

# Water and wastewater



## The right pump length for every sewage treatment plant application.

FLUX pump solutions for all applications relating to the treatment of water and wastewater, such as pumping and metering sludge, coagulants, flocculants, disinfectants, neutralisers, oxidisers, conditioning agents and much more.

- |  |                       |
|--|-----------------------|
| ▶ Wastewater                                   | ▶ Condensation        |
| ▶ Aluminium chloride                           | ▶ Sodium hypochlorite |
| ▶ Chlorine                                     | ▶ Caustic soda        |
| ▶ Chlorine dioxide                             | ▶ Acid wastewater     |
| ▶ Iron (III) chloride                          | ▶ Sulphuric acid      |
| ▶ Flocculant, such as polyacrylamide, polymers | ▶ Concentrated acids  |
| ▶ Glycerine                                    | ▶ Water               |
| ▶ Hydraulic oil                                | ▶ Hydrogen peroxide   |
| ▶ Potassium permanganate solution              | ▶ Citric acid         |
|  | ▶ and much more       |



# FLUX solutions for treating wastewater



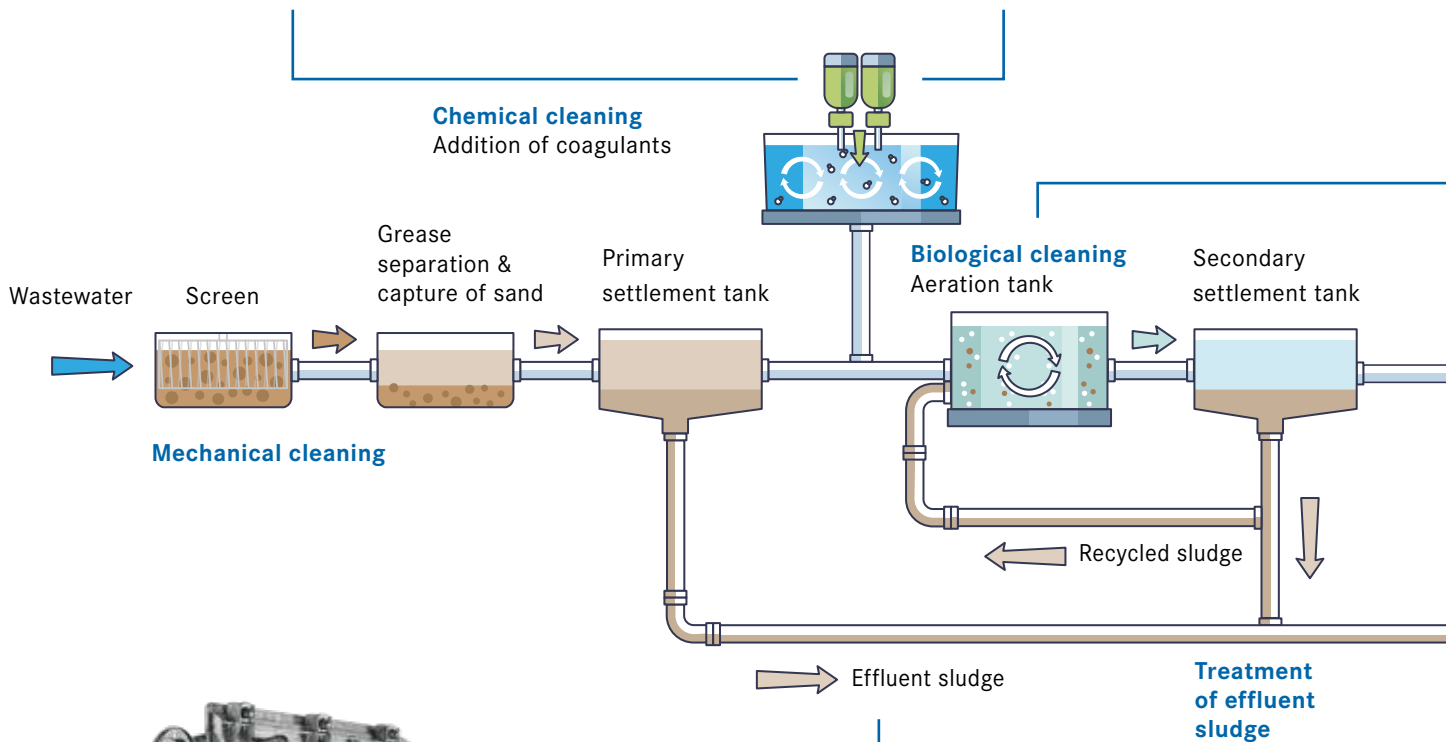
## ► Drum / container pump

for example, **F 424 set** (p. 6) made from polypropylene with PVC hose and PP hand nozzle with titanium shaft to pump iron (III) chloride out of IBCs to eliminate phosphor



## ► Progressive cavity pump

**VISCOPOWER** (p. 7) made from stainless steel to pump high-viscosity polymers as well as coagulants



## ► FLUX-FHP peristaltic pump

for example, **FHP 65** (p. 5) made from stainless steel to pump abrasive effluent sludge containing stones and particles of rust out of primary settlement tanks



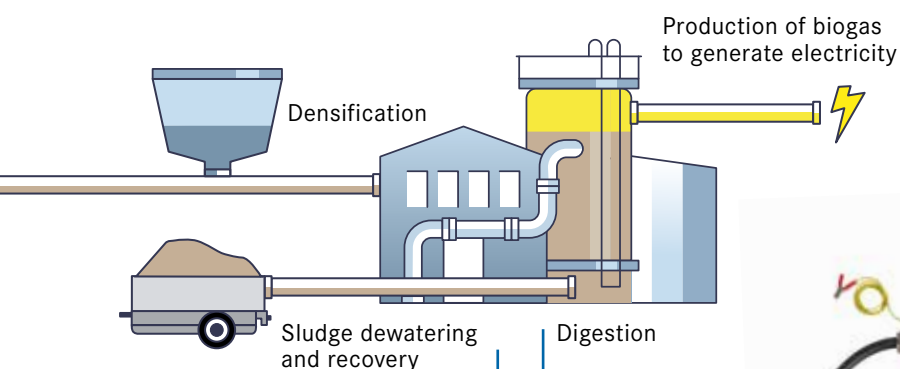
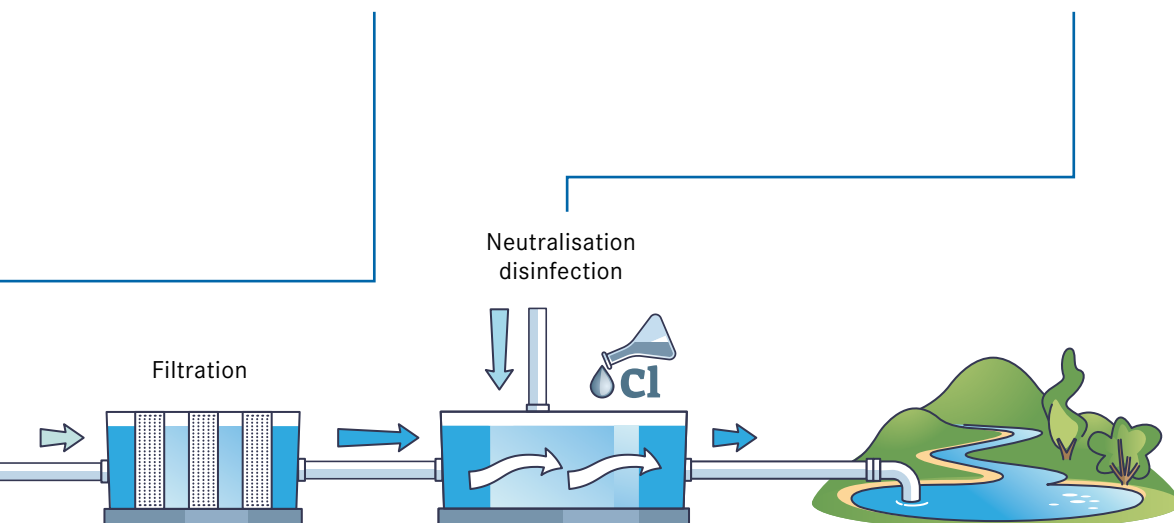
► **PERIPOWER FLUX-FHP**

for example, **FHP 10** (p. 5) made from polypropylene to pump glycerine containing solids to reduce the raised nitrate content in aeration tanks



► **MAGSON magnetic centrifugal pump**

made from PP or the ETFE version (p. 8) for hermetically secured metering of caustic soda or sulphuric acid to neutralise the pH, for example



► **F 430 drum pump with motor** (p. 6) **F 460-1 EX** and **stainless steel base strainer** to pump condensate in the digester tower in an explosion-proof environment or alternatively

► **FDM 7 compressed-air diaphragm pump** (p. 9) with acetal housing



# FLUX-FHP peristaltic pump

The ideal solution for pumping sludges

## The peristaltic pump for aggressive and abrasive media



### Advantages/features:

- ▶ Self-priming
- ▶ Safe to run dry
- ▶ Delivery quantity up to 300 m<sup>3</sup>/h
- ▶ Solids of sizes up to 40 % of the hose diameter can be pumped
- ▶ Simple maintenance and very little required
- ▶ Pumping pressure of up to 10 bar
- ▶ Low energy consumption
- ▶ Huge range of applications



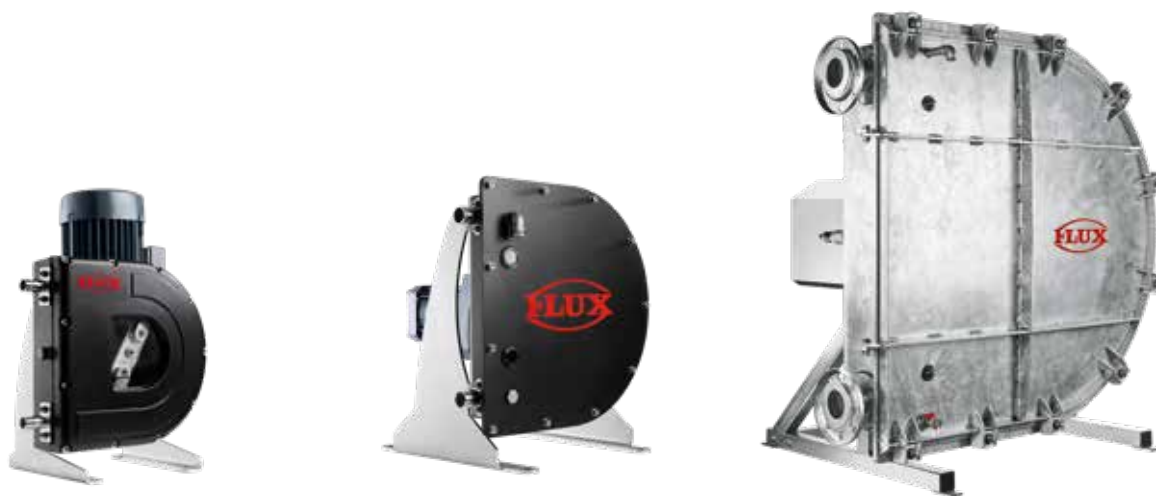
### Pumps media containing a high proportion of solids and at a flow rate of up to 300 m<sup>3</sup>/h

The FLUX-FHP peristaltic pump is a powerful self-priming positive displacement pump, which impresses customers with its extreme robustness and ease of maintenance. It operates in such a way that abrasive media can be gently pumped. Our peristaltic pumps are ideally designed to efficiently pump media with a viscosity of up to 20,000 mPas, 25 % dry matter content as well as particles with a size of up to 40 % of the hose diameter. You can rely on our pumps to deliver first-class performance in a wide range of applications, such as pumping abrasive effluent sludges or metering glycerine containing solids.

### The user-friendly design ensures that little maintenance is required and is easy to carry out

Thanks to our user-friendly design, the hose can be easily replaced in a matter of minutes for convenient maintenance without you requiring a special tool or specialist staff on site, keeping your systems ready for use at all times.





#### Technical data

##### Performance data

	FHP 10.15	FHP 25, 32, 40, 50	FHP 65, 80, 100, 125, 150, 200
Nominal volumetric flow	Up to 330 l/h at 50 rpm	Up to 6200 l/h at 26 rpm	Up to 300 m <sup>3</sup> /h at 26 rpm
Motor	0.37 kW	Up to 1.5 kW	Up to 37 kW / 45 kW   90 kW
Hose diameter	Up to 15 mm	Up to 50 mm	Up to 200 mm
Nominal speed	50 rpm	26 rpm	26 rpm
Output	Up to 0.11 l/rev	Up to 3.85 l/rev	Up to 192.31 l/rev

##### Materials and connections available

Housing	PP	Steel, stainless steel	Steel, stainless steel
Hose	NRH, EPDM, NBR	NRH, EPDM, NBR	NRH, EPDM, NBR
Connection	Up to ½" male thread	Up to 2" male thread or DN 50 flange	Up to 8" male thread or DN 200 flange
Weight	Approx. 25 kg	Up to approx. 180 kg	Up to approx. 8,000 kg



When compared with rotary piston pumps or progressive cavity pumps, the **FLUX-FHP peristaltic pump** incurs less wear and is easier, faster and cheaper to maintain since its hoses can be replaced.

The FLUX-FHP achieves a displacement volume of up to 300 m<sup>3</sup>/h.

# Drum pumps of the F 300 & F 400 series

For mobile pumping and emptying



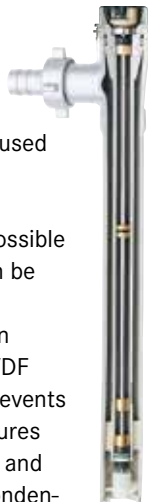
**FLUX drum and container pumps are suited to pumping various low-viscosity fluids, including those which are particularly aggressive and highly combustible. Constructed on the basis of a modular design, various pumps can be operated with the same motor. Their light weight means that the pumps can be simply carried from container to container. The motor and pump are easy to operate, ensuring short changeover times.** Operators can choose from various pumps with and without a mechanical seal as well as versions for larger delivery heads and mixing pumps. A version with explosion protection is also available. Special pump sets are also available, pre-packaged for typical applications.

## F 430 / FP 430

**With mechanical seal**

### Advantages/features:

- ▶ Medium is not dispersed - one pump can be used for different media
- ▶ Easy to dismantle for rapid cleaning
- ▶ Immersion lengths of up to 3000 mm are possible
- ▶ Stainless steel and Hastelloy C versions can be used in hazardous areas
- ▶ Available as a variant for dry well installation
- ▶ Steel core in the inner tube (with PP and PVDF versions) ensures maximum stability and prevents changes in length at high and low temperatures
- ▶ For example, with an explosion-proof motor and stainless steel base strainer for pumping condensate in the digester tower

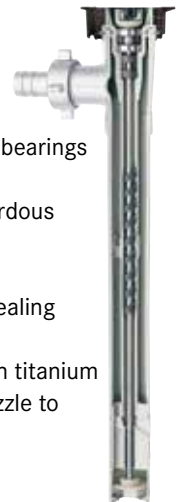


## F 424 / FP 424

**No seals near the media**

### Advantages/features:

- ▶ Low maintenance – no wear to the seals or bearings
- ▶ Long-lasting
- ▶ Stainless steel version can be used in hazardous areas
- ▶ Unaffected by running dry
- ▶ Cannot be contaminated by lubricants or sealing compounds wearing
- ▶ For example, made from polypropylene with titanium shaft, including PVC hose and PP pump nozzle to pump iron (III) chloride out of IBCs



### Technical data



	300 series	400 series
<b>For containers</b>	Canisters, ~200 l drums, IBCs	Canisters, ~200 l drums, IBCs Tanks > 1000 l
<b>Flow rate max.</b>	60 l/min*	240 l/min*
<b>Delivery head</b>	8.5 MWC*	30 MWC*
<b>Viscosity max.</b>	250 mPas*	1200 mPas*
<b>Motor drive</b>	Electric	Electric/ pneumatic



FBM-B 3100 battery-powered motor – the perfect solution for users who don't want to have to lay cables or for cases where this would be problematic.

\* The maximum flow rate is a test bench value, measured with water at 20 °C at the pressure connector of the pump, without attachments (hose, hand nozzle, flow meter)

# VISCOPOWER F 570 & F 580 progressive cavity pump

For pumping viscous media



**FLUX VISCOPOWER progressive cavity pumps are suited to pumping low-viscosity to high-viscosity fluids. The positive displacement pumps work with low turbulence, under constant pressure and ensure gentle, pulsation-free pumping. All VISCOPOWER progressive cavity pumps can be used for mobile and stationary applications, consist of very few components and are easy to dismantle.**

Operators can choose to install our progressive cavity pumps directly in the medium or outside the container. A version with explosion protection is also available. Either a bearing flange or gearbox can be selected as the motor connection. Our VISCOFLUX drum-emptying systems with progressive cavity pumps are available for pumping particularly viscous and high-viscosity media.

## Technical data



Motor connection	F 570 gearbox version	F 580 motor flange version
Container/use	~ 200-litre drums, ~ 1000 l IBCs, tanks > 1000 l	
Flow rate max.	80 l/min*	
Delivery head max.	80 MWC*	
Viscosity max.	80,000 mPas*	100,000 mPas*
Types of motor drive	Electric, pneumatic	

## Advantages/features of VISCOPOWER

- ▶ High pumping pressure of up to 15 bar thanks to displacement device principle
- ▶ High pump capacity of up to 80 l/min
- ▶ Very quick and easy to clean
- ▶ Large range of viscosity can be covered
- ▶ Design with minimal dead space makes the pump ideal for the hygiene sector
- ▶ Can be used vertically and horizontally
- ▶ Also available as explosion-proof pumps



Since it has very few parts, it can be disassembled and cleaned quickly and easily.



VISCOPOWER being used to pump out of an IBC.

\* The maximum flow rate is a test bench value, measured with water at 20 °C at the pressure connector of the pump, without attachments (hose, hand nozzle, flow meter)

# MAGSON magnetic centrifugal pump & SAFETEC pump set

## Safe pumping within the process



### MAGSON magnetic centrifugal pump

No matter whether you are working with acids or alkalis – MAGSON magnetically coupled pumps will pump highly-aggressive media, such as caustic soda or sulphuric acid. Safely operating standard centrifugal pumps with shaft seals, which are prone to wear, requires a lot of technical work and high financial outlays, especially if working with media which are highly aggressive or prone to crystallisation. System availability is also reduced by the fact that maintenance work has to be carried out regularly. The benefit of sealless, magnetically-coupled centrifugal pumps, which can also be self-priming on request: hermetically sealed and maintenance-free.

The externally rotating drive magnet transfers the motor force to the inner solenoid and therefore the impeller without making any contact. There is therefore no need for a continuous shaft and, as a consequence, no wearing shaft seal to the motor. The pump chamber and drive are hermetically separated from one another by a rear casing. There is therefore no scope for leaks and the pumps require no maintenance.

### SAFETEC pump set

**Regulations relating to environmental protection, sustainability and the safe handling of dangerous chemicals are becoming more and more stringent. This explains why increasing numbers of chemicals are being sold in drums or IBCs, which are sealed and are emptied by means of suction using a permanently installed immersion pipe.**

Sealed containers cannot be emptied using traditional drum or container pumps because they no longer have openings to fit a drum pump. Instead, self-priming pumps with immersion pipes have to be used to empty the containers by means of suction. We developed the SAFETEC pump set for this very purpose. Also available with integrated quantity measurement for precise filling containers and for metering.

The pump is made mainly from PP or ETFE, the piping from PVC or PVDF



### Advantages/features of SAFETEC

- ▶ Sensor for detecting an empty container and pump shutdown
  - ▶ Quantity measurement for filling containers or for batch metering\*
  - ▶ Convenient to operate via touch panel \*
  - ▶ Maximum safety thanks to hermetically encapsulated magnetic centrifugal pump and leak sump
- \* Options depending on model



In particular when working with highly aggressive media, such as sulphuric acid or caustic soda, **SAFETEC** improves occupational safety while also protecting the environment because no medium can escape between the container and pump and there is no scope for contact with the medium.

### Dosing/Control:

- ▶ All SAFETEC components are combined in a compact console.
- ▶ This is available with a wall bracket or on a mobile trolley.



### FLUX FDM & RFM compressed-air diaphragm pumps

FLUX compressed-air diaphragm pumps are self-priming and safe in dry operation. They are characterised by their versatility and can be used for virtually all kinds of media. They are available in a solid design (RFM) or injection moulded version (FDM) for a huge range of different applications. They are designed for high pumping pressure levels of up to 8 bar and impress users with their ease of handling and other plus points. The 100 % start-up safety in all shutdown positions guarantees reliability and safe operation. The flow rate can be controlled continuously by means of the amount of air used. The delivery quantity is also easy to calculate. The integrated silencer makes the compressed-air diaphragm pumps very quiet. What's more, the pumps require little maintenance, especially when working with pure media. As an option, the pulsation can be reduced by 60–80 % with a pulsation damper.



### Flow meters

FLUX flow meters, constructed on the basis of the nutating disc principle (FMC), oval gear principle (FMO) or rotor turbine principle (FMT), provide the right solution for any application. Depending on model and size, they can be used on say FLUX drum pumps or for stationary applications, e.g. in pipework systems. In combination with FLUXTRONIC® evaluation electronics for FMC and FMO, filling and metering processes for virtually all fluids can be performed with maximum precision and the greatest possible safety. In automatic mode, signals can also be issued for control purposes. A whole host of processes can therefore be managed.

### Technical data






	FMC/FMO/FMT
<b>Flow rate max.</b>	Max. 380 l/min*
<b>Viscosity max.</b>	500,000 mPas*
<b>Operating pressure max.</b>	200 bar*
<b>Viscosity max.</b>	Stationary or mobile with drum or progressive cavity pumps



Semi-automatic canister filling in Ex-zone 1.

\* The maximum flow rate is a test bench value, measured with water at 20 °C at the pressure connector of the pump, without attachments (hose, hand nozzle, flow meter)

# FLUX solutions for wastewater treatment

	Mobile pumps	Mobile pumps	Mobile pumps	
Series of FLUX pumps	Drum pumps, 300 series JUNIORFLUX/COMBIFLUX	Drum and container pumps, 400 series	VISCOPOWER progressive cavity pumps	
				
Typical applications in wastewater treatment	Aluminium chloride, chlorine, sodium hypochlorite, chlorine dioxide, sulphuric acid, sodium hydroxide, hydrogen peroxide, potassium permanganate solution	Aluminium chloride, iron (III) chloride, condensate, chlorine, sodium hypochlorite, chlorine dioxide, sulphuric acid, sodium hydroxide, hydrogen peroxide, potassium permanganate solution, hydraulic oil	Flocculants such as polyacrylamide, polymers, hydraulic oil, viscous media up to 100,000 mPas, glycerine	
Container/use	Canisters, ~ 200-l drums ~ 1000-l IBCs	~ 200-l drums ~ 1000-l IBCs Tanks > 1000 l	~ 200-l drum ~ 1000-l IBCs Tanks > 1000 l	
Flow rate max.*	60 l/min	240 l/min	80 l/min	
Delivery head max.*	8.5 MWC	30 MWC	80 MWC	
Viscosity max.*	250 mPas	1200 mPas	100,000 mPas	
Special features	<ul style="list-style-type: none"> <li>▶ Brushless battery-powered motor</li> </ul>	<ul style="list-style-type: none"> <li>▶ Mixing pump</li> <li>▶ 99.98 % drum emptying</li> <li>▶ Pump which is easy to dismantle</li> <li>▶ Also as pump sets for particular applications</li> </ul>	<ul style="list-style-type: none"> <li>▶ Pump which is very quick to dismantle</li> <li>▶ Quantities can be measured without any contact</li> <li>▶ Also as pump sets for particular applications</li> </ul>	
Drive	Electric, either mains-operated or battery-operated	Electric or pneumatic	Electric or pneumatic	

\* The maximum flow rate is a test bench value, measured with water at 20 °C at the pressure connector of the pump, without attachments (hose, pump nozzle, flowmeter)

	Process pumps	Process pumps	Process pumps
	MAGSON magnetic centrifugal pumps	Compressed-air diaphragm pumps, FDM and RFM series	FLUX-FHP peristaltic pumps
			
	Sodium chloride (NaOH), aluminium chloride, chlorine, sodium hypochlorite, chlorine dioxide, sulphuric acid, sodium hydroxide, hydrogen peroxide, potassium permanganate solution	Aluminium chloride, polyacrylamide, chlorine, sodium hypochlorite, chlorine dioxide, sulphuric acid, sodium hydroxide, hydrogen peroxide, potassium permanganate solution, condensate	Abrasive sludges and those containing solids, polyacrylamide, wastewater, water, acid wastewater, glycerine
	as process pump	~ 1000-l IBCs Tanks > 1000 l as process pump	~200-l drums 1000-l IBCs Tanks > 1000 l
	2000 l/min	1000 l/min	300 m³/h (or 5000 l/min)
	44 MWC	200 MWC	100 MWC
	250 mPas	15,000 mPas	approx. 20,000 mPas
	<ul style="list-style-type: none"> <li>▶ Modular system</li> <li>▶ Sturdy housing</li> <li>▶ Different types of connection</li> <li>▶ Magnetic coupling, therefore hermetically sealed</li> <li>▶ Process pumps</li> </ul>	<ul style="list-style-type: none"> <li>▶ Stroke counter can be integrated</li> <li>▶ Filter presses-high-pressure pump</li> <li>▶ Cycle control can be integrated</li> <li>▶ Version with flap valve for semi-solid substances up to max. 50 mm</li> </ul>	<ul style="list-style-type: none"> <li>▶ Abrasive media containing solids can be pumped</li> <li>▶ Hose rupture sensor can be integrated</li> <li>▶ The hose is the only wearing part in contact with the media</li> <li>▶ Can be regulated using optional FC</li> <li>▶ Self-priming</li> <li>▶ Safe to run dry</li> </ul>
	Electric	Pneumatic	Electric



## The FLUX product portfolio



Drum and container pumps



Progressive cavity pumps



Drum-emptying systems



Centrifugal immersion pumps



Compressed-air diaphragm pumps



Flow meters



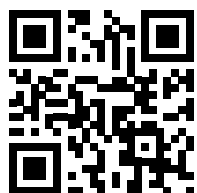
Mixers



Magnetic centrifugal pumps & filters



Filling and dosing solutions



Find the right pump for your requirements quickly and easily.

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