

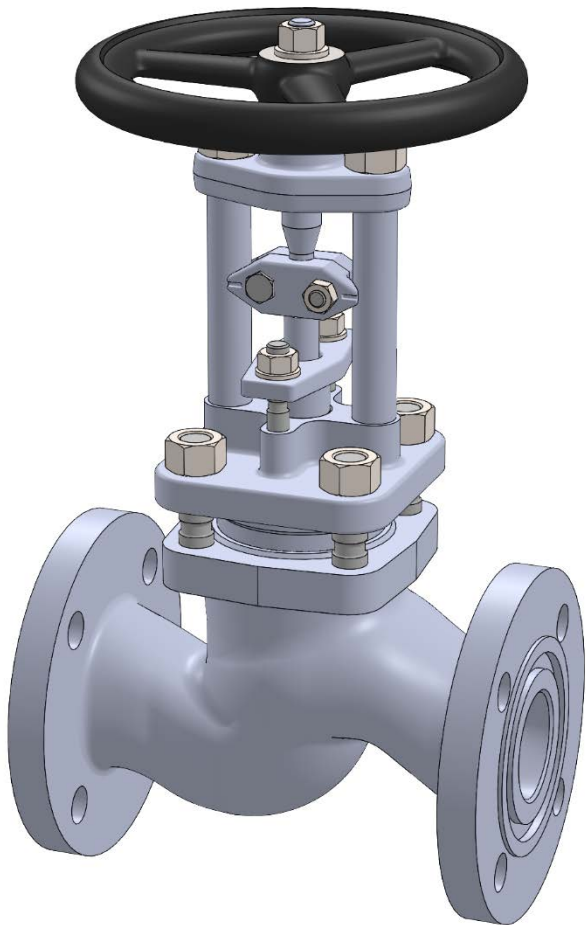


PHÖNIX
VALVE GROUP

STRACK
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DAUME
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SIP Solent & Pratt
Phönix Ltd



Globe Valve Type 390 PN 16

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Model 390

Short Medium Flushed Bellows

Applications & Design Features

Applications

Model 390 is designed for a wide range of critical applications involving lethal, toxic, corrosive, inflammable, volatile, radiating, or expensive process fluids. With its bellows exposed to the product flow model 390 is recommended for service conditions where fluid crystallization, polymerization, or any settling of solids in the bellows convolutions are likely. The large annular area around the bellows allows for fluid circulation and maintains a bellows temperature equivalent to the fluid.

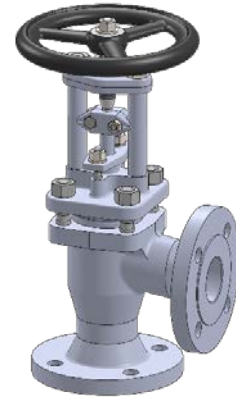
The most common applications are

- Phosgene (COCl₂)
- Isocyanites (MDI, TDI)
- Hydrocyanic Acid (HCN)
- Vinyl Chloride
- Styrene
- Slurries
- Molten Sodium
- Heat transfer fluid applications (thermal oil, refrigerants, etc.) and fluids of similar nature.

This valve design guarantees reliable and excellent protection against leaks or fugitive emissions. The stem seal requires virtually no maintenance due to leak free weld connections of the bellows with bonnet and stem. Constant valve monitoring and re-adjustment of the packing is eliminated. In the unlikely event of a bellows failure the backup packing guarantees safe valve performance until the next scheduled shutdown.



Straight



Angle



Y-Pattern

Design Features

Bellows and Packing

- exposed to product flow for self cleaning
- multiple walls and hydroformed bellows
- up to 10.000 bellows operations guaranteed

Stem

- two-piece stem protects the bellows against torque stress
- design eliminates stem bearings along with their maintenance needs
- metal-to-metal back seat provides additional safety

Body and Bonnet

- bodies are forgings or castings with larger than required wall thickness and integral flanges
- body bonnet joint gasket is fully confined to prevent gasket flow or blowout
- angle and Y-pattern design available (model 391 and 392)

Seats

- solid hardfacings for outstanding corrosion and wear resistance
- knife edge metal-to-metal seat for bubble-tight shutoff
- replaceable disc for inexpensive maintenance

= zero emissions, zero seat leakage, low maintenance

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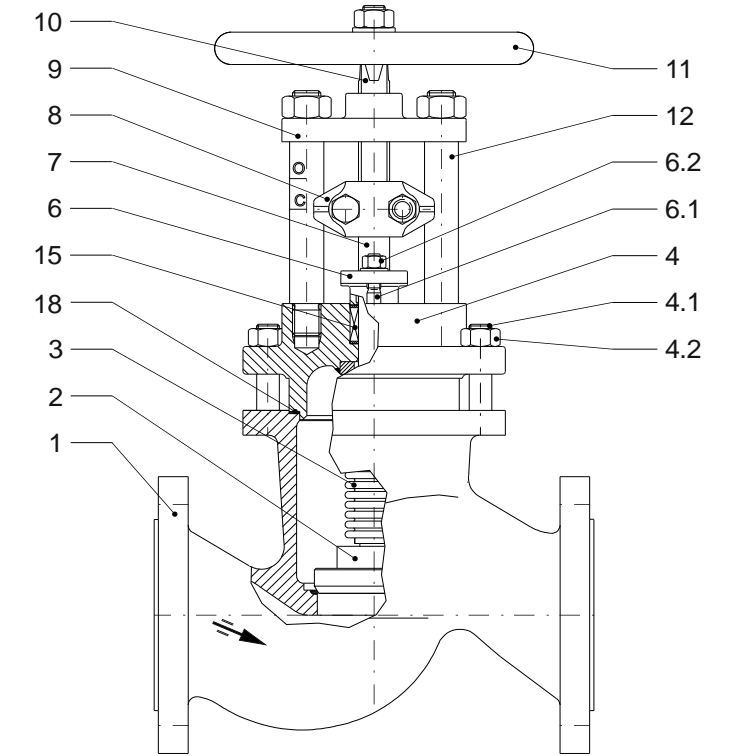
Standard Materials of Construction

Options

Other materials per customer requirements are available!

Notes

Phönix reserves the right to change product design and specification without notice!



Materials

Item	Part Name	Carbon steel Model 390C up to 450°C	low temp. Carbon steel Model 390T -50°C up to 300°C	Stainless steel Model 390V -200°C up to 400°C
1	Body	1.0460 / 1.0619	1.0566 / 1.6220 / 1.1138	1.4404 / 1.4408
	Seat overlay	1.4370 (≈ 200HRB)	1.4370 (≈ 200HRB)	like body (≈ 200HRB)
2	Disc	1.4021 hardened / 1.0460	1.4571 / 1.0566	1.4571
	Overlay	1.4009 (≈ 300HRB)	Stellite 6 (≈ 42HRC)	Stellite 6 (≈ 42HRC)
3	Bellows	1.4571	1.4571	1.4571
4	Bonnet	1.0460 / 1.0619	1.0566 / 1.6220 / 1.1138	1.4404 / 1.4408
4.1	Stud bolt	1.7709	A4-70	A4-70
4.2	Hex. nut	1.7218	A4-70	A4-70
6	Gland follower	1.0460 / 1.0619	1.5638	1.4408
6.1	Stud bolt	Steel 5.6	A4-70	A4-70
6.2	Hex. nut	Steel 5	A4-70	A4-70
7	Lower stem	1.4571	1.4571	1.4571
8	Coupling	1.4408	1.4408	1.4408
9	Bridge	1.0460, QPQ-nitrided	1.0460, QPQ-nitrided	1.0460, QPQ-nitrided
10	Upper stem	1.4057	1.4057	1.4057
11	Handwheel	Cast iron	Cast iron	Cast iron
12	Pillar	1.0501	1.4057	1.4057
15	Packing	Graphite	PTFE-silk *	Graphite
18	Gasket	Grooved SS / graphite	Grooved SS / graphite	Grooved SS / graphite

* ≥ 220°C Packing of pure graphite



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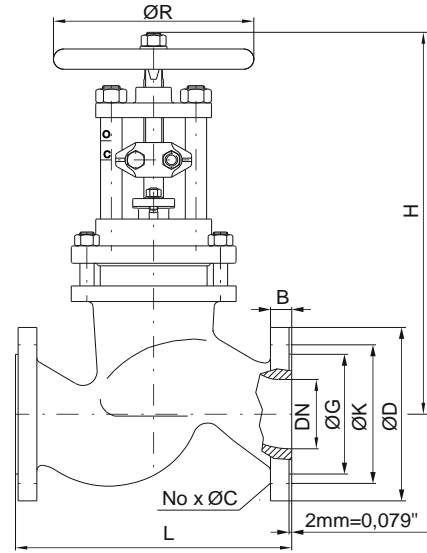
PN16 Sizes DN15 - DN300

Options

- Other customer specific designs on request

Notes

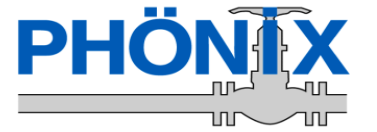
- Design acc. PED 2014/68/EU and harmonized standards
- Marking acc. to EN 19, AD-A4, PED 2014/68/EU, CE
- Standard tests acc. to DIN EN 12266, ISO 5208
- Preservation acc. to manufacturer standard
- Connections:
 - Flanges acc. to DIN EN 1092-1
 - Butt Weld Ends acc. to DIN EN 12627
 - Socket Weld Ends acc. to DIN EN 12760
- F-T-F Dimensions:
 - Flanges acc. to DIN EN 558-1
 - Butt Weld Ends acc. to DIN EN 12982
 - Socket Weld Ends acc. to manufacturer standard



Dimensions & Weights & Flow Coefficients

DN	Unit	Globe		Flange facing type B1						Weight	Kv [m³/h]	cv [USGal/min]
		L	H	ØR	ØG	ØK	No x ØC	ØD	B			
15	[mm]	130	275	150	45	65	4 x 14	95	16	6 kg	3.6	
	[in]	5.12	10.83	5.91	1.77	2.56	4 x 0.55	3.74	0.63	13.2 lbs	4.19	
20	[mm]	150	275	150	58	75	4 x 14	105	18	7 kg	7.4	
	[in]	5.91	10.83	5.91	2.28	2.95	4 x 0.55	4.13	0.71	15.4 lbs	8.6	
25	[mm]	160	280	150	68	85	4 x 14	115	18	7 kg	9	
	[in]	6.30	11.02	5.91	2.68	3.35	4 x 0.55	4.53	0.71	15.4 lbs	10.47	
32	[mm]	180	330	200	78	100	4 x 18	140	18	12 kg	17	
	[in]	7.09	12.99	7.87	3.07	3.94	4 x 0.71	5.51	0.71	26 lbs	19.77	
40	[mm]	200	345	200	88	110	4 x 18	150	18	15 kg	27	
	[in]	7.87	13.58	7.87	3.46	4.33	4 x 0.71	5.91	0.71	33 lbs	31	
50	[mm]	230	345	200	102	125	4 x 18	165	18	17 kg	32	
	[in]	9.06	13.58	7.87	4.02	4.92	4 x 0.71	6.50	0.71	37 lbs	37	
65	[mm]	290	350	200	122	145	8 x 18	185	18	26 kg	72	
	[in]	11.42	13.78	7.87	4.80	5.71	8 x 0.71	7.28	0.71	57 lbs	84	
80	[mm]	310	480	250	138	160	8 x 18	200	20	34 kg	105	
	[in]	12.20	18.90	9.84	5.43	6.30	8 x 0.71	7.87	0.79	75 lbs	122	
100	[mm]	350	550	315	158	180	8 x 18	220	20	54 kg	167	
	[in]	13.78	21.65	12.40	6.22	7.09	8 x 0.71	8.66	0.79	119 lbs	194	
125*	[mm]	400	555	315	188	210	8 x 18	250	22	90 kg	250	
	[in]	15.75	21.85	12.40	7.40	8.27	8 x 0.71	9.84	0.87	198 lbs	291	
150*	[mm]	480	710	400	212	240	8 x 22	285	22	120 kg	375	
	[in]	18.90	27.95	15.75	8.35	9.45	8 x 0.87	11.22	0.87	265 lbs	436	
200*	[mm]	600	840	500	268	295	12 x 22	340	24	190 kg	640	
	[in]	23.62	33.07	19.69	10.55	11.61	12 x 0.87	13.39	0.94	419 lbs	744	
250*	[mm]	730	1020	500	320	355	12 x 26	405	26	300 kg	870	
	[in]	28.74	40.16	19.69	12.60	13.98	12 x 1.02	15.94	1.02	661 lbs	1012	
300*	[mm]	850	1125	640	378	410	12 x 26	460	28	415 kg	1300	
	[in]	33.46	44.29	25.20	14.88	16.14	12 x 1.02	18.11	1.10	915 lbs	1512	

* permissible differential pressure [bar] see Appendix I, Table 1



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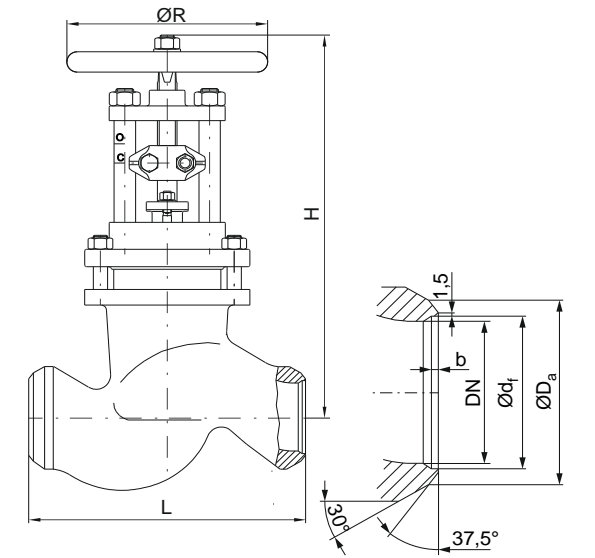
PN16 Sizes DN15 - DN300

Options

- Other customer specific designs on request

Notes

- Design acc. PED 2014/68/EU and harmonized standards
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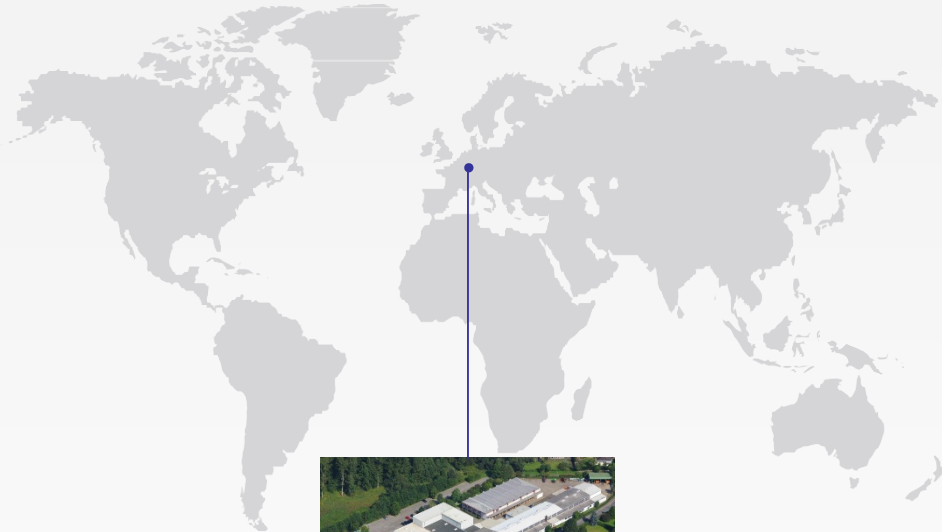


Dimensions & Weights & Flow Coefficients

DN	Unit	Globe		ØR	Butt Weld Ends			Weight	Kv [m³/h]	cv [USGal/min]
		L	H		ØD _a	Ød _r	b			
15	[mm]	130	275	150	22	17	3	Ø21.3 x 2.0	4.5 kg	3.6
	[in]	5.12	10.83	5.91	0.87	0.67	0.12	Ø0.84 x 0.08	9.9 lbs	4.19
20	[mm]	150	275	150	28	22	4	Ø26.9 x 2.3	5 kg	7.4
	[in]	5.91	10.83	5.91	1.10	0.87	0.16	Ø1.06 x 0.09	11 lbs	8.6
25	[mm]	160	280	150	35	28.5	4	Ø33.7 x 2.6	5 kg	9
	[in]	6.30	11.02	5.91	1.38	1.12	0.16	Ø1.33 x 0.10	11 lbs	10.47
32	[mm]	180	330	200	44	ON REQUEST			9 kg	17
	[in]	7.09	12.99	7.87	1.73				19.8 lbs	19.77
40	[mm]	200	345	200	50	43	4	Ø48.3 x 2.6	11.5 kg	27
	[in]	7.87	13.58	7.87	1.97	1.69	0.16	Ø1.90 x 0.10	25 lbs	31
50	[mm]	230	345	200	62	53.5	5	Ø60.3 x 3.2	12 kg	32
	[in]	9.06	13.58	7.87	2.44	2.11	0.20	Ø2.37 x 0.13	26 lbs	37
65	[mm]	290	350	200	77	68.5	6	Ø76.1 x 3.6	20 kg	72
	[in]	11.42	13.78	7.87	3.03	2.70	0.24	Ø3.00 x 0.14	44 lbs	84
80	[mm]	310	480	250	91	80.5	6	Ø88.9 x 4.0	27 kg	105
	[in]	12.20	18.90	9.84	3.58	3.17	0.24	Ø3.50 x 0.16	60 lbs	122
100	[mm]	350	550	315	117	104.3	8	Ø114.3 x 5.0	44 kg	167
	[in]	13.78	21.65	12.40	4.61	4.11	0.31	Ø4.50 x 0.20	97 lbs	194
125*	[mm]	400	555	315	144	130.5	7	Ø139.7 x 4.5	77 kg	250
	[in]	15.75	21.85	12.40	5.67	5.14	0.28	Ø5.50 x 0.18	170 lbs	291
150*	[mm]	480	710	400	172	157	9	Ø168.3 x 5.6	103 kg	375
	[in]	18.90	27.95	15.75	6.77	6.18	0.35	Ø6.63 x 0.22	227 lbs	436
200*	[mm]	600	840	500	223	204.5	11	Ø219.1 x 7.1	160 kg	640
	[in]	23.62	33.07	19.69	8.78	8.05	0.43	Ø8.63 x 0.28	353 lbs	744
250*	[mm]	730	1020	500	278	257	12	Ø273.0 x 8.0	250 kg	870
	[in]	28.74	40.16	19.69	10.94	10.12	0.47	Ø10.75 x 0.31	551 lbs	1012
300*	[mm]	850	1125	640	329	307.9	12	Ø323.9 x 8.0	355 kg	1300
	[in]	33.46	44.29	25.20	12.95	12.12	0.47	Ø12.75 x 0.31	783 lbs	1512

* permissible differential pressure [bar] see Appendix I, Table 1

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