

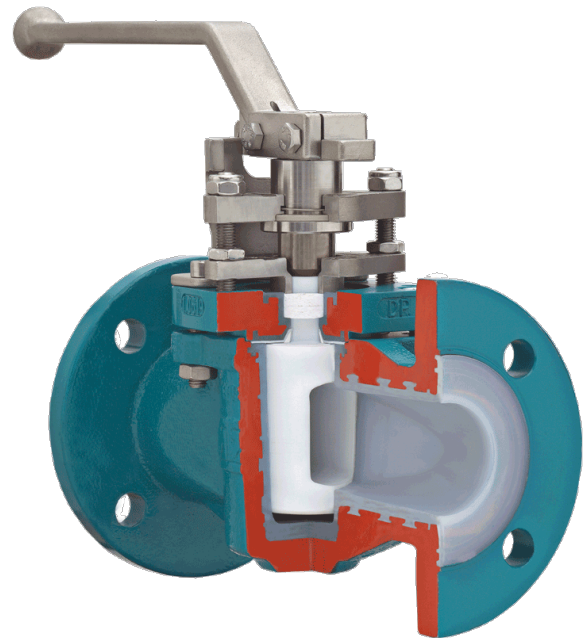
# SAFE-LINED

**Plug valve with chemical-resistant, vacuum-proof lining, with ISO top flange, sealing system for fluctuating temperatures Type SAFE-LINED**

DIN-EN: DN 15 - 600 / PN 10 - 40

ASME: NPS ½" - 24" / class 150 - 300

PT range:  $-30 < T < 210^{\circ}\text{C}$ , vacuum tight



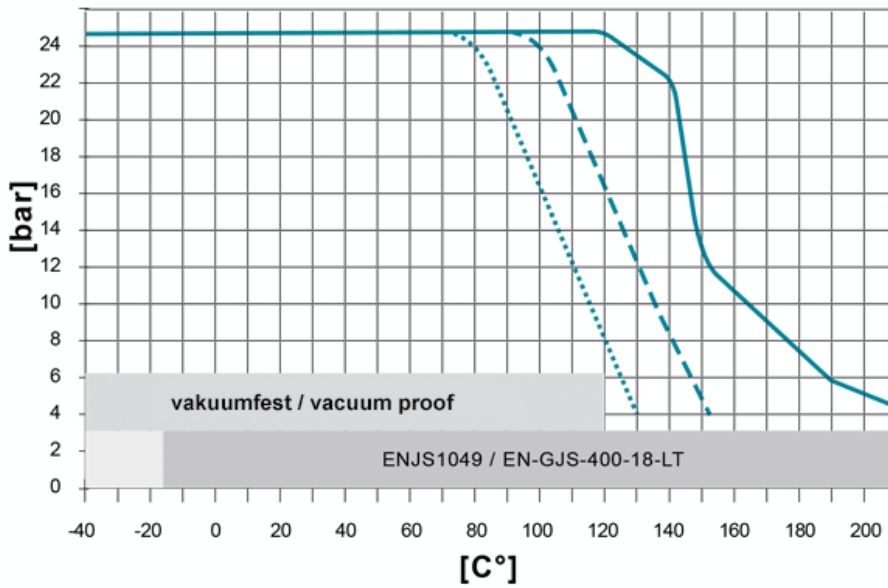
## Design Features

### 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
- with chemical resistant lining - thickness min. 3 mm vacuum tight
- fugitive emission resp. clean air act certified (TA - Luft 2002 approval)
- Directive 2014/68/EU
- FDA conformity

## PT-Diagramm

General Pressure-Temperature-Diagram



Lining materials		Tmax
Body	Plug	
PFA	PTFE	210°C
PFA/FEP	PFA	150°C
PFA	Special material	210°C
PFA cond.	PFA conductive	125°C

Standard lining materials::  
PFA (body) and PTFE (plug)

Lining materials Body / Plug  
 — PFA or FEP / PTFE  
 - - PFA / PFA  
 ..... PFA / FEP

The specified values depend on the respective application (medium). Operating temperatures under -20°C only with body material 1.4408 or low-temperature steel. High pressure resistance / temperature resistance on request, e.g. PN 40.

Sleeve: There are different sleeve materials / compounds available.

## Materials

### Standard body materials

- Ductile cast iron ENJS 1049, ASTM Gr 60-40-18 / A395

### Standard plug materials

- Stainless Steel 1.4308, ASTM A351 CF8
- Ductile cast iron ENJS 1049, ASTM Gr 60-40-18 / A395

### Special materials

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

### Lining materials

- Body: PFA, PFA-conductive, FEP
- Plug: PTFE, PFA, PFA-conductive, FEP

## Sealing Systems

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

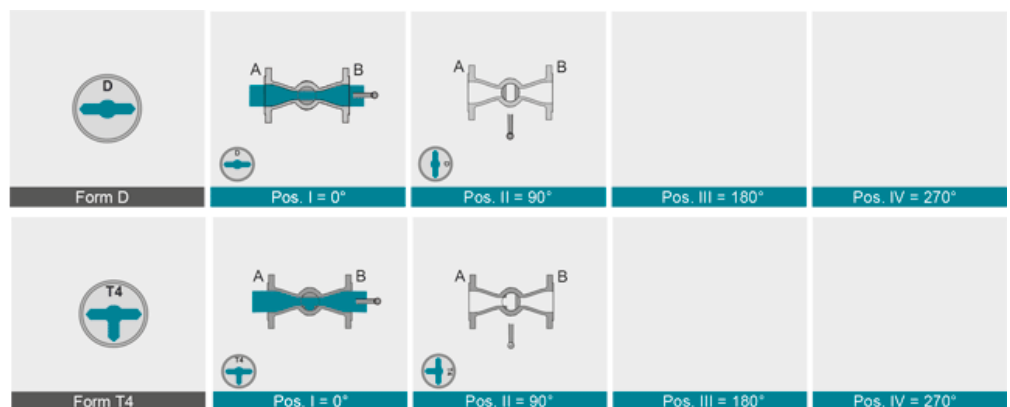
### Type CASN-A

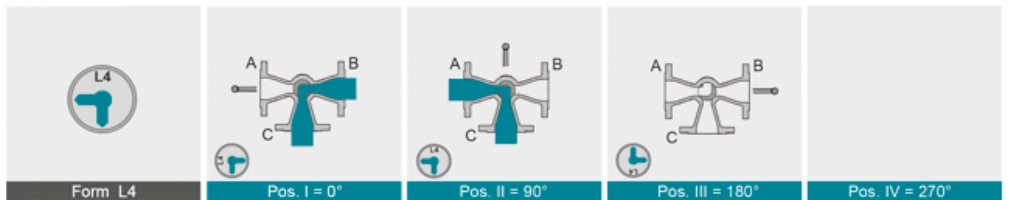
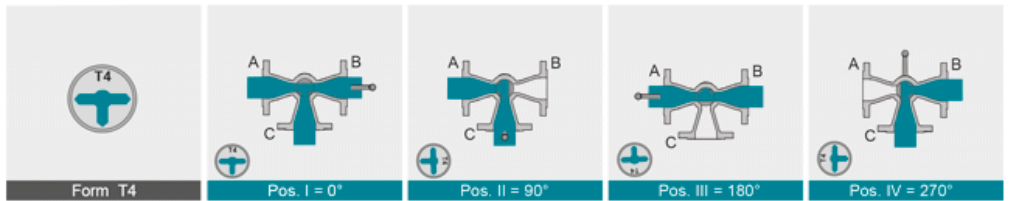
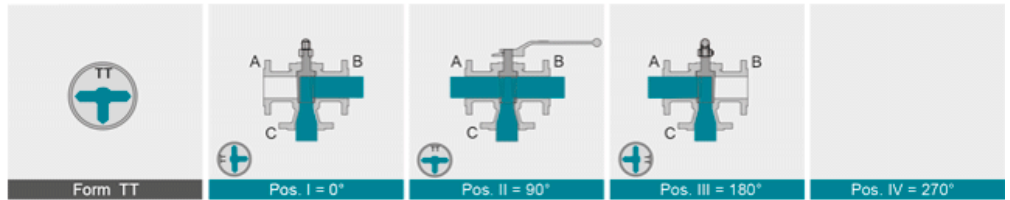
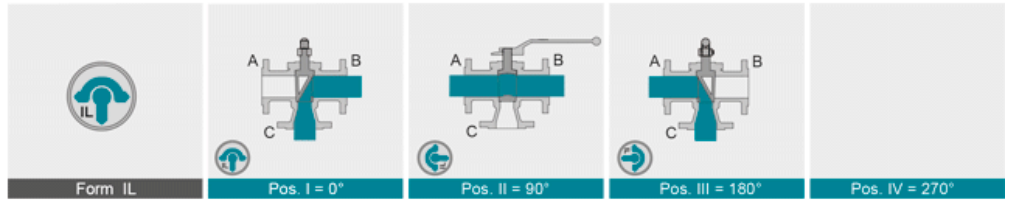
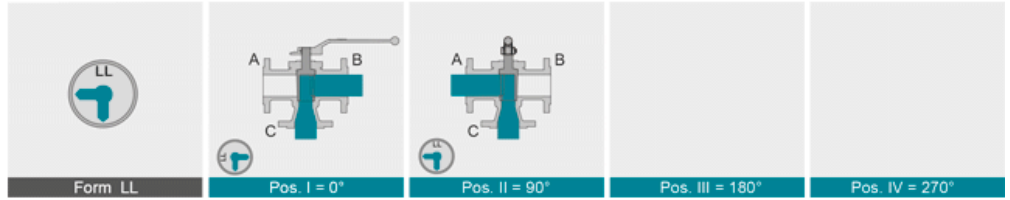
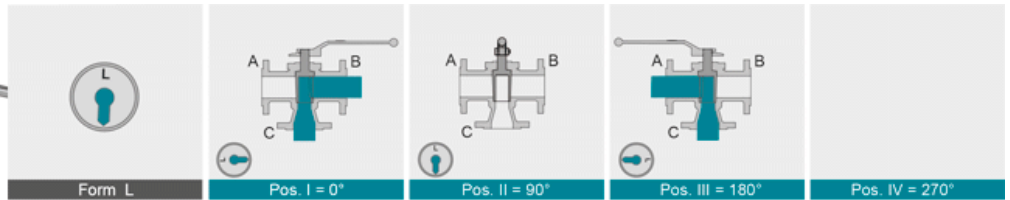
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## Port Forms

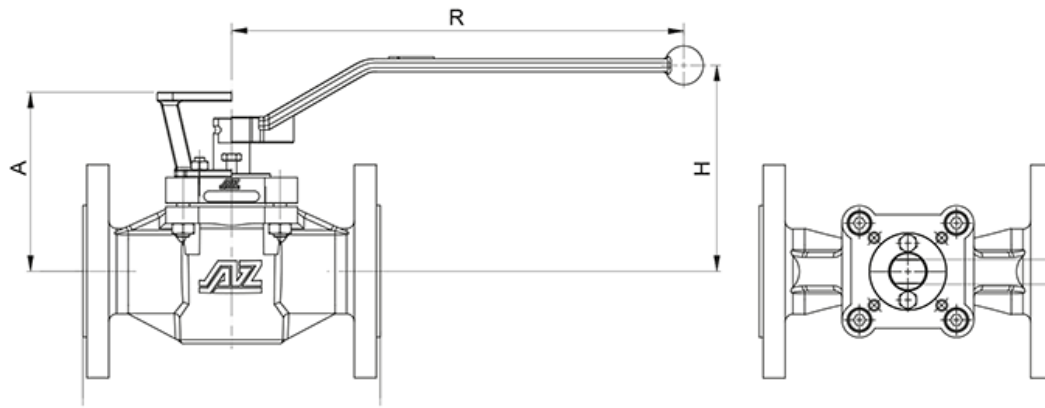


AZ plug valves are fitted with cast, rust proof position indicators. The position indicator is securely welded to the lever to prevent it from working loose.

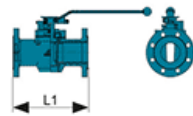




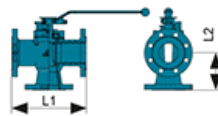
## Dimensions



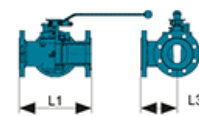
F-2 ISO-STANDARD-A



F-3-S ISO-STANDARD-A



F-3-W ISO-STANDARD-A



DIN EN 1092/1 / 558-1

ASME B 16.5 / 16.10

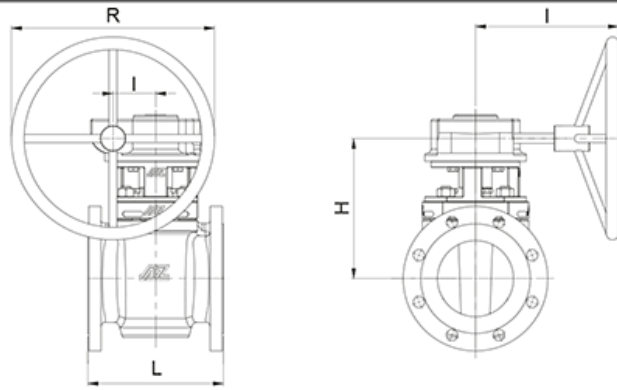
DN	PN	L1	L2	L3	A	H	R	ISO 5211 flange	dihedron [mm]	torque* [Nm]	weight [kg]	K <sub>vs</sub> -value [m <sup>3</sup> /h]	C <sub>v</sub> -value [US.gal/min]
15	10-40	130	*	*	88	98	200	F05	11	40/--	3,8	7,1	8,2
20	10-40	150	75	75	88	98	200	F05	11	40/--	4,0	5,8	6,7
25	10-40	160	80	80	94	110	200	F07	11	90/60	6,5	32	37
32	10-40	180	90	90	102	117	320	F07	14	90/60	7,5	51	59
40	10-40	200	100	100	109	124	320	F07	14	160/80	10	79	92
50	10-40	230	115	115	139	160	420	F07	19	250/120	12	127	147
65	10-16 25-40	290	*	*	158	170	600	F10	22	400/260	20	179	207
80	10-40	310	155	155	158	170	600	F10	22	400/260	20	246	285
100	10-16 25-40	350	175	175	158	170	600	F10	22	400/260	30	203	203
NPS		L1	L2	L3	A	H	R	ISO 5211 flange	dihedron [mm]	torque* [Nm]	weight [kg]	K <sub>vs</sub> -value [m <sup>3</sup> /h]	C <sub>v</sub> -value [US.gal/min]
½"	150	108	**	**	88	110	200	F05	11	40/--	2,7	7,7	9,0
	300	140	**	**	88	110	200	F05	11	40/--	3,8	7,7	9,0
¾"	150	117	64	64	88	110	200	F05	11	40/--	3,2	6,4	7,4
	300	152	83	83	88	110	200	F05	11	40/--	4,3	6,4	7,4
1"	150	127	**	**	94	110	200	F05	11	90/60	3,5	35	41
	300	165	**	**	94	110	200	F05	11	90/60	6,0	35	41
1¼"	150	140	89	89	102		320	F07	14	90/60	7,5	56	65
	300	178	**	**	102		320	F07	14	90/60	8,5	56	65
1½"	150	165	**	**	109	124	320	F07	14	160/80	9	87	101
	300	190	**	**	109	124	320	F07	14	160/80	10	87	101
2"	150	178	**	**	139	160	420	F07	19	250/120	13	140	162
	300	216	**	**	139	160	420	F07	19	250/120	16	140	162
2½"	150	190	**	**	158		600	F10	22	400/260	16	197	228
	300	241	**	**	158		600	F10	22	400/260	19	197	228
3"	150	203	**	**	158	170	600	F10	22	400/260	18	271	314
	300	282	**	**	158	170	600	F10	22	400/260	23	271	314
4"	150	229	154	**	158	170	600	F10	22	400/260	26	223	223
	300	305	**	**	158	170	600	F10	22	400/260	31	223	223

ISO flange instructions, weights and Kvs values for straight-way valves

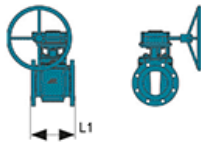
\*) Maxium breakaway torque MD<sub>breakaway [Nm]</sub> for F2 and F3S ISO STANDARD A depending on material combinations (PFA+PFA / PFA+PTFE).

All data incl. 100% safety factor. Breakaway torques for valves - tapes F-4 and F3W on request

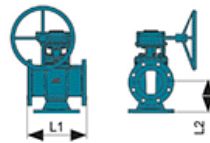
\*\*) on request



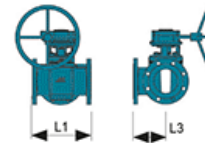
F-2 ISO-STANDARD-A



F-3-S ISO-STANDARD-A



F-3-W ISO-STANDARD-A



	DIN EN 1092/1 / 588-1										ASME B 16.5 / 16.10						
	DN	PN	L1	L2	L3	E	R	H	I	Gear	ISO 5211 flange	dihe-dron	torque* [Nm]	weight [kg]	K <sub>vs</sub> -value [m <sup>3</sup> /h]	C <sub>v</sub> -value [US.gal/min]	
	NPS	Class	L1	L2	L3	E	R	H	I	Gear	ISO 5211 flange	dihe-dron	torque* [Nm]	weight [kg]	K <sub>vs</sub> -value [m <sup>3</sup> /h]	C <sub>v</sub> -value [US.gal/min]	
DIN EN 1092/1 / 588-1	100S	10-16	350	**	**	84	400	230	290	Q1500-S	F16	36	600/350	32	447	517	
		25-40												32			
	125	10-16	325	**	**	84	400	260	290	Q1500-S	F16	36	1200/900	74	358	414	
		25-40												78			
	150	10-16	350	200	200	84	400	265	290	Q1500-S	F16	36	1200/900	85	822	951	
		25-40												87			
	200	10-16	400	**	**	96,5	600	320	350	Q2000-S	F16	36	2600/--	119	1727	1997	
		25 40												131			
250	10 16	450	**	**	117,5	600	352	465	Q5000-S	F16	36	3200/--	195	2052	2373		
	25 40												259				
300	10 16	500	**	**	117,5	600	340	465	Q5000-S	F16	36	3200/--	253	1707	1973		
	25 40												274				
ASME B 16.5 / 16.10	4"S	150	254	154	154	84	500	230	328	Q1500-S	F16	27	600/350	27	492	569	
		300	325	**	**									32			
	5"	150	254	**	**	118	500	260	363	Q1500-S	F16	27	1200/900	61	394	455	
		300	325	**	**									78			
	6"	150	267	**	**	118	500	265	363	Q1500-S	F16	27	1200/900	66	904	1046	
		300	403	**	**									77			
	8"	150	292	**	**	138	500	320	440	Q2000-S	F16	36	2600/--	103	1900	2197	
		300	419	**	**									138			
	10"	150	330	**	**	138	500	352	440	Q5000-S	F16	36	3200/--	140	2257	2610	
		300	457	**	**									176			
	12"	150	356	**	**	138	500	340	440	Q5000-S	F16	36	3900/--	168	1877	2170	
		300	502	*	*									187			

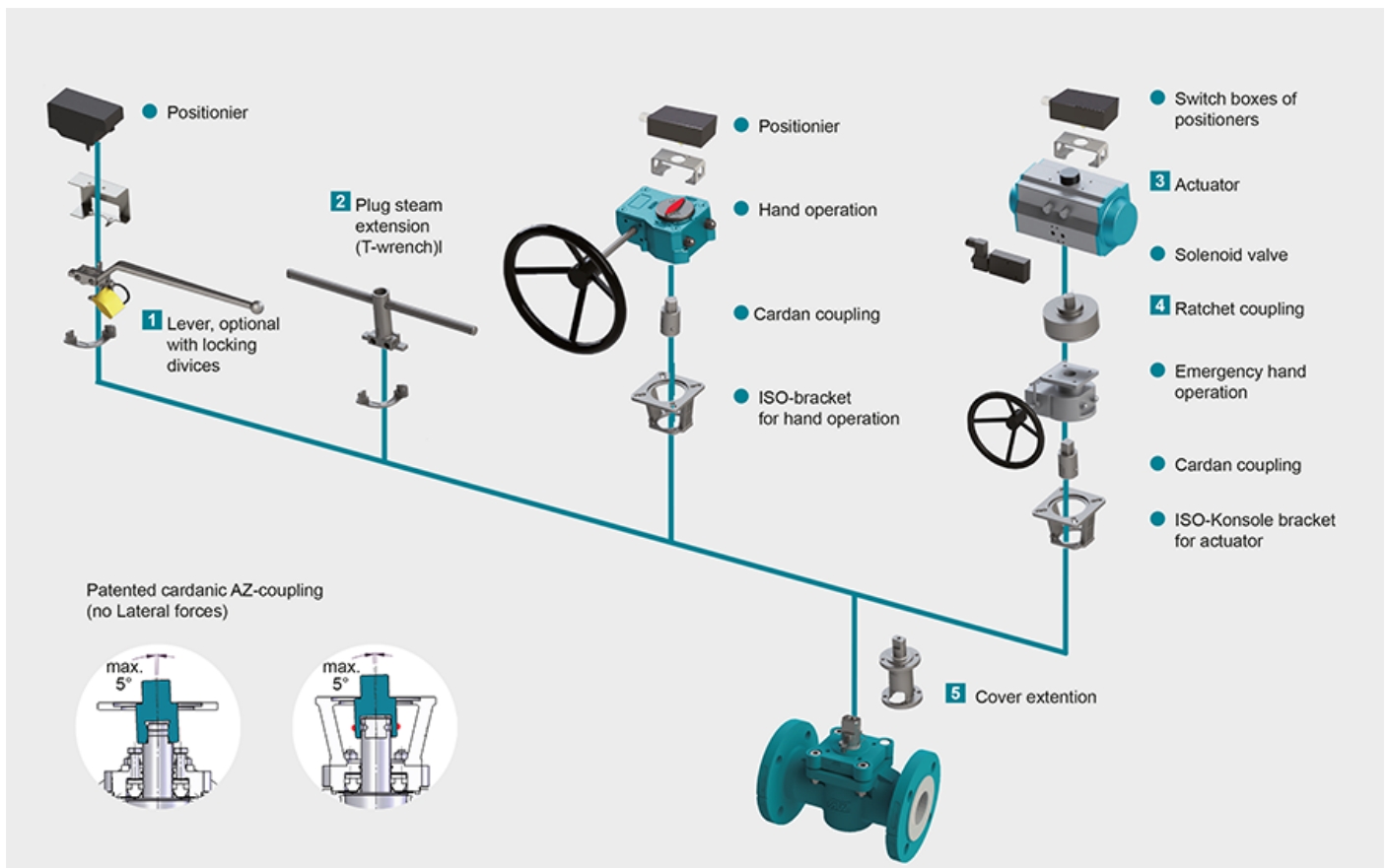
For geometric reasons, threads are used in the flange bores in a few cases

ISO flange instructions, weights and Kvs values for straight-way valves

\*) Maxium breakaway torque MD breakaway [Nm] for F2 and F3S ISO STANDARD A depending on material combinations (PFA+PFA / PFA+PTFE). All data incl. 100% safety factor. Breakaway torques for valves – tapes F-4 and F3W on request

\*\*\*) on request

## 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 \[...\]](#)