

# 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

### 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<sub>max</sub> 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

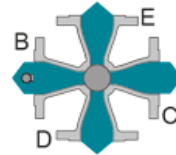
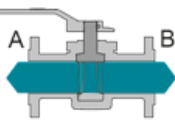
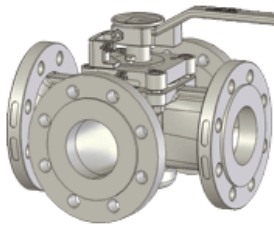
### Type CASN-SL


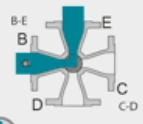
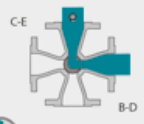

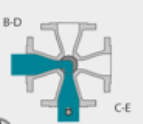


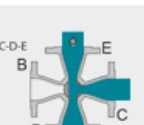
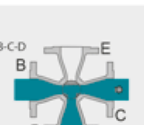
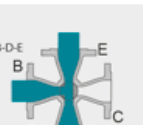

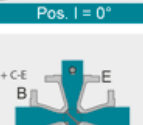
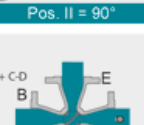
[read more \[...\]](#)

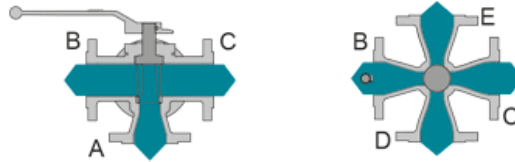
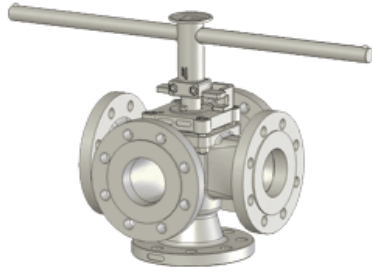
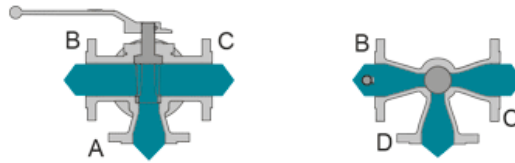
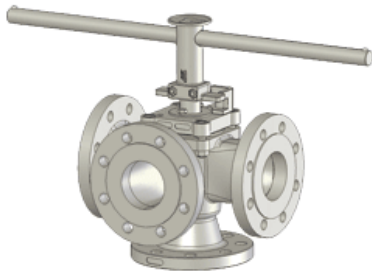
## Port Forms



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.

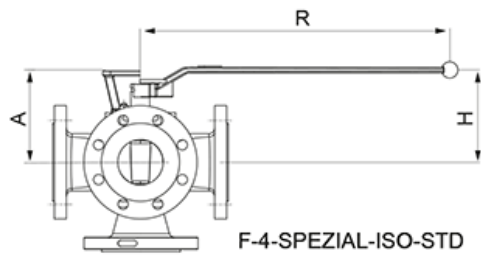


 <p>Form L4</p>	 <p>Pos. I = 0°</p>	 <p>Pos. II = 90°</p>	 <p>Pos. III = 180°</p>	 <p>Pos. IV = 270°</p>
 <p>Form T4</p>	 <p>Pos. I = 0°</p>	 <p>Pos. II = 90°</p>	 <p>Pos. III = 180°</p>	 <p>Pos. IV = 270°</p>
 <p>Form LL4</p>	 <p>Pos. I = 0°</p>	 <p>Pos. II = 90°</p>		

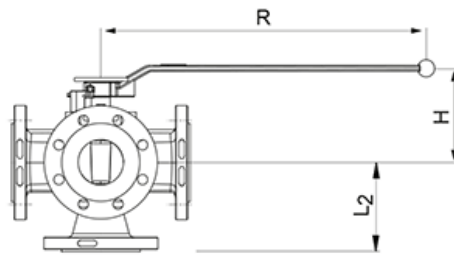


<p>Form L</p>	<p>Pos. I = 0°</p>	<p>Pos. II = 90°</p>	<p>Pos. III = 180°</p>	<p>Pos. IV = 270°</p>
<p>Form LL</p>	<p>Pos. I = 0°</p>	<p>Pos. II = 90°</p>	<p>Pos. III = 180°</p>	<p>Pos. IV = 270°</p>
<p>Form IL</p>	<p>Pos. I = 0°</p>	<p>Pos. II = 90°</p>	<p>Pos. III = 180°</p>	<p>Pos. IV = 270°</p>
<p>Form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

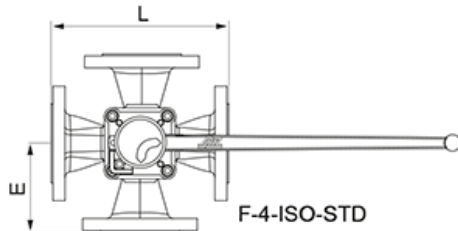
## Dimensions



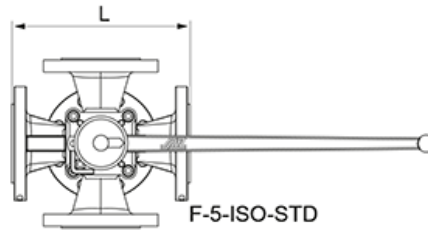
F-4-SPEZIAL-ISO-STD



connection acc. to  
DIN ISO 5211



F-4-ISO-STD



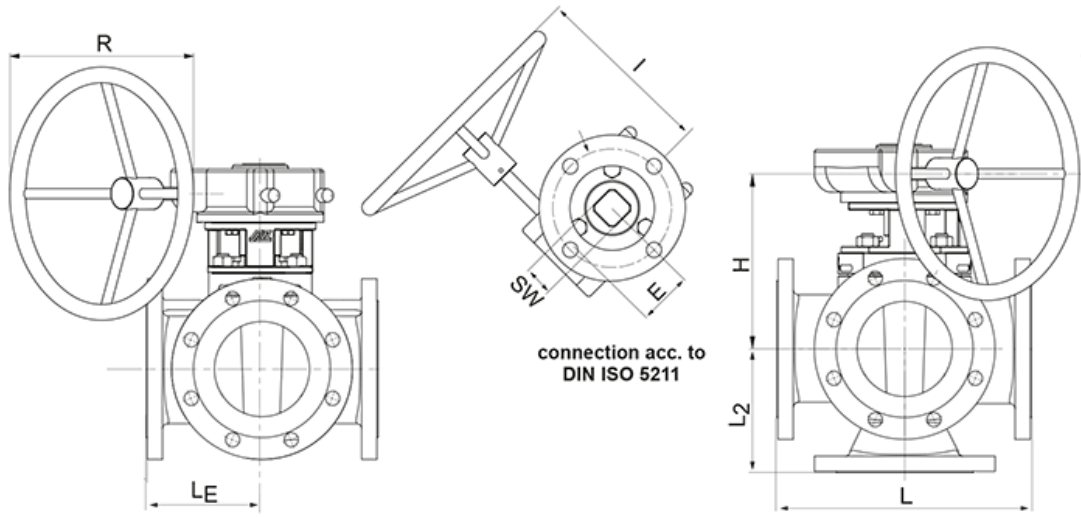
F-5-ISO-STD

DIN EN 1092-1 / 588-1

ASME B 16.5 / 16.10

DN	PN	L	L <sub>2</sub> /E	A	bracket / lever			Type	dihe-dron	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	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	
	25-40	350											
NPS	class	L	L <sub>2</sub> /E	A	bracket / lever			Type	dihe-dron	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	54	88	103	200	F05	11	30	***	6	7	
	300	140	70							4,8			
¾"	150	118	59	88	103	200	F05	11	30	***	7	8	
	300	152	76							7			
1"	150	127	64	94	109	200	F05	11	30	***	8	9	
	300	165	83							8,8			
1½"	150	165	82,5	102	124	320	F07	14	80	***	17	20	
	300	191	95							10,2			
2"	150	178	89	139	159	420	F07	19	120	***	54	63	
	300	216	108							12			
2½"	150	290	145	158	165	600	F10	22	200	25	88	103	
	300	305	171,5							32			
3"	150	203	102	158	165	600	F10	22	200	***	89	103	
	300	283	142							32			
4"S	150	228	152,5	158	180	600	F10	22	300	***	170	197	
	300	305	171,5							39			

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



DIN EN 1092-1 / 588-1

ASME B 16.5 / 16.10

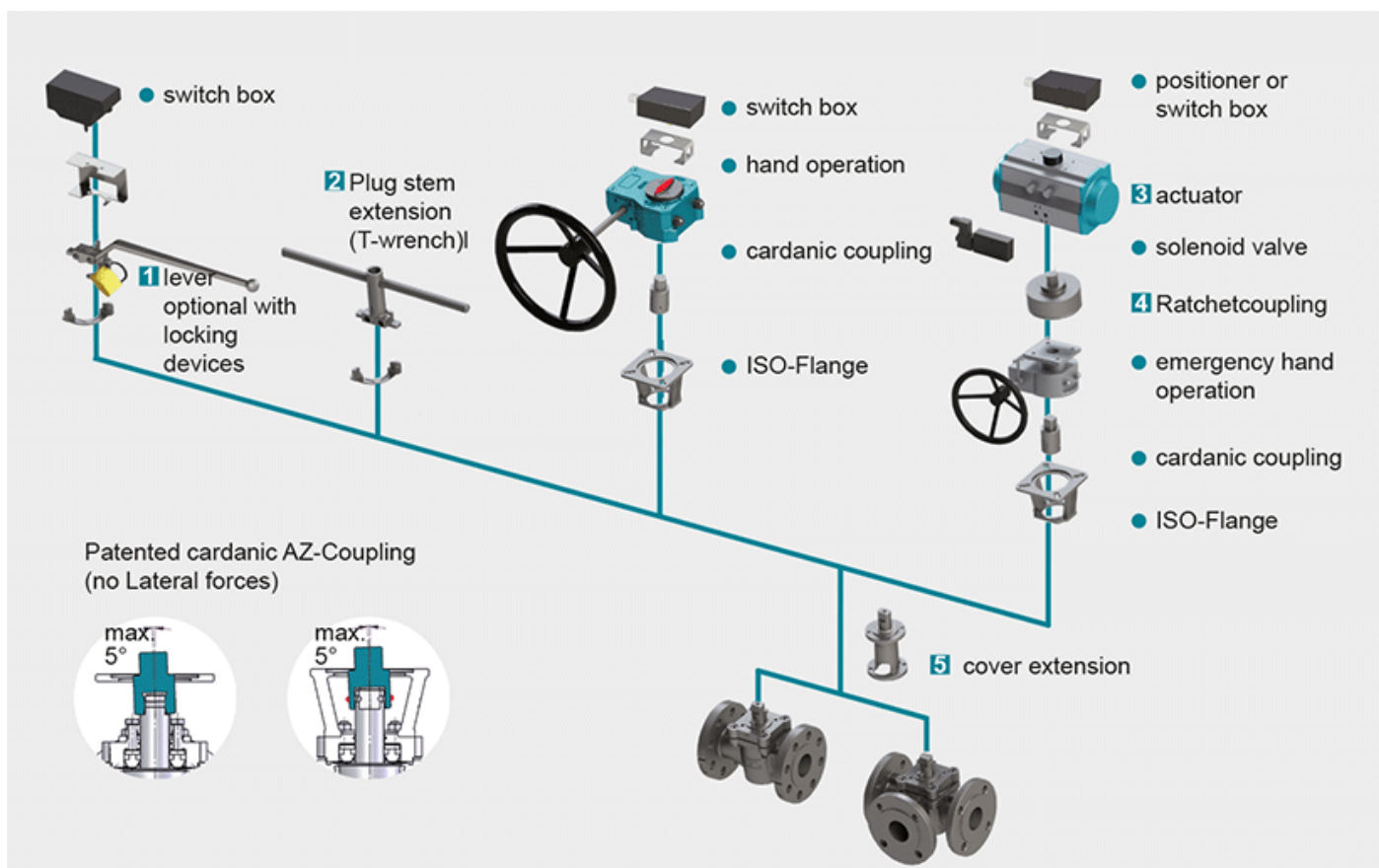
DN	PN	L	L <sub>2</sub>	LE	E	gear (Pro-Gear)			Type	DIN flange	dihedron	torque [Nm]*	weight [kg]**	K <sub>vs</sub> -value [m <sup>3</sup> /h]**	C <sub>v</sub> -value [US.gal/min]**
						R	H	I							
125	10-16 25-40	325	162	162	84	400	277	290	Q1500-S	F12	27	900	79	281	329
150	10-16 25-40	350	200	175	84	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	***	***	***
NPS	class	L	L <sub>2</sub>	LE	E	gear (Pro-Gear)			Type	DIN flange	dihedron	torque [Nm]*	weight [kg]**	K <sub>vs</sub> -value [m <sup>3</sup> /h]**	C <sub>v</sub> -value [US.gal/min]**
						R	H	I							
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	311 228	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 [...]