pumps ensure high pressure water for hopper discharge and efficiency at the draghead. The dredge pumps are also essential for mixture transport in stationary dredgers and at pipeline booster stations.

Parts & Services pumps are made for suction diameters from 250 to 1400mm and for low (1-5 bar), medium (2-8 bar) and high (4-15 bar) pressures (to 40 bar in series) though specials have been made beyond these parameters. Each pump build assignment is preceded by an advisory study based on criteria provided by the customer.

Important characteristics of Parts & Services pumps include:

- wide sphere passage between vanes thus reducing the chances of blockages
- long working life in highly abrasive conditions
- high efficiency and reliability
- low net positive suction head requirement (NPSH_R)
- limited influence of wear on pump performance
- parts exposed to wear are easily replaceable and available in wear resistant materials



No pump leaves the plant without the full confidence of all who have worked on her.

Pump assembly demands dedicated personnel.

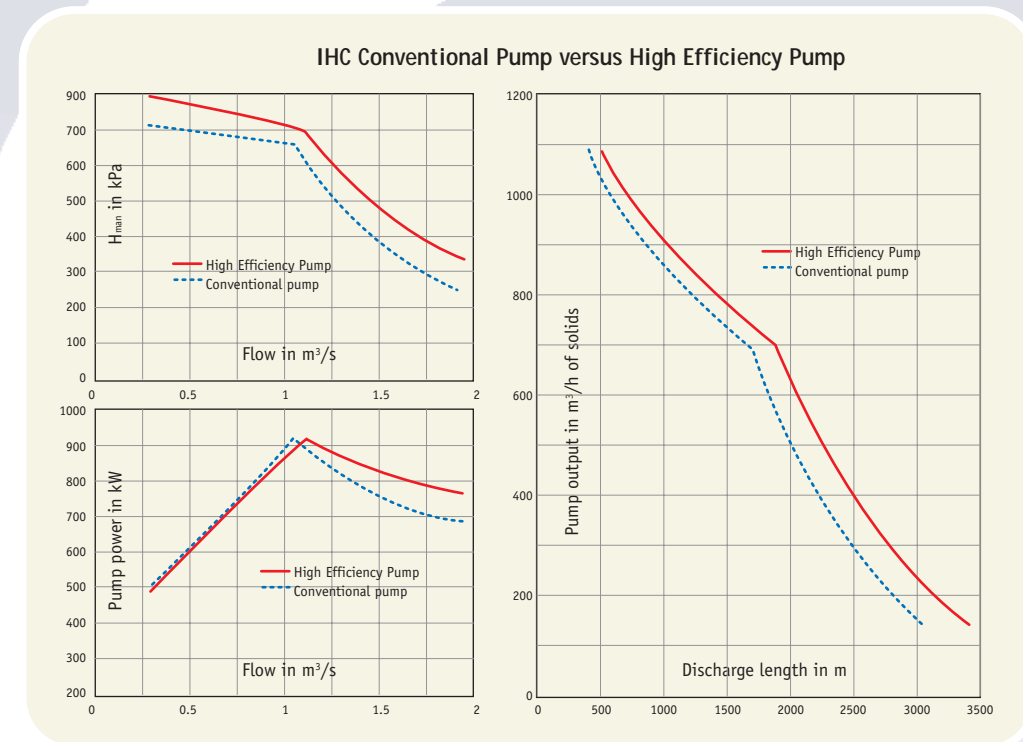
Single walled/double walled

Pumps are built to maximise operational lifetime and minimise initial investment. They are thus available in single (minimal cost) and double walled (maximum lifetime) configurations. Parts & Services has designed double walled pumps effectively to separate the mechanical housing function from the wear function thus ensuring a much longer operational life from the one unit.

Results include significantly lower maintenance costs, improved safety and longer vessel uptime.

High efficiency pumps

High efficiency pump design has been optimised to upgrade pump production and suction characteristics, and reduce wear, though this necessarily involves a higher investment than in the case of conventional pumps. The logic behind the development of high efficiency pumps was that even a marginal improvement in pump efficiency creates a huge multiplier effect on improving the cost-effectiveness of production and reducing the length of the dredge cycle.



The primary objective is optimised production. Pump performance is a critical component in this process.

Growing popularity

Rising supply of high efficiency pumps as a proportion of total delivery, especially for larger dredger installations, has demonstrated strongly positive returns on investment for clients and the value of this policy to them. Ongoing research into yet further ways of improving pump performance is a permanent element of company efforts.

Shaft sealing

An essential element in pump design for dredging is the sealing of the pump shaft. The patented IHC Liquidyne shaft seal was especially developed for the dredging challenge and has proven its effectiveness over decades of hard usage. This robust seal system is universally applicable, easy to maintain and offers excellent sealing capabilities in severely abrasive environments up to 40 bar. It is available with pump only.

Lifetime one-stop service

Parts & Services offers a complete one-stop service for all its pump systems, covering advice, design, production, installation and that all important follow-up care. Company policy targets the supply of all parts associated with its pumps systems for as long as the system is in use saving users time, money, and loss of output.

The quality and reliability of Parts & Services pumps is expressed evidence in the following:

- the right pump choice
- the materials applied
- the design
- top quality control
- component precision
- simplicity of maintenance
- high output
- lifetime service

Testing

Pump assembly always takes place under the eyes of experienced specialists. Testing includes visual inspection and dimensional and pressure tests, magnetic, ultrasonic, penetrant, X-ray and spectrographic tests and special evaluations on request of the client. No pump leaves the plant without the full confidence of all who have worked on her.

Adoption

Keeping dredgers profitably at work can make heavy demands on after sales support. Parts & Services understands the importance of the long term relationship between user and pump supplier. With each pump delivered being formally 'adopted' by an individual service engineer, after sales service is prompt, professional and available wherever in the world it may be.



excellent sealing capabilities in severely abrasive environments.



five axis computer controlled facilities means housing mould design at extraordinary accuracy.



Machining includes computer controlled systems able to handle parts up to 12 x 4.5 meters to an accuracy of 0.01mm.

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Keeping dredging hardware profitably at work

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