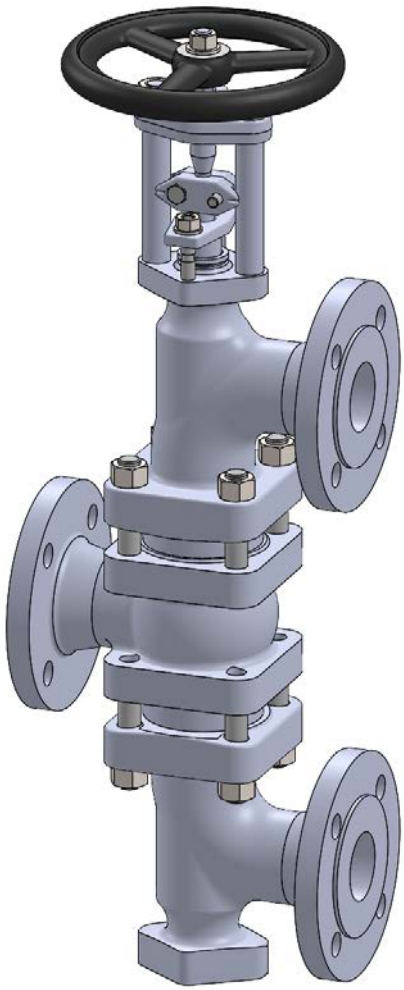
PHÖNIX STRACK DAUME REGELARMATUREN S+P Solent & Pratt Phönix Ltd



Change Over Valve

Type 370

PN 160

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PHÖNIX VALVE GROUP

Technical indtroduction

The Phönix Change Over Valve is a three-way globe valve that is useful in all locations where a shutdown cannot be tolerated, either for safety reasons or due to plant and production conditions. With its globe valve style design the phönix valve offers advantages over conventional three-way ball or plug valves like bubble tight conical metal seating or an optional bellows stem seal. These and other features make the valve extremely useful for a wide range of applications.

Used as diverter valve (fig. 1) Change Over Valves enable a quick and safe switch between product lines, safety systems, or to start-up tanks for solvent flushing. To accommodate different piping situations the Phönix Valve allows the rotation of the elbows to any 90° angle.

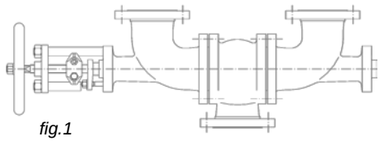


fig.1

Pressurized systems should always be equipped with dual safety relief devices to allow frequent maintenance without disabling the overpressure protection. In many cases safety relief valves are used and are subject to frequent resetting due to operating conditions. Phönix Change Over Valves (fig. 2) offer the most convenient and ideal solution considering the short time of operation to switch between the safety relief valve in service and the standby valve. An important safety aspect is addressed due to the fact that the valve does not allow isolating both safety relief devices at the same time. Eliminating two full-bore shutoff valves as well as the reduction from two vessel/ system connections to one provides additional cost benefits.

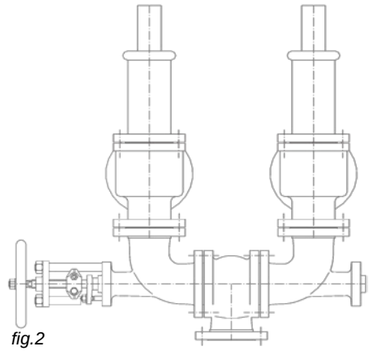


fig.2

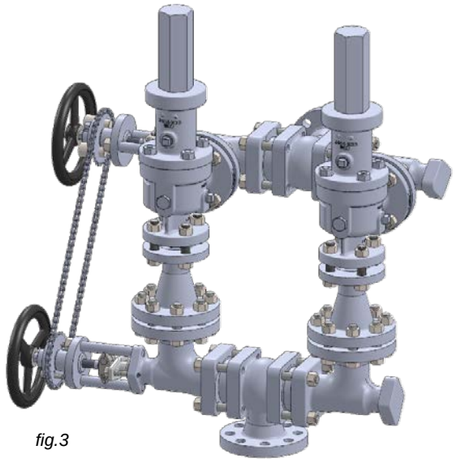


fig.3

The applicable standards, impositions, technical rules, and recommendations allow explicitly the use of Change Over Valves when their design ensures that even during the switchover procedure the necessary free section for choke free flow is guaranteed. Phönix Change Over Valves comply with this requirement. In addition the valves are designed for a high flow rate and minimal pressure drop.

For critical services involving toxic, aggressive or corrosive products that pose direct or indirect threads to people, plant, and environment the discharge into a closed collecting system might be required. For this purpose Phönix offers Change Over Valve combinations to allow the mechanical link of two Change Over Valves. One upstream and one downstream of the safety relief devices (fig. 3). The mechanical link allows operating both valves into the same direction and prevents involuntary isolation of the safety relief devices.

Both the upstream and downstream Change Over Valve must have identical dimensions in order to provide a synchronized controllable operation. Full lift safety relief valves have different inlet and outlet orifices. Therefore, pipe reducers must be placed between the upstream Change Over Valve and the safety relief valves. This solution also allows for a very low pressure drop to the inlet of the safety relief valves and avoids expensive modifications of the Change Over Valves.

To suit the nature of the process fluid, Phönix offers either bellows sealed or gland packed valves. Both options are part of the standard manufacturing program and can be equipped with manual, pneumatic, or electric operation. For fluids that tend to polymerize or crystallize the valves are available with optional heating jackets. For more information regarding design, standard materials, and options please refer to the product description of valve models 370 and 320.

Change Over Valve *Bellows Sealed*

Model 370 & 370.1

Applications & design features

Applications

The 370 series is designed for dual relief valve systems to allow maintenance of the relief valves without the system being down, for reduction of vessel connections, for fast and easy operation, and for protection against involuntary isolation of both safety relief devices at the same time. For applications that require discharge into a collecting system model 370.1 provides a simple mechanism for the linkage of two Change Over Valves for simultaneous operation.

Model 370 & 370.1 are designed for critical service applications involving lethal, toxic, corrosive, inflammable, volatile, radiating, or expensive fluids.

The most common applications are

- dry chlorine (CL2)
- anhydrous hydrogen chloride (HCl)
- anhydrous hydrofluoric acid (HF)
- phosgene (COCL2)
- vinyl chloride monomer (VCM)
- ethylene dichloride (EDC)
- propane, butane, natural gas
- fluids of similar nature.

Model 370 & 370.1 replaces conventional three-way valves that can not provide such 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 readjustment 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.

Design features

Bellows and packing

- multiple walls and hydroformed bellows
- welded to body and stem for zero leakage
- up to 50.000 bellows operations guaranteed
- exposed to flow for self cleaning

Body and bonnet

- split-body design allows for rotation of elbows to any 90° angle to accommondate different installation situation
- body bonnet joint gasket is fully confined to prevent gasket flow or blowout

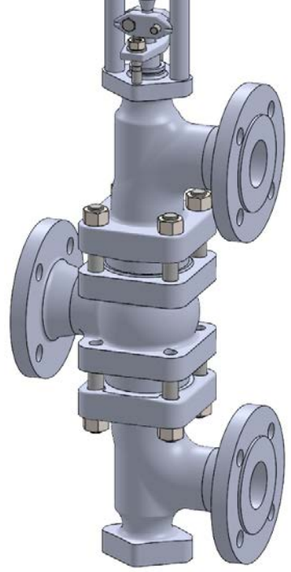
Seats

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

Stem

- two-piece stem protects the bellows against torque stress
- design eliminates stem bearings along with their maintenance needs
- allows easy adaption for any type of actuation

= Zero emissions, zero seat leakage, low maintenance

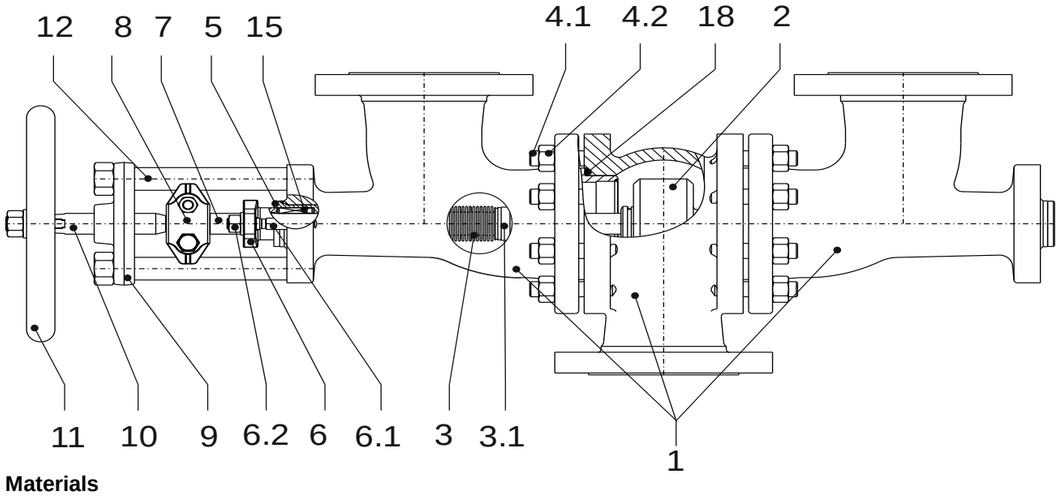


Standard Materials of Construction

Options
Other materials per customer requirements are available!

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

Notes
- marking acc. to EN19, AD-A4, PED 2014/68/EU, CE
- standard tests acc. to DIN EN12266, ISO 5208
- preservation acc. to manufacturer standard
- connections: flanges acc. to DIN EN1092-1
  butt weld ends acc. to DIN EN12627
  socket weld ends acc. to DIN EN12760
- F-t-F dimensions: manufacturer standard



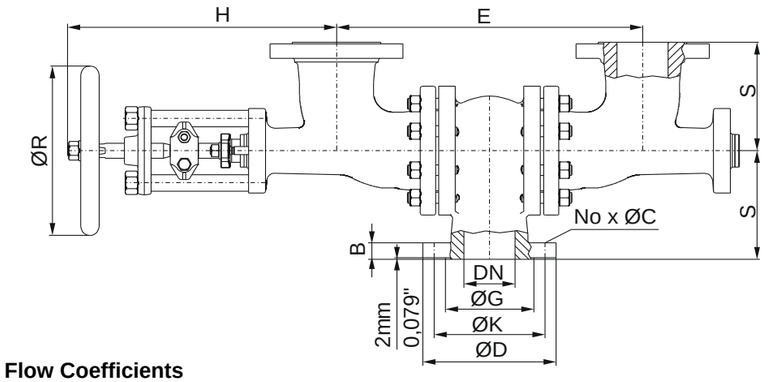
Materials

Item	Part Name	Carbon steel Model 320C up to 450°C	low temp. Carbon steel Model 320T -50°C up to 300°C	Stainless steel Model 320V -200°C up to 400°C
1	Body	1.0460 / 1.0619	1.0566 / 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
3.1	Guide ring	1.4571	1.4571	1.4571
4.1	Stud bolt	1.7709	A4-70	A4-70
4.2	Hex. nut	1.7218	A4-70	A4-70
5	Stuffing box body	1.4571	1.4571	1.4571
6	Gland follower	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

PN160 Sizes DN15 - DN200

Options
- Other customer specific designs on request

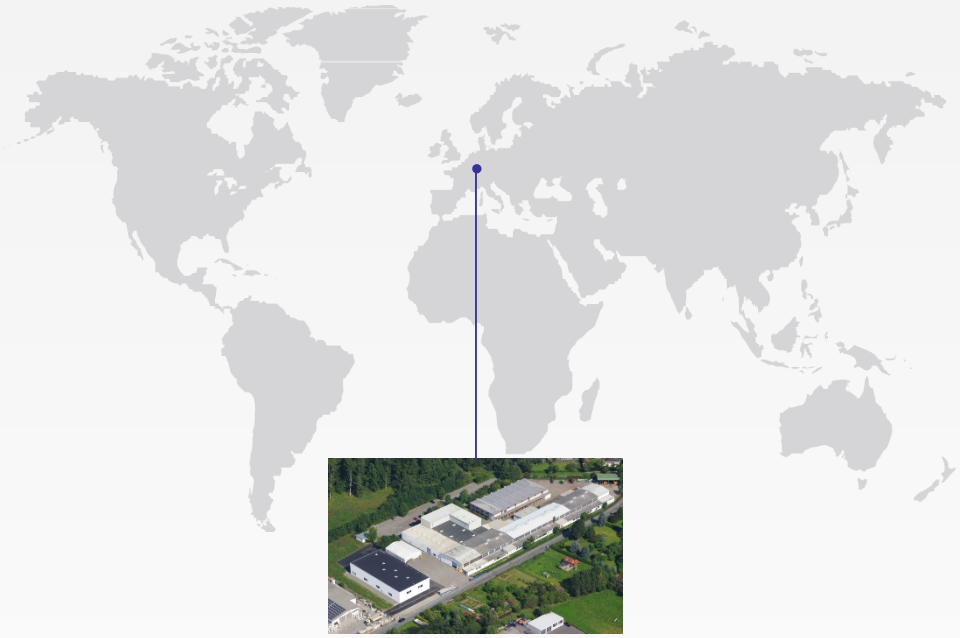


Dimensions & Weights & Flow Coefficients

DN	Unit	E	S	H 370	H 370.1	ØR	Flanges facing type B1 ØG	ØK	No x ØC	ØD	B	Weight 370	Weight 370.1	Kv [m³/h] cv [USGal/min]	ζ [-]
15	[mm]	245	100	260	320	150	45	75	4 x 14	105	20	25 kg	30 kg	5.3	2.8
	[in]	*9.65*	*3.94*	*10.24*	*12.60*	*5.91*	*1.77*	*2.95*	*4 x 0.55*	*4.13*	*0.79*	*55 lbs*	*66 lbs*	*6.16*	
20	[mm]	245	100	260	320	150	per customer requirements					25 kg	30 kg	12	1.9
	[in]	*9.65*	*3.94*	*10.24*	*12.60*	*5.91*						*55 lbs*	*66 lbs*	*13.95*	
25	[mm]	245	100	260	320	150	68	100	4 x 18	140	24	25 kg	30 kg	17	2.1
	[in]	*9.65*	*3.94*	*10.24*	*12.60*	*5.91*	*2.68*	*3.94*	*4 x 0.71*	*5.51*	*0.94*	*55 lbs*	*66 lbs*	*19.77*	
32	[mm]	410	140	360	380	250	per customer requirements					42 kg	47 kg	29.3	1.95
	[in]	*16.14*	*5.51*	*14.17*	*14.96*	*9.84*						*93 lbs*	*104 lbs*	*34*	
40	[mm]	410	140	360	380	250	88	125	4 x 22	170	28	42 kg	47 kg	45.6	1.95
	[in]	*16.14*	*5.51*	*14.17*	*14.96*	*9.84*	*3.46*	*4.92*	*4 x 0.87*	*6.69*	*1.10*	*93 lbs*	*104 lbs*	*53*	
50	[mm]	410	140	360	380	250	102	145	4 x 26	195	30	52 kg	60 kg	69	1.9
	[in]	*16.14*	*5.51*	*14.17*	*14.96*	*9.84*	*4.02*	*5.71*	*4 x 1.02*	*7.68*	*1.18*	*115 lbs*	*132 lbs*	*80*	
65	[mm]	440	160	410	470	250	122	170	8 x 26	220	34	65 kg	75 kg	120	2
	[in]	*17.32*	*6.30*	*16.14*	*18.50*	*9.84*	*4.80*	*6.69*	*8 x 1.02*	*8.66*	*1.34*	*143 lbs*	*165 lbs*	*140*	
80	[mm]	510	200	440	490	315	138	180	8 x 26	230	36	100 kg	115 kg	177	2.1
	[in]	*20.08*	*7.87*	*17.32*	*19.29*	*12.40*	*5.43*	*7.09*	*8 x 1.02*	*9.06*	*1.42*	*220 lbs*	*254 lbs*	*206*	
100	[mm]	600	210	530	490	400	162	210	8 x 30	265	40	159 kg	175 kg	273	2.15
	[in]	*23.62*	*8.27*	*20.87*	*19.29*	*15.75*	*6.38*	*8.27*	*8 x 1.18*	*10.43*	*1.57*	*351 lbs*	*386 lbs*	*317*	
150	[mm]	900	300	760	830	500	218	290	12 x 33	355	50	300 kg	330 kg	644	1.8
	[in]	*35.43*	*11.81*	*29.92*	*32.68*	*19.69*	*8.58*	*11.42*	*12 x 1.30*	*13.98*	*1.97*	*661 lbs*	*728 lbs*	*749*	
200	[mm]	970	320	910	980	500	285	360	12 x 36	430	60	400 kg	450 kg	1044	2.35
	[in]	*38.19*	*12.60*	*35.83*	*38.58*	*19.69*	*11.22*	*14.17*	*12 x 1.42*	*16.93*	*2.36*	*882 lbs*	*992 lbs*	*1214*	

- other sizes on request

Contact us



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