

**Betriebsanleitung**  
**Operating Instructions**  
**Mode d'emploi**  
**Instrucciones de servicio**  
ProMinent® CONCEPT<sup>PLUS</sup>



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**D**

Betriebsanleitung in Deutsch von Seite 3 bis 13

**GB**

Operating Instructions in English from page 15 to page 25

**F**

Mode d'emploi en français de la page 27 à la page 37

**E**

Instrucciones de servicio en español de página 39 hasta página 49

Please read the operating instructions through completely before commissioning this equipment!  
Do not discard!  
Any part which has been subject to misuse is excluded from the warranty!

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### General user instructions

Please read through the following user instructions carefully! They will help you get the best use out of the operating instruction manual.

The following are highlighted in the text:

- Enumerated points
- ▶ Instructions

Safety guidelines:



#### **WARNING**

**Describes a potentially dangerous situation. If not avoided, could cause fatal or serious injury.**



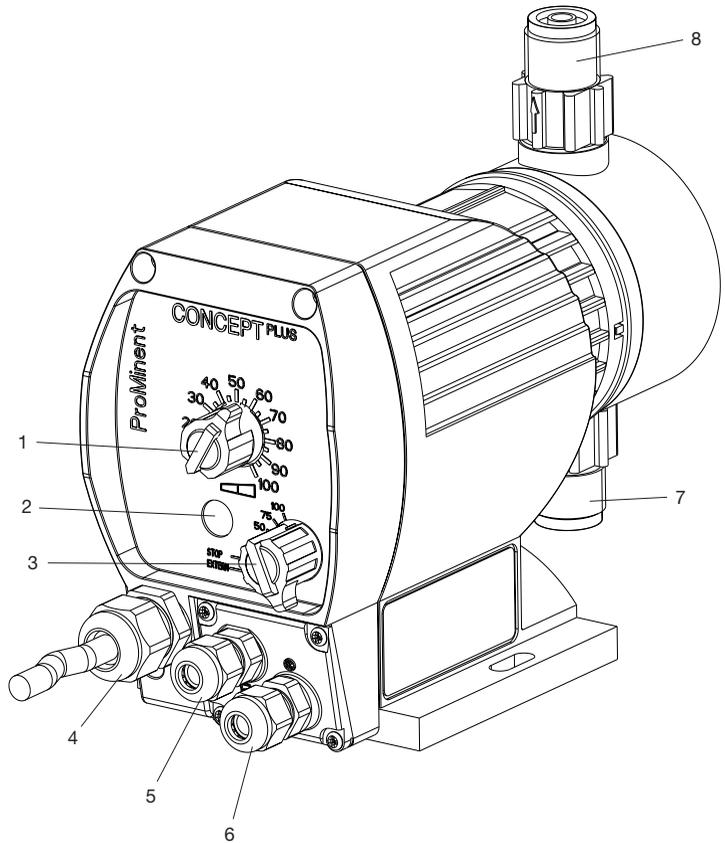
#### **IMPORTANT**

**Describes a potentially dangerous situation. If not avoided, could cause damage to property.**

**This operating instructions manual is aimed at experts in metering pumps and their operation.**

**If you require detailed installation instructions please order "General Operating Instructions Manual, ProMinent® Solenoid Metering Pumps" (Order No. 987057).**

1 Equipment overview



- 1 Stroke length adjustment knob
- 2 Error/operating indicator (error - red / operation - green)
- 3 Multifunction switch (stroke rates (in % of 180 strokes/min), stop, operating mode "external" (Retrofit kit))
- 4 Power cable
- 5 "External actuation" socket (actuation via contact signal in "external" operating mode; Retrofit kit)
- 6 "Float switch" socket (for 1-stage float switch; Retrofit kit)
- 7 Suction valve
- 8 Discharge valve

The leakage bore is between the suction valve and the drive housing.

### 2 Type overview/material details

Order No. CONCEPT<sup>PLUS</sup>, CNPa, 115 V versions

Pump type	liquid end material	
	PP (with EPDM*)	NP** (with Viton®*)
1000	1022480	1022484
1601	1022481	1022485
1002	1022482	1022486
0704	1022483	1022487

Order No. CONCEPT<sup>PLUS</sup>, CNPa, 230 V versions

Pump type	liquid end material	
	PP (with EPDM*)	NP** (with Viton®*)
1000	1022452	1022476
1601	1022453	1022477
1002	1022474	1022478
0704	1022475	1022479

\* Seal material

\*\* Valve body material is PVC

The valve balls are made of ceramics.

### 3 Safety

*Correct use of equipment*

- The pump may be used only for metering liquid media!
- All other uses or modifications are prohibited!
- The pump is not suitable for metering gaseous media or solids!
- The pump must be operated by appropriately trained and authorised personnel!  
The personnel must be familiar with metering pumps and their operation!



#### **WARNING**

- **The pump may start to operate as soon as it connected to the mains power supply!**  
**Ensure that no hazardous metering chemical can leak out!**  
**If you have not done so, set the multifunction switch to STOP or disconnect the pump from the mains immediately.**
- **The pump cannot be switched off! In the case of an electrical failure, disconnect the mains cable from the power supply.**
- **Disconnect the power cable from the mains before working on the pump.**

- Risk of electric shock - This pump is supplied with a grounding conductor and grounding-type attachment plug. To reduce the risk of electric shock, be certain that it is connected only to a properly grounding-type receptacle.
- Always depressurise liquid end before working on the pump.
- Always empty and rinse the liquid end before working on the pump if used with hazardous or unknown feed chemicals.
- Wear safety equipment appropriate to the metering chemical when working on the liquid end.
- Never let the pump work against a significantly increased operating pressure or a closed stop tap on the discharge-side. This can cause lines to burst.
- Avoid overfeed due to positive pressure difference between in take and discharge sides. E.g. use a ball check valve with at least 1.5 bar opening pressure with an atmospheric pressure outlet (not 0213).
- Assembly and installation of ProMinent® metering pumps with non-original parts, which have not been checked and recommended by ProMinent is not allowed and can lead to harm to persons or property for which no liability can be accepted.
- Note all national directives which apply to the installation.

*Sound pressure level* The sound pressure level is < 70 dB (A) at a distance of 1 m in accordance with EN 23741 or EN 23742 at maximum stroke, maximum stroke rate, maximum back pressure (water)

#### 4 Storage and transport

Ambient conditions for storage and transport:

Storage and transport temperature: -10 to +50 °C

Humidity: < 92 % rel. humidity,  
non-condensing

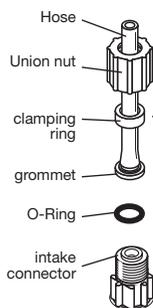
#### 5 Assembly and installation



##### **IMPORTANT**

- The pump must not vibrate when installed.
- Solenoid metering pumps tend to overfeed if the back pressure is too low. In this case fit a ball check valve, a multifunction valve or a discharge valve with 1.5 bar opening pressure downstream from the pump (not 0213).

- Use only original hoses with the specified diameter and wall thickness! It is not otherwise possible to ensure the durability of the connection to the pump valves!
- For tips on hydraulic installation, order the "General Operating Instructions Manual, ProMinent® Solenoid Metering Pumps" (Order No. 987057).
- Check that the mains power supply and frequency match the values specified on the rating plate!
- Note all national directives which apply to the installation!



- ▶ Mount metering pump on a tank or bracket using screws and washers ( $\varnothing$  6 mm).
- ▶ Keep suction height and length of suction hose as short as possible. Install suction hose in an ascending position.
- ▶ Cut the suction and pressure pipe to the required length.
- ▶ Push union nut and clamping ring onto the hose.
- ▶ Push the cut hose onto the grommet **up to the stop**.
- ▶ Press on hose and tighten the union nut.
- ▶ Mount the foot-actuated valve.
- ▶ For this purpose, cut the free suction hose end such that the foot-actuated valve is suspended close above the tank bottom. In case of metering solutions with contaminations or residues, cut the free suction hose end such that the foot-actuated valve is suspended at least 50 mm above the tank bottom.

## 6 Commissioning

Precision metering is possible only within a stroke length range of 30-100 %.

## 7 Maintenance

*Service interval* Quarterly at normal load (approx. 30 % continuous operation)

- ▶ Check the pump diaphragm for damage
  - ▶ Check that the discharge and suction valves and the discharge lines are seated firmly
  - ▶ Check the overall tightness of the liquid end (in particular leakage opening between suction valve and drive housing)
  - ▶ Check liquid end screws are tight
- Tightening torque for liquid end screws: 4.5 to 5 Nm

## **8 Repair**

Repairs which may be carried out by qualified persons (according to safety instructions):

- Cleaning a valve
- Replacing the diaphragm (installation instructions included with replacement diaphragm)

For all other repairs consult your ProMinent® Subsidiary.

## **9 Troubleshooting**

### **The pump does not prime despite full stroke action and venting**

*Cause:* Crystalline deposits on the ball seat due to valves drying out.

*Remedy:* Remove suction hose from the supply tank and rise liquid end thoroughly.

If unsuccessful, dismantle valves and clean.

### **Fluid is leaking from the head washer**

*Cause:* The liquid end is leaking at the pump diaphragm.

*Remedy:* Screw in the liquid end anti-clockwise (torque: 4.5 to 5 Nm)

If unsuccessful, replace the diaphragm (installation instructions included with the diaphragm).

### **Error/operating indicator *not lit***

*Cause:* No or incorrect mains voltage.

*Remedy:* Use mains voltage as specified on the rating plate.

### **Error/operating indicator *lit red***

*Cause:* Liquid level in the supply tank has reached “low liquid level”.

*Remedy:* Top up supply tank.

*Cause:* Electronic failure.

*Remedy:* Send pump away for repair.

## 10 Decommissioning and disposal



### IMPORTANT

- When decommissioning a pump, clean all traces of chemicals and dirt from the housing and particularly the liquid end.
- Observe all relevant disposal directives for your area (particularly with regard to electronic waste)

## 11 Technical data

Performance table 230 V version

Pump type	Minimum delivery rate at maximum back pressure			Minimum feed rate at medium back pressure			Max. stroke rate strokes/ min	Connection size ext. Ø x int. Ø mm	Priming lift m Wc	Priming lift* m Wc	Admissible priming pressure Intake bar
	bar	l/h	ml/ stroke	bar	l/h	ml/ stroke					
1000	10	0.6	0.07	5	0.8	0.08	180	6x4	6	1.8	8
1601	16	1.0	0.10	8	1.4	0.13	180	6x4	6	2.0	8
1002	10	2.0	0.18	5	2.6	0.24	180	6x4	5	2.5	5.5
0704	7	3.9	0.39	3.5	4.5	0.42	180	6x4	4	3.0	3
0308	3	8.0	0.74	1.5	10.8	1.00	180	8x5	2	2.0	1
0213	1.5	13.5	1.42	1.0	15.5	1.4	180	8x5	1.5	1.5	0.5

\* Suction lift with filled suction line and liquid end

\*\* Priming lifts with clean and wetted valves, metering fluid, water (20 °C), at 100 % stroke length, 180 strokes/min, atmospheric pressure outlet and/or open venting valve and correctly installed lines.

### Materials

Liquid end material specification: see type code

Housing: PPE, glass fibre reinforced

### Electrical data

Mains frequency:

50 Hz / 60 Hz

230 V/AC version	CNPa
Wattage:	10 W
Current I eff:	0.12 A
Peak current	0.5 A
Switch-on peak current	< 4 A for < 0.1 ms
Fuse*:	0.16 AT

115 V/AC version	CNPa
Wattage:	11 W
Current I eff:	0.26 A
Peak current	1.2 A
Switch-on peak current	< 3 A for < 0.1 ms
Fuse*:	0.315 AT

\* Fuses must have approvals according to VDE, UL and CSA.

**Temperature details**

Storage and transport temperature: -10 °C...+50 °C  
 Function at ambient temperature: -10 °C...+45 °C  
 Admissible feed chemical temperature: -10 °C...+35 °C

Material feed unit	Long term at max. back pressure	max. 15 min. at max. 2 bar
PP	50 °C	100 °C
NP	45 °C	60 °C

**Climate**

Admissible relative air humidity: 92 %, non condensing.  
 Load in wet and alternating climate: FW 24 in accordance with DIN 50016.

**Enclosure rating and safety class**

Contact and moisture protection: IP 65 in accordance with IEC 529, EN 60529, DIN VDE 0470 Part 1 Safety class 1 - electric mains with earth

**Sound pressure level**

Sound pressure level: < 70 dB(A) at a distance of 1 m in accordance with EN 23741 or EN 23742 at maximum stroke, maximum stroke rate, maximum back pressure (water)

**Shipping weight**

Shipping weight: 1.8 kg

**12 Accessories**

*Suction lances*

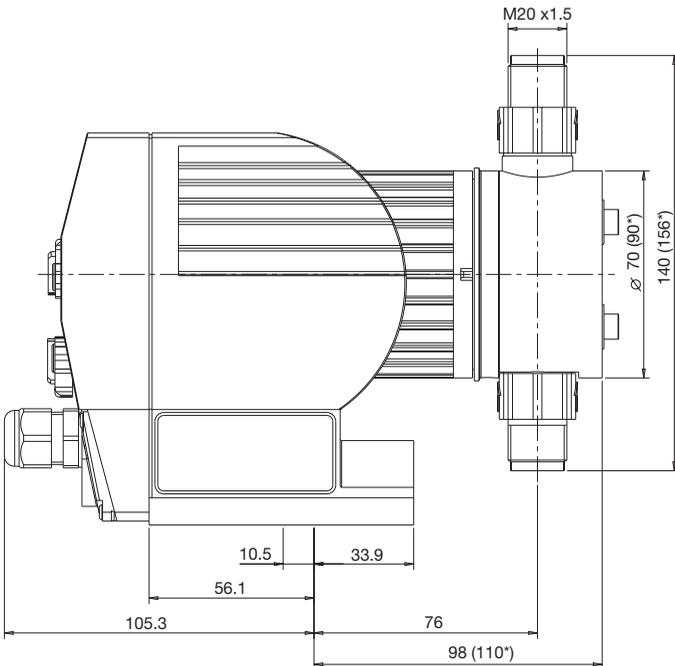
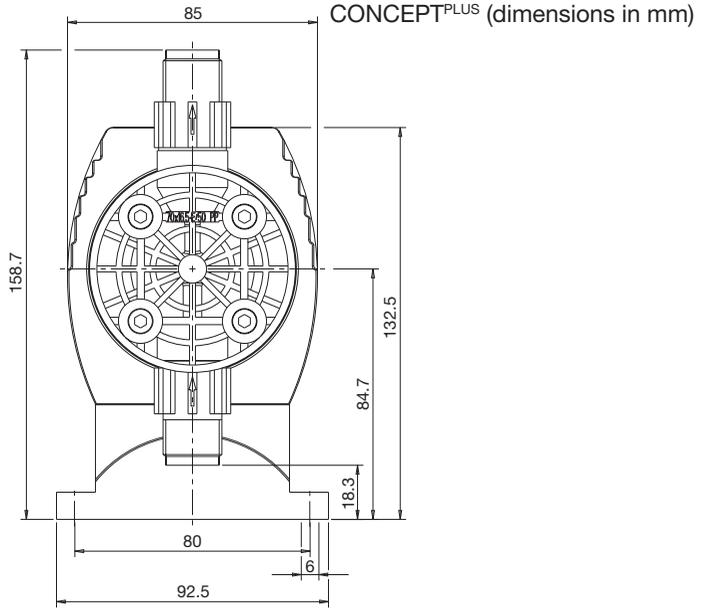
Suction lance for 200 l drum, tank opening 2" DIN 570, PPE	1022511
Suction lance for 200 l drum, tank opening 2" DIN 570, PCB	1022512
Suction lance for tank 5-50 l drum, tank opening d50, PPE	1022645
Suction lance for tank 5-50 l drum, tank opening d50, PCB	1022644

Adjustable suction lance with single-stage level switch, closing in the event of lack of chemicals.  
 The delivery scope also includes the parts required for connecting the pump.

*Retrofit kits*

Retrofit kit External + level CNP	1022099
Retrofit kit level switch CNP*	1022115

\*connecting parts given suction lances and tanks provided by the customer



\* dimensions for pump type 0308, 0213

## EC Declaration of Conformity

We,

**ProMinent Dosiertechnik GmbH**  
**Im Schuhmachergewann 5 - 11**  
**D - 69123 Heidelberg**

hereby declare that, on the basis of its functional concept and design and in the version brought into circulation by us, the product specified in the following complies with the relevant, fundamental safety and health stipulations laid down by EC regulations.

Any modification to the product not approved by us will invalidate this declaration.

Product description : **Metering pump, Series Concept<sup>Plus</sup>**

Product type : **CNPa**

Serial number : **see type identification plate on device**

Relevant EC regulations : **EC - machine regulation (98/37/EC)**  
**EC - low voltage regulation (73/23/EEC)**  
**EC - EMC - regulation (89/336/EEC subsequently 92/31/EEC)**

Harmonised standards used, in particular **DIN EN 292-1, DIN EN 292-2, DIN EN 809,**  
**DIN EN 50106, DIN EN 60335-1, DIN 60335-2-41,**  
**DIN EN 61000-4-2/3/4/5/6/11, DIN EN 61000-3-2/3**

Date/manufacturer's signature : 22.08.2003



The undersigned : **Dr. Rainer V. Dulger, Executive Vice President R&D and Production**