

1.1 Solenoid-Driven Metering Pumps

1.1.2 Solenoid-Driven Metering Pump beta

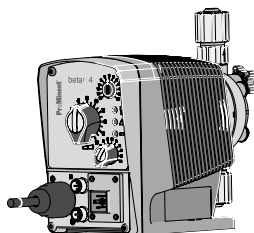
Equipped with all the features and properties for superior process management.

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



All-purpose solenoid-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.



beta b

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

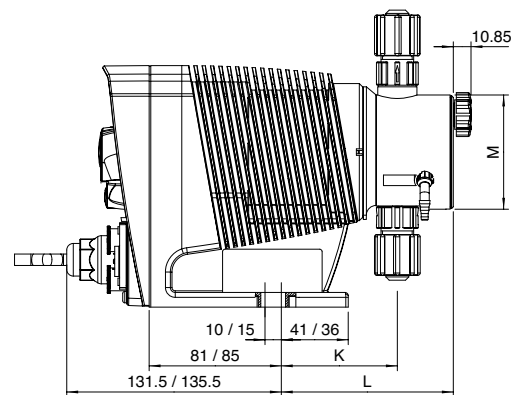
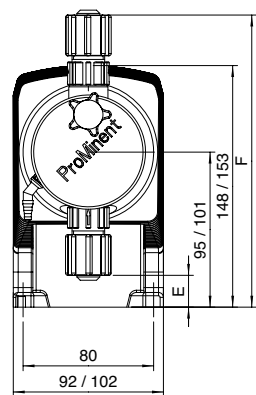


1.1 Solenoid-Driven Metering Pumps

Dimensional drawing of beta, PP material version

Type	E	F
1000 - 1604	19.5	179
0708 - 0220	7	186.5
1008 - 0420	14	191.5
0232	1.5	200.5

Type	K	L	Ø M
1000 - 1604	71	105.5	70
0708 - 0220	77.5	111	90
1008 - 0420	74	107.5	90
0232	77.5	94.5	110

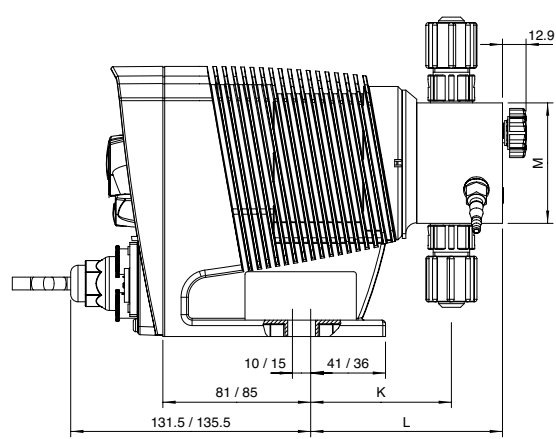
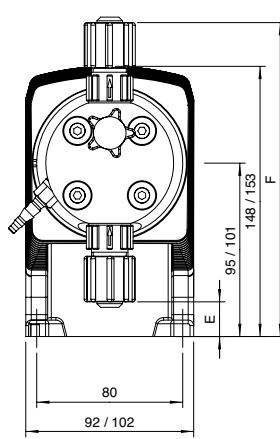


Dimensional drawing of beta, Material version PP - dimensions in mm

Dimensional drawing of beta, material version NP

Type	E	F
1000 - 1604	19	172
0708 - 0220	7.2	183
2504	24.5	178.5
1008 - 0420	14	188
0232	3.2	199

Type	K	L	Ø M
1000 - 1604	77	105	70
0708 - 0220	77.5	105.5	90
2504	77	105	70
1008 - 0420	74	102	90
0232	76	104.5	110

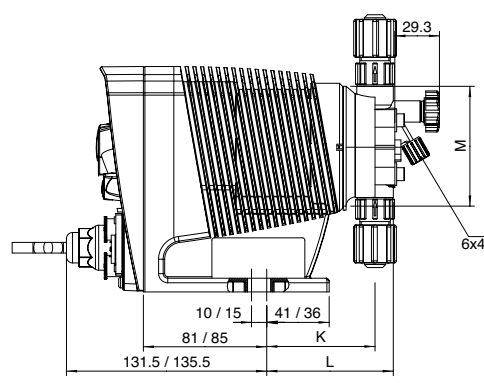
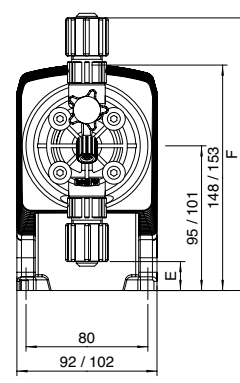


Dimensional drawing of beta, Material version NP - dimensions in mm

Dimensional drawing of beta, material version PV

Type	E	F
1000 - 1604	19	179
1602	19	172
0708 - 0220	8	185.5
1008 - 0420	14	191.5
0232	3.2	199

Type	K	L	Ø M
1000 - 1604	71	83	70
1602	77	105	70
0708 - 0220	73	90	90
1008 - 0420	73	90	90
0232	76	93	110



Dimensional drawing of beta, Material version PV - dimensions in mm

1.1 Solenoid-Driven Metering Pumps

Technical Data

Pump type	Pump capacity at max. back pressure			Delivery rate at medium back pressure			Stroke rate	Connector size o Ø x i Ø	Suction lift*	Average power con- sumption	Shipping weight		
	bar	l/h	ml/ stroke	bar	l/h	ml/ stroke					Strokes/ min	mm	m WC
Metering pumps with non-self-bleeding dosing head													
BT4b 1000 **	10	0.74	0.07	5.0	0.82	0.08	180	6 x 4	6.0	7.2		2.9	3.6
BT4b 1601 **	16	1.1	0.10	8.0	1.4	0.13	180	6 x 4	6.0	9.6		2.9	3.6
BT4b 1602 **	16	2.2	0.20	8.0	2.5	0.24	180	6 x 4	6.0	11.2		2.9	3.6
BT4b 0708 **	7	7.1	0.66	3.5	8.4	0.78	180	8 x 5	4.0	15.2		3.1	3.9
BT4b 0220	2	19.0	1.76	1.0	20.9	1.94	180	12 x 9	2.0	15.2		3.3	4.4
BT4b 0413	4	12.3	1.14	2.0	14.2	1.31	180	8 x 5	3.0	15.2		3.1	3.9
BT4b 1604 **	16	3.6	0.33	8.0	4.3	0.40	180	6 x 4	5.0	15.2		3.1	3.9
BT5b 0232	2	32	2.96	1.0	36.2	3.35	180	12 x 9	2.0	19.2		5.1	6.6
BT5b 0420	4	17.1	1.58	2.0	19.1	1.77	180	12 x 9	3.0	19.2		4.7	5.8
BT5b 0713	7	11	1.02	3.5	13.1	1.21	180	8 x 5	3.0	19.2		4.5	5.3
BT5b 1008	10	6.8	0.63	5.0	8.3	0.76	180	8 x 5	3.0	19.2		4.5	5.3
BT5b 2504	25 ***	2.9	0.27	10.0	5.0	0.46	180	8 x 4	4.0	19.2		4.5	5.3
Metering pumps with self-degassing dosing head (dosing head design 7)													
BT4b 1602 **	10	1.4	0.13	8.0	1.7	0.16	180	6 x 4	1.8	11.2		2.9	-
BT4b 1604 **	10	2.7	0.25	8.0	3.6	0.33	180	6 x 4	1.8	15.2		3.1	-
BT4b 0220	2	16.2	1.50	1.0	18.0	1.67	180	12 x 9	2.0	15.2		3.3	-
BT4b 0413	4	10.8	1.00	2.0	12.6	1.17	180	8 x 5	1.8	15.2		3.1	-
BT4b 0708 **	7	6.6	0.61	3.5	7.5	0.69	180	8 x 5	1.8	15.2		3.1	-
BT5b 0713	7	10.5	0.97	3.5	12.3	1.14	180	8 x 5	1.8	19.2		4.5	-
BT5b 0420	4	15.6	1.44	2.0	17.4	1.61	180	12 x 9	1.8	19.2		4.7	-
BT5b 1008	10	6.3	0.58	5.0	7.5	0.69	180	8 x 5	1.8	19.2		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.

** Pressure-reduced pump types are available in the pressure stages 4, 7 and 10 bar for special applications, for example in the swimming pool sector. More detailed information is available upon request.

*** 25 bar variant only available with dosing head material NP or SS



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



The vPTFE diaphragm is limited to a maximum operating pressure of 10 bar. The pump capacities of the metering pumps with vPTFE diaphragm may be 10-20 % lower than those with a standard diaphragm.

All data calculated with water at 20 °C.

Materials in Contact with the Medium

Identity code of material	Dosing head	Connection on suction/ discharge side	Ball seat	Seals	Balls
PVT	PVDF	PVDF	PVDF	PTFE	Ceramic
PPT	Polypropylene	PVDF	PVDF	PTFE	Ceramic
PPE	Polypropylene	Polypropylene	EPDM	EPDM	Ceramic
PPB	Polypropylene	Polypropylene	FKM A	FKM A	Ceramic
NPT	Clear acrylic	PVDF	PVDF	PTFE	Ceramic
NPE	Clear acrylic	PVC	EPDM	EPDM	Ceramic
NPB	Clear acrylic	PVC	FKM A	FKM A	Ceramic
SST	Stainless steel 1.4404	Stainless steel 1.4404	Ceramic	PTFE	Ceramic
TTT	Carbon-filled PTFE	Carbon-filled PTFE	Ceramic	PTFE	Ceramic

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

Permissible ambient temperature –10 °C to +45 °C.

Degree of protection: IP 66, insulation class F



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



1.1 Solenoid-Driven Metering Pumps

Identity Code Ordering System for Product Range beta, Version b

BT4b	Type	Capacity	
	1000	10 bar	0.74 l/h
	1601	16 bar	1.10 l/h
	1602	16 bar	2.20 l/h
	1604	16 bar	3.60 l/h
	0708	7 bar	7.10 l/h
	0413	4 bar	12.30 l/h
	0220	2 bar	19.00 l/h
		Liquid end/valve material	
	PP	Polypropylene/polypropylene	
	NP	Acrylic/PVC	
	PV	PVDF/PVDF	
	TT	PTFE with carbon, PTFE	
	SS	Stainless steel 1.4404/1.4404	
		Material of seals/diaphragm	
	T	PTFE, diaphragm PTFE coated	
	F	FDA-compliant design, only for PV and SS heads	
	M	With vPTFE diaphragm + PTFE valve seats. Design for PV heads only	
	E	EPDM, diaphragm PTFE coated. EPDM ball seats, only for PP and NP heads	
	B	FKM, diaphragm PTFE coated. FKM ball seats, only for PP and NP heads	
		Liquid end version	
	0	Non-bleed, without valve spring, for TT, SS and type 0232 only	
	1	Non-bleed, with valve spring, for TT, SS and type 0232 only	
	2	With bleed valve, without valve spring, PP, PV, NP only, not type 0232	
	3	With bleed valve, with valve spring, PP, PV, NP only, not type 0232	
	4	Design for higher-viscosity media (10-20 % lower metering rate possible), only PVT, types 1604, 0708, 1008, 0413, 0713, 0220, 0420	
	7	Self-bleeding without bypass, Only for NPT and PVT, not for types 1000 and 1601	
		Hydraulic connections	
	0	Standard according to technical data	
	5	Connector for 12/6 hose, delivery side only	
	9	Connector for 10/4 hose, delivery side only	
		Version	
	0	Standard	
		Logo	
	0	With ProMinent logo	
		Electrical Connection	
	U	100-230 V, ±10%, 50/60 Hz	
	M	12 – 24 V DC, Only for BT4b	
		Cable and plug	
	A	2 m European	
	B	2 m Swiss	
	C	2 m Australian	
	D	2 m USA	
	1	2 m, open-ended	
		Relay	
	0	No relay	
	1	Fault indicating relay, normally energised, 1 x changeover contact 230 V - 2 A	
	3	Fault indicating relay, normally de-energised, 1 x changeover contact 230 V - 2 A	
	4	As 1 + pacing relay 2 x normally open contacts 24 V - 100 m	
	5	As 3 + pacing relay 2 x normally open contacts 24 V - 100 mA	
		Accessories	
	0	No accessories	
	1	With foot and metering valve, 2 m PVC suction line, 5 m PE metering line	
	5	1+ universal control cable	
		Control type	
	0	No lock	
	1	With lock: manual operation locked when external cable plugged in	
		Control Variants	
	0	Without analogue control	
	A	With analogue control 0/4 – 20 mA	
		Options on request	
	00	No options	

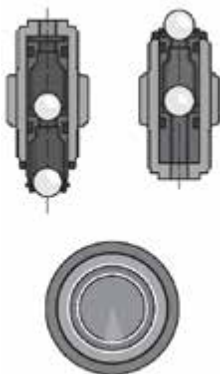
1.1 Solenoid-Driven Metering Pumps

Spare Parts Kits for Solenoid-Driven Metering Pump beta

Spare parts kits for beta b, consisting of:

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

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



Type	Materials in Contact with the Medium	Order no.
Type 1000	PPE	1001644
	PPB	1001652
	NPE	1001713
	NPB	1001721
	PPT, NPT, PVT	1023107
	PVF	1083549
	SST	1001729
Type 1601	PPE	1001645
	PPB	1001653
	NPE	1001714
	NPB	1001722
	PPT, NPT, PVT	1023108
	PVF	1083547
	SST	1001730
Type 1602	PPE	1001646
	PPB	1001654
	NPE	1001715
	NPB	1001723
	PVT, PPT, NPT	1023109
	PVF	1083550
	SST	1001731
Type 1604 and type 2504	PVT7, NPT7	1047830
	PPE	1039989
	PPB	1039987
	NPE	1039988
	NPB	1039986
	PVT, PPT, NPT	1035332
	PVF	1083548
Type 0708 and type 1008	PVT4	1035342
	SST	1035331
	PVT7, NPT7	1047858
	PPE	1001648
	PPB	1001656
	NPE	1001717
	NPB	1001725
Type 0413 and type 0713	PVT, PPT, NPT	1023111
	PVF	1083564
	PVT4	1019067
	SST	1001733
	PVT7, NPT7	1047832
	PPE	1001649
	PPB	1001657
Type 0220 and type 0420	NPE	1001718
	NPB	1001726
	PVT, PPT, NPT	1023112
	PVF	1083551
	PVT4	1019069
	SST	1001734
	PVT7, NPT7	1047833
	PPE	1001650
	PPB	1001658
	NPE	1001719
	NPB	1001727
	PVT, PPT, NPT	1023113
	PVF	1083552
	PVT4	1019070
	SST	1001735
	PVT7, NPT7	1047837

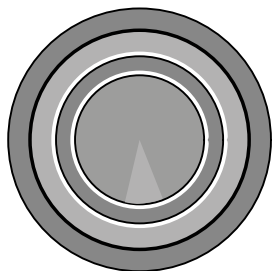


1.1 Solenoid-Driven Metering Pumps

Type	Materials in Contact with the Medium	Order no.
Type 0232	PPE	1001651
	PPB	1001659
	NPE	1001720
	NPB	1001728
	PVT, PPT, NPT	1023124
	PVF	1083553
	SST	1001736

Spare Diaphragms for Solenoid-Driven Metering Pump beta

	Materials in Contact With the Medium	Order no.
Type 1000	all materials	1000244
Type 1601	all materials	1000245
Type 1602	all materials	1000246
Type 1604 and type 2504	all materials	1034612
Type 0708 and type 1008	all materials	1000248
Type 0413 and type 0713	all materials	1000249
Type 0220 and type 0420	all materials	1000250
Type 0232	all materials	1000251



Accessories

- Foot valves for low-pressure metering pumps, see page →138
- Injection valves for low-pressure metering pumps, see page →140
- Hoses and pipework for low-pressure metering pumps, see page →198
- Suction lances and suction assemblies for solenoid-driven metering pumps see page →162
- Connectors, fittings, connector kits, seals, see page →202

Spare Parts

- Special valve balls/special valve springs, see page →219