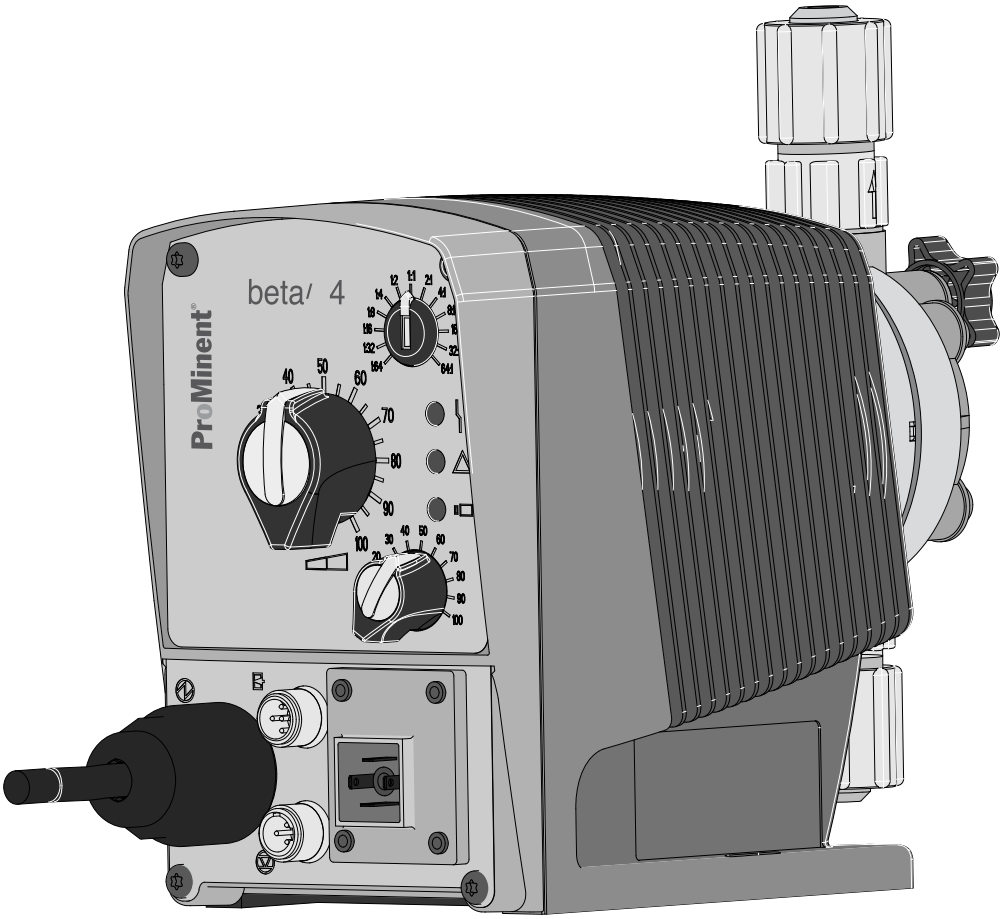
LENNTECH
WATER TREATMENT SOLUTIONS

ProMinent®

Technical Data

Solenoid Metering Pump

Beta® b BT4b and BT5b



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Please carefully read these operating instructions before use! · Do not discard!
The operator shall be liable for any damage caused by installation or operating errors!
Technical changes reserved.

16 Technical data

16.1 Performance data

Beta b operating at 180 strokes/minute and 100 % stroke length

Type	Minimum pump capacity at maximum back pressure			Minimum pump capacity at medium back pressure			Connector size outside ∅ x inside ∅	Suction lift*	Priming lift**	Maximum priming pressure on suction side
	bar	l/h	ml/stroke	bar	l/h	ml/stroke	mm	m WS	m WS	bar
Beta b										
1000	10	0.74	0.069	5.0	0.82	0.076	6x4	6.0	1.8	8
0700	7	0.8	0.074	3.5	0.88	0.074	6x4	6.0	1.8	8
0400	4	0.84	0.078	2.0	0.92	0.078	6x4	6.0	1.8	8
2001	20	0.96	0.089	10	1.5	0.13	6x3	6.0	2.0	8
1601	16	1.1	0.10	8.0	1.40	0.13	6x4	6.0	2.0	8
1001	10	1.3	0.12	5.0	1.5	0.14	6x4	6.0	2.0	8
0701	7	1.4	0.13	3.5	1.7	0.14	6x4	6.0	2.0	8
0401	4	1.5	0.14	2.0	2.0	0.18	6x4	6.0	2.0	8
2002	20	1.7	0.16	10	2.8	0.26	6x3	6.0	2.5	5.5
1602	16	2.2	0.20	8.0	2.5	0.24	6x4	6.0	2.5	5.5
1002	10	2.4	0.22	5.0	2.8	0.26	6x4	6.0	2.5	5.5
0702	7	2.6	0.24	3.5	3.1	0.29	6x4	6.0	2.5	5.5
0402	4	2.8	0.26	2.0	3.6	0.36	6x4	6.0	2.5	5.5
1604	16	3.6	0.33	8.0	4.3	0.40	6x4	5.0	3.0	3
1004	10	3.9	0.36	5.0	4.7	0.44	6x4	5.0	3.0	3
0704	7	4.2	0.39	3.5	5.1	0.47	6x4	5.0	3.0	3
0404	4	4.5	0.42	2.0	5.6	0.52	6x4	5.0	3.0	3
0708	7	7.1	0.66	3.5	8.4	0.78	8x5	4.0	2.0	2
0408	4	8.3	0.77	2	10.0	0.93	8x5	4.0	2.0	2
0413	4	12.3	1.14	2.0	14.2	1.31	8x5	3.0	2.5	1.5
0220	2	19.0	1.76	1.0	20.9	1.94	12x9	2.0	2.0	1
2504	25	2.9	0.27	12.5	3.7	0.34	8x4[1]	4.0	3.0	3
1008	10	6.8	0.63	5.0	8.3	0.76	8x5	3.0	3.0	2
0713	7	11.0	1.02	3.5	13.1	1.21	8x5	3.0	3.0	1.5
0420	4	17.1	1.58	2.0	19.1	1.77	12x9	3.0	3.0	1
0232	2	32.0	2.96	1.0	36.2	3.35	12x9	2.0	2.0	0.8
Beta b Metering pumps with self-bleeding dosing head SER/SEK* **										
1601	16	0.59	0.055	8.0	0.80	0.072	6x4	6.0	2.0	0.5
1001	10	0.72	0.067	5.0	0.60	0.08	6x4	6.0	2.0	0.5
0701	7	0.84	0.078	3.5	1.12	0.10	6x4	6.0	2.0	0.5

Type	Minimum pump capacity at maximum back pressure			Minimum pump capacity at medium back pressure			Con-nector size outside ∅ x inside ∅	Suction lift*	Priming lift**	Max-imum priming pressure on suc-tion side
	bar	l/h	ml/ stroke	bar	l/h	ml/ stroke	mm	m WS	m WS	bar
0401	4	0.9	0.083	2.0	1.2	0.11	6x4	6.0	2.0	0.5
2002	20	0.78	0.07	10.0	1.8	0.17	6x4	6.0	2.5	0.5
1602	16	1.40	0.13	8.0	1.70	0.16	6x4	6.0	2.5	0.5
1002	10	1.7	0.16	5.0	2.0	0.18	6x4	6.0	2.5	0.5
0702	7	1.8	0.17	3.5	2.2	0.20	6x4	6.0	2.5	0.5
0402	4	2.1	0.19	2.0	2.5	0.23	6x4	6.0	2.5	0.5
1604	16	2.7	0.25	8.0	3.6	0.33	6x4	5.0	3.0	0.5
1004	10	3.3	0.30	5.0	3.9	0.36	6x4	5.0	3.0	0.5
0704	7	3.6	0.33	3.5	4.0	0.37	6x4	5.0	3.0	0.5
0404	4	3.9	0.36	2.0	4.2	0.39	6x4	5.0	3.0	0.5
0708	7	6.60	0.61	3.5	7.50	0.69	8x5	4.0	2.0	0.5
0408	4	7.5	0.64	2.0	8.1	0.77	8x5	4.0	2.0	0.5
0413	4	10.8	1.0	2.0	12.6	1.17	8x5	3.0	2.5	0.5
0220	2	16.2	1.5	1.0	18.0	1.67	12x9	2.0	2.0	0.5
1008	10	6.3	0.58	5.0	7.5	0.69	8x5	3.0	3.0	0.5
0713	7	10.5	0.97	3.5	12.3	1.14	8x5	2.5	2.5	0.5
0420	4	15.6	1.44	2.0	17.4	1.61	12x9	2.5	2.5	0.5

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

** - Priming lift with clean and moist valves. Priming lift at 100 % stroke length and free outlet or opened bleed valve.

*** - The given performance data constitutes guaranteed minimum values, calculated using medium water at room temperature. The bypass connection with a self-bleeding dosing head SEK is 6x4 mm.

[1] - The connector width is 6 mm on SST material versions.

Beta b Metering pumps with dosing heads for higher-viscosity media have a 10-20 % lower metering capacity and are not self-priming. Connection G 3/4-DN 10 with tube nozzle d16-DN10.

16.2 Accuracy

16.2.1 Standard Liquid End

Data	Value	Unit
Capacity range of the series	-5 ... +10	% *
Reproducibility	±2	% **

* - at max. stroke length and max. operating pressure for all material versions

** - at constant conditions and min. 30 % stroke length

16.2.2 Self-Bleeding Liquid End

As the self-bleeding liquid end is used with outgassing media and when operating with air bubbles, no dosing accuracy or reproducibility can be provided.

The recommended minimum stroke length with self-bleeding dosing pumps is 50 %.

16.3 Viscosity

The liquid ends are suitable for the following viscosity ranges:

Version	Range	Unit
standard	0 ... 200	mPas
With valve springs	200 ... 500	mPas
Self-bleeding (SEK)	0 ... 50	mPas
HV (highly viscous)	500 ... 3000*	mPas

* Only when the installation is correctly adjusted

16.4 Material Data

Standard liquid ends

Version	Dosing head	Suction/Discharge connector	Seals	Valve balls
PPE	Polypropylene	Polypropylene	EPDM	Ceramic
PPB	Polypropylene	Polypropylene	FPM	Ceramic
PPT	Polypropylene	PVDF	PTFE	Ceramic
NPE	Acrylic glass	PVC	EPDM	Ceramic
NPB	Acrylic glass	PVC	FPM	Ceramic
NPT	Acrylic glass	PVDF	PTFE	Ceramic
PVT	PVDF	PVDF	PTFE	Ceramic
TTT	PTFE with carbon	PTFE with carbon	PTFE	Ceramic
SST	Stainless steel 1.4404	Stainless steel 1.4404	PTFE	Ceramic

Only the self-bleeding version in PPE, PPB, NPE and NPB material models with a valve spring made of hastealloy C and a valve insert made of PVDF. Diaphragm with a PTFE coating.

FPM = fluororubber

Pump

Housing parts: polyphenyl ether (PPE with fibreglass)

16.5 Electrical data

Version: 100 - 230 V ±10 %, 50/60 Hz, Beta b BT4b

Data	Value	Unit
Nominal power, approx.	6.4 ... 16.5	W
Current I eff	0.65 ... 0.1	A
Peak current	4.2 ...1.3	A
Switch on peak current, (within approx. 50 ms falling)	15	A
Fuse*	0.8	AT

Version: 100 - 230 V ±10 %, 50/60 Hz, Beta b BT5b

Data	Value	Unit
Nominal power, approx.	20 ... 25	W
Current I eff	0.9 ... 0.3	A
Peak current	5.9 ... 2.3	A
Switch on peak current, (within approx. 50 ms falling)	15	A
Fuse*	0.8	AT

* Fuses must have VDE, UL and CSA certification. E.G. type 19195 manufactured by Wickmann in compliance with IEC Publ. 127 - 2/3.

Power consumption

Type	Performance	Type	Performance	Type	Performance
	W		W		W
1000	7.6	1602	12.2	0408	12.7
0700	6.4	1002	10.6	0413	16.5
0400	5.7	0702	9.3	0220	16.5
2001	10.5	0402	7.9	2504	21.2
1601	10.0	1604	16.5	1008	20.3
1001	8.3	1004	12.7	0713	21.2
0701	7.5	0704	11.1	0420	21.2
0401	6.9	0404	9.5	0232	24.9
2002	13.5	0708	16.5		

Design: 12 - 24 VDC# -8/+24 %, identity code M

Parameter	Beta b BT4b
Nominal power, approx.	17.4 W.
Nominal current (averaged at 180 H/min)	3.9 ... 1.9 A.
Peak current	15.6... 8.7 A.
closed current (no stroke)	32 ... 24 mA.
Fuse*	5 AT

SELV in accordance with EN 60335-1

* 5 AT, 5x20 mm, order no. 712028

The pump only works if the polarity is correct.

Design: 24 VDC# -15/+24 %, identity code N

Parameter	Beta b BT5b
Nominal power, approx.	24.4 W.
Nominal current (averaged at 180 H/min)	2.5 A.
Peak current	11.7 A.
Closed current (no stroke)	24 mA.
Fuse*	5 AT

SELV in accordance with EN 60335-1

* 5 AT, 5x20 mm, order no. 712028

The pump only works if the polarity is correct.

16.6 Temperatures

Pump, compl.

Data	Value	Unit
Storage and transport temperature	-20 ... +60	°C
Ambient temperature in operation (drive and control):	-10 ... +45	°C

Liquid end, long-term*

Data	Value	Unit
Liquid end temperature	-10 ... +45	°C

* long term at max. operating pressure, dependent on ambient and feed chemical temperatures

Liquid end, short-term*

Material version	Value	Unit
PPT	100	°C
NPT	60	°C
PVT	120	°C
TTT	120	°C
SST	120	°C

* Temp. max., for 15 min at max. 2 bar, dependent on the ambient and feed chemical temperatures

16.7 Climate

Data	Value	Unit
Maximum air humidity *:	95	% rel. humidity

* non-condensing

Exposure in a humid and alternating climate:

FW 24 according to DIN 50016

16.8 Protection class and Safety Requirements

Degree of protection

Protection against contact and humidity:

IP 65 in accordance with IEC 529, EN 60529, DIN VDE 0470 Part 1

Safety requirements

Degree of protection:

1 - mains power connection with protective earth conductor

16.9 Compatibility

Some hydraulic parts of the Beta® b are identical to those of the Beta® a, gamma/ L and delta®.

There is most compatibility with pumps of the Beta® a, gamma/ L and delta® series with the following components and accessories:

- Signal cable gamma/Vario 2-, 4- and 5-wire for the "Extern" function
- Level switch 2-stage (gamma / Vario / Beta®)
- Dosing line cross-sections
- Standard gamma connector kit
- Chemical feed container
- Overall height (distance between the suction and discharge connector)
- Same use of accessories, such as back pressure valves, multifunctional valves, dosing monitor and flushing equipment

16.10 Sound pressure level

Sound pressure level

Sound pressure level LpA < 70 dB according to EN ISO 20361

at maximum stroke length, maximum stroke rate, maximum back pressure (water)

16.11 Shipping weight

Shipping weight of Beta b types - in kg

Material	BT4b						BT5b		
	1000, 0700, 0400	2001, 1601, 1001, 0701, 0401	2002, 1602, 1002, 0702, 0402	1604, 1004, 0704, 0404	0708, 0408, 0413	0220	2504, 1008, 0713	0420	0232
PP, NP, PV, TT	2.5	2.9	2.9	3.1	3.1	3.3	4.5	4.7	5.1
SS	3.0	3.6	3.6	3.9	3.9	4.4	5.3	5.8	6.6

17 Dimensional drawings

- *Compare the dimensions on the dimensional drawing and pump.*
- *All dimensions are in mm.*

Dimensional drawing Beta b, material version PP

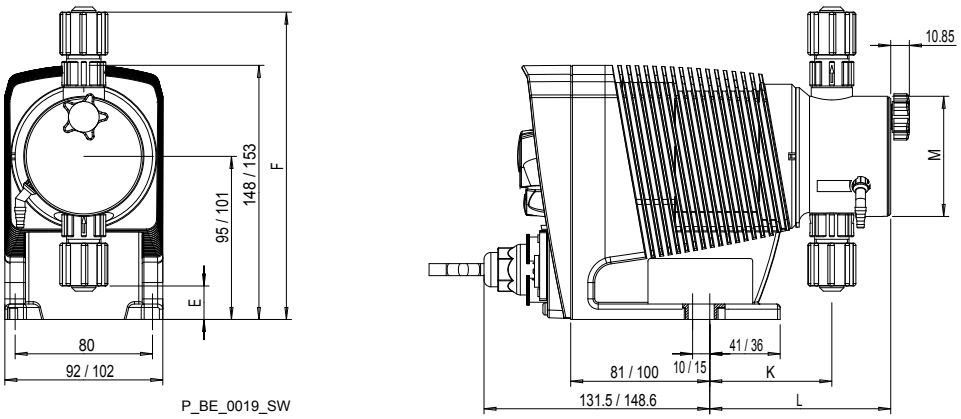

Fig. 19: Dimension drawing Beta b BT4b/BT5b, material version PP - dimensions in mm

	1000 - 1604	0708 - 0220	1008 - 0420	0232
E	19.5	7	14	1.5
F	179	186.5	191.5	200.5
K	71	77.5	74	77.5
L	105.5	111	107.5	94.5
M	Ø 70	Ø 90	Ø 90	Ø 110

Dimensional drawing Beta b, material version PP

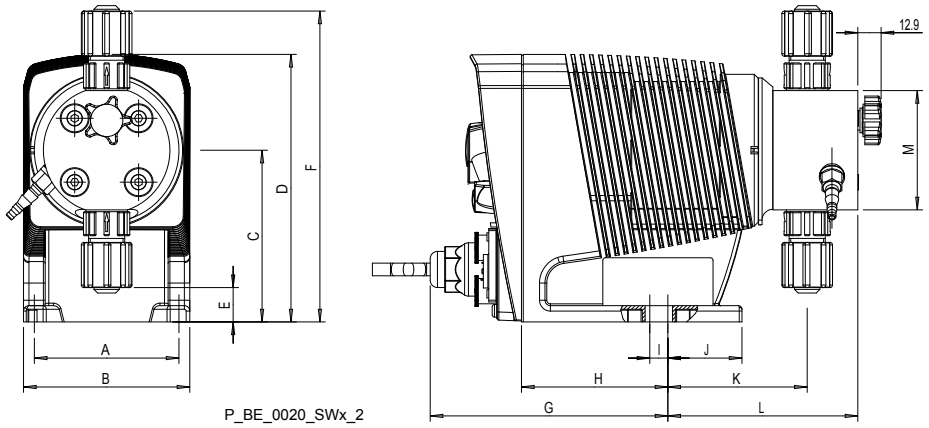

Fig. 20: Dimension drawing Beta b BT4b/BT5b, material version PP - dimensions in mm

	1000 - 1604	0708 - 0220	2504	1008 - 0420	0232
A	80	80	80	80	80
B	92	92	102	102	102
C	95	95	101	101	101
D	148	148	153	153	153
E	19	7.2	24.6	14	3.2
F	172	182.8	178.4	188	198.8
G	131.5	131.5	148.6	148.6	148.6
H	81	81	100	100	100
I	10	10	15	15	15
J	41	41	36	36	36
K	77	77.5	77.1	74.1	76
L	105	105.5	105.1	102.1	104.5
M	Ø 70	Ø 90	Ø 70	Ø 90	Ø 110

Dimensional drawing Beta b, material version PP and NP SEK

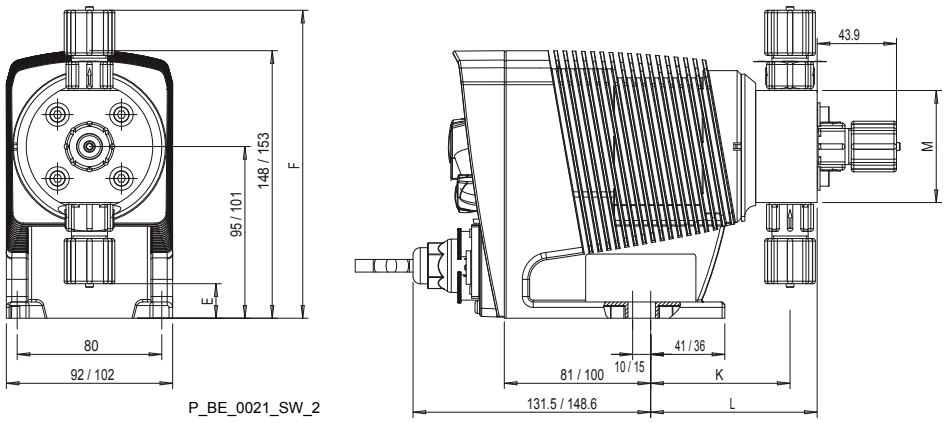

Fig. 21: Dimensional drawing Beta b BT4b/BT5b, material versions PP and NP with self-bleeding dosing head SEK - dimensions in mm

	1604	0708 - 0220	1008 - 0232
E	19	7.5	13.6
F	170.5	182.5	188.4
K	77	74	74
L	92	105.5	89
M	Ø 70	Ø 90	Ø 90

Dimensional drawing Beta b, material version PV

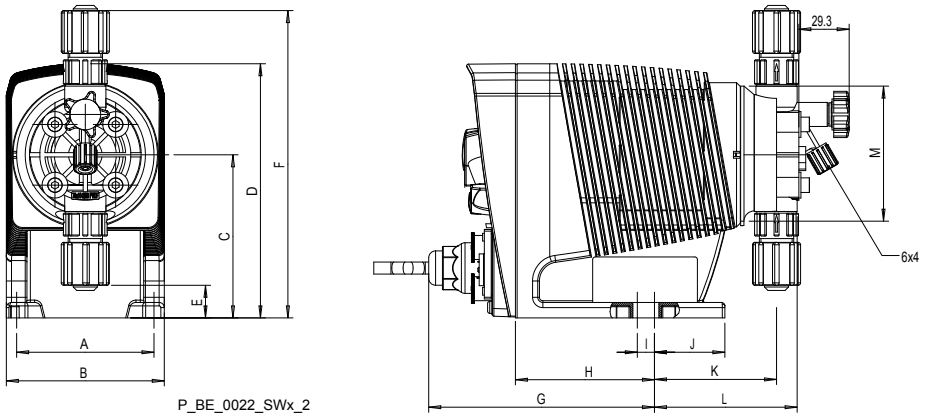

Fig. 22: Dimension drawing Beta b BT4b/BT5b, material version PV - dimensions in mm

	1604	0708 - 0220	1008 - 0420	0232
A	80	80	80	80
B	92	92	102	102
C	95	95	101	101
D	148	148	153	153
E	19	8.1	14.1	3.2
F	179	185.5	191.5	199
G	131.5	131.5	148.5	148.5
H	81	81	100	100
I	10	10	15	15
J	41	41	36	36
K	71	73	73	76
L	83	90	90	93
M	Ø 70	Ø 90	Ø 90	Ø 110

Dimensional drawing Beta b, material version PV HV

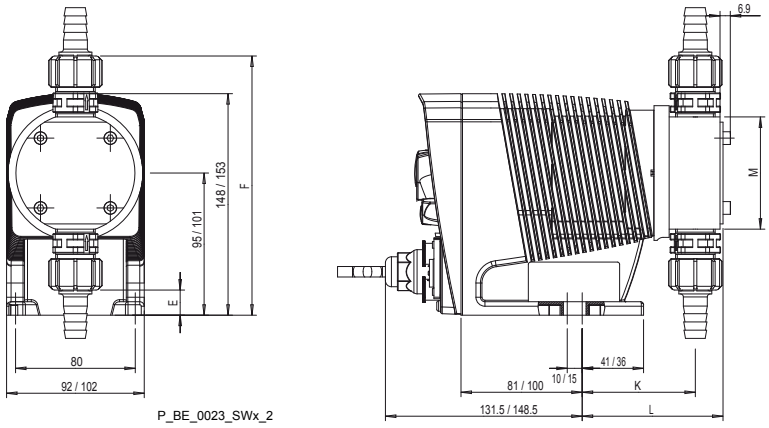

Fig. 23: Dimensional drawing Beta b BT4b/BT5b, material version PV for highly viscous feed chemicals - dimensions in mm

	1604	0708 - 0413	0220	1008 - 0713	0420
E	17	13	13	22.8	19
F	173	177	177	179.2	183
K	75.5	77	77	75.5	78.5
L	94	95	95	94	96.5
M	Ø 70	Ø 80	Ø 85	Ø 85	Ø 85

Dimensional drawing Beta b, material version TT

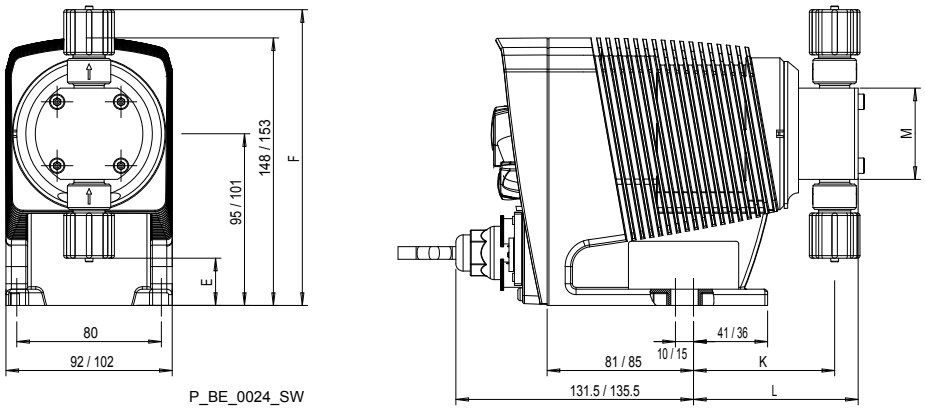

Fig. 24: Dimension drawing Beta b BT4b/BT5b, material version TT - dimensions in mm

	1000 - 1601	1602 - 1604	0708 - 0220	1008 - 0420	0232
E	26.2	21.3	-13.2	-7.2	-14.2
F	163.7	168.8	202.7	208.7	215.7
K	78	72	77	77.1	78
L	91	86	94	94	97
M	Ø 60	Ø 70	Ø 85	Ø 85	Ø 100

Dimensional drawing Beta b, material version SS

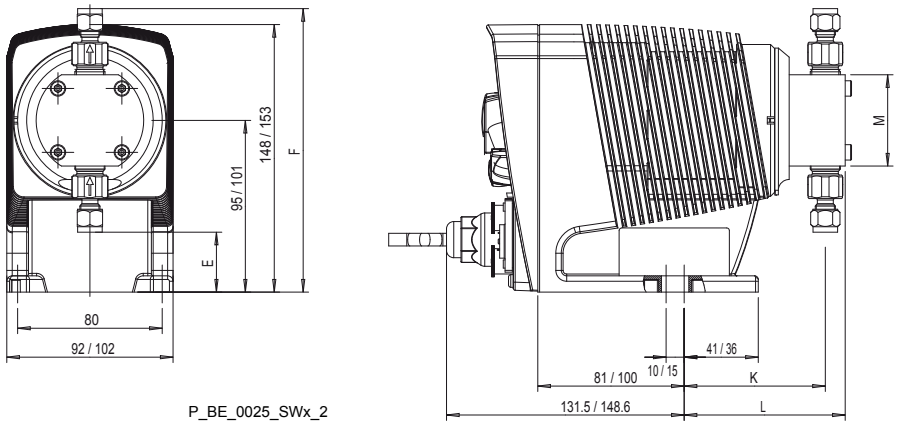

Fig. 25: Dimensional drawing Beta b BT4b/BT5b, material version SS - dimensions in mm

	1000 - 1601	1602 - 1604	0708 - 0220	2504	1008 - 0420	0232
E	33.2	24.4	-7.8	31.7	-1.8	-8
F	156.9	165.6	197.3	170.4	203.3	210
K	78	75	82	72	77	78
L	89	87	97	84	92	95
M	Ø 60	Ø 70	Ø 85	Ø 70	Ø 85	Ø 110

18 Diagrams for setting the metering capacity

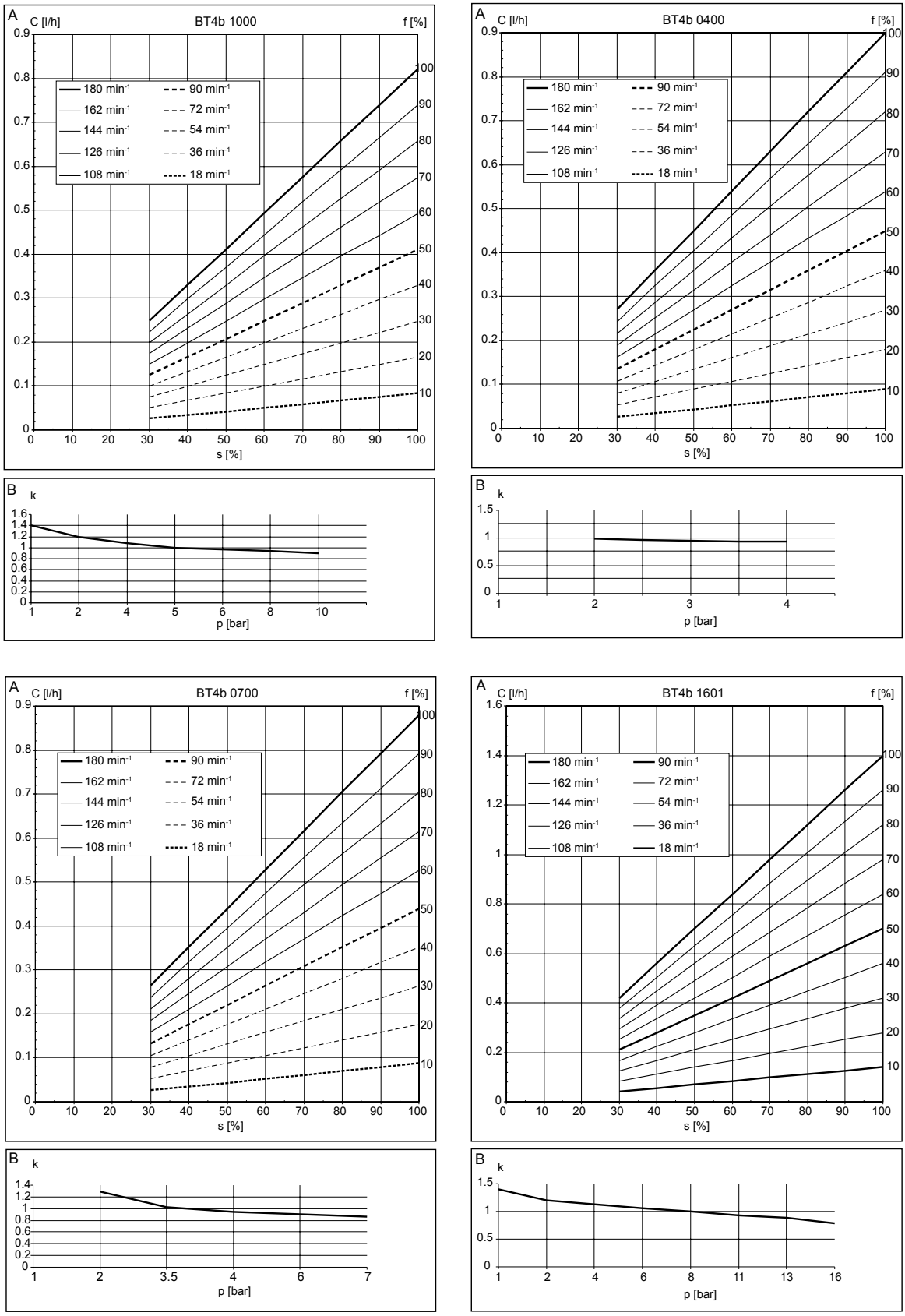

Fig. 26: A) Metering capacity C for medium back pressure dependent on the stroke length s for different stroke rates f. B) Corresponding correction factors k dependent on back pressure p.

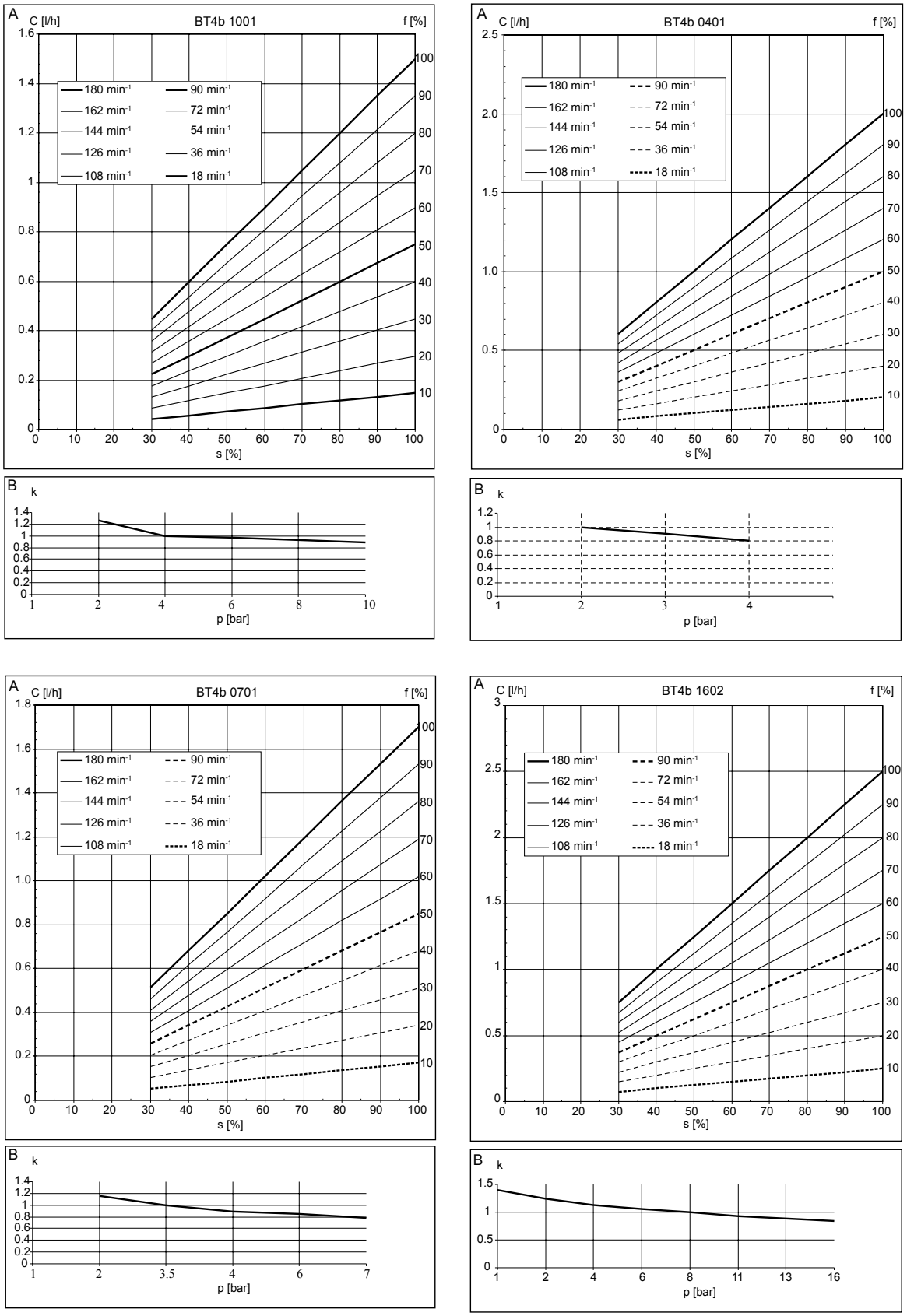

Fig. 27: A) Metering capacity C for medium back pressure dependent on the stroke length s for different stroke rates f. B) Corresponding correction factors k dependent on back pressure p.

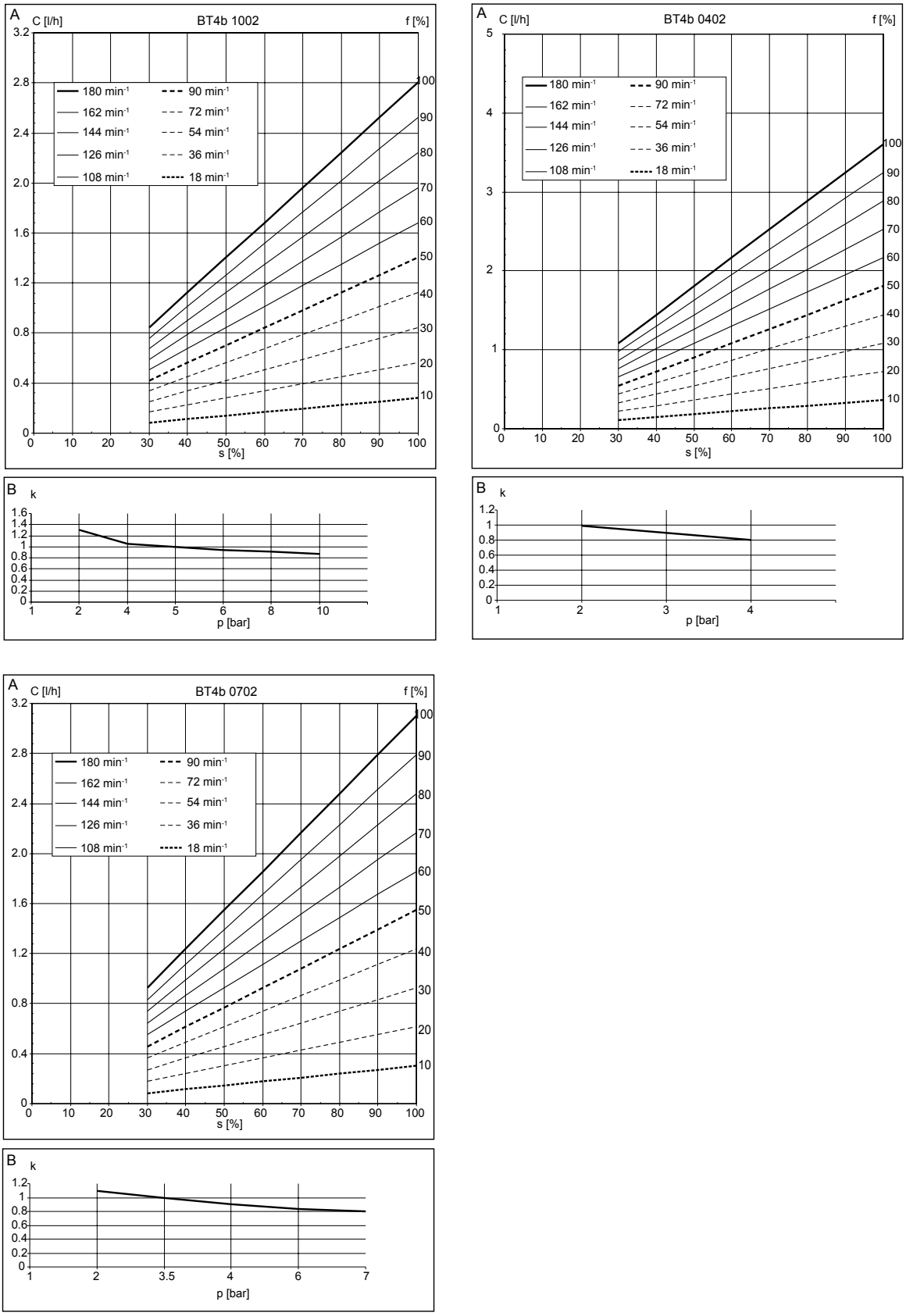

Fig. 28: A) Metering capacity C for medium back pressure dependent on the stroke length s for different stroke rates f. B) Corresponding correction factors k dependent on back pressure p.

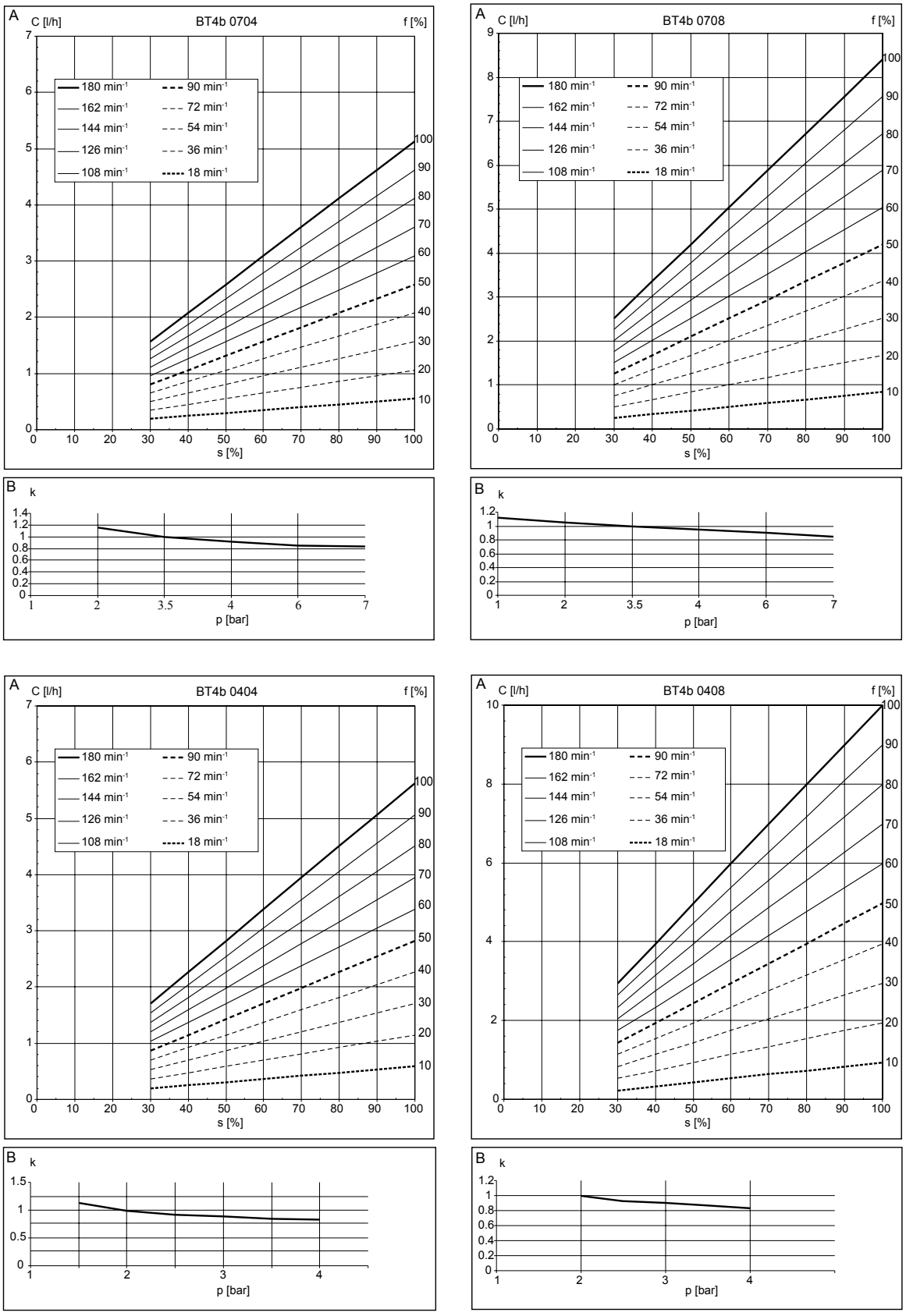

Fig. 29: A) Metering capacity C for medium back pressure dependent on the stroke length s for different stroke rates f. B) Corresponding correction factors k dependent on back pressure p.

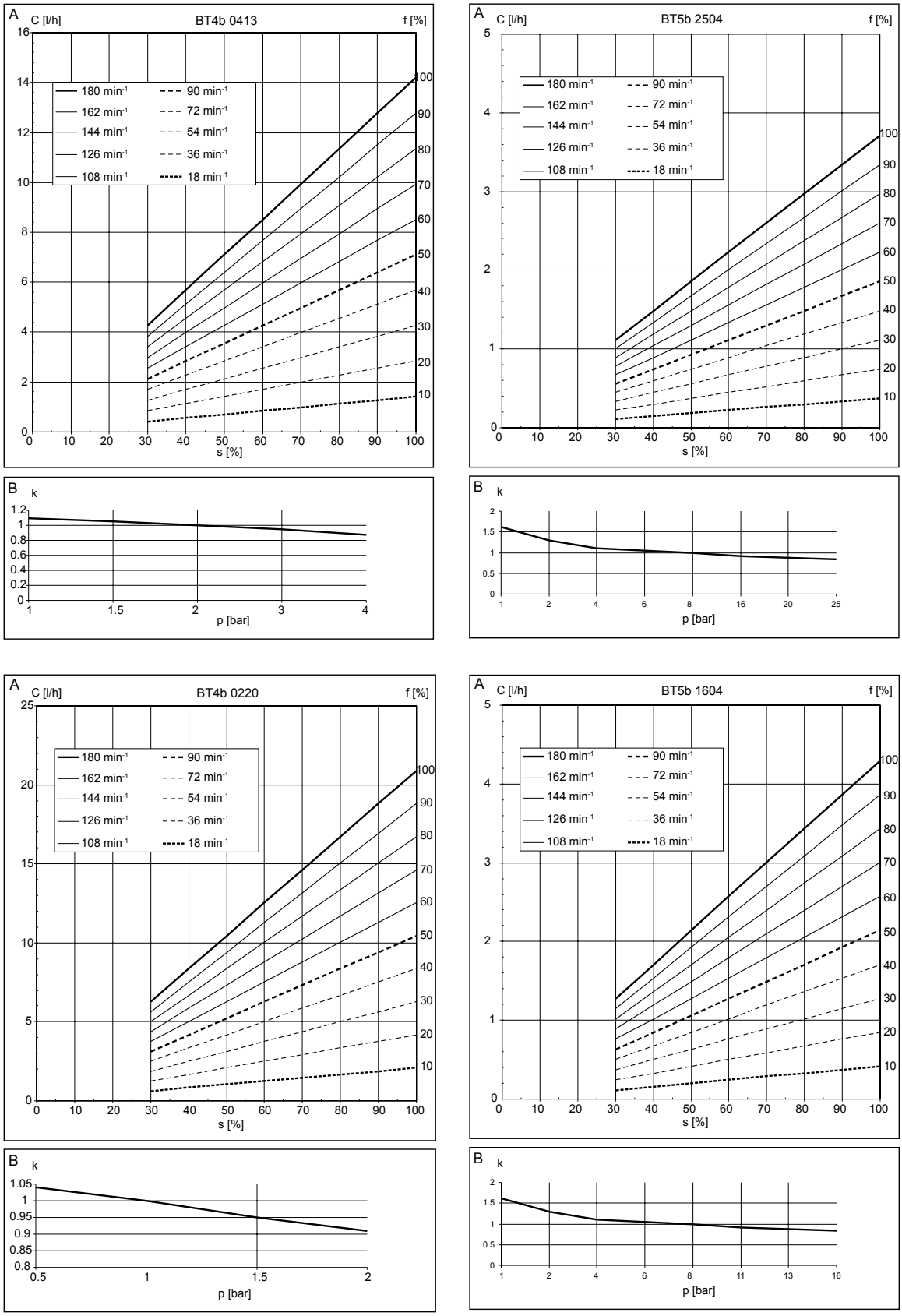

Fig. 30: A) Metering capacity C for medium back pressure dependent on the stroke length s for different stroke rates f. B) Corresponding correction factors k dependent on back pressure p.

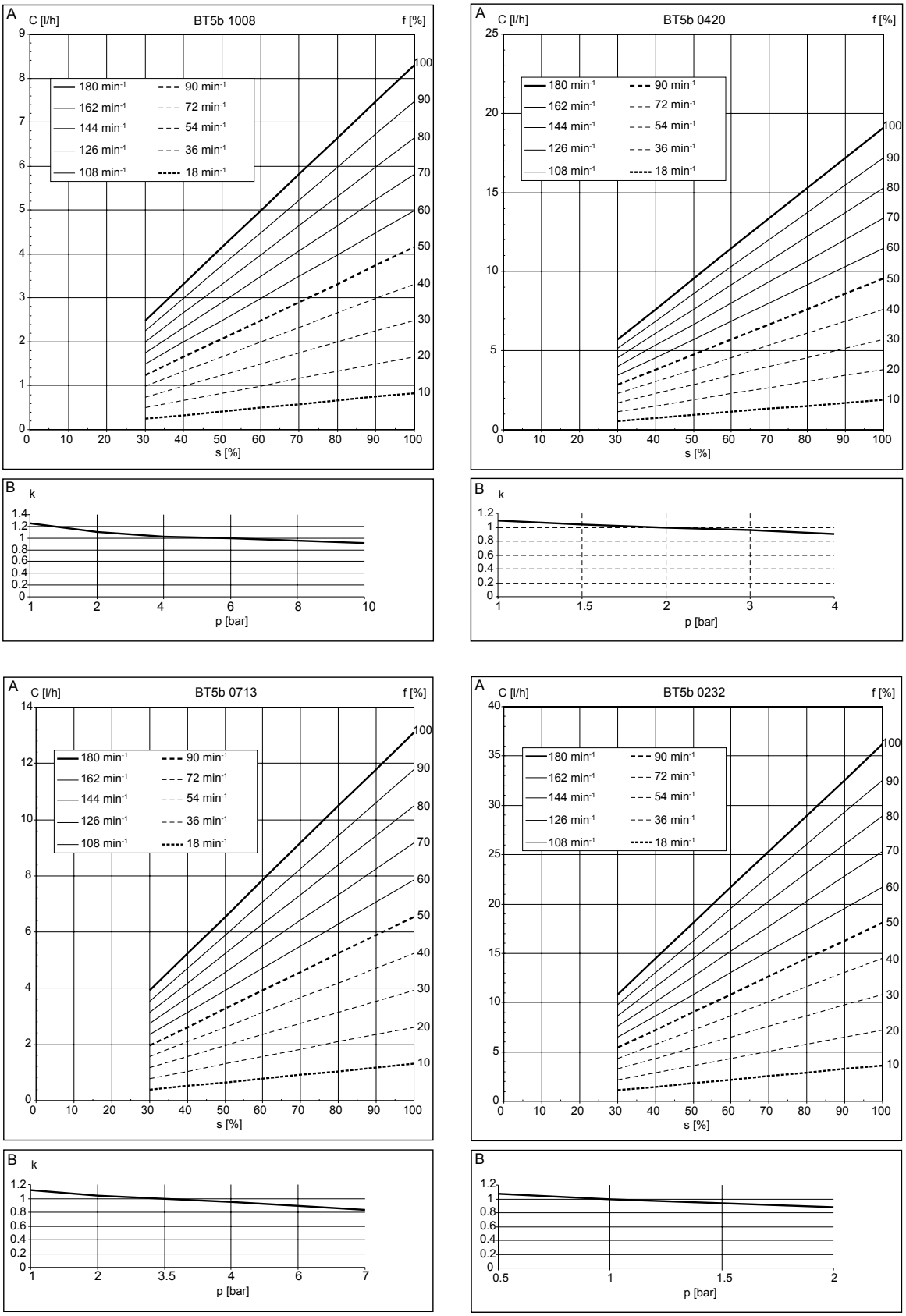

Fig. 31: A) Metering capacity C for medium back pressure dependent on the stroke length s for different stroke rates f. B) Corresponding correction factors k dependent on back pressure p.

19 Exploded Views of Liquid Ends

Liquid end Beta® 1000 - 1604 PP with bleed valve

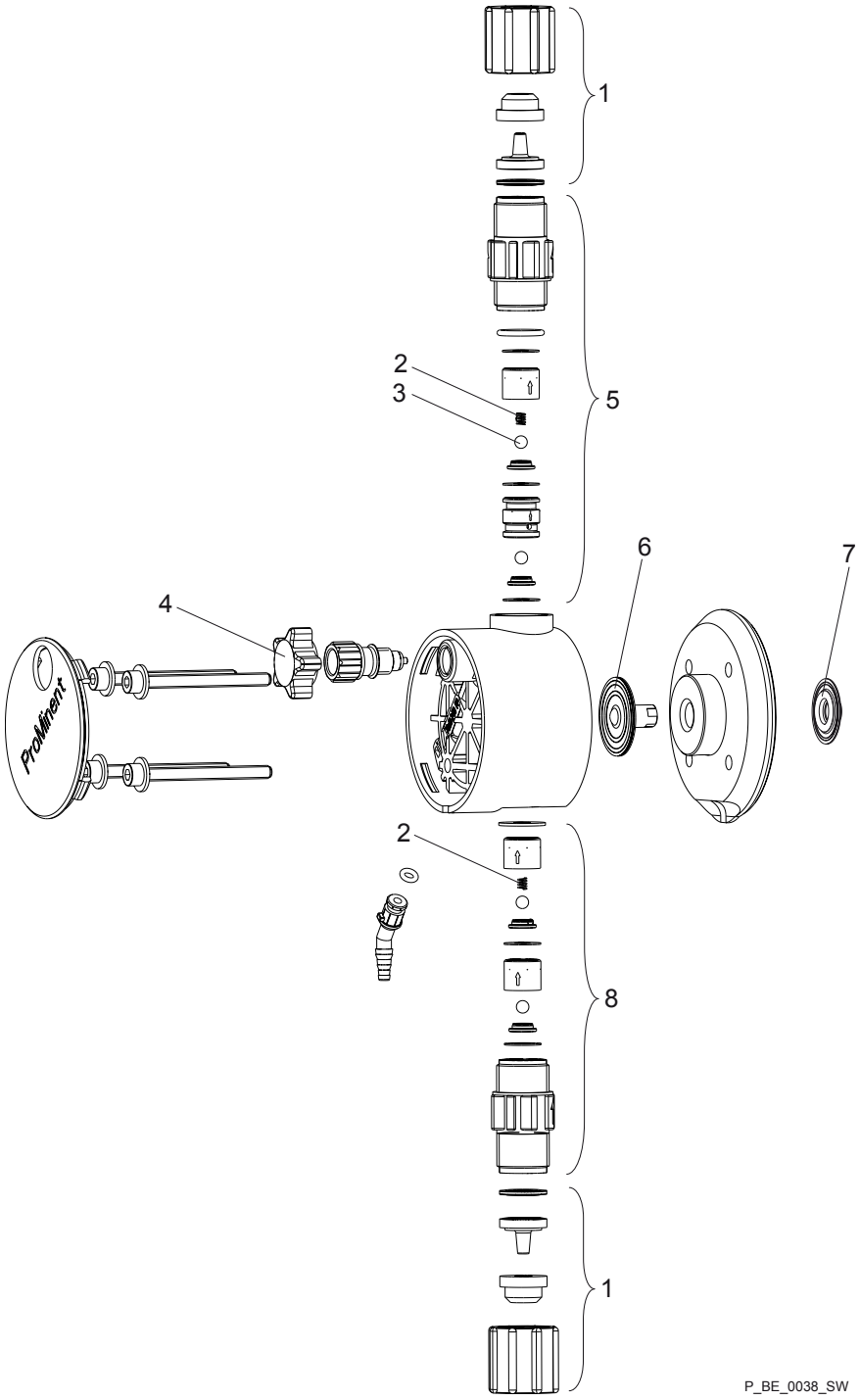

Fig. 32

Item	Description	Type 1000	Type 1601	Type 1602	Type 1604
1	Connector kit 6/4 PVT	1023246	1023246	1023246	1023246
3	4 Valve balls	404201	404201	404201	404201

Spring (item 2) is a special accessory. The positions listed are included in the spare parts kit. Technical changes reserved.

Item	Description	Type 1000	Type 1601	Type 1602	Type 1604
4	Bleed valve	1021662	1021662	1021662	1021662
5	Discharge valve, compl. 4.7-2 PVT	1023127	1023127	1023127	1023127
6	Diaphragm	1000244	1000245	1000246	1034612
7	Safety diaphragm	1006061	1006061	1006061	1006061
8	Suction valve, compl. 4.7-2 PVT	1023128	1023128	1023128	1023128

Spring (item 2) is a special accessory. The positions listed are included in the spare parts kit. Technical changes reserved.

Liquid end Beta® 0708 (1008) - 0220 (0420) PP with bleed valve

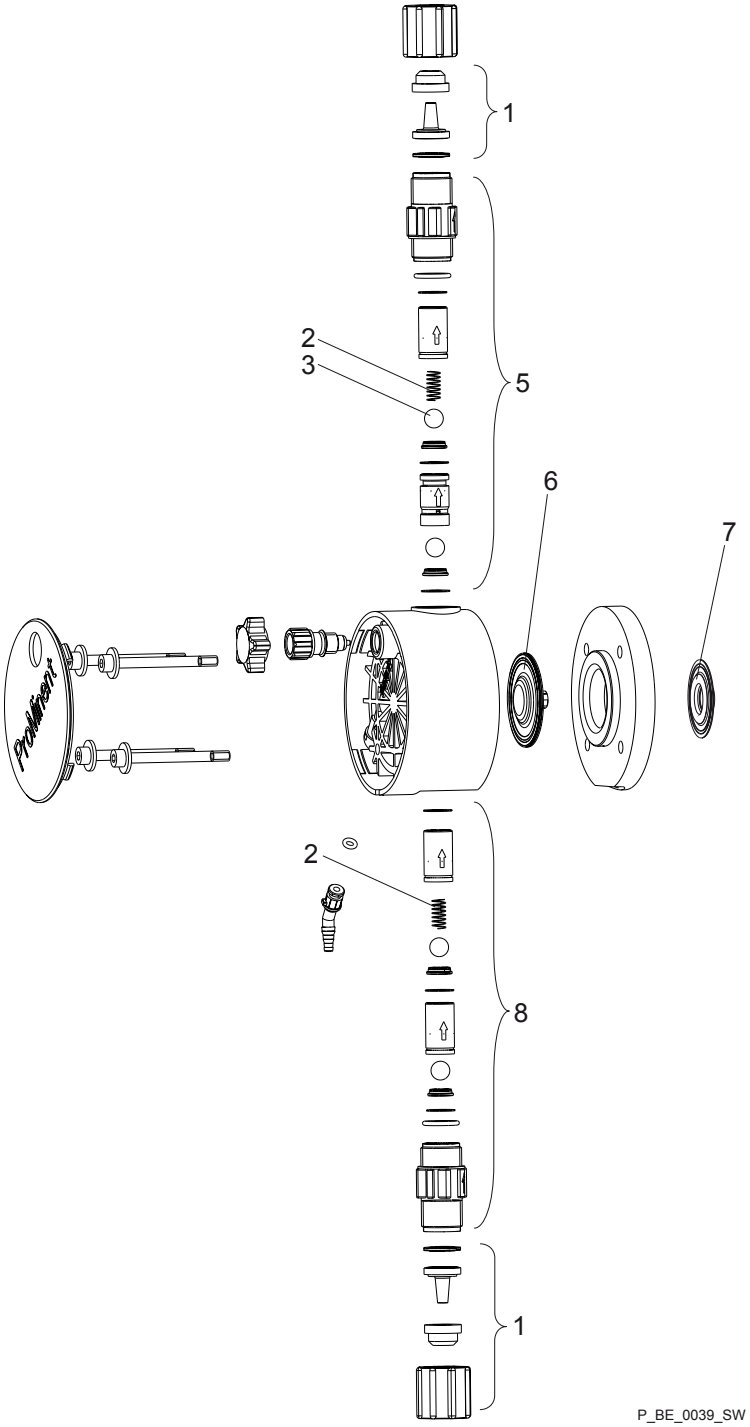

Fig. 33

Item	Description	Type 0708 (1008)	Type 0413 (0713)	Type 0220 (0420)
1	Connector kit 8/5 PVT	1023247	1023247	1023247
3	4 Valve balls	404281	404281	404281
4	Bleed valve	1021662	1021662	1021662
5	Discharge valve, compl. 9.2-2 PVT	1023125	1023125	1023125

Spring (item 2) is a special accessory. The positions listed are included in the spare parts kit. Technical changes reserved.

Item	Description	Type 0708 (1008)	Type 0413 (0713)	Type 0220 (0420)
6	Diaphragm	1000248	1000249	1000250
7	Safety diaphragm	1006061	1006061	1006061
8	Suction valve, compl. 9.2-2 PVT	1023126	1023126	1023126

Spring (item 2) is a special accessory. The positions listed are included in the spare parts kit. Technical changes reserved.

Liquid end Beta® 0232 PP without bleed valve

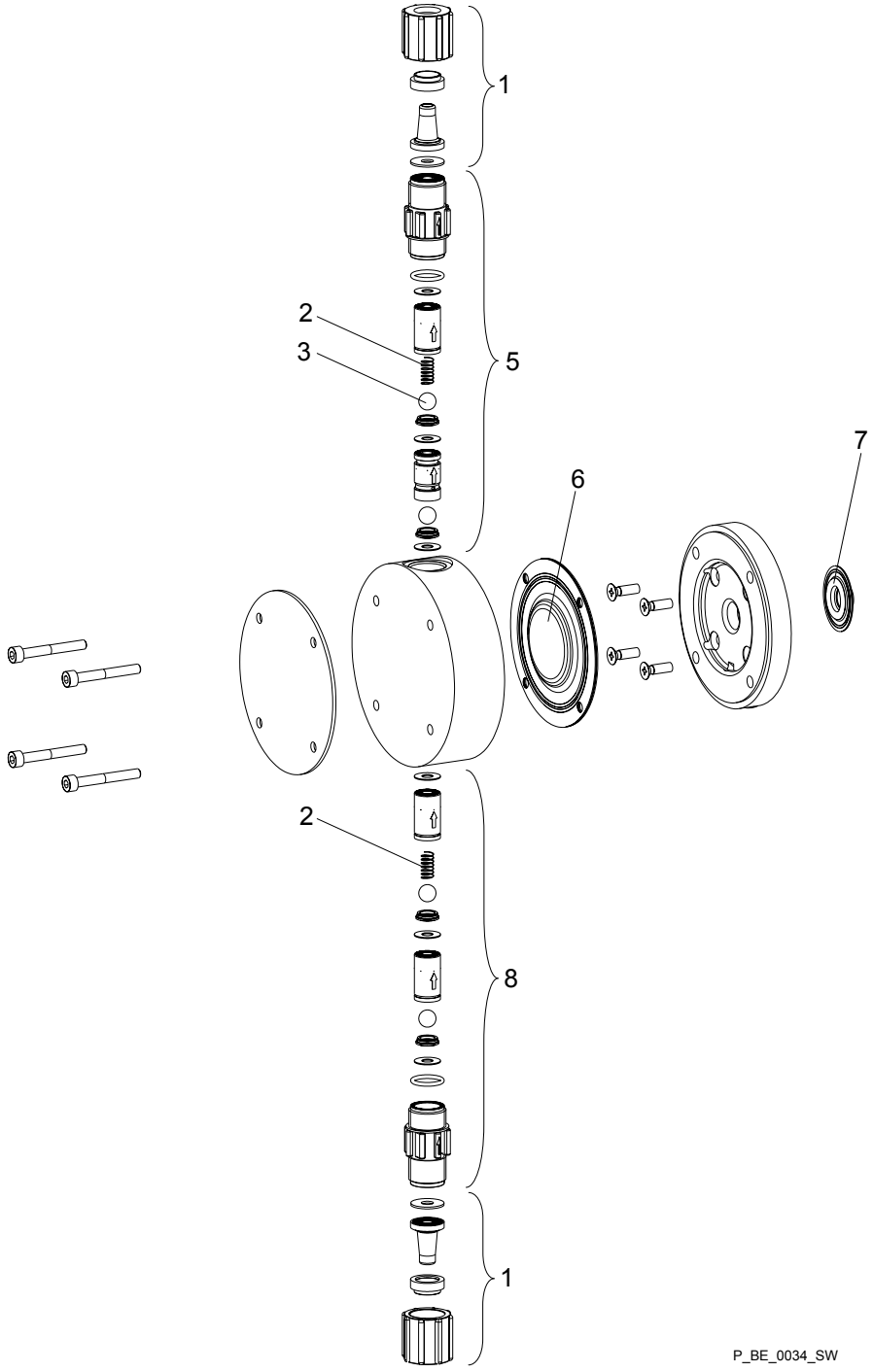

Fig. 34

Item	Description	Type 0232
1	Connector kit 12/9 PVT	1023248
3	4 Valve balls	404281
5	Discharge valve, compl. 9.2-2 PVT	1023125
6	Diaphragm	1000251
Spring (item 2) is a special accessory. The positions listed are included in the spare parts kit. Technical changes reserved.		

Item	Description	Type 0232
7	Safety diaphragm	1006061
8	Suction valve, compl. 9.2-2 PVT	1023126

Spring (item 2) is a special accessory. The positions listed are included in the spare parts kit. Technical changes reserved.

Liquid end Beta® 1000 - 1604 NP with and without bleed valve

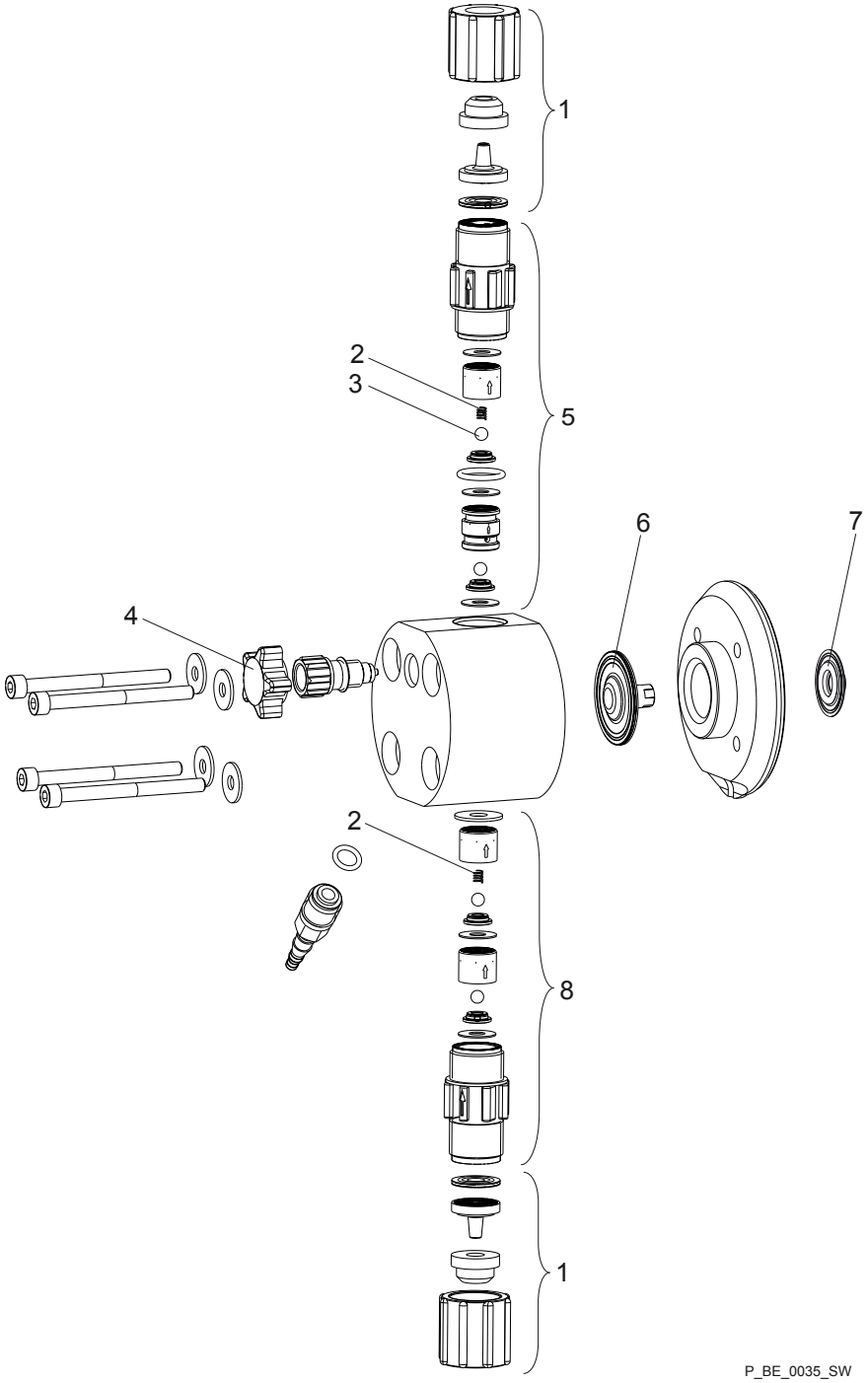

Fig. 35

Item	Description	Type 1000	Type 1601	Type 1602	Type 1604
1	Connector kit 6/4 PVT	1023246	1023246	1023246	1023246
3	4 Valve balls	404201	404201	404201	404201
4	Bleed valve	1021662	1021662	1021662	1021662
5	Discharge valve, compl. 4.7-2 PVT	1023127	1023127	1023127	1023127
Spring (item 2) is a special accessory. The positions listed are included in the spare parts kit. Technical changes reserved.					

Item	Description	Type 1000	Type 1601	Type 1602	Type 1604
6	Diaphragm	1000244	1000245	1000246	1034612
7	Safety diaphragm	1006061	1006061	1006061	1006061
8	Suction valve, compl. 4.7-2 PVT	1023128	1023128	1023128	1023128

Spring (item 2) is a special accessory. The positions listed are included in the spare parts kit. Technical changes reserved.

Liquid end Beta® 0708 (1008) - 0220 (0420) NP with and without bleed valve

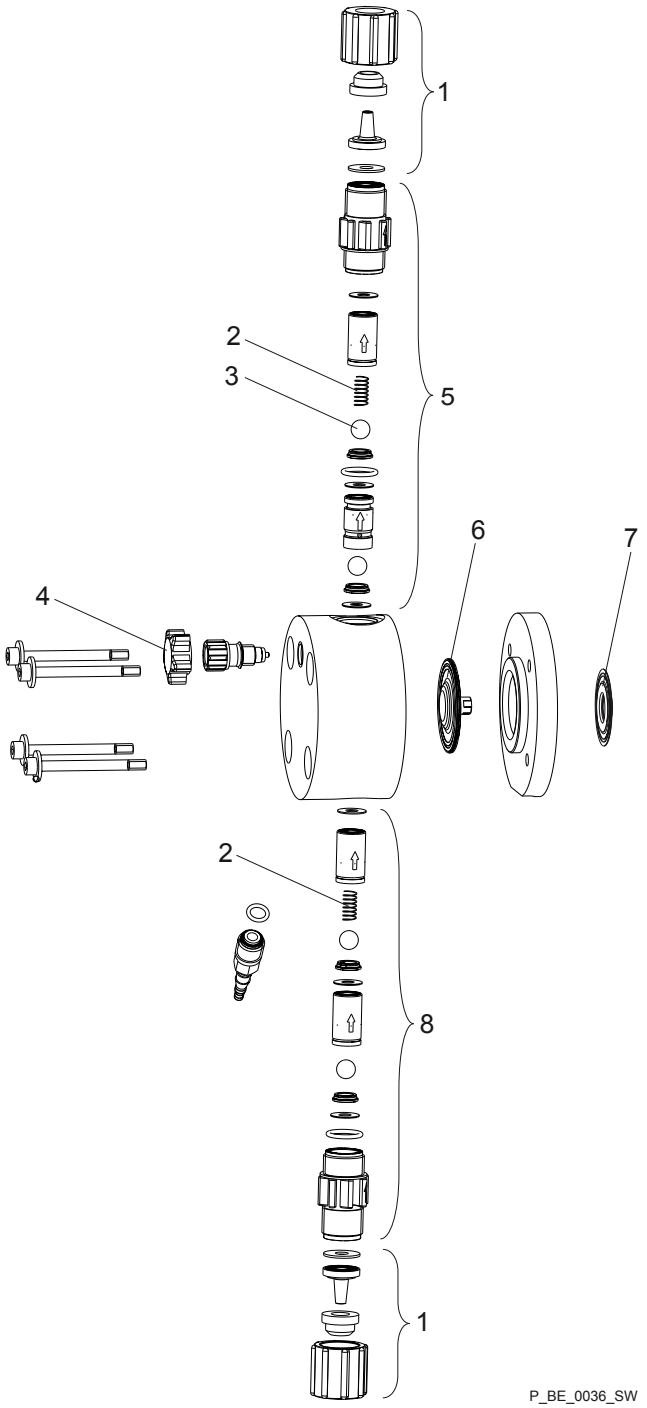

Fig. 36

Item	Description	Type 0708 (1008)	Type 0413 (0713)	Type 0220 (0420)
1	Connector kit 8/5 PVT	1023247	1023247	1023247
3	4 Valve balls	404281	404281	404281
4	Bleed valve	1021662	1021662	1021662
5	Discharge valve, compl. 9.2-2 PVT	1023125	1023125	1023125

Spring (item 2) is a special accessory. The positions listed are included in the spare parts kit. Technical changes reserved.

Item	Description	Type 0708 (1008)	Type 0413 (0713)	Type 0220 (0420)
6	Diaphragm	1000248	1000249	1000250
7	Safety diaphragm	1006061	1006061	1006061
8	Suction valve, compl. 9.2-2 PVT	1023126	1023126	1023126

Spring (item 2) is a special accessory. The positions listed are included in the spare parts kit. Technical changes reserved.

Liquid end Beta® 0232 NP with and without bleed valve

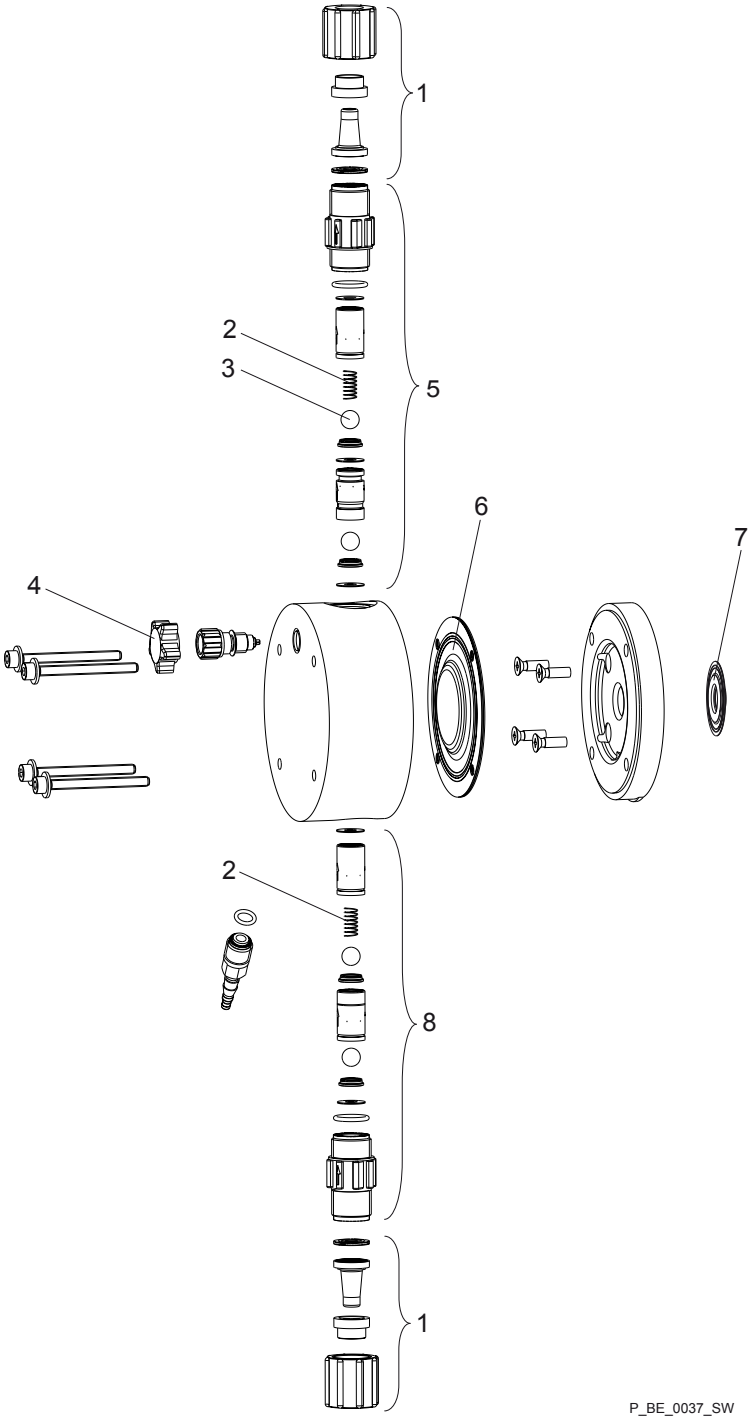

Fig. 37

Item	Description	Type 0232
1	Connector kit 12/9 PVT	1023248
3	4 Valve balls	404281
5	Discharge valve, compl. 9.2-2 PVT	1023125
6	Diaphragm	1000251
Spring (item 2) is a special accessory. The positions listed are included in the spare parts kit. Technical changes reserved.		

Item	Description	Type 0232
7	Safety diaphragm	1006061
8	Suction valve, compl. 9.2-2 PVT	1023126

Spring (item 2) is a special accessory. The positions listed are included in the spare parts kit. Technical changes reserved.

Liquid end Beta® 1000 - 1604 PV with bleed valve

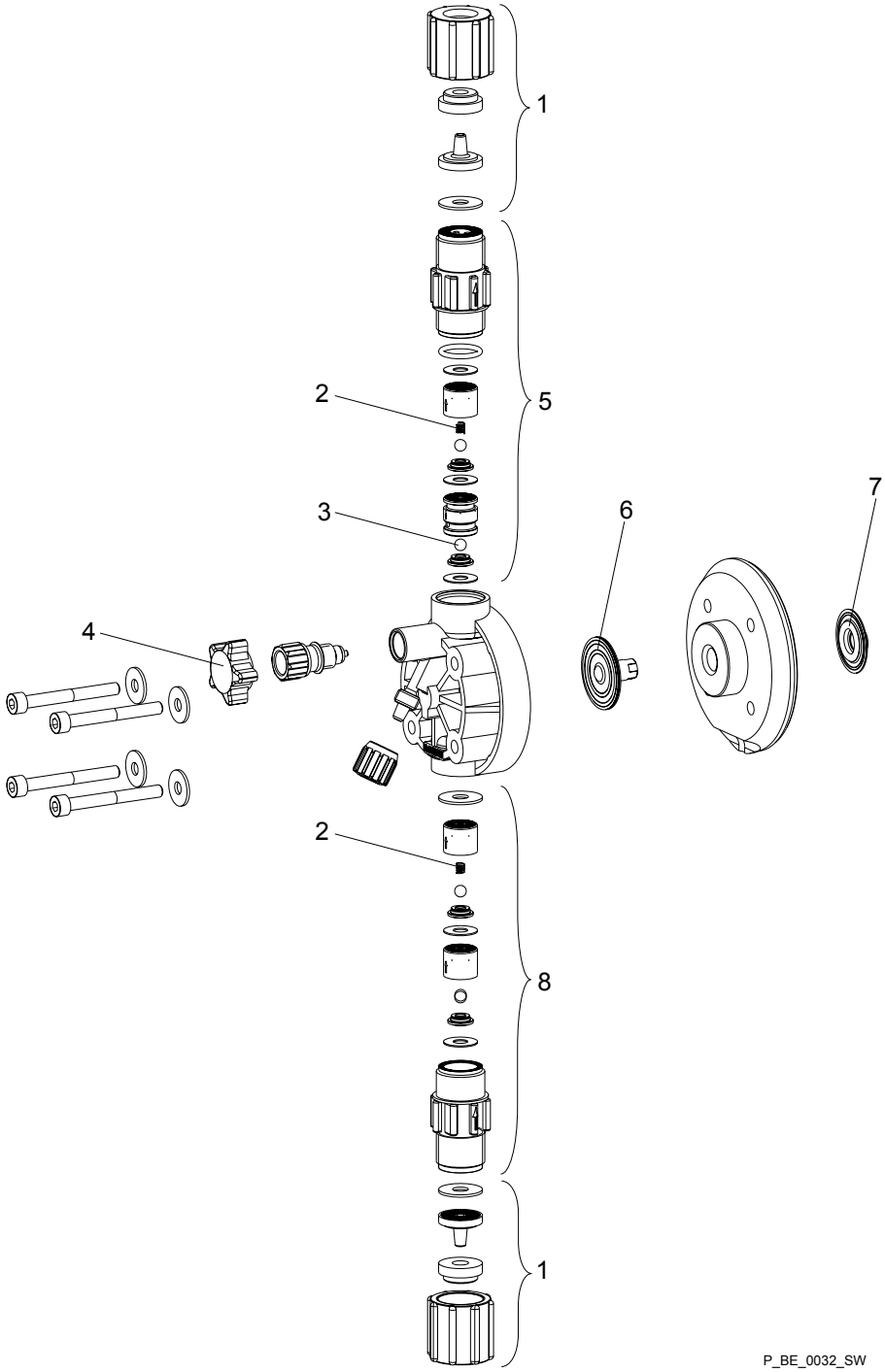

Fig. 38

Item	Description	Type 1000	Type 1601	Type 1602	Type 1604
1	Connector kit 6/4 PVT	1035660	1035660	1035660	1035660
3	4 Valve balls	404201	404201	404201	404201
4	Bleed valve	1021662	1021662	1021662	1021662
5	Discharge valve, compl. 4.7-2 PVT	1023127	1023127	1023127	1023127
Spring (item 2) is a special accessory. The positions listed are included in the spare parts kit. Technical changes reserved.					

Item	Description	Type 1000	Type 1601	Type 1602	Type 1604
6	Diaphragm	1000244	1000245	1000246	1034612
7	Safety diaphragm	1006061	1006061	1006061	1006061
8	Suction valve, compl. 4.7-2 PVT	1023128	1023128	1023128	1023128

Spring (item 2) is a special accessory. The positions listed are included in the spare parts kit. Technical changes reserved.

Liquid end Beta® 0708 (1008) - 0220 (0420) PV with bleed valve

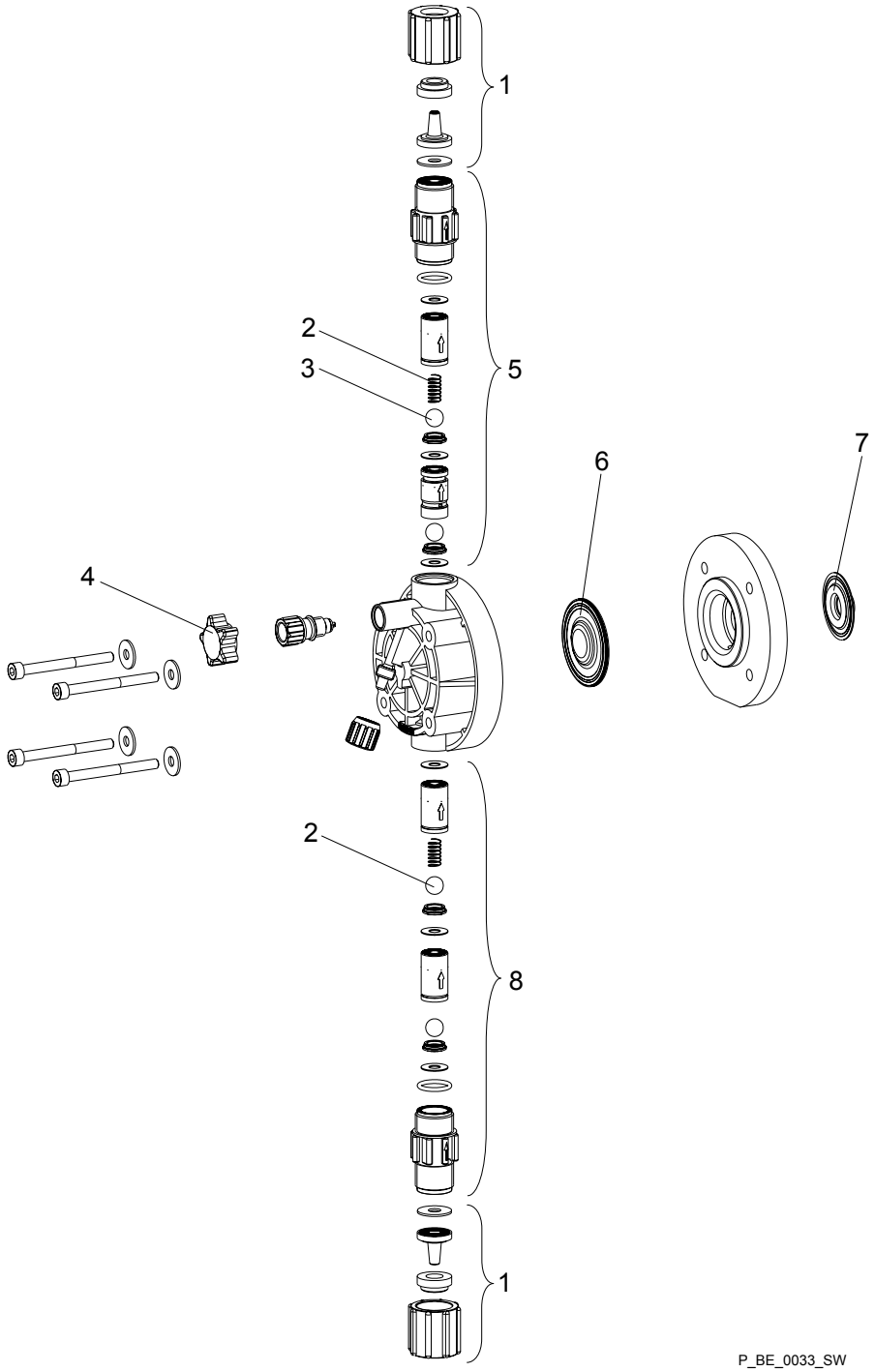

Fig. 39

Item	Description	Type 0708 (1008)	Type 0413 (0713)	Type 0220 (0420)
1	Connector kit 8/5 PVT (0220/0420: 12/9)	1035661	1035661	1035659
3	4 Valve balls	404281	404281	404281
4	Bleed valve	1021662	1021662	1021662
5	Discharge valve, compl. 9.2-2 PVT	1023125	1023125	1023125
Spring (item 2) is a special accessory. The positions listed are included in the spare parts kit. Technical changes reserved.				

Item	Description	Type 0708 (1008)	Type 0413 (0713)	Type 0220 (0420)
6	Diaphragm	1000248	1000249	1000250
7	Safety diaphragm	1006061	1006061	1006061
8	Suction valve, compl. 9.2-2 PVT	1023126	1023126	1023126

Spring (item 2) is a special accessory. The positions listed are included in the spare parts kit. Technical changes reserved.

Liquid end Beta® 0232 PV without bleed valve

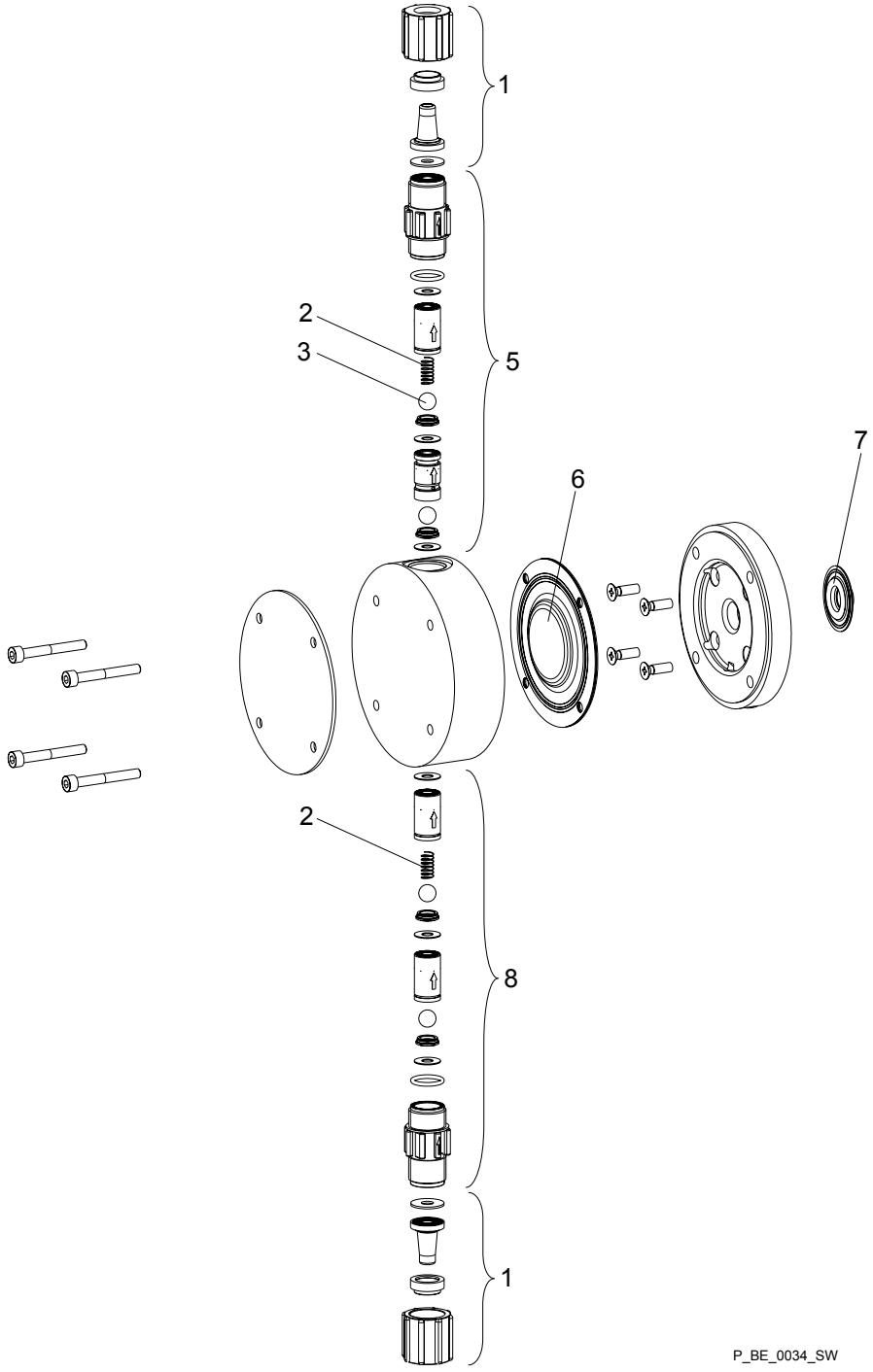

Fig. 40

Item	Description	Type 0232
1	Connector kit 12/9 FVD PVT	1035659
3	4 Valve balls	404281
5	Discharge valve, compl. 9.2-2 PVT	1023125
6	Diaphragm	1000251
Spring (item 2) is a special accessory. The positions listed are included in the spare parts kit. Technical changes reserved.		

Item	Description	Type 0232
7	Safety diaphragm	1006061
8	Suction valve, compl. 9.2-2 PVT	1023126

Spring (item 2) is a special accessory. The positions listed are included in the spare parts kit. Technical changes reserved.

Liquid end Beta® 1604 - 0220 (0420) PV
HV, for highly viscous feed chemicals

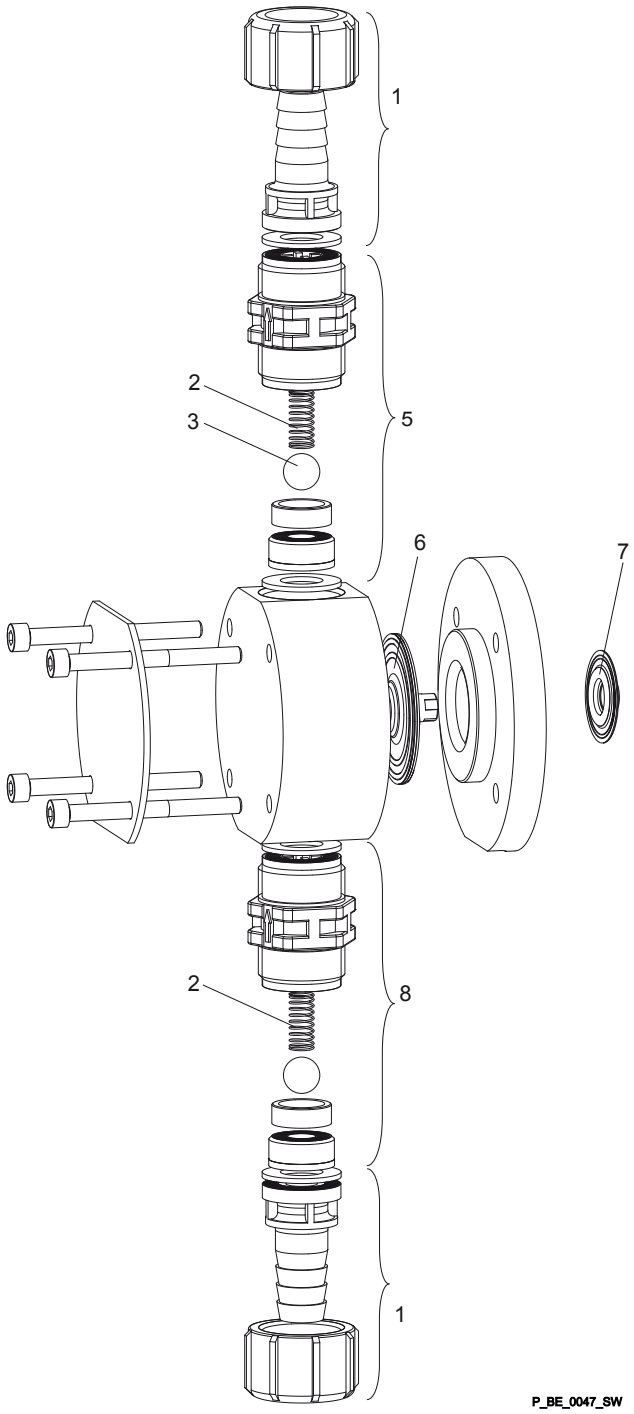

Fig. 41

Item	Description	Type 1604	Type 0708	Type 0413	Type 0220
1	Connector kit DN10 HV with PVT tube nozzle	1017405	1017405	1017405	1017405
3	4 Valve balls	404277	404277	404277	404277
6	Diaphragm	1006061	1006061	1006061	1006061
7	Safety diaphragm	1027414	1027414	1027414	1027414
The positions listed are included in the spare parts kit. Technical changes reserved.					

Liquid end Beta® 1000 - 1604 TT

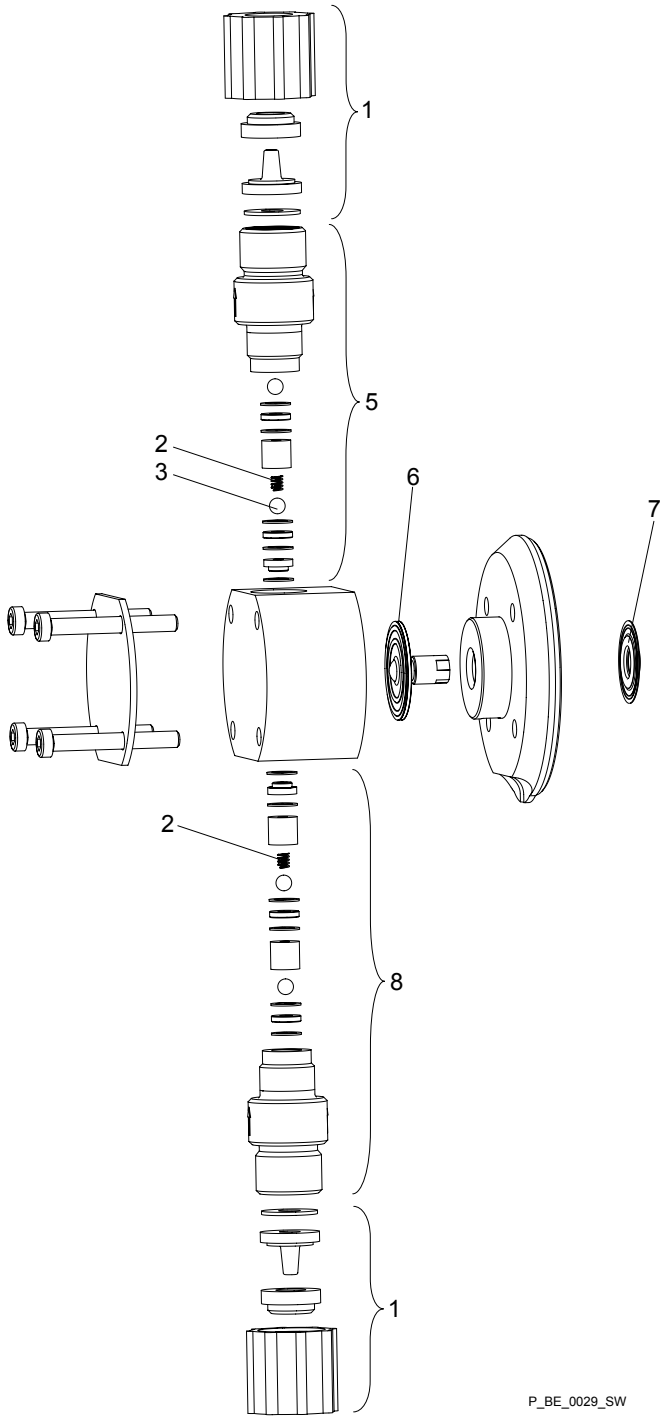

Fig. 42

Item	Description	Type 1000	Type 1601	Type 1602	Type 1604
1	Connector kit 6/4 TTT	817201	817201	817201	817201
3	4 Valve balls	404201	404201	404201	404201
5	Discharge valve, compl. 4.7-2 TTT	809406	809406	809406	809406
6	Diaphragm	1000244	1000245	1000246	1034612

Spring (item 2) is a special accessory. The positions listed are included in the spare parts kit. Technical changes reserved.

Item	Description	Type 1000	Type 1601	Type 1602	Type 1604
7	Safety diaphragm	1006061	1006061	1006061	1006061
8	Suction valve, compl. 4.7-2 TTT	809407	809407	809407	809407

Spring (item 2) is a special accessory. The positions listed are included in the spare parts kit. Technical changes reserved.

Liquid end Beta® 0708 (1008) - 0220 (0420) TT

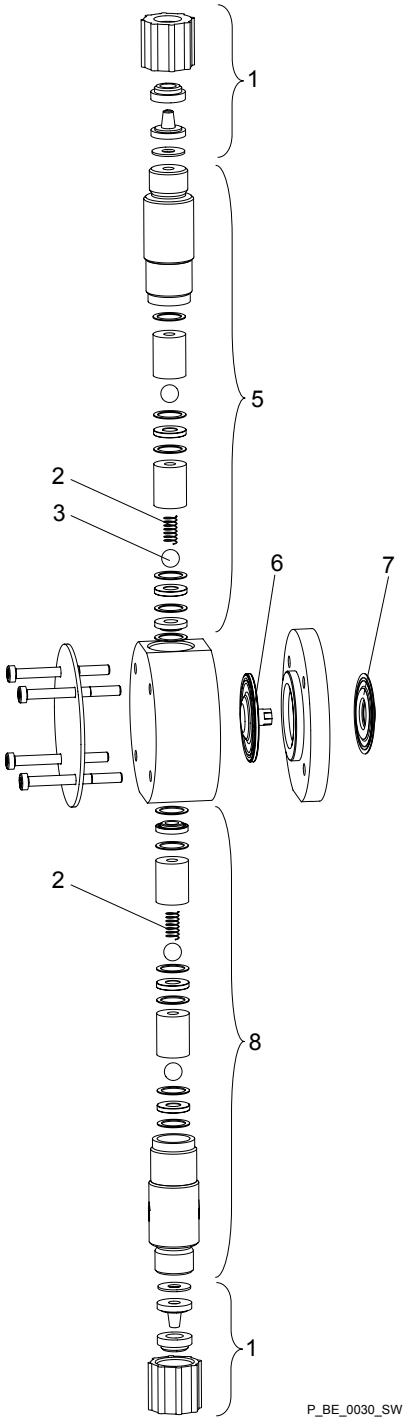

Fig. 43

Item	Description	Type 0708 (1008)	Type 0413 (0713)	Type 0220 (0420)
1	Connector kit 8/5 TTT	817204	817204	817204
3	4 Valve balls	404281	404281	404281
5	Discharge valve, compl. 9.2-2 TTT	809444	809444	809444
6	Diaphragm	1000248	1000249	1000250

Spring (item 2) is a special accessory. The positions listed are included in the spare parts kit. Technical changes reserved.

Item	Description	Type 0708 (1008)	Type 0413 (0713)	Type 0220 (0420)
7	Safety diaphragm	1006061	1006061	1006061
8	Suction valve, compl. 9.2-2 TTT	809445	809445	809445
Spring (item 2) is a special accessory. The positions listed are included in the spare parts kit. Technical changes reserved.				

Liquid end Beta® 0232 TT

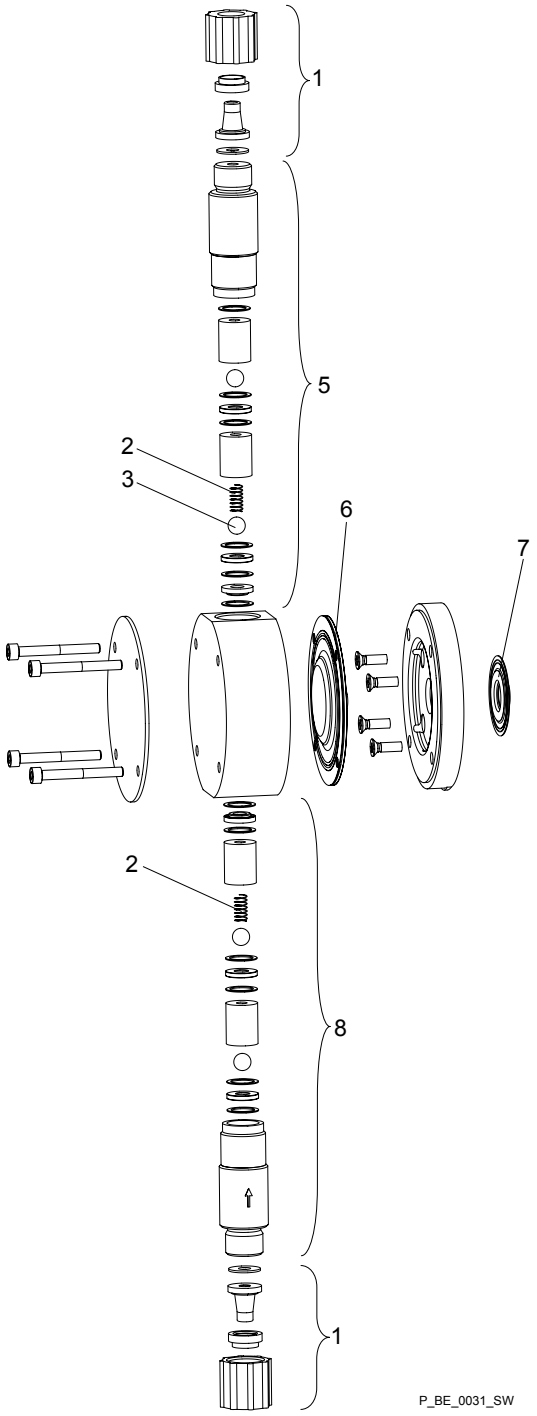

Fig. 44

Item	Description	Type 0232
1	Connector kit 12/9 TTT	817202
3	4 Valve balls	404281
5	Discharge valve compl. TTT	809444
6	Diaphragm	1000251

Spring (item 2) is a special accessory. The positions listed are included in the spare parts kit. Technical changes reserved.

Item	Description	Type 0232
7	Safety diaphragm	1006061
8	Suction valve compl. TTT	809445

Spring (item 2) is a special accessory. The positions listed are included in the spare parts kit. Technical changes reserved.

Liquid end Beta® 1000 - 1604 SS

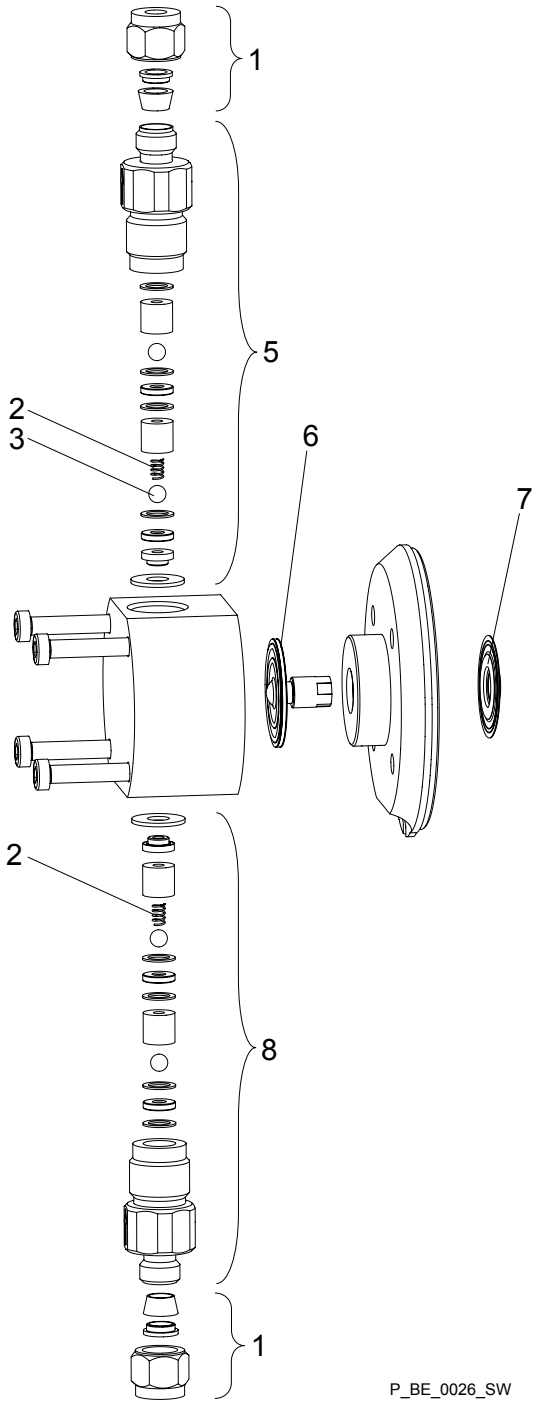

Fig. 45

Item	Description	Type 1000	Type 1601	Type 1602	Type 1604
1	Connector kit 6 mm SS	104233	104233	104233	104233
3	4 Valve balls	404201	404201	404201	404201
5	Discharge valve compl. 6 mm SST	809418	809418	809418	809418
6	Diaphragm	1000244	1000245	1000246	1034612

Spring (item 2) is a special accessory. The positions listed are included in the spare parts kit. Technical changes reserved.

Item	Description	Type 1000	Type 1601	Type 1602	Type 1604
7	Safety diaphragm	1006061	1006061	1006061	1006061
8	Suction valve compl. 6 mm SST	809419	809419	809419	809419

Spring (item 2) is a special accessory. The positions listed are included in the spare parts kit. Technical changes reserved.

Liquid end Beta® 0708 (1008) - 0220 (0420) SS

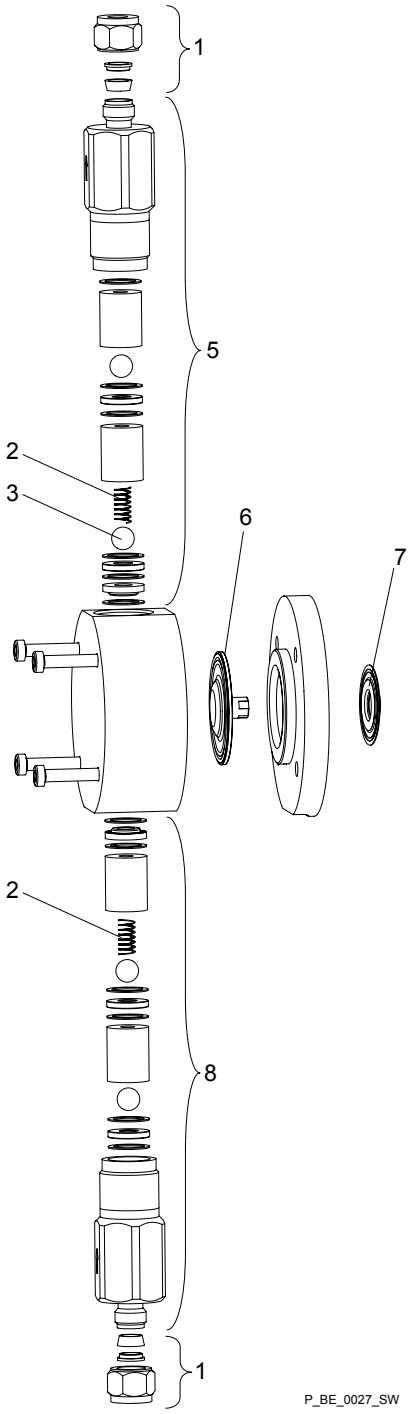

Fig. 46

Item	Description	Type 0708 (1008)	Type 0413 (0713)	Type 0220 (0420)
1	Connector kit SS	104237	104237	104245
3	4 Valve balls	404281	404281	404281
5	Discharge valve compl. SST	809494	809494	809446
6	Diaphragm	1000248	1000248	1000250

Spring (item 2) is a special accessory. The positions listed are included in the spare parts kit. Technical changes reserved.

Item	Description	Type 0708 (1008)	Type 0413 (0713)	Type 0220 (0420)
7	Safety diaphragm	1006061	1006061	1006061
8	Suction valve compl. SST	809495	809495	809447
Spring (item 2) is a special accessory. The positions listed are included in the spare parts kit. Technical changes reserved.				

Liquid end Beta® 0232 SS

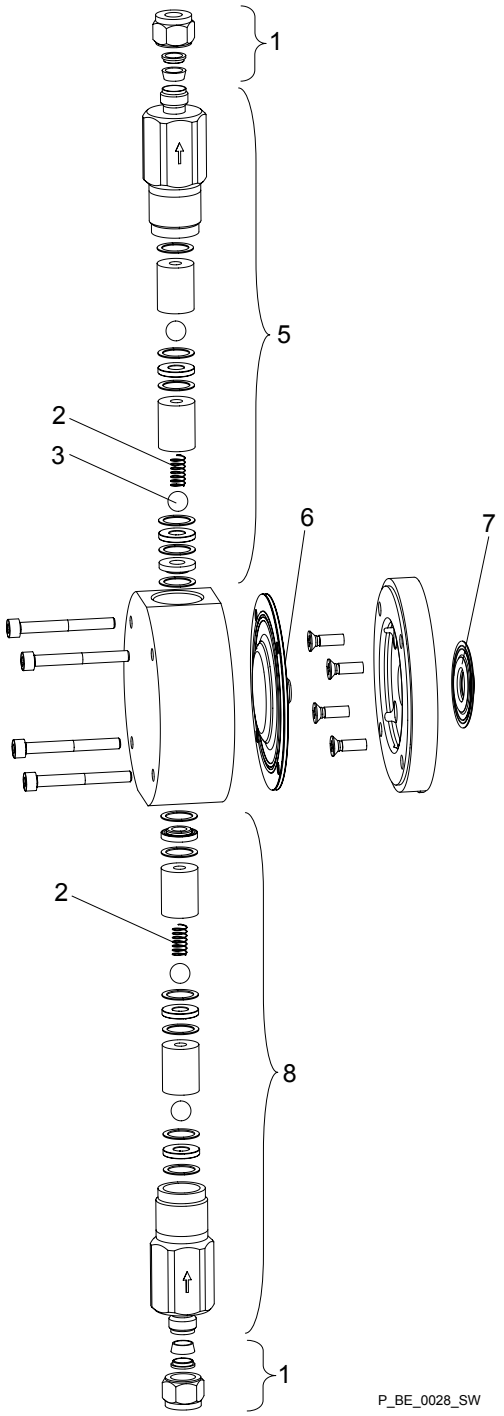

Fig. 47

Item	Description	Type 0232
1	Connector kit 12 mm SS	104245
3	4 Valve balls	404281
5	Discharge valve compl. 12 mm SST	809446
6	Diaphragm	1000251

Spring (item 2) is a special accessory. The positions listed are included in the spare parts kit. Technical changes reserved.

Item	Description	Type 0232
7	Safety diaphragm	1006061
8	Suction valve compl. 12 mm SST	809447

Spring (item 2) is a special accessory. The positions listed are included in the spare parts kit. Technical changes reserved.

Liquid end Beta® 1601 - 1604 PP SEK and 1601 - 1604 NP SEK, self-bleeding

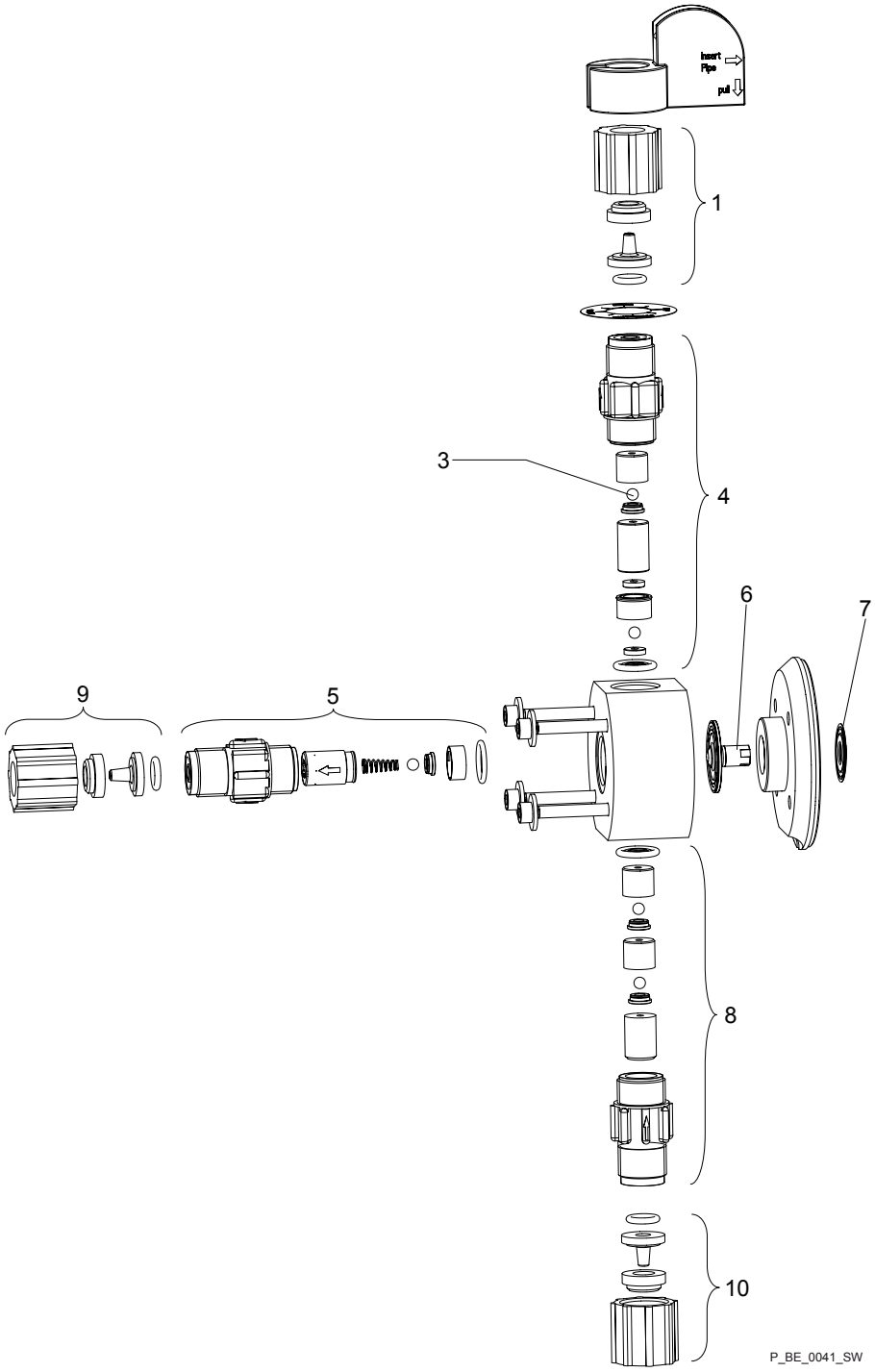

Fig. 48

Item	Part	Material version	Part no.
1, 9, 10	Connector kit 6/4	PPE	817160
1, 9, 10	Connector kit 6/4	PPB	817173
1, 9, 10	Connector kit 6/4	PCE	791161
1, 9, 10	Connector kit 6/4	PCB	817165
9, 10	Connector kit 8/5	PPE	817161
9, 10	Connector kit 8/5	PPB	817174

Item	Part	Material version	Part no.
9, 10	Connector kit 8/5	PCE	792058
9, 10	Connector kit 8/5	PCB	817066
9	With 2504: Connector kit 8/4	PCB	1035844
10	With 2504: Connector kit 6/4	PCE	791161
10	With 2504: Connector kit 6/4	PCB	817065
3	4 Valve balls		404201
4	Bleed valve	PPE	1001063
4	Bleed valve	PPB	1001062
4	Bleed valve	PCE	1001061
4	Bleed valve	PCB	1001060
5	Discharge valve compl.	PPE	1001067
5	Discharge valve compl.	PPB	1001066
5	Discharge valve compl.	PCE	1001065
5	Discharge valve compl.	PCB	1001064
6	Diaphragm 1601		1000245
6	Diaphragm 1602		1000246
6	Diaphragm 1604		1034612
7	Safety diaphragm		1006061
8	Suction valve compl.	PPE	792644
8	Suction valve compl.	PPB	792646
8	Suction valve compl.	PCE	792119
8	Suction valve compl.	PCB	792026

Spare parts kits for type:	Material version	Part no.
1601	PPE	1001756
1602	PPE	1001757
1604 with spring	PPE	1035335
1604 without spring	PPE	1035339
1601	PPB	1001762
1602	PPB	1001763
1604 with spring	PPB	1035336
1604 without spring	PPB	1035340
1601	NPE	1001660
1602	NPE	1001661

Spare parts kits for type:	Material version	Part no.
1604 without spring	NPE	1035337
1604 with spring	NPE	1035333
1601	NPB	1001666
1602	NPB	1001667
1604 without spring	NPB	1035338
1604 with spring	NPB	1035334

Sealing sets	Material	Part no.
1 Sealing set	EPDM	1001674
1 Sealing set	FPM	1001672

The positions listed are included in the spare parts kit.

Technical changes reserved.

Liquid end Beta® 0708 (1008) - 0220 (0420) PP / NP SEK, self-bleeding

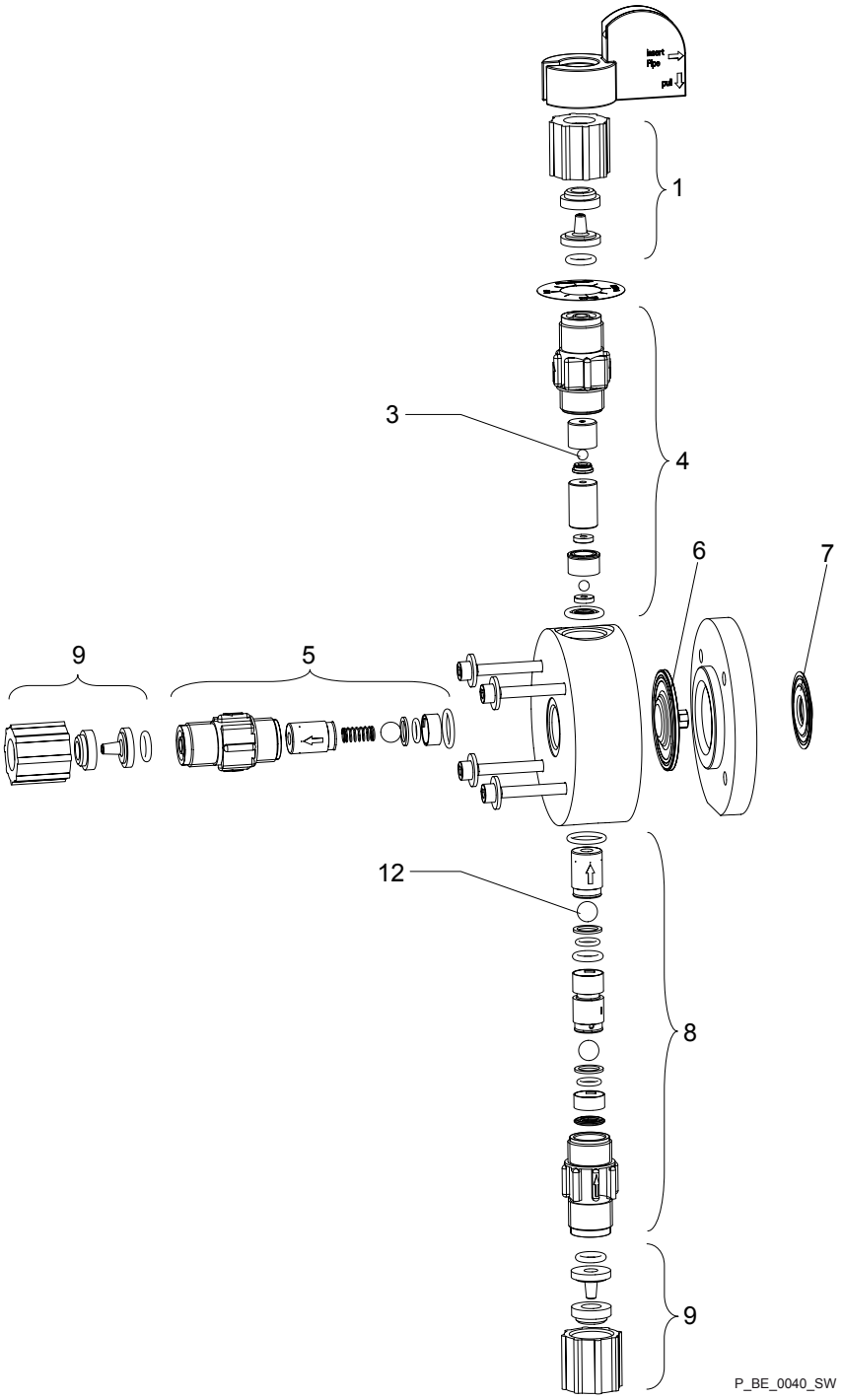

Fig. 49

Item	Part	Material version	Part no.
1	Connector kit 6/4	PPE	817160
1	Connector kit 6/4	PPB	817173
1	Connector kit 6/4	PCE	791161
1	Connector kit 6/4	PCB	817165
9	Connector kit 8/5	PPE	817161
9	Connector kit 8/5	PPB	817174

Item	Part	Material version	Part no.
9	Connector kit 8/5	PCE	792058
9	Connector kit 8/5	PCB	817066
9	Connector kit 12/9	PPE	817162
9	Connector kit 12/9	PPB	817175
9	Connector kit 12/9	PCE	790577
9	Connector kit 12/9	PCB	817067
3	4 Valve balls		404201
4	Bleed valve	PPE	1001063
4	Bleed valve	PPB	1001062
4	Bleed valve	PCE	1001061
4	Bleed valve	PCB	1001060
5	Discharge valve compl.	PPE	1001071
5	Discharge valve compl.	PPB	1001070
5	Discharge valve compl.	PCE	1001069
5	Discharge valve compl.	PCB	1001068
6	Diaphragm 0708		1000248
6	Diaphragm 0413		1000249
6	Diaphragm 0220		1000250
7	Safety diaphragm		1006061
8	Suction valve compl.	PPE	1001437
8	Suction valve compl.	PPB	1001436
8	Suction valve compl.	PCE	1001435
8	Suction valve compl.	PCB	1001434

Spare parts kits for type:	Material version	Part no.
0708 (1008)	PPE	1001759
0413 (0713)	PPE	1001760
0220 (0420)	PPE	1001761
0708 (1008)	PPB	1001765
0413 (0713)	PPB	1001766
0220 (0420)	PPB	1001767
0708 (1008)	NPE	1001663
0413 (0713)	NPE	1001664
0220 (0420)	NPE	1001665
0708 (1008)	NPB	1001669
0413 (0713)	NPB	1001670
0220 (0420)	NPB	1001671

Sealing sets	Material	Part no.
1 Sealing set	EPDM	1001674
1 Sealing set	FPM	1001672

The positions listed are included in the spare parts kit.

Technical changes reserved.

20 Further order information

Spare parts kits for SEK types

The information is given in the corresponding exploded views.

Spare parts kits for SER types

Type	NPT7 / PVT7
1602	1047830
1604	1047858
0708 (1008)	1047832
0413 (0713)	1047833
0220 (0420)	1047837

Spare parts kits for other types

Type	PP, NP, PV	TT	SS	HV types
1000	1023107	1001737	1001729	-
1601	1023108	1001738	1001730	-
1602	1023109	1001739	1001731	-
1604 (2504)	1035332	1035330	1035331	1035342
0708 (1008)	1023111	1001741	1001733	1019067
0413 (0713)	1023112	1001742	1001734	1019069
0220 (0420)	1023113	1001754	1001735	1019070
0232	1024124	1001755	1001736	-

Sealing sets for SEK types

The information is given in the corresponding exploded views.

Sealing sets for other types

Type	PP, NP	PV	TT, SS
1000, 1601, 1602, 1604	1023130	1023130	483907 *
0708 (1008) 0413 (0713) 0220 (0420)	1023129	1023129	483975
0232	1023129	1023129	483975
All HV types	-	1019364	-
* 11-part			

Relay retrofit kit for Beta® b

Name	Part no.
Fault indicating relay for Beta® b	1029309
Fault indicating and pacing relay for Beta® b	1029310

Interference suppression aids

Product	Part no.
Varistor:	710912
RC Gate, 0.22 µF / 220 Ω:	710802

Further sources of information

Further information on spare parts, accessories and options can be found in:

- the exploded drawings
- the identity code
- at *www.prominent.com*
- the ProMinent product catalogue