

# Modular Industrial Pumps **SIHI** *SuperNova*



**Broad application suitability** underpins the SIHI<sup>SuperNova</sup> 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<sup>SuperNova</sup> 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<sup>SuperNova</sup>.

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<sup>SuperNova</sup>.



**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 m<sup>3</sup>/h<sup>1)</sup>
- Head: max. 140 m<sup>2)</sup>
- Speed: max. 3600 rpm
- Casing pressures: max. 40 bar
- Temperatures: max. + 350 °C<sup>3)</sup>

**Materials**

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

**Sealing options**

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

<sup>1)</sup> For higher capacities up to 2200 m<sup>3</sup>/h we recommend the SIHI CBT range

<sup>2)</sup> For higher heads up to 1600 m we recommend the SIHI<sup>multi</sup> range

<sup>3)</sup> For higher temperatures up to 400 °C we recommend the SIHI<sup>ISOChem</sup> range

The Industrial Solution

Horizontal End Suction Volute Casing Pumps

according to EN 733/ DIN 24255



General Purpose Pumps

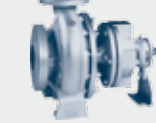
ZLN long-coupled design up to 170 °C



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

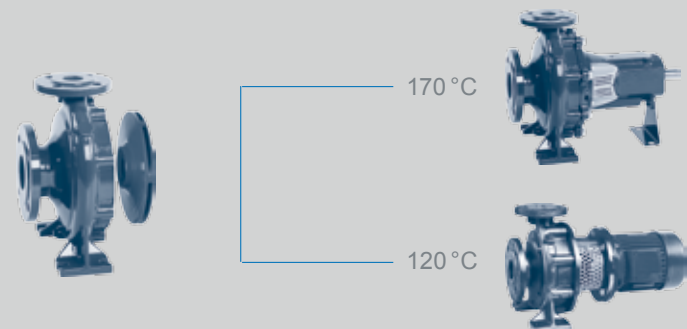
**Benefits**

- ✓ 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



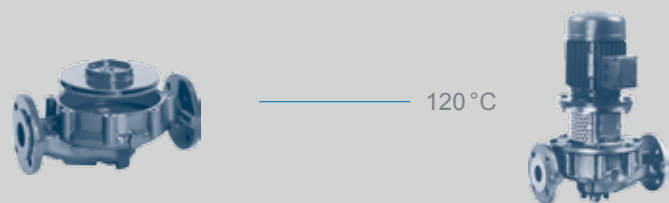
170 °C

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 m³/h	140 m	3600 rpm	170 °C	16 bar	Mechanical seal, gland packing	Cast iron, stainless steel
ZLK	740 m³/h	90 m	3600 rpm	120 °C	16 bar	Mechanical seal	Cast iron, stainless steel
ZLI	280 m³/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

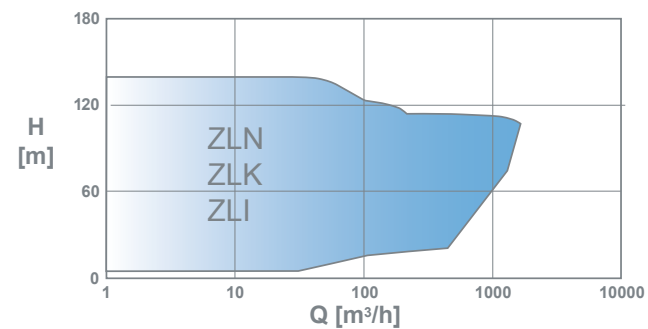
- Oversized ball bearings and shaft diameter

#### 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

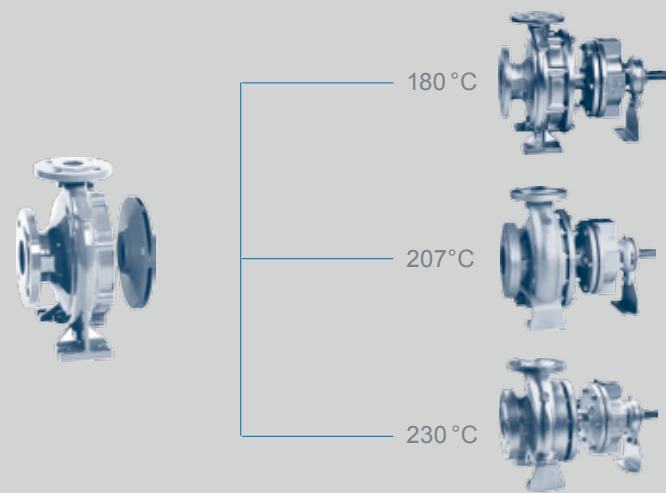




## Hot Water Pumps up to 230 °C

### Horizontal End Suction Volute Casing Pumps

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



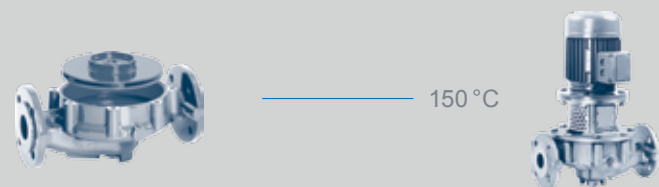
**ZHN** long-coupled. Designed specifically for use with pressurised high-temperature water without the need to cool the single mechanical seal. Main dimensions in accordance with EN 733.

**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

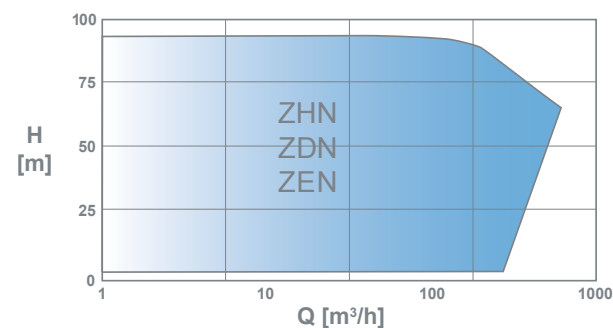
- Long-life ball bearing
- Sleeve bearing

#### Reduced spare parts cost

- Standard mechanical seal to DIN 24960

#### Stable with temperature fluctuations

- Provision for thermal expansion



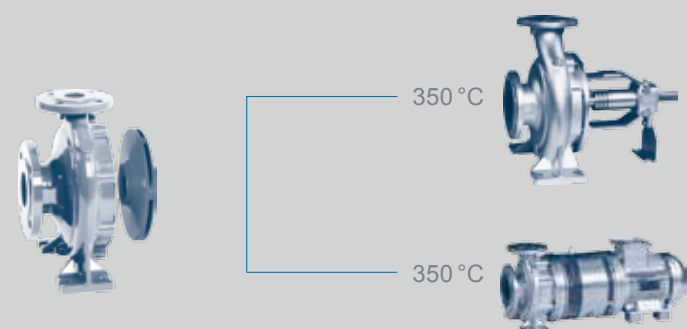
Hot Water Pumps	Capacity (maximum)	Head (maximum)	Speed (maximum)	Temperature (maximum)	Casing Pressure	Sealing	Materials
ZHN	600 m³/h	90 m	3600 rpm	180 °C (un-cooled)	16 bar	Mechanical seal	SG iron
ZDN	600 m³/h	90 m	3600 rpm	207 °C (un-cooled)	25 bar	Mechanical seal	SG iron
ZEN	600 m³/h	90 m	3600 rpm	230 °C (un-cooled)	40 bar	Mechanical seal	SG iron, cast steel
ZLI	140 m³/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

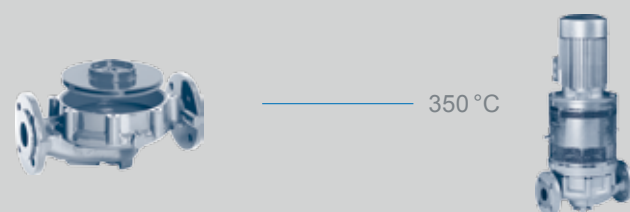


ZTN long-coupled. With auxiliary seal security, these units are designed specifically for use with high-temperature thermal oils. Main dimensions in accordance with EN 733.

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.

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

## 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

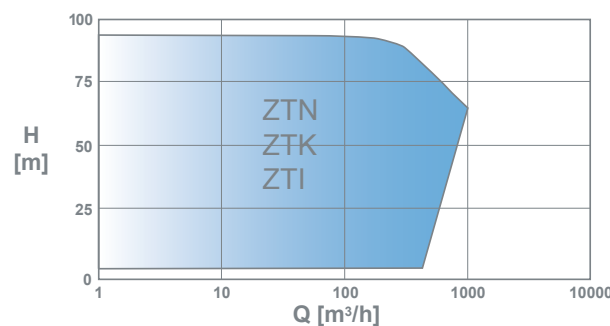
- Standard mechanical seal to DIN 24960 and basic lip seals

#### Enhanced seal life

- Heat dissipation with air-fin cooling

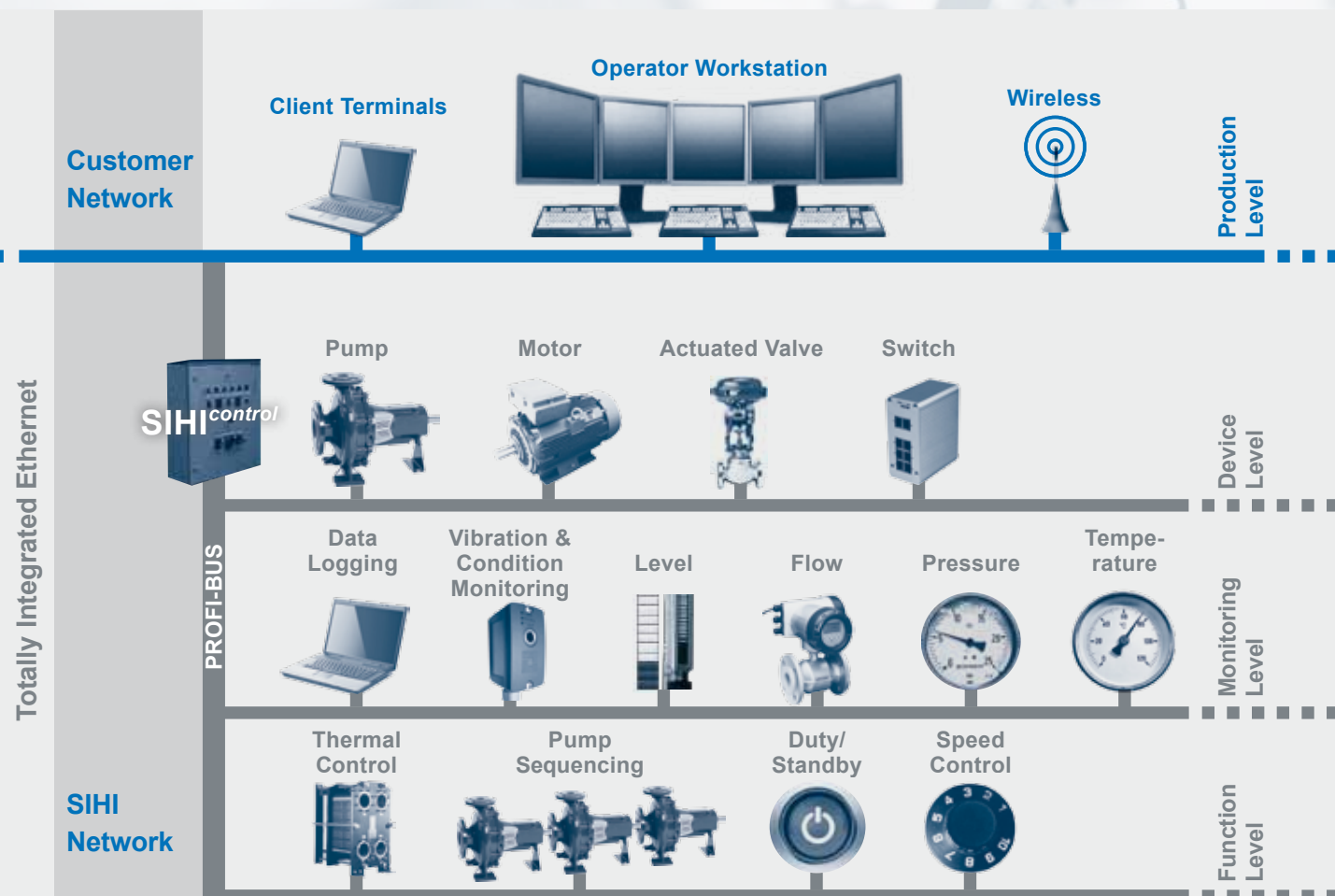
#### Stable with temperature fluctuations

- Provision for thermal expansion



## 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<sup>control</sup>. 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

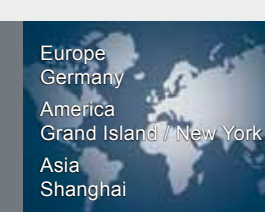
- + Total Quality Management
- + ISO9000
- + Rigorous health and safety culture
- ... Long term security

### Aftermarket – a local approach

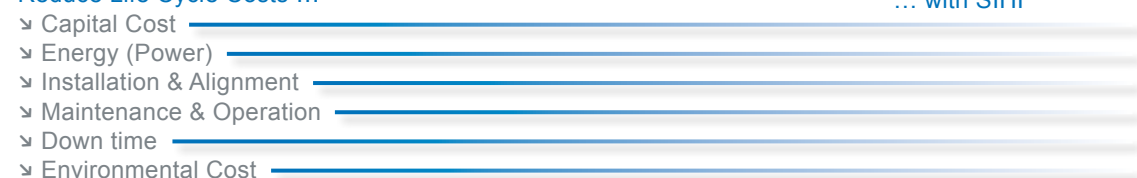
- + Dedication to process uptime
- + Locally positioned service & technical centres
- + Easy access to support, on a worldwide level
- ... Highest level of customer care

### Competence Centre

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



### Reduce Life Cycle Costs ...



... with SIHI



### SIHI<sup>detect</sup> – 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.



For further address details please visit:  
[www.sterlingSIHI.com](http://www.sterlingSIHI.com)

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#### EUROPE

Sterling Fluid Systems (Austria)  
Wien  
Tel. +43 (0) 1 680 050  
sales\_austria@sterlingsihi.de

Sterling Fluid Systems (Belgium)  
Groot-Bijgaarden  
Tel. +32 (0) 2 481 7711  
sales\_be@sterlingfluid.com

Sterling SIHI (Bulgaria)  
Sofia-Iinden  
Tel. +359 (0) 2 8228311  
office@sterlingsihi.bg

Sterling Fluid Systems  
(Czech Rep.) Olomouc  
Tel. +420 587 433 651  
sterling@sterling.cz

Sterling Fluid Systems (France)  
Trappes  
Tel. +33 (0) 1 34 823 900  
sales.france@sterlingfluid.com

Sterling SIHI (Germany)  
Itzehoe  
Tel. +49 (0) 4821 771 04  
sales@sterlingsihi.de

Sterling Fluid Systems (Hungary)  
Veszprem  
Tel. +36 (0) 88 406 633  
info@sterlingsihi.hu

Sterling Fluid Systems (Italy)  
Monza, Milan  
Tel. +39 039 282 41  
sterlingitaly@sidro.it

Sterling Fluid Systems  
(Netherlands)  
Beverwijk  
Tel. +31 (0) 251 263 232  
info@sihi.nl

Sterling Fluid Systems (Poland)  
Warszawa  
Tel. +48 (0) 22 335 2480/81  
sterling@sterling.pl

Sterling Fluid Systems (Romania)  
Bucuresti  
Tel. +40 (0) 21 610 7188  
office@sterlingsihi.ro

Sterling Fluid Systems (Spain)  
Madrid  
Tel. +34 91 709 1310  
sihi@sihi.es

Sterling Fluid Systems (Schweiz)  
Schaffhausen  
Tel. +41 (0) 52 644 0606  
info@sterling.ch

Sterling Fluid Systems (UK)  
Altrincham, Cheshire  
Tel. +44 (0)161 928 6371  
uksales@sterlingfluid.com

#### ASIA

SIHI Pumps (Singapore)  
Singapore  
Tel.: +65 656 283 00  
info.singapore@sihipumpsasia.com

SIHI Pumps (Malaysia)  
Selangor Darul Ehsan  
Tel.: +60 3 8942 6877  
info.malaysia@sihipumpsasia.com

SIHI Pumps (China)  
Shanghai  
Tel.: +8621 621 880 68  
info.china@sihipumpsasia.com

SIHI Pumps & Services (Thailand)  
Chonburi  
Tel.: +66 38 079 877  
info.thailand@sihipumpsasia.com

SIHI Pumps (Taiwan)  
Taipei County 251  
Tel.: +886 2 2808 4675  
info.taiwan@sihipumpsasia.com

SIHI Pumps (Korea)  
Seoul  
Tel.: +82 2 553 2592  
info.korea@sihipumpsasia.com

#### AMERICAS

SIHI Pumps Limited (Canada)  
Guelph Ontario  
Tel. +1 519 824 4600  
mail@sihi.com

SIHI Pumps Inc. (USA)  
Grand Island, New York  
Tel. +1 716 773 6450  
mail@sihi.com

SIHI Ltda. (Chile)  
Quilicura, Santiago  
Tel. +56 2 756 5900  
ventas@sihichile.cl

SIHI do Brazil (Brazil)  
Campinas  
Tel.: +55 19 3773 6057  
info@sihi.com.br

SIHI Pumps (Colombia)  
Bogota  
Tel.: +57 1 364 92 64  
info@sihi.com.co

SIHI (Peru)  
Lima  
Tel.: +51 1 421 7411  
ventas@sihiperu.com.pe

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