+GF+ Type 546 Ball Valve

Setting a new standard in piping systems

Product Range, PVC-U, PVC-C

Metric, ASTM, BS

Planning Fundamentals

GEORG FISCHER +GF+
Piping Systems

The technical data is not binding and not an expressly warranted characteristic of the goods. It is subject to change. Please consult our General Conditions of Supply.

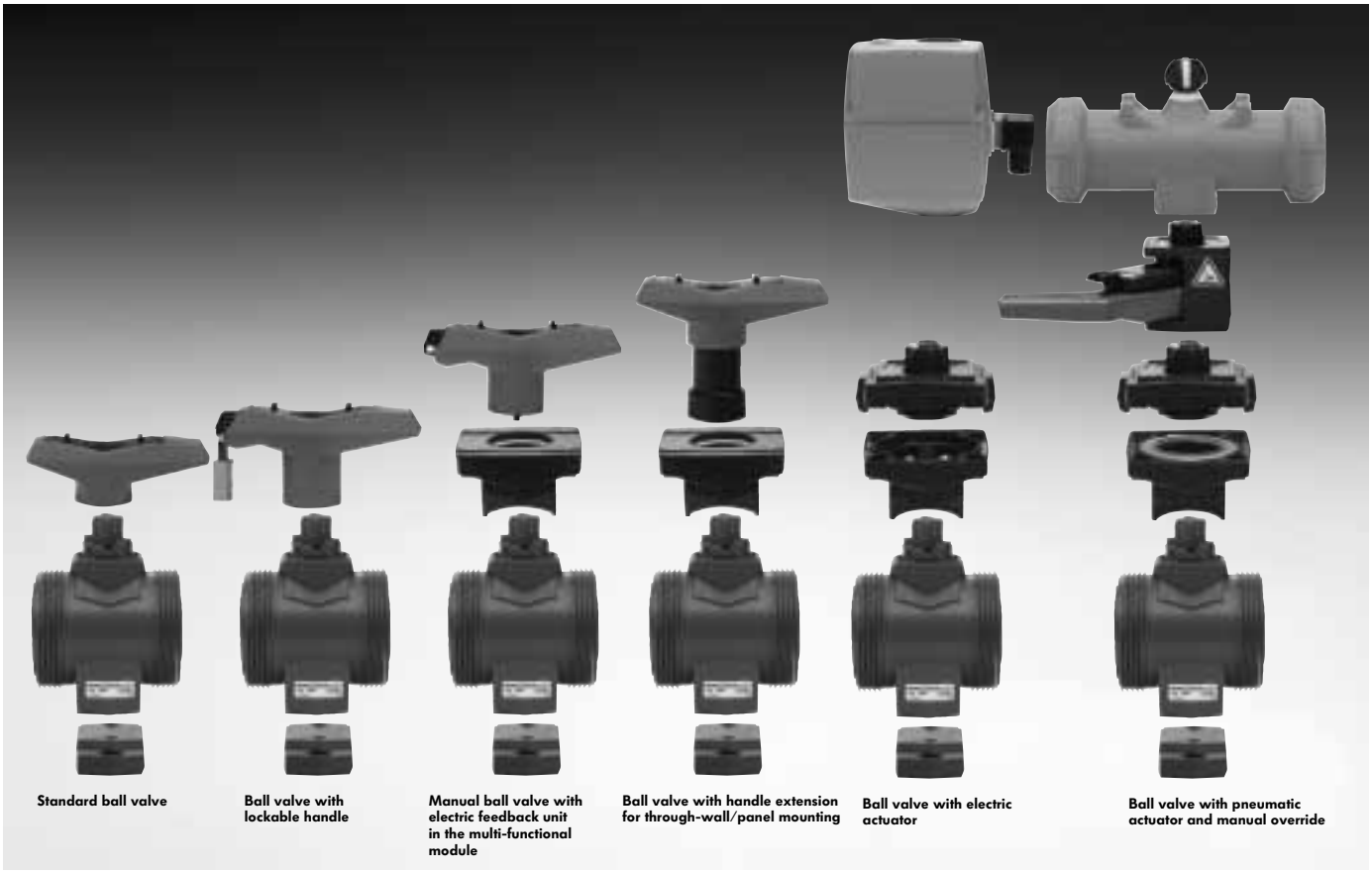
Dimensions
All dimensions are given in mm.

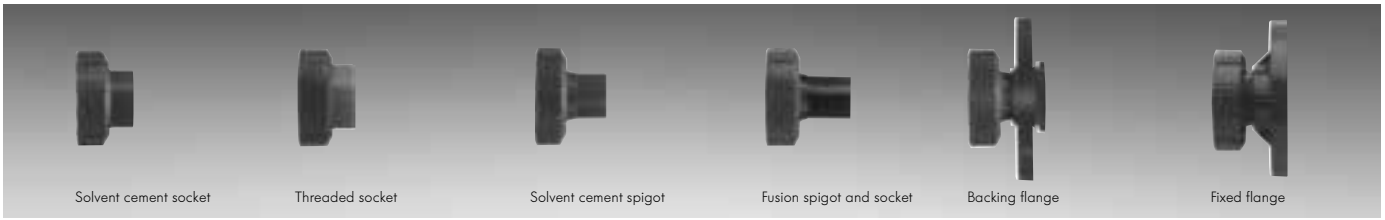
List of abbreviations

ANSI	American National Standard Institute
ASTM	American Society for Testing and Materials
BS	British Standard
DIN	Deutsche Industrie-Normen
ISO	International Standardization Organization
ABS	Acrylnitrile-Butadiene-Styrene
PVC-U	Polyvinyl chloride. unplasticized
PVC-C	Polyvinyl chloride. post-chlorinated
PP	Polypropylene. heat stabilized
PE	Polyethylene
PVDF	Polyvinylidene fluoride
EPDM	Ethylene-Propylene-Rubber
FPM	Fluororubber, e.g. Viton®
PTFE	Polytetrafluoroethylene, e.g. Teflon®
FM	Fusion Method
d	Pipe outer diameter
DN	Nominal diameter
PN	Nominal pressure at 20 °C, water
kg	Weight in kilograms
g	Weight in grams
NPT	Female thread, tapered, pressure tight in the thread per ANSI B1.20.1
R	Male thread, tapered, pressure tight in the thread per ISO 7/DIN 2999/1
Rp	Female thread, parallel, pressure tight in the thread per ISO 7/DIN 2999/1
®	Registered trademark

Table of Contents

+GF+ Type 546 Ball Valve.
The system at a glance.





Availability

April 2003
PVC-U

3rd Quarter 2003
PVC-C

1st Quarter 2004
PP-H, PVDF, ABS

A complete model range with many combinations

From the manual valve to the electric actuated ball valve with LED display. Modular design and expandable. From DN 10 to DN 50. Up to16 bar pressure.
In cementable materials: PVC-U, ABS, PVC-C and in fusible materials: PP-H, PVDF
Connections in all the major standards:

- metric: DIN, EN, ISO
- inch: BS, ANSI
- JIS

This broad range of products enables you to find the right solution for your application.

The new +GF+ type 546 ball valve conforms to the following international standards

prEN ISO 16135 (pending)
Industrial valves – ball valves of thermoplastic materials (ISO/DIS 16135:2001)

ISO 9393
Thermoplastic valves –
pressure test methods and requirements

EN 558
Flanged valve dimensions are in accordance with EN 558

Approvals
DIBt approval pending

+GF+ Type 546 Ball Valve.
With multi-functional module.

The multi-functional module is the answer
What is the current status of the valves in the system? Which ones are open, which are closed?
To be able to answer these questions at all times means safety for you and your operators.
With this multi-functional module, we have a tested and proven unit for you which has not been available before.
The feedback concept includes a selection of 5 different limit switches, designed to fit your needs.
With AS-Interface on request.

The multi-functional module has more to offer
Thanks to its robust construction and the secure fastening on the ball valve (4 Torx screws), the multi-functional module can be used as a mounting bracket. Through wall/panel mounting was never so easy.
Replace the lid and the module is equipped with a DIN EN ISO 5211 mounting interface. The new George Fischer actuators can be connected directly.

Ball Valves PVC-U

Ball Valve Type 546, PVC-U with solvent cement sockets, metric

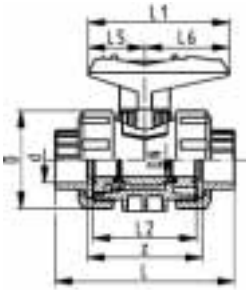
Model:

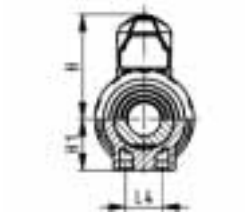
- Union type ends for easy installation and removal
  (z-dimension, valve end and valve nut are **not compatible** with Type 346)
- Ball seals PTFE
- Without mounting inserts

Options:

- Individual configuration of the valve (see form)
- Multifunctional module with integrated limit switches
- Pneumatic or electric actuators from **+GF+**

d	DN	PN	kv-value l/min (Δp=1 bar)	EPDM Code		FPM Code		kg	
16	10	16	71	**161 546 001**		**161 546 011**		0,150	
20	15	16	185	**161 546 002**		**161 546 012**		0,150	
25	20	16	350	**161 546 003**		**161 546 013**		0,230	
32	25	16	700	**161 546 004**		**161 546 014**		0,330	
40	32	16	1000	**161 546 005**		**161 546 015**		0,600	
50	40	16	1600	**161 546 006**		**161 546 016**		0,800	
63	50	16	3100	**161 546 007**		**161 546 017**		1,460	





d	DN	D	H	H1	L	L1	L2	L4	L5	L6	z
16	10	50	57	26,5	92	77	56	25	32	45	64
20	15	50	57	26,5	95	77	56	25	32	45	64
25	20	58	67	30	110	97	65	25	39	58	72
32	25	68	73	35,5	123	97	71	25	39	58	79
40	32	84	90	44	146	128	85	45	54	74	94
50	40	97	97	50,5	157	128	89	45	54	74	95
63	50	124	116	64	183	152	101	45	65,5	86,5	107

Ball Valve Type 546, PVC-U with mounting inserts with solvent cement sockets, metric

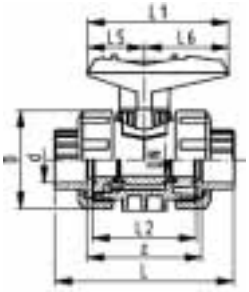
Model:

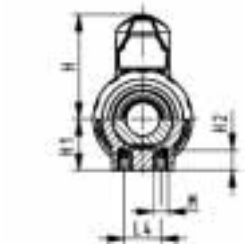
- Union type ends for easy installation and removal
  (z-dimension, valve end and valve nut are **not compatible** with Type 346)
- Ball seals PTFE
- Integrated stainless steel mounting inserts

Options:

- Individual configuration of the valve (see form)
- Multifunctional module with integrated limit switches
- Pneumatic or electric actuators from **+GF+**

d	DN	PN	kv-value l/min (Δp=1 bar)	EPDM Code	FPM Code	kg
16	10	16	71	**161 546 061**	**161 546 071**	0,150
20	15	16	185	**161 546 062**	**161 546 072**	0,150
25	20	16	350	**161 546 063**	**161 546 073**	0,230
32	25	16	700	**161 546 064**	**161 546 074**	0,330
40	32	16	1000	**161 546 065**	**161 546 075**	0,600
50	40	16	1600	**161 546 066**	**161 546 076**	0,800
63	50	16	3100	**161 546 067**	**161 546 077**	1,460





d	D	H	H1	H2	L	L1	L2	L4	L5	L6	M	z
16	50	57	26,5	12	92	77	56	25	32	45	M6	64
20	50	57	26,5	12	95	77	56	25	32	45	M6	64
25	58	67	30	12	110	97	65	25	39	58	M6	72
32	68	73	35,5	12	123	97	71	25	39	58	M6	79
40	84	90	44	15	146	128	85	45	54	74	M8	94
50	97	97	50,5	15	157	128	89	45	54	74	M8	95
63	124	116	64	15	183	152	101	45	65,5	86,5	M8	107

Ball Valve Type 546, PVC-U with lockable handle with solvent cement sockets, metric

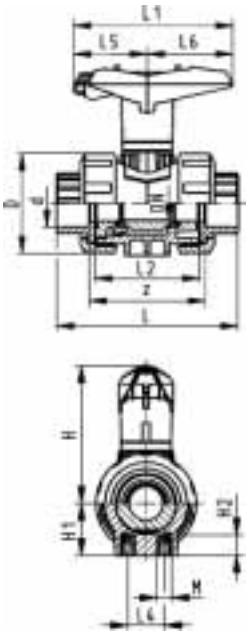
Model:

- Union type ends for easy installation and removal
  (z-dimension, valve end and valve nut are **not compatible** with Type 346)
- Ball seals PTFE
- Integrated stainless steel mounting inserts
- Lockable hand lever with ratchet settings

Options:

- Individual configuration of the valve (see form)
- Multifunctional module with integrated limit switches
- Pneumatic or electric actuators from **+GF+**

d	DN	PN	kv-value l/min (Δp=1 bar)	EPDM Code		FPM Code		kg
16	10	16	71	**161 546 081**		**161 546 091**		0,165
20	15	16	185	**161 546 082**		**161 546 092**		0,165
25	20	16	350	**161 546 083**		**161 546 093**		0,255
32	25	16	700	**161 546 084**		**161 546 094**		0,355
40	32	16	1000	**161 546 085**		**161 546 095**		0,640
50	40	16	1600	**161 546 086**		**161 546 096**		0,840
63	50	16	3100	**161 546 087**		**161 546 097**		1,500



d	D	H	H1	H2	L	L1	L2	L4	L5	L6	M	z
16	50	79	26,5	12	92	87	56	25	42	45	M6	64
20	50	79	26,5	12	95	87	56	25	42	45	M6	64
25	58	88	30	12	110	108	65	25	50	58	M6	72
32	68	94	35,5	12	123	108	71	25	50	58	M6	79
40	84	113	44	15	146	140	85	45	65,5	74,5	M8	94
50	97	119	50,5	15	157	140	89	45	65,5	74,5	M8	95
63	124	141	64	15	183	165	101	45	78	87	M8	107

Ball Valve Type 546, PVC-U with solvent cement spigots, metric

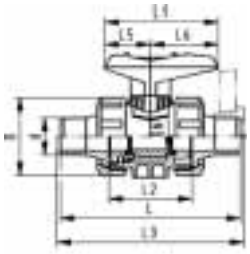
Model:

- Union type ends for easy installation and removal
  (z-dimension, valve end and valve nut are **not compatible** with Type 346)
- Ball seals PTFE
- Without mounting inserts

Options:

- Individual configuration of the valve (see form)
- Multifunctional module with integrated limit switches
- Pneumatic or electric actuators from **+GF+**

d	DN	PN	kv-value l/min (Δp=1 bar)	EPDM Code		FPM Code		kg
16	10	16	71	**161 546 041**		**161 546 051**		0,155
20	15	16	185	**161 546 042**		**161 546 052**		0,155
25	20	16	350	**161 546 043**		**161 546 053**		0,240
32	25	16	700	**161 546 044**		**161 546 054**		0,345
40	32	16	1000	**161 546 045**		**161 546 055**		0,615
50	40	16	1600	**161 546 046**		**161 546 056**		0,840
63	50	16	3100	**161 546 047**		**161 546 057**		1,545



d	DN	D	H	H1	L	L1	L2	L3	L4	L5	L6
16	10	50	57	26,5	114	77	56	–	25	32	45
20	15	50	57	26,5	124	77	56	130	25	32	45
25	20	58	67	30	144	97	65	150	25	39	58
32	25	68	73	35,5	154	97	71	160	25	39	58
40	32	84	90	44	174	128	85	180	45	54	74
50	40	97	97	50,5	194	128	89	200	45	54	74
63	50	124	116	64	224	152	101	230	45	65,5	86,5

Ball Valve Type 546, PVC-U with mounting inserts with solvent cement spigots, metric

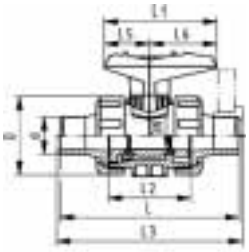
Model:

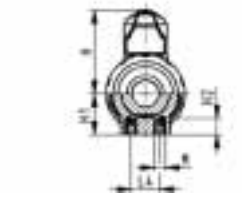
- Union type ends for easy installation and removal
  (z-dimension, valve end and valve nut are **not compatible** with Type 346)
- Ball seals PTFE
- Integrated stainless steel mounting inserts

Options:

- Individual configuration of the valve (see form)
- Multifunctional module with integrated limit switches
- Pneumatic or electric actuators from **+GF+**

d	DN	PN	kv-value l/min (Δp=1 bar)	EPDM Code	FPM Code	kg
16	10	16	71	**161 546 721**	**161 546 731**	0,157
20	15	16	185	**161 546 722**	**161 546 732**	0,157
25	20	16	350	**161 546 723**	**161 546 733**	0,242
32	25	16	700	**161 546 724**	**161 546 734**	0,347
40	32	16	1000	**161 546 725**	**161 546 735**	0,620
50	40	16	1600	**161 546 726**	**161 546 736**	0,845
63	50	16	3100	**161 546 727**	**161 546 737**	1,550





d	D	H	H1	H2	L	L1	L2	L3	L4	L5	L6	M
16	50	57	26,5	12	114	77	56	–	25	32	45	M6
20	50	57	26,5	12	124	77	56	130	25	32	45	M6
25	58	67	30	12	144	97	65	150	25	39	58	M6
32	68	73	35,5	12	154	97	71	160	25	39	58	M6
40	84	90	44	15	174	128	85	180	45	54	74	M8
50	97	97	50,5	15	194	128	89	200	45	54	74	M8
63	124	116	64	15	224	152	101	230	45	65,5	86,5	M8

Ball Valve Type 546, PVC-U with threaded sockets, Rp

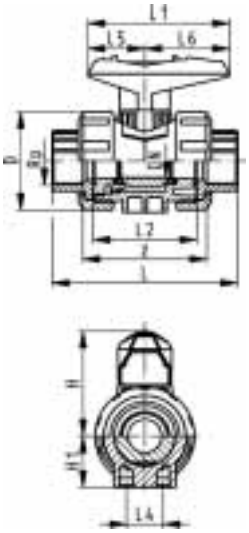
Model:

- Union type ends for easy installation and removal
  (z-dimension, valve end and valve nut are **not compatible** with Type 346)
- Ball seals PTFE
- Without mounting inserts

Options:

- Individual configuration of the valve (see form)
- Multifunctional module with integrated limit switches
- Pneumatic or electric actuators from **+GF+**

Rp	DN	PN	kv-value l/min (Δp=1 bar)	EPDM Code		FPM Code		kg
3/8	10	10	71	**161 546 021**		**161 546 031**		0,150
1/2	15	10	185	**161 546 022**		**161 546 032**		0,150
3/4	20	10	350	**161 546 023**		**161 546 033**		0,230
1	25	10	700	**161 546 024**		**161 546 034**		0,330
1 1/4	32	10	1000	**161 546 025**		**161 546 035**		0,600
1 1/2	40	10	1600	**161 546 026**		**161 546 036**		0,800
2	50	10	3100	**161 546 027**		**161 546 037**		1,460



Rp	DN	D	H	H1	L	L1	L2	L4	L5	L6	z
3/8	10	50	57	26,5	95	77	56	25	32	45	69
1/2	15	50	57	26,5	100	77	56	25	32	45	67
3/4	20	58	67	30	114	97	65	25	39	58	78
1	25	68	73	35,5	127	97	71	25	39	58	85
1 1/4	32	84	90	44	146	128	85	45	54	74	100
1 1/2	40	97	97	50,5	152	128	89	45	54	74	106
2	50	124	116	64	177	152	101	45	65,5	86,5	121

Ball Valve Type 546, PVC-U with mounting inserts with threaded sockets; Rp

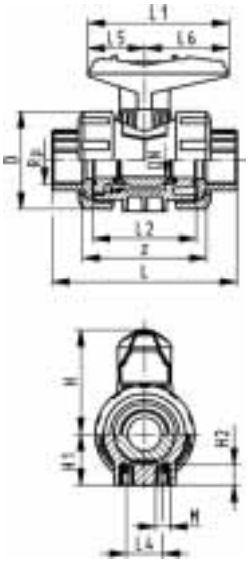
Model:

- Union type ends for easy installation and removal
  (z-dimension, valve end and valve nut are **not compatible** with Type 346)
- Ball seals PTFE
- Integrated stainless steel mounting inserts

Options:

- Individual configuration of the valve (see form)
- Multifunctional module with integrated limit switches
- Pneumatic or electric actuators from **+GF+**

Rp	DN	PN	kv-value l/min (Δp=1 bar)	EPDM Code		FPM Code		kg
3/8	10	10	71	**161 546 741**		**161 546 751**		0,152
1/2	15	10	185	**161 546 742**		**161 546 752**		0,152
3/4	20	10	350	**161 546 743**		**161 546 753**		0,232
1	25	10	700	**161 546 744**		**161 546 754**		0,332
1 1/4	32	10	1000	**161 546 745**		**161 546 755**		0,605
1 1/2	40	10	1600	**161 546 746**		**161 546 756**		0,805
2	50	10	3100	**161 546 747**		**161 546 757**		1,465



Rp	D	H	H1	H2	L	L1	L2	L4	L5	L6	z	M
3/8	50	57	26,5	12	95	77	56	25	32	45	69	M6
1/2	50	57	26,5	12	100	77	56	25	32	45	67	M6
3/4	58	67	30	12	114	97	65	25	39	58	78	M6
1	68	73	35,5	12	127	97	71	25	39	58	85	M6
1 1/4	84	90	44	15	146	128	85	45	54	74	100	M8
1 1/2	97	97	50,5	15	152	128	89	45	54	74	106	M8
2	124	116	64	15	177	152	101	45	65,5	86,5	121	M8

Ball Valve Type 546, PVC-U with fusion sockets, PE 100, metric

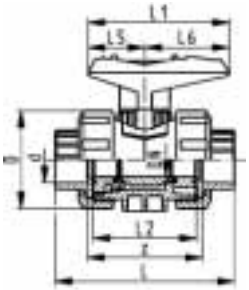
Model:

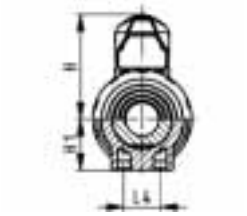
- Union type ends for easy installation and removal
  (z-dimension, valve end and valve nut are **not compatible** with Type 346)
- Ball seals PTFE
- Without mounting inserts

Options:

- Individual configuration of the valve (see form)
- Multifunctional module with integrated limit switches
- Pneumatic or electric actuators from **+GF+**

d	DN	PN	kv-value l/min (Δp=1 bar)	Code		FPM Code		kg
16	10	16	71	**800 000 101**		**800 000 111**		0,170
20	15	16	185	**800 000 102**		**800 000 112**		0,170
25	20	16	350	**800 000 103**		**800 000 113**		0,240
32	25	16	700	**800 000 104**		**800 000 114**		0,340
40	32	16	1000	**800 000 105**		**800 000 115**		0,610
50	40	16	1600	**800 000 106**		**800 000 116**		0,850
63	50	16	3100	**800 000 107**		**800 000 117**		1,550





d	DN	D	H	H1	L	L1	L2	L4	L5	L6	z
16	10	50	57	26,5	93	77	56	25	32	45	66,5
20	15	50	57	26,5	95	77	56	25	32	45	66
25	20	58	67	30	108	97	65	25	39	58	77
32	25	68	73	35,5	118.5	97	71	25	39	58	83
40	32	84	90	44	137	128	85	45	54	74	99
50	40	97	97	50,5	147	128	89	45	54	74	105
63	50	124	116	64	168	152	101	45	65,5	86,5	113

Ball Valve Type 546, PVC-U with butt fusion spigots, PE 100, SDR 11, metric

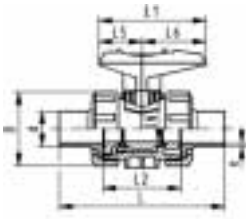
Model:

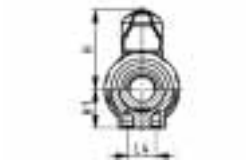
- Union type ends for easy installation and removal
  (z-dimension, valve end and valve nut are **not compatible** with Type 346)
- Ball seals PTFE
- Without mounting inserts

Options:

- Individual configuration of the valve (see form)
- Multifunctional module with integrated limit switches
- Pneumatic or electric actuators from **+GF+**

d	DN	PN	kv-value l/min (Δp=1 bar)	EPDM Code		FPM Code		kg	
20	15	16	185	**800 000 142**		**800 000 152**		0,160	
25	20	16	350	**800 000 143**		**800 000 153**		0,240	
32	25	16	700	**800 000 144**		**800 000 154**		0,340	
40	32	16	1000	**800 000 145**		**800 000 155**		0,600	
50	40	16	1600	**800 000 146**		**800 000 156**		0,830	
63	50	16	3100	**800 000 147**		**800 000 157**		1,560	





d	DN	D	H	H1	L	L1	L2	L4	L5	L6	e	
20	15	50	57	26,5	130	77	56	25	32	45	1,9	
25	20	58	67	30	134	97	65	25	39	58	2,3	
32	25	68	73	35,5	150	97	71	25	39	58	3	
40	32	84	90	44	171	128	85	45	54	74	3,7	
50	40	97	97	50,5	191	128	89	45	54	74	4,6	
63	50	124	116	64	220	152	101	45	65,5	86,5	5,8	

Ball Valve Type 546, PVC-U with butt fusion spigots, PE 100, SDR 17.6, metric

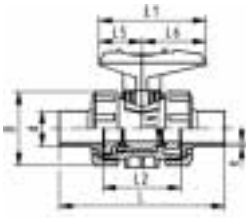
Model:

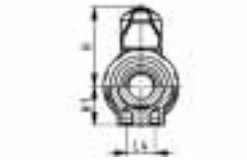
- Union type ends for easy installation and removal
  (z-dimension, valve end and valve nut are **not compatible** with Type 346)
- Ball seals PTFE
- Without mounting inserts

Options:

- Individual configuration of the valve (see form)
- Multifunctional module with integrated limit switches
- Pneumatic or electric actuators from **+GF+**

d	DN	PN	kv-value l/min (Δp=1 bar)	EPDM Code		FPM Code		kg
40	32	10	1000	**800 000 125**		**800 000 135**		0,600
50	40	10	1600	**800 000 126**		**800 000 136**		0,830
63	50	10	3100	**800 000 127**		**800 000 137**		1,560





d	DN	D	H	H1	L	L1	L2	L4	L5	L6	e
40	32	84	90	44	171	128	85	45	54	74	2,3
50	40	97	97	50,5	191	128	89	45	54	74	2,9
63	50	124	116	64	220	152	101	45	65,5	86,5	3,6

Ball Valve Type 546, PVC-U with butt fusion spigots long, PE 100, SDR 11, metric

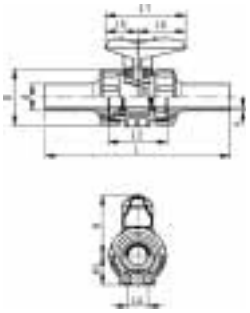
Model:

- Union type ends for easy installation and removal
  (z-dimension, valve end and valve nut are **not compatible** with Type 346)
- Ball seals PTFE
- Without mounting inserts

Options:

- Individual configuration of the valve (see form)
- Multifunctional module with integrated limit switches
- Pneumatic or electric actuators from **+GF+**

d	DN	PN	kv-value l/min (Δp=1 bar)	EPDM Code		FPM Code		kg	
20	15	16	185	**800 000 282**		**800 000 292**		0,170	
25	20	16	350	**800 000 283**		**800 000 293**		0,250	
32	25	16	700	**800 000 284**		**800 000 294**		0,370	
40	32	16	1000	**800 000 285**		**800 000 295**		0,640	
50	40	16	1600	**800 000 286**		**800 000 296**		0,910	
63	50	16	3100	**800 000 287**		**800 000 297**		1,680	



d	DN	D	H	H1	L	L1	L2	L4	L5	L6	e	
20	15	50	57	26,5	193	77	56	25	32	45	2,25	
25	20	58	67	30	216	97	65	25	39	58	2,3	
32	25	68	73	35,5	223	97	71	25	39	58	3	
40	32	84	90	44	249	128	85	45	54	74	3,7	
50	40	97	97	50,5	271	128	89	45	54	74	4,6	
63	50	124	116	64	321	152	101	45	65,5	86,5	5,8	

Ball Valve Type 546, PVC-U with PVC-U fixed flanges, serrated, metric

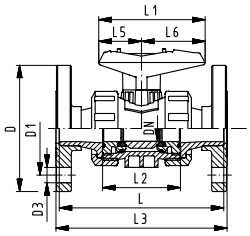
Model:

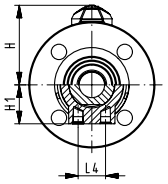
- Union type ends for easy installation and removal
  (z-dimension, valve end and valve nut are **not compatible** with Type 346)
- Ball seals PTFE
- Without mounting inserts

Options:

- Individual configuration of the valve (see form)
- Multifunctional module with integrated limit switches
- Pneumatic or electric actuators from **+GF+**

d	DN	PN	kv-value l/min (Δp=1 bar)	EPDM Code		FPM Code		kg
20	15	16	185	**800 000 182**		**800 000 192**		0,370
25	20	16	350	**800 000 183**		**800 000 193**		0,510
32	25	16	700	**800 000 184**		**800 000 194**		0,740
40	32	16	1000	**800 000 185**		**800 000 195**		1,230
50	40	16	1600	**800 000 186**		**800 000 196**		1,610
63	50	16	3100	**800 000 187**		**800 000 197**		2,710





d	DN	D	H	H1	L	L1	L2	L3	L4	L5	L6
20	15	95	57	26,5	124	77	56	130	25	32	45
25	20	105	67	30	144	97	65	150	25	39	58
32	25	115	73	35,5	154	97	71	160	25	39	58
40	32	140	90	44	174	128	85	180	45	54	74
50	40	150	97	50,5	194	128	89	200	45	54	74
63	50	165	116	64	224	152	101	230	45	65,5	86,5

Ball Valve Type 546, PVC-U with solvent cement sockets, Inch ASTM inclusive 2 threaded valve ends, NPT

Model:

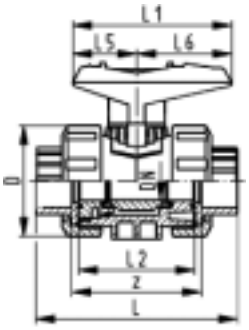
- Union type ends for easy installation and removal
  (z-dimension, valve end and valve nut are **not compatible** with Type 346)
- Ball seals PTFE
- Without mounting inserts

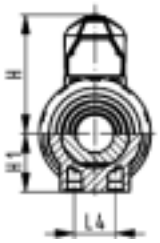
Options:

- Individual configuration of the valve (see form)
- Multifunctional module with integrated limit switches
- Pneumatic or electric actuators from **+GF+**

All data are valid for model with solvent cement sockets

inch	DN	PN	kv-value l/min (Δp=1 bar)	EPDM Code		FPM Code		kg	
3/8	10	16	71	**161 546 301**		**161 546 311**		0,180	
1/2	15	16	185	**161 546 302**		**161 546 312**		0,190	
3/4	20	16	350	**161 546 303**		**161 546 313**		0,290	
1	25	16	700	**161 546 304**		**161 546 314**		0,425	
1 1/4	32	16	1000	**161 546 305**		**161 546 315**		0,730	
1 1/2	40	16	1600	**161 546 306**		**161 546 316**		0,990	
2	50	16	3100	**161 546 307**		**161 546 317**		1,775	





inch	DN	D	H	H1	L	L1	L2	L4	L5	L6	z
3/8	10	50	57	26,5	105	77	56	25	32	45	67
1/2	15	50	57	26,5	105	77	56	25	32	45	61
3/4	20	58	67	30	121	97	65	25	39	58	70
1	25	68	73	35,5	133	97	71	25	39	58	76
1 1/4	32	84	90	44	154	128	85	45	54	74	90
1 1/2	40	97	97	50,5	164	128	89	45	54	74	94
2	50	124	116	64	183	152	101	45	65,5	86,5	107

Ball Valve Type 546, PVC-U with lockable handle with solvent cement sockets, Inch ASTM inclusive 2 threaded valve ends, NPT

Model:

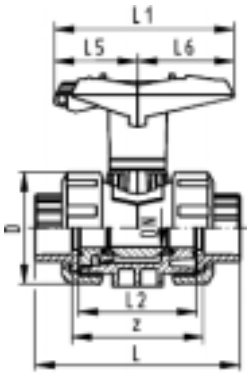
- Union type ends for easy installation and removal
  (z-dimension, valve end and valve nut are **not compatible** with Type 346)
- Ball seals PTFE
- Integrated stainless steel mounting inserts
- Lockable hand lever with ratchet settings

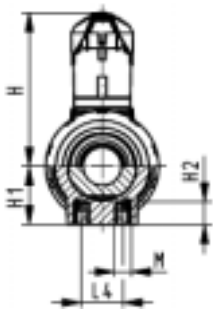
Options:

- Individual configuration of the valve (see form)
- Multifunctional module with integrated limit switches
- Pneumatic or electric actuators from **+GF+**

All data are valid for model with solvent cement sockets

inch	DN	PN	kv-value l/min (Δp=1 bar)	EPDM Code	FPM Code	kg
3/8	10	16	71	**161 546 361**	**161 546 371**	0,195
1/2	15	16	185	**161 546 362**	**161 546 372**	0,205
3/4	20	16	350	**161 546 363**	**161 546 373**	0,315
1	25	16	700	**161 546 364**	**161 546 374**	0,450
1 1/4	32	16	1000	**161 546 365**	**161 546 375**	0,770
1 1/2	40	16	1600	**161 546 366**	**161 546 376**	1,030
2	50	16	3100	**161 546 367**	**161 546 377**	1,820





inch	D	H	H1	H2	L	L1	L2	L4	L5	L6	M	z
3/8	50	79	26,5	12	105	87	56	25	42	45	M6	67
1/2	50	79	26,5	12	105	87	56	25	42	45	M6	61
3/4	58	88	30	12	121	108	65	25	50	58	M6	70
1	68	94	35,5	12	133	108	71	25	50	58	M6	76
1 1/4	84	113	44	15	154	140	85	45	65,5	74	M8	90
1 1/2	97	119	50,5	15	164	140	89	45	65,5	74	M8	94
2	124	141	64	15	183	165	101	45	78	86,5	M8	107

Ball Valve Type 546, PVC-U with solvent cement sockets, Inch BS

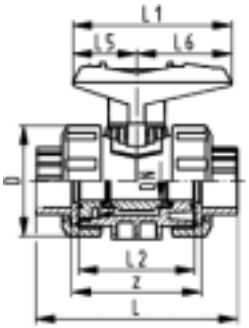
Model:

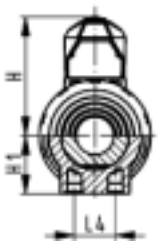
- Union type ends for easy installation and removal
  (z-dimension, valve end and valve nut are **not compatible** with Type 346)
- Ball seals PTFE
- Without mounting inserts

Options:

- Individual configuration of the valve (see form)
- Multifunctional module with integrated limit switches
- Pneumatic or electric actuators from **+GF+**

inch	DN	PN	kv-value l/min (Δp=1 bar)	EPDM Code		FPM Code		kg	
3/8	10	16	71	**161 546 201**		**161 546 211**		0,150	
1/2	15	16	185	**161 546 202**		**161 546 212**		0,150	
3/4	20	16	350	**161 546 203**		**161 546 213**		0,230	
1	25	16	700	**161 546 204**		**161 546 214**		0,330	
1 1/4	32	16	1000	**161 546 205**		**161 546 215**		0,585	
1 1/2	40	16	1600	**161 546 206**		**161 546 216**		0,815	
2	50	16	3100	**161 546 207**		**161 546 217**		1,490	





inch	DN	D	H	H1	L	L1	L2	L4	L5	L6	z
3/8	10	50	57	26,5	92	77	56	25	32	45	60
1/2	15	50	57	26,5	95	77	56	25	32	45	60
3/4	20	58	67	30	110	97	65	25	39	58	69
1	25	68	73	35,5	123	97	71	25	39	58	75
1 1/4	32	84	90	44	146	128	85	45	54	74	89
1 1/2	40	97	97	50,5	157	128	89	45	54	74	97
2	50	124	116	64	183	152	101	45	65,5	86,5	110

Ball Valve Type 546, PVC-U with lockable handle with solvent cement sockets, Inch BS

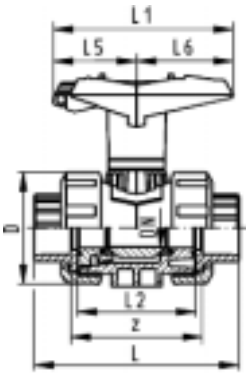
Model:

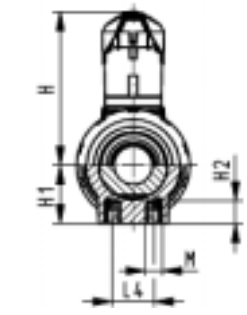
- Union type ends for easy installation and removal
  (z-dimension, valve end and valve nut are **not compatible** with Type 346)
- Ball seals PTFE
- Integrated stainless steel mounting inserts
- Lockable hand lever with ratchet settings

Options:

- Individual configuration of the valve (see form)
- Multifunctional module with integrated limit switches
- Pneumatic or electric actuators from **+GF+**

inch	DN	PN	kv-value l/min (Δp=1 bar)	EPDM Code	FPM Code	kg
3/8	10	16	71	**161 546 221**	**161 546 231**	0,165
1/2	15	16	185	**161 546 222**	**161 546 232**	0,165
3/4	20	16	350	**161 546 223**	**161 546 233**	0,255
1	25	16	700	**161 546 224**	**161 546 234**	0,355
1 1/4	32	16	1000	**161 546 225**	**161 546 235**	0,625
1 1/2	40	16	1600	**161 546 226**	**161 546 236**	0,855
2	50	16	3100	**161 546 227**	**161 546 237**	1,535





inch	D	H	H1	H2	L	L1	L2	L4	L5	L6	M	z
3/8	50	79	26,5	12	92	87	56	25	42	45	M6	60
1/2	50	79	26,5	12	95	87	56	25	42	45	M6	60
3/4	58	88	30	12	110	108	65	25	50	58	M6	69
1	68	94	35,5	12	123	108	71	25	50	58	M6	75
1 1/4	84	113	44	15	146	140	85	45	65,5	74,5	M8	89
1 1/2	97	119	50,5	15	157	140	89	45	65,5	74,5	M8	97
2	124	141	64	15	183	165	101	45	78	87	M8	110

Ball Valve Type 546, PVC-U SF with solvent cement sockets, metric

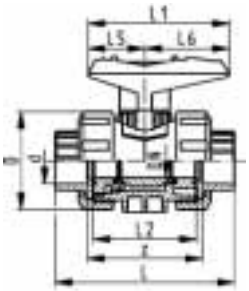
Model:

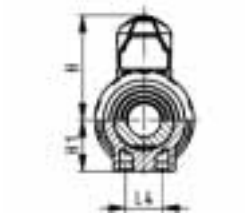
- Paint-compatible / silicon free
- Ball seals:
  - Metric: PVDF
  - Inch ASTM: PTFE
- Union type ends for easy installation and removal
  (z-dimension, valve end and valve nut are **not compatible** with Type 346)

Options:

- Individual configuration of the valve (see form)
- Multifunctional module with integrated limit switches

d	DN	PN	kv-value l/min (Δp=1 bar)	EPDM Code		FPM Code		kg	
16	10	16	71	**161 546 601**		**161 546 611**		0,150	
20	15	16	185	**161 546 602**		**161 546 612**		0,150	
25	20	16	350	**161 546 603**		**161 546 613**		0,230	
32	25	16	700	**161 546 604**		**161 546 614**		0,330	
40	32	16	1000	**161 546 605**		**161 546 615**		0,600	
50	40	16	1600	**161 546 606**		**161 546 616**		0,800	
63	50	16	3100	**161 546 607**		**161 546 617**		1,460	





d	D	H	H1	L	L1	L2	L4	L5	L6	z
16	50	57	26,5	92	77	56	25	32	45	64
20	50	57	26,5	95	77	56	25	32	45	64
25	58	67	30	110	97	65	25	39	58	72
32	68	73	35,5	123	97	71	25	39	58	79
40	84	90	44	146	128	85	45	54	74	94
50	97	97	50,5	157	128	89	45	54	74	95
63	124	116	64	183	152	101	45	65.5	86,5	107

Ball Valve Type 546, PVC-U SF with mounting inserts with solvent cement sockets, metric

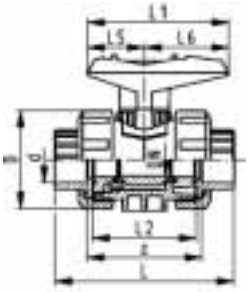
Model:

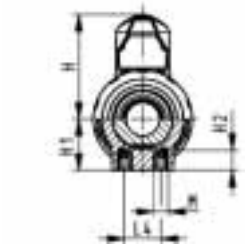
- Paint-compatible / silicon free
- Ball seals:
  - Metric: PVDF
  - Inch ASTM: PTFE
- Integrated stainless steel mounting inserts

Options:

- Individual configuration of the valve (see form)
- Multifunctional module with integrated limit switches

d	DN	PN	kv-value l/min (Δp=1 bar)	EPDM Code		FPM Code		kg
16	10	16	71	**800 000 601**		**800 000 611**		0,150
20	15	16	185	**800 000 602**		**800 000 612**		0,150
25	20	16	350	**800 000 603**		**800 000 613**		0,230
32	25	16	700	**800 000 604**		**800 000 614**		0,330
40	32	16	1000	**800 000 605**		**800 000 615**		0,600
50	40	16	1600	**800 000 606**		**800 000 616**		0,800
63	50	16	3100	**800 000 607**		**800 000 617**		1,460





d	D	H	H1	H2	L	L1	L2	L4	L5	L6	M	z
16	50	57	26,5	12	92	77	56	25	32	45	M6	64
20	50	57	26,5	12	95	77	56	25	32	45	M6	64
25	58	67	30	12	110	97	65	25	39	58	M6	72
32	68	73	35,5	12	123	97	71	25	39	58	M6	79
40	84	90	44	15	146	128	85	45	54	74	M8	94
50	97	97	50,5	15	157	128	89	45	54	74	M8	95
63	124	116	64	15	183	152	101	45	65.5	86,5	M8	107

Ball Valve Type 546, PVC-U SF with solvent cement sockets, Inch ASTM

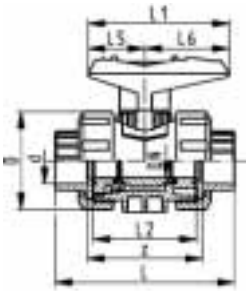
Model:

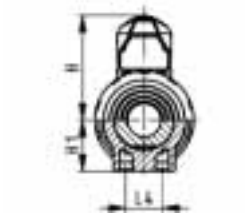
- Paint-compatible / silicon free
- Ball seals:
  - Metric: PVDF
  - Inch ASTM: PTFE
- Union type ends for easy installation and removal
  (z-dimension, valve end and valve nut are **not compatible** with Type 346)

Options:

- Individual configuration of the valve (see form)
- Multifunctional module with integrated limit switches

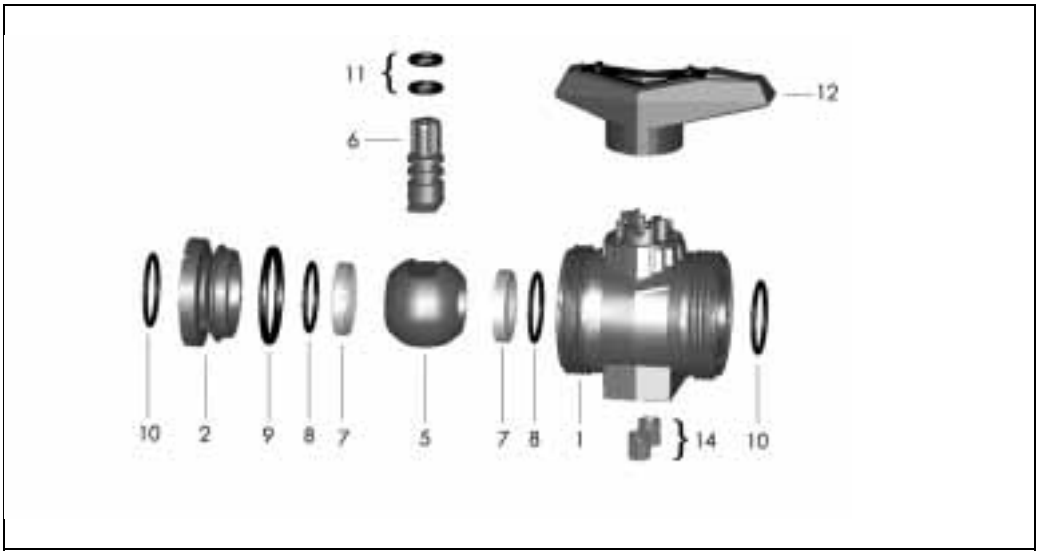
inch	DN	PN	kv-value l/min (Δp=1 bar)	EPDM Code		FPM Code		kg	
3/8	10	16	71	**161 546 681**		**161 546 691**		0,155	
1/2	15	16	185	**161 546 682**		**161 546 692**		0,155	
3/4	20	16	350	**161 546 683**		**161 546 693**		0,240	
1	25	16	700	**161 546 684**		**161 546 694**		0,340	
1 1/4	32	16	1000	**161 546 685**		**161 546 695**		0,605	
1 1/2	40	16	1600	**161 546 686**		**161 546 696**		0,805	
2	50	16	3100	**161 546 687**		**161 546 697**		1,460	





inch	D	H	H1	L	L1	L2	L4	L5	L6	z
3/8	50	57	26,5	105	77	56	25	32	45	67
1/2	50	57	26,5	105	77	56	25	32	45	61
3/4	58	67	30	121	97	65	25	39	58	70
1	68	73	35,5	133	97	71	25	39	58	76
1 1/4	84	90	44	154	128	85	45	54	74	90
1 1/2	97	97	50,5	164	128	89	45	54	74	94
2	124	116	64	183	152	101	45	65,5	86,5	107

Spare Parts Ball Valves Type 546, PVC-U



No.	Article/ Material	Pieces	d16 DN 10	d20 DN 15	d25 DN 20	d32 DN 25	d40 DN 32	d50 DN 40	d63 DN50
	Central Part		161 486 151	161 486 151	161 486 152	161 486 153	161 486 154	161 486 155	161 486 156
1	Body PVC-U	1							
2	Union bush PVC-U	1							
5	Ball PVC-U	1							
6	Stem PVC-U	1							
7	Ball seals PTFE	2							
8	Backing seals EPDM	2							
9	Body seal EPDM	1							
10	Face seal EPDM	2							
11	Stem seals EPDM	2							
12	Lever PP red	1							
14	Threaded bush Stainless steel	2							
	Central Part		161 486 163	161 486 163	161 486 164	161 486 165	161 486 166	161 486 167	161 486 168
1	Body PVC-U	1							
2	Union bush PVC-U	1							
5	Ball PVC-U	1							
6	Stem PVC-U	1							
7	Ball seals PTFE	2							
8	Backing seals FPM	2							
9	Body seal FPM	1							
10	Face seal FPM	2							
11	Stem seals FPM	2							
12	Lever PP red	1							
14	Threaded bush Stainless steel	2							
	Ball Set		161 486 375	161 486 375	161 486 376	161 486 377	161 486 378	161 486 379	161 486 380
5	Ball PVC-U	1							
6	Stem EPDM	1							
7	Ball seals PTFE	2							
8	Backing seals EPDM	2							
9	Body seal EPDM	1							
11	Stem seals EPDM	2							
	Ball Set		161 486 385	161 486 385	161 486 386	161 486 387	161 486 388	161 486 389	161 486 390
5	Ball PVC-U	1							
6	Stem FPM	1							
7	Ball seals PTFE	2							
8	Backing seals FPM	2							
9	Body seal FPM	1							
11	Stem seals FPM	2							

No.	Article/ Material	Pieces	d16 DN 10	d20 DN 15	d25 DN 20	d32 DN 25	d40 DN 32	d50 DN 40	d63 DN50
	Seal - Set		161 486 400	161 486 400	161 486 401	161 486 402	161 486 403	161 486 404	161 486 405
8	Backing seals EPDM	2							
9	Body seal EPDM	1							
10	Face seal EPDM	2							
11	Stem seals EPDM	2							
	Seal - Set		161 486 410	161 486 410	161 486 411	161 486 412	161 486 413	161 486 414	161 486 415
8	Backing seals FPM	2							
9	Body seal FPM	1							
10	Face seal FPM	2							
11	Stem seals FPM	2							

Ball Valves PVC-C

Ball Valve Type 546, PVC-C with solvent cement sockets, metric

Model:

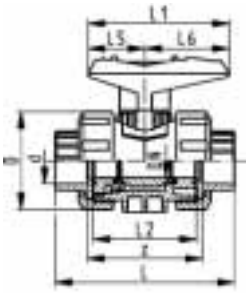
- Union type ends for easy installation and removal
  (z-dimension, valve end and valve nut are **not compatible** with Type 346)
- Ball seals PTFE
- Without mounting inserts

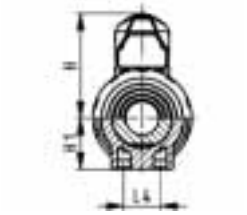
Options:

- Individual configuration of the valve (see form)
- Multifunctional module with integrated limit switches
- Pneumatic or electric actuators from **+GF+**

Available 3rd quarter 2003

d	DN	PN	kv-value l/min (Δp=1 bar)	EPDM Code		FPM Code		kg
16	10	16	71	**163 546 001**		**163 546 011**		0,160
20	15	16	185	**163 546 002**		**163 546 012**		0,160
25	20	16	350	**163 546 003**		**163 546 013**		0,245
32	25	16	700	**163 546 004**		**163 546 014**		0,365
40	32	16	1000	**163 546 005**		**163 546 015**		0,660
50	40	16	1600	**163 546 006**		**163 546 016**		0,890
63	50	16	3100	**163 546 007**		**163 546 017**		1,650





d	D	H	H1	L	L1	L2	L4	L5	L6	z
16	50	57	26,5	92	77	56	25	32	45	64
20	50	57	26,5	95	77	56	25	32	45	64
25	58	67	30	110	97	65	25	39	58	72
32	68	73	35,5	123	97	71	25	39	58	79
40	84	90	44	146	128	85	45	54	74	94
50	97	97	50,5	157	128	89	45	54	74	95
63	124	116	64	183	152	101	45	65,5	86,5	107

Ball Valve Type 546, PVC-C with mounting inserts with solvent cement sockets, metric

Model:

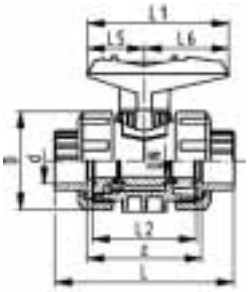
- Union type ends for easy installation and removal
  (z-dimension, valve end and valve nut are **not compatible** with Type 346)
- Ball seals PTFE
- Integrated stainless steel mounting inserts

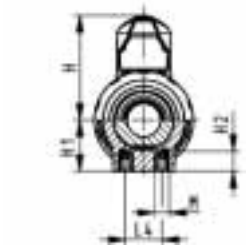
Options:

- Individual configuration of the valve (see form)
- Multifunctional module with integrated limit switches
- Pneumatic or electric actuators from **+GF+**

Available 3rd quarter 2003

d	DN	PN	kv-value l/min (Δp=1 bar)	EPDM Code		FPM Code		kg	
16	10	16	71	**163 546 061**		**163 546 071**		0,160	
20	15	16	185	**163 546 062**		**163 546 072**		0,160	
25	20	16	350	**163 546 063**		**163 546 073**		0,245	
32	25	16	700	**163 546 064**		**163 546 074**		0,365	
40	32	16	1000	**163 546 065**		**163 546 075**		0,660	
50	40	16	1600	**163 546 066**		**163 546 076**		0,890	
63	50	16	3100	**163 546 067**		**163 546 077**		1,650	





d	D	H	H1	H2	L	L1	L2	L4	L5	L6	M	z
16	50	57	26,5	12	92	77	56	25	32	45	M6	64
20	50	57	26,5	12	95	77	56	25	32	45	M6	64
25	58	67	30	12	110	97	65	25	39	58	M6	72
32	68	73	35,5	12	123	97	71	25	39	58	M6	79
40	84	90	44	15	146	128	85	45	54	74	M8	94
50	97	97	50,5	15	157	128	89	45	54	74	M8	95
63	124	116	64	15	183	152	101	45	65,5	86,5	M8	107

Ball Valve Type 546, PVC-C with lockable handle with solvent cement sockets, metric

Model:

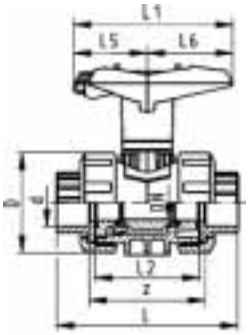
- Union type ends for easy installation and removal
  (z-dimension, valve end and valve nut are **not compatible** with Type 346)
- Ball seals PTFE
- Integrated stainless steel mounting inserts
- Lockable hand lever with ratchet settings

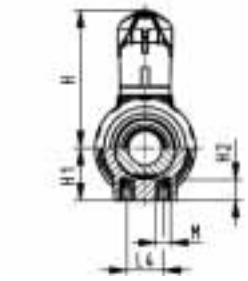
Options:

- Individual configuration of the valve (see form)
- Multifunctional module with integrated limit switches
- Pneumatic or electric actuators from **+GF+**

Available 3rd quarter 2003

d	DN	PN	kv-value l/min (Δp=1 bar)	EPDM Code		FPM Code		kg
16	10	16	71	**163 546 081**		**163 546 091**		0,175
20	15	16	185	**163 546 082**		**163 546 092**		0,175
25	20	16	350	**163 546 083**		**163 546 093**		0,270
32	25	16	700	**163 546 084**		**163 546 094**		0,390
40	32	16	1000	**163 546 085**		**163 546 095**		0,700
50	40	16	1600	**163 546 086**		**163 546 096**		0,930
63	50	16	3100	**163 546 087**		**163 546 097**		1,695





d	D	H	H1	H2	L	L1	L2	L4	L5	L6	M	z
16	50	79	26,5	12	92	87	56	25	42	45	M6	64
20	50	79	26,5	12	95	87	56	25	42	45	M6	64
25	58	88	30	12	110	108	65	25	50	58	M6	72
32	68	94	35,5	12	123	108	71	25	50	58	M6	79
40	84	113	44	15	146	140	85	45	65,5	74,5	M8	94
50	97	119	50,5	15	157	140	89	45	65,5	74,5	M8	95
63	124	141	64	15	183	165	101	45	78	87	M8	107

Ball Valve Type 546, PVC-C with solvent cement spigots, metric

Model:

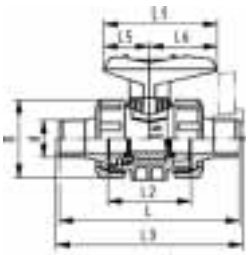
- Union type ends for easy installation and removal
  (z-dimension, valve end and valve nut are **not compatible** with Type 346)
- Ball seals PTFE
- Without mounting inserts

Options:

- Individual configuration of the valve (see form)
- Multifunctional module with integrated limit switches
- Pneumatic or electric actuators from **+GF+**

Available 3rd quarter 2003

d	DN	PN	kv-value l/min (Δp=1 bar)	EPDM Code	FPM Code	kg
16	10	16	71	**163 546 041**	**163 546 051**	0,160
20	15	16	185	**163 546 042**	**163 546 052**	0,160
25	20	16	350	**163 546 043**	**163 546 053**	0,245
32	25	16	700	**163 546 044**	**163 546 054**	0,365
40	32	16	1000	**163 546 045**	**163 546 055**	0,660
50	40	16	1600	**163 546 046**	**163 546 056**	0,890
63	50	16	3100	**163 546 047**	**163 546 057**	1,650



d	D	H	H1	L	L1	L2	L3	L4	L5	L6
16	50	57	26,5	114	77	56	–	25	32	45
20	50	57	26,5	124	77	56	130	25	32	45
25	58	67	30	144	97	65	150	25	39	58
32	68	73	35,5	154	97	71	160	25	39	58
40	84	90	44	174	128	85	180	45	54	74
50	97	97	50,5	194	128	89	200	45	54	74
63	124	116	64	224	152	101	230	45	65,5	86,5

Ball Valve Type 546, PVC-C with mounting inserts with solvent cement spigots, metric

Model:

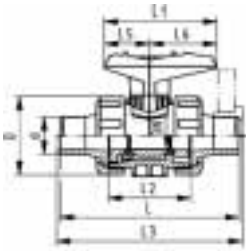
- Union type ends for easy installation and removal
  (z-dimension, valve end and valve nut are **not compatible** with Type 346)
- Ball seals PTFE
- Integrated stainless steel mounting inserts

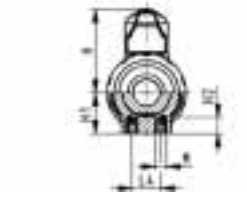
Options:

- Individual configuration of the valve (see form)
- Multifunctional module with integrated limit switches
- Pneumatic or electric actuators from **+GF+**

Available 3rd quarter 2003

d	DN	PN	kv-value l/min (Δp=1 bar)	EPDM Code		FPM Code		kg
16	10	16	71	**163 546 381**		**163 546 391**		0,162
20	15	16	185	**163 546 382**		**163 546 392**		0,162
25	20	16	350	**163 546 383**		**163 546 393**		0,247
32	25	16	700	**163 546 384**		**163 546 394**		0,367
40	32	16	1000	**163 546 385**		**163 546 395**		0,665
50	40	16	1600	**163 546 386**		**163 546 396**		0,895
63	50	16	3100	**163 546 387**		**163 546 397**		1,655





d	D	H	H1	H2	L	L1	L2	L3	L4	L5	L6	M
16	50	57	26,5	12	114	77	56	–	25	32	45	M6
20	50	57	26,5	12	124	77	56	130	25	32	45	M6
25	58	67	30	12	144	97	65	150	25	39	58	M6
32	68	73	35,5	12	154	97	71	160	25	39	58	M6
40	84	90	44	15	174	128	85	180	45	54	74	M8
50	97	97	50,5	15	194	128	89	200	45	54	74	M8
63	124	116	64	15	224	152	101	230	45	65,5	86,5	M8

Ball Valve Type 546, PVC-C with threaded sockets, Rp

Model:

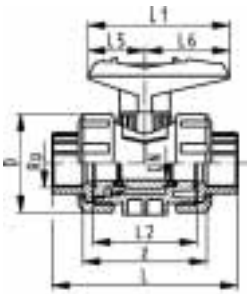
- Union type ends for easy installation and removal
  (z-dimension, valve end and valve nut are **not compatible** with Type 346)
- Ball seals PTFE
- Without mounting inserts

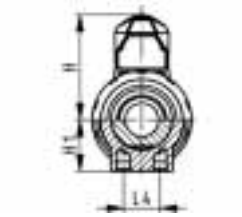
Options:

- Individual configuration of the valve (see form)
- Multifunctional module with integrated limit switches
- Pneumatic or electric actuators from **+GF+**

Available 3rd quarter 2003

Rp	DN	PN	kv-value l/min (Δp=1 bar)	EPDM Code		FPM Code		kg	
3/8	10	10	71	**163 546 021**		**163 546 031**		0,160	
1/2	15	10	185	**163 546 022**		**163 546 032**		0,160	
3/4	20	10	350	**163 546 023**		**163 546 033**		0,245	
1	25	10	700	**163 546 024**		**163 546 034**		0,365	
1 1/4	32	10	1000	**163 546 025**		**163 546 035**		0,660	
1 1/2	40	10	1600	**163 546 026**		**163 546 036**		0,890	
2	50	10	3100	**163 546 027**		**163 546 037**		1,650	





Rp	D	H	H1	L	L1	L2	L4	L5	L6	z
3/8	50	57	26,5	95	77	56	25	32	45	69
1/2	50	57	26,5	100	77	56	25	32	45	67
3/4	58	67	30	114	97	65	25	39	58	78
1	68	73	35,5	127	97	71	25	39	58	85
1 1/4	84	90	44	146	128	85	45	54	74	100
1 1/2	97	97	50,5	152	128	89	45	54	74	106
2	124	116	64	177	152	101	45	65,5	86,5	121

Ball Valve Type 546, PVC-C with mounting inserts with threaded sockets, Rp

Model:

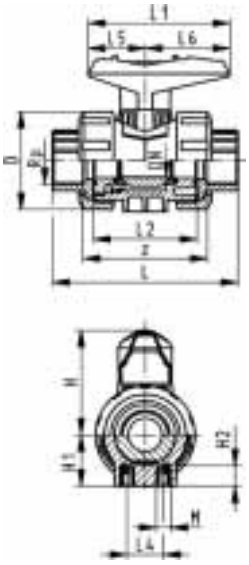
- Union type ends for easy installation and removal
  (z-dimension, valve end and valve nut are **not compatible** with Type 346)
- Ball seals PTFE
- Integrated stainless steel mounting inserts

Options:

- Individual configuration of the valve (see form)
- Multifunctional module with integrated limit switches
- Pneumatic or electric actuators from **+GF+**

Available 3rd quarter 2003

Rp	DN	PN	kv-value l/min (Δp=1 bar)	EPDM Code		FPM Code		kg
3/8	10	10	71	**163 546 401**		**163 546 411**		0,162
1/2	15	10	185	**163 546 402**		**163 546 412**		0,162
3/4	20	10	350	**163 546 403**		**163 546 413**		0,247
1	25	10	700	**163 546 404**		**163 546 414**		0,367
1 1/4	32	10	1000	**163 546 405**		**163 546 415**		0,665
1 1/2	40	10	1600	**163 546 406**		**163 546 416**		0,895
2	50	10	3100	**163 546 407**		**163 546 417**		1,655



Rp	D	H	H1	H2	L	L1	L2	L4	L5	L6	z
3/8	50	57	26,5	12	95	77	56	25	32	45	69
1/2	50	57	26,5	12	100	77	56	25	32	45	67
3/4	58	67	30	12	114	97	65	25	39	58	78
1	68	73	35,5	12	127	97	71	25	39	58	85
1 1/4	84	90	44	12	146	128	85	45	54	74	100
1 1/2	97	97	50,5	15	152	128	89	45	54	74	106
2	124	116	64	15	177	152	101	45	65,5	86,5	121

Ball Valve Type 546, PVC-C with solvent cement sockets, Inch ASTM inclusive 2 threaded valve ends, NPT

Model:

- Union type ends for easy installation and removal
  (z-dimension, valve end and valve nut are **not compatible** with Type 346)
- Ball seals PTFE
- Without mounting inserts

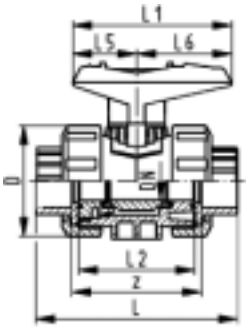
Options:

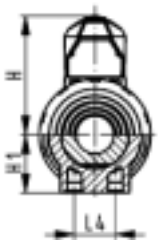
- Individual configuration of the valve (see form)
- Multifunctional module with integrated limit switches
- Pneumatic or electric actuators from **+GF+**

Available 3rd quarter 2003

All data are valid for model with solvent cement sockets

inch	DN	PN	kv-value l/min (Δp=1 bar)	EPDM Code		FPM Code		kg	
3/8	10	16	71	**163 546 301**		**163 546 311**		0,190	
1/2	15	16	185	**163 546 302**		**163 546 312**		0,200	
3/4	20	16	350	**163 546 303**		**163 546 313**		0,300	
1	25	16	700	**163 546 304**		**163 546 314**		0,460	
1 1/4	32	16	1000	**163 546 305**		**163 546 315**		0,800	
1 1/2	40	16	1600	**163 546 306**		**163 546 316**		1,095	
2	50	16	3100	**163 546 307**		**163 546 317**		1,995	





inch	D	H	H1	L	L1	L2	L4	L5	L6	z
3/8	50	57	26,5	105	77	56	25	32	45	67
1/2	50	57	26,5	105	77	56	25	32	45	61
3/4	58	67	30	121	97	65	25	39	58	70
1	68	73	35,5	133	97	71	25	39	58	76
1 1/4	84	90	44	154	128	85	45	54	74	90
1 1/2	97	97	50,5	164	128	89	45	54	74	94
2	124	116	64	183	152	101	45	65,5	86,5	107

Ball Valve Type 546, PVC-C with lockable handle with solvent cement sockets, Inch ASTM inclusive 2 threaded valve ends, NPT

Model:

- Union type ends for easy installation and removal
  (z-dimension, valve end and valve nut are **not compatible** with Type 346)
- Ball seals PTFE
- Integrated stainless steel mounting inserts
- Lockable hand lever with ratchet settings

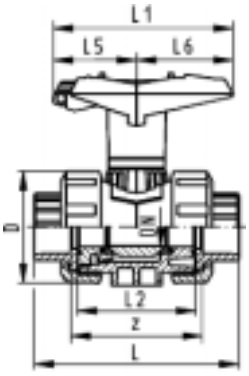
Options:

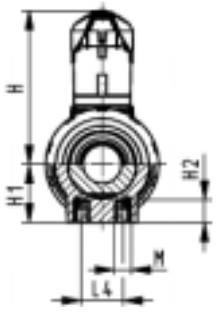
- Individual configuration of the valve (see form)
- Multifunctional module with integrated limit switches
- Pneumatic or electric actuators from **+GF+**

Available 3rd quarter 2003

All data are valid for model with solvent cement sockets

inch	DN	PN	kv-value l/min (Δp=1 bar)	EPDM Code		FPM Code		kg
3/8	10	16	71	**163 546 361**		**163 546 371**		0,205
1/2	15	16	185	**163 546 362**		**163 546 372**		0,215
3/4	20	16	350	**163 546 363**		**163 546 373**		0,325
1	25	16	700	**163 546 364**		**163 546 374**		0,485
1 1/4	32	16	1000	**163 546 365**		**163 546 375**		0,840
1 1/2	40	16	1600	**163 546 366**		**163 546 376**		1,135
2	50	16	3100	**163 546 367**		**163 546 377**		2,035





inch	D	H	H1	H2	L	L1	L2	L4	L5	L6	M	z
3/8	50	79	26,5	12	105	87	56	25	42	45	M6	67
1/2	50	79	26,5	12	105	87	56	25	42	45	M6	61
3/4	58	88	30	12	121	108	65	25	50	58	M6	70
1	68	94	35,5	12	133	108	71	25	50	58	M6	76
1 1/4	84	113	44	15	154	140	85	45	65,5	74,5	M8	90
1 1/2	97	119	50,5	15	164	140	89	45	65,5	74,5	M8	94
2	124	141	64	15	183	165	101	45	78	86,5	M8	107

Ball Valve Type 546, PVC-C SF with solvent cement sockets, metric

Model:

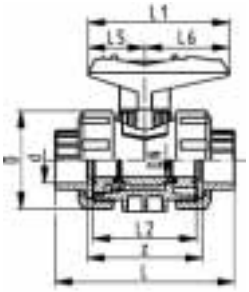
- Paint-compatible / silicon free
- Ball seals:
  - metric: PVDF
  - inch ASTM: PTFE
- Union type ends for easy installation and removal
  (z-dimension, valve end and valve nut are **not compatible** with Type 346)
- Without mounting inserts

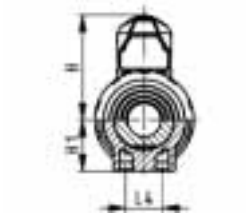
Options:

- Individual configuration of the valve (see form)
- Multifunctional module with integrated limit switches

Available 3rd quarter 2003

d	DN	PN	kv-value l/min (Δp=1 bar)	EPDM Code		FPM Code		kg	
16	10	16	71	**163 546 601**		**163 546 611**		0,160	
20	15	16	185	**163 546 602**		**163 546 612**		0,160	
25	20	16	350	**163 546 603**		**163 546 613**		0,245	
32	25	16	700	**163 546 604**		**163 546 614**		0,365	
40	32	16	1000	**163 546 605**		**163 546 615**		0,660	
50	40	16	1600	**163 546 606**		**163 546 616**		0,890	
63	50	16	3100	**163 546 607**		**163 546 617**		1,650	





d	D	H	H1	L	L1	L2	L4	L5	L6	z
16	50	57	26,5	92	77	56	25	32	45	64
20	50	57	26,5	95	77	56	25	32	45	64
25	58	67	30	110	97	65	25	39	58	72
32	68	73	35,5	123	97	71	25	39	58	79
40	84	90	44	146	128	85	45	54	74	94
50	97	97	50,5	157	128	89	45	54	74	95
63	124	116	64	183	152	101	45	65.5	86,5	107

Ball Valve Type 546, PVC-C SF with mounting inserts with solvent cement sockets, metric

Model:

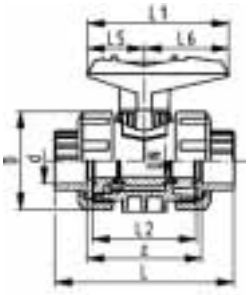
- Paint-compatible / silicon free
- Ball seals PTFE
- Union type ends for easy installation and removal
- Integrated stainless steel mounting inserts

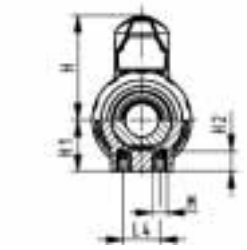
Options:

- Individual configuration of the valve (see form)
- Multifunctional module with integrated limit switches

Available 3rd quarter 2003

d	DN	PN	kv-value l/min (Δp=1 bar)	EPDM Code		FPM Code		kg
16	10	16	71	**800 000 621**		**800 000 631**		0,160
20	15	16	185	**800 000 622**		**800 000 632**		0,160
25	20	16	350	**800 000 623**		**800 000 633**		0,245
32	25	16	700	**800 000 624**		**800 000 634**		0,365
40	32	16	1000	**800 000 625**		**800 000 635**		0,660
50	40	16	1600	**800 000 626**		**800 000 636**		0,890
63	50	16	3100	**800 000 627**		**800 000 637**		1,650





d	D	H	H1	H2	L	L1	L2	L4	L5	L6	M	z
16	50	57	26,5	12	92	77	56	25	32	45	M6	64
20	50	57	26,5	12	95	77	56	25	32	45	M6	64
25	58	67	30	12	110	97	65	25	39	58	M6	72
32	68	73	35,5	12	123	97	71	25	39	58	M6	79
40	84	90	44	15	146	128	85	45	54	74	M8	94
50	97	97	50,5	15	157	128	89	45	54	74	M8	95
63	124	116	64	15	183	152	101	45	65.5	86,5	M8	107

Ball Valve Type 546, PVC-C SF with solvent cement sockets, Inch ASTM

Model:

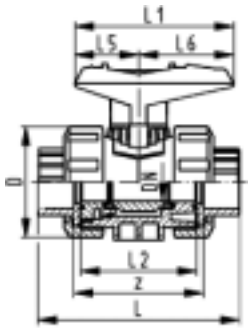
- Paint-compatible / silicon free
- Ball seals:
  - metric: PVDF
  - inch ASTM: PTFE
- Union type ends for easy installation and removal
  (z-dimension, valve end and valve nut are **not compatible** with Type 346)
- Without mounting inserts

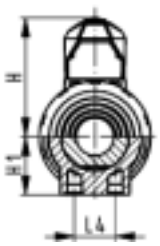
Options:

- Individual configuration of the valve (see form)
- Multifunctional module with integrated limit switches

Available 3rd quarter 2003

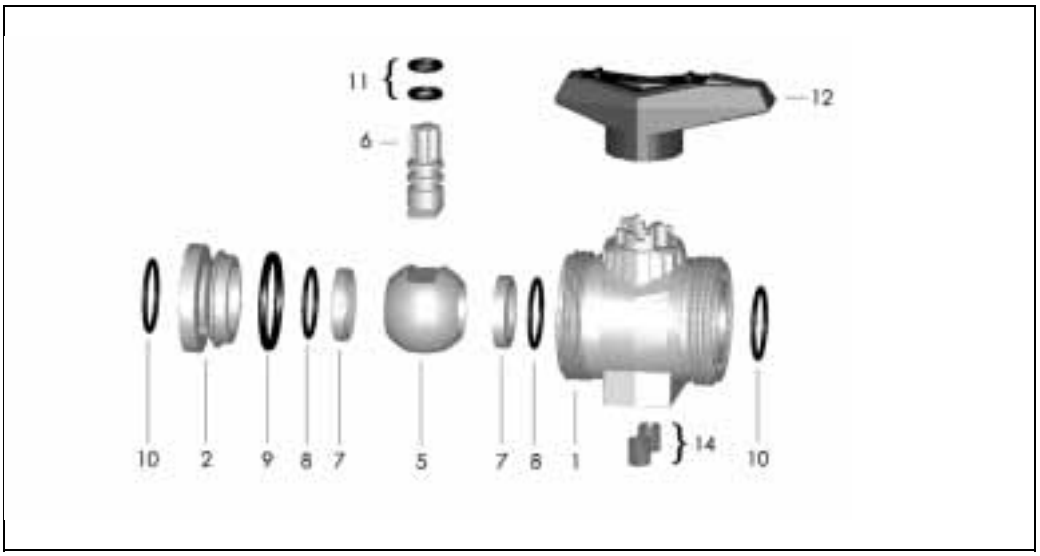
inch	DN	PN	kv-value l/min (Δp=1 bar)	FPM Code		kg	
1/2	15	16	185	**163 546 692**		0,160	
3/4	20	16	350	**163 546 693**		0,245	
1	25	16	700	**163 546 694**		0,365	
1 1/4	32	16	1000	**163 546 695**		0,660	
1 1/2	40	16	1600	**163 546 696**		0,890	
2	50	16	3100	**163 546 697**		1,650	





inch	D	H	H1	L	L1	L2	L4	L5	L6	z
1/2	50	57	26,5	105	77	56	25	32	45	61
3/4	58	67	30	121	97	65	25	39	58	70
1	68	73	35,5	133	97	71	25	39	58	76
1 1/4	84	90	44	154	128	85	45	54	74	90
1 1/2	97	97	50,5	164	128	89	45	54	74	94
2	124	116	64	183	152	101	45	65,5	86,5	107

Spare Parts Ball Valve Type 546, PVC-C



No.	Article/ Material	Pieces	d16 DN 10	d20 DN 15	d25 DN 20	d32 DN 25	d40 DN 32	d50 DN 40	d63 DN50
	Central part		163 481 251	163 481 251	163 481 252	163 481 253	163 481 254	163 481 255	163 481 256
1	Body PVC-C	1							
2	Union bush PVC-C	1							
5	Ball PVC-C	1							
6	Stem PVC-C	1							
7	Ball seals PTFE	2							
8	Backing seals EPDM	2							
9	Body seal EPDM	1							
10	Face seal EPDM	2							
11	Stem seals EPDM	2							
12	Lever PP red	1							
14	Threaded bush Stainless steel	2							
	Central part		163 481 263	163 481 263	163 481 264	163 481 265	163 481 266	163 481 267	163 481 268
1	Body PVC-C	1							
2	Union bush PVC-C	1							
5	Ball PVC-C	1							
6	Stem PVC-C	1							
7	Ball seals PTFE	2							
8	Backing seals FPM	2							
9	Body seal FPM	1							
10	Face seal FPM	2							
11	Stem seals FPM	2							
12	Lever PP red	1							
14	Threaded bush Stainless steel	2							
	Ball - set		163 481 375	163 481 375	163 481 376	163 481 375	163 481 378	163 481 379	163 481 380
5	Ball PVC-C	1							
6	Stem PVC-C	1							
7	Ball seals PTFE	2							
8	Backing seals EPDM	2							
9	Body seal EPDM	1							
11	Stem seals EPDM	2							
	Ball - set		163 481 385	163 481 385	163 481 386	163 481 387	163 481 388	163 481 389	163 481 390
5	Ball PVC-C	1							
6	Stem PVC-C	1							
7	Ball seals PTFE	2							
8	Backing seals FPM	2							
9	Body seal FPM	1							
11	Stem seals FPM	2							

No.	Article/ Material	Pieces	d16 DN 10	d20 DN 15	d25 DN 20	d32 DN 25	d40 DN 32	d50 DN 40	d63 DN50
	Seal set		161 486 400	161 486 400	161 486 401	161 486 402	161 486 403	161 486 404	161 486 405
8	Backing seals EPDM	2							
9	Body seal EPDM	1							
10	Face seal EPDM	2							
11	Stem seals EPDM	2							
	Seal set		161 486 410	161 486 410	161 486 411	161 486 412	161 486 413	161 486 414	161 486 415
8	Backing seals FPM	2							
9	Body seal FPM	1							
10	Face seal FPM	2							
11	Stem seals FPM	2							

Find the fitting solution with the Configurator

Ball valve
A01 Ball valve 546

Material
B01 PVC-U

Dimension
C05 d 16 DN 10 3/8"
C06 d 20 DN 15 1/2"
C07 d 25 DN 20 3/4"
C08 d 32 DN 25 1"
C09 d 40 DN 32 1 1/4"
C10 d 50 DN 40 1 1/2"
C11 d 63 DN 50 2"

Version
D01 standard, PTFE ball seal
D03 silicon-free, PTFE ball seal for inch ASTM (only with specific connecting parts)
D04 silicon-free, PVDF ball seal for metric (only with specific connecting parts)

Seals
E01 EPDM seals
E02 FPM seals

Threaded inserts
F01 without threaded inserts
F02 with threaded inserts

Connecting parts
G01 PVC-U Cement socket metric
G03 PVC-U Cement socket inch ASTM
G04 PVC-U Cement socket inch BS
G05 PVC-U Cement spigot metric
G06 PVC-U Threaded socket Rp
G07 PVC-U Threaded socket Rp reinforced
G09 PVC-U Threaded socket NPT
G30 PP-H Fusion socket metric
G32 PP-H Socket fusion spigot metric
G33 PP-H Threaded socket Rp
G34 PP-H Threaded socket NPT reinforced
G35 PP-H Butt fusion spigot SDR 11 metric IR-PLUS
G36 PP-H Butt fusion spigot SDR 17.6 metric (limited dimension range)
G37 PP-H Butt fusion spigot long SDR11 metric
G40 PE-100 Fusion socket metric
G41 PE-100 Butt fusion spigot SDR11 metric
G42 PE-100 Butt fusion spigot SDR17.6 metric (limited dimension range)
G43 PE-100 Butt fusion spigot lang SDR11 metric
G60 Fixed flange PVC-U serrated metric
G61 Fixed flange PVC-U flat metric
G70 Backing flange PVC-U metric
G71 Backing flange PVC-U inch ANSI
G72 Backing flange PP-steel metric
G73 Backing flange PP-steel ANSI
G80 PVC-U Valve end blank

Multi-functional module
I01 No multi-functional module
I02 Empty module
I03 Module with 2 limit switches Ag, Ni
I04 Module with 2 limit switches Au
I05 Module with 2 inductive switches Namur
I06 Module with 2 inductive switches PNP
I07 Module with 2 inductive switches NPN

Handle
K01 Standard handle red
K02 Standard handle black
K11 Multi-functional handle red

Mounting plate
L01 without mounting plate
L02 with mounting plate

Example:

Type 546 PVC-U, dimension DN 32,
PTFE ball seal, EPDM seals,
with threaded inserts and mounting plate,
connecting part left: PVC-U cement socket metric,
right: PE-100 butt fusion spigot lang SDR11 metric

That's all it takes to configure your ball valve.

A01	B01	C09	D01	E01	F02	G01	G43	I01	K01	L02	=
						left	right				

Copiable
Configurator +GF+ Ball Valve Type 546 PVC-U

You will find a large selection of different versions in our range of products. New system elements also provide you with new opportunities for use. In order for us to supply exactly the ball valve you need for your application, we put together a selection menu for you (the maximum working pressure of the whole valve is determined by the maximum permissible nominal pressure of the connecting part).
We supply what you put together.

Ball valve
A01 Ball valve 546

Material
B01 PVC-U

Dimension
C05 d 16 DN 10 3/8"
C06 d 20 DN 15 1/2"
C07 d 25 DN 20 3/4"
C08 d 32 DN 25 1"
C09 d 40 DN 32 1 1/4"
C10 d 50 DN 40 1 1/2"
C11 d 63 DN 50 2"

Version
D01 standard, PTFE ball seal
D03 silicon-free, PTFE ball seal for inch ASTM (only with specific connecting parts)
D04 silicon-free, PVDF ball seal for metric (only with specific connecting parts)

Seals
E01 EPDM seals
E02 FPM seals

Threaded inserts
F01 without threaded inserts
F02 with threaded inserts

Connecting parts
G01 PVC-U Cement socket metric
G03 PVC-U Cement socket inch ASTM
G04 PVC-U Cement socket inch BS
G05 PVC-U Cement spigot metric
G06 PVC-U Threaded socket Rp
G07 PVC-U Threaded socket Rp reinforced
G09 PVC-U Threaded socket NPT
G30 PP-H Fusion socket metric
G32 PP-H Socket fusion spigot metric
G33 PP-H Threaded socket Rp
G34 PP-H Threaded socket NPT reinforced
G35 PP-H Butt fusion spigot SDR 11 metric IR-PLUS
G36 PP-H Butt fusion spigot SDR 17.6 metric (limited dimension range)
G37 PP-H Butt fusion spigot long SDR11 metric
G40 PE-100 Fusion socket metric
G41 PE-100 Butt fusion spigot SDR11 metric
G42 PE-100 Butt fusion spigot SDR17.6 metric (limited dimension range)
G43 PE-100 Butt fusion spigot lang SDR11 metric
G60 Fixed flange PVC-U serrated metric
G61 Fixed flange PVC-U flat metric
G70 Backing flange PVC-U metric
G71 Backing flange PVC-U inch ANSI
G72 Backing flange PP-steel metric
G73 Backing flange PP-steel ANSI
G80 PVC-U Valve end blank

Multi-functional module
I01 No multi-functional module
I02 Empty module
I03 Module with 2 limit switches Ag, Ni
I04 Module with 2 limit switches Au
I05 Module with 2 inductive switches Namur
I06 Module with 2 inductive switches PNP
I07 Module with 2 inductive switches NPN

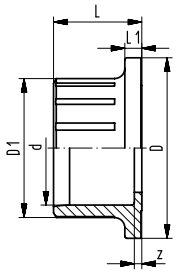
Handle
K01 Standard handle red
K02 Standard handle black
K11 Multi-functional handle red

Mounting plate
L01 without mounting plate
L02 with mounting plate

A01	B01	C	D	E	F	G	G	I	K	L
						left	right			

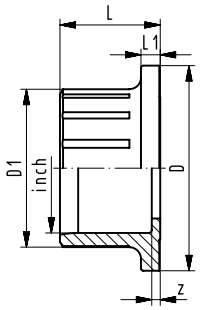
Valve Ends

Valve end 546 PVC-U (G01) with solvent cement socket, metric

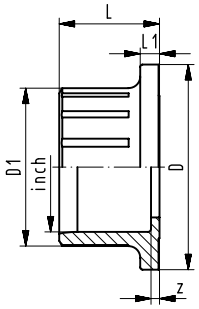


d	PN	Code		kg	D	D1	L	L1	z	
16	16	**161 490 666**		0,009	37,9	23,2	18,0	4	4	
20	16	**161 490 667**		0,011	37,9	27,2	19,5	4	3,5	
25	16	**161 490 668**		0,016	43,9	33,2	22,5	4,5	3,5	
32	16	**161 490 669**		0,025	53,2	41	26,0	5	4	
40	16	**161 490 670**		0,043	64,8	51	30,5	4,5	4,5	
50	16	**161 490 671**		0,064	76,9	62	34,0	5,5	3	
63	16	**161 490 672**		0,119	98,5	77	41,0	6,5	3	

Valve end 546 PVC-U (G03) with solvent cement socket, Inch ASTM

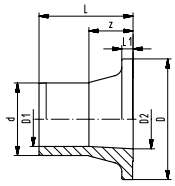


inch	PN	Code		kg	D	D1	L	L1	z	
3/8"	16	**161 490 712**		0,012	37,9	24,3	24,6	4	5,5	
1/2"	16	**161 490 713**		0,014	37,9	29,5	24,6	4	2,3	
3/4"	16	**161 490 714**		0,020	43,9	35,3	28,0	4,5	2,6	
1"	16	**161 490 715**		0,031	53,2	43,3	31,2	5	2,6	
1 1/4"	16	**161 490 716**		0,046	64,8	52,8	34,4	4,5	2,6	
1 1/2"	16	**161 490 717**		0,067	76,9	59,6	37,6	5,5	2,6	
2"	16	**161 490 718**		0,118	98,5	72,7	41,0	6,5	2,9	



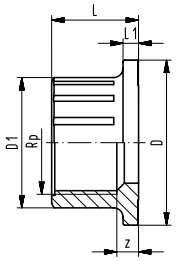
Valve end 546 PVC-U (G04) with solvent cement socket, Inch BS

inch	PN	Code		kg	D	D1	L	L1	z	
3/8"	16	**161 490 734**		0,009	37,9	23,2	18,0	4	2,1	
1/2"	16	**161 490 735**		0,009	37,9	27,2	19,5	4	2	
3/4"	16	**161 490 736**		0,013	43,9	33,2	22,5	4,5	1,9	
1"	16	**161 490 737**		0,022	53,2	41	26,0	5	2,2	
1 1/4"	16	**161 490 738**		0,036	64,8	51	30,5	4,5	2	
1 1/2"	16	**161 490 739**		0,071	76,9	62	34,0	5,5	3,9	
2"	16	**161 490 740**		0,135	98,5	77	41,0	6,5	4,5	



Valve end 546 PVC-U (G05) with solvent cement spigot, metric

d	PN	Code		kg	D	D1	D2	L	L1	z	
16	16	**161 490 701**		0,011	37,9	10	15,5	29,0	4	15	
20	16	**161 490 702**		0,014	37,9	14	15,5	34,0	4	18	
25	16	**161 490 703**		0,021	43,9	19	20,5	39,2	4,5	20,2	
32	16	**161 490 704**		0,033	53,2	24	26,1	41,5	5	19,5	
40	16	**161 490 705**		0,050	64,8	31	32,8	44,5	4,5	18,5	
50	16	**161 490 706**		0,085	76,9	39	41,3	52,5	5,5	21,5	
63	16	**161 490 707**		0,161	98,5	49	51,2	61,5	6,5	23,5	



Valve end 546 PVC-U (G06) with threaded socket, Rp

Model:

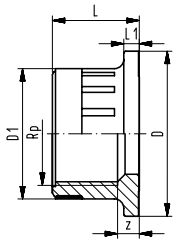
- Connection to plastic thread only
- Do not use thread sealing pastes that are harmful to PVC-U

Rp	PN	Code		kg	D	D1	L	L1	z	
3/8"	10	**161 490 690**		0,011	37,9	24	19,5	4	6,5	
1/2"	10	**161 490 691**		0,013	37,9	28	22,0	4	5,5	
3/4"	10	**161 490 692**		0,019	43,9	33,8	24,5	4,5	6,5	
1"	10	**161 490 693**		0,031	53,2	42	28,0	5	7	
1 1/4"	10	**161 490 694**		0,047	64,8	52	30,3	4,5	7,3	
1 1/2"	10	**161 490 695**		0,081	76,9	63	31,5	5,5	8,5	
2"	10	**161 490 696**		0,150	98,5	77,5	37,7	6,5	10,2	

Valve end 546 PVC-U (G07) with threaded socket, Rp reinforced

Model:

- Connection to plastic- or metal thread
- Reinforcing ring stainless (A2)
- Do not use thread sealing pastes that are harmful to PVC-U

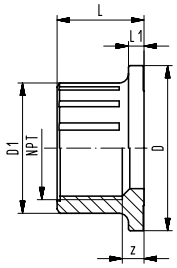


Rp	PN	Code		kg	D	D1	L	L1	z	
3/8"	16	**161 490 825**		0,013	37,9	24	19,5	4	6,5	
1/2"	16	**161 490 826**		0,016	37,9	28	22,0	4	5,5	
3/4"	16	**161 490 827**		0,023	43,9	33,8	24,5	4,5	6,5	
1"	16	**161 490 828**		0,040	53,2	42	28,0	5	7	
1 1/4"	16	**161 490 829**		0,058	64,8	52	30,3	4,5	7,3	
1 1/2"	16	**161 490 830**		0,097	76,9	63	31,5	5,5	8,5	
2"	16	**161 490 831**		0,166	98,5	77,5	37,7	6,5	10,2	

Valve end 546 PVC-U (G09) with threaded socket, NPT

Model:

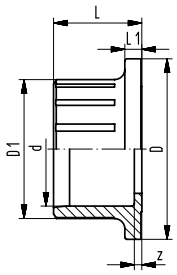
- Connection to plastic thread only
- Do not use thread sealing pastes that are harmful to PVC-U



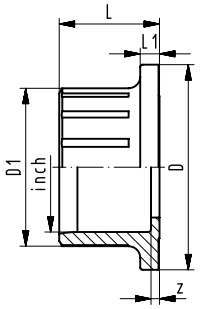
NPT	PN	Code		kg	D	D1	L	L1	z	
3/8"	10	**161 490 723**		0,014	37,9	26,2	21,1	4	7,4	
1/2"	10	**161 490 724**		0,019	37,9	33,3	21,4	4	4,1	
3/4"	10	**161 490 725**		0,026	43,9	38,9	22,8	4,5	5,3	
1"	10	**161 490 726**		0,043	53,2	47	27,8	5	6,2	
1 1/4"	10	**161 490 727**		0,064	64,8	56,9	30,5	4,5	7,4	
1 1/2"	10	**161 490 728**		0,093	76,9	64,7	34,0	5,5	10,9	
2"	10	**161 490 729**		0,157	98,5	77,4	41,0	6,5	16,6	

Valve end 546 PVC-C (G11) with solvent cement socket, metric

Available 3rd quarter 2003



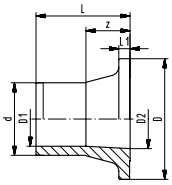
d	PN	Code		kg	D	D1	L	L1	z	
16	16	**163 481 275**		0,009	37,9	23,2	18,0	4	4	
20	16	**163 481 276**		0,011	37,9	27,2	19,5	4	3,5	
25	16	**163 481 277**		0,016	43,9	33,2	22,5	4,5	3,5	
32	16	**163 481 278**		0,025	53,2	41	26,0	5	4	
40	16	**163 481 279**		0,043	64,8	51	30,5	4,5	4,5	
50	16	**163 481 280**		0,064	76,9	62	34,0	5,5	3	
63	16	**163 481 281**		0,119	98,5	77	41,0	6,5	3	



Valve end 546 PVC-C (G13) with solvent cement socket, Inch ASTM

Available 3rd quarter 2003

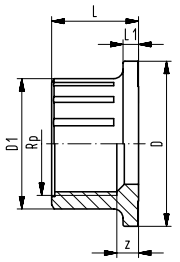
inch	PN	Code		kg	D	D1	L	L1	z	
3/8"	16	**163 481 311**		0,012	37,9	24,3	24,6	4	5,5	
1/2"	16	**163 481 312**		0,014	37,9	29,5	24,6	4	2,3	
3/4"	16	**163 481 313**		0,020	43,9	35,3	28,0	4,5	2,6	
1"	16	**163 481 314**		0,031	53,2	43,3	31,2	5	2,6	
1 1/4"	16	**163 481 315**		0,046	64,8	52,8	34,4	4,5	2,6	
1 1/2"	16	**163 481 316**		0,067	76,9	59,6	37,6	5,5	2,6	
2"	16	**163 481 317**		0,118	98,5	72,7	41,0	6,5	2,9	



Valve end 546 PVC-C (G14) with solvent cement spigot, metric

Available 3rd quarter 2003

d	PN	Code		kg	D	D1	D2	L	L1	z	
16	16	**163 481 300**		0,012	37,9	10	15,5	29,0	4	15	
20	16	**163 481 301**		0,015	37,9	14	15,5	34,0	4	18	
25	16	**163 481 302**		0,023	43,9	19	20,5	39,2	4,5	20,2	
32	16	**163 481 303**		0,040	53,2	24	26,1	41,5	5	19,5	
40	16	**163 481 304**		0,054	64,8	31	32,8	44,5	4,5	18,5	
50	16	**163 481 305**		0,093	76,9	39	41,3	52,5	5,5	21,5	
63	16	**163 481 306**		0,177	98,5	49	51,2	61,5	6,5	23,5	



Valve end 546 PVC-C (G15) with threaded socket, Rp

Model:

- Connection to plastic thread only
- Do not use thread sealing pastes that are harmful to PVC-C

Available 3rd quarter 2003

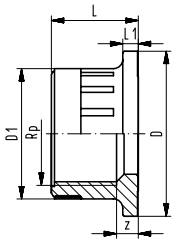
Rp	PN	Code		kg	D	D1	L	L1	z	
3/8"	10	**163 481 286**		0,011	37,9	24	19,5	4	6,5	
1/2"	10	**163 481 287**		0,013	37,9	28	22,0	4	5,5	
3/4"	10	**163 481 288**		0,019	43,9	33,8	24,5	4,5	6,5	
1"	10	**163 481 289**		0,031	53,2	42	28,0	5	7	
1 1/4"	10	**163 481 290**		0,047	64,8	52	30,3	4,5	7,3	
1 1/2"	10	**163 481 291**		0,081	76,9	63	31,5	5,5	8,5	
2"	10	**163 481 292**		0,150	98,5	77,5	37,7	6,5	10,2	

Valve end 546 PVC-C (G16) with threaded socket, Rp reinforced

Model:

- Connection to plastic- or metal thread
- Reinforcing ring stainless (A2)
- Do not use thread sealing pastes that are harmful to PVC-C

Available 3rd quarter 2003



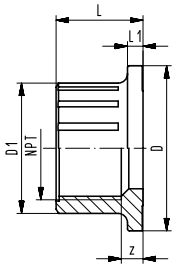
Rp	PN	Code		kg	D	D1	L	L1	z	
3/8"	16	**163 481 400**		0,014	37,9	24	19,5	4	6,5	
1/2"	16	**163 481 401**		0,018	37,9	28	22,0	4	5,5	
3/4"	16	**163 481 402**		0,025	43,9	33,8	24,5	4,5	6,5	
1"	16	**163 481 403**		0,044	53,2	42	28,0	5	7	
1 1/4"	16	**163 481 404**		0,064	64,8	52	30,3	4,5	7,3	
1 1/2"	16	**163 481 405**		0,106	76,9	63	31,5	5,5	8,5	
2"	16	**163 481 406**		0,182	98,5	77,5	37,7	6,5	10,2	

Valve end 546 PVC-C (G17) with threaded socket, NPT

Model:

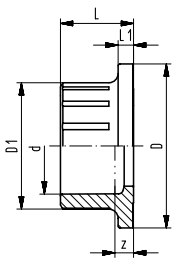
- Connection to plastic thread only
- Do not use thread sealing pastes that are harmful to PVC-C

Available 3rd quarter 2003

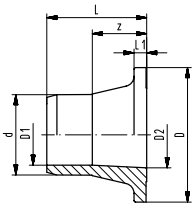


NPT	PN	Code		kg	D	D1	L	L1	z	
3/8"	10	**163 481 322**		0,014	37,9	26,2	21,1	4	7,4	
1/2"	10	**163 481 323**		0,019	37,9	33,3	21,4	4	4,1	
3/4"	10	**163 481 324**		0,026	43,9	38,9	22,8	4,5	5,3	
1"	10	**163 481 325**		0,043	53,2	47	27,8	5	6,2	
1 1/4"	10	**163 481 326**		0,064	64,8	56,9	30,5	4,5	7,4	
1 1/2"	10	**163 481 327**		0,093	76,9	64,7	34,0	5,5	10,9	
2"	10	**163 481 328**		0,157	98,5	77,4	41,0	6,5	16,6	

Valve end 546 PP-H (G30) with fusion socket, metric



d	PN	Code		kg	D	D1	L	L1	z	
16	10	**167 482 900**		0,006	37,9	23,2	18,5	4	5,3	
20	10	**167 482 901**		0,007	37,9	27,2	19,5	4	5	
25	10	**167 482 902**		0,011	43,9	33,2	21,5	4,5	6	
32	10	**167 482 903**		0,017	53,2	41	23,7	5	6	
40	10	**167 482 904**		0,027	64,8	51	26,0	4,5	7,2	
50	10	**167 482 905**		0,040	76,9	62	29,0	5,5	8	
63	10	**167 482 906**		0,070	98,5	77	33,5	6,5	6,1	



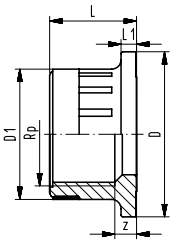
Valve end PP-H 546 (G32) with socket fusion spigot, metric

d	PN	Code		kg	D	D1	D2	L	L1	L2	z	
16	10	**167 482 922**		0,007	37,9	10	15,5	27,0	4	13	14	
20	10	**167 482 923**		0,009	37,9	14	15,5	32,0	4	14	18	
25	10	**167 482 924**		0,013	43,9	19	20,5	37,2	4,5	16	21,2	
32	10	**167 482 925**		0,021	53,2	24	26,1	39,5	5	18	21,5	
40	10	**167 482 926**		0,032	64,8	31	32,8	42,5	4,5	20	22,5	
50	10	**167 482 927**		0,055	76,9	39	41,3	50,5	5,5	23	27,5	
63	10	**167 482 928**		0,103	98,5	49	51,2	59,5	6,5	27	32,5	

Valve end 546 PP-H (G33) with threaded socket, Rp reinforced

Model:

- Connection to plastic- or metal thread
- Reinforcing ring stainless (A2)
- Do not use thread sealing pastes that are harmful to PP

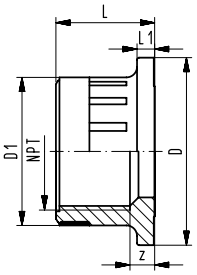


Rp	PN	Code		kg	D	D1	L	L1	z	
3/8"	16	**167 482 911**		0,008	37,9	24	20,0	4	6,5	
1/2"	16	**167 482 912**		0,009	37,9	28	21,4	4	5,5	
3/4"	16	**167 482 913**		0,012	43,9	33,8	22,8	4,5	6,5	
1"	16	**167 482 914**		0,024	53,2	42	27,8	5	7	
1 1/4"	16	**167 482 915**		0,037	64,8	52	30,5	4,5	7,3	
1 1/2"	16	**167 482 916**		0,052	76,9	63	34,0	5,5	8,5	
2"	16	**167 482 917**		0,091	98,5	77,5	41,0	6,5	10,2	

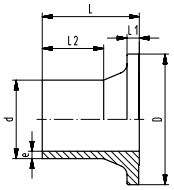
Valve end 546 PP-H (G34) with threaded socket, NPT reinforced

Model:

- Connection to plastic- or metal thread
- Reinforcing ring stainless (A2)
- Do not use thread sealing pastes that are harmful to PP

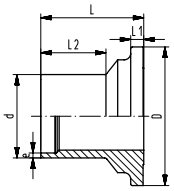


NPT	PN	Code		kg	D	D1	L	L1	z	
3/8"	16	**167 482 966**		0,008	37,9	26,2	20	4	7,4	
1/2"	16	**167 482 967**		0,009	37,9	33,3	21,4	4	4,1	
3/4"	16	**167 482 968**		0,012	43,9	38,9	22,8	4,5	5,3	
1"	16	**167 482 969**		0,024	53,2	47	27,8	5	6,2	
1 1/4"	16	**167 482 970**		0,037	64,8	56,9	30,5	4,5	7,4	
1 1/2"	16	**167 482 971**		0,052	76,9	64,7	34,0	5,5	10,9	
2"	16	**167 482 972**		0,091	98,5	77,4	41,0	6,5	16,6	



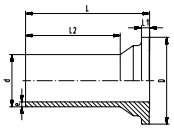
Valve end 546 PP-H (G35) with butt fusion spigot IR-Plus SDR11, metric

d	FM	PN	Code		kg	D	e	L	L1	L2	
20	IR	10	**167 482 945**		0,007	37,9	1,9	37,0	4	25	
25	IR	10	**167 482 946**		0,011	43,9	2,3	39,0	4,5	25	
32	IR	10	**167 482 947**		0,017	53,2	3	39,5	5	25	
40	IR	10	**167 482 948**		0,028	64,8	3,7	43,0	4,5	25	
50	IR	10	**167 482 949**		0,045	76,9	4,6	51,0	5,5	25	
63	IR	10	**167 482 950**		0,096	98,5	5,8	59,5	6,5	28	



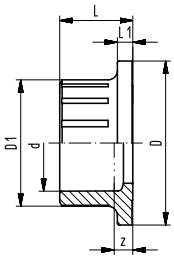
Valve end 546 PP-H (G36) with butt fusion spigot SDR17,6 metric

d	PN	Code		kg	D	e	L	L1	L2	
40	6	**167 482 937**		0,032	64,8	2,3	43,0	4,5	25	
50	6	**167 482 938**		0,053	76,9	2,9	51,0	5,5	25	
63	6	**167 482 939**		0,099	98,5	3,6	59,5	6,5	28	



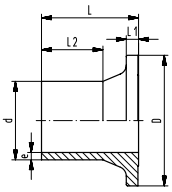
Valve end 546 PP-H (G37) with butt fusion spigot long SDR11, metric

d	PN	Code		kg	D	e	L	L1	L2	
20	10	**167 482 956**		0,012	37,9	2,3	68,5	4	53	
25	10	**167 482 957**		0,019	43,9	2,3	75,7	4,5	58	
32	10	**167 482 958**		0,029	53,2	3	76	5	58	
40	10	**167 482 959**		0,048	64,8	3,7	82	4,5	61	
50	10	**167 482 960**		0,082	76,9	4,6	91	5,5	63	
63	10	**167 482 961**		0,157	98,5	5,8	110	6,5	77	



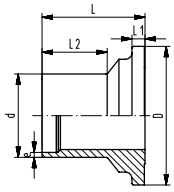
Valve end 546 PE 100 (G40) with fusion socket, metric

d	PN	Code		kg	D	D1	L	L1	z
16	16	**193 480 175**		0,007	37,9	23,2	18,5	4	5,3
20	16	**193 480 176**		0,008	37,9	27,2	19,5	4	5
25	16	**193 480 177**		0,012	43,9	33,2	21,5	4,5	6
32	16	**193 480 178**		0,019	53,2	41	23,7	5	6
40	16	**193 480 179**		0,033	64,8	51	26,0	4,5	7,2
50	16	**193 480 180**		0,050	76,9	62	29,0	5,5	8
63	16	**193 480 181**		0,095	98,5	77	33,5	6,5	6,1



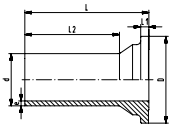
Valve end 546 PE 100 (G41) with butt fusion spigot SDR11, metric

d	PN	Code		kg	D	e	L	L1	L2
20	16	**193 480 102**		0,007	37,9	1,9	37,0	4	25
25	16	**193 480 103**		0,011	43,9	2,3	39,0	4,5	25
32	16	**193 480 104**		0,017	53,2	3	39,5	5	25
40	16	**193 480 105**		0,028	64,8	3,7	43,0	4,5	25
50	16	**193 480 106**		0,045	76,9	4,6	51,0	5,5	25
63	16	**193 480 107**		0,096	98,5	5,8	59,5	6,5	28



Valve end 546 PE 100 (G42) with butt fusion spigot SDR17,6 metric

d	PN	Code		kg	D	e	L	L1	L2
40	10	**193 480 086**		0,028	64,8	2,3	43,0	4,5	25
50	10	**193 480 087**		0,045	76,9	2,9	51,0	5,5	25
63	10	**193 480 088**		0,096	98,5	3,6	59,5	6,5	28

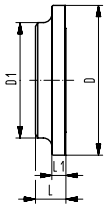


Valve end 546 PE 100 (G43) with butt fusion spigot long SDR11, metric

d	PN	Code		kg	D	e	L	L1	L2
20	16	**193 480 152**		0,012	37,9	2,25	68,5	4	53
25	16	**193 480 153**		0,019	43,9	2,3	75,7	4,5	58
32	16	**193 480 154**		0,029	53,2	3	76	5	58
40	16	**193 480 155**		0,048	64,8	3,7	82	4,5	61
50	16	**193 480 156**		0,082	76,9	4,6	91	5,5	63
63	16	**193 480 157**		0,157	98,5	5,8	110	6,5	77

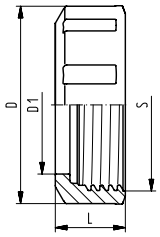
Valve end blank 546 PVC-U (G80)

- Jointing face flat



d	DN	Inch	PN	Code		kg	D	D1	L	L1	
16 / 20	10 / 15	3/8/1/2	16	**161 490 837**		0,009	38	23	8	4	
25	20	3/4	16	**161 490 838**		0,013	44	33	10	5	
32	25	1	16	**161 490 839**		0,021	53	41	11	5	
40	32	1 1/4	16	**161 490 840**		0,034	65	51	11	5	
50	40	1 1/2	16	**161 490 841**		0,057	77	62	14	6	
63	50	2	16	**161 490 842**		0,113	99	77	17	7	

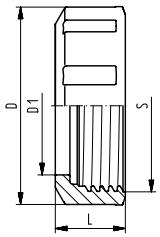
Union nut 546 PVC-U



d	DN	Code		kg	D	D1	L	S	
16	10	**161 490 538**		0,019	50	33,7	19,2	42 x 2,4	
20	15	**161 490 538**		0,019	50	33,7	19,2	42 x 2,4	
25	20	**161 490 539**		0,026	57,6	39,3	20,2	48 x 2,4	
32	25	**161 490 540**		0,041	68	47,4	24	58 x 3	
40	32	**161 490 541**		0,077	84	57,4	27	71,2 x 3	
50	40	**161 490 542**		0,111	97	65,2	30	84,4 x 3,8	
63	50	**161 490 543**		0,191	124	79	36	106 x 3,8	

Union nut 546 PVC-C

Available 3rd quarter 2003

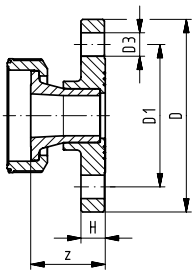


d	DN	Code		kg	D	D1	L	S	
16	10	**163 481 226**		0,013	50	33,7	19,2	42 x 2,4	
20	15	**163 481 226**		0,013	50	33,7	19,2	42 x 2,4	
25	20	**163 481 227**		0,019	57,6	39,3	20,2	48 x 2,4	
32	25	**163 481 228**		0,028	68	47,4	24	58 x 3	
40	32	**163 481 229**		0,054	84	57,4	27	71,2 x 3	
50	40	**163 481 230**		0,072	97	65,2	30	84,4 x 3,8	
63	50	**163 481 231**		0,225	124	79	36	106 x 3,8	

Valve end 546 PVC-U (G60)
Assembly with fixed flange serrated, PVC-U metric

Model:

- Joint made with special adhesive Tangit for PVC-U
- connecting dimensions: ISO 7005, EN 1092, DIN 2501; bolt circle PN10

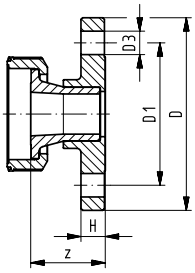


d	DN	PN	Code		kg	D	D1	D3	H	z	
20	15	16	**161 486 360**		0,131	95	65	14	12	37	
25	20	16	**161 486 361**		0,175	105	75	14	12.5	42.2	
32	25	16	**161 486 362**		0,256	115	85	14	14.5	44.5	
40	32	16	**161 486 363**		0,417	140	100	18	17	47.5	
50	40	16	**161 486 364**		0,544	150	110	18	17.5	55.5	
63	50	16	**161 486 365**		0,861	165	125	18	20	64.5	

Valve end 546 PVC-U (G61)
Assembly with fixed flange flat, PVC-U metric

Model:

- Joint made with special adhesive Tangit for PVC-U
- connecting dimensions: ISO 7005, EN 1092, DIN 2501; bolt circle PN10

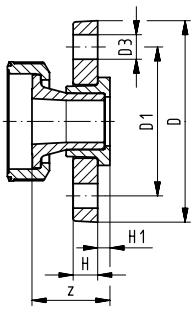


d	DN	PN	Code		kg	D	D1	D3	H	z	
20	15	16	**161 486 295**		0,136	95	65	14	12	37	
25	20	16	**161 486 296**		0,175	105	75	14	12.5	42.2	
32	25	16	**161 486 297**		0,254	115	85	14	14.5	44.5	
40	32	16	**161 486 298**		0,417	140	100	18	17	47.5	
50	40	16	**161 486 299**		0,541	150	110	18	17.5	55.5	
63	50	16	**161 486 300**		0,861	165	125	18	20	64.5	

Valve end 546 PVC-U (G70)
Assembly with backing flange, PVC-U metric

Model:

- Joint made with special adhesive Tangit for PVC-U
- connecting dimensions: ISO 7005, EN 1092, DIN 2501; bolt circle PN10

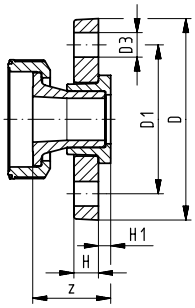


d	DN	PN	Code		kg	D	D1	D3	H	H1	z	
20	15	16	**161 486 265**		0,110	95	65	14	11	6	37	
25	20	16	**161 486 266**		0,155	105	75	14	12	7	42.2	
32	25	16	**161 486 267**		0,230	115	85	14	14	7	44.5	
40	32	16	**161 486 268**		0,360	140	100	18	15	8	47.5	
50	40	16	**161 486 269**		0,500	150	110	18	16	8	55.5	
63	50	16	**161 486 270**		0,770	165	125	18	18	9	64.5	

Valve end 546 PVC-U (G71)
Assembly with backing flange, PVC-U
Inch ANSI

Model:

- Joint made with special adhesive Tangit for PVC-U
- connecting dimensions: ANSI B 16.5, ASTM D4024, BS 1560; bolt circle class 150

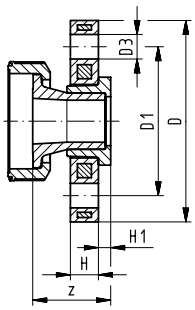


inch	DN	PN	Code		kg	D	D1	D3	H	H1	z
1/2	15	16	**161 486 275**		0,110	95	60	14	11	6	37
3/4	20	16	**161 486 276**		0,150	105	70	14	12	7	42.2
1	25	16	**161 486 277**		0,225	115	79	14	14	7	44.5
1 1/4	32	16	**161 486 278**		0,375	140	89	18	15	8	47.5
1 1/2	40	16	**161 486 279**		0,495	150	98	18	16	8	55.5
2	50	16	**161 486 280**		0,760	165	121	18	18	9	64.5

Valve end 546 PVC-U (G72)
Assembly with backing flange, PP-St metric

Model:

- Joint made with special adhesive Tangit for PVC-U
- connecting dimensions: ISO 7005, EN 1092, DIN 2501; bolt circle PN10

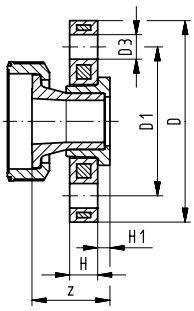


d	DN	PN	Code		kg	D	D1	D3	H	H1	z
20	15	16	**161 486 285**		0,265	95	65	14	12	6	37
25	20	16	**161 486 286**		0,325	105	75	14	12	7	42.2
32	25	16	**161 486 287**		0,530	115	85	14	16	7	44.5
40	32	16	**161 486 288**		0,815	140	100	18	16	8	47.5
50	40	16	**161 486 289**		1,070	150	110	18	18	8	55.5
63	50	16	**161 486 290**		1,395	165	125	18	18	9	64.5

Valve end 546 PVC-U (G73)
Assembly with backing flange, PP-St inch

Model:

- Joint made with special adhesive Tangit for PVC-U
- Connecting dimensions: ANSI B 16.5, ASTM D4024, BS 1560; bolt circle class 150



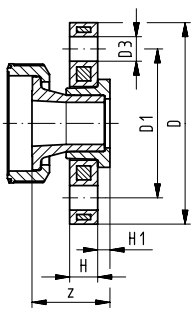
inch	DN	PN	Code		kg	D	D1	D3	H	H1	z
1/2	15	16	**161 486 425**		0,250	95	60	16	12	6	37
3/4	20	16	**161 486 426**		0,310	105	70	16	12	7	42.2
1	25	16	**161 486 427**		0,520	115	79	16	16	7	44.5
1 1/4	32	16	**161 486 428**		0,835	140	89	16	16	8	47.5
1 1/2	40	16	**161 486 429**		1,110	150	98	16	18	8	55.5
2	50	16	**161 486 430**		1,385	165	121	19	18	9	64.5

Valve end 546 PVC-C (G72)
Assembly with backing flange, PP-St metric

Model:

- Joint made with special adhesive Tangit for PVC-C
- connecting dimensions: ISO 7005, EN 1092, DIN 2501; bolt circle PN10

Available 3rd quarter 2003



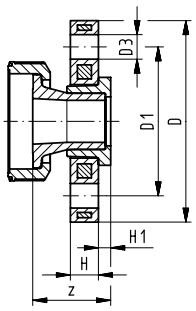
d	DN	PN	Code		kg	D	D1	D3	H	H1	z
20	15	16	**163 481 412**		0,265	95	65	14	12	6	37
25	20	16	**163 481 413**		0,330	105	75	14	12	7	42.2
32	25	16	**163 481 414**		0,540	115	85	14	16	7	44.5
40	32	16	**163 481 415**		0,820	140	100	18	16	8	47.5
50	40	16	**163 481 416**		1,075	150	110	18	18	8	55.5
63	50	16	**163 481 417**		1,435	165	125	18	18	9	64.5

Valve end 546 PVC-C (G73)
Assembly with backing flange, PP-St Inch ANSI

Model:

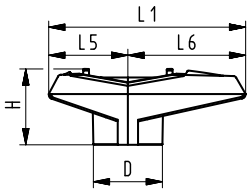
- Joint made with special adhesive Tangit for PVC-C
- Connecting dimensions: ANSI B 16.5, ASTM D4024, BS 1560; bolt circle class 150

Available 3rd quarter 2003



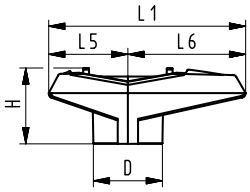
inch	DN	PN	Code		kg	D	D1	D3	H	H1	z	
1/2	15	16	**163 481 425**		0,255	95	60	16	12	6	37	
3/4	20	16	**163 481 426**		0,316	105	70	16	12	7	42.2	
1	25	16	**163 481 427**		0,530	115	79	16	16	7	44.5	
1 1/4	32	16	**163 481 428**		0,835	140	89	16	16	8	47	
1 1/2	40	16	**163 481 429**		1,135	150	98	16	18	8	55.5	
2	50	16	**163 481 430**		1,435	165	121	19	18	9	64.5	

Standard handle 546 red (K01)



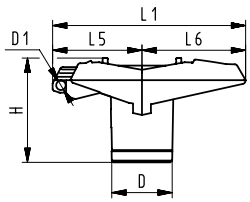
d	DN	Code		kg	L1	L5	L6	H	D	
16 / 20	10 / 15	**167 484 088**		0,012	77	32	45	31	26	
25	20	**167 484 089**		0,022	97	39	58	37	34	
32	25	**167 484 090**		0,022	97	39	58	37	34	
40	32	**167 484 091**		0,042	128	54	74	46	40	
50	40	**167 484 092**		0,042	128	54	74	46	40	
63	50	**167 484 093**		0,059	152	65,5	87	54	44	

Standard handle 546 black (K02)



d	DN	Code		kg	L1	L5	L6	H	D	
16 / 20	10 / 15	**167 484 076**		0,012	77	32	45	31	26	
25	20	**167 484 077**		0,022	97	39	58	37	34	
32	25	**167 484 078**		0,022	97	39	58	37	34	
40	32	**167 484 079**		0,042	128	54	74	46	40	
50	40	**167 484 080**		0,042	128	54	74	46	40	
63	50	**167 484 081**		0,059	152	65,5	87	54	44	

Multifunctional handle 546 red (K11) with ratchet settings, lockable

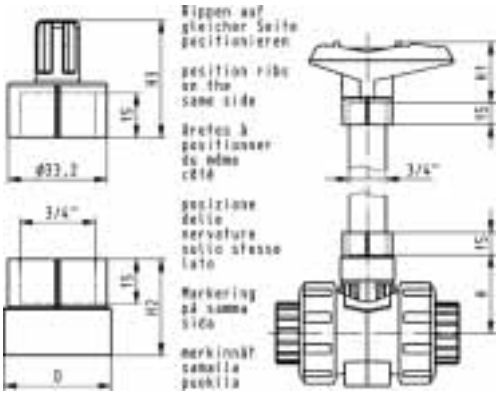


d	DN	Code		kg	D	D1	H	L1	L5	L6	
16	10	**167 484 100**		0,026	26	5,3	53	87	42	45	
20	15	**167 484 100**		0,026	26	5,3	53	87	42	45	
25	20	**167 484 101**		0,045	34	5,3	59	108	50	58	
32	25	**167 484 102**		0,045	34	5,3	59	108	50	58	
40	32	**167 484 103**		0,082	40	5,3	69	140	66	75	
50	40	**167 484 104**		0,082	40	5,3	69	140	66	75	
63	50	**167 484 105**		0,104	44	5,3	80	165	78	87	

Handle extension 546 PVC-U, metric

- For Ball Valve Type 546

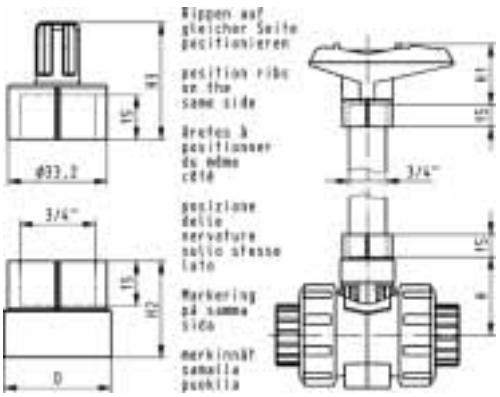
d	DN	Inch	Code		kg	H	H1	H2	H3	D
16 /20	10 /15	$^{3}/_{8}/^{1}/_{2}$	**161 486 435**		0,032	41	52	29	36	26
25 /32	20 /25	$^{3}/_{4}/1$	**161 486 436**		0,037	50	62	32	39	36
40 /50	32 /40	$1^{1}/_{4}/1^{1}/_{2}$	**161 486 437**		0,047	65	76	34	44	40
63	50	2	**161 486 438**		0,058	84	87	37	48	44



Handle extension 546 PVC-U, inch BS/ASTM

- For Ball Valve Type 546

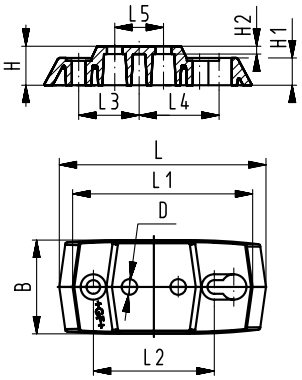
DN	Inch	Code		kg	H	H1	H2	H3	D	
10 /15	$^{3}/_{8}/^{1}/_{2}$	**161 486 443**		0,032	41	52	29	36	26	
20 /25	$^{3}/_{4}/1$	**161 486 444**		0,037	50	62	32	39	36	
32 /40	$1^{1}/_{4}/1^{1}/_{2}$	**161 486 445**		0,047	65	76	34	44	40	
50	2	**161 486 446**		0,058	84	87	37	48	44	



Mounting plate 546 PP-GF (L02)

- 2 mounting screws inclusive

d	DN	Code		kg	
16	10	**167 484 110**		0,055	
20	15	**167 484 110**		0,055	
25	20	**167 484 110**		0,055	
32	25	**167 484 110**		0,055	
40	32	**167 484 111**		0,086	
50	40	**167 484 111**		0,086	
63	50	**167 484 111**		0,086	



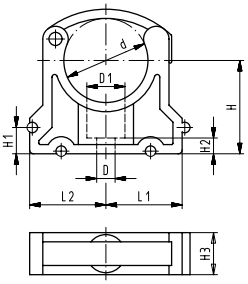
d	B	D	H	H1	H2	L	L1	L2	L3	L4	L5	
16	48	8	20	14	4	106	92	62	31	41	25	
20	48	8	20	14	4	106	92	62	31	41	25	
25	48	8	20	14	4	106	92	62	31	41	25	
32	48	8	20	14	4	106	92	62	31	41	25	
40	54	8,5	20	14	4	149	134	104	52	62	45	
50	54	8,5	20	14	4	149	134	104	52	62	45	
63	54	8,5	20	14	4	149	134	104	52	62	45	

Pipe Clips metric

KLIP-IT Pipe Clips Typ 061H, PP, metric

- Height designed for Ball Valve Type 546
- For mm-pipes d16-d63
- Material: PP black, UV resistant
- Minimum order quantity: Standard packaging SP

d	Code		SP	kg
16	**167 061 035**		10	0,006
20	**167 061 036**		10	0,008
25	**167 061 037**		10	0,009
32	**167 061 038**		10	0,012
40	**167 061 039**		10	0,027
50	**167 061 040**		10	0,031
63	**167 061 041**		10	0,054



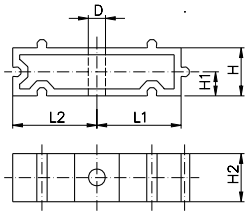
d	D	D1	L1	L2	H	H1	H2	H3	SC
16	5.5	10.5	14	16.5	26.5	10	6	16	M5
20	5.5	10.5	16.5	19	26.5	10	6	16	M5
25	5.5	10.5	19	21.5	30.3	10	6	16	M5
32	5.5	10.5	24	26.5	35.5	10	6	16	M5
40	6.5	14	33.5	33.5	44	10	6.5	22	M6
50	6.5	14	37	37	50.5	10	6.5	22	M6
63	8.5	17	44.5	44.5	64	10	10	25	M8

KLIP-IT Spacer Type 061, PP

Model:

- For pipe clips Type 061/061H, PP black, UV resistant
- **Minimum order quantity: standard packaging SP**

d	inch	Code		SP	kg
16	3/8	**167 061 155**		10	0,006
20	1/2	**167 061 156**		10	0,006
25	3/4	**167 061 157**		10	0,007
32	1	**167 061 158**		10	0,008
40	1 1/4	**167 061 159**		10	0,016
50	1 1/2	**167 061 160**		10	0,017
63	2	**167 061 161**		10	0,024



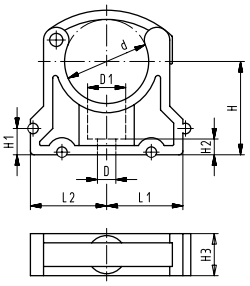
d	D	L1	L2	H	H1	H2	SC
16	5.5	14	16,5	20	10	16	M5
20	5.5	16,5	19	20	10	16	M5
25	5.5	19	21,5	20	10	16	M5
32	5.5	24	26,5	20	10	16	M5
40	6.5	33,5	33,5	20	10	22	M6
50	6.5	37	37	20	10	22	M6
63	8.5	44,5	44,5	20	10	25	M8

Pipe Clips BS/ASTM

KLIP IT Pipe Clips Type 061H, PP BS/ASTM

- Height designed for Ball Valve Type 546
- For Inch-pipes 3/8-2
- Material: PP black, UV resistant
- Minimum order quantity: Standard packaging SP

inch	Code		SP	kg	
3/8	**167 061 085**		10	0,006	
1/2	**167 061 086**		10	0,008	
3/4	**167 061 087**		10	0,009	
1	**167 061 088**		10	0,012	
1 1/4	**167 061 089**		10	0,027	
1 1/2	**167 061 090**		10	0,031	
2	**167 061 091**		10	0,054	



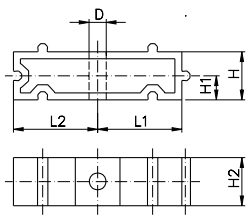
inch	D	D1	L1	L2	H	H1	H2	H3	SC
3/8	5,5	10,5	14	16,5	26,5	10	6	16	M5
1/2	5,5	10,5	16,5	19	26,5	10	6	16	M5
3/4	5,5	10,5	19	21,5	30,3	10	6	16	M5
1	5,5	10,5	24	26,5	35,5	10	6	16	M5
1 1/4	6,5	14	33,5	33,5	44	10	6,5	22	M6
1 1/2	6,5	14	37	37	50,5	10	6,5	22	M6
2	8,5	17	44,5	44,5	64	10	10	25	M8

KLIP-IT Spacer Type 061, PP

Model:

- For pipe clips Type 061/061H, PP black, UV resistant
- **Minimum order quantity: standard packaging SP**

d	inch	Code		SP	kg	
16	3/8	**167 061 155**		10	0,006	
20	1/2	**167 061 156**		10	0,006	
25	3/4	**167 061 157**		10	0,007	
32	1	**167 061 158**		10	0,008	
40	1 1/4	**167 061 159**		10	0,016	
50	1 1/2	**167 061 160**		10	0,017	
63	2	**167 061 161**		10	0,024	



d	D	L1	L2	H	H1	H2	SC	
16	5.5	14	16,5	20	10	16	M5	
20	5.5	16,5	19	20	10	16	M5	
25	5.5	19	21,5	20	10	16	M5	
32	5.5	24	26,5	20	10	16	M5	
40	6.5	33,5	33,5	20	10	22	M6	
50	6.5	37	37	20	10	22	M6	
63	8.5	44,5	44,5	20	10	25	M8	

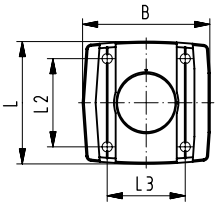
Multifunctional modules

Multifunctional module (I02) PP-GF Module empty

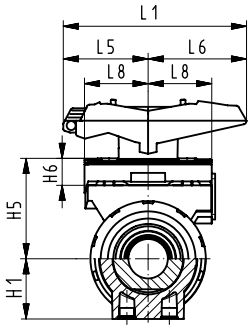
Model:

- Accessory to Ball Valve Type 546
- Multifunctional module acts as an intermediate element for actuators

d	DN	Code		kg
16	10	**167 482 680**		0,055
20	15	**167 482 680**		0,055
25	20	**167 482 681**		0,070
32	25	**167 482 681**		0,070
40	32	**167 482 682**		0,080
50	40	**167 482 682**		0,080
63	50	**167 482 683**		0,120



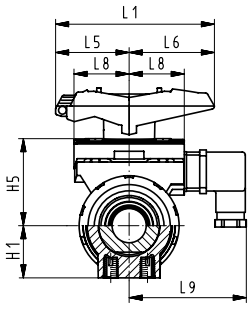
d	B	H1	H5	H6	L	L1	L2	L3	L5	L6	L8	
16	67	26,5	50	16,8	72	87	54	40	42	45	34	
20	67	26,5	50	16,8	72	87	54	40	42	45	34	
25	75	30	53	15,9	72	108	52	46	50	58	38	
32	75	35,5	59	15,9	72	108	52	46	50	58	38	
40	81	44	72	16,2	80	140	60	50	66	75	41	
50	81	50,5	78	16,2	80	140	60	50	66	75	41	
63	91	64	94	19,4	93	165	68	65	78	87	46	



Multifunctional module (I03) PP-GF with mechanical limit switches; Ag, Ni

Model:

- Accessory to Ball Valve Type 546
- Multifunctional module acts as an intermediate element for actuators
- Including Plug 3P+E / Protection: IP65

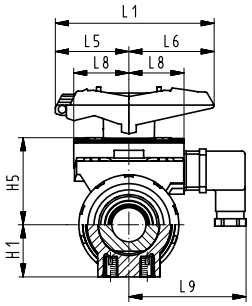


d	DN	Code		kg	H1	H5	L1	L5	L6	L8	L9
16	10	**167 482 626**		0,110	26,5	50	87	42	45	34	73
20	15	**167 482 626**		0,110	26,5	50	87	42	45	34	73
25	20	**167 482 627**		0,120	30	53	108	50	58	38	77
32	25	**167 482 627**		0,120	35,5	59	108	50	58	38	77
40	32	**167 482 628**		0,135	44	72	140	66	75	41	80
50	40	**167 482 628**		0,135	50,5	78	140	66	75	41	80
63	50	**167 482 629**		0,175	64	94	165	78	87	46	85

Multifunctional module (I04) PP-GF with mechanical limit switches, Au

Model:

- Accessory to Ball Valve Type 546
- Multifunctional module acts as an intermediate element for actuators
- Including Plug 3P+E / Protection: IP65

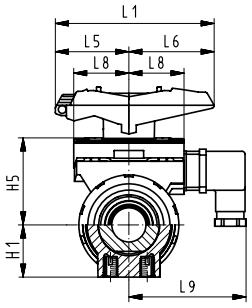


d	DN	Code		kg	H1	H5	L1	L5	L6	L8	L9
16	10	**167 482 635**		0,110	26,5	50	87	42	45	34	73
20	15	**167 482 635**		0,110	26,5	50	87	42	45	34	73
25	20	**167 482 636**		0,120	30	53	108	50	58	38	77
32	25	**167 482 636**		0,120	35,5	59	108	50	58	38	77
40	32	**167 482 637**		0,135	44	72	140	66	75	41	80
50	40	**167 482 637**		0,135	50,5	78	140	66	75	41	80
63	50	**167 482 638**		0,175	64	94	165	78	87	46	85

Multifunctional module (I05) PP-GF with inductive limit switches, Namur

Model:

- Accessory to Ball Valve Type 546
- Multifunctional module acts as an intermediate element for actuators
- Including Plug 3P+E / Protection: IP65

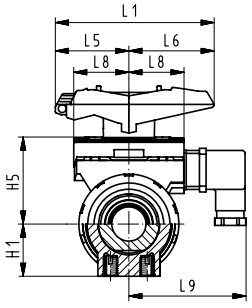


d	DN	Code		kg	H1	H5	L1	L5	L6	L8	L9
16	10	**167 482 671**		0,110	26,5	50	87	42	45	34	73
20	15	**167 482 671**		0,110	26,5	50	87	42	45	34	73
25	20	**167 482 672**		0,120	30	53	108	50	58	38	77
32	25	**167 482 672**		0,120	35,5	59	108	50	58	38	77
40	32	**167 482 673**		0,135	44	72	140	66	75	41	80
50	40	**167 482 673**		0,135	50,5	78	140	66	75	41	80
63	50	**167 482 674**		0,175	64	94	165	78	87	46	85

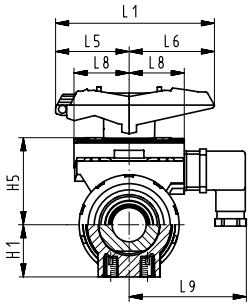
Multifunctional module (I06) PP-GF with inductive limit switches, PNP

Model:

- Accessory to Ball Valve Type 546
- Multifunctional module acts as an intermediate element for actuators
- Including Plug 3P+E / Protection: IP65



d	DN	Code		kg	H1	H5	L1	L5	L6	L8	L9
16	10	**167 482 662**		0,110	26,5	50	87	42	45	34	73
20	15	**167 482 662**		0,110	26,5	50	87	42	45	34	73
25	20	**167 482 663**		0,120	30	53	108	50	58	38	77
32	25	**167 482 663**		0,120	35,5	59	108	50	58	38	77
40	32	**167 482 664**		0,135	44	72	140	66	75	41	80
50	40	**167 482 664**		0,135	50,5	78	140	66	75	41	80
63	50	**167 482 665**		0,175	64	94	165	78	87	46	85



Multifunctional module (I07) PP-GF with inductive limit switches, NPN

Model:

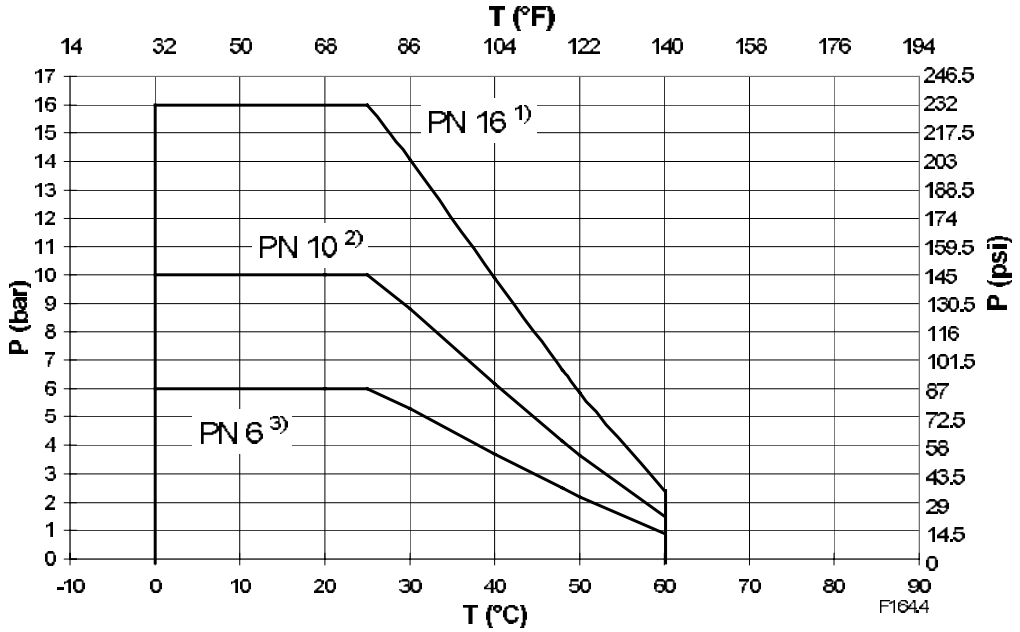
- Accessory to Ball Valve Type 546
- Multifunctional module acts as an intermediate element for actuators
- Including Plug 3P+E / Protection: IP65

d	DN	Code		kg	H1	H5	L1	L5	L6	L8	L9
16	10	**167 482 653**		0,110	26,5	50	87	42	45	34	73
20	15	**167 482 653**		0,110	26,5	50	87	42	45	34	73
25	20	**167 482 654**		0,120	30	53	108	50	58	38	77
32	25	**167 482 654**		0,120	35,5	59	108	50	58	38	77
40	32	**167 482 655**		0,135	44	72	140	66	75	41	80
50	40	**167 482 655**		0,135	50,5	78	140	66	75	41	80
63	50	**167 482 656**		0,175	64	94	165	78	87	46	85

Fundamentals for Ball Valves

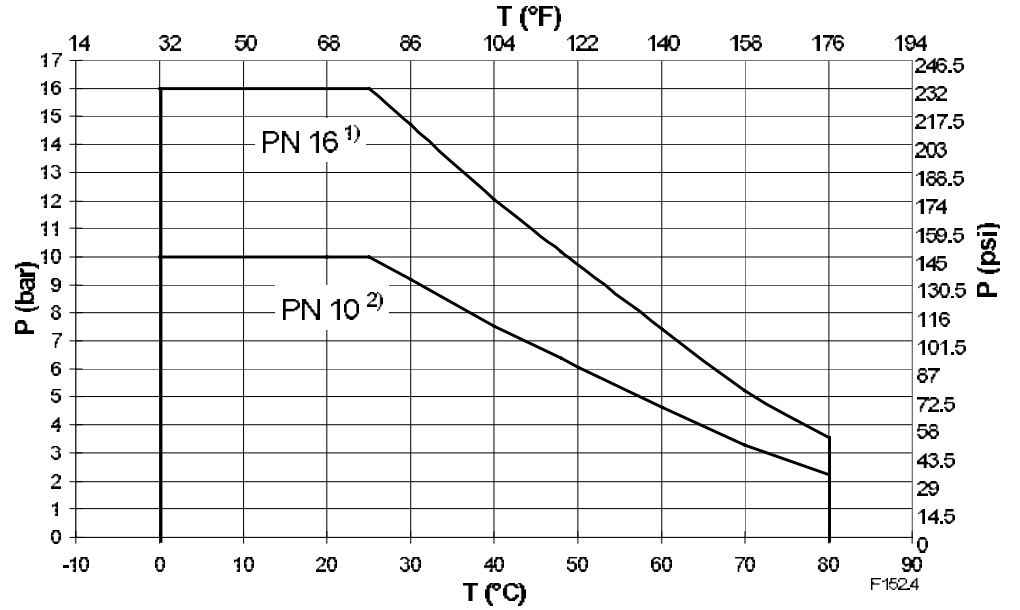
Ball Valve Type 546, hand operated

Pressure-Temperature Diagram Ball Valve, Type 546 in PVC-U (service life 25 years, medium water)



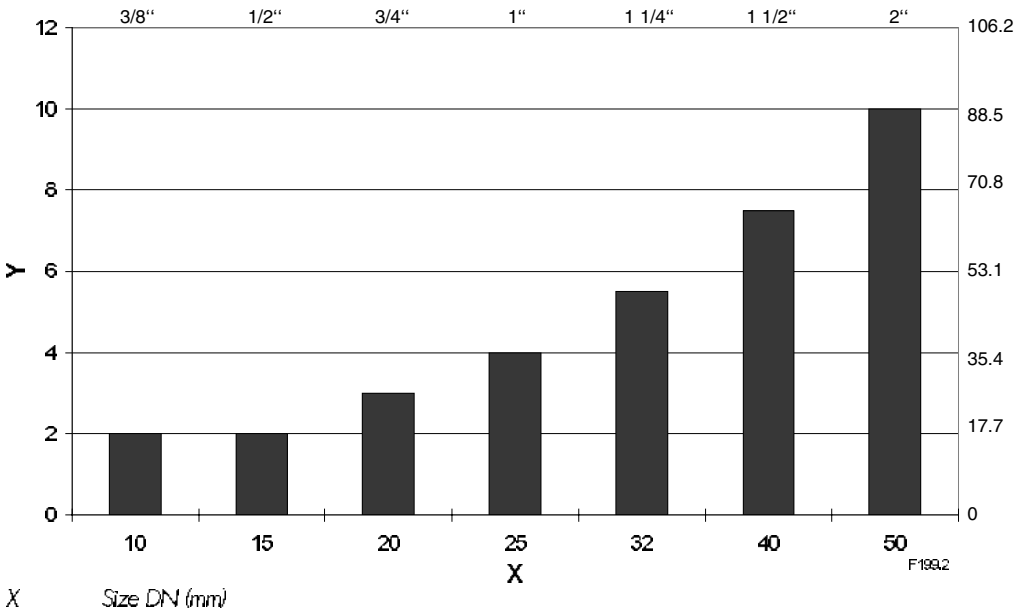
1) *The central part of ball valve is designed for the nominal pressure PN 16*
2) *According to the valve end the nominal pressure is reduced to PN 10*
3) *According to the valve end the nominal pressure is reduced to PN 6*
T *Temperature in °C / °F*
p *permissible pressure in bar / psi*

Pressure-Temperature Diagram Ball Valve, Type 546 in PVC-C (service life 25 years, medium water)



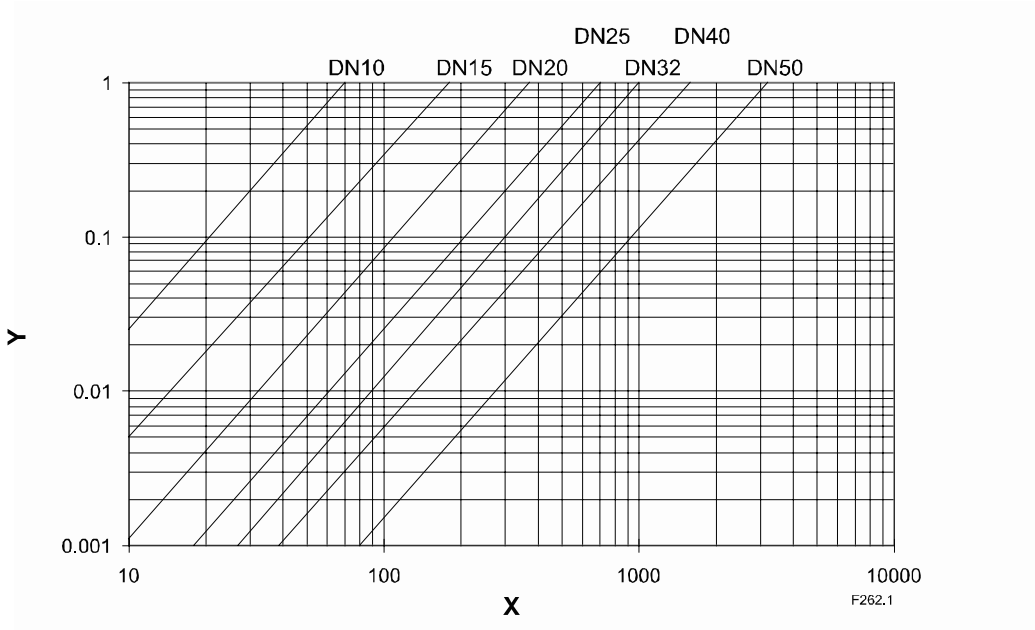
1) *The central part of ball valve type 546 is designed for the nominal pressure PN 16*
2) *According to the valve end the nominal pressure is reduced to PN 10*
T *Temperature in °C / °F*
p *permissible pressure in bar / psi*

Operating Torque for Ball Valve Type 546 (Average Values)



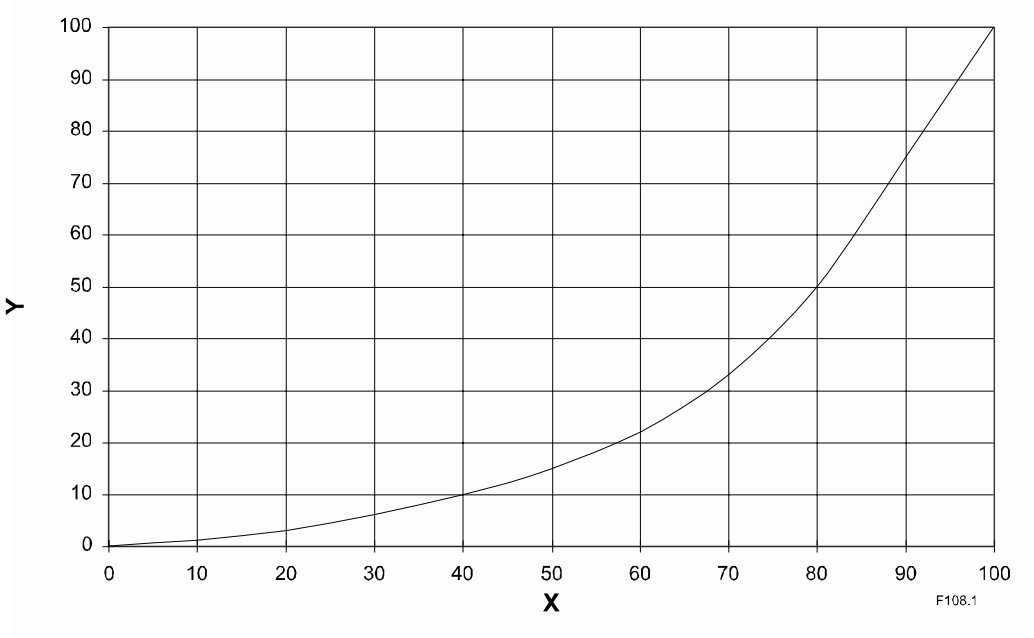
X Size DN (mm)
Y Torque (Nm)

Pressure Loss for Ball Valve Type 546



Medium: water, 20 °C
X Flow rate (l/min)
Y Pressure loss Δp (bar)

Flow Characteristics for Ball Valve Type 546



X Open angle (%)
Y Flow factor kv (%)

kv 100 Values for Ball Valve Type 546

The kv values for each intermediate valve position can be determined using the flow value characteristic and the kv 100 values.

DN mm	DN inch	d mm	k_v 100 l/min (Δp = 1 bar)	k_v 100 m^3/h (Δp = 1 bar)
10	3/8	16	70	4.2
15	½	20	185	11.1
20	¾	25	350	21
25	1	32	700	42
32	1¼	40	1000	60
40	1½	50	1600	96
50	2	63	3100	186

Tightening torque values for bolts

Flanged joints with flange gaskets or flat gaskets

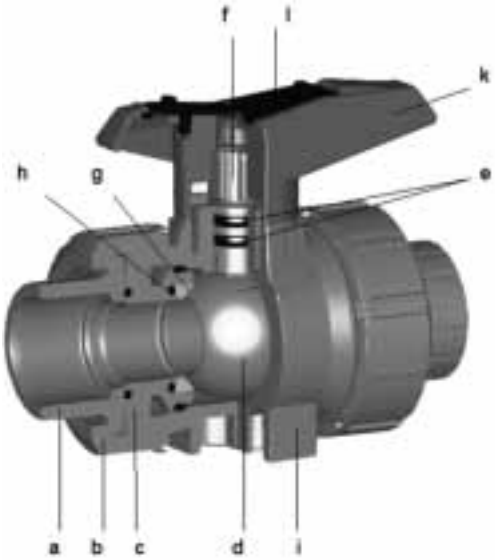
d mm	DN mm	DN inch	Total number of screws (for 2 flanged joints) standard nut (height 0.8 x d) [1]	Torque (average values) Flange gasket[2] in Nm	Torque (average values) Flat gasket in Nm
20	15	½	8 x M12 x 50	15	15
25	20	¾	8 x M12 x 55	15	15
32	25	1	8 x M12 x 60	15	15
40	32	1¼	8 x M16 x 65	15	20
50	40	1½	8 x M16 x 70	15	30
63	50	2	8 x M16 x 75	20	35

1) for valve ends Type 546 in PP-H in combination with backing flanges, use half of the standard nut height
2) preferred (plastics-oriented) gasket type

Attention: For more information on the use of the different gasket types, see Chapter: Jointing Technology => Separable Connections

Technical Features of the Ball Valve Type 546

a) Valve ends parts for the Type 546 are available as:
- Solvent cement/fusion socket (short installation length)
- Solvent cement/fusion spigot (for standard installation length)
- Threaded socket (on request with stainless steel outer reinforcement ring)
- Butt fusion spigot
- electrofusion spigot
- Fixed flange (for standard installation length)
- Backing flange (for standard installation length)
- Solvent cement and threaded connections for other standards.



b) Newly designed valve nuts with buttress thread. These enable fast and safe radial mounting and dismounting of the valve during installation or maintenance work, without tools.
Attention: Only hand tighten valve nuts.

c) Union bush with fine buttress thread makes it easier to adjust the operating torque. **Attention:** Please observe the operating torque guidelines!

d) Ball with fully circular cross-section for optimal flow characteristics. The system with the floating ball permits a tight seal.

e) Two spigot seals with o-rings guarantee a long service life and high reliability.

f) The stem features a predetermined breaking point, which is located outside of the housing. In case of damage, the medium cannot therefore leak to the outside along the spigot.

g) Sturdy ball seals made of pure PTFE demonstrate high abrasion resistance, good sliding properties, chemical resistance (see the special list of "Chemical Resistance") and a long working life.

h) The backing seal effectuates continuous readjustment of the ball seal and this means that under normal working conditions maintenance-free operation and a constant torque can be warranted.

The special geometry of the o-ring chamber prevents the o-rings from being flushed out.

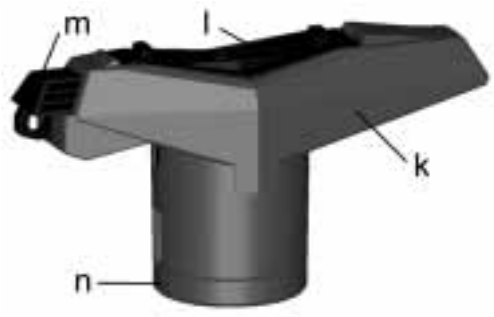
i) Compact housing, designed especially for plastics, with short installation length. The basic model has pick-up points for threaded inserts so that they can be attached directly on the valve. A multifunctional module with limit switches, which simultaneously serves as an interface for adding actuators, can be mounted quickly and simply on the valve body.

k) Ergonomic polypropylene handle with double stops and coding for clear positioning on the stem. Multifunctional handle, lockable and with grid positioning at 0° and 90°, available as an option.

l) Integrated handle clip of reinforced polypropylene with two cams, enabling the handle to be used as a tool for assembly and disassembly of the union bush (Attention: The union bush has left-handed thread)

Technical Features of the Multifunctional handle, red

Functions:
- lockable
- can be locked at 0° (ball valve opened)
- can be locked at 90° (ball valve closed)
- for ball valves with or without multifunctional module



k) Ergonomic handle of polypropylene with double stops and contours for clear positioning on the stem. The handle is lockable and can be arrested in the 0° and in the 90°. Included in delivery is a stainless steel Torx screw for fastening the handle on the stem.

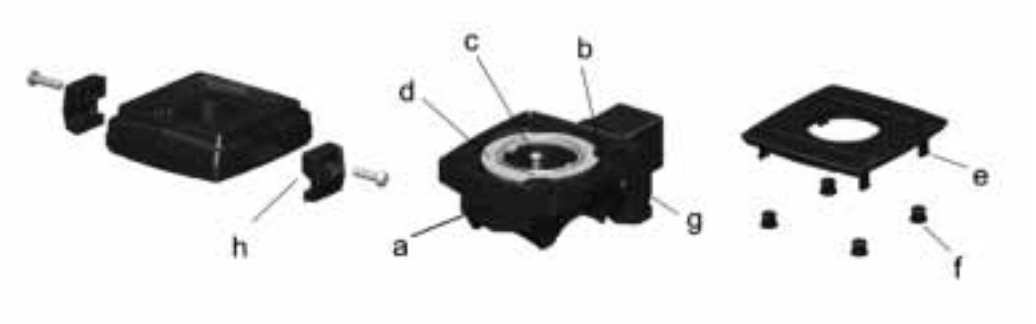
l) Integrated handle clip of reinforced polypropylene with two cams, enabling the handle to be used as a tool for assembly and disassembly of the union bush.

m) Unlocking device of reinforced polypropylene, spring of stainless steel. This mechanism can be inhibited by adding a padlock. The bore diameter for the padlock is 5.4 mm

n) The spacer ring works as a barrier. After the MF-Module has been mounted on the ball valve the spacer ring has to be removed from the MF-handle. It is then ready for mounting on the ball valve.

Technical Features of the Multifunctional Module

Adapter Plate for Actuators | Multifunctional Module | Cover



Functions:

- Interface for mounting actuators
- Feedback unit in combination with actuators
- Also for manual valve – with multifunctional handle
- Mechanical interface for trough wall/panel mounting

a) The housing is made entirely of polypropylene. It is screwed directly on the valve. The inner contour of the multifunctional module is asymmetrical and fits unmistakably on the corresponding outer contour of the ball valve housing.

b) There is a choice of 5 encapsulated limit switches. To select the respective switch, please see the following table.

c) The multifunctional module is screwed directly onto the ball valve housing with 4 stainless steel Torx screws.

d) The ABS switching disk warrants a precise switching point.

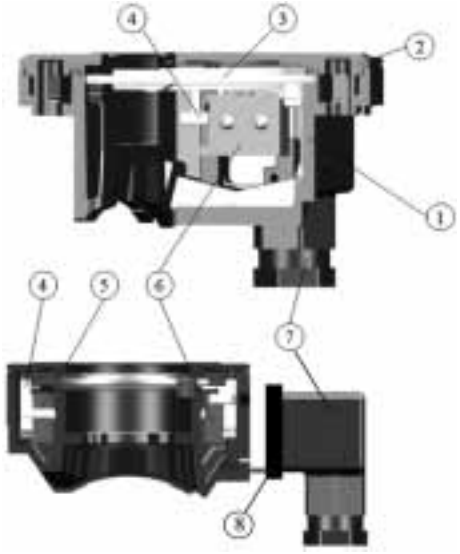
e) Catch cams to lock the cover on the multifunctional module.

f) Plugs as an additional safety device to prevent undesired opening of the cover.

g) Connector plug 3P+E for fast and easy cable mounting – protection rating: IP65

h) Clamp to fasten the adapter plate on the multifunctional module with stainless steel Torx screws

Assembly of multifunctional module ind. switches

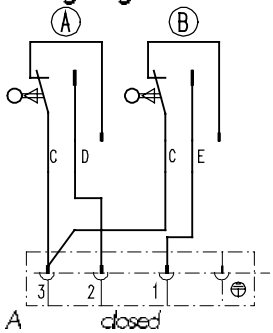


1 Housing
2 Cover
3 Switching disk
4 Switch holder
5 Microswitch "OPEN"
6 Microswitch "CLOSE"
7 Connector plug 3P + E
per DIN EN 175301-803
(formerly DIN 43650)
8 Seal

General technical data of multifunctional module

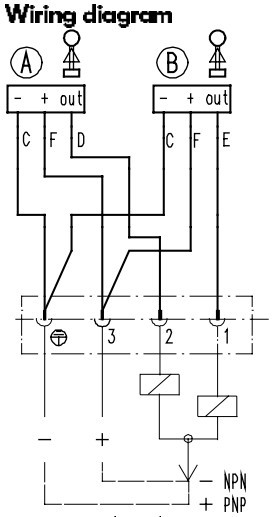
Protection rating with DIN unit plug (7): IP 65
Protection rating with cable gland: IP 67
Ambient temperature: - 10°C to + 50°C

Switch type	Capacity	Code no.	Wiring diagram
Microswitch silver nickel (Ag Ni)	250 V~ 6 A *)	167.482.626 DN 10 - 15 167.482.627 DN 20 - 25 167.482.628 DN 32 - 40 167.482.629 DN 50	
Microswitch with gold contact (Au)	4 - 30 V= 1 – 100mA	167.482.635 DN 10 - 15 167.482.636 DN 20 - 25 167.482.637 DN 32 - 40 167.482.638 DN 50	

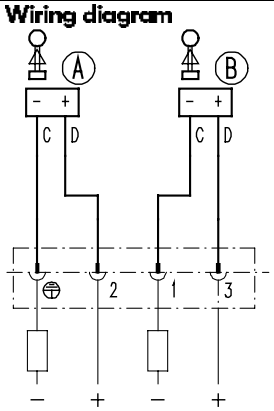


A closed
B open
C black
D blue (short cable)
E blue (long cable)

***) for ohm resistive load. For inductive loads, assign switching protection!**

Switch type	Capacity	Code no.	Wiring diagram
Inductive switch NPN	5 -30 V= 0.1 A	167.482.653 DN 10 - 15 167.482.654 DN 20 - 25 167.482.655 DN 32 - 40 167.482.656 DN 50	
Inductive switch PNP	5 -30 V= 0.1 A	167.482.662 DN 10 - 15 167.482.663 DN 20 - 25 167.482.664 DN 32 - 40 167.482.665 DN 50	

A closed
B open
C blue
D black
E black
F brown

Switch type	Capacity	Code no.	Wiring diagram
Inductive switch Namur Approvals: ATEX 2032x, CSA EMC per EN 60947-5-2 Norm conformity EN 60947-5-6	8 V=	167.482.671 DN 10 - 15 167.482.672 DN 20 - 25 167.482.673 DN 32 - 40 167.482.674 DN 50	

A closed
B open
C blue
D brown

CE label

According to the EC Directive 98/37/EC pertaining to machines (formerly 89/392/EWG) actuators/valves are not considered machines, but may be installed in installations which are considered machines.

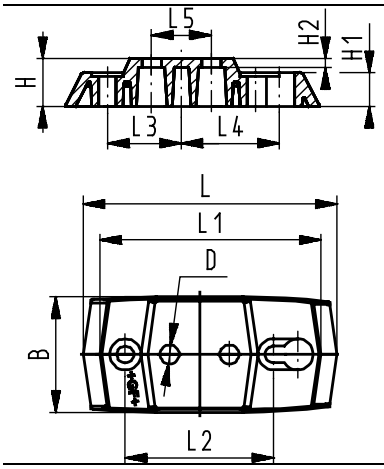
We explicitly specify that operation is prohibited until it has been made certain that the machine (equipment) into which this product has been built corresponds to the regulations of the EC Machine Directive 98/37/EC.

Technical Features of the Mounting Plate

As an alternative to the integrated fastening with the threaded inserts, the Ball Valve Type 546 can also be mounted with an additional fastening plate.
Forces, which may occur under normal operation of the valve (e.g. initial breakaway torque), are absorbed with this fastening plate. By using the fastening plate, no operating forces are transmitted to the piping system.

In piping systems which are subject to temperature changes, longitudinal or lateral forces may occur if thermal expansion is hindered. So as not to impair valve operation, these forces must be absorbed via the respective fixed points in front of or after the valve.

The fastening plate is available in two sizes for the dimension range DN 10 to DN 50. Included in delivery are two screws for fastening to the ball valve.



Description	d 16 - 32	d 40 - 63
	DN 10 - 25	DN 32 - 50
L	106	149
B	48	54
H	20	20
L1	92	134
L2	62	104
L3	31	52
L4	41	62
L5	25	45
H1	14	14
H2	4	4
D	6.5	8.5
Fastening screw	M6 x 14	M8 x 18

The mounting plate has been adapted in height to the new George Fischer KLIP-IT pipe clips Type 061H and the corresponding spacers. For more information, please see our product range.

Operating Instructions for the Ball Valve Type 546 incl. Multifunctional Handle

General Information

Several hazard notices are used in this manual to warn you of possible injuries or damages to property. Please read and observe these warnings at all times!

Danger

Imminent acute danger!
Failure to comply could result in death or extremely serious injury

Warning

Possible acute danger!
Failure to comply could result in serious injury.

Caution

Dangerous situation!
Failure to comply could lead to injury or damage to property.

Abbreviations

Type 546	Ball Valve Type 546
MF handle	Lockable multifunctional handle
MF module	Multifunctional module
PN	Nominal pressure

Safety Information

The same safety guidelines apply for ball valves as for the piping system into which they are built.
The Type 546 ball valve is intended exclusively for shutting off, conducting or controlling the flow of allowed media within the permissible pressure and temperature ranges in the piping system into which it has been installed. The maximum service life is 25 years.

Caution

Please note that the max. working pressure of the whole valve is determined by the maximum permissible nominal pressure of the connecting part.

Anyone involved with the mounting, dismounting, operation, handling and maintenance (inspection, service and repair) of the valve at the plant where it has been installed must have read and understood the complete instruction manual, and in particular this paragraph pertaining to safety information.

We recommend having this confirmed in writing.
Furthermore:

- Use only perfectly functioning valves and always observe these safety guidelines
- Keep this documentation readily available in the vicinity of the valve

It is the responsibility of the piping systems engineer / installer and the operator of such systems into which the ball valve has been built to warrant that

- The piping system has been installed correctly by professionals and its functionality is checked periodically
- Only qualified and authorised personnel mounts, operates, services and repairs the ball valve. Employees must be instructed on a regular basis in all aspects of work safety and environmental protection as indicated by the applicable local regulations – especially those pertaining to pressure-bearing piping systems.
- The valve is only used according to the specifications for which it has been intended, as indicated in this paragraph on safety
- Installation positions and locations in which manipulations can occur unintentionally must be avoided.

Hazardous Situations


Warning

Do not use ball valves for media containing solids.
Avoid cavitation in control operation.
This could lead to damages leakage caused by abrasion.


Warning

Removing the Type 546 from the pipeline

If the pressure has not been released completely, the medium can exit uncontrollably.

Depending on the type of medium, injury may occur.

Before dismounting, release all pressure from the piping system. For hazardous, flammable or explosive media, the piping system must be completely emptied and rinsed before the valve may be dismounted. (Attention: there could still be residue)


Warning

Medium needs to be tapped from a Type 546, which is used as an end valve in a pressure-bearing piping system.

The medium can exit / splash uncontrollably.

Depending on the type of medium, injury may occur.

Make certain that the medium is caught safely with the appropriate measures (e.g. connecting a vessel to collect the exiting medium)


Warning

The Type 546 is to be stored or dismantled after removal from the piping system.

Residual media can exit uncontrollably.

Depending on the type of medium, injury may occur.

Open the dismounted valve Type 546 halfway (45° position) and let it drain in a vertical position – catch the medium in an appropriate vessel.

Transport and Storage

The Ball Valve Type 546 must be handled, transported and stored with care. Please note the following:

- The Type 546 should be transported and / or stored in its original, unopened packaging.
- The ball valve must be protected from harmful physical influence such as light, dust, heat, (humidity) and UV radiation.
- The connecting parts of ball valve, in particular, must not be damaged by mechanical or thermal influences.
- The ball valve should be stored with the lever in the open position (as it was supplied).

Prior to Installation

To begin with, the ball valve should be inspected for transport damages. Damaged valves must not be installed.
A function test – close the ball valve by hand and open it again – should be done. Ball valves which do not function properly must not be installed.


Caution

The ball valve must always be built into the system in the opened position.

Only ball valves whose pressure rating, type of connection and dimensions correspond to the operating conditions may be installed.
For fusion and cementing connections, only join identical materials with one another.

Installation of the Type 546

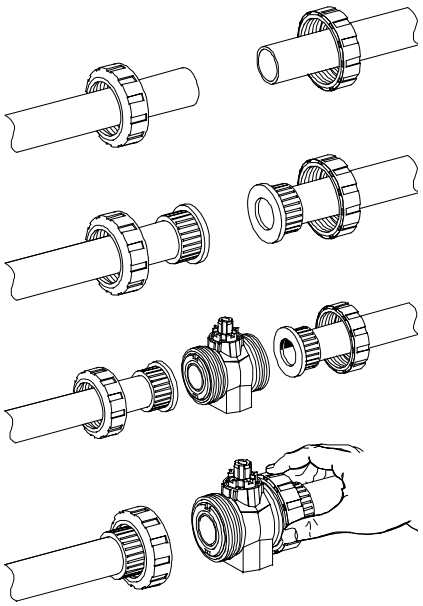

Warning

The installation dimensions, connections and union nuts of the type 546 have been modified from the type 346.

The use of components and installation dimensions other than those prescribed for the type 546 can cause damage to the piping system.

Compare the installation dimensions and specifications in the technical documentation with those of the components at hand.

We recommend only taking the ball valve out of its original packaging just before installation.
The ball valve and the pipe must be aligned so that the valve is kept free of mechanical stress.
The specific jointing instructions for solvent cementing, fusion, or screw connectionmethods must be adhered to when installing the valve into a piping system. More information can be found in the operating instructions of the fusion machines or the cementing instructions of the adhesive manufacturer.
The tightening torque of the flange screws and other useful information can be found in the chapter "Guidelines for fastening screws".



Open the union nuts and slide them onto the pipe ends.

Join the valve ends according to the material and your valve ends (fusion, cementing, thread, flange).

Place the ball valve between the connecting parts.

Screw the union nuts onto the connecting thread of the ball valve body and tighten by hand.

Warning

The union nuts of the Type 546 must be hand tightened – without additional tools.

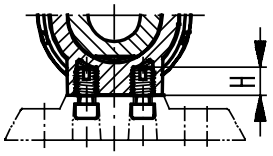
If other tools, such as pliers, are used, the material of the union nuts could be damaged. There is also the danger of damaging the thread if they are tightened too strongly.

Operation of the valve causes reactive forces in the pipe to which it is connected. It is therefore necessary to mount the ball valve with its integrated / separate fastener (if available) or to reinforce the corresponding piping directly before or after the ball valve with suitable supports.

Caution

If you are using the integrated fastening system in the base of the Type 546, please take note of the max. insertion depth H of the screws. Failure to comply can lead to damage of the ball valve housing. The pressure load on a damaged housing can cause breakage.

Max. insertion depth of the screws in the ball valve.



DN	10/15	20/25	32/40	50
Screw	M6	M6	M8	M8
max. insertion depth H (mm)	12	12	15	15

Warning

In piping systems with temperature fluctuations, bending and longitudinal forces can occur if thermal expansion is hindered. So as not to impair functioning of the valve, these forces must be absorbed by implementing suitable fixed points in front of or behind the valve.

Pressure Testing

Ball valve pressure testing is subject to the same regulations as apply to the piping system. Detailed information can be found in the «George Fischer Planning Fundamentals» chapter on **Handling and Installation.**
Also applicable:

- Check that all valves are in the required open or closed position
- Fill the piping system and deaerate carefully

Caution

The test pressure on a valve **must not exceed the value 1.5 x PN, (maximum PN + 5 bar).** The components with the lowest PN determine the maximum allowable test pressure in the piping section.

Check the valves and connections for leaks during the pressure test. Record your results.

Intended Use

When the leak test has been completed successfully, the test medium may be removed. The system can now be used as intended.

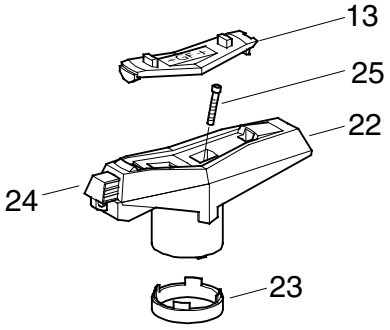
Service - Maintenance

Ball valves require no maintenance under normal working conditions. Periodic inspection to make sure that no medium is leaking is sufficient. Should leakage or other malfunctions occur, follow the instructions given under "Safety Information, Hazardous Situations".

We recommend a function test for ball valves which are kept permanently in the same position 1-2x a year to check operativenness.

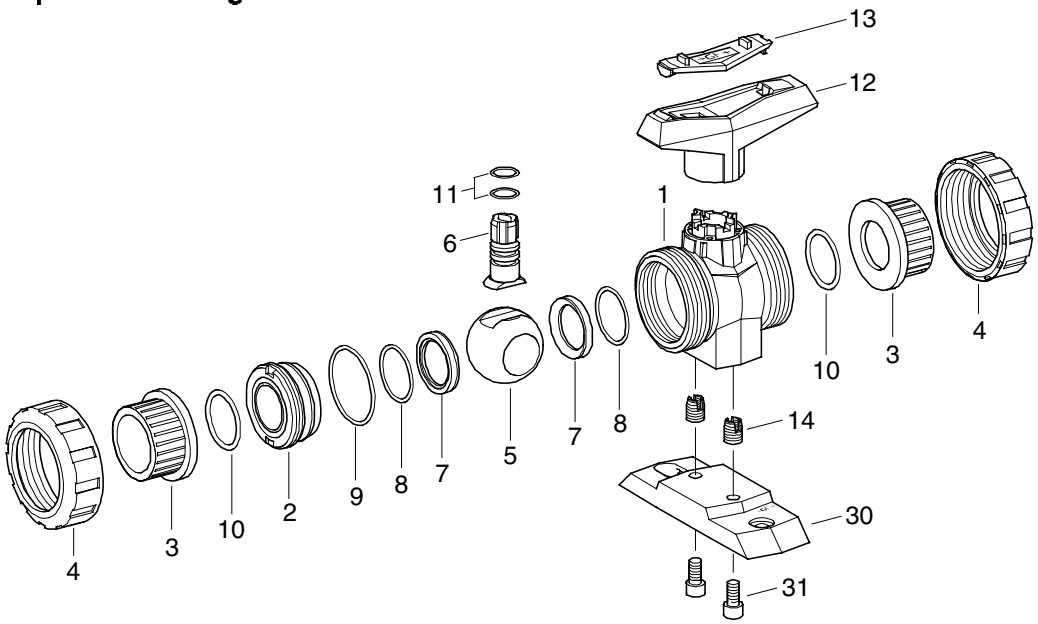
For frequent control operations – e.g. valve automation, or due to chemical attack on the sealing material, it may become necessary to replace parts inside the valve. For this purpose, the valve must be removed from the piping system, while keeping to the instructions given under the section "Hazardous Situations".

Exploded drawing of multifunctional handle:



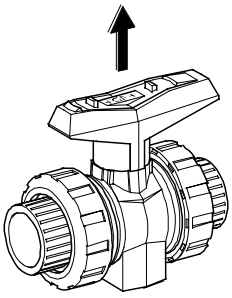
13 Handle clip
22 Multifunctional handle
23 Spacer
24 Unlocking latch
25 Fastening screw (Torx)

Exploded drawing of manual valve:

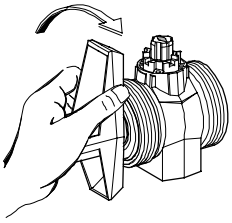


1	Body	9	Body seal
2	Union bush	10	Union seal
3	Connecting part / valve end	11	Stem seals
4	Union nut	12	Standard handle
5	Ball	13	Handle clip
6	Stem	14	Mounting insert
7	Ball seal	30	Mounting plate
8	Backing seal	31	Fastening screws

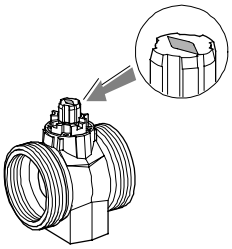
Once the ball valve has been removed from the pipe by loosening the union nut (4) and preparations have been made for drainage, dismantle the valve by following these steps:



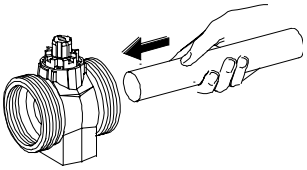
Pull the handle off the stem.
The handle can now be used as a tool.



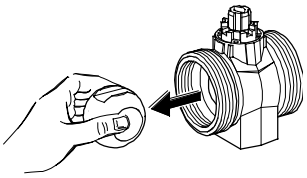
By using the handle clip (13) , the union bush (2) can be unscrewed (Attention: left handed thread).

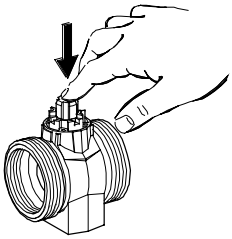


! The mark on the spigot must now be at a right angle to the flow direction (closed ball position).



The ball can be pushed out with a rod in a soft material (plastic or wood).





Push the stem down into the valve body and take it out.

The sealing elements, as well as the ball, stem and union bush, can be replaced.
George Fischer has the respective spare parts on offer.

Caution

Only original George Fischer spare parts designed specifically for this valve may be used for replacement purposes. Orders for spare parts for the Type 546 valve should include all the details given on the typeplate.

Caution

lubricants

Using the wrong lubricants can damage the material of the ball valve or the seals. Never use petroleum-based greases or Vaseline (Perolatum).
For silicon-free ball valves, please consult the special manufacturer's instructions.

All the seals must be lubricated with a silicon or polyglycol based grease.

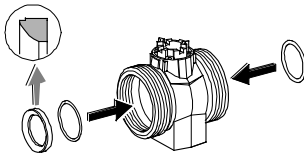
Caution

Seals

All the seals (made of e.g. EPDM, FPM) are organic materials which react to environmental influences. They must therefore be kept in their original packaging and stored cool, dry and dark. Seals should be checked for damages from ageing, such as fissures and hardening, before mounting.

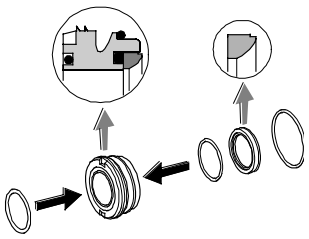
Do not use defective spare parts.

To assemble the individual parts, please proceed according to the following steps:

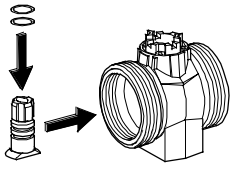


Insert the backing seal (8) and the ball seal (7) in the groove provided for this purpose on the inner side of the stop or the union bush.

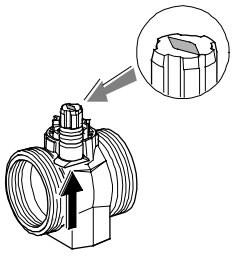
Pull the body seal (9) onto the collar of the union bush (2).



Place the union seals (10) in the groove of the union bush (2) and the fixed housing stop (1).

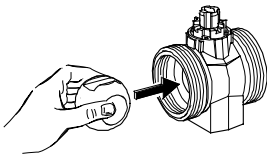


Insert the two lubricated (see Selection of lubricants) stem seals (11) in the grooves of the stem (6).

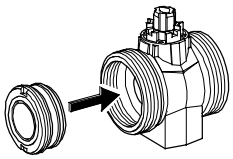


Slide the prepared stem (6) into the body (1) from the inside. The stem is correctly positioned when pushed against the stop from the inside.

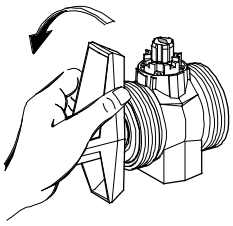
Attention! The marks on the spigot must be at a right angle to the flow direction (closed ball position)



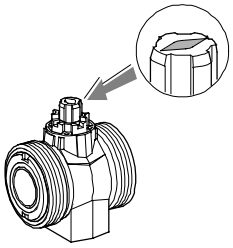
Put the ball (5) through the outlet in the body (1) into the stem guide.



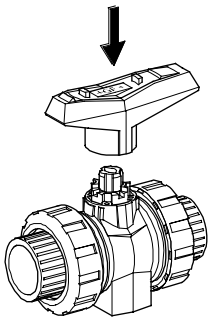
Screw the assembled union bush (2) into the valve body (1) (**Attention:** left-hand thread).
The cams on the handle clip (13) can be used like a tool.



Tighten so that the ball moves snugly.



Attention! The marks on the spigot must now be parallel to the flow direction (open ball position)

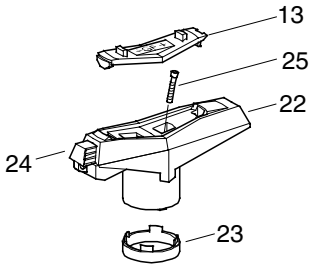


Place the standard handle (12) on the stem (6). The ball valve is now ready for use.

Mounting and Using the Multifunctional Lever

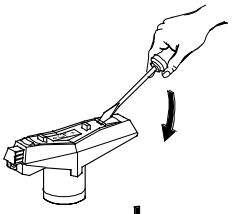
As an alternative to the standard handle, you can use a lockable multifunctional handle (MF handle) with the Ball Valve Type 546.

Exploded drawing of the multifunctional handle

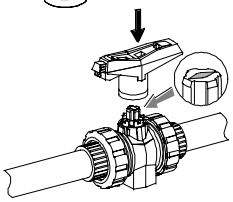


13	Handle clip
22	Multifunctional handle
23	Spacer
24	Unlocking latch
25	Fastening screw (Torx)

To assemble the multifunctional handle, please proceed according to the following steps:

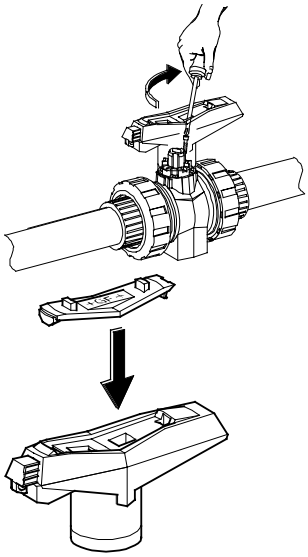


Remove the handle clip (13) with the help of a screwdriver.



Position the stem according to the illustration. Place the handle on the stem.

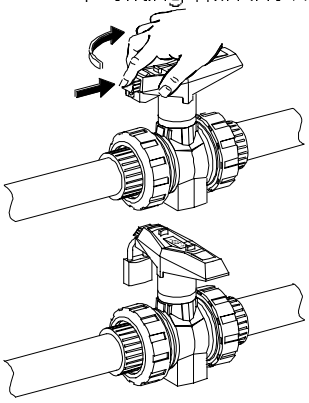
At the bottom of the lever shaft there is a spacer (23). Make sure that it is positioned correctly in the shaft (catch).



Attach the handle by tightening the pre-assembled screw (25) inside the handle.

Set the handle clip (13) on the handle again.

Working with the MF handle:



Press the unlocking latch (24) into the handle.

Hold the latch in this position and the handle can be rotated 90°.

When the latch is released the handle will lock in the respective position and can be secured in this position with a padlock, protecting it from unauthorized access.

Operating Instructions for the Multifunctional Module for the Ball Valve Type 546

General Information

Several hazard notices are used in this manual to warn you of possible injuries or damages to property. Please read and observe these warnings at all times!

Danger

Imminent acute danger!
Failure to comply could result in death or extremely serious injury

Warning

Possible acute danger!
Failure to comply could result in serious injury.

Caution

Dangerous situation!
Failure to comply could lead to injury or damage to property.

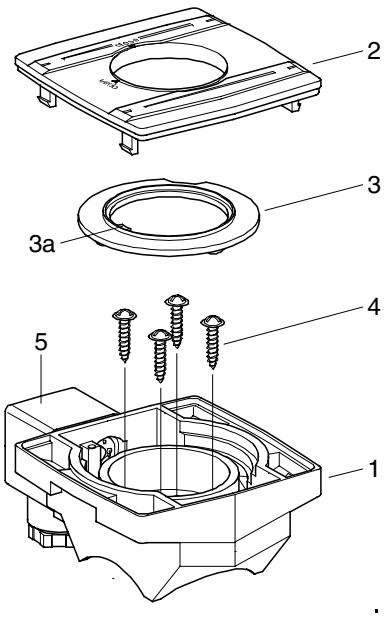
Abbreviations

Type 546	Ball Valve Type 546
MF handle	Lockable multifunctional handle
MF module	Multifunctional module
PN	Nominal pressure

Mounting the Multifunctional Module on the Ball Valve

Examine the MF module before mounting to make sure it has not been damaged during transport. We recommend leaving the MF module in its original packaging until just before installation.
The MF module has been equipped with the respective switches and tested ex factory! It is not necessary to dismount the cover when used with hand operated ball valves.

Assembly of the MF module with built-in switch



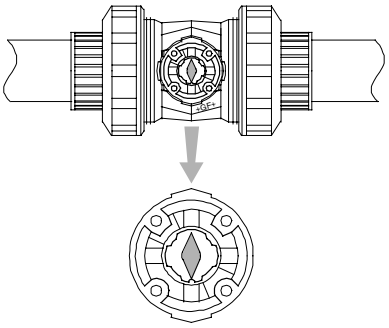
1 Housing
2 Housing cover
3 Switching disk *
3a Switching cam
4 Stainless steel Torx screws
5 Connector plug 3P + E per DIN EN 175301-803* (formerly DIN 43650)

*) for MF module version with pre-assembled microswitches

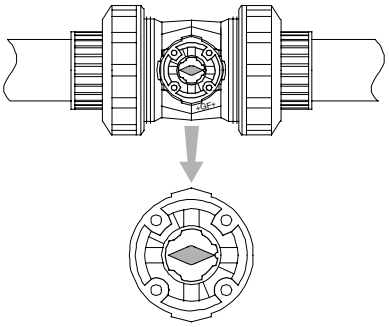
The MF module can be mounted on the Ball Valve Type 546 in the open or closed ball position.

Attention! Stem is asymmetrical

The position of the spigot must be identical to one of the two illustrations.

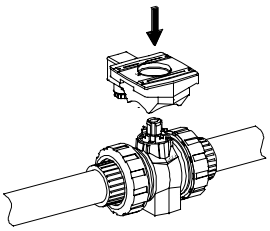


A Stem position for closed ball valve.



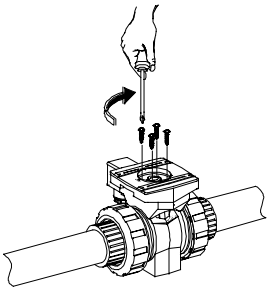
B Stem position for open ball valve.

Note the square (a), respectively, round (b) contour, as well as the position of the asymmetrical recess (c) of the stem.

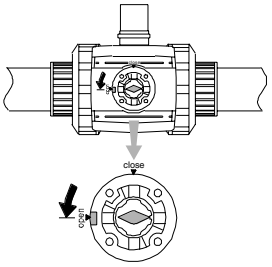


Place the MF module on the ball valve.

Make sure the contour of the multifunctional module agrees with that of the ball valve!

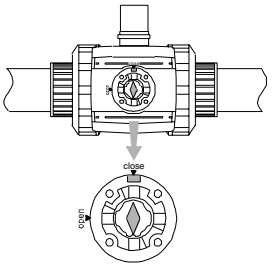


Tighten the four pre-assembled screws. The MF module is now securely positioned on the ball valve.



Put the switching cam (3a) in the respective position.

For open ball valve

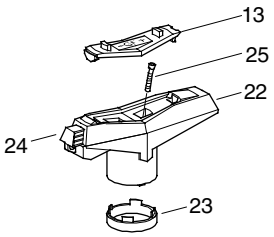


For closed ball valve

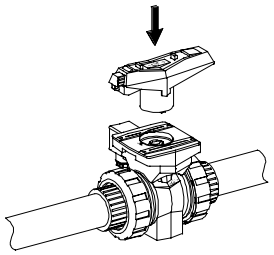
The MF module is now ready to receive the MF handle.

Mounting the Multifunctional handle

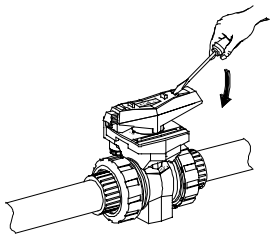
To mount the MF handle, follow these steps:



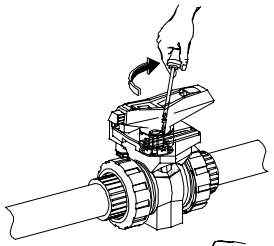
Remove the spacer (23).



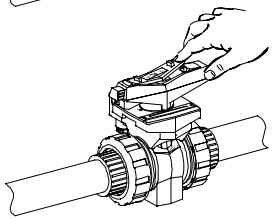
Place the MF handle on the stem.
(Example: open ball position)



Remove the handle clip (13) with the help of a screwdriver.



Attach the handle by tightening the pre-assembled screw (25) inside the handle.



Put the handle clip (13) back in the MF handle.

General Technical Data for the Multifunctional Module

For general technical data and the circuit diagrams, please see the chapter "Technical Features of the Multifunctional Module".

General Conditions of Supply for Piping Systems

1. General

1.1 These general conditions shall apply to all goods supplied by George Fischer to the Purchaser.
They shall also apply to all future business even when no express reference is made to them.

1.2 Any deviating or supplementary conditions, especially Purchaser's general conditions of purchase, and verbal agreements shall only be applicable if accepted in writing by George Fischer.

2. Tenders

Tenders shall only be binding if they contain a specifically stated period for acceptance.

3. Scope of Delivery

3.1 George Fischer's product range is subject to change.

3.2 The confirmation of order shall govern the scope and execution of the contract.

4. Data and Documents

4.1 Technical documents such as drawings, descriptions, illustrations and data on dimensions, performance and weight as well as the reference to standards are for information purposes only. They are not warranted characteristics and are subject to change.

4.2 All technical documents shall remain the exclusive property of George Fischer and may only be used for the agreed purposes or as George Fischer may consent.

4.3 In the context of the contractual relation with the Purchaser personal data may be processed. The Purchaser agrees to the disclosure of said data to third parties, such as foreign subcontractors and suppliers etc.

5. Local Laws and Regulations

The Purchaser shall bring to the attention of George Fischer all local laws and regulations at the place of destination which bear connection with the execution of the contract and the adherence to relevant safety regulations and approval procedures.

6. Prices

6.1 Unless agreed otherwise, the prices shall be deemed quoted net, ex works, including standard packing. All supplementary costs, such as the cost of carriage, insurance, export and import licences, etc. shall be borne by the Purchaser. The Purchaser shall also bear the costs of all taxes, fees, duties, etc. connected with the contract.

6.2 If the costs of packing, carriage, insurance, fees and other supplementary costs are included in the tender price or contract price or are referred to specifically in the tender or confirmation of order, George Fischer reserve the right to revise their prices accordingly should any change occur in the relevant tariffs.

7. Payment

7.1 The Purchaser shall make payment in the manner agreed by the parties to the George Fischer works conducting the account without any deductions such as discounts, costs, taxes or dues.

7.2 The Purchaser may only withhold or off-set payments due against counterclaims which are either expressly acknowledged by George Fischer or finally awarded to the Purchaser.
In particular, payment shall still be made when unessential items are still outstanding provided, however, that the goods already delivered are not rendered unusable as a result.

8. Retention of Title

8.1 The goods shall remain the property of George Fischer until the Purchaser shall have settled all claims, present and future, which George Fischer may have against him.

8.2 Should the Purchaser sell goods to which title is reserved he shall then be deemed to have tacitly assigned to George Fischer the proceeds deriving from their sale together with all collateral rights, securities and reservations of title until all claims held by George Fischer shall have been settled.

8.3 To the extent the value of the goods to which title is reserved together with collateral securities should exceed George Fischer's claims against the Purchaser by more than 20%, George Fischer shall re-assign the above proceeds to Purchaser at his request.

8.4 In case of default on the part of the Purchaser, in particular in case of arrears, George Fischer shall be entitled to repossession of the goods after having given notice to this effect, and the Purchaser shall be obligated to surrender the goods.

9. Delivery

9.1 The term of delivery shall commence as soon as the contract has been entered into, all official formalities such as import and payment permits have been obtained and all essential technical points have been settled. The term of delivery shall be deemed duly observed when, upon its expiry, the goods are ready for despatch.

9.2 Delivery is subject to the following conditions, i. e. the term of delivery shall be reasonably extended:

a) if George Fischer are not supplied in time with the information necessary for the execution of the contract or if subsequent changes causing delays are made by the Purchaser.

b) if George Fischer are prevented from performing the contract by force majeure.
Force majeure shall equally be deemed to be any unforseeable event beyond George Fischer's control which renders George Fischer's performance commercially unpractible or impossible, such as delayed or defective supplies from subcontractors, labour disputes, governmental orders or regulations, shortages in materials or energy, serious disturbances in George Fischer's works, such as the total or partial destruction of plant and equipment or the breakdown of essential facilities, serious disruptions in transport facilities, e.g. impassable roads.
Should the effect of force majeure exceed a period of six months, either party may cancel the contract forthwith.
George Fischer shall not be liable for any damage or loss of any kind whatsoever resulting therefrom, any suspension or cancellation being without prejudice to George Fischer's right to recover all sums due in respect of consignments delivered and costs incurred to date.

c) if the Purchaser fails to fulfil or delays in fulfilling his obligations under the contract, in particular if he does not adhere to the agreed conditions of payment.

9.3 If for reasons attributable to George Fischer a reasonable term of delivery is exceeded, George Fischer shall not be deemed in default until the Purchaser has granted to George Fischer in writing a reasonable extension thereof of not less than one month which equally is not met.
The Purchaser shall then be entitled to cancel the contract.

9.4 If the Purchaser fails to take delivery within a reasonable time of goods notified as ready for despatch, George Fischer shall be entitled to store the goods at the Purchaser's expense and risk and to invoice them as delivered.

9.5 Partial shipments shall be allowed and George Fischer shall be entitled to invoice for such deliveries.

9.6 If George Fischer do not insist on the performance of a contract cancelled by the Purchaser, a penalty of 10% of the contract price shall become due unless George Fischer can prove greater damages.

10. Packing

If the goods are provided with additional packing over and above the standard packing, such packing shall be invoiced separately and be non-returnable.

11. Passing of Risk

11.1 The risk in the goods shall pass to the Purchaser as soon as they have left George Fischer's works, even if delivery is made carriage-paid, under similar clauses or including installation or when carriage is organized and managed by George Fischer.

11.2 If delivery is delayed for reasons beyond George Fischer's control, the risk shall pass to the Purchaser when he is notified that the goods are ready for despatch.

12. Carriage and Insurance

12.1 Unless agreed otherwise, the Purchaser shall bear the cost of carriage.

12.2 The Purchaser shall be responsible for insurance against damage of whatever kind. Even when such insurance is arranged by George Fischer it shall be deemed taken out by the order of and for the account of the Purchaser and at his risk.

12.3 Special requests regarding carriage and insurance shall be communicated to George Fischer in due time. Otherwise carriage shall be arranged by George Fischer at their discretion, but without responsibility, by the quickest and cheapest method possible. In case of carriage-paid delivery transport arrangements shall be made by George Fischer. If the Purchaser specifies particular requirements, any extra costs involved shall be borne by him.

12.4 In the event of damage or loss of the goods during carriage the Purchaser shall mark the delivery documents accordingly and immediately have the damage ascertained by the carrier.
Not readily ascertainable damages sustained during carriage shall be notified to the carrier within six days after receipt of the goods.

13. Inspection and Acceptance

13.1 The goods will be subject to normal inspection by George Fischer during manufacture. Additional tests required by the Purchaser shall be agreed upon in writing and shall be charged to the Purchaser.

13.2 It shall be a condition of George Fischer's obligation under the warranties stated hereinafter that George Fischer be notified in writing by the Purchaser of any purported defect immediately upon discovery.
Notice concerning weight, numbers or apparent defects is to be given latest within 30 days from receipt of the goods, notice of other defects latest within the agreed warranty period.

14. Warranty

14.1 At the written request of the Purchaser, George Fischer undertake to repair or replace, at their discretion, as quickly as possible and free of charge all goods supplied which demonstrably suffer from faulty design, materials or workmanship or from faulty operating or installation instructions.
Replaced parts shall become property of George Fischer.

14.2 The Purchaser shall be entitled to cancel the contract or to demand a reduction in the contract price if:
- repair or replacement is impossible, or
- George Fischer are unable or refuse to remedy the defect or replace the defective goods within a reasonable period of time or are unduly delaying such remedy or replacement.

14.3 For goods which are manufactured to specifications, drawings or patterns supplied by the Purchaser, George Fischer's warranty shall be restricted to proper materials and workmanship.

14.4 This warranty shall not apply to damage resulting from normal wear, improper storage and maintenance, failure to observe the operating instructions, overstressing or overloading, unsuitable operating media, improper repairs or alterations by the Purchaser or third parties, the use of non-genuine parts and other reasons beyond George Fischer's control.

14.5 For goods or essential components manufactured by a third party and supplied by George Fischer under this contract, George Fischer's warranty is limited to the warranty provided by said third party.

14.6 No action or claim may be brought by the Purchaser on account of any alleged breach of warranty or any other obligation of George Fischer after the expiration of twelve (12) months from receipt of the goods by the end user or at the latest within eighteen (18) months of the goods being despatched by George Fischer.

15. Limitation of Liability

The warranties set forth above are expressly in lieu of any express warranty of any kind and in lieu of any implied warranty, including any warranty of merchantability or fitness for a particular purpose. George Fischer shall not be liable for any incidental special or consequential damages, such as loss of profits, loss of production, loss of use or loss of contract, arising for any reason, including damages resulting from delayed delivery, defective design, materials or workmanship or from faulty instructions and whether such damages are claimed to arise from breach of contract, in tort, the theory of product liability or otherwise; reservation is solely being made for George Fischer's statutory liability due to material breach of an essential contractual obligation, express representations, wrongful intent, gross negligence or product liability acts.

16. Place of Performance and Jurisdiction

16.1 Place of performance for the goods shall be the George Fischer works from which the goods are despatched.

16.2 Any civil action based upon any alleged breach of this contract shall be filed and prosecuted exclusively in the courts having jurisdiction over the George Fischer works invoicing the goods.
George Fischer however reserves the right to file actions in any court having jurisdiction over controversies arising out of or in connection with the present contract.

16.3 The contract shall be governed by the law applicable at the place of business of the George Fischer works invoicing the goods in question.

GEORG FISCHER +GF+

Piping Systems

A Georg Fischer Rohrleitungssysteme GmbH, Sandgasse 16, 3130 Herzogenburg, Tel. +43(0)2782/856 43-0, Fax +43(0)2782/856 64, e-mail: office@georgfischer.at
AUS George Fischer Pty Ltd, 186–190 Kingsgrove Road, Kingsgrove NSW 2008, Tel. +61(0)2/95 54 39 77, Fax +61(0)2/95 02 25 61
B/L Georg Fischer NV/SA, Digue du Canal 109-111 – Vaartdijk 109-111, 1070 Bruxelles/Brüssel, Tél. +32(0)2/556 40 20, Fax +32(0)2/524 34 26
e-mail: info.be@be.piping.georgfischer.com
BR George Fischer Ltda, Av. das Nações Unidas 21689, 04795-100 São Paulo, Brasil, Tel. +55(0)11/5687 1311, Fax +55(0)11/5687 6009
CH Georg Fischer Rohrleitungssysteme (Schweiz) AG, Amsler-Laffon-Strasse 1, Postfach, 8201 Schaffhausen, Tel. +41(0)52 631 30 26, Fax +41(0)52 631 28 97
e-mail: info@rohrleitungssysteme.georgfischer.ch
CHINA Georg Fischer Piping Systems Ltd Shanghai, No. 2 8 Kang Qiao Dong Rd., Shanghai 201319, Tel. +86(0)21/58 13 33 33, Fax +86(0)21/58 13 33 66
e-mail: gfsro@public.shanghai.cngb.com
Georg Fischer Piping Systems (Trading) Ltd Shanghai, No 516 Fute Bei Road, Waigaoqiao Free Trade Zone, 200131 Pudong, Shanghai
Tel. +86(0)21/5868 0278, Fax +86(0)21/5868 0264, e-mail: gftrade@sh.cngb.com
D Georg Fischer GmbH, Daimlerstraße 6, 73095 Albershausen, Tel. +49(0)7161/302-0, Fax +49(0)7161/302 111
e-mail: info@georgfischer.de, Internet: http://www.rls.georgfischer.de
Georg Fischer DEKA GmbH, Kreuzstrasse 22, 35232 Dautphetal-Mornshausen, Tel. +49(0)6468/915-0, Fax +49(0)6468/915 221/222
e-mail: info@dekapipe.de, Internet: http://www.dekapipe.de
DK/IS Georg Fischer A/S, Rugvænget 30, 2630 Taastrup, Tel. +45 70 22 19 75, Fax +45 70 22 19 76
e-mail: info@dk.piping.georgfischer.com, Internet: http://www.georgfischer.dk
E Georg Fischer S.A., Alcalá, 85, 2°, 28009 Madrid, Tel. +34(0)91/781 98 90, Fax +34(0)91/426 08 23
e-mail: info@georgfischer.es
F George Fischer S.A., 105–113, rue Charles Michels, 93208 Saint-Denis Cedex 1, Tél. +33(0)1/49 22 13 41, Fax +33(0)1/49 22 13 10, e-mail: info@georgefischer.fr
GB George Fischer Sales Limited, Paradise Way, Coventry, CV2 2ST, Tel. +44(0)2476/535 535, Fax +44(0)2476/530 450
e-mail: info@georgefischer.co.uk, Internet: http://www.georgefischer.co.uk
GR Georg Fischer S.p.A., Athens Branch, 101, 3rd September Str., 10434 Athen, Tel. +30(0)1/882 0491, Fax +30(0)1/881 0291, e-mail: dderv_piping_gf@oneway.gr
I Georg Fischer S.p.A., Via Sondrio 1, 20063 Cernusco S/N (MI), Tel. +3902/921 86 20 1, Fax +3902/921 86 24 7, e-mail: office@piping.georgfischer.it
ID George Fischer Representative Office, c/o Wisma Aria, 3rd Floor, Jl. H.O.S. Cokroaminoto 81, Jakarta 10310, Indonesia, Tel. +62(0)21/391 48 62, Fax +62(0)21/391 48 63
IND George Fischer Piping Systems Ltd, India Branch Office, Solitaire Corporate Park, 532, Building No. 5, 3rd Floor, Chakala, Ghatkopar Link Road, Andheri (E)
400 093 Mumbai, Tel. +91(0)22/820 2362, Fax +91(0)22/820 2462, e-mail: branchoffice@georgefischer.net
J Georg Fischer Ltd, 2–47, Shikitsuhigashi 1-chome, Naniwa-ku, 556-8601 Osaka, Tel. +81(0)6/664 82 59 4, Fax +81(0)6-664 82 56 5, e-mail: info@georgfischer.jp
N Georg Fischer AS, Rudsletta 97, 1351 Rud, Tel. +47(0)67 18 29 00, Fax +47(0)67 13 92 92, Internet: http://www.georgfischer.no
NL Georg Fischer N.V., Postbus 35-8160, 8161 PA Epe, Tel. +31(0)578/678222, Fax +31(0)578/621768
e-mail: info.vgnl@nl.piping.georgfischer.com, Internet: http://www.georgfischer.nl
PL Georg Fischer Sp. z o.o., ul. Radiowa 1A, 01-485 Warszawa, Tel. +48(0)22/638 91 39, Fax +48(0)22/638 00 94
RO Georg Fischer Rohrleitungssysteme AG, Rep. Office Romania, 11 Barbu Delavrancea, 70000 Bucharest - Sector 1, Tel. +40(0)1/222 91 36, Fax +40(0)1/222 91 77
e-mail: office@georgfischer.ro
RU Georg Fischer Piping Systems Ltd, Moscow Representative Office, Sheremetievskaya ul., 47, 127521 Moscow, Tel. +7 095/219 9604, Fax +7 095/232 3625
e-mail: lazer@orc.ru
S/FIN Georg Fischer AB, Box 113, 12523 Älvsjö-Stockholm, Tel. +46(0)8/506 77 500, Fax +46(0)8/749 23 70, e-mail: info@georgfischer.se, Internet: http://www.georgfischer.se
SGP George Fischer Pte Ltd, 15 Kaki Bukit Road 2, KB Warehouse Complex, 417 845 Singapore, Tel. +65(0)7/47 06 11, Fax +65(0)7/47 05 77, e-mail: info@georgfischer.com.sg
USA George Fischer Inc., 2882 Dow Avenue, Tustin, CA 92780-7258, Tel. +1(714) 731 88 00, Toll Free 800/854 40 90, Fax +1(714) 731 62 01
e-mail: info@us.piping.georgefischer.com, Internet: http://www.us.piping.georgefischer.com
Export Georg Fischer Rohrleitungssysteme AG, Ebnatstrasse 111, Postfach, CH-8201 Schaffhausen, Tel. +41(0)52 631 11 11, Fax +41(0)52 631 28 93/631 28 58
e-mail: export@piping.georgfischer.com, Internet: http://www.piping.georgfischer.com

Fi 8213/4 (4.03)