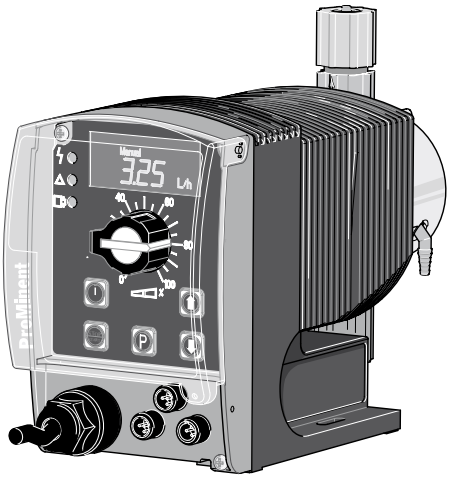
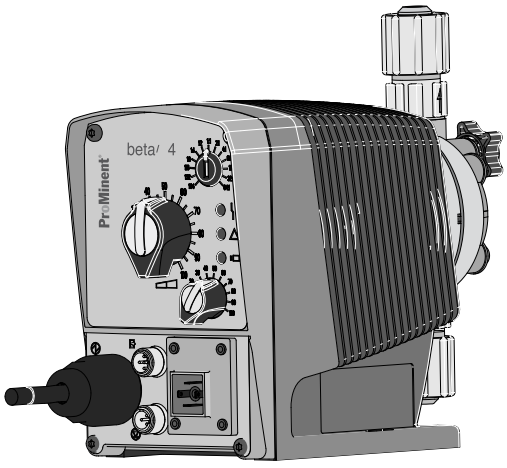
General Operating Instructions

ProMinent® Solenoid Metering Pumps



gamma/ L

delta®



Beta®

Two sets of operating instructions are required for the safe, correct and proper operation of the metering pumps: the product-specific operating instructions (for instance for beta) and the "General Operating Instructions for ProMinent® Solenoid Metering Pumps".

Both sets of operating instructions are only valid when read together.

Please carefully read these operating instructions before use! · Do not discard!
The operator shall be liable for any damage caused by installation or operating errors!
Technical changes reserved.

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Supplementary information

Fig. 1: Please read!

Read the following supplementary information in its entirety! Should you already know this information, you have an even greater need of the Operating Instructions.

The following are highlighted separately in the document:

- Enumerated lists

→ Instructions

⇨ Outcome of the instructions

Information

This provides important information relating to the correct operation of the device or is intended to make your work easier.

Safety information

Safety information is identified by pictograms - see Safety Chapter.

User information

Two sets of operating instructions are required for the safe, correct and proper operation of the metering pumps: The product-specific operating instructions and the "General Operating Instructions for ProMinent® Solenoid Metering Pumps".

Both sets of operating instructions are only valid when read together.

Please read these operating instructions carefully before use! Do not discard!

State the identity code and serial number

Please state identity code and serial number, which you can find on the nameplate when you contact us or order spare parts. This enables the device type and material versions to be clearly identified.

General non-discriminatory approach

In order to make it easier to read, this document uses the male form in grammatical structures but with an implied neutral sense. It is aimed equally at both men and women. We kindly ask female readers for their understanding in this simplification of the text.

Table of contents

1 Safety Chapter

Explanation of the safety information

The following signal words are used in these operating instructions to identify different severities of a hazard:

Signal word	Meaning
WARNING	Denotes a possibly hazardous situation. If this is disregarded, you are in a life-threatening situation and this can result in serious injuries.
CAUTION	Denotes a possibly hazardous situation. If this is disregarded, it could result in slight or minor injuries or material damage.

Warning signs denoting different types of danger

The following warning signs are used in these operating instructions to denote different types of danger:

Warning signs	Type of danger
	Warning – high-voltage.
	Warning – danger zone.

WARNING!

Warning of hazardous or unknown feed chemical

Should a hazardous or unknown feed chemical be used, it may escape from the hydraulic components when working on the pump.

- Take appropriate protective measures before working on the pump (protective eyewear, protective gloves, ...). Read the safety data sheet on the feed chemical.
- Drain and flush the liquid end before working on the pump.

CAUTION!

Warning of feed chemical spraying around

Feed chemical can spray out of the hydraulic components if they are manipulated or opened due to pressure in the liquid end and adjacent parts of the system.

- Disconnect the pump from the mains power supply and ensure that it cannot be switched on again by unauthorised persons.
- Depressurise the system before commencing any work on hydraulic parts.

CAUTION!

Warning of illegal operation

Observe the regulations that apply where the unit is to be installed.

NOTICE!

Danger from incorrect dosing

Should a different liquid end size be fitted, this will change the dosing behaviour of the pump.

– Have the pump reprogrammed in the works.

Information in the event of an emergency

In an emergency either press the customer installed emergency-off switch or disconnect the pump according to the emergency-off management of your system!

If feed chemical escapes, also depressurise the hydraulic system around the pump. Observe the safety data sheet for the feed chemical.

2 Assembly

WARNING!

Risk of electric shock

If water or other electrically conducting liquids penetrate into the drive housing, an electric shock may occur.

– Position the pump so that drive housing cannot be flooded.

CAUTION!

Danger from incorrectly operated or inadequately maintained pumps

Danger can arise from a poorly accessible pump due to incorrect operation and poor maintenance.

– Ensure that the pump is accessible at all times.
– Adhere to the maintenance intervals.

Capacity too low

The liquid end valves can be disrupted by vibrations.

– *Secure the metering pump so that no vibrations can occur.*

Capacity too low

If the valves of the liquid end do not stand vertically upwards, they cannot close correctly.

– *Suction and discharge valves must stand vertically upwards (for self-bleeding liquid end, the bleed valve).*

→ Mount the metering pump with the pump foot on a horizontal, level and load-bearing supporting surface.

3 Installation, hydraulic

3.1 Overview and Information on Accessories

In addition to a correctly selected metering pump, individually combined hydraulic and electrical accessories are needed for the perfect operation of metering systems. A number of accessories are shown on the following pages, which are not always needed but provide an overview of the possible options. We would be happy to assist with the selection of the right accessories for your metering tasks and are also available for ongoing advice, for instance on pipe calculations.

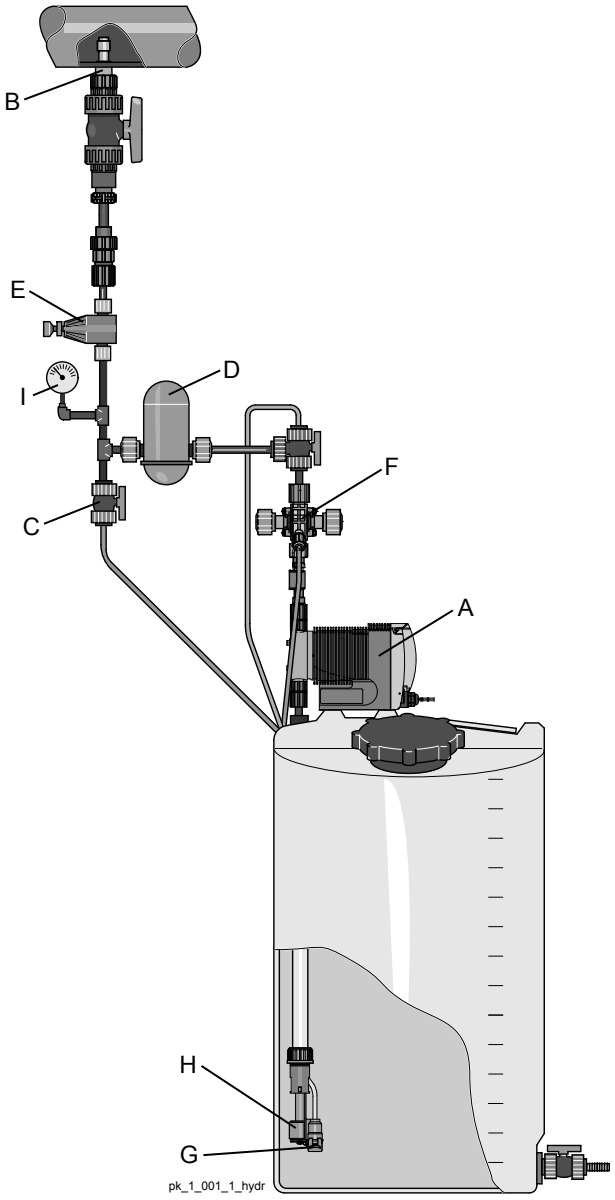


Fig. 2: Example of an installation with different accessories

System components	Function	Use
Metering pump* A	Metering a defined volume in liquid into a system. Control: manual or automatic (external signal)	Perfect adaptation to metering tasks is possible thanks to the variably adjustable metering volume and external control options.
Injection valve* B	Non-return valve (Vacuum breaker)	... with closed pipe systems to prevent backflow and mixing with the discharge line.
	As a back pressure generator	... for use with pipe systems with a free outlet, to generate a defined back pressure.
Shut-off valves C	To split the pipe system into sections (functional sections)	... for maintenance, renovation or repair work to shut down parts of the system.
Pulsation dampener D	Smooths out pulsation in the pipe (discharge side), generates a low-pulsation flow	... for use with long pipes to minimise pressure loss.
		... to generate continuous flow/metering.
		... to avoid disruptive pipe vibrations.
Back pressure valve* E	Generates a defined back pressure (configurable)	... for use with pipe systems with a free outlet, to guarantee the correct operation of the metering pump.
		... when using a pulsation dampener
Multifunctional valve* F	Generates a defined back pressure	... for use with pipe systems with a free outlet, to guarantee the correct operation of the metering pump.
	Prevents through-suction	... with a positive pressure difference between the suction line and discharge line.
	Priming aid	... when operating the pump against pressure.
	Relief device for the discharge line	... e.g. for repairs
	Opens up a relief line when a pressure limit value is set	...as a safety device to protect the metering system from overloading by the metering pump.
Relief valve*	Opens up a relief line when a pressure limit value is set	...as a safety device to protect the metering system from overloading by the metering pump.
Level switch G	Signals the liquid level of the storage tank (two-stage design (with pre-warning) or single-stage)	...for the correct operation of the system.
		...to display a pending change of tank or fill the storage tank.
		...to protect the metering system from sucking dry.
Foot valve* H	Non-return valve (vacuum breaker)	... to protect the suction line from running dry (e.g. when changing tanks).
	With filter meshes as a coarse filter	...to protect the metering pump from coarse particles of solids.
Manometer I (general pressure measuring device)	Displays the actual pressure, for example at the pressure connector of the metering pump	...to determine the actual operating pressure in the discharge line.
		...crucial to adjust the back pressure valve or relief valve.

System components	Function	Use
Vacuum cylinder	Smooths out pulsation in the pipe (suction side), generates a low-pulsation flow	... to reduce pressure losses with longer suction lines.
	Priming aid	... as a priming aid together with a vacuum pump.
Filter	Filters coarse particles of solids from the suction flow	... to protect metering pump and system from dirt and increased wear and tear.
Solenoid valve	Automatic shut-off valve Control: for example electrically locked by the metering pump's mains power supply	... as a safety device for shutting off (tightly sealing) the discharge line when the system is idle.

CAUTION!

* The system components in the table labelled with a * are not absolutely leak-tight shut-off elements.

– For this purpose use a shut-off valve C or a solenoid valve.

3.2 Standard installation

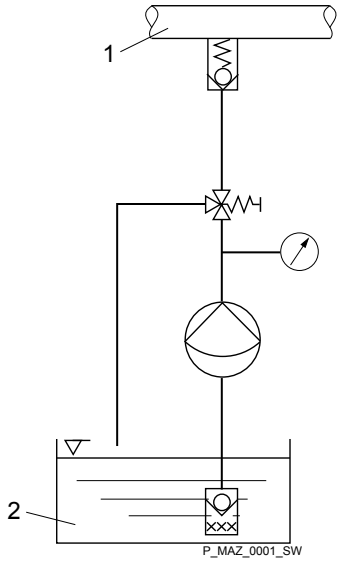


Fig. 3: Standard installation

1 Main line
2 Storage tank

Legend for all hydraulic diagrams

Icon	Explanation	Icon	Explanation
	Metering pump		Foot valve with filter meshes
	Injection valve		Filter insert
	Settable back pressure valve (also used as a relief valve)		Hopper with float valve
	Multifunctional valve		Level switch
	Shut-off valve		Manometer
	Solenoid valve		Filling device
	Ball retaining valve		Siphon device

3.3 Information on the suction-side installation

Bends

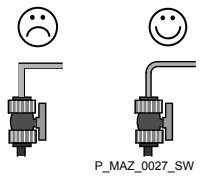


Fig. 4

- Always use bends to curve lines - never angles.

Length of suction line

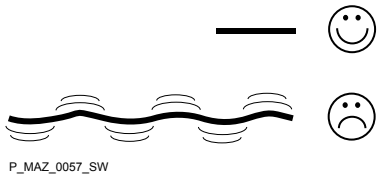


Fig. 5

- Maintain the suction line as short as possible.

Height difference, suction side

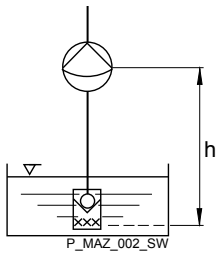


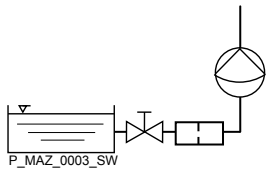
Fig. 6

- The height h (see diagram) may only be smaller than or equal to the suction lift of the pump P divided by the density rho of the feed chemical:

  `h (in m)≤ P (in mWS) / rho (in g/cm³)`
- The height h - see diagram - and the cross-section of the suction line must be dimensioned in such a way that the negative pressure created during the suction process cannot reach the vapour pressure of the feed chemical being metered (cavitation!).

  That is displayed in extreme cases by the dropping of the fluid level or by an incomplete reciprocal stroke.

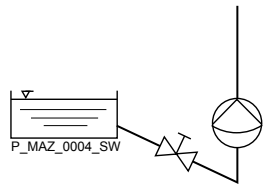
With dirt or impurities in the feed chemical,



- fit a filter insert (mesh width 100–400 µm depending on the feed chemical and type of metering pump) for example.
- Always connect the suction line somewhat above the tank base or any sediment accumulated.
- With feed chemicals containing impurities or sediment, suspend the foot valve at a sufficient distance above the tank base or any sediment that has accumulated - see Fig. 6.

Fig. 7

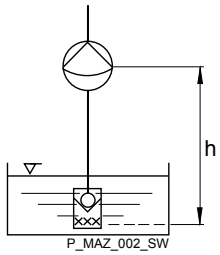
With slightly gaseous feed chemicals (hydrogen peroxide, sodium-calcium hypochlorite ...)



- Preferably route the suction line with a falling rather than a rising gradient to prevent the priming of air bubbles.
- Install the pump with the feed on the suction side.

Fig. 8

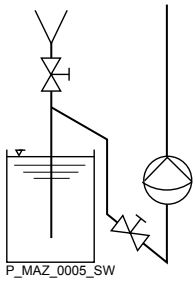
Avoid allowing the suction line to run dry.



- Install a foot valve at the end of the suction line, in case the pump is higher than the maximum fluid level in the storage tank.
- Only shorten the free end of the suction line until the foot valve is suspended just above the container base.

Fig. 9

Prime without connecting options at the tank base



- With high storage tanks without a connecting option at the tank base, prime using a siphon line.
  Install a filling device (Fig. 10) or siphon vessel (Fig. 11) for the siphon line (suction line).

Fig. 10

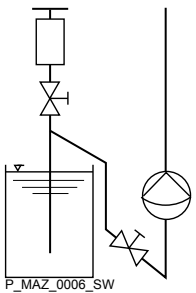


Fig. 11

3.4 Information on the discharge-side installation

With return from the main line

- Install a vacuum breaker if the feed chemical may not press through the metering pump. A metering pump is not an absolutely leak-tight shut-off device.
- Install the injection valve at the injection point to prevent unwanted mixing of water and feed chemical in the discharge line.

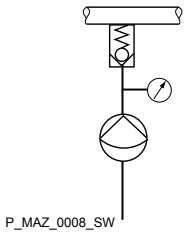
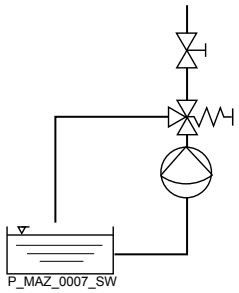


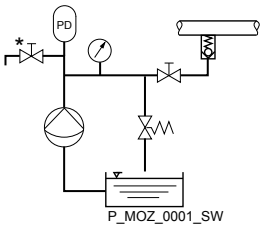
Fig. 12

Avoid exceeding maximum permissible operating pressure



- A relief valve with a return into the storage tank is useful as overload protection for the discharge line, for example install a ProMinent® multifunctional valve.
- Dampen pressure peaks with a metering stroke with long discharge lines with a pulsation dampener or increase the pipe cross-section.

Fig. 13

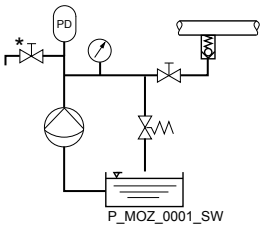


* Ventilation line with pressure vessels
PD Pulsation damper

Fig. 14

With pulsations caused by acceleration inertial forces

- Dampen the pulsations with a pulsation dampener in order to avoid metering errors, premature wear and tear and damage to the metering system.



* Ventilation line with pressure vessels
PD Pulsation damper

Fig. 15

3.5 How not to install

Fault description	Cause	Remedy
The suction line cannot be bled.	A pocket of air (arrow) is in the suction line.	Prevent the air pocket or install as shown in *'With high suction-side pressure 1' on page 15*.

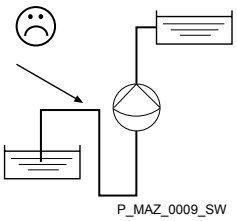


Fig. 16

Fault description	Cause	Remedy
Feed chemical flows uncontrolled when the line is filled.	Siphon effect by discharge line falling too deeply.	Interrupt the discharge line, as in *'With high suction-side pressure 2' on page 15*

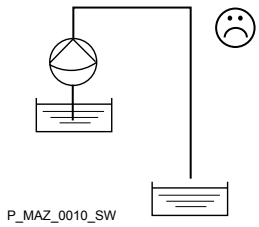


Fig. 17

Fault description	Cause	Remedy
feed chemical presses through the liquid end.	The suction-side priming pressure is too high caused by the negative pressure difference between the discharge and suction side.	Install as shown in *'With high suction-side pressure 3' on page 15* or *'With high suction-side pressure 3' on page 15*.

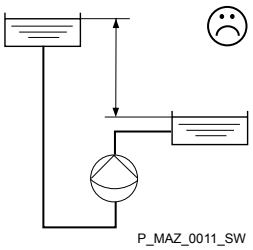


Fig. 18

Fault description	Cause	Remedy
The suction line can pull off.	The overflow line is routed back to the suction line, which is secured with a foot valve or can be blocked.	Install as in Fig. 13.
The metering pump meters the feed chemical in a cycle.	The overflow line is routed back to the suction line, whereby the multifunctional valve possibly no longer closes after being opened.	Install as in Fig. 13.

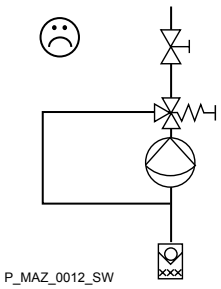


Fig. 19

3.6 Special installation instructions

With high suction-side pressure 1

- Position the end of the discharge line higher than the fluid level in the storage tank to avoid overstraining.

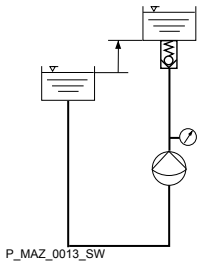


Fig. 20

With high suction-side pressure 2

- Position the outlet of the discharge line higher than the fluid level in the storage tank to avoid overstraining.

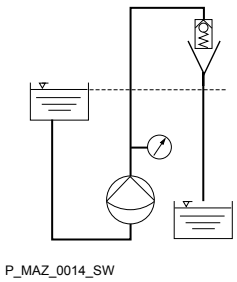


Fig. 21

With high suction-side pressure 3

- Install an adjustable back pressure valve in the discharge line and install a shut-off valve in the suction line, which has to be closed when the pump is at a standstill (preferably a solenoid valve).

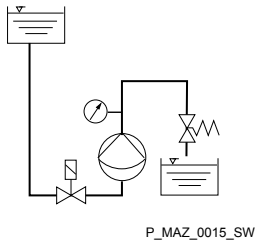


Fig. 22

With high suction-side pressure 1

- If the system is primed from lines with fluctuating pressure, use a hopper with a float valve to ensure a regular discharge flow.

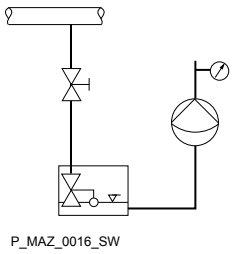


Fig. 23

With fluctuating suction-side pressure 2

- If the system is primed from a high feed level with fluctuating pressure, use a hopper with a float valve to ensure a regular discharge flow.

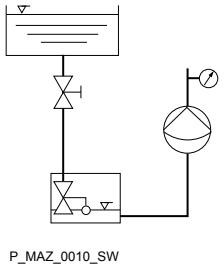


Fig. 24

With negative pressure in the main line

- When metering into a main line, in which there is negative pressure, install a multifunctional valve, a back pressure valve (DHV-RM) or an injection valve in the discharge line to ensure that the feed chemical is not sucked through.

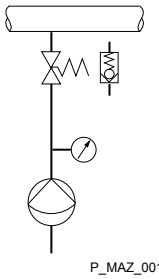


Fig. 25

With danger of deposits in the liquid end

- When metering suspensions, use flushing equipment (see Product Catalogue Chapter 1.8) to prevent deposits in the liquid end.

1 Rinsing water
2 Flushing equipment

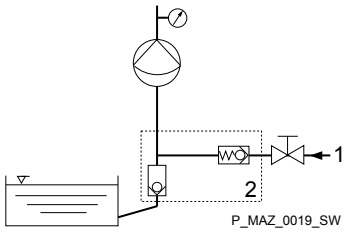


Fig. 26: Manual flushing equipment

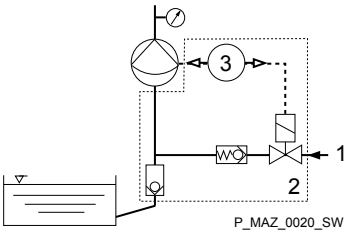


Fig. 27: Automatic flushing equipment

There are two versions of flushing equipment:

- Manual flushing equipment
- Automatic flushing equipment

There are two flushing principles:

- Flushing when metering is interrupted (intermittent flushing)
- Flushing when metering is finished.

CAUTION!

Problems may arise if flushing cannot be performed correctly.

– Ensure that the metering pump is idle during flushing.
– Do not exceed the maximum permitted flushing pressure of 2 bar!

4 Start up

WARNING!

Dangerous reactions are possible due to contact of feed chemical with water

The feed chemical can mix and react in the liquid end with water remaining after testing in the factory.

- Read the safety data sheet on the feed chemical.
- Blast the liquid end with compressed air.
- Flush the liquid end with a suitable medium through the suction connector.

CAUTION!

Danger with dangerous feed chemicals

Provided the following handling instructions are followed, contact with the feed chemical is possible.

- If the feed chemical is dangerous, take appropriate safety precautions when carrying out the following handling instructions.
- Observe the feed chemical safety data sheet.

CAUTION!

Warning of feed chemical spraying around

An unsuitable feed chemical can damage the parts of the pump contacted by the chemical.

- Take into account the resistance of the material contacted by the chemical when selecting the feed chemical - refer to the ProMinent® resistance list in the product equipment catalogue or at *www.prominent.com*.

- *Reliable metering cannot be guaranteed after the metering pump has been idle for a long time, as the feed chemical can crystallise in the valves and on the diaphragm. Check the valves and diaphragm regularly - see product-specific operating instructions.*
- *Only adjust the stroke length when the pump is running.*
- *The metering pump should prime at 100% stroke length, as the priming lift depends on the stroke volume when the liquid end is empty. If the metering pump has to prime at a smaller stroke length and is not priming, reduce the priming lift.*
- *SEK-type only: The suction lift corresponds to the priming lift, as some gas always remains in the liquid end with gaseous media.*

Starting up the metering pump

1. Drain the liquid end - *'Draining the liquid end' on page 18*.
2. Fill the liquid end - *'Filling the liquid end' on page 18*.
3. Check the pump connectors and connections for leak-tightness.
4. Check the suction valve and discharge valve for leak-tightness and tighten if necessary.
5. Check the liquid end for leak-tightness and tighten the screws on the dosing head if necessary - see below for starting torque.
6. Only with bleed valve: Check whether the bleed valve is closed.

7. Start up the relief valve in the system.
8. Start up the system.
9. Set the precise dosage - *'Setting the precise dosage' on page 19*.
10. After 24 operating hours: Tighten the screws on the dosing head - see below for starting torque.

Draining the liquid end

With feed chemicals that may not come into contact with water.

1. Turn the pump downwards using the pressure connector.
2. Allow water to flow out of the liquid end.
3. Flush the suction connector from above with a suitable medium or blast with compressed air.

Filling the liquid end

With liquid ends without bleed valves:

1. Connect the suction line to the liquid end but not yet to the discharge line.
2. Connect a short, transparent section of tubing to the discharge valve.
3. Switch on the metering pump and allow to work at maximum stroke length and stroke rate until some feed chemical becomes visible in the short section of tubing.
   ⇨ The liquid end has been filled completely without bubbles.
4. Switch off the metering pump.
5. Connect the discharge line to the liquid end.
   ⇨ The metering pump is ready for operation.

With liquid ends with bleed valves (not SEK):

1. Connect the suction and discharge line to the liquid end.
2. Connect the return line.
3. Open the bleed valve by turning the star-shaped handle in a counter-clockwise direction.
   ⇨ You can now bleed the pump using the return line.
4. Switch on the metering pump and allow to work at maximum stroke length and stroke rate until some feed chemical becomes visible in the return or discharge line.
   ⇨ The liquid end has been filled completely without bubbles.
5. Switch off the metering pump.
   ⇨ The metering pump is ready for operation.

With self-bleeding metering pumps (SEK type):

- *The return line is connected to the vertical valve on the top of the liquid end. It is labelled with a red sleeve from factory.*
- *The discharge line is connected to the horizontal valve.*

1. Switch on the metering pump and allow to work at maximum stroke length and stroke rate until some feed chemical becomes visible in the return or discharge line.
   ⇨ The liquid end has been filled completely without bubbles.

2. Switch off the metering pump.
   ⇨ The metering pump is ready for operation.

Setting the precise dosage

Stroke length and stroke rate
- *Select as large a stroke length as possible with gaseous feed chemicals.*
- *Select as high a stroke rate as possible for good mixing.*
- *For precise metering using quantity-proportional metering, do not set the stroke length to less than 30 %. With SEK types: not less than 50%.*

Use the diagrams to adjust the capacity

1. In the product-specific operating instructions: Open at the page with the diagram of the pump type.
2. First determine the correction factor: To do so, highlight the operating pressure for the application in the "Correction factor dependent on operating pressure" diagram.

   Go from the calculated value vertically upwards to the graph and then horizontally to the left and read off the correction factor.
3. Divide the required capacity by the calculated correction factor and highlight this figure on the "C [l/h]" axis in the "Capacity dependent on stroke length and stroke rate" diagram.
4. Move from this point horizontally to the left and then move from the intersections with the straight lines for the adjustable stroke rates, move vertically downwards to the "Stroke length [s]" axis.
5. Set one of the stroke rates obtained in this way and the associated stroke length on the metering pump.

The measurements to calculate the capacity for the corresponding diagrams were performed with water. The correction factor was determined at a stroke length of 70%. Spread of pump capacities across all material versions: 5 to +15 %.

5 Accessories

CAUTION!

Danger of personal and material damage

The use of untested third party parts can result in damage to personnel and material damage.

– Only fit parts to dosing pumps, which have been tested and recommended by ProMinent.

- **Level switch**
  2-stage, with 2 m connecting cable.
- **Fault indicating relay**
  for reporting faults.
- **Fault indicating and pacing relay option**
  for reporting faults and pacing other devices.
- **Signal cable**
  Universal signal cable 5-wire / 2 m, 5 m and 10 m
  External contact cable 2-wire / 2 m, 5 m and 10 m
- **Foot valves**
  with suction filter and ball check for connection at the end of the suction line.
- **Injection valves**
  with spring-loaded ball check for metering in open and closed systems and for fixing the discharge line.
- **Injection lances**
  for metering in large pipe cross-sections and for preventing blockages with crystallising feed chemicals.
- **Multifunctional valves**
  for fitting directly on the pump's dosing head with the functions: back pressure valve, relief valve, priming aid, discharge line relief.
- **Back pressure valves**
  for precise metering with low operating pressure or as overflow safety valve.
- **Accumulators**
  for pulsation damping with, for example, long discharge lines.
- **Dosing monitors**
  for the monitoring of metering. After a reasonable number of unacknowledged strokes, the fault is displayed and the metering pump switched off.
- **Suction lances**
  with foot valve and level switch for disposable containers or storage tanks.
- **Flushing equipment**
  for flushing and cleaning dosing heads, metering lines and injection valves. As a manual or automatic, time-controlled design.
- **Storage tank**
  from 35 to 1000 l content with lockable screw lid and requisite accessories.
- **Manual/electric stirrers**
  for mixing and batching metering solutions.
- **Brackets**
  for stable installation of the pump.

6 Warranty claim

Please copy and return with the pump!
If the metering pump fails within the warranty period, please return it to us in a cleaned state with a fully completed warranty claim.

▼

Please complete in full!

Warranty claim for pump No.

Company: ..... Tel. no.: ..... Date: .....

Address: .....

Administrator (customer) : .....

Order no.: . ..... Delivery date: .....

Pump type / identity code: ..... Serial number: .....

Brief description of fault .....

.....

.....

Type of fault

1 Mechanical fault

- ❑ Non-typical wear and tear
- ❑ Wear parts
- ❑ Breakage/Other damage
- ❑ Corrosion
- ❑ Damage during transport

2 Electrical fault

- ❑ Connectors, like plugs or cables loose
- ❑ Operating elements (e.g. switch)
- ❑ Control

3 Leakage

- ❑ Connectors
- ❑ Dosing head

4 No or poor pumping

- ❑ Diaphragm defective
- ❑ Other

Conditions of use:

Installation site/Description of system: .....

Accessories used: .....

.....

.....

.....

Commissioning (date): .....

Operating time (approx. operating hours): .....

Please provide installation data and include a sketch of the system!

P_MOZ_0002_SW

7 Installation details

Installation details

Customer:

Project no.:	Date:	❑ Sketch enclosed:

Pump	Type:	-	.....
	Pump capacity	l/h	.....
	Stroke rate	Strokes/min	.....
	Stroke length	%	.....
	Valve spring pressure, suction-side	bar	.....
	Valve spring pressure, discharge-side	bar	.....
Medium	Description/Concentration	- / %	..... / .....
	Proportion of solids/Grain size	% / mm	..... / .....
	Solids material/Degree of hardness	- / (Mohs scale)	..... / .....
	Dynamic viscosity	mPa s (cP)	.....
	Density	kg/m^3	.....
	Vapour pressure at operating temperature	bar / °C	..... / .....
Suction-side system	Pressure in the suction tank	bar	.....
	Nominal width of suction line	DN / mm	..... / .....
	Suction lift min./max.	m	..... / .....
	Feed height min./max.	m	..... / .....
	Length of suction line	m	.....
	Number of angles/valves	– / –	..... / .....
	Pulsation dampener	❑	Diaphragm .....litr
		❑	Pressure vessel.....litr
Discharge-side	Static system pressure min./max.	bar	..... / .....
	Nominal width of discharge line	DN/mm	.....
	Length of discharge line	m	.....
	Discharge lift	m	.....
	Number of angles/valves	– / –	..... / .....
	Pulsation dampener	❑	Diaphragm ..... litr
		❑	Pressure vessel..... litr

P MOZ 0003 SW

8 Decontamination declaration

Declaration of Decontamination

(see download: www.prominent.com)

Because of legal regulations and for the safety of our employees and operation equipment, we need the „declaration of decontamination", with your signature, before your order can be handled.
Please make absolutely sure to include it with the shipping documents, or – even better – attach it to the outside of the packaging.

Please return your products to:	

Type of instrument / sensor: _____ **Serial number:** _____
Gerätetyp: Seriennummer:

Process data: Temperature: _____ [°C] Pressure: _____ [bar]
Prozessdaten: Temperatur: Druck:

Mediums and warnings:
Warnhinweise zum Medium:

	Medium/ Concentration Medium/ Konzentration	**Identification** CAS No.	**flammable** entzündlich	**toxic** giftig	**corrosive** ätzend	**harmful/ irritant** gesundheitsschädlich/reizend	**other*** sonstiges*	**harmless** unbedenklich
Process medium Medium im Prozess								
Medium for process-cleaning Medium zur Prozessreinigung								
Returned part cleaned with Medium zur Endreinigung								

* explosive; oxidising; dangerous for the environment; biological risk; radioactive
* explosiv; brandfördernd; umweltgefährlich; biogefährlich; radioaktiv

Please tick should one of the above be applicable, include security sheet and, if necessary, special handling instructions.

Reason for return:

Company data:

Company:	_____	Phone number:	_____
Contact person:	_____	Fax:	_____
Street:	_____	E-Mail:	_____
Address:	_____	Your order No:	_____

"We hereby certify that the returned parts have been carefully cleaned. To the best of our knowledge they are free from any residues in dangerous quantities."

_____ _____
Place, date Company stamp and legally binding signature

9 Index