

SULZER

Pumps and pumping systems

Heavy-duty slurry pumps type Ensival Moret EMW



Main industries and applications

The EMW pump range has been designed considering historic field experience, coupled with the latest in CFD (computational fluid dynamics) technologies and finite element analysis, to create the latest in slurry pumping technology. The pump range offers high hydraulic efficiencies for optimized wear life performance in difficult solids handling applications.

The EMW pump range has been designed to ensure trouble-free operation in the most difficult processes in the following industrial applications:

- Mining and metals processing
- Aggregates (sand and gravel)
- Power (bottom ash, lime slurry for flue gas desulphurization (FGD))
- Food industry
- Wastewater
- Chemical slurries



Key customer benefits

Sulzer's EMW pumps offer high reliability and durability. The heavy-duty design combined with high performance make the pumps more reliable while significantly reducing the total cost of ownership.

High durability

- Wide range of high-quality materials (metallic as well as rubber) ensures exceptional endurance against wear in all pumping applications for abrasive and/or corrosive liquids
- High durability due to great thickness of casing and impeller extends the lifetime of the pump bringing savings in spare parts consumption and total cost of ownership (TCO)

Maximum efficiency

- Optimized hydraulics ensure high efficiency and minimized wear in the largest operating range
- Internal clearance adjustments are easily and quickly realizable, which allows to obtain the best efficiency throughout the lifetime of the pump
- Low NPSH over the entire operating range avoiding cavitation of pumps

High reliability

- Heavy-duty bearings offer LB10 bearing life of more than 50'000 hours
- Only one bearing bracket per pump type, impermeable to water flushing IP 56

Minimized total cost of ownership (TCO)

- Low energy consumption due to high efficiency
- Low operational cost due to high reliability
- Easy and quick installation and maintenance
- Low spare parts cost due to high standardization between EMW-M and EMW-R

Features and benefits

EMW-R and EMW-M

1 Paired single row tapered roller bearings

- Handle both high radial and axial loads

2 Standard bearing protection by labyrinth ring

- Impermeable to water-flushing

3 New impeller mounting system

- Easy installation and removal of the impeller while providing strong and reliable power transmission

4 Reliable heavy-duty bearing unit

- Grease lubrication as standard (oil lubrication optional)
- Heavy-duty bearings offer LB10 bearing life of more than 50'000 hours
- Common and available bearings used

5 Self-aligning roller bearing

- Handles high radial load, capable of both direct and belt drive configurations

6 Shaft sealing

- Hydrodynamic expeller, mechanical seal and gland packing as an option

7 Front / back impeller clearing vanes

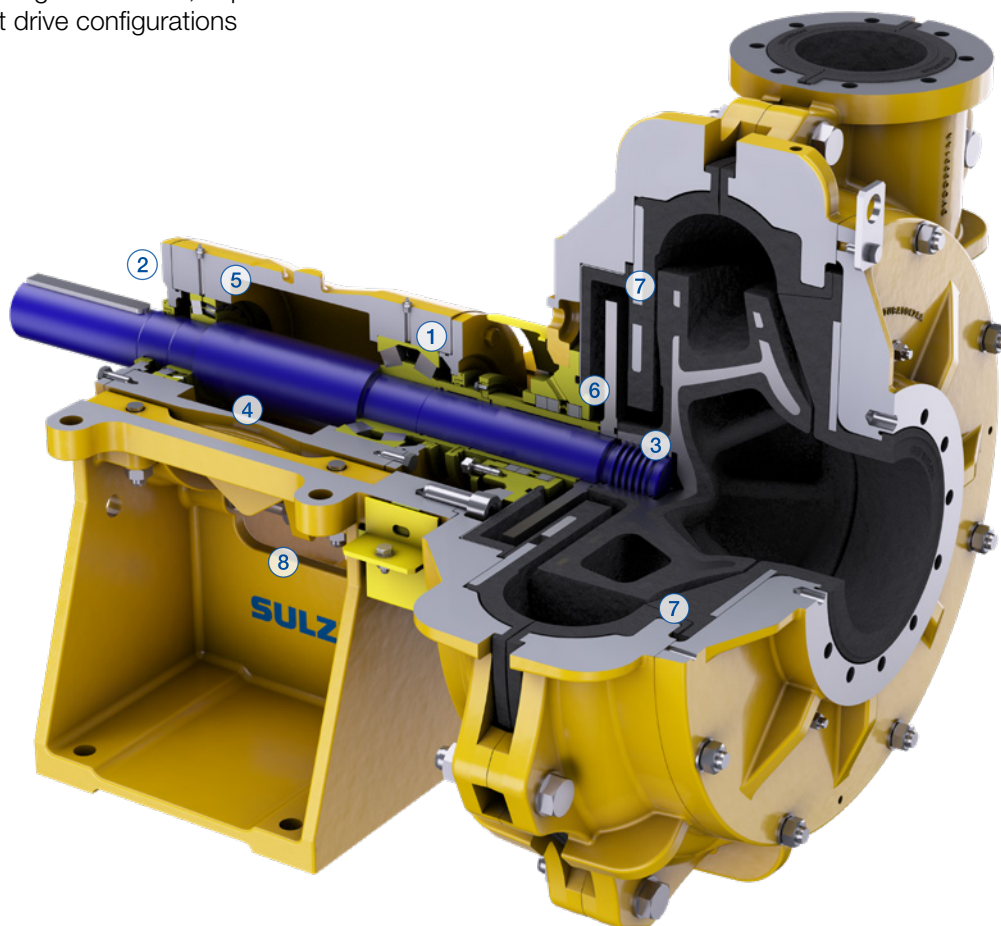
- For maximized flow characteristics for high efficiency and long wear life

8 Internal clearance adjustments

- Easily accomplished via adjustment screw and locking nut

Drive options

- Transmission by direct drive with coupling or V-belts
- Designed to accommodate IEC and NEMA motor



Features and benefits

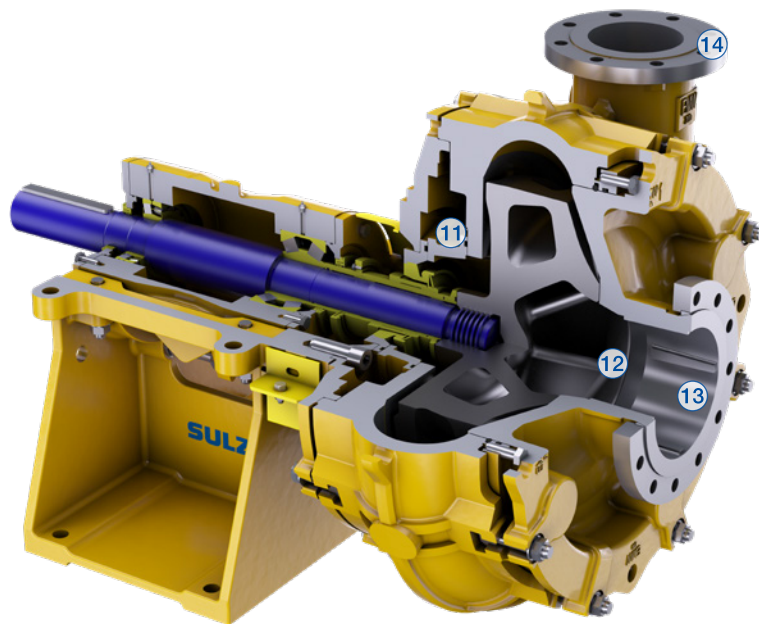
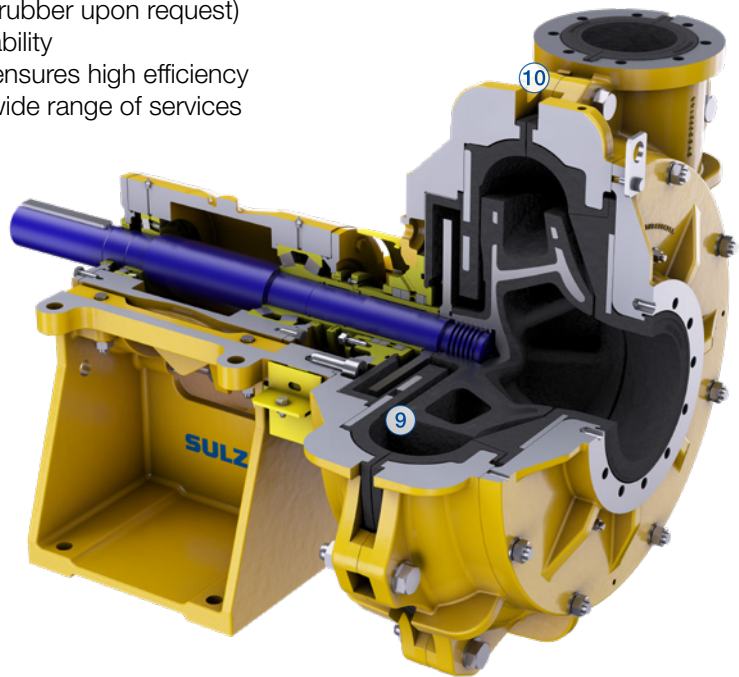
EMW-R (rubber lined construction)

9 Rubber parts

- Natural rubber as standard (other types of rubber upon request)
- Liners contain inserts for strength and durability
- Closed impeller with optimized hydraulics ensures high efficiency and maximized wear performance over a wide range of services

10 Metal-to-metal casing seal

- For positive compression and locking of the liners into position



EMW-M (metal construction)

11 Metal-to-metal alignment with O-rings

- Provides easy alignment and positive sealing

12 Impeller

- Closed impeller provides high efficiency
- Long service life impeller (important thickness)
- Large flow passage

13 Suction nozzle design with anti-vortex ribs for improved wear

- For decreased wear to prevent rotation of the pumped liquid

14 Floating steel flange with patented locking system

- For easy assembly and positive sealing

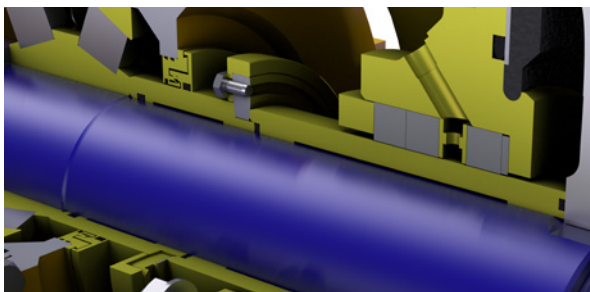
Features and benefits

EMW-MR (rubber lined with metallic impeller)

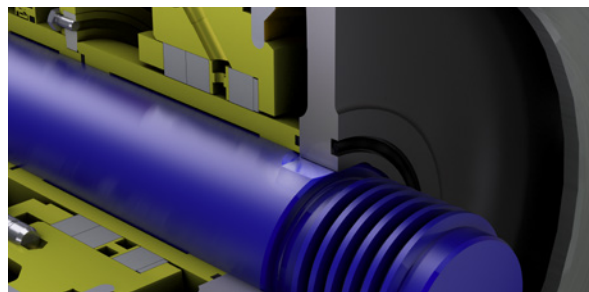
- Combines rubber lining with a metallic impeller for optimal durability and performance
- Handles solids up to 12 mm / 0.472 in., which is twice the size possible with standard rubber impellers
- Maintains superior wear protection from rubber liners while enabling larger solids handling
- Offers the same material options as EMW-M and EMW-R for flexibility in demanding environments
- Provides a cost-effective alternative to full-metal construction without compromising reliability



Construction details



Release collar allows quick and easy removal of the impeller (from size 200).



Engagement of expeller and shaft by means of machined surfaces – no key required (from size 100).



Separate and removable suction plate (from size 200).

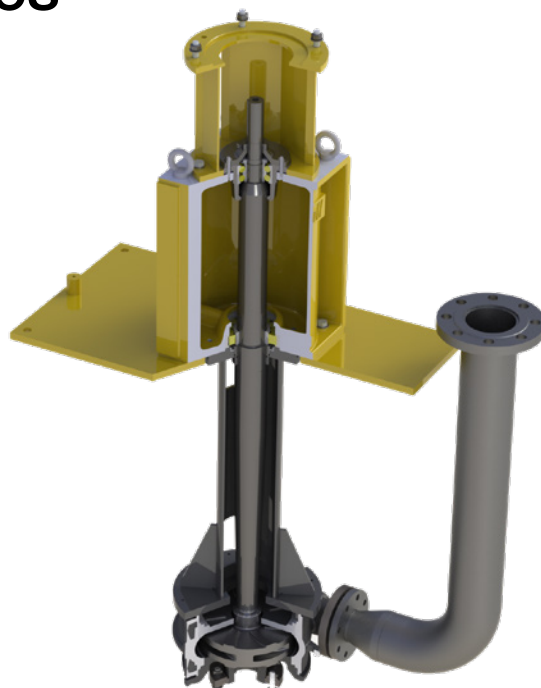


Clearance adjustment with the adjustable suction plate (from size 200).

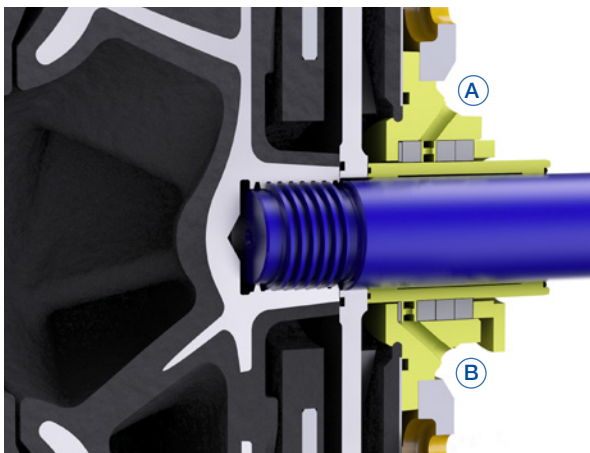
Additional design features

VA-EMW: Heavy-duty cantilever pumps

- Simple and robust design with ease of maintenance
- Cantilever design without submerged bearings and without shaft seal
- Shaft guided by grease-lubricated roller bearings located above the base plate and sealed off against contamination by a labyrinth ring
- Construction with the bearing assembly under the base plate is possible
- Discharge separate from the shaft line
- Length up to 1.8 m / 70.87 in. Can be extended by means of a suction pipe allowing the pump to operate with a liquid level under the impeller level
- Bearing assembly is sealed off to prevent bearing contamination by liquids or gases/vapors
- Can run dry without risk of damage
- Can be supplied with a V-belt drive
- Available in rubber and metallic versions

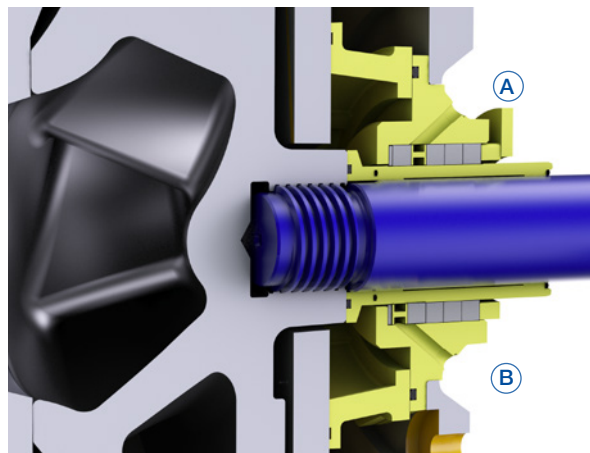


Shaft seals



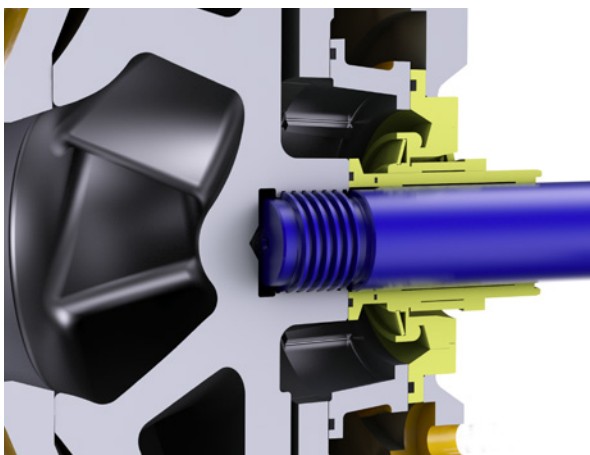
EMW-R hydrodynamic seal system and gland packing

- With low flushing flow rate (plan A)
- With high flushing flow rate (plan B)



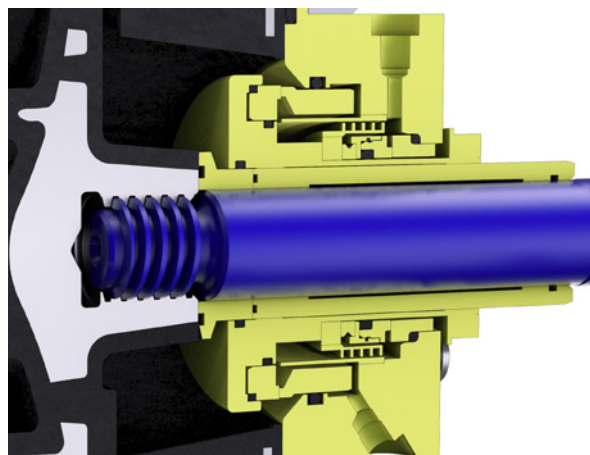
EMW-M seal by gland packing

- With low flushing flow rate (plan A)
- With high flushing flow rate (plan B)



Single mechanical seal by cartridge

- The seal faces are lubricated by the pumped liquid
- The extension seal chamber is equipped with antivortex bars to avoid the rotation of the pumped liquid and to reduce wear



Double cartridge mechanical seal by cartridge

- The seals faces are lubricated by an external source to provide a clean pressurized barrier fluid to a dual pressurized seal
- The extension seal chamber is equipped with antivortex bars to avoid the rotation of the pumped liquid and to reduce wear

Specifications

Materials

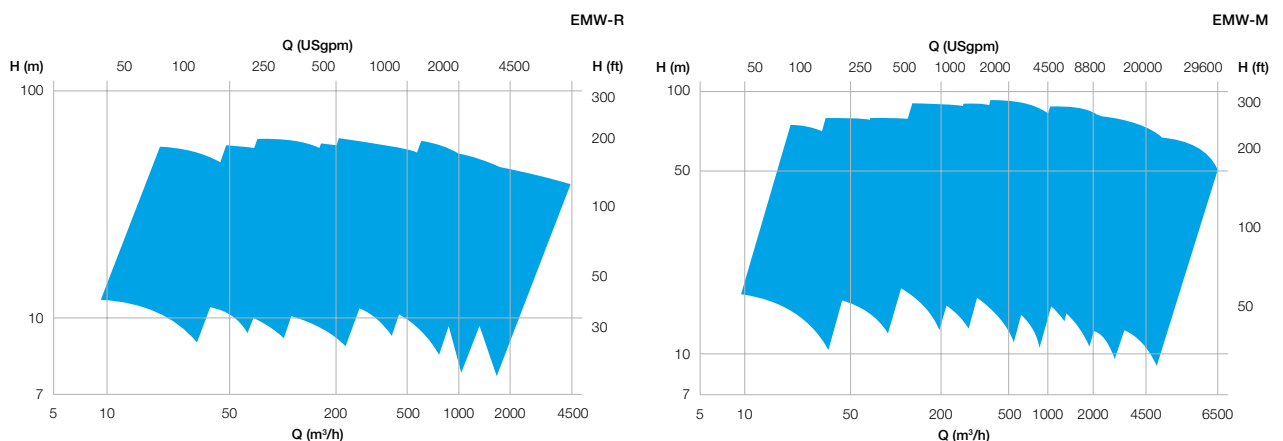
Material alternatives for EMW M pump main parts			Nominal chemical composition %					
Description	Code	Internal code	C	Cr	Ni	Mo	Cu	Si
Chromium iron ²⁾	ASTM A532 IIIA	EXR	2.0-3.3	23.0-30.0	2.5 max.	3.0 max.	1.2 max.	1.5 max.
Chromium iron ²⁾	Gx100CrMo30-2	CRM	0.9-1.1	29.0-31.0	0.4 max.	1.9-2.2	-	2.0 max.
Chromium iron ²⁾	Gx160CrNiMo38-5-2	FC1	1.5-1.8	36.0-39.0	5.5 max.	2.0-2.5	1.5 max.	1.5 max.

Material alternatives for EMW R lining parts			
Lining of EMW-R	Natural rubber	NR	Used at temperature of max +60°C / +140°F
	Chlorosulfonated polyethylene	CSM	Used at temperature of max +110°C / +212°F
	Polychloroprene	CR	Used at temperature of max +100°C / +212°F
	Butyl	IIR	Used at temperature of max +100°C / +212°F
Gasket and o-ring material	EPDM VITON		Ethylene propylene VITON

Operating data

	EMW-R 50 Hz	EMW-R 60 Hz	EMW-M 50 Hz	EMW-M 60 Hz
Capacities	up to 1'450 m ³ /h	up to 6'385 USgpm	up to 6'500 m ³ /h	up to 28'600 USgpm
Heads	up to 55 m	up to 180 ft.	up to 95 m	up to 312 ft.
Pressures	up to 14 bar	up to 203 psi	up to 16 bar	up to 232 psi
Temperatures	up to 110°C	up to 230°F	up to 110°C	up to 230°F
Maximum speed of rotation	up to 2'600 rpm	up to 2'600 rpm	up to 3'000 rpm	up to 3'000 rpm

Performance range



Unlock the full potential of your equipment

With 190 years of engineering expertise and operations in over 160 countries, we stand as your services partner. Sulzer is with you every step of the way from workshop repairs, field services, customer service agreements, original spare parts to digital services ensuring the continuous quality you initially invested in.

We are your long-term partner in performance.

➤ **Contact us today:** go.sulzer.com/flow-solution-services



Service kits for EMW slurry pumps

When your EMW heavy-duty slurry pump requires service, you need a solution that minimizes downtime and maximizes efficiency. Don't waste valuable time searching for individual parts or risk delays due to missing components. With EMW service kits, you get everything you need in one convenient package, designed specifically for your pump model.

Optimized for demanding applications

EMW offers tailored service kits that simplify maintenance for heavy-duty slurry pumps, ensuring optimal performance and longevity.

Kits are available for:

- Bearing unit: Contains all critical bearings, seals, and related parts for bearing unit overhaul.
- Shaft seal: Provides all the essential components for seal replacement, ensuring reliable sealing performance.
- Wear part: Includes critical wear parts like liners, impellers, casings and other components subject to abrasion.

Key customer benefits

- All the necessary parts are included in one convenient package, eliminating the need to source individual components.
- Easy-to-use item codes streamline the ordering process.
- Quick and efficient service with all the right parts readily available reduces downtime.
- Original EMW spare parts ensure compatibility, reliability, and optimal pump performance.
- Minimize your on-site inventory by stocking only the necessary service kits.
- Using genuine EMW parts helps extend the life of your pump and reduce overall lifecycle costs.

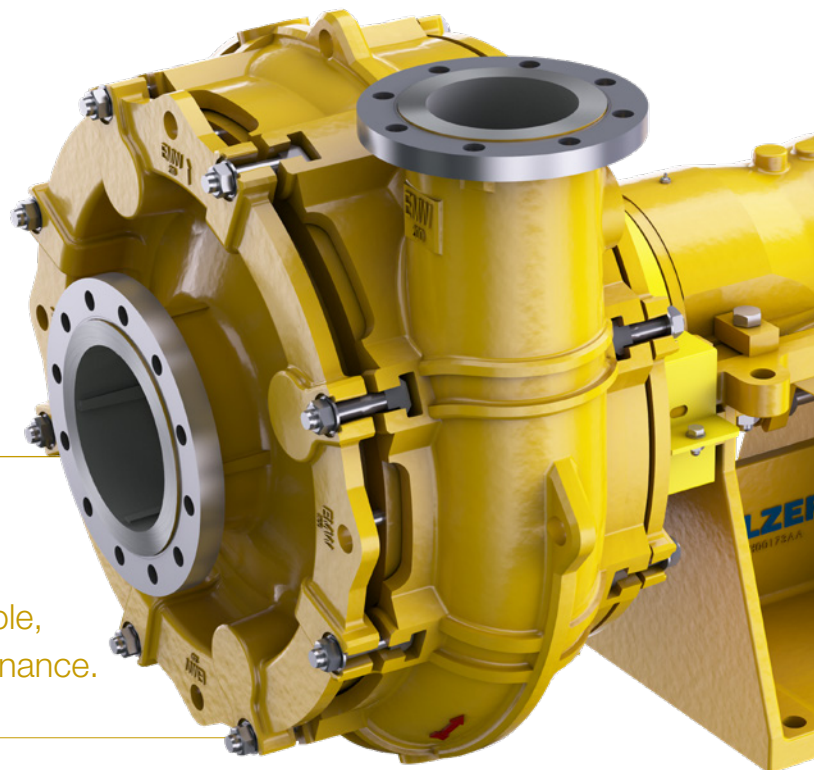
Simplified ordering and installation

Each EMW service kit is designed for ease of use:

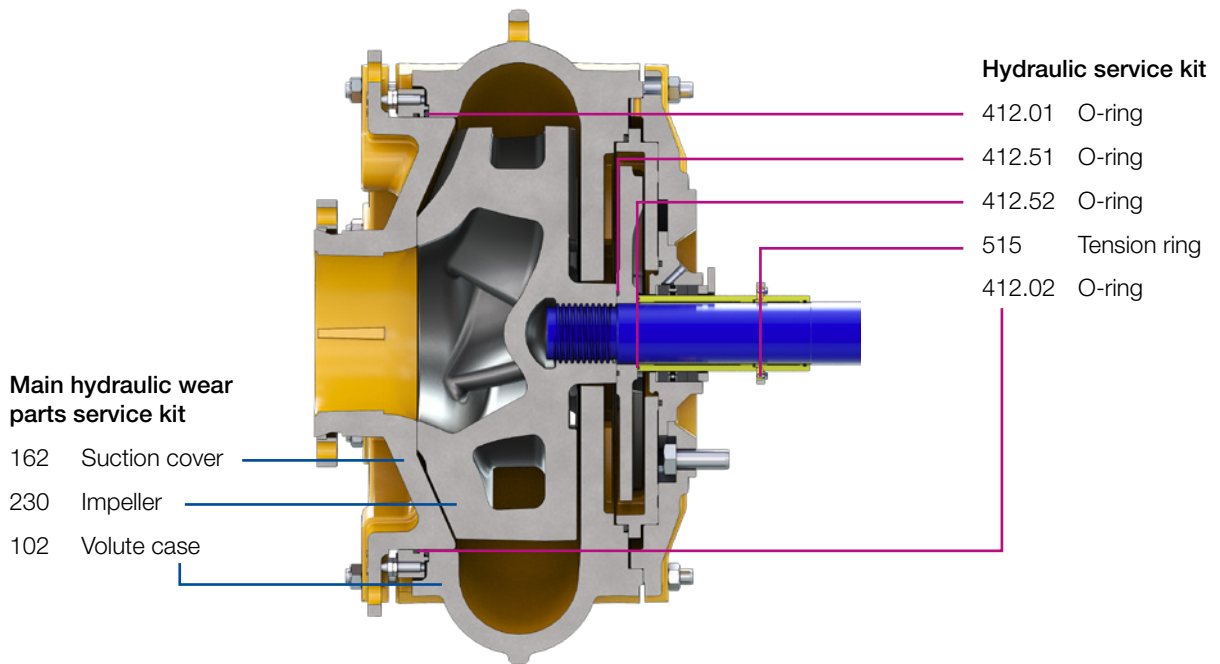
- A unique item code simplifies ordering and inventory management, saving you time and effort.
- Durable, protective packaging safeguards components during shipping and storage and is designed for easy recycling.
- Each kit includes clear and concise instructions to guide you through the service process.

Keep your EMW pumps running at peak performance.

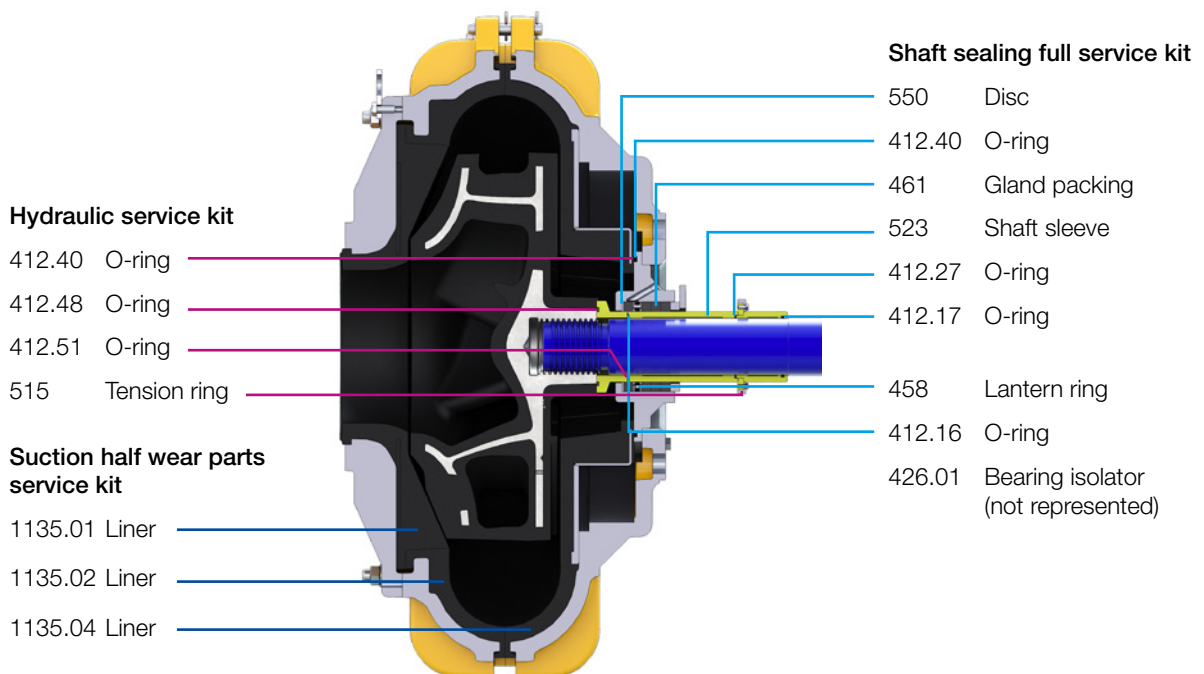
Choose EMW service kits for reliable, efficient, and cost-effective maintenance.



EMW-M (metal construction)



EMW-R (rubber lined construction)



The Sulzer Flow division keeps your processes flowing. Wherever fluids are treated, pumped, or mixed, we deliver highly innovative and reliable solutions for the most demanding applications.

The Flow division specializes in pumping solutions specifically engineered for the processes of our customers. We provide pumps, agitators, compressors, grinders, screens and filters developed through intensive research and development in fluid dynamics and advanced materials. We are a market leader in pumping solutions for water, oil and gas, power, chemicals and most industrial segments.

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