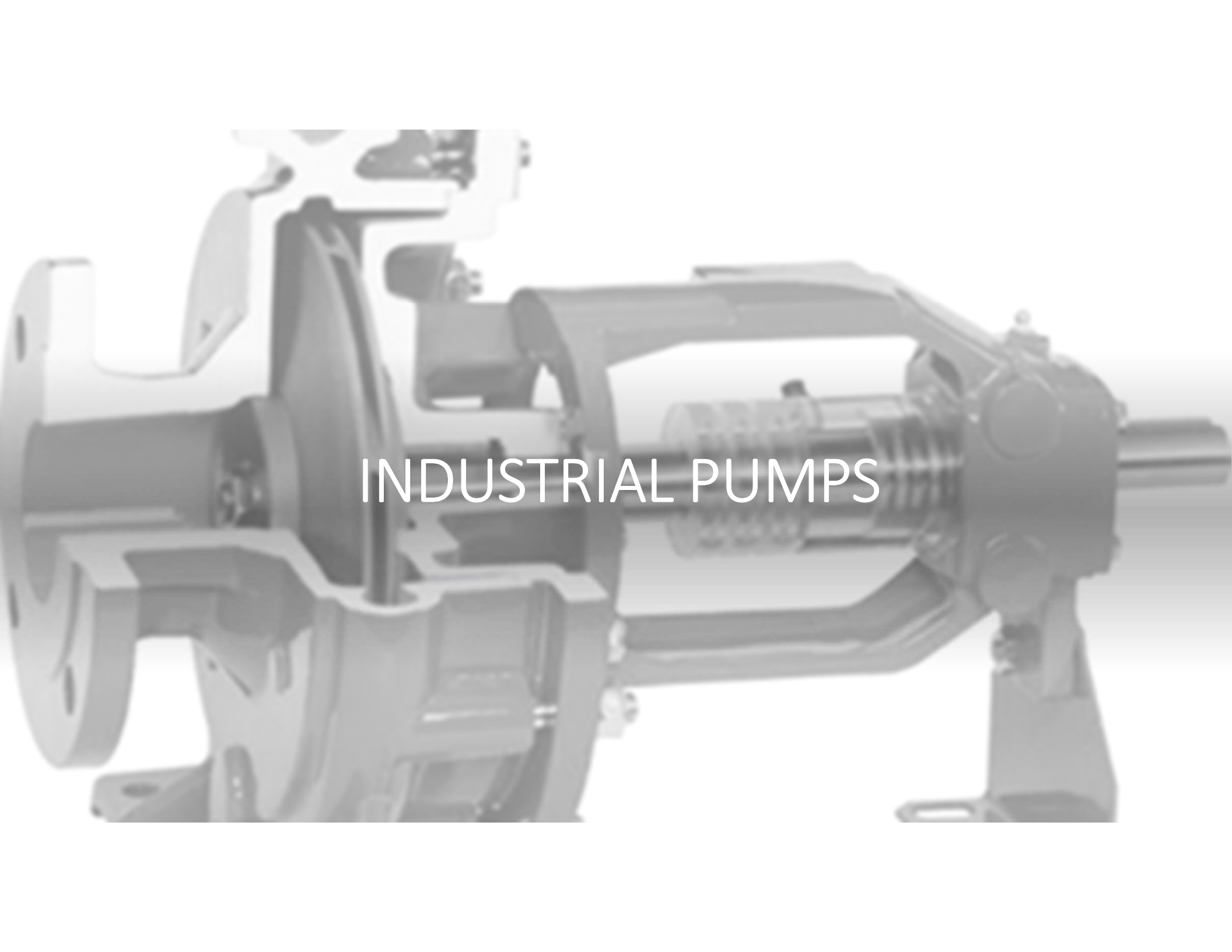




INDUSTRIAL PUMPS



Indice

- Tipo de Bomba y características
- Alcance de producto, tamaños, materiales
- Rango de Operación
- Opcionales más comunes

FLOWSERVE POZUELO – Industrial Pumps

Industrial Pumps



ZLN



ZLK (Closed Coupled)



ZLK (Mag Coupling)

Hot Water Application



ZHN



ZDN



ZEN

Thermal Oil Pumps



ZTN



ZTK (Closed Coupled)



ZTK (Mag Coupling)

Industrial Pumps



ZLI



ZLI (Mag. Coupling)

Hot Water Applications



ZLI (cierre mec. sin refrigeración)

Thermal Oil Pumps



ZTI



ZTI (Mag. Coupling)

Industrial Pumps: Pump Types and Operating Parameters

	ZLN	ZLK	ZLI
Flow	1800M ³ /h	740M ³ /h	330M ³ /h
Head	140m	90m	60m
Temperature	170 °C no refrigerado	120 °C no refrigerado	120 °C no refrigerado
Discharge Pressure	PN 16 *(Drilled to ANSI 150)	PN 16 *(Drilled to ANSI 150)	PN 16
Material	Iron & 316SS	Iron & 316SS	Iron & 316SS
Qty per year	2250	1150	200
Averg. Leadtime	2w – 8w	2w – 8w	5w – 10w

Where do we sell them:

Country	Qty sold 2018-2022
Germany	5160
France	2383
Spain	2268
Malaysia	1413
Belgium	1045
Netherland	1007
Liechtenstein	712
Italy	632
Czech Republic	606
Austria	496



SIHI SuperNova – Características y ventajas

Gran confiabilidad

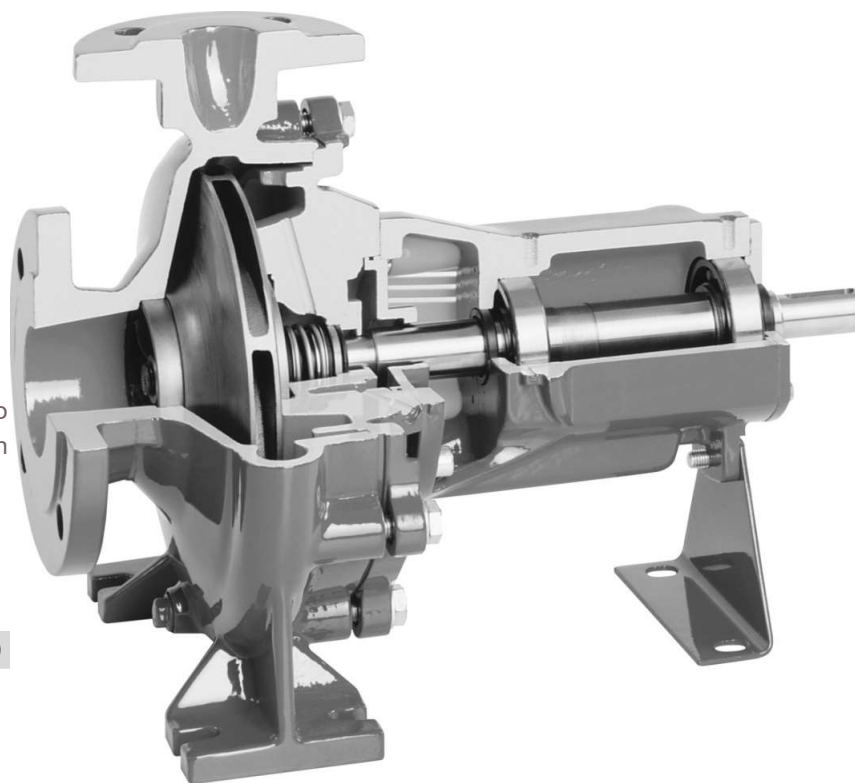
- + Totalmente conforme a EN 733
- + Consideración general de ISO 5199
- + Mayor Vida útil del sello mecánico
- + Mayor vida útil de los rodamientos de bolas
- + Junta alojada entre la cubierta y la carcasa
- + Ejecución estándar del sellado del eje

Bajo TCO

- + Rodamientos de bolas de alta calidad
- + Tiempo medio entre fallos (TMEF) más largo
- + Tamaños especiales con curva de operación amplia
- + Empuje axial reducido
- + Nervios anti-rotación
- + Cubiertas protectoras

Bajo Consumo de potencia

- + Eficiencia elevada y duradera
- + Impulsor cerrado
- + Graduación hidráulica optimizada



Larga vida útil de la bomba

- + Larga vida útil del cierre mecánico
- + Rodamientos de bolas de alta calidad
- + Deformación reducida del eje según ISO 5199

Mantenimiento y servicio técnico sencillos

- + No requiere mantenimiento periódico
- + Servicio técnico fácil in situ
- + Diseño menos complejo
- + Caras de brida levantadas
- + Anillos de obturación especiales
- + Conexiones externas flexibles para el cierre mecánico

Fácil instalación y monitorización

- + Diseño compacto del sistema
- + Menos espacio necesario en la planta
- + Monitorización del estado sencilla
- + IPS Detect
- + Equipada con conexiones estándar

Sistema modular

- + Máximo nivel de modularidad

Industrial Pumps – General Characteristics

High level of modularity

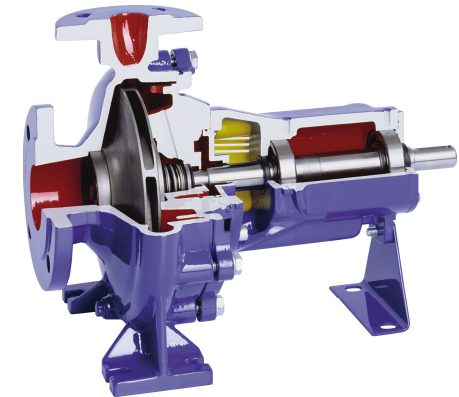
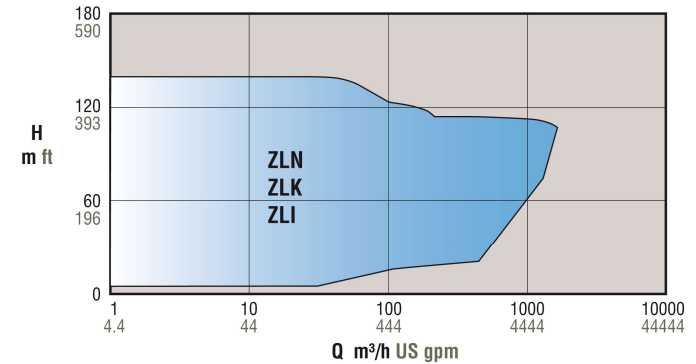
- ✓ Fully compliant with EN 733 and the general considerations of ISO 5199
- ✓ A single hydraulic covers the entire range of products
- ✓ Long coupled, direct coupled and magnetic coupled available

Improved efficiency

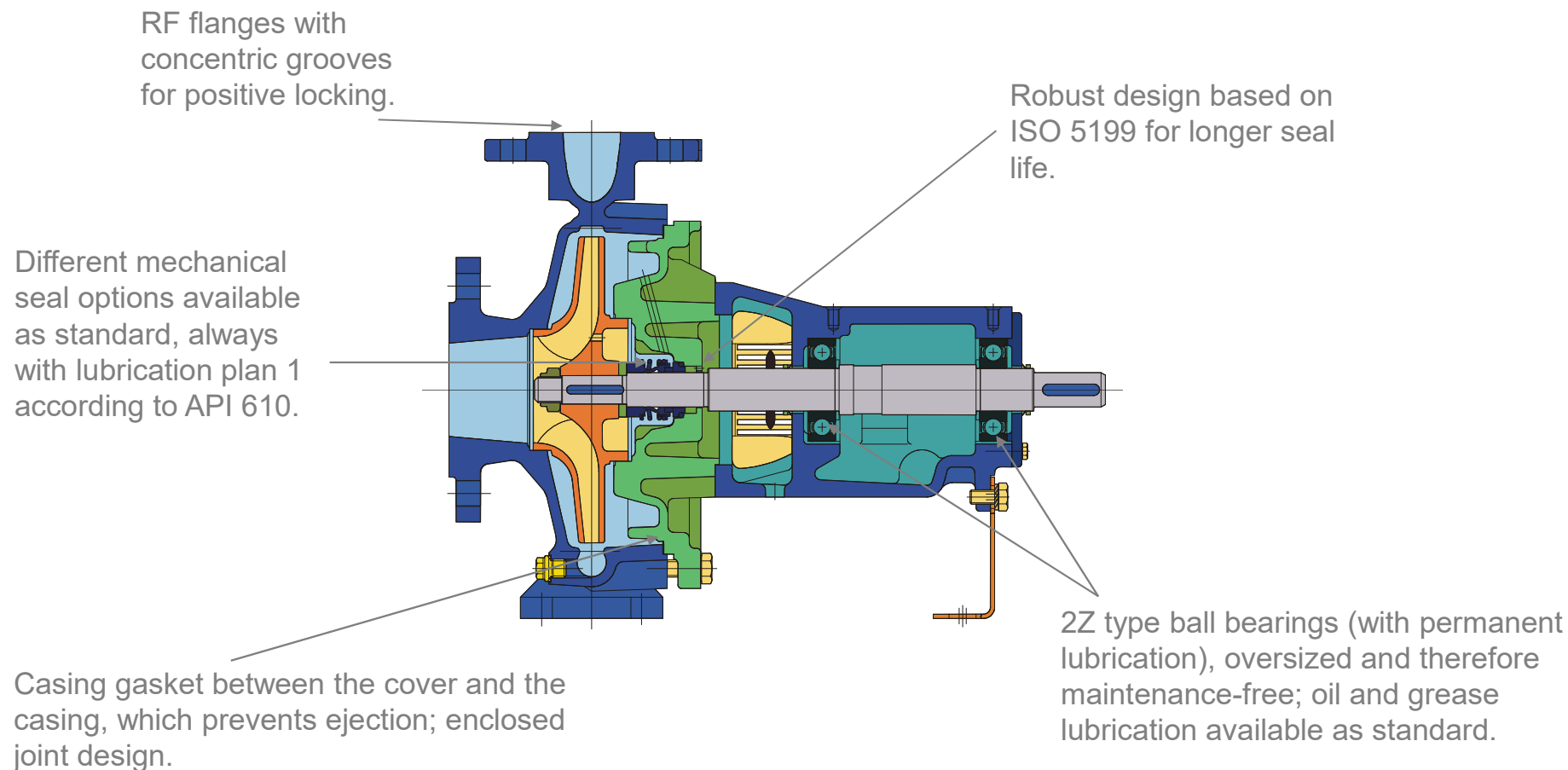
- ✓ Optimized hydraulic range
- ✓ Closed impeller with balancing holes
- ✓ Wide operating range for higher pumping capacities

High safety standard

- ✓ No risk of ejection working at high temperatures
- ✓ Keyed impeller with lock nut to prevent starting problems
- ✓ Impact resistant seal guard for operator protection
- ✓ External radial connections

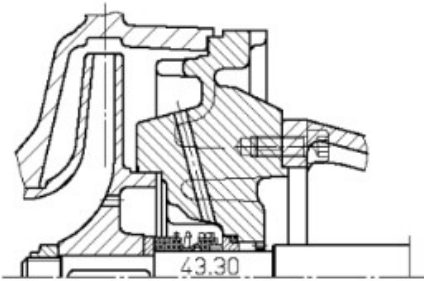


Industrial Pumps – High Reliability

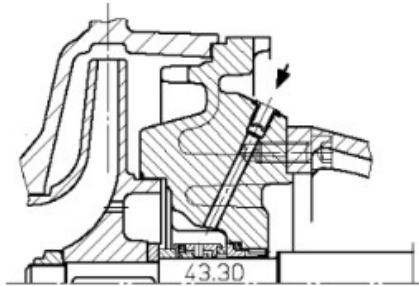


Industrial Pumps – High Reliability

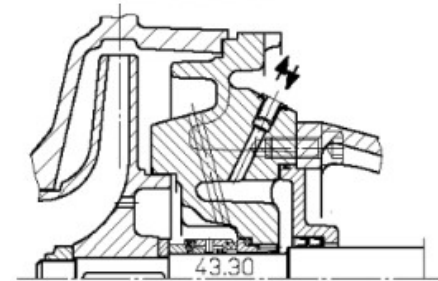
Basic



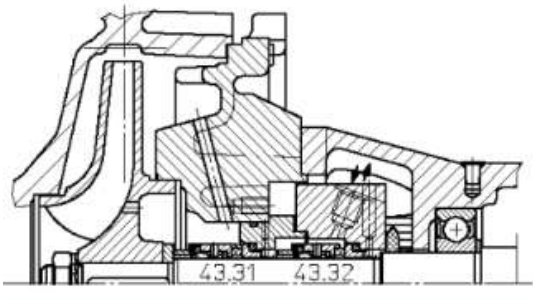
External Lubrication



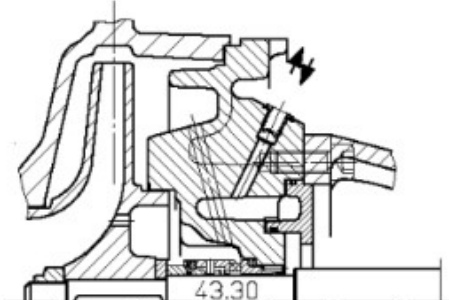
Immersion



Double Seal



Jacketed design for heating



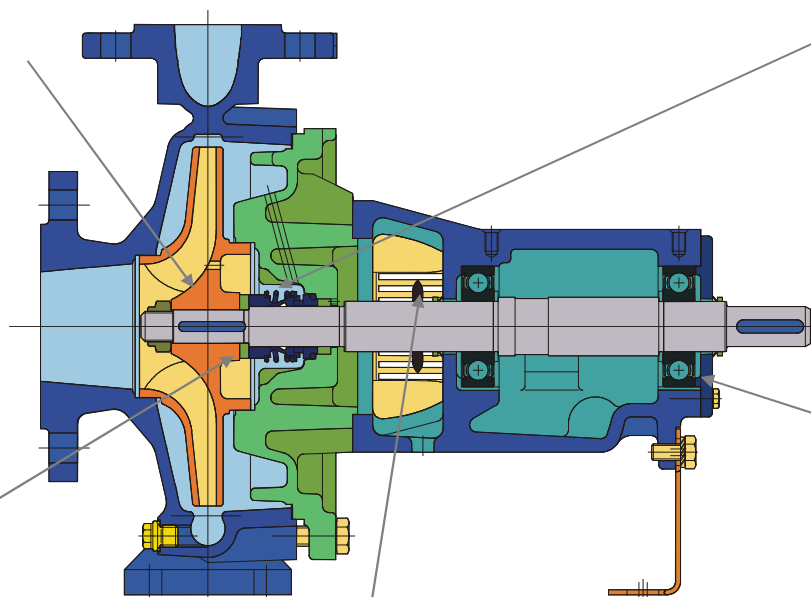
For more
options, please
contact us

Industrial Pumps – Reduced TCO and longer life

ZLND 32-160.1 y 32-200.1 with greater range of operation for greater pumping capacities.

ZLND 40-315 y 50-315 up to 145 m.l.c. head with 50Hz.

No shaft bushing is mounted for mechanical seal, which prevents the possibility of seal leakage between the shaft and the bushing.



The seal chamber is fitted with anti-rotation ribs for optimal mechanical seal performance and longer life.

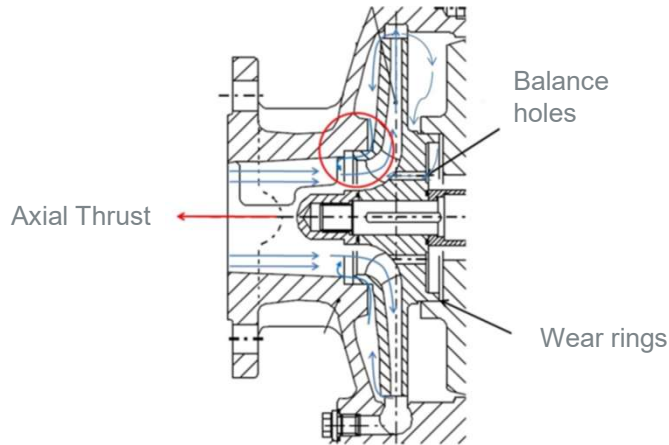
Ease of operation under vacuum, with viscous liquids or liquids with high melting points, thanks to the options of seal lubrication, heating and immersion.

Improved security thanks the use of protective covers

The special sealing rings remain closed when stopped (preventing the entry of water) and open during operation (preventing damage to the shaft).



Industrial Pumps – Energy Saving and Easy Maintenance



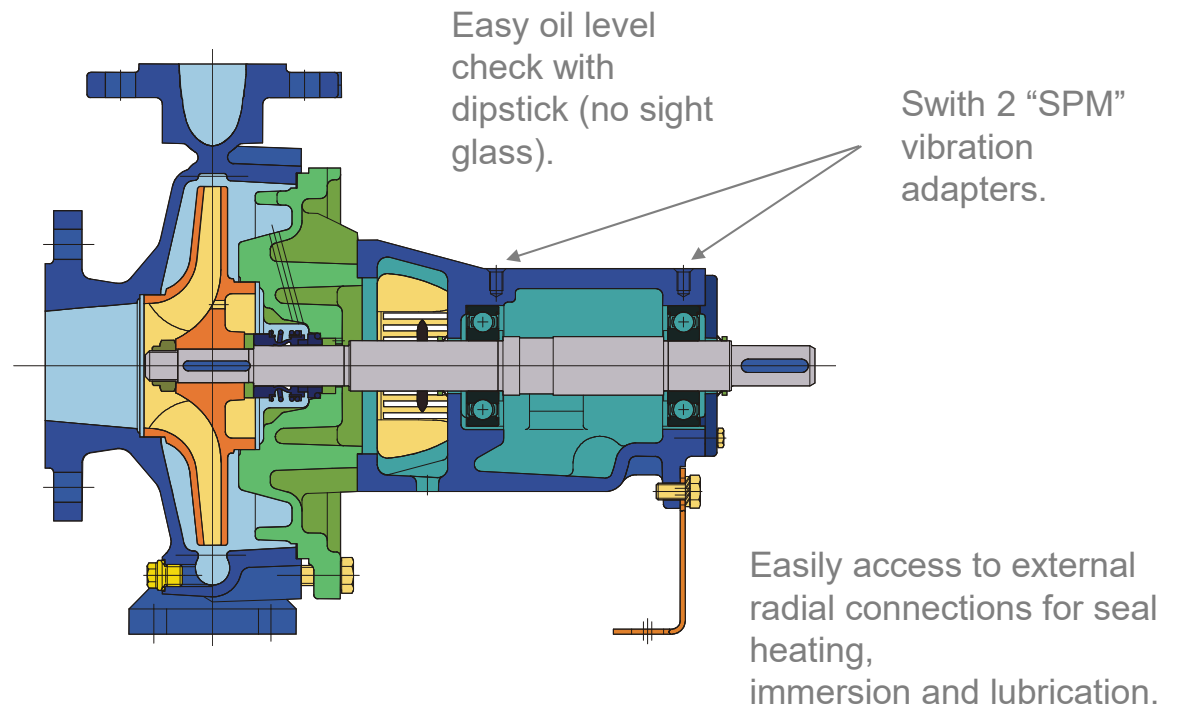
The reduced axial thrust elongates the TMEF.

Enclosed Impellers for:

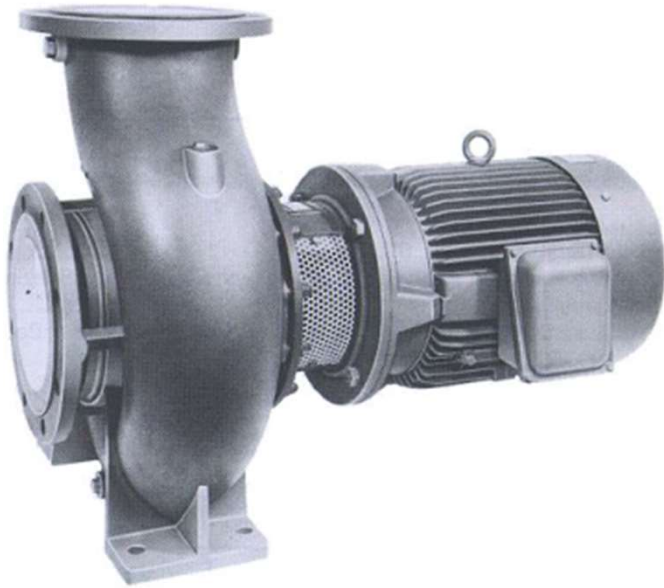
- High efficiency
- Low NPSH
- Balance to Gr.6.3
- *Gr. 2.5 as Optional



The less complex design requires fewer parts, resulting in lower maintenance costs and easier maintenance.



Industrial Pumps – Closed Coupled ZLK



Does not require baseplate, coupling and coupling guard

Designed for 100% standard motors

Saves more than 20% cost of acquisition, installation, maintenance and repair compared to baseplate mounted units

On the customer's side, only a small space is required

Rodamiento bomba no require rod. De motor

Industrial Pumps – Size availability

ZLND

		nominal diameter of pump discharge flange										
		032	040	050	065	080	100	125	150	200	250	300
impeller diameter	125	✓	✓	✓	✓	-	-	-	-	-	-	-
	160	✓	✓	✓	✓	✓	✗	-	-	-	-	-
	200	✓	✓	✓	✓	✓	✓	✗	✗	-	-	-
	250	✗	✓	✓	✓	✓	✓	✓	✗	✗	-	-
	300	-	-	-	-	-	-	-	-	-	✗	-
	315	-	✗	✗	✓	✓	✓	✓	✓	✗	✗	-
	400	-	-	-	-	✗	✓	✓	✓	✗	✗	✗
	500	-	-	-	-	-	-	-	✗	✗	✗	✗

✓ **NORM** connections and main dimensions to DIN 24255 / EN 733

✗ **TRANSNORM**

ZLKD

		nominal diameter of pump discharge flange								
		032	040	050	065	080	100	125	150	200
impeller diameter	125	✓	✓	✓	✓	-	-	-	-	-
	160	✓	✓	✓	✓	✓	✗	-	-	-
	200	✓	✓	✓	✓	✓	✓	✗	✗	-
	250	✗	✓	✓	✓	✓	✓	✓	✗	✗
	315	-	✗	✗	✓	✓	✓	-	-	-

✓ **NORM** connections and main dimensions to DIN 24255 / EN 733

✗ **TRANSNORM**

ZLI

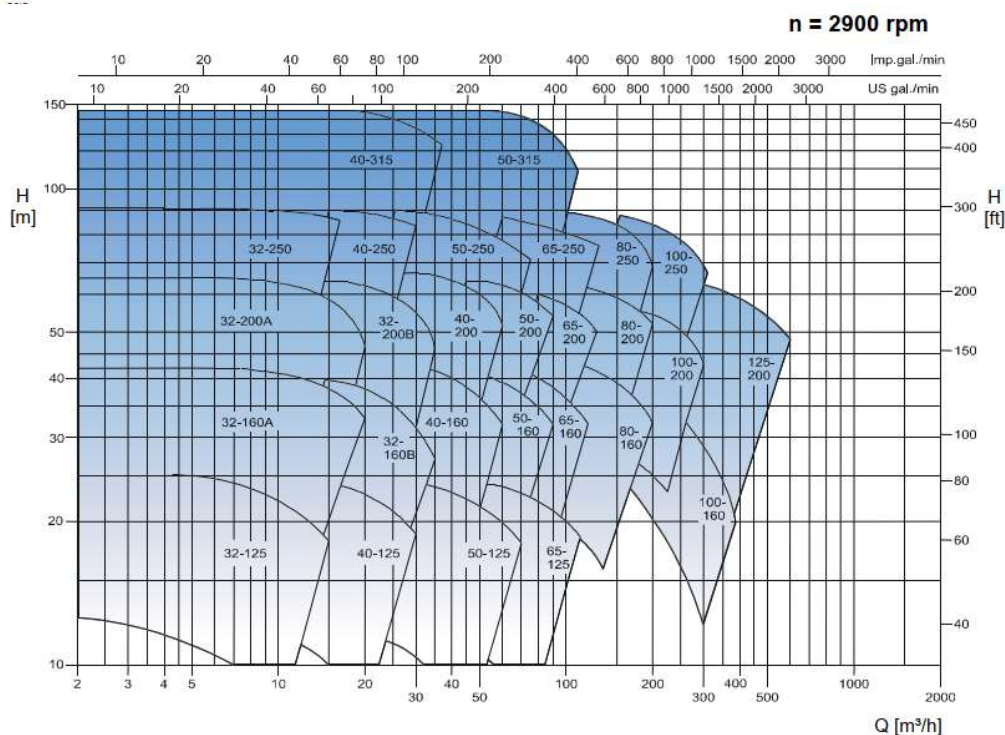
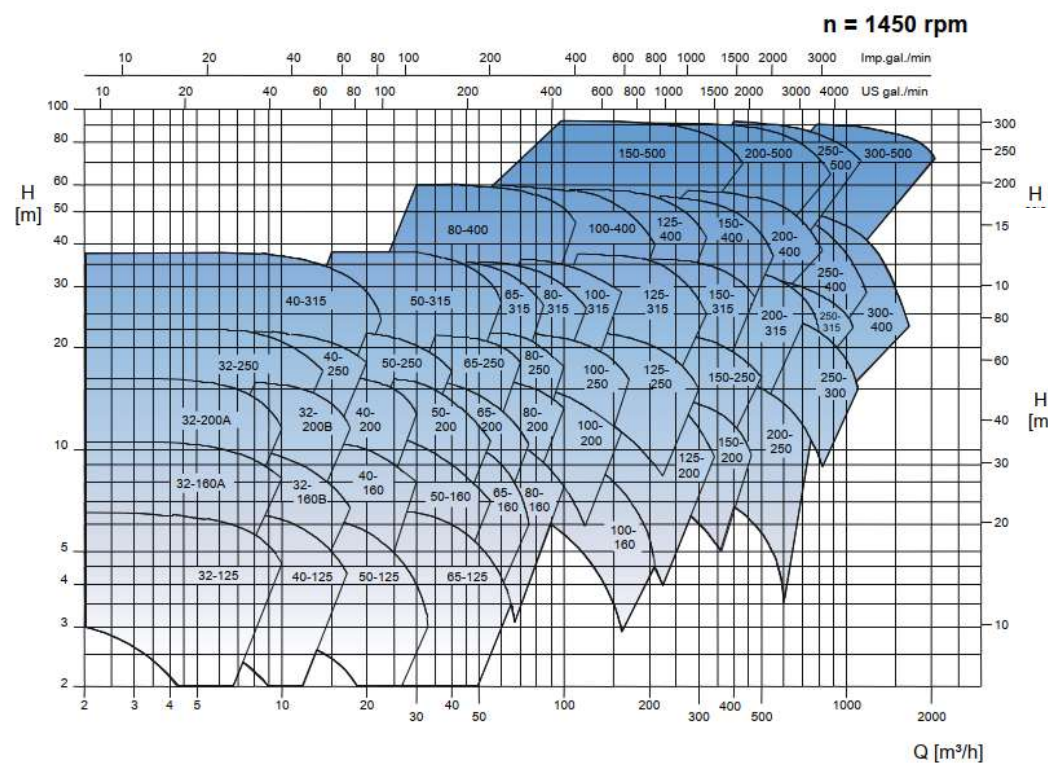
		nominal diameter of pump discharge flange					
		040	050	065	080	100	150
impeller diameter	160	✓	✓	✓	✓	✗	-
	200	✓	✓	✓	✓	✓	✗

✓ **NORM** connections and main dimensions to DIN 24255 / EN 733

✗ **TRANSNORM**



Industrial Pumps – Coverage charts ZLN

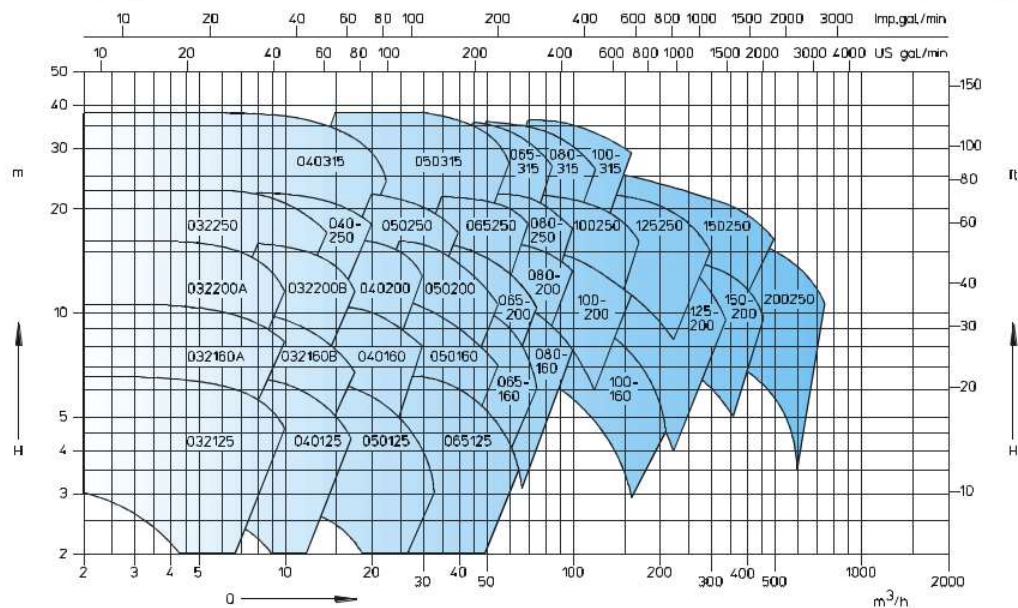




Industrial Pumps – Coverage charts ZLK

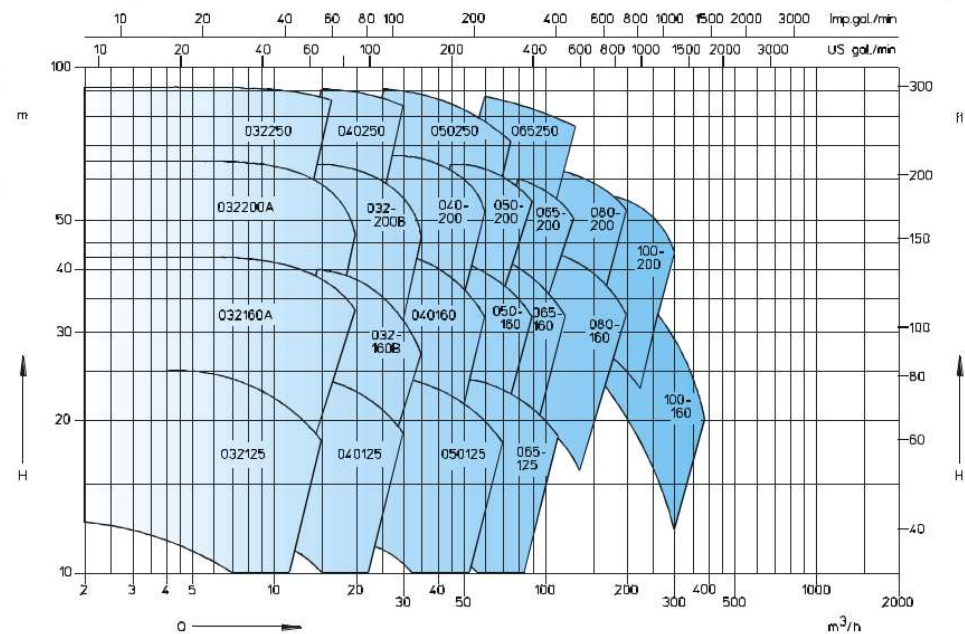
Performance graph

n = 1450 rpm



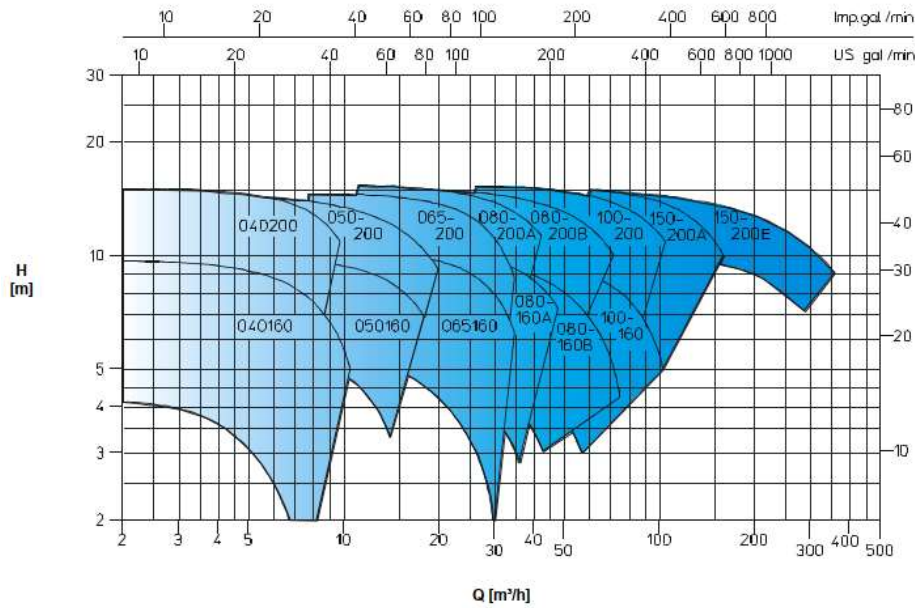
Performance graph

n = 2900 rpm

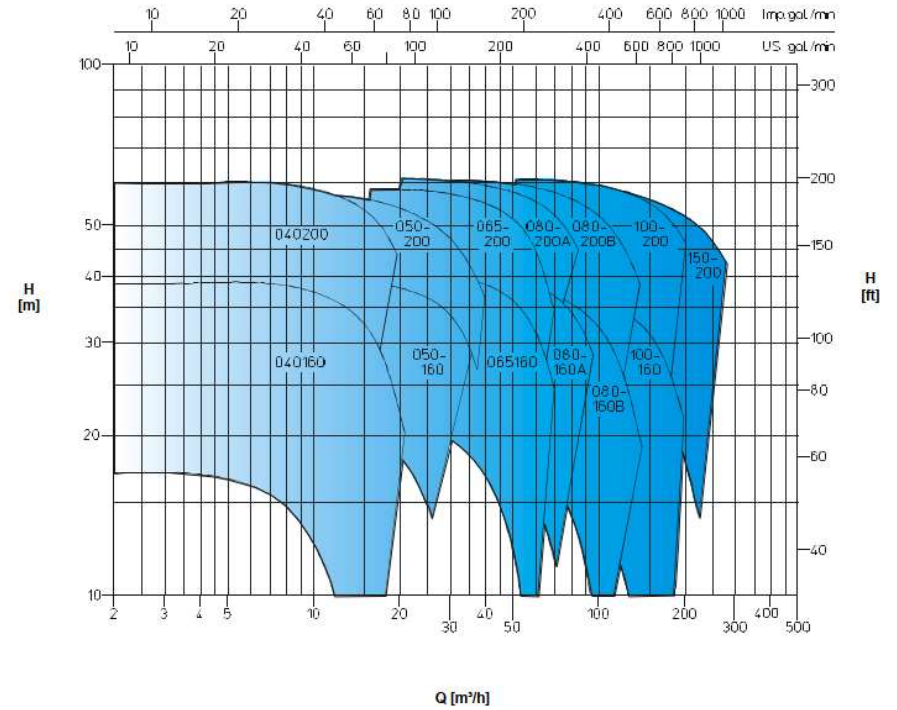


Industrial Pumps – Coverage charts ZLI

n = 1450 rpm



n = 2900 rpm





Industrial Pumps – Materials and Applications

	Materials ZLN			Materials ZLK			Materials ZLI		
Casing and Cover	EN-JL 1040	EN-JL1025	1.4408	EN-JL 1040		1.4408	EN-JL 1040		1.4408
Impeller	EN-JL 1040	2.1050	1.4408	EN-JL 1040	2.1050	1.4408	EN-JL 1040	2.1050	1.4408
Shaft	1.4021		1.4401	1.4021		1.4401	1.4021		1.4401
Bearing Bracket	EN-JL 1040								
Casing Gasket	EWP 210		PTFE	EWP 210		PTFE	EWP 210		PTFE
Shaft Sleeve / Mec. Seal	1.4021		-						

ZLN & ZLK Main applications

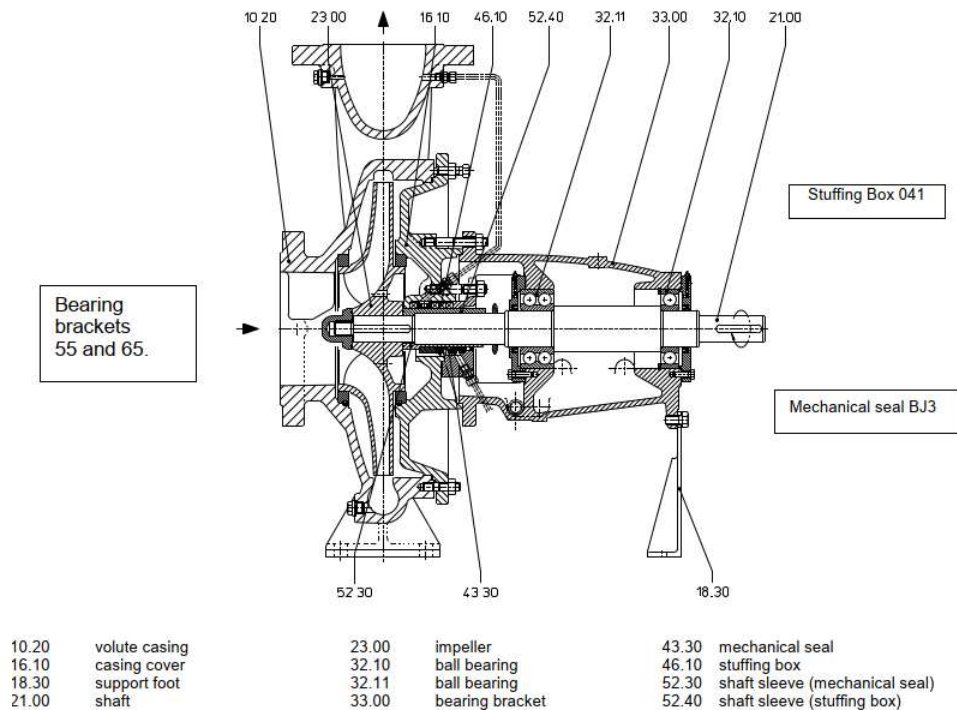
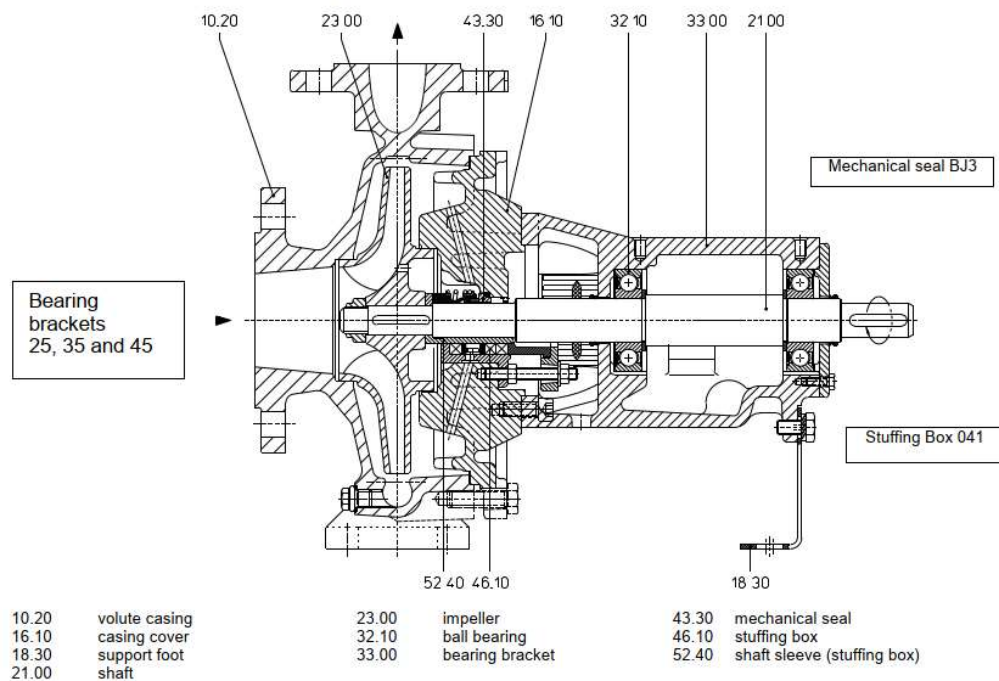
- Automobile, mechanical and general engineering industries
- Food and beverage industry
- Pharmaceutical industry
- Paint industry
- Plastics and rubber industry
- Iron and non-ferrous metal industry
- Paper and pulp industry
- Textile industry
- Building and construction industry
- Heating and air conditioning
- Drainage
- Water supply
- Irrigation

ZLI Main applications

- steel, machine and automobile construction
- food and semi-luxuries industry
- chemical and petrochemical industry
- pharmaceutical industry
- lacquer industry
- plastics and rubber industry
- iron and non-ferrous metal industry
- paper and pulp-industry
- textile industry

Industrial Pumps – Sealing Systems ZLN

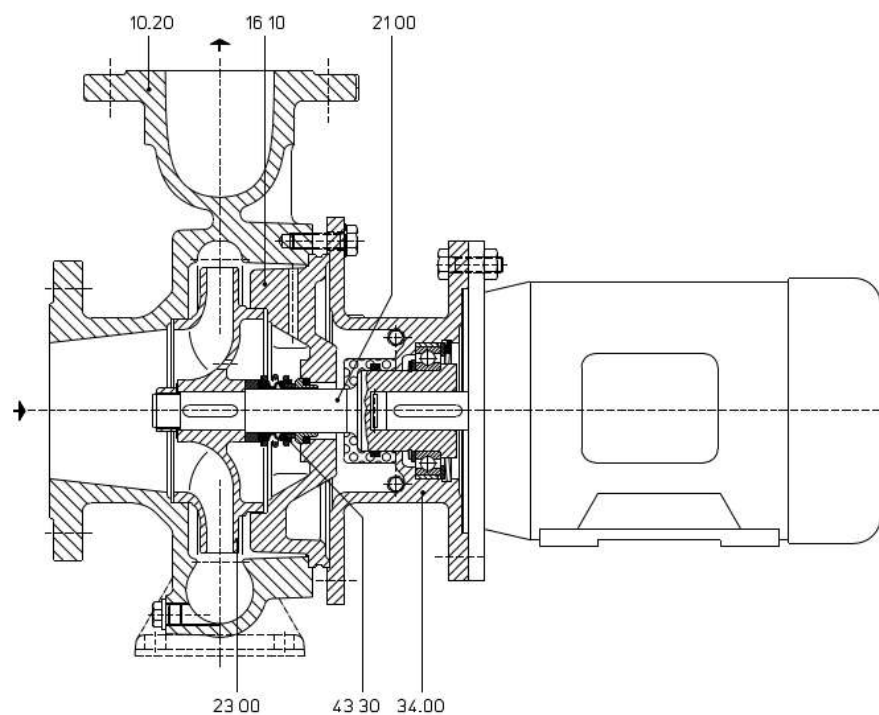
SECTIONAL DRAWING AND NOMENCLATURE



- Closed Impeller type
- Sealed by Mechanical seal or packing

- Bearing lubricated by Oil or Grease
- Flanges PN16 (Possible to drill to ANSI 150)

Industrial Pumps – Sealing Systems ZLK

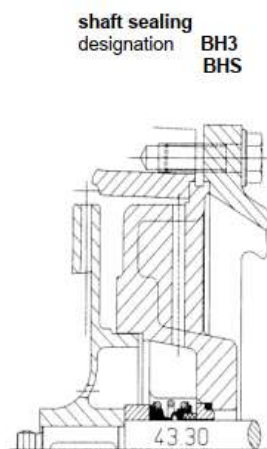
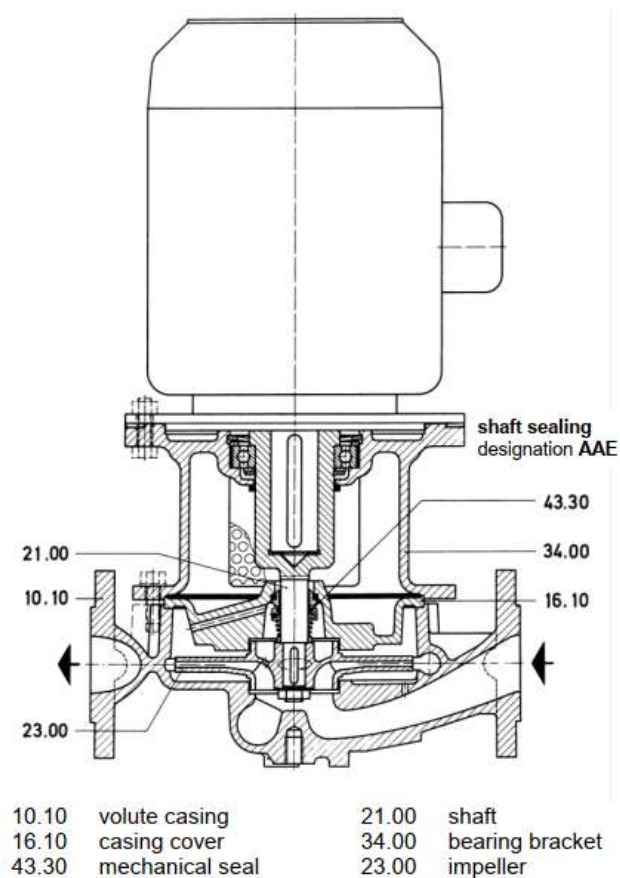


10.20 volute casing
16.10 casing cover
23.00 impeller

21.00 shaft
34.00 bearing bracket
43.30 mechanical seal B27/BH3/BHS/BHJ

- Closed Impeller type
- Sealed by Mechanical seal
- Bearing lubricated by Grease
- Flanges PN16 (Possible to drill to ANSI 150)

Industrial Pumps – Sealing Systems ZTI



- Closed Impeller type
- Sealed by Mechanical seal
- Bearing lubricated by Grease
- Flanges PN16 (Possible to drill to ANSI 150)

FLOWSERVE POZUELO – Industrial Pumps

Industrial Pumps



ZLN



ZLK (Closed Coupled)



ZLK (Mag Coupling)



Hot Water Application



ZHN



ZDN



ZEN

Thermal Oil Pumps



ZTN



ZTK (Closed Coupled)



ZTK (Mag Coupling)

FLOWSERVE POZUELO – Industrial Pumps

Industrial Pumps



ZLI



ZLI (Mag. Coupling)

Hot Water Applications



ZLI (cierre mec. sin refrigeración)

Thermal Oil Pumps



ZTI



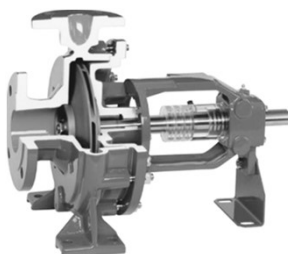
ZTI (Mag. Coupling)

Thermal Oil Pumps : Pump Types and Operating Parameters

	ZTN	ZTK	ZTI
Flow	1000M³/h	200M³/h	200M³/h
Head	90m	60m	60m
Temperature	350 °C no refrigerado	350 °C no refrigerado	350 °C no refrigerado
Discharge Pressure	PN 16	PN 16	PN 16
Material	Ductil Iron	Ductil Iron	Ductil Iron
Qty per year	750	150	75
Averg. Leadtime	2w – 8w	2w – 8w	5w – 10w

Where do we sell them:

Country	Qty sold 2018-2022
US	2074
Germany	1650
Canada	601
Italy	456
Spain	402
France	392
Swiss	366
China	364
Malaysia	362
Belgium	312



Thermal Oil Pumps: Characteristics and Advantages

Seguridad

- + Estable en caso de fluctuaciones de la temperatura
- + Triple protección
- + Control de fugas
- + Diseño mejorado del cierre

TCO reducido

- + Reducidos costos de repuestos
- + Bajo Empuje axial
- + Sin refrigeración externa
- + Configuración flexible del motor

Consumo de potencia reducido

- + Eficiencia elevada y duradera
- + Impulsor cerrado
- + NPSH reducida



Mayor vida útil de la bomba

- + Mayor Vida útil del sello
- + Robusto conjunto rotatorio

Mantenimiento y servicio técnico sencillos

- + Diseño desmontable por el lado del motor
- + Servicio técnico fácil in situ
- + Diseño menos complejo
- + Aumento del TMEF

Fácil instalación y monitoreo

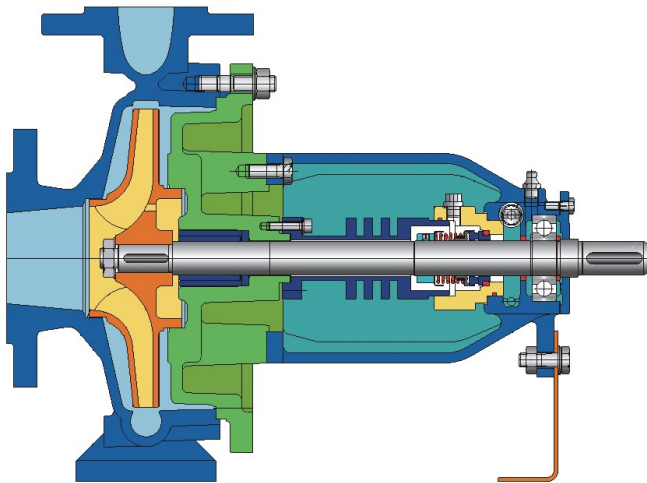
- + Diseño compacto del sistema
- + Menos espacio necesario en la planta
- + Monitoreo del estado sencilla
- + Detección IPS
- + Equipada con conexiones estándar

Sistema modular

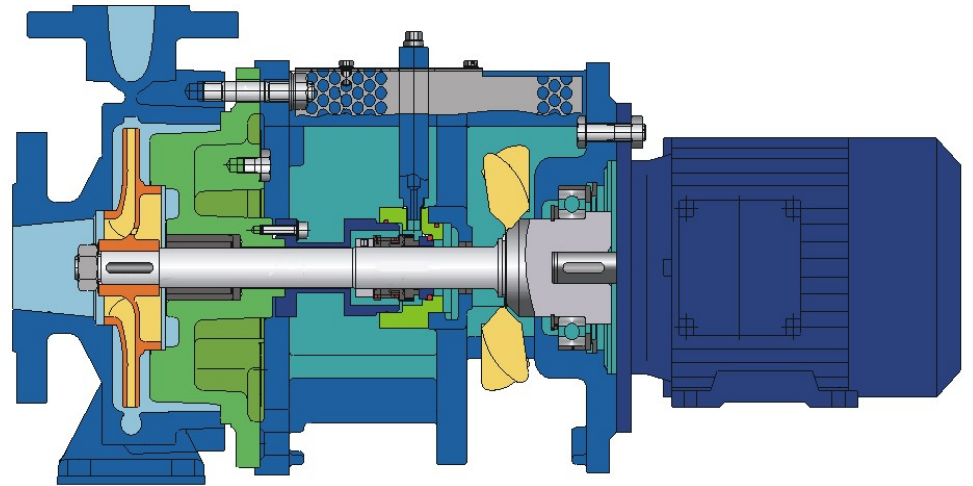
- + Máximo nivel de modularidad



SIHI SuperNova – Datos técnicos



ZTN



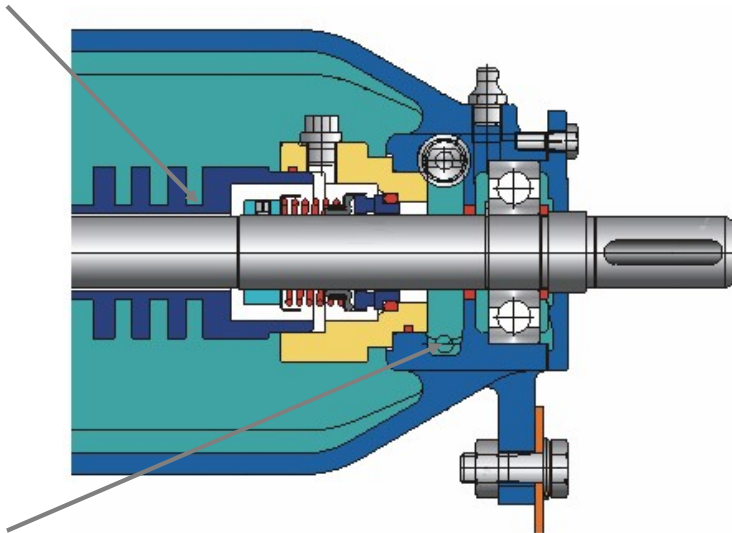
ZTK



Leak control

ZTN

Reduced clearance acts as a throttle in the event of seal failure



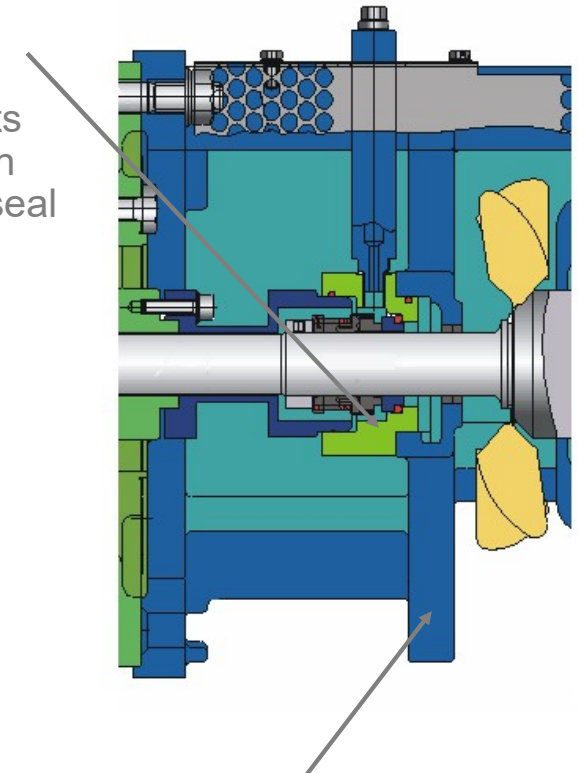
Leak volume reduced

Thermal Oil Pump – Safety

Leak control

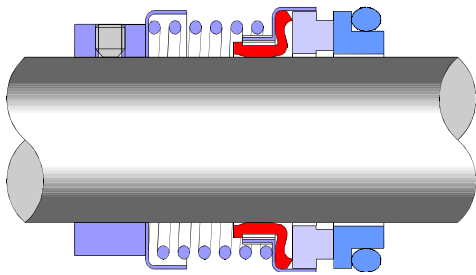
ZTK

Reduced clearance acts as a throttle in the event of seal failure



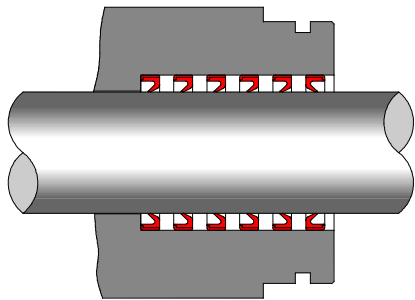
Fixed leakage connection

ZTN Improved Seal Designs



Mechanical seal

- + No axial displacement of elastomers on the shaft is required
- + Correct operation of the mechanical seal is not affected by deposits

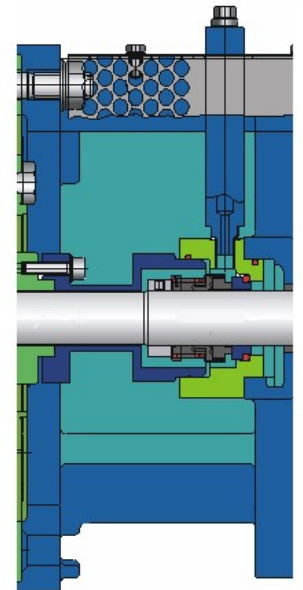


Sealing rings arranged in cascade

- + Reduced leakage under service conditions
- + No sudden failure possible
- + Maximum security

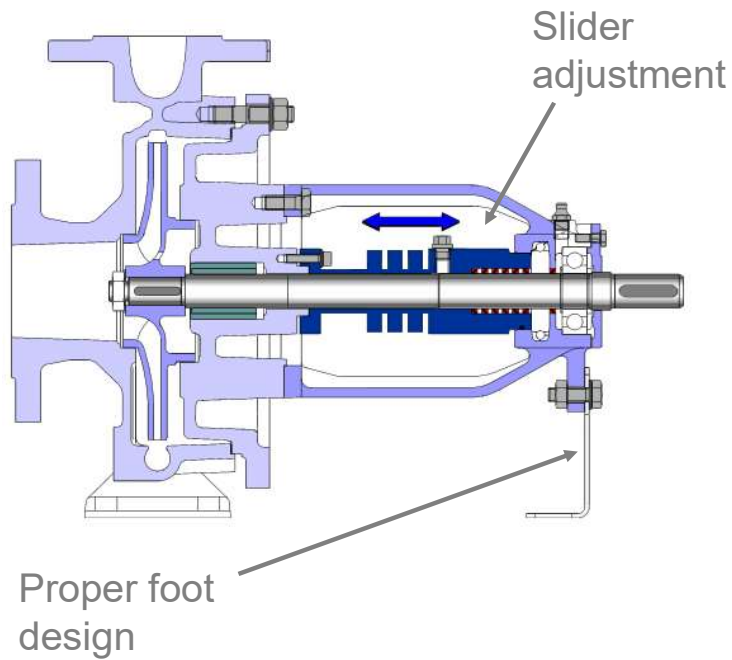
ZTK Improved Seal Design

- + High-quality bellows seal
- + No sudden failure possible



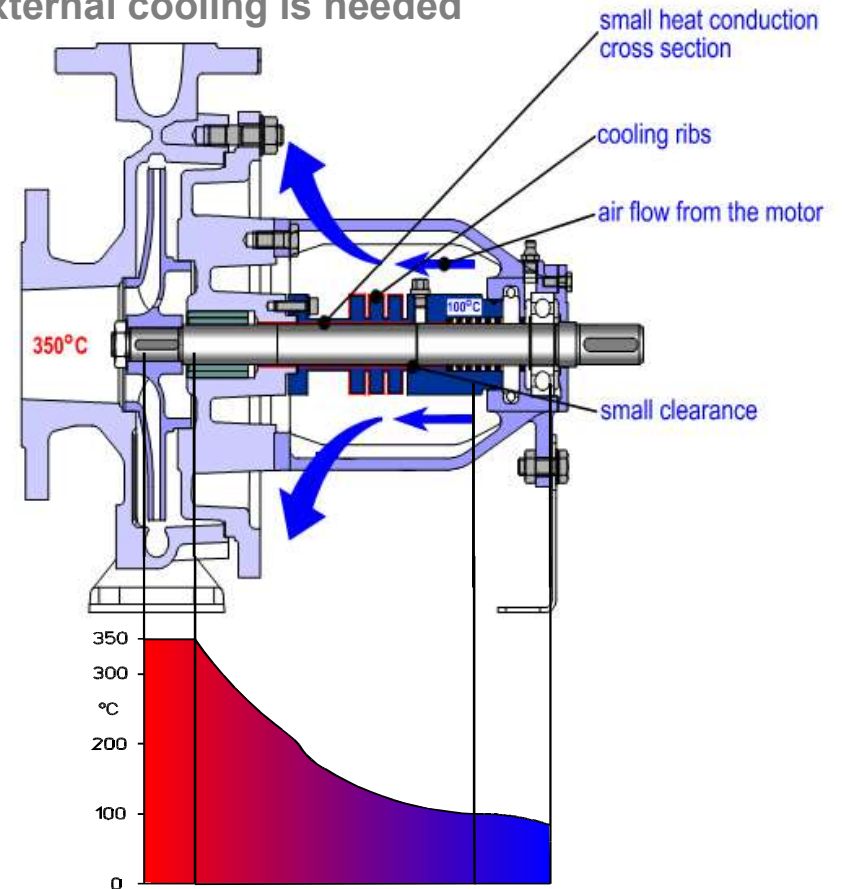


Thermal expansion compensation

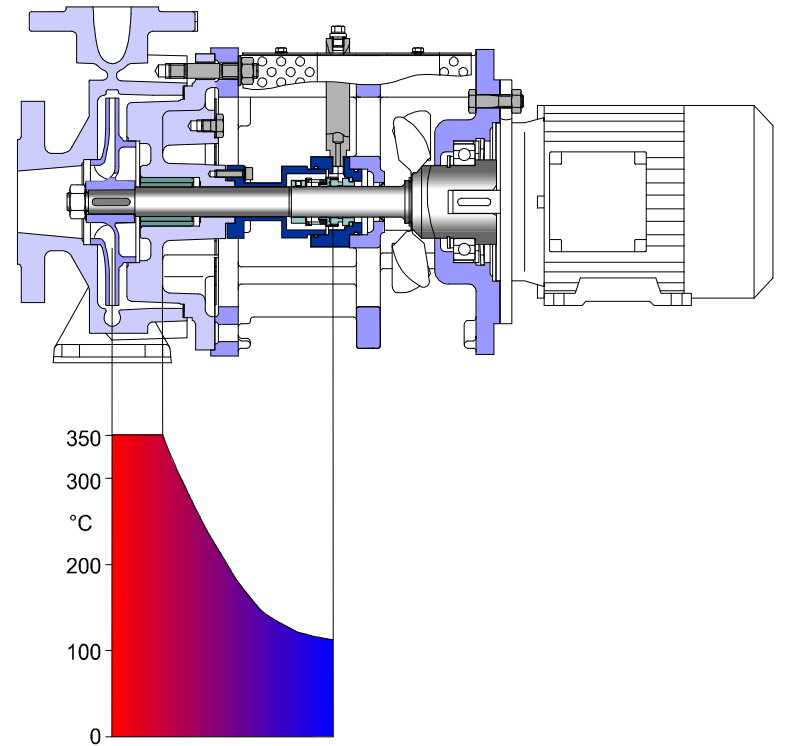
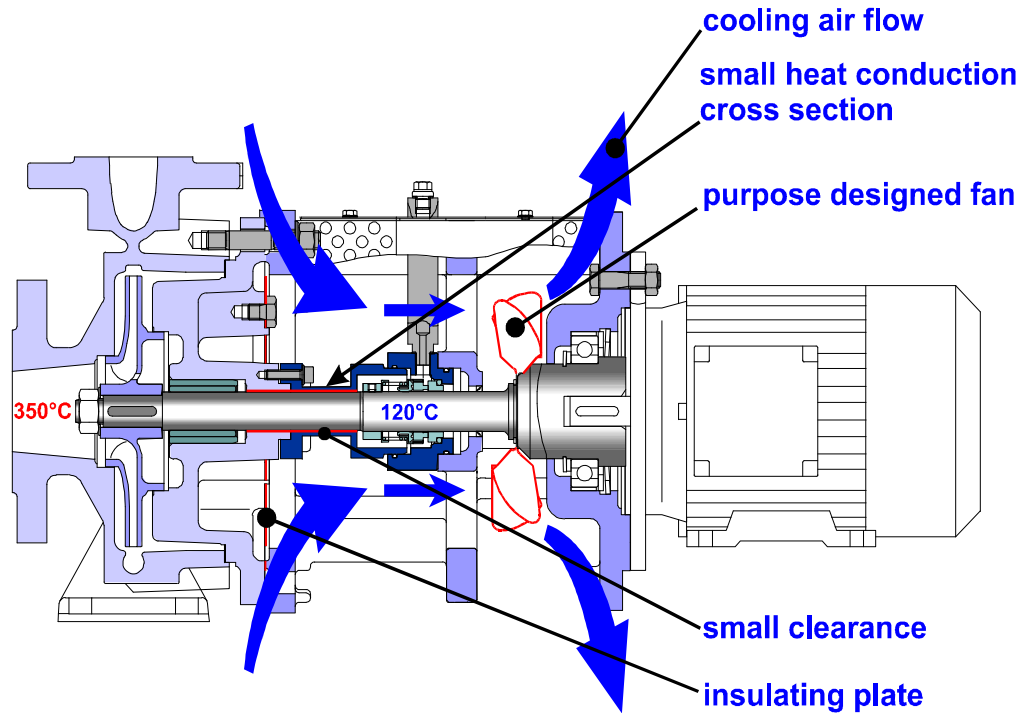


Thermal Oil Pump – Reduced TCO on ZTN

No external cooling is needed



Thermal Oil Pump – Reduced TCO on ZTK

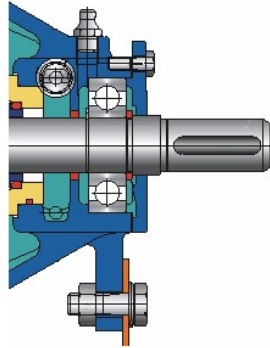




Thermal Oil – Easy Maintenance and Extended life

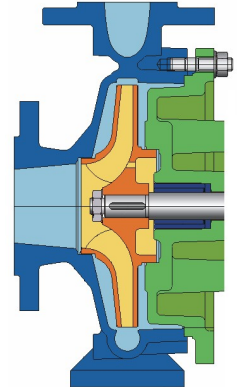
Oversized Thrust bearing ZTN

- + Suitable for absorbing all loads
- + Radial sealing ring protects the antifriction bearing against erosion



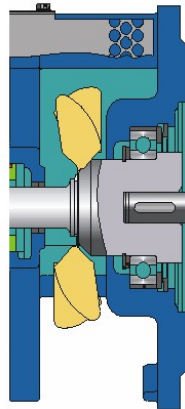
High radial bearing reliability

- + Reduced wear
- + Material: carbon
- + Easy to disassemble and assemble
- + High stability in the entire operating range and at any temperature
- + The pump can run dry for a short time, as carbon has a lubricating effect

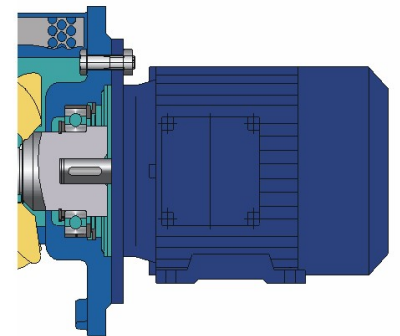


Oversized Thrust bearing ZTK

- + Motor protected against axial forces



Flexible configuration to suit all Motor vendors



Thermal Oil Pumps – Size availability

ZTND

		nominal diameter of pump discharge flange								
		032	040	050	065	080	100	125	150	200
impeller diameter	125	✓	✓	✓	✓	-	-	-	-	-
	160	✓	✓	✓	✓	✓	✗	-	-	-
	200	✓	✓	✓	✓	✓	✓	✗	✗	-
	250	✗	✓	✓	✓	✓	✓	✓	✗	✗
	315	-	✗	✗	✓	✓	✓	-	✗	✗
	400								✗	✗
	500								✗	✗

✓ NORM connections and main dimensions to DIN 24255 / EN 733

✗ TRANSNORM

ZTKD

		nominal diameter of pump discharge flange				
		032	040	050	065	080
impeller diameter	160	✓	✓	✓	✓	✓
	200	✓	✓	✓	✓	-

✓ NORM connections and main dimensions to DIN 24255 / EN 733



Thermal Oil Pumps – Materials and Applications

	Materials ZTN		Materials ZTK
Casing and Cover	EN-JS 1025	1.0619	EN-JS 1025
Impeller	EN-JL 1040		
Shaft	1.1191	1.4021	1.1191
Bearing Bracket	EN-JL 1040		
Radial Seal Rings	FPM (Viton)		-
Mechanical Seal	chrome cast / carbon FPM (Viton)		
Sleeve Bearing	Carbon		

ZTN & ZTK
Main
applications

The chemical industry:

heating of agitators, reactors, drying plants, polymerisation plants, plants for conveying high-viscous products and producing plastic materials and synthetic fibres.

The rubber and plastic industry:

heating of calendars, melting pots, power presses for plastics, automatic injection moulding machines, production of PVC adhesive tape.

The food industry:

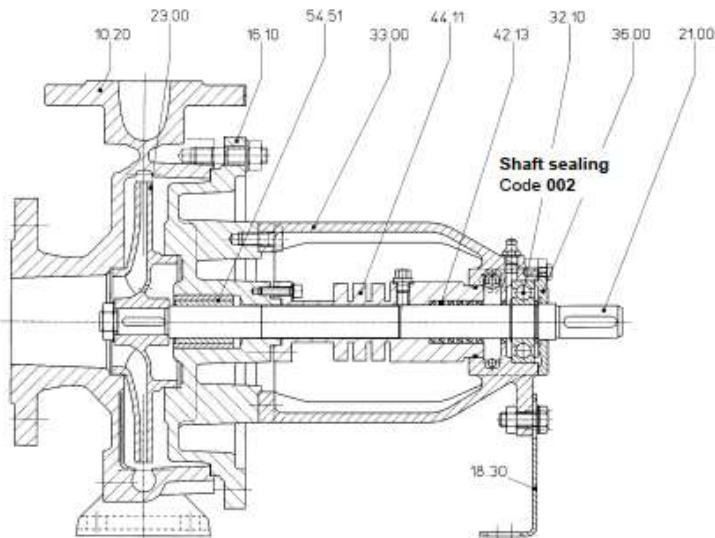
heating of baking and fish-frying ovens, distillation of fatty acids and glycerine, fat softening plants, production of potato chips and milk powder.

The paper industry and laundries:

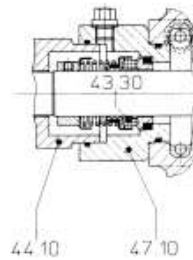
calendar rolls, production of corrugated cardboard, heating of washing machines, mangles and dryers.

Industrial Pumps – Sealing Systems ZTN

ZTN 032125 ... 150250



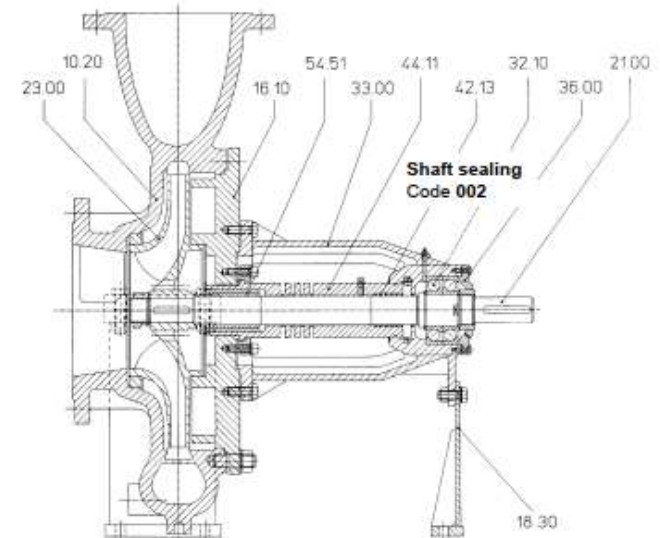
Shaft sealing
Code GBC



10.20	volute casing
16.10	casing cover
18.30	supporting foot
21.00	shaft
23.00	impeller
32.10	grooved ball bearing
33.00	bearing bracket
36.00	bearing cover
42.13	radial seal ring
43.30	mechanical seal
44.10	shaft seal casing
44.11	shaft seal casing
47.10	sealing cover
54.51	sleeve bearing

- Closed Impeller type
- Sealed by Mechanical seal

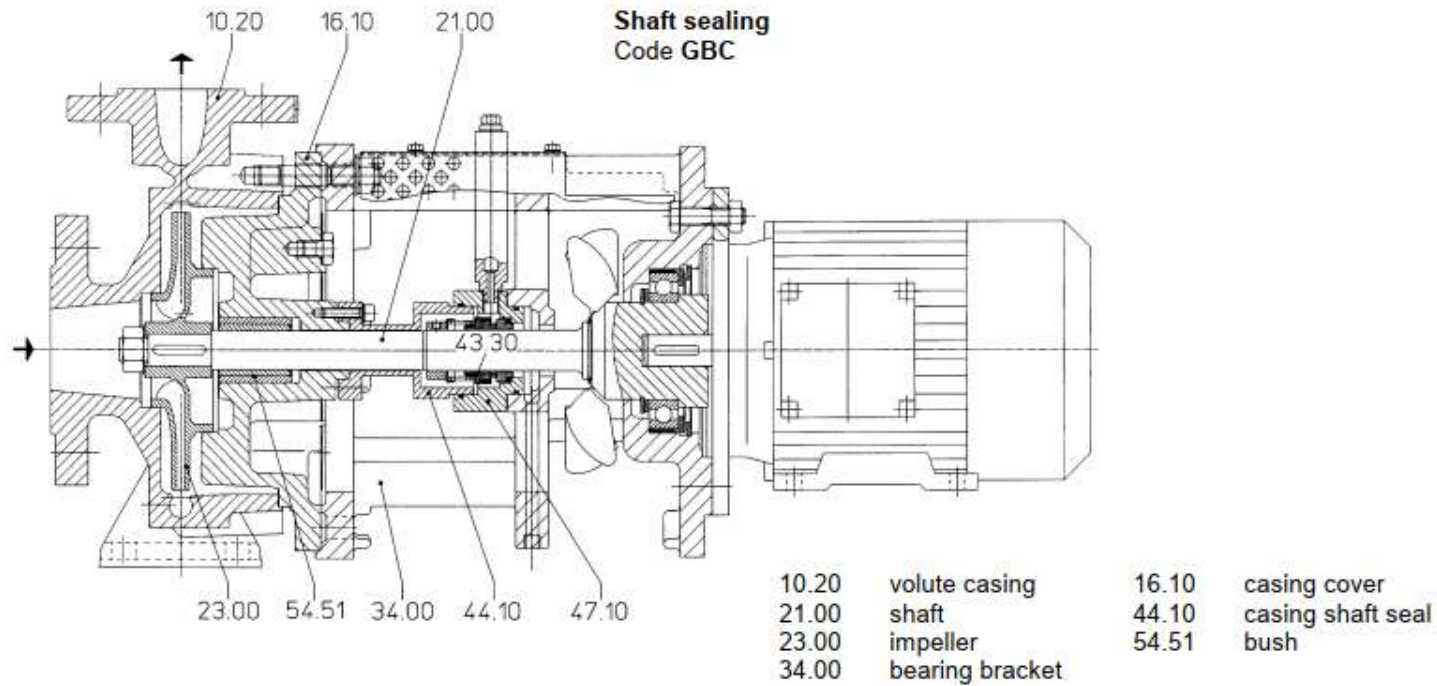
ZTN 150315 ... 200500



Shaft sealing
Code 002

- Bearing lubricated by Grease
- Flanges PN16 (Possible to drill to ANSI 150)

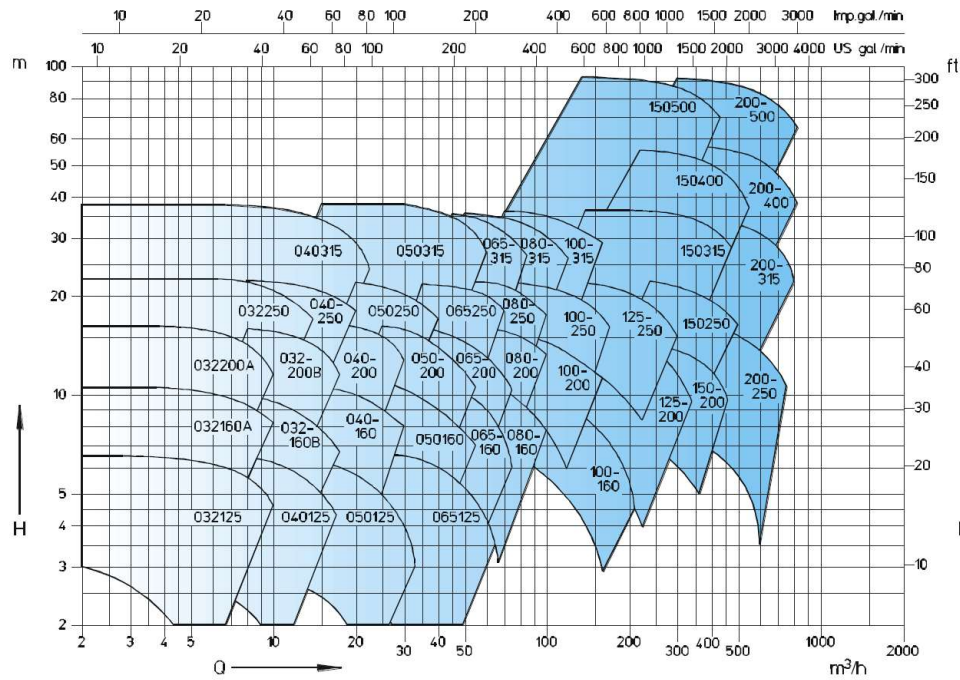
Industrial Pumps – Sealing Systems ZTK



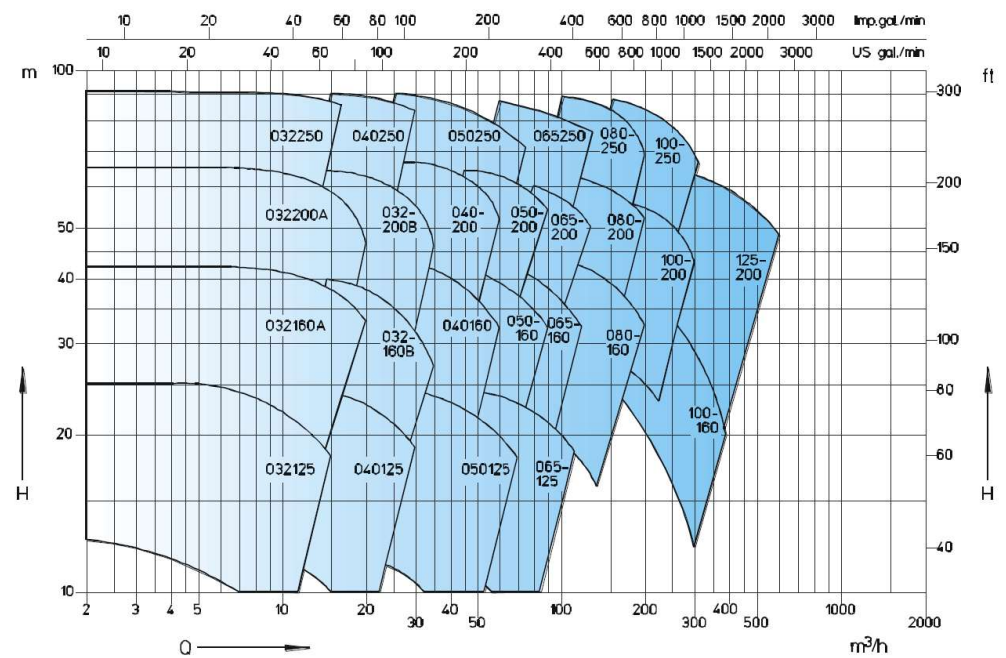
- Closed Impeller type
- Sealed by Mechanical seal
- Bearing lubricated by Grease
- Flanges PN16 (Possible to drill to ANSI 150)

Thermal Oil – Coverage charts ZTN

n=1450 1/min

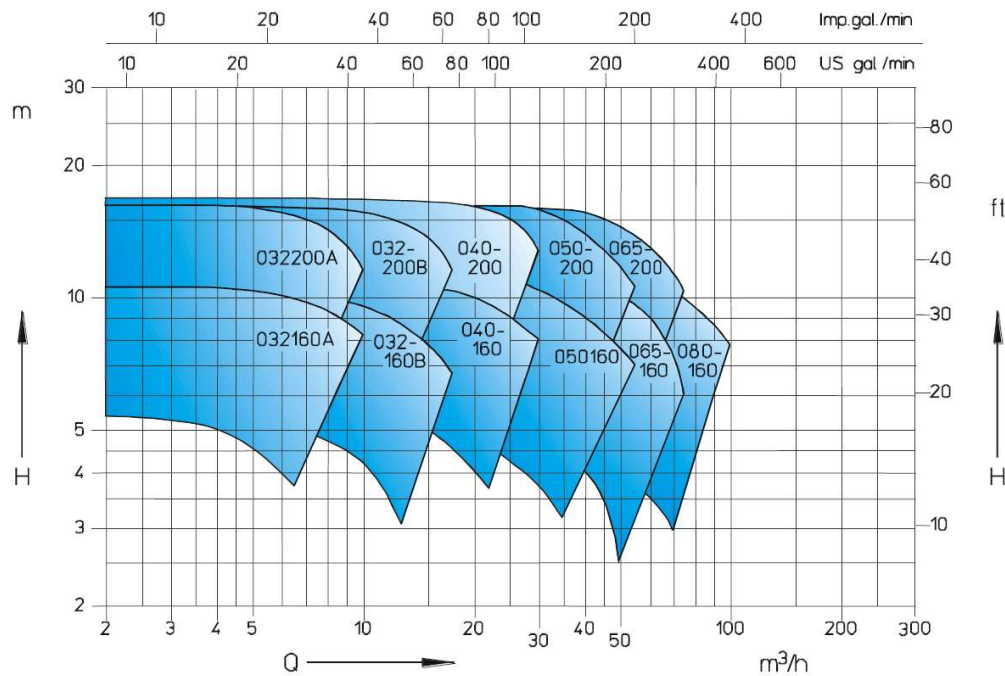


n=2900 1/min

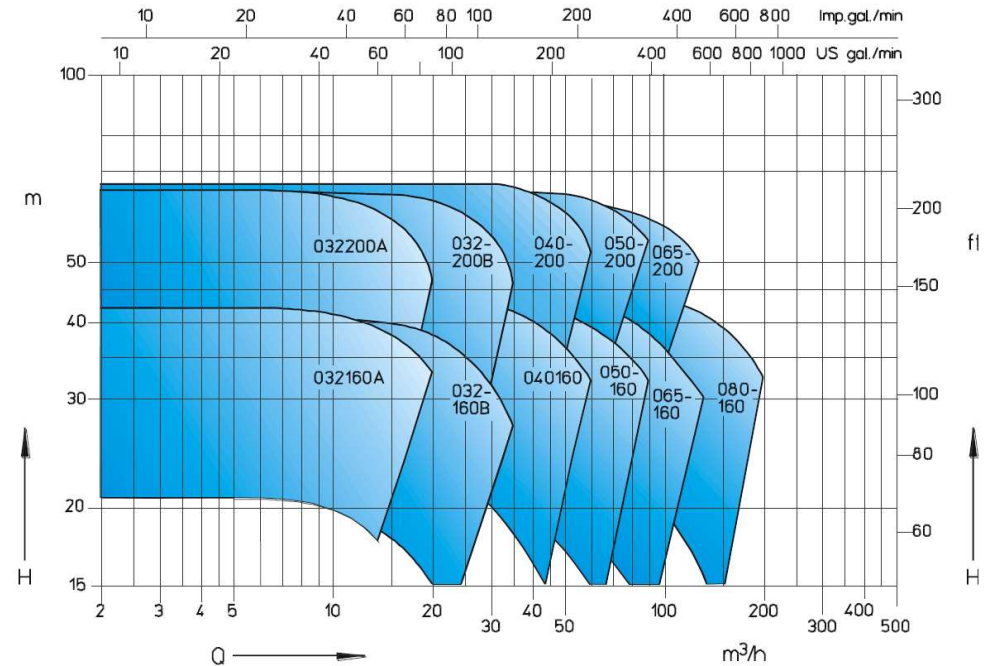


Thermal Oil – Coverage charts ZTK

n=1450 1/min



n=2900 1/min



FLOWSERVE POZUELO – Industrial Pumps

Industrial Pumps



ZLN



ZLK (Closed Coupled)



ZLK (Mag Coupling)



Hot Water Application



ZHN



ZDN



ZEN

Thermal Oil Pumps



ZTN



ZTK (Closed Coupled)



ZTK (Mag Coupling)

FLOWSERVE POZUELO – Industrial Pumps

Industrial Pumps



ZLI



ZLI (Mag. Coupling)

Hot Water Applications



ZLI (cierre mec. sin refrigeración)

Thermal Oil Pumps



ZTI



ZTI (Mag. Coupling)

GAMA DE PRODUCTO ZEND (PN40) / ZDND (PN25) / ZHN (PN16)

- Impulsor cerrado
- Cierre de eje (cierre mecánico simple)
- Ejecución de materiales (fundición nodular)
- DIN EN 22858

RANGO DE TRABAJO

- Q (m³/h) 600
- H (m.c.l.) 90
- T (°C) 230
- P_{máx} (bar) 40

APLICACIONES

- Estas bombas se utilizan para agua sobrecalentada hasta 230°C, sin refrigeración auxiliar. En general, se emplea en alimentación y circulación de calderas, producción de energía e industria química.



Thermal Oil Pumps : Pump Types and Operating Parameters

	ZEN	ZHN	ZD
Flow	600M³/h	600M³/h	600M³/h
Head	90m	95m	90m
Temperature	230 °C	180 °C	207 °C
Discharge Pressure	PN 40	PN 16	PN 25
Material	Ductil Iron	Ductil Iron	Ductil Iron
Qty per year	80	75	130
Averg. Leadtime	4w – 12w	4w – 12w	6w – 14w

Where do we sell them:

Country	Qty sold 2018-2022
Germany	572
France	76
Czech Republic	71
Austria	67
Italy	66
Belgium	61
UK	55
Netherland	52
Spain	51
Czech Republic	33



Industrial Pumps – Hot Water Pumps

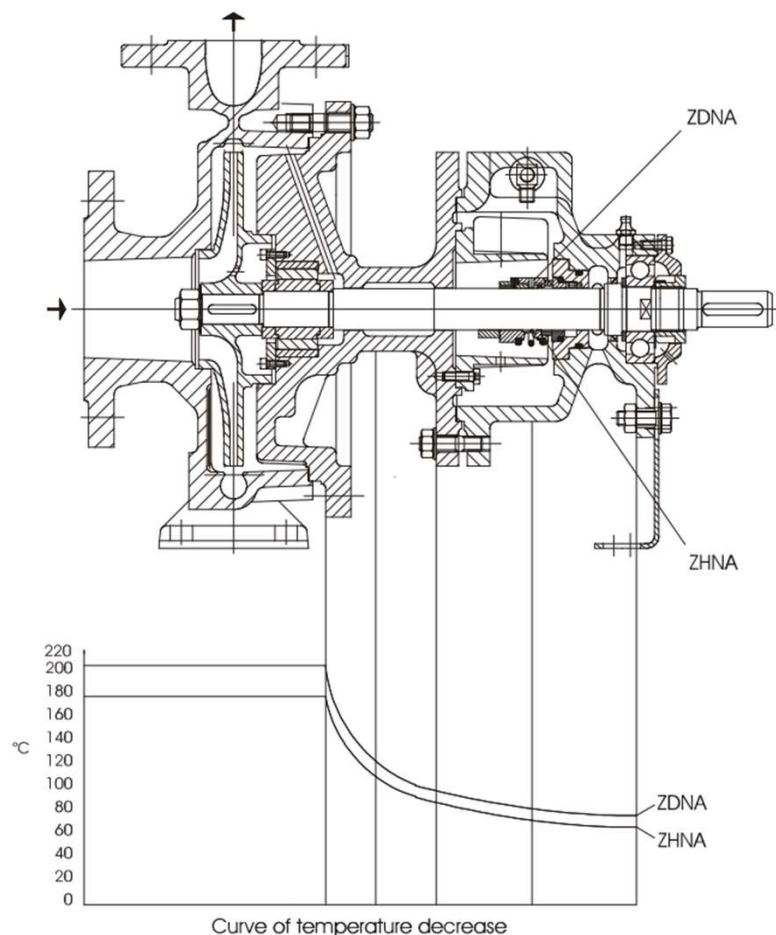
Product Range:

ZEND (PN40) / ZDND (PN25) / ZHN (PN16)

- Closed Impeller
- Single mechanical seal
- Material of construction (Ductil Iron)
- DIN EN 22858

Main Applications:

These pumps are used for superheated water up to 230°C, without auxiliary cooling. In general, it is used in feeding and circulating boilers, energy production and the chemical industry.



ZTN, ZTK, ZTI: Datos De Ventas y Entregas

ZTN, ZTK

1000 Units
per year

2M€
per year

3500€/u
per item

90%

ATO

MTO / ETO

Leadtime
Contractual (w)

Leadtime
Actual (w)

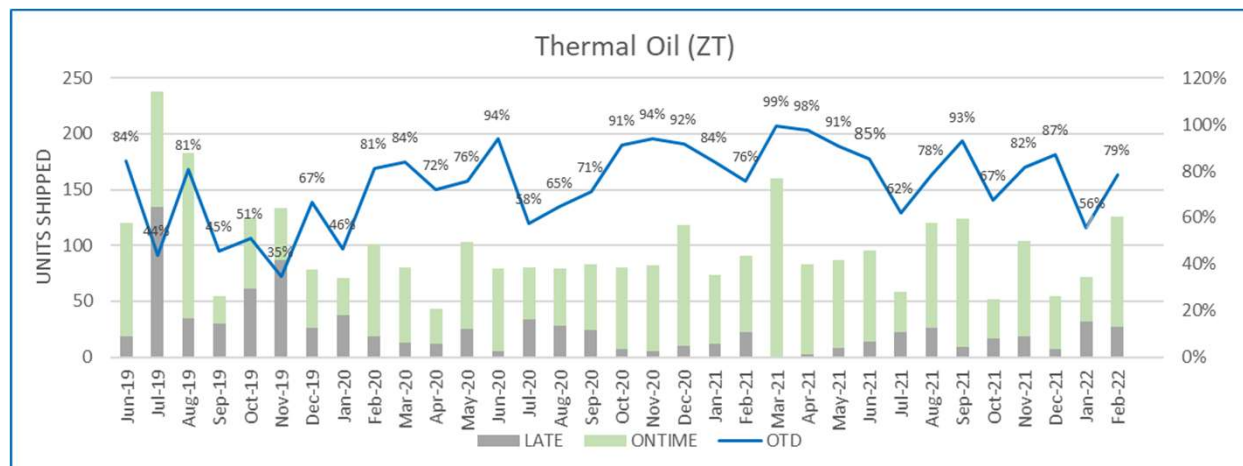
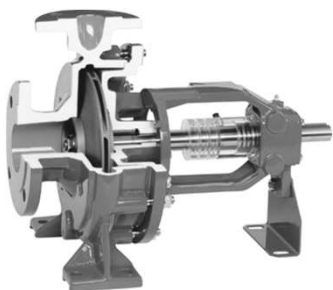
5

3

8

5

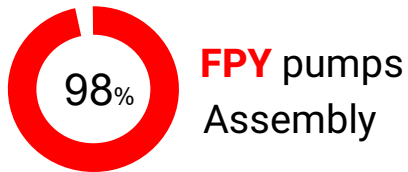
Thermal Oil	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Plazo Entrega Medio	45	50	51	42	67	86	82	71	39	32



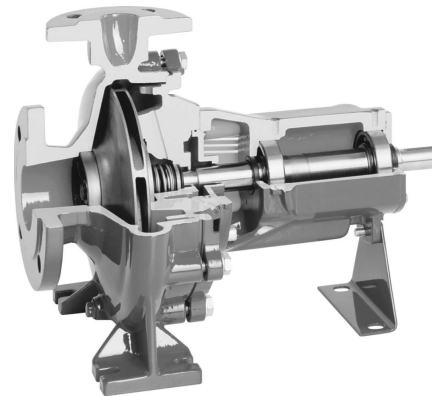
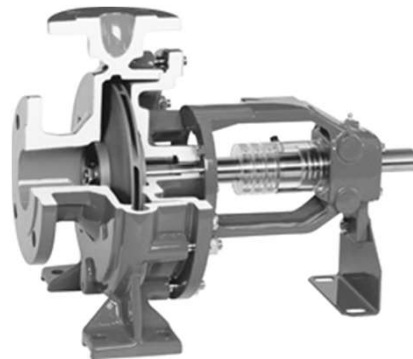
Industrial Pumps – Quality highlights

> 4.500 units
manufactured per year

2% Performance
tested



** FPY: units ok at first*



90 units conwith no
conformities (Q3) detected at
assembly area

40 units with no
conformities (Q3) at
pressure test

(100% of pumps pressure tested)

Main causes for quality issues (Q3):

35% units with internal machining mistakes

30% units with mistakes from sub-suppliers



*Main cause of Q3 due to seal
leakage.*



Manufactured in Spain (Pozuelo de Alarcón - Madrid)



Certifications

ISO 9001:2015 - ER-0114/1994

On going projects

ISO 14001

ISO 45001

ATEX Zone 0 Category 1

CUTR 004/2011 (EAC)



Experience in Motion

Manufacturing and Certifications

Testing capabilities

- Dimensional inspection – 3D measuring devices
- Visual inspection – level II inspectors
- Positive Material Identification (PMI)
- Dye Penetrant (PT) Test – Level II Inspectors
- Magnetic Particle (MT) Test
- Ultrasonic Testing (UT)
- Radiographic test (RT)
- Hydrostatic test
- Paint adhesion test
- Performance test
 - Noise Vibration measurement
 - Run Test and NPSH Test
 - Any requested tolerance
 - 3 closed loops
 - - Flow up to 3300 m³/h
 - - Pressure up to 25 barg
 - - Power up to 400 kW
 - 1 open loop
 - - Flow up to 3300 m³/h
 - - Pressure up to 16 barg
 - - Power up to 400 kWh

Aplicación:

- Impulsión de aceite térmico Mobiltherm 603 a temperaturas entre 280- 300°C en un fabricante de calzado. Se emplea en las mesas de secado – pegado de las piezas de cuero.
- ZTND 040200 para Q de 40 m³/h vs 6 bar @ 3500 rpm

ZTN, ZTK, ZTI: Ejemplos de Uso

