

# F-2 ISO-STANDARD FSN

## Two way plug valve for fluctuation temperatures, Firesafe

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



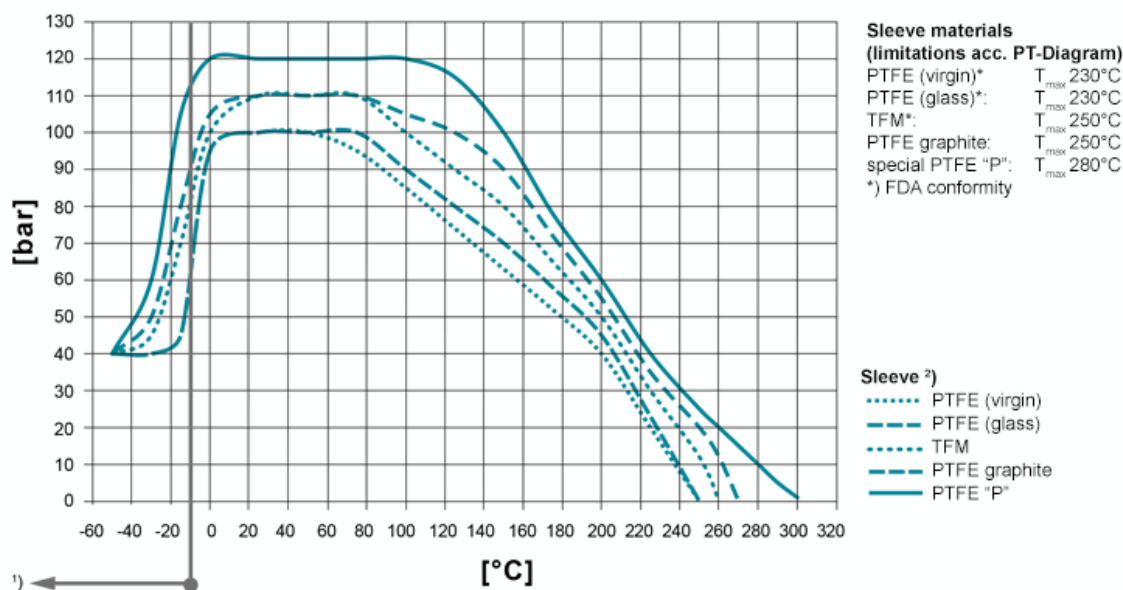
## Design Features

### 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**

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

- Alloy
- Monel
- Nickel
- Zirconium
- Titan
- Tantal
- other materials on request

## Sealing Systems

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

### Type FSN

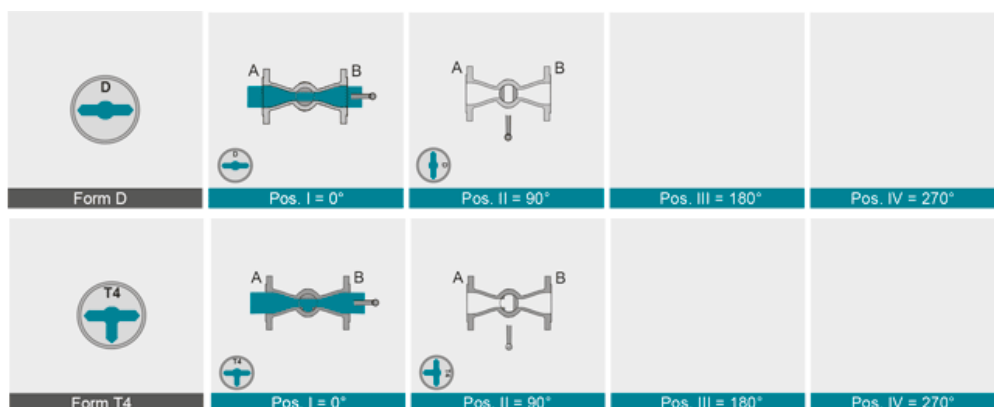
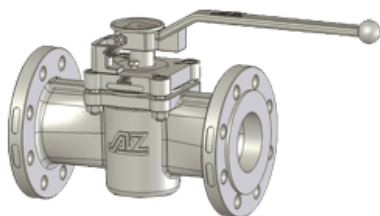
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Firesafe safety sealing (API 607) for fluctuating temperatures  
with 3x graphite packing (live loaded disc springs) for additional stem sealing; Tmax 280°C

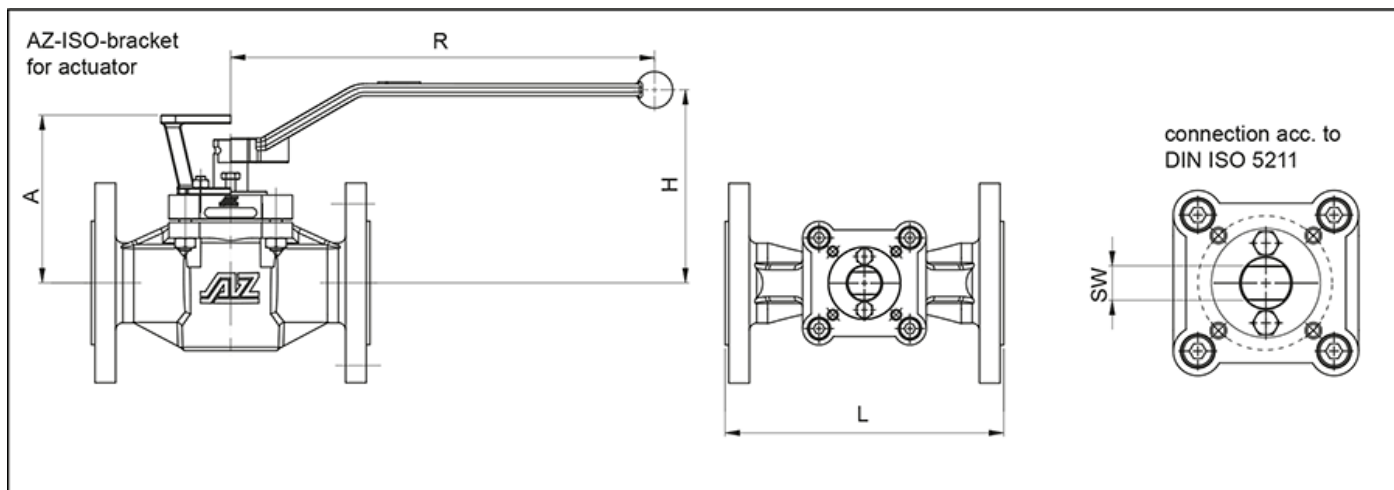
### Type FSN-SL

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## Port forms

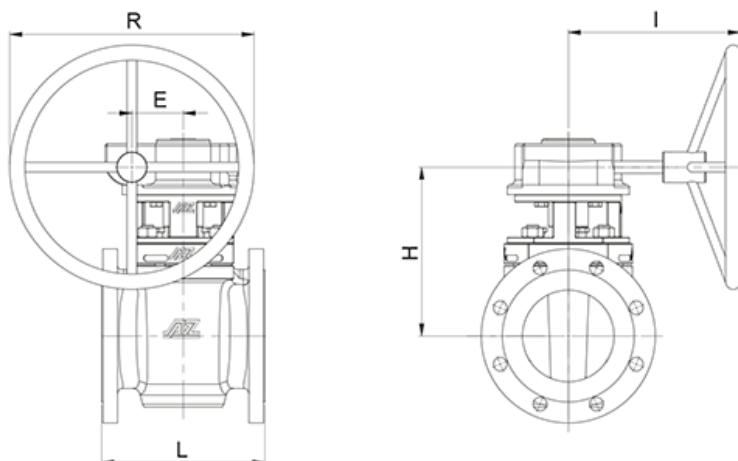


## Dimensions



	DN	PN	L	øD	bracket / lever			DIN flange	dihe-dron	torque* [Nm]	weight [kg]	Kvs-value [m³/h]	Cv-value [US.gal/min]
					A	H	R						
DIN EN 1092-1 / 558-1	15	10-40	130	95	115	130	200	F05	11	30	3,8	12	14
	20	10-40	150	105	115	130	200	F05	11	30	4,3	13	15
	25	10-40	160	115	120	135	200	F05	11	30	4,9	25	29
	32	10-40	180	140	145	170	320	F07	14	70	8,6	46	53
	40	10-40	200	150	150	170	320	F07	14	80	9,6	85	98
	50	10-40	230	165	180	195	420	F07	19	120	13,9	160	185
	65	10-16 25-40	290	185	205	210	600	F10	22	200	19,3	262	302
	80	10-40	310	200	205	210	600	F10	22	200	21,4	275	317
	80S	10-40	310	200	205	210	600	F12	22	300	24,6	417	482
	100	10-16 25-40	350	220 235	205	210	600	F10	22	200	24,6	197	228
	100S	10-16 25-40	350	220 235	215	215	600	F12	22	300	28,9	582	673
		NPS	class	L	øD	bracket / lever			DIN flange	dihe-dron	torque* [Nm]	weight [kg]	Kvs-value [m³/h]
A						H	R						
ASME B 16.5 / 16.10	½"	150	108	90	88	103	200	F05	11	30	2,7	14	16
		300	140	95	88	103	200	F05	11	30	3,8	13	15
	¾"	150	117	100	88	103	200	F05	11	30	3,2	13	16
		300	152	115	88	103	200	F05	11	30	4,3	13	15
	1"	150	127	110	94	109	200	F05	11	30	3,5	24	28
		300	165	125	94	109	200	F05	11	30	4,9	26	31
	1¼"	150	140	115	102	117	320	F07	14	70	5,4	46	53
		300	178	135	102	117	320	F07	14	70	8,6	46	53
	1½"	150	165	125	109	124	320	F07	14	80	7	78	90
		300	190	155	109	124	320	F07	14	80	9,6	79	92
	2"	150	178	150	139	159	420	F07	19	120	11,8	145	167
		300	216	165	139	159	420	F07	19	120	13,9	156	180
	2½"	150	190	180	158	165	600	F10	22	200	15,5	236	273
		300	241	190	158	165	600	F10	22	200	19,3	236	273
	3"	150	203	190	158	165	600	F10	22	200	18,2	225	260
		300	282	210	158	165	600	F10	22	200	21,4	228	264
	4"	150	229	230	158	165	600	F10	22	200	20,3	169	195
		300	305	255	158	165	600	F10	22	200	24,6	198	229
	4"S	150	229	230	173	180	600	F12	22	300	24,6	523	604
		300	305	255	173	180	600	F12	22	300	28,9	542	627

\* inclusive 100% safety factor for actuators

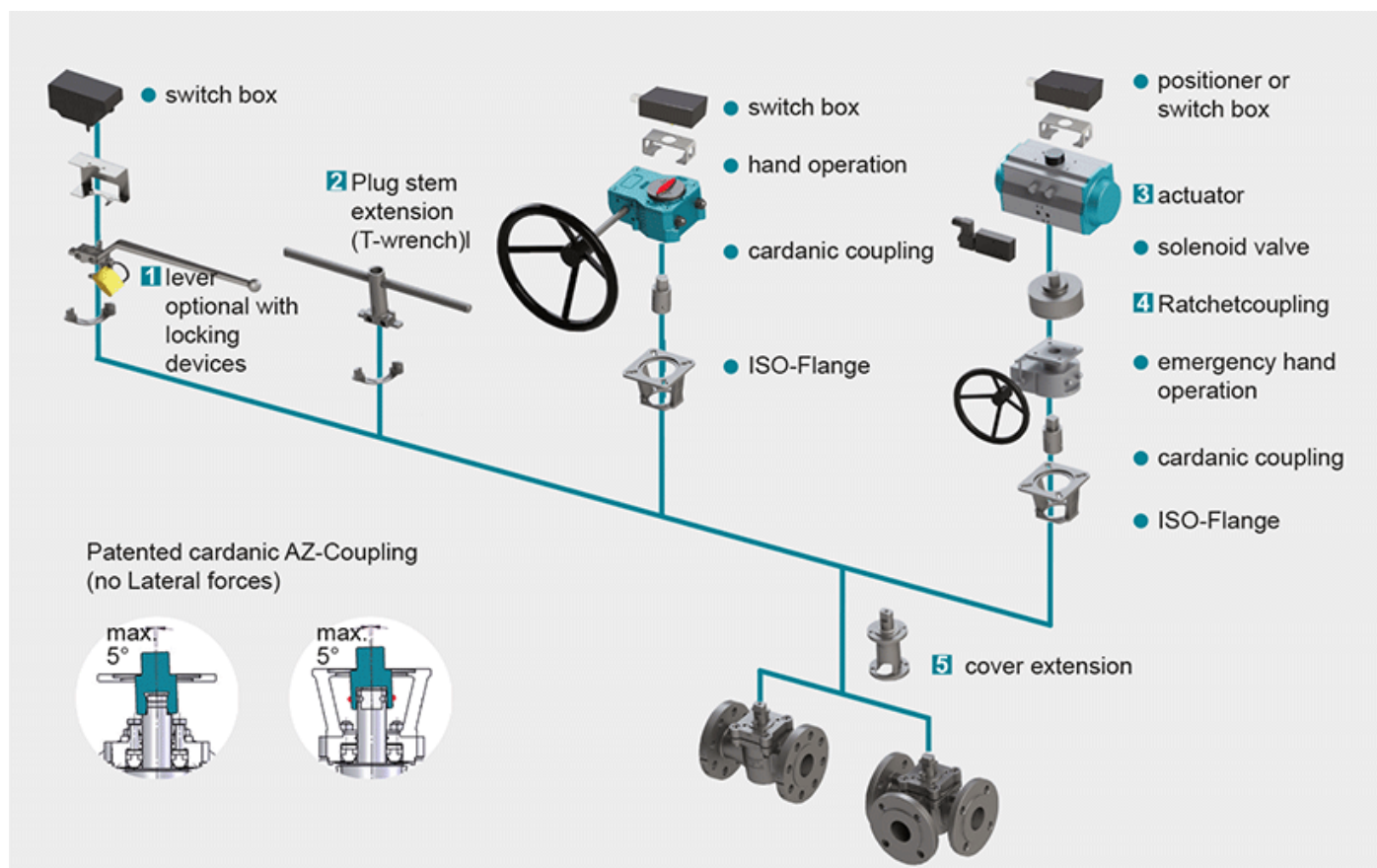


	DN	PN	L	E	gear (Pro-Gear)			DIN	SW	torque.	weight	K <sub>vs</sub> -value	C <sub>v</sub> -value	
					R	H	I	flange		[Nm]*	[kg]**	[m <sup>3</sup> /h]**	[US.gal/min]**	
DIN EN 1092-1 / 588-1	125	10-16 25-40	325	84	400	277	290	Q1500-S F16	36	900	67 71	865	1000	
	150	10-16 25-40	350	84	400	277	290	Q1500-S F16	36	900	77 79	875	1011	
	200	10-16 25 40	400	117,5	500	325	365	Q3000-S F16	36	1200	108 119	1770	2047	
	250	10 16 25 40	450	117,5	600	328	465	Q5000-S F16	36	1500	177 235	2788	3223	
	300	10 16 25 40	500	117,5	600	366	465	Q5000-S F16	36	2600	230 249	2618	3027	
	350	10 16 25 40	550	137,5	600	460	465	Q6500-S F25	46	5500	395 468	5070	5861	
	400	10 16 25 40	600	137,5	600	460	465	Q6500-S F25	46	5500	411 525	4694	5426	
	450	10 16 25 40	650	180	600	485	520	Q12000-S F30	55	6400	611 730	9587	11084	
	500	10 16 25 40	700	180	600	510	520	Q12000-S F30	55	7500	655 744	10260	11862	
	600	10 16 25 40	800	180	600	510	520	Q12000-S F30	55	7500	681 863	7980	9226	
	ASME B 16.5 / 16.10	NPS		L	E	gear (Pro-Gear)			DIN	SW	torque.	weight	K <sub>vs</sub> -value	C <sub>v</sub> -value
						R	H	I	flange		[Nm]*	[kg]**	[m <sup>3</sup> /h]**	[US.gal/min]**
		5"	150 300	254 325	84	400	277	290	Q1500-S F16	27	900	55 71		
		6"	150 300	267 403	84	400	277	290	Q1500-S F16	27	900	60 70	738 775	853 896
		8"	150 300	292 419	117,5	500	325	365	Q3000-S F16	36	1200	94 125	1517 1978	1754 2286
		10"	150 300	330 457	117,5	600	328	465	Q5000-S F16	36	1500	127 160	2239 2382	2589 2754
12"		150 300	356 502	117,5	600	366	465	Q5000-S F16	36	2600	153 170	1904 1925	2202 2225	
14"		150 300	686 762	137,5	600	460	465	Q6500-S F25	46	5500	180 210	2448 2394	2830 2768	
16"		150 300	600 137,5	600	460	465	Q6500-S F25	46	5500	246 305	5131 4618	5932 5339		
18"		150 300	864 914	180	600	485	520	Q12000-S F30	55	6400	627 763	12427	14367	
20"		150 300	914 991	180	600	510	520	Q12000-S F30	55	7500	698 860	11728 11841	13559 13689	
24"		150 300	1067 1143	180	600	510	520	Q12000-S F30	55	7500	825 1070	9863 9509	11402 10993	

\* inclusive 100% safety factor for actuators

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  $\geq 150.000$  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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