ISO EXTRA

Plug valve with full bore design

DIN-EN: DN 15 – 600 / PN 10 – 40
ASME: NPS ½“ – 24“ / class 150 – 300
PT range: -30 < T < 230/280°C, vacuum 10-8 mbar

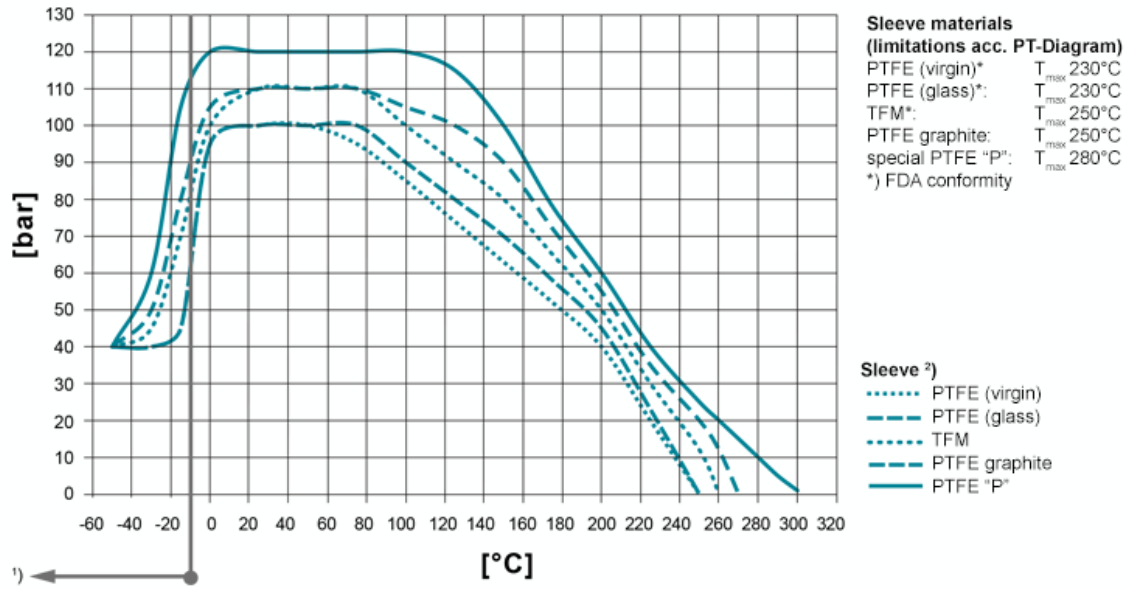
Design Features

Design Characteristics

- full bore
- free of cavities
- maintenance free – self lubricating
- easy accessible adjustment of the plug, even with mounted actuator
- pressure drop minimized
- piggable design available
- suitable for abrasive fluids
- vacuum tight
- fugitive emmission resp. clean air act certified (TA – Luft 2002 approval)
- Directive 2014/68/EU
- fire safe 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_{max} 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 [...]

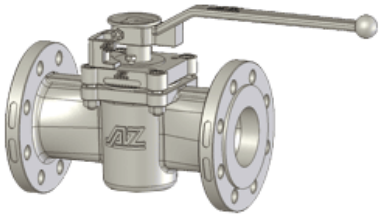
Chemical safety sealing for fluctuation temperatures
with 3x PTFE packing (live loaded disc springs) for additional
stem sealing; Tmax 230°C

Type CASN-SL

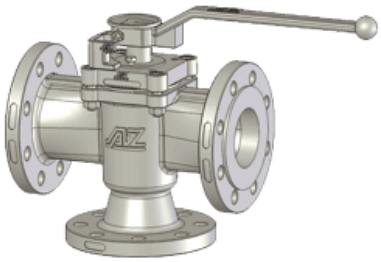
read more [...]

Port Forms

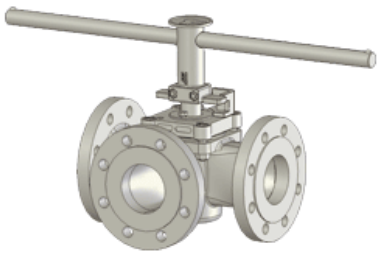
AZ plug valves are fitted with cast, rust proof position indicators
The positon indicator is securely welded to the plug to prevent it from working loose.



Form D	Pos. I = 0°	Pos. II = 90°	Pos. III = 180°	Pos. IV = 270°	
Form T4	Pos. I = 0°	Pos. II = 90°	Pos. III = 180°	Pos. IV = 270°	

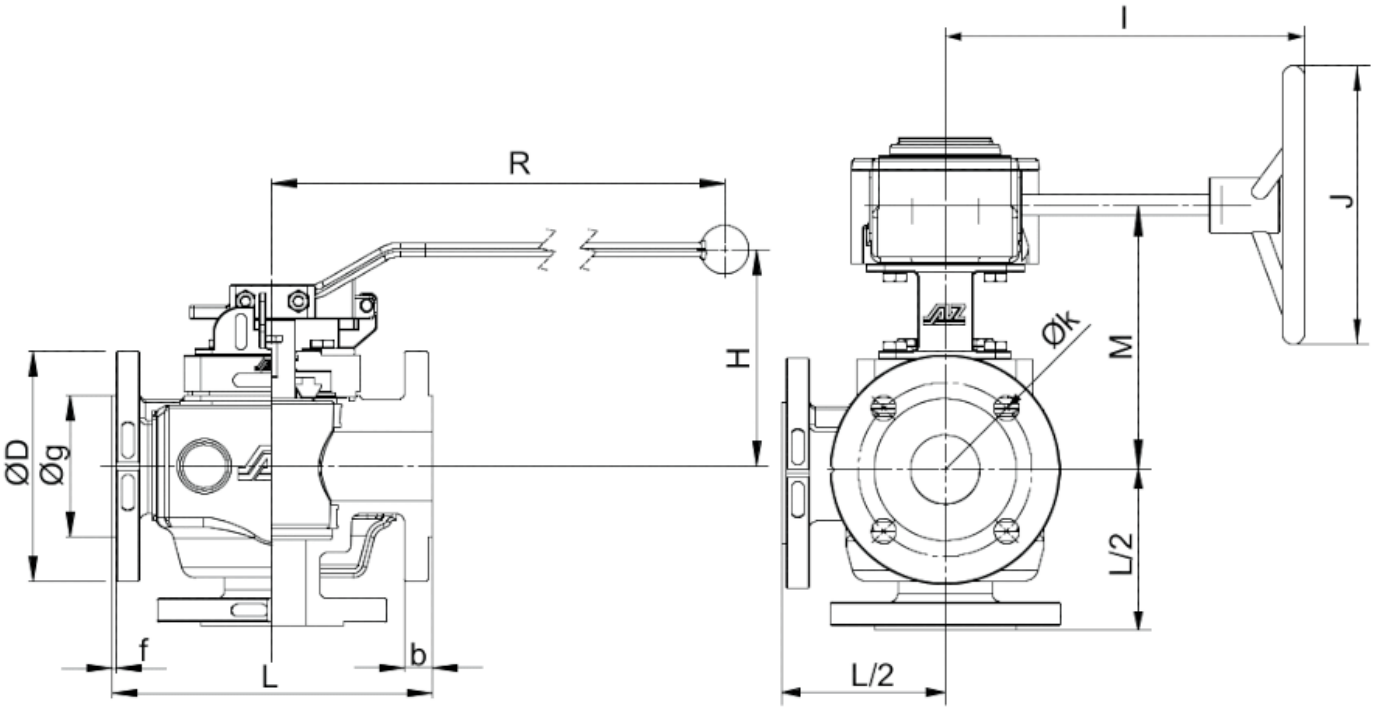


Form L	Pos. I = 0°	Pos. II = 90°	Pos. III = 180°	Pos. IV = 270°	
Form LL	Pos. I = 0°	Pos. II = 90°	Pos. III = 180°	Pos. IV = 270°	
Form IL	Pos. I = 0°	Pos. II = 90°	Pos. III = 180°	Pos. IV = 270°	
Form TT	Pos. I = 0°	Pos. II = 90°	Pos. III = 180°	Pos. IV = 270°	



Form T4	Pos. I = 0°	Pos. II = 90°	Pos. III = 180°	Pos. IV = 270°	
Form L4	Pos. I = 0°	Pos. II = 90°	Pos. III = 180°	Pos. IV = 270°	

Dimensions

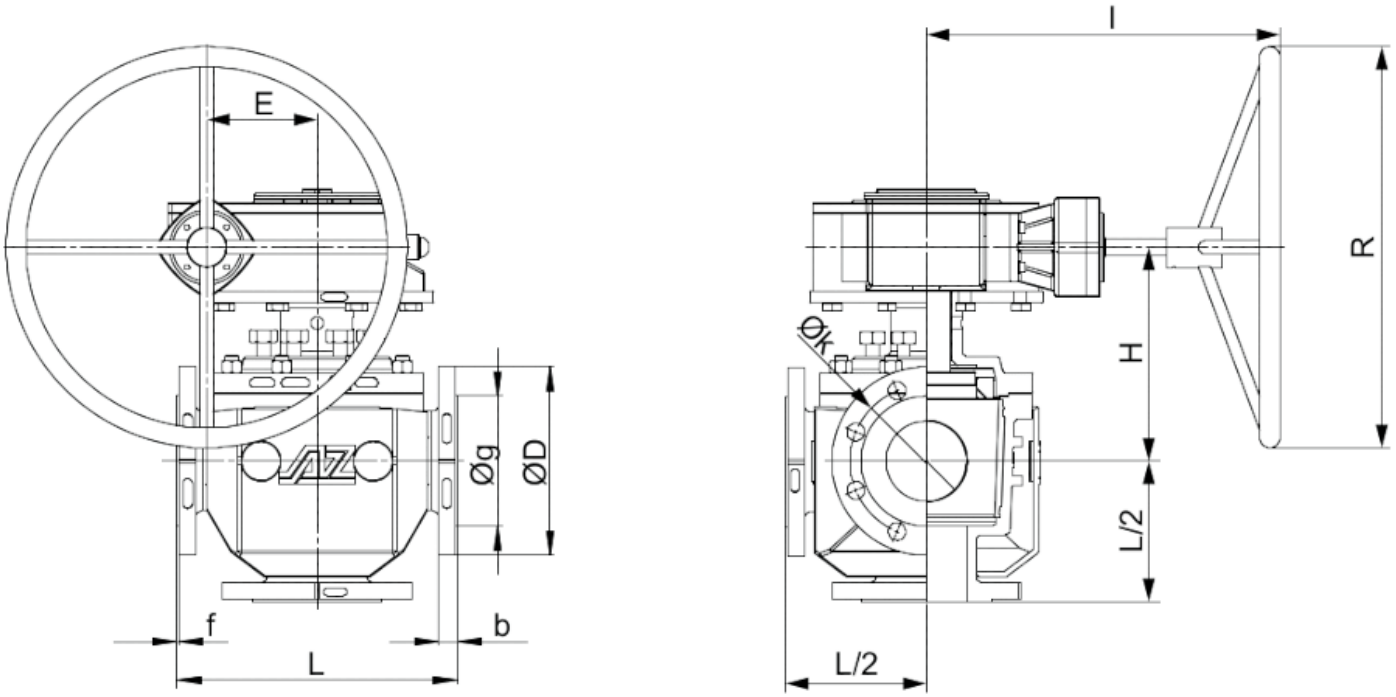


- multiport plug types please see leaflets 1.2 (3-way) and 1.3 (4- and 5-way)

	DN	PN	L	L/2	øD	flange hole			øg	b	f	lever		gear					torque.* [Nm]	K_{vs}-value [m³/h] / C_v-value [US.gal/min]					
						øk	No.	ø				R	H	E	I	J	M	Typ		F-2 K_v	F-2 C_v	F-3-S K_v	F-3-S C_v	F-3-W K_v	F-3-W C_v
DIN EN 1092/1 / 558-1	15	10-40	130	65	95	65	4	14	45	16	2	200	102,2						30	19	22	7	8	8	9
		63-100	210	105	105	75				20										15	18	7	8	7	8
	20	10-40	150	75	105	75	4	14	58	18	2	200	102,2						30	36	42				
		63-100	230	115	130	90		18		22										30	35				
	25	10-40	160	80	115	85	4	14	68	18	2	320	119						80	70	81	20	24	22	25
		63-100	230	115	140	100		18		24										53	62	20	23	21	24
	32	10-40	180	90	140	100	4	18	78	18	2	420	137						140	113	130	34	39	36	42
		63-100	260	130	155	110		22		24										95	110	33	38	35	41
	40	10-40	200	100	150	110	4	18	88	18	3	420	145	52,5	215	200	170	Q 400-S	240	193	223	53	61	57	66
		63-100	260	130	170	125		22		26										173	200	52	60	57	66
	50	10 - 40 | 63 | 100	230	115	165	125	4	18	102	20	3	585	150	52,5	240	300	195	Q 400-S	350	323	374	85	98	90	105
			300	150	180 | 195	135 | 145		22 | 26		26 | 28									282	327	83	96	89	102
	65	10/16 | 25/40	290	145	185	145	4 | 8	18	122	22	3			68,75	265	400	243	Q 800-S	500	569	658	143	166	154	176
		63			205	160	8	22		26															
	80	10 - 40	310	155	200	160	8	18	138	24	3			68,75	365	400	248	Q 800-S	600	947	1095	222	257	233	269
		63			215	170		22		28															

	NPS	Class	L	L/2	øD	flange hole			øg	b	f	lever		gear					torque.* [Nm]	K_{vs}-value [m³/h] / C_v-value [US.gal/min]					
						øk	No.	ø				R	H	E	I	J	M	Typ		F-2 K_v	F-2 C_v	F-3-S K_v	F-3-S C_v	F-3-W K_v	F-3-W C_v
ASME B 16.5 / 16.10	½"	150	108	54	90	60,3	4	15,7	34,9	10	2	200	102,5						30	20	23				
		300	140	70	95	66,7				14,7										18	21				
	¾"	150	117	58,5	100	69,9	4	15,7	42,9	10,9	2	200	102,5						30	41	48				
		300	152	76	115	82,6		19,1		16,3										36	42				
	1"	150	160	80	110	79,4	4	15,7	50,8	11,6	2	320	119						80	70	81	20	24	22	25
		300	230	115	125	88,9		19,1		17,9										53	62	20	23	21	24
	1¼"	150	180	90	115	88,9	4	15,7	63,5	13,2	2	420	137						140	113	130	34	39	36	42
		300	260	130	135	98,4		19,1		19,5										95	110	33	38	35	41
	1½"	150	200	100	125	98,4	4	15,7	73	14,7	2	420	145	52,5	215	200	170	Q 400-S	240	193	223	53	61	57	66
		300	260	130	155	114,3		22,3		21,1										170	196	52	60	57	66
	2"	150	230	115	150	120,7	4	19,1	92,1	16,3	2	585	150	52,5	240	300	195	Q 400-S	350	323	374	85	98	90	105
		300	300	150	165	127	8	19,1		22,7										282	327	83	96	89	102
	2½"	150	290	145	180	139,7	4	19,1	104,8	17,9	2			68,75	265	400	243	Q 800-S	500	569	658	143	166	154	179
		300			190	149,2	8	22,3		25,9															
	3"	150	310	155	190	152,4	4	19,1	127	19,5	2			68,75	265	400	243	Q 800-S	600	947	1095	222	257	233	269
		300			210	168,3	8	22,3		29															

The data was determined by flow simulation and based on the VDI/VDE 2173 (medium = water 20°C, pressure loss Δp = 1 bar).
Higher operating pressures on request
* 100% safety factor for actuators inclusive

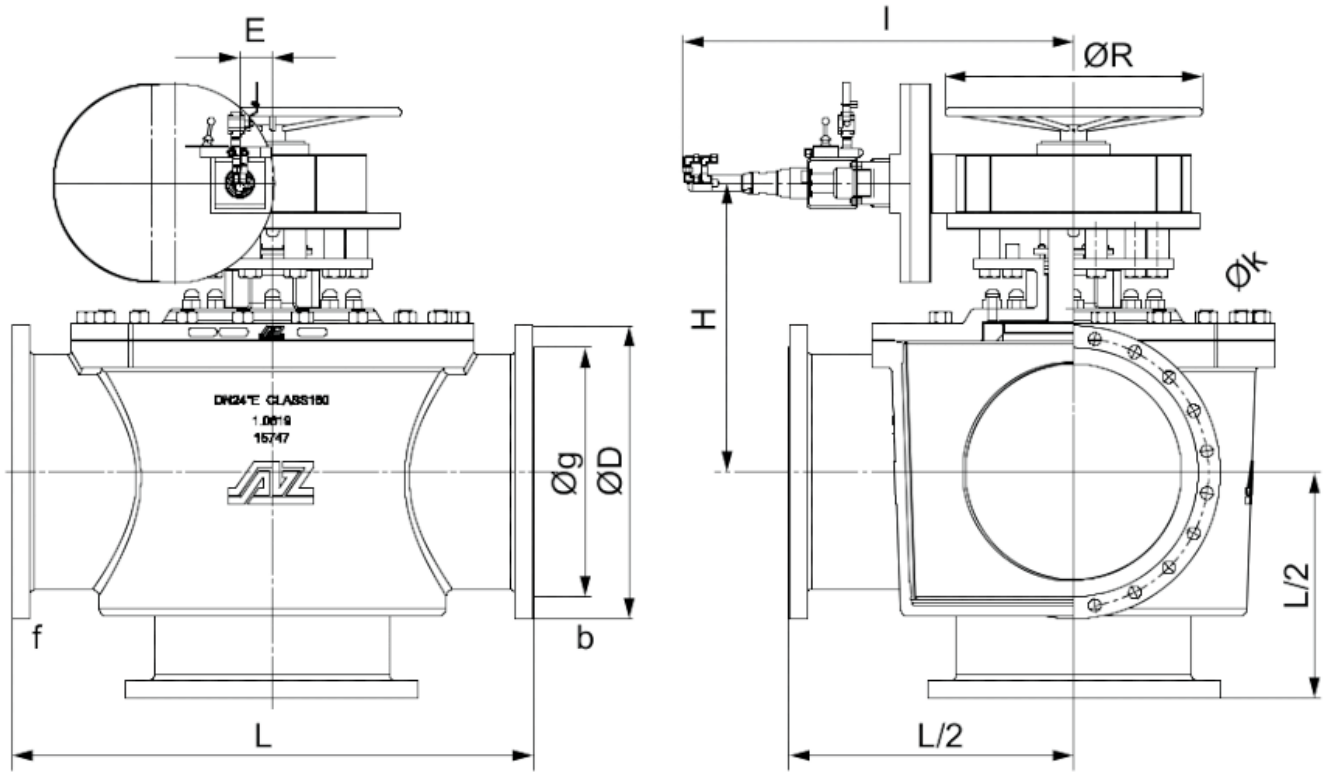


- multiport plug types please see leaflets 1.2 (3-way) and 1.3 (4- and 5-way)

	DN	PN	L	L/2	øD	flange hole			øg	b	f	gear					torque.* [Nm]	K_{vs}-value [m³/h] / C_v-value [US.gal/min]					
						øk	No.	ø				E	R	H	I	Typ		F-2 K_{vs}	F-2 C_v	F-3-S K_{vs}	F-3-S C_v	F-3-W K_{vs}	F-3-W C_v
DIN EN 1092/1 / 558-1	100	10 - 16	350	175	220	180	8	18	158	20	3	137,5	600	270	365	Q 6500-S	2000	1446	1672	338	391	361	417
		25/40 63	350 430	215	235 250	190 200		22 26	162	24 30								1446 1319	1672 1525	338 335	391 388	361 357	417 413
	150	10 - 16	480	240	285	240	8	22	212	22	3	137,5	600	315	365	Q 6500-S	4000	3338	3859	775	895	816	943
		25/40 63	480 550	275	300 345	250 280		26 33	218	28 36								3338 3155	3859 3647	775 768	895 888	816 818	943 945
	200	10 - 16	600	300	340	295	8 12	22	268	24	3	180	700	355	520	Q 12000-S	6500	6362	7356	1385	1601	1470	1698
		25 40			360 375	310 320	12	26 30	278 285	30 34													
	250	10 16	730	365	395 405	350 355	12	22 26	320	26	3	180	700	385	520	Q 12000-S	8500	10346	11961	2166	2504	2285	2642
		25 40			425 450	370 385		30 33	335 345	32 38													
	300	10 16	850	425	445 460	400 410	12 16	22 26	370 378	26 28	4	252,5	700	460	600	Q 24000-S	19500	15316	17707	3141	3631	3312	3829
		25 40			485 515	430 450	16	30 33	395 410	34 42													
	350	10 16	980	490	505 520	460 470	16	22 26	430 438	26 30	4	252,5	700	495	600	Q 32000-S	25000	21195	24504	4294	4964	4540	5249
		25 40			555 580	490 510		33 36	450 465	38 46													

	NPS	Class	L	L/2	øD	flange hole			øg	b	f	gear					torque.* [Nm]	K_{vs}-value [m³/h] / C_v-value [US.gal/min]					
						øk	No.	ø				E	R	H	I	Typ		F-2 K_{vs}	F-2 C_v	F-3-S K_{vs}	F-3-S C_v	F-3-W K_{vs}	F-3-W C_v
ASME B 16.5 / 16.10	4"	150	350	175	230	190,5	8	19,1	157,2	24,3	2	137,5	600	270	365	Q 6500-S	2000	1446	1672	338	391	360	416
		300	430	215	255	200		22,3	157,2	32,2								1317	1522	335	387	358	414
	6"	150	480	240	280	241,3	8	22,3	215,9	25,9	2	137,5	600	315	365	Q 6500-S	4000	3338	3859	781	903	820	948
		300	550	275	320	269,9	12	22,3	215,9	37								3155	3647	768	888	815	943
	8"	150	600	300	345	298,5	8	22,4	269,6	29	2	180	700	355	520	Q 12000-S	6500	6362	7356	1385	1601	1470	1699
		300	650		380	330,2	12	25,4	269,6	41,7								6108	7062	1388	1605	1466	1695
	10"	150	730	365	405	362	12	25,4	323,8	30,6	2	180	700	385	520	Q 12000-S	8500	10344	11959	1934	2235	2299	2658
		300	775		445	387,4	16	28,4	323,8	48,1								9933	11483	1941	2244	2327	2690
	12"	150	850	425	485	431,8	12	25,4	381	32,2	2	252,5	700	460	600	Q 24000-S	19500	15317	17708	3064	3543	3308	3825
		300			520	450,8	16	31,7	381	51,3													
	14"	150	980	490	535	476,3	12	28,4	412,8	35,4	2	252,5	700	495	600	Q 32000-S	25000	21194	24503	4285	4954	4545	5255
		300			585	514,4	20	31,7	412,8	54,4													

The data was determined by flow simulation and based on the VDI/VDE 2173 (medium = water 20°C, pressure loss Δp = 1 bar).
Higher operating pressures on request
* 100% safety factor for actuators inclusive
** on request



- multiport plug types please see leaflets 1.2 (3-way) and 1.3 (4- and 5-way)

	DN	PN	L	L/2	øD	flange hole			øg	b		f	gear					torque * [Nm]	K_{VS}-value [m^3/h] / C_V-value [US.gal/min]					
						øk	No.	ø					E	R	H	I	Typ		F-2 K_V	F-2 C_V	F-3-S K_V	F-3-S C_V	F-3-W K_V	F-3-W C_V
DIN EN 1092/1 / 558-1	400	10 16 25 40	1100	550	565 580 620 660	515 525 550 585	16	26 30 36 39	482 490 505 535	26 32 40 50		4	252,5	700	535	600	Q 32000-S	29000	28438	32878	5608	6484	5989	6923
	450	10 16 25 40	1200	600	615 640 670 685	565 585 600 610	20	26 30 36 39	532 550 555 560	28 36 46 57		4	252,5	700	620	600	Q 50000-S	31000	37079	42867	7057	8158	7667	8864
	500	10 16 25 40	1250	625	670 715 730 755	620 650 660 670	20	26 33 36 42	585 610 615 615	28 38 48 57		4	291,5	700	640	740	Q 50000-S	33000	47672	55113	8890	10278	9442	10916
	600	10 16 25 40	1450	725	780 840 845 890	725 770 770 795	20	30 36 39 48	685 725 720 735	30 47 58 72		5	**	**	**	**	**	**	71299	82429	12646	14620	13439	15537

	NPS	Class	L	L/2	øD	flange hole			øg	b	f	gear					torque * [Nm]	K_{VS}-value [m^3/h] / C_V-value [US.gal/min]					
						øk	No.	ø				E	R	H	I	Typ		F-2 K_V	F-2 C_V	F-3-S K_V	F-3-S C_V	F-3-W K_V	F-3-W C_V
ASME B 16.5 / 16.10	16"	150 300	838	550	595 650	539,8 571,5	16 20	28,4 35	469,9 469,9	37 57,6	2	252,5	700	535	600	Q 32000-S	29000	32823	37947	5638	6518	5991	6927
	18"	150 300	1200	600	635 710	577,9 628,6	16 24	31,8 35	533,4 533,4	40,1 60,8	2	252,5	700	620	600	Q 50000-S	31000	37078	42866	7067	8170	7667	8864
	20"	150 300	991	625	700 775	635 685,8	20 24	31,8 35	584,2 584,2	43,3 64	2	291,5	700	640	740	Q 50000-S	33000	54544	63058	8996	10400	9495	10977
	24"	150 300	1450	725	815 915	749,3 812,8	20 24	35,1 41,1	692,2 692,2	48,1 70,3	2	**	**	**	**	**	**	71301	82431	12489	14439	13439	15537

The data was determined by flow simulation and based on the VDI/VDE 2173 (medium = water 20°C, pressure loss Δp = 1 bar).
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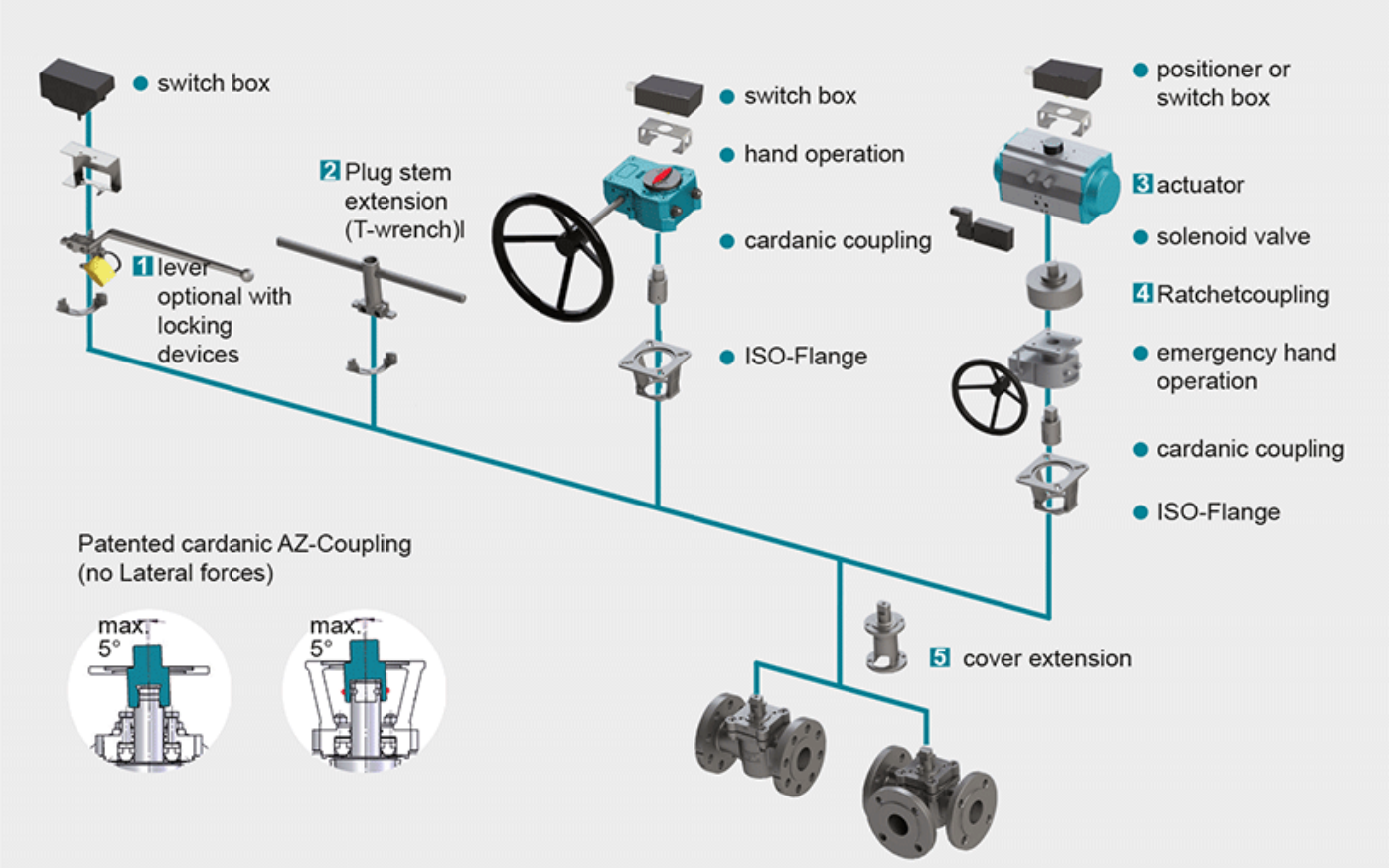
For geometric reasons, threads are used in the flange bores in a few cases

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 [...]