

Ball Valve Type 546 Pro, manually operated



Product description

The Ball Valve Type 546 Pro is the ideal valve for use in applications ranging from simple water applications right up to demanding chemical processes. Its modular construction guarantees simple operation, flexibility, universal automation options and the greatest possible process safety.

Function

The ball valve uses a rotating ball with a hole through it that allows straight-through flow in the open position and shuts off flow when the ball is rotated 90° to block the flow passage. This valve is mainly used for open/close functions and for regulating services.

Applications

- Chemical process industry
- Water treatment
- Microelectronics
- Measurement and control
- Shipbuilding
- Food & beverage

Benefits/features

The Ball Valve Type 546 Pro modular design always adapts the actual requirements. Whether electric, pneumatic or manual operation, including optional accessories, it flexibly meets all requirements.

- Lockable lever equipped as standard
- Manual valve or automatic valve with/without electrical position feedback
- Ergonomic hand lever with integrated tool to open the union bushing
- Labeling in lever (optional)
- Integrated fixation system with mounted threaded inserts as standard
- Spacers keep the level of the piping system constant and simplify installation
- Individual online configuration is possible
- Unique Data Matrix Code for traceability
- Oil-free and LABS-cleaned version
- Very high flow rate
- Universal interface makes a combination with all actuators possible
- Manual spring return unit (dead man lever)
- Relief well to avoid gas accumulation possible (e.g. for H₂O₂)

Flow media

Neutral and aggressive media with a small amount of particles/solids. The chemical resistance is independent of the selected valve material ([see online tool ChemRes PLUS](#)).

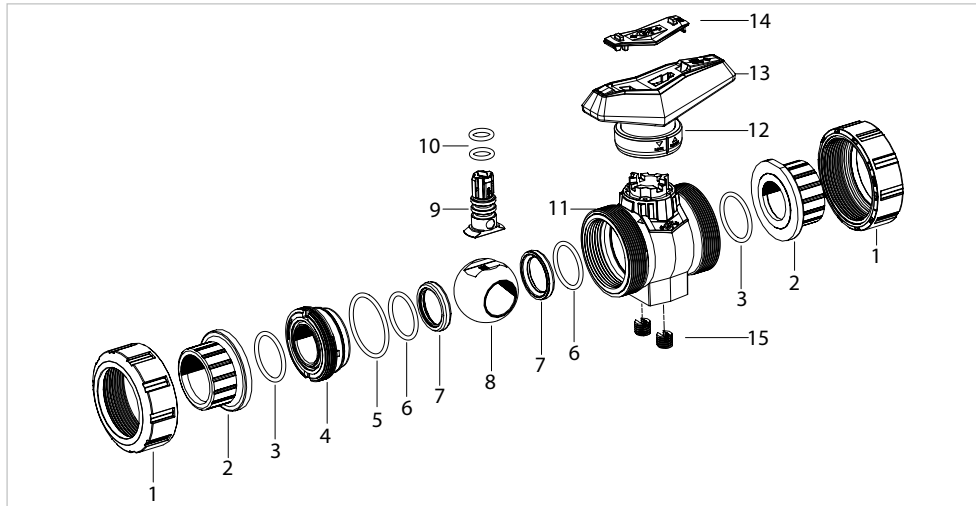
Transport of compressed air

Ball valves Type 546 Pro are suitable for compressed air regulation up to 10 bar (at 20 °C). The compressed air must be dry and free of oil. For this application PP-H is recommended as valve body material and FKM* for the gaskets.

Suitable piping systems are ecoFIT (PE) or INSTAFLEX (PB). The ball valve Type 546 Pro is available with suitable connection parts.

*FKM is suitable for compressed air containing mineral oil. Some ester oils can attack the material FKM, in such cases the use of EPDM gaskets is recommended.

Technical data



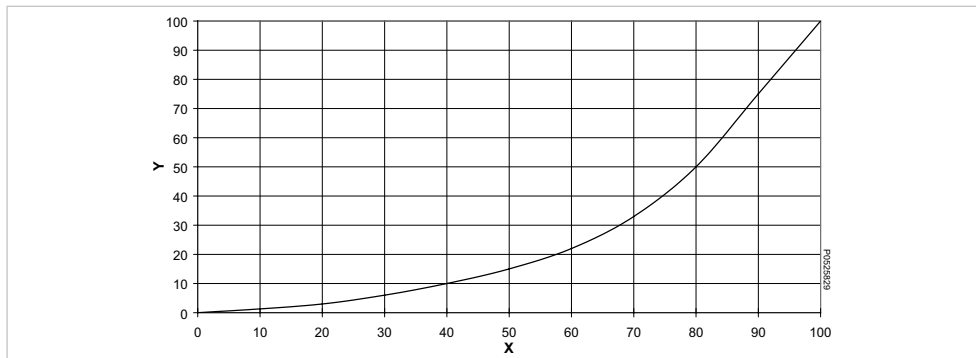
- ① Union nut
- ② Connecting part
- ③ Union seal
- ④ Union bush
- ⑤ Body seal
- ⑥ Backing seal
- ⑦ Ball seat
- ⑧ Ball
- ⑨ Stem
- ⑩ Stem seals
- ⑪ Body
- ⑫ Locking ring
- ⑬ Lever (lockable)
- ⑭ Lever clip
- ⑮ Threaded insert

Specification	
Dimensions	d16/DN10 – d110/DN100 (d160/DN150), 3/8" – 4" (6")
Materials	Valve body PVC-U, PVC-C, ABS, PP-H, PVDF
	Lever PP-GF30
Gasket materials	O-rings EPDM, FKM, FFKM
	Ball seat PTFE, PVDF
Pressure levels	ABS / PP-H PN10
	PVC-U / PVC-C / PVDF PN16
Connections	Fusion / solvent cement sockets ISO, ASTM, JIS, BS
	Fusion / solvent cement spigot ISO
	Threaded socket Rp, NPT, Rc
	Backing flange ISO, ANSI, BS, JIS
	Butt fusion spigots SDR11 and SDR17.6
	PE100 electrofusion spigot or butt fusion spigot SDR11 and SDR17.6
Actuation variants	Manually operated (lockable hand lever)
	Pneumatic FC, FO, DA with and without manual override
	Electrical AC: 100 – 230 V, AC/DC: 24 V, with / without manual override
Approvals	ACS, ABS, NSF, WRAS, DIBt, RINA, BV, FDA, SEPRO, TSSA
Flange standards	EN 1092 PN 10, ASME B16.5 Class 150, BS 1560-3.2 Class 150, JIS B2220 10K
Third-party actuators	EN ISO 5211
Leakage requirement	ISO 9393-2, EN 12266 (leak rate A)
Marking	EN ISO 16135
	DataMatrix-Code with production data
Product standard	ISO 9393-1, EN ISO 16135

Kv 100 values

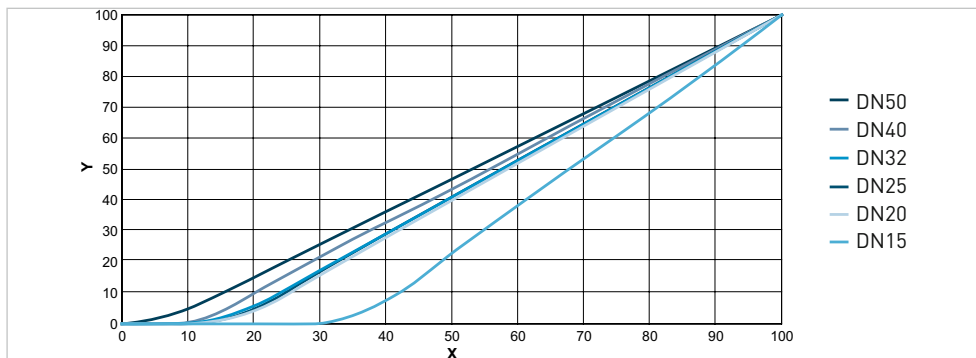
DN (mm)	Inch (inch)	d (mm)	Type 546 Pro			Linear Ball Valve Type 546 Pro		
			Kv 100 (l/min)	Cv 100 (gal/min)	Kv 100 (m ³ /h)	Linear ball valve Kv 100 (l/min)	Linear ball valve Cv 100 (gal/min)	Linear ball valve Kv 100 (m ³ /h)
10	3/8	16	70	4.9	4			
15	1/2	20	185	12.9	11	90	6	5
20	3/4	25	350	24.5	21	166	12	10
25	1	32	700	49.0	42	235	16	14
32	1 1/4	40	1000	70.0	60	417	29	25
40	1 1/2	50	1600	112.0	96	626	44	38
50	2	63	3100	217.1	186	781	55	47
65	2 1/2	75	5000	350.0	300			
80	3	90	7000	490.0	420			
100	4	110	11000	770.0	660			

Flow characteristics Type 546 Pro



X Opening angle (%)
Y Kv, Cv value (%)

Flow characteristics for linear Ball Valve Type 546 Pro



X Opening angle (%)
Y Kv, Cv value (%)

i For dimensions d20/DN15, d25/DN20, d32/DN25, d40/DN32, d50/DN40 and d63/DN50, a special ball with linear flow characteristics is available.

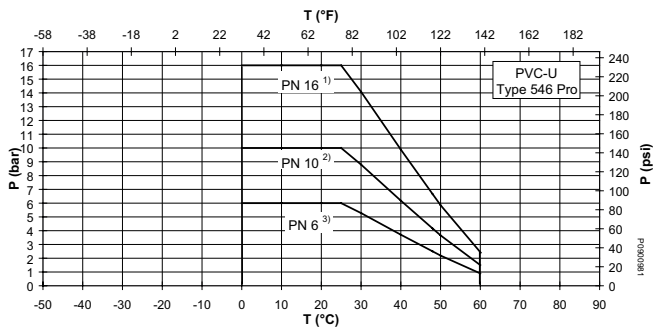
Pressure-temperature diagrams

The following pressure-temperature diagrams are based on a service life of 25 years and water or similar media.

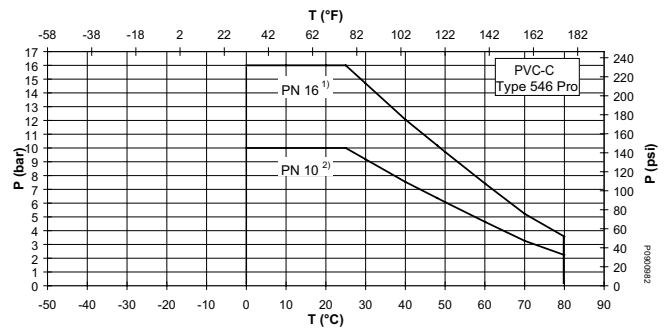
T Temperature (°C, °F)

P Permissible pressure (bar, psi)

PVC-U



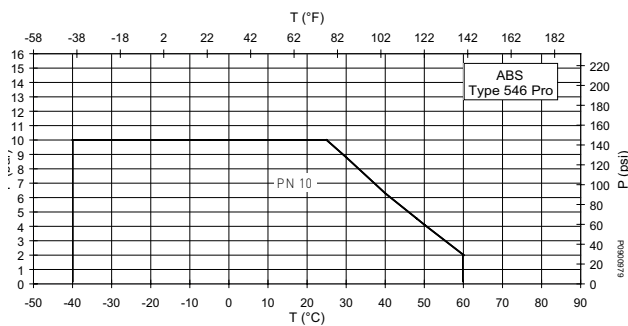
PVC-C



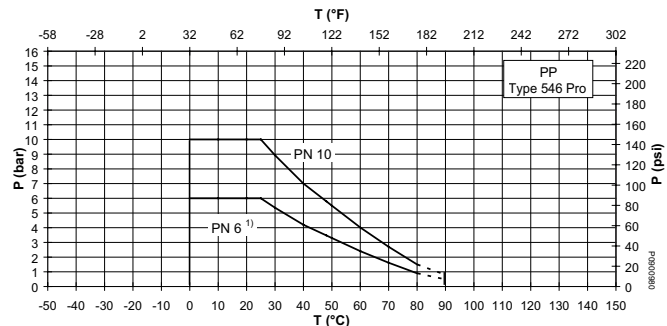
- 1) The central part of the ball valve is designed for the nominal pressure PN16
- 2) Depending on the connection, the nominal pressure is reduced to PN10
- 3) Depending on the connection, the nominal pressure is reduced to PN6

- 1) The central part of the ball valve is designed for the nominal pressure PN16
- 2) Depending on the connection, the nominal pressure is reduced to PN10

ABS

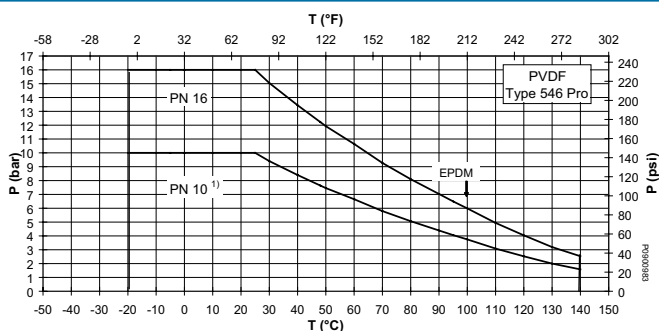


PP



- 1) For example, ball valve with butt fusion spigot PP or PE100, SDR 17

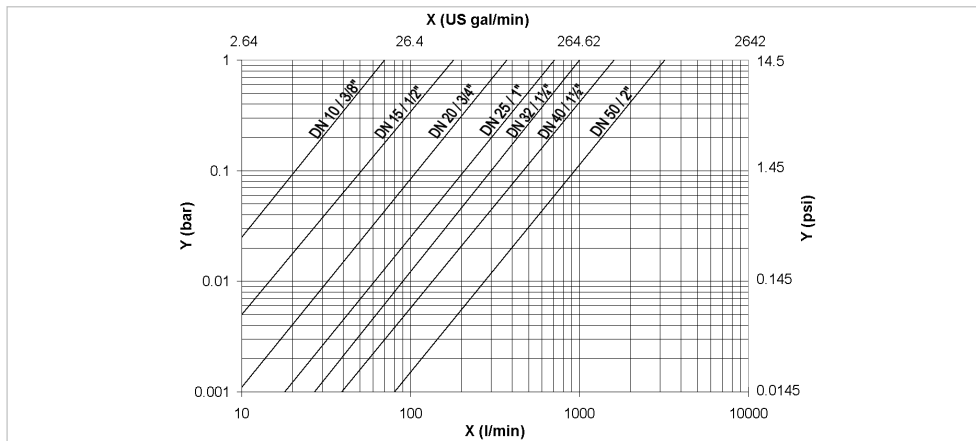
PVDF



- 1) For example, ball valve with threaded socket EPDM gasket up to max. 100 °C

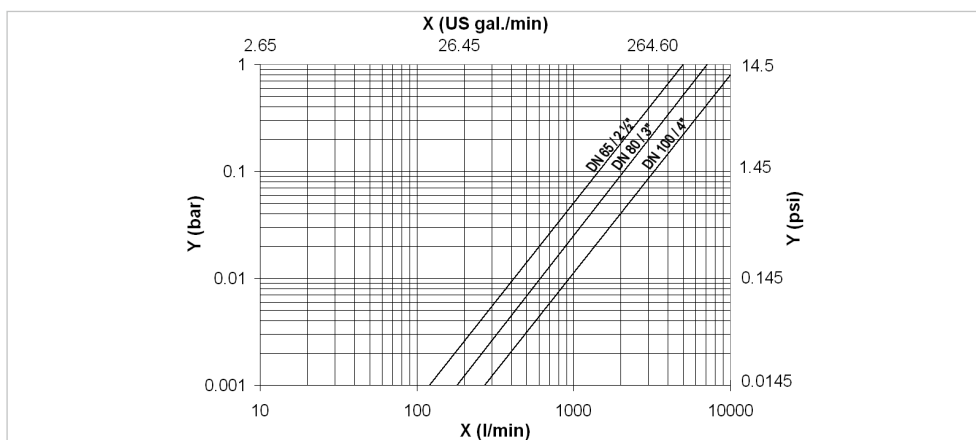
Pressure losses

d16/DN10 – d63/DN50



- X Flow rate (l/min, US gal/min)
- Y Pressure loss Δp (bar, psi)

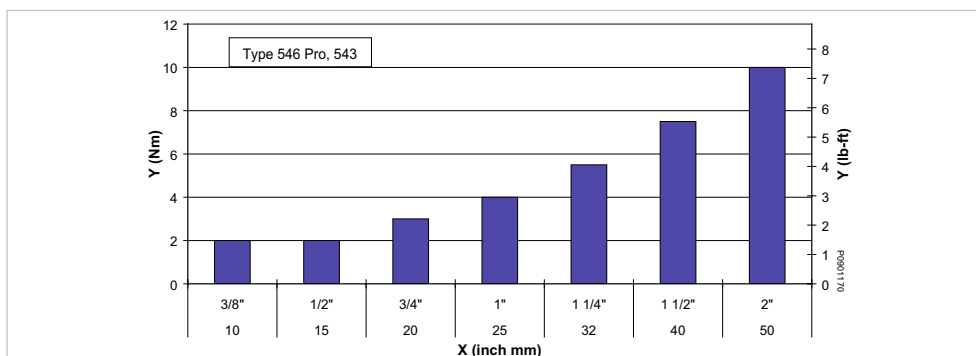
d75/DN65 – DN/100



- X Flow rate (l/min, US gal/min)
- Y Pressure loss Δp (bar, psi)

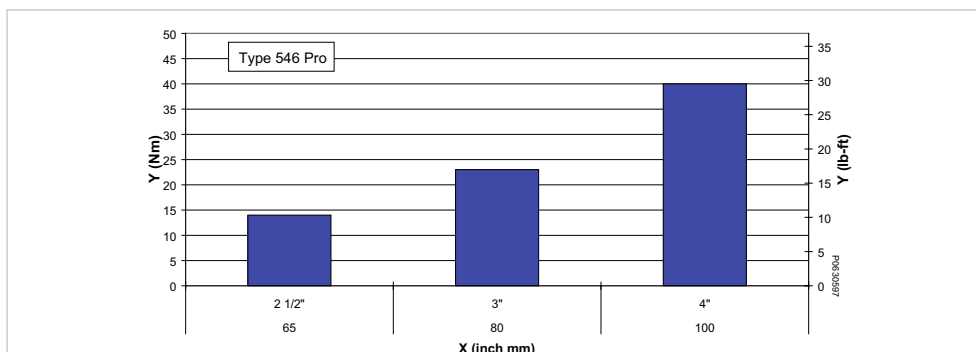
Operating torque

DN10 – DN50



- X Nominal diameter DN (mm, inch)
 - Y Tightening torque (Nm, lb-ft)
- Average values at nominal pressure. Depending on the application (e.g. operating speed, fluid, temperature, etc.) about 2 times the operating torque should be taken for sizing actuators.

DN65 – DN100



- X Nominal diameter DN (mm, inch)
 - Y Tightening torque (Nm, lb-ft)
- Average values at nominal pressure. Depending on the application (e.g. operating speed, fluid, temperature, etc.) about 2 times the operating torque should be taken for sizing actuators.

Reference values for tightening torque of screws

Flange connections with profile flange seal or flat gaskets

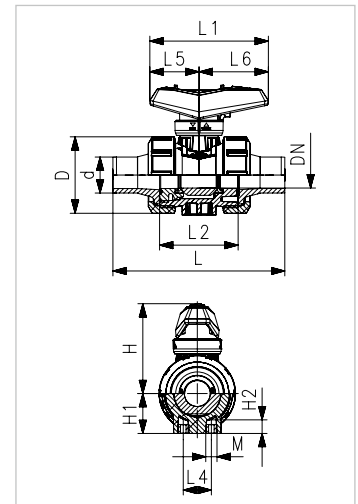
d (mm)	DN (mm)	Inch (inch)	Total number of screws (for 2 flange connections) standard nut (Height 0.8 x d) ¹⁾	Torque (Reference values) Profile flange gasket ²⁾		Torque (Reference values) Flat gasket	
				(Nm)	(lb-ft)	(Nm)	(lb-ft)
20	15	½	8 x M12 x 50	10	7.4	10	7.4
25	20	¾	8 x M12 x 55	10	7.4	10	7.4
32	25	1	8 x M12 x 60	10	7.4	15	11
40	32	1 ¼	8 x M16 x 70	15	11	20	15
50	40	1 ½	8 x M16 x 70	15	11	25	18
63	50	2	8 x M16 x 80	20	15	35	26
75	65	2 ½	8 x M16 x 90	25	18	50	37
90	80	3	16 x M16 x 100	15	11	30	22
110	100	4	16 x M20 x 130	20	15	35	26

- 1) For valve ends Type 546 Pro made of PP in combination with backing flanges, use half of the standard nut height
- 2) Preferred gasket Type (suited for plastics)

Dimensions

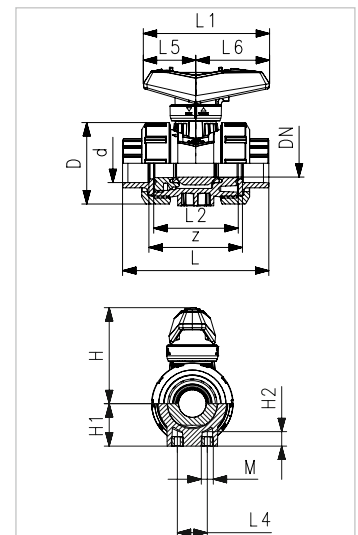
Ball Valve Type 546 Pro with solvent cement spigots or socket fusion spigots, metric

d (mm)	DN (mm)	D (mm)	H (mm)	H1 (mm)	H2 (mm)	L (mm)	L1 (mm)	L2 (mm)	L4 (mm)	L5 (mm)	L6 (mm)	M
16	10	50	54	27	12	114	72	56	25	26	46	M6
20	15	50	54	27	12	124	72	56	25	26	46	M6
25	20	58	66	30	12	144	93	65	25	34	59	M6
32	25	68	71	36	12	155	93	71	25	34	59	M6
40	32	84	85	44	15	175	110	85	45	41	69	M8
50	40	97	92	51	15	193	110	89	45	41	69	M8
63	50	124	108	64	15	224	128	101	45	49	79	M8
75	65	166	149	85	15	284	270	136	70	64	206	M8
90	80	200	161	105	15	300	270	141	70	64	206	M8
110	100	238	178	123	22	340	320	164	120	64	256	M12



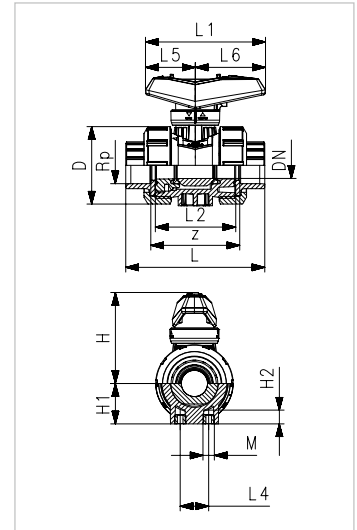
Ball Valve Type 546 Pro with solvent cement sockets, fusion sockets or threaded sockets, metric

d (mm)	DN (mm)	D (mm)	H (mm)	H1 (mm)	H2 (mm)	L (mm)	L1 (mm)	L2 (mm)	L4 (mm)	L5 (mm)	L6 (mm)	z (mm)	M
16	10	50	54	27	12	92	72	56	25	26	46	68	M6
20	15	50	54	27	12	95	72	56	25	26	46	67	M6
25	20	58	66	30	12	110	93	65	25	34	59	76	M6
32	25	68	71	36	12	124	93	71	25	34	59	82	M6
40	32	84	85	44	15	147	110	85	45	41	69	98	M8
50	40	97	92	51	15	157	110	89	45	41	69	99	M8
63	50	124	108	64	15	184	128	101	45	49	79	111	M8
75	65	166	149	85	15	233	270	136	70	64	206	148	M8
90	80	200	161	105	15	254	270	141	70	64	206	156	M8
110	100	238	178	123	22	301	320	164	120	64	256	178	M12



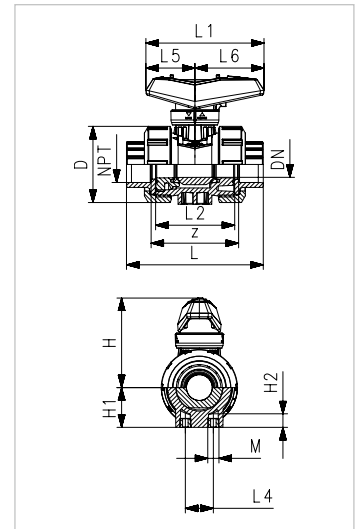
Ball Valve Type 546 Pro with solvent cement sockets RP, fusion sockets RP or threaded sockets Rp

Rp	DN	D	H	H1	H2	L	L1	L2	L4	L5	L6	z	M
inch	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	
3/8	10	50	54	27	12	92	72	56	25	26	46	64	M6
1/2	15	50	54	27	12	95	72	56	25	26	46	63	M6
3/4	20	58	66	30	12	110	93	65	25	34	59	73	M6
1	25	68	71	36	12	124	93	71	25	34	59	79	M6
1 1/4	32	84	85	44	15	147	110	85	45	41	69	94	M8
1 1/2	40	97	92	51	15	157	110	89	45	41	69	95	M8
2	50	124	108	64	15	184	128	101	45	49	79	108	M8
2 1/2	65	166	149	85	15	233	270	136	70	64	206	144	M8
3	80	200	161	105	15	254	270	141	70	64	206	151	M8
4	100	238	178	123	22	301	320	164	120	64	256	174	M12



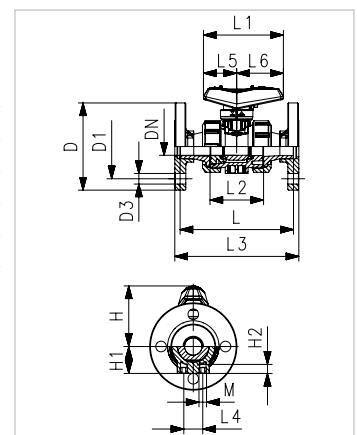
Ball Valve Type 546 Pro with solvent cement sockets NPT, fusion sockets NPT or threaded sockets NPT

Rp	DN	D	H	H1	H2	L	L1	L2	L4	L5	L6	z	M
inch	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	
3/8	10	50	54	27	12	92	72	56	25	26	46	64	M6
1/2	15	50	54	27	12	95	72	56	25	26	46	63	M6
3/4	20	58	66	30	12	110	93	65	25	34	59	73	M6
1	25	68	71	36	12	124	93	71	25	34	59	79	M6
1 1/4	32	84	85	44	15	147	110	85	45	41	69	94	M8
1 1/2	40	97	92	51	15	157	110	89	45	41	69	95	M8
2	50	124	108	64	15	184	128	101	45	49	79	108	M8
2 1/2	65	166	149	85	15	233	270	136	70	64	206	144	M8
3	80	200	161	105	15	254	270	141	70	64	206	151	M8
4	100	238	178	123	22	301	320	164	120	64	256	174	M12



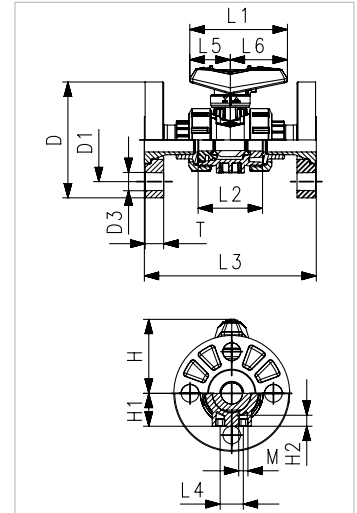
Ball Valve Type 546 Pro with fixed flanges serrated, metric

d	DN	D	D1	D3	H	H1	H2	L	L1	L2	L3	L4	L5	L6	M
(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	
20	15	94	65	14	87	27	12	120	82	56	130	25	35	47	M6
25	20	103	75	14	104	30	12	139	105	65	149	25	44	62	M6
32	25	115	85	14	115	36	12	150	105	71	160	25	44	62	M6
40	32	138	100	18	139	44	15	170	131	85	180	45	57	74	M8
50	40	147	110	18	152	51	15	189	131	89	197	45	57	74	M8
63	50	162	125	18	181	64	15	220	152	101	228	45	66	86	M8



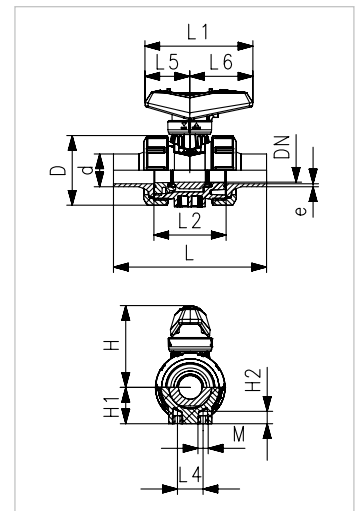
Ball Valve Type 546 Pro with backing flanges, metric

d (mm)	DN (mm)	D (mm)	D1 (mm)	D3 (mm)	H (mm)	H1 (mm)	H2 (mm)	L1 (mm)	L2 (mm)	L3 (mm)	L4 (mm)	L5 (mm)	L6 (mm)	M (mm)
20	15	96	70	15	87	27	12	82	56	143	25	35	47	M6
25	20	101	75	15	104	30	12	105	65	171	25	44	62	M6
32	25	126	90	19	115	36	12	105	71	187	25	44	62	M6
40	32	135	100	19	139	44	15	131	85	190	45	57	74	M8
50	40	140	105	19	152	51	15	131	89	212	45	57	74	M8
63	50	156	120	19	181	64	15	152	101	234	45	66	86	M8
75	65	176	140	19	235	85	15	269	136	290	70	64	206	M8
90	80	186	150	19	266	105	15	269	141	310	70	64	206	M8
110	100	210	175	19	301	123	22	319	164	350	120	64	256	M12



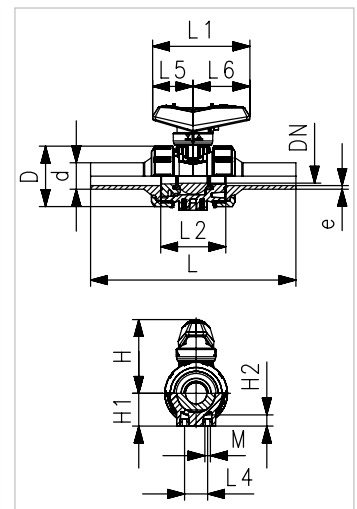
Ball Valve Type 546 Pro with butt fusion spigots short, metric

d (mm)	DN (mm)	D (mm)	H (mm)	H1 (mm)	H2 (mm)	L (mm)	L1 (mm)	L2 (mm)	L4 (mm)	L5 (mm)	L6 (mm)	M (mm)	e (mm)
20	15	50	54	27	12	130	72	56	25	26	46	M6	1.9
25	20	58	66	30	12	144	93	65	25	34	59	M6	2.3
32	25	68	71	36	12	151	93	71	25	34	59	M6	2.9
40	32	84	85	44	15	171	110	85	45	41	69	M8	3.7
50	40	97	92	51	15	190	110	89	45	41	69	M8	4.6
63	50	124	108	64	15	221	128	101	45	49	79	M8	5.8



Ball Valve Type 546 Pro with butt fusion spigots long, metric

d (mm)	DN (mm)	D (mm)	H (mm)	H1 (mm)	H2 (mm)	L (mm)	L1 (mm)	L2 (mm)	L4 (mm)	L5 (mm)	L6 (mm)	M (mm)	e (mm)
20	15	50	54	27	12	193	72	56	25	26	46	M6	1.9
25	20	58	66	30	12	218	93	65	25	34	59	M6	2.3
32	25	68	71	36	12	224	93	71	25	34	59	M6	2.9
40	32	84	85	44	15	250	110	85	45	41	69	M8	3.7
50	40	97	92	51	15	271	110	89	45	41	69	M8	4.6
63	50	124	108	64	15	321	128	101	45	49	79	M8	5.8



Accessories

Double sensor for electrical position feedback

After being mounted in the valve or in the interface module, the double sensor is used to signal the CLOSED or OPEN position of the valve via an electric signal to a controller, supplied by the customer. The switching states are also output optically via two integrated LEDs.

DN (mm)	LED signal color	Function
10 - 50	Closed: Green / Open: Red	PNP
10 - 50	Closed: Red / Open: Green	PNP



Suitable connection cables available as accessories

Spring reset unit, manual actuation (dead man's switch)

The spring reset unit (dead man's switch) is installed onto the GF Ball Valve Type 546 Pro and ensures that the ball valve is closed automatically as soon as the handle is released. It is opened against the spring force.

DN (mm)
DN10/15
DN20/25



Interface module, manual actuated


With the manually actuated interface module the open or closed position of the Ball Valve Type 546 Pro can be transmitted via an electric signal to a customer control.


DN (mm)
DN10/15
DN20/25
DN32/40
DN50



Interface module, automatic actuated

With the help of the automatically actuated interface module, electric or pneumatic actuators can be attached on the Ball Valve Type 546 Pro, which allows the automation of the ball valve's change of position. In addition, an interface is available for the installation of an electrical position feedback indicator.

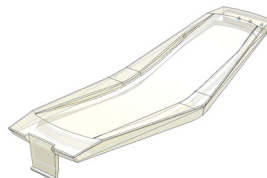
DN (mm)	Pneumatic GF actuators PA11/PA21	Electric GF actuators EA15/EA25/dEA
DN10/15		
DN20		
DN25		
DN32		
DN40		
DN50		

DN (mm)	Norm actuators
DN10-15 SW09	
DN10-15 SW11/14	
DN20-25 SW09	
DN20-25 SW11/14	
DN32-40 SW11/14	
DN50 SW11/14	

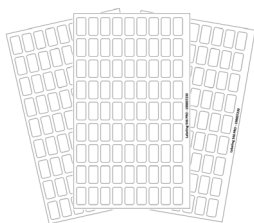
Transparent lever clip

Type 546 Pro ball valves can be quickly and easily labelled with the most important information. Operation and maintenance can thus be made safer, faster and clearer. In addition, there are various standards which prescribe a clear marking of the pipeline.

DN (mm)	
DN10/15	10 pcs.
DN20/25	10 pcs.
DN32/40	5 pcs.
DN50	5 pcs.



Printing sheets for ball valve labelling



Further accessories

- Hand lever extension
- Adapter for padlocks
- Tool for disassembling interface modules
- Additional limit switches

i For further information on accessories, refer to the online product catalogue at www.gfps.com

■ Mobile apps and online tools to support configuration and calculation at www.gfps.com/tools



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01/2022-A

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Tel. +41 52 631 11 11 • www.gfps.com • E-Mail: info.ps@georgfischer.com