ProMinent®

Australian Product Catalogue **2023**

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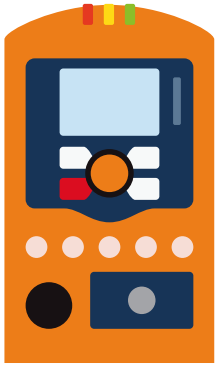
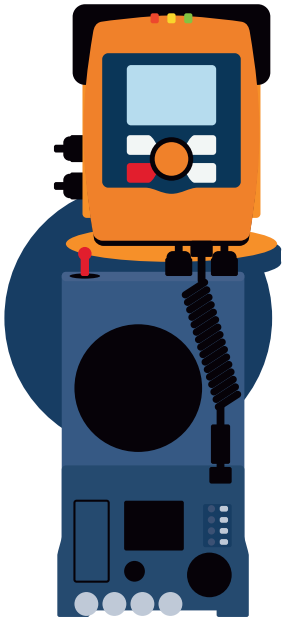
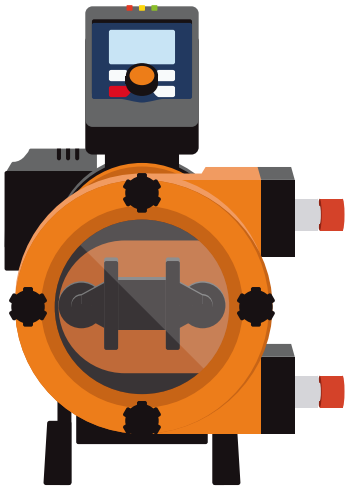
ProMinent®

Yellow Pages 2023

Effective as at 1 January 2023*







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1.0 ProMinent® alpha Motor-driven Metering Pumps

1.0.1 alpha Metering Pumps

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

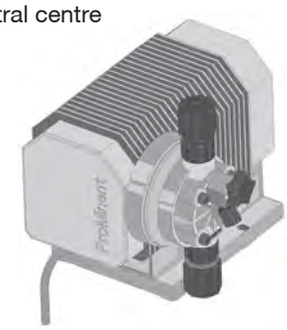
- **Output range 1.0-30.6 l/h, 10-2 bar**
- **Stroke length adjustment in 10 % steps from 0-100 %**
- **Material options: PVDF and Acrylic/PVC**
- **Patented coarse/fine bleed valve**
- **Constant stroke rate**
- **Controlled via mains supply ON/OFF**

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 ProMinent® 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 Ř x Inner Ř	Suction	Intake Head	shipping weight
	bar	l/h	ml/ stroke	bar	l/h	ml/ stroke	strokes/ min.	mm	mm	m WG	m WG	kg
1001	10.0	1.0	0.29	5	1.1	0.32	58	2	6 x 4	5.1	2.5	3
1002	10.0	1.8	0.52	5	2.1	0.60	58	2	6 x 4	5.1	2.5	3
1004	10.0	3.5	1.01	5	3.9	1.12	58	3	8 x 5	5.1	2.5	3
1008	10.0	7.7	1.00	4	8.6	1.12	128	3	8 x 5	5.1	3.0	3
0707	7	6.9	1.98	4	7.7	2.21	58	3	8 x 5	4.1	3.0	3
0417	4	17.0	2.51	3	18.3	2.76	128	3	8 x 5	4.1	3.0	3
0230	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
NPE	Plexiglass	PVC	EPDM	ceramic
NPB	Plexiglass	PVC	FPM (Viton®)	ceramic
PVT	PVDF	PVDF	PTFE	ceramic

DEVELOPAN® dosing diaphragms with PTFE coating for all versions.

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

Included in delivery: Metering Pump with 2 m mains cable and plug, connector set for hose/tube connection asindicated 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 ProMinent® 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**

1.1 ProMinent® Beta® b 4 & 5 Metering Pumps

1.1.1 ProMinent® Beta®

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-rangingpower-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 % (recomended 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** 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 ProMinent® Beta® b 4 & 5 Metering Pumps

1.1.2 Technical Data Beta®

	Max. Pump Capacity at Maximum Back Pressure			Max. Pump Capacity at Medium Back Pressure			Stroke Freq	Connector Sizes Outer Ř x Inner Ř	Suction Lift**	Delivery Weight PP, NP PC, TT	SS
pump type	**bar**	**l/h**	**ml/ stroke**	**bar**	**l/h**	**ml/ stroke**	**strokes/ min**	**mm**	**mm**	**kg**	**kg**
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 ProMinent® Beta® b 4 & 5 Metering Pumps

1.1.3 Identity Code & Pricing for Beta® b 4 & 5

BT4b Beta® version b

BT4b	**1000,1601, 1602, 1604**	PP
also	**2001* 1001, 0701, 0401**	PV
	2002* 1002, 0702, 0402	NP
	1004, 0704, 0404	TT
		SS
BT4b	**0708, 0413, 0220**	PP
also	**0408**	PV
		NP
		TT
		SS

BT5b	**1008, 0713, 0420**	PP
also	**2504***	PV
		NP
	Note: 2504*, 2002*, 2001* only NP & SS	TT
		SS
BT5b	**0232**	PP
		PV
		NP
		TT
		SS

Liquid End Materials / Seals *** Note: not all stocked *** 1004 ONLY available in NPT ***

PPE	Polypropylene/EPDM
PPB	Polypropylene/Viton (FPM-B) *not stocked FPM-B = Fluorine Rubber*
NPE	Plexiglass/EPDM*not stocked*
NPB	Plexiglass/Viton
PVT	PVDF/PTFE, for L/E type 2 ***not 0232*** & type 4 ***only*** **1004/1604, 0708/1008, 0413/0713, 0220/420**
TTT	PTFE/PTFE
SST	Stainless Steel 1.4571/PTFE

Liquid End Version

0	Non bleed, no valve springs, ***ONLY for TT, SS and type 0232 PVT & PPE***
1	Non bleed, with valve springs, ***ONLY for TT, SS and type 0232***
2	Bleed function, no valve springs for *PP, NP, & PVT only* - ***not type 0232 EXCEPT NPB2***
3	Bleed function, with valve springs for *PP, NP, & PVT only* - ***not type 0232***
4	Version for highly viscous media, ***only PVT type 1604, 0708, 1008, 0413, 0713, 0220, 0420***
7	PVT Self bleed (SER) no bypass ***NOT 1000, 1601, 0232***
9	Self bleed, (SEK) ***for PP, NP only all sizes EXCEPT type 1000 and 0232***

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 **ONLY**
N	24 V DC with 2 m open-ended cable **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 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 ProMinent® Beta® b 4 & 5 Metering Pumps

1.1.4 Technical Data for Beta® 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 Ř x Inner Ř	Suction Lift**	Delivery Weight PP, NP PC, TT	SS
Beta®	bar	l/h	ml/ stroke	bar	l/h	ml/ stroke	strokes/ min.	mm	m Wc	kg	kg
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® 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® 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®)	ceramic
PCE	PVC	PVC	EPDM	ceramic
PCB	PVC	PVC	FPM (Viton®)	ceramic
NPE	Acrylic	PVC	EPDM	ceramic
NPB	Acrylic	PVC	FPM (Viton®)	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 diaphram with PTFE-coating.
Viton® 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 ProMinent® Beta® a 4 & 5 Metering Pumps

1.1.5 Identity Code & Pricing for Beta® a 4 & 5—CAN Bus ONLY

BT4a Beta® version a

BT4a 1000, 1601, 1602,	PPE	**BT5a 1605, 1008, 0713, 0420**	PPE
also 0700, 0400	PVT		PVT
1001, 0701, 0401	NPB		NPB
1002, 0702, 0402	TTT		TTT
	SST		SST
BT4a 1005, 0708, 0413, 0220	PPE	**BT5a 0232**	PPE
also 0405, 0705	PVT		PVT
0408	NPB		NPB
	TTT		TTT
	SST		SST

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

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

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

Options on request

D	CANopen for Dulcomarin® 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 ProMinent® Beta® b 4 & 5 Metering Pumps

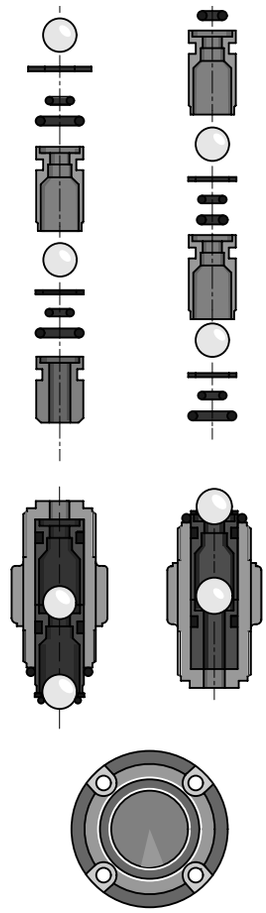
1.1.6 Beta® 4b & 5b Spare Parts Sets

		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:

1 x dosing diaphragm
1 x suction valve
1 x discharge valve
1 x set seals
1 x 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:

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

1.1 ProMinent® Beta® b 4 & 5 Metering Pumps

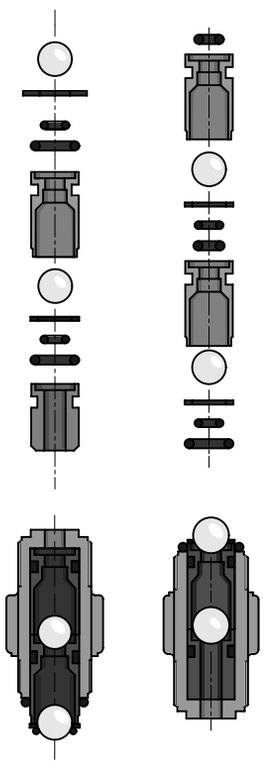
1.1.7 Beta® 4a/b & 5a/b Spare Parts Sets

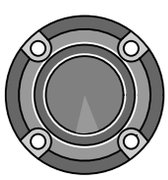
Replacement part sets for ProMinent® Beta, consisting of:

1 x dosing diaphragm
1 x suction valve
1 x discharge valve
1 x set seals
1 x 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.
BT4a/b 1000	PPE	**1001644**
also: 0700, 0400	PPB	**1001652**
	PCE/NPE	**1001713**
	PCB/NPB	**1001721**
	PVT	**1023107**
	TTT	**1001737**
	SST	**1001729**
BT4a/b 1601	PPE	**1001645**
also: 2001, 1001, 0701, 0401	PPB	**1001653**
	PCE/NPE	**1001714**
	PCB/NPB	**1001722**
	PVT	**1023108**
	TTT	**1001738**
	SST	**1001730**
BT4a/b 1602	PPE	**1001646**
also: 2002, 1002, 0702, 0402	PPB	**1001654**
	PCE/NPE	**1001715**
	PCB/NPB	**1001723**
	PVT	**1023109**
	PVT/HV	**1035342**
	TTT	**1001739**
	SST	**1001731**
BT4a/b 1604	PPE	**1039989**
also: 1004, 0704, 0404	PPB	**1039987**
	PCE/NPE	**1039988**
	PCB/NPB	**1039986**
	PVT	**1035332**
	TTT	**1035330**
	SST	**1035331**
BT4a 1005, & BT5a 1605	PPE	**1001647**
	PPB	**1001655**
	PCE/NPE	**1001716**
	PCB/NPB	**1001724**
	PVT	**1023110**
	PVT/HV	**1019066**
	TTT	**1001740**
	SST	**1001732**
BT4a/b 0708 & BT5a/b 1008	PPE	**1001648**
also: 0408	PPB	**1001656**
	PCE/NPE	**1001717**
	PCB/NPB	**1001725**
	PVT	**1023111**
	PVT/HV	**1019067**
	TTT	**1001741**
	SST	**1001733**
BT4a/b 0413 & BT5a/b 0713	PPE	**1001649**
	PPB	**1001657**
	PCE/NPE	**1001718**
	PCB/NPB	**1001726**
	PVT	**1023112**
	PVT/HV	**1019069**
	TTT	**1001742**
	SST	**1001734**
BT4a/b 0220 & BT5a/b 0420	PPE	**1001650**
	PPB	**1001658**
	PCE/NPE	**1001719**
	PCB/NPB	**1001727**
	PVT	**1023113**
	PVT/HV	**1019070**
	TTT	**1001754**
	SST	**1001735**
BT5a/b 0232	PPE	**1001651**
	PPB	**1001659**
	PCE/NPE	**1001720**
	PCB/NPB	**1001728**
	PVT	**1023124**
	TTT	**1001755**
	SST	**1001736**

1.1 ProMinent® Beta® b 4 & 5 Metering Pumps

1.1.7 Beta® 4a/b & 5a/b Spare Parts Sets

Replacement part set: Beta® with self-deaerating head TYPE SEK

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

Replacement part sets for ProMinent® Beta® with self-deaerating head, consisting of:

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

Note: *Does not include valves for SS*

Beta®/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® & gamma/ L range

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

Replacement O-ring kits for Beta® & 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	**1035641**

1.1 ProMinent® Beta® b 4 & 5 Metering Pumps

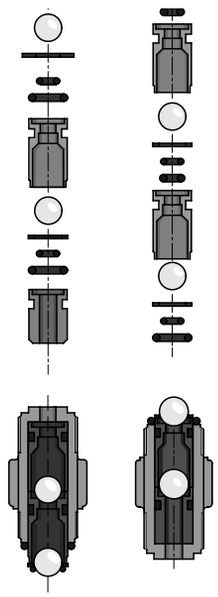
1.1.8 PTFE Diaphragm for Beta® 4a/b & 5a/b

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

1.1 ProMinent® Beta® b 4 & 5 Metering Pumps

1.1.9 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:

1 x metering diaphragm
1 x suction assembly
1 x discharge valve assembly
1 x seal set assembly
2 x 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**

1.1.10CONCEPT PLUS Spare Parts Sets CNPa & CNPb

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**

1.2 ProMinent® gamma/ X Metering Pumps

1.2.1 ProMinent® gamma/ X

Solenoid Diaphragm Metering Pump gamma/ X

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.

1.2 ProMinent® gamma/ X Metering Pumps

1.2.2 Technical Data & Materials for gamma/ X

	Delivery rate at max. back pressure			Number of Strokes	Connection Size OD x ID	Suction Lift	Shipping Weight PP, NP	SS
pump type gamma/ X	**bar**	**l/h**	**ml/stroke**	**Strokes/ min**	**mm**	**PV, TT mWC**	**kg**	**kg**
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 x4*****	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

1.2 ProMinent® gamma/ X Metering Pumps

1.2.3 Identity Code & Pricing for gamma/ X

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

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.

Liquid end/valve material

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

Seal/diaphragm material

- **T** 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** 100-230 V, ±10 %, 50/60 Hz

Cable and plug

- **C** 2 m Australian

Relay, pre-set to

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

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***

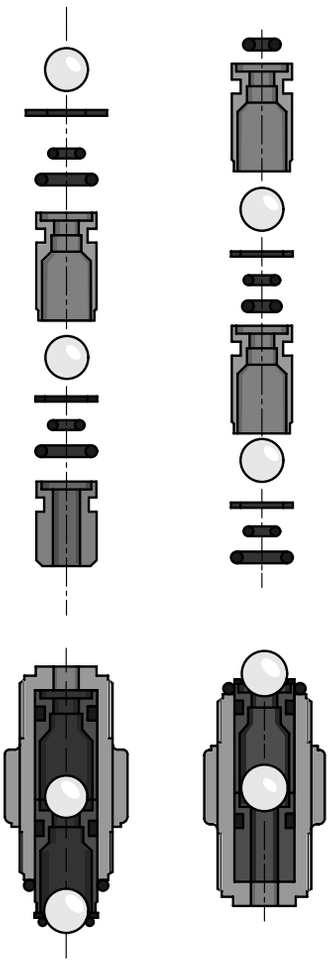
1.2 ProMinent® gamma/ X Metering Pumps

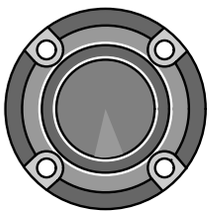
1.2.4 Accessories Spare Part Sets gamma/ X

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.





Spare Parts Kit for gamma/ X

Type	Materials in contact with the medium	Part No.
Type 1602	PVT2, PPT, NPT2	**1023109**
	NBP2	**1001723**
	NBP9	**1001667**
	TTT	**1001739**
	SST	**1001731**
Type 1604 and Type 2504	PVT2, PPT, NPT2	**1035332**
	NBP2	**1039986**
	NBP9	**1035334**
	PVT4	**1035342**
	TTT	**1035330**
	SST	**1035331**
Type 0708 and Type 1009	PVT2, PPT, NPT2	**1023111**
	NPB2	**1001725**
	NPB9	**1001669**
	PVT4	**1019067**
	TTT	**1001741**
	SST	**1001733**
Type 0414 and Type 0715	PVT2, PPT, NPT2	**1023112**
	NPB2	**1001726**
	NPB9	**1001670**
	PVT4	**1019069**
	TTT	**1001742**
	SST	**1001734**
Type 0220 and Type 0424	PVT2, PPT, NPT2	**1051129**
	NPB2	**1051107**
	NPB9	**1051113**
	PVT4	**1051134**
	TTT	**1051151**
	SST	**1051139**
Type 0245	PVT2, PPT	**1051130**
	NPB2	**1051108**
	TTT	**1051152**
	SST	**1051140**

Spare Diaphragm for Product Range gamma/ X

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

1.2 ProMinent® gamma/ X Metering Pumps

1.2.5 ProMinent® 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**

1.3 ProMinent® gamma/ XL Metering Pumps

1.3.1 ProMinent® 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 pemits 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 DULCOnneX 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

1.3 ProMinent® gamma/ XL Metering Pumps

1.3.2 ProMinent® 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
gamma/ XL metering pumps with self-bleeding dosing head without bypass*							
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

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

- Diaphragm with PTFE coating.
- Repeatability of metering ±2% when used in accordance with the operating instructions.
- Permissible ambient temperature –10 °C to 45 °C.
- Mean power consumption 78 W.
- Degree of protection IP 66, insulation class F.

1.3 ProMinent® gamma/ XL Metering Pumps

1.3.3 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- 230 V ±10 %, 50/60 Hz

Cable and plug

C 2 m Australian

Relay, pre-set to

0 no relay
1 1 x changeover contact 230 V – 8 A, fault indicating relay N/C
2 x N/O 24 V – 100 mA, fault indicating relay N/C + pacing relay
C 1 x N/O 24 V – 100 mA, fault indicating relay N/C + 4 – 20 mA output
F with automatic bleed valve, 230 V 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 PTFEtube, 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**	**U**	**C**	**0**	**0**	**0**	**EN**

1.3 ProMinent® gamma/ XL Metering Pumps

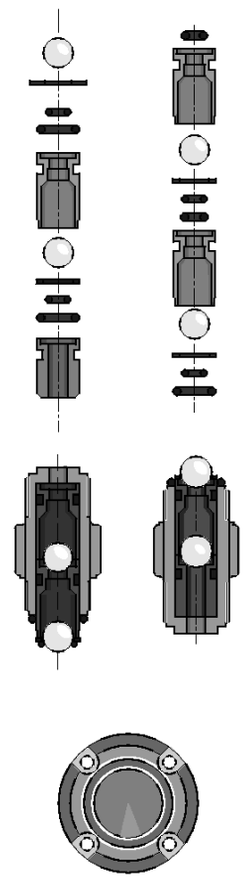
1.3.4 ProMinent® gamma/ XL Spare Parts Kits

Stainless steel version without suction valve assembly and without discharge valveassembly, 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**
	NPB 1	**1030611**
Type 1612	PVT2/NPT2	**1027081**
	PVT4	**1019067**
	PVT7	**1047832**
	SST0	**1027086**
	NPE	**1030536**
	NPB	**1030525**
Type 1020	PVT2/NPT2	**1027082**
	PVT4	**1019069**
	PVT7	**1047833**
	SST0	**1027087**
	NPE	**1030537**
	NPB	**1030526**
Type 0730	PVT2/NPT2	**1095626**
	PVT4	**1095499**
	PVT7	**1095503**
	SST0	**1095501**
	NPE	**1095701**
	NPB	**1095700**
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

	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**

1.4 ProMinent® delta® Metering Pumps Spare Parts

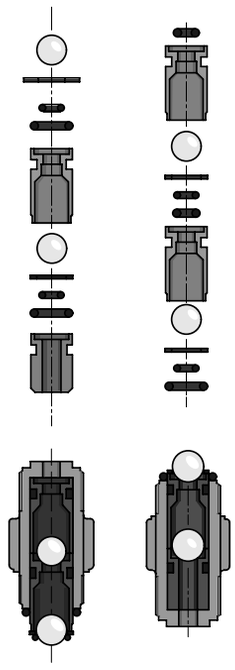
1.4.1 delta® Metering Pumps Spare Parts

		Part No.
Type 2508	NPB	**1033171**
	NPE	**1033172**
	SST	**1030226**
Type 1608	NPB	**1030611**
	NPE	**1030620**
	PVT	**1030225**
	SST	**1030226**
Type 1612	PVT	**1027081**
	SST	**1027086**
Type 1020	PVT	**1027082**
	SST	**1027087**
Type 0730	PVT	**1027083**
	SST	**1027088**
Type 0450	PVT	**1027084**
	SST	**1027089**
Type 0280	PVT	**1027085**
	SST	**1027090**

Replacement spare parts kits for ProMinent® delta®, consisting of:

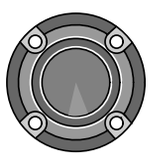
1 x dosing diaphragm
1 x suction valve
1 x discharge valve
1 x connector set

Note: Does not include valves for SS



Replacement Diaphragms for Delta® 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**



1.4.2 PTFE Diaphragm for delta® Metering Pumps

NOTE: To be used ONLY with Chlorine Dioxide

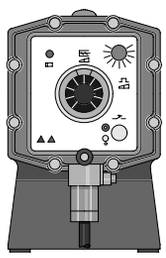
Type	with the medium	Part No.
Type 1612		**1117433**
Type 1020		**1117354**
Type 0730		**1117352**
Type 0450		**1117353**
Type 0280 NOT AVAILABLE		-

1.5 ProMinent® EXTRONIC® Metering Pumps

1.5.1 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.



Control type “Internal”
Stroke length adjustment 1:10, stroking rate adjustment 1:25, total adjustment range 1:250.

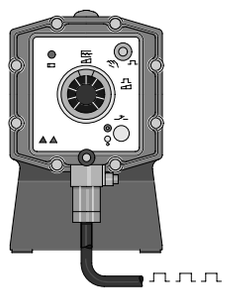
The capacity ranges from 0.19 l/h to 60 l/h at back pressures of max. 25 bar.
The ProMinent EXTRONIC® conforms to the unified EU standard EN 50014/50018 for “flameproof enclosure”. It carries the highest enclosure class for this protection type. This standard is recognised in many other countries outside 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.

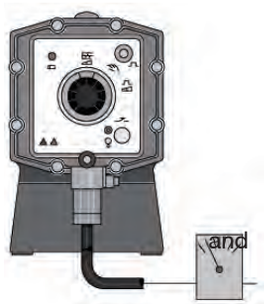


Control type: “External Contact”
Stroke length adjustment 1:10, stroking rate control 0-100 % dependant upon external switch contacts. *)

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 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.



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

***)** 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.

1.5 ProMinent® EXTRONIC® Metering Pumps

1.5.2 Technical Data EXTRONIC®

	Max. Pump Capacity at Maximum Back Pressure			Max. Pump Capacity at Medium Back Pressure			Stroking Rate	Connector Sizes Outer Ř X Inner Ř	Suction Lift	Shipping Weight** PP, NP,TT-SS
Pump Type EXTRONIC®	**bar**	**l/h**	**ml/ stroke**	**bar**	**l/h**	**ml/ stroke**	**strokes/ min.**	**mm**	**mWG**	**approx. kg**
EXBb										
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.

1.5 ProMinent® EXTRONIC® Metering Pumps

1.5.3 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]

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

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

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

EXBb	**G**	**1000**	**PP1**	**0**	**A**	**0**	**0**	**0**	

1.5 ProMinent® EXTRONIC® Metering Pumps

1.5.4 Connectors for ProMinent EXTRONIC® Metering Pumps

PP, NP, PS and TT	6, 8 and 12 mm	hose sleeve with clamping ring fitting
SS1/SSM stainless steel	6, 8 and 12 mm	Swagelok screw fitting system
SS2 stainless steel	6, 8 and 12 mm	internal thread 1/4" NPT
SB1/SBM stainless steel	6, 8 and 12 mm	internal thread ISO 7 Rp 1/4

PP and NP	DN 10 and DN 15	hose sleeve d 16 - DN 10 and d 20 - DN 15
TT	DN 10 and DN 15	fusion joint d 16 - DN 10 and d 20 - DN 15 (PVDF)
SS1 stainless steel	DN 10 and DN 15	insert, internal thread R 3/8 and R 1/2
SB1 stainless steel	DN 10 and DN 15	internal thread ISO 7 Rp 1/4 and 1/2

Reproducible metering accuracy ±2 % when correctly installed, refer to operating instructions manual.
±5 % for type 1601 with self bleeding liquid end.
Permissible ambient temperature -10 °C to +45 °C.
Power supply: 230 V ±10 %, 50/60 Hz
115 V ±10 %, 50/60 Hz
Protection: IP 65, insulation class F

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

EXBb	Type 1000, 1601, 1201, 0803, 1002, 0308	13 W/0.7 A	at 120 strokes/min
EXBb	Type 2502, 1006, 0613, 0417	26 W/1.7 A	at 120 strokes/min
EXBb	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.

1.5.5 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**

1.5 ProMinent® EXTRONIC® Metering Pumps

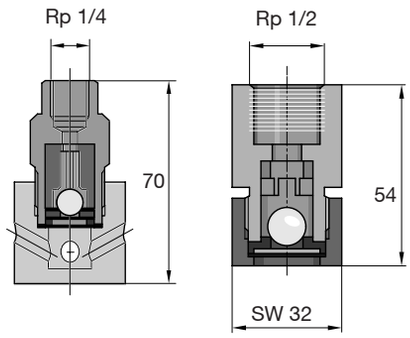
1.5.6 Accessories - Valves

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**

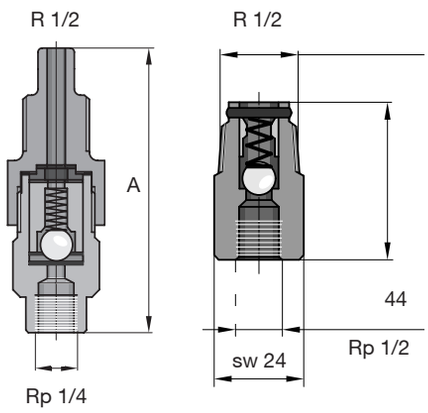


Dosing valve, "SB" 1.4404 stainless steel

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

Materials: 1.44041/1.4401/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

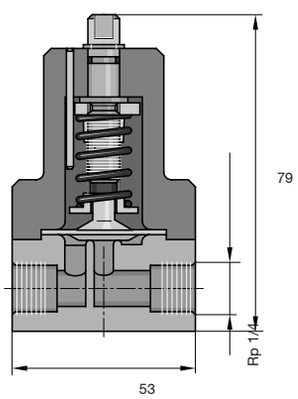
Material 1.4404; diaphragm PTFE coated, 1/4" connection at bothends. Adjusting range approximately 1 to 10 bar, enclosed type suitable for use with flammable media.

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.



1.6 ProMinent® Pneumados Metering Pumps

1.6.1 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 1/8 220 V 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 230 V 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

1.6 ProMinent® Pneumados Metering Pumps

1.6.2 Technical Data Pneumados

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

PVT	6, 8 and 12 mm	hose sleeve with clamp ring fitting
SS1 stainless steel	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
PVDF	PVDF	PTFE	Ceramic
stainless steel no. 1.4404	stainless steel no. 1.4404	PTFE	ceramic

1.6 ProMinent® Pneumados Metering Pumps

1.6.3 Identity Code & Pricing for Pneumados

PND b Pneumados

	Pump Type:	Capacity (simplex)			PVT SIMPLEX	SS SIMPLEX	PVT DUPLEX	SS 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.

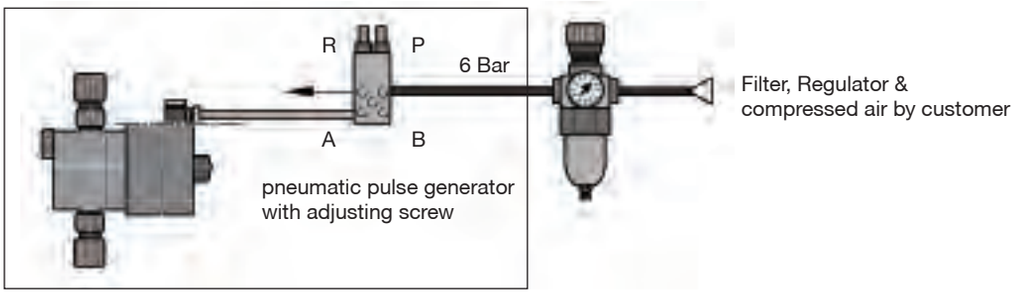
PND b	**1601**	**PVT**	**0**	**0**	**0**	**0**	**0**	**01**

1.6 ProMinent® Pneumados Metering Pumps

1.6.4 Electric and Pneumatic Schematic Diagrams

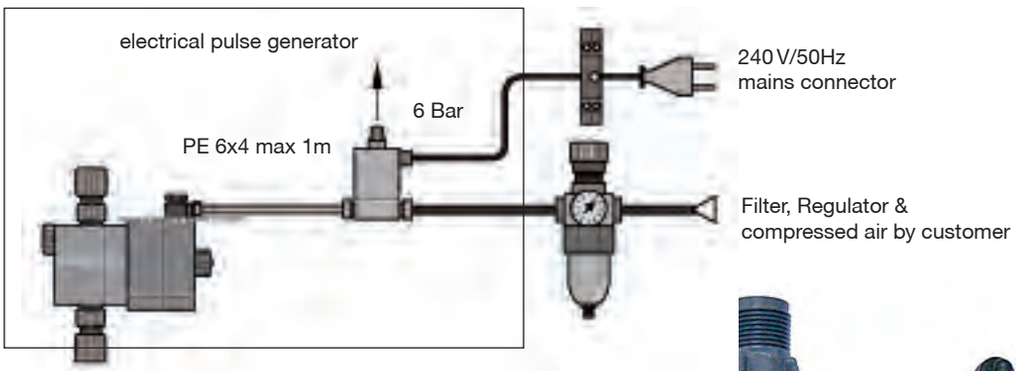
STANDARD

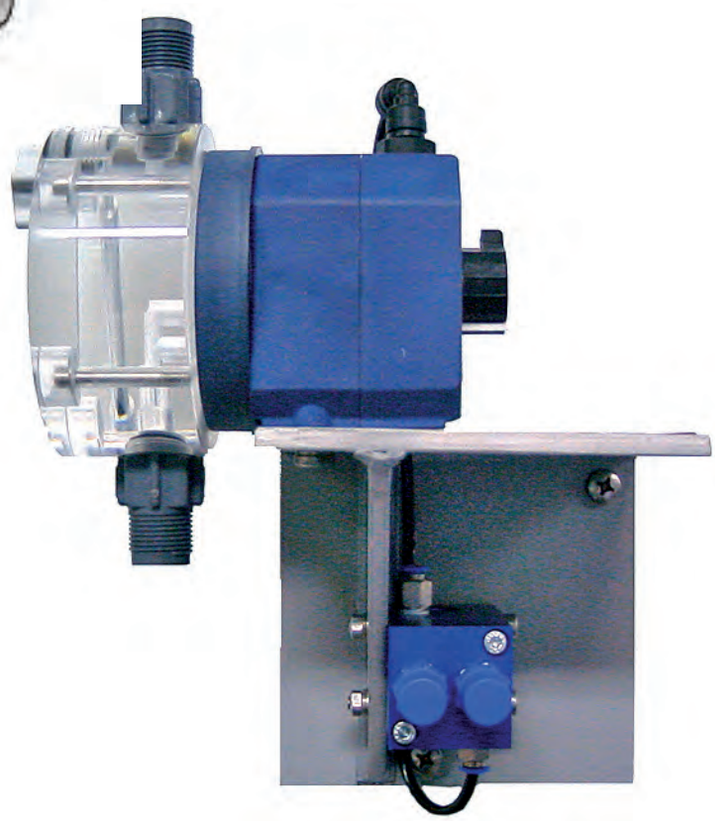
Pneumatic ControllerSchematic diagram



OPTIONAL

Electrical/Pneumatic Controller Schematic diagram





1.7 ProMinent® DULCO®flex Pumps

1.7.1 ProMinent® DULCO®flex **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.

1.7 ProMinent® DULCO®flex Pumps

1.7.2 Identity Code & Pricing for ProMinent® DULCO®flex **DF2a** Pump

DF2a

Type	Capacity:
0204	1.5 bar: 0.4 l/h PharMed® supplied as standard
0208	1.5 bar: 0.8 l/h PharMed® supplied as standard
0216	1.5 bar: 1.6 l/h PharMed® supplied as standard
0224	1.5 bar: 2.4 l/h PharMed® supplied as standard

	Hose material:
P	ParMed®
V	Viton® for fragrances (special version)

	Version:
0	With ProMinent® label

	Hydraulic connection:
0	Connector for hose 6/4 mm priming and discharge side
9	Connector for hose 10/4 mm discharge side only

	Electrical connection:
A	230 V ±10 %, 50/60 Hz

	Lead and plug:
0	No mains lead
1	With 2 m mains lead, open ended

	Drive:
0	Mains ON/OFF

	Assembly type:
W	Wall mounted

	Accessories:
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

	Control Type:
0	No Control
T	Mounted on Board with 240 volt 7-day Timer

PharMed® and Viton® are registered trademarks.

DF2a	0204	P	0	0	A	0	0	W	0	T

1.7.3 Technical Data for ProMinent® DULCO®flex **DF2a** Pump

	Feed rate Frequency			Connector size	Suction Lift	Priming Lift
Pump type DULCO®flex	**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®	**1009480**
Spare Hose Set Viton®	**1023842**

1.7 ProMinent® DULCO®flex Pumps

1.7.4 ProMinent® DULCO®flex **DF4a** Pump

The DULCO®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®.
- Powerful stepper motor, controlled speed.
- Infinate adjustment of metering rate, manually or externally via contacts or 0/4-20mA analogue signal.
- Intake function (high speed).
- Sprung rollers for consistant rolling pressure and extended service life of hose.
- Metering rate displayed in l/h.
- Direction of rotation reversable e.g for backflush.
- Enclosure type of protection IP65 in accordance with DIN EN 60529.

0 "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® are used as the hose materials.

1.7 ProMinent® DULCO® flex Pumps

1.7.5 Identity Code & Pricing for ProMinent® DULCO® flex **DF4a** Pump

DF4a

Application
- **0** Standard Pump
- **A** Activated carbon metering
- **F** Flocculant metering

Installation
- **W** Wall mounting

Version
- **0** with ProMinent® logo
- **1** without ProMinent® logo

Type	bar	l/h	STD Connection Size
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

Hose material
- **P** PharMed® *Note: Pharmed® Not suitable for some liquid polymers*

Hydraulic connectors
- **0** Standard
- **9** Special connection 10x4 pressure side

Power supply
- **U** 100-240 **V, 50/60 Hz**

Cable and plug
- **0** Without cable
- **C** With Australian Plug

Accessories
- **0** Without accessories
- **1** Injection valve, suction weight, suction & discharge tube

Main material
- **0** None

Language
- **00** Language neutral

Relay
- **1** Fault indicating relay NC
- **3** Fault indicating relay NO

Control Variants
- **8** Manual + external contact + 0/4-20 mA / 0-10 V

Additional Inputs
- **1** Pause + 2 stage level + AUX 1
- **2** Pause + 2 stage level + AUX 1 + AUX 2

Pause/level
- **0** Pause break contact + level break contact

Approvals
- **01** CE-Symbol

PharMed® registered trademark.

DF4a	**F**	**W**	**0**	**04015**	**P**	**0**	**U**	**C**	**1**	**0**	**0**	**3**	**2**	**2**	**0**	**01**

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

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	DF4a04015**P**, DF4a04004**P**		**1030778**
Rotor cpl. size 2	grey	DF4a03060**P**, DF4a02120**P**		**1031750**

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

1.8 ProMinent® DULCO®flex Control

1.8.1 ProMinent® DULCO®flex Control **DFXa**

- **A peristaltic pump that brings together the best qualities of ProMinent metering pumps**
- **Feed rate of 10 ml/h to 30 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 DULCOnneX Platform especially developed by ProMinent, which enables it to work even smarter.

1.8 ProMinent® DULCO®flex Control

1.8.2 Technical Data ProMinent® DULCO®flex Control **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

Hose material:	Thermoplastic vulcanisate (TPV), polyurethane (PUR)
Hose connectors:	PVDF/PTFE
Metering reproducibility:	±2% with retracted hose (after approx. 200 revolutions)
Electrical connection:	100 - 230 V ±10%, 50/60 Hz
Nominal power:	approx. 45 W
Degree of protection:	IP 66, NEMA 4X Indoor
Viscosities	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.
Permissible ambient temperature:	0 … 45 °C

1.8.3 Spare Parts ProMinent® DULCO®flex Control **DFXa**

	Part No.
Spare part set DFXa 0518 VPT	**1114522**
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**

Replacement spare parts kits consisting of:

1 x tube
1 x connection set
1 x silicone grease

1.8 ProMinent® DULCO®flex Control

1.8.4 Idendity Code & Pricing for ProMinent® DULCO® flex Control **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 24 V – 100 mA, fault indicating relay N/C + pacing relay
C 1 x N/O 24 V – 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

1.9 ProMinent® DULCO flex Control DFYa

1.9.1 ProMinent® DULCO® flex Control **DFYa**

The peristaltic pump DULCO flex Control - 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.

1.9 ProMinent® DULCO flex Control DFYa

1.9.2 Technical Data ProMinent® DULCO® flex Control **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

Hose material:	NR, NBR, EPDM, NBR-A, Hypalon
Self-priming:	Up to 8 m
Rollers/shoes:	Rollers
Metering reproducibility:	±2% with retracted hose after 500 revolutions
Electrical connection:	100 – 230 VAC ± 10 % 50/60 Hz
Electrical power consumption:	Max. 400 W
Degree of protection:	IP 55
Weight:	30 kg
Permissible ambient temperature:	0 … 45 °C

All data refers to water at 20 °C

Approximate Life of Hoses

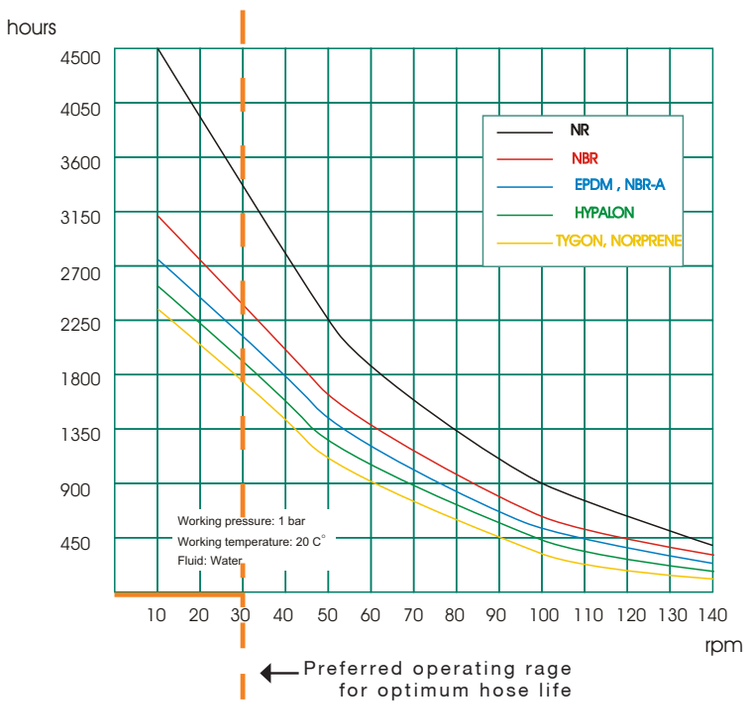
The technical department of PROMINENT, has prepared a series of curves representing the duration of the peristaltic hoses in function of the pump rotation speed and of the type of installed hose.

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.



1.9 ProMinent® DULCO flex Control DFYa

1.9.3 Identity Code & Pricing for ProMinent® DULCO® flex Control **DFYa**

DFYa

Type Capacity

	bar	l/h
08410	8	410
04410	4	410
02410	2	410

Hose Material

0 NR
B NBR
E EPDM
A NBR-A [food safe]
C NBR-A
H Hypalon

Dosing Head Orientation

R Right

Hydraulic Connection

A VA BSP 3/4''
B VA NPT 3/4''
C PP BPS 3/4''
D PVDF BSP 3/4''
E PVDF NPT 3/4''
F PVC NPT 3/4''
G Tri-Clamp, VA, 1''
H DIN 11851,VA, NW20

Hose Break Detector

0 Without hose break detector
1 With hose break detector

Version

P ProMinent
B Boyser
A Axflow
M Modified

Special Version

0 Standard
H Chemical version - Halar coated

Logo

0 With logo

Electric Power Supply

U Universal 100-230V +- 10 %, 50/60 Hz

Cable and Plug

C 2 m Australian

Relay

0 no relay
1 fault indicating relay (230 V, 8A)
3 fault indicating relay (24V ,100 mA) + pacing relay (24V, 100mA)
8 0/4-20mA output relay + fault indicating/pacing relay

Accessories

0 No accessories

Control Version

0 Manual + External contact with Pulse Control
1 Pulse Control + Analogue
6 Profibus M12 plug
7 CANopen

Control Unit

0 HMI with Click Wheel 0,5 m
4 HMI with Click Wheel 2 m
5 HMI with Click Wheel 5 m
6 HMI with Click Wheel 10 m

Access Code

0 Without access code
1 With access code

Communication

0 Without

Languages

EN English

Approval

01 CE

Prepack

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**	**U**	**C**	**0**	**0**	**0**	**0**	**0**	**0**	**EN**	**01**

2.0 ProMinent® High Viscosity Pumps

2.0.1 ProMinent® Viscoscity 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

Below 250 centipoise	=	Standard Pump
250 - 500 centipoise	=	One stainless ball each side + spring on discharge side
500 - 1000 centipoise	=	Springs fitted to suction and discharge, flooded suction
1000 centipoise	=	Delta HV head required
		Slow pump running bellow 100 SPM
		Double capacity
		Spectra® or **DULCOflex®** 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 ProMinent® Sigma/ 1 Diaphragm Metering Pumps

2.1.1 ProMinent® 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 ±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.

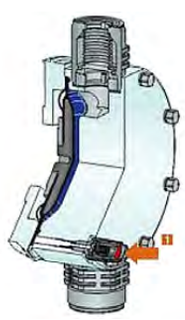
The task of the control is to measure the movement and speed profile in conjunction with the power demand. This leads to a real reduction in the actually required power, which means an increase in efficiency.

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 ProMinent® 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	49	200	7	1	10	1/2" / 16mm	9	●
10050 SST	10	50	4.0	205	10	49	200	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	63	200	6	1	10	1/2" / 16mm	9	●
07065 SST	7	65	5.1	205	7	63	200	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	117	200	3	1	15	3/4" / 20mm	9.5	●
04120 SST	4	120	9.7	205	4	117	200	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 (Polyvinylidenefluoride)	PVDF (Polyvinylidenefluoride)	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 60 Hz	0.09 kW 0.09 kW	
T	3-phase, IP 55	220 - 240 V/380 - 420 V 220 - 280 V/440 - 480 V	50 Hz 60 Hz	0.09 kW 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, II2GEExeIIT3	220 - 240 V/380 - 420 V	50 Hz	0.12 kW	
L2	3-phase, II2GEExdIICT4	220 - 240 V/380 - 420 V	50 Hz	0.18 kW	with PTC, speed control range 1:5
P1	3-phase, II2GEExeIIT3	250 - 280 V/440 - 480 V	60 Hz	0.12 kW	
P2	3-phase, II2GEExdIICT4	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 ProMinent® 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]):

○	**12017***	12 bar; 17 l/h	**PVDF**
○	**12035***	12 bar; 35 l/h	**SS**
○	**10050**	10 bar; 50 l/h	
○	**10022**	10 bar; 22 l/h	**PVDF**
○	**10044**	10 bar; 44 l/h	**SS**
○	**07065**	7 bar; 65 l/h	
●	**07042**	7 bar; 42 l/h	**PVDF**
●	**04084**	4 bar; 84 l/h	**SS**
●	**04120**	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)

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

Stroke sensor:

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

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.

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

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

2.1 ProMinent® Sigma/ 1 Diaphragm Metering Pumps

2.1.4 Identity Code Ordering System for Sigma **(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 **PVDF**

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 *inc. w/ss pump*
5 Union nut and PVC Hosetail
7 Union nut and PVDF Hosetail

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

Version

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

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.

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 (24 V – 100mA)

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.

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 **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 without operating unit (HMI)

Dosing Monitor:

0 Without access code
1 With access code

Language:

EN English

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

○ DN10
● DN15

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

2.1 ProMinent® 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 pump diaphragm
1 x suction valve
1 x discharge valve
2 xvalve balls
1 x seal set (PTFE Gaskets, ball seats, ball seat housings).

SST version

1 x pump diaphragm
1 x seal set (PTFE Gaskets, 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 12017, 120035, 10050		Part No.
Liquid end FM 50 - DN 10	PVT	**1035964**
	PVT - FDA	**1046466**
	SST	**1035966**
	SST - FDA	**1046468**
	SST (with 2 valve sets)	**1035965**

Type 10022, 10044, 07065		Part No.
Liquid end FM 65 - DN 10	PVT	**1035967**
	PVT - FDA	**1046469**
	SST	**1035969**
	SST - FDA	**1046471**
	SST (with 2 valve sets)	**1035968**

Type 07042, 04084, 04120		Part No.
Liquid end FM 120 - DN 15	PVT	**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 12017, 120035, 10050		Part No.
Liquid end FM 50 - DN 10	PVT	**1010541**
	SST	**1010554**
	SST (with 2 valve sets)	**1010555**

Type 10022, 10044, 07065		Part No.
Liquid end FM 65 - DN 10	PVT	**1010542**
	SST	**1010556**
	SST (with 2 valve sets)	**1010557**

Type 07042, 04084, 04120		Part No.
Liquid end FM 120 - DN 15	PVT	**1010543**
	SST	**1010558**
	SST (with 2 valve sets)	**1010559**

Multilayer Safety Diaphragms - [CURRENT] Types PVTS, PVTA, SSTS, SSTA

		Part No.
Sigma/ 1 FM 50	Type: 12017, 120035, 10050	**1030114**
Sigma/ 1 FM 65	Type: 10022, 10044, 07065	**1030115**
Sigma/ 1 FM 120	Type: 07042, 04084, 04120	**1035828**

Pump Diaphragms [ORIGINAL diaphragm] Types PVT0/1/2, SSTO1/2

		Part No.
Sigma/ 1 FM 50	Type: 12017, 120035, 10050	**1010279**
Sigma/ 1 FM 65	Type: 10022, 10044, 07065	**1010282**
Sigma/ 1 FM 120	Type: 07042, 04084, 04120	**1010285**

Suction - Discharge Valves PVT		Part No.
Sigma/ 1	12017, 120035, 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, 120035, 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 ±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.

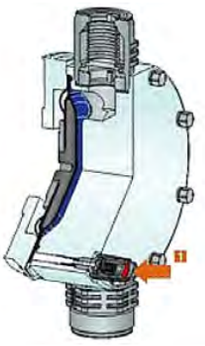
Moreover, the analysis of the power demand makes possible an internal overload switching off of the metering pump, i.e. an integral pressure relief function for pump protection without an additional hydraulic assembly such as relief valves and manometer.

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 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 (Polyvinylidenefluoride)	PVDF (Polyvinylidenefluoride)	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, II2GEExeIIT3	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, II2GEExeIIT3	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 ProMinent® 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: **PVDF**

0	No springs
1	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 2 valve springs
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
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. 230/400 V
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 50/60H z
4	With stroke control motor, 4...20 mA 85-265V AC 50/60Hz

Prepack Option

P*	See options

🟢 DN15
🔴 DN25

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.

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

2.2 ProMinent® 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: **PVDF**

0	No valve springs
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

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 *inc. w/SS pump*
5	Union nut and PVC Hosetail
7	Union nut and PVDF Hosetail

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

Version:

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

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.

Electrical Power supply:

U	1 ph 100 - 230 V ±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 (24 V – 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 **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

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 ProMinent® Sigma/ 2 Diaphragm Metering Pumps

2.2.5 ProMinent® 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 pump diaphragm
1 x suction valve
1 x discharge valve

SST version

1 x pump diaphragm
2 x valve balls
1 x seal set
(4 x composite Gaskets, 2 x ball seats, 2 x ball seat housings)

IN ALL CASES CHECK PUMP MODEL CODE

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

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 ProMinent® Sigma/ 3 Diaphragm Metering Pumps

2.3.1 ProMinent® **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 ±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.

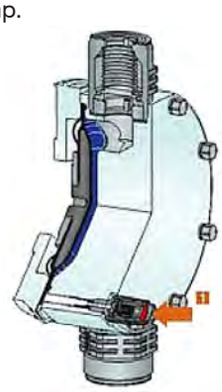
Moreover it enables an optimum metering result thanks to the metering behaviour of the metering pump being matched to the chemicals or application.

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 ProMinent® Sigma/ 3 Diaphragm Metering Pumps

2.3.2 Technical Data for **Sigma/ 3**

	at 50 Hz				S3CbH at 60 Hz							
	Pump Capacity at Max. Back Pressure			Max. Stroke Freq.	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 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

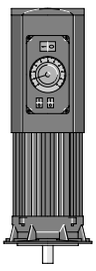
Liquid End Materials in Contact with Dosing Chemical

Liquid End	Suction/Discharge connector	Valve	Seals	Balls	Integrated Pressure Bleed Valve
PVT	PVDF (polyvinylidene fluoride)	PVDF (polyvinylidene fluoride)	PTFE	glass	PVDF/Viton® or EPDM
Note: Large PVDF Liquid Ends have Hastalloy C valve discs and Hastalloy C springs which are coated with CTFE (similar to PTFE).					
SST	stainless steel no. 1.4581	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 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, II2GEExeIIT3	220 - 240 V/380 - 420 V	50 Hz	0.37 kW	
L2	3-phase, II2GEExdIICT4	220 - 240 V/380 - 420 V	50 Hz	0.37 kW	with PTC, speed control range 1:5
P1	3-phase, II2GEExeIIT3	250 - 280 V/440 - 480 V	60 Hz	0.37 kW	
P2	3-phase, II2GEExdIICT4	250 - 280 V/440 - 480 V	60 Hz	0.37 kW	with PTC, speed control range 1:5
V2	3-phase, II2GEExdIICT4	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 ProMinent® 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:

		PVDF	SS
0	No valve springs (standard)		
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

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

Enclosure rating:

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

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.

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

● DN25
● DN32

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

2.3 ProMinent® 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** **SS**

0 No valve springs
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* 🔵 🔴

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 & stainless steel insert *inc. w/SS pump*		
5	Union nut and PVC Hosetail		
7	Union nut and PVDF Hosetail		

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.

Version:

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

Electrical Power supply:

U 1 ph 100 - 230 V ±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

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 ProMinent® 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 pump diaphragm
1 x suction valve
1 x discharge valve

SST version

1 x pump diaphragm
2 x valve balls or valve discs with spring for DN32
1 x seal set (PTFE Gaskets, ball seat discs)

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.
Liquid end FM 330 - DN 25	PVT	**1034678**
	PVT - FDA	**1046478**
	SST	**1034679**
	SST - FDA	**1046479**
	SST (with 2 valve set)	**1034680**

Type 070410, 070580, 040830, 041030		Part No.
Liquid end FM 1000 - DN 32	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.
Liquid end FM 330 - DN 25	PVT	**1005308**
	SST	**1005310**
	SST (with 2 valve set)	**1005312**

Type 070410, 070580, 040830, 041030		Part No.
Liquid end FM 1000 - DN 32	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**

		Part No.
Suction - Discharge Valves PVT		
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 ProMinent® Sigma/ 2 Piston Metering Pumps

2.4.1 Technical Data ProMinent **Sigma Piston HK** Metering Pumps

	at 50 Hz Pump Capacity at Max. Back Pressure			Max. Stroke Freq.	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 SBKaHK	**bar**	**l/h**	**ml/ stroke**	**strokes/ min.**	**bar SCKaHK**	**l/h**	**strokes/ min.**	**mWG**	**bar**	**Rp-DN**	**kg**
32002 SST	320	1.9	0.46	71	320	2.3	84	5	approx. 50% of max permissible pressure	1/4”	24
23004 SST	230	4.0	0.52	125	230	4.8	154	5		1/4”	24
10006 SST	100	6.4	0.55	195	100	6.5	200	5		1/4”	24
14006 SST	140	6.1	1.42	71	140	7.1	84	4		1/4”	24
10011 SST	100	11.0	1.43	125	10 0	13.1	154	4		1/4”	24
05016 SST	50	16.7	1.43	195	50	17.1	200	4		1/4”	24
07012 SST	70	12.4	2.90	71	70	14.8	85	5		1/4”	24
04522 SST	45	22.5	2.91	125	45	26.7	153	4		1/4”	24
02534 SST	25	34.1	2.92	195	25	35.0	200	4		1/4”	24
04022 SST	40	22.4	5.26	71	40	26.5	84	4		3/8”	25
02541 SST	25	41.5	5.37	125	25	49.2	154	4		3/8”	25
01264 SST	12	64.0	5.45	196	12	65.2	200	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	400 V	50 Hz	0.18 kW	0.7/1.1 A	S
1 ph AC	230 V	50 Hz	0.18 kW	1.7/1.5 A	M
3 ph EXe or EXde	400 V	50 Hz	0.18 kW	0.7/1.1 A	L
3 ph EXe or EXde	400 V	60 HZ	0.18 kW	0.6/1.0 A	P
1 ph AC	115 V	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 ProMinent® Sigma/ 2 Piston Metering Pumps

2.4.3 Identity Code & Pricing for ProMinent Sigma Piston Metering Pumps **SBKaHK**

SBKa — Sigma Basic Type (SBKaHK)

HK — Main Displacement componenent, 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**

2.4 ProMinent® Sigma/ 2 Piston Metering Pumps

2.4.4 Identity Code & Pricing for ProMinent Sigma Piston Metering Pumps **SCKaHK**

SCKa Sigma Control Type (SCKaHK)

HK Main drive, piston

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

32002	320 bar,2.3 l/h
23004	230 bar, 4.8 l/h
10006	100 bar, 7.6 l/h
14006	140 bar, 7.1 l/h
10011	100 bar, 13.1 l/h
05016	50 bar, 20.0 l/h
07012	70 bar, 14.8 l/h
04522	45 bar, 26.7 l/h
02534	25 bar, 40.8 l/h
04022	40 bar, 26.5 l/h
02541	25 bar, 49.2 l/h
01264	2 bar, 76.0 l/h

PLEASE CHECK AVAILABILITY IN ALL CASES

Liquid end materials:
- **SS** Stainless steel

Seal material:
- **T** PTFE seal

Displacement component:
- **4** Pistons (oxide ceramic)

Liquid end version:
- **0** No spring (standard)
- **1** With 2 valve springs, Hastelloy C 4, 0.1 bar

Hydraulic connection:
- **0** Standard threaded connector (according to technical data)

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

Electrical power supply:
- **U** 1 ph 200-230 V ±10 %, 50/60 Hz

Cable and plug:
- **C** 2 m Australian

Relays:
- **0** No relay
- **1** With fault indicating relay (N/C)
- **3** With fault indicating relay (N/O)
- **4** As 1 with pacing relay
- **5** As 3 with pacing relay

Control variant:
- **0** Manual + external with pulse control
- **1** Manual + external + pulse control + analogue
- **4** As 1 + Process Timer
- **5** As 3 + Process Timer

Access code:
- **0** No access code
- **1** With access code

Metering monitor:
- **0** Input with pulse evaluation
- **1** input with permanent contact evaluation

Stroke length adjustment:
- **0** Manual

Prepack Option
- **P*** See options

Note: Prepack option P*
- **P2** - includes a 2.0m control cable
- **P5** - includes a 5.0m control cable
- **PX** - includes a 10.0m control cable

SCKa	**HK**	**23004**	**SS**	**T**	**4**	**0**	**0**	**0**	**U**	**C**	**1**	**0**	**0**	**0**	**P2**

2.5 ProMinent® 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.

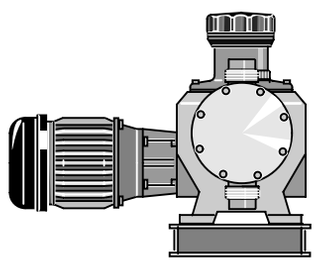
The stroke length can be adjusted by means of the shift ring mechanism from 0-10 mm (TZMb), with 0.5 % accuracy. The 5-speed gearbox is encased in a cast, seawater resistant, acrylic resin lacquered housing. Liquid ends are available in different material combinations to suit differing applications.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

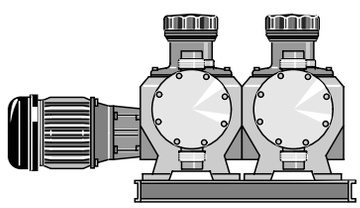


The liquid ends work in push-pull mode by means of a coupling element in the gearbox.

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 (±10 %), 50/60 Hz, 40 W. Mech. stroke length indicator fitted to Makro TZ power end.

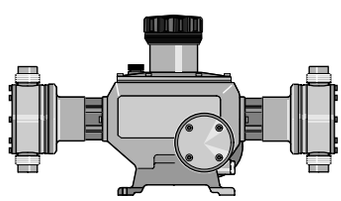


Alternative current / higher enclosure rating / Ex-protection to order.

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 ProMinent® 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]

120260	070430	040840	
120340	070570	041100	
120430	070720	041400	
120510	070860	041670	
120650	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 ProMinent® 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	
FM 1100 - DN 32	PCT, PPT, TTT	**1025167**
	SST	**1022917**
	SST (without valve cpl.)	**1022916**

Delivery unit	**Materials** in contact with medium	
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 ProMinent® 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**

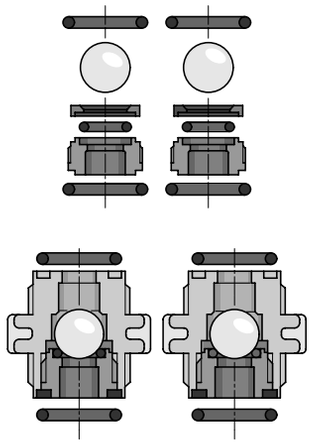
		Part No.
Liquid end FM 530 - DN 25	PPE	**910453**
Types: 05265, 04353	PCA	**910456**
03441, 03530, 05440	TTT	**910459**
05530, 04400, 04527	SST	**910476**
03662, 03790	SST additionally complete with 2 valves	**910462**
	PPT/PCT (MTMa 6mm)	**1001568**

		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**

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. (0 rings, ball seat discs, ball seat liners)



		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**

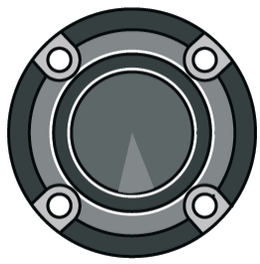
Spare parts kit, Meta HK

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

Pump diaphragm, PTFE

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

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



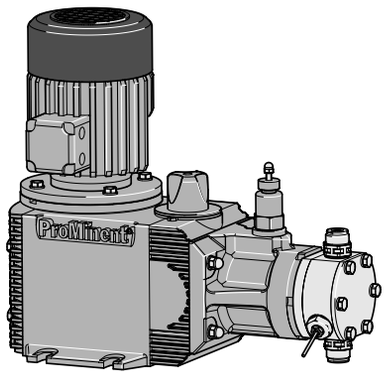
2.6 ProMinent® Hydro Hydraulic Diaphragm Metering Pumps

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, 230/400 V, 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 ±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.

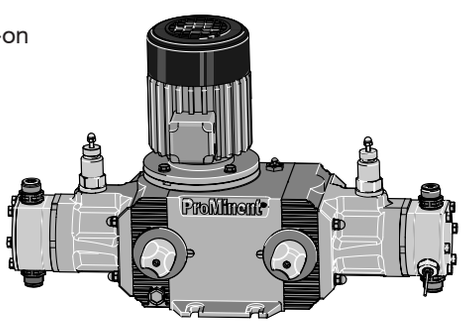
Hydro add-on pumps

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 ProMinent® Hydro Hydraulic Diaphragm Metering Pumps

2.6.2 Technical Data **Hydro/ 2 & Hydro/ 3**

Type HP2aH	With motor 1500 rpm at 50 Hz				With motor 1800 rpm at 60 Hz						
	Delivery rate at max. back pressure			Max. stroke rate	Delivery rate at max. back pressure		Max. stroke rate	Suction height	Perm. admiss. pressure suction side	Connection on suction/ pressure side	Shipping weight
	bar	l/h	ml/stroke	strokes/ min	psi	l/h / gph	min	mWC	bar	G-DN	kg
100003*	100	3	0.8	60	1,450	3.6/1.0	72	3.0	5	Rp 1/4	31
100006*	100	6	0.8	125	1,450	7.0/1.8	150	3.0	5	Rp 1/4	31
100007*	100	7	0.8	150	1,450	8.0/2.1	180	3.0	5	Rp 1/4	31
100009*	100	9	0.8	187	1,450	11.0/2.9	224	3.0	5	Rp 1/4	31
100010*	100	10	0.8	212	–		–	3.0	5	Rp 1/4	31
064007	64	7	2.0	60	928	8.4/2.2	72	3.0	5	G 3/4-10	31
064015	64	15	2.0	125	928	18.0/4.8	150	3.0	5	G 3/4-10	31
064018	64	18	2.0	150	928	21.0/5.5	180	3.0	5	G 3/4-10	31
064022	64	22	2.0	187	928	26.0/6.9	224	3.0	5	G 3/4-10	31
064025	64	25	2.0	212	–		–	3.0	5	G 3/4-10	31
025019	25	19	5.3	60	362	23.0/6.	172	3.0	5	G 3/4-10**	31
025040	25	40	5.3	125	362	48.0/12.7	150	3.0	5	G 3/4-10**	31
025048	25	48	5.3	150	362	58.0/15.3	180	3.0	5	G 3/4-10**	31
025060	25	60	5.3	187	362	72.0/19.0	224	3.0	5	G 3/4-10**	31
025068	25	68	5.3	212	–		–	3.0	5	G 3/4-10**	31

Material version PVDF max. 25 bar.

* Material version SST/HCT with double ball valve, valve connection on suction/pressure side with internal thread Rp 1/4 and external, thread G 3/4-DN 10

** HV version for G1-DN 15 designed as standard

Material in contact with media

Material	Liquid End	Suction/Discharge connector	Seals/ball seat	Valve Balls
SST	stainless steel no. 1.4571/1.4404	stainless steel no. 1.4581	PTFE/ZrO2	stainless steel
PVT	PVDF (Polyvinylidenfluoride)	PVDF (Polyvinylidenfluoride)	PTFE/PTFE	ceramic
HCT	Hast. C	Hast. C	PTFE/Hast. C	ceramic

Type HP3aH	With motor 1500 rpm at 50 Hz				With motor 1800 rpm at 60 Hz						
	Delivery rate at max. back pressure			Max. stroke rate	Delivery rate at max. back pressure		Max. stroke rate	Suction height	Perm. admiss. pressure suction side	Connection on suction/ pressure side	Shipping weight
	bar	l/h	stroke	min	psi	l/h / gph	min	mWC		G-DN	kg
100010*	100	10	2.8	60	1,450	12.0/3.2	72	3.0	5	Rp 3/8-10	41
100021*	100	21	2.8	125	1,450	25.0/6.6	150	3.0	5	Rp 3/8-10	41
100025*	100	25	2.8	150	1,450	30.0/7.9	180	3.0	5	Rp 3/8-10	41
100041*	100	41	2.8	187	1,450	37.0/9.8	224	3.0	5	Rp 3/8-10	41
100035*	100	35	2.8	212	–		–	3.0	5	Rp 3/8-10	41
064019	64	19	5.3	60	928	23.0/6.1	72	3.0	5	G 3/4-10**	41
064040	64	40	5.3	125	928	48.0/12.7	150	3.0	5	G 3/4-10**	41
064048	64	48	5.3	150	928	58.0/15.3	180	3.0	5	G 3/4-10**	41
064060	64	60	5.3	187	928	72.0/19.0	224	3.0	5	G 3/4-10**	41
064068	64	68	5.3	212	–		–	3.0	5	G 3/4-10**	41
025048	25	48	13.4	60	362	58.0/15.3	172	3.0	5	G 1-15***	41
025100	25	100	13.4	125	362	120.0/31.7	150	3.0	5	G 1-15***	41
025120	25	120	13.4	150	362	144.0/38.0	180	3.0	5	G 1-15***	41
025150	25	150	13.4	187	362	180.0/47.6	224	3.0	5	G 1-15***	41
025170	25	170	13.4	212	–		–	3.0	5	G 1-15***	41

Material version PVDF max. 25 bar.

* Material version SST/HCT with double ball valve, valve connection on suction/pressure side, with internal thread Rp 3/8 and external, thread G 3/4-DN 10

** HV version for G1-DN 15 designed as standard

*** HV version for G1 1/4”-DN 20 connection

Material	Liquid End	Suction/Discharge connector	Seals/ball seat	Valve Balls
SST	stainless steel no. 1.4571/1.4404	stainless steel no. 1.4581	PTFE/ZrO2	stainless steel
PVT	PVDF (Polyvinylidenfluoride)	PVDF (Polyvinylidenfluoride)	PTFE/PTFE	ceramic
HCT	Hast. C	Hast. C	PTFE/Hast. C	ceramic

2.6 ProMinent® Hydro Hydraulic Diaphragm Metering Pumps

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

HP2a Hydro/ 2

H Main power end

Pump type:		Pump type:		Pump type:	
100003	100 bar, 3 litre	064007	64 bar, 7 litre	025019	25 bar, 19 litre
100006	100 bar, 6 litre	064015	64 bar, 15 litre	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

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
- **1** Exe motor version (ATEX-T3)
- **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** Temp. < 10 °C

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 ProMinent® 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

Pump type:		Pump type:		Pump type:	
100003	100 bar, 3 litre	**064007**	64 bar, 7 litre	**025019**	25 bar, 19 litre x 2
100006	100 bar, 6 litre	**064015**	64 bar, 15 litre	**025040**	25 bar, 40 litre x 2
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

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
- **1** Exe motor version (ATEX-T3)
- **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** Temp. < 10 °C

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 ProMinent® Hydro Hydraulic Diaphragm Metering Pumps

2.6.5 Identity Code Ordering System For **Hydro/ 3 - SINGLE HEAD**

HP3a Hydro/ 3

H Main power end

Pump type:		Pump type:		Pump type:	
100010	100 bar, 10 litre	**064019**	64 bar, 19 litre	**025048**	25 bar, 48 litre
100021	100 bar, 21 litre	**064040**	64 bar, 40 litre	**025100**	25 bar, 100 litre
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

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. 230/400 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
- **1** Exe motor version (ATEX-T3)
- **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** Temp. < 10 °C

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 ProMinent® Hydro Hydraulic Diaphragm Metering Pumps

2.6.6 Identity Code Ordering System For **Hydro/ 3 - DOUBLE HEAD**

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

D Main power end, duplexed

Pump type:		Pump type:		Pump type:	
100010	100 bar, 10 litre	**064019**	64 bar, 19 litre	**025048**	25 bar, 48 litre x 2
100021	100 bar, 21 litre	**064040**	64 bar, 40 litre	**025100**	25 bar, 100 litre x 2
100025	100 bar, 25 litre	**064048**	64 bar, 48 litre	**025120**	25 bar, 120 litre x 2
100031	100 bar, 31 litre	**064060**	64 bar, 60 litre	**025150**	25 bar, 150 litre x 2
100035	100 bar, 35 litre **PVT Liquid End Maximum 25 Bar**	**064068**	64 bar, 68 litre	**025170**	25 bar, 170 litre x 2

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. 230/400 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
- **1** Exe motor version (ATEX-T3)
- **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** Temp. < 10 °C

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 ProMinent® Hydro Hydraulic Diaphragm Metering Pumps

2.6.7 Technical Data **Hydro/ 4**

Type HP4aH	With motor 1500 rpm at 50 Hz						With motor 1800 rpm at 60 Hz			
	Delivery rate at max. back pressure		Max. stroke rate	Delivery rate at max. back pressure		Max. stroke rate	Suction height	Perm. admiss. pressure suction side	Connection on suction/ pressure side	Shipping weight
	bar	l/h	strokes/ min	psi	l/h	strokes/ min	mWC	bar	G-DN	kg
400071	40	71	71	580	85	86	3	1	1-1/2” 25	69
400105	40	105	103	580	126	124	3	1	1-1/2” 25	69
400140	40	140	136	580	168	164	3	1	1-1/2” 25	69
400190	40	190	188	580	188	225	3	1	1-1/2” 25	69
400220	40	220	214	580	-	-	3	1	1-1/2” 25	69
250130	25	130	71	363	155	86	3	1	1-1/2” 25	69
250190	25	190	103	363	230	124	3	1	1-1/2” 25	69
250250	25	250	136	363	300	164	3	1	1-1/2” 25	69
250350	25	350	188	363	420	225	3	1	1-1/2” 25	69
250400	25	400	214	-	-	-	3	1	1-1/2” 25	69
160210	16	210	71	232	250	86	3	1	1-1/2” 25	76
160300	16	300	103	232	360	124	3	1	1-1/2” 25	76
160400	16	400	136	232	480	164	3	1	1-1/2” 25	76
160550	16	550	188	232	660	225	3	1	1-1/2” 25	76
160625	16	625	214	–	–		3	1	1-1/2” 25	76
100330	10	330	71	145	400	86	3	1	2” 32	87
100480	10	480	103	145	580	124	3	1	2” 32	87
100635	10	635	136	145	760	164	3	1	2” 32	87
100880	10	880	188	145	1050	225	3	1	2” 32	87
101000	10	1000	214	–	–		3	1	2” 32	87
070465	7	465	71	102	560	86	3	1	2-1/4” 40	96
070670	7	670	103	102	805	124	3	1	2-1/4” 40	96
070890	7	890	136	102	1070	164	3	1	2-1/4” 40	96
071230	7	1230	188	102	1450	225	3	1	2-1/4” 40	96
071400	7	1400	214	-			3	1	2-1/4” 40	96

2.6 ProMinent® Hydro Hydraulic Diaphragm Metering Pumps

2.6.7 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, II2GEExeIIT3	220-240 V/380-420 V	50 Hz	1.1 kW	
L2	3 ph, II2GEExdIICT4	220-240 V/380-420 V	50 Hz	1.1 kW	With PTC, speed control range 1:5
P1	3 ph, II2GEExeIIT3	254-277 V/440-480 V	60 Hz	1.1 kW	
P2	3 ph, II2GEExdIICT4	254-277 V/440-480 V	60 Hz	1.1 kW	With PTC, speed control range 1:5
V2	3 ph, II2GEExdIICT4	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

2.6 ProMinent® Hydro Hydraulic Diaphragm Metering Pumps

2.6.8 Identity Code Ordering System For **Hydro/ 4 - SINGLE HEAD**

HP4a Hydro/ 4

H Main power end

Pump:			Pump:			Pump:		
40071	40 bar, 71 l/h		**250130**	25 bar, 130 l/h	**PVT**	**160210**	16 bar, 210 l/h	**PVT**
400105	40 bar, 105 l/h	**SS**	**250190**	25 bar, 190 l/h	**SS**	**160300**	16 bar, 300 l/h	**SS**
400140	40 bar, 140 l/h		**250250**	25 bar, 250 l/h		**160400**	16 bar, 400 l/h	
400190	40 bar, 190 l/h		**250350**	25 bar, 350 l/h		**160550**	16 bar, 550 l/h	
400220	40 bar, 220 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, 635 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				

Liquid end material:

PV	PVDF
SS	Stainless steel
HC	Hastalloy C *Price on Application*

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
1	Exe motor version (ATEX-T3)
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

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 ProMinent® Hydro Hydraulic Diaphragm Metering Pumps

2.6.9 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

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	

Liquid end material:

PV PVDF
SS Stainless steel
HC Hastalloy C *Price on Application*

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
1 Exe motor version (ATEX-T3)
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

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 ProMinent® Hydro Hydraulic Diaphragm Metering Pumps

2.6.10 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

		Part No.
FMH	**25** applies to identity code: **Type 100010, 100009, 100007, 100006, 100003, 064025, 064022, 064018, 064015, 064007,**	**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

		Part No.
FMH	**25** applies to identity code: **064025, 064022, 064018, 064015, 064007**	**1006481**
FMH	**60** applies to identity code: **025068, 025060, 025048, 025040, 025019, 064068, 064060, 064048, 064040, 064019**	**1006482**
FMH	**150** applies to identity code: **025170, 025150, 025120, 025100, 025048**	**1006483**

2.6 ProMinent® Hydro Hydraulic Diaphragm Metering Pumps

2.6.10 Spare Parts Kits

Spare parts kits Hydro/ 4

Applies to identity code: Type 250130, 250190, 250250, 250350, 250400		Part No.
FMH 400 - DN 25	PVT	**1023057**
	SST	**1040812**
	SST (with 2 valve set)	**1040813**

Applies to identity code: Type 160210, 160300, 160400, 160550, 160625		Part No.
FMH 625 - DN 32	PVT	**1040863**
	SST	**1040824**
	SST (with 2 valve set)	**1040825**

Applies to identity code: Type 100330, 100480, 100635, 100880, 101000		Part No.
FMH 1000 - DN 32	PVT	**1040866**
	SST	**1040826**
	SST (with 2 valve set)	**1040827**

Applies to identity code: Type 070465, 070670, 070890, 071230, 071400		Part No.
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

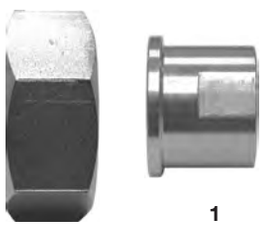
	Part No.
Type 250130, 250190, 250250, 250350, 250400	**1040874**
Type 160210, 160300, 160400, 160550, 160625	**1040875**
Type 100330, 100480, 100635, 100880, 101000	**1040876**
Type 070465, 070670, 070890, 071230, 071400	**1040877**

2.6 ProMinent® Hydro Hydraulic Diaphragm Metering Pumps

2.6.11 Adaptor Sizes for Motor Driven Pumps

Standard Sizes & Fittings for Motor Driven Pumps

Valve | 2 | PVC/PVDF Union Nut | 3 | 4 | 5



SS Union Nut

1

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 PVDF 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 ProMinent® VAMb, VAMc & VAMd Spare Parts

2.7.1 Spare Parts Kits

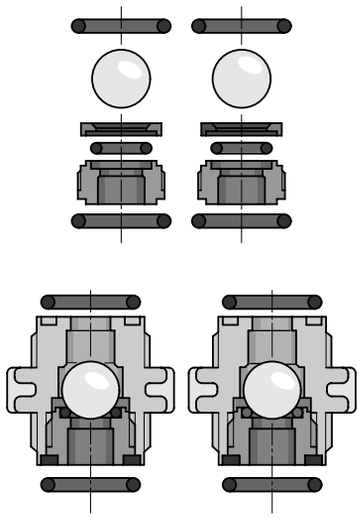
The spare parts kit generally consists of the liquid end parts which are subject to wear.

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)

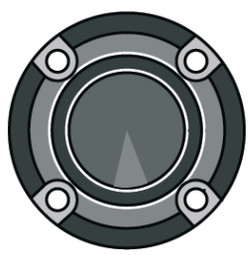


Spare parts kit Vario

VAMb, 12017, 12026, 12042		
VAMc, 10008, 10016, 07026, 07042 & VAMd 12017, 12042		**. Part No.**
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

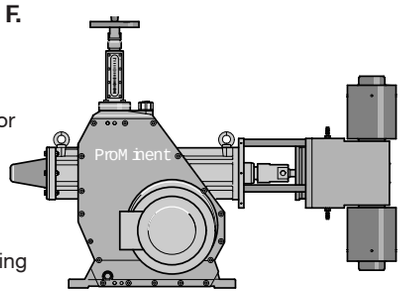
	Part No.
VAMb, 12017, 12026, 12042	**811458**
VAMc, 10008, 10016, 07026, 07042	**811458**
VAMd 12017, 12042	**811458**
VAMb, 10025, 09039, 07063	**811459**
VAMc, 07012, 07024, 04039, 04063	**811459**
VAMd 10025, 09039, 07063	**811459**
VAMb, 06047, 05075, 04120	**811460**



2.8 ProMinent® Makro/ 5 Piston Metering Pumps

2.8.1 ProMinent® 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.



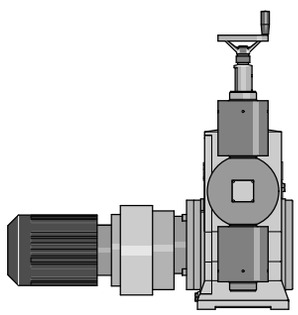
The stroke length is adjustable between 0…50 mm.

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.

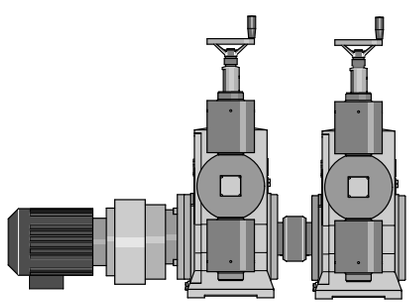
For all motor-driven Metering Pumps, for safety reasons, suitable overload protection must be provided during installation. A tensioning key is supplied as standard for re-tensioning packing rings.



Capacity with 1500 rpm motor and 50Hz
M5KaH

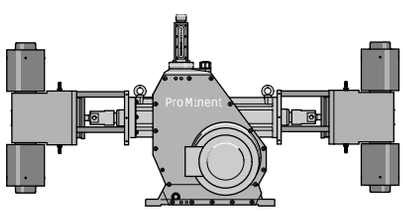
Bar l/hr	Bar l/hr	Bar l/hr	Bar l/hr	Bar l/hr
320 0038	140 0120	050 0335	025 0658	012 1343
320 0048	140 0151	050 0419	025 0822	012 1678
320 0066	140 0207	050 0576	025 1129	012 2305
320 0085	140 0267	045 0744	023 1458	012 2977
320 0100	100 0314	035 0872	018 1710	010 3491
240 0070	080 0214	035 0483	016 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 ProMinent® ORLITA® Metering Pumps

2.9.1 ProMinent® ORLITA® Metering Pumps

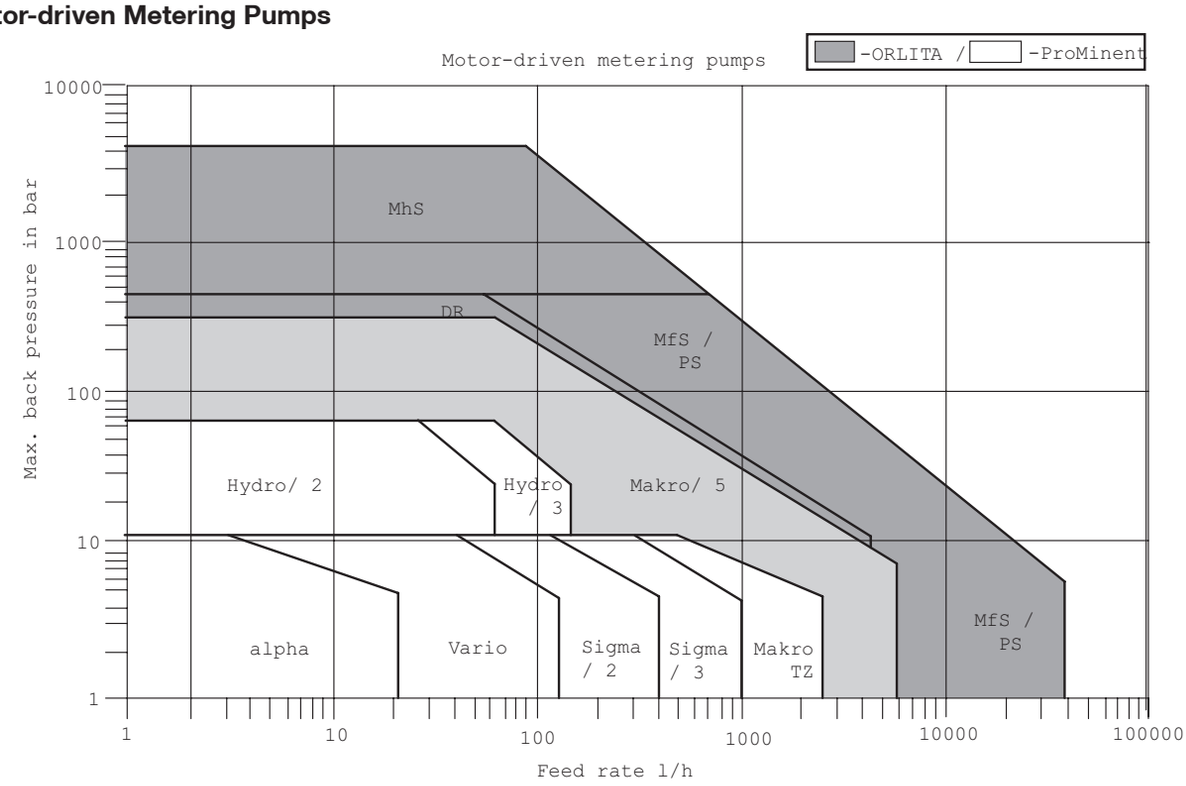
ORLITA® Metering Pumps are motor-driven, oscillating positive displacement pumps with adjustable stroke volumes.

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

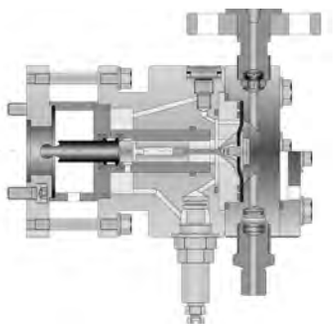


Pump capacity l/h

NOTE: FOR ALL $ P.O.A. CONTACT SYDNEY OFFICE

2.9 ProMinent® ORLITA® Metering Pumps

2.9.2 MF Diaphragm Liquid End



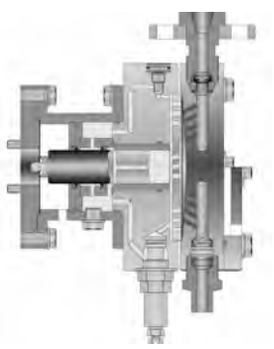
Hydraulically operating diaphragm liquid end. A double PTFE diaphragm forms a hermetic seal between the liquid and hydraulic ends.

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 ($NPSH_R$) and self-cleaning.

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 stainlees steel.

2.9.4 PS Piston Liquid End

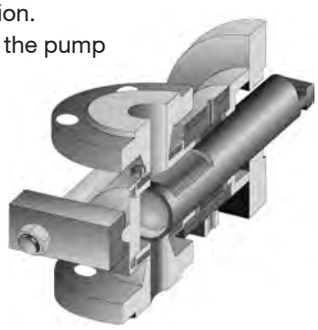
Plunger head with stuff box packing. The plunger oscillates in the cylinder and displaces the liquid. The packing adjustment is achieved by the front-sided adjusting screw, which is also possible during operation.

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

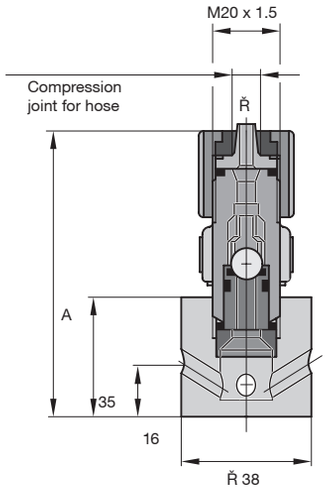
3.0.1 Foot Valves

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

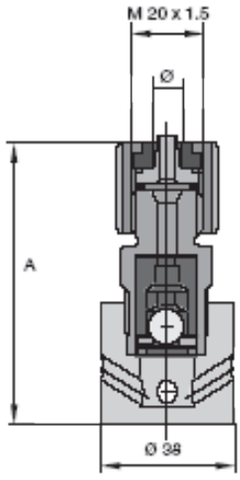
Valve body of PP, seals of Viton

			∅	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

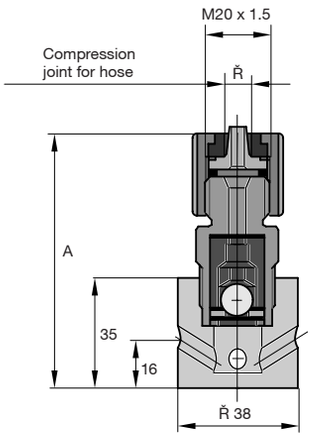
			∅	A		Part No.
Connection	6 mm	for hose	6 x 4	79	(Fig.2)	**1024705**
Connection	8 mm	for hose	8 x 5	79	(Fig.2)	**1024706**
Connection	12 mm	for hose	12 x 9	82	(Fig.2)	**1024707**

3.0 Accessories - Beta/gamma/Delta & Pneumados

3.0.1 Foot Valves

FOOT VALVE, PTFE

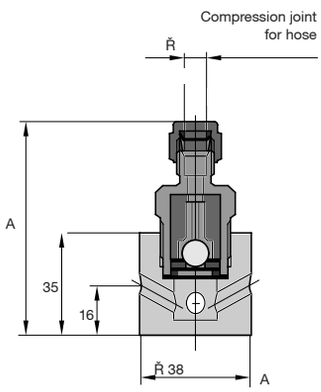
Valve body, ball check and seals of PTFE, for connection diameters 6, 8 and 12 mm with ceramic weight.



			∅	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

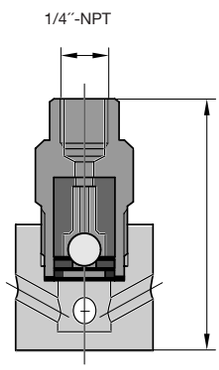
With strainer and ball check, valve body of stainless steel 1.4571, seals of PTFE, For 6x4, 8x5 and 12x 9 mm hose connection a support sleeve is required (see page 3.23).



	∅	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.



	∅	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

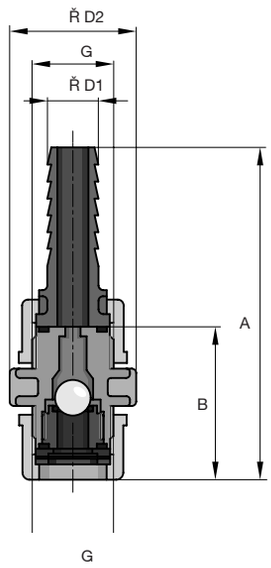
For connection to the end of the suction line to prevent return flow and to protect the pump from contamination, with strainer and ball check valve. The same materials are used as for the liquid ends. The union nut and union end/hose connector are part of the standard delivery package.

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	∅ 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**

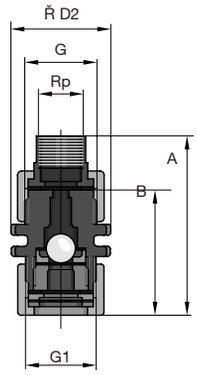


FOOT VALVE, PVDF

Valve body of PVDF, seals of PTFE, with strainer and ball check-valve

	G	BSPTM	B	SW	∅ 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**

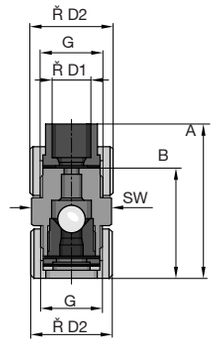
Note: DN32 valve has Hastalloy-C Disc and Spring



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	∅ 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**

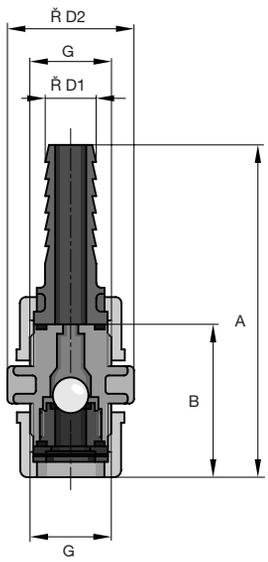


3.2 Accessories - Sigma/Vario/Meta & Makro TZ PP/EPDM

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	∅ 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	∅ 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.

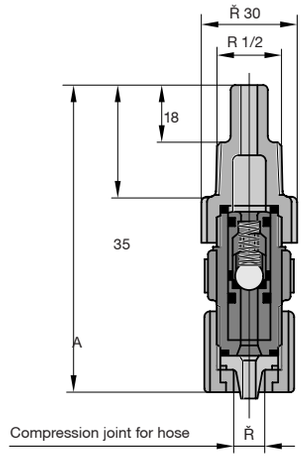
For PTFE version without spring for vertical installation from below. Valve spring can be retrofitted. The same materials are used as for the liquid ends.

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.

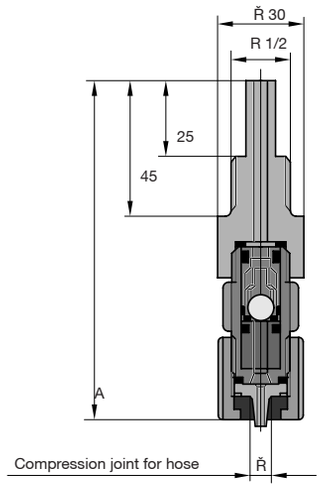
			∅	A	Part No.
Connection	6 mm - 1/2"	for PE/PTFE tubing	6 x 4	96	**924681**
Connection	8 mm - 1/2"	for PE/PTFE tubing	8 x 5	96	**809476**
Connection	12 mm - 1/2"	for PE/PTFE tubing	12 x 9	99	**809478**



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**



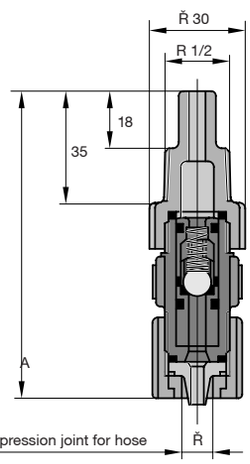
INJECTION VALVE PP/PTFE

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**



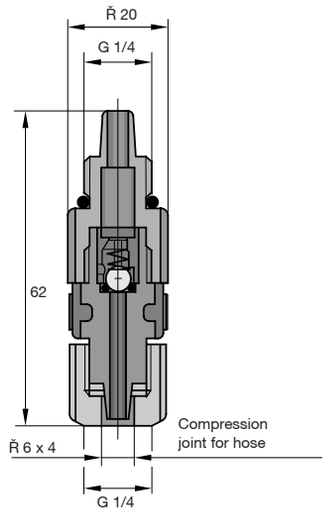
INJECTION VALVE, PVC / PTFE (ANTISCALE VERSION)

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"

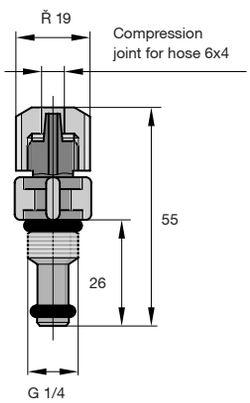
With ceramic ball check, spring of 1.4571 s/s, response pressure approx. 1 bar.

	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.

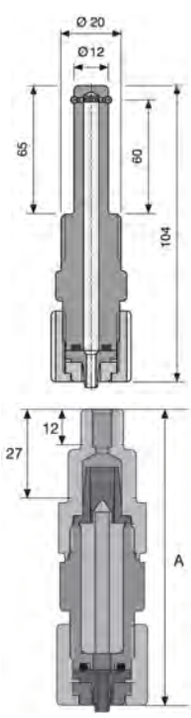
	Part No.
Connection 6 mm - 1/4" (long) for PE/PTFE tubing 6 x 4 (Fig 1016/4)	**915091**



PTFE INJECTION VALVES O-RING, LOADED

PTFE housing, FPM (Viton) seals.

	oŘ x iŘ	A	
Connection	**mm**	**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

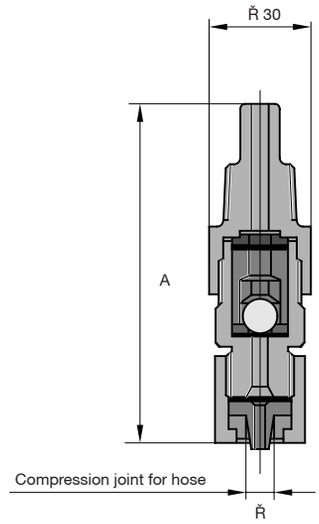
	oŘ x iŘ	A	
Connection	**mm**	**mm**	**Part No.**
6/4 – R 1/2 - 1/4 for PE/PTFE	6 x 4	90	**1019953**

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 barwith extended threaded connection.



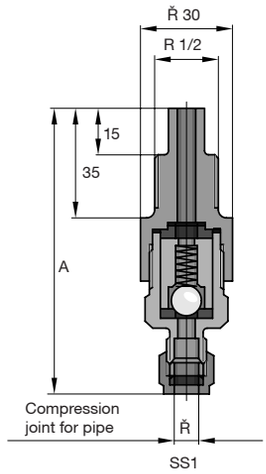
				∅	A	Part No.
Connection	6/3 mm	*	1/2" for PTFE pipe	6 x 3	120	**1024713**
Connection	6 mm	-	1/2" for PE/PTFE pipe	6 x 4	120	**1024708**
Connection	8 mm	-	1/2" for PE/PTFE pipe	8 x 5	120	**1024710**
Connection	12 mm	-	1/2" for PE/PTFE tubing	12 x 9	120	**1024711**
Connection	10/4 mm	*	1/2" for PVC hose	10 x 4	120	**1024709**
Connection	12/6 mm	*	1/2" for PVC hose	12 x 6	120	**1024712**

*** 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.

				∅	A		Part No.
Connection	6 mm	-	1/2" for PE/PTFE tubing	6 x 4	98	(fig.1)	**948880**
Connection	8 mm	-	1/2" for PE/PTFE tubing	8 x 5	98	(fig.1)	**947980**
Connection	12 mm	-	1/2" for PE/PTFE tubing	12 x 9	101	(fig.1)	**948180**



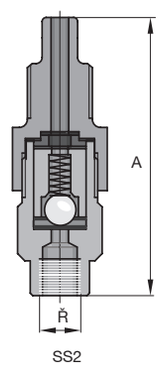
INJECTION VALVE STAINLESS STEEL

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			∅	A	Part No.
Connection	6 mm - 1/2"	for pipe	6 x 5	93	**809489**
Connection	8 mm - 1/2"	for pipe	8 x 7	93	**809482**
Connection	12 mm - 1/2"	for pipe	12 x 10	93	**809483**

SS2			∅	A	Part No.
Connection	1/4"NPT - 1/2"	for pipe	12 x 10	93	**924597**

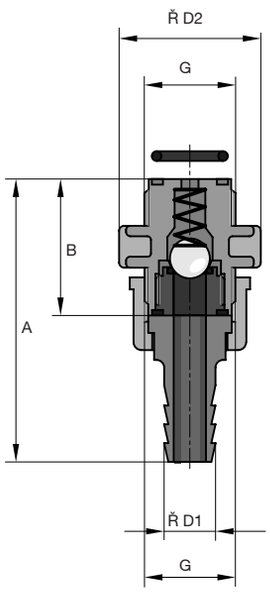


3.4 Accessories Sigma/Vario/Meta/Makro TZ

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.

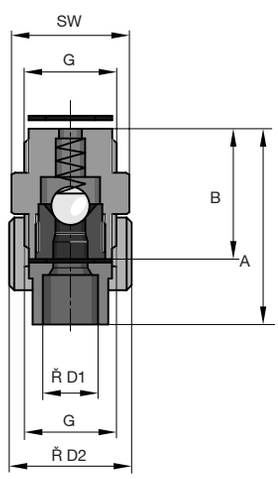
Caution: Injection valves are not suitable as absolutely leakproof isolating elements.



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	∅ 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**

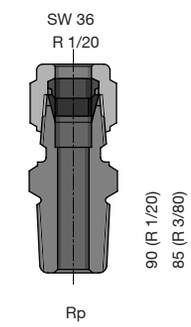


INJECTION VALVE, PVDF

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	∅ 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	∅ 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

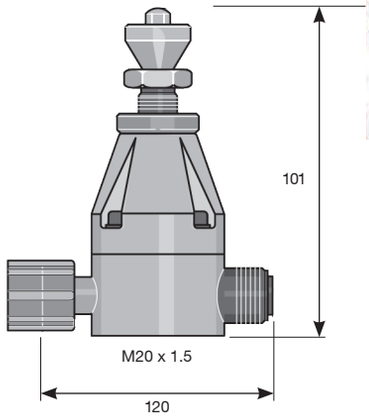
ADJUSTABLE 1-10 BAR, 6-12 MM

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.

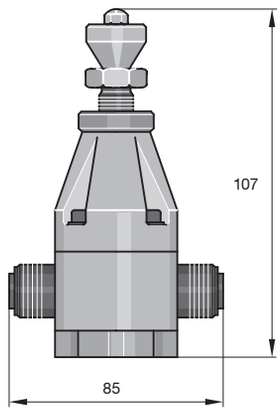
Use in conjunction with a pulsation dampener only where there is an open outlet and short injection line.

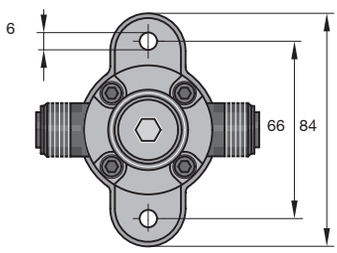


CAUTION: **Back pressure valves are not designed for use as completely-sealing, isolating elements!**

APPLICATION: Beta, Gamma, Concept, Pneumados, Delta, EXtronic, electronic metering pumps.

PP, PC, TT version



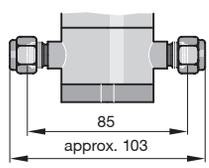


				Part No.
DHV-S-DL	1-10 bar	PP	6 x 4mm	**P6-302323**
DHV-S-DL	1-10 bar	PP	8 x 5mm	**P8-302323**
DHV-S-DL	1-10 bar	PP	12 x 9mm	**P12-302323**
DHV-S-DL	1-10 bar	PVC	6 x 4mm	**P6-302324**
DHV-S-DL	1-10 bar	PVC	8 x 5mm	**P8-302324**
DHV-S-DL	1-10 bar	PVC	12 x 9mm	**P12-302324**
DHV-S-DL	1-10 bar	TT	6 x 4mm	**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**

PIPE NIPPLE, 316 S.S., 40MM LONG

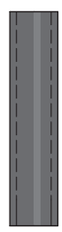
For connecting to the liquid end use back pressure valve DHV-S-DL of stainless steel in conjunction with an appropriate pipe nipple.

SS version



		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

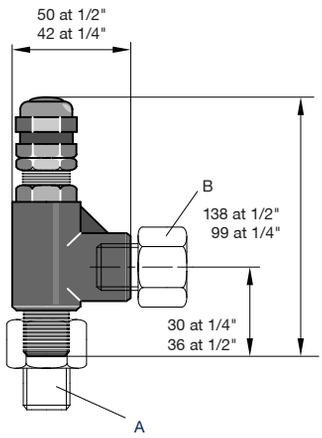
3.6.1 Adjustable Relief Valves

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.

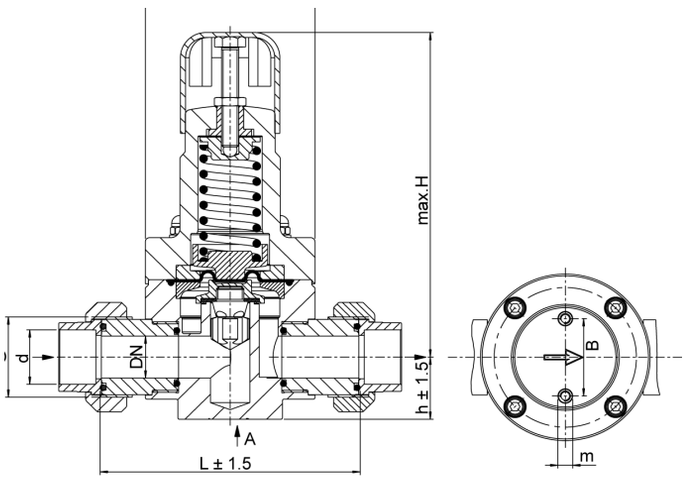
Important: Appropriate safety measures should be implemented when used as relief valves in conjunction with agglutinative media (e. g. milk of lime), (for instance flushing after activation).

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

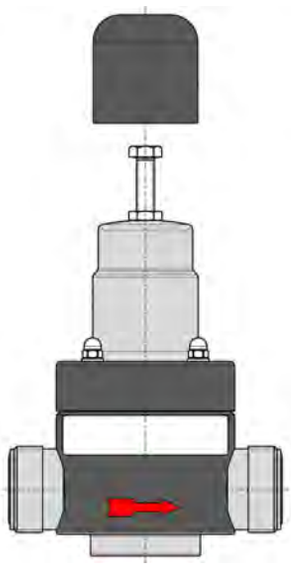
- DN 15 valve = 3/4" BSP M/M, S/W or
- DN 20 valve = 1" BSP M/M
- DN 25 valve = 1" BSP M/M or
- DN 32 valve = 1-1/2" BSP M/M

Suit ProMinent® Sigma/ 3 & Makro Dosing Pump

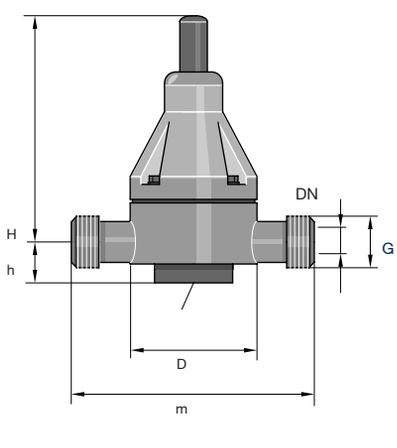
- DN 25 valve = 1" BSP M/M, S/W or
  DN 40 valve = 1-1/2" BSP M/M
  = 2-1/4" BSP M/M for S/S
- DN 32 valve = 1-1/2" BSP M/M

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

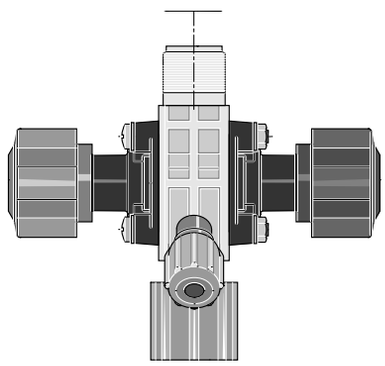
The ProMinent® multifunction valve is operated by means of smooth-action rotary knobs which automatically return to their initial position when released. This feature ensures safe and reliable operation even under difficult access conditions. The ProMinent® multifunction valve is made of the material 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	**P792011**
Size I	10 bar	6x4	6 - 12 mm	**P791715**
Size I	6 bar	6x4	6 - 12 mm	**P1005745**
Size II	10 bar	12x9	6 - 12 mm	**P792203**
Size II	6 bar	12x9	6 - 12 mm	**P740427**
Size III	10 bar	12x9	DN10	**P792215**
ALSO AVAILABLE				
Size I	8-10 bar	6x4	6 - 12 mm	**P791715C**

Note: this unit is made by prominent China BUT has German diaphragms

Applications

Size I	**ALPc 1001, 1002, 1004, 1008, 0708** 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
Size II	**ALPc 0417, 0230** Beta®, gamma/ L type 1605, 1008, 0713, 0420, 0232 gamma/ X type 1009, 0715, 0424, 0245 delta® type 1020, 0730
Size III	**delta® type 0450, 0280**

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 alturnative injection valve for agressive media as it has no spring in contact with the chemical.

				Part No.
Size I	1.5 bar	6x4	6 x 4 mm	**P1027652-6**
Size I	1.5 bar	6x4	8 x 5 mm	**P1027652-8**

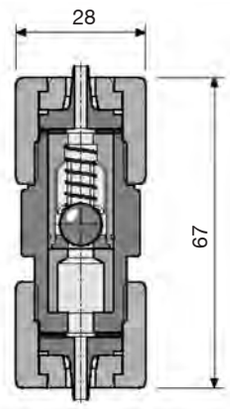
3.9 Accessories Beta/gamma/Delta & Pneumados

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.

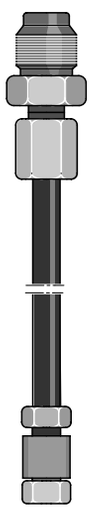


Applications when using appropriate tubing

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**

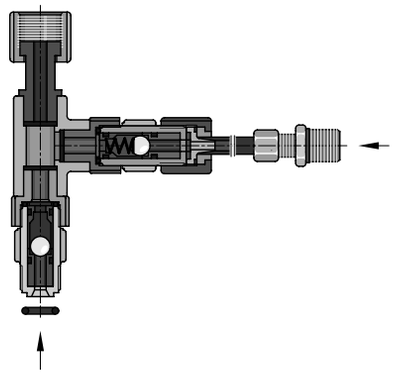
3.10 Accessories - Flushing Device & Rigid Suction Assemblies

3.10.1 Flushing Devices

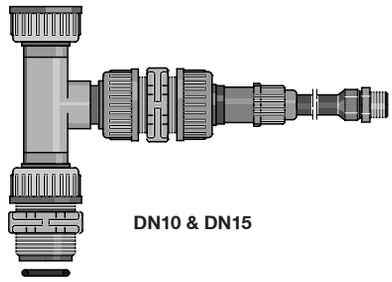
FLUSHING DEVICE, PVC

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**



	Part No.
for DN 10 connector	**809926**
for DN 15 connector	**803960**
for DN 20 connector	**809361**
for DN 25 connector	**809362**



DN10 & DN15

Rigid Suction Assemblies

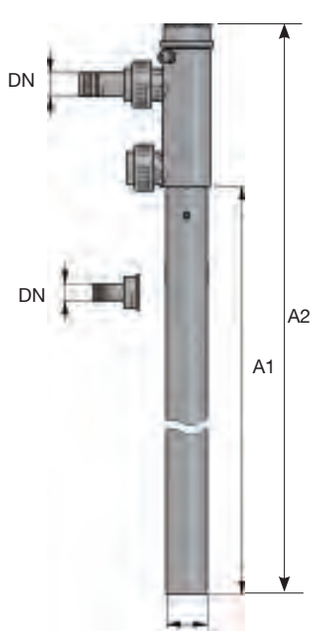
Suction lances for motor-driven metering pumps. Universal PVC suction lances with float switch in protective tube Ř 50 incorporating foot/check valve (not detachable), hydraulic connector with PVC hose nozzles. DN 10/15: fitted with ball check valve (borosilicate glass ball, FPM seals), DN 20/25; DN 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

	Part No.
PVC 2m Cable, with Flat Plug	**142056**
PVC 5m Cable, with Flat Plug	**142058**
PVC 2m Cable, No Plug	**142062**
PVC 5m Cable, No Plug	**142064**

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:

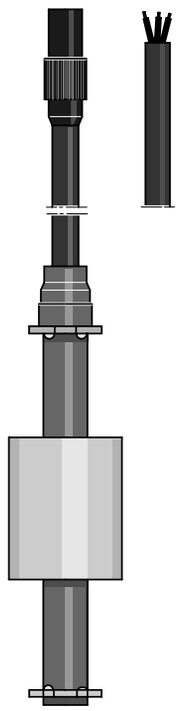
Max. switching voltage 100 V, switching current 0.5 A, switch power 5 W/5 VA.

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



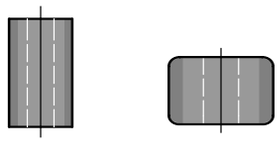
			Part No.
PVDF with 3-pole round plug	Cable Length	2 m	**1034697**
PVDF with 3-pole round plug	Cable Length	5 m	**1034698**
PVDF with 3 cores	Cable Length	2 m	**1034699**
PVDF with 3 cores	Cable Length	5 m	**1034700**
Float only			**790585**
Circlip			**790593**

DO NOT FORGET Z CLIP

		Part No.
Z-Clip, PP,	For two-stage float switch &	
	6 x 4, 8 x 5 & 12 x 9 foot valves	**800692**
Z-Clip, PVC,	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**



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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

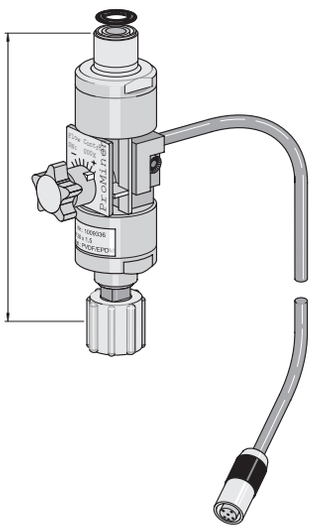
ADJUSTABLE FLOW CONTROL MONITOR

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 stoke 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	**1009229**
Size II	PVDF/EPDM	1005, 1605, 0708, 1008, 0413, 0713, 0220, 0420, 0232	**1009336**
Size I	PVDF/Viton® B	1000, 1601, 1602	**1009335**
Size II	PVDF/Viton® B	1005, 1605, 0708, 1008, 0413, 0713, 0220,0420, 0232	**1009338**

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 stoke 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	**1021168**
●	Size III - **DN 10**	PVDF/Viton® B	Sigma/1 12017, 10022, 12035 10044, 10050, 07065	**1021169**
●	Size III - **DN 15**	PVDF/EPDM	Sigma/1 07042, 07084, 04120 Sigma/2 12050, 12090, 12130	**1021170**
●	Size III - **DN 15**	PVDF/Viton® B	Sigma/1 07042, 07084, 04120 Sigma/2 12050, 12090, 12130	**1021171**
●	Size IV	PVDF/EPDM	Sigma/2 07120, 07220, 04350 Sigma/3 120145, 12190, 12270	**1021164**
●	Size IV	PVDF/Viton® B	Sigma/2 07120, 07220, 04350 Sigma/3 120145, 12190, 12270	**1021165**
●	Size V	PVDF/EPDM	Sigma/3 07410, 07580, 04830	**1021166**
●	Size V	PVDF/Viton® B	Sigma/3 07410, 07580, 04830	**1021167**

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	**PA55002429**
For P.P.	**PA55002430**

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 price List 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.
A: PROFIBUS® Y-adaptor 2 x M12 x 1 male/female to M12 male	**1040956**

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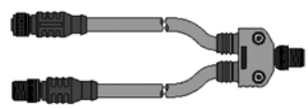

	Part No.
B: PROFIBUS® Y-adaptor	**1036621**

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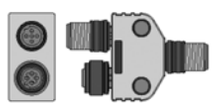


	Part No.
C: PROFIBUS® termination resistance, plug-in	**1036622**

Ⓒ

	Part No.
PROFIBUS® Terminating Assembly, comprising;	**1040955**

1 off Y-adaptor and 1 off termination resistance. Ⓑ + Ⓒ

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**

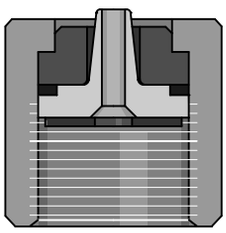
3.15 Accessories - Mechanical/Hydraulic Pumps

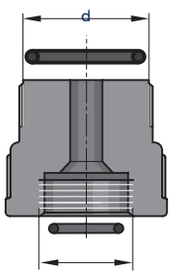
3.15.1 Connectors & Fittings

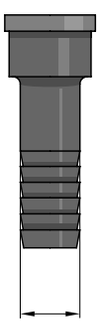
CONNECTOR SET

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/Viton	for hose	6 x 4 mm	**817050**
PVC/Viton	for hose	8 x 5 mm	**817053**
PVC/Viton	for hose	12 x 9 mm	**817051**
PVC/Viton	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/Viton	for hose	6 x 4 mm	**817065**
PVC/Viton	for hose	8 x 5 mm	**817066**
PVC/Viton	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/Viton	for hose	10 x 4 mm	**1002589**
PVC/Viton	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**

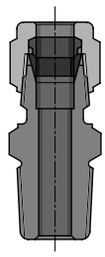
3.15 Accessories - Mechanical/Hydraulic Pumps

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.

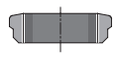
	Part No.
6 mm - 1/4" ISO	**359526**
8 mm - 1/4" ISO	**359527**
12 mm - 1/4" ISO	**359528**
12 mm - 3/8" ISO	**359520**
16 mm - 3/8" ISO	**359521**
16 mm - 1/2" ISO	**359529**

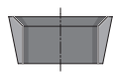


GRIP RING SET, STAINLESS STEEL

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**

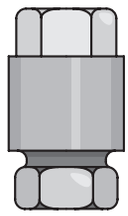




STRAIGHT CONNECTOR, STAINLESS STEEL

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

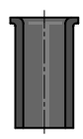
Serto system for use with stainless steel connectors.

	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**

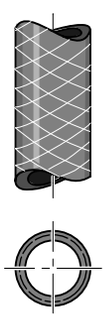
* Maximum working pressure at 20°C in accordance with DIN EN ISO 7751, provided there is media compatibility and the connection is properly made.

			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**

	F.V & 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**

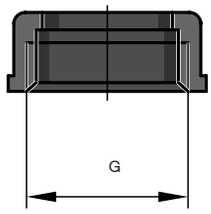
* Maximum working pressure at 20°C in accordance with DIN EN ISO 7751, provided there is media compatibility and the connection is properly made.

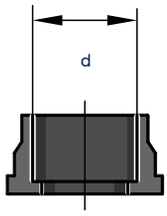
FOR PE AND PVC TUBE SEE 'GREEN PAGE' Price List

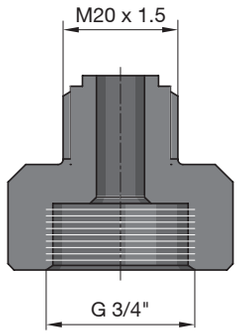
3.17 Accessories - Motor-Driven Pumps General

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

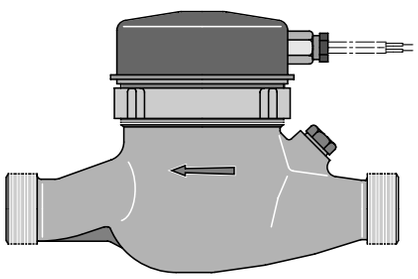
ZENNER PULSE-TYPE WATER METER, DIN TYPE

- PN 16 bar, readable, type series MTKD1-N, max. working temperature 50°C
- $Q_{max.}$ = over loading Qd = continuous max. duty loading
- Q_n = nominal loading
- Horizontal mounting

Q_{max} Q_d/Q_n NG - m^3/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.



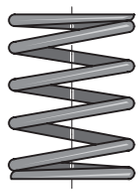
3.19 Accessories - Mechanical / Hydraulic

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

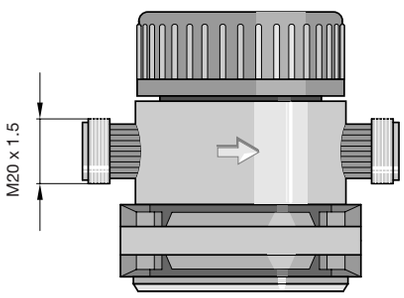
SUCTION PRESSURE REGULATOR

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.



	Mat.	Connector	Part No.
SDR 50	PVC	M 20 x 1.5 (solenoid pumps)	**P6-1005505**
SDR 50	PVC	M 20 x 1.5 (solenoid pumps)	**P8-1005505**
SDR 50	PVC	M 20 x 1.5 (solenoid pumps)	**P12-1005505**
SDR 50	PVC	DN10 (3/4" up to 50l/hr)	**P1005506**

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**

5m & 10m cables available:		
	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

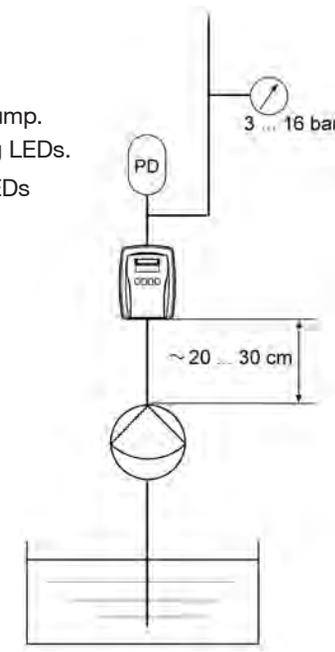
- Monitoring and recording the dosing of chemicals in:
- Water treatment, Paper industry.
- Waste water treatment.
- Chemical industry, Power plants, etc.

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



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.

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**

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 - Pulsation Dampeners

3.23.1 Pulsation Dampeners

The pulsation dampener is used to produce minimal pulsation metering and to reduce flow resistance in long discharge lines.

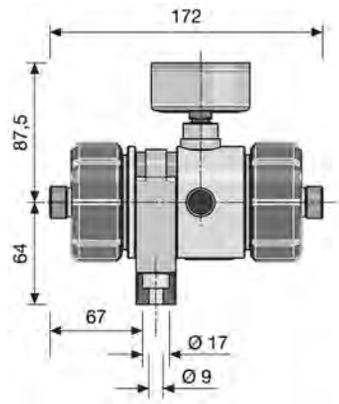
The cushion of gas located between the hose and the housing is compressed by a thrust stroke from the metering pump, allowing a quantity of feed chemical to pass along the discharge line. On the next suction stroke, the excess pressure created by the cushion of gas forces the
chemicals through the pipe. 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	**P1026774-6**
PCE	0.05	CSM*	EPDM	M 20 x 1.5	**P1026774-8**
PCE	0.05	CSM*	EPDM	M 20 x 1.5	**P1026774-12**
PCB	0.05	FPM	FPM	M 20 x 1.6	**P1026777-6**
PCB	0.05	CSM*	FPM	M 20 x 1.5	**P1026777-8**
PCB	0.05	CSM*	FPM	M 20 x 1.5	**P1026777-12**
PCE	0.05	CSM*	EPDM	G 3/4 – DN 10	**P1026775**
PCB	0.05	FPM	FPM	G 3/4 – DN 10	**P1026778**



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

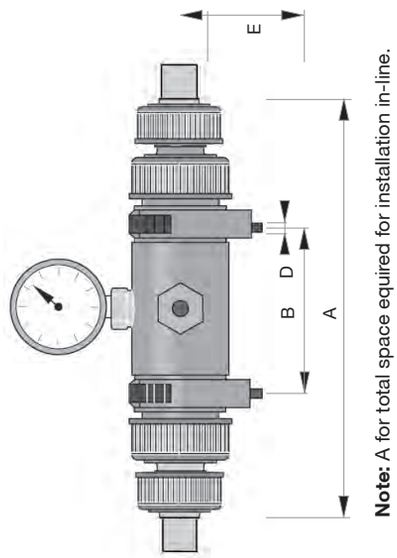
3.23 Accessories - Pulsation Dampeners

3.23.1 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.



Note: A for total space equired 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	**P1001342**
PDS	2500	Viton/V	Solvent Weld 40 Male	**P1001343**

PP IN LINE DAMPENER

Removable hose, EPDM seals.

Type	Volume ml	Hose material		Part No.
PDS	2500	Hypalon	*** non-stock item ***	**P1001344**
PDS	2500	Viton	*** non-stock item ***	**P1001345**

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.

3.23 Accessories - Pulsation Dampeners

3.23.1 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.

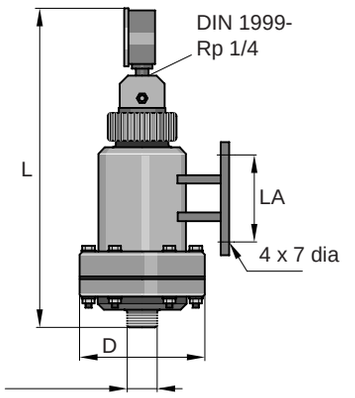
Important: When using a pulsation damper, the pressure relief valve should be fitted with an adjustable back pressure valve.

PVC ACCUMULATORS

Accumulator removable, FKM seals.

Volume Litres	Diaphragm material	Connection	L mm	ŘD 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 204	11	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.



DIN ISO 118 G1A

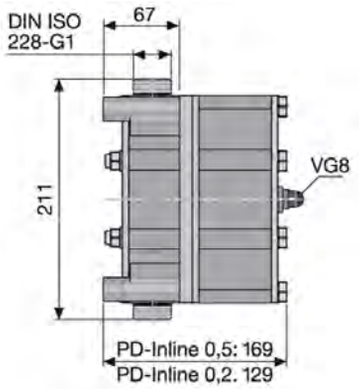
In-line damper PVDF

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!**

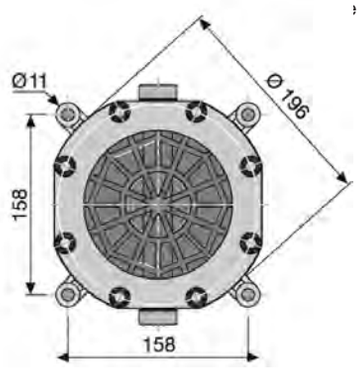
Design: DGRL97/23/EC, other acceptance procedures/countries available on request.

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/adapter 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 adatprs & union nuts, corresponding gaskets available locally.

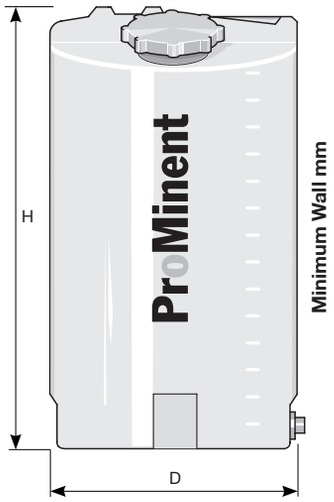
4.0 ProMinent® Chemical Tanks and Bunds

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)	∅ mm D	Height mm H		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**



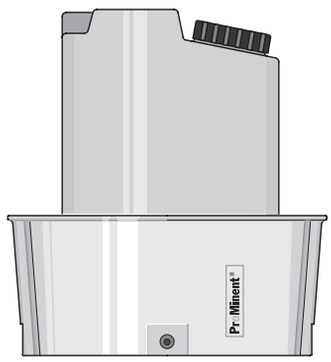
Note: These tanks are fully enclosed, and as such cannot be stacked. For freight purposes the cubic capacity rather than weight will be charged for shipment.

NOTE: FOR LARGER TANKS SEE GREEN PAGES PRICE LIST

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**



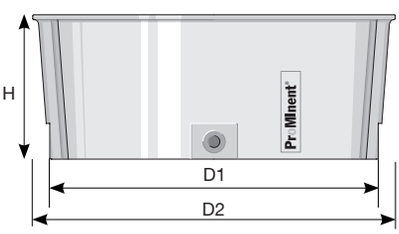
4.0.2 Stackable Bunds For Dosing Tanks PE

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 undercapacity.
ProMinent have made their bunds to to comply with their tanks above PLUS 10% reserve.

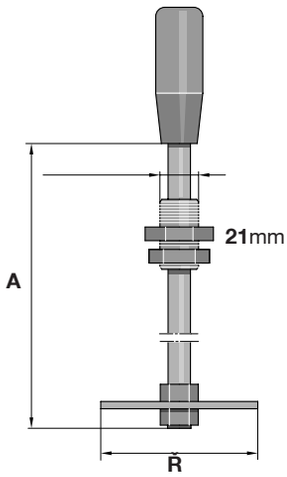
PE COLOURLESS/TRANSPARENT STACKABLE BUNDS

Usable capacity in litres	Material	D2 Ř mm	D1 Ř 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

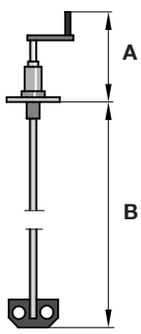


PP HAND MIXER

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 price list

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

Measurement range	pH: 0.00 ... 14 ORP: -1000 ... +1000 mV ... Chlorine: 0.05- 10 ppm
Resolution	pH: 0.01 pH ... ORP: 1 mV ... Chlorine: 0.01 ppm Conductivity: 1 µS/cm depends on measuring range)
Correction variable	Temperature for pH via Pt 1000
Correction range	0 … 120 °C
Control characteristic	P/PID
Control	1-way controller with selectable control direction (raise/lower)
Signal current output	1 x 0/4-20 mA galvanically isolated max. load 400 Ω Range and assignment (measured or actuating variable) can be set
Control outputs	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
Electrical connection	90 - 253 V ~
Ambient temperature	-10 ... +60 °C
Enclosure rating	IP 67
Dimensions	135 x 125 x 75 mm (H x W x D)
Weight	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

Installation
- **W** Wall mounting

Version
- **00** with ProMinent logo

Power Supply
- **6** 90 - 253 V 48/63 Hz

Approvals
- **01** CE Mark

Hardware Expansion 1
- **0** None

Hardware Expansion 2
- **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'

External Connection
- **0** None

Software Preset
- **V** Software preset

Measured variables
- **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_2
- **Z** Ozone 0-2 ppm O_3

Connection of measured variable
- **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

Correction variable
- **0** None
- **2** Temperature via Pt 100 (via terminal) for pH
- **4** Manual temperature compensation for pH

Control input
- **0** None
- **1** Pause

Standard signal output
- **0** None
- **1** Standard signal 0/4-20 mA configurable output

Power relay
- **G** Alarm, 2 limit relays or 2 timer
- **M** Alarm, 2 solenoid valve relays or 2 timer

Pump control
- **0** None
- **2** Two pumps via pulse frequency

Control characteristic
- **0** None
- **1** P control
- **2** PID control

Language
- **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 net works 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 sys tems 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® diaLog DACb Multi-parameter Controller

5.2.2 Technical Data **diaLog DACb** Multi-parameter Controller

Measuring range	**mV connection type:** pH: 0.00 ... 14.00 ORP voltage: -1500 ... +1500 mV **Connection type mA (amperometric measured variables, measuring ranges corresponding to the sensors):** 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 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
Resolution	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.%
Accuracy	0.3% based on the full-scale reading
Measurement input	pH/ORP (input resistance > 0.5 x 10^{12} Ω)
Temperature compensation	Pt 100/Pt 1000 for pH, chlorine dioxide (CDP) sensor and fluoride
Correction range	0 … 100 °C
pH compensation range for chlorine	Sensor CLE 3 and CLE 3.1: 6.5 ... 8.5, sensor CBR: 6.5 ... 9.5
Disturbance signals	Flow via 0/4 … 20 mA or contact water meter 1 - 500 Hz, the interference variable acts on both channels (depending on identcode)
Control characteristic	P/PID control
Control	2 x bidirectional control outlets
Analogue outputs	2 (3) x 0/4 ... 20 mA electrically isolated, max. load 450 Ω, range and assignment (measured, correction, control variable) can be set
Control outputs	2 x 2 pulse frequency outputs for metering pump control 2 relays (limit value, 3-point step or pulse length control)
Alarm relay	250 V ~3 A, 700 VA contact type changeover contact
Digital control inputs	4 (7) as a remote control input for the functions pause control / sample water fault, parameter set switch-over, level monitoring of chemical tanks
Electrical connection	90 – 253 V, 50/60 Hz, 25 VA, 24 V DC
Field bus connection	PROFIBUS® -DP, Modbus RTU
Ambient temperature	0 ... 50°C (for use indoors or with a protective enclosure)
Enclosure rating	Wall-mounted: IP 66 and IP 67 (NEMA 4X) Installation in the control cabinet: IP 54 for control cabinet door
Tests and approvals	CE, MET (corresponding to UL according to IEC 61010)
Housing material	PC with flame proofing equipment
Dimensions	250 x 220 x 122 mm (WxHxD)
Weight	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

Extended Functions
Versions 0 & 4 are stocked in Sydney
Versions 2 & 3 are ex Germany

***Note:** NOT for 24VDC Version

RC Protection board [spare part] P/N 733880

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 soliton 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 DULCONNEXproducts 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: DULCOnnX 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

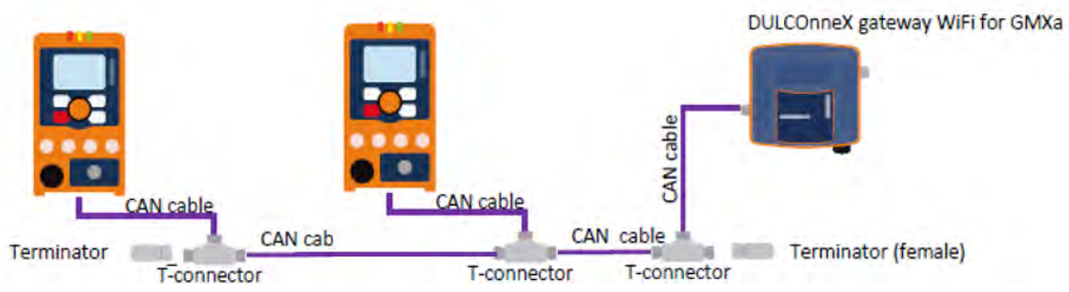
5.3.2 Identity Code & Pricing for **DULCONNEX** from ProMinent®

	Gatway Type	
A	**DX Gateway LAN**	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	**DX Gateway CAN**	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	
C	**DULCONNEX subscription**	No of DX Subscription, 12 months *.
	Module	
D	**CIO50**	No of CI050 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.
E	**CIO300**	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.
F	**CIO57**	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.
G	**UVCb CAN connector set**	"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	
H	**CIO Modules housed and wired**	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	
I	No of, Factory setup onto DULCONNEX system pre shipment	
	Level Sensor	
J	No of, UGT204 Ultrasonic level sensor 4-20mA output. Range 150 to 1600mm with M12 PNP connector	
	Temperature and Transducer	
K	"PT100 Temperature Sensor and 4-20mA transducer and SN6 cable. * requires sample flow DGMA"	
On request	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 from ProMinent®

DULCONNEX Package for DACb

DX ADDER - DULCONNEX Add on Kit for DACb	**PA51003580**
Adds DULCONNEX to DACb pool packages. **Includes LAN & DX Gateway.** Subscription included @ TBA Customer to provide Wi- Fi Contractor subscription discount	

DULCONNEX Annual Subscription	**zzDulcoSub**
12 month subscription	

ProConnect Package for DACb

ProConnect Package for use with DULCONNEX	**PA51003593**
ProConnect Network Communications Box - LTE & WiFi [excludes SIM]	

ProConnect Annual Subscription	**zzProSub**
12 month data SIM plan [1G per month]	

DACb with LAN

DULCONNEX
Gateway WiFi

ProConnect
LTE router & WiFi

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.

Measurement range:	0.05… 10 mg/l fluoride
pH range:	5.5… 8.5
Temperature range:	1…35 °C
Max operating pressure:	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.

	Part No.
Fluoride Monitor mounted on panel with PHEN	**PA56003336**

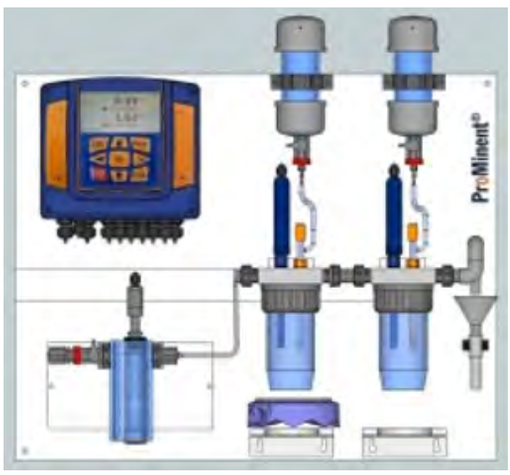
Note: c/w air-break, PHEN flowing junction reference electrode, KCl reservoir,1000ml KCl, 25m 8x5 sample line and 1 x1/2” BSP to 8x5 PVC adaptor.

	Part No.
TISAB Add-on Module assembly c/w 60 lt tank	**PA56003043**

PA56003043

5.4 DULCOMETER® Fluoride Monitoring

5.4.2 Measured Variable, Fluoride in Drinking Water



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**

For older Systems	
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

Arriving in 2023

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

5.6 DULCOMETER® Transducers DMT

5.6.1 Measured Variables: pH, Redox, Temperature, Conductivity

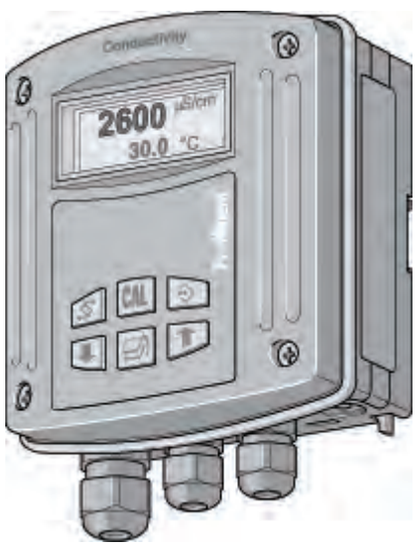
DULCOMETER® DMT type transmitters are compact 2-wire transmitters for measured variables pH, redox, chlorine, conductive conductivity, temperature. Easily combined with programmable memory controllers.

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

Measurement range:	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)
Cell constant:	0.006…12.0/cm for conductivity
Resolution:	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)
Reproducibility:	0.5 % from measurement range
Measurement input:	mV terminal (pH, redox); imput resistance >5 x 10^{11} ý
	Chlorine terminal (DMT chlorine probes)
	Pt 100/1000 terminal
	Conductivity terminal (2 or 4 wire connector)
Correction variable:	Temperature via Pt 100/1000 (pH, chlorine, conductivity)
Current output:	4…20 mA, fault current 23 mA
Supply voltage:	16…35 V DC (nominal 24v)
Communication interface:	Profibus DP (wall-mounted version only)
Ambient temperature:	-5...+55 °C
Climatic conditions:	up to 95 % relative humidity (non-condensing)
Enclosure rating:	IP 65 (wall/pipe mounted)
	IP 54 (control panel installation)
Display:	graphical display
Housing:	PPE
Dimensions:	125 x 135 x 75 mm (WxHxD)
Weight:	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[1]

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[2] nominal

Communication interface:

0 None

4 Profibus® DP[3] (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.

DMT	**A**	**W**	**0**	**9**	**0**	**P**	**1**	**0**	**E**		**0**	**0**	**0**	**0**

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

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® Test Instruments

5.7.2 Portamess® 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® 911pH

Measurement range:	pH: -2.00….+16.00 mV: -1300…+1300 °C: -20.0…+120
Measurement error:	pH: < 0.01 mV: < 0.1 % of measured value ±0.3 mV °C: < 0.3 K
Measured variable	
buffer memory:	100 storage spaces: pH/mV, °C, time and date
Sensor adjustment:	8 buffer record options
Temperature compensation:	manual
Explosion protection:	IP 66
Operating life:	2000 hours with 3 AA batteries
Dimensions:	133 x 160 x 30 mm (WxHxD)
Weight:	Approx. 560 g with batteries
Supplied as standard:	measuring device, carrying case, operating instructions manual in German, English and French.

	Part No.
Portamess® 911 pH (**not Ex**)	**1008710**

Notice: the PHEKT 013 F **pH electrode** and the buffer solutions are **NOT INCLUDED** as standard.

NOT A STOCK ITEM

	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

5.8 DULCOMETER® Photometer DT1

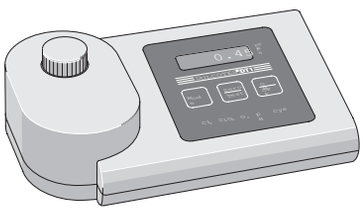
5.8.1 DULCOMETER® Photometer DT 1

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

Measurement range of DT1:	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
Measurement range of DT3:	1…50 / 40...500 mg/l Hydrogen Peroxide
Measurement range of DT4:	0.03…2.5 mg/l Chlorite 0.05...11 mg/l Chlorine Dioxide 0.05…6.0 mg/l Chlorine
Measuring tolerance:	Dependant upon measured value and measuring method
Battery:	4 x batteries AA/LR6
Ambient temperature:	5...40 °C
Relative humidity:	30...90 % (non-condensing)
Housing material:	ABS
Keypad:	Polycarbonate
Dimensions:	190 x 110 x 55 mm (LxWxH)
Weight:	approx. 0.4 kg

	Part No.
Photometer DT1B kit with carrying case *Included as standard with DT1 are accessories, cells and15ml bottles of reagents DPD1, DPD1 Buffer, DPD3, Phenol Red tablets (50) and Cyanuric Acid tablets (50).*	**1039315**
Photometer DT3B kit with carrying case *Included as standard with DT3 are accessories, cells andreagents for hydrogen peroxide.*	**1039317**
Photometer DT4B kit with carrying case *Included as standard with DT1 are accessories, cells and reagents for chlorine and chlorine dioxide detection.*	**1022695**

Consumable items	**Part No.**
DPD 1 buffer, 15 ml *(Note: approx 360 drops per 15ml)*	**1002857**
DPD 1 reagent, 15 ml	**1002858**
DPD 3 solution, 15 ml	**1002859**
Phenol red tablets R 175 (100 in each)	**305532**
Cyanuric acid tablets R 263 (100 in each)	**305531**
3 off spare cells: round cells with covers for DPD phenol red and cyanuric acid detection (DT1 and DT2B)	**1007566**
3 off spare cells for fluoride detection (DT2A and B)	**1010396**
DPD reagents set, 15 ml each: 3 x DPD 1 buffer, 1 x DPD 1 reagent, 2 x DPD 3 solution (Total = **6 BOTTLES)**	**1007567**

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.

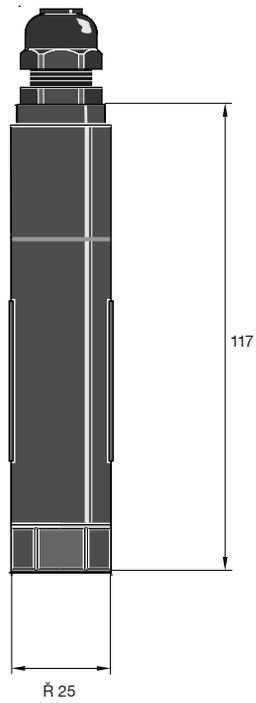
Advantages

- 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 ±pH 0.07)
Socket:	SN6
Input resistance:	> 5 X 10^{11} Ω
Signal output:	4…20 mA ł -500…+500 mV ł 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 Ř

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 ±0.5 mV (typical ±3 mV)
Input resistance:	> 5 x 10^{11} Ω
Signal output:	4…20 mA ł 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 ±0.5 °C (typical ±0.3 °C)
Input resistance:	~ 0 Ω
Signal output:	4…20 mA ł 0…+100 °C not electrically isolated
Power supply:	18…24 V DC

Part No.
809128

5.9 DULCOMETER® Technology Ancillary Equipment

5.9.2 Electrodeless Conductivity Sensor

Inductive Conductivity

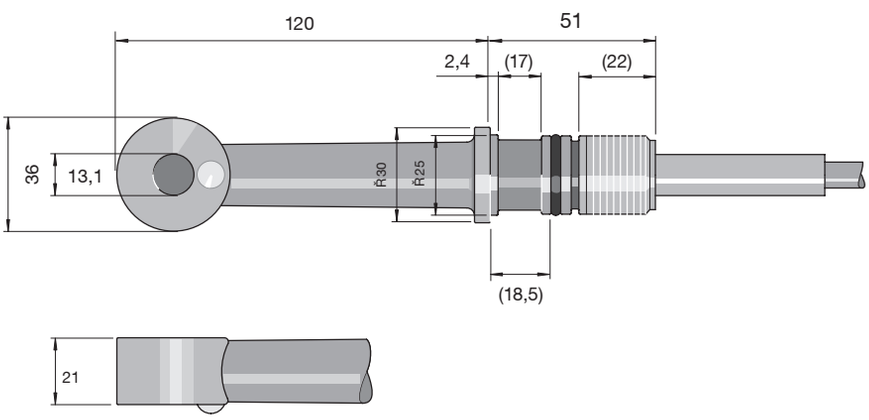
ELECTRODELESS SENSOR LF 654X

Cell factor:	Nominal value 2.15 cm^{-1}
Measurement range:	0.001 mS/cm … 2000 mS/cm
Material:	Cell: PEEK, Seal EPR
Temperature probe:	NTC 100 ký
Temperature:	-5…+120 °C
Pressure:	0….17.5 bar
Cable length:	6 m
Explosion protection:	EEx ia IIC T4…T6
Mounting:	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



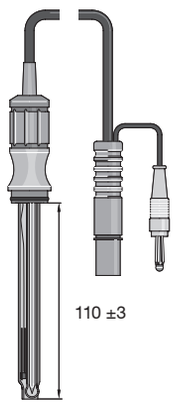
5.9 DULCOMETER® Technology Ancillary Equipment

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 ký) -5…+100 °C
Immersion depth:	min. 36 mm
	Max. total length inc. cable
Pressure resistance:	2 bar
Temperature range:	0…90 şC
Cell constant:	0.475 cm^{-1} ±1.5 %
Measurement range:	1 µS/cm…500 mS/cm



	Part No.
Conductivity sensor LF 204	**1008723**

Note: See also Green Pages Price List

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.

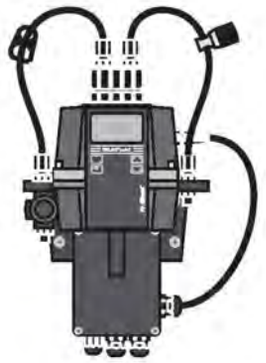
Field of application

- 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

Measuring Range	0 - 1000 NTU
Accuracy:	± 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
Resolution:	0.0001 NTU below 10 NTU
Response time:	Configurable
Display:	Multiple row LCD display with background lighting
Alarm Relay:	Two programmable alarms, 120-240 VAC, 2 A Form C relay
Output Signal:	4…20 mA, 600 Ω, electric isolation: dual insulation, interference surge category II
Communication interface Max. pressure	Bi-directional RS-485, Modbus Integrated pressure regulating valve regulates 1380 kPa (200 psi), based on the flow rate
Flow:	6…60 l/h
Temperature:	1…50 °C
Materials in Contact With the Medium:	Polyamide (PA), silicone, polypropylene (PP), stainless steel, borosilicate glass
Voltage supply:	100 – 240 V AC, 47 – 63 Hz, 80 VA
Hydraulic connections:	Black hose, inside 4.75 mm, outside 8 mm, installation in the bypass for the process main line
Ambient conditions:	Not suitable for operation outdoors. Maximum operating altitude 2000 m above sea level. Maximum 95% relative air humidity (non-condensing).
Enclosure rating:	IP 66, NEMA 4x
Standard:	Infrared light: ISO 7027, DIN EN 27027
Dimensions H x W x D	35 x 30 x 30 cm
Shipping weight:	2.5 kg



	Standard	Ultrasonic Cleaning	Part No.
TUC 5	Infrared light: ISO 7027, DIN EN 27027	Yes	**P1115440**
TUC 6	White light: US EPA 180.1	Yes	**P1115441**

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	**1037701**
TUC 1/TUC 2 cuvette (set with 3 no.)	**1037877**
Cuvette TUC 3/TUC 4/TUC 5/TUC 6	**1037878**
Infrared lamp TUC 1/TUC 3/TUC 5	**1037702**
White light lamp TUC 2/TUC 4/TUC 6	**1037703**
Hose set TUC 1/TUC 2/TUC 3/TUC 4	**1037879**
Hose set for TUC 5 and TUC 6	**1116180**
Pressure regulating valve	**1037885**

Chemical Turbidity Standard 0.02 Ntu 1 Litre	**53030***
Chemical Turbidity Standard 10 Ntu 1 Litre	**53000***
Chemical Turbidity Standard 1000 Ntu 1 Litre	**53070***

Note: Non-stock items. Lead time 2-3 weeks.

Accessories	Part No.
Calibration set	**1037699**
Flow control	**1037880**
Air bubble trap	**1037700**

6.0 DULCOTEST® Sensor Technology

6.0 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 handmade.

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

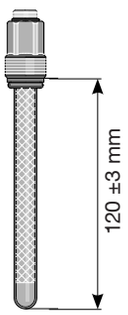
For all other pH & Redox Probes and associated equipment see the appropriate section in the 'Green Page' Price List

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.



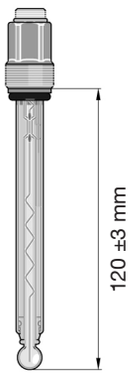
Temperature:	0 … 100 °C
Max. pressure:	10.0 bar
Thread:	PG 13.5
Electrical connection:	SN6
Typical applications:	Temperature measurement and pH temperature correction

	Part No.
Pt 100 SE	**305063**
Pt 1000 SE	**1002856**
SN6 - Open end cable 5m [for above]	**1003208**

6.1 DULCOTEST® pH Probes

6.1 Dulcotest® PHER, PHEN and pH Combination Probes

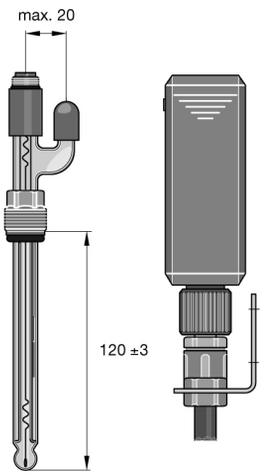
PHER 112 SE



pH range:	1...12
Temperature:	0...80 °C
Max. pressure:	6 bar
Min. conductivity:	>50 µS/cm
ELECTROLYTE WITH SOLID KCL SUPPLY (SALT RINGS IN THE REFERENCE ELECTROLYTE)	
Diaphragm:	PTFE ring diaphragm
Installation Length:	120 ±3 mm
Connection:	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



pH range:	1...12
Temperature:	0...80 °C
Max. pressure:	Atmospheric pressure
Min. conductivity:	>50 µS/cm KCl electrolyte, refillable
Diaphragm:	3 Ceramic diaphragms
Installation Length:	120 ±3 mm
Connection:	PG 13.3 SN6
Typical applications:	Waste water

Note: Supplied without storage container and tubing.

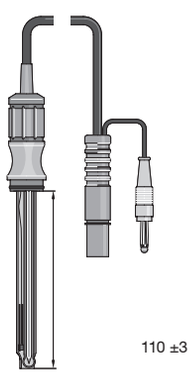
	Part No.
	150078

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 Price List 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.

pH range:	0…13
Temperature:	0…80 şC
Max. pressure:	atmospheric pressure
Min. conductivity:	>150 µS/cm
Diaphragm:	fibreglass
Length:	110 mm ± 3 mm
Device plug:	DIN plug/banana plug

	Part No.
PHEKT 013 F ex HD works	**1036537**

6.2 DULCOTEST® pH Probes

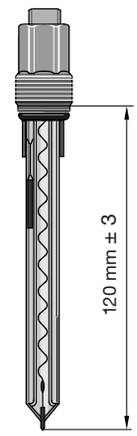
6.2 Dulcotest® CLB 2-µA Chlorine Senso/ RHEP-Au-SE Gold Tipped Sensor

Note: See Green Pages Price List for POOL Probes &alternative Industrial probes.

RHEP-Au-SE

GOLD PIN ELECTRODE

Temperature:	0…80 şC
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 salwater 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:

Free (active) chlorine:	Cl_2, HOCl (hypochlorous acid), OCl^- (hypochlorite) recommended sensors: CLE (analysis: DPD 1).
Combined chlorine:	mono, di, trichloramine (analysis: DPD 4 - DPD 1).
Organic combined chlorine:	Of isocyanuric acid / isocyanurate bound chlorine (total available chlorine) and the resulting free (effective) chlorine; recommended sensor: CGE (analysis: DPD 1).
Total chlorine:	Sum of free and combined chlorine; recommended sensor: CTE (analysis: DPD 4).
Applications:	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).
Guidelines for device usage:	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.

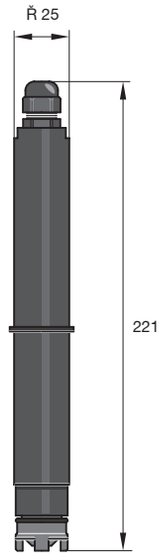
6.3 DULCOTEST® Amperometric Sensors

6.3.2 DULCOTEST® Sensors for free chlorine - CLE 3-mA & CLE 3.1-mA

Measurement of free chlorine

CLE 3-mA

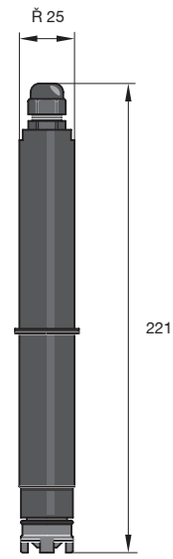
Measured variable:	Free chlorine (hypochlorus acid HOCl)
Analysis:	DPD 1
Measurement range:	0.01... 50 mg/l
pH range:	5.5…8.0 (up to pH 8.5 for pH correction in the D1C)
Temperature range:	5…45 °C (temperature compensated)
Max. pressure:	1 bar
Flow:	30…60 l/h (in DGM or DLGA)
Power supply:	16…24 VDC (two-wire technology)
Output signal:	4…20 mA ł measurement range (un-calibrated) **Warning: no electrical isolation!**
Typical applications:	CLE 3-mA-0.5 ppm, potable water CLE 3-mA-2.0/10 ppm, swimming pool, potable, industrial, process water (surfactant free)
Measurement and control devices:	D1C, D2C, DAC
In-line probe housing:	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

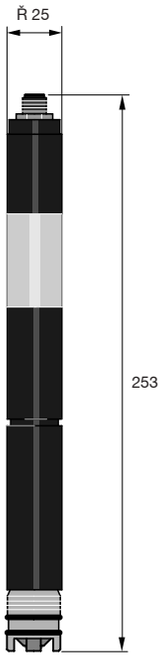
Measured variable:	Free chlorine (hypochlorus acid HOCl) where there is a high rate of combined chlorine and/or in the case of pH values up to 8.5 (with D1C pH correction).
Analysis:	DPD 1
Measurement range:	0.02...2.00 mg/l (CLE 3.1-mA-2 ppm) 0.01...5.0 mg/l (CLE 3.1-mA-5 ppm) 0.1...10.0 mg/l (CLE 3.1-mA-10 ppm)
pH range:	5.5…8.0 (up to pH 8.5 for pH correction in the D1C)
Temperature range:	5…45 °C (temperature compensated)
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 ł measurement range (un-calibrated) **Warning: no electrical isolation!**
Typical applications:	CLE 3-mA-2.0/10 ppm, swimming pool, potable, industrial, process water (surfactant free)
Measurement and control devices:	D1C, D2C, DAC
In-line probe housing:	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

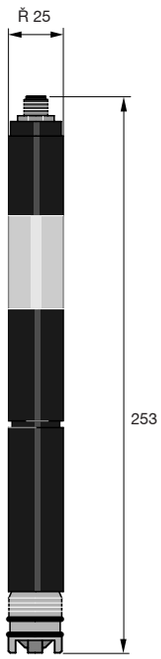
6.3.3 DULCOTEST® Sensors for Free Chlorine - CLE 3-CAN



CLE 3-CAN

Measured variable:	Free chlorine (hypochlorus acid HOCl)
Analysis:	DPD 1
pH range:	5.5…8.0
Temperature range:	5…45 °C (temperature compensated)
Max. pressure:	1 bar
Flow:	30…60 l/h (in DGM or DLGA)
Power supply:	Via CAN interfaace(11-30V)
Output signal:	un-calibrated, temperature compensated, electrically isolated
Typical applications:	swimming pool, potable water (surfactant free)
Measurement and control devices:	DULCOMARIN®
In-line probe housing:	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

Measured variable:	Free chlorine (hypochlorus acid HOCl) with large proportions of bound chlorine; to detect bound chlorine using DULCOMARIN® II and Sensor for Total Chlorine type CTE 1-CAN
Reference Method:	DPD 1
pH range:	5.5…8.0 (up to pH 8.5 for pH correction in the D1C)
Temperature range:	5…45 °C (temperature compensated)
Max. pressure:	1 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:	swimming pool, potable water with a high percentage of boundchlorine (surfactant free)
Measurement and control devices:	DULCOMARIN®
In-line probe housing:	DGM, DLGA

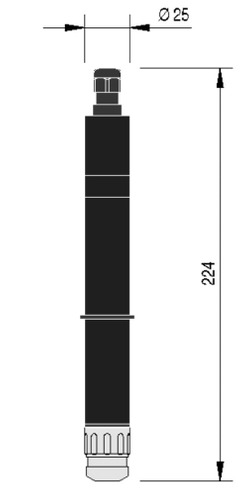
	Part No.
CLE 3.1-CAN-10 ppm 0.01 ... 10.0 mg/l complete with 100 ml electrolyte	**1023426**

6.3 DULCOTEST® Amperometric Sensors

6.3.4 DULCOTEST® Sensors for Free Chlorine CL0/CLR

CLO 1-mA

Measured variable:	free chlorine (hypochlorus acid HOCl)
Reference method:	DPD1
pH range:	5,0 … 9,0
Temperature range:	5 … 45 °C
Max. pressure:	8,0 bar
Intake flow:	30…60 l/h (in DGM or DLG III), constant flow as flow-dependent signal
Power supply:	16...24 V DC (2-wire)
Output signal:	4…20 mA = Measuring range, temperaturecompensated, uncalibrated, not electrically isolated
Typical applications:	swimming pool, uncontaminated drinking water and industrial service water, and can also be used together with diaphragm-free electrolysis processes
Measurement and control equipment:	D1C, D2C, DAC
In-line probe housing:	DGM, DLG III to 60 °C, special fitting for 60 °C-70 °C (on request)
Measuring principle:	amperometric, 3 electrodes, no diaphragm

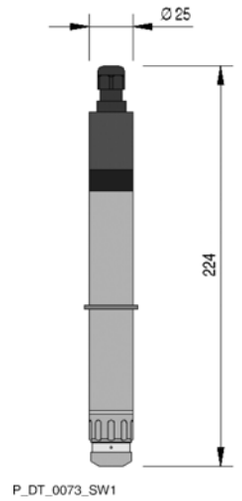


P_DT_0072_SW1

		Part No.
CLO 1-mA-2 ppm	0,02…2,0 mg/l	**1033871**
CLO 1-mA-10 ppm	0,10…10,0 mg/l	**1033870**

CLO 2-mA

Measured variable:	free chlorine (hypochlorus acid HOCl)
Reference method:	DPD1
pH range:	5,0 … 9,0
Temperature range:	5 … 70 °C
Max. pressure:	8,0 bar
Intake flow:	30…60 l/h (im DGM oder DLG III), constant flow as flow-dependent signal
Power supply:	16…24 V DC (two-wire system)
Output signal:	4…20 mA = Measuring range, temperature-compensated, uncalibrated, not electrically isolated
Typical applications:	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
Measurement and control equipment:	D1C, D2C, DAC
In-line probe housing:	DGM, DLG III to 60°C, special fitting for 60°C-70°C (on request)
Measuring principle:	amperometric, 3 electrodes, no diaphragm

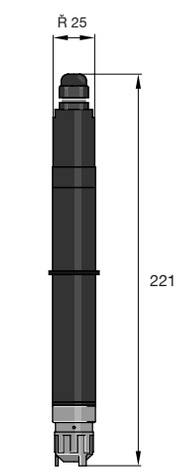


P_DT_0073_SW1

		Part No.
CLO 2-mA-2 ppm	0,02…2,0 mg/l	**1033878**

CLR 1-mA-200ppm

Measured variable:	Free chlorine (hypochlorous acid HOCl)
Reference method:	DPD1pH range5.5 … 8.0
Temperature:	5 … 45 °C
Max. pressure:	1.0 bar
Intake flow:	30…60 l/h (in DGM, DLG II)
Power supply:	16...24 V DC (2-wire)
Output signal:	4…20 mA = Measuring range, temperature-compensated, uncalibrated, not electrically isolated
Typical applications:	Salad, vegetable and poultry washing water, contaminated process and waste water
Measuring and control equipment:	D1Cb, DAC, delta® solenoid diaphragm metering pump
In-line probe fitting:	DGM, DLG III
Measuring principle:	amperometric, 2 electrodes, diaphragm-covered



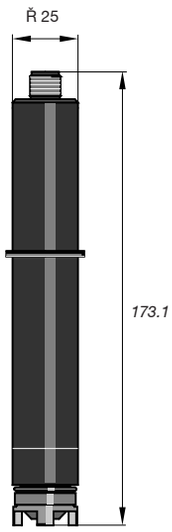
		Part No.
CLR 1-mA-200 ppm	20.00 …200,0 mg/l	**1047978**

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.



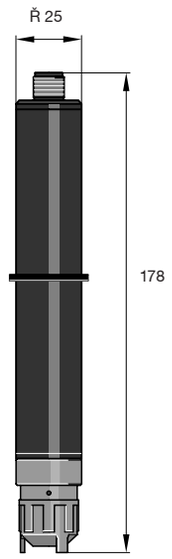
Measured variable:	Free chlorine (hypochlorous acid HOCl)
Reference method:	DPD1
Measurement range:	0.01...5.0 mg/l
	0.05...50 mg/l
Supply:	From the DMT measurement transducer (3.3 VDC)
Output signal:	Un-calibrated, not temperature compensated
Temperature:	5…45 °C
Max. pressure:	1 bar
Flow:	30…60 l/h (in DGM or DLGA)
Measurement:	Via integrated Pt 1000: compensation carried out in DMT
Measuring cell output:	5-pin plug

Other data as for CLE-3 mA.

	Part No.
CLE 3-DMT-5 ppm set with 100 ml electrolyte	**1005511**
CLE 3-DMT-50 ppm set with 100 ml electrolyte	**1005512**

CTE 1-DMT

Measuring cell for use with the DMT “chlorine” measurement transducer.



Measured variable:	Total Chlorine
Reference method:	DPD4
Measurement range:	0.01...10 mg/l
Supply:	From the DMT measurement transducer (3.3 VDC)
Output signal:	Un-calibrated, not temperature compensated
Temperature:	5…45 °C
Max. pressure:	1 bar
Flow:	30…60 l/h (in DGM or DLGA)
Measurement:	Via integrated Pt 1000: compensation carried out in DMT
Measuring cell output:	5-pin plug

Other data as for CLE-3 mA.

	Part No.
CTE 1-DMT-10 ppm set with 50 ml electrolyte	**1007540**

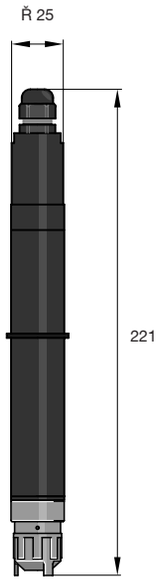
6.3 DULCOTEST® Amperometric Sensors

6.3.6 DULCOTEST® Sensors for Total Chlorine - CTE

Measured variable of total chlorine

CTE 1-mA

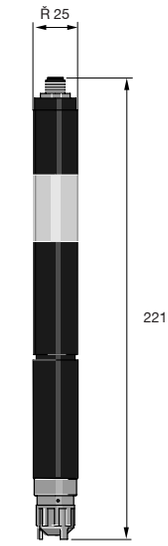
Measured variable:	total chlorine
Analysis:	DPD 4
Measurement range:	0.01…0.50 mg/l (CTE 1-mA-0.5 ppm) 0.02… 2.00 mg/l (CTE 1-mA-2 ppm) 0.05… 5.00 mg/l (CTE 1-mA-5 ppm) 0.1…10.0 mg/l (CTE 1-mA-10 ppm)
pH range:	5.5…9.5
Temperature range:	5…45 °C
Max. pressure:	3 bar
Flow:	30…60 l/h (in DGM or DLGA)
Power supply:	16…24 V DC (two-wire technology)
Output signal:	4…20 mA ł measurement range (un-calibrated) **WARNING: NO ELECTRICAL ISOLATION!**
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



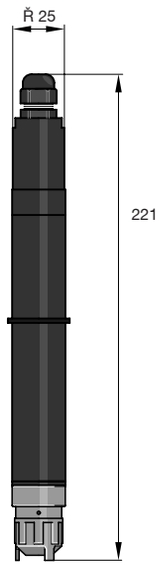
		Part No.
CTE 1-mA-10 ppm	0.01 ... 10.0 mg/l	**1023427**

6.3 DULCOTEST® Amperometric Sensors

6.3.7 DULCOTEST® Sensors for Total Chlorine - CGE

Sensor for total available and free chlorine

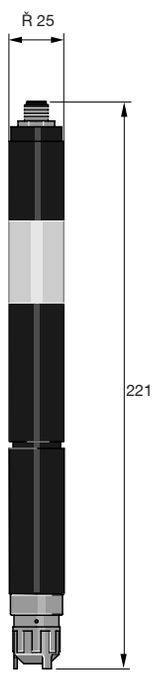
CGE 3-mA



Measured variable:	Free chlorine and total available chlorine: Total of organically bound chlorine (e.g. bound to cyanuric acid) and free chlorine
Analysis:	DPD 1
Measurement range:	0.02…2.00 mg/l (CGE 3-mA-2 ppm)
	0.1…10.0 mg/l (CGE 3-mA-10 ppm)
pH range:	5.5…9.5
Temperature range:	5…45 °C (temperature compensated)
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 ł measurement range (un-calibrated)
	Warning: no electrical isolation!
Typical applications:	Swimming pool, potable, industrial, process water, cooling water and water with a high pH value
Measurement and control devices:	D1C, D2C, DAC
In-line probe housing:	DGM, DLGA

	Part No.
CGE 3-mA-2 ppm set, with 50 ml electrolyte	**1047959**
CGE 3-mA-10 ppm set, with 50 ml electrolyte	**1047975**

CGE 3-CAN



Measured variable:	Free chlorine and total available chlorine: Total of organically bound chlorine (e.g. bound to cyanuric acid) and free chlorine
Analysis:	DPD 1
pH range:	5.5…9.5
Temperature range:	5…45 °C (temperature compensated)
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:	Swimming pool water
Measurement and control devices:	DULCOMARIN®
In-line probe housing:	DGM, DLGA

		Part No.
CGE 3-CAN-10 ppm - with 50 ml electrolyte	0.01 ... 10.0 mg/l	**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.

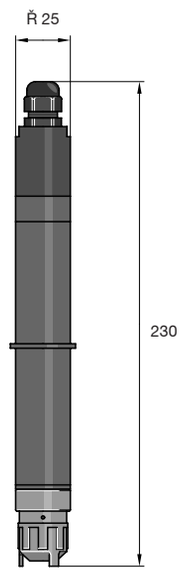
Alternatively, to measure BCDMH in the same measurement range, the BRE 1-mA-10 ppm sensor is recommended along with DPD4-method calibration.

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)

Measured variable:	Total available bromine from BCDMH (bromo-3-chloro-5.5-dimethythdantoin) and N-Bromanide sulphonate
Reference method:	DPD4
pH drange:	5.0 ... 9.5
Temperature range:	5 … 45 °C
Max. pressure:	1 bar
Sample flow:	30 … 60 l/h (in DGM or DLGA)
Voltage:	16 … 24 V DC (two-wire technology)
Output signal:	4 … 20 mA measurement range, temperature compensated
	Warning: not electrically isolated!
Typical applications:	Cooling water, process water, waste water, water with higer
	pH values (stable pH)
Measurement and control device:	D1C, D2C, DAC
In-line probe housing:	DGM, DLGA



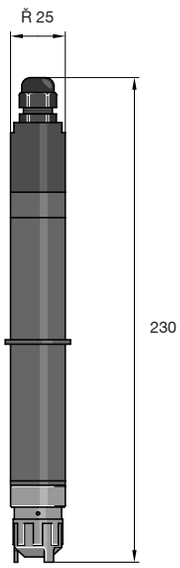
BCR 1-mA (replaces earlier BRE1)	**Part No.**
BCR 1-mA-0.5 ppm with 50 ml electrolyte	**1041697**
BCR 1-mA-2 ppm with 50 ml electrolyte	**1040115**
BCR 1-mA -10 ppm with 50 ml electrolyte	**1041698**

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)

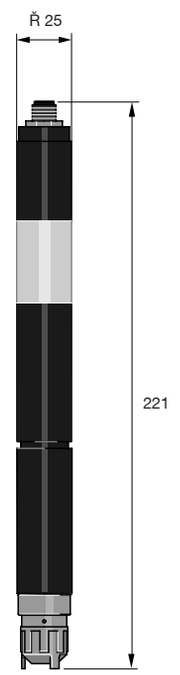


Measured variable:	Free chlorine (hypochlorous acid HOCl),free bromine, bound bromine
Reference method:	DPD1
pH range:	5.0 ..... 9.5
Temperature:	5 … 45 °C
Max. pressure:	1 bar
Flow:	30 … 60 l/h (in DGM or DLGA)
Power supply:	16 ... 24 V DC (2-wire)
Supply:	From the DMT measurement transducer (3.3 VDC)
Output signal:	4 ... 20 mA = Measuring range, temperature compenstated,uncalibrated, not electrically isolated
Typical applications:	Cooling water, Process water, Waste water, Water with higher pH values (stable pH)
Measurement and control equipment:	D1C, DAC
In-line probe fitting:	DGM, DLGA
Measuring principle:	amperometric, 2 electrodes, diaphragm-covered

		Part No.
CBR 1-mA-0.5 ppm	0.01 ... 0.5 mg/l	**1038016**
CBR 1-mA-2 ppm	0.02 ... 2.0 mg/l	**1038015**
CBR 1-mA-5 ppm	0.05 ... 5.0 mg/l	**1052138**
CBR 1-mA-10 ppm	0.10 ... 10.0 mg/l	**1038014**

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



Measured variable:	Total available bromine
Bromine chemicals:	DBDMH (1.3-dibromine 5.5-dimethyl hydantoin)
	BCDMH (1-bromine-3-chlorine-5.5-dimethyl hydantoin),free bromine
Reference method:	DBDMH, free bromine:DPD1
	BCDMH:DPD4
Measurement range:	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
pH dependence:	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 %
Temperature range:	5…45 °C
Max. pressure:	3 bar
Sample flow:	30…60 l/h (in DGM or DLGA)
Voltage:	Via CAN interface (11-30V)
Output signal:	uncalibrated, temperature compensated, electically isolated
Typical applications:	Swimming pools / whirlpools and cooling water; can also be used in seawater
Measurement and control device:	Dulcomarin®
In-line probe housing:	DGM, DLGA

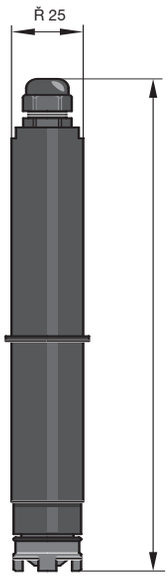
		Part No.
BRE 3-CAN-10ppm	0.02 ... 10.0 mg/l	**1029660**

6.5 DULCOTEST® Chlorine Dioxide Sensors

6.5.1 DULCOTEST® Sensors for Chlorine Dioxide - CDE/CDP

CDE 2-mA

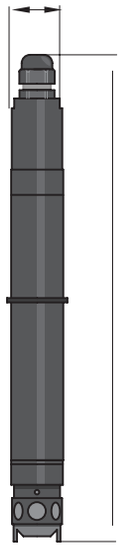
Measured variable:	Chlorine dioxide (ClO2)
Reference method:	DPD1
pH range:	4.0 … 11
Cross sensibility:	Ozone, compared with chlorine <2%
Temperature range:	1 … 45 °C
Max. pressure:	1,0 bar
Intake flow:	30…60 l/h (in DGMA or DLG III)
Supply voltage:	16…24 V DC
Output signal:	4…20 mA temperature compensated, uncalibrated, not electrically isolated
Typical applications:	uncontaminated potable water (surfactant-free)
Measurement and control equipment:	D1C, DAC
In-line probe housing:	DGMa / DLG III
Measuring Principle:	amperometric, 2 electrodes, diaphragm-covered

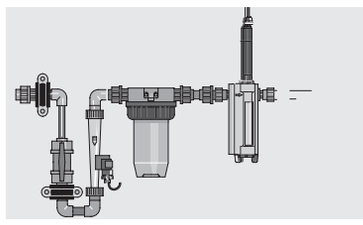


		Part No.
CDE 2-mA-0.5 ppm	0,01…0,5 mg/l	**792930**
CDE 2-mA-2 ppm	0,02…2,0 mg/l	**792929**
CDE 2-mA-10 ppm with 100 ml of electrolyte	0,10…10,0 mg/l	**792928**

CDP 1-mA-2 ppm (ClO_2-process probe)

Applications:	Bottle washing machines and water containing surfactants
Measured variable:	Chlorine dioxide (ClO_2)
Analysis:	DPD 1
Measurement range:	0.02...2.00 mg/l
pH range:	5.5...10.5
Temperature range:	10...45 °C (short term periods 55 °C) with external temperature correction via Pt 100 (no internal temperature correction!)
Temperature variation speed:	Up to 10 K/min
Max. pressure:	3 bar (no pressure surges)
Flow:	30...60 l/h (in DGM or DGMA)
Supply voltage:	16...24 V DC (two-wire technology)
Output signal:	4...20 mA ł measurement range (un-calibrated)
	Warning: no electrical isolation!
Type application:	Process water containing surfactants (bottle washing machines)
Measuring and control device:	D1C and DAC with automatic temperature compensation only
In line probe housing:	the following is recommended (see fig.) Probe housing quote on request.



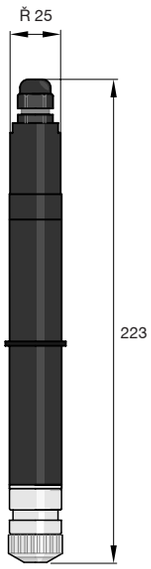


	Part No.
CDP 1-mA-2 ppm set with 100 ml electrolyte	**1002149**

6.5 DULCOTEST® Chlorine Dioxide Sensors

6.5.2 DULCOTEST® Sensors for Chlorine Dioxide - CDR

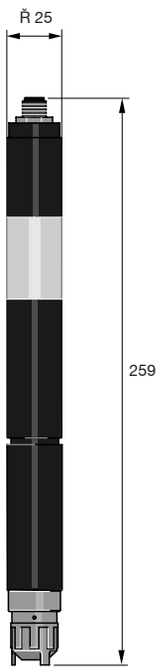
CDR 1-mA



Measured variable:	Chlorine dioxide (ClO2)
Reference method:	DPD1
pH range:	1.0 … 10
Temperature range:	1 … 55 °C (short-term periods 60 °C)
Max. pressure:	3.0 bar (30 °C in DGMA)
Intake flow:	30…60 l/h (in DGMA or DLG III)
Supply voltage:	16…24 V DC
Output signal:	4…20 mA temperature compensated, uncalibrated, not electrically isolated
Typical applications:	contaminated industrial, process water, containing surfactants,Cooling water, irrigation water,slightly contaminated waste water, warm water
Measurement and control equipment:	D1C, DAC
In-line probe housing:	DGMa / DLG III
Measuring Principle:	amperometric, 2 electrodes, diaphragm-covered

		Part No.
CDR 1-mA-0.5 ppm	0,01…0,5 mg/l	**1033762**
CDR 1-mA-2 ppm	0,02…2,0 mg/l	**1033393**
CDR 1-mA-10 ppm	0,10…10,0 mg/l	**1033404**

CDR 1-CAN



Measured variable:	Chlorine dioxide (ClO2)
Reference method:	DPD1
pH range:	1.0 … 10
Temperature range:	5 … 45 °C
Max. pressure:	1.0 bar (30 °C in DGMA)
Response time sensor:	t_{90}~ 3 min.
Intake flow:	30…60 l/h (in DGMA or DLG III)
Supply voltage:	Via CAN interface (11-30V)
Temperature measurement:	via integral digital semi-conductor device
Output signal:	uncalibrated, temperature-compensated, electrically isolated
Typical applications:	contaminated industrial, process water, containing surfactants,cooling water, irrigation water,slightly contaminated waste water, warm water
Measurement and control equipment:	Dulcomarin®
In-line probe housing:	DGMa / DLG III
Measuring Principle:	amperometric, 2 electrodes, diaphragm-covered

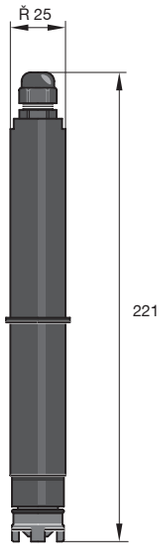
		Part No.
CDR 1-can-10 ppm	0,10…10,0 mg/l	**1041145**

6.6 DULCOTEST® Ozone Sensor

6.6 DULCOTEST® Sensors for Ozone - OZE 3-mA

OZE 3-mA

Measured variable:	Ozone (O_3)
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 ł measurement range (un-calibrated)
	Warning: no electrical isolation!
Typical applications:	Swimming pools, potable, industrial, process water, surfactant free
Measurement and control devices:	D1C
In-line probe housing:	DGM , DLGA

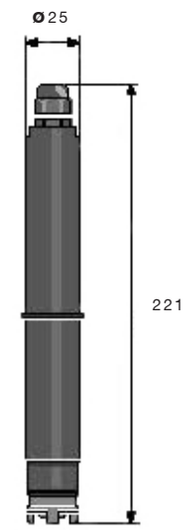


	Part No.
OZE 3-mA-2 ppm set, with 100 ml electrolyte	**792957**
OZE 3-mA-5 ppm set, with 100 ml electrolyte***	**792957-5PPM**

*** **special** *** not carried in stock, 6 week delivery

OZR 1-mA

Measured variable:	Ozone (O_3)
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 t90 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

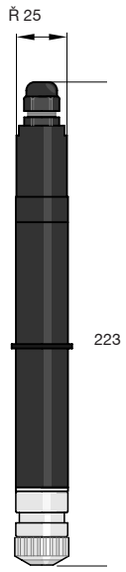


	Part No.
OZR 1-mA-0.5 ppm	**1118883**
OZR 1-mA-2 ppm	**1051647**
OZR 1-mA-10 ppm	**1118925**

6.7 DULCOTEST® PAA Sensor

6.7 DULCOTEST® Sensor for Peracetic Acid - PAA/PER

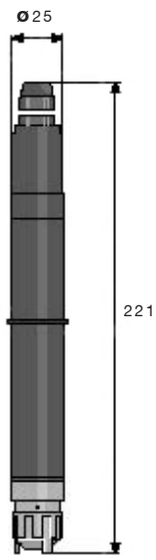
PAA 1-mA



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)
	Important not electrically isolated
Typical application:	scouring in Cleaning in Place (CIP) and rinsing systems,also designed for use in the presence of cationic andanionic 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

	Part No.
PAA 1-mA-200ppm	**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_{90}	< 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 waterinto 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

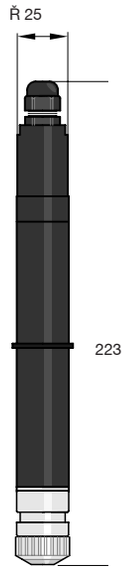
	Part No.
PAA 1-mA-200ppm	**1022506**
PAA 1-mA-2000ppm	**1022507**

6.7 DULCOTEST® PAA Sensor

6.7 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_{90} 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)
	Important not electrically isolated
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.
PER 1-mA-200ppm	**1022509**
PER 1-mA-2000ppm	**1022510**

6.8 DULCOTEST® H_2O_2 Sensor

6.8 DULCOTEST® Sensor for Hydrogen Peroxide

Measured variable:	Hydrogen peroxide
Calibration:	Photometric with manual DT3B photometer
Measuring range:	1...20, 10...200, 100...2000 mg/l, switchable
pH range:	2.5 … 10.0
Temperature:	0 … 40 °C
Admissible temperature fluctuation:	< 1 °K/min (with external T measurement)
Response time sensor t_{90}	approx. 20 sec
Min. conductivity	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
Max. pressure:	2.0 bar
Intake flow	30…60 l/h
Supply voltage	16...24 V DC(3-wire system)
Output signal	4…20 mA not temperature-compensated, uncalibrated, not electrically isolated
Selectivity:	Hydrogen peroxide selective towards free chlorine
Installation	Bypass: open outlet or return of the sample water into the process line
Sensor fitting:	DGM, DLG III
Output signal:	4…20 mA assigned to the measuring range, temperature-corrected, calibrated and galvanically isolated
Measuring & control equipment:	DACa, DAC
Typical applications:	Exhaust air scrubbers, treatment of swimming pool water, potable water, controls with requisite very short response times.
Resistance to:	Salts, acids, lyes, surfactants.
Measuring principle, technology	amperometric, 2 pulsing electrodes, diaphragm-covered

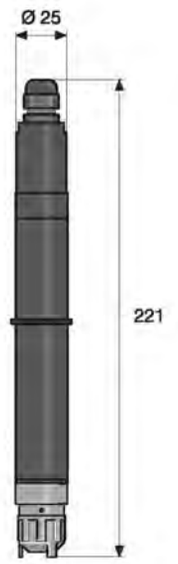
	Part No.
H_2O_2 sensor PEROX-H2.10 P	**792976**
PEROX transducer V1 for D1Ca	**1034100**
PEROX Transducer V2 for DAC	**1047979**

Accessories	**Part No.**
Photometer DT3B hydrogen peroxide (for calibration)	**1039317**
Polishing paste (to electrode cleaning)	**559810**

6.8 DULCOTEST® H_2O_2 Sensor

6.8.1 DULCOTEST® Sensor PEROX H 3E-mA

Measured variable:	Hydrogen peroxide
Calibration:	Photometric with manual DT3B photometer
pH range:	2.5 … 8.0
Temperature:	0 … 45 °C
Admissible temperature fluctuation:	< 1 °K/min (with external T measurement)
Response time sensor t_{90}	< 45 s
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 (two-wire technology) V DC
Output signal	4...20 mA not temperature-compensated, uncalibrated, not electrically isolated
Electrical Connection	via a 4-pin plug on the sensor via an open-ended signal cable on the unit
Selectivity	Hydrogen peroxide selective to free chlorine, peracetic acid, sulphite
Process integration	Bypass: open outlet or return of the sample water into the process line
Sensor fitting	BAMa, DGMa, DLG III
Controllers	DAC, D1Cb (without temperature correction)
Typical applications	Swimming pool, plant irrigation water, chlorine elimination. Can also be used for moderately contaminated water, controls with the necessary short response times and low H2O2 concentrations
Resistance to	Salts, acids, alkalis, surfactants, dirt films
Measuring principle, technology	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 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 waterthat 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.

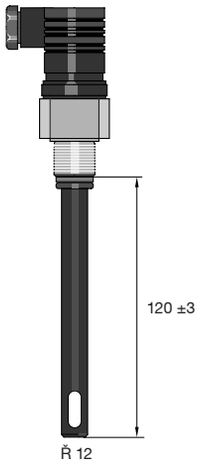
DO 3-mA

Measured variable:	Dissolved oxygen
Calibration:	On atmospheric oxygen or by reference measurement in the process water
Measuring accuracy:	±0.1 mg/l
Response time sensor t90	< 60 s at 25 °C from air to nitrogen
Temp. range:	0 -50 °C
Temperature correction	integrated Pt1000, fed to the outside
Max. pressure:	2.0 bar
Intake flow	Measurement even possible without flow
Electrical connection	Fixed cable, 10 m
Enclosure rating:	IP 68
Power supply:	18...30 V DC
Electrical connection:	fixed lead, 10 m
Output signal:	4…20 mA assigned to the measuring range, temperature-corrected, calibrated and galvanically isolated
Process integration:	a) Immersion by immersion pipe. CHECK WITH SYDNEY OFFICE. b) Installation into ProMinent bypass fittings, type DGMa with mounting kit
Measuring & control equipment:	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]
Typical applications:	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.
Resistance to:	Contaminated water and the following chemical compounds: carbon dioxide, hydrogen sulfide, sulfur dioxide, ethylene oxide and against gamma sterilisation.
Interference by:	Oxidant (e.g. chlorine, chlorine dioxide, ozone) and many organic solvents (e.g. chloroform, toluene, acetone)
Measuring principle, technology	Optical: Measurement of the relaxation time of a pulsed fluorescence beam

	Part No.
DO 3-mA-20 ppm	**1094609**

6.10 DULCOTEST® Conductivity Sensors

6.10.1 DULCOTEST® Conductivity Sensors - LF1/LFTK



LF1 DE Conductive

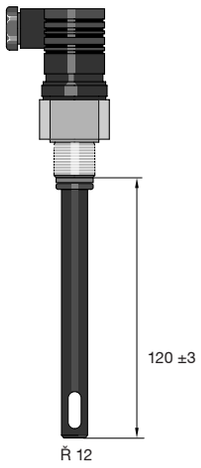
Measuring range:	0.01…20 mS/cm
Cell constant:	k1 cm-1 ±5 %
Temperature compensation:	–
Fluid temperature:	0…80 °C
Max. pressure:	16.0 bar
Sensors:	special graphite
Shaft material:	Epoxy
Thread:	PG 13.5
Fitting length:	120 ± 3 mm
Electrical connection:	DIN 4-pin angle plug
Typical applications:	Potable, cooling, industrial water. Sensors of the LF series have only limited applicability for taking measurements in cleaning solutions containing surfactants and media containing solvents.

	Part No.
LF1 DE	**1001375**

Suitability: Compact Controller, DMTa, DICa

NOTE: if using this with a Compact Controller a Shielded 4 wire cable **MUST** be used.

	Part No.
4-wire shielded cable 100CY 4x0, 25qmm 5.7 grey	**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.

	Part No.
LFTK 1 DE	**1002822**

Suitability: Compact Controller

NOTE: if using this with a Compact Controller a Shielded 4 wire cable **MUST** be used.

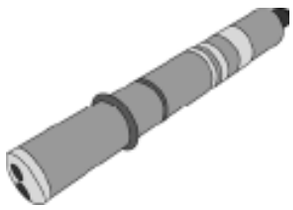
	Part No.
4-wire shielded cable 100CY 4x0, 25qmm 5.7 grey	**1045183**

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 elecrolytic 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

Measuring range:	0.2...20 mS/cm
Temperature measurement:	NTC, integrated
Medium temperature:	0 ... 50 °C (at 1 bar)
Max. pressure:	8.0 bar, (at 25 °C)
Installation:	Bypass via sensor fittings DGM, DLGIII or installation into G1" PP pipe via INLI sensor fitting
Electrical connection:	4-wire cable, 0.25mm^2
Output signal:	4…20 mA, temperature-compensated, factory-calilbrated, galvanically isolated
Enclosure rating:	IP 65
Typical applications:	Cooling, industrial, process water, general water with higher salt content up to 20 mS/cm
Resistance to:	Ingrediants in the water of the target application, taking into account the compatibility of the material
Measurement &control equipment:	diaLog DACb
Measuring principle	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.

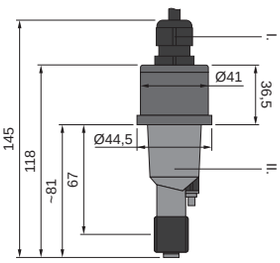
	Part No.
CCT 1-mA-20 mS/cm	**1081545**

6.10 DULCOTEST® Conductivity Sensors

6.10.3 Inductive Conductivity Sensors ICT 5

Conductivity Sensor ICT 5

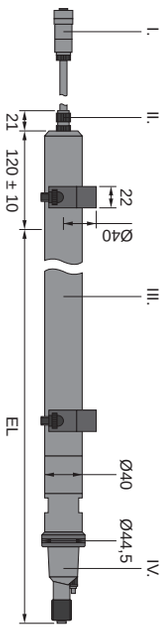
Measuring range :	0.2…2,000 mS/cm
Cell constant:	6.25 cm-1
Measuring accuracy:	±1% based on the measured value, below 3 mS/cm: ±30 µS/cm
Temperature sensor:	Pt 1000, wetted material Stainless steel 1.4301
Process chemical temperature:	-10…80 °C-10…60°C for installation in PVC pipes, -10...80 °C for installation in PP pipes
Max. pressure:	10.0 bar up to 20 °C, 6.0 bar up to 60 °C, 0.0 bar at 80 °C
Min. pressure:	-0,1 bar (-10 … 80 °C)
Sensor material:	PP
Seals:	EPDM
Electrical connection:	10 m fixed cable, 7x 0.35 mm¸ via a terminal
Enclosure rating:	IP 65
Typical applications:	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.
Resistance to:	Ingredients in the water of the target application, taking into account-compatibility to PP/EPDM, deposit-forming media
Installation:	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.
Measuring & control equipment:	Compact controller DCCa
Measuring principle:	Inductive, 2 coils. Integrated temperature measurement



	Part No.
ICT 5	**1095248**

ICT 5-IMA

Measuring range:	0.2…2,000 mS/cm
Cell constant k:	6.25 cm-1
Measuring accuracy:	±2% based on the measured value ±30 µS/cm
Temperature sensor:	Pt 1000, wetted material Stainless steel 1.4301
Process chemical temperature:	-10…60 °C
Max. pressure:	0.0 bar
Min. pressure:	-0,1 bar (-10 … 60 °C)
Sensor material:	PP
Immersion pipe material:	PP
Sensor guard material:	SS 1.4301, AISI 304
Seals:	EPDM
Electrical connection 1:	0 m fixed cable, 7x 0.35 mm¸ via a terminal
Enclosure rating:	IP 65
Typical applications:	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.
Resistance to:	Ingredients in the water of the target application, taking into account compatibility to PP/EPDM, deposit-forming media
Installation:	Immersion with immersion length 1 m
Measuring & control equipment:	Compact controller DCCa
Measuring principle, technology:	Inductive, 2 coils. Integrated temperature measurement



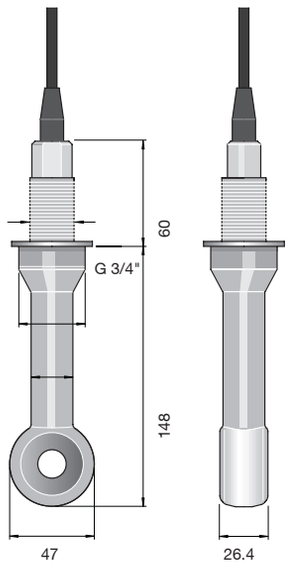
	Part No.
ICT 5-IMA	**1095249**

6.10 DULCOTEST® Conductivity Sensors

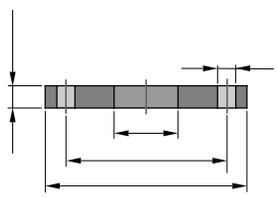
6.10.4 Inductive Conductivity Sensor ICT 2

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.



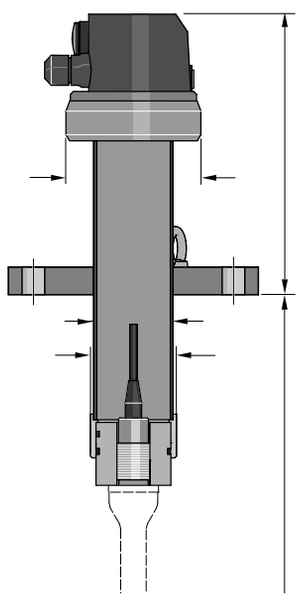
Measurement range:	0-2000 mS/cm
Cell constant:	2 cm-1
Reproducibility of measurement:	±(5 µS/cm + 0.5 % of the measured value)
Temperature compensation:	Pt 100, class A, completely extrusion-coated
Medium temperature:	0 °C...125 °C *Note: for use together with D1C,temperature compensation is limited to 100 °C*
Max. pressure:	16 bar
Material: sensor:	PFA, completely extrusion-coated
Assembly:	
Installation in pipes, tanks (on the side):	G 3/4 stainless steel thread(1.4571) with PTFE O-ring and locknut (scope of supply)
or flange mounted:	With accessories: Stainless steel flange ANSI 2 imperial 300lbs, SS 316L (can be adapted to DIN counter-flange DN 50 PN 16)
Installation in immersion pipe for tank from above:	With accessories: IMA-ICT 2 in-line probe housing via stainless steel flange DN 80 PN (see section 6.5.3)
Length when fitted:	1 m, diameter when fitted 70 mm
Power supply:	5 m fixed cable
Measurement and control equipment:	D1C, DAC
Enclosure rating:	IP67
Typical applications:	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.



Material fittings:	Stainless steel 1.4404
Material seal:	Viton®
Max. temperature:	125 °C
Max. pressure:	10 bar
Length:	1 m
Pipe diameter:	70

Flange mounting for installation in tank from above, stainless steel flange DN 80 PN 16

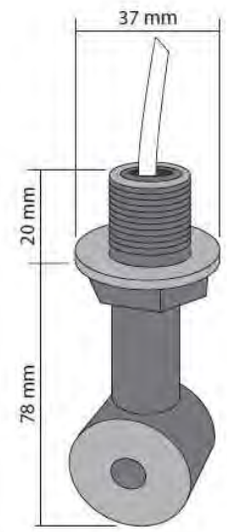
	Part No.
IMA-ICT 2	**1023353**

Flange:	DN 80/PN 16
Ø D	200
Ø K	160
Ø d_2	8 x 18
b	20
Ø a	63.5
Screws	M 16

Note: See 'Green Pages' for local probe & controllers

6.10 DULCOTEST® Conductivity Sensors

6.10.5 Inductive Conductivity Sensor ICT 8



ICT 8-mA

Measuring range:	Three configurable measuring ranges 0.2...2.0 mS/cm / 0.5...20 mS/cm /1...200 mS/cm
Temperature correction:	integrated in the sensor electronics, temperature co-efficient: 1.7%/K
Medium temperature /pressure:	max. 50 °C at 1 bar
Sensor material:	PP
Seals:	EPDM
Installation length:	75
Electrical connection:	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.
Typical applications:	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
Resistance to:	Water ingredients in the target application, taking into account compatibility to PP/EPDM and combating film-forming media
Installation:	1/2" male thread (BSP) for mounting by flange, installation in PVC pipes, immersion using an immersion pipe, 1 m, order no. 1105964
Measuring and control equipment:	diaLog DAC, D1Cb, D1Cc, AEGIS II
Measuring principle, technology:	Inductive, 2 coils. Integrated temperature measurement, integrated 4...20mA transducer

	Part No.
ICT 8 -mA-200 mS/cm	**1098530**

6.11 DULCOTEST® Accessories

6.11 Accessories Electrolyte & Membrane Caps

Electrolyte for Sensors	**ml**	**Part No.**
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**

Membrane Caps for Sensors		**Part No.**
Membrane cap for types CLE II T, CDM 1, & OZE 1	–	**790486**
Membrane cap for types: CLE 2.2, CLE 3, CDE 1.2, CDE 2, OZE 2, & OZE 3	–	**1035197**
Sensor cap for CLO 1	–	**1035198**
Sensor cap for CLO 2	–	**792862**
Membrane cap for CGE/CTE 1 (2/5/10 ppm), BRE 1 (10 ppm), and BRE 2	–	**741274**
Membrane cap for CTE 1 (0.5 ppm), CBR 1, BCR 1	–	**1002710**
Membrane cap for CDP 1, BRE 1 (0.5 / 2 ppm), CLT	–	**1026578**
Membrane cap for CDE 3	–	**1023895**
Membrane cap for PAA 1, CDR 1, CLR 1, OZR1	–	**1025776**
Membrane cap for PER 1	–	**792978**
Membrane cap for H2.10 P		

Accessory Sets for Sensors	**ml**	**Part No.**
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**

Spare parts for dissolved oxygen sensors

	Measuring range	**Part No.**
Sensor insert for DO 1-mA-20 ppm	0-20 mg/l 2.00…20.0 mg/l	
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 Technical Data DGM

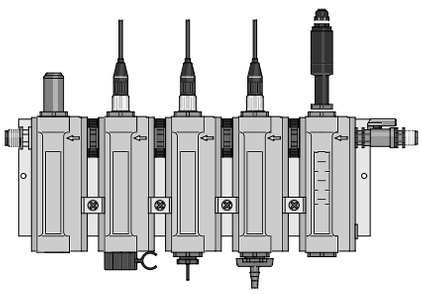
DGM modular in-line probe housing

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.



Material:	Transparent PVC (all modules)
	Viton® (seals)
	PP (calibration cup)
	PVC white (mounting panel)
Max. temperature:	60 °C
Max. pressure:	6 bar (30 °C)
	1 bar (60 °C)
	2 bar (**note: with flow monitor ... typical**)
Flow volume:	Up to 80 l/h (40 l/h recommended)
Flow sensor:	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 mý
Switch hysteresis:	approx. 20 %
Enclosure rating:	IP 65
Applications:	Potable, swimming pool water or water of similar quality with no suspended solids
Assembly:	Max. 5 modules pre-assembled onto baseboard: more than 5 modules, pre-assembled onto baseboard as custom version, priced accordingly.

DULCOTEST® Accessories Modular In-Line Probe Housing DGM

6.12.1 Identity Code & Pricing for DGM

DGM Flow Housing Module

A Series Version

Flow monitor module:

- **0** No flow monitor
- **1** With l/h scale
- **3** With flow monitor, l/h scale

Number of PG 13.5 modules:

- **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

Number of 25 mm modules:

- **0** No 25 mm modules
- **1** One 25 mm module*
- **2** Two 25 mm modules*

Main material:

- **T** Transparent PVC

Seal material:

- **0** Viton® A

Connections:

- **0** 8 x 5 hose
- **1** PVC DN 10 threaded connector
- **9** Connector nipple/expansion module

Versions:

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

Accessories included:
Wall mounting; for Pg 13.5 module; calibration cup; Pg 13.5 probe assembly set.

DGM	**A**	**3**	**2**	**1**	**T**	**0**	**0**	**0**

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	**1043271**
Flow Control plus pH Cell Unit		**DGMA310T000**
Flow Control plus pH Cell Unit & rH Unit		**DGMA320T000**
Flow Control plus Chlorine Cell *includes Fitting Kit*		**DGMA301T000**
Flow Control plus pH plus Chlorine Cell *includes Fitting Kit*		**DGMA311T000**
Flow Control plus pH plus rH Cell plus Chlorine Cell *includes Fitting Kit*		**DGMA321T000**

Note: ALL complete DGMA assemblies are supplied with a simple sampling tap.

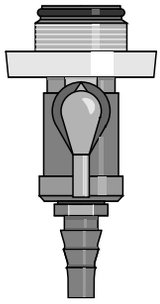
For alternate by-pass, submersible and withdrawal probe Housings and Buffer Solutions, refer 'GREEN PAGE' Price List

DULCOTEST® Accessories DGMa

6.13 Accessories

Accessory: Sampling tap for DGMa

for PG 13.5 and 25 mm modules designed as a convenient ball valve.

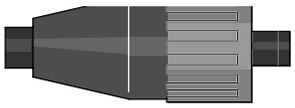


	Part No.
PG 13.5 sampling tap	**1004737**
25 mm sampling tap	**1004739**

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

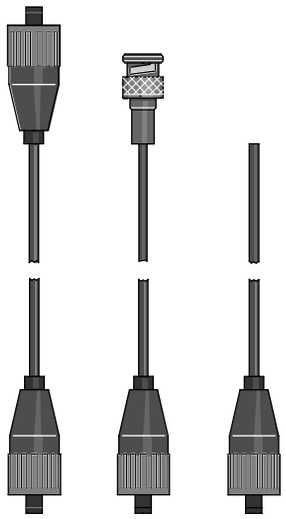


Cables per meter	Part No.
Military Grade, 50 ohm, type AM-900, Low Noise	**A04001118**
Grey HC2049 Cable, (2 core pulse)	**A04001289**
Grey cable entry gland 1/4" BSPM	**703830**
Black cable entry gland 3/8" BSPM	**703885**
4-wire shielded cable 100CY 4x0, 25qmm 5.7 grey	**1045183**

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 *non-stock item*	**304952**
SN6 - open end 2 core 5.0m for PT probes	**1003208**

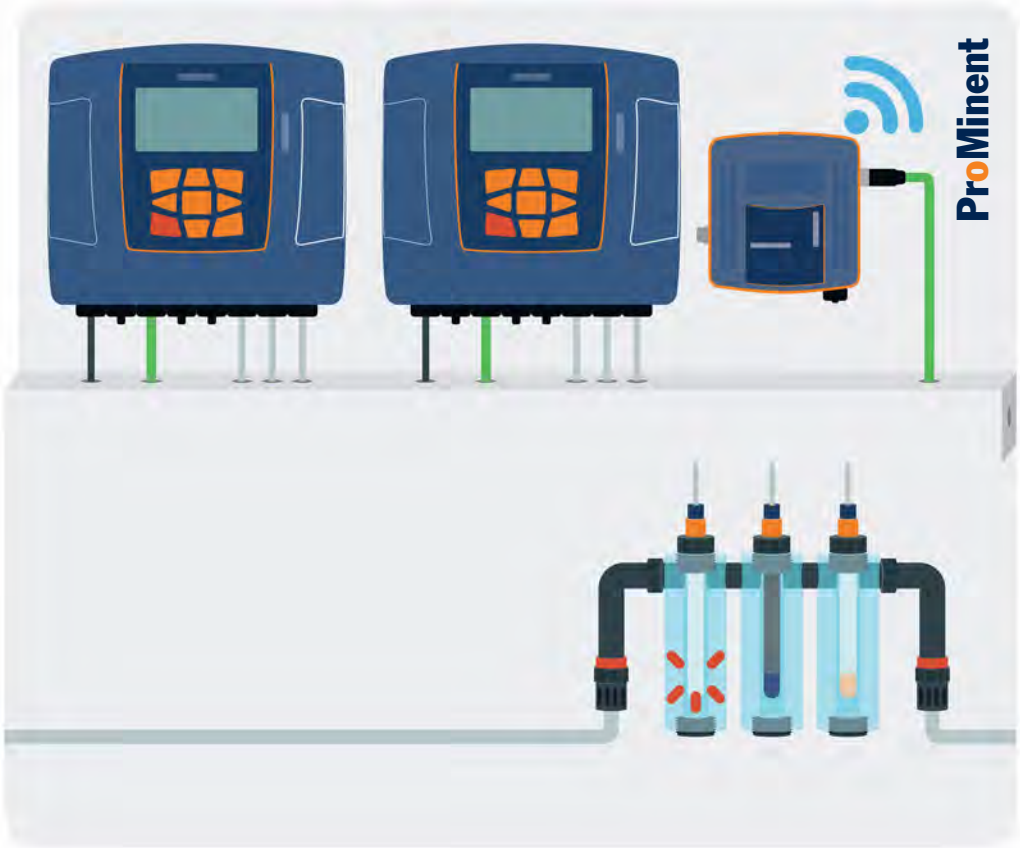
The signal lead is required for connection of DMT type measuring cells to the DMT transducer.

	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**

ProMinent®

Green Pages 2023

Effective as at 1 January 2023*



www.prominentfluid.com.au

1.0 Tube, Hose & Fittings

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.

	Part No.
TUBE PACK 7 METRE, INCLUDES: 5m TRANSLUCENT LDPE DOSING TUBE & 2M SOFT PVC SUCTION TUBE	
6mm O.D. x 4mm I.D.	PA01181048
8mm O.D. x 5mm I.D.	PA01281048
12mm O.D. x 9mm I.D.	PA01381048
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

1.1 Tube & Pipe Fittings

Valve to Solvent Weld

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

3/4" VALVE TO 12X9 TUBE (DN 10)	
PVC	**PA07321337**
PVDF (Cap Nut in PP)	**PA07331337**

3/4" VALVE TO 16MM HOSE TAIL (DN 10)	
PVC	**A07621788**
PVDF	**1002288**
SS	**A07641788**

3/4" VALVE TO 20MM HOSE TAIL (DN 10)	
PVC	**A07621303**
PVDF	**A07631303**
SS	**A07641303**

3/4" Valve to 1/2" BSPT Adaptor

3/4" VALVE TO 1/2" BSPT MALE (DN 10)	
PVC	**A07521066**
PVDF	**A07531066**
SS	**A07541066**

Note: PVDF 12x9 fittings fitted with PVC Cap Nuts

1" Valve to 16mm Hose Tail

1" VALVE TO 12X9 TUBE (DN 15)	
PVC	**PA07321369**
PVDF (Cap Nut in PVC)	**PA07331369**

1" VALVE TO 16MM HOSE TAIL (DN 15)	
PVC	**A07521224**
PVDF	**A07531224**

1" VALVE TO 20MM HOSE TAIL (DN 15)	
PVC	**A07521211**
PP*** Not Stocked ***	**A07551211**
PVDF	**740632**

1" VALVE TO 25MM HOSE TAIL (DN 15)	
PVC	**A07621309**
PVDF	**A07631309**

1" VALVE TO 3/4" BSPT MALE (DN 15)	
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

1-1/4" VALVE ADAPTOR TO 16MM HOSETAIL (DN 20)	
PVC	**A07521213**
PVDF	**A07531213**

1-1/4" VALVE ADAPTOR TO 20MM HOSETAIL (DN 20)	
PVC	**A07521092**
PVDF	**A07531092**
SS	**A07541092**

1-1/4" VALVE ADAPTOR TO 25MM HOSETAIL (DN 20)	
PVC	**A07521093**
PVDF	**1006014**

1.1 Tube & Pipe Fittings

1-1/4" VALVE ADAPTOR TO 1/2" BSPT MALE (DN 20)	Part No.	
PVC	A07521098	●
PVDF	A07531098	●
1-1/4" VALVE ADAPTOR TO 3/4" BSPT MALE (DN 20)		
PVC	A07521069	●
PVDF	A07531069	●
SS	A07541069	●
1-1/4" VALVE ADAPTOR TO 1" BSPT MALE (DN 20)		
PVC	A07521070	●
PVDF	A07531070	●
SS	A07541070	●
1-1/2" VALVE ADAPTOR TO 25MM HOSETAIL (DN 25)		
PVC	A07521095	●
PVDF	A07531095	●
1-1/2" VALVE ADAPTOR TO 32MM HOSETAIL (DN 25)		
PVC	A07621455	●
PVDF	1005560	●
1-1/2" VALVE ADAPTOR TO 1" BSPT MALE (DN 25)		
PVC	A07521094	●
PVDF	A07531094	●
SS	A07541094	●
2" VALVE ADAPTOR TO 32MM FEMALE SOLVENT WELD ADAPTOR (DN 32)		
PVC only	721-601-109	●
2" VALVE ADAPTOR TO BSMT MALE ADAPTOR (DN 32)		
PVC only x 1-1/4"	A07022463	●
PVC only x 1-1/2"	A07022462	●
2-1/4" VALVE ADAPTOR TO 38MM HOSETAIL (DN 40)		
PVC	A07621425	
PVDF	A07631425	
2-1/4" VALVE ADAPTOR TO 1-1/4" BSPT MALE (DN 40)		
PVC	A07521799	
PVDF	A07531799	
SS	A07541799	
2-1/4" VALVE ADAPTOR TO 48MM SOLVENT WELD (DN 40)		
PVC	A07021426	
ADAPTORS SS DN FEMALE TO BSPT MALE		
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

1.2 BSPM to Hosetail Adaptors

BSPM to Hosetale Adaptors

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

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 Joiner 8x5 to 8x5

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.

1.2 BSPM to Hosetail Adaptors

MISCELLANEOUS FITTINGS

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	Part No.
PVC Tube 6x4 to 1/2" Solvent Weld	**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

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 Price List. Bunds up to 250 litres are also in the Yellow Pages.

TANK FITTINGS	**Part No.**
Tank drain fitting with 3/4" Plug	**809756**

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	**PA02823318**
Valve assembly for ProMinent tanks	
As above 3/4” BSPT to 20 x 1.5 M/M	**PA02823329**

(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**

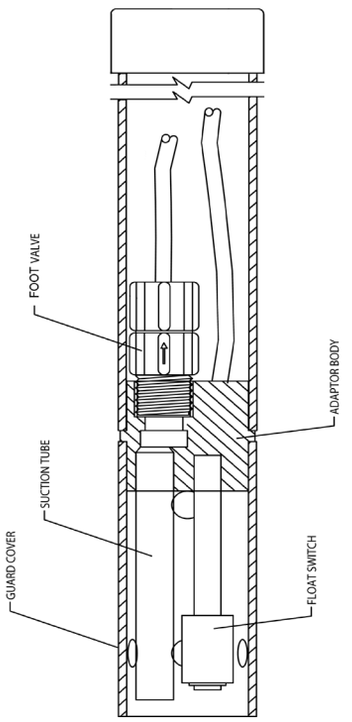
BETA, GALA , DELTA
same as above but 1200 mm long to suit BULKI BOX

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



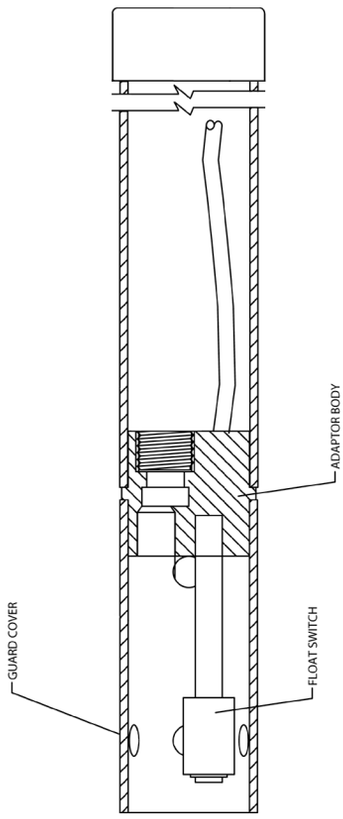
BETA, GALA , DELTA, AND SIGMA
Rigid Level Switch Assembly

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



3.0 Miscellaneous Items

Withdrawable Injection Tube Assemblies

WITH SPRING-LOADED INJECTION VALVE

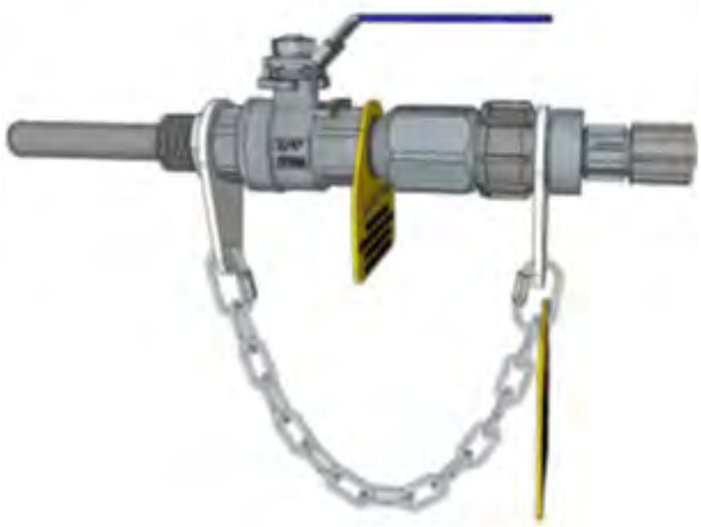
	Part No.
6x4 tube connection x 3/4” BSPT PVC/FKM	**PA07123517**
6x4 tube connection x 3/4” BSPT PP/EPDM	**PA07153564**
8x5 tube connection x 3/4” BSPT PVC/FKM	**PA07223518**
8x5 tube connection x 3/4” BSPT PP/EPDM	**PA07253565**
12x9 tube connection x 3/4” BSPT PVC/FKM	**PA07323519**
12x9 tube connection 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:

Pressure	7 bar (100 psi)	
Temp.	0 ... 45°C	
Max. Flows	6x4mm	up to 4/lh
	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	**16mm HT**	120 l/h GXLa 0450 & 0280 & all Sigma 1
	20mm HT	270 l/h All Sigma 2 up to 07220
	25mm HT	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	**PA071623531**
Withdrawable inj assy Mk III 1 inch with 20mm PVC Hose tail	**PA071623532**
Withdrawable inj assy Mk III 1 inch with 25mm PVC Hose tail	**PA071623533**

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:

Pressure	7 bar (100 psi)	
Temp.	0 ... 45°C	
Max. Flows	**16mm HT**	120 l/h GXLa 0450 & 0280 & all Sigma 1
	20mm HT	270 l/h All Sigma 2 up to 07220
	25mm HT	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**

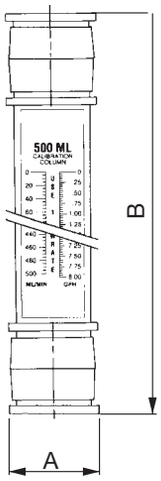
MOUNTING BOARDS - H.D.P.E. 15 MM THICK

Size A ..... 500 x 400	**A35052176**
Size B ..... 600 x 500	**A35082644**
Size C ..... 750 x 600	**A35051307**

Note: Additional costs per hour for mounting time

Size No.	Typical Use	Assembly Time
Size A	Conductivity ..... D2C + DGMA	3 hours
Size B	diaLog or D2C + CO_2 + 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”

PA16121080

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.

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 changeing 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 circu-its 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 form 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 depends 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)*

All Beta, Gala		U001 volume 0.075 l
Delta & GXLa	up to 0730	U001 volume 0.075 l
Delta & GXLa	0450 & 0280	U002 volume 0.150 l
Sigma 1	up to 35 lph	U001 volume 0.075 l
Sigma 1	42 lph & above	U002 volume 0.150 l
Sigma 2	up to 109 lph	U002 volume 0.150 l
Sigma 2	above 120 lph	U003 volume 0.350 l
Sigma 3	up to 330 lph	U007 volume 0.650 l
Sigma 3	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
- Body&insert material polypropylene
- 3/4"standard connection

Capacity:0.65 litre
A01= 10 bar
E=EPDM rubber bladder

PULSATION DAMPER REF.	VOLUME (litres)	D (mm)	L (mm)	R (BSP)	WEIGHT (Kg) PC & PD	WEIGHT (Kg) PP	K VALUE
U001	0.07	60	98	3/8"	0,35	0.25	2,5
U002	0.15	80	135	1/2"	0,7	0.5	
U003	0.35	90	170	3/4"	1,2	0,8	3
U007	0.65	100	230		1,8	1,2	3,5
U010	0.95	130	245		3	2	3
U015	1.40		295	1"	3.5	2,4	3,5
U030	2.60	160	325		5	3,5	
U040	3.70		422		5.8	4	5
U060	5.60	198	458	11/2"	13	9	
U100	9.50		500		20,4	14	4
U150	15	250	672	2"	23,3	17	2,5
U200	20		880		27,7	21	3

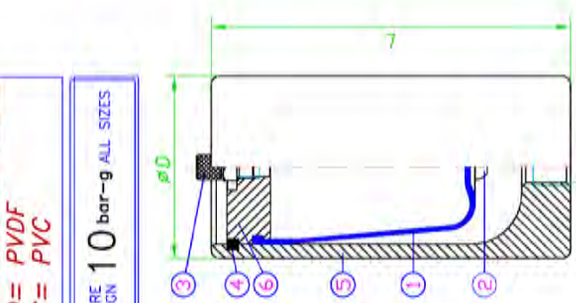
TOLERANCES:
EXTERNAL DIMENTIONS; ± 2 %
VOLUME; ± 1.5% WEIGHT; ±3,5%

N°	DENOMINATION	QT.	MATERIALS
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	AISI 316 1/4"BSP
2	INSERT (BUTTON)	1	(+) PP, PD or PC
1	BLADDER	1	NBR,EPDM,& FPM

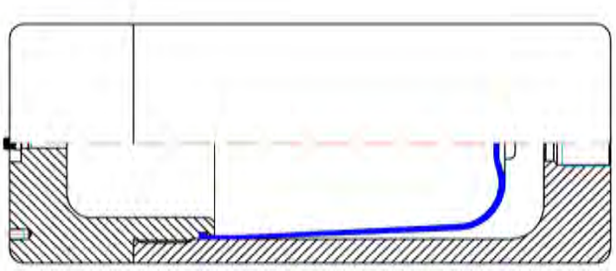
Note: Maxi.Working Pressure ≤ K (@Constant Temp.)
Inflate gas Pressure

(+) PD= PVDF
PC= PVC
PP=POLYPROPYLENE

PRESSURE 10 bar-g ALL SIZES
** DESIGN



U001 TO U100



U150 & U200

** 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
Customer Ref.
Title PLASTIC PULSATION DAMPERS (standard units)
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
Scale

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 PA1002637 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® Beta® Liquid Polymer Blending System

ProMinent® Beta® 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® Beta 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-LB1000-1008	1000 l/h flow @ 0.40% solution
PROMIX-LB1000-0713	1000 l/h flow @ 0.70% solution
PROMIX-LB1000-0420	1000 l/h flow @ 1.00% solution

Note: solution % will depend on type of poly used.

Specification

Each system includes:

1 x Polyethylene Stand
1 x Water Transfer Pump
1 x ProMinent Beta Metering Pump
1 x Mixing Chamber
1 x Blending Pipe Work

Part No.
PROMIX-LB1000-1008
PROMIX-LB1000-0713
PROMIX-LB1000-0420

Liquid_polyrig_Beta

3.5 ProMinent® Spectra® Liquid Polymer Blending System

ProMinent® Spectra® PROMIX-LS2000Liquid 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

3.6 Custom Packages

4.0 pH & RH Probes

Part No.

PROBE pH 0-12 pH 0 to 80°C HT3 glass Polymer Body
SN6 connector and PG13.5 standard mounting — **SP100-4330-DH**

SPECIFICATIONS

pH range:	0-13 pH
Temperature range:	0° to 80° C
Glass Membrane Type:	HT-3, Low sodium ion error
Reference:	Silver / Silver Chloride (Ag/AgCl)
Reference Junction:	Precision low porosity ceramic
Isopotential Point:	pH 7
Output per pH @ 25° C:	Approx 59 millivolts
Maximum Pressure:	4 bar
Wetted Materials:	Glass, Ceramic, Epoxy, Silicone
Diameter:	12mm
Length:	120mm

APPLICATIONS:

- Pool Water
- Clean Water applications

SP100-4330-DH

Suitable Housings: PA02032258, PA03023238, DGMA, PA03022958

NOTE: Cable not included - Please add cable

Part No.

PROBE **RH** 0-1000mV 0 to 80°C HT3 glass Polymer Body
SN6 connector and PG13.5 standard mounting — **SP100-4PB0-DH**

SPECIFICATIONS

Range:	0-1000mV
Temperature range:	0° to 80° C
Measurement half cell:	Platinum Band
Reference:	Silver / Silver Chloride (Ag/AgCl)
Reference Junction:	Precision low porosity ceramic
Maximum Pressure:	4 bar
Wetted Materials:	Glass, Ceramic, Epoxy, Silicone
Diameter:	12mm
Length:	120mm

APPLICATIONS:

- Pool Water
- Clean Water applications

SP100-4PB0-DH

Suitable Housings: PA02032258, PA03023238, DGMA, PA03022958

NOTE: Cable not included - Please add cable

Part No.

PROBE **pH** 0-12 pH -5 to 110°C HT3 glass Glass Body
SN6 connector and PG13.5 standard mounting — **SP200-2330-DH**

SPECIFICATIONS

pH range:	0-13 pH
Temperature range:	- 5° to 110° C
Glass Membrane Type:	HT-3, Low sodium ion error
Reference:	Silver / Silver Chloride (Ag/AgCl)
Reference Junction:	Precision low porosity ceramic
Isopotential Point:	pH 7
Output per pH @ 25° C:	Approx 59 millivolts
Maximum Pressure:	10 bar
Wetted Materials:	Glass, Ceramic
Diameter:	12mm
Length:	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

	Part No.
PROBE **pH** 11+pH -5 to 110°C HT4 glass Glass Body SN6 connector and PG13.5 standard mounting	**SP200-2430-DH**

SPECIFICATIONS

pH range:	0-14 pH
Temperature range:	-5° to 110° C
Glass Membrane Type:	HT-4, Low sodium ion error
Reference:	Silver / Silver Chloride (Ag/AgCl)
Reference Junction:	Precision low porosity ceramic
Isopotential Point:	pH 7
Output per pH @ 25° C:	Approx 59 millivolts
Maximum Pressure:	10 bar
Wetted Materials:	Glass, Ceramic
Diameter:	12mm
Length:	120mm

Suitable Housings: PA02032258, PA03023238, DGMA, PA03022958

APPLICATIONS:

- Industrial Trade Waste
- Cooling Towers
- High pH Applications

SP200-2PB0-DH

	Part No.
PROBE **RH** 0-1000mV -5 to 110°C HT3 glass Glass Body SN6 connector and PG13.5 standard mounting	**SP200-2PB0-DH**

SPECIFICATIONS

ORP range:	0±1000 mV
Temperature range:	-5° to 110° C
Measurement half cell:	Platinum Band
Reference:	Silver / Silver Chloride (Ag/AgCl)
Reference Junction:	Precision low porosity ceramic
Maximum Pressure:	10 bar
Wetted Materials:	Glass, Ceramic
Diameter:	12mm
Length:	120mm
Thread:	PG13.5
Connection:	SN6

Suitable Housings: PA02032258, PA03023238, DGMA, PA03022958

APPLICATIONS:

- Water & Wastewater
- Industrial Trade Waste
- Cooling Towers

4.1 pH & Redox Industrial Probes

	Part No.
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.	**A41021851**

SPECIFICATIONS

pH range:	0-13 pH
Temperature range:	-5° to 100° C
Glass Membrane Type:	HT-3, Low sodium ion error
Reference:	Silver / Silver Chloride (Ag/AgCl)
Reference Junction:	Precision low porosity ceramic
Isopotential Point:	pH 7
Output per pH @ 25° C:	Approx 59 millivolts
Maximum Pressure:	10 bar
Wetted Materials:	Glass, Ceramic
Diameter:	12mm
Length:	77mm

Suitable Housings: PA02031390, PA03021391, DGMA, PA02031880

APPLICATIONS:

- Water & Wastewater
- Industrial Trade Waste
- Cooling Towers

	Part No.
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.	**A42022002**

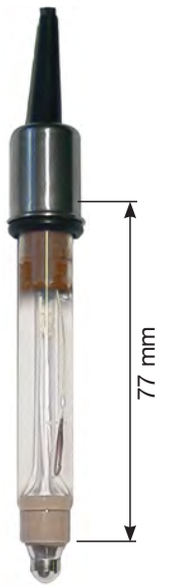
SPECIFICATIONS

ORP range:	0±1000 mV
Temperature range:	-5° to 100° C
Measurement half cell:	Platinum Band
Reference:	Silver / Silver Chloride (Ag/AgCl)
Reference Junction:	Precision low porosity ceramic
Maximum Pressure:	10 bar
Wetted Materials:	Glass, Ceramic
Diameter:	12mm
Length:	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

pH range:	0-14 pH
ORP range:	0±1000 mV
Temperature range:	0° to 105° C
Reference:	Silver / Silver Chloride (Ag/AgCl)
Maximum Pressure:	10 bar @ 100° C
Wetted Materials pH:	Ryton, PTFE or ceramic & glass
Wetted Materials ORP:	Ryton, PTFE or ceramic & platinum
Body Diameter:	29.2 mm
Length:	150 mm
Width accross flats:	25.4 mm
Thread:	3/4” NPT - top & bottom

APPLICATIONS:

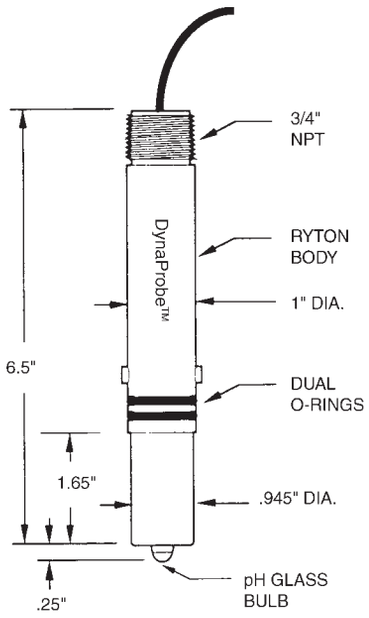
- Water & Wastewater
- Industrial Trade Waste
- Cooling Towers

	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

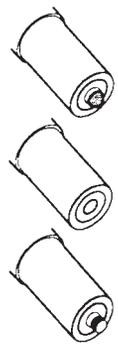
pH Range:	0 - 1 4 pH
ORP Range:	± 5000 mV
Temp Range:	0-120şC
Max Press./Temp:	50 psig at 120şC
Reference:	Ag-AgCl
Wetted materials:	Ryton, Teflon or Wood, Glass, Viton O-Rings

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.
pH DynaProbe ST851-T330-A33TE Twist lock Ryton body HT3 dome bulb and Teflon Junction, c/w 10m co-axial cable and pin lugs.	**A41022120**
rH DynaProbe ST851-RPB0-A33TE Twist lock Ryton body platinum band HT3 dome bulb and Teflon Junction, c/w 10m co-axial cable and pin lugs.	**A42022136**

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**

Top

Note: DYNAPROBE not included, must be ordered seperatly.

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**

Top

Note: DYNAPROBE not included, must be ordered seperatly.

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 prefered 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	Part No.
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

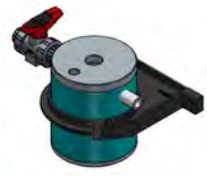
Electrode Holders & Filters

	Part No.
BY-PASS SENSOR HOLDER DLG 2 TYPE 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**

BY-PASS SENSOR HOLDER DLG 5 High iron, dirty water appications 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**

ROTAMETER & FLOW SWITCH FOR ABOVE	**P86515T**

BY-PASS SENSOR HOLDER DLG 9 For use the the sample flow is unfilled with suspended food fragmentse.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**



ADD FLOW CONTROL MARIC 33 L/HR ASSEMBLY (NOT REQ'D FOR POOLS)

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

	Part No.
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.	**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**
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**

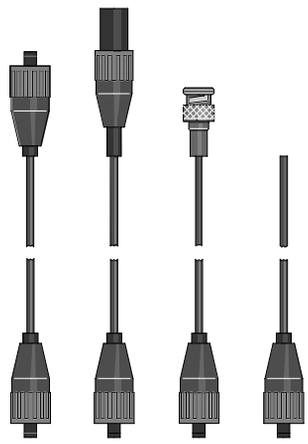
4.6 Cables & Accessories

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® 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®

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**

TERG-A-ZYME® Phosphate analysis:

- Average 7.3% phosphorus by weight as phosphates.
- Phosphorus at the recommended level = 2.1 grams

TERG-A-ZYME® contains no TRI-SODIUM phosphate © Alconox inc. 1973

4.7 Electrode Comparison List

Existing Electrode pH Electrodes	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, perepheral 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, perepheral 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, perepheral 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, perepheral 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			
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 l" SCH 80 threaded PVC 'T' fitting with l" non-metallic sensor entry fitting and 3m, 10ft of 3xAWG 22 PVC jacketed cable.
LPR_CS LPR_CU LPR_AM	1010 Carbon Steel CDA 110 Copper CDA 443 Admiralty	1Ľ"L x 3/16'D electrode set supplied installed. Sensor accepts standardized LPR 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.	**0:** Corrosion **1:** Metallurgy **2:** Conductivity **3:** Diagnostic **4:** 4-20mA Current **5:** Date-Time **6:** Alarm Contacts **7:** Loop Span
Conductivity	50 to 9999 uS	Autoranging. 1uS resolution. Corrects corrosion rate for water resistivity.
Power	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" x1 l", 110mm x 110mm x45mm	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

Measurement range:	pH: 0.00 ... 14 ORP: -1000 ... +1000 mV
Resolution:	pH: 0,01 pH ORP: 1 mV
Correction variable:	Temperature for pH via Pt 1000
Correction range:	0 … 120 °C
Control characteristic:	P/PID
Control:	1-way controller with selectable control direction (raise/lower)
Signal current output:	1 x 0/4-20 mA galvanically isolated max. load 400 Ω Range and assignment (measured or actuating variable) can be set
Control outputs:	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
Electrical connection:	90 - 253 V ~
Ambient temperature:	-10 ... +60 °C
Enclosure rating:	IP 67
Dimensions:	135 x 125 x 75 mm (H x W x D)
Weight:	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

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)
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 & 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

6.1 Pool Package Accessories

Optional Equipment

Metering Pumps	see 'Yellow Pages' - select from the ProMinent range.
Probes	select from the ProMinent range, see 'Yellow Pages' section 5 and 'Green Pages' section 4.
Probe holders	select from the ProMinent range, see section 6 'Yellow Pages' for DGMa holders and section 4 'Green Pages' for low cost alturnatives.

	Part No.
CO_2 Flow Regulator 25 l/m with Flow Meter and 240v Solenoid (as above) in enclosure with lighted on/off switch.	**PA31002458**
As above but 10 bar versions	**PA31002458-HP**
Sample Flow switch (low volt).	**PA03022425**
CO_2 Fixed In-line Injection Assy with 1/2' Bspt Male Connection.	**PA09751676**
CO_2 Fixed In-line Injection Assy with 3/4' BSPM Connection	**PA09761676**
CO_2 Withdrawable Injection Assembly to suit 100mm (4" dia.) pipe & over.	**PA31921314**
CO_2 Bottle Regulator with dual gauge - includes regulator & pressure gauge.	**PA31001428**
Safety Chains & Brackets for single CO_2 bottle.	**A31001935**
Safety Chains & Brackets for dual CO_2 bottles.	**A31001936**

PA31002458
CO_2 Controller

PA31921314
Withdrawable CO_2 Injection Assembly

PA03022425
Sample Flow Switch

SP100-4330-DH
pH Sensor

SP100-4PBO-DH
ORP Sensor

DGMa in-Line
Probe Holder & Flow Switch

6.2 Pool Packages COMPACT controller pH/ORP

DCC300 pH/ORP POOL CONTROL SYSTEM

Part No.	Description	
DCCaW006PR0010EN	COMPACT Controller	2
SP100-4330-DH	pH probe	1
SP100-4PB0-DH	ORP probe	1
DGMA320T000	Probe holder & flow switch assembly	1
1024105	Probe cable	2
A04001289	cable 2 core	1
PA07221061	Adaptor PVC 1/2" to 8x5 mm	1
A25251004	PE tube 25m 8 x 5mm	1
P3240T0235-D	Filter Assembly	1
A35082644	Backboard 600 x 600 & fitting	1
	pH 7 buffer & PH4	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	2
PA31002458	CO_2 Controller	1
PA09751676	Fixed in-line CO_2 Injection 1/2"BSPM	1
SP100-4330-DH	pH probe	1
SP100-4PB0-DH	ORP probe	1
DGMA320T000	Probe holder & flow switch assembly	1
1024105	Probe cable	2
A04001289	cable 2 core	1
PA07221061	Adaptor PVC 1/2" to 8x5 mm	1
A25251004	PE tube 25m 8 x 5mm	1
A35082644	Backboard 600 x 600 & fitting	1
P3240T0235-D	Filter Assembly	1
	pH 7 buffer & PH4	1

Note: All mounted & with control cables for pumps

DCC400SC SPECIAL FOR SALT CHLORINATOR

6.2 Pool Packages COMPACT controller pH/ORP

DCC500 pH/Cl POOL CONTROL SYSTEM

Part No.	Description	
DCCaW006PR0010EN	COMPACT Controller pH	1
DCCaW006C00010EN	COMPACT Controller Chlorine	1
SP100-4330-DH	pH probe	1
1038902	CLB 2-µA-5 ppm probe	1
DGMA320T000	Probe holder & flow switch assembly	1
1024105	Probe cable	2
A04001289	cable 2 core	1
PA07221061	Adaptor PVC 1/2" to 8x5 mm	1
A25251004	PE tube 25m 8 x 5mm	1
P3240T0235-D	Filter Assembly	1
A35082644	Backboard 600 x 600 & fitting	1
	pH 7 buffer & PH4	1

Note: All mounted & with control cables for pumps

DCC600 pH/Cl POOL CONTROL SYSTEM

Part No.	Description	
DCCaW006PR0010EN	COMPACT Controller	1
DCCaW006C00010EN	COMPACT Controller Chlorine	1
PA31002458	CO_2 Flow Regulator Assembly	1
PA09751676	Fixed in-line CO_2 Injection 1/2"BSPM	1
SP100-4330-DH	pH probe	1
1038902	CLB 2-µA-5 ppm probe	1
DGMA320T000	Probe holder & flow switch assembly	1
1024105	Probe cable	2
A04001289	cable 2 core	1
PA07221061	Adaptor PVC 1/2" to 8x5 mm	1
A25251004	PE tube 25m 8 x 5mm	1
A35082644	Backboard 600 x 600 & fitting	1
P3240T0235-D	Filter Assembly	1
	pH 7 buffer & PH4	1

Note: All mounted & with control cables for pumps

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_2
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	CO2
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_2

diaLog300 pH/ORP POOL CONTROL SYSTEM

Part No.	Description	
DACbW006VV0000010010E	diaLog pH/ORP Controller	1
SP100-4PB0-DH	ORP Probe	1
SP100-4330-DH	pH probe	1
DGMA320T000	Probe holder & flow switch assembly	1
1024105	Probe cable	1
A04001289	Flow switch and sensor cables	2
PA07221061	Adaptor PVC 1/2" to 8x5 mm	1
A25251004	PE tube 25m 8 x 5mm	1
P3240T0235-D	Filter Assembly	1
A35082644	Backboard 600 x 600 & fitting	1
A52003308	pH 7 buffer 100 ml	1
A52003310	pH 4 buffer 100 ml	1

Note: All mounted on backboard.

diaLog400 pH/ORP POOL CONTROL SYSTEM

Part No.	Description	
DACbW006VV0000010010E	diaLog pH/ORP Controller	1
PA31002458	$C0_2$ Controller	1
SP100-4PB0-DH	ORP Probe	1
SP100-4330-DH	pH probe	1
DGMA320T000	Probe holder & flow switch assembly	1
1024105	Probe cable	1
A04001289	Flow switch and sensor cables	2
PA07221061	Adaptor PVC 1/2" to 8x5 mm	2
A25251004	PE tube 25m 8 x 5mm	1
P3240T0235-D	Filter Assembly	1
A35082644	Backboard 600 x 600 & fitting	1
A52003308	pH 7 buffer 100 ml	1
A52003310	pH 4 buffer 100 ml	1

Note: All mounted on backboard.

diaLog500 pH/Cl_2 POOL CONTROL SYSTEM

Part No.	Description	
DACbW006VA0000010010E	DULCOMETER diaLog Controller	1
792919	Chlorine sensor CLE 3-mA-10ppm	1
SP100-4330-DH	pH probe	1
DGMA311T000	Probe holder & flow switch assembly	1
1024105	Probe cable	1
A04001289	cable 2 core	2
PA07221061	Adaptor PVC 1/2" to 8x5 mm	1
A25251004	PE tube 25m 8 x 5mm	1
P3240T0235-D	Filter Assembly	1
A35082644	Backboard 600 x 600 & fitting	1
A52003308	pH 7 buffer 100 ml	1
A52003310	pH 4 buffer 100 ml	1

DX adder Adds DULCOnneX to DACb pool packages. Includes LAN, Gateway & 12 month subscription
- Subscription included @ TBA
- Customer to provide Wi- Fi
- Contractor subscription discount month

On request DX Gateway IPC. Provides DULCOnneX to DACb and Device Access to DACb web interface.

6.4 Pool Packages diaLog pH/Cl_2

diaLog600 pH/Cl_2/CO_2 POOL CONTROL SYSTEM

Part No.	Description	
DACbW006VA0000010010E	DULCOMETER diaLog Controller	1
PA31002458	Flow Regulator Assembly	1
792919	Chlorine sensor CLE 3-mA-10ppm	1
SP100-4330-DH	pH probe	1
DGMA311T000	Probe holder & flow switch assembly	1
1024105	Probe cable	1
A04001289	cable 2 core	2
PA07221061	Adaptor PVC 1/2" to 8x5 mm	1
A25251004	PE tube 25m 8 x 5mm	1
P3240T0235-D	Filter Assembly	1
A35082644	Backboard 600 x 600 & fitting	1
A52003308	pH 7 buffer 100 ml	1
A52003310	pH 4 buffer 100 ml	1

diaLog700 pH/Cl_2 POOL CONTROL SYSTEM

Part No.	Description	
DACbW006VA0000010010E	DULCOMETER diaLog Controller	1
740684	Chlorine sensor CTE1-mA-10ppm	1
SP100-4330-DH	pH probe	1
DGMA311T000	Probe holder & flow switch assembly	1
1024105	Probe cable	1
A04001289	cable 2 core	2
PA07221061	Adaptor PVC 1/2" to 8x5 mm	1
A25251004	PE tube 25m 8 x 5mm	1
P3240T0235-D	Filter Assembly	1
A35082644	Backboard 600 x 600 & fitting	1
A52003308	pH 7 buffer 100 ml	1
A52003310	pH 4 buffer 100 ml	1

diaLog800 pH/Cl_2/CO_2 POOL CONTROL SYSTEM

Part No.	Description	
DACbW006VA0000010010E	DULCOMETER diaLog Controller	1
PA31002458	CO2 Flow Regulator Assembly	1
740684	Chlorine sensor CTE1-mA-10ppm	1
SP100-4330-DH	pH probe	1
DGMA311T000	Probe holder & flow switch assembly	1
1024105	Probe cable	1
A04001289	cable 2 core	2
PA07221061	Adaptor PVC 1/2" to 8x5 mm	1
A25251004	PE tube 25m 8 x 5mm	1
P3240T0235-D	Filter Assembly	1
A35082644	Backboard 600 x 600 & fitting	1
A52003308	pH 7 buffer 100 ml	1
A52003310	pH 4 buffer 100 ml	1

6.4 Pool Packages diaLog pH/Cl_2

diaLog510 pH/ORP/Cl_2 POOL CONTROL SYSTEM

Part No.	Description	
DACBW006VA4000010010EN	DULCOMETER diaLog Controller	1
A250D3402	Backboard 600 x 600 x 12 LDPE white	1
DGMA321T000	Probe holder & flow switch assembly	1
324T0235	Filter	1
A27023280	Adaptor 3/8” pipe to 1/4” BSPF	2
721-101-105	90 deg 3/8” PVC elbow	2
A27023399	Adaptor 3/8” spigot to 1/2” BSPM	1
A27023324	Adaptor 1/4” BSPM to 1/2” BSPM	1
A27023400	Adaptor 1/4” BSPM to 3/8” Spigot	1
1024105	Coax cable	2
A04001289	2 core grey cable	2
PromLabel150	ProMinent label	1
A52003305	Buffer pH 7	1
A52003308	Buffer pH4	1
PA07221061	Adaptor PVC 8x5 to 1/2” BSPM	1
A25251004	Tubing Black LDPE 8x5	1
	Duct white 60 x 40 x 600	1
	Sundry mounting bolts & screws	1
SP100-4330-DH	pH electrode	1
SP100-4PB0-DH	ORP electrode	1
792919	CLE3-10ppm Chlorine sensor	1

diaLog520 pH/Cl_2/Cl_2 POOL CONTROL SYSTEM

Part No.	Description	
DACBW006VA4000010010EN	DULCOMETER diaLog Controller	1
A250D3402	Backboard 600 x 600 x 12 LDPE white	1
DGMA312T000	Probe holder & flow switch assembly	1
324T0235	Filter	1
A27023280	Adaptor 3/8” pipe to 1/4” BSPF	2
721-101-105	90 deg 3/8” PVC elbow	2
A27023399	Adaptor 3/8” spigot to 1/2” BSPM	1
A27023324	Adaptor 1/4” BSPM to 1/2” BSPM	1
A27023400	Adaptor 1/4” BSPM to 3/8” Spigot	1
1024105	Coax cable	1
A04001289	2 core grey cable	3
PromLabel150	ProMinent label	1
A52003305	Buffer pH 7	1
A52003308	Buffer pH4	1
PA07221061	Adaptor PVC 8x5 to 1/2” BSPM	1
A25251004	Tubing Black LDPE 8x5	1
	Duct white 60 x 40 x 600	1
	Sundry mounting bolts & screws	1
SP100-4330-DH	pH electrode	1
792919	CLE3-10ppm Chlorine sensor	1
740684	CTE1-10ppm Chlorine sensor	1

6.4 Pool Packages diaLog pH/Cl_2

diaLog540 pH /Cl_2/CAA POOL CONTROL SYSTEM

Part No.	Description	
DACBW006VA4000010010EN	DULCOMETER diaLog Controller	1
A250D3402	Backboard 600 x 600 x 12 LDPE white	1
DGMA312T000	Probe holder & flow switch assembly	1
324T0235	Filter	1
A27023280	Adaptor 3/8” pipe to 1/4” BSPF	2
721-101-105	90 deg 3/8” PVC elbow	2
A27023399	Adaptor 3/8” spigot to 1/2” BSPM	1
A27023324	Adaptor 1/4” BSPM to 1/2” BSPM	1
A27023400	Adaptor 1/4” BSPM to 3/8” Spigot	1
1024105	Coax cable	1
A04001289	2 core grey cable	3
PromLabel150	ProMinent label	1
A52003305	Buffer pH 7	1
A52003308	Buffer pH4	1
PA07221061	Adaptor PVC 8x5 to 1/2” BSPM	1
A25251004	Tubing Black LDPE 8x5	1
	Duct white 60 x 40 x 600	1
	Sundry mounting bolts & screws	1
SP100-4330-DH	pH electrode	1
792919	CLE3-10ppm Chlorine sensor	1
CAA2690-10	Conductivity sensor 10,000 µS	1

diaLog550 pH /ORP/CAA POOL CONTROL SYSTEM

Part No.	Description	
DACBW006VA4000010010EN	DULCOMETER diaLog Controller	1
A250D3402	Backboard 600 x 600 x 12 LDPE white	1
DGMA321T000	Probe holder & flow switch assembly	1
324T0235	Filter	1
A27023280	Adaptor 3/8” pipe to 1/4” BSPF	2
721-101-105	90 deg 3/8” PVC elbow	2
A27023399	Adaptor 3/8” spigot to 1/2” BSPM	1
A27023324	Adaptor 1/4” BSPM to 1/2” BSPM	1
A27023400	Adaptor 1/4” BSPM to 3/8” Spigot	1
1024105	Coax cable	2
A04001289	2 core grey cable	2
PromLabel150	ProMinent label	1
A52003305	Buffer pH 7	1
A52003308	Buffer pH4	1
PA07221061	Adaptor PVC 8x5 to 1/2” BSPM	1
A25251004	Tubing Black LDPE 8x5	1
	Duct white 60 x 40 x 600	1
	Sundry mounting bolts & screws	1
SP100-4330-DH	pH electrode	1
SP100-4PB0-DH	ORP electrode	1
CAA2690-10	Conductivity sensor 10,000 µS	1

6.4 Pool Packages diaLog pH/Cl_2

diaLog610 pH/ORP/Cl_2/CO2 POOL CONTROL SYSTEM

Part No.	Description	
DACBW006VA4000010010EN	DULCOMETER diaLog Controller	1
A250D3402	Backboard 600 x 600 x 12 LDPE white	1
DGMA321T000	Probe holder & flow switch assembly	1
324T0235	Filter	1
A27023280	Adaptor 3/8” pipe to 1/4” BSPF	2
721-101-105	90 deg 3/8” PVC elbow	2
A27023399	Adaptor 3/8” spigot to 1/2” BSPM	1
A27023324	Adaptor 1/4” BSPM to 1/2” BSPM	1
A27023400	Adaptor 1/4” BSPM to 3/8” Spigot	1
1024105	Coax cable	2
A04001289	2 core grey cable	2
PromLabel150	ProMinent label	1
A52003305	Buffer pH 7	1
A52003308	Buffer pH4	1
PA07221061	Adaptor PVC 8x5 to 1/2” BSPM	1
A25251004	Tubing Black LDPE 8x5	1
PA31002458	CO_2 flow regulator assembly	1
	Duct white 60 x 40 x 600	1
	Sundry mounting bolts & screws	1
SP100-4330-DH	pH electrode	1
SP100-4PB0-DH	ORP electrode	1
792919	CLE3-10ppm Chlorine sensor	1

diaLog620 pH/Cl_2/Cl_2/CO2 POOL CONTROL SYSTEM

Part No.	Description	
DACBW006VA4000010010EN	DULCOMETER diaLog Controller	1
A250D3402	Backboard 600 x 600 x 12 LDPE white	1
DGMA312T000	Probe holder & flow switch assembly	1
324T0235	Filter	1
A27023280	Adaptor 3/8” pipe to 1/4” BSPF	2
721-101-105	90 deg 3/8” PVC elbow	2
A27023399	Adaptor 3/8” spigot to 1/2” BSPM	1
A27023324	Adaptor 1/4” BSPM to 1/2” BSPM	1
A27023400	Adaptor 1/4” BSPM to 3/8” Spigot	1
1024105	Coax cable	1
A04001289	2 core grey cable	3
PromLabel150	ProMinent label	1
A52003305	Buffer pH 7	1
A52003308	Buffer pH4	1
PA07221061	Adaptor PVC 8x5 to 1/2” BSPM	1
A25251004	Tubing Black LDPE 8x5	1
PA31002458	CO_2 flow regulator assembly	1
	Duct white 60 x 40 x 600	1
	Sundry mounting bolts & screws	1
SP100-4330-DH	pH electrode	1
792919	CLE3-10ppm Chlorine sensor	1
740684	CTE1-10ppm Chlorine sensor	1

6.4 Pool Packages diaLog pH/Cl_2

diaLog640 pH/Cl_2/CAA/CO2 POOL CONTROL SYSTEM

Part No.	Description	
DACBW006VA4000010010EN	DULCOMETER diaLog Controller	1
A250D3402	Backboard 600 x 600 x 12 LDPE white	1
DGMA312T000	Probe holder & flow switch assembly	1
324T0235	Filter	1
A27023280	Adaptor 3/8” pipe to 1/4” BSPF	2
721-101-105	90 deg 3/8” PVC elbow	2
A27023399	Adaptor 3/8” spigot to 1/2” BSPM	1
A27023324	Adaptor 1/4” BSPM to 1/2” BSPM	1
A27023400	Adaptor 1/4” BSPM to 3/8” Spigot	1
1024105	Coax cable	1
A04001289	2 core grey cable	3
PromLabel150	ProMinent label	1
A52003305	Buffer pH 7	1
A52003308	Buffer pH4	1
PA07221061	Adaptor PVC 8x5 to 1/2” BSPM	1
A25251004	Tubing Black LDPE 8x5	1
PA31002458	CO_2 flow regulator assembly	1
	Duct white 60 x 40 x 600	1
	Sundry mounting bolts & screws	1
SP100-4330-DH	pH electrode	1
792919	CLE3-10ppm Chlorine sensor	1
CAA2690-10	Conductivity sensor 10,000 µS	1

diaLog650 pH/ORP/CAA/CO2 POOL CONTROL SYSTEM

Part No.	Description	
DACBW006VA4000010010EN	DULCOMETER diaLog Controller	1
A250D3402	Backboard 600 x 600 x 12 LDPE white	1
DGMA321T000	Probe holder & flow switch assembly	1
324T0235	Filter	1
A27023280	Adaptor 3/8” pipe to 1/4” BSPF	2
721-101-105	90 deg 3/8” PVC elbow	2
A27023399	Adaptor 3/8” spigot to 1/2” BSPM	1
A27023324	Adaptor 1/4” BSPM to 1/2” BSPM	1
A27023400	Adaptor 1/4” BSPM to 3/8” Spigot	1
1024105	Coax cable	2
A04001289	2 core grey cable	2
PromLabel150	ProMinent label	1
A52003305	Buffer pH 7	1
A52003308	Buffer pH4	1
PA07221061	Adaptor PVC 8x5 to 1/2” BSPM	1
A25251004	Tubing Black LDPE 8x5	1
PA31002458	CO_2 flow regulator assembly	1
	Duct white 60 x 40 x 600	1
	Sundry mounting bolts & screws	1
SP100-4330-DH	pH electrode	1
SP100-4PB0-DH	ORP electrode	1
CAA2690-10	Conductivity sensor 10,000 µS	1

6.4 Pool Packages diaLog pH/Cl_2

diaLog710 pH/ORP/Cl_2POOL CONTROL SYSTEM

Part No.	Description	
DACBW006VA4000010010EN	DULCOMETER diaLog Controller	1
A250D3402	Backboard 600 x 600 x 12 LDPE white	1
DGMA321T000	Probe holder & flow switch assembly	1
324T0235	Filter	1
A27023280	Adaptor 3/8” pipe to 1/4” BSPF	2
721-101-105	90 deg 3/8” PVC elbow	2
A27023399	Adaptor 3/8” spigot to 1/2” BSPM	1
A27023324	Adaptor 1/4” BSPM to 1/2” BSPM	1
A27023400	Adaptor 1/4” BSPM to 3/8” Spigot	1
1024105	Coax cable	2
A04001289	2 core grey cable	2
PromLabel150	ProMinent label	1
A52003305	Buffer pH 7	1
A52003308	Buffer pH4	1
PA07221061	Adaptor PVC 8x5 to 1/2” BSPM	1
A25251004	Tubing Black LDPE 8x5	1
	Duct white 60 x 40 x 600	1
	Sundry mounting bolts & screws	1
SP100-4330-DH	pH electrode	1
SP100-4PB0-DH	ORP electrode	1
740684	CTE1-10ppm Chlorine sensor	1

diaLog740 pH/Cl_2/CAA POOL CONTROL SYSTEM

Part No.	Description	
DACBW006VA4000010010EN	DULCOMETER diaLog Controller	1
A250D3402	Backboard 600 x 600 x 12 LDPE white	1
DGMA312T000	Probe holder & flow switch assembly	1
324T0235	Filter	1
A27023280	Adaptor 3/8” pipe to 1/4” BSPF	2
721-101-105	90 deg 3/8” PVC elbow	2
A27023399	Adaptor 3/8” spigot to 1/2” BSPM	1
A27023324	Adaptor 1/4” BSPM to 1/2” BSPM	1
A27023400	Adaptor 1/4” BSPM to 3/8” Spigot	1
1024105	Coax cable	2
A04001289	2 core grey cable	2
PromLabel150	ProMinent label	1
A52003305	Buffer pH 7	1
A52003308	Buffer pH4	1
PA07221061	Adaptor PVC 8x5 to 1/2” BSPM	1
A25251004	Tubing Black LDPE 8x5	1
	Duct white 60 x 40 x 600	1
	Sundry mounting bolts & screws	1
SP100-4330-DH	pH electrode	1
740684	CTE1-10ppm Chlorine sensor	1
CAA2690-10	Conductivity sensor 10,000 µS	1

6.4 Pool Packages diaLog pH/Cl_2

diaLog810 pH/ORP/Cl_2/CO2 POOL CONTROL SYSTEM

Part No.	Description	
DACBW006VA4000010010EN	DULCOMETER diaLog Controller	1
A250D3402	Backboard 600 x 600 x 12 LDPE white	1
DGMA321T000	Probe holder & flow switch assembly	1
324T0235	Filter	1
A27023280	Adaptor 3/8” pipe to 1/4” BSPF	2
721-101-105	90 deg 3/8” PVC elbow	2
A27023399	Adaptor 3/8” spigot to 1/2” BSPM	1
A27023324	Adaptor 1/4” BSPM to 1/2” BSPM	1
A27023400	Adaptor 1/4” BSPM to 3/8” Spigot	1
1024105	Coax cable	2
A04001289	2 core grey cable	2
PromLabel150	ProMinent label	1
A52003305	Buffer pH 7	1
A52003308	Buffer pH4	1
PA07221061	Adaptor PVC 8x5 to 1/2” BSPM	1
A25251004	Tubing Black LDPE 8x5	1
PA31002458	CO_2 flow regulator assembly	1
	Duct white 60 x 40 x 600	1
	Sundry mounting bolts & screws	1
SP100-4330-DH	pH electrode	1
SP100-4PB0-DH	ORP electrode	1
740684	CTE1-10ppm Chlorine sensor	1

DIALOG840 PH/CL_2/CAA/CO2 POOL CONTROL SYSTEM

Part No.	Description	
DACBW006VA4000010010EN	DULCOMETER diaLog Controller	1
A250D3402	Backboard 600 x 600 x 12 LDPE white	1
DGMA312T000	Probe holder & flow switch assembly	1
324T0235	Filter	1
A27023280	Adaptor 3/8” pipe to 1/4” BSPF	2
721-101-105	90 deg 3/8” PVC elbow	2
A27023399	Adaptor 3/8” spigot to 1/2” BSPM	1
A27023324	Adaptor 1/4” BSPM to 1/2” BSPM	1
A27023400	Adaptor 1/4” BSPM to 3/8” Spigot	1
1024105	Coax cable	2
A04001289	2 core grey cable	3
PromLabel150	ProMinent label	1
A52003305	Buffer pH 7	1
A52003308	Buffer pH4	1
PA07221061	Adaptor PVC 8x5 to 1/2” BSPM	1
A25251004	Tubing Black LDPE 8x5	1
PA31002458	CO_2 flow regulator assembly	
	Duct white 60 x 40 x 600	1
	Sundry mounting bolts & screws	1
SP100-4330-DH	pH electrode	1
740684	CTE1-10ppm Chlorine sensor	1
CAA2690-10	Conductivity sensor 10,000 µS	1

6.4 Pool Packages diaLog pH/Cl_2

GOLD Systems special for Salt Chlorinator

diaLog550G pH/ORP/CAA POOL CONTROL SYSTEM

Part No.	Description	
DACBW006VA4000010010EN	DULCOMETER diaLog Controller	1
A250D3402	Backboard 600 x 600 x 12 LDPE white	1
DGMA321T000	Probe holder & flow switch assembly	1
324T0235	Filter	1
A27023280	Adaptor 3/8” pipe to 1/4” BSPF	2
721-101-105	90 deg 3/8” PVC elbow	2
A27023399	Adaptor 3/8” spigot to 1/2” BSPM	1
A27023324	Adaptor 1/4” BSPM to 1/2” BSPM	1
A27023400	Adaptor 1/4” BSPM to 3/8” Spigot	1
1024105	Coax cable	2
A04001289	2 core grey cable	2
PromLabel150	ProMinent label	1
A52003305	Buffer pH 7	1
A52003308	Buffer pH4	1
PA07221061	Adaptor PVC 8x5 to 1/2” BSPM	1
A25251004	Tubing Black LDPE 8x5	1
	Duct white 60 x 40 x 600	1
	Sundry mounting bolts & screws	1
SP100-4330-DH	pH electrode	1
1003875	RHEP-Au-SE pH electrode	1
CAA2690-10	Conductivity sensor 10,000 µS	1

diaLog650G pH/ORP/CAA/CO2 POOL CONTROL SYSTEM

Part No.	Description	
DACBW006VA4000010010EN	DULCOMETER diaLog Controller	1
A250D3402	Backboard 600 x 600 x 12 LDPE white	1
DGMA321T000	Probe holder & flow switch assembly	1
324T0235	Filter	1
A27023280	Adaptor 3/8” pipe to 1/4” BSPF	2
721-101-105	90 deg 3/8” PVC elbow	2
A27023399	Adaptor 3/8” spigot to 1/2” BSPM	1
A27023324	Adaptor 1/4” BSPM to 1/2” BSPM	1
A27023400	Adaptor 1/4” BSPM to 3/8” Spigot	1
1024105	Coax cable	2
A04001289	2 core grey cable	2
PromLabel150	ProMinent label	1
A52003305	Buffer pH 7	1
A52003308	Buffer pH4	1
PA07221061	Adaptor PVC 8x5 to 1/2” BSPM	1
A25251004	Tubing Black LDPE 8x5	1
PA31002458	CO_2 flow regulator assembly	1
	Duct white 60 x 40 x 600	1
	Sundry mounting bolts & screws	1
SP100-4330-DH	pH electrode	1
1003875	RHEP-Au-SE pH electrode	1
CAA2690-10	Conductivity sensor 10,000 µS	1

6.4 Pool Packages diaLog pH/Cl_2

GOLD Systems special for Salt Chlorinator

diaLOG700G PH/CL_2 POOL CONTROL SYSTEM

Part No.	Description	
DACbW006VA0000010010EN	DULCOMETER diaLog Controller	1
DGMA311T000	Probe holder & flow switch assembly	1
1024105	Probe cable	1
A04001289	cable 2 core	2
PA07221061	Adaptor PVC 1/2” to 8x5 mm	1
A25251004	PE tube 25m 8 x 5mm	1
P3240T0235-D	Filter Assembly	1
A35082644	Backboard 600 x 600 & fitting	1
A52003308	pH 7 buffer 100 ml	1
A52003310	pH 4 buffer 100 ml	1
SP100-4330-DH	pH probe	1
1047975	CGE3-mA 10ppm Sensor	1

diaLog710G pH/ORP /Cl_2 POOL CONTROL SYSTEM

Part No.	Description	
DACBW006VA4000010010EN	DULCOMETER diaLog Controller	1
A250D3402	Backboard 600 x 600 x 12 LDPE white	1
DGMA321T000	Probe holder & flow switch assembly	1
324T0235	Filter	1
A27023280	Adaptor 3/8” pipe to 1/4” BSPF	2
721-101-105	90 deg 3/8” PVC elbow	2
A27023399	Adaptor 3/8” spigot to 1/2” BSPM	1
A27023324	Adaptor 1/4” BSPM to 1/2” BSPM	1
A27023400	Adaptor 1/4” BSPM to 3/8” Spigot	1
1024105	Coax cable	2
A04001289	2 core grey cable	2
PromLabel150	ProMinent label	1
A52003305	Buffer pH 7	1
A52003308	Buffer pH4	1
PA07221061	Adaptor PVC 8x5 to 1/2” BSPM	1
A25251004	Tubing Black LDPE 8x5	1
	Duct white 60 x 40 x 600	1
	Sundry mounting bolts & screws	1
SP100-4330-DH	pH electrode	1
1003875	RHEP-Au-SE pH electrode	1
1047975	CGE3-mA 10ppm Sensor	1

6.4 Pool Packages diaLog pH/Cl_2

GOLD Systems special for Salt Chlorinator

diaLog740G pH/Cl_2/CAA POOL CONTROL SYSTEM

Part No.	Description	
DACBW006VA4000010010EN	DULCOMETER diaLog Controller	1
A250D3402	Backboard 600 x 600 x 12 LDPE white	1
DGMA312T000	Probe holder & flow switch assembly	1
324T0235	Filter	1
A27023280	Adaptor 3/8” pipe to 1/4” BSPF	2
721-101-105	90 deg 3/8” PVC elbow	2
A27023399	Adaptor 3/8” spigot to 1/2” BSPM	1
A27023324	Adaptor 1/4” BSPM to 1/2” BSPM	1
A27023400	Adaptor 1/4” BSPM to 3/8” Spigot	1
1024105	Coax cable	2
A04001289	2 core grey cable	2
PromLabel150	ProMinent label	1
A52003305	Buffer pH 7	1
A52003308	Buffer pH4	1
PA07221061	Adaptor PVC 8x5 to 1/2” BSPM	1
A25251004	Tubing Black LDPE 8x5	1
	Duct white 60 x 40 x 600	1
	Sundry mounting bolts & screws	1
SP100-4330-DH	pH electrode	1
1047975	CGE3-mA 10ppm Sensor	1
CAA2690-10	Conductivity sensor 10,000 µS	1

diaLog810G pH/ORP/Cl_2/CO2 POOL CONTROL SYSTEM

Part No.	Description	
DACBW006VA4000010010EN	DULCOMETER diaLog Controller	1
A250D3402	Backboard 600 x 600 x 12 LDPE white	1
DGMA321T000	Probe holder & flow switch assembly	1
324T0235	Filter	1
A27023280	Adaptor 3/8” pipe to 1/4” BSPF	2
721-101-105	90 deg 3/8” PVC elbow	2
A27023399	Adaptor 3/8” spigot to 1/2” BSPM	1
A27023324	Adaptor 1/4” BSPM to 1/2” BSPM	1
A27023400	Adaptor 1/4” BSPM to 3/8” Spigot	1
1024105	Coax cable	2
A04001289	2 core grey cable	2
PromLabel150	ProMinent label	1
A52003305	Buffer pH 7	1
A52003308	Buffer pH4	1
PA07221061	Adaptor PVC 8x5 to 1/2” BSPM	1
A25251004	Tubing Black LDPE 8x5	1
PA31002458	CO_2 flow regulator assembly	1
	Duct white 60 x 40 x 600	1
	Sundry mounting bolts & screws	1
SP100-4330-DH	pH electrode	1
1003878	RHEP-AO-SE PH Electrode	1
1047975	CGE3-mA 10ppm Sensor	1

6.4 Pool Packages diaLog pH/Cl_2

GOLD Systems special for Salt Chlorinator

diaLog840G pH/Cl_2/CAA/CO2 PH POOL CONTROL SYSTEM

Part No.	Description	
DACBW006VA4000010010EN	DULCOMETER diaLog Controller	1
A250D3402	Backboard 600 x 600 x 12 LDPE white	1
DGMA312T000	Probe holder & flow switch assembly	1
324T0235	Filter	1
A27023280	Adaptor 3/8” pipe to 1/4” BSPF	2
721-101-105	90 deg 3/8” PVC elbow	2
A27023399	Adaptor 3/8” spigot to 1/2” BSPM	1
A27023324	Adaptor 1/4” BSPM to 1/2” BSPM	1
A27023400	Adaptor 1/4” BSPM to 3/8” Spigot	1
1024105	Coax cable	1
A04001289	2 core grey cable	3
PromLabel150	ProMinent label	1
A52003305	Buffer pH 7	1
A52003308	Buffer pH4	1
PA07221061	Adaptor PVC 8x5 to 1/2” BSPM	1
A25251004	Tubing Black LDPE 8x5	1
PA31002458	CO_2 flow regulator assembly	1
	Duct white 60 x 40 x 600	1
	Sundry mounting bolts & screws	1
SP100-4330-DH	pH electrode	1
1047975	CGE3-mA 10ppm Sensor	1
CAA2690-10	Conductivity sensor 10,000 µS	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**
Joining Kit 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**

PA01223349

Adaptor 90° PVC 1/2" Male BSPP x 1/4" F BSPP	**PA01223349**

PA01223350

Adaptor 90° PVC DGMA Male BSPP x 1/4" F BSPP	**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 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 @ $30 / month

Customer to provide Wi- Fi

Contractor subscription discount $10 / month

DULCOnneX Annual Subscription	**zzDulcoSub**

12 month subscription

ProConnect Package for use with DULCOnnex	**PA51003593**

ProConnect Network Communications Box - LTE & WiFi [excludes SIM]

ProConnect Annual Subscription	**zzProSub**

6.8 Identity Code for Industrial Backboard Package

IBP Industrial Backboard Package

1	240 volt
2	24 volt (no lead)

	Backboard size (includes Assembly & Programming)
DCCA1	600 x 500 for 1 or 2 Compact instrument
D1CB2	600 x 500 for D1Cb instrument DLG2
D1CB3	600 x 600 for D1Cb instrument DLG5
DACB4	600 x 500 for DACb instrument DLG2
DACB5	600 x 600 for DACb instrument DLG5
DACB6	750 x 600 for DACB with 3 x DLG 2 25 mm

	1st Probe Holder (includes cables)
1	1 x DLG2 (1 x 25)
2	1 x DLG2 (1x 13.5)
3	1 x DLG2 (2 x 13.5)
4	1 x DLG2 (1 x 13.5 & 1 x 25)
5	1 x DLG2 (2 x 13.5 & 1 x 25)
6	1 x DLG5 (1 x 25)
7	1 x DLG5 (1 x 13.5 & 1 x 25
8	1 x DLG5 (2 x 13.5 & 1 x 25)
9	1 x DLG5 (2 x 25)
X	1 x DLG5 (3 x 13.5)

	2nd Probe Holder (includes cables)
0	none
1	1 x DLG2 (1 x 25)
2	1 x DLG5 (1 x 25)

	3rd Probe Holder (includes cables)
0	none
1	1 x DLG2 (1 x 25)

	Flow Monitor
0	none
1	DGMA for DLG2
2	GEMU for DLG5

	Filter
0	none
F	Inline filter DLG2 only

	Maric Valve
0	none
M	Maric valve DLG2 only

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.*

IBP	**1**	**DCCA1**	**1**	**0**	**0**	**1**	**0**	**M**

ProCal D2400 Series Granular Calcium Hypochlorite System from ProMinent

ch process and includes the following.

D1CB SUB-ASSEMBLIES - INDUSTRIAL BACKBOARD PACKAGE

Identcode
IBP D1Cb / DLG2
Without Filter Assmbly

Item	Part No.		Qty
1	D1CbW00601000VC1011G00EN	Monitor	1
2	A04001289	2 core cable	1
3	PA03022502	By Pass Sensor Holder	1
5	PA07221061	1/2” to 8x5mm Adaptor PVC	1
6	1043271	DGMA300T000 Flow Switch	1
7	A25251004	8x5mm PE tube 25mm Roll	1
8	A35082644	600h x500w Backboard	1
9	PROMLABEL150	ProMinent Label 150mm	1
10	724009	Power Cable	1

Identcode
IBP D1Cb / DLG5

Item	Part No.		Qty
1	D1CbW00601000VC1011G00EN	Monitor	1
2	A04001289	2 core cable	2
3	PA03002885	by-pass sensor holder DLG5	1
4	A07051045	Bracket	1
5	86515T	Gemu Rotameter	1
6	1257000Z	Flowswitch	1
7	PA07221061	Adaptor PVC 1/2” to 8x5 mm	1
8	A25251004	25m, 8x5 PE tube	1
9	A01721802	5m, 16mm braided hose	5m
10	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.	Description	Qty
1	DACbW006AA0000010010	Controller	1
2	A04001289	2 core cable	2
3	DGMA300T000	Sensor Holder & Flow Switch	1
5	PA03023238	DLG2 Sensor Holder	1
6	PA07221061	1/2” to 8x5mm Adaptor PVC	1
7	A25251004	8x5mm PE tube 25mm Roll	1
8	A35082644	600h x500w Backboard	1
9	PROMLABEL150	ProMinent Label 150mm	1
10	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.	Description	Qty
1	DACbW006VA0000010010	Controller	1
2	1024105	Coax Cable 0.8M Sn6	1
3	A04001289	2 core cable	2
4	DGMA300T000	Sensor Holder & Flow Switch	1
6	PA03023238	DLG2 Sensor Holder	1
7	PA07221061	1/2” to 8x5mm Adaptor PVC	1
8	A25251004	8x5mm PE tube 25mm Roll	1
9	A35082644	600h x500w Backboard	1
10	PROMLABEL150	ProMinent Label 150mm	1
11	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
3	A04001289	2 core cable	2
4	PA03023238	DLG2 Sensor Holder	1
5	PA07221061	1/2” to 8x5mm Adaptor PVC	1
6	A25251004	8x5mm PE tube 25mm Roll	1
7	A35082644	600h x500w Backboard	1
8	PROMLABEL150	ProMinent Label 150mm	1
9	724009	Power Cable	1

ProCal_3240B Series Granular Calcium Hypochlorite System from ProMinent

FOR REFERENCE ONLY

ch process and includes the following.

Identcode
IBP DACb 4AA0 - DLG2 24V
1 x Amperometric Sensor

Item	Part No.	Description	Qty
1	DACbW004AA0000010010	Controller	1
2	A04001289	2 core cable	2
3	DGMA300T000	Sensor Holder & Flow Switch	1
5	PA03023238	DLG2 Sensor Holder	1
6	PA07221061	1/2” to 8x5mm Adaptor PVC	1
7	A25251004	8x5mm PE tube 25mm Roll	1
8	A35082644	600h x500w Backboard	1
9	PROMLABEL150	ProMinent Label 150mm	1
10	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	A04001289	2 core cable	2
3	PA03023238	DLG2 Sensor Holder	1
4	PA07221061	1/2” to 8x5mm Adaptor PVC	1
5	A25251004	8x5mm PE tube 25mm Roll	1
6	A35082644	600h x500w Backboard	1
7	PROMLABEL150	ProMinent Label 150mm	1
8	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 8x5mmBlack 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	2
11	721-101-106	1/2” 90 deg PVC elbow	1
12		1/2” Schdule 80 pipe	1
13	PromLabel150	150mm ProMinent Label	1
14		Mounting Bracket	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	2
11	721-101-106	1/2” 90 deg PVC elbow	1
12		1/2” Schdule 80 pipe	1
13	PromLabel150	150mm ProMinent Label	1
14		Mounting Bracket	1

6.10 ProCal Granular Calcium Hypochlorite Feeder

ProCal_3240B Series Granular Calcium Hypochlorite System from ProMinent

ch process and includes the following.

The ProMinent ProCal series system generates a dilute Calcium Hypochlorite solution from gran d dry cl
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 ope
manual or pulse duration mode in response to the amount of chlorine in the pool water. Automatic acid clean
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

275PS Pump (no fittings included)

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

PA28003028

PA55023125

6.11 ProCal mini Granual Hypochlorite Feeder

ProMinent ProCal mini

The ProMinent® ProCal mini GranularCalcium 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

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

Capacity

- Up to 2.5kg/h Cl_2 as a 0.5% solution

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.

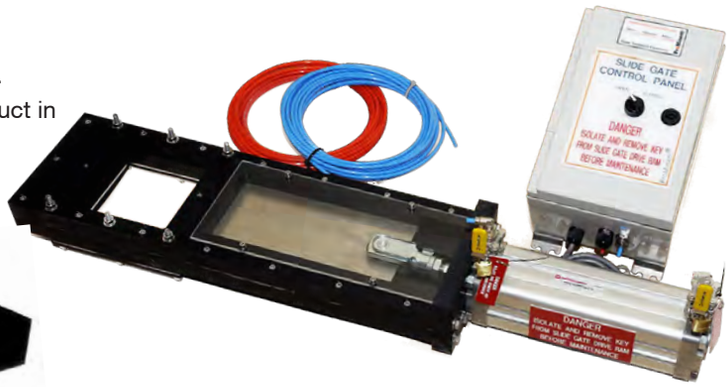
Manual capacity adjustment can be achieved simply by turning the feeder on/oft or by manual adjustment of a variable speed motor.

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 slitter 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.

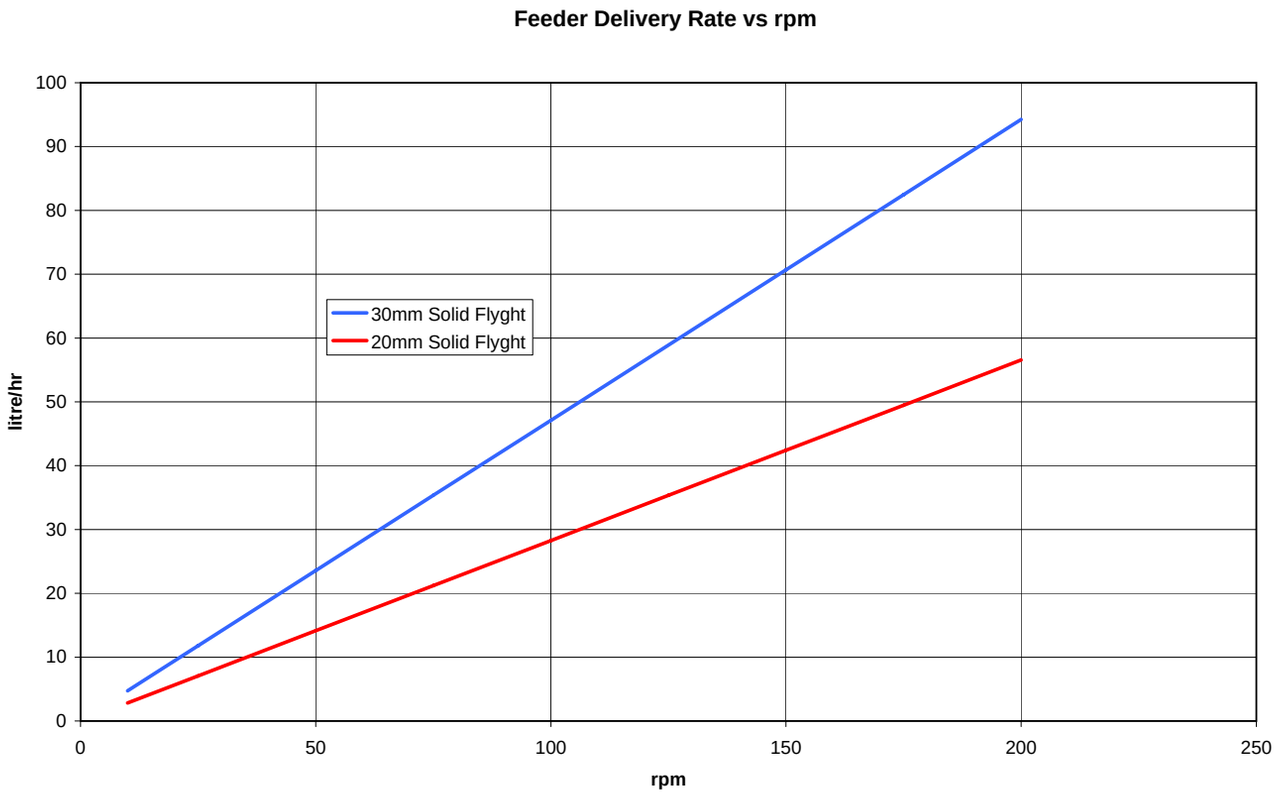


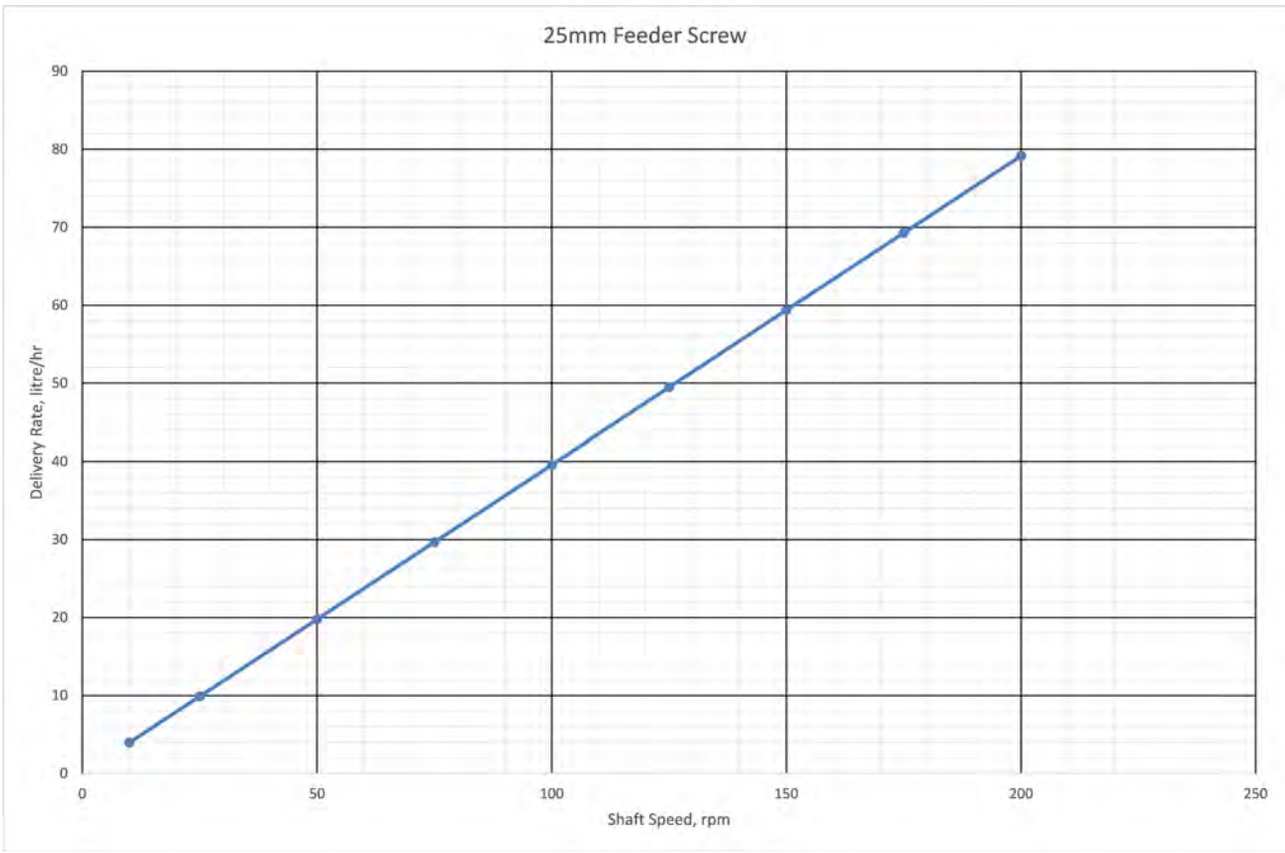
Pneumatic slidegate

Manual slidegate

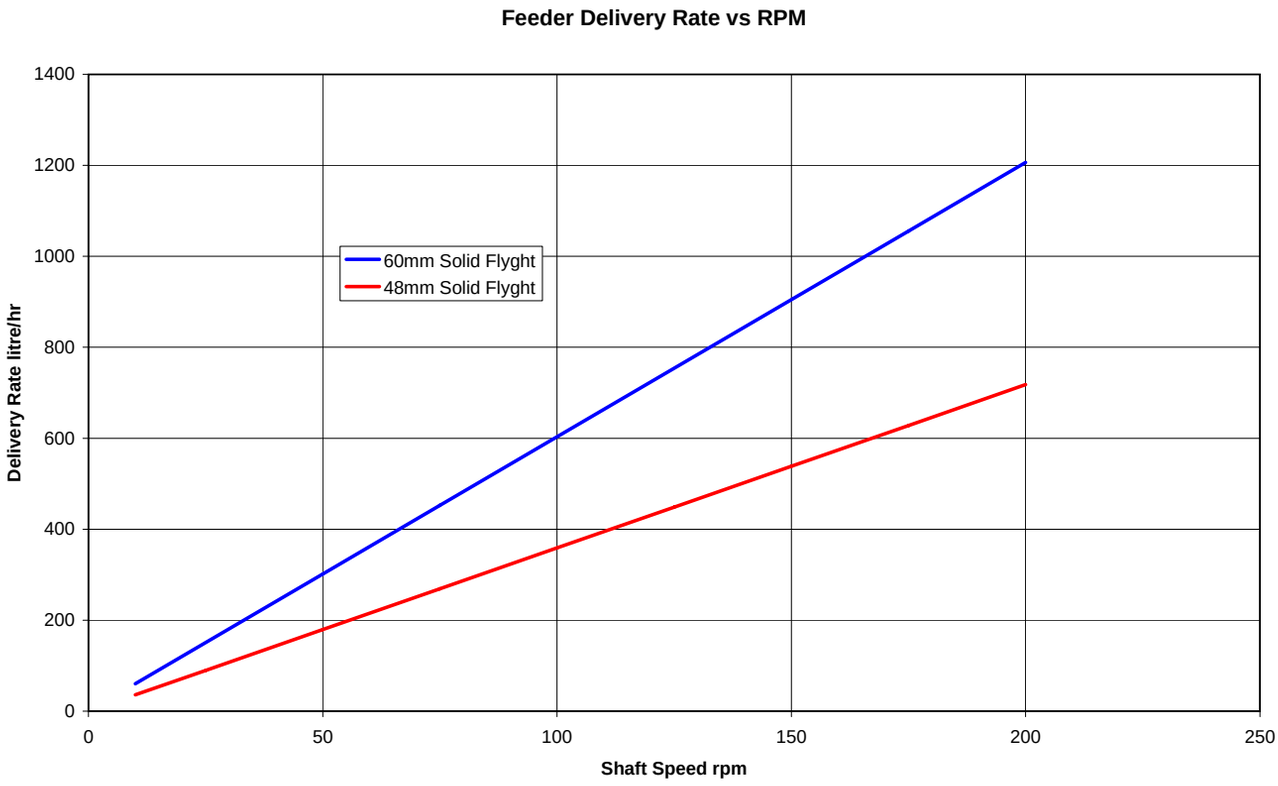
Feeder D series

7.1 Dry Material Feeder Charts





7.1 Dry Material Feeder Charts



7.2 Dry Material Feeders Identity Code

Series

PF
PF

Type		Feeder
D	Small Feeder Capacity to 450 l/hr.	
B	Large Feeder Capacity to 1600 l/hr.	

Screw Size		
020	20mm	PFD020A
025	25mm *Solid Screw*	PFD025S
030	30mm	PFD030A
048	48mm	PFD048A
060	60mm	PFD060A
048	48mm *Solid Screw*	PFD048S
060	60mm *Solid Screw*	PFD060S
048	48mm *Solid Screw*	PFB048S
100	100mm } *Series B only Solid Screw*	PFB100S
150	150mm } *Series B only Solid Screw*	PFB150S

Screw		
A	Open	**Options**
S	Solid *25, 48 and 60 only for D series*	
X	Open Screw with Solid Insert *20 & 30 only for D series*	add

Conditioning Arms *not available on B series*		
0	Without Arms	
1	With Arms	add
2	With Arms for Hi-Compaction Material	add

Heater		
0	Without Heater	Heater add
1	With Heater *for Spout 240V 30W*	020
		030
		048
		060
		100
		150

Gearbox Ratio

0010	10:1	> *Normally determined during manufacture*
0015	15:1	
0020	20:1	
0028	28:1	
0035	35:1	
0046	46:1	
0060	60:1	
0070	70:1	
0100	100:1	
0000	Special i.e. Double Reduction	

Motor	
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

Motor IP Rating & Speed		
A	IP55 4 pole *Standard on Series D & B*	
B	IP55 6 pole *Optional*	add
C	IP56 4 pole *Optional*	
D	IP56 6 pole *Optional*	
F	DIP rated 4 pole	
Y	No Motor	

Options		
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	

Hopper Plate Heater 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**

7.3 Dry Material Feeders Associated Equipment

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.
CONVERSION OF A-SERIES FEEDER TO D-SERIES FEEDER	**PA28002708**
A replacement type A drive shaft (A28041514) may be required, and requires customer to return the OLD feeder tub.	

	Part No.
HOPPERS, IN 304 STAINLESS STEEL.	
60 litre *Standard size for D series feeder with flange to take Bag-Loader*	**A28042534**

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 *for D series feeder*	**A28002282**
1000 mm high, stainless steel *for D series feeder*	**A28002283**
Front pull bag splitting option for above	

(This is for VERY limited applications. See Sydney office for approval)

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 *Note: an additional wash water of 480 l/hr is required for Wetting Cone*	**P62EJECTOR**
2000 l/hr *Note: an additional wash water of 660 l/hr is required for Wetting Cone*	**P63EJECTOR**
4000 l/hr *Note: an additional wash water of 660 l/hr is required for Wetting Cone*	**P65EJECTOR**

A wetting cone overflow adaptor is available.

SLIDE GATES, to suit D-series Feeder series, with handwheel	**PA28003205**
SLIDE GATES, to suit D-series Feeder series, with pneumatic cylinder	**PA2800XXXX**

Note: Slide gates are intended for OCCASIONAL USE ONLY i.e. for maintenaince.
For everyday closure we suggest the use of spout closer.
For more information contact Sydney office

	Part No.
Bulky-Bag Loading systems (for PAC etc)	
Crumblers, in stainless steel	**PA28042565**
Solution Tanks, in stainless steel and PE	
Level switches, for Hoppers and Solution tanks	
Dust Extraction Systems	
Water Softeners	

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 he feeder gearbox should be chosen to meet capacity when the VF drive is around 70Hz.. An optional SEW VF 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:

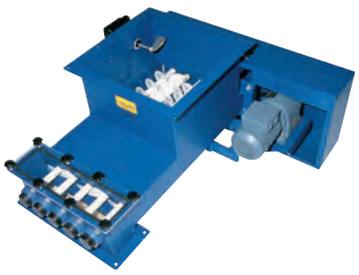
VF drive 6:1 turndown 240v to 3 phase	
VF drive 35:1 turndown via frequency and pulse duration 240v to 3 phase	
VF drive 35:1 turndown via frequency and pulse duration 3 phase to 3 phase	
Stirrer (client to use their existing stirrer bracket)	
	- 415 Volt
	- 240 Volt
OPTION	
Price to provide panel for 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

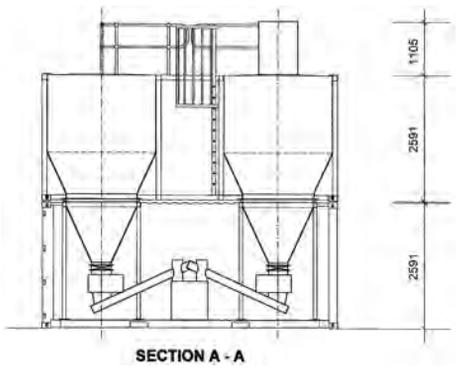
- Compact in-line design.
- Multizone mixing chamber delivers a homogenous and fully activated polymer solution.
- No need for a separate dosing pump.

TOMAL T24 Container Systems

For storage & metering of dry solids at remote locations

- Up to 24 m^3 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



TOMAL operates in Australia as a division of ProMinent Fluid Controls Pty Ltd (ABN 83 080 688 795)
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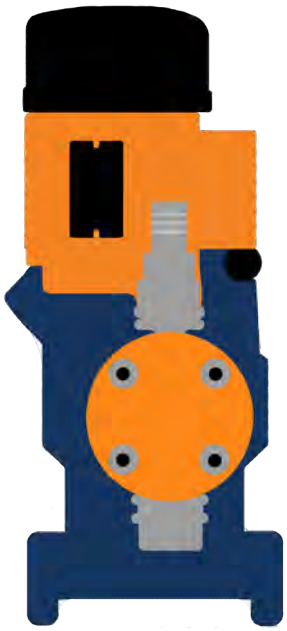
Pink Pages 2023

Effective as at 1 January 2023*



www.prominentfluid.com.au

1.0 ProMinent® Concept PLUS Pumps

Concept Plus Dosing Pumps

ProMinent® CONCEPT PLUS

CNPB1000PPE200C01	
CNPB1000PPE200CB1	*External Control Fitted*
CNPB1000NPB200C01	
CNPB1000NPB200CB1	*External Control Fitted*
CNPB1601PPE200C01	
CNPB1601PPE200CB1	*External Control Fitted*
CNPB1601NPB200C01	
CNPB1601NPB200CB1	*External Control Fitted*
CNPB1601PVT200C01	
CNPB1601PVT200CB1	*External Control Fitted*
CNPB1002PPE200C01	
CNPB1002PPE200CB1	*External Control Fitted*
CNPB1002NPB200C01	
CNPB1002NPB200CB1	*External Control Fitted*
CNPB1002PVT200C01	
CNPB1002PVT200CB1	*External Control Fitted*
CNPB0704NPB200C01	
CNPB0704NPB200CB1	*External Control Fitted*
CNPB0704PVT200C01	
CNPB0704PVT200CB1	*External Control Fitted*
CNPB0309PPE200C01	
CNPB0309PPE200CB1	*External Control Fitted*
CNPB0309NPB200C01	
CNPB0309NPB200CB1	*External Control Fitted*
CNPB0309PVT200C01	
CNPB0309PVT200CB1	*External Control Fitted*
CNPB0215PPE200C01	
CNPB0215PPE200CB1	*External Control Fitted*
CNPB0215NPB200C01	
CNPB0215NPB200CB1	*External Control Fitted*
CNPB0215PVT200C01	
CNPB0215PVT200CB1	*External Control Fitted*

NOTE: Each pump is supplied with Foot Valve, Dosing Valve & Tube Pack consisting of 2m suction & 5m dosing tube.

- 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

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	strokes/ min	mm	m Wc	m Wc	bar
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 stok is only available for (PP) Foot & Injection Valve - Please enquire with the Sydney Office.

Valve | SS Union Nut | 1 | 2 | PVC/PVDF Union Nut | 3 | 4

STANDARD SIZES & FITTINGS FOR MOTOR DRIVEN PUMPS

Size	'A' Actual dia.	'A' BSP	1 SSF Socket	2 SWM PVC	3 BSPM PVC/PVDF	4 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	

Liquid end material:

PV PVDF

Seal material:

T PTFE seal

Liquid end version:

0 No springs

1 With 2 valve springs, Hastelloy C 4; 0.1 bar

Hydraulic connector:

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

Version

0 With ProMinent® logo (standard)

Power supply:

S	3 ph, 400 V; 50 Hz	0.07kw	IP55 ***NOT STOCKED***
M	1 ph. AC, 230 V; 50 Hz	0.06kw	IP55

Stroke sensor:

0 No stroke sensor (standard)

Stroke length adjustment:

0 Manual

Prepack Option

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).

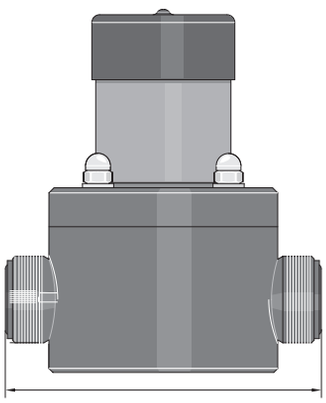
Liquid end materials in contact with chemicals

Liquid end	Suction/Discharge	Seals	Valve Balls	Connector	Valve Seat	Std Connector
PVT	PVT (Polyvinylidenefluoride)	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 Solenoid Dosing Pumps Back Pressure Valves

Accessories - Back Pressure Valves



105

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	**P1009884-6**
DHV-DM-E	1 - 10 bar	8 x 5	PPE	PP/EPDM	**P1009884-8**
DHV-DM-E	1 - 10 bar	12 x 9	PPE	PP/EPDM	**P1009884-12**
DHV-DM-E	1 - 10 bar	6 x 4	PPB	PP/FPMB	**P1009886-6**
DHV-DM-E	1 - 10 bar	8 x 5	PPB	PP/FPMB	**P1009886-8**
DHV-DM-E	1 - 10 bar	12 x 9	PPB	PP/FPMB	**P1009886-12**
DHV-DM-E	1 - 10 bar	6 x 4	PCE	PVC/EPDM	**P1009885-6**
DHV-DM-E	1 - 10 bar	8 x 5	PCE	PVC/EPDM	**P1009885-8**
DHV-DM-E	1 - 10 bar	12 x 9	PCE	PVC/EPDM	**P1009885-12**
DHV-DM-E	1 - 10 bar	6 x 4	PCB	PVC/FPMB	**P1026450-6**
DHV-DM-E	1 - 10 bar	8 x 5	PCB	PVC/FPMB	**P1026450-8**
DHV-DM-E	1 - 10 bar	12 x 9	PCB	PVC/FPMB	**P1026450-12**

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 of:

PLEASE CHECK AVAILABILITY

1.4 Motor Driven Dosing Pumps Back Pressure Valves

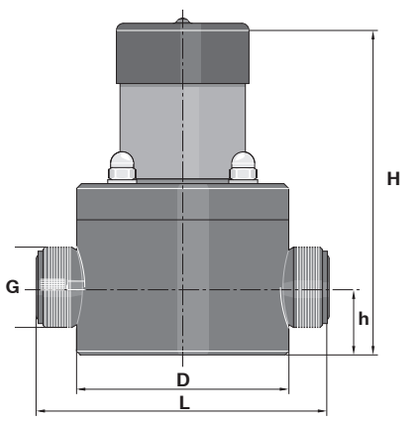
Accessories - Back Pressure Valves or Relief Valves

Back Pressure Valves or Relief Valves BPV-DM

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**



	G	L Approx.	H Approx.	D	h
	M20	105	120	65	31
DN10	G 3/4	120	120	65	31
DN15	G 1	120	136	88	28
DN25	G 11/2	150	145	98	

Material combinations	Housing	Seal
PPE	PP	EPDM
PPB	PP	FPM B
PCE	PVC	EPDM
PCB	PVC	FPM B

Connection Sizes				
DN10 valve	=	1/2"	BSP M/M or 15 S/WM	**Note:** PP only in BSP M/M
DN15 valve	=	3/4"	BSP M/M or 20 S/WM	
DN20 valve	=	1"	BSP M/M or 25 S/WM	
DN25 valve	=	1"	BSP M/M or 25 S/WM	

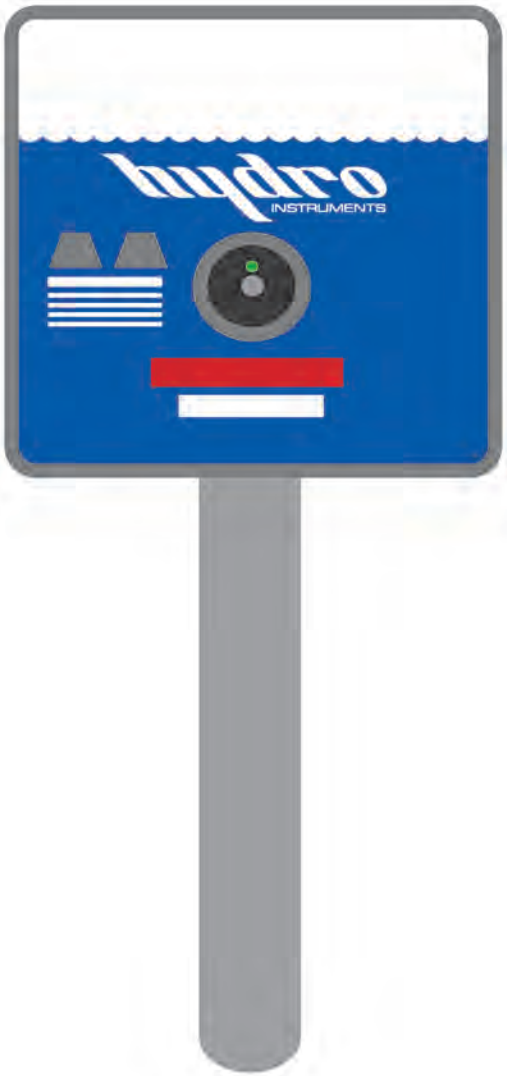
Note:
Valves should normally be set to the desired back pressure on site after installation. However if you require them to be pre-set prior to

PLEASE CHECK AVAILABILITY

ProMinent®

Hydro Pages 2023

Effective as at 1 January 2023*



www.prominentfluid.com.au

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, auxilary valves & flexibles extra)

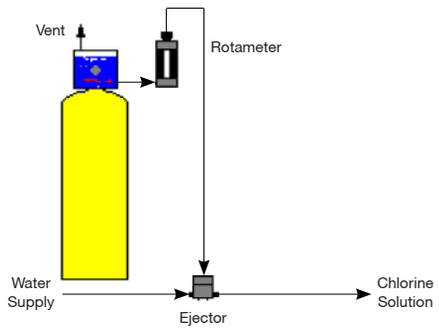
Max Capacity		PFC Part No.
75 g/h	1 x Vacuum Regulator, Remote Meter & Ejector	**920C**
200 g/h	1 x Vacuum Regulator, Remote Meter & Ejector	**921C**
500 g/h	1 x Vacuum Regulator, Remote Meter & Ejector	**922C**
1000 g/h	1 x Vacuum Regulator, Remote Meter & Ejector	**923C**
2000 g/h	1 x Vacuum Regulator, Remote Meter & Ejector	**924C**

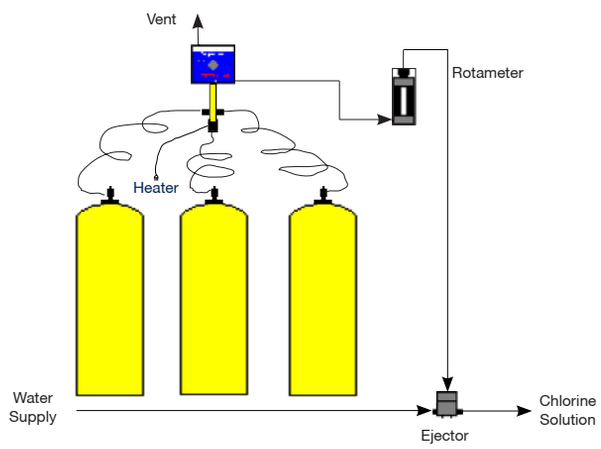
Up to 5 Kg/Hr Systems

	1 x Vacuum Regulator, Remote Meter & Ejector	**980C**

Up to 10 Kg/Hr Systems

	1 x Vacuum Regulator, Remote Meter & Ejector	**990C**





In-Built Auto Changeover System (max 2 Vacuum Regulators) - 900 series

Up to 2 kg/hr systems (Note: header, heater, auxilary valves & flexibles extra)

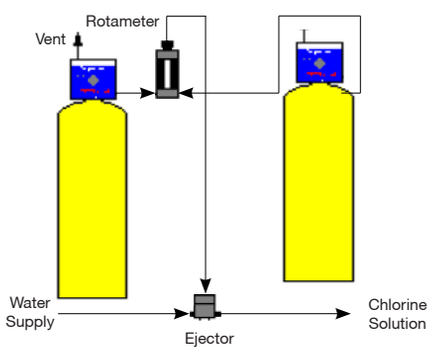
75 g/h	2 x Vacuum Regulator, Remote Meter & Ejector	**935C**
200 g/h	2 x Vacuum Regulator, Remote Meter & Ejector	**945C**
500 g/h	2 x Vacuum Regulator, Remote Meter & Ejector	**955C**
1000 g/h	2 x Vacuum Regulator, Remote Meter & Ejector	**965C**
2000 g/h	2 x Vacuum Regulator, Remote Meter & Ejector	**975C**

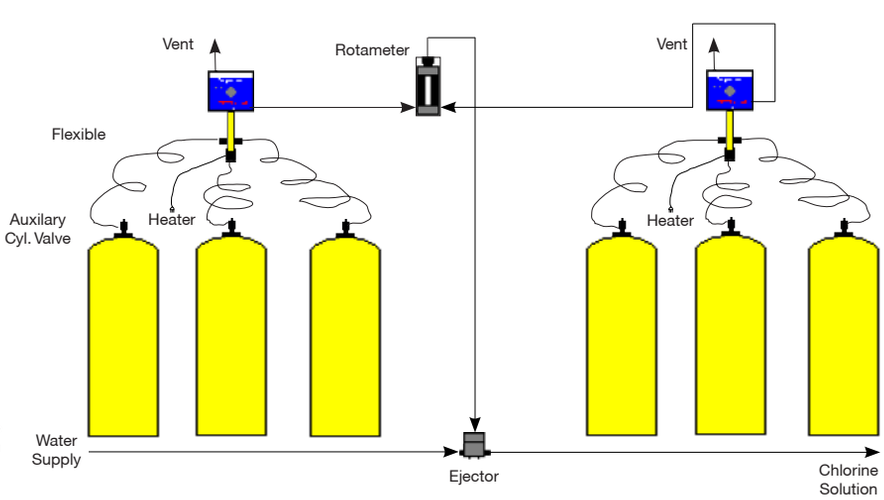
Up to 5 Kg/Hr Systems

	2 x Vacuum Regulator, Remote Meter & Ejector	**985C**

Up to 10 Kg/Hr Systems

	2 x Vacuum Regulator, Remote Meter & Ejector	**995C**





hydro Gas Chlorinators

900 Series with ejector, remote meter & accessories

TON Mounting - 900 series

Up to 2 kg/hr systems

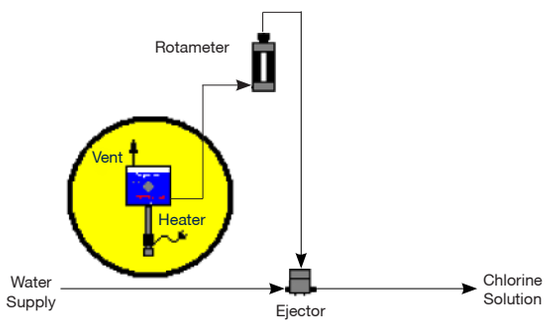
Max Capacity		PFC Part No.
75 g/h	1 x Vacuum Regulator, Remote Meter & Ejector	**943C**
200 g/h	1 x Vacuum Regulator, Remote Meter & Ejector	**944C**
500 g/h	1 x Vacuum Regulator, Remote Meter & Ejector	**954C**
1000 g/h	1 x Vacuum Regulator, Remote Meter & Ejector	**964C**
2000 g/h	1 x Vacuum Regulator, Remote Meter & Ejector	**974C**

up to 5 kg/hr systems

5 kg/h	1 x Vacuum Regulator, Remote Meter & Ejector	**984C**

up to 10 kg/hr systems

10 kg/h	1 x Vacuum Regulator, Remote Meter & Ejector	**994C**



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)

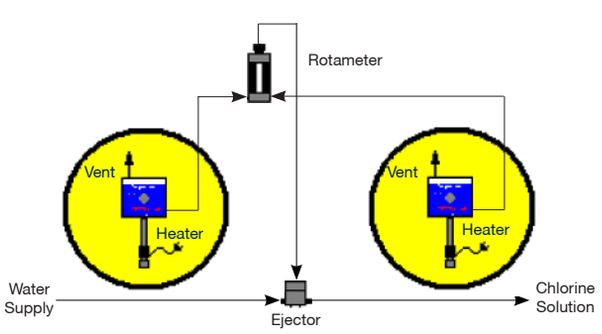
75 g/h	2 x Vacuum Regulator, Remote Meter & Ejector	**936C**
200 g/h	2 x Vacuum Regulator, Remote Meter & Ejector	**946C**
500 g/h	2 x Vacuum Regulator, Remote Meter & Ejector	**956C**
1000 g/h	2 x Vacuum Regulator, Remote Meter & Ejector	**966C**
2000 g/h	2 x Vacuum Regulator, Remote Meter & Ejector	**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**



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).

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hydro Gas Chlorinators

900 Series with ejector, remote meter & accessories

TON Mounting - 900 series

Up to 2 kg/hr systems

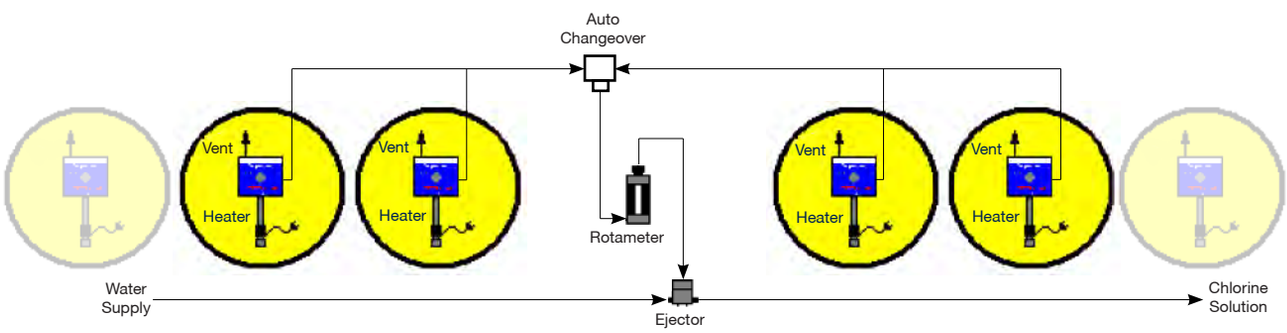
	Part No.
Auto Changeover System (2 drum per side)	**976C-2X2**
2 kg/h 4 x Vacuum Regulator, 1 x Remote Meter, 1 x Auto Changeover & 1 x Ejector	

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 Ejecto	

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 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) * one 900 series vacuum regulator	**PA2400-FP920**	(920C+OV-110)
2 kg/hr	Cyl. or wall mounting (0.2, 0.5, 1 or 2 kg/hr capacity) & in-built auto changeover two 900 series vacuum regulators*	**PA2400-FP965**	(965C+OV-110)
5 kg/hr	Wall or Manifold mounting one 900 series vacuum regulator	**PA2400-FP980**	(980C+OV-110)
5 kg/hr	Wall mounting & in-built auto changeover. two 900 series vacuum regulators	**PA2400-FP985**	(985C+OV-110)
5 kg/hr	Ton mounting one 900 series vacuum regulator	**PA2400-FPT981**	(981C+OV-110)
5 kg/hr	Ton mounting & in-built auto changeover. two 900 series vacuum regulators	**PA2400-FPT986**	(986C+OV-110)
10 kg/hr	Ton mounting (10 kg/hr capacity) one 900 series vacuum regulator	**PA2400-FP991**	(991C+OV-110)
10 kg/hr	Ton mounting & in-built auto changeover. two 900 series vacuum regulators	**PA2400-FP996**	(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 Vaccum Regulator

Each addtional 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 actator 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_2)
S	Sulfur Dioxide (SO_2)

Nozzle

2	#2, 100 PPD (2000 gr/h) max. **STANDARD 1000 g/hr + 2000 g/hr** (0.186” orifice)
3	#3, 50 PPD (1000 g/hr) max. **STANDARD 200 g/hr** (o.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_2)
S	Sulfur Dioxide (SO_2)

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_2)
S Sulfur Dioxide (SO_2)

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 Capcity		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

2000 Up to 2000 PPD / 40kg/h Chlorine (Cl_2) or sulfur Dioxide (SO_2)
Up to 1000 PPD / 20kg/h Amonia (NH_3)
Up to 1600 PPD / 32kg/h Carbon Dioxide (CO_2)

Gas Type

CL2 Chlorine
SO2 Sulfur Dioxide
NH3 Ammonia
CO2 Carbon Dioxide

Inlet Connection Size

1 3/4" NPT gas inlet connection
2 1" NPT gas inlet connection

Inlet Connection Direction

L Left - gas inlet connection FACING RIGHT
R Right - gas inlet connection FACING LEFT

Pressure Gauge

1 Installed

Y - Strainer

0 None included

Drip-leg Heater Power

1 115 VAC
2 240 VAC
3 24 VDC

Flow Indicator

0 None included

VRH - 2000 - 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).

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Note: Header, auxilary valves & flexibles extra see prices for this or complete header (manifold).

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_3)
C	Chlorine (Cl_2)
D	Carbon Dioxide (CO_2)
S	Sulfur Dioxide (SO_2)

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 (Cl2) apply the corresponding capacity conversion factor:

Ammonia (NH3)	=	0.50
Carbon Dioxide (CO2)	=	0.80
Sulfur Dioxide (SO2)	=	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**

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 actoator 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 Packagefor 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).

		PFC Part No.
For **up to** 4 cyl/drums	**Part A**	**PA24002937**
For **more** than 4 cyl/drums	**Part A**	**PA24002938**

Part B

Bottle Mounting 1 x Pneumatic cylinder and ratchet assembly with special bracket for mounting on each vacuum regulator.	**Part B**	**PA24122715**
TON Mounting 1 x Pneumatic cylinder and ratchet assembly with special bracket for mounting on each vacuum regulator.	**Part B**	**PA24003538**
Pressure Header 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, 03 and ClO2 all use the same sensors/controllers (gas can be freely selected in menu). However if 03 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.

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.

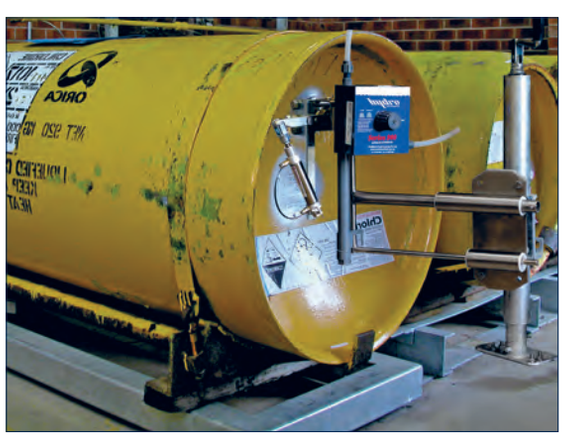
The VRL-900 is adjustable for height as well as horizontal positioning with limited rotation to ensure connection to alternate drums and drum valve position.

The VRL-900 is suitable for drums floor mounted or on scales, an is daptable 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.

	PFC Part No.
Model VRL-900	**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

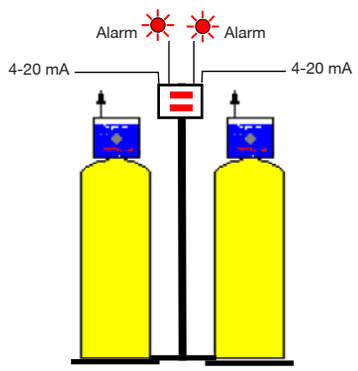
Accessories

Bottle & Drum Scales

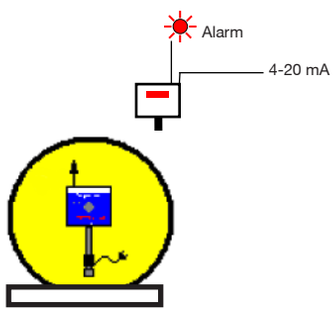
	PFC Part No.
Single Cylinder scales with Digital Alarm and 4-20mA out incl. safety chains	**PA24003377**
Dual Cylinder scales with Digital Alarm and 4-20mA out incl. safety chains	**PA24003360**
EI1000 Single Chlorine Drum Scale with Digital Alarm and 4-20mA out	**PA24003382**
EI2000 Dual Chlorine Drum 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

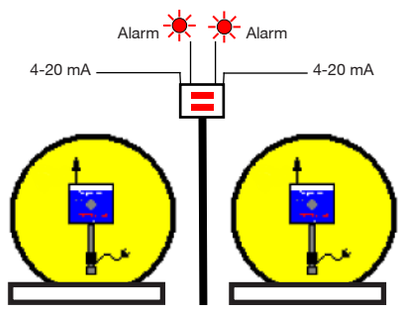
Safety Chains & Brackets Dual Cylinder	**PA31001936**



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 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**

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 *NB: Use RCD Safety Switch*	**A24002479**
This is for all for 200, 500, 700 & 900 series Ton mount vacuum regulators	
Optional heater for header mounting, 24V AC, 25W c/w 240v transformer	**PA55052460**
Note: *for second 24v heater add (**max. 2 heaters per transformer**)* 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:

Withdrawable * PVC Injection lance, with 20mm hose tail, inc. SS valve & nipple	**PA07621807**
Withdrawable * PVC injection lance, with 25mm hose tail, inc. SS valve & nipple	**PA07621808**

***Note:** Suitable for maximum of 2 kg/h chlorine.

Non Withdrawable PVC Injection/Diffuser tube c/w 1" BSPF PVC valve & 25mm Hose Tail. *Note: Suitable for maximum of 2 kg/h chlorine.*	**PA24921972**
Non Withdrawable PVC Injection/Diffuser tube c/w 1 1/2" BSPF PVC valve & 40mm Hose Tail. *Note: Suitable for maximum of 10 kg/h chlorine.*	**PA24521971**

Indicators

Auto vacuum change over Left/Right cylinder bank indicator, mounted in 175 x 125 PVC enclosure. *Note: Requires auto changeover valve or extra remote meter*	**PA24002108**
High/Low vacuum indicator fitted to remote meter, mounted in 175 x 125 PVC enclosure. *Note: Requires remote meter*	**PA24002109**

Note: if both PA24002108 and 2109 are used together total price can be reduced

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	T hree (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:

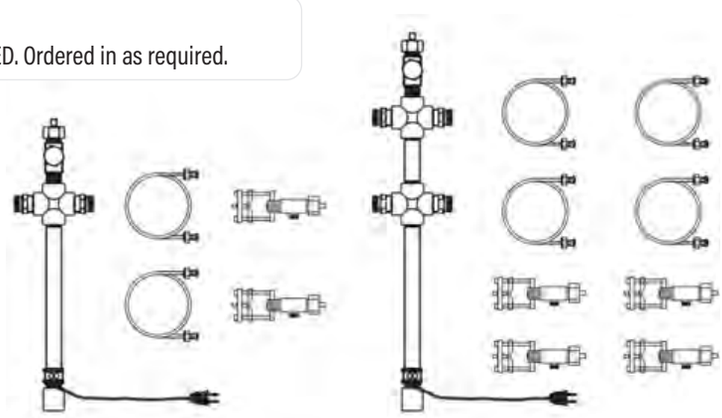
Pressure manifolds include a wall mounting installation kit.

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)

Alternative (no longer used)

E.V.A. Chlorine vacuum tubing 12 x 8mm (*ONLY for older systems)*	**A24001626**
E.V.A. Chlorine vacuum tubing 17 x 12mm (*ONLY for older systems)*	**A24001737**

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 retardency, 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**

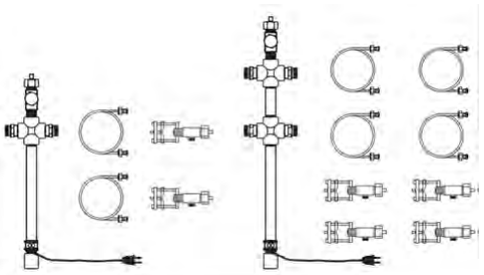
Adaptor 1/4" NPS M/M with O-Rings	**PA24003231**
Adaptor 3/8" NPS M/M with O-Rings	**PA24003232**
Adaptor 1/2" NPS M/M with O-Rings	**PA24003233**

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 *ONLY for older systems.*	**P120309091-12**
for 17 x 12 EVA tube *ONLY for older systems.*	**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**
10	metre	Vacuum Tubing 12 x 8	**A24001626**

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**
10	metre	Vacuum Tubing 12 x 8	**A24001626**

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

Omni-Valve

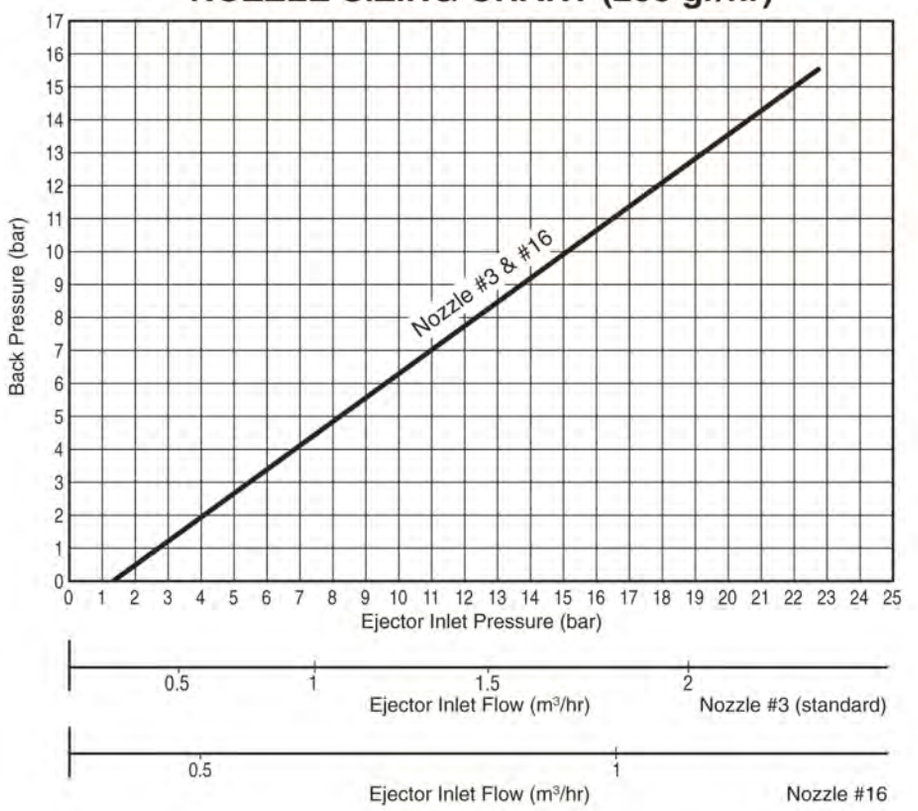
KT1-100-OV	Omni-Valve 2 kg/hr
KT1-250-OV	Omni-Valve 5 kg/hr
KT1-500-OV	Omni-Valve 10 kg/hr
KT1-040-OV	Omni-Valve 20-40 kg/hr

3000 series

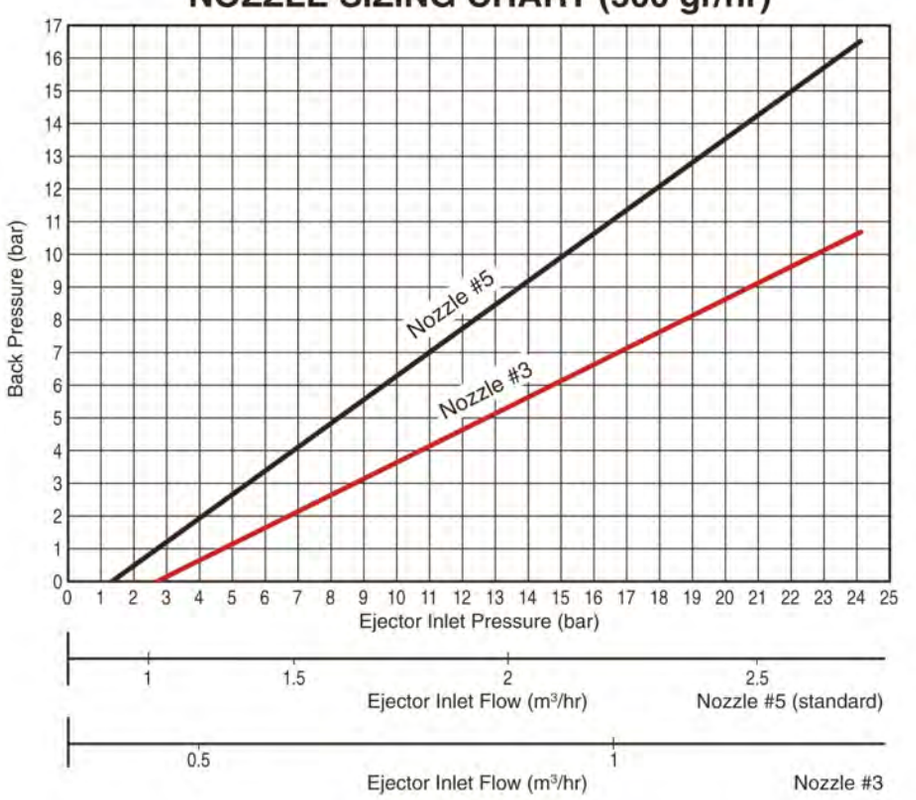
KTH-2000-VRW	20-40 kg/hr VAC REG
KTH-2000-RMS	20-40 kg/hr Rotameter
KTH-2000-EJS	20-40 kg/hr Ejector
KTH-2000-SOM	20-40 kg/hr Switch Over Module

hydro *Ejector* Selection Chart EJ1000

NOZZLE SIZING CHART (200 gr/hr)



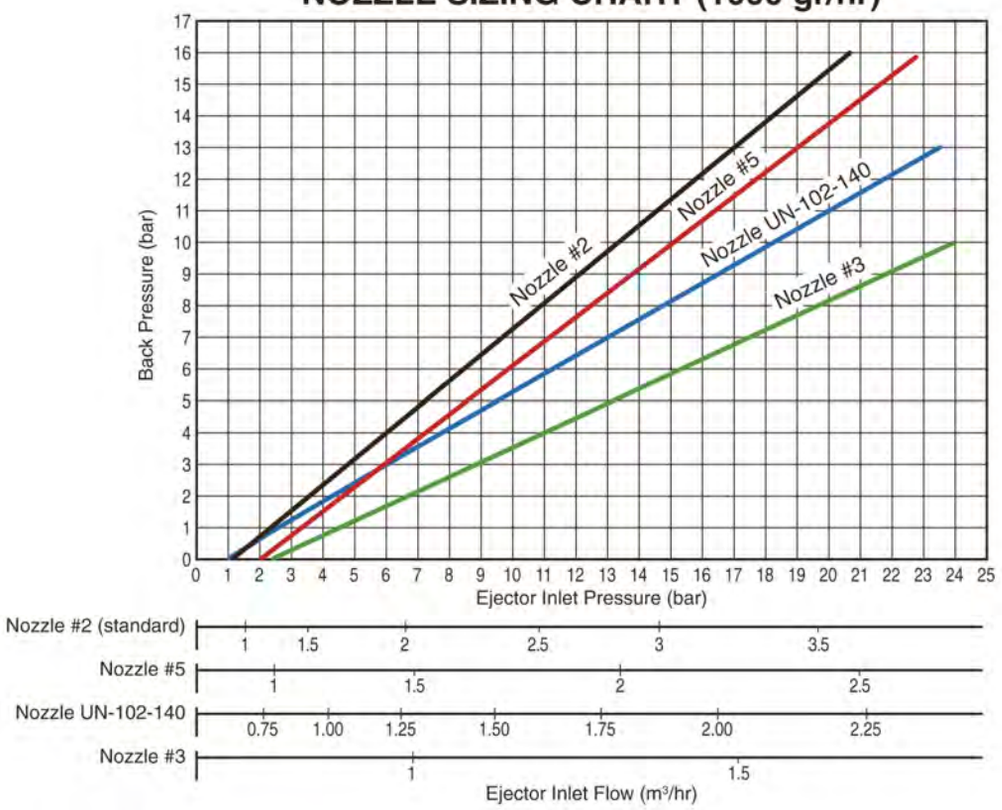
NOZZLE SIZING CHART (500 gr/hr)



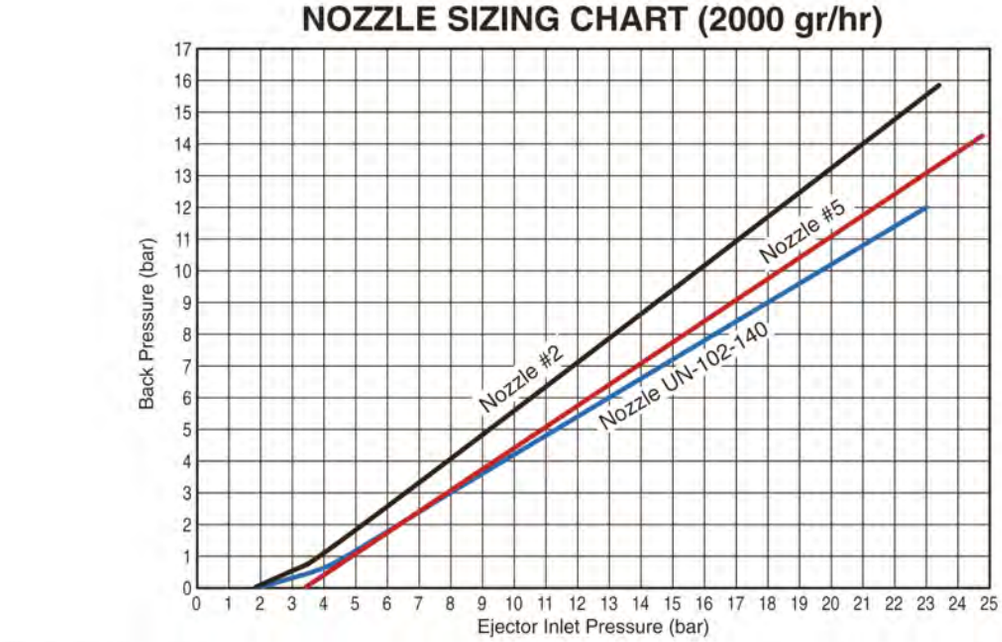
Note: Pressure combinations that plot below the line for any given nozzle are acceptable for operating that nozzle at the stated chemical feed rate for that chart. Pressure combinations that fall above the line for any given nozzle are not acceptable.

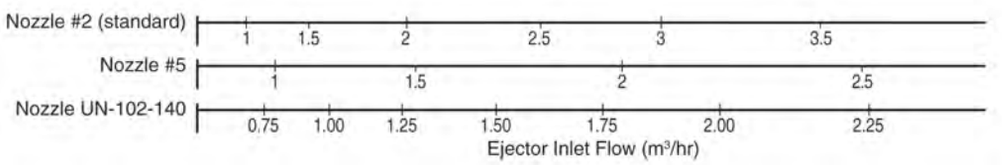
hydro *Ejector* Selection Chart EJ1000

NOZZLE SIZING CHART (1000 gr/hr)



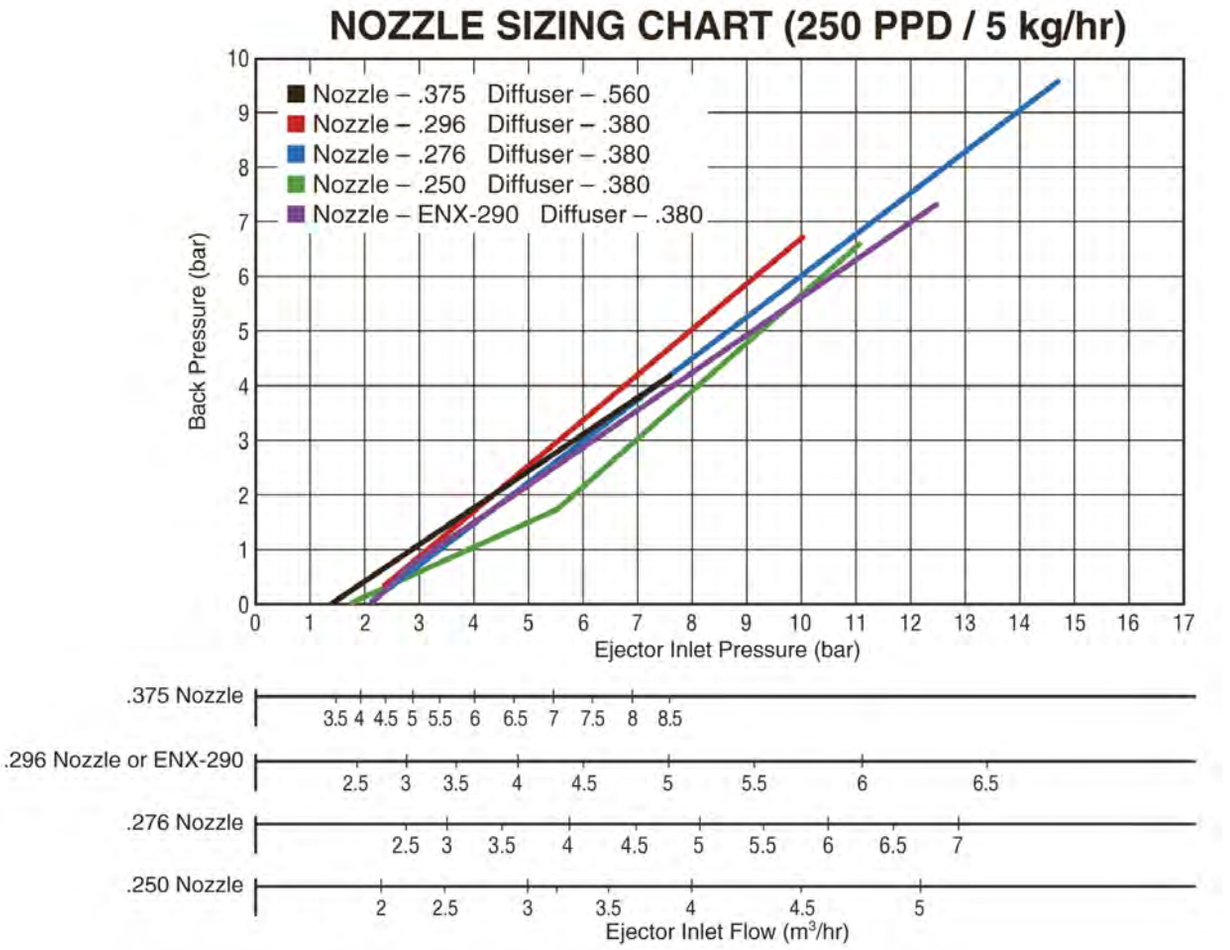
NOZZLE SIZING CHART (2000 gr/hr)





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.

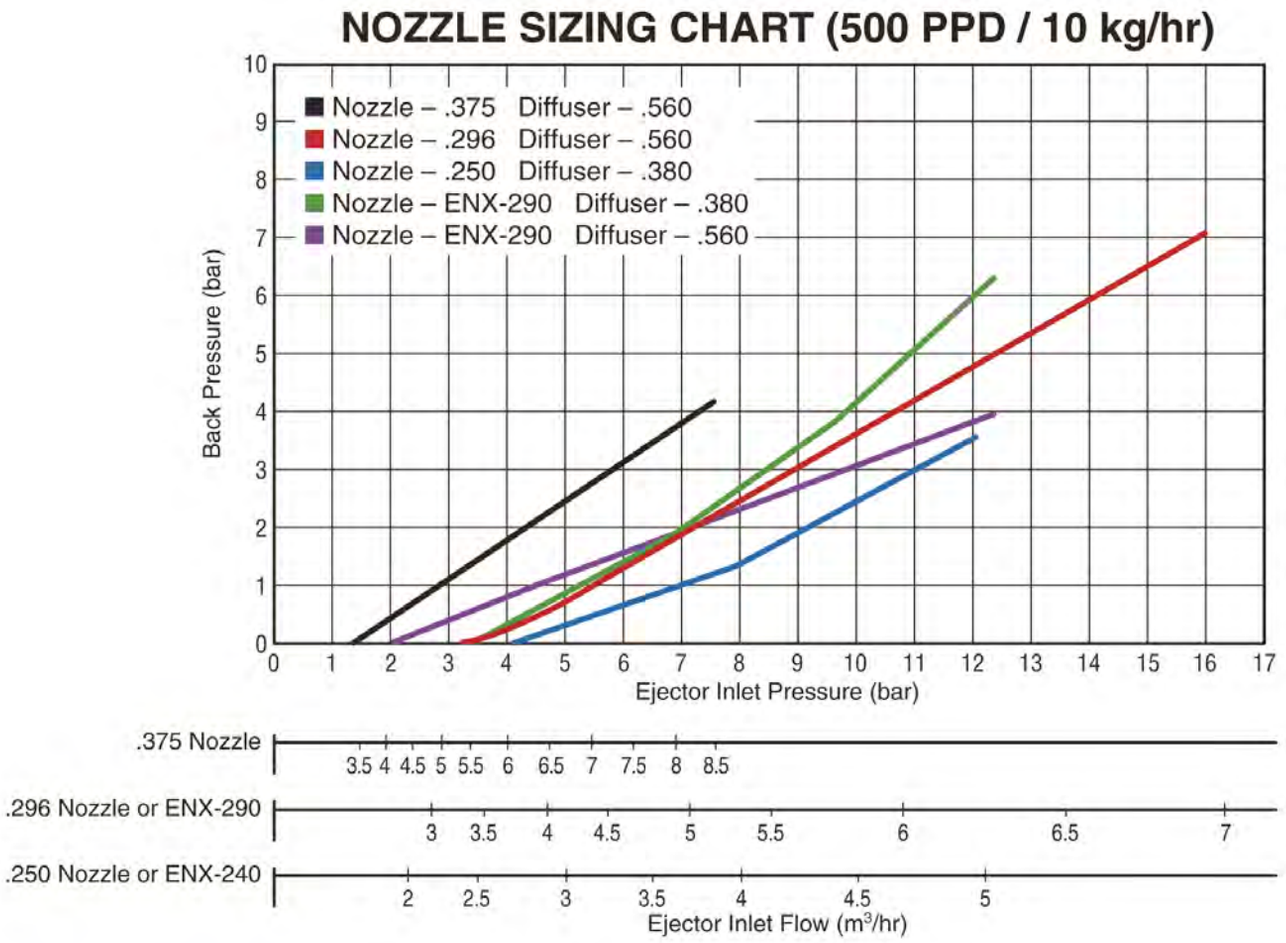
hydro *Ejector* Selection Chart EJ2000



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.

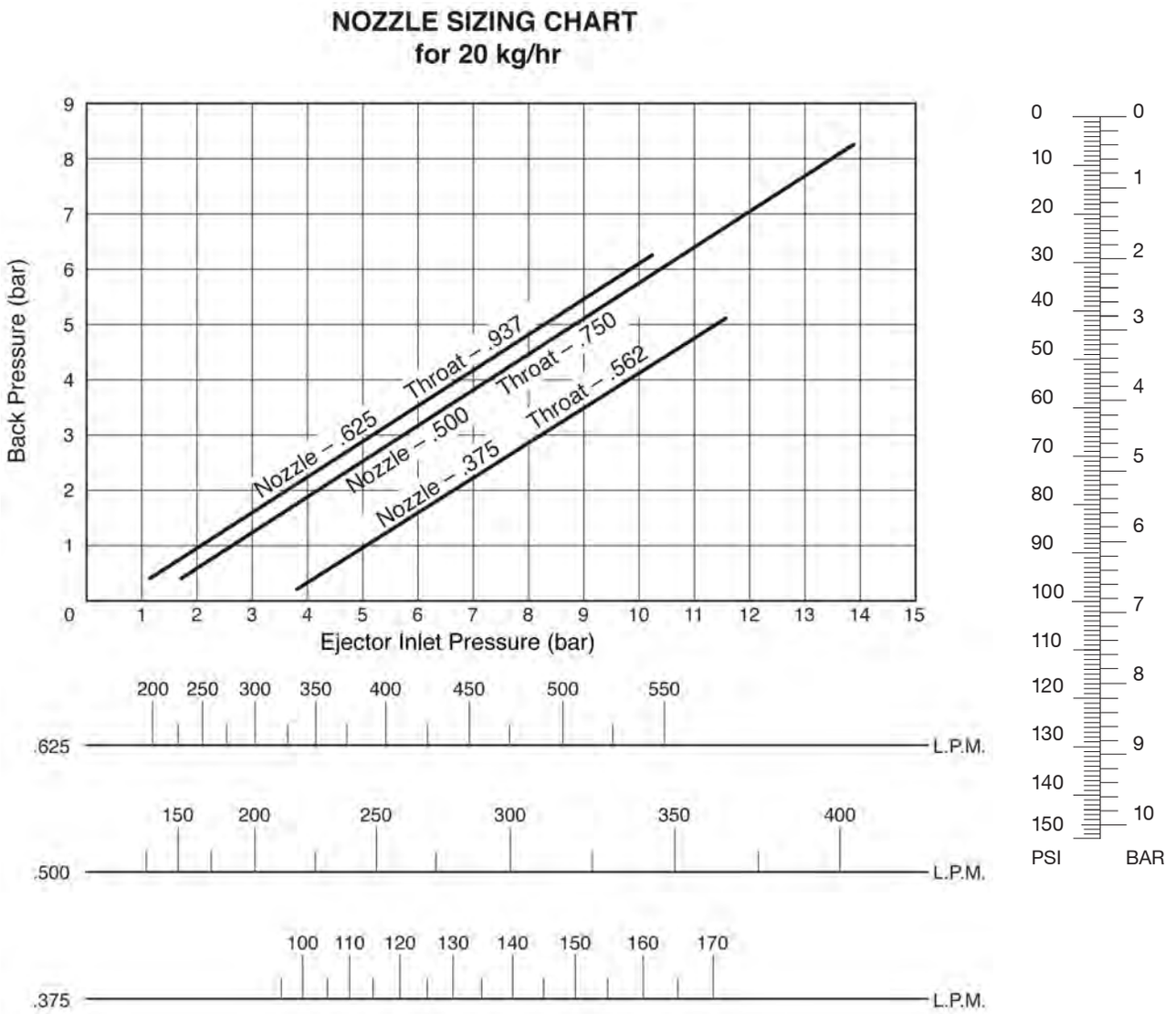
hydro Ejector Selection Chart EJ5000



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.

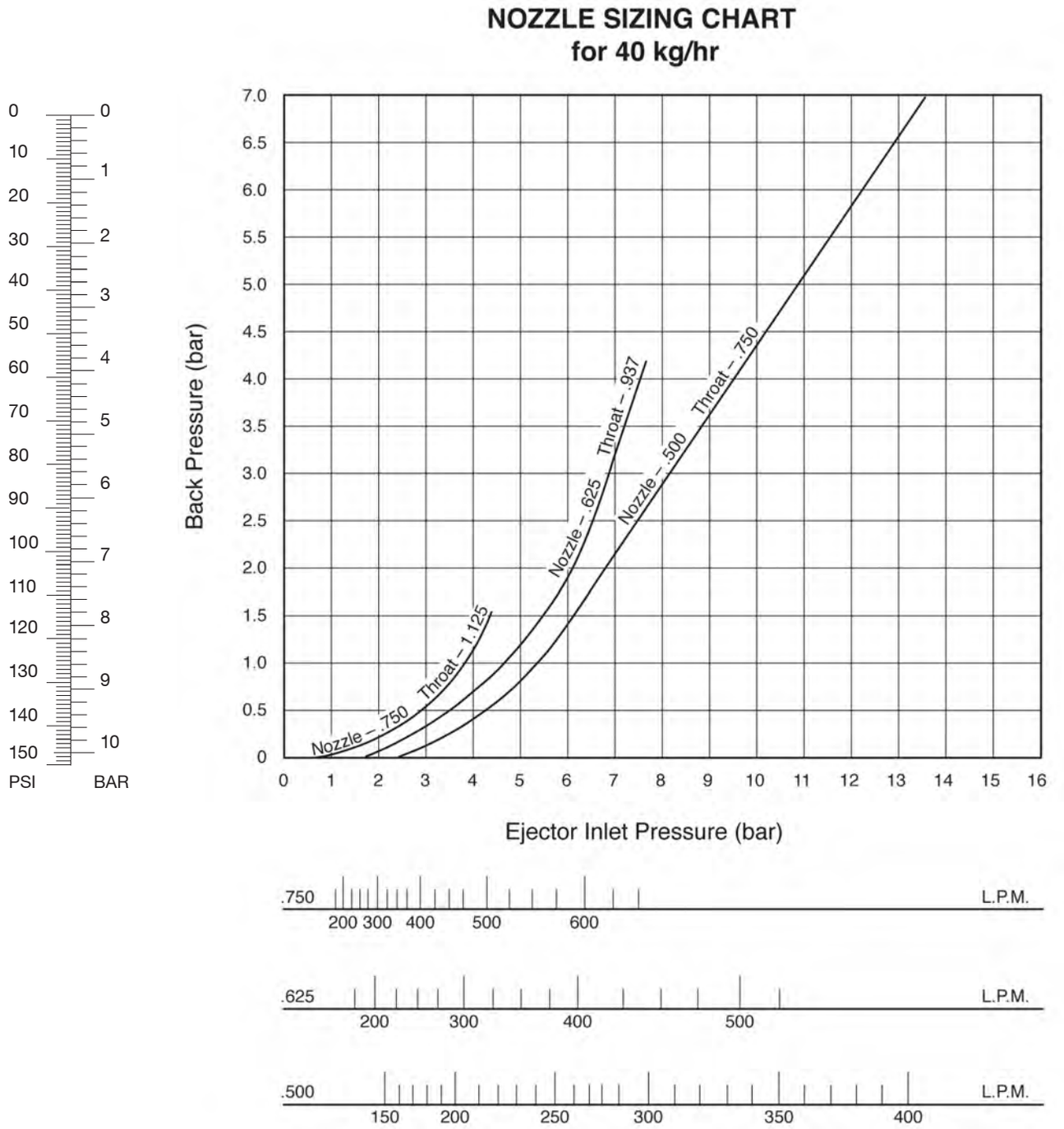
hydro Ejector Selection Chart EJH-1000-CL2



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



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.