

Catalogue 2026

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HEAD OFFICE

4 Narabang Way,
BELROSE NSW 2085
P 02 9450 0995
sales@prominentfluid.com.au
www.prominentfluid.com.au

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1.0 alpha Motor Driven Metering Pump

1.0.1 alpha Motor Driven Metering Pump

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

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

The motor-driven metering pump alpha is the metering pump for liquid media and the optimum solution for simple applications. Robust, low-noise, chemical-resistant, with precise metering and good suction capacity.

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

Your Benefits

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

Technical Details

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

Field of Application

All low capacity applications where constant metering is required.

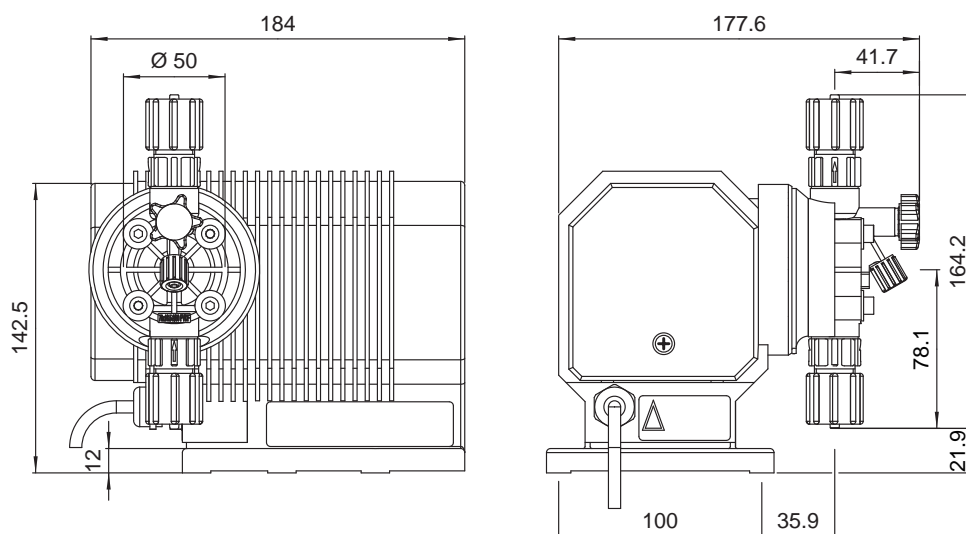
Technical Details

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

Field of Application

All low capacity applications where constant metering is required.

Dimensional drawing of the alpha



1.0 alpha Motor Driven Metering Pump

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 Ø x Inner Ø	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 = fluororubber)

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

Motor Data

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



1.0 alpha Motor Driven Metering Pump

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 beta Solenoid Driven Metering Pump

1.1.1 beta Solenoid Driven Metering Pump

Equipped with all the features and properties for superior process management.

Capacity range 0.74 – 32 l/h, 25 – 2 bar

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

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

Your Benefits

- Optional external control via 0/4 – 20 mA and potential-free contacts with pulse step-up and step-down of 64:1 to 1:64
- Simple adjustment of metering capacity via stroke rate and stroke length
- Adaptation to existing signal transducers by external control via potential-free contacts with pulse step-up and step-down
- Suitable for use with almost all liquid chemicals thanks to the available material combinations: PP, PVDF, clear acrylic, PTFE and stainless steel
- Self-bleeding dosing head design in clear acrylic/PVC and PP
- Virtually wear-free solenoid drive: economical and overload-proof
- Economical operation with up to 50% energy-savings, thanks to higher pump efficiency
- Everything in sight and under control: 3 LED display for operating, warning and error messages

Technical Details

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

Field of Application

- Metering liquid media in water treatment and chemical processes



1.1 beta Solenoid Driven Metering Pump

1.1.2 Technical Data beta BT4b & BT5b

	Max. Pump Capacity at Maximum Back Pressure			Max. Pump Capacity at Medium Back Pressure			Stroke Freq	Connector Sizes Outer Ø x Inner Ø	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 beta Solenoid Driven Metering Pump

1.1.3 Identity Code & Pricing for beta BT4b & BT5b

beta BT4b version b

BT4b 1000, 1601, 1602, 1604	PP	BT5b 07018, 1008, 0713, 0420	PP
also 2001* 1001, 0701, 0401	PV	also 2504*	PV
2002* 1002, 0702, 0402	NP		NP
1004, 0704, 0404	TT	Note: 2504*, 2002*, 2001* only NP & SS	TT
	SS		SS
BT4b 0708, 0413, 0220	PP	BT5b 0232	PP
also 0408	PV		PV
	NP		NP
	TT		TT
	SS		SS

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

PPE	Polypropylene/EPDM
PPB	Polypropylene/Viton (FPM-B) 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**
- ** Self bleed, (SEK) **for PP, NP only all sizes EXCEPT type 1000 and 0232 - CHECK AVAILABILITY**

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, $\pm 10\%$, 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

Aux Frequency - Other available

- 0 Standard 180 Spm

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.

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 0 U C 0 1 0 0 0 0 P



1.1 beta Solenoid Driven Metering Pump

1.1.4 Technical Data for beta BT4a & BT5a—CAN Bus ONLY

	Max. Pump Capacity at Maximum Back Pressure			Max. Pump Capacity at Medium Back Pressure			Stroke Freq	Connector Sizes Outer Ø x Inner Ø	Suction Lift**	Delivery Weight PP, NP PC, TT	SS
pump type	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 diaphragm 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 beta Solenoid Driven Metering Pump

1.1.5 Identity Code & Pricing for beta BT4a & BT5a—CAN Bus ONLY

beta BT4a version a													
BT4a 1000, 1601, 1602, also 0700, 0400 1001, 0701, 0401 1002, 0702, 0402				PPE PVT NPB TTT SST	BT5a 1605, 1008, 0713, 0420				PPE PVT NPB TTT SST				
BT4a 1005, 0708, 0413, 0220 also 0405, 0705 0408				PPE PVT NPB TTT SST	BT5a 0232				PPE PVT NPB TTT 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,											
9		Self bleed, (SEK) for PP, NP only - NOT available for types 1000 and 0232											
Hydraulic Connections													
0		Standard according to technical data											
Design													
0		With ProMinent Logo											
Power Supply													
A		200 - 230 V, ±10%, 50/60 Hz ***** CAN Bus ONLY *****											
U		100 - 230 V, ±10%, 50/60 Hz ***** CAN Bus ONLY *****											
Cable & Plug													
C		2m Australian											
1		2m Open ended Cable for 12-24V pumps ONLY											
Relay													
0		No Relay											
1		Fault indicating relay (N/C) (changeover relay) Preferred											
3		Fault indicating relay (N/O) (changeover relay)											
4		As for 1 + pacing relay (1 input each)											
5		As for 3 + pacing relay (1 input each)											
Accessories													
0		No accessories											
1		Tube FV & IV - NOT for PTFE, SS or HV											
Electronic Locking													
0		No lock											
1		With lock: manual operation locked when external cable is plugged in.											
Options on request													
D		CANopen for Dulcomarin® II											
0		0		no option									
Prepack Option													
P*		See -											
BT4a 1601	PPE	2	0	0	A	C	0	1	0	0	0	0	P0

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.

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.



1.1 beta Solenoid Driven Metering Pumps

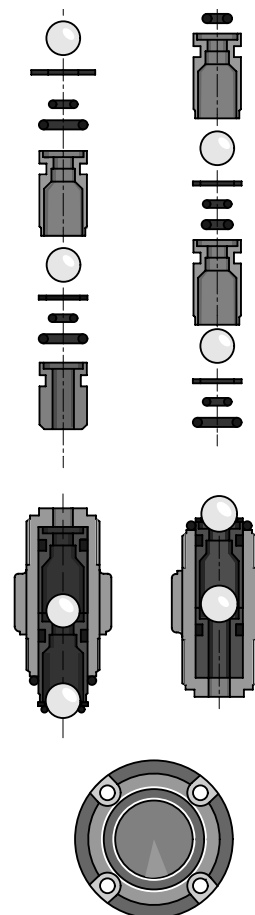
1.1.6 Spare Parts Sets beta BT4b & BT5b

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

Replacement part sets for ProMinent beta consisting of:

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

Note: Does not include valves for SS



Spare Parts Kits for Solenoid-driven Metering Pump beta with Self-bleeding Dosing Head

TYPE SER

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

Replacement part sets for ProMinent beta consisting of:

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



1.1 beta Solenoid Driven Metering Pumps

1.1.7 Spare Parts Sets beta BT4a & BT5a

Replacement part sets

for ProMinent beta

consisting of:

1x dosing diaphragm

1x suction valve

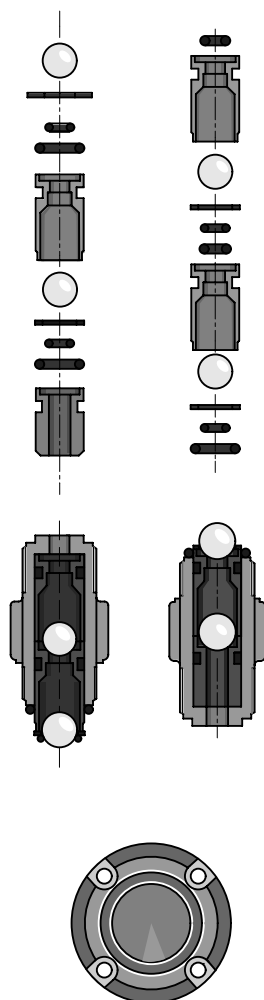
1x discharge valve

1x set seals

1x connector set

Note: Does not include valves for SS

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



		Part No.
BT4a/b 1000 also: 0700, 0400	PPE	1001644
	PPB	1001652
	PCE/NPE	1001713
	PCB/NPB	1001721
	PVT	1023107
	TTT	1001737
	SST	1001729
BT4a/b 1601 also: 2001, 1001, 0701, 0401	PPE	1001645
	PPB	1001653
	PCE/NPE	1001714
	PCB/NPB	1001722
	PVT	1023108
	TTT	1001738
	SST	1001730
BT4a/b 1602 also: 2002, 1002, 0702, 0402	PPE	1001646
	PPB	1001654
	PCE/NPE	1001715
	PCB/NPB	1001723
	PVT	1023109
	PVT/HV	1035342
	TTT	1001739
	SST	1001731
BT4a/b 1604 also: 1004, 0704, 0404	PPE	1039989
	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 also: 0408	PPE	1001648
	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 beta Solenoid Driven Metering Pumps

1.1.7 Spare Parts Sets beta 4a/b & 5a/b

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	1023129



1.1 beta Solenoid Driven 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



1.2 beta/ X Metering Pump

1.2.1 beta/ X Metering Pump

The new generation – simply beta/ X

CAPACITY RANGE 10 MI/h – 50 l/h, 16 – 2 BAR

The beta/ X diaphragm metering pump provides simple handling, precise metering and digital networking. With its intuitive operation and robust design, it is setting new standards in metering technology.

The diaphragm metering pump beta/ X is easy to use, meters with precision and is digital.

All aspects of the beta/ X are focused on simple handling. The volume is set directly using an intuitive click wheel.

The volume to be pumped is adjusted directly on a display. Thanks to a click-in foot, it can also be quickly and easily mounted on the floor or wall.

The reliable metering pump is versatile and robust. What makes the beta/ X so special is its regulated drive. This enables continuous metering and a wide adjustment range. Thanks to the wide adjustment range, the pump can be used universally, which greatly simplifies selection and reduces the number of variants.

The dosing heads on the beta/ X are characterised by their good priming properties. The specially shaped head minimises faults caused by air locks. This in turn improves process reliability.

The beta/ X can be digitally networked, programmed and read off a smartphone. It has a Bluetooth and NFC interface.

Features & Benefits

- Simple operation and mounting save time and effort.
- Precise metering and good priming properties improve process reliability.
- Wide adjustment range and robust design for flexible applications.
- Control via a smartphone using Bluetooth and NFC.

Technical Details

- The desired l/h can be set using a click wheel & display.
- Continuous metering with a wide adjustment range of 1:1000.
- Enhanced process reliability thanks to improved priming and optimised handling of air locks.
- Bluetooth and NFC interfaces.
- Energy-efficient: The beta/ X is twice as energy efficient as its comparable predecessor model.

Field of Application

- Disinfection
 - Chlorine dosing
 - H2O2 dosing
 - CLO2
- Biocide
- Antiscalant
- Disinfection of cooling towers
- Metering all kinds of liquids in industrial/chemical applications
- Collection pan with leak sensor
- Fresh water treatment
- Waste water treatment
- Commercial pool & wellness sector - disinfection



1.2 beta/ X Metering Pump

1.2.2 Technical Data & Materials for beta/ X

Technical Data

Pump type	Pump capacity at max. back pressure			Stroke rate	Connector size c x i c	Suction lift*	Shipping weight	
	bar	l/h	ml/stroke	Strokes/min	mm	m WC	PV kg	SS kg
BTXb 16006	16	6	0.50	200	6 x 4	5	2.4	2.9
BTXb 07018	7	18	1.5	200	8 x 5	4	2.6	3.9
BTXb 04028	4	27.6	2.30	200	12 x 9	4	2.6	4.0
BTXb 02050	2	50.4	4.20	200	12 x 9	3	2.7	4.5

* Suction lift with a filled dosing head and filled suction line, with a self-bleeding dosing head with air in the suction line.



The vPTFE diaphragm is limited to a maximum operating pressure of 10 bar.
The delivery rates of the dosing pumps with vPTFE diaphragm can deviate by 10-20 % compared to the standard diaphragm.

Materials in Contact with the Medium

Identity code of material	Dosing head	Connection on suction/discharge side	Ball seat	Seals	Balls
PVT	PVDF	PVDF	PEEK	Standard diaphragm - Wetted PTFE	Ceramic AL203
PVM	PVDF	PVDF	PEEK	Full PTFE membrane	Ceramic AL203
SST	Stainless steel 1.4404	Stainless steel 1.4404	Ceramic ZrO2	Standard diaphragm - Wetted PTFE	Ceramic AL203

Repeatability of dosing: ± 1 % when used in accordance with the instructions in the operating manual

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

Average power consumption: 3.4 ... 16.5 W

Protection class: IP 66, NEMA 4X, insulation class F

Viscosity: 0 - 1,000 centipoise



1.2 beta/ X Metering Pumps

1.2.2 beta B Replacement Selection Guide for BTXb

beta B Replacement Selection Guide for BTXb

Pump	Replacement Pump
BT4b 1000	BTXb 16006
BT4b 1601	
BT4b 1602	
BT4b 1604	
BT4b 1001	
BT4b 0701	
BT4b 0401	
BT4b 1002	
BT4b 0702	
BT4b 0402	
BT4b 1004	
BT4b 0704	
BT4b 0404	
BT4b 0406	
BT4b 2001 & 2002	Replace with same pump On special request there is a 6 week lead time
BT4b 1008	
BT4b 0708	BTXb 07018
BT4b 0413	
BT4b 0408	
BT4b 0713	
BT4b 0220 & 0420	BTXb 04028
BT5b 0232	BTXb02050



1.2 beta/ X Metering Pump

1.2.4 Identity Code & Pricing for beta/ X

BTXb														
Regional Version														
EU														
Type	Capacity												PVT2	SSTO
16006	16 bar	6 l/h												
07018	7 bar	18 l/h												
04028	4 bar	27.6 l/h												
02050	2 bar	50.4 l/h												
Liquid end/valve material														
PV	PVDF													
SS	Stainless steel [not stocked]													
Seal/diaphragm material														
T	Standard diaphragm + PTFE seals													
M	PTFE diaphragm + PTFE seals. Design only for PV and SS heads													
Liquid end version														
0	No bleed valve, without valve spring [SS only]													
2	With bleed valve, without valve spring [PVT only]													
Certificate														
0	No certification													
F	FDA													
G	1935/2004 (S/S only)													
Hydraulic connections														
0	Standard connector (universal connection set)													
Version														
0	Housing RAL5003 / hood RAL2003													
Logo														
0	With ProMinent logo and with beta/ X lettering													
Electrical Connection														
U	Universal control 100 - 240VAC													
Cable and plug														
C	2m Australian													
Modules														
0	no relay													
1	3-pole relay 240V, 1xchangeover contact 240V-8A (relay releasing)													
4	4-pole relay 24V, 100mA 2xN/O switch 24V-100mA (like 1 + pacing relay energising)													
A	0-24mA output + 2-pole relay 24V0, 1ADC (like 1 + 4-20mA output)													
Communication														
C	Bluetooth and analogue input 0/4 – 20mA + manual + contact													
Accessories														
0	no accessories													
1	Injection valve + foot valve, 2m hose, 5m PE hose [PVT only]													
Documentation language														
EN	English													
Approvals														
01	CE													

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: 16006 pumps are supplied with 5.0m PTFE tube (in appropriate size) and fittings to suit, other tube is available on request.

BTxB EU 16006 PV T 2 0 0 0 U A 1 C 1 EN 01

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: 16006 pumps are supplied with 5.0m PTFE tube (in appropriate size) and fittings to suit, other tube is available on request.

BTxB EU 16006 PV T 2 0 0 0 U A 1 C 1 EN 01



1.2 beta/ X Metering Pump

1.2.5 Spare Parts for beta/ X

Spare parts sets for solenoid diaphragm metering pump beta/ X

Stainless steel version without complete suction valve and without complete pressure valve, with valve seats, seals and valve balls

Spare parts sets for beta/ X,
consisting of:

- 1 x dosing diaphragm
- 1 x suction valve complete
- 1 x pressure valve complete
- 1 x connection set

	Identity code of material	Part No.
Type 16006	PVT	1139938
	PVM	1139939
	SST	1035331
Type 07018	PVT	1139942
	PVM	1139943
	SST	1027087
Type 04028	PVT	1139946
	PVM	1139947
	SST 1	051139
Type 02050	PVT	1139950
	PVM	1139951
	SST	1051140

Spare diaphragms - PTFE composite diaphragm for beta/ X

	Identity code of material	Part No.
Type 16006	PVT, SST	1034612
Type 07018	PVT, SST	1000249
Type 04028	PVT, SST	1045456
Type 02050	PVT, SST	1045443

Spare Diaphragms - full PTFE diaphragm for beta/ X

	Identity code of material	Part No.
Type 16006	PVM	1117351
Type 07018	PVM	1117354
Type 04028	PVM	1117353
Type 02050	PVM	1117352



1.3 gamma/ X Solenoid Driven Metering Pump

1.3.1 gamma/ X Solenoid Driven Metering Pump

The proven best-seller intelligently extended

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

The solenoid diaphragm metering pump gamma incorporates a wealth of eXcellent ingenuity!

With integrated pressure measurement, it ensures the smooth running of your metering process.

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

The new solenoid diaphragm metering pump gamma/ X is user-friendly and, just like its predecessor, has an outstandingly long service life. An ingenious solenoid control measures the back pressure and protects the system from overload. This technology makes a pressure sensor superfluous, meaning that operating safety can be significantly increased.

No additional parts come into contact with the feed chemical, there are no additional sealing surfaces and no electronic components come into contact with the feed chemical. Whether the metering volume fluctuates or hydraulic failures affect the metering process – the gamma/ X keeps everything at your fingertips.

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



Features & Benefits

- Simple adjustment of the capacity directly in l/h
- Trouble-free processes by the detection of hydraulic malfunctions or blocked discharge lines
- Integrated pressure measurement and display for greater safety during commissioning and in the process
- Adaptation to existing signal transducers by external control via potential-free contacts with pulse step-up and step-down
- External control via 0/4-20 mA standard signal with adjustable assignment of signal value to stroke rate
- Integrated 7-day timer for timed metering tasks
- Guaranteed metering by means of automatic bleeding
- Connection to process control systems via bus interfaces, such as Profinet, PROFIBUS, CAN bus, others on request
- Organise work processes conveniently with the optional process timer. The alternative to a timer or PLC
- Virtually wear-free solenoid drive, overload-proof and economical
- Suitable for continuous micro-metering from 2 ml/h thanks to the regulated solenoid drive

Technical Details

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

Field of Application

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



1.3 gamma/ X Solenoid Driven Metering Pump

1.3.2 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 x 4***	4.0**	4.9	5.5
GMXa 1009	10	9.00	0.75	200	8 x 5	3.0**	5.1	6.5
GMXa 0715	7	14.50	1.21	200	8 x 5****	3.0**	5.1	6.5
GMXa 0424	4	24.00	2.00	200	12 x 9	3.0**	5.1	6.5
GMXa 0245	2	45.00	3.70	200	12 x 9	2.0**	5.2	7.0

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

GMXa 1602	10	0.90	0.08	200	6 x 4	1.8**	3.6	–
GMXa 1604	10	2.20	0.18	200	6 x 4	1.8**	3.6	–
GMXa 0708	7	5.70	0.48	200	8 x 5	1.8**	3.7	–
GMXa 0414	4	12.00	1.00	200	8 x 5	1.8**	3.7	–
GMXa 0220	2	17.40	1.45	200	12 x 9	1.8**	3.7	–
GMXa 1009	10	6.00	0.50	200	8 x 5	1.8**	5.1	–
GMXa 0715	7	12.90	1.08	200	8 x 5	1.8**	5.1	–
GMXa 0424	4	19.20	1.60	200	12 x 9	1.8**	5.1	–

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

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

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

* The given performance data represents guaranteed minimum values, calculated using water as the medium at room temperature.

** Suction lift with a filled dosing head and filled suction line, with a self-bleeding dosing head with air in the suction line.

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

**** With stainless steel design 12 mm connector width.

All data refers to water at 20 °C.

Materials in contact with the medium

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

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

Diaphragm with a PTFE coating. FKM = fluorine rubber

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

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

Mean power consumption: 24/30 W

Degree of protection: IP 65, insulation class F



1.3 gamma/ X Solenoid Driven Metering Pump

1.3.3 Identity Code & Pricing for gamma/ X

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

Refer Sydney office if NPB9 is required.

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.

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

Prepacks = P*

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

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

P5 - as P2 but with 5m control Cable

PX - as P2 but with 10m control Cable

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

GMXa 0708

PV

T

2

0

1

0

0

U

C

0

1

3

0

0

EN

P



1.3 gamma/ X Solenoid Driven Metering Pump

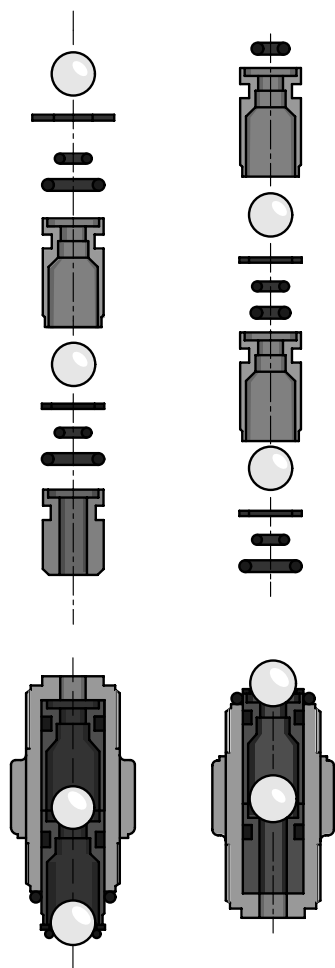
1.3.4 Accessories Spare Part Sets gamma/ X

Spare Parts Kit for gamma/ X

Spare parts kits for gamma/ X, consisting of:

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

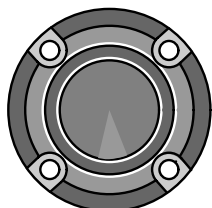
Note: Suction and discharge valve set not included with stainless steel version.



Type	Materials in contact with the medium	Part No.
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



1.3 gamma/ X Solenoid Driven Metering Pump

1.3.5 gamma/ X Metering Pump 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

1.3.6 PTFE Diaphragm for gamma/X Metering Pump

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

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



1.4 gamma/ XL Solenoid Driven Metering Pump

1.4.1 gamma/ XL

gamma/ XL – large output, great features

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

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

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

Pressure detection without wetted parts ensures maximum operational safety.

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



Deviations from the metering volume or hydraulic fault statuses are immediately detected and corrected by the gamma/ XL. The pump's operating menu includes ordering information for the wear parts required. Designed as a smart product, it can also be connected to our web-based 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



1.4 gamma/ XL Solenoid Driven Metering Pump

1.4.2 Technical Data gamma/ XL

Pump type gamma/ XL	Max. pressure bar	Delivery rate l/h	Theor. stroke volume ml/stroke	Max. stroke rate Strokes/min	Nominal diameter	Suction lift m WC	Shipping weight NPE, NPB, PVT / SST kg
GXLa 2508	25	7.80	0.67	200	8 x 4** mm	5*	10/11
GXLa 1608	16	7.80	0.67	200	8 x 5** mm	5*	10/11
GXLa 1612	16	12	1	200	8 x 5 mm	6*	10/11
GXLa 1020	10	19.6	1.7	200	12 x 9 mm	5*	10/11
GXLa 0730	7	29.4	2.5	200	12 x 9 mm	5*	10/11
GXLa 0450	4	49.0	4.2	200	G 3/4 - DN 10	3*	10/11
GXLa 0280	2	78.5	6.7	200	G 3/4 - DN 10	2*	10/11
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 $\pm 2\%$ 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.



1.4 gamma/ XL Solenoid Driven Metering Pump

1.4.3 Identity Code & Pricing for gamma/ XL

GXL _a												
EU Europe												
Type	bar	l/h	NPB	PVT	SST	Type	bar	l/h	NPB	PVT	SST	
2508	25	7.80										
1608	16	7.80										
1612	16	12										
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											
M	Full PTFE diaphragm and seals, PV only											
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											
5	Connector on discharge side for 12/6 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											
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											
F	with automatic bleed valve, 230 V AC, not for pump type 2508											
G	with automatic bleed valve 24 V 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											
P	as 3 + PROFINET® interface, M12											
R	as 3 + PROFIBUS® interface, M12											
M	as 3 + ModBus RTU											
Communication												
0	without interface											
B	with Bluetooth - STANDARD											
Operating menu language												
EN	English											
Prepack												
P	see Options at left											
GXL _a	EU	1020	PV	T	0	0	0	0	0	U	C	0 0 0 0 EN

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.

Note: 1608, 1612 & 2508 pumps are supplied with 5.0m PTFE tube, other tube is available on request.

Prepacks = P*

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

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

P5 - as P2 but with 5m control Cable

PX - as P2 but with 10m control Cable

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

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

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.

Note: 1608, 1612 & 2508 pumps are supplied with 5.0m PTFE tube, other tube is available on request.

Prepacks = P*
P0 - includes 5m of delivery and 2m suction tube a CANbus cable, if specified.
P2 - includes 5m of delivery and 2m suction tube a 2m Control Cable if required.
P5 - as P2 but with 5m control Cable
PX - as P2 but with 10m control Cable
Note: 2508 pumps are supplied with 5.0m PTFE tube, other tube is available on request.

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



1.4 gamma/ XL Solenoid Driven Metering Pump

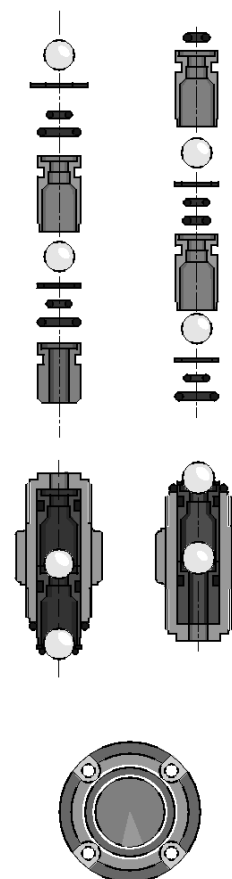
1.4.4 gamma/ XL Spare Parts Kits

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

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

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

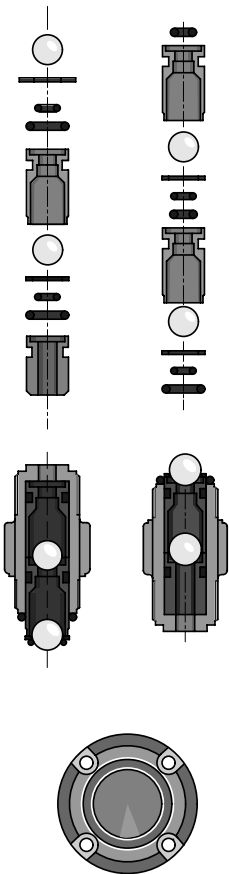
	Materials	Part No.
Type 2508	all materials	1030353
Type 1608	all materials	1030353
Type 1612	all materials	1000248
Type 1020	all materials	1000249
Type 0730	all materials	1045456
Type 0450	all materials	1045443
Type 0280	all materials	1059691

1.5 delta Metering Pump Spare Parts

1.5.1 delta Metering Pump Spare Parts

Replacement spare parts kits
for ProMinent delta
consisting of:

- 1x dosing diaphragm
 - 1x suction valve
 - 1x discharge valve
 - 1x connector set
- Note: Does not include valves for SS



		Part No.
Type 2508	NPB	1033171
	NPE	1033172
	SST	1030226
Type 1608	NPB	1030611
	NPE	1030620
	PVT	1030225
Type 1612	SST	1030226
	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 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

1.5.2 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		-



1.6 EXTRONIC Diaphragm Metering Pump

1.6.1 EXBb G version – gas explosion proof

Property class II, property class 2G

(Zone 1, group II)

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

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

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

The ProMinent EXTRONIC conforms to the unified EU standard EN 50014/50018 for “flameproof enclosure”. It carries the highest enclosure class for this protection type.

This standard is recognised in many other countries outside the EU.

The short stroke solenoid and the pump controller are housed inside the pump housing.

Conforms to DIN 40050 standards on contact and moisture resistance, and carries IP 65 protection, even when front cover is open.

Key:

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

The liquid end with the proven DEVELOPAN® pump diaphragm with Teflon coating and the proven liquid ends in Acrylic, Polypropylene (PP), PTFE-Teflon®, stainless steel no. 1.4404 **and** SB for flammable chemicals, according to requirements, bring the highest levels of operating safety to ProMinent EXTRONIC Metering Pumps.

Self bleeding liquid ends for gaseous chemicals are available in Acrylic (NS) and PVC (PS).

The micrometer stroke length adjustment knob ensures precise and high reproducibility.

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

EXBb G for use in gas endangered areas

PROTECTION GRADE EEX [I, A] D IIC T6

Key:

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

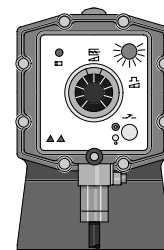
EXBb M for use in firedamp endangered mining operations - NO LONGER AVAILABLE

PROTECTION GRADE EEX D I/II C T6

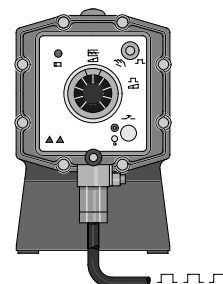
Key:

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

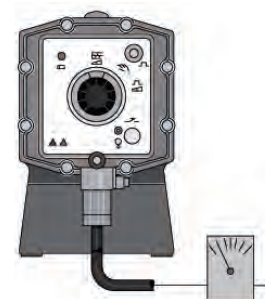
*) The electrical cables for mains connection, contact or analogue control are already connected to the pump. Observe all instructions concerning connecting and activating electrical systems.



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



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



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



1.6 EXTRONIC Diaphragm Metering Pump

1.6.2 Technical Data EXTRONIC

Max. Pump Capacity at Maximum Back Pressure				Max. Pump Capacity at Medium Back Pressure			Stroking Rate	Connector Sizes Outer Ø X Inner Ø	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.

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1.6 EXTRONIC Diaphragm Metering Pump

1.6.3 Identity Code & Pricing EXTRONIC

EXBb		ProMinent EXTRONIC Version b						
Protection:								
G	Gas-EX-proof							
M	Fire and explosion protection (firedamp) - NO LONGER AVAILABLE							
Pump type: (figures 1 + 2 = back pressure [bar], figures 3 + 4 = pump capacity [l/h])								
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							

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

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

For any other Pricing: refer Sydney office

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

EXBb	G	1000	PP1	0	A	0	0	0
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Note: May require certificate of conformity for some Australian applications at extra cost.

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

For any other Pricing: refer Sydney office

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

EXBb G 1000 PP1 0 A 0 0 0



1.6 EXTRONIC Diaphragm Metering Pump

1.6.4 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 stroke (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

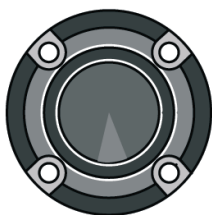
Included in delivery:

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

1.6.5 Spare Parts Kits

PTFE pump diaphragms

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



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

1.6 EXTRONIC Diaphragm Metering Pump

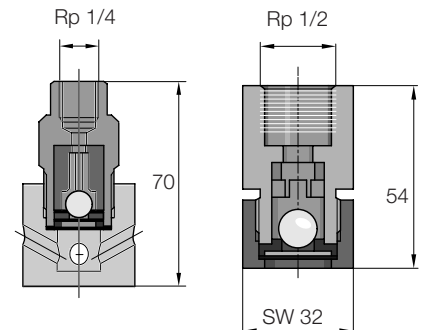
1.6.6 Accessories - Valves

Foot valve, 1.4404 stainless steel

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

Materials: 1.4404/1.4401/PTFE/ceramic

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

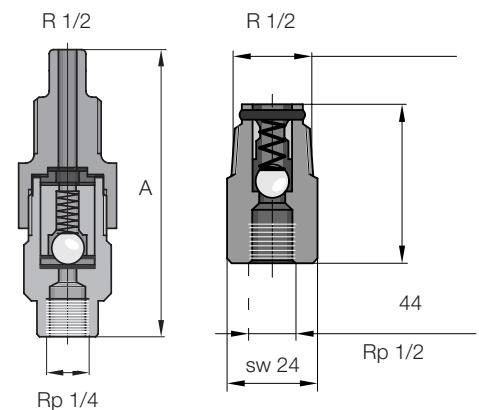


Dosing valve, "SB" 1.4404 stainless steel

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

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

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



Adjustable "SB" back pressure valve 1.4404 stainless steel

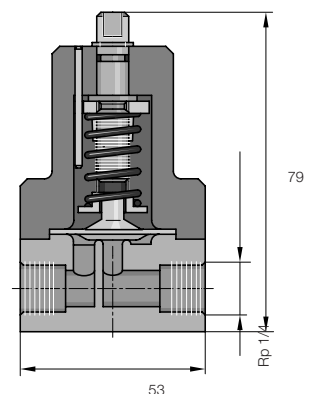
Material 1.4404; diaphragm PTFE coated, 1/4" connection at both ends.

Adjusting range approximately 1 to 10 bar, enclosed type suitable for use with flammable media.

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

Can also be used as a pressure relief valve.

	Part No.
	924555
Replacement Diaphragm	811464



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

1.7 Pneumados Pneumatic Metering Pump

1.7.1 Pneumados Pneumatic Metering Pump



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



1.7 Pneumados Pneumatic Metering Pump

1.7.2 Technical Data Pneumados

Pump type	Delivery output at maximum Pressure			Connection size OD Ø x id Ø	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/ stroke	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 dimensioned suction line cross-sections are given.

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

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

Air consumption for 1m line: 47 l/min

Stroking frequency: 180 strokes per min.

Connectors

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



1.7 Pneumados Pneumatic Metering Pump

1.7.3 Identity Code & Pricing for Pneumados

PNDb 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 0 01

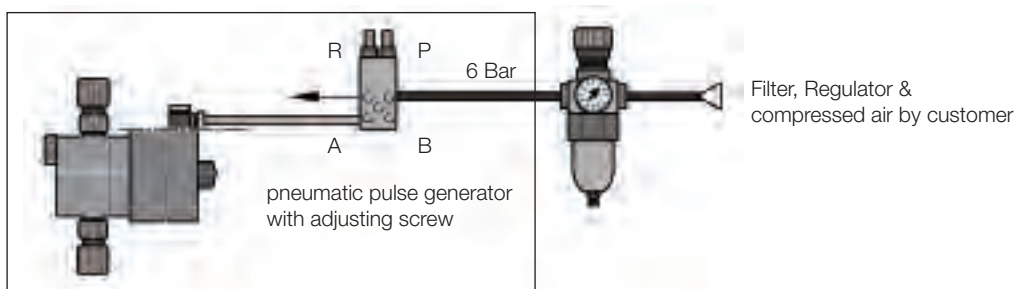


1.7 Pneumados Pneumatic Metering Pump

1.7.4 Electric and Pneumatic Schematic Diagrams

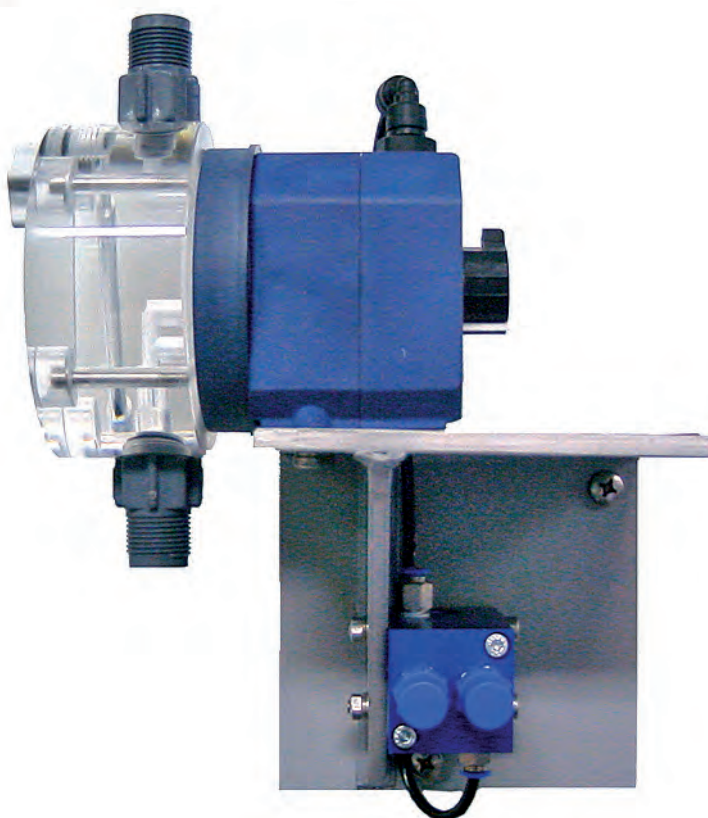
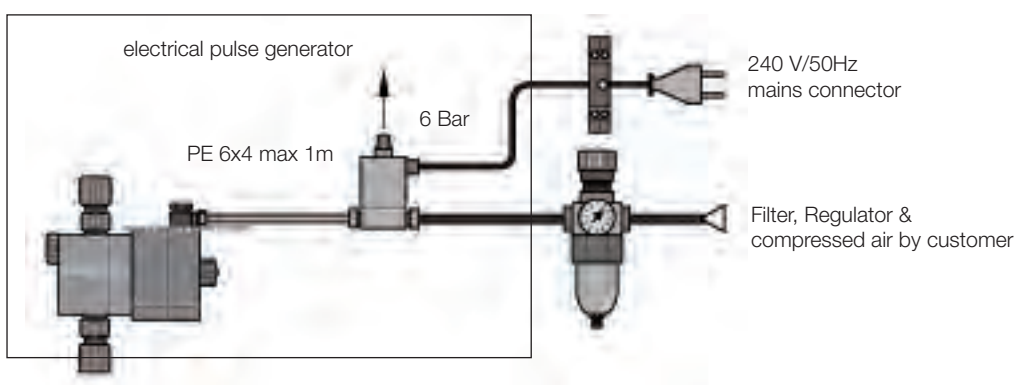
STANDARD

Pneumatic Controller Schematic diagram



OPTIONAL

Electrical/Pneumatic Controller Schematic diagram



1.8 DULCOFLEX DF2a Peristaltic Pump

1.8.1 DULCOFLEX DF2a Peristaltic Pump

The ProMinent DULCOFLEX DF2a is a peristaltic pump. The metering chemical is displaced in the direction of flow as a rotor squeezes the hose. No valves are required which ensures that the chemical is treated extremely gently.

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

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

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

OEM versions are available on request.



1.8 DULCOFLEX DF2a Peristaltic Pump

1.8.2 Identity Code & Pricing for DULCOFLEX DF2a

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									
PharMed® and Viton®are registered trademarks.										
DF2a	0204	P	0	0	A	0	0	W	0	0

1.9.3 Technical Data for DULCOFLEX DF2a

Feed rate Frequency				Connector size	Suction Lift	Priming Lift
Pump type DULCOFLEX	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



1.9 DULCOFLEX DF4a Peristaltic Pump

1.9.1 DULCOFLEX DF4a Peristaltic Pump

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



1.9 DULCOFLEX DF4a Peristaltic Pump

1.9.2 Identity Code & Pricing for DULCOFLEX DF4a

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

CE-Symbol

For pulse/milliamp control the pump
requires STD 2 core cable: P/N
A4001289 wired to terminals inside
pump body. To be ordered separately.

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

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

PharMed® registered trademark.

Spare Parts

Description	Size	Material	Model	Part No.
Tube cpl.	0.8 x 4.0	PharMed®	DF4a04004	1034997
Tube cpl.	1.6 x 4.8	PharMed®	DF4a04015	1030722
Tube cpl.	3.2 x 6.4	PharMed®	DF4a03060	1030723
Tube cpl.	4.8 x 8.0	PharMed®	DF4a02120	1030774
Rotor cpl. size 1	black	DF4a04015P, DF4a04004P		1030778
Rotor cpl. size 2	grey	DF4a03060P, DF4a02120P		1031750

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



1.10 DULCOFLEX DFXa Peristaltic Pump

1.10.1 DULCOFLEX DFXa Peristaltic Pump

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

The DULCOFLEX DFXa 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 DULCOFLEX DFXa. 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.



1.10 DULCOFLEX DFXa Peristaltic Pump

1.10.2 Technical Data DULCOFLEX DFXa

Type	Maximum back pressure bar	Pump capacity	Max. speed rpm	Connector size o c x i c	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

All data refers to water at 20°C.

1.10.3 Spare Parts DULCOFLEX DFXa

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



1.10 DULCOFLEX DFXa

1.10.4 Identity Code & Pricing for DULCOFLEX DFXa

DFXa																
Regional design																
EU Europe																
Type Capacity bar l/h																
0530 5 30 l/h [VP & SP]																
0730 7 30 l/h [SP ONLY]																
0565 5 65 l/h [VP ONLY]																
0365 3 65 l/h [FP ONLY]																
Tube material																
SP Thermoplastic vulcanisate (TPV/PVDF) [0503 & 0730 ONLY]																
VP Polyurethane (PUR/PVDF)																
FP Styrol Ethylen Butylen Styrol (SEBS) [0365 ONLY]																
Seal material																
T PTFE																
F FDA-compliant (PTFE)																
Dosing head orientation																
R right (view from behind)																
L left (view from behind)																
U top																
D bottom																
Hydraulic connector																
0 Standard connector (12x9)																
2 Connector 8x5																
5 Connector 12x6 discharge side																
7 no connector kit																
8 Connector 9x5																
E Connector DN 10 with nozzle 16mm HT																
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																
Communication interface																
0 none																
Language																
EN English																
Certification																
01 CE [STANDARD]																
Prepack																
P see options at left																
DFXA	EU	0503	SP	T	R	0	0	0	0	U	C	0	0	0	0	EN

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.



1.11 DULCOFLEX DFYa Peristaltic Pump

1.11.1 DULCOFLEX DFYa

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

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

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

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

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

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

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

Your benefits

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

Field of application

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

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



1.11 DULCOFLEX DFYa Peristaltic Pump

1.11.2 Technical Data DULCOFLEX DFYa Size 200

Type	Maximum back pressure bar	Pump capacity rpm	Max. speed	Suction lift m WC	Thread Connections
08200	8	207 l/h ± 10 %	100 rpm	8	3/8"
04200	4	207 l/h ± 10 %	100 rpm	8	3/8"
02200	2	207 l/h ± 10 %	100 rpm	8	3/8"

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. 250 W
Degree of protection:	IP 55
Weight:	25 kg
Permissible ambient temperature:	0 ... 45 °C

Refer to Performance Curve for DFBa 013

All data refers to water at 20 °C

Approximate Life of Hoses

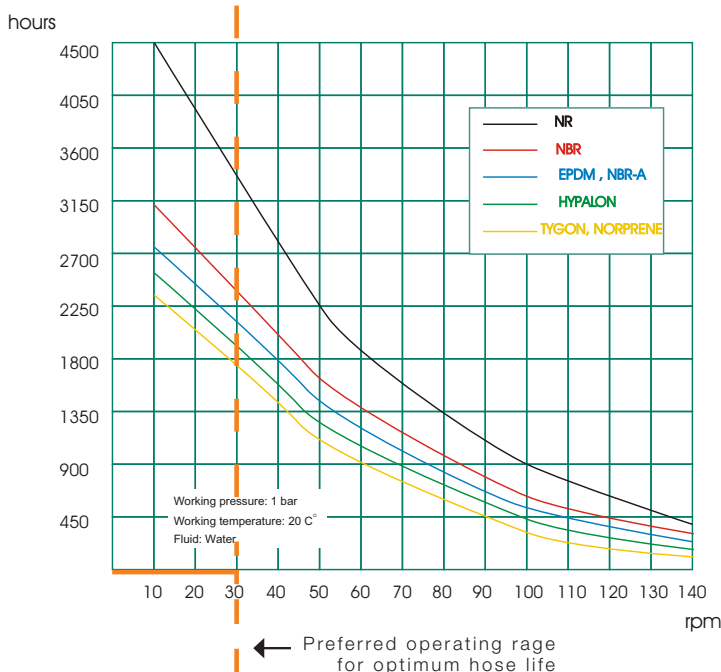
The technical department of ProMinent has prepared a series of curves representing the duration of the peristaltic hoses in function of the pump rotation speed and of the type of installed hose.

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.



1.11 DULCOFLEX DFYa Peristaltic Pump

1.11.3 Identity Code & Pricing for DULCOFLEX DFYa Size 200

DFYa									
Type Capacity				PLEASE REFER TO HOSE LIFE VS RPM GRAPH					
		bar	l/h						
08200	8	200							
04200	4	200							
02200	2	200							
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	SS BSP 3/8"								
B	SS NPT 3/8"								
C	PP BPS 3/8"								
D	PVDF BSP 3/8"								
E	PVDF NPT 3/8"								
F	PVC NPT 3/8"								
G	Tri-Clamp, SS 3/4"								
H	DIN 11851,SS NW15								
Hose Break Detector									
0	Without hose break detector								
1	With hose break detector								
Version									
P	ProMinent								
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								

Note: For replacement hoses refer Blue Pages Size DFBa 013

Note: Control Cable is additional.

Note: Cable for I/O port see page 3.20 in Yellow Pages

DFYa	08410	0	R	0	0	0	0	0	U	C	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0</
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Note: For replacement hoses refer Blue Pages Size DFBa 013

Note: Control Cable is additional.

Note: Cable for I/O port see page 3.20 in Yellow Pages

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



1.11 DULCOFLEX DFYa Peristaltic Pump

1.11.4 Technical Data DULCOFLEX DFYa Size 410

Type	Maximum back pressure bar	Pump capacity rpm	Max. speed	Suction lift m WC	Thread Connections
08410	8	410 l/h ± 10 %	80 rpm	8	3/4"
04410	4	410 l/h ± 10 %	80 rpm	8	3/4"
02410	2	410 l/h ± 10 %	80 rpm	8	3/4"

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

Refer to Performance Curve for DFBa 016

All data refers to water at 20 °C

Approximate Life of Hoses

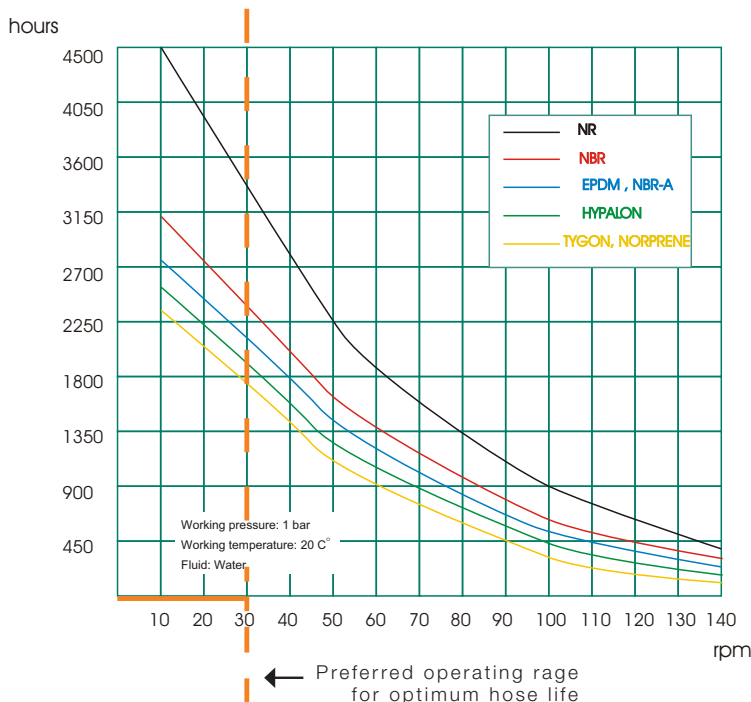
The technical department of ProMinent has prepared a series of curves representing the duration of the peristaltic hoses in function of the pump rotation speed and of the type of installed hose.

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.



1.11 DULCOFLEX DFYa Peristaltic Pump

1.11.5 Identity Code & Pricing for DULCOFLEX DFYa Size 410

DFYa			PLEASE REFER TO HOSE LIFE VS RPM GRAPH												
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	SS BSP 3/4"														
B	SS 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														
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														

Note: For replacement hoses refer Blue Pages Size DFBa 016

Note: Control Cable is additional.

Note: Cable for I/O port see page 3.20 in Yellow Pages

DFYa084100R000000U0C00

Note: For replacement hoses refer Blue Pages Size DFBa 016

Note: Control Cable is additional.

Note: Cable for I/O port see page 3.20 in Yellow Pages

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



1.11 DULCOFLEX DFYa Peristaltic Pump

1.11.6 Technical Data DULCOFLEX DFYa Size 660

Type	Maximum back pressure bar	Pump capacity rpm	Max. speed	Suction lift m WC	Thread Connections
04660	4	660 l/h ± 10 %	50 rpm	8	1"
02660	2	660 l/h ± 10 %	50 rpm	8	1"

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. 600 W
Degree of protection:	IP 55
Weight:	49 kg
Permissible ambient temperature:	0 ... 45 °C

Refer to Performance
Curve for DFBa 022

All data refers to water at 20 °C

Approximate Life of Hoses

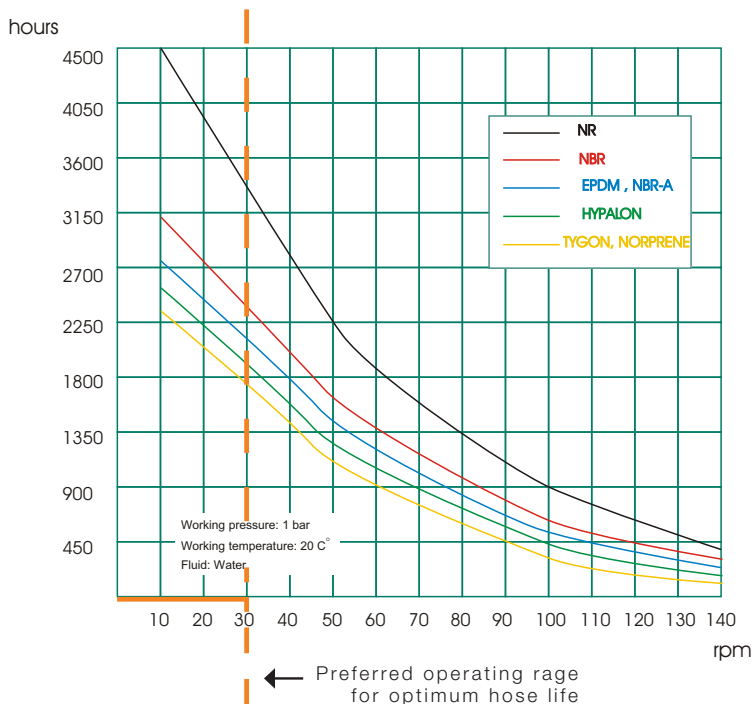
The technical department of ProMinent has prepared a series of curves representing the duration of the peristaltic hoses in function of the pump rotation speed and of the type of installed hose.

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.



1.11 DULCOFLEX DFYa Peristaltic Pump

1.11.7 Identity Code & Pricing for DULCOFLEX DFYa Size 660

Type Capacity			PLEASE REFER TO HOSE LIFE VS RPM GRAPH											
	bar	l/h												
04660	4	660												
02660	2	660												
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 1"													
B	VA NPT 1"													
C	PP BPS 1"													
D	PVDF BSP 1"													
E	PVDF NPT 1"													
F	PVC NPT 1"													
G	Tri-Clamp SS 1"													
H	DIN 11851 SS NW25													
Hose Break Detector														
0	Without hose break detector													
1	With hose break detector													
Version														
P	ProMinent													
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													

Note: For replacement hoses refer Blue Pages Size DFBa 022

Note: Control Cable is additional.

Note: Cable for I/O port see page 3.20 in Yellow Pages

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

Note: For replacement hoses refer Blue Pages Size DFBa 022

Note: Control Cable is additional.

Note: Cable for I/O port see page 3.20 in Yellow Pages

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



2.0 High Viscosity Pumps

2.0.1 Viscosity Metering Pumps



For small capacity High Viscosity pumps see:

- beta/ X, gamma/ X and gamma/ XL with Type 4 HV Head - 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
- Spectra progressive cavity pumps
- DULCOFLEX pumps
- Orlita pumps

NOTE: New beta/ X can handle 1,000 centiphse and full capacity without the below changes.

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 sigma/ 1 Diaphragm Metering Pump

2.1.1 sigma/ 1 Diaphragm Pump

sigma/ 1 Diaphragm Metering Pump

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

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

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

sigma/ 1 control type (S1Cb)

Detachable operating unit (HMI)

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

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

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

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

sigma/ 1 basic type (S1Ba)

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

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



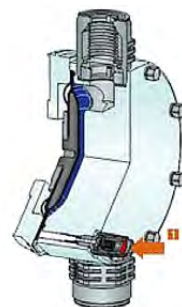
DIAPHRAGM RUPTURE WARNING SYSTEM

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

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

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

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



sigma Basic Type Control Functions (S1Ba)

Stroke length actuator/controller

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

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



S1Ba with Stroke length controller



2.1 sigma/ 1 Diaphragm Metering Pump

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	90		7	1	10	1/2" / 16mm	9
12017 SST	12	17	3.9	73	12	21	90		7	1	10	1/2" / 16mm	12
12035 PVT	10	35	4.0	143	10	42	170		7	1	10	1/2" / 16mm	9
12035 SST	12	35	4.0	143	12	42	170		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	90		6	1	10	1/2" / 16mm	9
10022 SST	10	22	5.1	73	10	27	90		6	1	10	1/2" / 16mm	12
10044 PVT	10	44	5.1	143	10	53	170		6	1	10	1/2" / 16mm	9
10044 SST	10	44	5.1	143	10	53	170		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	90		3	1	15	3/4" / 20mm	9.5
07042 SST	7	42	9.7	73	7	52	90		3	1	15	3/4" / 20mm	13.5
04084 PVT	4	84	9.7	143	4	101	170		3	1	15	3/4" / 20mm	9.5
04084 SST	4	84	9.7	143	4	101	170		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 (Polyvinylidene fluoride)	PVDF (Polyvinylidene fluoride)	PTFE	Ceramic	PVDF/Viton® for 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
R	3-phase, IP 55	220 - 240 V/380 - 420 V	50 Hz 0.09 kW
M	1-phase AC, IP 55	230 V ± 5 %	50 Hz/ 60 Hz 0.12 kW
L1	3-phase, II2GEEexII T3	220 - 240 V/380 - 420 V	50 Hz 0.12 kW
L2	3-phase, II2GEEExdII CT4	220 - 240 V/380 - 420 V	50 Hz 0.18 kW
P1	3-phase, II2GEEexII T3	250 - 280 V/440 - 480 V	60 Hz 0.12 kW
P2	3-phase, II2GEEExdII CT4	250 - 280 V/440 - 480 V	60 Hz 0.18 kW

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

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

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



2.1 sigma/ 1 Diaphragm Metering Pump

2.1.3 Identity Code & Pricing for sigma/ 1 Basic Type (S1Ba)

S1BaH

sigma/ 1 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: EPDM Seals available

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 connections (maximum 10-bar) Contact Sydney

Hydraulic connector: Others available in Green Pages

1	Union nut and PVC Insert
2	Union nut and PP insert
3	Union nut and PVDF insert
4	Union nut and stainless steel insert <i>inc. w/SS pump</i>
5	Union nut and PVC Hosetail
7	Union nut and PVDF Hosetail
8	Union nut and SS Hosetail
9	Union nut and SS Welded Sleeve

Version

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

Power supply:

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

Enclosure rating:

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

Stroke sensor:

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

Stroke length adjustment:

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

Prepack Option

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

● DN10
● DN15

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

240 volt motor supplied with power cord.

Prepack option P* for PVDF

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

4 EPDM flat gaskets

Refer page 2.36 for fitting sizes

07042 - 04084 - 04120

4 EPDM flat gaskets

Refer page 2.36 for fitting sizes

P1 as P0 but with Viton® Flat Gaskets

240 volt motor supplied with power cord.

S1BaH 12050 PVT S 0 1 0 S 0 0 0 P



2.1.4 Identity Code & Pricing for **Sigma/ X (S1Cb)**

S1CbH	10050	PVT	S	0	1	0	U	C	0	1	0	1	0	EN	P
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2.1 sigma/ 1 Diaphragm Metering Pump

2.1.5 Spare Parts Kits sigma/ 1

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

PVT version

1 x diaphragm (multi-layer safety diaphragm)

2 x valve assemblies

2 x valve balls

2 x ball seats

4 x composite seals

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

SST version

1 x diaphragm

(multi-layer safety diaphragm)

2 x valve balls

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

4 x composite seals

**IN ALL CASES CHECK
PUMP MODEL CODE**

Spare Parts Kits for versions with multilayer safety diaphragm

Type PVTs, PVTA, SSTs, SSTA

Type 12017, 12035, 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, 12035, 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, 12035, 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, SST0/1/2

	Part No.
sigma/ 1 FM 50 Type: 12017, 12035, 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, 12035, 10050 DN10	1002267
sigma/ 1 10022, 10044, 07065 DN10	1002267
sigma/ 1 07042, 04084, 04120 DN15	792517

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

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



2.2 sigma/ 2 Diaphragm Metering Pump

2.2.1 Sigma/ 2 Diaphragm Metering Pump

sigma/ 2 Diaphragm Metering Pumps

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

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

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

sigma/ 2 control type (S2Cb)

DETACHABLE OPERATING UNIT (HMI)

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

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

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

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

sigma/ 2 basic type (S2Ba)

The ProMinent sigma basic type is a motor driven Metering Pump with no internal electronic control system. The 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 sigma/ 2 Diaphragm Metering Pump

2.2.2 Technical Data for 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 Data, connection intake/delivery side), the connection parts (eg inserts) which can be ordered in the identity code are reduced to DN 20, ie. piping and accessories can be sized to DN 20.

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

● DN15

● DN25

Materials in contact with Dosing Medium

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

Viton® is a registered trademark of DuPont Dow Elastomers.

Motor Data S2Ba

Identity code specifications	Power supply	Δ/Y	Remarks		
S	3-phase, IP 55	220 - 240 V/380 - 420 V 220 - 280 V/440 - 480 V	50 Hz 60 Hz	0.25 kW 0.25 kW	
T	3-phase, IP 55	220 - 240 V/380 - 420 V 220 - 280 V/440 - 480 V	50 Hz 60 Hz	0.25 kW	with PTC, speed control range 1:5
R	3-phase, IP 55	220 - 240 V/380 - 420 V	50 Hz	0.37 kW	with PTC, speed adjustment range 1:20 with external fan (1-phase 230 V; 50/60Hz, 134W)
M	1-phase AC, IP 55	230 V ± 5 %	50 Hz/ 60 Hz	0.18 kW	
L1	3-phase, II2GEEExII T3	220 - 240 V/380 - 420 V	50 Hz	0.18 kW	
L2	3-phase, II2GE-ExdII CT4	220 - 240 V/380 - 420 V	50 Hz	0.18 kW	with PTC, speed control range 1:5
P1	3-phase, II2GEEExII T3	250 - 280 V/440 - 480 V	60 Hz	0.18 kW	
P2	3-phase, II2GE-ExdII CT4	250 - 280 V/440 - 480 V	60 Hz	0.21 kW	with PTC, speed control range 1:5

sigma/ 2 Basic Type Control Functions (S2Ba)

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



2.2

sigma/ 2 Diaphragm Metering Pump

2.2.3

Identity Code & Pricing for sigma/ 2 Basic Type (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]):													
<div><div></div>16050* 16 bar; 50 l/h</div> <div><div></div>16090* 16 bar; 88 l/h PVT, 82 l/h SS</div> <div><div></div>16130* 16 bar; 135 l/h PVT, 124 l/h SS</div>													
<div><div></div>07120 7 bar; 126 l/h</div> <div><div></div>07220 7 bar; 220 l/h</div> <div><div></div>04350 4 bar; 350 l/h *for PVDF max. 10 bar</div>													
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: EPDM Seals Available													
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: Others available in Green Pages													
1 Union nut and PVC Insert													
2 Union nut and PP Insert													
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													
8 Union nut and SS Hostail													
9 Union nut and SS Welded Sleeve													
Version:													
0 With ProMinent® logo (standard)													
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													
<div><div></div>DN15</div> <div><div></div>DN25</div>													
<div>Note: PRV/Bleed valve available on request. The preferred option is relief valve in-line.</div> <div>240 volt motor supplied with power cord.</div> <div>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.</div>													
S2Ba	HM	12050	PVT	S	0	1	0	S	0	0	0	0	P



2.2 sigma/ 2 Diaphragm Metering Pump

2.2.4 Identity Code & Pricing for sigma/ X (S2Cb)

S2Cb sigma/ X 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
- **16090*** 16 bar; 109 l/h PVT 10 bar 99 l/h SS
- **16130*** 16 bar; 131 l/h PVT 10 bar 129 l/h SS
- **07120** 7 bar; 150 l/h
- **07220** 7 bar; 271 l/h
- **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: EPDM Seals available

- 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: Others available in Green Pages

- 1** Union nut and PVC Insert
- 2** Union nut and PP Insert
- 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
- 8** Union nut and SS Hosetail
- 9** Union nut and SS Welded Sleeve

- DN15
- DN25

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

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

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

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.

Version:

- 0** With ProMinent® logo (standard)
- ***** 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 (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

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

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



2.2 sigma/ 2 Diaphragm Metering Pump

2.2.5 sigma Pumps Spare Parts Sigma/ 2

Spare Parts Kits for versions with multilayer safety diaphragm

Types PVTS, PVTA, SSTS, SSTA

Type 16050, 16090, 16130		Part No.
Liquid end FM 130 - DN 15	PVT	1035951
	PVT - FDA	1046472
	SST	1035957
	SST - FDA	1046473
	SST (with 2 valve sets)	1035954
Type 07120, 07220, 04350		Part No.
Liquid end FM 350 - DN 25	PVT	1035953
	PVT - FDA	1046475
	SST	1035960
	SST - FDA	1046476
	SST (with 2 valve sets)	1035959

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

PVT version

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

SST version

1 x diaphragm (multi-layer safety diaphragm)
2 x valve balls
2 x ball seat discs
4 x composite seals

Spare Parts Kits for versions with [ORIGINAL diaphragm]

Types PVT0/1/2, SST0/1/2

Type 16050, 16090, 16130		Part No.
Liquid end FM 130 - DN 15	PVT	740324
	SST	740326
	SST (with 2 valve sets)	740328
Type 07120, 07220, 04350		Part No.
Liquid end FM 350 - DN 25	PVT	740325
	SST	740327
	SST (with 2 valve sets)	740329

IN ALL CASES CHECK PUMP MODEL CODE

Diaphragms [ORIGINAL] Types PVT0/1/2, SST0/1/2	Part No.
FM 130 (Type 16050, 16090, 16130)	792495
FM 350 (Type 07120, 07220, 04350)	792496

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

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

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

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



2.3 sigma/ 3 Diaphragm Metering Pump

2.3.1 sigma/ 3 Diaphragm Metering Pump

sigma/ 3 Diaphragm Metering Pump

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

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

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

sigma/ 3 control type (S3Cb)

Detachable operating unit (HMI)

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

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

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

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

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

sigma/ 3 basic type (S3Ba)

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

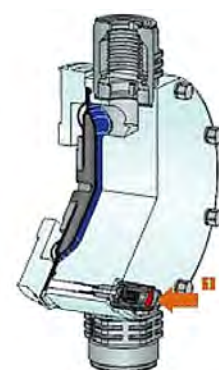
The ProMinent S3Ba has a number of different drive options, including single and 3 ph. motor (standard IP55), or the three phase AC motor for use in hazardous Exe and EXde areas.

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

DIAPHRAGM RUPTURE WARNING SYSTEM

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

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



2.3 sigma/ 3 Diaphragm Metering Pump

2.3.2 Technical Data for sigma/ 3

at 50 Hz					S3CbH at 60 Hz								Shipping Weight
Pump Capacity at Max. Back Pressure					Max. Stroke Freq.	Pump Capacity at Max. Back Pressure		Stroking rate at max. back pressure	Suction Lift	Adm. Pressure Suction Side	Priming Pressure Suction Side	Connector Suction/ Discharge Side	
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, II2GEEExIIIT3	220 - 240 V/380 - 420 V	50 Hz	0.37 kW	
L2	3-phase, II2GEEExIIICT4	220 - 240 V/380 - 420 V	50 Hz	0.37 kW	with PTC, speed control range 1:5
P1	3-phase, II2GEEExIIIT3	250 - 280 V/440 - 480 V	60 Hz	0.37 kW	
P2	3-phase, II2GEEExIIICT4	250 - 280 V/440 - 480 V	60 Hz	0.37 kW	with PTC, speed control range 1:5
V2	3-phase, II2GEEExIIICT4	400 V ± 10 %	50 Hz/ 60 Hz	0.55 kW	Ex-variable speed motor with integrated frequency converter. Mains feed: 3-phase + neutral + earth, adjustment range 1:10

sigma/ 3 Basic Type Control Functions (S3Ba) - Stroke length actuator/controller

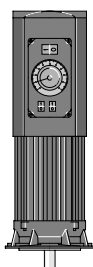
Actuator for automatic stroke length adjustment, actuating period approx. 1 sec for 1% stroke length, 1k Ohm response signal potentiometer, enclosure rating IP 54. Controller consists of actuator with servomotor and integrated servo control for stroke length adjustment via a standard signal. Standard 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.



Variable speed motor



2.3 sigma/ 3 Diaphragm Metering Pump

2.3.3 Identity Code & Pricing for sigma/ 3 Basic Type (S3Ba)

S3Ba sigma/ 3 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**
 - 120190* 12 bar; 208 l/h **Size 070410, 070580, 040830 & 0410030 are supplied fitted with**
 - 120270* 12 bar; 292 l/h **DN32 Valves. ALL DN32 valves are fitted with Hastalloy springs.**
 - 120330* 12 bar; 365 l/h **Option 1 & 5 are ONLY available for these sizes.**
-
- 070410 7 bar; 410 l/h
 - 070580 7 bar; 580 l/h
 - 040830 4 bar; 830 l/h
 - 041030 4 bar; 1030 l/h

Liquid end material with PTFE Seal:

- PVT PVDF (max 10 bar)
SST Stainless steel

Diaphragm:

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

Liquid end version:

- 0 No valve springs (standard)
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**
** Hygienic head with tri-clamp connection (maximum 10 bar), ***CONTACT SYDNEY***

Hydraulic connector: Others available in Green Pages

- 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 PC Hosetail
7 Union nut and PVDF Hosetail

Version:

- 0 With ProMinent® logo (standard)
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, 80 frame, flange B14
3 No motor, flange B5, 71 frame

Enclosure rating:

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

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

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

240 volt motor supplied with power cord.

Prepack option P* for PVDF

P0 - 120145 - 120190 - 120270 - 120330

4 EPDM flat gaskets

Refer page 2.36 for fitting sizes

070410 - 070580 - 040830 - 041030

4 EPDM flat gaskets

Refer page 2.36 for fitting sizes

P1 as P0 but with Viton® Flat Gaskets

240 volt motor supplied with power cord.

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



2.3.4 Identity Code & Pricing for **sigma/ X (S3Cb)**

H Main power end, diaphragm

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

PVT	PVDF (max 10 bar)
SST	Stainless steel

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

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**

1	Union nut and PVC Insert		
2	Union nut and PVC male BSP	●	DN25
3	Union nut and PVDF Insert	●	DN25
4	Union nut & stainless steel insert		<i>inc. w/SS pump</i>
5	Union nut and PVC Hosetail		
7	Union nut and PVDF Hosetail		

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

U 1 ph 100 - 230 V $\pm 10\%$ 50 Hz

C 2 m Australian

- 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)

- 0 Manual + External Control + Pulse Control
- 1 Manual + External Control + Pulse Control + analog + metering profiles
- 6 As 1 + PROFIBUS® DP M12

0 Without overload switch-off

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)**	

0 Without access code
1 With access code

EN English

P* See options

S3Cb	H	120270	PVT	S	0	1	0	U	C	0	0	0	1	0	EN	P
------	---	--------	-----	---	---	---	---	---	---	---	---	---	---	---	----	---



2.3 sigma/ 3 Diaphragm Metering Pump

2.3.5 Spare Parts Kits sigma/ 3

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

PVT version

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

SST version

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

IN ALL CASES CHECK PUMP MODEL CODE

Spare parts kits sigma/ 3 with multilayer safety diaphragm

Types PVTs, PVTA, SSTs, SSTA

Type 120145, 120190, 120270, 120330	Part No.
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

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

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

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



2.4 sigma/ 2 Piston Metering Pump

2.4.1 Technical Data sigma Piston HK

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

Materials in Contact with Chemicals

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

Motor Data

3 ph IP55	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	VO

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

2.4.2 Spare Parts Kits sigma Piston HK

Spare parts kits sigma HK

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

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



2.4 sigma/ 2 Piston Metering Pump

2.4.3 Identity Code & Pricing for sigma Piston SBKaHK

SBKa Sigma Basic Type (SBKaHK)

HK Main Displacement component, piston

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

32002	320 bar, 1.9 l/h
23004	230 bar, 4.0 l/h
10006	100 bar, 6.4 l/h
14006	140 bar, 6.1 l/h
10011	100 bar, 11.0 l/h
05016	50 bar, 16.7 l/h
07012	70 bar, 12.4 l/h
04522	45 bar, 22.5 l/h
02534	25 bar, 34.1 l/h
04022	40 bar, 22.4 l/h
02541	25 bar, 41.5 l/h
01264	12 bar, 64.2 l/h

Liquid end materials:

SS Stainless steel

Seal Material:

T PTFE seal

Displacement component:

4 Piston (oxide ceramic)

Liquid end version:

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

Hydraulic connection:

0 Standard according to technical data

Version:

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

Electrical power supply:

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

Enclosure rating:

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

Stroke sensor:

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

Stroke length adjustment:

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

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



2.5 MAKRO TZ Diaphragm Metering Pump

2.5.1 MAKRO TZ Diaphragm Metering Pump

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.



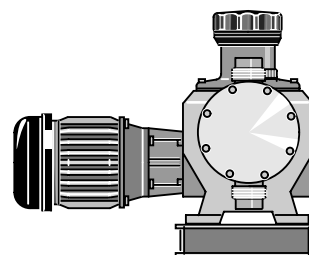
TZMbA Add-On Pumps

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.

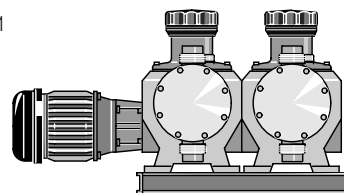


ACTUATION OF MAKRO TZ METERING PUMPS

- 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.

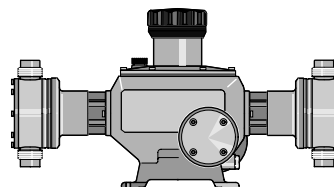


MAKRO TZ STROKE CONTROLLER

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 MAKRO TZ Diaphragm Metering Pump

2.5.2 Identity Code & Ordering for Makro TZ

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 (Namus)

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
- 6 115 V 4-20 mA stroke controller (servo motors for Ex zones on request)

Applications:

- 0 Standard

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



2.5 MAKRO TZ Diaphragm Metering Pump

2.5.3 Spare Parts MAKRO TZ

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

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

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

MAKRO TZ spare parts kits for TZMa

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



2.5 META HM Diaphragm Metering Pump

2.5.4 Spare Parts Kits META

Spare parts kit META HM

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

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

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

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

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

Pump diaphragm, PTFE

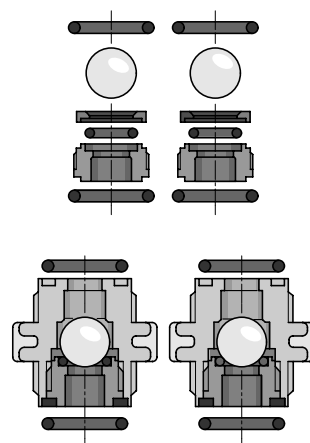
ProMinent® DEVELOPAN® pump diaphragm of fabric-reinforced EPDM, with large-area vulcanised steel core and PTFE Teflon coating on the media-contacted surface.

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

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

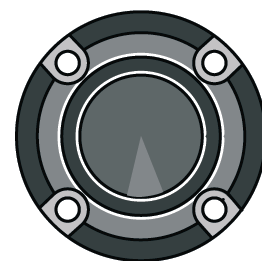
Standard kit for PP/P material version:

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



Spare parts kit, META HK

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



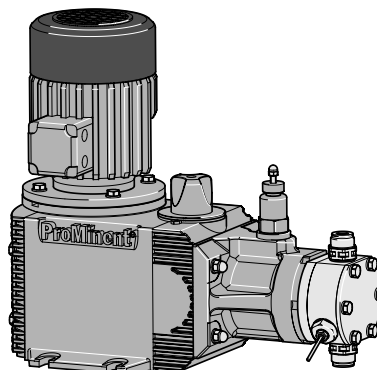
2.6 HYDRO Hydraulic Diaphragm Metering Pump

2.6.1 HYDRO hydraulic Diaphragm Metering Pump

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.

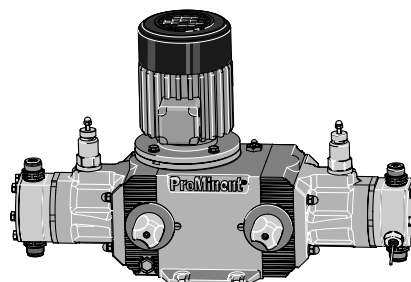
HYDRO add-on pumps

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 HYDRO Hydraulic Diaphragm Metering Pump

2.6.2 Technical Data HYDRO/ 2 HP2a

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

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

** HV design with G1 - DN 15 connector

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

Material in contact with media

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

* Not for areas at risk of explosion



2.6 HYDRO Hydraulic Diaphragm Metering Pump

2.6.3 Identity Code & Pricing for HYDRO/ 2 - SINGLE HEAD

HP2a HYDRO/ 2

H Main power end

Type

100003100 bar, 3 litrePVT

100006100 bar, 6 litreSST

100007100 bar, 7 litre

100009100 bar, 9 litre

100010100 bar, 10 litre

04001440 bar, 14 litrePVT

04002940 bar, 29 litreSST

04003540 bar, 35 litre

04004440 bar, 44 litre

04005040 bar, 50 litre

PVT Liquid End Maximum 25 Bar

Liquid end material:

PV

PVDF

SS

Stainless steel

HC

Hastalloy C

Seal material:

T

PTFE seal

Positive displacement element:

0

Standard multi-layer diaphragm with rupture protection signal

Liquid end version:

0

No valve springs

1

With valve springs

D

Double ball valve (only for SST & HCT 100003-100010)

H

HV-Version (only for SST version 025019-025060)

Hydraulic connector:

0

Standard threaded connector

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)

P

3 ph. 230 V/400 V 60 Hz (EExe, EExde)

R

3ph, variable speed motor 4 pol. 230/400 V

V (0)

var. speed motor with integral speed control 230/1/50

V (2)

var. speed motor with integral speed control Exd

Enclosure rating:

0

IP 55

A

Add-on drive unit ATEX Version

2

Exde motor version (ATEX-T4)

Stroke sensor:

0

No stroke sensor (standard)

1

Stroke sensor for explosion-proof applications

Stroke length adjustment:

0

Manual (standard)

1

With stroke positioning motor, 230V/50/60Hz

2

With stroke positioning motor, 115V/60Hz

B

With stroke control motor, 4...20 mA 230 V/50/60Hz

D

With stroke control motor, 4...20 mA 115 V/50/60Hz

Hydraulic oil:

0

Standard

1

Food products grade

2

Low Temp. to -25 °C

3

Low Temp. Zone 2 EX

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

Connection Sizes for PVDF

P0064007 - 064015 - 064018 - 064022 - 064025025019 - 025040 - 025048 - 025060 - 0250681/2" Male BSPT PVDF adaptor

for SS

064007 - 064015 - 064018 - 064022 - 064025025019 - 025040 - 025048 - 025060 - 0250683/8" Female BSP insert and union nut

HP2aH025060SST0000S0000

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



2.6 HYDRO Hydraulic Diaphragm Metering Pump

2.6.4 Identity Code & Pricing for HYDRO/ 2 - DOUBLE HEAD

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

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

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

PVT Liquid End Maximum 25 Bar

Liquid end material:

PV	PVDF
SS	Stainless steel
HC	Hastalloy C

Seal material:

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

Positive displacement element:

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

Liquid end version:

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

Hydraulic connector:

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

Version:

0	With ProMinent® logo
1	Without ProMinent® logo

Power supply:

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

Enclosure rating:

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

Stroke sensor:

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

Stroke length adjustment:

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

Hydraulic oil:

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

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

Connection Sizes for PVDF

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

for SS

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

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



2.6 HYDRO Hydraulic Diaphragm Metering Pump

2.6.5 Technical Data HYDRO/ 3

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

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

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

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

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

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

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

Material in contact with media

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

* Not for areas at risk of explosion



2.6 HYDRO Hydraulic Diaphragm Metering Pump

2.6.6 Identity Code & Pricing for HYDRO/ 3 - SINGLE HEAD

HP3a HYDRO/ 3

H Main power end

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

PVT Liquid End Maximum 25 Bar

Liquid end material:

PV	PVDF
SS	Stainless steel
HC	Hastalloy C

Seal material:

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

Positive displacement element:

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

Liquid end version:

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

Hydraulic connector:

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

Version:

0	With ProMinent® logo
1	Without ProMinent® logo

Power supply:

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

Enclosure rating:

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

Stroke sensor:

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

Stroke length adjustment:

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

Hydraulic oil:

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

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

Connection Sizes for PVDF

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

for SS

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

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



2.6 HYDRO Hydraulic Diaphragm Metering Pump

2.6.7 Identity Code & Pricing for HYDRO/ 3 - DOUBLE HEAD

HP3a HYDRO/ 3 <i>NOTE: Capacities shown are per Head</i>											
D Main power end, duplexed - TRIPLEX ALSO AVAILABLE ON \$ P.O.A											
Type:				Type:				Type:			
100010	100 bar, 10 litre	PVT		064019	64 bar, 19 litre	PVT		025048	25 bar, 48 litre x 2	PVT	
100021	100 bar, 21 litre	SST		064040	64 bar, 40 litre	SST		025100	25 bar, 100 litre x 2	SST	
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			064068	64 bar, 68 litre			025170	25 bar, 170 litre x 2		
040029	40 bar, 29 litre	PVT									
040062	40 bar, 62 litre	SST									
040074	40 bar, 74 litre										
040092	40 bar, 92 litre										
040105	40 bar, 105 litre										
PVT Liquid End Maximum 25 Bar											
Liquid end material:											
PV PVDF											
SS Stainless steel											
HC Hastalloy C											
Seal material:											
T PTFE seal											
Positive displacement element:											
0 Standard multi-layer diaphragm with rupture protection signal											
Liquid end version:											
0 No valve springs											
1 With valve springs											
D Double ball valve (only for SST & HCT 100010-100035)											
H HV-Version (only for SST version)											
Hydraulic connector:											
0 Standard threaded connector SEE NOTE IN BOX BELOW											
E With DIN ISO flange											
F With ANSI flange											
Version:											
0 With ProMinent® logo											
1 Without ProMinent® logo											
Power supply:											
S 3 ph. 230 V/400 V 50/60 Hz, 0.75kW											
L 3 ph. 230 V/400 V 50 Hz (EExe, EExde) } See Enclosure Rating											
P 3 ph. 230 V/400 V 60 Hz (EExe, EExde) } See Enclosure Rating											
R 3ph, variable speed motor 4 pol. 230/400 V											
V (0) var. speed motor with integral speed control 230/1/50											
V (2) var. speed motor with integral speed control Exd											
Enclosure rating:											
0 IP 55											
A Add-on drive unit ATEX Version											
2 Exde motor version (ATEX-T4)											
Stroke sensor:											
0 No stroke sensor (standard)											
1 Stroke sensor for explosion-proof applications											
Stroke length adjustment:											
0 Manual (standard)											
1 With stroke positioning motor, 230V/50/60Hz											
2 With stroke positioning motor, 115V/60Hz											
B With stroke control motor, 4...20 mA 230 V/50/60Hz											
D With stroke control motor, 4...20 mA 115 V/50/60Hz											
Hydraulic oil:											
0 Standard											
1 Food products grade											
2 Low Temp. to -25 °C											
3 Low Temp. to -25 °C Ex Zone II											

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

Connection Sizes

for PVDF

064019 - 064040 - 064048 - 064060 - 064068

1/2" Male BSPT PVDF adaptor

025048 - 025100 - 025120 - 025150 - 025170

3/4" Male BSPT PVDF adaptor

for SS

064019 - 064040 - 064048 - 064060 - 064068

3/8" Female BSP insert and union nut

025048 - 025100 - 025120 - 025150 - 025170

1/2" Female BSP insert and union nut

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



2.6 HYDRO Hydraulic Diaphragm Metering Pump

2.6.8 Technical Data HYDRO/ 4

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

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

Material in contact with media

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

* Not for areas at risk of explosion



2.6 HYDRO Hydraulic Diaphragm Metering Pump

2.6.8 Technical Data HYDRO/ 4

Material in contact with media

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

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

Motor Data

Identity code specification	Power supply				Remarks
S	3 ph, IP 55	220-240 V/380-420 V	50 Hz	1.1 kW	
		250-280 V/440-480 V	60 Hz		
T	3 ph, IP 55	220-240 V/380-420 V	50 Hz	1.1 kW	With PTC, speed control range 1:5
		265-280 V/440-480 V	60 Hz		
R	3 ph, IP 55	230 V/400 V	50/60 Hz	1.5 kW	With PTC, speed control range 1:20, with external fan 1 ph 230 V; 50/60 Hz
V0	3 ph, IP 55	400 V	50/60 Hz	1.5 kW	Variable speed motor w/integrated frequency converter
L1	3 ph, II2GEEExIICT3	220-240 V/380-420 V	50 Hz	1.1 kW	With PTC, speed control range 1:5
L2	3 ph, II2GEEExdIICT4	220-240 V/380-420 V	50 Hz	1.1 kW	
P1	3 ph, II2GEEExIICT3	254-277 V/440-480 V	60 Hz	1.1 kW	With PTC, speed control range 1:5
P2	3 ph, II2GEEExdIICT4	254-277 V/440-480 V	60 Hz	1.1 kW	
V2	3 ph, II2GEEExdIICT4	400 V ±10 %	50/60 Hz	1.5 kW	Ex-variable speed motor with integrated frequency converter

Motor data sheets can be requested for more information.

Special motors or special motor flanges are available on request.

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

Information for use in areas at risk from explosion

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



2.6 HYDRO Hydraulic Diaphragm Metering Pump

2.6.9 Identity Code & Pricing for HYDRO/ 4 - SINGLE HEAD

HP4a HYDRO/ 4

H Main power end

Type:			Type:			Type:		
040071	40 bar, 71 l/h	PVT	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				

PVT Liquid End Maximum 25 Bar

Liquid end material:

- PV PVDF
SS Stainless steel

Seal material:

- T PTFE seal

Positive displacement element:

- 0 Standard multi-layer diaphragm with rupture protection signal

Liquid end version:

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

Hydraulic connector:

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

Version:

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

Power supply:

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

Enclosure rating:

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

Stroke sensor:

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

Stroke length adjustment:

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

Hydraulic oil:

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

Connection Sizes for PVDF

P0 - 250130 - 250190 - 250250 - 250350 - 250400
160210 - 160300 - 160400 - 160550 - 160625
1" Male BSPT PVDF adaptor

100330 - 100480 - 100635 - 100880 - 101000
1-1/2" Male BSPT PVDF Adaptor

for SS

250130 - 250190 - 250250 - 250350 - 250400
160210 - 160300 - 160400 - 160550 - 160625
1" Female BSPF SS Insert and Union Nut

100330 - 100480 - 100635 - 100880 - 101000
1-1/4" Female BSPF SS Insert and Union Nut

HP4a H 025130

SS

T

0

0

0

0

S

0

0

0

0



2.6 HYDRO Hydraulic Diaphragm Metering Pump

2.6.10 Identity Code Ordering System For HYDRO/ 4 - DOUBLE HEAD

HP4a HYDRO/ 4 NOTE: Capacities shown are per Head

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

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

Liquid end material:

PV PVDF
SS Stainless steel
HC Hastalloy C

Seal material:

T PTFE seal

Positive displacement element:

0 Standard multi-layer diaphragm with rupture protection signal

Liquid end version:

0 No valve springs
1 With valve springs DN32 and DN40

Hydraulic connector:

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

Version:

0 With ProMinent® logo, with over-pressure signal
1 Without ProMinent® logo, with over-pressure signal
M Modified

Power supply:

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

Enclosure rating:

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

Stroke sensor:

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

Stroke length adjustment:

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

Hydraulic oil:

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

Connection Sizes for PVDF

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

for SS

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

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



2.6 HYDRO Hydraulic Diaphragm Metering Pump

2.6.11 Spare Parts Kits HYDRO

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

Supplied as standard for SST material version

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

Supplied as standard for PVT material version

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

Spare parts kits HYDRO/ 2

Applies to identity code:

Type 100010, 100009, 100007, 100006, 100003,
064025, 064022, 064018, 064015, 064007,

		Part No.
FMH 25 - DN 10	PVT	1005548
	SST	1005549
	SST (with 2 valve set)	1005550

Applies to identity code:

Type 025068, 025060, 025048, 025040, 025019

FMH 60 - DN 10	PVT	1005552
	SST	1005553
	SST (with 2 valve set)	1005554

Spare parts kits HYDRO/ 3

Applies to identity code:

Type 100035, 100031, 100025, 100021, 100010, 064068,
064060, 064048, 064040, 064019

		Part No.
FMH 60 - DN 10	PVT	1005552
	SST	1005553
	SST (with 2 valve set)	1005554

Applies to identity code:

Type 025170, 025150, 025120, 025100, 025048

FMH 150 - DN 15	PVT	1005556
	SST	1005557
	SST (with 2 valve set)	1005558

Pump Diaphragms PTFE/SS - 1.4404

FMH 25 applies to identity code:

Type 100010, 100009, 100007, 100006, 100003,
064025, 064022, 064018, 064015, 064007,

	Part No.
	1005545

FMH 60 applies to identity code:

Type 025068, 025060, 025048, 025040, 025019, 100035, 100031, 100025, 064068,
100021, 100010, 064060, 064048, 064040, 064019

	1005546
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FMH 150 applies to identity code:

025150, 025120, 025100, 025048

	1005547
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Pump Diaphragms PTFE/Hastalloy C covered with PTFE

FMH 25 applies to identity code:

064025, 064022, 064018, 064015, 064007

	Part No.
	1006481

FMH 60 applies to identity code:

025068, 025060, 025048, 025040, 025019, 064068, 064060, 064048, 064040, 064019

	1006482
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FMH 150 applies to identity code:

025170, 025150, 025120, 025100, 025048

	1006483
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2.6 HYDRO Hydraulic Diaphragm Metering Pump

2.6.11 Spare Parts Kits HYDRO

Spare parts kits HYDRO/ 4

Applies to identity code:		Part No.
Type 250130, 250190, 250250, 250350, 250400		
FMH 400 - DN 25	PVT	1023057
	SST	1040812
	SST (with 2 valve set)	1040813
Applies to identity code:		Part No.
Type 160210, 160300, 160400, 160550, 160625		
FMH 625 - DN 32	PVT	1040863
	SST	1040824
	SST (with 2 valve set)	1040825
Applies to identity code:		Part No.
Type 100330, 100480, 100635, 100880, 101000		
FMH 1000 - DN 32	PVT	1040866
	SST	1040826
	SST (with 2 valve set)	1040827
Applies to identity code:		Part No.
Type 070465, 070670, 070890, 071230, 071400		
FMH 1400 - DN 40	PVT	1040869
	SST	1040828
	SST (with 2 valve set)	1040829

HYDRO/ 4 Diaphragm PTFE/1.4404

	Part No.
Type 250130, 250190, 250250, 250350, 250400	1040808
Type 160210, 160300, 160400, 160550, 160625	1040809
Type 100330, 100480, 100635, 100880, 101000	1040810
Type 070465, 070670, 070890, 071230, 071400	1040811

HYDRO/ 4 Diaphragm PTFE/Hast.C coated

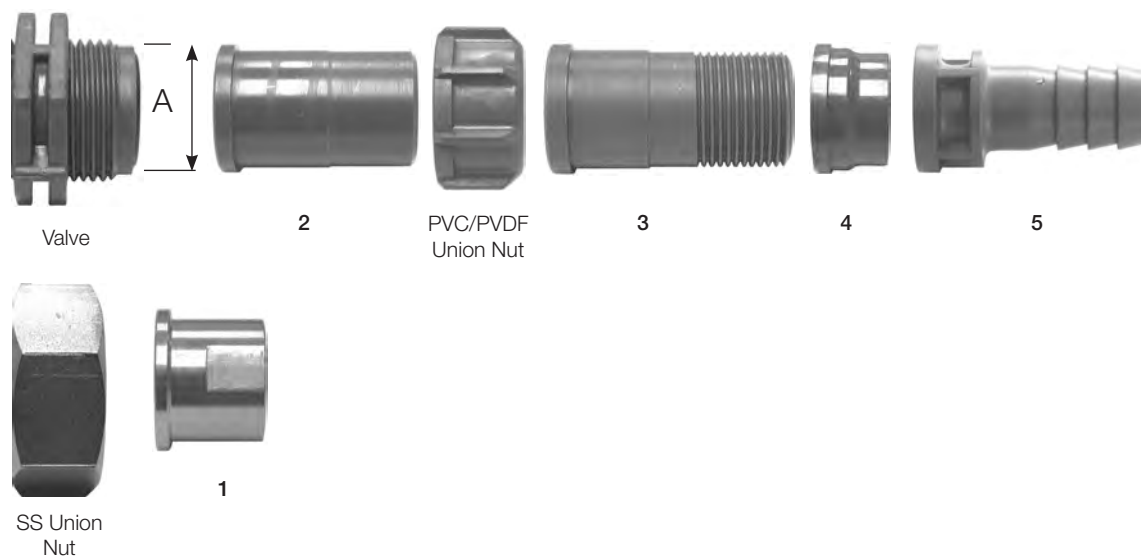
	Part No.
Type 250130, 250190, 250250, 250350, 250400	1040874
Type 160210, 160300, 160400, 160550, 160625	1040875
Type 100330, 100480, 100635, 100880, 101000	1040876
Type 070465, 070670, 070890, 071230, 071400	1040877



2.6 HYDRO Hydraulic Diaphragm Metering Pump

2.6.12 Adaptor Sizes for Motor Driven Pumps

Standard Sizes & Fittings for Motor Driven Pumps



Size		'A' Actual dia.	'A'	1 SSF Socket	2 SWM PVC	3 BSPM PVC/PVDF	4 SWF PVC	5 Hosetail PVC/PVDF
DN10	●	21.3mm	3/4"	3/8" BSP	15 NB	1/2"		16 mm
DN15	●	32.8 mm	1"	1/2" BSP	20 NB	3/4"		20 mm
DN20	○	41.6 mm	1-1/4"	3/4" BSP	25 NB	1"		25mm
DN25	●	47.5 mm	1-1/2"	1" BSP	25 NB	1"		25mm
DN32	●	58.8 mm	2"	2" BSP		1-1/2"	32 NB	40mm
DN40		65.1 mm	2-1/4"	1-1/2" BSP				

			Suction	Discharge	PRV
Sigma/ 1	12017 12035 10050		DN10	●	16 mm
	10022 10044 07065		DN10	●	16 mm
	07042 04084 04120		DN15	●	16 mm
Sigma/ 2	12050 12090 12130		DN15	●	16 mm
	07120 07220 04350		DN 25	●	16 mm
Sigma/ 3	120145 120190 120270 120330		DN 25	●	DN10
	070410 070580 040830 041030		DN 32	●	DN20
Hydro/ 2	ALL		DN 10	●	
Hydro/ 3	ALL 100 bar & 64 bar pumps		DN 10	●	
	ALL 25 bar pumps		DN 15	●	

Gaskets

MOULDED PTFE MATERIAL

Size	Part No.
DN10 3/4"	1019364
DN15 1"	1019365
DN20 1-1/4"	1019366
DN25 1-1/2"	1019367
DN32 2"	1019353
DN40 2-1/4"	1019368

VITON SOFT FLAT

Part No.
V483983
V483984
V483985
V483986
V1000308

EPDM SOFT FLAT

Part No.
E483983
E483984
E483985
E483986
E1000308



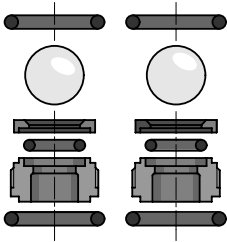
2.7 VARIO VAMb, VAMc & VAMd Spare Parts

2.7.1 Spare Parts Kits

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

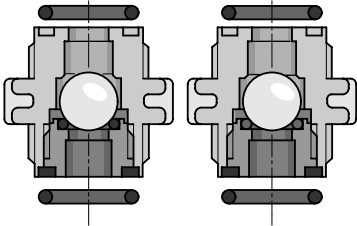
Standard kit for PVT material version:

- 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		
Liquid end FM42 - DN 10	PVT	Part No. 1003641
VAMb, 10025, 09039, 07063		
VAMc, 07012, 07024, 04039, 04063 & VAMd 10025, 09039, 07063		
Liquid end FM 63 - DN 10	PVT	1003642
Liquid end FM 63 - DN 10	PCB	910759
VAMb, 06047, 05075, 04120		
Liquid end FM 120 - DN 15	PVT	1003643

Dosing diaphragms

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



2.8 MAKRO/ 5 Piston Metering Pump

2.8.1 Piston Metering Pump MAKRO/ 5

The 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.

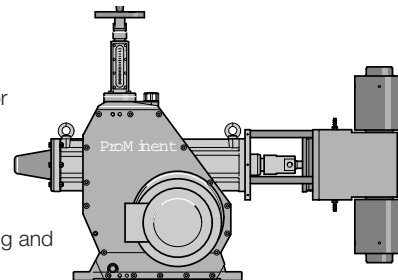
The stroke length is adjustable between 0...50 mm.

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 $\pm 0.5\%$ 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.

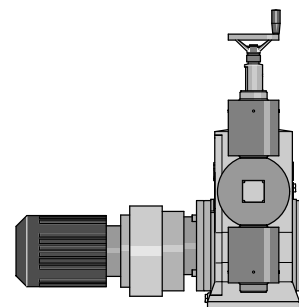
For all motor driven metering pumps, for safety reasons, suitable overload protection must be provided during installation. A tensioning key is supplied as standard for re-tensioning packing rings.



Capacity with 1500 rpm motor and 50Hz

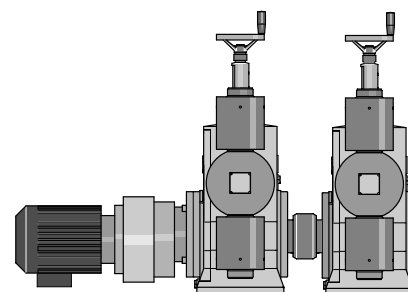
M5KaH

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



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 back pressures 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.

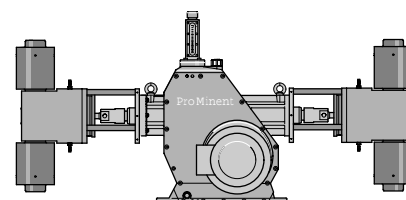


MAKRO/ 5 double head version

HDK (main pump)/AKD (add-on pump)

For the ProMinent® Makro/ 5 HKD and AKD the same basic instructions as for the simplex pumps apply. It is also fitted, however, with a second liquid end.

The liquid ends operate in push-pull mode.



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



2.9 ORLITA Metering Pump

2.9.1 ORLITA Metering Pump

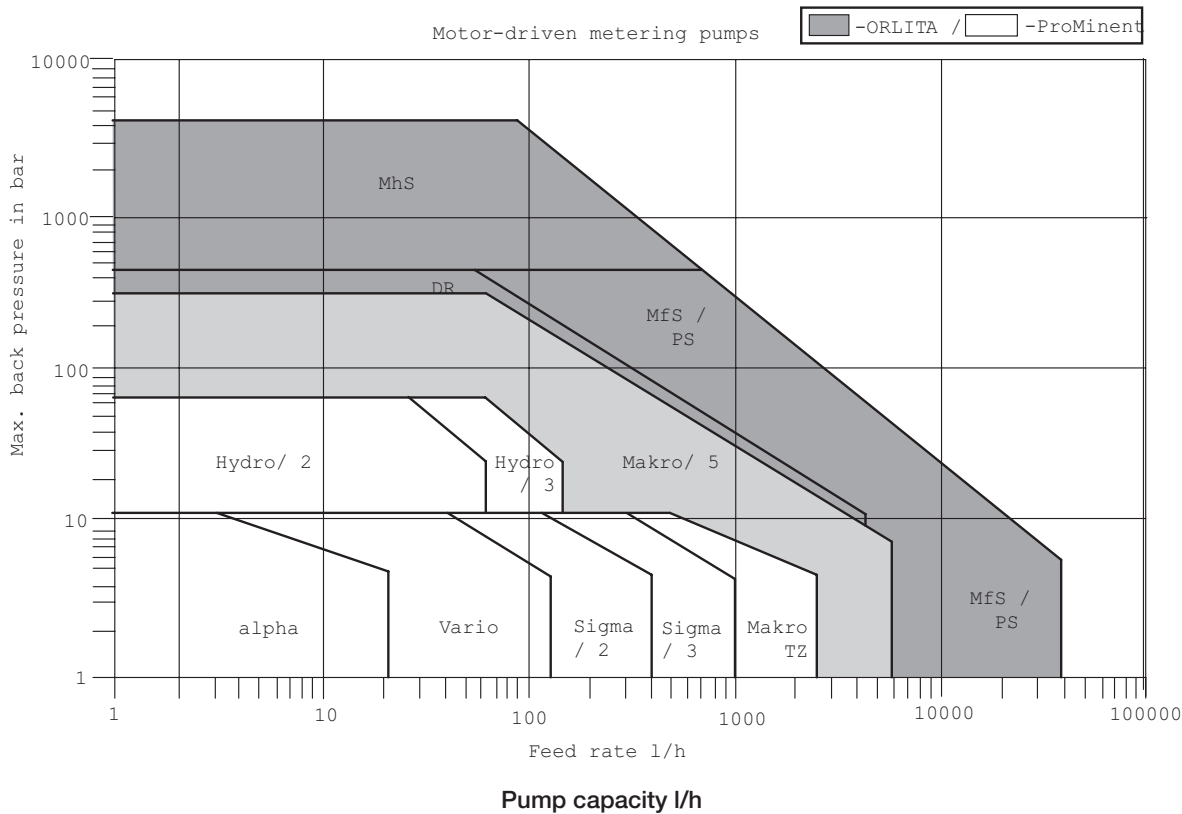
ORLITA Metering Pumps are motor driven, oscillating positive displacement pumps with adjustable stroke volumes.

There are four series available:

- Mf diaphragm Metering Pumps with hydraulically driven PTFE double diaphragms
- Mh diaphragm Metering Pumps with hydraulically driven metal diaphragms
- PS piston Metering Pumps with stuffing box packing rings
- DR valve-free piston Metering Pumps

ORLITA® Metering Pumps have established a wide application range in process technology, due in part to their cost effectiveness.

Motor Driven Metering Pumps



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



2.9 ORLITA Metering Pump

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.

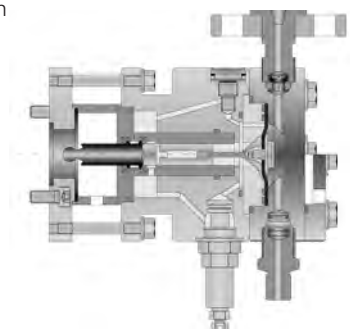
During the discharge stroke the diaphragm is balanced by the hydraulic liquid only. During the suction stroke the diaphragm operation is aided by the mechanical coupling.

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.

All wetted parts (except for the PTFE-diaphragm) are fabricated from stainless steel.



2.9.3 Diaphragm Head MH

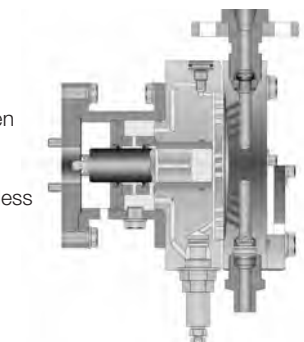
Hydraulic actuated diaphragm head. A metal diaphragm hermetically separates the wetted area from the hydraulic chamber.

Both during discharge and suction stroke the diaphragm is balanced by the hydraulic liquid which has been displaced by the piston.

Integrated in the hydraulic chamber are the pressure relief valve and an automatic venting valve. The valveless forced reflow of the internal oil leakage operates wearfree and guarantees optimum dosing accuracy.

The pump check valves are of cone, ball or prismatic type depending on size and design pressure.

All wetted parts are fabricated from stainless steel.



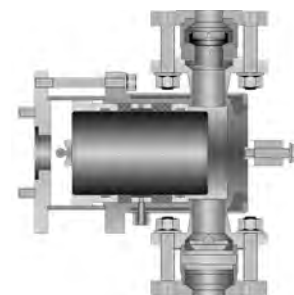
2.9.4 PS Piston Liquid End

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

The lantern on the rear head end serves to drain the leakage or can be used as an area to flush, lubricate or seal the pump with suitable media.

The pump check valves are of cone type. This guarantees low wear, short pressure loss ($NPSH_R$) 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.

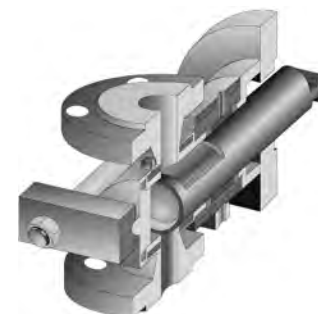
The pump head is fabricated from stainless steel. Piston and liner are treated by a special wear-resistant coating.

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

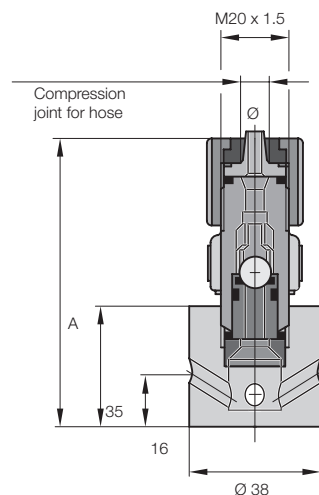
For connection to the end of the suction line as suction aid and to protect the pump from contamination, with strainer and ball check.

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

			Ø	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

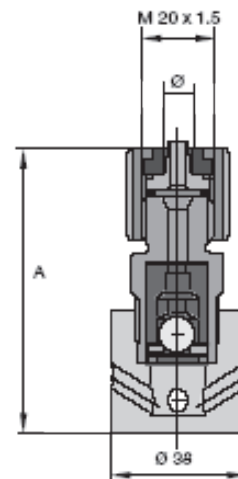
Valve body of PP, seals of Viton

			Ø	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

			Ø	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

			Ø	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

p

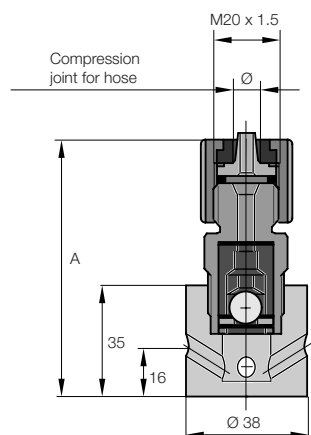


3.0 Accessories beta/gamma/delta/Pneumados

3.0.1 Foot Valves

FOOT VALVE, PTFE

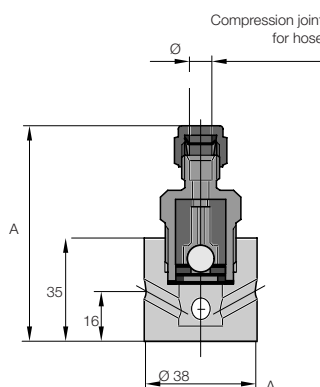
Valve body, ball check and seals of PTFE, for connection diameters 6, 8 and 12 mm with ceramic weight.



			Ø	A		Part No.
Connection	6 mm	for hose	6 x 4	79	(Fig.2397/4)	809455
Connection	8 mm	for hose	8 x 5	79	(Fig.2397/4)	809471
Connection	12 mm	for hose	12 x 9	82	(Fig.2397/4)	809473

FOOT VALVE, STAINLESS STEEL 1.4404

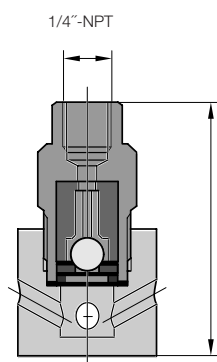
With strainer and ball check, valve body of stainless steel 1.4571, seals of PTFE, For 6x4, 8x5 and 12x 9 mm hose connection a support sleeve is required (see page 3.23).



	Ø	A	Part No.
Connection	for 6 mm O.D. pipe	74	924568
Connection	for 8 mm O.D. pipe	74	809474
Connection	for 12 mm O.D. pipe	74	809475

FOOT VALVE, STAINLESS STEEL 1.4404

With strainer and ball check, valve body of stainless steel 1.4571, seals of PTFE, as above but with threaded connection.



	Ø	A	Part No.
Connection	1/4" BSP/F *		803730
Connection	3/8" BSP/F		803731

*See also 924567



3.1 Accessories sigma/VARIO/META/MAKRO TZ

3.1.1 Foot Valves

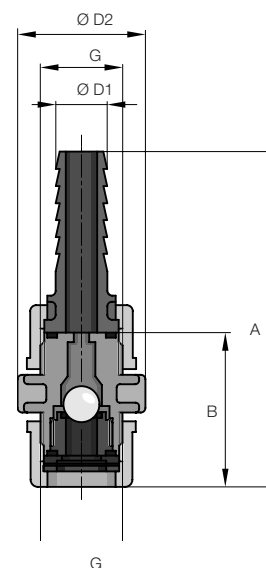
For connection to the end of the suction line to prevent return flow and to protect the pump from contamination, with strainer and ball check valve. The same materials are used as for the liquid ends. The union nut and union end/hose connector are part of the standard delivery package.

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

FOOT VALVE, PVC

Valve body of PVC, seals of Viton, with strainer and ball check-valve

	G	Solvent weld male	B	Ø D2	Part No.
●	DN 10	15 mm	51	40	P809464
●	DN 15	20 mm	56	47	P924515
●	DN 20	25 mm	67	55	P803723
●	DN 25	25 mm	73	60	P803724
●	DN 32 PVT	32 mm Female	85	74	P1006434
	DN 40	32 mm	100	90	P1004204
●	DN 10	1/2" BSP	51	40	P809464B
●	DN 15	3/4" BSP	56	47	P924515B
●	DN 20	1" BSP	67	55	P803723B
●	DN 25	1" BSP	73	60	P803724B
●	DN 32 PVT	1-1/2" BSP	85	74	P1006434B
	DN 40	2" BSP	100	90	P1004204B
●	DN 10	16 mm HT	51	40	P809464H
●	DN 15	20 mm HT	56	47	P924515H
●	DN 20	25 mm HT	67	55	P803723H
●	DN 25	25 mm HT	73	60	P803724H
●	DN 32 PVT	40 mm HT	85	74	P1006434H
	DN 40	40 mm HT	100	90	P1004204H

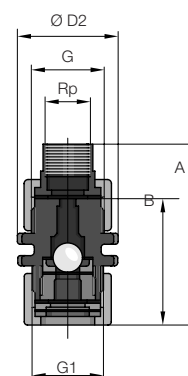


FOOT VALVE, PVDF

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

	G	BSPTM	B	SW	Ø D2	Part No.
●	DN 10	1/2"	69	30	35	P1029471
●	DN 15	3/4"	75	36	47	P1029472
●	DN 20	1"	69	46	57	P1029473
●	DN 25	1"	75	50	64	P1029474
●	DN 32	1-1/2"	103	75	89	P1006434-PVT

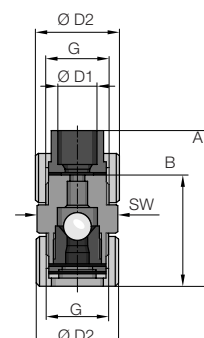
Note: DN32 valve has Hastalloy-C Disc and Spring



FOOT VALVE, STAINLESS STEEL

Valve body of stainless steel, seals of PTFE, with strainer and ball check valve (1.4571/1.4581)

	G1	BSPF	G2	A	B	Ø D2	Part No.
●	DN 10	3/8"	BSP/F	-	48	37	809467
●	DN 15	1/2"	BSP/F	-	51	48	924518
●	DN 20	3/4"	BSP/F	-	64	55	P803727
●	DN 25	1"	BSP/F	-	72	63	P803728
●	DN 32	1-1/4"	BSP/F	-	82	75	P1006435
	DN 40	1-1/2"	BSP/F	-	98	90	P1004206



3.2 Accessories sigma/VARIO/META/MAKRO TZ

3.2.1 Foot & Injection Valves

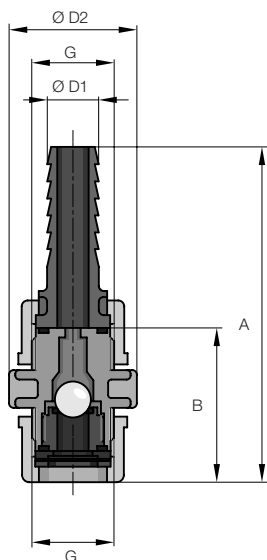
For connection to the end of the suction line to prevent return flow and to protect the pump from contamination, with strainer and ball check valve. The same materials are used as for the liquid ends. The union nut and union end/hose connector are part of the standard delivery package.

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

FOOT VALVE, PP

Valve body of PP, seals of EPDM, with strainer and ball check-valve

Note: Solvent Weld, BSP and Hosetail adaptors are PVC


















	G	Solvent weld male	B	Ø D2	Part No.
● DN 10	15 mm	**not stocked**	51	40	P809465
● DN 15	20 mm	**not stocked**	56	47	P924516
● DN 20	25 mm	**not stocked**	67	55	P803721
● DN 25	25 mm	**not stocked**	73	60	P803722
● DN 32 PVT	32 mm	Female	85	74	P1006434
● DN 40	32 mm	**not stocked**	100	90	P1004204
● DN 10	1/2"	BSP **not stocked**	51	40	P809465B
● DN 15	3/4"	BSP **not stocked**	56	47	P9245516B
● DN 20	1"	BSP **not stocked**	67	55	P803721B
● DN 25	1"	BSP **not stocked**	73	60	P803722B
● DN 32 PVT	1-1/2"	BSP	85	74	P1006434B
● DN 40	2"	BSP **not stocked**	100	90	P1004204B
● DN 10	16 mm	HT **not stocked**	51	40	P809465H
● DN 15	20 mm	HT **not stocked**	56	47	P924516H
● DN 20	25 mm	HT **not stocked**	67	55	P803721H
● DN 25	25 mm	HT **not stocked**	73	60	P803722H
● DN 32 PVT	40 mm	HT	85	74	P1006434H
● DN 40	40 mm	HT**not stocked**	100	90	P1004204H

INJECTION VALVE, PP

Valve body of PP, seals of EPDM, with ball check, spring-loaded, response pressure approx. 0.5 bar

Note: Solvent Weld, BSP and Hosetail adaptors are PVC

		BSPM x solvent weld	B	Ø D2	Part No.
	DN 10	1/2" x 15 mm **not stocked**	51	40	P809461
	DN 15	3/4" x 20 mm **not stocked**	56	47	P924521
	DN 20	1" x 25 mm **not stocked**	67	55	P803710
	DN 25	1" x 25 mm **not stocked**	73	60	P803711
	DN 32 PVT	1-1/2" x 32 mm female	73	60	P1002783
	DN40	2" x 32 mm **not stocked**			P804761
	DN 10	1/2" x 1/2" BSP **not stocked**	51	40	P809461B
	DN 15	3/4" x 3/4" BSP **not stocked**	56	47	P924521B
	DN 20	1" x 1" BSP **not stocked**	67	55	P803710B
	DN 25	1" x 1" BSP **not stocked**	73	60	P803711B
	DN 32 PVT	1-1/2" x 1-1/2" BSP	73	60	P1002783B
	DN40	2" x 32 mm **not stocked**			P804761B
	DN 10	1/2" x 16 mm HT **not stocked**	51	40	P809461H
	DN 15	3/4" x 20 mm HT **not stocked**	56	47	P924521H
	DN 20	1" x 25 mm HT **not stocked**	67	55	P803710H
	DN 25	1" x 25 mm HT **not stocked**	73	60	P803711H
	DN 32 PVT	1-1/2" x 40 mm HT	73	60	P1002783H
	DN40	2" x 40 mm HT **not stocked**			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.

			Ø	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.

			Ø	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.

			Ø	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

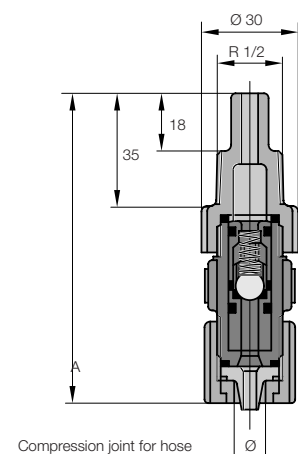
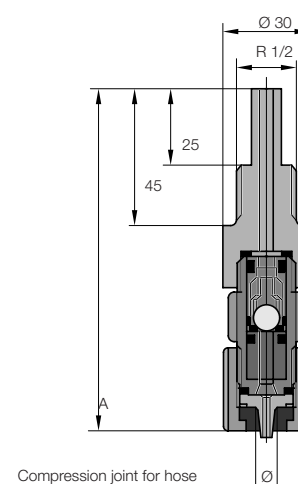
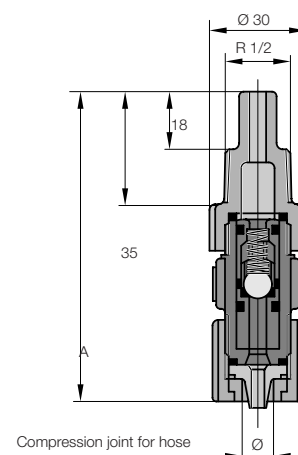
INJECTION VALVE, PVC

			Ø	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)

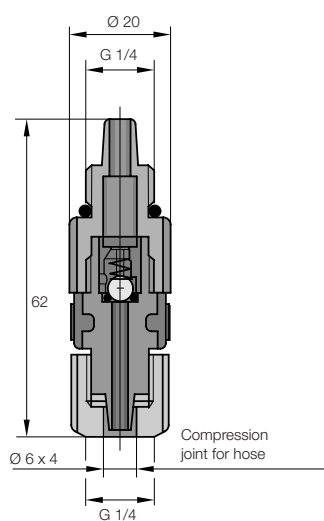
Body of PVC, PTFE with 1/2" BSPT Male tailpiece

			Ø	Part No.
Connection	6 mm - 1/2"	for PE/PTFE tubing	6 x 4	809450
Connection	8 mm - 1/2"	for PE/PTFE tubing	8 x 5	809451
Connection	12 mm - 1/2"	for PE/PTFE tubing	12 x 9	809452



3.3 Accessories beta/gamma/Delta/CONCEPT/Pneumados

3.3.1 Injection Valves



INJECTION VALVE PVC, CONNECTION 1/4"

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

Part No.

Connection 6 mm - 1/4" for PE/PTFE tubing 6 x 4mm

914559

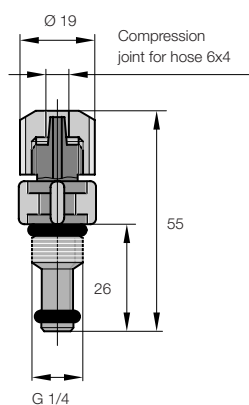
INJECTION VALVE PVC, O-RING LOADED

Valve body of PVC, seals of Viton, response pressure approx. 0.5 bar.

Part No.

Connection 6 mm - 1/4" (long) for PE/PTFE tubing 6 x 4 (Fig 1016/4)

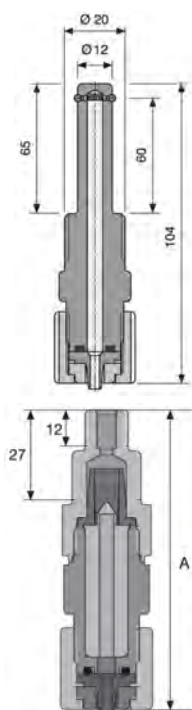
915091



PTFE INJECTION VALVES O-RING, LOADED

PTFE housing, FPM (Viton) seals.

Connection	oØ x iØ mm	A mm	Part No.
6/4 – for PE/PTFE line	6 x 4	104	809484
8/5 – for PE/PTFE line	8 x 5	104	809485
10/4 – for PE/PTFE line	10 x 4	104	1002925
12/6 – for PVC hose	12 x 6	104	809487
12/9 – for PE/PTFE line	12 x 9	104	809486



LIP SEAL INJECTION VALVE PCB

Body PVC, seals FPM, inlet pressure approx. 0.05 bar. For dosing sodium hypochlorite in conjunction with peristaltic pumps DF2a

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



3.3 Accessories beta/gamma/Delta/CONCEPT/Pneumados

3.3.2 gamma Injection Valves

INJECTION VALVE PVT

PVDF housing, PTFE seals, with non-return valve, spring-loaded with Hastalloy C spring, priming pressure approx. 0.5 bar with extended threaded connection.

				Ø	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.

				Ø	A		Part No.
Connection	6 mm	-	1/2" for PE/PTFE tubing	6 x 4	98	(fig.1)	809488
Connection	8 mm	-	1/2" for PE/PTFE tubing	8 x 5	98	(fig.1)	809479
Connection	12 mm	-	1/2" for PE/PTFE tubing	12 x 9	101	(fig.1)	809481

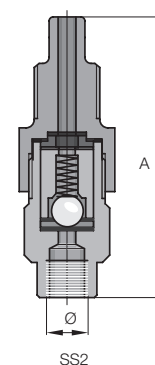
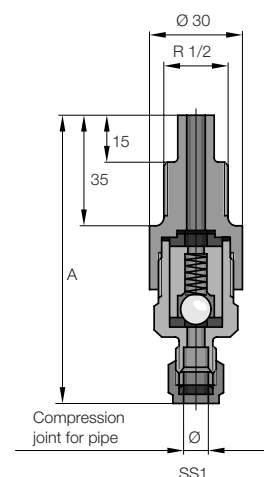
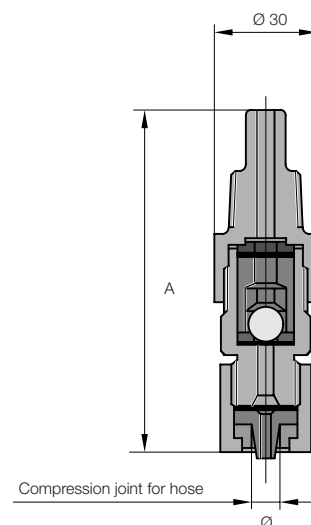
INJECTION VALVE STAINLESS STEEL

Body of 1.4404, seals of PTFE with spring-loaded ball check. Hastel. C spring with 0.5 bar response pressure; for connection 1/4" stainless steel spring 1.4571 and response pressure approx. 1 bar.

For connection of PE/PTFE tubing a ferrule is required.

SS1			Ø	A	Part No.
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			Ø	A	Part No.
Connection	1/4"NPT - 1/2"	for pipe	12 x 10	93	924597

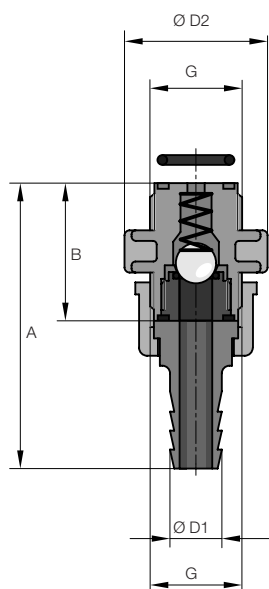


3.4 Accessories sigma/VARIO/META/MAKRO TZ

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	Ø D2	Part No.
● DN 10	3/4"	1/2" x 15mm	51	40	P809460
● DN 15	1"	3/4" x 20mm	56	47	P924520
● DN 20	1 1/4"	1" x 25mm	67	55	P803712
● DN 25	1 1/2"	1" x 25mm	73	60	P803713
● DN 32 PVT	2"	1-1/2" x 32mm female	73	60	P1002783
● DN40	2 1/4"	2" x 32mm			P804760
BSPTM x BSPT Male or female					
● DN 10	3/4"	1/2" x 1/2" BSPTM	51	40	P809460B
● DN 15	1"	3/4" x 3/4" BSPTM	56	47	P924520B
● DN 20	1 1/4"	1" x 1" BSPTM	67	55	P803712B
● DN 25	1 1/2"	1" x 1" BSPTM	73	60	P803713B
● DN 32 PVT	2"	1-1/2" x 1-1/2" BSPF	73	60	P1002783B
● DN40	2 1/4"	2" x 1-1/2" BSPTM			P804760B
BSPTM x Hosetail					
● DN 10	3/4"	1/2" x 16 mm	51	40	P809460H
● DN 15	1"	3/4" x 20 mm	56	47	P924520H
● DN 20	1 1/4"	1" x 25 mm	67	55	P803712H
● DN 25	1 1/2"	1" x 25 mm	73	60	P803713H
● DN 32 PVT	2"	1-1/2" x 40 mm	73	60	P1002783H
● DN40	2 1/4"	2" x 40 mm			P804760H

INJECTION VALVE, PVDF

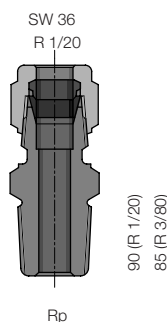
Valve body of PVDF, seals of PTFE, with ball check, spring-loaded, response pressure approx. 0.5 bar.

G	BSPM x Hosetail	B	Ø D2	Part No.
● DN 10	1/2" x 16mm			1029476
● DN 15	3/4" x 20mm			1029477
● DN 20	1" x 25mm	55	46	1029478
● DN 25	1" x 25mm	60	50	1029479
● DN 32	1-1/2" body	85	75	1002783
● DN 32	1 1/2 BSP (PVDF) x 1 1/4 SW (PVC)			P1002783
● DN 32	1 1/2 BSP (PVDF) x 1 1/2 BSP (PVDF)			P1002783B
● DN 32	1 1/2 BSP (PVDF) x 40mm HT (PVDF)			P1002783H

Note: DN32 valve has Hastelloy-C Disc and Spring. Other sizes available. Outlet adaption by others unless listed.

INJECTION VALVE, STAINLESS STEEL

Valve body of stainless steel 1.4404, seals of PTFE, ball check, spring-loaded (1.4571/1.4581), response pressure approx. 0.5 bar



G1	BSPF x BSPF	B	Ø D	Part No.
● DN 10	3/8" BSPF inlet & outlet			P809463
● DN 15	1/2" BSPF inlet & outlet			P924523
● DN 20	3/4" x 3/4" BSPF	56	56	P803716
● DN 25	1" x 1" BSPF	60	59	P803717
● DN 32	1-1/4" x 1-1/4" BSPF	60	59	P1002801
● DN 40	1-1/2" x 1-1/2" BSPF	85	90	P804763

INJECTION VALVE DN 10 FOR META/MAKRO TZ-HK

Valve body and valve spring of 1.4571 s/s, ball of 1.4401 s/s, seals of PTFE, response pressure approx. 0.1 bar

Connection 1/4" x 1/2" BSP	803732
Connection 3/8" x 1/2" BSP	803733



3.5 Accessories beta/gamma/Delta/Pneumados

3.5.1 Back Pressure Valves S Series

TYPE DHV-S-DL BACK PRESSURE VALVE/RELIEF VALVE

ADJUSTABLE 1-10 BAR, 6-12 MM

Adjustable back pressure valve for installation in the discharge line to generate a constant back pressure for precise delivery when injecting into an open outlet with an inlet pressure on the suction side, a fluctuating back pressure or into a vacuum.

Application is the same as for the safety pressure relief valve.

When used as a back pressure valve in long lines to avoid resonance vibration, it should be mounted on the end of the injection line or the set pressure should be greater than the line pressure loss.

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

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

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

				Part No.
DHV-S-DL	1-10 bar	PP	6 x 4mm	P6-302323
DHV-S-DL	1-10 bar	PP	8 x 5mm	P8-302323
DHV-S-DL	1-10 bar	PP	12 x 9mm	P12-302323
DHV-S-DL	1-10 bar	PVC	6 x 4mm	P6-302324
DHV-S-DL	1-10 bar	PVC	8 x 5mm	P8-302324
DHV-S-DL	1-10 bar	PVC	12 x 9mm	P12-302324
DHV-S-DL	1-10 bar	TT	6 x 4mm	P6-302325
DHV-S-DL	1-10 bar	TT	8 x 5mm	P8-302325
DHV-S-DL	1-10 bar	TT	12 x 9mm	P12-302325
DHV-S-DL	1-10 bar	SS	6mm O.D.	302326
DHV-S-DL	1-10 bar	SS	8mm O.D.	302327
DHV-S-DL	1-10 bar	SS	12mm O.D.	302328

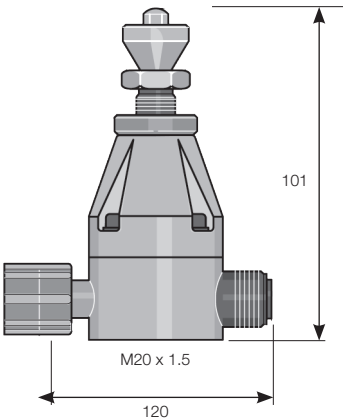
PIPE NIPPLE, 316 S.S., 40MM LONG

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

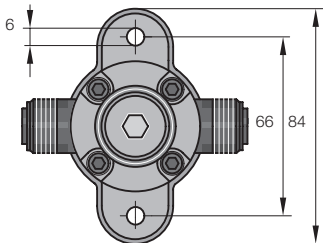
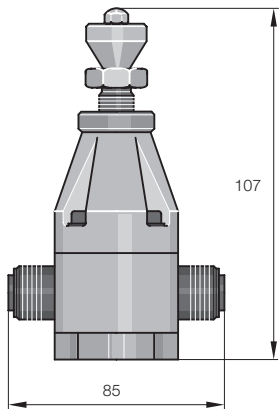
		Part No.
	6mm O.D.	818537
	8mm O.D.	818538
	12mm O.D.	818539

TUBING - 316 STAINLESS STEEL

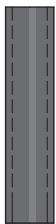
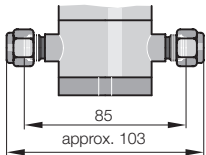
		Part No.
	6mm O.D.	015738
	8mm O.D.	015740
	12mm O.D.	015743



PP, PC, TT version



SS version



3.6 Accessories Adjustable Relief Valves

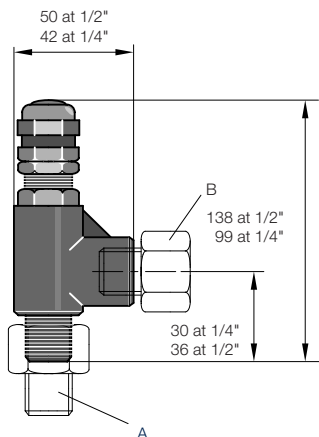
3.6.1 Adjustable Relief Valves

ADJUSTABLE RELIEF VALVE, 1/4" NPT

For use as safety relief valve and as back pressure valve.

Housing: Stainless steel 316/Alton

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 block-ages. 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

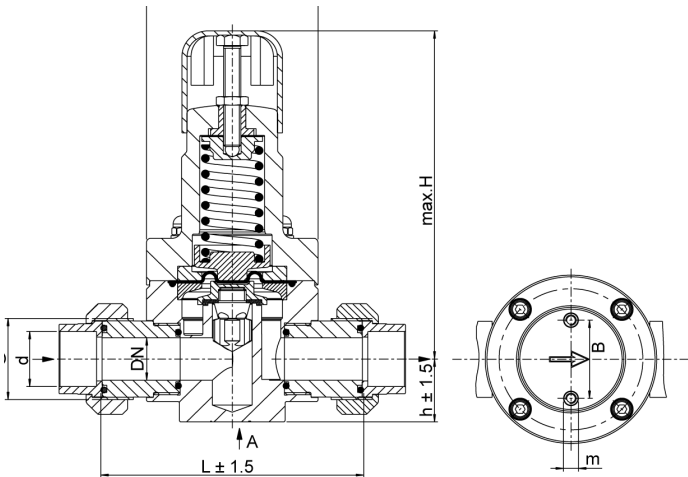
- Adjustable pressure
0.5 – 10 bar
- Areas of application of PPE / PPB / PCE / PCB
20 °C - maximum operating pressure 10 bar
- Area of application of PVDF
30 °C - maximum operating pressure 10 bar

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 sigma/ 1 Dosing Pump

- DN 10 valve = 1/2" BSP M/M, S/W or
- DN 15 valve = 3/4" BSP M/M

Suit 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 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 sigma/ 3 & MAKRO Dosing Pump

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

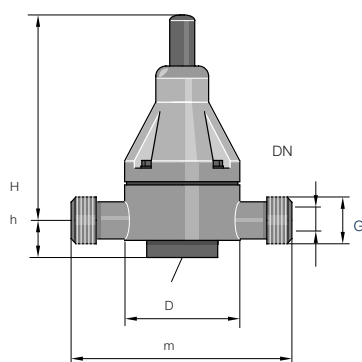


3.7 Accessories Motor Driven Dosing Pumps

3.7.1 Back Pressure Valves or Relief Valves



DHV-U



DHV-712R

						Part No.
●	DHV- U	0.5 - 10 bar	G 3/4"	DN 10	• PPE	P1037285
●	DHV- U	0.5 - 10 bar	G 1"	DN 15	• PPE	P1036816
●	DHV- U	0.5 - 10 bar	G 1-1/4"	DN 20	• PPE	P1037284
●	DHV- U	0.5 - 10 bar	G 1-1/2"	DN 25	• PPE	P1036633
●	DHV- U	0.5 - 10 bar	G 2"	DN 32	• PPE	P1051517
●	DHV- U	0.5 - 10 bar	G 2-1/4"	DN 40	• PPE	P1051518

●	DHV- U	0.5 - 10 bar	G 3/4"	DN 10	• PCE	P1038144
●	DHV- U	0.5 - 10 bar	G 1"	DN 15	• PCE	P1038146
●	DHV- U	0.5 - 10 bar	G 1-1/4"	DN 20	• PCE	P1038148
●	DHV- U	0.5 - 10 bar	G 1-1/2"	DN 25	• PCE	P1038150

PVC valves complete with Male/Male Solvent Weld fittings

●	DHV- U	0.5 - 10 bar	G 3/4"	DN 10	PCB	P1037765
●	DHV- U	0.5 - 10 bar	G 1"	DN 15	PCB	P1037764
●	DHV- U	0.5 - 10 bar	G 1-1/4"	DN 20	PCB	P1037775
●	DHV- U	0.5 - 10 bar	G 1-1/2"	DN 25	PCB	P1037774
●	DHV- U	0.5 - 10 bar	G 2"	DN 32	PCB	P1051520
●	DHV- U	0.5 - 10 bar	G 2-1/4"	DN 40	PCB	P1051519

PVC valves complete with Male/Male BSPT fittings

●	DHV- U	0.5 - 10 bar	G 3/4"	DN 10	PCB	P1037765B
●	DHV- U	0.5 - 10 bar	G 1"	DN 15	PCB	P1037764B
●	DHV- U	0.5 - 10 bar	G 1-1/4"	DN 20	PCB	P1037775B
●	DHV- U	0.5 - 10 bar	G 1-1/2"	DN 25	PCB	P1037774B
●	DHV- U	0.5 - 10 bar	G 2"	DN 32	PCB	P1051520B

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;

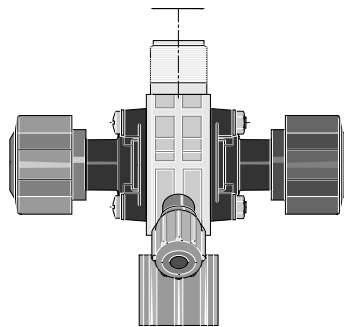
Seals - Viton or EPDM; DN10 adaptor - PVC

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, gamma/ XL type 1608, 1612, BTXb 16006 & 07018
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 & gamma XL, BTXb 04028 & BTXb 02050
Size III	delta type 0450, 0280 & gamma/ XL

Note For material design PP, PV, P, TT

Note: Valve Pre-Pack is supplied with 2m PVC clear tube, for return to tank.



MFV WITH BYPASS PLUGGED WITH TEFLON SOCKET

Use this as an alternative injection valve for aggressive media as it has no spring in contact with the chemical.

				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



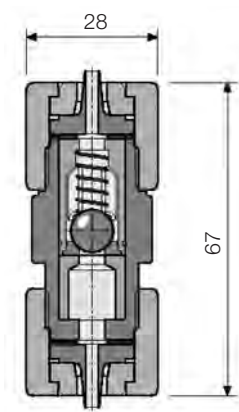
3.9 Accessories beta/gamma/delta/Pneumados

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.

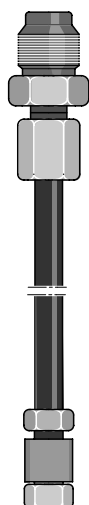


Applications when using appropriate tubing

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



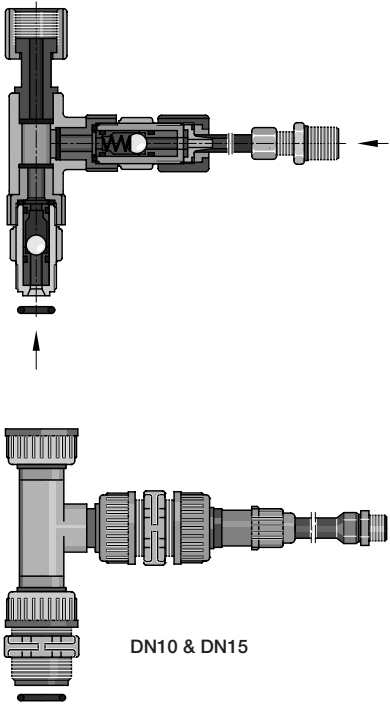
3.10 Accessories Flushing Device & Rigid Suction Assemblies

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.

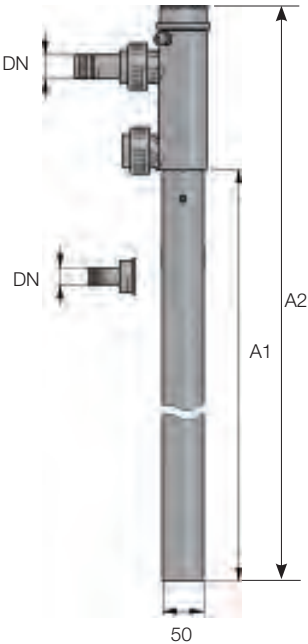
	Part No.
for 6, 8, and 12 mm connector	809925
for DN 10 connector	809926
for DN 15 connector	803960
for DN 20 connector	809361
for DN 25 connector	809362



Rigid Suction Assemblies

Suction lances for motor-driven metering pumps. Universal PVC suction lances with float switch in protective tube Ø 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	
	DN 20/25	2-stage 3 m lead	3 pin round plug	1000	1100	P1037751
	DN 32	2-stage 3 m lead	3 pin round plug	1000	1100	P1037753



3.11 Accessories Float Switches for Solenoid Driven Pumps

3.11.1 Concept Float Switches

SINGLE-STAGE FLOAT SWITCH

For minimum level indication with simultaneous shutdown of the metering pump, with or without a flat connector.

Technical data:

Max. switching voltage 60 V, switching current 0.3 A

Making/breaking capacity 5 W/5 VA

Temperature range -25 °C to 75 °C, enclosure rating IP 67

Materials:

Body PVC, 21 dia. foamed PP float, PE cable

Body PVDF also available



	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
PVDF 5m Cable, No Plug	142068

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.

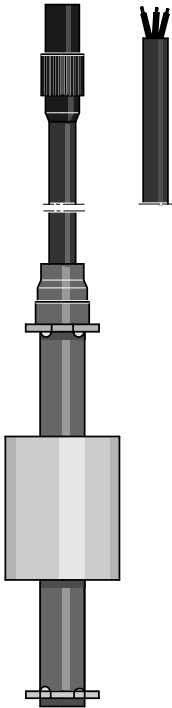
Temperature range -10°C to 65°C, enclosure rating IP 67.

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

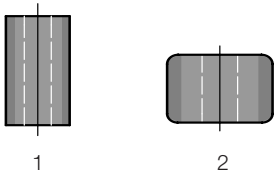
Size 1 Dia 25 x 50, 40g with 10 dia. opening

to suit round plug and jack plug.	1019244
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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.



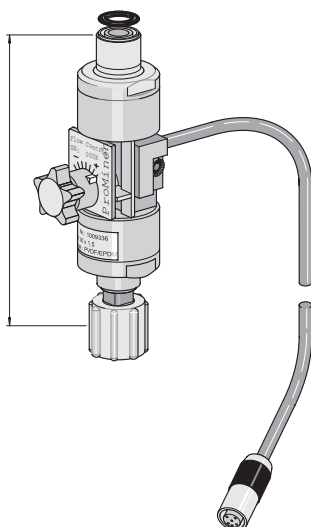
3.13 Accessories gamma/sigma Metering Monitors

3.13.1 gamma/sigma Metering Monitors

ADJUSTABLE FLOW CONTROL MONITOR

Suitable for gamma/L series in material versions PP, PC, NP and TT. Supplied with connection cable for assembly directly to liquid end.

Monitors individual strokes according to the float and orifice principle. The partial quantity of chemical flowing past the float is adapted to the preset stroke volume via the adjusting screw so that an alarm is actuated if the flow falls below 20 %. The user can select the number of incomplete strokes permitted (between 1 and 127) in accordance with the actual process requirements.



MATERIALS

Flow meter: PVDF
Float: PTFE-coated
Seals: Viton® B/EPDM

Flow Control	Material	for pump type	Part no.
Size I	PVDF/EPDM	1000, 1601, 1602	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 stroke volume via the adjusting screw so that an alarm is actuated if the flow falls below 20 %. The admissible number of incomplete strokes can be set at the Sigma Control (S1Ca/S2Ca/S3Ca) to between 1 and 127 to allow optimum adjustment to the process requirements.

			Part No.
●	Size III - DN 10	PVDF/EPDM	Sigma/1 12017, 10022, 12035 10044, 10050, 07065 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, MAKRO 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.

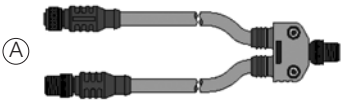
	Part No.
Universal control cable, 5-pole round connector, 5-wire, 5 m	1001301
Universal control cable, 5-pole round connector, 5-wire, 10 m	1001302



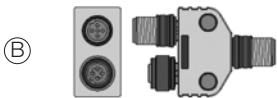
PROFIBUS ADAPTOR, ENCLOSURE RATING IP65

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



	Part No.
B: PROFIBUS® Y-adaptor	1036621



	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



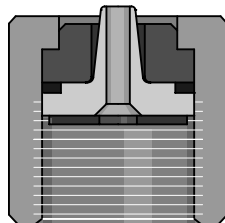
3.15 Accessories Mechanical & Hydraulic Pumps

3.15.1 Connectors & Fittings

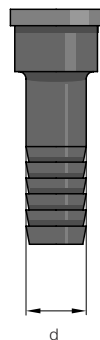
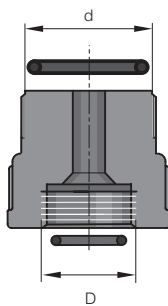
CONNECTOR SET

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.



M20 x 1.5 F



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.

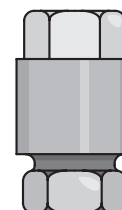
	Part No.
Ring set 6 dia. for tubing 6 mm o.d.	104232
Ring set 8 dia. for tubing 8 mm o.d.	104236
Ring set 12 dia. for tubing 12 mm o.d.	104244



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

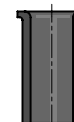
Serto system for use with stainless steel connectors.

	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

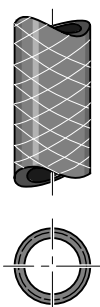
* Maximum working pressure at 20°C in accordance with DIN EN ISO 7751, provided there is media compatibility and the connection is properly made.

			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.

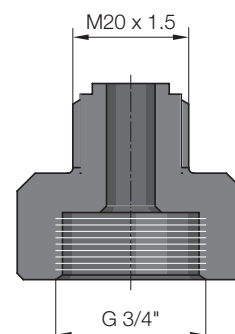
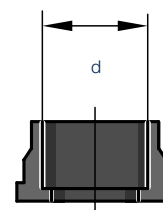
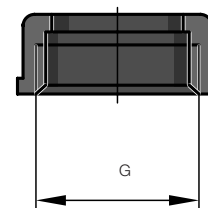
FOR PE AND PVC TUBE SEE 'GREEN PAGE' Price List



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	PVDF	3/4"	-	DN 10	358813
●	Union nut	PVDF	1"	-	DN 15	358814
●	Union nut	PVDF	1 1/4"	-	DN 20	358815
●	Union nut	PVDF	1 1/2"	-	DN 25	358816
●	Union nut	PVDF	2"	-	DN 32	1003639
	Union nut	PVDF	2 1/4"	-	DN 40	358818
	Union nut	PVDF	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 1/2"	-	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 25mm hose tail	1006014
PVDF DN 25 - 1 1/2" valve to 32mm hose tail	1005560



3.18 Accessories Contact Water Meters COLD

3.18.1 Contact Water Meter for use in Potable Water Systems

ZENNER PULSE-TYPE WATER METER, DIN TYPE

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

$Q_{max.}$ Q_d/Q_n NG - m 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	304434
12/10/6	1" - DN 25*	260	1	304445
20/16/10	1 1/2" - DN 40*	300	1	304436
31/25/15	2" - DN 50*	300	1	304430

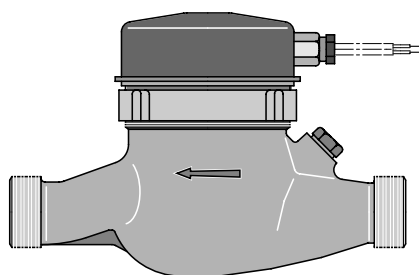
*Brass unions and inserts to be ordered separately [no charge]

DN 20	359029
DN 25	801322
DN 40	359037
DN 50	359039

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

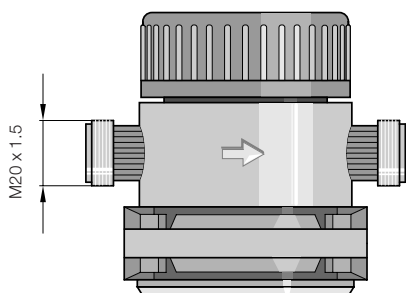
SUCTION PRESSURE REGULATOR

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
		10 m	1002011-10

Note: Relay can be retrofitted into pumps.

*Relay needs to be programmed in our workshop.

**Relay card ONLY, does not include solenoid.



3.22 Accessories DULCOFLOW Flow Meter

3.22.1 DULCOFLOW Flow Meter

The DULCOFLOW flow meter measures all liquid media without any media contact. The rate of flow of non-continuous volume flows and the amount of liquid which has passed through in pulsing flow regimes are measured.

The measuring instrument operates based on the ultrasonic measurement method. Media contacting parts are manufactured using chemically resistant PVDF/PTFE. This ensures that aggressive media can also be measured without problem. The instrument is installed directly in the pipe of the medium being measured.

Interfering influences, such as air bubbles, are identified by the DULCOFLOW and forwarded to the analysis unit as an error message. The instrument, which is structured for wall mounting, is designed for a measurement range of 0.1 to 30 litres per hour.

Features

- Direct display of the instantaneous flow and cumulative flow in litres.
- Compact universal housing.
- Two-line display.
- Frequency output for metering pump control.
- Analogue output 0/4...20 mA, can be configured as a recorder output or a control output.

Main Applications

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

Measuring principle

The DULCOFLOW flow meter measures the volume flow of pulsing flows. The ultrasonic, time of flight measurement method is used. For the time of flight measurement, a sound signal is alternately transmitted in and against the direction of flow. The time difference is then a measure of the mean flow velocity. Use of the ultrasound measurement method automatically compensates any temperature induced changes in the medium. Operation without moving parts guarantees a long service life and wear-free operation.

Advantages

- Direct display of the instantaneous flow and cumulative flow in litres.
- Can be switched over to display the pulsing frequency of the liquid or pump.
- Safety and reliability through display of the device operating status using LEDs.
- Safety and reliability through display of the measurement status using LEDs

Technical Data

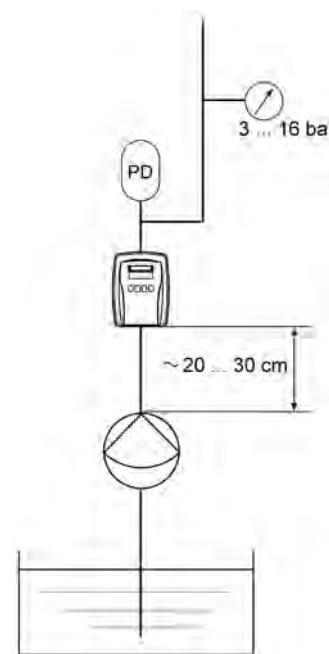
Measuring range:	0.1 ... 50 l/h
Accuracy:	< 2 % after calibration
Analogue output:	4...20 mA
Frequency output:	< 10 kHz (optional on special order)
Protection class:	IP 65
Power supply:	100...230 V AC/ 50/60 Hz
Dimensions:	183.6 x 121 x 122.7 mm (H x W x D)
Media to be measured Connector:	Tube connection with 6x4, 8x5 or 12x9 mm
Medium pressure:	(min.) 3 ... 16 bar
Medium temperature :	-10 ... 45 °C
Dyn. viscosity (rj):	0.5 ... 2000 mPa

	Part No.	
Current output	DFMa05T1C100	6x4
Contact output	DFMa05T1C200	6x4
Current output	DFMa05T2C100	8x5
Contact output	DFMa05T2C200	8x5
Current output	DFMa08T3C100	12x9
Contact output	DFMa08T3C200	12x9

DFMa05 Beta/Gamma L ... 1000 - 0413/0713, Delta 1608-1612

DFMa08 Beta/Gamma L ... 0420, Delta 1020 - 0450

GMXa & GLXa - CHECK STROKE SETTINGS



Hydraulic Installation Parameters

The DULCOFLOW can also be used at constant pressures under 3 bar. However, in such cases, we recommend consulting with ProMinent head office, Sydney.

NOTE

Not suitable for liquids, which have minimal acoustic conductivity, e.g. sodium hydroxide (NaOH) with a concentration of greater than around 20%

We recommend first testing the measurability with emulsions and suspensions. Not recommended for pumps with SER type liquid end.



3.23 Accessories DULCOLEVEL

3.23.1 DULCOLEVEL Radar Level Sensor

With the new radar level sensor DULCOLEVEL, your chemical inventory management is child's play.

DULCOLEVEL makes it easier for you to manage your chemical stock levels. ProMinent's measuring range covers tank volumes of between 30 and 1500 litres (IBCs) or any tanks with a maximum height of 15 metres, with a precision of ± 5 mm.

The sensor can be seamlessly integrated into your existing metering system. This is particularly easy with a tank and metering pump from ProMinent. With the mobile app, you can see the liquid level and all the data you need instantly even when working remotely.

The Bluetooth connection means you don't need any additional cables, making retrofitting in existing applications simple and inexpensive.

DULCOLEVEL also improves your levels of health and safety at work. The measurements and sensor configuration are contactless, there is no contact with harmful media.

- Bluetooth pairing and data transfer from sensor to pump
- Configuration and commissioning via mobile app
- Measuring tanks with volumes between 30 l-1500
- Easy clamp on system for tanks - compact radar sensor
- Connectivity to all common PLC standards (Profibus, Profinet, Modbus, CAN open) in combination with the pump
- Integration into IIoT-based fluid management DULCONNEX
- No (level) tank configuration needed in combination with ProMinent tanks
- Over the air update of sensor



3.23 Accessories DULCOLEVEL

3.23.2 Technical Data DULCOLEVEL Radar Level Sensor

Your Benefits

- Seamless integration into ProMinent systems and ProMinent pumps (at present gamma/ X - in the future gamma/ XL, DULCOFLEX DFXa, sigma/ X)
- The Bluetooth connection makes simple retrofitting in existing systems possible
- Pump and tank values can be accessed from anywhere in the world via a secure IIOT platform (DULCONNEX)
- Meet all compliance standards by means of 24/7 reports on media consumed (DULCONNEX)

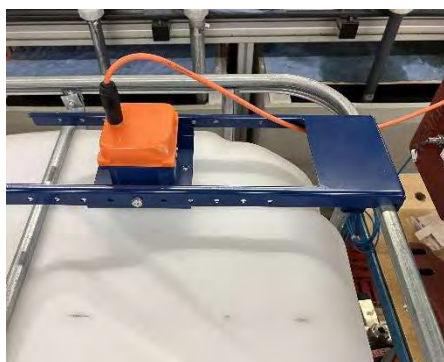
Technical Details

- Liquid level can be output using 0/4...20 mA standard signal
- Bluetooth connection and data transmission from sensor to pump
- Connectivity with all common PLC standards (PROFIBUS®, Profinet, Modbus, CAN open) in combination with the pump
- Configuration and commissioning using mobile 'DULCONNEX Blue' app, can be downloaded for free from the App Store (iOS) or Play Store (Android)
- Measurement of any tanks up to a height of 15 m, with a precision of ± 5 mm
- Simple clamp-on system for tanks
- Integration in IIoT-based DULCONNEX fluid management
- No (liquid level) tank configuration needed in combination with ProMinent tanks of between 30 and 1500 l (IBCs)

	Part No.
DULCOLEVEL with 4-wire cable and output signal 4...20mA (for connection to a PLC)	1124074
DULCOLEVEL with EU power supply (only works in combination with a pump with Bluetooth interface)	1124075

Accessories

	Part No.
Mounting plate for DULCOLEVEL	1119041
Mounting bracket for DULCOLEVEL - suits IBC chemical tanks	1130661



Mounting Bracket - Part No. 1130661



3.24 Accessories Pulsation Dampeners

3.24.1 Pulsation Dampeners

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

The cushion of gas located between the hose and the housing is compressed by a thrust stroke from the metering pump, allowing a quantity of feed chemical to pass along the discharge line. On the next suction stroke, the excess pressure created by the cushion of gas forces the chemicals through the pipe. The gas is now released from pressure, and returns to its original volume.

Important notice: The pulsation dampener must be used in conjunction with a relief valve.

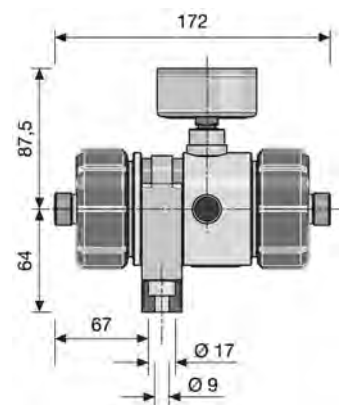
PVC In Line Dampener

Operating conditions:

- 5 - 20 °C - max. operating pressure 10 bar
- 40 °C - max. operating pressure 6 bar
- 60 °C - max. operating pressure 2 bar

	Volume l	Dampener diaphragm	Seal material	Connection	Part No.
PCE	0.05	CSM*	EPDM	M 20 x 1.5	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



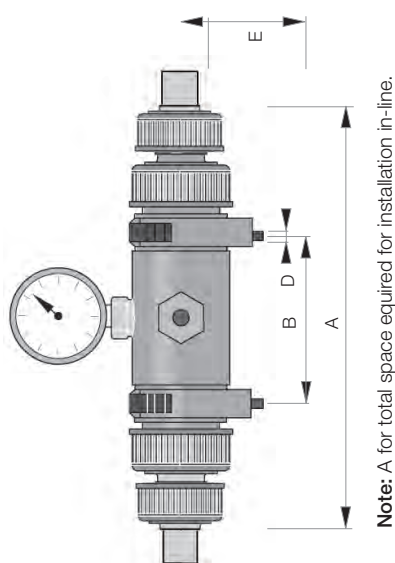
3.24 Accessories Pulsation Dampeners

3.24.1 Pulsation Dampeners

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Important notice: The pulsation dampener must be used in conjunction with a relief valve.



Note: A for total space required for installation in-line.

PVC IN LINE DAMPENER

Removable hose, EPDM/Viton seals.

Type	Volume ml	Hose/Seal Material	Connector	Part No.
PDS	2500	Hypalon/E	Solvent Weld 40 Male	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.



3.24 Accessories Pulsation Dampeners

3.24.1 Pulsation Dampeners

Accumulators

Pulsation dampers with separating bubble for providing separation between the gas cushion and metered chemical are used for low-pulsation metering as well as for reducing the flow resistance in long metering lines and in connection with viscous media. The response pressure of the gas cushion should be approx. 60-80% of the operating pressure.

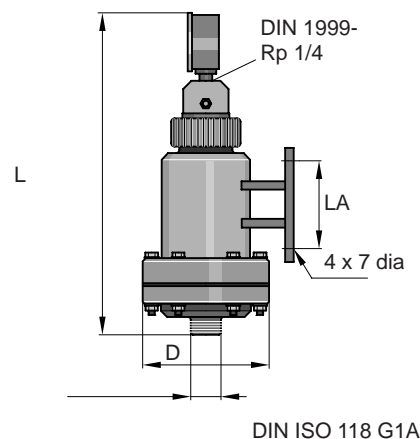
Important: When using a pulsation damper, the pressure relief valve should be fitted with an adjustable back pressure valve.

PVC ACCUMULATORS

Accumulator removable, FKM seals.

Volume Litres	Diaphragm material	Connection	L mm	ØD 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.



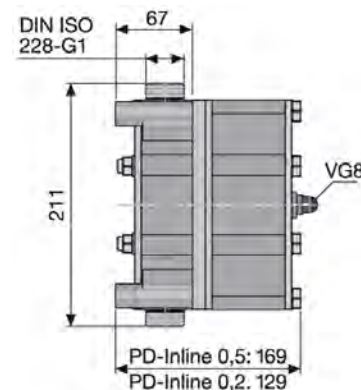
In-line damper PVDF

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 fitting (e.g. car tyre inflation fitting) via the VG8 gas filler connection.

Caution: Nitrogen should be used as the filler gas in connection with combustible liquids. On no account fill with oxygen!

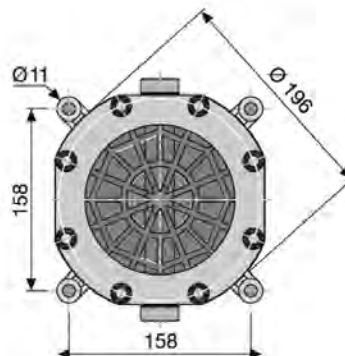
Design: DGRL97/23/EC, other acceptance procedures/countries available on request.

Fluid group: 1 and 2

Certificates: Manufacturer's test certificate M DIN55350-18

Manufacturer: HYDAC Technology

NOTE: HYDAC Units are supplied pre-filled in min 2 Bar, to maintain bladder shape.



CONNECTION/ADAPTER KITS - CONNECTOR SET PAIR [INLET & OUTLET]

Consisting of PTFE-formed composite seal, insert/adaptor and union nut.

Connection PD In-line	Connection Piping	Materials	Part No.
G1 - DN15	3/4 BSPM	PVDF	P1029426

Note: Other PVDF Adaptors available from PMHD.
PVC adaptors & union nuts, corresponding gaskets available locally.



4.0 Chemical Tanks and Bunds

4.0.1 Chemical Tanks

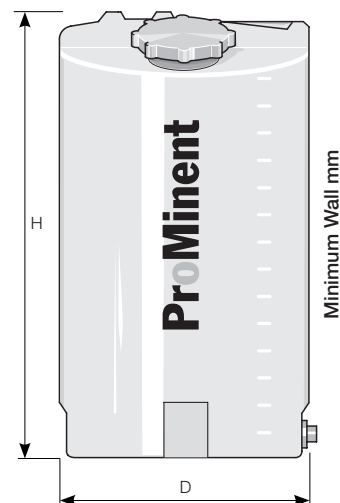
Made of transparent UV-stabilised polyethylene, with scale for litre and US gallons, lockable screw cap, moulded-in threaded sleeves (except 35l) to bolt down a ProMinent electronic metering pump, mounting flange with moulded-in stud bolts for manual or electric stirrer. All tanks of especially rugged design with ProMinent® logo.

All tanks are fitted with 3/4" BSPF plugged outlet

useful volume (litre)	Ø 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

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.

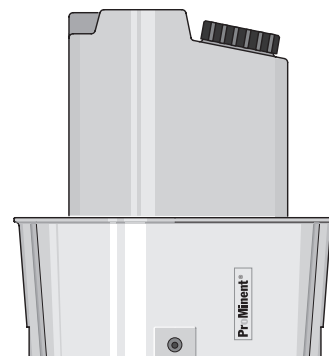
NOTE: FOR LARGER TANKS SEE GREEN PAGES PRICE LIST



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



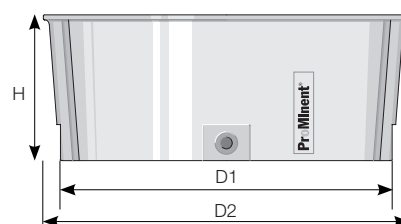
4.0.2 Stackable Bunds For Dosing Tanks PE

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.

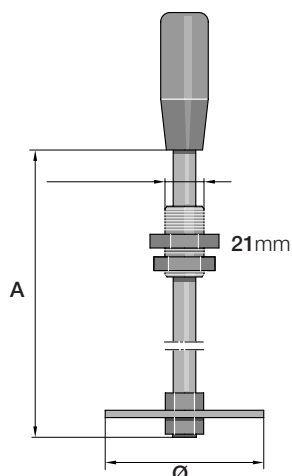
PE COLOURLESS/TRANSPARENT STACKABLE BUNDS

Usable capacity in litres	Material	D2 Ø mm	D1 Ø 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 Dosing Tanks

4.1.1 Accessories for Dosing Tanks

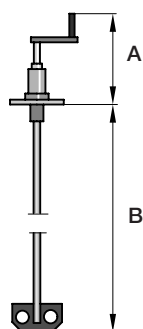


PP HAND MIXER

Completely assembled

	A	Ø	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 a 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

The water analysis workhorse

The controller DULCOMETER D1Cb/D1Cc can be used for control tasks in potable water treatment, wastewater treatment and many other areas. Safe, convenient and clear, thanks to the large illuminated graphic display, plain text operating menu and pH sensor monitoring.

The D1Cb/D1Cc controller is a 1-channel P/PID controller for the measured variables pH, ORP, chlorine, chlorine dioxide, chlorite, ozone, bromine, peracetic acid, hydrogen peroxide, fluoride, dissolved oxygen and conductivity via mA. The sensors for pH and ORP can be directly connected via coaxial cable or using the 4-20 mA sensor input. The controller can bidirectionally control the measured variables, monitor limit values and transmit the measured value via an mA output, e.g. to a PLC Programmable Logic Controller. The mA output can optionally also be configured as an interference variable output. The controller has two pulse frequency outputs to control two metering pumps (raise and lower). Two output relays can optionally be used as limit value relays or to control motor-driven pumps or solenoid valves. An alarm relay signals the occurrence of a fault. A digital input is used to switch off the control or to process a sample water limit contact by remote control. The impact of temperature on the measurements can be provided by temperature measurement or by manual input.



Your Benefits

- Flexibility through free selection of variables from all measured variables
- Safety through sensor monitoring of pH for glass breakage and line breakage
- Flexibly upgradable, thanks to subsequent activation option of functions by means of an activation code
- Various installation options: wall-mounted or installation in a control cabinet

Technical Details

- Measured variables: pH, ORP, chlorine, chlorine dioxide, chlorite, bromine, conductivity, peracetic acid, hydrogen peroxide, ozone, dissolved oxygen and fluoride
- Method of installation, degree of protection: D1Cb wall mounting IP 65, D1Cc control panel mounting IP 54, 1/4 DIN
- Measurement: 1 measuring channel, temperature compensation for pH
- Control: PID controller, bidirectional controller (e.g. with pH acid and alkali)
- Control inputs: 1 digital control input

Field of Application

- Measurement and control of water parameters in industrial and process water treatment plants
- Wastewater neutralisation
- Measurement of the pH value and the disinfection parameters in potable water treatment and in the food and beverage industry
- Measurement and control of the hygiene parameters in swimming pools

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 H ₂ O ₂
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 Controller

5.2.1 diaLog DACb Multi-parameter Controller

Have you been looking for a simple controller for water analysis?

One that is easy to operate and with which you can freely select between all common measured variables per channel? There is one: our all-rounder DULCOMETER diaLog DACb, it is Ethernet-/LAN-capable and can be ideally integrated into existing networks.

The DULCOMETER diaLog DACb is our compact all-rounder for water analysis. With its specially designed functionalities, e.g. processing or interference variables and switch-over of control parameters, it closes the control circuit between DULCOTEST® sensors and ProMinent metering pumps. The two measuring and control channels of the DULCOMETER diaLog DACb can be individually configured to meet customer requirements.

Everything that you need for the reliable treatment of industrial and process water, potable water or even swimming pool water.



Benefits

- Simple operation thanks to a clearly arranged display
- More for your money: two measuring and control channels now in the basic configuration
- Versatile use: all common measured variables can be set per channel and subsequently altered
- Control from everywhere: LAN-capable and convenient remote access via integrated web server
- Maximum flexibility: individually adjustable to different operating statuses, e.g. Day-Night mode
- Excellent process safety and reliability: avoidance of incorrect metering by time-based monitoring of control variables
- Minimal time and effort: effortless duplication of device settings
- Precise monitoring and documentation: Event, calibration and measured data logger with easy-to-access SD memory card
- Optimum communication: Integration into customer networks by means of different field bus systems (PROFIBUS® DP and Modbus RTU etc.)

Field of application

- Measurement and control of water parameters in industrial and process water treatment plants
- Monitoring of the water parameters potable water
- Measurement of pH value and disinfection parameters in the food and beverage industry
- Measurement and control of the hygiene parameters in swimming pools
- Monitoring of the chlorine dioxide concentration in systems for legionella control and prevention, for example in schools, hotels or hospitals
- Measurement of disinfection parameters of irrigation and sprinkler irrigation water in market gardens



5.2 DULCOMETER diaLog DACb 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														
EN														

Extended Functions

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

*Note: NOT for 24VDC Version

DACbW006VA000X010010010EN

RC Protection board [spare part] P/N 733880

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

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

RC Protection board [spare part] P/N 733880



5.3 DULCONNEX

5.3.1 DULCONNEX from ProMinent

The complete solution for the era of digitalisation and networking.

As more products are digitalised and networked the scope for monitoring, controlling and optimising's processes is taking on new forms. Our solution for digital fluid management is able to record, make available and efficiently create a wide range of information to help you optimise control processes. With DULCONNEX ProMinent is producing data from sensors, pumps and systems offering high value-added optimized information for systems operators.

READY FOR DIGITAL NETWORKING AND CONTROL

Prominent DULCONNEX products have all the characteristics needed for digital fluid management and smart control.

Network – capable: the DULCONNEX products communicate using WiFi, Ethernet or CANopen, PROFIBUS and PROFINET via the DULCONNEX gateway to our DULCONNEX web based fluid management platform.

User friendly: DULCONNEX products have clear intuitive install, start-up and operational setup for dashboards, reporting, alarms and accessing data.

Adaptive: DULCONNEX products adapt automatically to constantly changing operating conditions.

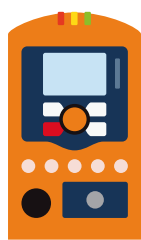
Robust: The construction of DULCONNEX products ensures a long service life and high availability.

STANDARD SUPPORTED PRODUCTS

Either connectable via gateway or product integrated interface



gamma/ X



gamma/ XL



Sigma X



Bello Zon
CDLb



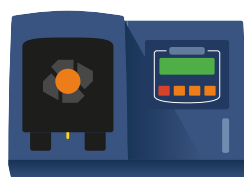
DULCOLEVEL



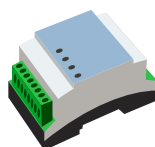
DULCOFLEX
Control DFXa



DULCOFLEX
Control DFYa



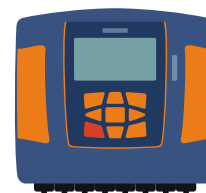
DULCOFLEX
DF4a



Analog & Digital
I/Os



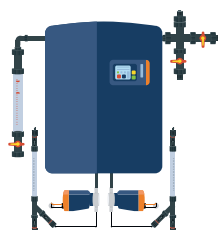
AEGIS II



DULCOMETER
diaLog DACb



DULCODES
LP/MP



Dulcodes LP/MP



diaLog X



AEGIS S



DULCOZERO FCL



5.3 DULCONNEX

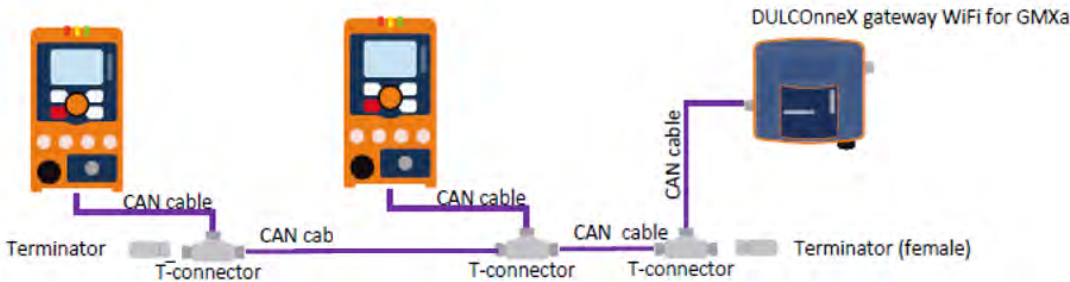
5.3.2 Identity Code & Pricing for DULCONNEX

Gateway Type	
A 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	
B DULCONNEX subscription	No of DX Subscription, 12 months *.
Module	
C CIO50	No of CIO50 modules (I/O 2in.)CAN termination resistor switched on module, include M12 CAN flange wire to CIO- module, CAN termination resistor and 1.0M of CAN cable . 24VDC powered by the same supply used with the Gateway.
D 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.
E 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.
F 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	
G 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	
H No of, Factory setup onto DULCONNEX system pre shipment	
Level Sensor	
I DULCOLEVEL with 4 wire cable and output signal 4-20 Ma (Part No. 112074)	
Temperature and Transducer	
J "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]

2 x gamma/ X pumps would be; 1 x DX Gateway, 1, x subscription, 1 x Factory Set-up

ORDER CODE WOULD BE; DX-1-1-0-0-0-0-0-1-0-0



NOTES

- Item "A" DACb Requires CANBus
- Item "C" DULCONNEX subscription must be ordered.
- Item "G" is required when quoting DULCONNEX for a UVCb.
- Item "I" CIO modules need to be ordered separately.
- Item "K" Sensor needs to be in the sample flow, requires DLG flow.



5.3 DULCONNEX

5.3.3 Pricing for DULCONNEX Packages

DULCONNEX Package for DACb

DX ADDER - DULCONNEX Add on Kit for DACb	PA51003580
DX ADDER - DULCONNEX Add on kit for DACb + LTE Dongle	PA51003580-M

Adds DULCONNEX to DACb packages. Includes CANBUS & DX Gateway & first 12 months subscription.

Annual Subscriptions

12 month subscription [END USER]	zzDulcoSub
12 month subscription [CONTRACTOR]	zzDulcoSubCont
Annual IoT LTE Sim Card Subscription	zzDulcoSim



DACb with CANBUS



DULCONNEX
Gateway WiFi



5.4 DULCOLEVEL

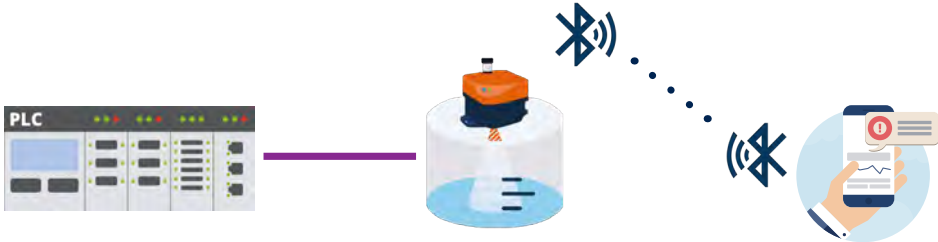
5.4.1 Pricing for DULCOLEVEL Packages

OPTION 1

4-20 mA output

1124074

- Includes:
- 1 x DULCOLEVEL
 - 1 x Universal Cable



OPTION 2

FieldBus Pump

1124075

- Includes:
- 1 x DULCOLEVEL
 - 1 x Power Pack

Note: Pump must have Bluetooth and FieldBus module.



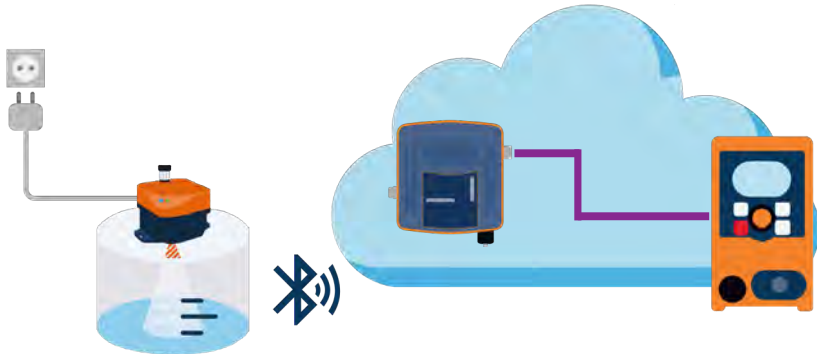
OPTION 3

DULCONNEX Cloud with Pump

1124075

- Includes:
- 1 x DULCOLEVEL
 - 1 x Power Pack

Note: Pump must have Bluetooth and CANbus. DULCONNEX Subscription is required for each pump. DX Gateway 1098756 required.



OPTION 4

DULCONNEX Cloud - no pump

1124075 TBA Contact Sydney Office

- Includes:
- 1 x DULCOLEVEL
 - 1 x Power Pack

Note:

IPC Gateway P/N 1136479 required.

DULCONNEX Subscription per DULCOLEVEL

Max. x 4 DULCOLEVELS per IPC Gateway



5.4 DULCONNEX Gateway

5.4.1 Pricing for DULCONNEX Packages

	Part No.
DULCONNEX Gateway GMX,GXL, DFX, SXCB, DACb	1098756
Note: Requires 1133311 CAN Connection Kit & 1133312 Retrofit kit	
DULCONNEX Gateway UVCb, CDLb	1098757
Note: Non-stock item. Contact Sydney Office.	



5.5 DULCOMETER Fluoride Monitoring

5.5.1 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.

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 600 mm PE panel and fully wired.

Power Supply 90-253 VAC

	Part No.
Fluoride Monitor mounted on panel with REFR	PA56003465

Note: c/w air-break, REFR reference electrode, 25m 8x5 sample line, and 1 x 1/2" BSP to 8x5 PVC adaptor.

24V DC Version	PA56003478
----------------	------------

Fluoride Monitor mounted on panel with PHEN	PA56003336
---	------------

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



5.5 DULCOMETER Fluoride Monitoring

5.5.2 Measured Variable, Fluoride in Drinking Water Spare Parts

Double Validation Unit

Using the same sensors as for the single measurement stations, the dual measurement station can be used to give an alarm output if the 2 measured variables differ more than a preset amount.

This means that the unit can be used where there is a requirement for double validation. A 0/4...20 mA output is available for each channel of the 2 channel diaLog instrument.

A single magnetic stirrer is provided as standard as normally one channel is calibrated at a time. A second magnetic stirrer is available as an option.

Both options with the REFR or the PHEN reference electrodes with flowing junctions are available. All come pre-mounted on a 750mm wide x 600mm high panel, fully wired.

Power Supply 90-253 VAC

	Part No.
Dual Channel Fluoride Monitor with REFR	PA56003466
Note: c/w air-break, REFR reference electrodes, 25m 8x5 sample line, and 1 x 1/2" BSP to 8x5 PVC adaptor.	

	Part No.
Dual Channel Fluoride Monitor with PHEN	PA56003338
Note: c/w air-break, PHEN flowing junction reference electrodes, KCl reservoir, 1000ml KCl, 25m 8x5 sample line and 1 x 1/2" BSP to 8x5 PVC adaptor.	

Note: this unit is NOT our STANDARD SUPPLY.
IF REQUIRED CONTACT SYDNEY OFFICE.

Replacement Parts	Part No.
FLEP 010 SE fluoride sensor	1028279
Transmitter FPV1 4-20mA	1028280
REFR-SE reference electrode	1083790
PHEN 112 SE 3D reference electrode	150078
REFP-SE reference electrode	1018458
Pt 100 SE temperature sensor	305063
Bubble Assist	PA27023421
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



5.6 DULCOMARIN 3

5.6.1 Measuring and Control System

The measuring and control system **DULCOMARIN 3** is your digital link to the technology of the future.

It controls the entire range of swimming pools – from adventure pools to private pools.

The system is operated using the large 7" touch display.

The measuring and control system DULCOMARIN 3 is a reliable system for the treatment of swimming pool water.

The intuitive menu guidance is also supported by videos and shows step-by-step calibration of the sensors.

It is operated using the system's touch display. You can also operate the DULCOMARIN 3 remotely online.

This connects you to your DULCOMARIN 3 using your smartphone or any other Internet-compatible end device (VNC app needed). You can therefore also control other features, lighting, circulating pumps and filter backwash. The system can be extended at any time to meet future requirements.

The circulation capacity of the pumps adapts to the water quality in Eco! operating mode. Chemicals are metered precisely depending on demand based on the measured values, reducing ongoing energy costs and saving chemicals.

The DULCOMARIN 3 Global Unit is the central element of the measuring and control system. All information relating to the individual pools and associated control circuits is collated here. Use the DULCOMARIN 3 Compact version for one filtration circuit, and the Global Unit, which can display up to 16 Local Units, for multi-pool systems with up to 16 filtration circuits. Networking is provided by the LAN-based cNet.

The DULCOMARIN 3 can be connected as standard via Modbus RTU and corresponding gateways to a PLC or building bus system.



Your Benefits

- Energy- and cost-efficient control of your swimming pool
- The DULCOMARIN 3 can be accessed from any Internet-compatible device (VNC app needed)
- Simple calibration of the sensors with video support
- Status messages and alarms issued by e-mail
- View and assess the time-based curve of the measured values of all pools on the integrated screen plotter
- Simple, unrestricted LAN connection – like in your home network
- Scope for upgrading at a later date by means of the ProMinent internal cNet bus system
- Intelligent chlorine sensors: save the sensor data and are always in the optimum measuring range thanks to auto-ranging
- Intelligent metering pumps: provide information on operating parameters, such as chemical level statuses and pump capacity, within the range of 0.7 l/h to 1,000 l/h
- Connection to a PLC or building control system via Modbus RTU and gateways with other fieldbus systems.
- View historical measured data directly on the controller: thanks to the integral screen plotter with data logger via USB

Field of Application

- Regulation and control of the entire swimming pool
- Water parks
- Public swimming pools
- High-end private pool



5.6 DULCOMARIN 3

5.6.2 Identity Code & Pricing for DULCOMARIN 3

DCPa

Regional Design														
EU	Europe (Standard)													
Type of mounting														
W	Wall mounting													
Version														
PM	ProMinent													
Function														
G	Single/Multipool, Global Unit, cNet, there needs to be one global unit in a system													
H	Multipool, Local Unit, cNet, there can be up to 16 local units													
R	Replacement central unit for DULCOMARIN II, along with: M, A, P, N, R, F, I modules													
Application														
A	7" touch operation													
Supply voltage														
6	100... 230 V, 50-60 Hz													
Communication														
X	LAN with VNC server (please order LAN cable separately)													
W	WLAN with VNC server													
Module slot 1														
0	Without Module													
1	Module 2 x mV/temperature (inputs pH/ORP)													
Module slot 2														
0	Without Module													
4	Module 2 x mA outputs (measured value/control)													
Module slot 3														
0	Without Module													
4	Module 2 x mA outputs (measured value/control)													
Expansion level 4 / module slot 4														
0	Without Module													
4	Module 2 x mA outputs (measured value/control)													
Software packages														
01	P1 standard with VNC, email, data logger, etc.													
Smart Control														
XX	None													
Operating Instructions														
EN	English													
Approvals														
01	CE													

Note: To add conductivity measurement, please discuss with our Technical Department.

Note: For complete Backboard Packages, please contact our Aquatics Department.

DCPaEUWPMGAX6X0000001XXEN01

Note: To add conductivity measurement, please discuss with our Technical Department.
Note: For complete Backboard Packages, please contact our Aquatics Department.

DCPa EU W PM G A 6 X 0 0 0 0 01 XX EN 01



5.7 DULCOMETER Transducers DMT

5.7.1 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); input resistance >5 x 10 ¹¹ Ω 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



5.7 DULCOMETER Transducers DMT

5.7.2 Identity Code Ordering System For DMT

DMT DULCOMETER Transducers

A Version

Installation:

- S** Control panel mounted¹
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 DC² nominal

Communication interface:

- 0** None
4 Profibus® DP³ (Assembly type W only)

Measured variable 1:

- P** pH
R Redox
T Temperature
C Chlorine
L Conductivity

Measured variable 2 (Correction variable)

- 0** None (for measured variable T)
1 Temperature Pt 1000/Pt 100

Enclosure rating:

- 0** Standard

Language:

- E** English

The final 4 digits in the identity code give the software presettings, e.g. cell constant at conductivity.
 0 = standard settings
 Presetting options available on request.

Note:

- ¹) The panel mounted version does not include the rear housing.
- ²) Choose the 24 V DC electrical connection with the Profibus DP
- ³) Wall-mounted version only

Note:

Power Supply if required 24Volt DC up to 1 amp

MP3494

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



5.8 DULCOMETER Test Instruments

5.8.1 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 220 mV, 50 ml	506244
Buffer solution pH 4.0 - red, 50 ml	506251
Buffer solution pH 7.0 - green, 50 ml	506253
Buffer solution pH 10.0 - blue, 50 ml	506255
Buffer solution 475 m V, 500 ml	A52003630



5.8 DULCOMETER Test Instruments

5.8.2 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.

Part No.

PHEKT 013 F

1036537

Buffer solution pH 4.0 - red, 50 ml

506251

Buffer pH 7, 50 ml

506253

See page 6.2 for pH probe data

NOT A STOCK ITEM



5.9 DULCOMETER Photometer DT1

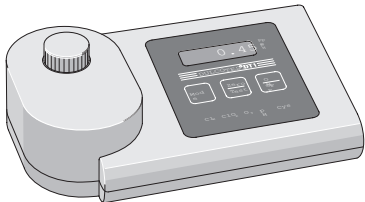
5.9.1 DULCOMETER Photometer DT 1

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	1039315
<i>Included as standard with DPD1 Buffer tablets, DPD1 Buffer reagent and DPD 3 tablets.</i>	
Photometer DT3B kit with carrying case	1039317
<i>Included as standard with DT3 are accessories, cells and reagents for hydrogen peroxide.</i>	
Photometer DT4B kit with carrying case	1022695
<i>Included as standard with DT1 are accessories, cells and reagents for chlorine and chlorine dioxide detection.</i>	

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



5.10 DULCOMETER Technology Ancillary Equipment

5.10.1 DULCOMETER 4...20 mA Transmitters (2-Wire Technology)

Typical Applications

Measurement signal transfer over large distances, or to transfer signals subject to disturbance (e.g. pH, redox) in conjunction with D1C, D2C & DULCOMARIN measurement and control systems, or for direct connection to PC/PLC.

Advantages

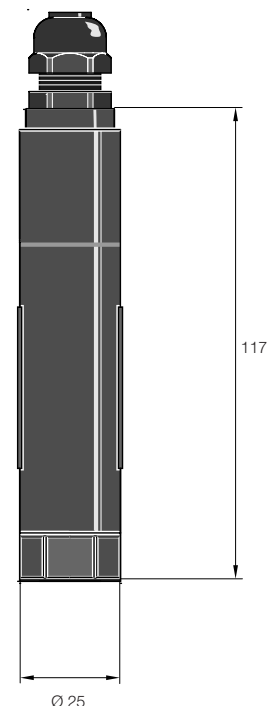
- Safer signal transfer, even across large distances
- Interference free 4-20 mA signal
- Simple installation directly onto sensor

Technical Data pH transmitter 4...20 mA, type pHV1

Measurement range:	pH 0...14
Accuracy:	better than pH 0.1 (typical \pm pH 0.07)
Socket:	SN6
Input resistance:	$> 5 \times 10^{11} \Omega$
Signal output:	4...20 mA ³ -500...+500 mV ³ 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 Ø

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:	$> 5 \times 10^{11} \Omega$
Signal output:	4...20 mA ³ 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:	$\sim 0 \Omega$
Signal output:	4...20 mA ³ 0...+100 °C not electrically isolated
Power supply:	18...24 V DC

Part No.

809128



5.10 DULCOMETER Technology Ancillary Equipment

5.10.2 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

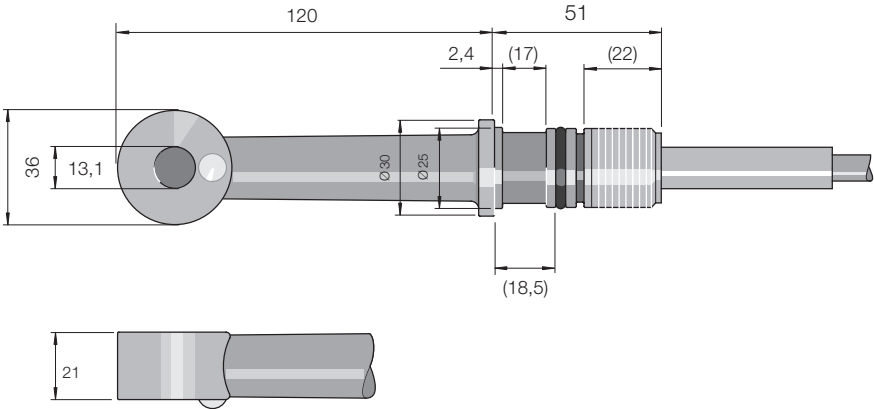
Note: LF 654X can be used for explosive and non-explosive applications.



Part No.

1024416

Note: See also Section 6 Sensors



5.10 DULCOMETER Technology Ancillary Equipment

5.10.3 Conductivity Sensor

Conductivity sensor

4-ELECTRODE SENSOR LF 204

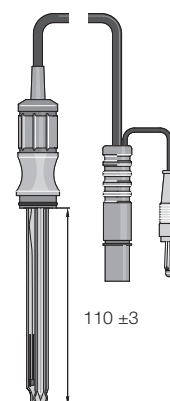
Number of electrodes:	4
Electrode shaft material:	Black Epoxy
Electrode material:	Graphite
Shaft length:	120 mm
Shaft diameter:	15.3 mm
Cable length:	1.5 m
Temperature probe:	NTC (30 k Ω) -5...+100 °C
Immersion depth:	min. 36 mm
	Max. total length inc. cable
Pressure resistance:	2 bar
Temperature range:	0...90 °C
Cell constant:	0.475 cm ⁻¹ \pm 1.5 %
Measurement range:	1 μ S/cm...500 mS/cm



Conductivity sensor LF 204

Part No.
1008723

Note: See also Green Pages Price List



5.11 Turbidity Measuring Points DULCOTEST

5.11.1 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

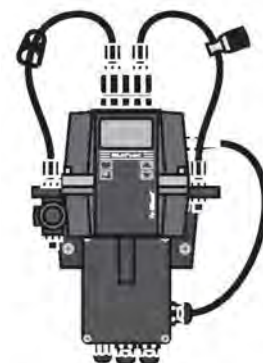
- Potable water treatment, for all treatment steps: from raw water and filter monitoring to measuring fine turbidity in the potable water that is to be discharged
- Monitoring of turbidity in slightly polluted industrial water, waste water and water requiring treatment in the food and beverage industry up to a turbidity value of 1,000 NTU



5.11 Turbidity Measuring Points DULCOTEST

5.11.1 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 - Dessicant	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

6.0.1 DULCOTEST PT100 Temperature Sensor

All probes are combination probes that have been proven in both industrial and laboratory applications.

Before being dispatched all probes are tested twice to ensure they are functioning correctly; the first time immediately after being manufactured,

the second time about a fortnight afterwards in order to eliminate glass-specific manufacturing risks.

All pH combination probes have their voltage zero at pH 7 ± 0.5.

In the reference electrode system of the ProMinent pH and Redox combination probes an Ag/AgCl conductance is generally used which is not only less harmful to the environment than the calomel type (mercurous chloride) but can also be used in a wider temperature application range.

The shaft diameter of all probes is 12 mm. All dimensions specified are approximate since pH and Redox probes are 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

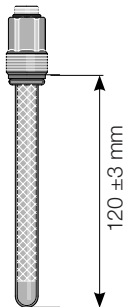
For all other pH & Redox Probes and associated equipment see the appropriate section in the 'Green Page' Price List

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

6.1.1 DULCOTEST PHER, PHEN and pH Combination Probes

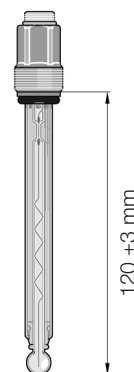
PHER 112 SE

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

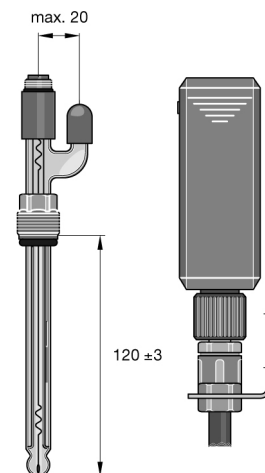
PHEN 112 SE 3D

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

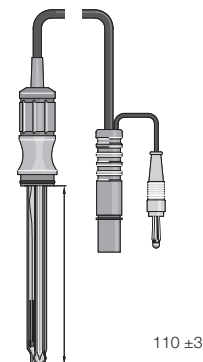
Note: See Green Pages Price List for POOL Probes and industrial probes.

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 °C
Max. pressure:	atmospheric pressure
Min. conductivity:	>150 µS/cm
Diaphragm:	fibreglass
Length:	110 mm ± 3 mm
Device plug:	DIN plug/banana plug



Part No.

1036537

PHEKT 013 F ex HD works



6.2 DULCOTEST pH Probes

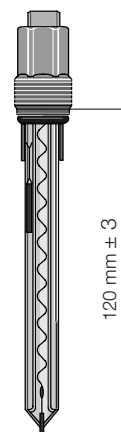
6.2.1 DULCOTEST CLB 2-μA Chlorine Senso/ RHEP-Au-SE Gold Tipped Sensor

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

RHEP-Au-SE

GOLD PIN ELECTRODE

Temperature:	0...80 °C
Max. pressure:	6 bar
Min. conductivity:	>150 μS/cm
Diaphragm:	ceramic
Installation length:	120 mm ± 3 mm Mounting hole minimum 14.5 dia. mm
Connection:	PG 13.3 SN6
Typical applications:	Cyanide detoxification, ozone monitoring, saltwater pools or for use with saltwater generator. Do not use with media containing chlorine.



Part No.

RHEP-Au-SE ex HD works

1003875

Sensor for Chlorine, **ONLY** for use with **Compact Controller**

CLB 2-μA

Measured variable:	free chlorine (hypochlorous acid HOCl)
Measuring range:	0.05 - 5.0 mg/l: linear, can be used for shock chlorination up to 10.0 mg/l
Reference method:	DPD1
pH range:	5.0 ... 9.0
Temperature:	5 ... 45 °C
Max. pressure:	3.0 bar
Intake flow:	30...60 l/h (in DGMA), constant flow needed as flow-dependent signal
Power supply:	16...24 V DC (2-wire)
Connection:	PG 13.3 SN6
Output signal:	Non-amplified primary current signal, not temperature-compensated, uncalibrated, not electrically isolated
Temperature compensation:	Pt 1000, integrated, calculation in the compact controller
Typical applications:	Swimming pool, drinking water, can also be used with membrane-free chlorine production electrolysis processes, even with varying media temperatures
Measurement and control equipment:	Compact controller
In-line probe fitting:	DGM, DLG III
Measuring principle:	amperometric, 3 electrodes, no diaphragm
Measuring range:	CLB 2-μA-5 ppm

Part No.

1038902



6.3 DULCOTEST Amperometric Sensors

6.3.1 Amperometric Sensors for Chlorine, Bromine, Chlorine Dioxide, Chlorite, Ozone, Disolved Oxygen and Peracetic Acid

For optimum functioning of chlorine, bromine, chlorine dioxide and ozone measuring cells please note the following guidelines:

- Use DULCOMETER measurement and control systems.
- Install only 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 sensors 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 DAC. DMT-type sensors are used for the DMT transducer. CAN-type sensors are used with the DULCOMARIN II and DULCOMARIN 3 swimming pool controllers.
Note:	CLE sensors: The CLE type sensors cannot be used in liquids containing isocyanuric acid/chlorine stabilisers.



6.3 DULCOTEST Amperometric Sensors

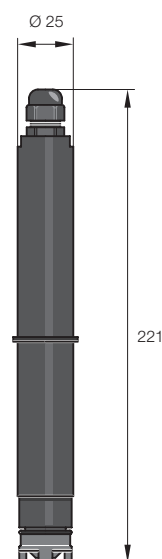
6.3.2 DULCOTEST Sensors for free chlorine - CLE 3-mA & CLE 3.1-mA

Measurement of free chlorine

CLE 3-mA

Measured variable:	Free chlorine (hypochlorous 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 ³ 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:	BAM, DLGA

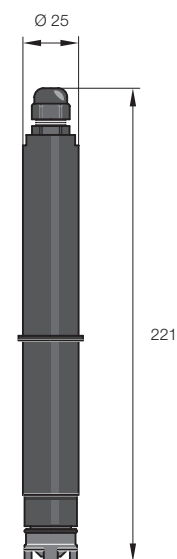
	Part No.
CLE 3-mA-0.5 ppm set, with 100 ml electrolyte *** not stocked***	792927
CLE 3-mA-2 ppm set, with 100 ml electrolyte *** not stocked***	792920
CLE 3-mA-5 ppm set, with 100 ml electrolyte	1033392
CLE 3-mA-10 ppm set, with 100 ml electrolyte	792919
CLE 3-mA-20 ppm set, with 100 ml electrolyte	1002964
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

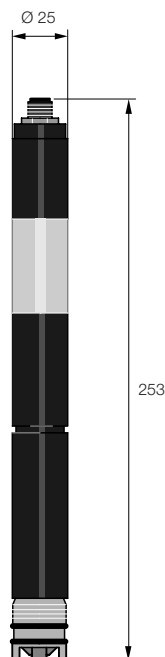
Measured variable:	Free chlorine (hypochlorous acid HOCl) where there is a high rate of combined chlorine.
	DPD 1
Measurement range:	0.02...2.00 mg/l (CLE 3.1-mA-2 ppm) 0.01...5.0 mg/l (CLE 3.1-mA-5 ppm) 0.1...10.0 mg/l (CLE 3.1-mA-10 ppm)
pH range:	5.5...8.0
Temperature range:	5...45 °C (temperature 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 ³ 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:	BAM, 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



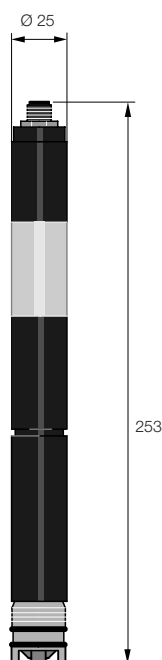
CLE 3-CAN

Measured variable:	Free chlorine (hypochlorous 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 interface (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:	BAM, 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 (hypochlorous acid HOCl) with large proportions of bound chlorine; to detect bound chlorine using DULCOMARIN II and Sensor for Total Chlorine type CTE 1-CAN
Reference Method:	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 interface (11-30V)
Output signal:	un-calibrated, temperature compensated, electrically isolated
Typical applications:	swimming pool, potable water with a high percentage of bound chlorine (surfactant free)
Measurement and control devices:	DULCOMARIN
In-line probe housing:	BAM, 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 3-mA

Measured variable:	free chlorine (hypochlorous 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:	BAM, DLG III to 60 °C, special fitting for 60 °C-70 °C (on request)
Measuring principle:	amperometric, 3 electrodes, no diaphragm

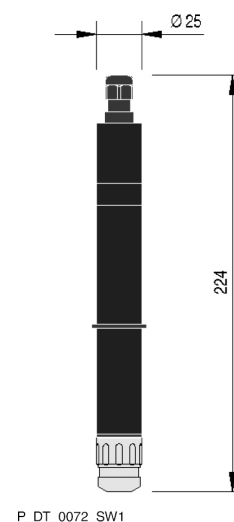
CLO 3-mA-2 ppm 0,02...2,0 mg/l

CLO 3-mA-10 ppm 0,10...10,0 mg/l

Part No.

1131658

1131662



P_DT_0072_SW1

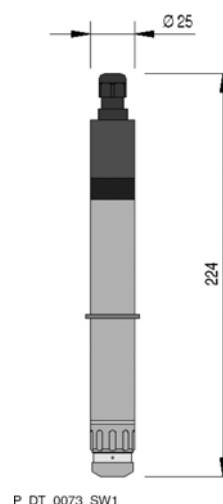
CLO 4-mA

Measured variable:	free chlorine (hypochlorous 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 (in 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:	BAM, DLG III to 60°C, special fitting for 60°C-70°C (on request)
Measuring principle:	amperometric, 3 electrodes, no diaphragm

CLO 4-mA-2 ppm 0,02...2,0 mg/l

Part No.

1131644



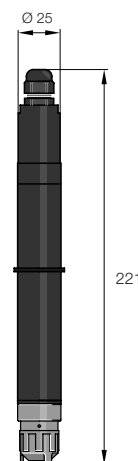
P_DT_0073_SW1

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:	BAM, DLG III
Measuring principle:	amperometric, 2 electrodes, diaphragm-covered

CLR 1-mA-200 ppm 20.00 ...200,0 mg/l

Part No.

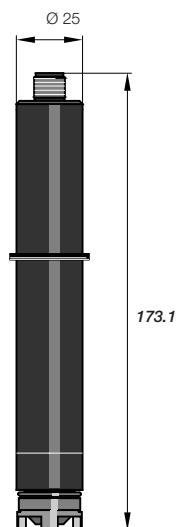


6.3 DULCOTEST Amperometric Sensors

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 BAM 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.

CLE 3-DMT-5 ppm set with 100 ml electrolyte

Part No.

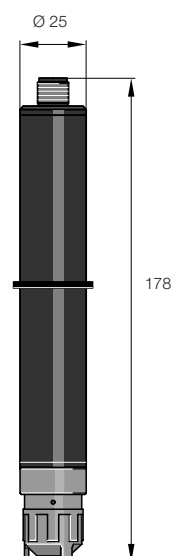
1005511

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 BAM 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.

CTE 1-DMT-10 ppm set with 50 ml electrolyte

Part No.

1007540



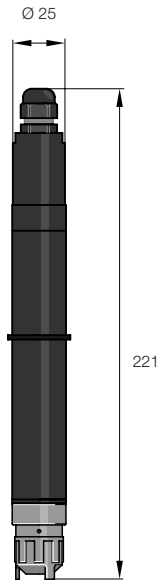
6.3 DULCOTEST Amperometric Sensors

6.3.6 DULCOTEST Sensors for Total Chlorine - CTE

Measured variable of total chlorine

CTE 1-mA

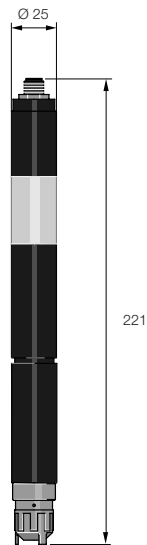
Measured variable:	total chlorine
Analysis:	DPD 4
Measurement range:	0.01...0.50 mg/l (CTE 1-mA-0.5 ppm) 0.02... 2.00 mg/l (CTE 1-mA-2 ppm) 0.05... 5.00 mg/l (CTE 1-mA-5 ppm) 0.1...10.0 mg/l (CTE 1-mA-10 ppm)
pH range:	5.5...9.5
Temperature range:	5...45 °C
Max. pressure:	3 bar
Flow:	30...60 l/h (in BAM or DLGA)
Power supply:	16...24 V DC (two-wire technology)
Output signal:	4...20 mA ³ 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:	BAM, DLGA



CTE 1-mA-0.5 ppm set, with 50 ml electrolyte	Part No. 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 BAM 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:	BAM, DLGA



CTE 1-mA-10 ppm	0.01 ... 10.0 mg/l	Part No. 1023427
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6.3

DULCOTEST Amperometric Sensors

6.3.7

DULCOTEST Sensors for Total Chlorine - CTE

Sensor for total available and free chlorine

CTE 2-mA

Measured variable:	Total Chlorine
Referenced method:	DPD4
pH range:	5.5...9.5
Temperature:	5...45 °C
Max. pressure:	3.0 bar
Flow:	DGM, DLG III: 30...60 l/h BAM: 5... 100 l/h (depending on design)
Supply voltage:	16...24 V DC (2-wire)
Output signal:	Uncalibrated, not temperature-compensated, not electrically isolated
Electrical connection:	with 2-wire signal cable via 4-pin connector on the sensor and open ends on the measuring device
Selectivity:	Non selective, cross-sensitive towards many oxidation agents
Disinfection process:	Chlorine gas, hypochlorite, electrolysis with diaphragm, monochloramine. Not suitable for inline electrolysis (tubular cell electrolysis, use type CTE3 for this)
Process integration:	Bypass: open sample water outlet
Sensor fitting:	BAM, DLG III
Controllers:	D1C, DAC, AEGIS II, diaLog X
Typical applications:	Drinking Water, industrial water, process water, waste water. In swimming pools in combination with sensors for free chlorine to determine the combined chlorine
Resistance to:	surfactants
Measuring principles, technology:	Ampermetric, 2 electrodes, diaphragm-covered

	Measuring Range	Part No.
CTE 2-mA-0.5 ppm	0.01...0.5 mg/l	1136433
CTE 2-mA-2 ppm	0.02...2.0 mg/l	1133340
CTE 2-mA-5 ppm	0.05...5.0 mg/l	1136464
CTE 2-mA-10 ppm	0.10...10.0 mg/l	1133338
CTE 2-mA-20 ppm	0.20...20.0 mg/l	1136465

CTE 2-CAN

Measured variable:	Total Chlorine
Referenced method:	DPD4
pH range:	5.5...9.5
Temperature:	5...45 °C
Max. pressure:	3.0 bar
Flow:	DGM, DLG III: 30...60 l/h BAM: 5... 100 l/h (depending on design)
Supply voltage:	via CAN interface (11-30 V DC)
Output signal:	Uncalibrated, temperature-compensated, electrically isolated
Electrical connection:	via CAN signalling cable with M12, 5-pin plug on the sensor and M12, 5-pin socket on the measuring device
Selectivity:	Non selective, cross-sensitive towards many oxidation agents
Disinfection process:	Chlorine gas, hypochlorite, electrolysis with diaphragm, monochloramine. Not suitable for inline electrolysis (tubular cell electrolysis, use type CTE3 for this)
Process integration:	Bypass: open sample water outlet
Sensor fitting:	BAM, DLG III
Controllers:	DULCOMARIN 3, DULCOMARIN II only with hardware after 06.02.2014 from software version 3035 or later
Typical applications:	Drinking Water, industrial water, process water, waste water. In swimming pools in combination with sensors for free chlorine to determine the combined chlorine
Resistance to:	surfactants
Measuring principles, technology:	Ampermetric, 2 electrodes, diaphragm-covered

CTE 2-CAN-10ppm	0.01... 10.0 mg/l	1136030
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6.3 DULCOTEST Amperometric Sensors

6.3.6 DULCOTEST Sensors for Total Chlorine - CTE

Sensor for total available and free chlorine

CTE 3-mA

Measured variable:	Total Chlorine
Referenced method:	DPD4
pH range:	5.5...9.5
Temperature:	5...45 °C
Max. pressure:	3.0 bar
Flow:	DGM, DLG III: 30...60 l/h BAM: 5... 100 l/h (depending on design)
Supply voltage:	16...24 V DC (2-wire)
Output signal:	Uncalibrated, not temperature-compensated, not electrically isolated
Electrical connection:	with 2-wire signal cable via 4-pin connector on the sensor and open ends on the measuring device
Selectivity:	Non selective, cross-sensitive towards many oxidation agents
Disinfection process:	Chlorine gas, hypochlorite, electrolysis with membrane, inline electrolysis (tubular cell electrolysis), monochloramine
Process integration:	Bypass: open sample water outlet
Sensor fitting:	BAM, DLG III
Controllers:	D1C, DAC, AEGIS II, diaLog X
Typical applications:	Determination of combined chlorine in the swimming pool in combination with sensors for free chlorine using the differential method. Also suitable for the disinfection process: inline electrolysis (tubular cell electrolysis)
Resistance to:	surfactants
Measuring principles, technology:	Ampermetric, 2 electrodes, diaphragm-covered

	Measuring Range	Part No.
CTE 3-mA-2 ppm	0.02...2.0 mg/l	1133132
CTE 3-mA-5 ppm	0.05...5.0 mg/l	1136466
CTE 3-mA-10 ppm	0.10...10.0 mg/l	1133337
CTE 3-mA-20 ppm	0.20...12.0 mg/l	1136467

Note: Sensor cable 4-pin for Amperometric Sensors 2 metre P/N 707702 supplied with sensor

CTE 3-CAN

Measured variable:	Total Chlorine
Referenced method:	DPD4
pH range:	5.5...9.5
Temperature:	5...45 °C
Max. pressure:	3.0 bar
Flow:	DGM, DLG III: 30...60 l/h BAM: 5... 100 l/h (depending on design)
Supply voltage:	via CAN interface (11-30 V DC)
Output signal:	Uncalibrated, temperature-compensated, electrically isolated
Electrical connection:	via CAN signalling cable with M12, 5-pin plug on the sensor and M12, 5-pin socket on the measuring device
Selectivity:	Non selective, cross-sensitive towards many oxidation agents
Disinfection process:	Chlorine gas, hypochlorite, electrolysis with membrane, inline electrolysis (tubular cell electrolysis), monochloramine
Process integration:	Bypass: open sample water outlet
Sensor fitting:	BAM, DLG III
Controllers:	DULCOMARIN 3, DULCOMARIN II only with hardware after 06.02.2014 from software version 3035 or later
Typical applications:	Determination of combined chlorine in the swimming pool in combination with sensors for free chlorine using the differential method. Also suitable for the disinfection process: inline electrolysis (tubular cell electrolysis)
Resistance to:	surfactants
Measuring principles, technology:	Ampermetric, 2 electrodes, diaphragm-covered

CTE 3-CAN-10ppm	0.01... 10.0 mg/l	1136031
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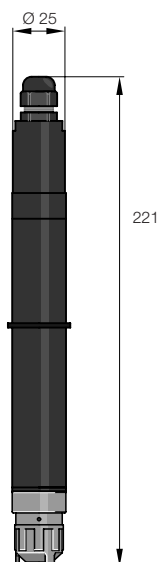


6.3 DULCOTEST Amperometric Sensors

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 BAM or DLGA)
Power supply:	16...24 V DC (two-wire technology)
Output signal:	4...20 mA ³ 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:	BAM, DLGA

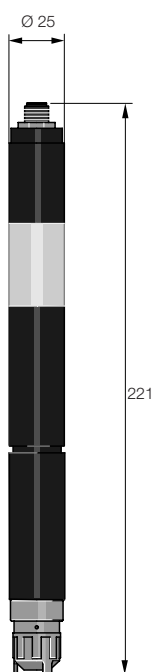
CGE 3-mA-2 ppm set, with 50 ml electrolyte

CGE 3-mA-10 ppm set, with 50 ml electrolyte

Part No.

1047959

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 BAM 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:	BAM, DLGA

CGE 3-CAN-10 ppm - with 50 ml electrolyte

0.01 ... 10.0 mg/l

Part No.

1083211



6.4 DULCOTEST Bromine Sensors

6.4.1 DULCOTEST Sensors for Bromine - BCR

The following bromating agents are used as disinfectants:

Organic Bromating Agent

- a) DBDMH (1,3-dibrom-5,5-dimethyl-hydantoin) e. g. sold as Albrom 100®
- b) BCDMH (1-bromine-3-chlorine-5,5-dimethyl-hydantoin) e.g. sold as Brom-Sticks®

These bromating agents are solid and are metered as saturated solutions via brominators.

Inorganic free bromine

Free bromine is produced via the so-called Acti-Brom process (Nalco) chlorine bleach + acid +sodium bromide.

For measuring DBDMH or free bromine as a bromating agent in the measurement range: 0.2 -10 ppm bromine the BRE 2-mA-10 ppm sensor is recommended along with DPD1-method calibration.

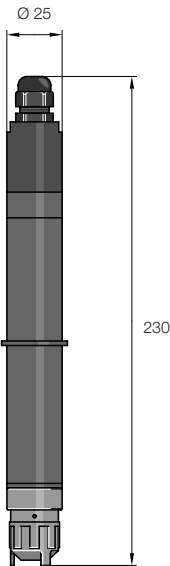
Alternatively, to measure BCDMH in the same measurement range, the BRE 1-mA-10 ppm sensor is recommended along with DPD4-method calibration.

Typical applications are in swimming pools, Jacuzzis and cooling systems. Particularly in cooling systems the quality of the sample water must be tested and, where applicable, compatibility with other chemicals employed (e.g. corrosion inhibitors). Dissolved copper(>0.1 mg/l) will interfere with the measurement.

Photometric DPD measurement is the recommended method for calibrating the bromine sensor (e.g. with DT 1), calculated and displayed as bromine. If bromine is determined as “chlorine” with DPD, note when selecting the measurement range that you need to lower the result by a factor of 2.25.

BCR 1-mA (Replaces earlier BRE1)

Measured variable:	Total available bromine from BCDMH (bromo-3-chloro-5,5-dimethylhydantoin) 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 BAM 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, wastewater, & water with higher pH values (stable pH)
Measurement and control device:	D1C, D2C, DAC
In-line probe housing:	BAM, DLGA



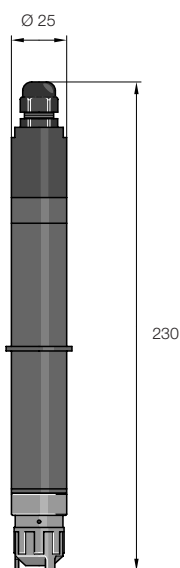
BCR 1-mA (replaces earlier BRE1)	Part No.
BCR 1-mA-0.5 ppm with 50 ml electrolyte	1041697
BCR 1-mA-2 ppm with 50 ml electrolyte	1040115
BCR 1-mA -10 ppm with 50 ml electrolyte	1041698

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 BAM 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 compensated, uncalibrated, not electrically isolated
Typical applications:	Cooling water, Process water, wastewater, water with higher pH values (stable pH)
Measurement and control equipment:	D1C, DAC
In-line probe fitting:	BAM, DLGA
Measuring principle:	amperometric, 2 electrodes, diaphragm-covered

CBR 1-mA-0.5 ppm 0.01 ... 0.5 mg/l

CBR 1-mA-2 ppm 0.02 ... 2.0 mg/l

CBR 1-mA-5 ppm 0.05 ... 5.0 mg/l

CBR 1-mA-10 ppm 0.10 ... 10.0 mg/l

Part No.

1038016

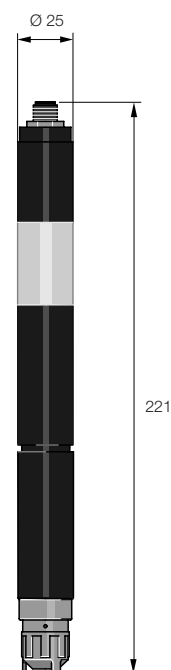
1038015

1052138

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-10ppm 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 BAM or DLGA)
Voltage:	Via CAN interface (11-30V)
Output signal:	uncalibrated, temperature compensated, electrically isolated
Typical applications:	Swimming pools / whirlpools and cooling water; can also be used in seawater
Measurement and control device:	Dulcomarin
In-line probe housing:	BAM, DLGA

BRE 3-CAN-10ppm 0.02 ... 10.0 mg/l

Part No.

1029660

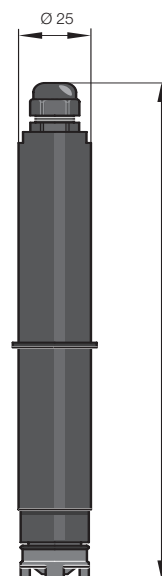


6.5 DULCOTEST Chlorine Dioxide Sensors

6.5.1 DULCOTEST Sensors for Chlorine Dioxide - CDE/CDP

CDE 2-mA

Measured variable:	Chlorine dioxide (ClO ₂)
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 BAM 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:	BAM / DLG III
Measuring Principle:	amperometric, 2 electrodes, diaphragm-covered

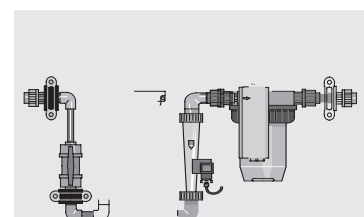
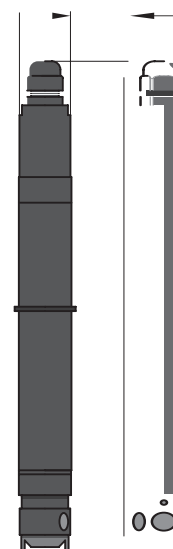


Part No.

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 (ClO₂ 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 BAM or DGMA)
Supply voltage:	16...24 V DC (two-wire technology)
Output signal:	4...20 mA ³ 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.) <u>Probe housing quote on request.</u>



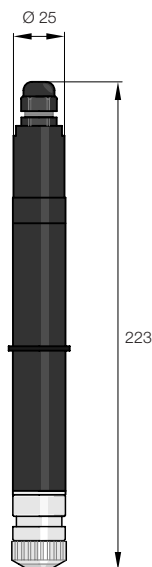
Part No.

CDP 1-mA-2 ppm set with 100 ml electrolyte	1002149
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6.5 DULCOTEST Chlorine Dioxide Sensors

6.5.2 DULCOTEST Sensors for Chlorine Dioxide - CDR



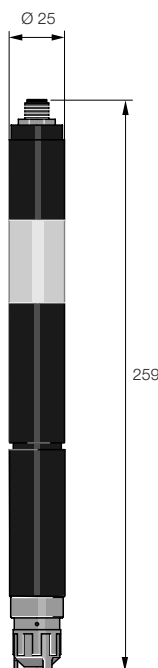
CDR 1-mA

Measured variable:	Chlorine dioxide (ClO ₂)
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:	BAM / 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 (ClO ₂)
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:	BAM / DLG III
Measuring Principle:	amperometric, 2 electrodes, diaphragm-covered

Part No.

CDR 1-can-10 ppm	0,10...10,0 mg/l	1041145
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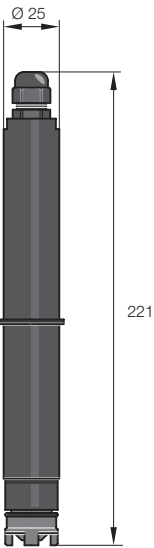


6.6 DULCOTEST Ozone Sensor

6.6.1 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 BAM or DLGA)
Power supply:	16...24 VDC (two-wire technology)
Output signal:	4...20 mA ³ 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:	BAM, DLGA



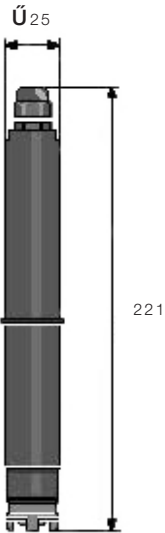
Part No.
792957
792957-5PPM

OZE 3-mA-2 ppm set, with 100 ml electrolyte
OZE 3-mA-5 ppm set, with 100 ml electrolyte***

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

OZR 1-mA

Measured variable:	Ozone (O 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:	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, DLG III
Controllers:	D1C
Typical applications:	Potable water, swimming pool water, process, service or cooling water, monitoring the ozone breakdown of filters.
Resistance to:	Salts, acids, alkalis, surfactants, dirt films
Measuring principle, technology:	Amperometric, 2 electrodes, diaphragm-covered



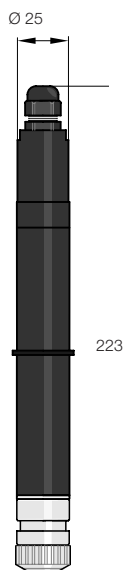
Part No.
1118883
1051647
1118925

OZR 1-mA-0.5 ppm
OZR 1-mA-2 ppm
OZR 1-mA-10 ppm



6.7 DULCOTEST PAA Sensor

6.7.1 DULCOTEST Sensor for Peracetic Acid - PAA/PER



PAA 1-mA

Measured variable:	Peracetic Acid
Reference method:	titration
Measurement range:	1...200 mg/l (PAA 1-mA-200 ppm) 10...2000 mg/l (PAA 1-mA- 2000 ppm)
pH range:	1...9 (peracetic acid stability range)
Temp. range:	1...45 °C (temperature compensated)
Admissible Temperature fluctuation:	0.3 °C/min
Response time T90:	3 min. Max.
Pressure:	3 bar (30 °C, in DGM)
Intake flow:	30- 60 l/h (with DGM or DLGA in-line probe housing)
Power supply:	16...24 V DC (two wire)
Output signal:	4...20 mA measurement range (uncalibrated) Important not electrically isolated
Typical application:	scouring in Cleaning in Place (CIP) and rinsing systems, also designed for use in the presence of cationic and anionic tensides. Selective measurement of peracetic acid as well as hydrogen peroxide is possible.
Measurement and control equipment:	D1C, DAC
In-line probe housing:	BAM, DLGA

PAA 1-mA-200ppm

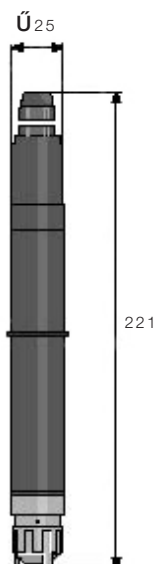
Part No.

1022506

PAA 1-mA-2000ppm

1022507

PAA 2-3E-mA



Measured variable	Peracetic acid
Calibration	DPD4, titration
pH-range	3.0...8.0
Temperature	0...40 °C
Admissible temperature fluctuation	< 0.3 °C/min
Response time sensor t₉₀	< 45 s
Max. pressure	3.0 bar
Electrolytic conductivity	0.05...50 mS/cm
Flow	DGMa, DLG III: 30...60 l/h BAMa: 5...100 l/h (depending on design)
Supply voltage	16...24 V DC (2-wire)
Output signal	4-20 mA ≈ measuring range, temperature compensated, uncalibrated, not electrically isolated
Selectivity	Peracetic acid selective towards hydrogen peroxide
Cross sensitivity	Ozone, chlorine dioxide, chlorine, bromine
Process integration	Bypass: open outlet or return of the sample water into the process line
Sensor fitting	BAMa, DGMa, DLG III
Controllers	DAC, D1C, diaLog X
Typical applications	Disinfecting pre-cleaned waste water, measurement and control of low peracetic acid concentrations in the pharmaceutical industry and medical technology.
Resistance to	Salts, acids, alkalis, surfactants, dirt films
Measuring principle, technology	Amperometric, 3 electrodes, diaphragm-covered

PAA 2-3E-mA-2ppm

Part No.

1020263

PAA 2-3E-mA-20ppm

1119538

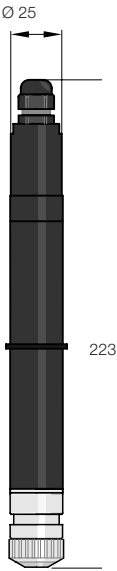


6.7 DULCOTEST PAA Sensor

6.7.1 DULCOTEST Sensor for Peracetic Acid - PAA/PER

PER 1-mA

Measured variable:	Hydrogen peroxide
Calibration:	Photometric with manual DT3B photometer
pH range:	2.5 ... 11.0
Temperature:	0 ... 50 °C
Admissible Temperature:	<0.3 °C/min
Response time sensor:	T ₉₀ approx. 480 sec.
Measuring accuracy:	P 1 ppm or better than E 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:	BAM, DLGA



PER 1-mA-200ppm	Part No. 1022509
PER 1-mA-2000ppm	1022510



6.8 DULCOTEST H₂O₂ Sensor

6.8.1 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 t₉₀	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 ₂ O ₂ sensor PEROX-H2.10 P	792976
PEROX transducer V1 for D1Ca	1034100
PEROX Transducer V2 for DAC	1047979

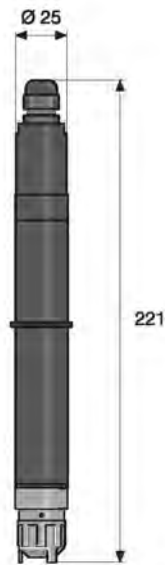
Accessories	Part No.
Photometer DT3B hydrogen peroxide (for calibration)	1039317
Polishing paste (to electrode cleaning)	559810



6.8 DULCOTEST H₂O₂ Sensor

6.8.2 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, 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 H ₂ O ₂ 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

6.9.1 Dissolved Oxygen Sensor DO 3-mA

The measured variable "Dissolved oxygen" indicates the volume of gaseous oxygen physically dissolved in the aqueous phase in mg/l (ppm).

"Dissolved oxygen" is therefore an important parameter for assessing the quality of surface water and water that has to be treated for the breeding of livestock with the addition of oxygen. Dissolved oxygen is also used for controlling processes in clarification plants and waterworks.

The following sensors are assigned to the different applications and can be offered separately as 4 - 20 mA encoders to central controls or as a decentralised solution along with D1C and DAC.

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



DO 3-mA-20 ppm

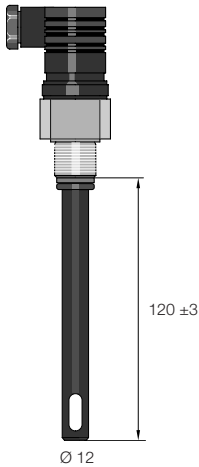
Part No.

1094609



6.10 DULCOTEST Conductivity Sensors

6.10.1 DULCOTEST Conductivity Sensors - LF1/LFTK



LFT DE Conductive

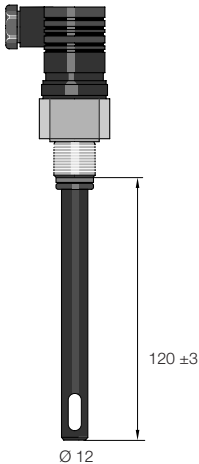
Measuring range:	0.01...20 mS/cm
Cell constant:	k1 cm-1 ±5 %
Temperature compensation:	–
Fluid temperature:	0...80 °C
Max. pressure:	16.0 bar
Sensors:	special graphite
Shaft material:	Epoxy
Thread:	PG 13.5
Fitting length:	120 ± 3 mm
Electrical connection:	DIN 4-pin angle plug
Typical applications:	Potable,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

LFT1 DE	Part No. 1001376
---------	---------------------

Suitability: Compact Controller, DMtA, DICa

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

4-wire shielded cable 100CY 4x0, 25qmm 5.7 grey	Part No. 1045183
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LFTK 1 DE Conductive

Measuring range:	0.01...20 mS/cm
Cell constant:	k1 cm-1 ±5 %
Temperature compensation:	Pt 1000
Fluid temperature:	0...80 °C
Max. pressure:	16.0 bar
Sensors:	special graphite
Shaft material:	Epoxy
Thread:	PG 13.5
Fitting length:	120 ± 3 mm
Electrical connection:	DIN 4-pin angle plug
Typical applications:	Potable, cooling, industrial water. Sensors of the LF series have only limited applicability for taking measurements in cleaning solutions containing surfactants and media containing solvents.

LFTK 1 DE	Part No. 1002822
-----------	---------------------

Suitability: Compact Controller

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

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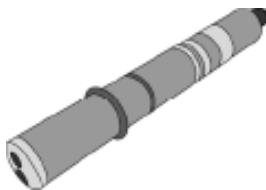


6.10 DULCOTEST Conductivity Sensors

6.10.2 Conductivity Sensors CCT-1

Inductive conductivity sensors consist of a transducer, encapsulated in an inert material. The electrolytic conductivity is measured inductively without direct contact with the medium.

The sensors are used to measure electrolytic conductivity over a wide measuring range, even in heavily contaminated and/or aggressive media and, as such, offer particularly low maintenance operation. The sensors are particularly suitable for measuring high conductivities, as no electrode polarisation occurs. The inductive conductivity sensors are operated using the Compact Controller.



Conductivity Sensor CCT 1-mA

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-calibrated, 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:	Ingredients 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.

CCT 1-mA-20 mS/cm

Part No.

1081545

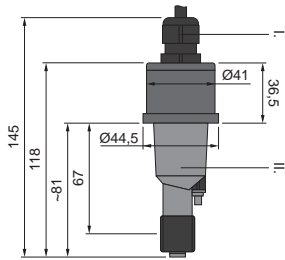


6.10 DULCOTEST Conductivity Sensors

6.10.3 Inductive Conductivity Sensors ICT 5

Conductivity Sensor ICT 5

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 mm² 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



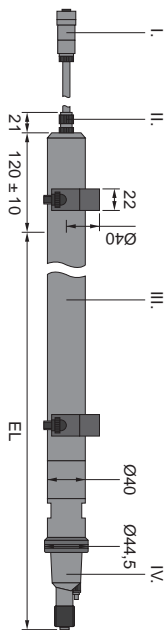
Part No.

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 mm² 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



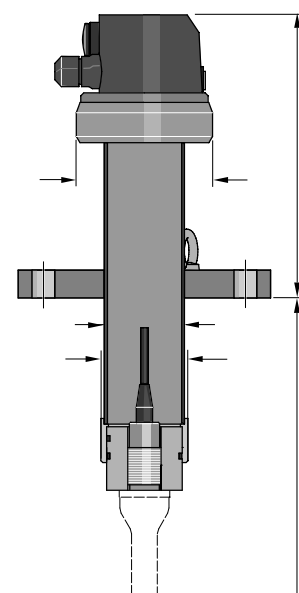
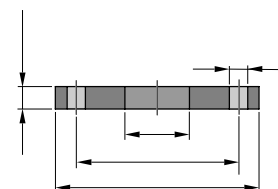
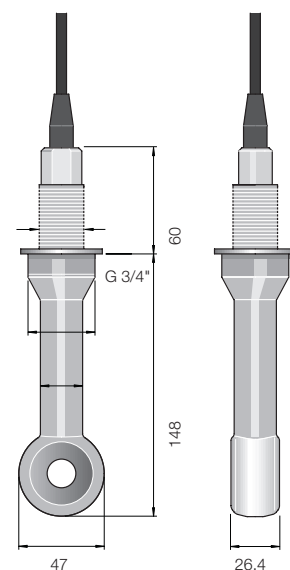
6.10 DULCOTEST Conductivity Sensors

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:	DCCa
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

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

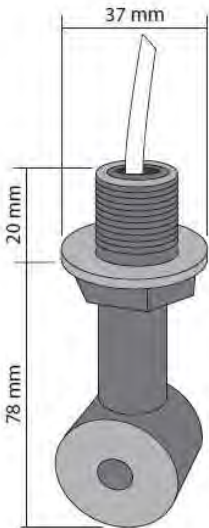
Flange:	DN 80/PN 16
Ø D	200
Ø K	160
Ø d ₂	8 x 18
b	20
Ø a	63.5
Screws	M 16



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 mm²). The cable length is: 2m 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

ICT 8 -mA-200 mS/cm

Part No.
1098530



6.11 DULCOTEST Accessories

6.11.1 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 CTE 2, CTE 3 type chlorine sensors		50	1133159
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			790488
Sensor cap for CLO 1			1035197
Sensor cap for CLO 2			1035198
Membrane cap for CGE/CTE 1 (2/5/10 ppm), BRE 1 (10 ppm), and BRE 2			792862
Membrane cap for CTE 1 (0.5 ppm), CBR 1, BCR 1			741274
Membrane cap for CTE 2 type chlorine sensors			1133342
Membrane cap for CTE 3 type chlorine sensors			1133130
Membrane cap for CDP 1, BRE 1 (0.5 / 2 ppm), CLT			1002710
Membrane cap for CDE 3			1026578
Membrane cap for PAA 1, CDR 1, CLR 1, OZR1			1023895
Membrane cap for PER 1			1025776
Membrane cap for H2.10 P			792978
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 CTE 2 type chlorine sensors			1133397
Accessory set for CTE 3 type chlorine sensors			1133395
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		1020534
Sensor insert for DO 2-mA-10 ppm			
Membrane thickness 50 µm,	0-10 mg/0.10...10.0 mg/l		1020535
Sensor cap for DO 3-mA-20ppm	0.1-20ppm		1096350

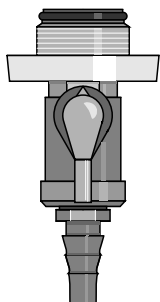


6.12 DULCOTEST Accessories

6.12.1 Accessories

Accessory: Sampling tap for DGM

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



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

CABLES & CONNECTORS

	Part No.
SN6 coax connector for 5 mm dia. coax cable	304974
SN6 coax connector for 3 mm dia coax cable	304975

CABLE & GLANDS



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



DULCOTEST COMPLETE SIGNAL CABLES

	Part No.
2 x SN6 Coax 0.8 m - SS	305077
2 x SN6 Coax 2.0 m - SS	304955
2 x SN6 Coax 5.0 m - SS	304956
2 x SN6 Coax 10.0 m - SS	304957

BELOW CABLES FOR TYPICAL USE WITH PH / ORP PROBES

	Part No.
SN6 - open end Coax 0.8m - S *** use this for panels ***	1024105
SN6 - open end Coax 2.0m - S	305030
SN6 - open end Coax 5.0m - S	305039
SN6 - open end Coax 10.0m - S	305040
SN6 - open end Coax 20.0m - S <i>non-stock item</i>	304952
SN6 - open end 2 core 5.0m for PT probes	1003208

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

	Part No.
Universal cable, 5-pole round plug, 5-wire, 2 m	1001300
Universal cable, 5-pole round plug, 5-wire, 5 m	1001301
Universal cable, 5-pole round plug, 5-wire, 10 m	1001302

Ampermetric Sensor Cable

CTE 2 & CTE 3 4-pin cable 2 metres	707702
------------------------------------	--------



SS

SB

S



6.13 Modular Sensor Technology BAMA

6.13.1 Sensor Bypass Armature Modular BAMA

Modular sensor bypass armature BAMA: flexible process connection for all ProMinent sensors for water treatment.

Up to 9 functional modules can be freely configured in a single fitting.

The modular bypass armature BAMA accommodates ProMinent sensors for water treatment. The armature is simply installed in a bypass of the main process line. It is available in various variants, each perfectly designed for special water treatment applications – from drinking water, water for pool & wellness to industrial water.

Depending on the application, the modular bypass armature can be selected in different variants:

For saving sample water: This variant of the BAMA allows all flow-dependent sensors in the 5...25 l/h range to be operated for clear water. This is very beneficial for applications, where sample water cannot or must not be returned to the process, e.g. drinking water monitoring or product water during the manufacture of beverages.

For process water which is clear or has low levels of solids where the sample water is returned to the process: This design can be operated between 20...60 l/h as a result of which self-cleaning of armatures and sensors is improved. Typical applications include water treatment processes in the pool & wellness sector.

For process water which has moderate levels of solids and / or for higher temperatures and / or pressure

requirements: This BAMA configuration is designed for operation with flows of 20...100 l/h and is ideally suited for many applications, e.g. in industrial water treatment.

The modular bypass armature BAMA and its various components can be perfectly combined for individual sample water conditioning. Additionally, a flow controller can be installed as well as can components for taking and treating sample water, such as a filter, flow limiter, metering module, ventilation, potential equalisation and earthing. For amperometric sensors without diaphragm, an integrated hydrodynamic cleaning unit can be ordered.

Your Benefits

- The sensors can be quickly and easily fitted and dismantled thanks to bayonet fittings.
- All parts requiring maintenance can be cleaned very well as they are easy to access without tools.
- Water consumption is minimised to just 5 l/h for flow-dependent sensors under ideal measurement conditions.
- The good particle mobility allows the bypass armature to be used in an even wider range of applications.
- Construction and material permit temperatures of up to 70 °C at a max. pressure of 3 bar, making it even more flexible to use.
- Thanks to higher pressure levels of up to 7 bar at 20 °C, sample water can return to the process, where permitted.
- The BAMA provides numerous options for setting optimum measurement conditions.

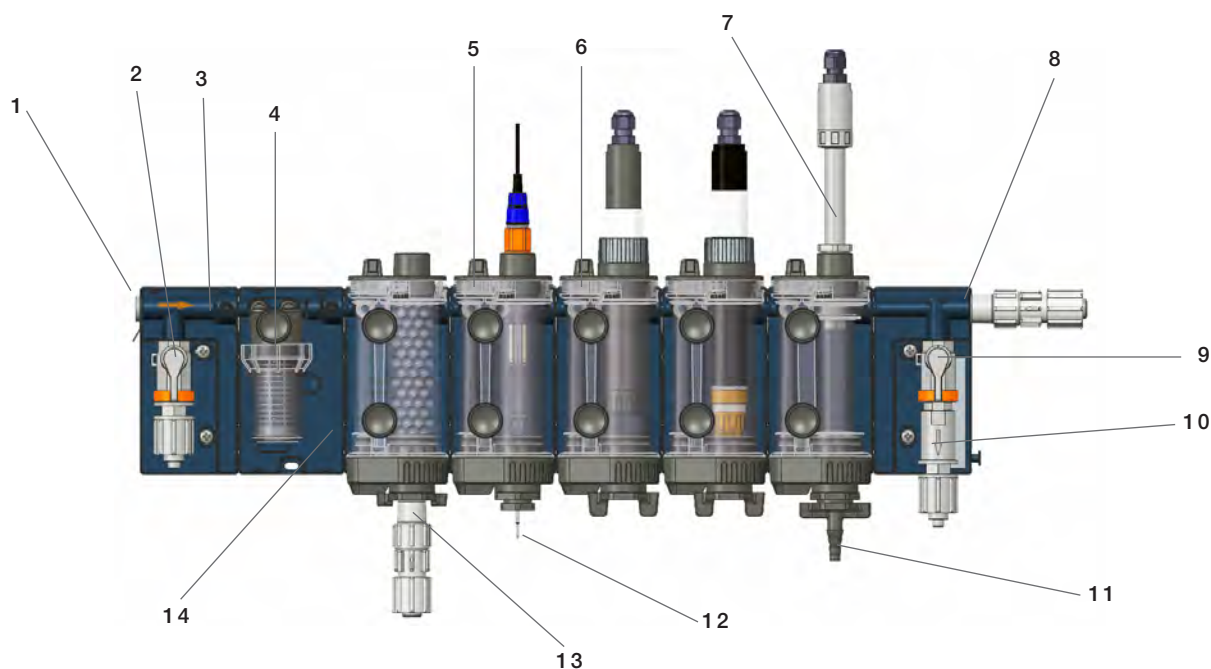


6.13 Modular Sensor Technology BAMA

6.13.1 Sensor Bypass Armature Modular BAMA

Can be ordered using identity code as an option

- Space-saving filter module, fully integrated in the fitting: Length: 65 mm / diameter 28 mm, filter bowl made from PET copolymer, filter insert made from stainless steel 1.4404, 300 µm pore diameter
- The module with float flow control using a reed switch is available in the following designs for use in clear process water: **"BAMA_1..."** and **"BAMA_2..."**. Wetted materials: PVC, FKM
- The module with thermal flow control is available in the design **"BAMA_3..."** and permits operation in media containing solids and at higher pressure levels / temperatures. Wetted material: Stainless steel 1.4404
- The flow limiter for eliminating peaks in flow as hydraulic conditions change over time is always fitted in conjunction with the filter module and is only available in the designs **"BAMA_1..."**: Limitation to max. 12 l/h and **"BAMA_2..."**: Limitation to max. 54 l/h
- Metering module including injection valve and mixing zone, for metering of chemicals in the sample water flow for the purpose of treating sample water (e.g. adjusting pH or electrolytic conductivity). Sensors, which are not suitable for untreated sample water, can therefore be used. The metering module can also be used to chemically clean the fitting. A suitable metering pump, accessories and the appropriate treatment medium must be ordered separately.
- Hydrodynamic cleaning of the open chlorine sensors without protective diaphragm, types CLO1 / CLO2, is integrated in the sensor module
- Potential equalisation on the sensor module and also an electric earthing connector on the input module ensure faultless operation of pH and ORP sensors in the event of electrical influence



- | | | | |
|---|---|----|---|
| 1 | Earthing connector | 8 | G 1/4 connector for venting |
| 2 | Hydraulic inlet with shut-off valve, horizontal or vertical connector (inlet), factory-fitted as vertical, but may be converted by the operator to horizontal | 9 | Hydraulic outlet with shut-off valve, horizontal or vertical connector (outlet), factory-fitted as vertical, but may be converted by the operator to horizontal |
| 3 | Direction of flow/arrow | 10 | Flow limiter |
| 4 | Particle filter, 300 micrometre (optional) | 11 | Sample valve |
| 5 | Sensor modules for pH and ORP sensors (PG 13.5 connector) | 12 | Potential equalisation connector |
| 6 | Sensor modules for amperometric sensors (G1" connector) | 13 | 13 Injection valve with mixing device |
| 7 | Flow meter / control by means of float and reed switch or thermal flow sensor | 14 | Module carrier |



6.13 Modular Sensor Technology BAMa

6.13.2 BAMa Technical Data

Flow through the sensor bypass armature Modular BAMa

Application	"BAMa 1..." e.g. drinking water	"BAMa 2..." e.g. pool&wellness sector	"BAMa 3..." industrial water
Flow	5...25 l/h	20...60 l/h	20...100l/h

Operating pressure / operating temperature / particle mobility

BAMa design Pressure / temperature	"BAMa_ 1..." at max. 25 l/h	"BAMa_ 2..." at max. 60 l/h	"BAMa_ 3..." at max. 100 l/h
Minimum priming pressure without flow limiter and with clean filter for a total of 9 modules	0.025 bar	0.050 bar	0.500 bar
Minimum priming pressure with flow limiter and with clean filter for a total of 9 modules	1.5 bar	1.5 bar	2.0 bar
Maximum operating pressure *	7.0 bar at 20 °C	7.0 bar at 20 °C	7.0 bar at 20 °C
Maximum operating temperature *	60 °C at 3.5 bar	60 °C at 3.5 bar	70°C at 3.0 bar
Particle mobility (specified with non-agglomerating, non-< 300 µm sedimentary model particles)	< 300 µm	< 300 µm	< 1000 µm

* Maximum operating pressure and maximum operating temperature are limited by the specification of the weakest component fitted.

- Because the flow limiter may only be used in clear water, it is only available as standard for the "BAMa_ 1..." applications (e.g. potable water, limitation to 12 l/h, order no. 1113408) and "BAMa_ 2..." (e.g. pool&wellness sector, limitation to 54 l/h, order no. 1112443) applications together with the filter module. Blockages are thereby avoided. The flow limiter is installed on the hydraulic outlet ex factory.
- When using sensors with a maximum operating pressure of ≤ 1.0 bar, the flow limiter can be ordered as an accessory and installed on site at the hydraulic inlet module, provided that the system is handling filtered, clean sample water with no solids content with a particle size $< 300 \mu\text{m}$. Due to the pressure drop of 1.4 bar at the outlet of the pressure limiter, the permitted operating pressure at the inlet of the sensor bypass armature Modular BAMa is increased to max. 2.4 bar for pressure-sensitive sensors.
- Because of the continuous configuration, an additional priming pressure of 0.5 bar is to be expected when using a filter and this must be added to the minimum priming pressure values stated above.

Wetted materials

Measurement module, flow module, metering module, flow element of filter housing	SAN, transparent
Module carrier, hydraulic inlet / outlet	PPE+PS+GF10%
Sensor adapter; flow element bracket	PPE+PS+GF30%
Filter insert	Stainless steel 1.4404
Filter bowl	PET copolymer
Ball funnel, flow nozzle	PVDF
O-rings, seals	FKM
Thermal flow sensor	Stainless steel, 1.4404
Calibration beaker	PE
Shut-off valve, sample drain valve	a) PVC in applications BAMa _1 (e.g. drinking water) and BAMa_2 (e.g. pool & wellness sector) b) PVDF in the application BAMa _3 (e.g. industrial water)
Flow sensor with float	PVC
Thermal flow sensor	Stainless steel 1.4404
Flow limiter	PVC
Potential equalisation pin	Stainless steel 1.4404
Cleaning balls, balls in the metering module	Glass



6.13 Modular Sensor Technology BAMa

6.13.2 BAMA Technical Data

Hydraulic connectors

Hose 8x5 and 12x6 mm

Hose 1/2x3/8 and 3/8x1/4 inch

Pipe DN10 horizontal

Pipe 1/2 inch MPT horizontal

Float flow meter

Flow range for BAMA_1 application (e.g. drinking water)	5...25 l/h
Flow range for BAMA_2 application (e.g. pool & wellness sector)	20...60 l/h
Max. operating pressure	2 bar
Max. operating temperature	30 °C
Output signal	Switching signal
Max. switching power	3W
Max. switching voltage	42 V
Max. switching current	0.25 A
Max. constant current	1.2 A
Max. contact resistance	150 mOhm
Degree of protection of the reed switch	IP 65
Wetted materials	PVC, FKM

Thermal flow meter

Flow range	20...100 l/h
Accuracy at the switching point 30 l/h	Better than +-10%
Output signal	Switching signal; analogue signal; frequency signal; IO link;
Electrical design	PNP, NPN
Max. load	300 Ohm
Continuous current load of the switching output	200 mA DC
Max. voltage drop at switching output	2.5 V DC
Degree of protection	IP65
Wetted materials	Stainless steel, 1.4404

Flow limiter

Minimum pressure drop	1.4 bar
Maximum pressure drop	10 bar
Flow limitation for BAMA_1 application (e.g. drinking water)	max. 12 l/h
Flow limitation for BAMA_2 application (e.g. pool & wellness sector)	max. 54 l/h
Application	Can only be used for filtered water < 300 µm

Ambient conditions

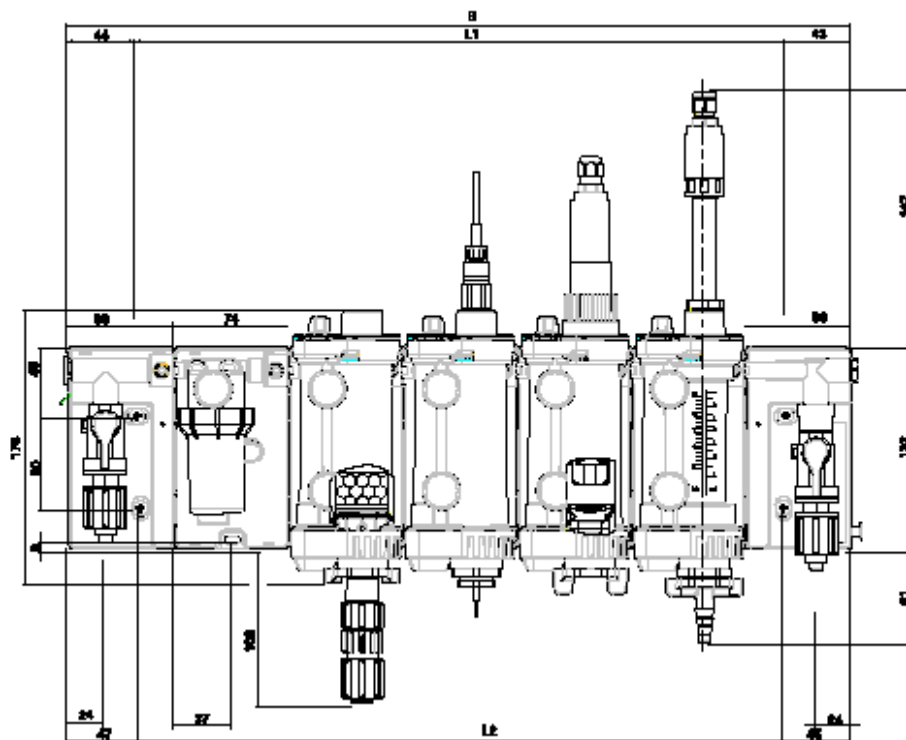
Ambient temperature	-10...60 °C
Storage temperature	10...70°C
Vibration	Complies with IEC 68, Part 2-6
EMC	In accordance with the data for the electrical components
UV	Not long-term stable in direct sunlight when used outdoors
Air humidity	when using flow sensors and other electrical components: max: 90%, non-condensing



6.13 Modular Sensor Technology BAMa

6.13.2 BAMa Technical Data

Dimensions/weights



BAMa design example: BAMA_EU_1_2_1_1_X_D_D_C_1_X_00_01_00_DE (with float flow control, e.g. for drinking water)

Number of modules	1	2	3	4	5	6	7	8	9
Width b (mm)	213	288	362	437	511	586	660	735	809
Weight (g) excluding sensors	547	842	1137	1432	1727	2022	2317	2612	2907

BAMa module	Weight (g)
Hydraulic inlet	124
Hydraulic outlet	128
Module carrier	120
Measuring module	175
Flow module	230
Filter	75
Lip valve	44
Hose connector kit	35



6.13 Modular Sensor Technology BAMa

6.13.3 Identity Code Ordering System BAMa Sensor

BAMa												
Regional design												
EU Europe (Standard)												
Application												
1 5 ... 25 l/h, max. 60 °C at 3.5 bar (e.g. drinking water or water similar to clear water with sample water consumption saving)												
2 20 ... 60 l/h, max. 60 °C at 3.5 bar (e.g. pool & wellness sector or similarly treated water with sample water return)												
3 20 ... 100 l/h, max. 70 °C at 3.0 bar (e.g. industrial water or similar with a solids content and higher temperature requirements)												
Flow monitor module												
X none, (For application 3 only)												
1 Float + scale [l/h], [gph]												
2 Float + scale + reed switch (max. 2 bar)												
3 Thermal flow monitoring, (For application 3 only)												
Number of modules, PG13.5 (sensors for pH, ORP, conductivity: LF(T) line, fluoride FLEP, hydrogen peroxide H2.10P, temperature PT100, PT1000)												
X No module												
1 One module + sensor adapter PG 13.5												
2 Two modules + sensor adapter PG 13.5												
3 Three modules + sensor adapter PG 13.5												
4 Four modules + sensor adapter PG 13.5												
Number of modules, G 1" (amperometric sensors, conductivity sensors CCT1, CTFS via adapter G 1" - 3/4" NPT (1113353), sensor for dissolved oxygen DO3)												
X No module												
1 One module + sensor adapter G 1"												
2 Two modules + sensor adapter G 1"												
3 Three modules + sensor adapter G 1"												
4 Four modules + sensor adapter G 1"												
5 Five modules + sensor adapter G 1"												
Number of modules, G 3/4" (conductivity sensors LM(P) line)												
X none												
1 One module + sensor adapter G 3/4"												
Metering module												
X None												
D With metering module												
Sample water treatment												
0 none												
F With filter, 300 µm, stainless steel												
D With filter and flow limiter, (For applications 1 and 2 only)												
Sensor cleaning												
0 None												
C Hydrodynamic cleaning for CLO 1/2 type chlorine sensor, (For applications 2 and 3 only)												
Hydraulic connections												
1 Hose 8x5 and 12x6 mm, (EU region only)												
4 Pipe, DN 10, horizontal, (EU region only)												
Status illuminated indicator												
X none												
Version												
00 with ProMinent® logo												
Accessories												
00 none												
01 Potential plug + electrical earthing												
Approvals												
01 CE, (Only needed with accessories 01)												
Documentation language												
EN English												

BAMa EU 2 2 1 1 X X F 0 1 X 00 00 01 EN



6.13 Modular Sensor Technology BAMa

6.13.4 Spare Parts & Accessories BAMa Sensor

Retrofit kits

	Part No.
Sensor module, complete	1113795
Filter module, complete	1113798
Cleaning set CLO/BAMa for CLO sensors in conjunction with sensor bypass armature BAMa	1113881
Metering module, complete	1113424

Accessories

	Part No.
Reed switch PVC, for flow module	1118867
Thermal flow control (SA 4300)	1122791
Potential equalisation / earthing, complete	1113409
Sample valve for PG 13.5 module	1004737
Flow limiter, 12 litres, complete, f/f PVC	1117504
Flow limiter, 54 litres, complete, f/f PVC	1117493
Hydraulic short circuit, complete	1117462
Vent valve (lip valve) G 1/4 - 6x4, PVC	1113427

Consumable Items

	Part No.
Gasket for strainer bowl	1105630
Strainer Bowl 1 ONLY	1105632
BAMa 25mm sensor mounting kit	1113807
Filter insert, 300 µm, stainless steel	1105632
Cleaning balls (approx. 100)	1104267
Glass balls for metering module 1	122617



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	diaLog620 pH/Cl ₂ /Cl ₂ /CO ₂ POOL CONTROL SYSTEM	6.10
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1.0 Tube, Hose & Fittings

TUBE PACK 7 METRE, INCLUDES: 5m TRANSLUCENT LDPE DOSING TUBE & 2M SOFT PVC SUCTION TUBE

Part No.

TUBE PACK 7 METRE, INCLUDES: 5 BLACK LDPE DOSING TUBE & 2M SOFT PVC SUCTION TUBE

6mm O.D. x 4mm I.D.	PA01181049
8mm O.D. x 5mm I.D.	PA01281049
12mm O.D. x 9mm I.D.	PA01381049

SUCTION TUBE, CLEAR SOFT PVC - 25 METRE ROLL

6mm O.D. x 4mm I.D. - 0.5 bar	A25121801
8mm O.D. x 5mm I.D. - 0.5 bar	A25221801
12mm O.D. x 9mm I.D. - 0.5 bar	A25321801

DOSING TUBE, TRANSLUCENT LDPE - 25 METRE ROLL

6mm O.D. x 4mm I.D. - 11 bar	A25121800
8mm O.D. x 5mm I.D. - 11 bar	A25221800
12mm O.D. x 9mm I.D. - 7 bar	A25321800

DOSING TUBE, BLACK LDPE - 25 METRE ROLL

6mm O.D. x 4mm I.D. - 11 bar	A25151003
8mm O.D. x 5mm I.D. - 11 bar	A25251004
12mm O.D. x 9mm I.D. - 7 bar	A25351005

SUCTION TUBE, CLEAR SOFT PVC - 50 METRE ROLL

6mm O.D. x 4mm I.D. - 0.5 bar	A01181006
8mm O.D. x 5mm I.D. - 0.5 bar	A01281006
12mm O.D. x 9mm I.D. - 0.5 bar	A01381006

DOSING TUBE, TRANSLUCENT LDPE - 50 METRE ROLL

6mm O.D. x 4mm I.D. - 11 bar	A01181007
8mm O.D. x 5mm I.D. - 11 bar	A01281007
12mm O.D. x 9mm I.D. - 7 bar	A01381007

DOSING TUBE, BLACK LDPE - 50 METRE ROLL

6mm O.D. x 4mm I.D. - 11 bar	A01181008
8mm O.D. x 5mm I.D. - 11 bar	A01281008
12mm O.D. x 9mm I.D. - 7 bar	A01381008

HIGH PRESSURE FABRIC REINFORCED PVC TUBE

10x4 Tube Fabric reinforced 5m roll - 18 bar	1004533
10x4 Tube Fabric reinforced 50m roll - 18 bar	1004536
12x6 Tube Fabric reinforced 5m roll - 17 bar	1004538
12x6 Tube Fabric reinforced 50m roll - 17 bar	1004541

Prices Below are Per Metre

SUCTION /DOSING TUBE, CLEAR PVC/FABRIC, FOOD GRADE

16 mm ID - 16 bar	A01721802
20 mm ID - 16 bar	A01821802
25 mm ID - 16 bar	A01921802
32 mm ID - 16 bar	A01021802

DOSING TUBE, PTFE OD X ID

1.75 mm x 1.15 mm - 12 bar	37414
3.2 mm x 2.4 mm - 8 bar	37415
6 mm x 3 mm - 20 bar	1021353
6 mm x 4 mm - 14 bar	37426
8 mm x 4 mm - 25 bar	1033166
8 mm x 5 mm - 16 bar	37427
12 mm x 9 mm - 10 bar	37428
19 mm x 16 mm - 6 bar	37430

DOSING TUBE, STAINLESS STEEL OD X ID

1.58 mm x 0.9 - 400 bar	1020774
3.175 mm 1.5 mm - 400 bar	1020775
6 mm x 4 mm - 185 bar	15739
6 mm x 5 mm - 175 bar	15738
8 mm x 7 mm - 160 bar	15740
12 mm x 10 mm - 200 bar	15743



Note: Soft PVC tubing is only rated to 0.5 bar.

Note: When "Fabric Reinforced PVC Tube" is used under high pressure the tube may shrink significantly, so allow extra length especially during installation.



1.1 Tube & Pipe Fittings



Valve to Solvent Weld

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 25mm PVC Pipe (DN 20)	A27022366	●
1-1/2" to 25mm 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 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 16mm Hose Tail

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	●



1-1/4" Valve (Meta 130) to 16mm Hosetail

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	●



1-1/4" Valve (Meta 130 - 260) to 3/4" BSPT Male

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	



1.2 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

P VC-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.

MISCELLANEOUS FITTINGS



1.2 BSPM to Hosetail Adaptors

TUBE TO PIPE FITTINGS

TUBE ADAPTOR 6X4 TO 1/2" BSPT MALE		Part No.
PVC		PA07121061
PTFE	*** Not Stocked ***	PA07131061
TUBE ADAPTOR 8X5 TO 1/2" BSPT MALE		
PVC		PA07221061
PTFE	*** Not Stocked ***	PA07231061
TUBE ADAPTOR 12X9 TO 1/2" BSPT MALE		
PVC		PA07321061
PTFE	*** Not Stocked ***	PA07331061
TUBE ADAPTOR 12X9 TO 3/4" BSPT MALE		
PVC		PA07321062
PTFE	*** Not Stocked ***	PA07331062
TUBE ADAPTOR 8X5 TO 1/4" BSPT MALE		
PVC		PA07522276



Tube Adaptor 8x5 to BSPT Male



1.3 Tube Adaptors



PVC Tube Adaptor 8x5 to 1/2" Solvent Weld

TUBE TO SOLVENT WELD

PVC Tube 6x4 to 1/2" Solvent Weld

Part No.

PA07121184

PVC Tube 8x5 to 1/2" Solvent Weld

PA07221184

PVC Tube 12x6 to 1/2" Solvent Weld

PA07C21184

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



20x1.5 Female Union to 15mm Solvent Weld

UNION ADAPTORS

20x1.5 Female Union to 15mm Solvent Weld PVC

PA27022382



20x1.5 Female Fixed / Female Union

20x1.5 Female Union to 20x1.5 Female

PA03022627



20x1.5 Female Union / 1/2" BSPT Male

20x1.5 Female Union to 1/2" BSPT Male

PA01722804



PA03422617



PA06022635

ADAPTORS FOR SUCTION / FOOT VALVES FOR VARIO & SIGMA

3/4" valve to 16mm hose

PA03422617

1" valve to 16mm hose

PA06022635

1-1/4" valve to 20mm hose

PA06022618

2.0 Chemical Tanks and Accessories



CHEMICAL TANKS - POLYETHYLENE
ONE PIECE ROTATIONALLY MOULDED MDPE with vented lid.

***** PLEASE NOTE *****

Prices below are a **GUIDE ONLY** as prices may vary from time to time and state to state.
For accurate prices please consult Sydney office.

Prices include vented lids and poly BSP F socket up to 2"

	Diameter	Wall height	Apex height	Weight
1,600 litre tank	1.10 m	1.85 m	2.10 m	70
2,000 litre tank	1.20 m	1.79 m	1.98 m	85
2,600 litre tank	1.45 m	1.45 m	1.67 m	90
3,000 litre tank	1.47 m	1.78 m	1.98 m	115
5,000 litre tank	1.84 m	1.97 m	2.17 m	150
9,100 litre tank	2.37 m	2.14 m	2.41 m	275
10,000 litre tank	2.62 m	1.88 m	2.08 m	300
13,600 litre tank	2.86 m	2.26 m	2.64 m	355
22,600 litre tank	3.68 m	2.24 m	2.76 m	525

Note: Prices are for delivery into **Sydney, ONLY**.

For other sizes and destinations consult Sydney office.

Tanks are manufactured in NSW, QLD, and VIC offering a full range of fittings and attachments to your specifications.

The above tanks are precision rotomoulded to comply with ASMD 1998-93 and manufactured to contain liquids with a specific gravity to 1.5. All tanks are compatible with the storage of a wide range of chemicals, such as sodium hypochlorite, liquid alum, and hydrochloric acid.

NOTE: PLEASE CHECK CHEMICAL COMPATIBILITY

BUNDS

The Standard for Storage of Corrosive Liquids specifies the inside lip of the bund at 63.5 degrees down from the top of the tank. Tanks of 250 litres or less are considered minor storage and do not have to comply with the standard.

Note: ProMinent Tanks up to 1,500 litres can be found in the Yellow Pages 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)

0.25 kW 415/3/50 IP 55 Motor, Gearbox, S/S shaft,

250 Litre Tank

PA17K03575

500 Litre Tank

PA17L03576

240 VOLT SLOW SPEED 140 RPM ELECTRIC STIRRER

(other speeds available)

SS Impeller 200-260 dia.

250 Litre Tank

PA17K03571

500 Litre Tank

PA17L03572

415 VOLT SLOW SPEED 140 RPM ELECTRIC STIRRER

(other speeds available)

to suit 1000 litre tanks

PA17M03577

0.25 kW 415/3/50 IP 55 Motor, Gearbox, S/S shaft,

2 x SS Impeller 260 dia.

240 VOLT SLOW SPEED 140 RPM ELECTRIC STIRRER

(other speeds available)

to suit 1000 litre tanks

PA17M03573

0.0.18 kW 240/1/50 IP 55 Motor, Gearbox, S/S shaft,

2 x SS Impeller 260 dia.

Note: Please advise size of tank when ordering. Other sizes available on request.



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

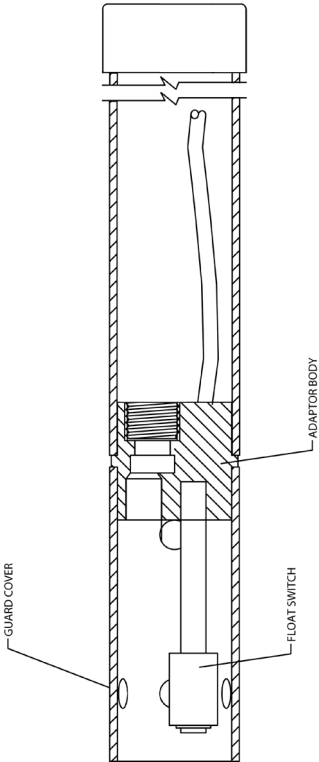
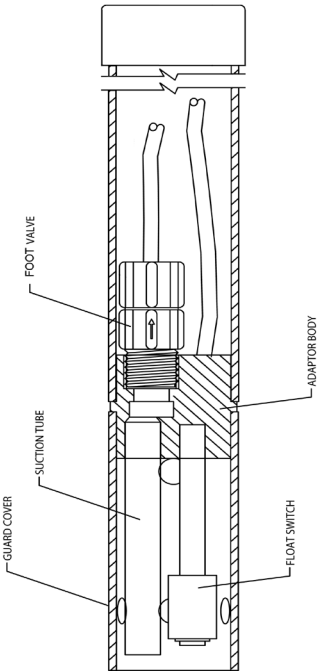
Rigid Level Switch Assembly

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

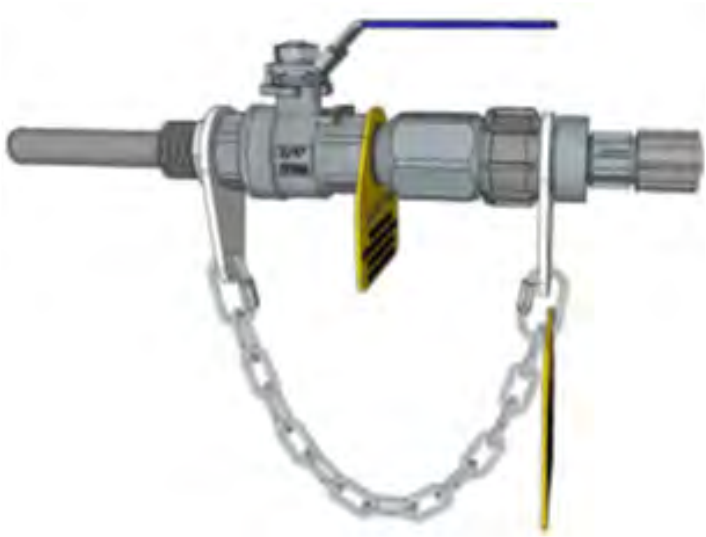
	Part No.
6x4 tube connection x 3/4" BSPT PVC/FKM	PA07123517
6x4 tube connection x 3/4" BSPT PP/EPDM	PA07153564
8x5 tube connection x 3/4" BSPT PVC/FKM	PA07223518
8x5 tube connection x 3/4" BSPT PP/EPDM	PA07253565
12x9 tube connection x 3/4" BSPT PVC/FKM	PA07323519
12x9 tube connection x 3/4" BSPT PP/EPDM	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 GXL a 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	PA07623531
Withdrawable inj assy Mk III 1 inch with 20mm PVC Hose tail	PA07623532
Withdrawable inj assy Mk III 1 inch with 25mm PVC Hose tail	PA07623533

- Notes:
- The above assemblies all include 1" 316 stainless steel ball valve and nipple for connection in the process pipework.
 - The injection tube assemblies are made from uPVC with no elastomers in direct contact with the chemicals being dosed.
 - The tube itself is Schedule 80 uPVC.
 - The standard length is approximately 75mm past the nipple.
 - Lengths up to 150mm are available. Contact the Sydney office for details.

OPERATIONAL LIMITS:

Pressure	7 bar (100 psi)
Temp.	0 ... 45°C
Max. Flows	16mm HT 120 l/h GXL a 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



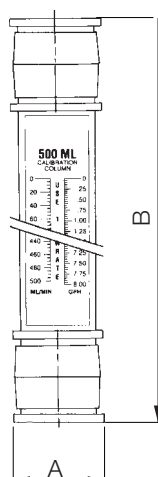
MOUNTING BOARDS - L.D.P.E. 12 MM THICK

A	600 x 600	A350D3402
B	750 x 600	A35051307
C	747 x 747	A350D3614

Size No.	Typical Use	Assembly Time
Size A	STANDARD BUILD	3 hours
Size B	COMPLEX BUILD	4 hours
Size C	DULCOMARIN 3	4 hours



3.1 Miscellaneous Items



ProMinent CALIBRATION CYLINDERS

Part No.	Capacity	Max. Flow	Increment	Length	OD	End Solvent Weld
CAL-100G-SW	100ml	12LPH	1ml	279mm	38mm	1/2"
CAL-300G-SW	300ml	36LPH	5ml	330mm	56mm	1/2"
CAL-500G-SW	500ml	60LPH	5ml	330mm	63.5mm	3/4"
CAL-1000G-SW	1,000ml	120LPH	5ml	559mm	63.5mm	3/4"
CAL-5000G-SW	5,000ml	600LPH	10ml	711mm	124mm	1.5"
CAL-10000G-SW	10,000ml	1,200LPH	100ml	635mm	176.5mm	2"
CAL-20000G-SW	20,000ml	2,400LPH	100ml	1194mm	176.5mm	2"
CAL-30000G-SW	30,000ml	3,600LPH	200ml	1651mm	241.3mm	4"



PA16121080

PVC PULSATION DAMPERS - 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 changing when white turns to purple
- Includes 1 x 500g reagent set with scrubber



Ordering Information:

	Part No.
Acid fume scrubber:	PA55003274
Refill reagent kit:	SL020-500G
SDS Reagent:	Soda-Lime-ICH64-SDS



3.2 Hidracar® Pulsation Dampers

Pulsation dampers are used to stabilize the flow and the pressure in circuits with dosing pumps.

A pulsation damper is a vessel with gas inside, normally Nitrogen. In the pulsation dampers there is an element to isolate the gas from the circuit liquid. Its main function is to avoid the gas loss. This piece that separates both fluids is made basically with 2 materials: rubber (Nitrile, EPDM, FPM, Butyl, Silicone, etc.), and a thermoplastic material (usually PTFE).

When rubber is used, the dampener is named bladder or bag type. And if PTFE is used, we talk of membrane or bellows type, according to the separator element shape. The choice of one type or other will depend on the special performances of the circuit such as; the pressure, the temperature and the possible corrosive effect that could be produced by the liquid of the circuit.

Part No.

U001A01E1-PC	10 Bar EPDM Bladder PVC
U001A01V1-PC	10 Bar Viton Bladder PVC
U002A01E1-PC	10 Bar EPDM Bladder PVC
U002A01V1-PC	10 Bar Viton Bladder PVC
U003A01E1-PC	10 Bar EPDM Bladder PVC
U003A01V1-PC	10 Bar Viton Bladder PVC
U007A01E1-PC	10 Bar EPDM Bladder PVC
U007A01V1-PC	10 Bar Viton Bladder PVC
U010A01E1-PC	10 Bar EPDM Bladder PVC
U010A01V1-PC	10 Bar Viton Bladder PVC
U015A01E1-PC	10 Bar EPDM Bladder PVC
U015A01V1-PC	10 Bar Viton Bladder PVC
U001E-PC	Bladder Insert EPDM Pulsation Damper
U002E-PC	Bladder Insert EPDM Pulsation Damper
U003E-PC	Bladder Insert EPDM Pulsation Damper
U007E-PC	Bladder Insert EPDM Pulsation Damper
U015E-PC	Bladder Insert EPDM Pulsation Damper
U001V-PC	Bladder Insert Viton Pulsation Damper
U002V-PC	Bladder Insert Viton Pulsation Damper
U003V-PC	Bladder Insert Viton Pulsation Damper
U007V-PC	Bladder Insert Viton Pulsation Damper
U015V-PC	Bladder Insert Viton Pulsation Damper
BV010A1TM	Filling kit ... 10 bar
BV(010)(100)A1TM	Filling Kit with 2 Pressure Gauges ... 10 bar
ADACNEU.5	Filling Adapter ... 10 bar
BT010A-A1 + 004-A1	Charging valve and pressure gauge
Note: 100 bar Filling kits are available	
DRB.A/B	Damper dismantling tool



NON-STOCK ITEMS

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 & GXL	up to 0730	U001 volume 0.075 l
Delta & GXL	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



3.3 Metering Pump Auto Change Over Controller

ProMinent Pump Automatic Change Over Controller

The ProMinent Fluid Controls Automatic Change Over unit allows 2 ProMinent® Dosing pumps to operate in a duty/stand by arrangement. Flow detectors on the outlet of each pump provide fault detection. The switch over unit connects to each pump using ProMinent® standard control cable connections and receives an external 4-20mA control signal.

Normal Operation

During normal operation, both pump selector switches are placed in the AUTO position and either PUMP 1 or Pump 2 is selected on the duty selector. The selected duty pump will then operate until either a fault develops or the position of the selector switches changes.

Fault Operation

If a fault is detected in the operation of the duty pump, the operation will switch to the standby pump. The fault light on the display panel will illuminate and the retransmit fault signal will close.

To Clear a Fault

After rectifying the fault, the ALARM RESET button is pressed and the switch over unit will revert operation to the duty pump.

Pump removal for service

To remove a pump for service, first switch the required pump selector switch to OUT of SERVICE before removing the pump. When returning the pump to service, reconnect the pump then switch the duty selector to the AUTO position. Clear any fault indication on the pump and press the ALARM RESET switch on the switch over panel.



Part No.
PA10002637

ProMinent Chloramination Dosing System Pump Automatic Change Over

For automatic control of chloramination. Has all the functions of PA10002637 above, however this is a 2 x 2 system 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/ X 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 1000 l/h flow @ 0.40% solution & up to 1% solution

Note: solution % is adjustable via dosing pump.

Specification

Each system includes:

- 1 x Polyethylene Stand
- 1 x Water Transfer Pump
- 1 x ProMinent beta/ X Metering Pump
- 1 x Mixing Chamber
- 1 x Blending Pipe Work
- 1 x Control Panel

Part No.

PROMIX-LB1000-04028



3.5 ProMinent DULCOFLEX Liquid Polymer Blending System

ProMinent DULCOFLEX PROMIX LD Series 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, ideally for transfer to a dosing tank.

The polyelectrolyte is prepared by the injection of liquid polymer into a mixing chamber by the ProMinent DULCOFLEX Control metering pump. Feed water is supplied to the mixing chamber by a flow controlled centrifugal pump.

The metering pump is adjustable to achieve the required polymer dilution.

Self Contained

The unit is mounted on a polyethylene stand designed for easy installation and maintenance. Site installation requires only the connection of process water, liquid poly and a standard 3-pin 240-volt power outlet.

Wetting Assembly

The heart of the Liquid Polymer Blending System is the Australian designed & built mixing chamber incorporating a venturi which ensures the creation of long chain molecules and no unmixed polymer solution.

Flushing

After polymer make up is stopped a timer allows for the mixing chamber to be flushed with water.

System Capacity

PROMIX-DFX3000-0560 3000l/h flow @ 0.1-1% solution

Note: solution % will depend on application conditions.

Specification

Each system includes:

- 1 x Polyethylene Stand
- 1 x Water Transfer Pump
- 1 x ProMinent DULCOFLEX DFXa Metering Pump
- 1 x Mixing Chamber
- 1 x Blending Pipe Work
- 1 x Control Panel

Part No.

PROMIX-DFX3000-0560

PROMIX-DFX2000-0560

PROMIX-DFX1000-0530

Options Available POA: Hose Rupture Alarm on dosing
4-20mA control capability.



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

PROBE pH 0-12 pH 0 to 80°C HT3 glass Polymer Body SN6 connector and PG13.5 standard mounting	Part No. 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

PROBE RH 0-1000mV 0 to 80°C HT3 glass Polymer Body SN6 connector and PG13.5 standard mounting	Part No. 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



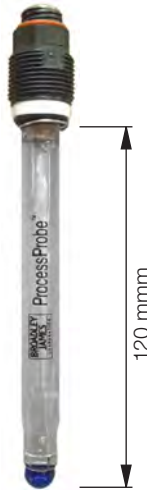
SP100-4PB0-DH

Suitable Housings: PA02032258, PA03023238, DGMA, PA03022958
NOTE: Cable not included - Please add cable

PROBE pH 0-12 pH -5 to 110°C HT3 glass Glass Body SN6 connector and PG13.5 standard mounting	Part No. 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

PROBE pH 11+pH -5 to 110°C HT4 glass Glass Body
SN6 connector and PG13.5 standard mounting

Part No.

SP200-2430-DH

SPECIFICATIONS

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

APPLICATIONS:

- Industrial Trade Waste
- Cooling Towers
- High pH Applications

Suitable Housings: PA02032258, PA03023238, DGMA, PA03022958



SP200-2PB0-DH

PROBE RH 0-1000mV -5 to 110°C HT3 glass Glass Body
SN6 connector and PG13.5 standard mounting

Part No.

SP200-2PB0-DH

SPECIFICATIONS

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

APPLICATIONS:

- Water & Wastewater
- Industrial Trade Waste
- Cooling Towers

Suitable Housings: PA02032258, PA03023238, DGMA, PA03022958

Note: Cable not included - Please add cable



4.1 pH & Redox Industrial Probes

PROBE pH 0-13 pH -5 to 100°C HT3 glass Glass Body Pinwick, Double Junction, SS Flared Cap, 10.0 m Co-axial Cable Pin Lug Connections.

Part No.

A41021851

SPECIFICATIONS

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

APPLICATIONS:

- Water & Wastewater
- Industrial Trade Waste
- Cooling Towers



Suitable Housings: PA03021390, PA03021391, PA03021880, PA03001113

Note: For other housing units please see 4.7 in the Green Pages.

PROBE rH Peripheral Probe 3.5mm Platinum Band. 0-100°C HT3 glass Glass Body, Pinwick, Double Junction, SS Flared Cap, 10.0m Co-axial Cable, Pin Lug Connections.

Part No.

A42022002

SPECIFICATIONS

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

APPLICATIONS:

- Water & Wastewater
- Industrial Trade Waste
- Cooling Towers



Suitable Housings: PA03021390, PA03021391, PA03021880, PA03001113

Note: For other housing units please see 4.7 in the Green Pages.



4.1 pH & Redox Industrial Probes



Industrial Sensors for in-line or submersible applications

PROBE pH	Part No. 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



A27022797



PA02032790

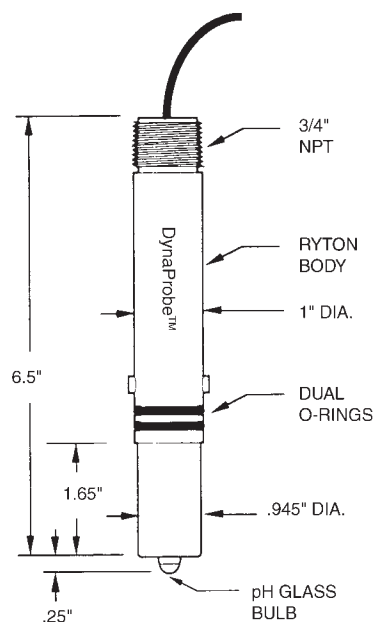
Pipe Adaptor Bush ... 3/4" Female NPT to 25mm Male Solvent Weld	Part No. A27022797
Additional heavy duty PVC protection cap for S400 series	PA03022896

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 - 14 pH
ORP Range:	± 5000 mV
Temp Range:	0-120°C
Max Press./Temp:	50 psig at 120°C
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.



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

Part No.

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** or **IN-LINE** applications, Flexible pipe assembly with J-Box has union connection to top of DynaProbe and TWIST-LOCK protective cover, 1.8m approx.

PA02032789

Note: DynaProbe not included, must be ordered separately.



PVC Twist-Lock Probe Adaptor for either submersible or 3/4" In-Line applications, with 1/4" plug for jet wash connections. To suit Twist Lock DynaProbe.

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 beta/ 4



4.3 Submersible Electrode Holders

Submersible, Direct Pipe mounting and Withdrawable



INDUSTRIAL SUBMERSIBLE HOLDERS

Part No.

Heavy duty electrode gland assy in PVC 1.8m approx Complete with 2.0m flexible submersible connection and J-Box for pH / Redox probes A41021851 & A42022002

PA03021390

Note: For pH our preferred option is A41021851 with 10m cable.
To complete installation customers should provide stilling chamber.
This can be in PVC drainage pipe with a minimum I.D. of 50mm.
The preferred diameter is 80mm of any PVC pipe.

Heavy duty electrode gland. RIGID submersible connection and J-Box for pH / Redox probes A41021851 & A42022002

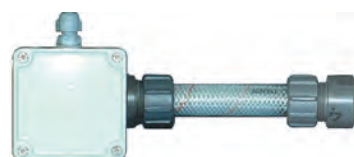
PA03021391

Note: for pH our preferred option is A41021851 with 10m cable. Pipe to be supplied by others.

Option for above holders enclosure in lieu of J-Box to suit pH / RH Transducer

PA21002939

Note: does NOT include pH / RH Transducer, see Yellow Pages.



PROBE HOLDERS FOR S400

Heavy duty flexible assembly in PVC 1.8m approx and J-Box for BJC S400 Industrial pH / Redox probes

PA02032789

Heavy duty Rigid assembly in PVC 1.8m approx and J-Box for BJC S400 Industrial pH / Redox probes

PA02032790



Rigid probe holder assembly for, PG13.5 to 1/2" BSPP Male PVC 102 mm long to suit 120mm/130mm probe. For mounting in-line. Suitable for SP100 & SP200 probes. Suit Vinidex Cat 15 Faucet Tee 1/2". For different pipeline sizes ask ProMinent.

PA02032258



Rigid probe holder assembly for, PG13.5 to 1/2" BSPP Male PVC 65 mm long to suit 77mm/80mm probe. For mounting in-line. Suitable for A41021851 and A42022002 probes. For different pipeline sizes ask ProMinent.

A03001876



Heavy duty electrode gland assy, MKII, PVC. Suit pH / Redox probes A41021851 & A42022002

PA03021880



Electrode gland assembly for pipeline mounting, heavy duty type with 1-1/4" BSPT connection. Suit pH / Redox probes A41021851 & A42022002

PA03021134



Withdrawable probe holder, to suit 16mm I.D. hose and 1-1/2" BSP full bore valve. Suit pH / Redox probes A41021851 & A42022002

PA03001113

Note: Above Part No includes 1-1/2" S/S valve & S/S nipple.



CHEMICAL JET WASH FOR S400 PROBES

3/4" Threaded with 6x4 tube connection

PA03023391



4.4 Electrode Holders

Electrode Holders & Filters

BY-PASS SENSOR HOLDER DLG 5
High iron, dirty water applications for use with 25mm CLE, CTE etc. Includes 1 x 25 mm port, and 2 x PG13.5 ports for pH and Pt100 sensors (if required), mounting bracket, 8 x 5 tube inlet and 16mm hose outlet, mounting kit 791818. for CLE, CTE etc.

PA03002885



ROTAMETER & FLOW SWITCH FOR ABOVE

P86515T

BY-PASS SENSOR HOLDER DLG 9
For use the the sample flow is unfilled with suspended food fragments e.g lettuce / salad. For use with the 25mm CLE, CTE etc. Includes 1 x 25mm port for sensor and 1 x PG13.5 ports for pH and PT100 probe (if required), mounting bracket, 2 x 3/4" PVC nipples, 1 x PVC 3/4" ball valve, large drain outlet and nut and mounting kit 791818 for CLE, CTE

PA03003436



Thermal Flow Swith for above

PA15003558

ADD FLOW CONTROL MARIC 33 L/HR ASSEMBLY (NOT REQ'D FOR POOLS)	
20x1.5 F to 15mm Solvent Weld - <i>including MARIC insert assembly</i>	PA27002656
20x1.5 M to 20x1.5 F - <i>including MARIC insert assembly</i>	PA27002657
20x1.5 F to 1/2" BSPT M - <i>including MARIC insert assembly</i>	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 BAMA units in **section 6.0 'Yellow Pages'**.



4.5 Probe Holder Accessories

Probe Holder Accessories



Sample Water Low Flow Switch, suitable for fitting to inlet connection on by-pass probe holder assembly, (8 x 5). Arranged to pause controller. This unit is fitted with opposing magnets that act like a spring so it can be mounted in any position. Supplied complete with fittings. Normally Open or Normally Closed contacts available.

Part No.

PA03022425

Low Flow Switch, SW15 connections mounting in any position

P20-C

Low Flow Switch, SW15 connections only without magnets
- vertical mounting only

P20-NM

Low Flow Switch, paddle type, pipe size 25 -150mm

F-H-25B



Flexible submersion pipe assembly to be used with DYNAPROBE or the MKII Gland Assembly below.

PA02032256



Adaptor PVC tube fitting, from J-Box to 23x16 hose

A27021362

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 & Glands

COAX CABLE, PER METRE

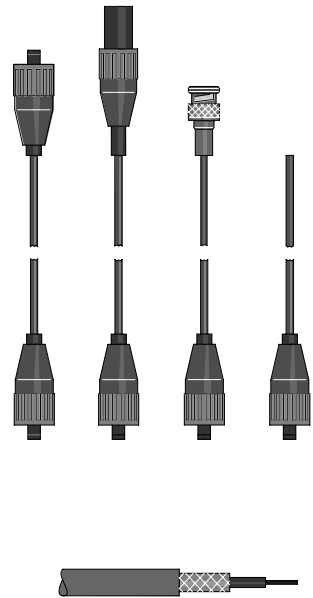
Military Grade, 50 ohm, type AM-900, Low Noise	A04001118
Grey HC2049 Cable, (2 core pulse)	A04001289

PROMINENT DULCOTEST COMPLETE SIGNAL CABLES

2 x SN6 Coax 0.8 m - SS **NOT STOCKED**	305077
2 x SN6 Coax 2.0 m - SS	304955
2 x SN6 Coax 5.0 m - SS **NOT STOCKED**	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* **NOT STOCKED**	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
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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, peripheral ref, 1X	120	SP200-2330-DH
PHED 112 SE	741036	pH Electrode, pH 1-12, 0-80° C, glass, PG 13.5 thread, SN6 Cap, pin wick ref, 2X	120	SP200-2330-DH
No Longer Available	A41011942	pH Probe polymer (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	
Not Stocked	A41021852	pH Electrode, pH 1-14, -5-100° C, HT4 glass, S/S Cap, peripheral ref, 2X, 3M Cable, pin lugs	80	
No Longer Available	A41021966	pH Electrode, pH 1-13, 0-100° C, glass, PG13.5 thread, SN6 Cap, peripheral ref, 2X	120	SP200-2330-DH
Not Stocked	A41022001	pH Electrode, pH 1-13, 0-100° C, glass, S/S Cap, Calomel, pin wick ref, 2X, 3M Cable, pin lugs	80	Not Stocked can be ordered if required
No Longer Available	A41011685	pH Probe polymer (Blue), pH 1-13, S/S cap, pin wick ref, 1X, 3M cable, SN6 Plug	110	SP100-4330-DH Add Coax cable with SN6 plug
Redox Electrodes	Part No.	Description	Length mm	Replacement
RHE-Pt-SE	305001	Redox Electrode, glass, 0-60° C, PG 13.5 thread, SN6 Cap, pin wick ref	120	SP100-4PB0-DH
RHEP-Pt-SE	150094	Redox Electrode, glass, 0-80° C, PG 13.5 thread, SN6 Cap, pin wick ref	120	SP200-2PB0-DH
RHEX-Pt-SE	305097	Redox Electrode, glass, 0-100° C, PG 13.5 thread, SN6 Cap, peripheral ref	120	SP200-2PB0-DH
No Longer Available	A42011943	Redox Probe polymer (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 polymer (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
Not Stocked	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

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.
THIS UNIT HAS BEEN DISCONTINUED	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 <u>pairs</u> .	
Note: This means you must have same metallurgy for both tips on the sensor. They are regarded as consumables.	

CONSUMABLE ITEMS - PLEASE CHECK AVAILABILITY

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	7760577
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 ¾" SCH 80 threaded PVC 'T' fitting with ¾" non-metallic sensor entry fitting and 3m, 10ft of 3xAWG 22 PVC jacketed cable.
LPR_CS	1010 Carbon Steel CDA	1¼"L x 3/16"D electrode set supplied installed.
LPR_CU	110 Copper CDA 443	Sensor accepts standardized LPR
LPR_AM	Admiralty	electrodes threaded #4-40 UNC

LogR	SPECIFICATION	EXPLANATION / DETAIL
Corrosion Rate Measure & Display	0.01 to 50.0 mpy for steel Updates every 150 seconds.	LogR CE compliant under 89/336/EEC Electrode metallurgy user selectable.
4-20mA Output	Three wire: Power, Ground & 4-20mA out Resolution nominally 1 part in 4000.	User selectable 4-20mA range from 2 to 100 mpy. Adjustable loop Span & Zero.
Data Logging	1 Year @ 5 minute intervals.	Log auto-uploaded via USB thumb drive in CSV format (Comma Separated Variable)
Alarm Contacts	Normally closed Rated 24VDC, 250mA Thermally fused 300mA	User adjustable alarm trip point. Alarm contacts also open on loss of power.
Display & Data Link	2x8 LCD Display. USB Host emulation.	Battery backed clock time & date stamps data log.
UP-DOWN & Mode Switches	UP & DOWN push buttons 8 Selectable display modes, 0 to 7.	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" x 1 ¾", 110mm x 110mm x 45mm	PG16 cable entry for sensor & current loop cabling included. Wall mount 3-point bracket included.
Wiring Terminal Blocks	Rated AWG16-26 3.5mm spacing.	Power, 4-20mA, sensor and alarm contacts, 2 piece, removable wiring blocks



5.2 Conductivity 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



AEGIS Conductivity Sensors & Parts

	Part No.
CTF Sesnor assembly AEGIS I & Slimflex	7760021
CTFS Sensor assembly for AEGIS II (AGIB) Serial Sensor	1127748

Note: Individual parts for sensor holder also available POA Sydney



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 alternatives.

	Part No.
CO ₂ Flow Regulator 18 l/m with Flow Meter and 240v Solenoid (as above) in enclosure with lighted on/off switch.	PA31003612
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.	PA31923627
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
Diffusers Spares - Diffuser for PA31923627 WHITE	A31EB3628
Diffusers Spares - Diffuser for PA31921314 WHITE MODIFIED	AE1EB3634



PA31003612
CO₂ Controller



PA31923627
Withdrawable CO₂ Injection Assembly



PA03022425
Sample Flow Switch



SP100-4330-DH
pH Sensor



SP100-4PBO-DH
ORP Sensor



6.2 Pool Packages COMPACT controller pH/ORP

DCC300 pH/ORP POOL CONTROL SYSTEM

Part No.	Description	
DCCAW006PR0010EN	Compact Controller pH/ORP	2
SP100-4330-DH	Probe pH 0-12 pH 0 to 80°C HT3 glass	1
SP100-4PB0-DH	Probe Rh 0-1000Mv 0 To 80°C Ht3 Glass	1
1024105	Probe cable	2
BAMAEU2222XXF01X000101EN	Probe Holder with Flow switch	1
PA07221061	PVC 1/2" to 8x5 mm	1
A25251004	PE tube 25m 8 x 5mm	1
A350D3402	Backboard 600x600 LDPE	1
506253	pH 7 buffer	1
506251	pH 4 buffer	1



DCC300SC SPECIAL FOR SALT CHLORINATOR

Note: ORP gold type probe **Part No. 1003875**

DCC400 pH/ORP POOL CONTROL SYSTEM

Part No.	Description	
DCCaW006PR0010EN	Compact Controller pH/ORP	2
PA31003612	CO ₂ Flow Regulator Assembly	1
PA09751676	CO ₂ Injection Assembly	1
SP100-4330-DH	Probe pH 0-12 pH 0 to 80°C HT3 glass	1
SP100-4PB0-DH	Probe Rh 0-1000Mv 0 To 80°C Ht3 Glass Polymer Body	1
1024105	Probe cable	2
BAMAEU2222XXF01X000101EN	Probe Holder with Flow switch	1
A25251004	8x5 Tubing Black LDPE x 25m	1
PA07221061	PVC 1/2" to 8x5 mm	1
A350D3402	Backboard 600x600 LDPE	1
506253	pH 7 buffer	1
506251	pH 4 buffer	1



DCC400SC SPECIAL FOR SALT CHLORINATOR

Note: ORP gold type probe **Part No. 1003875**

6.2 Pool Packages COMPACT controller pH/ORP



DCC500 pH/CI POOL CONTROL SYSTEM

Part No.	Description	
DCCaW006PR0010EN	Compact Controller pH/ORP	1
DCCaW006C00010EN	Compact Controller Chlorine	1
1024105	Probe cable	1
SP100-4330-DH	Sensor pH 0-12 pH 0 to 80°C HT3 glass	1
1038902	Sensor CLB2-uA-5ppm	1
BAMAEU222XXF01X000101EN	Probe Holder with Flow switch	1
A04001289	2 core cable	1
PA07221061	PVC 1/2" to 8x5 mm	1
A25251004	PE tube 25m 8 x 5mm	1
A350D3402	Backboard 600x600 LDPE	1
506253	pH 7 buffer	1
506251	pH 4 buffer	1



DCC600 pH/CI POOL CONTROL SYSTEM

Part No.	Description	
DCCaW006PR0010EN	Compact Controller pH/ORP	1
DCCaW006C00010EN	Compact Controller Chlorine	1
PA31003612	CO2 Flow Regulator Assembly	1
PA09751676	CO2 Injection Assembly	1
1024105	Probe cable	1
SP100-4330-DH	Sensor pH 0-12 pH 0 to 80°C HT3 glass	1
1038902	Sensor CLB2-uA-5ppm	1
BAMAEU222XXF01X000101EN	Probe Holder with Flow switch	1
A04001289	2 core cable	1
PA07221061	PVC 1/2" to 8x5 mm	1
A25251004	PE tube 25m 8 x 5mm	1
A350D3402	Backboard 600x600 LDPE	1
506253	pH 7 buffer	1
506251	pH 4 buffer	1

Options

	Part No.
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.	PA55003052
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.	PA55003540
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.	PA55003541
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.	PA55003055
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.	PA55003542
240 volt relay switched output for control of other equipment. This includes 1 relay with GPO mounted on the backboard and into the instrument.	PA55003543



6.3 Pool Packages QUICK START diaLog

Quick Start Guide

VERSION	PH	ORP	CLE3	CGE3	CTE3	CAA	CO ₂
diaLog300	X	X					
diaLog400	X	X					X
diaLog500	X		X				
diaLog510	X	X	X				
diaLog520	X		X		X		
diaLog540	X		X			X	
diaLog550	X	X				X	
diaLog600	X		X				X
diaLog610	X	X	X				X
diaLog620	X		X		X		X
diaLog640	X		X			X	X
diaLog650	X	X				X	X
diaLog700	X			X			
diaLog710	X	X		X			
diaLog720				X	X		
diaLog740	X			X		X	
diaLog800	X			X			X
diaLog810	X	X		X			X
diaLog820				X	X		
diaLog840	X			X		X	X

GOLD System

Salt Water Chlorinators

VERSION	PH	ORP-GOLD	CLE3	CGE-GOLD	CAA	CO ₂
diaLog550G	X	X			X	
diaLog650G	X	X			X	X
diaLog710G	X	X		X		
diaLog810G	X	X		X		X



6.4 Pool Packages diaLog pH/Cl₂



diaLog300 pH/ORP POOL CONTROL SYSTEM

Part No.	Description	
DACBW006VV04000010010EN	DiaLog 2 Channel Pool Controller	1
SP100-4330-DH	Sensor pH	1
SP100-4PB0-DH	Sensor ORP	1
BAMAEU222XXF01X0000000EN	Probe holder, filter & flow switch assembly	1
1024105	Cable Coax	2
724009	Cable Power 2M	1
A350D3402	Backboard 600x600 LDPE	1
PA07221061	Adaptor PVC 1/2" - 8x5	1
A25251004	Tubing 8x5 25M	1
506253	Buffer Solution pH7	1
506251	Buffer Solution pH4	1

Note: All mounted on backboard.

diaLog400 pH/ORP POOL CONTROL SYSTEM



Part No.	Description	
DACBW006VV04000010010EN	DiaLog 2 Channel Pool Controller	1
PA31003612	CO2 Flow Regulator 25lt/min	1
SP100-4330-DH	Sensor pH	1
SP100-4PB0-DH	Sensor ORP	1
BAMAEU222XXF01X0000000EN	Probe holder, filter & flow switch assembly	1
1024105	Cable Coax	1
724009	Cable Power 2M	2
A350D3402	Backboard 600x600 LDPE	1
PA07221061	Adaptor PVC 1/2" - 8x5	1
A25251004	Tubing 8x5 25M	1
506253	Buffer Solution pH7	1
506251	Buffer Solution pH4	1

Note: All mounted on backboard.

diaLog500 pH/Cl₂ POOL CONTROL SYSTEM



Part No.	Description	
DACbW006VA00000010010EN	diaLog pH/Chlorine Controller	1
792919	Chlorine sensor CLE3-mA-10 ppm	1
SP100-4330-DH	pH probe	1
BAMAEU2211XXF01X0000000EN	Probe holder, filter & flow switch assembly	1
1024105	Probe cable	1
PA07221061	1/2"to 8 x 5 PVC adaptor	1
A25251004	8 x 5mm LDPE tubing - 25m	1
A350D3402	Backboard 600x600 LDPE	1
506253	pH 7 buffer	1
506251	pH 4 buffer	1

DX adder Adds DULCONNEX to DACb pool packages. Includes LAN, Gateway & 12 month subscription
 - Subscription included @ \$30 / month
 - Customer to provide Wi- Fi
 - Contractor subscription discount \$10 / month

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



6.4 Pool Packages diaLog pH/Cl₂

diaLog600 pH/Cl₂/CO₂ POOL CONTROL SYSTEM

Part No.	Description	
DACbW006VA00000010010EN	DiaLog Dual Channel Pool Controller	1
PA31003612	CO2 Flow Regulator 25lt/min	1
792919	Sensor CLE 10 ppm	1
SP100-4330-DH	Sensor pH	1
BAMAEU2211XXF01X000000EN	Probe holder, filter & flow switch assembly	1
1024105	Cable Coax	1
724009	Cable Power 2M	1
A350D3402	Backboard 600x600 LDPE	1
PA07221061	Adaptor PVC 1/2" - 8x5	1
A25251004	Tubing 8x5 25M	1
506253	pH 7 buffer	1
506251	pH 4 buffer	1



ProMinent®

diaLog700 pH/Cl₂ POOL CONTROL SYSTEM

Part No.	Description	
DACbW006VA000000010010EN	diaLog pH/Chlorine Controller	1
1047975	Chlorine sensor CGE3	1
SP100-4330-DH	pH probe	1
BAMAEU2211XXF01X000000EN	Probe holder, filter & flow switch assembly	1
1024105	Probe cable	1
PA07221061	1/2"to 8 x 5 PVC adaptor	1
A25251004	8 x 5mm LDPE tubing - 25m	1
A350D3402	Backboard 600x600 LDPE	1
506253	pH 7 buffer	1
506251	pH 4 buffer	1



diaLog800 pH/Cl₂/CO₂ POOL CONTROL SYSTEM

Part No.	Description	
DACbW006VA00000010010EN	DiaLog Dual Channel Pool Controller	1
PA31003612	CO2 Flow Regulator 25lt/min	1
1047975	Chlorine sensor CGE3	1
SP100-4330-DH	Sensor pH	1
BAMAEU2211XXF01X000000EN	Probe holder, filter & flow switch assembly	1
1024105	Cable Coax	1
724009	Cable Power 2M	1
A350D3402	Backboard 600x600 LDPE	1
PA07221061	Adaptor PVC 1/2" - 8x5	1
A25251004	Tubing 8x5 25M	1
506253	pH 7 buffer	1
506251	pH 4 buffer	1



6.4 Pool Packages diaLog pH/Cl₂

diaLog510 pH/ORP/Cl₂ POOL CONTROL SYSTEM

Part No.	Description	
DACBW006VA4000010010EN	DiaLog 3 Channel Pool Controller	1
792919	Sensor CLE 10 ppm	1
SP100-4330-DH	Sensor pH	1
SP100-4PB0-DH	Sensor ORP	1
BAMAEU2221XXF01X0000000EN	Probe holder, filter & flow switch assembly	1
1024105	Cable Coax	2
724009	Cable Power 2M	1
A350D3402	Backboard 600x600 LDPE	1
PA07221061	Adaptor PVC 1/2" - 8x5	1
A25251004	Tubing 8x5 25M	1
506253	pH 7 buffer	1
506251	pH 4 buffer	1

diaLog520 pH/Cl₂/Cl₂ POOL CONTROL SYSTEM

Part No.	Description	
DACBW006VA4000010010EN	DiaLog 3 Channel Pool Controller	1
SP100-4330-DH	Sensor pH	1
792919	Sensor CLE 10 ppm	1
740684	Sensor CTE 10 ppm	1
BAMAEU2212XXF01X0000000EN	Probe holder, filter & flow switch assembly	1
1024105	Cable Coax	1
724009	Cable Power 2m	1
A350D3402	Backboard 600x600 LDPE	1
PA07221061	Adaptor PVC 1/2" - 8x5	1
A25251004	Tubing 8x5 25m	1
506253	pH 7 buffer	1
506251	pH 4 buffer	1



diaLog540 pH /Cl₂/CAA POOL CONTROL SYSTEM

Part No.	Description	
DACBW006VA4000010010EN	DiaLog 3 Channel Pool Controller	1
792919	Sensor CLE 10 ppm	1
SP100-4330-DH	Sensor pH	1
1081545-10	Conductivity Sensor 0-10000uS	1
BAMAEU2212XXF01X0000000EN	Probe holder, filter & flow switch assembly	1
1024105	Cable Coax	1
724009	Cable Power 2m	1
A350D3402	Backboard 600x600 LDPE	1
PA07221061	Adaptor PVC 1/2" - 8x5	1
A25251004	Tubing 8x5 25m	1
506253	pH 7 buffer	1
506251	pH 4 buffer	1



6.4 Pool Packages diaLog pH/Cl₂

diaLog550 pH /ORP/CAA POOL CONTROL SYSTEM

Part No.	Description	
DACBW006VA4000010010EN	DiaLog 3 Channel Pool Controller	1
1081545-10	Conductivity Sensor 0-10000uS	1
SP100-4330-DH	Sensor pH	1
SP100-4PB0-DH	Sensor ORP	1
BAMAEU2221XXF01X000000EN	Probe holder, filter & flow switch assembly	1
1024105	Cable Coax	2
724009	Cable Power 2M	1
A350D3402	Backboard 600x600 LDPE	1
PA07221061	Adaptor PVC 1/2" - 8x5	1
A25251004	Tubing 8x5 25M	1
506253	pH 7 buffer	1
506251	pH 4 buffer	1

diaLog610 pH/ORP/Cl₂/CO₂ POOL CONTROL SYSTEM

Part No.	Description	
DACBW006VA4000010010EN	DiaLog 3 Channel Pool Controller	1
PA31003612	CO ₂ Flow Regulator 25lt/min	1
792919	Sensor CLE 10 ppm	1
SP100-4330-DH	Sensor pH	1
SP100-4PB0-DH	Sensor ORP	1
BAMAEU2221XXF01X000000EN	Probe holder, filter & flow switch assembly	1
1024105	Cable Coax	2
724009	Cable Power 2M	1
A350D3402	Backboard 600x600 LDPE	1
PA07221061	Adaptor PVC 1/2" - 8x5	1
A25251004	Tubing 8x5 25M	1
506253	pH 7 buffer	1
506251	pH 4 buffer	1

diaLog620 pH/Cl₂/Cl₂/CO₂ POOL CONTROL SYSTEM

Part No.	Description	
DACbW006VA4000010010EN	DiaLog 3 Channel Pool Controller	1
PA31003612	CO ₂ Flow Regulator MkII	1
792919	Sensor CLE 10 ppm	1
740684	Sensor CTE 10 ppm	1
SP100-4330-DH	Sensor pH	1
BAMAEU2212XXF01X000000EN	Probe holder, filter & flow switch assembly	1
1024105	Cable Coax	1
724009	Cable Power 2M	1
A350D3402	Backboard 600x600 LDPE	1
PA07221061	Adaptor PVC 1/2" - 8x5	1
A25251004	Tubing 8x5 25M	1
506253	pH 7 buffer	1
506251	pH 4 buffer	1



6.4 Pool Packages diaLog pH/Cl₂



diaLog640 pH/Cl₂/CAA/CO₂ POOL CONTROL SYSTEM

Part No.	Description	
DACbW006VA4000010010EN	DiaLog 3 Channel Pool Controller	1
PA31003612	CO2 Flow Regulator 25lt/min	1
1081545-10	Conductivity Probe	1
792919	Sensor CLE 10 ppm	1
SP100-4330-DH	Sensor pH	1
BAMAEU2212XXF01X000000EN	Probe holder, filter & flow switch assembly	1
1024105	Cable Coax	1
724009	Cable Power 2M	1
A350D3402	Backboard 600x600 LDPE	1
PA07221061	Adaptor PVC 1/2" - 8x5	1
A25251004	Tubing 8x5 25M	1
506253	pH 7 buffer	1
506251	pH 4 buffer	1

diaLog650 pH/ORP/CAA/CO₂ POOL CONTROL SYSTEM

Part No.	Description	
DACbW006VA4000010010EN	DiaLog 3 Channel Pool Controller	1
PA31003612	CO2 Flow Regulator 25lt/min	1
1081545-10	Conductivity Sensor 0-10000uS	1
SP100-4330-DH	Sensor pH	1
SP100-4PB0-DH	Sensor ORP	1
BAMAEU2221XXF01X000000EN	Probe holder, filter & flow switch assembly	1
1024105	Cable Coax	2
724009	Cable Power 2M	1
A350D3402	Backboard 600x600 LDPE	1
PA07221061	Adaptor PVC 1/2" - 8x5	1
A25251004	Tubing 8x5 25M	1
506253	pH 7 buffer	1
506251	pH 4 buffer	1

diaLog710 pH/ORP/Cl₂ POOL CONTROL SYSTEM

Part No.	Description	
DACbW006VA0000010010EN	DiaLog Dual Channel Pool Controller	1
1047975	Chlorine sensor CGE3	1
SP100-4330-DH	Sensor pH	1
SP100-4PB0-DH	Sensor ORP	1
BAMAEU2221XXF01X000000EN	Probe holder, filter & flow switch assembly	1
1024105	Cable Coax	1
724009	Cable Power 2M	1
A350D3402	Backboard 600x600 LDPE	1
PA07221061	Adaptor PVC 1/2" - 8x5	1
A25251004	Tubing 8x5 25M	1
506253	pH 7 buffer	1
506251	pH 4 buffer	1



6.4 Pool Packages diaLog pH/Cl₂

diaLog740 pH/Cl₂/CAA POOL CONTROL SYSTEM

Part No.	Description	
DACbW006VA4000010010EN	diaLog 3 Channel Controller	1
1047975	Chlorine sensor CGE3	1
SP100-4330-DH	pH probe	1
1081545-10	Conductivity Probe	1
BAMAEU2212XXF01X000000EN	Probe holder, filter & flow switch assembly	1
1024105	Probe cable	1
A25251004	8 x 5mm LDPE tubing - 25m	1
A350D3402	Backboard 600x600 LDPE	1
506253	pH 7 buffer	1
506251	pH 4 buffer	1



diaLog810 pH/ORP/Cl₂/CO₂ POOL CONTROL SYSTEM

Part No.	Description	
DACbW006VA0000010010EN	DiaLog Dual Channel Pool Controller	1
PA31003612	CO ₂ Flow Regulator 25lt/min	1
1047975	Chlorine sensor CGE3	1
SP100-4330-DH	Sensor pH	1
SP100-4PB0-DH	Sensor ORP	1
BAMAEU2221XXF01X000000EN	Probe holder, filter & flow switch assembly	1
1024105	Cable Coax	1
724009	Cable Power 2M	1
A350D3402	Backboard 600x600 LDPE	1
PA07221061	Adaptor PVC 1/2" - 8x5	1
A25251004	Tubing 8x5 25M	1
506253	pH 7 buffer	1
506251	pH 4 buffer	1

diaLog840 PH/CL₂/CAA/CO₂ POOL CONTROL SYSTEM

Part No.	Description	
DACbW006VA4000010010EN	diaLog 3 Channel Controller	1
PA31003612	CO ₂ Flow Regulator 25lt/min	1
1047975	Chlorine sensor CGE3	1
SP100-4330-DH	pH probe	1
1081545-10	Conductivity Probe	1
BAMAEU2212XXF01X000000EN	Probe holder, filter & flow switch assembly	1
1024105	Probe cable	1
A25251004	8 x 5mm LDPE tubing - 25m	1
A350D3402	Backboard 600x600 LDPE	1
506253	pH 7 buffer	1
506251	pH 4 buffer	1



6.5

Pool Packages diaLog pH/Cl₂

GOLD Systems special for Salt Chlorinator

diaLog550G pH/ORP/CAA POOL CONTROL SYSTEM

Part No.	Description	
DACBW006VA4000010010EN	DiaLog 3 Channel Pool Controller	1
1081545-10	Conductivity Sensor 0-10000uS	1
SP100-4330-DH	Sensor pH	1
1003875	Sensor ORP RHEP-Au	1
BAMAEU2221XXF01X000000EN	Probe holder, filter & flow switch assembly	1
1024105	Cable Coax	2
724009	Cable Power 2M	1
A350D3402	Backboard 600x600 LDPE	1
PA07221061	Adaptor PVC 1/2" - 8x5	1
A25251004	Tubing 8x5 25M	1
506253	pH 7 buffer	1
506251	pH 4 buffer	1

diaLog650G pH/ORP/CAA/CO₂ POOL CONTROL SYSTEM

Part No.	Description	
DACBW006VA4000010010EN	DiaLog 3 Channel Pool Controller	1
PA31003612	CO ₂ Flow Regulator 25lt/min	1
1081545-10	Conductivity Sensor 0-10000uS	1
SP100-4330-DH	Sensor pH	1
1003875	Sensor ORP RHEP-Au	1
BAMAEU2221XXF01X000000EN	Probe holder, filter & flow switch assembly	1
1024105	Cable Coax	2
724009	Cable Power 2M	1
A350D3402	Backboard 600x600 LDPE	1
PA07221061	Adaptor PVC 1/2" - 8x5	1
A25251004	Tubing 8x5 25M	1
506253	pH 7 buffer	1
506251	pH 4 buffer	1

diaLog710G pH/ORP /Cl₂ POOL CONTROL SYSTEM

Part No.	Description	
DACbW006VA0000010010EN	DiaLog Dual Channel Pool Controller	1
1047975	Chlorine sensor CGE3-mA-10 ppm	1
SP100-4330-DH	Sensor pH	1
1003875	Sensor ORP RHEP-Au	1
BAMAEU2221XXF01X000000EN	Probe holder, filter & flow switch assembly	1
1024105	Cable Coax	1
724009	Cable Power 2M	1
A350D3402	Backboard 600x600 LDPE	1
PA07221061	Adaptor PVC 1/2" - 8x5	1
A25251004	Tubing 8x5 25M	1
506253	pH 7 buffer	1
506251	pH 4 buffer	1



6.5 Pool Packages diaLog pH/Cl₂

GOLD Systems special for Salt Chlorinator

diaLog810G pH/ORP/Cl₂/CO₂ POOL CONTROL SYSTEM

Part No.	Description	
DACbW006VA0000010010EN	DiaLog Dual Channel Pool Controller	1
PA31003612	CO ₂ Flow Regulator 25lt/min	1
1047975	Chlorine sensor CGE3-mA-10 ppm	1
SP100-4330-DH	Sensor pH	1
1003875	Sensor ORP RHEP-Au	1
BAMAEU2221XXF01X000000EN	Probe holder, filter & flow switch assembly	1
1024105	Cable Coax	1
724009	Cable Power 2M	1
A350D3402	Backboard 600x600 LDPE	1
PA07221061	Adaptor PVC 1/2" - 8x5	1
A25251004	Tubing 8x5 25M	1
506253	pH 7 buffer	1
506251	pH 4 buffer	1



6.6 DULCOMARIN Accessories



PA01223349



PA01223350

	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 CGE 3-CAN-10 ppm	1047977
Chlorine sensor CBR 1-CAN-10 ppm	1122056
Chlorine sensor CTE 2-CAN-10 ppm	1136030
Chlorine sensor CTE 3-CAN-10 ppm	1136031
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

Adaptor 90° PVC 1/2" Male BSPP x 1/4" F BSPP	PA01223349
Adaptor 90° PVC DGMA Male BSPP x 1/4" F BSPP	PA01223350

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	A12001263
Each Capsule makes 100 mls Buffer	

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 220 mV, 50 ml	506244
Buffer solution pH 4.0 - red, 50 ml	506251
Buffer solution pH 7.0 - green, 50 ml	506253
Buffer solution pH 10.0 - blue, 50 ml	506255
Buffer solution 475 mV, 500 ml	A52003630



6.7 DULCONNEX Package for DACb

DULCONNEX Package for DACb

DX ADDER - DULCONNEX Add on Kit for DACb	PA51003580
DX ADDER - DULCONNEX Add on kit for DACb + LTE Dongle	PA51003580-M

Adds DULCONNEX to DACb packages. Includes CANBUS & DX Gateway & first 12 months subscription.

Annual Subscriptions	
12 month subscription [END USER]	zzDulcoSub
12 month subscription [CONTRACTOR]	zzDulcoSubCont
Annual IoT LTE Sim Card Subscription	zzDulcoSim



DACb with CANBUS



DULCONNEX
Gateway WiFi



6.8 Identity Code for Industrial Backboard Package

IBP Industrial Backboard Package

Controller Type

DCC	Compact Controller
D1C	D1CB Controller
DAC	Dialog 2 or 3 Channel
DCP	Dulcomarin 3

1	240 volt
2	24 volt (no lead)

Board Size

1	600 x 500
2	600 x 600
3	600 x 750
4	748 x 748
5	750 x 900 (non Stock Board)

1st Sample Line

1	BAMA 1 Sensor
2	BAMA 2 Sensors
3	BAMA 3 Sensors
4	BAMA 4 Sensors
5	DLG5 1 Sensor
6	DLG5 2 Sensors
7	DLG5 3 Sensors

2nd Sample Line

0	None
1	BAMA 1 Sensor
2	BAMA 2 Sensors
3	DLG5 1 Sensor
4	DLG5 2 Sensors

3rd Sample Line

0	None
1	BAMA 1 Sensor
2	DLG5 1 Sensor

Flow Monitor

	1 Line	2 Lines	3 Lines
0	None		
1	BAMA 25l/hr		
2	BAMA 50l/hr		
3	BAMA 100l/hr		
4	GEMU for DLG5		

Filter

0	None (Standard for DLG 5)
1	BAMA Only

Flow Limiter

0	None
1	12 l/h
2	54 l/h

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 DCC 1 2 2 0 0 2 1 0



6.9 D1Cb Industrial Sub Assemblies

FOR REFERENCE ONLY

D1CB SUB-ASSEMBLIES - INDUSTRIAL BACKBOARD PACKAGE

Identcode
IBPDIC11100100
with D1CBW00601000VC1011G00EN

Item	Part No.		Qty
1	BAMAEU12X1XX001X000000EN	BAMA Sensor Holder	1
2	A25251004	8x5mm PE tube 25mm Roll	1
3	A35082644	600h x500w Backboard	1
4	PROMLABEL150	ProMinent Label 150mm	1
5	724009	Power Cable	1

Identcode
IBPD1C12500400
with D1CBW00601000VC1011G00EN

Item	Part No.		Qty
1	PA03002885	by-pass sensor holder DLG5	1
2	A07051045	Bracket	1
3	I257000Z	Flowswitch	1
4	PA07221061	Adaptor PVC 1/2" to 8x5 mm	1
5	A01721802	5m, 16mm braided hose	5m
6	A25D3402	600 x 600 Backboard	1



6.9

diaLog Industrial Sub Assemblies

FOR REFERENCE ONLY

DIALOG SUB-ASSEMBLIES - INDUSTRIAL BACKBOARD PACKAGE

Identcode
IBPDAC12100100

with DACBW006AA0000010010

Item	Part No.		Qty
1	PA07221061	1/2" to 8x5mm Adaptor PVC	1
2	A25251004	8x5mm PE tube 25mm Roll	1
3	PROMLABEL150	ProMinent Label 150mm	1
4	724009	Power Cable	1
5	A25003402		1

Identcode
IBPDAC12200200

with DACBW006VA0000010010

Item	Part No.		Qty
1	BAMAEU2211XXX01X000000EN	Controller	1
2	1024105	Coax Cable 0.8M Sn6	1
3	PA07221061	1/2" to 8x5mm Adaptor PVC	1
4	A25251004	8x5mm PE tube 25mm Roll	1
5	PROMLABEL150	ProMinent Label 150mm	1
6	724009	Power Cable	1
5	A25003402		1

Identcode
IBPDAC12100100

with DACBW006VA0000010010EN

Item	Part No.	Description	Qty
1	BAMAEU12X1XX001X000000EN	Sensor Holder	1
2	PA07221061	1/2" to 8x5mm Adaptor PVC	1
3	A25251004	8x5mm PE tube 25mm Roll	1
4	PROMLABEL150	ProMinent Label 150mm	1
5	724009	Power Cable	1

Identcode
IBPDAC22100200

with DACBW004AA0000010010

Item	Part No.	Description	Qty
1	BAMAEU2211XXX001X000000EN	Sensor Holder	1
2	PA07221061	1/2" to 8x5mm Adaptor PVC	1
3	A25251004	8x5mm PE tube 25mm Roll	1
4	PROMLABEL150	ProMinent Label 150mm	1



6.9 diaLog Industrial Sub Assemblies

FOR REFERENCE ONLY

Identcode

IBPDAC22100200

with DACBW004AA4000010010

Item	Part No.	Description	Qty
1	BAMAEU221XXX001X000000EN	Sensor Holder	1
2	PA07221061	1/2" to 8x5mm Adaptor PVC	1
3	A25251004	8x5mm PE tube 25mm Roll	1
4	PROMLABEL150	ProMinent Label 150mm	1

Identcode

IBPDAC12600400

with DACBW006AA0000010010

Item	Part No.	Description	Qty
3	PA03003388	DLG5 for 2 x mA sensors	1
4	86515T	Gemu Rotameter	1
5	125000Z	Rotameter Switch	1
8	A01721802	16mm Braided Hose	2
9	A250D3402	600mm x 600mm Backboard Mtd	1
10	161-546-212	1/2" PVC Ball Valve GF	1
11	721-101-106	1/2" 90 deg PVC elbow	1
12		1/2" Schdule 80 pipe	1
13	PromLabel150	150mm ProMinent Label	1



Identcode

IBPDAC12600400

with DACBW006AA4000010010

Item	Part No.	Description	Qty
3	PA03003388	DLG5 for 2 x mA sensors	1
4	86515T	Gemu Rotameter	1
5	125000Z	Rotameter Switch	1
6		tp M20x1.5mm	1
7		PE tubing	1
8	A01721802	16mm Braided Hose	2
9	A250D3402	600mm x 600mm	
10		Backboard Mounted	1
11	161-546-212	1/2" PVC Ball Valve GF	1
12	721-101-106	1/2" 90 deg PVC elbow	2
13		1/2" Schdule 80 pipe	1
14	PromLabel150	150mm ProMinent Label	1



6.10 ProCal Granular Calcium Hypochlorite Feeder

ProCal Series Granular Calcium Hypochlorite System from ProMinent

The ProMinent ProCal series system generates a dilute Calcium Hypochlorite solution from granulated dry chemical. The granules are stored in a chamber, up to 40kg, where it is held until required.

The granules are transferred into a mixing tank where it is blended with the incoming water. The feeder is operated in manual or pulse duration mode in response to the amount of chlorine in the pool water. Automatic acid clean is incorporated.

- Suitable for pools up to 1,000,000 litres
- Capacity to 4kg/hr, (adjustable)
- Dimensions: 900 L x 500 W x 1170 H mm

Features & Benefits

- The ProMinent unique compact design allows the use of granular Calcium Hypochlorite as your pool chlorine source.
- Reduced OH&S requirements.
- The ProCal series comes pre-wired and pre-plumbed for easy installation.
- Interface with ProMinent controllers or other pulse duration controller provides accurate and reliable chlorine control.
- Lower TDS, when compared to liquid chlorine.
- Granular Calcium Hypochlorite is less expensive and more readily available than tablets.
- Less impact on pH.
- Automatic acid clean.



Model	Pool Size
ProCal	1,000,000 litres

ProCal Spare Parts

Part No.

24530750	Waterco Boost Pump
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
PA51003509	Service Kit Minor [12 months]
PA51003510	Service Kit Major [3-5 years]
PA59023621	Suction Manifold/Strainer



275PS Pump (no fittings included)



PA28003028



PA55023125



6.11 ProCal mini Granual Hypochlorite Feeder

ProMinent ProCal mini

The ProMinent ProCal mini Granular Calcium Hypochlorite feeder generates a dilute solution from granulated dry chemical.

Applications

- Hotel pools
- Apartment pools
- Hydrotherapy pools
- Retirement Village pools
- Spa pools
- Cold plunge pools

Capacity

- Up to 0.5 kg/hr of 70% granular calcium hypochlorite.

Package Dimensions

- 1020 x 550 x 710mm [H x D x W]

Features & Benefits

- The ProMinent® unique compact design allows the use of Granular Calcium Hypochlorite as your pool chlorine source.
- Reduced Occupational Health & Safety requirements.
- The ProCal mini series comes pre-wired and pre-plumbed for easy installation.
- Interface with ProMinent controllers or other pulse duration controllers provides accurate and reliable chlorine control.
- Lower TDS, when compared to liquid chlorine.
- Granular Calcium Hypochlorite is less expensive and more readily available than tablets.
- Less impact on pH when compared to liquid chlorine.
- Includes automatic acid clean system.

Model

ProCal mini



6.12 ProDos Calcium Hypochlorite Dosing Package

ProMinent ProDos 250

The **ProMinent ProDos 250** Calcium Hypochlorite Feeder System generates a 0.5% chlorine solution from granulated calcium hypochlorite suitable for dosing into water supplies. The system operates on a continuous batch process and includes the following.

Application

- Water Treatment Plants
- Waste Water Treatment Plants
- Rechlorination

Capacity

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

Package Dimensions

- Preparation Plant: 1170mm x 500mm x 900mm [H x D x W]
- Storage Tank: 1400mm x 1050mm x 1050mm [H x D x W]

Benefits

- The ProMinent ProDos 250 allows the use of granular calcium hypochlorite as your chlorine source.
- Reduced Occupational Health & Safety requirements compared to gas chlorine.
- Calcium hypochlorite does not degrade like liquid chlorine.
- The ProDos 250 system comes pre-wired and pre-plumbed for easy installation.
- Compact design means the system easily fits into most existing plant rooms, occupying far less space than large traditional liquid chlorine tank installations.

Preparation Plant

- 30kg storage hopper
- Vibratory granular feeder
- Mixing chamber
- Transfer pump
- Acid cleaning pump
- Control panel

Storage Tank

- 250L UV stabilised PE tank
- Chemically resistant Halar coated stirrer
- Manual 3-way valve to initiate acid clean
- All necessary interlocks



7.0 Dry Material Feeders

ProFeed dry material feeders can be used for any dry product in a powder or granular form.

ProFeed dry material feeders are used extensively in the water treatment and food industries, however, its application is limitless to any industry where controlled feed of dry material is required.

ProFeed consists of a 316 stainless steel body within which a feed screw and conditioning auger rotate at the same speed. The diameter of the feed screw and its speed is selected to provide the required feed rate of the product.

The pitch of the feed screw varies to minimize bridging and to provide even draw down of material from the feed hopper.

The conditioning auger helps condition the product prior to entering the feed screw which improves accuracy and avoids bridging.

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

Automation can be achieved in a variety of ways, eg: infinite variable speed control from a process signal.

Pulse duration control is also an option. AC, DC or pneumatic motors can be fitted. Hoppers of any size can be installed above the feeder.

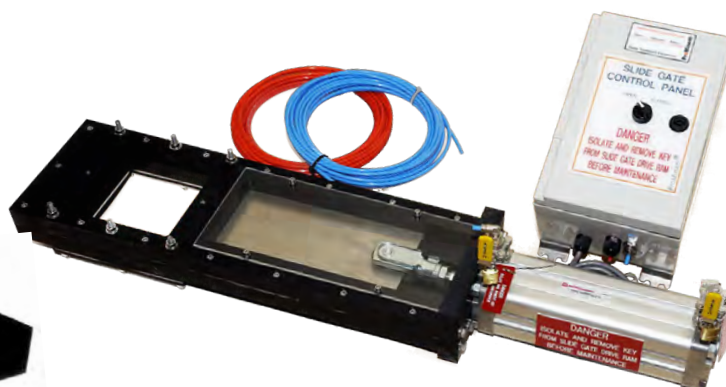
The entire system can be designed and constructed to suit your specific requirements.

Also available:

- Manual slidegates, Pneumatic slidegates
- Crumbler
- Solution tanks 304/316 SS with floor mounting stirrers
- Wetting assemblies ie:
 - **Ultra wet** for Polymer, P.A.C. etc. with hydraulic transfer.
 - **Ultra spray** for dust suppression eg: fluoride, lime etc.
- **ProLoad** bag loader (304SS) with internal bag slitter and microswitch for dust collector.
- Loss of weight recording/integrating packages.
- Promix Polymer preparation systems with 2 or 3 tanks.
- Outlet spout heaters - to help eliminate caking of product in feeder spout.



Manual slidegate



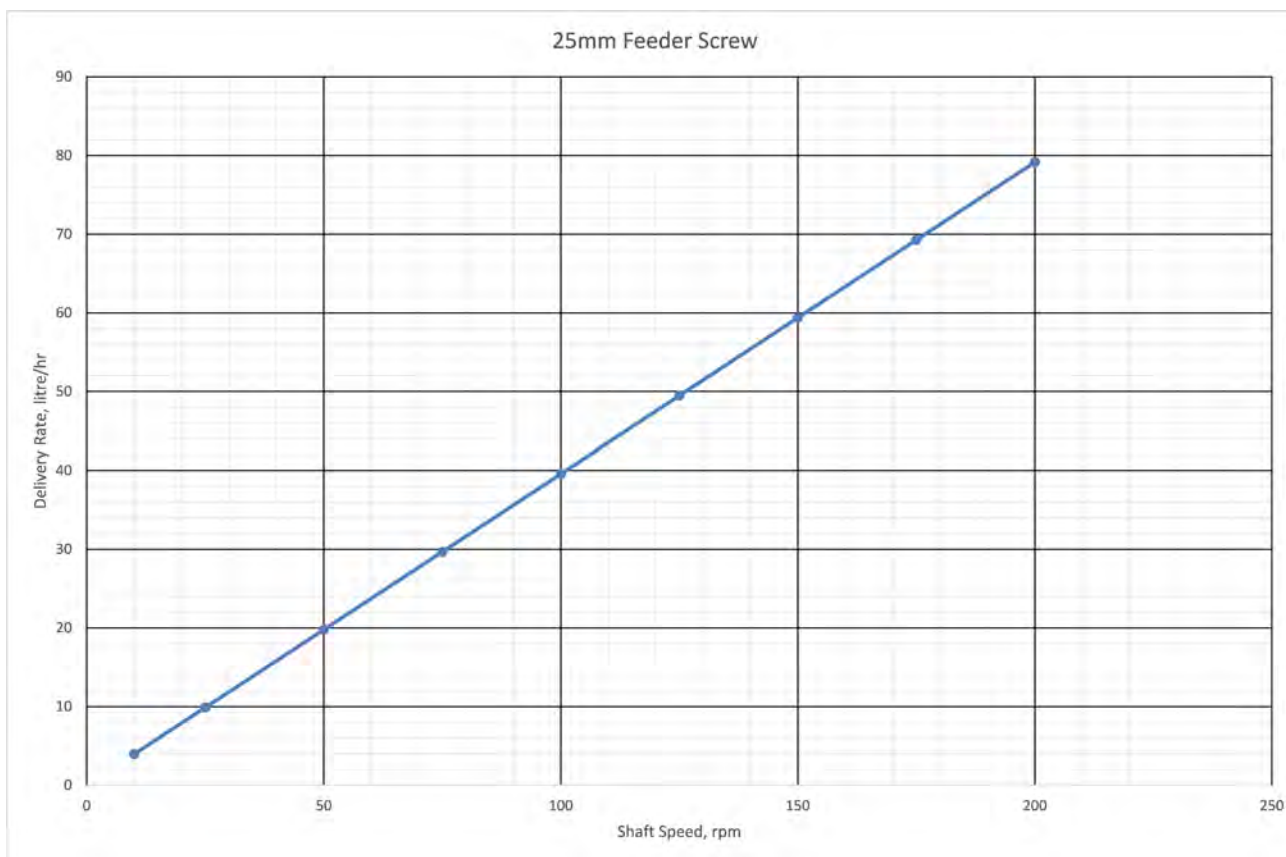
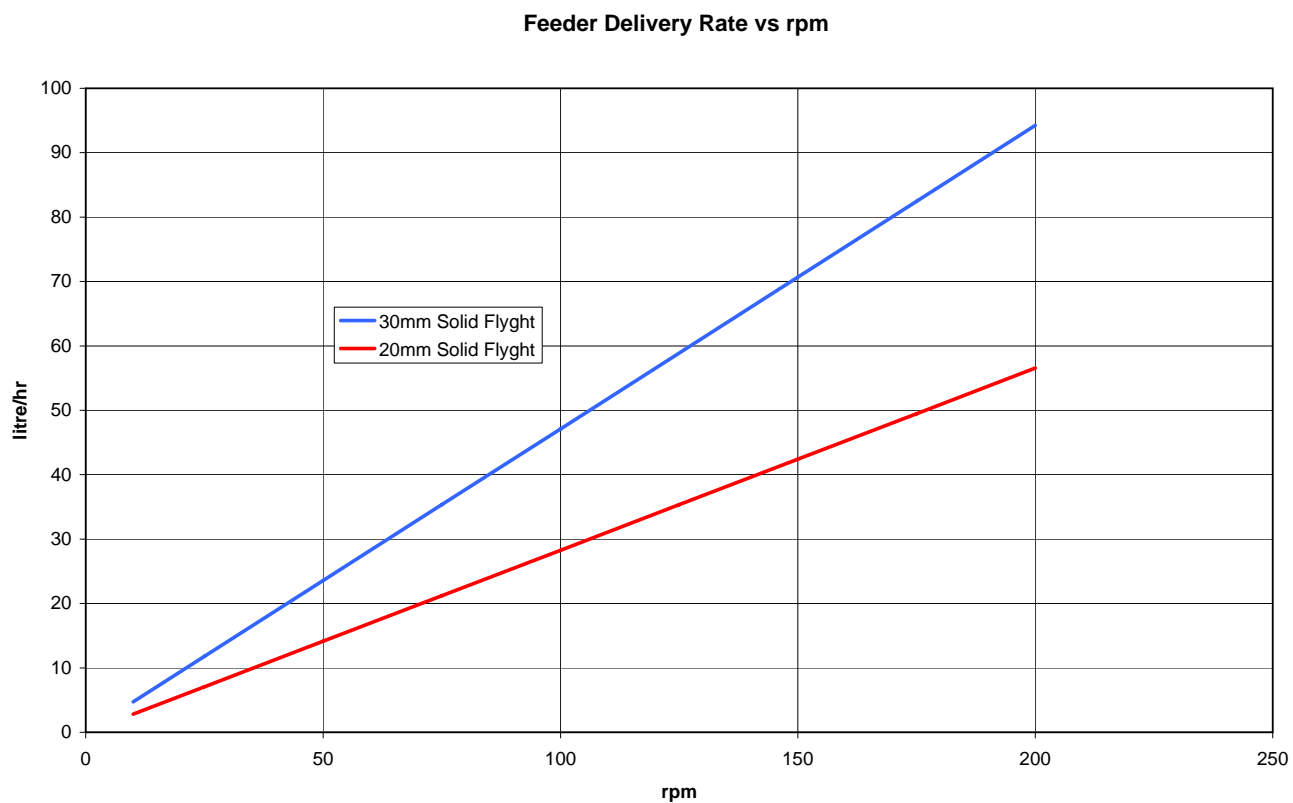
Pneumatic slidegate



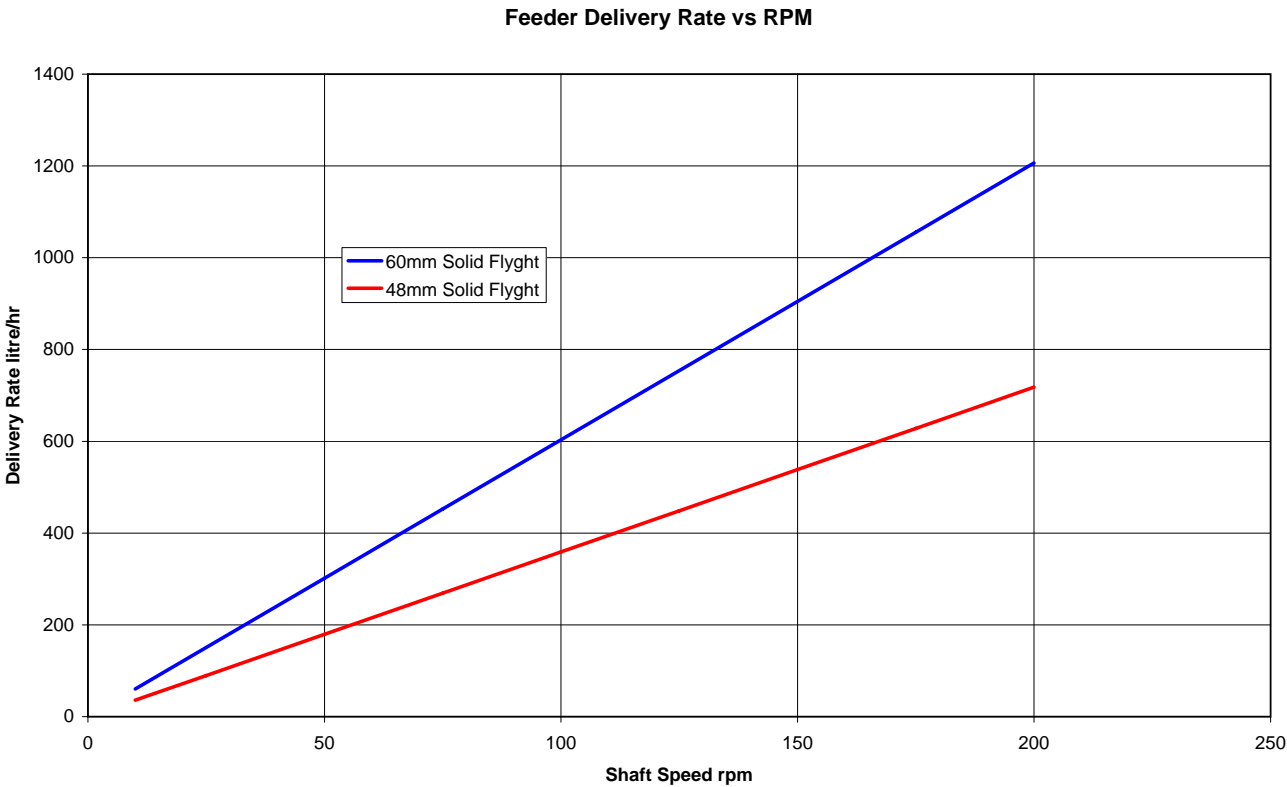
Feeder D series



7.1 Dry Material Feeder Charts



7.1 Dry Material Feeder Charts



7.2 Dry Material Feeders Identity Code

Series

PF
PF

Type

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

Feeder

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	025

Gearbox Ratio

0010	10:1		
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		

> Normally determined during manufacture

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	add
D	IP56 6 pole Optional	add
F	DIP rated 4 pole	add
Y	No Motor	add

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

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 maintenance. 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.

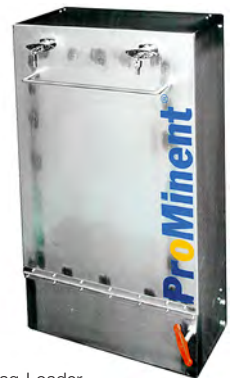


7.3 Dry Material Feeders Associated Equipment



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.

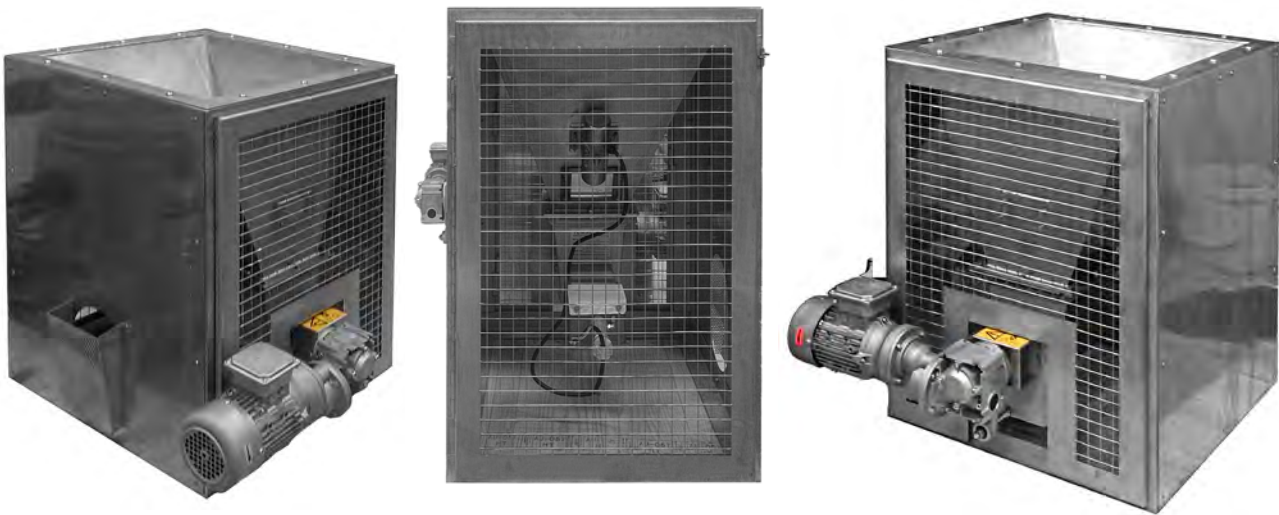
The ProFeed-690 stainless steel package comes with a hopper and supporting frame built to the same overall dimensions to provide a simple changeover solution. It will be supported by your existing solution tank and will accommodate your existing stirrer mounting.

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 the 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

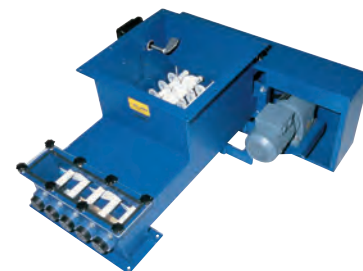
- OPTION**
- Price to provide panel for VF drive, controls for heater, stirrer & vibrator
 - Solution tanks

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 m³ storage capacity.
- Complete system is delivered using standard road transport.
- Minimises site preparation & installation costs.



**CONTACT SYDNEY OFFICE FOR FURTHER INFORMATION
ON YOUR SPECIFIC STORAGE & METERING NEEDS**

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Hydro Pages 2025

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hydro Chlorination Systems

ProMinent offer Hydro Vacuum operated gas chlorinators with capacities available from a maximum of 75 gm/h through to a maximum 40 kg/h.

Chlorinators are suitable for direct bottle or drum mounting or alternatively for header mounting. With header mounting systems, we offer our horizontal and vertical headers complete with heating, flexible connections and auxiliary cylinder or drum valves.

Wherever possible, we recommend direct cylinder mounting to eliminate pressure lines and the costly replacement of flexibles and cylinder valves.

Hydro body parts are machined from a solid block of PVC and are not injection moulded. Machining is more expensive, but eliminates the residual stresses from the moulding process that lead to cracking and warping.

Hydro chlorinators therefore have thicker and more rigid walls and the bodies will not warp.

The main diaphragm is double O-ring sealed. The rate valve is solid silver an alternative is PVDF.

The Hydro inlet valve assembly is easy to dismantle and clean without special tools.

Hydro use a yoke assembly for mounting the chlorinator which provides positive sealing.

The ejector check valve has a self-centring seal and provides positive shut-off.

Hydro's simple construction permits an operator to repair or replace parts, in most cases with only the need for a screwdriver.

Spare parts are readily available and are not overpriced. In many cases it may be cheaper to buy a new Hydro chlorinator than to repair another brand.

Systems available with Hydro chlorinators include remote ejectors, remote rate control valves, automatic changeover units and 4 - 20 mA servo control systems.

Other accessories such as chlorine gas leak detectors and complete installation of systems are available.

Please do not hesitate to contact one of our offices, should you require pricing or further details on this range of equipment.



hydro Gas Chlorinators

900 Series with ejector, remote meter & accessories

Cylinder, Wall or Header Mounting - 900 series

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

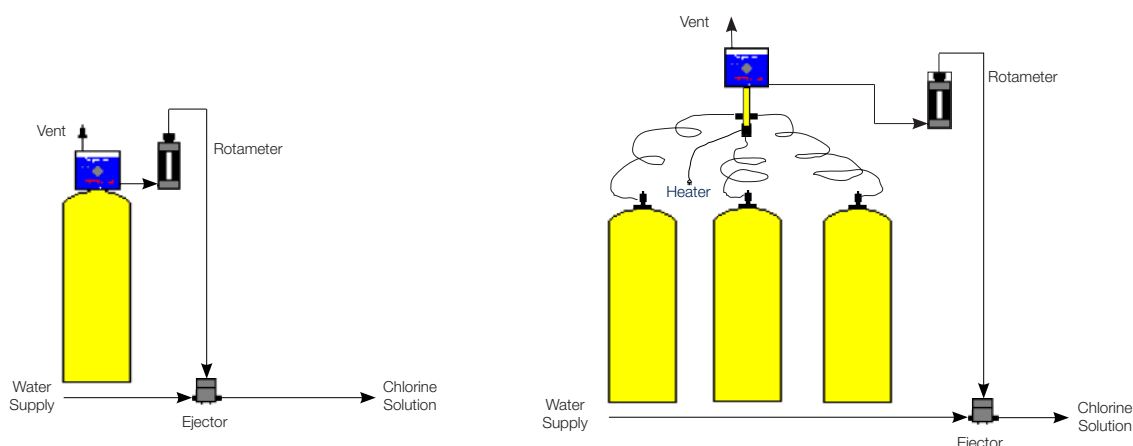
Max Capacity		PFC Part No.
75 g/h	1 x Vacuum Regulator, Remote Meter & Ejector	920C
200 g/h	1 x Vacuum Regulator, Remote Meter & Ejector	921C
500 g/h	1 x Vacuum Regulator, Remote Meter & Ejector	922C
1000 g/h	1 x Vacuum Regulator, Remote Meter & Ejector	923C
2000 g/h	1 x Vacuum Regulator, Remote Meter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

Up to 5 Kg/Hr Systems

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

Up to 10 Kg/Hr Systems

1 x Vacuum Regulator, Remote Meter & Ejector	990C
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In-Built Auto Changeover System (max 2 Vacuum Regulators) - 900 series

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

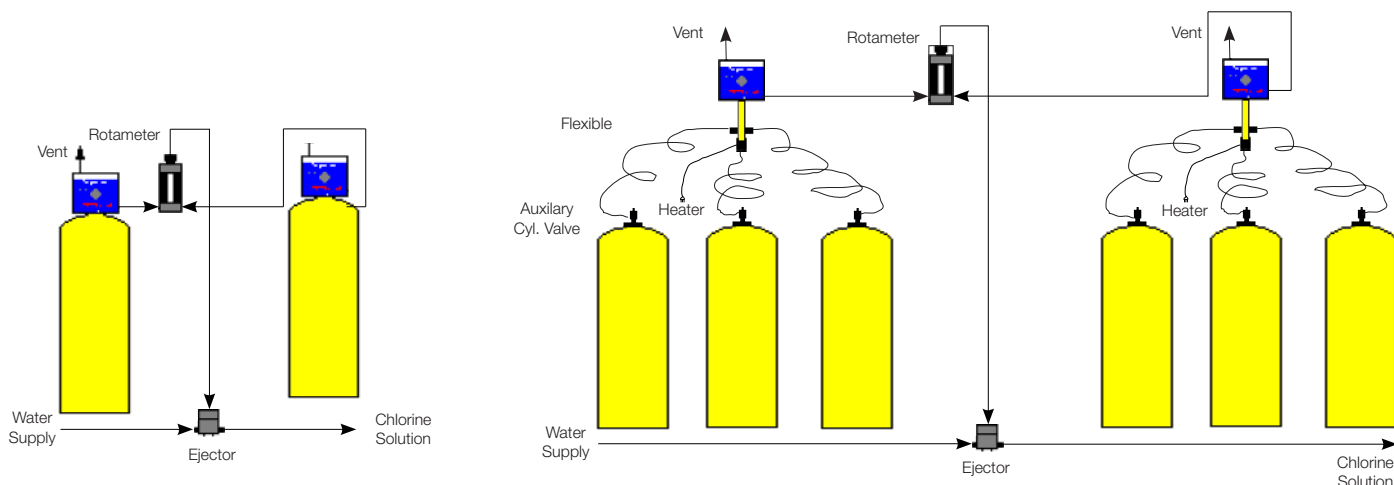
75 g/h	2 x Vacuum Regulator, Remote Meter & Ejector	935C
200 g/h	2 x Vacuum Regulator, Remote Meter & Ejector	945C
500 g/h	2 x Vacuum Regulator, Remote Meter & Ejector	955C
1000 g/h	2 x Vacuum Regulator, Remote Meter & Ejector	965C
2000 g/h	2 x Vacuum Regulator, Remote Meter & Ejector	975C

Up to 5 Kg/Hr Systems

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

Up to 10 Kg/Hr Systems

2 x Vacuum Regulator, Remote Meter & Ejector	995C
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hydro Gas Chlorinators

900 Series with ejector, remote meter & accessories

TON Mounting - 900 series

Up to 2 kg/hr systems

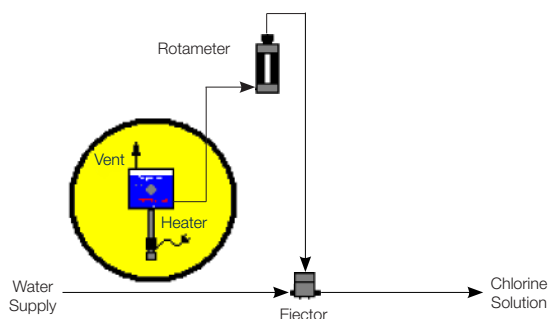
Max Capacity		PFC Part No.
75 g/h	1 x Vacuum Regulator, Remote Meter & Ejector	943C
200 g/h	1 x Vacuum Regulator, Remote Meter & Ejector	944C
500 g/h	1 x Vacuum Regulator, Remote Meter & Ejector	954C
1000 g/h	1 x Vacuum Regulator, Remote Meter & Ejector	964C
2000 g/h	1 x Vacuum Regulator, Remote Meter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

up to 5 kg/hr systems

5 kg/h	1 x Vacuum Regulator, Remote Meter & Ejector	984C
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up to 10 kg/hr systems

10 kg/h	1 x Vacuum Regulator, Remote Meter & Ejector	994C
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In-Built Auto Changeover System (max 2 Vacuum Regulators) - 900 series

Up to 2 kg/hr systems

In-Built Auto Changeover System (1 drum per side)

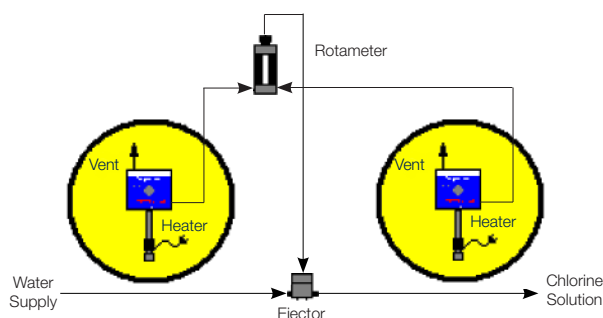
75 g/h	2 x Vacuum Regulator, Remote Meter & Ejector	936C
200 g/h	2 x Vacuum Regulator, Remote Meter & Ejector	946C
500 g/h	2 x Vacuum Regulator, Remote Meter & Ejector	956C
1000 g/h	2 x Vacuum Regulator, Remote Meter & Ejector	966C
2000 g/h	2 x Vacuum Regulator, Remote Meter & Ejector	976C

In-Built Auto Changeover System (1 drum per side)

5 kg/h	2 x Vacuum Regulator, Remote Meter & Ejector	986C
--------	--	------

In-Built Auto Changeover System (1 drum per side)

10 kg/h	2 x Vacuum Regulator, Remote Meter & Ejector	996C
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Note: All Ton mounting regulators, vertical & horizontal headers are fitted with 240V heaters. We suggest connection via a Residual Current Device (RCD) safety switch.

As an option 24v heaters can be supplied with 240V/24V transformers in enclosure at an extra cost, (will handle two heaters).

PA55002460

hydro Gas Chlorinators

900 Series with ejector, remote meter & accessories

TON Mounting - 900 series

Up to 2 kg/hr systems

Part No.

Auto Changeover System (2 drum per side)

976C-2X2

2 kg/h 4 x Vacuum Regulator, 1 x Remote Meter, 1 x Auto Changeover & 1 x Ejector

Up to 5 kg/hr systems

Auto Changeover System (2 drum per side)

986C-2X2

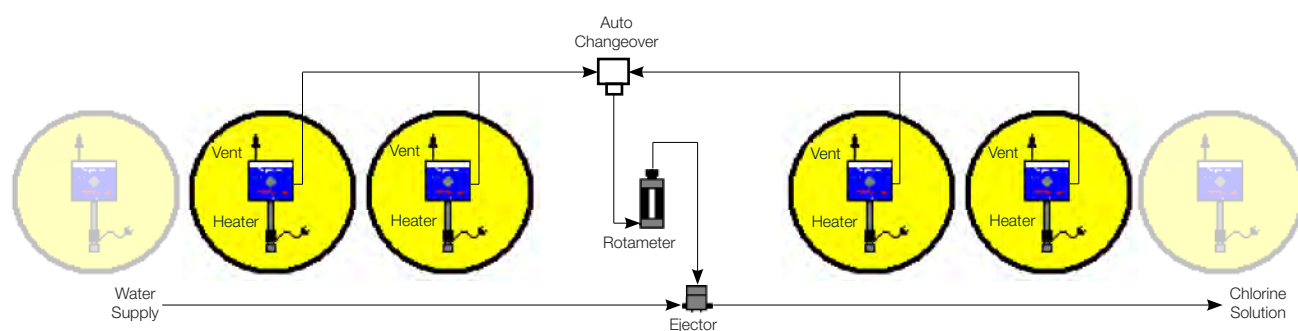
5 kg/h 4 x Vacuum Regulator, 1 x Remote Meter, 1 x Auto Changeover & 1 x Ejector

Up to 10 kg/hr systems (2 drum per side)

Auto Changeover System

996C-2X2

10 kg/h 4 x Vacuum Regulator, 1 x Remote Meter, 1 x Auto Changeover & 1 x Ejector



Note: For systems using more than 2 drums a side add the cost of extra vacuum regulators required.

Note: If more than 12 kg required use 20/40 kg Rotameter, Auto Changeover, Ejector or see High Capacity systems.

Note: Multiple 900 series vacuum regulators can be drum mounted, however when two or more containers or more than 10 kg/hr is required there may be unequal draw down thus leaving some 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 16

**ProMinent®**

		PFC Part No.	
2 kg/hr	Cyl. or wall mounting (0.2, 0.5, 1 or 2 kg/hr capacity) * <u>one 900</u> series vacuum regulator	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 <u>two 900</u> series vacuum regulators*	PA2400-FP965	(965C+OV-110)
5 kg/hr	Wall or Manifold mounting <u>one 900</u> series vacuum regulator	PA2400-FP980	(980C+OV-110)
5 kg/hr	Wall mounting & in-built auto changeover. <u>two 900</u> series vacuum regulators	PA2400-FP985	(985C+OV-110)
5 kg/hr	Ton mounting <u>one 900</u> series vacuum regulator	PA2400-FPT981	(981C+OV-110)
5 kg/hr	Ton mounting & in-built auto changeover. <u>two 900</u> series vacuum regulators	PA2400-FPT986	(986C+OV-110)
10 kg/hr	Ton mounting (10 kg/hr capacity) <u>one 900</u> series vacuum regulator	PA2400-FP991	(991C+OV-110)
10 kg/hr	Ton mounting & in-built auto changeover. <u>two 900</u> 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 Vacuum Regulator

Each additional Cylinder:

Price for a 3 drum system;

Control panel for 3 x drums including interconnecting cables for Vacuum Regulator "out of gas" switch and solenoids.

3 x solenoid valves are

3 x 300 series, Vacuum Regulators with "empty switch"

Each additional drum:

Note: To complete the system, items such as below need to be considered.

PE tube Ejector Rotameter Installation Omni-Valve etc.

Individual Item costs:

PFC Part No.

300 Series Vacuum Regulator Cylinder Mount

VRH-100-CL2-MS

300 Series Vacuum Regulator Ton Mount

VRH-50T-CL2-MS

Replacement FIP Solenoid Valve

12030909

hydro Gas Chlorinators

900 Series Equipment Components

900 series - Bottle, Vertical Wall or Horizontal Header Mount
Up to 2 kg/hr systems

Max Capacity	PFC Part No.
Vacuum regulator	SVR-100-CL2
Remote meter 6" 75 g/hr	MPH-106-CL2-004
Remote meter 6" 200 g/hr	MPH-106-CL2-010
Remote meter 6" 500 g/hr	MPH-106-CL2-025
Remote meter 6" 1000 g/hr	MPH-106-CL2-050
Remote meter 6" 2000 g/hr	MPH-106-CL2-100
Change Over Valve	SO1000

Up to 5 kg/hr systems

Vacuum regulator	SVR-250-CL2
Remote meter 6" 5 kg/hr	MPH-256-CL2
Change Over Valve	SO2000

Up to 10 kg/hr systems

Vacuum regulator	SVR-500-CL2
Remote meter 6" 10 kg/hr	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 6" 75 g/hr	MPH-106-CL2-004
Remote meter 6" 200 g/hr	MPH-106-CL2-010
Remote meter 6" 500 g/hr	MPH-106-CL2-025
Remote meter 6" 1000 g/hr	MPH-106-CL2-050
Remote meter 6" 2000 g/hr	MPH-106-CL2-100
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 6" 5 kg/hr	MPH-256-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 6" 10 kg/hr	MPH-500-CL2
Change Over Valve	SO5000

Note: If ProGuard3800 is fitted to a TON mount vacuum regulator, the actuator offset is required. **Price additional for "-AW"**

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 gr/h) max. STANDARD 200 g/hr (0.126" orifice)
4	#4, 100 PPD (2000 gr/h) max. (0.219" orifice)
5	#5, 100 PPD (2000 gr/h) max. STANDARD 500 g/hr (0.148" orifice)
16	#16, 10 PPD (200 gr/h) max. (0.106" orifice)
99D	#99, 25 PPD (500 gr/h) max. (0.099" orifice)
140F	#140F, 100 PPD (2000 gr/h) max. (0.140" orifice)

Vacuum Fitting

1	3/8" tubing connector [STANDARD]
2	1/2" tubing connector
3	5/8" tubing connector

High Back Pressure

0	None
1	High pressure support plates (up to 300 PSI / 21 bar back pressure)

Mounting Bracket

0	None
----------	------

EJ	1000	X	X	X	X	X
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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 (Cl₂)
- S Sulfur Dioxide (SO₂)

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 (Cl₂)
S Sulfur Dioxide (SO₂)

Nozzle/Throat

- 01** .250 nozzle / .380 throat
04 .296 nozzle / .560 throat
05 .375 nozzle / .560 throat **(STANDARD)**
X3 ENX-290 nozzle / .380 throat

Vacuum Fitting

- 1** 3/8" tubing connector
2 1/2" tubing connector
3 5/8" tubing connector **(STANDARD)**

High Back Pressure

- 0** None
1 High pressure support plates
 (Up to 300 PSI / 21 bar back pressure)

Mounting Bracket

- 0** None

EJ	5000	X	X	X	X	X
----	------	---	---	---	---	---

hydro Gas Chlorinators

High Capacity Manifold Mount Chlorination 20kg & 40kg

Single System

Max Capacity	Part No.
up to 20 kg Vacuum Regulator, Remote Meter, Ejector & accessories	3103C
up to 40 kg Vacuum Regulator, Remote Meter Ejector & accessories	3113C

Switch-Over System

up to 20 kg 2 x Vacuum Regulator, Remote Meter, Ejector, Switch-over & accessories	3105C
up to 40 kg 2 x Vacuum Regulator, Remote Meter, Ejector, Switch-over & accessories	3115C

Components only

Vacuum Regulator - VRH-2000-CL2

up to 40 kg Vacuum Regulator, No meter & No ejector.

VRH Type											
Capacity 2000											
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

Note: All Ton mounting regulators, vertical & horizontal headers are fitted with 240V heaters. We suggest connection via a Residual Current Device (RCD) safety switch. As an option 24v heaters can be supplied with 240V/24V transformers in enclosure at an extra cost, (will handle two heaters).

PA55002460

hydro Gas Chlorinators

High Capacity Manifold Mount Chlorination 20kg & 40kg

Ejectors

Max Capacity	Part No.
20 kg High Capacity 2" Flanged Ejector.	EJH-1000-CL2
40 kg High Capacity 2" Flanged Ejector.	EJH-2000-CL2

Remote Meters

20 kg including flow tube and rate valve.	RMH-1000-CL2
40 kg including flow tube and rate valve.	RMH-2000-CL2

Switchover Modules

20 kg	SOH-2000-CL2
40 kg	SOH-4000-CL2

hydro Gas Chlorinators

Series 110 Omni-Valve – Gas feed up to (60kg/h)

OV-110



Gas Type	
A	Ammonia (NH 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

hydro Gas Chlorinators
Accessories

EMERGENCY SHUTDOWN - ELECTRIC

ProMinent Electric ProGuard3800 Chlorine gas emergency shut off for cylinders (bottles) or Drum



The “Emergency shut off system” triggers the electrical actuator which mounts directly on the valve of the cylinder or container. An operator can manually close all the valves via the ProGuard 3800 control panel.

UNIT INCLUDES:

- Input for chlorine gas detector alarm signal
- Reset button
- Manual shut down button
- Automatic shut down from chlorine gas leak detector
- Battery backup:
 - a) On load: 4 hours
 - b) On standby: 24 hours
- Automatic shutdown at low UPS battery
- Low Battery signal output
- Control cabinet dimension: 800 x 600 x 300mm
- 12V electric Actuators
- Adjustable torque
- No tools required for Actuator fitment
- Valve closure in less than 4 seconds



Part A Control Panel: 800 x 600 x 300mm

	PFC Part No.
Max. 2 cylinder/drum	PM3800EPESS-CP/2-A
Max. 6 cylinder/drum	PM3800EPESS-CP/6-A
Max. 10 cylinder/drum	PM3800EPESS-CP/10-A

Part B 12 V Actuator supplied with 10 metre cable

For rapid closure of gas valve. Must supply 1 actuator for each drum/cylinder

Cylinder	PM3800EPSS-EAY
Drum	PM3800EPESS-EA2

Note: Drum regulator must have “-AW” “Actuator off set”.

hydro Gas Chlorinators

Accessories

EMERGENCY SHUTDOWN - PNEUMATIC**ProMinent ProGuard Series 3****Chlorinator Shut Off Control Package for Drums or Cylinders (Bottles)****Part A**

Wall mounted Master control cabinet for activation of one or multiple pneumatic auto valve close ratchets. Power required, 240 volt. Bottled air or nitrogen required plus regulator, (by others).

Features:

- Fail safe pneumatic operation with low pressure alarm.
- 240 volt operation with over 8 hours battery back-up.
- Operates from alarm contact on chlorine leak detector, (Separate supply).



		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 approx \$164

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

- Power Supply 240 VAC (Standard) - 12 or 24 VDC (Optional)
- Visual and audible alarm (integral 90dB horn & danger/warning LED's).
- Individual sensor alarm relays, (user adjustable, latching & non-latching failsafe & non-failsafe).
- Backlit Liquid Crystal Display (LCD) for easy reading, 2 line, 20 spaces.
- 12 Hour Battery Back-Up included
- Isolated 4-20 mA Outputs.
- MODBUS communication
- Password Protection

NOTE: Gases Cl, O3 and ClO2 all use the same sensors/controllers (gas can be freely selected in menu). However if O3 or ClO2 is required, please clearly indicate gas on order so stickers and configuration can be adjusted accordingly. For other Gases unit will need to be a special order.



hydro Gas Chlorinators

Accessories

VRL-900 Chlorine Drum Vacuum Regulator Lifting Device

Prominent can now supply a lifting system for placing Vacuum regulators on to 920kg Chlorine drums.

This floor mounted VRL-900 allows the Vacuum Regulator to be easily removed from the chlorine drum outlet valve and replaced on a new drum outlet valve.

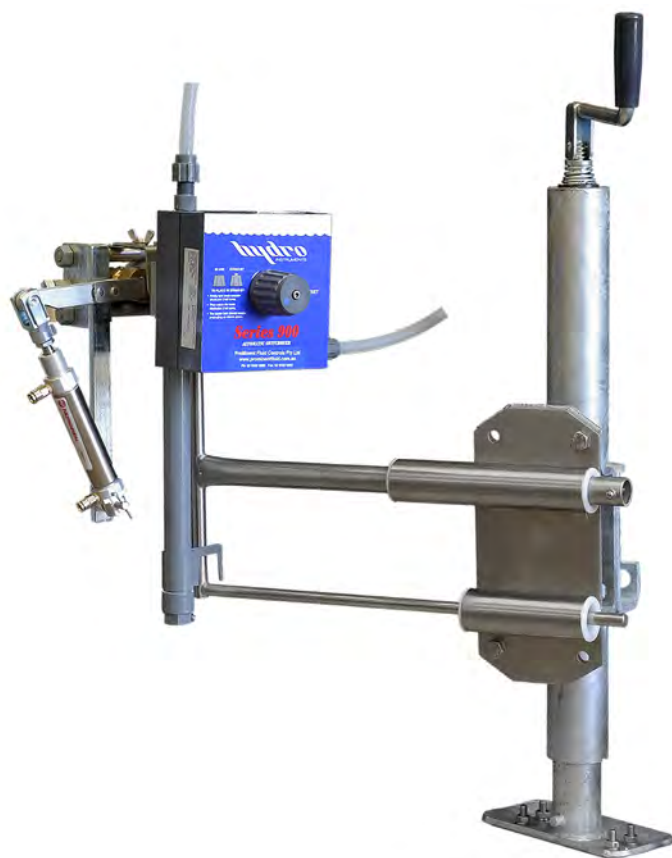
The VRL-900 is adjustable for height as well as horizontal positioning with limited rotation to ensure connection to alternate drums and drum valve position.

The VRL-900 is suitable for drums floor mounted or on scales, and is adaptable to trolley mounted drums.

The VRL-900 is especially useful when a Proguard (automatic valve closing system) is used due to the extra weight.

The VRL-900 provides support for the Vacuum Regulator during the change over from drum to drum. It also reduces possible operator contact with the drip leg heater. It's designed to allow the Vacuum Regulator to be removed vertically at any time without restriction.

Model VRL-900	PFC Part No. PA24003194
Additional Bracket for Trolley Mount Systems	A240E3204



Note: Consideration must be given to ensure that the unit does not restrict the designated walkway.

hydro Gas Chlorinators

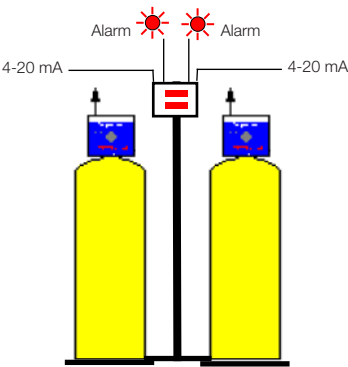
Accessories

Bottle & Drum Scales

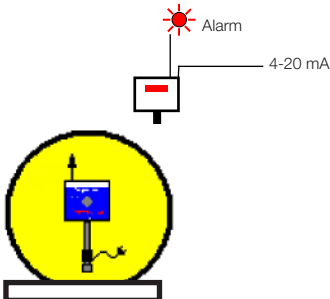
	PFC Part No.
Single Cylinder scales with Digital Alarm and 4-20mA out incl. safety chains	PA24003377
Dual Cylinder scales with Digital Alarm and 4-20mA out incl. safety chains	PA24003360
EI1000 Single Chlorine Drum Scale with Digital Alarm and 4-20mA out	PA24003382
EI2000 Dual Chlorine Drum Scale with Digital Alarm and 4-20mA out	PA24003383
Trolley & Single Drum Scale & EI1000 control unit with Digital Alarm and 4-20mA out	PA24003384
Trolley only for Single Drum (excluding Base - Single Drum only) Note: advise direction of wheels in relation to scale)	

Safety Chains

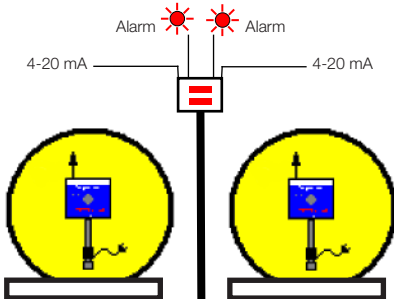
Safety Chains & Brackets Dual Cylinder	PA31001936
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PA24003360
Dual Cylinder Scale &
Control Unit (Digital)
with alarm



PA24003382
Single Drum Scale &
Control Unit (Digital)
with alarm & 4-20 mA



PA24003383
Twin Drum Scale &
Control Unit (Digital)
with alarm & 4-20 mA

Note: For other options contact Sydney Office.

hydro Gas Chlorinators

Accessories

Pressure Connections:

	PC Part No.
Auxiliary Cylinder Valve, 3/4" inlet and outlet.	IVH-100-500
Flexible Connection cad. plated annealed copper with 3/4" unions, (W & T type drum connection).	
1.8m length ... TON	FX-06
1.0m length ... Bottle	FX-04
Superior Chlorine Valve, for horizontal header mounting.	1214-B1

Vertical Header:

****Please see page 20 for details****

Horizontal Header:

Each header (manifold) comes complete with header valve for vacuum regulator, drip leg & heater, and for EACH connection 1 x header valve, 1 x auxiliary valve & 1 x flexible connection.

	2 x drums	HMT-122
	3 x drums	HMT-123
	4 x drums	HMT-124

Chlorine Manifold Y-Strainer (weight 2 kg)

Carbon Steel Body, Monel Screen, Lead Gasket Sealed Cover	3/4" NPT	RH-6786
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Chlorine Manifold Filter (weight 20 kg)

25,000 lb. tensile strength grey iron casting rated at 560 psi (38 bar), and comes with removable filter cartridge. Acts as a filter and condensate trap.

	C-282
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Heater for header mounting, 240V AC, 25W NB: Use RCD Safety Switch	A24002479
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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 \$ 212 (max. 2 heaters per transformer)

For extra ton units Power Supply: 2 x 24V60Va 240V Supply	PA55002460
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Heater for ton mounting drip leg, 24V AC, 25W, (75 x 50 pad)	84A24V
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Universal TON mounting Drip Leg c/w heater	PA-TUY-1
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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
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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,	PA24002108
mounted in 175 x 125 PVC enclosure. Note: Requires auto changeover valve or extra remote meter	

High/Low vacuum indicator fitted to remote meter,	PA24002109
mounted in 175 x 125 PVC enclosure. Note: Requires remote meter	
Note: if both PA24002108 and 2109 are used together total price can be reduced by \$435	

Special lubricant for O-Rings MOLYKOTE 100gm tube	FS 3452
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Twisted Spanner	HTS-1
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Vacuum Gauge 2-1/2" dia. Direct Mount with Diaphragm Protection	VGL-30
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Carbon Vent Trap ...	PA24002983
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hydro Gas Chlorinators

Vertical Pressure Manifolds - For Cl2 upright cylinders

MA

Number of Connections

- 1L** One (1) upright cylinder
(Gas inlet connection facing left. Includes: One (1) 12" drip-leg w/ heater.)
- 1R** One (1) upright cylinder
(Gas inlet connection facing right. Includes: One (1) 12" drip-leg w/ heater.)
- 2** Two (2) upright cylinders
(Includes: One (1) 12" drip-leg w/ heater.)
- 3L** Three (3) upright cylinders
(Third inlet connection facing left. Includes: One (1) 12" drip-leg w/ heater.)
- 3R** Three (3) upright cylinders
(Third inlet connection facing right. Includes: One (1) 12" drip-leg w/ heater.)
- 4** Four (4) upright cylinders
(Includes: One (1) 12" drip-leg w/ heaters.)

Heater Power

- 1** 115 VAC, 50/60 Hz (25W w/ 70°C max. thermostat)
- 2** 230 VAC, 50/60 Hz (25W w/ 70°C max. thermostat)
- 3** 24 VDC (25W w/ 70°C max. thermostat)

Flexible Connector

- 0** None
- 4** Flexible Connector
One (1) flexible connector is supplied per connection.)

Isolation Valve Assembly

- 0** None
- 2 AUS** Isolation Valve Assembly
One (1) isolation valve assembly is supplied per connection.)

NOTES:

- 1. Prices in (...) are subtracted from the overall price.
- 2. Gas inlet connections are CGA #660.
- 3. For replacement flex connector adaptors, part no. A-345, please see price sheet Manifold Accessories (MTCC).

INSTALLATION:

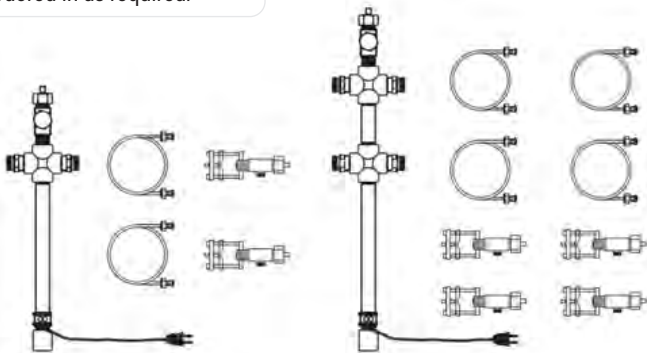
Pressure manifolds include a wall mounting installation kit.

DELIVERY:

Non-stock Item. 2-3 week delivery.

NOTE:
Headers are NOT STOCKED. Ordered in as required.

MA - X - X - X - X



hydro Gas Chlorinators

Accessories - Flexible Tubing

PE Tube

P-138-Y	3/8" OD X 1/4" ID Vacuum Tubing / Meter (2kg/hr)
P-112-Y	1/2" OD X 3/8" ID Vacuum Tubing / Meter (5kg/hr)
P-158/Y	5/8" OD X 1/2" ID Vacuum Tubing / Meter (10kg/hr)

Kynar® Tube Fitting

BKF-64	Black Kynar Tube Connection. 1/4" NPT x 3/8" Tube (2kg/hr)
BKF-84	Black Kynar Tube. 1/4" NPT x 1/2" Tube (5kg/hr)
BKF-108	Black Kynar Tube Connection. 1/2" NPT x 5/8" Tube (10kg/hr)
BKT-6	Black Kynar Tube Union Tee 3/8" Tube (2kg/hr)
BKT-8	Black Kynar Tube Union Tee 1/2" Tube (5kg/hr)
BKT-10	Black Kynar Tube Union Tee 5/8" Tube (10kg/hr)



BKF-64



BKT-10



BKF-108

Note: For over 50 years, Kynar® polyvinylidene fluoride (PVDF) resin, a specialty thermoplastic fluoropolymer, has been used in applications that require high strength and purity. Known for its high purity, Kynar® PVDF resins also provide chemical resistance to acids and bases, abrasion resistance, flame 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



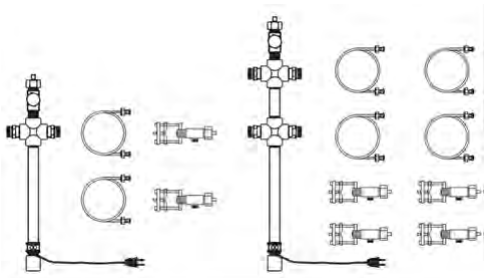
IVH-100-500
Auxillary Cylinder Valve



RH-6786
Chlorine manifold
Inline Strainer



PA-TUY-1
Universal Ton
Drip Leg



Vertical Header



VRH-2000-CL2
20-40 Vacuum Regulator



HTS-1 Twisted Spanner



1214-B1
Chlorine Valve
for Horizontal Header



Horizontal Manifolds
with 1214-B1
Chlorine Valves



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

ProMinent[®] *hydro* Gas Chlorinators



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

*Note: MAXIMUM DISCOUNT 25%

hydro Gas Chlorinators

Standard Accessories supplied with Series 900 Chlorinators

PA 24002779 BOTTLE / MANIFOLD MOUNT up to 2 kg

Consisting of:

1	x	Cable Tie	CT-200-4C
1	x	Insect Screen	A24001623
2	x	O-Rings - Ejector	OH-BUN-121
10	x	Lead Cylinder Gaskets	LG-100
1	x	Squeeze Bottle for Amonia	A24001622
1	x	Cylinder Spanner	A24001624
1	x	Filter - Teflon	VRH-456-100
1	x	Replacement Filter	VRH-455-500

PA24002780 TON MOUNT from 2 to 10 kg

Consisting of:

1	x	Cable Tie	CT-200-4C
1	x	Insect Screen	A24001623
2	x	O-Rings - Ejector	OH-BUN-121
10	x	Lead Cylinder Gaskets	LG-100
3	x	Lead Gasket	G-332
1	x	Squeeze Bottle for Amonia	A24001622
1	x	Cylinder Spanner	A24001624
1	x	Replacement Filter	VRH-455-500

Note: 10kg uses 17x12 vacuum tube

hydro Gas Chlorinator

Service Kits

900 Series

PFC Part No.

KT9-100-VRC	900 series VAC REG 2 kg/hr Cylinder
KT9-250-VRC	900 series VAC REG 5 kg/hr Cylinder
KT9-500-VRC	900 series VAC REG 10 kg/hr Cylinder

KT9-100-VRT	900 series VAC REG 2 kg/hr TON
KT9-250-VRT	900 series VAC REG 5 kg/hr TON
KT9-500-VRT	900 series VAC REG 10 kg/hr TON
KT9-1000-VRT	900 series VAC REG 20 kg/hr TON

KTH-100-RMP	MPH-100-CL2 Remote Meter 75-2000 g/hr 3"
KTH-250-RMP	MPH-250-CL2 Remote Meter 5 kg/hr 3"
KTH-500-RMP	MPH-500-CL2 Remote Meter 10 kg/hr 3"

KTH-106-4-RMP	MPH-106-CL2 Remote Meter 75 kg/hr 6"
KTH-106-RMP	MPH-106-CL2 Remote Meter 200 kg/hr 6"
KTH-256-RMP	MPH-256-CL2 Remote Meter 5 kg/hr 6"
KTH-500-RMP	MPH-500-CL2 Remote Meter 10 kg/hr 6"

**NOT
COMMONLY
USED**

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

**MOST
COMMON
EJECTORS**

KT1-100-EJS	EJ-1000 Service Kit 2 kg/hr
KT2-250-EJS	EJ-2000 Service Kit 5 kg/hr
KT7-500-EJS	EJ-5000 Service Kit 10 kg/hr

KT1-100-SOM	Switch Over Module 2 kg/hr
KT2-250-SOM	Switch Over Module 5 kg/hr
KT7-500-SOM	Switch Over Module 10 kg/hr

300 Series

KTH-500-VRT	300 series VAC REG TON Mount 10 kg/hr
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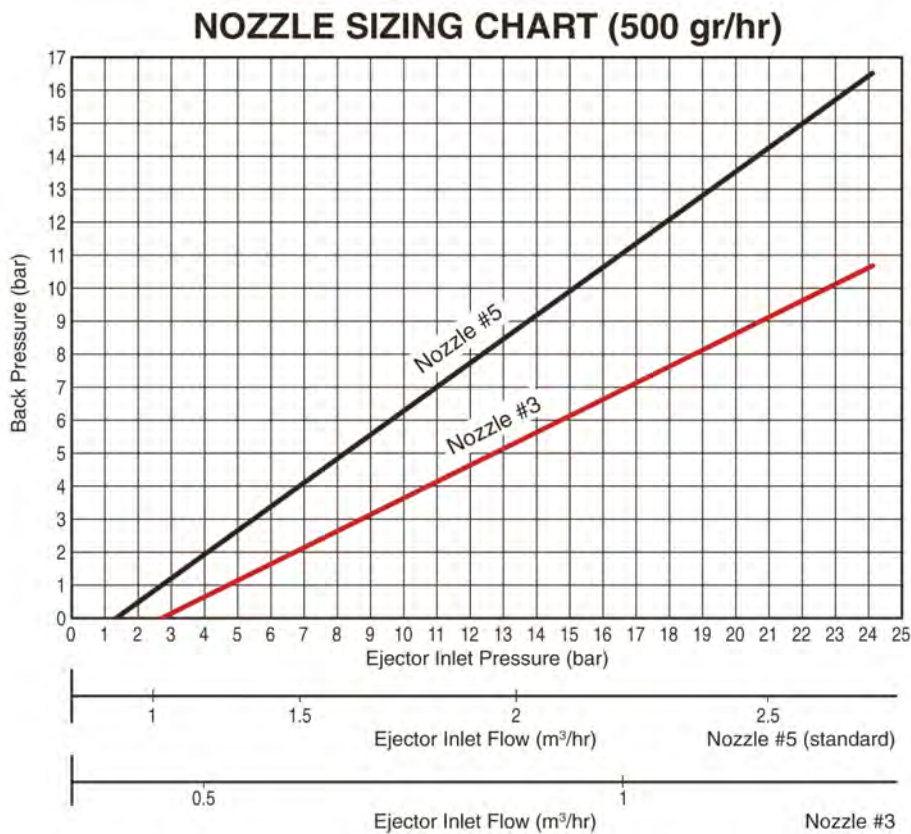
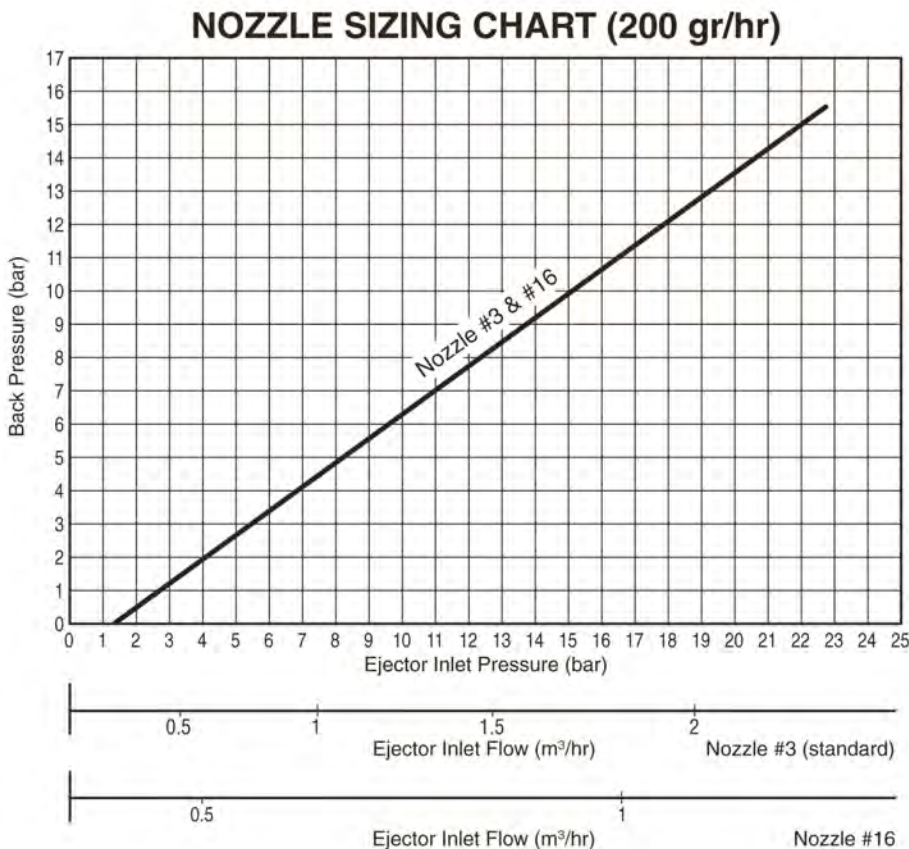
Omni-Valve

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

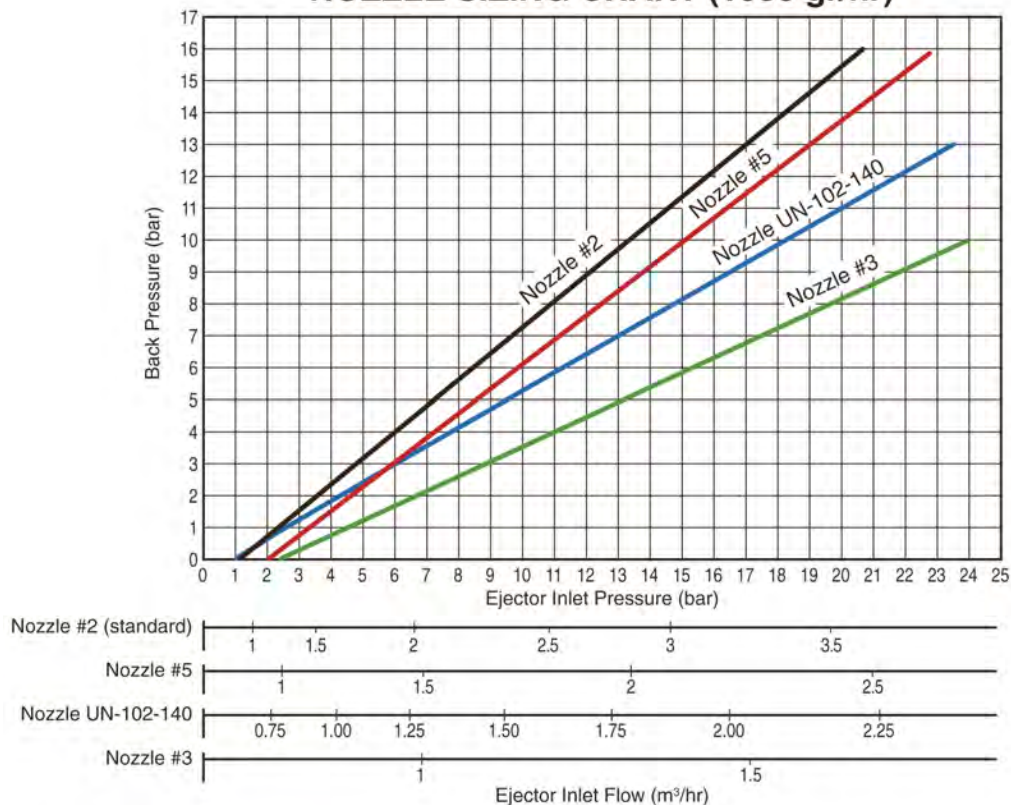
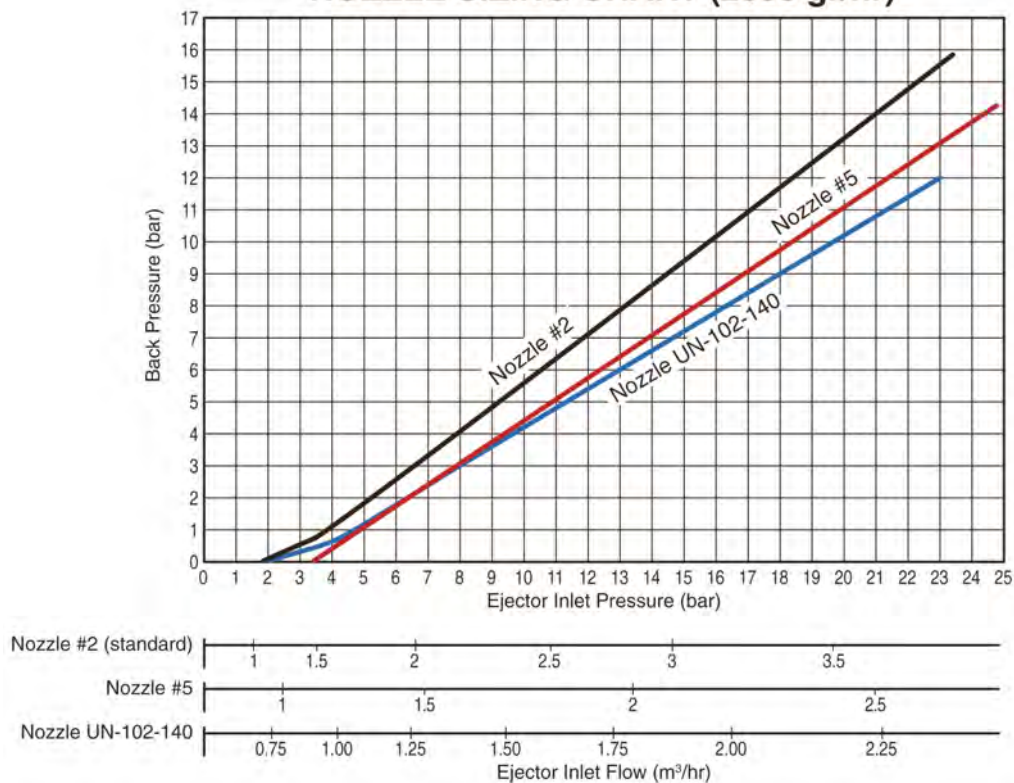
3000 series

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

hydro Ejector Selection Chart EJ1000

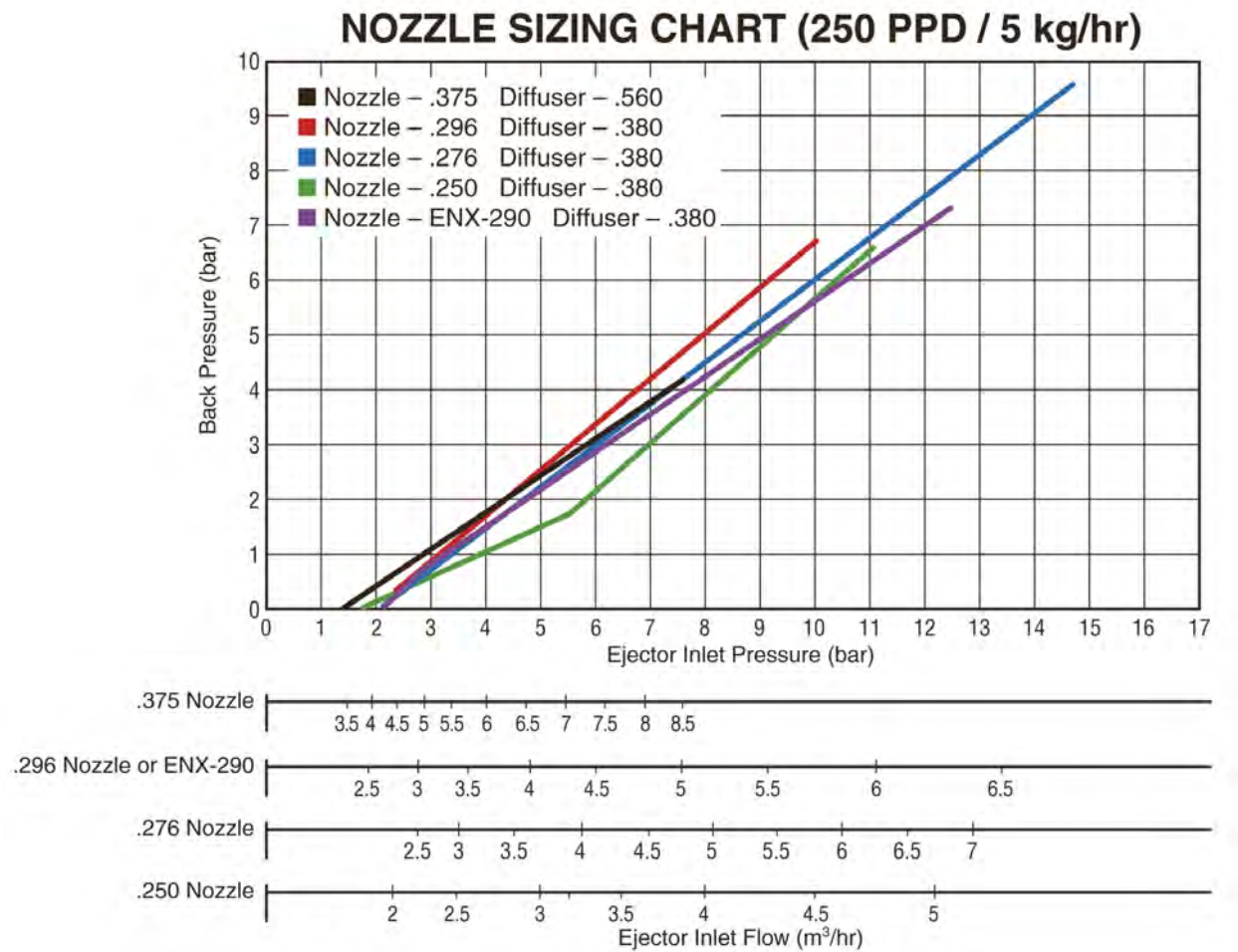


Note: Pressure combinations that plot below the line for any given nozzle are acceptable for operating that nozzle at the stated chemical feed rate for that chart. Pressure combinations that fall above the line for any given nozzle are not acceptable.

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.

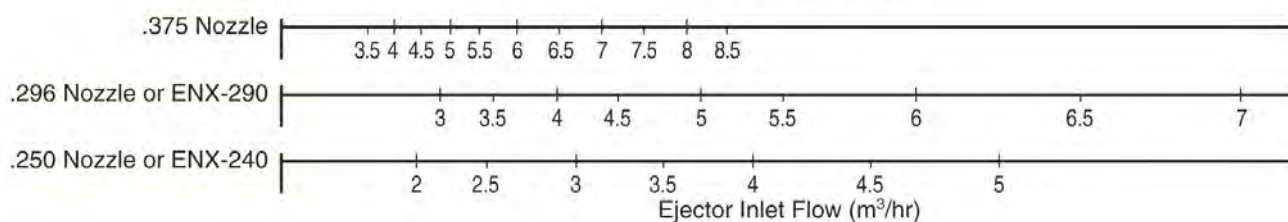
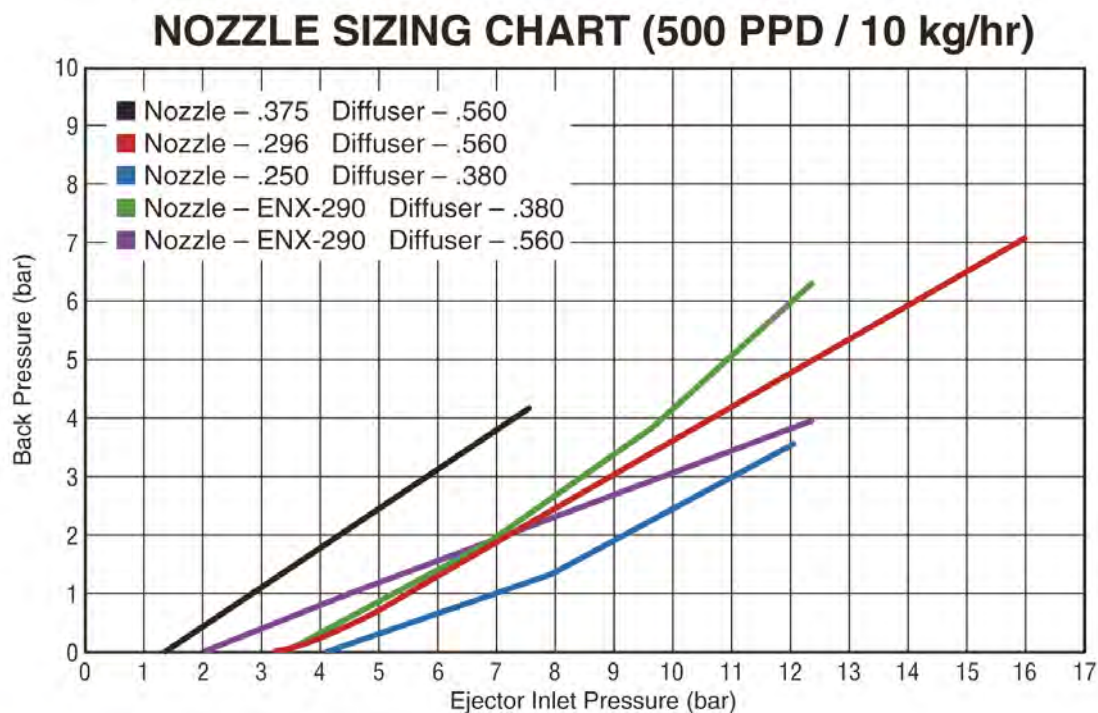
hydro Ejector Selection Chart EJ2000



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.

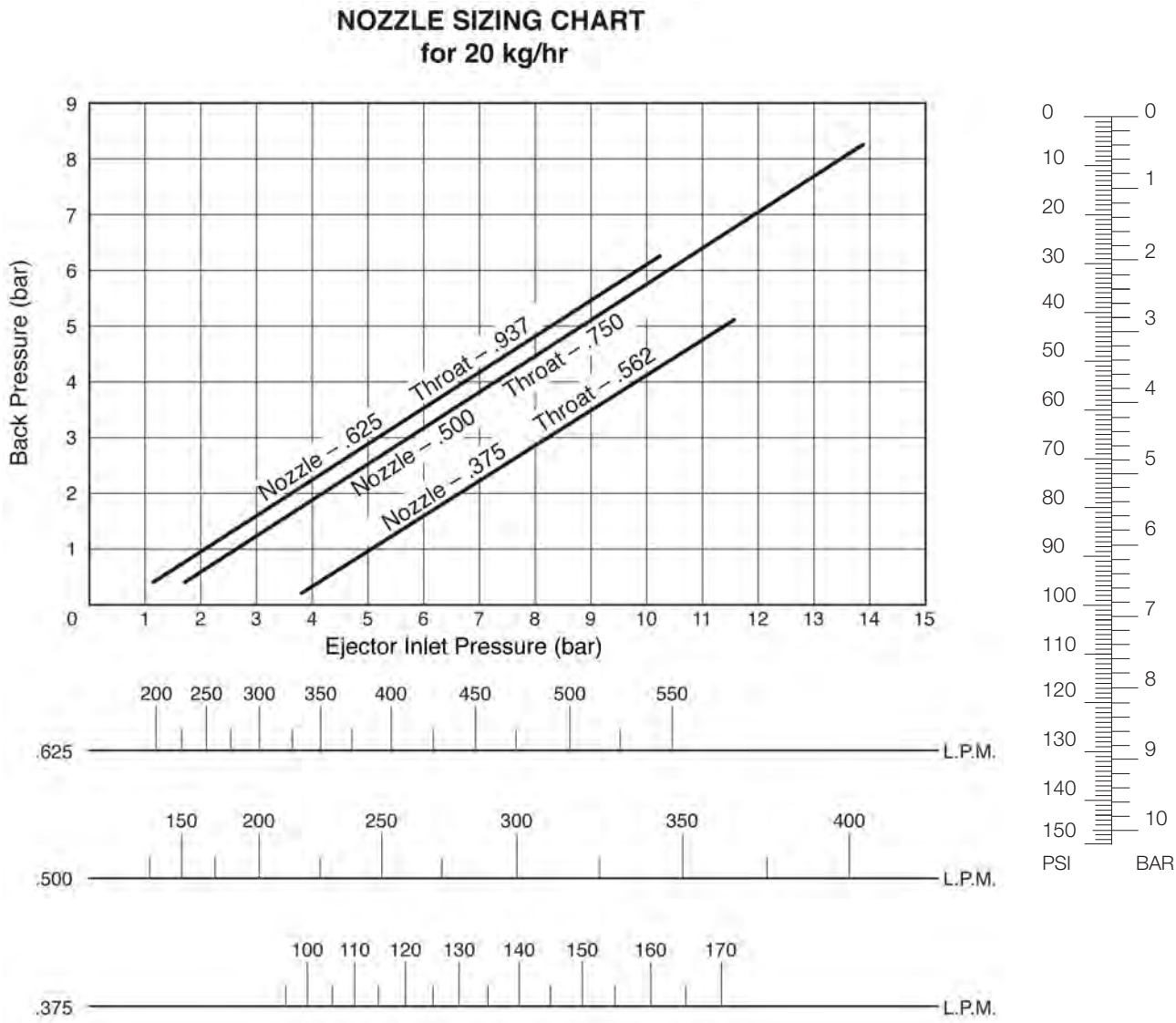
hydro Ejector Selection Chart EJ5000



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

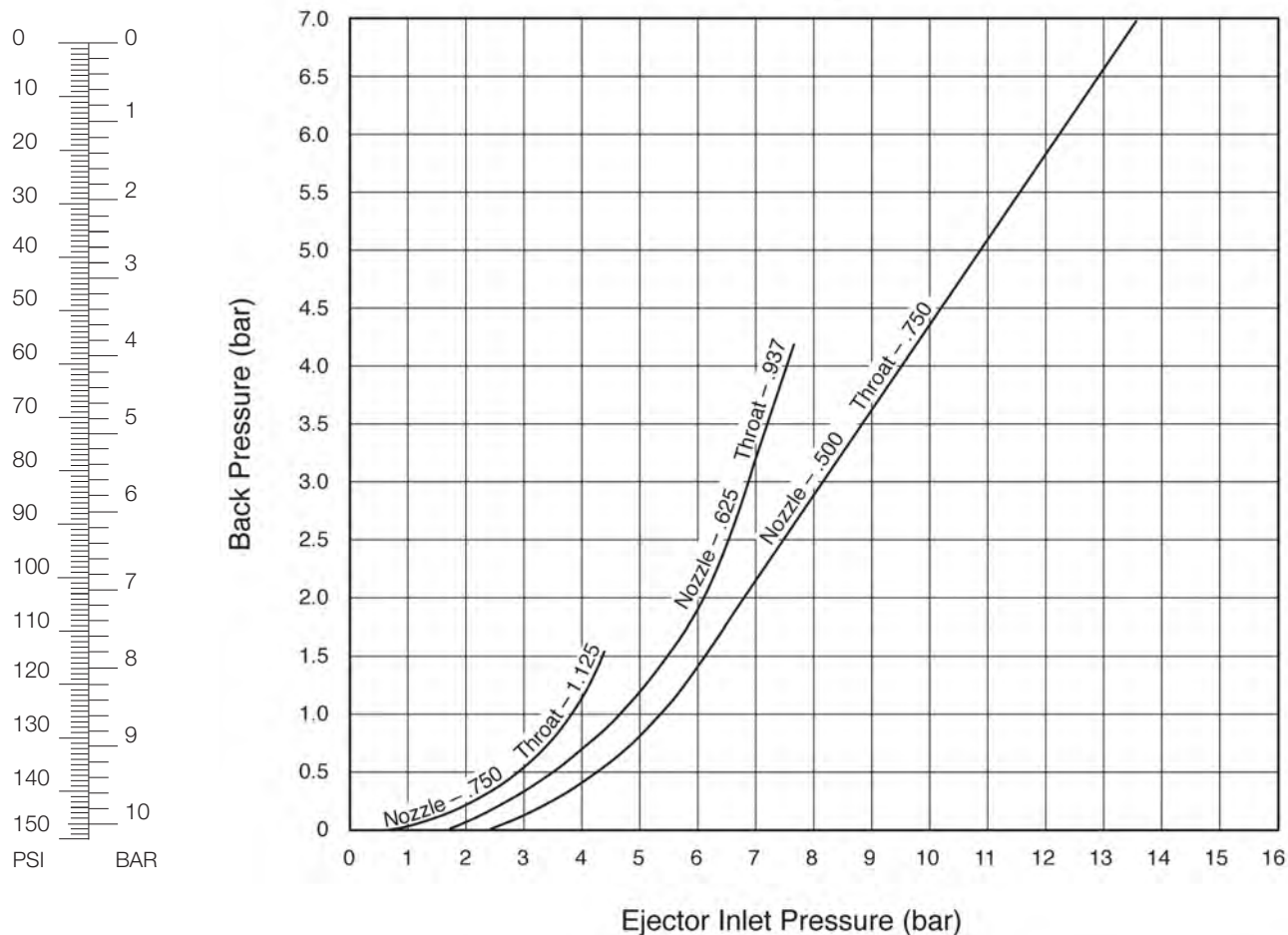


Conversion: US GPM to LPM x 3.7854

- 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

NOZZLE SIZING CHART for 40 kg/hr



Conversion: US GPM to LPM x 3.7854

1. Ensure maximum case pressure of booster pump is OK.
2. All pressures shown in PSI.
3. For clean water use only.
4. Solution lines longer than 3m, step up to next size to reduce friction loss.
5. Pump suction pressure must be equal to ejector back pressure.
6. For conditions not shown, contact ProMinent office.

Pink Pages 2026



Pink Pages 2026



1.0	ProMinent Concept PLUS Pumps	1.2
	CONCEPT CONb Spare Parts Sets	1.3
1.1	META Dosing Pumps	1.4
1.2	ProMinent VARIO D Dosing Pumps	1.5
1.3	META Plunger Metering Pumps	1.6
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	Accessories - Back Pressure Valves	1.7
1.5	Motor Driven Dosing Pumps Back Pressure Valves	
	Accessories - Back Pressure Valves	1.8

1.0 ProMinent CONCEPT PLUS Pump

CONCEPT PLUS Dosing Pump

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

- Float Switch / External Control Fitted Kit for above (Float switch not included) 1046731
- Recommended 2m float switch is 142062
- Recommended 5m float switch is 142064

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

Pump type	Minimum delivery rate at maximum back pressure			Minimum feed rate at medium back pressure			Max. stroke rate	Connection size ext. Ø x int. Ø	Suction lift*	Priming lift**	Admissible priming pressure suction side
	bar	l/h	ml/stroke	bar	l/h	ml/stroke					
1000	10	0.74	0.07	5	0.97	0.09	180	6x4	6	6	1.8
1601	16	1.1	0.10	8	1.4	0.13	180	6x4	6	6	2
1002	10	2.1	0.19	5	2.6	0.24	180	6x4	5	5	2.5
0704	7	3.9	0.36	3.5	4.4	0.41	180	6x4	4	4	3
0309	3	9.0	0.83	1.5	13.0	1.2	180	8x5	2	2	2
0215	1.5	16.4	1.45	1.0	18.3	1.7	180	8x5	1.5	1.5	1.5

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

Materials
Liquid end material specification: see type code Housing: PPE, glass fibre reinforced

Electrical data
Mains frequency: 50 Hz / 60 Hz 100-230 volts ±10%

FOR SPARE PARTS PLEASE REFER YELLOW PAGES



1.0 CONCEPT CONb

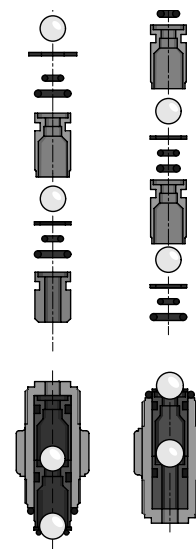
CONCEPT CONb Spare Parts Sets

CONb spare parts sets (identical to gamma/4)

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

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

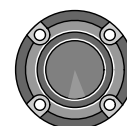
- 1x metering diaphragm
- 1x suction assembly
- 1x discharge valve assembly
- 1x seal set assembly
- 2x fuses



CONb pump diaphragm

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

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



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

CONCEPT PLUS Pump Diaphragm

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

		Part No.
CNPa1000	30.0	1000244
CNPa1601	29.5	1000245
CNPa1002	34.5	1000246
CNPa0704		1020672
CNPa0308	45.5	1000248
CNPa0213	55.0	1000249



1.1 META Dosing Pump

META Dosing Pump

META PUMP WITH LIQUID END OF POLYPROPYLENE WITH MOTOR

Model		Bar	l/hr	Ratio	L/E	Stroke	ml/ stroke	strokes/ min.	Size SW	BSP	HT
MTMa 10130	PP	10	130	20:1	260	4 mm	30	72	25	3/4"	25
MTMa 10260	PP	10	260	10:1	260	4 mm	30	144	25	3/4"	25
MTMa 05265	PP	5	260	20:1	530	4 mm	61.3	72	25	3/4"	25
MTMa 09395	PP	9	395	10:1	260	6 mm	44.8	147	25	3/4"	25
MTMa 05530	PP	5	530	10:1	530	4 mm	61.3	144	25	3/4"	25
MTMa 03790	PP	3	790	10:1	530	6 mm	89.7	147	25	3/4"	25

META PUMP WITH LIQUID END OF STAINLESS STEEL WITH MOTOR

MTMa 10130	SS	10	130	20:1	260	4 mm	30	72		3/4"	
MTMa 10260	SS	10	260	10:1	260	4 mm	30	144		3/4"	
MTMa 05265	SS	5	260	20:1	530	4 mm	61.3	72		1"	
MTMa 09395	SS	9	395	10:1	260	6 mm	44.8	147		3/4"	
MTMa 05530	SS	5	530	10:1	530	4 mm	61.3	144		1"	
MTMa 03790	SS	3	790	10:1	530	6 mm	89.7	147		1"	

META PUMP WITH LIQUID END OF TEFLON WITH MOTOR

MTMa 10130	T	10	130	20:1	260	4 mm	30	72		1"	
MTMa 10260	T	10	260	10:1	260	4 mm	30	144		1"	
MTMa 05265	T	5	260	20:1	530	4 mm	61.3	72		1-1/4"	
MTMa 09395	T	9	395	10:1	260	6 mm	44.8	147		1"	
MTMa 05530	T	5	530	10:1	530	4 mm	61.3	144		1-1/4"	
MTMa 03790	T	3	790	10:1	530	6 mm	89.7	147		1-1/4"	

Motor 0.37 kw, 1440 rpm, 3 phase, 415 V, 50 Hz IP55

ACCESSORIES

Please use Yellow Pages for Foot Valve / Injection Valve / Back Pressure / Relief Valves.

(for project quantities only; some accessories may be available from ProMinent Bangalore)

Limited local stock is only available for (PP) Foot & Injection Valve - Please enquire with the Sydney Office.



STANDARD SIZES & FITTINGS FOR MOTOR DRIVEN PUMPS

Size	'A' 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 Pump

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.

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 $\pm 2\%$ providing installation has been correctly carried out, and in the stroke length range of 30 - 100%. (instructions in the operating instructions manual must be followed).

For safety reasons, all motor driven dosing pumps must be equipped with adequate protection against electrical overload.

Note: for protection use Multifunction valve or in-line relief valve, (for prices check 'Yellow Page' price List).

Liquid end materials in contact with chemicals

Liquid end	Suction/Discharge	Seals	Valve Balls	Connector	Valve Seat	Std Connector
PVT	PVT (Polyvinylidene fluoride)	PVDF	Ceramic		PVDF	PVDF

NOTE: If Pump is to be controlled by AC Variable Frequency Controller reduce pressure by 30%.
For alternative pumps with control refer Beta, Gamma, and Sigma pumps in our 'Yellow Page' Price List.



1.3 META Plunger Metering Pump

Technical Data

with 1500 rpm motor at 50 Hz									
Pump type	Pump Capacity at Max. Back Pressure			Max Stroke Freq.	Suction Lift	Adm. Priming Pressure , Suction Side	Connection Suction/ Discharge Side	Motor Power Output	Shipping Weight
Identity code MTKa	bar	l/h	ml/ stroke	strokes/ min.	mWG	bar	Rp-DN	kW	kg
21606	216	6.1	1.42	72	4		1/4	0.18	18
24006	240	6.1	1.42	72	4		1/4	0.37	20
16208	162	8.1	1.42	96	4		1/4	0.18	18
22508	225	8.1	1.42	96	4		1/4	0.37	20
12910	129	10.2	1.42	120	4		1/4	0.18	18
21610	216	10.2	1.42	120	4		1/4	0.37	20
10812	108	12.2	1.42	144	4		1/4	0.18	18
21012	210	12.2	1.42	144	4		1/4	0.37	20
10213	102	13.0	3.01	72	4		1/4	0.18	18
11313	113	13.0	3.01	72	4		1/4	0.37	20
07617	76	17.3	3.01	96	4		1/4	0.18	18
10617	106	17.3	3.01	96	4		1/4	0.37	20
06122	61	21.7	3.01	120	4		1/4	0.18	18
10222	102	21.7	3.01	120	4		1/4	0.37	20
05126	51	26.0	3.01	144	4		1/4	0.18	18
09926	99	26.0	3.01	144	4		1/4	0.37	20
05425	54	24.6	5.71	72	4		3/8	0.18	18
06025	60	24.6	5.71	72	4		3/8	0.37	20
04033	40	32.8	5.71	96	4		3/8	0.18	18
05633	56	32.8	5.71	96	4		3/8	0.37	20
03241	32	41.1	5.71	120	4		3/8	0.18	18
05441	54	41.1	5.71	120	4		3/8	0.37	20
02749	27	49.3	5.71	144	4		3/8	0.18	18
05249	52	49.3	5.71	144	4		3/8	0.37	20

Materials in Contact with Chemicals

	Metering Head	Suction/ Discharge Connector	Seals	Valve Balls	Valve Seat	Plungers
SST	Stainless steel	Stainless steel	PTFE	Ceramic	Stainless steel	Ceramic
	no. 1.4571/1.4404	no. 1.4571/1.4404	PTFE with graphite		no. 1.4571/1.4404	

Motor Data MTKa

Identcode characteristic	Power supply				Remarks
S	3 ph, IP55	220-240 V/380-420 V	50 HZ	0.18/0.37 KW	



1.4 Solenoid Dosing Pumps Back Pressure Valves

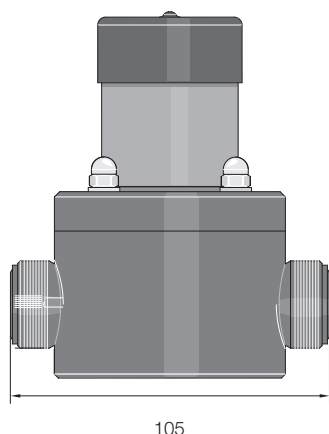
Accessories Back Pressure Valves

Back Pressure Valves BPV-DM-E

Adjustable back pressure valve for installation in the discharge line to create a constant back pressure. Also suitable for generating accurate dosing in the case of an open discharge port or where there is priming pressure on the vacuum side.

Warning: Back pressure valves are not fluid-tight stop taps! Installation instructions in the operating manual must be observed!

Applications: Dosing pumps alpha, beta, gamma, EXtronic, Pneumados and Delta.



						Part No.
DHV-DM-E	1 - 10 bar	6 x 4	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 an additional charge per valve.

PLEASE CHECK AVAILABILITY



1.5 Motor Driven Dosing Pumps Back Pressure Valves

Accessories Back Pressure Valves

Back Pressure Valves

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!

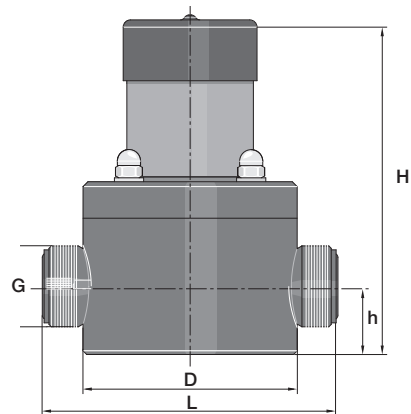
Applications: Vario, Sigma/ 1, Sigma/ 2 and Sigma/ 3 metering pumps.

					Part No.
BPV-DM	1 - 10 bar	G 3/4	DN 10	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

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 dispatch then there would be an additional charge per valve.



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

	G	L Approx.	H Approx.	D	h
M20x1.5	M20	105	120	65	31
DN10	G 3/4	120	120	65	31
DN15	G 1	120	136	88	28
DN25	G 1 1/2	150	145	98	32.5

PLEASE CHECK AVAILABILITY

