

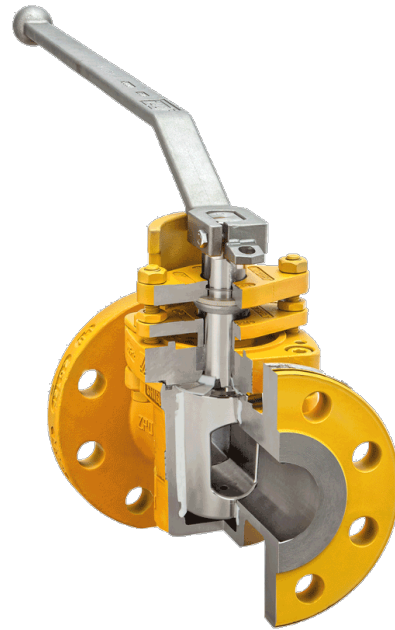
# ISO-FSN-HF

## Two way plug valve with safety stuffingbox packing, special design for HF alkylation, Monel materials

Type ISO-FS-HF with Fire Safe sealing

Type ISO FSN-HF with triple safety sealing for fluctuating temperatures ASME: NPS ½" – 8" / class 150 / 300

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



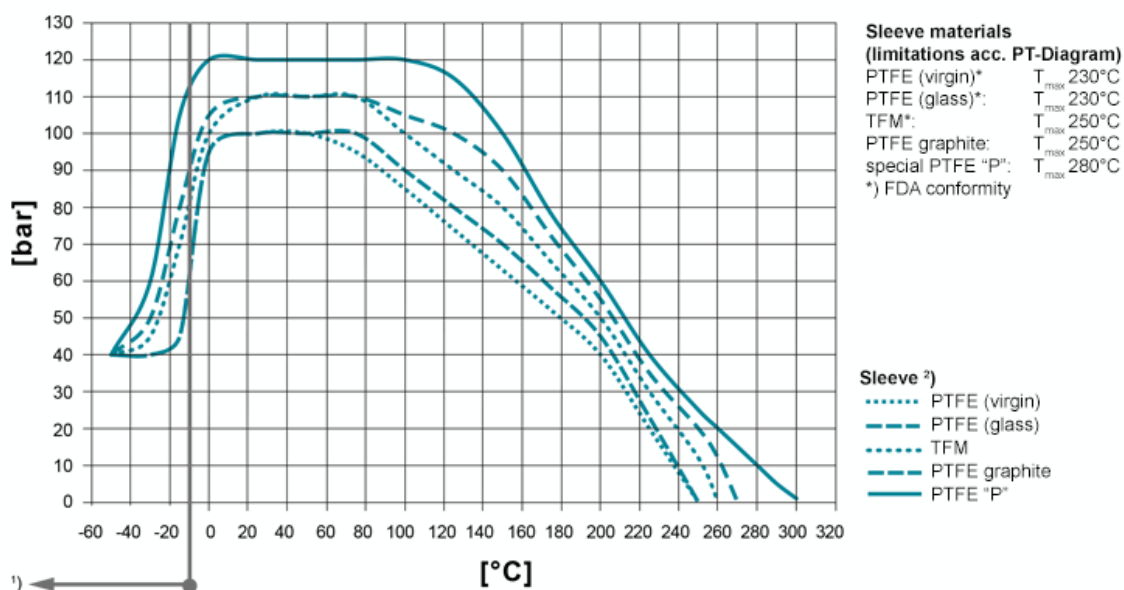
## Design Features

### Design Characteristics

- free of cavities
- maintenance free – self lubricating
- 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
- fire safe design API 607 / ISO 10497
- special design for hydrofluoric acid (HF alkylation):
  - monel body, plug and cover
  - Flanges and cover seat painted with special acid detection paint (yellow or orange)
  - plug with relief hole
  - Cover sealing with stuffingbox packing type “FSN”
  - X-ray examination on critical areas

## 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 material

- Monel, ASTM A494 M35.1
- ### Standard plug material
- Monel, ASTM A494 M35.1

## Sealing Systems

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

### Type FSN

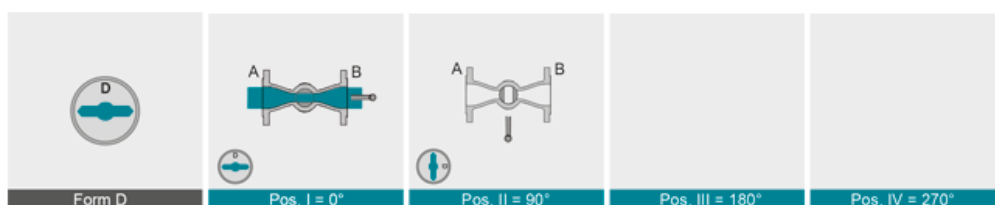
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Firesafe sealing (API 607) with graphite packing for additional stem sealing; Tmax 220°C

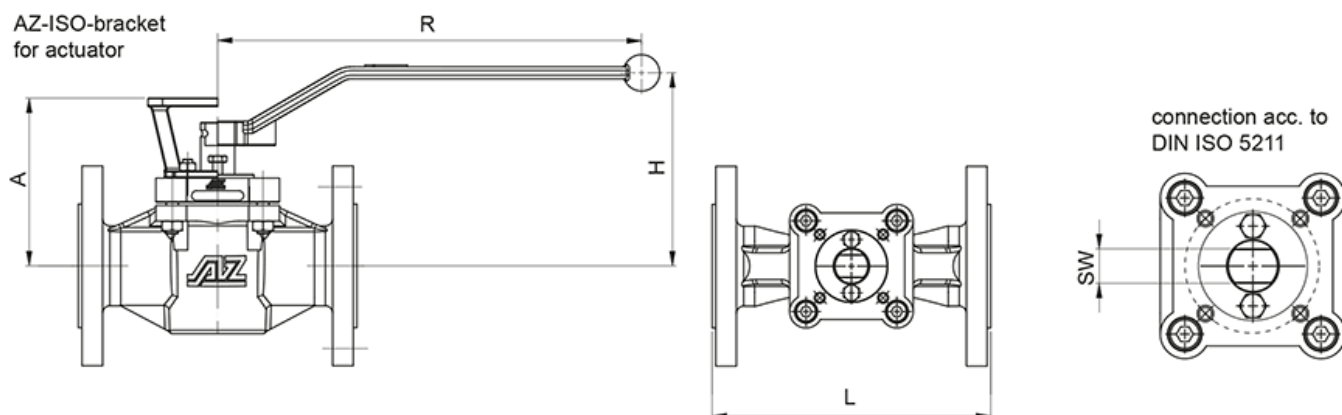
## Typ FS-HF

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## Plug Forms

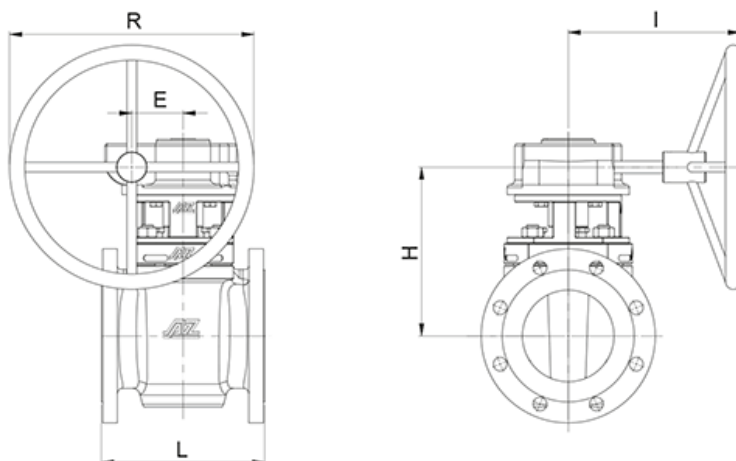


## Dimensions



	DN	PN	L	øD	bracket / lever			DIN flange	dihe-dron	torque* [Nm]	weight [kg]	K <sub>v</sub> -value [m³/h]	C <sub>v</sub> -value [US.gal/min]
					A	H	R						
DIN EN 1092-1 / 558-1	15	10-40	130	95	88	103	200	F05	11	30	3,8	12	14
	20	10-40	150	105	88	103	200	F05	11	30	4,3	13	15
	25	10-40	160	115	94	109	200	F05	11	30	4,9	25	29
	32	10-40	180	140	102	117	320	F07	14	70	8,6	46	53
	40	10-40	200	150	109	124	320	F07	14	80	9,6	85	98
	50	10-40	230	165	139	159	420	F07	19	120	13,9	160	185
	65	10-16 25-40	290	185	158	165	600	F10	22	200	19,3	262	302
	80	10-40	310	200	158	165	600	F10	22	200	21,4	275	317
	80S	10-40	310	200	173	180	600	F12	22	300	24,6	417	482
	100	10-16 25-40	350	220 235	158	165	600	F10	22	200	24,6	197	228
	100S	10-16 25-40	350	220 235	173	180	600	F12	22	300	28,9	582	673
	NPS	class	L	øD	bracket / lever			DIN flange	dihe-dron	torque* [Nm]	weight [kg]	K <sub>v</sub> -value [m³/h]	C <sub>v</sub> -value [US.gal/min]
					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

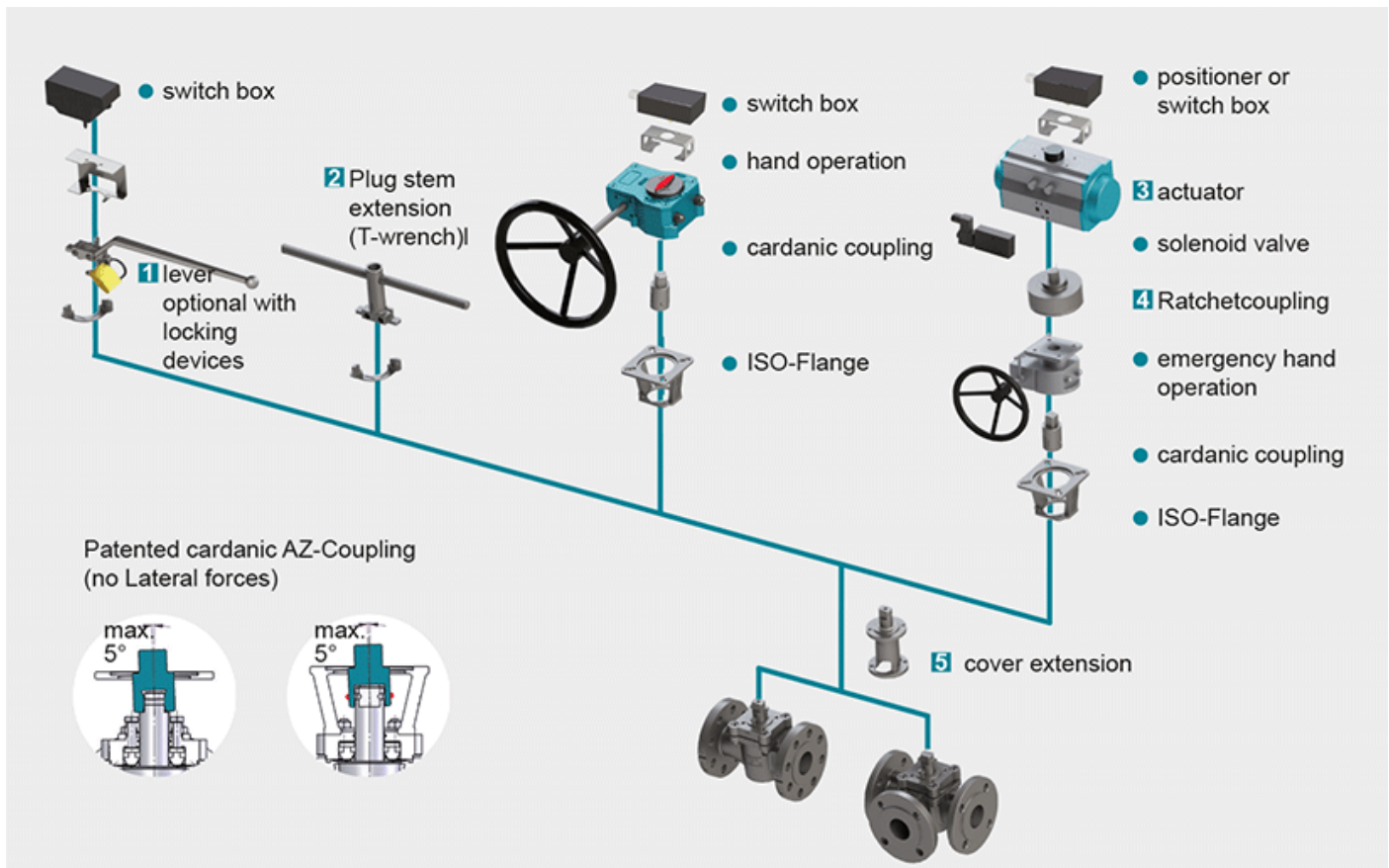


	DN	PN	L	E	gear (Pro-Gear)			Typ	DIN flange	dihe-dron	torque* [Nm]	weight [kg]	K <sub>vs</sub> -value [m³/h]	C <sub>v</sub> -value [US.gal/min]
					R	H	I							
DIN EN 1092-1 / 588-1	125	10-16 25-40	325	84	400	277	290	Q1500-S	F16	36	900	67 71	865	1000
	150	10-16 25-40	350	84	400	277	290	Q1500-S	F16	36	900	77 79	875	1011
	200	10-16 25 40	400	96,5	600	320	350	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	8065	9323
	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	class	L	E	gear (Pro-Gear)			Typ	DIN flange	dihe-dron	torque* [Nm]	weight [kg]	K <sub>vs</sub> -value [m³/h]	C <sub>v</sub> -value [US.gal/min]
					R	H	I							
	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	96,5	600	320	350	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	600 600	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	9135	10561
	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 use 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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