# Metering pumps, components and metering systems



Issued by:

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Heidelberg, January 2016

# **Product Catalogue Volume 1**



# Metering Pumps, Components and Metering Systems



### Metering technology for professionals

The heart of metering technology is quite clearly the pump.

With its optimum performance range and functionality adapted to the feed chemical, it is responsible for smooth-running metering processes.

**Chapter 1** focuses on metering pumps that perform all possible metering tasks, ranging from micrometering pumps to pumps delivering up to 75 l/h at a maximum back pressure of 60 bar.

**Chapter 2** goes on to present durable and easy-to-operate transfer and peristaltic pumps for pure pump capacities, as well as the matching components, like sturdy storage tanks and collecting pans.

Refer to **Chapter 3** for fully ready mounted metering systems. Whether standard or made-to-measure, thanks to their perfect interaction, the precisely coordinated components ensure a safe and immediately ready-to-use complete solution.

### We're there for you!

The selection of a product depends on a number of different factors.

Our team will be happy to be of assistance should you have any questions about our metering technology. Give us a call! We look forward to hearing from you.

Monday to Friday 8:00 - 16:30

### **ProMinent Sales**

0049 6221 842-0 info@prominent.com

Technical Consulting 0049 6221 842-1850

service@prominent.com

### **Pump Guide**

You can also find information online. Try out our ProMinent Selection Guide on our website. Just enter the required pump capacity and back pressure – and the Pump Guide will present you with a list of suitable metering pumps. It's the quickest and easiest way to track down the right pump for your needs.

### www.pump-guide.com

Note: We can also support you by phone in selecting the right products and, in many cases, optimising entire applications. For more complex requirements, our consultants will hand the task over to a field sales colleague, who will then clarify your requirements in person on site.

### After-sales Service

Our service technicians are on hand to help you. Regardless of whether you need assistance with initial installation or with maintenance and repair – we're happy to help!

0049 6221 842-1850 service@prominent.com

**Note:** Local to you around the world.Find contact details for our branch offices around the globe at: www.prominent.com/en/locations

# Step by Step to the Right Product

Metering tasks come in all shapes and sizes! Provide us with your data - we'll deliver the optimum solution!

The following data sheet will help in solving your metering problem. Please enter your requirements and conditions and return it to info-de@prominent.com . Our Service Centre will use your data to reach the optimum result - the optimum metering pump and matching accessories for your application.

# **Required Data for Designing Metering Pumps and Accessories**

Min./max. required feed rate	l/h
Available power supply	V, Hz
Min./max. operating temperature	0°
Properties of process chemical	
Name, concentration %	
Solids content %	
Dynamic viscosity mPa (= cP)	
Vapour pressure at operating temperature	bar
Remarks, e.g. abrasive,	
gaseous, flammable,	
corrosive towards	
Suction conditions:	
Min./max. suction lift	m
Min./max. positive suction head	m
Pressure in chemical tank	bar
Suction line length	m
Suction line diameter	mm
Discharge conditions:	
Min./max. back pressure	bar
Min./max. discharge head	m
Min./max. negative discharge head	m
Discharge line length	m
Discharge line diameter	mm
Number of valves and fittings in suction and discharge line	
Data required for proportional dosing:	
Water flow Q min./max.	m <sup>3</sup> /h
Required final concentration	g/m <sup>3</sup> , ppm

### Example:

A required dose in mg/l =  $g/m^3 = ppm$ 

(Water flow Q max. 50 m<sup>3</sup>/h)

Pulse spacing (flow volume per pulse) of water meter 5 l.

Process fluid = sodium hypochlorite solution Na OCI with 12 % chlorine (by weight) = 120 g/kg = 150 g/l = 150 mg/ml

Selected dosing pump GALa 1005 NPB2 with 0.41 ml/per stroke volume, at max. 10800 strokes/h.

Variables: pump type, pulse spacing and concentration. The stroke rate (max. throughput l/h: pulse spacing l/pulse = 50,000 l/h : 5 l/pulse = 10000 pulses/h) must not exceed the max. stroke frequency (10800 strokes/h) of the dosing pump.



 $\frac{1}{12.3 \text{ ml x 5 l}} = \frac{1}{12.3 \text{ ml y 1}} = \frac{1}{12.3 \text{ ml y 1}} = \frac{1}{12.3 \text{ ml y 1}}$  $= 12.3 \text{ g/m}^3$  $= 12.3 \text{ ppm chlorine Cl}_2$ 

pk\_0\_002

## We'd be pleased to go through these points with you by phone. We're there to help!

# Free Choice with the Identity Code



Use the identity code to determine the properties and features of your low-pressure metering pump. Simply select, enter the code in the bottom row and you've configured your product!

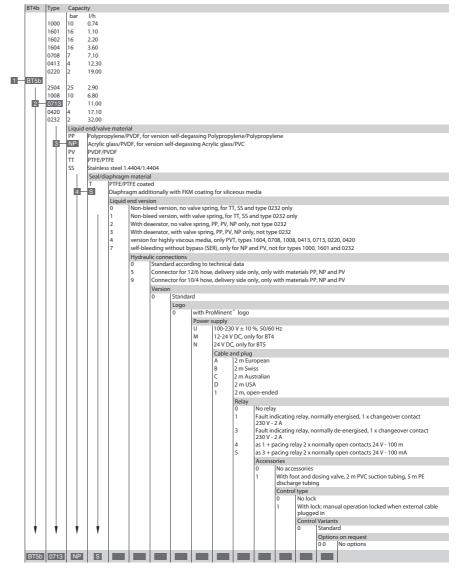
You've opted for a pump product range. It's now up to you to configure the pump exactly to meet your individual needs.

First determine the **pump type (1)**. This is based on the pump capacity you require and the back pressure present. Enter the result at the very bottom, in the grey row of the identity code.

The medium to be metered is crucial when it comes to the **material of the dosing head (2)** and the **seals** (3). Once again enter the selected code in the bottom row.

You can now select the features and properties of your product with a few restrictions.

Work through column by column, generating the identity code for your own individual metering pump.



We will be happy to advise you on your metering application.

Give us a call should you still have any questions!

### **ProMinent Germany Sales**

0049 6221 842-0 info-de@prominent.com

### **Technical Consulting**

0049 6221 842-1850 service@prominent.com

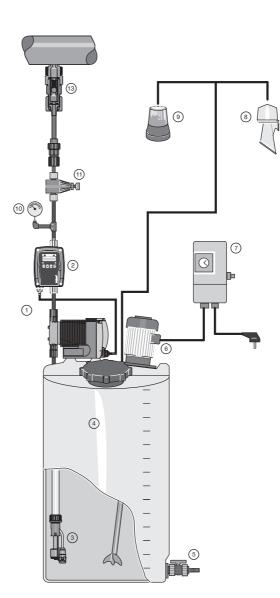


# **Metering Pumps also Need Accessories**

Examples of metering tasks illustrate which components and accessories can be used for different metering processes.

A pump alone is often simply not enough. A metering process requires further **components and accessories**. ProMinent provides all the products you need to guarantee **optimum process flows** for the metering of liquid media. Expertise and advice are, of course, included!

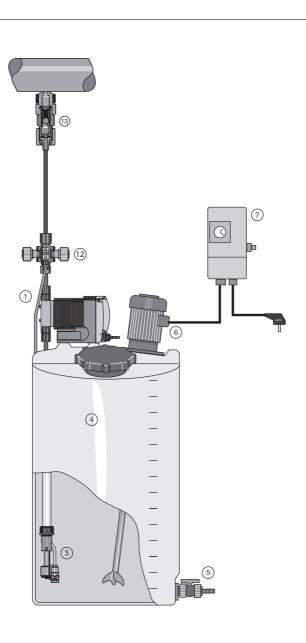
- 1 Metering pump
- 2 DFMa flow meter with single stroke monitor and feedback to the metering pump
- 3 Suction assembly with level switch
- 4 Chemical tank
- 5 Drain cock
- 6 Stirrer
- 7 Timer for stirrer
- 8 Signal horn
- 9 Display lamp
- 10 Manometer for precise adjustment of the back pressure valve
- 11 Back pressure valve



AP\_0004\_SW3

# **Metering Pumps also Need Accessories**

- 1 Metering pump
- 3 Suction assembly with level switch
- 4 Chemical tank
- 5 Drain cock
- 6 Stirrer
- 7 Timer for stirrer
- 12 Multifunctional valve
- 13 Injection valve



AP\_0005\_SW3



# New Products Metering Pumps, Components and Metering Systems





# New feature for successful all-rounder



In 2016 ProMinent is extending the function range of the Beta<sup>®</sup> b without restricting its tried and tested characteristics. The pump will then optionally be available with a 0/4...20 mA input. The standard signal commonly used in industry will allow the pump's performance to be controlled from a remote control room. Adjusting between 0/4...20 mA is incredibly simple: the Beta<sup>®</sup> b integrates the corresponding positions on the "Pulse Control Switch". As the 0/4...20 mA signal is unaffected by electromagnetic interference, the Beta<sup>®</sup> b product range can also be safely operated using long control lines. A potential control line failure is recognised as a fault and can be quickly reported to the control room. Another pioneering feature is the very easy way in which the Beta<sup>®</sup> b can be integrated in centrally controlled systems. This new function will continue to make the Beta<sup>®</sup> b the product range of choice for water treatment and chemical metering.

For more information see page  $\rightarrow$  1-7



# Solenoid driven metering pump gamma/ X now with Bluetooth interface

- Optional Bluetooth interface for convenient adjustment and configuration of the operating parameters
- Virtually wear-free solenoid drive, overload-proof and economical
- Suitable for continuous micro-metering from 1 ml/h thanks to the regulated solenoid drive
- Simple adjustment of the capacity directly in I/h
- Direct input of the required final concentration in volume-proportional metering tasks
- Detection of hydraulic malfunctions or blocked discharge lines ensures smooth process
- Integrated pressure measurement and display for greater safety during commissioning and in the process
- Adaptation to existing signal transducers by external control via potential-free contacts with pulse step-up and step-down
- External control via 0/4-20 mA standard signal with adjustable assignment of signal value to stroke rate
- Integrated 1-month timer for timed metering tasks
- Guaranteed metering by means of automatic bleeding
  - Connection to process control systems via bus interfaces, such as Profibus, Profinet, CAN bus and others on request

For more information see page  $\rightarrow$  1-13





# New Products Metering Pumps, Components and Metering Systems

# **Rotary Lobe Pumps**

Capacity range 25–100 m<sup>3</sup>/h, 10–4 bar

The rotary lobe pump is robust and surprisingly powerful given its compact dimensions: depending on the model it can pump up to 100 m<sup>3</sup>/h viscose media and media containing solids, even containing larger particles of solids. It can be used with ease as a self-priming pump with reversible pumping direction. And naturally it is absolutely safe to operate as an intermediate chamber reliably separating the pumped medium from the gear oil.

The carefully selected materials, high-grade workmanship and maintenance-friendly construction make the rotary lobe pump into a low-wear endurance pump. A three-phase motor drives the two rotary pistons via a precision gear perfectly synchronised and thus also quietly. Corresponding drive versions enable the pump to be connected to bus systems and thus integrated into modern production environments.

- Pump complete with drive motor, reduction gear system, clutch and base plate
- Housing material AISI-316 or AISI 420, rotary piston and shaft seals made of NBR, EPDM or FKM
- Constant i.e. non-pulsing feed rates
- Valveless construction enables reversed pump direction
- Different versions of power end/drive via three-phase motor (On/Off mode, adjustable motor with integrated frequency converter or external fan)
- Connection to bus system is possible (integrated frequency converter needed)
- Hydraulic connection as standard by means of DIN flange (DN 50, 65, 80, 100, 125), other connectors available
- Simple replacement of wear discs thanks to maintenance-friendly construction

For more information see page  $\rightarrow$  2-22



# Metering System DULCODOS® universal

Pump volume depending on the selected pump 1 ml/h-75 l/h, back pressure 10-2 bar

Metering is dependent on the metering pump. Components, such as pipes, relief valves and electrics – indispensable, but scarcely variable – ensure the reliable operation of the system. That is why we have preconfigured the new metering system DULCODOS<sup>®</sup> universal with these standards. The benefits for you: low costs, fast delivery, simple commissioning.

Naturally you have a choice here as well: Should it be the solenoid driven metering pump Beta<sup>®</sup> 4 or 5, delta<sup>®</sup> or gamma/ X? Should the pipes and seals be made of PP/FKM or PVC/EPDM? And do you need one or two points of injection with one or two pumps?

The novel valve block gives every metering system a clearly arranged structure. Every system is equipped with two relief valves, a collecting pan with leakage sensor and a calibration tank for controlled metering for complete operational safety.

- ProMinent solenoid driven metering pumps Beta<sup>®</sup> 4/5, delta<sup>®</sup> or gamma/ X
- Dimensions: 1,700 x 1,200 x 635 mm (H x W x D)
- Material combinations: PP/FKM or PVC/EPDM (note compatibility with the feed chemical)
- Relief valves to protect the pipework
- Manometer
- Collecting pan with leakage sensor
- Flushing connectors
- Terminal box with master switch
- Assembly frame available in 6 standard colours

For more information see page  $\rightarrow$  3-10



# **Dosing Tanks**

Our PE dosing tanks are now also available with a useful capacity of **1,500 litres**. The blue, black. yellow, red and neutral storage tanks are manufactured in the ProMinent quality you have come to expect.

Diameter: 1,150 mm, Height: 1,735 mm, Weight: approx. 80 kg.

### Dosing tank with flat mounting surface

- "Natural/transparent PE dosing tank" design without sintered threaded socket
- Level mounting surface for the installation of metering pumps on the storage tank
- Additional installation of a manual or electric stirrer is possible

For more information see page  $\rightarrow$  2-4



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# **Overview of Low Pressure Metering Pumps**

# How to Find the Right Pump Type?

Low-pressure metering pumps for practically all liquid chemicals:

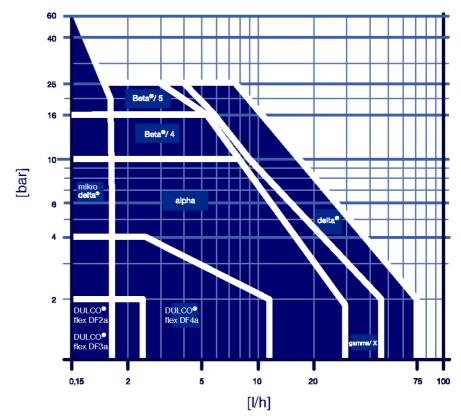
the wide range of materials and extremely reliable function make these pumps veritable all-rounders - even under the toughest conditions. You'll find the optimum metering pump for your application in this broad product range from **0.74 to 75 I/h at a back pressure of 25 - 2 bar.** 

# ,

Tip

The performance overview will assist you with rapid pre-selection. Determine the right product range of metering pumps based on a given back pressure (bar) and pump capacity (I/h).

All our low-pressure metering pumps are self-priming!



SG\_0028\_C

Back pressure [bar] as a function of feed rate [l/h]

### Important note

ProMinent<sup>®</sup> metering pumps in the capacity range of **over 75 l/h or over 25 bar**, as well as metering pumps approved for use in premises at risk of gas explosions are included in volume 3 "Motor-driven and process metering pumps for all capacity ranges".

Please use our Pump Guide for assistance in making a quick selection; www.pump-guide.com.

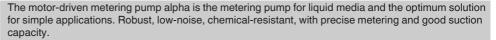
# 1.1.1

# Motor Driven Metering Pump alpha



The cost-effective solution for simple applications in the lower performance range.

Capacity range 1.0 – 30.6 l/h, 10 – 2 bar



Various pump types are available as a combination of 2 gears and 4 sizes of dosing head in materials PVDF and clear acrylic/PVC, enabling you to match the pump perfectly to your metering process.

### Your benefits

- Precise metering and good suction capacity by soft controlled suction and compression strokes
- Tough plastic housing shock-proof and chemical-resistant
- Suitable for higher viscosity media, thanks to spring-loaded valves
- Low-noise operation

## **Technical details**

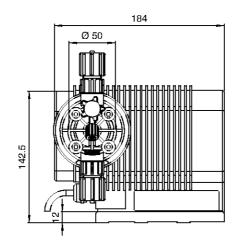
- Stroke length adjustment by changing the eccentricity on the pump drive when the pump is idle
- Stroke length adjustment in 10% steps
- Diaphragm deflection from the centre position
- Soft controlled suction and compression strokes

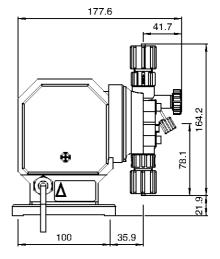
### Field of application

All low capacity applications where constant metering is required.

P\_ALP\_0004\_SW

# Dimensional drawing of the alpha





P\_ALP\_0006\_SW3

Dimension drawing of the alpha - dimensions in mm





1

Pump type	Delivery rate at max. back pressure			Delive		at medium k pressure	Number of strokes	Stroke length	Connection size o Ø x i Ø	Suction lift	Shipping weight
	bar	l/h	ml/stroke	bar	l/h	ml/stroke	Strokes/min	mm	mm	mWC	kg
50 Hz versi	on										
ALPc 1001	10	1.0	0.29	5	1.1	0.32	30	2	6 x 4	5.1	3.0
ALPc 1002	10	1.8	0.52	5	2.1	0.60	58	2	6 x 4	5.1	3.0
ALPc 1004	10	3.5	1.01	5	3.9	1.12	58	3	8 x 5	5.1	3.0
ALPc 1008	10	7.7	1.00	5	8.6	1.12	128	3	8 x 5	5.1	3.0
ALPc 0707	7	6.9	1.98	3	7.7	2.21	58	3	8 x 5	4.1	3.0
ALPc 0417	4	17.0	2.51	2	18.3	2.76	128	3	8 x 5	4.1	3.0
ALPc 0230	2	30.6	3.98	1	32.7	4.26	128	3	12 x 9	3.1	3.0
60 Hz versio	n										
ALPc 1001	10	1.2	0.29	5	1.3	0.31	36	2	6 x 4	5.1	3.0
ALPc 1002	10	2.2	0.53	5	2.6	0.63	69	2	6 x 4	5.1	3.0
ALPc 1004	10	4.1	0.99	5	4.7	1.14	69	3	8 x 5	5.1	3.0
ALPc 1008	10	8.9	0.96	5	10.4	1.13	154	3	8 x 5	5.1	3.0
ALPc 0707	7	8.3	2.00	3	9.2	2.22	69	3	8 x 5	4.1	3.0
ALPc 0417	4	20.6	2.45	2	21.9	2.75	154	3	8 x 5	4.1	3.0
ALPc 0230	2	34.4	3.72	1	39.2	4.24	154	3	12 x 9	3.1	3.0

# **Technical Data**

All data refers to water at 20 °C.

# Materials in Contact With the Medium

	Liquid end	Suction/discharge connector	Ball seal	Seals	Balls
PPE	Polypropylene	Polypropylene	EPDM	EPDM	Ceramic
PPB	Polypropylene	Polypropylene	FKM	FKM	Ceramic
NPE	Acrylic glass	PVC	EPDM	EPDM	Ceramic
NPB	Acrylic glass	PVC	FKM	FKM	Ceramic
PVT	PVDF	PVDF	PVDF	PTFE	Ceramic

Metering diaphragm with PTFE coating for all types.

FKM = Fluorine Rubber

## **Motor Data**

Split pole motor with integrated thermal overload protection
220-240 V, 50/60 Hz (version A)
50 W (at 230 V/50 Hz)
0.4 A (at 230 V/50 Hz)

Warranty: The warranties listed under "General Terms and Conditions of Sale" apply, although there is a warranty period of 12 months for the alpha pump drive

# 1.1.2

# Identity Code Ordering System

# alpha series, version c

ALPc	Туре	Capac	ity (50	Hz / 60	Hz)							
		l/h	bar	l/h	bar							
	1001	1.0	10	1.2	10							
		1.8	10	2.2	10							
	1004	3.5	10	4.1	10							
	1008	7.7	10	8.9	10	0						
	0707	6.9	7	8.3	7	7						
	0417	17.0	4	20.6	4							
	0230	30.6	2	34.4	2							
			end m									
		PPE		opylene								
		PPB		opylene		pylene	/FKM					
		NPE	-	/PVC/El								
		NPB		/PVC/Fł								
		PVT	PVDF/	PVDF/P	TFE							
				springs								
			2				vith blee					
			3					1 bar, material 1.4571, with bleeding				
					ulic cor							
			0 Standard according to technical data									
					Versio							
					0		ProMiner					
		Electrical connection										
						A		50/60 Hz, 2 m, Euro. plug				
			B 230 V, 50/60 Hz, 2 m, Swiss plug									
			C 230 V, 50/60 Hz, 2 m, Austral. plug									
								sories				
							0	No ancillary equipment				
							1	with foot and metering valve, 2 m PVC suction line, 5 m PE metering line				

FKM = Fluorine Rubber

**ProMinent**<sup>®</sup>

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# 1.1.3

# Spare Parts Kits, Replacement Diaphragms

# Spare parts kits for alpha

# Spare parts kits for alpha, consisting of

- 1 pump diaphragm
- 1 suction valve compl.
- 1 discharge valve compl.
- 2 valve balls
- 1 connector set

Туре		Order no.
for alpha c, type 1001, 1002, 1004, 1008	PPE	1001647
	PPB	1001655
	NPE	1001716
	NPB	1001724
	PVT, PPT, NPT	1023110
for alpha c, type 0707, 0417	PPE	1001649
	PPB	1001657
	NPE	1001718
	NPB	1001726
	PVT, PPT, NPT	1023112
for alpha c, type 0230	PPE	1001650
	PPB	1001658
	NPE	1001719
	NPB	1001727
	PVT, PPT, NPT	1023113

# **Replacement Diaphragms**

Туре	Order no.
For alpha c 1001, 1002, 1004, 1008	1000247
For alpha c 0707, 0417	1000249
For alpha c 0230	1000250

# Accessories

- Foot Valves for Low-Pressure Metering Pumps see page → 1-44
- Injection Valve for Low-Pressure Metering Pumps see page  $\rightarrow$  1-47
- Hoses, Pipes see page → 1-57
- Suction Lances, Suction Kit Without Level Switch see page → 1-62
- Connector Parts/Fittings see page → 1-84

# **Spare Parts**

■ Custom Valve Balls/Valve Springs See page → 1-83

pk\_1\_008

# 1.2 Solenoid Driven Metering Pump Beta<sup>®</sup>

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# 1.2.1

# Solenoid Driven Metering Pump Beta®



Equipped with all the features and properties for superior process management. Capacity range 0.74 - 32 l/h, 25 - 2 bar

All-purpose solenoid metering pump for metering liquid media in water treatment and chemical processes: Solenoid driven metering pump Beta®. Cost-effective, overload-proof, adaptable to existing signal transducers.

A range of different pump types and material combinations are available for virtually all metering applications. The virtually wear-free solenoid drive guarantees an exceptionally long service life even under maximum load.

## Your benefits

- Simple adjustment of metering capacity via stroke rate and stroke length
- Adaptation to existing signal transducers by external control via potential-free contacts with pulse step-up and step-down
- Suitable for use with almost all liquid chemicals thanks to the available material combinations: PP, PVDF, clear acrylic, PTFE and stainless steel
- Self-bleeding dosing head design in clear acrylic/PVC and PP
- 11 Virtually wear-free solenoid drive: economical and overload-proof
- Economical operation with up to 50% energy-savings, thanks to higher pump efficiency 11
- Everything in sight and under control: 3 LED display for operating, warning and error messages

### **Technical details**

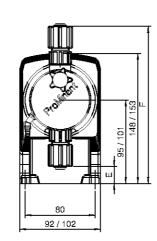
- External control via potential-free contacts with pulse step-up and step-down to adapt to existing signal transducers of 64:1 to 1:64
- Optional external control via 0/4 20 mA and potential-free contacts with pulse step-up and step-down of 32:1 to 1:32
- Stroke rate adjustment in 10% increments of 10 - 100% corresponds to 18 - 180 strokes/minute
- Continuous stroke length adjustment of 0 100% (recommended 30 100%)
- Connector for 2-stage level switch
- Wide-range electrical connection: 100 230 V, 50/60 Hz 100
- Optional relay module, can also be retrofitted easily and securely 10.
- Low voltage design 12 24 V DC

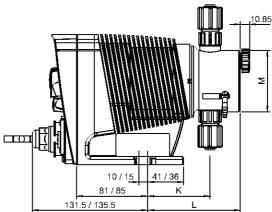
### **Field of application**

Metering liquid media in water treatment and chemical processes

# Dimensional drawing of Beta® Material design PP

Туре		Е	F
1000-1604		19.5	179
0708-0220		7	186.5
1008-0420		14	191.5
0232		1.5	200.5
Туре	к	L	м
<b>Type</b> 1000-1604	<b>к</b> 71	L 105.5	<b>M</b> Ø 70
1000-1604	71	105.5	Ø 70





P BE 0069 SW3

Dimensional drawing of Beta®. Material version PP - dimensions in mm

1.1.2016



P\_BE\_0048\_SW1 Beta® b



10 / 15 81 / 85 .5 / 135.5	



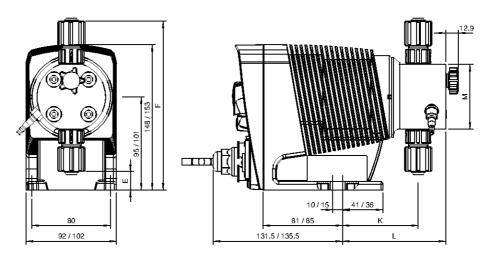
Low-pressure Metering Pumps

# **ProMinent**<sup>®</sup>

# **1.2** Solenoid Driven Metering Pump Beta<sup>®</sup>

Dimensional drawing of Beta® Material design NP

Туре		Е	F
1000-1604		19	172
0708-0220		7.2	183
2504		24.5	178.5
1008-0420		14	188
0232		3.2	199
Туре	к	L	М
<b>Type</b> 1000-1604	<b>К</b> 77	L 105	M Ø 70
		_	
1000-1604	77	105	Ø 70
1000-1604 0708-0220	77 77.5	105 105.5	Ø 70 Ø 90
1000-1604 0708-0220 2504	77 77.5 77	105 105.5 105	Ø 70 Ø 90 Ø 70

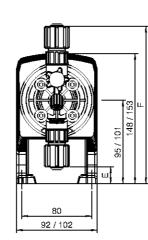


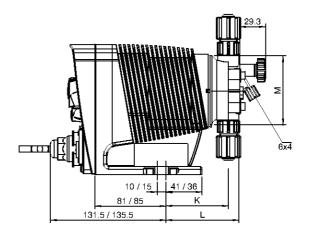
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Dimensional drawing of Beta®, Material version NP - dimensions in mm

# Dimensional drawing of Beta® **Material design PV**

Туре		E	F
1604		19	179
0708-02	20	8	185.5
1008-04	20	14	191.5
0232		3.2	199
Туре	к	L	Μ
<b>Type</b> 1604	<b>К</b> 71	L 83	M Ø 70
1604 0708-	71	83	Ø 70





P\_BE\_0071\_SW3 Dimensional drawing of Beta®, Material version PV - dimensions in mm

# 1.2 Solenoid Driven Metering Pump Beta®

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### Pump type Delivery rate at Delivery rate at Number Connection Suction Average Shipping max. back pressure medium back pressure of size lift power weight strokes oØxiØ consumption PP, NP. SS PV, TT bar l/h ml/ bar l/h ml/ Strokes/ mWC W kg kg mm stroke stroke min Beta<sup>®</sup> b BT4b 1000\*\*\* 10 0.7 0.07 5.0 0.8 0.08 180 6 x 4 6.0\*\* 7,2 2.9 3.6 BT4b 1601\*\* 0.13 180 6.0\*\* 16 1.1 0.10 8.0 1.4 6 x 4 9.6 29 3.6 180 BT4b 1602\*\*\* 16 2.2 0.20 8.0 2.5 0.24 6 x 4 6.0\*\* 11,2 2.9 3.6 BT4b 1604\*\*\* 0.33 8.0 0.40 180 6.0\*\* 3.9 16 3.6 4.3 6 x 4 15.2 3.1 BT4b 0708\*\*\* 7.1 0.66 3.5 8.4 0.78 180 8 x 5 6.0\*\* 15,2 3.1 3.9 7 3.0\*\* BT4b 0413 4 12.3 1.14 2.0 14.2 1.31 180 8 x 5 15,2 3.1 3.9 BT4b 0220 2 19.0 1.76 1.0 20.9 1.94 180 12 x 9 2.0\*\* 15,2 3.3 4.4 BT5b 2504 25 2.9 0.27 10.0 0.46 180 8 x 4\*\*\*\* 6.0\*\* 19,2 4.5 5.3 5.0 6.0\*\* BT5b 1008 10 6.8 0.63 5.0 8.3 0.76 180 8 x 5 19,2 4.5 5.3 4.0\*\* BT5b 0713 7 11.0 1.02 3.5 13.1 1.21 180 8 x 5 19.2 4.5 5.3 3.0\*\* 17.1 2.0 180 4.7 BT5b 0420 4 1.58 1.77 12 x 9 19,2 5.8 19.1 BT5b 0232 2 32.0 2.96 3.35 180 2.0\*\* 5.1 1.0 36.2 12 x 9 19.2 6.6 Beta® b metering pumps with eding self-ble dosing head without bypass BT4b 1602 6 x 4 1.8\*\* 11.2 2.9 0.13 8.0 0.16 180 10 1.4 1.7 \_ BT4b 1604 10 2.7 0.25 8.0 3.6 0.33 180 6 x 4 1.8\*\* 15.2 3.1 BT4b 0708 7 6.6 0.61 3.5 7.5 0.69 180 8 x 5 1.8\*\* 15,2 3.1 1.8\*\* BT4b 0413 4 10.8 1.00 2.0 12.6 1.17 180 8 x 5 15,2 3.1 BT4b 0220 2 16.2 1.50 1.0 18.0 1.67 180 12 x 9 2.0\*\* 15,2 3.3 BT5b 1008 10 6.3 0.58 7.5 0.69 180 8 x 5 1.8\*\* 19,2 4.5 5.0 -BT5b 0713 10.5 0.97 3.5 12.3 1.14 180 8 x 5 1.8\*\* 19,2 4.5 7 \_ 1.8\*\* BT5b 0420 4 15.6 1.44 2.0 17.4 1.61 180 12 x 9 19,2 4.7 -

## **Technical Data**

Beta® b metering pumps with dosing heads for higher-viscosity media have a 10-20% lower capacity and are not self-priming. G 3/4-DN 10 connector with d 16-DN 10 hose nozzle.

- \* The given performance data constitutes guaranteed minimum values, calculated using water as the medium at room temperature.
- \*\* Suction lift with a filled dosing head and filled suction line, with a self-bleeding dosing head with air in the suction line.
- \*\*\* Pressure-reduced pump types are available in the pressure ratings 4, 7 and 10 bar for special applications, for example in the swimming pool sector. More detailed information is available upon request.
- With stainless steel design 6 mm connector width.

All data refers to water at 20 °C.

# Materials in Contact With the Medium

	Dosing head	Suction/pressure connector	Ball seat	Seals	Balls
PPT	Polypropylene	PVDF	PVDF	PTFE	Ceramic
NPT	Clear acrylic	PVDF	PVDF	PTFE	Ceramic
PVT	PVDF	PVDF	PVDF	PTFE	Ceramic
TTT	PTFE with carbon	PTFE with carbon	Ceramic	PTFE	Ceramic
SST	Stainless steel material no. 1.4404	Stainless steel material no. 1.4404	Ceramic	PTFE	Ceramic

Metering reproducibility: ± 2% when used according to the operating instructions.

Permissible ambient temperature -10 °C to +45 °C

Degree of IP 65, insulation class F protection:

<emphasis>Scope of delivery: Metering pump with mains cable (2 m) and plug, connecting kit for hose/
pipe connection as per table.</emphasis>



# 1.2 Solenoid Driven Metering Pump Beta®

1.2.2

# Identity Code Ordering System

Beta® Version b

BT4b	Туре	Capac	itv												
	.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	bar	l/h												
	1000	10	0.74												
	1601	16	1.10												
	1602	16	2.20												
	1604	16	3.60												
	0708	7	7.10												
	0413	4	12.30												
	0220	2	19.00												
BT5b															
	2504	25	2.90												
	1008	10	6.80												
	0713	7	11.00												
	0420	4	17.10												
	0232	2	32.00												
				lve mat											
		PP	Polypr	opylene	/PVDF										
		NP	Acrylic	glass/P	VDF										
		PV	PVDF/												
		TT			oon, PTF										
		SS			1.4404/										
		1	Seal/d		gm mate										
			Т		PTFE co										
					end ve										
				0	Non-bl	eed vers	sion, no	valve sp	oring, fo	r TT, SS	and typ	e 0232	only		
				1							S and ty				
				2							nly, not t				
				3							only, not				
														440.07	10,0000,0400
				4											13, 0220, 0420
				7	self-ble	eding w	ithout b	ypass, o	only for	NPT and	I PVT, n	ot for ty	bes 1000	0, 1601	and 0232
					Hydra	ulic cor	nectio	ns							
					0	Standa	rd acco	ording to	technic	al data					
					5			12/6 hos			only				
					9			10/4 hos		-	-				
					3			10/41103	se, uenv	ery side	Only				
						Versio									
						0	Standa	ard							
							Logo								
							0	with Pr	oMinen	t <sup>®</sup> logo					
								Power	supply	/					
								U			0%, 50/6	60 Hz			
								М			only with				
								N							
								IN			for BT5b	)			
										and plu					
									A		iropean				
									В	2 m Sv	viss				
									С	2 m Au	Istralian				
				1	1				D	2 m U\$	SA				
				1	1				1		ben-end	ed			
				1	1				1						
				1	1				1	Relay 0	No rel-				
		1		1	1			1	1	4	No rela	-			
				1	1				1	1				normally	energised, 1 x changeover
				1	1				1			t 230 V			
	1			1	1				1	3				ormally	de-energised, 1 x changeover
		1		1	1				1	L		t 230 V			
				1	1			1	1	4					y open contacts 24 V - 100 m
								1	1	5	as 3 +	pacing r	elay 2 x	normall	y open contacts 24 V - 100 mA
										1	Acces	oorioo			
											Acces	somes			
											0		essorie	S	
												No acc			alve 2 m PVC suction tubing
											0	No acc With fo	ot and c	losing v	alve, 2 m PVC suction tubing,
											0	No acc With fo 5 m PE	ot and c dischar	losing v	
											0	No acc With fo 5 m PE Contro	ot and c dischar ol type	losing v rge tubir	
											0	No acc With fc 5 m PE Contro 0	ot and c dischar ol type No loci	losing v rge tubir	ng
											0	No acc With fo 5 m PE Contro	ot and c dischar of type No lock With lo	losing v rge tubir « ck: man	ng nual operation locked when
											0	No acc With fc 5 m PE Contro 0	ot and c dischar of type No lock With lo	losing v rge tubir « ck: man	ng
											0	No acc With fc 5 m PE Contro 0	ot and c dischar ol type No lock With lo externa	losing v rge tubir « ck: man	ng nual operation locked when plugged in
											0	No acc With fc 5 m PE Contro 0	ot and c dischar ol type No lock With lo externa	losing v. rge tubir « ck: man al cable ol Varia	ng uual operation locked when plugged in nts
											0	No acc With fc 5 m PE Contro 0	ot and c dischard <b>bi type</b> No lock With lo externa <b>Contro</b> 0	losing v rge tubir ck: man al cable <b>bl Varia</b> withou	ng nual operation locked when plugged in <b>nts</b> t analogue control
											0	No acc With fc 5 m PE Contro 0	ot and c dischard of type No lock With lo externa Contro	losing v rge tubir ck: man al cable <b>bl Varia</b> withou with ar	ng nual operation locked when plugged in <b>nts</b> t analogue control nalogue control 0/4 – 20 mA
											0	No acc With fc 5 m PE Contro 0	ot and c dischard <b>bi type</b> No lock With lo externa <b>Contro</b> 0	losing v rge tubir ck: man al cable <b>bl Varia</b> withou with ar	ng nual operation locked when plugged in <b>nts</b> t analogue control

# 1.2 Solenoid Driven Metering Pump Beta®

# Spare Parts Kits, Replacement Diaphragms



Spare parts kits for Beta®, consisting of:

- 1 Diaphragm
- 1 Suction valve, complete
- 1 Discharge valve, complete
- 2 Valve balls

I

1 Connector kit

Suction and discharge valve set not included with stainless steel version.

Туре	Materials in contact with the me- dium	Order no.
Туре 1000	PPT, NPT, PVT	1023107
	TTT	1001737
	SST	1001729
Туре 1601	PPT, NPT, PVT	1023108
	TTT	1001738
	SST	1001730
Туре 1602	PVT, PPT, NPT	1023109
	TTT	1001739
	SST	1001731
Type 1604 and Type 2504	PVT, PPT, NPT	1035332
	PVT HV	1035342
	TTT	1035330
	SST	1035331
Type 0708 and Type 1008	PVT, PPT, NPT	1023111
	PVT4	1019067
	TTT	1001741
	SST	1001733
Type 0413 and Type 0713	PVT, PPT, NPT	1023112
	PVT4	1019069
	TTT	1001742
	SST	1001734
Type 0220 and Type 0420	PVT, PPT, NPT	1023113
	PVT4	1019070
	TTT	1001754
	SST	1001735
Туре 0232	PVT, PPT, NPT	1023124
	ТТТ	1001755
	SST	1001736

### Accessories

- Foot Valves see page → 1-44
- Injection Valve see page  $\rightarrow$  1-47
- Hoses, Pipes see page  $\rightarrow$  1-57
- Suction Lances, Suction Kit Without Level Switch see page → 1-62
- Connector Parts/Fittings see page → 1-84

# **Spare Parts**

■ Custom Valve Balls/Valve Springs See page → 1-83

Low-pressure Metering Pumps

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**ProMinent**<sup>®</sup>

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<sup>1.2.3</sup> 



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# **1.2** Solenoid Driven Metering Pump Beta<sup>®</sup>

# Spare Parts Kits for Solenoid Driven Metering Pump Beta® with Self-Bleeding **Dosing Head**

Spare parts kits for metering pumps with self-bleeding dosing head without bypass, consisting of:

- 1 Diaphragm
- Suction valve, complete 1
- Discharge valve, complete 1
- 2 Valve balls
- 1 Connector kit

Туре	Materials in contact with the medium	Order no.
Туре 1602	PVT7, NPT7	1047830
Туре 1604	PVT7, NPT7	1047858
Type 0708 and Type 1008	PVT7, NPT7	1047832
Type 0413 and Type 0713	PVT7, NPT7	1047833
Type 0220 and Type 0420	PVT7, NPT7	1047837

# Spare Diaphragms for Solenoid Driven Metering Pump Beta®

Туре	Materials in contact with the medium	Order no.
Туре 1000	all materials	1000244
Туре 1601	all materials	1000245
Туре 1602	all materials	1000246
Type 1604 and Type 2504	all materials	1034612
Type 0708 and Type 1008	all materials	1000248
Type 0413 and Type 0713	all materials	1000249
Type 0220 and Type 0420	all materials	1000250
Туре 0232	all materials	1000251

1-12

# 1.3 Solenoid Driven Metering Pump gamma/ X

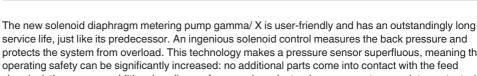
Capacity range 2.3 ml/h - 45 l/h, 25 - 2 bar

Solenoid Driven Metering Pump gamma/ X

gamma/ X - the proven best-seller intelligently extended

gamma/X is ideal for all metering work involving liquid media.

# 1



protects the system from overload. This technology makes a pressure sensor superfluous, meaning that operating safety can be significantly increased: no additional parts come into contact with the feed chemical, there are no additional sealing surfaces and no electronic components come into contact with the feed chemical. Whether the metering volume fluctuates or hydraulic failures affect the metering process - the gamma/ X keeps everything at your fingertips.

The solenoid diaphragm metering pump gamma incorporates a wealth of eXcellent ingenuity! With integrated pressure measurement, it ensures the smooth running of your metering process. The

It independently ensures a trouble-free metering process and should the pump ever need maintenance its service module draws attention to this.

### Your benefits

- Optional Bluetooth interface for convenient adjustment and configuration of the operating parameters
- Virtually wear-free solenoid drive, overload-proof and economical
- Suitable for continuous micro-metering from 1 ml/h thanks to the regulated solenoid drive
- Simple adjustment of the capacity directly in I/h
- Direct input of the required final concentration in volume-proportional metering tasks 11
  - Detection of hydraulic malfunctions or blocked discharge lines ensures smooth process
- Integrated pressure measurement and display for greater safety during commissioning and in the process
- Adaptation to existing signal transducers by external control via potential-free contacts with pulse step-up and step-down
- External control via 0/4-20 mA standard signal with adjustable assignment of signal value to stroke rate
- Integrated 1-month timer for timed metering tasks
- Guaranteed metering by means of automatic bleeding
- Connection to process control systems via bus interfaces, such as Profibus, Profinet, CAN bus and others on request

### **Technical details**

- Available material combinations: PP, PVDF, clear acrylic, PTFE and stainless steel
- Special dosing head designs for gaseous and high-viscosity media
- Illuminated LC display and 3-LED display for operating, warning and error messages, visible from all sides
- Factor with external contact control 99:1 1:99
- Batch operation with max. 65,536 strokes/start pulse
- Stroke rate adjustment in 1 stroke/hour increments from 0-12,000 strokes/h
- Continuous electronic stroke length adjustment from 0 100% (recommended 30 100%)
- Connector for 2-stage level switch
- External control via 0/4-20 mA standard signal with adjustable assignment of signal value to stroke rate
- Optional 4-20 mA output for remote transmission of stroke length and stroke rate
- Universal power supply unit 100 V 230 V, 50/60 Hz
- Optional 230 V relay module, can also be retrofitted easily and securely
- Optional 24 V combined relay, can also be retrofitted easily and securely

### Field of application

- Can be integrated into automated processes and used in all industries.
- The pump can work as a control unit with the timer, for example in cooling water treatment.



P\_GX\_001\_SW1

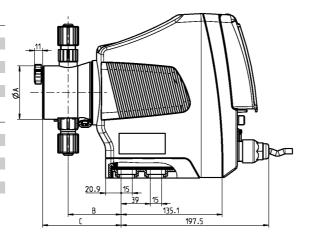
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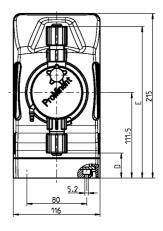


# 1.3 Solenoid Driven Metering Pump gamma/ X

Dimensional drawing of gamma/ X Material version PPT2

	Туре	6	0 A	в	
	0245	1	10	76	
	0424, 0220	g	0	76	
	0715, 0414	g	0	74	
	1009, 0708	g	0	74	
	1604	7	0	71	
	1602	7	0	71	
		-	_	_	
	Туре	С	D	E	
-	<b>Type</b> 0245	-	<b>D</b> 14	E 209	
Ì		<b>C</b> - 110			
	0245	-	14	209	
	0245 0424, 0220	- 110	14 24	209 202	
	0245 0424, 0220 0715, 0414	- 110 107	14 24 24	209 202 202	
	0245 0424, 0220 0715, 0414 1009, 0708	- 110 107 108	14 24 24 24	209 202 202 202	
	0245 0424, 0220 0715, 0414 1009, 0708 1604	- 110 107 108 106	14 24 24 24 32	209 202 202 202 198	

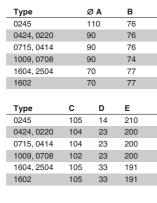


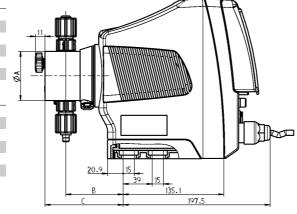


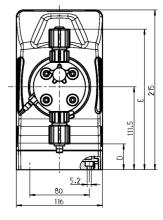
P\_G\_0055\_SW3

Dimensional drawing of gamma/ X, Material design PPT - dimensions in mm

# Dimensional drawing of gamma/ X Material version NPT2







P\_G\_0056\_SW3 Dimensional drawing of gamma/ X, Material design NPT – dimensions in mm

1

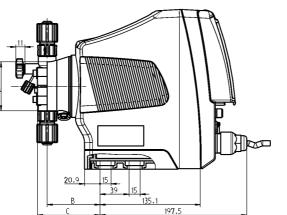


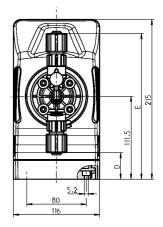
1

# 1.3 Solenoid Driven Metering Pump gamma/ X

Dimensional drawing of gamma/ X Material version PVT2

Туре		ØA	в	
0245		110	76	
0424, 0220	1	90	79	
0715, 0414		90	73	
1009, 0708	1	90	75	
1604		70	71	
1602		70	71	
Туре	с	D	Е	
<b>Type</b> 0245	с -	<b>D</b> 14	E 209	
	<b>c</b> - 90	_		-
0245	-	14	209	
0245 0424, 0220	- 90	14 25	209 203	_
0245 0424, 0220 0715, 0414	- 90 90	14 25 25	209 203 203	
0245 0424, 0220 0715, 0414 1009, 0708	- 90 90 92	14 25 25 25	209 203 203 203	





P\_G\_0057\_SW3 Dimensional drawing of gamma/ X, Material design PVT – dimensions in mm



# 1.3 Solenoid Driven Metering Pump gamma/ X

# **Technical Data**

Pump type	Delivery r	rate at max. ba	ack pressure	Number of strokes	Connecti- on size o Ø x i Ø	Suction lift		g weight
	bar	l/h	ml/stroke	Strokes/ min	mm	mWC	PP, NP, PV, TT kg	SS kg
gamma/ X								
GMXa 1602	16	2.3	0.19	200	6 x 4	6.0**	3.6	4.1
GMXa 1604	16	3.6	0.30	200	6 x 4	5.0**	3.6	4.1
GMXa 0708	7	7.6	0.63	200	8 x 5	4.0**	3.7	5.0
GMXa 0414	4	13.5	1.13	200	8 x 5****	3.0**	3.7	5.0
GMXa 0220	2	19.7	1.64	200	12 x 9	2.0**	3.7	5.0
GMXa 2504	25	3.8	0.32	200	8 x 4***	4.0**	4.9	5.5
GMXa 1009	10	9.0	0.75	200	8 x 5	3.0**	5.1	6.5
GMXa 0715	7	14.5	1.21	200	8 x 5****	3.0**	5.1	6.5
GMXa 0424	4	24.0	2.00	200	12 x 9	3.0**	5.1	6.5
GMXa 0245	2	45.0	3.70	200	12 x 9	2.0**	5.2	7.0
gamma/ X meter	ing pumps wit	th self-bleedin	g dosing head	d without bypa	iss			
GMXa 1602	10	0.9	0.08	200	6 x 4	1.8**	3.6	-
GMXa 1604	10	1.6	0.13	200	8 x 5	1.8**	3.6	-
GMXa 0708	7	5.7	0.48	200	8 x 5	1.8**	3.7	-
GMXa 0414	4	12.0	1.00	200	8 x 5	1.8**	3.7	-
GMXa 0220	2	17.4	1.45	200	12 x 9	1.8**	3.7	-
GMXa 1009	10	6.0	0.50	200	8 x 5	1.8**	5.1	-
GMXa 0715	7	12.9	1.08	200	8 x 5	1.8**	5.1	-
GMXa 0424	4	19.2	1.60	200	12 x 9	1.8**	5.1	-



gamma/ X metering pumps with dosing heads for high-viscosity media have a 10 – 20% lower capacity and are not self-priming. G 3/4-DN 10 connector with d 16-DN 10 hose nozzle.

- \* The given performance data represents guaranteed minimum values, calculated using water as the medium at room temperature.
- \*\* Suction lift with a filled dosing head and filled suction line, with a self-bleeding dosing head with air in the suction line
- \*\*\* With stainless steel design 6 mm connector width
- \*\*\*\* With stainless steel design 12 mm connector width
- All data refers to water at 20 °C.

# Materials in Contact With the Medium

	Dosing head	Suction/pressure connector	Ball seat	Seals	Balls
PPT	Polypropylene	Polypropylene	PVDF	PTFE	Ceramic
NPT	Clear acrylic	PVC	PVDF	PTFE	Ceramic
PVT	PVDF	PVDF	PVDF	PTFE	Ceramic
TTT	PTFE with carbon	PTFE with carbon	Ceramic	PTFE	Ceramic
SST	Stainless steel material no. 1.4404	Stainless steel material no. 1.4404	Ceramic	PTFE	Ceramic

Metering reproducibility: ±2% when used according to information in the operating instructions

Permissible ambient temperature: -10 °C to +45 °C

Mean power consumption: 24/30 W

IP 65, insulation class F

### Scope of supply

Degree of protection:

Metering pump with mains cable, connector kit for hose/tube connector as per table.

# 1.3 Solenoid Driven Metering Pump gamma/ X

# **ProMinent**<sup>®</sup>

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# 1.3.2

# Identity Code Ordering System

# gamma/ X product range, version a

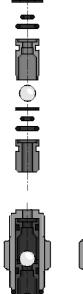
GMXa	Туре	Capac	ity		GMXa	Туре	Capac	Capacity									
		bar	l/h				bar	l/h									
	1602	16	2.3			2504	25	3.8									
	1604	16	3.6			1009	10	9.0									
	0708	7	7.6			0715	7	14.5									
	0414	4	13.5			0424	4	24.0									
	0220	2	19.7			0245	2	45.0									
				lve mat													
		PP	PP Polypropylene/PVDF, with self-bleeding design polypropylene/polypropylene PV Clear acrylic/PVDF, with self-bleeding design clear acrylic/PVC PV PVDF/PVDF														
		TT	PVDF/I														
		SS			1 4404/	4/1 4404											
		00			el 1.4404/1.4404												
			T		agm material /PFTE coated												
					end ve												
				0	Non-ble	eed vers	sion, no	valve sp	ringonly	with NF	P, TT an	d SS ar	id type C	245			
				1	Non-ble	eed vers	sion, wit	h valve :	springor	ly with N	NP, TT a	and SS a	and type	0245			
				2	Bleed f	unction,	no valv	e spring	sonly w	th PP, F	V, NP n	not for ty	pe 0245	;			
				3									type 024				
				4		-	-		-			604, 070	8, 0414,	2504, 1	009, 07	15, 0424	ļ
				7		•	vithout b		only for N	IPT and	PVT						
							nectior										
					0 5		rd acco	0			/6 auat	onde	otonda-	d only	ith mat-		NP and PV
					5 9												, NP and PV P, NP and PV
					9		rge side raqm ru				4, sucu	on side	stanuar	u, only v	viui maie		r, NF allu FV
						0				ture indi	cator						
						1		-		e indicat		al sens	or				
						-	Versio				,		•.				
							0	Standa	rd								
								Logo									
								0	with Pr	oMinent	® logo						
									Power	supply							
									U	100-23	0 V, ±10	0%, 50/6	60 Hz				
											and plu						
						A 2 m European B 2 m Swiss											
							C 2 m Australian D 2 m USA										
								E 2 m Great Britain									
								1 2 m, open-ended									
										•		pre-set					
											0	No rela					
											1	1 x cha	ingeove	r contac	t 230 V -	- 2 A, fau	ult indicating relay N/C
											4						relay N/C + pacing relay
											С	1 x N/C output	024 V –	100 mA	, fault ind	dicating	relay N/C 1 + 4 – 20 mA
												Acces	sories				
												0		essories	6		
												1	With fo	ot valve	and disc	charge v	alve, 2 m PVC
													suction	tubing,	5 m PE , not wit	delivery	tubeonly with
													,	ol versio		11 F V 14	
													0			nal 1:1 v	vith pulse cont-
													-	rol			
													3			nal with	pulse control + analogue
													С	0/4 - 20 as $3 + 0$	) mA CANope	n*	
													c		CANope		
													c		CANope		
													R				interface M12*
													-				ed with these options.
														Meteri	ng moni	itor	
														0	Pulse s	ignal inp	out
															Remot	e stop	
															0		Bluetooth
															В	with Blu	
																Langua	
																DE	German
																EN FR	English French
																ES	Spanish
																20	opunion

Low-pressure Metering Pumps

# 1.3 Solenoid Driven Metering Pump gamma/ X

1.3.3

**ProMinent**<sup>®</sup>





pk\_1\_008

# Spare Parts Kit for gamma/ X

# Spare Parts Kit for gamma/ X

Spare parts kits forgamma/ X, consisting of:

- 1 Diaphragm
- 1 Suction valve, complete
- 1 Discharge valve, complete
- Valve balls 2
- Connector kit 1

Suction and discharge valve set not included with stainless steel version.

Туре		Order no.
Type 1602	PVT, PPT, NPT	1023109
	TTT	1001739
	SST	1001731
Type 1604 and Type 2504	PVT, PPT, NPT	1035332
	PVT HV	1035342
	TTT	1035330
	SST	1035331
Type 0708 and Type 1009	PVT, PPT, NPT	1023111
	PVT4	1019067
	TTT	1001741
	SST	1001733
Type 0414 and Type 0715	PVT, PPT, NPT	1023112
	PVT4	1019069
	TTT	1001742
	SST	1001734
Type 0220 and Type 0424	PVT, PPT, NPT	1051129
	PVT HV	1051134
	TTT	1051151
	SST	1051139
Type 0245	PVT, PPT, NPT	1051130
	TTT	1051152
	SST	1051140

# Spare Parts Kits for Solenoid Driven Metering Pump gamma/ X with Self-Bleeding Dosing Head

Spare parts kits for metering pumps with self-bleeding dosing head without bypass, consisting of:

- 1 Diaphragm
- Suction valve, complete 1
- Discharge valve, complete 1
- 1 Bleed valve, complete
- 2 Valve balls
- 1 Connector kit

Туре	Materials in contact with the medium	Order no.
Туре 1602	PVT7, NPT7	1051105
Туре 1604	PVT7, NPT7	1051106
Type 0708 and Type 1009	PVT7, NPT7	1051109
Type 0414 and Type 0715	PVT7, NPT7	1051110
Type 0220 and Type 0424	PVT7, NPT7	1051111

1

# 1.3 Solenoid Driven Metering Pump gamma/ X

# Spare Diaphragms for Solenoid Driven Metering Pump gamma/ X

Туре	Materials in contact with the medium	Order no.
Туре 1602	all materials	1000246
Type 1604 and Type 2504	all materials	1034612
Type 0708 and Type 1009	all materials	1000248
Type 0414 and Type 0715	all materials	1000249
Type 0220 and Type 0424	all materials	1045456
Туре 0245	all materials	1045443

## Accessories

- Foot Valves see page → 1-44
- Injection Valve see page → 1-47
- Hoses, Pipes see page → 1-57
- Suction Lances, Suction Kit Without Level Switch see page  $\rightarrow$  1-62
- Connector Parts/Fittings see page  $\rightarrow$  1-84

# **Spare Parts**

■ Custom Valve Balls/Valve Springs See page → 1-83



# **ProMinent**<sup>®</sup>

# 1.4 Solenoid Driven Metering Pump delta®

1.4.1

# Solenoid Driven Metering Pump delta® with Regulated Solenoid Drive



# Virtually an all-rounder and just the right solution for exacting requirements.

Capacity range 7.5 – 75 l/h, 25 – 2 bar

A high-end diaphragm metering pump with regulated solenoid drive. Virtually wear-free, extremely economical and with a self-bleeding dosing head design.

A range of different pump types and material combinations are available for virtually all metering applications. The optional 1-month process timer offers a variety of installation options. The pump achieves maximum precision even with fluctuating back pressure thanks to the regulated solenoid drive. This guarantees an exceptionally long service life even under maximum load. The integrated monitoring function optoGuard<sup>®</sup> reports faulty hydraulic conditions, such as overpressure or ruptured metering line. The large illuminated LC display guarantees excellent legibility of all displayed values. The capacity is shown directly in I/h.

### Your benefits

- Adjustment of the capacity directly in I/h
- Adaptation to existing signal transducers by external control via potential-free contacts with pulse step-up and step-down
- External control via 0/4 20 mA standard signal with adjustable assignment of signal value to stroke rate
   Organise work processes conveniently with the optional process timer. The alternative to timers or PLCs.
- Optional PROFIBUS<sup>®</sup> interface for connection to process control systems
- Suitable for use with almost all liquid chemicals, thanks to the available material combinations PVDF, clear acrylic and stainless steel
- Virtually wear-free solenoid drive: overload-proof and economical
- Everything in sight and under control: illuminated LED display and 3-LED display for operating, warning and error messages
- Reporting of hydraulic error statuses, blocked points of injection, ruptured metering lines and air and/or gas in the dosing head, which the integrated monitoring system optoGuard<sup>®</sup> detects
- Automatic bleed function
- Maximum dosing precision by compensation of pressure fluctuations
- Also ideal for continuous micro-metering from around 6 ml/h

### **Technical details**

- External control via potential-free contacts with pulse step-up and step-down to adapt to existing signal transducers of 99:1 to 1:99
- Batch operation with max. 65,536 strokes/start pulse
- External control via 0/4 20 mA standard signal with adjustable assignment of signal value to stroke rate
- Stroke rate adjustment in 1 stroke/hour steps of 0 to 12,000 strokes/h and/or 200 strokes/min
- Stroke length continuously adjustable between 0 100% (recommended 30 100%)
- Connector for 2-stage level switch
- Dosing monitor input with adjustable number of tolerated defective strokes
- Optional optical diaphragm rupture indicator detects droplets behind the diaphragms
- Optional 4 20 mA output for remote transmission of stroke length and stroke rate
- Concentration input" option for volume-proportional metering
- PROFIBUS<sup>®</sup> or CAN Open interface option
- Control module option with connecting option for chlorine, pH, ORP sensors or flow meter DFMa
- Wide-range electrical connection: 100 230 V, 50/60 Hz
- Optional relay module, can also be easily and reliably retrofitted

### **Field of application**

They can be used in all industries and integrated into automated processes. Maximum process reliability through the regulated solenoid drive and opto-Guard<sup>®</sup> monitoring function. The pump can work as a control unit with the process timer, for example in cooling water treatment

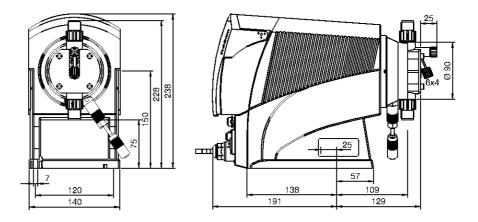




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# 1.4 Solenoid Driven Metering Pump delta®

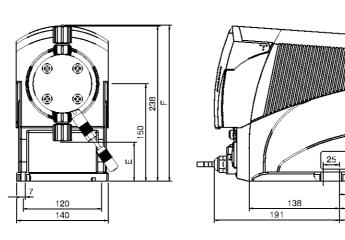
Dimensional drawing of delta<sup>®</sup> Material version PV



P\_DE\_0042\_SW\_2\_SW3 Dimensional drawing of delta® type 1612-0730, Material version PV - dimensions in mm

# Dimensional drawing of delta<sup>®</sup> Material version NP

Туре	Е	F
2508 / 1608	63	235
1612	60	239
1020	54	245
0730	53	246
Туре	к	L
<b>Type</b> 2508 / 1608	<b>к</b> 110	L 125
		-
2508 / 1608	110	125
2508 / 1608 1612	110 110	125 125



P\_DE\_0046\_1\_SW3 Dimensional drawing of delta® without bleed valve, Material version NP - dimensions in mm

Product Catalogue 2016

06 Ø

5



Pump type	Max. pressure	Delivery rate	Stroke volume	Max. stroke rate	Connector size outside Ø x inside Ø	Suction lift	Shipping weight NPE, NPB, PVT / SST
	bar	l/h	ml/stroke	Strokes/ min		mWC	kg
delta®							
DLTa 1612	16	11.3	0.94	200	8 x 5 mm	6*	10/11
DLTa 1020	10	19.1	1.59	200	12 x 9 mm	5*	10/11
DLTa 0730	7	29.2	2.43	200	12 x 9 mm	5*	10/11
DLTa 0450	4	49.0	4.08	200	G 3/4 - DN 10	3*	10/11
DLTa 0280	2	75.0	6.25	200	G 3/4 - DN 10	2*	10/11
DLTa 2508	25	7.5	0.62	200	8 x 4** mm	5*	10/11
DLTa 1608	16	7.8	0.65	200	8 x 5** mm	5*	10/11
delta <sup>®</sup> metering pumps with self-bleeding dosing head without bypass*							
DLTa_1608	16	3.8	0.32	200	8 x 5 mm	1.8	10
DLTa_1612	16	6.5	0.54	200	8 x 5 mm	1.8	10
DLTa_1020	10	14.0	1.17	200	12 x 9 mm	1.8	10
DLTa 0730	7	28.0	2.33	200	12 x 9 mm	1.8	10

# **Technical Data**

delta<sup>®</sup> metering pumps with dosing heads for higher-viscosity media have a 10-20 % lower capacity and are not self-priming. G 3/4 - DN 10 connector with d 16-DN 10 hose nozzle.

\* Suction lift (mWS) = Suction lift with filled dosing head and filled suction line

\*\* With stainless steel design 6 mm connector width

All data refers to water at 20 °C.

# Materials in Contact With the Medium

Design	Dosing head	Suction/pressure connector	Ball seat	Seals	Valve balls
NPE	Clear acrylic	PVC	EPDM	EPDM	Ceramic
NPB	Clear acrylic	PVC	FKM	FKM	Ceramic
PVT	PVDF	PVDF	PVDF	PTFE	Ceramic
SST (8-12 mm)	Stainless steel 1.4404	Stainless steel 1.4404	Ceramic	PTFE	Ceramic
SST (DN 10)	Stainless steel 1.4404	Stainless steel 1.4404	PTFE with carbon	PTFE	Ceramic

### **Design of connectors**

Plastic	8-12 mm	Hose squeeze connection
	DN 10	d16 DN 10 hose nozzle
Stainless steel	6-12 mm	Swagelok system
	DN 10	Rp 3/8 insert

Diaphragm with PTFE coating.

Repeatability of metering ±2% when used according to the operating instructions.

Permissible ambient temperature: -10 °C to 45 °C

Mean power consumption 78 W

Degree of protection IP 65, insulation class F

Scope of supply

Metering pump with mains cable, connector kit for hose/tube connector as per table.

1

## 1.4 Solenoid Driven Metering Pump delta®

**ProMinent**<sup>®</sup>

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#### 1.4.2

#### Identity Code Ordering System

delta<sup>®</sup> series

DLTa	Туре	Capac	ity		DLTa										
		bar	l/h				bar	l/h							
	2508	25	7.5			0730		29.2							
	1608		7.8			0450		49.0							
		16	11.3			0280	2	75.0							
	1020	10	19.1												
				alve m			050	2							
		PV NP		/PVDF r glass/l					1609	1610 .	020 0	720			
		SS		ess stee		· ·		2000	, 1000,	1012,	1020, 0	100			
		00		liaphra			01								
			T		-	and SS									
			S	-				y with F	KM coa	ating fo	r silica-l	aden m	nedia, n	ot for ty	ypes 0450 and 0280
			В	FKM-E	3, only	with NF	C								
			E	EPDM	, only v	with NP									
						ersion									
				0			ithout v		-	-					
				1 2			ith valve , withou							,	
				2			i, with v							V	
				4										2.1020	and 0730
				7			•								only for material PV
					Hydra	ulic co	nnecti	ons							•
					0		ard con								
					5		0				,			,	only with material NP and PV
					F				-		hose,	standa	rd on si	uction s	ide, only with material NP
						Diaph 0	ragm r				ndioatic	'n			
						1		ut diaph iaphrag	-				ensor		
						2						-		ire india	cator, pressure sensor, only with material SS
							Versio								
							0		roMine	nt logo					
								Power	r suppl	у					
								U			troller 1	00-230	V 50/6	60 Hz	
										and pl				D	2 m USA / 115 V
									A B	2 m Ei 2m Sw	itzerlar	hd		1	2 m without plug
									C	2 m Ai					2 m watou plug
									-		pre-se	et to			
										0		ut relay			
										1		•			V – 8 A, fault indicating relay N/C
										3		•			V – 8 A, fault indicating relay N/O
										4 5					t indicating relay N/C + pacing relay
										э А					t indicating relay N/O + pacing relay tch-off and warning relay N/C
										c					t indicating relay N/C + 4 – 20 mA output
										F					230 V , not for pump type 2508
										G					24 V DC and relay output, not for pump type 2508
											Acces	sories			
											0		ut acces		
											1				ng valve, 2m suction line and 5 m discharge line
											2 3				p (only for type 2508, 1608, 1612, 1020, and 0730) p (only for type 2508, 1608, 1612, 1020, and 0730)
											5		ol vers		p (only for type 2008, 1008, 1012, 1020, and 0750)
												0			ernal contact with pulse control
												3			ernal contact with pulse control + analogue 0/4-20 mA
												4	as 0 +	4-weel	k process timer
												5			k process timer
												С		CANop	
												M			RP and chlorine + DFMA control module
												R			IBUS® interface, M12
													Acces 0	s code Without	e ut access code
													1	-	access code
														Lang	
														DE	german
														EN	english
														FR	french
														ES	spanish
															Pause/level 0 Pause N.C. contact level, N.C. contact
															rause N.O. contact level, N.O. contact

## 1.4 Solenoid Driven Metering Pump delta®

#### 1.4.3

pk\_1\_008

#### Spare Parts Kits, Replacement Diaphragms

#### Spare parts kits for delta®

Replacement parts kit for delta®, consisting of:

- 1 metering diaphragm
- 1 suction valve compl.
- 1 discharge valve compl.
- 2 valve balls
- 1 set of seals
- 1 connecting kit

Stainless steel version without suction and discharge valve compl.

Туре	Materials in contact with the medium	Order no.
Туре 2508	NPE2	1033172
	NPB2	1033171
	SST0	1030226
Туре 1608	NPE2	1030620
	NPB2	1030611
	PVT2	1030225
	PVT4	1019066
	PVT7	1047831
	SST0	1030226
Туре 1612	NPE2	1030536
	NPB2	1030525
	PVT2	1027081
	PVT4	1019067
	PVT7, NPT7	1047832
	SST0	1027086
Туре 1020	NPE2	1030537
	NPB2	1030526
	PVT2	1027082
	PVT4	1019069
	PVT7, NPT7	1047833
	SST0	1027087
Туре 0730	NPE2	1030621
	NPB2	1030612
	PVT2	1027083
	PVT4	1019070
	PVT7, NPT7	1047837
	SST0	1027088
Туре 0450	PVT2	1027084
	SST0	1027089
Туре 0280	PVT2	1027085
	SST0	1027090

#### **Replacement diaphragms for delta® series**

Туре	Materials in contact with the medium	Order no.
Type 2508/1608	all materials	1030353
Туре 1612	all materials	1000248
Туре 1020	all materials	1000249
Туре 0730	all materials	1000250
Туре 0450	all materials	1000251
Туре 0280	all materials	1025075

#### Accessories

- Foot Valves see page → 1-44
- Injection Valve see page → 1-47
- Hoses, Pipes see page  $\rightarrow$  1-57
- Suction Lances, Suction Kit Without Level Switch see page  $\rightarrow$  1-62
- Connector Parts/Fittings see page → 1-84

#### Spare Parts

■ Custom Valve Balls/Valve Springs See page → 1-83

## 1.5 Precision Plunger Metering Pump mikro delta<sup>®</sup>

1

#### 1.5.1

#### Precision Plunger Metering Pump mikro delta



Continuous and highly precise metering in the micro-litre range with the latest generation of pumps. Capacity range 150 - 1,500 ml/h, 60 - 20 bar

The precision plunger metering pump mikro delta® meters reliably, ultra-accurately and constantly in the microlitre range - one of the latest generation of solenoid metering pumps. Higher pressures can be achieved thanks to half the stroke length and double the stroke rate compared to the previous model.

The mikro delta® delivers the same litre outputs as its predecessor model. It does this at half stroke length and double stroke rate. This enables higher pressures to be provided. Double ball valves and an integrated back pressure valve guarantee highly precise and pressure-independent metering in the 0 - 60 bar range. The capacity ranges from 1-250 µl/stroke or 0.001 - 1500 ml/h.

#### Your benefits

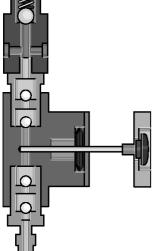
- Ideally suited for continuous micro-metering from approx. 0.2 l/h
- Adaptation to existing signal transducers by external control via potential-free contacts with pulse step-up and step-down
- External control via 0/4 20 mA standard signal with adjustable assignment of signal value to stroke rate 11
  - Organise work processes conveniently with the optional process timer the alternative to timers or PLC
- Optional PROFIBUS® interface for connection to process control systems
- Virtually wear-free solenoid drive: Overload-proof and cost-effective
- Everything in sight and under control: Illuminated LED display and 3-LED display for operating, warning and error messages
- Maximum dosing precision of  $\pm 0.5\%$  by compensation of pressure fluctuations

#### **Technical details**

- Adjustment of the capacity directly in ml/h
- External control via potential-free contacts with pulse step-up and step-down to adapt to existing signal transducers of 99:1 to 1:99
- Batch operation with max. 65,536 strokes/start impulse
- External control via 0/4-20 mA standard signal with adjustable assignment of signal value to stroke rate
- Stroke rate adjustment in 1 stroke/hour steps of 0-6.000 strokes/h or 100 strokes/min
- Stroke length continuously adjustable between 0-100% (recommended 4-100%)
- Connector for 2-stage level switch
- PROFIBUS® or CAN Open interface option
- Wide-ranging electrical connection: 100-230 V, 50/60 Hz
- Optional relay module, can also be easily and reliably retrofitted

#### **Field of application**

For continuous micro-metering in laboratories and in manufacturing for the addition of very small quantities of liquid.



#### Materials in Contact With the Medium

Version	Dosing head	Suction/discharge connection	Valve balls	Valve seats	Piston	Valve seals	Plungergaskets
TTT	PTFE with carbon	PTFE with carbon	ruby	ceramic	ceramic	PTFE	PTFE, white
TTG	PTFE with carbon	PTFE with carbon	ruby	ceramic	ceramic	PTFE	PTFE + graphite
SST	stainless steel 1.4571	stainless steel 1.4571	ruby	ceramic	ceramic	PTFE	PTFE, white
SSG	stainless steel 1.4571	stainless steel 1.4571	ruby	ceramic	ceramic	PTFE	PTFE + graphite

Permissible ambient temperature -10 °C ... +45 °C.



P DE 0003 SW1

pk 1 010 Liquid end





## 1.5 Precision Plunger Metering Pump mikro delta<sup>®</sup>

Pump type	max		y rate at pressure	Plunger Ø	Connection size hose oØ x iØ	Connection size piping oØ	Suction lift	Intake height	Perm. pre- pressure suction side	Back pressure valve holding pressure	Shipping weight
	bar	ml/h	μl/ stroke	mm	mm	mm	mWC	mWC	bar	bar	kg
Version TT											
100150 TT	10	145	24.17	2.5	1.75 x 1.15	-	6*	0.6**	5	2.5	10
100600 TT	10	580	96.67	5	1.75 x 1.15	-	6*	2.0**	5	2.5	10
101500 TT	10	1,480	246.67	8	3.20 x 2.40	-	4*	2.0**	5	1.5	10
Version SS											
600150 SS	60	145	24.17	2.5	1.75 x 1.15	1.58	6*	0.6**	30	2.5	11
400600 SS	40	580	96.67	5	1.75 x 1.15	1.58	6*	2.0**	20	2.5	11
201500 SS	20	1,480	246.67	8	3.20 x 2.40	3.18	4*	2.0**	10	1.5	11

#### **Technical Data**

Suction lift with primed liquid end and primed suction line

\*\* Intake height with clean and wetted valves. Feed chemical water at 20  $^\circ\text{C}.$  Intake height at 100 %stroke length, open vent screw and suction side as described.

Max. stroke rate 100 rpm.

All data refers to water at 20 °C.

#### **Electrical Connection**

Nominal power, approx.	38 W
Nominal current, approx.	0.64 0.42 A
Start-up peak current, easing within 50 ms	8 4 A

#### Dimensional drawing of mikro delta® Material version TT and SS

	в				9
)	150.1				- <del>-</del> []
9	150.1			L.T	
2	150.1		Î		
	E		_	1	
9.1	Ø 49		<b>.</b>		
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.1	Ø 49				
	в				
2	150.1	▏ <u></u>		┶╙╽┙╽╭┹┷┷╼╦╦╢═╡	╤╤╧┫╴───
7	150.1		<u> </u>		57
2	150.1	120	-	138.3	<del>- 57 ⊨</del>
				196.3	

#### Material version SS

Material version TT

Material version TT

с

105.1

105.1

92.3

Α

243.9

243.9

256.2

D

159.

159.

161.

Α

256.2

254.7

256.2

Туре

100150

100600

101500

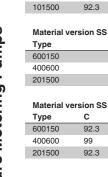
Туре

100150

100600

Туре	С	D	E	
600150	92.3	161.1	Ø 49	P DE 0034 SV
400600	99	159.1	Ø 49	F_DL_0034_3V
201500	92.3	161.1	Ø 49	Dimensional dra

W\_mikro\_SW3 rawing of mikro delta®, Material version TT and SS - dimensions in mm





## **1.5 Precision Plunger Metering Pump mikro delta®**



#### 1.5.2

#### Identity Code Ordering System

#### mikro delta® series, version a

MDLa	Туре	Capac	ity												
		bar	ml/h												
		10	145	(only <sup>-</sup>											
		60	145	(only S											
		10	580	(only -	,										
			580	(only §	,										
		10	1,480	(only											
	201500	20	1,480	(only S	SS)										
			g head	00.010-											
		SS TT			l 1.4571 % carbo										
		11		q mate											
			T		riai pure wh	ite									
			G		with gra										
			-		end ve										
				0		ve spring	9								
				1	with va	alve spri	ng (not	for type	100150	and 600	)150)				
						ulic co									
					0		ard acco	ording to	technic	al data					
						Logo									
						0 2		™nent Minent	t®-Logo						
						2			*-Logo <b>ver sup</b>	nlu					
							U			<b>ייץ</b> 10%, 50	/60 Hz				
							Ũ				/00112				
							Cable and plug       A     2 m European								
								В	2 m Sv						
								С	-	ıstralian					
								D	2 m U\$	SA					
									Relay						
									0 1	no rela	<i>.</i>				and the abandon contrast 020 V/ 0.4
									3						sed, 1x changeover contact, 230 V - 8 A rgised, 1 x changeover contact, 230 V - 8 A
									4						contact, 24 V - 100 mA
									5						d contact, 24 V - 100 mA
									-	Acces					
										0		essorie	s		
											Contro	ol varia	nts		
						1			1		0				tact with pulse control
											3				act w. pulse control + analogue 0/4-20 mA
											4				1 month)
											5 C			s imer (	1 month)
											R	CANop			terface, M12
													code	55511	
						1			1			0		es code	
												1		ces cod	
													Langu	lage	
													DE	german	
													EN	english	l
													FR	french	
						1			1				ES	spanis	
															/ Level
														0	Pause, n.c., level n.c.





## 1.5 Precision Plunger Metering Pump mikro delta®

1.5.3

#### **Spare Parts**

#### Spare piston

Туре	Order no.
100150/600150	803149
100600/400600	803181
101500/201500	803182

#### Spare piston packing PTFE pure white

Туре	Order no.
100150/600150	485431
100600/400600	485430
101500/201500	485432

#### Spare piston packing PTFE with graphite

Туре	Order no.
100150/600150	485428
100600/400600	485427
101500/201500	485429

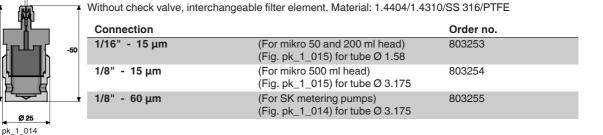
## **1.5** Precision Plunger Metering Pump mikro delta<sup>®</sup>

mikro delta<sup>®</sup> Installation Accessories

Stainless steel suction filter







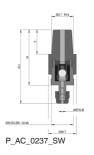
#### Replacement filter elements for suction filter

		Order no.
Sintered elements	15 µm	403814
Screen mesh	60 µm	404523

#### Stainless steel injection valve

Housing in 1.4404 and springs in 1.4571, PTFE seals.

Size	Connection		Order no.
Ø 20 x 48 mm	1/16" - 1/4"	for tube Ø 1.58 and 1.75 mm	803251
Ø 22 x 56 mm	1/8" - 1/4"	for tube Ø 3.175 and 3.2 mm	803252



1.5.4

1/16", 1/8"

Ø 25

pk\_1\_015

1/167, 1/87

pk\_1\_013

#### Suction and discharge pipe

	Permissible pressure bar	Order no.
PTFE 1.75 mm o. Ø x 1.15 mm i. Ø (1/16")	12*	037414
PTFE 3.2 mm o. Ø x 2.4 mm i. Ø (1/8")	8*	037415
Stainless steel pipe 1.4435 1.58 mm o. Ø x 0.9 mm i. Ø (1/16")	400*	1020774
Stainless steel pipe 1.4435 3.175 mm o. Ø x 1.5 mm i. Ø (1/8")	400*	1020775

Permitted operating pressure at 20 °C, provided media is compatible and pipe is correctly connected.

1.4571 pipe nipple for mikro g/ 5 and gamma/ 4 SK for connecting 1/16" and 1/8" PTFE tubing.

pk\_1\_017

1.1.2016



Nipple



Nipple 1/16" o. Ø 1.58 mm x i. Ø 0.9 mm, length 25 mm

Nipple 1/8" o. Ø 3.175 mm x i. Ø 1.5 mm, length 30 mm

Nipple 1/8-1/16" o. Ø 3.175 - 1.58 mm, length 45 mm

Order no.

402315

402316

402317

## **1.6 Pneumatic Metering Pump Pneumados**

1.6.1

**ProMinent**<sup>®</sup>

1

#### **Pneumatic Metering Pump Pneumados b**



The ProMinent® Pneumados is a pneumatically operated diaphragm metering pump Capacity range 0.76 - 16.7 l/h, 16 - 2 bar

The metering pump Pneumados has a pneumatic power end and can be used in places without electrical supply voltage, with suction stroke performed by spring force.

The compression stroke is provided by compressed air applied to a diaphragm, which drives the PTFE-coated metering diaphragm. The suction stroke is actuated by a spring-loaded force. The pump capacity is adjusted by the stroke length and stroke rate.

#### Your benefits

- No electrical supply voltage needed
- Material version PVDF and stainless steel
- Stroke rate of up to 180 strokes/min
- Spring-loaded valves for higher-viscosity media
- Use wherever no electrical supply voltage is available

#### **Technical details**

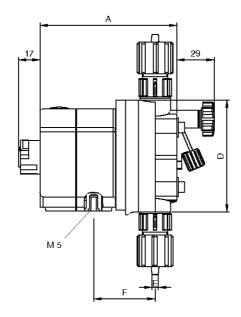
- Compressed air requirement approx. 50 l/h, non-oiled compressed air preferred
- Length of the compressed air line between the valve and pump max. 1 metre
- Diaphragm deflection from the centre position

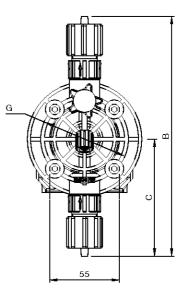
#### **Field of application**

- Metering and handling of animal feed
- Use in car wash facilities

#### **Dimensional drawing for Pneumados b** Material design PVDF

Туре	Α	D	Е	F
1000	103	70	6x4	48
1601	105	70	6x4	49
1602	103	70	6x4	48
1005	107	90	8x5	48
0708	109	90	8x5	50
0413	109	90	8x5	50
0220	111	90	12x9	52
Туре	в	с	G	
<b>Type</b> 1000	<b>B</b> 164	<b>C</b> 78	<b>G</b> 50	
1000	164	78	50	
1000 1601	164 176	78 90	50 50	
1000 1601 1602	164 176 172	78 90 88	50 50 50	
1000 1601 1602 1005	164 176 172 189	78 90 88 92	50 50 50 66	
1000 1601 1602 1005 0708	164 176 172 189 190	78 90 88 92 93	50 50 50 66 66	





Low-pressure Metering Pumps

P\_PN\_0005\_SW

## **1.6 Pneumatic Metering Pump Pneumados**



1

#### **Technical Data**

Pump type	Delivery rate	at max. ba	ck pressure	Number of strokes	Connector sizes	Suction lift	Shipping weight
	bar	l/h	ml/stroke	Strokes/min		mWC	kg
PNDb 1000	10	0.76	0.07	180	6 x 4	6.0	1.0 - 1.7
PNDb 1601	16	1.00	0.09	180	6 x 4	6.0	1.0 - 1.7
PNDb 1602	16	1.70	0.16	180	6 x 4	6.0	1.0 - 1.7
PNDb 1005	10	3.80	0.35	180	8 x 5*	5.0	1.2 - 1.9
PNDb 0708	7	6.30	0.58	180	8 x 5	4.0	1.2 - 1.9
PNDb 0413	4	10.50	0.97	180	8 x 5	3.0	1.2 - 1.9
PNDb 0220	2	16.70	1.55	180	12 x 9	2.0	1.2 - 1.9

All data refers to water at 20 °C.

\* Stainless steel version 6 x 4 mm

Filtered compressed air 6 bar ±10%

Air consumption at 1 m feed line 47 l/min

Max. stroke rate 180 strokes/min

#### Connectors

Material	Øo x Øi	Version
For PV	6, 8 and 12 mm	Hose nozzle with clamping ring
For stainless steel SS	6, 8 and 12 mm	Swagelok system screw connection

#### Materials in Contact With the Medium

		Liquid end	Intake/pressure connection	Ball seal	Seals	Balls
F	PVT	PVDF	PVDF	PVDF	PTFE	Ceramic
9	SST	Stainless steel M. No. 1.4404	Stainless steel M. No. 1.4404	Ceramic	PTFE	Ceramic

DEVELOPAN® metering diaphragm with PTFE coating.

Metering reproducibility of  $\pm 2\%$  when used in accordance with operating instructions. Permissible ambient temperature -10 °C to +50 °C.



## **1.6 Pneumatic Metering Pump Pneumados**

1.6.2

----

#### **Identity Code Ordering System**

#### Pneumados product range, version b

PNDb	Туре	Capac	ity						
		bar	l/h						
	1000	10.0	0.76						
	1601	16.0	1.00						
	1602	16.0	1.70						
	1005	10.0	3.80						
	0708	7.0	6.30						
	0413	4.0	10.50						
	0220	2.0	16.70						
		Liquid	end/Va	alve ma	terial				
		PV	PVDF/						
		SS	SS Sta	inless s	teel 1.44	404/1.44	104		
			Seal/d	liaphra	gm mate	erial			
			S		orin diap		with Vito	n-B sea	al
			Т	Standa	ard diapl	hragm w	ith PTF	E seal	
				Liquid	l end ve	rsion			
				0			hout val	lve sprir	ng only for SS
				1	Non-bl	eed, wit	h valve	springo	nly for SS
				2	With b	leed valv	ve, with	out valv	e spring only for PV
				3					pring only for PV
					Hvdra	ulic cor	nector	s	
					0				as per technical data
						Versio	n		
						0		roMine	nt logo
								r conne	
							0		connector, compressed air 6 bar
							1		connector, compressed air 6 bar
									ol type
								0	Single-acting (standard), without control valves
								1	Electropneumatic actuation, with electric clock generator 24 V DC, solenoid
									valve 24 V DC, wall bracket and mounting material for solenoid valve
									Approvals
l				1					01 CE

## **1.6 Pneumatic Metering Pump Pneumados**

#### 1.6.3

#### **Ordering Example for Installation Accessories**

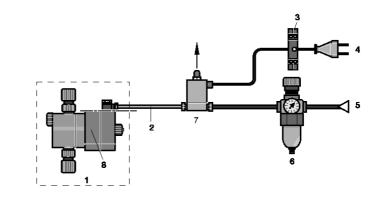
	Order no.
1 x PVC foot valve with filter and Ø 6 back check valve	924557
1 x PVC injection valve with Ø 6 - R 1/2 ball check valve	924680
1 x 5 m suction, discharge and compressed air line, PE 6 x 4 mm	1004492
1 x compressed air connector for Pneumados G 1/4 - 6 mm quick release connector LCK 1/4"	354641
1 x Pneumados wall bracket including fixtures and fittings	1030028
For electrical controller	

For electrical controller

	Order no.
1 x 3/2-way solenoid valve MHE3, 24 V DC, with connection fittings 6/4mm	1030275
1 x retaining bracket for solenoid valve	1030276
1 x sound absorber for solenoid valve	1030277
1 x electrical pulse generator 30-180 strokes/min., 24Vdc	1030351

#### **Electrical/Pneumatic controller**

Schematic diagram



- Pneumados supply limit PE 6x4 max. 1 m 1
- Electrical pulse generator 230 V/50-60 Hz mains connector Compressed air 6 bar Maintenance unit
- 2 3 4 5 6 7
- 3/2 way solenoid valve with sound absor-ber Pneumados
- 8

1.1.2016

pk\_1\_035





## **1.6 Pneumatic Metering Pump Pneumados**

#### **Spare Parts Kits**

Replacement parts kit for Pneumados b consisting of

- 1 Metering diaphragm
- 1 Suction connector compl.
- 1 Discharge connector compl.
- 2 Valve balls
- 1 Set of seals
- 1 Connecting kit

#### Stainless steel version without suction and discharge valve compl.

Туре		Order no.
Туре 1000	PPT, NPT, PVT	1023107
	SST	1001729
Туре 1601	PPT, NPT, PVT	1023108
	SST	1001730
Туре 1602	PVT, PPT, NPT	1023109
	SST	1001731
Туре 1005	PVT, PPT, NPT	1023110
	SST	1001732
Туре 0708	PVT, PPT, NPT	1023111
	SST	1001733
Type 0413	PVT, PPT, NPT	1023112
	SST	1001734
Туре 0220	PVT, PPT, NPT	1023113
	SST	1001735

#### Accessories

- Foot Valves see page → 1-44
- Injection Valve see page → 1-47
- Hoses, Pipes see page  $\rightarrow$  1-57
- Suction Lances, Suction Kit Without Level Switch see page → 1-62
- Connector Parts/Fittings see page → 1-84

#### **Spare Parts**

■ Custom Valve Balls/Valve Springs See page → 1-83



#### 1.7.1

#### Peristaltic Pump DULCO®flex DF2a



The optimum pump product range for use in swimming pools, hot tubs, and spa zones.

#### Capacity range 0.4 – 2.4 l/h at max. 1.5 bar back pressure

The peristaltic pump DULCO<sup>®</sup>flex DF2a meters chemicals functionally, cost-effectively and quietly – ideal for use in swimming pools, hot tubs, and in spa and wellness facilities.

The feed chemical is transported by the rotor squeezing the hose in the direction of flow. This explains why there is no need for valves. The feed chemical is thus handled with care. Typical applications: wherever lower pump pressure is sufficient. For example when metering conditioners in private pools.

#### Your benefits

- Smooth inner wall reduces deposits.
- Hose materials: PharMed<sup>®</sup> or Viton<sup>®</sup>
- Virtually silent operation
- Simple handling
- Enhanced service life of the hose due to spring-loaded rollers, which keep the rolling pressure constant
   Robust and protected against spray water from all sides: Housing made of impact-resistant and chemical-resistant PPE

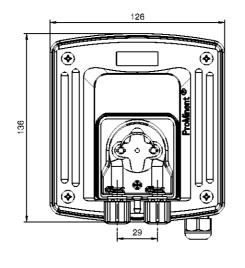
#### **Technical details**

- Self-priming against max. 1.5 bar
- Control or flow control via ON/OFF power supply
- Degree of protection IP 65
- OEM versions on request

#### **Field of application**

- Meters conditioners in private pools
- Meters belt lubricants in bottling machines
- Meters cleaning agents in dishwashers

#### Dimensional drawing of DULCO®flex DF2a



105

P\_DX\_0051\_SW3 Dimensional drawing of DULCO®flex DF2a - dimensions in mm









1.7.2

#### **Identity Code Ordering System**

#### DULCO®flex product range, version DF2a

DF2a	Туре	Capac	ity							
		bar	l/h							
	0204	1.5	0.4							
	0208	1.5	0.8							
	0216	1.5	1.6							
	0224	1.5	2.4							
		Hose	nateria	1						
		Ρ	PharM	ed®						
		V	Viton®	for frag	ances (	special	version)			
			Versio	n						
			0	With P	roMinen	t® logo				
			1		it ProMir					
				Hydra	ulic con	nector	S			
				0	Conne	ctor for	hose 6/	/4 mm s	uction and discharge side	
				9					ischarge side only	
					Power	supply	/			
					A	230 V	± 10%, 5	50/60 H	2	
						Cable	and plu	ıg		
						0	No ma	ins lead		
						1	With 2	m main	s lead, open ended	
						А	With m	ains ca	ble, European plug	
							Drive			
							0	Mains	ON/OFF	
								Install	ation	
								W	Wall mounted	
									Accessories	
									0 No accessories	
									U No accessories	

Viton® and PharMed® are registered trademarks.

#### **Technical Data**

Туре		Capacity	Frequency	Connector size	Suction lift	Intake head
	bar	l/h	rpm	o dia. x i dia.	mWC	m WC
0204	1.5	0.4	5	6x4/10x4	4	3
0208	1.5	0.8	10	6x4/10x4	4	3
0216	1.5	1.6	20	6x4/10x4	4	3
0224	1.5	2.4	30	6x4/10x4	4	3

Admissible ambient temperature:10-45 °CPower consumption approx.:5 WSwitching duration:100%Enclosure rating:IP 65

All data refers to water at 20 °C.

#### **Spare Hoses**

	Order no.
Spare hose set, complete, PharMed®	1009480
Replacement hose compl. Viton®	1023842

#### 1.7.3

#### Peristaltic Pump DULCO<sup>®</sup>flex DF3a



Provides for the perfect atmosphere in spa and wellness zones.

#### Capacity range 0.4 - 2.4 l/h at max. 1.5 bar back pressure

Fragrance metering in spa and wellness facilities: efficient and high-performance with the peristaltic pump DULCO®flex DF3a. They are used wherever small volumes of fragrances need to be metered.

Meters infusions in saunas, steam rooms and whirlpools. The metering pump is equipped with a time control, which can control two other peristaltic pumps for other essences. As the essences cannot be placed undiluted on the oven in saunas, the DF3a has a relay to control the dilution water. To save essences when the sauna is not in use, the pump has a contact input to which a door contact or motion detector can be connected. Essences are therefore only metered when the sauna is in use.

#### Your benefits

- Employees can therefore operate it quickly: It can be operated simply and reliably with language-neutral user guidance and programming via four buttons on the front
- Quietly operating, does not disturb the spa and wellness experience: Low-noise synchronous motor
- Ideal for retrofitting: Simple to integrate into existing systems
- Efficient operation by economical operation: "Meters only when needed" н.

#### **Technical details**

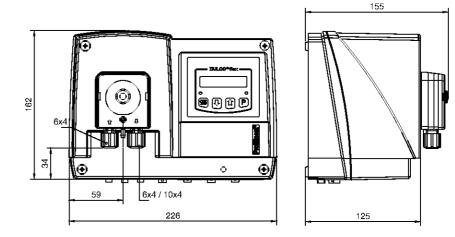
- Viton® hose material, specifically for the metering of fragrances in spa and wellness zones
- Control of dilution water by a solenoid valve 11
- Spring-mounted rollers for uniform roller pressure and increased service life of the hose
- Three float switch inputs 11

#### **Field of application**

P DX 0050 SW3

For saunas, steam rooms and hot tubs

#### Dimensional drawing of DULCO®flex DF3a





P\_DX\_0003\_SW1

**ProMinent** 

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Dimensional drawing of DULCO®flex DF3a - dimensions in mm



1.7.4

DF3a Application

Fragrance metering Installation W Wall

Wall mounting Version

#### **Identity Code Ordering System**

#### DULCO®flex product range, version DF3a

l/h

1.6

24

With cable 2.0 m; open end

Without accessories

Hardware extension None Language

00

With cable 2.0 m; Euro connector

With cable 2.0 m; Swiss connector

А В

Metering valve and foot valve; suction and discharge line

Without relay Application relays None Solenoid valve

Solenoid valve + pump 2

**Control versions** 

2

3

Solenoid valve + pump 2 + pump 3

Pause break contact + level break contact Pause make contact + level break contact

Pause break contact + level make contact

Pause make contact + level make contact Approvals 01 CE-

CE-Symbol

External contact Pause/level

Language-neutral

1

2 3

Relay

bar

1.5

1.5

0216

0224

Cable and plug 0 Without cable

C

Accessories

with LCD, with ProMinent® logo 0 with LCD, without ProMinent® logo 1 Туре Capacity bar l/h 0204 0.4 1.5 0208 1.5 0.8 Hose V material Viton® Hydraulic connectors Standard 0 9 Special connection 10x4 discharge side Power supplyA230 V, 50/60 Hz

Viton® is a registered trademark.

#### **Technical Data**

Туре		Capacity	Frequency	Connector size	Suction lift	Intake head
	bar	l/h	rpm	o dia. x i dia.	mWC	m WC
0204	1.5	0.4	5	6 x 4	4	2
0208	1.5	0.8	10	6 x 4	4	2
0216	1.5	1.6	20	6 x 4	4	2
0224	1.5	2.4	30	6 x 4	4	2

Permissible ambient temperature: 10-45 °C 24 W Approx. power consumption: Switching duration 100%

Switching duration:	100%
Enclosure rating:	IP 65

All data refers to water at 20 °C.

#### **Spare Hoses**

	Order no.
Replacement hose compl. Viton®	1023842

#### 1.7.5

#### Peristaltic Pump DULCO®flex DF4a



The optimum pump for use in swimming pools, hot tubs and spa and wellness facilities.

Capacity range 1.5 – 12 l/h, 4 – 2 bar

The peristaltic pump DULCO<sup>®</sup>flex DF4a for metering flocculants and activated charcoal treats water precisely and accurately. It is ideal for use in swimming pools, hot tubs or spa and wellness facilities. An operating pressure up to 4 bar is possible.

There are three designs of DULCO® flex DF4a available.

- 1 Metering chemicals
- 2 Metering activated charcoal
- 3 Metering flocculants

This guarantees that the operating menu, inputs and outputs are always adapted to the respective application.

#### Your benefits

- Language-neutral user navigation
- Continuous adjustment of capacity
- Hose material in PharMed<sup>®</sup>
- Full control, as the capacity is shown in I/h in the display
- Safe and reliable operation: Flow volume and concentration can be entered reproducibly
- Long service life: Spring-loaded rollers stabilise rolling pressure and reduce wear and tear on the hose
   No irritating noise: low-noise stepper motor with ball bearing drive shaft
- Fast to use: simple installation and retrofitting, even with existing systems
- Guaranteed safety: Hose rupture monitoring system and fault indicating relay register and report all problems.
- Suitable for use around the clock 100% switch-on time
- Operating hours counter for the peristaltic pump always stay informed.

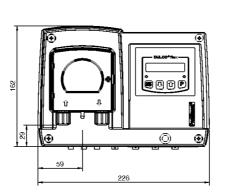
#### **Technical details**

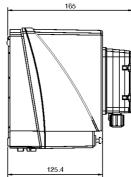
- Priming function
- Night setback
- Inputs for contacts and analogue signals
- Housing degree of protection IP 65
- One or two-stage float switch input
- Operating hour counter
- CANopen interface

#### **Field of application**

Swimming pool water treatment

#### Dimensional drawing of DULCO®flex DF4a





DF4a\_SW3

Dimensional drawing of DULCO®flex DF4a - dimensions in mm



P\_DX\_0003\_SW1



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## **1.7 Peristaltic Pumps DULCO®flex**

1.7.6

DE4a Applicat

#### **Identity Code Ordering System**

#### DULCO®flex product range, version DF4a

DF4a	a Application													
	0		ical pum											
	A	Activa	ted char	coal me	tering									
	F	Floccu	lant me	tering										
		Instal	lation											
		W	Wall m	nounting										
			Versio											
			0			nt® logo								
			1	Withou	ut ProMi	nent® lo	go							
				Туре	Capac	city								
					bar	l/h								
				04004	-	0.35								
				04015		1.50								
				03060	-	6.00								
				02120	2.0	12.00								
						materia								
					Р	PharM								
						Hydraulic c								
						0		ard conn						
						9	Specia	al conne	ctor 10x	4 discha	irge side	Э		
								r supply						
							U			, 50/60	Ηz			
									and plu					
								0		it cable				
								1		able 2.0				
								A		able 2.0				
								В		able 2.0	m; Swis	s conne	ector	
										sories				
									0		t acces			
									2				valve PCB and 10 m PE metering line	
										Hardware extension				
										0	None			
												age de		
											00	-	age-neutral	
												Relay		
													1	Fault signalling relay, drop-out action
												3	Fault signalling relay, pick-up action	
													Control versions	
													C as "8" and CANopen	
													D such as "8" and CANopen and CAN connect	
													Further input	
													1 Pause + 2-stage level + AUX1	
		1			1				1	1		1	2 Pause + 1-stage level + AUX1 + AUX	
		1			1				1	1		1	Pause/level	
		1			1							1	0 Pause break contact	
		1			1				1	1		1	+ level break contact	
		1			1				1	1		1	Approvals	
		1			1							1	01 CE-Symbol	
		1		1	1	1	1							

PharMed<sup>®</sup> is a registered trademark.

#### **Technical Data**

Priming lift	3 mWS	Approx. power consumption:	24 W
Suction lift	4 mWS	Switching duration:	100%
Speed	0 - 85 RPM	Degree of protection:	IP 65
Permissible ambient temperature:	10-45 °C		

All data refers to water at 20 °C.

#### **Spare Hoses**

	Order no.
For type 04004 PharMed <sup>®</sup>	1034997
For type 04015 PharMed®	1030722
For type 03060 PharMed®	1030723
For type 02120 PharMed®	1030774

## **1.8 Flow Meter DulcoFlow®**

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#### 1.8.1

#### Flow Meter DulcoFlow<sup>®</sup>

#### Your reliable control unit: unobtrusively measures, monitors and detects faults.

For the measurement of pulsating volumetric flows within the range of 0.03 ml/stroke to 10 ml/stroke



The flow meter DulcoFlow<sup>®</sup> reliably measures pulsating flows in the range above 0.03 ml/stroke based on the ultrasound measuring principle. The flow meter achieves maximum chemical resistance, as all wetted parts are made of PVDF and PTFE.



The device works on the ultrasound measuring principle. It was developed specifically for measuring small pulsating volumetric flows. It is installed around 30 cm downstream of the metering pump, so that there is still sufficient pulsation in the flow. All liquids that conduct ultrasound waves can be measured.

#### Your benefits

- Maximum chemical resistance by the use of PVDF and PTFE
- No electrical conductivity of the medium is needed
- $\blacksquare\,$  Measurement above stroke volumes of approx. 30  $\mu l$
- Detection of gas bubbles in the feed chemical
- No bottlenecks in the measuring tube. Media with small undissolved particles or with increased viscosity can be measured
- A 0/4 -20 mA current output and a frequency output are available for remote transmission of the measured values.
- Use as a single stroke monitor with feedback to the pump. This ensures that the metering stroke is performed within an adjustable lower and upper limit
- Summation of the metering volume measured with stroke counter
- Intuitive user guidance and simple programming

#### **Technical details**

- 2 LEDs for status display and stroke feedback
- 2-line graphic display
- 0/4 20 mA standard signal and 0 10 kHz frequency output for remote transmission of the measured value
- Compact, chemically-resistant plastic housing
- Measuring accuracy ±2% if the device has been calibrated to the chemical to be measured. Max. operating pressure 16 bar.

#### **Field of application**

- Measurement of the chemical consumption, for example in surface treatment
- Guaranteed metering, for example in the paper industry
- Measured value transmission and pump control by the central control system
- Measurement of aggressive chemicals
- Not suitable for liquids, which have minimal acoustic conductivity, e.g. sodium hydroxide (NaOH) with a concentration of greater than around 20%
- We recommend first testing the measurability with emulsions and suspensions

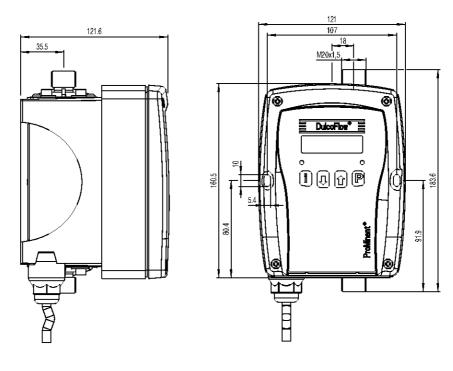


P\_DFI\_0002\_SW1



## **1.8 Flow Meter DulcoFlow®**

#### Dimensional drawing of DulcoFlow®



P\_DFI\_0003\_SW\_Dulcoflow\_SW3

Dimensional drawing of DulcoFlow® - dimensions in mm

#### **Technical Data**

Туре	Туре 05	Туре 08
Max. operating pressure	16 bar	16 bar
Smallest measurable stroke volume	Approx. 0.03 ml/stroke pulsing	Approx. 0.05 ml/stroke pulsing
Contact output with individual stroke detection	Open collector, 1 contact per stroke	Open collector, 1 contact per stroke
Frequency output	Open collector, up to 10 kHz at maximum flow (parametrisable)	Open collector, up to 10 kHz at maximum flow (parametrisable)
Analogue output	Parametrisable, max. load 400 $\Omega$	Parametrisable, max. load 400 $\Omega$
for series	Beta® 1000 – 0413/0713, gamma/ X 1602 – 0414/0715, delta® 1608 – 1612	Beta® 1604 – 0420, gamma/ X 1604 – 0424, delta® 1020 – 0450, Sigma/ 1

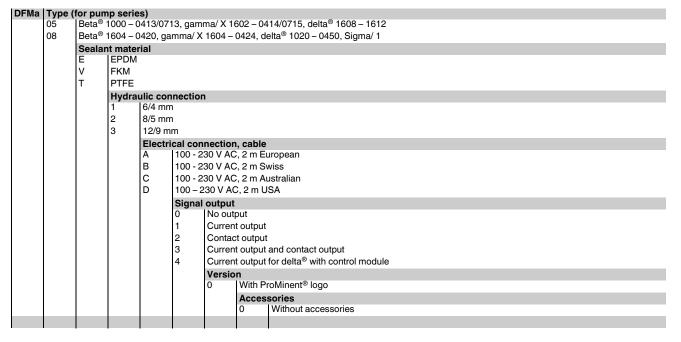
**ProMinent**<sup>®</sup>

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#### Identity code ordering system for DulcoFlow<sup>®</sup> ultrasound flow meter







#### Hydraulic/Mechanical Installation Accessories 1.9

1.9.1

A

pk\_1\_038

35 16

> Ø D2 ØD1

#### Foot Valves for Low-Pressure Metering Pumps

At the end of the suction line as protection against contamination and vacuum breaker, with filter meshes and ball check. With 6/4, 8/5, 12/6, 12/9 connectors with ceramic weight.

#### **PPE Foot Valve**

PP body, EPDM seals

M 20 x 1,5

Ø 38

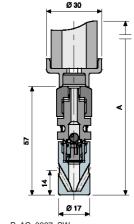
Connector	oØ x iØ mm	Α	Fig.	Order no.
		mm		
6/4 for hose	6 x 4	84	pk_1_038	924558
8/5 for hose	8 x 5	84	pk_1_038	809468
12/9 for hose	12 x 9	87	pk_1_038	809470
10/4 for hose	10 x 4	87	pk_1_038	1002916
12/6 for hose	12 x 6	87	pk_1_038	809469
6/4 for hose	6 x 4	57	P_AC_0207_SW	914554
G 3/4 - DN 10 for hose	20 x 15 and 24 x 16	93	P_AC_0206_SW	809465

#### **PPB Foot Valve**

PP body, FKM (FKM) seals

Connector	oØ x iØ mm		Fig.	Order no.
		mm		
6/4 for hose	6 x 4	84	pk_1_038	924559
8/5 for hose	8 x 5	84	pk_1_038	924683
12/9 for hose	12 x 9	87	pk_1_038	924684
10/4 for hose	10 x 4	87	pk_1_038	1002915
12/6 for hose	12 x 6	87	pk_1_038	924685
G 3/4 - DN 10 for hose	20 x 15 and 24 x 16	93	P_AC_0206_SW	790189





P\_AC\_0207\_SW

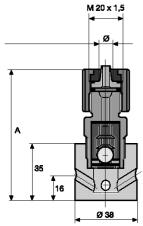
#### **PCB Foot Valve**

PVC housing, FKM seals.

Connector	oØ x iØ mm	A	Fig.	Order no.
		mm		
6/4 for hose	6 x 4	84	pk_1_038	924557
8/5 for hose	8 x 5	84	pk_1_038	924562
12/9 for hose	12 x 9	87	pk_1_038	924564
10/4 for hose	10 x 4	87	pk_1_038	1002917
12/6 for hose	12 x 6	87	pk_1_038	924563
6/4 for hose	6 x 4	57	P_AC_0207_SW	914505
G 3/4 - DN 10 for hose	20 x 15 and 24 x 16	93	P_AC_0206_SW	809464







#### **PVT Foot Valve**

PVDF housing, PTFE seals.

Connector	oØ x iØ mm	Α	Fig.	Order no.	
		mm			
6/4 for hose	6 x 4	79	pk_1_040	1024705	
8/5 for hose	8 x 5	79	pk_1_040	1024706	
12/9 for hose	12 x 9	82	pk_1_040	1024707	
DN 10 for hose	24 x 16	92	P_AC_0206_SW	1029471	



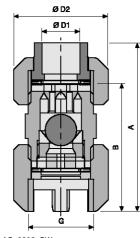
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#### Foot Valve TTT

PTFE housing and seals, for connections 6/4, 8/5, 12/6, 12/9 with ceramic weight.

Connector	oØ x iØ	Α	Fig.	Order no.
	mm	mm		
6/4 for hose	6 x 4	79	pk_1_040	809455
8/5 for hose	8 x 5	79	pk_1_040	809471
12/9 for hose	12 x 9	82	pk_1_040	809473
12/6 for hose	12 x 6	82	pk_1_040	809472
6/4 for hose	6 x 4	52	pk_1_039	914349
G 3/4 - DN 10	d16 welding sleeve	93	P_AC_0202_SW	809466





P\_AC\_0202\_SW

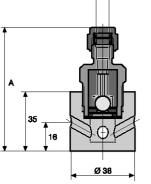


## 1.9 Hydraulic/Mechanical Installation Accessories

#### **Foot Valve SST**

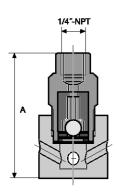
Stainless steel 1.4404 housing, PTFE seals. A support sleeve is required for tube connections 6/4, 8/5, 12/9.

Connector	oØ x iØ mm	Α	Fig.	Order no.
		mm		
6/4 for pipe 6 x 5 mm / hose	6 x 4	74	P_AC_0229_SW1	924568
8/5 for pipe 8 x 7 mm / hose	8 x 5	74	P_AC_0229_SW1	809474
12/9 for pipe 12 x 10 mm / hose	12 x 9	77	P_AC_0229_SW1	809475
1/4" NPT for SS2		70	pk_1_031_SW1	924567
G 3/4 - DN 10 with socket Rp 3/8		67	P_AC_0204_SW	809467

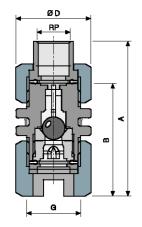


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P\_AC\_0229\_SW1



pk\_1\_031\_SW1



P\_AC\_0204\_SW

1-46

#### Hydraulic/Mechanical Installation Accessories 1.9



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pk 1 105

#### Injection Valve for Low-Pressure Metering Pumps

Injection valves are mounted at the point of injection to connect the metering line. They protect against backflow and generate a defined back pressure.

In the PP, PVC, PVDF and stainless steel versions, the injection valve with ball check is spring-loaded with a Hastelloy C spring, priming pressure approx. 0.5 bar (with R1/4 connector, spring made of stainless steel no. 1.4571, priming pressure approx. 1 bar). They may be fitted in any position.

The TT version without a spring is suitable for vertical installation from below. Valve springs can be retrofitted.

Important: Injection valves are not absolutely leak-tight shut-off devices!

#### **PPE Injection Valve**

20

67

PP housing, EPDM seals with non-return ball, spring-loaded with Hastelloy C spring, prepressure approx. 0.5 bar with extended screwed socket.

#### Applications when using appropriate metering lines

25 °C - max. operating pressure 16 bar

45 °C - max. operating pressure 9 bar

Connection	oØ x iØ	Α	Fig.	Order no.
	mm	mm		
6/4 - R 1/2 for PE/PTFE pipe	6 x 4	119	pk_1_105	924681
8/5 - R 1/2 for PE/PTFE pipe	8 x 5	119	pk_1_105	809476
12/9 - R 1/2 for PE/PTFE pipe	12 x 9	119	pk_1_105	809478
10/4 - R 1/2 for PVC hose	10 x 4	119	pk_1_105	1002920
12/6 - R 1/2 for PVC hose	12 x 6	119	pk_1_105	809477
6/4 - G 1/4 for PE/PTFE pipe*	6 x 4	62	pk_1_042	914184
G 3/4 - DN 10 for PVC hose	24 x 16	83	pk_2_029	809461

\* Valve spring from stainless steel 1.4571, priming pressure approx. 0.8 bar

#### **PPB Injection Valve**

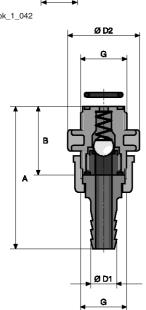
PP housing, FKM seals with spring-loaded non-return ball, prepressure approx. 0.5 bar.

#### Applications when using appropriate metering lines

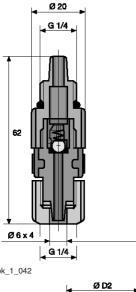
25 °C - max. operating pressure 16 bar

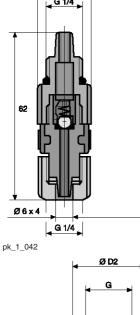
45 °C - max. operating pressure 9 bar

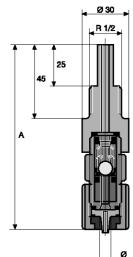
Connection	oØ x iØ	Α	Fig.	Order no.
	mm	mm		
6/4 - R 1/2 for PE/PTFE pipe	6 x 4	119	pk_1_105	924682
8/5 - R 1/2 for PE/PTFE pipe	8 x 5	119	pk_1_105	924687
12/9 - R 1/2 for PE/PTFE pipe	12 x 9	119	pk_1_105	924688
10/4 - R 1/2 for PVC hose	10 x 4	119	pk_1_105	1002921
12/6 - R 1/2 for PVC hose	12 x 6	119	pk_1_105	924689
G 3/4 - DN 10 for PVC hose	24 x 16	83	pk_2_029	790191



pk\_2\_029







#### **PP/PTFE Injection Valve**

For prevention of chemical deposits. PP body, PTFE mounting insert, EPDM seals with ball check and Hastelloy C spring approx. 0.5 bar priming pressure (Fig. pk\_1\_046).

Applications when using appropriate metering lines

25 °C - max. operating pressure 16 bar

45 °C - max. operating pressure 9 bar

Connection	oØ x iØ	Α	Fig.	Order no.
	mm	mm		
6/4 - R 1/2 for PE/PTFE pipe	6 x 4	103	pk_1_046	924588
8/5 - R 1/2 for PE/PTFE pipe	8 x 5	103	pk_1_046	924589
12/9 - R 1/2 for PE/PTFE pipe	12 x 9	106	pk_1_046	924590
10/4 - R 1/2 for PVC hose	10 x 4	106	pk_1_046	1002923
12/6 - R 1/2 for PVC hose	12 x 6	106	pk_1_046	924591

#### **PVC/PTFE Injection Valve**

PVC body, PTFE mounting insert, FKM-B seals, spring loaded ball check with Hastelloy C spring, approx. 0.5 bar priming pressure.

#### Applications when using appropriate metering lines

25 °C - max. operating pressure 16 bar

45 °C - max. operating pressure 7 bar

Connector	oØ x iØ	Fig.	Order no.
	mm		
6/4 - R 1/2 for PE/PTFE pipe	6 x 4	pk_1_046	809450
8/5 - R 1/2 for PE/PTFE pipe	8 x 5	pk_1_046	809451
12/9 - R 1/2 for PE/PTFE pipe	12 x 9	pk_1_046	809452
10/4 - R 1/2 for PVC hose	10 x 4	pk_1_046	1002924
12/6 - R 1/2 for PVC hose	12 x 6	pk_1_046	809453

#### **PCB Injection Valve**

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Housing made of PVC, seals made of FKM with non-return ball spring-loaded with Hastelloy C spring, priming pressure approx. 0.5 bar, with extended screwed socket. Type 8/4 up to 25 bar.

#### Applications when using appropriate metering lines

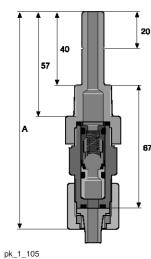
25 °C - max. operating pressure 16 bar

45 °C - max. operating pressure 7 bar

oØ x iØ	Α	Fig.	Order no.
mm	mm		
6 x 4	119	pk_1_105	924680
8 x 4	119	pk_1_105	1034621
8 x 5	119	pk_1_105	924592
12 x 9	119	pk_1_105	924594
10 x 4	119	pk_1_105	1002919
12 x 6	119	pk_1_105	924593
6 x 4	62	-	914559
24 x 16	83	pk_2_029	809460
	mm 6 x 4 8 x 4 8 x 5 12 x 9 10 x 4 12 x 6 6 x 4	mm         mm           6 x 4         119           8 x 4         119           8 x 5         119           12 x 9         119           10 x 4         119           12 x 6         119           6 x 4         62	mm         mm           6 x 4         119         pk_1_105           8 x 4         119         pk_1_105           8 x 5         119         pk_1_105           12 x 9         119         pk_1_105           10 x 4         119         pk_1_105           12 x 6         119         pk_1_105           6 x 4         62         -

Spring made of 1.4571, approx. 0.8 bar priming pressure.

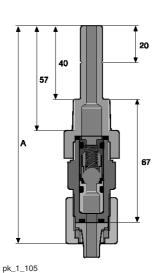
# \_\_\_\_\_pk\_1\_046



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**ProMinent**<sup>®</sup>

#### Hydraulic/Mechanical Installation Accessories 1.9



Ø D2

#### **PVT Injection Valve**

Housing PVDF, seals PTFE, with non-return ball, spring-loaded with Hast. C spring, approx. 0.5 bar priming pressure, with extended screwed socket. Type 6/3 up to 20 bar, 8/4 up to 25 bar.

#### Applications when using appropriate metering lines

25 °C - max. operating pressure 16 bar

45 °C - max. operating pressure 12 bar

Connection	oØ x iØ	Α	Fig.	Order no.
	mm	mm		
6/3 - R 1/2 for PTFE pipe	6 x 3	119	pk_1_105	1024713
6/4 - R 1/2 for PE/PTFE pipe	6 x 4	119	pk_1_105	1024708
8/4 - R 1/2 for PTFE line	8 x 4	119	pk_1_105	1034619
8/5 - R 1/2 for PE/PTFE pipe	8 x 5	119	pk_1_105	1024710
12/9 - R 1/2 for PE/PTFE pipe	12 x 9	119	pk_1_105	1024711
10/4 - R 1/2 for PVC hose	10 x 4	119	pk_1_105	1024709
12/6 - R 1/2 for PVC hose	12 x 6	119	pk_1_105	1024712
G 3/4 - DN 10 with pressure hose nozzle d16 - DN 10.	24 x 16	84	pk_2_029	1029476

#### **PVT Injection Valve with Tantalum Spring**

PVDF housing, PTFE seals with tantalum spring-loaded ball check, priming pressure approx. 0.5 bar, with extra-long screw-in fitting. 6/3 version up to 20 bar, 8/4 up to 25 bar, for metering of sodium-calcium hypochlorite, with universal tube connector set 6x3, 6x4, 8x4, 8x5, 12x9, 10x4 and 12x6 mm.

#### Application range when using appropriate metering line

25	°C -	max.	operating	pressure	16 bar
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45 °C - max. operating pressure 12 bar

Connection	Α	Fig.	Order no.	
	mm			
Universal connector, R 1/2	119	pk_1_105	1044653	



в

Ø 30 Ø12 R 1/2 8 37.5

#### **TTT Injection Valve**

Vertical installation from below. With ball check, without spring. Valve spring (Order No. 469404) can be retrofitted. Body and seals made of PTFE.

#### Applications when using appropriate metering lines

25 °C - max. operating pressure 10 bar

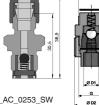
45 °C - max. operating pressure 5 bar

Connection	oØ x iØ mm	Α	Fig.	Order no.
		mm		
6/4 - R 1/2 for PE/PTFE pipe	6 x 4	98	P_AC_0184_SW	809488
8/5 - R 1/2 for PE/PTFE pipe	8 x 5	98	P_AC_0184_SW	809479
12/9 - R 1/2 for PE/PTFE pipe	12 x 9	101	P_AC_0184_SW	809481
12/6 - R 1/2 for PVC hose	12 x 6	101	P_AC_0184_SW	809480
G 3/4 - DN 10 with d16 welding sleeve		-	pk_2_030	809462





pk\_1\_032\_2 pk\_1\_032\_1



P\_AC\_0253\_SW

#### **SST Injection Valve**

Stainless steel 1.4404 body and PTFE seals with spring loaded ball check. Spring made of Hastelloy C. with approx. 0.5 bar priming pressure, for 1.4571 R 1/4 spring, approx. 1 bar priming pressure. Ferrule is required for connection with PE/PTFE pipe.

#### Applications when using appropriate metering lines

25 °C - max. operating pressure 30 bar

45 °C - max. operating pressure 30 bar

Connection	oØ x iØ	Α	Fig.	Order no.
	mm	mm		
6 mm - R 1/2 for pipe	6 x 5	93	pk_1_032_1	809489
8 mm - R 1/2 for pipe	8 x 7	93	pk_1_032_1	809482
12 mm - R 1/2 for pipe	12 x 10	96	pk_1_032_1	809483
1/4" NPT - R 1/2 for pipe	R 1/4" NPT	89	pk_1_032_2	924597
6 mm - R 1/4 for pipe		-	P_AC_0253_SW	914588
G 3/4 - DN 10, sleeve	Rp 3/8	-	pk_2_030	809463

#### **PPB Injection Valve O-Ring Loaded**

PP body, FKM seals. Priming pressure approx. 0.5 bar.

Applications when using appropriate metering lines

- 25 °C max. operating pressure 16 bar
- 45 °C max. operating pressure 9 bar

Connector	oØ x iØ mm	Fig.	Order no.
6/4 - G 1/4 short	6 x 4	P_AC_0008_SW	914754
6/4 - G 1/4 long	6 x 4	P_AC_0009_SW	741193

P\_AC\_0008\_SW

#### PCB Injection Valve O-Ring Loaded

PVC body, FKM seals, priming pressure approx. 0.5 bar.

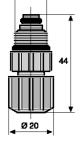
Applications when using appropriate metering lines

25 °C - max. operating pressure 16 bar

45 °C - max. operating pressure 7 bar

Connector	oØ x iØ mm	Fig.	Order no.
6/4 - G 1/4 short	6 x 4	P_AC_0008_SW	914558
6/4 - G 1/4 long	6 x 4	P_AC_0009_SW	915091





G 1/4

pk\_2\_030

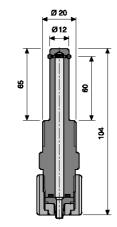
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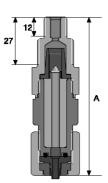
29

P\_AC\_0009\_SW





P\_AC\_0183\_SW



pk\_1\_070



pk\_1\_049

1.1.2016

#### **PTFE Injection Valve O-Ring Loaded**

PTFE housing, FKM seals.

Applications when using appropriate metering lines

25 °C - max. operating pressure 10 bar

45  $^{\circ}\text{C}$  - max. operating pressure 6 bar

Connection	oØ x iØ	Α	Fig.	Order no.
	mm	mm		
6/4 – for PE/PTFE line	6 x 4	104	P_AC_0183_SW	809484
8/5 – for PE/PTFE line	8 x 5	104	P_AC_0183_SW	809485
10/4 – for PVC hose	10 x 4	104	P_AC_0183_SW	1002925
12/6 – for PVC hose	12 x 6	104	P_AC_0183_SW	809487
12/9 – for PE/PTFE line	12 x 9	104	P_AC_0183_SW	809486

#### Lip Seal Injection Valve PCB

Body PVC, seals FKM, inlet pressure approx. 0.05 bar. For metering sodium hypochlorite and for use in conjunction with the peristaltic pump DF2a.

Applications when using appropriate metering lines

25 °C - max. operating pressure 2 bar

45 °C - max. operating pressure 2 bar

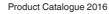
Connection	oØ x iØ	Α	Fig.	Order no.
	mm	mm		
6/4 - R 1/2 - 1/4 for PE/PTFE pipe	6 x 4	90	pk_1_070	1019953
10/4 - R 1/2 - 1/4 for PE/PTFE pipe	10 x 4	90	pk_1_070	1024697

#### Metering Connector for Warm Water up to 200 °C

Consists of stainless steel 1.4404 injection valve, 1 m stainless steel 1.4571 discharge line and threaded connector with reinforcing sleeve for connection of PE/PTFE pipe to stainless steel pipe.

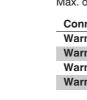
Max. operating pressure 30 bar

Connection	Fig.	Order no.	
Warm water 6 mm - R 1/4	pk_1_049	913166	
Warm water 6 mm - R 1/2	pk_1_049	913167	
Warm water 8 mm - R 1/2	pk_1_049	913177	
Warm water 12 mm - R 1/2	pk_1_049	913188	





Low-pressure Metering Pumps



# **ProMinent**<sup>®</sup>

## 1.9 Hydraulic/Mechanical Installation Accessories

x. 130

pk\_1\_007

max. 165

R 1/2

ca. 3f

ca. 28

R 1/2

#### Injection Lances, Non-Return Valves for Low-Pressure Metering Pumps

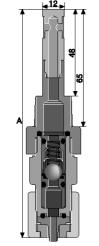
#### **PPE Injection Lance**

For immersion depths of 20 - 165 mm, in large diameter pipe to prevent chemical deposition at the point of injection. Consists of spring-loaded metering valve, Hastelloy C spring, ceramic ball, adjustable immersion rod and hose valve. With connectors for all hose sizes used with solenoid metering pumps: 6/4, 8/5, 12/9, 10/4 and 12/6.

Туре	Seal material	Max. pressure at 25 °C	Fig.	Order no.
		bar		
PPE without stopcock	EPDM/silicone	6	pk_1_062	1021530
PPE with stopcock	EPDM/silicone	6	pk_1_007	1021531
PCB without stopcock	FKM/silicone*	6	pk_1_062	1021528
PCB with stopcock	FKM/silicone*	6	pk_1_007	1021529

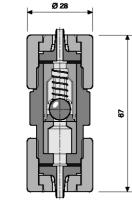
\* Please note: The product contains connections bonded with Tangit. Always note the durability of Tangit adhesive.

pk\_1\_062



P\_AC\_0020\_SW

Low-pressure Metering Pumps



P\_AC\_0181\_SW



Metering lance with universal connection kit, enabling the connection of different hose sizes of from 6/4 to 12/9. Hastelloy C spring, ceramic ball and silicone hose. Material of screwed socket: PVDF.

Туре	Material, valve body	Max. pressure at 25 °C	Seal material	Α	Fig.	Order no.
		bar		mm		
PPE	PP	16	EPDM	126	P_AC_0020_SW	1028383
PCB	PVC	16	FKM-B	126	P_AC_0020_SW	1028363
PVT	PVDF	16	PTFE	126	P_AC_0020_SW	1028081

#### **PVDF Non-Return Valve for Hose Installation**

With connection kit on both sides for fitting in hose line.

With non-return ball, spring-loaded with Hastelloy C spring, prepressure approx. 0.5 bar.

PVDF housing, PTFE seals.

Different hose sizes from 6/4 to 12/9 can be joined using different connection kits.

Applications when using appropriate metering lines

25 °C - max. operating pressure 16 bar

45 °C - max. operating pressure 12 bar

Connection	oØ x iØ	Α	Fig.	Order no.
	mm	mm		
6/4 for PE/PTFE line	6 x 4	67	P_AC_0181_SW	1030463
8/5 for PE/PTFE line	8 x 5	67	P_AC_0181_SW	1030975
10/4 for PE/PTFE line	10 x 4	67	P_AC_0181_SW	1030977
12/6 for PVC hose	12 x 6	67	P_AC_0181_SW	1030978
12/9 for PE/PTFE line	12 x 9	67	P_AC_0181_SW	1030976

## 1.9 Hydraulic/Mechanical Installation Accessories

#### 1.9.4

#### **Back Pressure Valves / Relief Valves for Low-Pressure Metering Pumps**

Back pressure valves are used to generate a constant back pressure to ensure precise metering and protect against over-metering or metering imprecision through free outlets and priming pressure on the suction side. They are also used in conjunction with pulsation dampers to generate low-pulsation metering. We recommend back pressure valves type DHV-RM with fluctuating back pressure and metering into vacuums.

(Back Pressure Valves / Relief Valves for Motor Driven Metering Pumps see volume "Motor-driven and process metering pumps for all capacity ranges" page  $\rightarrow$  1-64)

The DHV listed below are designed for different applications. Please note the relevant notes for the different mountings.

**Important:** Back pressure valves cannot be used as absolutely leak-tight shut-off devices. Take appropriate precautions when handling hazardous media.

Relief valves are used to protect pumps, pipes and fittings from over pressure, in the event of incorrect operation or blockages in the bypass. In the event of a malfunction, the pump pumps back into the storage tank.

#### Multifunctional Valve Type MFV-DK, PVDF



Back pressure valve / relief valve for fitting directly on the pump's dosing head with the functions:

- Back pressure valve, opening pressure approx. 1.5 bar with free outlet or priming pressure at the suction end (black rotary dial)
- Relief valve, opening pressure approx. 6, 10 or 16 bar (red rotary dial)
- Priming aid for pending back pressure, no need to release discharge line
- Discharge line relief, e.g. prior to service work

The multifunctional valve is operated by free-moving rotary dials that automatically return to their original position when released by the operator. This means operation is possible even when access is difficult. The multifunctional valve is made of PVDF and can be used to meter almost any chemical.

**Caution:**Back pressure valves are not absolutely leak-tight shut-off devices! It is essential that you observe the installation notes in the operating instructions!

Caution: The bypass line should always be connected.

For hoses see page  $\rightarrow$  1-57.

Valve body	PVDF
Diaphragm	PTFE- coated
Seal	FKM and EPDM (enclosed)

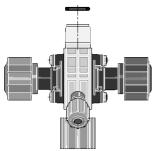
Туре	Relief opening pressure*	Connection	Bypass connector	Order no.
Size I	16 bar	6-12	6/4	792011
Size I	10 bar	6-12	6/4	791715
Size I	6 bar	6-12	6/4	1005745
Size II	10 bar	6-12	12/9	792203
Size II	6 bar	6-12	12/9	740427
Size III	10 bar	DN 10	12/9	792215

The relief opening pressure given above is the pressure at which the valve begins to open. The pressure can be up to 50% higher until the valve is fully open depending on the type of pump.

#### Application: multifunctional valves

Size I	ALPc 1001, 1002, 1004, 1008, 0708
	Beta <sup>®</sup> , gamma/ L type 1000, 1601, 1602, 1604, 1605, 1005, 1008, 0708, 0413, 0220
	gamma/ X type 1602, 1604, 1009, 0708, 0414, 0220
	delta <sup>®</sup> type 1608, 1612
Size II	ALPc 0417, 0230
	Beta <sup>®</sup> , gamma/ L type 1605, 1008, 0713, 0420, 0232
	gamma/ X type 1009, 0715, 0424, 0245
	delta <sup>®</sup> type 1020, 0730
Size III	delta <sup>®</sup> type 0450, 0280

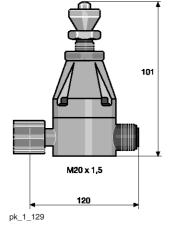
For material design PP, PV, NP, TT



pk\_1\_053

#### Back Pressure Valve Type DHV-S-DK, 0-10 bar Adjustable





Adjustable back pressure valve for fitting directly onto the dosing head to generate a constant back pressure. For accurate metering with a free outlet and with priming pressure on the suction side.

Caution: Back pressure valves are not absolutely leak-tight shut-off devices! It is essential that you observe the installation notes in the operating instructions!

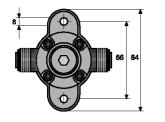
Applications: Metering pump alpha, Beta<sup>®</sup>, gamma/ X, Pneumados b, EXtronic<sup>®</sup> and delta<sup>®</sup>

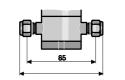
Туре	Adjustable pressure	Connection	Material	Order no.
DHV-S-DK	0 – 10 bar	6 to 12 mm	PP/EPDM	302320
DHV-S-DK	0 – 10 bar	6 to 12 mm	PC/FKM*	302321
DHV-S-DK	0 – 10 bar	6 to 12 mm	TT/PTFE	302322
DHV-S-DK	0 – 10 bar	6 mm	SS	1003793
DHV-S-DK	0 – 10 bar	8 mm	SS	1003795
DHV-S-DK	0 – 10 bar	12 mm	SS	1003797

\* Caution: The product contains adhesive joints with Tangit. Please note the resistance of Tangit adhesive.

#### Back Pressure Valve / Relief Valve Type DHV-S-DL, 0-10 bar Adjustable







Adjustable back pressure valve for installation in the metering line to generate a constant back pressure for precise metering with a free outlet and with priming pressure on the suction side

When used as a back pressure valve in long lines to avoid resonance vibrations: Install at the end of the metering line or select a set pressure greater than the line pressure loss

Only use in conjunction with pulsation damper with a free outlet and short metering line. Use type DHV-U for use with a pulsation damper at back pressure or long lines.

Caution: Back pressure valves are not absolutely leak-tight shut-off devices! It is essential that you observe the installation notes in the operating instructions!

Applications: Metering pumps alpha, Beta<sup>®</sup>, gamma/ X, Pneumados b, EXtronic<sup>®</sup> and delta<sup>®</sup>

(Back Pressure Valves / Relief Valves for Motor Driven Metering Pumps see volume "Motor-driven and process metering pumps for all capacity ranges" page → 1-64)

Туре	Adjustable pressure	Connection	Material	Order no.
DHV-S-DL	0 – 10 bar	6 to 12 mm	PP	302323
DHV-S-DL	0 – 10 bar	6 to 12 mm	PC/FKM*	302324
DHV-S-DL	0 – 10 bar	6 to 12 mm	TT	302325
DHV-S-DL	0 – 10 bar	6 mm	SS	302326
DHV-S-DL	0 – 10 bar	8 mm	SS	302327
DHV-S-DL	0 – 10 bar	12 mm	SS	302328

Order 2 connecting kits in the required hose size separately for the connection.

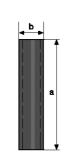
\* **Please note:** The product contains connections bonded with Tangit. Always note the durability of Tangit adhesive.

(Connection Kits for Low-Pressure Metering Pumps see page → 1-75)

ProMinent®

Low-pressure Metering Pumps

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pk\_1\_017

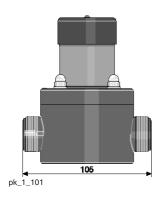
#### **Pipe Nipples**

For the direct connection of the pressure maintenance valve DHV-S-DL in stainless steel (SS) to the liquid end.

Туре	А	в	Fig.	Order no.
	mm	mm		
1.4571 pipe nipple	6	40	pk_1_017	818537
	8	40	pk_1_017	818538
	12	40	pk_1_017	818539

#### Back Pressure Valve Type BPV-DM





Adjustable back pressure valve for installation in the metering line to generate a constant back pressure and/or for precise metering with a free outlet and with priming pressure on the suction side.

**Caution:** Back pressure valves are not absolutely leak-tight shut-off devices! It is essential that you observe the installation notes in the operating instructions!

Applications: Metering pumps alpha, Beta®, gamma/ X, Pneumados b and delta®

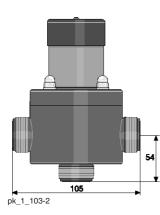
Туре	Adjustable pressure	Connection	Material	Order no.
BPV-DM	1 – 10 bar	6 – 12	PP/EPDM	1009884
BPV-DM	1 – 10 bar	6 – 12	PP/FKM-B	1009886
BPV-DM	1 – 10 bar	6 – 12	PVC/EPDM	1009885
BPV-DM	1 – 10 bar	6 – 12	PVC/FKM-B	1026450

Order 2 connection kits in the required hose size separately for the connection.

(Connector Kits see page  $\rightarrow$  1-75)

#### **Relief Valve Type BPV-SM**





Adjustable relief valve for installation in the metering line to protect against overpressure. With additional connector for the relief line at the base of the valve body, no T-piece is required for installation.

**Caution:** Back pressure valves are not absolutely leak-tight shut-off devices! It is essential that you observe the installation notes in the operating instructions!

Applications: Metering pumps alpha, Beta<sup>®</sup>, gamma/ X, Pneumados b and delta<sup>®</sup>

Туре	Adjustable pressure	Connection	Material	Order no.
BPV-SM	1 – 10 bar	6 – 12	PPE	1009887
BPV-SM	1 – 10 bar	6 – 12	PPB	1009889
BPV-SM	1 – 10 bar	6 – 12	PCE	1009888
BPV-SM	1 – 10 bar	6 – 12	PCB	1026445

\* Order 3 connection kits in the required hose size separately for the connection.

(Connector Kits see page  $\rightarrow$  1-75)

Low-pressure Metering Pumps



1.9.5

pk\_1\_056

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#### Flushing Assemblies and Overload Protection Assemblies for Low-Pressure Metering Pumps

#### **Flushing Assembly**

For flushing and cleaning dosing heads, metering lines and injection valves.

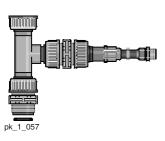
As a manual or automatic, time-controlled design. Installation, even retrospectively, on the suction connector of the metering pump. Supplied with 2 m flushing pipe and R 3/8 connection nipple.

Automatic flushing equipment for the fully automatic flushing of the pump head is possible on request.

#### **PPE Flushing Assembly**

PP material, EPDM seal.

	Fig.	Order no.	
For 6/4, 8/5, 12/6, 12/9 connectors	pk_1_056	809909	
For G 3/4 -DN 10 connector	pk_1_057	809917	
For G 1 -DN 15 connector	pk_1_057	809919	



#### **PCB Flushing Assembly**

Material: PVC, FKM seals

	Fig.	Order no.	
for 6/4, 8/5, 12/6, 12/9 connectors	pk_1_056	809925	
for G 3/4 - DN 10 connectors	pk_1_057	809926	
for G 1 - DN 15 connectors	pk_1_057	803960	

\* Caution: The product contains adhesive joints with Tangit. Please note the resistance of Tangit adhesive.

#### **Relief Valve Assembly**

Consisting of a back pressure valve, which can be set from 1 - 10 bar, type DL, complete with connecting parts, installation directly on the dosing head.

Connector size 6 - 12 mm, depending on the pressure connector on the metering pump.

#### PPE Relief Valve Assembly

Material: PP, EPDM seals.

	Fig.	Order no.	
For 6/4, 8/5, 12/6, 12/9 connectors	pk_1_058	809990	
G 3/4 - DN 10 connector	pk_1_059	809991	
G 1 - DN 15 connector	pk_1_059	809992	

# pk\_1\_058

#### **PCB Relief Valve Assembly**

Material: PVC, FKM seals.

	Fig.	Order no.
for 6/4, 8/5, 12/6, 12/9 connectors	pk_1_058	809989
for G 3/4 - DN 10 connectors	pk_1_059	809993
for G 1 - DN 15 connectors	pk_1_059	914745

\* Caution: The product contains adhesive joints with Tangit. Please note the resistance of Tangit adhesive.

pk\_1\_059





#### Hoses, Pipes

#### Hoses and Pipework for Low-Pressure Metering Pumps

For metering pumps and accessories.

We recommend that only original lines are used so that the mechanical connection of the compression fitting and the pressure rating and chemical resistance are ensured.

#### Soft PVC Suction Line

Material	Length m	oØ x iØ mm	Permissible pressure bar	Order no.
PVC flexible	5	6 x 4	0.5*	1004520
	5	8 x 5	0.5*	1004521
	5	12 x 9	0.5*	1004522
	10	6 x 4	0.5*	1004523
	10	8 x 5	0.5*	1004524
	10	12 x 9	0.5*	1004525
	25	6 x 4	0.5*	1004526
	25	8 x 5	0.5*	1004527
	25	12 x 9	0.5*	1004528
	50	6 x 4	0.5*	1004529
	50	8 x 5	0.5*	1004530
	50	12 x 9	0.5*	1004531
	Sold in metres	19 x 15	0.5*	037020

Admissible operating pressure at 20 °C in accordance with DIN EN ISO 7751, subject to chemical resistance and correct assembly.

#### Soft PVC Suction and Discharge Line with Woven Fabric Core

Material	Length	oØ x iØ Permissible pres	ssure	Order no.
	m	mm	bar	
Fabric-reinforced flexible PVC	5	10 x 4	18*	1004533
	5	12 x 6	17*	1004538
	10	10 x 4	18*	1004534
	10	12 x 6	17*	1004539
	25	10 x 4	18*	1004535
	25	12 x 6	17*	1004540
	50	10 x 4	18*	1004536
	50	12 x 6	17*	1004541
	Sold in metres	24 x 16	10*	037040
	Sold in metres	27 x 19	10*	037041

Admissible operating pressure at 20 °C in accordance with DIN EN ISO 7751, subject to chemical resistance and correct assembly.

#### Soft PVC Suction and Metering Line with Woven Inner Layer Approved for Food Use

Material	Length m	oØ x iØ mm	Permissible pressure bar	Order no.
Soft PVC with woven inner layer approved for food use	5	10 x 4	10*	1037556
	5	12 x 6	10*	1037561
	10	10 x 4	10*	1037557
	10	12 x 6	10*	1037562
	25	10 x 4	10*	1037558
	25	12 x 6	10*	1037563
	50	10 x 4	10*	1037559
	50	12 x 6	10*	1037564

 Permissible operating pressure at 20 °C as per DIN EN ISO 7751, 1/4 of burst pressure, subject to chemical resistance and correct connection

With socket-welded and PVC-bonded rigid PP and PVDF piping, pipes and fittings of pressure rating PN 16 or PN 10 bar should be used.

#### Please note:

PVC soft hoses do not offer the same resistance as rigid PVC. Always note the resistance of soft PVC and the cleaning instructions for use in food applications (see website).







pk\_1\_060

1-57



## 1.9 Hydraulic/Mechanical Installation Accessories

#### **PE Suction and Discharge Line**

Material	Length m	oØ x iØ mm	Permissible pressure bar	Order no.
Polyethylene	5	6 x 4	10*	1004492
	5	8 x 5	10*	1004493
	5	12 x 9	7*	1004504
	10	6 x 4	10*	1004505
	10	8 x 5	10*	1004506
	10	12 x 9	7*	1004507
	25	6 x 4	10*	1004508
	25	8 x 5	10*	1004509
	25	12 x 9	7*	1004510
	50	6 x 4	10*	1004511
	50	8 x 5	10*	1004512
	50	12 x 9	7*	1004513

\* Admissible operating pressure at 20 °C in accordance with DIN EN ISO 7751, subject to chemical resistance and correct assembly

#### **PTFE Suction and Discharge Lines**

Material	Length	oØ x iØ	Permissible pressure	Order no.
	m	mm	bar	
PTFE	Sold in metres	1.75 x 1.15	12*	037414
	Sold in metres	3.2 x 2.4	8*	037415
	Sold in metres	6 x 3	20*	1021353
	Sold in metres	6 x 4	14*	037426
	Sold in metres	8 x 4	25*	1033166
	Sold in metres	8 x 5	16*	037427
	Sold in metres	12 x 9	10*	037428
	Meterage, max. 30 m	19 x 16	6*	037430

\* Admissible operating pressure at 20 °C in accordance with DIN EN ISO 7751, subject to chemical resistance and correct assembly

#### **Stainless Steel Pipes**

Material	Length	oØ x iØ	Permissible pressure	Order no.
	m	mm	bar	
Stainless steel pipe 1.4435	Sold in metres	1.58 x 0.9	400*	1020774
	Sold in metres	3.175 x 1.5	400*	1020775
	Sold in metres	6 x 5	175*	015738
	Sold in metres	6 x 4	185*	015739
	Sold in metres	8 x 7	160*	015740
	Sold in metres	12 x 10	200*	015743

\* Admissible operating pressure at 20 °C in accordance with DIN EN ISO 7751, subject to chemical resistance and correct assembly

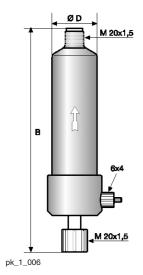
#### **Hose Cutting Kit**

Hose Cutting Set for Plastic Pipes up to a Diameter of 25 mm. Manufacturer: Gedore.

	Order no.
Hose Cutting Kit	1038571



#### 1.9.7



#### Pressure Accumulator

#### **PP Pressure Accumulator**

**Please note:** Only use pulsation dampers in conjunction with an overflow device with adjustable back pressure / relief valve.

With this: Wall bracket for accumulator available in PP and PVC, consisting of pipe clamp, mounting plate and connecting nipple.

#### **Operating range**

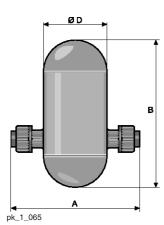
20 °C - max. operating pressure 10 bar

40 °C - max. operating pressure 6 bar

	Volume	Permissible stroke volume	Connection	Fig.	Order no.
	I	ml			
Size 0*	0.15	1.0	M 20 x 1,5	pk_1_006	1021157
Size I	0.35	2.5	DN 8	pk_1_065	243218
Size II	1.00	5.0	G 3/4 – DN 10	pk_1_065	243219
Size II	1.00	5.0	G 1 – DN 15	pk_1_065	243220

With bleed valve. Install directly at the pressure connector.

	Connection	Α	В	ØD
Size 0	M 20 x 1.5	-	225	49
Size I	DN 8	150	170	75
Size II	DN 10	192	220	110
Size II	DN 15	200	220	110



#### **PVC Pressure Accumulator**

**Please note:** Only use pulsation dampers in conjunction with an overflow device with adjustable back pressure / relief valve.

With this: Wall bracket for accumulator available in PP and PVC, consisting of pipe clamp, mounting plate and connecting nipple.

#### **Operating range**

20 °C - max. operating pressure 10 bar

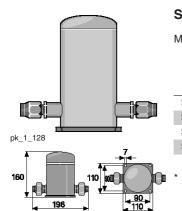
40 °C - max. operating pressure 6 bar

	Volume	Permissible stro- ke volume	Connection	Fig.	Order no.
	I	ml			
Size 0*	0.15	1.0	M 20 x 1,5	pk_1_006	1021120
Size I	0.35	2.5	DN 8	pk_1_065	243203
Size II	1.00	5.0	G 3/4 – DN 10	pk_1_065	243204
Size II	1.00	5.0	G 1 – DN 15	pk_1_065	243205

\* Caution: The product contains adhesive joints with Tangit. Please note the resistance of Tangit adhesive.

\* With ventilation valve. Mounted directly on the pressure connector.

	Connection	Α	В	ØD
Size 0	M 20 x 1.5	-	225	49
Size I	DN 8	150	170	75
Size II	DN 10	192	220	110
Size II	DN 15	200	220	110



**ProMinent**<sup>®</sup>

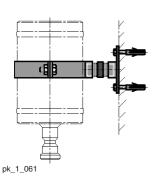
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#### **Stainless Steel Accumulator**

Max. operating pressure 10 bar.

	Volume	Permissible stroke volume	Connection	Fig.	Order no.
	I	ml			
Size 0	0.15	2.5	for pipe oØ 6	pk_1_128	914510
Size I	0.35	2.5	for pipe oØ 8	pk_1_128	914511
Size I	1.00	2.5	for pipe oØ 12	pk_1_128	914512
Size II*	1.00	5.0	G 3/4 – DN 10	pk_1_063	914756

Threaded sleeve insert G 3/8.



pk\_1\_063

#### Wall Mounting for Accumulator

For PP and PVC versions, consisting of clamping ring, mounting plate and connecting nipple.

			Order no.
For size I accumulator - 0.35 I	0,35 l	Ø 75	818501
For size II accumulator - 11	11	Ø 110	818502

# 1.9 Hydraulic/Mechanical Installation Accessories

#### 1.9.8

#### **Pulsation Damper for Low-Pressure Metering Pumps**

Pulsation dampers are available in different versions: as in-line dampers and as accumulators.

Pulsation dampers are used for low-pulsation metering and to reduce the flow resistance with long metering lines. They are also ideally suited to viscous media. The gas cushion between the housing and hose is compressed when the metering pump has a pressure stroke, at the same time as a partial volume of the medium is metered into the metering line. The overpressure that forms in the gas cushion causes the compressed volume to be transported on at the following suction stroke and the original, relaxed volume of gas is present again

#### Important:

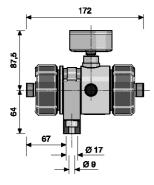
Protect the pulsation dampers in principle with a relief valve.

#### **PP In-Line Damper**

**Please note:** Only use pulsation dampers in conjunction with an overflow device with adjustable back pressure / relief valve.

With this: Dummy plugs to seal the output side of the damper in installations with a T-piece.

Operating conditions	5 - 30 °C - max. operating pressure 10 bar 40 °C - max. operating pressure 8 bar 60 °C - max. operating pressure 4 bar



P\_AC\_0180\_SW

	Volume	Damper diaphragm	Seal material	Connection	Order no.
PPE in-line damper	0.05	CSM*	EPDM	M 20 x 1,5	1026768
PPB in-line damper	0.05	FKM	FKM	M 20 x 1,5	1026771
PPE in-line damper	0.05	CSM*	EPDM	G 3/4 - DN 10	1026769
PPB in-line damper	0.05	FKM	FKM	G 3/4 - DN 10	1026772

\* Chlorosulfonated polyethylene

#### **Threaded End Plug**

Material	Connection	Order no.	
PP	M 20 x 1,5	1030200	
PP	G 3/4 – DN 10	1001352	

#### **PVC In-Line Damper**

**Please note:** Only use pulsation dampers in conjunction with an overflow device with adjustable back pressure / relief valve.

With this: Dummy plugs to seal the output side of the damper in installations with a T-piece.

Operating conditions	5 - 20 °C - max. operating pressure 10 bar 40 °C - max. operating pressure 6 bar 60 °C - max. operating pressure 2 bar				
	Volume	Damper diaphragm	Seal material	Connection	Order no.
	I				
PCE in-line damper	0.05	CSM*	EPDM	M 20 x 1,5	1026774
PCB in-line damper	0.05	FKM	FKM	M 20 x 1,5	1026777
PCE in-line damper	0.05	CSM*	EPDM	G 3/4 – DN 10	1026775
PCB in-line damper	0.05	FKM	FKM	G 3/4 – DN 10	1026778

\* Chlorosulfonated polyethylene

#### **Threaded End Plug**

Material	Connection	Order no.
PVC	M 20 x 1,5	1030458
PVC	G 3/4 – DN 10	1001349

**ProMinent**<sup>®</sup>

#### Suction Lances, Suction Kit Without Level Switch

#### **PPE Variable Suction Lance without Level Switch**

Variable suction lance without level switch for connection to 5 - 60 litre disposable tanks, comprising a support pipe, foot valve, height-adjustable screw cap and 2 m long suction line. Length 640 mm.

Note: The required screw cap Ø 44 is available as a spare part for container opening Ø 44 and can be swapped by the customer for screw cap Ø 50.

Material of	retaining tube and fo	oot valve PP		
Seal mater	ial	EPDM		
Hose mate	rial	PE		
Material	Hose o Ø x i Ø		Fig.	Order no.
	mm			
PPE	6 x 4	For 50 mm tank opening	pk_1_067	790539
PPE	8 x 5	For 50 mm tank opening	pk_1_067	790540

#### PCB Variable Suction Lance without Level Switch

Variable suction lance without level switch for connection to 5 - 60 litre disposable tanks, comprising a support pipe, foot valve, height-adjustable screw cap and 2 m long suction line. Length 640 mm.

Note: The required screw cap Ø 44 is available as a spare part for container opening Ø 44 and can be swapped by the customer for screw cap Ø 50.

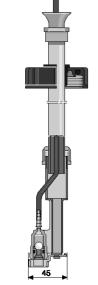
Material of retaining tube and foot valve Seal material Hose material		t valve PVC FKM Soft F	PVC			
	Material	Hose o Ø x i Ø		I	Fig.	Order no.
		mm				
I	PCB	6 x 4	For 50 mm tank o	pening p	pk_1_067	790536
I	PCB PCB		For 50 mm tank o For 50 mm tank o		pk_1_067 pk_1_067	790536 790537
I		6 x 4		pening p		

#### Screw Cap



For tanks with opening Ø 44, customers need to order the Ø 44 screw cap as a spare part to replace the Ø 50 screw cap.

	Order no.
Ø 44 screw cap	811626



pk\_1\_067

1-62

# 1.9 Hydraulic/Mechanical Installation Accessories



PPE Variable Suction Lance for 200 Litre Barrel without Level Switch

Variable suction lance without level switch for connection to 200 litre barrel, comprising a support pipe, foot valve, height-adjustable screw plug and 3 m long suction line. Length 1,000 mm.

Note: Adapters for other threads are available on request

Material of retaining tube and foot valve Seal material Hose material			PP EPDM PE		
Material	Hose oØxiØ mm			Fig.	Order no.
PPE	6 x 4	For 2" tank opening	g DIN S 70 x 6	pk_1_125	790545
PPE	8 x 5	For 2" tank opening	g DIN S 70 x 6	pk_1_125	790546
PPE	12 x 9	For 2" tank opening	g DIN S 70 x 6	pk_1_125	790547

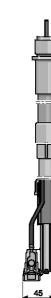
#### PCB Variable Suction Lance for 200 Litre Barrel without Level Switch

Variable suction lance without level switch for connection to 200 litre barrel, comprising a support pipe, foot valve, height-adjustable screw plug and 3 m long suction line. Length 1,000 mm.

Note: Adapters for other threads are available on request

Material of retaining tube and foot valve Seal material Hose material			PVC FKM Soft PVC		
Material	Hose oØxiØ mm			Fig.	Order no.
PCB	6 x 4	For 2" tank opening [	DIN S 70 x 6	pk_1_125	790542
PCB	8 x 5	For 2" tank opening [	DIN S 70 x 6	pk_1_125	790543
PCB	12 x 9	For 2" tank opening [	DIN S 70 x 6	pk_1_125	790544

pk\_1\_125



pk\_1\_069

#### PPE Variable Suction Assembly for 35 to 1,000 Litre Tanks without Level Switch

Variable suction assembly without level switch for connection to 35 - 1,000 litre tanks, comprising a support pipe, foot valve, threaded connector and 2 m long suction line. Adjustable length.

Material of retaining tube and foot valve Seal material Hose material			PP EPDM PE			
Support pipe length mm	Hose oØxiØ mm	For tank		Fig.	Order no.	
375 – 550	6 x 4	35, 60 l		pk_1_069	790333	
375 – 550	8 x 5	35, 60 l		pk_1_069	790334	
375 – 550	12 x 9	35, 60 l		pk_1_069	790335	
655 – 1060	6 x 4	100, 140, 2	50, 500 l	pk_1_069	790336	
655 – 1060	8 x 5	100, 140, 2	50, 500 l	pk_1_069	790337	
655 – 1060	12 x 9	100, 140, 2	50, 500 l	pk_1_069	790338	
1085 – 1425	6 x 4	1000 l		pk_1_069	790453	
1085 – 1425	8 x 5	1000 l		pk_1_069	790454	
1085 – 1425	12 x 9	1000 l		pk_1_069	790455	

#### PCB Variable Suction Assembly for 35 to 1,000 Litre Tanks without Level Switch

Variable suction assembly without level switch for connection to 35 - 1,000 litre tanks, comprising a support pipe, foot valve, threaded connector and 2 m long suction line. Adjustable length.

pk\_1\_069

pk\_1\_069

pk\_1\_069

790450

790451

790452

Material of retair Seal material Hose material	ing tube and	foot valve	PVC FKM Soft PVC	
Support pipe length	Hose oØxiØ	For tank	Fig.	Order no.
mm	mm			
375 – 550	6 x 4	35, 60 l	pk_1_069	790327
375 – 550	8 x 5	35, 60 l	pk_1_069	790328
375 – 550	12 x 9	35, 60 l	pk_1_069	790329
655 – 1060	6 x 4	100, 140, 250	, 500 l pk_1_069	790330
655 – 1060	8 x 5	100, 140, 250	, 500 l pk_1_069	790331
655 – 1060	12 x 9	100, 140, 250	, 500 l pk_1_069	790332

Suction assemblies with larger nominal widths, see Volume 3, page

1000 l

1000 I

1000 l

1085 – 1425

1085 - 1425

1085 - 1425

6 x 4

8 x 5

12 x 9

1

#### Hydraulic/Mechanical Installation Accessories 1.9

#### 1.9.10

#### Suction Lances, Suction Assemblies with Two-Stage Level Switch

#### PPE Variable Suction Lance with Two-Stage Level Switch



Variable suction lance with two-stage level switch for connection to 5 - 60 litre disposable tanks, comprising a support pipe, foot valve, level switch with round connector, height-adjustable screw cap and 2 m long suction line. Length 640 mm.

#### Switch mode when liquid level low: 2 x N/C

Suitable for metering pumps of the Beta<sup>®</sup>, gamma/ X and delta<sup>®</sup> product ranges.

Note: The required screw cap Ø 44 is available as a spare part for container opening Ø 44 and can be swapped by the customer for screw cap Ø 50.

Material of retaining tube and foot valve Seal material Hose material			PP EPDM PE		
Material	Hose o Ø x i Ø mm			Fig.	Order no.
PP	6 x 4	PP for Ø 5 suction ho	0 tank opening, se	pk_1_075	802277
PP	8 x 5	PP for Ø 5 suction ho	0 tank opening, se	pk_1_075	802278
PP	12 x 9	PP for Ø 5 suction ho	0 tank opening, se	pk_1_075	790372

#### PCB Variable Suction Lance with Two-Stage Level Switch

Variable suction lance with two-stage level switch for connection to 5 - 60 litre disposable tanks, comprising a support pipe, foot valve, level switch with round connector, height-adjustable screw cap and 2 m long suction line. Length 640 mm.

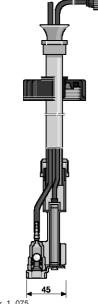
#### Switch mode when liquid level low: 2 x N/C

Suitable for metering pumps of the Beta®, gamma/ X and delta® product ranges.

Note: The required screw cap Ø 44 is available as a spare part for container opening Ø 44 and can be swapped by the customer for screw cap Ø 50.

Material of retaining tube and foot valve	PVC
Seal material	FKM
Hose material	Soft PVC

Material	Hose o Ø x i Ø mm		Fig.	Order no.
PVC	6 x 4	PVC for Ø 50 tank opening, suction hose	pk_1_075	802077
PVC	8 x 5	PVC for Ø 50 tank opening, suction hose	pk_1_075	802078
PVC	12 x 9	PVC for Ø 50 tank opening, suction hose	pk_1_075	790371



pk\_1\_075



#### PCB Variable Suction Lance with Two-Stage Level Switch



640 mm long for connection to 5 - 60 litre disposable tanks, consisting of a foot valve, level switch with support pipe, height adjustable screw cap and 2 m long suction hose

For metering pump product range DF4a

Switching mode at liquid level low 2 x N/C

#### PCB Variable Suction Lance with Two-Stage Level Switch

Material of retaining tube and foot valve	PCB
Seal material	FPM
Hose material	Soft PVC

Material	Hose oØxiØ mm		Fig.	Order no.
PCB	6 x 4	PP for Ø 50 tank opening, suction hose	P_AC_02 34 SW1	790650

#### Screw Cap

For tanks with opening Ø 44, customers need to order the Ø 44 screw cap as a spare part to replace Ø 50 screw cap.

	Order no.
Ø 44 screw cap	811626

#### PPE Variable Suction Lance for 200 Litre Barrel with Two-Stage Level Switch



Variable suction lance with two-stage level switch for connection to 200 litre barrel, comprising a support pipe, foot valve, level switch with round connector, height-adjustable sealing plug and 3 m long suction line. Length 1000 mm.

#### Switch mode when liquid level low: 2 x N/C

Suitable for metering pumps of the Beta®, gamma/ X and delta® product ranges.

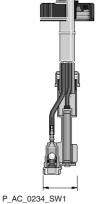
Note: Adapters for other threads are available on request

Material of retaining tube and foot valve Seal material Hose material		E	PP EPDM PF			
	Material	Hose oØxiØ mm		_	Fig.	Order no.
	PP	6 x 4	PP for tank opening 2" DIN	S 70 x 6, suction hose	pk_1_076	802279
	PP	8 x 5	PP for tank opening 2" DIN	S 70 x 6, suction hose	pk_1_076	802280
	PP	12 x 9	PP for tank opening 2" DIN	S 70 x 6, suction hose	pk_1_076	790374

#### PCB Variable Suction Lance for 200 Litre Barrel with Two-Stage Level Switch

Material of retaining tube and foot valve Seal material Hose material		ube and foot valve PVC FKM Soft PVC		
Material	Hose oØxiØ		Fig.	Order no.
	mm			
PVC	6 x 4	PVC for tank opening 2" DIN S 70 x 6, suction hose	pk_1_076	802079
PVC	8 x 5	PVC for tank opening 2" DIN S 70 x 6, suction hose	pk_1_076	802080
PVC	12 x 9	PVC for tank opening 2" DIN S 70 x 6, suction hose	pk_1_076	790373







**ProMinent**<sup>®</sup>



Low-pressure Metering Pumps



#### PPE Suction Lance for 60 Litre Canister, Fixed Length, Gas-Tight, with **Two-Stage Level Switch**



Variable suction lance with 2-stage level switch for connection to 60 litre canister, gastight, comprising a support pipe, foot valve, level switch with round connector and 2 m long suction line. Length 560 mm. Version with vent valve and bleed valve.

#### Switch mode when liquid level low: 2 x N/C

Suitable for metering pumps of the Beta®, gamma/ X and delta® product ranges.

	Material of r Seal materia Hose materi	al	be and foot valve	PP EPDM PE		
	Material	Hose oØxiØ mm			Fig.	Order no.
ĺ	PP	6 x 4	PP for Ø 55 with suction	on hose	P_AC_0052_SW	802285
	PP	8 x 5	PP for Ø 55 with suction	on hose	P_AC_0052_SW	802286
	PP	12 x 9	PP for Ø 55 with suction	on hose	P AC 0052 SW	802287

#### PCB Suction Lance for 60 Litre Canister, Fixed Length, Gas-tight, with Two-**Stage Level Switch**

Variable suction lance with 2-stage level switch for connection to 60 litre canister, gastight, comprising a support pipe, foot valve, level switch with round connector and 2 m long suction line. Length 560 mm. Version with vent valve and bleed valve.

#### Switch mode when liquid level low: 2 x N/C

Suitable for metering pumps of the Beta®, gamma/ X and delta® product ranges.

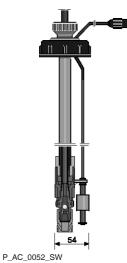
Material of retaining tube and foot valve Seal material Hose material		PVC FKM Soft PVC				
Ma	terial	Hose oØxiØ mm			Fig.	Order no.
PV	С	6 x 4	PVC for Ø 55 with suc	tion hose	P_AC_0052_SW	802081
PV	С	8 x 5	PVC for Ø 55 with suc	tion hose	P_AC_0052_SW	802082
PV	С	12 x 9	PVC for Ø 55 with suc	tion hose	P_AC_0052_SW	802083

\* Caution: The product contains adhesive joints with Tangit. Please note the resistance of Tangit adhesive.

#### **PVDF Suction Lance with Two-Stage Level Switch**

Fixed length suction lance made of PVDF with two-stage level switch, consisting of PVDF support pipe, foot valve and two-stage level switch with open end. Suction hose PTFE 8 x 6 mm; a suitable connector kit is included in the scope of delivery.

	Length	Order no.
	mm	
PVDF Suction Lance	350	1038304
PVDF Suction Lance	650	1038305





P\_AC\_0250\_SW



# **ProMinent**<sup>®</sup>

1

## 1.9 Hydraulic/Mechanical Installation Accessories

# Variable Suction Assembly for 35 to 1,000 Litre Storage Tanks with Two-Stage PPE Level Switch

1 **1 2 2 1 1 1** 2 2

Variable suction lance with two-stage level switch for connection to 35 to 1,000 litre tanks, comprising a support pipe, foot valve, level switch with 3-pin round connector and 2 m long suction line, or 3 m with 1,000 litre tanks. Adjustable length.

#### Switch mode when liquid level low: 2 x N/C

Suitable for metering pumps of the Beta®, gamma and delta® product ranges.

Material of retaining Seal material Hose material	tube and foot valve	PP EPDM PE		
Support pipe length	Hose o Ø x i Ø	For tank	Fig.	Order no.
mm	mm			
375 – 550	6 x 4	35, 60 l	pk_1_077	790365
375 – 550	8 x 5	35, 60 l	pk_1_077	790366
375 – 550	12 x 9	35, 60 l	pk_1_077	790367
655 – 1060	6 x 4	100, 140, 250, 500 l	pk_1_077	790368
655 – 1060	8 x 5	100, 140, 250, 500 l	pk_1_077	790369
655 – 1060	12 x 9	100, 140, 250, 500 l	pk_1_077	790370
1085 – 1425	6 x 4	1000 l	pk_1_077	790465
1085 – 1425	8 x 5	1000 l	pk_1_077	790466
1085 – 1425	12 x 9	1000 l	pk_1_077	790467

# Variable Suction Assembly for 35 to 1,000 Litre Tanks with Two-stage PCB Level Switch

Variable suction lance with two-stage level switch for connection to 35 to 1,000 litre tanks, comprising a support pipe, foot valve, level switch with 3-pin round connector and 2 m long suction line, or 3 m with 1,000 litre tanks. Adjustable length.

#### Switch mode when liquid level low: 2 x N/C

Suitable for metering pumps of the Beta<sup>®</sup>, gamma and delta<sup>®</sup> product ranges.

Material of retaining Seal material Hose material	tube and foot valve	PVC FKM Soft PVC		
Support pipe length mm	Hose o Ø x i Ø mm	For tank	Fig.	Order no.
375 – 550	6 x 4	35, 60	pk_1_077	790359
375 – 550	8 x 5	35, 60 l	pk_1_077	790360
375 – 550	12 x 9	35, 60 l	pk_1_077	790361
655 – 1060	6 x 4	100, 140, 250, 500 l	pk_1_077	790362
655 – 1060	8 x 5	100, 140, 250, 500 l	pk_1_077	790363
655 – 1060	12 x 9	100, 140, 250, 500 l	pk_1_077	790364
1085 – 1425	6 x 4	1000 l	pk_1_077	790462
1085 – 1425	8 x 5	1000 l	pk_1_077	790463
1085 – 1425	12 x 9	1000 l	pk_1_077	790464





#### 1.9.11

pk\_1\_079

#### **Float Switches**

#### PVDF Level Switch Kit Complete, Two-Stage with Round Connector



The level switch set can be ordered in conjunction with the DN 10/ DN 15 suction assemblies. Customers are responsible for fixing.

#### For Beta®, gamma/ L and delta® metering pump product ranges

Switching mode: Materials:

with liquid level low 2 x NC Level switch PVDF Float PE foamed 3 m cable, PE

Connection DN 10/15

Туре	Order no.
with 3-pin round plug	1034879

#### Single stage float switch



For minimum display at the same time as switching off the metering pump.

With flat coupling for direct connection to ProMinent metering pump D\_4a.

#### **Technical data**

Max. switching voltage 48 V, Switching current 0.5 A, Switching power 5 W/5 VA, Temperature range -10 °C to 65 °C, degree of protection IP 67. Switching mode: at liquid level low 1 x N/O.

#### Material

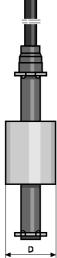
Body PVDF, float PE foamed, cable PE.

	Lead length	Order no.	
PVDF/PE with flat coupling	2 m	1031588	
PVDF/PE with flat coupling	5 m	1031590	

#### Material

Body PVDF, float PVDF, cable PE.

	Lead length	Order no.
PVDF with flat connector	2 m	1034695
PVDF with flat connector	5 m	1034696



pk\_1\_080





#### **Two-Stage Float Switch**

#### 

Two-stage level switch for level monitoring in the storage tank with pre-warning alarm message and switch-off of the metering pump after a further 30 mm reduction in level.

With a 3-pin round connector for direct connection to metering pump or with 3 leads, e.g. in conjunction with relay control, order no. 914768.

#### Switch mode when liquid level low: 2 x N/C

Suitable for metering pumps of the Beta®, gamma/ X and delta® product ranges.

#### **Technical data**

Max. switching voltage: 48 V, Switching current: 0.5 A, Switching power: 5 W/5 VA,

Temperature range: -10 °C to 65 °C, degree of protection IP 67.

	Lead length	Order no.
PVDF/PE with 3-pin round plug	2 m	1031604
PVDF/PE with 3-pin round plug	5 m	1031606
PVDF/PE with 3 wires	2 m	1031607
PVDF/PE with 3 wires	5 m	1031609

#### Material

Body PVDF, float PVDF, cable PE.

	Lead length	Order no.
PVDF with 3-pin round plug	2 m	1034697
PVDF with 3-pin round plug	5 m	1034698
PVDF with 3 wires	2 m	1034699
PVDF with 3 wires	5 m	1034700

#### Cable assignment on 3-wire cable:

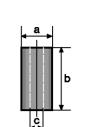
Colour	Function
black	Earth
blue	Minimum pre-warning
brown	Minimum limit stop

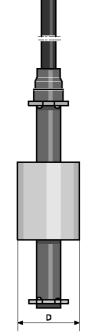
#### **Ceramic Weight for Vertical Fixing of Float Switch**

	ØA	в	ØC	Weight	Туре	Order no.
	mm	mm	mm	g		
Size 1	25	50	10	60	For round and latch plug	1019244
Size 2	39	32	*	65	For round plug/flat connector	404004
Size 3	40	50	24	70	For round plug/flat connector	1030189

\* Slot 13 x 27 mm

With the two stage float switch with round plug, the weight is pushed up when float is attached.

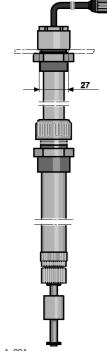




**ProMinent**<sup>®</sup>







#### PVDF/PE Level Switch with Hard PVC Retaining Pipe

Level switch for use in media which attack the PE cable of the level switch and/or for stable attachment in conjunction with electric stirrer, FKM seal. Adjustable length.

1-stage switch mode when liquid level low: 1 x N/O

Long support pipe	Float switch	Order no.	
mm			
350 – 550	- two-stage with round plug	802010	
660 – 1160	<ul> <li>two-stage with round plug</li> </ul>	802011	
350 – 550	<ul> <li>one-stage with flat connector</li> </ul>	801727	
660 – 1160	- one-stage with flat connector	801728	





#### **Extension Lead, 3-Core**

	Fig.	Order no.
For 2-stage float switch with round plug and coupler, length,	pk_1_126	1005559
3 m		





1.9.12

#### Metering Monitor, Signal Cable

#### Flow Control Dosing Monitor for Discharge Side Installation



Dosing monitor assembly with connector cable for assembly directly on the dosing head to monitor individual strokes using the float principle. The adjustment screw is used to match the partial flow flowing past the float to the set stroke volume so that an alarm is emitted if the level falls approx. 20 % below the required level. The gamma/ L and gamma/ X metering pumps enable the permitted number of incompletely performed strokes to be selected between 1 to 127, ensuring optimum adaptation to process requirements.

Suitable for metering pumps of the product ranges gamma/ L and gamma/ X in material versions PP, PC, NP and TT.

Please note: It is essential that you observe the minimum values for the stroke length!

#### Materials

Housing: PVDF Float: PTFE-coated Seals: FKM/EPDM

pk\_1\_086\_2



Flow Control	For pump type	Material	Order no.
Size I	1602	PVDF/EPDM	1009229
	1602	PVDF/FKM	1009335
Size II	1604, 0708, 1009, 0414, 0220, 0715, 0424	PVDF/EPDM	1009336
	1604, 0708, 1009, 0414, 0220, 0715, 0424	PVDF/FKM	1009338

Note the minimum values for the stroke length.

Pump type	Medium operating pressure	Stroke length (scale division)	Max. permissible operating pressure	Stroke length (scale division)
1602	8 bar	> 30 %	16 bar	> 40%
1604	5 bar	> 30 %	16 bar	> 50%
0708	4 bar	> 30 %	7 bar	> 40%
1009	5 bar	> 30 %	10 bar	> 40%
0414	2 bar	> 30 %	4 bar	> 30%
0715	4 bar	> 30 %	7 bar	> 30%
0220	1 bar	> 30 %	2 bar	> 30%
0424	2 bar	> 30 %	4 bar	> 30%

#### Flow Control for Suction Side Installation



Suitable for the delta<sup>®</sup> series with slow discharge stroke version. Individual strokes are detected on the suction side where the flow velocity is sufficiently high. With water as the medium, the minimum stroke length is 30%, normal suction stroke version, HV1 or HV2.

Flow Control	For pump type	Material	Order no.	
Size II	1608 – 0730	PVDF/EPDM	1036407	
	1608 – 0730	PVDF/FKM	1036409	
Size III	0450 - 0280	PVDF/EPDM	1036439	
	0450 – 0280	PVDF/FKM	1036440	

1

#### **Universal Signal Cable**



For controlling the metering pump via contacts - external control, standard signals - analog control and for potential-free ON/OFF connection - connection function.

For Beta®, gamma and delta® with 5-pin round plastic plug and 5-wire open-ended cable.

	Lead length	Order no.
5-core universal cable, 5-pin round plug	2 m	1001300
5-core universal cable, 5-pin round plug	5 m	1001301
5-core universal cable, 5-pin round plug	10 m	1001302

#### **External Signal Cable**



Only for external control of Beta<sup>®</sup>, gamma/ X and delta<sup>®</sup> via contacts. With 5-pin round plug, internally bridged and 2-wire cable with open end.

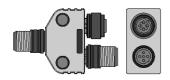
	Lead length	Order no.
2-core external cable, 5-pin round plug	2 m	707702
2-core external cable, 5-pin round plug	5 m	707703
2-core external cable, 5-pin round plug	10 m	707707

#### **PROFIBUS®** Adapter, Enclosure Rating IP 65

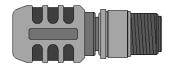


		Fig.	Order no.
Y-adapter 2 x M12 x 1 male/female	M12 x 1 male	P_AC_0245_SW	1040956
PROFIBUS <sup>®</sup> termination assembly, comprising a Y-plug and terminating resistance	M12	-	1040955
PROFIBUS® Y-adapter	M 12 x 1	P_AC_0230_SW	1036621
PROFIBUS <sup>®</sup> termination resistor, plug-in	M 12 x 1	P_AC_0239_SW	1036622

P\_AC\_0245\_SW



P\_AC\_0230\_SW\_1



P\_AC\_0239\_SW

Low-pressure Metering Pumps



# 1.9 Hydraulic/Mechanical Installation Accessories

1.9.13

#### Safety Equipment

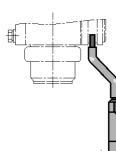
#### **Diaphragm rupture indicator**

To fit all types of Beta® and gamma.

Retrofitting is also possible.

Diaphragm rupture indicator

switch, max. contact load 60 V AC, 300 mA, 18 W.



pk\_1\_087



#### K\_1\_087

### Horn

HUW 55, 230 V, 50-60 Hz, 165 x 60 x 65, 85 phon, for use indoors (e.g. in connection with fault signalling relay)

	Order no.
HUW 55 Horn	705002

To trigger an alarm and switch off the metering pump in the event of diaphragm rupture. Consisting of PVC/ PE level switch, clear acrylic storage tank, connecting sockets and connecting hose. Potential-free N/O

Order no.

803640



#### Indicator lamp

Red for wall mounting 230 V, 50-60 Hz (e.g. in connection with fault signalling relay, relay control or clock generator relay)

	Order no.
Indicator lamp, red	914780



1-74



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#### 1.9.14

pk\_1\_089

#### **Connection Kits for Low-Pressure Metering Pumps**



Connection kit for fitting hoses of different sizes to the suction and pressure connector of the dosing head of alpha, Beta, gamma, delta<sup>®</sup>, Pneumados b and accessories, consisting of hose nozzle, clamp ring, union nut and seal for one or two connectors.

#### Single Connector Kit

		~ .~	<u>.</u>
Material		oØ x iØ	Order no.
PD (52014 (885)		mm	047400
PP/EPDM (PPE)	for hose	6 x 4	817160
PP/EPDM (PPE)	for hose	8 x 5	817161
PP/EPDM (PPE)	for hose	12 x 9	817162
PP/EPDM (PPE)	for hose	10 x 4	1002587
PP/EPDM (PPE)	for hose	12 x 6	817163
PP/FKM (PPB)	for hose	6 x 4	817173
PP/FKM (PPB)	for hose	8 x 5	817174
PP/FKM (PPB)	for hose	12 x 9	817175
PP/FKM (PPB)	for hose	10 x 4	1002588
PP/FKM (PPB)	for hose	12 x 6	817176
PVC/EPDM (PCE)	for hose	6 x 4	791161
PVC/EPDM (PCE)	for hose	8 x 5	792058
PVC/EPDM (PCE)	for hose	12 x 9	790577
PVC/EPDM (PCE)	for hose	10 x 4	1002590
PVC/EPDM (PCE)	for hose	12 x 6	792062
PVC/FKM (PCB)	for hose	6 x 4	817065
PVC/FKM (PCB)	for hose	8 x 5	817066
PVC/FKM (PCB)	for hose	12 x 9	817067
PVC/FKM (PCB)	for hose	10 x 4	1002589
PVC/FKM (PCB)	for hose	12 x 6	817068
PVDF (PVT)	for hose	6 x 3	1024583
PVDF (PVT)	for hose	6 x 4	1024619
PVDF (PVT)	for hose	8 x 4	1033148
PVDF (PVT)	for hose	8 x 5	1024620
PVDF (PVT)	for hose	12 x 9	1024618
PVDF (PVT)	for hose	10 x 4	1024585
PVDF (PVT)	for hose	12 x 6	1024617
PTFE (TTT)	for hose	6 x 4	817205
PTFE (TTT)	for hose	8 x 5	817206
PTFE (TTT)	for hose	12 x 9	817207
PTFE (TTT)	for hose	12 x 6	817208
· · ·			

#### **Double Connector Kit**

Material		oØ x iØ	Order no.	
		mm		
PP/EPDM (PPE)	for hose	6 x 4	817150	
PP/EPDM (PPE)	for hose	8 x 5	817153	
PP/EPDM (PPE)	for hose	12 x 9	817151	
PP/EPDM (PPE)	for hose	12 x 6	817152	
PP/FKM (PPB)	for hose	6 x 4	817166	
PP/FKM (PPB)	for hose	8 x 5	817167	
PP/FKM (PPB)	for hose	12 x 9	817168	
PP/FKM (PPB)	for hose	12 x 6	817169	
PVC/EPDM (PCE)	for hose	6 x 4	817060	





# 1.9 Hydraulic/Mechanical Installation Accessories

Material		oØ x iØ mm	Order no.
PVC/EPDM (PCE)	for hose	8 x 5	817048
PVC/EPDM (PCE)	for hose	12 x 9	817049
PVC/EPDM (PCE)	for hose	12 x 6	791040
PVC/FKM (PCB)	for hose	6 x 4	817050
PVC/FKM (PCB)	for hose	8 x 5	817053
PVC/FKM (PCB)	for hose	12 x 9	817051
PVC/FKM (PCB)	for hose	12 x 6	817052
PVDF (PVT)	for hose	6 x 4	1023246
PVDF (PVT)	for hose	8 x 5	1023247
PVDF (PVT)	for hose	12 x 9	1023248
PVDF (PVT)	for hose	12 x 6	1024586
PTFE (TTT)	for hose	6 x 4	817201
PTFE (TTT)	for hose	8 x 5	817204
PTFE (TTT)	for hose	12 x 9	817202
PTFE (TTT)	for hose	12 x 6	817203

#### Support Insert Made of Stainless Steel No. 1.4571

For connection of PE or PTFE pipe to stainless steel connectors using Swagelock and Serto systems.

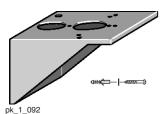
	oØ x iØ	Order no.
	mm	
for hose	6 x 4	359365
for hose	8 x 5	359366
for hose	12 x 9	359368
for hose	8 x 6	359362
for hose	12 x 10	359363
for hose for hose for hose	8 x 5 12 x 9 8 x 6	359366 359368 359362

1.9.15

#### **Wall Brackets for Metering Pumps**

#### **PPE Wall Mounting Bracket**





#### With fittings, for mounting a metering pump of size Beta®/ 4, Beta®/ 5, gamma/ X and alpha.

The Beta®/4, gamma/X can either be mounted parallel or diagonally to each other.

Dimensions L x W x H: 208 x 120 x 140 mm

glasfaserverstärkter Kunststoff PPE

	Fig.	Order no.
for BT4, BT5, gamma/ X, G/ 4, G/ 5, D_4a	pk_1_092	810164

#### **PP Adapter Plate**

Material



0 0

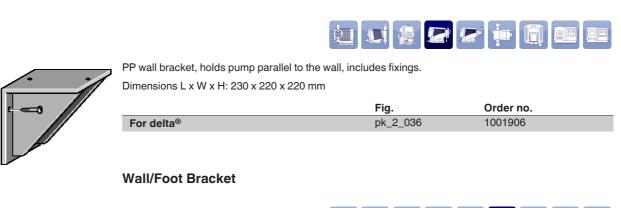
pk\_1\_121

	With fixing materials for vertical wall-mount	ing of Beta® or gamma pum	ns with self-decassing liquid er	nds
• •	Used with PPE wall bracket.	ing of Bota " of gamma pam		100.
		Fig.	Order no.	
	for BT4, BT5, gamma/ X	pk 1 121	1003030	

pk\_1\_090

Metering Pump Wall Mounting Bracket

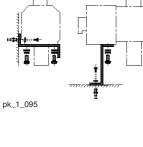
# 1



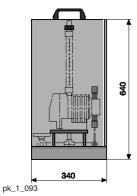


To hold Pneumados metering pump. Floor or wall mounted, made of coated aluminium. Includes fittings.

L		Fig.	Order no.	
μ	Dimensions: L x W x H 92 x 80 x 30	pk_1_095	790605	



pk\_2\_036



#### **Portable Plastic Pump Stand**

To accommodate a metering pump of the product range beta<sup>®</sup> or gamma/ X. The pump stand can either be designed in PP or black PE. It is prepared for accommodating a fixed pipe and has collector equipment for escaping feed chemical, e.g. in the event of a leakage on the suction line or a rupture of the diaphragm.

Supplied with carrying handle, but without pump and pipework

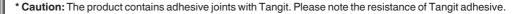
	Fig.	Order no.	
Light grey PP	pk_1_093	1000180	
Black PE	pk_1_093	1000181	

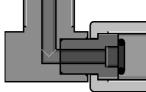
#### **PVC Right-Angled Threaded Connector**



For mounting multifunctional valve onto Beta® or gamma/ L models, self-degassing liquid end version.

		Material	Fig.	Order no.	
	PCE Version	PVC/EPDM	pk_1_083	1003472	
1	PCB Version	PVC/FKM	pk_1_083	1003318	





pk\_1\_083

# **ProMinent**<sup>®</sup>

1

# 1.9 Hydraulic/Mechanical Installation Accessories

1.9.16

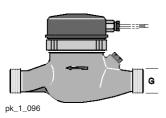
#### **Contact Water Meters for Use in Potable Water and Accessories**

#### **DIN Version contact water meter**

PN 10 bar, readable, type series MNR-K, operating temp. 40  $^\circ\text{C}$ , contact load max. 100 mA, 24 V, NG - nominal size.

 $Q_{max}$  = maximum load,  $Q_d$  = permanent load

 $Q_n$  = nominal load (1/2  $Q_d$  gccording to calibration regulations)



Q <sub>max</sub> /Q <sub>d</sub> / Q <sub>n</sub>	Threaded connector width	Connector thread	Length without thread	Pulse interval	Order no.
NG - m³/h	R DN/mm	G	mm	I	
5/5/2.5	3/4 – DN 20	1	190	0.05	304467
5/5/2.5	3/4 – DN 20	1	190	0.10	304432
5/5/2.5	3/4 – DN 20	1	190	0.25	304455
5/5/2.5	3/4 – DN 20	1	190	0.50	304431
5/5/2.5	3/4 – DN 20	1	190	1.00*	304434
5/5/2.5	3/4 – DN 20	1	190	10.00	304453
12/12/6	1 – DN 25	1 1/4	260	0.25	1004550
12/12/6	1 – DN 25	1 1/4	260	1.00*	1039764
12/12/6	1 – DN 25	1 1/4	260	1.50*	1004549
12/12/6	1 – DN 25	1 1/4	260	2.00*	1004546
12/12/6	1 – DN 25	1 1/4	260	10.00*	1004547
20/20/10	1 1/2 – DN 40	2	300	2.00*	1039765
20/20/10	1 1/2 – DN 40	2	300	3.00	1004552
20/20/10	1 1/2 – DN 40	2	300	10.00	1004554
30/30/15	2 – DN 50	2 1/2	270	3.00	1020551
30/30/15	2 – DN 50	2 1/2	270	4.00*	1020552
30/30/15	2 – DN 50	2 1/2	270	10.00	1020550

\*Standard storage tank

# 1.9 Hydraulic/Mechanical Installation Accessories

#### **DIN Version contact water meter** Readable, series WS-K, operating temp. 40 °C, contact load max. 30 mA, 30 V, DIN 2501 flange, PN 16 bar.

Q<sub>max</sub> = Maximum load

Q<sub>d</sub> = Continuous load

Q<sub>n</sub> = Nominal load

Q <sub>max</sub> /Q <sub>d</sub> / Q <sub>n</sub>	Connector width	Lower working limit	Length	Pulse interval	Order no.	
NG - m³/h	DN/mm	l/h	mm	1		
110/55/40	DN 80	275	300	10.00*	1004560	
110/55/40	DN 80	275	300	25.00	1004558	
110/55/40	DN 80	275	300	100.00	1004559	
180/90/60	DN 100	300	360	10.00	1004567	
180/90/60	DN 100	300	360	25.00*	1004556	
180/90/60	DN 100	300	360	50.00	1004557	
350/200/150	DN 150	800	500	50.00*	1004568	

\*Standard storage tank

#### Union assembly set with seal

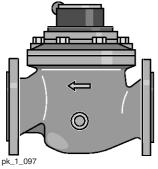
For threaded water meter, brass.

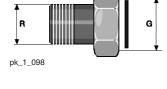
		Order no.
R 3/4	G 1	359029
R 1	G 1 1/4	801322
R 1 1/4	G 1 1/2 – (turboDOS®)	359034
R 1 1/2	G 2	359037
R 2	G 2 1/2	359039

#### Union assembly set with seal

For threaded water meter with G 1/4 connector for injection valve, brass.

			Order no.
-	R 3/4	G 1 – 1/4	359030
R	R1	G 1 1/4 – 1/4	359032
+	R 1 1/2	G 2 – 1/4	359038
	R 2	G 2 1/2 – 1/4	801321





G 1/4

P\_AC\_0249\_SW



For use with threaded connectors on water meters.

Short design for R 3/4 and R 1 threaded connectors, long design for R 1 1/2 and R 2 threaded connectors.

Applications when using appropriate metering lines

25 °C - max. operating pressure 16 bar

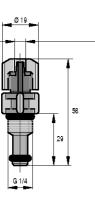
45 °C - max. operating pressure 9 bar

Connector		Material	oØ x iØ mm	Fig.	Order no.
6/4 - G 1/4 short	for hose	PP/FKM	6 x 4	P_AC_0008_SW	914754
6/4 - G 1/4 long	for hose	PP/FKM	6 x 4	P_AC_0009_SW	741193
6/4 - G 1/4 short	for hose	PVC/FKM	6 x 4	P_AC_0008_SW	914558
6/4 - G 1/4 long	for hose	PVC/FKM	6 x 4	P_AC_0009_SW	915091

P\_AC\_0008\_SW

**ProMinent**<sup>®</sup>

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G 1/4

Ø 20

P\_AC\_0009\_SW



# 1

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#### pk\_1\_008

1.10.1

Туре	Materials in contact with the medium	Order no.
Stainless steel version w	ithout suction valve assembly and without discharge	valve assembly
1 connector kit		
2 valve balls		
1 discharge valve ass	sembly	
1 suction valve assen	nbly	
1 diaphragm		
Spare parts kits for Be	ta® a und gamma/ L, consisting of:	

**Spare Parts Kits** 

Туре	Materials in contact with the medium	Order no.
Type 1000	PPE	1001644
	PPB	1001652
	NPE	1001713
	NPB	1001721
	PPT, NPT, PVT	1023107
	TTT	1001737
	SST	1001729
Type 1601	PPE	1001645
	PPB	1001653
	NPE	1001714
	NPB	1001722
	PPT, NPT, PVT	1023108
	TTT	1001738
	SST	1001730
Туре 1602	PPE	1001646
	PPB	1001654
	NPE	1001715
	NPB	1001723
	PVT, PPT, NPT	1023109
	TTT	1001739
	SST	1001731
Type 1005 and Type 1605	PPE	1001647
	PPB	1001655
	NPE	1001716
	NPB	1001724
	PVT, PPT, NPT	1023110
	PVT4	1019066
	TTT	1001740
	SST	1001732
Type 0708 and Type 1008	PPE	1001648
	PPB	1001656
	NPE	1001717
	NPB	1001725
	PVT, PPT, NPT	1023111
	PVT4	1019067
	TTT	1001741
	SST	1001733
Type 0413 and Type 0713	PPE	1001649
	PPB	1001657
	NPE	1001718
	NPB	1001726
Type 0220 and Type 0420	PPE	1001650
	PPB	1001658
	NPE	1001719
	NPB	1001727
	PVT, PPT, NPT	1023113
	PVT4	1019070
	TTT	1001754
	SST	1001735

Spare Parts Kits for Solenoid Driven Metering Pump Beta® a and gamma/ L







# 1.10 Mechanical/Hydraulic Special Accessories

Туре	Materials in contact with the medium	Order no.
Туре 0232	PPE	1001651
	PPB	1001659
	NPE	1001720
	NPB	1001728
	PVT, PPT, NPT	1023124
	TTT	1001755
	SST	1001736

Spare Parts Kits for Solenoid Driven Metering Pump Beta<sup>®</sup> a and gamma/ L with Self-bleeding Dosing Head with Bypass (SEK)

Spare parts kits for beta® a and gamma/ L with self-bleeding dosing head, consisting of:

- 1 diaphragm
- 1 suction valve assembly
- 1 discharge valve assembly
- 1 bleed valve assembly
- 2 valve balls
- 1 connector kit

Туре	Materials in contact with the medium	Order no.
Туре 1601	PPE9	1001756
	PPB9	1001762
	NPE9	1001660
	NPB9	1001666
Туре 1602	PPE9	1001757
	PPB9	1001763
	NPE9	1001661
	NPB9	1001667
Type 1005 and Type 1605	PPE9	1001758
	PPB9	1001764
	NPE	1001662
	NPB9	1001668
Type 0708 and Type 1008	PPE9	1001759
	PPB9	1001765
	NPE9	1001663
	NPB9	1001669
Type 0413 and Type 0713	PPE9	1001760
	PPB9	1001766
	NPE9	1001664
	NPB9	1001670
Type 0220 and Type 0420	PPE9	1001761
	PPB9	1001767
	NPE9	1001665
	NPB9	1001671

#### Pump Diaphragms

Replacement Diaphragms for Solenoid Driven Metering Pump  $\textsc{Beta}^{\texttt{B}}$  a and gamma/ L

Туре	Materials in contact with the me- dium	Order no.
Туре 1000	all materials	1000244
Туре 1601	all materials	1000245
Туре 1602	all materials	1000246
Type 1005 and Type 1605	all materials	1000247
Type 0708 and Type 1008	all materials	1000248
Type 0413 and Type 0713	all materials	1000249
Type 0220 and Type 0420	all materials	1000250
Туре 0232	all materials	1000251

1.10.2

**ProMinent**<sup>®</sup>

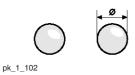
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#### 1.10.3

#### **Custom Valve Balls/Valve Springs**

For on-site retrofitting of metering pumps and accessories, for applications where standard materials are unsuitable. Supplied loose only, not fitted.

#### Valve balls



Material	Ø mm		Order no.
PTFE	4.7	for valve Ø 6 mm	404255
PTFE	9.5	for valve Ø 8 and 12 mm	404258
PTFE	11.0	for valve DN 10	404260
PTFE	16.0	for valve DN 15	404259
Keramik	4.7	for valve Ø 6 mm	404201
Keramik	9.2	for valve Ø 8 and 12 mm	404281
Keramik	11.0	for valve DN 10	404277
Keramik	16.0	for valve DN 15	404275

#### Valve springs for liquid ends

With approx. 0.1 bar priming pressure for spring loading of the valve balls in the liquid end. Recommended to improve the valve function and increase metering accuracy, in particular for viscous metering media above 50 mPas.

Material	Prepressure bar		Order no.
1.4571	0.1	for valve 4.7	469406
1.4571	0.1	for valve 9.2	469403
1.4571	0.1	for mikro g/ 5	469437
1.4571	0.1	for mikro g/ 5	469438
1.4571	0.1	for mikro g/ 5	469439
Hast. C	0.1	for valve DN 10	469114
Hast. C	0.1	for valve DN 15	469107

#### Valve springs for injection valves

Approx. 0.5/1/2 bar prepressure for increasing metering accuracy and preventing suction and siphoning effect.

Material	Prepressure bar		Order no.
1.4571	1.0	for R 1/4" - Ø 6 mm connector	469401
Hast. C	0.5	for R 1/2" - Ø 6, 8 and 12 mm connector	469404
Hast. C	1.0	for R 1/2" - Ø 6, 8 and 12 mm connector	469413
Hast. C	2.0	for R 1/2" - Ø 6, 8 and 12 mm connector	469410
Hast. C	0.5	for DN 10	469115
Hast. C	1.0	for DN 10	469119
Hast. C	0.5	for DN 15	469108
Hast. C	1.0	for DN 15	469116

#### Valve spring made of Hastelloy C with FEP coating

Material	Prepressure		Order no.
	bar		
Hast. C/FEP	0.5	for R 1/2" - Ø 6, 8 and 12 mm connector	818590
Hast. C/FEP	1.0	for R 1/2" - Ø 6, 8 and 12 mm connector	818536
Hast. C/FEP	0.5	for DN 10	818515
Hast. C/FEP	0.5	for DN 15	818516



pk\_1\_104

pk\_1\_103



1.10.4

#### **Connector Parts/Fittings**

#### PVC hose/adhesive nipple

With union nut, for connection of PE tubing to rigid PVC fittings for on-site construction of connector system.

		45
pk_1_107		

d

ø

	d		00 x 10	Fig.	Order no.
	mm		mm		
Nozzle/solvent union	12	for hose	6 x 4	pk_1_107	817088
	12	for hose	8 x 5	pk_1_107	817089
	12	for hose	12 x 9	pk_1_107	817090
	12	for hose	12 x 6	pk_1_107	817091
	16	for hose	6 x 4	pk_1_107	817092
	16	for hose	8 x 5	pk_1_107	817093
	16	for hose	12 x 9	pk_1_107	817094
	16	for hose	12 x 6	pk_1_107	817095

\* Caution: The product contains adhesive joints with Tangit. Please note the resistance of Tangit adhesive.

#### PVC straight solvent union

	d		Fig.	Order no.	
	mm				
PVC straight solvent union	12	DN 8	pk_1_109	356608	
	16	DN 10	pk_1_109	356609	
	20	DN 15	pk_1_109	356610	
	25	DN 20	pk_1_109	356611	

#### **PVC T-joint**

		đ
pk_1_113	I	

pk\_1\_109

	d mm		Fig.	Order no.	
PVC T-joint	12	DN 8	pk_1_113	356406	
	16	DN 10	pk_1_113	356407	
	20	DN 15	pk_1_113	356408	
	25	DN 20	pk_1_113	356409	

#### 90° PVC elbow joint

	d
pk_1_108	

	d		Fig.	Order no.	
	mm				
90° PVC elbow joint	12	DN 8	pk_1_108	356315	
	16	DN 10	pk_1_108	356316	
	20	DN 15	pk_1_108	356317	
	25	DN 20	pk 1 108	356318	

#### PVC insert (straight solvent union)

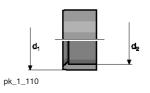
	d		Fig.	Order no.
	mm			
PVC insert (straight solvent union)	12	DN 8	pk_1_115	356571
	16	DN 10	pk_1_115	356572
	20	DN 15	pk_1_115	356573
	25	DN 20	pk_1_115	356574



pk\_1\_115



#### **PVC short reducing union**



	d1	d2	Fig.	Order no.	
	mm	mm			
PVC short reducing union	12	8	pk_1_110	357025	
	16	10	pk_1_110	357026	
	20	16	pk_1_110	357027	
	25	20	pk_1_110	357028	

#### PVC hose connection nozzle

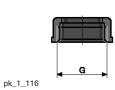
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	d		Fig.	Order no.	
	mm				
PVC hose connection nozzle	12	DN 8	pk_1_111	356655	
	16	DN 10	pk_1_111	356656	
	20	DN 15	pk_1_111	356657	
	25	DN 20	pk_1_111	356658	

#### Hose nozzle with seal

Material	d		Fig.	Order no.
	mm			
PVC	16	DN 10	pk_2_046	800554
PVC	20	DN 15	pk_2_046	811407
PVC	25	DN 20	pk_2_046	811408
PP	16	DN 10	pk_2_046	800657
PP	20	DN 15	pk_2_046	800655
PP	25	DN 20	pk_2_046	800656

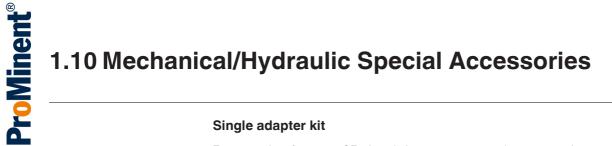
pk\_2\_046

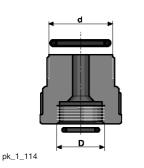


#### Union nuts

Material	Connection	Fig.	Order no.	
PP	G 5/8 – DN 8	pk_1_116	800665	
PP	G 3/4 – DN 10	pk_1_116	358613	
PP	G 1 – DN 15	pk_1_116	358614	
PP	G 1 1/4 – DN 20	pk_1_116	358615	
PVC	G 5/8 – DN 8	pk_1_116	800565	
PVC	G 3/4 – DN 10	pk_1_116	356562	
PVC	G 1 – DN 15	pk_1_116	356563	
PVC	G 1 1/4 – DN 20	pk_1_116	356564	
PVDF	G 3/4 – DN 10	pk_1_116	358813	







Single adapter kit

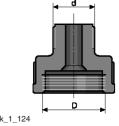
For connection of system + GF+ threaded connectors to metering pumps and accessories.

Material	Size	Internal thread D	External thread d	Order no.
PP/EPDM	For DN 8 threaded connector	M20 x 1,5	G 5/8	817164
PP/FKM	For DN 8 threaded connector	M20 x 1,5	G 5/8	740604
PVC/EPDM	For DN 8 threaded connector	M20 x 1,5	G 5/8	740583
PVC/FKM	For DN 8 threaded connector	M20 x 1,5	G 5/8	817069
<b>PVDF/PTFE</b>	For DN 8 threaded connector	M20 x 1,5	G 5/8	1031073
PP/EPDM	For DN 10 threaded connector	M20 x 1,5	G 3/4	817165
PP/FKM	For DN 10 threaded connector	M20 x 1,5	G 3/4	817178
PVC/EPDM	For DN 10 threaded connector	M20 x 1,5	G 3/4	740585
PVC/FKM	For DN 10 threaded connector	M20 x 1,5	G 3/4	740601
<b>PVDF/PTFE</b>	For DN 10 threaded connector	M20 x 1,5	G 3/4	1028409

#### Single adapter kit

For fitting series A, B, C and E accessories to current metric M20 x 1.5 connectors.

Material	Size	Internal thread D	External thread d	Order no.
PP	6-8 mm connector	M20 x 1.5	G 1/4	811904
PVC	6-8 mm connector	M20 x 1.5	G 1/4	811902

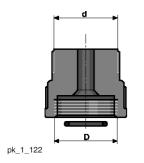


D pk\_1\_127

**Double adapter kit** 

For fitting laboratory type GL connectors, manufactured by Bola or Schott.

Material	Size	Internal thread D	External thread d	Order no.
PTFE	GL 18	M20 x 1.5	GL 18	1000990



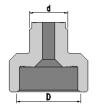
#### Single adapter kit

For fittings of current accessories with metric M20 x 1.5 connectors to series A, B, C and E.

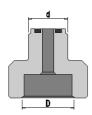
Material	Size	Internal thread D	External thread d	Order no.
PP/EPDM	6-8 mm connector	G 1/4	M20 x 1.5	741088
PVC/FKM	6-8 mm connector	G 1/4	M20 x 1.5	741087
PTFE	6-8 mm connector	G 1/4	M20 x 1.5	741091
PP/EPDM	12 mm connector	G 3/8	M20 x 1.5	741090
PVC/FKM	12 mm connector	G 3/8	M20 x 1.5	741089
PTFE	12 mm connector	G 3/8	M20 x 1.5	741092



1



P\_AC\_0254\_SW



P\_AC\_0255\_SW





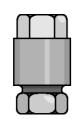


pk\_1\_028





pk\_1\_117



pk\_1\_118

#### Material

Fits connector set for 12 x 9 hose.

Adapter

Material	Fig.	Internal thread D	External thread d	Order no.
PP	P_AC_0255	DN 10, G 3/4	M20 x 1.5	800815
PVC	P_AC_0255	DN 10, G 3/4	M20 x 1.5	800816
PVDF	P_AC_0254	DN 10, G 3/4	M20 x 1.5	1017406
PVDF	P_AC_0254	DN 15, G 1	M20 x 1.5	1028530

Stainless steel threaded clip

For connection of suction and discharge tubing to pressure nozzles.

	Clamping range	Order no.
	mm	
DN 10 clamping ring	16 – 25	359703
DN 15 clamping ring	20 – 32	359705

#### Stainless steel straight threaded male adapter

Swagelock system, stainless steel SS 316 (1.4401) for fitting tubing to dosing heads and valves with inner threads and for SB versions.

	Order no.
6 mm - ISO 7 R 1/4	359526
8 mm - ISO 7 R 1/4	359527
12 mm - ISO 7 R 1/4	359528
12 mm - ISO 7 R 3/8	359520
16 mm - ISO 7 R 3/8	359521
16 mm - ISO 7 R 1/2	359529

#### Stainless steel clamping ring sets

For use with stainless steel threaded connectors for metering pumps and Swagelock accessories. Both parts must be replaced at the same time. Set consists of back and front clamping rings.

	oØ	Order no.
	mm	
Set of rings Ø 6 for pipe	6	104232
Set of rings Ø 8 for pipe	8	104236
Set of rings Ø 12 for pipe	12	104244

#### Stainless steel threaded connector

Serto system for connecting PE or PTFE discharge line to stainless steel pipe, made from stainless steel with clamping ring, but without support insert (parts in contact with chemicals stainless steel 1.4571).

	Order no.
6 mm outer diameter to 6 mm outer diameter stainless steel pipe	359317
8 mm outer diameter to 8 mm outer diameter stainless steel pipe	359318
12 mm outer diameter to 12 mm outer diameter stainless steel pipe	359320



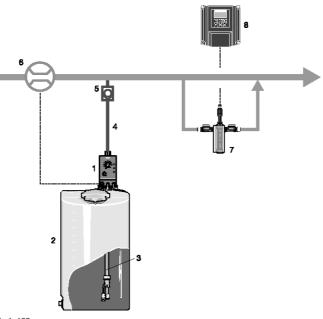
# **1.11 Application Examples**

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1.11.1

#### Volume-proportional Metering of Chlorine Bleach Solution in **Potable Water**

Product:	Beta®
Metered medium:	NaOCI
Sector:	Potable water
Application:	Disinfection



- Beta<sup>®</sup>/ 4 with self-bleeding liquid end made of PMMA/PVC (Plexiglas) 1
- 2 Feed chemical tank
- Intake fitting for foot valve and level 3 switch
- Soft PVC metering line with woven fabric 4
- or PTFE Metering valve 5
- 6
- Contact water meter Chlorine measuring sensor
- 8 Control measurement

pk\_1\_132

#### Task and requirements

- Volume-proportional feed of chlorine bleach solution into the main water flow
- Monitoring of chlorine content after metering

#### **Operating conditions**

- Variable flow
- Installation in closed buildings

#### **Application information**

- The metered medium emits gas, therefore after a relatively long period of pump idleness, an air (gas) bubble may have formed in the metering line causing an interruption in metering operation.
- Metering is to be fully automatic and without malfunctions as operating personnel are not always present in the waterworks or water supply.

#### Solution

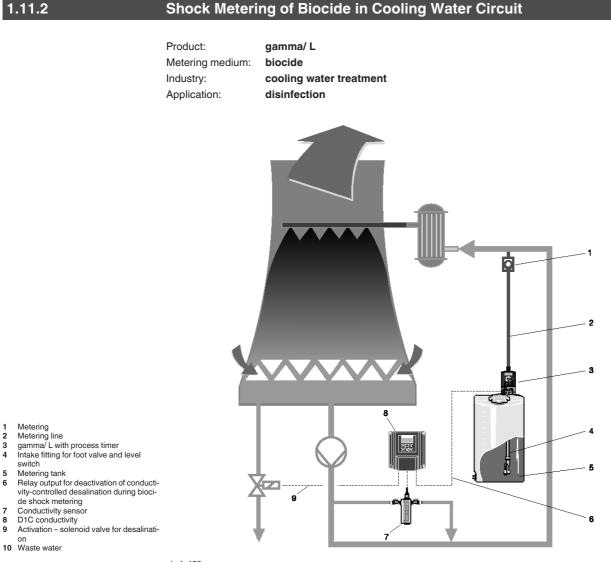
- Beta® solenoid-driven metering pump with self-bleeding liquid end
- Contact water meter in main line for pump activation
- DULCOMETER® measuring and control technology for final inspection

#### **Benefits**

- High degree of reliability provided by self-bleeding liquid end
- Reliable protection against overmetering and undermetering with downstream final inspection

# **1.11 Application Examples**

1



- 1

pk\_1\_133

#### Tasks and requirements

- Increasing the biocide content e.g. at weekly intervals destroys all biological substances in the cooling water.
- Local increases in concentration may occur resulting in conductivity-controlled desalination. They disappear again after full dispersion in the cooling water circuit.
- Conductivity-controlled desalination must therefore be deactivated during shock metering and for an appropriate time afterwards.

#### **Operating conditions**

- Aggressive chemicals (oxidising) 11
- Installation of the metering pump in the building

#### Notes on application

- Shock metering takes place at defined intervals, e.g. weekly. 11
- In smaller cooling circuits, the metering pump with the integrated process timer replaces the PLC. н.
- Irrespective of the set metering times, conductivity-controlled desalination must be deactivated via a 11 potential-free contact.
- In some cases, desalination is performed before each shock metering cycle. This procedure must be controlled by means of a second relay contact in the pump.





# **1.11 Application Examples**

#### Solution

- gamma/L with process timer and corresponding relay outputs
- The relays can be assigned to the process timer as needed and execute the necessary switching functions.
- The pump itself operates at the specified metering times.
- The metering program can be set up on a PC and downloaded on site to the pump.
- Metering programs can be sent by e-mail.
- Liquid end made of PVDF for excellent chemical resistance

#### **Benefits**

- High IP rating of IP 75 for the control by integration in the pump.
- Cost savings as no PLC required
- Saving of installation costs thanks to compact design
- Simple and safe setting up of programs on the PC
- Fast downloading to the pump, especially in cases where several pumps run with the same program.

## 2.0 Overview of Tanks and Transfer Pumps

#### **Selection Guide**

The right accessories offer even more: They increase the performance range, application options or the feed rates.

This chapter includes storage tanks, transfer and peristaltic pumps, with which you can define the pump capacity precisely and store liquids safely.

The table will assist with quick selection. It is sorted by relevant key figures and details.

#### Selection Guide - Tanks:

	Shape	Effective volume
Dosing tank, PE natural/transparent	Cylindrical	35 – 1,500 l
Natural/transparent PE dosing tank with flat mounting surface	Cylindrical	35 – 250 l
mounting surface		

#### **Selection Guide - Transfer Pumps:**

	Drive	Capacity range
Eccentric Screw Pump Spectra	Electric	to 12,000 l/h
Centrifugal Pump von Taine®	Electric	Up to 22,500 l/h
Air-Operated Diaphragm Pump Duodos	Compressed air	Up to 6,700 l/h, 7 bar
Barrel Pump DULCO®Trans	Electric	to 4,800 l/h

#### Selection aid for rotary pump



NEW

2.0.1

	Drive	Capacity range
Rotary Lobe Pumps	Electric	Capacity of 25 – 100 m <sup>3</sup> /h, 4 – 10 bar

#### **Selection Guide - Peristaltic Pumps**

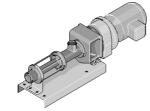
	Drive	Capacity range
Peristaltic Pump DULCO <sup>®</sup> flex	Electric	Up to 15,000 l/h, max. 15 bar

**Rotary lobe pump** 

see page  $\rightarrow$  2-23

Metering and storage tanks see page  $\rightarrow$  2-10

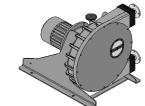




Chemical transfer pumps

see page → 2-10





Peristaltic pumps

see page  $\rightarrow$  2-24



# 2.1 PE Metering Tanks and Collecting Pans

#### Dosing Tanks

Anyone who works with chemicals, needs to store them safely. ProMinent<sup>®</sup> dosing tanks are tough and ideal for working with metering pumps.

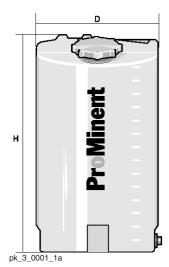
Useful capacity 35 - 1,500 I

PE storage tanks produced in a rotation process. They can be enhanced with ProMinent<sup>®</sup> metering pumps, suction lances and stirrers. The stackable PE collection pans are available in matching sizes.

#### Your benefits

- Environmentally-friendly storage of liquid chemicals
- Robust and durable: stable design in UV-stabilised PE (polyethylene)
- Scale for litres and US gallons
- Simple to install: sintered threaded sockets for fixing ProMinent metering pumps and stirrers on storage tanks
- Safe storage: A screw cover closes safely (push-on lid for 35-litre storage tank)
- Flat sides to secure the storage tank.
- Standard colours: natural, black, blue, yellow and red.

#### Natural Coloured/Transparent PE Dosing Tank



Usable capacity	D	н	Threaded bush for metering pumps	Weight	Order no.
I	mm	mm		kg	
35	350	485	without threaded bushes	3.5	791993
60	410	590	gamma/ X, Beta®	5.0	791994
100	500	760	alpha, Beta <sup>®</sup> , gamma/ X	7.0	1001490
140	500	860	alpha, Beta <sup>®</sup> , gamma/ X	9.5	791995
250	650	1,100	alpha, Beta <sup>®</sup> , gamma/ X, Sigma/ 1/ 2/ 3, delta <sup>®</sup>	17.5	1023175
500	820	1,190	2 x gamma/ X, 2 x Sigma/ 1, 2 x delta <sup>®</sup> , 2 x Beta <sup>®</sup>	24.5	791997
1,000	1,070	1,260	2 x gamma/ X, 2 x Sigma/ 1/ 2/ 3, 2 x delta <sup>®</sup> , 2 x Beta <sup>®</sup>	51.0	1010909
1,500	1,150	1,735	2 x gamma/ X, $2 x$ Sigma/ 1/ 2/ 3, 2 x delta <sup>®</sup> , $2 x$ Beta <sup>®</sup>	80.0	1060975

#### Natural Coloured/Transparent PE Dosing Tank

Designed for the installation of a manually operated or electric stirrer.

Usable capacity	with an opening for	Order no.
60	manually operated stirrer	792104
60	electric stirrer	792105
100	manually operated stirrer	1002034
100	electric stirrer	1002033
140	manually operated stirrer	792106
140	electric stirrer	792107
250	manually operated stirrer	792108
250	electric stirrer	792109
500	manually operated stirrer	792110
500	electric stirrer	792111
1,000	manually operated stirrer	1010910
1,000	electric stirrer	1010911

The 35 - 1,000-litre storage tank have an R 3/4" threaded sleeve (1,500 I: R 1 1/4") for drainage that can be drilled to Ø 10 mm on site if required. A PE R 3/4" sealing stopper (1,500 I: R 1 1/4") with a seal is screwed in.

#### Dosing tanks without ProMinent logo are available on request.

# 2.1 PE Metering Tanks and Collecting Pans



2

# Pk.3\_001\_1

#### Black PE Dosing Tank

For light sensitive media.

Usable capacity	Order no.
1	
35	791998
60	791999
100	1001322
140	792000
250	1023176
500	792002
1,000	1010912
1,500	1060976

#### Blue PE Dosing Tank

Usable capacity I	Order no.
35	1003812
60	1003813
100	1003814
140	1003815
250	1023177
500	1003817
1,000	1010913
1,500	1060977

#### Yellow PE Dosing Tank

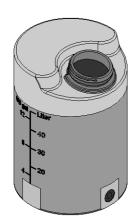
Usable capacity	Order no.
35	1003818
60	1003819
100	1003820
140	1003821
250	1023178
500	1003823
1,000	1010914
1,500	1060978

#### **Red PE Dosing Tank**

Usable capacity	Order no.
1	
35	1003824
60	1003825
100	1003826
140	1003827
250	1023179
500	1003829
1,000	1010915
1,500	1060979

Dosing tanks without ProMinent® logo are available on request.

# 2.1 PE Metering Tanks and Collecting Pans



#### Natural/transparent PE dosing tank with flat mounting surface

Usable capacity	D	н	Threaded bush for metering pumps	Weight	Order no.
I	mm	mm		kg	
35	350	485	without threaded bushes	3.5	791993
60	410	590	without threaded sockets	5.0	1061060
100	500	760	without threaded sockets	7.0	1008599
250	650	1,100	without threaded sockets	17.5	1061061

#### Your benefits

- "Natural/transparent PE dosing tank" design without sintered threaded socket
- Level mounting surface for the installation of metering pumps on the storage tank
- Additional installation of a manual or electric stirrer is possible

**ProMinent**<sup>®</sup>

# 2.1 PE Metering Tanks and Collecting Pans

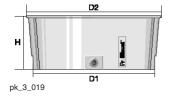


2

### 2.1.2

# PE Stackable Collecting Pans for Dosing Tanks

Made of UV-stabilised polyethylene in a stackable design with ProMinent<sup>®</sup> logo. 2 flat sides for fixing the collecting pan.



### Colourless/Transparent PE Stackable Collecting Pans

Usable capacity	D2	D1	Н	Weight	Order no.
I	mm	mm	mm	kg	
35	565	507	220	3.0	1010879
60	680	607	270	4.3	1010880
100	802	727	320	6.5	1010881
140	811	727	370	7.0	1010882
250	917	807	520	11.0	1010883
500	1,155	1,009	670	16.0	1010884

### **Black PE Stackable Collecting Pans**

Usable capacity	D2	D1	Н	Weight	Order no.
I	mm	mm	mm	kg	
35	565	507	220	3.0	1010885
60	680	607	270	4.3	1010886
100	802	727	320	6.5	1010887
140	811	727	370	7.0	1010888
250	917	807	520	11.0	1010889
500	1,155	1,009	670	16.0	1010890

### **Blue PE Stackable Collecting Pans**

Usable capacity	D2	D1	н	Weight	Order no.
I	mm	mm	mm	kg	
35	565	507	220	3.0	1010891
60	680	607	270	4.3	1010892
100	802	727	320	6.5	1010893
140	811	727	370	7.0	1010894
250	917	807	520	11.0	1010895
500	1,155	1,009	670	16.0	1010896

### Yellow PE Stackable Collecting Pans

Usable capacity	D2	D1	н	Weight	Order no.
I	mm	mm	mm	kg	
35	565	507	220	3.0	1010897
60	680	607	270	4.3	1010898
100	802	727	320	6.5	1010899
140	811	727	370	7.0	1010900
250	917	807	520	11.0	1010901
500	1,155	1,009	670	16.0	1010902



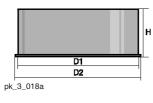
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# 2.1 PE Metering Tanks and Collecting Pans

### **Red PE Stackable Collecting Pans**

Usable capacity	D2	D1	н	Weight	Order no.
I	mm	mm	mm	kg	
35	565	507	220	3.0	1010903
60	680	607	270	4.3	1010904
100	802	727	320	6.5	1010905
140	811	727	370	7.0	1010906
250	917	807	520	11.0	1010907
500	1,155	1,009	670	16.0	1010908

An R 3/4" threaded sleeve is moulded on 35-500 litre collecting pans for drainage, which requires drilling (Ø 10 mm) on site if necessary. An R 3/4" PE sealing stopper with a seal is screwed in (Accessory part no. 200692).



### Natural PE Collecting Pan

Usable capacity	D2	D1	н	Weight	Order no.	
I	mm	mm	mm	kg		
1,000	1,280	1,200	980	34.0	740719	
1,500	1,410	1,350	1,280	42.0	1060980	

### **Black PE Collecting Pan**

Usable capacity	D2	D1	н	Weight	Order no.
I	mm	mm	mm	kg	
1,000	1,280	1,200	980	34.0	740726
1,500	1,410	1,350	1,280	42.0	1060981

2.1.3

# **Spare Parts**

	Order no.
Push cap for 35 I tank	740708
Screw cap with seal for 60/100/140/250	1031429
Screw cap with seal for 500/1000	1030910
Sealing stopper with 3/4" PE seal	200692
Sealing stopper with 1 1/4" PE seal	1061779



2-6

# 2.2 Accessories for Metering Tanks

### **Fittings and Detachable Parts**

### Attachment of pumps to dosing tanks

### PP mounting plate

For mounting metering pumps onto metering tanks (including screws for attachment of mounting plates to the metering tank).



	Order no.
Mounting plate, Sigma/ 1/ 2/ 3	740476
Mounting plate, alpha	790850
Mounting plate for Beta <sup>®</sup> , gamma/ X	801575
Mounting plate 3 x gamma/ X, 3 x Beta®	801580
Mounting plate 2 x gamma/ X, 2 x Beta <sup>®</sup>	801583

Please refer to the following table for the order numbers for the mounting plates.

	Dosing tar	ıks					
Metering pumps	35 I	60 I	100 I	140 I	250 I	500 I	1000 l/1500 l
alpha	790850	790850	х	х	х	2x790850	2x790850
Beta®, gamma/ X	801575	х	х	х	х	2x	2x
delta®	-	801569	801569	801569	х	2x	2x
Sigma/ 1	-	801569	740476	740476	х	2x	2x
Sigma/ 2, Sigma/ 3	-	-	-	-	х	2x740476	2x
2xBeta® or 2xgamma/ X	-	801583	801583	801583	801583	2x801583	2x801583
3xBeta <sup>®</sup> or 3xgamma/ X	-	-	801580	801580	801580	2x801580	2x801580

x = Direct installation of a pump on a storage tank

2x = Direct installation of 2 pumps on a storage tank

-= Pump cannot be installed on the storage tank

### Tank connectors with PE plugs

	Order no.
R 1/2" as an additional connection for PE metering tanks 35-1,000 I	809755
R 3/4" as an additional connection for PE metering tanks 35-1,000 I	809756

### PP discharge tap



pk\_3\_004

1.1.2016

 Order no.

 For metering tanks with d 20, Ø 20 mm hose nozzle and 3/4" nipple
 809714

 for direct connection to the threaded connector on the tank.
 809714

### **PVC discharge tap**

 Order no.

 For metering tanks with d 16, Ø 16 mm hose nozzle and 3/4" nipple
 809745

 for direct connection to the threaded connector on the tank.
 809745

### Screw cap lock

 Order no.

 Lock with key for screw cap
 200683

**Tanks and Transfer Pumps** 



**ProMinent**<sup>®</sup>

<sup>2.2.1</sup> 

# 2.2 Accessories for Metering Tanks

# 2.2.2

pk\_3\_009

### Stirrers

21 mm

# PP Hand mixer

Fully assembled.

	Α	Ø	Order no.
	mm	mm	
for 35 und 60 I storage tanks	515	90	741118
for 100 and 140 I tanks	715	90	741119
for 250 and 500 I tanks	1,040	130	741120



A 170 mm

### **PP Hand stirrer**

With crank, fully assembled

	Α	В	Order no.
	mm	mm	
for 60 I tanks	670	465	914701
for 100 I tanks	855	650	914738
for 140 I tanks	965	765	914702
for 250 and 500 I tanks	1,175	965	914703
for 1000 I tanks	1,240	1,040	914705



### Timer with digital clock

In plastic housing for the control of a stirrer or a metering pump, 230 V, 50 Hz, max. 6A, IP 65. Day and week programs, shortest switching time 1 min. with 2 m power cable and euro plug.

Stirrers should only be operated via the motor protection switch!

**Tanks and Transfer Pumps** 



pk\_3\_010\_1

Order no. 1005561



2

# 2.2 Accessories for Metering Tanks

### Electric stirrers for dosing tanks

For the batching and mixing of liquids up to max. 500 mPas viscosity. Intermittent operation using timer recommended.

- Wide-range motor with insulation class F, insulated for use in hot climates
- Stainless steel or plastic-coated shaft
- Polypropylene propeller
- Provide a motor protection switch for all stirrers.
- Not suitable for gaseous media

### Stainless steel electric stirrer

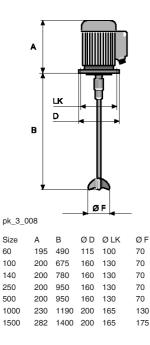
For tank	Power uptake	Shaft	Propeller	Weight	Order no.	
	W			kg		
60 I	20	1.4571	PP	2.9	818576	
100 I	180	1.4571	PP	3.0	1001566	
140 I	180	1.4571	PP	7.3	791502	
250 I	180	1.4571	PP	7.3	791503	
500 I	250	1.4571	PP	8.5	791504	
1000	750	1.4571	PP	18.0	791458	
1500 l	1,100	1.4535	PP	22.0	1061200	

### **Chemical resistant electric stirrer**

For tank	Power uptake	Shaft	Propeller	Weight	Order no.
	W			kg	
60 I	20	1.4571/PVDF	PP	2.9	818577
100 l	180	1.4571/PVDF	PP	3.0	1002035
140 I	180	1.4571/PVDF	PP	7.3	791454
250 I	180	1.4571/PVDF	PP	7.3	791455
500 I	250	1.4571/PVDF	PP	8.5	791456
1000 I	750	1.4571/PVDF	PP	18.0	791457
1500 l	1,100	Steel/PE	PP	22.0	1061201

#### **Technical Data**

F	For tank	Capacity	Voltage (50 Hz)	Nominal current (50 Hz)	Speed (50 Hz)	Enclosure rating
6	60 I	0,02 kW	1 pH, 230 V	0,38 A	1400	IP55
1	00 I	0,18 kW	1 pH, 230 V	1,9 A	1440	IP55
1	40 I	0,18 kW	1 pH, 230 V	1,9 A	1440	IP55
2	250 I	0,18 kW	1 pH, 230 V	1,9 A	1440	IP55
5	500 I	0,25 kW	1 pH, 230 V	1,8 A	1440	IP55
1	000 I	0,75 kW	3 pH, 230/400 V	2,96/1,71 A	1440	IP55
1	500 I	1,1 kW	3 pH, 230/400 V	4,5/2,6 A	1500	IP55



# **ProMinent**<sup>®</sup>

# 2.3 Eccentric Screw Pump Spectra

2.3.1

### **Eccentric Screw Pump Spectra for Pumping Polymer Solutions**

#### Pump ultra-gently, meter precisely and with a wealth of applications.

### Capacity range 2.4 - 12,000 l/h, 12 - 3 bar

The eccentric screw pump Spectra meters liquid polyelectrolytes in concentrated and dilute form. It can be used, for example, in waste water treatment or sludge dewatering.

The eccentric screw pump Spectra has been designed for the transport of polymer solutions with a viscosity of up to 5,000 mPas. It is low-maintenance and can even be used if polymer solutions containing oil are to be metered.

The pumps are equipped with gear motors and external fans and can be operated via an external frequency converter. Protect the pump from running dry.

#### Your benefits

- Low-pulsation pumping
- Feed rate is proportional to the speed
- Reversible pumping direction

#### **Technical details**

- FKM stator
- Stainless steel (Cr-Ni-Mo 17-12-2) rotor
- Stainless steel housing for 12/2 12/100
- Grey cast iron housing for 6/300 3/12000
- Axial face seal
- Voltage: 3-phase, 230/400 VAC
- Degree of protection: IP55

#### **Field of application**

Waste water treatment, sludge dewatering

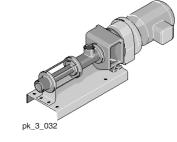
The frequency converters do not form part of the Spectra scope of supply.

#### Without base plate

	Delivery rate at 3 bar	Maximum back pressure	Power uptake	Order no.
		bar	kW	
Spectra 12/2 F	0.242.4 l/h	12	0.37	1025284
Spectra 12/13 F	1.313.2 l/h	12	0.37	1025285
Spectra 12/33 F	3.333 l/h	12	0.37	1025286
Spectra 12/100 F	10100 l/h	12	0.37	1025287
Spectra 6/300 F	30300 l/h	6	0.37	1025288
Spectra 6/650 F	65…650 l/h	6	0.55	1025289
Spectra 5/1400 F	1401,400 l/h	5	0.75	1025290
Spectra 3/3000 F	3003,000 l/h	3	0.75	1025291
Spectra 3/6500 F	6506,500 l/h	3	1.50	1025292
Spectra 3/12000 F	1,20012,000 l/h	3	2.20	1025293

#### With base plate

	Delivery rate at 3 bar	Maximum back pressure	Power uptake	Order no.
		bar	kW	
Spectra 12/2 FB	0.242.4 l/h	12	0.37	1025294
Spectra 12/13 FB	1.313.2 l/h	12	0.37	1025295
Spectra 12/33 FB	3.333 l/h	12	0.37	1025296
Spectra 12/100 FB	10100 l/h	12	0.37	1025297
Spectra 6/300 FB	30300 l/h	6	0.37	1025298
Spectra 6/650 FB	65…650 l/h	6	0.55	1025299
Spectra 5/1400 FB	140…1,400 l/h	5	0.75	1025300
Spectra 3/3000 FB	3003,000 l/h	3	0.75	1025301
Spectra 3/6500 FB	650…6,500 l/h	3	1.50	1025302
Spectra 3/12000 FB	1,20012,000 l/h	3	2.20	1025303





2

# **Frequency Converters for Spectra**

		Recommended for pumps up to	Order no.
SK500E – 550	0.55 kW, 1 ph, 230 V, incl. control panel	0.37 kW	1010980
SK500E - 750	0.75 kW, 1 ph, 230 V, incl. control panel	0.55 kW	1010981
SK500E - 111	1.10 kW, 1 ph, 230 V, incl. control panel	0.75 kW	1025304
SK500E - 151	1.50 kW, 1 ph, 230 V, incl. control panel	1.10 kW	1010982
SK500E – 221	2.20 kW, 3 ph, 400 V, incl. control panel	2.20 kW	1025305

The frequency converters do not form part of the Spectra scope of supply.

### **Motor Data**

Electrical connection	Frequency	Enclosure rating	Overheating protection	Cooling
230/400 VAC, 3 ph	4 - 89 Hz	IP 55	3 PTC thermistors in winding	external fan 1~, 230 VAC, 50 Hz

# **Technical Data**

	Weight	Dimensions L x W x H (mm)	Housing material	Material rot. parts	Suction/discharge connection
	kg				
Spectra 12/2 F	24	739 x 200 x 182	Cr Ni Mo 17 – 12 – 2	Cr Ni Mo 17 – 12 – 2	1/2", female
Spectra 12/13 F	24	739 x 200 x 182	Cr Ni Mo 17 – 12 – 2	Cr Ni Mo 17 – 12 – 2	1/2", female
Spectra 12/33 F	24	739 x 200 x 182	Cr Ni Mo 17 – 12 – 2	Cr Ni Mo 17 – 12 – 2	1/2", female
Spectra 12/100 F	24	739 x 200 x 182	Cr Ni Mo 17 – 12 – 2	Cr Ni Mo 17 – 12 – 2	1/2", female
Spectra 6/300 F	26	874 x 223 x 192	Grey cast iron	Cr Ni Mo 17 – 12 – 2	1 1/4", female
Spectra 6/650 F	26	874 x 223 x 192	Grey cast iron	Cr Ni Mo 17 – 12 – 2	1 1/4", female
Spectra 5/1400 F	26	874 x 223 x 192	Grey cast iron	Cr Ni Mo 17 – 12 – 2	1 1/4", female
Spectra 3/3000 F	36	950 x 223 x 193	Grey cast iron	Cr Ni Mo 17 – 12 – 2	1 1/4", female
Spectra 3/6500 F	56	1,172 x 237 x 224	Grey cast iron	Cr Ni Mo 17 – 12 – 2	DN 50, flange
Spectra 3/12000 F	81	1,487 x 264 x 244	Grey cast iron	Cr Ni Mo 17 – 12 – 2	DN 65, flange
Spectra 12/2 FB	28	739 x 220 x 232	Cr Ni Mo 17 – 12 – 2	Cr Ni Mo 17 – 12 – 2	1/2", female
Spectra 12/13 FB	28	739 x 220 x 232	Cr Ni Mo 17 – 12 – 2	Cr Ni Mo 17 – 12 – 2	1/2", female
Spectra 12/33 FB	28	739 x 220 x 232	Cr Ni Mo 17 – 12 – 2	Cr Ni Mo 17 – 12 – 2	1/2", female
Spectra 12/100 FB	28	739 x 220 x 232	Cr Ni Mo 17 – 12 – 2	Cr Ni Mo 17 – 12 – 2	1/2", female
Spectra 6/300 FB	33	874 x 230 x 242	Grey cast iron	Cr Ni Mo 17 – 12 – 2	1 1/4", female
Spectra 6/650 FB	33	874 x 230 x 242	Grey cast iron	Cr Ni Mo 17 – 12 – 2	1 1/4", female
Spectra 5/1400 FB	33	874 x 230 x 242	Grey cast iron	Cr Ni Mo 17 – 12 – 2	1 1/4", female
Spectra 3/3000 FB	44	950 x 230 x 242	Grey cast iron	Cr Ni Mo 17 – 12 – 2	1 1/4", female
Spectra 3/6500 FB	67	1,172 x 237 x 274	Grey cast iron	Cr Ni Mo 17 – 12 – 2	DN 50, flange
Spectra 3/12000 FB	96	1,487 x 265 x 294	Grey cast iron	Cr Ni Mo 17 – 12 – 2	DN 65, flange



2

# 2.3 Eccentric Screw Pump Spectra

2.3.2

# **Spare Parts**

	Order no.
Stator FKM for Spectra 12/2	1025306
Stator FKM for Spectra 12/13	1025307
Stator FKM for Spectra 12/30, 12/33	1025308
Stator made of FKM for Spectra 12/100	1025309
Stator FKM for Spectra 6/300, 6/650	1025310
Stator FKM for Spectra 5/1400	1025312
Stator FKM for Spectra 3/3000	1025313
Stator made of FKM for Spectra 3/6500	1025314
Stator FKM for Spectra 3/12000	1025315
Rotor Cr Ni Mo 17-12-2 for Spectra 12/2	1025316
Rotor Cr Ni Mo 17-12-2 for Spectra 12/13	1025317
Rotor Cr Ni Mo 17-12-2 for Spectra 12/30, 12/33	1025318
Rotor made of Cr Ni Mo 17-12-2 for Spectra 12/100	1025319
Rotor Cr Ni Mo 17-12-2 for Spectra 6/300, 6/650	1025320
Rotor Cr Ni Mo 17-12-2 for Spectra 5/1400	1025322
Rotor Cr Ni Mo 17-12-2 for Spectra 3/3000	1025323
Rotor made of Cr Ni Mo 17-12-2 for Spectra 3/6500	1025324
Rotor Cr Ni Mo 17-12-2 for Spectra 3/12000	1025325
Spare parts kit for axial face seal for Spectra 12/2 - 12/100	1025326
Spare parts kit for mech. seal for Spectra 6/300 - 5/1400	1025330
Spare parts kit for mech. seal for Spectra 3/3000	1025333
Spare parts kit for axial face seal for Spectra 3/6500	1025334
Spare parts kit for mech. seal for Spectra 3/12000	1025335
Spare parts kit for pin joint for Spectra 12/2 - 12/100	1025346
Pin joints spare parts kit for Spectra 6/300 - 5/1400	1025350
Pin joints spare parts kit for Spectra 3/3000	1025353
Spare parts kit for pin joint for Spectra 3/6500	1025354
Pin joints spare parts kit for Spectra 3/12000	1025355

**Tanks and Transfer Pumps** 



# 2.4 Centrifugal Pump von Taine®



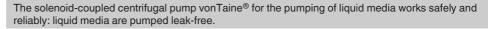
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### 2.4.1

### Centrifugal Pump von Taine®

The safe and high-quality solution when liquid media need to be pumped leak-free.

Capacity range up to 22,500 l/h, discharge lift up to 23.5 mWC



The von Taine<sup>®</sup> pump is a solenoid-coupled centrifugal pump. Thanks to the solenoid coupling, the pump transports the liquid medium from storage tank to storage tank without any leaks or even from a tank to a discharge line. The von Taine<sup>®</sup> centrifugal pump transports media at up to 22,500 l/h and up to a discharge lift of 23.5 metres. As the pump capacity is highly dependent on the back pressure, always observe the performance curve.

#### Important note

Check the material tolerability when selecting your pump. Take into consideration the density, viscosity and temperature of the medium to be transported. Please also note: The transported media should not contain any solid fractions. The pump is not self-priming and requires a feed.

### Your benefits

- Safe and reliable: Leak-free pumping of liquid chemicals
- Coupling between motor and impeller via magnetic coupling

### **Technical details**

- Pump head made of PP or PVDF
- FKM or EPDM seal
- The pump is not self-priming and requires a feed
- Protect the pump from running dry
- Hydraulic connectors with pipe threading as per DIN ISO 228-1

#### **Field of application**

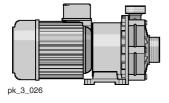
Leak-free pumping of liquid chemicals

### von Taine®, PP/FKM Version

	Feed rate at max. pressure I/h	Feed lift max. m	Power uptake kW	Voltage/ frequency	Weight	Order no.
von Taine <sup>®</sup> 0502 PP/FKM	1,800	4.5	0.06	1~/230 V/50 Hz	2.7 kg	1023089
von Taine <sup>®</sup> 0807 PP/FKM	6,600	7.9	0.25	3~/400 V/50 Hz	5.0 kg	1023090
von Taine <sup>®</sup> 1010 PP/FKM	9,600	10.0	0.37	3~/400 V/50 Hz	7.6 kg	1023091
von Taine <sup>®</sup> 1313 PP/FKM	13,200	13.2	0.65	3~/400 V/50 Hz	8.7 kg	1023092
von Taine <sup>®</sup> 1820 PP/FKM	19,500	18.1	1.10	3~/400 V/50 Hz	16.0 kg	1023093
von Taine <sup>®</sup> 2323 PP/FKM	22,500	23.5	1.50	3~/400 V/50 Hz	17.0 kg	1023094

### von Taine®, PVDF/FKM Version

	Feed rate at max. pressure	Feed lift max.	Power uptake	Voltage/ frequency	Weight	Order no.	
	l/h	m	kW				
von Taine <sup>®</sup> 0502 PVDF/FKM	1,800	4.5	0.06	1~/230 V/50 Hz	2.8 kg	1023095	
von Taine <sup>®</sup> 0807 PVDF/FKM	6,600	7.9	0.25	3~/400 V/50 Hz	5.2 kg	1023096	
von Taine <sup>®</sup> 1010 PVDF/FKM	9,600	10.0	0.37	3~/400 V/50 Hz	8.0 kg	1023097	
von Taine® 1313 PVDF/FKM	13,200	13.2	0.65	3~/400 V/50 Hz	9.0 kg	1023098	
von Taine <sup>®</sup> 1820 PVDF/FKM	19,500	18.2	1.10	3~/400 V/50 Hz	16.7 kg	1023099	
von Taine <sup>®</sup> 2323 PVDF/FKM	22,500	23.5	1.50	3~/400 V/50 Hz	17.7 kg	1023100	







# 2.4 Centrifugal Pump von Taine®

# von Taine<sup>®</sup>, PP/EPDM Version

	Feed rate at max. pressure I/h	Feed lift max. m	Power uptake kW	Voltage/ frequency	Weight	Order no.
von Taine <sup>®</sup> 0502 PP/EPDM	1,800	4.5	0.06	1~/230 V/50 Hz	2.7 kg	1028551
von Taine <sup>®</sup> 0807 PP/EPDM	6,600	7.9	0.25	3~/400 V/50 Hz	5.0 kg	1028552
von Taine <sup>®</sup> 1010 PP/EPDM	9,600	10.0	0.37	3~/400 V/50 Hz	7.6 kg	1028553
von Taine <sup>®</sup> 1313 PP/EPDM	13,200	13.2	0.65	3~/400 V/50 Hz	8.7 kg	1028564
von Taine <sup>®</sup> 1820 PP/EPDM	19,500	18.1	1.10	3~/400 V/50 Hz	16.0 kg	1028565
von Taine <sup>®</sup> 2323 PP/EPDM	22,500	23.5	1.50	3~/400 V/50 Hz	17.0 kg	1028566

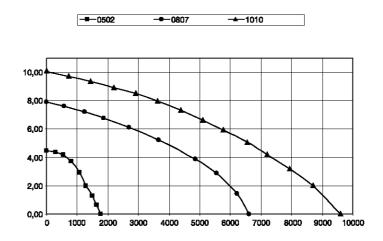
# von Taine<sup>®</sup>, PVDF/EPDM Version

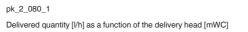
	Feed rate at max. pressure I/h	Feed lift max. m	Power uptake kW	Voltage/ frequency	Weight	Order no.
von Taine <sup>®</sup> 0502 PVDF/EPDM	1,800	4.5	0.06	1~/230 V/50 Hz	2.8 kg	1028567
von Taine <sup>®</sup> 0807 PVDF/EPDM	6,600	7.9	0.25	3~/400 V/50 Hz	5.2 kg	1028568
von Taine <sup>®</sup> 1010 PVDF/EPDM	9,600	10.0	0.37	3~/400 V/50 Hz	8.0 kg	1028569
von Taine <sup>®</sup> 1313 PVDF/EPDM	13,200	13.2	0.65	3~/400 V/50 Hz	9.0 kg	1028570
von Taine <sup>®</sup> 1820 PVDF/EPDM	19,500	18.1	1.10	3~/400 V/50 Hz	16.7 kg	1028571
von Taine <sup>®</sup> 2323 PVDF/EPDM	22,500	23.5	1.50	3~/400 V/50 Hz	17.7 kg	1028572

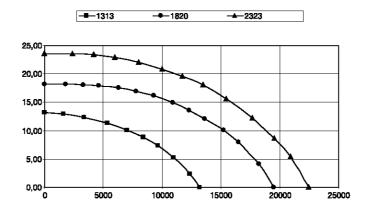
### **Parameters For Use**

	Medium temperature max.	Maximum density	Max. viscosity	Max. system pressure at 20° C
	°C	kg/dm <sup>3</sup>	mPas	bar
von Taine <sup>®</sup> 0502 PP	80	1.251.35	20	1.0
von Taine <sup>®</sup> 0807 PP	80	1.201.80	20	2.5
von Taine <sup>®</sup> 1010 PP	80	1.602.00	20	2.5
von Taine <sup>®</sup> 1313 PP	80	1.601.90	20	2.5
von Taine <sup>®</sup> 1820 PP	80	1.101.80	20	5.0
von Taine <sup>®</sup> 2323 PP	80	1.002.00	20	5.0
von Taine <sup>®</sup> 0502 PVDF	95	1.251.35	20	1.0
von Taine <sup>®</sup> 0807 PVDF	95	1.201.80	20	2.5
von Taine® 1010 PVDF	95	1.602.00	20	2.5
von Taine® 1313 PVDF	95	1.601.90	20	2.5
von Taine <sup>®</sup> 1820 PVDF	95	1.101.80	20	5.0
von Taine <sup>®</sup> 2323 PVDF	95	1.002.00	20	5.0

# **Characteristic Curves**







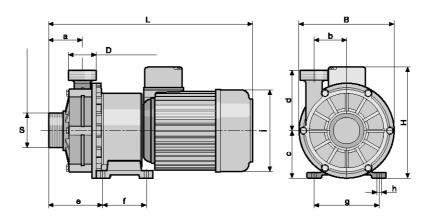
pk\_2\_115 Delivered quantity [l/h] as a function of the delivery head [mWC]





# 2.4 Centrifugal Pump von Taine®

### Dimensions



### pk\_3\_027

		von Taine <sup>®</sup> 0502 PVDF	von Taine <sup>®</sup> 0807 PVDF	von Taine <sup>®</sup> 1010 PVDF	von Taine <sup>®</sup> 1313 PVDF	von Taine <sup>®</sup> 1820 PVDF	von Taine <sup>®</sup> 2323 PVDF
Discharge connector (D)		G1″	G1 1/4″	G1 1/2″	G1 1/2″	G2″	G2″
Suction connector (S)		G1 1/4″	G1 1/4″	G2″	G2″	G2 1/4″	G2 1/4″
L	mm	240	283	346	350	455	455
В	mm	120	138	163	163	205	205
Н	mm	145	185	181	191	216	216
а	mm	37.0	45.0	58.5	58.5	70.0	70.0
b	mm	29.5	29.5	56.0	56.0	70.0	70.0
c	mm	60.0	70.0	82.0	82.0	104.5	104.5
d	mm	65.5	86.0	104.0	104.0	134.5	134.5
e	mm	129	50	106	106	115	115
f	mm	78	71	74	74	100	100
g	mm	91	91	114	114	130	130
h	mm	6.5	8.5	8.5	8.5	10.0	10.0
i	mm	92	135	136.5	135	160	160
Enclosure rating		IP 55					
Min. flow	l/h	30	60	60	60	90	120

# 2.4 Centrifugal Pump von Taine®



2

# 2.4.2

# Spare Parts Kits

	Order no.
PP/FKM liquid end for von Taine® 0502	1023978
PP/FKM liquid end forr von Taine <sup>®</sup> 0807	1023979
PP/FKM liquid end for von Taine <sup>®</sup> 1010	1023980
PP/FKM liquid end for von Taine <sup>®</sup> 1313	1023981
PP/FKM liquid end for von Taine <sup>®</sup> 1820	1023982
PP/FKM liquid end for von Taine <sup>®</sup> 2323	1023983
PVDF/FKM liquid end for von Taine <sup>®</sup> 0502	1023994
PVDF/FKM liquid end for von Taine <sup>®</sup> 0807	1023995
PVDF/FKM liquid end for von Taine <sup>®</sup> 1010	1023996
PVDF/FKM liquid end for von Taine <sup>®</sup> 1313	1023997
PVDF/FKM liquid end for von Taine <sup>®</sup> 1820	1023998
PVDF/FKM liquid end for von Taine <sup>®</sup> 2323	1023999
	Order no.
PP/EPDM liquid end for von Taine <sup>®</sup> 0502	1028573
PP/EPDM liquid end for von Taine <sup>®</sup> 0807	1028574
PP/EPDM liquid end forvon Taine <sup>®</sup> 1010	1028575
PP/EPDM liquid end for von Taine <sup>®</sup> 1313	1028576
PP/EPDM liquid end for von Taine <sup>®</sup> 1820	1028577
PP/EPDM liquid end for von Taine <sup>®</sup> 2323	1028578
PVDF/EPDM liquid end for von Taine <sup>®</sup> 0502	1028579
PVDF/EPDMliquid end for von Taine <sup>®</sup> 0807	1028580
PVDF/EPDM liquid end for von Taine <sup>®</sup> 1010	1028581
PVDF/EPDM liquid end for von Taine <sup>®</sup> 1313	1028582
PVDF/EPDM liquid end for von Taine <sup>®</sup> 1820	1028583
PVDF/EPDM liquid end for von Taine <sup>®</sup> 2323	1028584
	Order no.
Motor for von Taine <sup>®</sup> 0502	1024000
Motor for von Taine <sup>®</sup> 0807	1024001
Motor for von Taine <sup>®</sup> 1010	1024002
Motor for von Taine <sup>®</sup> 1313	1024003
Motor for von Taine <sup>®</sup> 1820	1024004
Motor for von Taine® 2323	1024005

1.1.2016

# 2.5 Air-Operated Diaphragm Pump Duodos

### **Air-operated Diaphragm Pump Duodos**

# Duodos pumps are air-driven double diaphragm transfer pumps. No electrical components are required.

Capacity range up to 6,700 l/h, discharge lift up to 70 mWC

Air-operated Diaphragm Pump Duodos for pumping liquid media.

The pump capacity of the pump can be controlled by changing the pressure in the air supply. The air control is designed for oil-free operation. Duodos pumps are ideally suited for the transport of liquid chemicals. Duodos pumps transport media at up 6,700 l/h and up to a discharge lift of 70 m. As the pump capacity is highly dependent on the back pressure, the performance curve must always be observed. At the same time, the differential pressure between the hydraulic and pneumatic sides should not exceed 2 bar. Higher values reduce the service life of the pump. When selecting pumps, check the material compatibility. In addition, consider the density, viscosity and temperature of the transported medium.

#### Your benefits

- No electrical components are required because the pumps are air-operated
- Duodos pumps are run-dry safe and self-priming

**Technical details** 

- Maximum air pressure 7 bar
- The air control is designed for oil-free operation
- If the back pressure is greater than the air pressure in the pump, the pump remains stationary

#### **Field of application**

Pumping of liquid chemicals

The following materials are available:

- PP pump chambers with Santoprene® diaphragms and valves
- PVDF pump chambers with PTFE diaphragms and valves

### **Duodos PP**

	Housing material	Diaphragms/ valves	Delivery rate (2 bar differential pressure) I/h	Order no.
Duodos 10 PP	PP	Santoprene®	0650*	1010793
Duodos 15 PP	PP	Santoprene®	02,000*	1010794
Duodos 20 PP	PP	Santoprene®	03,000*	1010795
Duodos 25 PP	PP	Santoprene®	06,700*	1010796

\* Delivery rate at a differential pressure of 2 bar (0.5 bar back pressure, 2.5 bar air pressure).

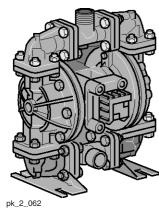
Santoprene® is a registered trademark of the Monsanto Corporation.

### **Duodos PVDF**

	Housing material	Diaphrag- ms/valves	Delivery rate (2 bar differential pressure) I/h	Order no.
Duodos 10 PVDF	PVDF	Teflon	0650*	1010797
Duodos 15 PVDF	PVDF	Teflon	02,000*	1010798
Duodos 20 PVDF	PVDF	Teflon	03,000*	1010799
Duodos 25 PVDF	PVDF	Teflon	06,700*	1010800

\* Delivery rate at a differential pressure of 2 bar (0.5 bar back pressure, 2.5 bar air pressure).

**ProMinent**<sup>®</sup>



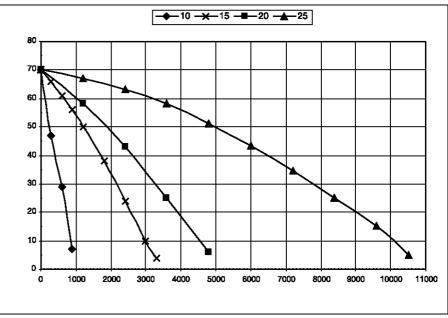
2

# 2.5 Air-Operated Diaphragm Pump Duodos

# Parameters For Use

	Min. temperature °C	Max. temperature °C	Max. viscosity mPas
Duodos 10 PP	5	65	200
Duodos 10 PVDF	-13	93	200
Duodos 15 PP	5	65	200
Duodos 15 PVDF	-13	93	200
Duodos 20 PP	5	65	200
Duodos 20 PVDF	-13	93	200
Duodos 25 PP	5	65	200
Duodos 25 PVDF	-13	93	200

### **Characteristic Curves**



pk\_2\_114

Feed lift [m WC] over feed rate [l/h] at 7 bar air supply

### 2.5.2

# Spare Parts Kits

### Spare part kits for pneumatics comprising

- Seals
- O-rings
- Clamp collars
- Air control valve

	Order no.
Spare parts kit, pneumatics for Duodos 10 PP/PVDF	1010810
Spare parts kit, pneumatics for Duodos 15/20 PP/PVDF	1010811
Spare parts kit, pneumatics for Duodos 25 PP/PVDF	1010813

### Spare part kits for the liquid end comprising

- Diaphragms
- Valve balls
- Seals



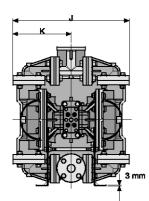


# 2.5 Air-Operated Diaphragm Pump Duodos

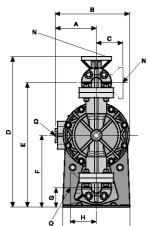
	Order no.
Spare parts kit, liquid end for Duodos 10 PP	1010801
Spare parts kit, liquid end for Duodos 15 PP	1010802
Spare parts kit, liquid end for Duodos 20 PP	1010803
Spare parts kit, liquid end for Duodos 25 PP	1010804
Spare parts kit, liquid end for Duodos 10 PVDF	1010806
Spare parts kit, liquid end for Duodos 15 PVDF	1010807
Spare parts kit, liquid end for Duodos 20 PVDF	1010808
Spare parts kit, liquid end for Duodos 25 PVDF	1010809

### Dimensions

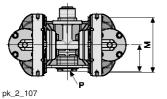
		Duodos 10	Duodos 15	Duodos 20	Duodos 25
Α	mm	79	103	103	172
В	mm	140	179	179	296
С	mm	32	44	60	92
D	mm	198	287	339	527
E	mm	167	243	279	435
F	mm	87	140	163	249
G	mm	19	35	46	64
Н	mm	32	44	60	92
I	mm	78	143	143	130
J	mm	178	258	300	433
К	mm	89	129	150	216
L	mm	33	46	57	123
М	mm	66	143	143	102
Discharge connector		1/2"NPT	1"BSP	1 1/2"BSP	1"ANSI flange
Suction connector		1/2"NPT	1"BSP	1 1/2"BSP	1"ANSI flange
Air consumption	m³/h	0,511	3,527	7,034	8.577
Differential pressure	bar	2	2	2	2
Air connection		1/4"NPT	1/4"NPT	1/4"NPT	1/2"NPT
Weight (PP)	kg	2	8	9	24
Weight (PVDF)	kg	2,5	9,0	9,5	29.0



pk\_2\_072



pk\_2\_106



**Tanks and Transfer Pumps** 

# 2.6 Barrel Pump DULCO®Trans



### 2.6.1

### Barrel Pump DULCO®Trans

Barrel pumps are the ideal solution for moving liquids.

Pump capacity according to size 900 – 4,800 l/h

The application range of the DULCO® Trans depends on the chemical resistance of the materials used.

DULCO<sup>®</sup>Trans is used for bottling, draining and transferring liquids from canisters, hobbocks, drums, storage tanks and containers.

Included in the scope of supply: Metering hose with pump nozzle.

### Field of application

Barrel pump for bottling, emptying and transferring liquids from canisters, drums and containers.

# 2

# Materials in Contact With the Medium

The following components come into contact with the liquids:

		PP version	PVDF version
	External and internal pipe, tap	Polypropylene	PVDF
)	Drive shaft	Hastelloy C	Hastelloy C
	Rotor	ETFE	ETFE
	Mechanical seal	ceramic oxide/PTFE/carbon	ceramic oxide/PTFE/carbon
	O-rings	FKM	FKM
	Metering hose	PVC	PVC

### **DULCO®Trans PP Version**

	Feed rate max. *	Feed lift max.	Order no.
		m	
DULCO <sup>®</sup> Trans 25/700 PP	900 l/h *	5.0	1023085
DULCO <sup>®</sup> Trans 40/1000 PP	3500 l/h *	9.6	1034225
DULCO <sup>®</sup> Trans 50/1200 PP	4800 l/h *	12.4	1023087

### **DULCO®Trans PVDF Version**

	Feed rate max. *	Feed lift max.	Order no.
		m	
DULCO <sup>®</sup> Trans 25/700 PVDF	1260 l/h *	5.4	1036145
DULCO <sup>®</sup> Trans 40/1000 PVDF	3500 l/h *	9.6	1036146
DULCO®Trans 50/1200 PVDF	4800 l/h *	12.4	1036147

\* The specified delivery rate includes hose and tap.

### Spare parts kit for DULCO®Trans

	Order no.
Spare parts kit for DULCO®Trans 25/700 PP	1024179
Spare parts kit for DULCO®Trans 25/700 PVDF	1036149
Spare parts kit for DULCO®Trans 40/1000 PP/PVDF	1034712
Spare parts kit for DULCO®Trans 50/1200 PP/PVDF	1024181







2

# 2.6 Barrel Pump DULCO®Trans

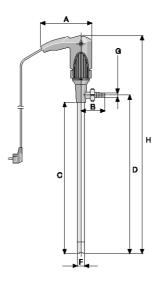
# **Technical Data**

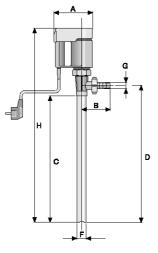
Туре		DULCO <sup>®</sup> Trans 25/700	DULCO <sup>®</sup> Trans 40/1000	DULCO <sup>®</sup> Trans 50/1200
Max. density	kg/ dm <sup>3</sup>	1.2	1.5	1.8
Max. viscosity	mPas	150	500	500
Media temperature PP	°C	45	50	50
Media temperature PVDF	°C	60	60	60
Suction pipe outer diameter	mm	25	40	50
Hose connection		d13	d19	d25
Discharge hose		1.5 m, PVC, 13/18 mm	2.0 m, PVC, 19/27 mm	3.0 m, PVC, 25/34 mm
Motor rating	W	230	500	800
Enclosure rating		IP 24	IP 24	IP 24
Voltage/frequency		230 V/1~/50/60Hz	230 V/1~/50/60Hz	230 V/1~/50/60 Hz
Under-voltage cut-out		none	with	with
Overvoltage safety switch		with	with	with
Temperature monitoring		none	with	none
Speed control		2-stage	Continuous	none
Connection cable		5 m, EUR plug	5 m, EUR plug	5 m, EUR plug
Drum adapter		none	G 2"	G 2"
Weight PP/PVDF	kg	2.4/2.6	5.1/5.4	7.4/8.2
Dimensions H x W x D	mm	927 x 197 x 83	1,272 x 185 x 95	1,489 x 217 x 115

### Dimensions

pk\_3\_028

Туре		DULCO <sup>®</sup> Trans 25/700	DULCO <sup>®</sup> Trans 40/1000	DULCO <sup>®</sup> Trans 50/1200
Α	mm	197	185	217
В	mm	83	113	113
С	mm	672	961	1,161
D	mm	700	1,006	1,206
F	mm	25	40	50
G	d	13	19	25
Н	mm	927	1,272	1,489





pk\_3\_029\_1

# 2.7 Rotary Lobe Pumps

2

# 2.7.1

### Rotary Lobe Pumps

The robust solution for the pumping of viscose media and media containing solids

### Capacity range 25-100 m<sup>3</sup>/h, 10-4 bar

The compact rotary lobe pump pumps viscose and even abrasive media at up to 100 m<sup>3</sup>/h and also with reversible pumping direction thanks to its valveless construction. Housing, plunger and seals are available in different materials to match the medium.

The rotary lobe pump is robust and surprisingly powerful given its compact dimensions: depending on the model it can pump up to 100 m<sup>3</sup>/h viscose media and media containing solids, even containing larger particles of solids. It can be used with ease as a self-priming pump with reversible pumping direction. And naturally it is absolutely safe to operate as an intermediate chamber reliably separating the pumped medium from the gear oil.

The carefully selected materials, high-grade workmanship and maintenance-friendly construction make the rotary lobe pump into a low-wear endurance pump. A three-phase motor drives the two rotary pistons via a precision gear perfectly synchronised and thus also quietly. Corresponding drive versions enable the pump to be connected to bus systems and thus integrated into modern production environments.

### Your benefits

- Compact pump with good pump capacity
- Ideal for viscous, abrasive and shear-sensitive media containing solids
- High-grade seals and the reliable separation of gears and medium enhance the pump's operational safety
- Feed rate can be controlled via motor speed
- Connection to bus system is possible
- Low-wear and maintenance-friendly

### **Technical details**

- Pump complete with drive motor, reduction gear system, clutch and base plate
- Housing material AISI-316 or AISI 420, rotary piston and shaft seals made of NBR, EPDM or FKM
- Constant i.e. non-pulsing feed rates
- Valveless construction enables reversed pump direction
- Different versions of power end/drive via three-phase motor (On/Off mode, adjustable motor with integrated frequency converter or external fan)
- Connection to bus system is possible (integrated frequency converter needed)
- Hydraulic connection as standard by means of DIN flange (DN 50, 65, 80, 100, 125), other connectors available
- Simple replacement of wear discs thanks to maintenance-friendly construction

#### **Field of application**

- Waste water and sludge pumping
- Food and beverage industry

### **Rotary Lobe Pumps**

	Flange	Max. pump volume	Max. pressure	Weight	Order no.	
Туре 070	DN 50	25 m³/h	10 bar	80 kg	on request	
Туре 090	DN 65	35 m³/h	6 bar	85 kg	on request	
Type 100	DN 80/100	80 m³/h	8 bar	185 kg	on request	
Type 125	DN 100/125	100 m³/h	4 bar	195 kg	on request	



P\_PM\_TRF\_0003\_SW1





2

# 2.8 Peristaltic Pump DULCO®flex

### Peristaltic Pump DULCO<sup>®</sup>flex

The virtually universal pump for many applications.

Capacity range up to 15,000 l/h, up to 15 bar

ProMinent® peristaltic pumps operate on a simple functional principle and stand out thanks to their compact and robust design. They are self-priming and operate without seals and valves.

The peristaltic pumps of product range DULCO®flex are ideal for almost all metering and pumping tasks in laboratories and industry. The reason: their extensive pump capacity range and the large number of different hose materials.

This is how they work: The feed chemical is pumped by the rotor clamping the hose in the direction of flow. No valves are needed. Abrasive, viscous and gaseous media can thereby be gently conveyed.

The pumping process is triggered by an elastomer hose, pressed by two rotating rollers or shoes against the pump housing. Once the rollers or shoes have passed by, the hose immediately returns to its original shape and creates a vacuum at the pump inlet. Atmospheric pressure causes the medium to flow in. The feed rate is proportional to the pump speed. A vacuum device can optionally be used to assist the hose to return to its position on product range DFCa and DFDa pumps, improving their suction behaviour and ensuring the even feed of viscose media.

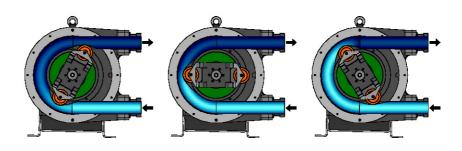
Whereas the pumps are fitted with roller technology for low pressures of up to 8 bar, they have shoes for higher pressures of up to 15 bar.

#### Your benefits

- Simple to operate
  - Reversible pumping direction
  - Hose materials suitable for various chemicals
    - Simple and guick hose change
  - 11 Safeguarded against running dry
  - Self-priming
  - Ideal for pumping pasty, viscous, abrasive and gaseous media

### **Field of application**

Chemical industry, clarification plants, mining



#### P\_DX\_0028\_SW3

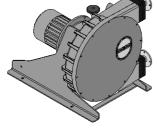
DULCO®flex peristaltic pumps can be used to convey media with the following properties:

- pasty and solid-containing
- viscous
- abrasive
- shear-sensitive
- outgassing
- corrosive

The pumps can be selected with the aid of an identity code:

#### **Overview:**

Туре	Application	Feed rate at max. pressure	Max. pressure	Rollers/shoes
		l/h	bar	
DFAa	Laboratory	105	2	Rollers
DFBa	Industry	650	8	Rollers
DFCa	Industry	8,900	8	Rollers
DFDa	Industry	15,000	15	Shoes





2

### 2.8.2

### Peristaltic Pump DULCO®flex DFAa

#### Precise metering of the smallest volumes

Feed rates of up to 105 l/h at 2 bar

The peristaltic pump DULCO<sup>®</sup>flex DFAa (designed as a low-pressure pump) is suitable for metering the smallest volumes in laboratories.

It can be used for the precise metering of low feed rates of up to 105 l/h at 2 bar. The rotor is equipped with 3 rollers to reduce pulsation. A quick-release connector aids fast hose replacement.

### Your benefits

- Simple to operate
- Reversible pumping direction
- Hose materials suitable for various chemicals
- Simple and quick hose change
- Ideal for pumping pasty, high-viscosity, abrasive and gaseous media
- Self-priming
- Safeguarded against running dry

#### **Technical details**

- Hose diameter: 3.2 to 8 mm
- Feed rates: 1.6 to 10 ml/rev
- Hose materials: SOLVA, silicone, Norprene A60G, Norprene A60F
- Self-priming up to 8 m
- Back pressure up to 2 bar

### Options

- Stainless steel base plate
- Single phase motor
- Two pump heads

### **Field of application**

Laboratory applications

### **Technical Data**

Hose material	SOLVA, Silikon, Norprene A60G, Norprene A60F
Self-priming	up to 8 m
Rollers / shoes	Rollers

Туре	Feed rate / revolution	Delivery rate at max. ba	Hose diameter (internal)	
	ml/U	bar	l/h	mm
DFAa 003	1.66	2	17.5	3.2
DFAa 008	10	2	105	8.0

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### DULCO®flex DFAa 003 peristaltic pump

DFAa	Туре													
	003	DFAa,	with 3.2 mm hose, wall thickness 2.4 mm (1.66 ml/revolution)											
		Drive	unit											
		000	without drive unit											
		A10	0.12 k\	0.12 kW, 14 rpm, 1.4 l/h, 2 bar (Reduction gear system), 3-phase, 230/400 V AC										
		A11	0.12 k\	12 kW, 35 rpm, 3.5 l/h, 2 bar (Reduction gear system), 3-phase, 230/400 V AC										
		A12							r system), 3-phase, 230/400 V AC					
		A13							r system), 3-phase, 230/400 V AC					
		A14	0.18 k\	<i>N</i> , 140 r	pm, 13.9	9 l/h, 2 b	ar (Rec	luction g	ear system), 3-phase, 230/400 V AC					
		A21	0.12 k\	N, 10.9 ·	57 rpm	, 1,1-5.7	7 l/h, 2 b	ar (Man	ual adjustment gears), 3-phase, 400 V AC					
		A22	0.25 k\	N, 34 - 1	76 rpm,	3.4-17.	5 l/h, 2 k	oar (Mar	nual adjustment gears), 3-phase, 400 V AC					
		A31	0.18 k\	N, 13 - 1	30 rpm,	1.3-12.	9 l/h, 7-	70 Hz, 2	bar (Gear motor with integrated frequency converter), 1-phase, 230 V AC					
		A41		N, 4 - 10	05 rpm, (	0.4-10.5	l/h, 3-7	5 Hz, 2 b	ar (Gear motor, external frequency converter required), 3-phase, 230/400 V					
			AC											
				nateria		- (f = = =   =								
			В	Solva	ne A60F	- (1000 g	grade)							
			C D	Solva	_									
			D		•									
				Base p		loto noi	inted ste							
				0		· · ·	inless s							
				1		,		leei						
					0	control	ier It contro	llor						
					0									
						O Specia	al moto	r Ird (3 ph						
						D		· ·	lotor, 0.12 kW (only for A10-A13)					
						E	•							
			E Single phase motor, 0.18 kW (only for A14, A15) Pump head											
							0		e pump head					
							0	Approv						
									CE					
								01						

### DULCO®flex DFAa 008 peristaltic pump

DFAa	Туре									
	008	DFAa	Aa with 8.0 mm hose, wall thickness 2.4 mm (10 ml/revolution)							
		Drive	unit	sit						
		000	without	out drive unit						
		B10	0.12 kW, 14 rpm, 8.4 l/h, 2 bar (Reduction gear system), 3-phase, 230/400 V AC							
		B11	0.12 k\	12 kW, 35 rpm, 21 l/h, 2 bar (Reduction gear system), 3-phase, 230/400 V AC						
		B12	0.12 k\	N, 70 rp	m, 42 l/ł	n, 2 bar	(Reduct	ion gear system), 3-phase, 230/400 V AC		
		B13	0.18 k\	N, 93 rp	m, 55.8	l/h, 2 ba	r (Redu	ction gear system), 3-phase, 230/400 V AC		
		B14	0.18 k\	<i>N</i> , 140 r	pm, 84 l	/h, 2 bar	(Redu	ction gear system), 3-phase, 230/400 V AC		
		B21	0.12 k\	N, 10.9 ·	- 57 rpm	, 6,5-34	.2 l/h, 2	bar (Manual adjustment gear), 3-phase, 230/400 V AC		
		B22	0.25 k\	N, 34 - 1	76 rpm,	20.4-10	)5 l/h, 2	bar (Manual adjustment gear), 3-phase, 230/400 V AC		
		B31		,			,	Hz, 2 bar (Gear motor with integrated frequency converter), 1-phase, 230 V AC		
		B41	0.18 k\	N, 4 - 10	)5 rpm, 2	2.4-63 I/I	h, 3-75 H	Hz, 2 bar (Gear motor, external frequency converter required), 3-phase, 230/400 V AC		
			Hose r	materia						
			A	Norprene A60G						
			В		ne A60F	= (food g	jrade)			
			С	Solva						
			D	Silicon	-					
				Base p						
				0		late, pai				
			1 Base plate, stainless steel							
	Batch controller									
					0		t control			
							I motor			
						0		rd (3 phase) phase motor, 0.12 kW (only for B10-B13)		
						D E	0			
						E	0	phase motor, 0.18 kW (only for B14, B15)		
							Pump 0	nead with one pump head		
							0			
1	1	1						Approvals 01 CE		

**ProMinent**<sup>®</sup>

2

### 2.8.3

### Peristaltic Pump DULCO<sup>®</sup>flex DFBa

#### Low and medium pump capacities

#### Feed rates of up to 649 l/h at 8 bar

The peristaltic pump DULCO  $^{\otimes}\mbox{flex}$  DFBa is designed for low and medium pump capacities of up to 649 l/h at 8 bar.

The peristaltic pump DULCO<sup>®</sup>flex DFBa is equipped with rollers and fabric-reinforced hoses for tough industrial use. Pumps with a Halar-coated pump housing can be produced for use in the chemical industry.

#### Your benefits

- Simple to operate
- Reversible pumping direction
- Hose materials suitable for various chemicals
- Simple and quick hose change
- Ideal for pumping pasty, high-viscosity, abrasive and gaseous media
- Self-priming
- Safeguarded against running dry

#### **Technical details**

- Connector sizes 3/8 1"
- Feed rates of 0.023 0.24 l/rev
- Bose materials NR, NBR, EPDM, NR-A, Norprene, NBR-A, Hypalon, Tygon
- Self-priming up to 8 m
- Back pressure up to 8 bar

### Options

- Stainless steel base plate
- Available as a mobile unit
- Various connectors, such as BSP, NPT, Tri-Clamp and DIN 11851
- Pulsation damper
- Leakage sensor
- Housing with Halar coating
- Food approval EU 1935/2004

### **Field of application**

- Chemical industry
- Waste water
- Mining

### **Technical Data**

Hose material	NR, NBR, EPDM, NR-A, Norprene, NBR-A, Hypalon, Tygon
Self-priming	up to 8 m
Rollers / shoes	Rollers

Туре	Feed rate / revolution	Delive max. back	ry rate at pressure	Hose diameter (internal)	Max. solids	Weight without drive	Connection DN
	I/U	bar	l/h	mm	mm	kg	
DFBa 010	0.02	8	60	10	2.5	6	3/8"
DFBa 013	0.04	8	100	13	3.3	6	3/8"
DFBa 016	0.09	8	188	16	4.0	13	3/4"
DFBa 019	0.12	2	671	19	4.8	13	1"
DFBa 022	0.24	8	649	22	5.5	22	1"



### DULCO®flex DFBa 010 peristaltic pump

<b>Minent</b> <sup>®</sup>	2.
Pro	DFB

<b>T</b>											
<b>Type</b> 010	DEBa	010. 0.0	23 l/rev/	olution							
010		• end/dr		Julion							
	000		t drive u	nit							
	A10				8 har	(Reduct	tion app	r eveton	a) 3-bb	200 2	30/400 V AC
	A11					•	•	-			30/400 V AC
	A12					•					30/400 V AC
			· ·	,	,	•	0	,			
	A13					•	•	-			30/400 V AC
	A14					•	•	-			30/400 V AC
	A15					•	•	-			30/400 V AC
	A21						lanual a	djustme	nt gear)	, 3-ph	ase, 230/400 V AC
	A22			9 rpm, 7							
	A23										phase, 230/400 V AC
	A24	0.25 kV	N, 15 - 8	30 rpm, 2	21-110 l	/h, 2 bar	r (Manu	al adjus	tment g	ear), 3	3-phase, 230/400 V AC
	A31	0.37 kV	N, 9 - 34	l rpm, 12	2 – 47 l/ł	n, 20 – 7	5 Hz, 6	bar (Ge	ear moto	or with	integrated frequency converter), 1-phase, 230 V AC
	A32	0.37 kV	N, 16 - 6	60 rpm, 2	22-83 l/ł	, 20-75	Hz, 4 b	ar (Gea	r motor	with in	tegrated frequency converter), 1-phase, 230 V AC
	A41	0.18 kV	N, 1 - 34	rpm, 1	– 47 l/h,	3 – 75 H	Hz, 6 ba	r (Gear	motor, e	extern	al frequency converter required), 3-phase, 230/400 V AC
	A42	0.18 kV	N, 2 - 44	rpm, 3	– 60 l/h,	3 – 75 H	Hz, 4 ba	r (Gear	motor,	extern	al frequency converter required), 3-phase, 230/400 V AC
	A43										quency converter required), 3-phase, 230/400 V AC
	-		nateria		, 2	, -			,		· · · · · · · · · · · · · · · · · · ·
		0	NR								
		В	NBR								
		E	EPDM								
		R	NR-A								
		N		ne (max	2 har)						
		A	NBR-A		bui)						
		Н	Hypalo								
					neeties						
			A	ulic cor VA BS		15					
			В	VADS							
			C	PP BS							
			D	-	- 3/0 BSP 3/8						
			E								
			F		NPT 3/8						
			-	-	PT 3/8"	1 (0)					
			G		mp, VA,						
			Н		851, VA	, NVV10					
				Base p	-						
				0		late, pai					
				1		late, sta					
				2			•	l steel ba			
				3	Portab	e unit +	stainles	ss steel l	base pla	ate	
						ge sens					
					0			ge senso	or		
					L	With le	akage s	ensor			
					M	as "L" -	+ relay o	output			
						Rotor					
						0	Rotor v	with 2 ro	llers		
							Batch	control	ler		
							0	Withou	it contro	oller	
								Specia	al versi	on	
								0	Standa		
								Н			d housing
								1	Vacuu		0
ļ								1	0	with	
ļ									Š		rovals
								1		<b>App</b>	ICE
	1	1						1		01	CE CE+Food approval EU 1935/2004
· )							1	1	1	02	0LTI 000 approval EU 1300/2004

\* The pumps are factory-set to a maximum back pressure of 4 bar, unless the stated pressure is lower. Please state any deviating pressures when ordering.

### DULCO®flex DFBa 013 peristaltic pump

DFBa	Туре											
	013	DFBa (	013, 0.0	39 l/revo	olution							
1			end/dr									
		000	-	t drive u	nit							
		B10				8 bar	(Reduct	ion deal	r system	) 3-pha	ise 230/	400 V AC
		B11										400 V AC
		B12										400 V AC
		B13		· ·	,	,	•	0		//	,	0/400 V AC
		B14						-	-			
								0	2			0/400 V AC
		B15						0	2			0/400 V AC
		B21		,			`			0 //		e, 230/400 V AC
		B22										ase, 230/400 V AC
		B23								0		hase, 230/400 V AC
		B24								0		hase, 230/400 V AC
		B31		,			,	,	``			egrated frequency converter), 1-phase, 230 V AC
		B32	0.37 k\	N, 16 - 6	60 rpm, 3	37-140 l/	/h, 20-75	5 Hz, 4 k	oar (Gea	ar motor	with inte	egrated frequency converter), 1-phase, 230 V AC
		B41	0.18 kV	N, 1 - 34	1 rpm, 2	– 78 l/h,	3 – 75 H	lz, 6 ba	r (Gear	motor, e	external	frequency converter required), 3-phase, 230/400 V AC
		B42	0.18 k\	N, 2 - 44	4 rpm, 5	– 100 l/ł	n, 3 – 75	Hz, 4 b	ar (Gea	r motor,	external	frequency converter required), 3-phase, 230/400 V AC
		B43	0.25 k\	N, 3-69	rpm, 7-1	57 l/h, 3	8-75 Hz,	4 bar (0	Gear mo	otor, exte	ernal free	quency converter required), 3-phase, 230/400 V AC
1			Hose r	naterial	1							
1			0	NR								
			В	NBR								
			Е	EPDM								
			R	NR-A								
			N		ene (max	2 bar)						
			A	NBR-A		,						
			н	Hypalo								
				21	ulic cor	nantiar						
				A	VA BS		15					
				В	VANP							
				C	PP BS							
				D	-	BSP 3/8						
				E		NPT 3/8						
				F		PT 3/8"						
				G			0/4"					
				H		mp, VA,						
				п		851, VA	, 110015					
					Base p	-	lata		-1			
					0		late, pai					
					1		late, sta					
					2		e unit +					
					3		e unit +		s steel t	base pla	te	
1							ge sens					
1						0		0	e senso	r		
						L		akage s				
						М		relay o	utput			
							Rotor					
							0	Rotor v	vith 2 ro	llers		
								Batch	control			
								0	Withou	t contro	ller	
										al versio		
									0	Standa	ırd	
									н	Halar-o	coated h	ousing
1										Vacuu	m syste	m
1										0	without	
											Approv	vals
1											01	CE
											02	CE+Food approval EU 1935/2004

\* The pumps are factory-set to a maximum back pressure of 4 bar, unless the stated pressure is lower. Please state any deviating pressures when ordering.



DFBa 016, 0.092 l/revolution Power end/drive\*

### DULCO®flex DFBa 016 peristaltic pump

2

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**DFBa Type** 016

	1									
		t drive u								
										0/400 V AC
C11	0.18 kV	N, 20 rpi	m, 110	l/h, 8 ba	r (Reduo	ction gea	ar syster	n), 3-ph	ase, 230	0/400 V AC
C12	0.25 kV	N, 32 rpi	m, 176	l/h, 4 ba	r (Reduo	ction gea	ar syster	n), 3-ph	ase, 230	0/400 V AC
C13	0.25 kV	N, 46 rp	m, 253	l/h, 4 ba	r (Redu	ction ge	ar syste	m), 3-pł	nase, 23	30/400 V AC
C14	0.37 kV	N, 57 rp	m, 314	l/h, 4 ba	r (Redu	ction ge	ar syste	m), 3-pł	nase, 23	30/400 V AC
C15	0.37 kV	N, 70 rp	m, 386	l/h, 2 ba	r (Redu	ction ge	ar syste	m), 3-ph	nase, 23	30/400 V AC
C21						0				nase, 230/400 V AC
C22						•				phase, 230/400 V AC
										bhase, 230/400 V AC
C31								•		integrated frequency converter), 1-phase, 230 V AC
C32										tegrated frequency converter), 1-phase, 230 V AC
										•
641	AC	/v, 1 – 34	+ ipin, c	0 - 100 1/	11, 3 – 73	) HZ, 4 L	al (Gea	ar motor	, externa	al frequency converter required), 3-phase, 230/400 V
C42		N 2-48	rom 11	-265 l/h	3-75 H	z 4 har	(Gear m	notor ex	ternal fr	requency converter required), 3-phase, 230/400 V AC
C43							•			requency converter required), 3-phase, 230/400 V AC
643				5-38 F I/N,	3-75 п.	z, z bar	(Gear II	iotor, ex	demai in	requency converter required), 3-phase, 230/400 V AC
		naterial								
	0	NR								
	В	NBR								
	E	EPDM								
	R	NR-A								
	N			x. 2 bar)						
	A	NBR-A								
	н	Hypalo	n							
		Hydra	ulic co	nnectio	ns					
		A	VA BS	SP 3/4"						
		В	VA NF	PT 3/4"						
		С	PP BS	SP 3/4"						
		D	<b>PVDF</b>	BSP 3/4						
		E	PVDF	NPT 3/4						
		F	PVC N	NPT 3/4"						
		G	-	amp, VA	1"					
		Ĥ		1851, VA		)				
			Base		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,					
			0	· .	lato na	inted ste	امد			
			1		/ I	inless s				
			2					non plat	~	
							steel ba	•		
			3				s steel b	base pla	ue	
					ge sens					
				0		-	je senso	r		
				L		akage s				
				М	as "L"	+ relay c	output			
				1	Rotor					
				1	0	Rotor v	with 2 ro	llers		
				1		Batch	control	ler		
				1		0	Withou	t contro	ller	
				1		1	Specia	al versio	on	
				1		1	0	Standa		
				1		1	н		coated h	nousing
									im syste	
								vacuu 0	without	
		1	1	1	1			0		
									Appro	
									01 02	ICE CE+Food approval EU 1935/2004

\* The pumps are factory-set to a maximum back pressure of 4 bar, unless the stated pressure is lower. Please state any deviating pressures when ordering.

### DULCO®flex DFBa 019 peristaltic pump

DFBa Type	3										
019		019, 0.12	23 l/revo	olution							
		end/dr									
	000	-	drive u	nit							
	D10				/h, 2 bai	(Redu	ction ge	ar syste	m), 3-pł	ase, 23	0/400 V AC
	D11										0/400 V AC
	D12										0/400 V AC
	D13										0/400 V AC
	D14					•	0	-			0/400 V AC
	D15						•				0/400 V AC
	D21						•				ase, 230/400 V AC
	D22								•		hase, 230/400 V AC
	D22		'			,			0	<i>//</i>	phase, 230/400 V AC
	D23						•				grated frequency converter), 1-phase, 230 V AC
	D32		,			·	,	`			ntegrated frequency converter), 1-phase, 200 V AC
	D32 D41		'			,	,				quency converter required), 3-phase, 230/400 V AC
	D41 D42										equency converter required), 3-phase, 230/400 V AC
	D42 D43										
	D43				-509 i/n,	3-75 Hz	z, 2 bar	(Gear m	iotor, ex	ternal fr	equency converter required), 3-phase, 230/400 V AC
			nateria								
		N T		ene (max							
		1		N (max.							
						ıs					
			A B	VA BS VA NP							
			C PP BSP 1" D PVDF BSP 1"								
			E								
			F	PVDF PVC N							
			г G	-		4.1					
			H		mp, VA,						
			п		851, VA	, INVV25					
				Base p		late, pa	inted ata				
				1		late, pa					
				2		,					
				2			•	steel ba	•		
				3				s steel b	base pla	le	
					<b>Leaкa</b>	ge sens					
					L			e senso	1		
					M		akage s				
					IVI		+ relay c	output			
						Rotor 0	Deter	vith 2 ro	lloro		
						0					
							0	control	ier t contro	llor	
							0				
									al versio		
								0 H	Standa		
								н		oated h	5
										m syste	
									0	without	
										Appro	
										01 02	CE
										02	CE+Food approval EU 1935/2004

\* The pumps are factory-set to a maximum back pressure of 4 bar, unless the stated pressure is lower. Please state any deviating pressures when ordering.





### DULCO®flex DFBa 022 peristaltic pump

DFBa	Туре											
	022	DFBa (	022, 0.24	46 l/revo	olution							
		Power	end/dr	ive*								
		000	without	drive ur	nit							
		E10	0.25 kV	V, 17 rpi	m, 251 l	/h, 8 bar	(Redu	ction gea	ar syste	m), 3-ph	ase, 23	0/400 V AC
		E11	0.37 kV	V, 23 rpi	m, 339 l	h, 8 bar	(Redu	ction gea	ar syste	m), 3-ph	ase, 23	0/400 V AC
		E12	0.55 kV	V, 38 rpi	m, 561 l	h, 4 bar	(Redu	ction gea	ar syste	m), 3-ph	ase, 23	0/400 V AC
		E13	0.55 kV	V, 45 rpi	m, 664 l	h, 4 bar	Redu	ction gea	ar syste	m), 3-ph	ase, 23	0/400 V AC
		E14					•	•				0/400 V AC
		E15						•	-			0/400 V AC
		E21						0				se, 230/400 V AC
		E22			-				-	-		ase, 230/400 V AC
		E23		,	· · ·		,	•		0		hase, 230/400 V AC
		E31						•		•		tegrated frequency converter), 1-phase, 230 V AC
		E32		·			,		`			itegrated frequency converter), 1-phase, 230 V AC
		E32 E41										I frequency converter required), 3-phase, 230 V AC
		E41 E42										
									•			equency converter required), 3-phase, 230/400 V AC
		E43				1196 l/n	i, 3-75 F	iz, 2 bar	(Gear i	motor, e	xternal 1	requency converter required), 3-phase, 230/400 V AC
				naterial								
			0		tural rub	ber)						
			В	NBR								
			E	EPDM								
			R	NR-A								
			N		ne (max	. 2 bar b	back pre	ssure)				
			A	NBR-A								
			Н	Hypalo	n							
				Hydrau	ulic con	nectior	าร					
				A	VA BSI	P 1"						
				В	VA NP	Τ1"						
				С	PP BSI	P 1"						
				D	PVDF I	3SP 1"						
				E	PVDF I	NPT 1"						
				F	PVC N	PT 1"						
				G	Tri-Cla	mp, VA,	1"					
				н	<b>DIN 11</b>	851, VA	, NW25					
					Base p	late						
					0	Base p	late, pai	inted ste	el			
					1	Base p	late, sta	inless st	teel			
					2	Portabl	e unit +	painted	steel ba	se plate	9	
					3	Portabl	e unit +	stainles	s steel b	base pla	te	
						Leakad	qe sens	or				
						0		it leakag	e senso	r		
						L	With le	akage s	ensor			
						М	as "L" -	+ relay o	utput			
							Rotor					
							0	Rotor v	vith 2 rol	lers		
							-		control			
								0		t contro	ller	
								Ŭ		l versio		
									0	Standa		
									H		oated h	ousing
										vacuu 0	m syste without	
										0		
											Appro	
											01	CE
											02	CE+Food approval EU 1935/2004

\* The pumps are factory-set to a maximum back pressure of 4 bar, unless the stated pressure is lower. Please state any deviating pressures when ordering.

**ProMinent**<sup>®</sup>

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### 2.8.4

### Peristaltic Pump DULCO®flex DFCa

### High pump capacities and long service life

#### Feed rates of up to 8,900 l/h at 8 bar

High pump capacities are not a problem with the peristaltic pump DULCO<sup>®</sup>flex DFCa. It is equipped with extra rollers and fabric-reinforced hoses for industrial use.

It is ideal for heavy-duty industrial applications and pump capacities of up to 8,900 l/h at 8 bar back pressure.

A ball-bearing mounted rotor ensures extremely smooth running and a long service life.

Pumps with a Halar-coated pump housing can be produced for use in the chemical industry.

A vacuum unit can optionally be used to help the hose to return to its original shape with pumps of the product range DFCa, thereby improving their suction behaviour and ensuring the even feed of high-viscosity media.

#### Your benefits

- Simple to operate
- Reversible pumping direction
- Hose materials suitable for various chemicals
- Simple and quick hose change
- Ideal for pumping pasty, high-viscosity, abrasive and gaseous media
- Self-priming
- Safeguarded against running dry

#### **Technical details**

- Connector sizes 1 1/4"- DN 80
- Feed rates of 0.43 6.72 l/rev
- Hose materials NR, NBR, EPDM, Norprene, NR-A, NBR-A
- Self-priming up to 8 m
- Back pressure up to 8 bar

### Options

- Stainless steel base plate
- Available as a mobile unit
- Various connectors, such as BSP, NPT, Tri-Clamp, DIN 11851 and flange
- Pulsation damper
- Leakage sensor
- Housing with Halar coating
- Vacuum system
- Food approval EU 1935/2004

#### Field of application

- Chemical industry
- Waste water
- Mining

### **Technical Data**

Hose material	NR, NBR, EPDM, NR-A, Norprene, NBR-A
Self-priming	up to 8 m
Rollers / shoes	Rollers

Туре	Feed rate / revolution	Delive max. back	ry rate at pressure	Hose diameter (internal)	Max. solids	Weight without drive	Connection DN
	I/U	bar	l/h		mm	kg	
DFCa 030	0.43	8	727	28	7.0	62	DN 32
DFCa 040	0.86	8	1,495	35	8.8	89	DN 40
DFCa 050	1.47	8	1,852	40	10.0	140	DN 40
DFCa 060	3.16	8	5,100	55	13.8	235	DN 50
DFCa 070	6.72	8	8,900	65	16.3	440	DN 65



### DULCO®flex DFCa 030 peristaltic pump

DFCa       Type         030       DFCa 030, 0.433 l/revolution         Power end/drive*       000         000       without drive unit         A11       0.25 kW, 18 rpm, 468 l/h, 4 bar (Reduction gear system), 3-phase, 230/400 V AC         A12       0.37 kW, 29 rpm, 753 l/h, 4 bar (Reduction gear system), 3-phase, 230/400 V AC         A13       0.55 kW, 38 rpm, 987 l/h, 4 bar (Reduction gear system), 3-phase, 230/400 V AC         A14       0.55 kW, 38 rpm, 987 l/h, 4 bar (Reduction gear system), 3-phase, 230/400 V AC	iverter), 3-phase, 400 V AC ired), 3-phase, 230/400 V AC								
000without drive unitA110.25 kW, 18 rpm, 468 l/h, 4 bar (Reduction gear system), 3-phase, 230/400 V ACA120.37 kW, 29 rpm, 753 l/h, 4 bar (Reduction gear system), 3-phase, 230/400 V ACA130.55 kW, 38 rpm, 987 l/h, 4 bar (Reduction gear system), 3-phase, 230/400 V AC	iverter), 3-phase, 400 V AC ired), 3-phase, 230/400 V AC								
000without drive unitA110.25 kW, 18 rpm, 468 l/h, 4 bar (Reduction gear system), 3-phase, 230/400 V ACA120.37 kW, 29 rpm, 753 l/h, 4 bar (Reduction gear system), 3-phase, 230/400 V ACA130.55 kW, 38 rpm, 987 l/h, 4 bar (Reduction gear system), 3-phase, 230/400 V AC	iverter), 3-phase, 400 V AC ired), 3-phase, 230/400 V AC								
A11         0.25 kW, 18 rpm, 468 l/h, 4 bar (Reduction gear system), 3-phase, 230/400 V AC           A12         0.37 kW, 29 rpm, 753 l/h, 4 bar (Reduction gear system), 3-phase, 230/400 V AC           A13         0.55 kW, 38 rpm, 987 l/h, 4 bar (Reduction gear system), 3-phase, 230/400 V AC	iverter), 3-phase, 400 V AC ired), 3-phase, 230/400 V AC								
A12         0.37 kW, 29 rpm, 753 l/h, 4 bar (Reduction gear system), 3-phase, 230/400 V AC           A13         0.55 kW, 38 rpm, 987 l/h, 4 bar (Reduction gear system), 3-phase, 230/400 V AC	iverter), 3-phase, 400 V AC ired), 3-phase, 230/400 V AC								
A13 0.55 kW, 38 rpm, 987 l/h, 4 bar (Reduction gear system), 3-phase, 230/400 V AC	iverter), 3-phase, 400 V AC ired), 3-phase, 230/400 V AC								
	iverter), 3-phase, 400 V AC ired), 3-phase, 230/400 V AC								
	iverter), 3-phase, 400 V AC ired), 3-phase, 230/400 V AC								
A14 0.55 kW, 55 rpm, 1429 l/h, 2 bar (Reduction gear system), 3-phase, 230/400 V AC	iverter), 3-phase, 400 V AC ired), 3-phase, 230/400 V AC								
A31 0.55 kW, 11 - 39 rpm, 286-1013 l/h, 20-75 Hz, 4 bar (Gear motor with integrated frequency conv	ired), 3-phase, 230/400 V AC								
A32 0.75 kW, 18 - 63 rpm, 468 - 1637 l/h, 20-75 Hz, 2 bar (Gear motor with integrated frequency con									
A41 0.37 kW, 2 - 28 rpm, 52 – 727 l/h, 3 – 50 Hz, 4 bar (Gear motor, external frequency converter requ									
A42 0.75 kW, 3 - 59 rpm, 78-1533 l/h, 3-65 Hz, 2 bar (Gear motor, external frequency converter requi	red), 3-phase, 230/400 V AC								
Hose material									
0 NR									
B NBR									
E EPDM									
R NR-A									
A NBR-A									
N Norprene (max. 2 bar)									
Hydraulic connections									
A IVA BSP 11/4"									
B VA NPT 1 1/4"									
C PP BSP 1 1/4"									
	C NPT 1 1/4" -Clamp, VA, 1 1/2"								
H DIN 11851, VA, NW32									
I DIN flange VA DN32									
L ANSI flange VA, 1 1/4"									
P ANSI flange PVC, 1 1/4"									
Base plate									
0 Base plate, painted steel									
1 Base plate, stainless steel									
2 Portable unit + painted steel base plate									
3 Portable unit + stainless steel base plate									
Leakage sensor									
0 without leakage sensor									
L with leakage sensor									
M as "L" + relay output									
Rotor									
0 Rotor with 2 rollers									
Batch controller									
0 Iwithout controller									
Special version									
0 Standard									
H Halar-coated housing									
Vacuum system									
V with vacuum system									
Approvals									
01 CE									
02 CE+Food approval EU 19	935/2004								

\* The pumps are factory-set to a maximum back pressure of 4 bar, unless the stated pressure is lower. Please state any deviating pressures when ordering.

DULCO®flex DFCa 040 peristaltic pump

a Type	IDEC	040.00	0.1/100	lu ati a sa								
040		040, 0.8		lution								
	000	r end/dr	r <b>ive</b> ^ t drive u	unit								
	B11				l/h 4 ha	r (Podu	otion ac	or eveto	m) 3-nt	0000 00	30/400 V AC	
	B12						•	-				
	B12								· · ·		230/400 V AC 230/400 V AC	
	B13		<i>,</i>	,	,		0					
	B31						-	-			30/400 V AC	
	B32										ntegrated frequency converter), 3-phase, 400 V AC	
	-										ntegrated frequency converter), 3-phase, 400 V AC	
	B41 B42										I frequency converter required), 3-phase, 230/400 V AC	
	D42				4-2735	/11, 3-05	ΠZ, 2 D	ar (Geal	motor,	externa	I frequency converter required), 3-phase, 230/400 V AC	
		0	<b>materia</b> INR	11								
		B	NBR									
		E	EPDM									
		R	NR-A									
		A	NBR-A	<b>`</b>								
		N			( ) hor)							
1		IN .		ene (max	· · ·							
			А		P 1 1/2"							
			В		T 1 1/2							
			C		P 1 1/2"							
			D	_		SP 1 1/2	<b>o</b> "					
			G									
			Н	Tri-Clamp, VA, 1 1/2" DIN 11851, VA, NW40								
			i.		inge VA	,	, 					
			Ĺ		0	A, 1 1/2'						
			P		•	VC, 1 1/						
			ľ.	Base	-	,	-					
				0		olate, pa	inted ste	el				
				1		plate, sta						
				2				steel ba	ase plate	Э		
				3				ss steel b				
				-		ge sens						
					0			e senso	r			
					L		akage s					
					М		+ relay o					
						Rotor	,					
						0	Rotor	with 2 ro	llers			
							Batch	control	ler			
							0	-	control	ler		
								Specia	al versio	on		
								0	Standa			
								н	Halar-o	coated I	nousing	
							1			m syst	<u> </u>	
									0	withou		
									V		acuum system	
1							1			Appro	•	
							1			01		
							1	1		02	CE+Food approval EU 1935/2004	
	1	1	1	1								

\* The pumps are factory-set to a maximum back pressure of 4 bar, unless the stated pressure is lower. Please state any deviating pressures when ordering.







### DULCO®flex DFCa 050 peristaltic pump

		012	0.75 KV	v, z i ip
		C13	1.1 kW	, 30 rpm
		C14	1.5 kW	, 38 rpm
		C15	1.5 kW	, 48 rpm
		C16	2.2 kW	, 58 rpm
		C31	1.5 kW	, 8 - 29 i
		C32	2.2 kW	, 17 - 60
0		C41	1.5 kW	, 1 - 27 i
2		C42	2.2 kW	, 3 - 55 ı
			Hose n	nateria
			0	NR
			В	NBR
			E	EPDM
			R	NR-A
			A	NBR-A
			N	Norpre
				Hydra
				1
				G

**DFCa Type** 050

DFCa 050, 1.47 l/revolution

Power	r end/dr	ive*											
000	withou	t drive u	nit										
C11	0.55 k	0.55 kW, 14 rpm, 1235 l/h, 4 bar (Reduction gear system), 3-phase, 230/400 V AC											
C12		0.75 kW, 21 rpm, 1852 l/h, 4 bar (Reduction gear system), 3-phase, 230/400 V AC											
C13		1.1 kW, 30 rpm, 2646 l/h, 4 bar (Reduction gear system), 3-phase, 230/400 V AC											
C14													
C15		1.5 kW, 38 rpm, 3352 l/h, 4 bar (Reduction gear system), 3-phase, 230/400 V AC 1.5 kW, 48 rpm, 4234 l/h, 2 bar (Reduction gear system), 3-phase, 230/400 V AC											
C16													
									se, 230/400 V A				
C31		,	1 /		,	,	· ·		0	equency converter), 3-phase, 400 V AC			
C32		2.2 kW, 17 - 60 rpm, 1499-5292 l/h, 20-70 Hz, 2 bar (Gear motor with integrated frequency converter), 3-phase, 400 V AC											
C41										converter required), 3-phase, 230/400 V AC			
C42	2.2 kW	, 3 - 55	rpm, 268	5-4851 l	/h, 3-65	Hz, 2 ba	ar (Gea	r motor,	cternal frequency	y converter required), 3-phase, 230/400 V AC			
	Hose	materia	I										
	0	NR											
	В	NBR											
	E	EPDM											
	R	NR-A											
	A	NBR-A											
	Ň		ne (max	(2 har)									
	IN												
		Hydra	ulic con										
				DIN flange VA DN40									
		G	Tri-Clamp, VA, 2" DIN 11851, VA, NW50										
		н		,	·								
		J	DIN flange PP DN40 DIN flange PVDF/PTFE DN40										
		К											
	L ANSI flange VA, 1 1/2"												
		M	ANSI fl	lange PF	9 PP 1 1/2" 9e PVDF/PTFE 1 1/2"								
		N	ANSI fl	ange P\									
			Base p	olate									
			0 Base plate, painted steel										
		1	1		se plate, stainless steel								
			2		,	+ painted steel base plate							
		3	3		le unit +								
							S SLEEL I	Jase pia	,				
	1			Leaka	ge sens								
				-		leakag		I					
	1	1	1	L M		vith leakage sensor							
						s "L" + relay output							
					Rotor								
					0	Rotor v	vith 2 ro	llers					
	Batch controller												
						0	withou	t control	r				
		Special version											
							0 Standard						
							н	Halar-o					
									system				
	0 without V with vacuum system				tom								
				İ				v					
									Approvals				
		1							01 CE				
									02 CE+Foo	d approval EU 1935/2004			

\* The pumps are factory-set to a maximum back pressure of 4 bar, unless the stated pressure is lower. Please state any deviating pressures when ordering.

### DULCO®flex DFCa 060 peristaltic pump

DFCa	Туре													
	060	DFCa (	060, 3.1	6 l/revol	ution									
			end/drive*											
		000	without	t drive u	e unit									
	D11 2.2 kW, 18 rpm, 3.4 m <sup>3</sup> /h, 4 bar (Reduction gear system), 3-phase, 230/400 V AC									30/400 V AC				
		D122.2 kW, 22 rpm, 4.2 m³/h, 4 bar (Reduction gear system), 3-phase, 230/400 V ACD133.0 kW, 27 rpm, 5.1 m³/h, 4 bar (Reduction gear system), 3-phase, 230/400 V AC										30/400 V AC		
												30/400 V AC		
		D14		3.0 kW, 33 rpm, 6.3 m <sup>3</sup> /h, 4 bar (Reduction gear system), 3-phase, 230/400 V AC 3.0 kW, 42 rpm, 8.0 m <sup>3</sup> /h, 4 bar (Reduction gear system), 3-phase, 230/400 V AC 3.0 kW, 47 rpm, 8.9 m <sup>3</sup> /h, 2 bar (Reduction gear system), 3-phase, 230/400 V AC 3.0 kW, 7 – 25 rpm, 1.3 – 4.7 m <sup>3</sup> /h, 4 bar (Gear motor with integrated frequency converter), 3-phase, 400 V AC 4.0 kW, 17 - 59 rpm, 3.2-11.2 m <sup>3</sup> /h, 2 bar (Gear motor with integrated frequency converter), 3-phase, 400 V AC										
		D15	3.0 kW											
		D16	3.0 kW											
		D31	3.0 kW											
		D32	4.0 kW											
		D41	3.0 kW	1, 1 – 24	rpm, 0.2	2 – 4.5 m	1 <sup>3</sup> /h, 4 b	ar (Ġea	r motor,	externa	l freque	ncy converter required), 3-phase, 230/400 V AC		
		D42	4.0 kW	1, 2 - 55	rpm, 0,4	-10.4 m	<sup>3</sup> /h, 2 ba	ır (Gear	r motor,	externa	frequer	ncy converter required), 3-phase, 230/400 V AC		
			Hose I	materia	l									
			0	NR										
			В	NBR										
			E	EPDM										
			R	NR-A										
			A	NBR-A	1									
			N	Norpre	ne (max	(. 2 bar)								
			Hydraulic connections											
		I DIN flange VA DN50												
				G	Tri-Cla	mp, VA,	2 1/2"							
	H         DIN 11851, VA, NW50           J         DIN flange PP DN50													
				K DIN flange VA, Halar coated + PVDF inserts DN50										
				L		lange V <i>I</i>								
				Μ		lange Pf								
				N ANSI flange VA, Halar coated + PVDF inserts 2"										
					Base p									
					0		late, pai							
					1		late, sta							
					2		le unit +	•						
					3		le unit +		s steel t	base pla	te			
							ge sens							
						0		-	e senso	ſ				
						L M		akage se						
						IVI		+ relay c	output					
							Rotor	Rotor v	vith 2 ro	llore				
							0		control					
								0		t control	lor			
								0		al versi				
									O Specia	Standa				
								ousing						
										0	m syste withou			
										v		cuum system		
1				1						ľ	Appro	-		
						1					01	ICE		
						1					02	CE+Food approval EU 1935/2004		

\* The pumps are factory-set to a maximum back pressure of 4 bar, unless the stated pressure is lower. Please state any deviating pressures when ordering.







### DULCO®flex DFCa 070 peristaltic pump

DFCa	Туре														
	070	DFCa (	070, 6.7	2 l/revol	ution										
			end/drive*												
		000		without drive unit 2.2 kW, 13 rpm, 5.2 m <sup>3</sup> /h, 4 har, (Beduction gear system), 3-phase, 230/400 V AC											
		E11	2.2 kW, 13 rpm, 5.2 m <sup>3</sup> /h, 4 bar (Reduction gear system), 3-phase, 230/400 V AC 3.0 kW, 22 rpm, 8.9 m <sup>3</sup> /h, 4 bar (Reduction gear system), 3-phase, 230/400 V AC												
		E12 E13		· ·	22 rpm, 8.9 m³/h, 4 bar (Reduction gear system), 3-phase, 230/400 V AC 26 rpm, 10.5 m³/h, 4 bar (Reduction gear system), 3-phase, 230/400 V AC										
		E13			2 rpm, 12.9 m <sup>3</sup> /h, 4 bar (Reduction gear system), 3-phase, 230/400 V AC										
		E15			m, 14.9 m <sup>3</sup> /h, 4 bar (Reduction gear system), 3-phase, 230/400 V AC										
		E16				18.5 m <sup>3</sup> /h, 2 bar (Reduction gear system), 3-phase, 230/400 V AC									
		E31	5.5 kW	, 8 - 27	8 - 27 rpm, 3.2 - 10.9 m <sup>3</sup> /h, 20-60 Hz, 4 bar (Gear motor with integrated frequency converter), 3-phase, 400 V AC										
		E32		,			,		· ·			integrated frequency converter), 3-phase, 400 V AC			
		E41										I frequency converter required), 3-phase, 230/400 V AC			
		E42				- 16.9 m	<sup>3</sup> /h, 3-65 Hz, 2 bar (Gear motor, external frequency converter required), 3-phase, 230/400 V AC								
			Hose r	<b>nateria</b> INR	I										
			B	NBR											
			E	EPDM											
			R	NR-A											
			A	NBR-A											
				Hydra	aulic connections										
				– G H J L ⊠ Q R		nge VA DN65									
						i-Clamp, VA, 3" IN 11851, VA, NW65									
						V flange PP DN65									
						NSI flange VA, 2 1/2"									
						ISI flange PP 2 1/2"									
						N flange VA Halar coated DN65									
						ISI flange VA Halar coated 2 1/2"									
					Base p	blate Base plate, painted steel									
					1		1	stainless steel							
					2		le unit +			se plate	9				
					3	Portab	le unit +	stainles	s steel b	ase pla	te				
							ge sens								
						0		leakage							
						L M	with leakage sensor as "L" + relay output								
							Rotor	Fieldy 0	uipui						
							0	Rotor v	vith 2 rol	lers					
								Batch	control	ler					
								0		control					
										I versio					
									0	Standa					
									н		oated h m syste				
										vacuu 0	m syste without				
										v		cuum system			
											Approv				
											01	CE			
											02	CE+Food approval EU 1935/2004			
												••			

\* The pumps are factory-set to a maximum back pressure of 4 bar, unless the stated pressure is lower. Please state any deviating pressures when ordering.

2

### 2.8.5

### Peristaltic Pump DULCO®flex DFDa

#### Maximum pump capacities and high pressures

#### Feed rates of up to 15,000 l/h at 15 bar

The peristaltic pump DFDa is designed for maximum pump capacities and high pressures and is winning customers over with its noiselessness and long service life. It is fitted with shoes and fabric-reinforced hoses – perfect for industrial use.

The pump housing is filled with glycerine to reduce friction. A ball-bearing mounted rotor ensures extremely smooth running and a long service life. In tough industrial use, the DFDa conveys volumes of up to 15,000 I/h with back pressures of up to 15 bar.

A vacuum unit can optionally be used to help the hose to return to its original shape with pumps of the product range DFDa, thereby improving their suction behaviour and ensuring the even feed of high-viscosity media.

#### Your benefits

- Simple to operate
- Reversible pumping direction
- Hose materials suitable for various chemicals
- Simple and quick hose change
- Ideal for pumping pasty, high-viscosity, abrasive and gaseous media
- Self-priming
- Safeguarded against running dry

#### **Technical details**

- Connector sizes DN 25 DN 100
- Feed rates of 0.3 20.0 l/rev
- Hose materials NR, NBR, EPDM
- Self-priming up to 8 m
- Back pressure up to 15 bar

### Options

- Stainless steel base plate
- Available as a mobile unit
- Various connectors, such as Tri-Clamp, DIN 11851 and flange
- Pulsation damper
- Leakage sensor
- Vacuum system

#### **Field of application**

- Chemical industry
- Waste water
- Mining

### **Technical Data**

Hose material	NR, NBR, EPDM
Self-priming	up to 8 m
Rollers / shoes	Shoes

Туре	Feed rate / revolution		Delivery rate at max. back pressure		Max. solids	Weight without drive	Connection DN
	I/U	bar	l/h	mm	mm	kg	
DFDa 025	0.30	15	504	25	6.3	57	DN 25
DFDa 032	0.62	15	3,800	32	8.0	89	DN 32
DFDa 040	1.33	15	2,075	40	10.0	150	DN 40
DFDa 060	2.90	15	3,800	57	14.3	252	DN 50
DFDa 070	6.70	15	7,200	65	16.3	530	DN 65
DFDa 080	11.70	15	8,700	80	20.0	900	DN 80
DFDa 100	20.00	15	14,400	100	25.0	1,100	DN 100





### DULCO®flex DFDa 025 peristaltic pump

DFDa	Туре										
	025	DFDa 025, 0.3 l/revolution									
			ower end/drive*								
		000	without drive unit								
		A11		0.55 kW, 18 rpm, 324 l/h, 15 bar (Reduction gear system), 3-phase, 230/400 V AC							
		A12		· ·	28 rpm, 504 l/h, 15 bar (Reduction gear system), 3-phase, 230/400 V AC						
		A13								tem), 3-phase, 230/400 V AC	
		A14						0		em), 3-phase, 230/400 V AC	
		A15		· ·	,	,		0		n), 3-phase, 230/400 V AC	
		A31		,			,	,		ar motor with integrated frequency converter), 3-phase, 400 V AC	
		A32								ear motor with integrated frequency converter), 3-phase, 400 V AC	
l		A41								r motor, external frequency converter required), 3-phase, 230/400 V AC	
		A42								r motor, external frequency converter required), 3-phase, 230/400 V AC	
		A43		·	1 /	2-1548 l	/h, 7-65	Hz, 5 ba	ar (Gea	r motor, external frequency converter required), 3-phase, 230/400 V AC	
				materia	I						
			0	NR							
			В	NBR							
			Е	EPDM							
				Hydra		nectio					
				Ľ.		nge VA					
				J		nge PP		-			
				K		nge PVI		5			
				L		lange V/	A DIN25				
					Base		lata na	inte d'atr	a l		
					0 1			inted ste			
					2		,	inless s		ase plate	
					2					ase plate	
					3				s sieer i	base plate	
						О	ge sens	s <b>or</b> t leakag	0 00000	۱۴ ۱	
						L		akage s		A Contraction of the second seco	
						M		+ relay c			
						IVI	Rotor	+ relay c	Juipui		
							0	Potory	with 2 sh	2005	
							0		control		
		1				1	1	0		ner it controller	
								v		al version	
									0	Standard	
		1	1	1	1	1	1	1	0	Olandard	

н

\* The pumps are factory-set to a maximum back pressure of 5 bar. Please specify deviating pressures when ordering.

with vacuum system Approvals 01

CE

Halar-coated housing

Vacuum system 0 without

V

**ProMinent**<sup>®</sup>



## DULCO®flex DFDa 032 peristaltic pump

DFDa	Туре														
2.24	032	DFDa (	032, 0.6	25 l/revo	olution										
		Power	end/dri	ive*											
		000	without												
		B12 B13				/ l/h, 10 bar (Reduction gear system), 3-phase, 230/400 V AC /h, 15 bar (Reduction gear system), 3-phase, 230/400 V AC									
			1.1 kW,				•	•	2						
				· ·	, 1125 l/h, 10 bar (Reduction gear system), 3-phase, 230/400 V AC , 1425 l/h, 10 bar (Reduction gear system), 3-phase, 230/400 V AC										
		- · ·													
				· ·	,	30/400 V AC 30/400 V AC									
		B31					•	0	2						
					12 - 42 rpm, 450 – 1575 l/h, 20 – 70 Hz, 7.5 bar (Gear motor with integrated frequency converter), 3-phase, 400 V AC 19 - 66 rpm, 712-2475 l/h, 20-70 Hz, 5 bar (Gear motor with integrated frequency converter), 3-phase, 400 V AC										
		B41				m, 150 – 1462 l/h, 7 – 65 Hz, 7.5 bar (Gear motor, external frequency converter required), 3-phase, 230/400 V AC m, 190 – 1837 l/h, 7 – 65 Hz, 7.5 bar (Gear motor, external frequency converter required), 3-phase, 230/400 V AC									
		B42 B43	1.5 kW,												
						pm, 300-2812 l/h, 7-65 Hz, 5 bar (Gear motor, external frequency converter required), 3-phase, 230									
			Hose n	nateria	1										
			0	NR											
			E	NBR	PDM ydraulic connections										
				EPDM											
				Hydra											
				1		DIN flange VA DN32 DIN flange PP DN32									
				K											
				L	DIN flange PVDF/PTFE DN 32 ANSI flange VA, 1 1/4" Base plate										
				_											
0 Base plate, painted steel															
					1	Base p	olate, sta	ainless s	teel						
					2					ase plate					
					3				s steel l	base pla	e				
							ge sens								
						0 L		t leakag		r					
						M		akage s + relay c							
						101	Rotor	+ Telay C	Juipui						
							0	Rotor v	with 2 sh	oes					
							-	Batch	control	ler					
								0		t controll	er				
									Specia	al versio	n				
									0	Standa					
									Н	Halar-c	oated h	nousing			
										Vacuu					
										0	withou				
							1			V		acuum system			
							1				Appro 01	ICE			
											01				

\* The pumps are factory-set to a maximum back pressure of 5 bar. Please specify deviating pressures when ordering.





## DULCO®flex DFDa 040 peristaltic pump

DFDa	Туре																
	040	DFDa	040, 1.3	3 l/revol	lution												
		Power	end/dr	ive*													
		000		drive u													
		C11		/ I	,	76 l/h, 10 bar (Reduction gear system), 3-phase, 230/400 V AC											
		C12				/h, 7.5 bar (Reduction gear system), 3-phase, 230/400 V AC /h, 10 bar (Reduction gear system), 3-phase, 230/400 V AC											
		C13 C14															
		-	<ul> <li>L5 kW, 26 rpm, 2075 l/h, 15 bar (Reduction gear system), 3-phase, 230/400 V AC</li> <li>L5 kW, 38 rpm, 3032 l/h, 7.5 bar (Reduction gear system), 3-phase, 230/400 V AC</li> </ul>														
		C16	1.5 kW, 43 rpm, 3431 l/h, 5 bar (Reduction gear system), 3-phase, 230/400 V AC														
		C17	2.2 kW, 48 rpm, 3830 l/h, 5 bar (Reduction gear system), 3-phase, 230/400 V AC														
		C31	2.2 kW, 47 - 60 rpm, 1356-4788 l/h, 20-70 Hz, 5 bar (Gear motor with integrated frequency converter), 3-phase, 400 V AC 1.5 kW, 4 - 34 rpm, 320-2713 l/h, 7-65 Hz, 5 bar (Gear motor, external frequency converter required), 3-phase, 230/400 V AC														
		C41															
		C42 2.2 kW, 4 - 34 rpm, 320-2713 l/h, 7-65 Hz, 10 bar (Gear motor, external frequency converter required), 3-phase, 230/400 V										al frequency converter required), 3-phase, 230/400 V AC					
	C43 2.2 kW, 5 – 49 rpm, 400 – 3910 l/h, 7 – 65 Hz, 5 bar (Gear motor, external frequency converter required), 3-p										ernal frequency converter required), 3-phase, 230/400 V AC						
			3.0 kW	, 7 - 62	rpm, 55	m, 558 – 4948 l/h, 7 – 64 Hz, 5 bar (Gear motor, external frequency converter required), 3-phase, 230/400 V AC											
				ematerial													
			0	NR													
			B E	NBR EPDM													
			E														
				Hydra	aulic connections DIN flange VA DN40												
				J		nge PP											
	K DIN flange							0									
L ANSI flange VA, 1 1/2"							A, 1 1/2'										
	M ANSI flange PP 1 1																
	N ANSI flange PVDF/PTFE 1 1/2" Base plate							FE 1 1/2									
					0 1	Base plate, painted steel Base plate, stainless steel											
					2		ble unit +			ee nlate							
					3												
					-			e unit + stainless steel base plate e <b>sensor</b>									
						0	•	t leakag	e senso	r							
						L	with le	akage s	ensor								
						Μ	5										
							Rotor										
							0		with 2 sh								
								Batch 0	control	ler t controll	or						
								0		al versio							
									0	Standa							
									Ĥ	Halar-c		nousina					
								1	1		n syste						
								1	1	0	withou						
								1		V	with va	acuum system					
											Appro						
					1						01	CE					

\* The pumps are factory-set to a maximum back pressure of 5 bar. Please specify deviating pressures when ordering.

**ProMinent**<sup>®</sup>

## DULCO®flex DFDa 060 peristaltic pump

DFDa	Туре																
	060	DFDa (	060, 2.9	l/revolu	tion												
		<b>Power</b> 000 D11	end/dr	end/drive*													
			without	t drive u	nit												
			2.2 kW	', 22 rpm	ո, 3.8 m <sup>3</sup>	m <sup>3</sup> /h, 5 bar (Reduction gear system), 3-phase, 230/400 V AC m <sup>3</sup> /h, 5 bar (Reduction gear system), 3-phase, 230/400 V AC m <sup>3</sup> /h, 15 bar (Reduction gear system), 3-phase, 230/400 V AC											
		D12															
		D13															
		D14	4.0 kW							tem), 3-phase, 230/400 V AC							
		D16 D17 D31 D32					em), 3-phase, 230/400 V AC										
						4 m <sup>3</sup> /h, 5 bar (Reduction gear system), 3-phase, 230/400 V AC 2 m <sup>3</sup> /h, 5 bar (Reduction gear system), 3-phase, 230/400 V AC m 1.7 6.3 m <sup>3</sup> /h, 20 70 Hz, 5 bar (Coor mater with integrated frequency converter), 3 phase, 400 V AC											
				/ I	,												
						n, 1.7 – 6.3 m <sup>3</sup> /h, 20 – 70 Hz, 5 bar (Gear motor with integrated frequency converter), 3-phase, 400 V AC n, 3.3 – 11.5 m <sup>3</sup> /h, 20 – 70 Hz, 5 bar (Gear motor with integrated frequency converter), 3-phase, 400 V AC , 0.7 – 5.9 m <sup>3</sup> /h, 20 – 70 Hz, 5 bar (Gear motor, external frequency converter required), 3-phase, 400/660 V AC , 1.2 – 10.6 m <sup>3</sup> /h, 20 – 70 Hz, 5 bar (Gear motor, external frequency converter required), 3-phase, 400/660 V AC											
		D41 D42															
		D42		nateria	1 /	- 10.0	III /II, 20	(dear motor, external frequency converter required), 5-phase, 400/000 V AC									
			0	INR	1												
			B	NBR													
			E	EPDM													
				Hydra	ulic con												
				T	DIN fla	flange VA DN 50											
				L		flange VA DN 50											
				J		SI flange PP DN 50											
				M		•	ange PP DN 50										
				U V		I flange VA, Halar-coated + PVDF inserts DN 50 SI flange VA, Halar coated + PVDF inserts DN 50											
				v		plate											
					Base p		ate Base plate, painted steel										
					1 2	Base plate, stainless steel											
						Portable unit + painted steel base plate											
							qe sens			e e e e e e e e e e e e e e e e e e e							
						0		t leakag	e senso	r							
						L	with lea	akage s	ensor								
						М	as "L" -	+ relay c	output								
							Rotor										
							0		with 2 sh								
									control								
								0		t controller							
									Specia 0	al version Standard							
									Н	Halar-coated housing							
										Vacuum system							
										0 without							
										V with vacuum system							
										Approvals							
										01 CE							

 $^{\ast}$  The pumps are factory-set to a maximum back pressure of 5 bar. Please specify deviating pressures when ordering.





# DULCO®flex DFDa 070 peristaltic pump

2		

a Type 070		070, 6.7	l/revolu	tion										
010		r end/dri												
	000	without		nit										
	E11				m <sup>3</sup> /h. 5	bar (Re	duction	dear sv	stem), 3-	phase	230/400 V AC			
	E12		· ·	n, 7.2 m <sup>3</sup> /h, 7.5 bar (Reduction gear system), 3-phase, 230/400 V AC										
	E13				m <sup>3</sup> /h, 15 bar (Reduction gear system), 3-phase, 230/400 V AC									
	E14				10.4 m <sup>3</sup> /h, 5 bar (Reduction gear system), 3-phase, 230/400 V AC									
	E15			5 rpm, 10.4 m²/n, 5 bar (Reduction gear system), 3-pnase, 230/400 V AC 8 rpm, 7.2 m³/h, 15 bar (Reduction gear system), 3-phase, 230/400 V AC										
	E16			6 rpm, 1.2 m /n, 15 bar (Reduction gear system), 3-phase, 230/400 V AC 2 rpm, 12.8 m <sup>3</sup> /h, 7.5 bar (Reduction gear system), 3-phase, 230/400 V AC										
	E17		· ·											
	E17													
	E10 E31			40 rpm, 16 m <sup>3</sup> /h, 5 bar (Reduction gear system), 3-phase, 230/400 V AC										
	E31 E41			0 - 36 rpm, 4 - 14.4 m <sup>3</sup> /h, 20-70 Hz, 5 bar (Gear motor with integrated frequency converter), 3-phase, 400 V AC										
	E4 I		N, 4 - 34 rpm, 1.6 - 13.7 m <sup>3</sup> /h, 7-65 Hz, 5 bar (Gear motor, external frequency converter required), 3-phase, 400/660 V											
			INR											
		0 B	NR NBR											
		Б E												
		E	EPDM		ulic connections									
			Hydra											
			'.		nge VA									
			J L M		flange PP DN65 SI flange VA, 2 1/2"									
					ISI flange VA, 2 1/2 ISI flange VA 2 1/2" V flange VA Halar coated DN65 ISI flange VA Halar coated 2 1/2" <b>se plate</b>  Base plate, painted steel									
			Q R											
			к											
				0 1										
						plate, stainless steel								
					Leaka 0 L M	kage sensor								
						without leakage sensor								
						with leakage sensor as "L" + relay output								
								output						
						Rotor								
						0		with 2 sł						
								contro						
							0		t controll					
									al versio					
								0	Standa					
								н			housing			
				1				1	Vacuu					
				1	1			1	0	witho				
								1	V		vacuum system			
								1			ovals			
1		1		1	1			1	1	01	CE			

\* The pumps are factory-set to a maximum back pressure of 5 bar. Please specify deviating pressures when ordering.



## DULCO®flex DFDa 080 peristaltic pump

DFDa	Туре														
	080	DFDa	080, 11.	7 l/revol	ution										
		Power	end/dr	ive*											
		000		t drive u											
		G11	4 kW, 1	12.5 rpm	ո, 8.7 m <sup>3</sup>	/h, 5 ba	r (Redu	iction ge	ear syste	em), 3-phase, 230/400 V AC					
		G12		· · ·	,	,	· ·			ystem), 3-phase, 230/400 V AC					
		G13								ystem), 3-phase, 230/400 V AC					
		G14 G15				m <sup>3</sup> /h, 10 bar (Reduction gear system), 3-phase, 230/400 V AC									
										tem), 3-phase, 230/400 V AC					
		G16		27.7 rpm, 19.4 m <sup>3</sup> /h, 5 bar (Reduction gear system), 3-phase, 230/400 V AC											
		G17		kW, 30 rpm, 21 m <sup>3</sup> /h, 5 bar (Reduction gear system), 3-phase, 230/400 V AC											
				nateria	I										
			-	NR											
			E	NBR											
				EPDM											
				Hydra	ulic con										
I DIN flange VA DN80 J DIN flange PP DN80															
				J		0									
				L	ANSI fl	0									
		l		Q I R /		flange PP 3" ange VA Halar coated DN80									
						flange VA Halar coated 3"									
					Base p										
					Base p	Base p	late nai	inted sta	امد						
					U		se plate, painted steel akage sensor								
						0			e senso	ir i					
						Ľ		akage s							
						M		+ relay o							
							Rotor								
							0	Rotor v	with 2 sh	10es					
								Batch	control	ller					
								0	without	t controller					
									Specia	al version					
									0	Standard					
										Vacuum system					
										0 without					
										V with vacuum system					
										Approvals					
										01 CE					

\* The pumps are factory-set to a maximum back pressure of 5 bar. Please specify deviating pressures when ordering.





2

# 2.8 Peristaltic Pump DULCO®flex

# DULCO®flex DFDa 100 peristaltic pump

DFDa	Type													
DIDa	100	DFDa <sup>·</sup>	100.20	0 l/revol	lution									
	100	Power			anon									
		000		t drive u	nit									
						<sup>3</sup> /h 5 h	ar (Rod	uction o	oar evet	tem), 3-phase, 230/400 V AC				
		F12		11 kW, 18 rpm, 21.6 m <sup>3</sup> /h, 5 bar (Reduction gear system), 3-phase, 230/400 V AC 15 kW, 12 rpm, 14.4 m <sup>3</sup> /h, 15 bar (Reduction gear system), 3-phase, 230/400 V AC 15 kW, 18 rpm, 21.6 m <sup>3</sup> /h, 10 bar (Reduction gear system), 3-phase, 230/400 V AC 15 kW, 23 rpm, 27.6 m <sup>3</sup> /h, 7.5 bar (Reduction gear system), 3-phase, 230/400 V AC										
		F12												
		F13												
		F14												
		-		15 kW, 28 rpm, 33.6 m <sup>3</sup> /h, 5 bar (Reduction gear system), 3-phase, 230/400 V AC										
		F16												
		F17	18.5 kW, 30 rpm, 36 m <sup>3</sup> /h, 5 bar (Reduction gear system), 3-phase, 230/400 V AC											
			Hose material											
			-											
			В											
		E EPDM												
				Hydraulic connections										
				I DIN flange VA DN100										
				J		nge PP								
				L		ange V/								
				Μ	ANSI flange PP 4"									
				Q	DIN flange VA Halar coated DN100									
				R	ANSI fl	ANSI flange VA Halar coated 4"								
					Base p									
					0	Base p	late, pai	nted ste	el					
						Leaka	ge sens							
						0	without	leakag	e senso	r				
						L		akage se						
						М	as "L" -	+ relay c	output					
							Rotor							
							0	Rotor v	vith 2 sh	ioes				
								Batch	control	ler				
								0	without	t controller				
									Specia	al version				
									0	Standard				
										Vacuum system				
										0 without				
										V with vacuum system				
										Approvals				
										01 CE				

 $^{\ast}$  The pumps are factory-set to a maximum back pressure of 5 bar. Please specify deviating pressures when ordering.



2

# 2.8.6

# **Spare Parts**

#### **Spare Parts for DFAa 003**

	Order no.
DFAa 003 silicone tube	1037107
DFAa 003 Norprene tube A-60-F	1037144
DFAa 003 Solva tube	1037145

## **Spare Parts for DFAa 008**

	Order no.
DFAa 008 silicone tube	1037146
DFAa 008 Norprene tube A-60-G	1037147
DFAa 008 silicone tube	1037148
DFAa 008 Solva tube	1037149

# Spare Parts for DFBa 010

	Order no.
DFBa 010 NR tube	1037150
DFBa 010 NBR tube	1037151
DFBa 010 EPDM tube	1037152
DFBa 010 NR-A tube	1037153
DFBa 010 NBR-A tube	1037154
DFBa 010 NORPRENE tube	1037155
DFBa 010 HYPALON tube	1037156

#### Spare Parts for DFBa 013

	Order no.
DFBa 013 NR tube	1037157
DFBa 013 NBR tube	1037158
DFBa 013 EPDM tube	1037159
DFBa 013 NR-A tube	1037160
DFBa 013 NBR-A tube	1037161
DFBa 013 NORPRENE tube	1037162
DFBa 013 HYPALON tube	1037163

# Spare Parts for DFBa 016

	Order no.
DFBa 016 NR tube	1037164
DFBa 016 NBR tube	1037165
DFBa 016 EPDM tube	1037166
DFBa 016 NR-A tube	1037167
DFBa 016 NBR-A tube	1037168
DFBa 016 NORPRENE tube	1037169
DFBa 016 HYPALON tube	1037171

# Spare Parts for DFBa 019

	Order no.
DFBa 019 TYGON tube	1037172
DFBa 019 NORPRENE tube	1037173





## Spare Parts for DFBa 022

	Order no.
DFBa 022 NR tube	1037175
DFBa 022 NBR tube	1037176
DFBa 022 EPDM tube	1037178
DFBa 022 NR-A tube	1037179
DFBa 022 NBR-A tube	1037180
DFBa 022 NORPRENE tube	1037181
DFBa 022 HYPALON tube	1037182

#### **Spare Parts for DFCa 030**

	Order no.
DFCa 030 NR tube	1037183
DFCa 030 NBR tube	1037184
DFCa 030 EPDM tube	1037185
DFCa 030 NR-A tube	1037186
DFCa 030 NBR-A tube	1037187
DFCa 030 tube NORPRENE	1045073

## **Spare Parts for DFCa 040**

	Order no.
DFCa 040 NR tube	1037192
DFCa 040 NBR tube	1037193
DFCa 040 EPDM tube	1037194
DFCa 040 NR-A tube	1037195
DFCa 040 NBR-A tube	1037196
DFCa 040 NORPRENE tube	1037198

# Spare Parts for DFCa 050

	Order no.
DFDa 040/DFCa 050 NR hose	1037199
DFDa 040/DFCa 050 NBR hose	1037201
DFDa 040/DFCa 050 EPDM hose	1037202
DFCa 050 NR-A tube	1037203
DFCa 050 NBR-A tube	1037204
DFCa 050 tube NORPRENE	1045084

## Spare Parts for DFCa 060

	Order no.
DFCa 060 NR tube	1037206
DFCa 060 NBR tube	1037208
DFCa 060 EPDM tube	1037209
DFCa 060 NR-A tube	1037210
DFCa 060 NBR-A tube	1037211
DFCa 060 tube NORPRENE	1045085

# **ProMinent**<sup>®</sup>

2

# Spare Parts for DFCa 070

	Order no.
DFDa 070/DFCa 070 NR hose	1037213
DFDa 070/DFCa 070 NBR hose	1037214
DFDa 070/DFCa 070 EPDM hose	1037215
DFCa 070 NR-A hose	1037216
DFCa 070 NBR-A hose	1037217

## Spare Parts for DFDa 025

	Order no.
DFDa 025 NR tube	1037219
DFCa 025 NBR tube	1037220
DFDa 025 EPDM tube	1037221

## Spare Parts for DFDa 032

	Order no.
DFDa 032 NR tube	1037225
DFCa 032 NBR tube	1037226
DFDa 032 EPDM tube	1037227

#### Spare Parts for DFDa 040

	Order no.
DFDa 040/DFCa 050 NR hose	1037199
DFDa 040/DFCa 050 NBR hose	1037201
DFDa 040/DFCa 050 EPDM hose	1037202

#### Spare Parts for DFDa 060

	Order no.
DFDa 060 NR tube	1037236
DFCa 060 NBR tube	1037237
DFDa 060 EPDM tube	1037238

## Spare Parts for DFDa 070

	Order no.
DFDa 070/DFCa 070 NR hose	1037213
DFDa 070/DFCa 070 NBR hose	1037214
DFDa 070/DFCa 070 EPDM hose	1037215

# Spare Parts DFDa 080

	Order no.
DFDa 080 hose NR	1041677
DFDa 080 hose NBR	1041678
DFDa 080 hose EPDM	1041679

# Spare Parts for DFDa 100

	Order no.
DFDa 100 NR tube	1037247
DFCa 100 NBR tube	1037248
DFDa 100 EPDM tube	1037249



#### **Application Examples** 2.9

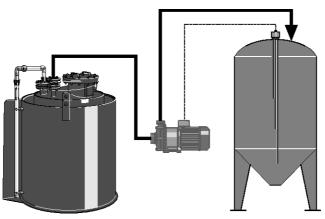
2.9.1

# **Filling a Day Tank**

Product:	
Metered medium	:
Sector:	
Application:	

von Taine® centrifugal pump 32% hydrochloric acid solution Food **Chemical transfer** 

The von Taine® centrifugal pump is switched on and off automatically by the level control facility in the day tank.



pk\_3\_050

#### Task and requirements

Automatically filling service tanks with 32 % hydrochloric acid solution

## **Operating conditions**

- Indoor operation
- Automatic activation of pump

#### **Application information**

- Centrifugal pump controlled by level control facility in metering tank
- The centrifugal pump is not self-priming and requires feed
- Hydrochloric acid compatibility of materials must be ensured (PP, PVDF; EPDM)
- Provide dry-running protection facility for centrifugal pump

#### Solution

- vonTaine® 1820 PP centrifugal pump
- 11 Service tank with level control

- Safe handling of hydrochloric acid н.
- Fully automatic operation with minimum personnel and maintenance requirements



# 2.9 Application Examples



2

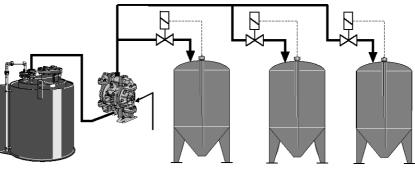
## 2.9.2

# Filling Day Tanks

Product:
Metered medium:
Sector:
Application:

Duodos air-operated diaphragm pump Detergent Laundry Chemical transfer

The level control facility for the day tanks opens the solenoid valves when the level drops below minimum. With decreasing back pressure, the Duodos pump automatically begins to pump medium into the metering line and switches off when the maximum level in the tank is reached and the solenoid valve is switched off.



pk\_3\_051

#### Task and requirements

Automatic filling of day tanks with detergent

#### **Operating conditions**

- Compressed air necessary for operating compressed air diaphragm pump
- Automatic filling of day tanks

#### **Application information**

- Compressed air diaphragm-type pump controlled by level control facility in metering tank
- The compressed air diaphragm pump is self-priming
- Also suitable for viscous media
- The level control facility for the day tanks opens the solenoid valves when the level drops below minimum. With decreasing back pressure, the compressed air diaphragm-type pump automatically begins to pump medium into the metering line and switches off when the maximum level in the tank is reached and the solenoid valve is switched off

#### Solution

- Duodos air-operated diaphragm pump
- Day tank with level control

- Simplified logistics through central storage
- Fully automatic operation with minimum personnel and maintenance requirements





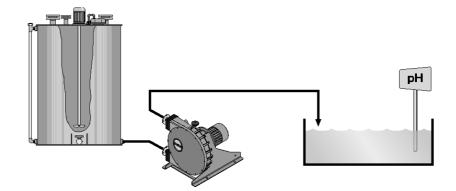
# 2.9 Application Examples

2.9.3

## **Deacidification of Potable Water**

Product Feed chemical Sector: Application

DULCO<sup>®</sup>flex peristaltic pump Lime milk 10% Potable water Feed of abrasive chemicals



AP\_PTW\_0001\_SW

#### **Problems and requirements**

- Feed of abrasive lime milk into potable water tanks
- Deacidification of the potable water

#### **Operating conditions**

- The lime milk comes as a 10% suspension
- The pH in the application tank is continuously measured

#### Notes on use

- The peristaltic pump is self-priming
- The pump is controlled by a pH measuring unit
- Speed reduction to extend the service life of the hose

#### Solution

- DULCO®flex DFCa 040 type peristaltic pump
- Hose material: NR (natural rubber)

- Reliable feed of lime milk
- Fully automatic operation with minimum personnel and maintenance requirements

# 3.0 Overview of Metering Systems DULCODOS®

# 3.0.1

#### **Selection Guide**

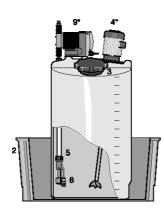
Metering systems are ready mounted complete solutions, which are immediately available and ready for use for the most important applications. Whether standard or customised – you'll find the right solution here.

Tip: The table provides a good overview.

# Selection Guide for DULCODOS® Metering Systems

Туре	Function	Applications	Capacity range
DULCODOS <sup>®</sup> eco	Storing, metering	General	35 – 1,000 litres
DULCODOS <sup>®</sup> universal	Metering	General	-
DULCODOS <sup>®</sup> panel	Metering	General	0.74 – 1,000 l/h
DULCODOS <sup>®</sup> Hydrazin	Preparing, metering	Boiler feed water	up to 11 l/h
DULCODOS <sup>®</sup> PPLA	Mixing, metering	Animal food	-

Metering systems DULCODOS®





# Metering System DULCODOS® eco

#### Choose from a range of different components and adapt the metering system to your requirements.

For storing and metering liquid chemicals Use a selection guide (identity code) to quickly and flexibly adapt your metering system to your metering task.

Two hydraulic connection points guarantee simple installation of the metering system. The ready mounted system consists of components that have been perfectly matched to each other to ensure problem-free operation. You obtain a complete system. Individually configure your metering system at the time of ordering. A simple selection system makes ordering easy and guarantees maximum efficiency even at the time of ordering.

#### Your benefits

- One to three metering pumps mounted on a storage tank, ready for connection with all the necessary accessories
- Short delivery time
- Outstanding value for money
- Compact construction
- Fast commissioning
- Versatile use
- All the components are perfectly matched to each other and fit precisely
- Environmentally-friendly handling of chemicals

#### **Technical details**

- Dosing tank: PE, various colours, 35 - 1,000 litres
- Collecting pan: PE, various colours, 35 - 1,000 litres
- Lock for screw top
- Hand mixer / stirrer: PP, PVDF or stainless steel, various outputs
- Suction assembly: PP, PVC, various connectors
- Level switch for suction assembly: 2 -stage
- Drain tap: PP, PVC, with ball valve
- Metering pump: alpha, Beta®, gamma/ X, Sigma/ 1, Sigma/ 2, Sigma/ 3

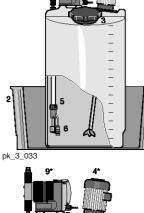
#### Field of application

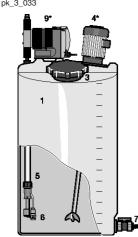
Treatment of cooling, process and swimming pool water

ProMinent metering systems with PE storage tanks can be selected and ordered with the help of an identity code system. First select the metering pump using the separate pump identity code.

#### Selectable components

- PE dosing tank (35 1,000 litres) 1.
- 2. Stackable collecting pans (35 - 1,000 litres)
- З. Lock for tank screw top
- 4. Hand mixer/stirrer (\*)
- 5. Suction assembly
- 6. Level switch for suction assembly
- 7. Drain tap for storage tank (\*)
- 8. Order metering pump (\*) separately
  - (Order the pump separately due to the large number of possible pumps that can be installed on storage tanks. Use the identity code for the pump you require.)
- These components are ready for subsequent installation, but are supplied separately to avoid damage in transit. Customers should fully install the system on site.

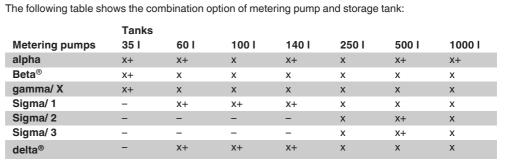




3\_034 pk.

<sup>3.1.1</sup> 

х



= Direct assembly of the pump without mounting plate

x+ = Assembly of the pump with mounting plate

## Identity Code Ordering System, 35 litres

## Metering system with storage tank, 35 litres

DSBa	PE tan	k								
2024			meterir	ng tank	neutral	colour				
				ng tank,						
				ng tank,						
				ng tank,						
				ng tank,						
	00556		ting pa		leu					
		0		n t collect	ing non					
		1			pan, ne	utral aal	0.Ur			
		2			pan, ne				a a tha t	
		2			pan, co	ioureu (i	ne sam	e coloui	as the t	alik)
			Versio			R L				
			0		roMinen	•				
					or tank		top			
				0	withou					
						mixer, s	stirrer			
					0 A	none	P hand r			
					А					
								np mou	nting	
						0		t pump		
						D E	for alp	na :a®, gan		
						E				1
										lection
							0 1			assembly
										bly with 6x4 suction hose
							2 3			bly with 8x5 suction hose
							3			bly with 12x9 suction hose
										mbly material
								0	none PVC	
								1		
								2	PP	
										n assembly float switch
									0	without float switch
									1	2-stage, round plug, (6 x 4, 8 x 5,12 x 9) for Beta®, gamma/ X
										Accessories - discharge tap for tank
										0 without accessories
				1				1		1 with ball valve PVC, hose grommet d16 **
				1				1		2 with ball valve PP, hose grommet d20 **
				1				1		Calibration assembly
								1		0 none
				1				1		Info - pump*
										e.g. BT4 1005 PPE 300AA000

\* Please enter the Identity code of the selected pump

- \*\* Ball valve can only be selected if the metering station is ordered without drip pan.
- \*\*\* Metering gauge can only be selected if the metering station is ordered without drip pan and without suction fitting.



3.1.3

# Identity Code Ordering System, 60 litres

## Metering system with storage tank, 60 litres

PE tan															
				, neutral	colour										
0060S	60 I PE	meterir	ng tank,	, black											
0060B	60 I PE	meterir	ng tank,	, blue											
0060G	60 I PE	meterir	ng tank,	, yellow											
0060R	60 I PE	meterir	ng tank,	, red											
		ting pa	-												
	0			ting pan											
	1	with co	ollecting	cting pan, neutral colour											
	2	with co	ollecting	j pan, co	loured (1	the sam	e colour	as the ta	ank)						
		Versio	n												
		0	with P	roMiner	t® Logo										
			Lock	for tank	screw	top									
			1	with lo	ck	•									
				Hand	mixer, s	stirrer									
				0	none										
				А	with Pl	P hand r	nixer								
				В		P hand s									
				н	-				ectric stirrer						
				Р	with P	VDF 0.0	2 kW ele	ectric sti	rer						
							np mou	nting							
					0		t pump								
					A		ta®, gan	nma/ X							
					D		alpha								
					F	for Sig									
					Ρ	for del									
						Suction assembly selection           0         without suction assembly									
						1			•						
						2	suction assembly with 6x4 suction hose								
						2	suction assembly with 8x5 suction hose suction assembly with 12x9 suction hose								
						4			bly DN 10						
						4 5			bly DN 15						
						5									
							0	none	mbly material						
							1	PVC							
							2	PP							
						1	-		on assembly float switch						
				1				0	without float switch						
								1	2-stage, round plug, (6 x 4, 8 x 5,12 x 9) for Beta <sup>®</sup> , gamma/ X, delta <sup>®</sup>						
				1				2	2-stage, round plug, (DN 10-32) for Sigma/ 1/ 2/ 3, delta®						
									Accessories - discharge tap for tank						
						1			0 without accessories						
						1			1 with ball valve PVC, hose grommet d16 **						
				1					2 with ball valve PP, hose grommet d20 **						
				1					Calibration assembly						
						1			0 none						
						1			Info - pump*						
									e.g. GMXa 0414 PVT 20000UA						

\* Please enter the Identity code of the selected pump

- \*\* Ball valve can only be selected if the metering station is ordered without drip pan.
- \*\*\* Metering gauge can only be selected if the metering station is ordered without drip pan and without suction fitting.

3.1.4

# Identity Code Ordering System, 100 litres

## Metering system with storage tank, 100 litres

0100N1       100 IPE metering tank, black         0100S       100 IPE metering tank, black         0100S       100 IPE metering tank, vellow         0100S       100 IPE metering tank, vellow         0100S       100 IPE metering tank, vellow         0100S       100 IPE metering tank, red         2       with collecting pan         0       with collecting pan, neutral colour         1       with collecting pan, neutral colour         2       with collecting pan, neutral colour         1       with collecting pan, neutral colour         2       with collecting pan, neutral colour         1       with collecting pan         0       mither streer         0       none         1       with Phand mixer         C       with Phand mixer         R       with Put pump         A       with Put pump         A       for Blang mamu/X         L       for Sigma / 1         N       for calleng assembly with 2x9 suction hose         2       suction assembly with 2x9 suction hose         3       suction assembly material         0       minout suction assembly material         0       withall value PVC <t< th=""><th>DSBa PE tan</th><th>k</th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th></t<>	DSBa PE tan	k								
01005 100 IPE metering tank, block 01006 100 IPE metering tank, vellow 01007 100 IPE metering tank, vellow 01008 100 IPE metering tank, vellow 01008 100 IPE metering tank, vellow 01008 100 IPE metering tank, vellow 0 100 Vellow 100 IPE metering tank, vellow 0 100 Vellow 100 IPE metering tank, vellow 0 100 Vellow 100 IPE metering tank, vellow vellow 11 With ProMinent® Logo 11 With ProMinent® Logo 11 With ProMinent® Logo 11 With ProMinent® Logo 11 With ProMinent® IPP hand mixer 12 With PrOP 0.18 KW electric stirrer 13 With PrOP 0.18 KW electric stirrer 14 With PrOP 0.18 KW electric stirrer 15 With ProMinent® IPP mp mounting 16 With UPP mp mounting 17 With PrOP 0.18 KW electric stirrer 18 With PrOP 0.18 KW electric stirrer 19 With Station assembly with StA Suction hose 10 Without sucton assembly with StA Suction hose 13 suction assembly With StA Suction hose 14 suction assembly With StA Suction hose 15 suction assembly Mit AtA Suction hose 16 suction assembly Mit AtA Suction hose 17 suction assembly Mit AtA Suction hose 18 suction assembly Mit AtA Suction hose 19 suction assembly Mit AtA Suction hose 29 suction assembly Mit AtA Suction hose 20 suction assembly Mit AtA Suction hose 20 suction assembly Mit AtA Suction hose 21 suction assembly Mit AtA Suction hose 22 stategn -round plug, (0 K 4, 8 x 5, 12 x 9) for Beta®, gamma/X, deta® 24 Setage, round plu		-	PE meter	ring tank	. neutra	l colour				
01000       1001 PE metering tank, yellow         01001       1001 PE metering tank, red         Collecting pan         0       with collecting pan, neutral colour         2       with collecting pan, neutral colour         2       with collecting pan, coloured (the same colour as the tank)         Version         0       with rollment® Logo         Lock for tank screw top         1       with PDh and stirer         0       with PP hand stirer         0       with PP hand stirer         1       with PP hand stirer         0       with PP hand stirer         1       with PP hand stirer         0       with PVD Not pump         A       tor Beta®, gamma/X         L       tor Sigma 1         N       tor alpha         P       for deta®         Suction assembly with 6x4 suction hose         2       suction assembly with 6x4 suction hose         3       suction assembly with 6x4 suction hose         3       suction assembly with 6x4 suction hose         2       suction assembly with 12x9 suction hose         3       suction assembly by N15         Suction assembly with 12x4 suction hose				0						
01008       1001 PE metering tank, red         Collecting pan         0       with collecting pan, neutral colour         2       with collecting pan, neutral colour as the tank)         Version         0       with ProMinert® Logo         Lock for tank screw top         1       with colscing pan, neutral colour         0       mith ProMinert® Logo         1       with Phand mixer, stirrer         0       none         A       with PD Hand stirrer         1       with OLS H&W electric stirrer         R       with PUTP 0.18 kW electric stirrer         R       withOVDF on tables         Version       0         0       withOVDF on tables         1       withOVDF on tables         2       withOVDF on tables         1       withOVDF on table         2       suction assembly with 6x4 suction hose         3       suction assembly mith 6x4 suction hose         3       suction assembly matcrial         0       without suction assembly float switch         1       PP         5       Suction assembly float switch         1       2 tables, round plug, (N 14 x 5, 12 x 9) for Beta®, g				0						
01008       100 IPE metering tank, red         Collecting pan          0       with collecting pan, neutral colour         2       with collecting pan, coloured (the same colour as the tank)         Version       0         0       with ProNiment® Logo         1       with ProNiment® Logo         2       with ProNiment® Logo         1       with ProNiment® Logo         2       suction assembly with 200 List With Collectin stimer         1       suction assembly with 200 List With Collectin sti				0						
Collecting pan         0         1       with collecting pan, neutral colour         2       with collecting pan, coloured (the same colour as the tank)         Version       0         0       with ProMinent® Logo         1       with lock         Hand mixer, stirrer       0         0       none         A       with PP hand sitrer         C       with PD hand sitrer         I       with PD hand sitrer         R       with PD 0.18 kW electric stirrer         Metering pump mounting       0         0       with or Sigma/1         N       for alpha         P       for deta®         Suction assembly with 8x5 suction hose         3       suction assembly DN 10         5       suction assembly DN 10         5       suction assembly DN 15         Suction assembly DN 15       Suction assembly Material         0       without float switch         1       2       PC         2       PC <t< th=""><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th></t<>										
0       with collecting pan, neutral colour         2       with collecting pan, coloured (the same colour as the tank)         Version       0         0       with ProMinent® Logo         1       with look         1       with olock for tank screw top         1       with PP hand mixer         0       none         A       with PP hand mixer         C       with PP hand sitrer         I       with PVDF 0.18 kW electric stirrer         R       without outpump         A       for Beta®, gamma/X         L       for Sigma/1         N       for Jepha         P       for deta®         2       suction assembly with 8x5 suction hose         3       suction assembly with 8x5 suction hose         3       suction assembly with 12x9 suction hose         4       pro         2       pro         2       PVC         2       PVC         2       <	01006			•	, ieu					
1       with collecting pan, coloured (the same colour as the tank)         2       with collecting pan, coloured (the same colour as the tank)         Version       0         0       with ProMinent® Logo         1       with ProMinent® Logo         1       with ProMinent® Logo         1       with ProMinent® Logo         1       with ProMand stirrer         0       none         A       with PP hand stirrer         1       with PDF 0.18 kW electric stirrer         R       with PVDF 0.18 kW electric stirrer         Metering pump nounting       0         0       without pump         A       for Beta®, gamma/X         L       tor Sigma/1         N       for alpha         P       for delta®         Suction assembly with 8x5 suction hose         2       suction assembly DN 10         3       suction assembly DN 10         5       suction assembly float switch         1       2       PP         Suction assembly DN 15       Suction assembly float switch         1       2-stage, round plug, (DN 10-32) for Sigma 1/2/3, delta®         2       PP       Suction assembly float switch					ing non					
2       with collecting pan, coloured (the same colour as the tank)         Version         0       with ProMinent® Logo         Lock for tank screw top       1         1       with lock         Hand mixer, stirrer       0         0       none         A       with PP hand mixer         C       with PP hand stirrer         1       with PDF 0.18 kW electric stirrer         R       wither pump mounting         0       without pump         A       for Beta®, gammal X         L       tor Sigma/ 1         N       for alpha         P       for delta®         Suction assembly with 6x4 suction hose         3       suction assembly with 5x4 suction hose         3       suction assembly with 12x9 suction hose         3       suction assembly with 2x4 suction hose         3       suction assembly material         0       none         1       PP         Suction assembly float switch         0       without float switch         1       2-stage, round plug, (6x 4, 8 x 5, 12 x 9) for Beta®, gamma/ X, delta®         2       PP         Suction assembly float switch       0		-				utral aal	0.Ur			
Version       0       with ProMinent® Logo         Lock for tank screw top       1       with lock         1       with lock       Hand mixer, stirrer         0       none       nixer         C       with PP hand stirrer       0         1       with baliness steel 0.18 kW electric stirrer         R       with PVDF 0.18 kW electric stirrer         Metering pump mounting       0         0       without pump         A       tor Stara, 1         N       for delta®         Suction assembly with 6x4 suction hose         3       suction assembly with 6x4 suction hose         3       suction assembly with 8x5 suction hose         3       suction assembly with 8x5 suction hose         3       suction assembly with 8x5 suction hose         3       suction assembly with 124 suction hose         3       suction assembly with 124 suction hose         4       suction assembly with 125 suction hose         5       suction assembly material         0       none         1       PVC         2       PP         Suction assembly float switch       0         0       without accessories         1 <t< th=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>oo tho t</td><td>ank</td></t<>									oo tho t	ank
0       with ProMinent® Logo         1       with lock         Hand mixer, stirrer       0         0       none         A       with PP hand stirrer         C       with PD hand stirrer         R       with PVDF 0.18 kW electric stirrer         R       with PVDF 0.18 kW electric stirrer         N       tofr Beta®, gamma/X         L       for Beta®, gamma/X         L       for Beta®, gamma/X         L       for Beta®, gamma/X         L       for deta®         Suction assembly selection       0         M       without suction assembly with 6x4 suction hose         2       suction assembly with 12x9 suction hose         3       suction assembly Nith 12x9 suction hose         3       suction assembly Nith 12x9 suction hose         3       suction assembly Nith 12x9 suction hose         4       suction assembly Nith 12x9 suction hose         5       suction assembly Nith 12x9 suction hose         2       suction assembly Nith 12x9 suction hose         3       suction assembly Nith 12x9 suction hose         4       suction assembly Nith 12x9 suction hose         5       suction assembly Mith 2x0 suction hose         2		2			pan, co	ioureu (i	ne sam	e coloui	astriet	ain
Lock for tank screw top         1       with lock         Hand mixer, stirrer         0       none         A       with PP hand mixer         C       with PP hand stirrer         I       with PP hand stirrer         I       with PD hand stirrer         I       with stainless steel 0.18 kW electric stirrer         Metering pump mounting       0         0       with our pump         A       for Beta®, gamma/ X         L       L         I       for alpha         P       for delta®         Suction assembly with 6x4 suction hose         2       suction assembly with 6x4 suction hose         3       suction assembly with 6x4 suction hose         3       suction assembly with 2x4 suction hose         3       suction assembly with 12x4 suction hose         3       suction assembly N10         5       suction assembly N15         Suction assembly N15       Suction assembly float switch         1       PP         2       PP         2       PP         2       PP         Suction assembly float switch       1         2       PP <tr< th=""><td></td><td></td><td></td><td></td><td>Minon</td><td>t® Logo</td><td></td><td></td><td></td><td></td></tr<>					Minon	t® Logo				
1       with lock         Hand mixer, stirrer       0         0       none         A       with PP hand stirer         1       with PP hand stirer         1       with PP hand stirer         1       with PD band stirer         1       with PD band stirer         1       with PVDF 0.18 kW electric stirrer         R       with PVDF 0.18 kW electric stirrer         Metering pump mounting       0         0       without pump         A       for Beta®, gamma/X         L       for Sigma/ 1         N       for delta®         Suction assembly selection         0       without suction assembly with 6x4 suction hose         2       suction assembly with 8x5 suction hose         3       suction assembly With 12x9 suction hose         3       suction assembly DN 10         5       suction assembly DN 15         Suction assembly DN 15         Suction assembly float switch         0       without suctorin assembly float switch         1       PVC         2       PP         Suction assembly float switch       0         1       2-statage, round plug, (DN 10-32) for Sigma/ 1/2/3, delta® </th <th></th> <th></th> <th>0</th> <th></th> <th></th> <th>-</th> <th></th> <th></th> <th></th> <th></th>			0			-				
Hand mixer, stirrer         0       none         A       with PP hand mixer         C       with PP hand stirrer         I       with PVDF 0.18 kW electric stirrer         R       with PVDF 0.18 kW electric stirrer         Metering pump mounting       0         0       without pump         A       for Geta% gamma/X         L       for Sigma/1         N       for alpha         P       for delta%         Suction assembly selection         0       without suction assembly         1       suction assembly with 6x4 suction hose         2       suction assembly with 8x5 suction hose         3       suction assembly bN 10         5       suction assembly DN 10         5       suction assembly DN 15         Suction assembly DN 15       Suction assembly float switch         1       PVC         2       PP         Suction assembly float switch       1         1       2-stage, round plug, (DN 10-32) for Sigma/1/2/3, delta%         4       suction assembly ploat switch         1       2         2       PP         Suction assembly float switch       1					-		lop			
0       none         A       with PP hand mixer         C       with PP hand stirrer         I       with stainless steel 0.18 kW electric stirrer         With PVD 0.18 kW electric stirrer         Metering pump mounting         0       without pump         A       for Beta®, gamma/ X         L       for Sigma/ 1         N       for alpha         P       for delta®         Suction assembly selection       0         0       without suction assembly         1       suction assembly with 6x4 suction hose         2       suction assembly with 12x9 suction hose         3       suction assembly with 12x9 suction hose         3       suction assembly bit 15         Suction assembly Mith 12x9 suction hose         4       suction assembly Mut float switch         0       none         1       PVC         2       PP         Suction assembly float switch         0       without float switch         1       2-stage, round plug, (0 N 10-32) for Sigma/ 1/2/3, delta®         2       2-stage, round plug, (0 N 10-32) for Sigma/ 1/2/3, delta®         1       with ball valve PVC, hose grommet d16 **				1		•••				
A       with PP hand mixer         C       with PP hand stirrer         I       with PADE 0.18 kW electric stirrer         R       with PVDF 0.18 kW electric stirrer         0       without pump         A for Beta® gamma/X         L       for Sigma/1         N       for alpha         P       for delta®         Suction assembly selection         0       without suction assembly with 6x4 suction hose         3       suction assembly with 6x4 suction hose         3       suction assembly with 12x9 suction hose         3       suction assembly with 2x9 suction hose         3       suction assembly bit 12x9         Suction assembly with 12x9 suction hose       suction assembly bit 12x9         4       suction assembly material         0       none         1       PVC         2       PP         Suction assembly float switch       0         0       without float switch         1       2-s							stirrer			
C       with PP hand stirrer         I       with stainless steel 0.18 kW electric stirrer         R       with PVDF 0.18 kW electric stirrer         Metering pump mounting <ul> <li>for Beta®, gamma/X</li> <li>for Sigma/1</li> <li>N</li> <li>for alpha</li> <li>P</li> <li>for delta®</li> <li>Suction assembly selection</li> <li>0</li> <li>without suction assembly with 6x4 suction hose</li> <li>2</li> <li>suction assembly with 6x5 suction hose</li> <li>3</li> <li>suction assembly with 6x4 suction hose</li> <li>4</li> <li>suction assembly with 8x5 suction hose</li> <li>3</li> <li>suction assembly with 12x9 suction hose</li> <li>4</li> <li>suction assembly DN 10</li> <li>5</li> <li>suction assembly material</li> <li>0</li> <li>none</li> <li>1</li> <li>PVC</li> <li>2</li> <li>PP</li> <li>Suction assembly float switch</li> <li>1</li> <li>2-stage, round plug, (DN 10-32) for Sigma' 1/2/3, delta®</li> <li>2</li> <li>2-stage, round plug, (DN 10-32) for Sigma' 1/2/3, delta®</li> <li>2</li> <li>2-stage, round plug, (DN 10-32) for Sigma' 1/2/3, delta®</li> <li>4</li> <li>with ball valve PVC, hose grommet d16 **</li> </ul>					-			misser		
Image:										
R       with PVDF 0.18 kW electric stirrer         Metering pump mounting       0         0       without pump         A       for Beta®, gamma/X         L       for Sigma/1         N       for alpha         P       for delta®         Suction assembly selection         0       without suction assembly with 6x4 suction hose         2       suction assembly with 6x4 suction hose         3       suction assembly with 12x9 suction hose         3       suction assembly with 2x9 suction hose         3       suction assembly material         0       none         1       PVC         2       PP         2       PVC         2       PP         3       Suction assembly float switch         1       PVC         2       PP         3       Suction assembly float switch         1       2-stage, round plug, (6x 4, 8x 5, 12 x 9) for Beta®, gamma/ X, delta®         2       2-stage, round plug, (DN 10-32) for Sigma/ 1/2/3, delta®         4       Cecessories       0         1       2-stage, round plug, (DN 10-32) for Sigma/ 1/2/3, delta®         2       2-stage, round plug, (DN 10-32) for Sigma/ 1/2/3,									10100	
Metering pump mounting         0       without pump         A       for Beta®, gamma/X         L       for Sigma/1         N       for alpha         P       for delta®         Suction assembly selection         0       without suction assembly         1       suction assembly with 6x4 suction hose         2       suction assembly with 12x9 suction hose         3       suction assembly with 12x9 suction hose         3       suction assembly material         0       none         1       PVC         2       PP         Suction assembly float switch         1       2-stage, round plug, (6 x 4, 8 x 5, 12 x 9) for Beta®, gamma/ X, delta®         2       2-stage, round plug, (0 N 10-32) for Sigma/ 1/2/ 3, delta®         Accessories - discharge tap for tank       0         0       without accessories         1       without accessories         2       Pstage, round plug, (DN 10-32) for Sigma/ 1/2/ 3, delta®					Р	-				
0       without pump         A       for Beta®, gamma/ X         L       for Sigma/ 1         N       for alpha         P       for delta®         Suction assembly selection       0         Vithout suction assembly       1         suction assembly with 6x4 suction hose         2       suction assembly with 6x5 suction hose         3       suction assembly with 12x9 suction hose         3       suction assembly DN 10         5       suction assembly material         0       none         1       PVC         2       PP         Suction assembly float switch         1       2-stage, round plug, (6 x 4, 8 x 5, 12 x 9) for Beta®, gamma/ X, delta®         Accessories - discharge tap for tank       0         0       without float switch         1       without accessories         1       without accessories         1       without alve PVC, hose grommet d16 **					n					
A       for Beta <sup>®</sup> , gamma/X         L       for Sigma/1         N       for delta <sup>®</sup> Suction assembly selection       0         0       without suction assembly         1       suction assembly with 6x4 suction hose         2       suction assembly with 8x5 suction hose         3       suction assembly With 12x9 suction hose         4       suction assembly DN 10         5       suction assembly material         0       none         1       PVC         2       PP         Suction assembly float switch         1       2-stage, round plug, (6x 4, 8x 5, 12 x 9) for Beta <sup>®</sup> , gamma/X, delta <sup>®</sup> A       A         0       without accessories         1       2-stage, round plug, (DN 10-32) for Sigma/1/2/3, delta <sup>®</sup> A       A         0       without accessories         1       without accessories         1       without accessories         1       without accessories									nting	
L       for Sigma/1         N       for alpha         P       for delta®         Suction assembly selection       0         0       Without suction assembly         1       suction assembly with 6x4 suction hose         2       suction assembly with 8x5 suction hose         3       suction assembly with 12x9 suction hose         4       suction assembly DN 10         5       suction assembly DN 15         Suction assembly DN 15       Suction assembly In 15         Suction assembly In 2       PP         2       PP         Suction assembly float switch       0         1       PVC         2       PP         Suction assembly float switch       1         2       2-stage, round plug, (6 x 4, 8 x 5, 12 x 9) for Beta®, gamma/ X, delta®         2       2-stage, round plug, (DN 10-32) for Sigma/ 1/2/ 3, delta®         4       uithout accessories         3       without accessories         4       uithout accessories         5       without accessories         6       without accessories         1       without accessories         2       2-stage, round plug, (DN 10-32) for Sigma/ 1/2/ 3, delta®									mo/V	
N       for alpha for delta <sup>®</sup> Suction assembly selection 0       without suction assembly 1         suction assembly with 6x4 suction hose 2       suction assembly with 6x4 suction hose 3         suction assembly with 8x5 suction hose 3       suction assembly with 8x4 suction hose 4         suction assembly DN 10       suction assembly material         0       none 1       PVC         2       PP         Suction assembly float switch 1       2-stage, round plug, (6 x 4, 8 x 5, 12 x 9) for Beta <sup>®</sup> , gamma/ X, delta <sup>®</sup> 2       2-stage, round plug, (DN 10-32) for Sigma/ 1/2/3, delta <sup>®</sup> Accessories - discharge tap for tank 0       with but valve PVC, hose grommet d16 **									iiiia/ A	
P       for delta®         Suction assembly selection       0         without suction assembly with 6x4 suction hose         2       suction assembly with 6x4 suction hose         2       suction assembly with 8x5 suction hose         3       suction assembly with 12x9 suction hose         3       suction assembly by 11         5       suction assembly by 10         5       suction assembly material         0       none         1       PVC         2       PP         Suction assembly float switch       1         1       2-stage, round plug, (6 x 4, 8 x 5, 12 x 9) for Beta®, gamma/ X, delta®         Accessories - discharge tap for tank       0         0       without accessories         1       2-stage, round plug, (DN 10-32) for Sigma/ 1/2/3, delta®         Accessories - discharge tap for tank       0         0       without accessories         1       without accessories							U U			
Suction assembly selection         0       without suction assembly         1       suction assembly with 6x4 suction hose         2       suction assembly with 8x5 suction hose         3       suction assembly With 12x9 suction hose         4       suction assembly DN 10         5       suction assembly material         0       none         1       PVC         2       PP         Suction assembly float switch         1       2-stage, round plug, (6 x 4, 8 x 5, 12 x 9) for Beta®, gamma/ X, delta®         2       2-stage, round plug, (DN 10-32) for Sigma/ 1/2/ 3, delta®         Accessories - discharge tap for tank       0         0       with ball valve PVC, hose grommet d16 **										
0       without suction assembly         1       suction assembly with 6x4 suction hose         2       suction assembly with 8x5 suction hose         3       suction assembly with 12x9 suction hose         4       suction assembly DN 10         5       suction assembly material         0       none         1       PVC         2       PP         Suction assembly float switch         0       without float switch         1       2-stage, round plug, (6 x 4, 8 x 5, 12 x 9) for Beta®, gamma/ X, delta®         2       2-stage, round plug, (0N 10-32) for Sigma/ 1/2/ 3, delta®         Accessories - discharge tap for tank       0         0       with ball valve PVC, hose grommet d16 **						Г				1
1       suction assembly with 6x4 suction hose         2       suction assembly with 8x5 suction hose         3       suction assembly With 12x9 suction hose         4       suction assembly DN 10         5       suction assembly material         0       none         1       PVC         2       PP         Suction assembly float switch         1       2-stage, round plug, (6 x 4, 8 x 5, 12 x 9) for Beta®, gamma/ X, delta®         2       2-stage, round plug, (DN 10-32) for Sigma/ 1/2/ 3, delta®         Accessories - discharge tap for tank       0         0       with ball valve PVC, hose grommet d16 **										
2       suction assembly with 8x5 suction hose         3       suction assembly by 12x9 suction hose         4       suction assembly DN 10         5       suction assembly material         0       none         1       PVC         2       PP         Suction assembly float switch         1       2-stage, round plug, (6 x 4, 8 x 5, 12 x 9) for Beta®, gamma/ X, delta®         2       2-stage, round plug, (0 x 10-32) for Sigma/ 1/2/ 3, delta®         Accessories - discharge tap for tank         0       with ball valve PVC, hose grommet d16 **										
3       suction assembly with 12x9 suction hose         4       suction assembly DN 10         5       suction assembly material         0       none         1       PVC         2       PP         Suction assembly float switch         1       2-stage, round plug, (6 x 4, 8 x 5, 12 x 9) for Beta®, gamma/ X, delta®         2       2-stage, round plug, (0N 10-32) for Sigma/ 1/2/ 3, delta®         Accessories - discharge tap for tank       0         0       with ball valve PVC, hose grommet d16 **										
4       suction assembly DN 10         5       suction assembly DN 15         Suction assembly material         0       none         1       PVC         2       PP         Suction assembly float switch         0       without float switch         1       2-stage, round plug, (6x 4, 8x 5, 12 x 9) for Beta®, gamma/ X, delta®         2       2-stage, round plug, (DN 10-32) for Sigma/ 1/2/ 3, delta®         Accessories - discharge tap for tank       0         0       without accessories         1       with ball valve PVC, hose grommet d16 **										
5       suction assembly DN 15         Suction assembly material       0         0       none         1       PVC         2       PP         Suction assembly float switch       0         0       without float switch         1       2-stage, round plug, (6 x 4, 8 x 5, 12 x 9) for Beta®, gamma/ X, delta®         2       2-stage, round plug, (DN 10-32) for Sigma/ 1/2/ 3, delta®         Accessories - discharge tap for tank       0         0       with ball valve PVC, hose grommet d16 **										
Suction assembly material         0       none         1       PVC         2       PP         Suction assembly float switch         0       without float switch         1       2-stage, round plug, (6 x 4, 8 x 5,12 x 9) for Beta®, gamma/ X, delta®         2       2-stage, round plug, (DN 10-32) for Sigma/ 1/ 2/ 3, delta®         Accessories - discharge tap for tank       0         0       with out accessories         1       with ball valve PVC, hose grommet d16 **										
0       none         1       PVC         2       PP         Suction assembly float switch         0       without float switch         1       2-stage, round plug, (6 x 4, 8 x 5, 12 x 9) for Beta®, gamma/ X, delta®         2       2-stage, round plug, (DN 10-32) for Sigma/ 1/ 2/ 3, delta®         Accessories - discharge tap for tank       0         0       without accessories         1       with ball valve PVC, hose grommet d16 **							5			
1       PVC         2       PP         Suction assembly float switch         0       without float switch         1       2-stage, round plug, (6 x 4, 8 x 5, 12 x 9) for Beta®, gamma/ X, delta®         2       2-stage, round plug, (DN 10-32) for Sigma/ 1/2/ 3, delta®         Accessories - discharge tap for tank       0         0       with ball valve PVC, hose grommet d16 **										moly material
2       PP         Suction assembly float switch       0         0       without float switch         1       2-stage, round plug, (6 x 4, 8 x 5, 12 x 9) for Beta®, gamma/ X, delta®         2       2-stage, round plug, (DN 10-32) for Sigma/ 1/2/ 3, delta®         Accessories - discharge tap for tank       0         0       without accessories         1       with ball valve PVC, hose grommet d16 **										
Suction assembly float switch         0       without float switch         1       2-stage, round plug, (6 x 4, 8 x 5, 12 x 9) for Beta®, gamma/ X, delta®         2       2-stage, round plug, (DN 10-32) for Sigma/ 1/ 2/ 3, delta®         Accessories - discharge tap for tank       0         0       without accessories         1       without accessories         1       without accessories         1       with ball valve PVC, hose grommet d16 **										
0       without float switch         1       2-stage, round plug, (6 x 4, 8 x 5,12 x 9) for Beta®, gamma/ X, delta®         2       2-stage, round plug, (DN 10-32) for Sigma/ 1/ 2/ 3, delta®         Accessories - discharge tap for tank       0         0       without accessories         1       without accessories         1       without accessories								2		an an ann bha dha an tha b
1       2-stage, round plug, (6 x 4, 8 x 5,12 x 9) for Beta®, gamma/ X, delta®         2       2-stage, round plug, (DN 10-32) for Sigma/ 1/ 2/ 3, delta®         Accessories - discharge tap for tank       0         0       without accessories         1       with ball valve PVC, hose grommet d16 **										
2 2-stage, round plug, (DN 10-32) for Sigma/ 1/ 2/ 3, delta® Accessories - discharge tap for tank 0 without accessories 1 with ball valve PVC, hose grommet d16 **									-	
Accessories - discharge tap for tank       0       without accessories         1       with ball valve PVC, hose grommet d16 **										
0 without accessories 1 with ball valve PVC, hose grommet d16 **									2	
1 with ball valve PVC, hose grommet d16 **										
2 With Dail valve PP, hose groninet d20										
Calibration assembly										
0 none										
Info - pump*				1	1	1				
e.g. GMXa 0414 PVT 20000UA										e.g. GNIXa 0414 PV1 200000A

Please enter the Identity code of the selected pump

\*\* Ball valve can only be selected if the metering station is ordered without drip pan.

\*\*\* Metering gauge can only be selected if the metering station is ordered without drip pan and without suction fitting.

**ProMinent**<sup>®</sup>

**Metering Systems** 





3.1.5

# Identity Code Ordering System, 140 litres

## Metering system with storage tank, 140 litres

PE tank	(								
0140N					l colour				
0140S			-						
0140B	140 I P	E meter	ing tanl	k, blue					
0140G			0						
0140R	140 I P	E meter	ing tanl	k, red					
		ting pa							
	0			ing pan					
	1				utral col				
	2			pan, co	loured (1	the sam	e colour	as the ta	ank)
		Versio							
		0		roMinen	•				
					screw	top			
			1	with lo					
					mixer, s	stirrer			
				0	none	Dhand	mixer		
				A D		P hand r P hand s			
				K				8 kW al	ectric stirrer
				S	-		8 kW ele		
				0			np mou		
					0		it pump	ang	
					A		ta <sup>®</sup> , gam	ma/ X	
					D	for alp	-		
					Н	for Sig			
					P	for del			
						Suctio	on asse	nbly se	lection
						0			assembly
						1	suction	assem	bly with 6x4 suction hose
						2			bly with 8x5 suction hose
						3			bly with 12x9 suction hose
					1	4			bly DN 10
					1	5			bly DN 15
					1	1			nbly material
					1	1	0	none	
					1	1	1	PVC	
							2	PP	
									n assembly float switch
								0 1	without float switch 2-stage, round plug, (6 x 4, 8 x 5,12 x 9) for Beta <sup>®</sup> , gamma/ X, delta <sup>®</sup>
								2	2-stage, round plug, (6 x 4, 8 x 5, 12 x 9) for Beta <sup>®</sup> , gamma/ X, delta <sup>®</sup> 2-stage, round plug, (DN 10-32) for Sigma/ 1/ 2/ 3, delta <sup>®</sup>
								۲	
					1	1			Accessories - discharge tap for tank 0 without accessories
					1	1			1 with ball valve PVC, hose grommet d16 **
									2 with ball valve PP, hose grommet d20 **
					1	1			Calibration assembly
					1	1			0 none
									Info - pump*
									e.g. GMXa 0414 PVT 20000UA
									0.g. Gin/a 04141 VI 200000A

\* Please enter the Identity code of the selected pump

- \*\* Ball valve can only be selected if the metering station is ordered without drip pan.
- \*\*\* Metering gauge can only be selected if the metering station is ordered without drip pan and without suction fitting.

3.1.6

# Identity Code Ordering System, 250 litres

## Metering system with storage tank, 250 litres

DSBa	PE tan	k								
a			E meter	ing tank	, neutra	al colour				
			E meter							
			E meter	0						
			E meter	0		/				
			E meter	0						
			ting par	•						
		0		t collect	ing pan					
		1	with co	ollecting	pan, n	eutral co	lour			
		2	with co	ollecting	pan, co	oloured (	the sam	e colour	as the t	ank)
			Versio		, <b>,</b> ,					,
			0	with Pr	roMiner	nt® Logo				
				Lock f	or tank	screw	top			
				1	with lo					
					Hand	mixer, s	stirrer			
					0	none				
					А	with PI	P hand r	nixer		
					E	with Pl	P hand s	tirrer		
					L	with st	ainless s	steel 0.1	8 kW ele	ectric stirrer
					т	with el	ectric sti	rrer PVE	OF 0.18	κW
					1		ing pum		nting	
					1	0	withou			
						А		a®, gam		
						В		ma/ 2/ 3		
						С	for Sig			
						N	for alph			
						Р	for delt			
							Suctio 0	n assei		assembly
							1			bly with 6x4 suction hose
							2			by with 8x5 suction hose
							3			bly with 12x9 suction hose
							4			bly DN 10
							5			bly DN 15
							7			bly DN 25
					1		8			bly DN 32
					1					nbly material
					1			0	none	
					1			1	PVC	
					1			2	PP	
					1				Suctio	n assembly float switch
					1		1		0	without float switch
					1		1		1	2-stage, round plug, (6 x 4, 8 x 5,12 x 9) for $Beta^{(0)}$ , gamma/ X, delta <sup>(0)</sup>
					1				2	2-stage, round plug, (DN 10-32) for Sigma/ 1/ 2/ 3, delta®
					1		1			Accessories - discharge tap for tank
					1					0 without accessories
					1		1			1 with ball valve PVC, hose grommet d16 **
					1		1			2 with ball valve PP, hose grommet d20 **
					1		1			Calibration assembly
					1					0 none
					1		1			Info - pump*
										e.g. GMXa 0414 PVT 20000UA

\* Please enter the Identity code of the selected pump

\*\*

Ball valve can only be selected if the metering station is ordered without drip pan.

\*\*\* Metering gauge can only be selected if the metering station is ordered without drip pan and without suction fitting.

**ProMinent**<sup>®</sup>





3.1.7

# Identity Code Ordering System, 500 litres

## Metering system with storage tank, 500 litres

DSBa PE tar	ık												
		PE meterir	ng tank	, neutra	l colour								
		PE meterir											
		PE meterir	0										
		PE meterir	0										
		PE meterir	0										
000011		cting pan	•	, 100									
	0	without of		ina nan									
	1	with coll		0.	utral col	our							
	2	with coll		•				as tha t	ank)				
	2	Version		pan, co	ioureu (i	ine same	coloui	as ine ia	ankj				
				oMinen	non I ®t								
					screw	ton							
			1	with lo		lob							
					mixer, s	tirror							
				0	none	surrer							
				Ă		P hand r	niver						
				F		P hand s							
				M		ainless		5 kW ele	ectric sti	rrer			
				U		/DF 0.2							
				-		ng pum							
					0		t pump	iiiig					
					A		a®, gam	ma/ X					
					С		ma/ 1, d						
					D	for alpl							
					J	for Sig	ma/ 2/ 3						
					Р	for delt	a®						
						Suctio	n assei	nblv se	lection				
						0			asseml	oly			
						1	suction	assem	oly with	6x4 suc	tion hos	se	
						2	suction	assem	oly with	8x5 suc	tion hos	se	
						3	suction	assem	oly with	12x9 su	ction ho	ose	
						4	suction	auction assembly DN 10 auction assembly DN 15 auction assembly DN 25 auction assembly DN 32					
						5	suction						
						7	suction						
						8	suction						
				1		1			nbly ma	aterial			
				1	1		0	none					
				1		1	1	PVC					
				1	1		2	PP					
				1		1					at swit	ch	
				1	1			0		float sw			
				1		1		1				5 x 4, 8 x 5,12 x 9) for Beta <sup>®</sup> , gamma/ X, delta <sup>®</sup>	
				1		1		2	•			DN 10-32) for Sigma/ 1/ 2/ 3, delta®	
				1		1						arge tap for tank	
				1	1				0		t access		
				1		1			1			PVC, hose grommet d16 **	
				1		1			2			PP, hose grommet d20 **	
				1		1						ssembly	
				1	1					0	none		
				1		1					Info - p	pump*	
												e.g. GMXa 0414 PVT 20000UA	

\* Please enter the Identity code of the selected pump

\*\*

- Ball valve can only be selected if the metering station is ordered without drip pan.
- \*\*\* Metering gauge can only be selected if the metering station is ordered without drip pan and without suction fitting.

3.1.8

# Identity Code Ordering System, 1000 litres

## Metering system with storage tank, 1000 litres

JSBa	PE tan	k								
			PE mete	ering tar	nk, neutr	al colou	ır			
	1000S	1000 I	PE mete	ering tar	nk, black	(				
	1000B	1000 I	PE mete	ering tar	nk, blue					
					nk, yello	w				
			PE mete							
			cting pa	-	,					
		0			ting pan					
		1			pan, ne	utral col	lour			
		2			pan, bla					
		-	Versio		, pan, bie					
			0		roMinen	t® Loao				
			-		for tank					
				1	with lo		ιοp			
						mixer, s	etirror			
					0	none	Suitei			
					Ğ		and mixe	or PP		
					N				75 kW ele	ectric stirrer
					Ŵ	-			ectric stir	
							ing pun			
						0		t pump		
						А		ta <sup>®</sup> , gan	nma/ X	
						В		ma/ 2/ 3		
						С	for Sig	ma/ 1		
						D	for alp	ha		
						Р	for del	ta®		
							Suctio	on asse	mbly se	lection
							0	withou	t suction	assembly
							1	suctio	n asseml	bly with 6x4 suction hose
							2			bly with 8x5 suction hose
							3			bly with 12x9 suction hose
							4			bly DN 10
							5			bly DN 15
							7			bly DN 25
							8			bly DN 32
										mbly material
								0	none	
								1	PVC	
								2	PP	
										n assembly float switch
									0 1	without float switch 2-stage, round plug, (6x4, 8x5, 12x9) for Beta <sup>®</sup> , gamma/ X, delta <sup>®</sup>
									2	2-stage, round plug, (0x4, 0x3, 12x9) for Beta <sup>o</sup> , gamma/ X, deita <sup>o</sup> 2-stage, round plug, (DN 10-32) for Sigma/ 1/ 2/ 3, delta <sup>®</sup>
									2	
										Accessories - discharge tap for tank 0 without accessories
										1 with ball valve PVC, hose grommet d16 **
						1			1	2 with ball valve PV 6, hose grommet d20 **
										Calibration assembly
										0 none
						1			1	
										Info - pump* e.g. GMXa 0414 PVT 20000UA
										C.y. CIVIA 04141 V1 200000A

- \* Please enter the Identity code of the selected pump
- \*\* Ball valve can only be selected if the metering station is ordered without drip pan.
- \*\*\* Metering gauge can only be selected if the metering station is ordered without drip pan and without suction fitting.





3.2.1

# Metering System DULCODOS® universal

#### Liquid chemicals are metered conveniently, cost-effectively and reliably

Pump volume depending on the selected pump 1 ml/h-75 l/h, back pressure 10-2 bar

The metering system DULCODOS® universal combines carefully selected standard components with the solenoid driven metering pump you have selected. This is your convenient method for the reliable metering of liquid chemicals - and is available cost-effectively and extremely quickly thanks to the preconfigured modules.

Metering is dependent on the metering pump. Components, such as pipes, relief valves and electrics indispensable, but scarcely variable - ensure the reliable operation of the system. That is why we have preconfigured the new metering system DULCODOS® universal with these standards. The benefits for you: low costs, fast delivery, simple commissioning.

Naturally you have a choice here as well: Should it be the solenoid driven metering pump Beta® 4 or 5, delta® or gamma/ X? Should the pipes and seals be made of PP/FKM or PVC/EPDM? And do you need one or two points of injection with one or two pumps?

The novel valve block gives every metering system a clearly arranged structure. Every system is equipped with two relief valves, a collecting pan with leakage sensor and a calibration tank for controlled metering for complete operational safety.

#### Your benefits

- Reliable and precise metering of liquid chemicals with proven solenoid driven metering pumps
- Safe operation thanks to relief valves and collecting pan
- Stable installation frame rotationally sintered from a single piece
- Systems with 1 or 2 pumps and 1 or 2 points of injection
- Calibration unit with priming function for controlled metering
- Optional: Pulsation dampener, spray guard

#### **Technical details**

- ProMinent solenoid driven metering pumps Beta® 4/5, delta® or gamma/ X
- Dimensions: 1,700 x 1,200 x 635 mm (H x W x D)
- Material combinations: PP/FKM or PVC/EPDM (note compatibility with the feed chemical)
- Relief valves to protect the pipework
- Manometer
- Collecting pan with leakage sensor
- Flushing connectors
- Terminal box with master switch
- Assembly frame available in 6 standard colours

#### Field of application

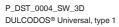
Metering of liquid chemicals, e.g.

- cooling water treatment
- Waste water and process water treatment
- Paper industry

#### Type selection

	Metering pumps	Points of injection	Material combinations	Hose materials
Type 1	1	1	PVC/EPMD or PP/FPM	PVC, PE, PVDF
Type 2	2	1	PVC/EPMD or PP/FPM	PVC, PE, PVDF
Туре З	2	2	PVC/EPMD or PP/FPM	PVC, PE, PVDF









P DST 0005 SW 3D DULCODOS® Universal, type 3

P DST 0006 SW 3D DULCODOS® Universal, type 2

# 3.3 Metering System DULCODOS® panel

3

# 3.3.1

## Metering System DULCODOS<sup>®</sup> panel

# A large number of metering tasks are similar or are repeated. We offer a complete ready mounted solution.



Metering systems are immediately available and ready for use for the most important applications. Sensors, controller and metering pumps form a single unit with the required storage tanks, which can take over your work without any installation effort.

Two hydraulic connection points guarantee simple installation of the metering system. The ready mounted systems consist of components that have been perfectly matched to each other to ensure problem-free operation. You obtain a complete system. Individually configure your metering systems at the time of ordering. A simple selection system makes ordering easy and guarantees maximum efficiency even at the time of ordering.

#### Your benefits

- DULCODOS<sup>®</sup> panel plate-mounted metering systems Ready assembled on a mounting plate, with pipework fitted and complete with all hydraulic and electrical accessories
- Compact construction
- Fast project planning
- Flexible thanks to modular construction
- Proven many times over

#### **Field of application**

- Metering of biocides and inhibitors in cooling water
- Metering of lyes and acids for pH regulation
- Metering of coagulants (iron-III-chloride) for waste water treatment
- Metering of detergents (CIP (cleaning in place) systems and bottle washing machines)

Panel-mounted metering systems can be selected and ordered with the help of an identity code system.

First of all, select and order the metering and standby pump using the separate pump identity code.

#### The following options can be selected:

- 1. Assembly frame with pipework for installation of a metering pump
  - Extension for installation of a standby pump (same type as the metering pump)
- 3. Pipework material
- 4. Seal material

2.

- 5. Vacuum cylinder
- 6. Vacuum pump
- 7. Pulsation damper
- 8. Manometer
- 9. Overflow device
- 10. Terminal box
- 11. Leakage sensor
- 12. Connections for the suction and discharge side

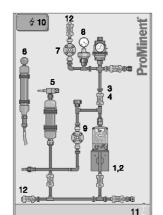
pk\_7\_061 Metering system with stand-by pump

pk\_7\_070

#### **Technical Data**

Туре		B410	B510	GX10	S110	S115	S215	S220	S325	S332
Nominal width of pipework		DN 10	DN 10	DN 10	DN 10	DN 15	DN 15	DN 20	DN 25	DN 32
Nominal width of flushing connector		DN 10	DN 15	DN 20	DN 25					
Connector return line		DN 10	DN 15	DN 20	DN 25					
Dimensions H x W x D	mm	1,200 x 800 x 300	1,200 x 800 x 300	1,200 x 800 x 300	1,400 x 900 x 450	1,400 x 900 x 450	1,400 x 900 x 450	1,400 x 900 x 450	1,600 x 900 x 500	1,600 x 900 x 500
Dimensions H x W x D with 2 pumps	mm	1,400 x 1,000 x 300	1,400 x 1,000 x 300	1,400 x 1,000 x 300	1,600 x 1,200 x 450	1,600 x 1,200 x 450	1,600 x 1,200 x 450	1,600 x 1,200 x 450	1,600 x 1,200 x 500	1,600 x 1,200 x 500
Max. capacity	l/h	19	32	32	65	120	130	350	324	1,000
Max. operating pressure (25 °C)	bar	10	10	10	10	10	10	10	10	8*/10
Max. operating pressure (40 °C)	bar	6	6	6	6	6	6	6	6	6

\* with pulsation damper option



Metering system with simple pump





# 3.3 Metering System DULCODOS® panel

3.3.2

## Identity Code Ordering System, Beta® and gamma/ X, DN 10

#### Panel-mounted metering systems for Beta® and gamma/ X, DN 10

DSWa Mounting frame with pipework for installation of one metering pump (order metering pump separately) For Beta<sup>®</sup>, DN 10 (BT4b 1000 - 0220: 0.74 - 19 l/h) For Beta<sup>®</sup>, DN 10 (BT5b 1605 - 0232: 4.1 - 32 l/h) B410 B510 GL10 for gamma/ X, DN 10 (GMXa 1602 - 0245: 2.3 - 45 l/h) Extension for installation of a standby pump (order standby pump separately) none with extension for standby pump (same type as metering pump) 1 Pipe material PC PVC PP PP Seal aterial F FPDM A FKM Vacuum cylinder 0 none 1 with vacuum cylinder Vacuum pump 0 none 1 with vacuum pump Pulsation damper none with pulsation damper (incl. back pressure valve) 1 Pressure gauge none with pressure gauge and diaphragm seal unit Relief valve assembly with multifunctional valve (for 1 pump of type: 1602 - 0220) with multifunctional valve (for 1 pump of type: 1009 - 0245) 1 2 with back pressure valve (for 1 pump) 3 with multifunctional valve (for 2 pumps of type: 1602 - 0220) 4 with multifunctional valve (for 2 pumps of type: 1009 - 0245) 5 with back pressure valves (for 2 pumps) **Terminal box** 0 without terminal box 1 with terminal box for 1 pump 2 with terminal box for 2 pumps 3 with terminal box + master switch for 1 pump 4 with terminal box + 2 master switches for 2 pumps Leakage sensor in drip tray without leakage sensor with leakage sensor Suction/discharge side connection parts with solvent/fusion weld sockets with 6x4 hose barb 1 with 8x5 hose barb 2 3 with 12x6 hose barb 4 with 12x9 hose barb 5 with DN 10 hose barb Info - pump e.g. GMXa 0414 PVT 20000UA

# 3.3 Metering System DULCODOS<sup>®</sup> panel

3

# 3.3.3

# Identity Code Ordering System for Sigma/ 1, DN 10

#### Panel-mounted metering systems for Sigma/ 1, DN 10

#### DSWa Mounting frame with pipework for installation of one metering pump (order metering pump separately) Sigma/ 1, DN 10 (S1Cb/S1Ba 12017 - 07065: 20 - 65 l/h) S110 Extension for installation of a standby pump (order standby pump separately) 0 none 2 with extension for standby pump (same type as metering pump) **Pipe material** PĊ PVC PP PP Seal material EPDM E FKM Α Vacuum cylinder 0 none 2 with vacuum cylinder Vacuum pump none with vacuum pump **Pulsation damper** none 2 with pulsation damper (incl. back pressure valve) Pressure gauge 0 none with pressure gauge and diaphragm seal unit 1 Relief valve assembly with relief valve assembly Terminal box without terminal box 0 with terminal box for 1 pump 1 2 with terminal box for 2 pumps 3 with terminal box + master switch for 1 pump 4 with terminal box + 2 master switches for 2 pumps Leakage sensor in drip tray 0 without leakage sensor with leakage sensor 1 Suction/discharge side connection parts 0 with straight solvent/fusion sockets 6 with DN 10 hose connector Info - pump\* e.g.: S1Ba H12017 PVT0110M000



# 3.3 Metering System DULCODOS® panel

3.3.4

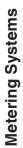
## Identity Code Ordering System for Sigma/ 1, DN 15

#### Panel-mounted metering systems for Sigma/ 1, DN 15

#### DSWa Mounting frame with pipework for installation of one metering pump (order metering pump separately)



\* Please enter the Identity code for your chosen pump



# 3.3 Metering System DULCODOS<sup>®</sup> panel

3

# 3.3.5

## Identity Code Ordering System for Sigma/ 2, DN 15

#### Panel-mounted metering systems for Sigma/ 2, DN 15

#### DSWa Mounting frame with pipework for installation of one metering pump (order metering pump separately) Sigma/ 2, DN 15 (S2Cb/S2Ba 16050 - 16130: 60 - 130 l/h) S215 Extension for installation of a standby pump (order standby pump separately) none with extension for standby pump (same type as metering pump) 4 **Pipe material** PĊ PVC PP PP Seal material EPDM E FKM Α Vacuum cylinder 0 none 4 with vacuum cylinder Vacuum pump none with vacuum pump **Pulsation damper** none with pulsation damper (incl. back pressure valve) 4 Pressure gauge 0 none with pressure gauge and diaphragm seal unit 1 Relief valve assembly with relief valve assembly Terminal box without terminal box 0 with terminal box for 1 pump 1 2 with terminal box for 2 pumps 3 with terminal box + master switch for 1 pump 4 with terminal box + 2 master switches for 2 pumps Leakage sensor in drip tray 0 without leakage sensor with leakage sensor 1 Suction/discharge side connection parts 0 with straight solvent/fusion sockets 8 with DN 15 hose connector Info - pump\* e.g.: S2Ba HM16050 PVT0110M000



3

# 3.3 Metering System DULCODOS® panel

3.3.6

#### Identity Code Ordering System for Sigma/ 2, DN 20

#### Panel-mounted metering systems for Sigma/ 2, DN 20

#### DSWa Mounting frame with pipework for installation of one metering pump (order metering pump separately)



# 3.3 Metering System DULCODOS<sup>®</sup> panel

# 3.3.7

## Identity Code Ordering System for Sigma/ 3, DN 25

#### Panel-mounted metering systems for Sigma/ 3, DN 25

#### DSWa Mounting frame with pipework for installation of one metering pump (order metering pump separately) Sigma/ 3, DN 25 (S3Cb 120145 - 120330: 174 - 324 l/h) S325 Extension for installation of a standby pump (order standby pump separately) none 6 with extension for standby pump (same type as metering pump) **Pipe material** PĊ PVC PP PP Seal material EPDM E FKM Α Vacuum cylinder 0 none 6 with vacuum cylinder Vacuum pump none with vacuum pump **Pulsation damper** none with pulsation damper (incl. back pressure valve) 6 Pressure gauge 0 none with pressure gauge and diaphragm seal unit 1 Relief valve assembly with relief valve assembly Terminal box without terminal box 0 with terminal box for 1 pump 1 2 with terminal box for 2 pumps 3 with terminal box + master switch for 1 pump 4 with terminal box + 2 master switches for 2 pumps Leakage sensor in drip tray 0 without leakage sensor with leakage sensor 1 Suction/discharge side connection parts 0 with straight solvent/fusion sockets A with DN 25 hose connector Info - pump\* e.g.: S3Ba H120145 PVT0110M000



3

# 3.3 Metering System DULCODOS® panel

3.3.8

# Identity Code Ordering System for Sigma/ 3, DN 32

## Panel-mounted metering systems for Sigma/ 3, DN 32

#### DSWa Mounting frame with pipework for installation of one metering pump (order metering pump separately)

	S332	Sigma/	3, DN 3	32 (S3C	b 07041	0 - 0410	30: 492	- 1000	l/h)				
		Extens	nsion for installation of a standby pump (order standby pump separately)										
		0	none										
		7	with extension for standby pump (same type as metering pump)										
			Pipe n PC	naterial									
				PVC									
			PP PP										
				Seal n	naterial								
				E	EPDM								
				A	FKM								
					Vacuu	m cylin	der						
					0	none							
					7	with va	cuum cy	/linder					
						Vacuu	m pum	p					
						0	none						
						1	with va	cuum p	ump				
								Isation damper					
							0	none					
							7				(incl. ba	ck press	sure valve)
									ure gau	ge			
								0	none				
								1					nragm seal unit
											ssembl		h.h.
									6		ief valve	assem	bly
										0	nal box without	torming	al box
										1			ox for 1 pump
										2			ox for 2 pumps
										3			ox + master switch for 1 pump
										4			ox + 2 master switches for 2 pumps
										-			sor in drip tray
											0		t leakage sensor
											1		akage sensor
													n/discharge side connection parts
												0	with straight solvent/fusion sockets
					1							В	with DN 32 hose connector
					1								Info - pump*
					1								e.g.: S3Ba H070410 PVT0110M000

# 3.4 DULCODOS<sup>®</sup> Hydrazin Metering Systems

## 3.4.1

# Metering System DULCODOS® Hydrazin

Corrosion is the last thing you need with the majority of applications. That is why Hydrazin protects.

#### Chemical tank ranging from 140 to 250 litres



DULCODOS® Hydrazin batching and metering systems are used for manual batching and automatic metering of diluted hydrazine solutions. And, of course, they also comply with all environmental and safety requirements.

Hydrazine acts as an oxygen binding agent, is volatile in steam and prevents corrosion. As it is carcinogenic, the dispensing and metering systems need to be gas-tight so that no hydrazine vapours can escape. Our systems comply with these requirements.

#### Your benefits

- Gas-tight design
- Precise metering
- 11 Protects the environment

#### **Field of application**

- Steam circuits
- Power plants

Hydrazine is used as an oxygen binding agent in the process water sector, predominantly with steam generation. It is a carcinogenic agent and special care is therefore needed when handling it.

It therefore has to be ensured that the activation threshold for hydrazine is not exceeded with correct and proper use of closed and gas-tight systems.

#### Desian

Ready-to-use assembled metering system sesentially consisting of:

- Gas-tight chemical tank made of PE with a litre scale, with lockable screw lid and manual stirrer
- Each with a dispensing and metering pump with suction assembly, level switch, as well as complete rigid PVC pipework with two ball valves, the measuring tank and activated charcoal filter

#### Accessories

5 m metering line 8/12 mm Ø and stainless steel metering valve 8 mm Ø/1/2"

Electrical connection 230 V ±10%, 50...60 Hz

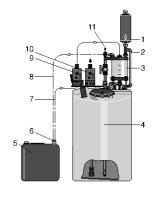
The metering system is supplied with a hose connection, which fits on a conventional drain system. This drain system is produced by MicroMatic, Gräfelfing/Munich.

#### Hydrazine Dispensing and Metering System, Completely Ready Mounted

Metering Tank Contents	Metering pump Capacity	01 1	Transfer Pump Discharge Flow	Order no.
130 I	7.1 l/h	7.0 bar	17 l/h	913018
250 I	11.0 l/h	7.0 bar	32 l/h	913019

#### Accessories

	Order no.
Sampling set, stainless steel	1003964



- pk 7 078
- Activated charcoal filter

Bleed/vent line 3 Apportioning unit

- Metering tank
- Hydrazin 15 returnable canister Quick release coupling 5
- Metering line Gas shuttle line
- Refilling pump Metering pump 10
- 11 Fill water

1.1.2016



# DULCODOS<sup>®</sup> PPLA Liquid Enzyme Metering 3.5 **Systems**

3.5.1

## Metering System DULCODOS<sup>®</sup> PPLA

#### For the animal feed industry: Ensuring pet food is further enriched with essential nutrients.

DULCODOS® PPLA systems "enhance" animal feeds: Liquid additives are coated on the pressed feed pellets. The systems operate on a modular principle: extensions and additions are possible at all times. And at the same time a complete solution for storage, dispensing and application of all types of additives.

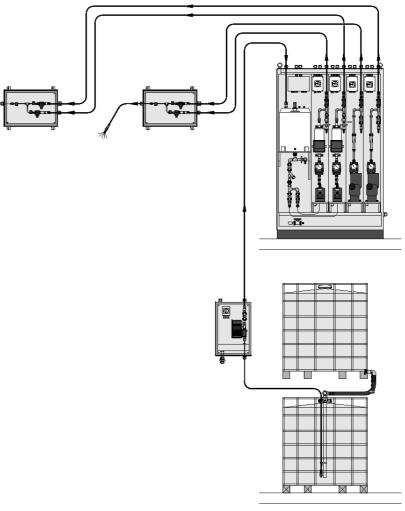
The metering of liquid products plays a decisive role in the production of animal feed. Vitamins and enzymes are probably the best known types of liquid additives. The raw materials for the feed are milled, mixed and then pressed into pellets. DULCODOS® PPLA metering stations apply liquid additives to the feed after pelleting. The liquid products are stored in a container and transported by means of a filling pump into the metering station's daily storage tanks. Water is used as a carrier substance to guarantee the necessary even distribution of additives in the feed. One pump is used for the additives, a second pump for the dilution water. The additives and the water are combined in the mixing station and thoroughly mixed by a static mixer. The diluted additives are sprayed onto the animal feed through a nozzle. Standard solutions within a range of less than 50 ppm to over 1000 ppm are possible.

#### Your benefits

- Fast project planning
- н. Precise metering

#### Field of application

- Continuous flow processes
- Batch processes



Prices and delivery time on request

3-20

# 3.6 Metering System DULCODOS® modular



# Metering System DULCODOS® modular

#### Modular and flexible for precise metering

Capacity: 40 – 1,000 l/h, other capacities on request

The ready-wired modular metering system DULCODOS® is used for the ultra-precise metering of chemicals. It has a modular design and can be flexibly integrated into the most varied applications.

The modular construction of the modular metering systems DULCODOS<sup>®</sup> enables them to be practically and flexibly coordinated with your process. The metering systems are delivered ready mounted and can be quickly and easily installed. Metering systems DULCODOS<sup>®</sup> are winning customers over with their precise output all by themselves!

#### Your benefits

- Simple and quick to install, thanks to ready-wired design
- Modular construction for flexible, practical process integration
- Minimal stock of spare parts and short delivery times due to the use of standard parts and components
- Minimal space requirements due to compact construction
- Metering is controlled by pump electronics

#### **Technical details**

**Basic version** 

- Modular configuration options
- Plastic or stainless steel brackets
- Pipework: PP, PVC or PVDF
- Motor Driven Metering Pump Sigma
- Other capacities on request
- Extensive optional accessories
- Relief valve and non-return valve
- Shut-off device with flushing connector (discharge side)
- Repair switch

#### Options for advanced version

- Pulsation damper with back pressure valve
- Manometer
- Routed pipework for suction and relief lines
- Terminal box with repair switch
- Splash guard

#### Field of application

Metering of chemicals: Cleaning agents, disinfectants, additives and auxiliary agents



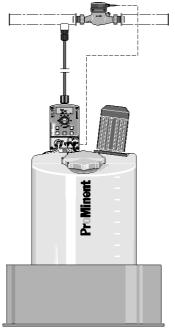


# 3.7 Application Examples

# **Proportional Metering of Phosphate**

DULCODOS® eco
Phosphate
Potable water
Potable water conditioning

The liquid phosphate is added to the potable water proportional to the volume. The flow meter sends pulses to the gamma/L pump. The metering volume is adjusted by increasing or decreasing the incoming pulses.



pk\_7\_093

#### Tasks and requirements

Metering of phosphate to potable water to prevent lime deposits and corrosion in the piping

#### **Operating conditions**

- Treatment of potable water
- Fluctuating water demand
- Water temperature between 4 30 °C

#### **Application information**

- Proportional metering of phosphate depending on the water supply
- Control of the metering pump by a contact water meter
- Measurement of the metering pump capacity during commissioning

#### Solution

- DULCODOS<sup>®</sup> eco with 140-litre metering tank and drip pan
- gamma/ L with contact input and pulse control
- Contact water meter

- Constant solution concentration even minimal fluctuating water supply
- Fully-automatic operation with minimal staff and maintenance
- Flexible process design thanks to adaptation of the pump to various concentration demands

# 3.7 Application Examples

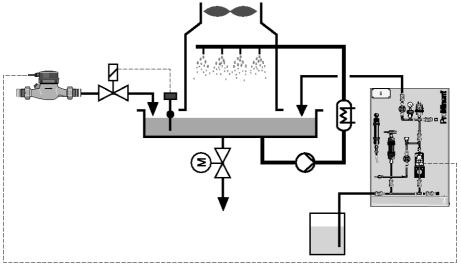
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# 3.7.2

# Inhibitor Metering in Cooling Water

Product:	DULCODOS <sup>®</sup> panel
Feed chemical:	Corrosion inhibitor
Industry:	Process industry, power stations
Application:	Cooling water conditioning

The corrosion inhibitor is added to the fresh water in proportion to the volume. The water meter detects the supply water volume and sends the pulses to the gamma/ L pump.



pk\_7\_060\_1

#### Tasks and requirements

Metering of corrosion inhibitors to supply water to prevent lime deposits and corrosion in the cooling water circuit.

#### **Operating conditions**

- Treatment of flow water
- Fluctuating water demand
- Water temperature between 4 20 °C

#### **Application information**

- Proportional metering of inhibitor depending on the water supply
- Control of the metering pump by a contact water meter
- Calibration of the metering pump capacity during commissioning

#### Solution

- DULCODOS<sup>®</sup> panel including standby pump
- gamma/ L with contact input and pulse control
- Contact water meter

- Protection against corrosion in the pipework and heat exchanger
- Constant solution concentration even with fluctuating water supply
- Fully-automatic operation with minimal staff and maintenance
- Flexible process design thanks to adaptation of the pump to various concentration demands



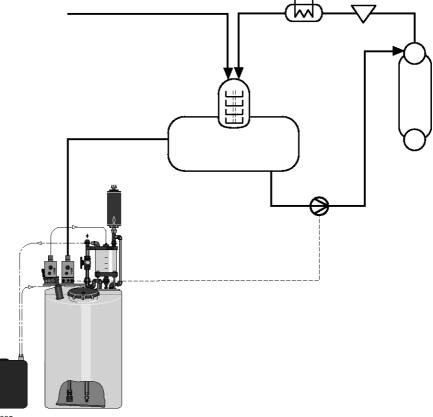
# 3.7 Application Examples

3.7.3

#### Inhibitor Metering in Boiler Feed Water

Product:	DULCODOS <sup>®</sup> Hydrazin
Feed chemical:	Oxygen binding agent
Industry:	Process industry, power stations
Application:	Boiser feed water treatment

The oxygen binding agent is added to the fresh water in proportion to the volume. The water meter detects the supply water volume and sends pulses to the gamma/ L pump on the hydrazine unit.



pk\_7\_095

#### Tasks and requirements

Metering of oxygen binding agent to the boiler feed water to prevent oxygen corrosion in the boiler area.

#### **Operating conditions**

- Fully desalinated potable water
- Continuous operation

#### **Application information**

- Proportional metering of oxygen binding agent depending on the boiler feed water
- The 15% concentrate is metered by a metering pump using a measuring unit into the metering tank and is diluted with water to produce a 1% metering solution
- Measurement of the metering pump capacity during commissioning

#### Solution

DULCODOS® Hydrazin with 250-litre metering tank

- Semi-automatic operation
- Flexible process design thanks to adaptation of the pump to various concentration demands

## 4.0 Systems for Domestic Water Installations

4.0.1

## Proportional Flow Dosing System for Liquid Dosing

#### **Promatik**®

- P\_NM\_0004\_SW1
- 1 Metering pump 2 Bleed valve
- 3 Bypass hose sleeve
- 4 Contact water meter
- 5 Wall bracket6 Injection valve
- 7 Suction lance with level switch



Metering units protect pipework, fittings, and appliances, such as boilers, washing machines and dishwashers, from corrosion and limescale. Active substances, like silicate, phosphate or silicate phosphate mixtures, can be metered here. These active substances form a protective layer in the pipework and reduce aggressiveness and sedimentation in the water.

#### Silicate

As a corrosion inhibitor to prevent rust formation: "brownish water" in galvanised piping systems, "pitting": needle-like holes in the pipework. Applications include soft, corrosive types of water with a high percentage of aggressive carbonic acid. The silicate is used to raise the pH value closer to a lime-carbonic acid equilibrium. Hydrolysis produces a silica gel that forms a thin protective layer in the pipework and fittings and thus prevents corrosion.

#### Phosphate

As ortho and polyphosphate to prevent limescale and corrosion in hard water up to max. 20 CH (carbonate hardness). Hard water salts, such as calcium and magnesium ions, responsible for limescale are thereby stabilised, i.e. these ions remain dissolved in the water and do not form limescale on the pipe walls. Growth on the pipes is thus prevented and there are no deposits of limescale on heating coils, dramatically reducing their efficiency. A thin, solid protective layer is formed. Mixtures containing silicate and phosphate act as corrosion and limescale inhibitors for soft and medium-hard water. The continuous top-up of the feed chemical is required to maintain this protective layer, otherwise it will degrade within a few days.

#### **EXACTAPHOS®**

EXACTAPHOS<sup>®</sup> metering solutions are matched to the capacity of the Promatik<sup>®</sup> and DULCODOS<sup>®</sup> units. This ensures that the percentages of max 40 mg/l SiO<sub>2</sub> of silicate and/or 6.7 mg/l of phosphate PO<sub>4</sub> (5mg/l P<sub>2</sub>O<sub>5</sub>) are adhered to, as laid down by the "Drinking Water Ordinance".

#### Function of the systems

In a flow of water, the contact water meter transmits pulses with a fixed pulse interval corresponding to the pulses to the metering pump in line with the flow. Each of these pulses results in a metering stroke of the metering pump, thereby feeding the metering solution. The metering volume per stroke can thus be adjusted continuously between 100 and 50% using the stroke adjustment dial. Because of the very low starting limit and the short pulse interval, a constant volume-proportional addition of chemicals can always be maintained, from minimum water flow rate to maximum load, guaranteeing the best process result.

#### Promatik® proportional flow dosing system

Consisting of a Beta<sup>®</sup> metering pump with sound insulation plate, contact water meter, suction assembly with foot valve and 2-phase level switch with pre-warning, acting as a low flow contact and empty signal, injection valve and metering line. In the "R" design of the compact metering unit, the metering pump is fitted on the contact water meter; with the "W" design of split system there are wall brackets for mounting the metering pump. Horizontal fitting position of the contact water meter. DVGW-tested in conjunction with the EXACTAPHOS<sup>®</sup> metering solution. DVGW No. NW-9101 CM 0179.

## 4.1 Metering System Promatik®

4.1.1

## Metering System Promatik<sup>®</sup>

#### Protects pipework, fittings, and appliances from corrosion and limescale.

#### For flows of 5 - 27 m3/h

The proportional metering system Promatik® is used in the potable water sector for the flow-dependent, adjustable metering of liquid media, like the EXACTAPHOS®. It consists of the metering pump Beta®, a contact water meter, a suction assembly with foot valve and level switch and an injection valve and metering line.

In a flow of water, the contact water meter transmits pulses with a fixed pulse interval corresponding to the pulses to the metering pump in line with the flow. Each of these pulses results in a metering stroke of the metering pump, thereby feeding the metering solution. The metering volume per stroke can thus be adjusted continuously between 100 and 50% using the stroke adjustment dial. Because of the very low starting limit and short pulse interval, a constant volume-proportional addition of chemicals can always be maintained from minimum water flow rate to maximum load, thereby guaranteeing the best process result

#### Your benefits

- DVGW-tested in conjunction with the EXACTAPHOS® metering solution. DVGW No. NW-9101 CM 0179.
- The EXACTAPHOS® metering solutions are matched to the capacity of the ProMatik® metering units.

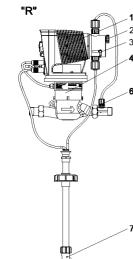
#### **Technical details**

- Consisting of a Beta® metering pump, contact water meter, suction assembly with foot valve and 2-phase level switch with pre-warning as low flow contact and empty signal, injection valve and metering line.
- In the "R" design compact metering system, the metering pump is built onto the contact water meter.
- In the "W" design split system there are wall brackets for accommodating the metering pump. Contact cable and PE metering line 2 m long. Horizontal fitting position of the contact water meter.

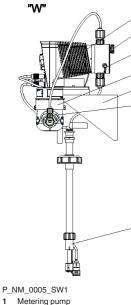
#### **Field of application**

Potable water treatment

Promatik <sup>®</sup> type		NG 5	NG 10	NG 20	NG 30
Maximum flow Q max.	m³/h	5	11	16	27
Lower working limit	m³/h	0.05	0.08	0.13	0.24
Metering interval approx.	l/stroke	0.7	1.1	1.8	2.8
Feed rate 50-100 %	ml/m <sup>3</sup>	50 – 165	50 – 165	50 – 165	50 – 165
Operating pressure	bar	1 – 10	1 – 10	1 – 10	1 – 10
Metering pump type		BT4b 1000 PPT2	BT4b 1601 PPT2	BT4b 1602 PPT2	BT4b 1604 PPT2
Meter connecting thread		G 1 B	G 1 1/4 B	G 2 B	G 2 1/2 B
Screw connector width		R 3/4	R 1	R 1 1/2	R 2
Length without thread	mm	190	260	300	270



#### P NM 0004 SW1

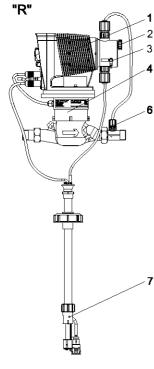


- Bleed valve Bypass hose sleeve
- Contact water meter 4
- Wall bracket
- Injection valve Suction lance with level switch

### 4.1 Metering System Promatik®

4.1.2

## Metering System Promatik®



#### Sł nipp kg NG 5 R compact metering system 1036414 6 NG 5 W split metering system 6 1036415 NG 10 R compact metering system 7 1036416 NG 10 W split metering system 7 1036417 NG 20 R compact metering system 9 1036418 NG 20 W split metering system 1036419 9 NG 30 R compact metering system 1038104 11 NG 30 W split metering system 1038105 11

## **Materials**

Dosing head/valves: Polypropylene (PP) Metering diaphragm EPDM with PTFE insert Seals: EPDM

Valve balls: ceramic

Float switches: PP

Suction assembly: flexible PVC

Discharge tube: PE

P\_NM\_0004\_SW1

- Metering pump Bleed valve 1
- 2 3 Bleed valve Bypass hose sleeve Contact water meter Wall bracket Injection valve

5

67 Suction lance with level switch **ProMinent**<sup>®</sup>

4

hipping	weight approx.	Order no.

Product Catalogue 2016



## 4.2 Chemicals for Water Treatment

4.2.1

## Chemicals

## **EXACTAPHOS® SP 210**

Silicate phosphate liquid metering solution. Drinking water treatment for soft water. Promatik $^{\tiny (\!\!\!\!\!\!\!\!\!\!\!\!)}$  compact metering system.

	Volume	Order no.
	I.	
EXACTAPHOS <sup>®</sup> SP 210	20	950097
EXACTAPHOS® SP 210	200	950043

## **EXACTAPHOS® P 612**

Phosphate liquid metering solution. Drinking water treatment for medium hard water. Promatik® compact metering system.

	Volume	Order no.
	I	
EXACTAPHOS <sup>®</sup> P 612	20	950098
EXACTAPHOS <sup>®</sup> P 612	200	950048

### EXACTAPHOS® P 1020

Phosphate liquid metering solution. Drinking water treatment for hard water. Promatik<sup>®</sup> compact metering system.

	Volume	Order no.	
	I		
EXACTAPHOS <sup>®</sup> P 1020	20	950099	
EXACTAPHOS <sup>®</sup> P 1020	200	950053	

## Resistance of Materials Used in Liquid Ends to the Chemicals Most Frequently Used

The data apply to standard conditions (20 °C, 1,013 mbar).

S	=	saturated solution in water
+	=	resistant
+/o	=	largely resistant
0	=	conditionally resistant
-	=	not resistant
n	=	resistance not known
=>	=	see
*	=	For bonded connections, the resistance of the adhesive (e.g. Tangit) is to be considered. (Materials of the types 'o' and '-' are not recommended !)
**	=	does not apply to glass fibre reinforced material

Concentration data are stated in weight percent, referred to aqueous solutions. If percentages are stated for the level of resistance, this level of resistance is only valid up to this concentration.

#### NOTE:

The elastomers **CSM (Hypalon®)** and **IIR (butyl rubber)** used as diaphragm materials in pulsation dampers have properties similar to **EPDM**.

PTFE is resistant to all chemicals in this list.

**PTFE filled with carbon**, however, is attacked by strong oxidants such as bromine (anhydrous) or concentrated acids (phosphoric acid, sulphuric acid, chromic acid).

The resistance of PVC-U adhesive joints with Tangit deviates from the list below with regard to the following chemicals:

Medium	Concentration range
Sulfochromic acid	≥ 70 % H <sub>2</sub> SO <sub>4</sub> + 5 % K <sub>2</sub> Cr <sub>2</sub> O <sub>7</sub> /Na <sub>2</sub> Cr <sub>2</sub> O <sub>7</sub>
Chromic acid	≥ 10 % CrO <sub>3</sub>
Hydrochloric acid	≥ 25 % HCI
Hydrogen peroxide	$\geq$ 5 % H <sub>2</sub> O <sub>2</sub>
Hydrofluoric acid	≥ 0 % HF

#### Explanation of abbreviations used as column headings:

PMMA:	Polymethylmethacrylate (Acrylic) resistance					
PVC:	Polyvinylchloride, rigid, (PVC-U) resistance					
PP:	Polypropylene resistance					
PVDF:	Polyvinylidene fluoride					
1.4404:	Stainless steel 1.4404 & 1.4571 resistance					
FKM:	Fluorine Rubber (e.g. Viton <sup>®</sup> A & B) resistance					
EPDM:	EPDM: Ethylene-Propylene-Dien-rubber resistance					
PharMed <sup>®</sup> :	Pharmed <sup>®</sup> resistance					
PE:	Polyethylene resistance					
2.4819:	Hastelloy C-276 resistance					
WPC:	water endangering class					

Viton® is a registered trademark of DuPont Dow Elastomers

Water endangering classes (WGK):

1	=	slightly hazardous to water
2	=	hazardous to water
3	=	severely hazardous to water
(X)	=	No classification. Classification according to conclusion by analogy. To be used under reserve.

#### Safety data sheets

Safety data sheets on our products in a number of different languages are provided on our website.

www.prominent.com/MSDS



The data is taken from relevant manufacturer's documentation and our own tests. Resistance of materials is also dependant on other factors, e.g. operating conditions, conditions of surfaces etc, and so this list must be treated as an initial guide only. It cannot claim to offer any guarantees. It should be taken into consideration in particular that usual dosing media are compounds, and their corrosiveness cannot be deducted simply by adding the corrosiveness of each single component. In such cases the chemical producers' data of the material compatibility are to be considered as a matter of prime importance for the material choice. A safety data sheet does not give this data and therefore cannot take the place of the technical documentation on the application.

Chemical	Formula	Conc	РММА	PVC	PP	PVDF	1.4404	FKM	EPDM	PharMed <sup>®</sup>	PE	2.4819	WPC
Acetaldehyde	CH <sub>3</sub> CHO	100%	-	-	0	-	+	-	+/0	-	+	+	2
Acetamide	CH <sub>3</sub> CONH <sub>2</sub>	s	+	+	+	+	+	0	+	+/o	+	+	1
Acetic Acid	CH <sub>3</sub> COOH	100%	-	50%	+	+	+	-	0	60%	70%	+	1
Acetic Anhydride	(CH <sub>3</sub> CO) <sub>2</sub> O	100%	-	-	0	-	+	-	+/o	+	0	+	1
Acetic Ether => Ethyl Acetate													
Acetone	CH <sub>3</sub> COCH <sub>3</sub>	100%	-	-	+	-	+	-	+	-	+	+	1
Acetophenone	C <sub>6</sub> H <sub>5</sub> COCH <sub>3</sub>	100%	-	n	+	-	+	-	+	n	+	+	
Acetyl Chloride	CH <sub>3</sub> COCI	100%	-	+	n	-	0	+	-	0	n	+	1
Acetylacetone	CH <sub>3</sub> COCH <sub>2</sub> COCH <sub>3</sub>	100%	-	-	+	-	+	-	+	n	+	+	1
Acetylene Dichloride => Dichlo	pro Ethylene												
Acetylene Tetrachloride => Te	trachloro Ethane												
Acrylonitril	CH <sub>2</sub> =CH-CN	100%	-	-	+	+	+	-	-	-	+	+	3
Adipic Acid	HOOC(CH <sub>2</sub> ) <sub>4</sub> COOH	S	+	+	+	+	+	+	+	+/o	+	+	1
Allyl Alcohol	CH <sub>2</sub> CHCH <sub>2</sub> OH	96%	-	0	+	+	+	-	+	0	+	+/o	2
Aluminium Acetate	AI(CH <sub>3</sub> COO) <sub>3</sub>	S	+	+	+	+	+	+	+	+	+	+/o	1
Aluminium Bromide	AlBr <sub>3</sub>	s	+	+	+	+	n	+	+	+	+	+	2
Aluminium Chloride	AICI <sub>3</sub>	S	+	+	+	+	-	+	+	+	+	+	1
Aluminium Fluoride	AIF <sub>3</sub>	10%	+	+	+	+	-	+	+	+	+	+/o	1
Aluminium Hydroxide	AI(OH) <sub>3</sub>	s	+	+	+	+	+	+	+	+	+	+	1
Aluminium Nitrate	AI(NO <sub>3</sub> ) <sub>3</sub>	s	+	+	+	+	+	+	+	+	+	+	1
Aluminium Phosphate	AIPO <sub>4</sub>	S	+	+	+	+	+	+	+	+	+	+	1
Aluminium Sulphate	$AI_2(SO_4)_3$	s	+	+	+	+	+	+	+	+	+	+	1
Ammonium Acetate	CH <sub>3</sub> COONH <sub>4</sub>	S	+	+/o	+	+	+	+	+	+	+	+	1
Ammonium Bicarbonate	NH <sub>4</sub> HCO <sub>3</sub>	s	+	+	+	+	+	+	+	+	+	+	1
Ammonium Carbonate	$(NH_4)_2CO_3$	40%	+	+	+	+	+	+	+	+	+	+	1
Ammonium Chloride	NH <sub>4</sub> Cl	s	+	+	+	+	-	+	+	+	+	+/o	1
Ammonium Fluoride	NH <sub>4</sub> F	S	+	0	+	+	0	+	+	+	+	+	1
Ammonium Hydroxide	"NH <sub>4</sub> OH"	30%	+	+	+	+	+	-	+	+	+	+	2
Ammonium Nitrate	NH <sub>4</sub> NO <sub>3</sub>	s	+	+	+	(25 °C) +	+	+	+	+	+	+	1
Ammonium Oxalate	$(COONH_4)_2 * H_2O$	s	+	+	+	+	+	+	+	+	+	+	1
Ammonium Perchlorate	NH <sub>4</sub> ClO <sub>4</sub>	10%	+	+	+	+	+	+	+	+	+	+	1
Ammonium Peroxodisulphate	$(NH_4)_2S_2O_8$	s	+	+	+	+	5%	+	+	+	+	5%	2
Ammonium Phosphate	(NH <sub>4</sub> ) <sub>2</sub> S <sub>2</sub> O <sub>8</sub> (NH <sub>4</sub> ) <sub>3</sub> PO <sub>4</sub>	s	+	+	+	+	10%	+	+	+	+	10%	1
Ammonium Sulphate	$(NH_4)_3 PO_4$ $(NH_4)_2 SO_4$	s	+	+	+	+	10%	+	+	+	+	10%	1
Ammonium Sulphide		s	+	+	+	+	n	+	+	n	+	n	2
Ammoniumaluminium	$(NH_4)_2S$ $NH_4AI(SO_4)_2$	s	+	+	+	+	+	+	+	+	+	+	1
Sulphate	$MI_4AI(30_4)_2$	5	Ŧ	Ŧ	Ŧ	Ŧ	Ŧ	Ŧ	Ŧ	Ŧ	Ŧ	Ŧ	I
Amyl Alcohol	C5H <sub>11</sub> OH	100%	+	+	+	+	+	-	+	-	+	+	1
Aniline	C <sub>6</sub> H <sub>5</sub> NH <sub>2</sub>	100%	-	-	+	+	+	-	+/o	0	+	+	2
Aniline Hydrochloride	C <sub>6</sub> H <sub>5</sub> NH <sub>2</sub> * HCI	S	n	+	+	+	-	+/o	+/o	0	+	+	2
Antimony Trichloride	SbCl <sub>3</sub>	S	+	+	+	+	-	+	+	+	+	n	2
Aqua Regia	3 HCI + HNO <sub>3</sub>	100%	-	+	-	+	-	-	0	-	-	-	2
Arsenic Acid	H <sub>3</sub> AsO <sub>4</sub>	S	+	+	+	+	+	+	+	0	+	+	3
Barium Carbonate	BaCO <sub>3</sub>	S	+	+	+	+	+	+	+	+	+	+	1
Barium Chloride	BaCl <sub>2</sub>	S	+	+	+	+	-	+	+	+	+	+	1
Barium Hydroxide	Ba(OH) <sub>2</sub>	S	+	+	+	+	+	+	+	+	+	+	1
Barium Nitrate	Ba(NO <sub>3</sub> ) <sub>2</sub>	s	+	+	+	+	+	+	+	+	+	+	1
Barium Sulphate	BaSO <sub>4</sub>	S	+	+	+	+	+	+	+	+	+	+	1
Barium Sulphide	BaS	s	+	+	+	+	+	+	+	+	+	+	(1)
Benzaldehyde	C <sub>6</sub> H <sub>5</sub> CHO	100%	-	-	+	-	+	+	+	-	0	+	1
Benzene	C <sub>6</sub> H <sub>6</sub>	100%	-	-	0	+	+	0	•	-	0	+	3
Benzene Sulphonic Acid	C <sub>6</sub> H <sub>5</sub> SO <sub>3</sub> H	10%	n	n	+	+	+	+	-	-	n	+	2
Benzoic Acid	C <sub>6</sub> H <sub>5</sub> COOH	S	+	+	+	+	+	+	+	+/o	+	+	1
													2

## **ProMinent® Chemical Resistance List**

Chemical	Formula	Conc	РММА	PVC	PP	PVDF	1.4404	FKM	EPDM	PharMed <sup>®</sup>	PE	2.4819	WPC
Benzyl Alcohol	C <sub>6</sub> H <sub>5</sub> CH <sub>2</sub> OH	100%	-	-	+	+	+	+	-	+	+	+	1
Benzyl Benzoate	C <sub>6</sub> H <sub>5</sub> COOC <sub>7</sub> H <sub>7</sub>	100%	-	-	+	0	+	+	-	-	+	+	2
Benzyl Chloride	C <sub>6</sub> H <sub>5</sub> CH <sub>2</sub> CI	90%	-	n	0	+	+	+		-	0	+	2
Bitter Salt => Magnesium Sulp													
Bleach => Sodium Hypochlori	ite												
Blue Vitriol => Copper Sulpha	te												
Borax => Sodium Tetraborate													
Boric Acid	H <sub>3</sub> BO <sub>3</sub>	S	+	+	+	+	+	+	+	+	+	+	1
Brine	0-0	S	+	+/o	+	+	+/o	+	+	+	+	+	1
Bromine (dry)	Br <sub>2</sub>	100%	-	-	-	+	-	-	-	-	-	+	2
Bromine Water	$Br_2 + H_2O$	S	-	+	-	+	-			n		n	(2)
Bromo Benzene	C <sub>6</sub> H <sub>5</sub> Br	100%	n	n	0	+	+	0	-	-	0	+	2
Bromochloro Methane	CH <sub>2</sub> BrCl	100%	-	-	-	+	+	n	+/o		0	+	2
Bromochlorotrifluoro Ethane	HCCIBrCF <sub>3</sub>	100%	-	-	0	+	+	+	-	+	0	+	(3)
Butanediol	HOC <sub>4</sub> H <sub>8</sub> OH	10%	n	+	+	+	+	0	+	+	+	+	1
Butanetriol		s	+	+	+	+	+	0	+	+	+	+	1
Butanol	C <sub>4</sub> H <sub>10</sub> O <sub>3</sub>	s 100%							+ +/0	-			1
	C <sub>4</sub> H <sub>9</sub> OH		•	+	+	+	+	0	+/0		+	+	
Butyl Acetate	C <sub>7</sub> H <sub>13</sub> O <sub>2</sub>	100%	-	-	+	+	+	-	-	+/0	+	+	1
Butyl Acetate	CH <sub>3</sub> COOC <sub>4</sub> H <sub>9</sub>	100%	•	-	0	+	+	-	+/o	+/0	-	+	1
Butyl Alcohol => Butanol		1000/		-	~					-			4
Butyl Amine	C <sub>4</sub> H <sub>9</sub> NH <sub>2</sub>	100%	n	n	n	-	+	-	-	n	+	+	1
Butyl Benzoate	C <sub>6</sub> H <sub>5</sub> COOC <sub>4</sub> H <sub>9</sub>	100%	-	-	0	n	+	+	+	-	0	+	2
Butyl Mercaptane	C <sub>4</sub> H <sub>9</sub> SH	100%	n	n	n	+	n	+	-	n	n	n	3
Butyl Oleate	C <sub>22</sub> H <sub>42</sub> O <sub>2</sub>	100%	n	n	n	+	+	+	+/o	n	n	+	1
Butyl Stearate	C <sub>22</sub> H <sub>44</sub> O <sub>2</sub>	100%	0	n	n	+	+	+	-	n	n	+	1
Butyraldehyde	C <sub>3</sub> H <sub>7</sub> CHO	100%	-	n	+	n	+	-	+/o	-	+	+	1
Butyric Acid	C <sub>3</sub> H <sub>7</sub> COOH	100%	5%	20%	+	+	+	+	+	+/o	+	+	1
Calcium Acetate	(CH <sub>3</sub> COO) <sub>2</sub> Ca	S	+	+	+	+	+	+	+	+	+	+	1
Calcium Bisulphite	Ca(HSO <sub>3</sub> ) <sub>2</sub>	S	+	+	+	+	+	+	+	+	+	+	(1)
Calcium Carbonate	CaCO <sub>3</sub>	S	+	+	+	+	+	+	+	+	+	+	1
Calcium Chloride	CaCl <sub>2</sub>	S	+	+	+	+	-	+	+	+	+	+	1
Calcium Cyanide	Ca(CN) <sub>2</sub>	S	+	+	+	+	n	+	+	+	+	n	3
Calcium Hydroxide	Ca(OH) <sub>2</sub>	S	+	+	+	+	+	+	+	+	+	+	1
Calcium Hypochlorite	Ca(OCI) <sub>2</sub>	S	+	+	0	+	-	0	+	+	+	+	2
Calcium Nitrate	Ca(NO <sub>3</sub> ) <sub>2</sub>	S	+	50%	50%	+	+	+	+	+	+	+	1
Calcium Phosphate	Ca <sub>3</sub> (PO <sub>4</sub> ) <sub>2</sub>	S	+	+	+	+	+	+	+	+	+	+	1
Calcium Sulphate	CaSO <sub>4</sub>	s	+	+	+	+	+	+	+	+	+	+	1
Calcium Sulphide	CaS	S	+	+	+	+	n	+	+	+	+	+	(2)
Calcium Sulphite	CaSO <sub>3</sub>	S	+	+	+	+	+	+	+	+	+	+	(1)
Calcium Thiosulphate	CaS <sub>2</sub> O <sub>3</sub>	S	+	+	+	+	-	+	+	+	+	+	1
Carbolic Acid => Phenole	000203												
Carbon Disulphide	CS <sub>2</sub>	100%	-	-	0	+	+	+	-	-	0	+	2
Carbon Tetrachloride	CCl <sub>4</sub>	100%	-	-	-	+	+	+			0	+	3
Carbonic Acid	"H <sub>2</sub> CO <sub>3</sub> "	S	+	+	+	+	+	+	+	+	+	+	1
Caustic Potash => Potassium		Ū					•	•				•	
Caustic Soda => Sodium Hyd													
Chloric Acid	HCIO <sub>3</sub>	20%	+	+	-	+	-	0	0	+	10%	+	2
Chlorinated Lime => Calcium	0	2070		•				0	0	1	10 /0	1	~
Chlorine Dioxide Solution	$CIO_2 + H_2O$	0.5%	0	+	0	+		0			0	+	
Chlorine Water		0.5% S	+	+	0	+		+	-+	-	0	+	
Chloro Benzene	$Cl_2 + H_2O$	s 100%	+	+	0 +	++	+	++	+	-	0	+ +	2
Chloro Ethanol			-	-	+	0	+	-	0	+	+	+	3
Chloro Ethylbenzene	C <sub>6</sub> H <sub>4</sub> ClC <sub>2</sub> H <sub>5</sub>	100%	-	-	0	n	+	0	-	-	0	+	(2)
Chloro Phenole		100%	-	n	+	+	+	n	-	-	+	+	2
Chloro Toluene	C <sub>7</sub> H <sub>8</sub> Cl	100%	•	-	n	+	+	+	-	-	n	+	2
Chloroacetone	CICH <sub>2</sub> COCH <sub>3</sub>	100%	-	-	n	n	+	-	+	-	n	+	3
Chlorobutadiene	C <sub>4</sub> H <sub>5</sub> Cl	100%	-	-	n	n	+	+	-	-	n	+	1
Chloroform	CHCI <sub>3</sub>	100%	-	-	0	+	+	+	-	0	-	+	2
Chlorohydrin	C <sub>3</sub> H <sub>5</sub> OCI	100%	-	n	+	-	+	+	0	+	+	+	3
Chloroprene => Chlorobutadie													
Chlorosulphonic Acid	SO <sub>2</sub> (OH)CI	100%	-	0	-	+	-	-	-	-	-	0	1
Chrome-alum => Potassium C	Chrome Sulphate												



Chemical	Formula	Conc	PMMA	PVC	PP	PVDF	1.4404	FKM	EPDM	PharMed®	PE	2.4819	WPC
Chromic-Sulphuric Acid	K <sub>2</sub> CrO <sub>4</sub> + H <sub>2</sub> SO <sub>4</sub>	S	-	+*	-	+	n	n	n	-	-	n	3
Chromium Sulphate	$Cr_2(SO_4)_3$	s	+	+	+	+	+	+	+	+	+	+	1
Citric Acid	C <sub>6</sub> H <sub>8</sub> O <sub>7</sub>	S	+	+	+	+	+	+	+	+	+	+	1
Cobalt Chloride	CoCl <sub>2</sub>	s	+	+	+	+	-	+	+	+	+	+	2
Copper-II-Acetate	Cu(CH <sub>3</sub> COO) <sub>2</sub>	S	+	+	+	+	+	+	+	+	+	+	3
Copper-II-Arsenite	$Cu_3(AsO_3)_2$	S	+	+	+	+	+	+	+	+	+	+	3
Copper-II-Carbonate	CuCO <sub>3</sub>	S	+	+	+	+	+	+	+	+	+	+	2
Copper-II-Chloride	CuCl <sub>2</sub>	s	+	+	+	+	1%	+	+	+	+	+	2
Copper-II-Cyanide	Cu(CN) <sub>2</sub>	S	+	+	+	+	+	+	+	+	+	+	(3)
Copper-II-Fluoride	CuF <sub>2</sub>	s	+	+	+	+	+	+	+	+	+	+	(2)
Copper-II-Nitrate	Cu(NO <sub>3</sub> ) <sub>2</sub>	S	+	+	+	+	+	+	+	+	+	+/o	2
Copper-II-Sulphate	CuSO <sub>4</sub>	S	+	+	+	+	+	+	+	+	+	+	2
Cresols	C <sub>6</sub> H <sub>4</sub> CH <sub>3</sub> OH	100%	0	0	+	+	+	+	-	-	+	+	2
Crotonaldehyde	CH <sub>3</sub> C <sub>2</sub> H <sub>2</sub> CHO	100%	n	-	+	+	+	-	+		+	+	3
Cubic Nitre => Sodium Nitrate	0 2 2					•							
Cumene => Isopropyl Benzer													
Cyclo Hexane	C <sub>6</sub> H <sub>12</sub>	100%	+	-	+	+	+	+	-	-	+	0	1
Cyclohexanole	C <sub>6</sub> H <sub>11</sub> OH	100%	0	+/o	+	+	+	+			+	+	1
Cyclohexanone	$C_6H_{10}O$	100%	-	-	+		+	-	+/0	-	+	+	1
Cyclohexyl Alcohol => Cycloh	0 10	10070							170				
Cyclohexylamine	C <sub>6</sub> H <sub>11</sub> NH <sub>2</sub>	100%	n	n	n	n	+	-	n	n	n	+	2
Decahydronaphthaline	· · · · -	100%	-	+/0	0	+	n	-	-	-	0	+	2
Decaline => Decahydronapht	C <sub>10</sub> H <sub>18</sub>	100 /0		170	0			v			0		2
Decanyoronaphi Dextrose => Glucose	naione												
Diacetonalcohol	C <sub>6</sub> H <sub>12</sub> O <sub>2</sub>	100%	-	-	+	0	+	-	+	-	+	+	1
Dibromoethane	$C_6 \Pi_{12} O_2$ $C_2 H_4 Br_2$	100%	-	-	+ n	+	+	+	+	-	+	+	3
Dibutyl Ether	$C_2 \Pi_4 B \Gamma_2$ $C_4 H_9 O C_4 H_9$	100%	-	-	+	+	+	+	0	-	+	+	2
Dibutyl Phthalate		100%	-						0 +/0				2
	$C_{16}H_{22}O_4$			-	+	+	+	+	<del>+</del> /U	+	0	+	2
Dibutylamine	(C <sub>4</sub> H <sub>9</sub> ) <sub>2</sub> NH	100%	n	n	+	+	+		-	n	+	+	
Dichloro Acetic Acid		100%	-	+	+	+	+	-	+	0	+	+	1
Dichloro Benzene	C <sub>6</sub> H <sub>4</sub> Cl <sub>2</sub>	100%	-	-	0	+	+	+	-	-	0	+	2
Dichloro Butan	C <sub>4</sub> H <sub>8</sub> Cl <sub>2</sub>	100%	-	-	0	+	+	+	-	-	0	+	3
Dichloro Butene	C <sub>4</sub> H <sub>6</sub> Cl <sub>2</sub>	100%	-	-	0	+	+	0	-	-	0	+	3
Dichloro Ethane		100%	-	-	0	+	+	+	-	0	-	+	3
Dichloro Ethylene	C <sub>2</sub> H <sub>2</sub> Cl <sub>2</sub>	100%	-	-	0	+	+	0	-	0	-	+	2
Dichloro Methane	CH <sub>2</sub> Cl <sub>2</sub>	100%	-	•	0	0	0	+	-	0	-	+	2
Dichloroisopropyl Ether	(C <sub>3</sub> H <sub>6</sub> Cl) <sub>2</sub> O	100%	-	-	0	n	+	0	0	-	0	+	(2)
Dicyclohexylamine	(C <sub>6</sub> H <sub>12</sub> ) <sub>2</sub> NH	100%	-	•	0	n	+	-	-	-	0	+	2
Diethyleneglycol	C <sub>4</sub> H <sub>10</sub> O <sub>3</sub>	S	+	+	+	+	+	+	+	+	+	+	1
Diethyleneglycolethyl Ether	C <sub>8</sub> H <sub>18</sub> O <sub>3</sub>	100%	n	n	+	+	+	n	+/o	0	+	+	1
Diethylether	$C_2H_5OC_2H_5$	100%	-	-	0	+	+	-	-	0	0	+	1
Diglycolic Acid	C <sub>4</sub> H <sub>6</sub> O <sub>5</sub>	30%	+	+	+	+	+	+	n	+/o	+	+	3
Dihexyl Phthalate	C <sub>20</sub> H <sub>26</sub> O <sub>4</sub>	100%	-	-	+	+	+	-	n	+	+	+	(1)
Diisobutylketone	C <sub>9</sub> H <sub>18</sub> O	100%	-	-	+	+	+	-	+	-	+	+	1
Di-iso-nonyl Phthalate	C <sub>26</sub> H <sub>42</sub> O <sub>4</sub>	100%	-	-	+	+	+	n	n	+	+	+	1
Diisopropylketone	C <sub>7</sub> H <sub>14</sub> O	100%	-	-	+	+	+	-	+	-	+	+	1
Dimethyl Carbonate	(CH <sub>3</sub> O) <sub>2</sub> CO	100%	n	n	+	+	+	+	-	n	+	+	1
Dimethyl Ketone => Acetone													
Dimethyl Phthalate	C <sub>10</sub> H <sub>10</sub> O <sub>4</sub>	100%	-	-	+	+	+	-	+/o	+	+	+	1
Dimethylformamide	HCON(CH <sub>3</sub> ) <sub>2</sub>	100%	-	-	+	-	+	-	+	+/o	+	+	1
Dimethylhydrazine	H <sub>2</sub> NN(CH <sub>3</sub> ) <sub>2</sub>	100%	n	n	+	n	+	-	+	n	+	+	3
Dioctyl Phthalate	C <sub>4</sub> H <sub>4</sub> (COOC <sub>8</sub> H <sub>17</sub> ) <sub>2</sub>	100%	-	-	+	+	+	-	+/o	+	+	+	1
Dioxane	$C_4H_8O_2$	100%	-	-	0	-	+	-	+/o	-	+	+	1
Disodium	Na <sub>2</sub> HPO <sub>4</sub>	s	+	+	+	+	+	+	+	+	+	+	1
Hydrogenphosphate	- 1												
Disulfur Acid Oleum													
Disulphur Dichloride	S <sub>2</sub> Cl <sub>2</sub>	100%	n	n	n	+	n	+	-	-	n	n	
DMF => Dimethylformamide													
Engine Oils		100 %	n	+/o	+	+	+	+	-	-	+	+	2
Epsom salts => Magnesium S													
Ethanol	C <sub>2</sub> H <sub>5</sub> OH	100%	-	+	+	+	+	-	+	+	+	+	1
Ethanol Amine	HOC <sub>2</sub> H <sub>4</sub> NH <sub>2</sub>	100%	0	n	+	-	+	-	+/o	0	+	+	1
Ethyl Acetate	CH <sub>3</sub> COOC <sub>2</sub> H <sub>5</sub>	100%	-	-	35%	+	+	-	+/o	+/0	+	+	1
	C <sub>2</sub> H <sub>3</sub> COOC <sub>2</sub> H <sub>5</sub>												

Chemical	Formula	Conc	РММА	PVC	PP	PVDF	1.4404	FKM	EPDM	PharMed®	PE	2.4819	WPC
Ethyl Benzene	C <sub>6</sub> H <sub>5</sub> -C <sub>2</sub> H <sub>5</sub>	100%	-	-	0	+	+	0	-	-	0	+	1
Ethyl Benzoate	C <sub>6</sub> H <sub>5</sub> COOC <sub>2</sub> H <sub>5</sub>	100%	n	-	+	0	+	+	-	-	+	+	1
Ethyl Bromide	C <sub>2</sub> H <sub>5</sub> Br	100%	-	n	+	+	n	+	-	0	+	+	2
Ethyl Chloroacetate	CICH <sub>2</sub> COOC <sub>2</sub> H <sub>5</sub>	100%	-	0	+	+	+	+	-	-	+	+	2
Ethyl Chlorocarbonate	CICO <sub>2</sub> C <sub>2</sub> H <sub>5</sub>	100%	n	n	n	n	n	+	-	n	n	n	(2)
Ethyl Cyclopentane	C5H <sub>4</sub> C <sub>2</sub> H <sub>5</sub>	100%	+	+	+	+	+	+	-	-	+	+	(1)
Ethylacetoacetate	C <sub>6</sub> H <sub>10</sub> O <sub>3</sub>	100%	n	-	+	+	+	-	+/o	+/o	+	+	1
Ethylacrylic Acid	C <sub>4</sub> H <sub>7</sub> COOH	100%	n	n	+	+	+	n	+/o	n	+	+	(1)
Ethylene Diamine	(CH <sub>2</sub> NH <sub>2</sub> ) <sub>2</sub>	100%	0	0	+	-	0	-	+	n	+	0	2
Ethylene Dibromide => Dibrom													
Ethylene Dichloride => Dichlor	o Ethane												
Ethylene Glycol => Glycol		1000/							,				
Ethylenglycol Ethylether	HOC <sub>2</sub> H <sub>4</sub> OC <sub>2</sub> H <sub>5</sub>	100%	n	n	+	+	+	n	+/o	0	+	+	1
Ethylhexanol	C <sub>8</sub> H <sub>16</sub> O	100%	n	+/o	+	+	+	+	+	-	+	+	2
Fatty Acids	R-COOH	100%	+	+	+	+	+	+	0	0	+	+	1
Ferric Chloride	FeCl <sub>3</sub>	S	+	+	+	+	-	+	+	+	+	+/o	1
Ferric Nitrate	Fe(NO <sub>3</sub> ) <sub>3</sub>	S	+	+	+	+	+	+	+	+	+	+	1
Ferric Phosphate	FePO <sub>4</sub>	S	+	+	+	+	+	+	+	+	+	+	1
Ferric Sulphate	Fe <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub>	S	+	+	+	+	0	+	+	+	+	+	1
Ferrous Chloride	FeCl <sub>2</sub>	S	+	+	+	+	-	+	+	+	+	+/o	1
Ferrous Sulphate	FeSO <sub>4</sub>	S	+	+	+	+	+	+	+	+	+	+	1
Fixing Salt => Sodium Thiosul		1000/											-
Fluoro Benzene	C <sub>6</sub> H <sub>5</sub> F	100%	-	-	+	+	+	0	-	•	0	+	2
Fluoroboric Acid	HBF <sub>4</sub>	35%	+	+	+	+	0	+	+	-	+	+	1
Fluorosilicic Acid	H <sub>2</sub> SiF <sub>6</sub>	100%	+	30%	30%	+	0	+	+	0	40%	+/o	2
Formaldehyde	CH <sub>2</sub> O	40%	+	+	+	+	+	-	+/o	-	+	+	2
Formalin => Formaldehyde		1000/											
Formamide	HCONH <sub>2</sub>	100%	+	-	+	+	+	+	+	n	+	+	1
Formic Acid	нсоон	S	-	+/0	+	+	+	-	-	+/o	+	+	1
Furane	C <sub>4</sub> H <sub>4</sub> O	100%	-	-	+	-	+	-	n	-	+	+	3
Furane Aldehyde	C <sub>5</sub> H <sub>5</sub> O <sub>2</sub>	100%	n	n	n	0	+	-	+/0	-	n	n	2
Furfuryl Alcohol	OC <sub>4</sub> H <sub>3</sub> CH <sub>2</sub> OH	100%	-	-	+	0	+	n	+/0	-	+	+	1
Gallic Acid	C <sub>6</sub> H <sub>2</sub> (OH) <sub>3</sub> COOH	5%	+	+	+	+	+	+	+/0	+	+	+	1
Gasoline	hata	100 %	-	-	+	+	+	+	-	-	+	+	2
Glauber's Salt => Sodium Sulp Glucose		0											1
	$C_6H_{12}O_6$	s 100%	+	+	+	+	+	+	+	+	+	+	1
Glycerol	$C_3H_5(OH)_3$		+	+	+	+	+	+	+	+	+	+	
Glycerol Triacetate	C <sub>3</sub> H <sub>5</sub> (CH <sub>3</sub> COO) <sub>3</sub>	100%	n	n	+	+	+	-	+	n	+	+	1
Glycine	NH <sub>2</sub> CH <sub>2</sub> COOH	10%	+	+	+	+	+	+	+	+	+	+	1
Glycol Glycolic Acid	$C_2H_4(OH)_2$	100%	+	+	+	+	+	+	+	+	+	+	-
	CH <sub>2</sub> OHCOOH	70%	+	37%	+	+	+	+	+	+/0	+	+	1
Gypsum => Calcium Sulphate Heptane	C 11	100%	+						-	-			1
Hexachloroplatinic Acid	C <sub>7</sub> H <sub>16</sub>	100% S		+	+	+	+	+			+	+	-
•	H <sub>2</sub> PtCl <sub>6</sub>		n	+	+	+		n	+	n	+		
Hexanal	C <sub>5</sub> H <sub>11</sub> CHO	100%	n	n	+	+	+	-	+/0	-	+	+	1
Hexane	C <sub>6</sub> H <sub>14</sub>	100%	+	+	+	+	+	+	-	-	+	+	1
Hexanol	C <sub>6</sub> H <sub>13</sub> OH	100%	-	-	+	+	+	n	+	0	+	+	1
Hexantriol	C <sub>6</sub> H <sub>9</sub> (OH) <sub>3</sub>	100%	n	n	+	+	+	+	+	n	+	+	1
Hexene	C <sub>6</sub> H <sub>12</sub>	100%	n	+	+	+	+	+	-	-	+	+	1
Hydrazine Hydrate	N <sub>2</sub> H <sub>4</sub> * H <sub>2</sub> O	S	+	+	+	+	+	n	+	0	+	+	3
Hydrobromic Acid	HBr HCI	50% 38%	+ 32%	+ +	+	+	-	-	+	-	+	0	1
Hydrochloric Acid	HF	38% 80%	32% -	+ 40%	+ 40%	+	-	+	0	0	+ 40%		1
Hydrofluoric Acid	пг	00%	-	40% *	40% **	+	-	+	0	-	40%	+/0	I
Hydrogen Cyanide	HCN	S	+	+	+	+	+	+	+	+	+	+	3
Hydrogen Peroxide	H <sub>2</sub> O <sub>2</sub>	90%	40%	40%*	30%	+	+		30%	+	+	+	1
Hydroiodic Acid	HI	S	+	+	+	+	-	-	n	-	+	n	1
Hydroquinone	C <sub>6</sub> H <sub>4</sub> (OH) <sub>2</sub>	S	0	+	+	+	+	+	-	+/o	+	+	2
Hydroxylamine Sulphate	(NH <sub>2</sub> OH) <sub>2</sub> * H <sub>2</sub> SO <sub>4</sub>	10%	+	+	+	+	+	+	+	+	+	+	2
Hypochlorous Acid	HOCI	S	+	+	0	+	-	+	+/o	+	0	+	(1)
lodine	I <sub>2</sub>	S	0	-	+	+	-	+	+/o	+	0	+/o	
Iron Vitriol => Ferrous Sulphate													
	·												
Isobutanol => Isobutyl Alcohol	С <sub>2</sub> H <sub>5</sub> CH(OH)CH <sub>3</sub>												



Chemical	Formula	Conc	РММА	PVC	PP	PVDF	1.4404	FKM	EPDM	PharMed®	PE	2.4819	WPC
Isopropanol => Isopropyl Alcol	hol												
Isopropyl Acetate	CH <sub>3</sub> COOCH(CH <sub>3</sub> ) <sub>2</sub>	100%	-	-	+	+	+	-	+/o	+/o	+	+	1
Isopropyl Alcohol	(CH <sub>3</sub> ) <sub>2</sub> CHOH	100%	-	+/o	+	+	+	+	+	0	+	+	1
Isopropyl Benzene	C <sub>6</sub> H <sub>5</sub> CH(CH <sub>3</sub> ) <sub>2</sub>	100%	-	-	0	+	+	+	-	-	0	+	1
Isopropyl Chloride	CH <sub>3</sub> CHCICH <sub>3</sub>	80%	-	-	0	+	+	+	-	0	0	+/o	2
Isopropyl Ether	C <sub>6</sub> H <sub>14</sub> O	100%	-	-	0	+	+	-	-	0	0	+	1
Kitchen Salt => Sodium Chlori	0 11												
Lactic Acid	C <sub>3</sub> H <sub>6</sub> O <sub>3</sub>	100%	-	+	+	+	+/o	+	10%	+/o	+	+	1
Lead Acetate	Pb(CH <sub>3</sub> COO) <sub>2</sub>	S	+	+	+	+	+	+	+	+	+	+	2
Lead Nitrate	Pb(NO <sub>3</sub> ) <sub>2</sub>	50%	+	+	+	+	+	+	+	+	+	+	2
Lead Sugar => Lead Acetate	0,2												
Lead Sulphate	PbSO <sub>4</sub>	s	+	+	+	+	+	+	+	+	+	+	(2)
Lead Tetraethyl	$Pb(C_2H_5)_4$	100%	+	+	+	+	+	+	-	n	+	+	3
Lime Milk => Calcium Hydroxi													
Liquid Ammonia => Ammoniur	m Hydroxide												
Lithium Bromide	LiBr	s	+	+	+	+	+	+	+	+	+	+	1
Lithium Chloride	LiCl	S	+	+	+	+	-	+	+	+	+	n	1
Lunar Caustic => Silver Nitrate	)												
Magnesium Carbonate	MgCO <sub>3</sub>	S	+	+	+	+	+	+	+	+	+	+/0	1
Magnesium Chloride	MgCl <sub>2</sub>	s	+	+	+	+	0	+	+	+	+	+	1
Magnesium Hydroxide	Mg(OH) <sub>2</sub>	S	+	+	+	+	+	+	+	+	+	+	1
Magnesium Nitrate	$Mg(NO_3)_2$	s	+	+	+	+	+	+	+	+	+	+	1
Magnesium Sulphate	MgSO <sub>4</sub>	S	+	+	+	+	+	+	+	+	+	+/o	1
Maleic Acid	$C_4H_4O_4$	s	+	+	+	+	+	+	+	0	+	+	1
Malic Acid	$C_4H_6O_5$	S	+	+	+	+	+	+	+	+	+	+	1
Manganese-II-Chloride	MnCl <sub>2</sub>	S	+	+	+	+	-	+	+	+	+	+	1
Manganese-II-Sulphate	MnSO <sub>4</sub>	S	+	+	+	+	+	+	+	+	+	+	1
MEK => Methyl Ethyl Ketone													
Mercury	Hg	100%	+	+	+	+	+	+	+	+	+	+	3
Mercury-II-Chloride	HgCl <sub>2</sub>	S	+	+	+	+	-	+	+	+	+	+	3
Mercury-II-Cyanide	Hg(CN) <sub>2</sub>	S	+	+	+	+	+	+	+	+	+	+	3
Mercury-II-Nitrate	Hg(NO <sub>3</sub> ) <sub>2</sub>	S	+	+	+	+	+	+	+	+	+	+	3
Mesityl Oxide	C <sub>6</sub> H <sub>10</sub> O	100%	-	-	n	n	+	-	+/o	-	n	+	1
Methacrylic Acid	C <sub>3</sub> H <sub>5</sub> COOH	100%	n	n	+	+	+	0	+/0	+/0	+	+	1
Methanol	CH <sub>3</sub> OH	100%	-	-	+	+	+	0	+	+/0	+	+	1
Methoxybutanol	CH <sub>3</sub> O(CH <sub>2</sub> ) <sub>4</sub> OH	100%	-	-	+	+	+	+	0	0	+	+	(1)
Methyl Acetate	CH <sub>3</sub> COOCH <sub>3</sub>	60%	-	-	+	+	+	-	+/0	+/0	+	+	2
Methyl Acrylate	C <sub>2</sub> H <sub>3</sub> COOCH <sub>3</sub>	100%			+	+	+		+/0	0	+	+	2
Methyl Benzoate	C <sub>6</sub> H <sub>5</sub> COOCH <sub>3</sub>	100%	_	_	+	0	+	+	-	-	+	+	2
Methyl Catechol			-	+	+	+	+	+	-	+0			(4)
Methyl Cellulose	C <sub>6</sub> H <sub>3</sub> (OH) <sub>2</sub> CH <sub>3</sub>	s	+	+	+	+	+	+	+	+0 +	++	+	(1)
Methyl Chloroacetate	CICH <sub>2</sub> COOCH <sub>3</sub>	s 100%	-	+ 0	+	+	+	+ 0	-	- -	+	+	2
-										-			
Methyl Cyclopentane		100%	+	+	+	+	+	+	-	-	+	+	(1)
Methyl Dichloroacetate		100%	-	-	+	n	+	-	n	-	+	+	2
Methyl Ethyl Ketone	CH <sub>3</sub> COC <sub>2</sub> H <sub>5</sub>	100%	-	-	+	-	+	-	+	-	+	+	1
Methyl Glycol	C <sub>3</sub> H <sub>8</sub> O <sub>2</sub>	100%	+	+	+	+	+	-	+/0	+	+	+	1
Methyl Isobutyl Ketone	CH <sub>3</sub> COC <sub>4</sub> H <sub>9</sub>	100%	-	-	+	-	+	-	0	-	+	+	1
Methyl Isopropyl Ketone	CH <sub>3</sub> COC <sub>3</sub> H <sub>7</sub>	100%	-	-	+	-	+	-	+/o	•	+	+	1
Methyl Methacrylate	C <sub>3</sub> H <sub>5</sub> COOCH <sub>3</sub>	100%	-	-	+	+	+	-	-	-	+	+	1
Methyl Oleate	C <sub>17</sub> H <sub>33</sub> COOCH <sub>3</sub>	100%	n	n	+	+	+	+	+/0	n	+	+	1
Methyl Salicylate	HOC <sub>6</sub> H <sub>4</sub> COOCH <sub>3</sub>	100%	-	-	+	+	+	n	+/0	-	+	+	1
Methylacetyl Acetate	C <sub>5</sub> H <sub>8</sub> O <sub>3</sub>	100%	-	-	+	+	+	-	+/o	0	+	+	2
Methylamine	CH <sub>3</sub> NH <sub>2</sub>	32%	+	0	+	0	+	-	+	+	+	+	2
Methylene Chloride => Dichlor	ro Methane												
Mirabilit => Sodium Sulphate													
Morpholine	C <sub>4</sub> H <sub>9</sub> ON	100%	-	-	+	-	+	n	n	-	+	+	2
Muriatic Acid => Hydrochloric													
Natron => Sodium Bicarbonate													
Nickel-II-Acetate	(CH <sub>3</sub> COO) <sub>2</sub> Ni	S	+	+	+	+	+	-	+	+	+	+	(2)
Nickel-II-Chloride	NiCl <sub>2</sub>	S	+	+	+	+	-	+	+	+	+	+	2
Nickel-II-Nitrate	Ni(NO <sub>3</sub> ) <sub>2</sub>	s	+	+	+	+	+	+	+	+	+	+/o	2
Nickel-II-Sulphate	NiSO <sub>4</sub>	S	+	+	+	+	+	+	+	+	+	+/o	2

## **ProMinent® Chemical Resistance List**

Chemical	Formula	Conc	PMMA	PVC	PP	PVDF	1.4404	FKM	EPDM	PharMed®	PE	2.4819	WPC
Nitric Acid	HNO <sub>3</sub>	99%	10%	10%*	50%	65%	50%	65%	10%	35%	50%	65%	1
Nitro Methane	CH <sub>3</sub> NO <sub>2</sub>	100%	-	-	+	0	+	-	+/o	-	+	+	2
Nitro Propane	(CH <sub>3</sub> ) <sub>2</sub> CHNO <sub>2</sub>	100%	-	-	+	n	+	-	+/o	-	+	+	2
Nitro Toluene	C <sub>6</sub> H <sub>4</sub> NO <sub>2</sub> CH <sub>3</sub>	100%	-	-	+	+	+	0	-	-	+	+	2
Octane	C <sub>8</sub> H <sub>18</sub>	100%	0	+	+	+	+	+	-	-	+	+	1
Octanol	C <sub>8</sub> H <sub>17</sub> OH	100%	-	-	+	+	+	+	+	-	+	+	1
Octyl Cresol	C <sub>1</sub> 5H <sub>24</sub> O	100%	-	-	+	+	+	0	n	-	+	+	(1)
Oil => Engine Oils	1 21												
Oleum	$H_2SO_4 + SO_3$	s	n	-	-	-	+	+	-	+	-	+	2
Orthophosphoric Acid => Phos													
Oxalic Acid	(COOH) <sub>2</sub>	s	+	+	+	+	10%	+	+	+/o	+	+/o	1
Pentane	C <sub>5</sub> H <sub>12</sub>	100%	+	+	+	+	+	+	-	-	+	+	1
Pentanol => Amyl Alcohol	5 12												
Perchloric Acid	HCIO <sub>4</sub>	70%	n	10%	10%	+	-	+	+/o	+	+	n	1
Perchloroethylene => Tetrachl	7												
Perhydrol => Hydrogen Peroxi													
Petroleum Ether	CnH <sub>2n+2</sub>	100%	+	+/o	+	+	+	+	-	-	+	+	1
Phenole	C <sub>6</sub> H <sub>5</sub> OH	100%	-	-	+	+	+	+	-	+	+	+	2
Phenyl Ethyl Ether	$C_6H_5OC_2H_5$	100%		-	+	n	+	-	-	-	+	+	2
Phenyl Hydrazine	C <sub>6</sub> H5NHNH <sub>2</sub>	100%	-	-	0	+	+	0	-	-	0	+	2
Phosphoric Acid	H <sub>3</sub> PO <sub>4</sub>	85%	50%	+	+	+	+	+	+	+	+	+	1
Phosphorous Oxychloride	POCl <sub>3</sub>	100%	-	-	+	+	n	+	+	n	+	+	1
Phosphorous Trichloride	PCl <sub>3</sub>	100%		-	+	+	+	0	+	+/0	+	+	1
Phthalic Acid	$C_6H_4(COOH)_2$	s	+	+	+	+	+	+	+	+	+	+	1
Picric Acid	$C_6H_2(NO_3)_3OH$	s	+	+	+	+	+	+	+	-	+	+	2
Piperidine	C <sub>5</sub> H <sub>11</sub> N	100%	-	-	n	n	+	-	-		n	+	2
Potash Alum => Potassium Alu	0 11	100 /0											-
Potassium Acetate	CH <sub>3</sub> COOK	S	+				+		1	+		+	1
	•			+	+	+		+	+		+	+ +	1
Potassium Aluminium Sulphate		S	+	+	+	+	+	+	+	+	+		
Potassium Bicarbonate	KHCO3	40%	+	+	+	+	+	+	+	+	+	+/0	1
Potassium Bifluoride	KHF <sub>2</sub>	S FO(	n	+	+	+	+	+	+	+	+	+	1
Potassium Bisulphate	KHSO4	5%	+	+	+	+	+	+	+	+	+	+	1
Potassium Bitartrate	KC <sub>4</sub> H <sub>5</sub> O <sub>6</sub>	S	+	+	+	+	+	+	+	+	+	+	1
Potassium Borate	KBO <sub>2</sub>	S	+	+	+	+	+	+	+	+	+	+	(1)
Potassium Bromate	KBrO <sub>3</sub>	S	+	+	+	+	+	+	+	+	+	+	2
Potassium Bromide	KBr	S	+	+	+	+	10%	+	+	+	+	0,1	1
Potassium Carbonate	K <sub>2</sub> CO <sub>3</sub>	S	+	+	+	+	+	+	+	55%	+	+	1
Potassium Chlorate	KCIO <sub>3</sub>	S	+	+	+	+	+	+	+	+	+	+	2
Potassium Chloride	KCI	S	+	+	+	+	-	+	+	+	+	+/o	1
Potassium Chromate	K <sub>2</sub> CrO <sub>4</sub>	10%	+	+	+	+	+	+	+	+	+	+	3
Potassium Chrome Sulphate	KCr(SO <sub>4</sub> ) <sub>2</sub>	S	+	+	+	+	+	+	+	+	+	+	1
Potassium Cyanate	KOCN	S	+	+	+	+	+	+	+	+	+	+	2
Potassium Cyanide	KCN	S	+	+	+	+	5%	+	+	+	+	5%	3
Potassium Cyanoferrate II	K <sub>4</sub> Fe(CN) <sub>6</sub>	S	+	+	+	+	+	+	+	+	+	+	1
Potassium Cyanoferrate III	K <sub>3</sub> Fe(CN) <sub>6</sub>	S	+	+	+	+	+	+	+	+	+	+	1
Potassium Dichromate	K <sub>2</sub> Cr <sub>2</sub> O <sub>7</sub>	S	+	+	+	+	25%	+	+	+	+	10%	3
Potassium Fluoride	KF	S	+	+	+	+	+	+	+	+	+	+	1
Potassium Hydroxyde	KOH	50%	+	+	+	+	+	-	+	10%	+	+	1
Potoosium ladida	KI	0				(25 °C)							- 1
Potassium Iodide Potassium Nitrate		S	+	+	+	+	+	+	+	+	+	+	1
Potassium Nitrate Potassium Perchlorate	KNO3	S	+	+	+	+	+ n	+	+	+	+		1
	KCIO <sub>4</sub>	S	+	+	+	+	n	+	+	+	+	+	
Potassium Permanganate	KMnO <sub>4</sub>	S	+	+	+	+	+	+	+	6%	+	+	2
Potassium Persulphate	K <sub>2</sub> S <sub>2</sub> O <sub>8</sub>	S	+	+	+	+	+	+	+	+	+	+	1
Potassium Phosphate	KH <sub>2</sub> PO <sub>4</sub>	S	+	+	+	+	+	+	+	+	+	+	1
Potassium Pyrochromate => P													
Potassium Sulphate	K <sub>2</sub> SO <sub>4</sub>	S	+	+	+	+	+	+	+	+	+	+	1
Potassium Sulphite	K <sub>2</sub> SO <sub>3</sub>	S	+	+	+	+	+	+	+	+	+	+	1
Propionic Acid	C <sub>2</sub> H <sub>5</sub> COOH	100%	0	+	+	+	+	+	+	+/o	+	+	1
Propionitrile	CH <sub>3</sub> CH <sub>2</sub> CN	100%	n	n	+	+	+	+	-	-	+	+	2
Propyl Acetate	CH <sub>3</sub> COOC <sub>3</sub> H <sub>7</sub>	100%	-	-	+	+	+	-	+/o	-	+	+	1
													4
Propylene Glycol	CH <sub>3</sub> CHOHCH <sub>2</sub> OH	100%	+	+	+	+	+	+	+	+	+	+	1



Chemical	Formula	Conc	PMMA	PVC	PP	PVDF	1.4404	FKM	EPDM	PharMed <sup>®</sup>	PE	2.4819	WPC
Pyrrole	C <sub>4</sub> H <sub>4</sub> NH	100%	n	n	+	n	+	-	-	-	+	+	2
Roman Vitriol => Copper Sul	lphate												
Salicylic Acid	HOC <sub>6</sub> H <sub>4</sub> COOH	S	+	+	+	+	+	+	+	+	+	+/o	1
Salmiac => Ammonium Chlo	ride												
Saltpeter => Potassium Nitra	ite												
Silic Acid	SiO <sub>2</sub> * x H <sub>2</sub> O	S	+	+	+	+	+	+	+	+	+	+	1
Silver Bromide	AgBr	S	+	+	+	+	+/o	+	+	+	+	+	1
Silver Chloride	AgCl	s	+	+	+	+	-	+	+	+	+	+/o	1
Silver Nitrate	AgNO <sub>3</sub>	S	+	+	+	+	+	+	+	+	+	+/o	3
Slaked Lime => Calcium Hyd	droxide												
Soda => Sodium Carbonate													
Sodium Acetate	NaCH <sub>3</sub> COO	s	+	+	+	+	+	+	+	+	+	+	1
Sodium Benzoate	C <sub>6</sub> H <sub>5</sub> COONa	S	+	+	+	+	+	+	+	+	+	+	1
Sodium Bicarbonate	NaHCO <sub>3</sub>	S	+	+	+	+	+	+	+	+	+	+	1
Sodium Bisulphate	NaHSO₄	S	+	+	+	+	+	+	+	+	+	+	1
Sodium Bisulphite	NaHSO <sub>3</sub>	S	+	+	+	+	+	+	+	+	+	+	1
Sodium Borate	NaBO <sub>2</sub>	S	+	+	+	+	+	+	+	+	+	+	1
Sodium Bromate	NaBrO <sub>3</sub>	S	+	+	+	+	+	+	+	+	+	+	3
Sodium Bromide	NaBr	s	+	+	+	+	+	+	+	+	+	+	1
Sodium Carbonate	Na <sub>2</sub> CO <sub>3</sub>	s	+	+	+	+	+/0	+	+	+	+	+	1
Sodium Chlorate	NaClO <sub>3</sub>	s	+	+	+	+	+	+	+	+	+	+	2
Sodium Chloride	NaCl	s	+	+	+	+	-	+	+	+	+	+	1
Sodium Chlorite	NaClO <sub>2</sub>	24%	+	+	+	+	10%	+	+	+	+	10%	2
Sodium Chromate	NaciO <sub>2</sub> Na <sub>2</sub> CrO <sub>4</sub>	24 /0 S	+	+	+	+	+	+	+	+	+	+	2
Sodium Cyanide	NaCN	s	+	+	+	+	+	+	+	+	+	+	3
Sodium Dichromate		s	+	+	+	+	+	+	+	+	+	+	3
Sodium Dithionite	Na <sub>2</sub> Cr <sub>2</sub> O <sub>7</sub>			+ 10%	+ 10%		+			+	10%		1
Sodium Fluoride	Na <sub>2</sub> S <sub>2</sub> O <sub>4</sub> NaF	S	+			+	+ 10%	n	n				1
		S	+	+	+	+	10%	+	+	+	+	+	- 1
Sodium Hydrogen Sulphate		E00/								30%			
Sodium Hydroxide	NaOH	50%	+	+	+	+ (60%/ 25 °C)	+	-	+	30%	+	+	1
Sodium Hypochlorite	NaOCI + NaCI	12%	+	+	0	+	-	+	+	+	0	> 10%	2
Sodium lodide	Nal	S	+	+	+	+	+	+	+	+	+	+	1
Sodium Metaphosphate	(NaPO <sub>3</sub> ) <sub>n</sub>	S	+	+	+	+	+	+	+	+	+	+	1
Sodium Nitrate	NaNO <sub>3</sub>	s	+	+	+	+	+	+	+	+	+	+	1
Sodium Nitrite	NaNO <sub>2</sub>	S	+	+	+	+	+	+	+	+	+	+	2
Sodium Oxalate	Na <sub>2</sub> C <sub>2</sub> O <sub>4</sub>	S	+	+	+	+	+	+	+	+	+	+	1
Sodium Perborate	NaBO <sub>2</sub> *H <sub>2</sub> O <sub>2</sub>	S	+	+/o	+	+	+	+	+	+	+	+/o	1
Sodium Perchlorate	NaClO <sub>4</sub>	s	+	+	+	+	10%	+	+	+	+	10%	1
Sodium Peroxide	Na <sub>2</sub> O <sub>2</sub>	S	+	+	+	+	+	+	+	n	-	+	1
Sodium Persulphate	Na <sub>2</sub> S <sub>2</sub> O <sub>8</sub>	S	n	+	+	+	+	+	+	+	+	+	1
Sodium Pyrosulphite	Na <sub>2</sub> S <sub>2</sub> O <sub>5</sub>	S	+	+	+	+	+	n	n	+	+	+	1
Sodium Salicylate	C <sub>6</sub> H <sub>4</sub> (OH)COONa	S	+	+/0	+	+	+	+	+	+	+	+	1
Sodium Silicate	Na <sub>2</sub> SiO <sub>3</sub>	S	+	+	+	+	+	+	+	+	+	+	1
Sodium Sulphate	Na <sub>2</sub> SO <sub>4</sub>	s	+	+	+	+	+	+	+	+	+	+	1
Sodium Sulphide	Na <sub>2</sub> SO <sub>4</sub>	s	+	+	+	+	+	+	+	+	+	+	2
Sodium Sulphite	Na <sub>2</sub> SO <sub>3</sub>	s	++	+	+	+	+ 50%	+	+	+	++	+ 50%	2
· .													1
Sodium Tetraborate	Na <sub>2</sub> B <sub>4</sub> O <sub>7</sub> * 10 H <sub>2</sub> O	s	+	+	+	+	+	+	+	+	+	+	
Sodium Thiosulphate	Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>	s	+	+	+	+	25%	+	+	+	+	25%	1
Sodium Tripolyphosphate	Na <sub>5</sub> P <sub>3</sub> O <sub>10</sub>	S	+	+	+	+	+	+/0	+	+	+	+	1
Starch	(C <sub>6</sub> H <sub>10</sub> O <sub>5</sub> ) <sub>n</sub>	S	+	+	+	+	+	+	n	+	+	+	1
Starch Gum		S	+	+	+	+	+	+	+	+	+	+	1
Styrene	C <sub>6</sub> H <sub>5</sub> CHCH <sub>2</sub>	100%	-	-	0	+	+	0	-	-	0	+	2
Sublimate => Mercury-II-Chl													
Succinic Acid	C <sub>4</sub> H <sub>6</sub> O <sub>4</sub>	S	+	+	+	+	+	+	+	+	+	+	1
Sugar Syrup		S	+	+	+	+	+	+	+	+	+	+	1
Sulphur Chloride => Disulph													
Sulphuric Acid	H <sub>2</sub> SO <sub>4</sub>	98%	30%	50%	85%	+	20%	+	+	30%	80%	+	1
Sulphuric Acid, fuming> O													
Sulphurous Acid	$H_2SO_3$	S	+	+	+	+	10%	+	+	+	+	+	(1)
Sulphuryl Chloride	SO <sub>2</sub> Cl <sub>2</sub>	100%	-	-	-	0	n	+	0	-	-	n	1
Tauria Asial	C <sub>76</sub> H <sub>52</sub> O <sub>46</sub>	50%	+	+	+	+	+	+	+	+	+	+	1
Tannic Acid	0761 52046	50 /0											



## **ProMinent® Chemical Resistance List**

Chemical	Formula	Conc	PMMA	PVC	PP	PVDF	1.4404	FKM	EPDM	PharMed®	PE	2.4819	WPC
Tetrachloro Ethane	C <sub>2</sub> H <sub>2</sub> Cl <sub>4</sub>	100%	-	-	0	+	+	0	-	0	0	+	3
Tetrachloro Ethylene	C <sub>2</sub> Cl <sub>4</sub>	100%	-	-	0	+	+	0	-	0	0	+	3
Tetrachloromethane => Carbo	on Tetrachloride												
Tetrahydro Furane	C <sub>4</sub> H <sub>8</sub> O	100%	-	-	0	-	+	-	-	-	0	+	1
Tetrahydro Naphthalene	C <sub>10</sub> H <sub>12</sub>	100%	-	-	-	+	+	+	-	-	0	+	3
Tetralin => Tetrahydro Naphth	alene												
THF => Tetrahydrofurane													
Thionyl Chloride	SOCI2	100%	-	-	-	+	n	+	+	+	-	n	1
Thiophene	C <sub>4</sub> H <sub>4</sub> S	100%	n	-	0	n	+	-	-	-	0	+	3
Tin-II-Chloride	SnCl <sub>2</sub>	S	+	0	+	+	-	+	+	+	+	+/o	1
Tin-II-Sulphate	SnSO <sub>4</sub>	s	n	+	+	+	+	+	+	+	+	+/o	(1)
Tin-IV-Chloride	SnCl <sub>4</sub>	s	n	+	+	+	-	+	+	+	+	+	1
Titanium Tetrachloride	TiCl <sub>4</sub>	100%	n	n	n	+	n	0	-	n	n	n	1
Toluene	C <sub>6</sub> H <sub>5</sub> CH <sub>3</sub>	100%	-	-	0	+	+	0	-	-	0	+	2
Toluene Diisocyanate	C <sub>7</sub> H <sub>3</sub> (NCO) <sub>2</sub>	100%	n	n	+	+	+	-	+/o	n	+	+	2
Tributyl Phosphate	(C <sub>4</sub> H <sub>9</sub> ) <sub>3</sub> PO <sub>4</sub>	100%	n	-	+	+	+	-	+	+	+	+	1
Trichloro Ethane	CCI <sub>3</sub> CH <sub>3</sub>	100%	-	-	0	+	+	+	-	0	0	+	3
Trichloro Ethylene	C <sub>2</sub> HCl <sub>3</sub>	100%	-	-	0	+	+/o	0	-	0	0	+	3
Trichloro Methane => Chlorofo	orm												
Trichloroacetaldehyde Hydrate	CCI <sub>3</sub> CH(OH) <sub>2</sub>	S	-	-	0	-	+	0	0	n	+	+	2
Trichloroacetic Acid	CCI3COOH	50%	-	+	+	+	-	-	0	+/o	+	+	1
Tricresyl Phosphate	(C <sub>7</sub> H <sub>7</sub> ) <sub>3</sub> PO <sub>4</sub>	90%	-	-	+	n	+	0	+	+	+	+	2
Triethanol Amine	N(C <sub>2</sub> H <sub>4</sub> OH) <sub>3</sub>	100%	+	0	+	n	+	-	+/o	0	+	+	1
Trilene => Trichloro Ethane													
Trioctyl Phosphate	(C <sub>8</sub> H <sub>17</sub> ) <sub>3</sub> PO <sub>4</sub>	100%	n	-	+	+	+	0	+	+	+	+	2
Trisodium Phosphate	Na <sub>3</sub> PO <sub>4</sub>	s	+	+	+	+	+	+	+	+	+	+	1
Urea	CO(NH <sub>2</sub> ) <sub>2</sub>	S	+	+/o	+	+	+	+	+	20%	+	+	1
Vinyl Acetate	CH <sub>2</sub> =CHOOCCH <sub>3</sub>	100%	-	-	+	+	+	n	n	+/o	+	+	2
Water Glass => Sodium Silica	te												
Xylene	C <sub>6</sub> H <sub>4</sub> (CH <sub>3</sub> ) <sub>2</sub>	100%	-	-	-	+	+	0	-	-	0	+	2
Zinc Acetate	(CH <sub>3</sub> COO) <sub>2</sub> Zn	S	+	+	+	+	+	-	+	+	+	+	1
Zinc Chloride	ZnCl <sub>2</sub>	s	+	+	+	+	-	+	+	+	+	n	1
Zinc Sulphate	ZnSO <sub>4</sub>	S	+	+	+	+	+	+	+	+	+	+/0	1
	· ·												





## Overview of the Resistance of Soft PVC Hoses (Guttasyn<sup>®</sup>) to the Most Common Chemicals

This data applies to standard conditions (20 °C, 1013 mbar).

+ =	resistant
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o = conditionally resistant

= not resistant

The data is taken from relevant manufacturers' literature and supplemented by our own tests and experience. As the resistance of a material also depends on other factors, especially pressure and operating conditions etc, this list should merely be regarded as an initial guide and does not claim to offer any guarantees. Take into consideration the fact that conventional dosing agents are largely compounds, the corrosiveness of which cannot simply be calculated by adding together the corrosiveness of each individual component. In cases such as these the material compatibility data produced by the chemical manufacturer must be read as a matter of priority when selecting a material. Safety data sheets do not provide this information and cannot therefore replace application-specific documentation.

Corrosive agent	Concentration in %	Evaluation
Acetic acid	50	0
Acetic acid (wine vinegar)		0
Acetic acid anhydride	100	-
Acetic acid, aqueous	10	+
Acetic ester	100	-
Acetone	all	-
Acetylene tetrabromide	100	-
Aluminium salts, aqueous	all	+
Alums of all kinds, aqueous	all	+
Ammonium salts	all	+
Ammonium, aqueous	15	-
Ammonium, aqueous	saturated	-
Aniline	100	-
Benzene	100	-
Bisulphite, aqueous	40	+
Borax solution	all	+
Boric acid, aqueous	10	+
Bromine, vaporous and liquid		-
Butanol	100	+
Butyl acetate	100	-
Butyric acid, aqueous	20	+
Butyric acid, aqueous	conc.	-
Calcium chloride, aqueous	all	+
Carbon disulphide	100	- -
Carbonic acid	all	+
Caustic potash	15	+
Chlorinated hydrocarbons	all	+
Chrome-alum, aqueous	all	-
	50	+
Chromic acid, aqueous	all	-
Copper sulphate, aqueous	all	+
Creosote	a a trucka al	
Dextrin, aqueous	saturated	+
Diesel oils, compressed oils	100	0
Diethyl ether	100	-
Difluorodichloromethane	100	-
Ethanol	96	-
Ethyl acetate	100	-
Ethylene glycol	30	+
Ferric chloride, aqueous	all	+
Fertilizing manure salt, aqueous	all	+
Formaldehyde, aqueous	30	0
Glacial acetic acid	100	-
Glucose, aqueous	saturated	+
Glycerol	100	-
Halogens	all	-



## **ProMinent® Chemical Resistance List**

Corrosive agent	Concentration in %	Evaluation
Hydrochloric acid	15	+
Hydrogen bromide	10	+
Hydrogen peroxide	to 10	+
Hydrogen sulphide, gaseous	100	-
Ink		+
Magnesium salts, aqueous	all	+
Methyl alcohol	100	+
Methylene chloride	100	-
Nitric acid, aqueous	25	+
Oils => fats, diesel oil, Lubricating oil and similar		
Perchloric acid	all	0
Phenol, aqueous	all	0
Phosphoric acid, aqueous	100	-
Potassium bichromate, aqueous	saturated	+
Potassium persulphate, aqueous	saturated	+
Silver nitrate	10	+
Sodium chloride, aqueous	all	+
Sodium hydroxide	aqueous	+
Sodium hypochlorite	15	+
Sodium salts => sodium chloride		
Sulphur dioxide, gaseous	all	+
Sulphuric acid	30	+
Tetrachloromethane	100	-
Toluene	100	-
Trichloroethylene	100	-
Urea, aqueous	all	+
Xylene	100	-
Zinc salts	all	+



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