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HNS SERIES

**MOST ADVANCED INTEGRATED SUBMERSIBLE SEALING SYSTEM WORLDWIDE
SEVERE DUTY | CONTINUOUS RUN DRY | UP TO 1000 HP**

HEVVY PUMPS HISTORY



Where heritage meets imagination - the evolution of TOYO PUMPS.

In HEVVY PUMPS, we have created a product line that embodies both imagination and technological advancement. Over the course of our 40 year history as TOYO PUMPS, the company has progressively evolved. Our valued customers have helped to shape us, and from years of listening to their particular needs, dreams and continuous positive feedback - we created the HEVVY PUMPS product line to service these requirements. We don't believe in relying on past merits alone.

HEVVY pushes the limits of technology and design, to propel the future and challenge the industry to be more reliable, efficient and accountable to its customers and the environment. It is an exciting new future when "heritage" and "imagination" meet to benefit both worlds. With HEVVY and its new product lines, **we are ready to make a real impact globally.**

Make no mistake - the TOYO name has served us well. TOYO is a proven technology, despite being developed years ago. HEVVY is about embracing our proven technology and incorporating it into our new designs to both improve and create better products.

HEVVY PUMPS ADVANTAGE



HEVVY PUMPS are designed in-house by our engineers and crafted in North America using our own local workforce and know-how. HEVVY is our name and it signifies we are no lightweight.

HEVVY is a niche player in the solids handling market and knows the applications better than anyone else. This knowledge brings with it the following advantages:

- ▶ We can truly partner with our customers and consider ourselves an extension of our customer's operation.
- ▶ We are not trying to be everything to everybody and therefore do not have the unfocused range of product lines that most of our conglomerate competitors have. As a result we are able to move faster and adapt with technology.
- ▶ We realize that by gaining just five efficiency points, we can effectively save our customers thousands of dollars a year in electricity costs.
- ▶ We also realize that by not basing our business model on surviving off spare parts revenues, we can invest in designing pumps that actually last the test of time - thereby offering our customers a lower total cost of ownership.

We have named ourselves HEVVY - **perfectly summing up who we are & the industries we serve.**

HNS SERIES

ADVANCED SLURRY SEALING SYSTEM

- ▶ **Integrated PLENUM 54™** - Patented Positive Pressure Sealing Technology
- ▶ **HEVVY designed H Class submersible motor for severe duty** - available in 10 HP - 1000 HP, 4, 6, or 8 pole, 1.15 S.F. or 1.35 S.F.
- ▶ **Oversized bearings** designed for excessive shock loads
- ▶ **Continuous Run-Dry** capability (optional) or **extended Run-Dry** (standard)
- ▶ Cutting Edge Seals - designed specifically for Slurry: **Severe Duty** (standard) or **eXtreme Duty** (option)
- ▶ **Modular Pump System** - choose the performance and metallurgy that best suits your application from 4 hydraulic designs
- ▶ Available with **Agitators, Choppers, & Jet Rings**



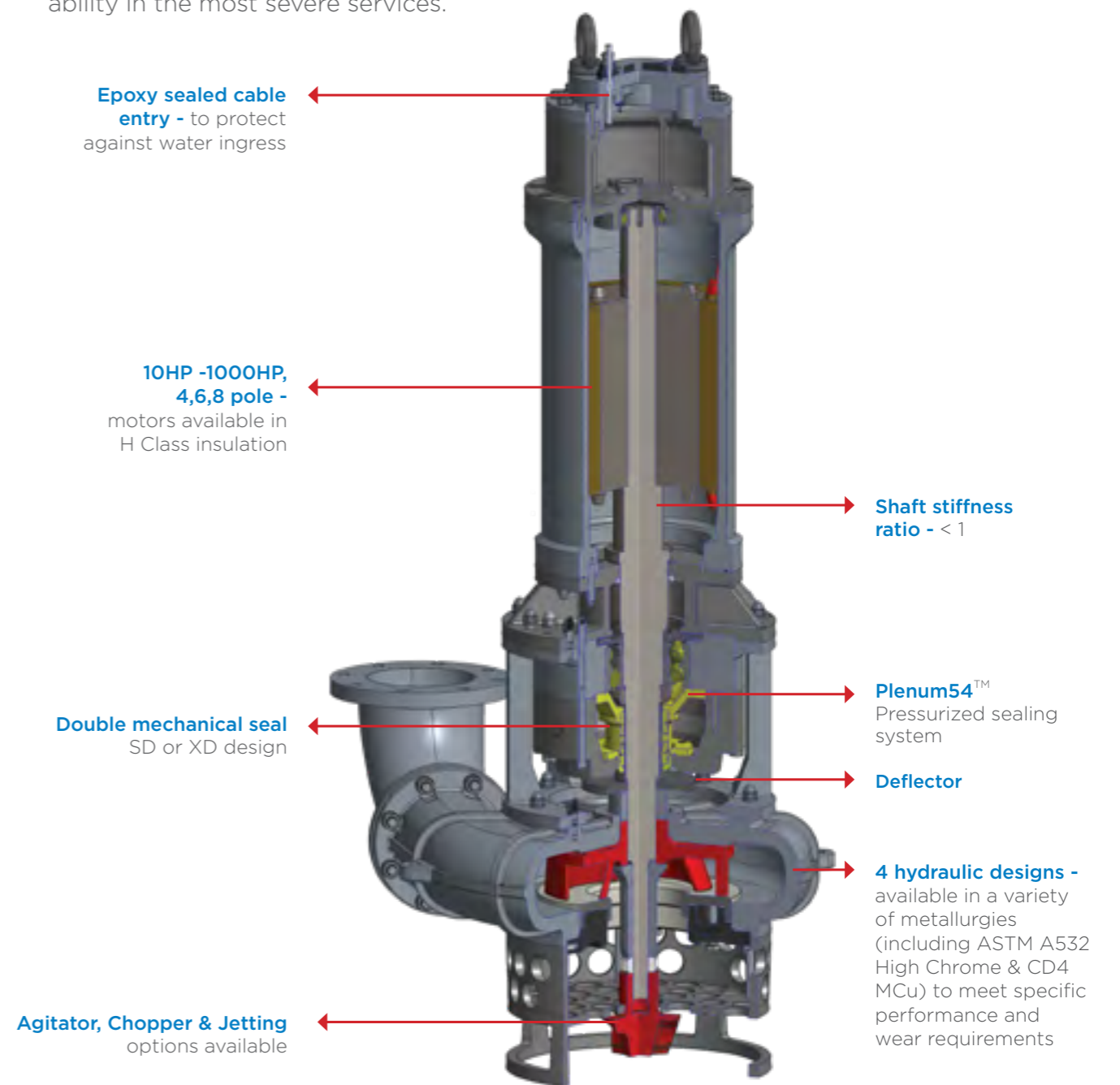
HNS SERIES

ADVANCED SLURRY SEALING SYSTEM

MAIN FEATURES

BUILT FOR SEVERE & EXTREME DUTY SERVICE

The **HNS Series** motor and rotating assembly have been specifically engineered to handle severe and extreme duty services and the unbalanced loads that occur in high wear pump applications. Intentional engineering decisions like: **shaft stiffness ratio of < 1**, oversized bearings, and a revolutionary seal design combine to help the pump maintain the sealing ability in the most severe services.



HNS SERIES

ADVANCED SLURRY SEALING SYSTEM

PLENUM54™
PATENTED POSITIVE
PRESSURE SYSTEM

THE WORLD'S
MOST ADVANCED
SUBMERSIBLE
SEALING SYSTEM

*“It's like an internal API
Plan 54 Shaft Sealing System
for a submersible pump.”*

Welcome the revolutionary **Plenum54™** to the submersible world. The patented **HEVVY PRESSURIZED SLURRY SEALING** system combines an internal self-generating pressurization system with HEVVY'S **SD** or optional **XD Slurry Seal**.

- ▶ **HNS** pumps have been installed in some of the harshest environments outlasting all previous run time records and flipping the paradigm in submersible pumps for common mode failure



HNS SERIES

ADVANCED SLURRY SEALING SYSTEM

MAIN FEATURES

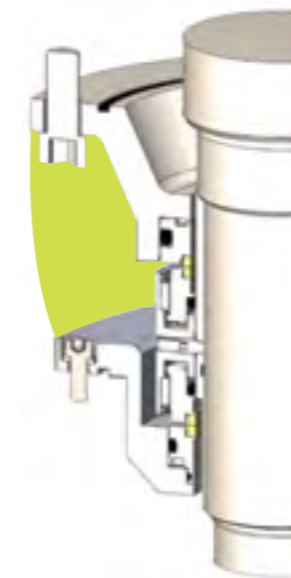
- ▶ Internal back pressure on the seal faces yield a greater internal pressure in the sealing chamber than external slurry pressure, ensuring the **ultimate seal life**
- ▶ The positive pressure behind the seal face assures that a **clean film of oil** is maintained on the seal face instead of the abrasive slurry
- ▶ The **HNS** comes with either of two incredible sealing options: the **SD** (standard) and **XD** (optional)

POSITIVE PRESSURE SEALING REVOLUTION



SD - SEVERE DUTY

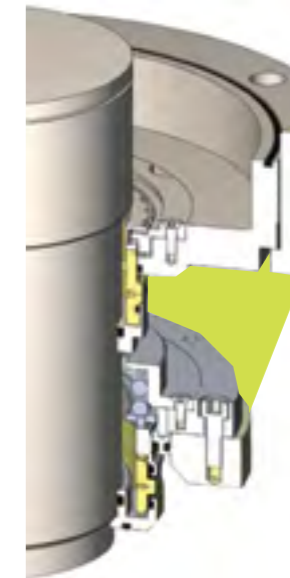
THE **TOUGHEST 'STANDARD' SEALING SOLUTION** AVAILABLE ON THE MARKET.



The **SD Double Acting Back-to-Back** standard seal, ideal for industries' tough sealing needs.

XD - EXTREME DUTY

THE **STURDIEST MECHANICAL SEAL** EVER DESIGNED FOR A SUBMERSIBLE PUMP.



The **XD Double Acting Tandem Arrangement** seal, ideal for industries' heavy duty and extra heavy-duty applications.

HNS OPTIONS

MAXIMIZING FLEXIBILITY & PRODUCTIVITY

SUSPENDORE™ THE EVOLUTION OF AGITATION & MIXING TECHNOLOGY

HEVVY PUMPS, the evolution of TOYO PUMPS, now brings you the next generation of agitator with far superior agitation, mixing and suspension abilities. **We introduced the world to its very first Agitator over 40 years ago and now we're very proud to introduce the patented Suspendore™.**

The best just got better:

- ▶ **Optimized Thrust:** Like the wings of a fighter jet, Suspendore's™ blades have been engineered to provide the perfect combination of downward and outward thrust without sacrificing efficiency or degrading the suction performance of the pump.
- ▶ **Sump vacuuming ability:** Compound layers of blades are positioned to optimize the Suspendore's ability to lift resting solids into suspension so that they can be pumped rather than settle and collect. **The Suspendore™ helps our pumps act like a sump vacuum cleaner.**
- ▶ **Better wear characteristics:** The Suspendore™ is engineered to maintain its agitation capability for the longest period possible as it wears. We do this through the very intentional placement of our agitation blades and encapsulating shroud.
- ▶ **More modular design:** With our new design, **it's the application that drives the Suspendore's™ size not the pump alone.** If your application requires more agitation we can now fit your pump with a bigger sized Suspendore™ to ensure the most optimized mixing result. (some exceptions apply).

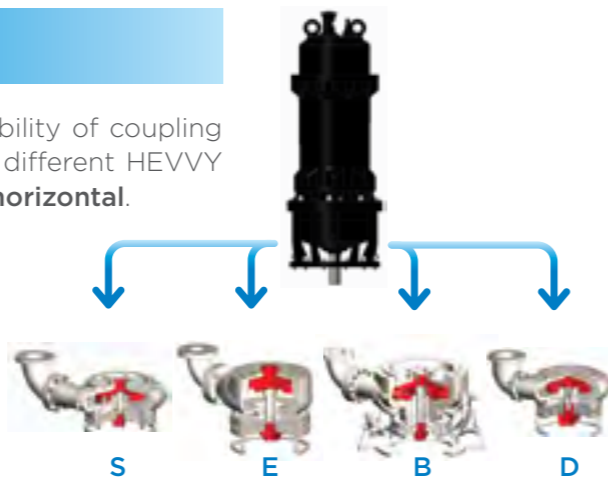


THE MODULAR ADVANTAGE

The HEVVY modular program allows you the flexibility of coupling the pumping ends below with either the same or different HEVVY drive configurations - be it **vertical cantilevers or horizontal.**

THE MODULAR ADVANTAGES:

- ▶ **Maximum Flexibility**
If your pump performance requirements change, **simply change the pumping end** to ensure you are always achieving maximum productivity and efficiency.
- ▶ **Cost Savings**
No need to buy a brand new piece of equipment when system requirements change. Just change the pump end. If you can standardize on the same pumping ends throughout your plant then you can greatly reduce the need for excessive spare parts inventory.
- ▶ **Increased Productivity**
Production is profit. When systems change the lead times of some custom drive units can not only be long but also expensive. If you can recycle your drive unit and simply change your pumping end you can get back into production quicker, cheaper, with less downtime required.



HNS OPTIONS

MAXIMIZING FLEXIBILITY & PRODUCTIVITY

CONTINUOUS RUN-DRY



The Plenum54™ internal pressurization system is also at the center of HEVVY's optional Continuous Run-Dry design. The pressurization system moves oils through a specially integrated heat exchanger to ensure continuous run-dry operation of 60-120°C (140-248°F) at full load.

JET RING



The jet ring **delivers high pressure water** through nozzles to loosen up compacted and heavy solids and thus fluidizing dense solids mixtures into the intake of the pump.

CONTROL PANELS



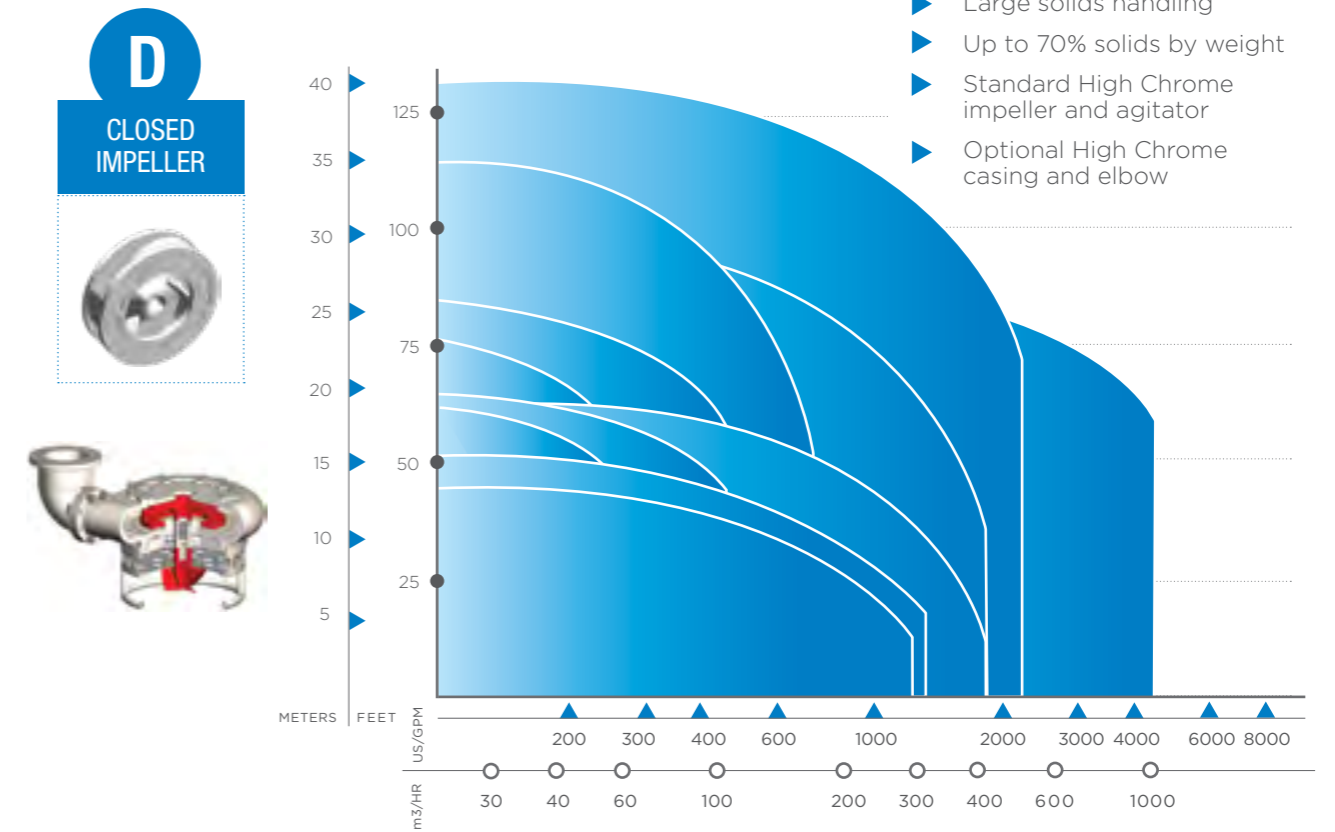
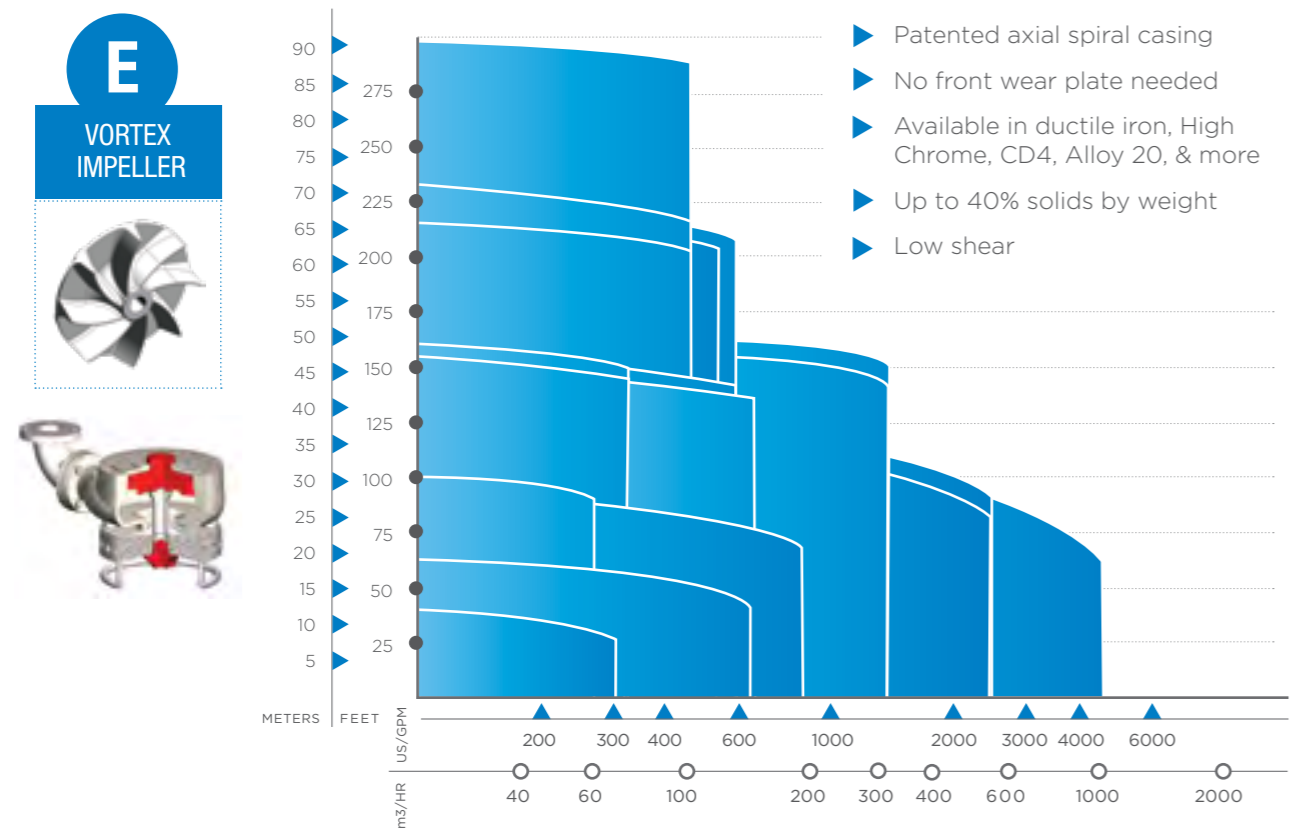
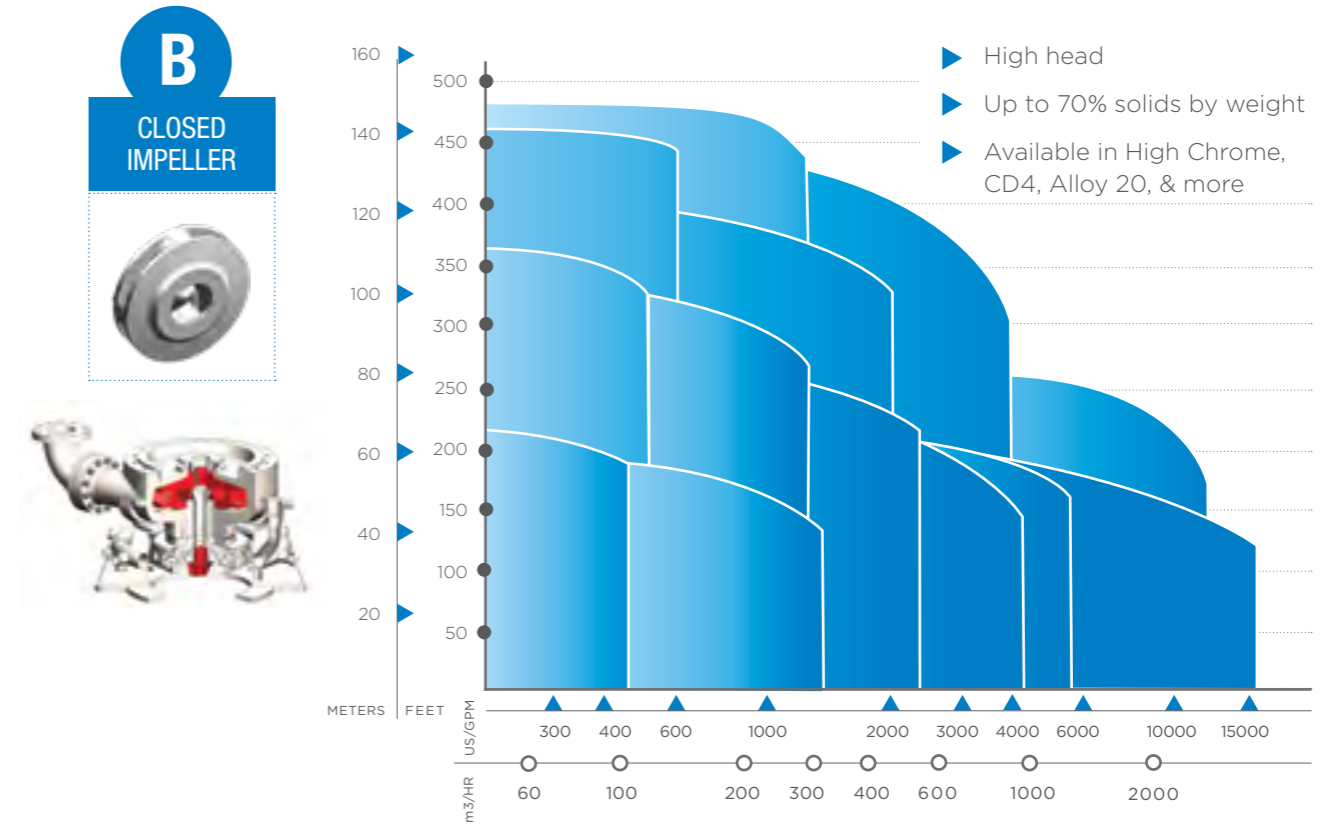
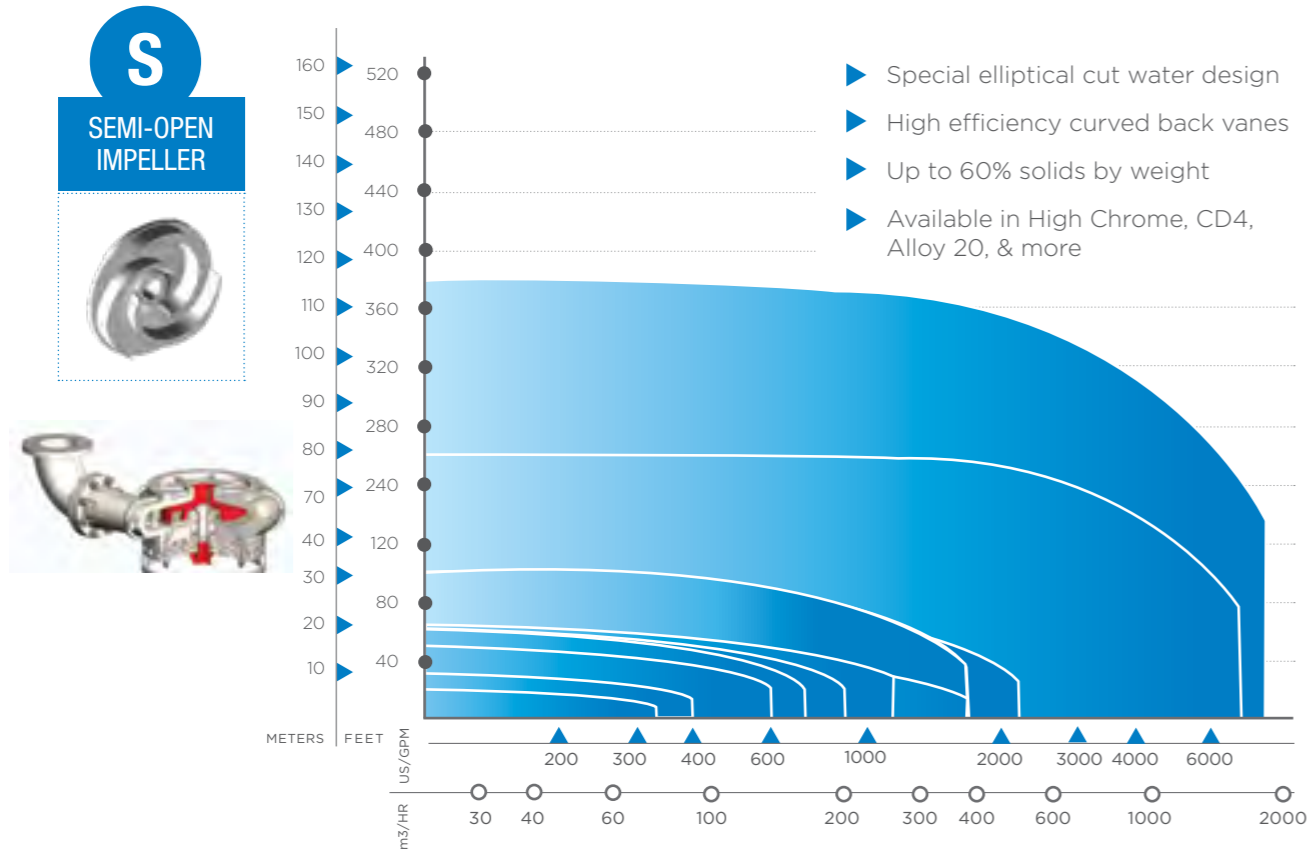
HNS pumps are available with fully tailored DOL (direct on line) or **Soft Starter** control panels. Available in 380/460/575V configurations in either 50/60Hz. **VFD configurations also available.**

CHOPPER



This wholly independent chopper unit features heavy duty blades, located in front of the pump's suction. Best of all, because the chopper unit is independent of the impeller, as the unit dulls or wears, **it can be replaced without having to replace the whole impeller assembly.**

Available for S and E wet ends.



HNS SERIES

HYDRAULIC

The HEVY **HNS Series** is also available in a **Hydraulically Driven** configuration. Get all the advantages of pressurized sealing from the **Plenum54™** with the portability that an **HPU** system can offer.

- ▶ **Hydraulic Configuration** eliminates need for motor cooling
- ▶ Available in '**Explosion Proof**' configurations
- ▶ Variable speed control with inherent '**Soft Start**' for most flexible operation
- ▶ Integrated **PLENUM54™ - Positive Pressure** sealing technology
- ▶ **Designed** specifically for slurry (**SD & XD**)
- ▶ **Lighter in weight** than its electric counterpart
- ▶ **Modular pump system** -choose the performance that best suits your application from 4 hydraulic designs
- ▶ Available with **Agitators, Choppers & Jet Rings**



HNS SERIES

HYDRAULIC

HEVY configured **HPUs** complete a turn-key hydraulically driven pump outfit/package.

- ▶ Fully/partially enclosed, or trailer mounted available upon request
- ▶ Electric or Diesel driven options
- ▶ Complete **vertical integration of hydraulic pump**, motor and plumbing to ensure total compatibility
- ▶ **Variable length hose assemblies** to suit the application, as well as quick disconnects for ease of service (other fittings are available)

MAIN FEATURES

PORTABILITY & FLEXIBILITY



Portability of the HPU system makes it ideal for rental & outage support.



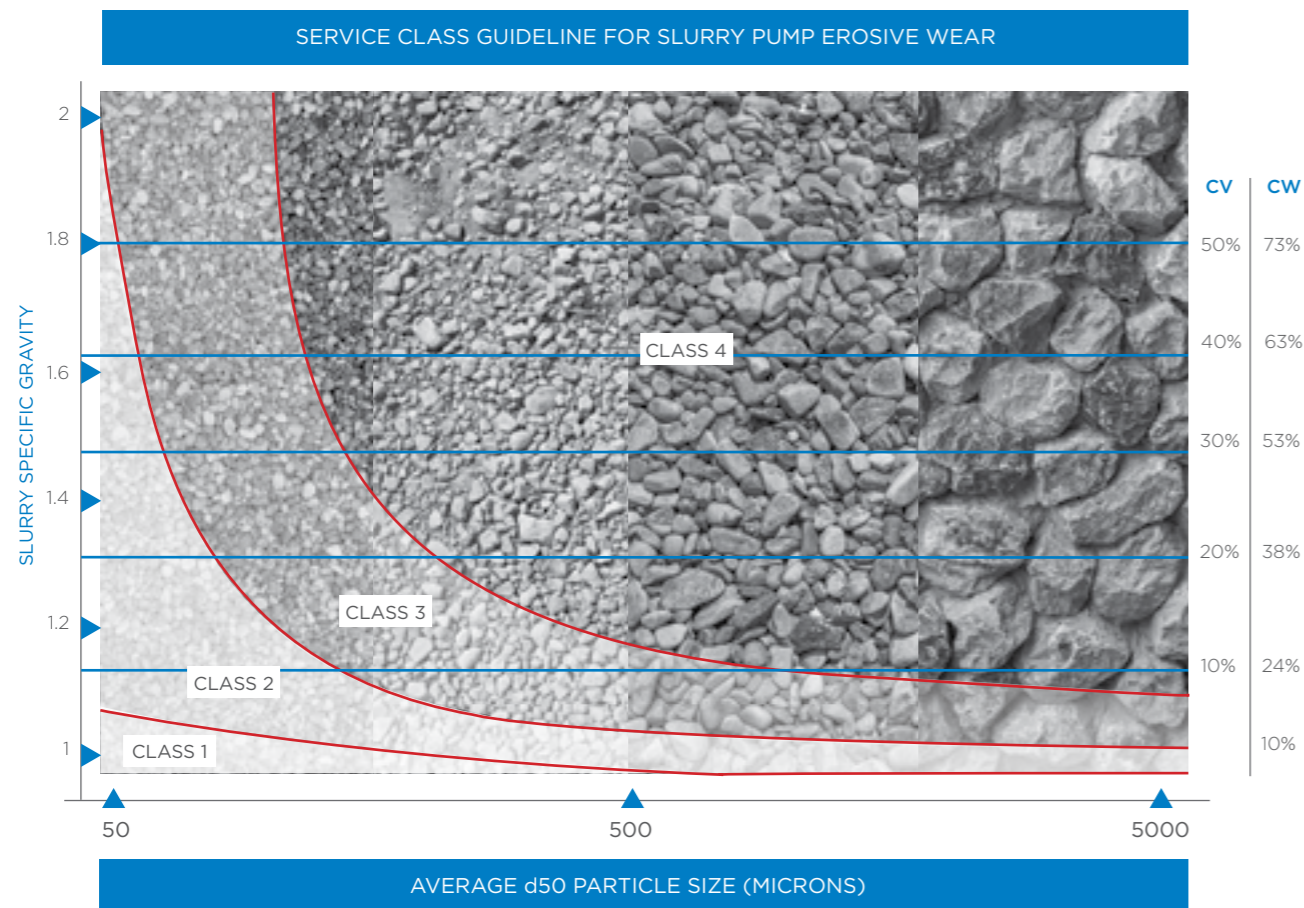
HEVVY SLURRY

CLASSIFICATIONS

At HEVVY PUMPS we were born out of our passion for pumping solids. The majority of pumping companies began life as a water pumping company. Therefore, if they now offer a “slurry” pump, they’ve simply adapted one of their water pumps to do a slurry pumps’ job. This is not always the ideal solution (similar to asking a pick-up truck to do a dump truck’s job).

To find the right solution for your application it is important to first understand what it is you are trying to pump. Slurries come in many shapes, sizes, weights, levels of abrasion or corrosion and consistency. For your convenience, **the industry defines slurries by classes.** We have included a very simplified chart (see below) to assist you in understanding what slurry class you might be dealing with. As always we are happy to help you choose the right solution for your application. Please give us a call if this is all as clear as well... slurry.

SLURRY TYPES: SILT | SAND | TAILINGS



The above chart is for use as a guide only. It assumes 2.65 Ss silica-based solids. Adjust rating to account for solids of different abrasivity using ASTM G75-95. The chart is based on the Hydraulic Institute's Slurry Class guideline. For more information about the HI Slurry Classes please visit <http://pumps.org> or call HEVVY PUMPS for assistance.

A SIMPLE GUIDE TO HEVVY SUBMERSIBLE SLURRY PUMPS

- RECOMMENDED USE
- CAPABLE UNDER OPTIMAL CONDITIONS

Pump Model	SLURRY CLASS			
	1	2	3	4
HT	RECOMMENDED USE	CAPABLE UNDER OPTIMAL CONDITIONS		
HS	RECOMMENDED USE	RECOMMENDED USE	CAPABLE UNDER OPTIMAL CONDITIONS	
HNS	RECOMMENDED USE	RECOMMENDED USE	RECOMMENDED USE	RECOMMENDED USE

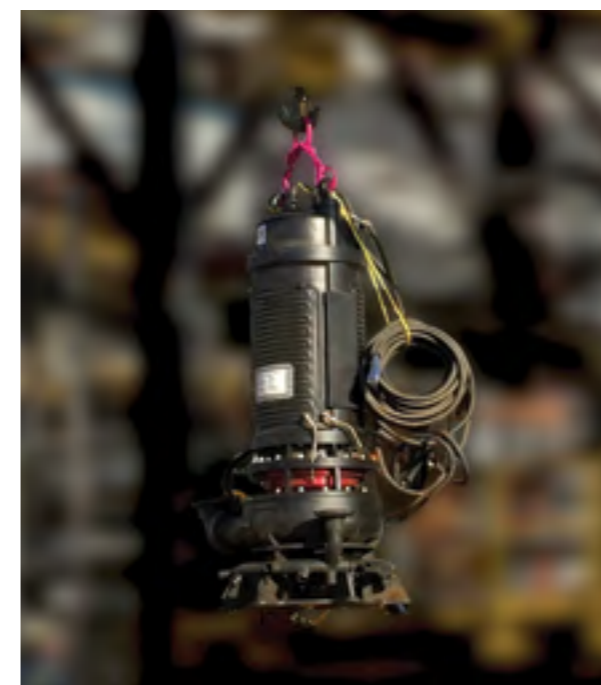


Give us your worst

HEVVY PUMPS is proud to offer a **complimentary pump audit** of your four worst pumping applications, complete with a report.

Believe us when we say we've seen a lot of bad situations in all corners of the world: sections of mines, plants, and mills completely underwater. It doesn't phase us - in fact, this is what drives us. We want to help get you back to work.

Visit www.hevvyumps.com or email applications@hevvyumps.com to find out more today



HEVVY's No Risk Trial Program

Have a tough solids handling application? We believe our equipment will work and we're willing to put our money where our mouth is.

Here's the basics:

- We will ask you to work with our top tier applications' specialists to help you select the right pump
- Together we will come up with some expectations for how we both expect the pump to perform in your application
- Your commitment is that when the pump performs to our agreed expectations, you'll keep it

Simple as that.

Contact our Hevvy Pumps team today to find out more on this No Risk Program: info@hevvyumps.com