



**Ball valve made of cast 316 stainless steel
3-way, screwed body**

- 800 PSI WOG
- Thread ends
- Standard port to Sch 40 pipe
- Compact body size
- PTFE seals, 4 seats design
- Blow-out proof stem with self adjust packing
- ISO 5211 mounting flange

Product variants described in the data sheet may differ from the product presentation and description.

Can be combined with

	Type 2051 Pneumatic rotary actuator	▶
	Type 3003 Electrical Rotary Actuator On/Off and control	▶
	Type 3004 Explosion Proof Rotary Actuator On/Off or Control	▶
	Type 3005 Electrical Rotary Actuator On/Off and Control	▶
	Type 8792 Digital electropneumatic positioner SideCONTROL	▶

Type description

This Burkert ball valve design is an industry proven threaded investment cast body with PTFE/FKM sealing. It finds wide use in mixing, blending and diverting applications at reduced torque. The self-adjusting packing gland is a dual sealing type with an alignment collar for superior tightness.

The Type 2651 is automation ready with an ISO 5211 mounting pad for direct coupling of the actuator. A full range of actuators, pilots, digital positioners, feedback switches and bus network options are available for integration into plant control systems.

For maintenance, this design allows removal of all seals through three ports. The screwed body provides for easy re-assembly, and more compact than multi piece bolted designs. The ball is standard port style, presenting a CV and pressure drop complimentary to mixing or blending control and diverting process applications.

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1. General technical data

Product properties	
Dimensions	Further information can be found in chapter "4. Dimensions" on page 6.
Material	
Seal	PTFE (ball seal, others to application) FKM (stem seal)
Body	Stainless steel 1.4408/316
Ball	Stainless steel 1.4401/316
Stem	Stainless steel 1.4401/316
Packing gland	Self-adjusting RPTFE, PTFE and FKM with stainless steel 1.4301/304 guide/follower
Ball bore (3/2-way)	L-bore Further information can be found in chapter "5.1. Switching positions 3-way" on page 9.
Flow direction	Seals to rated pressure in all directions
Control functions	A, B and I Further information can be found in chapter "2. Control functions" on page 3.
Control option	Size to conditions
Performance data	
Nominal pressure	800 PSI: ¼"...2"
Medium data	
Medium temperature	- 20 °F...+ 375 °F (PTFE)
Operating medium	Compatible with materials of construction and pressure / temperature limits of seals
Viscosity	As torque effect allows
Product connections	
Port connection	NPT ¼"...NPT 2"
Port diameter class	Standard port to Sch 40 pipe size
Environment and installation	
Installation	As required

1.) Other valve body materials available to meet your specifications, contact your local Bürkert sales department for more information.

2. Control functions

Symbol	Description
	Control function A (CF A) Pneumatically operated 2/2-way on/off valve Flow direction above seat Normally closed by spring force
	Control function B (CF B) Single-acting actuator for pneumatically operated 2/2-way on/off valve Normally ed by spring force
	Control function I (CF I) Pneumatically operated 2/2-way on/off valve on either side Bidirectional Switching position dependent on external control

3. Materials

3.1. Bürkert resistApp

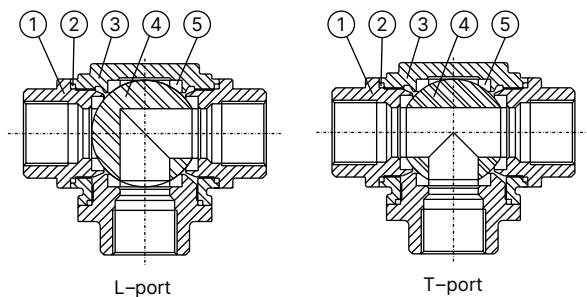
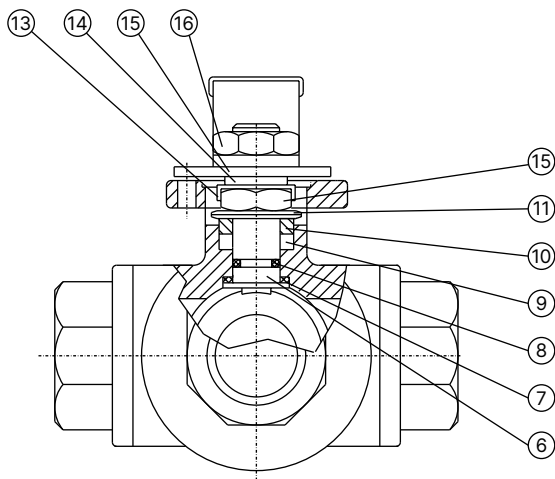
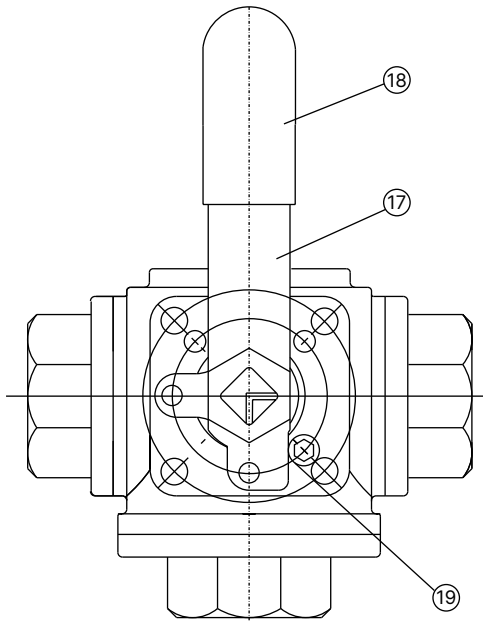
Bürkert resistApp – Chemical resistance chart

You want to ensure the reliability and durability of the materials in your individual application case? Verify your combination of media and materials on our website or in our resistApp.

[Start chemical resistance check](#)

3.2. Material specifications

3-way manual ball valve



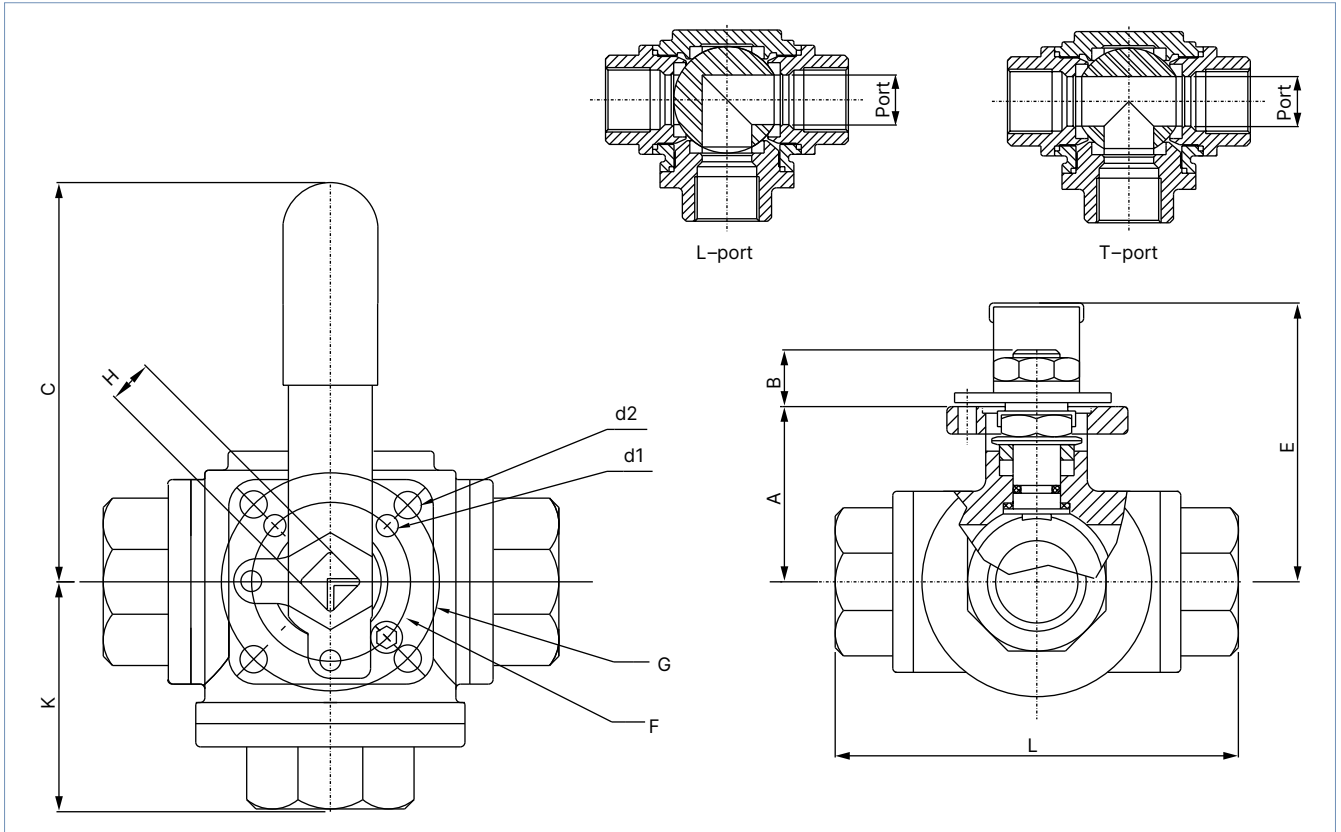
No.	Element	Material
1	End cap	Stainless steel 1.4408/316
2	Gasket	PTFE
3	Body	Stainless steel 1.4408/316
4	Ball	Stainless steel 1.4401/316
5	Seat	PTFE
6	Stem	Stainless steel 1.4401/316
7	Thrust washer	RPTFE
8	O-ring	FKM
9	Stem packing	PTFE
10	Gland	Stainless steel 1.4301/304
11	Disk washer	Stainless steel 1.4310/301
12	Stem nut	Stainless steel 1.4301/304
13	Nut stop	Stainless steel 1.4301/304
14	Space washer	Stainless steel 1.4301/304
15	Plater	Stainless steel 1.4301/304
16	Handle nut	Stainless steel 1.4301/304
17	Handle	Stainless steel 1.4301/304
18	Sleeve	Plastic
19	Stop pin	Stainless steel 1.4301/304
20	Insert pin	Stainless steel 1.4401/316
21	Stop pin nut	Stainless steel 1.4301/304

4. Dimensions

4.1. 3-way manual ball valve

Note:

Dimensions in mm

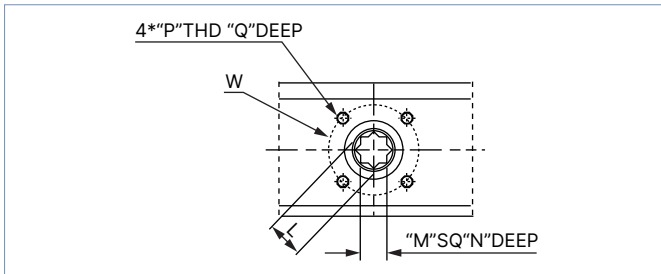


Full port	Standard port	A	B	C	d1	d2	E	F	G	H	K	L	Port	Full W [lb]	Standard W [lb]
1/4"	-	37	9.5	130	6	6	62	36	42	9	35	72	11	1.45	1.45
3/8"	1/2"	37	9.5	130	6	6	62	36	42	9	35	72	12	1.45	1.45
1/2"	3/4"	42	11	130	6	6	64	36	42	9	40.5	84.5	15	1.89	1.45
3/4"	1"	49	14	165	6	7.1	82	42	50	11	49.5	100	20	3.26	1.89
1"	1 1/4"	55	14	165	6	7.1	89	42	50	11	56.5	113	25	4.89	3.35
1 1/4"	1 1/2"	63	17	205	7.1	9.2	98	50	70	14	62	125.5	32	7.09	4.8
1 1/2"	2"	74	16	205	7.1	9.2	108	50	70	14	73.5	150	38	11.81	7.45
2"	-	92	21	325	9.2	11.4	140	70	102	17	87	174	50	21.38	11.59

4.2. 2051 ISO connection / star adapter

Note:

Dimensions in mm

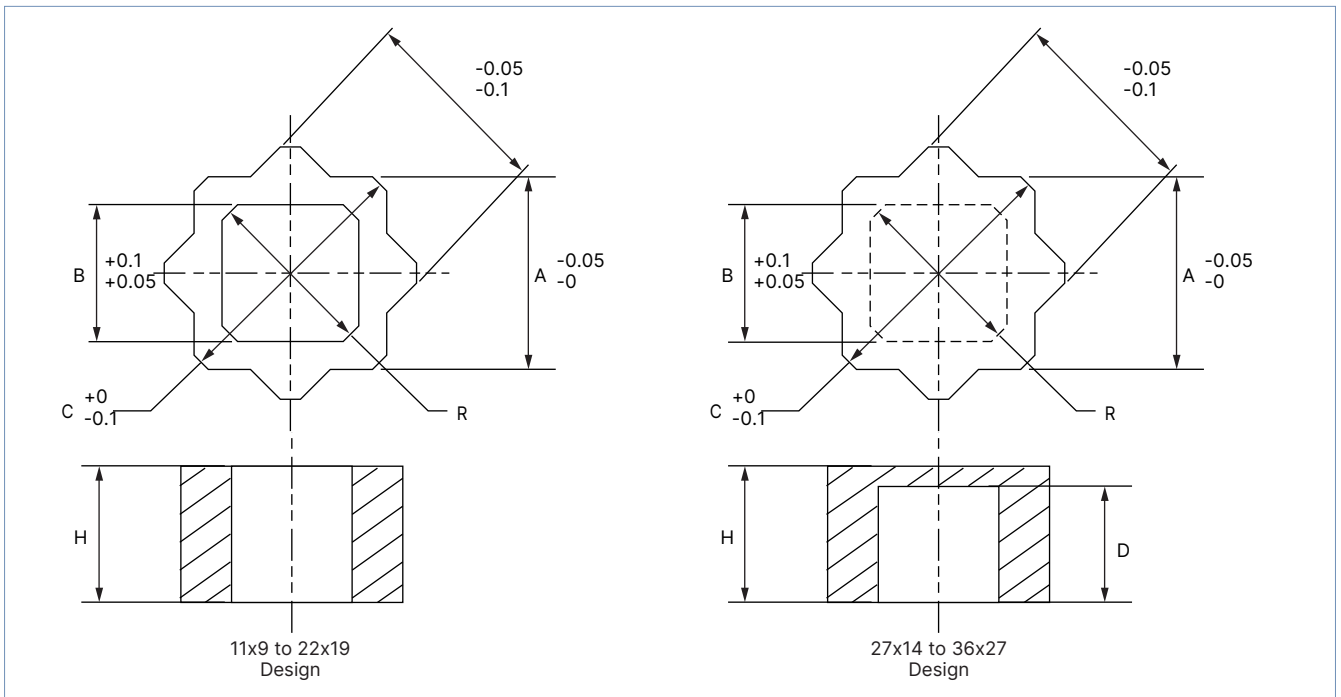
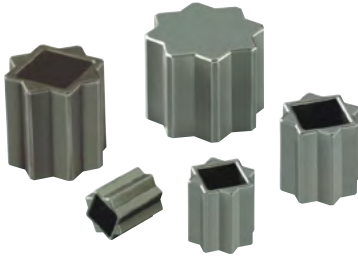


Actuator size	Interface acc. to ISO 5211	L	M	N	P	Q	W
125	F04	12.5	9	10	MxP0.8	8	42
250	F04 or F05	14.5	11	17	M5xP0.8/M6xP1.0	8.0/10.0	42.0/50.0
450	F05, F07	18.8	14	21	M6xP1.0/M8xP1.25	10.0/12.0	50.0/70.0
1000	F05, F07	23	17	25.5	M6xP1.0/M8xP1.25	10.0/12.0	50.0/70.0
2250	F07, F10	29.5	22	31	M8xP1.25/M10xP1.5	12.0/15.0	70.0/102.0
3650	F10, F12	35.5	27	35	M10xP1.5/M12xP1.75	15.0/19.0	102.0/125.0
5000	F10, F12	35.5	27	35	M10xP1.5/M12xP1.75	15.0/19.0	102.0/125.0
11000	F14	47.5	36	45	M16xP2.0	24	140

4.3. Reducing sleeve

Note:

Dimensions in mm

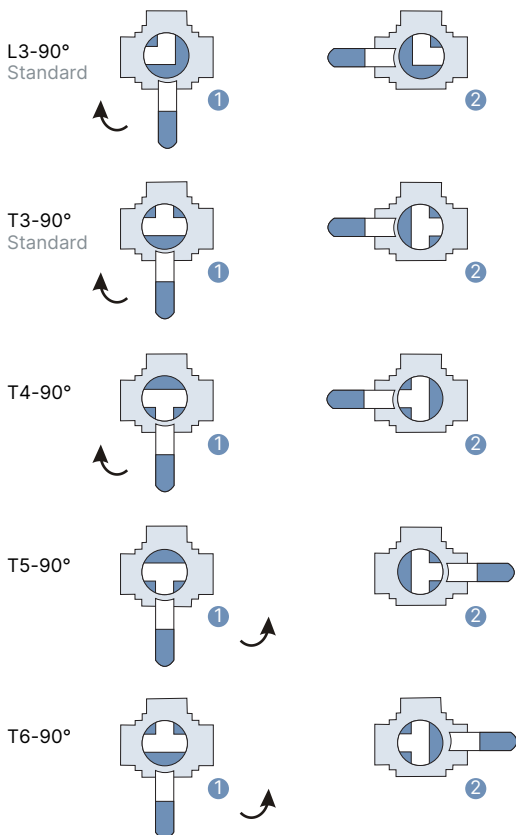


Insert	A	B	C	D	H	R	Article no.
11 × 9	11	9	15	–	17	12.5	98125211
14 × 9	14	9	19.1	–	20	12.5	665288
14 × 11	14	11	19.1	–	20	14.5	665289
17 × 9	17	9	23.1	–	24	12.5	98125212
17 × 11	17	11	23.1	–	24	14.5	98125213
17 × 14	17	14	23.1	–	24	19.2	665290
22 × 14	22	14	29.6	–	30	19.2	666684
22 × 17	22	17	29.6	–	30	23.3	666685
27 × 14	27	14	36	27	29	19.2	98125214
27 × 17	27	17	36	27	29	23.3	98125215
27 × 22	27	22	36	27	29	30	98125216
36 × 27	36	27	48	33	35	37	98125217

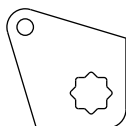
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5. Product connections

5.1. Switching positions 3-way



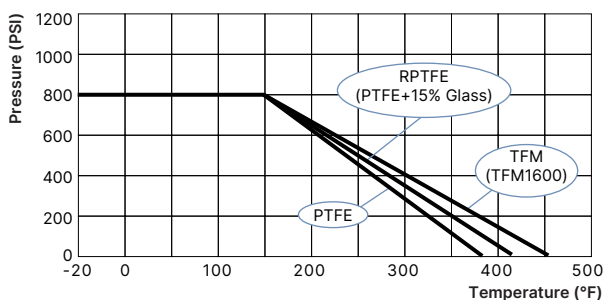
The Type 2651 3-way ball valve is available for 180° operation. This design allows for more flow patterns to be used in your piping. Users simply have to change a 180° stop plate for this option.



180° stop plate

6. Performance specifications

6.1. Pressure temperature diagram



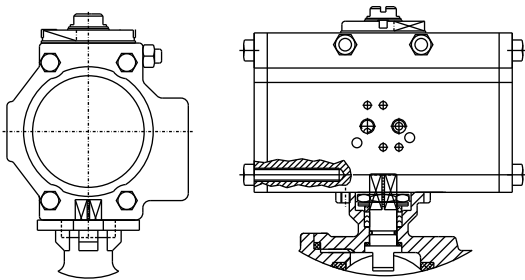
7. Product design and assembly

7.1. Product design

ISO direct mount

ISO direct mount for directly assembling actuator:

- Pneumatic (DA or SR) – Electric actuator
- Solenoid valve – Limit Switch Box – EP



8. Ordering information

8.1. Bürkert eShop



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8.3. Ordering chart for 3-way manual ball valves with L port

Port connections	Orifice [mm]	C _v [gal/min]	Seat material	WOG [psi]	Break torque value at 0 PSI		Interface acc. to ISO 5211	Article no.
					Lubed [Nm (in/lb)]	Non-lubed [Nm (in/lb)]		
1/4"	11	7	PTFE	800	9.0 (80)	12.0 (106)	F03, F04	98124892
3/8"	12	7	PTFE	800	9.0 (80)	12.0 (106)	F03, F04	98124893
1/2"	12	7	PTFE	800	9.0 (80)	12.0 (106)	F03, F04	98124894
3/4"	15	12	PTFE	800	11.0 (97)	15.0 (133)	F04, F05	98124895
1"	20	12	PTFE	800	13.0 (115)	18.0 (159)	F04, F05	98124896
1 1/4"	25	32	PTFE	800	24.0 (212)	33.0 (292)	F05, F07	98124897
1 1/2"	32	61	PTFE	800	43.0 (381)	60.0 (531)	F05, F07	98457898
2"	38	76	PTFE	800	53.0 (664)	75.0 (664)	F05, F07	98124899

8.4. Ordering chart for 2051 pneumatic actuators

Note:

When selecting an actuator we suggest a 20 % to 40 % above the break torque of the valve (subject to the valve and operating conditions). For other specifications, dimensions, and electrical connections see specific datasheets.

Double-acting actuator (Control function I) torque ratings (in-lbs)

Actuator size	Air torque output at operating pressure [Psig]					Article no.
	40	60	80	100	120	
125	63	94	125	156	188	98124996
250	125	187	250	312	375	98124997
450	225	337	450	562	675	98124998
1000	500	750	1000	1250	1500	98124999
2250	1125	1687	2250	2812	3375	98125000
3650	1825	2738	3650	4563	5475	98125001
5000	2500	3750	5000	6250	7500	98125002
11000	5500	8250	11000	13750	16500	98125003

Spring-return actuator (Control function A/B)

Actuator size	Spring set	Spring torque		Air torque output at operating pressure [Psig]								Article no.
				60		80		100		120		
		Start	End	Start	End	Start	End	Start	End	Start	End	
125	R3	104	67	113	70	176	133	229	195	301	258	98124976
	R4	140	90	88	31	151	93	213	156	276	218	98124977
450	R3	190	121	203	125	316	238	428	350	541	463	98124978
	R4	254	162	158	54	271	167	383	279	496	392	98124979
1000	R3	418	270	449	278	698	526	947	775	1196	1025	98124980
	R4	559	360	350	120	599	371	848	618	1097	867	98124981
2250	R3	990	590	1034	591	1596	1154	2159	1717	2722	2280	98124984
	R4	1320	787	816	226	1379	788	2029	1351	2505	1914	98124986
3650	R3	1573	912	1726	996	2637	1907	3549	2819	4460	3730	98124988
	R4	2091	1217	1388	423	2300	1335	3211	2246	4123	3157	98124989
5000	R3	2340	1180	2380	1200	3570	2400	4760	3590	5960	4780	98124990
	R4	3130	1570	1980	414	3180	1600	4370	2800	5560	3990	98124991
11000	R3	5100	2570	5200	2650	7790	5240	10400	7840	13000	10400	98124992
	R4	6790	3430	4330	932	6930	3530	9520	6130	12100	8730	98124993

8.5. Ordering charts for electric actuators

Note:

When selecting the on/off variant, we recommend a safety torque equal to 1.5 times the max break torque of the valve, and for the control variant we recommend a safety torque equal to 2 times the max break torque of the valve. For other specifications, dimensions, and electrical connections see specific datasheets.

3003 Multi-voltage actuator On/Off variant

Drive stars	Reducing sleeve included	Interface acc. to ISO 5211	Torque	90° rotation time ± 1 s	Power consumption	Voltage / frequency	Article no.
[mm]	[mm]		[Nm]	[s]	[W]		
14	14/11, 14/9	F05 (F03, F04)	20	12	15	15...30 V AC, 50/60 Hz / 12...24 V DC ¹⁾	225192
14	14/11, 14/9	F05 (F03, F04)	20	12	15	100...240 V AC, 50/60 Hz / 100...350 V DC	225193
22	22/14	F05-F07	35	7	45	15...30 V AC, 50/60 Hz / 12...24 V DC ¹⁾	225194
22	22/14	F05-F07	35	7	45	100...240 V AC, 50/60 Hz / 100...350 V DC	225195
22	22/14	F05-F07	60	12	45	15...30 V AC, 50/60 Hz / 12...24 V DC ¹⁾	225196
22	22/14	F05-F07	60	12	45	100...240 V AC, 50/60 Hz / 100...350 V DC	225197
22	22/17	F05-F07	100	23	45	15...30 V AC, 50/60 Hz / 12...24 V DC ¹⁾	225198
22	22/17	F05-F07	100	23	45	100...240 V AC, 50/60 Hz / 100...350 V DC	225225

1.) The operating voltage must not fall below 11.5 V

3003 Multi-voltage actuator control variant, input and output signals (programmable 0...10 V, 4...20 ma and 0...20 ma)

Drive stars	Reducing sleeve included	Interface acc. to ISO 5211	Torque	90° rotation time ± 1 s	Power consumption	Voltage / frequency	Article no.
[mm]	[mm]		[Nm]	[s]	[W]		
14	14/11, 14/9	F05 (F03, F04)	20	25	15	15...30 V AC, 50/60 Hz / 12...24 V DC ¹⁾	225199
14	14/11, 14/9	F05 (F03, F04)	20	25	15	100...240 V AC, 50/60 Hz / 100...350 V DC	225200
22	22/14	F05-F07	35	40	45	15...30 V AC, 50/60 Hz / 12...24 V DC ¹⁾	225201
22	22/14	F05-F07	35	40	45	100...240 V AC, 50/60 Hz / 100...350 V DC	225202
22	22/14	F05-F07	60	79	45	15...30 V AC, 50/60 Hz / 12...24 V DC ¹⁾	225203
22	22/14	F05-F07	60	79	45	100...240 V AC, 50/60 Hz / 100...350 V DC	225204
22	22/17	F05-F07	100	119	45	15...30 V AC, 50/60 Hz / 12...24 V DC ¹⁾	225205
22	22/17	F05-F07	100	119	45	100...240 V AC, 50/60 Hz / 100...350VDC	225206

1.) The operating voltage must not fall below 11.5 V

3005 Multi-voltage actuator On/Off variant

Drive stars	Reducing sleeve included	Interface acc. to ISO 5211	Torque	90° rotation time ± 1 s	Power consumption	Voltage / frequency	Article no.
[mm]	[mm]		[Nm]	[s]	[W]		
22	22/17	F07-F10	150	30	45	100...240 V AC, 50/60 Hz	181303
22	22/17	F07-F10	150	30	45	24 V AC/DC	181304
22	22/17	F07-F10	300	50	85	100...240 V AC, 50/60 Hz	181305
22	22/17	F07-F10	300	50	85	24 V AC/DC	181306

3005 Multi-voltage actuator control variant, input and output signals (programmable 0...10 V, 4...20 ma and 0...20 ma)

Drive stars	Reducing sleeve included	Interface acc. to ISO 5211	Torque	90° rotation time ± 1 s	Power consumption	Voltage / frequency	Article no.
[mm]	[mm]		[Nm]	[s]	[W]		
22	22/17	F07-F10	150	30	45	100...240 V AC, 50/60 Hz	181293
22	22/17	F07-F10	150	30	45	24 V AC/DC	179725
22	22/17	F07-F10	300	50	85	100...240 V AC, 50/60 Hz	181307
22	22/17	F07-F10	300	50	85	24 V AC/DC	179726

3004 Ex actuator On/Off variant (ATEX II 2 GD Ex d II B T6)

Drive stars	Reducing sleeve included	Interface acc. to ISO 5211	Torque	90° rotation time ± 1 s	Power consumption	Voltage / frequency	Article no.
[mm]	[mm]		[Nm]	[s]	[W]		
17	17/11	F05-F07	25	7	45	100...240 V AC, 50/60 Hz	181308
17	17/11	F05-F07	25	7	45	24 V AC/DC	181309
17	17/14	F05-F07	45	15	45	100...240 V AC, 50/60 Hz	181310
17	17/14	F05-F07	45	15	45	24 V AC/DC	181311
17	17/14	F05-F07	75	20	45	100...240 V AC, 50/60 Hz	181312
17	17/14	F05-F07	75	20	45	24 V AC/DC	181313
22	22/17	F07-F10	100	15	45	100...240 V AC, 50/60 Hz	181314
22	22/17	F07-F10	100	15	45	24 V AC/DC	181315
22	22/17	F07-F10	150	30	45	100...240 V AC, 50/60 Hz	181316
22	22/17	F07-F10	150	30	45	24 V AC/DC	181317
22	22/17	F07-F10	300	50	85	100...240 V AC, 50/60 Hz	181318
22	22/17	F07-F10	300	50	85	24 V AC/DC	181319

3004 Ex actuator control variant (ATEX II 2 GD Ex d II B T6), input and output signals (programmable 0...10 V, 4...20 ma and 0...20 ma)

Drive stars	Reducing sleeve included	Interface acc. to ISO 5211	Torque	90° rotation time ± 1 s	Power consumption	Voltage / frequency	Article no.
[mm]	[mm]		[Nm]	[s]	[W]		
17	17/11	F05-F07	25	15	45	100...240 V AC, 50/60 Hz	182324
17	17/11	F05-F07	25	15	45	24 V AC/DC	182326
17	17/14	F05-F07	45	15	45	100...240 V AC, 50/60 Hz	182327
17	17/14	F05-F07	45	15	45	24 V AC/DC	182330
17	17/14	F05-F07	75	20	45	100...240 V AC, 50/60 Hz	182335
17	17/14	F05-F07	75	20	45	24 V AC/DC	182384
22	22/17	F07-F10	100	15	45	100...240 V AC, 50/60 Hz	182385
22	22/17	F07-F10	100	15	45	24 V AC/DC	182386
22	22/17	F07-F10	150	30	45	100...240 V AC, 50/60 Hz	182388
22	22/17	F07-F10	150	30	45	24 V AC/DC	182390
22	22/17	F07-F10	300	50	85	100...240 V AC, 50/60 Hz	182392
22	22/17	F07-F10	300	50	85	24 V AC/DC	182394

8.6. Ordering chart for accessories

Reducing sleeve

Note:

Further ordering information can be found in chapter "4.3. Reducing sleeve" on page 8.

NAMUR pilot valve 6519 with 5/2-way and 3/2-way

Note:

For other specifications, dimensions and electrical connections see specific datasheets.

Circuit function	Orifice [mm]	Q _{Nn} valve air [l/min]	C _v [gal/min]	Seal material	Socket connection material	Voltage / frequency	Article no.
CF W	6.0	900	1.3	NBR, PUR	Nickel-plated brass	24 V DC, 2 W	132727
						24 V 60 Hz, 2 W	420843
						120 V 60 Hz, 2 W	420844
						240 V 60 Hz, 2 W	420845
CF W	6.0	900	1.3	NBR, PUR	Stainless Steel	24 V DC, 2 W	458411
						24 V 60 Hz, 2 W	458410
						120 V 60 Hz, 2 W	458412
						240 V 60 Hz, 2 W	458413

Limit switch boxes

Type	Ambient temperature	Protection class	Position feedback	Position indicator	Cable entry	Article no.
APL-210 N	- 4 °F...+ 176 °F (- 20 °C...+ 80 °C)	IP67/NEMA 4 and 4X	2 SPDT Mechanical	Closed (red), Open (yellow)	2 x 1/2" NPT	98125280
E-07	- 4 °F...+ 185 °F (- 20 °C...+ 85 °C)	Ex d IIC T6	2 SPDT Mechanical	Closed (red), Open (yellow)	2 x 3/4" NPT	98125281
APL-510 N	- 4 °F...+ 140 °F (- 20 °C...+ 60 °C)	IP67/NEMA 4, 4X, 7, 9 E Ex d IIC T6	2 SPDT Mechanical	Closed (red), Open (yellow)	2 x 3/4" NPT	98125282

Ordering chart for ISO pattern screw sets [mm]

Interface acc. to ISO 5211	4 x socket set screw DIN 916 A2 S/S 18 - 8	Includes 4 x flat washer DIN 125 A4 S/S 18 - 8	4 x metric hex nut DIN 934 A2 S/S 18 - 8	Article no.
	[mm]	[mm]	[mm]	
F04	M5 - 0.8 × 25	M5 - 5.3 × 10	M5 - 0.8 × 8 × 4	98125298
F05	M6 - 1 × 25	M6 - 6.4 × 12	M6 - 1 × 10 × 5	98125299
F07	M8 - 1.25 × 25	M8 - 8.4 × 16	M8 - 1.25 × 13 × 6.5	98125300
F10	M10 - 1.5 × 35	M10 - 10.5 × 20	M10 - 1.5 × 17 × 8	98125301
F12	M12 - 1.75 × 40	M12 - 13 × 24	M12 - 1.75 × 19 × 10	98125302
F14	M16 - 2 × 40	M16 - 17 × 28	M16 - 2 × 24 × 13	98125303