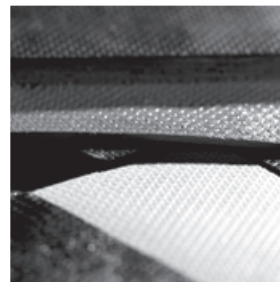
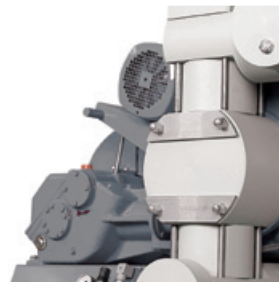
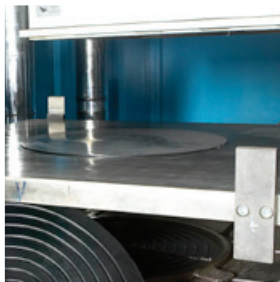


JOSEF EMMERICH PUMPENFABRIK GmbH



# PISTON DIAPHRAGM PUMPS

SUSTAINABLE | LONG-LASTING | ENERGY-EFFICIENT



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# JOSEF EMMERICH PUMPENFABRIK GmbH

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Josef Emmerich founded the company „Josef Emmerich Pumpen- und Maschinenbau“ in Cologne in 1945. Today, JOSEF EMMERICH PUMPENFABRIK GmbH manufactures piston diaphragm pumps for companies all over the world.

During the many years of its existence, the company has adapted to new industrial requirements and market needs. Its pumps are completely manufactured in Germany. The vertical range of manufacture at the factory in Hönningen-Liers/Ahr is over 90%.

The team has the know-how: design and manufacture.

Gear parts and EMMERICH-Multisafe-diaphragms are produced at the company's own production facilities. For quality reasons, cast iron blanks from German production are used.

**JOSEF EMMERICH PUMPENFABRIK GmbH meets numerous industrial requirements and holds several certificates. Even its suppliers are certified.**

**JOSEF EMMERICH PUMPENFABRIK GmbH delivers quality.**



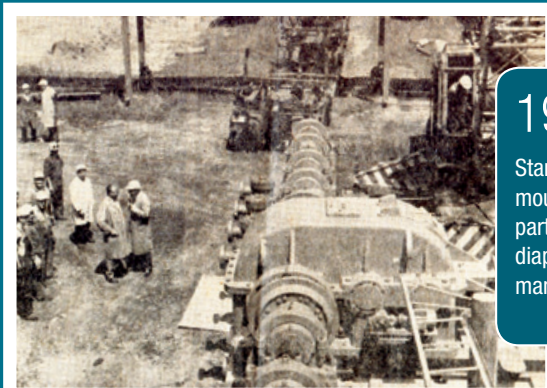
1945

Josef Emmerich (1913 – 1994) started the company, produced manual and centrifugal pumps.



1967

Delivery of the then largest pumping system in Europe, the KM200A-2x4Z, to the VAW factory in Schwandorf



1975

Start of in-house production of moulded rubber and rubber-metal parts. Today, EMMERICH Multisafe diaphragms are copied by other manufacturers.



1990

Introduction of AutoCAD 2D CAD system

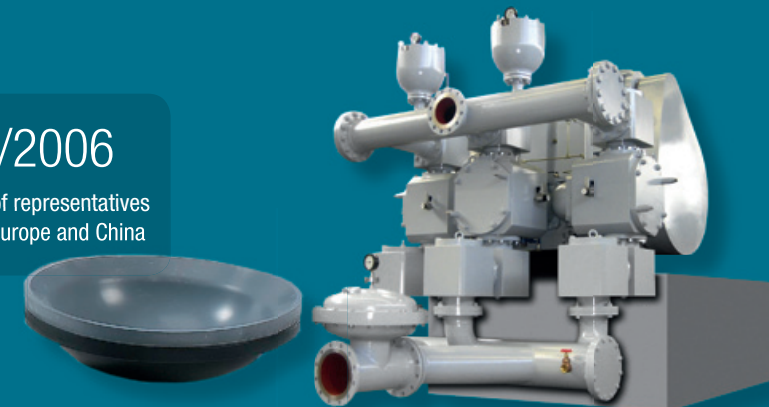
2000

Introduction of the 3D CAD system



2005/2006

Expansion of representatives in Eastern Europe and China



1964

JOSEF EMMERICH PUMPENFABRIK GmbH signs a framework contract with VAW (Vereinigte Aluminium-Werke) to secure access to industrial markets.



1971

Company moves to Hönningen-Liers/Ahr



1981

Design of world's largest piston diaphragm pump, the KM215Ax6Z, with 12 cylinders at the VAW factory in Lünen



1980s

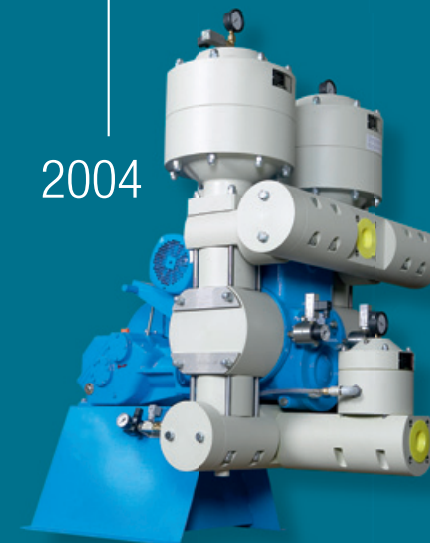
Expansion of portfolio to include small pumps in low-pressure range, mainly for waste water and sewage treatment plants. Since then, the focus has been on filter press feeding.



1995

JOSEF EMMERICH is the first company to present a pump head made of polypropylene (PPH) with a working pressure of 16 bar.

2004



2012

Launch of the SP-PPH and ER-NPPH series



2013

Launch of the TZDKM and ZDKM series

2015

New model series HBW-PPH with stroke limitation shaft



# Ecological, cost-saving, long-lasting



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JOSEF EMMERICH piston diaphragm pumps fitted with EMMERICH-Multisafe-diaphragms which are produced in-house feature high efficiency, low operating energy costs and minimum wear. They are ecological, cost-saving and long-lasting. Products made by JOSEF EMMERICH PUMPENFABRIK GmbH have a quick return on investment.

All pumps are developed in close collaboration with research institutes and clients. Design engineers use the latest CAD and 3D CAD systems, including the Pro/ENGINEER 3D CAD system which was introduced in 2000.

Several trial series take place at the factory in Hönningen-Liers/Ahr to test new developments and optimise them through to production maturity. All pumps manufactured are put through their paces on a process-controlled test stand developed in-house specially for this purpose.

## CUSTOMISED DESIGN

Pump systems are often the centrepiece of a process engineering digestion system. Each EMMERICH piston diaphragm pump is designed for a specific project to meet the requirements of its intended purpose. The company has become specialists in custom solutions.

## HOW EMMERICH PISTON DIAPHRAGM PUMPS WORK

In a piston diaphragm pump, energy is transferred from the actuator to the piston guided in a cylinder liner. Hydraulic liquid gear unit transmits the pump movement to the EMMERICH-Multisafe-diaphragm. Suction and discharge strokes alternate. During the suction stroke the diaphragm deflects on the secondary side. The resulting vacuum opens the suction valve.

The conveyed fluid flows into the diaphragm casing. During the discharge stroke on the other hand, the movement of the diaphragm towards the primary side forces the conveyed fluid through the discharge valve into the discharge line. The make-up device integrated in the hydraulic circuit has the function of automatically replenishing leaking fluid. The overflow valve opens in the event of excess pressure and allows hydraulic liquid to drain from the cylinder. If pressure drops, the make-up device automatically replenishes the cylinder.

## FLOW RATES AND PRESSURES

Polypropylene pump heads can cater for flow rates of up to 50 m³/h. Metal pump heads are capable of rates up to maximum 250 m³/h. The discharge pressure on standard designs is about 1.6 MPa (16 bar). On request, JOSEF EMMERICH manufactures special piston diaphragm pumps for higher pressures. We have already catered for pressures of 280 bar.

The pumps can withstand temperatures of up to 80°C (plastic design) or up to 100°C (steel design). Pumps to withstand higher temperatures can be supplied as customised models.

## MECHANICAL PUMP CONTROL

EMMERICH piston diaphragm pumps are equipped with integrated automated pressure-quantity adjustment as standard and can be adapted to the capacity of the filter press. Due to the variable amplitude movement of the diaphragm, the flow rate varies at a constant nominal speed of the piston diaphragm pump. A frequency converter and a control unit are not required but are available as an option.

## PUMP CONTROL BY ELECTRONIC FREQUENCY CONVERTER

As much power as required, as little power as possible – this is the principle according to which JOSEF EMMERICH PUMPENFABRIK GmbH supplies frequency converters to adapt the feed characteristics of the piston diaphragm pump to the particular feed process. Integration in an existing control system is no problem since all that is required to operate the pump is to supply a frequency signal to the engine. Frequency converters have diverse applications and are easy to install. When controlled, they are capable of working against full feed pressure. This allows EMMERICH piston diaphragm pumps to attain new breakaway torques and a smooth power development.

## ELECTRONIC CONTROL AND DIAGNOSTIC SYSTEM

Each piston diaphragm pump is equipped with an internal hydraulic control system. On request the pump can be fitted with a PLC unit for remote monitoring and control over the Internet.

## PULSATION DAMPENERS

As with all oscillating piston machines, pulsation strokes are unavoidable due to the crank gear and the mass inertia of accelerated fluid columns. The easiest way to dampen pulsations is to feed air into the feed flow by using so-called air vessels. If the pump operates at high pressure, it is advisable to install diaphragm pulsation dampeners in the discharge and suction lines. This results in an almost pulsation-free feed flow and a high discharge rate of the conveyed fluid. The pump then operates efficiently.

7



## In-house production of rubber parts



8

The unique selling propositions of JOSEF EMMERICH PUMPENFABRIK GmbH include the fact that the company has had its own in-house production of rubber moulded parts since 1975. The company adapts the rubber parts to the conveyed fluid. These products include rubber moulded parts and rubber-metal compounds such as EMMERICH-Multisafe-diaphragms, diaphragms for diaphragm pulsation dampeners, valve seats and moulded sealing rings. The parts are made from a wide variety of materials such as Perbunan (NBR), ethylene propylene diene monomer (EPDM), Hypalon (CSM), Viton (FPM) and polytetrafluorethylene (PTFE).

### They have numerous benefits:

- when demand calls for small order volumes
- customised orders
- cost-effective production compared with outsourced production
- independence from external suppliers
- punctual delivery

**After production, JOSEF EMMERICH PUMPENFABRIK GmbH stores rubber moulded parts and rubber-metal compounds properly in a climate-controlled room in conformity with ISO 2230.**

### EMMERICH-MULTISAFE-DIAPHRAGMS

The heart of every pump is the EMMERICH-Multisafe-diaphragm. It either comes as a large-size flat diaphragm or as a compact roller diaphragm to provide the physical separation between the pump head and the gear unit. The benefit here is that only the pump head is exposed to the conveyed fluid.

The diaphragm consists of two halves.

If one of the two diaphragm halves becomes defective, the working pressure is applied to an optical measuring device fitted in the interspace. The diaphragm can then be replaced quickly and safely. On customer request, the pump can be designed to display a diaphragm failure electronically.

### ALL DESIGN FEATURES AT A GLANCE

Piston diaphragm pumps from JOSEF EMMERICH PUMPENFABRIK GmbH have the following features:

- Customised design
- Pump head in a variety of materials such as metal or plastic (standard plastic is polypropylene).
- EMMERICH-Multisafe-diaphragms
- Inspection opening for diaphragms and valves depending on model series
- Internal adjustment of pressure and quantity depending on discharge pressure
- Normally driven by a three-phase asynchronous motor
- Control by frequency converter on request



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## World-wide use in the toughest of environments

Piston diaphragm pumps from JOSEF EMMERICH PUMPENFABRIK GmbH are designed for the toughest of industrial environments. The company has specialised in the pumping of high pressure abrasive and high viscosity slurries. Applications range from the chemical, steel, aluminium and ceramic industries through to mining, sand and gravel extraction, power generation and municipal sewage plants. Piston diaphragm pumps are deployed as process pumps in a wide variety of industries for the hydraulic pumping of solids and for charging filtration systems. They are used throughout the world whenever other pumping systems reach their limits.

### They convey:

- media with fluctuating viscosity and consistency
- chemically and mechanically aggressive media
- media containing a high proportion of dry matter

### Applications:

- Abrasive and high viscosity slurries with high concentrations of solid matter
- Ore slurries
- Media in the chemical industry
- Products in the food-processing and pharmaceutical industries
- Media in municipal and industrial sewage disposal
- Waste disposal media such as oils, acids and alkali
- Reactor charging
- Charging filters in sewage treatment plants, both for municipal and industrial slurries
- Feeding spray dryers
- Red mud treatment in the aluminium industry



# Hydraulic transport

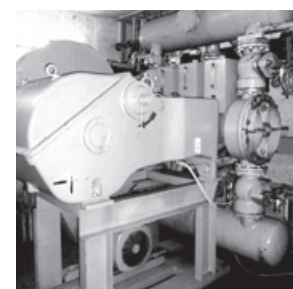
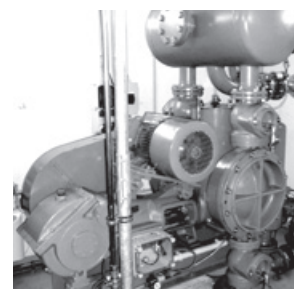


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Numerous industrial processes require the transportation of a fluid medium over long distances. The efficient method for transporting slurry is to use piston diaphragm pumps from JOSEF EMMERICH which have an efficiency of over 90 per cent.

## MUNICIPAL SLUDGE, UNTREATED WASTE WATER

JOSEF EMMERICH PUMPENFABRIK GmbH has equipped numerous sewage pumping stations throughout Germany with piston diaphragm pumps. Usually, untreated waste water from a municipality or district is routed to collecting basins next to the pumping station. Pumps are used to convey waste water through pipelines, for example, to a sewage treatment plant or another pumping station. Towns, cities and municipalities save energy costs due to the energy efficiency of piston diaphragm pumps.



On request a hydraulic bypass soft start-up device can be installed. The device switches on when the pump is activated in order to optimise energy demand when the pump is started up. The hydraulic fluid in the secondary circuit of the working cylinder is routed to the make-up tank. The hydraulic fluid in the working cylinder is automatically replenished by the make-up device fitted in the secondary circuit and the flow rate rises to maximum capacity. This soft start-up saves energy and makes the pump economical.

## ALUMINIUM PRODUCTION

JOSEF EMMERICH PUMPENFABRIK GmbH has supplied piston diaphragm pumps to the aluminium industry since 1964. Tube digestion in aluminium production requires a highly alkaline process fluid which is pumped against a digestion pressure of 80 bar at a temperature of about 80°C.

## CHEMICAL PROCESS TECHNOLOGY

Part of a pilot plant which simulates nature in the laboratory is a piston diaphragm pump made by JOSEF EMMERICH PUMPENFABRIK GmbH and fitted with a stainless steel pump head. Oil is produced from raw materials such as wood chippings at high temperature and at a discharge pressure of 280 bar – which is the highest discharge pressure produced by the EMMERICH PUMPENFABRIK.



## COAL GASIFICATION

Coal slurry is injected at high pressure and temperature into a chemical process of partial oxidation. This is a coal gasification process which produces crude oil or gas.

## MINING

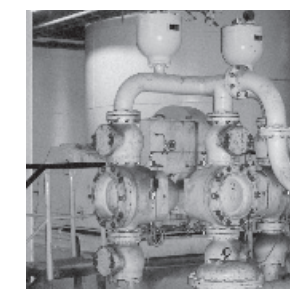
For pumping various ores which are ground relatively small and mixed with water to make them flow. Transportation of suspensions for treatment or further processing

## SLAG DISPOSAL

Slag from blast furnaces is pumped to a disposal site after the recycling process.

## SAND AND GRAVEL PLANTS

Return transportation to quarry location of unusable materials from sand and gravel extraction plants.



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# Filter press feeding

Chamber filter presses provide the best separation results for dewatering sludge. Rugged, large-volume presses are particularly efficient for drying sludge. Hydraulic piston diaphragm pumps are especially suitable for feeding filter presses since at the beginning of the filtering process, the press is filled with large volumes at low pressure. The press then filters small volumes at high pressure. Piston diaphragm pumps from JOSEF EMMERICH adapt automatically to these alternating conditions. All pumps for feeding a filter press are controlled by an integrated mechanical system – in either fixed or mobile design.

## PAINTING SYSTEMS

In a powder coating facility, the actual painting process is preceded by stages such as cleaning, phosphating and priming. Waste water occurs at several points along this process. Piston diaphragm pumps are used here to feed chamber filter presses. JOSEF EMMERICH PUMPENFABRIK GmbH supplies numerous car manufacturers in Europe. Our pumps are also in operation at companies which produce agricultural machines or sun shading systems.

## ELECTROPLATING

Electroplating shops have their own waste water systems. Sludge containing high concentrations of metals is first treated and then compressed in sludge thickeners before they are conveyed by piston diaphragm pumps to chamber filter presses where they are dewatered. A homogeneous filter cake is obtained by strictly separating the various waste types. The filter cake is then sent to the smelting plant to recover the metal.

## ELECTRICAL ENGINEERING

Waste water is generated at various points along the production process of many electrical components such as printed circuit boards, computer chips and solar and photovoltaic components. After neutralisation, the waste water is conveyed by piston diaphragm pumps to filter presses for dewatering.

## GRAVEL PLANT SLUDGE

Tailings and clay paste resulting from sand and gravel washing is removed from the thickener by piston diaphragm pumps and dewatered in chamber filter presses.

## CLAY AND CERAMIC SLURRY

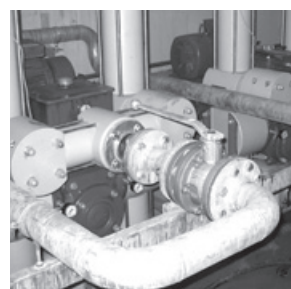
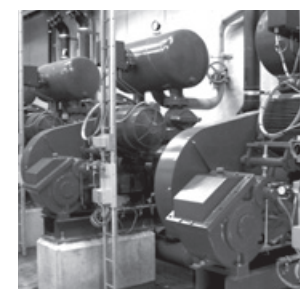
Clay and ceramics are ground and pumped to filter presses in the form of free-flowing sludge. Dry solids recovered in this way are further processed in the ceramics industry.

## TREATMENT OF CONTAMINATED SOIL

Wash water produced during the cleaning process is treated and the thickened sludge is cleaned in filter presses. Piston diaphragm pumps are used to feed the presses.

## WASTE MANAGEMENT FOR FILLING STATIONS AND REFINERIES

Filling station waste water or waste products from cleaning tanks in refineries is collected in suction tankers, treated in special processes and then pumped by piston diaphragm pumps to filter presses where the waste product is dewatered.



## Model series of JOSEF EMMERICH piston diaphragm pumps

JOSEF EMMERICH piston diaphragm pumps are designed for use in the toughest industrial applications. They are capable of conveying large volumes of abrasive suspensions at high pressure. The pumps meet high demands for performance, safety and maintenance friendliness.

Pump heads are made of various metallic materials (ER, SP, TKM and ZDKM series and high-pressure pumps of the HD series) or plastics such as polypropylene (HBW-PPH, ER-NPPH and SP-PPH series). Each model series has different types to provide a suitable pump for every flow rate.

In addition to these standard designs we also supply customised models.







## HBW-PPH series

This model series has a compact and versatile design. The suction valve is integrated in the diaphragm casing of the preshaped roller diaphragm and fitted with a reduced clearance volume.

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The newly developed stroke limitation shaft includes automatic position control for the Multisafe double diaphragm. This prevents undesirable diaphragm overstretch and provides automatic compensation when the quantity of hydraulic liquid

is too low. The internal adjustment of pressure and quantity depending on the discharge pressure is optimised for filter press feeding. The diaphragm head position is fitted with integrated suction and discharge pulsation dampeners and is modularly adjustable. This allows the connecting pipes for the suction and discharge lines to be placed at different positions. The single-acting pumps of sizes 511 and 521 are easily upgraded to double-acting piston diaphragm pumps with double flow rate.

PUMP HEAD MATERIAL:  
POLYPROPYLENE (PPH)

Flow rate:	0.5 to 15 m³/h
Discharge pressure:	1.6 MPa (16 bar)
Conveyed fluid Temperature:	up to 80°C
Applications:	Gentle pumping of shear-sensitive, abrasive and aggressive media

HBW491PPH

HBW 511PPH

HBW521PPH

## HBW-PPH series

Flow rate m³/h	0.5	1	1.5	2
HBW491PPH				

Piston diaphragm pump with modular adjustability of the diaphragm head position. The connecting pipes for the suction and discharge lines can be positioned on the left or right. On HBW511PPH and HBW521PPH models they are also on the face end.

single-acting  
► Flow rates up to 6 m³/h



15

HBW-PPH series

Flow rate m³/h	0.5	1	1.5	2	2.5	3	4	5	6
HBW511PPH									
HBW521PPH									

Piston diaphragm pump with modular adjustability of the diaphragm head position. The connecting pipes for the suction and discharge lines can be positioned on the left, right or face end.

► Flow rates up to 6 m³/h



HBW-PPH series

Flow rate m³/h	4	5	6	8	10	12	15
HBW510PPH							
HBW520PPH							

Piston diaphragm pump with modular adjustability of the diaphragm head position. Pump head on face end and left or face end and right, with connecting pipes at the required positions.

double-acting

► Flow rates up to 15 m³/h





SP-PPH series

Piston diaphragm pumps of the SP series were in successful use for decades. Then in 2012, JOSEF EMMERICH PUMPEN-FABRIK GmbH decided to also produce a pump head made of polypropylene.

On PPH models, the pump head is also designed with a diaphragm casing and separate diaphragm casing cover. This allows the simple inspection of the diaphragms without having to remove pipes or attached parts. It also makes the pumps in this model series especially maintenance friendly. The large-size flat diaphragm in EMMERICH-Multisafe-design is made for a long service life. Additional inspection openings at the suction and discharge valves provide easy access to the valve seats and balls, either for simple inspection or replacement.

Such high maintenance friendliness saves time. The machine can also be quickly restarted after a downtime. Besides the standard materials used for EMMERICH-Multisafe-diaphragms, this pump can also be fitted with a PTFE coated EMMERICH-Multisafe-diaphragm.

PUMP HEAD MATERIAL:  
POLYPROPYLEN (PPH)

Flow rate:	0.5 to 25 m³/h
Discharge pressure:	1.6 MPa (16 bar)
Conveyed fluid temperature:	up to 80°C
Applications:	Gentle pumping of shear-sensitive, abrasive and aggressive media

Flow rate m³/h	0.5	1	1.5	2	2.5	3	4	5	6
SP491PPH									
SP511PPH									
SP521PPH									

single-acting

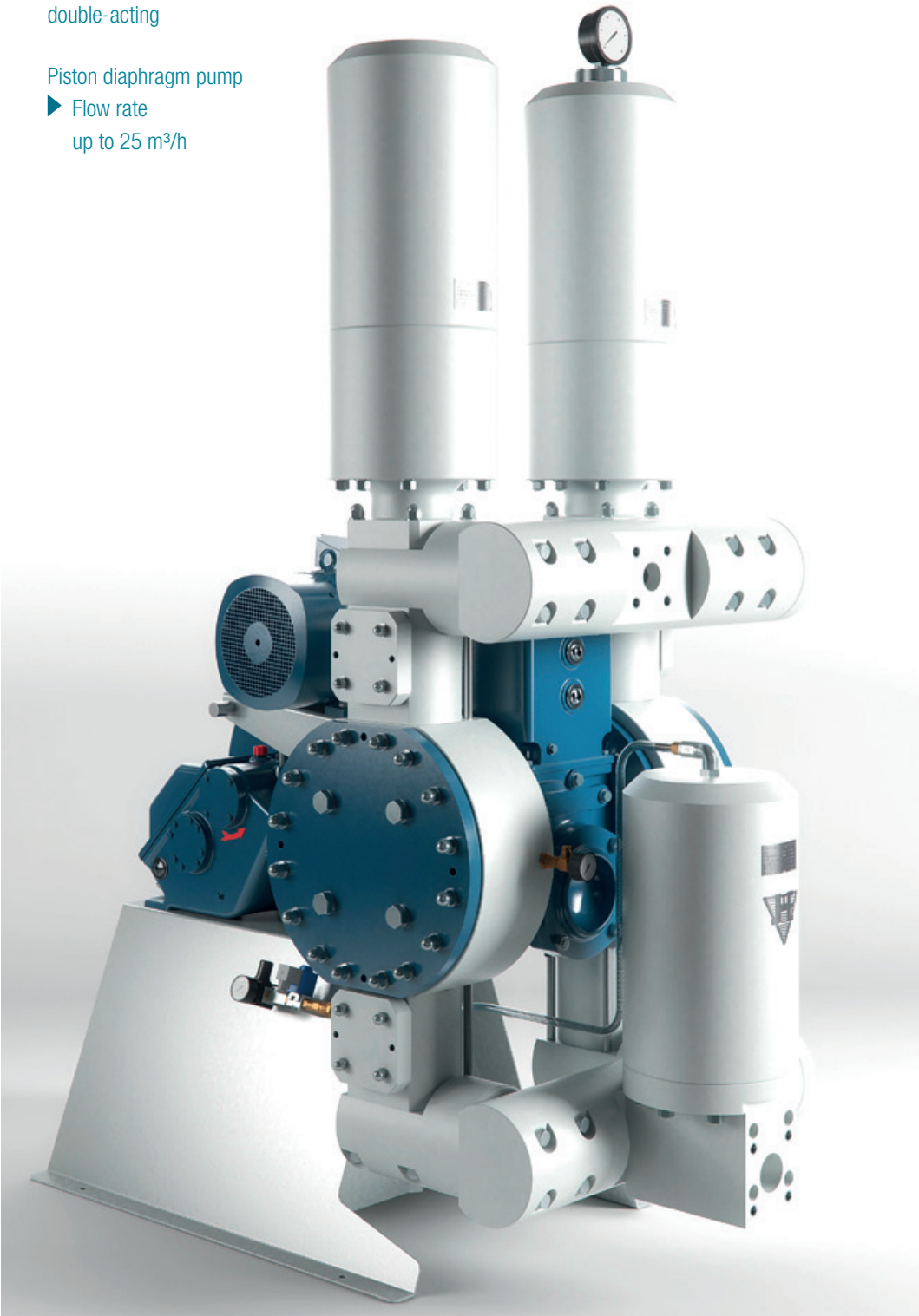
Piston diaphragm pump  
► Flow rate  
up to 6 m³/h



Flow rates m³/h	5	6	8	10	12	15	20	25
SP510SPPH								
SP520SPPH								
SP528SPPH								

double-acting

Piston diaphragm pump  
► Flow rate  
up to 25 m³/h



ER-NPPH series

In 1995, JOSEF EMMERICH PUMPENFABRIK GmbH was the first company to develop a piston diaphragm pump with a pump head made of polypropylene (PPH) capable of withstanding an operating pressure of 16 bar. The optimised model series ER-NPPH has been produced since 2012, based on the successful ER-PPH series.

Piston diaphragm pumps of the ER-NPPH series (Economical-optimised Roller Diaphragm) are compact and extremely efficient. They are suitable for conveying abrasive and aggressive media and the gentle transportation of shear-sensitive media at large volume flow rates of up to 50 m³/h. They are designed to operate at pressures up to 16 bar at medium temperatures of up to 80°C. They are equipped with EMMERICH-Multisafe- diaphragms in roller diaphragm design. This pump is fitted as standard with air vessels on the suction and pressure sides to dampen pulsations.

PUMP HEAD MATERIAL:  
POLYPROPYLEN (PPH)

Flow rate:	0.5 to 50 m³/h
Discharge pressure:	1.6 MPa (16 bar)
Conveyed fluid temperature:	up to 80°C
Applications:	Gentle pumping of shear-sensitive, abrasive and aggressive media

Flow rate m³/h	0.5	1	1.5	2	2.5	3	4	5	6
ER491NPPH									
ER501NPPH									
ER511NPPH									
ER521NPPH									

single-acting

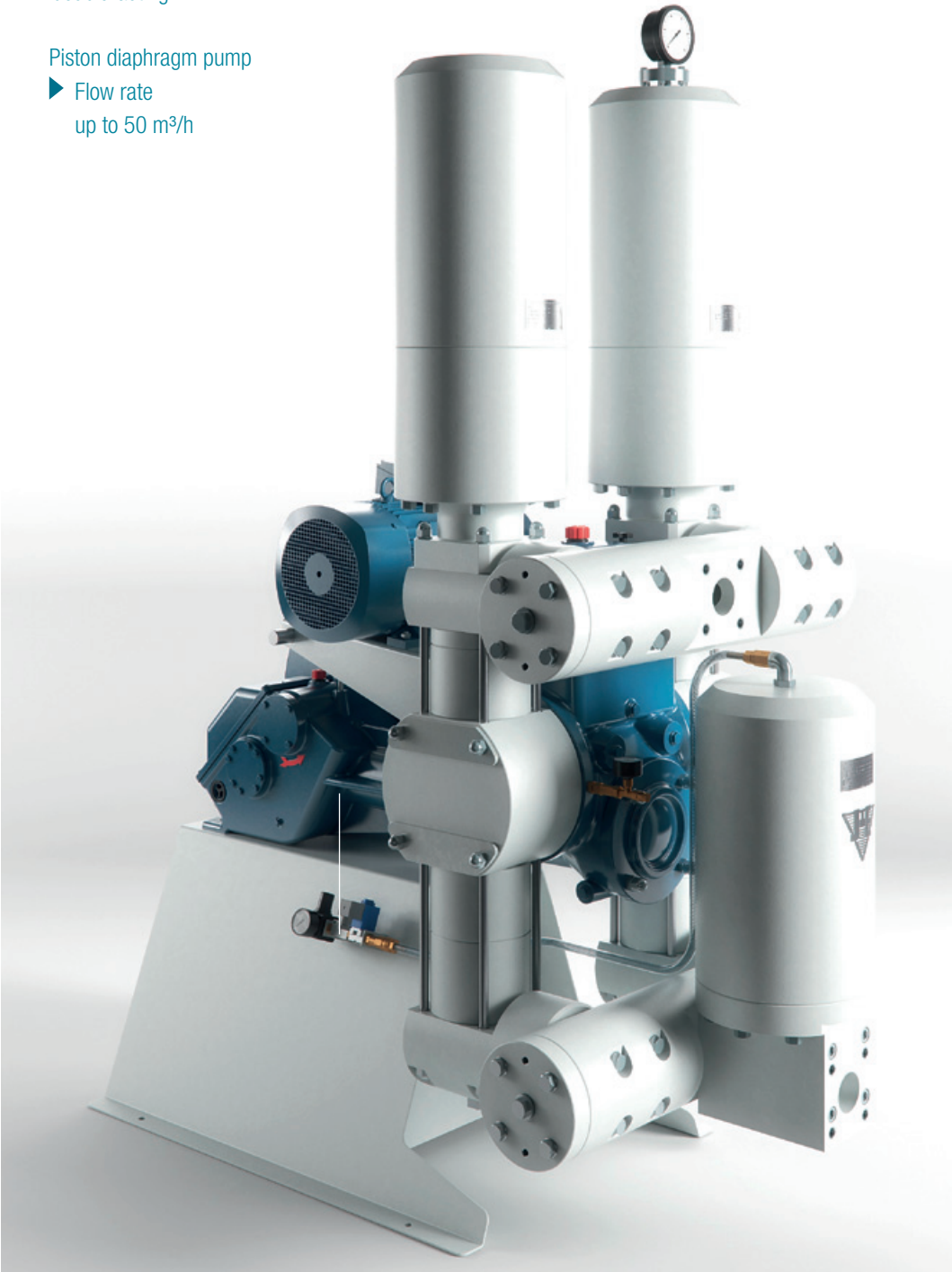
Piston diaphragm pump  
► Flow rate  
up to 6 m³/h



Flow rate m³/h	5	6	8	10	12	15	20	25	30	40	50
ER510NPPH											
ER520NPPH											
ER528NPPH											
ER535NPPH											
ER537NPPH											

double-acting

Piston diaphragm pump  
► Flow rate  
up to 50 m³/h





ER series

ER stands for EMMERICH Economical-optimised Roller Dia-  
phragm. This model series has an extremely compact de-  
sign. The suction and discharge valves are integrated in the  
diaphragm casing of the preshaped roller diaphragm and  
provided with a reduced clearance volume.

Additional inspection openings at the suction and discharge  
valves allow easy access to the valve seats and balls for  
inspection or replacement.

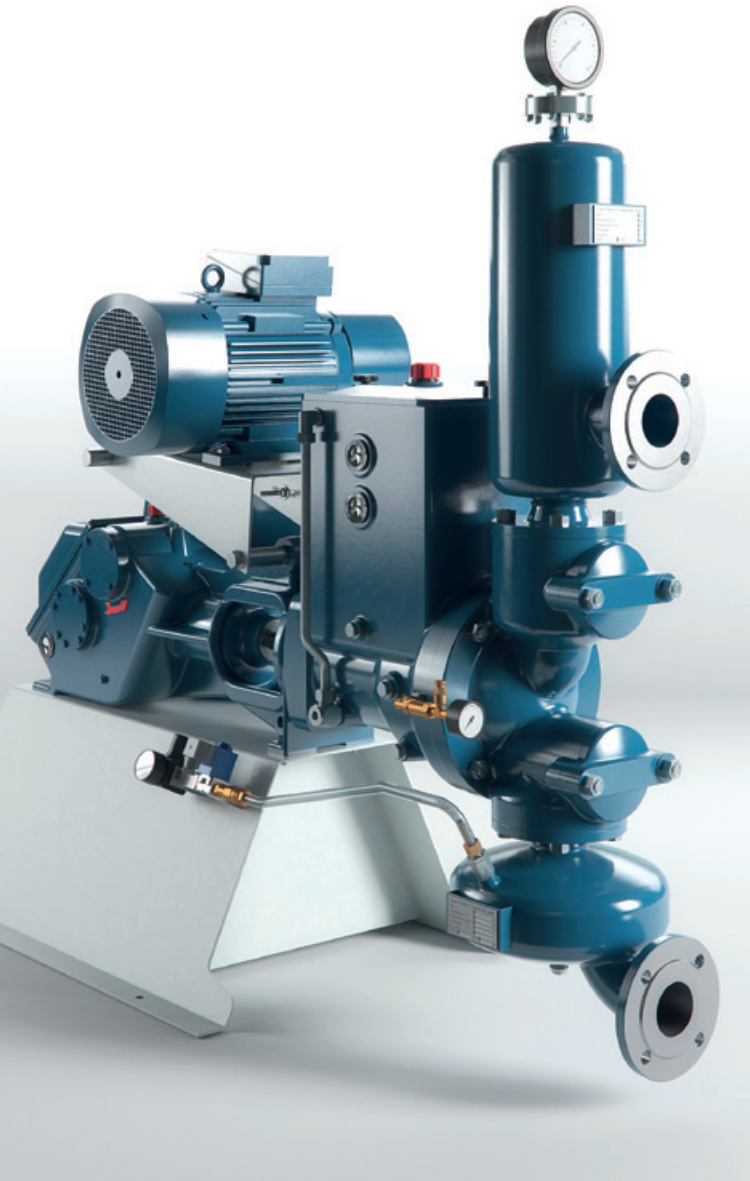
This series is equipped with EMMERICH-Multisafe-diaphragms  
in roller diaphragm design.

Flow rate m³/h	0.5	1	1.5	2	2.5	3	4	5	6
ER491S									
ER501S									
ER511S									
ER521S									

single-acting

Piston diaphragm pump

► Flow rate  
up to 6 m³/h



PUMP HEAD MATERIALS:  
CAST IRON, CAST IRON RUBBER-LINED,  
VARIOUS STAINLESS STEEL GRADES

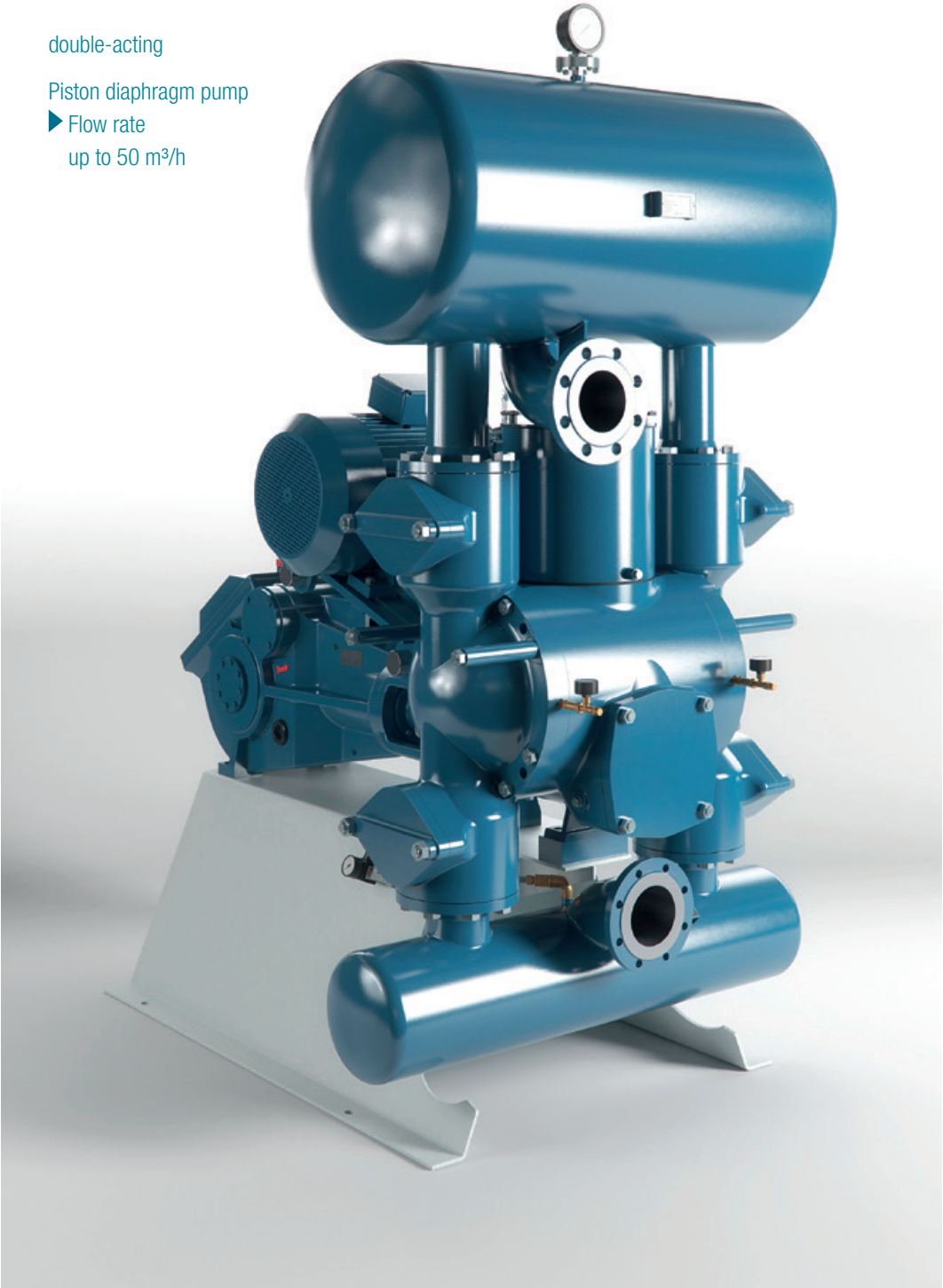
Flow rate:	0.5 to 50 m³/h
Discharge pressure:	1.6 MPa (16 bar)
Conveyed fluid – Temperature:	up to 100°C
Applications:	Gentle pumping of shear-sensitive, abrasive and aggressive media

Flow rate m³/h	5	6	8	10	12	15	20	25	30	40	50
ER510S											
ER520S											
ER528S											
ER535N											
ER537N											

double-acting

Piston diaphragm pump

► Flow rate  
up to 50 m³/h



SP series

The SP model series (Service-optimised Pump) is extremely rugged. The pumps have a long service life and meet very high requirements. The pump was produced for the first time in 1973 and since then it has been the model preferred by many operators and plant manufacturers.

In this pump head design the diaphragm casing has a separate diaphragm casing cover. This allows the simple inspection of the diaphragm without having to remove pipes or attached parts. It makes the pump unique and highly maintenance friendly. The large-size flat diaphragm in EMMERICH-Multisafe-design is made for a long service life. Additional inspection openings at the suction and discharge valves allow easy access to the valve seats and balls for inspection or replacement. Such high maintenance friendliness saves time. The machine can also be quickly restarted after a downtime.

Besides the standard materials used for EMMERICH-Multisafe-diaphragms, this pump can also be fitted with a PTFE coated EMMERICH Multisafe diaphragm.

PUMP HEAD MATERIALS:  
CAST IRON, CAST IRON RUBBER-LINED,  
VARIOUS STAINLESS STEEL GRADES

Flow rate:	0.5 to 65 m³/h
Discharge pressure:	1.6 MPa (16 bar)
Conveyed fluid – Temperature:	up to 100°C
Applications:	Gentle pumping of shear-sensitive, abrasive and aggressive media

Flow rate m³/h	0.5	1	1.5	2	2.5	3	4	5	6
SP491S									
SP501S									
SP511S									
SP521S									

single-acting

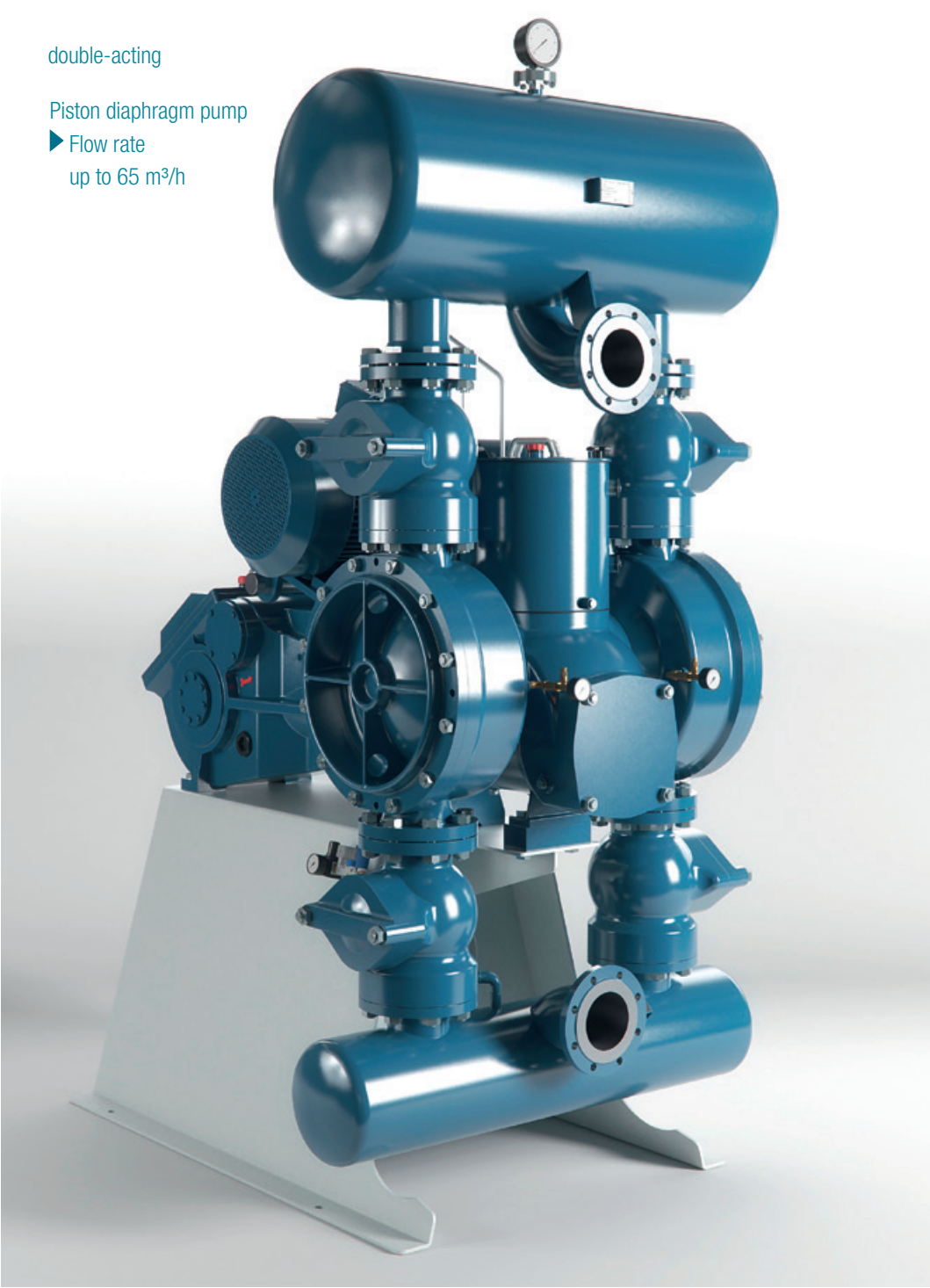
Piston diaphragm pump  
► Flow rate  
up to 6 m³/h



Flow rate m³/h	5	6	8	10	12	15	20	25	30	40	50	65
SP510S												
SP520S												
SP528S												
SP535N												
SP537N												

double-acting

Piston diaphragm pump  
► Flow rate  
up to 65 m³/h





TKM series

The triplex piston diaphragm pumps of the TKM series combine the benefits of the SP series with a three-cylinder gear unit which ensures a very smooth, uniform flow.

In this pump head design the diaphragm casing has a separate diaphragm casing cover. This allows the simple inspection of the diaphragm. The pump is highly maintenance friendly since there is no need to remove pipes or attached parts. The EMMERICH-Multisafe-diaphragm, in either flat or roller diaphragm design, is made for a long service life. Additional inspection openings at the suction and discharge valves allow easy access to the valve seats and balls for inspection or replacement.

The EMMERICH-Multisafe-diaphragm in flat diaphragm design is fitted to sizes TKM500 and TKM600. An EMMERICH-Multisafe-diaphragm in roller diaphragm design is fitted to the TKM900R.

PUMP HEAD MATERIALS:  
CAST IRON, CAST IRON RUBBER-LINED,  
VARIOUS STAINLESS STEEL GRADES

Flow rate:	30 to 120 m³/h
Discharge pressure:	1.6 MPa (16 bar)
Conveyed fluid – Temperature:	up to 100°C
Applications:	Gentle pumping of shear-sensitive, abrasive and aggressive media

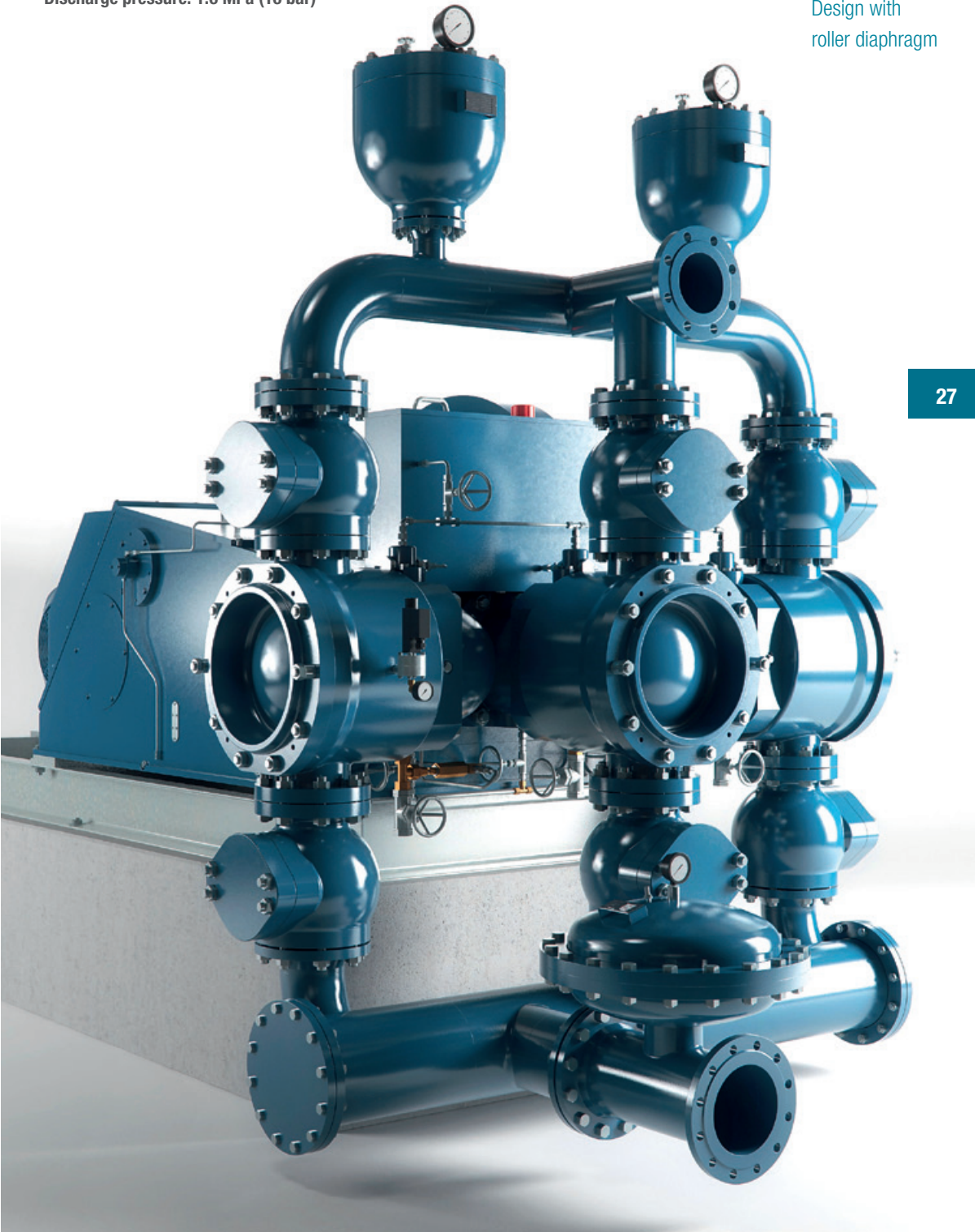
Design with  
flat diaphragm



Flow rate m³/h	10	30	70	100	120
TKM500					
TKM600					
TKM900R					

Discharge pressure: 1.6 MPa (16 bar)

Design with  
roller diaphragm





# ZDKM series

Piston diaphragm pumps of the ZDKM series have a quadruplex design and are a two-cylinder double-acting piston diaphragm pump. The two pistons are opposed at a crank angle of 90°. The result of this is that a different piston surface generates the flow at each 90°C crank angle and ensures the gentle conveyance of shear-sensitive, abrasive and aggressive

media at flow rates of up to 250 m³/h. The standard design comprises operating pressures up to 16 bar at temperatures up to 100°C. The EMMERICH-Multisafe-diaphragm in roller diaphragm design is made to last a long service life. This pump is fitted as standard with air vessels on the suction and pressure sides to dampen pulsations.

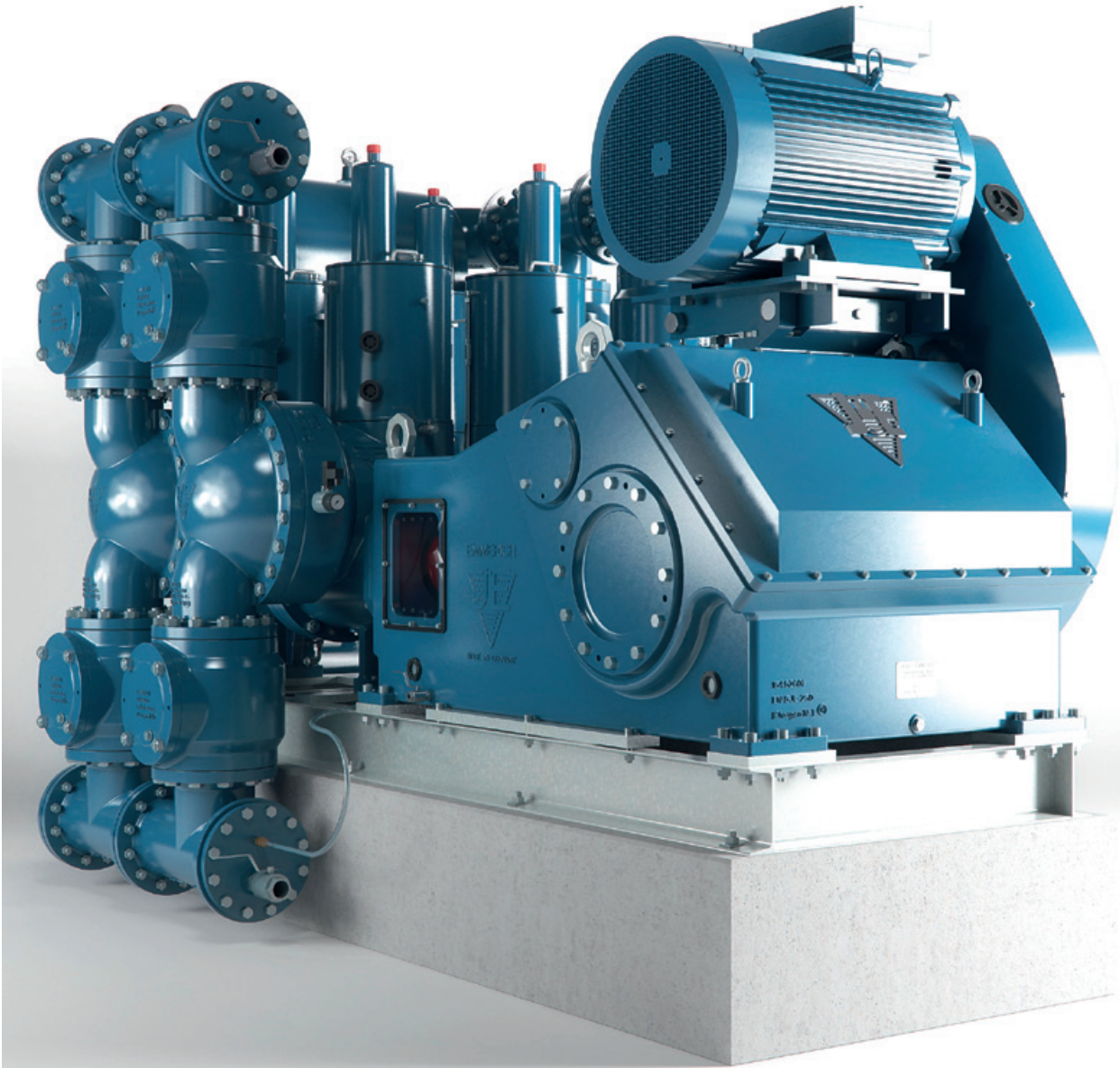


PUMP HEAD MATERIALS:  
CAST IRON, CAST IRON RUBBER-LINED,  
VARIOUS STAINLESS STEEL GRADES

Flow rate:	30 to 250 m³/h
Discharge pressure:	1.6 MPa (16 bar)
Conveyed fluid – Temperature:	up to 100°C
Applications:	Gentle pumping of shear-sensitive abrasive and aggressive media

Flow rate m³/h	30	130	200	250
ZDKM500R				
ZDKM900R				

Discharge pressure: 1.6 MPa (16 bar)





HD high pressure pumps ER-HD series

JOSEF EMMERICH PUMPENFABRIK GmbH manufactures high pressure pumps in various model series and sizes. The pump has a modular design and is made to customer specifications by selecting the drive, pump head and EMMERICH-Multisafe-diaphragm to meet the requirements in each case. The diaphragm pulsation dampeners physically separate the conveyed and dampening fluid in order to dampen pulsations. This combination make HD pumps ideal for all applications which require an air-free, uniform flow.

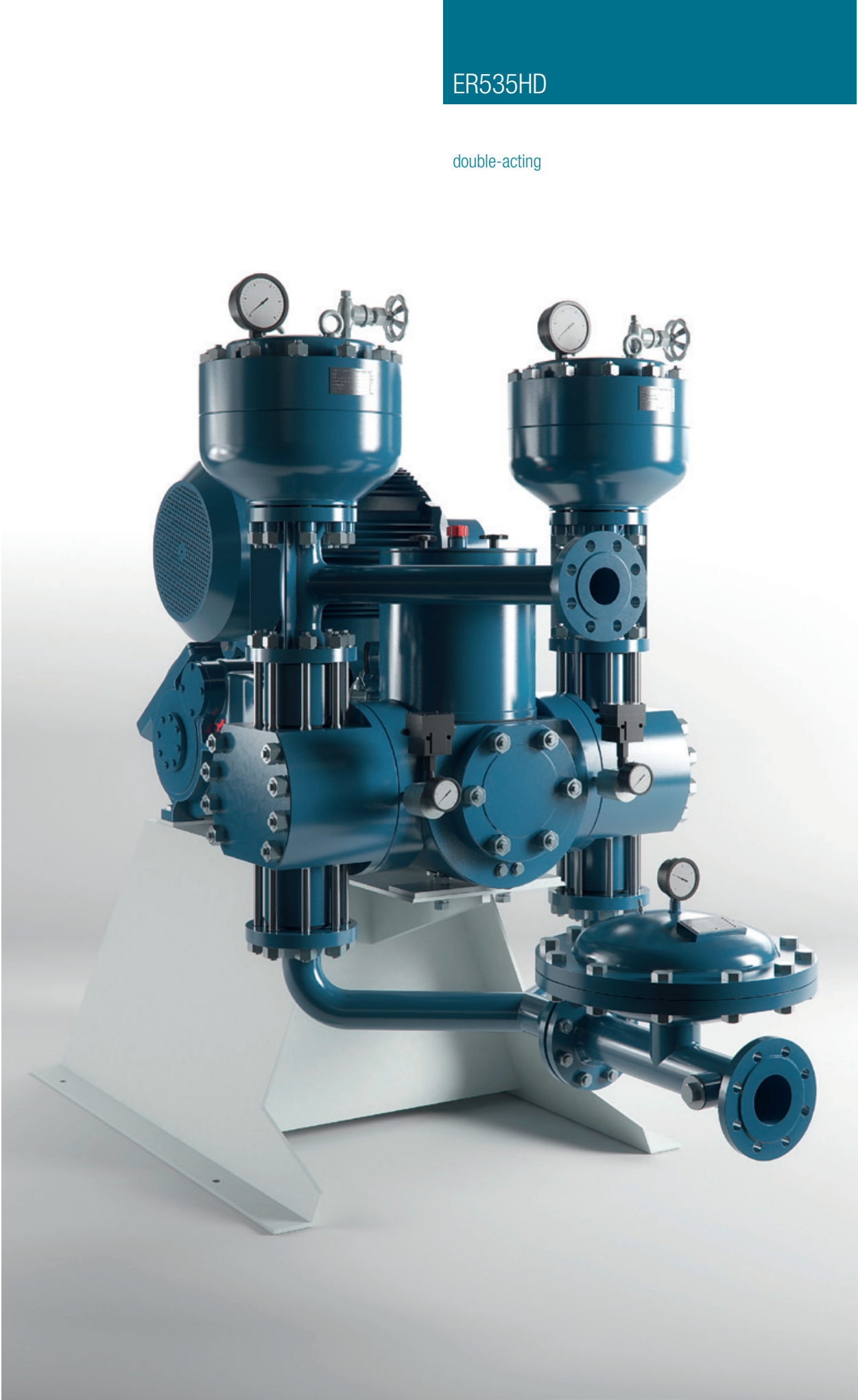
ER stands for EMMERICH Economical-optimised Roller Diaphragm. This model series has a particularly compact design and uses the EMMERICH-Multisafe-diaphragm in roller diaphragm design.

Alternatively, the series can also be fitted with a large-size flat diaphragm in EMMERICH-Multisafe-diaphragm design. This pump head design has a diaphragm casing with a separate diaphragm casing cover to permit the simple inspection of the diaphragm without the need to remove pipes or attached parts. The pump is therefore highly maintenance friendly.

The EMMERICH-Multisafe-diaphragm is designed for a long service life.

PUMP HEAD MATERIALS:  
STEEL, VARIOUS STAINLESS STEEL GRADES

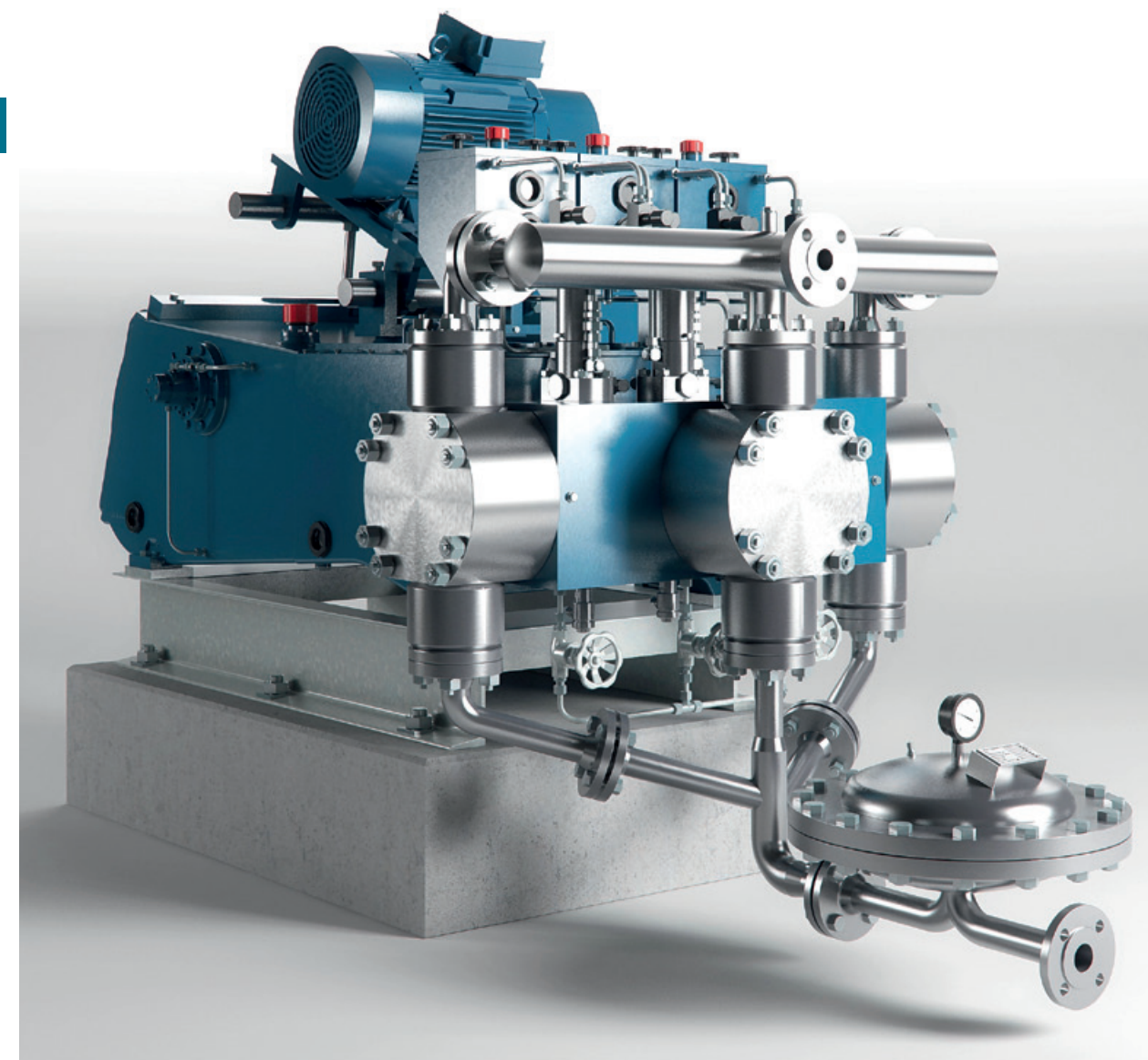
Conveyed fluid – Temperature:	bis zu 100°C
Applications:	Gentle pumping of shear-sensitive, abrasive and aggressive media



## TKM-HD series

The triplex piston diaphragm pumps with a three-cylinder gear unit have a very smooth, uniform running behaviour. In combination with diaphragm pulsation dampeners on the suction and discharge sides, pulsations are reduced to pro-

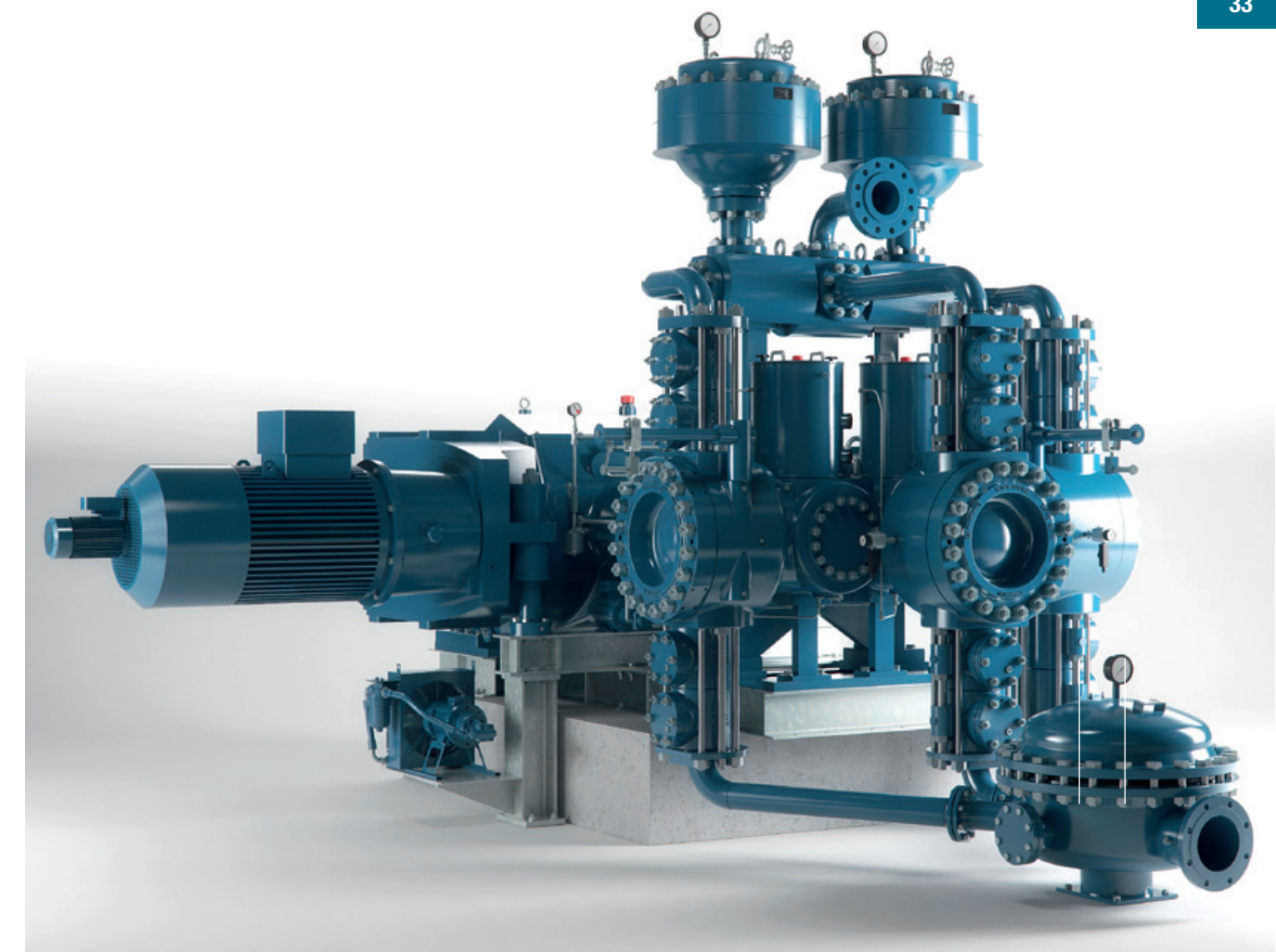
duce a very smooth, uniform flow. The pump has a modular design which can be modified to meet customer specifications by selecting and adapting the drive, pump head and diaphragm.



This model series has a particularly compact design and uses the EMMERICH-Multisafe-diaphragm in roller diaphragm design. Alternatively, a large-size flat diaphragm in EMMERICH-Multisafe-diaphragm design can be fitted.

This pump head design has a diaphragm casing with a separate diaphragm casing cover to permit the simple inspection of the diaphragm without the need to remove pipes or attached parts. For this reason, the pump is highly maintenance friendly.

The EMMERICH-Multisafe-diaphragm is designed for a long service life.

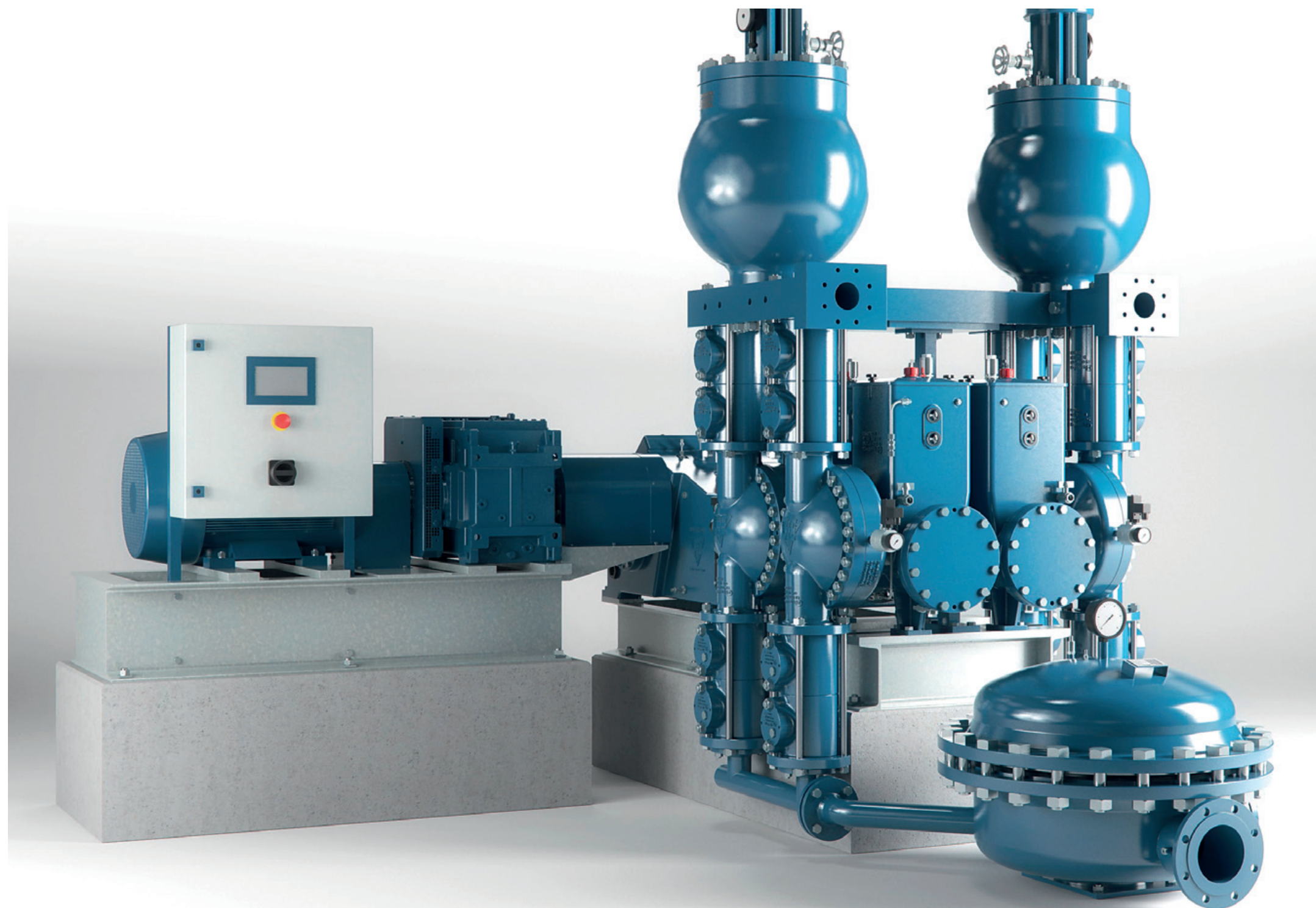




## ZDKM-HD series

Piston diaphragm pumps of the ZDKM series have a quadruplex design and are a two-cylinder double-acting piston diaphragm pump. The two pistons are opposed at a crank angle of 90°. The result of this is that a different piston surface generates the flow at each 90° crank angle. Additional diaphragm pulsation dampeners physically separate the conveyed and dampening fluid in order to minimise pulsations.

They are equipped with EMMERICH-Multisafe-diaphragms in roller diaphragm design.



## World-wide representatives



JOSEF EMMERICH PUMPENFABRIK GmbH develops piston diaphragm pumps according to international industrial standards. The company is a global player, manufacturing to the following standards: DIN, EN, ASTM, ANSI

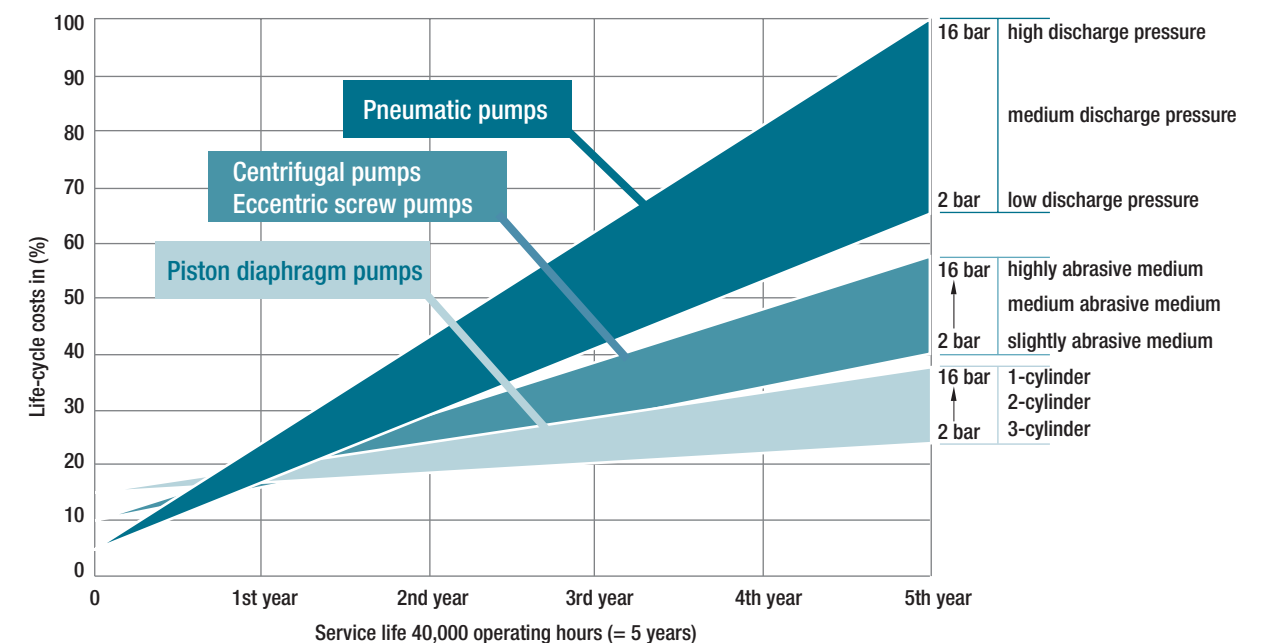
## Service Hotline

Technical consulting by competent staff and service technicians of JOSEF EMMERICH is free of charge around the clock. Call charges excepted.

During office hours:  
Monday to Thursday 8.00 to 16.15 (UTC+1)  
Friday 8.00 to 13.00 (UTC+1)  
Tel.: +49 (0) 26 95 92 01 - 0  
Outside office hours:  
Mobile: +49 (0) 163- 8 92 01 45

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info@emmerich-pumpenfabrik.de  
www.emmerich-pumpenfabrik.de

## Cost and energy efficiency



The costs of wear parts and energy are low for piston diaphragm pumps compared to other types of pump.

### WEAR PROTECTION

At a time when energy costs are rising, high efficiency and the resulting efficient use of energy play a decisive role. Investments in piston diaphragm pumps have a fast ROI.

JOSEF EMMERICH piston diaphragm pumps have an efficiency of about 90 per cent. By comparison, the efficiency of a comparable centrifugal pump is about 30 to 50 per cent.

It is not only the efficient use of energy which makes piston diaphragm pumps economical. This also comes from the technical details of the pumps, such as technically mature pulsation dampeners which permit a high discharge rate of the conveyed fluid.

Pumps made by JOSEF EMMERICH PUMPENFABRIK GMBH have a high level of wear protection. EMMERICH-Multisafe-diaphragms have an in-built safety tool – by the way this is a unique selling proposition: a channel system between the two halves of the double diaphragm permits the early detection of damage by optical or electrical signals in the event of a defect in one of the two halves. This reduces or completely avoids consequential damage to the machine and the pump.

### LONG SERVICE LIFE

Pumps made by JOSEF EMMERICH in the 1940s are still in use today. The company still manufactures spare parts even for the oldest model series.



# Ecological and social responsibility

JOSEF EMMERICH acts in support of the social market economy. The company is one of the largest employers and training companies in Hönningen-Liers/Ahr. 20 per cent of the work force are members of voluntary fire brigades in the region and are released for duty when necessary.

JOSEF EMMERICH bases its social, economic and sustainable actions on high ethical principles. To demonstrate this publicly, the company upholds the standards of the Honourable Merchant of the Chamber of Industry and Commerce.



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## PROTECTION OF THE ENVIRONMENT, NATURE AND WATER

Protection of the environment, nature and water is unthinkable without high performance pumps. German legislature started early on to tighten up environmental standards for treating waste water. It was no longer permitted to drain slurry and waste water unhindered into rivers. Instead filtration pumps and chamber filter presses were required to separate solid matter and liquids.

Today, numerous municipalities in Germany and neighbouring countries are customers of JOSEF EMMERICH PUMPENFABRIK GmbH for equipping pumping stations and sewage treatment plants.

## SUSTAINABLE PRODUCTION

In its code of conduct, JOSEF EMMERICH PUMPENFABRIK GmbH has pledged to minimise environmental impacts and continuously improve environmental protection. This applies both to the three production workshops and the offices at the headquarters in Hönningen-Liers/Ahr. The company ensures the conservation of resources.

# Services

All engineers and technicians at JOSEF EMMERICH PUMPENFABRIK GmbH have extensive experience. They are qualified to assemble, start-up and repair piston diaphragm pumps.

## PRECISE ANALYSIS

JOSEF EMMERICH pumps have a high level of quality and reliability. Our service technicians are also available outside office hours throughout the entire service life of the pumps. They provide you with support on our Service Hotline at any time. In many cases, a precise fault analysis by phone is sufficient to solve the problem and avoids costly service calls.

This service is free of charge. Call charges excepted. Our service telephone numbers are:

During office hours:  
Monday to Thursday 8.00 to 16.15 (UTC+1)  
Friday 8.00 to 13.00 (UTC+1)  
Tel.: +49 (0) 26 95 92 01-0  
Outside office hours:  
Mobile: +49 (0) 163 892 01 45

However, if repair work becomes necessary, a service engineer will travel to your location in a company service vehicle. Normally service engineers can be on site within less than

24 hours in Germany and neighbouring countries. If the location is further away, JOSEF EMMERICH PUMPENFABRIK GmbH will organise the flight in agreement with the customer.

## WEAR AND SPARE PARTS

JOSEF EMMERICH PUMPENFABRIK GmbH keeps almost all standard wear parts in stock so that they are quickly available. Since the company also produces spare parts itself, parts for models built in the 1940s are still available.

## MAINTENANCE CONTRACTS

Downtimes can be minimised by conducting regular inspections and preventive maintenance on the machines, depending on wear. JOSEF EMMERICH also offers maintenance contracts for new pumps as well as pumps which are already installed. JOSEF EMMERICH PUMPENFABRIK GmbH will contact you once a year or at other arranged intervals to carry out preventive maintenance on your pump station.

## DISMANTLING AND DISPOSAL

At the end of the pump's service life, JOSEF EMMERICH PUMPENFABRIK GmbH also takes care of dismantling and disposal by agreement.

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# Certificates

JOSEF EMMERICH PUMPENFABRIK GmbH meets numerous industrial requirements. The company is certified according to:

## DIN EN ISO 9001:2008

JOSEF EMMERICH PUMPENFABRIK GmbH is a certified company and therefore ensures the quality of its products according to DIN EN ISO 9001:2008. The certificate refers to the development, design, manufacture and distribution of piston pumps and piston diaphragm pumps. The company was first certified in 1995.

## SAFETY CERTIFICATE CONTRACTORS

The Safety Certificate Contractors (SCC) certification system was developed to standardise safety requirements with outsourced contractors for technical services performed on the premises of mineral oil and chemical processing companies.

Meanwhile, the SCC has become established as an internationally recognised standard for safety, health and environmental protection management in various industrial sectors. The service staff of JOSEF EMMERICH PUMPENFABRIK GmbH have been certified according to this standard since 2010.

## PRESSURE EQUIPMENT DIRECTIVE

In the past few years, there have been many changes especially to the Pressure Equipment Directives and REACH Regulations (EU regulation on chemicals) which have been in force since 2015. For this reason JOSEF EMMERICH PUMPENFABRIK GmbH is also certified in welding systems. The company produces pressure vessels according to EN ISO 3834-3 and meets the requirements according to Pressure-Equipment Directive AD 2000 Bulletin HP0. In addition the company is certified for supervision and acceptance according to Directive 97/23/EC and the associated certification for the transfer marking of materials.

## ATEX

In 2004, JOSEF EMMERICH PUMPENFABRIK GmbH was accredited according to ATEX (94/9/EC). This permits operations in explosion-protected areas, in particular in the chemical industry.

## QUALITY TESTING

Continuous quality testing takes place at every workplace. The production of each component is tracked by dimensional checks which are documented.



## Over 70 years of experience

JOSEF EMMERICH PUMPENFABRIK GmbH was founded in 1945. Today, the company is a global player.

## High vertical range of manufacture

Piston diaphragm pumps from JOSEF EMMERICH have a 90 per cent vertical range of manufacture, from the CAD drawing through to the end product.

## Made in Germany

Our pumps are 100 per cent *made in Germany* since all our suppliers also have their head offices in Germany.

## Customised solutions

JOSEF EMMERICH produces customised solutions. Each piston diaphragm pump is designed for a specific project and to the required specifications.

## Certification chain

Not only has JOSEF EMMERICH PUMPENFABRIK GmbH been granted several certificates, our suppliers can also provide proof of quality.





JOSEF EMMERICH PUMPENFABRIK GmbH

Josef-Emmerich-Str. 1-3

D-53506 Hönningen-Liers/Ahr

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[info@emmerich-pumpenfabrik.de](mailto:info@emmerich-pumpenfabrik.de)

[www.emmerich-pumpenfabrik.de](http://www.emmerich-pumpenfabrik.de)

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