

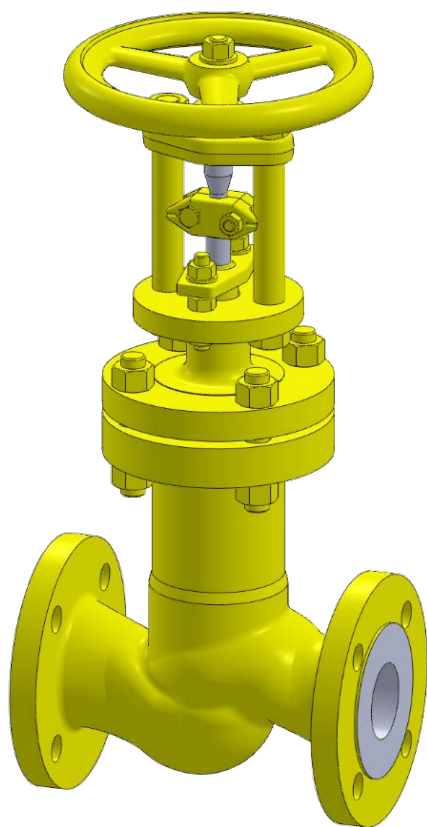


**PHÖNIX**

**STRACK**

**DAUME**  
REGELARMATUREN

**SIP** Solent & Pratt  
Phönix Ltd



# Globe Valve

## Type 350EC4-5

### PN 16

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Model 350EC4-5

Straight Way / Protected Bellows

Applications & Design Features



Applications

Model 350EC4-5 is designed for critical service applications involving lethal, toxic, corrosive, inflammable, volatile, radiating, or expensive fluids.

The most common applications are

- Dry Chlorine (Cl<sub>2</sub>) liquid or gas service temperature -40°C to 120°C / -40°F to 248°F
- Anhydrous Hydrogen Chloride (HCl)
- Anhydrous Hydrofluoric acid (HF)
- Phosgene (COCl<sub>2</sub>)
- Vinyl Chloride Monomer (VCM)
- Ethylene Dichloride (EDC)
- Isocyanites (MDI, TDI, HDI, etc.) and fluids of similar nature.

Model 350EC4 (up to DN50/2") and 350EC5 (>DN50/2") are Euro Chlor approved for their compliance with **GEST 17/492**. Design and selected materials also meet the requirements of Chlorine Institute Pamphlet 6 Service Classes I through VI. The unique 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 packing monitoring and re-packing is eliminated. In the unlikely event of a Bellows failure the Backup Packing guarantees safe valve performance until the next scheduled shutdown. Special dual containment designs for complete valve leakage monitoring as well as designs for flow control applications with enhanced Bellows cycle life are available.

Design features

Bellows and Packing

- bellows protected in extended body against direct impingement from product flow
- multiple walls and hydroformed bellows
- up to 50.000 bellows operations guaranteed
- packing area integral with bonnet – no welded-in sleeve

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
- guided stem on top and bottom
- one-piece stem design upon request per Euro Chlor GEST 17/492 (model 350EC14-15)

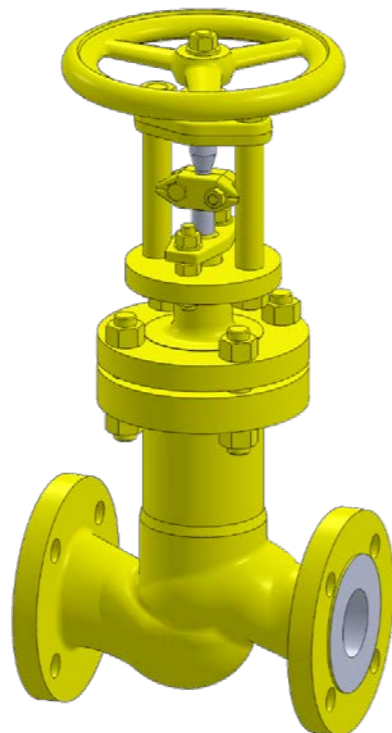
Body and Bonnet

- bodies are one-piece forgings or castings with larger than required wall thickness and integral flanges
- no welds in pressure boundary
- body bonnet joint gasket is fully confined to prevent gasket flow or blowout

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



Model 350EC4-5

Straight Way / Protected Bellows

Standard Materials of Construction

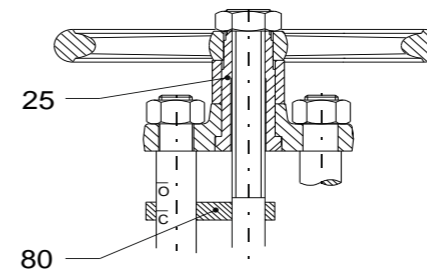


Options

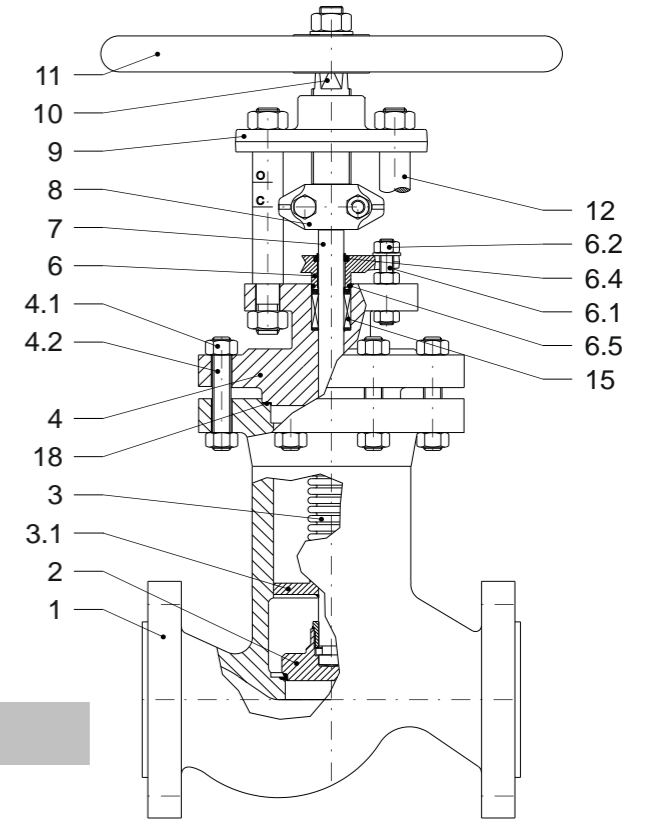
Other customer specific designs on request!  
Other materials per customer requirements are available!

Notes

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



350EC14-15 / one piece stem



Materials

Item	Part Name	low temp. Carbon steel -50°C up to 300°C
1	Body	1.6220
	Seat overlay	Stellite 21 (≈ 32HRC)
2	Disc	1.4571 / 1.0566
	Overlay	Stellite 6 (≈ 42HRC)
3	Bellows	2.4819 <sup>1)</sup>
3.1	Guide ring	2.4819 <sup>1)</sup>
3.2	Ring	2.4819 <sup>1)</sup>
4	Bonnet	1.6220
4.1	Stud bolt	A320 GR. L7
4.2	Hex. nut	A194 GR.7L
6	Gland follower	1.5638
6.1	Stud bolt	A320 GR. L7
6.2	Hex. nut	A194 GR.7L
6.4	Wiper	EPDM
6.5	O-Ring	EPDM
7	Lower stem	1.4571 <sup>2)</sup>
8	Coupling	1.4408, 1.4571
9	Bridge	1.0460, QPQ-nitrided
10	Upper stem	1.4057
11	Handwheel	Cast iron
12	Pillar	1.4057
15	Packing	PTFE-rings
18	Gasket	Grooved stainless steel / PTFE
25	Bushing	1.0718, QPQ-nitrided
80	Position indicator	1.4571

<sup>1)</sup> Trim material 1.4571 / 316Ti optional

<sup>2)</sup> Stem and Disc material 2.4819 / Hastelloy C-276 optional

## Model 350EC4-5

Straight Way / Protected Bellows

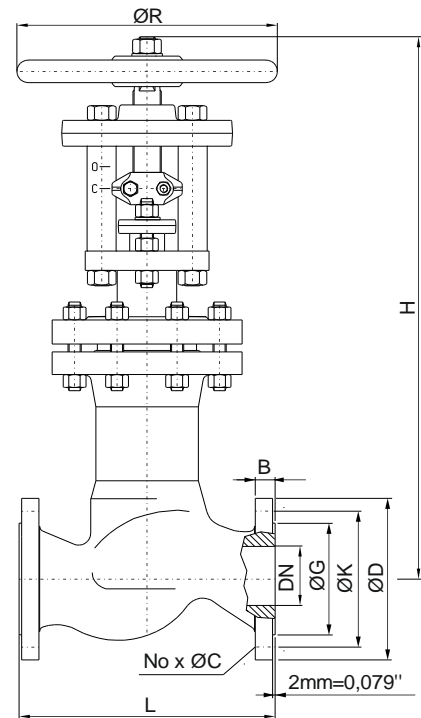
PN16 Sizes DN15 - DN350

### Testing / Marking

- test and design acc. to GEST 17/492
- TÜV approved strength calculation acc. to DIN EN 12516-2 available for body & bonnet
- standard tests acc. to DIN EN 12266, ISO 5208, resistance and shell strength and leak test acc. to P10 and P11
- leak test on closure acc. to P12 (leakage rate A = tight)
- ASME B16.34 / MSS SP 61 / API 598 / BS 6755

### Preservation

- drying at a temperature of 120°C (248°F) for at least 3 hours
- stuffing of drying agents (Silicagel) into the valve
- blanking of inlet and outlet orifice with suitable gaskets and bolted flanges to avoid entry of moisture into the valve
- disc secured in closed position
- unfinished surfaces protected against rust
- lubrication with chlorofluorinated grease



### Dimensions & Weights & Flow Coefficients

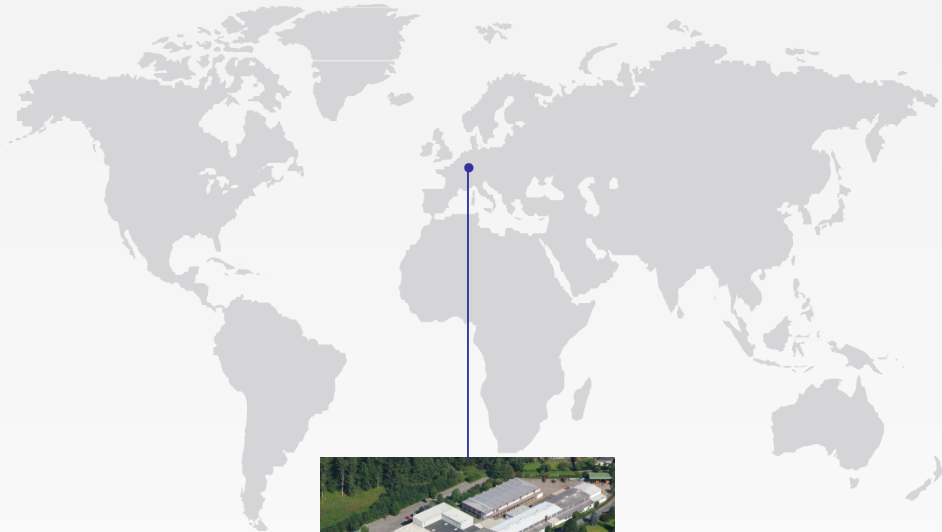
DN	Unit	Globe		Flange facing type B1						Weight	Kv [m³/h]	cv [USGal/min]
		L	H	ØR	ØG	ØK	No x ØC	ØD	B			
15*	[mm] [in]	130 5.12	415 16.34	150 5.91	45 1.77	65 2.56	4 x 14 4 x 0.55	95 3.74	16 0.63	9 kg 19.8 lbs	4 4.65	
20*	[mm] [in]	150 5.91	415 16.34	150 5.91	58 2.28	75 2.95	4 x 14 4 x 0.55	105 4.13	18 0.71	9 kg 19.8 lbs	8 9.3	
25	[mm] [in]	160 6.30	420 16.54	150 5.91	68 2.68	85 3.35	4 x 14 4 x 0.55	115 4.53	18 0.71	9 kg 19.8 lbs	11 12.79	
32*	[mm] [in]	180 7.09	460 18.11	200 7.87	78 3.07	100 3.94	4 x 18 4 x 0.71	140 5.51	18 0.71	17 kg 37 lbs	18 20.93	
40	[mm] [in]	200 7.87	460 18.11	200 7.87	88 3.46	110 4.33	4 x 18 4 x 0.71	150 5.91	18 0.71	18 kg 40 lbs	28 33	
50	[mm] [in]	230 9.06	460 18.11	200 7.87	102 4.02	125 4.92	4 x 18 4 x 0.71	165 6.50	18 0.71	21 kg 46 lbs	47 55	
65*	[mm] [in]	290 11.42	470 18.50	200 7.87	122 4.80	145 5.71	8 x 18 8 x 0.71	185 7.28	18 0.71	35 kg 77 lbs	78 91	
80	[mm] [in]	310 12.20	695 27.36	250 9.84	138 5.43	160 6.30	8 x 18 8 x 0.71	200 7.87	20 0.79	59 kg 130 lbs	117 136	
100	[mm] [in]	350 13.78	770 30.31	315 12.40	158 6.22	180 7.09	8 x 18 8 x 0.71	220 8.66	20 0.79	93 kg 205 lbs	179 208	
125*	[mm] [in]	400 15.75	805 31.69	350 13.78	188 7.40	210 8.27	8 x 18 8 x 0.71	250 9.84	22 0.87	145 kg 320 lbs	256 298	
150	[mm] [in]	480 18.90	1005 39.57	400 15.75	212 8.35	240 9.45	8 x 22 8 x 0.87	285 11.22	22 0.87	193 kg 425 lbs	445 517	
200*	[mm] [in]	600 23.62	1165 45.87	640 25.20	268 10.55	295 11.61	12 x 22 12 x 0.87	340 13.39	24 0.94	370 kg 816 lbs	750 872	
250*	[mm] [in]	730 28.74	1355 53.35	640 25.20	320 12.60	355 13.98	12 x 26 12 x 1.02	405 15.94	26 1.02	650 kg 1433 lbs	1100 1279	
300*	[mm] [in]	850 33.46	1550 61.02	720 28.35	378 14.88	410 16.14	12 x 26 12 x 1.02	460 18.11	28 1.10	900 kg 1984 lbs	1460 1698	
350*	[mm] [in]	980 38.58	1590 62.60	640 25.20	438 17.24	470 18.50	16 x 26 16 x 1.02	520 20.47	30 1.18	1250 kg 2756 lbs	1780 2070	

\* these nominal sizes are not included in GEST 89/140, construction and material in acc. with GEST 17/492

- other sizes on request



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