

F-4/F-5 ISO-STD - 4 / 5 Way Plug Valve

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: $-30 < T < 230/280^{\circ}\text{C}$, vacuum 10-8 mbar



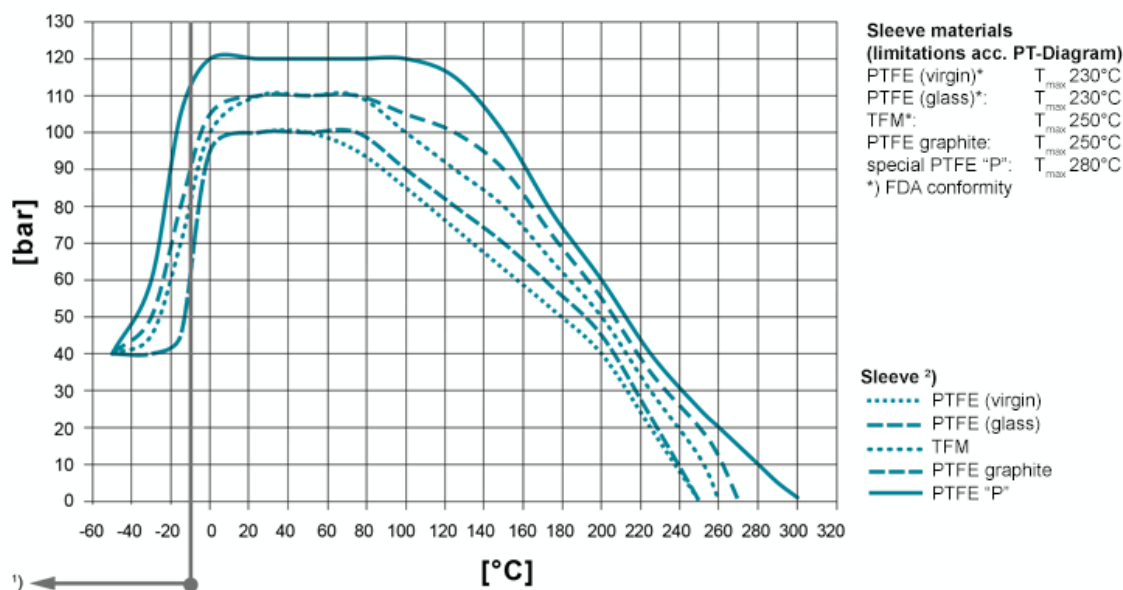
Design Features

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 emission 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
- Stainless Steel 1.4408, ASTM A351 CF8M
- Stainless Steel 1.4308, ASTM A351 CF8

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;
T_{max} 230°C

Type STD

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Firesafe sealing (API 607) with graphite packing for additional stem sealing; T_{max} 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; T_{max} 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; T_{max} 280°C

Type FSN-SL

[read more \[...\]](#)

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

T_{max} 230°C

Type CASN

[read more \[...\]](#)

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

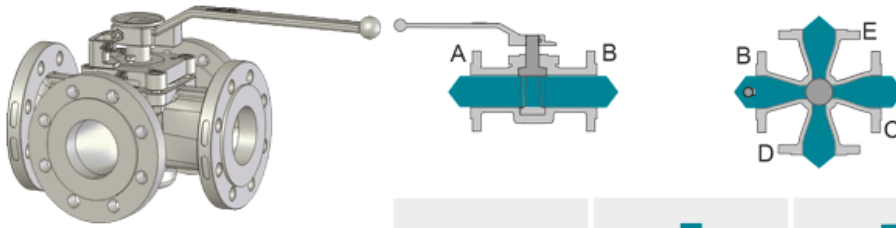
Type CASN-SL


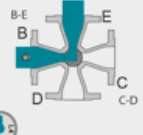
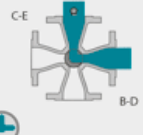
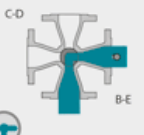
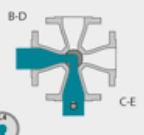

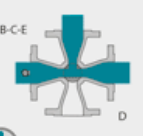
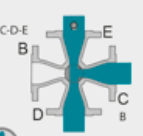
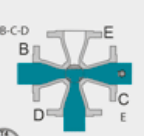
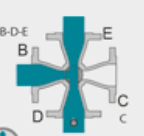


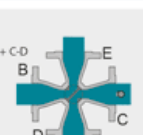
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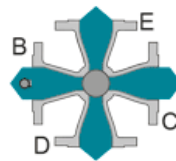
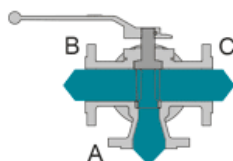
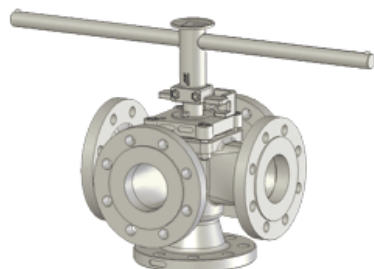
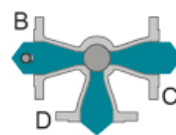
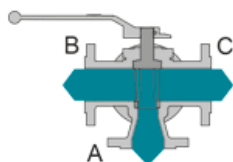
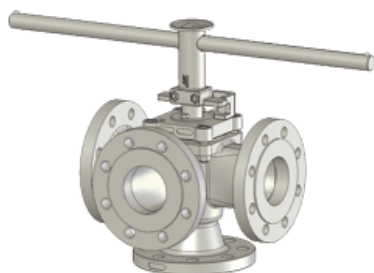
Port Forms


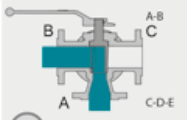
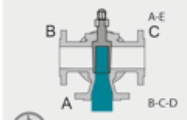
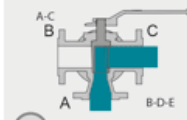
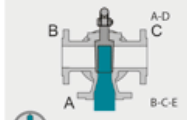

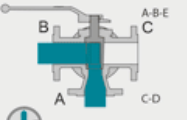
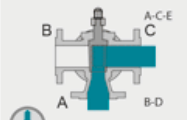
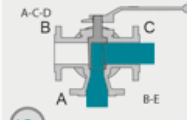
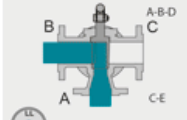

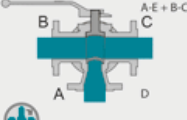
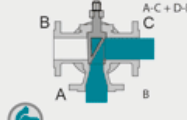
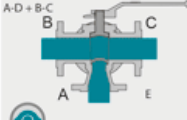
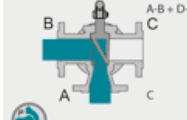

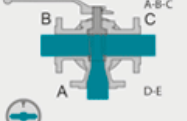
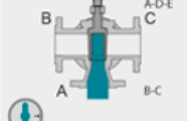

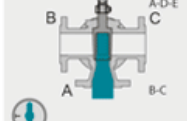


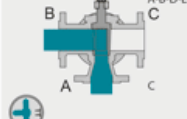

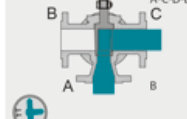


AZ plug valves are fitted with cast, rust proof position indicators
The position indicator is securely welded to the plug to prevent it from working loose.

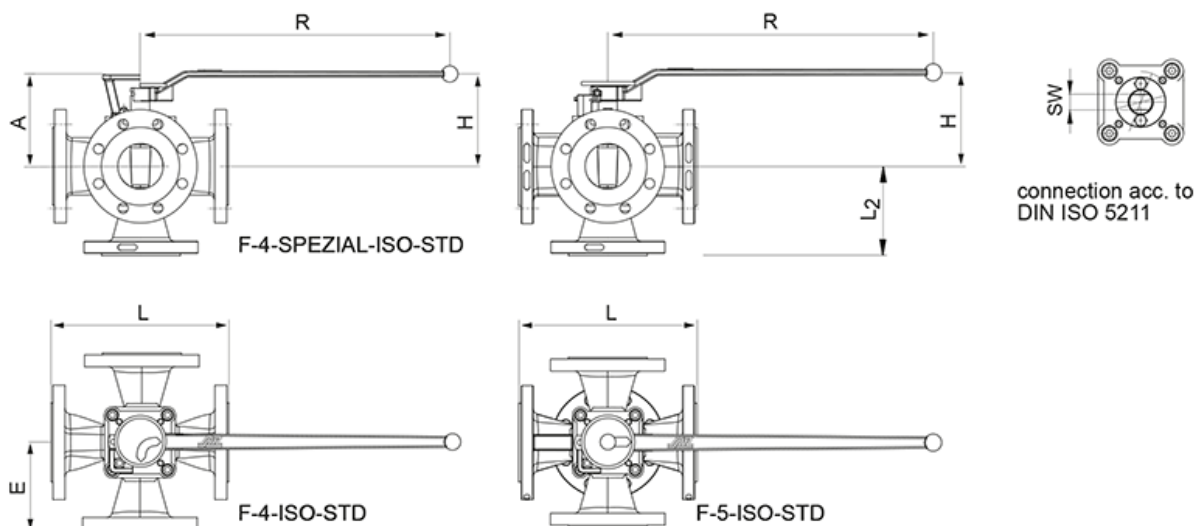


 <p>Form L4</p>	 <p>Pos. I = 0°</p>	 <p>Pos. II = 90°</p>	 <p>Pos. III = 180°</p>	 <p>Pos. IV = 270°</p>
 <p>Form T4</p>	 <p>Pos. I = 0°</p>	 <p>Pos. II = 90°</p>	 <p>Pos. III = 180°</p>	 <p>Pos. IV = 270°</p>
 <p>Form LL4</p>	 <p>Pos. I = 0°</p>	 <p>Pos. II = 90°</p>		



 <p>Form L</p>	 <p>Pos. I = 0°</p>	 <p>Pos. II = 90°</p>	 <p>Pos. III = 180°</p>	 <p>Pos. IV = 270°</p>
 <p>Form LL</p>	 <p>Pos. I = 0°</p>	 <p>Pos. II = 90°</p>	 <p>Pos. III = 180°</p>	 <p>Pos. IV = 270°</p>
 <p>Form IL</p>	 <p>Pos. I = 0°</p>	 <p>Pos. II = 90°</p>	 <p>Pos. III = 180°</p>	 <p>Pos. IV = 270°</p>
 <p>Form T</p>	 <p>Pos. I = 0°</p>	 <p>Pos. II = 90°</p>	 <p>Pos. III = 180°</p>	 <p>Pos. IV = 270°</p>
 <p>Form TT</p>	 <p>Pos. I = 0°</p>	 <p>Pos. II = 90°</p>	 <p>Pos. III = 180°</p>	 <p>Pos. IV = 270°</p>

Dimensions

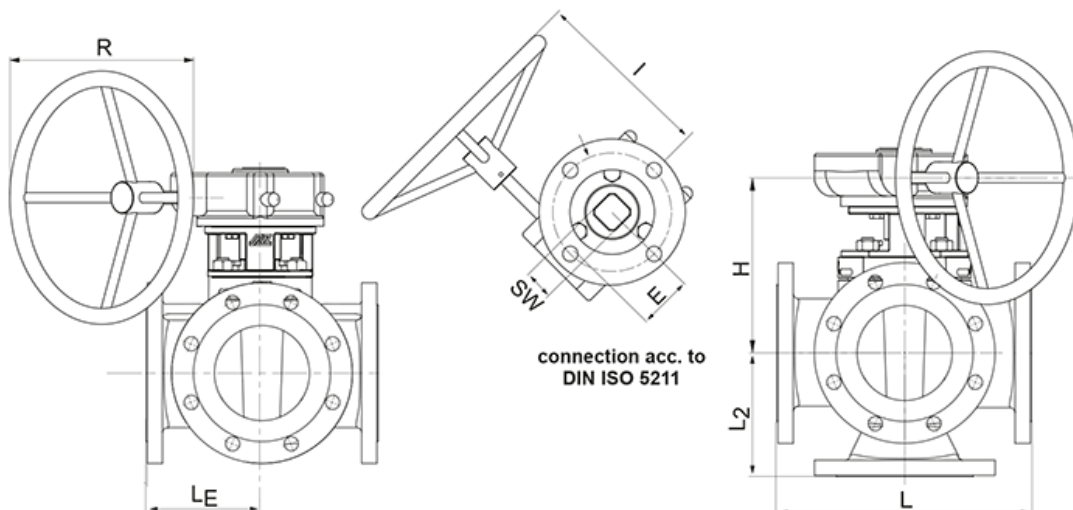


DIN EN 1092-1 / 588-1

ASME B 16.5 / 16.10

DN	PN	L	L ₂ /E	A	H	R	bracket / lever	Type	dihe-dron	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	350	175	173	180	600		F10	22	300	39	170	197
100S	25-40	350	175	173	180	600		F10	22	300	39	170	197
NPS	class	L	L ₂ /E	A	H	R	bracket / lever	Type	dihe-dron	torque [Nm]*	weight [kg]**	K _{vs} -value [m ³ /h]**	C _v -value [US.gal/min]**
½"	150	108	54	88	103	200		F05	11	30	***	6	7
½"	300	140	70	88	103	200		F05	11	30	4,8	6	7
¾"	150	118	59	88	103	200		F05	11	30	***	7	8
¾"	300	152	76	88	103	200		F05	11	30	7	7	8
1"	150	127	64	94	109	200		F05	11	30	***	8	9
1"	300	165	83	94	109	200		F05	11	30	8,8	8	9
1½"	150	165	82,5	102	124	320		F07	14	80	***	17	20
1½"	300	191	95	102	124	320		F07	14	80	10,2	17	20
2"	150	178	89	139	159	420		F07	19	120	***	54	63
2"	300	216	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	203	102	158	165	600		F10	22	200	***	89	103
3"	300	283	142	158	165	600		F10	22	200	32	89	103
4"S	150	228	152,5	158	180	600		F10	22	300	***	170	197
4"S	300	305	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

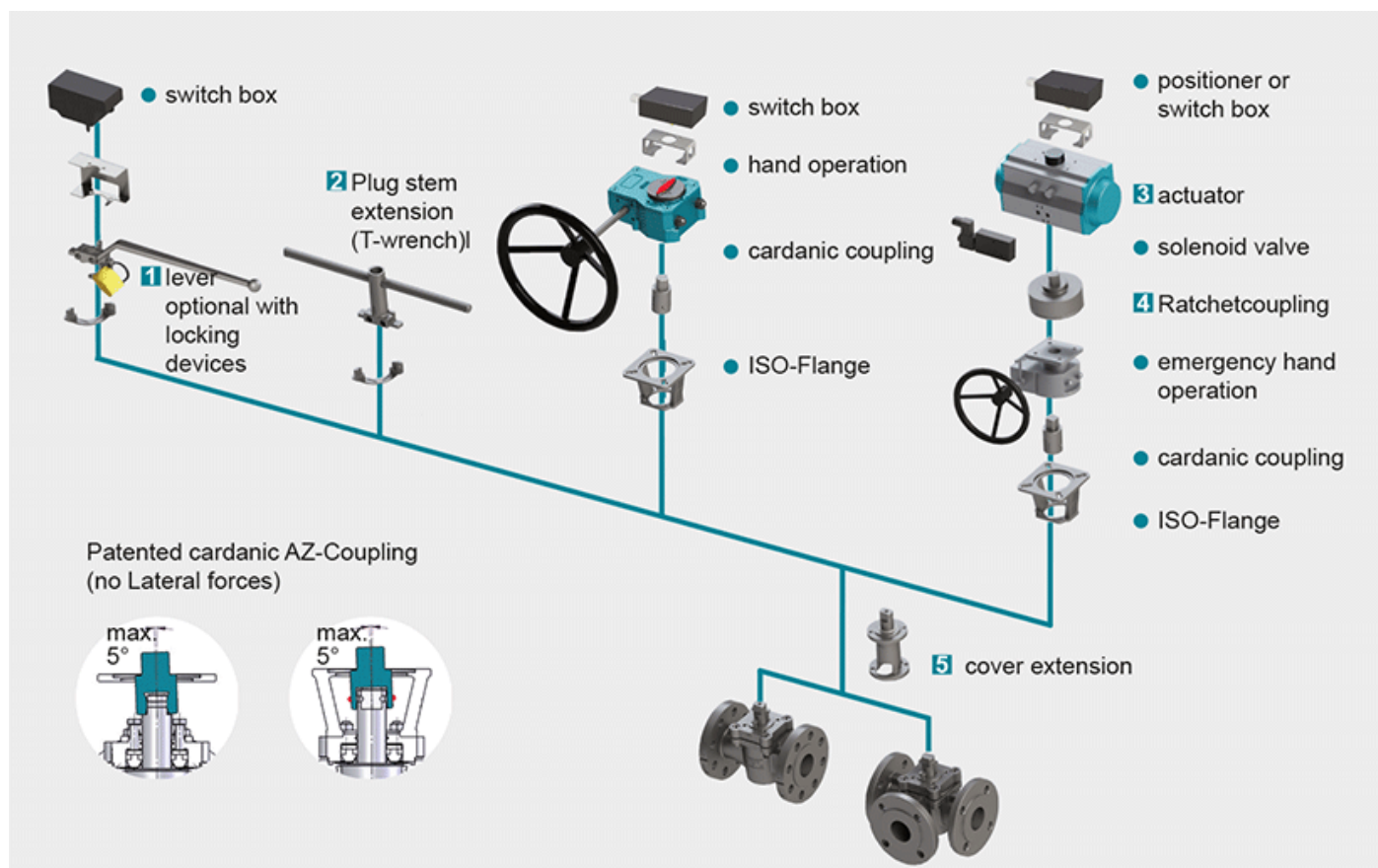


	DN	PN	L	L ₂	LE	E	gear (Pro-Gear)			Type	DIN flange	dihe-dron	torque [Nm]*	weight [kg]**	K _{vs} -value [m ³ /h]**	C _v -value [US.gal/min]**
	R	H	I													
DIN EN 1092-1 / 588-1	125	10-16 25-40	325	162	162	84	400	277	290	Q1500-S	F12	27	900	79	281	329
	150	10-16 25-40	350	200	175	84	400	277	290	Q1500-S	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	LE	E	gear (Pro-Gear)			Type	DIN flange	dihe-dron	torque [Nm]*	weight [kg]**	K _{vs} -value [m ³ /h]**	C _v -value [US.gal/min]**
	R	H	I													
	5"	150	254	178	127	84	400	277	290	Q1500-S	F12	27	900	79	281	329
		300	325	163	162											
	6"	150	267	191	133	84	400	277	290	Q1500-S	F12	27	900	92	301	352
		300	403	216	201											
	8"	150	292	228	146	96,5	600	320	350	Q3000-S	F14	36	1200	142	522	663
		300	419	254	209											
	10"	150	330	311	165	137,5	600	372	465	Q6500-S	F16	46	1500	186	643	752
		300	457	228												
	12"	150	356	349	178	137,5	600	392	465	Q6500-S	F16	46	2600	196	1093	1280
		300	502	356	251											
	14"	150	550	***	***	137,5	600	460	465	Q6500-S	F25	55	5500	***	***	***
	300															
16"	150	600	***	***	137,5	600	460	465	Q6500-S	F25	55	5500	***	***	***	
	300															
18"	150	864	***	***	180	600	485	520	Q12000-S	F25	55	6400	***	***	***	
	300	914														
20"	150	914	***	***	180	600	510	520	Q12000-S	F25	55	7500	***	***	***	
	300	991														

* 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

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