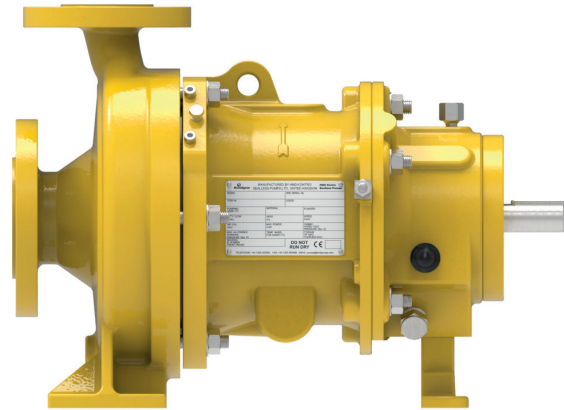


Technical Profile

HMD Kontro CSI frame 1 (50Hz)

Magnet Drive end suction centrifugal pumps
to ISO 2858:2010 and ISO 15783:2003

A modular range of chemical service pumps designed to cover a wide duty and application base using the minimum of pump models by maximizing interchangeability of components. Available within the range is the CSI (ISO 2858:2010 and ISO 15783:2003) and CSA (ASME B73.3-2015) versions. This profile covers the CSI derivative only.



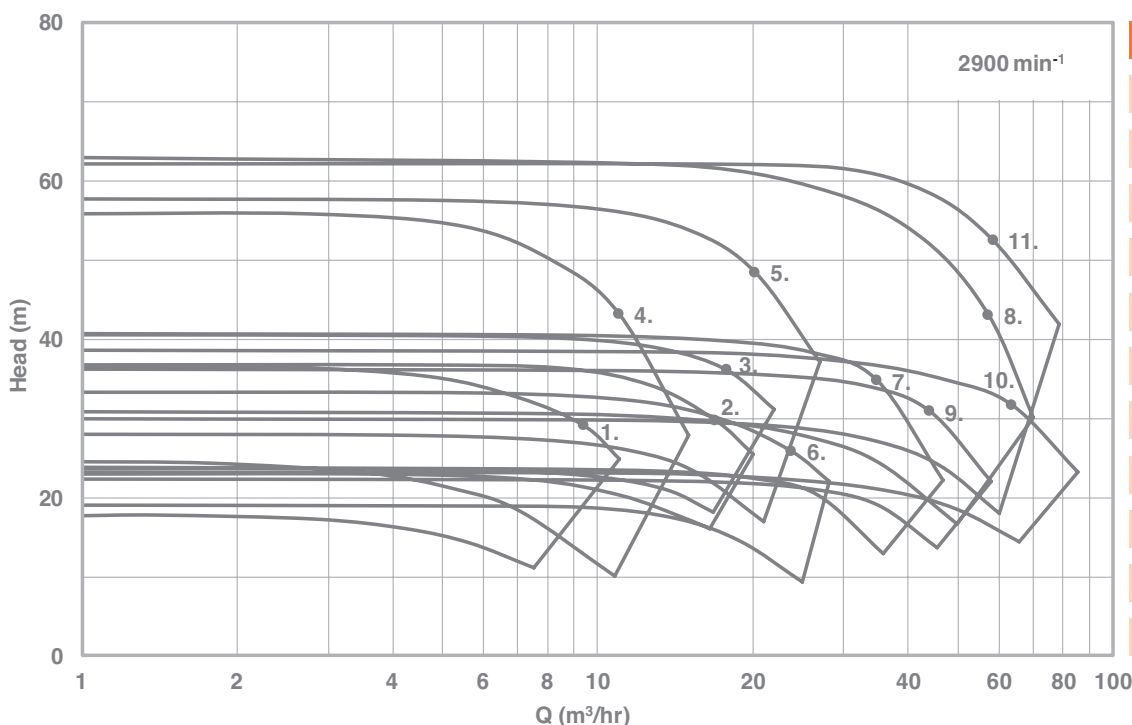
The CSI (ISO) frame 1 product line covers a hydraulic range that offers pumping solutions up to 22kW. The pumps are offered with a range of bespoke Synchronous Magnetic Drives rated to match prime mover performance and with both metallic or high efficiency ZeroLoss® containment shells as standard.

The range is based on a number of hydraulic sizes and fully conform to the ISO 2858:2010 dimensional standard and the ISO 15783:2003 construction requirements. Close Coupled and Separately variants are available.

The range is available in 316 Stainless Steel as the standard material option. Internal product lubricated bearings are Silicon Carbide, with Carbon and Ceramic Matrix Composite (CMC) variants to order.

A wide range of options are available including secondary sealing options and numerous bearing assembly variants. The range is specifically designed for maximum part interchangeability, ease of onsite service and has a wide number of site upgradable features.

Performance of the CSI Frame 1 Pump Range



Pump Model

Reference	CSI
1.	50-32-160-L1
2.	50-32-160
3.	50-32-160H
4.	50-32-200-L1
5.	50-32-200
6.	65-50-160
7.	65-50-160H
8.	65-40-200H
9.	80-65-160
10.	80-65-160H
11.	80-50-200

Key Design Features

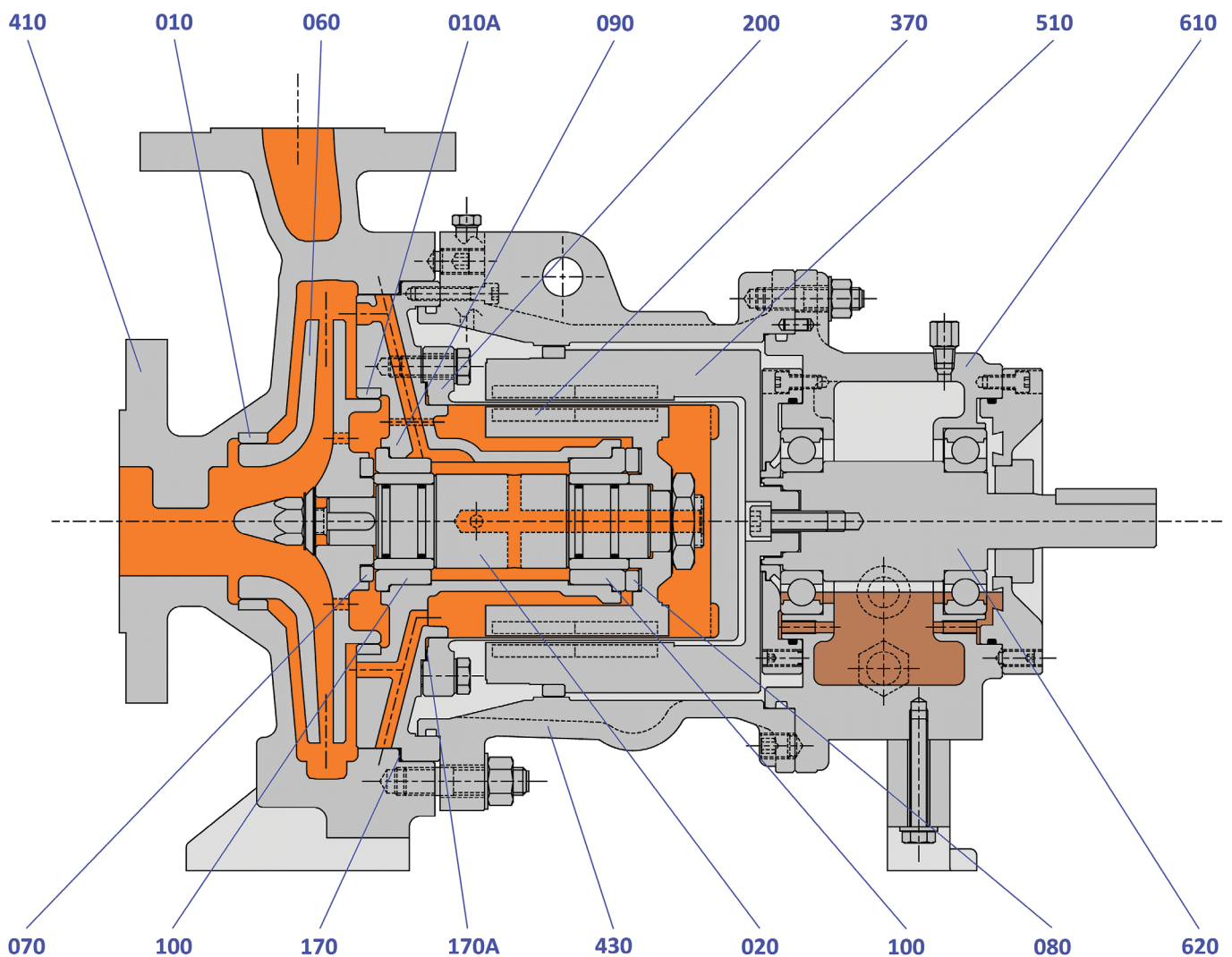
- **No Seals:** Minimises maintenance, all of the associated costs and eliminates potential leaks.
- **Sealless Design:** For total containment, essential for hazardous, aggressive or valuable product.
- **Modular & Interchangeable Components:** For maximum convenience and minimal lead time.
- **High Efficiency Hydraulics:** To provide maximum flow / head coverage.
- **Low & High Flow Hydraulic Variants:** Provides optimised hydraulic fit.
- **Robust Design:** Featuring ZeroLoss® containment shell as standard for tolerance to system upsets.
- **Casing Gasket Fully Confined:** Eliminating the risk of blowout.
- **Internal & External Bump Ring Design:** Providing additional level of robustness.
- **Modular Rotating Element Cartridge:** Providing the most efficient way to perform replacements and manage your spare part inventory.

Benefits of CSI Frame 1 Pump Range:

- Sealless design for total product containment
- Ideal for hazardous, toxic, aggressive, hot and valuable product
- Conforms fully to ISO standards
- Modular construction
- Choice of materials of construction
- Site upgradable design features

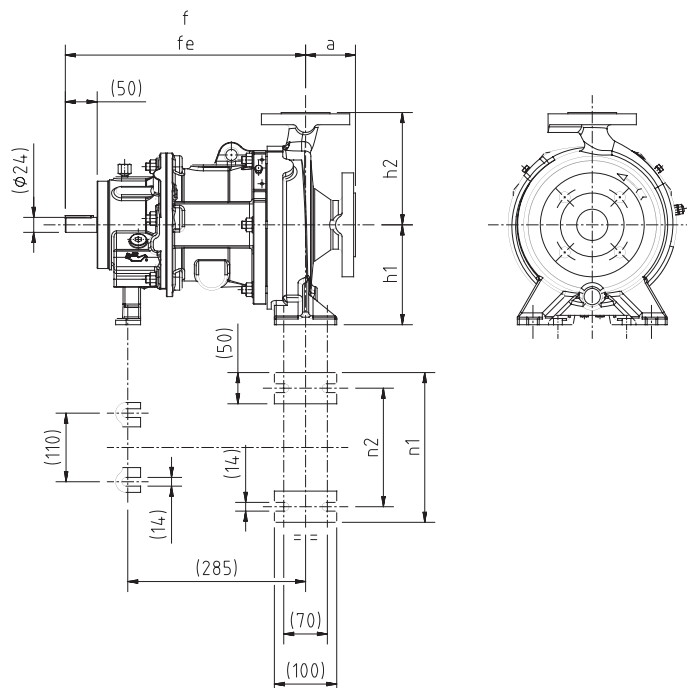
Construction of CSI Frame 1 Pump

Separately mounted variant indicating standard build and materials



010	Neck Ring (Front)	316L St St	090	Bush Holder	316L St St	410	Casing	316L St St
010A	Neck Ring (Back)	316L St St	100	Bush	Silicon Carbide	430	Coupling Housing	SG Iron
020	Pump Shaft	316L St St	170	Casing Gasket	CSF	510	Outer Magnet Ring	C. Steel (Sheathed)
060	Impeller	316L St St	170A	Shell Gasket	CSF	610	Bearing Housing	SG Iron
070	Front Thrust Washer	Silicon Carbide	200	Containment Shell	Alloy C / 316L	620	Drive Shaft	Carbon Steel
080	Back Thrust Washer	Silicon Carbide	370	Inner Magnet Ring	316L St St Clad			

Dimensions of CSI Frame 1 Pump

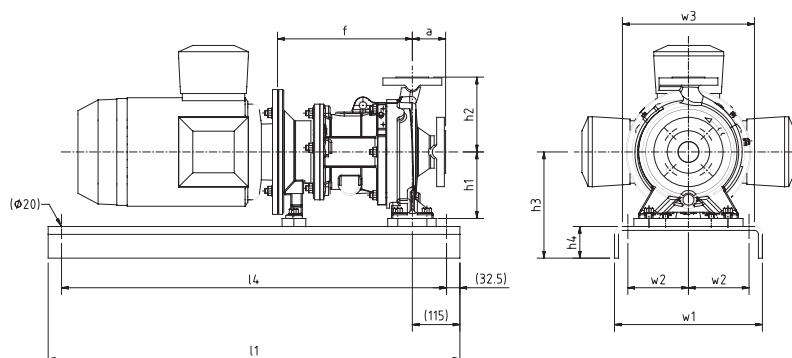


Dimensions are
for guidance only

CSI Frame 1 Separately Mounted (Bareshaft)

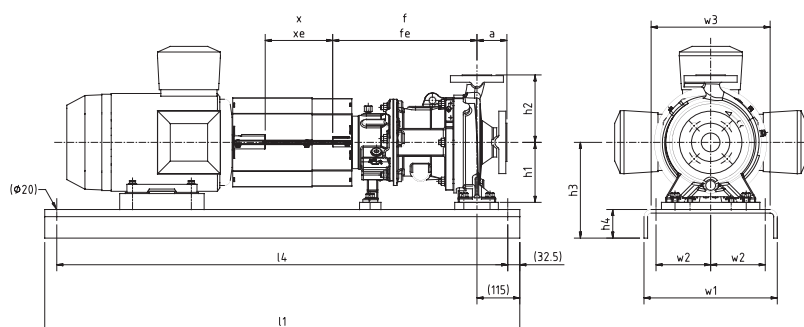
Size	a	f (Standard)	Fe (extended)	h1	h2	n1	n2	Keyway
50-32-160-L1	80	385	425	132	160	240	190	8 BSR
50-32-160	80	385	425	132	160	240	190	8 BSR
50-32-160H	80	385	425	132	160	240	190	8 BSR
65-50-160	80	385	425	132	160	240	190	8 BSR
65-50-160H	80	385	425	132	160	240	190	8 BSR
80-65-160	100	385	425	160	180	265	212	8 BSR
80-65-160H	100	385	425	160	180	265	212	8 BSR
50-32-200-L1	80	385	425	160	180	240	190	8 BSR
50-32-200	80	385	425	160	180	240	190	8 BSR
65-40-200H	100	385	425	160	180	265	212	8 BSR
80-50-200	100	385	425	160	200	265	212	8 BSR

CSI Frame 1 Close Coupled



Motor Frame	h3	h4	l1	l4	w1	w2	w3	x	xe
90S – 112M	250	75	1125	1060	360	115	328	140	100
132S – 160L	265	90	1350	1285	430	150	398	140	100
180M – 200L	315	100	1500	1435	500	185	468	140	10

CSI Frame 1 Separately Mounted



Motor Frame	f	h3	h4	l1	l4	w1	w2	w3
90S – 90L	294	250	75	825	760	360	115	328
100S – 112M	304	250	75	825	760	360	115	328
132S – 132M	324	265	90	1050	985	430	150	398
160M – 160L	354	265	90	1050	985	430	150	398
180M – 180L	354	315	100	1125	1060	500	185	468

Range Capabilities (50hz)

Model	Head	Flow	Design Temperature	Design Pressure	Viscosity	Mounting
CSI Frame 1	62 m	64 m ³ /hr	-40 to 205°C*	16 bar (at 38°C)	0.1 to 200 cSt	Separately Mounted or Close Coupled

*260°C with Thermal Spacer

Solids Handling

The units are capable of handling solids up to 5% w/w with sizes less than 150 microns.

Flanges and Connections

Suction and Discharge flanges are designed in accordance with the following standard:

**DIN 2543
PN16** Machined with 2.0mm raised face having a continuous spiral groove

Flange Loadings:

Allowable flange loadings imposed by the pipework are in accordance with ISO 5199.

Options

A wide variety of options are available:

Materials of Construction:

- 316L Stainless Steel (standard)

Containment Shells:

- Metallic Construction (-40°C to 260°C)
- High Efficiency ZeroLoss® PEEK (-40°C to 120°C)

Internal Bearings:

- Silicon Carbide vs Silicon Carbide (standard)
- Carbon Vs Silicon Carbide (optional variant)
- Silicon Carbide vs CMC (optional variant)

Casings Drain:

- No Drain or 3/8" BSP Plugged

Gaskets:

- Compressed Synthetic Fibre or PTFE

Mounting configuration:

- Close Coupled (IEC B5 Flange or B3/B5 Foot Flange Motors)
- Separately Mounted (IEC B3 Motor and Flexible Coupling)

Constructional Variants:

- Secondary Containment
- Secondary Control
- Oil Bath / Oil Mist Lubrication of external bearing assembly
- 205-260°C Thermal Break

Instrumentation:

- Power Sensing, Temperatures Sensing and VapourView®

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