F-4 / F-5 ISO-STANDARD

Four way and five way plug valve with ISO top flange

DIN-EN: DN 15 – 600 / PN 10 – 40
ASME: NPS ½“ – 24“ / class 150 – 300
PT range: -30 < T < 230/280°C, vacuum 10-8 mbar

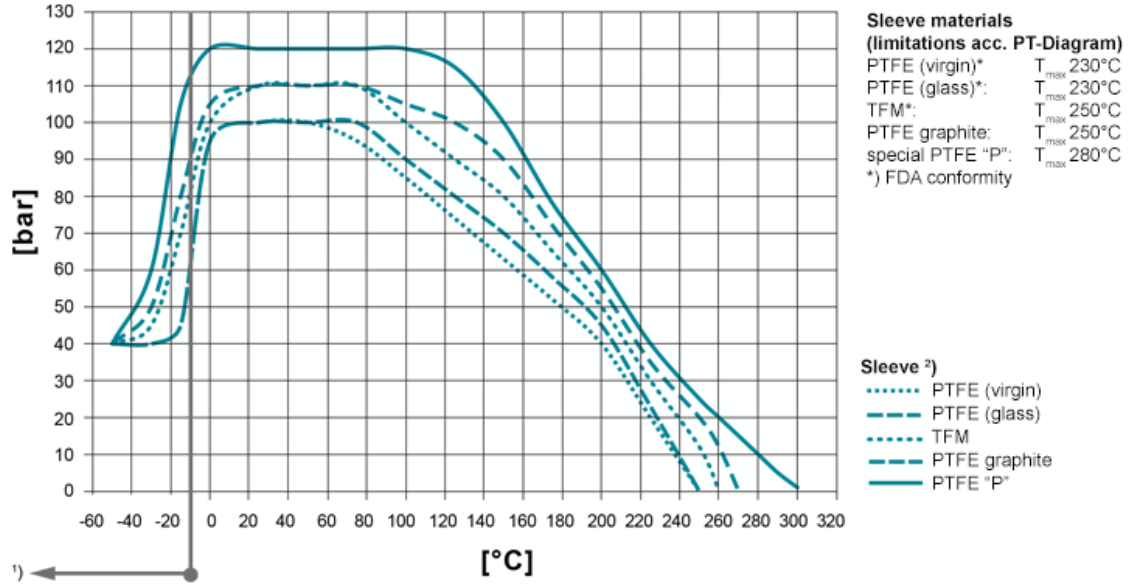
Design Features

Design Characteristics

- free of cavities
- maintenance free – self lubricating
- mounting-flange for actuators acc. to DIN ISO 5211
- easy accessible adjustment of the plug, even with mounted actuator
- vacuum tight
- fugitive emmission resp. clean air act certified (TA-Luft 2002 approval)
- Directive 2014/68/EU
- Firesafe design API 607 ISO 10497
- FDA conformity

PT-Diagram

General Pressure-Temperature-Diagram



Operating temperatures < -30°C and > 220 °C have to be checked and approved by AZ according to the operating conditions.

Besides the P/T value of the sleeve the limitations of the valve bodies also have to be considered. Please refer to the EN 12516-1 resp. ASME B16.34 in order to choose a proper pressure rating (PN/class). The shown values refer to austenitic stainless steel 1.4408 (A351 Gr. CF8M).

1) For operating temperatures below -10°C low temperature / austenitic steels are required.
2) Sleeve: There are different sleeve materials / compounds available.

Materials

Standard body materials
- Carbon Steel 1.0619, ASTM A216 WCB
- Stainless Steel 1.4408, ASTM A351 CF8M
- Stainless Steel 1.4308, ASTM A351 CF8
- Unalloyed stainless steel casting (low Temp.) 1.1138, LCC/LCB/A352

Standard plug materials
- Stainless Steel 1.4408, ASTM A351 CF8M
- Stainless Steel 1.4308, ASTM A351 CF8

Special materials
- Alloy
- Monel
- Nickel

- Zirconium
- Titan
- Tantal
- other materials on request

“>Sealing Systems

Standard sealing for all major applications;
Tmax 230°C

Type STD

read more [...]

Firesafe sealing (API 607) with graphite packing for additional
stem sealing; Tmax 230°C

Type FS

read more [...]

Chemical sealing to prevent fugitive emission of aggressive and toxic media
with PTFE packing for additional stem sealing;
T_{max} 230°C

Type CA

read more [...]

Firesafe safety sealing (API 607) for fluctuating temperatures
with 3x graphite packing (adjustable) for additional stem sealing; Tmax 280°C

Type FSN

read more [...]

Firesafe safety sealing (API 607) for fluctuating temperatures
with 3x graphite packing (live loaded disc springs) for additional
stem sealing; Tmax 280°C

Type FSN-SL

read more [...]

Chemical safety sealing for fluctuating temperatures
with 3x PTFE packing (adjustment) for additional stem sealing;
Tmax 230°C

Type CASN

read more [...]

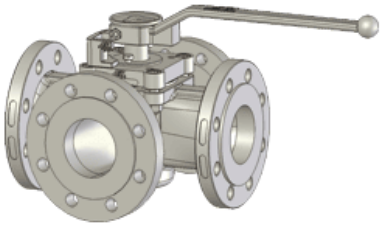
Chemical safety sealing for fluctuation temperatures
with 3x PTFE packing (live loaded disc springs) for additional stem sealing; Tmax 230°C

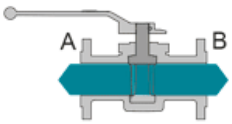
Type CASN-SL

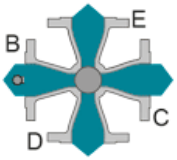
read more [...]

Port Forms

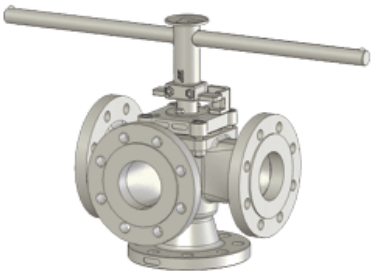
AZ plug valves are fitted with cast, rust proof position indicators.
The position indicator is securely welded to the lever to prevent it from working loose.

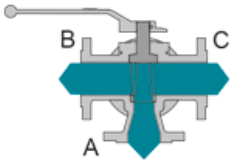


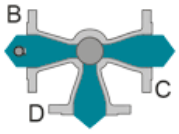


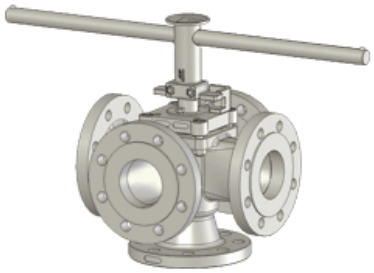


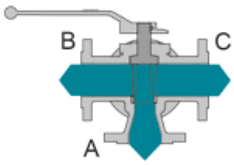
Form L4	Pos. I = 0°	Pos. II = 90°	Pos. III = 180°	Pos. IV = 270°
Form T4	Pos. I = 0°	Pos. II = 90°	Pos. III = 180°	Pos. IV = 270°
Form LL4	Pos. I = 0°	Pos. II = 90°	Pos. III = 180°	Pos. IV = 270°

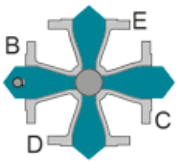


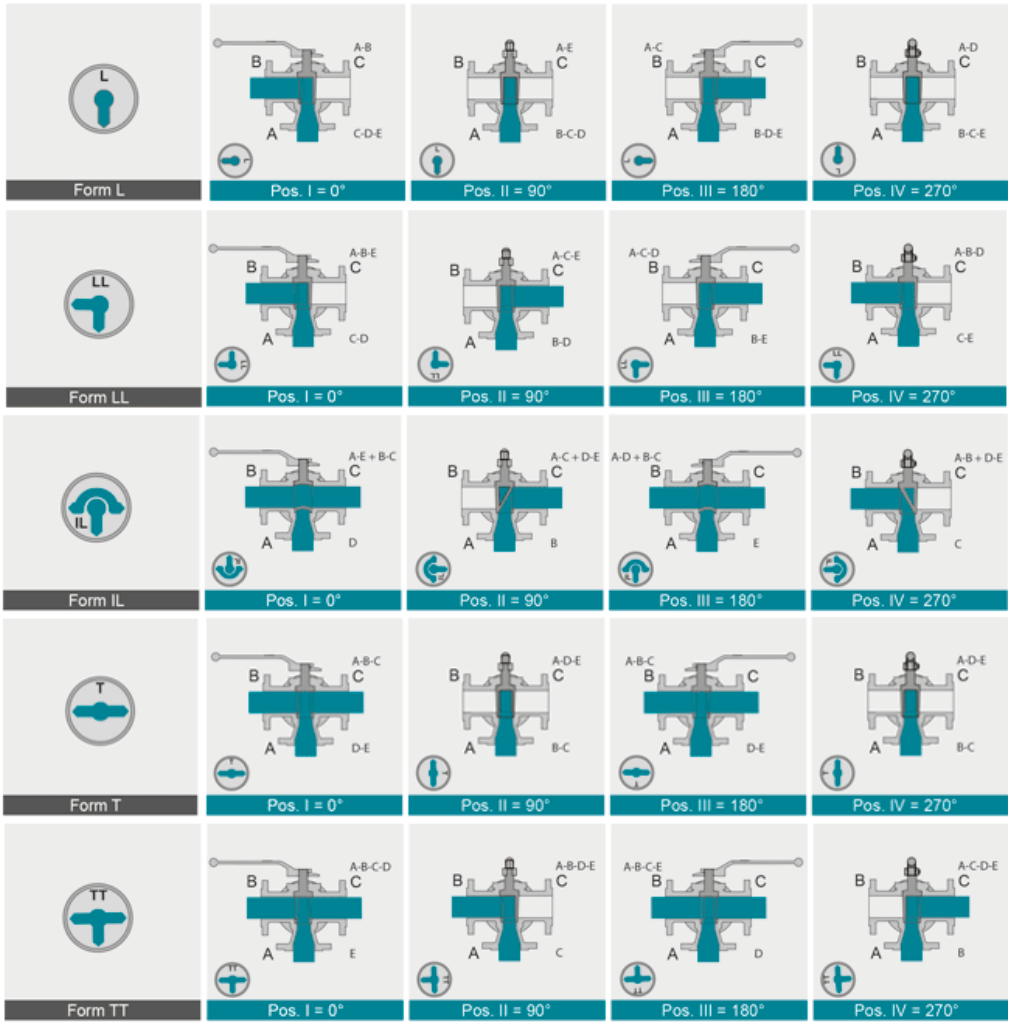

B
C
A


B
C
D

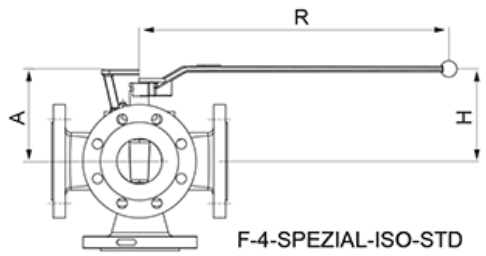



B
C
A

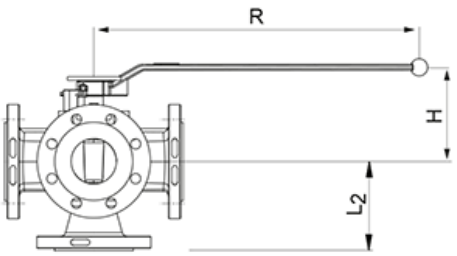

E
B
C
D

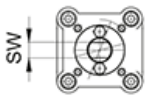

L
Form L
A-B
B
C
A
C-D-E
Pos. I = 0°
A-E
B
C
A
B-C-D
Pos. II = 90°
A-C
B
C
A
B-D-E
Pos. III = 180°
A-D
B
C
A
B-C-E
Pos. IV = 270°
LL
Form LL
A-B-E
B
C
A
C-D
Pos. I = 0°
A-C-E
B
C
A
B-D
Pos. II = 90°
A-C-D
B
C
A
B-E
Pos. III = 180°
A-B-D
B
C
A
C-E
Pos. IV = 270°
IL
Form IL
A-E + B-C
B
C
A
D
Pos. I = 0°
A-C + D-E
B
C
A
B
Pos. II = 90°
A-D + B-C
B
C
A
E
Pos. III = 180°
A-B + D-E
B
C
A
C
Pos. IV = 270°
T
Form T
A-B-C
B
C
A
D-E
Pos. I = 0°
A-D-E
B
C
A
B-C
Pos. II = 90°
A-B-C
B
C
A
D-E
Pos. III = 180°
A-D-E
B
C
A
B-C
Pos. IV = 270°
TT
Form TT
A-B-C-D
B
C
A
E
Pos. I = 0°
A-B-D-E
B
C
A
C
Pos. II = 90°
A-B-C-E
B
C
A
D
Pos. III = 180°
A-C-D-E
B
C
A
B
Pos. IV = 270°

Dimensions

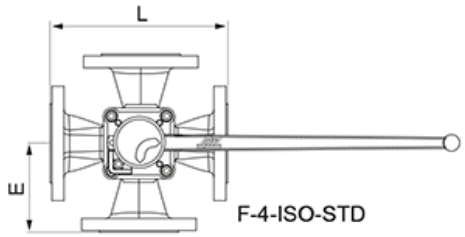


F-4-SPEZIAL-ISO-STD

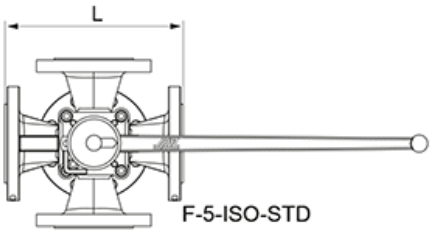




connection acc. to DIN ISO 5211



F-4-ISO-STD



F-5-ISO-STD

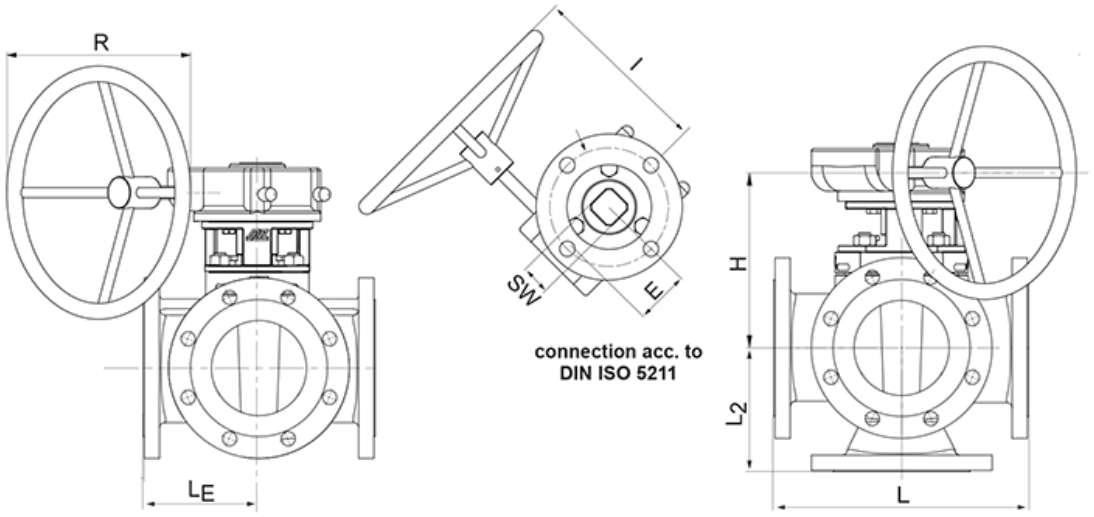
DIN EN 1092-1 / 588-1

DN	PN	L	L_2 / E	bracket / lever A	H	R	Type	dihedron	torque [Nm]*	weight [kg]**	K_{VS}-value [m^3/h]**	C_V-value [US.gal/min]**
15	10-40	130	65	88	103	200	F05	11	30	4,8	6	7
20	10-40	150	75	88	103	200	F05	11	30	7	7	8
25	10-40	160	80	94	109	200	F05	11	30	8,8	8	9
25X	10-40	160	80	102	117	320	F07	14	70	8,8	12	14
32	10-40	180	90	102	117	320	F07	14	70	10,2	17	20
40	10-40	200	100	109	124	320	F07	14	80	12	28	33
50	10-40	230	115	139	159	420	F07	19	120	19,5	54	63
65	10-40	290	145	158	165	600	F10	22	200	25	88	103
80	10-40	310	155	158	165	600	F10	22	200	32	89	103
100S	10-16 25-40	350 350	175	173	180	600	F10	22	300	39	170	197

ASME B 16.5 / 16.10

NPS	class	L	L_2 / E	bracket / lever A	H	R	Type	dihedron	torque [Nm]*	weight [kg]**	K_{VS}-value [m^3/h]**	C_V-value [US.gal/min]**
½"	150 300	108 140	54 70	88	103	200	F05	11	30	*** 4,8	6	7
¾"	150 300	118 152	59 76	88	103	200	F05	11	30	*** 7	7	8
1"	150 300	127 165	64 83	94	109	200	F05	11	30	*** 8,8	8	9
1½"	150 300	165 191	82,5 95	102	124	320	F07	14	80	*** 10,2	17	20
2"	150 300	178 216	89 108	139	159	420	F07	19	120	*** 12	54	63
2½"	150	290	145	158	165	600	F10	22	200	25	88	103
3"	150 300	203 283	102 142	158	165	600	F10	22	200	*** 32	89	103
4"S	150 300	228 305	152,5 171,5	158	180	600	F10	22	300	*** 39	170	197

* inclusive 100% safety factor for actuators
** F-4 valid for LL4 form of the plug
*** on request



DIN EN 1092-1 / 588-1

DN	PN	L	L_2	L_E	E	gear (Pro-Gear) R	H	I	Type	DIN flange	dihe-dron	torque [Nm]*	weight [kg]**	K_{VS}-value [m^3/h]**	C_V-value [US.gal/min]**
125	10-16 25-40	325	162	162	84	400	277	290	Q1500-S	F12	27	900	79	281	329
150	10-16 25-40	350	200	175	84	400	277	290	Q1500-S	F12	27	900	92	301	352
200	10-16 25 40	400	220	200	96,5	600	320	350	Q3000-S	F14	36	1200	142	522	663
250	10 16 25 40	450	275	225	137,5	600	372	465	Q6500-S	F16	46	1500	186	643	752
300	10 16 25 40	500	325	250	137,5	600	392	465	Q6500-S	F16	46	2600	196	1093	1280
350	10 16 25 40	550	***	***	137,5	600	460	465	Q6500-S	F25	55	5500	***	***	***
400	10 16 25 40	600	***	***	137,5	600	460	465	Q6500-S	F25	55	5500	***	***	***
450	10 16 25 40	650	***	***	180	600	485	520	Q12000-S	F25	55	6400	***	***	***
500	10 16 25 40	700	***	***	180	600	510	520	Q12000-S	F25	55	7500	***	***	***

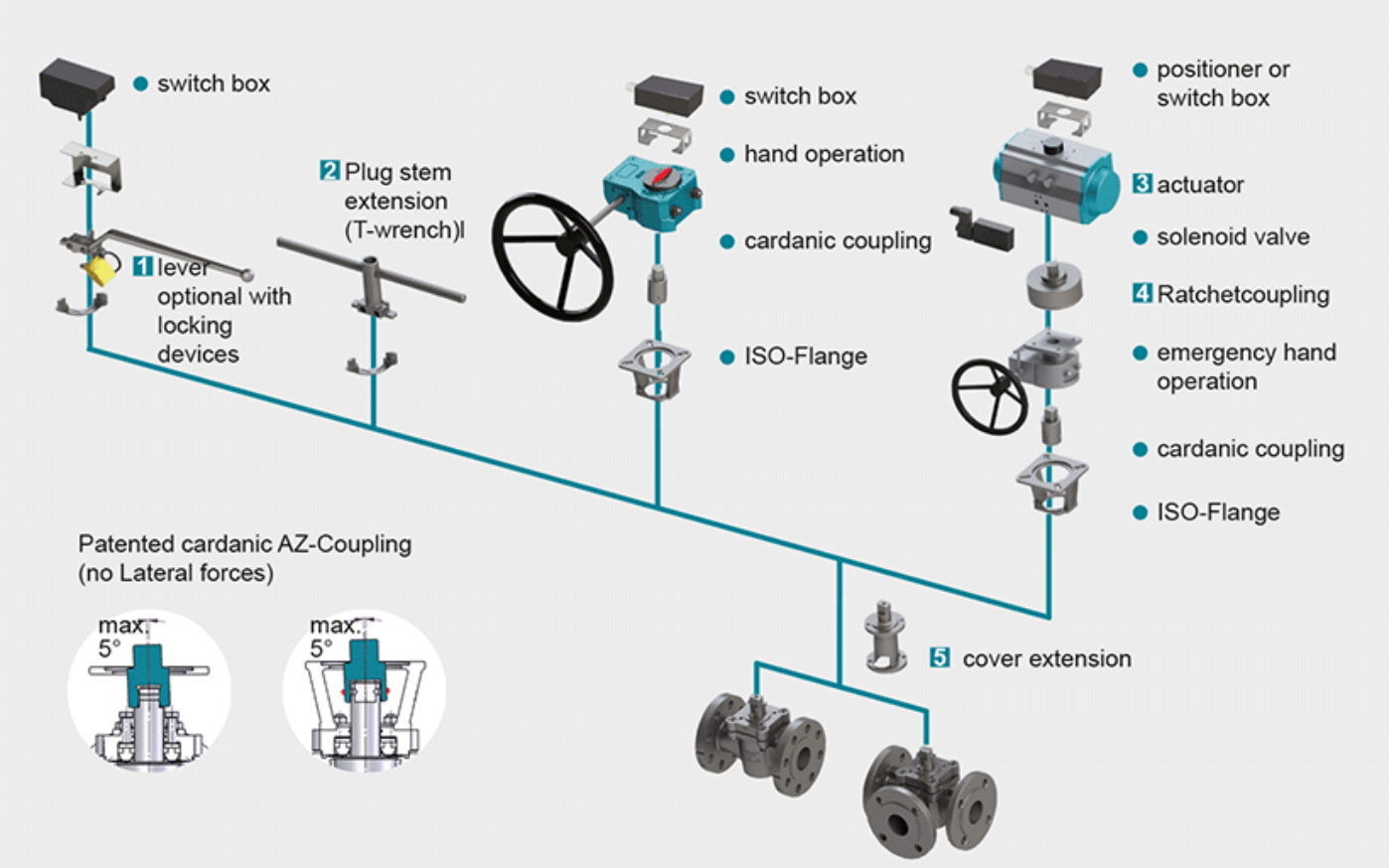
ASME B 16.5 / 16.10

NPS	class	L	L_2	L_E	E	gear (Pro-Gear) R	H	I	Type	DIN flange	dihe-dron	torque [Nm]*	weight [kg]**	K_{VS}-value [m^3/h]**	C_V-value [US.gal/min]**
5“	150 300	254 325	178 163	127 162	84	400	277	290	Q1500-S	F12	27	900	*** 79	281	329
6“	150 300	267 403	191 216	133 201	84	400	277	290	Q1500-S	F12	27	900	*** 92	301	352
8“	150 300	292 419	228 254	146 209	96,5	600	320	350	Q3000-S	F14	36	1200	*** 142	522	663
10“	150 300	330 457	311	165 228	137,5	600	372	465	Q6500-S	F16	46	1500	*** 186	643	752
12“	150 300	356 502	349 356	178 251	137,5	600	392	465	Q6500-S	F16	46	2600	*** 196	1093	1280
14“	150 300	550	***	***	137,5	600	460	465	Q6500-S	F25	55	5500	***	***	***
16“	150 300	600	***	***	137,5	600	460	465	Q6500-S	F25	55	5500	***	***	***
18“	150 300	864 914	***	***	180	600	485	520	Q12000-S	F25	55	6400	***	***	***
20“	150 300	914 991	***	***	180	600	510	520	Q12000-S	F25	55	7500	***	***	***

* inclusive 100% safety factor for actuators
** F-4 valid for LL4 form of the plug
*** on request

For geometric reasons, threads are used in the flange bores in a few cases

Actuation



1 Locking Devices
Pilot valve combinations, pad lock eyelets, linear key conception, indexing plunger arrestor.
read more [...]

2 Plug stem extension
Solid construction in stainless steel with T-wrench, Standard extension 100 mm or 150 mm, non standard lengths are available on request
read more [...]

3 Actuators
Actuators for mounting-flange acc. to DIN ISO 5211
read more [...]

NEW: Pneumatic actuator AIR GEAR for plug valves with high torque ≥150.000 Nm
read more [...]

4 Ratched coupling
To usw on multiport valves with standard 90° actuator for bigger switchpositions than 90°
read more [...]

5 Cover extension
Solid construction in stainless steel, Standard extension 100 mm or 150 mm high, non standard lengths are available on request . Hexagonal bolts on adjustment ring freely accessible. Note: Don’t use with sealing

FSN/FSN-SL and CASN/CASN-SL
read more [...]