w.t.a.®

brands you trust.

Bellows Sealed Globe Valves

CRANE®

Crane ChemPharma & Energy

www.cranecpe.com

Overview

Founded in 1978, WTA®, a Crane ChemPharma & Energy brand, designs and manufactures a comprehensive range of high-quality bellows sealed globe valves, strainers, check valves, relief valves, change-over valves and special valves to meet the stringent specifications required by the global chemical and petrochemical industries. Our highly-engineered bellows sealed globe valves are extensively specified and in service worldwide.

All standard products are available in:

- Carbon steel
- Stainless steel
- Alloys and other special materials

- DN 15 to DN 600
- NPS 1/2" to NPS 24"

- PN 16 to PN 160
- ASME 150 lbs to 2500 lbs

- T-type
- Y-type
- Corner type

Backed by a history of engineering excellence and manufactured from the highest-quality materials, bellows sealed globe valves from WTA® lead the industry in innovation and safety. With superior design and construction, WTA® valves incorporate the market's most advanced safety features to ensure leak-proof performance and long service life.

Founded on structural solutions that are backed by extensive field experience, WTA®'s advanced safety features have proven effective in numerous chemical applications. Crane's comprehensive product portfolio likewise includes a variety of other valve types that utilize the same trusted methods of design and fabrication.

The strength of the WTA® brand lies not only in our commitment to using the most reliable materials and manufacturing processes, but in our ability to provide customized solutions with existing special valve designs.

While some applications require the fabrication of non-standard valves with novel materials, our custom designed valves can be supplied to fit the need.

Frequently used materials include heat-resistant carbon steel 1.0619/WCB and corrosion-resistant stainless steel 1.4408/CF8M. Low temperature applications are often supplied carbon steel 1.6220/LCB/LCC, Hastelloy®, Incoloy®, Inconel® and Monel®, while titanium and pure nickel also form part of the range.

Steel and stainless steel valves are frequently equipped with bellows made of high-quality metals such as Hastelloy®. It is also possible to reinforce the plug/seat area with special materials.

Clean Room

Our state of the art ISO compliant clean room is equipped with an ultrasonic cleaning system, featuring air locks for materials, and a test booth where leakage tests for strength and helium testing are conducted to determine the gas-leak tightness of the bellows and valve bodies. These tests are followed by vacuum compliant packing of the finished valves. In this clean room, special oil and grease-free valves are assembled, checked and packed by our trained experts.

The individual valve components are first cleaned in the ultrasonic cleaning system and then entered into the clean room through the air lock. After the cleaning process the valves are exposed to UV-light, in an initial examination for the presence of undesired oil and grease. During the subsequent assembly process, any contamination of the valve interior is ruled out because of the process optimized sequence.

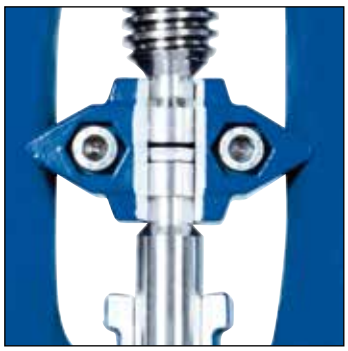
Various tests for leak tightness and strength are then conducted using nitrogen and helium, and another cleanliness inspection under UV-light takes place before the finished vacuum sealed valves leave the clean room.

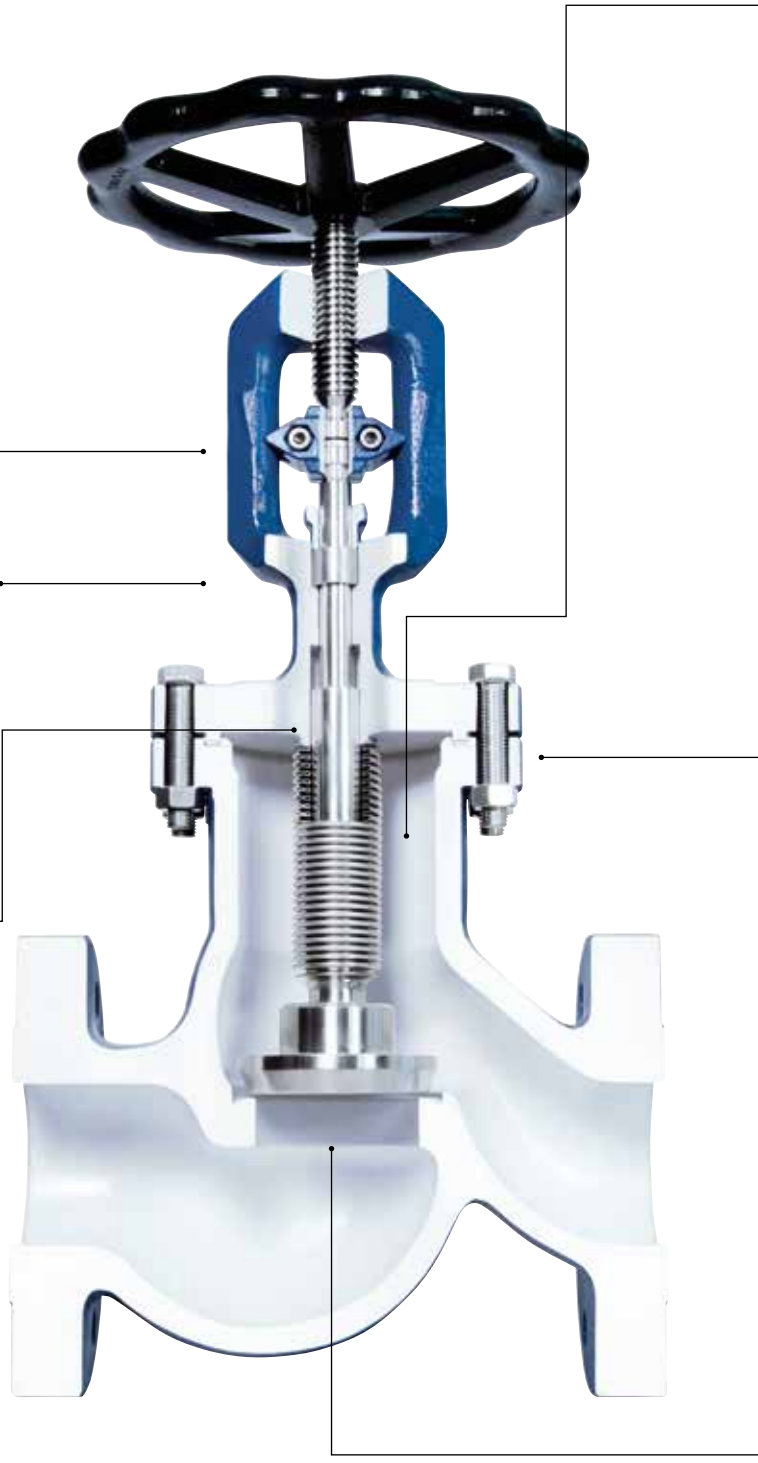
The clean room itself is permanently supplied with clean, almost particle free, air from above through filter-fan units. Remaining dust particles are thereby forced out of the room. This process generates an overpressure inside the clean room, which prevents the entry of foreign particles when the air lock is opened.

The ISO compliant clean room with ultrasonic cleaning system ensures safety, quality, and gas-leak tightness of our products.

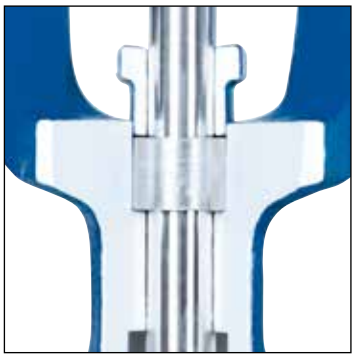
Bellows Sealed Globe Valve 11.3

1. 2-part rising stem with outside roll-formed thread; stem coupling with bellows **anti-torque device** and position indicator





2. Full size **safety gland packing** made of pure graphite; can also be supplied in PTFE if requested



3. **Metal back seat** with stroke limiter in open position and bellows anti-vibration device

4. Multiple wall, **fully flushed stainless steel bellows**, secured against torsion, designed for 10,000 cycles; fully welded

5. Stainless steel cam-profiled bonnet gasket coated with pure graphite, mounted in **tongue and groove** bonnet flanges

6. Conically shaped plug made of hardened chromium steel 1.4021/AISI 420, or hard-surfaced with stellite 6; body seat hard-surfaced with stainless steel 1.4370/AISI 307 or stellite 21

Product Description

Bellows sealed globe valve for chemical applications with safety gland packing.

Typical Applications

For various media with inflammable, explosive, volatile, toxic or aggressive characteristics, whose emission into the atmosphere must be prevented.

Materials

Carbon steel 1.0619/WCB, stainless steel 1.4408/CF8M, low temperature carbon steel 1.6220/LCB/LCC

Other materials are available upon special request

Size Range

DN 25-400 / NPS 1"-16"

Other sizes are available upon request

Compliance

- Permissible working pressure acc. EN 1092 part 1 and ASME B16.34-2009
- Inspection and testing per EN 12266 and API 598
- Design in accordance with TA-Luft
- Face-to-face dimension acc. EN 558-1, EN 12982 and ASME B16.10

Pressure Ratings

PN 16-400 / Class 150-2500

Body Configurations

Straight type, Y-type or corner-type valve

Special Options

- Pneumatic or electric actuated
- Soft sealing and regulating piston
- Welded bonnet
- Heating jacket

End Connections

Flanges, butt weld ends or socket weld ends

Bellows Sealed Globe Valve 11.9 and 11.35

Product Description

Compact globe valve with fully flushed bellows in straight type, Y-type or corner type; with flanges or butt weld ends and safety gland packaging; can be supplied in carbon steel 1.0619/WCB, stainless steel 1.4408/CF8M, low temperature carbon steel 1.6220/LCB/LCC, and special materials

Design Features

- Stem with internal rollformed stem thread and rising hand wheel
- Multiple wall, fully flushed stainless steel bellows, designed for 10,000 cycles
- Metal back seat
- Full size safety gland packing made of pure graphite
- Stainless steel cam profiled bonnet gasket coated with pure graphite, mounted in tongue and groove bonnet flanges

Product Description

Bellows sealed globe valve with protected bellows in straight type, Y-type or corner type; with flanges or butt weld ends and safety gland packing; can be supplied in carbon steel 1.0619/WCB, stainless steel 1.4408/CF8M, low temperature carbon steel 1.6220/LCB/LCC, and special materials. Abrasion and water hammer are prevented by the protected bellows.

Design Features

- Protected bellows to prevent erosion and pressure shocks, designed for 10,000 cycles
- Metal back seat
- Full size safety gland packing made of pure graphite
- Stem with internal roll-formed stem thread and rising hand wheel
- Stainless steel cam profiled bonnet gasket coated with pure graphite, mounted in tongue and groove bonnet flanges

Alkylation Valve HF11.35

Product Description
Bellows sealed globe valves with protected bellows and safety gland packing designed for 10,000 cycles.

Typical Applications
For various media with toxic or aggressive characteristics including HF Alkylation and other HF applications.

Materials
- Body made of ASTM A 216 WCB-S16 , Monel®, Hastelloy® C276
- Body seat hard-faced with Stellite® 21
- Disc in Hastelloy® C276 hard-faced with Stellite® 6
- Bellows and trim in Monel®, Hastelloy® C276
- Other materials are available upon request

Body Configurations
- T-type body design
- Globe valve face to face standard
- Gate/Plug valve face to face standard
- Body/bonnet wall thickness exceeds API 602 for additional corrosion resistance

Size Range
NPS ½" - 12"

Other sizes are available upon request

Pressure Ratings
ASME class 300, 600, 800

Other classes are available upon request

End Connections
Flange design in accordance with ASME B 16.5 and EN 1092-1.

Other classes are available upon request

Painting
Body/bonnet and end flanges painted with HF leakage detection paint.

Testing
In accordance with UOP and ConocoPhillips requirements including Shell and Helium leak test. WTA® HF Valves exceed API 598 requirements by testing every valve to zero leakage.*

Automation
Pneumatic actuated HF valves available with special bellows designed for up to 100,000 cycles.

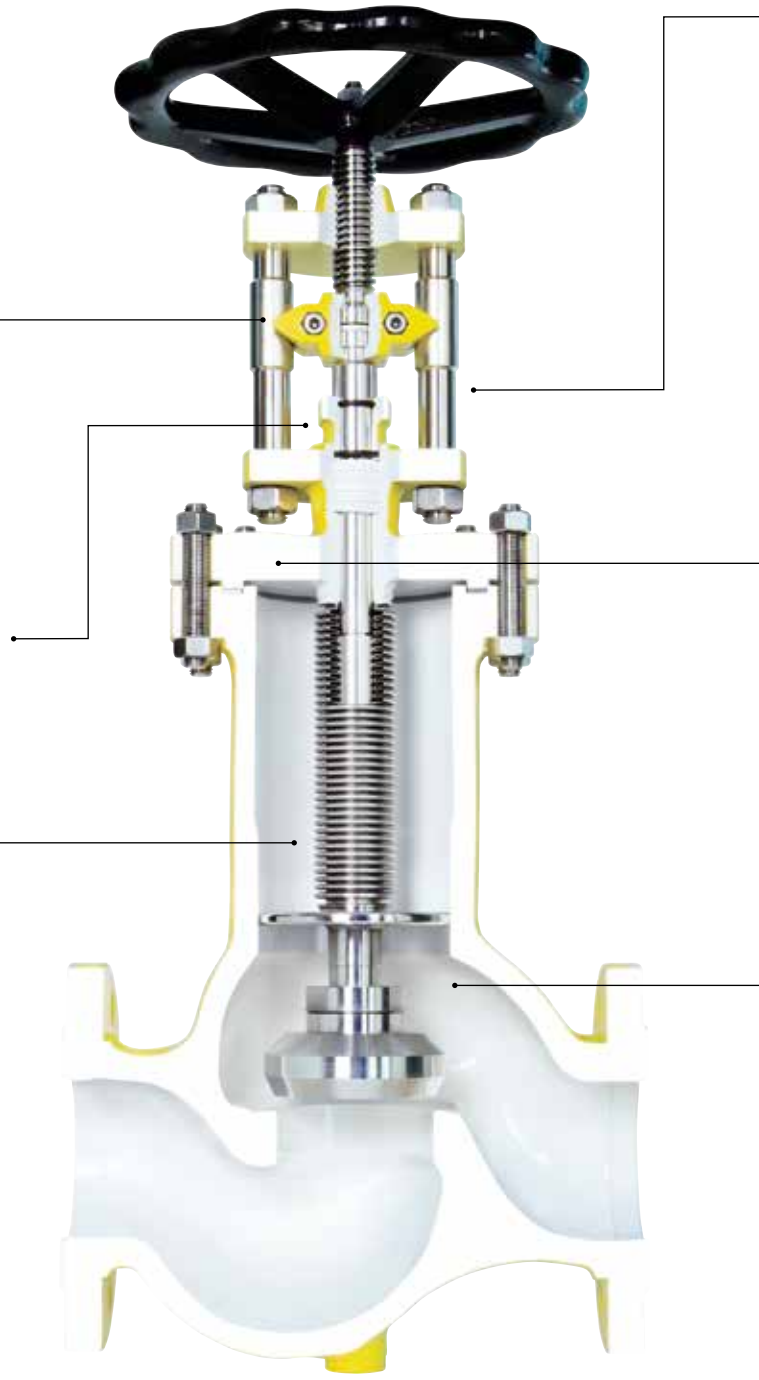
* Zero leakage - in accordance with UOP specifications and API 598 standards

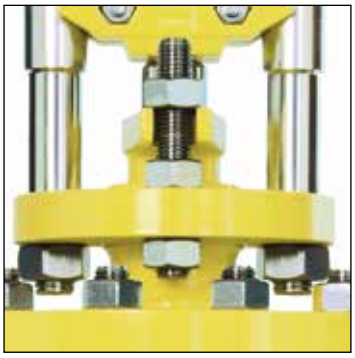
Chlorine Valve EC11.35

1. Bellows **anti-torque device** with integrated position indicator for open and closed positions

2. Safety gland packing made of PTFE silk; gland follower with double O-ring seal to prevent ingress of water into the packing area

3. Protected **multiple wall bellows** made of Hastelloy® C276, designed for 10,000 cycles installed beyond main flow area





4. Bridge and pillar design separates yoke from bonnet; pillars are bolted and secured with nuts

5. Bonnet flange in **tongue and groove design**; stud bolts made of 1.7225/A320 Grade L7M with a nut at each end made of 1.7218/A194 Grade 7M; bonnet gasket is PTFE coated

6. Exchangeable disc with conical shape; **sealing surface hard-faced** with Stellite® 6; **body seat hard-faced** with Stellite® 21

Product Description

Chlorine bellows sealed globe valves with protected bellows and safety gland packing according to Euro Chlor recommendation GEST.

Typical Applications

Liquid chlorine and dry chlorine gas

Materials

Low temperature carbon steel 1.6220 / LCB / LCC

Other materials are available upon special request

Size Range

DN 25, 40, 50, 80, 100, 150 / NPS 1", 1 ½", 2", 3", 4", 6"

Other sizes are available upon request

Compliance

WTA is a certified supplier and a member of Technical Correspondents of the Euro Chlor organization. WTA valves are manufactured in compliance with Euro Chlor GEST Specification and Chlorine Institute Pamphlet 6.

Pressure Ratings

PN 40 and Class 300

Other pressure classes are available upon request

Body Configurations

Straight type

Special Options

Complete internals in 2.4819/Hastelloy C276 are available upon request

End Connections

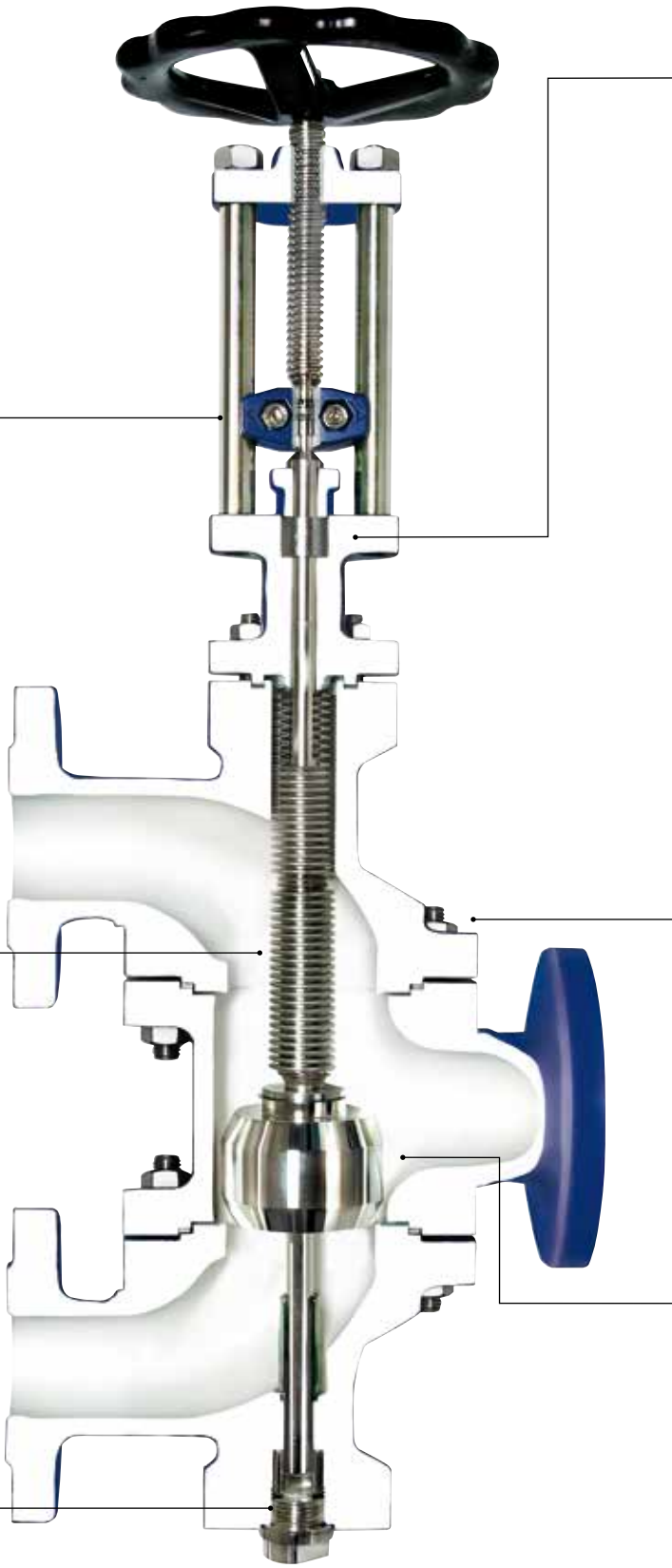
Flange design in accordance with EN 1092-1 and ASME B 16.5

Change-Over Valve 11.7/11.8

1. 2-part rising stem with outside roll-formed thread; stem coupling with bellows **anti-torque device** and position indicator

2. Multiple wall, fully flushed stainless steel bellows, secured against torsion, designed for 10,000 operations; fully welded

3. Metal back seat with stroke limiter in open position and bellows anti-vibration device



4. Full size **safety gland packing** made of pure graphite; can also be supplied in PTFE if requested

5. Stainless steel camprofiled bonnet gasket coated by pure graphite, mounted in **tongue and grooved** bonnet flanges

6. Conical shaped **plug made of hardened** chromium steel 1.4021 or armoured with stellite 6; **body seat hardfaced** with stainless steel 1.4370 or stellite 21

Product Description

Type 11.8: Three-way change-over valve with safety gland packing and bellows in flange design

Type 11.7: Three-way change-over valve with safety gland packing in flange design

Typical Applications

Change-Over-valves are used to connect two Safety Relief Valves to a pressure system using one pipe point. Change-over Valves are primarily used on storage tanks or vessels commonly found in refineries, chemical, petrochemical, or pharmaceutical processing plants where continuos operation has to be maintained.

Features

- The Three-Way Changeover valves are ideal for environements where continuous plant operation is essential.
- Extremely low pressure loss coefficients (zeta value from 0,60 to 1,05) permit optimal flow rates to fulfill the requirements of the pressure loss < 3%.

Materials

Carbon steel 1.0619/WCB, stainless steel 1.4408/CF8M, low temperature carbon steel 1.6220/LCB/LCC

Other materials are available upon special request

Size Range

DN 25-400 / NPS 1"-16"

Other sizes are available upon request

Compliance

- Permissible working pressure acc. EN 1092 part 1 and ASME B16.34-2009
- Inspection and testing per EN 12266 and API 598
- Design in accordance with TA-Luft
- TR certificate of conformity

Pressure Ratings

PN 16-400 / Class 150-2500

Special Options

Type 11.75/11.85: Changeover-Combination with safety relief valves

End Connections

Flange design in accordance to EN 1092-1 and ASME B 16.5

Steam distributor V21.9 / Condensate collector V21.9/K

Product Description

Compact condensate collector with integrated bellows sealed globe valves made of 1.0619/WCB or 1.0460/A105 respectively with flanges or butt weld ends; the condensate collector is also equipped with an immersion tube to avoid water hammer.

Typical Applications

Steam heating systems as well as consolidation of condensate pipework. Replacement of conventional manifolds whose individual components previously had to be fabricated at greater cost.

Design Features

- Reduced planning expenses due to standard components
- Simplified procurement of compact units
- Low weight and small space requirements
- Costs saving due to lower insulation requirements
- Safe operation, maintenance- free bellows sealed valves
- Supplied ready for fitting, tested, mounted and painted

Operation

One-piece compact body with 4, 8 or 12 connections positioned sideways in order to make it even more compact. The manifolds are produced in modules of 4 connections and can be extended to multiples of 4, by welding the modules next to each other. This whole modular construction can be bolted on site by means of threaded holes situated under the manifolds. In the condensate collector, the discharged condensate flows down through a condensate drain (pipe) welded inside the manifold, and forms a water bed in which the internal pipe is immersed. Water hammer is thereby prevented. The accumulated condensate is discharged upwards via the immersion tube.

Relief Valve 14.3

Product Description

Spring loaded relief valve in straight type, Y-type or corner type; with flanges or butt weld ends. With multiple-wall, fully flushed stainless steel bellows, secured against torsion, designed for 10,000 cycles.

Design Features

- Mainly used as bypass valve in small circuits
- With lockable hand wheel cover and stem lock nut to prevent alteration of the set opening pressure
- Changing the opening pressure takes place after removal of the hand wheel cover by turning the hand wheel; by so doing the outer pressure spring is tensioned and adjusted to a defined pressure
- The valve is not compensated against backpressure

Special Materials and Designs

Standard valves are supplied in three material variants; in heat-resistant carbon steel 1.0619/WCB, in corrosion resistant stainless steel 1.4408/CF8M, and in low temperature carbon steel 1.6220/LCB/LCC. In addition, we have the ability to process practically all materials that can be casted, or are malleable and/or weldable. Nickel-based alloys are commonly used as special materials.

The most frequently used materials are Hastelloy, Incoloy, Inconel and Monel; however, Titanium or pure Nickel also form part of the range that can be delivered. Steel and stainless steel valves are very frequently equipped with bellows made of high quality materials such as Hastelloy. Finishing the plug/ seat area by reinforcement with special materials is possible in exactly the same manner.

One of our many strengths is our ability to supply customer specified variants of our existing special valve designs. While in some instances fabrication of non-standard valves calls for innovative designs and/or novel materials, our custom designed valves can be supplied at competitive prices with short delivery times!

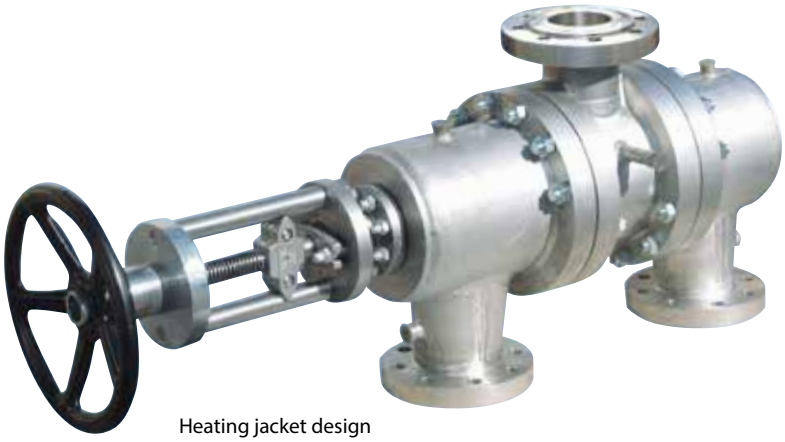
Insulated cover

Liquid salt valves with heated gland packing

Isolation design

Hand wheel cover

Counter hand wheel



Heating jacket design

Approvals and Certificates

Euro Chlor Certificates

TR Certificates

TA-Luft Certificates

Fire-Safe Certificates

- TÜV ISO 9001:2008
- TÜV AD 2000 HP0
- TÜV Quality-Assurance System acc. to Directive 97/23/EG
- TÜV System of Transferring the Marking of Materials
- CRANE/WTA manufacturers declaration to Directive 94/9/EC (ATEX)
- Euro Chlor Certificates GEST
- TÜV-CERT TA-Luft 2002/Pkt. 5.2.6.4
- TR Certificates
- Rostechnadzor
- Fire-Safe Inspection Certificates
- Canada Registrations

Since before the introduction and certification of WTA®'s quality management system compliant with DIN EN ISO 9000 in 1993, WTA® has continued its program of perpetual advancement in its standards for quality and engineering. WTA® has obtained numerous certifications from relevant authorized organizations documenting the implementation of such new standards, in some cases to comply with customer-specific requirements.

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Change Over Valves

Types 11.7, 11.8, 11.75 and 11.85

CRANE®

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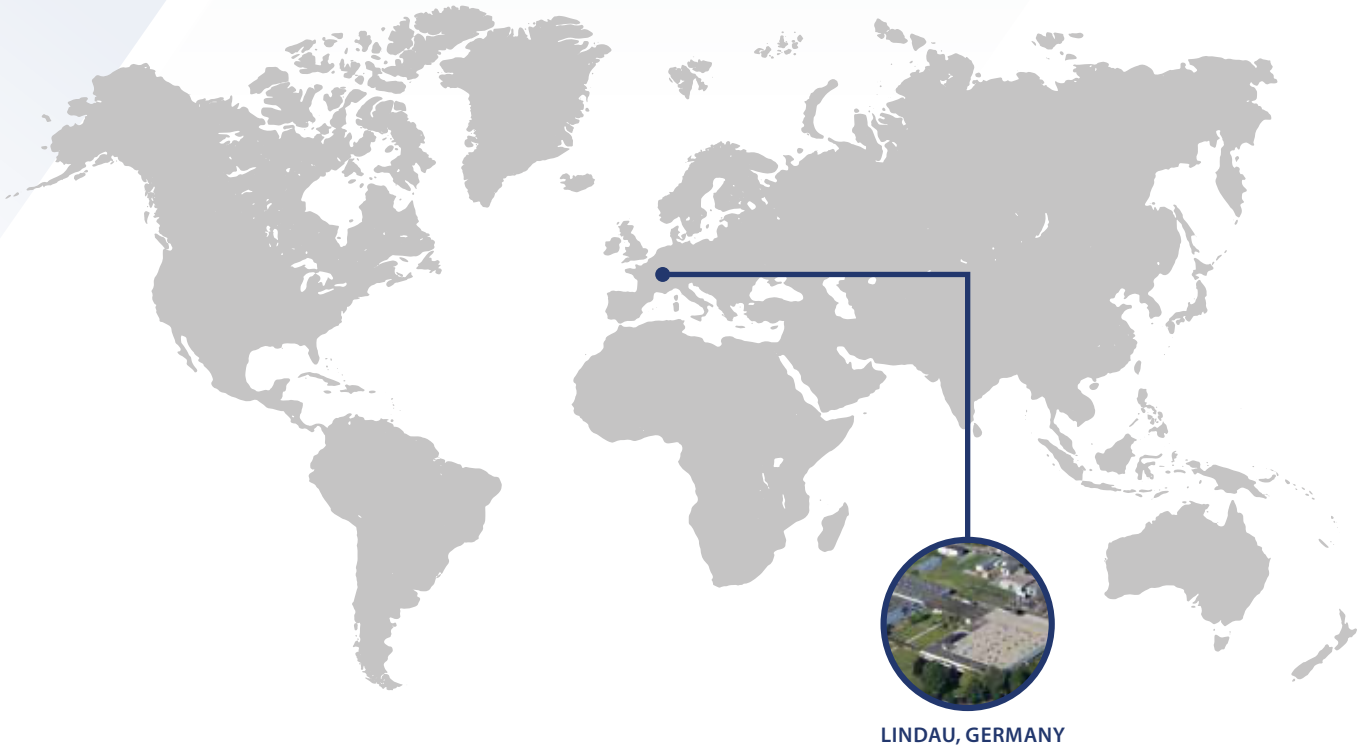
Introduction About W.T.A.®

Company History and Introduction

WTA®, a brand of Crane ChemPharma & Energy, was founded in 1978. WTA® designs and manufactures a comprehensive range of high-quality bellows sealed globe valves, chlorine valves, changeover valves, relief valves, and special valves to meet the stringent specifications required by the global chemical, refining and petrochemical industries.

Backed by a history of engineering excellence and manufactured from the highest-quality materials, bellows sealed globe valves from WTA® lead the industry in innovation and safety. With superior design and construction, WTA® valves incorporate the market's most advanced safety features to ensure low fugitive emissions, leak-proof performance, and long service life.

Manufacturing Location



LINDAU, GERMANY

Introduction Change Over Valves

What are Change Over Valves?

Change over valves are used to connect two safety valves to a pressure system using one pipe point. Here, one safety valve is in operation and one safety valve is on stand-by. The stand-by valve can be removed during ongoing operation for service, while protection of the pressure system against inadmissible pressures is maintained.

The use of change over valves allows essential maintenance work to be carried out on a safety valve, without interruption of the plant operation. This is realized by simply switching over to the relevant stand by safety valve, thus protecting the plant against excessive overpressure.

Applications

Change over valves are used in various industries in order to ensure continuous operation and to minimize safety risks due to unplanned shutdown periods.

These industries are:

- Petrochemical industry
- Oil and gas industry
- Technical gases
- Chemical
- Refrigeration
- Pharmaceutical industry

Key Features

Our three-way change over valves provide extremely low pressure drop due to optimal flow deflection and are of compact, weight-saving design

Key features include:

- The three-way change over valves are ideal for environments where continuous plant operation is essential.
- Extremely low pressure loss coefficients (zeta values from 0,60 to 1,05) permit optimal flow rates to fulfill the legal requirement of less than 3% pressure loss.
- Two designs are available for use in chemical, petrochemical, pharmaceutical or refining services: one with packing sealing (11.7/11.75) and one with bellows sealing (11.8/11.85).

Technical Details

Materials of Construction

- Carbon steel 1.0619 / WCB / WCC
- Stainless steel 1.4408 / CF8M
- Low temperature carbon steel 1.6220 / LCB / LCC
- Special materials on request

Size Range

- DN15-400 / NPS 1/2"-16"
  **Other sizes are available upon request*
- End Connections available according to DIN and ASME standards
- Flange design in accordance with EN 1092-1 and ASME B 16.5.

Compliance

- Permissible working pressure according EN 1092 part 1 and ASME B16.34-2009
- Inspection and testing per EN 12266 and API 598
- Design in accordance with TA-Luft (11.8/11.85)
- TR certificate of conformity

Pressure Ratings

- PN10-400 / Class 150-2500

Temperature Range

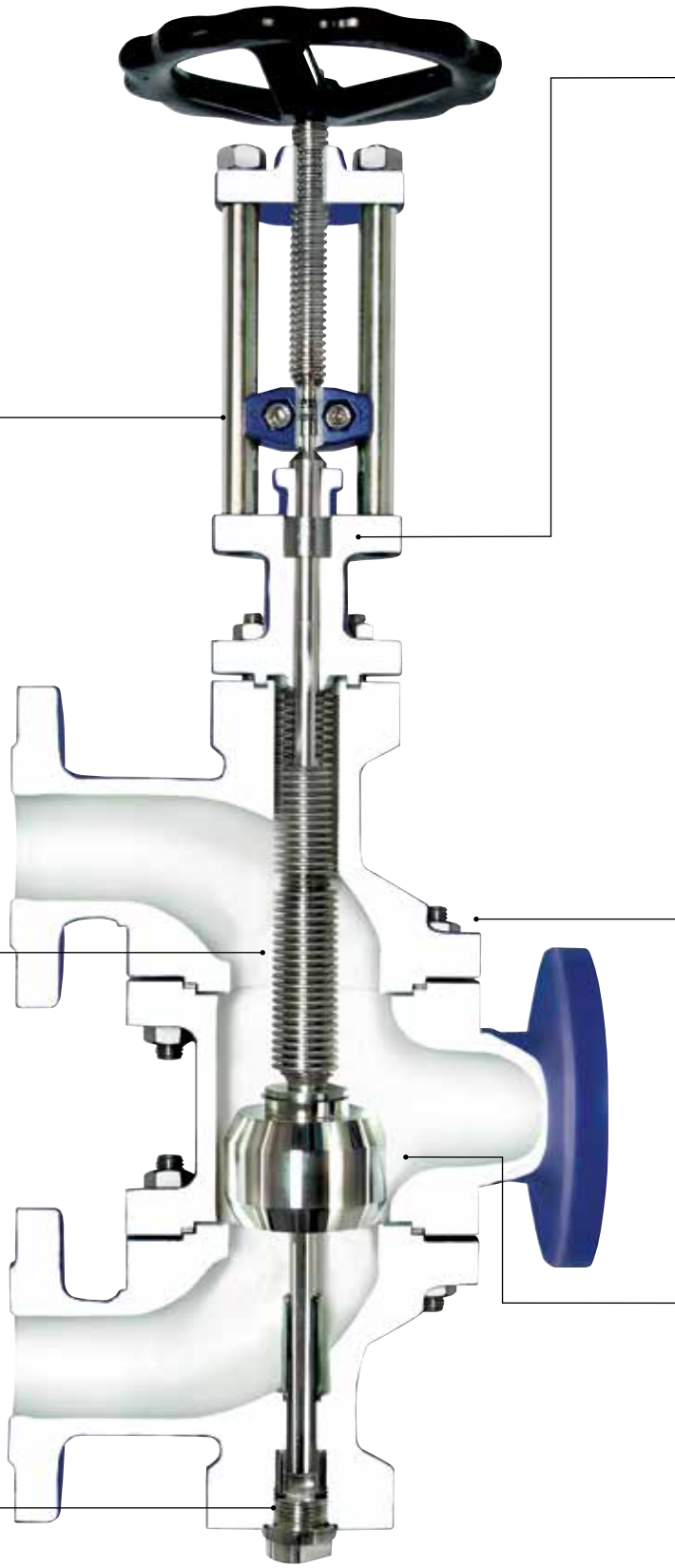
Standard	Unit	Temp.	Carbon Steel	Stainless Steel	Low Temp. Carbon Steel
DIN	°C	Tmin	-10	-200	-40
		Tmax	+400	+400	+300
	°F	Tmin	+14	-328	-40
		Tmax	+752	+752	+572
ASME	°C	Tmin	-29	-268	-46
		Tmax	+425	+400	+345
	°F	Tmin	-20	-450	-50
		Tmax	+797	+752	+653

Change Over Valve 11.8/11.85

1. Two piece rising stem with outside roll-formed thread; stem coupling with bellows **anti-torque device** and position indicator

2. **Multiple wall, fully flushed stainless steel bellows,** secured against torsion, designed for 10,000 operations; fully welded (11.8/11.85), metal back seat with stroke limiter

3. **Plug screw** sealing off **guide bushing** and guide stem towards the atmosphere



Change Over Valve 11.8/11.85

4. Full size **safety gland packing** made of pure graphite; can also be supplied in PTFE if requested

5. Stainless steel camprofiled bonnet gasket coated by pure graphite, mounted in **tongue and grooved** bonnet flanges, PTFE also available for gasket

6. Conical shaped plug made of **hardened chromium steel** 1.4021 or hard faced with stellite 6; **body seat hardfaced with stainless steel** 1.4370 or stellite 21

Product Description

Type 11.8: Three-way change over valve with safety gland packing and bellows in flange design

Type 11.7: Three-way change over valve with gland packing in flange design

Special Options

- **Type 11.75/11.85:** change over valves—combination with safety relief valves

Change Over Valve, Gland Type **11.7-FL**

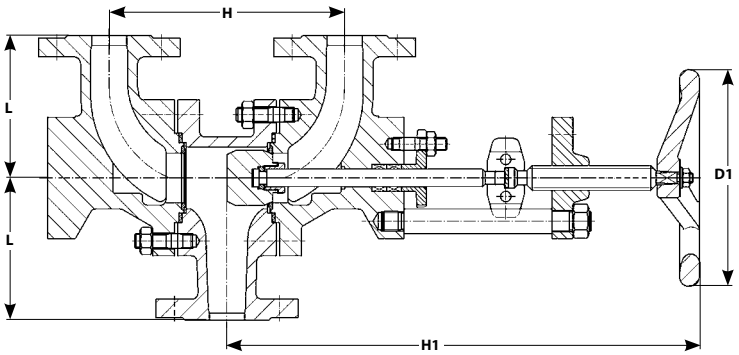
DN15-400 / ½"-16"			
PN 40 / ASME 150 - 300			
	C.S.	S.S.	Low temp.
Tmin.	-10°C	-200°C	-40°C
Tmax.	+400°C	+400°C	+300°C

Permissible working pressure acc. EN 1092 - Part 1
Terms of delivery acc. DIN 3230/EN 12266-1
Detailed information and more alternatives are given in the appendix

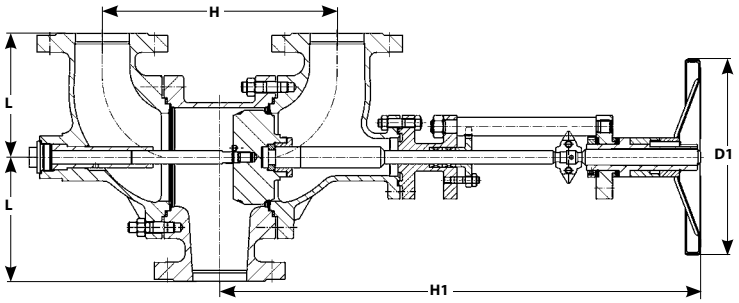
Components	Material		
	C.S.	S.S.	Low temp.
	11.7-FL	11.7-FL-A4	11.7-FL-TT
Body	1.0619	1.4408	1.6220
Body seat	1.4370	Stellite 21	1.4370
Bonnet	1.0619	1.4408	1.6220
Disc	1.4021 1.0460/1.0619	1.4571/1.4408	1.4571/1.0566 1.6220
Disc surface	Vacuum hardened (1.0421) Stellite 21 (1.0460/1.0619)	Stellite 6	Stellite 6 Stellite 21
Gaskets	1.4571/graphite		
Bolts	A2/70	A2/70	A2/70
Nuts	A2/70	A2/70	A2/70
Gland packing	Pure graphite		
Gland	1.0420	1.4408	1.4408
Stem-upper part	1.4122	1.4122	1.4122
Stem-lower part	1.4301	1.4571	1.4571
Handwheel	0.6020	0.6020	0.6020

DN	L [mm]	H [mm]	H1 [mm]	D1 [mm]	G [kg]
15	115	190	395	175	25
20	115	190	395	175	25
25	115	190	395	175	25
32	150	265	545	200	46
40	150	265	545	200	46
50	150	265	535	200	49
65	190	360	740	300	96
80	190	360	740	300	99
100	230	460	815	300	151
125	300	460	815	300	156
150	280	600	1110	400	323
200	370	800	1445	500	667
250	430	900	1670	600	830
300	440	950	1670	600	950
350	470	1090	2170	800	1480
400	480	1140	2170	800	1790

DN15-50 / ½"-2"



DN 65-400 / 2 1/2"-16"



WTA® Change Over Valve with flanges acc. EN 1092-1 or ASME B 16.5; with outside roll-formed stem screw thread and burnished shaft. With safety stuffing box packing made of pure graphite and grooved bonnet gasket made of stainless steel 1.4571 with a coating of pure graphite on both sides, housed in a tongue and grooved flange.

Coefficients of resistant (z)		
DN	stem side	opposite side
25	0,6	0,6
40	0,6	0,7
50	0,7	0,9
65	0,83	0,90
80	0,83	0,90
100	0,79	0,94
125	0,84	0,98
150	0,81	0,89
200	0,84	0,92
250	0,99	0,96
300	0,84	0,91
350	0,89	0,85
400	0,83	0,79

Change Over Valve, Bellows Sealed Type 11.8-FL

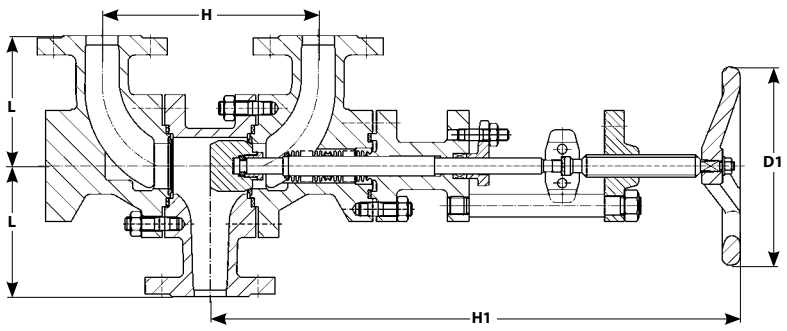
DN15-400 / ½"-16"			
PN 40 / ASME 150 - 300			
	C.S.	S.S.	Low temp.
Tmin.	-10°C	-200°C	-40°C
Tmax.	+400°C	+400°C	+300°C

Permissible working pressure acc. EN 1092 - Part 1
Terms of delivery acc. DIN 3230/EN 12266-1
Detailed information and more alternatives are given in the appendix

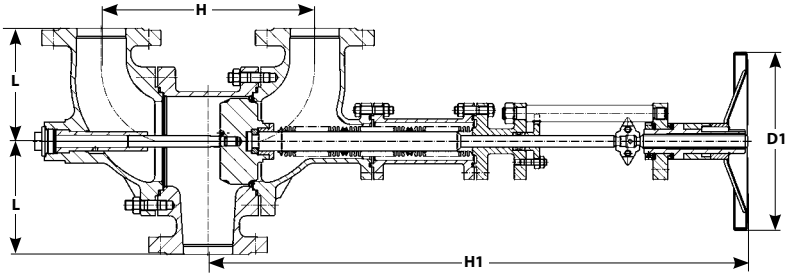
Component	Material		
	C.S.	S.S.	Low temp.
	11.8-FL	11.8-FL-A4	11.8-FL-TT
Body	1.0619	1.4408	1.6220
Body seat	1.4370	Stellite 21	1.4370
Bonnet	1.0619	1.4408	1.6220
Disc	1.4021 1.0460/1.0619	1.4571/1.4408	1.4571/1.0566 1.6220
Disc surface	Vacuum hardened (1.0421) Stellite 21 (1.0460/1.0619)	Stellite 6	Stellite 6 Stellite 21
Bellows	1.4571	1.4571	1.4571
Gaskets	1.4571/graphite		
Bolts	A2/70	A2/70	A2/70
Nuts	A2/70	A2/70	A2/70
Gland packing	Pure graphite		
Gland	1.0420	1.4408	1.4408
Stem-upper part	1.4122	1.4122	1.4122
Stem-lower part	1.4301	1.4571	1.4571
Handwheel	0.6020	0.6020	0.6020

DN	L [mm]	H [mm]	H1 [mm]	D1 [mm]	G [kg]
15	115	190	480	175	27
20	115	190	480	175	27
25	115	190	480	175	27
32	150	265	625	200	47
40	150	265	625	200	47
50	150	265	615	200	50
65	190	360	910	300	106
80	190	360	910	300	109
100	230	460	985	300	161
125	300	460	985	300	166
150	280	600	1390	400	338
200	370	800	1720	500	682
250	430	900	1670	600	850
300	440	950	1670	600	970
350	470	1090	2465	800	1500
400	480	1140	2465	800	1810

DN15-50 / ½"-2"



DN 65-400 / 2 1/2"-16"



WTA® Bellows Sealed Change Over Valve with flanges acc. EN 1092-1 or ASME B 16.5; with outside roll-formed stem screw thread and burnished shaft, coupled stem. Multiple-wall liquid contacted bellows made of stainless steel, with anti torque device, safety stuffing box packing made of pure graphite and grooved bonnet gasket made of stainless steel 1.4571 with a coating of pure graphite on both sides, housed in a tongue and grooved flange.

Coefficients of resistant (z)		
DN	stem side	opposite side
25	1,0	0,6
40	0,8	0,7
50	0,8	0,9
65	0,93	0,90
80	0,93	0,90
100	0,89	0,94
125	0,94	0,98
150	0,91	0,89
200	0,94	0,92
250	1,05	0,96
300	0,91	0,89
350	0,94	0,85
400	0,91	0,79

Interlocking Change Over Valve, Gland Type 11.75-FL

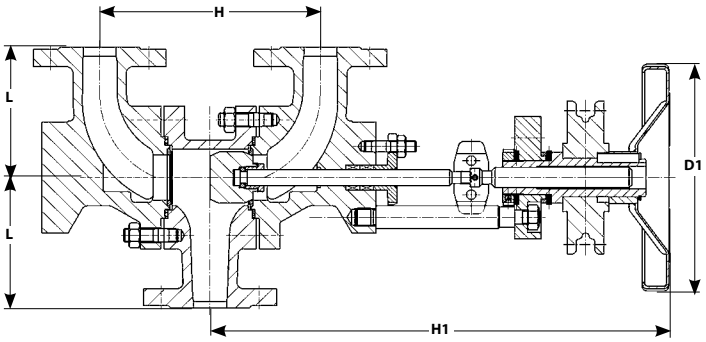
DN15-400 / ½"-16"			
PN 40 / ASME 150 - 300			
	C.S.	S.S.	Low temp.
Tmin.	-10°C	-200°C	-40°C
Tmax.	+400°C	+400°C	+300°C

Permissible working pressure acc. EN 1092 - Part 1
Terms of delivery acc. DIN 3230/EN 12266-1
Detailed information and more alternatives are given in the appendix

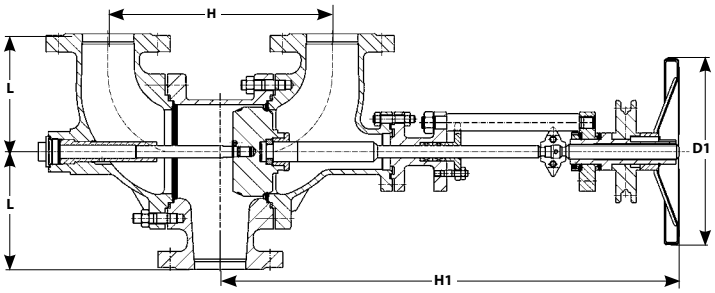
Components	Material		
	C.S.	S.S.	Low temp.
	11.75-FL	11.75-FL-A4	11.75-FL-TT
Body	1.0619	1.4408	1.6220
Body seat	1.4370	Stellite 21	1.4370
Bonnet	1.0619	1.4408	1.6220
Disc	1.4021 1.0460/1.0619	1.4571/1.4408	1.4571/1.0566 1.6220
Disc surface	Vacuum hardened (1.0421) Stellite 21 (1.0460/1.0619)	Stellite 6	Stellite 6 Stellite 21
Gaskets	1.4571/graphite		
Bolts	A2/70	A2/70	A2/70
Nuts	A2/70	A2/70	A2/70
Gland packing	Pure graphite		
Gland	1.0420	1.4408	1.4408
Stem-upper part	1.4122	1.4122	1.4122
Stem-lower part	1.4301	1.4571	1.4571
Handwheel	Steel	Steel	Steel
Chainwheel	CG 20-25	CG 20-25	CG 20-25

DN	L [mm]	H [mm]	H1 [mm]	D1 [mm]	G [kg]
15	115	190	385	200	26
20	115	190	385	200	26
25	115	190	385	200	26
32	150	265	500	200	47
40	150	265	500	200	47
50	150	265	515	200	49
65	190	360	740	300	96
80	190	360	740	300	99
100	230	460	815	300	151
125	300	460	815	300	156
150	280	600	1110	400	323
200	370	800	1445	500	667
250	430	900	1670	600	830
300	440	950	1670	600	950
350	470	1090	2170	800	1480
400	480	1140	2170	800	1790

DN15-50 / ½"-2"



DN 65-400 / 2 1/2"-16"



WTA® Change Over Valve with flanges acc. EN 1092-1 or ASME B 16.5; with outside roll-formed stem screw thread and burnished shaft. With safety stuffing box packing made of pure graphite and grooved bonnet gasket made of stainless steel 1.4571 with a coating of pure graphite on both sides, housed in a tongue and grooved flange.

Coefficients of resistant (z)		
DN	stem side	opposite side
25	0,6	0,6
40	0,6	0,7
50	0,7	0,9
65	0,83	0,90
80	0,83	0,90
100	0,79	0,94
125	0,84	0,98
150	0,81	0,89
200	0,84	0,92
250	0,99	0,96
300	0,84	0,91
350	0,89	0,85
400	0,83	0,79

Interlocking Change Over Valve, Bellows Sealed Type 11.85-FL

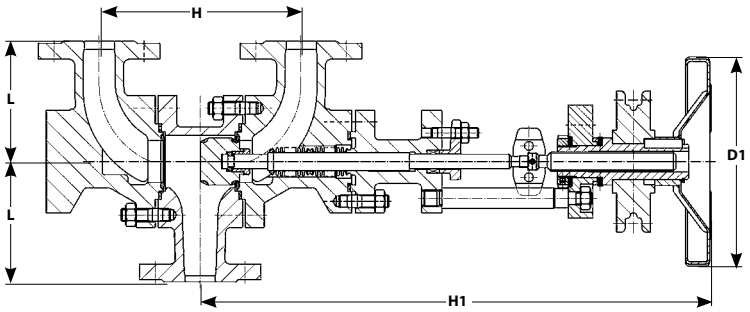
DN15-400 / ½"-16"			
PN 40 / ASME 150 - 300			
	C.S.	S.S.	Low temp.
Tmin.	-10°C	-200°C	-40°C
Tmax.	+400°C	+400°C	+300°C

Permissible working pressure acc. EN 1092 - Part 1
Terms of delivery acc. DIN 3230/EN 12266-1
Detailed information and more alternatives are given in the appendix

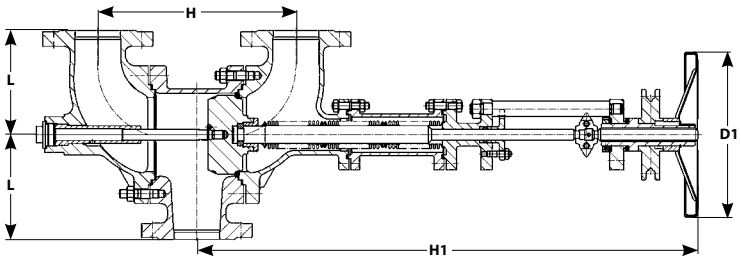
Component	Material		
	C.S.	S.S.	Low temp.
	11.85-FL	11.85-FL-A4	11.85-FL-TT
Body	1.0619	1.4408	1.6220
Body seat	1.4370	Stellite 21	1.4370
Bonnet	1.0619	1.4408	1.6220
Disc	1.4021 1.0460/1.0619	1.4571/1.4408	1.4571/1.0566 1.6220
Disc surface	Vacuum hardened (1.0421) Stellite 21 (1.0460/1.0619)	Stellite 6	Stellite 6 Stellite 21
Bellows	1.4571	1.4571	1.4571
Gaskets	1.4571/graphite		
Bolts	A2/70	A2/70	A2/70
Nuts	A2/70	A2/70	A2/70
Gland packing	Pure graphite		
Gland	1.0420	1.4408	1.4408
Stem-upper part	1.4122	1.4122	1.4122
Stem-lower part	1.4301	1.4571	1.4571
Handwheel	Steel	Steel	Steel
Chainwheel	CG 20-25	CG 20-25	CG 20-25

DN	L [mm]	H [mm]	H1 [mm]	D1 [mm]	G [kg]
15	115	190	470	200	28
20	115	190	470	200	28
25	115	190	470	200	28
32	150	265	585	200	48
40	150	265	585	200	48
50	150	265	600	200	52
65	190	360	910	300	106
80	190	360	910	300	109
100	230	460	985	300	161
125	300	460	985	300	166
150	280	600	1390	400	338
200	370	800	1720	500	682
250	430	900	1670	600	850
300	440	950	1670	600	970
350	470	1090	2465	800	1500
400	480	1140	2465	800	1810

DN15-50 / ½"-2"



DN 65-400 / 2 1/2"-16"

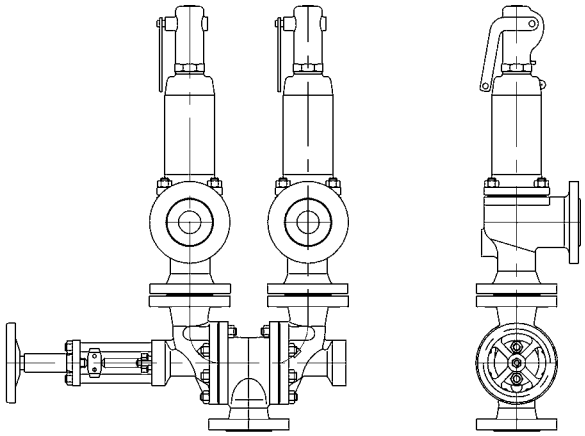


WTA® Bellows Sealed Change Over Valve with flanges acc. EN 1092-1 or ASME B 16.5; with outside roll-formed stem screw thread and burnished shaft, coupled stem. Multiple-wall liquid contacted bellows made of stainless steel, with anti torque device, safety stuffing box packing made of pure graphite and grooved bonnet gasket made of stainless steel 1.4571 with a coating of pure graphite on both sides, housed in a tongue and grooved flange.

Coefficients of resistant (z)		
DN	stem side	opposite side
25	1,0	0,6
40	0,8	0,7
50	0,8	0,9
65	0,93	0,90
80	0,93	0,90
100	0,89	0,94
125	0,94	0,98
150	0,91	0,89
200	0,94	0,92
250	1,05	0,96
300	0,91	0,89
350	0,94	0,85
400	0,91	0,79

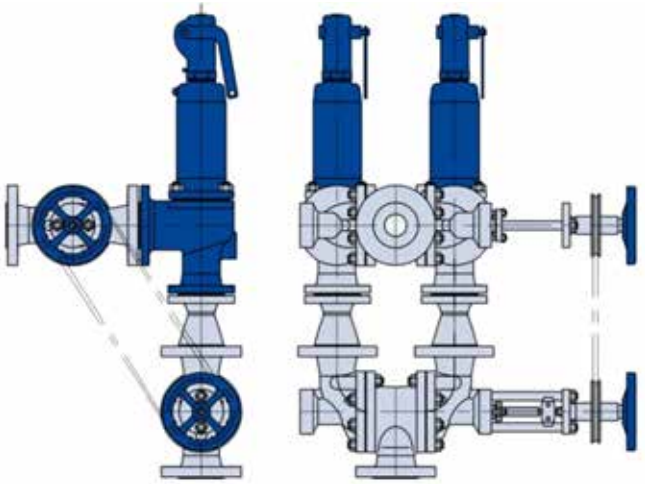
Overview Potential Installations, Change Over Valves

Change Over Valve Only on the Inlet Side of the Safety Valves



This arrangement is ideal for unrestricted discharge, either directly into atmosphere or into discharge piping or discharge containments.

Combination of Change Over Valves Type on the Inlet and Outlet Sides of Safety Valves



This combination of two change over valves is used for redirecting flow into a common piping behind the safety relief valves. The two change over valves are coupled by using sprocket wheels and a linking chain for interlocking purposes. During discharge back pressure is built up on the outlet side.

General:

The use of change over valves allows essential maintenance work to be carried out on a safety valve, without interruption of the plant operation, simply by changing over to the relevant standby valve, thus protecting the plant against excessive overpressure.

When operating the change over valve, it is necessary to ensure that the valve does not remain in any intermediate position. The respective part of the valve shall be fully open.

The WTA® Change Over Valves offer full flow across the complete stroke. Nonetheless, when operating the change over valve it is essential to always ensure complete shut off of one side. Change over valves shall not remain in an intermediate position while in operation.

Sizing:

The change over valve at the inlet side of a combination of change over valves and safety valves causes during discharging a pressure drop. To guarantee the function of a safety valve the following rules for the sizing of change over valves should be taken into account.

Change Over Valve Only at the Inlet of the Safety Valves:

Standard safety valve: the nominal inlet diameter of the standard safety valve refers to the nominal diameter of the change over valve.

Full lift safety valve: the nominal outlet diameter of the full lift safety valve determines the size of the change over valve. To connect the safety valves both outlet flanges of the change over valves are reduced to match the inlet size of the safety valves. The WTA® Change Over Valves offer an extensive range of size reducers across all configurations and are thus able to meet special customer needs all around the globe. This includes customized assembly dimensions.

In case the service conditions do not require the maximum discharge capacity of the safety valve it can be considered to use a smaller sized change over valve as a more economic solution.

Combination of Change Over Valves on the Inlet and Outlet Side of Safety Valves:

WTA® Change Over Valve combinations are offered with an interlocking system to ensure simultaneous operation of both change over valves and thus preventing unintended blocking of discharge.

Standard safety valve: usually the standard safety valve has the same nominal diameter at the inlet and outlet. The nominal diameter of the connected change over valves are adequate to them.

Full lift safety valve: the full lift safety valve has different nominal diameters at the inlet and outlet. The nominal diameter on the outlet determines the size of the change over valves. Therefore the change over valve at the inlet of the combination has also the same diameter as the change over valve at the outlet. But both outlet flanges of the change over valve are reduced to the nominal inlet diameter of the safety valve.

How To Order **Change Over Valves**

Example:

11.8 - FL - 1.4408 - 65/40S - 40 - B1 - GS - KE - SP1 - ST - DI - SM - EB6 - Q61 - LA - FO

COV Type	
11.7	COV with packing
11.75E	COV combination inlet side with packing
11.75A	COV combination outlet side with packing
11.8	COV with bellows
11.85E	COV combination inlet side with bellows
11.85A	COV combination outlet side with bellows

Flanges	
FL	flanges
SE	butt weld ends

Material	
1.0619	Carbon steel
1.4408	Stainless steel
1.6220	low temperature carbon steel (EN)
1.1138	low temperature carbon steel (DIN)
1.4470	Duplex
1.4539	High alloy
2.4858	High alloy
2.4819	High alloy
WCB	Carbon steel
CF8M	Stainless steel
CF8C	Stainless steel
CF3M	Stainless steel
LCB	low temperature carbon steel
LCC	low temperature carbon steel
**	Further Options

Sizes
15 up to 500
1/2" up to 20"

Type of Reduction	
G	cast
S	welded

Pressure Class
10 to 160
Class 150 to class 2500

Flange Facing*
B1
D
C
E
F
N
B2
L
RJ
RF
LG
LT
LM
LF
SG
ST
SM
SF

Seat Options	
GS	Hard Facing

Plug Options	
KE	hard facing/material
KE1	plug material made out of Hastelloy C276
KE2	plug material made out of Hastelloy C4
KE3	plug material made out of Hastelloy C22
KE4	plug material made out of Monel
KE5	plug material made out of 1.4539

Stem Options	
SP1	lower stem part made out of Hastelloy C276
SP2	lower stem part made out of Hastelloy C4
SP3	lower stem part made out of Hastelloy C22
SP4	lower stem part made out of Monel 400

Packing Options
graphite
PTFE
other

Gasket Options
graphite
PTFE
other

Bolting Options	
S4	A4-70
SM	special

Options	
EB1	drain connection G, without plug screw (11.7/11.8)
EB2	drain connection G, with plug screw (11.7/11.8)
EB3	drain connection NPT, without plug screw (11.7/11.8)
EB4	drain connection NPT, with plug screw (11.7/11.8)
EB5	drain connection NPTF, without plug screw (11.7/11.8)
EB6	drain connection NPTF, with plug screw (11.7/11.8)

Options	
Q31Ö	design according to QV0031-ÖF; oil & grease free for less critical applications
Q31S	design according to QV0031-SF; oil & grease free & silicone free
Q61	design according to QV0061-02; oil & grease free for oxygen service
Q71	design according to QV0071-EC; oil & grease free according to Euro Chlor
Q81	design according to QV0081-CL; oil & grease free for Chlorine service
Q91	design according to QV0091; oil & grease free & particle free
Q110	design according to QV0110; sour gas according to NACE MR0175
Q111	design according to QV0111; sour gas according to Total-Leuna standard

Painting Options	
LA	Special Painting

Other Options	
FO	packing in foil
FS1	operational security FS1: fixing construction for hand wheel (bolt & chain)
FS2	operational security FS2: fixing construction for hand wheel (U-lock)
(. . .)	(and more. . .)

** DIN/EN/customized butt weld ends*

- *S10*
- *S40*
- *S80*
- *S160*

***Further Options*

- *1.7357/WC6*
- *Alloy 400*
- *Alloy 825*
- *CW2M*
- *CM12MW*
- *2.4360*

Accessories for Type 11.7, 11.75, 11.8, 11.85

- Gland packing special material
- Bonnet gasket special material 11.7
- Bonnet gasket special material 11.8
- Body gasket special material
- Different flange facings (DIN and ASME)

Valve types according to NACE MR 0175 for carbon and stainless steel grades cover the following details: limitation of hardness and chemical analysis as per NACE MR0175. Stress relief annealing following welding operations on carbon steel grades, marking with low-stress stamps.

Drain hole without gasket and screw
G¼ female thread
G½ female thread

Screw 1.4571 with gasket DIN 7603 stainless steel for drain hole
G¼
G½

Flushing connection without gasket and screw
Welded nipple

Optional: Screw 1.4571 with gasket DIN 7603 stainless steel for flushing connection
G¼ / G½

Accessories for Type 11.7, 11.75, 11.8, 11.85

By-Pass with non return valves
2 valves DN15/PN40

Stop valve for pressure discharge
2 valves DN15/PN40

Accessories for Type 11.7, 11.75, 11.8, 11.85

2 x Reducer (1/2/3 nominal diameter)
Welded reducers

2 x Reducer (1/2/3 nominal diameter)
Cast reducers

Accessories for Type 11.7, 11.75, 11.8, 11.85

Hand wheel locking device (FS1)

Hand wheel interlocking 11.75/11.85

Lockable combination hand wheel, chainwheel and chain

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