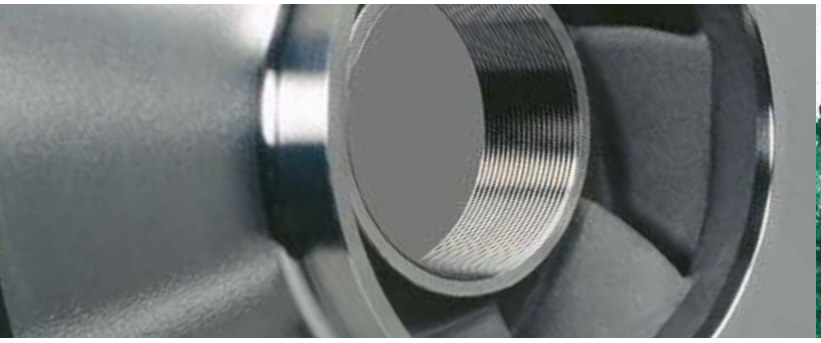
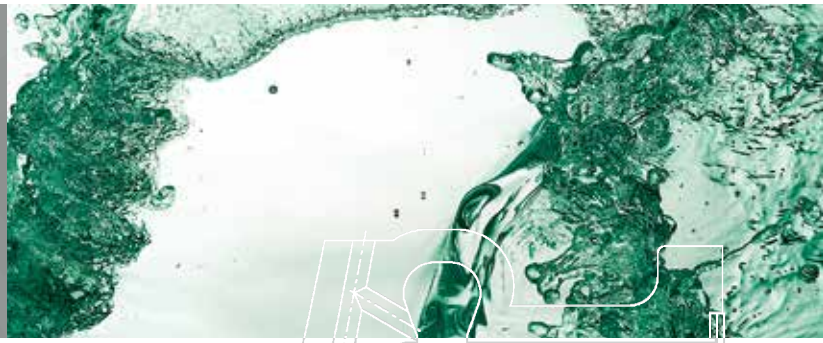
cp pump systems

Stainless Steel Magnetic Drive Centrifugal Pumps

Efficient – Robust – Safe

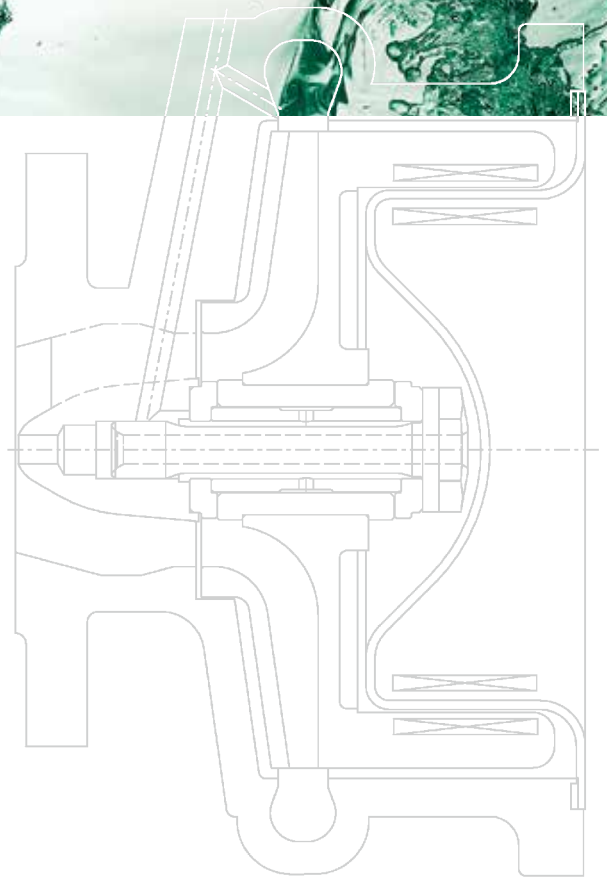




MKP
Magnetic drive chemical process pump

MKP-S
Self-priming magnetic drive chemical process pump

MKTP
Magnetic drive chemical process sump pump



Designed to:
DIN EN ISO 2858, 5199 and 15783
ANSI ASME B73.3

Compliant with:
EC Machinery Directive
EC ATEX Directive
FDA 21 CFR §177

cleaner pumps, cleaner planet™

Closed impeller of stainless steel magnetic drive pumps

CP Pump Systems
Stainless Steel Magnetic Drive Centrifugal Pumps

Our company

CP is a highly innovative Swiss company with a rich tradition. Since 1948 we have specialised in developing and manufacturing premium quality high-tech products and providing services for international customers with the most rigorous requirements.

We produce reliable and innovative centrifugal pumps for the chemical, pharmaceutical, petrochemical, biotechnology, food and beverage industries. CP is represented in over 70 countries through its network and offers first-class customer services. This proximity guarantees customers worldwide an efficient local service.

Reflecting our deep commitment to energy efficient products and services, we deliver environmentally friendly solutions that always go hand in hand with maximum safety and economy. As a pioneer in this area, we advise and assist customers with a wide range of needs – throughout the value chain.

CP operates a quality management system certified to ISO 9001:2015.

Stainless steel magnetic drive centrifugal pumps

The MKP, MKP-S and MKTP sealless magnetic drive pumps are ideal to meet the stringent requirements of chemical processing and a multitude of other industries. These highly advanced and extremely energy efficient pumps are built to handle a huge variety of fluids reliably and absolutely safely.

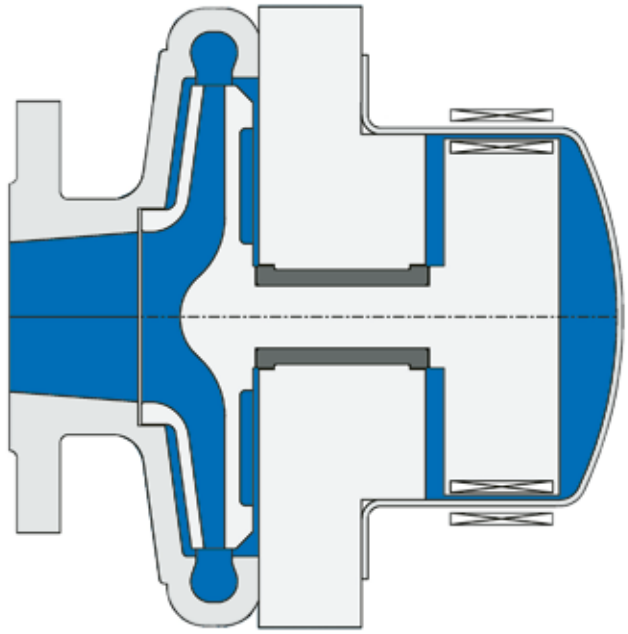
The MKP, MKP-S and MKTP operate according to the unique drive principle by CP with central bearing. With their special design, the pumps require no plain bearing carrier. The pumped fluid provides optimum lubrication and cooling of the single, centrally located impeller bearing assembly, also allowing solids-laden and low-boiling liquids to be pumped. Depending on the pumped medium, they can handle fluids containing solids in concentrations up to 30 per cent with a particle size up to 1 mm.

The pump impeller rotates stable about a stationary axis on the gyroscopic principle, maintaining a perfect hydraulic balance. This minimises bearing loads, increasing the reliability of pump operation.

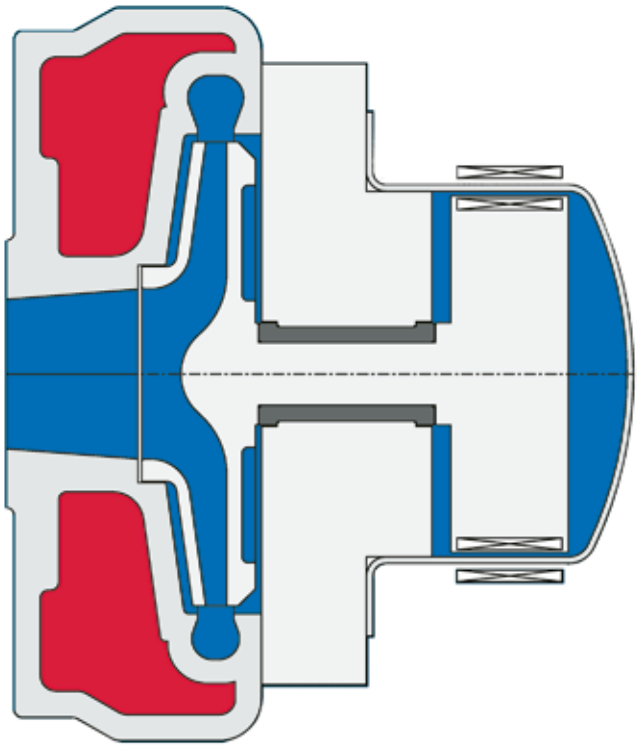
Added to their compact design with virtually no dead areas, the MKP, MKP-S and MKTP pumps are constructed with just a few, robust components. An intelligent modular system facilitates assembly and keeps the costs of spare parts, maintenance and servicing to a minimum.

MKP with baseplate and motor
horizontal close-coupled (–148 to +482°F)

Conventional Design

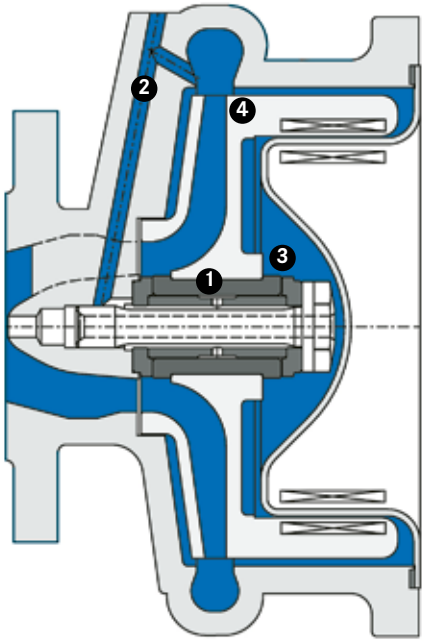


Conventional magnetic drive pump design
without heating



Conventional magnetic drive pump design
with heating

CP's MKP with inverted drive configuration
Unique – Simple – Compact



MKP
without heating chamber

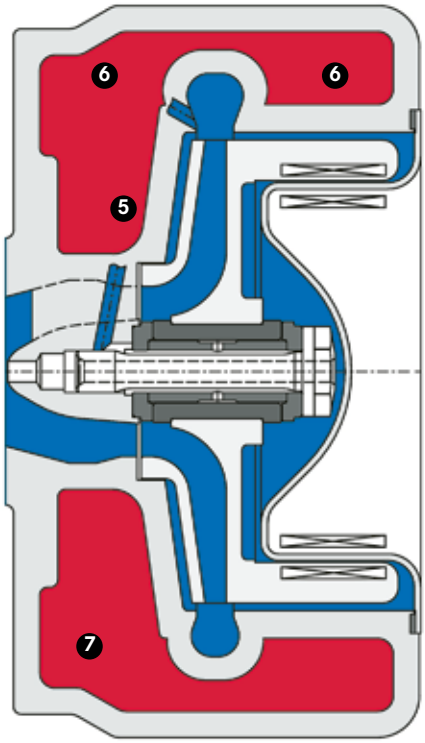
The MKP's design offers key advantages over conventional pump designs:

1 The centrally located bearing assembly, minimal bearing loads and absence of a plain bearing carrier ensure highly reliable operation and allow superior handling of solids-laden and low-boiling fluids.

2 A large flush line branching off from the volute provides excellent lubrication and cooling of the bearing assembly with the pumped fluid.

3 The compact design with virtually no dead areas means that suspended solids can also be pumped.

4 Simple construction and few components make the pump very easy to assemble.



MKP
with heating chamber

The MKP's design offers key advantages over conventional pump designs:

5 Heating the entire pump with a single heating chamber cuts installation costs.

6 Excellent heat distribution in the interior of the pump reduces temperature differences and prevents cold zones.

7 High heat transfer efficiency, with the heating energy delivered directly into the fluid chamber, shortens heat-up times.

MKP
Stainless Steel Magnetic Drive Chemical Process Pump

Technical data	DIN EN ISO
Capacities (min./max.)	1 to 5724 gpm
Heads (min./max.)	10 to 755 ft
Temperatures (min./max.)	–148 to +662°F
Kinematic viscosities	0.5 to 350 cSt
Solids handling	up to 30% solids concentation and 1/25" particle size, depending on the pumped fluid*

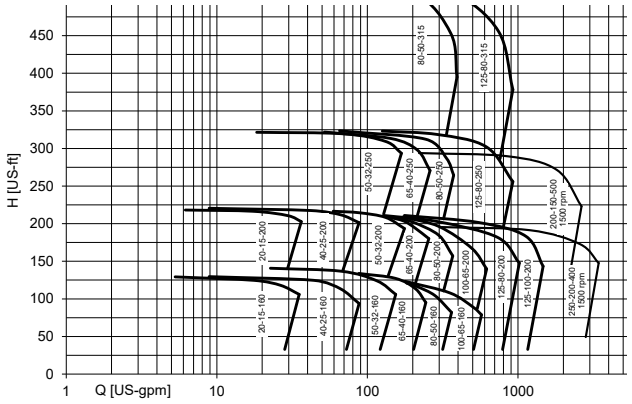
Directives
EC Machinery Directive
EC ATEX Directive
FDA 21 CFR §177

Standards
DIN EN ISO 2858
DIN EN ISO 5199
DIN EN ISO 15783

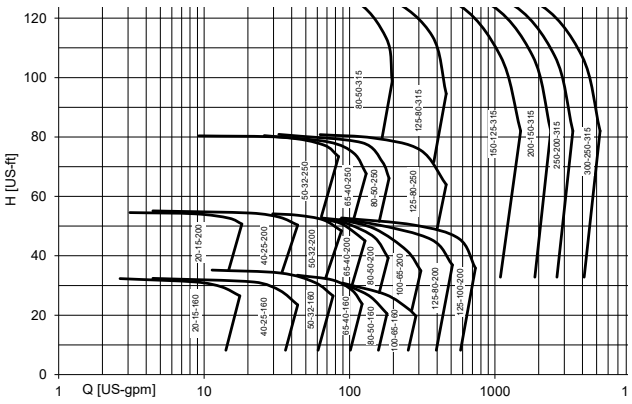
Technical data	ANSI (ASME-compliant)
Capacities (min./max.)	1 to 450 gpm
Heads (min./max.)	10 to 310 ft
Temperatures (min./max.)	–148 to +482°F
Kinematic viscosities	0.5 to 350 cSt
Solids handling	up to 30% solids concentation and 1/25" particle size, depending on the pumped fluid*

Directives
EC Machinery Directive
EC ATEX Directive
FDA 21 CFR §177

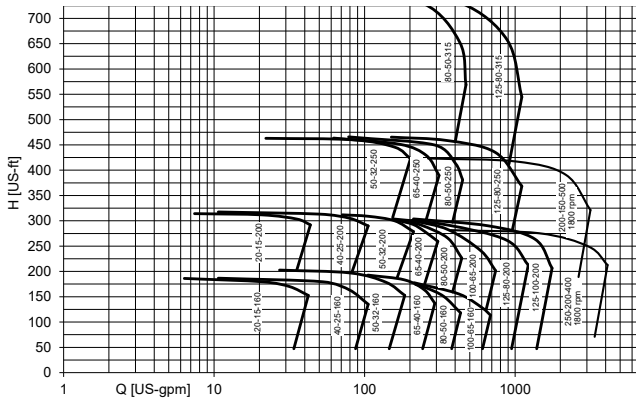
Standards
ANSI ASME B73.3



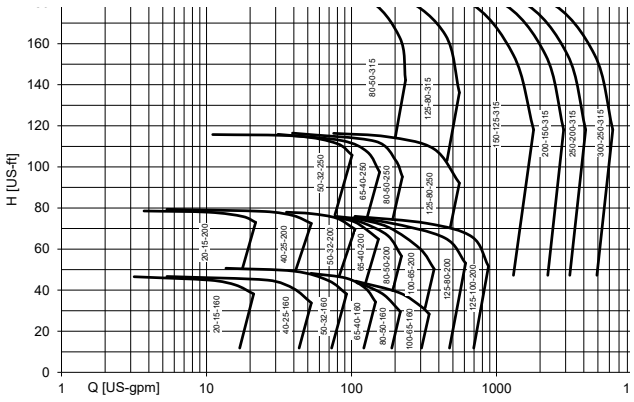
3000 rpm/50 Hz US



1500 rpm/50 Hz US

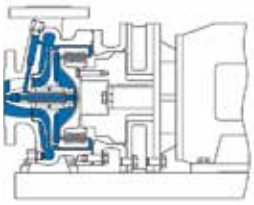


3600 rpm/60 Hz US



1800 rpm/60 Hz US

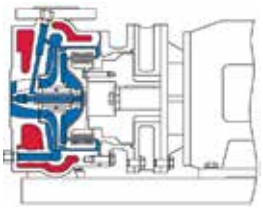
*In general, media with solids content can be transported, but application-specific verification in advance is absolutely necessary.



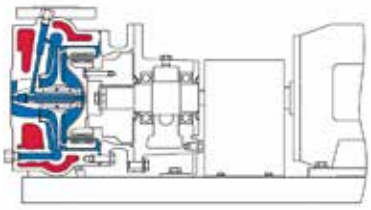
Close-coupled MKP
with baseplate
–148 to +482°F

Bearing frame mounted MKP
with baseplate
–148 to +482°F

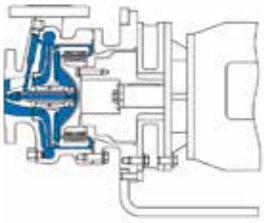
Bearing frame mounted MKP OH2 HT (high temperature)
with centreline support
–148 to +662°F



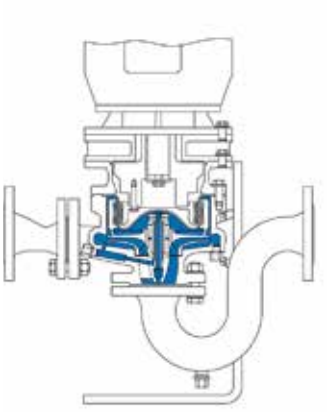
Close-coupled MKP with heating chamber
with baseplate
–148 to +482°F



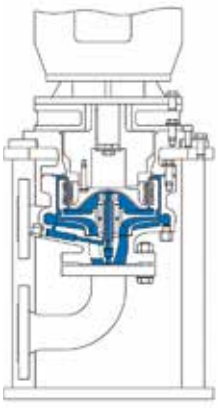
Bearing frame mounted MKP with heating chamber
with baseplate
–148 to +482°F



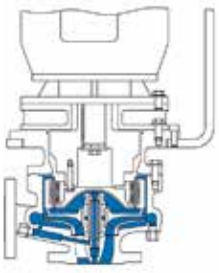
Close-coupled MKP
with bracket
–148 to +482°F



Vertical in-line close-coupled MKP
optional with angle stand
–148 to +482°F



Vertical close-coupled MKP
with stand
–148 to +482°F



Vertical close-coupled MKP
with bracket
–148 to +482°F

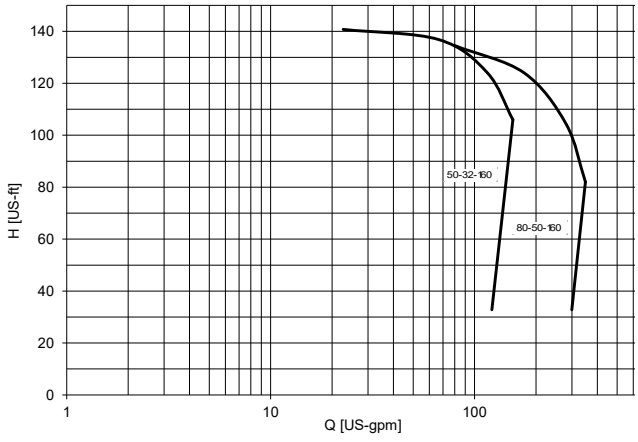
MKP-S
Stainless Steel Self-Priming Magnetic Drive Chemical Process Pump

The MKP-S features an integral priming chamber in the casing. A separate priming tank is not necessary because the pump evacuates the suction line itself by creating a vacuum. The MKP-S can even readily pump entrained air in the suction line while running, thus increasing reliability of operation. This pump achieves suction lifts up to 26 ft.

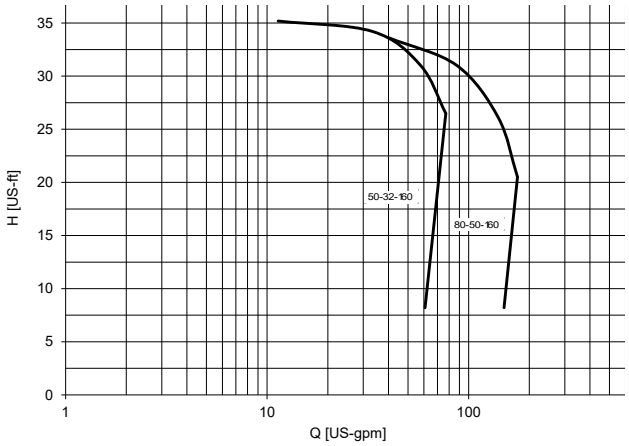
Technical data	
Capacities (min./max.)	2 to 325 gpm
Heads (min./max.)	16 to 197 ft
Temperatures (min./max.)	–148 to +482°F
Kinematic viscosities	0.5 to 350 cSt
Solids handling	up to 30% solids concentration and 1/25" particle size, depending on the pumped fluid*

Directives
EC Machinery Directive
EC ATEX Directive

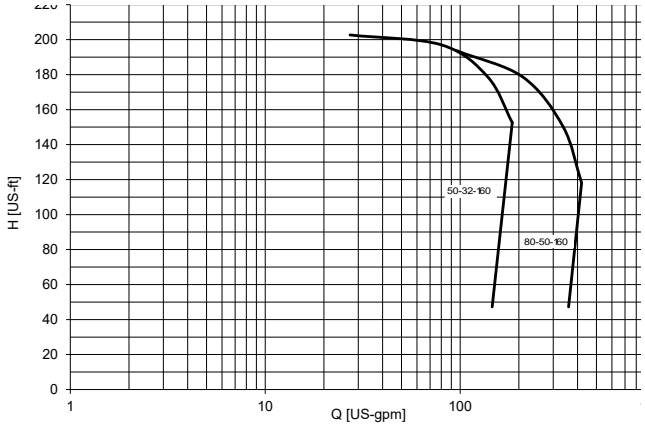
Standards
DIN EN ISO 5199
DIN EN ISO 15783



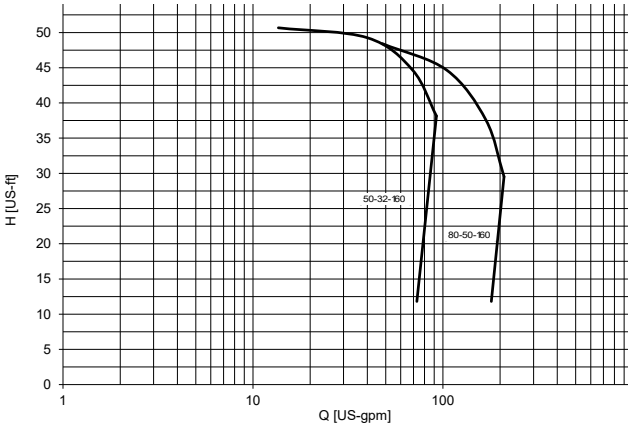
3000 rpm/50 Hz US



1500 rpm/50 Hz US

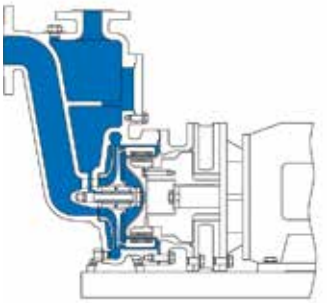


3600 rpm/60 Hz US

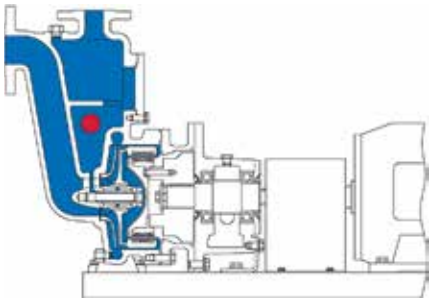


1800 rpm/60 Hz US

*In general, media with solids content can be transported, but application-specific verification in advance is absolutely necessary.



Close-coupled MKP-S
with baseplate
–148 to +482°F



Bearing frame mounted MKP-S with heating (heating cartridge)
with baseplate
–148 to +482°F

MKP-S with baseplate and motor
horizontal close-coupled (–148 to +482°F)

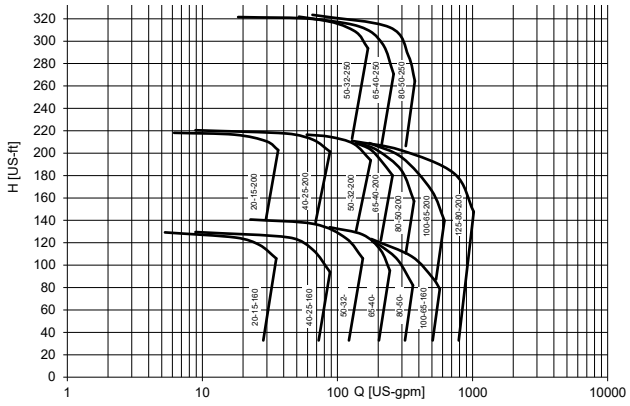
MKTP
Stainless Steel Magnetic Drive Chemical Process Sump Pump

The MKTP is designed for efficiently emptying tanks that have no bottom drain. It pumps corrosive media absolutely safely, ensuring that no fluid or vapours emitted can escape into the atmosphere. This pump is available with a submersible length up to 13.1 ft and can also be supplied with a double-walled jacketed discharge pipe.

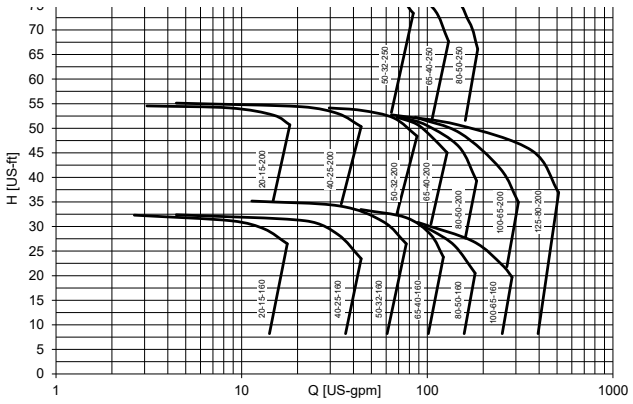
Technical data	
Capacities (min./max.)	1 to 1101 gpm
Heads (min./max.)	10 to 329 ft
Temperatures (min./max.)	–4 to +347°F
Kinematic viscosities	0.5 to 350 cSt
Solids handling	up to 30% solids concentration and 1/25" particle size, depending on the pumped fluid*

Directives
EC Machinery Directive
EC ATEX Directive

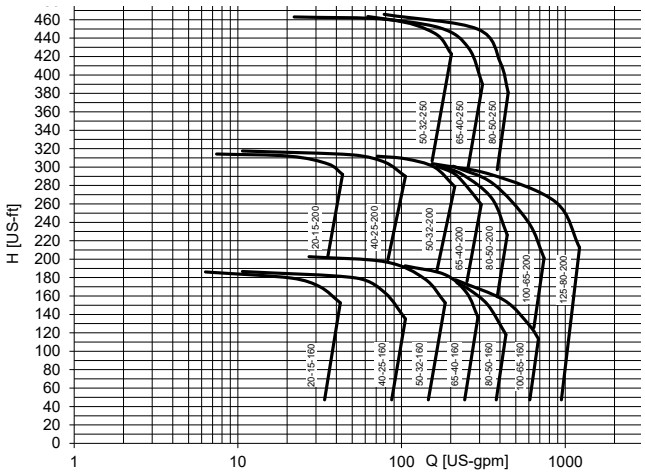
Standards
DIN EN ISO 5199
DIN EN ISO 15783



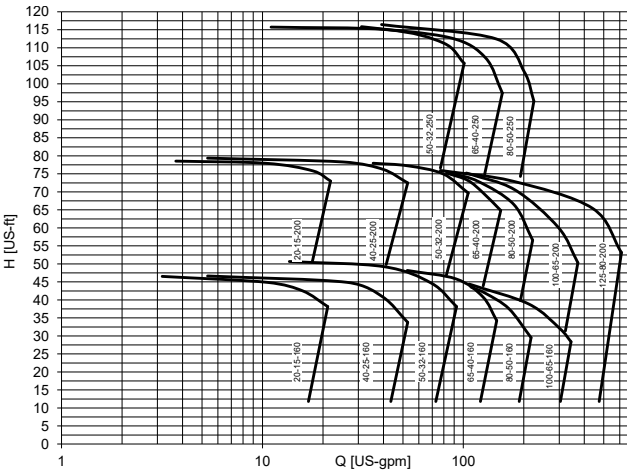
3000 rpm/50 Hz US



1500 rpm/50 Hz US



3600 rpm/60 Hz US



1800 rpm/60 Hz US

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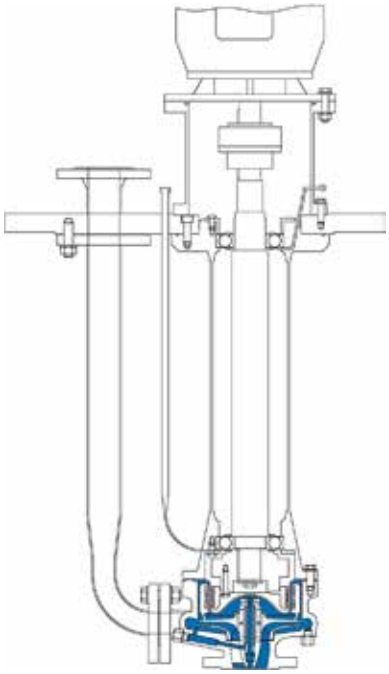
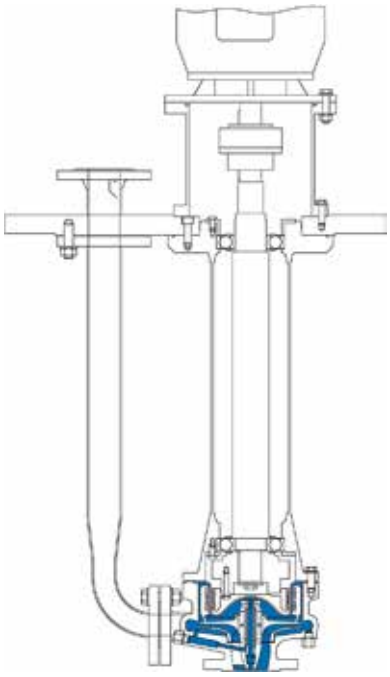


MKTP with regreasable anti-friction bearings
vertical bearing frame mounted
–4 to +347°F



MKTP with greased-for-life anti-friction bearings
vertical bearing frame mounted
–4 to +347°F

MKTP with motor
with jacketed discharge pipe
vertical bearing frame mounted (–4 to +347°F)

Options
Comprehensive – Individual – Combinable

Casing

Materials
- Stainless steel 1.4581 (316)*
- Stainless steel (e.g. 1.4306, Uranus® B6)*
- Duplex alloys (e.g. 1.4517)
- Nickel-base alloys (e.g. Hastelloy® C-4, C-22)*
- Nickel (e.g. 2.4170)
- Titanium (e.g. Grades 2, 7)
- Ceramic coating (Al2O3)

Pressure ratings
- PN 16
- PN 25

With heating chamber

With casing wear ring

Connection flanges
- To EN 1092-1
- Drilled to ANSI/ASME B16.5

Additional connections
- Casing drain (with or without flange)
- External flush connection for bearing lubrication and/or flushing and cooling the magnet assembly
- Lantern monitoring connection
- Flange connection for heating**
- Heating chamber drain (with or without flange)**
- Other casing connections to meet customer needs

Gasket materials
- PTFE
- Pure graphite
- Sigma 511®/NT-CHEM-beige®

Plug seal materials
- PTFE
- Silver-plated nickel

Bearing assembly

Materials
- SSiC (sintered silicon carbide)
- SSiC with graphite
- SSiC with diamond-like coating (ADLC)
- SSiC with FuturaSafe® (chemical vapour deposition diamond coating)
- Nickel-bound tungsten carbide
- Nickel-bound tungsten carbide with diamond-like coating (ADLC)

* also available for casing with heating chamber
** available for casing with heating chamber only

Containment shell

With Insulation

With Vortex breaker

Materials
- Stainless steel
- Hastelloy® C
- Titanium (reducing eddy current losses)
- PEEK (eliminating eddy current losses)
- Zirconia ceramic (eliminating eddy current losses)

Coating
- Ceramic (Al_2O_3)

Pump protection

Containment shell temperature monitoring

Pt100 temperature probe

Motor load sensor

Secondary containment

Mounts

Types
- Baseplate
- Bracket
- Stand
- Centreline support
- Stilt support plate
- Horizontal/vertical
- In-line

Materials
- Steel
- Stainless steel

Stilts

Drip pan

Grounding lugs

Bearing frame

Lubrication
- Oil lubrication
- Grease lubrication

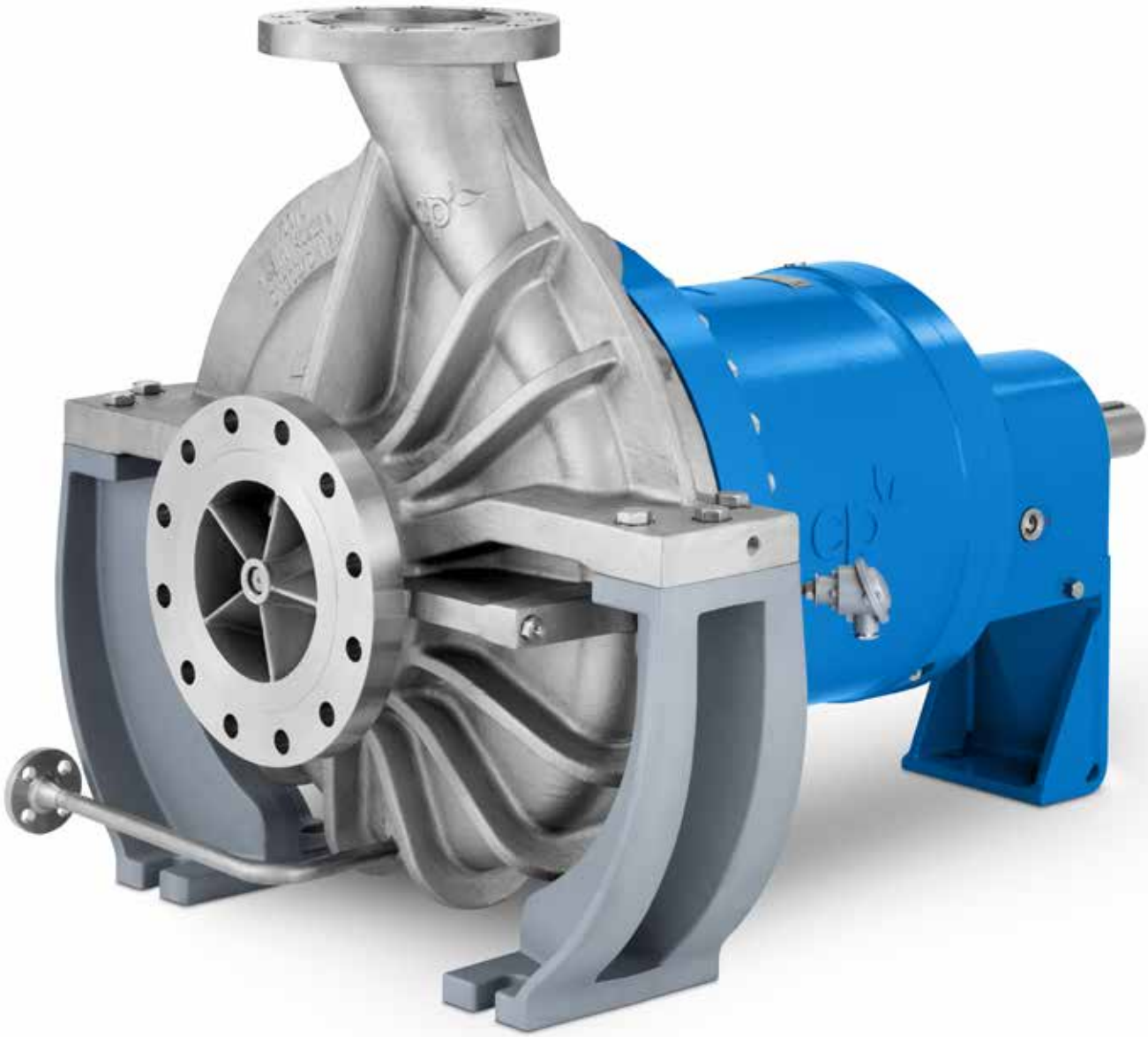
Oil lubrication options
- Hermetic seal (MagTecta OM™)
- Constant level oiler

Coupling

Coupling guard
- Steel
- Brass

The options vary depending on the pump model.
Our sales team will be glad to advise you in detail.

Sectional Views



MKP-200-150-500

Applications
Versatile – Complex – Special

CP's stainless steel magnetic drive pumps are engineered to meet the most stringent quality standards and ensure reliability and utmost safety in production operations. Suitable for many different fluids in a variety of industries and processes, they are capable of handling low, medium and high flow volumes. CP's magnetic drive pumps offer tremendous advantages, especially in pumping very sensitive or hazardous substances.

Industries

- Chemical processing: basic and fine chemicals (agrochemicals, speciality chemicals)
- Pharmaceuticals
- Petrochemicals
- Biotechnology processing
- Food and beverages

Processes

CP's stainless steel magnetic drive pumps are designed for a wide range of processes, including:
- Aseptic processes
- Chlor-alkali electrolysis
- MDI processes
- Refrigeration and heating cycles
- Tank unloading
- TDI processes

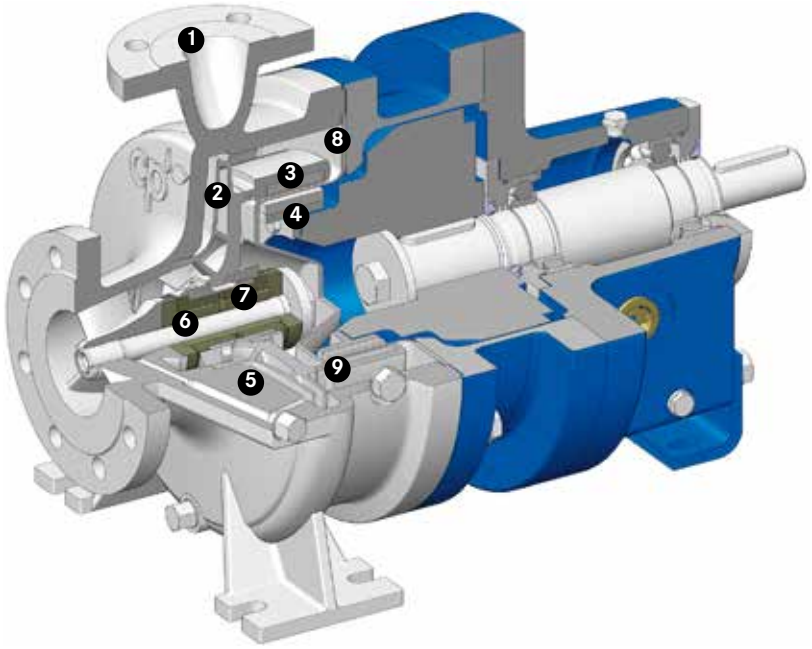
Fluids

CP's stainless steel magnetic drive pumps can handle acids, bases, solvents, heated, crystallising and refrigerated liquids, as well as fluids containing solids. For example:
- Hydrogen peroxide
- Molten sulphur
- Nitric acid
- Oleum
- Phosgene
- Phosphoric acid
- Potassium hydroxide solution
- Sodium hydroxide solution
- Sulphuric acid
- Toluene

Our sales staff will be glad to give you personalised advice tailored to your specific needs, industry, processes and fluids.

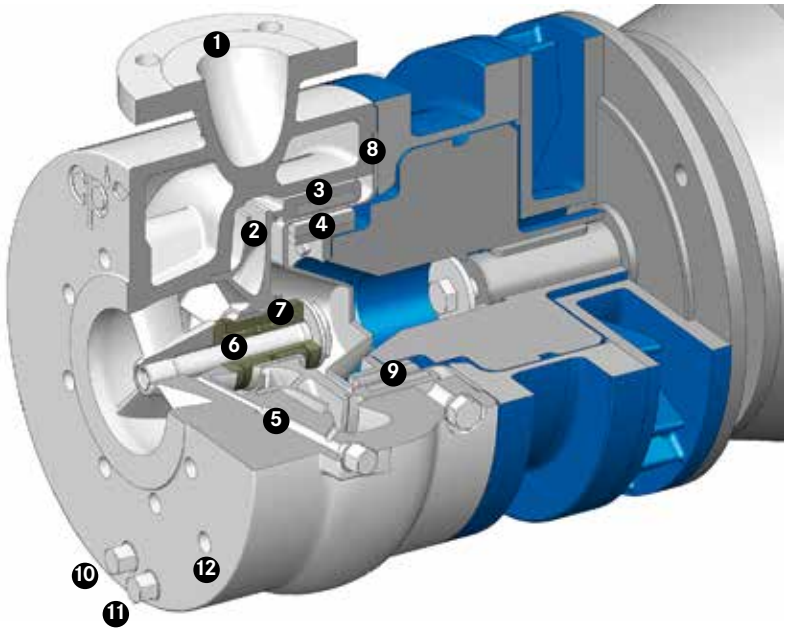
MKP bearing frame mounted without heating chamber

horizontal bearing frame mounted (–148 to +482°F)



MKP close-coupled with heating chamber

horizontal close-coupled (–148 to +482°F)



1 Pump casing
2 Impeller
3 Driven magnet assembly (on product side)
4 Outside magnetic coupling (on atmospheric side)
5 Internal bearing lubrication or external flush connection
6 Single impeller locking sleeve
7 Plain bearing assembly
8 Hermetically sealed containment shell
9 Containment shell thermocouple
10 Casing drain (pumped fluid)
11 Heating chamber drain
12 Cooling or heating fluid connection

CP Pump Systems
Our Product Portfolio

Customer service

We offer the highest quality, many years of experience and first-class advice from a single source. Our bespoke pump systems meet a wide range of different requirements.

CP's customers benefit from a full service offering: the fastest availability of genuine spare parts, a complete set of technical documentation, competent and efficient customer support, and a dynamic and flexible repair service. All these services ensure that your pumps will operate faultlessly. Thanks to a network in over 70 countries, we advise and serve our customers directly on site.

Energy efficiency consulting

As a trend scout specialised in energy efficiency, CP can deliver a wide spectrum of services relating to pumps and motors: comprehensive advice, in-depth system analysis, meticulous planning and design. Our goal is to actively help our customers optimise the energy consumption of their pumping systems and thereby cut costs over the long term.

Backed by our many years of broad experience, we today advise and assist customers in both the private and public sectors. These include owners and operators of fluid processing plants in the chemical, pharmaceutical and diverse other industries.

Are you interested? Do you have any questions? We would be happy to discuss all the different options with you personally.

Stainless steel magnetic drive centrifugal pumps

MKP
Magnetic drive chemical process pump

MKP-S
Self-priming magnetic drive chemical process pump

MKTP
Magnetic drive chemical process sump pump

MKP-ANSI
Magnetic drive chemical process pump

MKPP
Magnetic drive in-line chemical process peripheral pump

SZMK
Magnetic drive in-line chemical process pump

Stainless steel magnetic drive biotech process pump

MKP-Bio
Magnetic drive centrifugal pump for sterile processes

PFA lined magnetic drive centrifugal pumps

MKPL
Magnetic drive chemical process pump

MKPL-S
Self-priming magnetic drive chemical process pump

Solid PTFE magnetic drive centrifugal pumps

MSKP
Magnetic drive chemical process pump

MSKPP
Magnetic drive chemical process peripheral pump

MSKS
Self-priming magnetic drive chemical process side channel pump

Stainless steel mechanical seal centrifugal pumps

ZMP
The 3-In-One mechanical seal chemical process pump: crushing, mixing and pumping

PFA lined double mechanical seal centrifugal pump

EB
Double mechanical seal chemical process pump

Ceramic lined double mechanical seal centrifugal pump

ET
Double mechanical seal chemical process pump

cp
pump systems

Energy Efficiency in Industrial Processes
Sustainable – Responsible – Ecological

Nowadays, industry is facing increasing demands to improve sustainability and energy efficiency. Pumps are considered to play a key role because they offer vast potential to save energy and costs. Already recognising this back in 1999, CP took action and has become a pioneer in energy-saving pumping systems.

In recent years, we have continuously enhanced the hydraulic performance of numerous pump systems, increasing their efficiency by up to 30 per cent. At the same time, we have steadily improved pump safety, a mission we have vigorously pursued ever since our company was established in 1948.

We are wholeheartedly committed to promoting sustainable manufacturing in industry around the world. Our customers benefit from a comprehensive range of solutions that reduce costs and CO_2 emissions over the long term. Cleaner pumps, cleaner planet: we firmly believe that sustainable research, thinking and action always pay off for everyone.

Cleaner pumps, cleaner planet: we firmly believe that sustainable research, thinking and action always pay off for everyone.

Improving Energy Efficiency in Pumping Systems Helps to Create a Cleaner Planet.

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CP Pumpen AG
Switzerland, Zofingen

Distribution companies
CP Pumpen GmbH
Germany, Mannheim

CP Pompes SAS
France, Strasbourg

CP Pumps Inc.
USA, Birmingham (AL)

CP Pumps Thailand
Thailand, Bangkok

CP Pump Limited 씨피 펌프 유한회사
Republic of Korea, Seoul

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