

# Check Valves & Actuated Valves

## **C & UC Series**

*Piston non-return valves rated 6,000 psi & 10,000 psi*

## **XC Series**

*Piston non-return valves rated 20,000 psi*

## **Pneumatic Actuators**

*Pneumatically actuated valves*

## **Electric Actuators**

*Electrically actuated valves*

## **Actuator Accessories**

*Limit switch boxes and solenoids available to various specifications*

## **How to order the above**

*An explanation of the part numbering system*

# C & UC Series

## General Information

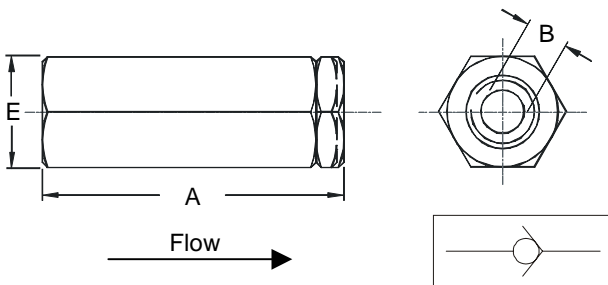
### 6,000 & 10,000 psi rated Piston non-return valves

The Alco Valves Non Return Valve is designed for high flow and low pressure drop in a pressurised medium. The "C" series valve has a wide range of body and trim materials available, several types of sealing materials can be used to cope with most aggressive mediums. Having a soft primary seat means it is suitable for gases or liquids. Altogether a very compact unit suitable for many arduous duties. Various cracking pressures are available.

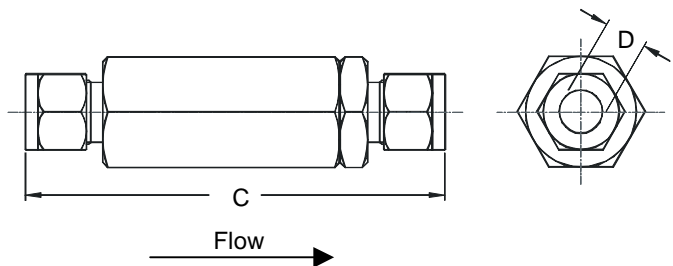
## Design Features

- Primary soft seal for bubble tight close, with secondary metal to metal secondary seal.
- Large orifice sizes for high flow and low pressure drop across your system.
- Soft seat for bubble tight / shut off seal on pressure or vacuum.
- Heavy duty corrosion resistant spring for long life.
- Close tolerance guided spring and piston to prevent crabbing or seizure.
- Repair kits available.
- Pressure / Temperature rating -15°C to 170°C depending on seal materials used.
- Available in 316 / monel/ duplex / hastalloy or titanium.
- Many piston and spring material options available to cope with aggressive mediums.
- Fire safe design version available.
- Full material traceability.
- 100% Hydrostatic testing.
- Materials of construction can be supplied to meet the requirements of NACE MR-01-75 latest revision.

### Threaded version



### Compression ended version



## Part Numbers

St/St Part No.	Connections Size	A	B	C	D	E		Standard cracking pressure ± 20% (psi)	Cv	Kv	Weight (Kgs)	
						Bore	Comp Ended				Tube Size	C
C2NS	1/4" NPT	58	7	80	6.3	22	28	20	0.54	1.47	0.18	0.28
C3NS	3/8" NPT	87	12	110	9.5	35	38	20	1.5	1.30	0.6	0.75
C4NS	1/2" NPT	87	12	120	12.7	35	38	20	1.6	1.39	0.6	0.75
C6NS	3/4" NPT	104	12	136	19	38		20	1.6	1.39	0.8	0.8
C8NS	1" NPT	114	12	146	25	44		20	1.6	1.39	1.2	1.2
C12NS	1 1/2" NPT	180	32	-	38.1	76		20	9.0	7.78	5.2	5.2
C16NS	2" NPT	195	32	-	50.8	76		20	9.0	7.78	5.7	5.7

For BSPP change 'N' for 'P' i.e. C2PS.  
 For compression ends change N for K i.e. C2KS  
 For 10,000 psi Version add 'U' i.e. UC4NS.  
**Note:** 1 1/2" & 2" have a maximum pressure rating of 6,000 psi

↑  
 Cracking pressure can be adjusted to suit your application

Dims are in mm (Appx)

See technical section for important additional valve data.  
**Note:** bore ends may vary dependent upon end connection selected.

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# XC Series



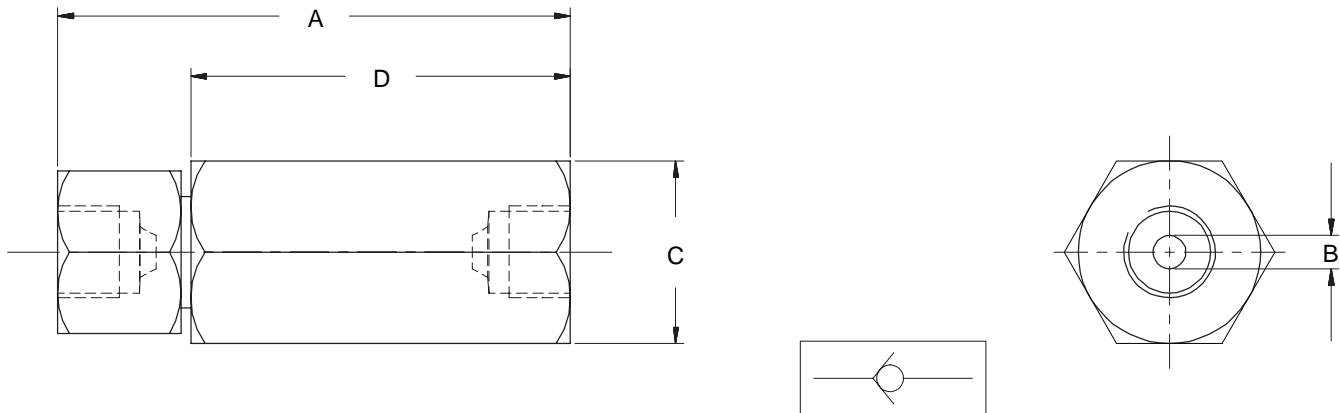
## General Information

### 20,000 psi rated Piston non-return valves

The Alco "XC" Non Return Valve is designed for very high pressure service. This valve has a wide range of body and trim materials available, several types of sealing materials can be used to cope with most aggressive mediums. Altogether a very compact unit suitable for many arduous duties. Ideal for use on high pressure test rigs, pumps, injection skids etc. Various cracking pressures are available.

## Design Features

- Primary soft seal for bubble tight close, with metal to metal secondary seal.
- Soft seat for bubble tight shut off on pressure or vacuum.
- Heavy duty corrosion resistant spring for long life.
- Close tolerance guided spring and piston to prevent crabbing or seizure.
- High pressure & compact design.
- Many end connection options available including threaded or weld ends.
- Available in 316 / monel/ duplex / hastalloy or titanium.
- Pressure / Temperature rating -15°C to 170°C depending on seal materials used.
- Many piston and spring material options available to cope with aggressive mediums.
- Can be supplied as fire-safe design.
- Full material traceability.
- 100% Hydrostatic testing.
- Materials of construction can be supplied to meet the requirements of NACE MR-01-75 latest revision.



## Part Numbers

St/St Part No.	Connections Size	A	B	C A / F HEX	D	Standard cracking pressure $\pm 20\%$	Cv	Kv	Weight (Kgs)
XC207/16NS	7/16" UNF	75	2.7	25	60	50	0.08	0.07	0.25
XC209/16NS	9/16" UNF	80	5.1	28	60	50	0.13	0.11	0.35
XC2013/16NS	13/16" UNF	105	9	35	82	50	0.4	0.35	0.7

Dims are in mm (Appx)

See technical section for important additional valve data.

Note: bore ends may vary dependent upon end connection selected.

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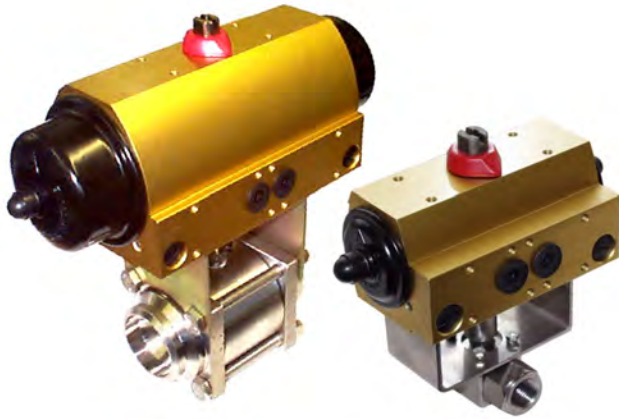


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# Pneumatic Actuators



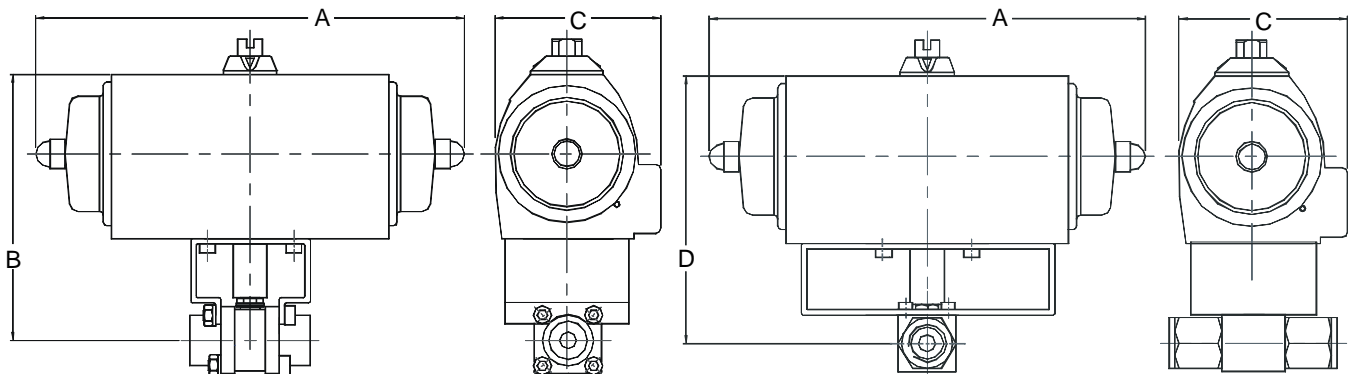
Actuated 'S & SB' Series Range.

## General Information

A full range of actuated ball valves can be supplied sizes 1/4" to 2 1/2". pressure ranges from 1,000 psi to 10,000 psi. The range includes pneumatic, hydraulic and electric actuation, double acting and spring return, a full complement of accessories can also be supplied, i.e. limit switches, solenoids, etc.

As seen on the drawing Alco's panel mount 'SB' series and 'S' series ball valves are particularly suited for actuation, offering three piece ball valve flexibility with the minimum of maintenance and simple 4 bolt assembly to the actuator bracket. The latest actuator specifications can be supplied from various manufacturers from around the world - please enquire. See specific valve data sheets for further valve information.

## General Arrangement



Actuated 'S' series

Actuated 'SB' series

## Pneumatically Actuated 'S' & 'SB' series (typical sizes)

Actuator type	Part no.	A	B	C	D	Operating Pressure of actuator	Alco Valve Size
90° single acting spring return (air open, spring close)	SRG-1	187	129	76	126	80 – 100 psi	1/4" - 3/4"
	SRG-2	242	160	93	155	80 – 100 psi	1" - 1 1/4"
	SRG-3	307	186	105	184	80 – 100 psi	1 1/2" - 2"
90° double acting (air open, air close)	DAG-1	187	129	76	126	80 – 100 psi	1/4" - 3/4"
	DAG-2	242	160	93	155	80 – 100 psi	1" - 1 1/4"
	DAG-3	307	186	105	184	80 – 100 psi	1 1/2" - 2"

Actuator / valve sizing are based upon reduced bore versions.

Actuator manufacturer may vary due to performance requirements therefore the details shown may also vary. Please consult our technical sales departments. Relevant actuator manufacturers reserve the right to change their specifications at any time. Valves supplied for actuation by client are delivered pressure tight - it is the responsibility of the client to ensure packings remain under compression and lock nut/s remain tight and/or adjusted to compensate for wear.

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# Electric Actuators

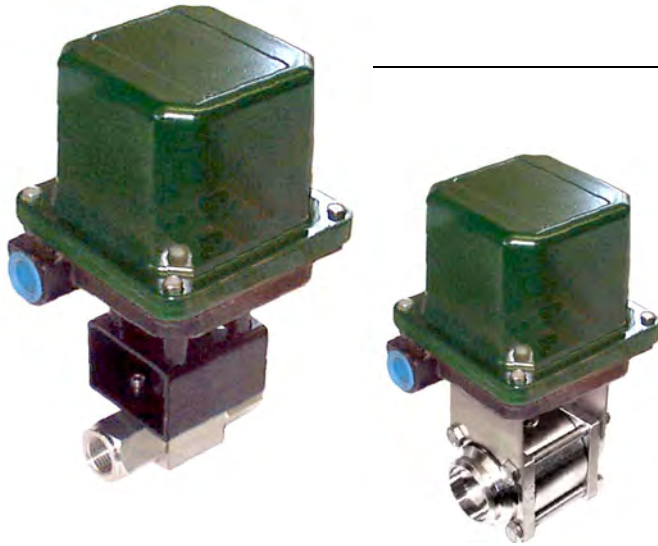
## General Information

A full range of electrically actuated ball valves can be supplied sizes 1/4" to 2 1/2". pressure ranges from 1,000 psi to 10,000 psi. A full complement of accessories can also be supplied, i.e. limit switches, solenoids, etc.

As seen on the drawing Alco's panel mount 'SB' series and 'S' series ball valves are particularly suited for actuation, offering three piece ball valve flexibility with the minimum of maintenance. See specific valve data sheets for further information.

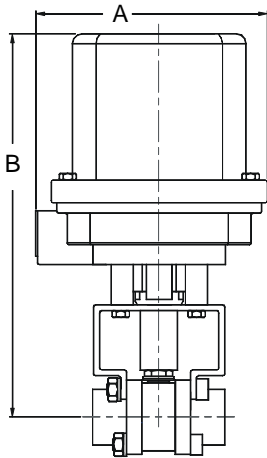
### Ratings available:

- 12 volt D.C.
- 24 volt D.C.
- 110 volt A.C.
- 240 volt A.C.

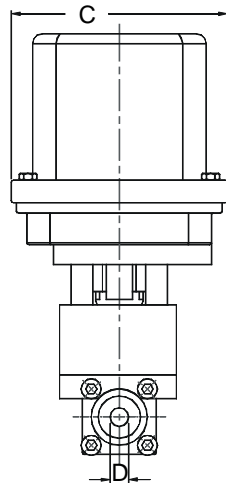


Actuated 'S & SB' Series

## General Arrangement



Actuated 'S' series



Actuated 'SB' series

## Electrically Actuated 'S' & 'SB' Series (typical sizes)

Actuator type	A	B	C	D	E	Operating Voltages	Alco Valve Size
MAR 8/9.6	112	194 - 208	112	10 - 25	200 - 215	12V or 24V	1/4" - 1 1/4"
MAR 10/12	194	303 - 307	154	32 - 38	305 - 312	12VDC OR 24VDC	1 1/2" - 2"
MAR 8/2.4	112	194 - 208	112	10 - 25	200 - 215	110V AC or 240V AC	1/4" - 3/4"
MAR 8/9.6	112	202 - 208	112	10 - 25	204 - 215	110V or 240V	1" - 1 1/4"
MAR 10/12	194	215 - 222	154	32 - 38	285 - 300	110V AC or 240V AC	1 1/2" - 2"

Actuator / valve sizing are based upon reduced bore versions

Actuator manufacturer may vary due to performance requirements therefore the details shown may also vary. Please consult our technical sales departments. Relevant actuator manufacturers reserve the right to change their specifications at any time. Valves supplied for actuation by client are delivered pressure tight - it is the responsibility of the client to ensure packings remain under compression and lock nut/s remain tight and/or adjusted to compensate for wear.

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# Actuator Accessories

Limit switch boxes and solenoids available to various specifications

## General Information

Alco can supply the latest technology and specification direct mounted limit switch enclosures in conjunction with or without actuator to monitor the status of a valve in both open and closed positions to confirm that a valve has completed a cycle, or actual valve positioning can be monitored throughout the valve movement. The method of indication or feedback is dependent on the control system utilised. Limit switches can be connected in the case of isolating valve, back to a mimic board in a process control room to show operatives the open and closed process flow paths.

Switches can be from a variety of manufacturers and be of constant or proximity types, dependent on the application and can be sited in the enclosures to suit various area classifications and categories.

Certain enclosures have the additional benefit of visual status monitoring in addition to electronic feedback.



Explosion Proof Limit Switch Box  
(Eexd IIC T6 IP66)



IP67 Limit Switch Box



Actuator  
Solenoid  
Operator



Miniature Switch Box

Manufacturer may vary due to performance requirements therefore the details shown may also vary. Please consult our technical sales department. Relevant manufacturers reserve the right to change their specifications at any time.

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# How to order check valves

Our part number system is made up of alphanumeric / generic code system as explained below.  
An example is :-

## 1/2" NPT male inlet x female outlet 316ss 'C' series piston check valve, Monel® K500 piston with Viton® seal Rated 690 bar (10,000 psi)

The part number shown below is made up using the following system:-

Rated pressure	Valve series	Valve size	End connections	Material of construction/ body parts	Piston material	Options
<b>U</b>	<b>C</b>	<b>4</b>	<b>N</b>	<b>S</b>	<b>-5-</b>	<b>1M</b>
<p><b>No letter</b> = Standard rating <b>U</b> = 10,000 psi 690 Bar <b>X20</b> = 20,000 psi</p>	<p><b>C</b> = Piston check non-return valve range</p>	<p>1 = 1/8" 2 = 1/4" 3 = 3/8" 4 = 1/2" 6 = 3/4" 8 = 1" 10 = 1 1/4" 12 = 1 1/2" 16 = 2"</p>	<p><b>B</b> = Butt weld <b>F</b> = Flanged <b>K</b> = Twin ferrule (compression ends) <b>N</b> = NPT Female threads <b>P</b> = BSPP Female threads <b>Q</b> = Single ferrule (compression ends) <b>S</b> = Socket weld <b>T</b> = BSPT Female threads</p>	<p><b>B</b> = Brass <b>C</b> = C/Steel <b>D</b> = Ali-Bronze <b>H</b> = Hastalloy C <b>I</b> = Incoloy 625 <b>M</b> = Monel 400 <b>N</b> = Cupro-Nickel <b>S</b> = 316 St. St. <b>U</b> = Duplex <b>Note:</b> Other specialist material such as 6MO, Super Duplex, Zirconium are available</p>	<p><b>-U</b> = Duplex <b>-5</b> = Monel 400® <b>-6</b> = Incoloy <b>-7</b> = Ali-bronze <b>-8</b> = Hastalloy <b>-9</b> = Cupro nickle</p>	<p><b>-1M</b> = One end male (make sure you specify inlet or outlet side, otherwise Alco standard applies). <b>-2M</b> = Double male ends <b>-TAG</b> = Identification Tagging <b>-PTFE</b> = PTFE coated in Viton seal <b>-IS</b> = Inconel spring <b>-PC</b> = PTFE coated spring (for extra protection against corrosion) <b>-NC</b> = Nickel coated spring (for extra protection against corrosion) <b>-EPDM</b> = EPDM seal <b>-FFKM</b> = FFKM seal</p>

Socket weld & butt weld end connectors may be extended for thermal protection of the valve internals  
**Note:** Pressure ratings may vary dependant upon the material of construction i.e. brass construction limited up to 3,000 psi.

**NOTE 1:** The pressure ratings quoted within our literature are maximum hydrostatic pressure ratings for the valves. Certain options available are the products / designs of other manufacturers, Alco valves cannot accept any responsibility for these products unsuitability or failure in service.

**NOTE 2:** It is always advisable to refer to specific product literature or contact our technical sales department when ordering valves as some of these options are available only on certain styles of valves. Any special end connections such as compression ends or butt / socket weld may limit the rated working pressure of the valve or component supplied in accordance with the relevant specification of design or use of that method of connection. The valve or component will still carry the maximum working pressure markings in accordance with the valve or component design not the connection method as they vary.

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