

HIGH-PERFORMANCE BUTTERFLY VALVE HP 111



Wafer type butterfly valve in double eccentric construction. Reliable sealing even with extreme temperature and pressure conditions.

TECHNICAL DATA

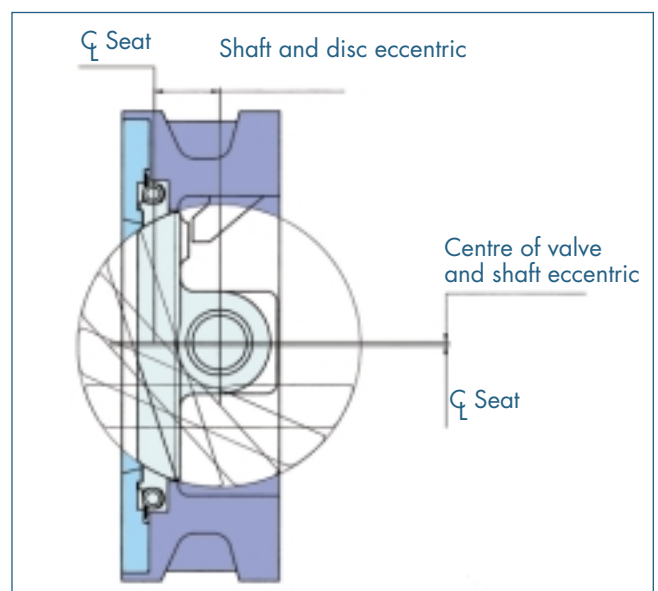
Nominal diameter:	DN 50 – DN 600 larger nominal diameter on request
Face-to-face:	EN 558 Series 20 (DIN 3202 T3 K1) ISO 5752 Series 20 (DIN 3202 T3 K1) API 609 Table 1 BS 5155 Series 4 NF E 29-305.1
Flange accommodation:	DIN 2501 PN 10/16/25/40 (up to DN 150) DIN 2501 PN 10/16/25 (DN 200-600) DIN 2632/33/34/35 ANSI B 16.5, Class 150 MSS SP44 Class 150 AWWA C 207 AS 2129 Table D and E BS 10 Table D and E JIS B 2211-5 K JIS 2212 10K
Flange surface Design:	DIN 2526, Design A-E, ANSI RF
Top flange:	EN ISO 5211 NF E 29.402
Marking:	DIN EN 19
Tightness check:	
- for R-PTFE seat:	DIN 3230-BO (Leakage Rate 1)
- for Inconel seat:	DIN 3230-BN (Leakage Rate 1) ISO 5208, Category 3 API 598 Table 5 ANSI B 16-104, Class VI
Temperature range:	-40 °C to + 450 °C (higher temperatures on request)
Differential pressure:	≤ DN 150 = 40 bar max. > DN 150 = 25 bar max.
Vacuum:	0,2 bar absolute (higher vacuum depending on medium and temperature)

FEATURES

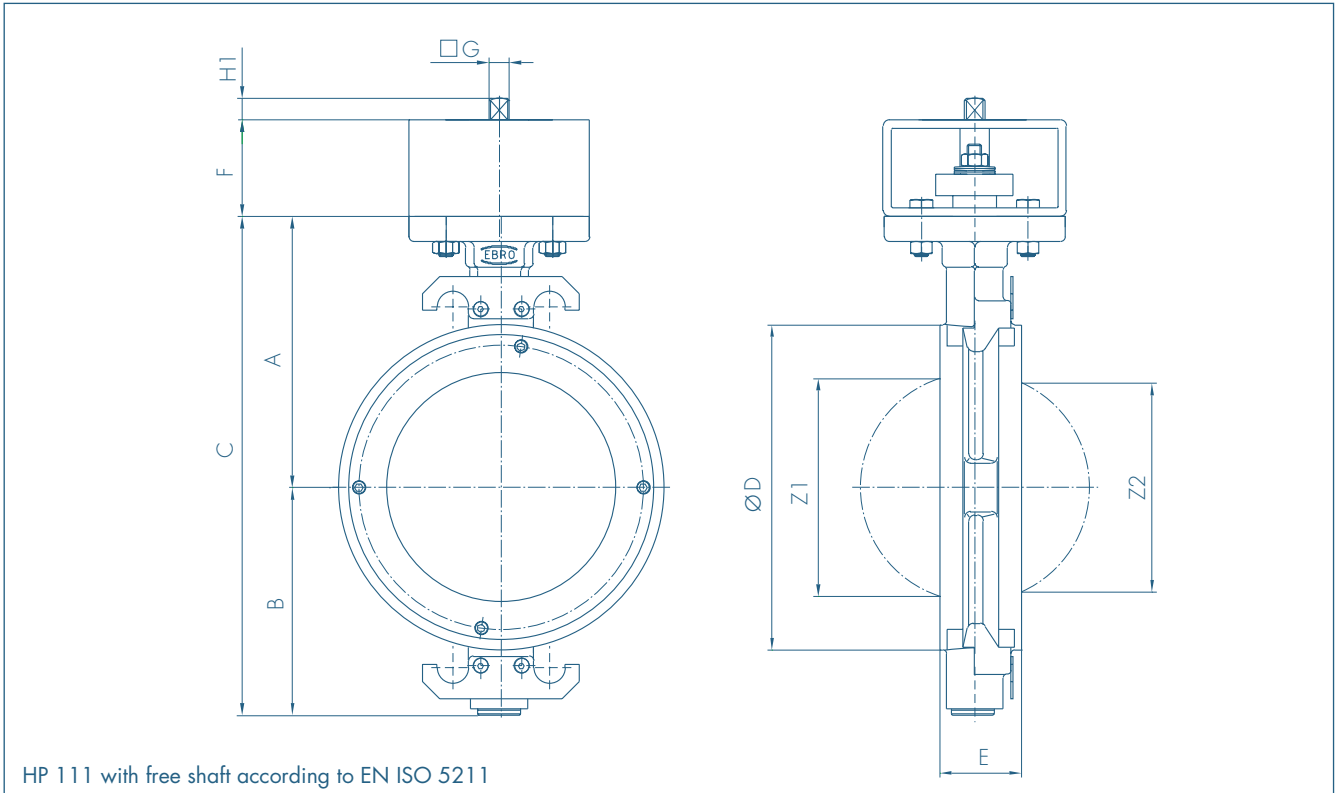
- Shut-off and control of gaseous and liquid media
- Disc and shaft have double-eccentric bearing.
- Centering pieces can be used as installation aid.
- Two seat ring systems available: R-PTFE and Inconel
- Seal variants:
soft-sealing (R-PTFE) 230 °C max.
metallic sealing (Inconel) 450 °C max.
- Maintenance-free
- Long service life, even at high switching frequencies

GENERAL APPLICATIONS

- Chemical and petrochemical industries
- Hot water and steam systems
- District heat supply
- Vacuum systems
- Shipbuilding
- Gas process technology
- Heavy duty services



HIGH PERFORMANCE BUTTERFLY VALVE HP 111



DN [mm]	Size [in]	Dimensions [mm]											min. Pipe-Ø	Weight [kg]
		A	B	C	D	E	F	Flange	G	H1	Z1	Z2		
50	2	133	93	226	112	43	80	F05	12	15	40,9	-	51	7,4
65	2½	133	93	226	112	43	80	F05	12	15	40,9	-	51	7,4
80	3	142	107	249	138	46	80	F05	12	15	70,7	54,4	80	8,0
100	4	158	118	276	160	52	80	F05	12	15	94,2	81,6	103	8,6
125	5	181	134	315	192	56	80	F07	14	18	114,5	105,3	124	12,6
150	6	195	148	343	216	56	80	F07	14	18	143,5	135,4	151	14,8
200	8	225	185	410	270	60	80	F10	17	18	187,4	181,2	196	22,9
250	10	268	215	483	326	68	80	F12	22	23	235,2	228,8	245	33,5
300	12	300	248	548	378	78	90	F12	27	28	280,7	275,8	296	48,0
350	14	345	304	649	438	92	100	F14	27	28	322,8	315,9	334	94,7
400	16	375	339	714	488	102	100	F14	36	36	371,6	363,9	385	115,0
450	18	412	340	752	530	114	120	F16	36	36	426,8	426,8	438	141,0
500	20	425	399	824	593	127	120	F16	46	46	468,7	466	484	186,0
550	22	456	405	861	635	154	200	F25	46	46	525,7	525,7	540	236,0
600	24	490	468	958	692	154	200	F25	55	55	544,5	542,2	560	310,0

Subject to change without notice.

ACTUATORS HP 111

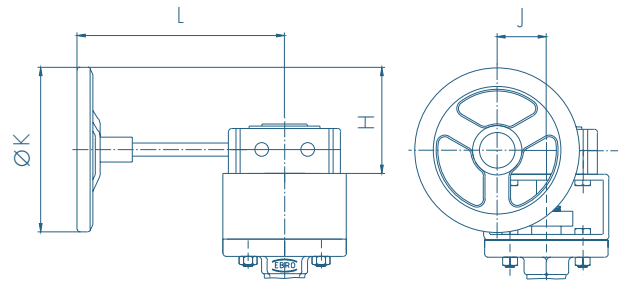
WORM GEAR FOR PTFE-SEAT

DN [mm]	Size [in]	Hand Lever	H	J	K	L	Weight [kg]
50-125	2-5	Size II	89	39	125	159	1,4
150	6	Size III	129	47	200	202	2,3
200	8	Size IV	129	60	200	252	2,8
250-300	10-12	Size V	158	76	250	280	6,3
350	14	Size XII	192	67	300	295	10,1
400-500	16-20	Size VI	228	90	356	322	16,0
550-600	22-24	Size VIII	355	154	610	466	45,0

FOR INCONEL-SEAT

DN [mm]	Size [in]	Gear	H	J	K	L	Weight [kg]
50-100	2-4	Size II	89	39	125	159	1,4
125-150	5-6	Size III	129	47	200	202	2,3
200-250	8-10	Size V	158	76	250	280	6,3
300-350	12-14	Size XII	192	67	300	295	10,1
400	16	Size VI	228	90	356	322	16,0
450-500	18-20	Size VII	278	123	457	406	30,5
550	22	Size VIII	355	154	610	466	45,0
600	24	Size XIII	371	60	610	486	57,0

The dimensioning of actuators refers to an operating pressure of 10 bar.



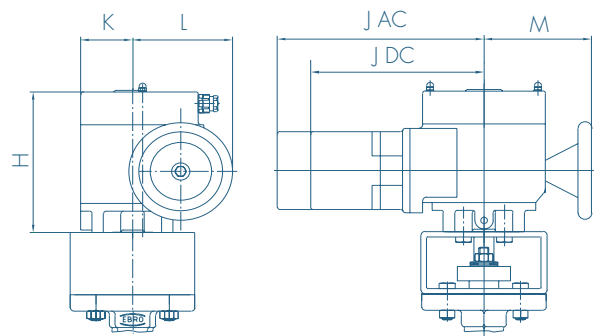
ELECTRIC ACTUATOR FOR PTFE-SEAT

DN [mm]	Size [in]	Actuator Type	H	J/DC	J/AC	K	L	M	Weight [kg]
50-125	2-5	E 60	158	171	171	62	82	110	5,0
150-200	6-8	E 100	183	206	246	74	121	131	11,5
250-350	10-14	E 150	200	238	278	105	189	155	21,0
400-500	16-20	E 200	212	313	313	124	283	220	34,0

FOR INCONEL-SEAT

DN [mm]	Size [in]	Actuator Type	H	J/DC	J/AC	K	L	M	Weight [kg]
50-100	2-4	E 60	158	171	171	62	82	110	5,0
125-200	5-8	E 100	183	206	246	74	121	131	11,5
250-350	10-14	E 150	200	238	278	105	189	155	21,0
400-500	16-20	E 200	212	313	313	124	283	220	34,0

The dimensioning of actuators refers to an operating pressure of 10 bar.



Subject to change without notice.

ACTUATORS HP 111

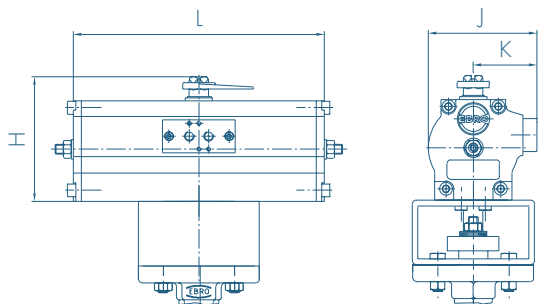
PNEUMATIC DOUBLE ACTING FOR PTFE-SEAT

DN [mm]	Size [in]	Actuator Type	H	J	K	L	Weight [kg]
50-100	2-4	EB 5	108	88	55	174	1,7
125-150	5-6	EB 6	123	103	62	208	2,6
200	8	EB 8	136	115	68	250	4,3
250	10	EB 10	155	135	79	312	6,8
300	12	EB 12	182	159	94	367	12,0
350-400	14-16	EB 265	232	152	76	390	18,0
450-500	18-20	EB 270	278	220	110	445	32,0
550	22	EB 280	278	220	110	600	42,0

FOR INCONEL-SEAT

DN [mm]	Size [in]	Actuator Type	H	J	K	L	Weight [kg]
50-80	2-3	EB 5	108	88	55	174	1,7
100	4	EB 6	123	103	62	208	2,6
125-150	5-6	EB 8	136	115	68	250	4,3
200	8	EB 10	155	135	79	312	6,8
250-300	10-12	EB 12	182	159	94	367	12,0
350	14	EB 265	232	152	76	390	18,0
400-450	16-18	EB 270	278	220	110	445	32,0
500-550	20-22	EB 280	278	220	110	600	42,0

The dimensioning of actuators refers to an operating pressure of 10 bar and a control air pressure of 6 bar.



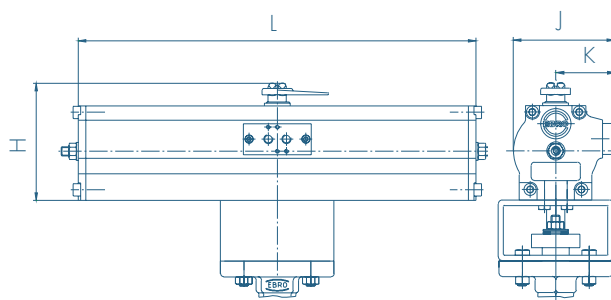
PNEUMATIC SPRING RETURN FOR PTFE-SEAT

DN [mm]	Size [in]	Actuator Type	H	J	K	L	Weight [kg]
50-80	2-3	EB 5	108	88	55	273	3,0
100	4	EB 6	123	103	62	326	5,0
125	5	EB 8	136	115	68	389	7,7
150	6	EB 10	155	135	79	526	14,3
200	8	EB 12	182	159	94	656	25,4
250-300	10-12	EB 270	278	220	110	655	45,0
350-500	14-20	EB 280	278	220	110	1020	68,0

FOR INCONEL-SEAT

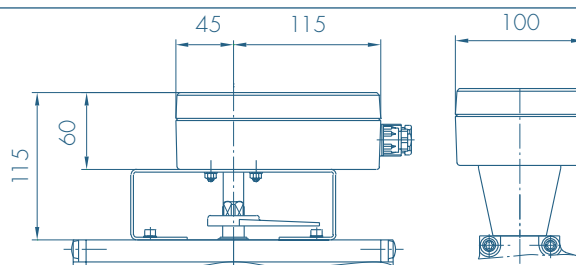
DN [mm]	Size [in]	Actuator Type	H	J	K	L	Weight [kg]
50-80	2-3	EB 6	123	103	62	326	5,0
100	4	EB 8	136	115	68	389	7,7
125-150	5-6	EB 10	155	135	79	526	14,3
200	8	EB 12	182	159	94	656	25,4
250	10	EB 270	278	220	110	655	45,0
300-350	12-14	EB 280	278	220	110	1020	68,0

The dimensioning of actuators refers to an operating pressure of 10 bar and a control air pressure of 6 bar.



SWITCH BOX SERIES MSK/NSK

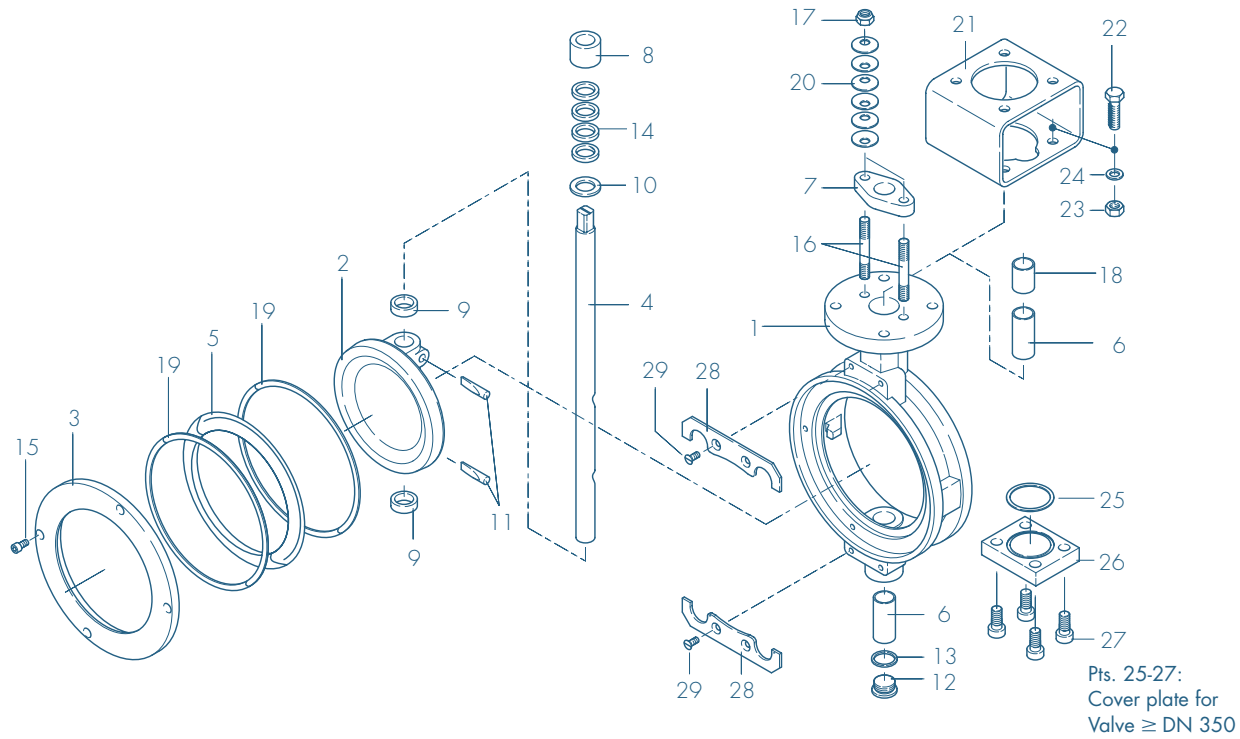
MSK: Switch Box with integrated micro limit switches.
NSK: Switch Box with integrated proximity switches.



Subject to change without notice.

HIGH-PERFORMANCE BUTTERFLY VALVE HP 111

MATERIAL SPECIFICATION AND PARTS LIST



Pt.	Description	Material	Material-No.	ASTM	Pt.	Description	Material	Material-No.	ASTM
1	Body	Carbon Steel	GS-C25N	1.0619	WCB	14	Shaft seal		
		Stainless Steel	G-X5CrNiMo19-11-2	1.4408	CF8M			PTFE	
2	Disc								
		Stainless Steel	G-X5CrNiMo19-11-2	1.4408	CF8M	15	Hex.-socket screw		
3	Clamping ring								
		Steel	St37-2	1.0037	283-C	16	Threaded pin		
4	Shaft								
		Stainless Steel	X4CrNiMo16-5-1	1.4418		17	Hex. nut		1.4571
5	Seat ring								
		R-PTFE	PTFE-Compound			18	Spacer sleeve		
6	Shaft bearing	Inconel	Inconel 625						
		Stainless Steel	X5CrNiMo17-12-2	1.4401/PTFE	316	19	Graphit seal (for metal seat)		1.8159
7	Gland flange								
		Stainless Steel	X6CrNiMoTi17-12-2	1.4571	nitrite	316 Ti	20	Belleville spr. washer	
8	Thrust collar								
		Steel	St37-2	1.0037	283-C	21	Bracket		
9	Bearing ring								
		Stainless Steel	X5CrNi18-10	1.4301	304	22	Hex. bolt		St galvanized
10	Suppor. washer								
		Stainless Steel	X5CrNi18-10	1.4301	304	23	Hex. nut		St galvanized
11	Taper pin								
		Stainless Steel	X6CrNiMoTi17-12-2	1.4571	chr-pld	316 Ti	24	Washer	
12	Plug screw DIN 908								
		Stainless Steel	X6CrNiMoTi17-12-2	1.4571	316 Ti	25	Seal		1.0037
13	Seal								
		PTFE							
14	Shaft seal								
		Graphite							
15	Hex.-socket screw								
		Stainless Steel	X4CrNiMo16-5-1	1.4418					
16	Threaded pin								
		Machining Steel	11SMnPb30	1.0718	ni-pld	SAE 12L14	26	Cover plate	
17	Hex. nut								
		Stainless Steel	G-X5CrNiMo19-11-2	1.4408	CF8M		27	Hex.-socket screw	
18	Spacer sleeve								
		Stainless Steel	X6CrNiMoTi17-12-2			316 Ti	28	Centering piece	
19	Graphit seal (for metal seat)								
		Stainless Steel	X6CrNiMoTi17-12-2			316 Ti	29	Countersunk screw	
20	Belleville spr. washer								
		Spring Steel	50CrV4	1.0037	6150				
21	Bracket								
		Stainless Steel	X6CrNiMoTi17-12-2			316 Ti			
22	Hex. bolt								
		Steel	St32-2 galvanized			283-C			
23	Hex. nut								
		Steel	St galvanized			CS			
24	Washer								
		Steel	St galvanized			CS			
25	Seal								
		Graphite							
26	Cover plate								
		Steel	St 37-2 galvanized			283-C			
27	Hex.-socket screw								
		Stainless Steel	X6CrNiMoTi17-12-2			316 Ti			
28	Centering piece								
		Stainless Steel	X6CrNiMoTi17-12-2			316 Ti			
29	Countersunk screw								
		Stainless Steel	A2			SS			
									Other materials upon request

Pts. 25-27:
Cover plate for
Valve ≥ DN 350

Subject to change without notice.

HIGH-PERFORMANCE BUTTERFLY VALVE HP 111

TORQUE

- The values specified are based on the initial breakaway torque. (disc disengages from seat, torque than drops).

DN [mm]	Size [in]	Operating Pressure							
		10 [bar]		16 [bar]		25 [bar]		40 [bar]	
		R-PTFE	Inconel	R-PTFE	Inconel	R-PTFE	Inconel	R-PTFE	Inconel
50-65	2-2½	27	35	28	42	30	58	31	66
80	3	28	55	30	65	34	90	38	100
100	4	51	90	61	100	80	120	93	140
125	5	63	150	83	172	95	220	125	285
150	6	125	170	136	220	168	300	220	360
200	8	205	350	260	430	280	505	*	*
250	10	485	505	550	620	600	860	-	-
300	12	584	740	700	970	855	1280	-	-
350	14	740	815	930	1050	1200	1370	-	-
400	16	1150	1530	1640	2240	2460	2900	-	-
450	18	1150	1700	1750	2500	2700	3500	-	-
500	20	1210	2010	1800	2760	2800	4260	-	-
550	22	3500	3750	4430	4550	6010	6800	-	-
600	24	4000	4500	4600	5740	6200	8080	-	-

All Values in Nm

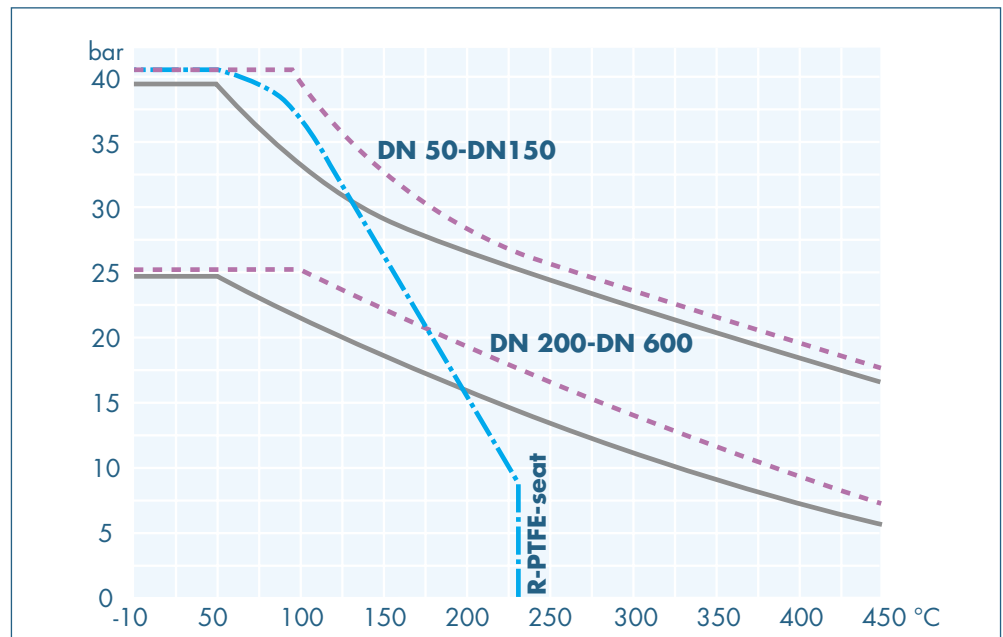
PRESSURE /TEMPERATURE DIAGRAM

----- Pressure control line for GS-C25 body material and metal seat

————— Pressure control line for 1.4408 body material and metal seat

- · - · - · Pressure control line for R-PTFE-seat

The diagram illustrate the performance of the standard version of our valve type HP. Valves for higher pressure or deviating temperature are available upon request.



K_v-VALUES

- The K_v-value (m³ per hour) is the flow of water at a temperature of 5 °C to 30 °C (41 °F to 86 °F) Δp of 1 bar.

- The K_v-values specified are based on tests carried out by the Delft Hydraulics Laboratories, the Netherlands.

DN [mm]	Size [in]	Opening angle							
		20°	30°	40°	50°	60°	70°	80°	90°
50	2	5	23	38	56	67	81	101	109
65	2½	5	23	38	56	67	81	101	109
80	3	7	30	50	68	82	97	113	115
100	4	22	60	97	119	164	199	223	251
125	5	45	100	152	195	256	346	452	493
150	6	63	109	162	250	391	588	814	845
200	8	96	168	301	509	742	1107	1581	1747
250	10	264	458	682	980	1421	2083	2882	2889
300	12	397	625	956	1368	1938	2778	3794	3940
350	14	460	720	1100	1650	2500	3400	4800	5400
400	16	550	870	1250	2000	3200	4800	6800	8080
450	18	730	1200	1800	3100	4600	6400	8400	10500
500	20	920	1600	2600	4100	6000	8500	12100	12800
550	22	1090	1950	3100	4600	7500	10200	14700	15300
600	24	1370	2250	3780	4950	9000	12500	17100	18500

Subject to change without notice.