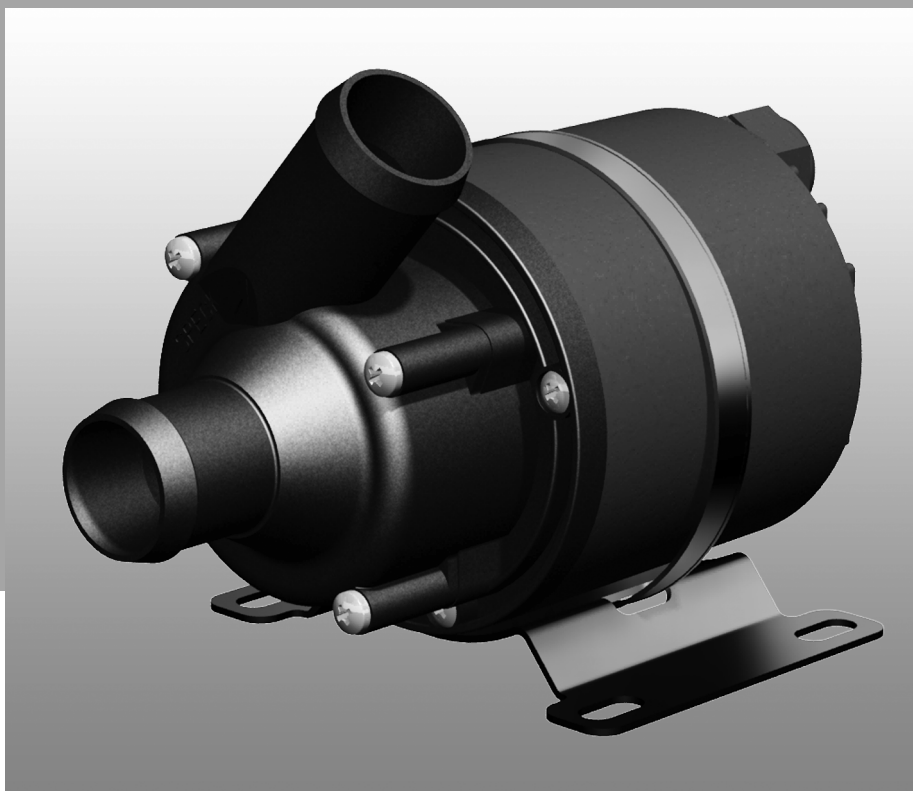

Operating Manual

MY3-MM, MY04-46-MM

Centrifugal pumps with canned motor

English translation of the original operating manual

CE Documentation

It is imperative to read the operating manual prior to commissioning!

This document as well as all documents included in the appendix is not subject to any update service!

Subject to technical changes.

Speck Pumpen Systemtechnik GmbH

Regensburger Ring 6 – 8, 91154 Roth / Deutschland
Postfach 1453, 91142 Roth / Deutschland

Tel.: +49 (0) 9171 809 0
Fax: +49 (0) 9171 809 10

E-Mail: info@speck.de
Internet: www.speck.de

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Index

1 Important basic information

This operating manual forms part of the technical documentation of the system in accordance with the EC machinery directive

CE

This operating manual complies with machinery directive 2006/42/EC of the European Parliament and the Council on the approximation of the laws, regulations and administrative provisions of the Member States relating to machinery, Appendix I, Paragraph 1.7.4.

This operating manual is addressed to the person in charge of the plant, who is obliged to provide it to the staff responsible for system set-up, connection, operation and maintenance.

He must ensure that all information included in the operating manual and the enclosed documents have been read and understood.

The operating manual must be kept at a designated and easily accessible place and consulted at the slightest doubt.

The manufacturer does not accept liability for damage to persons, animals, objects or the system itself incurred by improper use, non-observance or incomplete observance of the safety precautions included in this operating manual or by modifications to the system or use of improper spare parts.

This manual

- forms part of the aggregate,
- applies to all series mentioned herein,
- describes safe and proper operation during all operational phases,
- must be stowed safely throughout the entire service life of the machine,
- must be handed over to future owners of the machine

Scope of supply

- Centrifugal pump with canned motor
- Operating manual

Technical support address

Speck Pumpen Systemtechnik GmbH

Regensburger Ring 6 – 8, 91154 Roth / Germany
PO Box 1453, 91142 Roth / Germany

Phone: +49 (0) 9171 809 0
Fax: +49 (0) 9171 809 10

E-mail: info@speck.de
Internet: www.speck.de

Warranty and liability

Generally, the “General Conditions of Sale and Delivery” of

Speck Pumpen Systemtechnik GmbH

They have been provided to the operator at the time of contract conclusion at the latest.

Warranty and liability claims arising from personal injury and material damage are excluded if one of the following conditions applies:

- improper use of the machine
- improper mounting, commissioning, operation and maintenance of the machine
- operation of the machine despite defective safety devices
- non-observance of the notes in the operating manual
- unauthorized constructional changes to the machine
- inadequate maintenance, repair and servicing measures
- catastrophic events caused by foreign bodies or acts of God

1.1 Target groups

Target group	Task
Operator	► Keep this manual available at the location of the system, also for later consultation. ► Advise staff to read and observe this manual and the provided documents, particularly the safety precautions and warnings. ► Observe additional provisions and regulations related to the system.
Qualified staff, assembler	► Read, observe and adhere to this operating manual and all applicable documents, particularly the safety precautions and warnings.

Tab. 1 Target groups and their tasks

1.2 Applicable documents

Document	Purpose
Declaration of conformity	Conformity with standards
UL approvals of the materials used	UL compliance

Tab. 2 Applicable documents

1.3 Warnings and symbols

Warning	Security level	Consequences of non-observance
⚠ DANGER	imminently hazardous situation	death, severe personal injuries
⚠ WARNING	potentially hazardous situation	death, severe personal injuries
⚠ CAUTION	potentially dangerous situation	minor personal injuries
CAUTION	potentially dangerous situation	material damage

Tab. 3 Warnings and consequences of non-observance

Symbol	Meaning
	Safety sign ► Observe all measures marked with the safety sign to avoid personal injuries or death.
	Safety sign ► Observe all measures marked with the safety sign to avoid personal injuries or death caused by exposure to magnetic fields.
►	Instruction for action
1. , 2. , …	Multi-step instruction for action
✓	Pre-requisite
→	Cross-reference
ⓘ	Information, note

Tab. 4 Symbols and meaning

1.4 Terminology

Term	Meaning
Aggregate	Entire aggregate including pump, drive, components and accessories
Pump head	Pump without drive
Pipe	Pipes may consist of - hoses

Tab. 5 Terminology and meaning

2 Safety

ⓘ The manufacturer does not accept liability for damage resulting from non-observance of the overall documentation.

2.1 Intended use

- Observe all provisions included in the operating manual.
- Observe all safety instructions.
- Comply with inspection and maintenance intervals.
- Use the aggregate exclusively for delivery of the permissible media to be pumped
  (→ General technical data, page 21).
- Observe the operating limits and the minimum flow rate depending on size.
- Prevent dry running:
  - Ensure that the aggregate is only operated with sufficient medium to be pumped, never without medium to be pumped.
- Prevent cavitation:
  - Completely open the suction-side fitting and do not use it for controlling the flow rate.
  - Do not open the pressure-side fitting beyond the agreed operating point.
- Prevent overheating:
  - Do not operate the aggregate when the pressure-side fitting is closed.
  - Observe the minimum flow rate
    (→ General technical data, page 21).
- Prevent motor damage:
  - Do not open the pressure-side fitting beyond the agreed operating point.
  - Observe the switching frequency of the aggregate.
  - The motor protection switch must not be set to a value above nominal current.
- Any use other than the intended use must be agreed with the manufacturer.

2.2 Potential misuse

- Observe the operating limits of the aggregate concerning temperature, pressure, speed, flow rate, density and viscosity (→ Operating limit values, page 21).
- The higher the density of the medium to be pumped, the higher the motor power consumption. Observe the permissible density to protect the aggregate against overload. Lower densities are permissible. In this case, adjust the auxiliary systems accordingly.
- Refrain from delivering abrasive and solid laden liquids.
- Do not combine multiple limit values
  (→ Operating limit values, page 21).
- Prevent sudden temperature changes of the medium to be pumped.
- Do not use in rooms where explosive gases may be present unless the aggregate has been expressly intended for such purpose.
- Do not extract, deliver or compact explosive, inflammable, aggressive or toxic media unless the aggregates have been expressly intended for such purpose.
- Unauthorized opening of the aggregate results in the forfeiture of any and all claims for defects.

2.3 General safety instructions

ⓘ The following provisions must be observed prior to executing any works.

2.3.1 Product safety

The aggregate has been designed in accordance with state-of-the-art technology and the generally acknowledged rules on safety.
Yet, operation of this aggregate may present a threat to the life or physical health of the user or third parties and impair the pump/aggregate and other property.

- Only operate the aggregate in a technically flawless condition and in accordance with the provisions, safety precautions and warnings included in this operating manual.
- Keep this operating manual as well as all supplied documents complete and legible and ensure that they can be accessed by staff at all times.
- Refrain from any operating methods, which may put staff or uninvolved third parties at risk.
- In case of defects having safety implications:
  shut down the aggregate immediately and consult the person in charge to rectify the defect.
- In addition to the overall documentation, all legal or other safety and accident prevention regulations as well as all applicable standards and guidelines of the respective country of operation must be observed.

2.3.2 Obligations of the operator

2.3.2.1 Safety-conscious working

- Only operate the aggregate in a technically flawless condition and in accordance with the provisions, safety precautions and warnings included in this operating manual.
- Ensure and verify compliance with:
  - intended use
  - legal or other safety and accident prevention regulations
  - safety regulations applying to handling hazardous substances
  - applicable standards and guidelines of the respective country of operation
- Provide for protective equipment.

2.3.2.2 Staff qualification

- Ensure that staff involved in aggregate operation has read and understood this operating manual and all applicable documents, particularly all safety, maintenance and servicing information, prior to starting work.
- Define clear roles and responsibilities and arrange for staff monitoring.
- All works must only be carried out by technically qualified staff:
  - assembly, servicing, maintenance works
  - works on electrical equipment
- Staff undergoing training must only work on the aggregate under the supervision of technically qualified staff.

2.3.2.3 Safety devices

- Provide for the following safety devices and ensure their proper functioning:
  - for hot, cold and moving parts: on-site protection against contact with the pump/aggregate
  - when electrostatic charging is likely to occur: provide for grounding

2.3.2.4 Warranty

- During the warranty period, conversion works, repairs and modifications are subject to approval by the manufacturer.
- Use original parts or parts approved by the manufacturer only.
- All warranty and damage claims will expire in case of non-observance of this operating manual.

2.3.3 Obligations of the staff

- Notes attached to the aggregate must be observed and kept legible, e.g. arrows indicating the direction of rotation, symbols indicating media connections.
- Guards for protection against contact with hot, cold and moving parts must not be removed during operation.
- If required, use protective equipment.
- Works on the aggregate must only be carried out at standstill.
- Prior to carrying out any assembly or maintenance works, de-energize the motor and protect it against restart.
- Having completed all works on the aggregate, duly re-assemble the safety devices.

2.4 Residual risks

⚠ WARNING

Risk of burns/scalds when getting in contact with hot surfaces or hot media!

► Do not touch!

► Wear protective gloves!

Risk of injuries caused by media to be pumped escaping from defective seals!

► Shut down the aggregate!

► Repair the aggregate!

2.5 Special risks

2.5.1 Dangerous media to be pumped

- When dealing with dangerous media to be pumped (e.g. hot, inflammable, explosive, toxic, hazardous to health), observe the safety regulations applying to handling hazardous substances.
- Use protective equipment when carrying out any works on the aggregate.

2.5.2 Magnetic drive

The strong magnetic field generated in the area of the canned motor may involve the following risks:

- Persons with cardiac pacemakers are at risk of death
- Magnetic data carriers (ID cards with magnetic stripes, credit and cheque cards), electrical, electronic, precision devices, components or instruments (e.g. mechanical, digital clocks, pocket calculators, hard disks) may be damaged
- Magnetic components (e.g. tools, screws) are attracted to the magnetic field in an uncontrolled manner

► Between open magnets, magnetic couplings or cartridge inserts, which have not been installed in the drive unit or partly completed drive units and objects sensitive to magnetic fields / cardiac pacemakers, a safety distance of at least 200 mm must be maintained.

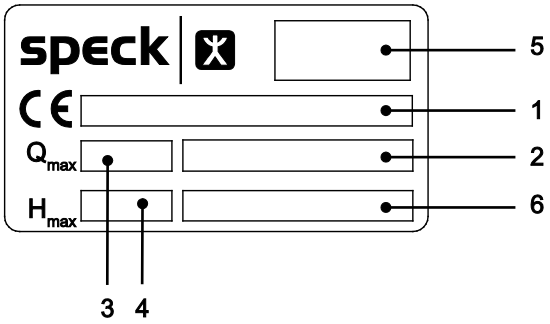
ⓘ Distance to completely assembled pumps:

In completely assembled pumps, the magnetic fields of the inner magnet are reliably confined by the canned motor. Neither during operation nor during standstill periods do the magnets inside the canned motor pose any risk.

3 Design and functioning

3.1 Marking

3.1.1 Nameplate



1 Pump type/plant number

2 Motor data
(power consumption, voltage, speed, protection class)

3 Flow rate

4 Total head

5 Order data

6 Year of manufacture

Fig. 1 Nameplate (example)

3.1.2 Pumpe type marking

	MY	3-	-MM
	MY	04-46	-MM
1			
2			
3			

1 Pump type

2 Pump size

3 Version with canned motor

Tab. 6 Pump type marking

3.2 General description

Pumps of thee MY…-MM series are single-stage, horizontal close-coupled centrifugal pumps with normal priming beahaviour and canned motor.

They are used to pump clear or cloudy liquids or mixtures of liquids similar to water without abrasive or fibrous particles.

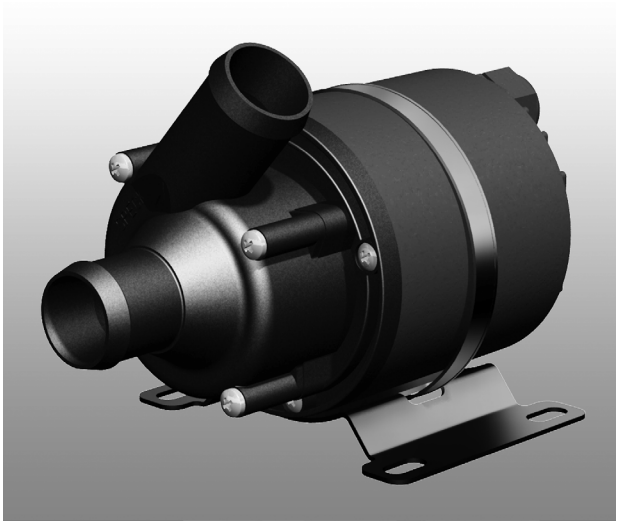
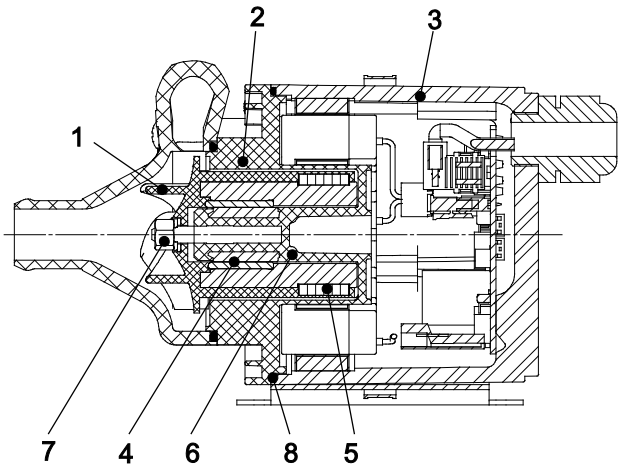


Fig. 2 MY3-MM

3.3 Design and functional principle



1 Impeller

2 Separating can

3 Canned motor

4 Sleeve bearing

5 Inner magnet

6 Bearing pin

7 Stainless steel nut (MY3-MM only)

8 O-ring

Fig. 3 Mode of operation of MY…-MM series

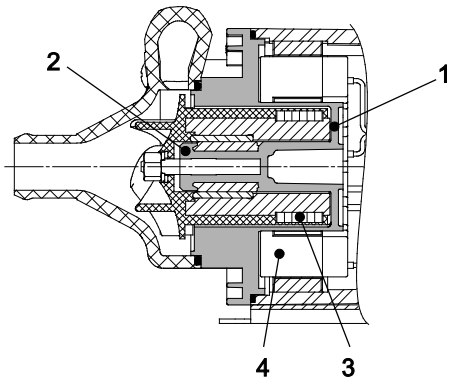
Pumps of the MY…-MM are small centrifugal pumps with radial impeller (1) and separating can (2) with directly attached canned motor (3).

The compact radial impeller (1) with integrated ceramic sleeve bearing (4) and integrated inner magnet (5) runs on a ceramic sleeve bearing (4) which is injected directly into the bearing pin (6) of the separating can (2). The radial impeller (1) of MY3-MM pump type is fixed axially against the volute casing using an iglidur® washer and stainless steel nut (7).

The volute casing screwed to the separating can (2) and the motor. The volute casing is sealed with an O-ring (8).

The rotary field created by the motor coils acts directly on the internal magnets (5) of the impeller during operation. The drive is controlled via the electronics integrated into the motor casing. As a result of the canned motor (3) principle, the drive unit is free of rotating components and therefore also maintenance-free.

3.4 Shaft sealing



1 Separating can

2 Bearing pin

3 Magnet on the inner rotor

4 Motor winding

Fig. 4 Mode of operation of a canned motor

The power supplied by the drive is transmitted to the shaft (2) through the rotating field of the motor, which is generated by coils (4) on the inner magnets (3). The separating can (1) separates the pumping chamber from the atmosphere.

4 Transport, storage and disposal

4.1 Transport

ⓘ Weight data (→ Weight, page 21)

⚠ DANGER

Strong magnetic field in the area of the canned motor!

Risk of death and material damage caused by magnetic fields!

- ► Ensure that persons with cardiac pacemakers do not carry out any works on the aggregate.
- ► Secure and, where required, prevent access to the workplace:
  - – Ensure that persons with cardiac pacemakers keep a safety distance of > 1 m.
  - – Make sure no magnetizable metal components can be attracted to the inner magnet.
  - – Make sure that the inner magnet cannot be attracted to magnetizable metal components.
- ► A safety distance of > 150 mm must be maintained between objects sensitive to magnetic fields and the canned motor.

4.1.1 Unpacking and inspection on delivery

1. Unpack the aggregate on delivery and inspect it for transport damage.
2. Report any transport damage to the manufacturer immediately.
3. Dispose of packaging material according to local regulations.

4.1.2 Manual transport

⚠ CAUTION

Risk of injuries caused by lifting heavy loads!

- ► Observe the permissible weights for lifting and carrying machine components.

Type	Sex	Age	Rate per shift		
			rarely	repeat-edly	fre-quently
			< 5%	5 - 10%	>10-35%
		[Years]	[kg]	[kg]	[kg]
Lifting	Men	– 16	20	13	-
		17 - 19	35	25	20
		20 - 45	55	30	25
		> 45	50	25	20
Lifting	Women	- 16	13	9	-
		17 - 19	13	9	8
		20 - 45	15	10	9
		> 45	13	9	8
Carrying	Men	- 16	20	13	-
		17 - 19	30	20	15
		20 - 45	50	30	20
		> 45	40	25	15
Carrying	Women	- 16	13	9	-
		17 - 19	13	9	8
		20 - 45	15	10	9
		> 45	13	9	8
Lifting and Carrying	Expectant mothers		10	5	
Source: Bavarian State Office for Occupational Safety, Occupational Medicine and Safety Technology					

Tab. 7 Maximum weights for manual lifting

- ► Suitable lifting gear and means of transport must be used for components exceeding the max. weights!

4.2 Storage

⚠ DANGER

Strong magnetic field in the area of the canned motor!

Risk of death and material damage caused by magnetic fields!

► Ensure that persons with cardiac pacemakers do not carry out any works on the aggregate.

► Secure and, where required, prevent access to the workplace:

- Ensure that persons with cardiac pacemakers keep a safety distance of > 1 m.
- Make sure no magnetizable metal components can be attracted to the inner magnet.
- Make sure that the inner magnet cannot be attracted to magnetizable metal components.

► A safety distance of > 150 mm must be maintained between objects sensitive to magnetic fields and the canned motor.

New aggregates have been prepared by the factory in a way, which allows for intermediate storage without any further efforts.

For storing aggregates, which have already been in use the preparations specified in Paragraph 4.3, must be made.

CAUTION

Risk of material damage caused by improper storage!

► Store the aggregate accordingly.

1. Close all openings with plugs or plastic covers.
2. Make sure the storage room meets the following conditions:
   - dry
   - frost-free
   - vibration-free
   - protected
   - constant humidity

4.3 Storage preparations

⚠ WARNING

Risk of intoxication and environmental damage caused by media to be pumped!

► Prior to storing the aggregate:

- Collect escaping media to be pumped and dispose of separately in accordance with local regulations.
- Neutralize residues of media to be pumped in the aggregate.

1. Take the aggregate out of the system.
2. Drain/flush and, if required, decontaminate the aggregate.
3. Close all operating connections with plugs or plastic covers.

4.4 Return to manufacturer

1. Decontaminate the pump.
2. Attach transportation and sealing covers.
3. Always send a certificate of conformity to the manufacturer. Copy certificate of conformity → page 25.

4.5 Disposal

⚠ DANGER

Strong magnetic field in the area of the canned motor!

Risk of death and material damage caused by magnetic fields!

► Ensure that persons with cardiac pacemakers do not carry out any works on the aggregate.

► Secure and, where required, prevent access to the workplace:

- Ensure that persons with cardiac pacemakers keep a safety distance of > 1 m.
- Make sure no magnetizable metal components can be attracted to the inner magnet.
- Make sure that the inner magnet cannot be attracted to magnetizable metal components.

► A safety distance of > 150 mm must be maintained between objects sensitive to magnetic fields and the canned motor.

⚠ WARNING

Risk of intoxication and environmental damage caused by media to be pumped!

► Prior to disposing the aggregate:

- Collect escaping media to be pumped and dispose of separately in accordance with local regulations.
- Neutralize residues of media to be pumped in the aggregate.
- Disassemble plastic parts and dispose of in accordance with local regulations.

► Assign an authorized company to dispose of the aggregate to prevent the risk of environmental damage!

5 Set-up and connection

CAUTION

Risk of material damage caused by contamination!

► Do not remove transport locks until immediately before setting up the aggregate.

► Do not remove covers, transport and sealing caps until immediately before connection of the media pipes to the aggregate.

5.1 Preparing set-up

⚠ DANGER

Strong magnetic field in the area of the canned motor!

Risk of death and material damage caused by magnetic fields!

► Ensure that persons with cardiac pacemakers do not carry out any works on the aggregate.

► Secure and, where required, prevent access to the workplace:

- Ensure that persons with cardiac pacemakers keep a safety distance of > 1 m.
- Make sure no magnetizable metal components can be attracted to the inner magnet.
- Make sure that the inner magnet cannot be attracted to magnetizable metal components.

► A safety distance of > 150 mm must be maintained between objects sensitive to magnetic fields and the canned motor.

5.1.1 Checking ambient conditions

► Make sure the required ambient conditions are maintained (→ Ambient conditions, page 21).

► For pump/aggregate set-up at an altitude of > 1000 m above sea level, consult the manufacturer.

5.1.2 Minimum clearances for heat dissipation

ⓘ Minimum clearances
(→ Clearances for heat dissipation, page 22)

5.1.3 Checking installation site

► Make sure the installation site meets the following conditions:

✓ the aggregate is freely accessible from all sides

✓ sufficient space for installing/disassembling the media pipes as well as for maintenance and repair works, particularly for installation/disassembly of the aggregate, is provided for

✓ no impact from external vibrations on the aggregate (bearing damage)

✓ frost-free

5.2 Planning pipe system

5.2.1 Dimensioning supports and connections

CAUTION

Risk of material damage if the media pipes apply excessive forces and torques to the aggregate!

► Make sure no forces and torques act on the pump nozzles.

1. Observe the piping forces and all operating conditions:
   - cold/warm
   - empty/filled
   - depressurized/pressurized
   - position changes
2. Do not transmit piping forces and torques into the aggregate.
3. Make sure the media pipes are able to withstand the hydraulic pressures and the temperature of the medium to be pumped.

5.2.2 Specifying nominal diameter

ⓘ Size of suction/pressure connections
(→ Operating limit values, page 21)

► Keep the flow resistance in the pipes as low as possible.

1. Nominal suction pipe diameter ≥ nominal suction connection diameter.
2. Nominal pressure pipe diameter ≥ nominal pressure connection diameter.

5.2.3 Specifying pipe lenghts

► It is recommended to provide for a calming section of
A ≥ 10 x nominal inlet nozzle width
upstream the inlet nozzle.

Try to comply with the recommended minimum values (A) when installing the aggregate.

1. Dimension the suction pipe as short as possible.
2. For suction lift mode under ambient pressure, do not install the aggregate higher than 1 m above the max. liquid level of the reservoir.

5.2.4 Changes in cross-section and direction

1. Avoid radii of curvature of less than 1.5 times the nominal pipe diameter.
2. Avoid major changes of cross-section and direction along the piping.
3. To keep the flow resistance in the media pipes as low as possible, the number of installations should be reduced to a minimum.

5.2.5 Safety and control devices

ⓘ Please observe the following recommendations for a trouble-free aggregate operation.

5.2.5.1 Avoid contamination

1. Install a filter in the suction pipe
(screen cross-section = 3 x DN_S, mesh size 0.1 mm).
2. Install a differential pressure gauge with contact manometer to monitor the contamination process.

5.2.5.2 Avoid backflow

► Put a check valve between the outlet nozzle and the gate valve to prevent the medium to be pumped from flowing back after the aggregate has been switched off.

5.2.5.3 Provisions for isolating and shutting off media pipes

ⓘ For maintenance and repair works
► Provide for shut-off devices in the suction and pressure pipe.

5.2.5.4 Provisions for measuring operating conditions

1. For pressure measuring: provide for manometers in the suction and pressure pipe.
2. Provide for temperature measurement at the pump side.

5.3 Set-up on level surface/frame

⚠ DANGER

Strong magnetic field in the area of the canned motor!

Risk of death and material damage caused by magnetic fields!

► Ensure that persons with cardiac pacemakers do not carry out any works on the aggregate.

► Secure and, where required, prevent access to the workplace:
- Ensure that persons with cardiac pacemakers keep a safety distance of > 1 m.
- Make sure no magnetizable metal components can be attracted to the inner magnet.
- Make sure that the inner magnet cannot be attracted to magnetizable metal components.

► A safety distance of > 150 mm must be maintained between objects sensitive to magnetic fields and the canned motor.

5.3.1 Installation positions

MY3-MM:

Horizontal, pressure nozzles inclined approximately 50° upwards (optimum ventilation).
For other installation positions: please ask the manufacturer

MY04-46-MM:

Horizontal, pressure nozzles pointing upwards or to the right side – view towards the pump casing (optimum ventilation).
For other installation positions: please ask the manufacturer

✓ Auxiliary means, tools, material:
- wrench

1. Position the aggregate on a torsion-resistant level surface/frame (1).
2. Screw the aggregate to the surface/frame (1) without overtightening the screws.

ⓘ It is recommendable to position the aggregate on dampers to avoid noise and vibration caused by mechanic components.

5.4 Connecting pipes

⚠ DANGER

Strong magnetic field in the area of the canned motor!

Risk of death and material damage caused by magnetic fields!

► Ensure that persons with cardiac pacemakers do not carry out any works on the aggregate.

► Secure and, where required, prevent access to the workplace:
- Ensure that persons with cardiac pacemakers keep a safety distance of > 1 m.
- Make sure no magnetizable metal components can be attracted to the inner magnet.
- Make sure that the inner magnet cannot be attracted to magnetizable metal components.

► A safety distance of > 150 mm must be maintained between objects sensitive to magnetic fields and the canned motor.

CAUTION

Risk of material damage caused by excessive forces and torques applied to the pipe connections of the plastic casings!

► Connect the pipework to the plastic casing
- using smooth hoses
- secured with hose clamps
- such that they do not exert any forces or torques on the pump nozzles.

► Use only the permitted torque to tighten the hose clamps in order to avoid damage to/deterioration of the pump nozzles.

1. Clean all parts of the media pipe and the fittings prior to assembly.
2. Remove any plugs and/or protective foils from the pump nozzles.

5.4.1 Providing for clean piping

CAUTION

Risk of material damage caused by aggregate contamination!

► Make sure the inside of the aggregate is kept free of contamination.

5.4.2 Installing suction pipe

1. Remove transport and sealing plugs from the aggregate.
2. Lay out the feed pipe with a continuous slope down to the aggregate and the suction pipe with a continuous slope up to the aggregate.
3. Suction lift mode:
   - It is recommendable to provide the suction pipe with a foot valve to prevent the aggregate from running dry at standstill.
4. Gravity feed mode:
   - Make sure the liquid level does not drop below the centre of the shaft.

5.4.3 Installing pressure pipe

1. Remove transport and sealing plugs from the aggregate.
2. Install the pressure pipe.
3. Make sure the connections are tight.

5.4.4 Stress-free connection

ⓘ All media pipes must be always connected to the aggregate in a stress-free manner and secured against coming loose.

5.5 Electrical connection

⚠ DANGER

Strong magnetic field in the area of the canned motor!

Risk of death and material damage caused by magnetic fields!

- ► Ensure that persons with cardiac pacemakers do not carry out any works on the aggregate.
- ► Secure and, where required, prevent access to the workplace:
  - – Ensure that persons with cardiac pacemakers keep a safety distance of > 1 m.
  - – Make sure no magnetizable metal components can be attracted to the inner magnet.
  - – Make sure that the inner magnet cannot be attracted to magnetizable metal components.
- ► A safety distance of > 150 mm must be maintained between objects sensitive to magnetic fields and the canned motor.

5.5.1 Establishing the electrical connection

CAUTION

Risk of material damage if the connecting wire applies excessive tensile forces to the aggregate!

- ► Make sure the connecting wire does not transmit tensile forces into the aggregate.

5.5.2 Inverse polarity protection

The supply lines (+ 24V DC and Power GND) are not protected against inverse polarity, but resistant to inverse polarity for a short time. For this purpose, the inverse polarized supply voltage is short-circuited (max. 100 A for 100 msec).

For this reason, a fuse (10 A) is obligatory when connecting the batteries/vehicle electric systems.

When connecting to electronic power supplies (power of less than 500 W), a fuse is not required.

The control lines are protected up to ± 25 V (correct and inverse polarity).

5.5.3 Electrical connection of the motor

ⓘ Observe the information provided by the manufacturer. Ensure the cables and connections are of sufficient size.

1. Connect the red strand (2.5 mm²) to the 24 V positive pole.
2. Connect the black strand (2.5 mm²) to the 24 V negative pole.

5.5.4 Additional functions

5.5.4.1 Adjustable speed option

The motor speed is adjusted via the control line proportionally to the applied voltage (0 - 10 V) or current (0 - 20 mA).

The speeds depend on the respective motor programming. If the control lines are not connected, the motor runs at the speed set for 0 V or 0 mA.

Connect the yellow strand 0.34 mm² to the 0 – 10 V positive pole of the control voltage source or the grey strand to the 0 – 20 mA positive pole of the control current source.

Connect the black strand 0.34 mm² to the negative pole/ground of the control voltage/control current source.

5.5.4.2 On/Off option

The motor can be switched on and off via the "Active Low" control line without disconnecting it from the power supply.

Connect the green strand (Active Low) to signal GND (black or blue strand 0.75 mm²) to switch off the motor.

5.5.4.3 Speed output option

An Open Collector rectangular signal, which is in proportion to the speed, is issued via the brown control line (Tach Out), referring to signal GND.

Speed [Hz] = Frequency of rectangular signal [Hz]

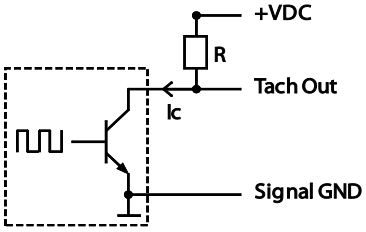


Fig. 5 Circuit diagram of the speed output

Depending on the applied voltage VDC, resistance R has to be set in a way, which ensures that current Ic does not exceed 20 mA. With 10 V VDC, R is usually 1 kΩ.

ⓘ Power GND and signal GND are internally connected!

5.5.5 Cable specification

5.5.5.1 Supplylines

Function	Cable coss-section	Colour
+ 24 VDC	AWG 14 = 2.5 mm²	red
Power GND	AWG 14 = 2.5 mm²	black or blue

Tab. 8 Cable specifications for supply lines

5.5.5.2 Control lines

Function	Cable coss-section	Colour	
Signal GND	AWG 22 = 0.34 mm²	black	optional
Active Low	AWG 22 = 0.34 mm²	green	optional
Tach Out	AWG 22 = 0.34 mm²	brown	optional
Control Voltage	AWG 22 = 0.34 mm²	yellow	optional
Control Current	AWG 22 = 0.34 mm²	grey	optional
Interface	AWG 22 = 0.34 mm²	white	can only be used by Speck Pumpen
Interface	AWG 22 = 0.34 mm²	blue	can only be used by Speck Pumpen

Tab. 9 Cable specifications for control lines

6 Operation

6.1 Preparations for commissioning

⚠ DANGER

Strong magnetic field in the area of the canned motor!

Risk of death and material damage caused by magnetic fields!

- ► Ensure that persons with cardiac pacemakers do not carry out any works on the aggregate.
- ► Secure and, where required, prevent access to the workplace:
  - Ensure that persons with cardiac pacemakers keep a safety distance of > 1 m.
  - Make sure no magnetizable metal components can be attracted to the inner magnet.
  - Make sure that the inner magnet cannot be attracted to magnetizable metal components.
- ► A safety distance of > 150 mm must be maintained between objects sensitive to magnetic fields and the canned motor.

6.1.1 Checking shut-down period

- ► Shutdown periods > 1 year: contact the manufacturer and ask for required measures.
- ► Shutdown periods < 1 year: take all steps as required for commissioning (→ Commissioning, Chapter 6.2).

6.1.2 Filling and venting

1. Vent the aggregate and the suction pipe and completely fill with the medium to be pumped.
2. Open the suction-side fitting (if available).
3. Open the pressure-side fitting (if available).
4. Make sure all ports and connections are tight.

6.2 Commissioning

⚠ DANGER

Strong magnetic field in the area of the canned motor!

Risk of death and material damage caused by magnetic fields!

- ► Ensure that persons with cardiac pacemakers do not carry out any works on the aggregate.
- ► Secure and, where required, prevent access to the workplace:
  - Ensure that persons with cardiac pacemakers keep a safety distance of > 1 m.
  - Make sure no magnetizable metal components can be attracted to the inner magnet.
  - Make sure that the inner magnet cannot be attracted to magnetizable metal components.
- ► A safety distance of > 150 mm must be maintained between objects sensitive to magnetic fields and the canned motor.

6.2.1 Switch-on

- ✓ Aggregate correctly set up
- ✓ Motor connected to the power supply
- ✓ All media connections stress-free and sealed
- ✓ Aggregate correctly prepared, filled and system completely vented
- ✓ All safety devices installed and checked for proper functioning

⚠ DANGER

Risk of injuries caused by running aggregate!

- ► Do not touch the running aggregate.
- ► Do not carry out any works on the running aggregate.
- ► Prior to carrying out any works, allow the aggregate to cool down.

⚠ WARNING

Risk of injuries caused by hot pump parts or hot media to be pumped!

- ► Use protective equipment when carrying out any works on the aggregate.

CAUTION

Risk of material damage caused by dry running!

- ► Make sure the aggregate has been properly filled.
- ⓘ The aggregate is not protected against running dry. Dry running protection has to be provided at the installation site.

CAUTION

Risk of cavitation when throttling down the suction flow!

- ► Completely open the suction-side fitting and do not use it for controlling the flow rate.
- ► Do not open the pressure-side fitting beyond the operating point.

CAUTION

Risk of material damage caused by a closed pressure pipe!

- ► Do not operate the aggregate when the pressure-side fitting is closed.
- ► Observe the minimum flow rate (→ Operating limit values, page 21).

1. Open the suction-side fitting (if available).
2. Open the pressure-side fitting (if available).
3. Avoid sudden temperature changes of hot media to be pumped. Temperature changes must not exceed 10°C/min.
4. During commissioning, the temperature of the medium to be pumped and the temperature of the pump surface must not differ by more than 100°C.
5. Switch on the motor and provide for a smooth and synchronous running behaviour of the aggregate. Unusual noises in the drive or insufficient total head indicate asynchronous operation.

6. Observe the delivery of media. If the pump does not deliver media after approx. 5 sec, immediately switch off the aggregate to prevent damage resulting from running dry.
7. When the nominal speed has been reached, set the operating point by means of the pressure-side fitting (if available).
8. After the aggregate has been subjected to pressure and operating temperature for the first time, check whether the aggregate and all connections are tight.

6.2.2 Switch-off

⚠ WARNING

Risk of injuries caused by hot aggregate or hot media to be pumped!

► Use protective equipment when carrying out any works on the aggregate.

1. Close the pressure-side fitting (if available).
2. Switch off the motor.
3. Close the suction-side fitting (if available).
4. Alle Verbindungsschrauben prüfen und wenn nötig anziehen (nur nach Erstinbetriebnahme).

6.2.3 Drainage

CAUTION

Risk of material damage due to frost!

► Completely drain the aggregate when frost conditions may occur.

1. De-energizing the aggregate. Unplug/disconnect the electrical supply line.
2. Remove the suction and pressure line from the aggregate.
3. Take the aggregate out of the system and drain it.

6.3 Decommissioning

⚠ DANGER

Strong magnetic field in the area of the canned motor!

Risk of death and material damage caused by magnetic fields!

► Ensure that persons with cardiac pacemakers do not carry out any works on the aggregate.
► Secure and, where required, prevent access to the workplace:
  – Ensure that persons with cardiac pacemakers keep a safety distance of > 1 m.
  – Make sure no magnetizable metal components can be attracted to the inner magnet.
  – Make sure that the inner magnet cannot be attracted to magnetizable metal components.
► A safety distance of > 150 mm must be maintained between objects sensitive to magnetic fields and the canned motor.

⚠ WARNING

Risk of injuries caused by hot aggregate or hot media to be pumped!

► Use protective equipment when carrying out any works on the aggregate.
► Reliably collect escaping media to be pumped and dispose of in an environmentally friendly way.

► Implement the following measures when taking the pump/aggregate out of operation:

Pump is	Measure
shut down while remaining ready for operation	► Shortly operate (approx. 5 minutes) the pump at intervals of at least one month but not exceeding 3 months (→ Commissioning, page 15).
shut down for a longer period of time	► Implement measures in accordance with the condition of the medium to be pumped. (→ Tab.11 Measures depending on the behaviour of the medium to be pumped)
drained	► Observe the measures to be implemented for drainage (→ Drainage, page 16.
disassembled	► Disconnect the motor from the power supply and secure it against unauthorized switch-on.
stored	► Observe the measures to be implemented for storage (→ Storage, page 10).

Tab. 10 Measures to be taken when putting the pump out of operation

Medium to be pumped	Duration of shut-down (process-dependent)	
	Short	Long
Water	► Drain and, if required, heat the aggregate and reservoirs.	► Drain aggregate and reservoirs.
Other media	-	► Drain, flush, decontaminate aggregate.

Tab. 11 Measures depending on the behaviour of the medium to be pumped

6.4 Re-commissioning

Shutdown periods > 1 year:

1. Prepare commissioning (→ Preparations for commissioning, page 15).
2. Perform commissioning procedures (→ Commissioning, page 15).
3. Monitor the aggregate following commissioning (→ Monitoring, page 17).

6.5 Operating stand-by-aggregate

✓ Stand-by aggregate filled and system completely vented

ⓘ Operate the stand-by aggregate at least once per week.

1. Completely open the suction-side fitting (if available).
2. Open the pressure-side fitting (if available) to an extent that the stand-by aggregate reaches the operating temperature and is homogenously heated (→ Switch-on, page 15).

7 Maintenance and servicing

ⓘ A qualified service team provides support for assembly and repair works. Provide a certificate documenting the safety of the media to be pumped (DIN safety data sheet or certificate of conformity when ordering this service)
(→ Certificate of conformity, page 25).

7.1 Monitoring

ⓘ Inspection intervals depend on the operational strain on the aggregate.

⚠ DANGER

Strong magnetic field in the area of the canned motor!

Risk of death and material damage caused by magnetic fields!

- ► Ensure that persons with cardiac pacemakers do not carry out any works on the aggregate.
- ► Secure and, where required, prevent access to the workplace:
  - Ensure that persons with cardiac pacemakers keep a safety distance of > 1 m.
  - Make sure no magnetizable metal components can be attracted to the inner magnet.
  - Make sure that the inner magnet cannot be attracted to magnetizable metal components.
- ► A safety distance of > 150 mm must be maintained between objects sensitive to magnetic fields and the canned motor.

⚠ WARNING

Risk of injuries caused by hot aggregate or hot media to be pumped!

- ► Use protective equipment when carrying out any works on the aggregate.

1. Check at appropriate intervals:
   - contamination of the drive
   - contamination of the filters (if available)
   - compliance with minimum and maximum flow rate
   - normal operating condition unchanged
2. For trouble-free operation, ensure the following:
   - no dry running
   - tightness of the aggregate
   - no cavitation
   - open gate valve at the suction side (if available)
   - free and clean filters (if available)
   - no unusual running noise or vibrations

7.2 Aggregate replacement

ⓘ The service team provides support for works, which are not described in this operating manual (installation of spare parts and repair works).

⚠ DANGER

Strong magnetic field in the area of the canned motor!

Risk of death and material damage caused by magnetic fields!

- ► Ensure that persons with cardiac pacemakers do not carry out any works on the aggregate.
- ► Secure and, where required, prevent access to the workplace:
  - Ensure that persons with cardiac pacemakers keep a safety distance of > 1 m.
  - Make sure no magnetizable metal components can be attracted to the inner magnet.
  - Make sure that the inner magnet cannot be attracted to magnetizable metal components.
- ► A safety distance of > 150 mm must be maintained between objects sensitive to magnetic fields and the canned motor.

⚠ DANGER

Risk of injuries caused by running aggregate!

- ► Do not touch the running aggregate.
- ► Do not carry out any works on the running aggregate.
- ► Prior to carrying out any assembly or maintenance works, de-energize the motor and protect it against restart.

⚠ WARNING

Risk of injuries caused by hot aggregate or hot media to be pumped!

- ► Use protective equipment when carrying out any works on the aggregate.
- ► Prior to carrying out any works, allow the aggregate to cool down.
- ► Make sure the aggregate is depressurized.
- ► Drain the aggregate. Reliably collect media to be pumped and dispose of in an environmentally friendly way.

7.2.1 Return to manufacturer

ⓘ Unauthorized opening of the aggregate results in the forfeiture of any and all claims for defects.

✓ Aggregate shut down

✓ Aggregate depressurized

✓ Aggregate completely drained

✓ Electrical connections isolated and motor secured against re-start

✓ Connecting pipes removed

✓ Manometer lines, manometer and fixtures removed (if available).

⚠ DANGER

Strong magnetic field in the area of the canned motor!

Risk of death and material damage caused by magnetic fields!

► Ensure that persons with cardiac pacemakers do not carry out any works on the aggregate.

► Secure and, where required, prevent access to the workplace:

– Ensure that persons with cardiac pacemakers keep a safety distance of > 1 m.
– Make sure no magnetizable metal components can be attracted to the inner magnet.
– Make sure that the inner magnet cannot be attracted to magnetizable metal components.

► A safety distance of > 150 mm must be maintained between objects sensitive to magnetic fields and the canned motor.

1. Disassemble the media pipes.
2. Loosen the aggregate fixtures.
3. Lift the aggregate out of the system (→Transport, page 10).
4. Drain the aggregate.
5. Decontaminate the aggregate (if required).
6. Attach transport and sealing covers.
7. In any case, send a certificate of conformity to the manufacturer (www.speck.de/en/downloads/certificates/) or copy page 25.

7.2.2 Ordering replacement aggregate

ⓘ Replacement aggregates are available from your supplier or the manufacturer.

The following data are required when ordering replacement aggregates:

- Number of the aggregate (→ Nameplate, page 8)
- Type of aggregate (→ Nameplate, page 8)
- Number of replacement aggregates

8 Troubleshooting

⚠ DANGER

Risk of injuries caused by running aggregate!

- ► Do not touch the running aggregate.
- ► Do not carry out any works on the running aggregate.
- ► Prior to carrying out any assembly or maintenance works, de-energize the motor and protect it against restart.

⚠ WARNING

Risk of injuries caused by hot aggregate or hot media to be pumped!

- ► Use protective equipment when carrying out any works on the aggregate.
- ► Make sure the aggregate is depressurized.

If the machine operator is not able to rectify occurring defects himself, he has to call the person responsible for machine maintenance.

If the maintenance staff is not able to rectify the defect, the manufacturer has to be informed accordingly. The manufacturer will provide troubleshooting support if he gets a detailed description of the defect.

Technical support address

Speck Pumpen Systemtechnik GmbH

Regensburger Ring 6 – 8, 91154 Roth / Germany
PO Box 1453, 91142 Roth / Germany

Phone: +49 (0) 9171 809 0
Fax: +49 (0) 9171 809 10

E-mail: info@speck.de
Internet: www.speck.de

Defect	Cause	Rectification
Motor does not start	**Motor**	
	Interrupted power supply	► Check the power supply / check the motor
	Defective control electronics	► Replace the aggregate
	Pump is blocked	
	Ice inside the aggregate (frozen medium to be pumped)	► Carefully heat up and defrost the aggregate
	Contaminations, foreign bodies in the aggregate	► Rinse and, if required, replace the aggregate
	Impeller blocked through calcification	► Descale the aggregate
Motor protection triggered	Short-circuit in the control electronics	► Replace the aggregate
	Motor protection switch has not been correctly set / is defective	► Check setting/replace the motor protection switch
Aggregate does not pump	Suction-side fitting closed	► Open the suction-side fitting
	Suction pipe blocked	► Check/clean suction pipe and filters
	Aggregate has not been vented	► Vent the aggregate, fill the aggregate and suction pipe

Defect	Cause	Rectification
Flow rate too low	Contaminations in the suction opening	► Clean the inlet nozzle
	Internal components are subject to wear	► Replace the aggregate
	Leaking system	► Check the system, seal leaking spots
	Aggregate has been incorrectly dimensioned	► Replace the aggregate
	Aggregate cavitation	► Check the temperature of the medium to be pumped/cool down the medium to be pumped
	Excessive filter resistance	► Check/clean the filter
	The suction height is too high or the inlet height too low	► Check the tank filling level; open the suction-side fitting. Clean the filter in the suction pipe.
	Excessive suction pipe resistance	► Modify the suction pipe (cross-section, length, bends)
	The motor has reached the temperature limit, automatic reduction of performance	► Check installation site, provide for cooling air
Total head too low	Excessive friction loss	► Use larger pipe cross-sections
	Excessive backpressure	► Check operating point, clean pipe
	The motor has reached the temperature limit, automatic reduction of performance	► Check installation site, provide for cooling air
Excessive flow rate	The aggregate pressure of the system is too low	► At the pressure side: Install a throttle valve
Overheating of the aggregate	Pressure-side fitting is closed	► Comply with the minimum flow rate. Install a bypass at the pressure side.
	Temperature of the medium to be pumped is too high	► Cool down the medium to be pumped
	Motor out of operation	► Wait until the motor has completely cooled down, disconnect it from the power supply and reconnect it. Provide for more cooling.
Strange noise	Aggregate cavitation	► Reduce the temperature of the medium to be pumped, check NPSH
	Excessive share of steam in the suction flow	► Reduce the temperature of the medium to be pumped, check NPSH
	Suction-side fitting closed	► Open the suction-side fitting
	Low pressure in the suction pipe	► Check the suction pipe, switch off the motor by means of the vacuum switch
	Ingress of air in the suction pipe	► Seal the suction pipe. Increase the filling level in the reservoir
	Excessive outlet pressure	► Reduce the outlet pressure
Aggregate leak	Defective casing sealing	► Seal the aggregate again
	Loosened connecting screws	► Tighten the screws, replace the sealing if required
	Defective separating can	► Replace the aggregate

Tab. 12 Troubleshooting

9 Technical data

9.1 Operating limit values

MY3-MM, with nozzle G_S/G_D = 20 mm			
Max. total head		14	[m]
Medium to be pumped: water, mixtures			
Temperature			
Casing: PA, PPS	min.	- 30	[°C]
	max.	+ 80	[°C]
Density	max.	1000	[kg/m³]
Viscosity	max.	100	[mm²/s]
Speed	max.	2000 - 6500	[min^{-1}]

Tab. 13 Operating limit values MY3-MM with 20 mm nozzle

MY3-MM, with nozzle G_S/G_D = 28 mm			
Max. total head		12	[m]
Medium to be pumped: water, mixtures			
Temperature			
Casing: PA, PPS	min.	- 30	[°C]
	max.	+ 80	[°C]
Density	max.	1000	[kg/m³]
Viscosity	max.	100	[mm²/s]
Speed	max.	2000 - 6000	[min^{-1}]

Tab. 14 Operating limit values MY3-MM with 28 mm nozzle

MY04-46-MM			
Max. total head		15.5	[m]
Medium to be pumped: water, mixtures			
Temperature			
Casing: stainless steel/1.4571	min.	- 30	[°C]
	max.	+ 80	[°C]
Density	max.	1000	[kg/m³]
Viscosity	max.	100	[mm²/s]
Speed	max.	2000 - 6000	[min^{-1}]

Tab. 15 Operating limit values MY04-46-MM

9.1.1 Media to be pumped

Liquids

- free of abrasive contaminations
- without solid content
- matched to the casing materials

9.1.2 Flow rates

→ Characteristic curves in the Appendix

The pump must not be operated beyond the size-dependent power ranges (min./ max. flow rate).

9.1.3 Switching frequency

No. of switching cycles per hour
40

Tab. 16 Switching frequency

9.2 General technical data

The following data refer to standard values. For deviating data, please consult the manufacturer.

9.2.1 Dry running protection

The aggregate is not protected against dry running. Dry running protection has to be provided at the installation site.

9.2.2 Service life

The service life of the aggregate is approx 20,000 hours.

ⓘ Any data referring to the service life of the aggregate are subject to conditions of use in accordance with the manufacturer's specifications.

9.2.3 System pressure

The max. permissible static system pressure of the aggregate is 2.5 bar.

9.2.4 Weight

Type	Weight
MY3-MM (aggregate)	1.6 kg
MY04-46-MM (aggregate)	1.7 kg

Tab. 17 Weight

9.2.5 Sound level

Type	1m measured surface sound pressure level L [dB (A)] *
MY3-MM	46
MY04-46-MM	46
* Measured surface sound pressure level in acc. with EN ISO 3744, at 1 m distance with average throttling (cavitation-free operation) and connected pipes, tolerance ± 3 dB (A)	

Tab. 18 Sound pressure level

9.2.6 Drive

MY3-MM, MY04-46-MM	
Motor power	max. 180 W
Nominal voltage	24 V
Operating range	18 – 28 V
Power consumption	max.7.5 A
Electrical protection	10 A
Degree of protection	IP 54
Direction of rotation	clockwise, see arrow on volute casing
Blocking protection	yes, unlimited start-up tests
Overload protection	integrated
Max. surface temperature	approx. 90 °C

Tab. 19 Drive data

9.2.7 Sealing

The aggregate is sealed by the separating can. The separating can and the volute casing are sealed by means of an O-ring. Another O-ring is used to seal the gap between the motor and the separating can.

9.2.8 Ambient conditions

ⓘ The aggregate should be installed at a dry place either indoors or outdoors under a roof. The ambient air must be free of vapours containing acid or solvents.

ⓘ Do not use in Ex zones.

ⓘ Operation under ambient condition has to be agreed with the manufacture.

Temperature [°C]	Relative humidity [%]		Set-up altitude above sea level [m]
	long-term	short-term	
- 30 to + 40	≤ 35	≤ 80	≤ 1000

Tab. 20 Ambient conditions

9.2.9 Clearances for heat dissipation

Motor size	Min. clearance between motor and adjacent surface [mm]
-	35

Tab. 21 Clearances for heat dissipation

9.3 Tightening torques

MY3-MM only

9.3.1 Motor clamp

► The worm-drive hose clamp on the canned motor has to be tightened by means of a torque wrench. The permissible tightening torque ranges between 3 and 5 Nm.

9.4 Permissible forces/torques acting on the pump nozzles

► The connection nozzles must not be subjected to any forces and torques exerted by media pipes.

► The lines/hoses should be smooth and secured using worm-drive clamps to prevent them from slipping. Here, the permissible tightening torque for the worm-drive clamps must be observed.

9.5 Accessories

Accessories included in the scope of supply are listed on the delivery note.

10 Appendix

10.1 Dimensional drawing MY3-MM

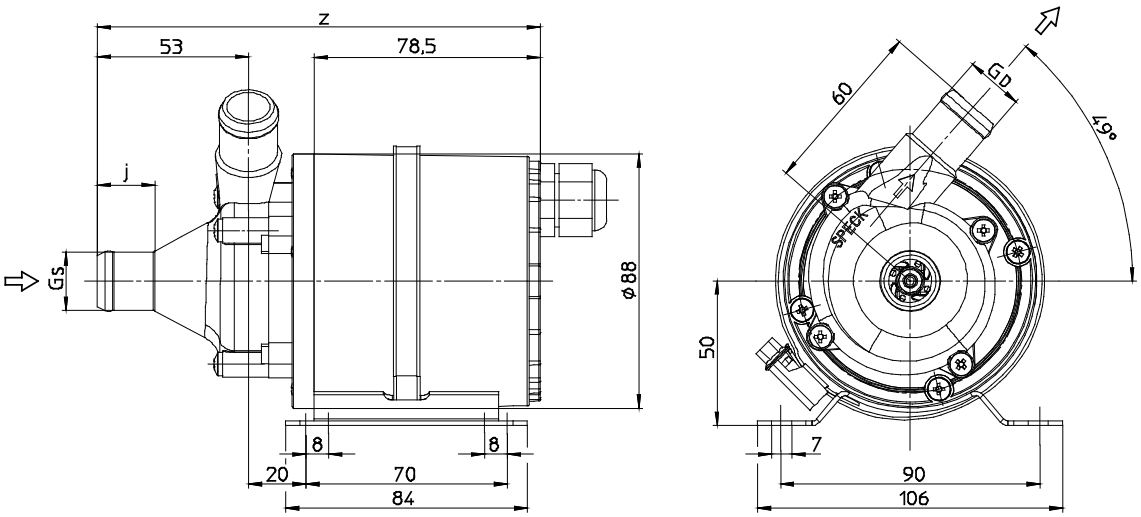


Fig. 6 Dimensional drawing MY3-MM

10.2 Dimensional drawing MY04-46-MM

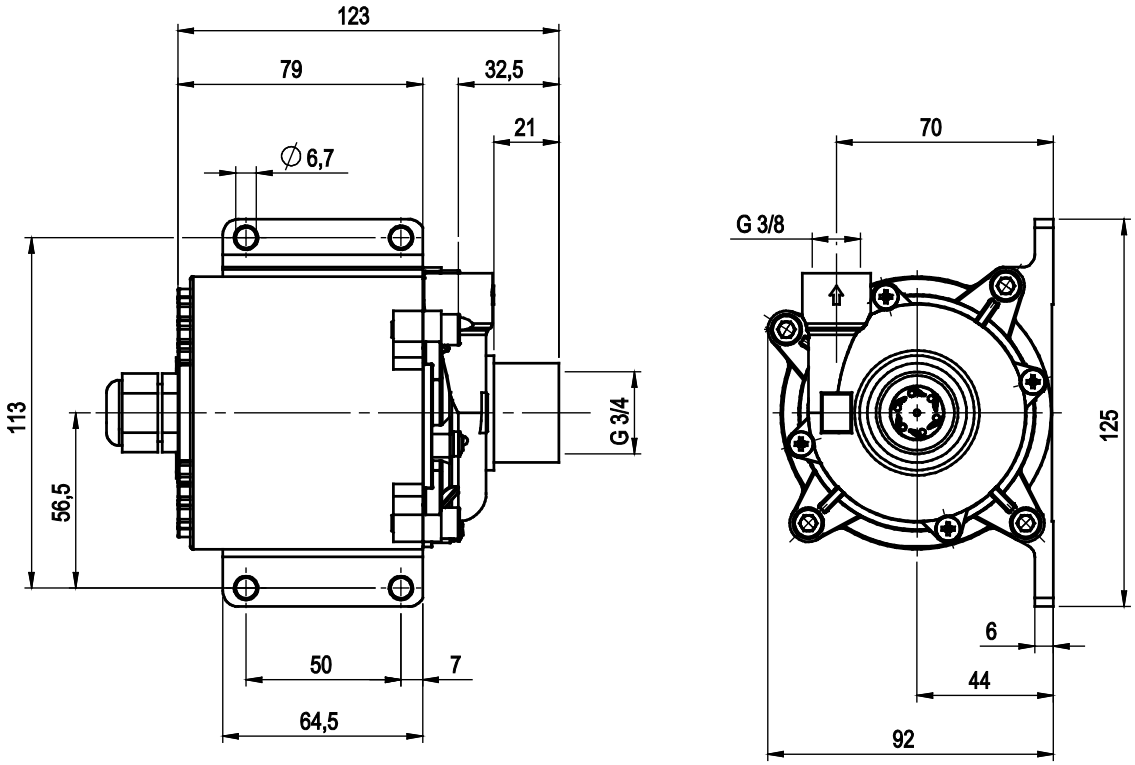


Fig. 7 Dimensional drawing MY04-46-MM

10.3 Characteristic curves MY3-MM

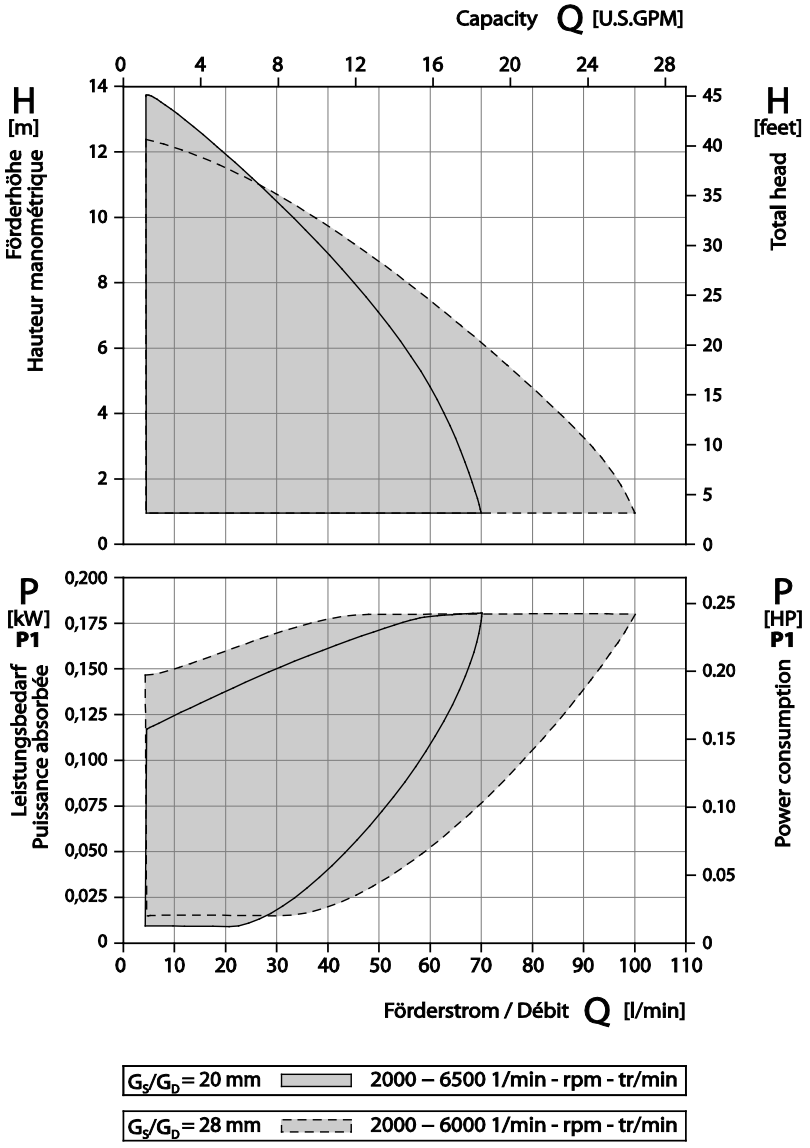


Fig. 8 Characteristic curves MY3-MM

Within the displayed performance curves, any operating point can be realized by a corresponding parameterization of the drive.

The performance curves apply to the delivery of water with a temperature of 20 °C and an ambient temperature of 20 °C.
Total head and flow rate have a tolerance range of ±10%, whereas the power requirement may deviate by +10%. Deviating properties of the medium to be pumped and different ambient temperatures affect the performance curves.

Power requirement P1 refers to the electrical power consumption.

10.4 Characteristic curves MY04-46-MM

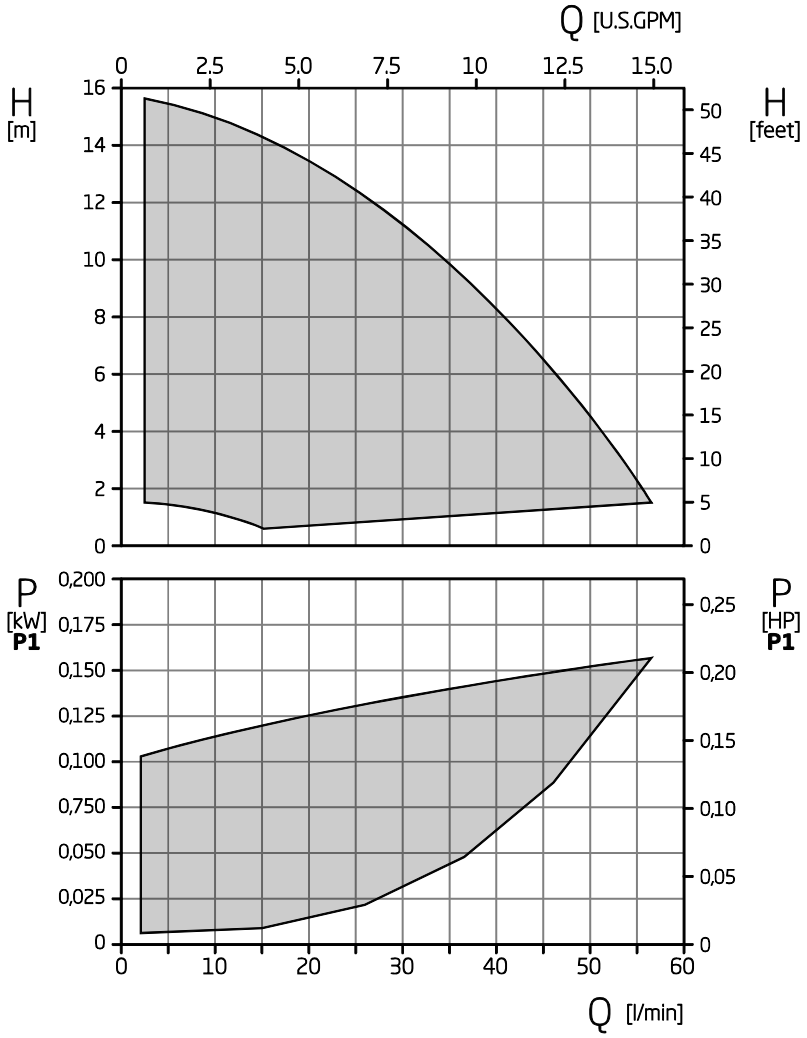


Fig. 9 Characteristic curves MY04-46-MM

Within the displayed performance curves, any operating point can be realized by a corresponding parameterization of the drive.

The performance curves apply to the delivery of water with a temperature of 20 °C and an ambient temperature of 20 °C.
Total head and flow rate have a tolerance range of ±10%, whereas the power requirement may deviate by +10%. Deviating properties of the medium to be pumped and different ambient temperatures affect the performance curves.

Power requirement P1 refers to the electrical power consumption.

10.5 Certificate of conformity

ⓘ Please copy this form and return it to the manufacturer together with the pump/aggregate.

Certificate of conformity

The pump/pump aggregate including accessories for which we, the undersigned, have placed an inspection/repair order or which has been returned by us together with this certificate of conformity,

Designation: _____

Type: _____

Serial number: _____

☐ has not been in contact with hazardous substances.

☐ has been used in the area of application of: _____

☐ and has been in contact with the following harmful substances or substances subject to mandatory labelling:

Trade name	Chemical designation	Properties (e.g. toxic, inflammable, caustic)

☐ The pump/pump aggregate has been completely drained, flushed and cleaned both inside and outside in accordance with the operating manual.

☐ Further handling of the pump/aggregate does not require special safety precautions.

☐ The following safety precautions must be observed when handling the pump/aggregate:

_____

_____

_____

☐ Safety data sheets in accordance with national regulations are enclosed.

Legally binding statement

We herewith certify that all data given above are correct and complete and that I, the undersigned, am in a position to confirm this.

We acknowledge our liability towards the contractor for any damage arising from incomplete or incorrect data.

We agree to hold harmless the contractor against damage claims of third parties due to incomplete or incorrect data.

We know that, independent of this statement, we have to take direct liability towards third parties, which particularly refers to the staff of the contractor responsible for handling, repair and maintenance.

City, date: _____ **Name:** _____

Company stamp: _____ **Signature:** _____

Tab. 22 Certificate of conformity

10.6 EU declaration of conformity

CE

speck

DE

EU – Konformitätserklärung

gemäß
Beschluss Nr. 768/2008/EG des Europäischen Parlaments und des Rates

Hiermit erklären wir als Hersteller, dass das Pumpenaggregat

EN

EU declaration of conformity

as per
Decision No 768/2008/EC of the European Parliament and of the Council

We herewith declare as the manufacturer that pump aggregate

ACY-...-MK	CY-...-PM-HT	NPY-...-MK
ACY-...-PM	CY-...-PM-TOE	NPY-...-MK-HT
ASKM...	DS-...-MK	NPY-...-MK-TOE
AY-...-MK	EY-...-MK	NPY-...-PM
AY-...-MK-HT	EY-...-PM	NPY-...-PM-HT
AY-...-MK-TOE	KN...	NPY-...-PM-TOE
AY-...-PM	LY-...-MK	PY-...-MK
AY-...-PM-HT	LY-...	SKM...
AY-...-PM-TOE	MLY-05-38/810	TOEG...
CR-1-MM	MU...MK-PM	TOEM...
CY-4281	MY2-...	Y-...-MK
CY-...-MK	MY3-...	Y-...-MM
CY-...-MK-HT	MY4-...	YS-...-MK
CY-...-MK-TOE	MY04-46-MM	ZY-...-MK
CY-...-PM	MY-09-72-SR	ZY-...-MM

in der gelieferten Ausführung, folgenden einschlägigen Bestimmungen entspricht:

- EG-Maschinenrichtlinie 2006/42/EG
- Die Schutzziele der Niederspannungsrichtlinie 2014/35/EU werden gemäß Anhang I, Nr. 1.5.1 der Maschinenrichtlinie 2006/42/EG eingehalten.
- Elektromagnetische Verträglichkeit – Richtlinie 2014/30/EU
- Ökodesign-Richtlinie 2009/125/EG
- RoHS-Richtlinie 2011/65/EU („RoHS II“) ergänzt durch die Delegierte Richtlinie (EU) 2015/863 („RoHS III“)

corresponds to the following relevant provisions:

- *Machinery directive 2006/42/EC*
- *The protection objectives of the low-voltage directive 2014/35/EU are realized according annex I, No. 1.5.1 of the EC Machinery directive 2006/42/EC.*
- *Electromagnetic compatibility – directive 2014/30/EU*
- *Ecodesign directive 2009/125/EC*
- *RoHS directive 2011/65/EU ("RoHS II") amended by Delegated Directive (EU) 2015/863 ("RoHS III")*

Angewendete harmonisierte Normen, insbesondere

Harmonized standards applied, in particular

EN 809:1998 + A1:2009 + AC:2010	EN ISO 12100:2010	EN 60034-1:2010 + Cor.:2010
EN 50581:2012		

Bei einer mit uns nicht abgestimmten technischen Änderung der oben genannten Bauarten, verliert diese Erklärung ihre Gültigkeit.

If the above mentioned series are technically modified without our approval, this declaration shall no longer be applicable.

Bevollmächtigter für die Zusammenstellung der technischen Unterlagen ist:

Authorized representative for the completion of the technical documentation:

Dr.-Ing. Pierre Hähre
Speck Pumpen Systemtechnik GmbH, Regensburger Ring 6 – 8, 91154 Roth, Germany

Roth, 20.02.2019
Speck Pumpen
Systemtechnik GmbH
Regensburger Ring 6 – 8
91154 Roth / Germany

ppa. Dr.-Ing. Pierre Hähre
Technischer Leiter
Technical Director

Doc.-No: *1096.0194*

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Speck Pumpen Systemtechnik GmbH | Regensburger Ring 6 - 8, 91154 Roth / Germany | Tel. : +49 9171 809 0, Fax : +49 9171 809 10 | info@speck.de, www.speck.de

10.7 UL approvals of the materials used

Pump MY3-MM is not UL approved. However, all materials used meet the UL requirements.
Customized versions may deviate.

MY3-MM	MY04-46-MM	Component	Material, manufacturer, comment	UL
x	x	Motor electronics	PCB and plug as well as plastic parts being in contact with conductors	UL94 V-0
x	x	Casting compound	WEVO casting compound PD 4431 FL All electronic components are covered, only electrolytic capacitors and connector pins protrude from the compound.	UL94 V-0 (UL / CSA-File E108835)
x		Motor casing	Die-cast aluminium Polyester resin based Interpon® 610 powder coating	Not relevant UL 1332
	x	Motor casing	Die-cast aluminium	Not relevant
x		Separating can	ALBIS PLASTIC GMBH, Tedur® L 9107-1 (PPS-GF40)	UL94 V-0 (UL / CSA-File E80168)
x		Impeller	ALBIS PLASTIC GMBH, Tedur® L 9107-1 (PPS-GF40)	UL94 V-0 (UL / CSA-File E80168)
x		Pump casing	Ensinger Tecamid 66 GF 30 (PA 66 GF 30) Source material PA66 Optional: ALBIS PLASTIC GMBH, Tedur® L 9107-1 (PPS-GF40)	 UL94 HB (UL / CSA-File E41938) (UL / CSA-File E47960) UL94 V-0 (UL / CSA-File E80168)
	x	Pump casing	Stainless steel 1.4571	Not relevant
x		Strands	The connecting cable has single strands, which are bundled in an insulating hose.	UL3266 / CSA AWM I A/B
x		Insulating hose	Isotex (combination of glassfibre and silicon)	UL-1441 / UL94 V-0
x		Cable gland	Jacob GmbH, polyamide PA6	UL 514B (UL / CSA-File E140310)