

# 1.2 Solenoid-Driven Metering Pump Beta®

## 1.2.1 Solenoid-Driven Metering Pump Beta®



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

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

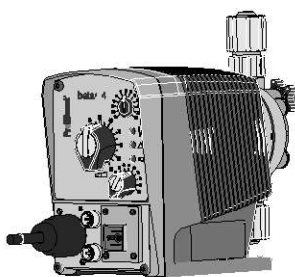


All-purpose solenoid-driven metering pump for metering liquid media in water treatment and chemical processes: Solenoid-driven metering pump Beta®. Cost-effective, overload-proof, adaptable to existing signal transducers.

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

### Your benefits

- 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
- 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



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Beta® b

### 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



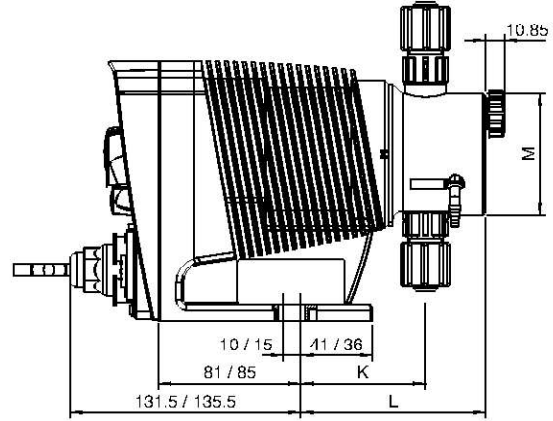
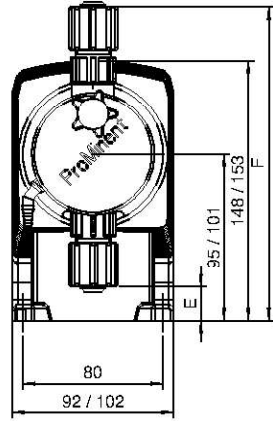
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**Dimensional drawing of Beta®  
Material design PP**

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	M
1000-1604	71	105.5	∅ 70
0708-0220	77.5	111	∅ 90
1008-0232	74	107.5	∅ 90
0232	77.5	94.5	∅ 110



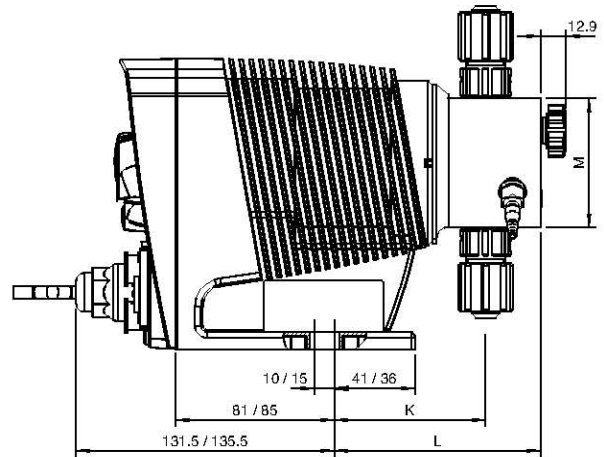
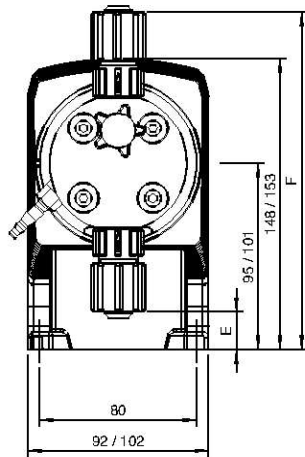
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Dimensional drawing of Beta®, Material version PP - dimensions in mm

**Dimensional drawing of Beta®  
Material design 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	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



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

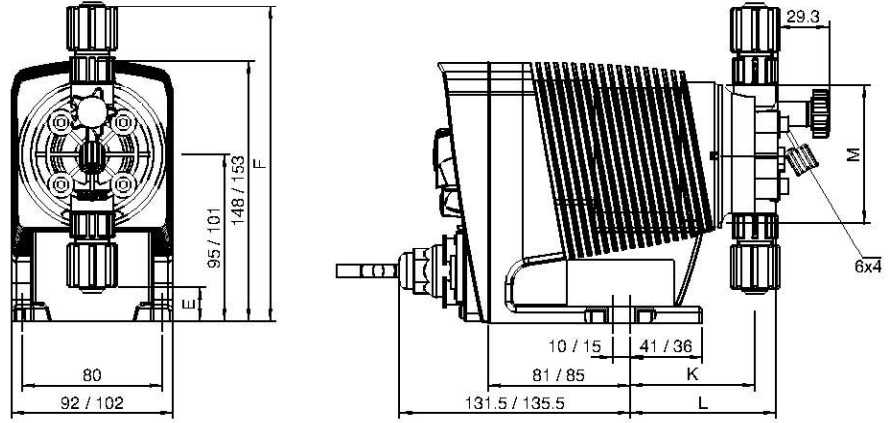


# 1.2 Solenoid-Driven Metering Pump Beta®

Dimensional drawing of Beta®  
Material design PV

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

Type	K	L	M
1604	71	83	∅ 70
0708-0220	73	90	∅ 90
1008-0420	73	90	∅ 90
0232	76	93	∅



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



# 1.2 Solenoid-Driven Metering Pump Beta®

## Technical Data

Pump type	Delivery rate at max. back pressure			Delivery rate at medium back pressure			Stroke rate Strokes/min	Connection size o Ø x i Ø mm	Suction lift m WC	Average power consumption W	Shipping weight	
	bar	l/h	ml/stroke	bar	l/h	ml/stroke					PP, NP, PV, TT kg	SS kg
<b>Beta® b</b>												
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 1604***	16	3.6	0.33	8.0	4.3	0.40	180	6 x 4	6.0**	15.2	3.1	3.9
BT4b 0708***	7	7.1	0.66	3.5	8.4	0.78	180	8 x 5	6.0**	15.2	3.1	3.9
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 0220	2	19	1.76	1.0	20.9	1.94	180	12 x 9	2.0**	15.2	3.3	4.4
BT5b 2504	25	2.9	0.27	10.0	5	0.46	180	8 x 4****	6.0**	19.2	4.5	5.3
BT5b 1008	10	6.8	0.63	5.0	8.3	0.76	180	8 x 5	6.0**	19.2	4.5	5.3
BT5b 0713	7	11	1.02	3.5	13.1	1.21	180	8 x 5	4.0**	19.2	4.5	5.3
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 0232	2	32	2.96	1.0	36.2	3.35	180	12 x 9	2.0**	19.2	5.1	6.6
<b>Beta® b metering pumps with self-bleeding dosing head without bypass</b>												
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 0708	7	6.6	0.61	3.5	7.5	0.69	180	8 x 5	1.8**	15.2	3.1	-
BT4b 0413	4	10.8	1.00	2.0	12.6	1.17	180	8 x 5	1.8**	15.2	3.1	-
BT4b 0220	2	16.2	1.50	1.0	18	1.67	180	12 x 9	2.0**	15.2	3.3	-
BT5b 1008	10	6.3	0.58	5.0	7.5	0.69	180	8 x 5	1.8**	19.2	4.5	-
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	-



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

- \* The given performance data constitutes guaranteed minimum values, calculated using water as the medium at room temperature.
  - \*\* Suction lift with a filled dosing head and filled suction line, with a self-bleeding dosing head with air in the suction line.
  - \*\*\* Pressure-reduced pump types are available in the pressure ratings 4, 7 and 10 bar for special applications, for example in the swimming pool sector. More detailed information is available upon request.
  - \*\*\*\* With stainless steel design 6 mm connector width.
- All data refers to water at 20 °C.

### Materials in Contact With the Medium

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

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

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

Degree of protection: IP 66, insulation class F

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



# 1.2 Solenoid-Driven Metering Pump Beta®

## 1.2.2 Identity Code Ordering System

### Beta® Version b

BT4b	Type	Capacity	
		bar	l/h
	1000	10	0.74
	1601	16	1.10
	1602	16	2.20
	1604	16	3.60
	0708	7	7.10
	0413	4	12.30
	0220	2	19.00
BT5b	2504	25	2.90
	1008	10	6.80
	0713	7	11.00
	0420	4	17.10
	0232	2	32.00
<b>Liquid end/valve material</b>			
	PP	Polypropylene/PVDF	
	NP	Acrylic glass/PVDF	
	PV	PVDF/PVDF	
	TT	PTFE with carbon, PTFE	
	SS	Stainless steel 1.4404/1.4404	
<b>Seal/diaphragm material</b>			
	T	PTFE/PTFE coated	
	F	FDA-compliant design, only for PV and SS	
<b>Liquid end version</b>			
	0	Non-bleed version, no valve spring, for TT, SS and type 0232 only	
	1	Non-bleed version, with valve spring, for TT, SS and type 0232 only	
	2	With deaerator, no valve spring, PP, PV, NP only, not type 0232	
	3	With deaerator, with valve spring, PP, PV, NP only, not type 0232	
	4	version for highly viscous media, only PVT, types 1604, 0708, 1008, 0413, 0713, 0220, 0420	
	7	self-bleeding without bypass, only for NPT and PVT, not for types 1000, 1601 and 0232	
<b>Hydraulic connections</b>			
	0	Standard according to technical data	
	5	Connector for 12/6 hose, delivery side only	
	9	Connector for 10/4 hose, delivery side only	
<b>Version</b>			
	0	Standard	
<b>Logo</b>			
	0	with ProMinent® logo	
<b>Power supply</b>			
	U	100-230 V ± 10%, 50/60 Hz	
	M	12 – 24 V DC, only with BT4b	
	N	24 V DC, only for BT5b	
<b>Cable and plug</b>			
	A	2 m European	
	B	2 m Swiss	
	C	2 m Australian	
	D	2 m USA	
	1	2 m, open-ended	
<b>Relay</b>			
	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 mA	
	5	as 3 + pacing relay 2 x normally open contacts 24 V - 100 mA	
<b>Accessories</b>			
	0	No accessories	
	1	With foot and dosing valve, 2 m PVC suction tubing, 5 m PE discharge tubing	
<b>Control type</b>			
	0	No lock	
	1	With lock: manual operation locked when external cable plugged in	
<b>Control Variants</b>			
	0	without analogue control	
	A	with analogue control 0/4 – 20 mA	
<b>Options on request</b>			
	0 0	No options	



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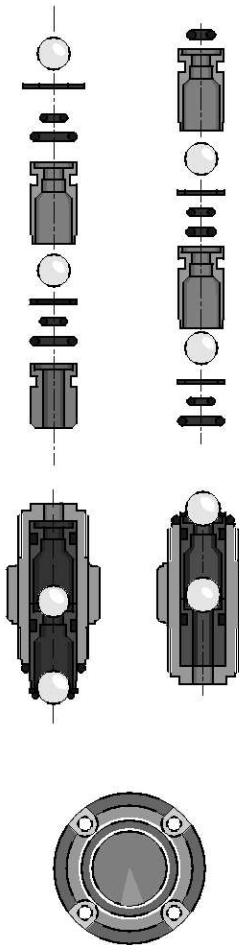
## 1.2.3 Spare Parts Kits, Replacement Diaphragms

### Spare Parts Kits for Solenoid-Driven Metering Pump Beta®

Spare parts kits for Beta® b, consisting of:

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

Stainless steel version without suction valve assembly and without discharge valve assembly



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Type	Wetted materials	Order no.
<b>Type 1000</b>	PPE	1001644
	PPB	1001652
	NPE	1001713
	NPB	1001721
	PPT, NPT, PVT	1023107
	TTT	1001737
	SST	1001729
<b>Type 1601</b>	PPE	1001645
	PPB	1001653
	NPE	1001714
	NPB	1001722
	PPT, NPT, PVT	1023108
	TTT	1001738
	SST	1001730
<b>Type 1602</b>	PPE	1001646
	PPB	1001654
	NPE	1001715
	NPB	1001723
	PVT, PPT, NPT	1023109
	TTT	1001739
	SST	1001731
<b>Type 1604 and type 2504</b>	PPE	1039989
	PPB	1039987
	NPE	1039988
	NPB	1039986
	PVT, PPT, NPT	1035332
	PVT HV	1035342
	TTT	1035330
SST	1035331	
<b>Type 0708 and type 1008</b>	PPE	1001648
	PPB	1001656
	NPE	1001717
	NPB	1001725
	PVT, PPT, NPT	1023111
	PVT4	1019067
	TTT	1001741
SST	1001733	
<b>Type 0413 and type 0713</b>	PPE	1001649
	PPB	1001657
	NPE	1001718
	NPB	1001726
	PVT, PPT, NPT	1023112
	PVT4	1019069
	TTT	1001742
SST	1001734	
<b>Type 0220 and type 0420</b>	PPE	1001650
	PPB	1001658
	NPE	1001719
	NPB	1001727
	PVT, PPT, NPT	1023113



## 1.2 Solenoid-Driven Metering Pump Beta®

Type	Wetted materials	Order no.
	PVT4	1019070
	TTT	1001754
	SST	1001735
<b>Type 0232</b>	PPE	1001651
	PPB	1001659
	NPE	1001720
	NPB	1001728
	PVT, PPT, NPT	1023124
	TTT	1001755
	SST	1001736

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

Spare parts kits for Beta® with self-bleeding dosing head, consisting of:

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

Type	Wetted materials	Order no.
<b>Type 1602</b>	PVT7, NPT7	1047830
<b>Type 1604</b>	PVT7, NPT7	1047858
<b>Type 0708 and type 1008</b>	PVT7, NPT7	1047832
<b>Type 0413 and type 0713</b>	PVT7, NPT7	1047833
<b>Type 0220 and type 0420</b>	PVT7, NPT7	1047837

### Spare Diaphragms for Solenoid-Driven Metering Pump Beta®

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

### Accessories

- Foot Valves for Low-Pressure Metering Pumps see page → 1-43
- Injection Valve for Low-Pressure Metering Pumps see page → 1-47
- Hoses, Pipes see page → 1-58
- Suction Lances, Suction Kit Without Level Switch see page → 1-64
- Connector Parts/Fittings see page → 1-84

### Spare Parts

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

