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**ProMinent**<sup>®</sup>

# Catalogue **2024**

Effective as at 1 January 2024\*

\*We reserve the right to make technical changes.



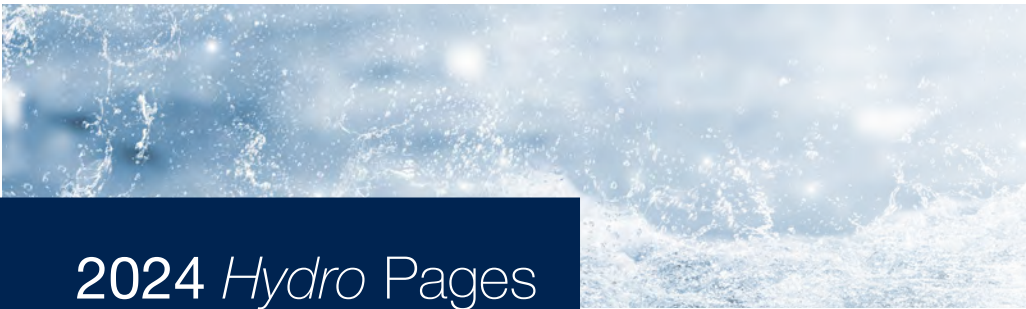
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2024 Yellow Pages



2024 Green Pages



2024 Hydro Pages



2024 Pink Pages



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## 2024 Yellow Pages

## SOLENOID PUMPS



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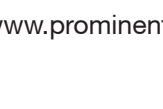
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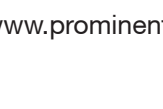
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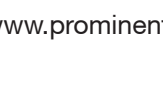
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# 1.0 alpha Motor-driven Metering Pumps

## 1.0.1 alpha Metering Pump

The alpha is a metering pump designed for simple operations. It is ideal for continuous metering.

- Output range 1.0-30.6 l/h, 10-2 bar
- Stroke length adjustment in 10 % steps from 0-100 %
- Material options: PVDF and Acrylic/PVC
- Patented coarse/fine bleed valve
- Constant stroke rate
- Controlled via mains supply ON/OFF

It is an oscillating motor diaphragm metering pump for liquid chemicals and consists of drive and delivery unit as main components. The drives are available in 2 gear ratios, delivery units in 4 sizes and in the materials acrylic/PVC. It is therefore possible to specify the required output and the material combination. The alpha pumps are switched on/off via the mains power supply, the metering output can be changed via the stroke length adjustment between 100 % and 0.

The drive consists of a powerful split pole motor with gearbox, eccentric shaft and connecting rod as driving rod. The housing is made of glass fibre reinforced plastic and is resistant to shock and chemicals.

The eccentric for the stroke movement is guided in an eccentric cam. Suction and pressure stroke are positively driven.

The stroke length adjustment is carried out by varying the eccentricity in 10 % steps via a notched slide when the pump is not working. This means that the diaphragm deflection is always made from the neutral centre position.

During operation, the alpha pump with its positively driven suction and metering strokes, as well as the stroke length adjustment by varying the eccentricity produces a smooth, sinusoidal stroke action for suction and metering stroke with diaphragm deflection from the centre position.

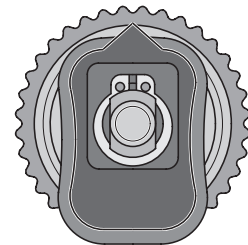
The result is a good suction performance, smooth metering stroke and consistently accurate metering with low mechanical load on the metering diaphragm.

The delivery unit consists of liquid end, metering diaphragm and head disc.

The liquid end in the material combinations PVDF or plexiglass/PVC is equipped with double ball valves on the suction and pressure side as well as coarse/fine bleeding.

The bleed valve facilitates suctioning and bleeding at full operating pressure without having to interrupt and de-pressurise the metering line.

For media of higher viscosity, the valves can be spring-loaded.





# 1.0 alpha Metering Pumps

## 1.0.2 Technical Data for alpha

### 50 Hz version

	Max. Pump Capacity at Maximum Back Pressure			Max. Pump Capacity at Medium Back Pressure			Number of strokes	Stroke length	Connector Sizes Outer R x Inner R	Suction	Intake Head	shipping weight
	bar	l/h	ml/stroke	bar	l/h	ml/stroke						
<b>1001</b>	10.0	1.0	0.29	5	1.1	0.32	58	2	6 x 4	5.1	2.5	3
<b>1002</b>	10.0	1.8	0.52	5	2.1	0.60	58	2	6 x 4	5.1	2.5	3
<b>1004</b>	10.0	3.5	1.01	5	3.9	1.12	58	3	8 x 5	5.1	2.5	3
<b>1008</b>	10.0	7.7	1.00	4	8.6	1.12	128	3	8 x 5	5.1	3.0	3
<b>0707</b>	7	6.9	1.98	4	7.7	2.21	58	3	8 x 5	4.1	3.0	3
<b>0417</b>	4	17.0	2.51	3	18.3	2.76	128	3	8 x 5	4.1	3.0	3
<b>0230</b>	2	30.6	3.98	2	32.7	4.26	128	3	12 x 9	4.1	3.0	3

### Materials In Contact with Chemicals

	Liquid End	Suction/Discharge Connector	Seals	Valve Balls
<b>NPE</b>	Plexiglass	PVC	EPDM	ceramic
<b>NPB</b>	Plexiglass	PVC	FPM (Viton®)	ceramic
<b>PVT</b>	PVDF	PVDF	PTFE	ceramic

DEVELOPAN® dosing diaphragms with PTFE coating for all versions.

Viton® is a registered trademark of DuPont Dow Elastomers. (FPM = fluororubber)

**Included in delivery: Metering Pump with 2 m mains cable and plug, connector set for hose/tube connection as indicated in tables.**

### Motor Data

- **Type:** Split pole motor with integrated thermal overload protection
- **Power supply:** 220-240 V, 50Hz
- **Power input:** 50 W (at 230 V/50 Hz)
- **Power consumption:** 0.4 A (at 230 V/50 Hz)



# 1.0 alpha Metering Pumps

## 1.0.3 Identity Code & Pricing for alpha

### ALPc alpha version C

Pump Type	Capacity at 50 Hz	
1001	1.2 l/h - 10 bar	NPE
1001	1.2 l/h - 10 bar	NPB
1001	1.2 l/h - 10 bar	PVT
1002	1.8 l/h - 10 bar	NPE
1002	1.8 l/h - 10 bar	NPB
1002	1.8 l/h - 10 bar	PVT
1004	3.5 l/h - 10 bar	NPE
1004	3.5 l/h - 10 bar	NPB
1004	3.5 l/h - 10 bar	PVT
1008	7.7 l/h - 10 bar	NPE
1008	7.7 l/h - 10 bar	NPB
1008	7.7 l/h - 10 bar	PVT
0707	6.9 l/h - 7 bar	NPE
0707	6.9 l/h - 7 bar	NPB
0707	6.9 l/h - 7 bar	PVT
0417	17.0 l/h - 4 bar	NPE
0417	17.0 l/h - 4 bar	NPB
0417	17.0 l/h - 4 bar	PVT
0230	30.6 l/h - 2 bar	NPE
0230	30.6 l/h - 2 bar	NPB
0230	30.6 l/h - 2 bar	PVT

Liquid end Material	
NPE	Acrylic/PVC/EPDM
NPB	Acrylic/PVC/FPM
PVT	PVDF/PVDF/PTFE

Valve springs	
2	No valve springs with bleeding
3	With 2 valve springs approx. 0.1 bar, stainless steel 1.4571 with bleeding

Hydraulic Connectors	
0	Standard

Version	
0	With ProMinent® logo

Electrical connectors	
A	230 V, 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, Australian plug (STD)
D	115 V, 50/60 Hz, 2 m, USA plug

Ancillary equipment	
0	No ancillary equipment
1	With foot and dosing valve, 2 m PVC and 5 m PE hose (STD)

ALPC	0707	PVT	2	0	0	C	1
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## 1.1 Beta® b 4 & 5 Metering Pumps

### 1.1.1 Beta® Metering Pump

The Beta® range represents a new generation of ProMinent® solenoid diaphragm Metering Pumps. These micro-processor controlled pumps set new standards of operating safety and versatility: power surge compensation, wide-ranging power-supply adaptability, triple LED operating-status display and flexible control options, including external contact, volt-free ON/OFF control, and external frequency adjustment via volt-free contacts make these pumps ideal for the watertreatment industry.

The 10 settings used to adjust dosing-frequency, along with “external”, “stop” and “test” settings are selected using a multi-function knob. Dosing heads are specifically designed in materials which withstand the chemicals used in this field: acids, alkalis, disinfectants, flocculation additives. In “test” mode, the pump operates at maximum frequency. On release, the spring-loaded button returns to “stop”. Variable stroke length adjustment enables precise selection of dosing capacity.

These settings options result in accurate dosing, and precise reproducibility of the required frequency. High frequencies ensure thorough blending of chemicals. A longer stroke length and correct installation ensures reliable dosing of highly viscous liquids. Self-deaerating dosing heads are available for gaseous chemicals. To complete the safety package we offer an optional dual-setting level switch to monitor chemical levels in containers. The hard-wearing drive systems for these solenoid diaphragm pumps meet the usual ProMinent® high standards of quality. The housing is made from glass-fibre reinforced PPE and carries IP 65 protection.

Foot and injection valves and 7m tube pack are included as standard, (PP/PVC only). This universal pump offers an excellent cost of ownership ratio.

#### Features & Benefits

- Capacity range 0.74 - 32 l/h, 2 - 25 bar
- Continuous stroke length adjustment from 0 - 100 % (recommended 30-100%)
- Supplied in PP, PVC, Acrylic/PVC, PVDF, PTFE, stainless steel
- Patented coarse/fine, manual bleeding on PP, PVC and PVT Acrylic/PVC versions
- Self-deaerating dosing head type in PP and Plexi/PVC
- HV liquid end for highly viscous media
- 10-setting stroke frequency adjustment from 10 - 100 %
- External control via volt-free contacts
- External contact input with pulse control as standard 1:64 to 64:1
- Connector for dual-setting level switch
- 3 x LED display for operation, warning and fault indication
- Wide range power supply 100-230 volt 50/60 Hz
- Milliamp input option 4-20 mA



# 1.1 Beta® b 4 & 5 Metering Pumps

## 1.1.2 Technical Data Beta®

pump type	Max. Pump Capacity at Maximum Back Pressure			Max. Pump Capacity at Medium Back Pressure			Stroke Freq	Connector Sizes Outer R x Inner R	Suction Lift**	Delivery Weight PP, NP PC, TT	SS
	bar	l/h	ml/stroke	bar	l/h	ml/stroke					
BT4b 1000	10	0.74	0.069	5.0	0.82	0.076	180	6 x 4	6.0**	2.9	3.6
BT4b 0700 ***	7	0.8	0.074	3.5	0.8	0.074	180	6 x 4	6.0**	2.9	3.6
BT4b 0400 ***	4	0.84	0.078	2.0	0.84	0.078	180	6 x 4	6.0**	2.9	3.6
BT4b 2001	20	0.96	0.089	10.0	1.5	0.13	180	6 x 3	6.0**	3.1	3.9
BT4b 1601	16	1.1	0.10	8.0	1.4	0.13	180	6 x 4	6.0**	3.1	3.9
BT4b 1001 ***	10	1.3	0.12	5.0	1.5	0.14	180	6 x 4	6.0**	3.1	3.9
BT4b 0701 ***	7	1.4	0.13	3.5	1.5	0.14	180	6 x 4	6.0**	3.3	4.4
BT4b 0401 ***	4	1.5	0.14	2.0	2.0	0.18	180	6 x 4	6.0**	2.9	3.6
BT4b 2002	20	1.7	0.16	2.8	0.26	0.13	180	6 x 3	6.0**	2.9	3.6
BT4b 1602	16	2.2	0.20	8.0	2.5	0.24	180	6 x 4	6.0**	2.9	3.6
BT4b 1002 ***	10	2.4	0.22	5.0	2.8	0.26	180	6 x 4	6.0**	3.1	3.9
BT4b 0702 ***	7	2.6	0.24	3.5	3.1	0.29	180	6 x 4	6.0**	3.1	3.9
BT4b 0402 ***	4	2.8	0.26	2.0	3.9	0.36	180	6 x 4	3.0**	3.1	3.9
BT4b 1604	16	3.6	0.33	8.0	4.3	0.40	180	6 x 4	2.0**	3.3	4.4
BT4b 1004 ***	10	3.9	0.36	5.0	4.7	0.44	180	6 x 4	5.0**	2.9	3.6
BT4b 0704 ***	7	4.2	0.39	3.5	5.1	0.47	180	6 x 4	5.0**	2.9	3.6
BT4b 0404 ***	4	4.5	0.42	2.0	5.6	0.52	180	6 x 4	5.0**	2.9	3.6
BT4b 0708	7	7.1	0.66	3.5	8.4	0.78	180	8 x 5	6.0**	3.1	3.9
BT4b 0408 ***	4	8.3	0.77	2.0	10.0	0.93	180	8 x 5	4.0**	3.1	3.9
BT4b 0413	4	12.3	1.14	2.0	14.2	1.31	180	8 x 5	3.0**	2.9	3.6
BT4b 0220	2	19.0	1.76	1.0	20.9	1.94	180	12 x 9	2.0**	2.9	3.6
BT5b 2504	25	2.9	0.27	12.5	3.7	0.34	180	8 x 4	4.0**	3.1	3.9
BT5b 1008	10	6.8	0.63	5.0	8.3	0.76	180	8 x 5	3.0**	3.3	4.4
BT5b 0713	7	11.0	1.02	3.5	13.1	1.21	180	8 x 5	3.0**	4.5	5.3
BT5b 0420	4	17.1	1.58	2.0	19.1	1.77	180	12 x 9	3.0**	4.7	5.8
BT5b 0232	2	32.0	2.96	1.0	36.2	3.35	180	12 x 9	2.0**	5.1	6.6

### Beta b® Metering Pumps with self-bleeding dosing head \*

BT4b 1601	16	0.59	0.055	8.0	0.80	0.072	180	6 x 4	1.8**	2.9	-
BT4b 1001	10	0.72	0.067	5.0	0.60	0.08	180	6 x 4	2.1**	2.9	-
BT4b 0701	7	0.84	0.078	3.5	1.12	0.10	180	6 x 4	2.7**	3.1	-
BT4b 0401	4	0.90	0.083	2.0	1.2	0.11	180	6 x 4	2.0**	3.1	-
BT4b 2002	20	0.78	0.07	10.0	1.8	0.17	180	6 x 3	2.0**	3.1	-
BT4b 1602	16	1.4	0.13	8.0	1.74	0.174	180	6 x 4	2.0**	3.3	-
BT4b 1002	10	1.7	0.16	5.0	2.0	0.072	180	6 x 4	1.8**	2.9	-
BT4b 0702	7	1.8	0.17	3.5	2.2	0.20	180	6 x 4	2.1**	2.9	-
BT4b 0402	4	2.1	0.19	2.0	2.5	0.23	180	6 x 4	2.7**	3.1	-
BT4b 1604	16	2.7	0.25	8.0	3.6	0.33	180	6 x 4	2.0**	3.1	-
BT4b 1004	10	3.3	0.30	5.0	3.9	0.36	180	6 x 4	2.0**	3.1	-
BT4b 0704	7	3.6	0.33	3.5	4.0	0.37	180	6 x 4	2.0**	3.3	-
BT4b 0404	4	3.9	0.36	2.0	4.2	0.39	180	6 x 4	1.8**	2.9	-
BT4b 0708	7	6.6	0.61	3.5	7.5	0.69	180	8 x 5	2.1**	2.9	-
BT4b 0408	4	7.5	0.64	2.0	8.1	0.77	180	8 x 5	2.7**	3.1	-
BT4b 0413	4	10.8	1.0	2.0	12.6	1.17	180	8 x 5	2.0**	3.1	-
BT4b 0220	2	16.2	1.50	1.0	18.0	1.67	180	12 x 9	2.0**	3.3	-
BT5b 1008	10	6.3	0.58	5.0	7.5	0.69	180	8 x 5	3.0**	4.5	-
BT5b 0713	7	10.5	0.97	3.5	12.3	1.14	180	8 x 5	2.5**	4.5	-
BT5b 0420	4	15.6	1.44	2.0	17.4	1.61	180	12 x 9	2.5**	4.7	-

Beta® pumps with liquid ends for highly viscous media have 10-20 % less metering capacity and are not self-priming.

G 3/4-DN connector with d16-DN10 nozzle union.

\* The values given in the capacity data tables are guaranteed minimum values, using medium hardness water at room temperature. Bypass bleed size 6x4 all sizes.

\*\* Suction lift readings when liquid end and suction tubing are full, or for self-degassing liquid end when the suction tubing contains air.

\*\*\* Reduced pressure 4, 7 and 10 bar pump types are available for specialised applications, e.g. for use in swimming pool systems.

\*\*\*\* 6 mm inner diameter in stainless steel version.



# 1.1 Beta<sup>®</sup> b 4 & 5 Metering Pumps

## 1.1.3 Identity Code & Pricing for Beta<sup>®</sup> b 4 & 5

BT4b Beta <sup>®</sup> version b			
BT4b 1000,1601, 1602, 1604	PP	BT5b 1008, 0713, 0420	PP
also 2001* 1001, 0701, 0401	PV	also 2504*	PV
2002* 1002, 0702, 0402	NP		NP
1004, 0704, 0404	TT	<b>Note: 2504*, 2002*, 2001* only NP &amp; SS</b>	TT
	SS		SS
BT4b 0708, 0413, 0220	PP	BT5b 0232	PP
also 0408	PV		PV
	NP		NP
	TT		TT
	SS		SS

Liquid End Materials / Seals *** Note: not all stocked *** 1004 ONLY available in NPT ***	
PPE	Polypropylene/EPDM
PPB	Polypropylene/Viton (FPM-B) <i>not stocked FPM-B = Fluorine Rubber</i>
NPE	Plexiglass/EPDM <i>not stocked</i>
NPB	Plexiglass/Viton
PVT	PVDF/PTFE, for L/E type 2 <b>not 0232</b> & type 4 <b>only 1004/1604, 0708/1008, 0413/0713, 0220/420</b>
TTT	PTFE/PTFE
SST	Stainless Steel 1.4571/PTFE
Liquid End Version	
0	Non bleed, no valve springs, <b>ONLY for TT, SS and type 0232 PVT &amp; PPE</b>
1	Non bleed, with valve springs, <b>ONLY for TT, SS and type 0232</b>
2	Bleed function, no valve springs for PP, NP, & PVT only - <b>not type 0232 EXCEPT NPB2</b>
3	Bleed function, with valve springs for PP, NP, & PVT only - <b>not type 0232</b>
4	Version for highly viscous media, <b>only PVT type 1604, 0708, 1008, 0413, 0713, 0220, 0420</b>
7	PVT Self bleed (SER) no bypass <b>NOT 1000, 1601, 0232</b>
9	Self bleed, (SEK) <b>for PP, NP only all sizes EXCEPT type 1000 and 0232</b>
Design	
0	Housing RAL 5003, Hood RAL 2003
Hydraulic Connections	
0	Standard according to technical data
Logo	
0	With ProMinent Logo
Power Supply	
U	100 - 230 V, ±10%, 50/60 Hz
M	12-24 V DC (only BT4b) with 2 m open-ended cable <b>ONLY</b>
N	24 V DC with 2 m open-ended cable <b>ONLY</b>
Cable & Plug	
C	2m Australian
1	2m Open ended Cable for 12-24V pumps <b>ONLY</b>
Relay	
0	No Relay
1	Fault indicating relay (N/C) (changeover relay) <b>Preferred</b>
3	Fault indicating relay (N/O) (changeover relay)
4	As for 1 + pacing relay (1 input each)
5	As for 3 + pacing relay (1 input each)
Accessories	
0	No accessories
1	Tube FV & IV - <b>NOT for PTFE, SS or HV</b>
Electronic Locking	
0	No lock
1	With electronic lock
Control Variant	
0	Standard
A	Milliamp
Pause	
0	Standard
Options on Request	
0	Standard
Prepack Option	
P*	See options
	-

**Prepacks = P\***  
**P0** - includes 5m of delivery and 2m suction tube  
**P2** - includes 5m of delivery and 2m suction tube a 2m Control Cable if required.  
**P5** - as P2 but with 5m control Cable  
**PX** - as P2 but with 10m control Cable  
**Note:** 2504, 2001, 2002, 1601, 1602, 1605 pumps are supplied with 5.0m PTFE tube (in appropriate size) and fittings to suit, other tube is available on request.

BT4b 1601 PPE 2 0 0 0 U C 0 1 0 0 0 0 P0



# 1.1 Beta<sup>®</sup> a 4 & 5 Metering Pumps

## 1.1.4 Technical Data for Beta<sup>®</sup> a 4 & 5 – CAN Bus ONLY

pump type	Max. Pump Capacity at Maximum Back Pressure			Max. Pump Capacity at Medium Back Pressure			Stroke Freq	Connector Sizes Outer R̄ x Inner R̄	Suction Lift**	Delivery Weight PP, NP PC, TT	SS
	bar	l/h	ml/stroke	bar	l/h	ml/stroke					
<b>Beta<sup>®</sup></b>	<b>bar</b>	<b>l/h</b>	<b>ml/stroke</b>	<b>bar</b>	<b>l/h</b>	<b>ml/stroke</b>	<b>strokes/min.</b>	<b>mm</b>	<b>m Wc</b>	<b>kg</b>	<b>kg</b>
BT4a 1000***	10	0.74	0.07	5	0.82	0.08	180	6 x 4	6.0**	2.9	3.6
BT4a 1601***	16	1.1	0.10	8	1.4	0.13	180	6 x 4	6.0**	2.9	3.6
BT4a 1602***	16	2.1	0.19	8	2.5	0.24	180	6 x 4	6.0**	2.9	3.6
BT4a 1005***	10	4.4	0.41	5	5.0	0.46	180	8 x 5****	6.0**	3.1	3.9
BT4a 0708***	7	7.1	0.66	3.5	8.4	0.78	180	8 x 5	6.0**	3.1	3.9
BT4a 0413	4	12.3	1.14	2	14.2	1.31	180	8 x 5	3.0**	3.1	3.9
BT4a 0220	2	19.0	1.76	1	20.9	1.94	180	12 x 9	2.0**	3.3	4.4
BT5a 1605	16	4.1	0.38	8	4.9	0.45	180	8 x 5****	6.0**	4.5	5.3
BT5a 1008	10	6.8	0.63	5	8.3	0.76	180	8 x 5	6.0**	4.5	5.3
BT5a 0713	7	11.0	1.02	3.5	13.1	1.21	180	8 x 5	4.0**	4.5	5.3
BT5a 0420	4	17.1	1.58	2	19.1	1.77	180	12 x 9	3.0**	4.7	5.8
BT5a 0232	2	32.0	2.96	1	36.2	3.35	180	12 x 9	2.0**	5.1	6.6

### Beta a<sup>®</sup> Metering Pumps with self-bleeding dosing head \*

BT4a 1601	16	0.59	0.06	8	0.78	0.07	180	6 x 4	1.8**	2.9	-
BT4a 1602	16	1.4	0.13	8	1.7	0.16	180	6 x 4	2.1**	2.9	-
BT4a 1005	10	3.6	0.33	5	4.0	0.37	180	8 x 5	2.7**	3.1	-
BT4a 0708	7	6.6	0.61	3.5	7.5	0.69	180	8 x 5	2.0**	3.1	-
BT4a 0413	4	10.8	1.00	2	12.6	1.17	180	8 x 5	2.0**	3.1	-
BT4a 0220	2	16.2	1.50	1	18.0	1.67	180	12 x 9	2.0**	3.3	-
BT5a 1605	16	3.3	0.31	8	3.8	0.35	180	8 x 5	3.0**	4.5	-
BT5a 1008	10	6.3	0.58	5	7.5	0.69	180	8 x 5	3.0**	4.5	-
BT5a 0713	7	10.5	0.97	3.5	12.3	1.14	180	8 x 5	2.5**	4.5	-
BT5a 0420	4	15.6	1.44	2	17.4	1.61	180	12 x 9	2.5**	4.7	-

Beta<sup>®</sup> pumps with liquid ends for highly viscous media have 10-20 % less metering capacity and are not self-priming.

G 3/4-DN connector with d16-DN10 nozzle union.

\* The values given in the capacity data tables are guaranteed minimum values, using medium hardness water at room temperature. Bypass bleed size 6x4 all sizes.

\*\* Suction lift readings when liquid end and suction tubing are full, or for self-degassing liquid end when the suction tubing contains air.

\*\*\* Reduced pressure 4, 7 and 10 bar pump types are available for specialised applications, e.g. for use in swimming pool systems. Further information on request.

\*\*\*\* 6 mm inner diameter in stainless steel version.

### Materials on each Model in Contact with Chemicals

	Dosing head	Suction/pressure connector	Seals	Balls
PPE	Polypropylene	Polypropylene	EPDM	ceramic
PPB	Polypropylene	Polypropylene	FPM (Viton <sup>®</sup> )	ceramic
PCE	PVC	PVC	EPDM	ceramic
PCB	PVC	PVC	FPM (Viton <sup>®</sup> )	ceramic
NPE	Acrylic	PVC	EPDM	ceramic
NPB	Acrylic	PVC	FPM (Viton <sup>®</sup> )	ceramic
PVT	PVDF	PVDF	PTFE	ceramic
TTT	PTFE with carbon	PTFE with carbon	PTFE	ceramic
SST	stainless steel no. 1.4404	stainless steel no. 1.4404	PTFE	ceramic

Self-degassing version available in PP and NP only. Supplied with Hastelloy valve springs, PVDF valve core.

Dosing diaphragm with PTFE-coating.

Viton<sup>®</sup> is a registered trademark of DuPont Dow Elastomers.

Reproducible dosing accuracy ±2 % under correct conditions (see operating instructions).

Ambient temperature -10 °C to +45 °C.

**Mean power consumption:** Type 1000-0220: 17 W / Type 1605-0232: 22 W

**Type of enclosure:** IP 65, insulation class F

**Metering Pumps supplied with mains power cable (2 m) and plug, hose/pipe connector set as tables.**



# 1.1 Beta<sup>®</sup> a 4 & 5 Metering Pumps

## 1.1.5 Identity Code & Pricing for Beta<sup>®</sup> a 4 & 5 – CAN Bus ONLY

BT4a Beta <sup>®</sup> version a			
<b>BT4a 1000, 1601, 1602,</b> also 0700, 0400 1001, 0701, 0401 1002, 0702, 0402	PPE PVT NPB TTT SST	<b>BT5a 1605, 1008, 0713, 0420</b>	PPE PVT NPB TTT SST
<b>BT4a 1005, 0708, 0413, 0220</b> also 0405, 0705 0408	PPE PVT NPB TTT SST	<b>BT5a 0232</b>	PPE PVT NPB TTT SST

### Liquid End Materials / Seals \*\*\* Note: not all stocked \*\*\*

<b>PPE</b>	Polypropylene/EPDM
<b>PPB</b>	Polypropylene/Viton (FPM-B) <i>not stocked</i> FPM-B = Fluorine Rubber
<b>NPE</b>	Plexiglass/EPDM <i>not stocked</i>
<b>NPB</b>	Plexiglass/Viton
<b>PVT</b>	PVDF/PTFE, for L/E type 2 <i>not 0232</i> & type 4 <i>only 1005/1605, 0708/1008, 0413/0713, 0220/420</i>
<b>TTT</b>	PTFE/PTFE
<b>SST</b>	Stainless Steel 1.4404/PTFE

### Liquid End Version

- 0** Non bleed, no valve springs, **ONLY available for TT, SS and type 0232 PVT & PPE**
- 1** Non bleed, with valve springs, **ONLY available for TT, SS and type 0232 ONLY EXCEPT NPB2**
- 2** Bleed function, no valve springs for PP & PVT - **NOT type 0232**
- 3** Bleed function, with valve springs for PP, NP, & PVT - **NOT type 0232**
- 4** Version for highly viscous media, *only PVT type 1005, 1605, 0708, 1008, 0413, 0713, 0220, 0420*
- 9** Self bleed, (SEK) **for PP, NP only - NOT available for types 1000 and 0232 PP = NP =**

### Hydraulic Connections

- 0** Standard according to technical data

### Design

- 0** With ProMinent Logo

### Power Supply

- A** 200 - 230 V, ±10%, 50/60 Hz \*\*\*\*\* CAN Bus ONLY \*\*\*\*\*
- U** 100 - 230 V, ±10%, 50/60 Hz \*\*\*\*\* CAN Bus ONLY \*\*\*\*\*

### Cable & Plug

- C** 2m Australian
- 1** 2m Open ended Cable for 12-24V pumps **ONLY**

### Relay

- 0** No Relay
- 1** Fault indicating relay (N/C) (changeover relay) **Preferred**
- 3** Fault indicating relay (N/O) (changeover relay)
- 4** As for 1 + pacing relay (1 input each)
- 5** As for 3 + pacing relay (1 input each)

### Accessories

- 0** No accessories
- 1** Tube FV & IV - **NOT for PTFE, SS or HV**

### Electronic Locking

- 0** No lock
- 1** With lock: manual operation locked when external cable is plugged in.

### Options on request

- D** CANopen for Dulcomarin<sup>®</sup> II

- 0 0** no option

### Prepack Option

- P\*** See -

**Prepacks = P\***  
**P0** - includes 5m of delivery and 2m suction tube a CANbus cable, if specified.  
**Note:** 1601, 1602, 1605 pumps are supplied with 5.0m PTFE tube, other tube is available on request.

BT4a 1601 PPE 2 0 0 A C 0 1 0 0 0 0 P0



# 1.1 Beta® b 4 & 5 Metering Pumps

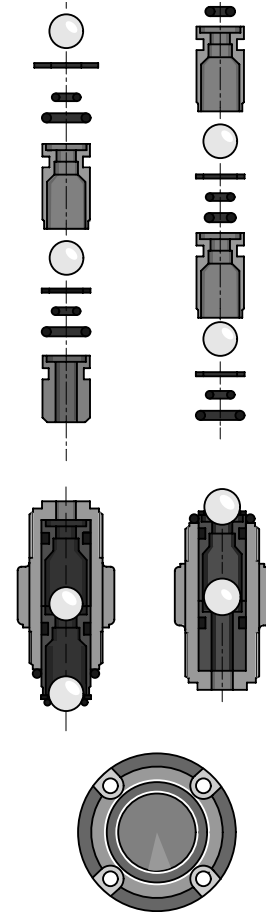
## 1.1.6 Beta® 4b & 5b Spare Parts Sets

		Part No.
Type 1000	PPT, NPT, PVT	1023107
also: 0700, 0400	TTT	1001737
	SST	1001729
Type 1601	PPT, NPT, PVT	1023108
also: 2001, 1001, 0701, 0401	TTT	1001738
	SST	1001730
Type 1602	PPT, NPT, PVT	1023109
also: 2002, 1002, 0702, 0402	TTT	1001739
	SST	1001731
Type 1604	PPT, NPT, PVT	1035332
also: 2504, 1004, 0704, 0404	PVT HV	1035342
	TTT	1035330
	SST	1035331
Type 0708	PPT, NPT, PVT	1023111
also: 1008, 0408	PVT HV	1019067
	TTT	1001741
	SST	1001733
Type 0413	PPT, NPT, PVT	1023112
also: 0713	PVT HV	1019069
	TTT	1001742
	SST	1001734
Type 0220	PPT, NPT, PVT	1023113
also: 0420	PVT HV	1019070
	TTT	1001754
	SST	1001735
Type 0232	PPT, NPT, PVT	1023124
	TTT	1001755
	SST	1001736

### Replacement part sets for ProMinent® Beta, consisting of:

- 1x dosing diaphragm
- 1x suction valve
- 1x discharge valve
- 1x set seals
- 1x connector set

**Note:** Does not include valves for SS



### Spare Parts Kits for Solenoid-driven Metering Pump Beta® with Self-bleeding Dosing Head

#### TYPE SER

		Part No.
Type 100	NPT7, PVT7	1047830
Type 1604	NPT7, PVT7	1047858
Type 0708, 1008	NPT7, PVT7	1047832
Type 0413, 0713	NPT7, PVT7	1047833
Type 0220, 0420	NPT7, PVT7	1047837

### Replacement part sets for ProMinent® Beta, consisting of:

- 1x metering diaphragm
- 1x suction valve assembly
- 1x discharge valve assembly
- 1x connector set





# 1.1 Beta<sup>®</sup> b 4 & 5 Metering Pumps

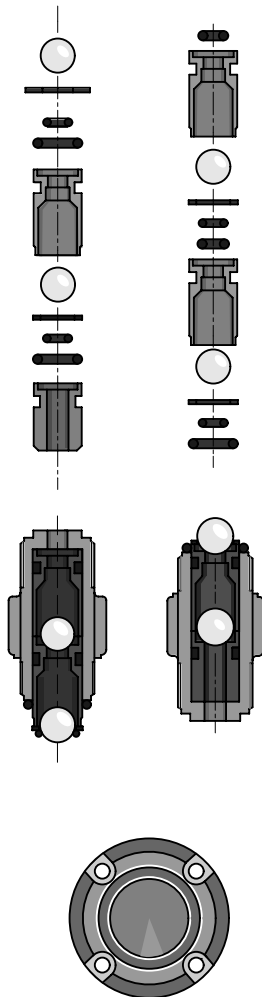
## 1.1.7 Beta<sup>®</sup> 4a/b & 5a/b Spare Parts Sets

Replacement part sets for ProMinent<sup>®</sup> Beta, consisting of:

- 1x dosing diaphragm
- 1x suction valve
- 1x discharge valve
- 1x set seals
- 1x connector set

**Note:** Does not include valves for SS

**Note:** Gamma L Spare Parts Sets are the same as the Beta listed here.



		Part No.	
<b>BT4a/b 1000</b> also: 0700, 0400	PPE	1001644	
	PPB	1001652	
	PCE/NPE	1001713	
	PCB/NPB	1001721	
	PVT	1023107	
	TTT	1001737	
	SST	1001729	
	<b>BT4a/b 1601</b>	PPE	1001645
	also: 2001, 1001, 0701, 0401	PPB	1001653
	PCE/NPE	1001714	
	PCB/NPB	1001722	
	PVT	1023108	
	TTT	1001738	
	SST	1001730	
	<b>BT4a/b 1602</b>	PPE	1001646
also: 2002, 1002, 0702, 0402	PPB	1001654	
	PCE/NPE	1001715	
	PCB/NPB	1001723	
	PVT	1023109	
	PVT/HV	1035342	
	TTT	1001739	
	SST	1001731	
	<b>BT4a/b 1604</b>	PPE	1039989
	also: 1004, 0704, 0404	PPB	1039987
	PCE/NPE	1039988	
	PCB/NPB	1039986	
	PVT	1035332	
	TTT	1035330	
	SST	1035331	
	<b>BT4a 1005, &amp; BT5a 1605</b>	PPE	1001647
	PPB	1001655	
	PCE/NPE	1001716	
	PCB/NPB	1001724	
	PVT	1023110	
	PVT/HV	1019066	
	TTT	1001740	
	SST	1001732	
	<b>BT4a/b 0708 &amp; BT5a/b 1008</b>	PPE	1001648
	also: 0408	PPB	1001656
	PCE/NPE	1001717	
	PCB/NPB	1001725	
	PVT	1023111	
	PVT/HV	1019067	
	TTT	1001741	
	SST	1001733	
	<b>BT4a/b 0413 &amp; BT5a/b 0713</b>	PPE	1001649
	PPB	1001657	
	PCE/NPE	1001718	
	PCB/NPB	1001726	
	PVT	1023112	
	PVT/HV	1019069	
	TTT	1001742	
	SST	1001734	
	<b>BT4a/b 0220 &amp; BT5a/b 0420</b>	PPE	1001650
	PPB	1001658	
	PCE/NPE	1001719	
	PCB/NPB	1001727	
	PVT	1023113	
	PVT/HV	1019070	
	TTT	1001754	
	SST	1001735	
<b>BT5a/b 0232</b>	PPE	1001651	
	PPB	1001659	
	PCE/NPE	1001720	
	PCB/NPB	1001728	
	PVT	1023124	
	TTT	1001755	
	SST	1001736	



# 1.1 Beta<sup>®</sup> b 4 & 5 Metering Pumps

## 1.1.7 Beta<sup>®</sup> 4a/b & 5a/b Spare Parts Sets

### Replacement part set: Beta<sup>®</sup> with self-deaerating head TYPE SEK

		Part No.
<b>BT4a/b 1601</b>	PPE9	1001756
also: 2001, 1001, 0701, 0401	PPB9	1001762
	NPE9	1001660
	NPB9	1001666
<b>BT4a/b 1602</b>	PPE9	1001757
also: 2002, 1002, 0702, 0402	PPB9	1001763
	NPE9	1001661
	NPB9	1001667
<b>BT4a 1604</b>	PPE9	1035339
also: 1004, 0704, 0404	PPB9	1035336
	NPE9	1035333
	NPB9	1035334
<b>BT4a 1005, &amp; BT5a 1605</b>	PPE9	1001758
	PPB9	1001764
	NPE9	1001662
	NPB9	1001668
<b>BT4a/b 0708 &amp; BT5a/b 1008</b>	PPE9	1001759
also: 0408	PPB9	1001765
	NPE9	1001663
	NPB9	1001669
<b>BT4a/b 0413 &amp; BT5a/b 0713</b>	PPE9	1001760
	PPB9	1001766
	NPE9	1001664
	NPB9	1001670
<b>BT4a/b 0220 &amp; BT5a/b 0420</b>	PPE9	1001761
	PPB9	1001767
	NPE9	1001665
	NPB9	1001671

### Replacement part sets for ProMinent<sup>®</sup> Beta<sup>®</sup> with self-deaerating head, consisting of:

- 1x dosing diaphragm
- 1x suction valve
- 1x discharge valve
- 1x bleed valve complete
- 2x valve balls
- 1x set seals
- 1x connector set

*Note: Does not include valves for SS*

### Beta<sup>®</sup>/GALA sizes of NP & PP Liquid Ends These no's engraved on side of Dosing Head

70 x 10	=	1000
70 x 12.5	=	1601
70 x 16.5	=	1602
70 x 20	=	1604
90 x 23	=	1005/1605
90 x 29	=	0708/1008
90 x 37	=	0413/0713
90 x 44	=	0220/0420
110 x 59	=	0232

### Replacement diaphragms for Beta<sup>®</sup> & gamma/ L range

dia.	Model		
30.0	<b>BT4a 1000</b>	all materials	1000244
30.0	<b>BT4a 1601</b>	all materials	1000245
34.5	<b>BT4a 1602</b>	all materials	1000246
35.0	<b>BT4b 1604 1004 &amp; 2504</b>	all materials	1034612
45.0	<b>BT4a 1005 &amp; BT5a 1605</b>	all materials	1000247
45.5	<b>BT4a 0708 &amp; BT5a 1008</b>	all materials	1000248
55.0	<b>BT4a 0413 &amp; BT5a 0713</b>	all materials	1000249
76.0	<b>BT4a 0220 &amp; BT5a 0420</b>	all materials	1000250
91.0	<b>BT5a 0232</b>	all materials	1000251

### Replacement O-ring kits for Beta<sup>®</sup> & gamma/ L range

PPE2 1000, 1601, 1602, 1005, 1605, 1004	EPDM	1001775
0708, 0413, 1008, 0713, 0220, 0420, 0232	EPDM	1001776
NPB2 & PPB2 1000, 1601, 1602, 1005, 1605, 1004	Viton	1001773
0708, 0413, 1008, 0713, 0220, 0420, 0232	Viton	1001774
PPE9 1601, 1602, 1005, 1605, 1004	EPDM	1001674
0708, 0413, 1008, 0713, 0220, 0420, 0232	EPDM	1001675
NPB9 1601, 1602, 1005, 1605	Viton	1001672
0708, 0413, 1008, 0713, 0220, 0420, 0232	Viton	1001673
PVT2 1000, 1601, 1602, 1004	Teflon	1023130
0708, 0413, 1008, 0713, 0220, 0420, 0232	Teflon	1023129



## 1.1 Beta<sup>®</sup> b 4 & 5 Metering Pumps

### 1.1.8 PTFE Diaphragm for Beta<sup>®</sup> 4a/b & 5a/b

NOTE: To be used ONLY with Chlorine Dioxide

Type	with the medium	Part No.
Type 1602		1118690
Type 1604		1117351
Type 0708 and Type 1008		1117350
Type 0413 and Type 0713		1117354



## 1.2 CONCEPT CONb

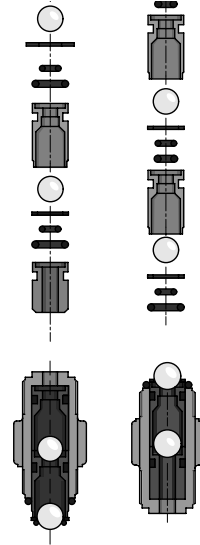
### 1.2.1 CONCEPT CONb Spare Parts Sets

#### CONb spare parts sets (identical to gamma/4)

		Part No.
CONb 1601	PP1	910720
gamma/ 4 1601	NP6	910719
CONb 1201	PP1	910724
gamma/ 4 1201	NP6	910723
CONb 0803	PP1	910728
gamma/ 4 0803	NP6	910727
CONb 1002	PP1	910732
gamma/ 4 1002	NP6	910731
CONb 0308	PP1	910736
gamma/ 4 0308	NP6	910735
CONb 0215	PP1	910740
gamma/ 4 0215	NP6	910739

#### Items included in Spare Parts Kits for material types PP & NP:

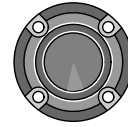
- 1x metering diaphragm
- 1x suction assembly
- 1x discharge valve assembly
- 1x seal set assembly
- 2x fuses



#### CONb pump diaphragm

ProMinent DEVELOPAN EPDM pump diaphragm with fabric insert, large contact area with integral vulcanised steel core and PTFE coating areas in contact with the media.

Designation of pump type	Part No.
CONb 1601, gamma/ 4 1601,	811453
CONb 1201, gamma/ 4 1201,	811454
CONb 0803, gamma/ 4 0803,	811455
CONb 1002, gamma/ 4 1002, gamma/ 5 1602	811456
CONb 0308, gamma/ 4 0308, gamma/ 5 1605, 1006	811457
CONb 0215, gamma/ 4 0215, gamma/ 5 0613	811458



### 1.1.10 CONCEPT PLUS Spare Parts Sets CNPa & CNPb

	Part No.
CNPa1000PPE2	1001644
CNPa1601PPE2	1001645
CNPa1002PPE2	1001646
CNPa0308PPE2	1001648
CNPa0213PPE2	1001649
CNPa1000NPB2	1001721
CNPa1601NPB2	1001722
CNPa1002NPB2	1001723
CNPa0704NPB2	1025430
CNPa0308NPB2	1001725
CNPa0213NPB2	1001726
CNPb1000PVT2	1023107
CNPb1601PVT2	1023108
CNPb1002PVT	1023109
CNPb0704PVT2	1027732
CNPb0309PVT	1023111
CNPb0215PVT	1023112

#### CONCEPT Plus Pump Diaphragm

ProMinent DEVELOPAN EPDM pump diaphragm with fabric insert, large contact area with integral vulcanised steel core and PTFE coating areas in contact with the media.

CNPa1000	30.0	1000244
CNPa1601	29.5	1000245
CNPa1002	34.5	1000246
CNPa0704		1020672
CNPa0308	45.5	1000248
CNPa0213	55.0	1000249



## 1.3 gamma/ X Metering Pumps

### 1.3.1 gamma/ X Metering Pumps

The proven best-seller intelligently extended

CAPACITY RANGE 2.3 – 45 L/H, 25 – 2 BAR

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

The new solenoid diaphragm metering pump gamma/ X is user-friendly and, just like its predecessor, has an outstandingly long service life. An ingenious solenoid control measures the back pressure and 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. It independently ensures a trouble-free metering process and, should the pump ever need maintenance, its service module draws attention to this.



#### Features & Benefits

- Simple adjustment of the capacity directly in l/h
- Trouble-free processes by the detection of hydraulic malfunctions or blocked discharge lines
- 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 7-day timer for timed metering tasks
- Guaranteed metering by means of automatic bleeding
- Connection to process control systems via bus interfaces, such as Profinet, PROFIBUS, CAN bus, others on request
- Organise work processes conveniently with the optional process timer. The alternative to a timer or PLC
- Virtually wear-free solenoid drive, overload-proof and economical
- Suitable for continuous micro-metering from 2 ml/h thanks to the regulated solenoid drive

#### 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
- Input concentration for simple adjustment with volume-proportional metering tasks
- Stroke rate adjustment in 1 stroke/hour increments from 0 to 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 easily and reliably retrofitted
- Optional 24 V combined relay, can also be easily and reliably retrofitted

#### Field of Application

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



# 1.3 gamma/ X Metering Pumps

## 1.3.2 Technical Data & Materials for gamma/ X

pump type gamma/ X	Delivery rate at max. back pressure			Number of Strokes	Connection Size OD x ID	Suction Lift	Shipping Weight	
	bar	l/h	ml/stroke				PP, NP	SS
GMXa 1602	16	2.30	0.19	200	6 x 4	6.0**	3.6	4.1
GMXa 1604	16	3.60	0.30	200	6 x 4	5.0**	3.6	4.1
GMXa 0708	7	7.60	0.63	200	8 x 5	4.0**	3.7	5.0
GMXa 0414	4	13.50	1.13	200	8 x 5	3.0**	3.7	5.0
GMXa 0220	2	19.70	1.64	200	12 x 9	2.0**	3.7	5.0
GMXa 2504	25	3.80	0.32	200	(6x4 suction) 8 x 4***	4.0**	4.9	5.5
GMXa 1009	10	9.00	0.75	200	8 x 5	3.0**	5.1	6.5
GMXa 0715	7	14.50	1.21	200	8 x 5****	3.0**	5.1	6.5
GMXa 0424	4	24.00	2.00	200	12 x 9	3.0**	5.1	6.5
GMXa 0245	2	45.00	3.70	200	12 x 9	2.0**	5.2	7.0

### gamma/ X metering pumps with self-bleeding head without bypass (SER) PVT7

GMXa 1602	10	0.90	0.08	200	6 x 4	1.8**	3.6	-
GMXa 1604	10	1.60	0.13	200	6 x 4	1.8**	3.6	-
GMXa 0708	7	5.70	0.48	200	8 x 5	1.8**	3.7	-
GMXa 0414	4	12.00	1.00	200	8 x 5	1.8**	3.7	-
GMXa 0220	2	17.40	1.45	200	12 x 9	1.8**	3.7	-
GMXa 1009	10	6.00	0.50	200	8 x 5	1.8**	5.1	-
GMXa 0715	7	12.90	1.08	200	8 x 5	1.8**	5.1	-
GMXa 0424	4	19.20	1.60	200	12 x 9	1.8**	5.1	-

### gamma/ X metering pumps with auto bleed (SEK) NPB9

GMXa 1602	10	1.3	0.11	200	6 x 4	2.1**	3.6	-
GMXa 1604	10	2.4	0.21	200	6 x 4	2.7**	3.6	-
GMXa 0708	7	6.8	0.57	200	8 x 5	2.0**	3.7	-
GMXa 0414	4	12.0	1.00	200	8 x 5	2.0**	3.7	-
GMXa 0220	2	18.0	1.50	200	12 x 9	2.0**	3.7	-
GMXa 1009	10	8.0	0.67	200	8 x 5	3.0**	5.1	-
GMXa 0715	7	13.5	1.12	200	8 x 5	2.5**	5.1	-
GMXa 0424	4	20.0	1.67	200	12 x 9	2.5**	5.1	-

**Note:** gamma/ X metering pumps with dosing heads for high-viscosity media have a 10 – 20% lower capacity, and are not self priming.

\* 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

Self-bleeding design only in material designs PP and NP with a valve spring made of Hastelloy C and a PVDF valve insert.

Diaphragm with a PTFE coating. FKM = fluorine rubber

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

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

**Mean power consumption:** 24/30 W

**Degree of protection:** IP 65, insulation class F



# 1.3 gamma/ X Metering Pumps

## 1.3.3 Identity Code & Pricing for gamma/ X

GMXa	Type	PPT2	NPT2	NPB2	NPB9	PVT0	PVT2	PVT4	PVT7	TTT0	SST0
	1602, 1604					<b>PPT0</b>					
	0708, 0414, 0220					<b>NPT0</b>					
	2504 **										
	1009, 0715, 0424										
	0245										

### Liquid end/valve material

<b>PP</b>	Polypropylene/PVDF, with self-bleeding design polypropylene
<b>NP</b>	Clear acrylic/PVDF, with self-bleeding design clear acrylic/PVC
<b>PV</b>	PVDF/PVDF
<b>TT</b>	PTFE/PTFE
<b>SS</b>	Stainless steel 1.4404/1.4404

**Note:** Pump prices above in **BOLD** are normally stocked. Prices in *italics*, (and other combinations of materials), are available ex PDT Germany. Please consult Sydney office.

### Seal/diaphragm material

<b>T</b>	PTFE/PFTE coated
----------	------------------

### Liquid end version

- 0** Non-bleed version, no valve spring **only with NP, TT and SS and type 0245**
- 1** Non-bleed version, with valve spring **only with NP, TT and SS and type 0245**
- 2** Bleed function, no valve springs **only with PP, PV, NP \* not for type 0245\***
- 3** Bleed function, with valve springs **only with PP, PV, NP \* not for type 0245\***
- 4** HV version for highly viscous media with valve spring **\* not for types 1602 and 0245 \***
- 7** self-bleeding without bypass (SER), **only with NPT and PVT\* not for types 1602, 2504 and 0245\***
- 9** self-bleeding without bypass (SEK), **only with NPB not for types 2504 and 0245 \***

### Hydraulic connections

- 0** Standard according to technical data
- 5** Discharge side connection for hose 12/6, suction standard, only PP, NP, PV
- 9** Discharge side connection for hose 10/4, suction standard, only PP, NP, PV

### Diaphragm rupture indicator

- 0** Without diaphragm rupture indicator
- 1** With diaphragm rupture indicator, optical sensor, **electrical signal not for 0245**

### Version

- 0** Standard

### Logo

- 0** with ProMinent® logo

### Power supply

- U** 100-230V, ±10 %, 50/60 Hz

### Cable and plug

- C** 2 m Australian

### Relay, pre-set to

- 0** No relay
- 1** 1 x changeover contact 230V – 2 A, fault indicating relay N/C
- 4** 2 x N/O 24V – 100 mA, as 1 + pacing relay
- C** 1 x N/O 24V – 100 mA, as 1 + 4 – 20 mA output
- F** Automatic degassing solenoid 240v - \*\*\*
- G** Automatic degassing solenoid 24v DC + Relay output

### Accessories

- 0** No accessories
- 1** Tube FV & IV - **NOT for PTFE, SS or HV**

### Control version

- 0** Manual + ext. 1:1 & pulse control
- 3** Manual+ext.&pulse control+analogue 0/4-20mA
- C** such as 3 + CANopen
- D** such as 3 + CANopen
- R** as 3 + PROFIBUS® DP interface

### Metering monitor

- 0** Pulse signal input

### Remote Stop

- 0** without Bluetooth
- B** with Bluetooth

### Language

- EN** English

P = Prepack

P\*

**Note:** \*\* 2504 pump supplied with 2 off 8x4 tube nozzles & clamp rings, & 5.0 m of 8x4 PTFE tube.

**Note:** Relays type F & G can **ONLY** be fitted to pumps with PPT2, NPT2 and PVT2 Liquid Ends

**Note:** If PROFIBUS® is specified refer to page 3.20 to determine which PROFIBUS® cables, adaptors and terminators are required. Also if PROFIBUS® option is selected NO relays can be fitted.

### Prepacks = P\*

**P0** - includes 5m of delivery and 2m suction tube a CANbus cable, if specified.

**P2** - includes 5m of delivery and 2m suction tube a 2m Control Cable if required.

**P5** - as P2 but with 5m control Cable

**PX** - as P2 but with 10m control Cable

**Note:** 1602, 1604, pumps are supplied with 5.0m PTFE tube, other tube is available on request.

GMXa 0708

PV

T

2

0

1

0

0

U

C

0

1

3

0

0

EN

P\*



# 1.3 gamma/ X Metering Pumps

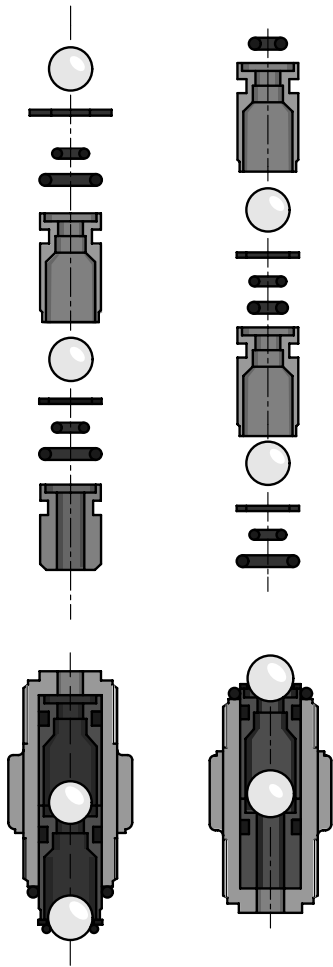
## 1.3.4 Accessories Spare Part Sets gamma/ X

### Spare Parts Kit for gamma/ X

**Spare parts kits for gamma/ X, consisting of:**

- 1 x diaphragm
- 1 x suction valve, complete
- 1 x discharge valve, complete
- 1 x connector set

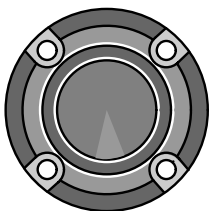
**Note:** Suction and discharge valve set not included with stainless steel version.



Type	Materials in contact with the medium	Part No.
<b>Type 1602</b>	PVT2, PPT, NPT2	1023109
	NBP2	1001723
	NBP9	1001667
	TTT	1001739
	SST	1001731
<b>Type 1604 and Type 2504</b>	PVT2, PPT, NPT2	1035332
	NBP2	1039986
	NBP9	1035334
	PVT4	1035342
	TTT	1035330
<b>Type 0708 and Type 1009</b>	SST	1035331
	PVT2, PPT, NPT2	1023111
	NBP2	1001725
	NBP9	1001669
	PVT4	1019067
<b>Type 0414 and Type 0715</b>	TTT	1001741
	SST	1001733
	PVT2, PPT, NPT2	1023112
	NBP2	1001726
	NBP9	1001670
<b>Type 0220 and Type 0424</b>	PVT4	1019069
	TTT	1001742
	SST	1001734
	PVT2, PPT, NPT2	1051129
	NBP2	1051107
<b>Type 0245</b>	NBP9	1051113
	PVT4	1051134
	TTT	1051151
	SST	1051139
	PVT2, PPT	1051130
<b>Type 0245</b>	NBP2	1051108
	TTT	1051152
	SST	1051140

### Spare Diaphragm for Product Range gamma/ X

Type	Materials in contact with the medium	Part No.
<b>Type 1602</b>	all materials	1000246
<b>Type 1604 and Type 2504</b>	all materials	1034612
<b>Type 0708 and Type 1009</b>	all materials	1000248
<b>Type 0414 and Type 0715</b>	all materials	1000249
<b>Type 0220 and Type 0424</b>	all materials	1045456
<b>Type 0245</b>	all materials	1045443





## 1.3 gamma/ X Metering Pumps

### 1.3.5 gamma/ X Metering Pumps with SER

Spare parts kits for gamma/ X with self-bleeding Dosing Head without bypass, consisting of:

- 1 x diaphragm
- 1 x suction valve, complete
- 1 x discharge valve, complete
- 1 x bleed valve, complete
- 1 x connector set

#### Materials in contact

Type	with the medium	Part No.
Type 1602	PVT7, NPT7	1047830
Type 1604	PVT7, NPT7	1047858
Type 0708 and Type 1009	PVT7, NPT7	1047832
Type 0414 and Type 0715	PVT7, NPT7	1047833
Type 0220 and Type 0424	PVT7, NPT7	1051111

### 1.2.6 PTFE Diaphragm for gamma/X Metering Pumps

**NOTE: To be used ONLY with Chlorine Dioxide**

Type	with the medium	Part No.
Type 1602		1118690
Type 1604		1117351
Type 0708 and Type 1009		1117350
Type 0414 and Type 0715		1117354
Type 0220 and Type 0424		1117352
Type 0245		1117353



## 1.4 gamma/ XL Metering Pumps

### 1.4.1 gamma/ XL

#### gamma/ XL – large output, great features

The new solenoid-driven metering pump gamma/ XL is the enhancement to our proven gamma/ X and covers a capacity range from 8 – 80 l/h at 25 – 2 bar.

The gamma/ XL also has other interfaces, for example CAN bus and Wi-Fi connections. This allows the gamma/ XL to network with all systems, devices and platforms. Like the gamma/ X, the gamma/ XL has an intuitive operating concept.

The pump is adjusted using a click wheel and 4 additional operating keys.

Pressure detection without wetted parts ensures maximum operational safety.

Hydraulic error statuses, like “Gas in the dosing head”, “Overpressure” and “No pressure” can be detected. Pressure fluctuations in the system are detected and compensated for, achieving a high level of dosing precision and reducing chemical consumption to the required level. The last 300 events are retrospectively saved in the integral log book, which permits rapid analysis of the cause and troubleshooting.



Deviations from the metering volume or hydraulic fault statuses are immediately detected and corrected by the gamma/ XL. The pump’s operating menu includes ordering information for the wear parts required. Designed as a smart product, it can also be connected to our web-based DULCOneX fluid management platform. The user can use this to monitor his metering process in real time, avoid downtimes and generate reports fully automatically.

#### Your Benefits

- Simple adjustment of the capacity directly in l/h or in gph
- Integrated pressure measurement and display for greater safety during commissioning and in the process
- Bluetooth and Wi-Fi connection for the simple configuration and call-up of process data (optional)
- Capacity adjustment range 1:40,000
- Direct input of the required final concentration with volume-proportional metering tasks in concentration mode
- Virtually wear-free solenoid drive, overload-proof and economical
- Suitable for continuous micro-metering from approx. 5 ml/h, thanks to the regulated solenoid drive
- Detection of hydraulic malfunctions, such as gas in the dosing head, and no or too high back pressure, ensures smooth processes
- External control via potential-free contacts with pulse step-up and step-down
- External control via 0/4-20 mA standard signal, scalable
- Integrated 1-week/1-month timer
- Guaranteed metering by means of automatic bleeding
- Connection to process control systems via a BUS interface, such as PROFIBUS®, PROFINET®, CANbus or Wi-Fi
- Automatic mode – volume settings only (l/h, ml/contact etc.)
- Non-automatic mode – settings via stroke length and stroke rate

#### Technical Details

- Illuminated 3” LCD and 3-LED display for operating, warning and error messages, visible from all sides
- In non-automatic mode, stroke rate setting 1 stroke/h – 12,000 strokes/h, stroke length electronically continuously variable 0 – 100%, recommended 30 – 100%
- Factor with external contact control 99:1 – 1:99
- Batch operation with max. 99.99 or 99,999 strokes/start pulse
- Connector for 2-stage level switch
- 3 additional ports, switched as digital inputs or outputs
- Optional 0/4 – 20 mA output for remote transmission of stroke length, stroke rate and error messages
- Optional relay module with 1 x switchover contact, 230 V – 8 A
- Optional relay module with 2 x On, 24 V – 100 mA



## 1.4 gamma/ XL Metering Pumps

### 1.4.2 Technical Data gamma/ XL

Pump type gamma/ XL	Max. pressure bar	Delivery rate l/h	Theor. stroke volume ml/stroke	Max. stroke rate Strokes/min	Nominal diameter	Suction lift m WC	Shipping weight NPE, NPB, PVT / SST kg
GXLa 2508	25	7.80	0.67	200	8 x 4** mm	5*	10/11
GXLa 1608	16	7.80	0.67	200	8 x 5** mm	5*	10/11
GXLa 1612	16	12	1	200	8 x 5 mm	6*	10/11
GXLa 1020	10	19.6	1.7	200	12 x 9 mm	5*	10/11
GXLa 0730	7	29.4	2.5	200	12 x 9 mm	5*	10/11
GXLa 0450	4	49.0	4.2	200	G 3/4 - DN 10	3*	10/11
GXLa 0280	2	78.5	6.7	200	G 3/4 - DN 10	2*	10/11
<b>gamma/ XL metering pumps with self-bleeding dosing head without bypass*</b>							
GXLa 1608	10	7	0.6	200	8 x 5 mm	1.8	10
GXLa 1612	10	10	0.8	200	8 x 5 mm	1.8	10
GXLa 1020	10	15	1.25	200	12 x 9 mm	1.8	10
GXLa 0730	7	27.5	2.3	200	12 x 9 mm	1.8	10

**Note:** gamma/ XL 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 (m WC) = 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
NPT	Clear acrylic	PVDF	PVDF	PTFE	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

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

- Diaphragm with PTFE coating.
- Repeatability of metering  $\pm 2\%$  when used in accordance with the operating instructions.
- Permissible ambient temperature  $-10\text{ }^{\circ}\text{C}$  to  $45\text{ }^{\circ}\text{C}$ .
- Mean power consumption 78 W.
- Degree of protection IP 66, insulation class F.



# 1.4 gamma/ XL Metering Pumps

## 1.4.3 Identity Code & Pricing for ProMinent® gamma/ XL

### GXLa

#### EU Europe

Type	bar	l/h	NPB	PVT	SST	Type	bar	l/h	NPB	PVT	SST
2508	25	7.80				0730	7	29.4			
1608	16	7.80				0450	4	49.0			
1612	16	12				0280	2	78.5			
1020	10	19.6									

#### Material of dosing head/valves

- PV** PVDF/PVDF, not for pump type 2508
- NP** Clear acrylic/PVC, only for pump types 2508, 1608, 1612, 1020 and 0730 *[1612, 1020, 0730 NOT STOCKED ITEM]*
- SS** stainless steel/stainless steel

#### Material of seals/diaphragm

- T** only with PV and SS **PV** **SS**
- F** FDA-compliant design, only for PV and SS
- B** VITON only with NP Heads

#### Dosing head design

- 0** without bleed valve, without valve spring, only with material SS
- 1** without bleed valve, with valve spring, only with material SS
- 2** with bleed valve, without valve spring, only with material NP and PV
- 3** with bleed valve, with valve spring, only with material NP and PV
- 4** HV design for higher-viscosity media, only for types 1608, 1612, 1020 and 0730
- 7** self-bleeding without bypass (SER) for types 1608, 1612, 1020 and 0730

#### Hydraulic connector

- 0** Standard connection in line with technical data
- F** Connector on discharge side for 8/4 hose, standard on suction side, only with material NP 2508 NPB

#### Diaphragm rupture indicator

- 0** without diaphragm rupture indicator
- 1** with diaphragm rupture indicator, optical sensor, electrical sensor

#### Design

- 0** Housing RAL 5003, cover RAL 2003

#### Logo

- 0** with ProMinent® logo

#### Electrical Connection

- U** 100- 230V ±10 %, 50/60 Hz

#### Cable and plug

- C** 2 m Australian

#### Relay, pre-set to

- 0** no relay
- 1** 1 x changeover contact 230V – 8 A, fault indicating relay N/C
- 4** 2 x N/O 24V – 100 mA, fault indicating relay N/C + pacing relay
- C** 1 x N/O 24V – 100 mA, fault indicating relay N/C + 4 – 20 mA output
- F** with automatic bleed valve, 230V AC, not for pump type 2508
- G** with automatic bleed valve 24V DC and relay output, not for pump type 2508

#### Accessories

- 0** no accessories
- 1** with foot and injection valve, 2m suction line, 5m discharge line *NOT DN10*

#### Control version

- 0** Manual + external contact with pulse control
- 3** Manual + external contact with pulse control + analogue 0/4–20 mA
- C** as 3 + CANopen
- D** as 3 + CANopen, Dulcomarine
- E** as 3 + PROFINET® interface, M12
- R** as 3 + PROFIBUS® interface, M12

#### Communication

- 0** without interface
- B** with Bluetooth
- W** with Wi-Fi module

#### Operating menu language

- EN** English

#### Prepack

- P** see options at left

**Note:** If PROFIBUS® is specified refer to page 3.20 to determine which PROFIBUS® cables, adaptors and terminators are required. Also if PROFIBUS® option is selected NO relays can be fitted.

#### Prepacks = P\*

**P0** - includes 5m of delivery and 2m suction tube a CANbus cable, if specified.

**P2** - includes 5m of delivery and 2m suction tube a 2m Control Cable if required.

**P5** - as P2 but with 5m control Cable

**PX** - as P2 but with 10m control Cable

**Note:** 2508 pumps are supplied with 5.0m PTFE tube, other tube is available on request.

**Note:** Cable for I/O port see page 3.19 in Yellow Pages.

GXLa EU 1020 PV T 0 0 0 0 0 0 U C 0 0 0 0 EN



## 1.4 gamma/ XL Metering Pumps

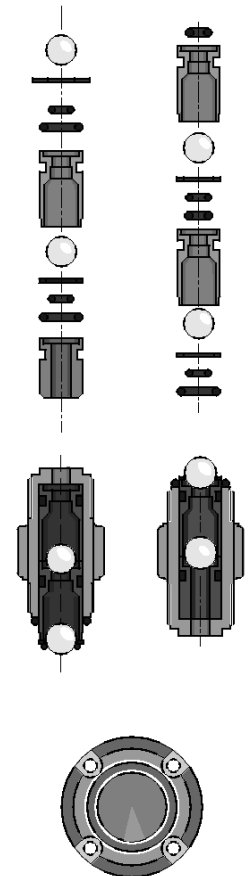
### 1.4.4 gamma/ XL Spare Parts Kits

Stainless steel version without suction valve assembly and without discharge valve assembly, with valve seats, seals and valve balls.

Type	Wetted materials	Part No.
Type 2508	NPT2	1095912
	SST0	1030226
	NPE	1033172
	NPB	1033171
Type 1608	PVT2/NPT2	1030225
	PVT7	1047831
	SST0	1030226
	NPE	1030620
Type 1612	NPB 1	1030611
	PVT2/NPT2	1027081
	PVT4	1019067
	PVT7	1047832
Type 1612	SST0	1027086
	NPE	1030536
	NPB	1030525
	PVT2/NPT2	1027082
	PVT4	1019069
	PVT7	1047833
Type 1020	SST0	1027087
	NPE	1030537
	NPB	1030526
	PVT2/NPT2	1095626
	PVT4	1095499
	PVT7	1095503
Type 0730	SST0	1095501
	NPE	1095701
	NPB	1095700
	PVT2	1095502
	SST0	1095625
Type 0450	PVT2	1095502
	SST0	1095625
Type 0280	PVT2	1095500
	SST0	1095624

#### Spare parts kits for gamma/ XL, consisting of:

- 1 x diaphragm
- 1 x suction valve assembly
- 1 x discharge valve assembly
- 1 x connector kit



#### Replacement Diaphragms for GXLa Series Pumps

Type	Materials	Part No.
Type 2508	all materials	1030353
Type 1608	all materials	1030353
Type 1612	all materials	1000248
Type 1020	all materials	1000249
Type 0730	all materials	1045456
Type 0450	all materials	1045443
Type 0280	all materials	1059691



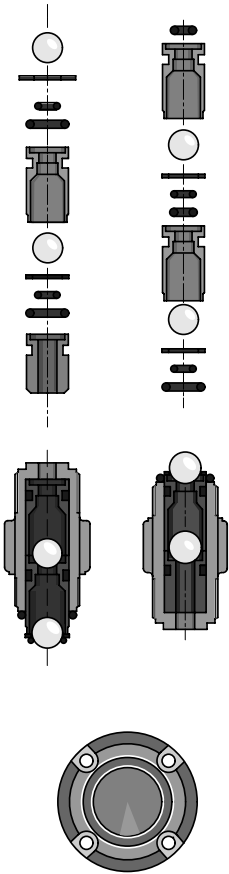
# 1.5 delta<sup>®</sup> Metering Pumps Spare Parts

## 1.5.1 delta<sup>®</sup> Metering Pumps Spare Parts

Replacement spare parts kits for ProMinent<sup>®</sup> delta<sup>®</sup>, consisting of:

- 1x dosing diaphragm
- 1x suction valve
- 1x discharge valve
- 1x connector set

**Note:** Does not include valves for SS



		Part No.
<b>Type 2508</b>	NPB	1033171
	NPE	1033172
	SST	1030226
<b>Type 1608</b>	NPB	1030611
	NPE	1030620
	PVT	1030225
	SST	1030226
	<b>Type 1612</b>	PVT
	SST	1027086
<b>Type 1020</b>	PVT	1027082
	SST	1027087
<b>Type 0730</b>	PVT	1027083
	SST	1027088
<b>Type 0450</b>	PVT	1027084
	SST	1027089
<b>Type 0280</b>	PVT	1027085
	SST	1027090

### Replacement Diaphragms for Delta<sup>®</sup> series pumps

		Part No.
Type 2508	all materials	1030353
Type 1608	all materials	1030353
Type 1612	all materials	1000248
Type 1020	all materials	1000249
Type 0730	all materials	1000250
Type 0450	all materials	1000251
Type 0280	all materials	1025075

## 1.5.2 PTFE Diaphragm for delta<sup>®</sup> Metering Pumps

**NOTE:** To be used ONLY with Chlorine Dioxide

Type	with the medium	Part No.
Type 1612		1117433
Type 1020		1117354
Type 0730		1117352
Type 0450		1117353
Type 0280	NOT AVAILABLE	-



## 1.6 EXTRONIC® Metering Pumps

### 1.6.1 EXBb G version – gas explosion proof Property class II, property class 2G (Zone 1, group II)

The ProMinent EXTRONIC® series approved according to the new EG-EX-directive 94/9/EG (ATEX), for metering fluids in gas explosion endangered operations

- The short stroke solenoid action is combined with the liquid ends from the ProMinent® gamma series. The SB material version is recommended for use with flammable media.
- The control inputs “external contact”, “analog” and “zero volts ON/OFF” are intrinsically safe for EXBb - registered in accordance with EN 50020 - available.
- The 2501 SSM/SBM type with diaphragm rupture signalling e.g. for use in gas odorization.

**The capacity ranges from 0.19 l/h to 60 l/h at back pressures of max. 25 bar.**

The ProMinent EXTRONIC® conforms to the unified EU standard EN 50014/50018 for “flameproof enclosure”. It carries the highest enclosure class for this protection type. This standard is recognised in many other countries outside the EU.

The short stroke solenoid and the pump controller are housed inside the pump housing. Conforms to DIN 40050 standards on contact and moisture resistance, and carries IP 65 protection, even when front cover is open.

Key:

- 6** - resistant to dust entry and complete resistance to contact
- 5** - resistant to spray water from all directions

The liquid end with the proven DEVELOPAN® pump diaphragm with Teflon coating and the proven liquid ends in Acrylic, Polypropylene (PP), PTFE-Teflon®, stainless steel no. 1.4404 and

SB for flammable chemicals, according to requirements, bring the highest levels of operating safety to ProMinent EXTRONIC® Metering Pumps.

Self bleeding liquid ends for gaseous chemicals are available in Acrylic (NS) and PVC (PS). The micrometer stroke length adjustment knob ensures precise and high reproducibility.

There is also a comprehensive range of explosion proof accessories and pump accessories available.

#### EXBb G for use in gas endangered areas

PROTECTION GRADE EEX [I, A] D IIC T6

Key:

- EEx** - explosion proof equipment conforms to European Standards
- [i, a]** - control input intrinsically safe in case of occurrence of two unrelated faults
- d** - fire proofing; flameproof enclosure
- IIC** - explosion group II for all explosion endangered areas apart from mining, sub group IIC (includes IIA and IIB)
- T6** - temperature class, permitted for gas and moisture with ignition temperature > 85 °C

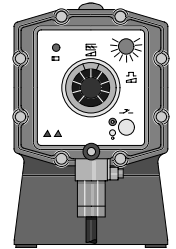
#### EXBb M for use in firedamp endangered mining operations - NO LONGER AVAILABLE

PROTECTION GRADE EEX D I/II C T6

Key:

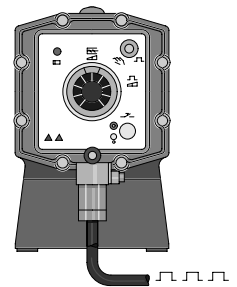
- EEx** - explosion proof equipment conforms to European Standards
- d** - fire proofing, flameproof enclosure
- IC** - explosion group I for firedamp endangered operations
- IIC** - explosion group II for all other hazardous locations, sub group IIC (includes IIA and IIB)
- T6** - temperature class, permitted for gas and moisture with ignition temperature > 85 °C. This is the highest temperature class, and includes T1 to T5.

\*) The electrical cables for mains connection, contact or analogue control are already connected to the pump. Observe all instructions concerning connecting and activating electrical systems.



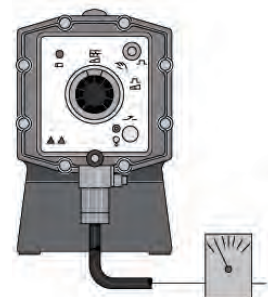
#### Control type “Internal”

Stroke length adjustment 1:10, stroking rate adjustment 1:25, total adjustment range 1:250.



#### Control type: “External Contact”

Stroke length adjustment 1:10, stroking rate control 0-100 % dependant upon external switch contacts. \*)



#### Control type: “Analogue”

Stroke length adjustment 1:10, Stoke frequency control 0-100 % proportional to analogue signal 0/4-20 mA. \*)



# 1.6 EXTRONIC® Metering Pumps

## 1.6.2 Technical Data EXTRONIC®

Pump Type EXTRONIC®	Max. Pump Capacity at Maximum Back Pressure			Max. Pump Capacity at Medium Back Pressure			Stroking Rate	Connector Sizes Outer R X Inner R	Suction Lift	Shipping Weight** PP, NP, TT-SS
	bar	l/h	ml/ stroke	bar	l/h	ml/ stroke				
<b>EXBb</b>										
1000	10	0.19	0.032	5	0.3	0.042	120	6 x 4	1.5	12 - 16
2501	25	1.0	0.15	20	1.1	0.17	120	6 x 4	6	18
1601	16	1.1	0.15	8	1.3	0.18	120	6 x 4	6	12 - 16
1201	12	1.7	0.23	6	2.0	0.28	120	6 x 4	6	12 - 16
0803	8	3.7	0.51	4	3.9	0.54	120	6 x 4	3	12 - 16
1002	10	2.3	0.31	5	2.7	0.38	120	8 x 5	6	12 - 16
0308	3	8.6	1.20	1.5	10.3	1.43	120	8 x 5	6	12 - 16
2502	25	2.0	0.28	20	2.2	0.31	120	8 x 5	6	13 - 17
1006	10	6.0	0.83	5	7.2	1.00	120	8 x 5	6	13 - 17
0613	6	13.1	1.82	3	14.9	2.07	120	8 x 5	5.5	13 - 17
0417	3.5	17.4	2.42	2	17.9	2.49	120	12 x 9	4.5	13 - 17
2505	25	4.2	0.64	20	4.8	0.73	110	8 x 5	6	16 - 20
1310	13	10.5	1.59	6	11.9	1.80	110	8 x 5	6	16 - 20
0814	8	14.0	2.12	4	15.4	2.33	110	12 x 9	6	16 - 20
0430	3.5	27.0	4.09	2	29.5	4.47	110	DN 10	5	16 - 20
0260	1.5	60.0	9.09	-	-	-	110	DN 15	1.5	16 - 20

### EXTRONIC® Metering Pumps for dosing highly viscous media

1002	10	2.3	0.31	5	2.7	0.38	120	DN 10	-	12
1006	10	6.0	0.83	5	7.2	1.00	120	DN 15	-	13
1310	10	10.5	1.59	5	11.9	1.80	110	DN 15	-	16
0814	8	14.0	2.12	4	15.4	2.33	110	DN 15	-	16

### EXTRONIC® Metering Pumps with self bleeding liquid end\*\*\*

1601	16	0.66	0.09	-	-	-	120	6 x 4	1.8	12
1201	12	1.0	0.14	-	-	-	120	6 x 4	2.0	12
0803	8	2.4	0.33	-	-	-	120	6 x 4	2.8	12
1002	10	1.8	0.25	-	-	-	120	6 x 4	2.0	12

\*\* shipping weight for EXBb M version... additional 14 kg

\*\*\* The data given here represent guaranteed minimum values, achieved with medium water at room temperature.

### Materials in Contact With Chemicals

	Liquid End	Suction/Discharge Connector	Seals	Valve Balls (Connector 6 - 12 mm)	Balls (DN 10 and DN 15 Connector)
PP1	Polypropylene	Polypropylene	EPDM	ceramic	Borosilicate glass
PP4*	Polypropylene	Polypropylene	EPDM	-	ceramic
NP1	Acrylic	PVC	FPM A (Viton® A)	ceramic	Borosilicate glass
NP3	Acrylic	PVC	FPM B (Viton® B)	ceramic	-
NS3**	Acrylic	PVC	FPM B (Viton® B)	ceramic	-
PS3**	PVC	PVC	FPM B (Viton® B)	ceramic	-
TT1	PTFE with carbon	PTFE with carbon	PTFE	ceramic	ceramic
SS..	stainless steel no. 1.4404	stainless steel no. 1.4404	PTFE	ceramic	stainless steel no. 1.4404

\* PP4 with Hastelloy C valve springs.

\*\* NS3 and PS3 with Hastelloy C valve springs, PVDF valve core.  
Viton® is a registered trademark of DuPont Dow Elastomers.





# 1.6 EXTRONIC® Metering Pumps

## 1.6.3 Identity Code & Pricing EXTRONIC®

### EXBb ProMinent EXTRONIC®, Version b

**Protection:**

- G** Gas-EX-proof
- M** Fire and explosion protection (firedamp) - **NO LONGER AVAILABLE**

**Pump type:** (figures 1 + 2 = back pressure [bar], figures 3 + 4 = pump capacity [l/h])

<b>1000</b>	Capacity: 10 bar; 0.19 l/h
<b>2501</b>	25 bar; 1.0 l/hr (available in SSM and SBM only)
<b>1601</b>	16 bar; 1.1 l/h
<b>1201</b>	12 bar; 1.7 l/h
<b>0803</b>	8 bar; 3.7 l/h
<b>1002</b>	10 bar; 2.3 l/h
<b>0308</b>	3 bar; 8.6 l/h
<b>2502</b>	25 bar; 2.0 l/h (available in SS and SB only)
<b>1006</b>	10 bar; 6.0 l/h
<b>0613</b>	6 bar; 13.1 l/h
<b>0417</b>	3.5 bar; 17.4 l/h
<b>2505</b>	25 bar; 4.2 l/h (available in SS and SB only)
<b>1310</b>	13 bar; 10.5 l/h (available in NP, PP4, SS and SB only)
<b>0814</b>	8 bar; 14.0 l/h
<b>0430</b>	3.5 bar; 27.0 l/h
<b>0260</b>	1.5 bar; 60.0 l/h

**Liquid end material:**

- PP1** Polypropylene with EPDM O-ring
- PP4** HV Polypropylene for high viscosity liquids with EPDM O-ring and Hastelloy C valve springs (Types 1002, 1006, 1310 and 0814 only)
- NP1** Acrylic with FPM A (Viton® A) O-ring
- NP3** Acrylic with FPM B (Viton® B) O-ring
- NS3** Acrylic with FPM B (Viton® B) O-ring, self bleeding (Types 1601, 1201, 0803 and 1002 only)
- PS3** PVC with FPM B O-ring, self bleeding (Types 1601, 1201, 0803 and 1002 only)
- TT1** PTFE with carbon, PTFE seal
- SS1** Stainless steel, no. 1.4404, with PTFE seal
- SS2** Stainless steel with 1/4" NPT internal thread, PTFE seal
- SB1** Stainless steel with ISO 7 Rp 1/4 internal thread, ISO 7 Rp 1/2 on type 0260, PTFE seal (recommended for flammable materials)
- SSM** as SS1, with diaphragm rupture indicator *Type 2501 only*
- SBM** as SB1, with diaphragm rupture indicator *Type 2501 only*

**Valve springs:**

- 0** No springs
- 1** With 2 valve springs, 1.4571, 0.1 bar

**Electrical connectors [5m Power Cable open-ended is included]:**

- A** 230 V, 50/60 Hz
- B** 115 V, 50/60 Hz
- E** 500 V, 50/60 Hz **NO LONGER AVAILABLE**

**Controller type:**

- 0** Stroking rate adjustment via potentiometer
  - 1** External contact
  - 2** Analogue 0-20 mA
  - 3** Analogue 4-20 mA
  - 4\*** External contact, intrinsically safe [i,a]
  - 5\*** Analogue 0-20 mA, intrinsically safe [i,a]
  - 6\*** Analogue 4-20 mA, intrinsically safe [i,a]
- \* intrinsically safe only with G = EX-protection

**Control variations:**

- 0** With potentiometer (control type 0 only)
- 1** With manual auxiliary key for maximum stroking rate (control type 1-6 only) **preferred type**; spring return
- 2** With manual auxiliary key for maximum stroking rate (control type 1-6 only) latching

**Approved/Language:**

- 0** BVS - Europe, German, 100 V - 500 V
- 1** BVS - Europe, English, 100 V - 500 V
- 2** FM - USA, English, 115 V
- 3** CSA - Canada, English, 115 V, 230 V

**Note:** May require certificate of conformity for some Australian applications at extra cost.

**EXTRONIC®** pumps with liquid ends for highly viscous media PP4 have 10-20% less metering capacity and are not self-priming. G 3/4-DN connector with D16-DN10 nozzle union.

**For any other Pricing: refer Sydney office**

Viton® is a registered trademark of DuPont Dow Elastomers FPM = Fluorine Rubber

EXBb G 1000 PP1 0 A 0 0 0



## 1.6 EXTRONIC® Metering Pumps

### 1.6.4 Connectors for ProMinent EXTRONIC® Metering Pumps

<b>PP, NP, PS and TT</b>	6, 8 and 12 mm	hose sleeve with clamping ring fitting
<b>SS1/SSM stainless steel</b>	6, 8 and 12 mm	Swagelok screw fitting system
<b>SS2 stainless steel</b>	6, 8 and 12 mm	internal thread 1/4" NPT
<b>SB1/SBM stainless steel</b>	6, 8 and 12 mm	internal thread ISO 7 Rp 1/4
<b>PP and NP</b>	DN 10 and DN 15	hose sleeve d 16 - DN 10 and d 20 - DN 15
<b>TT</b>	DN 10 and DN 15	fusion joint d 16 - DN 10 and d 20 - DN 15 (PVDF)
<b>SS1 stainless steel</b>	DN 10 and DN 15	insert, internal thread R 3/8 and R 1/2
<b>SB1 stainless steel</b>	DN 10 and DN 15	internal thread ISO 7 Rp 1/4 and 1/2

Reproducible metering accuracy  $\pm 2\%$  when correctly installed, refer to operating instructions manual.

$\pm 5\%$  for type 1601 with self bleeding liquid end.

Permissible ambient temperature  $-10\text{ }^{\circ}\text{C}$  to  $+45\text{ }^{\circ}\text{C}$ .

**Power supply:** 230 V  $\pm 10\%$ , 50/60 Hz  
115 V  $\pm 10\%$ , 50/60 Hz

**Protection:** IP 65, insulation class F

#### Medium power consumption at max. stroking rate (W)/peak power consumption at dosing stroke (A) at 230 V, 50/60 Hz:

<b>EXBb</b>	Type 1000, 1601, 1201, 0803, 1002, 0308	13 W/0.7 A	at 120 strokes/min
<b>EXBb</b>	Type 2502, 1006, 0613, 0417	26 W/1.7 A	at 120 strokes/min
<b>EXBb</b>	Type 2505, 1310, 1014, 0430, 0260	45 W/2.0 A	at 110 strokes/min

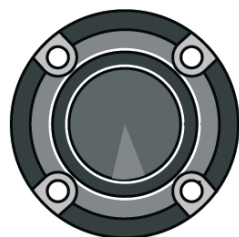
#### Included in delivery:

Metering Pump with 5 m mains cable, connector set for hose/pipe connections as described in tables.

### 1.6.5 Spare Parts Kits

#### PTFE pump diaphragms

ProMinent® DEVELOPAN® pump diaphragms in EPDM with woven inner layer, integrally vulcanised steel core and PTFE Teflon coating on the side in contact with the dosing chemical.



Description For Pump Type		Part No.
31.0 x 6.0	1000	811452
35.0 x 11.5	2501	1000246
48.0 x 9.5	1601	811453
48.0 x 12.5	1201	811454
48.0 x 18.5	0803	811455
60.0 x 17.0	1002, 2502	811456
60.0 x 28.0	0308, 2505, 1006	811457
76.0 x 37.0	1310, 0613	811458
76.0 x 45.0	0814, 0417	811459
127.5 x 63.0	0430, 0230	811460
127.5 x 91.0	0260	811461

## 1.6 EXTRONIC® Metering Pumps

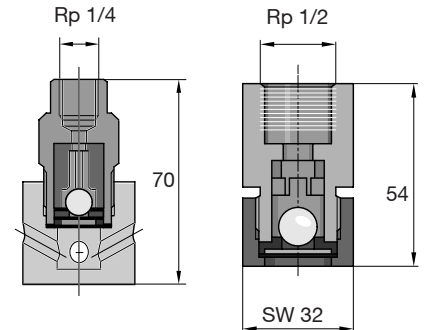
### 1.6.6 Accessories - Valves

#### Foot valve, 1.4404 stainless steel

With filter and ball check valve, for use with flammable media.

**Materials:** 1.4404/1.4401/PTFE/ceramic

	Part No.
Connection, 1/4" SB type for EXTRONIC	809301
Connection, 1/2" SB type for EXTRONIC	924561

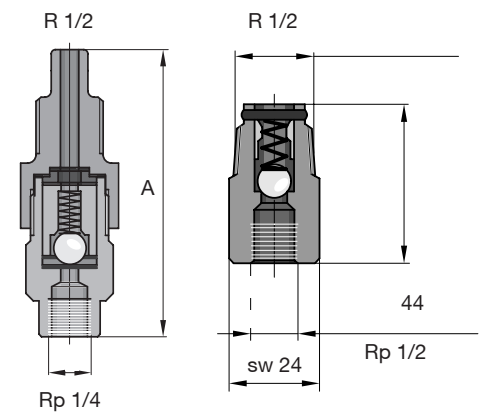


#### Dosing valve, "SB" 1.4404 stainless steel

Spring-loaded ball check valve, installation as desired, suitable for use with flammable media.

**Materials:** 1.4404/1.4401/Hastelloy C/PTFE coated/ceramic

	Part No.
Connection, 1/4" - 1/2" k, response pressure approx. 0.5 bar	809302
Connection, 1/2" - 1/2" k, response pressure approx. 0.5 bar	924560



#### Adjustable "SB" back pressure valve 1.4404 stainless steel

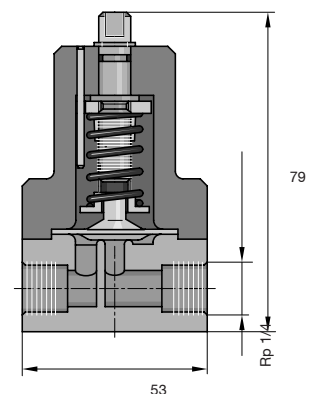
Material 1.4404; diaphragm PTFE coated, 1/4" connection at both ends. Adjusting range approximately 1 to 10 bar, enclosed type suitable for use with flammable media.

For generation of a back pressure for precise metering into an open outlet, where the back pressure is fluctuating below 1 bar where there is an inlet pressure on the suction side.

Can also be used as a pressure relief valve.

	Part No.
	924555
Replacement Diaphragm	811464

Further accessories such as foot valves, discharge valves and back pressure valves in the standard materials are identical to gamma accessories or for DN 15 connection, refer to section 3.



# 1.7 Pneumados Metering Pumps

## 1.7.1 ProMinent® Pneumados Metering Pumps



ProMinent® Pneumados is a pneumatically-operated metering pump. In contrast to solenoid-driven metering pumps, the metering stroke of this pump is effected by a pneumatically actuated diaphragm, the suction stroke by spring force.

The delivery capacity can be varied via the stroke frequency and the stroke length setting.

The external electrically-pneumatically or pneumatically activated compressed air valves facilitate a setting of up to 180 metering strokes per minute.

The stroke length and thus the stroke volume can be set between 10 and 100%. Typical areas of application are:

### Feeding stuff treatment

Metering and spraying of feeding stuff with flavouring agents.

### Painting plants

Metering of coagulants.

### Greenhouses

For metering of fertilisers and minerals compounds.

### Car wash

Metering of cleaning agents, shampoo, brighteners, wax, drying agents as well as for the treatment of recycling water via metering of flocculants, pH adjusters, defoaming agents, and emulsion breakers.

In all plants with central control (e.g. PLC) and compressed air supply.

## Pneumatic Ancillary Equipment

	Part No.
G 1/4 - 6 mm compressed air threaded connector in anodised aluminium with rotating seals; rapid quick release connector LCK 1/40 (fig. 1)	354641
G 1/8 A - 6 mm threaded connector for regulator valves with seal; threaded connector CK 1/80	354635
G 1/8 blanking plug with seal for regulator valves; G 1/80 plug thread	467921
3/2 way pneumatic solenoid valve G 1/8 220V 50 Hz 21 VA; solenoid valve 311 C 1/80 (fig. 3)	303054
Sound absorber in sintered bronze with M 1/8 internal thread for solenoid valve (fig 4)	303812
Electric pulse generator for assembly into protective housing on DN 50022 hat rail, adjustable stroking rate 30 - 120 strokes/min. Electrical connection 230V 50 - 60 Hz 3.5 VA. Switch power max. 3A. Adjustable flash relay (fig. 2) For installation in Ex-protection zones, we recommend pneumatic pulse generator with mechanical regulator units,	700984
e.g. FESTO pulse generator Type 4025 VLG-4 1/80 (fig. 5) All directives and regulations concerning use in hazardous location must be retained by the user.	303836



## 1.7 Pneumados Metering Pumps

### 1.7.2 Technical Data Pneumados

Pump type	Delivery output at maximum Pressure		Connection size OD R̄ x id R̄	Suction 3) height	corresp. suction pressure 2)	Suction height 1)	corresp. suction pressure 2)	Admissible pre-pressure on suction side	
	bar	l/h							ml/ stroke
<b>1000</b>	10	0.76	0.7	6x4	6	600	2.0	200	8
<b>1601</b>	16	1.00	0.09	6x4	6	600	2.8	280	8
<b>1602</b>	16	1.70	0.16	6x4	6	600	3.0	300	5.5
<b>1005</b>	10	3.80	0.35	8x5	5	500	3.0	300	3
<b>0708</b>	7	6.30	0.58	8x5	4	400	2.0	200	2
<b>0413</b>	4	10.50	0.97	8x5	3	300	2.5	250	1.5
<b>0220</b>	2	16.70	1.55	12x9	2	200	2.0	200	1

- 1) Suction height / suction pressure (dry) determined with clean as well as moistened valves, is tested with empty liquid end.
- 2) Value corresponds to the obtainable vacuum compared to atmospheric pressure.
- 3) Suction height / suction pressure tested with filled liquid end and filled suction line, provided sufficiently dimensioned suction line cross-sections are given.

The delivery outputs were determined with an air hose length of 1m, using the Festo solenoid valve MHE3-M1H-3/2G-QS-6K, as well as at max. stroke frequency (180 strokes/min.) and 100% stroke length, with pump at operating state temperature, test medium water.

**Compressed air:** 6 bar ± 10 %, filter size 40µm

**Air consumption for 1m line:** 47 l/min

**Stroking frequency:** 180 strokes per min.

#### Connectors

<b>PVT</b>	6, 8 and 12 mm	hose sleeve with clamp ring fitting
<b>SS1 stainless steel</b>	6, 8 and 12 mm	swagelok screw fitting system

#### Materials in Contact with Chemicals

Liquid End Connector	Suction/Discharge (Connector 6 - 12 mm)	Seals	Balls
<b>PVDF</b>	PVDF	PTFE	Ceramic
<b>stainless steel no. 1.4404</b>	stainless steel no. 1.4404	PTFE	ceramic



# 1.7 Pneumados Metering Pumps

## 1.7.3 Identity Code & Pricing for Pneumados

### PND b Pneumados

Pump Type:	Capacity (simplex)			PVT	SS	PVT	SS
				SIMPLEX	SIMPLEX	DUPLEX	DUPLEX
1000	10	bar	0.76 l/h				
1601	16	bar	1.00 l/h				
1602	16	bar	1.70 l/h				
1005	10	bar	3.80 l/h				
0708	7	bar	6.30 l/h				
0413	4	bar	10.5 l/h				
0220	2	bar	16.7 l/h				

**Liquid end material:**

- PVT** PVDF and PTFE seal
- SST** Stainless steel (1.4404) and PTFE seal

**Valve Springs:**

- 0** No vent, no valve springs
- 1** No vent, with valve springs
- 2** With vent, no valve springs
- 3** With vent, with valve springs

**Hydraulic connections:**

- 0** Standard according to technical data

**Version:**

- 0** Pump only
- 1** Pump assembly complete with bracket and controller
- 2** Duplex Pump assembly with bracket (uses existing controller)

**Power connector:**

- 0** G 1/4 connector for compressed air 6 bar

**Controller type:**

- 0** Standard 4025 VLG - 1/8" AIR Controller

**Approvals**

- 01** CE

**Note:** All pumps are supplied mounted on a bracket with controller Dosing valve, Foot valve and suction and delivery hose and tube are extra.

PND b 1601 PVT 0 0 0 0 0 0 01

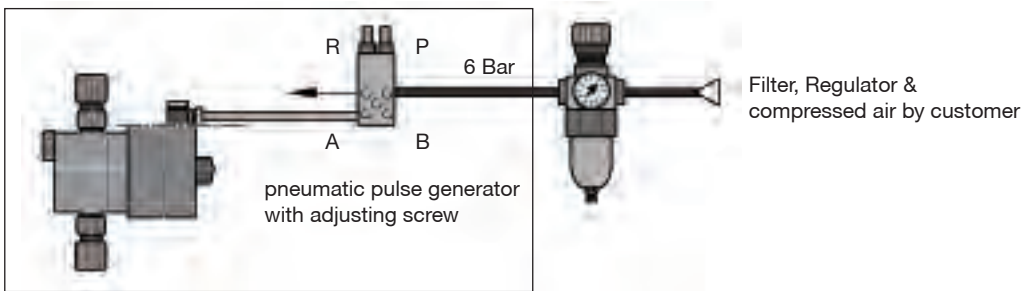


# 1.7 Pneumados Metering Pumps

## 1.7.4 Electric and Pneumatic Schematic Diagrams

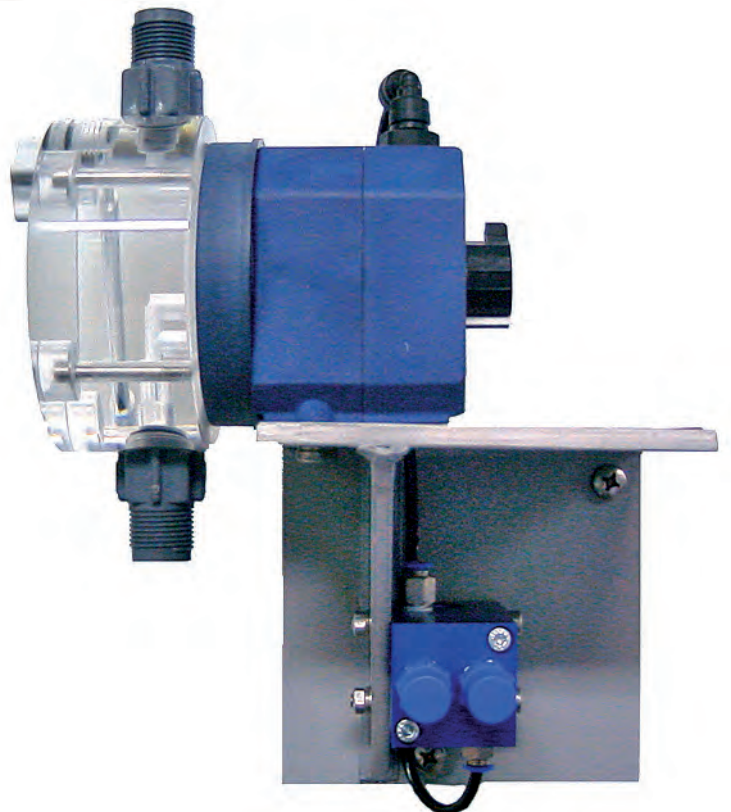
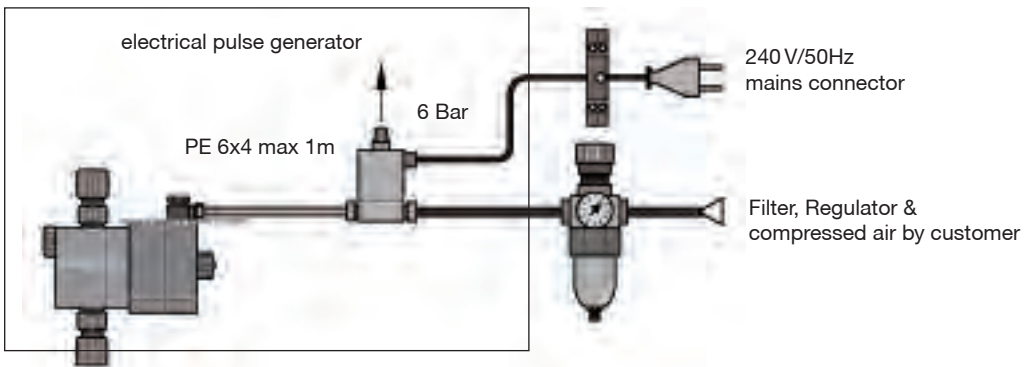
### STANDARD

Pneumatic Controller Schematic diagram



### OPTIONAL

Electrical/Pneumatic Controller Schematic diagram



## 1.8 DULCOFLEX Pumps DF2a

### 1.8.1 DULCOFLEX DF2a Pump

The ProMinent® DULCO®flex is a peristaltic pump. The metering chemical is displaced in the direction of flow as a rotor squeezes the hose. No valves are required which ensures that the chemical is treated extremely gently.

Typical applications are processes in which only a limited feed pressure is required such as the metering of conditioning agents in private pools, belt lubricants in bottling machines or the metering of cleaning agents in rinsing machines.

The robust, chemical-resistant PPE housing is protected on all sides from spray (IP 65), which guarantees its universal application capability.

- Performance range 0.4-2.4 l/h at max. 1.5 bar back pressure
- Hose material: PharMed® or Viton® (special applications)
- Suitable for continuous operation
- Control and/or quantity control via mains ON/OFF
- Practically silent operation
- Self-priming against max. 1.5 bar
- Gentle metering

**OEM versions are available on request.**





# 1.8 DULCOFLEX Pumps DF2a

## 1.8.2 Identity Code & Pricing for DULCOFLEX DF2a Pump

DF2a										
Type	Capacity:									
0204	1.5 bar: 0.4 l/h PharMed <sup>®</sup> supplied as standard									
0208	1.5 bar: 0.8 l/h PharMed <sup>®</sup> supplied as standard									
0216	1.5 bar: 1.6 l/h PharMed <sup>®</sup> supplied as standard									
0224	1.5 bar: 2.4 l/h PharMed <sup>®</sup> supplied as standard									
<b>Hose material:</b>										
P	ParMed <sup>®</sup>									
V	Viton <sup>®</sup> for fragrances (special version)									
<b>Version:</b>										
0	With ProMinent <sup>®</sup> label									
<b>Hydraulic connection:</b>										
0	Connector for hose 6/4 mm priming and discharge side									
9	Connector for hose 10/4 mm discharge side only									
<b>Electrical connection:</b>										
A	230 V ±10 %, 50/60 Hz									
<b>Lead and plug:</b>										
0	No mains lead									
1	With 2 m mains lead, open ended									
<b>Drive:</b>										
0	Mains ON/OFF									
<b>Assembly type:</b>										
W	Wall mounted									
<b>Accessories:</b>										
0	No accessories									
1	With weight held in place tube nozzle & clamp ring 1/4" Dosing Valve, 2 m suction and 5 m discharge tubing <b>Std</b>									
<b>Control Type:</b>										
0	No Control									
T	Mounted on Board with 240 volt 7-day Timer									
PharMed <sup>®</sup> and Viton <sup>®</sup> are registered trademarks.										
DF2a	0204	P	0	0	A	0	0	W	0	T

## 1.8.3 Technical Data for DULCO<sup>®</sup> flex DF2a Pump

Pump type DULCO <sup>®</sup> flex	Feed rate Frequency			Connector size	Suction Lift	Priming Lift
	bar	l/h	rpm	ext. dia. x int. dia	mWG	mWG
0204	1.5	0.4	5	6x4	4	3
0208	1.5	0.8	10	6x4	4	3
0212	1.5	1.6	20	6x4	4	3
0224	1.5	2.4	30	6x4	4	3

**Admissible ambient temperature:** 10-45 °C  
**Power consumption approx.:** 5 W  
**Switching duration:** 100 %  
**Enclosure rating:** IP 65

	Part No.
Spare Hose Set PharMed <sup>®</sup>	1009480
Spare Hose Set Viton <sup>®</sup>	1023842



## 1.9 DULCOFLEX Pumps DF4a

### 1.9.1 DULCOFLEX DF4a Pump

The DULCO<sup>®</sup> flex DF4a was specifically developed for metering chemicals in swimming pool applications. It is available in three versions with the system control menu as well as the inputs and outputs adapted to the respective application:

- Capacity range 0.4 - 12 l/h at max. 4-12 bar.
  - Hose material Pharmed<sup>®</sup>.
  - Powerful stepper motor, controlled speed.
  - Infinite adjustment of metering rate, manually or externally via contacts or 0/4-20mA analogue signal.
  - Intake function (high speed).
  - Sprung rollers for constant rolling pressure and extended service life of hose.
  - Metering rate displayed in l/h.
  - Direction of rotation reversible e.g. for backflush.
  - Enclosure type of protection IP65 in accordance with DIN EN 60529.
- O** "Standard pump" as a volume-controlled metering pump for general applications. The metered quantity can be set either in l/h in the display or via external control signals. The pump can process contact signals as well as analogue signals, e.g. 0/4 - 20 mA or 0 - 10 V
- A** "Metering of activated carbon" with reversible direction of rotation for backflushing the hose over the entire output range.
- F** "Metering of flocculants" with a continuous metering rate as from 5 ml/h. Up to two auxiliary inputs can be configured to realise an increase in the metering rate in line with sudden increased load and a reduction in the metering rate for night-time operation.

Thanks to its universal operability and the three output stages, the pump can be used for a wide range of metering tasks. Pharmed<sup>®</sup> are used as the hose materials.



# 1.9 DULCOFLEX Pumps DF4a

## 1.9.2 Identity Code & Pricing for DULCOFLEX DF4a Pump

**DF4a**

<b>Application</b>										
0	Standard Pump									
A	Activated carbon metering									
F	Flocculant metering									
<b>Installation</b>										
W	Wall mounting									
<b>Version</b>										
0	with ProMinent® logo									
1	without ProMinent® logo									
<b>Type</b>										
	<b>bar</b>	<b>l/h</b>	<b>STD Connection Size</b>							
04004	4.0	0.4	6 x 4							
04015	3.0	1.5	6 x 4							
03060	2.0	6.0	6 x 4							
02120	1.5	12.0	6 x 4							
<b>Hose material</b>										
P	PharMed® Note: PharMed® Not suitable for some liquid polymers									
<b>Hydraulic connectors</b>										
0	Standard									
9	Special connection 10x4 pressure side									
<b>Power supply</b>										
U	100-240 V, 50/60 Hz									
<b>Cable and plug</b>										
0	Without cable									
C	With Australian Plug									
<b>Accessories</b>										
0	Without accessories									
1	Injection valve, suction weight, suction & discharge tube									
<b>Main material</b>										
0	None									
<b>Language</b>										
00	Language neutral									
<b>Relay</b>										
1	Fault indicating relay NC									
3	Fault indicating relay NO									
<b>Control Variants</b>										
8	Manual + external contact + 0/4-20 mA / 0-10V									
<b>Additional Inputs</b>										
1	Pause + 2 stage level + AUX 1									
2	Pause + 2 stage level + AUX 1 + AUX 2									
<b>Pause/level</b>										
0	Pause break contact + level break contact									
<b>Approvals</b>										
01	CE-Symbol									

**BLACK** = PharMed® 1.6x4.8 and 0.8x4.0  
**GREY** = PharMed® 3.2x6.4  
**GREY** = PharMed® 4.8x8.0

DF4a F W 0 04015 P 0 U C 1 0 0 3 2 2 0 01 PharMed® registered trademark.

### Spare Parts

Description	Size	Material	Model	Part No.
Tube cpl.	0.8 x 4.0	PharMed®	DF4a04004	1034997
Tube cpl.	1.6 x 4.8	PharMed®	DF4a04015	1030722
Tube cpl.	3,2 x 6.4	PharMed®	DF4a03060	1030723
Tube cpl.	4.8 x 8.0	PharMed®	DF4a02120	1030774
Rotor cpl. size 1	black	DF4a04015P, DF4a04004P		1030778
Rotor cpl. size 2	grey	DF4a03060P, DF4a02120P		1031750

**Note:** The colour for the rotors denotes spring tension and relates to the expected life of the tubes.



# 1.10 DULCOFLEX DFXa

## 1.10.1 DULCOFLEX DFXa

- A peristaltic pump that brings together the best qualities of ProMinent metering pumps
- Feed rate of 10 ml/h to 60 l/h at up to 7 bar back pressure

The new DULCO flex Control meters reliably and is simple to operate. It enhances the ProMinent product range with an intelligent peristaltic metering pump. ProMinent is making use of its decades-long experience in the metering pump sector to bring together the best of two worlds. Valve-free metering with the accuracy of a diaphragm metering pump, with full use of the properties of a peristaltic pump.

The applications of this metering pump include strongly gaseous, high-viscosity, abrasive, shear-sensitive or chemically aggressive fluids. The liquid end developed and patented by ProMinent makes quick and straightforward hose replacement possible with a unique exchange technique. The display provides the fitter with precise instructions about the steps to be completed when replacing the hose. The high-performance hoses used guarantee exceptional chemical resistance and a long service life.

The order information required for replacement of the hose can be found on the pump’s operating menu.

The intuitive user interface with click wheel ensures the simple operation of the peristaltic pump.

A brushless direct current motor forms the heart of the DULCO flex Control. Its ingenious control provides for precise metering and reduced pump capacity with continuous metering up to 10 ml/h. Moreover, the new peristaltic metering pump is IoT-enabled, meaning that it is fully networkable and can be connected to the DULCOneX Platform especially developed by ProMinent, which enables it to work even smarter.



## 1.10 DULCOFLEX DFXa

### 1.10.2 Technical Data DULCOFLEX DFXa

Type	Maximum back pressure bar	Pump capacity	Max. speed rpm	Connector size o Ø x i Ø	Suction lift m WC	Intake head m WC	Shipping weight kg
0730	7	10 ml/h – 30 l/h	100	12 x 9	9	9	5.8
0530	5	10 ml/h – 30 l/h	100	12 x 9	9	9	5.8
0565	5	22 ml/h - 65 l/h	100	12 x 9	9	9	5.5
0365	3	22 ml/h - 65 l/h	100	12 x 9	9	9	5.5

<b>Hose material:</b>	Thermoplastic vulcanisate (TPV), polyurethane (PUR)
<b>Hose connectors:</b>	PVDF/PTFE
<b>Metering reproducibility:</b>	±2% with retracted hose (after approx. 200 revolutions)
<b>Electrical connection:</b>	100 - 230 V ±10%, 50/60 Hz
<b>Nominal power:</b>	approx. 45 W
<b>Degree of protection:</b>	IP 66, NEMA 4X Indoor
<b>Viscosities</b>	The DFXa0530VPT has successfully metered viscosities of up to 200,000 mPas in testing. If you are working with viscosities of more than 10,000 mPas, please contact our technical consulting department, who will be able to assist you.
<b>Permissible ambient temperature:</b>	0 ... 45 °C

All data refers to water at 20°C.

### 1.10.3 Spare Parts DULCOFLEX DFXa

	Part No.	
Spare part set DFXa 0518 VPT	1114522	<b>Replacement spare parts kits consisting of:</b> 1x tube 1x connection set 1x silicone grease
Spare part set DFXa 0518 VPF (FDA Tube)	1114521	
Spare part set DFXa 0730 SPT	1103102	
Spare part set DFXa 0730 SPF (FDA Tube)	1103099	
Spare part set DFXa 0530 SPT	1103100	
Spare part set DFXa 0530 SPF (FDA Tube)	1103101	
Spare part set DFXa 0530 VPT	1104954	
Spare part set DFXa 0530 VPF (FDA Tube)	1108859	
Spare part set DFXa 0565 VPT	1112765	
Spare part set DFXa 0565 VPF (FDA Tube)	1112764	
Spare part set DFXa 0365 FPT	1123766	
Spare part set DFXa FPG (FDA Tube)	1121589	
Spare part set DFXa rotor complete 0518/0565	1116468	
Spare part set DFXa rotor complete 0530/0730/0365	1103249	
Single Star grip screw DIN 6336 L M5x15xd25 A2	1102764	
Replacement cover screw set DFXa	1104952	
Tube break detector	1044477	
Dosing head cover (Early version)	1104727	
Dosing head DFXa Version 2.0 (black plastic part)	1115677	
Dosing head cover V2	1115678	
Countersunk screw DIN 7991 M 5x20 A2 (4 x required)	1027519	
Spare part set DFXa head & cover V2	1115681	



# 1.10 DULCOFLEX DFXa

## 1.10.4 Identity Code & Pricing for DULCOFLEX DFXa

### DFXa

#### Regional design

EU Europe

Type	Capacity	bar	l/h
0530	5		30 l/h [VP & SP]
0730	7		30 l/h [SP ONLY]
0565	5		65 l/h [VP ONLY]
0365	3		65 l/h [FP ONLY]

#### Tube material

- SP Thermoplastic vulcanisate (TPV/PVDF) [0503 & 0730 ONLY]
- VP Polyurethane (PUR/PVDF)
- FP Styrol Ethylen Butylen Styrol (SEBS) [0365 ONLY]

#### Seal material

- T PTFE
- F FDA-compliant (PTFE)

#### Dosing head orientation

- R right (view from behind)
- L left (view from behind)
- U top
- D bottom

#### Hydraulic connector

- 0 Standard connector (12x9)
- 2 Connector 8x5
- 5 Connector 12x6 discharge side
- 7 no connector kit
- 8 Connector 9x5
- E Connector DN 10 with nozzle

#### Tube rupture alarm

- 0 none
- 1 with hose rupture alarm

#### Design

- 0 Housing RAL 5003 / cover RAL 2003

#### Logo

- 0 with ProMinent logo

#### Power unit version

- U universal 100-240 V

#### Cable and plug

- C 2 m Australian

#### Relay

- 0 no relay
- 1 1 x changeover contact 230 V – 8 A, fault indicating relay N/C
- 4 2 x N/O 24V – 100 mA, fault indicating relay N/C + pacing relay
- C 1 x N/O 24V – 100 mA, fault indicating relay N/C + 4 – 20 mA output

#### Accessories

- 0 no accessories
- 1 Injection valve 1/2" and foot valve, 2m suction tube, 5m discharge tube

#### Control version

- 0 Manual + external with pulse control
- 3 Manual + external with pulse control + analogue 0/4 - 20 mA
- C as 3 + CANopen\*
- P as 3 + Profinet\*
- R as 3 + PROFIBUS® DP interface M12
- M as 3 + Modbus\*

\*No relay can be selected with these options

Note: Control Variant D to be confirmed.

#### Communication interface

- 0 none

#### Language

- EN English

#### Certification

- 01 CE [STANDARD]

#### Prepack

- P see options at left

**CAUTION**  
Pump is supplied assembled. However storage periods will deform the squeeze tube. Customer MUST BE advised to remove the pump rotor if storing the pump

**Note:** If PROFIBUS® is specified refer to page 3.20 to determine which PROFIBUS® cables, adaptors and terminators are required. Also if PROFIBUS® option is selected NO relays can be fitted.

**Prepacks = P**  
P0 - no control cable  
P2 - 2m control cable  
P5 - 5m control Cable  
PX -10m control Cable

**Note:** Cable for I/O port see page 3.19 in Yellow Pages.

DFXA EU 0503 SP T R 0 0 0 0 U C 0 0 0 0 EN



## 1.11 DULCOFLEX DFYa

### 1.11.1 DULCOFLEX DFYa

The peristaltic pump DULCOFLEX- DFYa combines the properties of top products from the ProMinent product range.

**Feed rate of 5.5 l/h to 410 l/h at up to 8 bar back pressure**

The new metering pump DFYa, the big brother of the DFXa, adds an intelligent peristaltic pump to the top capacity range of the ProMinent portfolio.

The new generation of peristaltic metering pumps is now controlled electronically. It meters without the need for a valve, with precision hitherto impossible. All the benefits of a peristaltic pump are retained, which is why seriously gaseous, high-viscosity, abrasive or shear-sensitive fluids, sometimes containing particles, can also be perfectly metered with the DFYa.

As with the DFXa, hose replacement on the DFYa is also assisted by the pump. When the hose needs to be changed, the pump displays exact instructions for the steps to be followed and automatically moves into the correct positions for hose replacement. The different hose materials (NR, NBR, NBR-A, EPDM Hypalon) enable the DFYa to work with a very wide range of media to be metered.

The peristaltic pump DFYa is simple to operate from the intuitive user interface with 4 keys and the click wheel. The DFYa thus joins the remaining ProMinent product range of intelligent metering pumps, which all share the same menu structure and user interface.

The new peristaltic metering pump is even IoT-capable. This means that it is fully connectible and can be connected to ProMinent's in-house developed DULCOnneX platform, which enables it to work even smarter.

#### Your benefits

- Operation by contact, batch, manual, analogue or BUS control
- Adjustment of the metering rate directly in l/h or gph
- Connection to process control systems via a BUS interface, such as PROFIBUS®, Profinet or CANbus
- No problems with very gaseous media or air locks
- Simple, menu-guided hose change
- Reversible direction of rotation

#### Field of application

- Mining
- Potable water and waste water industry
- Chemical industry
- Paper industry
- Food and beverage industry

All industrial applications, either as a stand-alone unit or integrated in a complete system.



# 1.11 DULCOFLEX DFYa

## 1.11.2 Technical Data DULCOFLEX DFYa

Type	Maximum back pressure bar	Pump capacity rpm	Max. speed m WC	Suction lift m WC	Intake head
08410	8	410 l/h ± 10 %	80	8	8
04410	4	410 l/h ± 10 %	80	8	8
02410	2	410 l/h ± 10 %	80	8	8

NR, NBR, EPDM, NBR-A, Hypalon

Up to 8 m

Rollers

±2% with retracted hose after 500 revolutions

100 – 230 VAC ± 10 % 50/60 Hz

Max. 400 W

IP 55

30 kg

0 ... 45 °C

All data refers to water at 20 °C

### Approximate Life of Hoses

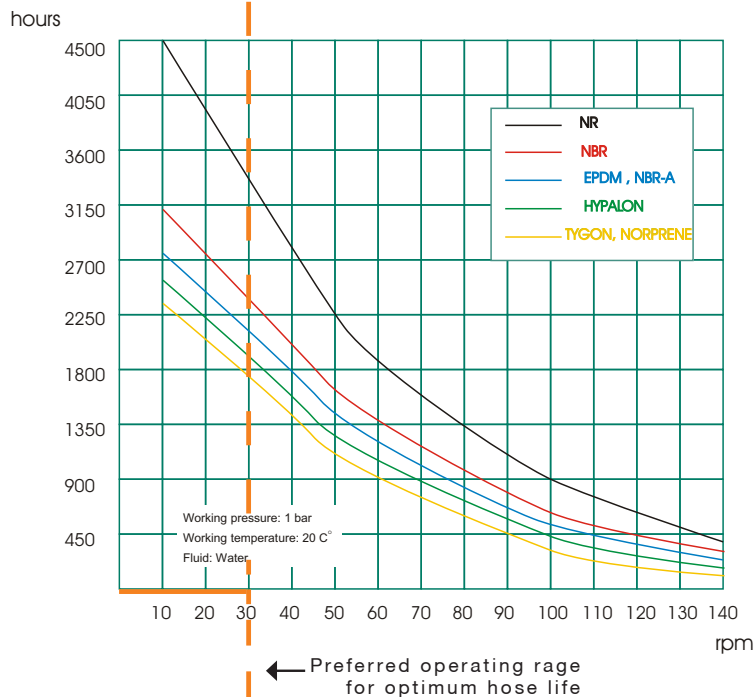
The technical department of PROMINENT, has prepared a series of curves representing the duration of the peristaltic hoses in function of the pump rotation speed and of the type of installed hose.

These curves, which are for guideline purposes, have been prepared in accordance with tests carried out using our test set/up, together with multiple references received from our customers and distributors.

All this data has been used to produce real average values, taking into account however, that due to the nature of the rubber, its components, additives and manufacturing process, it is possible that some of the hoses may have a life which is much higher than the estimated in the curves, and others could be lower.

These curves are therefore intended for guideline purposes only and must not be interpreted as being any form of guarantee for hose duration. The aim of these curves is to provide a useful tool when the time comes to select a pump and hose.

Evidently, there are other variables which can condition the life of a hose, such as temperature, pressure, abrasion, and specially the chemical compatibility of the product being pumped with respect to the selected hose material, which makes it practically necessary to have a different curve for each specific pumping situation. These curves can therefore be extremely useful in spite of being for guideline purpose only.





# 1.10 DULCOFLEX DFYa

## 1.11.3 Identity Code & Pricing for DULCOFLEX DFYa

DFYa													
<b>Type Capacity</b>													
	<table border="1"> <thead> <tr> <th></th> <th>bar</th> <th>l/h</th> </tr> </thead> <tbody> <tr> <td>08410</td> <td>8</td> <td>410</td> </tr> <tr> <td>04410</td> <td>4</td> <td>410</td> </tr> <tr> <td>02410</td> <td>2</td> <td>410</td> </tr> </tbody> </table>		bar	l/h	08410	8	410	04410	4	410	02410	2	410
	bar	l/h											
08410	8	410											
04410	4	410											
02410	2	410											
<b>Hose Material</b>													
	<ul style="list-style-type: none"> <li>0 NR</li> <li>B NBR</li> <li>E EPDM</li> <li>A NBR-A [food safe]</li> <li>C NBR-A</li> <li>H Hypalon</li> </ul>												
<b>Dosing Head Orientation</b>													
	R Right												
<b>Hydraulic Connection</b>													
	<ul style="list-style-type: none"> <li>A VA BSP 3/4"</li> <li>B VA NPT 3/4"</li> <li>C PP BPS 3/4"</li> <li>D PVDF BSP 3/4"</li> <li>E PVDF NPT 3/4"</li> <li>F PVC NPT 3/4"</li> <li>G Tri-Clamp, VA, 1"</li> <li>H DIN 11851, VA, NW20</li> </ul>												
<b>Hose Break Detector</b>													
	<ul style="list-style-type: none"> <li>0 Without hose break detector</li> <li>1 With hose break detector</li> </ul>												
<b>Version</b>													
	<ul style="list-style-type: none"> <li>P ProMinent</li> <li>B Boyser</li> <li>A Axflow</li> <li>M Modified</li> </ul>												
<b>Special Version</b>													
	<ul style="list-style-type: none"> <li>0 Standard</li> <li>H Chemical version - Halar coated</li> </ul>												
<b>Logo</b>													
	0 With logo												
<b>Electric Power Supply</b>													
	U Universal 100-230V +- 10 %, 50/60 Hz												
<b>Cable and Plug</b>													
	C 2 m Australian												
<b>Relay</b>													
	<ul style="list-style-type: none"> <li>0 no relay</li> <li>1 fault indicating relay ( 230V, 8A)</li> <li>3 fault indicating relay ( 24V ,100 mA ) + pacing relay (24V, 100mA)</li> <li>8 0/4-20mA output relay + fault indicating/pacing relay</li> </ul>												
<b>Accessories</b>													
	0 No accessories												
<b>Control Version</b>													
	<ul style="list-style-type: none"> <li>0 Manual + External contact with Pulse Control</li> <li>1 Pulse Control + Analogue</li> <li>6 Profibus M12 plug</li> <li>7 CANopen</li> </ul>												
<b>Control Unit</b>													
	<ul style="list-style-type: none"> <li>0 HMI with Click Wheel 0,5 m</li> <li>4 HMI with Click Wheel 2 m</li> <li>5 HMI with Click Wheel 5 m</li> <li>6 HMI with Click Wheel 10 m</li> </ul>												
<b>Access Code</b>													
	<ul style="list-style-type: none"> <li>0 Without access code</li> <li>1 With access code</li> </ul>												
<b>Communication</b>													
	0 Without												
<b>Languages</b>													
	EN English												
<b>Approval</b>													
	01 CE												
<b>Prepack</b>													
	P see options at left												

**Prepacks = P**  
 P0 - no control cable  
 P2 - 2m control cable  
 P5 - 5m control Cable  
 PX -10m control Cable

**Note:** Cable for I/O port see page 3.19 in Yellow Pages.

DFYa 08410 0 R 0 0 0 0 0 0 U C 0 0 0 0 0 0 0 0 EN 01



## 2.0 ProMinent® High Viscosity Pumps

### 2.0.1 ProMinent® Viscosity Metering Pumps



**For small capacity High Viscosity pumps see:**

- **Beta, GALA and gamma/ XL**  
*refer Sydney office*
- also available in **EXTRONIC Pumps**

**For higher capacity High Viscosity pumps see:**

- Sigma/ 1
- Sigma/ 2
- Sigma/ 3
- Hydro/ 2
- Hydro/ 3
- Hydro/ 4 and Makro TZ or Makro/ 5 *refer Sydney office*
- Spectra® progressive cavity pumps
- DULCO® flex hose pumps
- Orlita pumps

### Effect of Viscosity on Metering Pumps

<b>Below 250 centipoise</b>	=	Standard Pump
<b>250 - 500 centipoise</b>	=	One stainless ball each side + spring on discharge side
<b>500 - 1000 centipoise</b>	=	Springs fitted to suction and discharge, flooded suction
<b>1000 centipoise</b>	=	Delta HV head required
		Slow pump running below 100 SPM
		Double capacity
		Spectra® or <b>DULCOflex®</b> hose pump.

On the following pages we have colour coded the pumps and the corresponding dots indicate the correct size for the fittings and accessories in section 3 and also the fittings in Green Pages.

These codes also apply in the Yellow Pages 2.36

- **DN10**
- **DN15**
- **DN20**
- **DN25**
- **DN32**



## 2.1 Sigma/ 1 Diaphragm Metering Pumps

### 2.1.1 Sigma/ 1 Diaphragm Metering Pumps

#### Sigma/ 1 Diaphragm Metering Pumps

The Sigma/1 motor diaphragm metering pumps are produced with a high-strength inner housing for parts subject to load as well as an additional plastic housing to protect against corrosion. The capacity range extends from 17 - 144 l/h at a max. back pressure of 12 to 4 bar. Stroke length 4mm.

Under defined conditions and when installed correctly, the reproducibility of the metering is better than  $\pm 2\%$  at a stroke length of between 30 % and 100 % (instructions in the operating instructions manual must be followed).

In all motor-driven metering pumps without integrated overload protection, for safety reasons, suitable overload protection must be provided during installation.

#### Sigma/ 1 control type (S1Cb)

Detachable operating unit (HMI)

The optional control via contact or analog signals (e.g. 0/4 - 20 mA) for the Sigma control type results in good adaptability, even to fluctuating metering requirements.

The microprocessor control is an optimum combination of speed control and stop & go operation, i.e. it works in a wide control field with customised fine adjustment. Moreover it enables an optimum metering result thanks to the metering behaviour of the metering pump being matched to the chemicals or application.

The task of the control is to measure the movement and speed profile in conjunction with the power demand. This leads to a real reduction in the actually required power, which means an increase in efficiency.

Moreover, the analysis of the power demand makes possible an internal overload switching off of the metering pump, i.e. an integral pressure relief function for pump protection without an additional hydraulic assembly such as relief valves and manometer.

#### Sigma/ 1 basic type (S1Ba)

The ProMinent® Sigma Basic type is a motor driven Metering Pump with no internal electronic control system. The ProMinent® S1Ba has a number of different drive options, including single and 3 ph. motor (standard IP55), or the three phase AC motor for use in hazardous Exe and EXde areas.

Different flanges are always available so that customers can use their own motor to drive the pump.

#### DIAPHRAGM RUPTURE WARNING SYSTEM

The liquid end has a patented multilayer safety diaphragm as standard and a visual diaphragm rupture indicator. The diaphragm is coated on both sides with PTFE film.

This coating ensures that no leakage to the outside occurs even if the diaphragm ruptures.

If the diaphragm ruptures, feed chemical enters between the diaphragm layers and thus triggers a mechanical indication or an alarm via the sensor area.

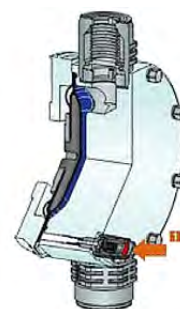
This concept ensures reliable metering - even under critical operating conditions.

#### Sigma Basic Type Control Functions (S1Ba)

Stroke length actuator/controller

Actuator for automatic stroke length adjustment, actuating period approx. 1 sec for 1% stroke length, 1k Ohm response signal potentiometer, enclosure rating IP 54.

Controller consists of actuator with servomotor and integrated servo control for stroke length adjustment via a standard signal. Standard signal input 0/4-20 mA, corresponds to stroke length 0 - 100 %. Automatic/manual operation selection key for manual stroke adjustment. Mechanical status display of actual stroke length value output 0/4-20 mA for remote display.



S1Ba with Stroke length controller



## 2.1 Sigma/ 1 Diaphragm Metering Pumps

### 2.1.2 Technical Data for Sigma/ 1

at 50 Hz Pump Capacity at Max. Back Pressure		Max Stroke Freq	S1Cb at 60 Hz Pump Capacity at Max. Back Pressure		Stroking rate at Max. Back Pressure	Suction Lift	Adm. Priming Pressure Suction Side	Connector Suction/ Discharge Side	Shipping Weight			
Pump type S1Ba	bar	l/h	ml/ stroke.	strokes/ min.	bar S1Cb	l/h	strokes/ min.	mWG	bar	DN	Optional BSPM / Hosetail	kg
12017 PVT	10	17	3.9	73	10	21	87	7	1	10	1/2" / 16mm	9
12017 SST	12	17	3.9	73	12	21	87	7	1	10	1/2" / 16mm	12
12035 PVT	10	35	4.0	143	10	42	172	7	1	10	1/2" / 16mm	9
12035 SST	12	35	4.0	143	12	42	172	7	1	10	1/2" / 16mm	12
10050 PVT	10	50	4.0	205	10	60	246	7	1	10	1/2" / 16mm	9
10050 SST	10	50	4.0	205	10	60	246	7	1	10	1/2" / 16mm	12
10022 PVT	10	22	5.1	73	10	27	87	6	1	10	1/2" / 16mm	9
10022 SST	10	22	5.1	73	10	27	87	6	1	10	1/2" / 16mm	12
10044 PVT	10	44	5.1	143	10	53	172	6	1	10	1/2" / 16mm	9
10044 SST	10	44	5.1	143	10	53	172	6	1	10	1/2" / 16mm	12
07065 PVT	7	65	5.1	205	7	78	246	6	1	10	1/2" / 16mm	9
07065 SST	7	65	5.1	205	7	78	246	6	1	10	1/2" / 16mm	12
07042 PVT	7	42	9.7	73	7	52	87	3	1	15	3/4" / 20mm	9.5
07042 SST	7	42	9.7	73	7	52	87	3	1	15	3/4" / 20mm	13.5
04084 PVT	4	84	9.7	143	4	101	172	3	1	15	3/4" / 20mm	9.5
04084 SST	4	84	9.7	143	4	101	172	3	1	15	3/4" / 20mm	13.5
04120 PVT	4	120	9.7	205	4	144	246	3	1	15	3/4" / 20mm	9.5
04120 SST	4	120	9.7	205	4	144	246	3	1	15	3/4" / 20mm	13.5

Note: All pumps that are fitted with integral PRV must have the outlet piped to an appropriate place.

● DN10  
● DN15

#### Materials in Contact with Chemicals

Liquid End	Suction/Discharge connector	Valve	Seals	Balls	Integrated Pressure Bleed Valve
PVT	PVDF (Polyvinylidene fluoride)	PVDF (Polyvinylidene fluoride)	PTFE	Ceramic	PVDF/Viton® or EPDM
SST	stainless steel no. 1.4404/1.4581	Stainless steel no. 1.4404	PTFE	Stainless steel no. 1.4404	Stainless steel/Viton®

#### Motor Data for S1Ba

Identity code specifications	Power supply	Δ/Y	Remarks
S	3-phase, IP 55	220 - 240 V/380 - 420 V 220 - 280 V/440 - 480 V	50 Hz 0.09 kW 60 Hz 0.09 kW
T	3-phase, IP 55	220 - 240 V/380 - 420 V 220 - 280 V/440 - 480 V	50 Hz 0.09 kW 60 Hz 0.09 kW with PTC, speed control range 1:5
R	3-phase, IP 55	220 - 240 V/380 - 420 V	50 Hz 0.09 kW with PTC, speed adjustment range 1:20 with external fan (1-phase 230 V; 50/60Hz, 20W)
M	1-phase AC, IP 55	230 V ± 5 %	50 Hz/ 60 Hz 0.12 kW
L1	3-phase, II2GEEExIIIT3	220 - 240 V/380 - 420 V	50 Hz 0.12 kW
L2	3-phase, II2GEEExIIICT4	220 - 240 V/380 - 420 V	50 Hz 0.18 kW with PTC, speed control range 1:5
P1	3-phase, II2GEEExIIIT3	250 - 280 V/440 - 480 V	60 Hz 0.12 kW
P2	3-phase, II2GEEExIIICT4	250 - 280 V/440 - 480 V	60 Hz 0.18 kW with PTC, speed control range 1:5

Motor data sheets can be requested for more information. Special motors or special motor flanges are available on request.

Motors less than 0.75 kW and motors designed for speed-controllable operation are not subject to the IEC2 standard in compliance with the Ecodesign Directive 2005/32/EC.

Information for use in areas at risk from explosion: Only use pumps with the appropriate labelling in line with the ATEX Directive 94/9/EC in premises at risk from explosion. Ensure that the explosion group, category and degree of protection specified on the label corresponds to or is better than the conditions prevalent in the intended field of application.



## 2.1 Sigma/ 1 Diaphragm Metering Pumps

### 2.1.3 Identity Code Ordering System for Basic Type Sigma (S1Ba)

#### S1BaH

**Sigma Basic Type (S1Ba) Pump Type** (Figure 1 + 2 = back pressure [bar], figures 3 -5 = feed rate [l/h]):

●	<b>12017*</b>	12 bar; 17 l/h	<b>PVDF</b>
●	<b>12035*</b>	12 bar; 35 l/h	<b>SS</b>
●	<b>10050</b>	10 bar; 50 l/h	
●	<b>10022</b>	10 bar; 22 l/h	<b>PVDF</b>
●	<b>10044</b>	10 bar; 44 l/h	<b>SS</b>
●	<b>07065</b>	7 bar; 65 l/h	
●	<b>07042</b>	7 bar; 42 l/h	<b>PVDF</b>
●	<b>04084</b>	4 bar; 84 l/h	<b>SS</b>
●	<b>04120</b>	4 bar; 120 l/h * for PVDF max. 10 bar	

#### Liquid end material with PTFE Seal:

- PVT** PVDF (max 10 bar)
- SST** Stainless steel - select this option if using Hygenic Head option

#### Diaphragm:

- S** Multi-layer safety diaphragm with optical rupture display
- A** Multi-layer safety diaphragm with electrical rupture signal
- H** Diaphragm for Hygenic Head

#### Liquid end version:

**PVDF**

- 0** No springs
- 1** With 2 valve springs, Hastelloy C 4; 0.1 bar
- 4** With bleed valve, Viton® seal, no valve spring
- 5** With bleed valve, Viton® seal and valve spring
- H** Hygenic Head with Tri-Clamp connection (maximum 10 bar), contact Sydney

#### Hydraulic connector:

- 1** Union nut and PVC Solvent Weld
- 2** Union nut and PVC Male BSP
- 3** Union nut and PVDF Male BSP
- 4** Union nut and stainless steel insert *inc. w/SS pump*
- 5** Union nut and PVC Hosetail
- 7** Union nut and PVDF Hosetail

#### Version

- 0** With ProMinent® logo (standard)
- M** Modified
- 5** Liquid End Left ... *Note: only available ex Germany*

#### Power supply:

- S** 3 ph, 400 V; 50 Hz; 0.09 kW
- T** 3ph, 400V, 50Hz, 0.09kW, PTC Thermistor
- M** 1 ph. AC, 230 V; 50 Hz; 0.12 kW
- L** 3 ph, 400 V, 50Hz, (EExe, EExde) see below
- R** 3ph, variable speed motor 4 pol. 400 V 0.09kW, external fan
- 3** No Motor, with flange size 56; B5 (DIN)

#### Enclosure rating:

- 0** IP 55 (standard)
- 1** Exe motor version (ATEX-T3)
- 2** Exd motor version (ATEX-T4)

#### Stroke sensor:

- 0** No stroke sensor (standard)
- 2** Pacing relay (reed relay)
- 3** Stroke Sensor (Namur for EX area)

#### Stroke length adjustment:

- 0** Manual 0
- 1** Stroke positioning motor, 85-265V AC 50/60Hz
- 4** Stroke control motor, 4-20 mA 85-265V AC 50/60Hz

#### Prepack Option

- P\*** Manual 0

- DN10
- DN15

**Note:** PRV/Bleed valve available on request.  
The preferred option is relief valve in-line.

#### Prepack option P\* for PVDF

**P0 - 12017 - 12035 - 10050 - 10022 - 10044 - 07065**

4 EPDM flat gaskets  
Refer page 2.36 for fitting sizes

**07042 - 04084 - 04120**

4 EPDM flat gaskets  
Refer page 2.36 for fitting sizes

**P1** as P0 but with Viton® Flat Gaskets

**240 volt motor supplied with power cord.**

S1BaH 12050 PVT S 0 1 0 S 0 0 0 P0



## 2.1 Sigma/ 1 Diaphragm Metering Pumps

### 2.1.4 Identity Code Ordering System for Sigma X (S1Cb)

#### S1CbH

**Sigma Control Type (S1Cb) Pump type** (Figures 1 + 2 = back pressure [bar], figures 3 - 5 = feed rate [l/h]):

● 12017*	12 bar;	21 l/h	PVDF
● 12035*	12 bar;	42 l/h	SS
● 10050	10 bar;	49 l/h	
● 10022	10 bar;	27 l/h	PVDF
● 10044	10 bar;	53 l/h	SS
● 07065	7 bar;	63 l/h	
● 07042	7 bar;	52 l/h	PVDF
● 04084	4 bar;	101 l/h	SS
● 04120	4 bar;	117 l/h	*for PVDF max. 10 bar

#### Liquid end material with PTFE Seal

PVT	PVDF (max 10 bar)
SST	Stainless steel

#### Diaphragm

S	Multi-layer safety diaphragm with optical rupture display
A	Multi-layer safety diaphragm with electrical rupture signal "Pump stops"

#### Liquid end version

0	No bleed valve and springs
1	No bleed valve, with 2 valve springs, Hastelloy C 4; 0.1 bar
4	With relief valve, Viton® seal, no valve spring
5	With relief valve, Viton® seal and valve spring

#### Hydraulic connector

1	Union nut and PVC Solvent Weld
2	Union nut and PVC Male BSP
3	Union nut and PVDF Male BSP
4	Union nut and stainless steel insert <i>inc. w/ss pump</i>
5	Union nut and PVC Hosetail
7	Union nut and PVDF Hosetail

#### Version

0	With ProMinent® logo (standard)
F	Physiologically harmless (FDA)
M	Modified
5	Liquid end left ... <i>Note: only available ex Germany</i>

#### Electrical Power supply

U	1 ph, 100 - 240 V; 50 Hz
---	--------------------------

#### Power Cable and Plug

C	2m Australia
---	--------------

#### Relays

0	No relay ( Standard)
1	Fault relay (230V - 8A)
3	Fault + pacing relay (24V - 100mA)
8	0/4-20 mA analogue output + fault indicating relay / pacing relay (24V - 100mA)

#### Control Variant

0	Manual + External Control + Pulse Control
1	Manual + External Control + Pulse Control + analog + metering profiles
6	As 1 + PROFIBUS® DP M12
7	Dulcomarin A Module

#### Overload switch-off

0	Without overload switch-off
---	-----------------------------

#### Operating Unit (HMI)

0	Operating unit with Click Wheel <b>0.5 m cable</b>
4	Operating unit with Click Wheel <b>2 m cable</b>
5	Operating unit with Click Wheel <b>5 m cable</b>
6	Operating unit with Click Wheel <b>10 m cable</b>
X	without operating unit (HMI)

#### Dosing Monitor:

0	Without access code
1	With access code

#### Language:

EN	English
----	---------

- DN10
- DN15

**Note:** PRV/Bleed valve available on request. The preferred option is relief valve in-line.

**Note:** If PROFIBUS® is specified refer to page 3.19 to determine which PROFIBUS® cables, adaptors and terminators are required. Also if PROFIBUS® option is selected NO relays can be fitted.

#### Prepack option P\* for PVDF

**P0 - 12017 - 12035 - 10050 - 10022 - 10044 - 07065**

4 EPDM flat gaskets & CANBUS cable if required. Refer page 2.36 for fitting sizes

**07042 - 04084 - 04120**

4 EPDM flat gaskets & CANBUS cable if required. Refer page 2.36 for fitting sizes

- P1 as P0 but with Viton® Flat Gaskets
- P2 As P0 but with a 2.0m control cable
- P5 As P2 but with a 5.0m control cable
- PX As P2 but with a 10.0m control cable
- PA As P1 but with a 2.0m control cable
- PB As P1 but with a 5.0m control cable
- PC As P1 but with a 10.0m control cable

**Note:** for SS pumps as per P2, P5 & P7 but only require control cables ... prices also as above.

**\*\* For manual operating HMI Required 1042550**

S1CbH 10050 PVT S 0 1 0 U C 0 1 0 1 0 EN P2



## 2.1 Sigma/ 1 Diaphragm Metering Pumps

### 2.1.5 Spare Parts Kits Sigma/ 1

The spare parts kits contain all components for maintenance of liquid ends.

**PVT version**

1 x diaphragm (multi-layer safety diaphragm)

2 x valve assemblies

2 x valve balls

2 x ball seats

4 x composite seals

1 x elastomer sealing set (EPDM, FKM-B)

**SST version**

1 x diaphragm (multi-layer safety diaphragm)

2 x valve balls

4 x complete sealing sets (cover rings, ball seat discs)

**IN ALL CASES CHECK PUMP MODEL CODE**

**Spare Parts Kits for versions with multilayer safety diaphragm - Type PVTs, PVTA, SSTs, SSTA**

Type	Part No.
Type 12017, 12035, 10050	
<b>Liquid end FM 50 - DN 10</b>	<b>PVT</b> 1035964
	PVT - FDA 1046466
	SST 1035966
	SST - FDA 1046468
	SST (with 2 valve sets) 1035965
Type 10022, 10044, 07065	
<b>Liquid end FM 65 - DN 10</b>	<b>PVT</b> 1035967
	PVT - FDA 1046469
	SST 1035969
	SST - FDA 1046471
	SST (with 2 valve sets) 1035968
Type 07042, 04084, 04120	
<b>Liquid end FM 120 - DN 15</b>	<b>PVT</b> 1035961
	PVT - FDA 1046453
	SST 1035963
	SST - FDA 1046465
	SST (with 2 valve sets) 1035962

**Spare Parts Kits for versions with original diaphragm - Type PVT0/1/2, SST0/1/2**

Type	Part No.
Type 12017, 12035, 10050	
<b>Liquid end FM 50 - DN 10</b>	<b>PVT</b> 1010541
	SST 1010554
	SST (with 2 valve sets) 1010555
Type 10022, 10044, 07065	
<b>Liquid end FM 65 - DN 10</b>	<b>PVT</b> 1010542
	SST 1010556
	SST (with 2 valve sets) 1010557
Type 07042, 04084, 04120	
<b>Liquid end FM 120 - DN 15</b>	<b>PVT</b> 1010543
	SST 1010558
	SST (with 2 valve sets) 1010559

**Multilayer Safety Diaphragms - [CURRENT] Types PVTs, PVTA, SSTs, SSTA**

Part No.
<b>Sigma/ 1 FM 50</b> Type: 12017, 12035, 10050 1030114
<b>Sigma/ 1 FM 65</b> Type: 10022, 10044, 07065 1030115
<b>Sigma/ 1 FM 120</b> Type: 07042, 04084, 04120 1035828

**Pump Diaphragms [ORIGINAL diaphragm] Types PVT0/1/2, SST01/2**

Part No.
<b>Sigma/ 1 FM 50</b> Type: 12017, 12035, 10050 1010279
<b>Sigma/ 1 FM 65</b> Type: 10022, 10044, 07065 1010282
<b>Sigma/ 1 FM 120</b> Type: 07042, 04084, 04120 1010285

Suction - Discharge Valves PVT	Part No.
Sigma/ 1 12017, 12035, 10050 DN10	1002267
Sigma/ 1 10022, 10044, 07065 DN10	1002267
Sigma/ 1 07042, 04084, 04120 DN15	792517

PTFE Moulding Gasket	Part No.
Sigma/ 1 12017, 12035, 10050 DN10	1019364
Sigma/ 1 10022, 10044, 07065 DN10	1019364
Sigma/ 1 07042, 04084, 04120 DN15	1019365

Part No.
Visual Diaphragm Failure Indicator 1033323
Retrofit rupture signalling switch & cable 1034312



## 2.2 ProMinent® Sigma/ 2 Diaphragm Metering Pumps

### 2.2.1 ProMinent Sigma/ 2 Diaphragm Metering Pumps

#### Sigma/ 2 Diaphragm Metering Pumps

The Sigma/2 motor diaphragm metering pumps are produced with a high-strength inner housing for parts subject to load as well as an additional plastic housing to protect against corrosion. The capacity range extends from 50 - 420 l/h at a max. back pressure of 16 to 4 bar. Stroke length 5mm.

Under defined conditions and when installed correctly, the reproducibility of the metering is better than  $\pm 2\%$  at a stroke length of between 30 % and 100 % (instructions in the operating instructions manual must be followed).

In all motor-driven metering pumps without integrated overload protection, for safety reasons, suitable overload protection must be provided during installation.

#### Sigma/ 2 control type (S2Cb)

Detachable operating unit (HMI)

The optional control via contact or analog signals (e.g. 0/4 - 20 mA) for the Sigma control type results in good adaptability, even to fluctuating metering requirements.

The microprocessor control is an optimum combination of speed control and stop & go operation, i.e. it works in a wide control field with customised fine adjustment. Moreover it enables an optimum metering result thanks to the metering behaviour of the metering pump being matched to the chemicals or application.

The task of the control is to measure the movement and speed profile in conjunction with the power demand. This leads to a real reduction in the actually required power, which means an increase in efficiency.

Moreover, the analysis of the power demand makes possible an internal overload switching off of the metering pump, i.e. an integral pressure relief function for pump protection without an additional hydraulic assembly such as relief valves and manometer.

#### Sigma/ 2 basic type (S2Ba)

The ProMinent® Sigma Basic type is a motor driven Metering Pump with no internal electronic control system. The ProMinent® S2Ba has a number of different drive options, including single and 3 ph. motor (standard IP55), or the three phase AC motor with ATEX certification for use in hazardous Exe and EXde areas.

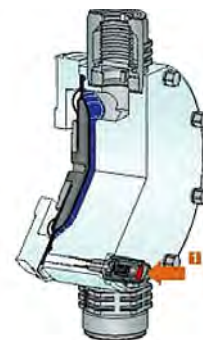
Different flanges are always available so that customers can use their own motor to drive the pump.

#### DIAPHRAGM RUPTURE WARNING SYSTEM

The liquid end has a patented multilayer safety diaphragm as standard and a visual diaphragm rupture indicator. The diaphragm is coated on both sides with PTFE film.

This coating ensures that no leakage to the outside occurs even if the diaphragm ruptures. If the diaphragm ruptures, feed chemical enters between the diaphragm layers and thus triggers a mechanical indication or an alarm via the sensor area.

This concept ensures reliable metering - even under critical operating conditions.





## 2.2 ProMinent® Sigma/ 2 Diaphragm Metering Pumps

### 2.2.2 Technical Data for Sigma Sigma/ 2

at 50 Hz					S2CbH at 60 Hz								
Pump Capacity at Max. Back Pressure		Max. Stroke Freq.	Pump Capacity at Max. Back Pressure		Stroking rate at at max. back pressure	Suction Lift	Adm. Priming Pressure Suction Side	Connector Suction/ Discharge Side	Shipping Weight				
Pump type	bar	l/h	ml/ stroke	strokes/ min.	bar S2CbH	l/h	strokes/ min.	mWG	bar	DN	Optional BSPM/Hosetail	kg	
16050 PVT	10	50	11.4	73	10	61	90	7	3	15	3/4" / 20mm	15	●
16050 SST	16	47	11.4	73	16	56	90	7	3	15	3/4" / 20mm	20	●
16090 PVT	10	88	11.4	132	10	109	160	7	3	15	3/4" / 20mm	15	●
16090 SST	16	82	11.4	132	16	99	160	7	3	15	3/4" / 20mm	20	●
16130 PVT	10	135	10.9	198	10	131	200	7	3	15	3/4" / 20mm	15	●
16130 SST	16	124	10.9	198	16	129	200	7	3	15	3/4" / 20mm	20	●
07120 PVT	7	126	27.4	73	7	150	90	5	1	25	1" / 25mm	16	●
07120 SST	7	126	27.4	73	7	150	90	5	1	25	1" / 25mm	24	●
07220 PVT	7	220	27.7	132	7	271	160	5	1	25	1" / 25mm	16	●
07220 SST	7	220	27.7	132	7	271	160	5	1	25	1" / 25mm	24	●
04350 PVT	4	350	29.4	198	4	353	200	5	1	25	1" / 25mm	16	●
04350 SST	4	350	29.4	198	4	353	200	5	1	25	1" / 25mm	24	●

**NOTE:** The valves in the liquid end of the Sigma types 07120, 07220 and 04350 are dimensioned DN25 (R1-1/2"). Since a piping size of DN20 is generally sufficient for these types (see Technical Date, connection intake/delivery side), the connection parts (eg inserts) which can be ordered in the identity code are reduced to DN 20, ie. piping and accessories can be sized to DN 20.

**NOTE:** All pumps that are fitted with integral PRV must have the outlet piped to an appropriate place.

● DN15  
● DN25

#### Materials in contact with Dosing Medium

Liquid End	Suction/Discharge connector	Valve	Seals	Balls	Integrated Pressure Bleed Valve
PVT	PVDF (Polyvinylidene fluoride)	PVDF (Polyvinylidene fluoride)	PTFE	ceramic	PVDF/Viton® or EPDM
SST	stainless steel no. 1.4571/1.4404	stainless steel no. 1.4581	PTFE	stainless steel no. 1.4404	stainless steel/Viton®

Viton® is a registered trademark of DuPont Dow Elastomers.

#### Motor Data S2Ba

Identity code specifications	Power supply	Δ/Y	Remarks			
S	3-phase, IP 55	220 - 240 V/380 - 420 V 220 - 280 V/440 - 480 V	50 Hz 60 Hz	0.25 kW 0.25 kW		
T	3-phase, IP 55	220 - 240 V/380 - 420 V 220 - 280 V/440 - 480 V	50 Hz 60 Hz	0.25 kW	with PTC, speed control range 1:5	
R	3-phase, IP 55	220 - 240 V/380 - 420 V	50 Hz	0.37 kW	with PTC, speed adjustment range 1:20 with external fan (1-phase 230 V; 50/60Hz, 134W)	
M	1-phase AC, IP 55	230 V ± 5 %	50 Hz/ 60 Hz	0.18 kW		
L1	3-phase, II2GEEExII T3	220 - 240 V/380 - 420 V	50 Hz	0.18 kW		
L2	3-phase, II2GE-ExdIICT4	220 - 240 V/380 - 420 V	50 Hz	0.18 kW	with PTC, speed control range 1:5	
P1	3-phase, II2GEEExII T3	250 - 280 V/440 - 480 V	60 Hz	0.18 kW		
P2	3-phase, II2GE-ExdIICT4	250 - 280 V/440 - 480 V	60 Hz	0.21 kW	with PTC, speed control range 1:5	

#### Sigma Basic Type Control Functions (S2Ba)

Actuator for automatic stroke length adjustment, actuating period approx. 1 sec for 1% stroke length, 1k Ohm response signal potentiometer, enclosure rating IP 54. Controller consists of actuator with servomotor and integrated servo control for stroke length adjustment via a standard signal. Standard signal input 0/4-20 mA, corresponds to stroke length 0 - 100 %. Automatic/manual operation selection key for manual stroke adjustment. Mechanical status display of actual stroke length value output 0/4-20 mA for remote display.



## 2.2 Sigma/ 2 Diaphragm Metering Pumps

### 2.2.3 Identity Code Ordering System for Basic Type Sigma (S2Ba)

#### S2Ba Sigma Basic Type (S2Ba)

##### HM Main drive, diaphragm

##### Pump type: (Figures 1 + 2 = back pressure [bar], figures 3 - 5 = feed rate [l/h]):

- **16050\*** 16 bar; 50 l/h PVDF
- **16090\*** 16 bar; 88 l/h PVT, 82 l/h SS SS
- **16130\*** 16 bar; 135 l/h PVT, 124 l/h SS
- **07120** 7 bar; 126 l/h PVDF
- **07220** 7 bar; 220 l/h SS
- **04350** 4 bar; 350 l/h \*for PVDF max. 10 bar

##### Liquid end material with PTFE Seal:

- PVT** PVDF (max 10 bar)
- SST** Stainless steel

##### Diaphragm:

- S** Multilayer safety diaphragm with visual rupture indicator
- A** Multilayer safety diaphragm with rupture signalling (contact)
- H** Diaphragm for Hygienic head

##### Liquid end version:

- |  |               |           |
|--|---------------|-----------|
|  | <b>PVDF</b>   | <b>SS</b> |
| <b>0</b> No springs  |               |           |
| <b>1</b> With 2 valve springs, Hastelloy C 4: 0.1 bar                              |               |           |
| <b>4</b> With relief valve, Viton® seal, no valve spring                           |               |           |
| <b>5</b> With relief valve, Viton® seal and 2 valve springs                        |               |           |
| <b>H</b> Hygienic head with tri-clamp connection (maximum 10 bar), CONTACT SYDNEY* | <b>P.O.A.</b> |           |

##### Hydraulic connector:

- 1** Union nut and PVC Solvent Weld
- 2** Union nut and PVC male BSP
- 3** Union nut and PVDF male BSP
- 4** Union nut and stainless steel insert *inc. w/SS pump*
- 5** Union nut and PVC Hosetail
- 7** Union nut and PVDF Hosetail

##### Version:

- 0** With ProMinent® logo (standard)
- F** Physiologically harmless (FDA)
- M** Modified

##### Power supply:

- S** 3 ph, 400 V, 50/60 Hz, 0.25 kW
- M** 1 ph. AC, 230 V/50 Hz, 0.18 kW
- N** 1 ph, AC 115 V 60 Hz, 0.18 kW
- L** 3 ph, 400 V, 50Hz, (EExe, EExde) see below
- R** 3ph, variable speed motor 4 pol. 230/400V
- T** 3 ph, 230 V/400 V 50/60 Hz, with PTC
- 1** No Motor with B14 flange (Gr.71 (DIN))
- 5** No Motor, B14 flange (Gr.80 (DIN))
- 3** No Motor, B5 Gr. 63 (DN)

##### Enclosure rating:

- 0** IP 55 (standard)
- 1** Exe motor version (ATEX-T3)
- 2** Exd motor version (ATEX-T4)

##### Stroke sensor:

- 0** No stroke sensor (standard)
- 2** Pacing relay (reed relay)
- 3** Stroke Sensor (Namur) hazardous locations

##### Stroke length adjustment:

- 0** Manual
- 1** With stroke positioning motor, 85-265V AC 50/60Hz
- 4** With stroke control motor, 4...20 mA 85-265V AC 50/60Hz

##### Prepack Option

- P\*** See options

**Note:** PRV/Bleed valve available on request. The preferred option is relief valve in-line.

##### Prepack option P\* for PVDF

##### P0 - 16050 - 16090 - 16130

4 EPDM flat gaskets  
Refer page 2.36 for fitting sizes

##### 07120 - 07220 - 04350

4 EPDM flat gaskets  
Refer page 2.36 for fitting sizes

##### P1 as P0 but with Viton® Flat Gaskets

**240 volt motor supplied with power cord.**

- DN15
- DN25

S2Ba HM 12050 PVT S 0 1 0 S 0 0 0 0 P1



## 2.2 Sigma/ 2 Diaphragm Metering Pumps

### 2.2.4 Identity Code Ordering System for Sigma (S2Cb)

#### S2Cb Sigma Control Type (S2Cb)

##### H Main power end, diaphragm

Pump type: (Figures 1 + 2 = back pressure [bar], figures 3 - 5 = feed rate [l/h]):		
● 16050*	16 bar; 61 l/h PVT 10 bar 56 l/h SS	PVDF
● 16090*	16 bar; 109 l/h PVT 10 bar 99 l/h SS	SS
● 16130*	16 bar; 131 l/h PVT 10 bar 129 l/h SS	
● 07120	7 bar; 150 l/h	PVDF
● 07220	7 bar; 271 l/h	SS
● 04350	4 bar; 353 l/h * for PVDF max. 10 bar	

##### Liquid end material with PTFE Seal:

PVT	PVDF (max 10 bar)
SST	Stainless steel

##### Diaphragm:

S	Multilayer safety diaphragm with visual rupture indicator
A	Multilayer safety diaphragm with rupture signalling; pump stops

##### Liquid end version:

0	No valve springs	PVDF
1	With 2 valve springs, Hastelloy C 4: 0.1 bar	
4	With relief valve, Viton® seal, no valve springs	
5	With relief valve, Viton® seal and valve springs	
H	Hygienic head with tri-clamp connection (maximum 10 bar), contact Sydney	P.O.A.

##### Hydraulic connector:

1	Union nut and PVC Solvent Weld
2	Union nut and PVC male BSP
3	Union nut and PVDF male BSP
4	Union nut & stainless steel insert <i>inc. w/SS pump</i>
5	Union nut and PVC Hosetail
7	Union nut and PVDF Hosetail

##### Version:

0	With ProMinent® logo (standard)
F	Physiologically harmless (FDA)
M	Modified

##### Electrical Power supply:

U	1 ph 100 - 230V ±10% 50 Hz
---	----------------------------

##### Cable and plug:

C	2 m Australian
---	----------------

##### Relays:

0	No relay ( Standard)
1	Fault relay (230V - 8A)
3	Fault + pacing relay (24V - 100mA)
8	0/4-20 mA analogue output + fault indicating relay / pacing relay (24V - 100mA)

##### Control Variant:

0	Manual + External Control + Pulse Control
1	Manual + External Control + Pulse Control + analog + metering profiles
6	As 1 + PROFIBUS DP M12
7	Dulcomarin A Module

##### Overload switch-off

0	Without overload switch-off
---	-----------------------------

##### Operating Unit (HMI):

0	Operating unit with Click Wheel <b>0.5 m cable</b>
4	Operating unit with Click Wheel <b>2 m cable</b>
5	Operating unit with Click Wheel <b>5 m cable</b>
6	Operating unit with Click Wheel <b>10 m cable</b>
X	with out operating unit (HMI)

##### Dosing Monitor:

0	Without access code
1	With access code

##### Language:

EN	English
----	---------

##### Prepack Option

P*	See options	0
----	-------------	---

**Note:** PRV/Bleed valve available on request. The preferred option is relief valve in-line.

**Note:** If PROFIBUS® is specified refer to page 3.19 to determine which PROFIBUS® cables, adaptors and terminators are required. Also if PROFIBUS® option is selected NO relays can be fitted.

##### Prepack option P\* for PVDF

###### P0 - 16050 - 16090 - 16130

4 EPDM flat gaskets & CANbus cable if required.

Refer page 2.36 for fitting sizes

###### 07120 - 07220 - 04350

4 EPDM flat gaskets & CANBUS cable if required.

Refer page 2.36 for fitting sizes

**P1** as P0 but with Viton® Flat Gaskets

**P2** As P0 but with a 2.0m control cable

**P5** As P2 but with a 5.0m control cable

**PX** As P2 but with a 10.0m control cable

**PA** As P1 but with a 2.0m control cable

**PB** As P1 but with a 5.0m control cable

**PC** As P1 but with a 10.0m control cable

**Note:** for SS pumps as per P2, P5 & P7 but only require control cables ... prices also as above.

**\*\* For manual operating HMI Required 1042550**

S2Cb H 12050 PVT S 0 1 0 U C 0 1 0 1 0 EN P2



● DN15  
● DN25

## 2.2 Sigma/ 2 Diaphragm Metering Pumps

### 2.2.5 Sigma Pumps Spare Parts Sigma/ 2

#### Spare Parts Kits for versions with multilayer safety diaphragm Types PVTS, PVTA, SSTS, SSTA

Type 16050, 16090, 16130		Part No.
Liquid end FM 130 - DN 15	PVT	1035951
	PVT - FDA	1046472
	SST	1035957
	SST - FDA	1046473
	SST (with 2 valve sets)	1035954

Type 07120, 07220, 04350		Part No.
Liquid end FM 350 - DN 25	PVT	1035953
	PVT - FDA	1046475
	SST	1035960
	SST - FDA	1046476
	SST (with 2 valve sets)	1035959

The spare parts kit contains all components required for maintenance of liquid ends.

**PVT version**  
 1 x diaphragm (multi-layer safety diaphragm)  
 2 x valve assemblies  
 2 x valve balls  
 2 x ball seats  
 4 x composite seals  
 1 x elastomer sealing set (EPDM, FKM-B)

#### Spare Parts Kits for versions with [ORIGINAL diaphragm] Types PVT0/1/2, SST0/1/2

Type 16050, 16090, 16130		Part No.
Liquid end FM 130 - DN 15	PVT	740324
	SST	740326
	SST (with 2 valve sets)	740328

Type 07120, 07220, 04350		Part No.
Liquid end FM 350 - DN 25	PVT	740325
	SST	740327
	SST (with 2 valve sets)	740329

**SST version**  
 1 x diaphragm (multi-layer safety diaphragm)  
 2 x valve balls  
 2 x ball seat discs

**IN ALL CASES CHECK PUMP MODEL CODE**

Diaphragms [ORIGINAL] Types PVT0/1/2, SST0/1/2	Part No.
FM 130 (Type 12050, 12090, 12130)	792495
FM 350 (Type 07120, 07220, 04350)	792496

Multilayer Safety Diaphragms Type PVTS, PVTA, SSTS, SSTA	Part No.
FM 130 (Type 16050, 16090, 16130)	1029771
FM 350 (Type 07120, 07220, 04350)	1033422

Suction - Discharge Valves PVT	Part No.
Type 16050, 16090, 16130 DN15	792517
Type 07120, 07220, 04350 DN25	740615

PTFE Moulding Gasket	Part No.
Type 16050, 16090, 16130 DN15	1019365
Type 07120, 07220, 04350 DN25	1019367

	Part No.
Visual Diaphragm Failure Indicator	1033323
Retrofit rupture signalling switch & cable	1034312



## 2.3 Sigma/ 3 Diaphragm Metering Pumps

### 2.3.1 Sigma/ 3 Diaphragm Metering Pumps

#### Sigma/ 3 Diaphragm Metering Pumps

The Sigma/1 motor diaphragm metering pumps are produced with a high-strength inner housing for parts subject to load as well as an additional plastic housing to protect against corrosion. The capacity range extends from 145 - 1003 l/h at a max. back pressure of 12 to 4 bar. Stroke length 6mm.

Under defined conditions and when installed correctly, the reproducibility of the metering is better than  $\pm 2\%$  at a stroke length of between 30 % and 100 % (instructions in the operating instructions manual must be followed).

In all motor-driven metering pumps without integrated overload protection, for safety reasons, suitable overload protection must be provided during installation.

#### Sigma/ 3 control type (S3Cb)

Detachable operating unit (HMI)

The optional control via contact or analog signals (e.g. 0/4 - 20 mA) for the Sigma control type results in good adaptability, even to fluctuating metering requirements.

The microprocessor control is an optimum combination of speed control and stop & go operation, i.e. it works in a wide control field with customised fine adjustment.

Moreover it enables an optimum metering result thanks to the metering behaviour of the metering pump being matched to the chemicals or application.

The task of the control is to measure the movement and speed profile in conjunction with the power demand. This leads to a real reduction in the actually required power, which means an increase in efficiency.

Moreover, the analysis of the power demand makes possible an internal overload switching off of the metering pump, i.e. an integral pressure relief function for pump protection without an additional hydraulic assembly such as relief valves and manometer.

#### Sigma/ 3 basic type (S3Ba)

The ProMinent® Sigma Basic type is a motor driven Metering Pump with no internal electronic control system.

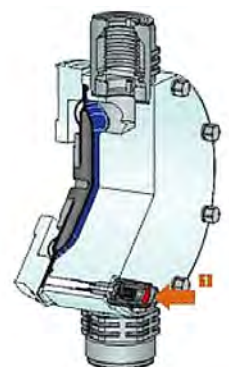
The ProMinent® S3Ba has a number of different drive options, including single and 3 ph. motor (standard IP55), or the three phase AC motor for use in hazardous Exe and EXde areas.

Different flanges are always available so that customers can use their own motor to drive the pump.

#### DIAPHRAGM RUPTURE WARNING SYSTEM

The liquid end has a patented multilayer safety diaphragm as standard and a visual diaphragm rupture indicator. The diaphragm is coated on both sides with PTFE film. This coating ensures that no leakage to the outside occurs even if the diaphragm ruptures. If the diaphragm ruptures, feed chemical enters between the diaphragm layers and thus triggers a mechanical indication or an alarm via the sensor area.

This concept ensures reliable metering - even under critical operating conditions.



## 2.3 Sigma/ 3 Diaphragm Metering Pumps

### 2.3.2 Technical Data for Sigma/ 3

at 50 Hz					S3CbH at 60 Hz		Suction Lift	Adm. Priming Pressure Suction Side	Connector Suction/ Discharge Side	Shipping Weight		
Pump Capacity at Max. Back Pressure			Max. Stroke Freq.	Pump Capacity at Max. Back Pressure		Stroking rate at max. back pressure						
Pump type S3BaH	bar	l/h	ml/ stroke	strokes/ min.	bar S3CbH	l/h	strokes/min.	mWG	bar	DN	Optional BSPM/Hosetail	kg
120145 PVT	10	146	33.7	72	10	182	90	5	2	25	1" / 25mm	22
120145 SST	12	146	33.7	72	12	182	90	5	2	25	1" / 25mm	26
120190 PVT	10	208	33.7	103	10	243	120	5	2	25	1" / 25mm	22
120190 SST	12	208	33.7	103	12	243	120	5	2	25	1" / 25mm	26
120270 PVT	10	292	33.8	144	10	365	180	5	2	25	1" / 25mm	22
120270 SST	12	292	33.8	144	12	365	180	5	2	25	1" / 25mm	26
120330 PVT	10	365	33.8	180	10	-	-	5	2	25	1" / 25mm	22
120330 SST	12	365	33.8	180	12	-	-	5	2	25	1" / 25mm	26
070410 PVT	7	410	95.1	72	7	500	90	4	1	32	1 1/2" / 32mm	24
070410 SST	7	410	95.1	72	7	500	90	4	1	32	1 1/2" / 32mm	29
070580 PVT	7	580	95.1	103	7	670	120	4	1	32	1 1/2" / 32mm	24
070580 SST	7	580	95.1	103	7	670	120	4	1	32	1 1/2" / 32mm	29
040830 PVT	4	830	95.1	144	4	1040	180	3	1	32	1 1/2" / 32mm	24
040830 SST	4	830	95.1	144	4	1040	180	3	1	32	1 1/2" / 32mm	29
041030 PVT	4	1030	95.1	180	4	-	-	3	1	32	1 1/2" / 32mm	24
041030 SST	4	1030	95.1	180	4	-	-	3	1	32	1 1/2" / 32mm	29

Note: All pumps that are fitted with integral PRV must have the outlet piped to an appropriate place.

- DN25
- DN32

### Liquid End Materials in Contact with Dosing Chemical

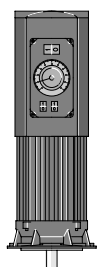
Liquid End	Suction/Discharge connector	Valve	Seals	Balls	Integrated Pressure Bleed Valve
PVT	PVDF (polyvinylidene fluoride)	PVDF (polyvinylidene fluoride)	PTFE	glass	PVDF/Viton <sup>®</sup> or EPDM
SST	stainless steel no. 1.4581	stainless steel no. 1.4581	PTFE	stainless steel no. 1.4404	stainless steel/Viton <sup>®</sup>

Note: Large PVDF Liquid Ends have Hastalloy C valve discs and Hastalloy C springs which are coated with CTFE (similar to PTFE).

Viton<sup>®</sup> is a registered trademark of DuPont Dow Elastomers.

### Motor Data S3Ba

Identity code specifications	Power supply	Δ/Y	Remarks
S	3-phase, IP 55	220 - 240 V/380 - 420 V 220 - 280 V/440 - 480 V	50 Hz 60 Hz 0.37 kW 0.37 kW
T	3-phase, IP 55	220 - 240 V/380 - 420 V 220 - 280 V/440 - 480 V	50 Hz 60 Hz 0.37 kW with PTC, speed control range 1:5
R	3-phase, IP 55	220 - 240 V/380 - 420 V	50 Hz 0.55 kW with PTC, speed adjustment range 1:20 with external fan (1-phase 230 V; 50/60Hz, 134W)
M	1-phase AC, IP 55	230 V ± 5 %	50 Hz/ 60 Hz 0.55 kW
L1	3-phase, II2GEEExIIIT3	220 - 240 V/380 - 420 V	50 Hz 0.37 kW
L2	3-phase, II2GEEExIIICT4	220 - 240 V/380 - 420 V	50 Hz 0.37 kW with PTC, speed control range 1:5
P1	3-phase, II2GEEExIIIT3	250 - 280 V/440 - 480 V	60 Hz 0.37 kW
P2	3-phase, II2GEEExIIICT4	250 - 280 V/440 - 480 V	60 Hz 0.37 kW with PTC, speed control range 1:5
V2	3-phase, II2GEEExIIICT4	400 V ± 10 %	50 Hz/ 60 Hz 0.55 kW Ex-variable speed motor with integrated frequency converter. Mains feed: 3-phase + neutral + earth, adjustment range 1:10



Variable speed motor

#### Sigma Basic Type Control Functions (S3Ba) - Stroke length actuator/controller

Actuator for automatic stroke length adjustment, actuating period approx. 1 sec for 1% stroke length, 1k Ohm response signal potentiometer, enclosure rating IP 54. Controller consists of actuator with servomotor and integrated servo control for stroke length adjustment via a standard signal. Standard signal input 0/4-20 mA, corresponds to stroke length 0 - 100 %. Automatic/manual operation selection key for manual stroke adjustment. Mechanical status display of actual stroke length value output 0/4-20 mA for remote display.

#### Variable speed motors with integrated speed controller (identcode characteristic V)

Power supply 1 ph 230 V, 50/60 Hz, 0.18 kW  
External control with 0/4-20 mA

#### Speed Controllers

Speed controllers in metal housing (identcode characteristic Z)  
The speed controller assembly consists of a speed controller and a 0.09 kW variable speed.



## 2.3 Sigma/ 3 Diaphragm Metering Pumps

### 2.3.3 Identity Code Ordering System Basic Type For Sigma/ 3 (S3Ba)

#### S3Ba Sigma Basic Type (S3Ba) at 50Hz

##### H Main Drive, diaphragm

**Pump type:** (Figures 1 + 2 = back pressure [bar], figures 3 - 5 = feed rate [l/h]):

- **120145\*** 12 bar; 146 l/h \*for PVDF max. 10 bar PVDF
- **120190\*** 12 bar; 208 l/h SS
- **120270\*** 12 bar; 292 l/h
- **120330\*** 12 bar; 365 l/h
- **070410** 7 bar; 410 l/h *Size 070410, 070580, 040830 & 0410030 are supplied fitted with* PVDF
- **070580** 7 bar; 580 l/h *DN32 Valves. ALL DN32 valves are fitted with Hastalloy springs.* SS
- **040830** 4 bar; 830 l/h *Option 1 & 5 are ONLY available for these sizes.*
- **041030** 4 bar; 1030 l/h

##### Liquid end material with PTFE Seal:

- PVT** PVDF (max 10 bar)
- SST** Stainless steel

##### Diaphragm:

- S** Multilayer safety diaphragm with visual rupture indicator
- A** Multilayer safety diaphragm with visual rupture signaling; pump stops
- H** Diaphragm for Hygienic Head

##### Liquid end version:

- 0** No valve springs (standard) PVDF
- 1** With 2 valve springs, Hastelloy C 4: 0.1 bar *No Charge DN32* ●
- 4** With relief valve, Viton® seal, no valve springs ●
- 5** With relief valve, Viton® seal and valve springs *STD for DN32* ●
- H** Hygienic head with tri-clamp connection (maximum 10 bar), \*CONTACT SYDNEY\*

##### Hydraulic connector:

- 1** Union nut and PVC Solvent Weld
- 2** Union nut and PVC male BSP ● DN25 ● DN32
- 3** Union nut and PVDF male BSP ● DN25 ● DN32
- 4** Union nut and stainless steel insert *inc. w/SS pump*
- 5** Union nut and PC Hosetail
- 7** Union nut and PVDF Hosetail

##### Version:

- 0** With ProMinent® logo (standard)
- F** Physiologically harmless (FDA)
- M** Modified

##### Power supply:

- S** 3 ph, 230 V/400 V, 0.37 kW (standard)
- M** 1 ph, 230 V 0.55 kW
- L** 3 ph, 230 V/400 V, 0.37 kW, 50Hz, (EExe, EExde)
- R** 3ph, variable speed motor 4 pol. 230/400 V
- T** 3 ph, 230 V/400 V 50/60 Hz, with PTC
- 1** No motor, flange B5, 80 frame
- 2** No motor, flange B5, 71 frame

##### Enclosure rating:

- 0** IP 55
- 1** Exe motor version (ATEX-T3)
- 2** Exd motor version (ATEX-T4)

##### Stroke sensor:

- 0** No stroke sensor (standard)
- 2** Pacing relay (read relay)
- 3** Stroke sensor (Namur) for explosion-proof appli.

##### Stroke length adjustment:

- 0** Manual
- 1** With stroke positioning motor, 85-265V AC 50/60Hz
- 4** With stroke control motor, 4...20 mA 85-265V AC 50/60Hz

##### Prepack Option

- P\*** See options 0
- DN25
- DN32

**Note:** PRV/Bleed valve available on request. The preferred option is relief valve in-line.

##### Prepack option P\* for PVDF

**P0 - 120145 - 120190 - 120270 - 120330**

4 EPDM flat gaskets

Refer page 2.36 for fitting sizes

**070410 - 070580 - 040830 - 041030**

4 EPDM flat gaskets

Refer page 2.36 for fitting sizes

**P1** as P0 but with Viton® Flat Gaskets

**240 volt motor supplied with power cord.**

S3Ba H 120145 PVT A 0 1 0 S 0 0 0 P1



## 2.3 Sigma/ 3 Diaphragm Metering Pumps

### 2.3.4 Identity Code Ordering System for Sigma (S3Cb)

#### S3Cb Sigma Control Type (S3Cb)

##### H Main power end, diaphragm

**Pump type:** (Figures 1 + 2 = back pressure [bar], figures 3 - 5 = feed rate [l/h]):

- 120145 12 bar; 182 l/h PVDF
- 120190 12 bar; 243 l/h SS
- 120270 12 bar; 365 l/h
- 070410 7 bar; 500 l/h PVDF
- 070580 7 bar; 670 l/h SS
- 040830 4 bar; 1040 l/h

##### Liquid end material with PTFE Seal:

- PVT PVDF (max 10 bar)
- SST Stainless steel

##### Diaphragm:

- S Multilayer safety diaphragm with visual rupture indicator
- A Multilayer safety diaphragm with rupture signalling; pump stops

##### Liquid end version:

- |   |  |      |
|---|--|------|
|   |  | PVDF |
| 0 | No valve springs   |      |
| 1 | With 2 valve springs, Hastelloy C 4: 0.1 bar <i>No Charge DN32</i>   | ●    |
| 4 | With relief valve, Viton® seal, no valve springs                     | ●    |
| 5 | With relief valve, Viton® seal and valve springs <i>STD for DN32</i> | ● ●  |

##### Hydraulic connector:

- |   |  |   |   |
|---|--|---|---|
| 1 | Union nut and PVC Solvent Weld                           |   |   |
| 2 | Union nut and PVC male BSP                               | ● | ● |
| 3 | Union nut and PVDF male BSP                              | ● | ● |
| 4 | Union nut & stainless steel insert <i>inc. w/SS pump</i> |   |   |
| 5 | Union nut and PVC Hosetail                               |   |   |
| 7 | Union nut and PVDF Hosetail                              |   |   |

##### Version:

- 0 With ProMinent® logo (standard)
- F Physiologically harmless (FDA)
- M Modified

##### Electrical Power supply:

- U 1 ph 100 - 230V ±10% 50 Hz

##### Cable and plug:

- C 2 m Australian

##### Relays:

- 0 No relay ( Standard)
- 1 Fault relay (230V - 8A)
- 3 Fault + pacing relay (24V - 100mA)
- 8 0/4-20 mA analogue output + fault indicating relay / pacing relay (24V-100mA)

##### Control Variant:

- Manual + External Control + Pulse Control
- 1 Manual + External Control + Pulse Control + analog + metering profiles
- 6 As 1 + PROFIBUS® DP M12
- 7 Dulcomarin A Module

##### Overload switch-off

- 0 Without overload switch-off

##### Operating Unit (HMI):

- 0 Operating unit with Click Wheel **0.5 m cable**
- 4 Operating unit with Click Wheel **2 m cable**
- 5 Operating unit with Click Wheel **5 m cable**
- 6 Operating unit with Click Wheel **10 m cable**
- X with out operating unit (HMI)

##### Dosing Monitor:

- 0 Without access code
- 1 With access code

##### Language:

- EN English

##### Prepack Option

- P\* See options
- DN25
- DN32

**Note:** PRV/Bleed valve available on request. The preferred option is relief valve in-line.

**Note:** DN32 Valves only use soft gaskets, due to smooth insert faces. PVT exceptions.

**Note:** If PROFIBUS® is specified refer to page 3.19 to determine which PROFIBUS® cables, adaptors and terminators are required. Also if PROFIBUS® option is selected NO relays can be fitted.

##### Prepack option P\* for PVDF

###### P0 - 120145 - 120190 - 120270

4 EPDM flat gaskets & CANBUS cable if required. Refer page 2.36 for fitting sizes

###### 070410 - 070580 - 040830

4 EPDM flat gaskets & CANBUS cable if required. Refer page 2.36 for fitting sizes

- P1 as P0 but with Viton® Flat Gaskets
- P2 As P0 but with a 2.0m control cable
- P5 As P2 but with a 5.0m control cable
- PX As P2 but with a 10.0m control cable
- PA As P1 but with a 2.0m control cable
- PB As P1 but with a 5.0m control cable
- PC As P1 but with a 10.0m control cable

**Note:** for SS pumps as per P2, P5 & P7 but only require control cables ... prices also as above.

**\*\* For manual operating HMI Required 1042550**

S3Cb H 120270 PVT S 0 1 0 U C 0 0 0 1 0 EN P2





## 2.3 Sigma/ 3 Diaphragm Metering Pumps

### 2.3.5 Spare Parts Kits Sigma/ 3

The spare parts kits generally contain the consumable components for the liquid ends.

#### PVT version

- 1 x diaphragm (multi-layer safety diaphragm)
- 2 x valve assemblies
- 2 x valve balls and/or valve plate with spring for DN 32
- 1 x elastomer sealing set (EPDM, FKM-B)
- 2 x ball seat housings
- 2 x ball seat discs
- 4 x composite seals

#### SST version

- 1 x diaphragm (multi-layer safety diaphragm)
- 2 x valve balls and/or valve plate with spring for DN 32
- 2 x ball seat discs
- 4 x composite seals

IN ALL CASES CHECK PUMP MODEL CODE

### Spare parts kits Sigma/ 3 with multilayer safety diaphragm Types PVTS, PVTA, SSTS, SSTA

Type 120145, 120190, 120270, 120330		Part No.
<b>Liquid end FM 330 - DN 25</b>	PVT	1034678
	PVT - FDA	1046478
	SST	1034679
	SST - FDA	1046479
	SST (with 2 valve set)	1034680

Type 070410, 070580, 040830, 041030		Part No.
<b>Liquid end FM 1000 - DN 32</b>	PVT	1034681
	SST	1034682
	SST (with 2 valve set)	1034683

### Spare Parts Kits for versions with [ORIGINAL] diaphragm Types PVT0/1/2, SST0/1/2

Type 120145, 120190, 120270, 120330		Part No.
<b>Liquid end FM 330 - DN 25</b>	PVT	1005308
	SST	1005310
	SST (with 2 valve set)	1005312

Type 070410, 070580, 040830, 041030		Part No.
<b>Liquid end FM 1000 - DN 32</b>	PVT	1020032
	SST	1005311
	SST (with 2 valve set)	1005313

Pump Diaphragms [ORIGINAL] Types PVT0/1/2, SST0/1/2	Part No.
FM 330 Type 120145, 120190, 120270, 120330	1004604
FM 1000 Type 070410, 070580, 040830, 041030	1002835

Multilayer Safety Diaphragm Types PVTS, PVTA, SSTS, SSTA	Part No.
FM 330 Type 120145, 120190, 120270, 120330	1029604
FM 1000 Type 070410, 070580, 040830, 041030	1029603

Suction - Discharge Valves PVT	Part No.
Sigma/3 120145, 120190, 120270, 120330 DN25	740615
Sigma/ 3 070410, 070580, 040830, 041030 DN32	1020031

PTFE Moulding Gasket	Part No.
Sigma/ 3 120145, 120190, 120270, 120330 DN10 (Bleed Valve)	1019364
Sigma/ 3 120145, 120190, 120270, 120330 DN25	1019367
Sigma/ 3 Type 070410, 070580, 040830, 041030 DN15 (Bleed Valve)	1019365
Sigma/3 Type 070410, 070580, 040830, 041030 DN32	1019353

	Part No.
Visual Diaphragm Failure Indicator	1033323
Retrofit rupture signalling switch & cable	1034312



## 2.4 Sigma/ 2 Piston Metering Pumps

### 2.4.1 Technical Data Sigma Piston HK Metering Pumps

at 50 Hz Pump Capacity at Max. Back Pressure				Max. Stroke Frequency at 50 Hz	Suction Lift	Adm. Priming Pressure Suction Side	Connector Suction/ Discharge Side	Shipping Weight
Pump type SBKaHK	bar	l/h	ml/ stroke	strokes/ min.	mWG	bar	Rp-DN	kg
32002 SST	320	1.9	0.46	71	5	approx. 50% of max permissible pressure	1/4"	24
23004 SST	230	4.0	0.52	125	5		1/4"	24
10006 SST	100	6.4	0.55	195	5		1/4"	24
14006 SST	140	6.1	1.42	71	4		1/4"	24
10011 SST	100	11.0	1.43	125	4		1/4"	24
05016 SST	50	16.7	1.43	195	4		1/4"	24
07012 SST	70	12.4	2.90	71	5		1/4"	24
04522 SST	45	22.5	2.91	125	4		1/4"	24
02534 SST	25	34.1	2.92	195	4		1/4"	24
04022 SST	40	22.4	5.26	71	4		3/8"	25
02541 SST	25	41.5	5.37	125	4		3/8"	25
01264 SST	12	64.0	5.45	196	4		3/8"	25

### Materials in Contact with Chemicals

Material	Liquid End	Suction / Discharge connection	Seals	Valve Balls	Ball Seat
SST	Stainless steel 1.4571 / 1.4404	Stainless steel 1.4571 / 1.4404	PTFE/PTFE with graphite	Ceramic	Stainless steel 1.4571 / 1.4404

### Motor Data

3 ph IP55	400V	50 Hz	0.18 kW	0.7/1.1 A	S
1 ph AC	230V	50 Hz	0.18 kW	1.7/1.5 A	M
3 ph EXe or EXde	400V	50 Hz	0.18 kW	0.7/1.1 A	L
3 ph EXe or EXde	400V	60 HZ	0.18 kW	0.6/1.0 A	P
1 ph AC	115V	60 HZ	0.18 kW	3.3 A	N
1 ph IP55	240V	50/60Hz	0.37 kW	Variable speed motor with integrated frequency converter	V0

The ProMinent Sigma basic version is also available with a standard motor flange (DIN ISO/NEMA standards).  
The electrical connection data specified here apply to the standard motor supplied.

### 2.4.2 Spare Parts Kits Sigma Piston HK

#### Spare parts kits Sigma HK

Consisting of: 1 ceramic dosing plunger, 4 valve balls, 4 ball seat discs, 2 ball PTFE/graphite ball seals, 2 plunger guides, 14 flat seals, 2 O-rings.

	Part No.
Applies to identity code: 32002, 23004, 10006 FK 0.8 for Sigma HK	1001572
Applies to identity code: 14006, 10011, 05016 FK 12.5 for Sigma HK	910470
Applies to identity code: 07012, 04522, 02534 FK 25 for Sigma HK	910471
Applies to identity code: 04022, 02541, 01264 FK 50 for Sigma HK	910472



## 2.4 Sigma/ 2 Piston Metering Pumps

### 2.4.3 Identity Code & Pricing for Sigma Piston Metering Pumps SBKaHK

#### SBKa Sigma Basic Type (SBKaHK)

##### HK Main Displacement component, piston

**Pump type:** (figures 1 - 3 = back pressure [bar], figures 4 + 5 = feed rate [l/h])

32002	320 bar, 1.9 l/h
23004	230 bar, 4.0 l/h
10006	100 bar, 6.4 l/h
14006	140 bar, 6.1 l/h
10011	100 bar, 11.0 l/h
05016	50 bar, 16.7 l/h
07012	70 bar, 12.4 l/h
04522	45 bar, 22.5 l/h
02534	25 bar, 34.1 l/h
04022	40 bar, 22.4 l/h
02541	25 bar, 41.5 l/h
01264	12 bar, 64,2 l/h

##### Liquid end materials:

**SS** Stainless steel

##### Seal Material:

**T** PTFE seal

##### Displacement component:

**4** Piston (oxide ceramic)

##### Liquid end version:

- 0** No spring
- 1** With 2 valve springs, Hastelloy C4, 0.1 bar

##### Hydraulic connection:

**0** Standard according to technical data

##### Version:

- 0** With ProMinent® (standard)
- 1** Without ProMinent® logo

##### Electrical power supply:

- S** 3 ph. 230 V/400 V 50/60 Hz, 0.18 kW
- M** 1 ph. AC, 230 V/50/60 Hz, 0.18 kW
- N** 1 ph. AC 115 V 60 Hz, 0.18 kW
- L** 3 ph. 230 V/400 V, 50Hz, (EExe, EExde) } See Enclosure Rating
- P** 3 ph. 230 V/400 V, 60Hz, (EExe, EExde) } See Enclosure Rating
- R** 3ph, variable speed motor 4 pol. 230/400 V
- V (0)** var. speed motor with integral speed control 230/1/50

##### Enclosure rating:

- 0** IP 55 (standard)
- 1** Exe motor version (ATEX-T3)
- 2** Exde motor version (ATEX-T4)

##### Stroke sensor:

- 0** No stroke sensor (standard)
- 2** Pacing relay (reed relay)
- 3** Stroke sensor (Namur) for hazardous locations

##### Stroke length adjustment:

- 0** Manual (standard)
- 1** With stroke positioning motor, 230V/50/60 Hz
- 2** With stroke positioning motor, 115V/50/60 Hz
- 4** With stroke control motor, 4...20 mA 230 V/50/60Hz
- 6** With stroke control motor, 4...20 mA 115 V/50/60Hz

SBKa HK 23004 SS T 4 0 0 0 S 0 0 0



## 2.5 Makro TZ Diaphragm Metering Pumps

### 2.5.1 Makro TZ Diaphragm Metering Pumps

The ProMinent® Makro TZ diaphragm metering pump is a 0.75 kW dual-wound three phase motor driven metering pump, 230/400 V, 50/60 Hz, enclosure rating IP 55, insulation class F.

The stroke length can be adjusted by means of the shift ring mechanism from 0-10 mm (TZMb), with 0.5 % accuracy. The 5-speed gearbox is encased in a cast, seawater resistant, acrylic resin lacquered housing. Liquid ends are available in different material combinations to suit differing applications.

The suction lift varies according to the density and viscosity of the medium, the dimension of the pipework and the pump stroke rate. Reproducibility of metering is better than  $\pm 2$  % in the stroke length range from 30 % -100 % subject to defined conditions and correct installation. (You must follow the instructions in the operating instruction manual).

All motor driven metering pumps must be fitted with appropriate cut-out systems for safety reasons.



#### TZMbA Add-On Pumps

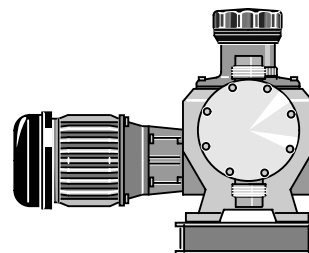
The ProMinent® Makro TZ main diaphragm metering pump can be converted to a duplex or triplex pump with the ProMinent® Makro TZ add-on diaphragm pump (several add-on pumps can be operated at reduced back pressure). Multiplex pumps can also be retrofitted by the operator; all the necessary components and fittings are included with the TZMbA. Different stroke rates can be achieved with the add-on pump independently of the main pump as each TZMbA has its own reducing gear. The main power end can be fitted for this purpose with a more powerful drive motor.

A base frame is required when using add-on power ends.

#### Double Head Version TZMbD/TZMbB

The double head version of the ProMinent® Makro TZ is similar to the simplex pump. It is, however, fitted with a second liquid end.

The liquid ends work in push-pull mode by means of a coupling element in the gearbox.

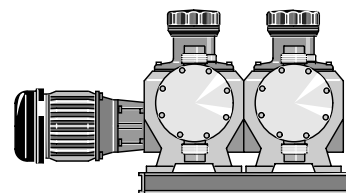


#### ACTUATION OF MAKRO TZ METERING PUMPS

- **Makro TZ stroke length-actuator/stroke controller**
- **Makro TZ stroke actuator**

Stroke adjustment motor for automatic stroke length adjustment, adjustment time approx. 1 sec. for 1 % stroke length, fitted with 2 limit switches for min. /max. setting, 1 k Ohm feedback potentiometer; enclosure rating: IP 54. Power supply 230 V ( $\pm 10$  %), 50/60 Hz, 40 W. Mech. stroke length indicator fitted to Makro TZ power end.

Alternative current / higher enclosure rating / Ex-protection to order.

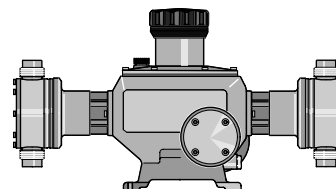


#### MAKRO TZ STROKE CONTROLLER

**Stroke controller** comprising actuator with stroke adjustment motor and integrated microprocessor controller for stroke length adjustment via a standard signal. Technical data see actuator.

#### Version:

Standard 0/4-20 mA current input, corresponds to 0-100 % stroke length. Change over switch for manual/automatic mode. Key switch for stroke adjustment in manual operating mode. 0/4-20 mA actual value output for remote display.



## 2.5 Makro TZ Diaphragm Metering Pumps

### 2.5.2 Identity Code Makro TZ Diaphragm Metering Pumps

**TZMb Motor-Driven Metering Pump TZMb Makro TZ 10 (mechanically driven add-on diaphragm pump)**

**Drive type**

- H** Main drive
- A** Add-on drive
- D** Double main drive
- B** Double add-on drive

**Pump type:** (digits 1 +2 = back pressure [bar], digits 3-6 = feed rate [l/h])

<b>120260</b>	070430	040840	
<b>120340</b>	070570	041100	
<b>120430</b>	070720	041400	
<b>120510</b>	070860	041670	
<b>120650</b>	071070	042100	material version PCT/PPT/TTT max. 10 bar

**Liquid end material:**

- PC** PVC
- PP** Polypropylene
- SS** Stainless steel
- TT** PTFE + 25% carbon

**Seal material:**

- T** PTFE

**Positive displacement element:**

- 1** Multi-layer safety diaphragm with rupture indicator

**Liquid end version:**

- 0** No valve springs
- 1** With valve springs

**Hydraulic connection:**

- 0** Standard connection
- 1** PVC union nut and insert
- 2** PP union nut and insert
- 3** PVDF union nut and insert
- 4** SS union nut and insert

**Version:**

- 0** with ProMinent® logo
- 2** No ProMinent® logo
- A** 0 with ProMinent® logo, with frame, simplex
- B** 0 with ProMinent® logo, with frame, duplex
- C** 0 with ProMinent® logo, with frame, triplex
- M** Modified

**Electrical power supply:**

- S** 3 ph. 230/400 V 50/60 Hz (dual wound)
- P** 3 ph. 230/400 V 60 Hz (Exe, Exde)
- L** 3 ph. 230/400 V 50 Hz (Exe, Exde)
- R** Variable speed motor 4 pole 230/400 V
- V (0)** Variable speed motor with integr. frequency converter
- V (2)** variable speed motor with integr. frequency converter (Exde)
- Z** Speed control kit
- 4** No motor, with 56 C flange
- 7** No motor, with 120/80 flange
- 8** No motor, with 160/90 flange
- 0** No motor, externally mounted drive

**Enclosure rating:**

- 0** IP 55 (Standard) ISO class F
- 1** Exe version (ATEX-T3)
- 2** Exde version (ATEX-T4)
- A** ATEX power end

**Stroke sensor:**

- 0** No stroke sensor
- 1** With stroke sensor (Namur)

**Stroke length adjustment:**

- 0** 0 Stroke length adjustment, man.
- 1** 230 V stroke actuator
- 2** 115 V stroke actuator
- 3** 230 V 0-20 mA stroke controller
- 4** 230 V 4-20 mA stroke controller
- 5** 115 V 0-20 mA stroke controller
- 6** 115V 4-20 mA stroke controller (servo motors for Ex zones on request)

**Applications:**

- 0** Standard

TZMb H 120260 PC T 1 0 0 0 S 0 0 0 0



## 2.5 Makro TZ Diaphragm Metering Pumps

### 2.5.3 Spare Parts Makro TZ Diaphragm Metering Pumps

The spare parts kit generally consists of liquid end consumables;

- 1 x pump diaphragm
- 1 x suction valve assembly.
- 1 x discharge valve assembly
- 2 x valve balls (Multi-layer safety diaphragm DN 32/ DN 40 with shim and springs)
- 1 x set of seals (O-rings, ball seat discs, ball seat housings)

Delivery unit	Materials in contact with medium	Part No.
FM 650 - DN 25	PCT, PPT, TTT	1025164
	SST	1022896
	SST (without valve cpl.)	1022895

Delivery unit	Materials in contact with medium	Part No.
FM 1100 - DN 32	PCT, PPT, TTT	1025167
	SST	1022917
	SST (without valve cpl.)	1022916

Delivery unit	Materials in contact with medium	Part No.
FM 2100 - DN 40	PCT, PPT, TTT	1025169
	SST	1022930
	SST (without valve cpl.)	1022929

#### Multi-layer safety diaphragm for TZMb

ProMinent® multi-layer safety diaphragm with diaphragm rupture indication and PTFE Teflon coating on the wetted side.

Pump type	Part No.
Identcode: 120260, 120340, 120430, 120510, 120650; Makro TZ FM 650	1022887
Identcode: 070430, 070570, 070720, 070860, 071070; Makro TZ FM 1100	1022900
Identcode: 040840, 041100, 041400, 041670, 042100; Makro TZ FM 2100	1022921

#### Makro TZ spare parts kits for TZMa

Delivery unit	Materials in contact with medium	Part No.
Identcode: 120190, 120254, 120317, 120381 Liquid end FM 530 - DN 25	PP	910452
	P	910455
	T	910458
	S (without valve cpl.)	910475
	S	910461
Identcode: 060397, 060529, 060661, 060793 Liquid end FM 530 - DN 25	PP	910453
	P	910456
	T	910459
	S (without valve cpl.)	910476
	S	910462
Identcode: 030750, 031000, 031250, 031500, 031875, 031050, 031395, 031740, 032100, 032500 Liquid end FM 1500/2100	PP	1001573
	P	1001574
	T	1001575
	S (without valve cpl.)	1001577
	S	1001576



## 2.5 Meta HM Diaphragm Metering Pumps

### 2.5.4 Spare Parts Kits Meta

#### Spare parts kit Meta HM

		Part No.
Liquid end FM 130 - DN 20	PPE	910451
Types: 12065, 12086	PCA	910454
12108, 12130	TTT	910457
	SST	910474
	SST additionally complete with 2 valves	910460

		Part No.
Liquid end FM 260 - DN 20	PPE	910452
Types: 10130, 09173	PCA	910455
07216, 06260, 10173	TTT	910458
10216, 10260, 10200	SST	910475
10263, 10330, 09395	SST additionally complete with 2 valves	910461
	PPT/PCT (MTMa 6mm)	1001570

		Part No.
Liquid end FM 530 - DN 25	PPE	910453
Types: 05265, 04353	PCA	910456
03441, 03530, 05440	TTT	910459
05530, 04400, 04527	SST	910476
03662, 03790	SST additionally complete with 2 valves	910462
	PPT/PCT (MTMa 6mm)	1001568

		Part No.
Liquid end FM 1500 - DN 40	PPE	910463
Types: 030750, 031200	TTT	910465
031400, 031700	SST	910477
	SST additionally complete with 2 valve	910466

		Part No.
Types: 21606, 24006, 16208, 22508		
12910, 21610, 10812, 21012	for Meta FK 12.5	910470
Types: 10213, 11313, 07617, 10617		
06122, 10222, 05126, 09926	for Meta FK 25	910471
Types: 05425, 06025, 04033, 05633		
03241, 05441, 02749, 05249, 0324, 05441	for Meta FK 50	910472

#### Pump diaphragm, PTFE

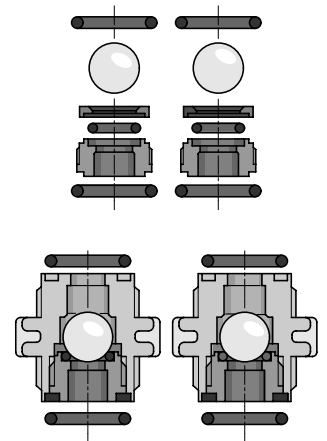
ProMinent DEVELOPAN pump diaphragm of fabric-reinforced EPDM, with large-area vulcanised steel core and PTFE Teflon coating on the media-contacted surface.

	Part No.
Meta FM 130	811470
Meta FM 260	811471
Meta FM 530	811472
Meta FM 1500	811473

The spare parts kit generally consists of the liquid end parts which are subject to wear.

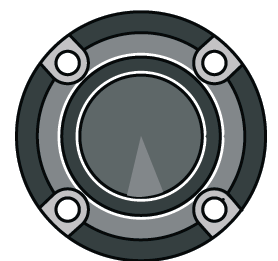
#### Standard kit for PP/P material version:

- 1 x pump diaphragm
- 1 x suction connector compl.
- 1 x discharge connector compl.
- 1 x set of seals compl. (O rings, ball seat discs, ball seat liners)



#### Spare parts kit, Meta HK

- 1 x ceramic plunger
- 4 x valve balls
- 4 x ball seat discs
- 2 x plunger packings of PTFE/graphite
- 2 x plunger guide ribbons
- 14 gaskets
- 2 x O-rings



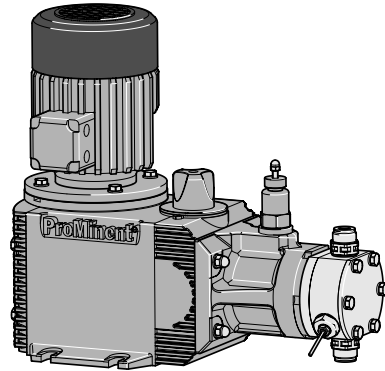
## 2.6 Hydro Hydraulic Diaphragm Metering Pumps

### 2.6.1 Hydro hydraulic Diaphragm Metering Pumps

#### Hydro main pump H

The hydraulic diaphragm metering pump is a standard sized metering pump with a 0.37/0.75 kW dual wound three phase motor, 230/400V, 50/60 Hz, enclosure rating IP 55, insulation class F. The stroke length is 15 mm and is adjustable within 1 % accuracy. The cast aluminium housing is combined at any one time with 4 gear reductions. Comes in 2 liquid end sizes and 2 liquid end materials. All pump types are standard sized and fitted with a preset bypass (**relief**) valve integrated into the hydraulics, as well as a multi-layer diaphragm with diaphragm rupture signalling.

Metering reproducibility under defined conditions and when installed correctly, is better than  $\pm 1$  % in a stroke length range of between 20 and 100 % (instructions in the operating instructions manual must be followed precisely).



#### Hydro double-head version

The double-head version is fitted with a second liquid end which operates on a push-pull action (Boxer principle). Each liquid end is provided with a separate stroke length-adjusting knob so that each liquid end can operate at an independent feed rate.

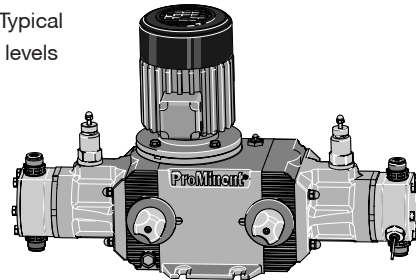
#### Hydro add-on pumps

For the Hydro add-on pumps the same basic instructions apply as for the simplex pumps. A main power end can be combined with an add-on power end in both simplex and duplex forms.

#### Hydro Triplex

The Hydro Triplex pump comprises a main drive (arranged centrally) and 2 add-on drives. Typical applications for Triplex pumps include metering applications in medium to upper pressure levels with pulsation reduction.

The pulsation damping features are produced by the offset pressure stroke (offset 120° crank angle).



#### STROKE LENGTH ACTUATOR/CONTROLLER

Actuator for automatic stroke length adjustment, actuating period approx. 1 sec for 1 % stroke length, 1k Ohm response signal potentiometer, enclosure rating IP 54.

Controller consists of actuator with servomotor and integrated servo control for stroke length adjustment via a standard signal. Standard signal input 0/4-20 mA, corresponds to stroke length 0 - 100 %. Automatic/manual operation selection key for manual stroke adjustment. Mechanical status display of actual stroke length value output 0/4-20 mA for remote display.

#### Variable speed motors with integrated speed controller (identcode characteristic V)

**Power supply:** 1 ph 230 V, 50/60 Hz, 0.18 kW

**External control with** 0/4-20 mA





## 2.6 Hydro Hydraulic Diaphragm Metering Pumps

### 2.6.2 Technical Data Hydro/ 2

Type HP2a														
Capacity at max. back pressure with 1500 rpm motor at 50 Hz Delivery rate at max. back pressure					Capacity at max. back pressure at 60 Hz			Suction lift	Perm. admiss. pressure suction side	Suction/ discharge side connector	Shipping weight	Plunger Ø		
Max. stroke rate					Max. stroke rate									
	l/h	bar	ml/ stroke	Strokes/ min	psi	l/h/gph	Strokes/ min	m WC	bar	G-DN	kg	mm		
100003 *	3	100	3.0	60	1,450	3.6/1.0	72	3.0	5	Rp 1/4	31	16		
100006 *	6	100	3.0	125	1,450	7.0/1.8	150	3.0	5	Rp 1/4	31	16		
100007 *	7	100	3.0	150	1,450	8.0/2.1	180	3.0	5	Rp 1/4	31	16		
100009 *	9	100	3.0	187	1,450	11.0/2.9	224	3.0	5	Rp 1/4	31	16		
100010 *	10	100	3.0	212	-	-	-	3.0	5	Rp 1/4	31	16		
064007	7	64	3.8	60	928	8.4/2.2	72	3.0	5	G 3/4-10	31	18		
064015	15	64	3.8	125	928	18.0/4.8	150	3.0	5	G 3/4-10	31	18		
064018	18	64	3.8	150	928	21.0/5.5	180	3.0	5	G 3/4-10	31	18		
064022	22	64	3.8	187	928	26.0/6.9	224	3.0	5	G 3/4-10	31	18		
064025	25	64	3.8	212	-	-	-	3.0	5	G 3/4-10	31	18		
040014	14	40	5.7	60	580	16.8/4.4	72	3.0	5	G 3/4-10	31	22		
040029	29	40	5.7	125	580	34.8/9.2	150	3.0	5	G 3/4-10	31	22		
040035	35	40	5.7	150	580	42.0/11.1	180	3.0	5	G 3/4-10	31 2	22		
040044	44	40	5.7	187	580	52.8/13.9	224	3.0	5	G 3/4-10	31	22		
040050	50	40	5.7	212	580	-	-	3.0	5	G 3/4-10	31	22		
025019 **	19	25	7.9	60	362	23.0/6.1	72	3.0	5	G 3/4-10	31	26		
025040 **	40	25	7.9	125	362	48.0/12.7	150	3.0	5	G 3/4-10	31	26		
025048 **	48	25	7.9	150	362	58.0/15.3	180	3.0	5	G 3/4-10	31	26		
025060 **	60	25	7.9	187	362	72.0/19.0	224	3.0	5	G 3/4-10	31	26		
025068 **	68	25	7.9	212	-	-	-	3.0	5	G 3/4-10	31	26		

\* SST version with double ball valve, valve connector on the suction-discharge side with female thread Rp 1/4 and male thread G 3/4 - DN 10

\*\* HV design with G1 - DN 15 connector

PVDF version max. 25 bar, PTFE + 25 % carbon; PTFE max.16 bar

#### Material in contact with media

Identity code of material	Dosing head	Connection on suction/ discharge side	Seals/ball seat	Balls
PVT *	PVDF	PVDF	PTFE/PTFE + 25 % carbon	Ceramic
SST	Stainless steel 1.4571/1.4404	Stainless steel 1.4581	PTFE/stainless steel 1.4404	Ceramic
TTT	PTFE + 25% carbon	PVDF (polyvinylidene fluoride)	PTFE/PTFE + 25 % carbon	Ceramic

\* Not for areas at risk of explosion



## 2.6 Hydro Hydraulic Diaphragm Metering Pumps

### 2.6.3 Identity Code Ordering System For Hydro/ 2 - SINGLE HEAD

#### Hydro/ 2

##### H Main power end

Type	Type	Type	Type	Type
100003 100 bar, 3 litre	PVT	064007 64 bar, 7 litre	PVT	025019 25 bar, 19 litre
100006 100 bar, 6 litre	SST	064015 64 bar, 5 litre	SST	025040 25 bar, 40 litre
100007 100 bar, 7 litre		064018 64 bar, 18 litre		025048 25 bar, 48 litre
100009 100 bar, 9 litre		064022 64 bar, 22 litre		025060 25 bar, 60 litre
100010 100 bar, 10 litre		064025 64 bar, 25 litre		025068 25 bar, 68 litre
040014 40 bar, 14 litre	PVT			
040029 40 bar, 29 litre	SST			
040035 40 bar, 35 litre				
040044 40 bar, 44 litre				
040050 40 bar, 50 litre				

PVT Liquid End Maximum 25 Bar

##### Liquid end material:

- PV PVDF
- SS Stainless steel
- HC Hastalloy C

##### Seal material:

- T PTFE seal

##### Positive displacement element:

- 0 Standard multi-layer diaphragm with rupture protection signal

##### Liquid end version:

- 0 No valve springs
- 1 With valve springs
- D Double ball valve (only for SST & HCT 100003-100010)
- H HV-Version (only for SST version 025019-025060)

##### Hydraulic connector:

- 0 Standard threaded connector SEE NOTE IN BOX BELOW
- E With DIN ISO flange
- F With ANSI flange

##### Version:

- 0 With ProMinent® logo
- 1 Without ProMinent® logo

##### Power supply:

- S 3 ph. 230 V/400 V 50/60 Hz, 0.37kW
- L 3 ph. 230 V/400 V 50 Hz (EExe, EExde) } See Enclosure Rating
- P 3 ph. 230 V/400 V 60 Hz (EExe, EExde) } See Enclosure Rating
- R 3ph, variable speed motor 4 pol. 230/400 V
- V (0) var. speed motor with integral speed control 230/1/50
- V (2) var. speed motor with integral speed control Exd

##### Enclosure rating:

- 0 IP 55
- A Add-on drive unit ATEXVersion
- 2 Exde motor version (ATEX-T4)

##### Stroke sensor:

- 0 No stroke sensor (standard)
- 1 Stroke sensor for explosion-proof applications

##### Stroke length adjustment:

- 0 Manual (standard)
- 1 With stroke positioning motor, 230V/50/60Hz
- 2 With stroke positioning motor, 115V/60Hz
- B With stroke control motor, 4...20 mA 230 V/50/60Hz
- D With stroke control motor, 4...20 mA 115 V/50/60Hz

##### Hydraulic oil:

- 0 Standard
- 1 Food products grade
- 2 Low Temp. to -25 °C
- 3 Low Temp. Zone 2 EX

**Note:** For pumps 100003 to 100010 the connection size is 1/4" BSPF

##### Connection Sizes

###### for PVDF

P0 064007 - 064015 - 064018 - 064022 - 064025  
025019 - 025040 - 025048 - 025060 - 025068  
1/2" Male BSPT PVDF adaptor

###### for SS

064007 - 064015 - 064018 - 064022 - 064025  
025019 - 025040 - 025048 - 025060 - 025068  
3/8" Female BSP insert and union nut

HP2a H 025060 SS T 0 0 0 0 S 0 0 0 0



## 2.6 Hydro Hydraulic Diaphragm Metering Pumps

### 2.6.4 Identity Code Ordering System For Hydro/ 2 - DOUBLE HEAD

HP2a Hydro/ 2 **NOTE: Capacities shown are per Head**

#### D Main power end, duplexed - TRIPLEX ALSO AVAILABLE ON \$ P.O.A

Type:	Type:	Type:
100003 100 bar, 3 litre PVT	064007 64 bar, 7 litre PVT	025019 25 bar, 19 litre x 2 PVT
100006 100 bar, 6 litre SST	064015 64 bar, 15 litre SST	025040 25 bar, 40 litre x 2 SST
100007 100 bar, 7 litre	064018 64 bar, 18 litre	025048 25 bar, 48 litre x 2
100009 100 bar, 9 litre	064022 64 bar, 22 litre	025060 25 bar, 60 litre x 2
100010 100 bar, 10 litre	064025 64 bar, 25 litre	025068 25 bar, 68 litre x 2
040014 40 bar, 14 litre PVT		
040029 40 bar, 29 litre SST		
040035 40 bar, 35 litre		
040044 40 bar, 44 litre		
040050 40 bar, 50 litre		

PVT Liquid End Maximum 25 Bar

#### Liquid end material:

PV	PVDF
SS	Stainless steel
HC	Hastalloy C

#### Seal material:

T	PTFE seal
---	-----------

#### Positive displacement element:

0	Standard multi-layer diaphragm with rupture protection signal
---	---

#### Liquid end version:

0	No valve springs
1	With valve springs
D	Double ball valve (only for SST & HCT 100003-100010)
H	HV-Version (only for SST version 025019-025060)

#### Hydraulic connector:

0	Standard threaded connector	SEE NOTE IN BOX BELOW
E	With DIN ISO flange	
F	With ANSI flange	

#### Version:

0	With ProMinent® logo
1	Without ProMinent® logo

#### Power supply:

S	3 ph. 230 V/400 V 50/60 Hz, 0.37kW	0
L	3 ph. 230 V/400 V 50 Hz (EExe, EExde)	} See Enclosure Rating
P	3 ph. 230 V/400 V 60 Hz (EExe, EExde)	} See Enclosure Rating
R	3ph, variable speed motor 4 pol. 230/400 V	\$ P.O.A.
V (0)	var. speed motor with integral speed control 230/1/50	\$ P.O.A.
V (2)	var. speed motor with integral speed control Exd	\$ P.O.A.

#### Enclosure rating:

0	IP 55
A	Add-on drive unit ATEX Version
2	Exde motor version (ATEX-T4)

#### Stroke sensor:

0	No stroke sensor (standard)
1	Stroke sensor for explosion-proof applications

#### Stroke length adjustment:

0	Manual (standard)
1	With stroke positioning motor, 230V/50/60Hz
2	With stroke positioning motor, 115V/60Hz
B	With stroke control motor, 4...20 mA 230 V/50/60Hz
D	With stroke control motor, 4...20 mA 115 V/50/60Hz

#### Hydraulic oil:

0	Standard
1	Food products grade
2	Low Temp. to -25 °C
3	Low Temp. to -25 °C Ex Zone II

**Note:** For pumps 100003 to 100010 the connection size is 1/4" BSPF

#### Connection Sizes for PVDF

P0 - 064007 - 064015 - 064018 - 064022 - 064025  
025019 - 025040 - 025048 - 025060 - 025068  
1/2" Male BSPT PVDF adaptor

#### for SS

064007 - 064015 - 064018 - 064022 - 064025  
025019 - 025040 - 025048 - 025060 - 025068  
3/8" Female BSP insert and union nut

HP2a D 025060 SS T 0 0 0 0 S 0 0 0 0



## 2.6 Hydro Hydraulic Diaphragm Metering Pumps

### 2.6.5 Technical Data Hydro/ 3

Type HP3a												
Capacity at max. back pressure with 1500 rpm motor at 50 Hz Delivery rate at max. back pressure					Capacity at max. back pressure at 60 Hz			Suction lift	Perm. admiss. pressure suction side	Suction/ discharge side connector	Shipping weight	Plunger Ø
Max. stroke rate					Max. stroke rate							

	l/h	bar	ml/ stroke	Strokes/ min	psi	l/h/gph	Strokes/ min	m WC	bar	G-DN	kg	mm
100010	10	100	5.7	60	1,450	12/3.2	72	3.0	5	Rp 3/8-10	41	22
100021 *	21	100	5.7	125	1,450	25/6.6	150	3.0	5	Rp 3/8-10	41	22
100025 *	25	100	5.7	150	1,450	30/7.9	180	3.0	5	Rp 3/8-10	41	22
100031 *	31	100	5.7	187	1,450	37/9.8	224	3.0	5	Rp 3/8-10	41	22
100035 *	35	100	5.7	212	1,450	-	-	3.0	5	Rp 3/8-10	41	22
064019 **	19	64	7.9	60	928	23/6.1	72	3.0	5	G 3/4-10	41	26
064040 **	40	64	7.9	125	928	48/12.7	150	3.0	5	G 3/4-10	41	26
064048 **	48	64	7.9	150	928	58/15.3	180	3.0	5	G 3/4-10	41	26
064060 **	60	64	7.9	187	928	72/19.0	224	3.0	5	G 3/4-10	41	26
064068 **	68	64	7.9	212	928	-	-	3.0	5	G 3/4-10	41	26
040029 ***	29	40	12.0	60	580	35/9.2	72	3.0	5	G 1-15	41	32
040062 ***	62	40	12.0	125	580	74/19.7	150	3.0	5	G 1-15	41	32
040074 ***	74	40	12.0	150	580	89/23.5	180	3.0	5	G 1-15	41	32
040092 ***	92	40	12.0	187	580	110/29.2	224	3.0	5	G 1-15	41	32
040105 ***	105	40	12.0	212	580	-	-	3.0	5	G 1-15	41	32
025048 ***	48	25	17.0	60	362	58/15.3	72	3.0	5	G 1-15	41	38
025100 ***	100	25	17.0	125	362	120/31.7	150	3.0	5	G 1-15	41	38
025120 ***	120	25	17.0	150	362	144/38.0	180	3.0	5	G 1-15	41	38
025150 ***	150	25	17.0	187	362	180/47.6	224	3.0	5	G 1-15	41	38
025170 ***	170	25	17.0	212	362	-	-	3.0	5	G 1-15	41	38

\* SST version with double ball valve, valve connector on the suction/discharge side with female thread Rp 3/8, male thread G 3/4-DN 10

\*\* HV design (SST only) with G 1 - DN 15 connector

\*\*\* HV design (SST only) with 1 1/4" - DN 20 connector

PVDF version max. 25 bar, PTFE + 25 % carbon; PTFE max.16 bar

SST version with double ball valve, valve connector on the suction/discharge side with female thread Rp 3/8,male thread G 3/4-DN 10

### Material in contact with media

Identity code of material	Dosing head	Connection on suction/ discharge side	Seals/ball seat	Balls
PVT *	PVDF	PVDF	PTFE/PTFE + 25 % carbon	Ceramic
SST	Stainless steel 1.4571/1.4404	Stainless steel 1.4581	PTFE/ZrO <sub>2</sub> (DN 15/DN20 stainless steel 1.4404)	Ceramic
TTT	PTFE + 25% carbon	PVDF (polyvinylidene fluoride)	PTFE/PTFE + 25 % carbon	Ceramic

\* Not for areas at risk of explosion



## 2.6 Hydro Hydraulic Diaphragm Metering Pumps

### 2.6.6 Identity Code Ordering System For Hydro/ 3 - SINGLE HEAD

#### HP3a Hydro/ 3

##### H Main power end

Type:	Type:	Type:
100010 100 bar, 10 litre PVT	064019 64 bar, 19 litre PVT	025048 25 bar, 48 litre PVT
100021 100 bar, 21 litre SST	064040 64 bar, 40 litre SST	025100 25 bar, 100 litre SST
100025 100 bar, 25 litre	064048 64 bar, 48 litre	025120 25 bar, 120 litre
100031 100 bar, 31 litre	064060 64 bar, 60 litre	025150 25 bar, 150 litre
100035 100 bar, 35 litre	064068 64 bar, 68 litre	025170 25 bar, 170 litre
040029 40 bar, 29 litres PVT		
040062 40 bar, 62 litres SST		
040074 40 bar, 74 litres		
040092 40 bar, 92 litres		
040105 40 bar, 105 litres		

PVT Liquid End Maximum 25 Bar

##### Liquid end material:

- PV PVDF
- SS Stainless steel
- HC Hastalloy C

##### Seal material:

- T PTFE seal

##### Positive displacement element:

- 0 Standard multi-layer diaphragm with rupture protection signal

##### Liquid end version:

- 0 No valve springs
- 1 With valve springs
- D Double ball valve (only for SST & HCT 100010-100035, 064019-064060)
- H HV-Version (only for SST version)

##### Hydraulic connector:

- 0 Standard threaded connector *SEE NOTE IN BOX BELOW*
- E With DIN ISO flange
- F With ANSI flange

##### Version:

- 0 With ProMinent® logo
- 1 Without ProMinent® logo

##### Power supply:

- S 3 ph. 230 V/400 V 50/60 Hz, 0.75kW
- L 3 ph. 230 V/400 V 50 Hz (EExe, EExde) } See Enclosure Rating
- P 3 ph. 230 V/400 V 60 Hz (EExe, EExde) } See Enclosure Rating
- R 3ph, variable speed motor 4 pol. 230/400V
- V (0) var. speed motor with integral speed control 230/1/50
- V (2) var. speed motor with integral speed control Exd

##### Enclosure rating:

- 0 IP 55
- A Add-on drive unit ATEX Version
- 2 Exde motor version (ATEX-T4)

##### Stroke sensor:

- 0 No stroke sensor (standard)
- 1 Stroke sensor for explosion-proof applications

##### Stroke length adjustment:

- 0 Manual (standard)
- 1 With stroke positioning motor, 230V/50/60Hz
- 2 With stroke positioning motor, 115V/60Hz
- B With stroke control motor, 4...20 mA 230 V/50/60Hz
- D With stroke control motor, 4...20 mA 115 V/50/60Hz

##### Hydraulic oil:

- 0 Standard
- 1 Food products grade
- 2 Low Temp. to -25 °C
- 3 Low Temp. to -25 °C Ex Zone II

**Note:** For pumps 100010 to 100035 the connection size is 3/8" BSPF

##### Connection Sizes for PVDF

P0 - 064019 - 064040 - 064048 - 064060 - 064068  
 1/2" Male BSPT PVDF adaptor  
 025048 - 025100 - 025120 - 025150 - 025170  
 3/4" Male BSPT PVDF adaptor

##### for SS

064019 - 064040 - 064048 - 064060 - 064068  
 3/8" Female BSP insert and union nut  
 025048 - 025100 - 025120 - 025150 - 025170  
 1/2" Female BSP insert and union nut

HP3a H 100035 SS T 0 0 0 0 S 0 0 0 0



## 2.6 Hydro Hydraulic Diaphragm Metering Pumps

### 2.6.7 Identity Code Ordering System For Hydro/ 3 - DOUBLE HEAD

HP3a Hydro/ 3 **NOTE: Capacities shown are per Head**

**D** Main power end, duplexed - TRIPLEX ALSO AVAILABLE ON \$ P.O.A

Type:	Type:	Type:
<b>100010</b> 100 bar, 10 litre <b>PVT</b>	<b>064019</b> 64 bar, 19 litre <b>PVT</b>	<b>025048</b> 25 bar, 48 litre x 2 <b>PVT</b>
<b>100021</b> 100 bar, 21 litre <b>SST</b>	<b>064040</b> 64 bar, 40 litre <b>SST</b>	<b>025100</b> 25 bar, 100 litre x 2 <b>SST</b>
<b>100025</b> 100 bar, 25 litre	<b>064048</b> 64 bar, 48 litre	<b>025120</b> 25 bar, 120 litre x 2
<b>100031</b> 100 bar, 31 litre	<b>064060</b> 64 bar, 60 litre	<b>025150</b> 25 bar, 150 litre x 2
<b>100035</b> 100 bar, 35 litre	<b>064068</b> 64 bar, 68 litre	<b>025170</b> 25 bar, 170 litre x 2
<b>040029</b> 40 bar, 29 litre <b>PVT</b>		
<b>040062</b> 40 bar, 62 litre <b>SST</b>		
<b>040074</b> 40 bar, 74 litre		
<b>040092</b> 40 bar, 92 litre		
<b>040105</b> 40 bar, 105 litre		

PVT Liquid End Maximum 25 Bar

**Liquid end material:**

- PV** PVDF
- SS** Stainless steel
- HC** Hastalloy C

**Seal material:**

- T** PTFE seal

**Positive displacement element:**

- 0** Standard multi-layer diaphragm with rupture protection signal

**Liquid end version:**

- 0** No valve springs
- 1** With valve springs
- D** Double ball valve (only for SST & HCT 100010-100035)
- H** HV-Version (only for SST version)

**Hydraulic connector:**

- 0** Standard threaded connector *SEE NOTE IN BOX BELOW*
- E** With DIN ISO flange
- F** With ANSI flange

**Version:**

- 0** With ProMinent® logo
- 1** Without ProMinent® logo

**Power supply:**

- S** 3 ph. 230 V/400 V 50/60 Hz, 0.75kW
- L** 3 ph. 230 V/400 V 50 Hz (EExe, EExde) } See Enclosure Rating
- P** 3 ph. 230 V/400 V 60 Hz (EExe, EExde) } See Enclosure Rating
- R** 3ph, variable speed motor 4 pol. 230/400 V
- V (0)** var. speed motor with integral speed control 230/1/50
- V (2)** var. speed motor with integral speed control Exd

**Enclosure rating:**

- 0** IP 55
- A** Add-on drive unit ATEX Version
- 2** Exde motor version (ATEX-T4)

**Stroke sensor:**

- 0** No stroke sensor (standard)
- 1** Stroke sensor for explosion-proof applications

**Stroke length adjustment:**

- 0** Manual (standard)
- 1** With stroke positioning motor, 230V/50/60Hz
- 2** With stroke positioning motor, 115V/60Hz
- B** With stroke control motor, 4...20 mA 230 V/50/60Hz
- D** With stroke control motor, 4...20 mA 115 V/50/60Hz

**Hydraulic oil:**

- 0** Standard
- 1** Food products grade
- 2** Low Temp. to -25 °C
- 3** Low Temp. to -25 °C Ex Zone II

**Note:** For pumps 100010 to 100035 the connection size is 3/8" BSPF

**Connection Sizes**

**for PVDF**

064019 - 064040 - 064048 - 064060 - 064068  
 1/2" Male BSPT PVDF adaptor  
 025048 - 025100 - 025120 - 025150 - 025170  
 3/4" Male BSPT PVDF adaptor

**for SS**

064019 - 064040 - 064048 - 064060 - 064068  
 3/8" Female BSP insert and union nut  
 025048 - 025100 - 025120 - 025150 - 025170  
 1/2" Female BSP insert and union nut

HP3a D 025120 SS T 0 0 0 0 S 0 0 0 0



## 2.6 Hydro Hydraulic Diaphragm Metering Pumps

### 2.6.8 Technical Data Hydro/ 4

Type HP4a													
Capacity at max. back pressure with 1500 rpm motor at 50 Hz Delivery rate at max. back pressure					Capacity at max. back pressure at 60 Hz			Suction lift	Perm. admiss. pressure suction side	Suction/ discharge side connector	Shipping weight	Plunger Ø	
Max. stroke rate					Max. stroke rate								
	l/h	bar	ml/ stroke	Strokes/ min	psi	l/h/gph	Strokes/ min	m WC	bar	G-DN	kg	mm	
400071	71	40	25.1	71	580	85/22	86	3	1	G 1 1/2-25	69	40	
400105	105	40	25.1	103	580	126/33	124	3	1	G 1 1/2-25	69	40	
400140	140	40	25.1	136	580	168/44	164	3	1	G 1 1/2-25	69	40	
400190	190	40	25.1	188	580	188/49	225	3	1	G 1 1/2-25	69	40	
400220	220	40	25.1	214	580	-	-	3	1	G 1 1/2-25	69	40	
250130	130	25	42.4	71	363	155/41	86	3	1	G 1 1/2-25	69	52	
250190	190	25	42.4	103	363	230/61	124	3	1	G 1 1/2-25	69	52	
250250	250	25	42.4	136	363	300/79	164	3	1	G 1 1/2-25	69	52	
250350	350	25	42.4	188	363	420/111	225	3	1	G 1 1/2-25	69	52	
250400	400	25	42.4	214	-	-	-	3	1	G 1 1/2-25	69	52	
160210	210	16	62.3	71	232	250/66	86	3	1	G 1 1/2-25	76	63	
160300	300	16	62.3	103	232	360/95	124	3	1	G 1 1/2-25	76	63	
160400	400	16	62.3	136	232	480/127	164	3	1	G 1 1/2-25	76	63	
160550	550	16	62.3	188	232	660/174	225	3	1	G 1 1/2-25	76	63	
160625	625	16	62.3	214	-	-	-	3	1	G 1 1/2-25	76	63	
100330	330	10	100.4	71	145	400/106	86	3	1	G 2-32	87	80	
100480	480	10	100.4	103	145	580/153	124	3	1	G 2-32	87	80	
100635	635	10	100.4	136	145	760/201	164	3	1	G 2-32	87	80	
100880	880	10	100.4	188	145	1,050/277	225	3	1	G 2-32	87	80	
101000	1,000	10	100.4	214	-	-	-	3	1	G 2-32	87	80	
070465	465	7	138.7	71	102	560/148	86	3	1	G 2 1/4-40	96	94	
070670	670	7	138.7	103	102	805/213	124	3	1	G 2 1/4-40	96	94	
070890	890	7	138.7	136	102	1,070/283	164	3	1	G 2 1/4-40	96	94	
071230	1,230	7	138.7	188	102	1,450/383	225	3	1	G 2 1/4-40	96	94	
071400	1,400	7	138.7	214	-	-	-	3	1	G 2 1/4-40	96	94	

PVDF version max. 25 bar, PTFE + 25 % carbon; PTFE max.10 bar

#### Material in contact with media

Identity code of material	Dosing head	Connection on suction/ discharge side	Seals	Valve seats	Valve balls up to DN 25	Valve plates/valve springs
PVT *	PVDF	PVDF	PTFE	PTFE + 25% carbon	Glass	Ceramic/E-CTFE
SST	Stainless steel 1.4404	Stainless steel 1.4404	PTFE	PTFE	Stainless steel 1.4401	Stainless steel 1.4404/ Hastelloy C
TTT	PTFE + 25% carbon	PVDF (polyvinylidene fluoride)	PTFE	PTFE + 25% carbon	Glass	Ceramic/E-CTFE

\* Not for areas at risk of explosion



## 2.6 Hydro Hydraulic Diaphragm Metering Pumps

### 2.6.8 Technical Data Hydro/ 4

#### Material in contact with media

Material	Liquid End	Suction/Discharge connector	Seals/ball seat	Valve Balls
SST	stainless steel 1.4404	stainless steel no. 1.4401	PTFE/PTFE	stainless steel 1.4404
PVT	PVDF (Polyvinylidenfluoride)	PVDF (Polyvinylidenfluoride)	PTFE/PTFE	glass
HCT	Hast. C	Hast. C	PTFE/PTFE	Hast. C
TTT	PTFE + 20% Carbon	PVDF (Polyvinylidenfluoride)	PTFE/PTFE	glass

DN32 and DN40 plate valves					
Material	Liquid End	Suction/Discharge connector	Seals/seats	Valve plates	Springs
SST	stainless steel 1.4404	stainless steel no. 1.4401	PTFE/PTFE	stainless steel 1.4404	Hast. C
PVT	PVDF (Polyvinylidenfluoride)	PVDF (Polyvinylidenfluoride)	PTFE/PTFE	ceramic	C-CTFE
HCT	Hast. C	Hast. C	PTFE/PTFE	Hast. C	C-CTFE

#### Motor Data

Identity code specification	Power supply				Remarks
S	3 ph, IP 55	220-240 V/380-420 V	50 Hz	1.1 kW	
		250-280 V/440-480 V	60 Hz		
T	3 ph, IP 55	220-240 V/380-420 V	50 Hz	1.1 kW	With PTC, speed control range 1:5
		265-280 V/440-480 V	60 Hz		
R	3 ph, IP 55	230 V/400 V	50/60 Hz	1.5 kW	With PTC, speed control range 1:20, with external fan 1 ph 230 V; 50/60 Hz
V0	3 ph, IP 55	400 V	50/60 Hz	1.5 kW	Variable speed motor w/integrated frequency converter
L1	3 ph, II2GEEexelIT3	220-240 V/380-420 V	50 Hz	1.1 kW	
L2	3 ph, II2GEEexdIICT4	220-240 V/380-420 V	50 Hz	1.1 kW	With PTC, speed control range 1:5
P1	3 ph, II2GEEexelIT3	254-277 V/440-480 V	60 Hz	1.1 kW	
P2	3 ph, II2GEEexdIICT4	254-277 V/440-480 V	60 Hz	1.1 kW	With PTC, speed control range 1:5
V2	3 ph, II2GEEexdIICT4	400 V ±10 %	50/60 Hz	1.5 kW	Ex-variable speed motor with integrated frequency converter

#### Motor data sheets can be requested for more information.

Special motors or special motor flanges are available on request.

The motors are designed in compliance with the Ecodesign Directive 2005/32/EC (IE2 standard).

#### Information for use in areas at risk from explosion

Only use pumps with the appropriate labelling in line with the ATEX Directive 94/9/EC in premises at risk from explosion. Ensure that the explosion group, category and degree of protection specified on the label corresponds to or is better than the conditions prevalent in the intended field of application.





## 2.6 Hydro Hydraulic Diaphragm Metering Pumps

### 2.6.9 Identity Code Ordering System For Hydro/ 4 - SINGLE HEAD

#### HP4a Hydro/ 4

##### H Main power end

Type:	Type:	Type:
<b>040071</b> 40 bar, 71 l/h <b>PVT</b>	<b>250130</b> 25 bar, 130 l/h <b>PVT</b>	<b>160210</b> 16 bar, 210 l/h <b>PVT</b>
<b>400105</b> 40 bar, 105 l/h <b>SS</b>	<b>250190</b> 25 bar, 190 l/h <b>SS</b>	<b>160300</b> 16 bar, 300 l/h <b>SS</b>
<b>400140</b> 40 bar, 140 l/h	<b>250250</b> 25 bar, 250 l/h	<b>160400</b> 16 bar, 400 l/h
<b>400190</b> 40 bar, 190 l/h	<b>250350</b> 25 bar, 350 l/h	<b>160550</b> 16 bar, 550 l/h
<b>400220</b> 40 bar, 220 l/h	<b>250400</b> 25 bar, 400 l/h	<b>160625</b> 16 bar, 625 l/h
<b>100330</b> 10 bar, 330 l/h <b>PVT</b>	<b>070465</b> 7 bar, 465 l/h <b>PVT</b>	
<b>100480</b> 10 bar, 480 l/h <b>SS</b>	<b>070670</b> 7 bar, 670 l/h <b>SS</b>	
<b>100635</b> 10 bar, 635 l/h	<b>070890</b> 7 bar, 890 l/h	
<b>100880</b> 10 bar, 880 l/h	<b>071230</b> 7 bar, 1230 l/h	
<b>101000</b> 10 bar, 1000 l/h	<b>071400</b> 7 bar, 1400 l/h	

PVT Liquid End Maximum 25 Bar

##### Liquid end material:

- PV** PVDF
- SS** Stainless steel

##### Seal material:

- T** PTFE seal

##### Positive displacement element:

- 0** Standard multi-layer diaphragm with rupture protection signal

##### Liquid end version:

- 0** No valve springs
- 1** With valve springs DN32 and DN40

##### Hydraulic connector:

- 0** Standard threaded connector
- E** With DIN ISO flange
- F** With ANSI flange

##### Version:

- 0** With ProMinent® logo, with overpressure signal
- 1** Without ProMinent® logo, with overpressure signal
- M** Modified

##### Power supply:

- S** 3 ph. 230 V/400 V 50/60 Hz, 1.1kw
- L** 3 ph. 230 V/400 V 50 Hz (Exe, Exd) } See Enclosure Rating
- P** 3 ph. 230 V/400 V 60 Hz (Exe, Exd) } See Enclosure Rating
- R** 3ph, variable speed motor 4 pol. 230/400 V 1.5 kw
- V (0)** var. speed motor with integral speed control
- V (2)** var. speed motor with integral speed control Exd

##### Enclosure rating:

- 0** IP 55
- A** Add-on drive unit ATEX Version
- 2** Exde motor version (ATEX-T4)

##### Stroke sensor:

- 0** No stroke sensor (standard)
- 1** Stroke sensor for explosion-proof applications

##### Stroke length adjustment:

- 0** Manual (standard)
- K** Manual Outdoor (SS)
- 1** With stroke positioning motor,
- 2** With stroke positioning motor,
- B** With stroke control motor, 4...20 mA 230 V/50/60Hz
- D** With stroke control motor, 4...20 mA 115 V/50/60Hz

##### Hydraulic oil:

- 0** Standard
- 1** Food products grade
- 2** Low Temp. to -25 °C
- 3** Low Temp. to -25 °C Ex

##### Connection Sizes for PVDF

**P0** - 250130 - 250190 - 250250 - 250350 - 250400  
 160210 - 160300 - 160400 - 160550 - 160625  
 1" Male BSPT PVDF adaptor  
 100330 - 100480 - 100635 - 100880 - 101000  
 1-1/2" Male BSPT PVDF Adaptor

##### for SS

250130 - 250190 - 250250 - 250350 - 250400  
 160210 - 160300 - 160400 - 160550 - 160625  
 1" Female BSPF SS Insert and Union Nut  
 100330 - 100480 - 100635 - 100880 - 101000  
 1-1/4" Female BSPF SS Insert and Union Nut

HP4a H 025130 SS T 0 0 0 0 S 0 0 0 0



## 2.6 Hydro Hydraulic Diaphragm Metering Pumps

### 2.6.10 Identity Code Ordering System For Hydro/ 4 - DOUBLE HEAD

**HP4a Hydro/ 4 NOTE: Capacities shown are per Head**

**D Main power end Double Head V\version - - TRIPLEX ALSO AVAILABLE ON \$ P.O.A**

Pump type:			Pump type:		
250130	25 bar, 130 l/h	PVT	160210	16 bar, 210 l/h	PVT
250190	25 bar, 190 l/h	SS	160300	16 bar, 300 l/h	SS
250250	25 bar, 250 l/h		160400	16 bar, 400 l/h	
250350	25 bar, 350 l/h		160550	16 bar, 550 l/h	
250400	25 bar, 400 l/h		160625	16 bar, 625 l/h	
100330	10 bar, 330 l/h	PVT	070465	7 bar, 465 l/h	PVT
100480	10 bar, 480 l/h	SS	070670	7 bar, 670 l/h	SS
100635	10 bar, 625 l/h		070890	7 bar, 890 l/h	
100880	10 bar, 880 l/h		071230	7 bar, 1230 l/h	
101000	10 bar, 1000 l/h		071400	7 bar, 1400 l/h	
400071	40 bar, 71 l/h	PVT			
400105	40 bar, 105 l/h	SST			
400140	40 bar, 140 l/h				
400190	40 bar, 190 l/h				
400220	40 bar, 220 l/h				

**Liquid end material:**  
**PV** PVDF  
**SS** Stainless steel  
**HC** Hastalloy C

**Seal material:**  
**T** PTFE seal

**Positive displacement element:**  
**0** Standard multi-layer diaphragm with rupture protection signal

**Liquid end version:**  
**0** No valve springs  
**1** With valve springs DN32 and DN40

**Hydraulic connector:**  
**0** Standard threaded connector  
**E** With DIN ISO flange  
**F** With ANSI flange

**Version:**  
**0** With ProMinent® logo, with overpressure signal  
**1** Without ProMinent® logo, with overpressure signal  
**M** Modified

**Power supply:**  
**S** 3 ph. 230 V/400 V 50/60 Hz, 1.1kw  
**L** 3 ph. 230 V/400 V 50 Hz (Exe, Exd) } See Enclosure Rating  
**P** 3 ph. 230 V/400 V 60 Hz (Exe, Exd) } See Enclosure Rating  
**R** 3ph, variable speed motor 4 pol. 230/400 V 1.5 kw  
**V (0)** var. speed motor with integral speed control  
**V (2)** var. speed motor with integral speed control Exd

**Enclosure rating:**  
**0** IP 55  
**A** Add-on drive unit ATEX Version  
**2** Exde motor version (ATEX-T4)

**Stroke sensor:**  
**0** No stroke sensor (standard)  
**1** Stroke sensor for explosion-proof applications

**Stroke length adjustment:**  
**0** Manual (standard)  
**1** With stroke positioning motor, 230V/50/60Hz  
**2** With stroke positioning motor, 115V/60Hz  
**B** With stroke control motor, 4...20 mA 230 V/50/60Hz  
**D** With stroke control motor, 4...20 mA 115 V/50/60Hz

**Hydraulic oil:**  
**0** Standard  
**1** Food products grade  
**2** Low Temp. to -25 °C  
**3** Low Temp. to -25 °C Ex Zone II

**Connection Sizes for PVDF**  
**P0** - 250130 - 250190 - 250250 - 250350 - 250400  
 160210 - 160300 - 160400 - 160550 - 160625  
 1" Male BSPT PVDF adaptor  
 100330 - 100480 - 100635 - 100880 - 101000  
 1-1/2" Male BSPT PVDF Adaptor

**for SS**  
 250130 - 250190 - 250250 - 250350 - 250400  
 160210 - 160300 - 160400 - 160550 - 160625  
 1" Female BSPF SS Insert and Union Nut  
 100330 - 100480 - 100635 - 100880 - 101000  
 1-1/4" Female BSPF SS Insert and Union Nut

HP4a H 025130 SS T 0 0 0 0 S 0 0 0 0



## 2.6 Hydro Hydraulic Diaphragm Metering Pumps

### 2.6.11 Spare Parts Kits

The spare parts kits generally contain the consumable components for the liquid ends.

#### Supplied as standard for SST material version

- 1 x dosing diaphragm
- 2 x valve balls
- 1 x seal set

#### Supplied as standard for PVT material version

- 1 x dosing diaphragm
- 1 x suction connector set
- 1 x discharge connector set
- 1 x seal set

#### Spare parts kits Hydro/ 2

Applies to identity code:

Type 100010, 100009, 100007, 100006, 100003,  
064025, 064022, 064018, 064015, 064007,

		Part No.
FMH 25 - DN 10	PVT	1005548
	SST	1005549
	SST (with 2 valve set)	1005550

Applies to identity code:

Type 025068, 025060, 025048, 025040, 025019

FMH 60 - DN 10	PVT	1005552
	SST	1005553
	SST (with 2 valve set)	1005554

#### Spare parts kits Hydro/ 3

Applies to identity code:

Type 100035, 100031, 100025, 100021, 100010, 064068,  
064060, 064048, 064040, 064019

		Part No.
FMH 60 - DN 10	PVT	1005552
	SST	1005553
	SST (with 2 valve set)	1005554

Applies to identity code:

Type 025170, 025150, 025120, 025100, 025048

FMH 150 - DN 15	PVT	1005556
	SST	1005557
	SST (with 2 valve set)	1005558

#### Pump Diaphragms PTFE/SS - 1.4404

FMH 25 applies to identity code:

Type 100010, 100009, 100007, 100006, 100003,  
064025, 064022, 064018, 064015, 064007,

	Part No.
	1005545

FMH 60 applies to identity code:

Type 025068, 025060, 025048, 025040, 025019, 100035, 100031, 100025, 064068,  
100021, 100010, 064060, 064048, 064040, 064019

	1005546
--	---------

FMH 150 applies to identity code:

025150, 025120, 025100, 025048

	1005547
--	---------

#### Pump Diaphragms PTFE/Hastalloy C covered with PTFE

FMH 25 applies to identity code:

064025, 064022, 064018, 064015, 064007

	Part No.
	1006481

FMH 60 applies to identity code:

025068, 025060, 025048, 025040, 025019, 064068, 064060, 064048, 064040, 064019

	1006482
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FMH 150 applies to identity code:

025170, 025150, 025120, 025100, 025048

	1006483
--	---------



## 2.6 Hydro Hydraulic Diaphragm Metering Pumps

### 2.6.11 Spare Parts Kits

#### Spare parts kits Hydro/ 4

Applies to identity code:		Part No.
Type 250130, 250190, 250250, 250350, 250400		
FMH 400 - DN 25	PVT	1023057
	SST	1040812
	SST (with 2 valve set)	1040813
Applies to identity code:		Part No.
Type 160210, 160300, 160400, 160550, 160625		
FMH 625 - DN 32	PVT	1040863
	SST	1040824
	SST (with 2 valve set)	1040825
Applies to identity code:		Part No.
Type 100330, 100480, 100635, 100880, 101000		
FMH 1000 - DN 32	PVT	1040866
	SST	1040826
	SST (with 2 valve set)	1040827
Applies to identity code:		Part No.
Type 070465, 070670, 070890, 071230, 071400		
FMH 1400 - DN 40	PVT	1040869
	SST	1040828
	SST (with 2 valve set)	1040829

#### Hydro /4 Diaphragm PTFE/1.4404

	Part No.
Type 250130, 250190, 250250, 250350, 250400	1040808
Type 160210, 160300, 160400, 160550, 160625	1040809
Type 100330, 100480, 100635, 100880, 101000	1040810
Type 070465, 070670, 070890, 071230, 071400	1040811

#### Hydro /4 Diaphragm PTFE/Hast.C coated

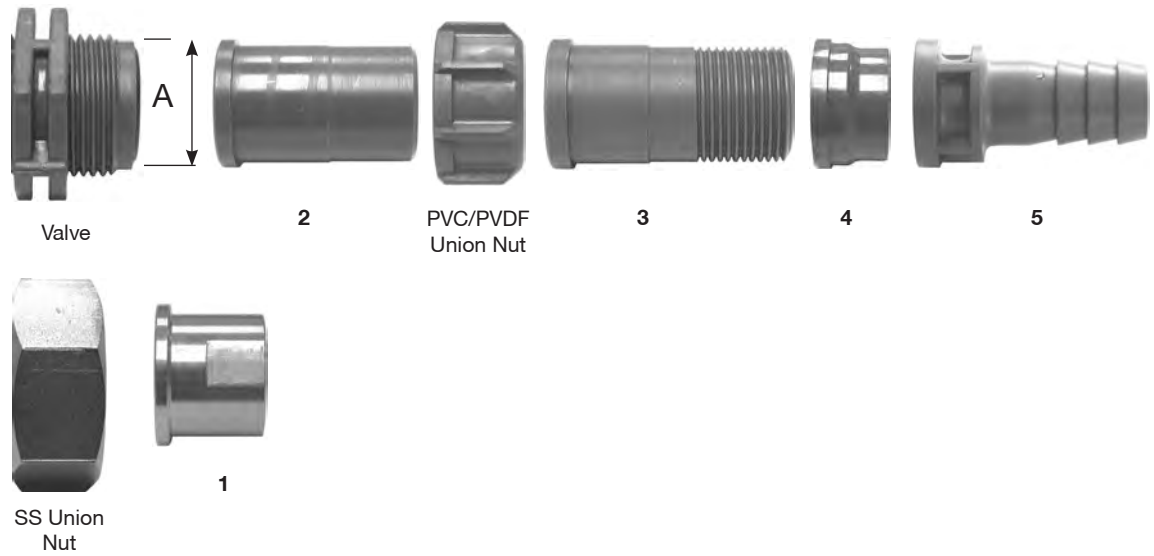
	Part No.
Type 250130, 250190, 250250, 250350, 250400	1040874
Type 160210, 160300, 160400, 160550, 160625	1040875
Type 100330, 100480, 100635, 100880, 101000	1040876
Type 070465, 070670, 070890, 071230, 071400	1040877



## 2.6 Hydro Hydraulic Diaphragm Metering Pumps

### 2.6.12 Adaptor Sizes for Motor Driven Pumps

#### Standard Sizes & Fittings for Motor Driven Pumps



Size	'A' Actual dia.	'A'	1 SSF Socket	2 SWM PVC	3 BSPM PVC/PVDF	4 SWF PVC	5 Hosetail PVC/PVDF
DN10	21.3mm	3/4"	3/8" BSP	15 NB	1/2"		16 mm
DN15	32.8 mm	1"	1/2" BSP	20 NB	3/4"		20 mm
DN20	41.6 mm	1-1/4"	3/4" BSP	25 NB	1"		25mm
DN25	47.5 mm	1-1/2"	1" BSP	25 NB	1"		25mm
DN32	58.8 mm	2"	2" BSP		1-1/2"	32 NB	40mm
DN40	65.1 mm	2-1/4"	1-1/2" BSP				

		Suction Discharge		PRV
Sigma/ 1	12017 12035 10050	DN10		16 mm
	10022 10044 07065	DN10		16 mm
	07042 04084 04120	DN15		16 mm
Sigma/ 2	12050 12090 12130	DN15		16 mm
	07120 07220 04350	DN 25		16 mm
Sigma/ 3	120145 120190 120270 120330	DN 25		DN10
	070410 070580 040830 041030	DN 32		DN20
Hydro/ 2	ALL	DN 10		
Hydro/ 3	ALL 100 bar & 64 bar pumps	DN 10		
	ALL 25 bar pumps	DN 15		

#### Gaskets

##### MOULDED PTFE MATERIAL

Size	Part No.
DN10 3/4"	1019364
DN15 1"	1019365
DN20 1-1/4"	1019366
DN25 1-1/2"	1019367
DN32 2"	1019353
DN40 2-1/4"	1019368

##### VITON SOFT FLAT

Part No.
V483983
V483984
V483985
V483986
V1000308

##### EPDM SOFT FLAT

Part No.
E483983
E483984
E483985
E483986
E1000308



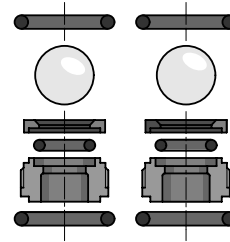
## 2.7 VAMb, VAMc & VAMd Spare Parts

### 2.7.1 Spare Parts Kits

The spare parts kit generally consists of the liquid end parts which are subject to wear.

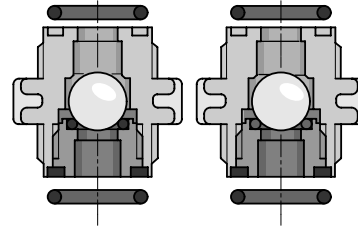
#### Standard kit for PVT material version:

- 1 x pump diaphragm
- 1 x suction connector compl.
- 1 x discharge connector compl.
- 1 x set of seals complete (gaskets, ball seat discs)



#### Standard kit for SS stainless steel version:

- 1 x pump diaphragm
- 2 x valve balls
- 1 x set of seals complete (gaskets, ball seat discs)

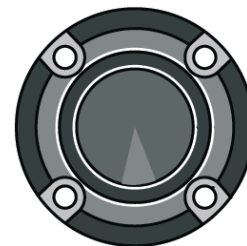


#### Spare parts kit Vario

VAMb, 12017, 12026, 12042		Part No.
VAMc, 10008, 10016, 07026, 07042 & VAMd 12017, 12042		
Liquid end FM42 - DN 10	PVT	1003641
VAMb, 10025, 09039, 07063		
VAMc, 07012, 07024, 04039, 04063 & VAMd 10025, 09039, 07063		
Liquid end FM 63 - DN 10	PVT	1003642
Liquid end FM 63 - DN 10	PCB	910759
VAMb, 06047, 05075, 04120		
Liquid end FM 120 - DN 15	PVT	1003643

#### Dosing diaphragms

	Part No.
VAMb, 12017, 12026, 12042	811458
VAMc, 10008, 10016, 07026, 07042	811458
VAMd 12017, 12042	811458
VAMb, 10025, 09039, 07063	811459
VAMc, 07012, 07024, 04039, 04063	811459
VAMd 10025, 09039, 07063	811459
VAMb, 06047, 05075, 04120	811460



## 2.8 Makro/ 5 Piston Metering Pumps

### 2.8.1 Piston Metering Pumps Makro/ 5

The ProMinent® Makro/ 5 piston Metering Pump is driven by a dual wound three phase, 3 kW motor, 230/400 V, 50/60 Hz, enclosure rating IP 55, insulation class F.

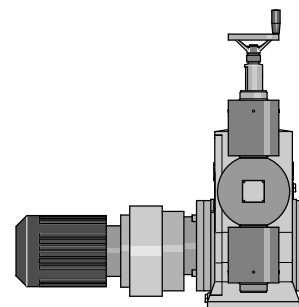
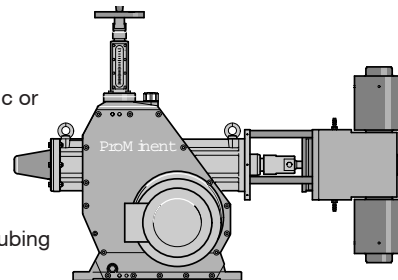
The stroke length is adjustable between 0...50 mm.

The gearbox is housed in a sea water-resistant acrylic resin lacquered cast housing.

The piston liquid end is made of stainless steel 1.4571 and pistons are made of oxide ceramic or stainless steel with a ceramic wear-resistant coating. Dosing reproducibility under defined conditions and when installed correctly, is better than ± 0.5 % in a stroke length range of between 10 and 100 % (instructions in the operating instructions manual must be followed).

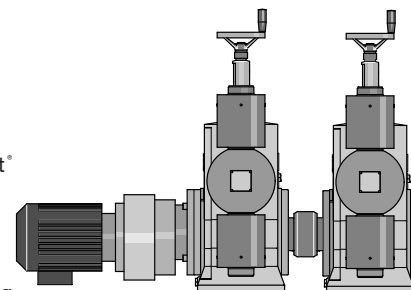
The suction lift varies with the density and viscosity of the dosing chemical, the connection tubing and the pump stroking rate.

For all motor-driven Metering Pumps, for safety reasons, suitable overload protection must be provided during installation. A tensioning key is supplied as standard for re-tensioning packing rings.



#### Capacity with 1500 rpm motor and 50Hz M5KaH

Bar l/hr	Bar l/hr	Bar l/hr	Bar l/hr	Bar l/hr
320 0038	140 0120	050 0335	025 0658	012 1343
320 0048	140 0151	050 0419	025 0822	012 1678
320 0066	140 0207	050 0576	025 1129	012 2305
320 0085	140 0267	045 0744	023 1458	012 2977
320 0100	100 0314	035 0872	018 1710	010 3491
240 0070	080 0214	035 0483	016 0970	006 2269
240 0088	080 0268	035 0604	016 1212	006 2837
240 0121	080 0368	035 0829	016 1665	006 3896
216 0157	070 0476	030 1071	016 2150	006 5031
170 0184	056 0558	025 1257	016 2522	006 6000



#### ProMinent® Makro/ 5 AK add-on pumps

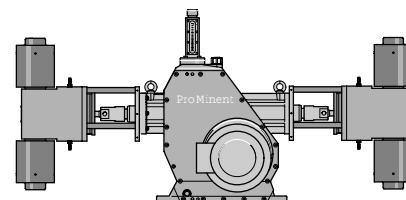
The ProMinent® Makro/ 5 AK add-on piston Metering Pump can be used with the ProMinent® Makro/ 5 HK piston main power end to expand to a duplex or triplex system. (At reduced backpressures up to four add-on power ends can be combined with a single main power end.). The customer can retrofit the add-on power ends on site. If required, the main power end can be fitted with a 3 kW or a 5.5 kW motor. When using add-on power ends a mounting frame should be provided.

#### ProMinent® Makro/ 5 double head version

HDK (main pump)/AKD (add-on pump)

For the ProMinent® Makro/ 5 HKD and AKD the same basic instructions as for the simplex pumps apply. It is also fitted, however, with a second liquid end.

The liquid ends operate in push-pull mode.



**NOTE: ALL \$ P.O.A. CONTACT SYDNEY OFFICE**



## 2.9 ORLITA® Metering Pumps

### 2.9.1 PrORLITA® Metering Pumps

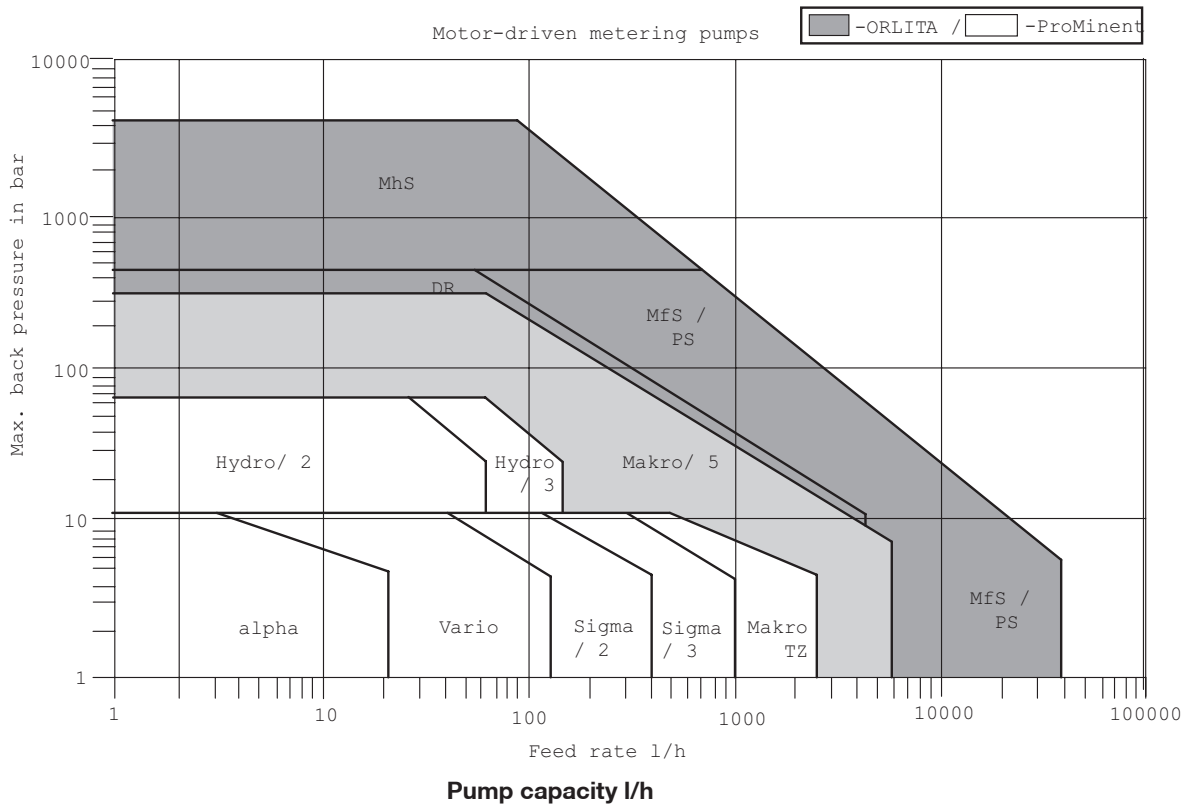
ORLITA® Metering Pumps are motor-driven, oscillating positive displacement pumps with adjustable stroke volumes.

There are four series available:

- Mf diaphragm Metering Pumps with hydraulically driven PTFE double diaphragms
- Mh diaphragm Metering Pumps with hydraulically driven metal diaphragms
- PS piston Metering Pumps with stuffing box packing rings
- DR valve-free piston Metering Pumps

ORLITA® Metering Pumps have established a wide application range in process technology, due in part to their cost effectiveness.

### Motor-driven Metering Pumps



**NOTE: FOR ALL \$ P.O.A. CONTACT SYDNEY OFFICE**





## 2.9 ProMinent® ORLITA® Metering Pumps

### 2.9.2 MF Diaphragm Liquid End

Hydraulically operating diaphragm liquid end. A double PTFE diaphragm forms a hermetic seal between the liquid and hydraulic ends.

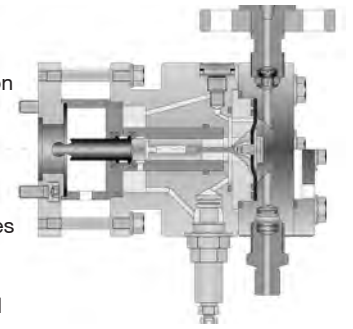
During the discharge stroke the diaphragm is balanced by the hydraulic liquid only. During the suction stroke the diaphragm operation is aided by the mechanical coupling.

This combined principle offers an extraordinary suction lift capability of the Mf pump.

Integrated in the hydraulic chamber are the pressure relief valve and an automatic venting valve. The valveless forced reflow of the internal oil leakage operates wearfree and guarantees optimum dosing accuracy.

The pump check valves are of cone type. This guarantees low wear, short pressure loss (NPSH<sub>R</sub>) and self-cleaning.

All wetted parts (except for the PTFE-diaphragm) are fabricated from stainless steel.



### 2.9.3 Diaphragm Head MH

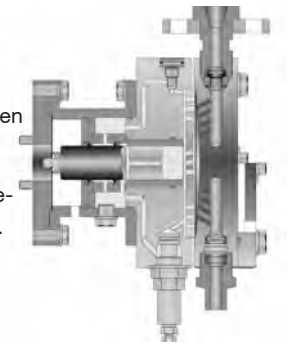
Hydraulic actuated diaphragm head. A metal diaphragm hermetically separates the wetted area from the hydraulic chamber.

Both during discharge and suction stroke the diaphragm is balanced by the hydraulic liquid which has been displaced by the piston.

Integrated in the hydraulic chamber are the pressure relief valve and an automatic venting valve. The valveless forced reflow of the internal oil leakage operates wearfree and guarantees optimum dosing accuracy.

The pump check valves are of cone, ball or prismatic type depending on size and design pressure.

All wetted parts are fabricated from stainless steel.



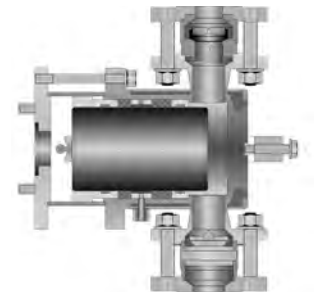
### 2.9.4 PS Piston Liquid End

Plunger head with stuff box packing. The plunger oscillates in the cylinder and displaces the liquid. The packing adjustment is achieved by the front-sided adjusting screw, which is also possible during operation.

The lantern on the rear head end serves to drain the leakage or can be used as an area to flush, lubricate or seal the pump with suitable media.

The pump check valves are of cone type. This guarantees low wear, short pressure loss (NPSHR) and self-cleaning.

All wetted parts are fabricated from stainless steel and sealed by PTFE.



### 2.9.5 DR Valve-Free Piston Liquid End

The valve-free piston liquid end functions by means of the oscillating and rotating piston action. The suction and discharge sides are opened and closed by the piston itself. This means that the pump requires no valves and can operate across a large stroking rate range.

This principle enables the exact dosing of highly viscous liquids which also might contain – even large – solids.

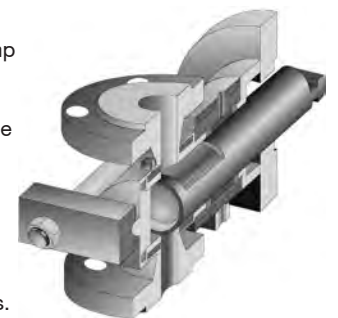
The pump head is fabricated from stainless steel. Piston and liner are treated by a special wear-resistant coating.

Depending on the application the pump head also is available from other high performance materials.

The clearance between piston and liner which mainly seals the pump is adapted to the viscosity of the liquid.

The lantern on the rear head end serves to drain the leakage or can be used as an area to flush, lubricate or seal the pump with suitable media.

The lantern is sealed by elastomer lip rings. The flow direction is selectable by the assembly position of the piston. By turning the head around its horizontal axis an effect of re-suction is adjustable.



### 3.0 Accessories - Beta/gamma/Delta & Pneumados

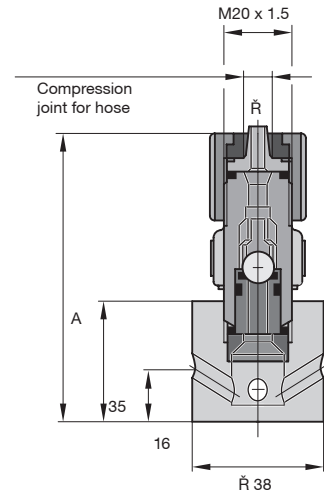
#### 3.0.1 Foot Valves

For connection to the end of the suction line as suction aid and to protect the pump from contamination, with strainer and ball check.  
 For connection diameters 6, 8, 12 and 12/6 mm with ceramic weight. The same materials are used as for the liquid ends.

#### FOOT VALVE, PPE

Valve body of PPE, seals of EPDM

			∅	A		Part No.
Connection	6 mm	for hose	6 x 4	84	(Fig.1)	924558
Connection	8 mm	for hose	8 x 5	84	(Fig.1)	809468
Connection	12 mm	for hose	12 x 9	87	(Fig.1)	809470



#### FOOT VALVE, PPB

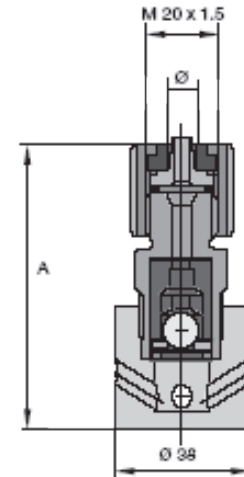
Valve body of PP, seals of Viton

			∅	A		Part No.
Connection	6 mm	for hose	6 x 4	84	(Fig.1)	924559
Connection	8 mm	for hose	8 x 5	84	(Fig.1)	924683
Connection	12 mm	for hose	12 x 9	87	(Fig.1)	924684

#### FOOT VALVE, PVC

With strainer, ball check, valve body of PVC, seals of Viton

			∅	A		Part No.
Connection	6 mm	for hose	6 x 4	84	(Fig.1)	924557
Connection	8 mm	for hose	8 x 5	84	(Fig.1)	924562
Connection	12 mm	for hose	12 x 9	87	(Fig.1)	924564



#### FOOT VALVE, PVT

With non-return valve, PVDF housing, PTFE seals, with ceramic weight

			∅	A		Part No.
Connection	6 mm	for hose	6 x 4	79	(Fig.2)	1024705
Connection	8 mm	for hose	8 x 5	79	(Fig.2)	1024706
Connection	12 mm	for hose	12 x 9	82	(Fig.2)	1024707

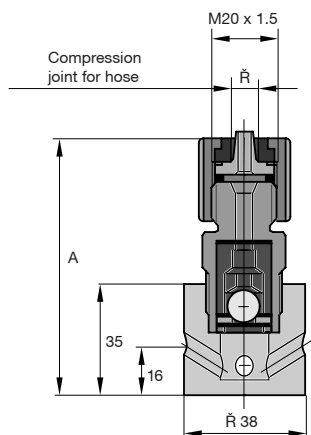


### 3.0 Accessories - Beta/gamma/Delta & Pneumados

#### 3.0.1 Foot Valves

##### FOOT VALVE, PTFE

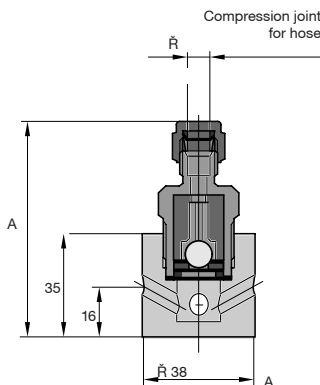
Valve body, ball check and seals of PTFE, for connection diameters 6, 8 and 12 mm with ceramic weight.



			Ø	A		Part No.
Connection	6 mm	for hose	6 x 4	79	(Fig.2397/4)	809455
Connection	8 mm	for hose	8 x 5	79	(Fig.2397/4)	809471
Connection	12 mm	for hose	12 x 9	82	(Fig.2397/4)	809473

##### FOOT VALVE, STAINLESS STEEL 1.4404

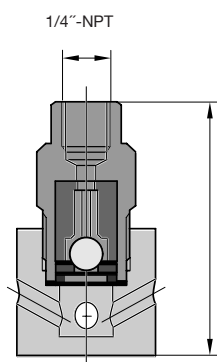
With strainer and ball check, valve body of stainless steel 1.4571, seals of PTFE, For 6x4, 8x5 and 12x 9 mm hose connection a support sleeve is required (see page 3.23).



			Ø	A		Part No.
Connection	for 6 mm O.D. pipe			74		924568
Connection	for 8 mm O.D. pipe			74		809474
Connection	for 12 mm O.D. pipe			74		809475

##### FOOT VALVE, STAINLESS STEEL 1.4404

With strainer and ball check, valve body of stainless steel 1.4571, seals of PTFE, as above but with threaded connection.



			Ø	A		Part No.
Connection	1/4" BSP/F *					803730
Connection	3/8" BSP/F					803731

\*See also 924567



### 3.1 Accessories - Sigma/Vario/Meta & Makro TZ

#### 3.1.1 Foot Valves

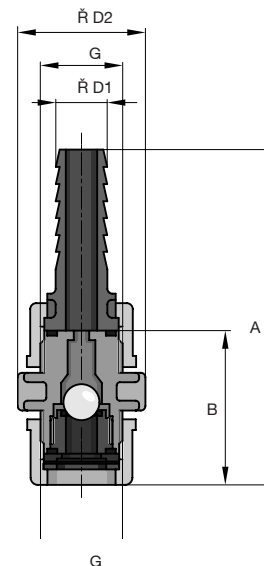
For connection to the end of the suction line to prevent return flow and to protect the pump from contamination, with strainer and ball check valve. The same materials are used as for the liquid ends. The union nut and union end/hose connector are part of the standard delivery package.

**Caution:** Foot valves are not suitable as absolutely leakproof isolating elements.

#### FOOT VALVE, PVC

Valve body of PVC, seals of Viton, with strainer and ball check-valve

	G	Solvent weld male	B	Ø D2	Part No.
●	DN 10	15 mm	51	40	P809464
●	DN 15	20 mm	56	47	P924515
○	DN 20	25 mm	67	55	P803723
●	DN 25	25 mm	73	60	P803724
●	DN 32 PVT	32 mm Female	85	74	P1006434
	DN 40	32 mm	100	90	P1004204
●	DN 10	1/2" BSP	51	40	P809464B
●	DN 15	3/4" BSP	56	47	P924515B
○	DN 20	1" BSP	67	55	P803723B
●	DN 25	1" BSP	73	60	P803724B
●	DN 32 PVT	1-1/2" BSP	85	74	P1006434B
	DN 40	2" BSP	100	90	P1004204B
●	DN 10	16 mm HT	51	40	P809464H
●	DN 15	20 mm HT	56	47	P924515H
○	DN 20	25 mm HT	67	55	P803723H
●	DN 25	25 mm HT	73	60	P803724H
●	DN 32 PVT	40 mm HT	85	74	P1006434H
	DN 40	40 mm HT	100	90	P1004204H

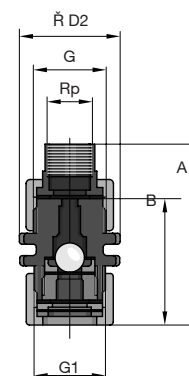


#### FOOT VALVE, PVDF

Valve body of PVDF, seals of PTFE, with strainer and ball check-valve

	G	BSPTM	B	SW	Ø D2	Part No.
●	DN 10	1/2"	69	30	35	P1029471
●	DN 15	3/4"	75	36	47	P1029472
○	DN 20	1"	69	46	57	P1029473
●	DN 25	1"	75	50	64	P1029474
●	DN 32	1-1/2"	103	75	89	P1006434-PVT

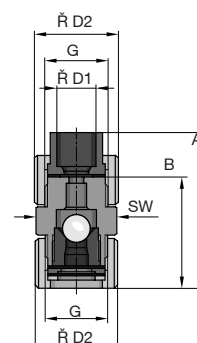
**Note:** DN32 valve has Hastalloy-C Disc and Spring



#### FOOT VALVE, STAINLESS STEEL

Valve body of stainless steel, seals of PTFE, with strainer and ball check valve (1.4571/1.4581)

	G1	BSPF	G2	A	B	Ø D2	Part No.
●	DN 10	3/8"	BSP/F	-	48	37	809467
●	DN 15	1/2"	BSP/F	-	51	48	924518
○	DN 20	3/4"	BSP/F	-	64	55	P803727
●	DN 25	1"	BSP/F	-	72	63	P803728
●	DN 32	1-1/4"	BSP/F	-	82	75	P1006435
	DN 40	1-1/2"	BSP/F	-	98	90	P1004206



## 3.2 Accessories - Sigma/Vario/Meta & Makro TZ PP/EPDM

### 3.2.1 Foot & Injection Valves

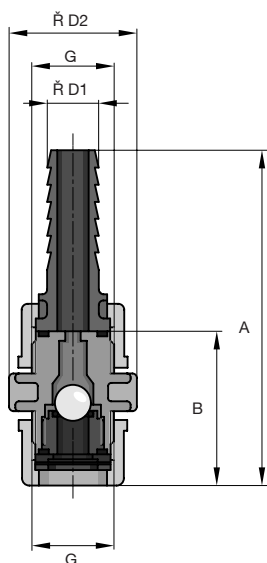
For connection to the end of the suction line to prevent return flow and to protect the pump from contamination, with strainer and ball check valve. The same materials are used as for the liquid ends. The union nut and union end/hose connector are part of the standard delivery package.

**Caution:** Foot valves are not suitable as absolutely leakproof isolating elements.

#### FOOT VALVE, PP

Valve body of PP, seals of EPDM, with strainer and ball check-valve

**Note: Solvent Weld, BSP and Hosetail adaptors are PVC**



G	Solvent weld male	B	Ø D2	Part No.
● DN 10	15 mm	51	40	P809465
● DN 15	20 mm	56	47	P924516
● DN 20	25 mm	67	55	P803721
● DN 25	25 mm	73	60	P803722
● DN 32 PVT	32 mm Female	85	74	P1006434
● DN 40	32 mm	100	90	P1004204
● DN 10	1/2" BSP	51	40	P809465B
● DN 15	3/4" BSP	56	47	P9245516B
● DN 20	1" BSP	67	55	P803721B
● DN 25	1" BSP	73	60	P803722B
● DN 32 PVT	1-1/2" BSP	85	74	P1006434B
● DN 40	2" BSP	100	90	P1004204B
● DN 10	16 mm HT	51	40	P809465H
● DN 15	20 mm HT	56	47	P924516H
● DN 20	25 mm HT	67	55	P803721H
● DN 25	25 mm HT	73	60	P803722H
● DN 32 PVT	40 mm HT	85	74	P1006434H
● DN 40	40 mm HT	100	90	P1004204H

#### INJECTION VALVE, PP

Valve body of PP, seals of EPDM, with ball check, spring-loaded, response pressure approx. 0.5 bar

**Note: Solvent Weld, BSP and Hosetail adaptors are PVC**

	BSPM x solvent weld	B	Ø D2	Part No.
● DN 10	1/2" x 15 mm	51	40	P809461
● DN 15	3/4" x 20 mm	56	47	P924521
● DN 20	1" x 25 mm	67	55	P803710
● DN 25	1" x 25 mm	73	60	P803711
● DN 32 PVT	1-1/2" x 32 mm female	73	60	P1002783
● DN40	2" x 32 mm			P804761
● DN 10	1/2" x 1/2" BSP	51	40	P809461B
● DN 15	3/4" x 3/4" BSP	56	47	P924521B
● DN 20	1" x 1" BSP	67	55	P803710B
● DN 25	1" x 1" BSP	73	60	P803711B
● DN 32 PVT	1-1/2" x 1-1/2" BSP	73	60	P1002783B
● DN40	2" x 32 mm			P804761B
● DN 10	1/2" x 16 mm HT	51	40	P809461H
● DN 15	3/4" x 20 mm HT	56	47	P924521H
● DN 20	1" x 25 mm HT	67	55	P803710H
● DN 25	1" x 25 mm HT	73	60	P803711H
● DN 32 PVT	1-1/2" x 40 mm HT	73	60	P1002783H
● DN40	2" x 40 mm HT			P804761H



### 3.3 Accessories - Beta/gamma/Delta/Concept & Pneumados

#### 3.3.1 Injection Valves

For the connection of the discharge line to the point of injection. The injection valves are equipped with ball check, for PP, PVC and stainless steel versions spring-loaded with Hastelloy C spring, 0.5 bar response pressure (for connection 1/4" stainless steel spring 1.4571, response pressure approx. 1 bar), can be installed in any position.

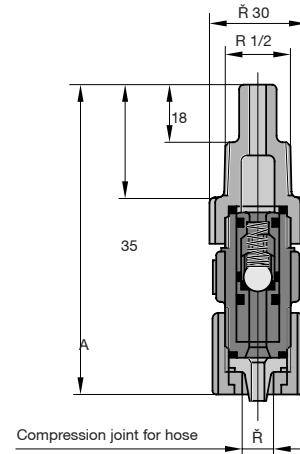
For PTFE version without spring for vertical installation from below. Valve spring can be retrofitted. The same materials are used as for the liquid ends.

**Caution:** Injection valves and injection lances are not suitable as absolutely leak proof isolating elements.

#### INJECTION VALVE, PPE

Valve body of PP, seals of EPDM, with spring-loaded ball check, response pressure approx. 0.5 bar.

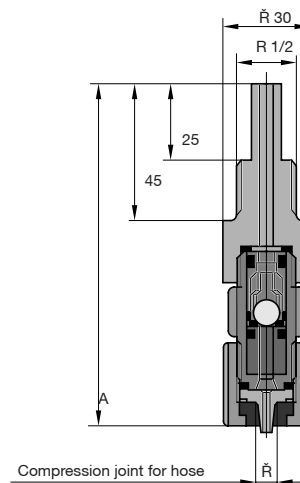
			∅	A	Part No.
Connection	6 mm - 1/2"	for PE/PTFE tubing	6 x 4	96	924681
Connection	8 mm - 1/2"	for PE/PTFE tubing	8 x 5	96	809476
Connection	12 mm - 1/2"	for PE/PTFE tubing	12 x 9	99	809478



#### INJECTION VALVE, PPB

Valve body of PP, seals of Viton.

			∅	A	Part No.
Connection	6 mm - 1/2"	for PE/PTFE tubing	6 x 4	96	924682
Connection	8 mm - 1/2"	for PE/PTFE tubing	8 x 5	96	924687
Connection	12 mm - 1/2"	for PE/PTFE tubing	12 x 9	99	924688



#### INJECTION VALVE PP/PTFE

To prevent deposits, body of PP, mounting insert of PTFE, seals of EPDM, with ball check and Hast. C spring, response pressure approx. 0.5 bar.

			∅	A	Part No.
Connection	6 mm - 1/2"	for PE/PTFE tubing	6 x 4	103	924588
Connection	8 mm - 1/2"	for PE/PTFE tubing	8 x 5	103	924589
Connection	12 mm - 1/2"	for PE/PTFE tubing	12 x 9	106	924590

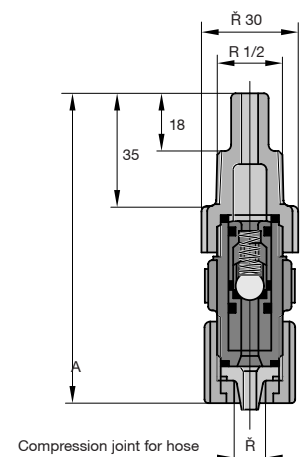
#### INJECTION VALVE, PVC

			∅	A	Part No.
Connection	6 mm - 1/2"	for PE/PTFE tubing	6 x 4	96	924680
Connection	8 mm - 1/2"	for PE/PTFE tubing	8 x 5	96	924592
Connection	12 mm - 1/2"	for PE/PTFE tubing	12 x 9	99	924594

#### INJECTION VALVE, PVC / PTFE (ANTISCALE VERSION)

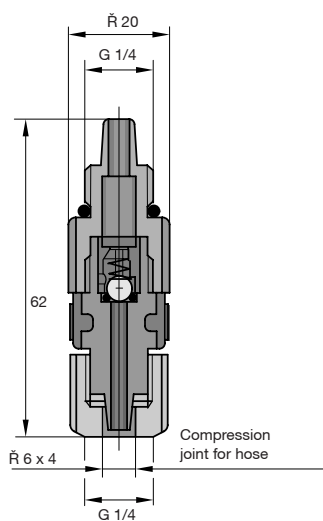
Body of PVC, PTFE with 1/2" BSPT Male tailpiece

			∅	Part No.
Connection	6 mm - 1/2"	for PE/PTFE tubing	6 x 4	809450
Connection	8 mm - 1/2"	for PE/PTFE tubing	8 x 5	809451
Connection	12 mm - 1/2"	for PE/PTFE tubing	12 x 9	809452



### 3.3 Accessories - Beta/gamma/Delta/Concept & Pneumados

#### 3.3.1 Injection Valves



#### INJECTION VALVE PVC, CONNECTION 1/4"

With ceramic ball check, spring of 1.4571 s/s, response pressure approx.1 bar.

Part No.

Connection 6 mm - 1/4" for PE/PTFE tubing 6 x 4mm

914559

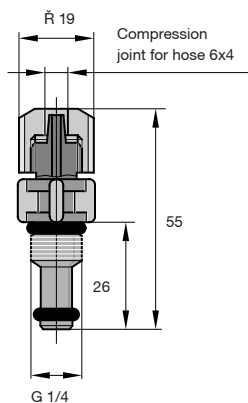
#### INJECTION VALVE PVC, O-RING LOADED

Valve body of PVC, seals of Viton, response pressure approx. 0.5 bar.

Part No.

Connection 6 mm - 1/4" (long) for PE/PTFE tubing 6 x 4 (Fig 1016/4)

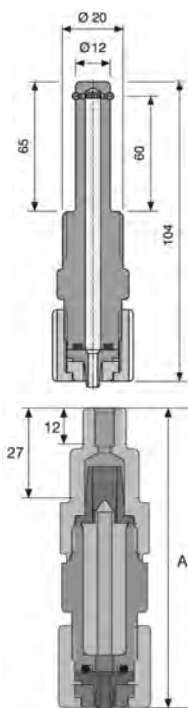
915091



#### PTFE INJECTION VALVES O-RING, LOADED

PTFE housing, FPM (Viton) seals.

Connection	oR̄ x iR̄ mm	A mm	Part No.
6/4 – for PE/PTFE line	6 x 4	104	809484
8/5 – for PE/PTFE line	8 x 5	104	809485
10/4 – for PE/PTFE line	10 x 4	104	1002925
12/6 – for PVC hose	12 x 6	104	809487
12/9 – for PE/PTFE line	12 x 9	104	809486



#### LIP SEAL INJECTION VALVE PCB

Body PVC, seals FPM, inlet pressure approx. 0.05 bar. For dosing sodium hypochlorite in conjunction with peristaltic pumps DF2a

Connection	oR̄ x iR̄ mm	A mm	Part No.
6/4 – R 1/2 - 1/4 for PE/PTFE	6 x 4	90	1019953



### 3.3 Accessories - Beta/gamma/Delta/Concept & Pneumados

#### 3.3.2 gamma Injection Valves

##### INJECTION VALVE PVT

PVDF housing, PTFE seals, with non-return valve, spring-loaded with Hastalloy C spring, priming pressure approx. 0.5 bar with extended threaded connection.

Connection	Ø	A	Part No.
6/3 mm * 1/2" for PTFE pipe	6 x 3	120	1024713
6 mm - 1/2" for PE/PTFE pipe	6 x 4	120	1024708
8 mm - 1/2" for PE/PTFE pipe	8 x 5	120	1024710
12 mm - 1/2" for PE/PTFE tubing	12 x 9	120	1024711
10/4 mm * 1/2" for PVC hose	10 x 4	120	1024709
12/6 mm * 1/2" for PVC hose	12 x 6	120	

\* Not Stocked

##### INJECTION VALVE PTFE

For vertical installation from below, without spring, with ball check. Valve spring can be retrofitted. Body and seals of PTFE.

Connection	Ø	A	Part No.
6 mm - 1/2" for PE/PTFE tubing	6 x 4	98 (fig.1)	809488
8 mm - 1/2" for PE/PTFE tubing	8 x 5	98 (fig.1)	809479
12 mm - 1/2" for PE/PTFE tubing	12 x 9	101 (fig.1)	809481

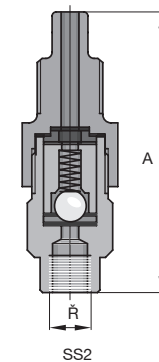
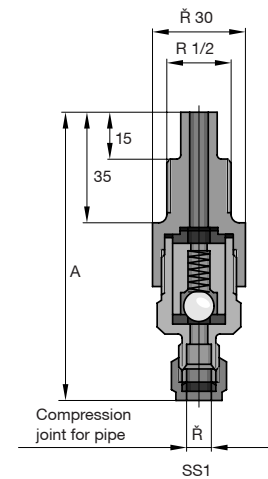
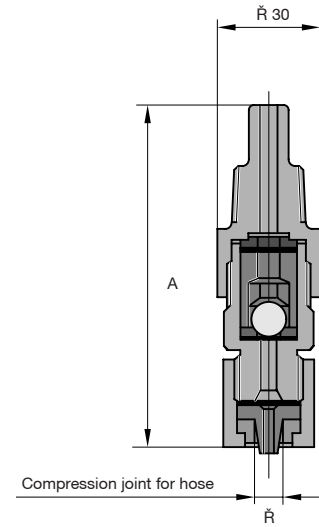
##### INJECTION VALVE STAINLESS STEEL

Body of 1.4404, seals of PTFE with spring-loaded ball check. Hastel. C spring with 0.5 bar response pressure; for connection 1/4" stainless steel spring 1.4571 and response pressure approx. 1 bar.

For connection of PE/PTFE tubing a ferrule is required.

SS1	Ø	A	Part No.
6 mm - 1/2" for pipe	6 x 5	93	809489
8 mm - 1/2" for pipe	8 x 7	93	809482
12 mm - 1/2" for pipe	12 x 10	93	809483

SS2	Ø	A	Part No.
1/4"NPT - 1/2" for pipe	12 x 10	93	924597



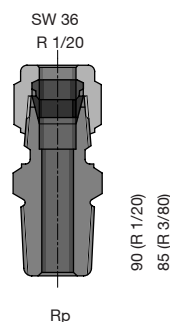
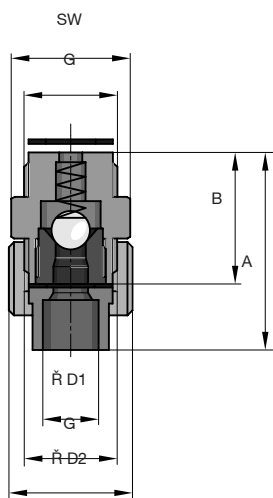
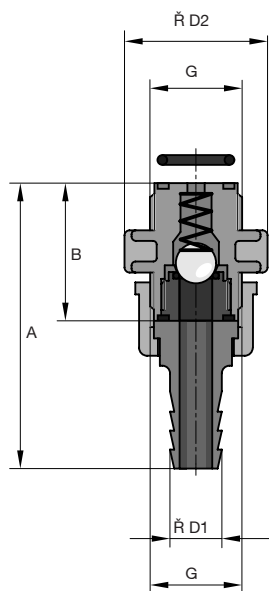


### 3.4 Accessories Sigma/Vario/Meta/Makro TZ

#### 3.4.1 Injection Valves

For the connection of the pump metering line to the point of injection. The injection valves are equipped with ball check and a Hastelloy C spring (0.5 bar response pressure) and can be installed in any position. They are used for creating pressure and preventing return flow. The same materials are used as for the liquid ends. Union nuts and union ends are part of the standard delivery package.

**Caution:** Injection valves are not suitable as absolutely leakproof isolating elements.



#### INJECTION VALVE, PVC

Valve body of PVC, seals of Viton, with ball check, spring-loaded, response pressure approx. 0.5 bar

	G	BSPTM x solvent weld	B	Ø D2	Part No.
● DN 10	3/4"	1/2" x 15mm	51	40	P809460
● DN 15	1"	3/4" x 20mm	56	47	P924520
● DN 20	1 1/4"	1" x 25mm	67	55	P803712
● DN 25	1 1/2"	1" x 25mm	73	60	P803713
● DN 32 PVT	2"	1-1/2" x 32mm female	73	60	P1002783
● DN40	2 1/4"	2" x 32mm			P804760
BSPTM x BSPT Male or female					
● DN 10	3/4"	1/2" x 1/2" BSPTM	51	40	P809460B
● DN 15	1"	3/4" x 3/4" BSPTM	56	47	P924520B
● DN 20	1 1/4"	1" x 1" BSPTM	67	55	P803712B
● DN 25	1 1/2"	1" x 1" BSPTM	73	60	P803713B
● DN 32 PVT	2"	1-1/2" x 1-1/2" BSPF	73	60	P1002783B
● DN40	2 1/4"	2" x 1-1/2" BSPTM			P804760B
BSPTM x Hosetail					
● DN 10	3/4"	1/2" x 16 mm	51	40	P809460H
● DN 15	1"	3/4" x 20 mm	56	47	P924520H
● DN 20	1 1/4"	1" x 25 mm	67	55	P803712H
● DN 25	1 1/2"	1" x 25 mm	73	60	P803713H
● DN 32 PVT	2"	1-1/2" x 40 mm	73	60	P1002783H
● DN40	2 1/4"	2" x 40 mm			P804760H

#### INJECTION VALVE, PVDF

Valve body of PVDF, seals of PTFE, with ball check, spring-loaded, response pressure approx. 0.5 bar.

ALL are supplied Male/Male BSP

	G	BSPM x BSPM	B	Ø D2	Part No.
● DN 10		1/2" BSPTM			PA07002486
● DN 15		3/4" BSPTM			PA07002487
● DN 20		1"	55	46	PA07002488
● DN 25		1"	60	50	PA07002489
● DN 32		1-1/2"	85	75	PA07002490

Note: DN32 valve has Hastalloy-C Disc and Spring

#### INJECTION VALVE, STAINLESS STEEL

Valve body of stainless steel 1.4404, seals of PTFE, ball check, spring-loaded (1.4571/1.4581), response pressure approx. 0.5 bar

	G1	BSPF x BSPF	B	Ø D	Part No.
● DN 10		3/8" BSPF inlet & outlet			P809463
● DN 15		1/2" BSPF inlet & outlet			P924523
● DN 20		3/4" x 3/4" BSPF	56	56	P803716
● DN 25		1" x 1" BSPF	60	59	P803717
● DN 32		1-1/4" x 1-1/4" BSPF	60	59	P1002801
● DN 40		1-1/2" x 1-1/2" BSPF	85	90	P804763

#### INJECTION VALVE DN 10 FOR META/MAKRO TZ-HK

Valve body and valve spring of 1.4571 s/s, ball of 1.4401 s/s, seals of PTFE, response pressure approx. 0.1 bar

Connection 1/4" x 1/2" BSP	803732
Connection 3/8" x 1/2" BSP	803733



### 3.5 Accessories Beta/gamma/Delta & Pneumados

#### 3.5.1 Back Pressure Valves S Series

##### TYPE DHV-S-DL BACK PRESSURE VALVE/RELIEF VALVE

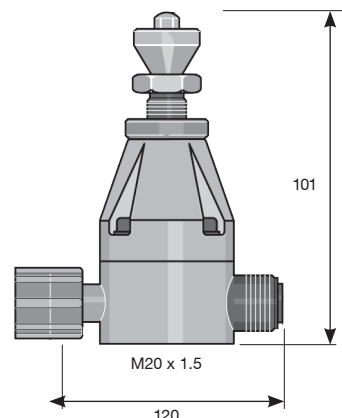
ADJUSTABLE 1-10 BAR, 6-12 MM

Adjustable back pressure valve for installation in the discharge line to generate a constant back pressure for precise delivery when injecting into an open outlet with an inlet pressure on the suction side, a fluctuating back pressure or into a vacuum.

Application is the same as for the safety pressure relief valve.

When used as a back pressure valve in long lines to avoid resonance vibration, it should be mounted on the end of the injection line or the set pressure should be greater than the line pressure loss.

Use in conjunction with a pulsation dampener only where there is an open outlet and short injection line.

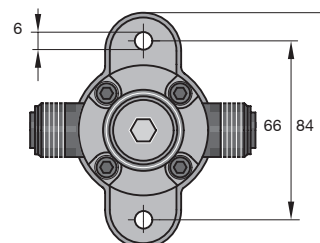
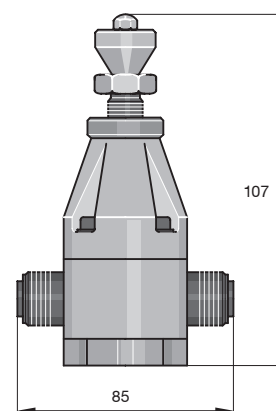


**CAUTION:** Back pressure valves are not designed for use as completely-sealing, isolating elements!

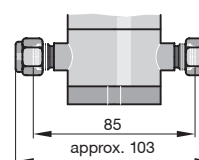
**APPLICATION:** Beta, Gamma, Concept, Pneumados, Delta, EXtronic, electronic metering pumps.

				Part No.
DHV-S-DL	1-10 bar	PP	6 x 4mm	P6-302323
DHV-S-DL	1-10 bar	PP	8 x 5mm	P8-302323
DHV-S-DL	1-10 bar	PP	12 x 9mm	P12-302323
DHV-S-DL	1-10 bar	PVC	6 x 4mm	P6-302324
DHV-S-DL	1-10 bar	PVC	8 x 5mm	P8-302324
DHV-S-DL	1-10 bar	PVC	12 x 9mm	P12-302324
DHV-S-DL	1-10 bar	TT	6 x 4mm	P6-302325
DHV-S-DL	1-10 bar	TT	8 x 5mm	P8-302325
DHV-S-DL	1-10 bar	TT	12 x 9mm	P12-302325
DHV-S-DL	1-10 bar	SS	6mm O.D.	302326
DHV-S-DL	1-10 bar	SS	8mm O.D.	302327
DHV-S-DL	1-10 bar	SS	12mm O.D.	302328

PP, PC, TT version



SS version



##### PIPE NIPPLE, 316 S.S., 40MM LONG

For connecting to the liquid end use back pressure valve DHV-S-DL of stainless steel in conjunction with an appropriate pipe nipple.

	Part No.
6mm O.D.	818537
8mm O.D.	818538
12mm O.D.	818539

##### TUBING - 316 STAINLESS STEEL

	Part No.
6mm O.D.	015738
8mm O.D.	015740
12mm O.D.	015743



### 3.6 Accessories - Adjustable Relief Valves

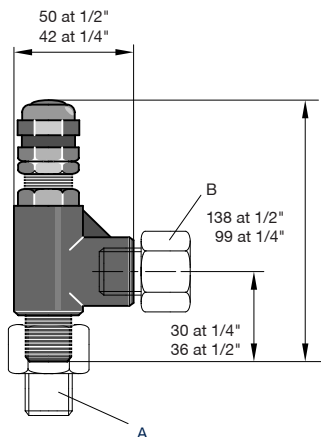
#### 3.6.1 Adjustable Relief Valves

##### ADJUSTABLE RELIEF VALVE, 1/4" NPT

For use as safety relief valve and as back pressure valve.

**Housing:** Stainless steel 316/Viton

**Connection:** 1/4" NPT female and male thread



**Part No.**

**202505**

Relief valve without spring, can be ordered separately.

##### Adjustment range in bar

Spring	Bar	Colour:	Part No.
3.4	- 24 bar	BLUE	202519
24	- 52 bar	YELLOW	202520
52	- 103 bar	VIOLET	202525
103	- 155 bar	ORANGE	202524
155	- 207 bar	BROWN	202523
207	- 276 bar	WHITE	202522
276	- 345 bar	RED	202521

\*A & B Adaptor nipples to be ordered separately

##### ADAPTOR NIPPLE

1/4" NPT female thread - 1/4" male thread (A)

**359378**

1/4" NPT male thread - 1/4" female thread (B)

**359379**

**Note:** 1/2" NPT size available

**Note:** For Piston/Plunger Pumps - Take care with capacity.



## 3.7 Accessories - Motor Driven Dosing Pumps

### 3.7.1 Back Pressure Valves or Relief Valves

Back pressure valves of the DHV-U series can be used universally and are back-pressure free piston diaphragm valves with an internal flow. They can be used to generate a constant back pressure, used as relief valves and be assembled anywhere in the pipework system.

Back pressure valves act to generate a constant back pressure for precise chemical feed, and/or to protect against overdosing with a free outlet, fluctuating back pressure or to dose into a vacuum. They can also be used in conjunction with pulsation dampers for low pulsation metering.

Relief valves are installed in the bypass to protect pumps, pipework and fittings from excess pressure as a result of operational errors or blockages. In the event of a malfunction, the pump conveys in a loop or back into the storage tank.

**Important:** Back pressure valves cannot be used as absolutely leak-tight shut-off devices. All relevant safety precautions must be taken when using with hazardous chemicals.

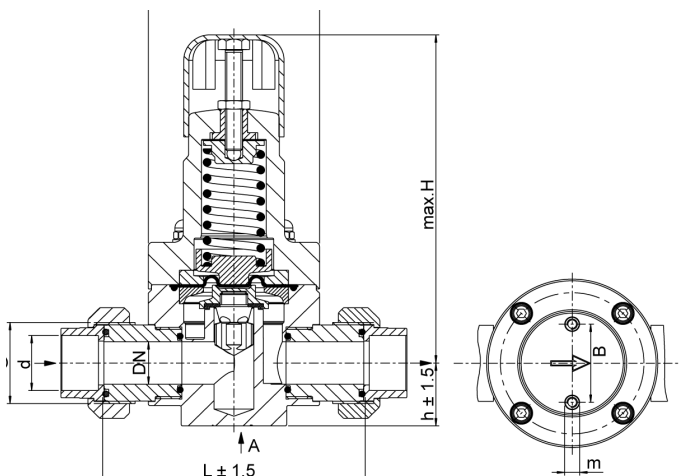
**Important:** Appropriate safety measures should be implemented when used as relief valves in conjunction with agglutinative media (e. g. milk of lime), (for instance flushing after activation).

#### Back Pressure Valve / Relief Valve Type DHV-U

- **Adjustable pressure** 0.5 – 10 bar
- **Areas of application of PPE / PPB / PCE / PCB** 20 °C - maximum operating pressure 10 bar
- **Area of application of PVDF** 30 °C - maximum operating pressure 10 bar

#### DHV-U

DN	G	L	H	h	D	m	B	d
10	3/4"	118	144	24	79	M6	40	16
15	1"	118	144	24	79	M6	40	20
20	1-1/4"	150	196	37	99	M6	46	25
25	1-1/2"	150	196	37	99	M6	46	32
32	2"	205	260	59	147	M8		
40	2-1/4"	205	260	59	147	M8		



#### Materials

Version	Housing/ Connectors	Plungers	Plunger Seal	Seal Connectors
PPE	PP	PVDF	EPDM	EPDM
PCB	PVC	PVDF	FKM	FKM
PVT	PVDF	PVDF	PVDF	FKM

#### Back Pressure Valve and Relief valve

##### Suit ProMinent® Sigma/ 1 Dosing Pump

- DN 10 valve = 1/2" BSP M/M, S/W or ● DN 15 valve = 3/4" BSP M/M

##### Suit ProMinent® Sigma/ 2 & small Sigma/ 3 Dosing Pump

- DN 15 valve = 3/4" BSP M/M, S/W or ○ DN 20 valve = 1" BSP M/M

##### Suit ProMinent® Sigma/ 3 Dosing Pump

- DN 15 valve = 3/4" BSP M/M, S/W or ○ DN 20 valve = 1" BSP M/M
- DN 25 valve = 1" BSP M/M or ● DN 32 valve = 1-1/2" BSP M/M

##### Suit ProMinent® Sigma/ 3 & Makro Dosing Pump

- DN 25 valve = 1" BSP M/M, S/W or ● DN 32 valve = 1-1/2" BSP M/M
- DN 40 valve = 1-1/2" BSP M/M  
= 2-1/4" BSP M/M for S/S

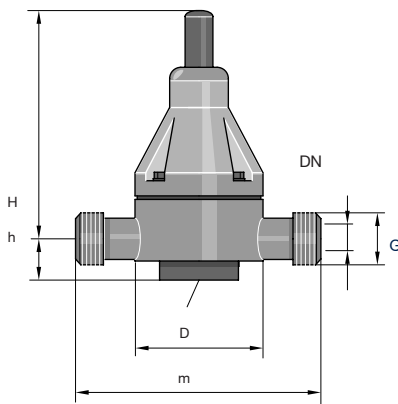


### 3.7 Accessories - Motor Driven Dosing Pumps

#### 3.7.1 Back Pressure Valves or Relief Valves



DHV-U



DHV-712R

						Part No.
●	DHV- U	0.5 - 10 bar	G 3/4"	DN 10	• PPE	P1037285
●	DHV- U	0.5 - 10 bar	G 1"	DN 15	• PPE	P1036816
●	DHV- U	0.5 - 10 bar	G 1-1/4"	DN 20	• PPE	P1037284
●	DHV- U	0.5 - 10 bar	G 1-1/2"	DN 25	• PPE	P1036633
●	DHV- U	0.5 - 10 bar	G 2"	DN 32	• PPE	P1051517
●	DHV- U	0.5 - 10 bar	G 2-1/4"	DN 40	• PPE	P1051518

●	DHV- U	0.5 - 10 bar	G 3/4"	DN 10	• PCE	P1038144
●	DHV- U	0.5 - 10 bar	G 1"	DN 15	• PCE	P1038146
●	DHV- U	0.5 - 10 bar	G 1-1/4"	DN 20	• PCE	P1038148
●	DHV- U	0.5 - 10 bar	G 1-1/2"	DN 25	• PCE	P1038150

**PVC valves complete with Male/Male Solvent Weld fittings**

●	DHV- U	0.5 - 10 bar	G 3/4"	DN 10	PCB	P1037765
●	DHV- U	0.5 - 10 bar	G 1"	DN 15	PCB	P1037764
●	DHV- U	0.5 - 10 bar	G 1-1/4"	DN 20	PCB	P1037775
●	DHV- U	0.5 - 10 bar	G 1-1/2"	DN 25	PCB	P1037774
●	DHV- U	0.5 - 10 bar	G 2"	DN 32	PCB	P1051520
●	DHV- U	0.5 - 10 bar	G 2-1/4"	DN 40	PCB	P1051519

**PVC valves complete with Male/Male BSPT fittings**

●	DHV- U	0.5 - 10 bar	G 3/4"	DN 10	PCB	P1037765B
●	DHV- U	0.5 - 10 bar	G 1"	DN 15	PCB	P1037764B
●	DHV- U	0.5 - 10 bar	G 1-1/4"	DN 20	PCB	P1037775B
●	DHV- U	0.5 - 10 bar	G 1-1/2"	DN 25	PCB	P1037774B
●	DHV- U	0.5 - 10 bar	G 2"	DN 32	PCB	P1051519B

**PVC valves complete with Male/Male Hose Tail fittings**

●	DHV- U	0.5 - 10 bar	G 3/4"	DN 10	PCB	P1037765H
●	DHV- U	0.5 - 10 bar	G 1"	DN 15	PCB	P1037764H
●	DHV- U	0.5 - 10 bar	G 1-1/4"	DN 20	PCB	P1037775H
●	DHV- U	0.5 - 10 bar	G 1-1/2"	DN 25	PCB	P1037774H
●	DHV- U	0.5 - 10 bar	G 2"	DN 32	PCB	P1051519H

●	DHV- U	0.5 - 10 bar	G 3/4"	DN 10	• PVT	P1037767
●	DHV- U	0.5 - 10 bar	G 1"	DN 15	• PVT	P1037766
●	DHV- U	0.5 - 10 bar	G 1-1/4"	DN 20	• PVT	P1037777
●	DHV- U	0.5 - 10 bar	G 1-1/2"	DN 25	• PVT	P1037776
●	DHV- U	0.5 - 10 bar	G 2"	DN 32	• PVT	P1051503
●	DHV- U	0.5 - 10 bar	G 2-1/4"	DN 40	• PVT	P1051502

●	DHV- 712R	0.5 - 10 bar	G 3/4"	DN 10	• TTT	P1000059
●	DHV- 712R	0.5 - 10 bar	G 1"	DN 15	• TTT	P1000060
●	DHV- 712R	0.5 - 10 bar	G 1-1/4"	DN 20	• TTT	P1000061
●	DHV- 712R	0.5 - 10 bar	G 1-1/2"	DN 25	• TTT	P1000062
●	DHV- 712R	0.5 - 10 bar	G 2"	DN 32	• TTT	P1000063
●	DHV- 712R	0.5 - 10 bar	G 2-1/4"	DN 40	• TTT	P1000064

●	DHV- U	0.5 - 10 bar	G 3/4"	DN 10	• SST	P1043194
●	DHV- U	0.5 - 10 bar	G 1"	DN 15	• SST	P1043193
●	DHV- U	0.5 - 10 bar	G 1-1/4"	DN 20	• SST	P1043192
●	DHV- U	0.5 - 10 bar	G 1-1/2"	DN 25	• SST	P1043191
●	DHV- U	0.5 - 10 bar	G 2"	DN 32	• SST	P1051516
●	DHV- U	0.5 - 10 bar	G 2-1/4"	DN 40	• SST	P1051515

• This item not stocked - order on PDT

**Note:** Valves should normally be set to the desired back pressure on site after installation. However if you require them to be pre-set prior to dispatch then there would be an additional charge.



### 3.8 Accessories - Multifunction Valves

#### 3.8.1 Multifunction valve Type MFV-DK

##### Multifunction valve Type MFV-DK

ProMinent® multifunction valve mounted directly on the liquid end of the pump with the functions:

- Backpressure valve, opening pressure approx. 1.5 bar
- Relief valve, opening pressure approx. 10 or 16 bar
- Priming aid when backpressure applied, no need to releasedelivery line
- Pressure relief in delivery line, e.g. before servicing work

The ProMinent® multifunction valve is operated by means of smooth-action rotary knobs which automatically return to their initial position when released. This feature ensures safe and reliable operation even under difficult access conditions. The ProMinent® multifunction valve is made of the material PVDF and can be used in feed systems for virtually all chemicals.

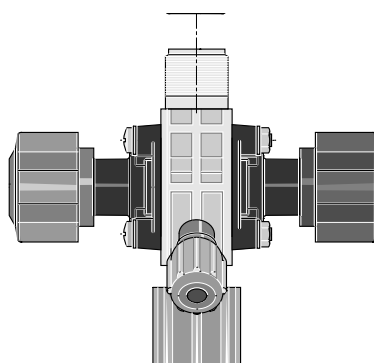
**Caution:** Back pressure valves are not absolutely leakproof isolating elements!

Materials in contact with media

Valve body - PVDF; Diaphragm - PTFE coated;

Seals - Viton or EPDM; DN10 adaptor - PVC

Type	Overflow Opening Pressure	Bypass Size	Connection	Part No.
Size I	16 bar	6x4	6 - 12 mm	<b>P792011</b>
Size I	10 bar	6x4	6 - 12 mm	<b>P791715</b>
Size I	6 bar	6x4	6 - 12 mm	<b>P1005745</b>
Size II	10 bar	12x9	6 - 12 mm	<b>P792203</b>
Size II	6 bar	12x9	6 - 12 mm	<b>P740427</b>
Size III	10 bar	12x9	DN10	<b>P792215</b>



##### ALSO AVAILABLE

Size I	8-10 bar	6x4	6 - 12 mm	<b>P791715C</b>
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**Note:** this unit is made by prominent China BUT has German diaphragms

##### Applications

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

**Note** For material design PP, PV, P, TT

**Note:** Valve Pre-Pack is supplied with 2m PVC clear tube, for return to tank.



##### MFV WITH BYPASS PLUGGED WITH TEFLON SOCKET

Use this as an alternative injection valve for aggressive media as it has no spring in contact with the chemical.

Size I	1.5 bar	6x4	6 x 4 mm	Part No.
Size I	1.5 bar	6x4	8 x 5 mm	<b>P1027652-6</b>
Size I	1.5 bar	6x4	8 x 5 mm	<b>P1027652-8</b>



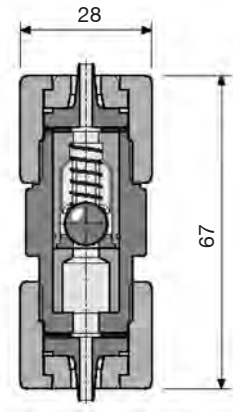
### 3.9 Accessories Beta/gamma/Delta & Pneumados

#### 3.9.1 Anti-Return Valves & Injection Valve Assembly

##### PVDF NON-RETURN VALVE, FOR INLINE MOUNTING

With dual-end connector set, for installation inline (tube), valve body of PVDF seals of PTFE, with ball check, spring-loaded with Hastelloy C spring, response pressure approx. 0.5 bar.

By using different connector sets, different tube sizes from 6 - 12 mm can be connected with each other.

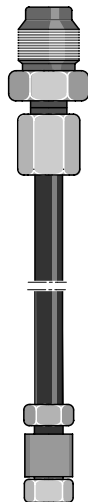


##### Applications when using appropriate tubing

25° C - max. operating pressure 16 bar

45° C - max. operating pressure 12 bar

			OD x ID	A	Part No.
Connection	6 mm	for PE/PTFE tubing	6 x 4	67	1030463
Connection	8 mm	for PE/PTFE tubing	8 x 5	67	1030975
Connection	12 mm	for PE/PTFE tubing	12 x 9	67	1030976



##### DOSING CONNECTOR FOR HOT WATER UP TO 200 °C

##### Injection valve assembly for hot water up to 200°C

Comprising injection valve of stainless steel 1.4404, 1 m stainless steel 1.4571 discharge line and adaptor unions with ferrule to connect PE/PTFE tubing with stainless steel pipe.

		Part No.
Hot water connection	6 mm - 1/4"	913166
Hot water connection	6 mm - 1/2"	913167
Hot water connection	8 mm - 1/2"	913177
Hot water connection	12 mm - 1/2"	913188



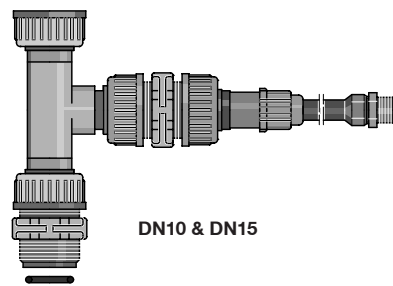
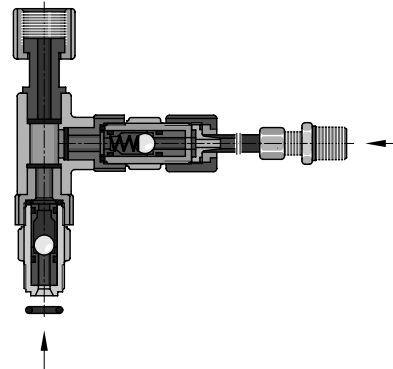
### 3.10 Accessories - Flushing Device & Rigid Suction Assemblies

#### 3.10.1 Flushing Devices

##### FLUSHING DEVICE, PVC

For flushing and cleaning the liquid end, discharge line and injection valve and for protection against deposits.

	Part No.
for 6, 8, and 12 mm connector	809925
for DN 10 connector	809926
for DN 15 connector	803960
for DN 20 connector	809361
for DN 25 connector	809362



##### Rigid Suction Assemblies

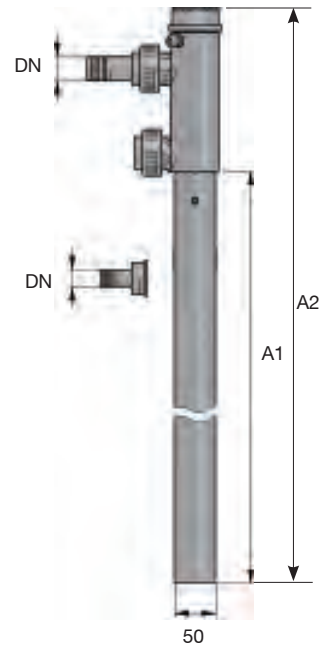
Suction lances for motor-driven metering pumps. Universal PVC suction lances with float switch in protective tube  $\bar{R}$  50 incorporating foot/check valve (not detachable), hydraulic connector with PVC hose nozzles. DN 10/15: fitted with ball check valve (borosilicate glass ball, FPM seals), DN 20/25; DN 32 fitted with FPM flutter valve.

###### FPM Seals

	Size	Float switch	Contact	A1	A2	Part No.
	DN 10/15	2-stage 3 m lead	3 pin round plug	1000	1100	P1037748
	DN 20/25	2-stage 3 m lead	3 pin round plug	1000	1100	P1037750
	DN 32	2-stage 3 m lead	3 pin round plug	1000	1100	P1037752

###### EPDM Seals \*\*\* Not Stocked

	Size	Float switch	Contact	A1	A2	Part No.
	DN 10/15	2-stage 3 m lead	3 pin round plug	1000	1100	P1037749
	DN 20/25	2-stage 3 m lead	3 pin round plug	1000	1100	P1037751
	DN 32	2-stage 3 m lead	3 pin round plug	1000	1100	P1037753





## 3.11 Accessories - Float Switches for Solenoid Driven Pumps

### 3.11.1 Concept Float Switches

#### SINGLE-STAGE FLOAT SWITCH

For minimum level indication with simultaneous shutdown of the metering pump, with or without a flat connector.

**Technical data:**

Max. switching voltage 60 V, switching current 0.3 A

Making/breaking capacity 5 W/5 VA

Temperature range -25 °C to 75 °C, enclosure rating IP 67

**Materials:**

Body PVC, 21 dia. foamed PP float, PE cable

Body PVDF also available



	<b>Part No.</b>
PVC 2m Cable, with Flat Plug	<b>142056</b>
PVC 5m Cable, with Flat Plug	<b>142058</b>
PVC 2m Cable, No Plug	<b>142062</b>
PVC 5m Cable, No Plug	<b>142064</b>
PVDF 5m Cable, No Plug	<b>142068</b>



## 3.12 Accessories for Solenoid Driven Pumps

### 3.12.1 Float Switches & Ceramic Weight

#### TWO-STAGE FLOAT SWITCH

For monitoring the level in a batching tank, two-stage with early alarm. Stops the metering pump if the level drops a further 30 mm.

Fitted with 3-pole round plug for direct connection to Beta® and GALA®.

**Technical data:**

Max. switching voltage 100V, switching current 0.5 A, switch power 5 W/5 VA.

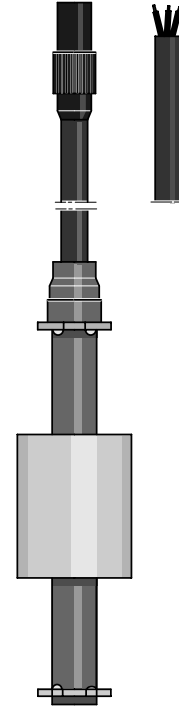
Temperature range -10°C to 65°C, enclosure rating IP 67.

**Switching mode: 2 x N/C for low liquid levels.**

**Materials:**

Body of PVDF, 25 dia. float of PVDF, PE cable

			Part No.
PVDF with 3-pole round plug	Cable Length	2 m	1034697
PVDF with 3-pole round plug	Cable Length	5 m	1034698
PVDF with 3 cores	Cable Length	2 m	1034699
PVDF with 3 cores	Cable Length	5 m	1034700
Float only			790585
Circlip			790593



#### DO NOT FORGET Z CLIP

		Part No.
<b>Z-Clip, PP,</b>	For two-stage float switch & 6 x 4, 8 x 5 & 12 x 9 foot valves	800692
<b>Z-Clip, PVC,</b>	For two-stage float switch & 6 x 4, 8 x 5 & 12 x 9 foot valves	800573



#### CERAMIC WEIGHT FOR VERTICAL LOCATION OF FLOAT SWITCH

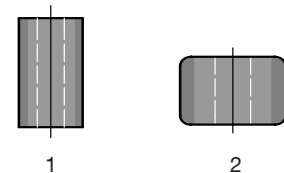
**Size 1** Dia 25 x 50, 40g with 10 dia. opening

to suit round plug and jack plug. **1019244**

**Size 2** Dia 39 x 32, 65g with elongated 13 x 27 opening

for round plug and flat connector type. **404008**

For the two-stage float switch with a round plug the weight is slid into place from below after removal of the float.



### 3.13 Accessories - gamma/Sigma Metering Monitors

#### 3.13.1 Accessories - gamma and Sigma Metering Monitors

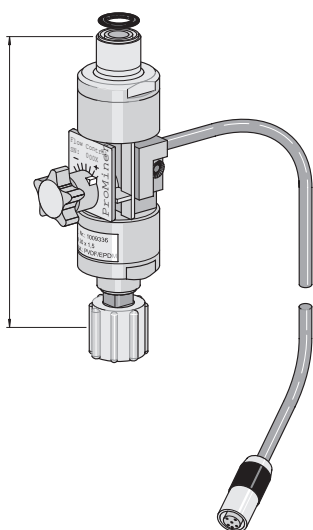
##### ADJUSTABLE FLOW CONTROL MONITOR

Suitable for gamma/L series in material versions PP, PC, NP and TT. Supplied with connection cable for assembly directly to liquid end.

Monitors individual strokes according to the float and orifice principle. The partial quantity of chemical flowing past the float is adapted to the preset stroke volume via the adjusting screw so that an alarm is actuated if the flow falls below 20 %. The user can select the number of incomplete strokes permitted (between 1 and 127) in accordance with the actual process requirements.

##### Materials

**Flow meter:** PVDF  
**Float:** PTFE-coated  
**Seals:** Viton® B/EPDM



Flow Control	Material	for pump type	Part no.
Size I	PVDF/EPDM	1000, 1601, 1602	<b>1009229</b>
Size II	PVDF/EPDM	1005, 1605, 0708, 1008, 0413, 0713, 0220, 0420, 0232	<b>1009336</b>
Size I	PVDF/Viton® B	1000, 1601, 1602	<b>1009335</b>
Size II	PVDF/Viton® B	1005, 1605, 0708, 1008, 0413, 0713, 0220, 0420, 0232	<b>1009338</b>

Suitable for Sigma/ 1 / 2 / 3 series in PVT & SS material versions. Supplied with connection cable for assembly directly to liquid end.

Monitors individual strokes according to the float and orifice principle. The partial quantity of chemical flowing past the float is adapted to the preset stroke volume via the adjusting screw so that an alarm is actuated if the flow falls below 20 %. The admissible number of incomplete strokes can be set at the Sigma Control (S1Ca/S2Ca/S3Ca) to between 1 and 127 to allow optimum adjustment to the process requirements.

			Part No.
● Size III - DN 10	PVDF/EPDM	Sigma/1 12017, 10022, 12035 10044, 10050, 07065	<b>1021168</b>
● Size III - DN 10	PVDF/Viton® B	Sigma/1 12017, 10022, 12035 10044, 10050, 07065	<b>1021169</b>
● Size III - DN 15	PVDF/EPDM	Sigma/1 07042, 07084, 04120 Sigma/2 12050, 12090, 12130	<b>1021170</b>
● Size III - DN 15	PVDF/Viton® B	Sigma/1 07042, 07084, 04120 Sigma/2 12050, 12090, 12130	<b>1021171</b>
● Size IV	PVDF/EPDM	Sigma/2 07120, 07220, 04350 Sigma/3 120145, 12190, 12270	<b>1021164</b>
● Size IV	PVDF/Viton® B	Sigma/2 07120, 07220, 04350 Sigma/3 120145, 12190, 12270	<b>1021165</b>
● Size V	PVDF/EPDM	Sigma/3 07410, 07580, 04830	<b>1021166</b>
● Size V	PVDF/Viton® B	Sigma/3 07410, 07580, 04830	<b>1021167</b>

**Note:** When using the above with Delta Pumps these can be mounted on the suction side of pump if using slow discharge. Additional adaptors may be required.

##### NOTE: FOR DE-GASSING LIQUID ENDS USE KITS AS BELOW.

For GALA degassing heads use wall mounting kit	Part No.
For PVC	<b>PA55002429</b>
For P.P.	<b>PA55002430</b>

**Note:** Mounting kit suitable for multi-function valve as well as metering monitor  
**ADD RELAY to PUMP for an EXTERNAL ALARM**

**Note:** See also GREEN PAGE Catalogue for LOCAL Flow Switches



### 3.14 Accessories Beta/gamma/Delta & Sigma

#### 3.14.1 Flow Control Monitor, Control Cables, Profibus Cables

##### UNIVERSAL CONTROL CABLE

For Beta 4, Beta 5, gamma/ L, DELTA, mikro g/ 5 and Sigma with 5-pole plastic round connector and 5-wire cable with open end.  
 For pacing a metering pump through contacts - external pacing, standard signals - analogue pacing and for voltage-free remote on/off control.

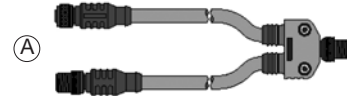
	Part No.
Universal control cable, 5-pole round connector, 5-wire, 2 m	1001300
Universal control cable, 5-pole round connector, 5-wire, 5 m	1001301
Universal control cable, 5-pole round connector, 5-wire, 10 m	1001302



##### PROFIBUS ADAPTOR, ENCLOSURE RATING IP65

eurofast 5-pin M12 male to M12 Female, length approx 500 mm.

	Part No.
<b>A: PROFIBUS<sup>®</sup> Y-adaptor 2 x M12 x 1 male/female to M12 male</b>	1040956



	Part No.
<b>B: PROFIBUS<sup>®</sup> Y-adaptor</b>	1036621

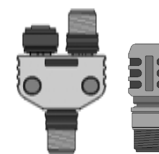


	Part No.
<b>C: PROFIBUS<sup>®</sup> termination resistance, plug-in</b>	1036622



	Part No.
<b>PROFIBUS<sup>®</sup> Terminating Assembly, comprising;</b>	1040955

1 off Y-adaptor and 1 off termination resistance. (B) + (C)



PN: 1040955

##### GAMMA/ XL I/O CABLE

Cable with round plug for configurable inputs and outputs for the control of the process timer or for additional alarm messages.

	Lead length	Part No.
Control cable for configurable inputs and outputs, 4-wire	2 m	1094091
Control cable for configurable inputs and outputs, 4-wire	5 m	1094093



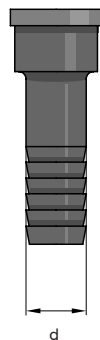
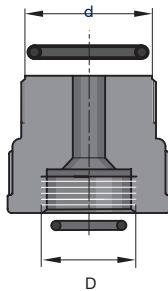
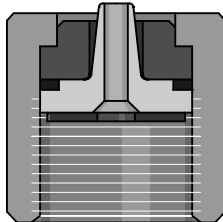
## 3.15 Accessories - Mechanical/Hydraulic Pumps

### 3.15.1 Connectors & Fittings

#### CONNECTOR SET

Connector set for connecting hoses of different sizes to suction and discharge connectors on the liquid end of Beta, gamma, Delta, EXtronic, CONCEPT, Pneumados, D4a and accessories. The set consists of 2 of each, hose sleeve, grip ring, union nut and seal.

One connector set is required for the metering pump.



#### Connector set (Pair)

			Part No.
PP/EPDM	for hose	6 x 4 mm	817150
PP/EPDM	for hose	8 x 5 mm	817153
PP/EPDM	for hose	12 x 9 mm	817151
PP/EPDM	for hose	12 x 6 mm	817152
PVC/Ition	for hose	6 x 4 mm	817050
PVC/Ition	for hose	8 x 5 mm	817053
PVC/Ition	for hose	12 x 9 mm	817051
PVC/Ition	for hose	12 x 6 mm	817052
PVDF (PVT)	for hose	6 x 4 mm	1023246
PVDF (PVT)	for hose	8 x 5 mm	1023247
PVDF (PVT)	for hose	12 x 9 mm	1023248
PTFE	for hose	6 x 4 mm	817201
PTFE	for hose	8 x 5 mm	817204
PTFE	for hose	12 x 9 mm	817202

#### Connector set (Single)

			Part No.
PVC/Ition	for hose	6 x 4 mm	817065
PVC/Ition	for hose	8 x 5 mm	817066
PVC/Ition	for hose	12 x 9 mm	817067
PVDF (PVT)	for hose	6 x 4 mm	1024619
PVDF (PVT)	for hose	8 x 4 mm	1033148
PVDF (PVT)	for hose	8 x 5 mm	1024620
PVDF (PVT)	for hose	12 x 9 mm	1024618
PVC/Ition	for hose	10 x 4 mm	1002589
PVC/Ition	for hose	12 x 6 mm	817068

Adaptor for connecting from connectors on system + GF + to liquid end and accessories.

		Part No.
PP for connector	DN 8 with external thread 5/8" M 20 x 1.5 (Fig.)	817164
PP for connector	DN 10 with external thread 3/4" M 20 x 1.5	817165
PVC for connector	DN 8 with external thread 5/8" M 20 x 1.5 (Fig.)	817069
PVC for connector	DN 10 with external thread 3/4" M 20 x 1.5	817099

#### Fittings

		Part No.
● pressure hose tail	PVC d 16 - DN 10	800554
● pressure hose tail	PVDF d 16 - DN 10	1002288



	Part No.
PVC Adaptor 15mm Rigid PVC to 20 x 1.5 Female Union Nut	PA27022382



## 3.15 Accessories - Mechanical/Hydraulic Pumps

### 3.15.1 Connectors & Fittings

#### STRAIGHT MALE ADAPTER, STAINLESS STEEL

Swagelok system, SS 316 (1.4401) stainless steel for connecting pipes to internally-threaded suction heads and valves and for SB type.

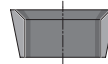
	Part No.
6 mm - 1/4" ISO	359526
8 mm - 1/4" ISO	359527
12 mm - 1/4" ISO	359528
12 mm - 3/8" ISO	359520
16 mm - 3/8" ISO	359521
16 mm - 1/2" ISO	359529



#### GRIP RING SET, STAINLESS STEEL

For use with stainless steel connectors of metering pumps and accessories using the Swagelok system. The rings must always be changed in pairs. A ring set consists of a front and rear grip ring.

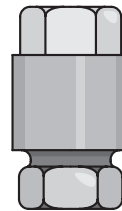
	Part No.
Ring set 6 dia. for tubing 6 mm o.d.	104232
Ring set 8 dia. for tubing 8 mm o.d.	104236
Ring set 12 dia. for tubing 12 mm o.d.	104244



#### STRAIGHT CONNECTOR, STAINLESS STEEL

Serto system for connecting a PE or PTFE injection line to stainless steel tubing, made of stainless steel with a grip ring but no support sleeve (components in contact with the medium stainless steel 1.4571).

	Part No.
6 mm o.d. to 6 mm o.d. stainless steel tubing	359317
8 mm o.d. to 8 mm o.d. stainless steel tubing	359318
12 mm o.d. to 12 mm o.d. stainless steel tubing	359320



#### GRIP RING, STAINLESS STEEL

Serto system for use with stainless steel connectors.

	Part No.
6 dia. for tubing 6 mm o.d.	359357
8 dia. for tubing 8 mm o.d.	359355
12 dia. for tubing 12 mm o.d.	359356

#### REDUCING GRIP RING, STAINLESS STEEL

Serto system. By changing the grip ring for a reducing grip ring, and the support sleeve in the case of plastic tubing, a smaller pipe can be connected.

	Part No.
8/6 dia. for tubing 6 mm o.d. x 4 mm	359376



#### SUPPORT SLEEVE, STAINLESS STEEL

For connecting PE or PTFE tubing to stainless steel connectors using Swagelok and Serto systems.

	Part No.
for hose 6 dia. x 4 mm standard tubing	359365
for hose 8 dia. x 5 mm standard tubing	359366
for hose 12 dia. x 9 mm standard tubing	359368



## 3.16 Accessories - Solenoid Driven Pumps

### 3.16.1 Flexible & Rigid Tubing

#### SUCTION AND DISCHARGE LINE

For pumps and accessories. It is recommended that only original tubing be used so as to ensure that the mechanical strength of the clamp unions and also the resistance to pressure and chemicals are maintained.

						Max. working pressure bar*	Part No.
PTFE	1.75	mm o.d.	x	1.15	mm i.d.	12*	37414
PTFE	3.24	mm o.d.	x	2.4	mm i.d.	8*	37415
PTFE	6	mm o.d.	x	3	mm i.d.	20*	1021353
PTFE	6	mm o.d.	x	4	mm i.d.	14*	37426
PTFE	8	mm o.d.	x	4	mm i.d.	25*	1033166
PTFE	8	mm o.d.	x	5	mm i.d.	16*	37427
PTFE	12	mm o.d.	x	9	mm i.d.	10*	37428
PTFE	19	mm o.d.	x	16	mm i.d.	6*	37430

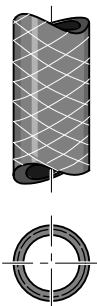
\* Maximum working pressure at 20°C in accordance with DIN EN ISO 7751, provided there is media compatibility and the connection is properly made.

					Part No.
Stainless steel 1.4435	1.58	o.d. x 0.9 mm i.d.		400	1020774
Stainless steel 1.4435	3.175	o.d. x 1.5 mm i.d.		400	1020775
Stainless steel 1.4571	6	o.d. x 5 mm i.d.		175	15738
Stainless steel 1.4571	8	o.d. x 7 mm i.d.		160	15740
Stainless steel 1.4571	12	o.d. x 10 mm i.d.		200	15743

	FV & I.V		Tube	Part No.
Tube Kit - Beta/Gamma	PVT	6 x 4	PE,PVC	1024715
Tube Kit - Beta/Gamma	PVT	8 x 5	PE,PVC	1024717
Tube Kit - Beta/Gamma	PVT	12 x 9	PE,PVC	1024718

#### HIGH PRESSURE TUBE

For small capacity pumps 10-16 bar working pressure



			Max. working pressure bar*		Part No.
10 X 4 Tube Fabric Reinforced	PVC	16*	5m	1004533	
10 X 4 Tube Fabric Reinforced	PVC	16*	50m	1004536	
12 X 6 Tube Fabric Reinforced	PVC	16*	5m	1004538	
12 X 6 Tube Fabric Reinforced	PVC	16*	50m	1004541	

\* Maximum working pressure at 20°C in accordance with DIN EN ISO 7751, provided there is media compatibility and the connection is properly made.

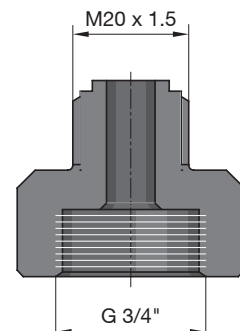
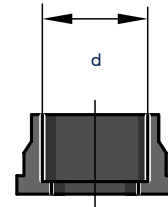
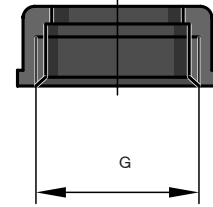
FOR PE AND PVC TUBE SEE 'GREEN PAGE' Catalogue



## 3.17 Accessories - Motor-Driven Pumps General

### 3.17.1 Union Nuts & Inserts

Connecting parts/fittings					Part no.
	Union nut	PP	5/8"	- DN 8	800665
●	Union nut	PP	3/4"	- DN 10	358613
●	Union nut	PP	1"	- DN 15	358614
○	Union nut	PP	1 1/4"	- DN 20	358615
●	Union nut	PP	1 1/2"	- DN 25	358616
●	Union nut	PP	2"	- DN 32	358617
	Union nut	PP	2 1/4"	- DN 40	358618
	Union nut	PP	2 3/4"	- DN 50	358619
●	Union nut	PVC	3/4"	- DN 10	356562
●	Union nut	PVC	1"	- DN 15	356563
○	Union nut	PVC	1 1/4"	- DN 20	356564
●	Union nut	PVC	1 1/2"	- DN 25	356565
●	Union nut	PVC	2"	- DN 32	356566
	Union nut	PVC	2 1/4"	- DN 40	356567
	Union nut	PVC	2 3/4"	- DN 50	356568
●	Union nut		3/4"	- DN 10	358813
●	Union nut		1"	- DN 15	358814
○	Union nut		1 1/4"	- DN 20	358815
●	Union nut		1 1/2"	- DN 25	358816
●	Union nut		2"	- DN 32	1003639
	Union nut		2 1/4"	- DN 40	358818
	Union nut		2 3/4"	- DN 50	358819
●	Union nut	SS	3/4"	- DN 10	805270
●	Union nut	SS	1"	- DN 15	805271
○	Union nut	SS	1 1/4"	- DN 20	805272
●	Union nut	SS	1 1/2"	- DN 25	805273
●	Union nut	SS	2"	- DN 32	805274
	Union nut	SS	2 1/4"	- DN 40	805275
	Union nut	SS	2 3/4"	- DN 50	805276
●	Union end (female thread)	SS	3/8"	- DN 10	805285
●	Union end (female thread)	SS	1/2"	- DN 15	805286
○	Union end (female thread)	SS	3/4"	- DN 20	805287
●	Union end (female thread)	SS	1"	- DN 25	805288
●	Union end (female thread)	SS	1 1/4"	- DN 32	805289
	Union end (female thread)	SS	1"	- DN 40	805290
	Union end (female thread)	SS	2"	- DN 50	805291



**Note:** PVC Solvent Weld fittings are standard with Sigma and optional with Vario.

#### ADAPTOR

PVC DN 10 - 3/4" F to 20x1.5 M	800816
PVDF DN 10 - 3/4" valve to 16mm hose tail	1002288
PVDF DN 15 - 1" valve to 20mm hose tail	740632
PVDF DN 20 - 1/4" valve to 25m hose tail	1006014
PVDF DN 25 - 1 1/2" valve to 32mm hose tail	1005560





### 3.18 Accessories - Contact Water Meters COLD

#### 3.18.1 Contact Water Meter for use in Potable Water Systems

##### ZENNER PULSE-TYPE WATER METER, DIN TYPE

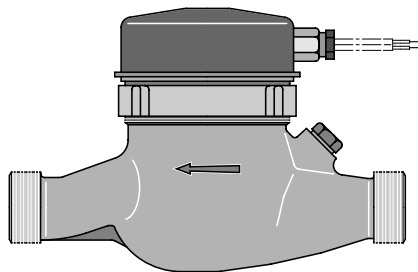
- PN 16 bar, readable, type series MTKD1-N, max. working temperature 50°C
- $Q_{max}$  = over loading  $Q_d$  = continuous max. duty loading
- $Q_n$  = nominal loading
- Horizontal mounting

$Q_{max}$ $Q_d/Q_n$ NG - m <sup>3</sup> /h	Union connector size inch DN/mm	Installed length without union mm	Litres per pulse	Part No.
5/4/2.5	3/4" - DN 20	190	1	P304434
12/10/6	1" - DN 25	260	1	P304445
20/16/10	1 1/2" - DN 40	300	1	P304436
31/25/15	2" - DN 50	300	1	P304430

**Note**

- 2" water meters previously supplied by ProMinent had a length of 270mm.
- all other water meters listed are same length as earlier supplied unit.

**NOTE: All water meters complete with Union assemblies.**



## 3.19 Accessories - Mechanical / Hydraulic

### 3.19.1 Mechanical / Hydraulic Accessories

Valve Balls		Part No.
PTFE diameter 4.7	for valve diameter 6 mm	404255
PTFE diameter 9.5	for valve diameters 8 & 12 mm	404258
PTFE diameter 11.0	for DIN 10 valve	404260
PTFE diameter 16.0	for DIN 15 valve	404259
PTFE diameter 20	for DN 20 valve	404256
PTFE diameter 25	for DN 25 valve	404257
PTFE diameter 38.1	for DN 40 valve	404261
Ceramic diameter 4.7	for valve diameter 6 mm	404201
Ceramic diameter 9.2	for valve diameters 8 & 12 mm	404281
Ceramic diameter 11.1	for DIN 10 valve	404277
Ceramic diameter 16.0	for DIN 15 valve	404275
Ceramic diameter 20	for DN 20 valve	404273
Ceramic diameter 25	for DN 25 valve	404274
Ceramic diameter 38.1	for DN 40 valve	404278
Stainless Steel diameter 4.7	for valve diameter 6 mm	404233
Stainless Steel diameter 9.5	for valve diameters 8 & 12 mm	404240
Stainless Steel diameter 11.1	for DIN 10 valve	404243
Stainless Steel diameter 16.0	for DIN 15 valve	404244
Stainless Steel diameter 20	for DN 20 valve	404246
Stainless Steel diameter 25	for DN 25 valve	404247



Valve Springs for Liquid Ends		Part No.
1.4571 valve spring	0.1 bar for valve 4.7	469406
1.4571 valve spring	0.1 bar for valve 9.2	469403
Hastelloy C valve spring	0.5 bar DN10	469115
Hastelloy C valve spring	0.1 bar DN 10	469114
Hastelloy C valve spring	0.5 bar DN 15	469108
Hastelloy C valve spring	0.1 bar DN 15	469107
Hastelloy C valve spring	0.1 bar DN 20	469451
Hastelloy C valve spring	0.1 bar DN 25	469452

Valve Springs for Injection Valves		Part No.
1.4571 valve spring	1.0 bar for R 1/4" - 6 diameter connector	469401
Hastelloy C valve spring	0.5 bar for R 1/2" - 6, 8 & 12 mm diameter connector	469404
Hastelloy C valve spring	1.0 bar for R 1/2" - 6, 8 & 12 mm diameter connector	469413
Hastelloy C valve spring	0.5 bar DN 10	469115
Hastelloy C valve spring	1.0 bar DN 10	469119
Valve spring	0.5 bar DN 15	469108
Valve spring	1.0 bar DN 15	469116
Hastelloy C valve spring	0.5 bar DN 20	469409
Hastelloy C valve spring	1.0 bar DN 20	469135
Hastelloy C valve spring	0.5 bar DN 25	469414
Hastelloy C valve spring	1.0 bar DN 25	469136
Hastelloy C valve spring	0.5 bar DN 40	469104
Hastelloy C valve spring	1.0 bar DN 40	469137



Hastelloy C valve spring with FEP coating		Part No.
Hastelloy C/PVDF valve spring	0.5 bar for R 1/2" - 6, 8 & 12 mm diam. connector	818590
Hastelloy C/PVDF valve spring	1.0 bar for R 1/2" - 6, 8 & 12 mm diam. connector	818536
Hastelloy C/PVDF valve spring	0.5 bar DN 10	818515
Hastelloy C/PVDF valve spring	0.5 bar DN 15	818516
Hastelloy C/PVDF valve spring	0.5 bar DN 20	818517
Hastelloy C/PVDF valve spring	0.5 bar DN 25	818518
Hastelloy C/PVDF valve spring	0.5 bar DN 40	818519



## 3.20 Accessories - Suction Pressure Regulator

### 3.20.1 Suction Pressure Regulator

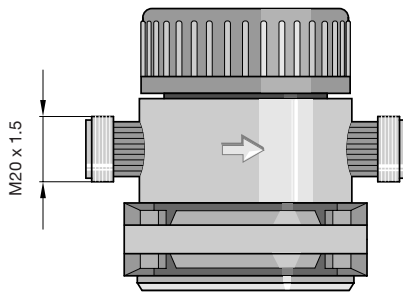
#### SUCTION PRESSURE REGULATOR

The suction pressure regulator is a spring-loaded diaphragm valve which opens as a result of the pump suction pressure. This ensures that chemicals cannot flow when the pump is not running, nor can a vacuum be created as a result of tube rupture.

A ball check valve must be fitted to prevent undesirable suction action at the pump outlet(e.g. siphon effect).

An adjustable spring is used to set the maximum required negative pressure for each operating situation up to 400 mbar. For pumps with positive inlet pressure a minimal vacuum of approx. 50 mbar is sufficient. The pump must produce this vacuum in any case, even for an atmospheric pressure inlet.

**CAPACITY:** 50 l/h max.



	<b>Mat.</b>	<b>Connector</b>	<b>Part No.</b>
SDR 50	PVC	M 20 x 1.5 (solenoid pumps)	<b>P6-1005505</b>
SDR 50	PVC	M 20 x 1.5 (solenoid pumps)	<b>P8-1005505</b>
SDR 50	PVC	M 20 x 1.5 (solenoid pumps)	<b>P12-1005505</b>
SDR 50	PVC	DN10 (3/4" up to 50l/hr)	<b>P1005506</b>



## 3.21 Accessories - Relay for Dosing Pumps

### 3.21.1 Relay for Dosing Pumps

#### RETROFIT & REPLACEMENT

Pump Type	Relay Type	Relay Part No.	Cable Part No.
BT4a	1 & 3*	731082	1002130
BT5a	4 & 5*	1002528	
BT4b	1 & 3*	1029311	1002011
BT5b	4 & 5*	1029310	1002011
GMXA & GXLA	1	1050643	1002130
	4	1050654	1002011
	C	1105292	1002011
	F**	1050824	1002130
	G**	1050057	1002011
Delta	1 & 3	1029311	
	4	1029310	1002011
	5	1029310	1002011
	A	1029310	1002011
	C	1031273	1002011
	F**	1030460	1002011
	G**	1030459	1002011
S1Cb	1	1029311	
S2Cb	3	1029310	1002011
S3Cb	8	1031273	1002011
<b>5m &amp; 10m cables available:</b>			
		5 m	1002011-5
		10m	1002011-10

**Note:** Relay can be retrofitted into pumps.

\*Relay needs to be programmed in our workshop.

\*\*Relay card ONLY, does not include solenoid.



## 3.22 Accessories - DulcoFlow® Flow Meter

### 3.22.1 DulcoFlow Flow Meter

The DulcoFlow® flow meter measures all liquid media without any media contact. The rate of flow of non-continuous volume flows and the amount of liquid which has passed through in pulsing flow regimes are measured.

The measuring instrument operates based on the ultrasonic measurement method. Media contacting parts are manufactured using chemically resistant PVDF/PTFE. This ensures that aggressive media can also be measured without problem. The instrument is installed directly in the pipe of the medium being measured.

Interfering influences, such as air bubbles, are identified by the DulcoFlow® and forwarded to the analysis unit as an error message. The instrument, which is structured for wall mounting, is designed for a measurement range of 0.1 to 30 litres per hour.

#### Features

- Direct display of the instantaneous flow and cumulative flow in litres.
- Compact universal housing.
- Two-line display.
- Frequency output for metering pump control.
- Analogue output 0/4...20 mA, can be configured as a recorder output or a control output.

#### Main Applications

- Monitoring and recording the dosing of chemicals in:
- Water treatment, Paper industry.
- Waste water treatment.
- Chemical industry, Power plants, etc.

#### Measuring principle

The DulcoFlow® flow meter measures the volume flow of pulsing flows. The ultrasonic, time of flight measurement method is used. For the time of flight measurement, a sound signal is alternately transmitted in and against the direction of flow. The time difference is then a measure of the mean flow velocity. Use of the ultrasound measurement method automatically compensates any temperature induced changes in the medium. Operation without moving parts guarantees a long service life and wear-free operation.

#### Advantages

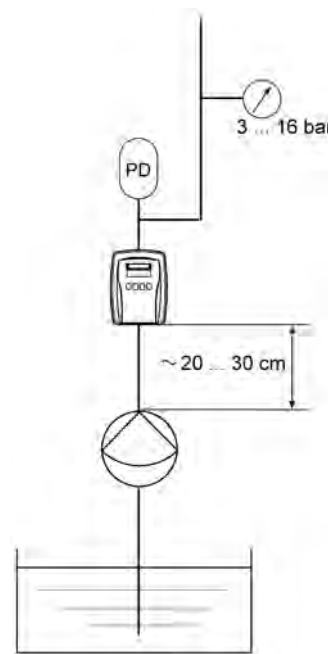
- Direct display of the instantaneous flow and cumulative flow in litres.
- Can be switched over to display the pulsing frequency of the liquid or pump.
- Safety and reliability through display of the device operating status using LEDs.
- Safety and reliability through display of the measurement status using LEDs

#### Technical Data

Measuring range:	0.1..... 50 l/h	
Accuracy:	< 2 % after calibration	
Analogue output:	4...20 mA	
Frequency output:	< 10 kHz (optional on special order)	
Protection class:	IP 65	
Power supply:	100...230 V AC/ 50/60 Hz	
Dimensions:	183.6 x 121 x 122.7 mm (H x W x D)	
Media to be measured Connector:	Tube connection with 6x4, 8x5 or 12x9 mm	
Medium pressure:	(min.) 3 ... 16 bar	
Medium temperature :	-10 ... 45 °C	
Dyn. viscosity (rj):	0.5 ... 2000 mPa	

	Part No.	
Current output	DFMa05T1C100	6x4
Contact output	DFMa05T1C200	6x4
Current output	DFMa05T2C100	8x5
Contact output	DFMa05T2C200	8x5
Current output	DFMa08T3C100	12x9
Contact output	DFMa08T3C200	12x9

DFMa05 Beta/Gamma L ... 1000 - 0413/0713, Delta 1608-1612  
 DFMa08 Beta/Gamma L ... 0420, Delta 1020 - 0450  
 GMXa & GLXa - CHECK STROKE SETTINGS



**Hydraulic Installation Parameters**  
 The DulcoFlow® can also be used at constant pressures under 3 bar. However, in such cases, we recommend consulting with ProMinent head office, Sydney.

#### NOTE

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. Not recommended for pumps with SER type liquid end.**



## 3.23 Accessories - DULCOLEVEL

### 3.23.1 DULCOLEVEL Radar Level Sensor

**With the new radar level sensor DULCOLEVEL, your chemical inventory management is child's play.**

DULCOLEVEL makes it easier for you to manage your chemical stock levels.

ProMinent's measuring range covers tank volumes of between 30 and 1500 litres (IBCs) or any tanks with a maximum height of 15 metres, with a precision of  $\pm 5$  mm.

The sensor can be seamlessly integrated into your existing metering system. This is particularly easy with a tank and metering pump from ProMinent. With the mobile app, you can see the liquid level and all the data you need instantly even when working remotely.

The Bluetooth connection means you don't need any additional cables, making retrofitting in existing applications simple and inexpensive.

DULCOLEVEL also improves your levels of health and safety at work. The measurements and sensor configuration are contactless, there is no contact with harmful media.

- Bluetooth pairing and data transfer from sensor to pump
- Configuration and commissioning via mobile app
- Measuring tanks with volumes between 30 l-1500 l
- Easy clamp on system for tanks - compact radar sensor
- Connectivity to all common PLC standards (Profibus, Profinet, Modbus, CAN open) in combination with the pump
- Integration into IIoT-based fluid management DULCONNEX
- No (level) tank configuration needed in combination with ProMinent tanks
- Over the air update of sensor



### 3.23 Accessories - DULCOLEVEL

#### 3.23.2 DULCOLEVEL Radar Level Sensor Technical Data

##### Your Benefits

- Seamless integration into ProMinent systems and ProMinent pumps (at present gamma/ X - in the future gamma/ XL, DULCOFLEX DFXa, sigma/ X)
- The Bluetooth connection makes simple retrofitting in existing systems possible
- Pump and tank values can be accessed from anywhere in the world via a secure IIOT platform (DULCONNEX)
- Meet all compliance standards by means of 24/7 reports on media consumed (DULCONNEX)

##### Technical Details

- Liquid level can be output using 0/4...20 mA standard signal
- Bluetooth connection and data transmission from sensor to pump
- Connectivity with all common PLC standards (Profibus, Profinet, Modbus, CAN open) in combination with the pump
- Configuration and commissioning using mobile 'DULCONNEX Blue' app, can be downloaded for free from the App Store (iOS) or Play Store (Android)
- Measurement of any tanks up to a height of 15 m, with a precision of ±5 mm
- Simple clamp-on system for tanks
- Integration in IIoT-based DULCONNEX fluid management
- No (liquid level) tank configuration needed in combination with ProMinent tanks of between 30 and 1500 l (IBCs)

	<b>Part No.</b>
DULCOLEVEL with 4-wire cable and output signal 4...20mA (for connection to a PLC)	<b>1124074</b>
DULCOLEVEL with EU power supply (only works in combination with a pump with Bluetooth interface)	<b>1124075</b>

##### Accessories

	<b>Part No.</b>
Mounting plate for DULCOLEVEL	<b>1119041</b>



## 3.24 Accessories - Pulsation Dampeners

### 3.24.1 Pulsation Dampeners

The pulsation dampener is used to produce minimal pulsation metering and to reduce flow resistance in long discharge lines.

The cushion of gas located between the hose and the housing is compressed by a thrust stroke from the metering pump, allowing a quantity of feed chemical to pass along the discharge line. On the next suction stroke, the excess pressure created by the cushion of gas forces the chemicals through the pipe. The gas is now released from pressure, and returns to its original volume.

**Important notice:** The pulsation dampener must be used in conjunction with a relief valve.

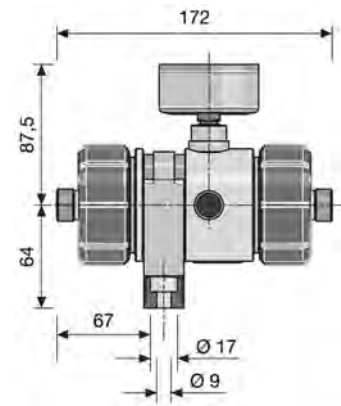
#### PVC In Line Dampener

**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 l	Dampener diaphragm	Seal material	Connection	Part no.
PCE	0.05	CSM*	EPDM	M 20 x 1.5	<b>P1026774-6</b>
PCE	0.05	CSM*	EPDM	M 20 x 1.5	<b>P1026774-8</b>
PCE	0.05	CSM*	EPDM	M 20 x 1.5	<b>P1026774-12</b>
PCB	0.05	FPM	FPM	M 20 x 1.6	<b>P1026777-6</b>
PCB	0.05	CSM*	FPM	M 20 x 1.5	<b>P1026777-8</b>
PCB	0.05	CSM*	FPM	M 20 x 1.5	<b>P1026777-12</b>
PCE	0.05	CSM*	EPDM	G 3/4 – DN 10	<b>P1026775</b>
PCB	0.05	FPM	FPM	G 3/4 – DN 10	<b>P1026778</b>

**Note:** M20x1.5 supplied with connection set ..... G3/4 - DN10 supplied with SW fittings.



Connection in-line dampener	Stroke volume (ml/stroke)	ProMinent® pump type
M20 x 1.5	0.05 ... 3.00	Beta® BT4a / BT5a gamma/ L GALa, GMXa delta® DLTa 1612 - 0730, GXLa
G3/4 – DN 10	3.00 ... 4.00	DLTa 0450, GXLa Vario C VAMc 10008 – 07042 Sigma S1Ba / S1Ca / S1Cb 12017 – 10050





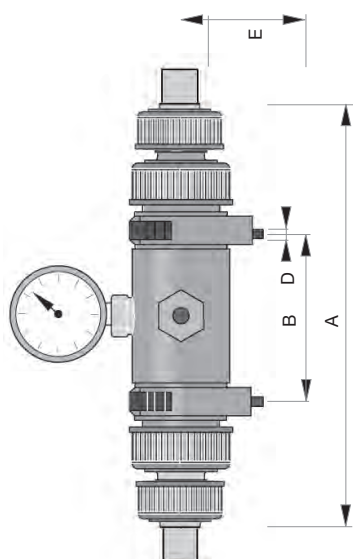
## 3.24 Accessories - Pulsation Dampeners

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**Important notice:** The pulsation dampener must be used in conjunction with a relief valve.



**Note:** A for total space required for installation in-line.

#### PVC IN LINE DAMPENER

Removable hose, EPDM/Viton seals.

Type	Volume ml	Hose/Seal Material	Connector	Part No.
PDS	2500	Hypalon/E	Solvent Weld 40 Male	<b>P1001342</b>
PDS	2500	Viton/V	Solvent Weld 40 Male	<b>P1001343</b>

#### PP IN LINE DAMPENER

Removable hose, EPDM seals.

Type	Volume ml	Hose material	Part No.
PDS	2500	Hypalon *** non-stock item ***	<b>P1001344</b>
PDS	2500	Viton *** non-stock item ***	<b>P1001345</b>

#### MEASUREMENTS

Type	Measurements				
	A	B	C	D	E
PDS 2500	541	525	G 2	d 11	99.5

To select the correct inline dampener you need to consider the stroke volume of the dosing pump. The higher the volume of the dampener is, the better is the dampening effect.

Type Operation	Stroke Volume*up to ... ml/stroke	Max Admissible Pressure (bar)
PDS 2500	400	8

The pre-pressure is = 0.6 x operating pressure.

\*referring to the rest fluctuations +/- 10% of the nominal pressure for singlehead pumps.

**Note: as a rule of thumb you can use the following formula:**

volume of the pulsation dampener (in litres) = [26 x max. stroke volume (in ml) ] /1000

**Note:**

Refer to maximum permissible pressure rating in tables

**Note:**

When using Sodium Hypochlorite select PVC & Viton.



## 3.24 Accessories - Pulsation Dampeners

### 3.24.1 Pulsation Dampeners

#### Accumulators

Pulsation dampers with separating bubble for providing separation between the gas cushion and metered chemical are used for low-pulsation metering as well as for reducing the flow resistance in long metering lines and in connection with viscous media. The response pressure of the gas cushion should be approx. 60-80% of the operating pressure.

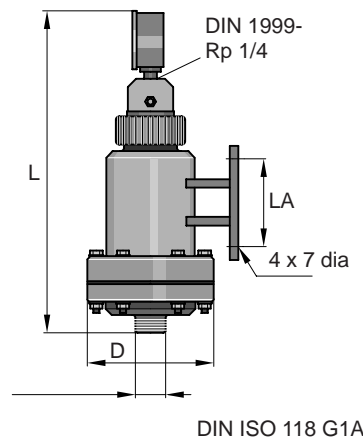
**Important:** When using a pulsation damper, the pressure relief valve should be fitted with an adjustable back pressure valve.

#### PVC ACCUMULATORS

Accumulator removable, FKM seals.

Volume Litres	Diaphragm material	Connection	L mm	RD mm	LA mm	Part No.
0.5	Butyl	G 1 DN 15	361	145	100	791691
0.5	FKM	G 1 DN 15	361	145	100	791695
1.0	Butyl	G 1 1/4 DN 20	411	170	100	791692
1.0	FKM	G 1 1/4 DN 20	411	170	100	791696
5.0*	Butyl	G 2 1/4 DN 40	936	170	230	791694
5.0*	FKM	G 2 1/4 DN 40	936	170	230	791698

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



#### In-line damper PVDF

**Function:** Hydropneumatic accumulator with deflection facility.

The PVDF pulsation damper with PTFE diaphragm offers outstanding resistance to chemicals and is therefore used in connection with a large number of different liquids.

The pulsation damper has two liquid connections and can therefore be installed directly in the piping system (in-line). The deflection facility in the liquid valve directs the volumetric flow straight at the diaphragm thus ensuring direct contact of the volumetric flow with the diaphragm. Fluctuations in volumetric flow are optimally balanced out by the enclosed gas volume.

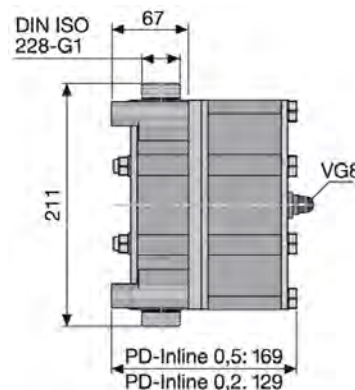
**Important:** The pulsation dampers must be protected by an overflow valve. Offered with PVDF adaptors included. Please advise if adaptors required.

Type	Rated volume in l	Max. pressure	Connection in bar	Part No.
PD In-line	0.2	10	G1 - 3/4 BSPM	P1026252
PD In-line	0.5	10	G1 - 3/4 BSPM	P1026736

The preload is approx. 0.6x operating pressure. Medium temperature max. 65°C

The accumulator is filled with nitrogen or with compressed air using a commercially available filler fit VG8 gas filler connection.

- Caution:** Nitrogen should be used as the filler gas in connection with combustible liquids. On no account fill with oxygen!
- Design:** DGRL97/23/EC, other acceptance procedures/countries available on request.
- Fluid group:** 1 and 2
- Certificates:** Manufacturer's test certificate M DIN55350-18
- Manufacturer:** HYDAC Technology
- NOTE:** HYDAC Units are supplied pre-filled in min 2 Bar, to maintain bladder shape.

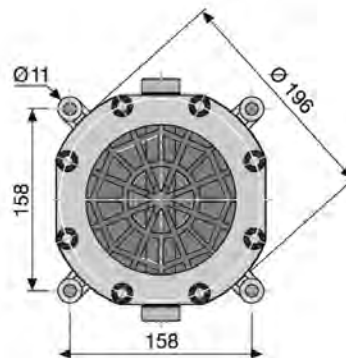


#### CONNECTION/ADAPTER KITS - CONNECTOR SET PAIR [INLET & OUTLET]

Consisting of PTFE-formed composite seal, insert/adaptor and union nut.

Connection PD In-line	Connection Piping	Materials	Part No.
G1 - DN15	3/4 BSPM	PVDF	P1029426

**Note:** Other PVDF Adaptors available from PMHD. PVC adaptors & union nuts, corresponding gaskets available locally.



## 4.0 ProMinent® Chemical Tanks and Bunds

### 4.0.1 ProMinent Chemical Tanks

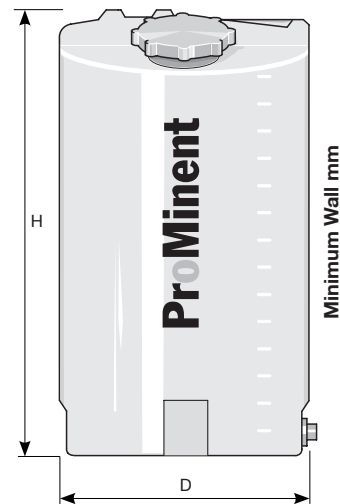
Made of transparent UV-stabilised polyethylene, with scale for litre and US gallons, lockable screw cap, moulded-in threaded sleeves (except 35l) to bolt down a ProMinent® electronic metering pump, mounting flange with moulded-in stud bolts for manual or electric stirrer. All tanks of especially rugged design with ProMinent® logo.

All tanks are fitted with 3/4" BSPF plugged outlet

useful volume (litre)	Ø D mm	Height H mm	Thread sleeves for metering pump	Empty weight kg	Cubic weight kg	Part No.
35	350	485	w/o threaded sleeves	3.5	10	791993
60	410	590	4 Gamma, Beta, Alpha	5	17	791994
100	500	760	4 Gamma, Beta, Alpha	7	32	1001490
140	500	860	4 Gamma Beta, Alpha	9.5	36	791995
250	650	1100	5 Delta GALa, Beta, Alpha, Vario	17.5	78	1023175
500	820	1190	7 2 x Beta, Alpha, Vario & Sigma	24.5	133	791997
1000	1070	1260	8 Alpha, Vario & Sigma	48	240	1010909
1500	1150	1735	8 Gamma X, Beta, Delta Sigma1/2/3	80		1060975

**Note:** These tanks are fully enclosed, and as such cannot be stacked. For freight purposes the cubic capacity rather than weight will be charged for shipment.

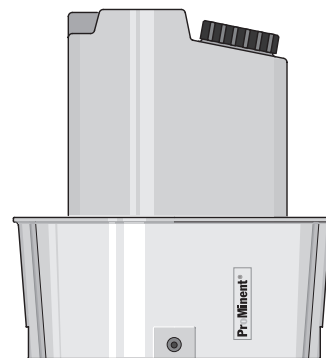
**NOTE: FOR LARGER TANKS SEE GREEN PAGES Catalogue**



### SCREW PACK FOR PUMPS

Includes 2 x SS screws and washers for mounting pumps on above ProMinent tanks.

	Part No.
Beta / Gamma	PA39002781
Sigma 1	PA39002782
Sigma 2	PA39002783
Sigma 3	PA39002784



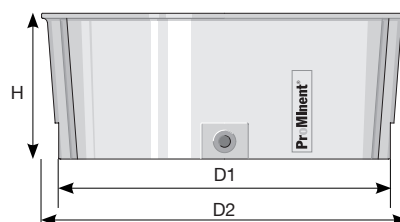
### 4.0.2 Stackable Bunds For Dosing Tanks PE

Made of UV stabilised polyethylene, stackable, with ProMinent® logo. Incorporating 2 lateral flats for mounting bund.

**Note:** There is NO Australian Standard for bunds of 250 litres and under capacity. ProMinent have made their bunds to to comply with their tanks above PLUS 10% reserve.

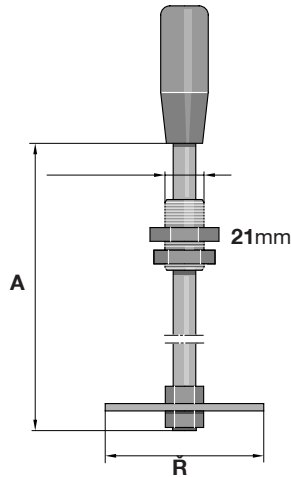
### PE COLOURLESS/TRANSPARENT STACKABLE BUNDS

Usable capacity in litres	Material	D2 R mm	D1 R mm	H mm	Cubic weight kgs	Part No.
60	PE	680	607	270	21	1010880
100	PE	802	727	320	34	1010881
140	PE	811	727	370	41	1010882
250	PE	917	807	520	74	1010883



## 4.1 ProMinent® Dosing Tanks

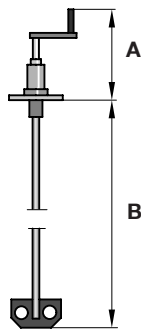
### 4.1.1 Accessories for Dosing Tanks



**PP HAND MIXER**  
Completely assembled

	A	Ř	Part No.
for tanks 35 l and 60 l **	460 mm	90 mm	741118
for tanks 100 l and 140 l **	660 mm	90 mm	741119
for tanks 250 l and 500 l	980 mm	90 mm	741120

\*\* = non stocked item



**PP HAND STIRRER**  
With crank, completely assembled

	A	B	Part No.
for tanks 60 l **	220 mm	450 mm	914701
for tanks 100 l **	220 mm	635 mm	914738
for tanks 140 l **	220 mm	760 mm	914702
for tanks 250 l **	220 mm	900 mm	914703
for tanks 500 l **	220 mm	900 mm	914703
for tanks 1000 l **	220 mm	1065 mm	914705

\*\* = non stocked item

**Note: for Electric Stirrers see GREEN PAGE Catalogue**

### 4.1.2 Spare Parts for Tanks

	Part No.
Push cap for 35 l tank	740708
Screw cap with seals for 60-100-140-250 l tank	1031429
Screw cap with seals for 500-1000 l tank	740718



## 5.0 DULCOMETER® Compact Controller

### 5.0.1 DULCOMETER® Compact Controller

DULCOMETER® Compact transmitters with control functions for pH,ORP, Chlorine and conductive conductivity measured variables provide basic functions for applications in water treatment. They have a fixed configuration with the following features.

#### Measured variables pH and ORP (can be changed on the controller)

- Operation independent of the operating language (use of abbreviations, such as CAL, PARAM, CONFIG, ERROR)
- Illuminated display
- 3 LED display operating state (relay 1 / 2 active, Error)
- Sensor monitoring for pH
- P and PID control characteristics
- Selectable control direction (raise or lower measured value)
- Pulse frequency relay for control of metering pump
- Power relay can be configured as an alarm, limit value or pulse width modulated control output for metering pumps, (connection function or switch on operating voltage)
- Analogue output 0/4...20 mA can be configured as a writer output or control output
- Digital input to switch off the control or to process a sample water limit contact by remote control
- Temperature sensor input (Pt 1000) for temperature compensation of the pH value



#### Applications

- Waste water treatment
- Treatment of drinking water
- Swimming pool water treatment

#### Technical Data

<b>Measurement range</b>	pH: 0.00 ... 14 ORP: -1000 ... +1000 mV ... Chlorine: 0.05- 10 ppm
<b>Resolution</b>	pH: 0.01 pH ... ORP: 1 mV ... Chlorine: 0.01 ppm Conductivity: 1 µS/cm depends on measuring range)
<b>Correction variable</b>	Temperature for pH via Pt 1000
<b>Correction range</b>	0 ... 120 °C
<b>Control characteristic</b>	P/PID
<b>Control</b>	1-way controller with selectable control direction (raise/lower)
<b>Signal current output</b>	1 x 0/4-20 mA galvanically isolated max. load 400 Ω Range and assignment (measured or actuating variable) can be set
<b>Control outputs</b>	1 pulse frequency output for control of the metering pump1 relay (alarm or limit value relay or pulse length control) 1 x analogue output 0/4 ... 20 mA
<b>Electrical connection</b>	90 - 253 V ~
<b>Ambient temperature</b>	-10 ... +60 °C
<b>Enclosure rating</b>	IP 67
<b>Dimensions</b>	135 x 125 x 75 mm (H x W x D)
<b>Weight</b>	0,5 kg

Part No.

Panel Mounting Kit

1037273



# 5.0 DULCOMETER® Compact Controller

## 5.0.2 Identity Code & Pricing for DULCOMETER® Compact Controller

**DCCa**

**Version**

- W** Wall / Pipe mounted IP67 for Panel Mounting use this 'W' and add Panel Mounting Kit **P/N 1037273** above
- S** Do not use this for panel Mounting see above

**Design**

- 00** with ProMinent® logo

**Operating voltage**

- 6** 90 ... 253 volts, 48-63 Hz

**Measured Variable**

- CO** Free Chlorine
- PR** pH / ORP (switchable)
- L3** Conductive Conductivity (Unit designation COND\_C)
- L6** Inductive Conductivity (Unit designation COND\_I)

**Hardware Extension**

- 0** None

**Certification**

- 01** CE (Standard)

**Certificates**

- 0** none

**Documentation language**

- EN** English



DCCa W 00 6 PR 0 01 0 EN



## 5.1 DULCOMETER® Measurement and Control Technology

### 5.1.1 DULCOMETER® D1C Series Controller

#### Microprocessor-based controller

The measured variables are:

- pH/value
- Conductivity
- Redox potential
- Chlorine dioxide
- Temperature
- Ozone
- Chlorine concentration
- Oxygen
- mA signal

Various expansion stages permit process adaptation to various measurement, control and metering requirements.

- Large, clear display of measured value
- Easy operation and clear prompting of settings by texts in the display
- Menu-assisted calibration of measuring probes
- Activation of ProMinent® metering pumps, solenoid valves or actuators
- Monitoring of limit values
- Connection of measuring probes also via converter with disturbance free mA signal
- Connection facility for recording measured value by mA signal

#### Micro-processor-based controller for Wall mounting

The most important data:

**Standard format:** 189 x 200 x 76 mm (W x H x D)

**Enclosure rating:** IP65

#### Accessories

#### Part No.

Kit to convert Wall mounting D1C & D2C into Panel mount

792908



## 5.1 DULCOMETER® Measurement and Control Technology

### 5.1.2 Identity Code & Pricing for DULCOMETER® D1Cb Series Controller

D1Cb		DULCOMETER® D1C series b controller	
<b>Installation</b>			
W	Wall mounting		
<b>Version</b>			
00	with ProMinent logo		
<b>Power Supply</b>			
6	90 - 253 V	48/63 Hz	
<b>Approvals</b>			
01	CE Mark		
<b>Hardware Expansion 1</b>			
0	None		
<b>Hardware Expansion 2</b>			
0	None		
1	RC protection of the 2 power relays by using a inductive load (motor driven pump) together with power Relay 'M' or 'G'		
<b>External Connection</b>			
0	None		
<b>Software Preset</b>			
V	Software preset		
<b>Measured variables</b>			
A	PES (peracetic acid)		
B	Bromine 0-10 ppm		
C	Chlorine 0-0.5/2/5/10/20/50/100 ppm		
D	Chlorine dioxide 0-0.5/2/10/20 ppm		
F	Fluoride		
L	Conductivity (check probe compatibility)		
H	Hydrogen Peroxide H2O2		
P	pH 0-14		
R	Redox -1000...+1000 mV		
S	Standard signal 0/4-20 mA		
T	Temperature 0-100° C, 32-212° F		
X	Dissolved Oxygen O <sub>2</sub>		
Z	Ozone 0-2 ppm O <sub>3</sub>		
<b>Connection of measured variable</b>			
1	Standard signal /04-20 mA terminal (signal converters are necessary for controllers with standard signal 0/4-20mA measured variable connection Terminal mV for P or R)		
<b>Correction variable</b>			
0	None		
2	Temperature via Pt 100 (via terminal ) for pH		
4	Manual temperature compensation for pH		
<b>Control input</b>			
0	None		
1	Pause		
<b>Standard signal output</b>			
0	None		
1	Standard signal 0/4-20 mA configurable output		
<b>Power relay</b>			
G	Alarm, 2 limit relays or 2 timer		
M	Alarm, 2 solenoid valve relays or 2 timer		
<b>Pump control</b>			
0	None		
2	Two pumps via pulse frequency		
<b>Control characteristic</b>			
0	None		
1	P control		
2	PID control		
<b>Language</b>			
EN	English		

**Example shown:**  
D1Cb for Chlorine with pause and 4-20 mA output.

D1Cb W 00 6 01 0 0 0 V C 1 0 1 1 G 0 0 EN





## 5.2 DULCOMETER® diaLog DACb Multi-parameter Controller

### 5.2.1 diaLog DACb Multi-parameter Controller

Have you been looking for a simple controller for water analysis? One that is easy to operate and with which you can freely select between all common measured variables per channel? There is one: our all-rounder DULCOMETER® diaLog DACb, it is Ethernet-/LAN-capable and can be ideally integrated into existing networks.

The DULCOMETER diaLog DACb is our compact all-rounder for water analysis. With its specially designed functionalities, e.g. processing or interference variables and switch-over of control parameters, it closes the control circuit between DULCOTEST® sensors and ProMinent® metering pumps. The two measuring and control channels of the DULCOMETER® diaLog DACb can be individually configured to meet customer requirements.

Everything that you need for the reliable treatment of industrial and process water, potable water or even swimming pool water.

#### Benefits

- Simple operation thanks to a clearly arranged display
- More for your money: two measuring and control channels now in the basic configuration
- Versatile use: all common measured variables can be set per channel and subsequently altered
- Control from everywhere: LAN-capable and convenient remote access via integrated web server
- Maximum flexibility: individually adjustable to different operating statuses, e.g. Day-Night mode
- Excellent process safety and reliability: avoidance of incorrect metering by time-based monitoring of control variables
- Minimal time and effort: effortless duplication of device settings
- Precise monitoring and documentation: Event, calibration and measured data logger with easy-to-access SD memory card
- Optimum communication: Integration into customer networks by means of different field bus systems (PROFIBUS® DP and Modbus RTU etc.)

#### Field of application

- Measurement and control of water parameters in industrial and process water treatment plants
- Monitoring of the water parameters potable water
- Measurement of pH value and disinfection parameters in the food and beverage industry
- Measurement and control of the hygiene parameters in swimming pools
- Monitoring of the chlorine dioxide concentration in systems for legionella control and prevention, for example in schools, hotels or hospitals
- Measurement of the disinfection parameters of irrigation and sprinkler irrigation water in market gardens



## 5.2 DULCOMETER<sup>®</sup> diaLog DACb Multi-parameter Controller

### 5.2.2 Technical Data diaLog DACb Multi-parameter Controller

<b>Measuring range</b>	<p><b>mV connection type:</b>                      pH: 0.00 ... 14.00                      ORP voltage: -1500 ... +1500 mV</p> <p><b>Connection type mA (amperometric measured variables, measuring ranges corresponding to the sensors):</b>                      Chlorine Chlorine dioxide Chlorite                      Bromine                      Ozone                      Hydrogen peroxide (PER sensor)                      Hydrogen peroxide (PEROX sensor with PEROX transducer V2 Order No. 1047979)                      Peracetic acid                      Dissolved oxygen</p> <p>Connection type mA (potentiometer measured variables, measuring ranges corresponding to the transmitter):                      pH                      ORP voltage                      Fluoride                      Conductivity (measuring ranges corresponding to the transmitters):                      via Transmitter 0/4 ... 20 mA                      Temperature: via Pt 100/Pt 1000, measuring range 0 ... 150 °C</p>
<b>Resolution</b>	pH: 0.01 ORP voltage: 1 mV Temperature: 0.1 °C Amperometric analysis (chlorine etc.): 0.001/0.01 ppm, 0.01 vol.%, 0.1 vol.%
<b>Accuracy</b>	0.3% based on the full-scale reading
<b>Measurement input</b>	pH/ORP (input resistance > 0.5 x 10 <sup>12</sup> Ω)
<b>Temperature compensation</b>	Pt 100/Pt 1000 for pH, chlorine dioxide (CDP) sensor and fluoride
<b>Correction range</b>	0 ... 100 °C
<b>pH compensation range for chlorine</b>	Sensor CLE 3 and CLE 3.1: 6.5 ... 8.5, sensor CBR: 6.5 ... 9.5
<b>Disturbance signals</b>	Flow via 0/4 ... 20 mA or contact water meter 1 - 500 Hz, the interference variable acts on both channels (depending on identcode)
<b>Control characteristic</b>	P/PID control
<b>Control</b>	2 x bidirectional control outlets
<b>Analogue outputs</b>	2 (3) x 0/4 ... 20 mA electrically isolated, max. load 450 Ω, range and assignment (measured, correction, control variable) can be set
<b>Control outputs</b>	2 x 2 pulse frequency outputs for metering pump control 2 relays (limit value, 3-point step or pulse length control)
<b>Alarm relay</b>	250 V ~3 A, 700 VA contact type changeover contact
<b>Digital control inputs</b>	4 (7) as a remote control input for the functions pause control / sample water fault, parameter set switch-over, level monitoring of chemical tanks
<b>Electrical connection</b>	90 – 253 V, 50/60 Hz, 25 VA, 24 V DC
<b>Field bus connection</b>	PROFIBUS <sup>®</sup> -DP, Modbus RTU
<b>Ambient temperature</b>	0 ... 50°C (for use indoors or with a protective enclosure)
<b>Enclosure rating</b>	Wall-mounted: IP 66 and IP 67 (NEMA 4X) Installation in the control cabinet: IP 54 for control cabinet door
<b>Tests and approvals</b>	CE, MET (corresponding to UL according to IEC 61010)
<b>Housing material</b>	PC with flame proofing equipment
<b>Dimensions</b>	250 x 220 x 122 mm (WxHxD)
<b>Weight</b>	1.3 kg



## 5.2 DULCOMETER® diaLog DACb Multi-parameter Controller

### 5.2.3 Identity Code & Pricing for diaLog DACb

#### DACb

##### Mounting type

- W** Wall-mounted
- S** Control panel-mounted

##### Design

- 00** with ProMinent logo
- 01** without ProMinent logo

##### Operating voltage

- 4** 24 V DC
- 6** 100 - 230 V AC 50/60 Hz

##### Basic measured variables - Select 1 of the following

- VA** 2 measuring and control channels, connector type mV/temperature + mA, e.g. for PH + chlorine sensors or Ph + fluoride
- AA** 2 measuring and control channels, connector type mA + mA, e.g. for chlorine dioxide/chlorite sensors
- VV** 2 measuring and control channels, connector type mV/temperature + mV temperature, e.g. for pH + ORP or two pH sensors
- L3** 2 measuring and control channels, connector type: conductive conductivity and temperature via Pt100/Pt1000

##### Extended functions

- 0** none
- 2** Package 2: third measure variable, Ph compensation for chlorine or interference variable (mA) or external setpoint specification via mA, additionally: 2 pump outputs, 3 digital control inputs, 1 mA output
- 3** Package 3: third measure variable of your choice + control, additionally: 2 pump outputs, 3 digital control inputs, 1 mA output
- 4** Package 4: combination of packages 2 and 3

##### Software default settings

- 0** no default settings

##### Connection of the measured variables

- 0** all sensor inputs via terminal

##### Connection of digital sensors/actuators

- 0** none

##### Communication interface

- 0** none
- A** Modbus RTU, terminal
- B** Profibus DPV1, terminal
- E** LAN with web server, connect via M12 C-coded
- G** Profinet 2xM12 coded

##### Data logger

- 1** with data logger (SD card interface + SD card + card reader)

##### Hardware extension

- 0** none
- 1** Protective RC circuit (relay)

##### Approvals

- 01** CE (Standard)

##### Certificates

- 0** none

##### English

RC Protection board [spare part] P/N 733880

**Extended Functions**  
 Versions 0 & 4 are stocked in Sydney  
 Versions 2 & 3 are ex Germany

**\*Note: NOT for 24VDC Version**

DACb W 00 6 VA 0 0 0 X 0 1 0 01 0 EN



## 5.3 DULCONNEX

### 5.3.1 DULCONNEX from ProMinent®

**The complete solution for the era of digitalisation and networking.**

As more products are digitalised and networked the scope for monitoring, controlling and optimising's processes is taking on new forms. Our solution for digital fluid management is able to record, make available and efficiently create a wide range of information to help you optimise control processes. With DULCONNEX ProMinent is producing data from sensors, pumps and systems offering high value-added optimized information for systems operators.

**READY FOR DIGITAL NETWORKING AND CONTROL**

Prominent DULCONNEX products have all the characteristics needed for digital fluid management and smart control.

**Network – capable:** the DULCONNEX products communicate using WiFi, Ethernet or CANopen, PROFIBUS and PROFINET via the DULCONNEX gateway to our DULCONNEX web based fluid management platform.

**User friendly:** DULCONNEX products have clear intuitive install, start-up and operational setup for dashboards, reporting, alarms and accessing data.

**Adaptive:** DULCONNEX products adapt automatically to constantly changing operating conditions.

**Robust:** The construction of DULCONNEX products ensures a long service life and high availability.



**Solenoid-driven metering pump**  
gamma/ X or gamma/ XL  
with DULCONNEX gateway



**Motor-driven metering pump**  
Sigma X



**Remote monitoring module**  
DULCONNEX gateway for  
connection to the CAN interface



**Measuring and control system**  
DULCONNEX gateway for  
DULCOMETER® dialog DACb



**Controller**  
AEGIS II



## 5.3 DULCONNEX

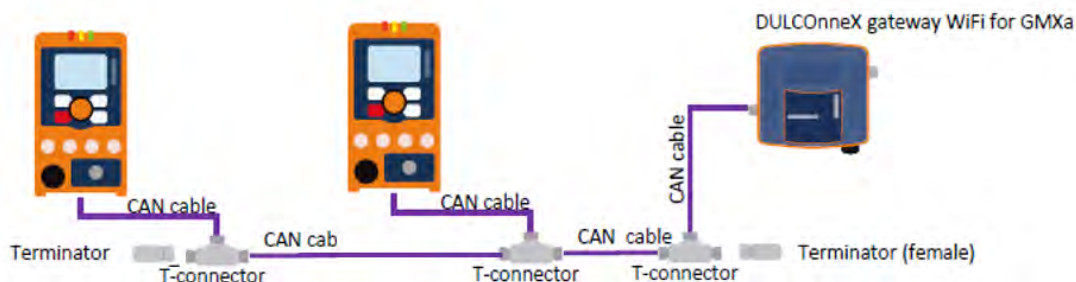
### 5.3.2 Identity Code & Pricing for DULCONNEX

Gateway Type	
<b>A DX Gateway LAN</b>	No of DX Gateway for DACb LAN to Wi-Fi. One gateway required for each DACb. Includes 2m LAN cable M12 to M12 connection. 24VDC to 240V power supply included.
<b>B DX Gateway CAN</b>	No of DX Gateway CAN bus to Wi-Fi. One gateway supports 16 GammaX or one Sigma pump or one UVCb. Includes one M12 CAN Cable 0.5m and one "T" and 240V to 24VDC power supply NOTE: For 2 pumps or more connected to the gateway one CAN cable and "T" is required per pump. CAN option required on pump IDENT CODE.
Subscription	
<b>C DULCONNEX subscription</b>	No of DX Subscription, 12 months *.
Module	
<b>D CIO50</b>	No of CIO50 modules (I/O 2in.)CAN termination resistor switched on module, include M12 CAN flange wire to CIO- module, CAN termination resistor and 1.0M of CAN cable . 24VDC powered by the same supply used with the Gateway.
<b>E CIO300</b>	No of CIO300 modules (I/O 8in.) CAN termination resistor switched on module, include M12 CAN flange wire to CIO- module, CAN termination resistor and 1.0M of CAN cable. 24VDC powered by the same supply used with the Gateway.
<b>F CIO57</b>	No of CIO 57 module (4 x 4-20mA inputs). CAN termination resistor switched on module, includes M12 CAN flange wire to CIO- module, CAN termination resistor and 1.0M of CAN cable 24VDC powered by the same supply used with the Gateway.
<b>G UVCb CAN connector set</b>	"No of CAN connector set UVCb Includes*: 2x CAN cable M12 5pol. 0.5m, 1x Resistor female, 1x Resistor male, 1x Flange M12 UVCb, 1x CAN cable M12 5pol. 2.0m, 1x Skintop fitting M25x1.5, 1x Locknut M25 PA6 RAL7305" **See note below **
Modules	
<b>H CIO Modules housed and wired</b>	No of, CIO housing junction box internal CAN and pre wired inputs. Provides one CAN connection point irrespective of number of CAN CIO modules mounted within junction box. The CAN CIO node addressing setup and 4-20 and or I/O inputs all pre wired each with 2 meters of control wire available to connect devices. *
Factory Set-up	
<b>I</b>	No of, Factory setup onto DULCONNEX system pre shipment
Level Sensor	
<b>J</b>	DULCOLEVEL with 4 wire cable and output signal 4-20 Ma ( <b>Part No. 112074</b> )
Temperature and Transducer	
<b>K</b>	"PT100 Temperature Sensor and 4-20mA transducer and SN6 cable. * requires sample flow DGMA"
<b>On request</b>	DX Gateway IPC. Provides DULCONNEX to DACb and Device Access to DACb web interface.

#### ORDERING EXAMPLE [DX-A-B-C-D-E-F-G-H-I-J-K]

2 x gamma/ X pumps would be; 1 x DX Gateway, 1, x subscription, 1 x Factory Set-up

**ORDER CODE WOULD BE; DX-0-1-1-0-0-0-0-0-1-0-0**



#### NOTES

- Item "A" DACb Requires LAN Card
- Item "C" DULCONNEX subscription must be ordered.
- Item "G" is required when quoting DULCONNEX for a UVCb.
- Item "I" CIO modules need to be ordered separately.
- Item "K" Sensor needs to be in the sample flow, requires DLG flow.



## 5.3 DULCONNEX

### 5.3.3 Pricing for DULCONNEX Packages

#### DULCONNEX Package for DACb

##### DX ADDER - DULCONNEX Add on Kit for DACb

PA51003580

Adds DULCONNEX to DACb pool packages. **Includes LAN & DX Gateway.**  
& 12 month subscription

Subscription included

Customer to provide Wi- Fi

Contractor subscription discount

##### DULCONNEX Annual Subscription

12 month subscription

zzDulcoSub

12 month subscription [CONTRACTOR ONLY]

zzDulcoSubCont

#### ProConnect Package for DACb

##### DULCONNEX IPC with LTE

PA51003609

##### ProConnect Annual Subscription

zzProSub

12 month data SIM plan [1G per month]



## 5.4 DULCOMETER® Fluoride Monitoring

### 5.4.1 Measured Variable, Fluoride in Drinking Water

#### Measurement principle and application

The DULCOMETER® fluoride meter is a potentiometric meter which uses an ion selective electrode (ISE) and a reference electrode to deliver a measurement signal in mV. The expertise of the newly developed fluoride ISE lies in the physical-chemical characteristics of the LaF3 crystals and the ion electrolytes which permit long-term stable and continuous measurement without additional use of special conditioning chemicals. Photometric measurement-based calibration is necessary only when commissioning and at occasional intervals. The typical and only use of our fluoride meter is for continuous monitoring at waterworks in which fluoride is metered for the prevention of tooth decay. Installation conditions for the fluoride electrode.

<b>Measurement range:</b>	0.05... 10 mg/l fluoride
<b>pH range:</b>	5.5... 8.5
<b>Temperature range:</b>	1...35 °C
<b>Max operating pressure:</b>	1 bar

**Note:** The maximum admissible operating pressure for the following mounted measurement equipment is 1-bar.



PA56003465 - with REFR Standard Supply

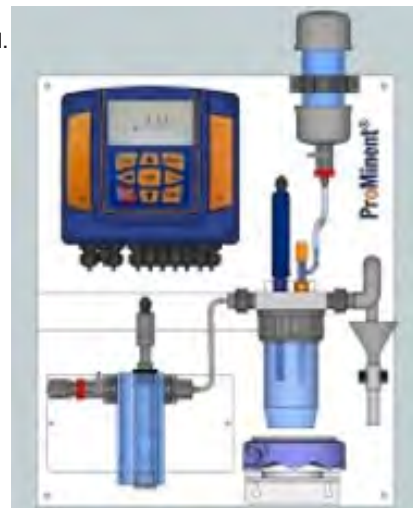
#### Fully-mounted Fluoride Monitor

For quick and easy installation our fluoride meter is supplied ready-mounted on a PE panel.

The following components are included:

- FLEP 010 SE fluoride sensor
- Reference electrode
- Pt 100 SE temperature sensor
- 4-20 mA FVP1 measurement transducer
- DLG IV inline probe housing for electrodes
- DACb diaLog fluoride monitor, with display of fluoride concentration and temperature, with automatic temperature compensation, 0/4 ... 20 mA output for measured variable, with pause control input, alarm and two threshold value relay outputs, (90-253 VAC)
- Magnetic stirrer with magnetic stirring rod for stirring sample water during calibration
- PVC pipework with ball stop/adjustment valve, rotameter with sample water connector

All parts are ready mounted on a white 600 x 500 mm PE panel and fully wired.



PA56003336 - with PHEN

#### Power Supply 90-253 VAC

	Part No.
Fluoride Monitor mounted on panel with REFR	PA56003465

**Note:** c/w air-break, REFR reference electrode, 25m 8x5 sample line, and 1 x 1/2" BSP to 8x5 PVC adaptor.

24V DC Version	PA56003478
----------------	------------

Fluoride Monitor mounted on panel with PHEN	PA56003336
---	------------

**Note:** c/w air-break, PHEN flowing junction reference electrode, KCl reservoir, 1000ml KCl, 25m 8x5 sample line and 1 x 1/2" BSP to 8x5 PVC adaptor.

TISAB Add-on Module assembly c/w 60 lt tank	PA56003043
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PA56003043



## 5.4 DULCOMETER® Fluoride Monitoring

### 5.4.2 Measured Variable, Fluoride in Drinking Water Spare Parts



#### Double Validation Unit

Using the same sensors as for the single measurement stations, the dual measurement station can be used to give an alarm output if the 2 measured variables differ more than a preset amount.

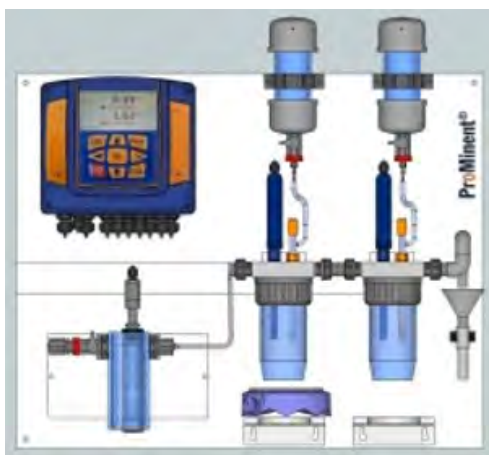
This means that the unit can be used where there is a requirement for double validation. A 0/4...20 mA output is available for each channel of the 2 channel diaLog® instrument.

A single magnetic stirrer is provided as standard as normally one channel is calibrated at a time. A second magnetic stirrer is available as an option.

Both options with the REFR or the PHEN reference electrodes with flowing junctions are available.

All come pre-mounted on a 750mm wide x 600mm high panel, fully wired.

#### Power Supply 90-253 VAC



#### Part No.

**Dual Channel Fluoride Monitor with REFR** PA56003466

**Note:** c/w air-break, REFR reference electrodes, 25m 8x5 sample line, and 1 x 1/2" BSP to 8x5 PVC adaptor.

#### Part No.

**Dual Channel Fluoride Monitor with PHEN** PA56003338

**Note:** c/w air-break, PHEN flowing junction reference electrodes, KCl reservoir, 1000ml KCl, 25m 8x5 sample line and 1 x 1/2" BSP to 8x5 PVC adaptor.

**Note:** this unit is NOT our STANDARD SUPPLY.  
**IF REQUIRED CONTACT SYDNEY OFFICE.**

Replacement Parts	Part No.
FLEP 010 SE fluoride sensor	1028279
Transmitter FPV1 4-20mA	1028280
REFR-SE reference electrode	1083790
PHEN 112 SE 3D reference electrode	150078
REFP-SE reference electrode	1018458
Pt 100 SE temperature sensor	305063
Bubble Assist	A27023421
Polishing paste	559810
KCl solution 3 molar 250ml.	791440
KCl solution 3 molar 1000ml.	791441
KCl Reservoir (new style)	PA08023334
<b>For older Systems</b>	
FLE 010 SE fluoride sensor	1010311
Transmitter FV1 4-20mA	1009962
Electrolyte Vessel	305058





## 5.5 DULCOMARIN 3

### 5.5.1 Measuring and Control System

The measuring and control system **DULCOMARIN 3** is your digital link to the technology of the future.

It controls the entire range of swimming pools – from adventure pools to private pools.

The system is operated using the large 7" touch display.

The measuring and control system DULCOMARIN 3 is a reliable system for the treatment of swimming pool water.

The intuitive menu guidance is also supported by videos and shows step-by-step calibration of the sensors.

It is operated using the system's touch display. You can also operate the DULCOMARIN 3 remotely online.

This connects you to your DULCOMARIN 3 using your smartphone or any other Internet-compatible end device (VNC app needed). You can therefore also control other features, lighting, circulating pumps and filter backwash. The system can be extended at any time to meet future requirements.

The circulation capacity of the pumps adapts to the water quality in Eco! operating mode. Chemicals are metered precisely depending on demand based on the measured values, reducing ongoing energy costs and saving chemicals.

The DULCOMARIN 3 Global Unit is the central element of the measuring and control system. All information relating to the individual pools and associated control circuits is collated here. Use the DULCOMARIN 3 Compact version for one filtration circuit, and the Global Unit, which can display up to 16 Local Units, for multi-pool systems with up to 16 filtration circuits. Networking is provided by the LAN-based cNet.

The DULCOMARIN 3 can be connected as standard via Modbus RTU and corresponding gateways to a PLC or building bus system.

#### Your Benefits

- Energy- and cost-efficient control of your swimming pool
- The DULCOMARIN 3 can be accessed from any Internet-compatible device (VNC app needed)
- Simple calibration of the sensors with video support
- Status messages and alarms issued by e-mail
- View and assess the time-based curve of the measured values of all pools on the integrated screen plotter
- Simple, unrestricted LAN connection – like in your home network
- Scope for upgrading at a later date by means of the ProMinent internal cNet bus system
- Intelligent chlorine sensors: save the sensor data and are always in the optimum measuring range thanks to auto-ranging
- Intelligent metering pumps: provide information on operating parameters, such as chemical level statuses and pump capacity, within the range of 0.7 l/h to 1,000 l/h
- Connection to a PLC or building control system via Modbus RTU and gateways with other fieldbus systems.
- View historical measured data directly on the controller: thanks to the integral screen plotter with data logger via USB

#### Field of Application

- Regulation and control of the entire swimming pool
- Water parks
- Public swimming pools
- High-end private pool



## 5.5 DULCOMARIN 3

### 5.5.2 Identity Code & Pricing for DULCOMARIN 3

DCPa	
<b>Regional Design</b>	
EU	Europe (Standard)
<b>Type of mounting</b>	
W	Wall mounting
<b>Version</b>	
PM	ProMinent
<b>Function</b>	
G	Single/Multipool, Global Unit, cNet, there needs to be one global unit in a system
H	Multipool, Local Unit, cNet, there can be up to 16 local units
R	Replacement central unit for DULCOMARIN II, along with: M, A, P, N, R, F, I modules
<b>Application</b>	
A	7" touch operation
<b>Supply voltage</b>	
6	100... 230 V, 50-60 Hz
<b>Communication</b>	
X	LAN with VNC server (please order LAN cable separately)
W	WLAN with VNC server
<b>Module slot 1</b>	
0	Without Module
1	Module 2 x mV/temperature (inputs pH/ORP)
<b>Module slot 2</b>	
0	Without Module
4	Module 2 x mA outputs (measured value/control)
<b>Module slot 3</b>	
0	Without Module
4	Module 2 x mA outputs (measured value/control)
<b>Expansion level 4 / module slot 4</b>	
0	Without Module
4	Module 2 x mA outputs (measured value/control)
<b>Software packages</b>	
01	P1 standard with VNC, email, data logger, etc.
<b>Smart Control</b>	
XX	None
<b>Operating Instructions</b>	
EN	English
<b>Approvals</b>	
01	CE

**Note:** To add conductivity measurement, please discuss with our Technical Department.  
**Note:** For complete Backboard Packages, please contact our Aquatics Department.

DCPa EU



## 5.6 DULCOMETER® Transducers DMT

### 5.6.1 Measured Variables: pH, Redox, Temperature, Conductivity

DULCOMETER® DMT type transmitters are compact 2-wire transmitters for measured variables pH, redox, chlorine, conductive conductivity, temperature. Easily combined with programmable memory controllers.

#### Summary of advantages:

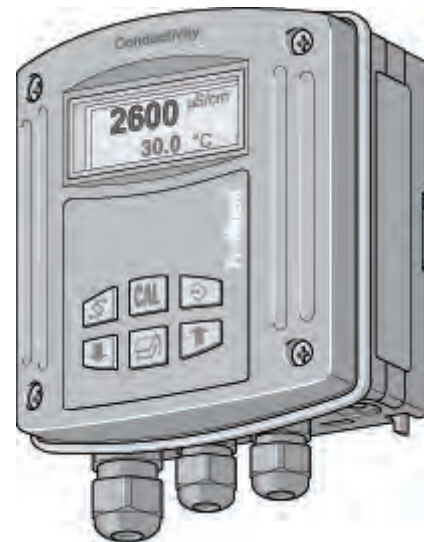
- Reliable measurement due, e.g., to symmetrical input for pH/redox signals
- High level of operating safety, e.g. probe monitoring (pH), electrical isolation
- Simple flexible installation
- Full text user guidance
- Automatic buffer recognition (pH)
- Autoranging (conductivity)
- Compact design
- Switch between pH, redox and temperature

#### Applications:

- process control in food and beverage industry
- chemical and pharmaceutical industries
- water treatment
- waste water treatment
- power stations

#### Technical Data

<b>Measurement range:</b>	pH -1.00...15.00 -1200...+1200 mV redox voltage 0.01...50.0 mg/l chlorine -20...+150 °C 1 µS/cm...200 mS/cm (autoranging)
<b>Cell constant:</b>	0.006...12.0/cm for conductivity
<b>Resolution:</b>	pH 0.01 1 mV 0.1 % from measurement range for chlorine 0.1 °C Conductivity 1/1000 of display value (min. 0.001 µS/cm)
<b>Reproducibility:</b>	0.5 % from measurement range
<b>Measurement input:</b>	mV terminal (pH, redox); input resistance >5 x 10 <sup>11</sup> Ω Chlorine terminal (DMT chlorine probes) Pt 100/1000 terminal Conductivity terminal (2 or 4 wire connector)
<b>Correction variable:</b>	Temperature via Pt 100/1000 (pH, chlorine, conductivity)
<b>Current output:</b>	4...20 mA, fault current 23 mA
<b>Supply voltage:</b>	16...35V DC (nominal 24v)
<b>Communication interface:</b>	Profibus DP (wall-mounted version only)
<b>Ambient temperature:</b>	-5...+55 °C
<b>Climatic conditions:</b>	up to 95 % relative humidity (non-condensing)
<b>Enclosure rating:</b>	IP 65 (wall/pipe mounted) IP 54 (control panel installation)
<b>Display:</b>	graphical display
<b>Housing:</b>	PPE
<b>Dimensions:</b>	125 x 135 x 75 mm (WxHxD)
<b>Weight:</b>	approx. 450 g



**Sensors** see section 6.  
**In-line probe housings, signal cables,**  
see section 6/16



## 5.6 DULCOMETER® Transducers DMT

### 5.6.2 Identity Code Ordering System For DMT

#### DMT DULCOMETER® Transducers

##### A Version

###### Installation:

- S Control panel mounted<sup>1</sup>
- W Wall mounted (also column mounted)

###### Version:

- 0 With ProMinent® logo

###### Electrical connection:

- 9 Loop powered 4-20 mA (2 wire, auxillary power 16 ... 40 v DC) standard
- 5 Profibus DP version 24 v DC<sup>2</sup> nominal

###### Communication interface:

- 0 None
- 4 Profibus® DP<sup>3</sup> ( Assembly type W only)

###### Measured variable 1:

- P pH
- R Redox
- T Temperature
- C Chlorine
- L Conductivity

###### Measured variable 2 (Correction variable)

- 0 None (for measured variable T)
- 1 Temperature Pt 1000/Pt 100

###### Enclosure rating:

- 0 Standard

###### Language:

- E English

The final 4 digits in the identity code give the software presettings, e.g. cell constant at conductivity.  
0 = standard settings  
Presetting options available on request.

###### Note:

- 1) The panel mounted version does not include the rear housing.
- 2) Choose the 24 V DC electrical connection with the Profibus DP
- 3) Wall-mounted version only

###### Note:

Power Supply if required 24Volt DC up to 1 amp

**MP3494**

DMT A W 0 9 0 P 1 0 E 0 0 0 0



## 5.7 DULCOMETER® Test Instruments

### 5.7.1 KCl Solutions & Buffers



	Part No.
3-molar KCl solution, 50 ml	505533
3-molar KCl solution, 250 ml	791440
3-molar KCl solution, 1000 ml	791441
Buffer solution 475 mV, 100 ml	A52003313
Buffer solution 475 mV, 250 ml	A52003314
Buffer solution 220 mV, 50 ml	506244
Buffer solution pH 4.0 - red, 50 ml	506251
Buffer solution pH 4.0 - red, 100 ml	A52003308
Buffer solution pH 4.0 - red, 250 ml	A52003309
Buffer solution pH 4.0 - red, 1000 ml	A52003310
Buffer solution pH 7.0 - green, 50 ml	506253
Buffer solution pH 7.0 - green, 100 ml	A52003305
Buffer solution pH 7.0 - green, 250 ml	A52003306
Buffer solution pH 7.0 - green, 1000 ml	A52003307
Buffer solution pH 10.0 - blue, 50 ml	506255
Buffer solution pH 10.0 - blue, 100 ml	A52003311
Buffer solution pH 10.0 - blue, 250 ml	A52003312



## 5.7 DULCOMETER<sup>®</sup> Test Instruments

### 5.7.2 Portamess<sup>®</sup> Portable Meters, Measured Variable pH

#### Advantages

- Smooth membrane keypad
- Large easy-to-read LC display
- Integrated sensor quivers for protection of electrode
- Robust housing (enclosure rate IP 66)
- Robust, watertight gold plated connector sockets

#### Applications

- Industrial
- Environmental protection
- Food production
- Water & wastewater investigation

#### Technical Data

##### Portamess<sup>®</sup> 911pH

<b>Measurement range:</b>	pH: -2.00...+16.00 mV: -1300...+1300 °C: -20.0...+120
<b>Measurement error:</b>	pH: < 0.01 mV: < 0.1 % of measured value ±0.3 mV °C: < 0.3 K
<b>Measured variable</b>	
<b>buffer memory:</b>	100 storage spaces: pH/mV, °C, time and date
<b>Sensor adjustment:</b>	8 buffer record options
<b>Temperature compensation:</b>	manual
<b>Explosion protection:</b>	IP 66
<b>Operating life:</b>	2000 hours with 3 AA batteries
<b>Dimensions:</b>	133 x 160 x 30 mm (WxHxD)
<b>Weight:</b>	Approx. 560 g with batteries
<b>Supplied as standard:</b>	measuring device, carrying case, operating instructions manual in German, English and French.



#### Part No.

Portamess <sup>®</sup> 911 pH (not Ex)	1008710
--	---------

**Notice:** the PHEKT 013 F pH electrode and the buffer solutions are **NOT INCLUDED** as standard.

	Part No.
PHEKT 013 F	1036537
Buffer solution pH 4.0 - red, 50 ml	506251
Buffer pH 7, 50 ml	506253

See page 6.2 for pH probe data

**NOT A STOCK ITEM**



## 5.8 DULCOMETER® Photometer DT1

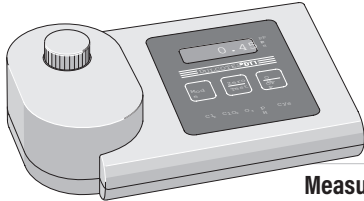
### 5.8.1 DULCOMETER® Photometer DT 1

#### Advantages

- Portable compact Photometer
- Simple to operate with support text
- Simple reliable measurement of chlorine, chlorine dioxide, bromine, ozone, pH and cyanuric acid
- Self-diagnostic

#### Applications

- swimming pool
- drinking water
- process water



#### Technical Data

<b>Measurement range of DT1:</b>	0.05...6.0 mg/l Chlorine free (DPD1) + total (DPD1+3) 0.1...13.0 mg/l Bromine (DPD1) 0.05...11 mg/l Chlorine Dioxide (DPD1) 0.03...4.0 mg/l Ozone (DPD4) 6.5...8.4 pH (phenol red) 1...80 mg/l Cyanuric Acid
<b>Measurement range of DT3:</b>	1...50 / 40...500 mg/l Hydrogen Peroxide
<b>Measurement range of DT4:</b>	0.03...2.5 mg/l Chlorite 0.05...11 mg/l Chlorine Dioxide 0.05...6.0 mg/l Chlorine
<b>Measuring tolerance:</b>	Dependant upon measured value and measuring method
<b>Battery:</b>	4 x batteries AA/LR6
<b>Ambient temperature:</b>	5...40 °C
<b>Relative humidity:</b>	30...90 % (non-condensing)
<b>Housing material:</b>	ABS
<b>Keypad:</b>	Polycarbonate
<b>Dimensions:</b>	190 x 110 x 55 mm (LxWxH)
<b>Weight:</b>	approx. 0.4 kg

	<b>Part No.</b>
<b>Photometer DT1B</b> kit with carrying case	<b>1039315</b>
<i>Included as standard with DT1 are accessories, cells and 15ml bottles of reagents DPD1, DPD1 Buffer, DPD3, Phenol Red tablets (50) and Cyanuric Acid tablets (50).</i>	
<b>Photometer DT3B</b> kit with carrying case	<b>1039317</b>
<i>Included as standard with DT3 are accessories, cells and reagents for hydrogen peroxide.</i>	
<b>Photometer DT4B</b> kit with carrying case	<b>1022695</b>
<i>Included as standard with DT1 are accessories, cells and reagents for chlorine and chlorine dioxide detection.</i>	

<b>Consumable items</b>	<b>Part No.</b>
DPD 1 buffer, 15 ml (Note: approx 360 drops per 15ml)	<b>1002857</b>
DPD 1 reagent, 15 ml	<b>1002858</b>
DPD 3 solution, 15 ml	<b>1002859</b>
Phenol red tablets R 175 (100 in each)	<b>305532</b>
Cyanuric acid tablets R 263 (100 in each)	<b>305531</b>
3 off spare cells: round cells with covers for DPD phenol red and cyanuric acid detection (DT1 and DT2B)	<b>1007566</b>
3 off spare cells for fluoride detection (DT2A and B)	<b>1010396</b>
DPD reagents set, 15 ml each: 3 x DPD 1 buffer, 1 x DPD 1 reagent, 2 x DPD 3 solution (Total = 6 BOTTLES)	<b>1007567</b>



## 5.9 DULCOMETER® Technology Ancillary Equipment

### 5.9.1 DULCOMETER® 4...20 mA Transmitters (2-Wire Technology)

#### Typical Applications

Measurement signal transfer over large distances, or to transfer signals subject to disturbance (e.g. pH, redox) in conjunction with D1C, D2C & DULCOMARIN® measurement and control systems, or for direct connection to PC/PLC.

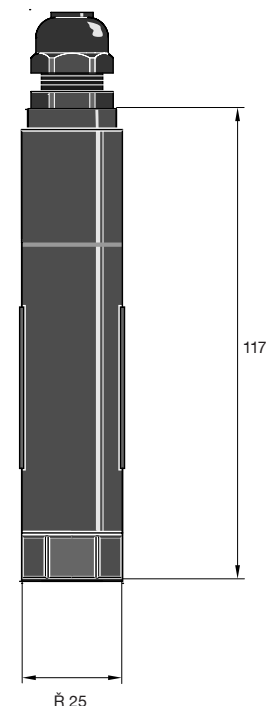
#### Advantages

- Safer signal transfer, even across large distances
- Interference free 4-20 mA signal
- Simple installation directly onto sensor

#### Technical Data pH transmitter 4...20 mA, type pHV1

Measurement range:	pH 0...14
Accuracy:	better than pH 0.1 (typical $\pm$ pH 0.07)
Socket:	SN6
Input resistance:	$> 5 \times 10^{11} \Omega$
Signal output:	4...20 mA † -500...+500 mV † pH 15.45...-1.45 not calibrated, not electrically isolated
Power supply:	18...24 V DC
Ambient temperature:	-5...50 °C, non-condensing
Enclosure rating:	IP 65
Dimensions:	141 mm length, 25 mm $\bar{R}$

Part No.  
809126



#### Redox transmitter 4...20 mA, type RH V1

#### Technical Data as for pH transmitter, but:

Measurement range:	0...1000 mV
Accuracy:	better than $\pm 0.5$ mV (typical $\pm 3$ mV)
Input resistance:	$> 5 \times 10^{11} \Omega$
Signal output:	4...20 mA † 0...+1000 mV not electrically isolated
Power supply:	18...24 V DC

Part No.  
809127

#### Temperature transmitter 4...20 mA, type Pt 100 V1

#### Technical Data as for pH transmitter, but:

Measurement range:	0...100 °C
Accuracy:	better than $\pm 0.5$ °C (typical $\pm 0.3$ °C)
Input resistance:	$\sim 0 \Omega$
Signal output:	4...20 mA † 0...+100 °C not electrically isolated
Power supply:	18...24 V DC

Part No.  
809128





## 5.9 DULCOMETER<sup>®</sup> Technology Ancillary Equipment

### 5.9.2 Electrodeless Conductivity Sensor

#### Inductive Conductivity

#### ELECTRODELESS SENSOR LF 654X



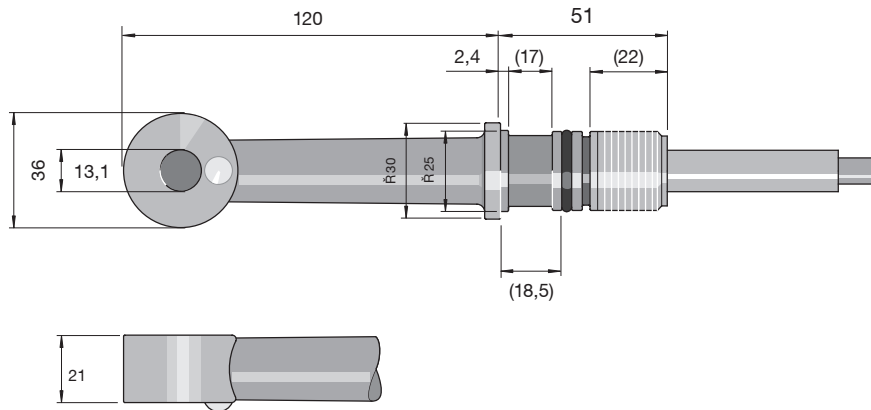
<b>Cell factor:</b>	Nominal value 2.15 cm <sup>-1</sup>
<b>Measurement range:</b>	0.001 mS/cm ... 2000 mS/cm
<b>Material:</b>	Cell: PEEK, Seal EPR
<b>Temperature probe:</b>	NTC 100 ký
<b>Temperature:</b>	-5...+120 °C
<b>Pressure:</b>	0...17.5 bar
<b>Cable length:</b>	6 m
<b>Explosion protection:</b>	EEx ia IIC T4...T6
<b>Mounting:</b>	3/40 NPT thread

**Note:** LF 654X can be used for explosive and non-explosive applications.

**Part No.**

**1024416**

**Note:** See also Section 6 Sensors



## 5.9 DULCOMETER® Technology Ancillary Equipment

### 5.9.3 Conductivity Sensor

#### Conductivity sensor

##### 4-ELECTRODE SENSOR LF 204

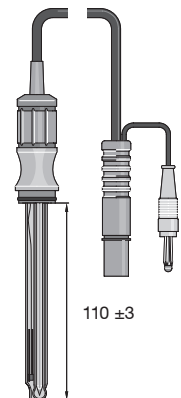
Number of electrodes:	4
Electrode shaft material:	Black Epoxy
Electrode material:	Graphite
Shaft length:	120 mm
Shaft diameter:	15.3 mm
Cable length:	1.5 m
Temperature probe:	NTC (30 k $\Omega$ ) -5...+100 °C
Immersion depth:	min. 36 mm Max. total length inc. cable
Pressure resistance:	2 bar
Temperature range:	0...90 °C
Cell constant:	0.475 cm <sup>-1</sup> $\pm$ 1.5 %
Measurement range:	1 $\mu$ S/cm...500 mS/cm



Conductivity sensor LF 204

Part No.  
1008723

Note: See also Green Pages Catalogue



## 5.10 Turbidity Measuring Points DULCOTEST®

### 5.10.1 Turbidity Measuring Point DULCO® turb C

**Reliable on-line measurement of turbidity with DULCOTEST® DULCO® turb C measuring points**

#### Measuring range 0 – 1,000 NTU

Turbidity measurements with DULCOTEST® DULCO® turb C: Compact measuring instrument that uses light scatter to measure turbidity, with a large measuring range and different designs to comply with ISO and EPA standards. Available with or without automatic cleaning.

The DULCOTEST® measuring points for turbidity DULCO® turb C with TUC 1, TUC 2, TUC 5, TUC 6 versions are compact, on-line turbidity measuring points consisting of a sensor, flow fitting and measuring instrument. The measuring instrument allows the calibration to be displayed, the measured value to be forwarded using a 4– 20 mA signal and limit violations and equipment failure to be indicated. The measuring cuvette integrated in the measuring instrument allows the device to be operated in the process line bypass. The optical measuring equipment will not make contact with the measured medium.

The intended application is the treatment of potable water, in which DULCO® turb C can be used in all treatment stages from raw water and filter monitoring to measurement of fine turbidity in dispensed potable water. Further applications include the monitoring of turbidity in slightly polluted process water, waste water as well as water requiring treatment from the food and beverage industry up to turbidity values of 1,000 NTU. In contrast to the TUC 1/TUC 2 types, the measuring points TUC 5, TUC 6 are the successor models to types TUC 3 and TUC 4 and like these include an ultrasound-based self-cleaning function. This helps particularly when used for deposit-forming waters for extending the maintenance intervals.

The measuring principle is similar to a scattered light measurement. The light beam radiated into the measuring cuvette filled with sample water is scattered on turbidity particles and the scattered light is measured at right angles (90°) to the radiated light (nephelometric measurement). The unit of measurement for turbidity can be given as a NTU (Nephelometric Turbidity Unit) or as an FNU (Formazin Nephelometric Unit). The measuring process in types TUC 1/TUC 5 (infrared light) corresponds to the global standard ISO 7027 and the European standard DIN EN 27027. The measuring process in types TUC 2/TUC 6 (white light) corresponds to the US standard USEPA 180.1.

#### Your benefits

- Compact turbidity measuring station with integrated sensor, flow cuvette and measuring instrument saves space and is simple to install and operate.
- High dynamic measuring range between 0.02 and 1,000 NTU permits broad-based use in all stages of potable water treatment. Also ideal for monitoring waste water from clarification plants and for monitoring ruptures with filters.
- Short response times thanks to small-volume measuring cuvette.
- Long-term stable measurements, even in contaminated water, by the optional ultrasonic cleaning of the measuring cuvette.
- Fast and simple calibration on site by optionally available, pre-assembled and time-stable calibration standards.

#### Technical details

- The measuring process in types TUC 1/TUC 5 (infrared light) corresponds to the global standard ISO 7027 and the European standard DIN EN 27027.
- The measuring process in types TUC 2/TUC 6 (white light) corresponds to the US standard USEPA 180.1.

#### Field of application

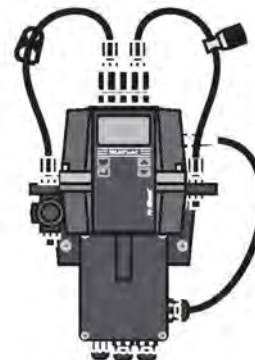
- Potable water treatment, for all treatment steps: from raw water and filter monitoring to measuring fine turbidity in the potable water that is to be discharged
- Monitoring of turbidity in slightly polluted industrial water, waste water and water requiring treatment in the food and beverage industry up to a turbidity value of 1,000 NTU



## 5.10 Turbidity Measuring Points DULCOTEST®

### 5.10.1 Turbidity Measuring Point DULCO® turb C

<b>Measuring Range</b>	0 - 1000 NTU
<b>Accuracy:</b>	± 2 % of the indicated value or ± 0.02 NTU below 40 NTU depending on which value is greater ± 5 % of the indicated value above 40 NTU
<b>Resolution:</b>	0.0001 NTU below 10 NTU
<b>Response time:</b>	Configurable
<b>Display:</b>	Multiple row LCD display with background lighting
<b>Alarm Relay:</b>	Two programmable alarms, 120-240 VAC, 2 A Form C relay
<b>Output Signal:</b>	4...20 mA, 600 Ω, electric isolation: dual insulation, interference surge category II
<b>Communication interface Max. pressure</b>	Bi-directional RS-485, Modbus Integrated pressure regulating valve regulates 1380 kPa (200 psi) on the flow rate
<b>Flow:</b>	6...60 l/h
<b>Temperature:</b>	1...50 °C
<b>Materials in Contact With the Medium:</b>	Polyamide (PA), silicone, polypropylene (PP), stainless steel, borosilicate glass
<b>Voltage supply:</b>	100 – 240 V AC, 47 – 63 Hz, 80 VA
<b>Hydraulic connections:</b>	Black hose, inside 4.75 mm, outside 8 mm, installation in the bypass for the process main line
<b>Ambient conditions:</b>	Not suitable for operation outdoors. Maximum operating altitude 2000 m above sea level. Maximum 95% relative air humidity (non-condensing).
<b>Enclosure rating:</b>	IP 66, NEMA 4x
<b>Standard:</b>	Infrared light: ISO 7027, DIN EN 27027
<b>Dimensions H x W x D</b>	35 x 30 x 30 cm
<b>Shipping weight:</b>	2.5 kg



	Standard	Ultrasonic Cleaning	Part No.
<b>TUC 5</b>	Infrared light: ISO 7027, DIN EN 27027	Yes	<b>P1115440</b>
<b>TUC 6</b>	White light: US EPA 180.1	Yes	<b>P1115441</b>

**Note:** both the above supplied with 25m 8x5 sample line x 2 off 1/2" BSPT to 8x5 adaptors. TUC 1 & TUC 2 models are available, but do not feature ultrasonic cleaning.

Spare Parts	Part No.
Drying agent - Dessicant	<b>1037701</b>
TUC 1/TUC 2 cuvette (set with 3 no.)	<b>1037877</b>
Cuvette TUC 3/TUC 4/TUC 5/TUC 6	<b>1037878</b>
Infrared lamp TUC 1/TUC 3/TUC 5	<b>1037702</b>
White light lamp TUC 2/TUC 4/TUC 6	<b>1037703</b>
Hose set TUC 1/TUC 2/TUC 3/TUC 4	<b>1037879</b>
Hose set for TUC 5 and TUC 6	<b>1116180</b>
Pressure regulating valve	<b>1037885</b>
Chemical Turbidity Standard 0.02 Ntu 1 Litre	<b>53030*</b>
Chemical Turbidity Standard 10 Ntu 1 Litre	<b>53000*</b>
Chemical Turbidity Standard 1000 Ntu 1 Litre	<b>53070*</b>

**Note:** Non-stock items. Lead time 2-3 weeks.

Accessories	Part No.
Calibration set	<b>1037699</b>
Flow control	<b>1037880</b>
Air bubble trap	<b>1037700</b>



## 6.0 DULCOTEST® Sensor Technology

### 6.0.1 Dulcotest® PT100 Temperature Sensor

All probes are combination probes that have been proven in both industrial and laboratory applications.

Before being dispatched all probes are tested twice to ensure they are functioning correctly; the first time immediately after being manufactured,

the second time about a fortnight afterwards in order to eliminate glass-specific manufacturing risks.

All pH combination probes have their voltage zero at pH 7 ± 0.5.

In the reference electrode system of the ProMinent® pH and Redox combination probes an Ag/AgCl conductance is generally used which is not only less harmful to the environment than the calomel type (mercurous chloride) but can also be used in a wider temperature application range.

The shaft diameter of all probes is 12 mm. All dimensions specified are approximate since pH and Redox probes are hand-made.

**Please note:**

The service life and storage life of all pH and Redox electrodes is limited which is why they should only be kept in storage for as short as possible.

The electrodes must be stored solely with the plugged on wetting caps in 3-molar potassium chloride solution.

They may not be stored dry on any account!

The ageing of electrodes depends greatly on the application conditions.

The service life is between one and three years for problem-free applications as well as at room temperature and average pH values. In extreme operating temperatures only two to three months. Every electrode ages even when it is not in operation!

Various influences can shorten the service life of electrodes, e.g. chemical reactions with the reference electrode or in the diaphragm, extreme pH values, high temperatures, abrasive media or media containing hydrofluoric acid.

From the date of delivery a 6 month warranty for material and workmanship is granted for all pH and Redox electrodes.

- Pt 100 with Push-and-Twist Connector for Type SN 6
- Coax Connector
- pH Combination Probes with Push-and-Twist Connector for Type SN 6 Coax Connector
- Redox Combination Probes with Push-and-Twist Connector for Type SN 6 Coax Connector

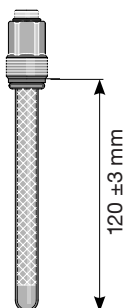
**For all other pH & Redox Probes and associated equipment see the appropriate section in the 'Green Page' Catalogue**

#### Temperature Sensors

Robust Pt 100/Pt 1000 temperature sensor, compatible with bypass, immersion and installation fittings, for temperature monitoring or temperature compensation of sensors for other measured variables.

#### Your Benefits

- Mechanically stable and chemically inert glass surround.
- Simple process connection together with all the sensors needed for the overall solution with suitable fittings.
- Transmitter with display/operation and without display/operation for transmission/conversion of the primary signal into a 4-20 mA signal and for transmission to a central control unit (PLC).
- Control units with graded performance properties, coordinated to requirements.



<b>Temperature:</b>	0 ... 100 °C
<b>Max. pressure:</b>	10.0 bar
<b>Thread:</b>	PG 13.5
<b>Electrical connection:</b>	SN6
<b>Typical applications:</b>	Temperature measurement and pH temperature correction

	Part No.
<b>Pt 100 SE</b>	<b>305063</b>
<b>Pt 1000 SE</b>	<b>1002856</b>
<b>SN6 - Open end cable 5m [for above]</b>	<b>1003208</b>



## 6.1 DULCOTEST® pH Probes

### 6.1.1 Dulcotest® PHER, PHEN and pH Combination Probes

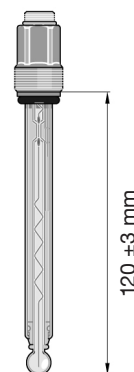
#### PHER 112 SE

<b>pH range:</b>	1...12
<b>Temperature:</b>	0...80 °C
<b>Max. pressure:</b>	6 bar
<b>Min. conductivity:</b>	>50 µS/cm

ELECTROLYTE WITH SOLID KCL SUPPLY (SALT RINGS IN THE REFERENCE ELECTROLYTE)

<b>Diaphragm:</b>	PTFE ring diaphragm
<b>Installation Length:</b>	120 ±3 mm
<b>Connection:</b>	PG 13.3 SN6

**Typical applications:** Municipal and industrial wastewater, process water, water in the chemical and paper manufacturing industries.  
General, for water with suspended solid content.



**Part No.**  
1001586

#### PHEN 112 SE 3D

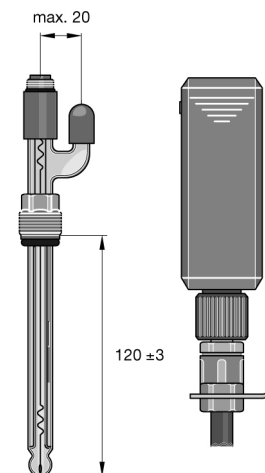
<b>pH range:</b>	1...12
<b>Temperature:</b>	0...80 °C
<b>Max. pressure:</b>	Atmospheric pressure
<b>Min. conductivity:</b>	>50 µS/cm

KCl electrolyte, refillable

<b>Diaphragm:</b>	3 Ceramic diaphragms
<b>Installation Length:</b>	120 ±3 mm
<b>Connection:</b>	PG 13.3 SN6

**Typical applications:** Waste water

**Note:** Supplied without storage container and tubing.



**Part No.**  
150078

#### ACCESSORIES

PE storage container and tubing	305058
PVC Australian storage container and tubing	PA08023334
KCl solution 3 molar 250ml.	791440
KCl solution 3 molar 1000ml.	791441

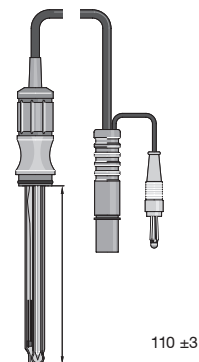
**Note:** See Green Pages Catalogue for POOL Probes and industrial probes.

#### pH-Combination Probes With Fixed Cable

##### PHEKT 013 F for Portamess® manual measuring devices

Plastic shaft electrode with inbuilt Pt 1000 for temperature display and compensation, 1m fixed cable, device side DIN and banana plug.

<b>pH range:</b>	0...13
<b>Temperature:</b>	0...80 °C
<b>Max. pressure:</b>	atmospheric pressure
<b>Min. conductivity:</b>	>150 µS/cm
<b>Diaphragm:</b>	fibreglass
<b>Length:</b>	110 mm ± 3 mm
<b>Device plug:</b>	DIN plug/banana plug



**Part No.**  
1036537

PHEKT 013 F ex HD works



## 6.2 DULCOTEST® pH Probes

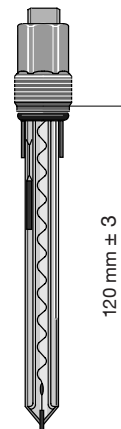
### 6.2.1 Dulcotest® CLB 2-µA Chlorine Senso/ RHEP-Au-SE Gold Tipped Sensor

**Note: See Green Pages Catalogue for POOL Probes & alternative Industrial probes.**

#### RHEP-Au-SE

##### GOLD PIN ELECTRODE

Temperature:	0...80 °C
Max. pressure:	6 bar
Min. conductivity:	>150 µS/cm
Diaphragm:	ceramic
Installation length:	120 mm ± 3 mm Mounting hole minimum 14.5 dia. mm
Connection:	PG 13.3 SN6
Typical applications:	Cyanide detoxification, ozone monitoring, saltwater pools or for use with saltwater generator. Do not use with media containing chlorine.



Part No.

RHEP-Au-SE ex HD works

1003875

Sensor for Chlorine, **ONLY** for use with **Compact Controller**

#### CLB 2-µA

Measured variable:	free chlorine (hypochlorous acid HOCl)
Measuring range:	0.05 - 5.0 mg/l: linear, can be used for shock chlorination up to 10.0 mg/l
Reference method:	DPD1
pH range:	5.0 ... 9.0
Temperature:	5 ... 45 °C
Max. pressure:	3.0 bar
Intake flow:	30...60 l/h (in DGMA), constant flow needed as flow-dependent signal
Power supply:	16...24 V DC (2-wire)
Connection:	PG 13.3 SN6
Output signal:	Non-amplified primary current signal, not temperature-compensated, uncalibrated, not electrically isolated
Temperature compensation:	Pt 1000, integrated, calculation in the compact controller
Typical applications:	Swimming pool, drinking water, can also be used with membrane-free chlorine production electrolysis processes, even with varying media temperatures
Measurement and control equipment:	Compact controller
In-line probe fitting:	DGM, DLG III
Measuring principle:	amperometric, 3 electrodes, no diaphragm
Measuring range:	CLB 2-µA-5 ppm

Part No.

1038902



## 6.3 DULCOTEST® Amperometric Sensors

### 6.3.1 Amperometric Sensors for Chlorine, Bromine, Chlorine Dioxide, Chlorite, Ozone, Disolved Oxygen and Peracetic Acid

For optimum functioning of chlorine, bromine, chlorine dioxide and ozone measuring cells please note the following guidelines:

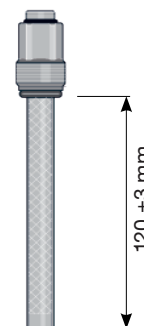
- Use DULCOMETER® measurement and control systems.
- Install only in ProMinent® DGM or DLGA in-line probe housings.
- Defined flow between 30 and 60 l/h.
- Chlorine measurement must only take place when pH is stable (CLE 3).
- Regular calibration with a Photometer (e.g. Type DT 1).

**Important:** Amperometric probes are **NOT electrically isolated**. When installing in external appliances (e.g.PLC), you should electrically isolate the supply voltage and the analogue input signal.

- Summary of features:
- High zero point stability
- Compact design
- Integrated temperature correction
- Simple to install
- Simple to maintain
- Short warm up period time
- Measurement signal virtually unaffected by flow

#### Chlorine dissolved in water is present in different forms:

<b>Free (active) chlorine:</b>	Cl <sub>2</sub> , HOCl (hypochlorous acid), OCl <sup>-</sup> (hypochlorite) recommended sensors: CLE (analysis: DPD 1).
<b>Combined chlorine:</b>	mono, di, trichloramine (analysis: DPD 4 - DPD 1).
<b>Organic combined chlorine:</b>	Of isocyanuric acid / isocyanurate bound chlorine (total available chlorine) and the resulting free (effective) chlorine; recommended sensor: CGE (analysis: DPD 1).
<b>Total chlorine:</b>	Sum of free and combined chlorine; recommended sensor: CTE (analysis: DPD 4).
<b>Applications:</b>	Chlorine measurement in drinking, swimming pool, process, industrial water and water of similar quality e.g. seawater/brine with up to 15 % chloride content.  We recommend the CGE, CTE chlorine sensors for measuring chlorine if pH value is high (8...9.5).
<b>Guidelines for device usage:</b>	The measuring cells type CLE cannot be used in the presence of iso-cyanuric acid/chlorine stabilisers!  The sensors with the suffix -mA are used with the measurement and control devices D1C, D2C and DULCOMARIN®. The sensors with the suffix -4P are used with the earlier WS controllers and for metering pumps with integrated chlorine controllers. DMT-type sensors are used for the DMT transducer. CAN-type sensors are used with the DULCOMARIN® II swimming pool controller.



**Note:** CLE sensors: The CLE type sensors cannot be used in liquids containing isocyanuric acid/chlorine stabilisers.





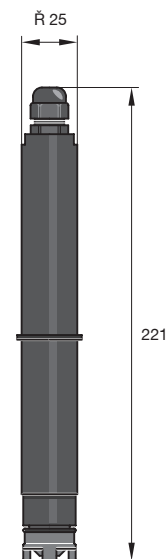
## 6.3 DULCOTEST® Amperometric Sensors

### 6.3.2 DULCOTEST® Sensors for free chlorine - CLE 3-mA & CLE 3.1-mA

#### Measurement of free chlorine

##### CLE 3-mA

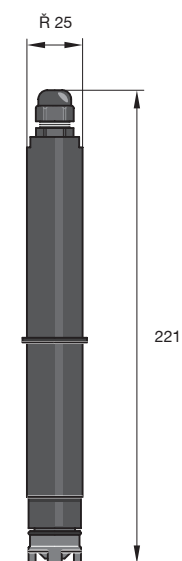
<b>Measured variable:</b>	Free chlorine (hypochlorous acid HOCl)
<b>Analysis:</b>	DPD 1
<b>Measurement range:</b>	0.01... 50 mg/l
<b>pH range:</b>	5.5...8.0 (up to pH 8.5 for pH correction in the D1C)
<b>Temperature range:</b>	5...45 °C (temperature compensated)
<b>Max. pressure:</b>	1 bar
<b>Flow:</b>	30...60 l/h (in DGM or DLGA)
<b>Power supply:</b>	16...24 VDC (two-wire technology)
<b>Output signal:</b>	4...20 mA † measurement range (un-calibrated) <b>Warning: no electrical isolation!</b>
<b>Typical applications:</b>	CLE 3-mA-0.5 ppm, potable water CLE 3-mA-2.0/10 ppm, swimming pool, potable, industrial, process water (surfactant free)
<b>Measurement and control devices:</b>	D1C, D2C, DAC
<b>In-line probe housing:</b>	DGM, DLGA



	Part No.
CLE 3-mA-0.5 ppm set, with 100 ml electrolyte *** not stocked***	792927
CLE 3-mA-2 ppm set, with 100 ml electrolyte *** not stocked***	792920
CLE 3-mA-5 ppm set, with 100 ml electrolyte	1033392
CLE 3-mA-10 ppm set, with 100 ml electrolyte	792919
CLE 3-mA-20 ppm set, with 100 ml electrolyte	1002964
CLE 3-mA-50 ppm set, with 100 ml electrolyte	1020531
CLE 3-mA-100 ppm set, with 100 ml electrolyte	1022786

##### CLE 3.1-mA

<b>Measured variable:</b>	Free chlorine (hypochlorous acid HOCl) where there is a high rate of combined chlorine and/or in the case of pH values up to 8.5 (with D1C pH correction).
<b>Analysis:</b>	DPD 1
<b>Measurement range:</b>	0.02...2.00 mg/l (CLE 3.1-mA-2 ppm) 0.01...5.0 mg/l (CLE 3.1-mA-5 ppm) 0.1...10.0 mg/l (CLE 3.1-mA-10 ppm)
<b>pH range:</b>	5.5...8.0 (up to pH 8.5 for pH correction in the D1C)
<b>Temperature range:</b>	5...45 °C (temperature compensated)
<b>Max. pressure:</b>	1 bar
<b>Flow:</b>	30...60 l/h (in DGM or DLGA)
<b>Power supply:</b>	16...24 VDC (two-wire technology)
<b>Output signal:</b>	4...20 mA † measurement range (un-calibrated) <b>Warning: no electrical isolation!</b>
<b>Typical applications:</b>	CLE 3-mA-2.0/10 ppm, swimming pool, potable, industrial, process water (surfactant free)
<b>Measurement and control devices:</b>	D1C, D2C, DAC
<b>In-line probe housing:</b>	DGM, DLGA

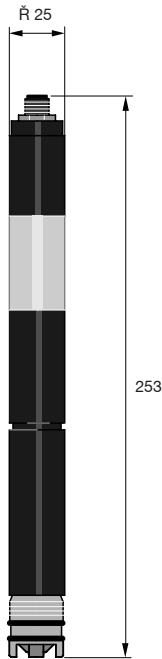


	Part No.
CLE 3.1-mA-0.5 ppm set, with 100 ml electrolyte	1020530
CLE 3.1-mA-2 ppm set, with 100 ml electrolyte	1018369
CLE 3.1-mA-5 ppm set, with 100 ml electrolyte	1019398
CLE 3.1-mA-10 ppm set, with 100 ml electrolyte	1018368



## 6.3 DULCOTEST® Amperometric Sensors

### 6.3.3 DULCOTEST® Sensors for Free Chlorine - CLE 3-CAN



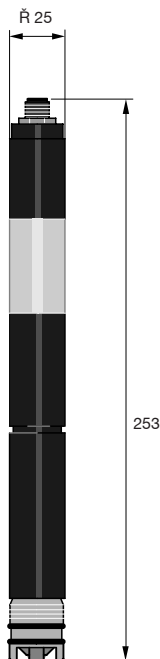
#### CLE 3-CAN

<b>Measured variable:</b>	Free chlorine (hypochlorous acid HOCl)
<b>Analysis:</b>	DPD 1
<b>pH range:</b>	5.5...8.0
<b>Temperature range:</b>	5...45 °C (temperature compensated)
<b>Max. pressure:</b>	1 bar
<b>Flow:</b>	30...60 l/h (in DGM or DLGA)
<b>Power supply:</b>	Via CAN interface(11-30V)
<b>Output signal:</b>	un-calibrated, temperature compensated, electrically isolated
<b>Typical applications:</b>	swimming pool, potable water (surfactant free)
<b>Measurement and control devices:</b>	DULCOMARIN®
<b>In-line probe housing:</b>	DGM, DLGA

#### Part No.

CLE 3-CAN-10 ppm 0.01 ... 10.0 mg/l  
complete with 100 ml electrolyte

1023425



#### CLE 3.1-CAN

<b>Measured variable:</b>	Free chlorine (hypochlorous acid HOCl) with large proportions of bound chlorine; to detect bound chlorine using DULCOMARIN® II and Sensor for Total Chlorine type CTE 1-CAN
<b>Reference Method:</b>	DPD 1
<b>pH range:</b>	5.5...8.0 (up to pH 8.5 for pH correction in the D1C)
<b>Temperature range:</b>	5...45 °C (temperature compensated)
<b>Max. pressure:</b>	1 bar
<b>Flow:</b>	30...60 l/h (in DGM or DLGA)
<b>Power supply:</b>	Via CAN interface (11-30V)
<b>Output signal:</b>	un-calibrated, temperature compensated, electrically isolated
<b>Typical applications:</b>	swimming pool, potable water with a high percentage of boundchlorine (surfactant free)
<b>Measurement and control devices:</b>	DULCOMARIN®
<b>In-line probe housing:</b>	DGM, DLGA

#### Part No.

CLE 3.1-CAN-10 ppm 0.01 ... 10.0 mg/l  
complete with 100 ml electrolyte

1023426

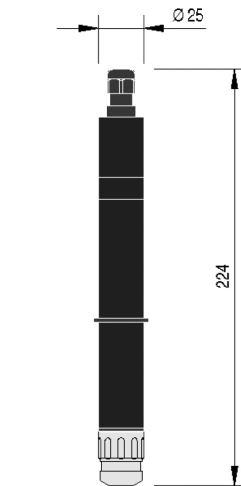


## 6.3 DULCOTEST® Amperometric Sensors

### 6.3.4 DULCOTEST® Sensors for Free Chlorine CL0/CLR

#### CLO 1-mA

<b>Measured variable:</b>	free chlorine (hypochlorous acid HOCl)
<b>Reference method:</b>	DPD1
<b>pH range:</b>	5,0 ... 9,0
<b>Temperature range:</b>	5 ... 45 °C
<b>Max. pressure:</b>	8,0 bar
<b>Intake flow:</b>	30...60 l/h (in DGM or DLG III), constant flow as flow-dependent signal
<b>Power supply:</b>	16...24V DC (2-wire)
<b>Output signal:</b>	4...20 mA = Measuring range, temperaturecompensated, uncalibrated, not electrically isolated
<b>Typical applications:</b>	swimming pool, uncontaminated drinking water and industrial service water, and can also be used together with diaphragm-free electrolysis processes
<b>Measurement and control equipment:</b>	D1C, D2C, DAC
<b>In-line probe housing:</b>	DGM, DLG III to 60 °C, special fitting for 60 °C-70 °C (on request)
<b>Measuring principle:</b>	amperometric, 3 electrodes, no diaphragm

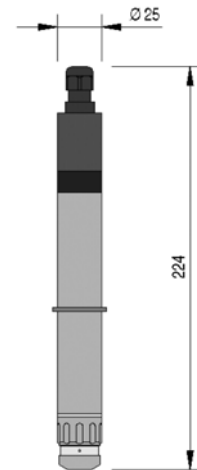


P\_DT\_0072\_SW1

CLO 1-mA-2 ppm	0,02...2,0 mg/l	<b>Part No.</b> <b>1033871</b>
CLO 1-mA-10 ppm	0,10...10,0 mg/l	<b>1033870</b>

#### CLO 2-mA

<b>Measured variable:</b>	free chlorine (hypochlorous acid HOCl)
<b>Reference method:</b>	DPD1
<b>pH range:</b>	5,0 ... 9,0
<b>Temperature range:</b>	5 ... 70 °C
<b>Max. pressure:</b>	8,0 bar
<b>Intake flow:</b>	30...60 l/h (in DGM oder DLG III), constant flow as flow-dependent signal
<b>Power supply:</b>	16...24 V DC (two-wire system)
<b>Output signal:</b>	4...20 mA = Measuring range, temperature-compensated, uncalibrated, not electrically isolated
<b>Typical applications:</b>	Hot water up to 70°C, combating legionella, uncontaminated drinking water and industrial service water, and can also be used together with diaphragm-free electrolysis processes
<b>Measurement and control equipment:</b>	D1C, D2C, DAC
<b>In-line probe housing:</b>	DGM, DLG III to 60°C, special fitting for 60°C-70°C (on request)
<b>Measuring principle:</b>	amperometric, 3 electrodes, no diaphragm

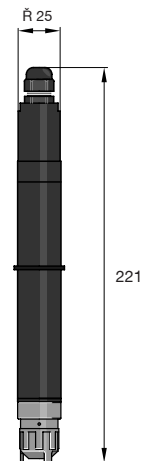


P\_DT\_0073\_SW1

CLO 2-mA-2 ppm	0,02...2,0 mg/l	<b>Part No.</b> <b>1033878</b>
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#### CLR 1-mA-200ppm

<b>Measured variable:</b>	Free chlorine (hypochlorous acid HOCl)
<b>Reference method:</b>	DPD1pH range5.5 ... 8.0
<b>Temperature:</b>	5 ... 45 °C
<b>Max. pressure:</b>	1.0 bar
<b>Intake flow:</b>	30...60 l/h (in DGM, DLG II)
<b>Power supply:</b>	16...24V DC (2-wire)
<b>Output signal:</b>	4...20 mA = Measuring range, temperature-compensated, uncalibrated, not electrically isolated
<b>Typical applications:</b>	Salad, vegetable and poultry washing water, contaminated process and waste water
<b>Measuring and control equipment:</b>	D1Cb, DAC, delta® solenoid diaphragm metering pump
<b>In-line probe fitting:</b>	DGM, DLG III
<b>Measuring principle:</b>	amperometric, 2 electrodes, diaphragm-covered

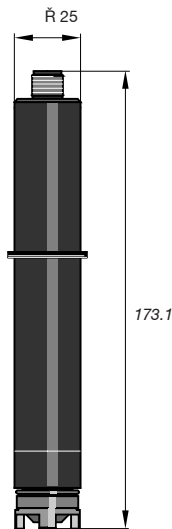


CLR 1-mA-200 ppm	20.00 ...200,0 mg/l	<b>Part No.</b> <b>1047978</b>
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## 6.3 DULCOTEST® Amperometric Sensors

### 6.3.5 DULCOTEST® Sensors for Free Chlorine - CLE3-DMT and CTE1-DMT



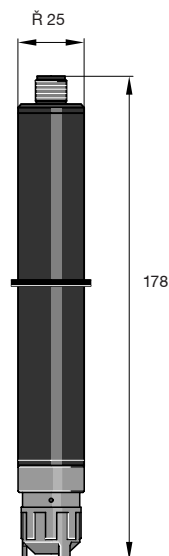
#### CLE 3-DMT

Measuring cell for use with the DMT “chlorine” measurement transducer.

<b>Measured variable:</b>	Free chlorine (hypochlorous acid HOCl)
<b>Reference method:</b>	DPD1
<b>Measurement range:</b>	0.01...5.0 mg/l 0.05...50 mg/l
<b>Supply:</b>	From the DMT measurement transducer (3.3VDC)
<b>Output signal:</b>	Un-calibrated, not temperature compensated
<b>Temperature:</b>	5...45 °C
<b>Max. pressure:</b>	1 bar
<b>Flow:</b>	30...60 l/h (in DGM or DLGA)
<b>Measurement:</b>	Via integrated Pt 1000: compensation carried out in DMT
<b>Measuring cell output:</b>	5-pin plug

Other data as for CLE-3 mA.

CLE 3-DMT-5 ppm set with 100 ml electrolyte	<b>Part No.</b> <b>1005511</b>
CLE 3-DMT-50 ppm set with 100 ml electrolyte	<b>1005512</b>



#### CTE 1-DMT

Measuring cell for use with the DMT “chlorine” measurement transducer.

<b>Measured variable:</b>	Total Chlorine
<b>Reference method:</b>	DPD4
<b>Measurement range:</b>	0.01...10 mg/l
<b>Supply:</b>	From the DMT measurement transducer (3.3VDC)
<b>Output signal:</b>	Un-calibrated, not temperature compensated
<b>Temperature:</b>	5...45 °C
<b>Max. pressure:</b>	1 bar
<b>Flow:</b>	30...60 l/h (in DGM or DLGA)
<b>Measurement:</b>	Via integrated Pt 1000: compensation carried out in DMT
<b>Measuring cell output:</b>	5-pin plug

Other data as for CLE-3 mA.

CTE 1-DMT-10 ppm set with 50 ml electrolyte	<b>Part No.</b> <b>1007540</b>
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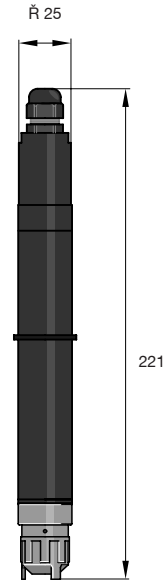
## 6.3 DULCOTEST® Amperometric Sensors

### 6.3.6 DULCOTEST® Sensors for Total Chlorine - CTE

#### Measured variable of total chlorine

#### CTE 1-mA

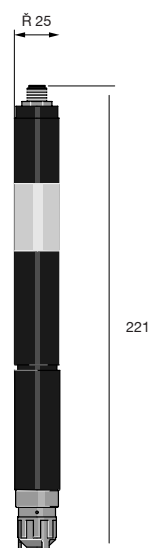
Measured variable:	total chlorine
Analysis:	DPD 4
Measurement range:	0.01 ... 0.50 mg/l (CTE 1-mA-0.5 ppm) 0.02 ... 2.00 mg/l (CTE 1-mA-2 ppm) 0.05 ... 5.00 mg/l (CTE 1-mA-5 ppm) 0.1 ... 10.0 mg/l (CTE 1-mA-10 ppm)
pH range:	5.5 ... 9.5
Temperature range:	5 ... 45 °C
Max. pressure:	3 bar
Flow:	30 ... 60 l/h (in DGM or DLGA)
Power supply:	16 ... 24 V DC (two-wire technology)
Output signal:	4 ... 20 mA † measurement range (un-calibrated)
	<b>WARNING: NO ELECTRICAL ISOLATION!</b>
Typical applications:	CTE 1-mA-0.5 ppm, potable water CTE 1-mA-2/5/10 ppm, potable, industrial, process water, In swimming pool in combination with CLE3.1 for determining combined chlorine.
Measurement and control devices:	D1C, DAC
In-line probe housing:	DGM, DLGA



	Part No.
CTE 1-mA-0.5 ppm set, with 50 ml electrolyte	740686
CTE 1-mA-2 ppm set, with 50 ml electrolyte	740685
CTE 1-mA-5 ppm set, with 50 ml electrolyte	1003203
CTE 1-mA-10 ppm set, with 50 ml electrolyte	740684

#### CTE 1-CAN

Measured variable:	total chlorine
Analysis:	DPD 4
pH range:	5.5 ... 9.5
Temperature range:	5 ... 45 °C
Max. pressure:	3 bar
Flow:	30 ... 60 l/h (in DGM or DLGA)
Power supply:	Via CAN interface (11-30V)
Output signal:	un-calibrated, temperature compensated, electrically isolated
Typical applications:	In swimming pool in combination with CLE3.1 for determining combined chlorine.
Measurement and control devices:	DULCOMARIN®
In-line probe housing:	DGM, DLGA



	Part No.	
CTE 1-mA-10 ppm	0.01 ... 10.0 mg/l	1023427

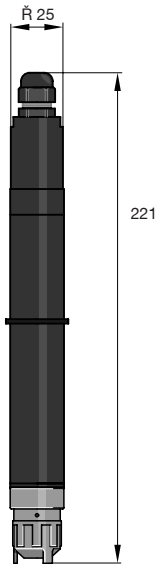


## 6.3 DULCOTEST® Amperometric Sensors

### 6.3.7 DULCOTEST® Sensors for Total Chlorine - CGE

#### Sensor for total available and free chlorine

##### CGE 3-mA



<b>Measured variable:</b>	Free chlorine and total available chlorine: Total of organically bound chlorine (e.g. bound to cyanuric acid) and free chlorine
<b>Analysis:</b>	DPD 1
<b>Measurement range:</b>	0.02...2.00 mg/l (CGE 3-mA-2 ppm) 0.1...10.0 mg/l (CGE 3-mA-10 ppm)
<b>pH range:</b>	5.5...9.5
<b>Temperature range:</b>	5...45 °C (temperature compensated)
<b>Max. pressure:</b>	3 bar
<b>Flow:</b>	30...60 l/h (in DGM or DLGA)
<b>Power supply:</b>	16...24 V DC (two-wire technology)
<b>Output signal:</b>	4...20 mA † measurement range (un-calibrated)
<b>Warning: no electrical isolation!</b>	
<b>Typical applications:</b>	Swimming pool, potable, industrial, process water, cooling water and water with a high pH value
<b>Measurement and control devices:</b>	D1C, D2C, DAC
<b>In-line probe housing:</b>	DGM, DLGA

CGE 3-mA-2 ppm set, with 50 ml electrolyte

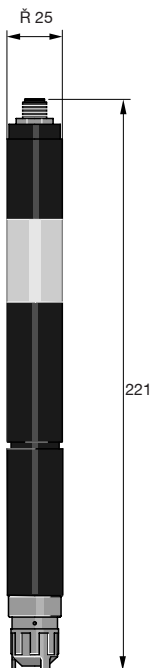
**Part No.**

**1047959**

CGE 3-mA-10 ppm set, with 50 ml electrolyte

**1047975**

##### CGE 3-CAN



<b>Measured variable:</b>	Free chlorine and total available chlorine: Total of organically bound chlorine (e.g. bound to cyanuric acid) and free chlorine
<b>Analysis:</b>	DPD 1
<b>pH range:</b>	5.5...9.5
<b>Temperature range:</b>	5...45 °C (temperature compensated)
<b>Max. pressure:</b>	3 bar
<b>Flow:</b>	30...60 l/h (in DGM or DLGA)
<b>Power supply:</b>	Via CAN interface (11-30V)
<b>Output signal:</b>	un-calibrated, temperature compensated, electrically isolated
<b>Typical applications:</b>	Swimming pool water
<b>Measurement and control devices:</b>	DULCOMARIN®
<b>In-line probe housing:</b>	DGM, DLGA

CGE 3-CAN-10 ppm - with 50 ml electrolyte 0.01 ... 10.0 mg/l

**Part No.**

**1083211**



## 6.4 DULCOTEST® Bromine Sensors

### 6.4.1 DULCOTEST® Sensors for Bromine - BCR

The following bromating agents are used as disinfectants:

#### Organic Bromating Agent

- a) DBDMH (1.3-dibrom-5.5-dimethyl-hydantoin) e. g. sold as Albrom 100®
- b) BCDMH (1-bromine-3-chlorine-5.5-dimethyl-hydantoin) e.g. sold as Brom-Sticks®

These bromating agents are solid and are metered as saturated solutions via brominators.

#### Inorganic free bromine

Free bromine is produced via the so-called Acti-Brom process® (Nalco) chlorine bleach + acid +sodium bromide.

For measuring DBDMH or free bromine as a bromating agent in the measurement range: 0.2 -10 ppm bromine the BRE 2-mA-10 ppm sensor is recommended along with DPD1-method calibration.

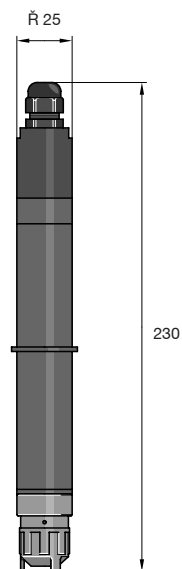
Alternatively, to measure BCDMH in the same measurement range, the BRE 1-mA-10 ppm sensor is recommended along with DPD4-method calibration.

Typical applications are in swimming pools, Jacuzzis and cooling systems. Particularly in cooling systems the quality of the sample water must be tested and, where applicable, compatibility with other chemicals employed (e.g. corrosion inhibitors). Dissolved copper(>0.1 mg/l) will interfere with the measurement.

Photometric DPD measurement is the recommended method for calibrating the bromine sensor (e.g. with DT 1), calculated and displayed as bromine. If bromine is determined as “chlorine” with DPD, note when selecting the measurement range that you need to lower the result by a factor of 2.25.

#### BCR 1-mA (Replaces earlier BRE1)

<b>Measured variable:</b>	Total available bromine from BCDMH (bromo-3-chloro-5.5-dimethylthantoin) and N-Bromanide sulphonate
<b>Reference method:</b>	DPD4
<b>pH drange:</b>	5.0 ... 9.5
<b>Temperature range:</b>	5 ... 45 °C
<b>Max. pressure:</b>	1 bar
<b>Sample flow:</b>	30 ... 60 l/h (in DGM or DLGA)
<b>Voltage:</b>	16 ... 24 V DC (two-wire technology)
<b>Output signal:</b>	4 ... 20 mA measurement range, temperature compensated
	<b>Warning: not electrically isolated!</b>
<b>Typical applications:</b>	Cooling water, process water, waste water, water with higer pH values (stable pH)
<b>Measurement and control device:</b>	D1C, D2C, DAC
<b>In-line probe housing:</b>	DGM, DLGA



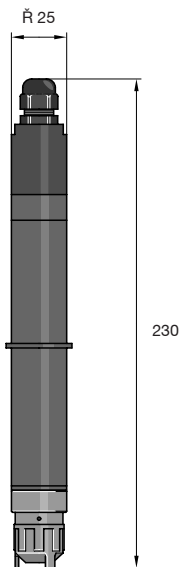
BCR 1-mA (replaces earlier BRE1)	Part No.
BCR 1-mA-0.5 ppm with 50 ml electrolyte	1041697
BCR 1-mA-2 ppm with 50 ml electrolyte	1040115
BCR 1-mA -10 ppm with 50 ml electrolyte	1041698

Measurement range relates to BCDMH



## 6.4 DULCOTEST® Bromine Sensors

### 6.4.2 DULCOTEST® Sensors for Bromine - CBR/BRE



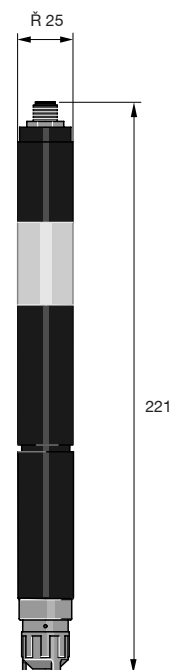
#### CBR 1-mA (replaces earlier BRE2)

<b>Measured variable:</b>	Free chlorine (hypochlorous acid HOCl), free bromine, bound bromine
<b>Reference method:</b>	DPD1
<b>pH range:</b>	5.0 ..... 9.5
<b>Temperature:</b>	5 ... 45 °C
<b>Max. pressure:</b>	1 bar
<b>Flow:</b>	30 ... 60 l/h (in DGM or DLGA)
<b>Power supply:</b>	16 ... 24 V DC (2-wire)
<b>Supply:</b>	From the DMT measurement transducer (3.3 VDC)
<b>Output signal:</b>	4 ... 20 mA = Measuring range, temperature compensated, uncalibrated, not electrically isolated
<b>Typical applications:</b>	Cooling water, Process water, Waste water, Water with higher pH values (stable pH)
<b>Measurement and control equipment:</b>	D1C, DAC
<b>In-line probe fitting:</b>	DGM, DLGA
<b>Measuring principle:</b>	amperometric, 2 electrodes, diaphragm-covered

		<b>Part No.</b>
CBR 1-mA-0.5 ppm	0.01 ... 0.5 mg/l	<b>1038016</b>
CBR 1-mA-2 ppm	0.02 ... 2.0 mg/l	<b>1038015</b>
CBR 1-mA-5 ppm	0.05 ... 5.0 mg/l	<b>1052138</b>
CBR 1-mA-10 ppm	0.10 ... 10.0 mg/l	<b>1038014</b>

**Note:** the above measuring range is based on chlorine. The upper and lower limits of the measuring range are increased by a factor of 2.25 when measuring bromine e.g. CBR 1-mA-2 ppm = 4.5 ppm.

#### BRE 3-CAN



<b>Measured variable:</b>	Total available bromine
<b>Bromine chemicals:</b>	DBDMH (1.3-dibromine 5.5-dimethyl hydantoin) BCDMH (1-bromine-3-chlorine-5.5-dimethyl hydantoin), free bromine
<b>Reference method:</b>	DBDMH, free bromine: DPD1 BCDMH: DPD4
<b>Measurement range:</b>	DBDMH free bromine: 0.2...10.0 mg/l with type BRE 2-mA-10 ppm BCDMH: 0.2...10.0 mg/l with type BRE 1-mA-10 ppm
<b>pH dependence:</b>	if changes from pH 7 to pH 8 the sensor sensitivity is reduced; a) in the case of DBDMH and free bromine by approx. 10% b) in the case of BCDMH by approx. 25 %
<b>Temperature range:</b>	5...45 °C
<b>Max. pressure:</b>	3 bar
<b>Sample flow:</b>	30...60 l/h (in DGM or DLGA)
<b>Voltage:</b>	Via CAN interface (11-30V)
<b>Output signal:</b>	uncalibrated, temperature compensated, electrically isolated
<b>Typical applications:</b>	Swimming pools / whirlpools and cooling water; can also be used in seawater
<b>Measurement and control device:</b>	Dulcomarin®
<b>In-line probe housing:</b>	DGM, DLGA

		<b>Part No.</b>
BRE 3-CAN-10ppm	0.02 ... 10.0 mg/l	<b>1029660</b>



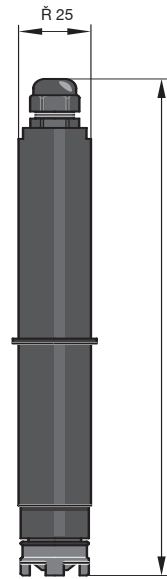


## 6.5 DULCOTEST® Chlorine Dioxide Sensors

### 6.5.1 DULCOTEST® Sensors for Chlorine Dioxide - CDE/CDP

#### CDE 2-mA

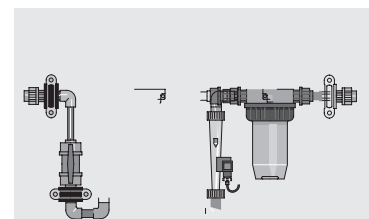
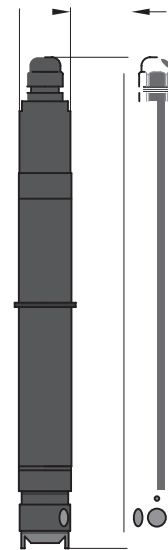
<b>Measured variable:</b>	Chlorine dioxide (ClO <sub>2</sub> )
<b>Reference method:</b>	DPD1
<b>pH range:</b>	4.0 ... 11
<b>Cross sensibility:</b>	Ozone, compared with chlorine <2%
<b>Temperature range:</b>	1 ... 45 °C
<b>Max. pressure:</b>	1,0 bar
<b>Intake flow:</b>	30...60 l/h (in DGMA or DLG III)
<b>Supply voltage:</b>	16...24 V DC
<b>Output signal:</b>	4...20 mA temperature compensated, uncalibrated, not electrically isolated
<b>Typical applications:</b>	uncontaminated potable water (surfactant-free)
<b>Measurement and control equipment:</b>	D1C, DAC
<b>In-line probe housing:</b>	DGMa / DLG III
<b>Measuring Principle:</b>	amperometric, 2 electrodes, diaphragm-covered



		Part No.
CDE 2-mA-0.5 ppm	0,01...0,5 mg/l	792930
CDE 2-mA-2 ppm	0,02...2,0 mg/l	792929
CDE 2-mA-10 ppm with 100 ml of electrolyte	0,10...10,0 mg/l	792928

#### CDP 1-mA-2 ppm (ClO<sub>2</sub>-process probe)

<b>Applications:</b>	Bottle washing machines and water containing surfactants
<b>Measured variable:</b>	Chlorine dioxide (ClO <sub>2</sub> )
<b>Analysis:</b>	DPD 1
<b>Measurement range:</b>	0.02...2.00 mg/l
<b>pH range:</b>	5.5...10.5
<b>Temperature range:</b>	10...45 °C (short term periods 55 °C) with external temperature correction via Pt 100 (no internal temperature correction!)
<b>Temperature variation speed:</b>	Up to 10 K/min
<b>Max. pressure:</b>	3 bar (no pressure surges)
<b>Flow:</b>	30...60 l/h (in DGM or DGMA)
<b>Supply voltage:</b>	16...24 V DC (two-wire technology)
<b>Output signal:</b>	4...20 mA † measurement range (un-calibrated)
	<b>Warning: no electrical isolation!</b>
<b>Type application:</b>	Process water containing surfactants (bottle washing machines)
<b>Measuring and control device:</b>	D1C and DAC with automatic temperature compensation only
<b>In line probe housing:</b>	the following is recommended (see fig.) <u>Probe housing quote on request.</u>

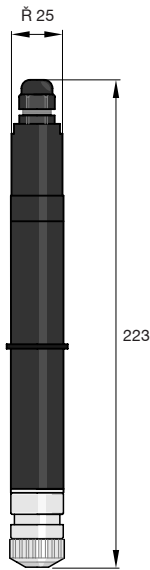


	Part No.
CDP 1-mA-2 ppm set with 100 ml electrolyte	1002149



## 6.5 DULCOTEST® Chlorine Dioxide Sensors

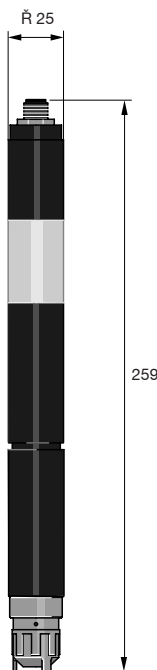
### 6.5.2 DULCOTEST® Sensors for Chlorine Dioxide - CDR



#### CDR 1-mA

<b>Measured variable:</b>	Chlorine dioxide (ClO <sub>2</sub> )
<b>Reference method:</b>	DPD1
<b>pH range:</b>	1.0 ... 10
<b>Temperature range:</b>	1 ... 55 °C (short-term periods 60 °C)
<b>Max. pressure:</b>	3.0 bar (30 °C in DGMA)
<b>Intake flow:</b>	30...60 l/h (in DGMA or DLG III)
<b>Supply voltage:</b>	16...24 V DC
<b>Output signal:</b>	4...20 mA temperature compensated, uncalibrated, not electrically isolated
<b>Typical applications:</b>	contaminated industrial, process water, containing surfactants, Cooling water, irrigation water, slightly contaminated waste water, warm water
<b>Measurement and control equipment:</b>	D1C, DAC
<b>In-line probe housing:</b>	DGMa / DLG III
<b>Measuring Principle:</b>	amperometric, 2 electrodes, diaphragm-covered

		<b>Part No.</b>
CDR 1-mA-0.5 ppm	0,01...0,5 mg/l	<b>1033762</b>
CDR 1-mA-2 ppm	0,02...2,0 mg/l	<b>1033393</b>
CDR 1-mA-10 ppm	0,10...10,0 mg/l	<b>1033404</b>



#### CDR 1-CAN

<b>Measured variable:</b>	Chlorine dioxide (ClO <sub>2</sub> )
<b>Reference method:</b>	DPD1
<b>pH range:</b>	1.0 ... 10
<b>Temperature range:</b>	5 ... 45 °C
<b>Max. pressure:</b>	1.0 bar (30 °C in DGMA)
<b>Response time sensor:</b>	t <sub>90</sub> ~ 3 min.
<b>Intake flow:</b>	30...60 l/h (in DGMA or DLG III)
<b>Supply voltage:</b>	Via CAN interface (11-30V)
<b>Temperature measurement:</b>	via integral digital semi-conductor device
<b>Output signal:</b>	uncalibrated, temperature-compensated, electrically isolated
<b>Typical applications:</b>	contaminated industrial, process water, containing surfactants, cooling water, irrigation water, slightly contaminated waste water, warm water
<b>Measurement and control equipment:</b>	Dulcomarin®
<b>In-line probe housing:</b>	DGMa / DLG III
<b>Measuring Principle:</b>	amperometric, 2 electrodes, diaphragm-covered

		<b>Part No.</b>
CDR 1-can-10 ppm	0,10...10,0 mg/l	<b>1041145</b>

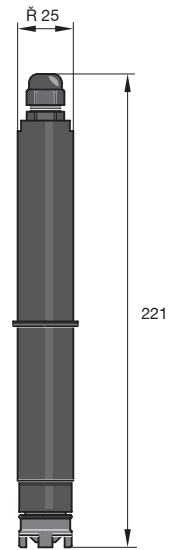


## 6.6 DULCOTEST® Ozone Sensor

### 6.6.1 DULCOTEST® Sensors for Ozone - OZE 3-mA

#### OZE 3-mA

Measured variable:	Ozone (O <sub>3</sub> )
Analysis:	DPD 4
Measurement range:	0.02...2.00 mg/l
pH range:	Ozone stability range
Temperature range:	5...40 °C (temperature compensated), no significant Temperature fluctuations
Max. pressure:	1 bar
Flow:	30...60 l/h (in DGM or DLGA)
Power supply:	16...24 VDC (two-wire technology)
Output signal:	4...20 mA † measurement range (un-calibrated)
<b>Warning: no electrical isolation!</b>	
Typical applications:	Swimming pools, potable, industrial, process water, surfactant free
Measurement and control devices:	D1C
In-line probe housing:	DGM , DLGA



Part No.

792957

792957-5PPM

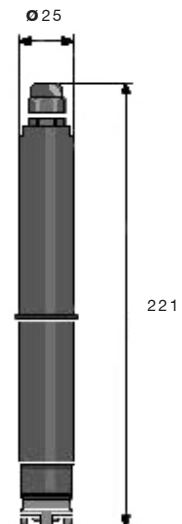
OZE 3-mA-2 ppm set, with 100 ml electrolyte

OZE 3-mA-5 ppm set, with 100 ml electrolyte\*\*\*

\*\*\* **special** \*\*\* not carried in stock, 6 week delivery

#### OZR 1-mA

Measured variable:	Ozone (O <sub>3</sub> )
Reference method:	DPD4
pH-range:	4.0...11.0
Cross sensitivity:	chlorine dioxide, peracetic acid, bromine, bromamine
Temperature:	5...40 °C
Max. pressure:	1.0 bar
Flow:	DGMa, DLG III: 30...60 l/h BAMa: 5...100 l/h (depending on design)
Supply voltage:	16...24 V DC (2-wire)
Output signal:	4-20 mA ≈ measuring range, temperature-compensated, uncalibrated, not electrically isolated
Response time t <sub>90</sub> after 1 month with 0.00 ppm ozone:	<210 s
Selectivity:	Non-selective
Process integration:	Bypass: open sample water outlet
Sensor fitting:	BAMa, DGMa, DLG III
Controllers:	D1C
Typical applications:	Potable water, swimming pool water, process, service or cooling water, monitoring the ozone breakdown of filters.
Resistance to:	Salts, acids, alkalis, surfactants, dirt films
Measuring principle, technology:	Amperometric, 2 electrodes, diaphragm-covered



Part No.

1118883

OZR 1-mA-0.5 ppm

1051647

OZR 1-mA-2 ppm

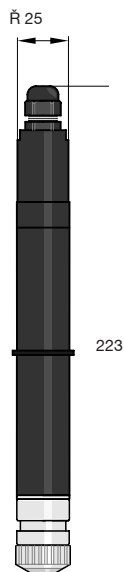
OZR 1-mA-10 ppm

1118925



## 6.7 DULCOTEST® PAA Sensor

### 6.7.1 DULCOTEST® Sensor for Peracetic Acid - PAA/PER



#### PAA 1-mA

Measured variable:	Peracetic Acid
Reference method:	titration
Measurement range:	1...200 mg/l (PAA 1-mA-200 ppm) 10...2000 mg/l (PAA 1-mA- 2000 ppm)
pH range:	1...9 (peracetic acid stability range)
Temp. range:	1...45 °C (temperature compensated)
Admissible Temperature fluctuation:	0.3 °C/min
Response time T90:	3 min. Max.
Pressure.:	3 bar (30 °C, in DGM)
Intake flow:	30- 60 l/h (with DGM or DLGA in-line probe housing)
Power supply:	16...24 V DC (two wire)
Output signal:	4...20 mA measurement range (uncalibrated) <b>Important not electrically isolated</b>
Typical application:	scouring in Cleaning in Place (CIP) and rinsing systems,also designed for use in the presence of cationic and anionic tensides. Selective measurement of peracetic acid as well as hydrogen peroxide is possible.
Measurement and control equipment:	D1C, DAC
In-line probe housing:	DGM, DLGA

PAA 1-mA-200ppm

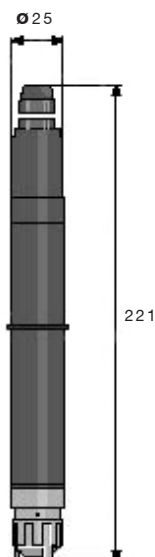
Part No.

1022506

PAA 1-mA-2000ppm

1022507

#### PAA 2-3E-mA



Measured variable	Peracetic acid
Calibration	DPD4, titration
pH-range	5.5...8.0
Temperature	0...40 °C
Admissible temperature fluctuation	< 0.3 °C/min
Response time sensor t <sub>90</sub>	< 45 s
Max. pressure	3.0 bar
Electrolytic conductivity	0.05...50 mS/cm
Flow	DGMa, DLG III: 30...60 l/h BAMa: 5...100 l/h (depending on design)
Supply voltage	16...24 V DC (2-wire)
Output signal	4-20 mA ≈ measuring range, temperature compensated, uncalibrated, not electrically isolated
Selectivity	Peracetic acid selective towards hydrogen peroxide
Cross sensitivity	Ozone, chlorine dioxide, chlorine, bromine
Process integration	Bypass: open outlet or return of the sample water into the process line
Sensor fitting	BAMa, DGMa, DLG III
Controllers	DAC, D1Cb
Typical applications	Disinfecting pre-cleaned waste water, measurement and control of low peracetic acid concentrations in the pharmaceutical industry and medical technology.
Resistance to	Salts, acids, alkalis, surfactants, dirt films
Measuring principle, technology	Amperometric, 3 electrodes, diaphragm-covered

PAA 1-mA-200ppm

Part No.

1022506

PAA 1-mA-2000ppm

1022507

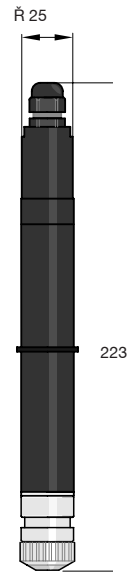


## 6.7 DULCOTEST® PAA Sensor

### 6.7.1 DULCOTEST® Sensor for Peracetic Acid - PAA/PER

#### PER 1-mA

Measured variable:	hydrogen peroxide
Calibration:	Photometric with manual DT3B photometer
pH range:	2.5 ... 11.0
Temperature:	0 ... 50 °C
Admissible Temperature:	<0.3 °C/min
Response time sensor:	T <sub>90</sub> approx. 480 sec.
Measuring accuracy:	≥ 1 ppm or better than ± 5% of measured value
Min. conductivity:	0.05 ... 5.00 mS/cm
Max. pressure:	1.0 bar
Intake flow:	20 - 100 l/h (with DGM or DLGA in-line probe housing)
Power supply:	16...24 V DC (two wire)
Output signal:	4...20 mA measurement range (uncalibrated)
<b>Important not electrically isolated</b>	
Typical application:	Swimming pools, treatment of contaminated waste waters, treatment of process media from production
Measurement and control equipment:	D1Cb, DAC
In-line probe housing:	DGM, DLGA



Part No.

1022509

PER 1-mA-200ppm

PER 1-mA-2000ppm

1022510



## 6.8 DULCOTEST<sup>®</sup> H<sub>2</sub>O<sub>2</sub> Sensor

### 6.8.1 DULCOTEST<sup>®</sup> Sensor for Hydrogen Peroxide

<b>Measured variable:</b>	Hydrogen peroxide
<b>Calibration:</b>	Photometric with manual DT3B photometer
<b>Measuring range:</b>	1...20, 10...200, 100...2000 mg/l, switchable
<b>pH range:</b>	2.5 ... 10.0
<b>Temperature:</b>	0 ... 40 °C
<b>Admissible temperature fluctuation:</b>	< 1 °K/min (with external T measurement)
<b>Response time sensor t<sub>90</sub></b>	approx. 20 sec
<b>Min. conductivity</b>	With 20 mg/l range: 5 µS/cm With 200 mg/l range: 200 µS/cm Up to 1,000 mg/l: 500 µS/cm Up to 2,000 mg/l: 1 mS/cm
<b>Max. pressure:</b>	2.0 bar
<b>Intake flow</b>	30...60 l/h
<b>Supply voltage</b>	16...24 V DC(3-wire system)
<b>Output signal</b>	4...20 mA not temperature-compensated, uncalibrated, not electrically isolated
<b>Selectivity:</b>	Hydrogen peroxide selective towards free chlorine
<b>Installation</b>	Bypass: open outlet or return of the sample water into the process line
<b>Sensor fitting:</b>	DGM, DLG III
<b>Output signal:</b>	4...20 mA assigned to the measuring range, temperature-corrected, calibrated and galvanically isolated
<b>Measuring &amp; control equipment:</b>	DACa, DAC
<b>Typical applications:</b>	Exhaust air scrubbers, treatment of swimming pool water, potable water, controls with requisite very short response times.
<b>Resistance to:</b>	Salts, acids, lyes, surfactants.
<b>Measuring principle, technology</b>	amperometric, 2 pulsing electrodes, diaphragm-covered

	<b>Part No.</b>
H <sub>2</sub> O <sub>2</sub> sensor PEROX-H2.10 P	<b>792976</b>
PEROX transducer V1 for D1Ca	<b>1034100</b>
PEROX Transducer V2 for DAC	<b>1047979</b>

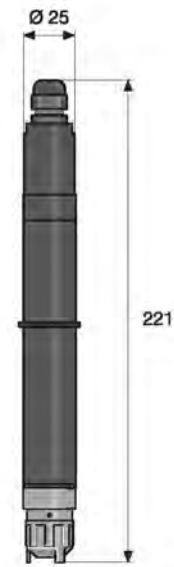
<b>Accessories</b>	<b>Part No.</b>
Photometer DT3B hydrogen peroxide (for calibration)	<b>1039317</b>
Polishing paste (to electrode cleaning)	<b>559810</b>



## 6.8 DULCOTEST® H<sub>2</sub>O<sub>2</sub> Sensor

### 6.8.2 DULCOTEST® Sensor PEROX H 3E-mA

<b>Measured variable:</b>	Hydrogen peroxide
<b>Calibration:</b>	Photometric with manual DT3B photometer
<b>pH range:</b>	2.5 ... 8.0
<b>Temperature:</b>	0 ... 45 °C
<b>Admissible temperature fluctuation:</b>	< 1 °K/min (with external T measurement)
<b>Response time sensor t<sub>90</sub></b>	< 45 s
<b>Electrolytic conductivity</b>	0.05...50 mS/cm
<b>Flow</b>	DGMa, DLG III: 30...60 l/h BAMa: 5...100 l/h (depending on design)
<b>Supply voltage</b>	16...24 (two-wire technology) V DC
<b>Output signal</b>	4...20 mA not temperature-compensated, uncalibrated, not electrically isolated
<b>Electrical Connection</b>	via a 4-pin plug on the sensor via an open-ended signal cable on the unit
<b>Selectivity</b>	Hydrogen peroxide selective to free chlorine, peracetic acid, sulphite
<b>Process integration</b>	Bypass: open outlet or return of the sample water into the process line
<b>Sensor fitting</b>	BAMa, DGMa, DLG III
<b>Controllers</b>	DAC, D1Cb (without temperature correction)
<b>Typical applications</b>	Swimming pool, plant irrigation water, chlorine elimination. Can also be used for moderately contaminated water, controls with the necessary short response times and low H <sub>2</sub> O <sub>2</sub> concentrations
<b>Resistance to</b>	Salts, acids, alkalis, surfactants, dirt films
<b>Measuring principle, technology</b>	amperometric, 3 pulsing electrodes, diaphragm-covered



	Measuring Range	Part No.
PEROX H-3E-10ppm	0.20...10.0 mg/l	1058563
PEROX H-3E-50ppm	1.0...50.0 mg/l	1105779
PEROX H-3E-200ppm	5.0...200 mg/l	1105778
PEROX H-3E-500ppm	10...500 mg/l	1117570

#### Accessories

	Part No.
Pt 100 SE temperature sensor	305063
Pt 1000 SE temperature sensor	1002856
Photometer DT3B hydrogen peroxide (for calibration)	1039317



## 6.9 DULCOTEST® Dissolved Oxygen Sensors

### 6.9.1 Dissolved Oxygen Sensor DO 3-mA

The measured variable "Dissolved oxygen" indicates the volume of gaseous oxygen physically dissolved in the aqueous phase in mg/l (ppm).

"Dissolved oxygen" is therefore an important parameter for assessing the quality of surface water and water that has to be treated for the breeding of livestock with the addition of oxygen. Dissolved oxygen is also used for controlling processes in clarification plants and waterworks.

The following sensors are assigned to the different applications and can be offered separately as 4 - 20 mA encoders to central controls or as a decentralised solution along with D1C and DAC.

<b>DO 3-mA</b>	
<b>Measured variable:</b>	Dissolved oxygen
<b>Calibration:</b>	On atmospheric oxygen or by reference measurement in the process water
<b>Measuring accuracy:</b>	±0.1 mg/l
<b>Response time sensor t90</b>	< 60 s at 25 °C from air to nitrogen
<b>Temp. range:</b>	0 -50 °C
<b>Temperature correction</b>	integrated Pt1000, fed to the outside
<b>Max. pressure:</b>	2.0 bar
<b>Intake flow</b>	Measurement even possible without flow
<b>Electrical connection</b>	Fixed cable, 10 m
<b>Enclosure rating:</b>	IP 68
<b>Power supply:</b>	18...30 V DC
<b>Electrical connection:</b>	fixed lead, 10 m
<b>Output signal:</b>	4...20 mA assigned to the measuring range, temperature-corrected, calibrated and galvanically isolated
<b>Process integration:</b>	a) Immersion by immersion pipe. CHECK WITH SYDNEY OFFICE.  b) Installation into ProMinent bypass fittings, type DGMA with mounting kit
<b>Measuring &amp; control equipment:</b>	DACb as of firmware 02.01.01.02 with complete calibration functionality and all correction variables (temperature, salinity, air pressure, height above sea level). Displayed units: [ppm] and [% oxygen saturation] DACa, AEGIS II, D1C: calibration only possible by the input of a reference concentration determined from the process water. Only temperature correction variable. Displayed unit: [ppm]
<b>Typical applications:</b>	Control of oxygen input into the aeration tank (clarification plant), control of oxygen input in water works, breeding of fish and shrimps, conditioning of the water of large aquaria in zoos, assessment of the biological condition of surface water.
<b>Resistance to:</b>	Contaminated water and the following chemical compounds: carbon dioxide, hydrogen sulfide, sulfur dioxide, ethylene oxide and against gamma sterilisation.
<b>Interference by:</b>	Oxidant (e.g. chlorine, chlorine dioxide, ozone) and many organic solvents (e.g. chloroform, toluene, acetone)
<b>Measuring principle, technology</b>	Optical: Measurement of the relaxation time of a pulsed fluorescence beam



DO 3-mA-20 ppm

**Part No.**  
**1094609**

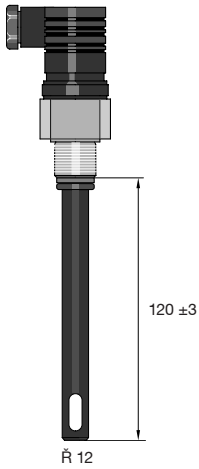




## 6.10 DULCOTEST® Conductivity Sensors

### 6.10.1 DULCOTEST® Conductivity Sensors - LF1/LFTK

#### LF1 DE Conductive



Measuring range:	0.01...20 mS/cm
Cell constant:	k1 cm-1 ±5 %
Temperature compensation:	-
Fluid temperature:	0...80 °C
Max. pressure:	16.0 bar
Sensors:	special graphite
Shaft material:	Epoxy
Thread:	PG 13.5
Fitting length:	120 ± 3 mm
Electrical connection:	DIN 4-pin angle plug
Typical applications:	Potable, cooling, industrial water. Sensors of the LF series have only limited applicability for taking measurements in cleaning solutions containing surfactants and media containing solvents.

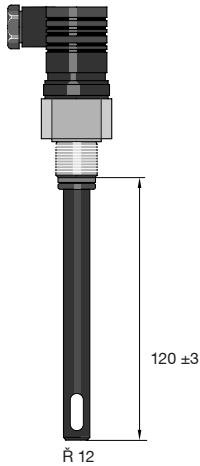
LF1 DE	Part No. 1001375
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**Suitability:** Compact Controller, DMTa, DICa

**NOTE:** if using this with a Compact Controller a Shielded 4 wire cable **MUST** be used.

4-wire shielded cable 100CY 4x0, 25qmm 5.7 grey	Part No. 1045183
---	---------------------

#### LFTK 1 DE Conductive



Measuring range:	0.01...20 mS/cm
Cell constant:	k1 cm-1 ±5 %
Temperature compensation:	Pt 1000
Fluid temperature:	0...80 °C
Max. pressure:	16.0 bar
Sensors:	special graphite
Shaft material:	Epoxy
Thread:	PG 13.5
Fitting length:	120 ± 3 mm
Electrical connection:	DIN 4-pin angle plug
Typical applications:	Potable, cooling, industrial water. Sensors of the LF series have only limited applicability for taking measurements in cleaning solutions containing surfactants and media containing solvents.

LFTK 1 DE	Part No. 1002822
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**Suitability:** Compact Controller

**NOTE:** if using this with a Compact Controller a Shielded 4 wire cable **MUST** be used.

4-wire shielded cable 100CY 4x0, 25qmm 5.7 grey	Part No. 1045183
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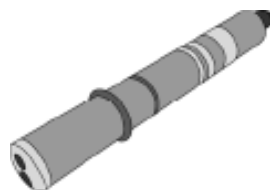


## 6.10 DULCOTEST® Conductivity Sensors

### 6.10.2 Conductivity Sensors CCT-1

Inductive conductivity sensors consist of a transducer, encapsulated in an inert material. The electrolytic conductivity is measured inductively without direct contact with the medium.

The sensors are used to measure electrolytic conductivity over a wide measuring range, even in heavily contaminated and/or aggressive media and, as such, offer particularly low maintenance operation. The sensors are particularly suitable for measuring high conductivities, as no electrode polarisation occurs. The inductive conductivity sensors are operated using the Compact Controller.



#### Conductivity Sensor CCT 1-mA

<b>Measuring range:</b>	0.2...20 mS/cm
<b>Temperature measurement:</b>	NTC, integrated
<b>Medium temperature:</b>	0 ... 50 °C (at 1 bar)
<b>Max. pressure:</b>	8.0 bar, (at 25 °C)
<b>Installation:</b>	Bypass via sensor fittings DGM, DLGIII or installation into G1" PP pipe via INLI sensor fitting
<b>Electrical connection:</b>	4-wire cable, 0.25mm <sup>2</sup>
<b>Output signal:</b>	4...20 mA, temperature-compensated, factory-calibrated, galvanically isolated
<b>Enclosure rating:</b>	IP 65
<b>Typical applications:</b>	Cooling, industrial, process water, general water with higher salt content up to 20 mS/cm
<b>Resistance to:</b>	Ingredients in the water of the target application, taking into account the compatibility of the material
<b>Measurement &amp; control equipment:</b>	diaLog DACb
<b>Measuring principle</b>	Conductive, 2 electrodes. Integrated temperature measurement, integrated 4...20mA transducer

**Note:** Other ranges are possible. Please consult Sydney Technical department for requirements. For connection to DACb ONLY.

**CCT 1-mA-20 mS/cm**

**Part No.**

**1081545**

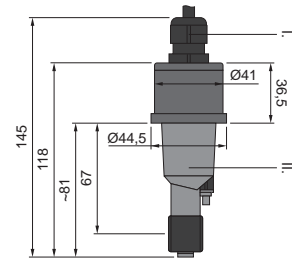


## 6.10 DULCOTEST® Conductivity Sensors

### 6.10.3 Inductive Conductivity Sensors ICT 5

#### Conductivity Sensor ICT 5

<b>Measuring range :</b>	0.2...2,000 mS/cm
<b>Cell constant:</b>	6.25 cm-1
<b>Measuring accuracy:</b>	±1% based on the measured value, below 3 mS/cm: ±30 µS/cm
<b>Temperature sensor:</b>	Pt 1000, wetted material Stainless steel 1.4301
<b>Process chemical temperature:</b>	-10...80 °C-10...60°C for installation in PVC pipes, -10...80 °C for installation in PP pipes
<b>Max. pressure:</b>	10.0 bar up to 20 °C, 6.0 bar up to 60 °C, 0.0 bar at 80 °C
<b>Min. pressure:</b>	-0,1 bar (-10 ... 80 °C)
<b>Sensor material:</b>	PP
<b>Seals:</b>	EPDM
<b>Electrical connection:</b>	10 m fixed cable, 7x 0.35 mm <sub>t</sub> via a terminal
<b>Enclosure rating:</b>	IP 65
<b>Typical applications:</b>	Contaminated waste water, blowdown control in cooling towers, control of electroplating and rinsing baths, cleaning in Place (CIP), product monitoring, sea water, brine swimming pools.
<b>Resistance to:</b>	Ingredients in the water of the target application, taking into account compatibility to PP/EPDM, deposit-forming media
<b>Installation:</b>	With union nut, PVC, 1 1/2 inch female thread, including DN 40 bonded nozzle with 1 1/2 inch external thread for fitting in DN 40 PVC standard pipes (included in the scope of delivery). The corresponding set-in nozzle for fitting in PP standard pipe is available as an accessory.
<b>Measuring &amp; control equipment:</b>	Compact controller DCCa
<b>Measuring principle:</b>	Inductive, 2 coils. Integrated temperature measurement

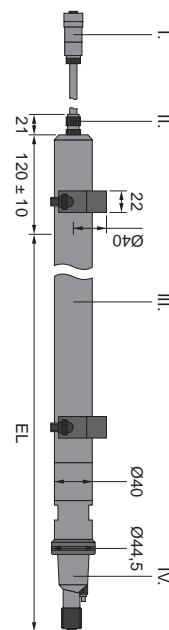


**Part No.**

**ICT 5** **1095248**

#### ICT 5-IMA

<b>Measuring range:</b>	0.2...2,000 mS/cm
<b>Cell constant k:</b>	6.25 cm-1
<b>Measuring accuracy:</b>	±2% based on the measured value ±30 µS/cm
<b>Temperature sensor:</b>	Pt 1000, wetted material Stainless steel 1.4301
<b>Process chemical temperature:</b>	-10...60 °C
<b>Max. pressure:</b>	0.0 bar
<b>Min. pressure:</b>	-0,1 bar (-10 ... 60 °C)
<b>Sensor material:</b>	PP
<b>Immersion pipe material:</b>	PP
<b>Sensor guard material:</b>	SS 1.4301, AISI 304
<b>Seals:</b>	EPDM
<b>Electrical connection 1:</b>	0 m fixed cable, 7x 0.35 mm <sub>t</sub> via a terminal
<b>Enclosure rating:</b>	IP 65
<b>Typical applications:</b>	Contaminated waste water, blowdown control in cooling towers, control of electroplating and rinsing baths, cleaning in Place (CIP), product monitoring, sea water, brine swimming pools.
<b>Resistance to:</b>	Ingredients in the water of the target application, taking into account compatibility to PP/EPDM, deposit-forming media
<b>Installation:</b>	Immersion with immersion length 1 m
<b>Measuring &amp; control equipment:</b>	Compact controller DCCa
<b>Measuring principle, technology:</b>	Inductive, 2 coils. Integrated temperature measurement



**Part No.**

**ICT 5-IMA** **1095249**



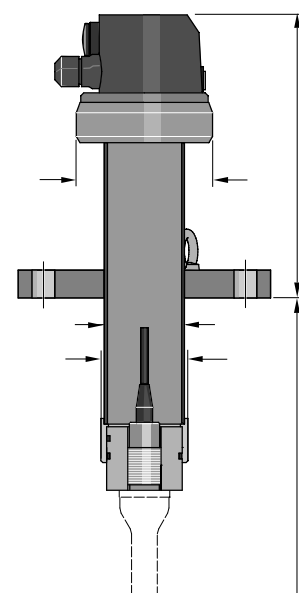
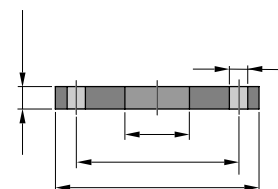
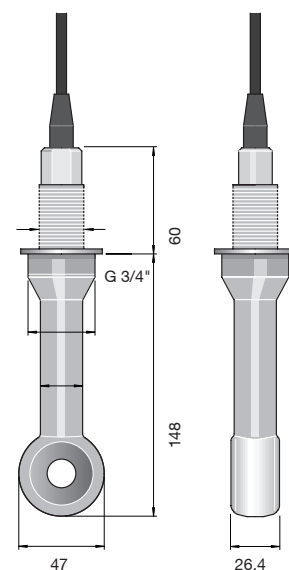
## 6.10 DULCOTEST® Conductivity Sensors

### 6.10.4 Inductive Conductivity Sensor ICT 2

#### ICT 2

High performance sensors for aggressive media, maximum conductivity and high temperatures up to 125 °C. Available for installation in tanks, pipes or the IMA-ICT 2 in-line probe housing.

<b>Measurement range:</b>	0-2000 mS/cm
<b>Cell constant:</b>	2 cm-1
<b>Reproducibility of measurement:</b>	±(5 µS/cm + 0.5 % of the measured value)
<b>Temperature compensation:</b>	Pt 100, class A, completely extrusion-coated
<b>Medium temperature:</b>	0 °C...125 °C <i>Note: for use together with D1C, temperature compensation is limited to 100 °C</i>
<b>Max. pressure:</b>	16 bar
<b>Material: sensor:</b>	PFA, completely extrusion-coated
<b>Assembly:</b>	
<b>Installation in pipes, tanks (on the side):</b>	G 3/4 stainless steel thread(1.4571) with PTFE O-ring and locknut (scope of supply)
<b>or flange mounted:</b>	With accessories: Stainless steel flange ANSI 2 imperial 300lbs, SS 316L (can be adapted to DIN counter-flange DN 50 PN 16)
<b>Installation in immersion pipe for tank from above:</b>	With accessories: IMA-ICT 2 in-line probe housing via stainless steel flange DN 80 PN (see section 6.5.3)
<b>Length when fitted:</b>	1 m, diameter when fitted 70 mm
<b>Power supply:</b>	5 m fixed cable
<b>Measurement and control equipment:</b>	DCCa
<b>Enclosure rating:</b>	IP67
<b>Typical applications:</b>	Production processes in the chemical industry, Phase separation of product mixtures, Determining concentrations of aggressive chemicals



**Part No.**

ICT 2

**1023352**

#### IMMERSION ASSEMBLY TYPE IMA-ICT 2

To hold an inductive conductivity sensor, type ICT 2.

<b>Material fittings:</b>	Stainless steel 1.4404
<b>Material seal:</b>	Viton®
<b>Max. temperature:</b>	125 °C
<b>Max. pressure:</b>	10 bar
<b>Length:</b>	1 m
<b>Pipe diameter:</b>	70

Flange mounting for installation in tank from above, stainless steel flange DN 80 PN 16

**Part No.**

IMA-ICT 2

**1023353**

**Note:** See 'Green Pages' for local probe & controllers

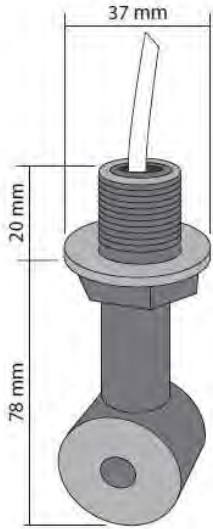
Flange:	DN 80/PN 16
Ø D	200
Ø K	160
Ø d <sub>2</sub>	8 x 18
b	20
Ø a	63.5
Screws	M 16



## 6.10 DULCOTEST® Conductivity Sensors

### 6.10.5 Inductive Conductivity Sensor ICT 8

#### ICT 8-mA



<b>Measuring range:</b>	Three configurable measuring ranges 0.2...2.0 mS/cm / 0.5...20 mS/cm / 1...200 mS/cm
<b>Temperature correction:</b>	integrated in the sensor electronics, temperature co-efficient: 1.7%/K
<b>Medium temperature /pressure:</b>	max. 50 °C at 1 bar
<b>Sensor material:</b>	PP
<b>Seals:</b>	EPDM
<b>Installation length:</b>	75
<b>Electrical connection:</b>	Fixed cable, 6-wire (6x0.25 mm.). The cable length is: 2 m cable between the sensor and 4-20 mA cable transmitter and 10 m between the cable transmitter and monitor.
<b>Typical applications:</b>	Desalination control in cooling towers, contaminated waste water, control of electroplating and rinsing baths, salt water desalination, adjustment of the salt content in swimming pool water
<b>Resistance to:</b>	Water ingredients in the target application, taking into account compatibility to PP/EPDM and combating film-forming media
<b>Installation:</b>	1/2" male thread (BSP) for mounting by flange, installation in PVC pipes, immersion using an immersion pipe, 1 m, order no. 1105964
<b>Measuring and control equipment:</b>	diaLog DAC, D1Cb, D1Cc, AEGIS II
<b>Measuring principle, technology:</b>	Inductive, 2 coils. Integrated temperature measurement, integrated 4...20mA transducer

ICT 8 -mA-200 mS/cm

Part No.

1098530



## 6.11 DULCOTEST<sup>®</sup> Accessories

### 6.11.1 Accessories Electrolyte & Membrane Caps

<b>Electrolyte for Sensors</b>	<b>ml</b>	<b>Part No.</b>
Electrolyte for all CLE, CLR type chlorine sensors	100	506270
Electrolyte for CDM 1 and CDE 3 type chlorine dioxide sensors	100	506271
Electrolyte for CDE 2 and CDR 1 type chlorine dioxide sensors	100	506272
Electrolyte for OZE type ozone sensors	100	506273
Electrolyte for CGE/CTE/BRE type sensors	50	792892
Electrolyte for CDP type chlorine dioxide sensors	100	1002712
Electrolyte for PAA 1 type peracetic acid sensors	100	1023896
Electrolyte for CLT 1 type chlorite sensors	50	1022015
Electrolyte for PER 1 type hydrogen peroxide sensors	50	1025774
Electrolyte for CLO 1 type chlorine sensor	100	1035191
Electrolyte for CLO 2 type chlorine sensor	100	1035480
Electrolyte for CBR 1 type chlorine/bromine sensor	100	1038017
Electrolyte for BCR 1 type bromine sensor	50	1044843
<b>Membrane Caps for Sensors</b>		<b>Part No.</b>
Membrane cap for types CLE IIT, CDM 1, & OZE 1	–	790486
Membrane cap for types: CLE 2.2, CLE 3, CDE 1.2, CDE 2, OZE 2, & OZE 3	–	790488
Sensor cap for CLO 1	–	1035197
Sensor cap for CLO 2	–	1035198
Membrane cap for CGE/CTE 1 (2/5/10 ppm), BRE 1 (10 ppm), and BRE 2	–	792862
Membrane cap for CTE 1 (0.5 ppm), CBR 1, BCR 1	–	741274
Membrane cap for CDP 1, BRE 1 (0.5 / 2 ppm), CLT	–	1002710
Membrane cap for CDE 3	–	1026578
Membrane cap for PAA 1, CDR 1, CLR 1, OZR1	–	1023895
Membrane cap for PER 1	–	1025776
Membrane cap for H2.10 P	–	792978
<b>Accessory Sets for Sensors</b>	<b>ml</b>	<b>Part No.</b>
Accessory set for CGE 2/CTE 1 (2/5/10 ppm), & BRE 1 (10 ppm), BRE 2 (2 membrane caps + electrolyte)	50	740048
Accessory set for CTE 1 (0.5 ppm) (2 membrane caps + electrolyte)	50	741277
Accessory set for CLE (2 membrane caps + electrolyte)	100	1024611
Accessory set for CDP 1 (2 membrane caps + electrolyte), BRE 1 (0.5 / 2 ppm), CLT	100	1002744
Accessory set for PAA 1 (2 membrane caps + electrolyte)	100	1024022
Accessory set for PER 1 (2 membrane caps + electrolyte)	50	1025881
Accessory set for CDE 3 (2 membrane caps + electrolyte)	100	1026361
Accessory set for CLO 1 (electrolyte, grinding disc, plug)	100	1035482
Accessory set for CLO 2 (electrolyte, grinding disc, plug)	100	1035483
Accessory set for CBR 1 (2 membrane caps + electrolyte)	100	1038984
Accessory set for BCR 1 (2 membrane caps + electrolyte)	100	1044844
Accessory set for CDR 1 (2 membrane caps + electrolyte)	100	1034231
<b>Spare parts for dissolved oxygen sensors</b>		
	<b>Measuring range</b>	<b>Part No.</b>
Sensor insert for DO 1-mA-20 ppm	0-20 mg/l 2.00...20.0 mg/l	1020534
Sensor insert for DO 2-mA-10 ppm		
Membrane thickness 50 µm,	0-10 mg/0.10...10.0 mg/l	1020535
Sensor cap for DO 3-mA-20ppm	0.1-20ppm	1093650



## 6.12 DULCOTEST® Accessories Modular In-Line Probe Housing DGM

### 6.12.1 Technical Data DGM

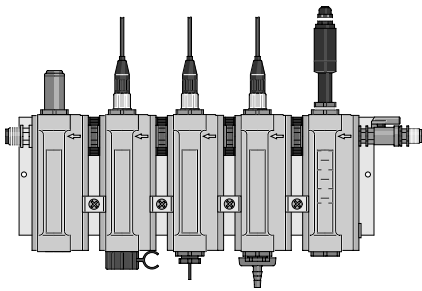
#### DGM modular in-line probe housing

For conductivity, Pt 100, pH or redox probes with 13.5 PG internal thread or chlorine, bromine, chlorine dioxide, ozone measuring cells with R 10 internal thread.

- Simple to assemble (already mounted on panel up to max. 5 units)
- Expansion options
- Water flow monitor module
- Simple to calibrate measured variables due to low sample water volume

Input-side ball valve for stopping and adjusting flow.

Every fully mounted DGM set is fitted with a simple sampling tap.



<b>Material:</b>	Transparent PVC (all modules) Viton® (seals) PP (calibration cup) PVC white (mounting panel)
<b>Max. temperature:</b>	60 °C
<b>Max. pressure:</b>	6 bar (30 °C) 1 bar (60 °C) 2 bar ( <b>note: with flow monitor ... typical</b> )
<b>Flow volume:</b>	Up to 80 l/h (40 l/h recommended)
<b>Flow sensor:</b>	Reed contact max. switch power 3 W max. switch voltage 175 V max. switch current 0.25 A max. operating current 1.2 A max. contact resistance 150 mΩ
<b>Switch hysteresis:</b>	approx. 20 %
<b>Enclosure rating:</b>	IP 65
<b>Applications:</b>	Potable, swimming pool water or water of similar quality with no suspended solids
<b>Assembly:</b>	Max. 5 modules pre-assembled onto baseboard: more than 5 modules, pre-assembled onto baseboard as custom version, priced accordingly.

PLEASE CHECK AVAILABILITY



## 6.12 DULCOTEST® Accessories Modular In-Line Probe Housing DGM

### 6.12.2 Identity Code & Pricing for DGM

DGM Flow Housing Module									
<b>A Series Version</b>									
<b>Flow monitor module:</b>									
0	No flow monitor								
1	With l/h scale								
3	With flow monitor, l/h scale								
<b>Number of PG 13.5 modules:</b>									
0	No PG 13.5 modules								
1	One PG 13.5 modules								
2	Two PG 13.5 modules								
3	Three PG 13.5 modules								
4	Four PG 13.5 modules								
<b>Number of 25 mm modules:</b>									
0	No 25 mm modules								
1	One 25 mm module*								
2	Two 25 mm modules*								
<b>Main material:</b>									
T	Transparent PVC								
<b>Seal material:</b>									
0	Viton® A								
<b>Connections:</b>									
0	8 x 5 hose								
1	PVC DN 10 threaded connector								
9	Connector nipple/expansion module								
<b>Versions:</b>									
0	With ProMinent® logo								
1	Without ProMinent® logo								
<b>Accessories included:</b> Wall mounting; for Pg 13.5 module; calibration cup; Pg 13.5 probe assembly set.									
DGM	A	3	2	1	T	0	0	0	PLEASE CHECK AVAILABILITY

The identity code opposite describes a fully assembled combination of flow monitor with sensor, two Pg 13.5 modules (e.g. for pH and redox probes) and a 25 mm module (e.g. for chlorine probe CLE 3). Fitted with 8 x 5 hose connector.

Recommended accessories:	Part No.
for potential equaliser plug	791663
flow sensor	791635
additional calibration cup	791229

	Part No.
Flow Control Unit c/w float & sensor switch	DGMA300T000
Flow Control plus pH Cell Unit	DGMA310T000
Flow Control plus pH Cell Unit & rH Unit	DGMA320T000
Flow Control plus Chlorine Cell <i>includes Fitting Kit</i>	DGMA301T000
Flow Control plus pH plus Chlorine Cell <i>includes Fitting Kit</i>	DGMA311T000
Flow Control plus pH plus rH Cell plus Chlorine Cell <i>includes Fitting Kit</i>	DGMA321T000

**Note:** ALL complete DGMA assemblies are supplied with a simple sampling tap.

For alternate by-pass, submersible and withdrawal probe Housings and Buffer Solutions, refer 'GREEN PAGE' Catalogue



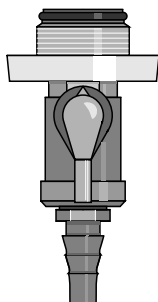


## 6.13 DULCOTEST® Accessories DGMa

### 6.13.1 Accessories

#### Accessory: Sampling tap for DGMa

for PG 13.5 and 25 mm modules designed as a convenient ball valve.

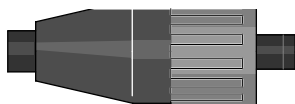


	Part No.
PG 13.5 sampling tap	1004737
25 mm sampling tap	1004739

#### CABLES & CONNECTORS

	Part No.
SN6 coax connector for 5 mm dia. coax cable	304974
SN6 coax connector for 3 mm dia coax cable	304975

#### CABLE & GLANDS



Cables per meter	Part No.
Military Grade, 50 ohm, type AM-900, Low Noise	A04001118
Grey HC2049 Cable, (2 core pulse)	A04001289
Grey cable entry gland 1/4" BSPM	703830
Black cable entry gland 3/8" BSPM	703885
4-wire shielded cable 100CY 4x0, 25qmm 5.7 grey	1045183



#### DULCOTEST COMPLETE SIGNAL CABLES

	Part No.
2 x SN6 Coax 0.8 m - SS	305077
2 x SN6 Coax 2.0 m - SS	304955
2 x SN6 Coax 5.0 m - SS	304956
2 x SN6 Coax 10.0 m - SS	304957

#### BELOW CABLES FOR TYPICAL USE WITH PH / ORP PROBES

	Part No.
SN6 - open end Coax 0.8m - S *** use this for panels ***	1024105
SN6 - open end Coax 2.0m - S	305030
SN6 - open end Coax 5.0m - S	305039
SN6 - open end Coax 10.0m - S	305040
SN6 - open end Coax 20.0m - S <i>non-stock item</i>	304952
SN6 - open end 2 core 5.0m for PT probes	1003208

The signal lead is required for connection of DMT type measuring cells to the DMT transducer.



	Part No.
Universal cable, 5-pole round plug, 5-wire, 2 m	1001300
Universal cable, 5-pole round plug, 5-wire, 5 m	1001301
Universal cable, 5-pole round plug, 5-wire, 10 m	1001302



## 6.14 Modular Sensor Technology BAMA

### 6.14.1 Sensor Bypass Armature Modular BAMA

**Modular sensor bypass armature BAMA: flexible process connection for all ProMinent sensors for water treatment.**

**Up to 9 functional modules can be freely configured in a single fitting.**

The modular bypass armature BAMA accommodates ProMinent sensors for water treatment. The armature is simply installed in a bypass of the main process line. It is available in various variants, each perfectly designed for special water treatment applications – from drinking water, water for pool & wellness to industrial water.

Depending on the application, the modular bypass armature can be selected in different variants:

**For saving sample water:** This variant of the BAMA allows all flow-dependent sensors in the 5...25 l/h range to be operated for clear water. This is very beneficial for applications, where sample water cannot or must not be returned to the process, e.g. drinking water monitoring or product water during the manufacture of beverages.

**For process water which is clear or has low levels of solids where the sample water is returned to the process:** This design can be operated between 20...60 l/h as a result of which self-cleaning of armatures and sensors is improved. Typical applications include water treatment processes in the pool & wellness sector.

**For process water which has moderate levels of solids and / or for higher temperatures and / or pressure**

**requirements:** This BAMA configuration is designed for operation with flows of 20...100 l/h and is ideally suited for many applications, e.g. in industrial water treatment.

The modular bypass armature BAMA and its various components can be perfectly combined for individual sample water conditioning. Additionally, a flow controller can be installed as well as can components for taking and treating sample water, such as a filter, flow limiter, metering module, ventilation, potential equalisation and earthing. For amperometric sensors without diaphragm, an integrated hydrodynamic cleaning unit can be ordered.

#### Your Benefits

- The sensors can be quickly and easily fitted and dismantled thanks to bayonet fittings.
- All parts requiring maintenance can be cleaned very well as they are easy to access without tools.
- Water consumption is minimised to just 5 l/h for flow-dependent sensors under ideal measurement conditions.
- The good particle mobility allows the bypass armature to be used in an even wider range of applications.
- Construction and material permit temperatures of up to 70 °C at a max. pressure of 3 bar, making it even more flexible to use.
- Thanks to higher pressure levels of up to 7 bar at 20 °C, sample water can return to the process, where permitted.
- The BAMA provides numerous options for setting optimum measurement conditions.

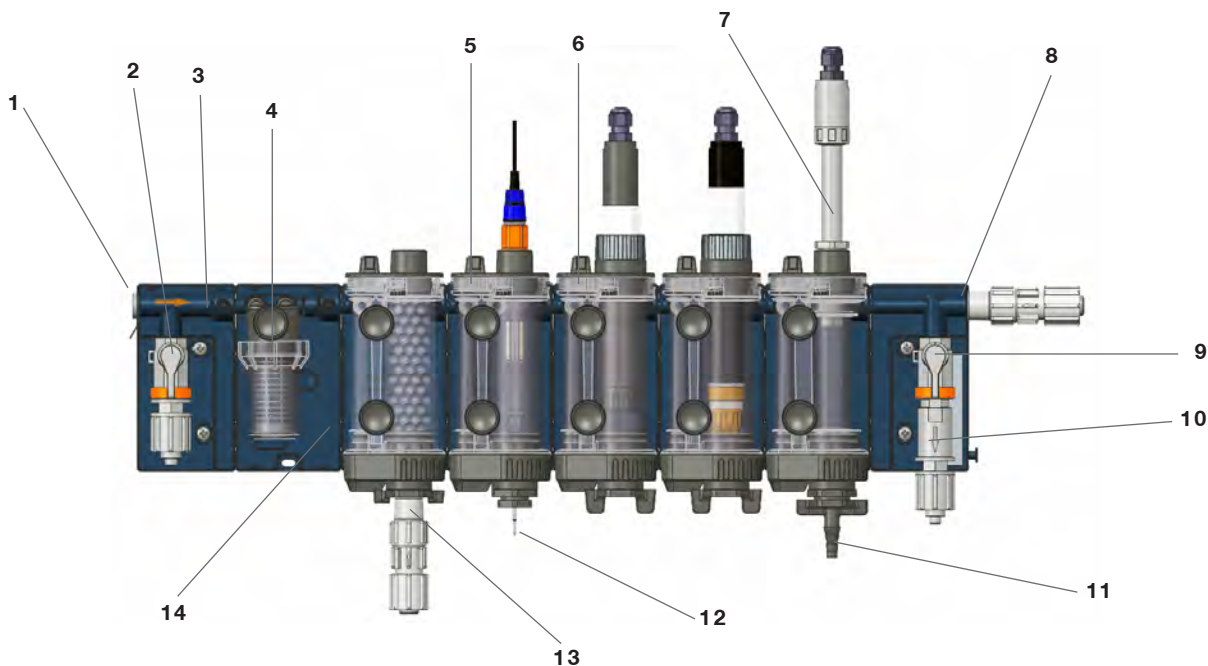


## 6.14 Modular Sensor Technology BAMA

### 6.14.1 Sensor Bypass Armature Modular BAMA

Can be ordered using identity code as an option

- Space-saving filter module, fully integrated in the fitting: Length: 65 mm / diameter 28 mm, filter bowl made from PET copolymer, filter insert made from stainless steel 1.4404, 300 µm pore diameter
- The module with float flow control using a reed switch is available in the following designs for use in clear process water: “BAMA\_1...” and “BAMA\_2...”. Wetted materials: PVC, FKM
- The module with thermal flow control is available in the design “BAMA\_3...” and permits operation in media containing solids and at higher pressure levels / temperatures. Wetted material: Stainless steel 1.4404
- The flow limiter for eliminating peaks in flow as hydraulic conditions change over time is always fitted in conjunction with the filter module and is only available in the designs “BAMA\_1...”: Limitation to max. 12 l/h and “BAMA\_2...”: Limitation to max.54 l/h
- Metering module including injection valve and mixing zone, for metering of chemicals in the sample water flow for the purpose of treating sample water (e.g. adjusting pH or electrolytic conductivity). Sensors, which are not suitable for untreated sample water, can therefore be used. The metering module can also be used to chemically clean the fitting. A suitable metering pump, accessories and the appropriate treatment medium must be ordered separately.
- Hydrodynamic cleaning of the open chlorine sensors without protective diaphragm, types CLO1 / CLO2, is integrated in the sensor module
- Potential equalisation on the sensor module and also an electric earthing connector on the input module ensure faultless operation of pH and ORP sensors in the event of electrical influence



- |   |   |    |   |
|---|---|----|---|
| 1 | Earthing connector  | 8  | G 1/4 connector for venting   |
| 2 | Hydraulic inlet with shut-off valve, horizontal or vertical connector (inlet), factory-fitted as vertical, but may be converted by the operator to horizontal | 9  | Hydraulic outlet with shut-off valve, horizontal or vertical connector (outlet), factory-fitted as vertical, but may be converted by the operator to horizontal |
| 3 | Direction of flow/arrow   | 10 | Flow limiter  |
| 4 | Particle filter, 300 micrometre (optional)  | 11 | Sample valve  |
| 5 | Sensor modules for pH and ORP sensors (PG 13.5 connector)   | 12 | Potential equalisation connector  |
| 6 | Sensor modules for amperometric sensors (G1" connector)   | 13 | 13 Injection valve with mixing device   |
| 7 | Flow meter / control by means of float and reed switch or thermal flow sensor   | 14 | Module carrier  |



## 6.14 Modular Sensor Technology BAMA

### 6.14.2 BAMA Technical Data

Flow through the sensor bypass armature Modular BAMA

Application	“BAMA_1...” e.g. drinking water	“BAMA_2...” e.g. pool&wellness sector	“BAMA_3...” industrial water
Flow	5...25 l/h	20...60 l/h	20...100l/h

Operating pressure / operating temperature / particle mobility

BAMA design Pressure / temperature	“BAMA_1...” at max. 25 l/h	“BAMA_2...” at max. 60 l/h	“BAMA_3...” at max. 100 l/h
Minimum priming pressure without flow limiter and with clean filter for a total of 9 modules	0.025 bar	0.050 bar	0.500 bar
Minimum priming pressure with flow limiter and with clean filter for a total of 9 modules	1.5 bar	1.5 bar	2.0 bar
Maximum operating pressure *	7.0 bar at 20 °C	7.0 bar at 20 °C	7.0 bar at 20 °C
Maximum operating temperature *	60 °C at 3.5 bar	60 °C at 3.5 bar	70°C at 3.0 bar
Particle mobility (specified with non-agglomerating, non-< 300 µm sedimentary model particles)	< 300 µm	< 300 µm	< 1000 µm

\* Maximum operating pressure and maximum operating temperature are limited by the specification of the weakest component fitted.

- Because the flow limiter may only be used in clear water, it is only available as standard for the “BAMA\_1...” applications (e.g. potable water, limitation to 12 l/h, order no. 1113408) and “BAMA\_2...” (e.g. pool&wellness sector, limitation to 54 l/h, order no. 1112443) applications together with the filter module. Blockages are thereby avoided. The flow limiter is installed on the hydraulic outlet ex factory.
- When using sensors with a maximum operating pressure of  $\leq 1.0$  bar, the flow limiter can be ordered as an accessory and installed on site at the hydraulic inlet module, provided that the system is handling filtered, clean sample water with no solids content with a particle size  $< 300 \mu\text{m}$ . Due to the pressure drop of 1.4 bar at the outlet of the pressure limiter, the permitted operating pressure at the inlet of the sensor bypass armature Modular BAMA is increased to max. 2.4 bar for pressure-sensitive sensors.
- Because of the continuous configuration, an additional priming pressure of 0.5 bar is to be expected when using a filter and this must be added to the minimum priming pressure values stated above.

#### Wetted materials

Measurement module, flow module, metering module, flow element of filter housing	SAN, transparent
Module carrier, hydraulic inlet / outlet	PPE+PS+GF10%
Sensor adapter; flow element bracket	PPE+PS+GF30%
Filter insert	Stainless steel 1.4404
Filter bowl	PET copolymer
Ball funnel, flow nozzle	PVDF
O-rings, seals	FKM
Thermal flow sensor	Stainless steel, 1.4404
Calibration beaker	PE
Shut-off valve, sample drain valve	a) PVC in applications BAMA_1 (e.g. drinking water) and BAMA_2 (e.g. pool & wellness sector) b) PVDF in the application BAMA_3 (e.g. industrial water)
Flow sensor with float	PVC
Thermal flow sensor	Stainless steel 1.4404
Flow limiter	PVC
Potential equalisation pin	Stainless steel 1.4404
Cleaning balls, balls in the metering module	Glass



## 6.14 Modular Sensor Technology BAMA

### 6.14.2 BAMA Technical Data

#### Hydraulic connectors

Hose 8x5 and 12x6 mm

Hose 1/2x3/8 and 3/8x1/4 inch

Pipe DN10 horizontal

Pipe 1/2 inch MPT horizontal

#### Float flow meter

Flow range for BAMA_1 application (e.g. drinking water)	5...25 l/h
Flow range for BAMA_2 application (e.g. pool & wellness sector)	20...60l/h
Max. operating pressure	2 bar
Max. operating temperature	30 °C
Output signal	Switching signal
Max. switching power	3W
Max. switching voltage	42V
Max. switching current	0.25 A
Max. constant current	1.2 A
Max. contact resistance	150 mOhm
Degree of protection of the reed switch	IP 65
Wetted materials	PVC, FKM

#### Thermal flow meter

Flow range	20...100 l/h
Accuracy at the switching point 30 l/h	Better than +-10%
Output signal	Switching signal; analogue signal; frequency signal; IO link;
Electrical design	PNP, NPN
Max. load	300 Ohm
Continuous current load of the switching output	200 mA DC
Max. voltage drop at switching output	2.5V DC
Degree of protection	IP65
Wetted materials	Stainless steel, 1.4404

#### Flow limiter

Minimum pressure drop	1.4 bar
Maximum pressure drop	10 bar
Flow limitation for BAMA_1 application ( e.g. drinking water)	max. 12 l/h
Flow limitation for BAMA_2 application (e.g. pool & wellness sector)	max. 54 l/h
Application	Can only be used for filtered water < 300 µm

#### Ambient conditions

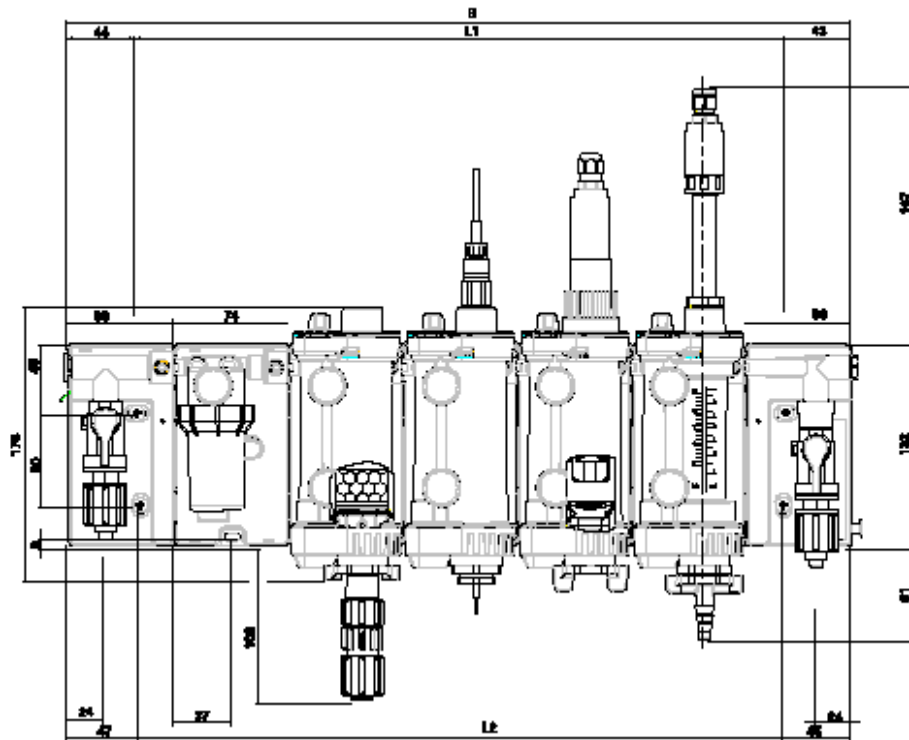
Ambient temperature	-10...60 °C
Storage temperature	10...70°C
Vibration	Complies with IEC 68, Part 2-6
EMC	In accordance with the data for the electrical components
UV	Not long-term stable in direct sunlight when used outdoors
Air humidity	when using flow sensors and other electrical components: max: 90%, non-condensing



## 6.14 Modular Sensor Technology BAMA

### 6.14.2 BAMA Technical Data

#### Dimensions/weights



BAMA design example: BAMA\_EU\_1\_2\_1\_1\_X\_D\_D\_C\_1\_X\_00\_01\_00\_DE (with float flow control, e.g. for drinking water)

Number of modules	1	2	3	4	5	6	7	8	9
Width b (mm)	213	288	362	437	511	586	660	735	809
Weight (g) excluding sensors	547	842	1137	1432	1727	2022	2317	2612	2907

BAMA module	Weight (g)
Hydraulic inlet	124
Hydraulic outlet	128
Module carrier	120
Measuring module	175
Flow module	230
Filter	75
Lip valve	44
Hose connector kit	35



## 6.14 Modular Sensor Technology BAMA

### 6.14.3 Identity Code Ordering System BAMA Sensor

#### BAMA

##### Regional design

EU Europe (Standard)

##### Application

- 1 5 ... 25 l/h, max. 60 °C at 3.5 bar (e.g. drinking water or water similar to clear water with sample water consumption saving)
- 2 20 ... 60 l/h, max. 60 °C at 3.5 bar (e.g. pool & wellness sector or similarly treated water with sample water return)
- 3 20 ... 100 l/h, max. 70 °C at 3.0 bar (e.g. industrial water or similar with a solids content and higher temperature requirements)

##### Flow monitor module

- X** none, (For application 3 only)
- 1 Float + scale [l/h], [gph]
  - 2 Float + scale + reed switch (max. 2 bar)
  - 3 Thermal flow monitorig, (For application 3 only)

##### Number of modules, PG13.5 (sensors for pH, ORP, conductivity: LF(T) line, fluoride FLEP, hydrogen peroxide H2.10P, temperature PT100, PT1000)

- X** No module
- 1 One module + sensor adapter PG 13.5
  - 2 Two modules + sensor adapter PG 13.5
  - 3 Three modules + sensor adapter PG 13.5
  - 4 Four modules + sensor adapter PG 13.5

##### Number of modules, G 1" (amperometric sensors, conductivity sensors CCT1, CTFS via adapter G 1" - 3/4" NPT (1113353), sensor for dissolved oxygen DO3)

- X** No module
- 1 One module + sensor adapter G 1"
  - 2 Two modules + sensor adapter G 1"
  - 3 Three modules + sensor adapter G 1"
  - 4 Four modules + sensor adapter G 1"
  - 5 Five modules + sensor adapter G 1"

##### Number of modules, G 3/4" (conductivity sensors LM(P) line)

- X** none
- 1 One module + sensor adapter G 3/4"

##### Metering module

- X** None  
**D** With metering module

##### Sample water treatment

- 0** none  
**F** With filter, 300 µm, stainless steel  
**D** With filter and flow limiter, (For applications 1 and 2 only)

##### Sensor cleaning

- 0** None  
**C** Hydrodynamic cleaning for CLO 1/2 type chlorine sensor, (For applications 2 and 3 only)

##### Hydraulic connections

- 1 Hose 8x5 and 12x6 mm, (EU region only)
- 4 Pipe, DN 10, horizontal, (EU region only)

##### Status illuminated indicator

- X** none

##### Version

- 00** with ProMinent® logo

##### Accessories

- 00** none  
**01** Potential plug + electrical earthing

##### Approvals

- 01** CE, (Only needed with accessories 01)

##### Documentation language

- EN** English



## 6.14 Modular Sensor Technology BAMA

### 6.14.4 Spare Parts & Accessories BAMA Sensor

#### Retrofit kits

	Part No.
Sensor module, complete	1113795
Filter module, complete	1113798
Cleaning set CLO/BAMA for CLO sensors in conjunction with sensor bypass armature BAMA	1113881
Metering module, complete	1113424

#### Accessories

	Part No.
Reed switch PVC, for flow module	1118867
Thermal flow control (SA 4300)	1122791
Potential equalisation / earthing, complete	1113409
Sample valve for PG 13.5 module	1004737
Flow limiter, 12 litres, complete, f/f PVC	1117504
Flow limiter, 54 litres, complete, f/f PVC	1117493
Hydraulic short circuit, complete	1117462
Vent valve (lip valve) G 1/4 - 6x4, PVC	1113427

#### Consumable Items

	Part No.
Filter insert, 300 µm, stainless steel	1105632
Cleaning balls (approx. 100)	1104267
Glass balls for metering module 1	122617





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# 1.0 Tube, Hose & Fittings

**TUBE PACK 7 METRE, INCLUDES: 5m TRANSLUCENT LDPE DOSING TUBE & 2M SOFT PVC SUCTION TUBE**

Part No.

**TUBE PACK 7 METRE, INCLUDES: 5 BLACK LDPE DOSING TUBE & 2M SOFT PVC SUCTION TUBE**

6mm O.D. x 4mm I.D.	PA01181049
8mm O.D. x 5mm I.D.	PA01281049
12mm O.D. x 9mm I.D.	PA01381049

**SUCTION TUBE, CLEAR SOFT PVC - 25 METRE ROLL**

6mm O.D. x 4mm I.D. - 0.5 bar	A25121801
8mm O.D. x 5mm I.D. - 0.5 bar	A25221801
12mm O.D. x 9mm I.D. - 0.5 bar	A25321801

**DOSING TUBE, TRANSLUCENT LDPE - 25 METRE ROLL**

6mm O.D. x 4mm I.D. - 11 bar	A25121800
8mm O.D. x 5mm I.D. - 11 bar	A25221800
12mm O.D. x 9mm I.D. - 7 bar	A25321800

**DOSING TUBE, BLACK LDPE - 25 METRE ROLL**

6mm O.D. x 4mm I.D. - 11 bar	A25151003
8mm O.D. x 5mm I.D. - 11 bar	A25251004
12mm O.D. x 9mm I.D. - 7 bar	A25351005

**SUCTION TUBE, CLEAR SOFT PVC - 50 METRE ROLL**

6mm O.D. x 4mm I.D. - 0.5 bar	A01181006
8mm O.D. x 5mm I.D. - 0.5 bar	A01281006
12mm O.D. x 9mm I.D. - 0.5 bar	A01381006

**DOSING TUBE, TRANSLUCENT LDPE - 50 METRE ROLL**

6mm O.D. x 4mm I.D. - 11 bar	A01181007
8mm O.D. x 5mm I.D. - 11 bar	A01281007
12mm O.D. x 9mm I.D. - 7 bar	A01381007

**DOSING TUBE, BLACK LDPE - 50 METRE ROLL**

6mm O.D. x 4mm I.D. - 11 bar	A01181008
8mm O.D. x 5mm I.D. - 11 bar	A01281008
12mm O.D. x 9mm I.D. - 7 bar	A01381008

**HIGH PRESSURE FABRIC REINFORCED PVC TUBE**

10x4 Tube Fabric reinforced 5m roll - 18 bar	1004533
10x4 Tube Fabric reinforced 50m roll - 18 bar	1004536
12x6 Tube Fabric reinforced 5m roll - 17 bar	1004538
12x6 Tube Fabric reinforced 50m roll - 17 bar	1004541

**Prices Below are Per Metre**

**SUCTION /DOSING TUBE, CLEAR PVC/FABRIC, FOOD GRADE**

16 mm ID - 16 bar	A01721802
20 mm ID - 16 bar	A01821802
25 mm ID - 16 bar	A01921802
32 mm ID - 16 bar	A01021802

**DOSING TUBE, PTFE OD X ID**

1.75 mm x 1.15 mm - 12 bar	37414
3.2 mm x 2.4 mm - 8 bar	37415
6 mm x 3 mm - 20 bar	1021353
6 mm x 4 mm - 14 bar	37426
8 mm x 4 mm - 25 bar	1033166
8 mm x 5 mm - 16 bar	37427
12 mm x 9 mm - 10 bar	37428
19 mm x 16 mm - 6 bar	37430

**DOSING TUBE, STAINLESS STEEL OD X ID**

1.58 mm x 0.9 - 400 bar	1020774
3.175 mm 1.5 mm - 400 bar	1020775
6 mm x 4 mm - 185 bar	15739
6 mm x 5 mm - 175 bar	15738
8 mm x 7 mm - 160 bar	15740
12 mm x 10 mm - 200 bar	15743



**Note:** Soft PVC tubing is only rated to 0.5 bar.

**Note:** When "Fabric Reinforced PVC Tube" is used under high pressure the tube may shrink significantly, so allow extra length especially during installation.



# 1.1 Tube & Pipe Fittings



Valve to Solvent Weld

	Part No.	
3/4" to 15mm PVC Pipe (DN 10)	A27022364	●
1" to 20mm PVC Pipe (DN 15)	A27022365	●
1-1/4" to 20mm PVC Pipe (DN 20)	A27022366	●
1-1/2" to 20mm PVC Pipe (DN 25)	A27022367	●

**PVC - PREFERRED STOCKING**  
**Note:** PP, PVDF & SS mostly to order only



Valve to Tube

<b>3/4" VALVE TO 12X9 TUBE (DN 10)</b>		
PVC	PA07321337	●
PVDF (Cap Nut in PP)	PA07331337	●

<b>3/4" VALVE TO 16MM HOSE TAIL (DN 10)</b>		
PVC	A07621788	●
PVDF	1002288	●
SS	A07641788	●



3/4" Valve to 1/2" BSPT Adaptor

<b>3/4" VALVE TO 20MM HOSE TAIL (DN 10)</b>		
PVC	A07621303	●
PVDF	A07631303	●
SS	A07641303	●

<b>3/4" VALVE TO 1/2" BSPT MALE (DN 10)</b>		
PVC	A07521066	●
PVDF	A07531066	●
SS	A07541066	●

**Note:** PVDF 12x9 fittings fitted with PVC Cap Nuts



1" Valve to 16mm Hose Tail

<b>1" VALVE TO 12X9 TUBE (DN 15)</b>		
PVC	PA07321369	●
PVDF (Cap Nut in PVC)	PA07331369	●

<b>1" VALVE TO 16MM HOSE TAIL (DN 15)</b>		
PVC	A07521224	●
PVDF	A07531224	●

<b>1" VALVE TO 20MM HOSE TAIL (DN 15)</b>		
PVC	A07521211	●
PP*** Not Stocked ***	A07551211	●
PVDF	740632	●

<b>1" VALVE TO 25MM HOSE TAIL (DN 15)</b>		
PVC	A07621309	●
PVDF	A07631309	●

<b>1" VALVE TO 3/4" BSPT MALE (DN 15)</b>		
PVC	A07521212	●
PVDF	A07531212	●
SS	A07541212	●

**Note:** PVDF 12x9 fittings fitted with PVC Cap Nuts

**NOTE:** Sigma 1 has 3/4" & 1" Valves  
 Sigma 2 has 1" & 1-1/2" Valves  
 Sigma 3 has 1-1/2" & 2" valves

## Tube & Pipe Fittings

<b>1-1/4" VALVE ADAPTOR TO 16MM HOSETAIL (DN 20)</b>		
PVC	A07521213	●
PVDF	A07531213	●

<b>1-1/4" VALVE ADAPTOR TO 20MM HOSETAIL (DN 20)</b>		
PVC	A07521092	●
PVDF	A07531092	●
SS	A07541092	●

<b>1-1/4" VALVE ADAPTOR TO 25MM HOSETAIL (DN 20)</b>		
PVC	A07521093	●
PVDF	1006014	●



## 1.1 Tube & Pipe Fittings

	Part No.	
<b>1-1/4" VALVE ADAPTOR TO 1/2" BSPT MALE (DN 20)</b>		
PVC	A07521098	●
PVDF	A07531098	●
<b>1-1/4" VALVE ADAPTOR TO 3/4" BSPT MALE (DN 20)</b>		
PVC	A07521069	●
PVDF	A07531069	●
SS	A07541069	●
<b>1-1/4" VALVE ADAPTOR TO 1" BSPT MALE (DN 20)</b>		
PVC	A07521070	●
PVDF	A07531070	●
SS	A07541070	●
<b>1-1/2" VALVE ADAPTOR TO 25MM HOSETAIL (DN 25)</b>		
PVC	A07521095	●
PVDF	A07531095	●
<b>1-1/2" VALVE ADAPTOR TO 32MM HOSETAIL (DN 25)</b>		
PVC	A07621455	●
PVDF	1005560	●
<b>1-1/2" VALVE ADAPTOR TO 1" BSPT MALE (DN 25)</b>		
PVC	A07521094	●
PVDF	A07531094	●
SS	A07541094	●
<b>2" VALVE ADAPTOR TO 32MM FEMALE SOLVENT WELD ADAPTOR (DN 32)</b>		
PVC only	721-601-109	●
<b>2" VALVE ADAPTOR TO BSMT MALE ADAPTOR (DN 32)</b>		
PVC only x 1-1/4"	A07022463	●
PVC only x 1-1/2"	A07022462	●
<b>2-1/4" VALVE ADAPTOR TO 38MM HOSETAIL (DN 40)</b>		
PVC	A07621425	
PVDF	A07631425	
<b>2-1/4" VALVE ADAPTOR TO 1-1/4" BSPT MALE (DN 40)</b>		
PVC	A07521799	
PVDF	A07531799	
SS	A07541799	
<b>2-1/4" VALVE ADAPTOR TO 48MM SOLVENT WELD (DN 40)</b>		
PVC	A07021426	
<b>ADAPTORS SS DN FEMALE TO BSPT MALE</b>		
1-1/4" valve DN to 1" BSPT Male (DN 20)	A07542085	●
1-1/2" valve DN to 1" BSPT Male (DN 25)	A07542086	●
2-1/4" valve DN to 1-1/2" BSPT Male (DN 40)	A07542087	



1-1/4" Valve (Meta 130) to 16mm Hosetail



1-1/4" Valve (Meta 130 - 260) to 3/4" BSPT Male



## 1.2 BSPM to Hosetail Adaptors



BSPM to Hosetail Adaptors



HEX Nipples



Tube Joiner 8x5 to 8x5

### BSPM TO HOSETAIL ADAPTORS

	Part No.
PP- 1/2" BSPM to 16mm Hosetail - Moulded	A01551096
PP- 1/2" BSPM to 20mm Hosetail - Moulded	A01551089
PP- 3/4" BSPM to 20mm Hosetail - Moulded	A01551087
PP- 1" BSPM to 25mm Hosetail - Moulded	A01551088
PP- 1-1/4" BSPM to 35mm Hosetail - Moulded	A01551090
PP- 1-1/2" BSPM to 40mm Hosetail - Moulded	A01551091
PVC- 1/2" BSPM to 16mm Hosetail	A01521096
PVC- 3/4" BSPM to 20mm Hosetail	A01521087
PVC- 1" BSPM to 25mm Hosetail	A01521088

### HEX NIPPLES

PVC-1/2" BSPT M/M - Machined	A07521064
PVC- 3/4" BSPT M/M - Machined	A07521065

### REDUCING BUSH

PVC- 3/4" BSPTM to 1/2" BSPT Female - Moulded	A01521416
PP- 3/4" BSPTM to 1/2" BSPT Female - Moulded	A01551416

### TUBE FITTINGS

#### Tube Joiner 6x4 to 6x4

PVC		PA07121060
PVDF	*** Not Stocked ***	PA07131060

#### Tube Joiner 8x5 to 8x5

PVC		PA07221060
PVDF	*** Not Stocked ***	PA07231060

#### Tube Joiner 12x9 to 12x9

PVC		PA07321060
PVDF	*** Not Stocked ***	PA07331060

#### Tube Joiner 6x4 to 8x5

PVC		PA07321059
PVDF	*** Not Stocked ***	PA07331059

#### Tube Joiner 6x4 to 12x9

PVC		PA07321058
PVDF	*** Not Stocked ***	PA07331058

#### Tube Joiner 8x5 to 12x9

PVC		PA07321057
PVDF	*** Not Stocked ***	PA07331057

**Note:** PVDF Hose Adaptors are fitted with PVC Cap Nuts.

### MISCELLANEOUS FITTINGS



## 1.2 BSPM to Hosetail Adaptors

### TUBE TO PIPE FITTINGS

TUBE ADAPTOR 6X4 TO 1/2" BSPT MALE		Part No.
PVC		PA07121061
PTFE	*** Not Stocked ***	PA07131061
TUBE ADAPTOR 8X5 TO 1/2" BSPT MALE		
PVC		PA07221061
PTFE	*** Not Stocked ***	PA07231061
TUBE ADAPTOR 12X9 TO 1/2" BSPT MALE		
PVC		PA07321061
PTFE	*** Not Stocked ***	PA07331061
TUBE ADAPTOR 12X9 TO 3/4" BSPT MALE		
PVC		PA07321062
PTFE	*** Not Stocked ***	PA07331062
TUBE ADAPTOR 8X5 TO 1/4" BSPT MALE		
PVC		PA07522276



Tube Adaptor 8x5 to BSPT Male



## 1.3 Tube Adaptors



PVC Tube Adaptor 8x5 to 1/2" Solvent Weld

### TUBE TO SOLVENT WELD

PVC Tube 6x4 to 1/2" Solvent Weld

Part No.

PA07121184

PVC Tube 8x5 to 1/2" Solvent Weld

PA07221184

PVC Tube 12x9 to 1/2" Solvent Weld

PA07321184

PVC Tube 16mm Hosetail to 1/2" Solvent Weld

A07421184

PVC Tube 20mm Hosetail to 3/4" Solvent Weld

A

PVC Tube 20mm Hosetail to 1" Solvent Weld

A



16mm Hose Joiner PP

### PP HOSE JOINERS

16 mm Hose Joiner PP

A01651316

20 mm Hose Joiner PP

A01651317



PP Equal Tee Pieces 16mm Hosetail all round

### PP EQUAL TEE PIECES

16 mm Hosetails all round

A01651318

20 mm Hosetails all round

A01651319



20x1.5 Female Union to 15mm Solvent Weld

### UNION ADAPTORS

20x1.5 Female Union to 15mm Solvent Weld PVC

PA27022382



20x1.5 Female Fixed / Female Union

20x1.5 Female Union to 20x1.5 Female

PA03022627



20x1.5 Female Union / 1/2" BSPT Male

20x1.5 Female Union to 1/2" BSPT Male

PA01722804



PA03422617



PA06022635

### ADAPTORS FOR SUCTION / FOOT VALVES FOR VARIO & SIGMA

3/4" valve to 16mm hose

PA03422617

1" valve to 16mm hose

PA06022635

1-1/4" valve to 20mm hose

PA06022618





## 2.0 Chemical Tanks and Accessories



**CHEMICAL TANKS - POLYETHYLENE**  
**ONE PIECE ROTATIONALLY MOULDED MDPE with vented lid.**

\*\*\*\*\* PLEASE NOTE \*\*\*\*\*

Prices below are a **GUIDE ONLY** as prices may vary from time to time and state to state.  
 For accurate prices please consult Sydney office.

**Prices include vented lids and poly BSP F socket up to 2"**

	Diameter	Wall height	Apex height	Weight
1,600 litre tank	1.10 m	1.85 m	2.10 m	70
2,000 litre tank	1.20 m	1.79 m	1.98 m	85
2,600 litre tank	1.45 m	1.45 m	1.67 m	90
3,000 litre tank	1.47 m	1.78 m	1.98 m	115
5,000 litre tank	1.84 m	1.97 m	2.17 m	150
9,100 litre tank	2.37 m	2.14 m	2.41 m	275
10,000 litre tank	2.62 m	1.88 m	2.08 m	300
13,600 litre tank	2.86 m	2.26 m	2.64 m	355
22,600 litre tank	3.68 m	2.24 m	2.76 m	525

**Note:** Prices are for delivery into **Sydney, ONLY.**

**For other sizes and destinations consult Sydney office.**

Tanks are manufactured in NSW, QLD, and VIC offering a full range of fittings and attachments to your specifications.

The above tanks are precision rotomoulded to comply with ASMD 1998-93 and manufactured to contain liquids with a specific gravity to 1.5. All tanks are compatible with the storage of a wide range of chemicals, such as sodium hypochlorite, liquid alum, and hydrochloric acid.

**NOTE: PLEASE CHECK CHEMICAL COMPATIBILITY**

### BUNDS

The Standard for Storage of Corrosive Liquids specifies the inside lip of the bund at 63.5 degrees down from the top of the tank. Tanks of 250 litres or less are considered minor storage and do not have to comply with the standard.

**Note:** ProMinent Tanks up to 1,500 litres can be found in the Yellow Pages Catalogue.  
 Bunds up to 250 litres are also in the Yellow Pages.

### TANK FITTINGS Part No.

Tank drain fitting with 3/4" Plug	<b>809756</b>
-----------------------------------	---------------

**Note:** Large tanks can be fitted with outlets by the tank manufacturer.

### TANK DRAIN

Valve assembly for ProMinent tanks

3/4" BSPT M/M PVC/FPM	<b>PA02823318</b>
-----------------------	-------------------

Valve assembly for ProMinent tanks

As above 3/4" BSPT to 20 x 1.5 M/M	<b>PA02823329</b>
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(see yellow pages for connection set 6x4, 8x5, 12x9)



## 2.0 Chemical Tanks and Accessories



240 Volt Electric Stirrer



415 Volt Slow Speed Stirrer



Slow Speed Stirrer on 500 litre ProMinent Tank

### Electric Stirrers for ProMinent Tanks

Part No.

#### 415 VOLT ELECTRIC STIRRER

to suit 60 litre tanks  
0.09k W 415/3/50 IP 55 Motor S/S shaft, P.P. Impeller

PA17002786

#### 240 VOLT ELECTRIC STIRRER

to suit 60 litre tanks  
0.02 kW 240/1/50 IP55 Motor S/S Shaft, P.P. Impeller

P818576

#### 415 VOLT ELECTRIC STIRRER

to suit 100, 140, 250 litre tanks  
0.25 kW 415/3/50 IP 55 Motor S/S shaft, P.P. Impeller

PA17002408

#### 240 VOLT ELECTRIC STIRRER

to suit 100, 140 & 250 litre tanks  
0.18 kW 240/1/50 IP55 Motor S/S Shaft, P.P. Impeller

PA17002409

#### 415 VOLT ELECTRIC STIRRER - LIGHT DUTY

to suit 500 litre tanks  
0.25 kW 415/3/50 IP 55 Motor S/S shaft, P.P. Impeller

PA17002370

#### 240 VOLT ELECTRIC STIRRER - LIGHT DUTY

to suit 500 litre tanks  
0.18 kW 240/1/50 IP55 Motor S/S Shaft, P.P. Impeller

PA17002371

### SLOW SPEED STIRRERS

#### 415 VOLT SLOW SPEED 140 RPM ELECTRIC STIRRER

(other speeds available)

to suit 250 - 500 litre tanks  
0.25 kW 415/3/50 IP 55 Motor, Gearbox, S/S shaft,  
SS Impeller 200-260 dia.

PA17002339

#### 240 VOLT SLOW SPEED 140 RPM ELECTRIC STIRRER

(other speeds available)

to suit 250 - 500 litre tanks  
0.18 kW 240/1/50 IP 55 Motor, Gearbox, S/S shaft,  
SS Impeller 200-260 dia.

PA17032339

#### 415 VOLT SLOW SPEED 140 RPM ELECTRIC STIRRER

(other speeds available)

to suit 1000 litre tanks  
0.25 kW 415/3/50 IP 55 Motor, Gearbox, S/S shaft,  
2 x SS Impeller 260 dia.

PA17012339

#### 240 VOLT SLOW SPEED 140 RPM ELECTRIC STIRRER

(other speeds available)

to suit 1000 litre tanks  
0.0.18 kW 240/1/50 IP 55 Motor, Gearbox, S/S shaft,  
2 x SS Impeller 260 dia.

PA17022339

**Note:** Please advise size of tank when ordering.



# 2.1 Suction Assemblies

## Suction Assemblies

### CONCEPT

Rigid 1000 mm PVC assembly with foot valve & single stage PP level switch No. 142058. with 5m tube (42 OD PVC Pipe) for CONCEPT pumps.

	Part No.
6 x 4 tube	PA06181829
8 x 5 tube	PA06281830
12 x 9 tube	PA06381831

### BETA, GALA, DELTA

Rigid 1000 mm PVC assembly with foot valve with 2 stage PVDF switch No. 1034698. for: BETA, GALA, DELTA with 5m tube.

6 x 4 tube	PA06181832
8 x 5 tube	PA06281833
12 x 9 tube	PA06381834

### BETA, GALA, DELTA

same as above but 1200 mm long to suit BULKI BOX

Rigid 1200 mm PVC assembly with foot valve with 2 stage PVDF switch No. 1034698. for: BETA, GALA, DELTA with 5m tube.

6 x 4 tube	PA06481832
8 x 5 tube	PA06581833
12 x 9 tube	PA06681834

**Note:** Black LDPE tube is supplied as standard.  
If translucent or PVC Clear is required 25m roll is available at customers expense.  
For prices see page 1.1

[Ask about Suction Guide Tubes](#)

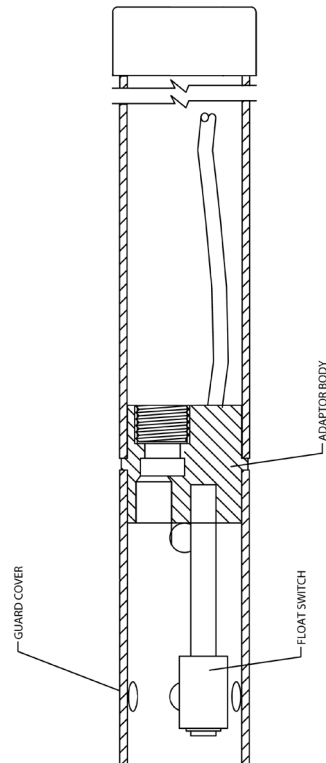
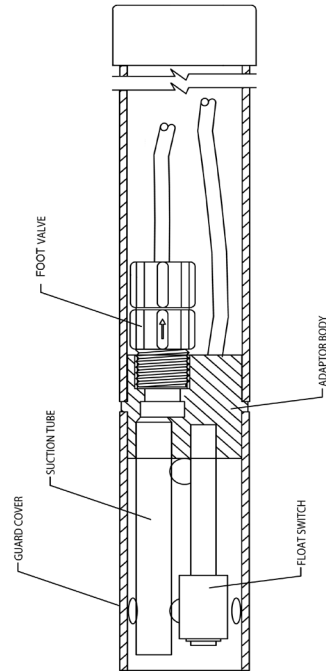
### BETA, GALA, DELTA, AND SIGMA Rigid Level Switch Assembly

same as above but 1200 mm long to suit up to 1000 lt tank

for use when Stirrer is mounted on tank.

Rigid 1200 mm PVC assembly with with 2 stage PVDF switch No. 1034698.

	PA02003300
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## 3.0 Miscellaneous Items

### Withdrawable Injection Tube Assemblies

#### WITH SPRING-LOADED INJECTION VALVE

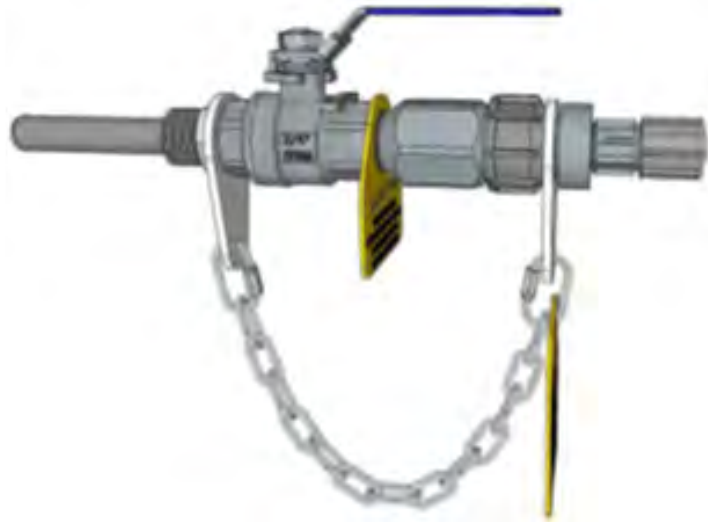
	Part No.
6x4 tube connection x 3/4" BSPT PVC/FKM	PA07123517
6x4 tube connection x 3/4" BSPT PP/EPDM	PA07153564
8x5 tube connection x 3/4" BSPT PVC/FKM	PA07223518
8x5 tube connection x 3/4" BSPT PP/EPDM	PA07253565
12x9 tube connection x 3/4" BSPT PVC/FKM	PA07323519
12x9 tube connection x 3/4" BSPT PP/EPDM	PA07353566
12x6 tube connection x 3/4" BSPT PVC/FKM	PA07C23520

#### Notes:

- The above assemblies all include a 3/4" 316 stainless steel ball valve and nipple for connection into the process pipework.
- The injection tube assemblies are made from uPVC. The injection valves are spring loaded (approx 0.5 bar) with FPM (Viton) seals for the PVC version and EPDM seals for the PP versions. The tube itself is Schedule 80 uPVC.
- The standard length is approximately 75mm past the nipple.
- Lengths are up to 150mm are available. Contact the Sydney office for details.

#### OPERATIONAL LIMITS:

<b>Pressure</b>	7 bar (100 psi)	
<b>Temp.</b>	0 ... 45°C	
<b>Max. Flows</b>	6x4mm	up to 4 l/h
	8x5mm	up to 14.5 l/h
	12x9mm	up to 45 l/h



### 3.0 Miscellaneous Items

#### Withdrawable Injection Tube Assemblies

##### LARGER SIZES WITH SPRING-LOADED INJECTION VALVES

	Part No.
1" withdrawable with DN15 PVC IV & 16mm Hosetail	PA07623534
1" withdrawable with DN15 PVC IV & 20mm Hosetail	PA07623535
1" withdrawable with DN20 PVC IV & 25mm Hosetail	PA07623536
1" withdrawable with DN15 PP IV & 16mm Hosetail	PA07653544
1" withdrawable with DN15 PP IV & 20mm Hosetail	PA07653545
1" withdrawable with DN20 PP IV & 25mm Hosetail	PA07653546

**Notes:**

- The above assemblies all include a 1" 316 stainless steel ball valve and nipple for connection into the process pipework.
- The injection tube assemblies are made from uPVC. The injection valves are spring loaded (approx 0.5 bar) with FKM (Viton) seals for the PVC version and EPDM seals for the PP versions. The tube itself is Schedule 80 uPVC.
- The standard length is approximately 75mm past the nipple.
- Lengths are up to 150mm are available. Contact the Sydney office for details.

**OPERATIONAL LIMITS:**

**Pressure** 7 bar (100 psi)

**Temp.** 0 ... 45°C

**Max. Flows**

<b>16mm HT</b>	120 l/h GXL a 0450 & 0280 & all Sigma 1
<b>20mm HT</b>	270 l/h All Sigma 2 up to 07220
<b>25mm HT</b>	365 All Sigma 3 up to 120270



### 3.0 Miscellaneous Items

#### Withdrawable Injection Tube Assemblies

##### LARGER SIZE WITHOUT INJECTION VALVE

	Part No.
Withdrawable inj assy Mk III 1 inch with 16mm PVC Hose tail	PA07623531
Withdrawable inj assy Mk III 1 inch with 20mm PVC Hose tail	PA07623532
Withdrawable inj assy Mk III 1 inch with 25mm PVC Hose tail	PA07623533

**Notes:**

- The above assemblies all include 1" 316 stainless steel ball valve and nipple for connection in the process pipework.
- The injection tube assemblies are made from uPVC with no elastomers in direct contact with the chemicals being dosed.
- The tube itself is Schedule 80 uPVC.
- The standard length is approximately 75mm past the nipple.
- Lengths up to 150mm are available. Contact the Sydney office for details.

**OPERATIONAL LIMITS:**

<b>Pressure</b>	7 bar (100 psi)	
<b>Temp.</b>	0 ... 45°C	
<b>Max. Flows</b>	<b>16mm HT</b>	120 l/h GXL a 0450 & 0280 & all Sigma 1
	<b>20mm HT</b>	270 l/h All Sigma 2 up to 07220
	<b>25mm HT</b>	365 All sigma 3 up to 120270

\*FOR LARGER FLOW RATES USE FIXED LAGER INJECTION VALVES



NIPPLES		Part No.
1/2"	BSPT Hex Nipple 316 SS	A27541236
3/4"	BSPT Hex Nipple 316 SS	A27841819
1"	BSPT Hex Nipple 316 SS	A27591234



BALL VALVES		
1/2"	BSPF Full Bore Stainless Steel Ball Valve	A09591256
3/4"	BSPF Full Bore Stainless Steel Ball Valve	A09891818
1"	BSPF Full Bore Stainless Steel Ball Valve	A09591257



#### WALL MOUNTING BRACKETS PVC - NOT DRILLED

H x W x D

suit for Beta 4 & Concept pumps	120 x 120 x 120	A07051045
suit for Beta 5 & GALA pumps	150 x 150 x 150	A07051046
suit for Delta, Sigma 1, 2 & 3 pumps	210 x 160 x 210	A07051047

#### MOUNTING BOARDS - L.D.P.E. 12 MM THICK

600 x 600	A350D3402
750 x 600	A350S1307
747 x 747	A350D3614

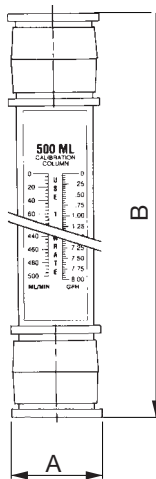
**Note:** mounting time is additional



Size No.	Typical Use	Assembly Time
Size A	Conductivity ..... D2C + DGMA	3 hours
Size B	diaLog or D2C + CO <sub>2</sub> + DGMA	4 hours
Size C	As per B + 2 small pumps	4 hours



### 3.1 Miscellaneous Items



#### ProMinent CALIBRATION CYLINDERS

Part No.	Capacity	Max. Flow	Increment	Length	OD	End Solvent Weld
CAL-100-SW	100ml	12LPH	1ml	279mm	38mm	1/2"
CAL-300-SW	300ml	36LPH	5ml	330mm	56mm	1/2"
CAL-500-SW	500ml	60LPH	5ml	330mm	63.5mm	3/4"
CAL-1000-SW	1,000ml	120LPH	5ml	559mm	63.5mm	3/4"
CAL-5000-SW	5,000ml	600LPH	10ml	711mm	124mm	1.5"
CAL-10000-SW	10,000ml	1,200LPH	100ml	635mm	176.5mm	2"
CAL-20000-SW	20,000ml	2,400LPH	100ml	1194mm	176.5mm	2"
CAL-30000-SW	30,000ml	3,600LPH	200ml	1651mm	241.3mm	4"



#### PVC PULSATION DAMPNERS - AIR TO LIQUID

		Part No.
6x4	Clear Sight Tube	PA16122466
8x5	Clear Sight Tube	PA16221081
12x9	Clear Sight Tube	PA16321082

3/4"	BSPT Male 0.5 Litres ..... 120 l/h	PA16821404
1"	BSPT Male 1.0 Litres ..... 130 l/h	PA16921405
1"	BSPT Male 2.0 Litres ..... 260 l/h	PA16921406
1"	BSPT Male 4.0 Litres ..... 530 l/h	PA16921407

**Note:** See Yellow Pages for Bladder Type  
**Note:** The 3/4" & 1" require an inline "T" by others. MAXIMUM 10 Bar pressure.

PA16121080



#### Acid Fume Scrubber

The Acid Fume Scrubber (AFS) is a proprietary device that allows for direct venting of an acid tank located inside a mechanical room. The AFS eliminates the need for costly venting via fans to outside areas or secondary water tank type fume traps. The result is a fume-free workplace with added protection of metal and electrical components. The proprietary reagent will change from white to purple when reagent is no longer effective.

#### FEATURES & BENEFITS

Designed for muriatic/ hydrochloric acid tanks

- Eliminates fume attack on electrical components
- For use on sealed tanks
- Standard with 3/4 inch tank adaptor and equipped with proprietary reagents
- Reagent needs changing when white turns to purple
- Includes 1 x 500g reagent set with scrubber

#### Ordering Information:

	Part No.
Acid fume scrubber:	PA55003274
Refill reagent kit:	SL020-500G
SDS Reagent:	Soda-Lime-ICH64-SDS



## 3.2 Hidracar® Pulsation Dampers

Pulsation dampers are used to stabilize the flow and the pressure in circuits with dosing pumps.

A pulsation damper is a vessel with gas inside, normally Nitrogen. In the pulsation dampers there is an element to isolate the gas from the circuit liquid. Its main function is to avoid the gas loss. This piece that separates both fluids is made basically with 2 materials: rubber (Nitrile, EPDM, FPM, Butyl, Silicone, etc.), and a thermoplastic material (usually PTFE).

When rubber is used, the dampener is named bladder or bag type. And if PTFE is used, we talk of membrane or bellows type, according to the separator element shape. The choice of one type or other will depend on the special performances of the circuit such as; the pressure, the temperature and the possible corrosive effect that could be produced by the liquid of the circuit.

### Part No.

**U001A01E1-PC** 10 Bar EPDM Bladder PVC

**U001A01V1-PC** 10 Bar Viton Bladder PVC

**U002A01E1-PC** 10 Bar EPDM Bladder PVC

**U002A01V1-PC** 10 Bar Viton Bladder PVC

**U003A01E1-PC** 10 Bar EPDM Bladder PVC

**U003A01V1-PC** 10 Bar Viton Bladder PVC

**U007A01E1-PC** 10 Bar EPDM Bladder PVC

**U007A01V1-PC** 10 Bar Viton Bladder PVC

**U010A01E1-PC** 10 Bar EPDM Bladder PVC

**U010A01V1-PC** 10 Bar Viton Bladder PVC

**U015A01E1-PC** 10 Bar EPDM Bladder PVC

**U015A01V1-PC** 10 Bar Viton Bladder PVC

**U001E-PC** Bladder Insert EPDM Pulsation Damper

**U002E-PC** Bladder Insert EPDM Pulsation Damper

**U003E-PC** Bladder Insert EPDM Pulsation Damper

**U007E-PC** Bladder Insert EPDM Pulsation Damper

**U015E-PC** Bladder Insert EPDM Pulsation Damper

**U001V-PC** Bladder Insert Viton Pulsation Damper

**U002V-PC** Bladder Insert Viton Pulsation Damper

**U003V-PC** Bladder Insert Viton Pulsation Damper

**U007V-PC** Bladder Insert Viton Pulsation Damper

**U015V-PC** Bladder Insert Viton Pulsation Damper

**BV010A1TM** Filling kit ... 10 bar

**BV(010)(100)A1TM** Filling Kit with 2 Pressure Gauges ... 10 bar

**ADACNEU.5** Filling Adapter ... 10 bar

**BT010A-A1 + 004-A1** Charging valve and pressure gauge

**Note:** 100 bar Filling kits are available

**DRB.A/B** Damper dismantling tool



**Note:** Dampers are supplied uncharged & have to be filled according to the pressure in the system they will be installed in with either dry nitrogen or air. As a rule of thumb 70% of line pressure.

Other charging sizes & materials are available. For more information contact Sydney office.

### Recommended sizes (for more information see next page)

<b>All Beta, Gala</b>		U001 volume 0.075 l
<b>Delta &amp; GXLa</b>	up to 0730	U001 volume 0.075 l
<b>Delta &amp; GXLa</b>	0450 & 0280	U002 volume 0.150 l
<b>Sigma 1</b>	up to 35 lph	U001 volume 0.075 l
<b>Sigma 1</b>	42 lph & above	U002 volume 0.150 l
<b>Sigma 2</b>	up to 109 lph	U002 volume 0.150 l
<b>Sigma 2</b>	above 120 lph	U003 volume 0.350 l
<b>Sigma 3</b>	up to 330 lph	U007 volume 0.650 l
<b>Sigma 3</b>	410 lph & above	U015 volume 1.400 l





### 3.2 Hidracar® Pulsation Dampers

FOR OTHER PRESSURES: PLASTIC MATERIALS, THREAD, CONNECTIONS AND RUBBERS, PLEASE CONSULT

ORDER EX.: U007 A01 E 1 PP

Capacity: 0.65 litre  
A01 ≡ 10 bar  
E = EPDM rubber bladder

Body & insert material polypropylene  
3/4" standard connection

Note: Maxi Working Pressure ≠ K (@Constant Temp.)  
Inflate gas Pressure

PP = POLYPROPYLENE  
(+) PD = PVDF  
PC = PVC

10 bar-g ALL SIZES  
PRESSURE DESIGN  
\*\*

TOLERANCES:  
EXTERNAL DIMENSIONS: ±2%  
VOLUME: ±1.5% WEIGHT: ±3.5%

PULSATION DAMPER REF.	VOLUME (litres)	D (mm)	L (mm)	R (BSP)	WEIGHT (Kg)		K VALUE
					PC & PD	PP	
U001	0.07	60	98	3/8"	0,35	0,25	2,5
U002	0.15	80	135	1/2"	0,7	0,5	3
U003	0.35	90	170	3/4"	1,2	0,8	3,5
U007	0.65	100	230		1,8	1,2	3
U010	0.95	130	245		3	2	3,5
U015	1.40	160	295	1"	3,5	2,4	3
U030	2.60	160	325		5	3,5	5
U040	3.70	198	422		5,8	4	4
U060	5.60	198	458	1 1/2"	13	9	4
U100	9.50	250	500		20,4	14	2,5
U150	15	250	672	2"	23,3	17	3
U200	20	250	880		27,7	21	

6	COVER	1	(+) PP, PD or PC
5	BODY	1	(+) PP, PD or PC
4	RETAINING RING	1	(+) PP, PD or PC
3	INFLATING (AIR OR N2) VALVE	1	1" AISI 316 1/4" BSP
2	INSERT (BUTTON)	1	(+) PP, PD or PC
1	BLADDER	1	NBR, EPDM, & FPM
N°	DENOMINATION	QT.	MATERIALS

**\*\* MINIMUM SAFETY FACTOR: 4:1**

INFLATING WITH GAS (N2), AND MOUNTING POSITION: VERTICAL, VALVE ③ UP

STANDARD BLADDER RUBBERS N=NBR, E=EPDM, V=FPM

**MAXI. WORKING TEMPERATURES +50, -5°C**

THE MAXI. WORKING TEMPERATURES CAN BE REDUCED DEPENDING UPON THE LIQUID AND TIME OPERATION

**HIDRACAR SA**

Customer

Title PLASTIC PULSATION DAMPERS (standard units)

Customer Ref. Replaced Drg.No. AV.PL.BP.IN.DOC.Rev08

Drg.No. AV.PL.BP.IN.DOC.

Drawn E.Ponsa

Approved M.Carcaré

Rev. 09 Date JUN-12



### 3.3 Metering Pump Auto Change Over Controller

#### Pump Automatic Change Over Controller

For Metering pumps fitted with chemical flow switches and relay:i.e.- Gala or Sigma.

The controller monitors for loss of chemical flow and actuates change from Pump One to Pump Two. Redirects the 4-20 mA signal when used with Gala or Sigma pumps.

**Features:**

- Pump sequence switch (Select pump A to B or B to A)
- Fault alarm
- By-Pass switch.

**Note:** Add price of chemical flow monitors and relays to selected pump price.



**Part No.**  
CTP-CO

#### ProMinent Pump Automatic Change Over Controller

The ProMinent Fluid Controls Automatic Change Over unit allows 2 ProMinent® Dosing pumps to operate in a duty/stand by arrangement. Flow detectors on the outlet of each pump provide fault detection. The switch over unit connects to each pump using ProMinent® standard control cable connections and receives an external 4-20mA control signal.

**Normal Operation**

During normal operation, both pump selector switches are placed in the AUTO position and either PUMP 1 or Pump 2 is selected on the duty selector. The selected duty pump will then operate until either a fault develops or the position of the selector switches changes.

**Fault Operation**

If a fault is detected in the operation of the duty pump, the operation will switch to the standby pump. The fault light on the display panel will illuminate and the retransmit fault signal will close.

**To Clear a Fault**

After rectifying the fault, the ALARM RESET button is pressed and the switch over unit will revert operation to the duty pump.

**Pump removal for service**

To remove a pump for service, first switch the required pump selector switch to OUT of SERVICE before removing the pump. When returning the pump to service, reconnect the pump then switch the duty selector to the AUTO position. Clear any fault indication on the pump and press the ALARM RESET switch on the switch over panel.



**Part No.**  
PA10002637

#### ProMinent Chloramination Dosing System Pump Automatic Change Over

For automatic control of chloramination. Has all the functions of PA10002637 above, however this is a 2 x 2 system system which controls 2 Chlorine pumps and 2 Amonia pumps. If both chlorine pumps fail then Amonia pumps are shut down.

**Part No.**  
PA10002692



## 3.4 ProMinent® DULCOFLEX Liquid Polymer Blending System

### ProMinent® DULCOFLEX PROMIX-LB1000 Liquid Polymer Blending System

**Australian designed and manufactured.** The Liquid Polymer Blending System is a liquid polyelectrolyte preparation system for continuous production of a consistent quality polymer solution.

The polyelectrolyte is prepared by the injection of liquid polymer into a mixing chamber by the ProMinent® DULCOFLEX Control metering pump. Feed water is supplied to the mixing chamber by a flow controlled centrifugal pump. The metering pump is adjustable to achieve the required polymer dilution.

#### Self Contained

The unit is mounted on a polyethylene stand designed for easy installation and maintenance. Site installation requires only the connection of process water, liquid poly and a standard 3-pin 240-volt power outlet.

#### Wetting Assembly

The heart of the Liquid Polymer Blending System is the Australian designed & built mixing chamber incorporating a venturi which ensures the creation of long chain molecules and no unmixed polymer solution.

#### Flushing

After polymer make up is stopped a timer allows for the mixing chamber to be flushed with water.

#### System Capacity

PROMIX-DFX3000-0560 3000l/h flow @ 0.1-1% solution

**Note:** solution % will depend on type of product used.

#### Specification

##### Each system includes:

- 1 x Polyethylene Stand
- 1 x Water Transfer Pump
- 1 x ProMinent DULCOFLEX DFXa Metering Pump
- 1 x Mixing Chamber
- 1 x Blending Pipe Work
- 1 x Control Panel

##### Part No.

**PROMIX-DFX3000-0560**

**Options Available POA:** Hose Rupture Alarm on dosing  
4-20mA control capability.



## 3.5 ProMinent® Spectra® Liquid Polymer Blending System

### ProMinent® Spectra® PROMIX-LS2000 Liquid Polymer Blending System

**Australian designed and manufactured.** The Liquid Polymer Blending System is a liquid polyelectrolyte preparation system for continuous production of a consistent quality polymer solution.

The polyelectrolyte is prepared by the injection of liquid polymer into a mixing chamber by the ProMinent® Spectra metering pump. Feed water is supplied to the mixing chamber by a flow controlled centrifugal pump. The metering pump is adjustable to achieve the required polymer dilution.

#### Self Contained

The unit is mounted on a polyethylene stand designed for easy installation and maintenance. Site installation requires only the connection of process water, liquid poly and a standard 3-pin 240-volt power outlet.

#### Wetting Assembly

The heart of the Liquid Polymer Blending System is the Australian designed & built mixing chamber incorporating a venturi which ensures the creation of long chain molecules and no unmixed polymer solution.

#### Flushing

After polymer make up is stopped a timer allows for the mixing chamber to be flushed with water.

#### System Capacity

Up to 2,000 l/h flow of a 1% solution. The Spectra progressive cavity pump is able to handle highly viscous polymers.

#### Timer

Standard run time factory set at 99 minutes. If requested Max. time run can be set to 99 hours or deactivated completely.

#### Specification

##### Each system includes:

- 1 x Polyethylene Stand
- 1 x Water Transfer Pump
- 1 x ProMinent Spectra Metering Pump
- 1 x Mixing Chamber
- 1 x Blending Pipe Work
- 1 x Control Panel

**Other capacities available on request.**

#### Part No.

**PROMIX-LS2000**

**Note:** Additional static mixing for improved activation of difficult products



Liquid\_polyrig\_spectra



### 3.6 Custom Packages



Custom made packages are available on request Please contact head office at [sales@prominentfluid.com.au](mailto:sales@prominentfluid.com.au)



### 3.6 Custom Packages



## 4.0 pH & RH Probes

PROBE pH 0-12 pH 0 to 80°C HT3 glass Polymer Body SN6 connector and PG13.5 standard mounting	<b>Part No.</b> <b>SP100-4330-DH</b>
---	---

SPECIFICATIONS	
<b>pH range:</b>	0-13 pH
<b>Temperature range:</b>	0° to 80° C
<b>Glass Membrane Type:</b>	HT-3, Low sodium ion error
<b>Reference:</b>	Silver / Silver Chloride (Ag/AgCl)
<b>Reference Junction:</b>	Precision low porosity ceramic
<b>Isopotential Point:</b>	pH 7
<b>Output per pH @ 25° C:</b>	Approx 59 millivolts
<b>Maximum Pressure:</b>	4 bar
<b>Wetted Materials:</b>	Glass, Ceramic, Epoxy, Silicone
<b>Diameter:</b>	12mm
<b>Length:</b>	120mm

- APPLICATIONS:**
- Pool Water
  - Clean Water applications



SP100-4330-DH

**Suitable Housings:** PA02032258, PA03023238, DGMA, PA03022958

**NOTE:** Cable not included - Please add cable

PROBE RH 0-1000mV 0 to 80°C HT3 glass Polymer Body SN6 connector and PG13.5 standard mounting	<b>Part No.</b> <b>SP100-4PB0-DH</b>
--	---

SPECIFICATIONS	
<b>Range:</b>	0-1000mV
<b>Temperature range:</b>	0° to 80° C
<b>Measurement half cell:</b>	Platinum Band
<b>Reference:</b>	Silver / Silver Chloride (Ag/AgCl)
<b>Reference Junction:</b>	Precision low porosity ceramic
<b>Maximum Pressure:</b>	4 bar
<b>Wetted Materials:</b>	Glass, Ceramic, Epoxy, Silicone
<b>Diameter:</b>	12mm
<b>Length:</b>	120mm

- APPLICATIONS:**
- Pool Water
  - Clean Water applications



SP100-4PB0-DH

**Suitable Housings:** PA02032258, PA03023238, DGMA, PA03022958

**NOTE:** Cable not included - Please add cable

PROBE pH 0-12 pH -5 to 110°C HT3 glass Glass Body SN6 connector and PG13.5 standard mounting	<b>Part No.</b> <b>SP200-2330-DH</b>
---	---

SPECIFICATIONS	
<b>pH range:</b>	0-13 pH
<b>Temperature range:</b>	- 5° to 110° C
<b>Glass Membrane Type:</b>	HT-3, Low sodium ion error
<b>Reference:</b>	Silver / Silver Chloride (Ag/AgCl)
<b>Reference Junction:</b>	Precision low porosity ceramic
<b>Isopotential Point:</b>	pH 7
<b>Output per pH @ 25° C:</b>	Approx 59 millivolts
<b>Maximum Pressure:</b>	10 bar
<b>Wetted Materials:</b>	Glass, Ceramic
<b>Diameter:</b>	12mm
<b>Length:</b>	120mm

- APPLICATIONS:**
- Water & Wastewater
  - Industrial Trade Waste
  - Cooling Towers



SP200-2330-DH

**Suitable Housings:** PA02032258, PA03023238, DGMA, PA03022958



## 4.0 pH & RH Probes



SP200-2430-DH

PROBE pH 11+pH -5 to 110°C HT4 glass Glass Body  
SN6 connector and PG13.5 standard mounting

Part No.

SP200-2430-DH

### SPECIFICATIONS

<b>pH range:</b>	0-14 pH
<b>Temperature range:</b>	-5° to 110° C
<b>Glass Membrane Type:</b>	HT-4, Low sodium ion error
<b>Reference:</b>	Silver / Silver Chloride (Ag/AgCl)
<b>Reference Junction:</b>	Precision low porosity ceramic
<b>Isopotential Point:</b>	pH 7
<b>Output per pH @ 25° C:</b>	Approx 59 millivolts
<b>Maximum Pressure:</b>	10 bar
<b>Wetted Materials:</b>	Glass, Ceramic
<b>Diameter:</b>	12mm
<b>Length:</b>	120mm

### APPLICATIONS:

- Industrial Trade Waste
- Cooling Towers
- High pH Applications

Suitable Housings: PA02032258, PA03023238, DGMA, PA03022958



SP200-2PB0-DH

PROBE RH 0-1000mV -5 to 110°C HT3 glass Glass Body  
SN6 connector and PG13.5 standard mounting

Part No.

SP200-2PB0-DH

### SPECIFICATIONS

<b>ORP range:</b>	0±1000 mV
<b>Temperature range:</b>	-5° to 110° C
<b>Measurement half cell:</b>	Platinum Band
<b>Reference:</b>	Silver / Silver Chloride (Ag/AgCl)
<b>Reference Junction:</b>	Precision low porosity ceramic
<b>Maximum Pressure:</b>	10 bar
<b>Wetted Materials:</b>	Glass, Ceramic
<b>Diameter:</b>	12mm
<b>Length:</b>	120mm
<b>Thread:</b>	PG13.5
<b>Connection:</b>	SN6

### APPLICATIONS:

- Water & Wastewater
- Industrial Trade Waste
- Cooling Towers

Suitable Housings: PA02032258, PA03023238, DGMA, PA03022958





## 4.1 pH & Redox Industrial Probes

PROBE pH 0-13 pH -5 to 100°C HT3 glass Glass Body Pinwick, Double Junction, SS Flared Cap, 10.0 m Co-axial Cable Pin Lug Connections.

Part No.

A41021851

### SPECIFICATIONS

<b>pH range:</b>	0-13 pH
<b>Temperature range:</b>	-5° to 100° C
<b>Glass Membrane Type:</b>	HT-3, Low sodium ion error
<b>Reference:</b>	Silver / Silver Chloride (Ag/AgCl)
<b>Reference Junction:</b>	Precision low porosity ceramic
<b>Isopotential Point:</b>	pH 7
<b>Output per pH @ 25° C:</b>	Approx 59 millivolts
<b>Maximum Pressure:</b>	10 bar
<b>Wetted Materials:</b>	Glass, Ceramic
<b>Diameter:</b>	12mm
<b>Length:</b>	77mm

Suitable Housings: PA02031390, PA03021391, DGMA, PA02031880

### APPLICATIONS:

- Water & Wastewater
- Industrial Trade Waste
- Cooling Towers



PROBE rH Peripheral Probe 3.5mm Platinum Band. 0-100°C HT3 glass Glass Body, Pinwick, Double Junction, SS Flared Cap, 10.0m Co-axial Cable, Pin Lug Connections.

Part No.

A42022002

### SPECIFICATIONS

<b>ORP range:</b>	0±1000 mV
<b>Temperature range:</b>	-5° to 100° C
<b>Measurement half cell:</b>	Platinum Band
<b>Reference:</b>	Silver / Silver Chloride (Ag/AgCl)
<b>Reference Junction:</b>	Precision low porosity ceramic
<b>Maximum Pressure:</b>	10 bar
<b>Wetted Materials:</b>	Glass, Ceramic
<b>Diameter:</b>	12mm
<b>Length:</b>	77mm

Suitable Housings: PA02031390, PA03021391, DGMA, PA02031880

### APPLICATIONS:

- Water & Wastewater
- Industrial Trade Waste
- Cooling Towers



## 4.1 pH & Redox Industrial Probes



### Industrial Sensors for in-line or submersible applications

	Part No.
PROBE pH	S400-RT330-A33FF
PROBE pH with PT100	S400-RT33D-E33FF
PROBE rH ORP	S400-RTPB0-A33FF
PROBE pH for HF Acid	S400-RT530-A33FF

These high quality sensors are constructed of corrosion-resistant wetted materials including Ryton®, Teflon®, ceramic, glass, platinum, 10.0 m Co-axial Cable, Pin Lug Connections. Coaxial Porous Teflon® Reference Junction. The large annular junction resists fouling. Additionally, the sealed, double-junction reference electrode is highly resistant to poisoning.

### SPECIFICATIONS

<b>pH range:</b>	0-14 pH
<b>ORP range:</b>	0±1000 mV
<b>Temperature range:</b>	0° to 105° C
<b>Reference:</b>	Silver / Silver Chloride (Ag/AgCl)
<b>Maximum Pressure:</b>	10 bar @ 100° C
<b>Wetted Materials pH:</b>	Ryton, PTFE or ceramic & glass
<b>Wetted Materials ORP:</b>	Ryton, PTFE or ceramic & platinum
<b>Body Diameter:</b>	29.2 mm
<b>Length:</b>	150 mm
<b>Width across flats:</b>	25.4 mm
<b>Thread:</b>	3/4" NPT - top & bottom

### APPLICATIONS:

- Water & Wastewater
- Industrial Trade Waste
- Cooling Towers

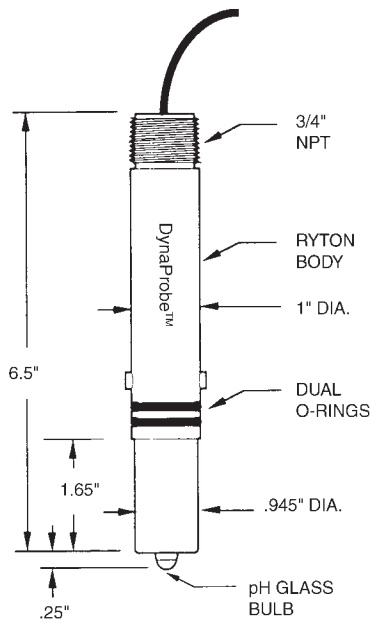
	Part No.
Pipe Adaptor Bush ... 3/4" Female NPT to 25mm Male Solvent Weld	A27022797
Additional heavy duty PVC protection cap for S400 series	PA03022896

For **SUBMERSIBLE** applications See Page 4.5 for PA02032789 or PA02032790



## 4.2 DYNAPROBE™ pH & ORP Sensors & probe holders

The ST851 is a rugged, sealed sensor assembly designed for in-line or submersion applications. The patented solid state reference cell features the unique IonTrap™ design for extended service life in the most severe applications. The body is molded from chemically resistant Ryton (PPS) and the reference junction is either porous Teflon or wood. Built-in temperature compensators are available. Optional sensor guard locks onto the front of the sensor and protects the sensor tip from impact. Sensor also available in ORP (Redox) version.

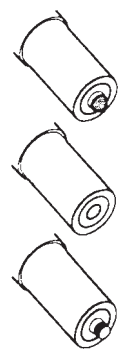


### SPECIFICATIONS

<b>pH Range:</b>	0 - 14 pH
<b>ORP Range:</b>	± 5000 mV
<b>Temp Range:</b>	0-120°C
<b>Max Press./Temp:</b>	50 psig at 120°C
<b>Reference:</b>	Ag-AgCl
<b>Wetted materials:</b>	Ryton, Teflon or Wood, Glass, Viton O-Rings

### OPTIONS

- pH DynaProbe™ with Rugged Dome pH Bulb.**  
Choice of either Teflon or Wood Coaxial Liquid Junction. Designed to withstand the toughest industrial applications for best overall performance.
- pH DynaProbe™ with Flat pH Bulb.**  
Choice of Teflon Coaxial Liquid Junction only. Designed for obstructionless contact with the sample stream for self cleaning service.
- ORP DynaProbe™ with Platinum Band.**  
Choice of either Teflon or Wood Coaxial Liquid Junction. Designed for measuring the Oxidation- Reduction Potential of the sample.



	Part No.
<b>pH DynaProbe</b> ST851-T330-A33TE Twist lock Ryton body HT3 dome bulb and Teflon Junction, c/w 10m co-axial cable and pin lugs.	<b>A41022120</b>
<b>pH DynaProbe</b> ST851-RPB0-A33TE Twist lock Ryton body platinum band HT3 dome bulb and Teflon Junction, c/w 10m co-axial cable and pin lugs.	<b>A42022136</b>

**Note:** Alternate higher pressure and temperature sensors available.

### Probe Holders for DynaProbe™

For **SUBMERSIBLE** applications, Flexible pipe assembly with J-Box has union connection to top of DYNAPROBE and protective cover, 1.8m approx. **PA02032252**

**Note:** DYNAPROBE not included, must be ordered separately.

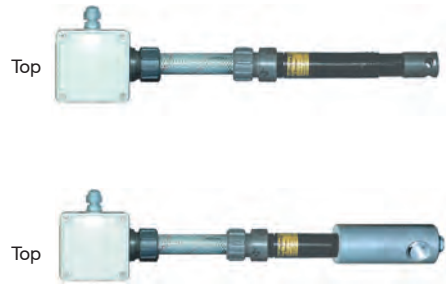
For **SUBMERSIBLE or IN-LINE** applications, Flexible pipe assembly with J-Box has union connection to top of DYNAPROBE and TWIST-LOCK protective cover, 1.8m approx. **PA02032789**

**Note:** DYNAPROBE not included, must be ordered separately.

**PVC Twist-Lock Probe Adaptor** for either submersible or 3/4" In-Line applications, with 1/4" plug for jet wash connections. To suit Twist Lock DYNAPROBES. **A03821496**

**CHEMICAL JET WASH** applications add:- Special Jet Valve assy, 6x4 to 1/4" BSP. suitable for submersible or if holder mounted in line, flow must be stopped. **A914559**

**ADD** Concept CNPA1002PPE200C0100 Pump or other set at 180 SPM  
**see 'Yellow Pages' or BETA4**



## 4.3 Submersible Electrode Holders

### Submersible, Direct Pipe mounting and Withdrawable



#### INDUSTRIAL SUBMERSIBLE HOLDERS

Part No.

Heavy duty electrode gland assy in PVC 1.8m approx Complete with 2.0m flexible submersible connection and J-Box for pH / Redox probes A41021851 & A42022002

PA03021390

**Note:** For pH our preferred option is A41021851 with 10m cable. To complete installation customers should provide stilling chamber. This can be in PVC drainage pipe with a minimum I.D. of 50mm. The preferred diameter is 80mm of any PVC pipe.

Heavy duty electrode gland. RIGID submersible connection and J-Box for pH / Redox probes A41021851 & A42022002

PA03021391

**Note:** for pH our preferred option is A41021851 with 10m cable. Pipe to be supplied by others.

Option for above holders enclosure in lieu of J-Box to suit pH / RH Transducer

PA21002939

**Note:** does NOT include pH / RH Transducer, see Yellow Pages.

#### PROBE HOLDERS FOR S400

Heavy duty flexible assembly in PVC 1.8m approx and J-Box for BJC S400 Industrial pH / Redox probes

PA02032789

Heavy duty Rigid assembly in PVC 1.8m approx and J-Box for BJC S400 Industrial pH / Redox probes

PA02032790

Rigid probe holder assembly for, PG13.5 to 1/2" BSPP Male PVC 102 mm long to suit 120mm/130mm probe. For mounting in-line. Suitable for SP100 & SP200 probes. Suit Vinidex Cat 15 Faucet Tee 1/2". For different pipeline sizes ask ProMinent.

PA02032258

Rigid probe holder assembly for, PG13.5 to 1/2" BSPP Male PVC 65 mm long to suit 77mm/80mm probe. For mounting in-line. Suitable for A41021851 and A42022002 probes. For different pipeline sizes ask ProMinent.

A03001876

Heavy duty electrode gland assy, MKII, PVC. Suit pH / Redox probes A41021851 & A42022002

PA03021880

Electrode gland assembly for pipeline mounting, heavy duty type with 1-1/4" BSPT connection. Suit pH / Redox probes A41021851 & A42022002

PA03021134

Withdrawable probe holder, to suit 16mm I.D. hose and 1-1/2" BSP full bore valve. Suit pH / Redox probes A41021851 & A42022002

PA03001113

**Note:** Above Part No includes 1-1/2" S/S valve & S/S nipple.



## 4.4 Electrode Holders

### Electrode Holders & Filters

	Part No.
<b>BY-PASS SENSOR HOLDER DLG 2 TYPE</b> for 25mm CLE, CTE etc. and 2 x PG13.5 probe with sight glass, sample valve, mounting bracket, 8 x 5 tube inlet and outlet. Includes 791818. mounting kit for CLE, CTE etc	PA03023238



<b>BY-PASS SENSOR HOLDER DLG 5</b> High iron, dirty water applications for use with 25mm CLE, CTE etc. Includes 1 x 25 mm port, and 2 x PG13.5 ports for pH and Pt100 sensors (if required), mounting bracket, 8 x 5 tube inlet and 16mm hose outlet, mounting kit 791818. for CLE, CTE etc.	PA03002885
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<b>ROTAMETER &amp; FLOW SWITCH FOR ABOVE</b>	P86515T
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<b>BY-PASS SENSOR HOLDER DLG 9</b> For use the the sample flow is unfilled with suspended food fragments e.g lettuce / salad. For use with the 25mm CLE, CTE etc. Includes 1 x 25mm port for sensor and 1 x PG13.5 ports for pH and PT100 probe (if required), mounting bracket, 2 x 3/4" PVC nipples, 1 x PVC 3/4" ball valve, large drain outlet and nut and mounting kit 791818 for CLE, CTE	PA03003436
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<b>ADD FLOW CONTROL MARIC 33 L/HR ASSEMBLY (NOT REQ'D FOR POOLS)</b> 20x1.5 F to 15mm Solvent Weld - including MARIC insert assembly	PA27002656
20x1.5 M to 20x1.5 F - including MARIC insert assembly	PA27002657
20x1.5 F to 1/2" BSPT M - including MARIC insert assembly	PA27002805



**Note:** If using a Maric Valve you MUST use an in-line filter. The following Filter Assemblies can be used for Pool and Industrial, and can be used in conjunction with all of our Sensor Holders and Flow switch.

- Max.working pressure 10 bar
- Element 316 Stainless Steel 27 dia x 69
- Filter size 80 mesh
- Bowl transparent nylon
- 1/2" BSP threads
- Filtering capacity 55 l/m at .5 bar
- Body fibreglass reinforced polypropylene
- Viton gaskets

	Part No.
Filter only	3240T0235
Filter with 8x5 to 20x1.5F Kit	P3240T0235-A
Filter with 8x5 to 20x1.5F with Maric Kit	P3240T0235-B
Filter with 8x5 to 8x5 Kit	P3240T0235-C
Fitted with 1/4" BSPF to 20x1.5F + DGMA adaptor for connection direct to DGMA	P3240T0235-D
Filter Arag Inox 80 Mesh Element	3240035.030



**Note:** Systems require valve at sample take-off point, **BR-B/V-TEE-MXF-15**

**Note:** See also ProMinent DGMA units in **section 6.0 'Yellow Pages'**.



## 4.5 Probe Holder Accessories

### Probe Holder Accessories



**Sample Water Low Flow Switch**, suitable for fitting to inlet connection on by-pass probe holder assembly, (8 x 5). Arranged to pause controller. This unit is fitted with opposing magnets that act like a spring so it can be mounted in any position. Supplied complete with fittings. Normally Open or Normally Closed contacts available.

Part No.

PA03022425

**Low Flow Switch**, SW15 connections mounting in any position

P20-C

**Low Flow Switch**, SW15 connections only without magnets - vertical mounting only

P20-NM

**Low Flow Switch**, paddle type, pipe size 25 - 150mm

F-H-25B



Flexible submersion pipe assembly to be used with DYNAPROBE or the MKII Gland Assembly below.

PA02032256



Adaptor PVC tube fitting, from J-Box to 23x16 hose

A27021362

Not Included

Cap Nut

356562



J-Box assembly with 2 glands and terminal strip for joining extension cable, pulse cable, probe cables, etc.

PA03021783



### COMPONENTS FOR INDUSTRIAL SUBMERSIBLE ELECTRODE HOLDERS

1-1/2" full bore valve - Stainless Steel

A09591853



1-1/2" nipple BSPT Hex SS

A07541866



1/2" BSP M/F Ball Valve (nickle plated brass)

BR-B/V-TEE-MXF-15



## 4.6 Cables & Accessories

### Cables & Connectors

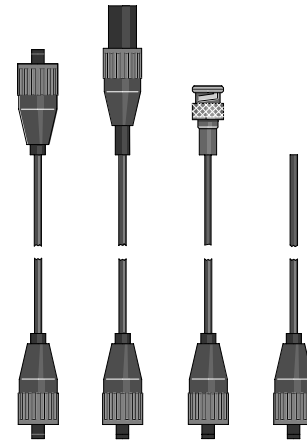
SN6 COAX CONNECTOR	Part No.
SN6 coax connector for 5 mm dia. coax cable	304974
SN6 coax connector for 3 mm dia coax cable	304975



### Cables & Glands

COAX CABLE, PER METRE	
Military Grade, 50 ohm, type AM-900, Low Noise	A04001118
Grey HC2049 Cable, (2 core pulse)	A04001289
Grey cable entry gland 1/4" BSPM	703830
Black cable entry gland 3/8" BSPM	703885

PROMINENT <sup>®</sup> DULCOTEST COMPLETE SIGNAL CABLES	
2 x SN6 Coax 0.8 m - SS	305077
2 x SN6 Coax 2.0 m - SS	304955
2 x SN6 Coax 5.0 m - SS	304956
2 x SN6 Coax 10.0 m - SS	304957



BELOW CABLES FOR TYPICAL USE WITH PHE / RHE PROBES AND SP100 AND SP200 PROBES	
SN6 - open end Coax 2.0m - S*	305030
SN6 - open end Coax 5.0m - S*	305039
SN6 - open end Coax 10.0m - S*	305040
SN6 - open end Coax 20.0m - S*	304952



### TERG-A-ZYME<sup>®</sup>

#### ENZYME DETERGENT POWDER WT. 20GMS

For manual or ultrasonic cleaning of proteinaceous soils from hard surface materials, Laboratory probes and utensils, Reverse osmosis equipment, Hospital and industrial ware, to sparkling brilliance.	A52002110
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#### TERG-A-ZYME<sup>®</sup> Phosphate analysis:

- Average 7.3% phosphorus by weight as phosphates.
- Phosphorus at the recommended level = 2.1 grams

TERG-A-ZYME<sup>®</sup> contains no TRI-SODIUM phosphate © Alconox inc. 1973



## 4.7 Electrode Comparison List

Existing Electrode	Part No.	Description	Length mm	Replacement
PHE 112 SE	305054	pH Electrode, pH 1-12, 0-60° C, glass, PG 13.5 thread, SN6 Cap, pin wick ref, 1X	120	SP100-4330-DH
PHEP 112 SE	150041	pH Electrode, pH 1-12, 0-80° C, glass, PG 13.5 thread, SN6 Cap, pin wick ref, 1X	120	SP200-2330-DH
PHEX 112 SE	305096	pH Electrode, pH 1-12, 0-100° C, glass, PG 13.5 thread, SN6 Cap, peripheral ref, 1X	120	SP200-2330-DH
PHED 112 SE	741036	pH Electrode, pH 1-12, 0-80° C, glass, PG 13.5 thread, SN6 Cap, pin wick ref, 2X	120	SP200-2330-DH
No Longer Available	A41011942	pH Probe polmer (Blue), pH 1-13, PG 13.5 thread, SN6 Cap, pin wick ref, 1X	110	SP100-4330-DH
Not Stocked	A41021850	pH Electrode, pH 1-13, 0-100° C, glass, S/S Cap, pin wick ref, 2X, 3M Cable, pin lugs	80	A41021851
Still Available	A41021851	pH Electrode, pH 1-13, 0-100° C, glass, S/S Cap, pin wick ref, 2X, 10M Cable, pin lugs	80	
Still Available	A41021852	pH Electrode, pH 1-14, -5-100° C, HT4 glass, S/S Cap, peripheral ref, 2X, 3M Cable, pin lugs	80	
No Longer Available	A41021966	pH Electrode, pH 1-13, 0-100° C, glass, PG13.5 thread, SN6 Cap, peripheral ref, 2X	120	SP200-2330-DH
Not Stocked	A41022001	pH Electrode, pH 1-13, 0-100° C, glass, S/S Cap, Calomel, pin wick ref, 2X, 3M Cable, pin lugs	80	Not Stocked can be ordered if required
No Longer Available	A41011685	pH Probe polmer (Blue), pH 1-13, S/S cap, pin wick ref, 1X, 3M cable, SN6 Plug	110	SP100-4330-DH Add Coax cable with SN6 plug

Redox Electrodes	Part No.	Description	Length mm	Replacement
RHE-Pt-SE	305001	Redox Electrode, glass, 0-60° C, PG 13.5 thread, SN6 Cap, pin wick ref	120	SP100-4PB0-DH
RHEP-Pt-SE	150094	Redox Electrode, glass, 0-80° C, PG 13.5 thread, SN6 Cap, pin wick ref	120	SP200-2PB0-DH
RHEX-Pt-SE	305097	Redox Electrode, glass, 0-100° C, PG 13.5 thread, SN6 Cap, peripheral ref	120	SP200-2PB0-DH
No Longer Available	A42011943	Redox Probe polmer (Red), PG 13.5 thread, SN6 Cap, pin wick ref, 1X	110	SP100-4PB0-DH
No Longer Available	A42021991	Redox Probe, glass, PG 13.5 thread, SN6 Cap, pin wick ref, 1X	120	SP200-2PB0-DH
Still Available	A42022002	Redox Electrode, glass, S/S Cap, platinum band, 2X, 10M cable, pin lugs.	80	
No Longer Available	A42011686	Redox Probe polmer (Red), S/S Cap, pin wick ref, 1X, 3M cable, SN6 Plug	110	SP100-4PB0-DH Add Coax cable with SN6 plug

Fermprobe	Part No.	Description	Length mm	Replacement
F-600-B110-A10TE	A41021809	pH Fermprobe, S/S Cap, pin wick ref, 2X, 3M cable, pin lugs	110	use A41021851 Check Temperature Req'd

pH Dynaprobe	Part No.	Description	mm	Replacement
No Longer Available	A41021813	pH Dynaprobe, teflon junction, glass dome bulb, 3M cable, pin lugs		use A41022120
Still Available	A41022120	pH Dynaprobe, teflon junction, glass dome bulb, 10M cable, pin lugs		ST851-T330-A33TE
Still Available	A41021813-TC	pH Dynaprobe, teflon junction, glass dome bulb, 3M cable, pin lugs, temp comp pt100		ST851-T33D-E10T4

Redox Dynaprobe	Part No.	Description	Replacement
Not Stocked	A42022105	Redox Dynaprobe, teflon junction, platinum band, 10m cable, pin lugs	ST851-RPB0-A33TE
ST851-RPB0-A33TE	A42022136	Redox Dynaprobe, teflon junction, platinum band, 10m cable, pin lugs	ST851-RPB0-A33TE

Temperature Electrode	Part No.	Description
PT 100 SE	305063	Temperature Electrode, pt 100, 0-80° C, PG 13.5, SN6 cap





## 5.0 LogR Sensor Package

### ProMinent® LogR Sensor Package

#### Description and Use

General corrosion is the evenly distributed thinning of an immersed metal due to the electrochemical reaction between the metal and the process stream. The rate of general corrosion is measured in mils per year, mpy.

Weight loss coupons are commonly used to measure general corrosion. The coupon is weighed, immersed for 30, 60 or 90 days, removed, cleaned & re-weighed. The loss of weight & immersion period are converted to a corrosion rate. It's an inexpensive method but it does not measure corrosion rate in real time so it's difficult to identify process conditions, which increase or decrease corrosion.

Linear Polarization Resistance (LPR measures general corrosion rate in real time updated every 2.5 minutes. The method includes conversion approximations which result is a measured that will not be the same as the coupon rate but that will track the coupon rate. LPR is used to measure changes in corrosion rate as process corrosivity varies and as process chemistry is controlled.

#### LPR Method

LPR uses two standardized cylindrical metal coupons, nominally 0.1875" D x 1.25" L of the same metallurgy, typically both steel, copper, admiralty, copper-nickel or zinc.

The coupons are polarized to several mV and the resulting current measured. The polarity is reversed & the current re-measured. The corrosion rate is calculated using the measured currents, the polarization voltage corrected for process resistivity and constants based on the coupon metallurgy.

#### Pitting Indicator

The current measured when the coupon tips are connected together is displayed as a pitting index in mpy. Although LPR cannot measure the actual pitting rate, the pitting index is used as a measure of pitting severity.

ProMinent® LogR offers exchangeable sensor tips with on-board selectable metallurgy (carbon steel, copper & 443 admiralty), data logging with USB compatible down-loading & 4-20mA reporting & alarm contacts.



#### Part No.

**WE TYPICALLY STOCK ONE UNIT WHICH IS OUR P/N:**

**7760788**

This is the LogR monitor, sensor, and tee.

The sensor has two 'tips' on the end, and both tips are the same metallurgy.

The tips on the sensor included with above P/N: 7760788 are Carbon Steel ('CS').

The sensor-tips are replaceable, and inter-changeable as pairs.

**Note:** This means you must have same metallurgy for both tips on the sensor. They are regarded as consumables.

#### Sensor-tips are stocked separately:

#### Part No.

1x pair (i.e. 2 individual tips) of Copper Tips ('Cu')

**7760241**

1x pair of Carbon Steel Tips ('CS')

**7760240**

1x pair of Admiralty Tips ('AM')

**7760238**

Spare - Threaded PVC insertion sleeve

**7760445**

Spare - "O" Ring for threaded sleeve

**7760557**

Spare - PVC tee 3/4" NPT - from PAAS [code 805007]

Spare - LogR Sensor [sensor only without tips]

**7760792**



## 5.1 LogR Sensor Package - Specifications

SENSOR	SPECIFICATION	EXPLANATION / DETAIL
LPR Sensor (Linear Polarization Resistance)	Non-metallic sensor rated 50C, 125F max, 125 psi max. Immersed components ABT, nylon & epoxy.	Digital, DC isolated 3 wire sensor, Power, Common & Data. Sensor supplied with 1" SCH 80 threaded PVC 'T' fitting with 1" non-metallic sensor entry fitting and 3m, 10ft of 3xAWG 22 PVC jacketed cable.
LPR_CS	1010 Carbon Steel CDA	1L"L x 3/16'D electrode set supplied installed.
LPR_CU	110 Copper CDA 443	Sensor accepts standardized LPR
LPR_AM	Admiralty	electrodes threaded #4-40 UNC

LogR	SPECIFICATION	EXPLANATION / DETAIL								
Corrosion Rate Measure & Display	0.01 to 50.0 mpy for steel Updates every 150 seconds.	LogR CE compliant under 89/336/EEC Electrode metallurgy user selectable.								
4-20mA Output	Three wire: Power, Ground & 4-20mA out Resolution nominally 1 part in 4000.	User selectable 4-20mA range from 2 to 100 mpy. Adjustable loop Span & Zero.								
Data Logging	1 Year @ 5 minute intervals.	Log auto-uploaded via USB thumb drive in CSV format (Comma Separated Variable)								
Alarm Contacts	Normally closed Rated 24VDC, 250mA Thermally fused 300mA	User adjustable alarm trip point. Alarm contacts also open on loss of power.								
Display & Data Link	2x8 LCD Display. USB Host emulation.	Battery backed clock time & date stamps data log.								
UP-DOWN & Mode Switches	UP & DOWN push buttons 8 Selectable display modes, 0 to 7.	<table border="0"> <tr> <td><b>0:</b> Corrosion</td> <td><b>1:</b> Metallurgy</td> </tr> <tr> <td><b>2:</b> Conductivity</td> <td><b>3:</b> Diagnostic</td> </tr> <tr> <td><b>4:</b> 4-20mA Current</td> <td><b>5:</b> Date-Time</td> </tr> <tr> <td><b>6:</b> Alarm Contacts</td> <td><b>7:</b> Loop Span</td> </tr> </table>	<b>0:</b> Corrosion	<b>1:</b> Metallurgy	<b>2:</b> Conductivity	<b>3:</b> Diagnostic	<b>4:</b> 4-20mA Current	<b>5:</b> Date-Time	<b>6:</b> Alarm Contacts	<b>7:</b> Loop Span
<b>0:</b> Corrosion	<b>1:</b> Metallurgy									
<b>2:</b> Conductivity	<b>3:</b> Diagnostic									
<b>4:</b> 4-20mA Current	<b>5:</b> Date-Time									
<b>6:</b> Alarm Contacts	<b>7:</b> Loop Span									
Conductivity	50 to 9999 uS	Autoranging. 1uS resolution. Corrects corrosion rate for water resistivity.								
<b>Power</b>	9-24VDC, 100mA max. Polarity Protected.	Use included 12VDC, 500mA power cube or site 9-24VDC power. Power 240V AC plug set available.								
LogR Enclosure	Non-metallic, Rated IP65 4 3/8" x 4 3/8" x 1 1/2", 110mm x 110mm x 45mm	PG16 cable entry for sensor & current loop cabling included. Wall mount 3-point bracket included.								
Wiring Terminal Blocks	Rated AWG16-26 3.5mm spacing.	Power, 4-20mA, sensor and alarm contacts, 2 piece, removable wiring blocks								



## 5.2 ProMcon 500 Series Spare Parts

### Spare Parts

#### Conductivity Probes

Conductivity probe assembly with carbon electrodes in PVC union arrangement.

	Part No.
C/W PVC 3/4" shed 40 Tee & 1m cable K=1.0	PA11922172
Probe only for above	A11002172
SOLENOID VALVE 1/2" BSP	146559C



## 6.0 Controller Packages

DULCOMETER® Compact transmitters with control functions for pH and ORP measured variables provide basic functions for applications in water treatment. They have a fixed configuration with the following features.

### Measured variables pH and ORP (can be changed on the controller)

- Operation independent of the operating language (use of abbreviations, such as CAL, PARAM, CONFIG, ERROR)
- Illuminated display
- 3 LED display operating state (relay 1 / 2 active, Error)
- Sensor monitoring for pH
- P and PID control characteristics
- Selectable control direction (raise or lower measured value)
- Pulse frequency relay for control of metering pump
- Power relay can be configured as an alarm, limit value or pulse width modulated control output for metering pumps, (connection function or switch on operating voltage)
- Analogue output 0/4...20 mA can be configured as a writer output or control output
- Digital input to switch off the control or to process a sample water limit contact by remote control
- Temperature sensor input (Pt 1000) for temperature compensation of the pH value



### Technical Data

<b>Measurement range:</b>	pH: 0.00 ... 14 ORP: -1000 ... +1000 mV
<b>Resolution:</b>	pH: 0,01 pH ORP: 1 mV
<b>Correction variable:</b>	Temperature for pH via Pt 1000
<b>Correction range:</b>	0 ... 120 °C
<b>Control characteristic:</b>	P/PID
<b>Control:</b>	1-way controller with selectable control direction (raise/lower)
<b>Signal current output:</b>	1 x 0/4-20 mA galvanically isolated max. load 400 Ω Range and assignment (measured or actuating variable) can be set
<b>Control outputs:</b>	1 pulse frequency output for control of the metering pump 1 relay (alarm or limit value relay or pulse length control) 1 x analogue output 0/4 ... 20 mA
<b>Electrical connection:</b>	90 - 253 V ~
<b>Ambient temperature:</b>	-10 ... +60 °C
<b>Enclosure rating:</b>	IP 67
<b>Dimensions:</b>	135 x 125 x 75 mm (H x W x D)
<b>Weight:</b>	0,5 kg

	Part No.
pH/ORP	DCCaW006PR0010EN
Chlorine	DCCaW006C00010EN
Panel Mounting Kit	1037273

Sensor for Chlorine, **ONLY** for use with **Compact Controller**

### APPLICATIONS

- Waste water treatment
- Treatment of drinking water
- Swimming pool water treatment

### CLB 2-μA

Part No: 1038902

<b>Measured variable:</b>	free chlorine (hypochlorous acid HOCl)
<b>Measuring range:</b>	0.05 - 5.0 mg/l: linear, can be used for shock chlorination up to 10.0 mg/l
<b>Reference method:</b>	DPD1
<b>pH range:</b>	5.0 ... 9.0
<b>Temperature:</b>	5 ... 45 °C
<b>Max. pressure:</b>	3.0 bar
<b>Intake flow:</b>	30...60 l/h (in DGMA), constant flow needed as flow-dependent signal
<b>Power supply:</b>	16...24 V DC (2-wire)
<b>Output signal:</b>	Non-amplified primary current signal, not temperature-compensated, uncalibrated, not electrically isolated
<b>Temperature compensation:</b>	Pt 1000, integrated, calculation in the compact controller
<b>Typical applications:</b>	Swimming pool, drinking water, can also be used with membrane-free chlorine production electrolysis processes, even with varying media temperatures
<b>Measurement &amp; control equipment:</b>	Compact controller
<b>In-line probe fitting:</b>	DGM, DLG III
<b>Measuring principle:</b>	amperometric, 3 electrodes, no diaphragm
<b>Measuring range:</b>	CLB 2-μA-5 ppm



## 6.1 Pool Package Accessories

### Optional Equipment

<b>Metering Pumps</b>	see 'Yellow Pages' - select from the ProMinent range.
<b>Probes</b>	select from the ProMinent range, see 'Yellow Pages' section 5 and 'Green Pages' section 4.
<b>Probe holders</b>	select from the ProMinent range, see section 6 'Yellow Pages' for DGMA holders and section 4 'Green Pages' for low cost alternatives.

	<b>Part No.</b>
CO <sub>2</sub> Flow Regulator 25 l/m with Flow Meter and 240v Solenoid (as shown) in enclosure with lighted on/off switch.	<b>PA31003612</b>
As above but 10 bar versions	<b>PA31002458-HP</b>
Sample Flow switch (low volt).	<b>PA03022425</b>
CO <sub>2</sub> Fixed In-line Injection Assy with 1/2" Bspt Male Connection.	<b>PA09751676</b>
CO <sub>2</sub> Fixed In-line Injection Assy with 3/4" BSPM Connection	<b>PA09761676</b>
CO <sub>2</sub> Withdrawable Injection Assembly to suit 100mm (4" dia.) pipe & over.	<b>PA31921314</b>
CO <sub>2</sub> Bottle Regulator with dual gauge - includes regulator & pressure gauge.	<b>PA31001428</b>
Safety Chains & Brackets for single CO <sub>2</sub> bottle.	<b>A31001935</b>
Safety Chains & Brackets for dual CO <sub>2</sub> bottles.	<b>A31001936</b>



**PA31003612**  
CO<sub>2</sub> Controller



**PA31921314**  
Withdrawable CO<sub>2</sub> Injection Assembly



**PA03022425**  
Sample Flow Switch



**SP100-4330-DH**  
pH Sensor



**SP100-4PBO-DH**  
ORP Sensor

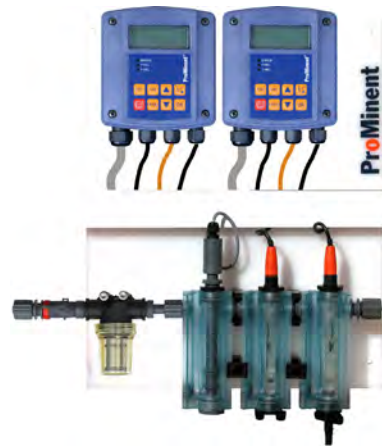


## 6.2 Pool Packages COMPACT controller pH/ORP

### DCC300 pH/ORP POOL CONTROL SYSTEM

Part No.	Description	
DCCAW006PR0010EN	Compact Controller pH/ORP	2
SP100-4330-DH	Probe pH 0-12 pH 0 to 80°C HT3 glass	1
SP100-4PB0-DH	Probe Rh 0-1000Mv 0 To 80°C Ht3 Glass	1
1024105	Probe cable	2
DGMA320T000	Probe Holder with Flow switch	1
3240T0235	Filter Assembly	1
PA07221061	PVC 1/2" to 8x5 mm	1
A25251004	PE tube 25m 8 x 5mm	1
A35082644	Backboard 500x600 LDPE	1
506253	pH 7 buffer	1
506251	pH 4 buffer	1

**Note:** All mounted & with control cables for pumps



### DCC300SC SPECIAL FOR SALT CHLORINATOR

### DCC400 pH/ORP POOL CONTROL SYSTEM

Part No.	Description	
DCCaW006PR0010EN	Compact Controller pH/ORP	2
PA31003612	CO <sub>2</sub> Flow Regulator Assembly	1
PA09751676	CO <sub>2</sub> Injection Assembly	1
SP100-4330-DH	Probe pH 0-12 pH 0 to 80°C HT3 glass	1
SP100-4PB0-DH	Probe Rh 0-1000Mv 0 To 80°C Ht3 Glass Polymer Body	1
1024105	Probe cable	2
DGMA320T000	Flow switch	1
A25251004	8x5 Tubing Black LDPE x 25m	1
PA07221061	PVC 1/2" to 8x5 mm	1
A35052176	Backboard & fitting	1
3240T0325	Filter Assembly	1
506253	pH 7 buffer	1
506251	pH 4 buffer	1

**Note:** All mounted & with control cables for pumps



### DCC400SC SPECIAL FOR SALT CHLORINATOR



## 6.2 Pool Packages COMPACT controller pH/ORP



### DCC500 pH/CI POOL CONTROL SYSTEM

Part No.	Description
DCCaW006PR0010EN	Compact Controller pH/ORP
DCCAW006C00010EN	Compact Controller Chlorine
1024105	Probe cable
SP100-4330-DH	Sensor pH 0-12 pH 0 to 80°C HT3
1038902	Sensor CLB2-uA-5ppm
DGMA320T000	Probe Holder with Flow switch
3240T0235	Filter Assembly
A04001289	2 core cable
PA07221061	PVC 1/2" to 8x5 mm
A25251004	PE tube 25m 8 x 5mm
A35082644	Backboard 500x600 LDPE
506253	pH 7 buffer
506251	pH 4 buffer

**Note:** All mounted & with control cables for pumps



### DCC600 pH/CI POOL CONTROL SYSTEM

Part No.	Description	
DCCaW006PR0010EN	Compact Controller pH/ORP	1
DCCAW006C00010EN	Compact Controller Chlorine	1
PA31003612	CO2 Flow Regulator Assembly	1
PA09751676	CO2 Injection Assembly	1
1024105	Probe cable	1
SP100-4330-DH	Sensor pH 0-12 pH 0 to 80°C HT3 glass	1
1038902	Sensor CLB2-uA-5ppm	1
DGMA320T000	Probe Holder with Flow switch	1
3240T0235	Filter Assembly	1
A04001289	2 core cable	1
PA07221061	PVC 1/2" to 8x5 mm	1
A25251004	PE tube 25m 8 x 5mm	1
A35082644	Backboard 500x600 LDPE	1
506253	pH 7 buffer	1

### Options

#### Part No.

**PA55003052** Volt Free relays for external stop/start of any Beta, Gamma L, Delta, Sigma via pump control cable. This assembly includes 2 relays in a single enclosure mounted on the backboard & into the instrument.

**PA55003540** 240 volt relay switched output for control of other equipment. (e.g. hard wired Beta pump). This includes 2 relays in a single enclosure mounted on the backboard and into the instrument.

**PA55003541** 240 volt relay switched output for control of other equipment. This includes 2 relays with GPO's mounted on the backboard and into the instrument.

**PA55003055** Volt Free relays for external stop/start of any Beta, Gamma L, Delta, Sigma via pump control cable. This assembly includes 1 relay in a single enclosure mounted on the backboard & into the instrument.

**PA55003542** 240 volt relay switched output for control of other equipment. (e.g. hard wired Beta pump). This includes 1 relay in a single enclosure mounted on the backboard and into the instrument.

**PA55003543** 240 volt relay switched output for control of other equipment. This includes 1 relay with GPO mounted on the backboard and into the instrument.



## 6.3 Pool Packages QUICK START diaLog

### Quick Start Guide

VERSION	PH	ORP	CLE3	CTE	CAA	CO <sub>2</sub>
DIALOG - 300	X	X				
DIALOG - 400	X	X				X
DIALOG - 500	X		X			
DIALOG - 510	X	X	X			
DIALOG - 520	X		X	X		
DIALOG - 540	X		X		X	
DIALOG - 550	X	X			X	
DIALOG - 600	X		X			X
DIALOG - 610	X	X	X			X
DIALOG - 620	X		X	X		X
DIALOG - 640	X		X		X	X
DIALOG - 650	X	X			X	X
DIALOG - 700	X			X		
DIALOG - 710	X	X		X		
DIALOG - 740	X			X	X	
DIALOG - 800	X			X		X
DIALOG - 810	X	X		X		X
DIALOG - 840	X			X	X	X

### GOLD System

Salt Water Chlorinators

VERSION	PH	ORP-GOLD	CLE3	CGE-GOLD	CAA	CO <sub>2</sub>
DIALOG - 550G	X	X			X	
DIALOG - 650G	X	X			X	X
DIALOG - 700G	X			X		
DIALOG - 710G	X	X		X		
DIALOG - 740G	X			X	X	
DIALOG - 810G	X	X		X		X
DIALOG - 840G	X			X	X	X





## 6.4 Pool Packages diaLog pH/Cl<sub>2</sub>



### diaLog300 pH/ORP POOL CONTROL SYSTEM

Part No.	Description
DACBW006VV04000010010EN	DiaLog 2 Channel Pool Controller
SP100-4330-DH	Sensor pH
SP100-4PB0-DH	Sensor ORP
BAMAEU222XXXF01X000000EN	Probe holder, filter & flow switch assembly
1024105	Cable Coax
724009	Cable Power 2M
A250D3402	Mounting Board 600x600
PA07221061	Adaptor PVC 1/2" - 8x5
A25251004	Tubing 8x5 25M
506253	Buffer Solution pH7
506251	Buffer Solution pH4

**Note:** All mounted on backboard.



### diaLog400 pH/ORP POOL CONTROL SYSTEM

Part No.	Description
DACBW006VV04000010010EN	DiaLog 2 Channel Pool Controller
PA31003612	CO2 Flow Regulator 25lt/min
SP100-4330-DH	Sensor pH
SP100-4PB0-DH	Sensor ORP
BAMAEU222XXXF01X000000EN	Probe holder, filter & flow switch assembly
1024105	Cable Coax
724009	Cable Power 2M
A250D3402	Mounting Board 600x600
PA07221061	Adaptor PVC 1/2" - 8x5
A25251004	Tubing 8x5 25M
506253	Buffer Solution pH7
506251	Buffer Solution pH4

**Note:** All mounted on backboard.



### diaLog500 pH/Cl<sub>2</sub> POOL CONTROL SYSTEM

Part No.	Description	
DACbW006VA0000010010EN	diaLog pH/Chlorine Controller	1
792919	Chlorine sensor CLE3-mA-10 ppm	1
SP100-4330-DH	pH probe	1
BAMAEU2211XXF01X000000EN	Probe holder, filter & flow switch assembly	1
1024105	Probe cable	1
PA07221061	1/2"to 8 x 5 PVC adaptor	1
A25251004	8 x 5mm LDPE tubing - 25m	1
A250D3402	Backboard 600x600	1
506253	pH 7 buffer	1
506251	pH 4 buffer	1

**DX adder** Adds DULCONNEX to DACb pool packages. Includes LAN, Gateway & 12 month subscription  
 - Subscription included  
 - Customer to provide Wi- Fi

**On request** DX Gateway IPC. Provides DULCONNEX to DACb and Device Access to DACb web interface.



## 6.4 Pool Packages diaLog pH/Cl<sub>2</sub>

### diaLog600 pH/Cl<sub>2</sub>/CO<sub>2</sub> POOL CONTROL SYSTEM

Part No.	Description
DACbW006VA00000010010EN	DiaLog Dual Channel Pool Controller
PA31003612	CO2 Flow Regulator 25lt/min
792919	Sensor CLE 10 ppm
SP100-4330-DH	Sensor pH
BAMAEU2211XXF01X000000EN	Probe holder, filter & flow switch assembly
1024105	Cable Coax
724009	Cable Power 2M
A250D3402	Mounting Board 600x600
PA07221061	Adaptor PVC 1/2" - 8x5
A25251004	Tubing 8x5 25M
506253	Buffer Solution pH7
506251	Buffer Solution pH4



### diaLog700 pH/Cl<sub>2</sub> POOL CONTROL SYSTEM

Part No.	Description
DACbW006VA000000010010EN	diaLog pH/Chlorine Controller
740684	Chlorine sensor CTE1-mA-10 ppm
SP100-4330-DH	pH probe
BAMAEU2211XXF01X000000EN	Probe holder, filter & flow switch assembly
1024105	Probe cable
PA07221061	1/2"to 8 x 5 PVC adaptor
A25251004	8 x 5mm LDPE tubing - 25m
A250D3402	Backboard 600x600
506253	pH 7 buffer
506251	pH 4 buffer

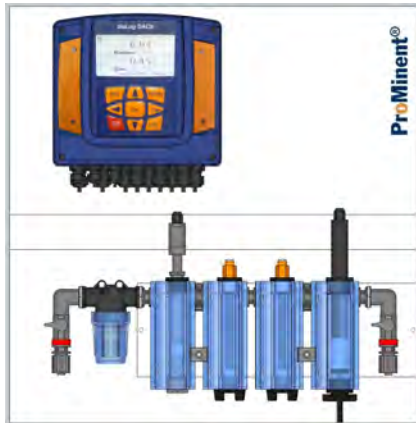


### diaLog800 pH/Cl<sub>2</sub>/CO<sub>2</sub> POOL CONTROL SYSTEM

Part No.	Description	
DACbW006VA00000010010EN	DiaLog Dual Channel Pool Controller	1
PA31003612	CO2 Flow Regulator 25lt/min	1
740684	Chlorine sensor CTE1-mA-10 ppm	1
SP100-4330-DH	Sensor pH	1
BAMAEU2211XXF01X000000EN	Probe holder, filter & flow switch assembly	1
1024105	Cable Coax	1
724009	Cable Power 2M	1
A250D3402	Mounting Board 600x600	1
PA07221061	Adaptor PVC 1/2" - 8x5	1
A25251004	Tubing 8x5 25M	1
506253	Buffer Solution pH7	1
506251	Buffer Solution pH4	1

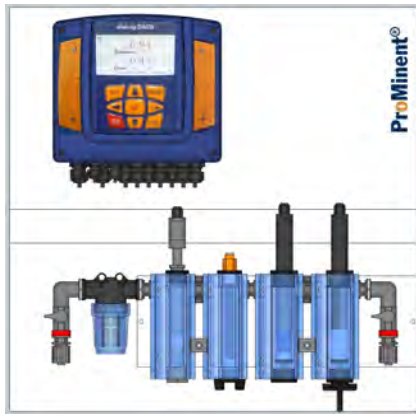


## 6.4 Pool Packages diaLog pH/Cl<sub>2</sub>



### diaLog510 pH/ORP/Cl<sub>2</sub> POOL CONTROL SYSTEM

Part No.	Description
DACBW006VA4000010010EN	DiaLog 3 Channel Pool Controller
792919	Sensor CLE 10 ppm
SP100-4330-DH	Sensor pH
SP100-4PB0-DH	Sensor ORP
BAMAEU2221XXF01X000000EN	Probe holder, filter & flow switch assembly
1024105	Cable Coax
724009	Cable Power 2M
A250D3402	Mounting Board 600x600
PA07221061	Adaptor PVC 1/2" - 8x5
A25251004	Tubing 8x5 25M
506253	Buffer Solution pH7
506251	Buffer Solution pH4



### diaLog520 pH/Cl<sub>2</sub>/Cl<sub>2</sub> POOL CONTROL SYSTEM

Part No.	Description
DACBW006VA4000010010EN	DiaLog 3 Channel Pool Controller
SP100-4330-DH	Sensor pH
792919	Sensor CLE 10 ppm
740684	Sensor CTE 10 ppm
BAMAEU2212XXF01X000000EN	Probe holder, filter & flow switch assembly
1024105	Cable Coax
724009	Cable Power 2m
A250D3402	Mounting Board 600x600
PA07221061	Adaptor PVC 1/2" - 8x5
A25251004	Tubing 8x5 25m
506253	Buffer Solution pH7
506251	Buffer Solution pH4



### diaLog540 pH /Cl<sub>2</sub>/CAA POOL CONTROL SYSTEM

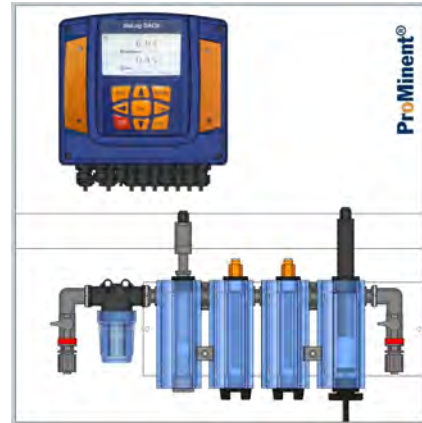
Part No.	Description	
DACBW006VA4000010010EN	DiaLog 3 Channel Pool Controller	1
792919	Sensor CLE 10 ppm	1
SP100-4330-DH	Sensor pH	1
1081545-10	Conductivity Sensor 0-10000uS	1
BAMAEU2212XXF01X000000EN	Probe holder, filter & flow switch assembly	1
1024105	Cable Coax	1
724009	Cable Power 2m	1
A250D3402	Mounting Board 600x600	1
PA07221061	Adaptor PVC 1/2" - 8x5	1
A25251004	Tubing 8x5 25m	1
506253	Buffer Solution pH7	1
506251	Buffer Solution pH4	1



## 6.4 Pool Packages diaLog pH/Cl<sub>2</sub>

### diaLog550 pH /ORP/CAA POOL CONTROL SYSTEM

Part No.	Description
DACBW006VA4000010010EN	DiaLog 3 Channel Pool Controller
1081545-10	Conductivity Sensor 0-10000uS
SP100-4330-DH	Sensor pH
SP100-4PB0-DH	Sensor ORP
BAMAEU2221XXF01X000000EN	Probe holder, filter & flow switch assembly
1024105	Cable Coax
724009	Cable Power 2M
A250D3402	Mounting Board 600x600
PA07221061	Adaptor PVC 1/2" - 8x5
A25251004	Tubing 8x5 25M
506253	Buffer Solution pH7
506251	Buffer Solution pH4



### diaLog610 pH/ORP/Cl<sub>2</sub>/CO<sub>2</sub> POOL CONTROL SYSTEM

Part No.	Description
DACBW006VA4000010010EN	DiaLog 3 Channel Pool Controller
PA31003612	CO2 Flow Regulator 25lt/min
792919	Sensor CLE 10 ppm
SP100-4330-DH	Sensor pH
SP100-4PB0-DH	Sensor ORP
BAMAEU2221XXF01X000000EN	Probe holder, filter & flow switch assembly
1024105	Cable Coax
724009	Cable Power 2M
A250D3402	Mounting Board 600x600
PA07221061	Adaptor PVC 1/2" - 8x5
A25251004	Tubing 8x5 25M
506253	Buffer Solution pH7
506251	Buffer Solution pH4



### diaLog620 pH/Cl<sub>2</sub>/Cl<sub>2</sub>/CO<sub>2</sub> POOL CONTROL SYSTEM

Part No.	Description	
DACbw006VA4000010010EN	DiaLog 3 Channel Pool Controller	1
PA31003612	CO2 Flow Regulator MkII	1
792919	Sensor CLE 10 ppm	1
740684	Sensor CTE 10 ppm	1
SP100-4330-DH	Sensor pH	1
BAMAEU2212XXF01X000000EN	Probe holder, filter & flow switch assembly	1
1024105	Cable Coax	1
724009	Cable Power 2M	1
A250D3402	Mounting Board 600x600	1
PA07221061	Adaptor PVC 1/2" - 8x5	1
A25251004	Tubing 8x5 25M	1
506253	Buffer Solution pH7	1
506251	Buffer Solution pH4	1



## 6.4 Pool Packages diaLog pH/Cl<sub>2</sub>



### diaLog640 pH/Cl<sub>2</sub>/CAA/CO<sub>2</sub> POOL CONTROL SYSTEM

Part No.	Description
DACbW006VA4000010010EN	DiaLog 3 Channel Pool Controller
PA31003612	CO2 Flow Regulator 25lt/min
1081545-10	Conductivity Probe
792919	Sensor CLE 10 ppm
SP100-4330-DH	Sensor pH
BAMAEU2212XXF01X000000EN	Probe holder, filter & flow switch assembly
1024105	Cable Coax
724009	Cable Power 2M
A250D3402	Mounting Board 600x600
PA07221061	Adaptor PVC 1/2" - 8x5
A25251004	Tubing 8x5 25M
506253	Buffer Solution pH7
506251	Buffer Solution pH4

### diaLog650 pH/ORP/CAA/CO<sub>2</sub> POOL CONTROL SYSTEM



Part No.	Description
DACbW006VA4000010010EN	DiaLog 3 Channel Pool Controller
PA31003612	CO2 Flow Regulator 25lt/min
1081545-10	Conductivity Sensor 0-10000uS
SP100-4330-DH	Sensor pH
SP100-4PB0-DH	Sensor ORP
BAMAEU2221XXF01X000000EN	Probe holder, filter & flow switch assembly
1024105	Cable Coax
724009	Cable Power 2M
A250D3402	Mounting Board 600x600
PA07221061	Adaptor PVC 1/2" - 8x5
A25251004	Tubing 8x5 25M
506253	Buffer Solution pH7
506251	Buffer Solution pH4

### diaLog710 pH/ORP/Cl<sub>2</sub> POOL CONTROL SYSTEM



Part No.	Description	
DACbW006VA0000010010EN	DiaLog Dual Channel Pool Controller	1
740684	Chlorine sensor CTE1-mA-10 ppm	1
SP100-4330-DH	Sensor pH	1
SP100-4PB0-DH	Sensor ORP	1
BAMAEU2221XXF01X000000EN	Probe holder, filter & flow switch assembly	1
1024105	Cable Coax	1
724009	Cable Power 2M	1
A250D3402	Mounting Board 600x600	1
PA07221061	Adaptor PVC 1/2" - 8x5	1
A25251004	Tubing 8x5 25M	1
506253	Buffer Solution pH7	1
506251	Buffer Solution pH4	1



## 6.4 Pool Packages diaLog pH/Cl<sub>2</sub>

### diaLog740 pH/Cl<sub>2</sub>/CAA POOL CONTROL SYSTEM

Part No.	Description
DACbW006VA4000010010EN	diaLog 3 Channel Controller
740684	Chlorine sensor CTE1-mA-10 ppm
SP100-4330-DH	pH probe
1081545-10	Conductivity Probe
BAMAEU2212XXF01X000000EN	Probe holder, filter & flow switch assembly
1024105	Probe cable
A25251004	8 x 5mm LDPE tubing - 25m
A250D3402	Backboard
506253	pH 7 buffer
506251	pH 4 buffer



### diaLog810 pH/ORP/Cl<sub>2</sub>/CO<sub>2</sub> POOL CONTROL SYSTEM

Part No.	Description
DACbW006VA0000010010EN	DiaLog Dual Channel Pool Controller
PA31003612	CO2 Flow Regulator 25lt/min
740684	Chlorine sensor CTE1-mA-10 ppm
SP100-4330-DH	Sensor pH
SP100-4PB0-DH	Sensor ORP
BAMAEU2221XXF01X000000EN	Probe holder, filter & flow switch assembly
1024105	Cable Coax
724009	Cable Power 2M
A250D3402	Mounting Board 600x600
PA07221061	Adaptor PVC 1/2" - 8x5
A25251004	Tubing 8x5 25M
506253	Buffer Solution pH7
506251	Buffer Solution pH4



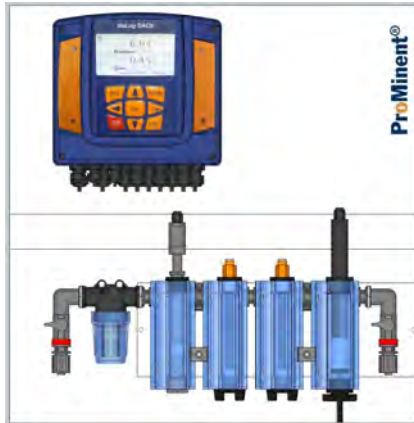
### diaLog840 PH/CL<sub>2</sub>/CAA/CO<sub>2</sub> POOL CONTROL SYSTEM

Part No.	Description	
DACbW006VA4000010010EN	diaLog 3 Channel Controller	1
PA31003612	CO2 Flow Regulator 25lt/min	1
740684	Chlorine sensor CTE1-mA-10 ppm	1
SP100-4330-DH	pH probe	1
1081545-10	Conductivity Probe	1
BAMAEU2212XXF01X000000EN	Probe holder, filter & flow switch assembly	1
1024105	Probe cable	1
A25251004	8 x 5mm LDPE tubing - 25m	1
A250D3402	Backboard	1
506253	pH 7 buffer	1
506251	pH 4 buffer	1



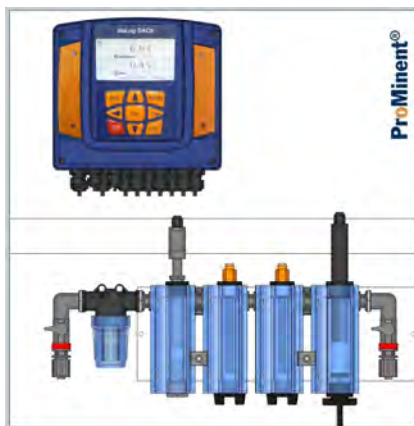
## 6.5 Pool Packages diaLog pH/Cl<sub>2</sub> GOLD Systems special for Salt Chlorinator

### diaLog550G pH/ORP/CAA POOL CONTROL SYSTEM



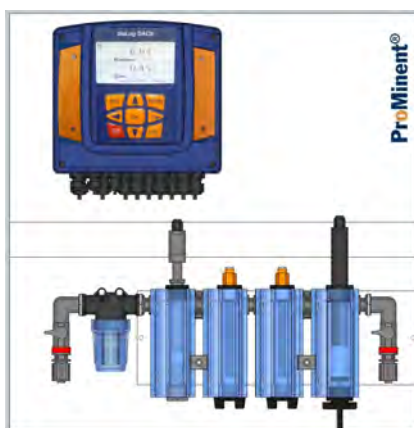
Part No.	Description
DACBW006VA4000010010EN	DiaLog 3 Channel Pool Controller
1081545-10	Conductivity Sensor 0-10000uS
SP100-4330-DH	Sensor pH
1003875	Sensor ORP RHEP-Au
BAMAEU2221XXF01X000000EN	Probe holder, filter & flow switch assembly
1024105	Cable Coax
724009	Cable Power 2M
A250D3402	Mounting Board 600x600
PA07221061	Adaptor PVC 1/2" - 8x5
A25251004	Tubing 8x5 25M
506253	Buffer Solution pH7
506251	Buffer Solution pH4

### diaLog650G pH/ORP/CAA/CO<sub>2</sub> POOL CONTROL SYSTEM



Part No.	Description
DACBW006VA4000010010EN	DiaLog 3 Channel Pool Controller
PA31003612	CO2 Flow Regulator 25lt/min
1081545-10	Conductivity Sensor 0-10000uS
SP100-4330-DH	Sensor pH
1003875	Sensor ORP RHEP-Au
BAMAEU2221XXF01X000000EN	Probe holder, filter & flow switch assembly
1024105	Cable Coax
724009	Cable Power 2M
A250D3402	Mounting Board 600x600
PA07221061	Adaptor PVC 1/2" - 8x5
A25251004	Tubing 8x5 25M
506253	Buffer Solution pH7
506251	Buffer Solution pH4

### diaLog700G PH/CL<sub>2</sub> POOL CONTROL SYSTEM



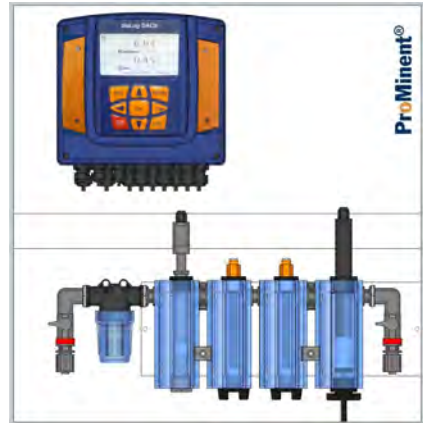
Part No.	Description	
DACbW006VA0000010010EN	diaLog pH/Chlorine Controller	1
1047975	Chlorine sensor CGE3-mA-10 ppm	1
SP100-4330-DH	pH probe	1
BAMAEU2211XXF01X000000EN	Probe holder, filter & flow switch assembly	1
1024105	Probe cable	1
PA07221061	1/2"to 8 x 5 PVC adaptor	1
A25251004	8 x 5mm LDPE tubing - 25m	1
A250D3402	Backboard	1
506253	pH 7 buffer	1
506251	pH 4 buffer	1



## 6.5 Pool Packages diaLog pH/Cl<sub>2</sub> GOLD Systems special for Salt Chlorinator

### diaLog710G pH/ORP /Cl<sub>2</sub> POOL CONTROL SYSTEM

Part No.	Description	
DACbW006VA0000010010EN	DiaLog Dual Channel Pool Controller	1
1047975	Chlorine sensor CGE3-mA-10 ppm	1
SP100-4330-DH	Sensor pH	1
1003875	Sensor ORP RHEP-Au	1
BAMAEU2221XXF01X000000EN	Probe holder, filter & flow switch assembly	1
1024105	Cable Coax	1
724009	Cable Power 2M	1
A250D3402	Mounting Board 600x600	1
PA07221061	Adaptor PVC 1/2" - 8x5	1
A25251004	Tubing 8x5 25M	1
506253	Buffer Solution pH7	1
506251	Buffer Solution pH4	1



### diaLog740G pH/Cl<sub>2</sub>/CAA POOL CONTROL SYSTEM

Part No.	Description	
DACbW006VA4000010010EN	diaLog 3 Channel Controller	1
1047975	Chlorine sensor CGE3-mA-10 ppm	1
SP100-4330-DH	pH probe	1
1081545-10	Conductivity Probe	1
BAMAEU2212XXF01X000000EN	Probe holder, filter & flow switch assembly	1
1024105	Probe cable	1
PA07221061	1/2"to 8 x 5 PVC adaptor	1
A25251004	8 x 5mm LDPE tubing - 25m	1
A250D3402	Backboard	1
506253	pH 7 buffer	1
506251	pH 4 buffer	1





## 6.5 Pool Packages diaLog pH/Cl<sub>2</sub> GOLD Systems special for Salt Chlorinator



### diaLog810G pH/ORP/Cl<sub>2</sub>/CO<sub>2</sub> POOL CONTROL SYSTEM

Part No.	Description	
DACbW006VA0000010010EN	DiaLog Dual Channel Pool Controller	1
PA31003612	CO2 Flow Regulator 25lt/min	1
1047975	Chlorine sensor CGE3-mA-10 ppm	1
SP100-4330-DH	Sensor pH	1
1003875	Sensor ORP RHEP-Au	1
BAMAEU2221XXF01X000000EN	Probe holder, filter & flow switch assembly	1
1024105	Cable Coax	1
724009	Cable Power 2M	1
A250D3402	Mounting Board 600x600	1
PA07221061	Adaptor PVC 1/2" - 8x5	1
A25251004	Tubing 8x5 25M	1
506253	Buffer Solution pH7	1
506251	Buffer Solution pH4	1



### diaLog840G pH/Cl<sub>2</sub>/CAA/CO<sub>2</sub> PH POOL CONTROL SYSTEM

Part No.	Description	
DACbW006VA4000010010EN	diaLog 3 Channel Controller	1
PA31003612	CO2 Flow Regulator 25lt/min	1
1047975	Chlorine sensor CGE3-mA-10 ppm	1
SP100-4330-DH	pH probe	1
1081545-10	Conductivity Probe	1
BAMAEU2212XXF01X000000EN	Probe holder, filter & flow switch assembly	1
1024105	Probe cable	1
A25251004	8 x 5mm LDPE tubing - 25m	1
A250D3402	Backboard	1
506253	pH 7 buffer	1
506251	pH 4 buffer	1



## 6.6 Dulcomarin Accessories

	Part No.
Chlorine sensor CLE 3-CAN-10 ppm	1023425
Chlorine sensor CLE 3.1-CAN-10 ppm	1023426
Chlorine sensor CTE 1-CAN-10 ppm	1023427
Chlorine sensor CGE 2-CAN-10 ppm	1024420
Chlorine sensor BRE 3-CAN-10 ppm	1029660
Cable connection-CAN M12 5pol. 0,5m	1022137
Cable connection-CAN M12 5pol. 1m	1022139
Cable connection-CAN M12 5pol. 2m	1022140
Cable connection-CAN M12 5pol. 5m	1022141
T-splitter M12 5pol. CAN	1022155
Terminator M12-female 120R(4-5)	1022154
Terminator M12-male 120R(4-5)	1022592
CAN-BUS-Cable	1022160
<b>Joining Kit</b> CAN-BUS-Cable	1026589
CAN Connection Cable - Green - CSN M12 to RJ45	1026715
Cross Over Cable - Grey - RJ45 to RJ45	1027859
LAN Coupling - Silver - RJ45	1027860
Adaptor 90° PVC 1/2" Male BSPP x 1/4" F BSPP	PA01223349
Adaptor 90° PVC DGMA Male BSPP x 1/4" F BSPP	PA01223350



PA01223349



PA01223350

### BUFFERS

	Part No.
Vial of 10 Capsules pH4 Buffer Kit	A12001261
Vial of 10 Capsules pH7 Buffer Kit	A12001262
Vial of 10 Capsules pH10 Buffer Kit Each Capsule makes 100 mls Buffer	A12001263

**Note:** Above part numbers and prices do not include distilled water.

### BUFFER SOLUTION

	Part No.
3-molar KCl solution, 50 ml	505533
3-molar KCl solution, 250 ml	791440
3-molar KCl solution, 1000 ml	791441
Buffer solution 475 mV, 100 ml	A52003313
Buffer solution 475 mV, 250 ml	A52003314
Buffer solution 220 mV, 50 ml	506244
Buffer solution pH 4.0 - red, 50 ml	506251
Buffer solution pH 4.0 - red, 100 ml	A52003308
Buffer solution pH 4.0 - red, 250 ml	A52003309
Buffer solution pH 4.0 - red, 1000 ml	A52003310
Buffer solution pH 7.0 - green, 50 ml	506253
Buffer solution pH 7.0 - green, 100 ml	A52003305
Buffer solution pH 7.0 - green, 250 ml	A52003306
Buffer solution pH 7.0 - green, 1000 ml	A52003307
Buffer solution pH 10.0 - blue, 50 ml	506255
Buffer solution pH 10.0 - blue, 100 ml	A52003311
Buffer solution pH 10.0 - blue, 250 ml	A52003312



## 6.7 DULCOneX Package for DACb

### DX ADDER - DULCOneX Add on Kit for DACb

**PA51003580**

Adds DULCOneX to DACb pool packages. **Includes LAN & DX Gateway.**  
& 12 month subscription

Subscription included  
Customer to provide Wi- Fi

### DULCOneX Annual Subscription

**zzDulcoSub**

12 month subscription

### ProConnect Package for use with DULCOneX

**PA51003593**

ProConnect Network Communications Box - LTE & WiFi [excludes SIM]

### ProConnect Annual Subscription

**zzProSub**

12 month data SIM plan [1G per month]



# 6.8 Identity Code for Industrial Backboard Package

## IBP Industrial Backboard Package

Controller Type	
<b>DCC</b>	Compact Controller
<b>D1C</b>	D1CB Controller
<b>DAC</b>	Dialog 2 or 3 Channel
<b>DCP</b>	Dulcomin

<b>1</b>	240 volt
<b>2</b>	24 volt (no lead)

Board Size	
<b>1</b>	600 x 500
<b>2</b>	600 x 600
<b>3</b>	600 x 750
<b>4</b>	748 x 748
<b>5</b>	750 x 900 (non Stock Board)

1st Sample Line	
<b>1</b>	BAMA 1 Sensor
<b>2</b>	BAMA 2 Sensors
<b>3</b>	BAMA 3 Sensors
<b>4</b>	BAMA 4 Sensors
<b>5</b>	DLG5 1 Sensor
<b>6</b>	DLG5 2 Sensors
<b>7</b>	DLG5 3 Sensors

2nd Sample Line	
<b>0</b>	None
<b>1</b>	BAMA 1 Sensor
<b>2</b>	BAMA 2 Sensors
<b>3</b>	DLG5 1 Sensor
<b>4</b>	DLG5 2 Sensors

3rd Sample Line	
<b>0</b>	None
<b>1</b>	BAMA 1 Sensor
<b>2</b>	DLG5 1 Sensor

Flow Monitor	
<b>0</b>	None
<b>1</b>	BAMA 25l/hr
<b>2</b>	BAMA 50l/hr
<b>3</b>	BAMA 100l/hr
<b>4</b>	GEMU for DLG5

Filter	
<b>0</b>	None (Standard for DLG 5)
<b>1</b>	BAMA Only

Flow Limiter	
<b>0</b>	None
<b>1</b>	12 l/h
<b>2</b>	54 l/h

<b>IBP</b>	<b>DCC</b>	<b>1</b>	<b>2</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>1</b>	<b>0</b>
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1. Select Backboard Package from dropdown list to suit application  
 2. Select Instrument from yellow pages  
 3. Select probes and sensors from yellow and green pages.

For total price add the 3 sub totals above.

**Note:** Lead time approx 5 working days ex Sydney for above stocked sub assemblies.\*  
 3-4 weeks ex Sydney for all other build combinations  
 \* subject to stock being available at order placement.



## 6.9 D1Cb Industrial Sub Assemblies FOR REFERENCE ONLY

### D1CB SUB-ASSEMBLIES - INDUSTRIAL BACKBOARD PACKAGE



**Identcode**  
**IBP D1Cb / DLG2**  
*Without Filter Assmbly*

Item	Part No.		Qty
1	D1CbW00601000VC1011G00EN	Monitor	1
2	A25251004	8x5mm PE tube 25mm Roll	1
3	A35082644	600h x500w Backboard	1
4	PROMLABEL150	ProMinent Label 150mm	1
5	724009	Power Cable	1



**Identcode**  
**IBP D1Cb / DLG5**

Item	Part No.		Qty
1	D1CbW00601000VC1011G00EN	Monitor	1
2	PA03002885	by-pass sensor holder DLG5	1
3	A07051045	Bracket	1
4	1257000Z	Flowswitch	1
5	PA07221061	Adaptor PVC 1/2" to 8x5 mm	1
6	A25251004	25m, 8x5 PE tube	1
7	A01721802	5m, 16mm braided hose	5m
8	A25D3402	600 x 600 Backboard	1



## 6.9 diaLog Industrial Sub Assemblies FOR REFERENCE ONLY

### DIALOG SUB-ASSEMBLIES - INDUSTRIAL BACKBOARD PACKAGE

**Identcode**

**IBP DACb 6AA0 - DLG2 240V**

*1 x Amperometric Sensor*

Item	Part No.	Part No.	Qty
1	DACbW006AA0000010010	Controller	1
2	PA07221061	1/2" to 8x5mm Adaptor PVC	1
3	A25251004	8x5mm PE tube 25mm Roll	1
4	PROMLABEL150	ProMinent Label 150mm	1
5	724009	Power Cable	1



**Identcode**

**IBP DACb 6VA0 - DLG2 240V**

*e.g. pH correction chlorine (coax cable)*

*1 x Amperometric sensor*

*1 x Potentiometric sensor*

Item	Part No.	Part No.	Qty
1	DACbW006VA0000010010	Controller	1
2	1024105	Coax Cable 0.8M Sn6	1
3	PA07221061	1/2" to 8x5mm Adaptor PVC	1
4	A25251004	8x5mm PE tube 25mm Roll	1
5	PROMLABEL150	ProMinent Label 150mm	1
6	724009	Power Cable	1



**Identcode**

**IBP DACb 6AA4 - DLG2 240V**

*1 x Amperometric Sensors*

*1 x mA disturbance value and mA Remote Set-Point possible*

Item	Part No.	Description	Qty
1	DACbW006AA40000010010	Controller	1
2	1024105	Coax Cable 0.8M Sn6	1
5	PA07221061	1/2" to 8x5mm Adaptor PVC	1
6	A25251004	8x5mm PE tube 25mm Roll	1
8	PROMLABEL150	ProMinent Label 150mm	1
9	724009	Power Cable	1



## 6.9 diaLog Industrial Sub Assemblies FOR REFERENCE ONLY



**Identcode**  
**IBP DACb 4AA0 - DLG2 24V**  
*1 x Amperometric Sensor*

Item	Part No.	Description	Qty
1	DACbW004AA0000010010	Controller	1
2	PA07221061	1/2" to 8x5mm Adaptor PVC	1
3	A25251004	8x5mm PE tube 25mm Roll	1
4	PROMLABEL150	ProMinent Label 150mm	1
5	724009	Power Cable	1



**Identcode**  
**IBP DACb 4AA4 - DLG2 24V**  
*1 x Amperometric Sensors*  
*1 x mA disturbance value and mA Remote Set-Point possible*

Item	Part No.	Description	Qty
1	DACbW004AA40000010010	Controller	1
2	PA07221061	1/2" to 8x5mm Adaptor PVC	1
3	A25251004	8x5mm PE tube 25mm Roll	1
4	PROMLABEL150	ProMinent Label 150mm	1
5	724009	Power Cable	1



## 6.9 diaLog Industrial Sub Assemblies FOR REFERENCE ONLY

### Identcode

**IBP DACb 6AA0 - DLG5 240V**

*2 x Amperometric possible*

Item	Part No.	Description	Qty
1	DACbW006AA0000010010	DACb 2 x mA inputs	1
2	A4001289	2 core cable	2
3	PA03003388	DLG5 for 2 x mA sensors	1
4	86515T	Gemu Rotameter	1
5	125000Z	Rotameter Switch	1
6	PA07221061	Adaptor PVC 1/2" to M20x1.5mm	1
7	A25251004	25m of 8x5mm Black PE tubing	1
8	A01721802	16mm Braided Hose	5
9	A250D3402	600mm x 600mm Backboard Mtd	1
10	161-546-212	1/2" PVC Ball Valve GF	1
11	721-101-106	1/2" 90 deg PVC elbow	2
12		1/2" Schdule 80 pipe	1
13	PromLabel150	150mm ProMinent Label	1



### Identcode

**IBP DACb 6AA4 - DLG5 240V**

*1 x Amperometric Sensors*

*1 x mA disturbance value and mA Remote Set-Point possible*

Item	Part No.	Description	Qty
1	DACbW006AA4000010010	DACb 2 x mA inputs	1
2	A4001289	2 core cable	2
3	PA03003388	DLG5 for 2 x mA sensors	1
4	86515T	Gemu Rotameter	1
5	125000Z	Rotameter Switch	1
6	PA07221061	Adaptor PVC 1/2" tp M20x1.5mm	1
7	A25251004	25m of 8x5mm Black PE tubing	1
8	A01721802	16mm Braided Hose	5
9	A250D3402	600mm x 600mm Backboard Mounted	1
10	161-546-212	1/2" PVC Ball Valve GF	1
11	721-101-106	1/2" 90 deg PVC elbow	2
12		1/2" Schdule 80 pipe	1
13	PromLabel150	150mm ProMinent Label	1





## 6.10 ProCal Granular Calcium Hypochlorite Feeder

### ProCal\_3240B Series Granular Calcium Hypochlorite System from ProMinent

The ProMinent ProCal series system generates a dilute Calcium Hypochlorite solution from granulated dry chemical. The granules are stored in a chamber, up to 40kg, where it is held until required.

The granules are transferred into a mixing tank where it is blended with the incoming water. The feeder is operated in manual or pulse duration mode in response to the amount of chlorine in the pool water. Automatic acid clean is incorporated.

- Suitable for pools up to 1,000,000 litres
- Capacity to 4kg/hr, (adjustable).
- Dimensions: 900 L x 500 W x 1170 H mm

#### Features & Benefits

- The ProMinent unique compact design allows the use of granular Calcium Hypochlorite as your pool chlorine source.
- Reduced OH&S requirements.
- The ProCal series comes pre-wired and pre-plumbed for easy installation.
- Interface with ProMinent controllers or other pulse duration controller provides accurate and reliable chlorine control.
- Lower TDS, when compared to liquid chlorine.
- Granular Calcium Hypochlorite is less expensive and more readily available than tablets.
- Less impact on pH.
- Automatic acid clean.



Model	Pool Size
ProCal_3240B	1,000,000 litres

#### Spare Parts

AQUCHL2-5-055D	Aqua Plus Booster Pump
275PS	Mag Drive Pump
PA55023125	Feeder Assy
PA28003028	Vibrator and Bracket Assy
PA59003409	Replacement kit Wilo/Mag Drive (Note: includes new Mag Drive)
K521-X200-1400	Diaphragm Valve



275PS Pump (no fittings included)



PA28003028



PA55023125



## 6.11 ProCal mini Granual Hypochlorite Feeder

### ProMinent ProCal mini

The ProMinent® ProCal mini Granular Calcium Hypochlorite feeder generates a dilute solution from granulated dry chemical.

#### Applications

- Hotel pools
- Apartment pools
- Hydrotherapy pools
- Retirement Village pools
- Spa pools
- Cold plunge pools

#### Capacity

- Up to 0.5 kg/hr of 70% granular calcium hypochlorite.

#### Package Dimensions

- 1020 x 550 x 710mm [H x D x W]

#### Features & Benefits

- The ProMinent® unique compact design allows the use of Granular Calcium Hypochlorite as your pool chlorine source.
- Reduced Occupational Health & Safety requirements.
- The ProCal mini series comes pre-wired and pre-plumbed for easy installation.
- Interface with ProMinent controllers or other pulse duration controllers provides accurate and reliable chlorine control.
- Lower TDS, when compared to liquid chlorine.
- Granular Calcium Hypochlorite is less expensive and more readily available than tablets.
- Less impact on pH when compared to liquid chlorine.
- Includes automatic acid clean system.

#### Model

ProCal mini



## 6.12 ProDos Calcium Hypochlorite Dosing Package

### ProMinent® ProDos 250

The ProMinent® ProDos 250 Calcium Hypochlorite Feeder System generates a 0.5% chlorine solution from granulated calcium hypochlorite suitable for dosing into water supplies. The system operates on a continuous batch process and includes the following.

#### Application

- Water Treatment Plants
- Waste Water Treatment Plants
- Rechlorination

#### Capacity

- Up to 2.5kg/h Cl<sub>2</sub> as a 0.5% solution

#### Package Dimensions

- Preparation Plant: 1170mm x 500mm x 900mm [H x D x W]
- Storage Tank: 1400mm x 1050mm x 1050mm [H x D x W]

#### Benefits

- The ProMinent ProDos 250 allows the use of granular calcium hypochlorite as your chlorine source.
- Reduced Occupational Health & Safety requirements compared to gas chlorine.
- Calcium hypochlorite does not degrade like liquid chlorine.
- The ProDos 250 system comes pre-wired and pre-plumbed for easy installation.
- Compact design means the system easily fits into most existing plant rooms, occupying far less space than large traditional liquid chlorine tank installations.

#### Preparation Plant

- 30kg storage hopper
- Vibratory granular feeder
- Mixing chamber
- Transfer pump
- Acid cleaning pump
- Control panel

#### Storage Tank

- 250L UV stabilised PE tank
- Chemically resistant Halar coated stirrer
- Manual 3-way valve to initiate acid clean
- All necessary interlocks



## 7.0 Dry Material Feeders

**ProFeed dry material feeders can be used for any dry product in a powder or granular form.**

ProFeed dry material feeders are used extensively in the water treatment and food industries, however, its application is limitless to any industry where controlled feed of dry material is required.

ProFeed consists of a 316 stainless steel body within which a feed screw and conditioning auger rotate at the same speed. The diameter of the feed screw and its speed is selected to provide the required feed rate of the product.

The pitch of the feed screw varies to minimize bridging and to provide even draw down of material from the feed hopper.

The conditioning auger helps condition the product prior to entering the feed screw which improves accuracy and avoids bridging.

Manual capacity adjustment can be achieved simply by turning the feeder on/off or by manual adjustment of a variable speed motor.

Automation can be achieved in a variety of ways, eg: infinite variable speed control from a process signal.

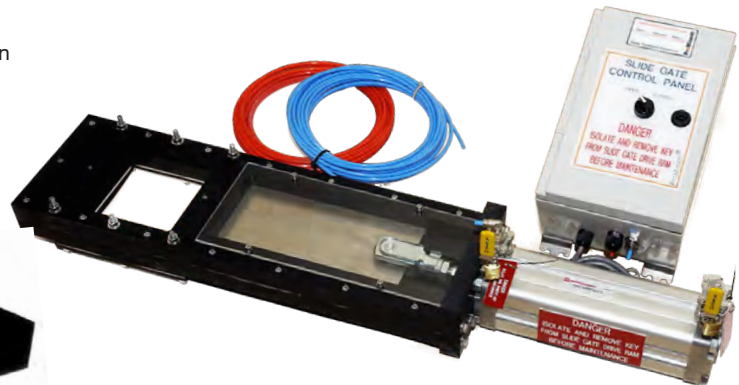
Pulse duration control is also an option. AC, DC or pneumatic motors can be fitted. Hoppers of any size can be installed above the feeder. The entire system can be designed and constructed to suit your specific requirements.

### Also available:

- Manual slidegates, Pneumatic slidegates
- Crumbler
- Solution tanks 304/316 SS with floor mounting stirrers
- Wetting assemblies ie:
  - **Ultra wet** for Polymer, P.A.C. etc. with hydraulic transfer.
  - **Ultra spray** for dust suppression eg: fluoride, lime etc.
- **ProLoad** bag loader (304SS) with internal bag splitter and microswitch for dust collector.
- Loss of weight recording/intergrating packages.
- Promix Polymer preparation systems with 2 or 3 tanks.
- Outlet spout heaters - to help eliminate caking of product in feeder spout.



Manual slidegate



Pneumatic slidegate

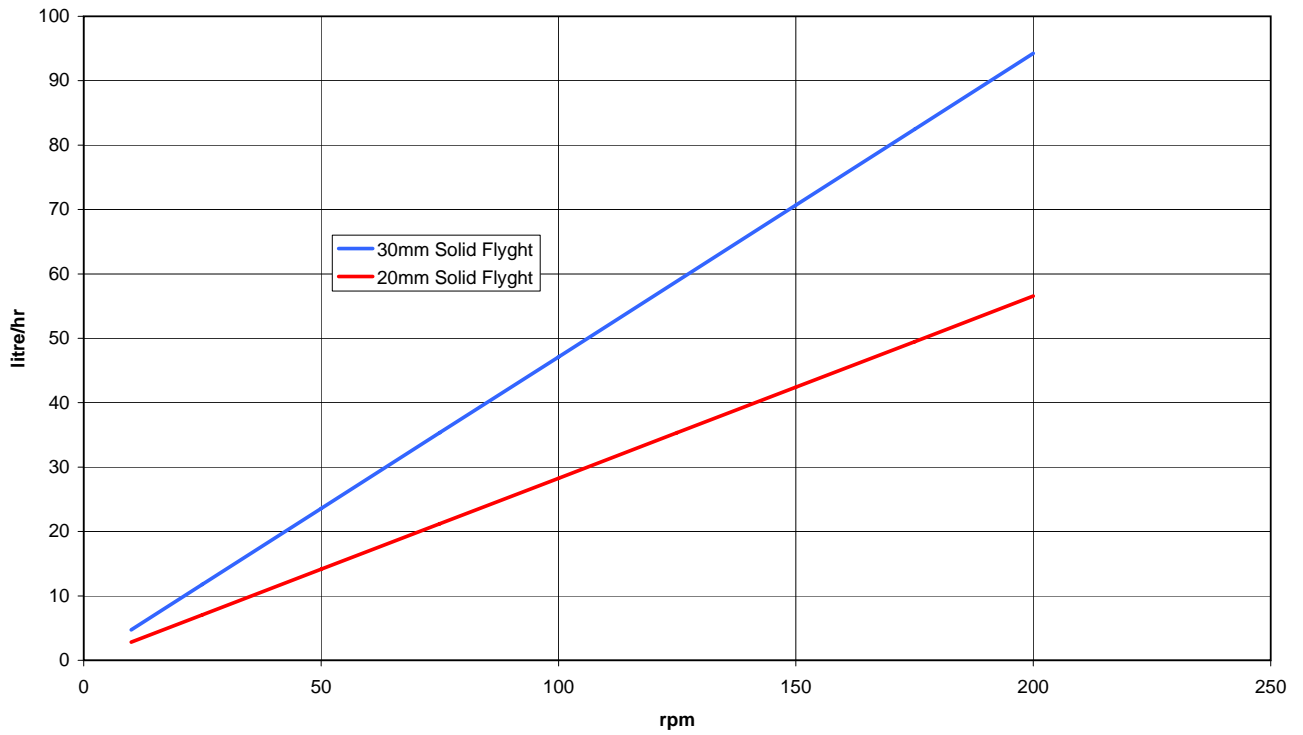


Feeder D series

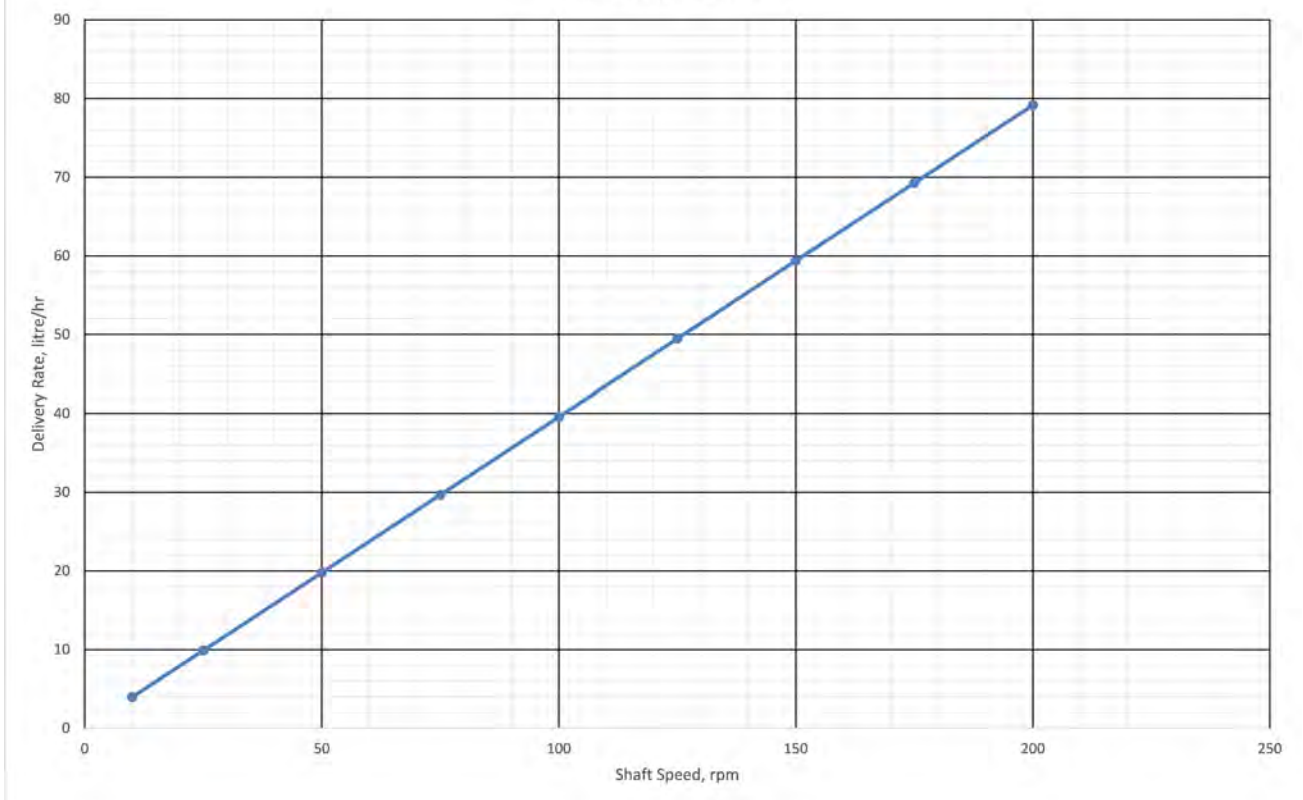


## 7.1 Dry Material Feeder Charts

Feeder Delivery Rate vs rpm

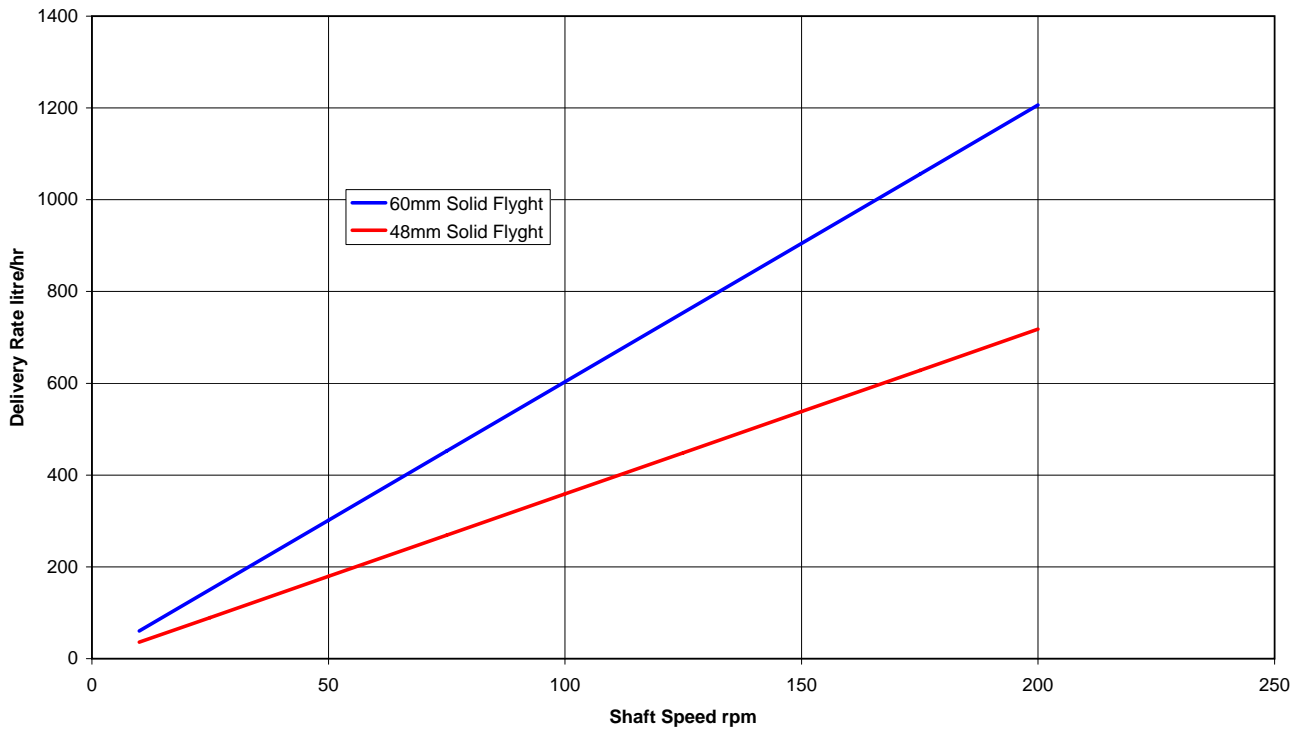


25mm Feeder Screw



# 7.1 Dry Material Feeder Charts

Feeder Delivery Rate vs RPM



## 7.2 Dry Material Feeders Identity Code

Series		Type	Feeder
PF	PF	D Small Feeder Capacity to 450 l/hr.	
		B Large Feeder Capacity to 1600 l/hr.	
		<b>Screw Size</b>	
		020 20mm	PFD020A
		025 25mm <i>Solid Screw</i>	PFD025S
		030 30mm	PFD030A
		048 48mm	PFD048A
		060 60mm	PFD060A
		048 48mm <i>Solid Screw</i>	PFD048S
		060 60mm <i>Solid Screw</i>	PFD060S
		048 48mm <i>Solid Screw</i>	PFB048S
		100 100mm } <i>Series B only Solid Screw</i>	PFB100S
		150 150mm } <i>Series B only Solid Screw</i>	PFB150S
		<b>Screw</b>	<b>Options</b>
		A Open	
		S Solid 25, 48 and 60 only for D series	
		X Open Screw with Solid Insert 20 & 30 only for D series	add
		<b>Conditioning Arms</b> <i>not available on B series</i>	
		0 Without Arms	
		1 With Arms	add
		2 With Arms for Hi-Compaction Material	add
		<b>Heater</b>	
		0 Without Heater	Heater add
		1 With Heater <i>for Spout 240V 30W</i>	020
		<b>Gearbox Ratio</b>	
		0010 10:1	030
		0015 15:1	048
		0020 20:1	060
		0028 28:1	100
		0035 35:1	150
		0046 46:1	
		0060 60:1	
		0070 70:1	
		0100 100:1	
		0000 Special i.e. Double Reduction	
		<b>Motor</b>	
		A 0.18kW Standard on D Type	
		B 0.37kW Standard on B up to 100	
		C 0.55kW Standard on B 150	
		D 0.09kW special for Double Reduction Gearbox	
		X Without Motor	
		Y Special Motor	
		<b>Motor IP Rating &amp; Speed</b>	
		A IP55 4 pole <i>Standard on Series D &amp; B</i>	
		B IP55 6 pole <i>Optional</i>	add
		C IP56 4 pole <i>Optional</i>	
		D IP56 6 pole <i>Optional</i>	
		F DIP rated 4 pole	
		Y No Motor	
		<b>Options</b>	
		0 None net price	
		1 Mech Variator 5:1	Series D add
		2 Mech Variator 48 & 100	Series B add
		3 Mech Variator 100 & 150	Series B add
		4 AC VSD	
		5 Cooling Fan for motor	
		<b>Hopper Plate Heater</b> 203 X 45 240V 50W	

**Example:** D series, 48mm, solid screw, with arms, no heater, 20:1 gearbox ratio, standard motor, no options. refer Sydney engineering for replacement for older models.

PF D 048 S 1 0 0020 A A 0



## 7.2 Dry Material Feeders Identity Code

We can supply complete Dry Feeder packages to order, or supply only the following components to allow you to construct your own systems or replace old with new updated systems.

	Part No.
<b>CONVERSION OF A-SERIES FEEDER TO D-SERIES FEEDER</b>	<b>PA28002708</b>
<i>A replacement type A drive shaft (A28041514) may be required, and requires customer to return the OLD feeder tub.</i>	

	Part No.
<b>HOPPERS, IN 304 STAINLESS STEEL.</b>	
60 litre <i>Standard size for D series feeder with flange to take Bag-Loader</i>	<b>A28042534</b>

Hopper Dimensions	W	x	L	x	H
60 litre	600	x	200	x	810
125 litre	600	x	600	x	700
180 litre	680	x	680	x	754
240 litre	800	x	800	x	904
360 litre	900	x	900	x	960
500 litre	1000	x	1000	x	1250

**Note:** over 500 litre consult Sydney office

### BAG-LOADERS, IN 304 STAINLESS STEEL

800 mm high, stainless steel <i>for D series feeder</i>	<b>A28002282</b>
1000 mm high, stainless steel <i>for D series feeder</i>	<b>A28002283</b>
Front pull bag splitting option for above	
<i>(This is for VERY limited applications. See Sydney office for approval)</i>	

### WETTING CONE, IN 304 SS FOR POLY AND PAC.

**PA28002199**

**Eductors are available in the following sizes** *(for more information consult Sydney Office)*

The eductors below need to be added to the above Wetting Cone Assembly. Select the required flow.

The eductors are suitable for injection against a pressure up to 1 bar, when provided with a motive pressure of 4.5 bar PVC Pipe size 40 mm.

1000 l/hr <i>Note: an additional wash water of 480 l/hr is required for Wetting Cone</i>	<b>P62EJECTOR</b>
2000 l/hr <i>Note: an additional wash water of 660 l/hr is required for Wetting Cone</i>	<b>P63EJECTOR</b>
4000 l/hr <i>Note: an additional wash water of 660 l/hr is required for Wetting Cone</i>	<b>P65EJECTOR</b>

*A wetting cone overflow adaptor is available.*

<b>SLIDE GATES</b> , to suit D-series Feeder series, with handwheel	<b>PA28003205</b>
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<b>SLIDE GATES</b> , to suit D-series Feeder series, with pneumatic cylinder	<b>PA2800XXXX</b>
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**Note:** Slide gates are intended for OCCASIONAL USE ONLY i.e. for maintenance.

For everyday closure we suggest the use of spout closer.

For more information contact Sydney office

	Part No.
<b>Bulky-Bag Loading systems</b> (for PAC etc)	
<b>Crumblers</b> , in stainless steel	<b>PA28042565</b>
<b>Solution Tanks</b> , in stainless steel and PE	
<b>Level switches</b> , for Hoppers and Solution tanks	
<b>Dust Extraction Systems</b>	
<b>Water Softeners</b>	

For other PRICES contact Sydney Office.



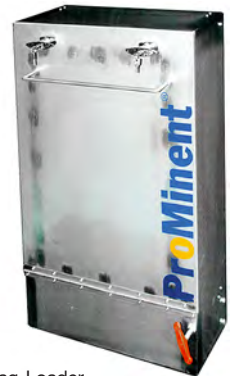


### 7.3 Dry Material Feeders Associated Equipment



PA28002199 Wetting Cone Assembly

**Note:** Maric valve A09002681 (4000 l/hr) is NOT included in assy.



Bag-Loader



Fluoride System



## 7.4 Dry Material Feeders ProFeed-690

Should you find it difficult to source spares for your A-690 feeders then consider replacing with a ProMinent ProFeed-690 replacement.

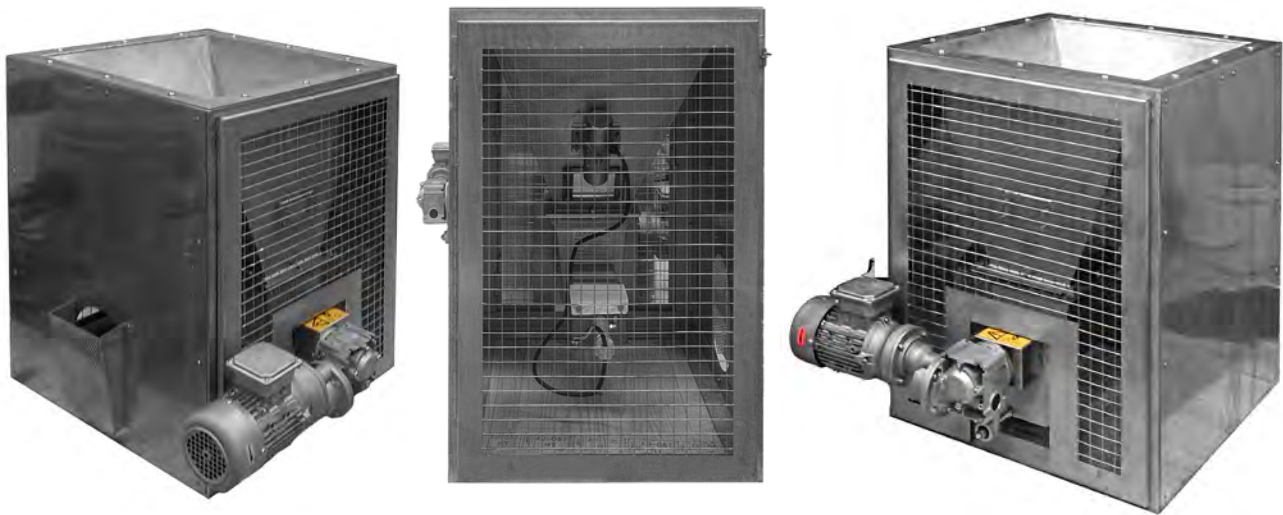
The ProFeed-690 stainless steel package comes with a hopper and supporting frame built to the same overall dimensions to provide a simple changeover solution. It will be supported by your existing solution tank and will accommodate your existing stirrer mounting.

Feeder comes with conditioning arms designed to provide maximum accuracy whilst minimising the potential for arching and blocking.

### Capacity

- Up to 200 kg/h for soda ash
- Up to 90 kg/h for hydrated lime
- Equivalent feed rates for similar chemicals
- Should be set to run at 70Hz with VF drives to assist with turndown (see section 3)

To assist with turndown the feeder gearbox should be chosen to meet capacity when the VF drive is around 70Hz.. An optional SEWVF drive is available for a turndown of 35:1.



The hopper has an inspection port, and a mounting pad for a vibrator

### PROFEED-690 with spout heater

#### OPTIONS:

VF drive 6:1 turndown 240v to 3 phase

VF drive 35:1 turndown via frequency and pulse duration 240v to 3 phase

VF drive 35:1 turndown via frequency and pulse duration 3 phase to 3 phase

Stirrer (client to use their existing stirrer bracket)

- 415 Volt

- 240 Volt

#### OPTION

Price to provide panel for VF drive, controls for heater, stirrer & vibrator

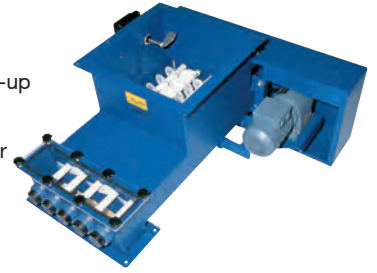
Solution tanks

## 7.5 Tomal Dry Feeders & Systems

**A comprehensive range of products for reliable and accurate discharge and metering of powdered and granular solids.**

TOMAL offers everything you need for solids handling – from screw feeders to polymer make-up systems; from containerised storage systems to complete turn-key metering installations.

With over 30 years experience in metering and batching of granular and powdered solids, our installations deliver reliable and economical solutions for a range of materials.



### TOMAL Multiscrew Feeders

The heart of all of our systems

- High metering accuracy.
- Forced discharge with self-cleaning capacity.
- Increased live area provides safe silo discharge.
- Robust, low wear & low maintenance design and construction.

### TOMAL Polymer Make-up Systems

For dissolving and dosing solid and liquid polymers

#### POLYREX POWDER & LIQUID SYSTEMS

- Tomal's proven feeder ensures high metering accuracy.
- Batch preparation system eliminates short circuits.
- User friendly control via the touch screen interface.
- Robust, reliable & low maintenance design and construction.

#### POLYMORE LIQUID POLYMER DILUTION SYSTEMS

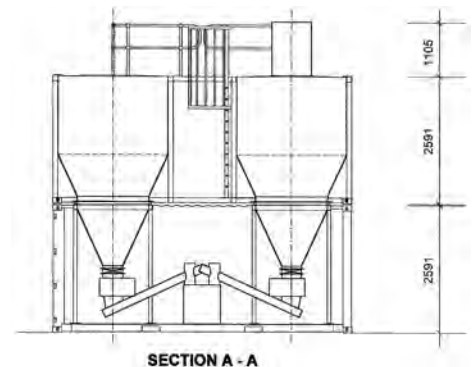
- Compact in-line design.
- Multizone mixing chamber delivers a homogenous and fully activated polymer solution.
- No need for a separate dosing pump.

### TOMAL T24 Container Systems

For storage & metering of dry solids at remote locations

- Up to 24 m³ storage capacity.
- Complete system is delivered using standard road transport.
- Minimises site preparation & installation costs.

**CONTACT SYDNEY OFFICE FOR FURTHER INFORMATION  
ON YOUR SPECIFIC STORAGE & METERING NEEDS**



# 2024 Hydro Pages

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## hydro Chlorination Systems

ProMinent offer Hydro Vacuum operated gas chlorinators with capacities available from a maximum of 75 gm/h through to a maximum 40 kg/h.

Chlorinators are suitable for direct bottle or drum mounting or alternatively for header mounting. With header mounting systems, we offer our horizontal and vertical headers complete with heating, flexible connections and auxiliary cylinder or drum valves.

Wherever possible, we recommend direct cylinder mounting to eliminate pressure lines and the costly replacement of flexibles and cylinder valves.

Hydro body parts are machined from a solid block of PVC and are not injection moulded. Machining is more expensive, but eliminates the residual stresses from the moulding process that lead to cracking and warping.

Hydro chlorinators therefore have thicker and more rigid walls and the bodies will not warp.

The main diaphragm is double O-ring sealed. The rate valve is solid silver an alternative is PVDF.

The Hydro inlet valve assembly is easy to dismantle and clean without special tools.

Hydro use a yoke assembly for mounting the chlorinator which provides positive sealing.

The ejector check valve has a self-centring seal and provides positive shut-off.

Hydro's simple construction permits an operator to repair or replace parts, in most cases with only the need for a screwdriver.

Spare parts are readily available and are not overpriced. In many cases it may be cheaper to buy a new Hydro chlorinator than to repair another brand.

Systems available with Hydro chlorinators include remote ejectors, remote rate control valves, automatic changeover units and 4 - 20 mA servo control systems.

Other accessories such as chlorine gas leak detectors and complete installation of systems are available.

Please do not hesitate to contact one of our offices, should you require pricing or further details on this range of equipment.



# hydro Gas Chlorinators

900 Series with ejector, remote meter & accessories

## Cylinder, Wall or Header Mounting - 900 series

Up to 2 kg/hr systems (Note: header, heater, auxiliary valves & flexibles extra)

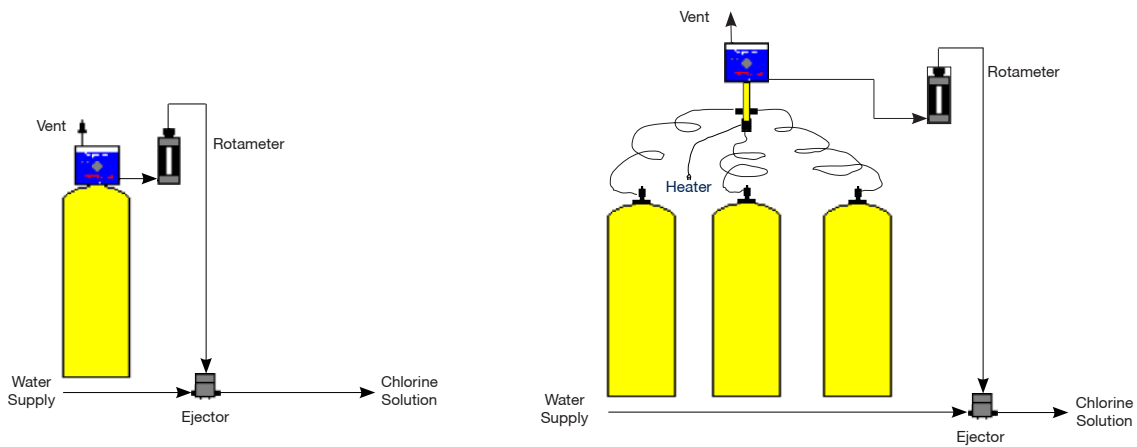
Max Capacity		PFC Part No.
75 g/h	1 x Vacuum Regulator, Remote Meter & Ejector	920C
200 g/h	1 x Vacuum Regulator, Remote Meter & Ejector	921C
500 g/h	1 x Vacuum Regulator, Remote Meter & Ejector	922C
1000 g/h	1 x Vacuum Regulator, Remote Meter & Ejector	923C
2000 g/h	1 x Vacuum Regulator, Remote Meter & Ejector	924C

### Up to 5 Kg/Hr Systems

1 x Vacuum Regulator, Remote Meter & Ejector	980C
--	------

### Up to 10 Kg/Hr Systems

1 x Vacuum Regulator, Remote Meter & Ejector	990C
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## In-Built Auto Changeover System (max 2 Vacuum Regulators) - 900 series

Up to 2 kg/hr systems (Note: header, heater, auxiliary valves & flexibles extra)

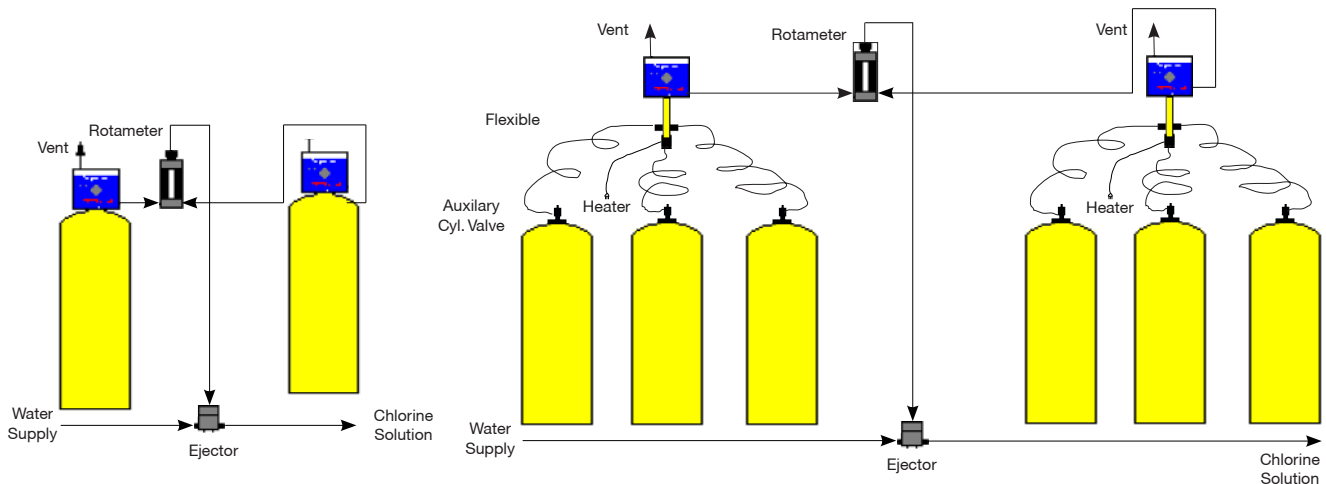
		PFC Part No.
75 g/h	2 x Vacuum Regulator, Remote Meter & Ejector	935C
200 g/h	2 x Vacuum Regulator, Remote Meter & Ejector	945C
500 g/h	2 x Vacuum Regulator, Remote Meter & Ejector	955C
1000 g/h	2 x Vacuum Regulator, Remote Meter & Ejector	965C
2000 g/h	2 x Vacuum Regulator, Remote Meter & Ejector	975C

### Up to 5 Kg/Hr Systems

2 x Vacuum Regulator, Remote Meter & Ejector	985C
--	------

### Up to 10 Kg/Hr Systems

2 x Vacuum Regulator, Remote Meter & Ejector	995C
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# hydro Gas Chlorinators

900 Series with ejector, remote meter & accessories

## TON Mounting - 900 series

### Up to 2 kg/hr systems

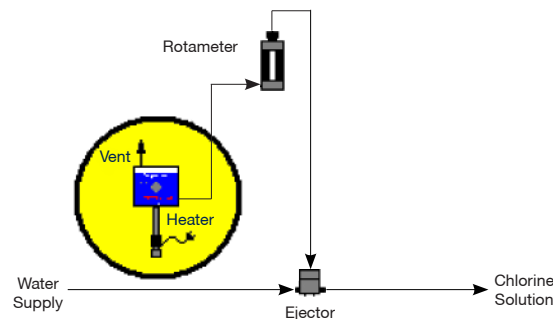
Max Capacity		PFC Part No.
75 g/h	1 x Vacuum Regulator, Remote Meter & Ejector	943C
200 g/h	1 x Vacuum Regulator, Remote Meter & Ejector	944C
500 g/h	1 x Vacuum Regulator, Remote Meter & Ejector	954C
1000 g/h	1 x Vacuum Regulator, Remote Meter & Ejector	964C
2000 g/h	1 x Vacuum Regulator, Remote Meter & Ejector	974C

### up to 5 kg/hr systems

5 kg/h	1 x Vacuum Regulator, Remote Meter & Ejector	984C
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### up to 10 kg/hr systems

10 kg/h	1 x Vacuum Regulator, Remote Meter & Ejector	994C
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## In-Built Auto Changeover System (max 2 Vacuum Regulators) - 900 series

### Up to 2 kg/hr systems

#### In-Built Auto Changeover System (1 drum per side)

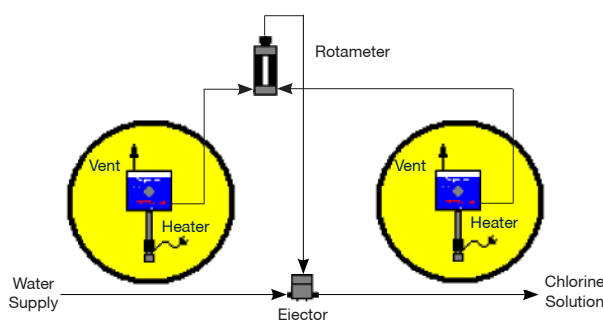
		PFC Part No.
75 g/h	2 x Vacuum Regulator, Remote Meter & Ejector	936C
200 g/h	2 x Vacuum Regulator, Remote Meter & Ejector	946C
500 g/h	2 x Vacuum Regulator, Remote Meter & Ejector	956C
1000 g/h	2 x Vacuum Regulator, Remote Meter & Ejector	966C
2000 g/h	2 x Vacuum Regulator, Remote Meter & Ejector	976C

#### In-Built Auto Changeover System (1 drum per side)

5 kg/h	2 x Vacuum Regulator, Remote Meter & Ejector	986C
--------	--	------

#### In-Built Auto Changeover System (1 drum per side)

10 kg/h	2 x Vacuum Regulator, Remote Meter & Ejector	996C
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**Note: All Ton mounting regulators, vertical & horizontal headers are fitted with 240V heaters. We suggest connection via a Residual Current Device (RCD) safety switch. As an option 24v heaters can be supplied with 240V/24V transformers in enclosure at an extra cost, (will handle two heaters).**

PA55002460

# hydro Gas Chlorinators

900 Series with ejector, remote meter & accessories

## TON Mounting - 900 series

Up to 2 kg/hr systems

Part No.

### Auto Changeover System (2 drum per side)

976C-2X2

2 kg/h 4 x Vacuum Regulator, 1 x Remote Meter, 1 x Auto Changeover & 1 x Ejector

Up to 5 kg/hr systems

### Auto Changeover System (2 drum per side)

986C-2X2

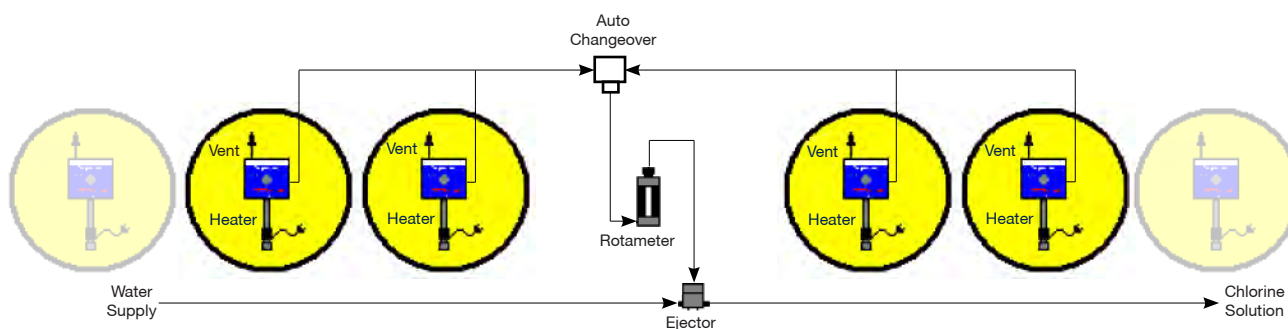
5 kg/h 4 x Vacuum Regulator, 1 x Remote Meter, 1 x Auto Changeover & 1 x Ejector

Up to 10 kg/hr systems (2 drum per side)

### Auto Changeover System

996C-2X2

10 kg/h 4 x Vacuum Regulator, 1 x Remote Meter, 1 x Auto Changeover & 1 x Ejector



**Note:** For systems using more than 2 drums a side add the cost of extra vacuum regulators required.

**Note:** If more than 12 kg required use 20/40 kg Rotameter, Auto Changeover, Ejector or see High Capacity systems.

**Note:** Multiple 900 series vacuum regulators can be drum mounted, however when two or more containers or more than 10 kg/hr is required there may be unequal draw down thus leaving some  $\text{Cl}_2$  in a drum at time of closedown. In this case use either;

- a) Header mounted vacuum regulator or
- b) Sequential change over. (see below and Sydney office for more information on this)



# hydro Gas Chlorinators

## Flow proportioning Systems 900 Series

**NOTE**

Each System includes a standard chlorinator unit (vacuum regulator, remote meter, and ejector), an Omni-Valve (automatic flow control valve) complete with standard fitting kit.

**NOTE**

For backboard ONLY see page 15



		PFC Part No.	
2 kg/hr	Cyl. or wall mounting (0.2, 0.5, 1 or 2 kg/hr capacity) * <u>one 900</u> series vacuum regulator	<b>PA2400-FP920</b>	(920C+OV-110)
2 kg/hr	Cyl. or wall mounting (0.2, 0.5, 1 or 2 kg/hr capacity) & in-built auto changeover <u>two 900</u> series vacuum regulators*	<b>PA2400-FP965</b>	(965C+OV-110)
5 kg/hr	Wall or Manifold mounting <u>one 900</u> series vacuum regulator	<b>PA2400-FP980</b>	(980C+OV-110)
5 kg/hr	Wall mounting & in-built auto changeover. <u>two 900</u> series vacuum regulators	<b>PA2400-FP985</b>	(985C+OV-110)
5 kg/hr	Ton mounting <u>one 900</u> series vacuum regulator	<b>PA2400-FPT981</b>	(981C+OV-110)
5 kg/hr	Ton mounting & in-built auto changeover. <u>two 900</u> series vacuum regulators	<b>PA2400-FPT986</b>	(986C+OV-110)
10 kg/hr	Ton mounting (10 kg/hr capacity) <u>one 900</u> series vacuum regulator	<b>PA2400-FP991</b>	(991C+OV-110)
10 kg/hr	Ton mounting & in-built auto changeover. <u>two 900</u> series vacuum regulators	<b>PA2400-FP996</b>	(996C+OV-110)

# hydro Gas Chlorinators

## Sequencing System for an all vacuum arrangement

The preferred arrangement for all gas chlorination systems, both cylinders and drums, is full vacuum with a vacuum regulator (vac reg) mounted directly on the cylinder/drum.

A pressure system using auxiliary valves, flexible connections and steel headers is available where an all vacuum system is not practical, i.e. in some 40 or 80 kg/hr systems etc. In these cases the vac reg is mounted on the pressure header.

The normal withdrawal rate with full vacuum systems, is 2 kg/hr from 70 kg cylinders and 10 kg/hr from 920kg drums at a room temperature of 20 deg C.

When there is a requirement for above 2 kg/hr with cylinders and above 10 kg/hr using drums, it has been normal practice to add a vac reg to a second cylinder or drum and to manifold two or more vac regs together via vacuum lines.

The use of full vacuum systems on multiple drums can lead to an uneven draw down. Thus if there were two duty drums with auto changeover to two standby drums, one of the first two drums would empty and as the second drum could not supply more than 10 kg/hr, the changeover valve would select the second set of two drums, thus leaving some chlorine in one of the first set of drums.

**Note:** in many systems with capacities of more than 10 kg/hr the actual use is less than 10 kg/hr and thus there is no problem with the two plus two system.

This is not a problem when using a pressure header as both drums will empty at the same time. However, a pressure system is not as safe as a full vacuum system.

For full vacuum systems that will run at above 2 kg/hr for cylinders and 10 kg/hr for drums we have a sequencing system.

### A 3+ drum/cylinder sequencing system consists of;

3+ x solenoid valves (chlorine under vacuum type) mounted prior to each vacuum regulator.

A control panel which can select the required no of drums to be in service with visual indication for:

3+ Drum In-Service - Standby - Empty. *Note: The empty indicator flashes.*

To initiate the sequencing operation, 300 series Vacuum Regulators are used with an "Out of Gas" switch.

There is no limit to the number of drums that can be added.

### Price for a 3 Cylinder System

Control Panel

3 x Solenoid

3 x 300 Series Vacuum Regulator

**Each additional Cylinder:**

### Price for a 3 drum system;

Control panel for 3 x drums including interconnecting cables for Vacuum Regulator "out of gas" switch and solenoids.

3 x solenoid valves are

3 x 300 series, Vacuum Regulators with "empty switch"

**Each additional drum:**

**Note:** To complete the system, items such as below need to be considered.

PE tube      Ejector      Rotameter      Installation      Omni-Valve etc.

### Individual Item costs:

	PFC Part No.
300 Series Vacuum Regulator Cylinder Mount	VRH-100-CL2-MS
300 Series Vacuum Regulator Ton Mount	VRH-50T-CL2-MS
Replacement FIP Solenoid Valve	12030909

# hydro Gas Chlorinators

## 900 Series Equipment Components

### 900 series - Bottle, Vertical Wall or Horizontal Header Mount Up to 2 kg/hr systems

Max Capacity	PFC Part No.
Vacuum regulator	SVR-100-CL2
Remote meter 75 g/hr (76 mm rotameter)	MPH-100-CL2-0075
Remote meter 200 g/hr	MPH-100-CL2-0200
Remote meter 500 g/hr	MPH-100-CL2-0500
Remote meter 1000 g/hr	MPH-100-CL2-1000
Remote meter 2000 g/hr	MPH-100-CL2-2000
Change Over Valve	SO1000

### Up to 5 kg/hr systems

Vacuum regulator	SVR-250-CL2
Remote meter 5 kg/hr (76 mm rotameter)	MPH-250-CL2
Change Over Valve	SO2000

### Up to 10 kg/hr systems

Vacuum regulator	SVR-500-CL2
Remote meter 10 kg/hr (152 mm rotameter)	MPH-500-CL2
Change Over Valve	SO5000

### 900 series - TON Mount

#### Up to 2 kg/hr systems

Vacuum regulator	SVR-10T-CL2
Vacuum regulator with offset for actuator	SVR-10T-CL2-AW
Remote meter 75 g/hr (76 mm rotameter)	MPH-100-CL2-0075
Remote meter 200 g/hr	MPH-100-CL2-0200
Remote meter 500 g/hr	MPH-100-CL2-0500
Remote meter 1000 g/hr	MPH-100-CL2-1000
Remote meter 2000 g/hr	MPH-100-CL2-2000
Change Over Valve	SO1000

#### Up to 5 kg/hr systems

Vacuum regulator	SVR-25T-CL2
Vacuum regulator with offset for actuator	SVR-25T-CL2-AW
Remote meter 5 kg/hr (76 mm rotameter)	MPH-250-CL2
Change Over Valve	SO2000

#### Up to 10 kg/hr systems

Vacuum regulator	SVR-50T-CL2
Vacuum regulator with offset for actuator	SVR-50T-CL2-AW
Remote meter 10 kg/hr (152 mm rotameter)	MPH-500-CL2
Change Over Valve	SO5000

#### Notes

1. The 900 series remote meters from 75 g/hr to 5 kg/hr have 2 inlets with the left one supplied plugged and 1 top inlet.
2. All are 1/4" ports.
3. If ProGuard3800 is fitted to a TON mount vacuum regulator, the actuator offset is required.

Price additional for "-AW" is:

# hydro Gas Chlorinators

## Series Equipment Components - Ejectors 100PPD (2 kg/h)

EJ

### Ejector 1000

3/4" ejector, 100 PPD (2000 gr/h) max.  
(Up to 140 PSI / 10 bar back pressure)

#### Gas Type

- C** Chlorine (Cl<sub>2</sub>)
- S** Sulfur Dioxide (SO<sub>2</sub>)

#### Nozzle

- 2** #2, 100 PPD (2000 gr/h) max. **STANDARD 1000 g/hr + 2000 g/hr** (0.186" orifice)
- 3** #3, 50 PPD (1000 gr/h) max. **STANDARD 200 g/hr** (0.126" orifice)
- 4** #4, 100 PPD (2000 gr/h) max. (0.219" orifice)
- 5** #5, 100 PPD (2000 gr/h) max. **STANDARD 500 g/hr** (0.148" orifice)
- 16** #16, 10 PPD (200 gr/h) max. (0.106" orifice)
- 99D** #99, 25 PPD (500 gr/h) max. (0.099" orifice)
- 140F** #140F, 100 PPD (2000 gr/h) max. (0.140" orifice)

#### Vacuum Fitting

- 1** 3/8" tubing connector **[STANDARD]**
- 2** 1/2" tubing connector
- 3** 5/8" tubing connector

#### High Back Pressure

- 0** None
- 1** High pressure support plates  
(up to 300 PSI / 21 bar back pressure)

#### Mounting Bracket

- 0** None

EJ 1000 X X X X X

# hydro Gas Chlorinators

## Equipment Components - 250PPD (5kg/h)

EJ

### Ejector 2000

**2000** 1-1/4" ejector, 250 PPD (5000 gr/h) max.  
(Up to 140 PSI / 10 bar back pressure)

#### Gas Type

- C** Chlorine (Cl<sub>2</sub>)
- S** Sulfur Dioxide (SO<sub>2</sub>)

#### Nozzle/Throat

- 01** .250 nozzle / .380 throat
- 02** .275 nozzle / .380 throat
- 03** .296 nozzle / .380 throat
- 05** .375 nozzle / .380 throat **(STANDARD)**
- X3** ENX-290 nozzle / .380 throat

#### Vacuum Fitting

- 1** 3/8" tubing connector
- 2** 1/2" tubing connector **(STANDARD)**
- 3** 5/8" tubing connector

#### High Back Pressure

- 0** None
- 1** High pressure support plates  
(Up to 300 PSI / 21 bar back pressure)

#### Mounting Bracket

- 0**

EJ      2000    X    X    X    X    X

# hydro Gas Chlorinators

## Equipment Components - Ejector 500PPD (10kg/h)

EJ

### Ejector 5000

**5000** 1-1/4" ejector, 500 PPD (5000 gr/h) max.  
(Up to 140 PSI / 10 bar back pressure)

#### Gas Type

- C** Chlorine (Cl<sub>2</sub>)
- S** Sulfur Dioxide (SO<sub>2</sub>)

#### Nozzle/Throat

- 01** .250 nozzle / .380 throat
- 04** .296 nozzle / .560 throat
- 05** .375 nozzle / .560 throat (**STANDARD**)
- X3** ENX-290 nozzle / .380 throat

#### Vacuum Fitting

- 1** 3/8" tubing connector
- 2** 1/2" tubing connector
- 3** 5/8" tubing connector (**STANDARD**)

#### High Back Pressure

- 0** None
- 1** High pressure support plates  
(Up to 300 PSI / 21 bar back pressure)

#### Mounting Bracket

- 0** None

EJ 5000 X X X X X

# hydro Gas Chlorinators

## High Capacity Manifold Mount Chlorination 20kg & 40kg

### Single System

Max Capacity	Part No.
up to 20 kg Vacuum Regulator, Remote Meter, Ejector & accessories	3103C
up to 40 kg Vacuum Regulator, Remote Meter Ejector & accessories	3113C

### Switch-Over System

up to 20 kg 2 x Vacuum Regulator, Remote Meter, Ejector, Switch-over & accessories	3105C
up to 40 kg 2 x Vacuum Regulator, Remote Meter, Ejector, Switch-over & accessories	3115C

### Components only

#### Vacuum Regulator - VRH-2000-CL2

up to 40 kg Vacuum Regulator, No meter & No ejector.

### VRH Type

Capacity 2000	
<b>2000</b>	Up to 2000 PPD / 40kg/h Chlorine (Cl <sub>2</sub> ) or sulfur Dioxide (SO <sub>2</sub> ) Up to 1000 PPD / 20kg/h Amonia (NH <sub>3</sub> ) Up to 1600 PPD / 32kg/h Carbon Dioxide (CO <sub>2</sub> )
Gas Type	
<b>CL2</b>	Chlorine
<b>SO2</b>	Sulfur Dioxide
<b>NH3</b>	Ammonia
<b>CO2</b>	Carbon Dioxide
Inlet Connection Size	
<b>1</b>	3/4" NPT gas inlet connection
<b>2</b>	1" NPT gas inlet connection
Inlet Connection Direction	
<b>L</b>	Left - gas inlet connection FACING RIGHT
<b>R</b>	Right - gas inlet connection FACING LEFT
Pressure Gauge	
<b>1</b>	Installed
Y - Strainer	
<b>0</b>	None included
Drip-leg Heater Power	
<b>1</b>	115 VAC
<b>2</b>	240 VAC
<b>3</b>	24 VDC
Flow Indicator	
<b>0</b>	None included
<b>VRH -2000</b>	- X - X - X - X - X - X - X - X

**Note:** All Ton mounting regulators, vertical & horizontal headers are fitted with 240V heaters. We suggest connection via a Residual Current Device (RCD) safety switch. As an option 24v heaters can be supplied with 240V/24V transformers in enclosure at an extra cost, (will handle two heaters).

PA55002460

# hydro Gas Chlorinators

High Capacity Manifold Mount Chlorination 20kg & 40kg

## Ejectors

Max Capacity	Part No.
20 kg High Capacity 2" Flanged Ejector.	EJH-1000-CL2
40 kg High Capacity 2" Flanged Ejector.	EJH-2000-CL2

## Remote Meters

20 kg including flow tube and rate valve.	RMH-1000-CL2
40 kg including flow tube and rate valve.	RMH-2000-CL2

## Switchover Modules

20 kg	SOH-2000-CL2
40 kg	SOH-4000-CL2



# hydro Gas Chlorinators

Series 110 Omni-Valve – Gas feed up to (60kg/h)

OV-110

### Gas Type

- A** Ammonia (NH<sub>3</sub>)
- C** Chlorine (Cl<sub>2</sub>)
- D** Carbon Dioxide (CO<sub>2</sub>)
- S** Sulfur Dioxide (SO<sub>2</sub>)

### Valve Body: Size & Maximum Capacity

- 1** 1/4" NPT inlet/outlet w/ 3/8" tube connectors (2 Kg/h)
- 2** 1/4" NPT inlet/outlet w/ 1/2" tube connectors (5 Kg/h)
- 3** 1/2" NPT inlet/outlet w/ 5/8" tube connectors (10 Kg/h)
- 4** 1" NPT Inlet / Outlet (U40 Kg/h)
- 5** 1.5 Socket Inlet / Outlet (60 Kg/h)

### Stem Capacity (V-notch)

- 04** 75 gr/h
- 10** 200 gr/h
- 25** 500 gr/h
- 50** 1000 gr/h
- 100** 2000 gr/h
- 250** 5000 gr/h
- 500** 10 Kg/h
- 1K** 20 Kg/h
- 2K** 40 Kg/h
- 3K** 60 Kg/h

### NOTES

1. 120-240 VAC or 12 VDC input voltage.

### CAPACITY CONVERSIONS:

For gases other than chlorine (Cl<sub>2</sub>) apply the corresponding capacity conversion factor:

- Ammonia (NH<sub>3</sub>) = 0.50
- Carbon Dioxide (CO<sub>2</sub>) = 0.80
- Sulfur Dioxide (SO<sub>2</sub>) = 0.95

OV - 110 - X - X - X

# hydro Gas Chlorinators

## Series 110 Omni-Valve – BACKBOARD PACKAGES

### OMNI-VALVE BACKBOARD PACKAGES INCLUDING:

- 600 x 750 x 15mm
- Omni-Valve
- Rotameter
- 240v power lead
- Isolation valves
- Inlet/outlet fittings
  - 2kg 3/8 tube
  - 5kg 1/2 tube
  - 10kg 5/8 tube



		Part No.
Chlorination Omni-Valve Backboard Package	75g/hr	PA24003581
Chlorination Omni-Valve Backboard Package	200g/hr	PA24003582
Chlorination Omni-Valve Backboard Package	500g/hr	PA24003583
Chlorination Omni-Valve Backboard Package	1000g/hr	PA24003584
Chlorination Omni-Valve Backboard Package	2000g/hr	PA24003585
Chlorination Omni-Valve Backboard Package	5Kg/hr	PA24003586
Chlorination Omni-Valve Backboard Package	10Kg/hr	PA24003587

# hydro Gas Chlorinators

## Accessories

### EMERGENCY SHUTDOWN - ELECTRIC

#### ProMinent Electric ProGuard3800 Chlorine gas emergency shut off for cylinders (bottles) or Drum



The “Emergency shut off system” triggers the electrical actuator which mounts directly on the valve of the cylinder or container. An operator can manually close all the valves via the ProGuard 3800 control panel.

#### UNIT INCLUDES:

- Input for chlorine gas detector alarm signal
- Reset button
- Manual shut down button
- Automatic shut down from chlorine gas leak detector
- Battery backup:
  - a) On load: 4 hours
  - b) On standby: 24 hours
- Automatic shutdown at low UPS battery
- Low Battery signal output
- Control cabinet dimension: 800 x 600 x 300mm
- 12V electric Actuators
- Adjustable torque
- No tools required for Actuator fitment
- Valve closure in less than 4 seconds



#### Part A Control Panel: 800 x 600 x 300mm

	PFC Part No.
Max. 2 cylinder/drum	PM3800EPESS-CP/2-A
Max. 6 cylinder/drum	PM3800EPESS-CP/6-A
Max. 10 cylinder/drum	PM3800EPESS-CP/10-A

#### Part B 12 V Actuator supplied with 10 metre cable

For rapid closure of gas valve. Must supply 1 actuator for each drum/cylinder

Cylinder	PM3800EPSS-EAY
Drum	PM3800EPESS-EA2

**Note:** Drum regulator must have “-AW” “Actuator off set”.

# hydro Gas Chlorinators

## Accessories

### EMERGENCY SHUTDOWN - PNEUMATIC

#### ProMinent ProGuard Series 3 Chlorinator Shut Off Control Package for Drums or Cylinders (Bottles)

##### Part A

Wall mounted Master control cabinet for activation of one or multiple pneumatic auto valve close ratchets. Power required, 240 volt. Bottled air or nitrogen required plus regulator, (by others).



##### Features:

- Fail safe pneumatic operation with low pressure alarm.
- 240 volt operation with over 8 hours battery back-up.
- Operates from alarm contact on chlorine leak detector, (Separate supply).

	Part A	PFC Part No.
For <b>up to</b> 4 cyl/drums	Part A	PA24002937
For <b>more</b> than 4 cyl/drums	Part A	PA24002938

##### Part B

<b>Bottle Mounting</b> 1 x Pneumatic cylinder and ratchet assembly with special bracket for mounting on each vacuum regulator.	Part B	PA24122715
<b>TON Mounting</b> 1 x Pneumatic cylinder and ratchet assembly with special bracket for mounting on each vacuum regulator.	Part B	PA24003538
<b>Pressure Header</b> 1 x Pneumatic cylinder and ratchet assembly with special bracket for mounting on each auxiliary valve.	Part B	PA24002716

**Extras:** auxiliary valve Part No: IVH-100-500 plus copper flexibles with 3/4" unions or complete horizontal or vertical header if required.

##### Quantity required:

For one drum or cylinder add 1 x Part A + 1 x Part B

For up to 8 drums, cylinders or header add 1 x Part A + Part B x number of drums or cylinders required.

##### Note: Vacuum systems

Both Part B above, Bottle & Ton, are suitable for Hydro 900 series

Vacuum Regulators. (For retro fitting to Hydro 500, 200 and 700 series consult Sydney office).

**Note: for 500 series bottle mount, the clamp yoke will have to be changed to P/No: A24072717**

Air or Nitrogen Regulator available from BOC Gasses

**ORICA** Both Hydro bottle mount and Ton mount vacuum regulators can be fitted with an extension arm to allow fitting of **ORICA auto valve closing**.

Extra Price per Cylinder

Extra Price per Ton mount

**Note:** the above will also fit Acromet and W & T (with appropriate adaptor)

# hydro Gas Chlorinators

## Accessories

### Chlorine Leak Detector

	PFC Part No.
Chlorine Leak Detector, with single Digital Sensor & Battery Back-up.	GA-180-1-0-0-0-1-2-1-1
Chlorine Leak Detector, with two Digital Sensors & Battery Back-up.	GA-180-2-0-0-0-1-2-1-1
Chlorine Leak Detector, with three Digital Sensors & Battery Back-up.	GA-180-3-0-0-0-1-2-1-1
Chlorine Leak Detector, with four Digital Sensors & Battery Back-up.	GA-180-4-0-0-0-1-2-1-1

### 4-20mA output included for up to 4 sensors

Replacement Sensor	Element only 0-10 ppm	GA-SEO-CL2-10
Replacement Sensor	0-10 ppm w/enclosure	GA-CRS-CL2-10
Replacement Battery		GA-BAT

### Features

- Visual and audible alarm (integral 90dB horn & danger/warning LED's).
- Individual sensor alarm relays, (user adjustable, latching & non-latching failsafe & non-failsafe).
- Backlit Liquid Crystal Display (LCD) for easy reading, 2 line, 20 spaces.
- 12 Hour Battery Back-Up included
- Isolated 4-20 mA Outputs.
- MODBUS communication
- Password Protection

**NOTE:** Gases Cl, O3 and ClO2 all use the same sensors/controllers (gas can be freely selected in menu). However if O3 or ClO2 is required, please clearly indicate gas on order so stickers and configuration can be adjusted accordingly. For other Gases unit will need to be a special order.



# hydro Gas Chlorinators

## Accessories

### VRL-900 Chlorine Drum Vacuum Regulator Lifting Device

Prominent can now supply a lifting system for placing Vacuum regulators on to 920kg Chlorine drums.

This floor mounted VRL-900 allows the Vacuum Regulator to be easily removed from the chlorine drum outlet valve and replaced on a new drum outlet valve.

The VRL-900 is adjustable for height as well as horizontal positioning with limited rotation to ensure connection to alternate drums and drum valve position.

The VRL-900 is suitable for drums floor mounted or on scales, and is adaptable to trolley mounted drums.

The VRL-900 is especially useful when a Proguard (automatic valve closing system) is used due to the extra weight.

The VRL-900 provides support for the Vacuum Regulator during the change over from drum to drum. It also reduces possible operator contact with the drip leg heater. It's designed to allow the Vacuum Regulator to be removed vertically at any time without restriction.

Model VRL-900	PFC Part No. PA24003194
Additional Bracket for Trolley Mount Systems	A240E3204



**Note:** Consideration must be given to ensure that the unit does not restrict the designated walkway.

# hydro Gas Chlorinators

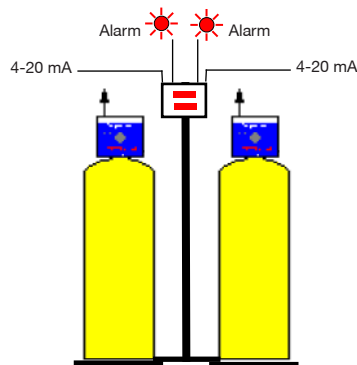
## Accessories

### Bottle & Drum Scales

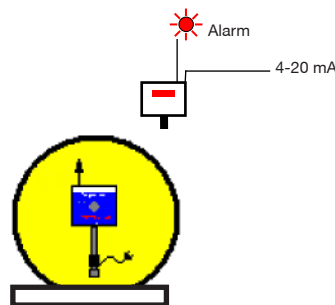
	PFC Part No.
Single Cylinder scales with Digital Alarm and 4-20mA out incl. safety chains	PA24003377
Dual Cylinder scales with Digital Alarm and 4-20mA out incl. safety chains	PA24003360
EI1000 Single Chlorine Drum Scale with Digital Alarm and 4-20mA out	PA24003382
EI2000 Dual Chlorine Drum Scale with Digital Alarm and 4-20mA out	PA24003383
Trolley & Single Drum Scale & EI1000 control unit with Digital Alarm and 4-20mA out	PA24003384
Trolley only for Single Drum (excluding Base - Single Drum only ) Note: advise direction of wheels in relation to scale)	

### Safety Chains

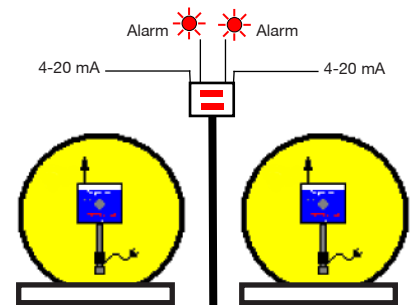
Safety Chains & Brackets Dual Cylinder	PA31001936
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**PA24003360**  
Dual Cylinder Scale &  
Control Unit (Digital)  
with alarm



**PA24003382**  
Single Drum Scale &  
Control Unit (Digital)  
with alarm & 4-20 mA



**PA24003383**  
Twin Drum Scale &  
Control Unit (Digital)  
with alarm & 4-20 mA

**Note:** For other options contact Sydney Office.

# hydro Gas Chlorinators

## Accessories

### Pressure Connections:

	PC Part No.
Auxiliary Cylinder Valve, 3/4" inlet and outlet.	IVH-100-500
Flexible Connection cad. plated annealed copper with 3/4" unions, (W & T type drum connection).	
1.8m length ... TON	FX-06
1.0m length ... Bottle	FX-04
Superior Chlorine Valve, for horizontal header mounting.	1214-B1

### Vertical Header:

**\*\*Please see page 20 for details\*\***

### Horizontal Header:

Each header (manifold) comes complete with header valve for vacuum regulator, drip leg & heater, and for EACH connection  
1 x header valve, 1 x auxiliary valve & 1 x flexible connection.

	2 x drums	HMT-122
	3 x drums	HMT-123
	4 x drums	HMT-124

### Chlorine Manifold Y-Strainer (weight 2 kg)

Carbon Steel Body, Monel Screen, Lead Gasket Sealed Cover	3/4" NPT	RH-6786
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### Chlorine Manifold Filter (weight 20 kg)

25,000 lb. tensile strength grey iron casting rated at 560 psi (38 bar), and comes with removable filter cartridge. Acts as a filter and condensate trap.

		C-282
Heater for header mounting, 240V AC, 25W	<i>NB: Use RCD Safety Switch</i>	A24002479
<i>This is for all for 200, 500, 700 &amp; 900 series Ton mount vacuum regulators</i>		
Optional heater for header mounting, 24V AC, 25W c/w 240v transformer		PA55052460
<b>Note:</b> for second 24v heater additional ( <b>max. 2 heaters per transformer</b> )		
For extra ton units Power Supply: 2 x 24V60Va 240V Supply		PA55002460
Heater for ton mounting drip leg, 24V AC, 25W, (75 x 50 pad)		84A24V
Universal TON mounting Drip Leg c/w heater		PA-TUY-1
Complete Dripleg assembly for 900 series Ton Mount Vacuum Regulator		VRH-999-500

### Injection Systems:

<b>Withdrawable</b> * PVC Injection lance, with 20mm hose tail, inc. SS valve & nipple	PA07621807
<b>Withdrawable</b> * PVC Injection lance, with 25mm hose tail, inc. SS valve & nipple	PA07621808
<b>*Note:</b> Suitable for maximum of 2 kg/h chlorine.	
<b>Non Withdrawable</b> PVC Injection/Diffuser tube c/w 1" BSPF	
PVC valve & 25mm Hose Tail. <i>Note: Suitable for maximum of 2 kg/h chlorine.</i>	PA24921972
<b>Non Withdrawable</b> PVC Injection/Diffuser tube c/w 1 1/2" BSPF	
PVC valve & 40mm Hose Tail. <i>Note: Suitable for maximum of 10 kg/h chlorine.</i>	PA24521971

### Indicators

<b>Auto vacuum change over</b> Left/Right cylinder bank indicator,	PA24002108
mounted in 175 x 125 PVC enclosure. <i>Note: Requires auto changeover valve or extra remote meter</i>	
<b>High/Low</b> vacuum indicator fitted to remote meter,	PA24002109
mounted in 175 x 125 PVC enclosure. <i>Note: Requires remote meter</i>	
<i>Note: if both PA24002108 and 2109 are used together total price can be reduced</i>	
Special lubricant for O-Rings MOLYKOTE 100gm tube	FS 3452
Twisted Spanner	HTS-1
Vacuum Gauge 2-1/2" dia. Direct Mount with Diaphragm Protection	VGL-30
Carbon Vent Trap ...	PA24002983



# hydro Gas Chlorinators

## Vertical Pressure Manifolds - For Cl2 upright cylinders

**MA**

### Number of Connections

- 1L** One (1) upright cylinder  
(Gas inlet connection facing left. Includes: One (1) 12" drip-leg w/ heater.)
- 1R** One (1) upright cylinder  
(Gas inlet connection facing right. Includes: One (1) 12" drip-leg w/ heater.)
- 2** Two (2) upright cylinders  
(Includes: One (1) 12" drip-leg w/ heater.)
- 3L** Three (3) upright cylinders  
(Third inlet connection facing left. Includes: One (1) 12" drip-leg w/ heater.)
- 3R** Three (3) upright cylinders  
(Third inlet connection facing right. Includes: One (1) 12" drip-leg w/ heater.)
- 4** Four (4) upright cylinders  
(Includes: One (1) 12" drip-leg w/ heaters.)

### Heater Power

- 1** 115 VAC, 50/60 Hz (25W w/ 70°C max. thermostat)
- 2** 230 VAC, 50/60 Hz (25W w/ 70°C max. thermostat)
- 3** 24 VDC (25W w/ 70°C max. thermostat)

### Flexible Connector

- 0** None
- 4** Flexible Connector  
(One (1) flexible connector is supplied per connection.)

### Isolation Valve Assembly

- 0** None
- 2 AUS** Isolation Valve Assembly  
(One (1) isolation valve assembly is supplied per connection.)

#### NOTES:

1. Prices in (...) are subtracted from the overall price.
2. Gas inlet connections are CGA #660.
3. For replacement flex connector adaptors, part no. A-345, please see price sheet Manifold Accessories (MTCC).

#### INSTALLATION:

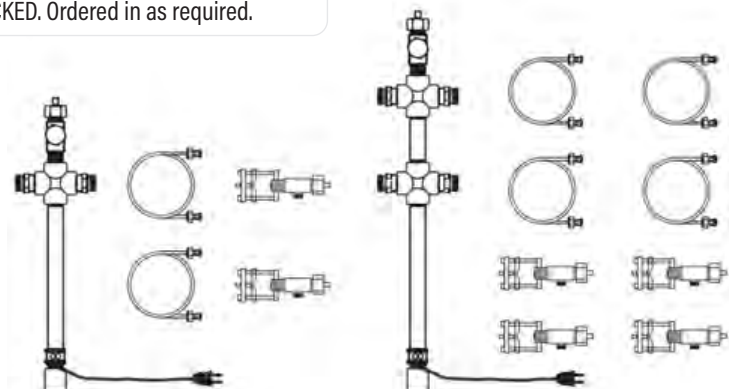
Pressure manifolds include a wall mounting installation kit.

#### DELIVERY:

Non-stock Item. 2-3 week delivery.

#### NOTE:

Headers are NOT STOCKED. Ordered in as required.



MA - X - X - X - X

# hydro Gas Chlorinators

## Accessories - Flexible Tubing

### PE Tube

P-138-Y	3/8" OD X 1/4" ID Vacuum Tubing / Meter (2kg/hr)
P-112-Y	1/2" OD X 3/8" ID Vacuum Tubing / Meter (5kg/hr)
P-158/Y	5/8" OD X 1/2" ID Vacuum Tubing / Meter (10kg/hr)

### Kynar® Tube Fitting

BKF-64	Black Kynar Tube Connection. 1/4" NPT x 3/8" Tube (2kg/hr)
BKF-84	Black Kynar Tube. 1/4" NPT x 1/2" Tube (5kg/hr)
BKF-108	Black Kynar Tube Connection. 1/2" NPT x 5/8" Tube (10kg/hr)
BKT-6	Black Kynar Tube Union Tee 3/8" Tube (2kg/hr)
BKT-8	Black Kynar Tube Union Tee 1/2" Tube (5kg/hr)
BKT-10	Black Kynar Tube Union Tee 5/8" Tube (10kg/hr)



BKF-64



BKT-10



BKF-108

**Note:** For over 50 years, Kynar® polyvinylidene fluoride (PVDF) resin, a specialty thermoplastic fluoropolymer, has been used in applications that require high strength and purity. Known for its high purity, Kynar® PVDF resins also provide chemical resistance to acids and bases, abrasion resistance, flame retardancy, mechanical strength, impact resistance, thermal stability and ease of processing, making it the ideal choice for the development of highly durable and sustainable lightweight materials.

# hydro Gas Chlorinators

## Accessories

### Adaptors

	PFC Part No.	
15mm PVC Solvent Weld to 12 x 8 Tube	PA24002142	
15mm PVC Solvent Weld to 17 x 12 Tube	PA24001001	
15mm PVC Solvent Weld to 1/2" NPT	PA24022792	
1/4" NPT O-Ring to 12 x 8 Tube	PA24001634	
3/8" NPT O-Ring to 12 x 8 Tube	PA24001635	
3/8" NPT O-Ring to 17 x 12 Tube	PA24001738	
1/2" NPT O-Ring to 17 x 12 Tube	PA24022768	
Adaptor 1/4" NPS M/M with O-Rings	PA24003231	
Adaptor 3/8" NPS M/M with O-Rings	PA24003232	
Adaptor 1/2" NPS M/M with O-Rings	PA24003233	



C-282 Filter



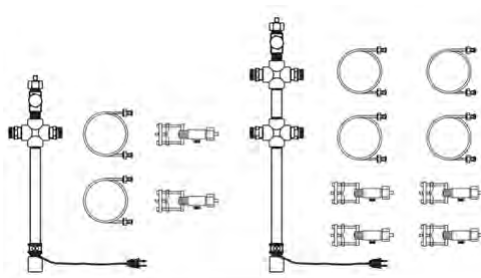
IVH-100-500  
Auxillary Cylinder Valve



RH-6786  
Chlorine manifold  
Inline Strainer



PA-TUY-1  
Universal Ton  
Drip Leg



Vertical Header



VRH-2000-CL2  
20-40 Vacuum Regulator



Horizontal Manifolds  
with 1214-B1  
Chlorine Valves



HTS-1 Twisted Spanner



1214-B1  
Chlorine Valve  
for Horizontal Header



1.8m FX-06 & 1.2m FX-04  
Flexible connections  
for Drums & Cylinders, Tested.



A24002182  
Adaptor for use with 1.8m  
A24002107 & 1.0m A24002264  
Flexible connections



PA24002983  
Carbon Trap



## Solenoid Operated Chlorine Gas Valve

This can be used in the following gas chlorination areas;

- a) Pulse duration in pools.
- b) Auto change over in combination with hi-low vacuum switch.
- c) Sequencing in combination with either of the following;
  - 1) Weight
  - 2) Pressure
 or
  - 3) Flow

For more information consult Sydney office.

To suit 12 x 8 tube, 17 x 12 tube or 15 mm (nominal) PVC Pipe 3/8", 1/2" & 5/8" PE tube for use with vacuum regulators up to 10kg/hr.

	PFC Part No.
for 12 x 8 EVA tube <i>ONLY for older systems.</i>	P120309091-12
for 17 x 12 EVA tube <i>ONLY for older systems.</i>	P120309091-17
for 3/8" OD PE tube	P120309091-95
for 1/2" OD PE tube	P120309091-127
for 5/8" OD PE tube	P120309091-159

Can be supplied as shown or with 90 degree elbows top and bottom or any combination of these, please specify when ordering. Includes 24v AC 50 Hz power supply with 3 pin plug.

Replacement valve (including solenoid)	12030909
--	----------

### Note: Can be controlled:

- a) By a switched 240 volt GPO.
- b) Through a volt free remote contact.



## Vacuum Monitor

Vacuum Monitor for Gas Chlorine 0 to -80KPa  
24V AC/DC , 2 x Digital alarm outputs, 1 x 4-20mA output

	PA24003619
--	------------

# hydro Gas Chlorinators

Standard Accessories supplied with Series 900 Chlorinators

## PA 24002779 BOTTLE / MANIFOLD MOUNT up to 2 kg

Consisting of:

1	x	Cable Tie	CT-200-4C
1	x	Insect Screen	A24001623
2	x	O-Rings - Ejector	OH-BUN-121
10	x	Lead Cylinder Gaskets	LG-100
1	x	Squeeze Bottle for Amonia	A24001622
1	x	Cylinder Spanner	A24001624
1	x	Filter - Teflon	VRH-456-100
1	x	Replacement Filter	VRH-455-500

## PA24002780 TON MOUNT from 2 to 10 kg

Consisting of:

1	x	Cable Tie	CT-200-4C
1	x	Insect Screen	A24001623
2	x	O-Rings - Ejector	OH-BUN-121
10	x	Lead Cylinder Gaskets	LG-100
3	x	Lead Gasket	G-332
1	x	Squeeze Bottle for Amonia	A24001622
1	x	Cylinder Spanner	A24001624
1	x	Replacement Filter	VRH-455-500

**Note:** 10kg uses 17x12 vacuum tube

# hydro Gas Chlorinator

## Service Kits

### 900 Series

#### PFC Part No.

KT9-100-VRC	900 series VAC REG 2 kg/hr Cylinder
KT9-250-VRC	900 series VAC REG 5 kg/hr Cylinder
KT9-500-VRC	900 series VAC REG 10 kg/hr Cylinder
KT9-100-VRT	900 series VAC REG 2 kg/hr TON
KT9-250-VRT	900 series VAC REG 5 kg/hr TON
KT9-500-VRT	900 series VAC REG 10 kg/hr TON
KT9-1000-VRT	900 series VAC REG 20 kg/hr TON
KTH-100-RMP	900 series Remote Meter 75-2000 g/hr
KTH-250-RMP	900 series Remote Meter 5 kg/hr
KTH-500-RMP	900 series Remote Meter 10 kg/hr
KTH-100-EJO	EJO-100-Cl2 900 series ejector 2 kg/hr
KTH-250-EJO	EJO-250-Cl2 900 series ejector 5 kg/hr
KTH-500-EJO	EJO-500-Cl2 900 series ejector 10 kg/hr

### 500, 200, 700 Series

KT7-500-VRC	500, 200, 700 series VAC REG Cylinder
KT7-500-VRT	500, 200, 700 series VAC REG TON Mount
KT1-100-EJS	EJ-1000 Service Kit 2 kg/hr
KT2-250-EJS	EJ-2000 Service Kit 5 kg/hr
KT7-500-EJS	EJ-5000 Service Kit 10 kg/hr
KT1-100-SOM	Switch Over Module 2 kg/hr
KT2-250-SOM	Switch Over Module 5 kg/hr
KT7-500-SOM	Switch Over Module 10 kg/hr

### 300 Series

KTH-500-VRT	300 series VAC REG TON Mount 10 kg/hr
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### Omni-Valve

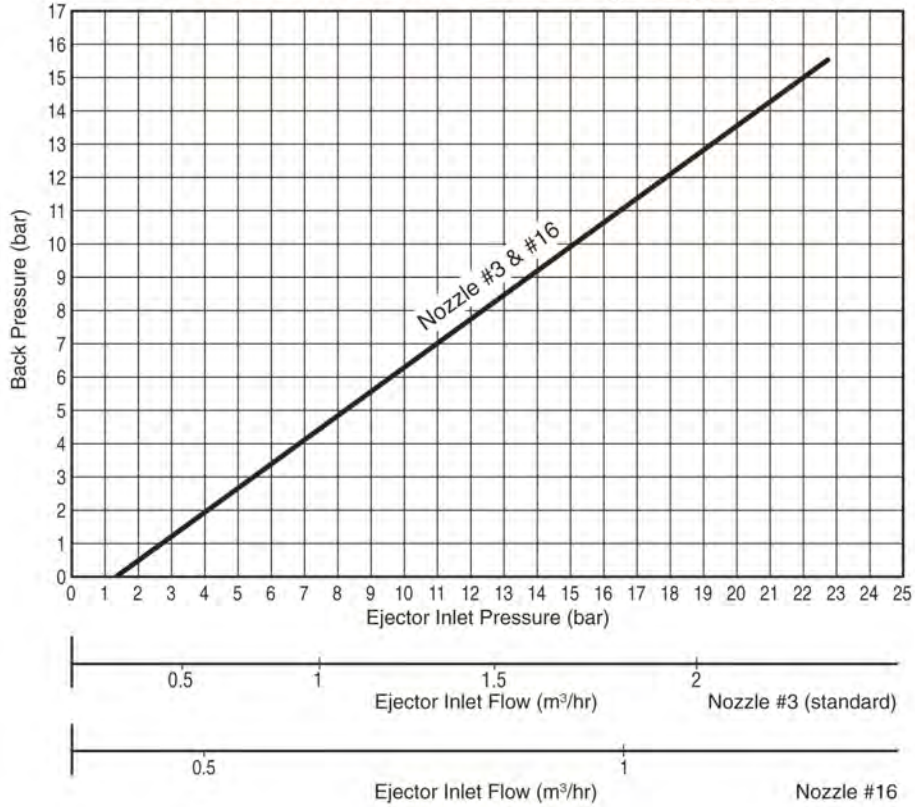
KT1-100-OV	Omni-Valve 2 kg/hr
KT1-250-OV	Omni-Valve 5 kg/hr
KT1-500-OV	Omni-Valve 10 kg/hr
KT1-040-OV	Omni-Valve 20-40 kg/hr

### 3000 series

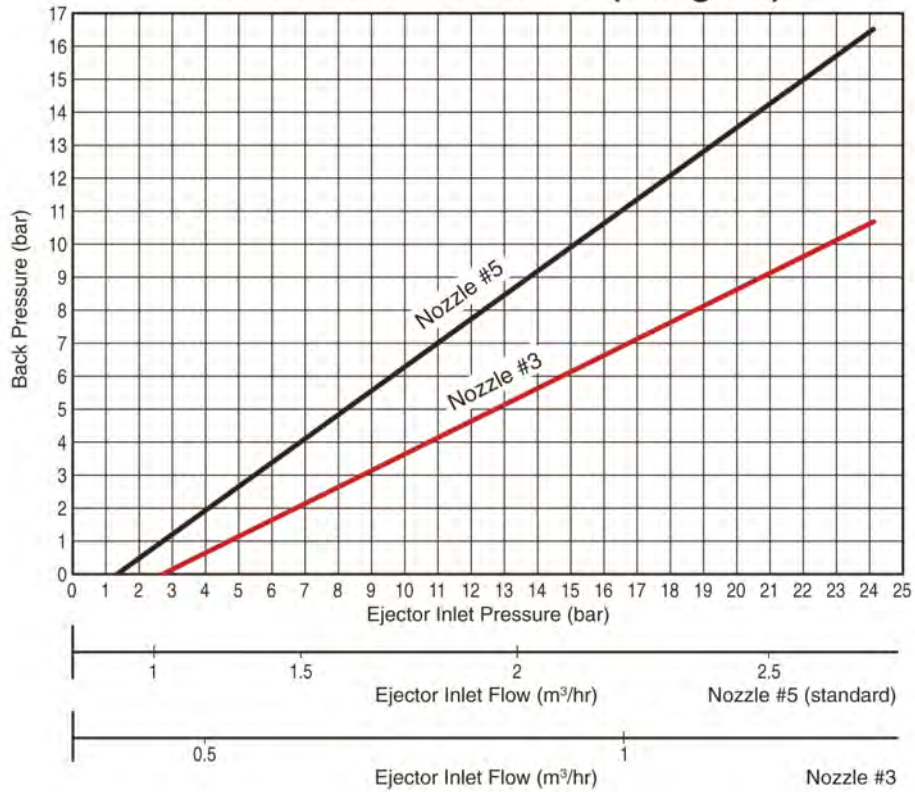
KTH-2000-VRW	20-40 kg/hr VAC REG
KTH-2000-RMS	20-40 kg/hr Rotameter
KTH-2000-EJS	20-40 kg/hr Ejector
KTH-2000-SOM	20-40 kg/hr Switch Over Module

# hydro Ejector Selection Chart EJ1000

### NOZZLE SIZING CHART (200 gr/hr)

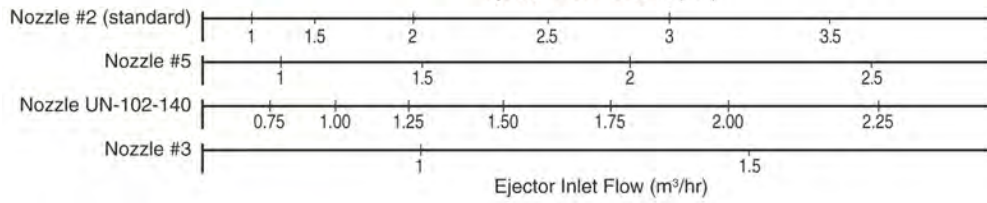
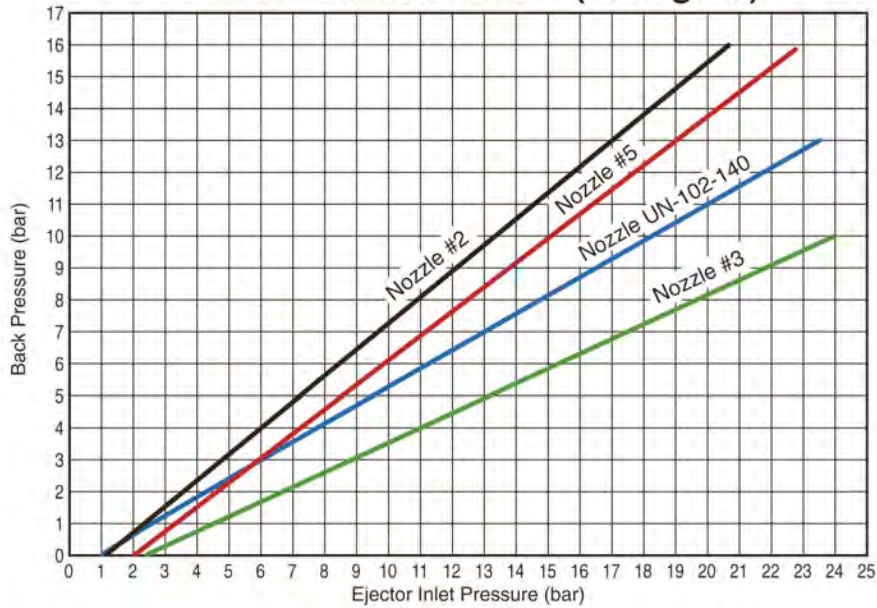


### NOZZLE SIZING CHART (500 gr/hr)

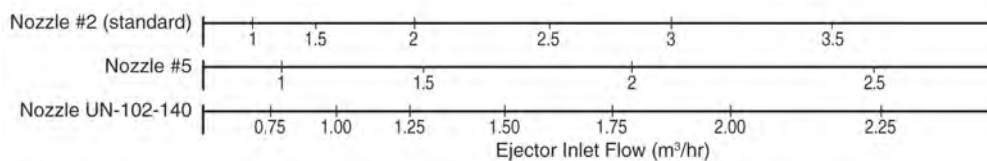
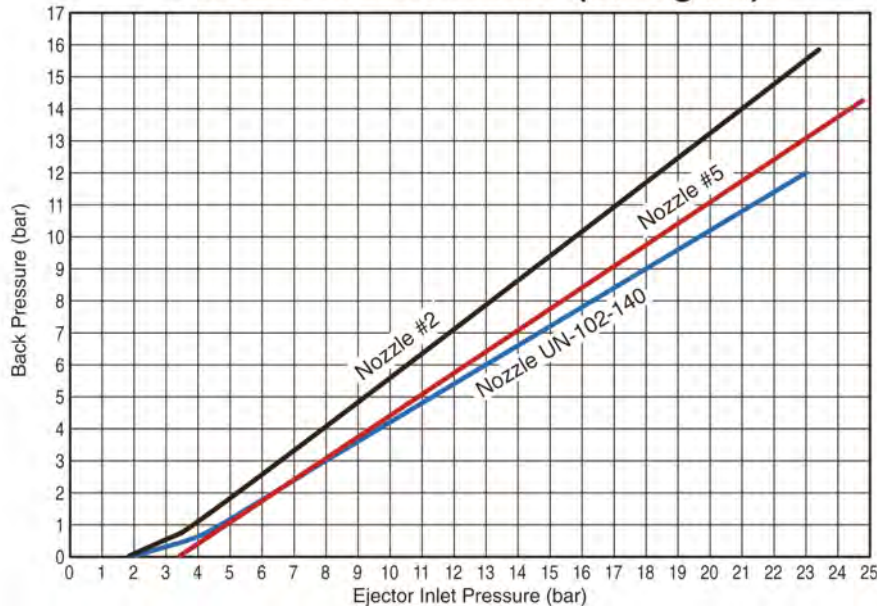


**Note:** Pressure combinations that plot below the line for any given nozzle are acceptable for operating that nozzle at the stated chemical feed rate for that chart. Pressure combinations that fall above the line for any given nozzle are not acceptable.

## NOZZLE SIZING CHART (1000 gr/hr)



## NOZZLE SIZING CHART (2000 gr/hr)

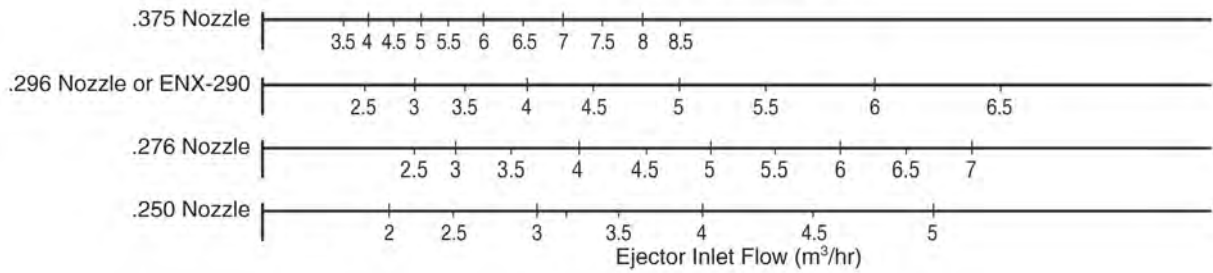
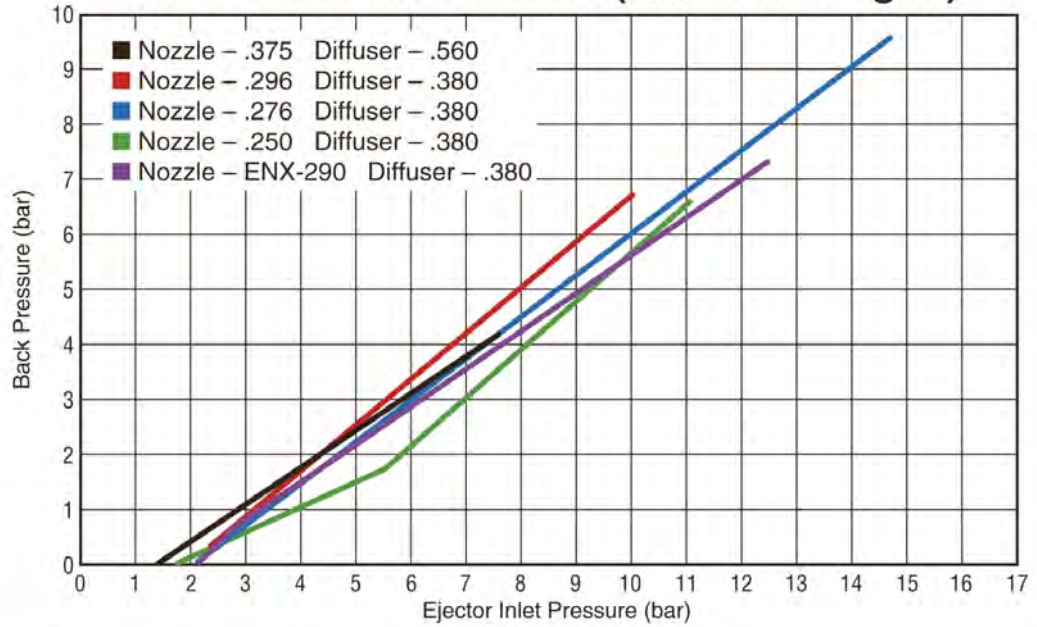


**Note:** Pressure combinations that plot below the line for any given nozzle are acceptable for operating that nozzle at the stated chemical feed rate for that chart. Pressure combinations that fall above the line for any given nozzle are not acceptable.



# hydro Ejector Selection Chart EJ2000

## NOZZLE SIZING CHART (250 PPD / 5 kg/hr)

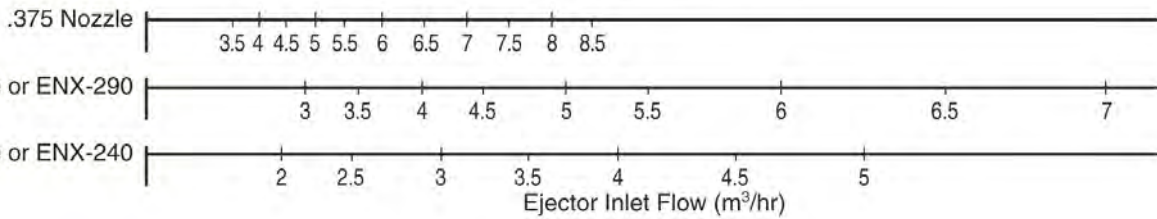
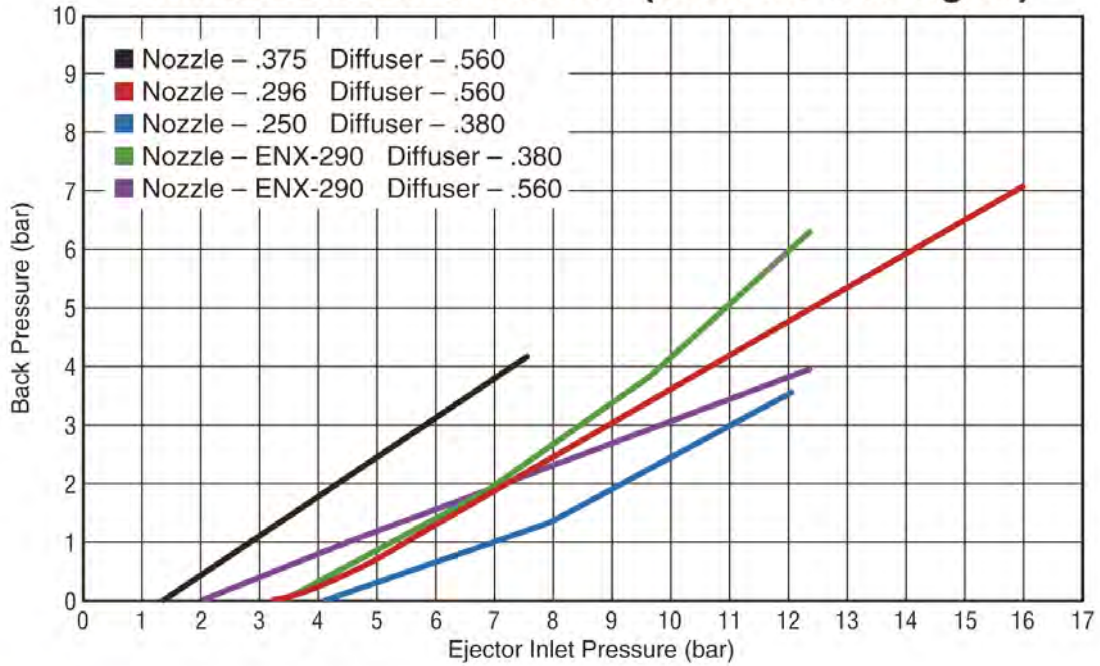


**Conversion:** US GPM to LPM x 3.7854

**Note:** Pressure combinations that plot below the line for any given nozzle are acceptable for operating that nozzle at the stated chemical feed rate for that chart. Pressure combinations that fall above the line for any given nozzle are not acceptable.

# hydro Ejector Selection Chart EJ5000

## NOZZLE SIZING CHART (500 PPD / 10 kg/hr)

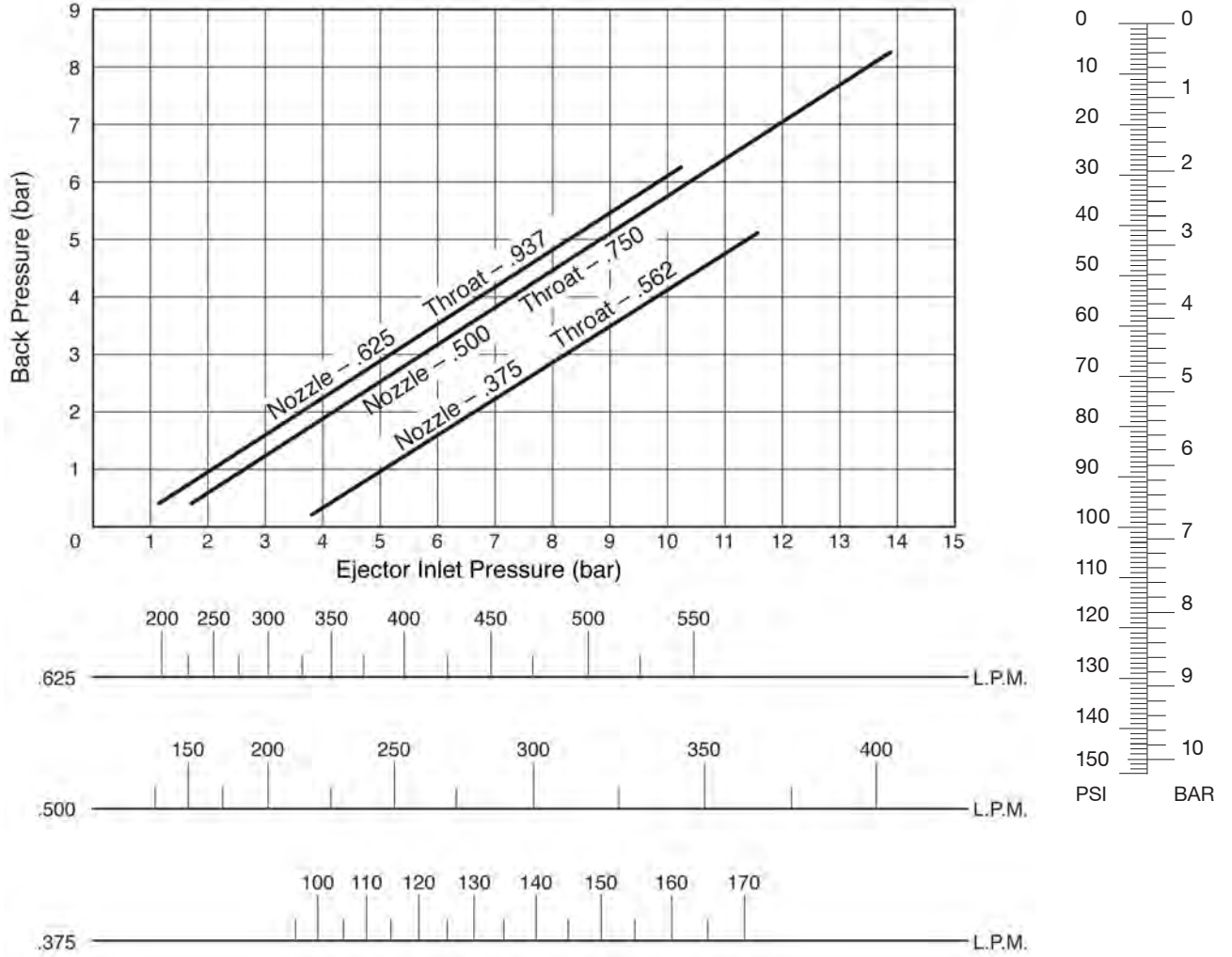


Conversion: US GPM to LPM x 3.7854

**Note:** Pressure combinations that plot below the line for any given nozzle are acceptable for operating that nozzle at the stated chemical feed rate for that chart. Pressure combinations that fall above the line for any given nozzle are not acceptable.

# hydro Ejector Selection Chart EJH-1000-CL2

**NOZZLE SIZING CHART  
for 20 kg/hr**

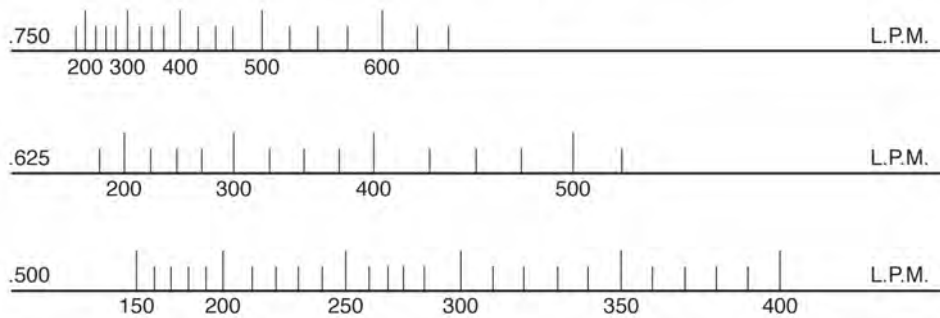
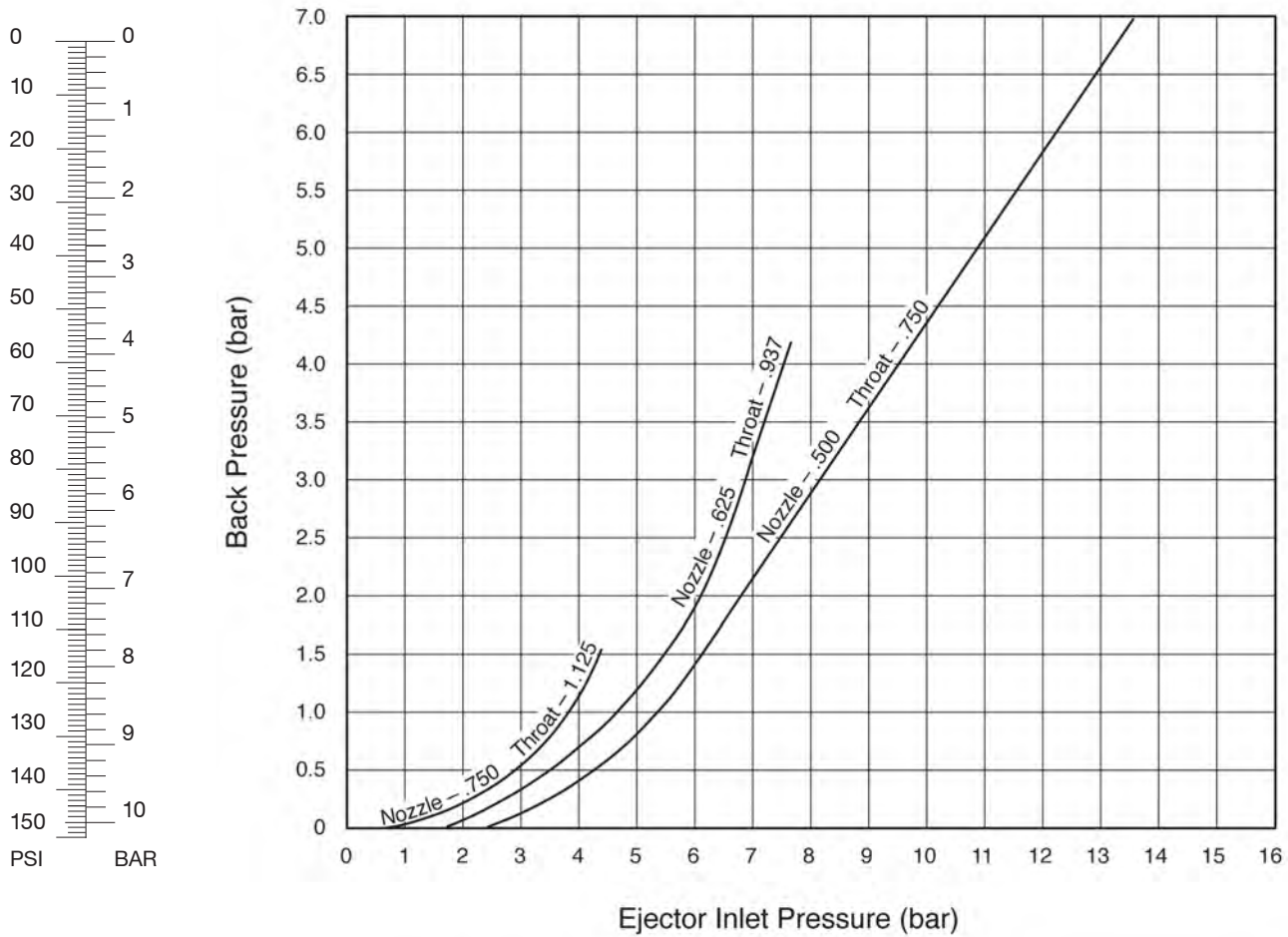


**Conversion: US GPM to LPM x 3.7854**

1. Ensure maximum case pressure of booster pump is OK.
2. All pressures shown in PSI.
3. For clean water use only.
4. Solution lines longer than 3m, step up to next size to reduce friction loss.
5. Pump suction pressure must be equal to ejector back pressure.
6. For conditions not shown, contact ProMinent office.

# hydro Ejector Selection Chart EJH-2000-CL2

## NOZZLE SIZING CHART for 40 kg/hr



**Conversion: US GPM to LPM x 3.7854**

1. Ensure maximum case pressure of booster pump is OK.
2. All pressures shown in PSI.
3. For clean water use only.
4. Solution lines longer than 3m, step up to next size to reduce friction loss.
5. Pump suction pressure must be equal to ejector back pressure.
6. For conditions not shown, contact ProMinent office.

# 2024 Pink Pages



<b>1.0</b>	<b>ProMinent® Concept PLUS Pumps</b>	<b>1.2</b>
<b>1.1</b>	<b>Meta Dosing Pumps</b>	<b>1.3</b>
<b>1.2</b>	<b>ProMinent® Vario/ D Dosing Pumps</b>	<b>1.4</b>
<b>1.3</b>	<b>Meta Plunger Metering Pumps</b>	<b>1.5</b>
<b>1.4</b>	<b>Solenoid Dosing Pumps Back Pressure Valves</b>	
	Accessories - Back Pressure Valves	1.6
<b>1.5</b>	<b>Motor Driven Dosing Pumps Back Pressure Valves</b>	
	Accessories - Back Pressure Valves	1.7

# 1.0 ProMinent Concept PLUS Pumps

## Concept Plus Dosing Pumps

### ProMinent® CONCEPT PLUS

CNPB1000PPE200C01	CNPB0704PVT200CB1 <i>External Control Fitted</i>
CNPB1000PPE200CB1 <i>External Control Fitted</i>	CNPB0309PPE200C01
CNPB1000NPB200C01	CNPB0309PPE200CB1 <i>External Control Fitted</i>
CNPB1000NPB200CB1 <i>External Control Fitted</i>	CNPB0309NPB200C01
CNPB1601PPE200C01	CNPB0309NPB200CB1 <i>External Control Fitted</i>
CNPB1601PPE200CB1 <i>External Control Fitted</i>	CNPB0309PVT200C01
CNPB1601NPB200C01	CNPB0309PVT200CB1 <i>External Control Fitted</i>
CNPB1601NPB200CB1 <i>External Control Fitted</i>	CNPB0215PPE200C01
CNPB1601PVT200C01	CNPB0215PPE200CB1 <i>External Control Fitted</i>
CNPB1601PVT200CB1 <i>External Control Fitted</i>	CNPB0215NPB200C01
CNPB1002PPE200C01	CNPB0215NPB200CB1 <i>External Control Fitted</i>
CNPB1002PPE200CB1 <i>External Control Fitted</i>	CNPB0215PVT200C01
CNPB1002NPB200C01	CNPB0215PVT200CB1 <i>External Control Fitted</i>
CNPB1002NPB200CB1 <i>External Control Fitted</i>	
CNPB1002PVT200C01	
CNPB1002PVT200CB1 <i>External Control Fitted</i>	
CNPB0704NPB200C01	
CNPB0704NPB200CB1 <i>External Control Fitted</i>	
CNPB0704PVT200C01	

- Float Switch / External Control Fitted Kit for above (Float switch not included) 1046731
- Recommended 2m float switch is 142062
- Recommended 5m float switch is 142064

**NOTE:** Each pump is supplied with Foot Valve, Dosing Valve & Tube Pack consisting of 2m suction & 5m dosing tube.

Pump type	Minimum delivery rate at maximum back pressure			Minimum feed rate at medium back pressure			Max. stroke rate	Connection size ext. ř x int. ř	Suction lift*	Priming lift**	Admissible priming pressure suction side
	bar	l/h	ml/stroke	bar	l/h	ml/stroke					
1000	10	0.74	0.07	5	0.97	0.09	180	6x4	6	6	1.8
1601	16	1.1	0.10	8	1.4	0.13	180	6x4	6	6	2
1002	10	2.1	0.19	5	2.6	0.24	180	6x4	5	5	2.5
0704	7	3.9	0.36	3.5	4.4	0.41	180	6x4	4	4	3
0309	3	9.0	0.83	1.5	13.0	1.2	180	8x5	2	2	2
0215	1.5	16.4	1.45	1.0	18.3	1.7	180	8x5	1.5	1.5	1.5

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

**Materials**  
 Liquid end material specification: see type code Housing: PPE, glass fibre reinforced

**Electrical data**  
 Mains frequency: 50 Hz / 60 Hz 100-230 volts ±10%



# 1.1 Meta Dosing Pumps

## Meta Dosing Pumps

### META PUMP WITH LIQUID END OF POLYPROPYLENE WITH MOTOR

Model	Bar	l/hr	Ratio	L/E	Stroke	ml/ stroke	strokes/ min.	Size SW	BSP	HT	
MTMa 10130	PP	10	130	20:1	260	4 mm	30	72	25	3/4"	25
MTMa 10260	PP	10	260	10:1	260	4 mm	30	144	25	3/4"	25
MTMa 05265	PP	5	260	20:1	530	4 mm	61.3	72	25	3/4"	25
MTMa 09395	PP	9	395	10:1	260	6 mm	44.8	147	25	3/4"	25
MTMa 05530	PP	5	530	10:1	530	4 mm	61.3	144	25	3/4"	25
MTMa 03790	PP	3	790	10:1	530	6 mm	89.7	147	25	3/4"	25

### META PUMP WITH LIQUID END OF STAINLESS STEEL WITH MOTOR

MTMa 10130	SS	10	130	20:1	260	4 mm	30	72		3/4"	
MTMa 10260	SS	10	260	10:1	260	4 mm	30	144		3/4"	
MTMa 05265	SS	5	260	20:1	530	4 mm	61.3	72		1"	
MTMa 09395	SS	9	395	10:1	260	6 mm	44.8	147		3/4"	
MTMa 05530	SS	5	530	10:1	530	4 mm	61.3	144		1"	
MTMa 03790	SS	3	790	10:1	530	6 mm	89.7	147		1"	

### META PUMP WITH LIQUID END OF TEFLON WITH MOTOR

MTMa 10130	T	10	130	20:1	260	4 mm	30	72		1"	
MTMa 10260	T	10	260	10:1	260	4 mm	30	144		1"	
MTMa 05265	T	5	260	20:1	530	4 mm	61.3	72		1-1/4"	
MTMa 09395	T	9	395	10:1	260	6 mm	44.8	147		1"	
MTMa 05530	T	5	530	10:1	530	4 mm	61.3	144		1-1/4"	
MTMa 03790	T	3	790	10:1	530	6 mm	89.7	147		1-1/4"	

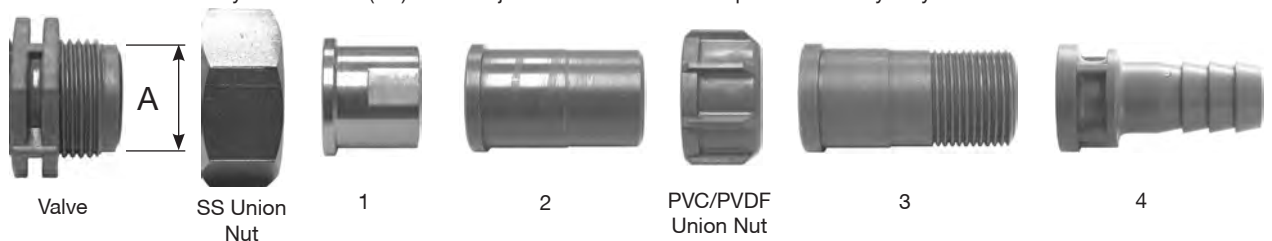
Motor 0.37 kw, 1440 rpm, 3 phase, 415 V, 50 Hz IP55

#### ACCESSORIES

Please use Yellow Pages for Foot Valve / Injection Valve / Back Pressure / Relief Valves.

(for project quantities only; some accessories may be available from ProMinent Bangalore)

Limited local stock is only available for (PP) Foot & Injection Valve - Please enquire with the Sydney Office.



#### STANDARD SIZES & FITTINGS FOR MOTOR DRIVEN PUMPS

Size	'A'	'A'	1	2	3	4
	Actual dia.	BSP	SSF Socket	SWM PVC	BSPM PVC/PVDF	Hosetail PVC/ PVDF
DN20	41.6 mm	1-1/4"	3/4" BSP	25 NB	1"	25 mm
DN25	47.5 mm	1-1/2"	1" BSP	25 NB	1"	25 mm



# 1.2 ProMinent Vario/ D Dosing Pumps

## Vario/ D Dosing Pumps

VAMd	Vario Basic Type (VAMd)				
	bar	l/h	ml/stroke	SPM @50Hz	
12017	10 bar	16.6 l/h	3.6	77	PVT
12042	10 bar	42 l/h	3.6	195	
10025	10 bar	24.5 l/h	5.4	77	PVT
09039	8.5 bar	39.4 l/h	5.4	122	
07063	6.5 bar	63 l/h	5.4	195	
<b>Liquid end material:</b>					
PV	PVDF				
<b>Seal material:</b>					
T	PTFE seal				
<b>Liquid end version:</b>					
0	No springs				
1	With 2 valve springs, Hastelloy C 4; 0.1 bar				
<b>Hydraulic connector:</b>					
1	Union nut and PVC Solvent Weld 15mm				
3	Union nut and PVDF Male BSP 1/2"				
5	Union nut and PVC Hosetail 16mm				
7	Union nut and PVDF Hosetail 16mm				
<b>Version</b>					
0	With ProMinent® logo (standard)				
<b>Power supply:</b>					
S	3 ph, 400 V; 50 Hz	0.07kw	IP55 <b>NOT STOCKED</b>		
M	1 ph. AC, 230 V; 50 Hz	0.06kw	IP55		
<b>Stroke sensor:</b>					
0	No stroke sensor (standard)				
<b>Stroke length adjustment:</b>					
0	Manual				
<b>Prepack Option</b>					
P*	See Options				

**Prepack option P\***  
**P0** 4 EPDM flat gaskets  
**P1** 4 Viton flat gaskets  
*240 volt motor supplied with power cord.*

The pump capacity is adjusted by varying the stroke length (3 mm) in 1% steps via a self locking adjusting knob. The reproducible dosing accuracy is better than +/- 2% providing installation has been correctly carried out, and in the stroke length range of 30 - 100%. (instructions in the operating instructions manual must be followed).

For safety reasons, all motor driven dosing pumps must be equipped with adequate protection against electrical overload.  
**Note: for protection use Multifunction valve or in-line relief valve, (for prices check 'Yellow Page' price List).**

### Liquid end materials in contact with chemicals

Liquid end	Suction/Discharge	Seals	Valve Balls	Connector	Valve Seat	Std Connector
PVT	PVT (Polyvinylidene fluoride)	PVDF	Ceramic		PVDF	PVDF

**NOTE:** If Pump is to be controlled by AC Variable Frequency Controller reduce pressure by 30%.  
 For alternative pumps with control refer Beta, Gamma, and Sigma pumps in our 'Yellow Page' Price List.





# 1.3 Meta Plunger Metering Pumps

## Technical Data

with 1500 rpm motor at 50 Hz

Pump type	Pump Capacity at Max. Back Pressure	Max Stroke Freq.	Suction Lift	Adm. Priming Pressure , Suction Side	Connection Suction/ Discharge Side	Motor Power Output	Shipping Weight
-----------	-------------------------------------	------------------	--------------	--------------------------------------	------------------------------------	--------------------	-----------------

Identity code MTKa	bar	l/h	ml/ stroke	strokes/ min.	mWG	bar	Rp-DN	kW	kg
21606	216	6.1	1.42	72	4		1/4	0.18	18
24006	240	6.1	1.42	72	4		1/4	0.37	20
16208	162	8.1	1.42	96	4		1/4	0.18	18
22508	225	8.1	1.42	96	4		1/4	0.37	20
12910	129	10.2	1.42	120	4		1/4	0.18	18
21610	216	10.2	1.42	120	4		1/4	0.37	20
10812	108	12.2	1.42	144	4		1/4	0.18	18
21012	210	12.2	1.42	144	4		1/4	0.37	20
10213	102	13.0	3.01	72	4		1/4	0.18	18
11313	113	13.0	3.01	72	4		1/4	0.37	20
07617	76	17.3	3.01	96	4		1/4	0.18	18
10617	106	17.3	3.01	96	4		1/4	0.37	20
06122	61	21.7	3.01	120	4		1/4	0.18	18
10222	102	21.7	3.01	120	4		1/4	0.37	20
05126	51	26.0	3.01	144	4		1/4	0.18	18
09926	99	26.0	3.01	144	4		1/4	0.37	20
05425	54	24.6	5.71	72	4		3/8	0.18	18
06025	60	24.6	5.71	72	4		3/8	0.37	20
04033	40	32.8	5.71	96	4		3/8	0.18	18
05633	56	32.8	5.71	96	4		3/8	0.37	20
03241	32	41.1	5.71	120	4		3/8	0.18	18
05441	54	41.1	5.71	120	4		3/8	0.37	20
02749	27	49.3	5.71	144	4		3/8	0.18	18
05249	52	49.3	5.71	144	4		3/8	0.37	20

approx. 50% of max. permissible pressure

### Materials in Contact with Chemicals

	Metering Head	Suction/ Discharge Connector	Seals	Valve Balls	Valve Seat	Plungers
SST	Stainless steel	Stainless steel	PTFE	Ceramic	Stainless steel	Ceramic
	no. 1.4571/1.4404	no. 1.4571/1.4404	PTFE with graphite		no. 1.4571/1.4404	

### Motor Data MTKa

Identcode characteristic	Power supply	Remarks
S	3 ph, IP55 220-240 V/380-420 V 50 HZ 0.18/0.37 KW	



## 1.4 Solenoid Dosing Pumps Back Pressure Valves

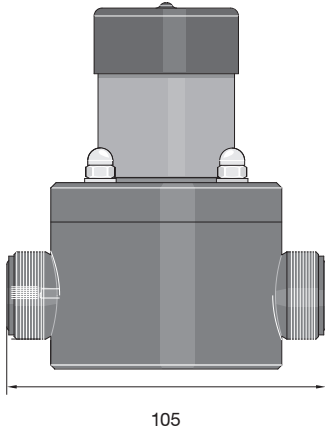
### Accessories - Back Pressure Valves

#### Back Pressure Valves BPV-DM-E

Adjustable back pressure valve for installation in the discharge line to create a constant back pressure. Also suitable for generating accurate dosing in the case of an open discharge port or where there is priming pressure on the vacuum side.

**Warning:** Back pressure valves are not fluid-tight stop taps! Installation instructions in the operating manual must be observed!

**Applications:** Dosing pumps alpha, Beta®, gamma, EXtronic®, Pneumados and Delta.



						Part No.
DHV-DM-E	1 - 10 bar	6 x 4	PPE	PP/EPDM		<b>P1009884-6</b>
DHV-DM-E	1 - 10 bar	8 x 5	PPE	PP/EPDM		<b>P1009884-8</b>
DHV-DM-E	1 - 10 bar	12 x 9	PPE	PP/EPDM		<b>P1009884-12</b>
DHV-DM-E	1 - 10 bar	6 x 4	PPB	PP/FPMB		<b>P1009886-6</b>
DHV-DM-E	1 - 10 bar	8 x 5	PPB	PP/FPMB		<b>P1009886-8</b>
DHV-DM-E	1 - 10 bar	12 x 9	PPB	PP/FPMB		<b>P1009886-12</b>
DHV-DM-E	1 - 10 bar	6 x 4	PCE	PVC/EPDM		<b>P1009885-6</b>
DHV-DM-E	1 - 10 bar	8 x 5	PCE	PVC/EPDM		<b>P1009885-8</b>
DHV-DM-E	1 - 10 bar	12 x 9	PCE	PVC/EPDM		<b>P1009885-12</b>
DHV-DM-E	1 - 10 bar	6 x 4	PCB	PVC/FPMB		<b>P1026450-6</b>
DHV-DM-E	1 - 10 bar	8 x 5	PCB	PVC/FPMB		<b>P1026450-8</b>
DHV-DM-E	1 - 10 bar	12 x 9	PCB	PVC/FPMB		<b>P1026450-12</b>

**Note:**

Valves should normally be set to the desired back pressure on site after installation. However if you require them to be pre-set prior to dispatch then there would be a charge per valve.

PLEASE CHECK AVAILABILITY



# 1.5 Motor Driven Dosing Pumps Back Pressure Valves

## Accessories - Back Pressure Valves

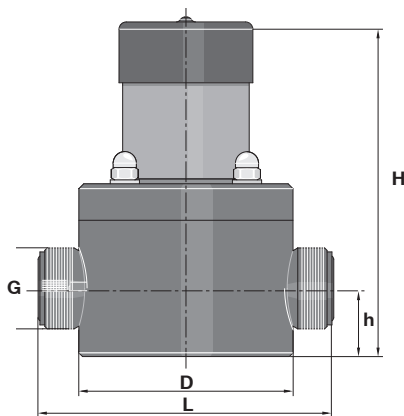
### Back Pressure Valves o

Adjustable back pressure valve for installation in the discharge line to create a constant back pressure. Also suitable for generating accurate dosing in the case of an open discharge port or where there is priming pressure on the vacuum side.

**Warning:** Back pressure valves are not fluid-tight stop taps! Installation instructions in the operating manual must be observed!

**Applications:** Vario, Sigma/ 1, Sigma/ 2 and Sigma/ 3 metering pumps.

						Part No.
BPV-DM	1 - 10 bar	G 3/4	DN 10	PPE		P1009890
		G 1	DN 15	PPE		P1009896
		G 1 1/2	DN 25	PPE		P1009908
BPV-DM	1 - 10 bar	G 3/4	DN 10	PPB		P1009892
		G 1	DN 15	PPB		P1009898
		G 1 1/2	DN 25	PPB		P1009910
BPV-DM	1 - 10 bar	G 3/4	DN 10	PCE		P1009891
		G 1	DN 15	PCE		P1009897
BPV-DM	1 - 10 bar	G 3/4	DN 10	PCB		P1026451
		G 1	DN 15	PCB		P1026452
		G 1 1/2	DN 25	PCB		P1026453



Material combinations	Housing	Seal
PPE	PP	EPDM
PPB	PP	FPM B
PCE	PVC	EPDM
PCB	PVC	FPM B

	G	L Approx.	H Approx.	D	h
M20x1.5	M20	105	120	65	31
DN10	G 3/4	120	120	65	31
DN15	G 1	120	136	88	28
DN25	G 1 1/2	150	145	98	32.5

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