SONDERMANN
PUMPS • FILTER TECHNOLOGY

MAGSON

Magnetically coupled centrifugal pumps
made of plastics PP or ETFE

MORE THAN 50 YEARS

SONDERMANN Competence
in pump and filter technologies

A FLUX COMPANY

We all revolve around you

You want to move things? Make us find the best solution for you. The SONDERMANN brand stands for decades of experience and continuous development.

Our know-how
We know your demands. Our pumps and filters have been used all over the world for more than 50 years now. And from the beginning, we have engaged in developing custom-made products since standard designs are often not adequate for your specific requirements.

Our quality
As we are very serious about our products, each pump and filter is thoroughly checked at several stages before it leaves the company. This ensures long-lasting operation in perfect condition.

Our customer service
We are always in contact with you. Our network of representations has been much expanded: At 13 locations in Germany only, especially trained and qualified advisers are available on site to give advice and support in anything concerning the delivery of fluids.

Count on SONDERMANN as your reliable partner in all respects!

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A FLUX COMPANY

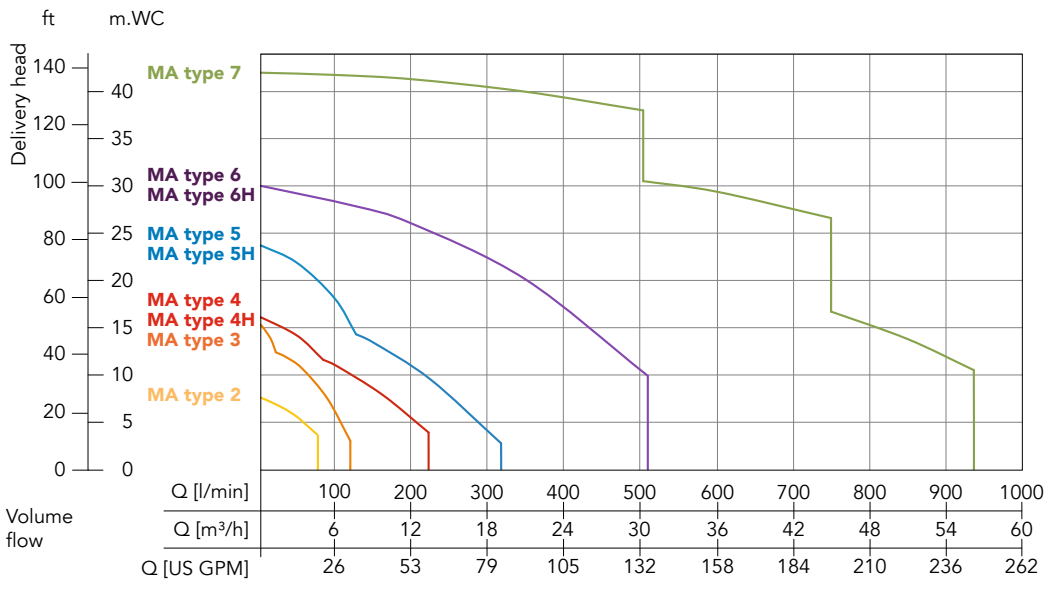
Contents

Overview of new MAGSON products

MA Non-self priming	Size	Suction port	Discharge port
Type 2	7/70	G 1 1/2"	G 1 1/2"
	8/80		
Type 3	15/40		
	10/100		
	13/120		
Type 4	8/160	DN 40	DN 40
	10/180		
	12/190		
	14/220		
Type 5	10/240		
	13/260		
	15/280		
	18/320		
Type 6	22/400	DN 50	
	26/450		
	29/470		
	30/510		
Type 7	29/950	DN 65	DN50
	36/750		
	42/500		
Type 4H	16/160	DN 25	
Type 5H	24/200		
Type 6H	21/190		
	26/220		
	29/230		

MAS Self-priming	Size	Suction port	Discharge port
Type 4	13/115	DN 25	
Type 5	17/230	DN 40	
Type 6	27/470	DN 50	

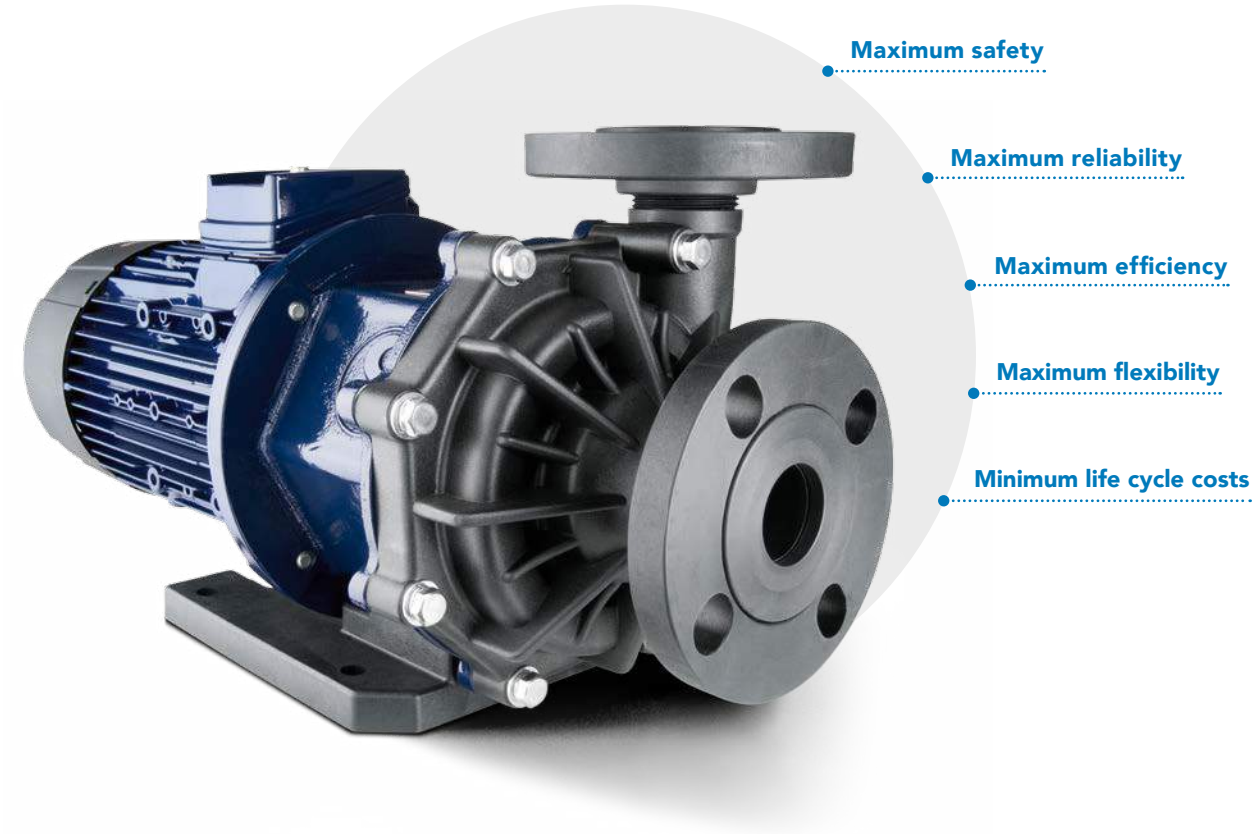
Characteristic curves of MA pumps



For technical data of all MA and MAS pump types see page 12 foll.

MAGSON – always the best!

The new generation of magnetically coupled centrifugal pumps without shaft seal distinguishes by top quality at extremely low life cycle costs.



One of our fundamental principles is to always think a step ahead. So we have not just developed a new, magnetically coupled centrifugal pump without shaft seal but closely examined and analysed each part and component in order to further improve it for the benefit of our clients. This resulted in the new MAGSON pumps.

MAGSON pumps are perfect whenever absolute tightness and leakproof reliability are of utmost importance. So they are best suited to deliver highly aggressive acids and bases, degreasing baths, chemicals, highly corrosive liquids and all fluids tending to cristallize.

Top quality and innovative design assure maximum efficiency and flexibility of our products in process. In combination with SONDERMANN's comprehensive after-sales service, you can always rely on the permanent and fail-safe running of your pump system.

Benefit from our all-in package of more than 50 years of experience, specialist know-how and customer-oriented service in person. Whether you are in plant engineering, surface finishing, the chemical industry, the production of solar systems and circuit boards or electroplating, we will find the optimum pump fitting your specific mounting situation.

Always on the safe side!

No matter how acid or basic, MAGSON pumps are perfectly suited to deliver highly aggressive fluids.

As conventional centrifugal pumps are equipped with mechanical shaft seals liable to wear out, it is very difficult to run them safely incurring in particular a lot of technical efforts and high expenses when delivering highly aggressive fluids or fluids tending to crystallize. Apart from that, the maintenance work required at regular intervals considerably reduces their availability for operation.

Magnetically coupled pumps without shaft seal, however, have the advantage to be hermetically sealed and maintenance-free.

The driving magnet rotating on the outside transmits the motor power contact-free to the inner magnet and the impeller (see figure below). So there is no need of a continuous shaft nor a wearing-out seal between shaft and motor. Instead, a rear casing hermetically seals the pump chamber from the driving motor. As a result, any leakage is impossible and the pumps do not require any maintenance.

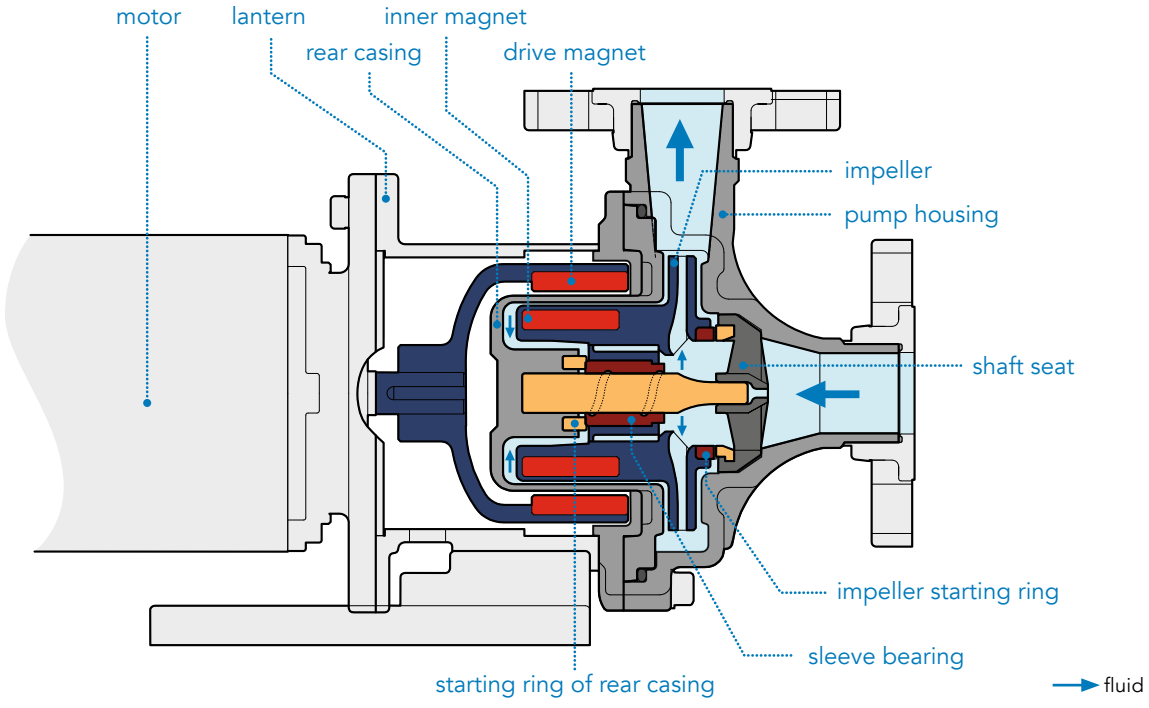
MAGSON sets the standard of safety

MAGSON magnetically coupled centrifugal pumps even go one step further: Their sturdy design and a series of smart details further enhance their resistance to highly concentrated acids and bases, ensuring more safety when operating in critical circumstances.

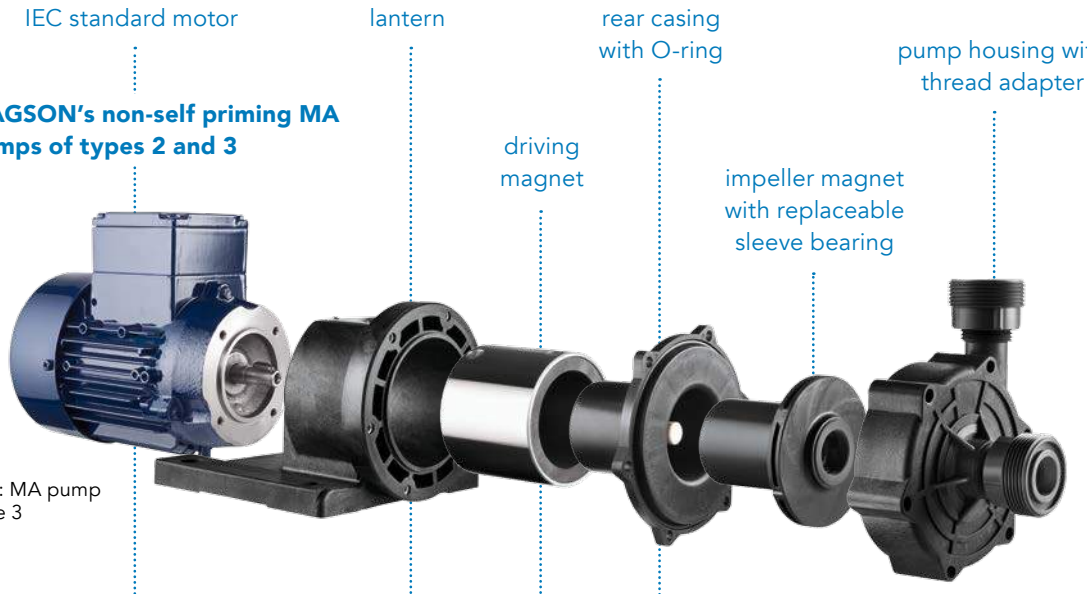
In addition to non-self priming MAGSON (MA) pumps, there are also self priming pumps of the MAS type available. They are mostly used when pumps are placed above fluid level for safety reasons, eg to deliver toxic or environmentally hazardous fluids out of double-shell tanks.

For the specific operating principle of self priming MAS pumps, see page 22.

Operating principle of MAGSON magnetically coupled centrifugal pumps:

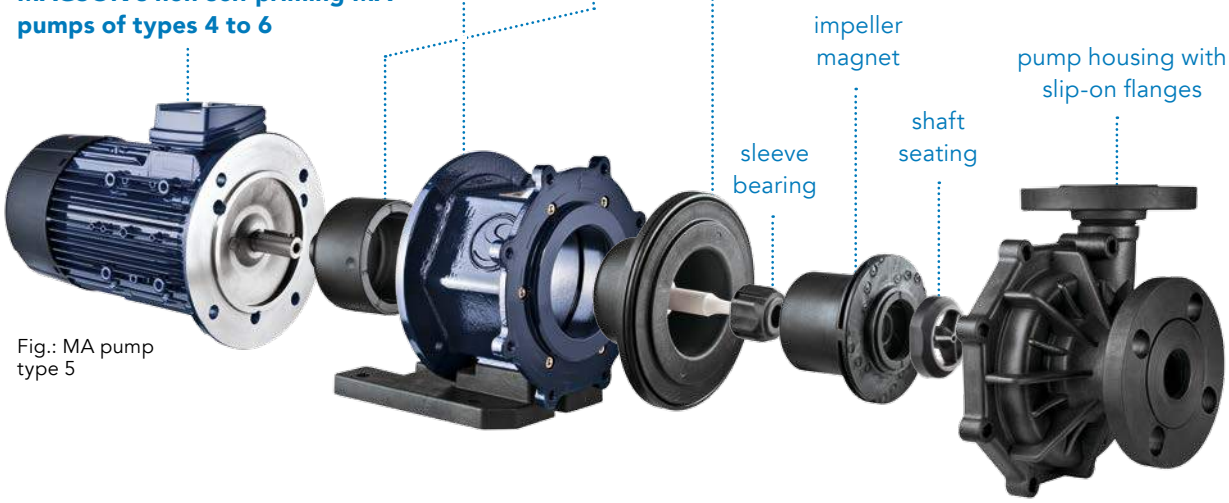


Simple and sturdy modular design:
The modular design allows you to easily replace parts, if necessary.
This will considerably reduce the amount of costs and downtime.



MAGSON's non-self priming MA pumps of types 2 and 3

Fig.: MA pump type 3



MAGSON's non-self priming MA pumps of types 4 to 6

Fig.: MA pump type 5

MAGSON's self-priming MAS pumps of types 4 to 6

MAGSON MA and MAS pumps are of identical design except for the housing. This means that you can convert any MA pump up from type 4 into a self-priming centrifugal pump, using a pump housing with integrated priming tank.

For further details of the MAS pump types see page 24 foll.

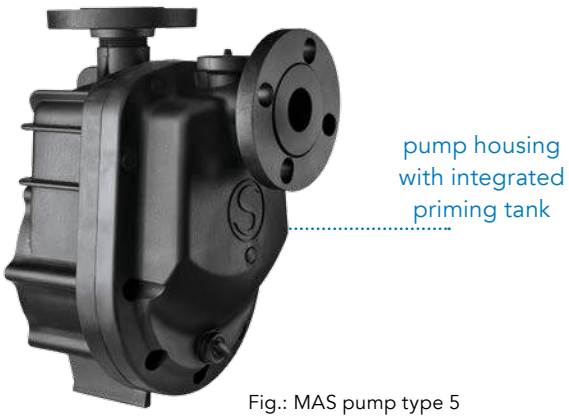
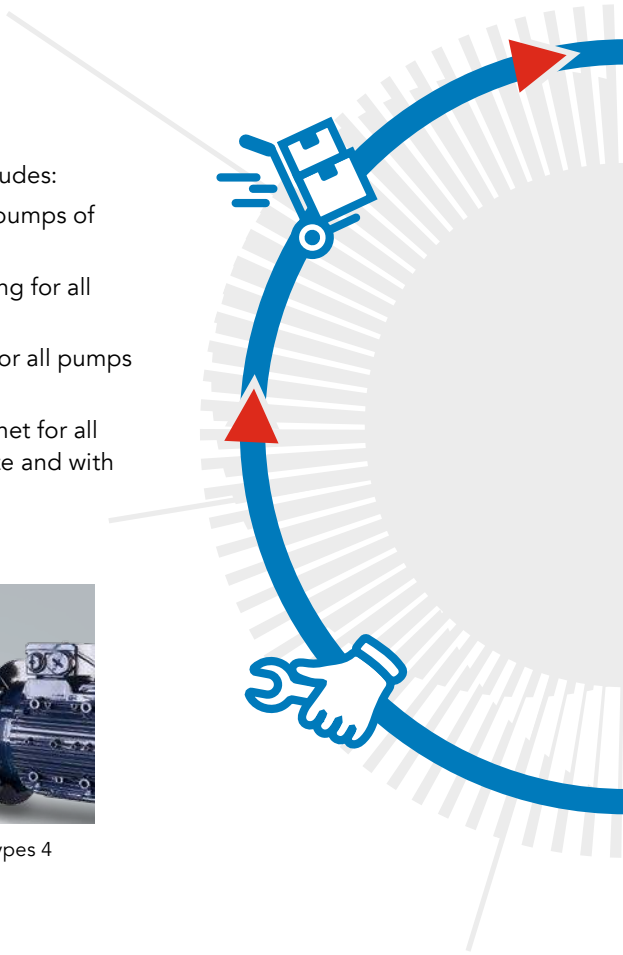


Fig.: MAS pump type 5

Well thought out down to the smallest detail

To deliver highly aggressive fluids even more safely and efficient, MAGSON pumps are packed with innovative features that will save you lots of money throughout their entire life cycle.



Modular design
for short delivery times and rapid supply of spare parts

SONDERMANN's modular design stands for lean production. Thus, all MAGSON standard pumps are usually delivered ex works within one week. Besides, many parts and components can be exchanged straightforwardly. This also helps to simplify and speed up the supply of spare parts, and saves you from stocking up piles of spare parts – another fall in costs!

The modular design includes:

- the same shaft for all pumps of types 4 to 6
- the same sleeve bearing for all pumps of types 4 to 6
- the same rear casing for all pumps of the same type
- the same driving magnet for all pumps of the same size and with the same motor

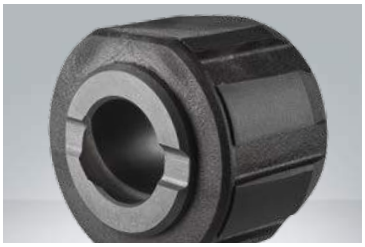
Back pull-out
to easily remove a defective motor

Due to the back pull-out design, you can replace the entire driving unit without dismantling the pumping unit so that the system stays hermetically sealed during repair or maintenance work. This reduces the downtime to a minimum.

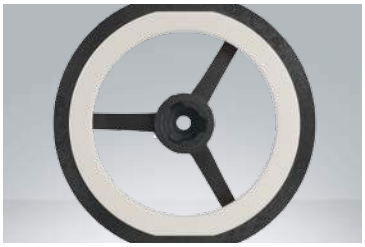
Back pull-out (available for types 4 and higher)

Less damage in case of incomplete lubrication
thanks to replaceable components

Both the centering shaft and the sleeve bearing are replaceable. Also replaceable is the shaft mounting in the housing of types 4 to 6. Their sleeve bearing has an additional plastic sheath to protect the bearing seat inside the inner magnet and the pump housing from overheating. So even in case of incomplete lubrication, most pump housings and impeller magnets remain undamaged.



Replaceable sleeve bearing with plastic sheath



Replaceable shaft seating with special fluid guidance

Thread adapter

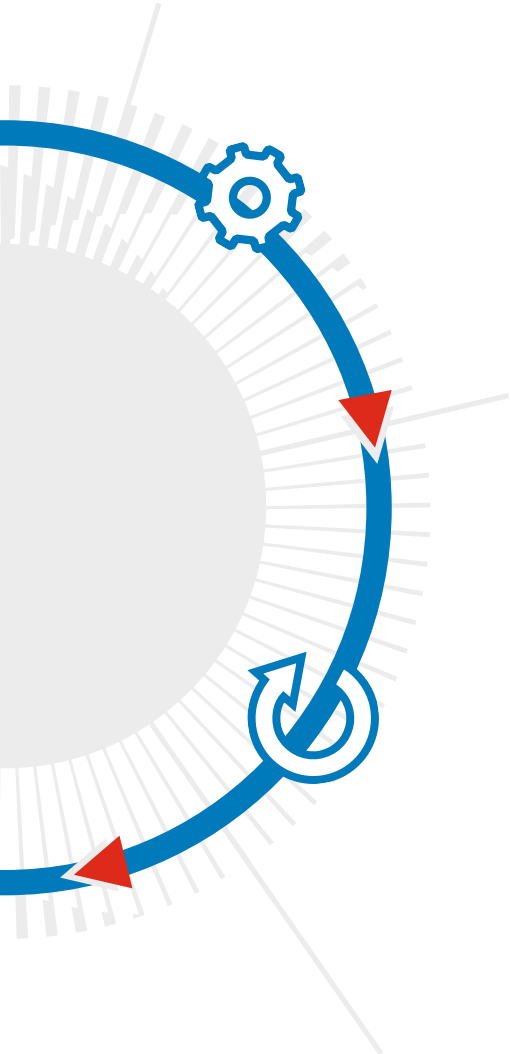
Revolving slip-on flanges

Operation with frequency converter is also possible at any time

Slip-on flanges and IEC standard motors for more flexibility in connecting and dimensioning

MAGSON pumps can be connected either by thread adapters or slip-on flanges (standard features of types 4 and higher). So the pumps can be adapted to any connection without incurring further installation costs.

As standard features, the IEC three-phase AC motors can be operated with cycloconverters due to PTC resistors included as standard. The frequency converter is to adjust the optimum operating point to changing conditions in order to considerably increase the efficiency of the pump.



Spiral housing, centering shaft, inner magnet for safe and efficient operation

The extremely solid spiral housing (of types 4 and higher) is made in one streamlined piece to achieve utmost efficiency.

In addition, the optimum suction fluid guidance around the centering shaft (of types 4 and higher) further enhances energy efficiency and reduces operating costs.

As the inner magnet sheath is made of injection moulding without fibre reinforcement, it is highly resistant and diffusion-proof. So even the less expensive design in PP can be used with higher concentrated acids.

Streamlined spiral housing

Centering shaft with optimum fluid guidance

Inner magnet sheath made of PP without glass fibres

ETFE better than PVDF?

All components that are in contact with the fluid including housing, rear casing and impeller magnet, are optionally available in PP or ETFE being especially resistant. In contrast to systems made of PVDF, you only need one ETFE pump to deliver both acids (like sulphuric acid) and bases (like caustic soda).

Our customer service
We are glad to assist you in dimensioning your pump system. See page 29.

The right material for each fluid

Whatever you want to deliver, we can offer you the appropriate combination of materials based upon concentration and temperature of the fluid.

Component	Symbol	Material	Temperature
Components in contact with fluid	PP	Polypropylene	0 to +70 °C
	ETFE	Ethylene tetrafluoride ethylene	-20 to +80 °C
	PTFE	Polytetrafluoroethylene	-20 to +100 °C
	CFR-PTFE	Carbon fibre reinforced polytetrafluoroethylene	-20 to +100 °C
	PPS	Polyphenylene sulphide	-20 to +100 °C
	SIC	Silicon carbide	-20 to +100 °C
	Alumina	Aluminium oxide ceramic (99.7 %)	-20 to +100 °C
Seals	EPDM	Ethylene-propylene-diene rubber	-20 to +100 °C
	FKM	Fluorinated rubber	-20 to +100 °C
	FEP	FEP-coated FKM	-20 to +100 °C

Choice of materials and type codes

The following table includes the materials of components and seals available. Please ask us to help you find the appropriate materials for the fluid to be delivered.

The type name of your MAGSON pump is made up of the material code and the features of the specific components. It consists of 8 positions (see the example below).

● Standard (off the shelf) o possible configuration — not available

	Component	Housing, rear casing, impeller		O-ring of housing				Bearing				Shaft and starting rings**			Size	Motor capacity	Motor		Power supply frequency	
	Material	PP (glass-fibre reinforced*)	ETFE (carbon-fibre reinforced)	FKM	EPDM	FEP-coated FKM	Specific design (e.g. FFKM)	SIC with ETFE bushing	Carbon	Alumina	PTFE	Alumina	SIC	Specific design	Max. delivery head / max. volume flow see technical data on pages 12 to 25	Motor capacity (kW) see technical data on pages 12 to 25	for 230V single-phase AC	for 230/400 and 400/690V three-phase AC	50Hz	60Hz
MA	BG2	●	●	●	●	o	o	—	—	—	●	●	—				●	●	●	o
MA	BG3	●	●	●	●	o	o	—	—	—	●	●	—				●	●	●	o
MA	BG7	●	—	●	●	o	o	●	o	o		●	o					●	●	o
MA/MAS	BG4/4H	●	●	●	●	o	o	●	o	o		●	o				●	●	●	o
MA/MAS	BG5/5H	●	●	●	●	o	o	●	o	o		●	o					●	●	o
MA/MAS	BG6/6H	●	●	●	●	o	o	●	o	o		●	o					●	●	o
	Code	P	E	F	E	P	X	S	C	K	P	K	S	X			1	3	5	6

For example:

MA — P — F — S — K — 8/160 — 0,37 — 1 — 5

* Sheath of inner magnet without fibre reinforcement ** Starting ring of impeller: CFR-PTFE (types 3 to 6)

All advantages of MAGSON pumps at a glance

Maximum safety:

- no shaft seal for hermetically sealed chemical resistance due to ETFE (better than PVDF)
- AC motors with thermal protection to avoid damage in case of motor overload
- motor can be replaced in closed system (types 4 and higher)
- self-priming MAS version available to deliver especially critical fluids out of double-shell tanks from above, for example

Maximum reliability:

- sturdy construction
- inner magnet sheath made of PP without glass fibres for higher resistance
- special suction fluid guidance counteracts cavitation (types 4 and higher)
- flown-around shaft seat to cool the sleeve bearing (types 4 and higher)

Maximum flexibility:

- ETFE can be used for both acids and bases
- slip-on flanges and thread adapters provide for flexible connection (standard features of types 4 and higher)
- use of IEC standard motors immediately available worldwide
- three-phase AC motor with standard PTC resistor for operation with cycloconverter
- modular design for short delivery times

Maximum efficiency:

- types 4 and higher with spiral housing for top efficiency and ultra-low energy consumption
- optimum suction fluid guidance for more efficiency (types 4 and higher)
- competent advice to find the perfectly dimensioned design of your MAGSON pump
- motors also available with frequency converter for the optimum operating point at all times

Minimum life cycle costs:

- low operating costs because of extremely high efficiency
- requiring no maintenance
- sleeve bearing with plastic sheath to protect the bearing seat from overheating in case of incomplete lubrication (types 4 and higher)
- low repair costs due to replaceable shaft mounting in the housing (types 4 and higher)
- short downtime and minimum expense when exchanging the motor because of the back pull-out design (types 4 and higher)
- low expenses of stocking spare parts thanks to the modular design

How to connect

Conventional centrifugal pumps usually follow a connection form. Either you have flange connections acc. to DIN (or ANSI) or a thread connection (internal or external thread). You have then to adapt your system to the pump, order the pump according to your requirements (usually with longer delivery time and higher costs than standard version) or create a complex transfer piping between the system and the pump. MAGSON also offers the ideal solution for all.

MA with loose flange: perfect connection at flanges

No matter how the drilling pattern of the pipeline comes to rest after completion, thanks to the loose flange on the MAGSON you can connect directly. Simply turn the loose flange on the pump until it matches the pipe and you can screw it down. Moreover, it does not matter if your pipeline is designed according to DIN or ANSI. MAGSON always fits!

MA with thread adapter: the universal one

MAGSON magnetic centrifugal pumps go a step further; also here: with the standards supplied threaded adapters, you can adapt pumps to the standardized coupling nuts in standars dimensions. We also ensure that the pipeline has a sufficiently large diameter in order to optimize the flow conditions around the pump. If necessary, we also provide you with an adapter tailored to your needs.

MA with hose connections: that's all you need

And if it has to be flexible there is also the hose connection. Thus all types of connections are available, which makes the connection to your system as simple as possible.

MA with loose flange
Loose flanges are preassembled.

MA with thread adapter (including type 6)
Threaded adapters are supplied as standard and can be mounted if required.

SFU frequency converter

Universal drive control for utmost efficiency

MAGSON magnetically coupled centrifugal pumps are extremely efficient by nature. Using the SFU frequency converter for optimum adjustment to changing conditions, this efficiency will increase even more.

Thanks to leading-edge control technology, the SFU permanently adjusts the discharge rate to specific requirements. Whenever the rate has to be reduced or the pump has to be operated with changing volume flows, using a frequency converter will save you lots of money. Thus, the power required by a pump running at half speed is only 12% of the original demand. So the system operates with optimum efficiency but saves a lot of energy, especially in part-load operation.

Mounting on top of the motor or wall mounting optionally available.

Special features are:

- standard IP 65 design for installation in the field
- setting of desired values by touch-key panel, potentiometer or I/O interface
- various I/O interfaces and field bus options available

Advantages are:

- optimum use with pumps
- decrease in operating cost by infinitely variable adjustment of the delivery rate actually required
- exceptionally high efficiency within the whole range of speed
- no additional shielded wiring required when being mounted on top of the motor
- trouble-free retrofitting to existing installations because no electrical cabinet required

Type	Supply	Power
SFU-K-0,75/1	230V	0,25–0,75 kW
SFU-K-1,5/3	3 × 400V	0,55–1,5 kW
SFU-K-2,2/3	3 × 400V	2,2 kW
SFU-K-3,0/3	3 × 400V	3,0 kW
SFU-K-4,0/3	3 × 400V	4,0 kW

All MAGSON pumps with three-phase AC motor can be used with frequency converters and have three PTC resistors each as standard features.

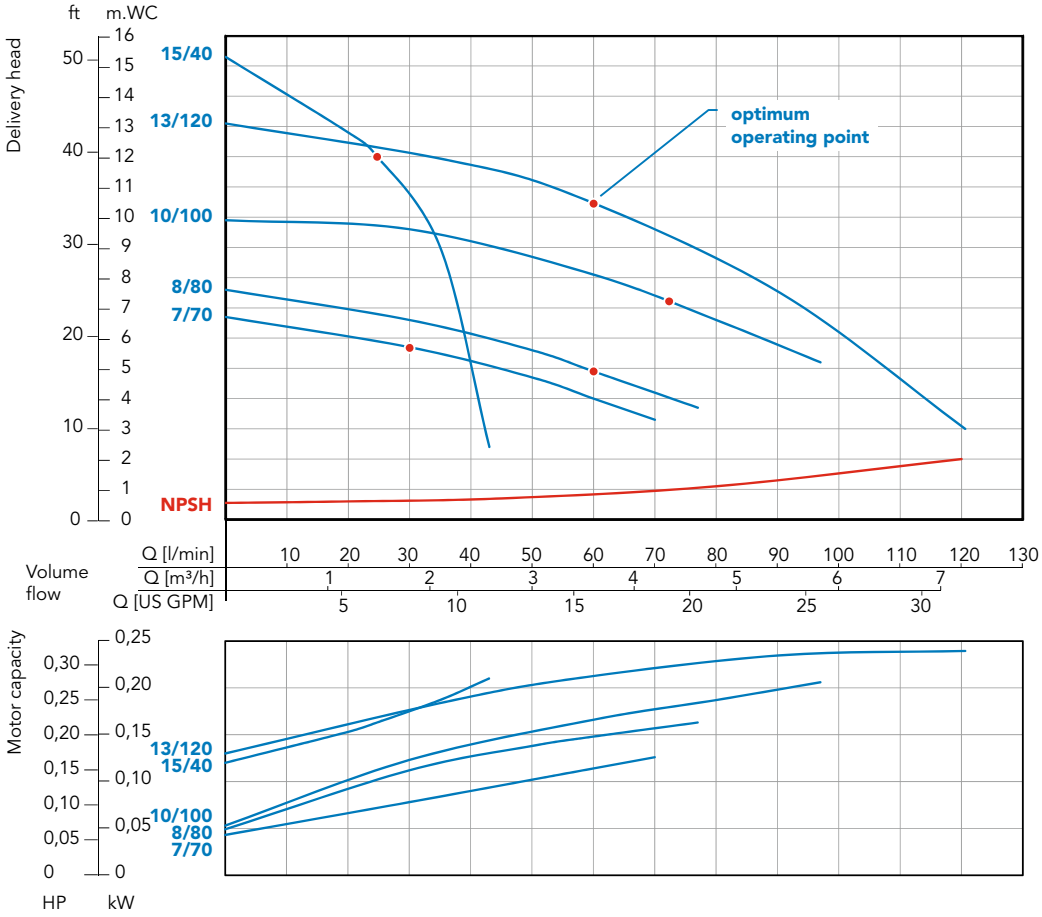
Calculating example
If you reduce the speed of a MAGSON MA 30/510 pump by 5 Hz, the delivery rate decreases by 12 % but at the same time, the power input falls by 28 % from 2.5 kWh to 1.8 kWh. This means an energy saving of up to 6000 kWh per year!

MA types 2 and 3

- without shaft seal
- streamlined housing made of PP or ETFE
- volume flow of MA pump type 2 is up to 80 l/min, of MA pump type 3 up to 100 l/min
- discharge head of MA pump type 2 is up to 8 m.WC, of MA pump type 3 up to 15 m.WC
- horizontal single-stage monoblock design

For all advantages of MAGSON pumps see page 9.

Characteristic curves



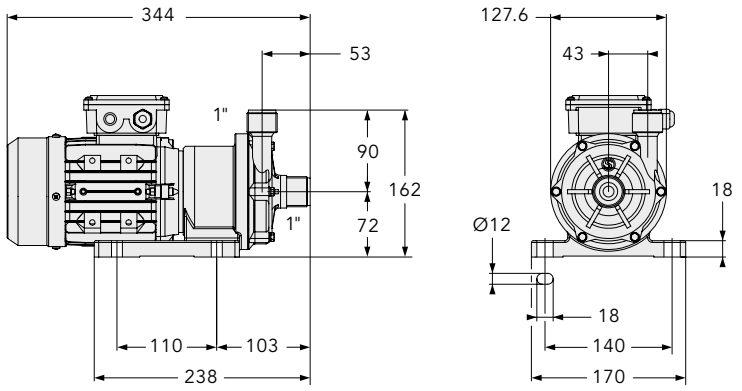
Determined with water of 20 °C; measured values ± 10 %

Technical data MA	Type 2		Type 3		
Size	**7/70**	**8/80**	**15/40**	**10/100**	**13/120**
Material*	PP (glass-fibre reinforced) / ETFE (carbon-fibre reinforced)				
Max. delivery head in [m.WC] at 50 Hz	7	8	15	10	13
Max. volume flow in [l/min] at 50 Hz	70	80	40	100	120
Max. density in [g/cm³] at 50 Hz**	1.9	1.1	1.1	1.4	1.1
Motor capacity in [kW]	0.18		0.25		
Current rating (400 V, 50 Hz) in [A]	0.54		0.71		
Rated speed in [rpm] at 50 Hz / 60 Hz	3000 / 3600				
Suction port	1" or 1 1/2" thread with adapter				
Discharge port	1" or 1 1/2" thread with adapter				
Voltage in [V]	230 V AC or 230 / 400 V three-phase AC				
Protection class	IP 55				
Max. flow velocity in [m/s]	suction side = 1 / discharge side = 3				
Max. temperature for PP / ETFE in [°C]	70 / 80				
Max. system pressure for PP / ETFE at 20 °C in [bar]	1.5		3	2	

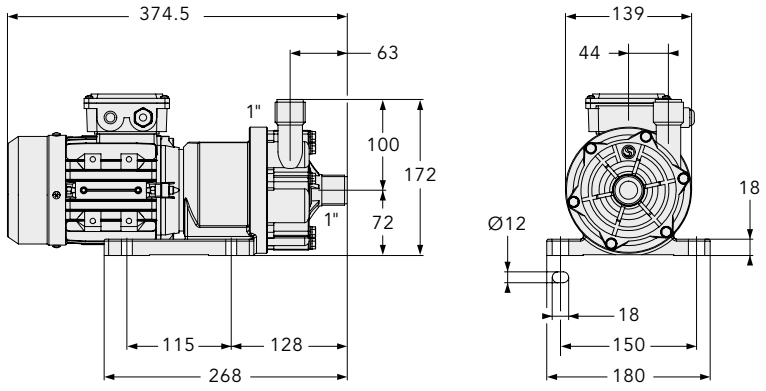
* Material used for housing, impeller unit and rear casing: (sheath of inner magnet made of PP without fibre reinforcement, type MA-15/40 is not available in ETFE.) ** approx. value at max. volume flow (higher density possible when flow rate is reduced)

Dimensions in [mm]

MA type 2



MA type 3



Materials
You will find all materials available and their characteristics on page 8.

Accessories
such as frequency converters see page 11, thread adapter see page 10 and additional accessories see page 28.

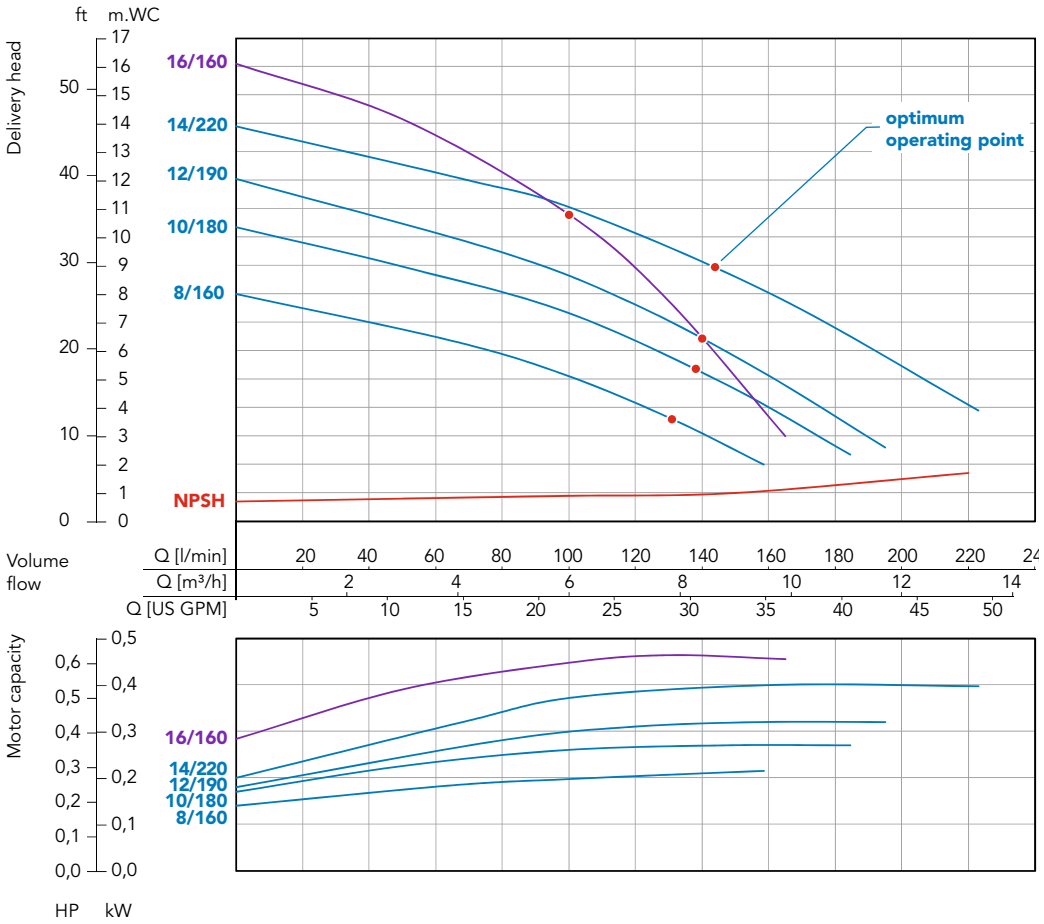
Motor dimensions may differ according to manufacture.

MA type 4/4H

- execution with thread adapter
- without shaft seal
- streamlined housing made of PP or ETFE
- volume flow of up to 220 l/min
- delivery head of up to 16 m.WC
- back pull-out

For all advantages of MAGSON pumps see page 9.

Characteristic curves



Determined with water of 20 °C; measured values ± 10 %

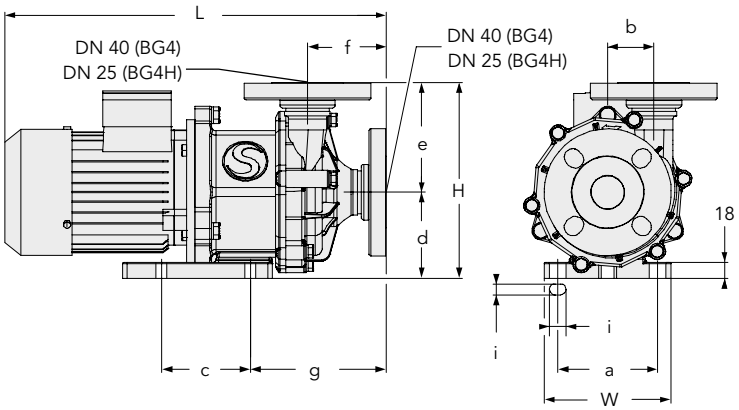
Technical data MA	Type 4								Type 4H
Size	8/160		10/180		12/190		14/220		16/160
Material*	PP (glass-fibre reinforced) / ETFE (carbon-fibre reinforced)								
Max. delivery head in [m.WC] at 50 Hz	8		10		12		14		16
Max. volume flow in [l/min] at 50 Hz	160		180		190		220		160
Max. density in [g/cm³] at 50 Hz**	1.7	2.6	1.3	2.0	1.15	1.7	0.9	1.4	1.15
Motor capacity in [kW]	0.37	0.55	0.37	0.55	0.37	0.55	0.37	0.55	0.55
Current rating (400 V, 50 Hz) in [A]	0.96	1.41	0.96	1.41	0.96	1.41	0.96	1.41	1.41
Rated speed in [rpm] at 50 Hz / 60 Hz	3000 / 3600								
Suction port	DN 40 (alternative G 2 1/4")								DN 25***
Discharge port	DN 40 (alternative G 2 1/4")								DN 25***
Voltage in [V]	230 V AC or 230 / 400 V three-phase AC								
Protection class	IP 55								
Max. flow velocity in [m/s]	suction side = 1 / discharge side = 3								
Max. temperature for PP / ETFE in [°C]	70 / 80								
Max. system pressure for PP / ETFE at 20 °C in [bar]	2.2								

* Material used for housing, impeller unit and rear casing: (sheath of inner magnet made of PP without fibre reinforcement)

** approx. value at max. volume flow (higher density possible when flow rate is reduced) *** alternative G 1 1/2"

Dimensions	Type 4				Type 4H
Size	8/160	10/180	12/190	14/220	16/160
Dimension a in [mm]	110				130
Dimension b in [mm]	51				65
Dimension c in [mm]	98				130
Dimension d in [mm]	95				115
Dimension e in [mm]	121				145
Dimension f in [mm]	87				90
Dimension g in [mm]	150				173
Dimension H in [mm]	216				260
Dimension i in [mm]	12–18				Ø12
Dimension L in [mm]	421				424
Dimension W in [mm]	140				160

Motor dimensions may differ according to manufacture.



Materials
You will find all materials available and their characteristics on page 8.

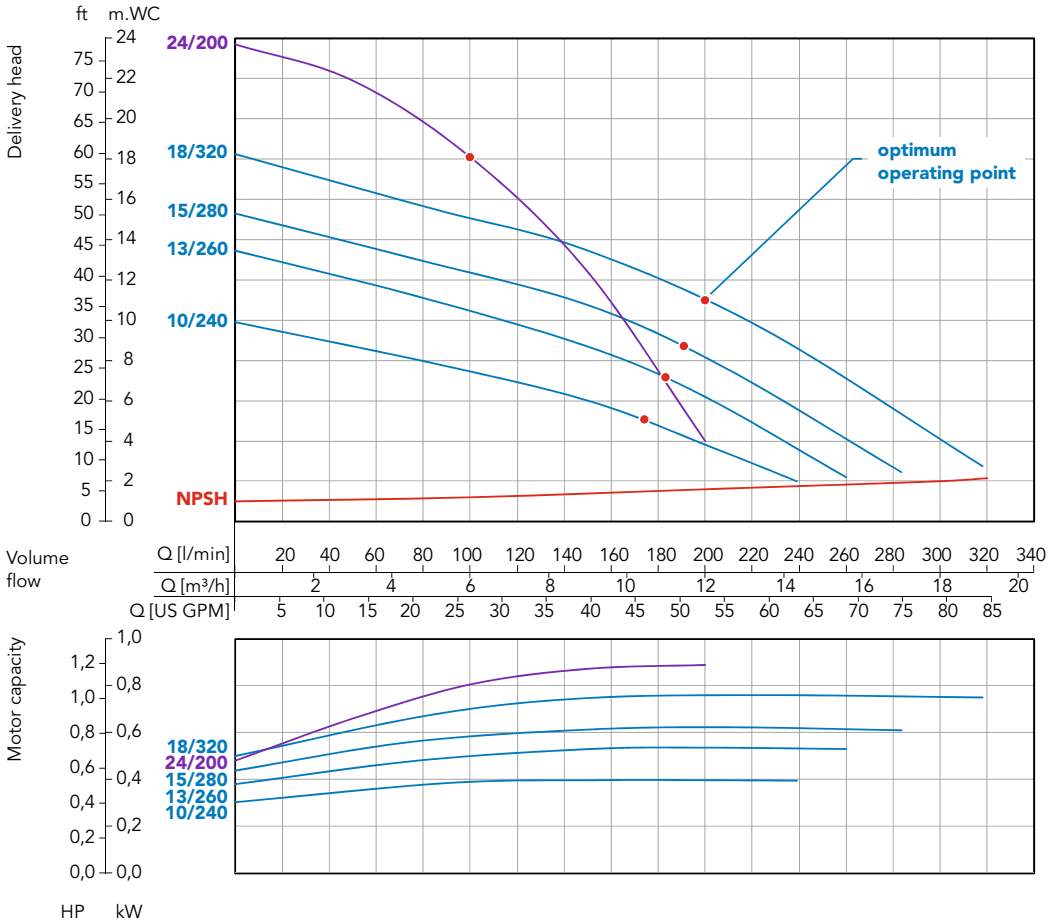
Accessories
such as frequency converters see page 11, thread adapter see page 10 and additional accessories see page 28.

MA type 5 / 5H

- execution with thread adapter
- without shaft seal
- streamlined spiral housing made of PP or ETFE
- volume flow of up to 320 l/min
- delivery head of up to 24 m.WC
- back pull-out

For all advantages of MAGSON pumps see page 9.

Characteristic curves



Determined with water of 20 °C; measured values ± 10 %

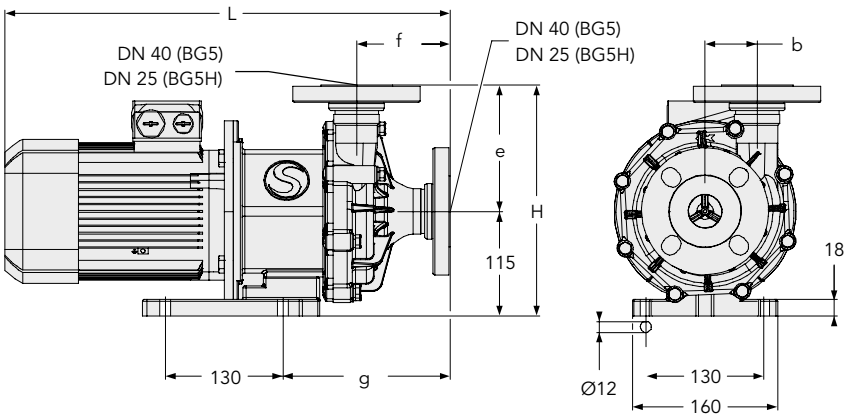
Technical data MA	Type 5							Type 5H
Size	**10/240**	**13/260**		**15/280**		**18/320**		**24/200**
Material*	PP (glass-fibre reinforced) / ETFE (carbon-fibre reinforced)							
Max. delivery head in [m.WC] at 50 Hz	10	13		15		18		24
Max. volume flow in [l/min] at 50 Hz	240	260		280		320		200
Max. density in [g/cm³] at 50 Hz**	1.8	1.3	2.0	1.2	1.7	1.0	1.5	1.25
Motor capacity in [kW]	0.75	0.75	1.1	0.75	1.1	0.75	1.1	1.1
Current rating (400 V, 50 Hz) in [A]	1.56	1.56	2.25	1.56	2.25	1.56	2.25	2.25
Rated speed in [rpm] at 50 Hz / 60 Hz	3000 / 3600							
Suction port	DN 40 (alternative G 2 1/4")							DN 25***
Discharge port	DN 40 (alternative G 2 1/4")							DN 25***
Voltage in [V]	230 / 400 V three-phase AC							
Protection class	IP 55							
Max. flow velocity in [m/s]	suction side = 1 / discharge side = 3							
Max. temperature for PP / ETFE in [°C]	70 / 80							
Max. system pressure for PP / ETFE at 20 °C in [bar]	3.2							

* Material used for housing, impeller unit and rear casing: (sheath of inner magnet made of PP without fibre reinforcement)

** approx. value at max. volume flow (higher density possible when flow rate is reduced) *** alternative G 1 1/2"

Dimensions	Type 5							Type 5H
Size	**10/240**	**13/260**		**15/280**		**18/320**		**24/200**
Dimension b in [mm]	57,5							65
Dimension e in [mm]	139							145
Dimension f in [mm]	103							90
Dimension g in [mm]	184							173
Dimension H in [mm]	254							260
Dimension L in [mm]	491	491	526	491	526	491	526	516

Motor dimensions may differ according to manufacture.



Materials
You will find all materials available and their characteristics on page 8.

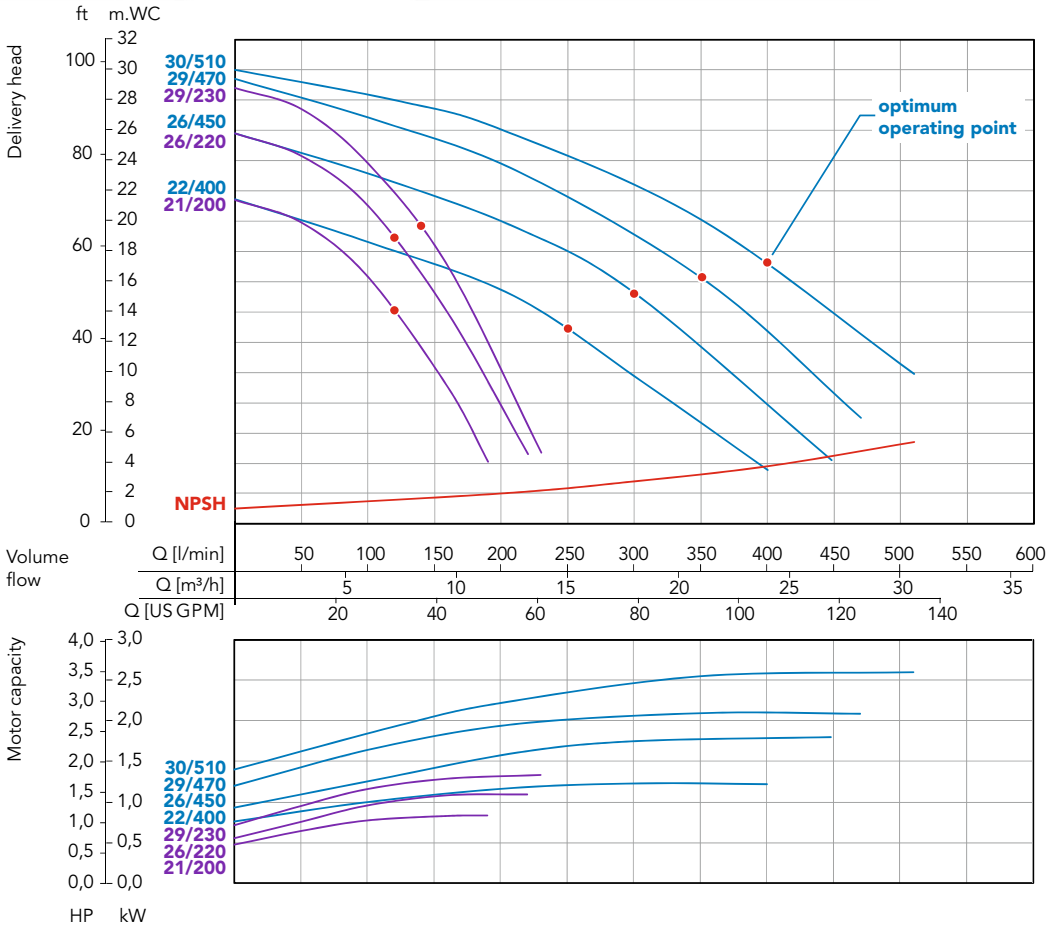
Accessories
such as frequency converters see page 11, thread adapter see page 10 and additional accessories see page 28.

MA type 6 / 6H

- execution with thread adapter
- without shaft seal
- streamlined spiral housing made of PP or ETFE
- volume flow of up to 510 l/min
- delivery head of up to 30 m.WC
- back pull-out

For all advantages of MAGSON pumps see page 9.

Characteristic curves



Determined with water of 20 °C; measured values ± 10 %

Technical data MA	Type 6						Type 6H		
Size	**22/400**		**26/450**	**29/470**	**30/510**		**21/190**	**26/220**	**29/230**
Material*	PP (glass-fibre reinforced) / ETFE (carbon-fibre reinforced)								
Max. delivery head in [m.WC] at 50 Hz	22		26	29	30		21	26	29
Max. volume flow in [l/min] at 50 Hz	400		450	470	510		190	220	230
Max. density in [g/cm³] at 50 Hz**	1.2	1.8	1.2	1.0	1.15	1.5	1.8	1.8	1.6
Motor capacity in [kW]	1.5	2.2	2.2	2.2	3	4	1.5	2.2	2.2
Current rating (400 V, 50 Hz) in [A]	3	4.2	4.2	4.2	5.6	7.3	3	4.2	4.2
Rated speed in [rpm] at 50 Hz / 60 Hz	3000 / 3600								
Suction port	DN 50 (alternative G 2 3/4")						DN 25 (alternative G 1 1/2")		
Discharge port	DN 40 (alternative G 2 1/4")						DN 25 (alternative G 1 1/2")		
Voltage in [V]	230 / 400 V three-phase AC								
Protection class	IP 55								
Max. flow velocity in [m/s]	suction side = 1 / discharge side = 3								
Max. temperature for PP / ETFE in [°C]	70 / 80								
Max. system pressure for PP / ETFE at 20 °C in [bar]	5				6		6		

* Material used for housing, impeller unit and rear casing: (sheath of inner magnet made of PP without fibre reinforcement)

** approx. value at max. volume flow (higher density possible when flow rate is reduced)

Dimensions	Type 6						Type 6H		
Size	**22/400**		**26/450**	**29/470**	**30/510**		**21/190**	**26/220**	**29/230**
Dimension a in [mm]	208				230		208		
Dimension c in [mm]	200				261		200		
Dimension d in [mm]	116				135		116		
Dimension H in [mm]	261				280		261		
Dimension L in [mm]	525	565	565	565	619	602	525	565	565

Motor dimensions may differ according to manufacture.

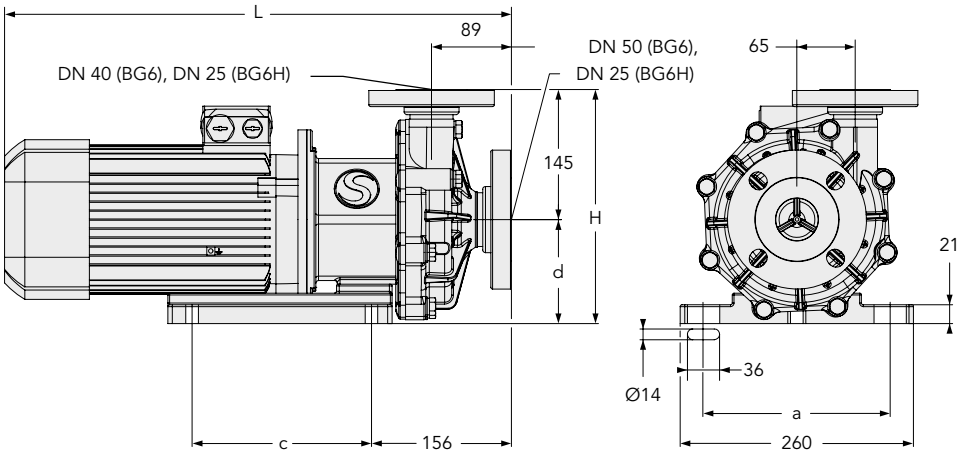


Fig.: MA pump type 6 with motor of up to 2.2 kW

Materials
You will find all materials available and their characteristics on page 8.

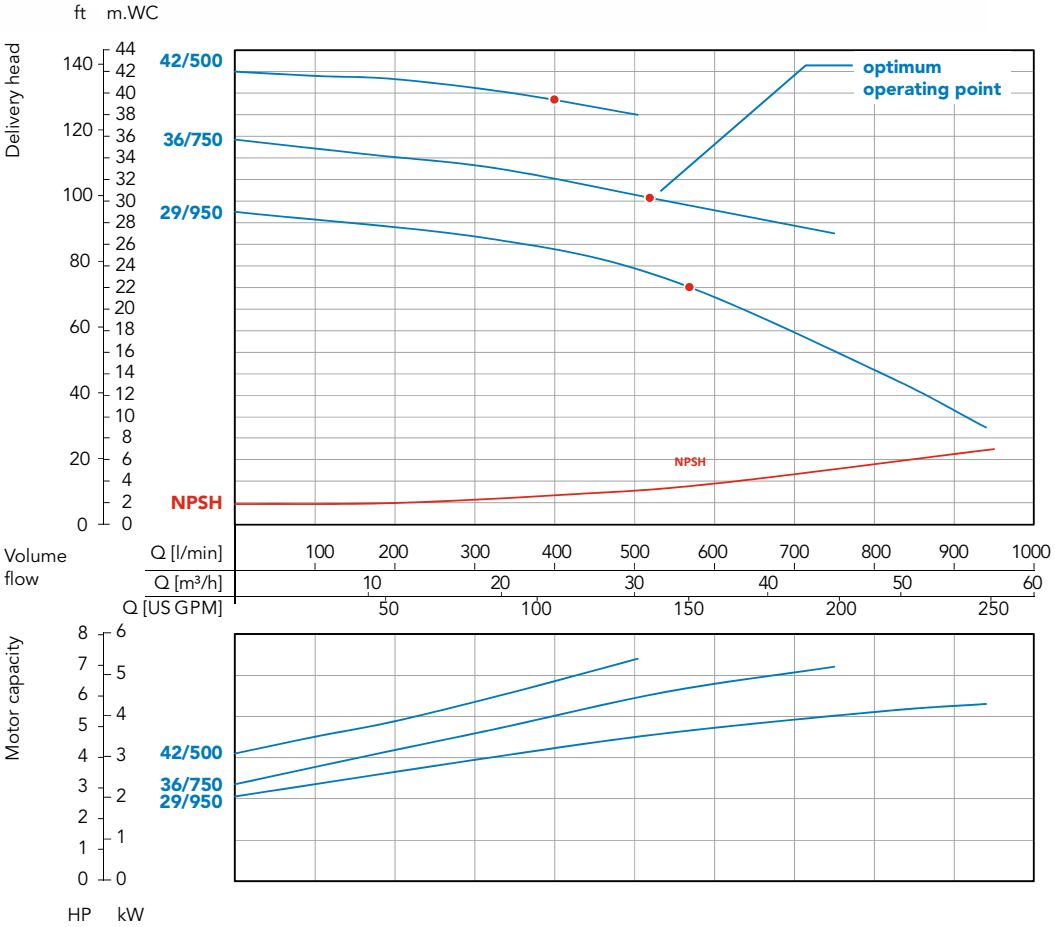
Accessories
such as frequency converters see page 11, thread adapter see page 10 and additional accessories see page 28.

MA type 7

- without shaft seal
- streamlined spiral housing made of PP
- volume flow of up to 950 l/min
- delivery head of up to 42 m.WC
- back pull-out

For all advantages of MAGSON pumps see page 9.

Characteristic curves



Determined with water of 20 °C; measured values ± 10 %

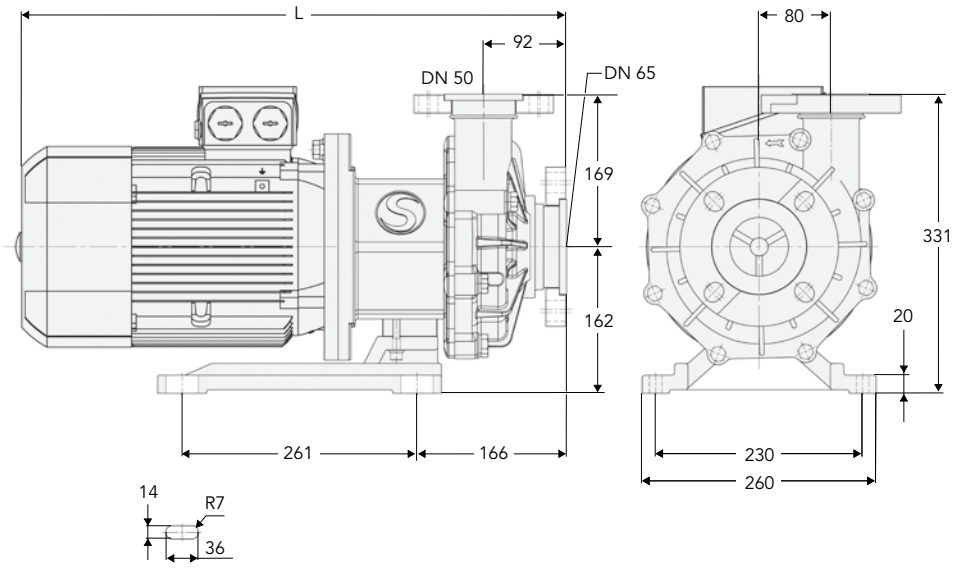
Technical data MA	Type 7			
Size	**29/950**		**36/750**	**42/500**
Material*	PP (glass-fibre reinforced)			
Max. delivery head in [m.WC] at 50 Hz	29		36	42
Max. volume flow in [l/min] at 50 Hz	950		750	500
Max. density in [g/cm³] at 50 Hz**	1.0	1.2	1	
Motor capacity in [kW]	4	5.5	5.5	
Current rating (400 V, 50 Hz) in [A]	7.3	9.9	9.9	
Rated speed in [rpm] at 50 Hz / 60 Hz	3000			
Suction port	DN 65			
Discharge port	DN 50			
Voltage in [V]	400 / 690 V three-phase AC			
Protection class	IP 55			
Max. flow velocity in [m/s]	suction side = 1 / discharge side = 3			
Max. temperature for PP / ETFE in [°C]	70			
Max. system pressure for PP at 20 °C in [bar]	6			

* Material used for housing, impeller unit and rear casing: (sheath of inner magnet made of PP without fibre reinforcement)

** approx. value at max. volume flow (higher density possible when flow rate is reduced)

Dimensions	Type 7			
Size	**29/950**		**26/750**	**42/500**
Dimension L in [mm]	608	612	612	

Motor dimensions may differ according to manufacture.



Materials
You will find all materials available and their characteristics on page 8.

Accessories
such as frequency converters see page 11, thread adapter see page 10 and additional accessories see page 28.

MAGSON MAS pumps – strong, safe, self-priming

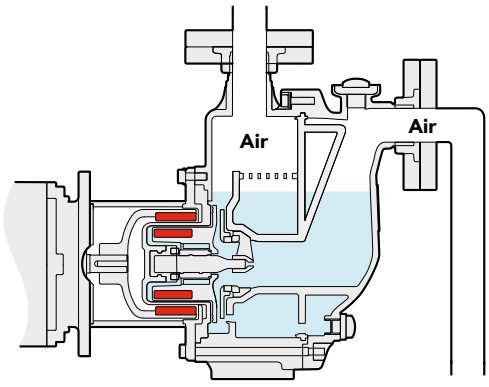
Whenever you have to deliver highly aggressive fluids out of tanks from above, self-priming pumps should be your first choice. Using a patented valveless technique, MAGSON MAS pumps feature an excellent priming capacity.

To prevent damage to the environment, most polluting and aggressive fluids are stored in double shell tanks. When delivering fluids out of such tanks, a non-self-priming centrifugal pump would have to be attached at bottom level of the tank. As the risk of leakage there is very high, this would require a lot of safety precautions.

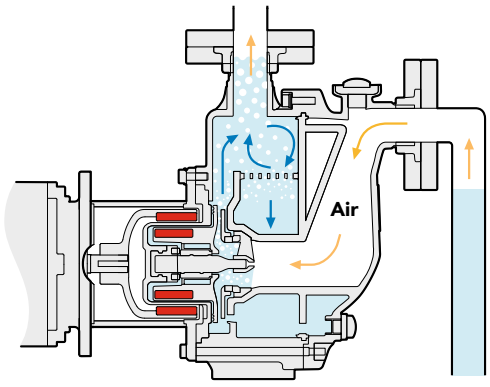
By far the safer and less expensive thing is to use a self-priming magnetically coupled centrifugal pump. This pump also has to prime fluid, but due to its integrated priming tank takes in and delivers the fluid from the bottom up.

Being suitable to run dry for a limited period of time, MAGSON MAS pumps are also able to drain a tank down to the last drop.

Operating principle of MAGSON MAS pumps



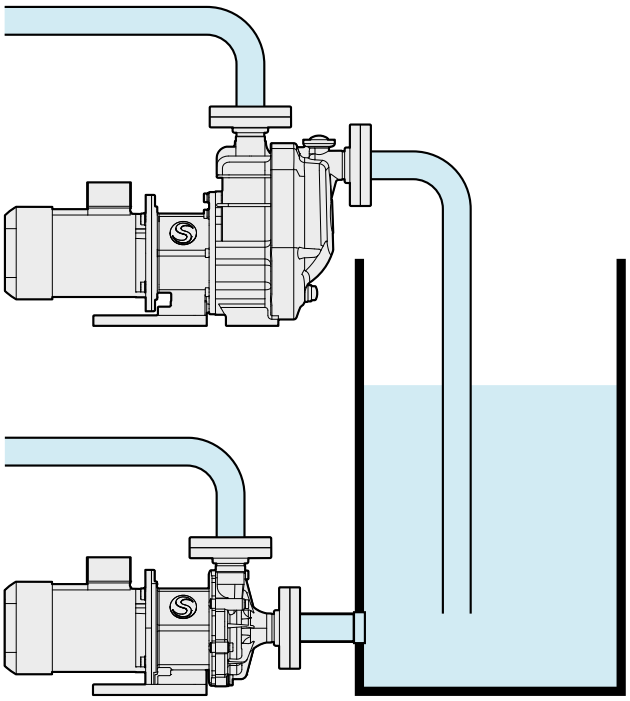
Before starting the pump
The housing with integrated priming tank has several chambers. Before starting the MAGSON MAS pump for the first time, fill it up with fluid.



Priming
The impeller and priming chambers' design ensures that air is evacuated and a two-phase mixture (of fluid and air) is delivered without causing any damage. There is always enough fluid in the bottom chamber to supply both the impeller and the bearing with fluid.

→ Delivery flow → Air

Installation of an MAS pump in comparison to a non-self-priming MA pump

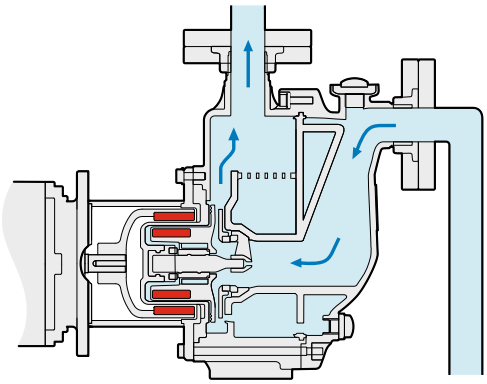


MAGSON MAS pumps (above) prime fluid from the bottom up whereas non-self-priming MA pumps only prime horizontally.

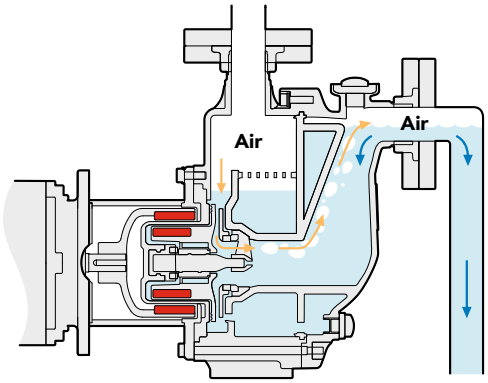
Advantages of MAS pumps are:

- excellent priming capacity of 5 m.WC in less than 2 minutes
- capacity range of up to 27 m.WC and 470 l/min
- no additional priming tank required
- being suitable to run dry for some time, they can also be used for total drainage

For all advantages of MAGSON pumps see page 9



Delivery
When delivering, MAGSON MAS pumps like MA pumps operate as magnetically coupled centrifugal pumps without shaft seal in an equally reliable and efficient way.



Stop
When the pump stops, the fluid in the suction line flows back into the tank. The special layout of the internal chambers makes sure that there is always enough residual fluid in the pump housing and the priming tank is not emptied totally. This patented technique does not require any valves.

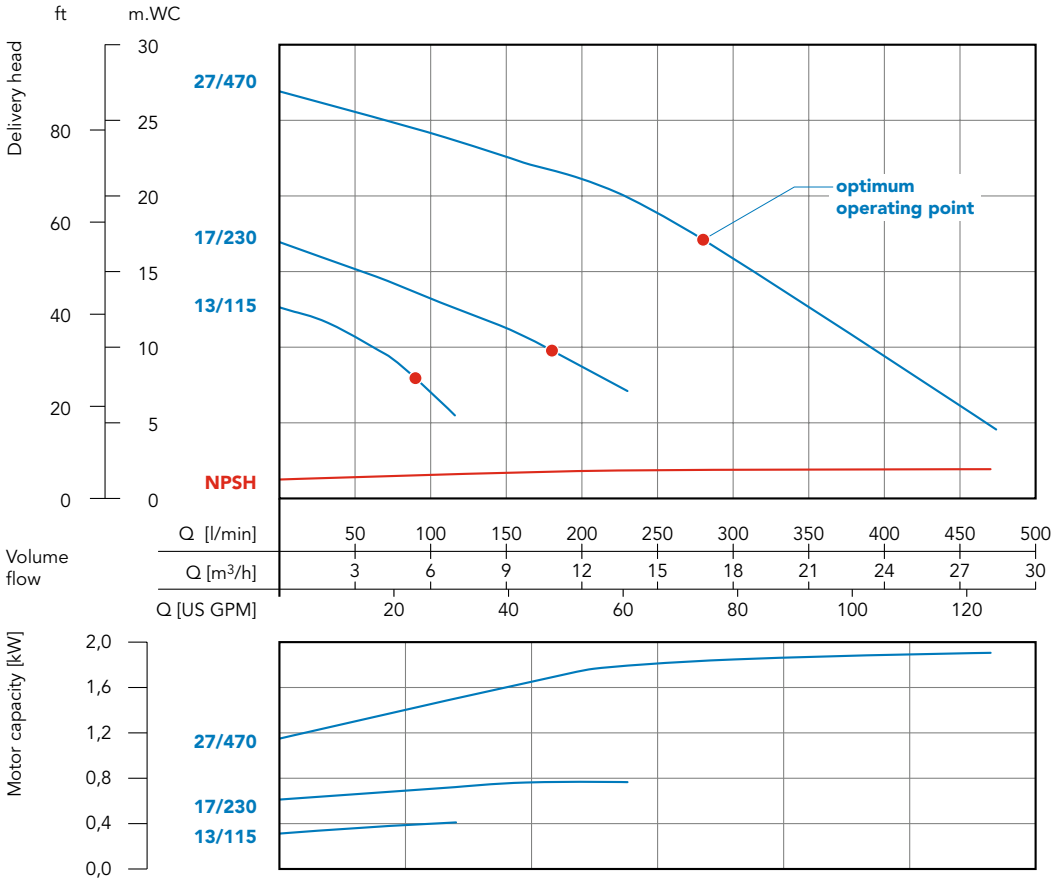
MAS types 4, 5 and 6

Fig.: MAS pump type 5

- self-priming
- without shaft seal
- streamlined spiral housing made of PP or ETFE
- volume flow of up to 470 l/min
- delivery head of up to 27 m.WC
- back pull-out

For all advantages of MAGSON pumps see page 9.

Characteristic curves



Determined with water of 20 °C; measured values ± 10 %

Technical data MAS	Type 4	Type 5		Type 6		
Size	**13/115**	**17/230**		**27/470**		
Material*	PP (glass-fibre reinforced) / ETFE (carbon-fibre reinforced)					
Max. delivery head in [m.WC] at 50 Hz	13	17		27		
Max. volume flow in [l/min] at 50 Hz	115	230		470		
Max. suction head for water of 20°C in [m.WC]	5					
Max. density in [g/cm³] at 50 Hz**	1.8	1	1.4	1.15	1.6	2
Motor capacity in [kW]	0.75	0.75	1.1	2.2	3	4
Current rating (400 V, 50 Hz) in [A]	1.56	1.56	2.25	2.0	5.6	7.3
Rated speed in [rpm] at 50 Hz / 60 Hz	3000/3600					
Suction port	DN 25	DN 40		DN 50		
Discharge port	DN 25	DN 40		DN 50		
Voltage in [V]	230/400 V three-phase AC					
Protection class	IP 55					
Max. flow velocity in [m/s]	suction side = 1 / discharge side = 3					
Max. temperature for PP / ETFE in [°C]	70/60					
Max. system pressure for PP / ETFE at 20°C in [bar]	2	2.2		4	5.2 / 4.4	

* Material used for housing, impeller unit and rear casing: (sheath of inner magnet made of PP without fibre reinforcement)

** approx. value at max. volume flow (higher density possible when flow rate is reduced)

Dimensions in [mm]	Type 4	Type 5		Type 6		
Size	**13/115**	**17/230**		**27/470**		
Dimension a in [mm]	130	130		208	230	
Dimension c in [mm]	130	130		200	261	
Dimension d in [mm]	255	276		296		
Dimension e in [mm]	70	84		93		
Dimension f in [mm]	167	190		206		
Dimension g in [mm]	275	305		309		
Dimension i in [mm]	Ø12	Ø12		Ø14×36		
Dimension J in [mm]	196	228		248		
Dimension H in [mm]	325	360		389		
Dimension K in [mm]	18	18		18	20	
Dimension L in [mm]	582	612	647	718	772	755
Dimension w in [mm]	160	160		260		

Motor dimensions may differ according to manufacture.

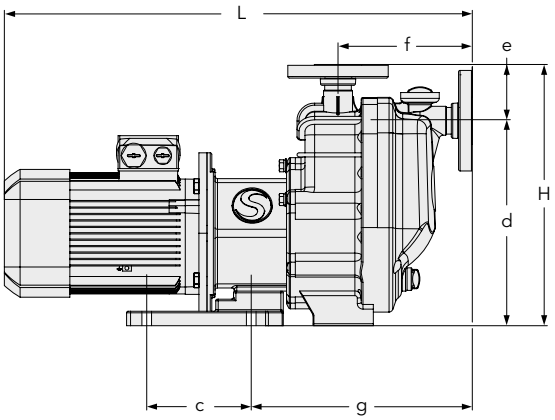


Fig.: MA pump type 6 with motor of up to 2.2 kW

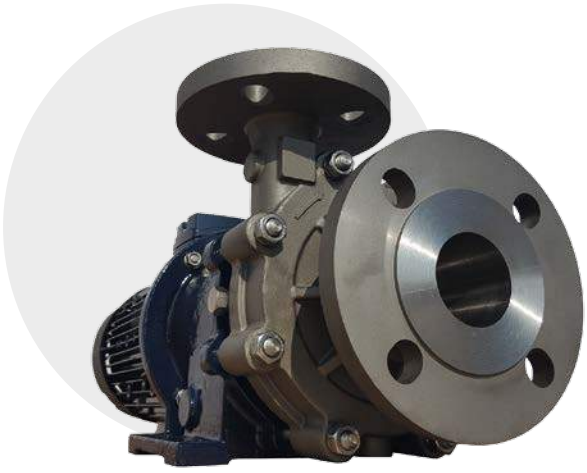
Materials
You will find all materials available and their characteristics on page 8.

Accessories
such as frequency converters see page 11, thread adapter see page 10 and additional accessories see page 28.

MAGSON MM – when the going gets tough!

NEW

Sealless magnetic coupled centrifugal pumps made of stainless steel



MAGSON MM series pumps, when properly configured, are registered under the 2014/34/EU guidelines:

II - / 2G cbk II C T2-T5

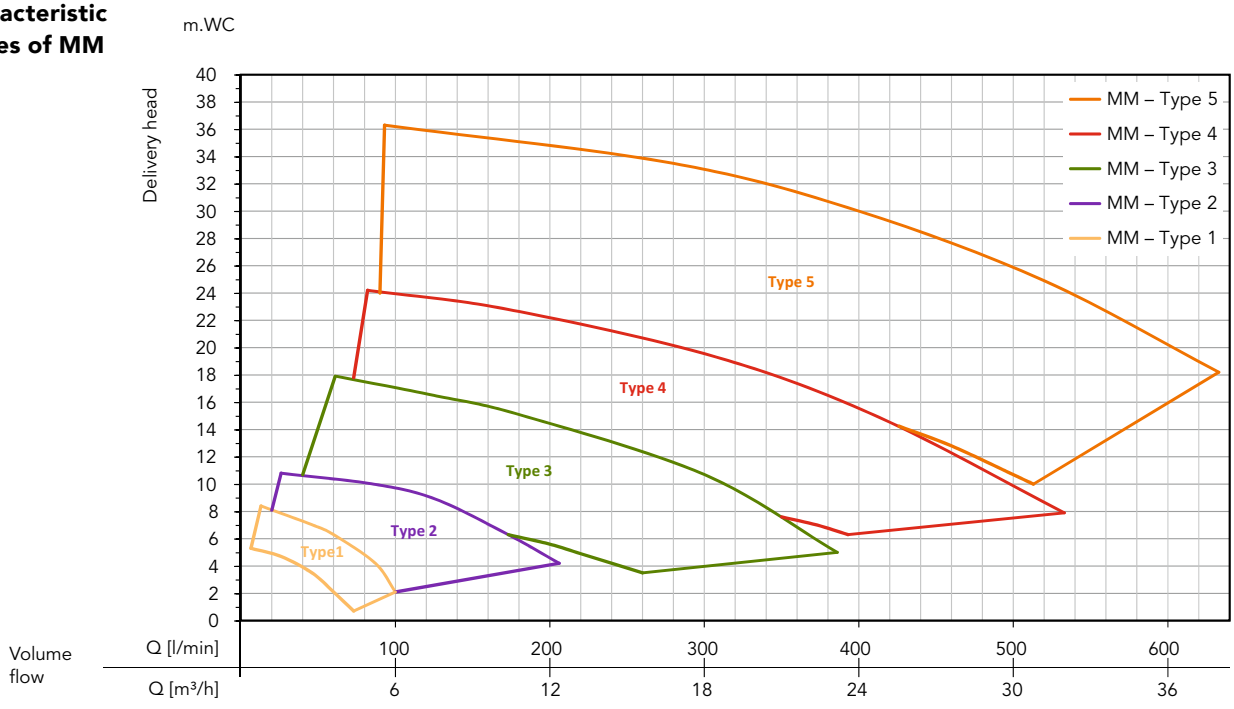
Guideline 2014/34/EU

For all details see main MAGSON MM brochure.

MAGSON MM series pumps are always used when plastics are no longer suitable e.g. due to pressure or temperature. MAGSON MM pumps are designed for temperatures up to 190 °C and pressures up to 25 bar; special design for temperatures up to 300 °C available on request.

MAGSON MM pumps are not only available in stainless steel 1.4401 but in other materials such as Hastelloy and Titanium. Contact us for any special applications and we will help you find the right solution for you.

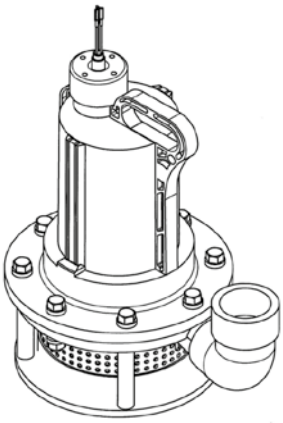
Characteristic curves of MM



MAGSON MAU – dive into success!

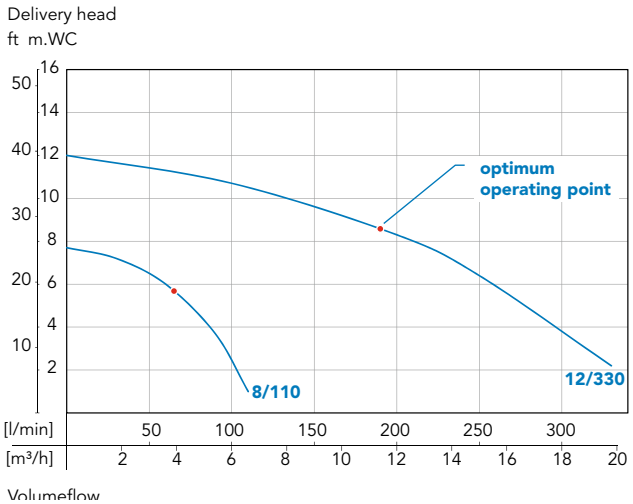
NEW

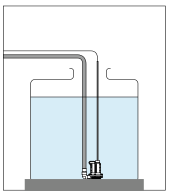
Sealless magnetically coupled submersible pumps made of plastics for the chemical industry



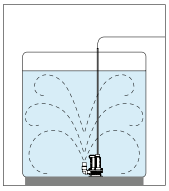
MAGSON MAU series pumps are the perfect solution when a self-priming pump cannot be used for physical reasons; while at the same time ensuring absolute seal integrity and reliability.

These sealless solid plastic pumps are available in two versions. The "compact" MAU 8/110 with 260W AC-motor and the big brother, MAU 12/330 with 1,1kW three-phase motor. The respective characteristics are shown below:

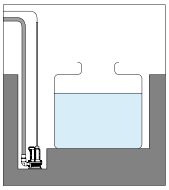




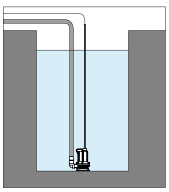
Tank evacuation
Pumping chemicals or sewage from the bottom of an elevated tank. E.g. on a truck.



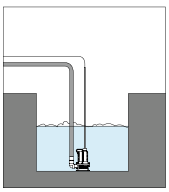
Mixing
When used without a discharge pipe, the pump can also be used to keep the liquid within the tank in motion.



Sump drain
The pump may be used to drain a pit when leakage has occured or evacuate in case of emergency.



Pit drainage
Suction of sewage or chemicals from the bottom of a pit.



Pumping
For high foaming media the pump can deliver the clean liquid from the bottom of the pit.

For all details see main MAGSON MAU brochure.

Accessories to MAGSON pumps

Motor accessories

- ON/OFF switch with 2.5 m cable and plug (230 V AC only)
- 5 m three-phase connection cable with CEE plug of 5 × 16 A, fully assembled
- Frequency converter of IP class 65, mounted directly to the motor or for wall mounting
- Electronic monitoring system to always optimize the availability of your pump

Slip-on flanges

To screw onto threaded ports including O-Rings. All MAGSON MA and MAS types 4, 5 and 6 as well as types 4H, 5H and 6H are equipped with slip-on flanges and additional loose thread adapters delivered with the pump.

Type	Nominal diameter of suction port	Nominal diameter of discharge port	Made of PP	Made of ETFE
MA type 2/3, type 4H, type 5H, type 6H, MAS type 4,	DN 25 PN 10	DN 25 PN 10	●	●
MA type 4/5, MAS type 5	DN 40 PN 10	DN 40 PN 10	●	●
MA type 6	DN 50 PN 10	DN 40 PN 10	●	●
MAS type 6	DN 50 PN 10	DN 50 PN 10	●	●

● Standard (off the shelf)

Hose connections

Three-piece hose connections with spigot nut and hose nipple.

Connection	Hose nipple	To suction port	To discharge port
1 1/2" thread	1"	MA types 2/3 + 4H-6H, MAS type 4	MA types 2/3 + 4H-6H, MAS type 4
	1 1/4"		
	1 1/2"		
2 1/4" thread	1 1/2"	MA types 4/5, MAS type 5	MA types 4/5/6
	2"		

Thread adapters

To screw onto threaded ports including O-rings connecting with insert fitting and spigot nut.

Type	Nominal diameter of suction port	Nominal diameter of discharge port	Made of PP	Made of PVDF
MA type 2/3, type 4H, type 5H, type 6H, MAS type 4,	DN 25 PN 10	DN 25 PN 10	●	●
MA type 4/5, MAS type 5	DN 40 PN 10	DN 40 PN 10	●	●
MA type 6	DN 50 PN 10	DN 40 PN 10	●	●
MAS type 6	DN 50 PN 10	DN 50 PN 10	●	●

● Standard (off the shelf)

Also available are port seals, shut-off and check valves etc. suitable to any MAGSON pump.

Our product specialists will be glad to help you!

Customer service and support

We will help you find the right pump and optimum dimensioning of your installation.

On-site analysing

The optimum configuration of pump installations depends on various factors including the fluid to be delivered, the volume flow desired and the delivery head required. Our qualified advisers will be glad to precisely analyse your specific requirements on site and make up the optimum pump system out of the various types, designs, capacities, materials and accessories on offer, including products made by our FLUX parent company or by other suppliers.

Optimum dimensioning of your pump installation

Realizing optimum delivery rates with maximum energy efficiency is nothing like magic at all. You only have to make sure that the pump at any time runs at its optimum operating point. This requires the perfect dimensioning of the pump in accordance with overall specifications of your installation. Make use of our technical advisers' competence to optimize your operating cost and maybe even reduce the necessary investment.

We are always there for you

With more than 50 years of experience in pump and filter technologies, we are at your service for all about delivering fluids – at any time, on the phone but also in person on site.

We are always there for you, and also after sales! Just call us!

Contact us

Thanks to our wide distribution network with 13 sites in Germany, you will always find qualified advisers of SONDERMANN's or our parent company FLUX's at close range.

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SONDERMANN pumps and filters are available worldwide. The contact data of our international agencies and representatives are listed at **www.sondermann-pumpen.de**. You may also contact us at our Cologne head office by phone no. **+49 2203 9394-0** or send an email to **info@sondermann-pumpen.de**.

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