

Modular Industrial Pumps



Broad application suitability underpins the SIHI^{SuperNova} range of end-suction centrifugal pumps. Demanding temperature profile, hydraulic efficiency, low NPSH make this range a perfect choice for those making an ecologically balanced decision. Designed with consideration of ISO 5199, assures long-term reliability, process consistency, and simple maintenance.

Three configurations of the SIHI^{SuperNova} range combine modularity with application fit. The general purpose end-suction design is complemented by two additional models for hot water and hot oil. All three designs are fundamentally different in which to match the different demands of each application.

Developed in accordance with some strict ISO, DIN, and EN standards guarantees the quality and market interchangeability of the SIHI^{SuperNova}.

Highly effective seal chamber design is at the heart of this range, where seal face lubrication is of paramount importance for reliability.

Overhung single-stage impeller permits only one set of bearings, one seal configuration, one set of wear-rings, and back pull-out together with the other benefits of end-suction.

Multiple volutes with diffuser are employed in the larger machines in which to distribute radial forces, improve performance, and improve the life of the pump. Circa .50 hydraulic sizes are available long or close-coupled, horizontal or vertical, in various materials, and with multiple sealing options.

Almost 100 years of pump development at SIHI, and countless numbers being supplied to hundreds of global locations, demonstrates customer confidence with the SIHI^{SuperNova}.



Industries/Markets

- Chemical
- Pharmaceutical
- Food
- Metal manufacture
- Rubber & Plastic
- Marine
- Paper & Pulp
- Tank Farm Storage
- Textile
- Building services



Applications

- Cooling
- Heating
- Irrigation
- Water supply
- Solvent transfer
- Acid & Alkali transfer
- Effluent
- Filter cleaning
- Deluge
- Pressure boosting



Performance Range

- Capacity: max. 1800 m³/h¹⁾
- Head: max. 140 m²⁾
- Speed: max. 3600 rpm
- Casing pressures: max. 40 bar
- Temperatures: max. + 350 °C³⁾

Materials

- + Cast iron
- + SG iron
- + Cast steel
- + Stainless steel

Sealing options

- + Mechanical seal
- + Gland packing
- + Lip seals
- + Seal-less

¹⁾ For higher capacities up to 2200 m³/h we recommend the SIHI CBT range

²⁾ For higher heads up to 1600 m we recommend the SIHI^{multi} range

³⁾ For higher temperatures up to 400 °C we recommend the SIHI^I range

The Industrial Solution

Horizontal End Suction Volute Casing Pumps

according to EN 733/ DIN 24255



General Purpose Pumps

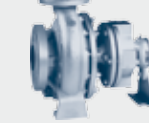
ZLN long-coupled design up to 170 °C



ZLK close-coupled design up to 120 °C

Hot Water Pumps

ZHN long-coupled design up to 180 °C



ZDN long-coupled design up to 207 °C



ZEN long-coupled design up to 230 °C

Thermal Oil Pumps

ZTN long-coupled design up to 350 °C



ZTK close-coupled design up to 350 °C

In-Line Volute Casing Pumps

based on EN 733/DIN 24255



General Purpose Pumps

ZLI close-coupled design up to 120 °C



Hot Water Pumps

ZLI close-coupled design up to 150 °C



Thermal Oil Pumps

ZTI close-coupled design up to 350 °C



Features

- + High efficiency
- + Seal area deflection to ISO 5199
- + Low NPSH
- + Modular family
- + Back pull-out
- + Global service network
- + ATEX

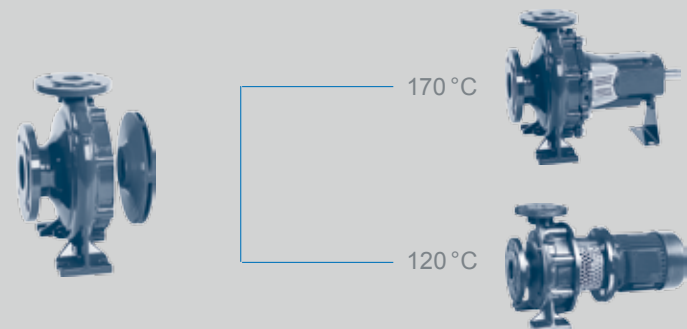
Benefits

- ✓ Reduced power consumption
- ✓ High reliability & extended MTBF
- ✓ Reduced installation costs
- ✓ Low inventories, short delivery times
- ✓ Ease of maintenance
- ✓ Local and rapid support
- ✓ Suitable for explosive atmospheres

General Purpose Pumps

Horizontal End Suction Volute Casing Pumps

according to EN 733/DIN 24255



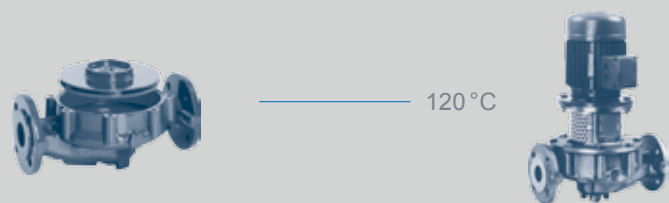
170 °C

120 °C

ZLN long-coupled design with single or double mechanical seal, or packed gland. Optional possibilities include seal quench, cooling, heating, flushing, and throttling.

ZLK close-coupled design with single mechanical seal.

In-Line Volute Casing Pumps based on EN 733/DIN 24255



120 °C

ZLI close-coupled design with single mechanical seal.

| General Purpose Pumps | Capacity (maximum) | Head (maximum) | Speed (maximum) | Temperature (maximum) | Casing Pressure | Sealing | Materials |
|-----------------------|------------------------|----------------|-----------------|-----------------------|-----------------|--------------------------------|----------------------------|
| ZLN | 1800 m ³ /h | 140 m | 3600 rpm | 170 °C | 16 bar | Mechanical seal, gland packing | Cast iron, stainless steel |
| ZLK | 740 m ³ /h | 90 m | 3600 rpm | 120 °C | 16 bar | Mechanical seal | Cast iron, stainless steel |
| ZLI | 280 m ³ /h | 60 m | 3600 rpm | 120 °C | 16 bar | Mechanical seal | Cast iron, stainless steel |

Design Features

ZLN

Long lasting efficiency

- Closed impeller permitting 'neck' wear-rings to be retrofitted

High efficiency & low power

- Advanced fluid dynamic design

Low NPSH

- High quality impeller and suction profile

Extended seal life

- Vortex breakers and modern seal chamber
- Low shaft deflection

Flexible sealing options

- Single or double mechanical seals
- Cartridge or component seals
- Packed gland

Suitable for temperatures up to 170 °C, this diverse range of general purpose pumps offers the user a low life-cycle cost solution. Capital cost, power consumption, maintenance, reliability, and waste, have all been considered during the extensive development phase.

Robust rotating assembly

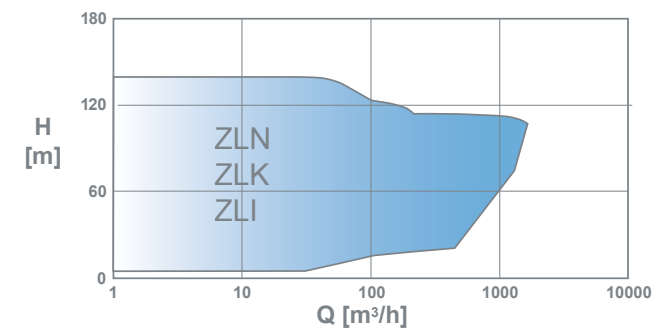
- Oversized ball bearings and shaft diameter

Reliability

- Seal area shaft deflection to ISO 5199
- General consideration of ISO 5199

Mechanical seal protection

- Bearing bracket rigidly fixed to the casing cover for stable back pull-out transportation

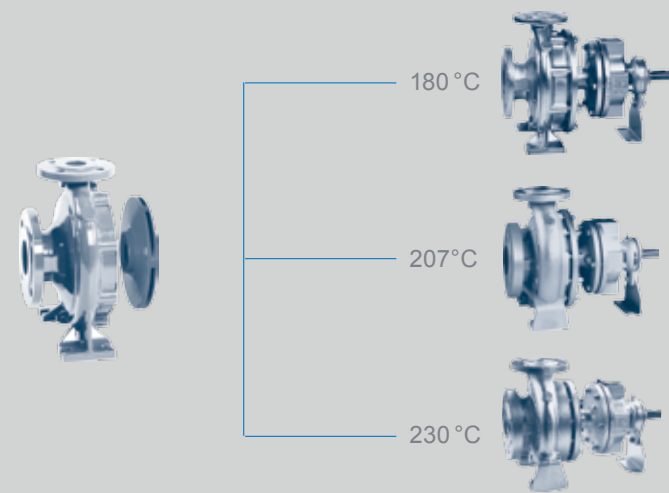




Hot Water Pumps up to 230 °C

Horizontal End Suction Volute Casing Pumps

according to EN 733/DIN 24255 or EN 22858/DIN 24256



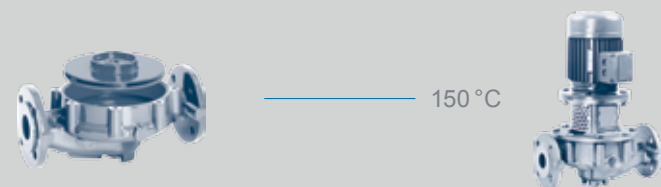
ZHN long-coupled. Designed specifically for use with pressurised high-temperature water without the need to cool the single mechanical seal. Main dimensions in accordance with EN 733.

ZDN long-coupled. Designed specifically for use with pressurised high-temperature water without the need to cool the single mechanical seal. Main dimensions in accordance with EN 22858/DIN 24256.

ZEN long-coupled. Designed specifically for use with pressurised high-temperature water without the need to cool the single mechanical seal. Main dimensions in accordance with EN 22858/DIN 24256.

In-Line Volute Casing Pumps

based on EN 733/DIN 24255



ZLI close-coupled design with single mechanical seal that does not need to be cooled.



Design Features

ZHN

Superior hot water circulation, up to 230 °C with a standard un-cooled mechanical seal, gives the unique ability to minimise life-cycle cost. Internal separation and removal of undesirable vapour (steam) enhances mechanical seal face lubrication and improves reliability. High-level hydraulic efficiency ensures that running costs are predictably low.

Long lasting efficiency

- Closed impeller permitting 'neck' wear-rings to be retrofitted

High efficiency & low power

- Advanced fluid dynamic design

Low NPSH

- High quality impeller and suction profile

Simple removal

- Back pull-out design

Un-cooled seal

- Vapour separation and removal in this unique seal chamber
- Large volume seal chamber located at cool drive-end
- Low shaft deflection

Long life

- Anti-friction bearing

Robust rotating assembly

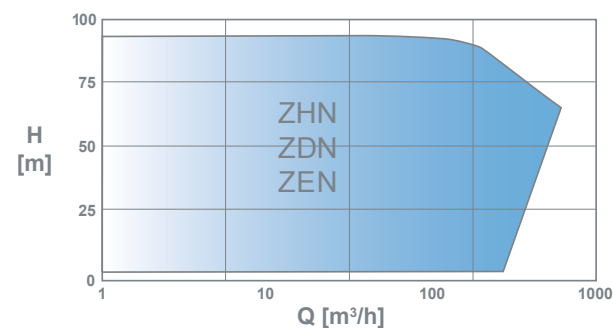
- Long-life ball bearing
- Sleeve bearing

Reduced spare parts cost

- Standard mechanical seal to DIN 24960

Stable with temperature fluctuations

- Provision for thermal expansion



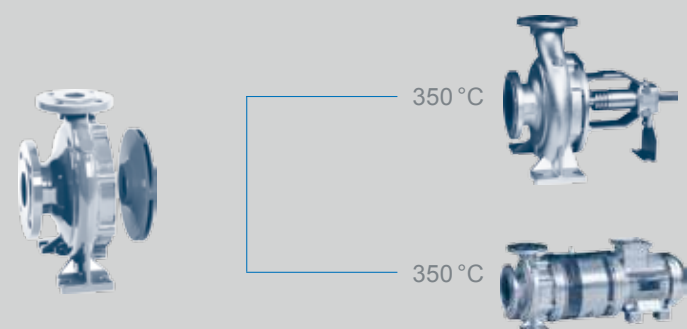
| Hot Water Pumps | Capacity (maximum) | Head (maximum) | Speed (maximum) | Temperature (maximum) | Casing Pressure | Sealing | Materials |
|-----------------|-----------------------|----------------|-----------------|-----------------------|-----------------|-----------------|---------------------|
| ZHN | 600 m ³ /h | 90 m | 3600 rpm | 180 °C (un-cooled) | 16 bar | Mechanical seal | SG iron |
| ZDN | 600 m ³ /h | 90 m | 3600 rpm | 207 °C (un-cooled) | 25 bar | Mechanical seal | SG iron |
| ZEN | 600 m ³ /h | 90 m | 3600 rpm | 230 °C (un-cooled) | 40 bar | Mechanical seal | SG iron, cast steel |
| ZLI | 140 m ³ /h | 60 m | 3600 rpm | 150 °C (un-cooled) | 25 bar | Mechanical seal | SG iron |



Thermal Oil Pumps up to 350 °C

Horizontal End Suction Volute Casing Pumps

according to EN 733/DIN 24255

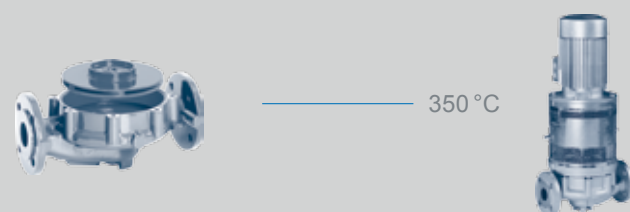


ZTN long-coupled. With auxiliary seal security, these units are designed specifically for use with high-temperature thermal oils. Main dimensions in accordance with EN 733.

ZTK close-coupled. The addition of a shaft mounted air-cooling fan, together with the auxiliary seal security, makes the ZTK a perfect solution for high-temperature thermal oils. Main dimensions in accordance with EN 733.

In-Line Volute Casing Pumps

based on EN 733/DIN 24255



ZTI close-coupled. The addition of a shaft-mounted air-cooling fan, together with the auxiliary sealing options, makes the ZTI an ideal selection for high-temperature thermal oils where space is at a premium.

Design Features

ZTN

Operational safety, environmental concern, and long-term reliability, are the three aspects which make this pump an ideal choice for thermal oils up to 350 °C. High-end hydraulic efficiency is complimented by almost maintenance-free operation, in which to give a low Life-Cycle cost solution. Shaft sealing can be either a combination of mechanical and secondary lip seals, or seal-less magnetic drive for 400 °C oils.

Long lasting efficiency

- Closed impeller permitting 'neck' wear-rings to be retrofitted

High efficiency & low power

- Advanced fluid dynamic design

Low NPSH

- High quality impeller and suction profile

Robust rotating assembly

- Long-life ball bearing
- Sleeve bearing

Simple removal

- Back pull-out design

Triple protection

- Mechanical seal backed by lip seals and bearing assembly

Reduced spare parts cost

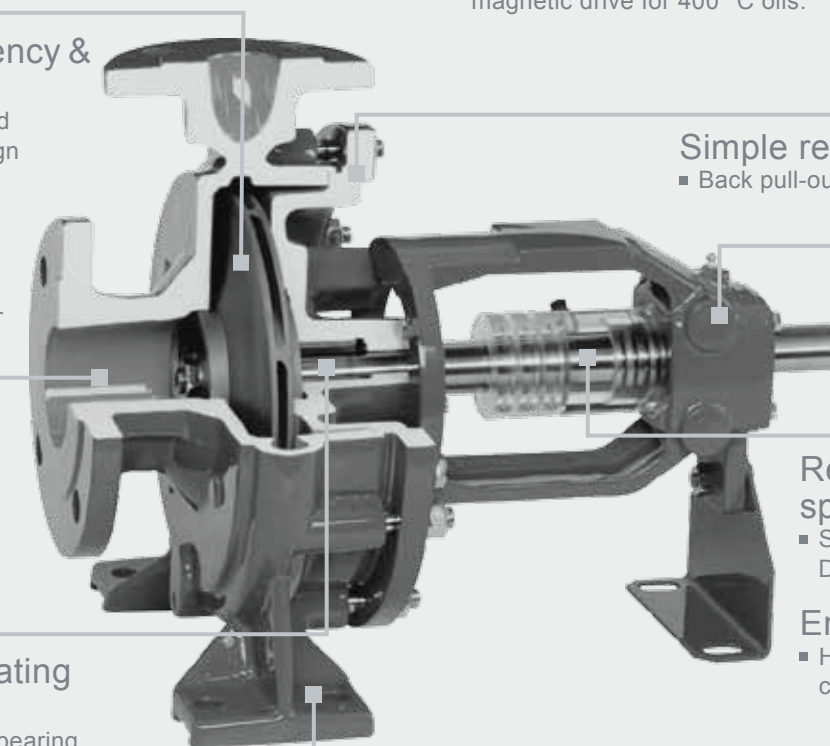
- Standard mechanical seal to DIN 24960 and basic lip seals

Enhanced seal life

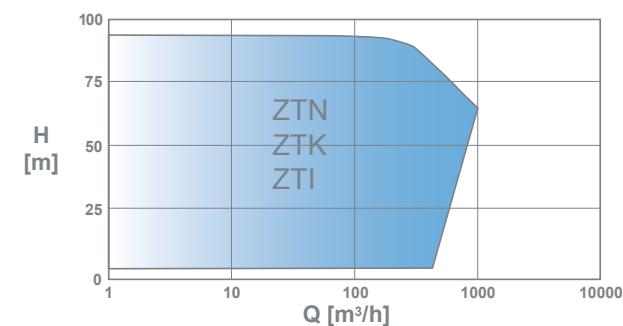
- Heat dissipation with air-fin cooling

Stable with temperature fluctuations

- Provision for thermal expansion

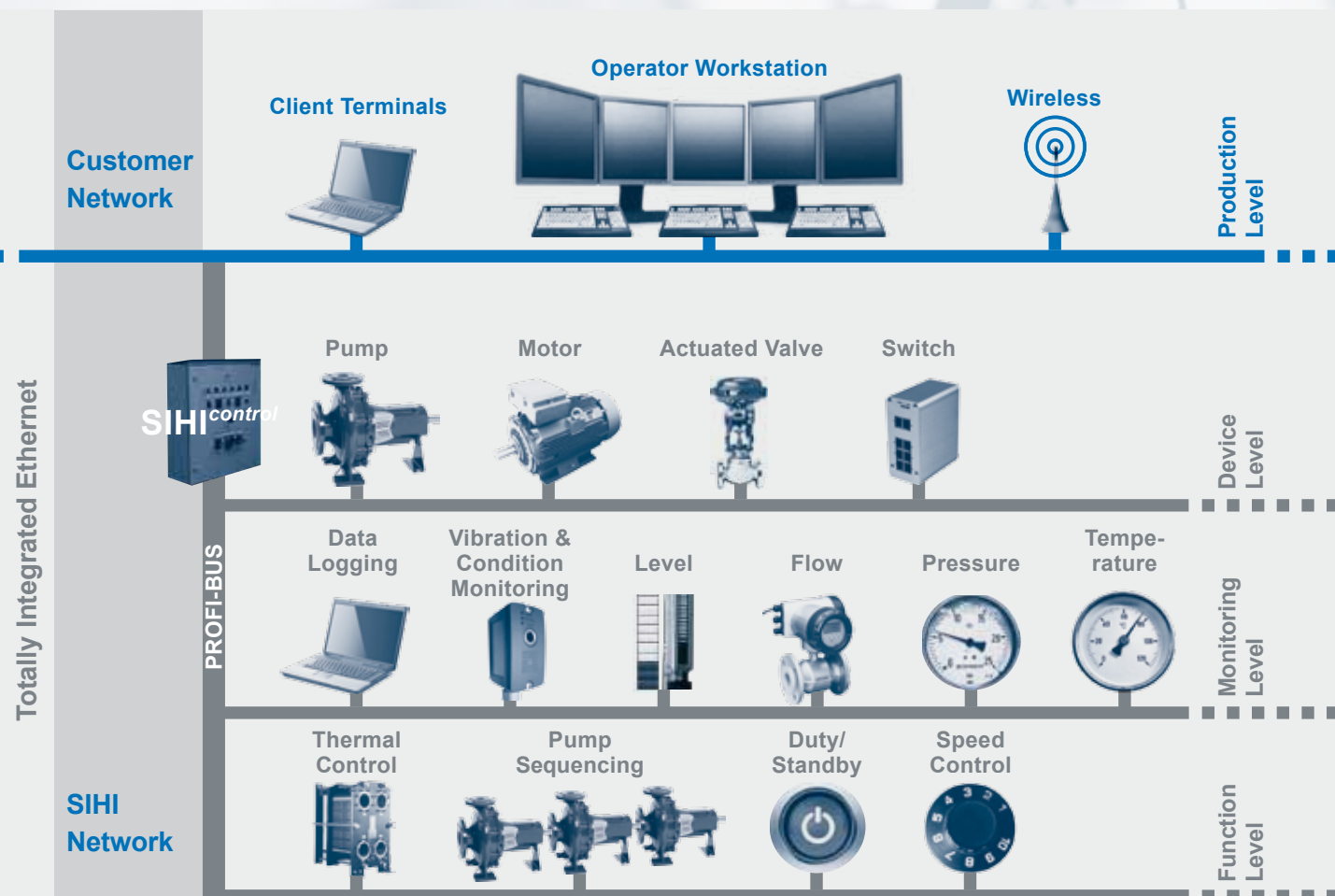


| Thermal Oil Pumps | Capacity (maximum) | Head (maximum) | Speed (maximum) | Temperature (maximum) | Casing Pressure | Sealing | Materials |
|-------------------|------------------------|----------------|-----------------|-----------------------|-----------------|----------------------------|-----------|
| ZTN | 1000 m ³ /h | 90 m | 3600 rpm | 350 °C (un-cooled) | 16 bar | Mechanical seal, lip seals | SG iron |
| ZTK | 200 m ³ /h | 60 m | 3600 rpm | 350 °C (un-cooled) | 16 bar | Mechanical seal | SG iron |
| ZTI | 200 m ³ /h | 60 m | 3600 rpm | 350 °C (un-cooled) | 16 bar | Mechanical seal | SG iron |



From concept to integration

Your process partner Committed to engineering excellence



Permitting our customers to save precious time and money, SIHI offers a complete digital control system. Employing the Process Field-Bus standard communication platform, PROFI-BUS, simple

operator connectivity is possible via a SIHI^{control}. Available with local panel and screen, the pumping system has pre-programmed logic control, monitoring, and data logging facilities.

Understanding the process

- + 100 years of experience
- + Staff trained to communicate at all levels
- + Deep application knowledge
- ... Solutions with minimal customer effort

Optimum product range

- + Unique process can be treated with simplicity
- + Reduced cost of design, manufacture, and documentation
- + Predictable site testing and commissioning
- ... Customised solutions for standard capital costs

Design

- + Advanced design tools
- + Highest level of machine efficiency
- + Long lasting reliability
- ... Reduced energy, maintenance, and environmental costs

Manufacturing

- + Centre of excellence structure
- + High level of skill and competence
- + Ongoing people and process development
- ... Reduced integration costs

Testing & documentation

- + Factory and Site Acceptance Tests
- + Certified documentation
- + Witnessed customised testing
- ... Reduced validation and commissioning costs

Quality assurance

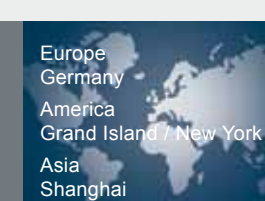
- + Total Quality Management
- + ISO9000
- + Rigorous health and safety culture
- ... Long term security

Aftermarket – a local approach

- + Dedication to process uptime
- + Locally positioned service & technical centres
- + Easy access to support, on a worldwide level
- ... Highest level of customer care

Competence Centre

- + Centralised design, purchasing, production, compliance, and local support
- + De-centralised (local) quotation and project management teams



Reduce Life Cycle Costs ...

- › Capital Cost
 - › Energy (Power)
 - › Installation & Alignment
 - › Maintenance & Operation
 - › Down time
 - › Environmental Cost
- ... with SIHI

– Condition based monitoring



Detect wear before damage occurs

- + Cavitation and process turbulence
- + Simple to connect
- + LED display
- + Available Ex
- + All rotating machinery
- + DCS integration and continual monitoring

Noise and Vibration analysis allows this compact device to diagnose the (often hidden) symptoms of longer term damage even before vibration occurs.