MUNSCH

Plastic Pumps for Aggressive Media

Chemical pumps with mechanical seal

MUNSCH Standardized Pump CS
MUNSCH Close-Coupled Pump CS-B
Available in PP / PVDF / PFA

NON-METALLIC PUMPS FOR THE CHEMICAL INDUSTRY – FROM THE SPECIALIST

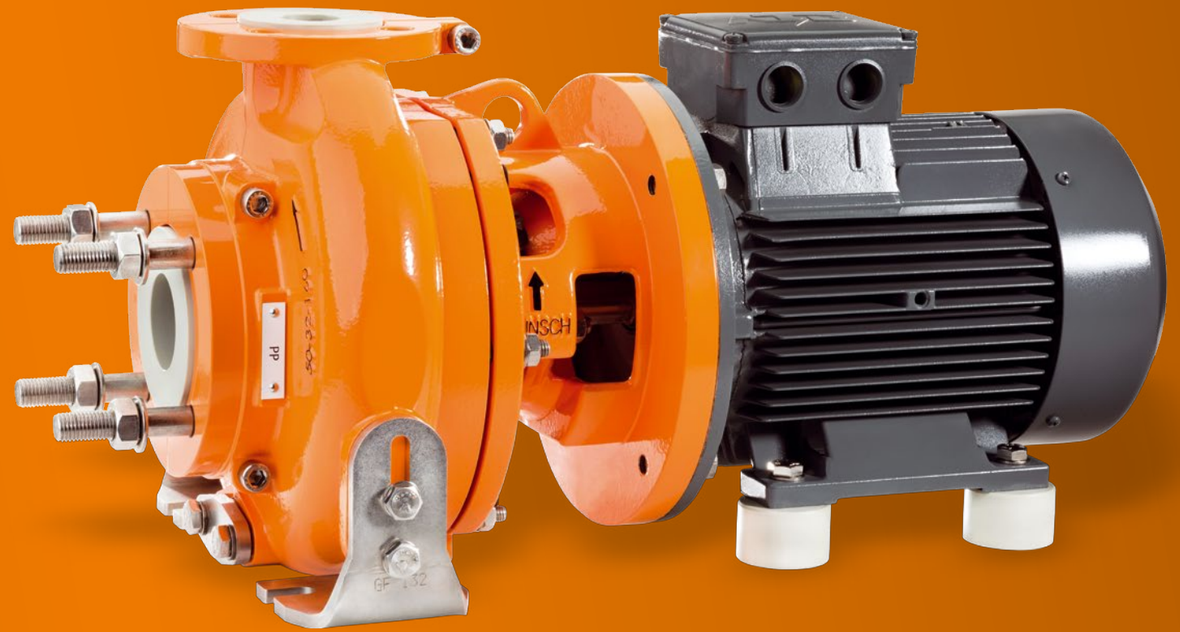
MUNSCH is the specialist for non-metallic pumps. Fast and reliable solutions – planned through to the minute detail – make us a much sought-after partner to the process and chemical industries.

Design
Our engineers develop and optimise pumps for your specific needs. Chief among our objective is to develop high-efficiency pumps providing maximum operating reliability. With their numerically optimized hydraulic design, MUNSCH pumps make a contribution to energy efficiency and plant productivity.

Manufacture
We manufacture all plastic components in-house. Bought-in cast iron and ceramic components are standardised and inventoried in large volumes. Thanks to our high level of vertical integration we are independent of external manufacture and can respond fast and flexibly to customer needs.

Assembly
Our quality testing and documentation procedures ensure product traceability through all stages of production. Our assembly team assembles the pumps using the latest methods and performs the tests/quality inspections at defined hold points on the basis of a rigorous test/inspection schedule.

Testing
No pump leaves our production plant without having undergone a thorough test on our test bench.



MUNSCH STANDARDIZED PUMP CS
MUNSCH CLOSE-COUPLED PUMP CS-B

A new pump generation for demanding applications in the chemical industry.

With its CS and CS-B series, MUNSCH places a new energy-efficient generation of non-metallic centrifugal pumps onto the market. Manufactured from high-performance engineered plastics, the pumps are equipped with the latest generation of metal-free mechanical seals.

The robust design of MUNSCH mechanical seals is a guarantee for long service lives even in high-temperature service or when pumping fluids with high solids loads. Together with the magnetically coupled pumps of the CM / CM-B series, MUNSCH offers you now a complete pump range for virtually all your pumping needs. .

Applications

The CS Series chemical centrifugal pumps with shaft seal are the solution of choice for corrosive and abrasive service conditions and whenever it comes to pumping fluids posing a health and environmental hazard. This CS pump series has been specifically developed for applications in which the use of magnetically coupled pumps is not advisable or undesirable because of the tough service environment.

Use in explosion hazard zones

The CS and CS-B Series pumps meet the requirements of EU Directive 2014/24/EU for use in explosion hazard zones.

FLEXIBLE ALL-ROUND TALENT

Types of construction
The CS Series standardized pumps are designed with fitting dimensions to EN 22858, ISO 2858 and ISO 5199. For the CS-B Series close-coupled pumps, this applies only to the flange connections.

Casing with high wear reserve
Volute casing with wall thicknesses of > 10 mm

Operational flexibility
Drain connections can be retrofitted at any time; the drain bore is already in place.

Tolerant to solids
A solids deflector effectively keeps solids away from the shaft passage.

Exact operating points
Steep pump characteristics allow exact adjustment of the desired operating point.

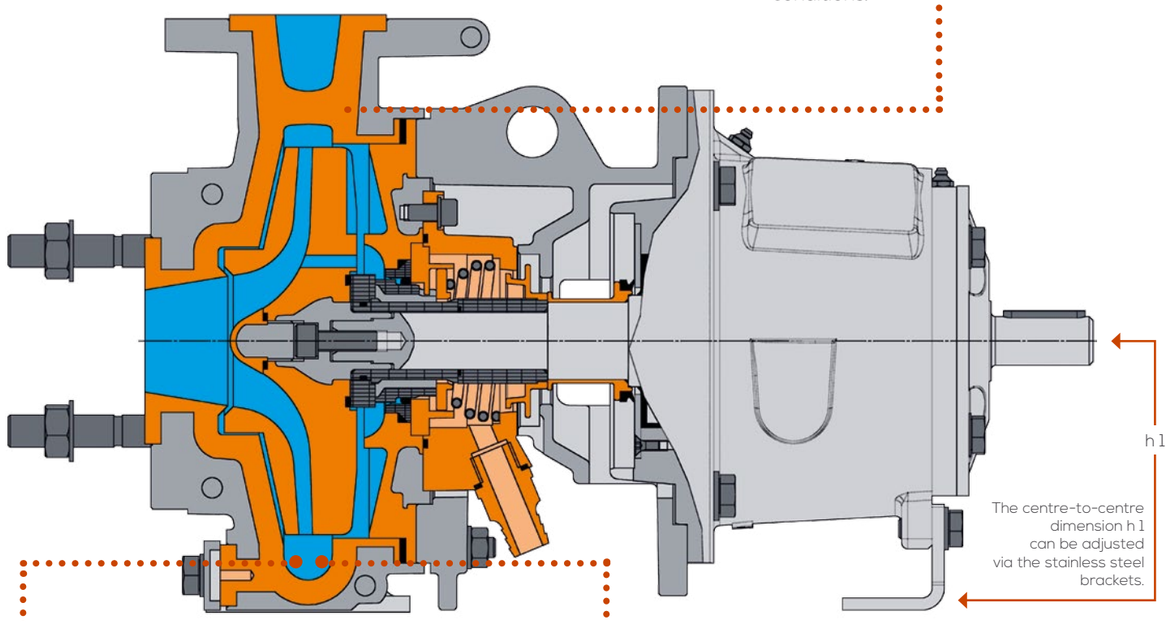
Ease of assembly
All components can be assembled without the need for special tools; adjustment or alignment of the mechanical seal is not required.

Safety – in any direction
The impeller is positively locked to the pump shaft. MUNSCH pumps are unaffected by reverse rotation (e.g. during the rotation direction test).

High-performance shaft seals
The CS/CS-B series can be supplied with either single-acting or double-acting metal-free mechanical seals. Ceramic components and a variety of flushing options make the pumps suitable for applications involving high solids loads.

Materials
All liquid-contacted pump components are fabricated from thick-walled PP and PVDF or universally chemical-resistant PFA plastics. The ceramic components of the mechanical seal combined with the secondary static seals manufactured from fluoroplastics make the pump quasi-universally resistant.

Thick-walled volute casing
The pump casing must accommodate pump pressures of up to 16 bar. The one-piece, thick-walled and self-supporting volute design together with the positive-fit metal casing armour offer maximum stability and reserves for high pressures and temperatures of up to 180 °C. The tick-walled volute also means added safety when pumping products with strong diffusive tendencies (e.g. chlorine) and when the pump operates under temporary vacuum conditions.



Casing drain – retrofits possible
Residual liquid collecting at the low point of the casing can be drained via a casing drain. Retro-fitting the pump with a casing drain is possible at all times.

Temperature measurement – directly in the product path
A temperature sensor (PT 100) installed in the drain bore provides direct measurement of the product temperature.

Performance data:

Pump capacity[[Q]:	up to 200 m³/h
Total differential head [H]:	up to 90 m
Operating temperature:	-20 up to 180 °C
Solids content:	up to 5 Vol.-%
Particle size:	up to 5 mm
Discharge nozzle:	DN 25 up to DN 65
Motor rating:	CS up to 30 kW CS-B up to 18,5 kW

If your MUNSCH pump has to keep pace with your capacity extension, switching to the next larger motor is no problem. The pump is mounted to the base plate via rigid stainless steel brackets.

Packing pieces between the pump and base plate are not required.

Visualised pressure distribution
in the impeller and the volute casing

Energy-saving and gentle to pump materials

Impellers with high efficiencies and low NPSH requirements help safe energy and minimise pump wear, even in challenging service environments.

THE IMPELLER – OPTIMIZED FOR YOUR PUMPING NEEDS

Numerically optimized hydraulics

The fluid dynamics of MUNSCH pumps are calculated, visualized and optimized using the latest numerical techniques (Computational Fluid Dynamics). The result is a hydraulic design with a virtually ideal flow profile.
This means:

- Higher pump capacity at unchanged differential head
- Lower energy costs
- Improved suction behaviour through low NPSH requirements
- Minimised wear in abrasive service environments
- Reduced running noise

Reduced lifecycle costs

The numerically optimized hydraulic design is a key factor in minimising the lifecycle costs of MUNSCH pumps. Capital and maintenance costs are reduced through the selection of the best suited hydraulic design and optimum motor sizes. Smaller cable cross-sections and lower-rated motor breakers keep down installation costs. The high pump efficiencies directly translate into energy savings.

Impeller types

MUNSCH has the right impeller design for your specific pumping application. Wear, suction behaviour and efficiency are key factors determining the choice of the impeller. The right combination of impeller (hydraulics), material and shaft seal is all-decisive for a successful pump design and long service lives. MUNSCH pumps are available with closed, semi-open and vortex impellers.

Solids-laden fluids

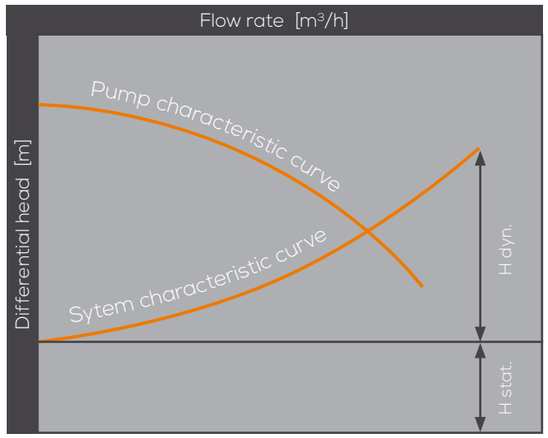
A solids deflector in the pump casing redirect solids away from the mechanical seal and back to the flow path of the process fluid.

Impeller and pump shaft – reverse rotation-safe

The impeller is positively locked to the pump shaft for reverse rotation protection (e.g. during the rotation direction test).

Pump characteristic

MUNSCH chemical pumps feature a steep performance characteristic. This means that the pumps can be exactly adjusted to the operating point.



THE MECHANICAL SEAL

The pump is equipped with the latest generation of mechanical seals.

- One mechanical seal size fits all pump sizes
- Many interchangeable components
- Ease of mounting without the need for adjustment or alignment
- Ease of conversion from a single to a double mechanical seal
- Optimum circulation of the buffer/barrier fluid
- Sense-of-rotation independent

Corrosion resistance

MUNSCH mechanical seals do not have any metal components. The rotating and stationary seal rings as well as the shaft sleeve are fabricated from SIC ceramics, the secondary seals from fluoroplastics. The spring comes with a fluoroplastics coating. All in all, a material selection that leaves no chance for corrosion!

Maintenance & handling

In the design of the pump components, special emphasis has been placed on positive identification, availability and ease of assembly. Adjustment or alignment of the mechanical seal is not needed.

Flexibility

Conversion from a single to a double mechanical seal or retrofitting a flushing arrangement requires only a few components and a few simple steps.

Robust and long-lived

Crucial components of MUNSCH mechanical seals such as the shaft sleeve and the rotating seal ring are constructed from silicon carbide and positively locked to the shaft. Optimum material selection coupled with a perfect design guarantee long seal service lives.

DOUBLE MECHANICAL SEAL – THE SAFE SOLUTION

Double mechanical seals consist of two tandem-mounted single mechanical seals. They are supplied with buffer/barrier fluid from an external source via two connections in the seal casing.

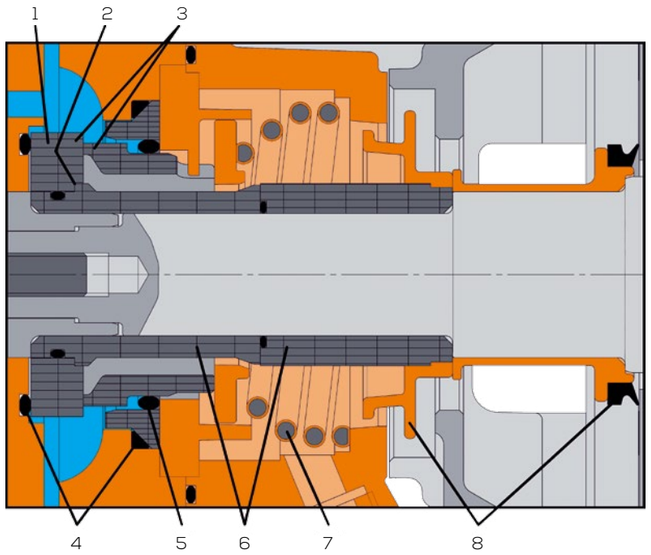
Application

The double mechanical seal is employed whenever there is a risk of solids deposition or product crystallization, in service conditions posing a health or environmental hazard, when the process fluid is pumped near its boiling point or dry running would jeopardize proper lubrication of a single mechanical seal. The MUNSCH REA FS/D double mechanical seal can be operated with barrier fluid in the once-through mode, with a closed-loop pressurized barrier fluid system or a quench system.

A convenient kit

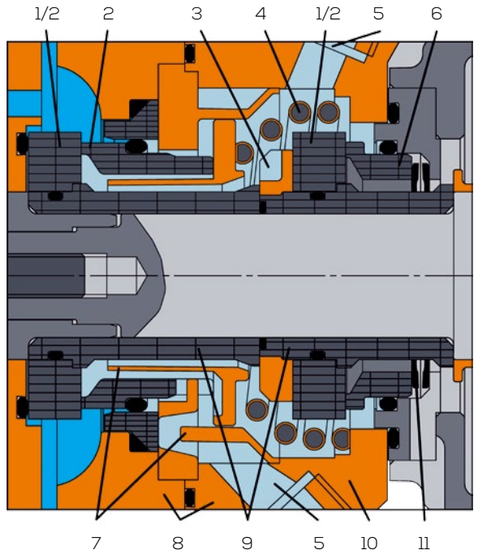
The product-side mechanical seal is identical in design with the REA-FS single mechanical seal. To seal the pump interior against the atmosphere, a second mechanical seal is provided at the atmosphere side (tandem arrangement).

Configuration of the MUNSCH-REA-FS single mechanical seal



1. The rotating stationary seal ring design with a larger outer diameter effectively counteracts edge pressure.
2. The rotating seal ring is positively locked to the shaft sleeve.
3. Rotating and stationary seal rings are fabricated from high-performance silicon carbide.
4. The static O-rings are seated with a defined preload.
5. Optimally seated between the stationary seal ring and the SSiC thrust ring, the dynamic O-ring reliably prevents process leakage to atmosphere.
6. The silicon carbide shaft sleeves are insensitive to solids, crystals and slurries.
7. The fluoroplastics-coated spring is located outside the path of the fluid pumped.
8. The product-side anti-friction bearing is protected by a splash ring and an axial seal ring.

MUNSCH-REA-FS/D double mechanical seal

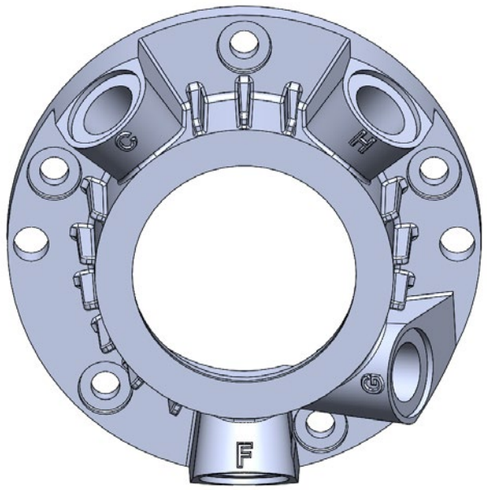


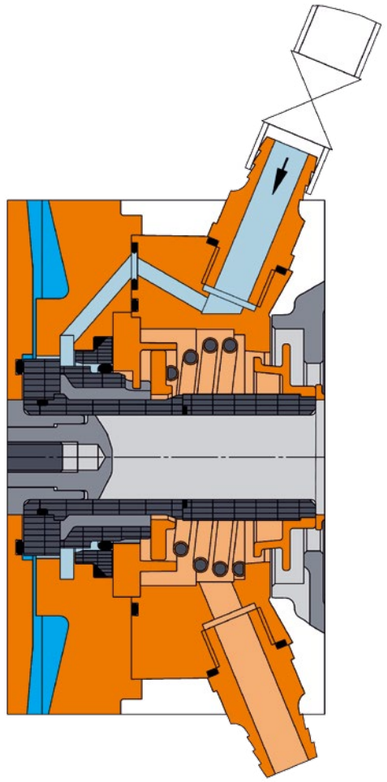
1. Product- and atmosphere-side rotating seal rings are of identical design and interchangeable.
2. Rotating and stationary seal rings are fabricated from high-performance silicon carbide.
3. A pumping ring circulates buffer/barrier fluid between the seal faces and an external seal support system.
4. The product-side spring is protected by a fluoroplastics coating and located outside the path of the fluid pumped. The atmosphere-side spring is located outside the path of the buffer/barrier fluid.
5. The locations of the flushing connections are fixed.
6. The atmosphere-side stationary seal ring is made from carbon.
7. A baffle system provides optimum distribution of the barrier fluid in the seal chamber.
8. Spilt casing and seal cover.
9. The silicon carbide shaft sleeves are insensitive to solids, crystals and slurries.
10. Stainless steel seal covers are available as an option.
11. The atmosphere-side spring is made of stainless steel.

CHOOSING THE RIGHT FLUSHING OPTION – YOUR PUMP'S LIFE INSURANCE

One mechanical seal is not just like another. Whoever wants to maximise service lives and maintenance intervals is well advised to study the details of the sealing concept. Mechanical seal flushing – whether for cleaning and maintenance purposes or for ensuring reliable liquid supply to the seal – is rarely costly, but always worth a thought. Often the service life of the mechanical seal can be significantly extended at little cost.

When it comes to mechanical seal variants, MUNSCH offers maximum flexibility ex works. A universal seal cover fitting all single and double mechanical seals allows the pump to be adapted to changed service conditions at any time – with only a small number of additional components and a minimum of time expenditure. Our service technicians will be pleased to advise you for your specific application.

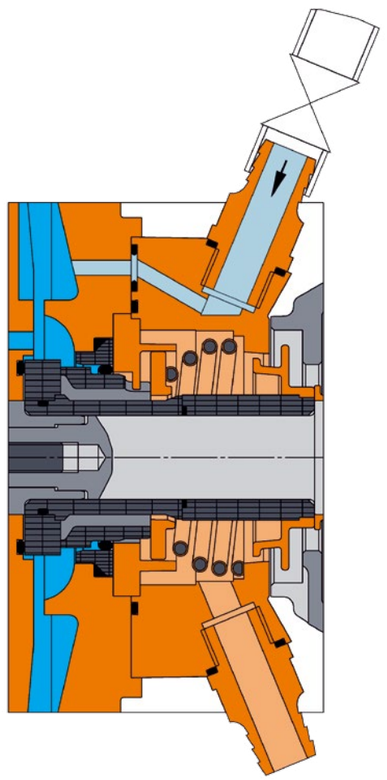




Continuous flushing

It is general knowledge that extreme solids loads of the pumped fluid or fluids having a sticking tendency are the main causes of mechanical seal failure. Nevertheless, reliable operation of a single mechanical seal is possible under such conditions. Using a clean flushing fluid supplied from an external source, solids and slurry are continuously redirected away from the sensitive areas of the seal faces. Flushing can be continued after pump shutdown to keep the seal area clean and fit for the next start.

- **Long service lives even in extreme service environments (very high solids loads, sticky fluids)**
- **Dilution of process leakage**
- **Clean flushing fluid from an external source required (approx. 0.8 l/min)**



Shutdown flushing

Residual product remaining in the pump and seal chamber after pump shutdown can foul or block the mechanical seal, resulting in accelerated wear or seal damage on the next startup. Shutdown flushing is a simple method to counteract such undesirable effects. For efficient cleaning of the mechanical seal after pump shutdown, the hydraulic section of the pump is flushed with a clean fluid for several minutes via a hose or flanged connection.

- **Efficient cleaning – for a longer life of the mechanical seal**
- **Easy to implement**
- **No continuous flush needed**

DOUBLE MECHANICAL SEAL WITH QUENCH TANK

Unpressurised double mechanical seal operating mode with quench fluid

Application

This unpressurized and cost-effective double mechanical seal support system is employed:

- to eliminate crystallisation of the pumped fluid in the spring chamber,
- to absorb any process leakage through the product-side seal,
- when the pumped fluid is non-toxic, non-carcinogenic or does not pose an environmental hazard,
- when mixing of the quench fluid with the fluid being sealed is not a problem.

Operating principle

The temperature differential between the quench tank inlet and outlet induces a natural flow of the quench fluid according to the thermosyphon principle. The unpressurized quench fluid circulates continuously between the quench tank and the shaft seal chamber, cooling and lubricating the mechanical seals in the process.

Requirements for the quench fluid

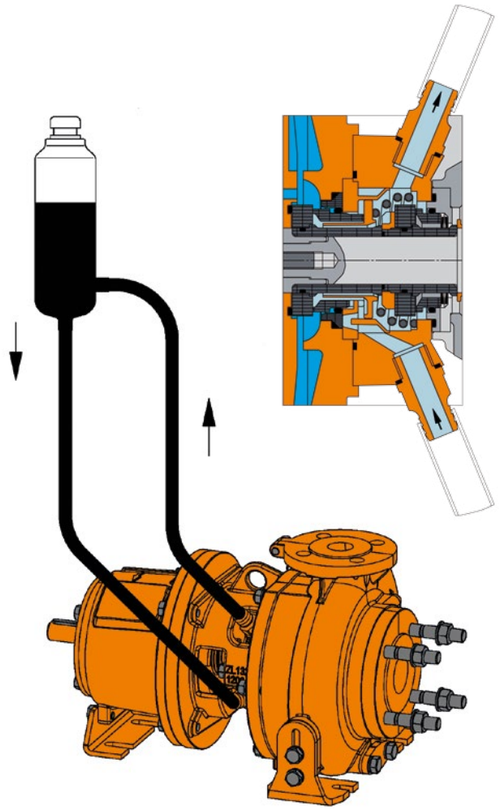
Criteria to be taken into account in the selection of the quench fluid include:

- Boiling point: High-boiling fluids should be preferred as they have to carry off the heat generated in the mechanical seal.
- Lubricating properties: The quench fluid should have good lubricity to reduce friction between the stationary and rotating seal rings.
- Viscosity: The kinematic viscosity of the quench fluid must not exceed 5 mm²/s (cSt).

Operation in the quench mode

Operation with a quench fluid is a simple and cost-effective sealing solution for many applications. The following criteria should be taken into account in the design and operation of the quench system:

- The temperature of the return flow from the seal chamber to the quench tank should not exceed 60°C.
- The supply/return temperature difference should not exceed 25K.
- During pump operation, the liquid level in the quench tank should be checked at regular intervals. If the liquid level in the quench tank changes abruptly, the mechanical seal must be checked.
- The quench fluid should be periodically checked for impurities introduced through the pumped fluid and be replaced in the case of excessive impurity concentrations.



Pump with quench tank

DOUBLE MECHANICAL SEAL WITH A CLOSED-LOOP PRESSURIZED BARRIER FLUID SYSTEM

Pressurized double mechanical seal operating mode with a closed-loop barrier fluid system

Application

This pressurized double mechanical seal support system is employed when:

- process fluids posing a health or environmental hazard have to be reliably contained to preclude process leakage to the atmosphere,
- dry running of the pump cannot be ruled out and reliable barrier fluid supply to the mechanical seal must be ensured at all times, or
- the process fluid is pumped near its boiling point, or
- high solids loads of the pumped fluid would jeopardize proper lubrication of a single mechanical seal
- continuous flushing with clean water is not feasible.

Operating principle

The temperature differential between the feed and return lines induces a natural circulation of the barrier fluid according to the thermosyphon principle. As a result, the barrier fluid circulates continuously between the thermosyphon vessel and the pump seal chamber where it lubricates and cools both the product-side and the atmosphere-side mechanical seal. A pumping ring and baffle system inside the mechanical seal support barrier fluid circulation, thus ensuring proper heat dissipation. The barrier fluid pressure is maintained by pressurising the thermosyphon vessel. Cooling of the barrier fluid is provided by a cooling coil installed in the thermosyphon vessel.

Monitoring

For the efficient and reliable operation of double mechanical seals with a pressurized closed-loop barrier fluid system, the following criteria must be satisfied at all times:

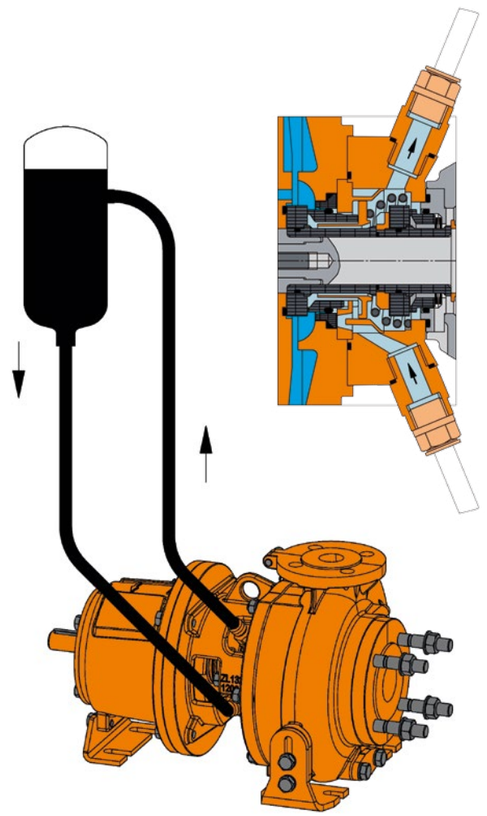
- a sufficient barrier fluid supply,
- a sufficient pressure in the barrier fluid system, and
- the barrier fluid must not exceed the allowable temperature.

Monitoring of these parameters – whether automated or manual – is the responsibility of the plant operator.

Requirements for the barrier fluid

Double mechanical seals are a safe and highly reliable solution for sealing pumps against atmosphere. The selection of the barrier fluid is critical to the performance of the sealing system. The following aspects should be taken into account:

- Boiling point: High-boiling fluids should be preferred as they have to carry off the heat generated in the mechanical seal.
- Lubricating properties: The barrier fluid should have good lubricity to reduce friction between the stationary and rotating seal rings.
- Viscosity: The kinematic viscosity of the barrier fluid should not exceed 5 mm²/s (cSt).
- Compatibility: The barrier fluid must be compatible with the process fluid.



Pump with thermosyphon vessel

DOUBLE MECHANICAL SEAL WITH ONCE-THROUGH PRESSURIZED BARRIER FLUID SYSTEM

Double mechanical seal operated with pressurised freshwater

Application

Double mechanical seals operated with a once-through barrier fluid system are employed when:

- dry running of the pump cannot be ruled out and reliable barrier fluid supply to the mechanical seal must be ensured at all times, or
- the process fluid is pumped near its boiling point, or
- high solids loads of the pumped fluid would jeopardize proper lubrication of a single mechanical seal.

Operating principle

Depending on the temperature of the pumped fluid, the double mechanical seal is supplied with clean barrier fluid at a rate of 0.25 to 1.0 l /min via a connection in the seal cover. The barrier fluid is maintained at a higher pressure than the seal chamber pressure, thus precluding process leakage to the atmosphere. A baffle system provided inside the seal optimises flow distribution to ensure efficient heat removal before the barrier fluid discharges at the other end of the seal cover.

Monitoring

For efficient and reliable performance of double mechanical seals operated with barrier fluid in the once-through mode, the following criteria must be satisfied at all times:

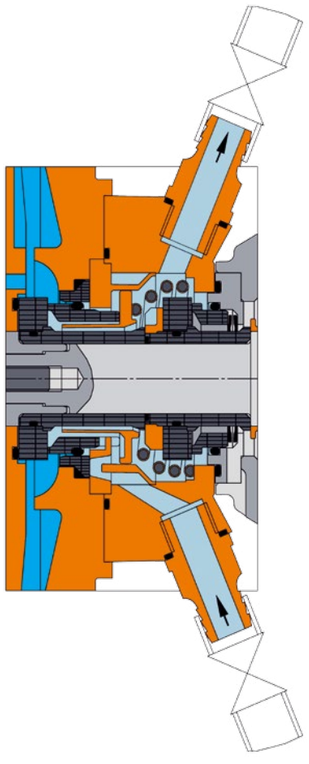
- sufficient supply of barrier fluid,
- sufficiently high pressure of the barrier fluid, and
- the barrier fluid must not exceed the allowable temperature.

Monitoring of these crucial operating parameters – whether automated or manually – is the responsibility of the plant operator.

Requirements for the barrier fluid

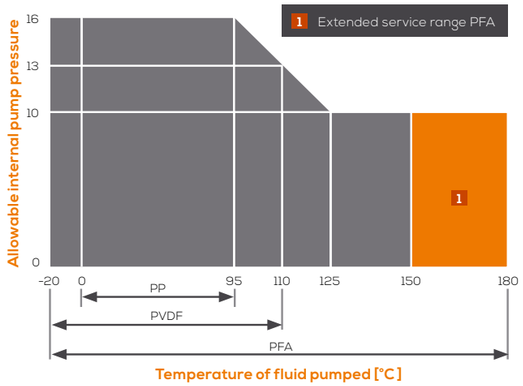
Double mechanical seals operated with a once-through barrier fluid system normally use water as a barrier fluid. It is important that the barrier fluid be clean and free from solids of whatever kind. To preclude partial wear and dry running of the seal, the use of demineralized water is advised against because of its poor lubricity. Barrier fluid selection criteria for this sealing variant include:

- Boiling point: High-boiling fluids should be preferred as they have to carry off the heat generated in the mechanical seal.
- Viscosity: The kinematic viscosity should not exceed 5 mm²/s.



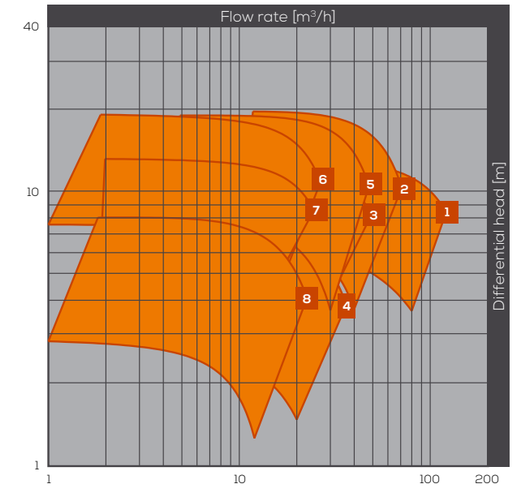
Operation with barrier fluid in the once-through mode

TECHNICAL DATA

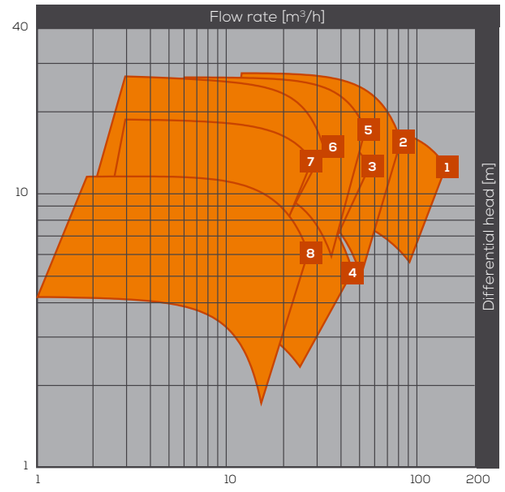


Maximum allowable service pressures and temperatures

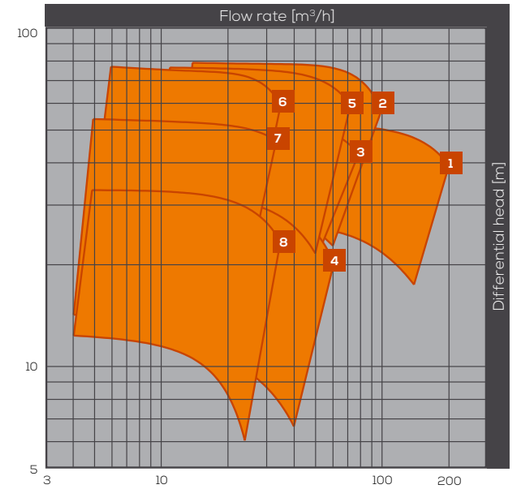
Performance range chart 50 Hz, 1450 1/min



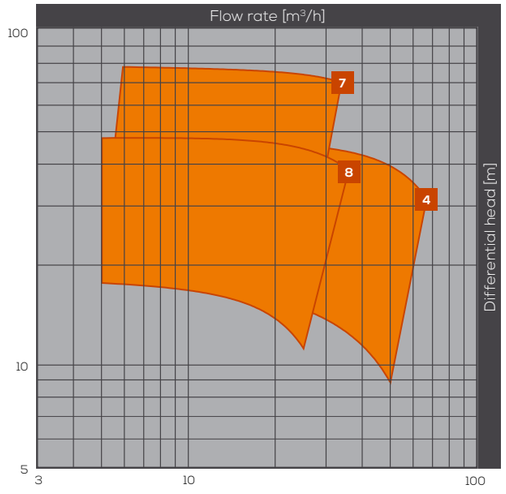
Performance range chart 60 Hz, 1750 1/min



Performance range chart 50 Hz, 2950 1/min



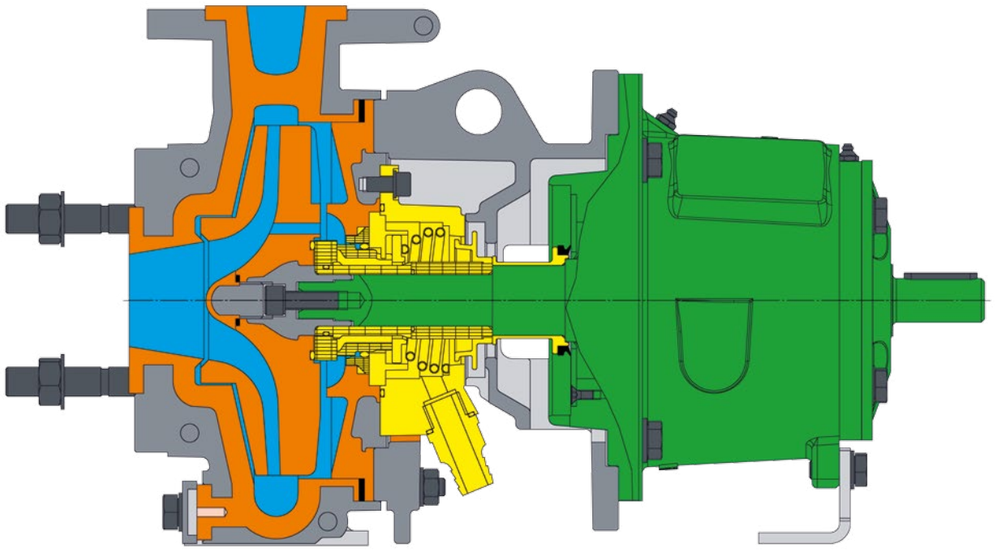
Performance range chart 60 Hz, 3550 1/min



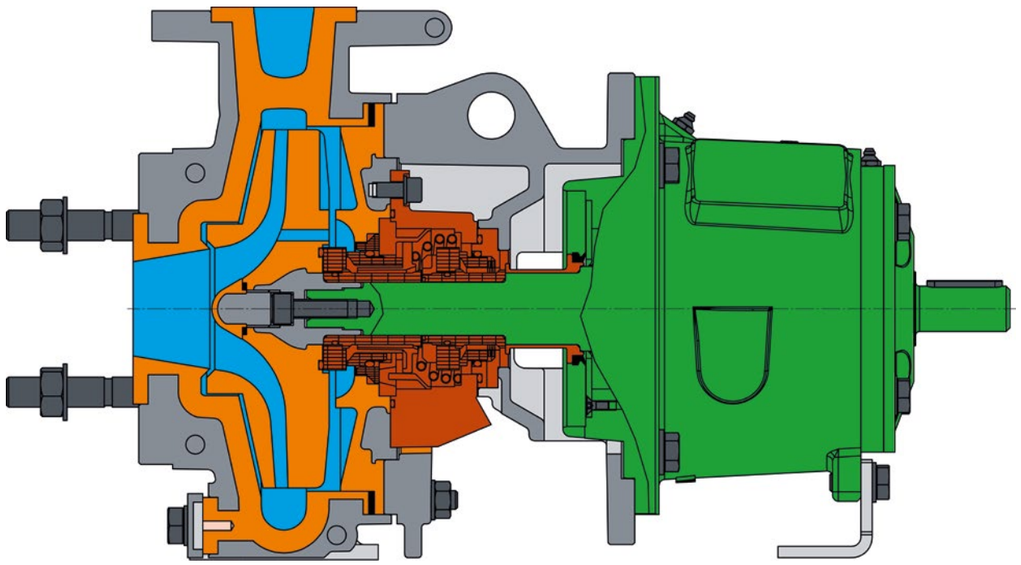
1 80-65 160-A 2 80-50-200-A 3 65-50-160-A 4 65-50-125-A 5 65-40-200-A 6 50-32-200-A 7 50-32-160-A 8 50-32-125-A

SECTIONS AND INTERCHANGEABILITY

Single mechanical seal FS



Double mechanical seal FS/D



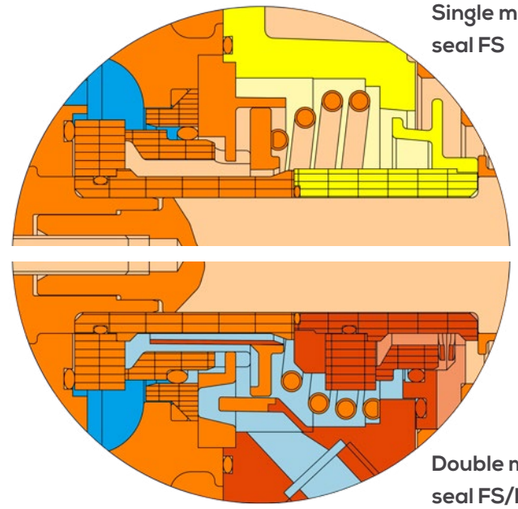
LIST OF INTERCHANGEABLE COMPONENTS FOR CS/CS-B

Components with the same numeric code or colour are identical.

Pump size CS	40-25-125	50-32-125	65-50-125	40-25-160	50-32-160	65-50-160	50-32-200	65-40-200	80-50-200	80-65-160
Casing cover with armour plating	1	2	3	4	5	6	7	8	9	10
Intermidate latern	11			12			13			12
Casing cover	21			22			23			22
Impeller	31	32	33	34	35	36	37	38	39	40
Bearing bracket unit	L16A-CS In the standard with grease lubrication (relubrication) optional: permanent grease or oil lubrication									
Single mechanical seal	MUNSCH-REA-FS									
Double mechanical seal	MUNSCH-REA-FS/D									

Components for mechanical seal conversion

- Article for MUNSCH-REA-FS only
- Article for MUNSCH-REA-FS/D only
- Interchangeable components MUNSCH-REA-FS and FS/D
- Interchangeable O-rings within the mechanical seals

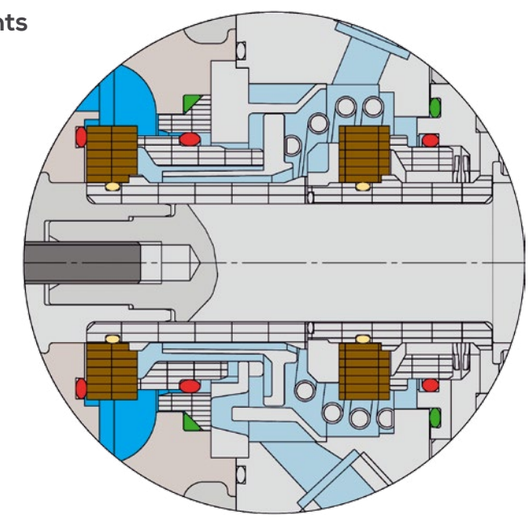


Single mechanical seal FS

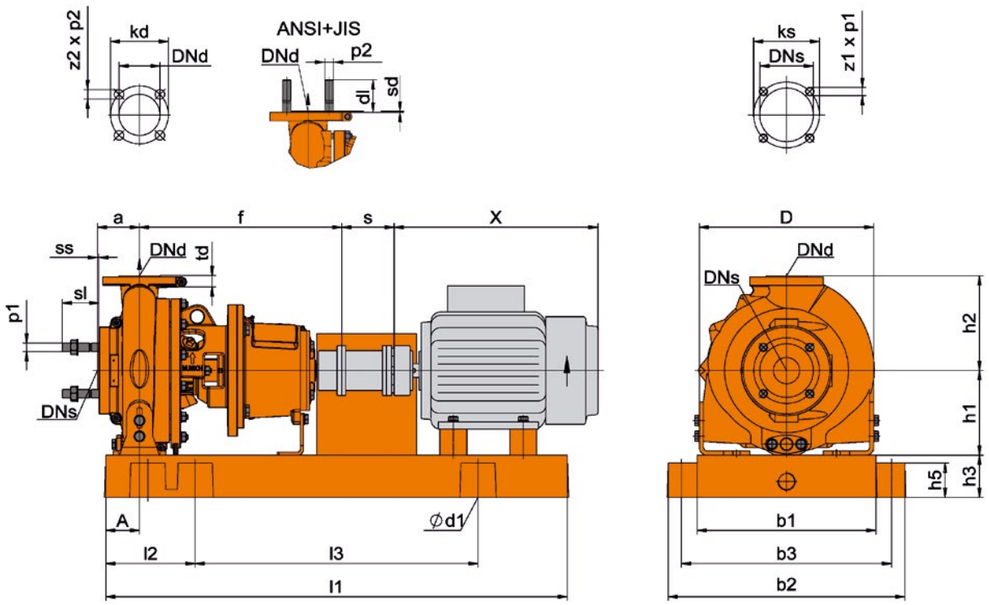
Double mechanical seal FS/D

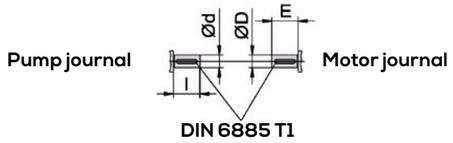
Interchangeable mechanical seal components MUNSCH-REA-FS/D

- O-rings: 412.2 / 412.45 / 412.74
- O-rings: 412.3 / 412.9
- O-rings: 412.52 / 412.61
- Rotating seal rings: 472 / 472.2



ARRANGEMENT DRAWING FOR CS EQUIPPED WITH IEC MOTORS, FRAME SIZE B3





Flange dimensions

	SUCTION FLANGE										PRESSURE FLANGE									
	DIN				ANSI				JIS			DIN				ANSI				JIS		
Pump size	DNs	ks	z1	p1	ks	z1	p1	p1(UNC)	ks	z1	p1	DNd	kd	z2	p2	kd	z2	p2	p2(UNC)	kd	z2	p2
40-25-125	40	110	4	M16	98,6	4	M12	1/2"	105	4	M16	25	85	4	ø14	79,2	4	M12	1/2"	90	4	M16
40-25-160	40	110	4	M16	98,6	4	M12	1/2"	105	4	M16	25	85	4	ø14	79,2	4	M12	1/2"	90	4	M16
50-32-125	50	125	4	M16	120,7	4	M16	5/8"	120	4	M16	32	100	4	ø18	88,9	4	M12	1/2"	100	4	M16
50-32-160	50	125	4	M16	120,7	4	M16	5/8"	120	4	M16	32	100	4	ø18	88,9	4	M12	1/2"	100	4	M16
50-32-200	50	125	4	M16	120,7	4	M16	5/8"	120	4	M16	32	100	4	ø18	88,9	4	M12	1/2"	100	4	M16
65-50-125	65	145	4	M16	139,7	4	M16	5/8"	140	4	M16	50	125	4	ø18	120,7	4	M16	5/8"	120	4	M16
65-50-160	65	145	4	M16	139,7	4	M16	5/8"	140	4	M16	50	125	4	ø18	120,7	4	M16	5/8"	120	4	M16
65-40-200	65	145	4	M16	139,7	4	M16	5/8"	140	4	M16	40	110	4	ø18	98,6	4	M12	1/2"	105	4	M16
80-65-160	80	160	8	M16	152,4	4	M16	5/8"	150	8	M16	65	145	4	ø18	139,7	4	M16	5/8"	140	4	M16
80-50-200	80	160	8	M16	152,4	4	M16	5/8"	150	8	M16	50	125	4	ø18	120,7	4	M16	5/8"	120	4	M16

For motor dimensions for CS, see page 24

Main pump dimensions

																		Free wave end				
Pump size	a	f	h1*	h2	D	m1	m2	n1	n2	n3	w	s	S1	S2	b4	td	ss	sl	ød	l	dl	sd	A
40-25-125	80	385	112	140	280	100	70	240	190	110	285	100	14	15	50	16	3	70	24	50	60	2	60
40-25-160	80	385	132	160	315	100	70	240	190	110	285	100	14	15	50	16	3	70	24	50	60	2	60
50-32-125	80	385	112	140	280	100	70	240	190	110	285	100	14	15	50	18	3	70	24	50	60	2	60
50-32-160	80	385	132	160	315	100	70	240	190	110	285	100	14	15	50	18	3	70	24	50	60	2	60
50-32-200	80	385	160	180	335	100	70	240	190	110	285	100	14	15	50	18	3	70	24	50	60	2	60
65-50-125	80	385	112	140	280	100	70	240	190	110	285	100	14	15	50	20	3	70	24	50	60	3	60
65-50-160	80	385	132	160	315	100	70	240	190	110	285	100	14	15	50	20	3	70	24	50	60	3	60
65-40-200	100	385	160	180	355	100	70	265	212	110	285	100	14	15	50	18	3	70	24	50	60	3	60
80-65-160	100	385	160	200	370	100	70	265	212	110	285	100	14	15	50	20	3	70	24	50	70	3	60
80-50-200	100	385	160	200	355	100	70	265	212	110	285	100	14	15	50	20	3	70	24	50	70	3	60

Available sizes of cast iron and steel base plates to DIN 23 661 for CS

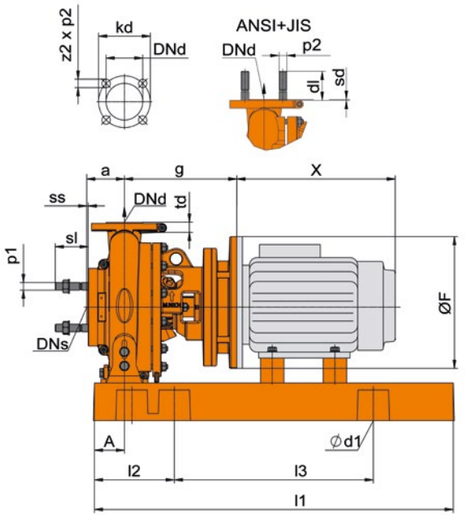
Motor size	90S	90L	100L	112M	132S	132M	160M	160L	180M	180L	200L	225S	225M
Axial dimension H [mm]	90	90	100	112	132	132	160	160	180	180	200	225	225
Pump size													
40-25-125	2	3	3	3	4	4	5	5	5	6	6	7	7
40-25-160	2	3	3	3	4	4	5	5	5	6	6	7	7
50-32-125	2	3	3	3	4	4	5	5	5	6	6	7	7
50-32-160	2	3	3	3	4	4	5	5	5	6	6	7	7
50-32-200	2	3	3	3	4	4	5	5	5	6	6	7	7
65-50-125	2	3	3	3	4	4	5	5	5	6	6	7	7
65-50-160	2	3	3	3	4	4	5	5	5	6	6	7	7
65-40-200	3	3	3	3	4	4	5	5	5	6	6	7	7
80-65-160	3	3	3	3	4	4	5	5	5	6	6	7	7
80-50-200	3	3	3	3	4	4	5	5	5	6	6	7	7

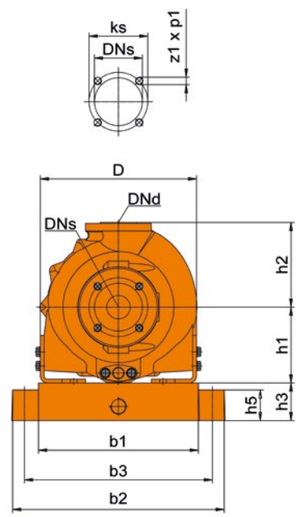
h1 dimentions of pump and motor combinations marked in red are identical

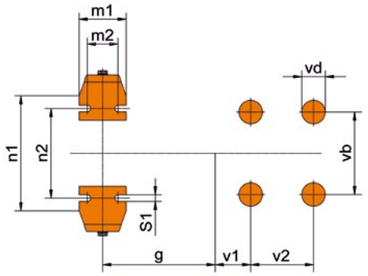
Base plate dimensions as per EN 23661

Base plate size	b 1	b 2	b 3	l 1	l 2	l 3	h 3	h 5	Ø D 1 (M)
2	270	360	320	800	130	540	65	55	19/M16
3	300	390	350	900	150	600	65	55	19/M16
4	340	450	400	1000	170	660	80	65	24/M20
5	380	490	440	1120	190	740	80	65	24/M20
6	430	540	490	1250	205	840	80	65	24/M20
7	480	610	550	1400	230	940	100	85	24/M24

MOTOR: EU PROPRIETARY MAKE
MAIN DIMENSIONS







Motor dimensions

Motor size	Engine design IM B35				Pump
	v1	v2	vb	vd	g
100L	63	140	160	50	186
112M	70	140	190	50	186
132S	89	140	216	50	245
132M	89	178	216	50	245
160M	108	210	254	50	275
160L	108	254	254	50	275

Flange dimensions

	SUCTION FLANGE										PRESSURE FLANGE									
	DIN				ANSI				JIS			DIN				ANSI				JIS		
Pump size	DNs	ks	z1	p1	ks	z1	p1	p1(UNC)	ks	z1	p1	DNd	kd	z2	p2	kd	z2	p2	p2(UNC)	kd	z2	p2
40-25-125	40	110	4	M12	98,6	4	M12	1/2"	105	4	M16	25	85	4	ø14	79,2	4	M12	1/2"	90	4	M16
40-25-160	40	110	4	M12	98,6	4	M12	1/2"	105	4	M16	25	85	4	ø14	79,2	4	M12	1/2"	90	4	M16
50-32-125	50	125	4	M16	120,7	4	M16	5/8"	120	4	M16	32	100	4	ø18	88,9	4	M12	1/2"	100	4	M16
50-32-160	50	125	4	M16	120,7	4	M16	5/8"	120	4	M16	32	100	4	ø18	88,9	4	M12	1/2"	100	4	M16
50-32-200	50	125	4	M16	120,7	4	M16	5/8"	120	4	M16	32	100	4	ø18	88,9	4	M12	1/2"	100	4	M16
65-50-125	65	145	4	M16	139,7	4	M16	5/8"	140	4	M16	50	125	4	ø18	120,7	4	M16	5/8"	120	4	M16
65-50-160	65	145	4	M16	139,7	4	M16	5/8"	140	4	M16	50	125	4	ø18	120,7	4	M16	5/8"	120	4	M16
65-40-200	65	145	4	M16	139,7	4	M16	5/8"	140	4	M16	40	110	4	ø18	98,6	4	M12	1/2"	105	4	M16
80-65-160	80	160	8	M16	152,4	4	M16	5/8"	150	8	M16	65	145	4	ø18	139,7	4	M16	5/8"	140	4	M16
80-50-200	80	160	8	M16	152,4	4	M16	5/8"	150	8	M16	50	125	4	ø18	120,7	4	M16	5/8"	120	4	M16

For motor dimensions for CS-B, see page 25

Main pump dimensions

Pump size	a	h1*	h2	D	m1	m2	n1	n2	S1	td	ss	sl	A
40-25-125	80	112	140	280	100	70	240	190	14	16	3	70	60
40-25-160	80	132	160	315	100	70	240	190	14	16	3	70	60
50-32-125	80	112	140	280	100	70	240	190	14	18	3	70	60
50-32-160	80	132	160	315	100	70	240	190	14	18	3	70	60
50-32-200	80	160	180	335	100	70	240	190	14	18	3	70	60
65-50-125	80	112	140	280	100	70	240	190	14	20	3	70	60
65-50-160	80	132	160	315	100	70	240	190	14	20	3	70	60
65-40-200	100	160	180	355	100	70	265	212	14	18	3	70	60
80-65-160	100	160	200	370	100	70	265	212	14	20	3	70	60
80-50-200	100	160	200	355	100	70	265	212	14	20	3	70	60

h1 dimension of the unit

With some pumps, a larger h1 dimension is needed as the radius of the motor flange is larger than the h1 dimension of the pump.

		Motor size			
		100	112	132	160
Pump size	h1-measure pump	h1-measure aggregate			
40-25-125	112	132	132	160	180
50-32-125	112	132	132	160	180
65-50-125	112	132	132	160	180
40-26-160	132	132	132	160	180
50-32-160	132	132	132	160	180
50-32-200	160	160	160	160	180
65-40-200	160	160	160	160	180
80-65-160	160	160	160	160	180
80-50-200	160	160	160	160	180

Available base plate sizes for CS-B

Motor size	71	80	90S	90L	100L	112M	132S	132M	160M	160L
Pump size										
40-25-125	2	2	2	2	2	2	2	2	3	3
40-25-160	2	2	2	2	2	2	2	2	3	3
50-32-125	2	2	2	2	2	2	2	2	3	3
50-32-160	2	2	2	2	2	2	2	2	3	3
50-32-200	2	2	2	2	2	2	2	2	3	3
65-50-125	2	2	2	2	2	2	2	2	3	3
65-50-160	2	2	2	2	2	2	2	2	3	3
65-40-200	3	3	3	3	3	3	3	3	3	3
80-65-160	3	3	3	3	3	3	3	3	3	3
80-50-200	3	3	3	3	3	3	3	3	3	3

Base plate dimensions as per EN 23661

Base plate size	b 1	b 2	b 3	l 1	l 2	l 3	h 3	h 5	Ø D 1 (M)
2	270	360	320	800	130	540	65	55	19/M 16
3	300	390	350	900	150	600	65	55	19/M 16

MOTOR: EU PROPRIETARY MAKE MAIN DIMENSIONS FOR CS

Motor frame size IM B3, type of protection IP55

Rotational speed 1450 1/min

Motor size	Power [kW]	ØD [mm]	E [mm]	X [mm]
100L	2,2	28	60	389
100L	3	28	60	389
112M	4	28	60	382
132S	5,5	38	80	457
132M	7,5	38	80	457
160M	11	42	110	594
160L	15	42	110	594
180M	18,5	48	110	668
180L	22	48	110	698
200L	30	55	110	746

Rotational speed 2950 1/min

Motor size	Power [kW]	ØD [mm]	E [mm]	X [mm]
100L	3	28	60	389
112M	4	28	60	389
132S	5,5	38	80	382
132S	7,5	38	80	457
160M	11	42	110	457
160M	15	42	110	594
160L	18,5	42	110	594
180M	22	48	110	698
200L	30	55	110	721

Motor frame size IM B3, type of protection EEx e II T3

Rotational speed 1450 1/min

Motor size	Power [kW]	ØD [mm]	E [mm]	X [mm]
100L	2	28	60	372
100L	2,5	28	60	372
112M	3,6	28	60	393
132S	5	38	80	453
132M	6,8	38	80	453
160M	10	42	110	588
160L	13,5	42	110	588
180M	15	48	110	715
180L	17,5	48	110	715
200L	24	55	110	772
225S	30	60	140	839

Rotational speed 2950 1/min

Motor size	Power [kW]	ØD [mm]	E [mm]	X [mm]
100L	2,5	28	60	372
112M	3,3	28	60	372
132S	4,6	38	80	393
132S	5,5	38	80	453
160M	7,5	42	110	453
160M	10	42	110	588
160L	12,5	42	110	588
180M	15	48	110	715
200L	20	55	110	772
200L	24	55	110	772
225M	28	55	110	809

Motor frame size IM B3, type of protection EEx de T4

Rotational speed 1450 1/min

Motor size	Power [kW]	ØD [mm]	E [mm]	X [mm]
100L	2,2	28	60	482
100L	3	28	60	482
112M	4	28	60	465
132S	5,5	38	80	574
132M	7,5	38	80	574
160M	11	42	110	786
160L	15	42	110	786
180M	18,5	48	110	822
180L	22	48	110	822
200L	30	55	110	884

Rotational speed 2950 1/min

Motor size	Power [kW]	ØD [mm]	E [mm]	X [mm]
100L	3	28	60	482
112M	4	28	60	482
132S	5,5	38	80	465
132S	7,5	38	80	574
160M	11	42	110	574
160M	15	42	110	786
160L	18,5	42	110	786
180M	22	48	110	822
200L	30	55	110	884

MOTOR: EU PROPRIETARY MAKE MAIN DIMENSIONS FOR CS-B

Motor frame size IM B35, type of protection IP55

Rotational speed 1450 1/min

Motor size	Power [kW]	ØF [mm]	X [mm]
100L	2,2	250	329
100L	3	250	329
112M	4	250	322
132S	5,5	300	377
132M	7,5	300	377
160M	11	350	484
160L	15	350	484

Rotational speed 2950 1/min

Motor size	Power [kW]	ØF [mm]	X [mm]
100L	3	250	329
112M	4	250	329
132S	5,5	300	302
132S	7,5	300	377
160M	11	350	347
160M	15	350	484
160L	18,5	350	484

Motor frame size IM B35, type of protection EEx e II T3

Rotational speed 1450 1/min

Motor size	Power [kW]	ØF [mm]	X [mm]
100L	2	250	312
100L	2,5	250	312
112M	3,6	250	333
132S	5	300	373
132M	6,8	300	373
160M	10	350	478
160L	13,5	350	478

Rotational speed 2950 1/min

Motor size	Power [kW]	ØF [mm]	X [mm]
100L	2,5	250	312
112M	3,3	250	312
132S	4,6	300	313
132S	5,5	300	373
160M	7,5	350	343
160M	10	350	478
160L	12,5	350	478

Motor frame size IM B35, type of protection EEx de T4

Rotational speed 1450 1/min

Motor size	Power [kW]	ØF [mm]	X [mm]
100L	2,2	250	422
100L	3	250	422
112M	4	250	405
132S	5,5	300	494
132M	7,5	300	494
160M	11	350	676
160L	15	350	676

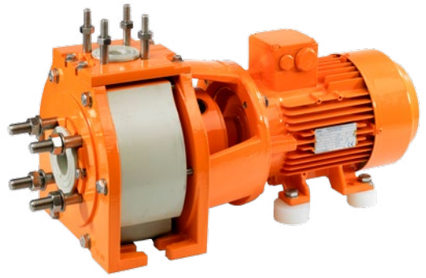
Rotational speed 2950 1/min

Motor size	Power [kW]	ØF [mm]	X [mm]
100L	3	250	422
112M	4	250	422
132S	5,5	300	385
132S	7,5	300	494
160M	11	350	464
160M	15	350	676
160L	18,5	350	676

MUNSCH PRODUCT RANGE

Standardized chemical pump
NPC Mammut
with metal armour

Standardized chemical pump
NP
with solid plastic casing



Close-coupled chemical pump
NP-B
with solid plastic casing

Vertical chemical pump
TNP-KL
with plain bearing

Vertical cantilever pump
TPC-M

Vertical chemical pump
TNP
with plain bearing

Vertical cantilever pump
TPC

Standardized chemical pump
CM/CM-B
with magnetic drive

Standardized chemical pump
ECM/ECM-B
with magnetic drive

Priming pot
made of plastics

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