



JHP

High Performances
Butterfly valves

DN50-900

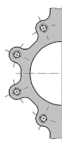
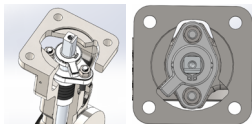
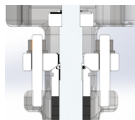
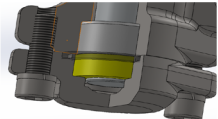


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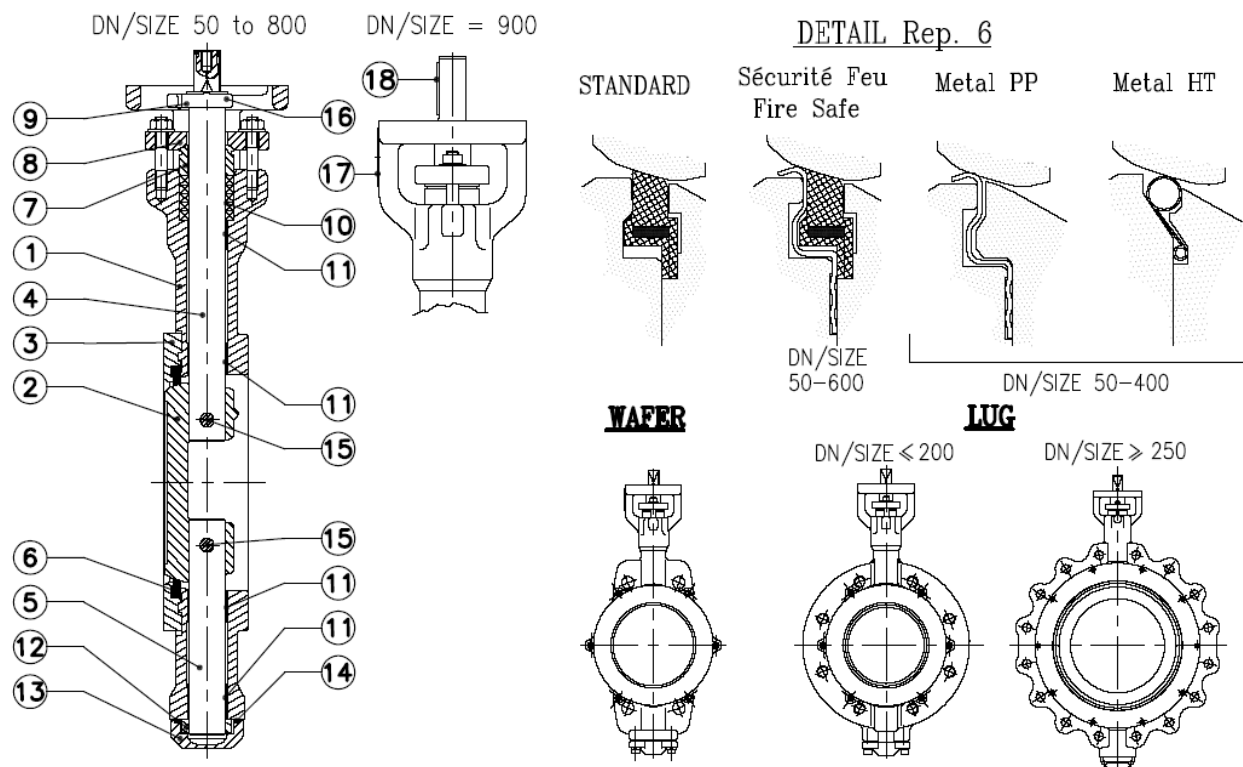
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JHP BUTTERFLY VALVE FEATURES

Performance	The maximum pressures and temperatures depend on the pressure / temperature ratio and the nature of the fluid.	
	Temperature, °C	-196 °C -50 °C 400 °C 700 °C
	Pressure, bar	0* 40 100 bar
	Diameter, mm	DN40 DN50 DN900 DN3000
	(*) Double Offset and Bidirectional : 1 torr	
Technology	Double Offset and Bidirectional	
Body type	 Wafer  Lug	
Face to Face	ISO5752 – Series 20 (Other: on request)	
Design standard	EN593 / API609-Cat.B DESP 2014/68/UE compliant	
ISO5211 Baseplate	The body-integrated bracket allows direct mounting of the actuators. 	
Index of position	Located outside the fluid, at the actuator mounting flange, the index limits the angular displacement of the disc to 90°. It protects the seal by preventing over-opening.	
Gland follower	Its design allows asymmetrical tightening. 	
Anti blow-out	An anti blow-out device allows the actuator to be removed safely.	
Seal and Butterfly	The seal and the shape of the butterfly were designed jointly to ensure: • An excellent internal seal, • Large sealing range due to wide width scope, • Easy docking when closing to avoid material tearing off, • Easy maintenance to change the seal without disassembling the valve, • The lack of contact between the two parts when the valve is in the open position, thanks to the double eccentricity, • Very low deformation due to fluid pressure, • A high Kv flow coefficient allowing a low pressure drop at full opening.	
Open bracket	The bracket design allows direct access to the gland follower without disassembling the actuator.	
Long collar	Insulation of the valve is facilitated while preserving access to the gland.	
Centering ears (Wafer)	They allow precise centering of the valve on the pipe.	
Electrical continuity (on request)	JHP offers, on request, electrical continuity to comply with the European Directive 2014/34/EU concerning use in potentially explosive atmospheres (ATEX).	
Continuous parting line	The range of contact of the gaskets with the pipe flanges is continuous thanks to the eccentricity of the screws fixing the retaining ring to the body. 	
Guidance	The valve is bi-directional thanks to 4 bearings allowing the butterfly to be perfectly guided in rotation. The centring ring , hot-mounted on the shaft at the cover, ensures very precise centring of the butterfly valve and allows the valve to be mounted in any position. 	
	The Shaft-disc connection by means of non-through pins , guarantees the control of the adjustments and avoids the risk of upstream/downstream leaks. 	
Cover	The cover and its gasket provide a static seal, thus avoiding a dynamic seal on the axis.	

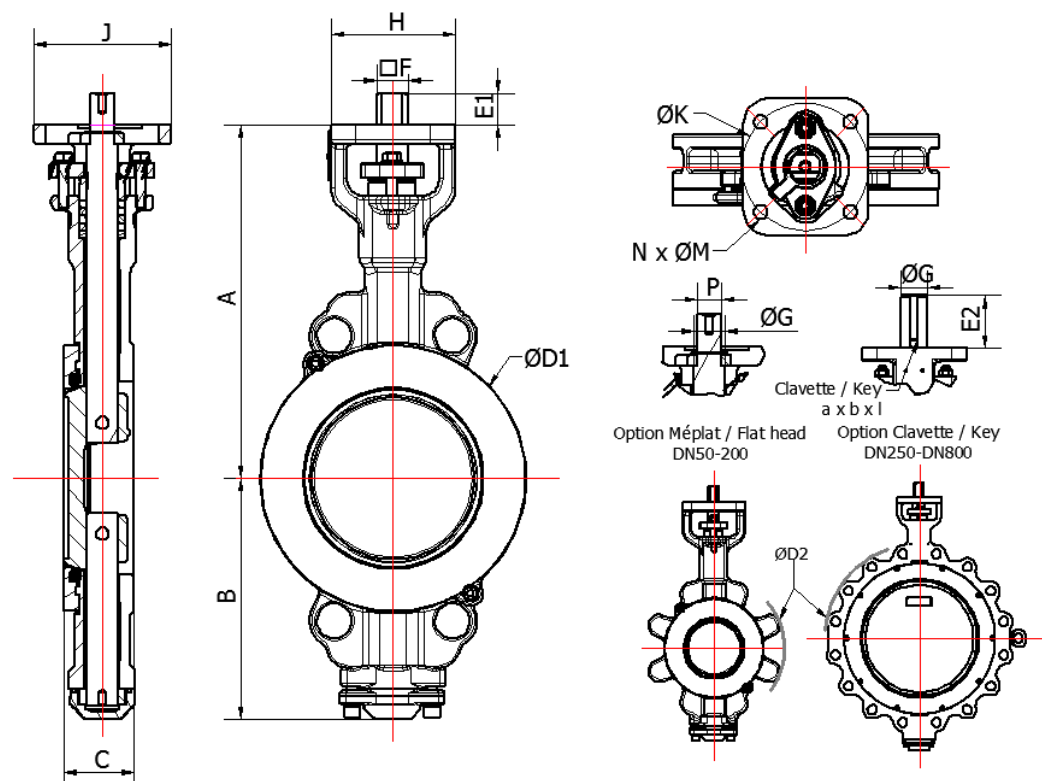
PART LIST



Ref	Nb	Designation	Material ⁽¹⁾	
1	1	Body	Carbon steel Stainless steel	1.0619 / A216 WCB 1.4408 / A351 CF8M
2	1	Butterfly	Carbon steel Stainless steel	1.0619 / A216 WCB ⁽²⁾ 1.4408 / A351 CF8M ⁽²⁾
3	1	Seat ring	Carbon steel Stainless steel	1.0619 / A216 WCB ⁽³⁾ 1.4408 / A351 CF8M ⁽³⁾
4	1	Upper stem	Stainless steel ⁽⁴⁾	1.4021 / A276 Gd420 1.4542 / A564 Gd630
5	1	Lower stem	Stainless steel ⁽⁴⁾	1.4021 / A276 Gd420 1.4542 / A564 Gd630
6	1	Seat	Standard : RTFE 15% Graphite / RTFE 25% Glass / RTFE 50% SS / PTFE / Fire safe / Metal PP / Metal HT	
7	1	Packing gland	Stainless steel	1.4307
8	1	Gland follower	Carbon steel Stainless steel	1.1149 1.4401
9	1	Travel stop	Stainless steel	1.4306
10	*	Packing	Graphite / 3260LM / PTFE / PTFE 25% Glass / High cycling	
11	4	Bearing	Carbon steel + PTFE ⁽⁴⁾ Stainless steel + PTFE	
12	1	Disc locating shoulder	Stainless steel	1.4307
13	1	Cover	Carbon steel Stainless steel	1.0619 / A216 WCB 1.4408 / A351 CF8M
14	1	Bottom Seal	Graphite / PTFE / PTFE 25% Glass	
15	*	Pin	Stainless steel	1.4404
16	1	Circlips	Carbon steel Stainless steel	
17	1	Name plate		
18	1	Clavette	Key	1.1880

⁽¹⁾ Others on request⁽²⁾ Chrome plated on HT version⁽³⁾ or forged version according to supply.⁽⁴⁾ Defined according to body & disc material.

DIMENSIONS ⁽¹⁾



						Square			Flat head ⁽²⁾	Key ⁽²⁾				Top Flange			ISO5211 ISO5210	Weight Wafer	Weight Lug	
DN	A	B	C ⁽³⁾	ØD1	ØD2	E1	F	ØG	P	E2	a	b	l	H	J	K	Nb	M	Kg	
50	175	102	43	97	153	25,5	11	14	11	-	-	-	-	70	80	70	4	9	3,9	4,6
65	191	116	46	117	173	25,5	11	14	11	-	-	-	-	70	80	70	4	9	5	7,1
80	197	122	46	130	190	25,5	11	14	11	-	-	-	-	70	80	70	4	9	5,4	7,9
100	233	149	52	158	225	25,5	14	18	14	-	-	-	-	100	100	102	4	11	9,1	11,6
125	245	160	56	188	261	25,5	14	18	14	-	-	-	-	100	100	102	4	11	11	14,9
150	283	193	56	212	294	25,5	19	25	19	-	-	-	-	100	110	102	4	11	15,7	20,1
200	307	217	60	267	365	25,5	19	25	19	-	-	-	-	100	110	102	4	11	21,9	33,7
250	371	254	68	321	420	36	27	35	-	70	10	8	60	132	140	125	4	14	37,1	51,6
300	399	302	78	372	476	36	27	35	-	70	10	8	60	132	140	125	4	14	54	87
350	421	324	78	431	542	36	27	35	-	70	10	8	60	132	140	125	4	14	72	99,7
400	453	358	102	484	606	43	32	40	-	80	12	8	73	140	149	140	4	18	105	144
450	522	392	114	534	662	49	36	50	-	80	14	9	60	Ø175		140	4	18	150	205
500	550	427	127	590	722	63	46	60	-	85	18	11	80	Ø210		165	4	22	192	250
600	635	485	154	689	837	63	46	60	-	85	18	11	80	Ø210		165	4	22	297	375
700	720	547	165	799	947	81	55	80	-	108	22	14	100	Ø300		254	8	18	430	554
800	771	598	190	900	1070	81	55	80	-	108	22	14	100	Ø300		254	8	18	567	740
900	878	687	241 ⁽⁴⁾	1000	-	-	-	100	-	108	22	14	100	Ø350		254	8	18	870	

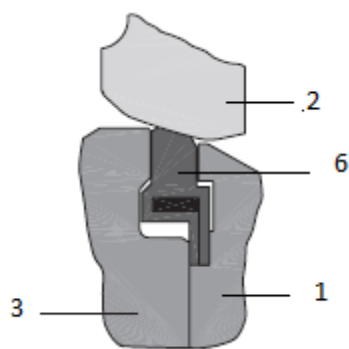
⁽¹⁾ Dimensions [mm], weight [kg] are given as a guide only.

⁽²⁾ Option.

⁽³⁾ EN558-Series 16 or EN558-Series 25 available on request.

⁽⁴⁾ Default face to face: EN558-S16.

STANDARD RTFE SEAT



DN	PS max	Tightness
DN50-DN600	25 bar	ISO5208 - A
DN700-DN900	16 bar	EN12666 - A

Note:

- Bidirectional tightness in line
- Standard seat:
 - RTFE 15% Graphite filled
- Others:
 - RTFE 25% Glass filled
 - RTFE 50% Stainless steel filled
 - Virgin PTFE

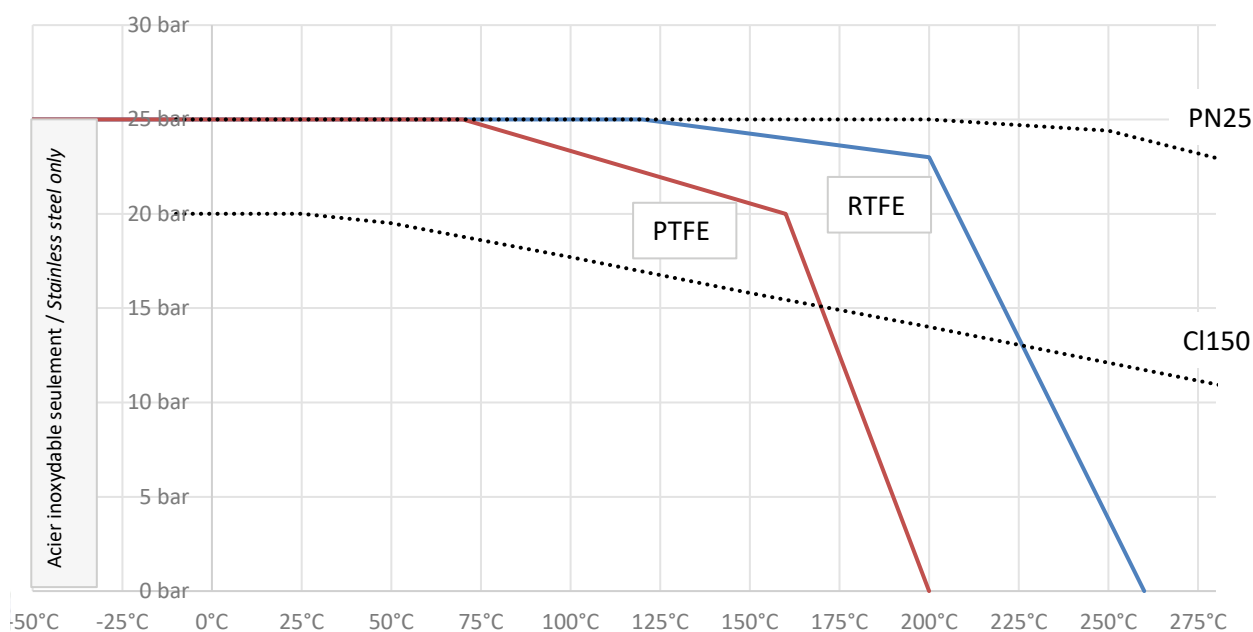
Torque (N.m)

DP	50	65	80	100	125	150	200	250	300	350	400	450	500	600	700	800	900
25 bar	27	33	45	73	115	170	320	480	720	950	1350	1700	2300	3200	4500*	6000*	8000*
10 bar			38	62	97	143	265	390	595	760	1070	1350	1820	2750			
7 bar			34	55	85	125	230	345	520	690	970	1225	1655	2330			

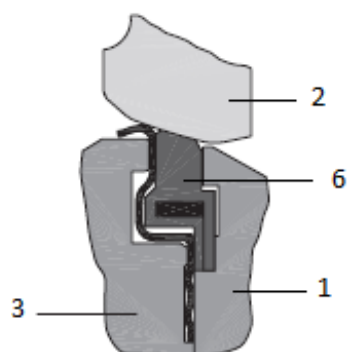
The maximum valve pipe end (BdC) operating pressure (PS) will, due to the valve pipe operating pressure, be limited to: $PS(BdC) = PS \times 0.733$

* 16 bar max

RTFE: PRESSURE / TEMPERATURE DIAGRAM



FIRE SAFE SEAT



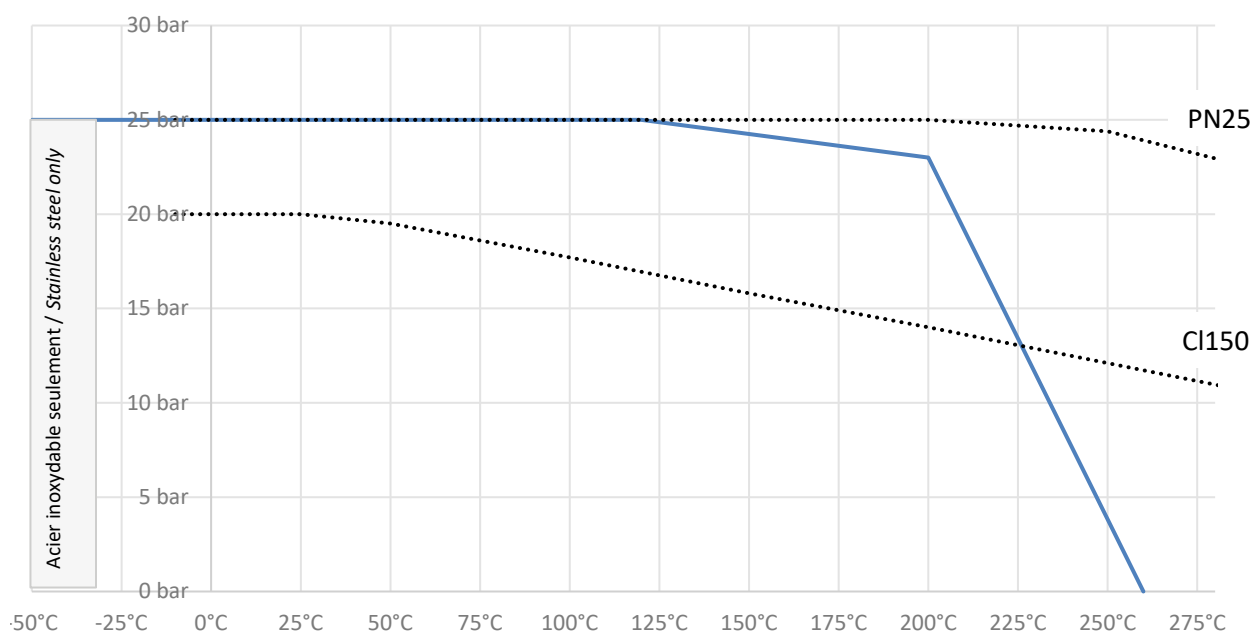
DN	PS max	Tightness
DN50-DN600	25 bar	ISO5208 - A EN12666 - A

Note:

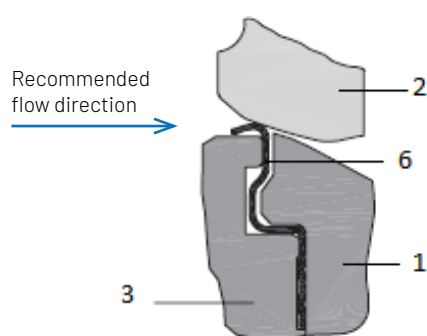
- Bidirectional tightness in line

Torque (N.m)

DP	50	65	80	100	125	150	200	250	300	350	400	450	500	600	700	800	900
25 bar	27	33	45	73	115	170	320	480	720	950	1350	1700	2300	3200			

FIRE SAFE: PRESSURE / TEMPERATURE DIAGRAM


PP METAL SEAT



DN	PS max	Tightness
DN50-DN400	10 bar	ISO5208 - D EN12666 - D

Note :

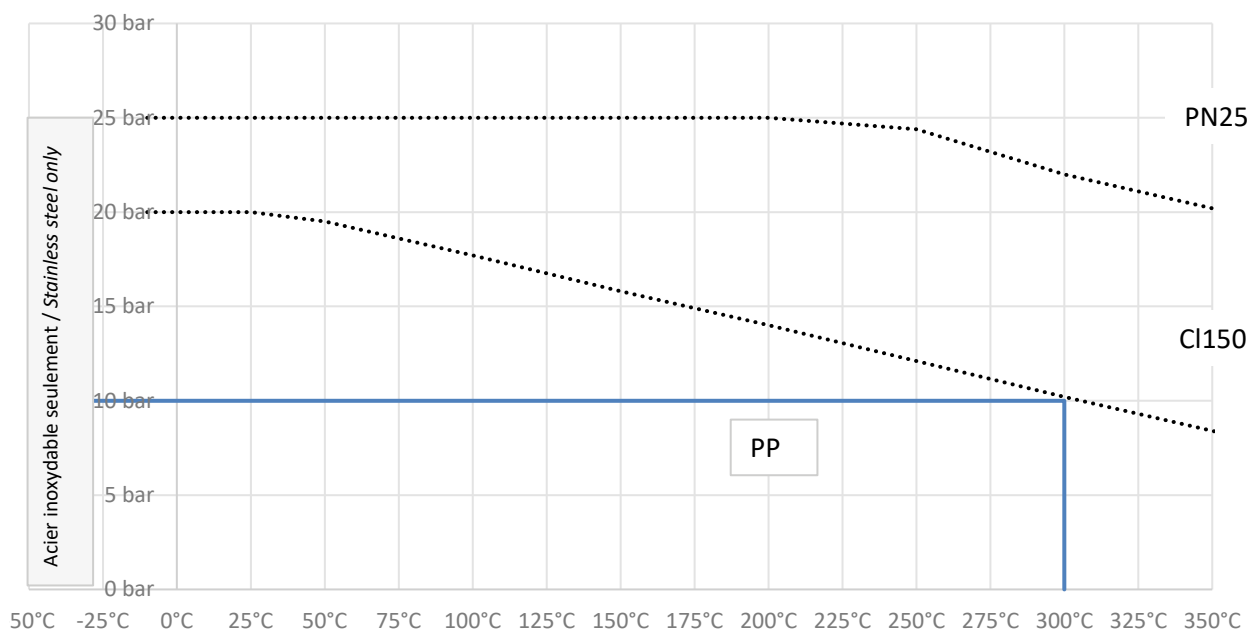
- Preferred assembly: Shaft downstream
- Design for viscous and pasty fluids

Torque (N.m)

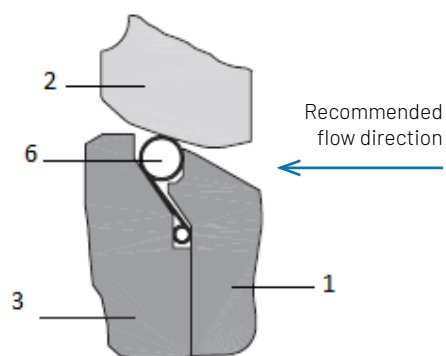
DP	50	65	80	100	125	150	200	250	300	350	400	450	500	600	700	800	900
10 bar	27	33	45	73	115	170	320	480	720	950	1350						

* 16 bar max.

PP (METAL) SEAT: PRESSURE / TEMPERATURE DIAGRAM



HT METAL SEAT



DN	PS max	Tightness
DN50-DN200	25 bar	ISO5208 - C
DN250-DN400	10 bar	EN12666 - C

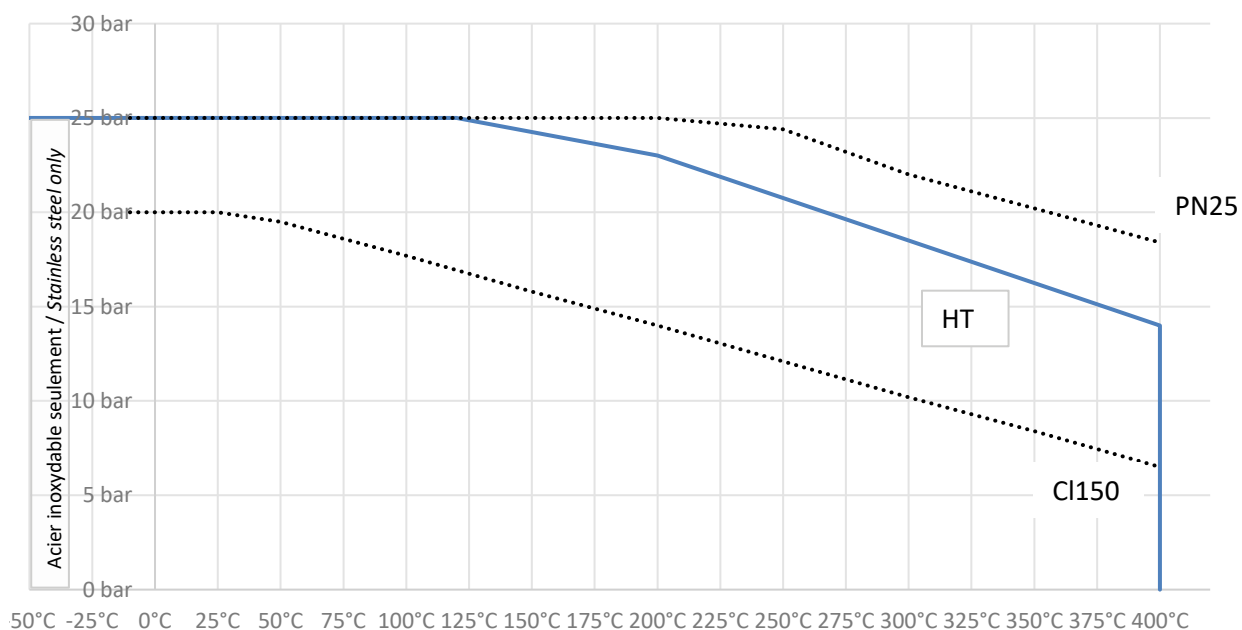
Not :

- Preferred assembly: Shaft upstream

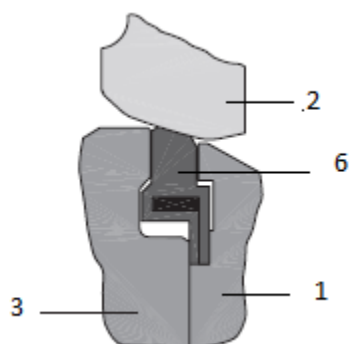
Torque (N.m)

DP	50	65	80	100	125	150	200	250	300	350	400	450	500	600	700	800	900
25 bar	54	66	90	146	230	340	640										
16 bar								960	1440	1900	2700						

HT METAL SEAT: PRESSURE / TEMPERATURE DIAGRAM



HIGH PRESSURE (HP) VERSION



DN	PS max	Tightness
DN50-DN400 (Wafer)	25 < PS ≤ 40	ISO5208 - A
DN50-DN300 (Lug)		EN12666 - A

Note:

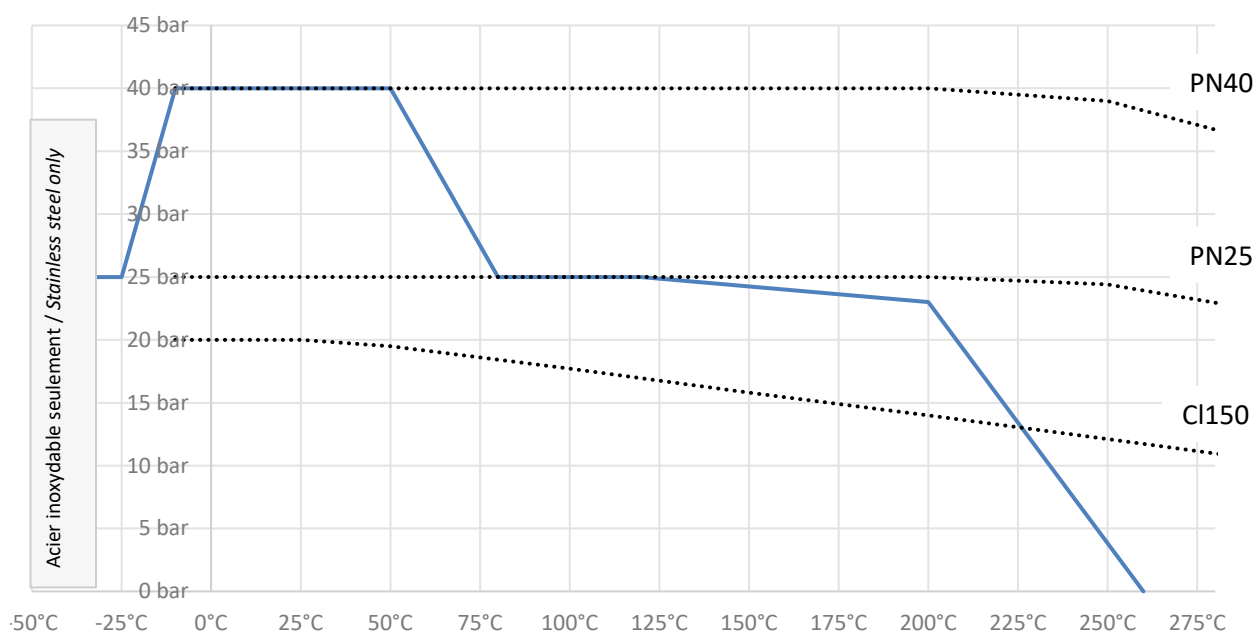
- Non dangerous liquid only (PED Liquid group 2)
- Preferred assembly: Shaft downstream

Torque (N.m)

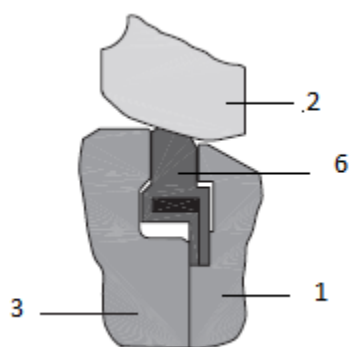
DP	50	65	80	100	125	150	200	250	300	350	400	450	500	600	700	800	900
26-40 bar	36	44	60	96	150	221	416	620	920	1200	1688						

The maximum valve pipe end (BdC) operating pressure (PS) will, due to the valve pipe operating pressure, be limited to: $PS(BdC) = PS \times 0.733$

HIGH PRESSURE VERSION: PRESSURE / TEMPERATURE DIAGRAM



POWDER, VISCOUS AND CRYSTALLIZING PRODUCTS



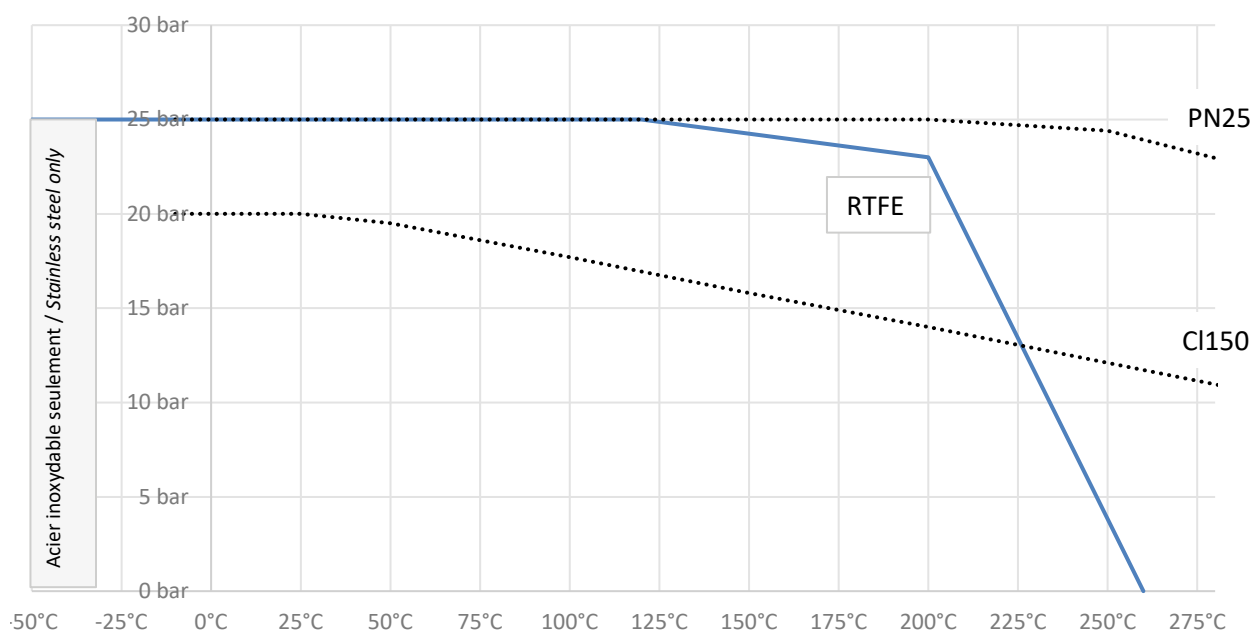
DN	PS max	Tightness
DN50-DN600	25 bar	ISO5208 - A
DN700-DN900	16 bar	EN12666 - A

Note:

- Preferred assembly: Shaft downstream.
- Material :
 - RTFE 25% Glass filled
 - RTFE 50% Stainless steel filled

Torque (N.m)

DP	50	65	80	100	125	150	200	250	300	350	400	450	500	600	700	800	900
25 bar	36	44	60	96	150	221	416	620	920	1200	1688	2110	2830	3900			

RTFE LIP SEAT: PRESSURE / TEMPERATURE DIAGRAM

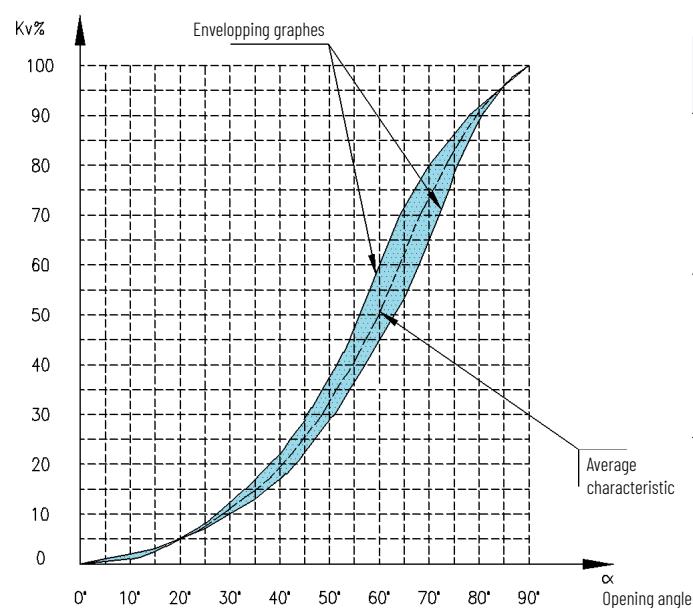
K_v VALUES

Flow characteristics chart

K _v DN	50	65	80	100	125	150	200	250	300	350	400	450	500	600	700	800	900
20°	5	9	19	37	61	72	137	180	265	302	392	490	620	900	1250	1700	2150
30°	14	25	42	70	115	126	241	368	521	612	765	1010	1250	1880	2560	3400	4350
40°	25	41	62	116	190	210	364	612	981	1072	1394	1760	2190	3190	4450	5970	7750
50°	37	64	98	174	285	342	574	1005	1548	1748	2272	2870	3620	5250	7250	9600	12350
60°	50	93	149	244	400	520	893	1503	2254	2700	3511	4445	5620	8100	11250	15220	19800
70°	70	130	213	328	538	786	1389	2182	3232	4045	5266	6650	8350	12100	16950	22600	29200
80°	95	180	274	442	725	1050	1986	3012	4250	6030	7848	9910	12430	18200	25220	34250	44240
90° K _v max	115	210	320	500	820	1200	2300	3600	5200	7300	9500	12000	14800	21600	30200	40200	51200
C _v max	133	244	371	580	951	1392	2668	4176	6032	8468	11020	13920	17168	25056	35032	46632	59392

Intrinsic flow characteristics

Intrinsic flow characteristics are included in below hachured area:



Simplified formula

They make it possible to calculate the pressure drop of the valve according to the flow conditions, or to define the dimensioning of the valve (setting) between 20° and 70°

Headloss in the valve	K _v	Incompressible fluids	Gas
$\Delta P < \frac{P_1}{2}$			$= \frac{Q}{514} \sqrt{\frac{\rho_N \cdot T}{\Delta P \cdot P_2}}$
$P_2 > \frac{P_1}{2}$		$= \frac{Q}{31,6} \sqrt{\frac{\rho_1}{\Delta P}}$	
$\Delta P > \frac{P_1}{2}$			$= \frac{2 \cdot Q_N}{514 \cdot P_1} \sqrt{\rho_N \cdot T}$
$P_2 < \frac{P_1}{2}$			

These formulas are valid only if the diameter is equal to the diameter of pipe.

K _v	Flow coefficient of the valve
Q	Flow in m ³ /h
ΔP	Headloss for the valve in bar
P ₁	Upstream absolute pressure in bar
P ₂	Downstream absolute pressure in bar
Q _N	Flow in standard conditions (0 °C, 760 mm HG) m ³ /h
T	Absolute temperature of the fluid °K
ρ ₁	Specific weight of the fluid in kg/m ³
ρ _N	Specific weight in standard conditions

WAFER: FLANGE DRILLING COMPATIBILITY

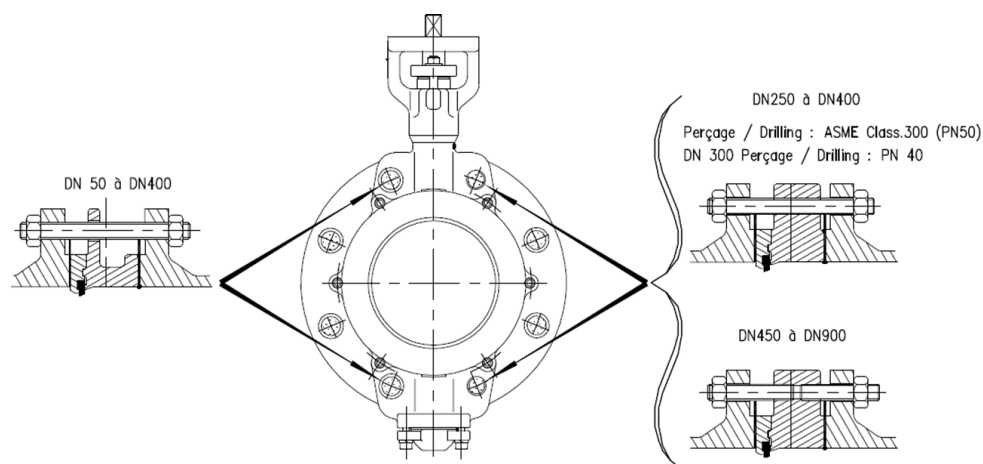
	DN	50	65	80	100	125	150	200	250	300	350	400	450	500	600	700	800	900
	Size	2"	2" ½	3"	4"	5"	6"	8"	10"	12"	14"	16"	18"	20"	24"	28"	32"	36"
ISO 7005 EN 1092	PN6																	
	PN10																	
	PN16																	
	PN25																	
	PN40																	
CLASS 150	EN1759																	
	ASME B16.5																	
	ASME B16.47 A																	
	MSS SP-44																	
CLASS 300	EN1759																	
	ASME B16.5																	
	ASME B16.47 A																	
	MSS SP-44																	
JIS B2210	10K																	
	16K																	
	20K																	

LUG: FLANGE DRILLING COMPATIBILITY

	DN	50	65	80	100	125	150	200	250	300	350	400	450	500	600	700	800	900
	Size	2"	2" ½	3"	4"	5"	6"	8"	10"	12"	14"	16"	18"	20"	24"	28"	32"	36"
ISO 7005 EN 1092	PN6																	
	PN10																	
	PN16																	
	PN25																	
	PN40																	
CLASS 150	EN1759																	
	ASME B16.5																	
	ASME B16.47 A																	
	MSS SP-44																	
CLASS 300	EN1759																	
	ASME B16.5																	
	ASME B16.47 A																	
	MSS SP-44																	
JIS B2210	10K																	
	16K																	
	20K																	

-  Flange drilling POSSIBLE
 Flange drilling IMPOSSIBLE
 Flange drilling not defined by standard

WAFER: BOLTING



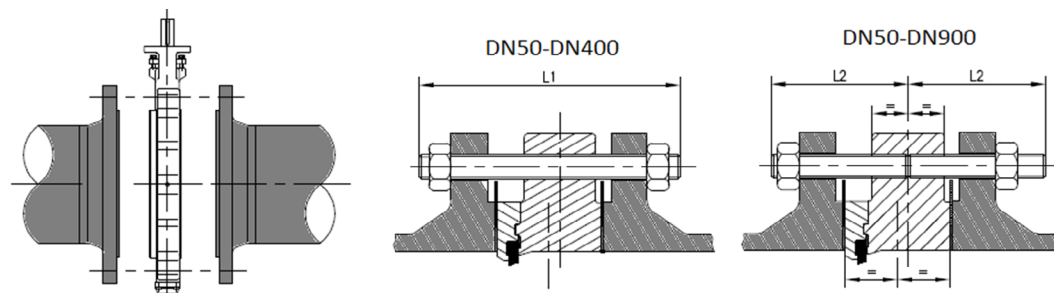
- The information is given for information only.
- Reference shall be made to the connection standards, as flange thicknesses may vary.
- M = Fastener/screw size

		50			65			80			100			125			150			200			250		
		Tie rod			Tie rod			Tie rod			Tie rod			Tie rod			Tie rod			Tie rod			Tie rod		
		M	Nb	L	M	Nb	L	M	Nb	L	M	Nb	L	M	Nb	L	M	Nb	L	M	Nb	L	M	Nb	L
ISO7005-1	PN10	M16	4	120	M16	4	120	M16	8	120	M16	8	130	M16	8	130	M20	8	150	M20	8	150	M24	12	170
	PN16	M16	4	120	M16	4	120	M16	8	120	M16	8	130	M16	8	130	M20	8	150	M20	12	150	M24	12	170
	PN25	M16	4	120	M16	8	120	M16	8	130	M20	8	150	M24	8	150	M24	8	170	M24	12	170	M27	12	200
	PN40	M16	4	120	M16	8	120	M16	8	130	M20	8	150	M24	8	150	M24	8	170	M27	12	180	M30	12	240
EN1759 B16.5 B16.47-A	PN20	M16	4	120	M16	4	120	M16	4	130	M16	8	130	M20	8	150	M20	8	150	M20	8	170	M24	12	180
	CI150	5/8"	4	120	5/8"	4	120	5/8"	4	130	5/8"	8	130	3/4"	8	150	3/4"	8	150	3/4"	8	170	7/8"	12	180
	PN50	M16	8	120	M20	8	130	M20	8	150	M20	8	150	M20	8	170	M20	12	170	M24	12	190	M27	16	220
	CI300	5/8"	8	120	3/4"	8	130	3/4"	8	150	3/4"	8	150	3/4"	8	170	3/4"	12	170	7/8"	12	190		16	220
JIS B2210	JIS10K	M16	4	135	M16	4	140	M16	8	140	M16	8	150	M20	8	165	M20	8	170	M20	12	175	M22	12	195
	JIS16K	M16	8	135	M16	8	140	M20	8	155	M20	8	165	M22	8	170	M22	12	175	M22	12	185	M24	12	205
	JIS20K	M16	8	135	M16	8	145	M20	8	160	M20	8	170	M22	8	180	M22	12	185	M22	12	195	M24	12	215

		300			350			400			450					500				
		Tie rod			Tie rod			Tie rod			Tie rod		Screw			Tie rod			Screw	
		M	Nb	L	M	Nb	L	M	Nb	L	M	Nb	L	Nb	L	M	Nb	L	Nb	L
ISO7005-1	PN10	M20	12	170	M20	16	190	M24	16	230	M24	16*	265	+4x2	140	M24	16*	265	+4x2	140
	PN16	M24	12	190	M24	16	235	M27	16	250	M27	16*	270	+4x2	140	M30	16*	290	+4x2	160
	PN25	M27	16	200	M30	16	240	M33	16	250	M33	16*	280	+4x2	150	M33	16*	310	+4x2	160
	PN40	M30	16	240	M33	16	250	M36	16	300	M36	16*	310	+4x2	150	M39	16*	360	+4x2	160
EN1759 B16.5 B16.47-A	PN20	M24	12	180	M27	12	200	M27	16	235	M30	12*	290	+4x2	160	M30	16*	320	+4x2	160
	CI150	7/8"	12	180	1"	12	200	1"	16	235	1 1/8	12*	290	+4x2	160	1 1/8	16*	320	+4x2	160
	PN50	M30	16	240	M30	20	240	M33	20	280	M33	20*	310	+4x2	150	M33	20*	340	+4x2	150
	CI300		16	240	1 1/8	20	240	1 1/4	20	280	1 1/4	20*	310	+4x2	150	1 1/4	20*	340	+4x2	150
JIS B2210	JIS10K	M22	16	205	M22	16	210	M24	16	245	M24	16*	260	+4x2	140	M24	16*	275	+4x2	150
	JIS16K	M24	16	220	M30x3	16	235	M30x3	16	270	M30x3	16*	290	+4x2	155	M30x3	16*	310	+4x2	165
	JIS20K	M24	16	230	M30x3	16	250	M30x3	16	285	M30x3	16*	305	+4x2	160	M30x3	16*	325	+4x2	170

		600					700					800					900				
		Tie rod		Screw			Tie rod		Screw			Tie rod		Screw			Tie rod		Screw		
		M	Nb	L	Nb	L	M	Nb	L	Nb	L	M	Nb	L	Nb	L	M	Nb	L	Nb	L
ISO7005-1	PN10	M27	16*	310	+4x2	160	M27	20*	310	+4x2	140	M30	20*	340	+4x2	160	M30	24*	400	+4x2	175
	PN16	M33	16*	340	+4x2	175	M33	20*	340	+4x2	175	M36	20*	370	+4x2	175	M36	24*	435	+4x2	175
	PN25	M36	16*	360	+4x2	185	M39	20*	360	+4x2	185	M45	20*	400	+4x2	185	M45	24*	470	+4x2	190
	PN40	M45	16*	400	+4x2	190	M45	20*	400	+4x2	190	M52	20*	435	+4x2	190	M52	24*	500	+4x2	200
EN1759 B16.5 B16.47-A	PN20	M33	16*	360	+4x2	185	M33	24*	390	+4x2	185	M39	24*	435	+4x2	185	M39	28*	500	+4x2	190
	CI150	1 1/4"	16*	360	+4x2	185	M33	24*	390	+4x2	185	1 1/2"	24*	435	+4x2	185	1 1/2"	28*	500	+4x2	190
	PN50	M39	20*	390	+4x2	180	M42	24*	435	+4x2	195	M48	24*	470	+4x2	180	M52	28*	530	+4x2	200
	CI300	1 1/2"	20*	390	+4x2	180	M42	24*	435	+4x2	195	1 3/4"	24*	470	+4x2	180	2"	28*	530	+4x2	200
JIS B2210	JIS10K	M30	20*	325	+4x2	175	M30	20*	345	+4x2	185	M30	24*	380	+4x2	205				+4x2	
	JIS16K	M36x3	20*	365	+4x2	195	M39x3	20*	365	+4x2	195	M45x3	20*	410	+4x2	220				+4x2	
	JIS20K	M36x3	20*	380	+4x2	200	M45x3	20*	405	+4x2	215	M52x3	20*	460	+4x2	245				+4x2	

LUG: BOLTING



- The information is given for information only.
- Reference shall be made to the connection standards, as flange thicknesses may vary.

		50					65					80					100					125					150				
		M	Nb	L1	Nb	L2	M	Nb	L1	Nb	L2	M	Nb	L1	Nb	L2	M	Nb	L1	Nb	L2	M	Nb	L1	Nb	L2	M	Nb	L1	Nb	L2
ISO7005-1	PN10	M16	4	130	8	70	M16	4	130	8	70	M16	8	135	16	75	M16	8	140	16	75	M16	8	150	16	80	M20	8	160	16	85
	PN16	M16	4	130	8	70	M16	4	130	8	70	M16	8	135	16	75	M16	8	140	16	75	M16	8	150	16	80	M20	8	160	16	85
	PN25	M16	4	135	8	70	M16	8	140	16	75	M16	8	145	16	75	M20	8	160	16	75	M24	8	175	16	95	M24	8	160	16	95
	PN40	M16	4	135	8	70	M16	8	140	16	75	M16	8	145	16	75	M20	8	160	16	75	M24	8	175	16	95	M24	8	160	16	95
EN1759 B16.5 B16.47-A	PN20	M16	4	130	8	70	M16	4	140	8	75	M16	4	145	8	75	M16	8	150	16	80	M20	8	160	16	85	M20	8	165	16	90
	CI150	5/8"	4	130	8	70	5/8"	4	140	8	75	5/8"	4	145	8	75	5/8"	8	150	16	80	3/4"	8	160	16	85	3/4"	8	165	16	90
JIS B2210	JIS10K	M16	4	135	8	70	M16	4	140	8	75	M16	8	140	16	75	M16	8	150	16	80	M20	8	165	16	90	M20	8	170	16	90
	JIS16K	M16	8	135	16	70	M16	8	140	16	75	M20	8	155	16	80	M20	8	165	16	85	M22	8	170	16	90	M22	12	175	24	95
	JIS20K	M16	8	135	16	75	M16	8	145	16	75	M20	8	160	16	85	M20	8	170	16	90	M22	8	180	16	95	M22	12	185	24	100

		200					250					300					350					400				
		M	Nb	L1	Nb	L2	M	Nb	L1	Nb	L2	M	Nb	L1	Nb	L2	M	Nb	L1	Nb	L2	M	Nb	L1	Nb	L2
ISO7005-1	PN10	M20	8	165	16	90	M20	12	180	24	95	M20	12	180	24	100	M20	16	190	32	100	M24	16	220	32	120
	PN16	M20	12	165	24	90	M24	12	185	24	100	M24	12	185	24	110	M24	16	205	32	110	M27	16	235	32	130
	PN25	M24	12	185	24	100	M27	12	205	24	110	M27	16	205	32	120	M30	16	230	32	125	M33	16	265	32	145
	PN40	M27	12	195	24	105	M30	12	220	24	120	M30	16	220	32	130										
EN1759 B16.5 B16.47-A	PN20	M20	8	175	16	95	M24	12	195	24	105	M24	12	195	24	110	M27	12	220	24	120	M27	16	245	32	135
	CI150	3/4"	8	175	16	95	7/8"	12	195	24	105	7/8"	12	195	24	110	1"	12	220	24	120	1"	16	245	32	135
JIS B2210	JIS10K	M20	12	175	24	95	M22	12	195	24	105	M22	16	195	32	110	M22	16	210	32	115	M24	16	245	32	135
	JIS16K	M22	12	185	24	100	M24	12	205	24	110	M24	16	205	32	115	M30x3	16	235	32	125	M30x3	16	270	32	145
	JIS20K	M22	12	195	24	105	M24	12	215	24	115	M24	16	215	32	125	M30x3	16	250	32	135	M30x3	16	285	32	155

		450					500					600					700				
		M	Nb	L1	Nb	L2	M	Nb	L1	Nb	L2	M	Nb	L1	Nb	L2	M	Nb	L1	Nb	L2
ISO7005-1	PN10	M24			40	130	M24			40	135	M27			40	150	M27			48	160
	PN16	M27			40	140	M30			40	145	M33			40	165	M33			48	175
	PN25	M33			40	150	M33			40	160	M36			40	180	M39			48	185
	PN40																				
EN1759 B16.5 B16.47-A	PN20	M30			32	150	M30			40	155	M33			40	180	M33			56	205
	CI150	1 1/8"			32	150	1 1/8"			40	155	1 1/4"			40	180	1 1/4"			56	205
JIS B2210	JIS10K	M24			40	140	M24			40	175	M30			48	70	M30			48	185
	JIS16K	M30x3			40	155	M30x3			40	195	M36x3			48	70	M39x3			48	195
	JIS20K	M30x3			40	160	M30x3			40	200	M36x3			48	70	M45x3			48	215

ASSEMBLY

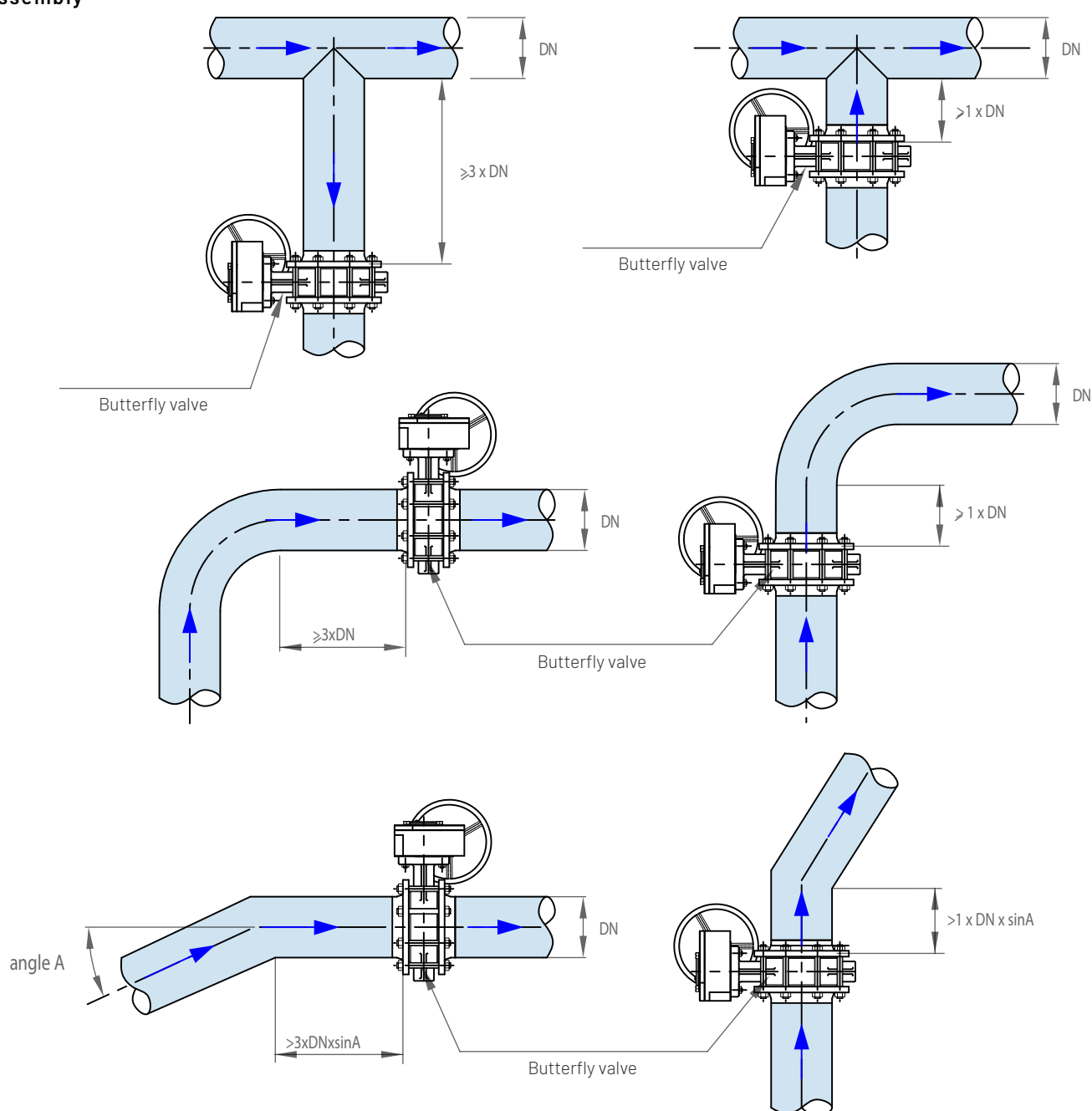
Fluid speed

Butterfly valves are designed for a maximum recommended flow speed:

Working pressure	Max flow speed recommended Fluid	Max flow speed recommended Gas
PS < 6 bar	2,5 m/s	25 m/s
PS < 10 bar	3 m/s	30 m/s
PS > 16 bar	4 m/s	35 m/s
PS > 25 bar	5 m/s	40 m/s

Conform to standards: EN593, EN1074

Assembly



ACTUATOR OPTIONS



Notched lever LC



Notched lever LC



Wormgear R242



Wormgear AB



Wormgear + Electric Actuator



Compact Pneumatic Actuator



Large Pneumatic Actuator



Electric Actuator

VALVES WITH HANDLE

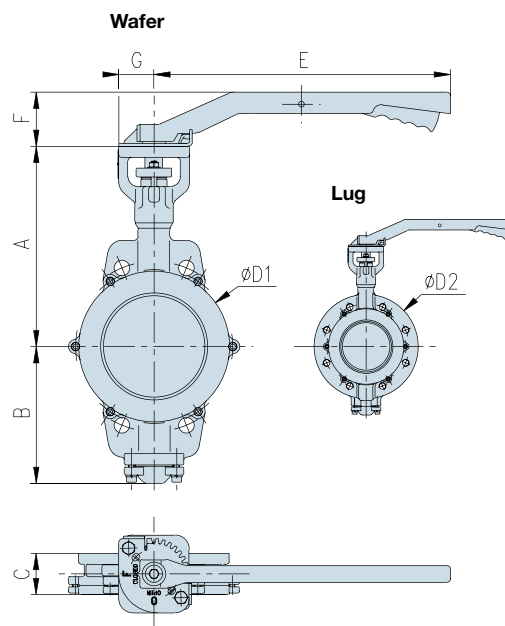
LOCKABLE LEVER "LC"

NOTES

- Dimensions in mm, weights in kg
- Dimensions and weights are given as a guide.
- Number of locking positions:
LC4 = 9, LC12 = 9, LC20 = 7



DN mm	DN inch	Lever	A	B	C	ØD1	ØD2	E	F	G	Weight Wafer	Weight Lug
50	2"	LC 4	175	102	43	97	153	230	69	45	3,6	5,3
65	2 1/2"	LC 4	191	116	46	117	173	230	69	45	5,0	7,4
80	3"	LC 4	197	122	46	130	190	230	69	45	5,4	8,2
100	4"	LC 12	233	149	52	158	225	320	75	52	8,9	14,4
125	5"	LC 12	245	160	56	188	261	320	75	52	10,5	17,7
150	6"	LC 20	283	193	56	212	294	420	75	52	13,5	23,5



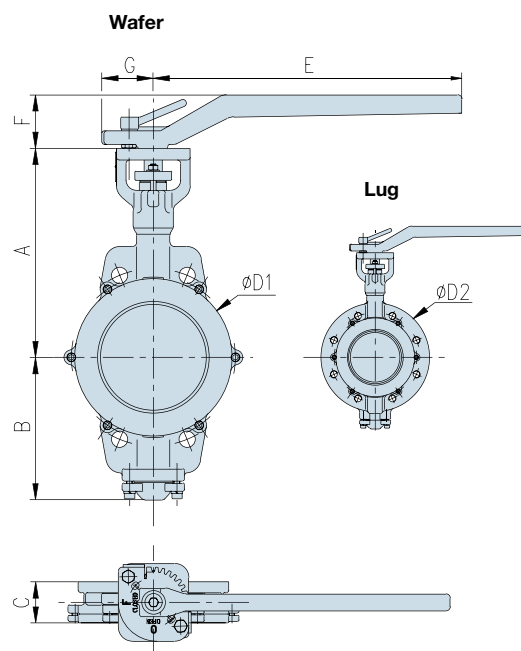
LOCKABLE LEVER "LF"

NOTES

- Dimensions in mm, weights in kg
- Dimensions and weights are given as a guide.
- Continuous adjustable

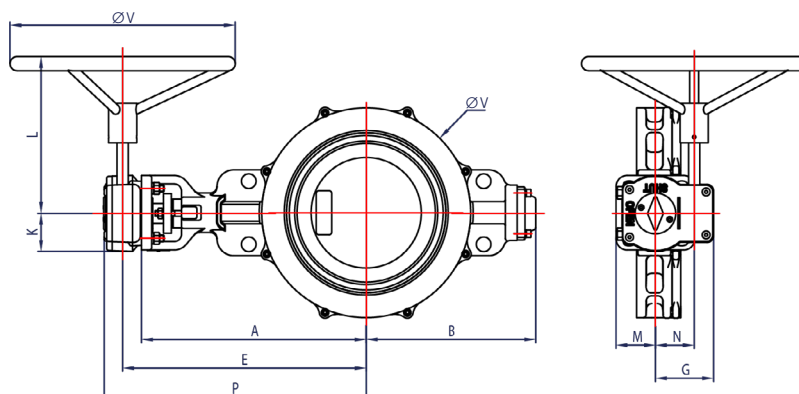


DN mm	DN inch	Lever	A	B	C	ØD1	ØD2	E	F	G	Weight Wafer	Weight Lug
50	2"	LF 4	175	102	43	97	153	230	69	45	4.1	5.8
65	2 1/2"	LF 4	191	116	46	117	173	230	69	45	5.5	7.9
80	3"	LF 4	197	122	46	130	190	230	69	45	5.9	8.7
100	4"	LF 12	233	149	52	158	225	320	75	63	9.8	15.3
125	5"	LF 12	245	160	56	188	261	320	75	63	11.5	18.6
150	6"	LF 20	283	193	56	212	294	420	75	65	14.5	24.5
200	8"	LF 20	307	217	60	267	365	420	75	65	24.0	35.7



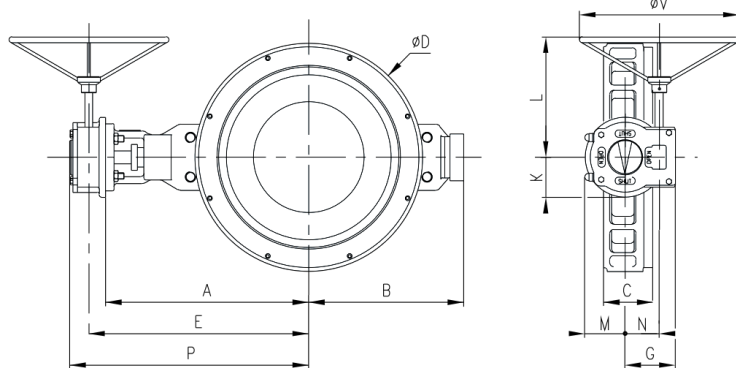
GEAR OPERATORS

WORM GEAR R242



DN mm	DN inch	Actuator Type	Nr of handwheel turns	A	B	C	ØD Wafer	ØD Lug	E	G	K	L	M	N	P	ØV	Weight, kg Wafer	Weight, kg Lug
50	2"	242-10M	6	175	102	43	97	153	195	53	34	92	35	34	215	100	4.4	6.1
65	2 1/2"	242-10M	6	191	116	46	117	173	211	53	34	92	35	34	231	100	5.8	8.2
80	3"	242-10M	6	197	122	46	130	190	217	53	34	92	35	34	237	100	6.2	9.0
100	4"	242-20M	6	233	149	52	158	225	261	63	46	111	50	41	283	100	11.1	16.6
125	5"	242-20M	6	245	160	56	188	261	273	63	46	111	50	41	295	100	12.7	19.9
150	6"	242-20M	7.5	283	193	56	212	294	311	63	46	140	50	41	333	200	15.4	25.4
200	8"	242-20M	7.5	307	217	60	267	365	335	63	46	140	50	41	357	200	24.8	36.6
250	10"	242-40S	12.5	371	251	68	321	420	404	103	68	278	66	69	438	400	52.5	67.3
300	12"	242-40S	12.5	399	302	78	372	476	432	103	68	278	66	69	466	400	66.7	89.6
350	14"	242-40S	12.5	421	324	78	431	542	454	103	68	278	66	69	488	400	86.5	109.0
400	16"	242-45M	20	453	358	102	484	606	495	114	78	318	70	81	520	500	114.0	149.0
450	18"	242-45M	20	522	392	114	534	662	564	114	78	318	70	81	589	500	161.0	222.0

WORM GEAR AB



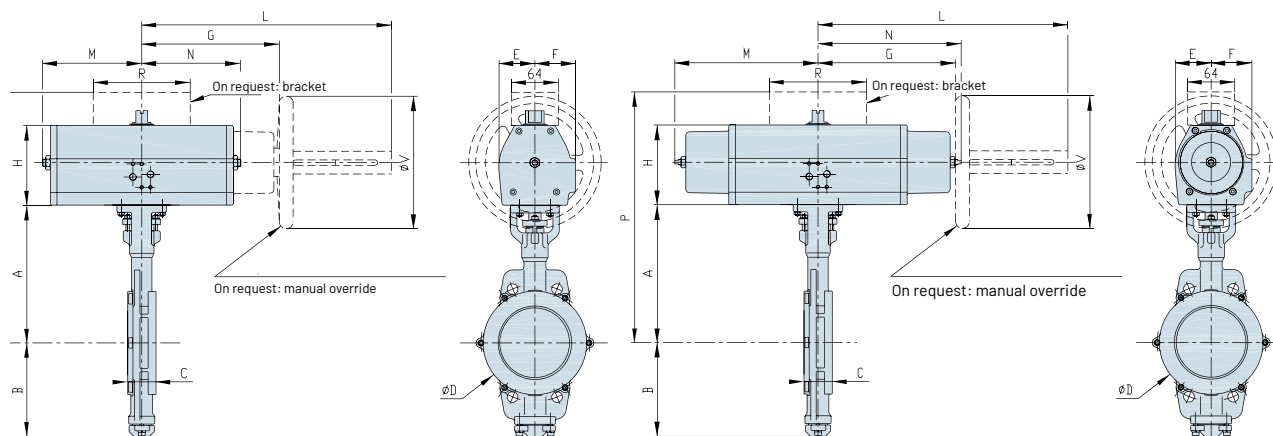
DN mm	DN inch	Actuator Type	Nr of handwheel turns	A	B	C	ØD Wafer	ØD Lug	E	G	K	L	M	N	P	ØV	Weight, kg Wafer	Weight, kg Lug
50	2"	AB 210	7.5	175	102	43	97	153	202	73	63	171	66	45	235	125	7.4	9.1
65	2 1/2"	AB 210	7.5	191	116	46	117	173	218	73	63	171	66	45	251	125	8.8	11.2
80	3"	AB 210	7.5	197	122	46	130	190	224	73	63	171	66	45	257	125	9.2	12.0
100	4"	AB 210	7.5	233	149	52	158	225	260	73	63	185	66	45	293	160	12.6	18.1
125	5"	AB 210	7.5	245	160	56	188	261	272	73	63	185	66	45	305	160	14.2	21.4
150	6"	AB 210	7.5	283	193	56	212	294	310	73	63	185	66	45	343	160	16.9	26.9
200	8"	AB 210	7.5	307	217	60	267	365	334	73	63	185	66	45	367	160	26.3	38.1
250	10"	AB 550	8.5	371	251	68	321	420	412	105	69	255	83	71	458	300	51.0	63.0
300	12"	AB 550	8.5	399	302	78	372	476	440	105	69	255	83	71	486	300	66.0	88.0
350	14"	AB 550	8.5	421	324	78	431	542	462	105	69	255	83	71	508	300	85.0	107.0
400	16"	AB 880	9.5	453	358	102	484	606	495	126	100	301	101	86	543	400	114.0	150.0
450	18"	AB 880	9.5	522	392	114	534	662	564	126	100	311	101	86	612	500	162.0	223.0
500	20"	AB 1250	14	550	427	127	590	722	598	148	110	496	110	105	649	500	213.0	269.0
600	24"	AB 1250	14	634	485	154	689	837	682	148	110	496	110	105	733	600	250.0	332.0
700	28"	AB1950N/PR4	52	720	547	165	799	947	775	260	143	437	143	211	841	400	317.0	498.0
800	32"	AB1950N/PR4	52	771	598	190	900	1070	826	260	143	437	143	211	892	400	563.0	873.0
900	36"	IW6	70	878	687	241	1000	-	948	295	188	410	188	242	1007	400	907.0	-

PNEUMATIC ACTUATORS

ACTIONNEUR PNEUMATIQUE COMPACT

NOTES

- Air supply pressure: 6 bar (85 psi) (Other pressure: on request)
- Dimensions in mm, weights in kg
- Dimensions and weights are given as a guide.
- Actuator selection valid for all JHP valves except for HT series.



DIMENSIONS DOUBLE ACTING PNEUMATIC ACTUATOR, mm (P = 6 bar mini)

DN mm	Actuator Type	A	B	C	ØD Wafer	ØD Lug	E	F	G	H	L	M	N	P	R	V	Weight Wafer	Weight Lug
50	DR 10-2	175	102	43	97	153	33	41	145	86	290	45	98	306	132	180	4.5	6.2
65	DR 10-2	191	116	46	117	173	33	41	145	86	290	45	98	322	132	180	5.9	8.3
80	DR 20-2	197	122	46	130	190	33	41	145	86	290	98	98	328	132	180	6.4	9.2
100	DR 21-4	233	149	52	158	225	33	41	145	86	290	98	98	364	132	180	9.7	15.2
125	DR 30-0	245	160	56	188	261	50	55	190	110	340	65	135	400	132	180	13.5	20.7
150	DR 40-0	283	193	56	212	294	50	55	190	110	340	135	135	438	132	180	17.4	27.4
200	DR 50-0	307	217	60	267	351	70	75	295	148	500	90	190	500	132	320	31.3	43.1
250	DR 60-1	371	251	68	321	420	70	75	295	155	500	190	190	571	132	320	52.9	65.0
300	DR 60-1	399	302	78	372	476	70	75	295	155	500	190	190	599	132	320	67.1	90.0
350	DR 71-0	421	324	78	431	542	110	110	515	248	800	145	295	724	156	400	106.4	128.5
400	DR 70-0	453	358	102	484	606	110	110	515	248	800	145	295	756	156	400	129.6	165.0
450	DR 70-0	522	392	114	534	662	110	110	515	248	800	145	295	825	156	400	177.0	238.0
500	DR 82-0	550	427	127	590	722	110	110	490	248	800	295	295	853	156	600	230.0	286.0
600	DR 82-0	634	485	154	689	837	110	110	490	248	800	295	295	937	156	600	266.0	348.0

DIMENSIONS SINGLE ACTING PNEUMATIC ACTUATOR - SPRING TO OPEN, mm (P = 6 bar mini)

DN mm	Actuator Type	A	B	C	ØD Wafer	ØD Lug	E	F	G	H	L	M	N	P	R	V	Weight Wafer	Weight Lug
50	SR 20-2/4	175	102	43	97	153	33	41	145	86	290	145	145	306	132	180	5.8	7.5
65	SR 30-0/4	191	116	46	117	173	50	55	190	110	340	65	195	301	132	180	9.3	11.7
80	SR 30-0/4	197	122	46	130	190	50	55	190	110	340	65	195	352	132	180	9.7	12.5
100	SR 40-0/4	233	149	52	158	225	50	55	190	110	340	195	195	388	132	180	15.4	20.9
125	SR 40-0/4	245	160	56	188	261	50	55	190	110	340	195	195	400	132	180	17.0	24.2
150	SR 50-0/4	283	193	56	212	294	70	75	295	148	500	90	275	476	132	320	24.9	34.9
200	SR 60-1/4	307	217	60	267	351	70	75	295	155	500	275	275	507	132	320	40.4	52.2
250	SR 71-0/4	371	251	68	321	420	110	110	515	248	800	145	520	674	156	400	85.4	97.5
300	SR 71-0/4	399	302	78	372	476	110	110	515	248	800	145	520	702	156	400	99.6	122.5
350	SR 81-0/3	421	324	78	431	542	110	110	490	248	800	520	520	724	156	600	142.4	164.5
400	SR 80-0/4	453	358	102	484	606	110	110	490	248	800	520	520	756	156	600	165.6	201.0

DIMENSIONS SINGLE ACTING PNEUMATIC ACTUATOR - SPRING TO CLOSE, mm (P = 6 bar mini)

DN mm	Actuator Type	A	B	C	ØD Wafer	ØD Lug	E	F	G	H	L	M	N	P	R	V	Weight Wafer	Weight Lug
50	SR 20-2/4	175	102	43	97	153	33	41	145	86	290	145	145	306	132	180	5.8	7.5
65	SR 30-0/5	191	116	46	117	173	50	55	190	110	340	65	195	301	132	180	9.3	11.7
80	SR 30-0/5	197	122	46	130	190	50	55	190	110	340	65	195	352	132	180	9.7	12.5
100	SR 40-0/5	233	149	52	158	225	50	55	190	110	340	195	195	388	132	180	15.4	20.9
125	SR 50-0/5	245	160	56	188	261	70	75	295	148	500	90	275	438	132	320	22.2	29.4
150	SR 60-1/5	283	193	56	212	294	70	75	295	155	500	275	275	483	132	320	31.0	41.0
200	SR 60-1/7	307	217	60	267	351	70	75	295	155	500	275	275	507	132	320	40.4	52.2
250	SR 71-0/5	371	251	68	321	420	110	110	515	248	800	145	520	674	156	400	85.4	97.5
300	SR 81-0/5	399	302	78	372	476	110	110	490	248	800	520	520	702	156	600	122.6	145.5
350	SR 81-0/5	421	324	78	431	542	110	110	490	248	800	520	520	724	156	600	142.4	164.5
400	SR 80-0/7	453	358	102	484	606	110	110	490	248	800	520	520	756	156	600	165.6	201.0

ACCESSORIES AND OPTIONS



ACTIONNEUR PNEUMATIQUE

Double ou simple effet



External limit switches

- Protection to IP 67
- Working temperature: -25 °C to +70 °C
- 300 volts - 6 A
- On request:
Explosion proof switches EEx"d"



Limit switches or sensors in box

- Box in alloyed aluminium or polycarbonate
- Protection to IP 65
- Working temperature: -25 °C to +80 °C
- Adjustable cams from 0° to 90°
- Electricity supply all voltages, AC or DC supply
- On request:
Explosion proof switches EEx"i"



Pneumatic Positioners (standard)

- Working temperature: -15 °C to +80 °C (-40 °C on request)
- Air supply pressure:
1.4 to 6 bar (20 to 50 psi)
- Signal: 0.2 to 1 bar (3 to 50 psi)

Electropneumatic Positioners (standard)

- Protection to IP 54
- Working temperature: -15 °C to +80 °C
- Input signal: 4-20 mA



Manual acting "CM" type

For double or single acting pneumatic actuators.



Accessoires

Solenoid valves, speed regulators and silencers.

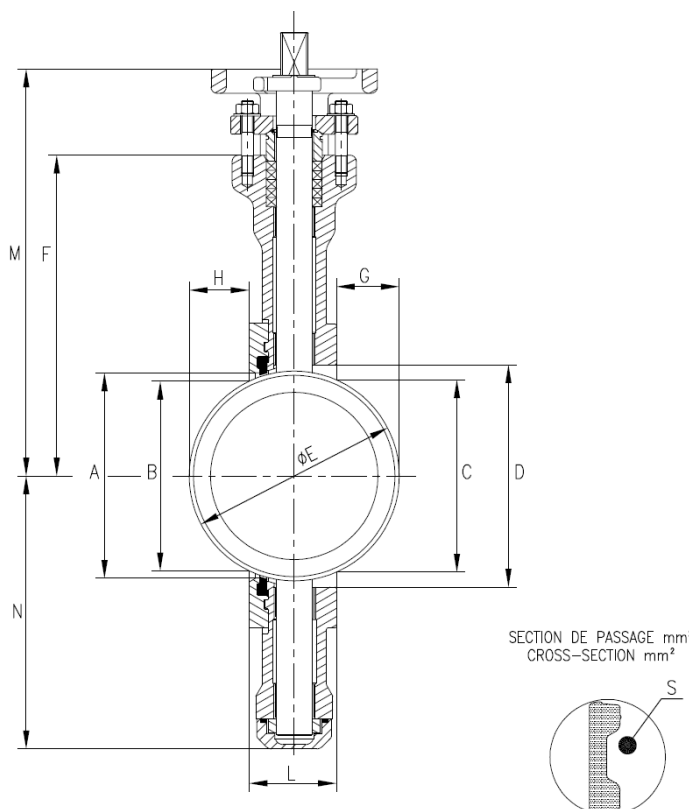


ISOBOX

- Protection to IP 67
- Working temperatures: -25 °C to +100 °C
- Available with limit switches or sensors

Size of valve	Type
DN 50-200	ISOBOX 1
DN 250-600	ISOBOX 2

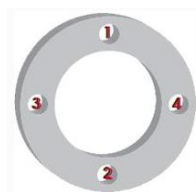
ASSEMBLY INSTRUCTION



WARNING

- Assembly is done with disc in closed position.
Put the gaskets between flanges and valves.
Do not open the valve before having finished to tighten bolts flanges.
- Center the valve with the bolting.
Progressively tighten bolts by alternating sides until you have contact between valve and flange faces.
- Control: operate valve from fully opened position to fully closed position to make nothing obstruct the disc.

Flange 4 holes



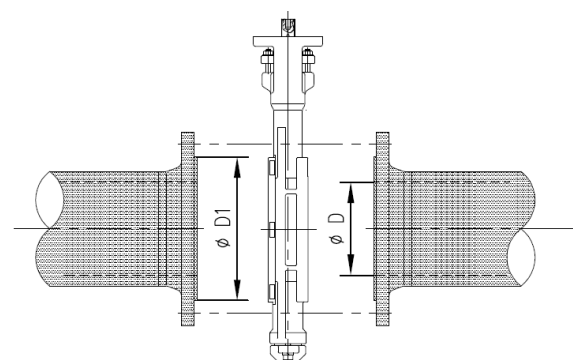
Flange 8 holes



Flange 12 holes



	50	65	80	100	125	150	200	250	300	350	400	450	500	600	700	800	900
A	48	59	73	96	120	143	192	238	283	328	379	420	470	564	664	764	864
B	28	40	57	82	107	133	182	228	272	317	364	402	451	539	640	734	823
C	36	48	63	87	111	137	187	233	279	323	371	412	460	550	651	759	851
D	60	70	82	106	130	155	202	250	296	340	393	438	490	585	690	790	890
E	54	64	76	99	123	147	194	241	287	330	382	423	473	566	667	768	868
F	133	149	155	178	190	226	250	300	328	350	380	411	438	515	595	645	735
G	7	11	17	26	35	48	71	90	110	131	147	164	182	216	261	306	329
H	4	7	13	22	31	42	63	82	98	120	133	146	165	196	240	271	295
M	175	191	197	233	245	283	307	371	399	421	453	522	550	635	720	771	878
N	102	116	122	149	160	193	217	254	302	324	358	392	427	485	547	598	687
L	43	46	46	52	56	56	60	68	78	78	102	114	127	154	165	190	241
S	1630	2385	3567	5966	9734	13237	24051	37041	52038	71215	94779	115204	144069	206424	294425	396178	501056



	50	65	80	100	125	150	200	250	300
ØD min	49	59	74	97	122	146	194	243	289
ØD max	In accordance with								
ØD1 min	ISO7005/ EN1759 / EN1092 / ANSI B16.5 / ANSI B16.47-A								

	350	400	450	500	600	700	800	900
ØD min	333	381	428	477	574	676	770	860
ØD max	In accordance with							
ØD1 min	ISO7005/ EN1759 / EN1092 / ANSI B16.5 / ANSI B16.47-A							

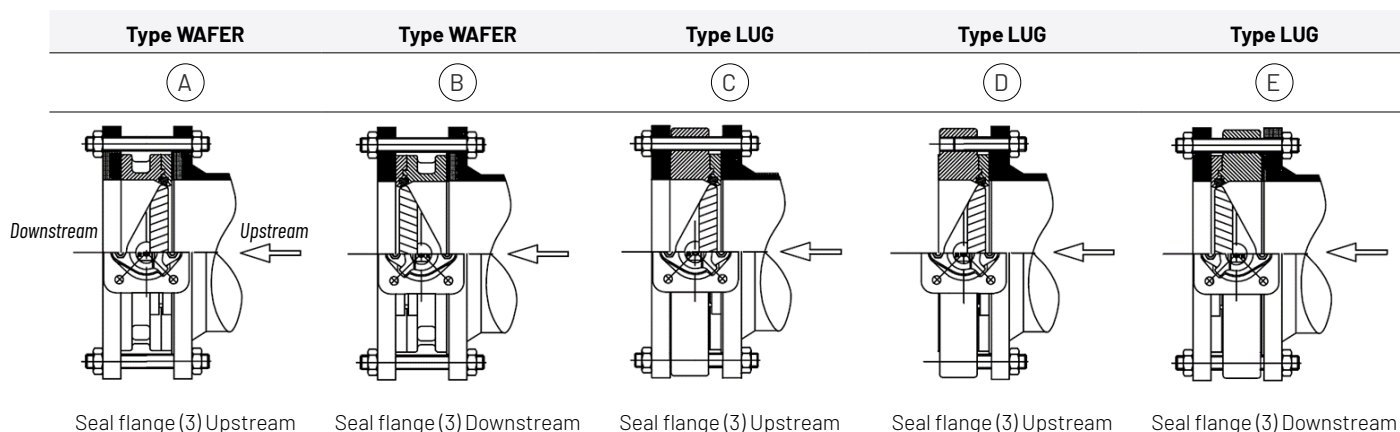
MOUNTING A VALVE IN A DEAD END SERVICE

WARNING

- For safety reasons, the butterfly valve used in these mounting conditions (dead end service) only serves as a blind flange function.
- In the closed position the actuator must be locked to prevent unauthorized maneuvering.
- Valves can be operated again only after taking all safety precautions.
- The mounting of the valve in end of line service is forbidden on piping transporting gaseous (all) or dangerous liquids, and also on piping with pulsatory pressure service.
- Valve assembly shall be done by qualified personnel using proper equipment.
- The maximum operating pressure of the valve at the end of the pipe PS(BdC) will be, considering the working pressure PS of the valve in line, limited to:

$$PS(Bdc) = PS \times 0,733$$

PS / WP (bar)	PS(BdC)(bar)
6	4,4
10	7,3
16	11,7
20	14,6
25	18,3

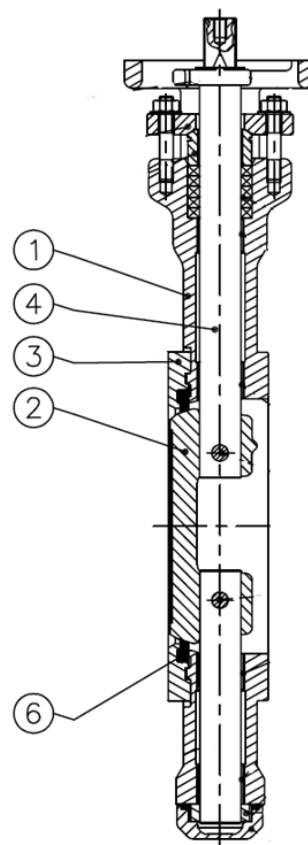


Version	DN	Connection type	EN12266 ISO5208
Standard	50-900	(A) (B) (C) (D) (E)	Rate A
Fire Safe	50-600	(A) (B) (C) (D) (E)	Rate A
Metal HT	50-400	(B) (E)	Rate C
Metal PP	50-400	(A) (C) (D)	Rate D

MAINTENANCE: SEAT AND PACKING REPLACEMENT

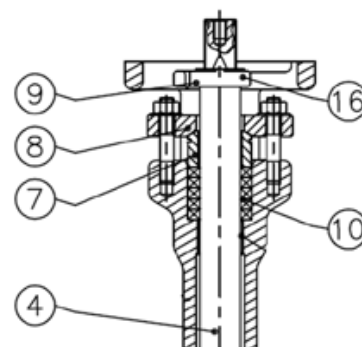
SEAT REPLACEMENT

- 1 Remove valve from the pipe with the disc (2) in closed position.
- 2 Remove seat ring (3).
- 3 Remove the seat (6).
- 4 Clean gently:
 - disc circle (2)
 - seat (6) place on the body (1)
 - the seat ring (6)
- 5 Put the new seat (6). The disc shall always be in closed position.
- 6 Put in place the seat ring (3). Tight the screw.
- 7 **WARNING:**
Reset valve between flanges and wait 15 mn before any operation.
- 8 Do several opening / closing cycles.
Valve is ready.



PACKING REPLACEMENT

- 1 Disassemble position indicator (9) and circlips / set screw (16).
- 2 Disassemble gland follower (8) and packing gland (7).
- 3 Extract packing rings (10) with special tool (packing gland extractor).
- 4 Clean shaft (4).
- 5 Replace packing rings (10).
If rings are split, shift the splits to avoid there are in same position.
- 6 Disassemble packing gland (7) and gland follower (8).
- 7 Adjust packing compression to avoid leakage.



ORDERING CODE

A code with the following basis information is marked on the identification plate:

- four characters defining type of body, material of body, disc and seat materials,
- one character or more, defining the top works (with option(s)) and type of actuator (if applicable).

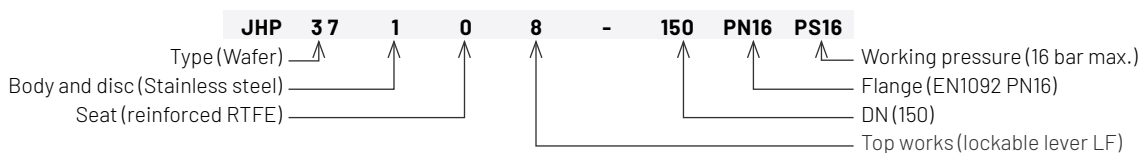
For the order, completing the above data with the following information:

- the nominal diameter (DN)
- the flange
- the working pressure
- and if applicable, the valve options

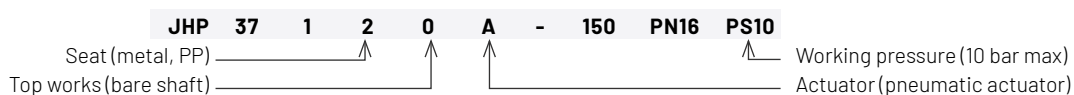
Type	Top works	DN (mm)	Approvals & Certificates
37 Wafer	0 Bare shaft	DN 50 to 900 (2" to 36")	FS Fire safe
77 Lugged	1 Handle kit, type LC		M Naval Approved
Body and disc	5 Réducteur AB	Flange: Type	A2 Electrical continuity
0 Steel	6 Réducteur R242	(For class flanges, precise the standard).	
1 Stainless steel	8 Handle kit, LF cast iron	PS	
3 Steel body and stainless steel disc	J Handle kit, Stainless steel LFI	Working pressure (CWP)	
Seat	<i>Options (Top works)</i>	Valve options	
0 Reinforced RTFE 15% Graphite	B Padlock	R Shaft extension	
1 FS - Fire safe	T Switches		
2 Metal PP	S ISOBOX (switches)		
3 Metal HT	W Chainwheel		
5 PTFE	Actuators		
7 PTFE 25% Glass	A Pneumatic actuator		
8 PTFE 15% Carbon	C Electric actuator		
	H Hydraulic actuator		
	<i>Options: Consult us</i>		

EXAMPLES

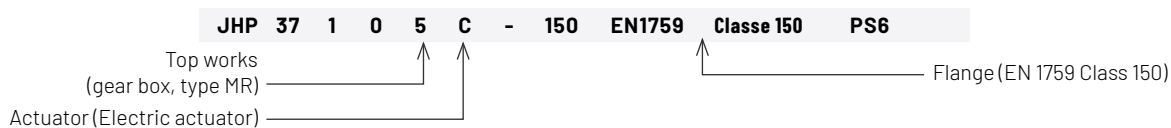
1. JHP butterfly valve with handle type LF, DN150, for mounting between flanges defined by the EN1092 in PN16:



2. Same valve but with metal seat PP and pneumatic actuator, working pressure of 10 bar:



3. Same valve but with gear box, electric actuator, for mounting between flanges defined by EN1759, Class 150:



STORAGE CONDITIONS

It will be necessary to take all the precautions of use during the handling and the storage of the equipment namely:

- Storage inside buildings (temperature $\geq 6^{\circ}$) under the original packaging.
- Handling operations at lower temperatures should be carried out occasionally, specifically avoiding shocks and stresses on the equipment. Preferably, carry out these handling operations under packaging.
- When unpacking, do not damage the sealing surfaces. Handle devices with care.
- Valves with elastomers must be stored away from light and heat.

MOUNTING CONDITIONS

WARNING

BUTTERFLY VALVE DELIVERED WITH DISC IN CLOSED POSITION

- Put the seals between flanges and body.
- Do not open valve before having finished the tightening of the flange bolts.

After mounting on line, cycling (5 times) is recommended.

NOTES

[illegible]

SAPAG has been designing and manufacturing a wide range of high-quality and high-performance industrial valves for more than 90 years. These include butterfly valves (elastomer, PTFE or metal seats), ball valves (carbon steel, stainless steel, or others on request), MONOVAR® control valves, the ultimate CLASAR® check valve, as well as gate and needle valves.

Our products are used in water, gas and other fluid transport networks in fields as diverse as petrochemicals, shipbuilding and process industries in general.

Today the company has more than 100 employees. In addition to the machining,

assembly and testing unit for industrial valves, the site includes all the administrative, technical and commercial departments. This proximity enables SAPAG VALVES to ensure responsiveness, follow-up and compliance with our clients' requirements.

Our products are present in more than 70 countries around the world and our production is regularly exported to all 6 continents.

Our Quality, Safety and Environmental Management System is certified by the following:

ISO **ISO** **ISO**
9001:2015 14001:2015 45001:2018



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