BCV
Blowdown Control Valves
DN15 to DN50 (½" to 2")

Description

Spirax Sarco's BCV blowdown control valves are manufactured using the market proven Spira-trol™ body. These valves are designed for the blowdown of steam boilers or for other high pressure drop, low flow applications, and are generally used with a blowdown controller as part of an automatic BCV control system.
The flowrate is adjusted by setting the stroke of the valve spindle.
These valves have been specially designed to minimize seat erosion and ensure consistent tight shut-off.
A ¼" BSP plug at the base of the valve may be removed to allow a sample cooler to be fitted.

Two versions are available:

- Electrically actuated BCV blowdown control valve.
- Pneumatically actuated BCV blowdown control valve.

Available models:

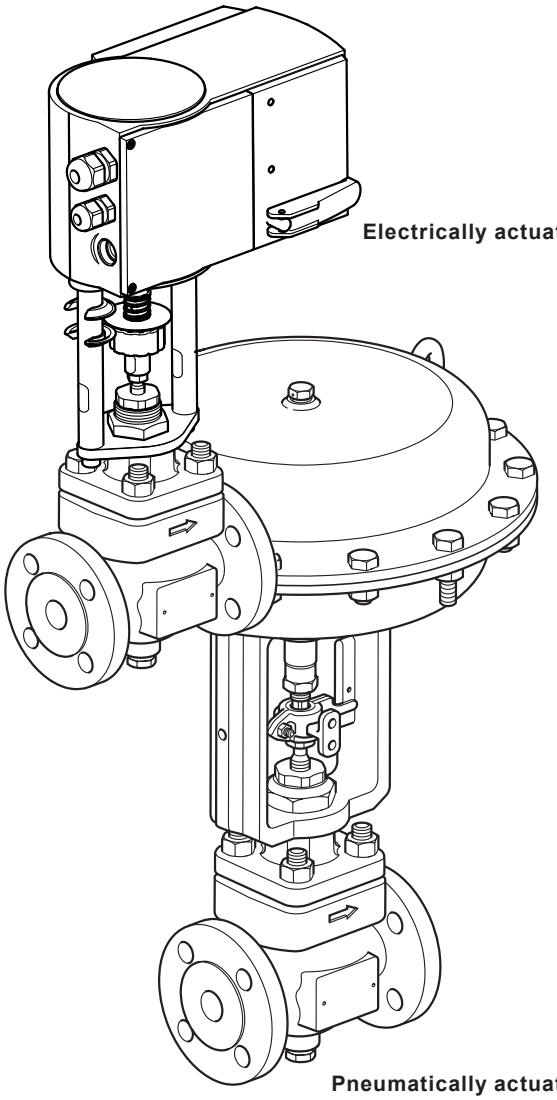
Material	Connections		
	Screwed	Socket weld	Flanged
Carbon steel	**BCV41**	**BCV42**	**BCV43**
Stainless steel	**BCV61**	**BCV62**	**BCV63**
SG iron	**BCV71**		**BCV73**

Spira-trol™ valve body options:

Stem sealing	Graphite packing	High temperature applications
Seating	Hard facing	316L stainless steel with Stellite 6 facing

BCV blowdown control valves are compatible with the following actuators:

Version	Actuator
Electric	AEL3 series
Pneumatic	PN9_ _ _ series



Electrically actuated

Pneumatically actuated

Operation

BCV blowdown control valves are supplied loaded to the closed position.
Electrical version: When the power is connected to the actuator the valve opens to the position set by the internal limit switch.
Pneumatic version: When the solenoid valve opens, air is admitted to the actuator activating the valve to open to the selected stroke.

Standards
These products fully comply with the requirements of the European Pressure Equipment Directive 2014/68/EU.

The Electric actuator complies with LV Directive 2014/35/EU, EN60730-1, EN60730-2-14 and with EMC Directive 2014/30/EU, EN61000-6-2, EN6100-6-4

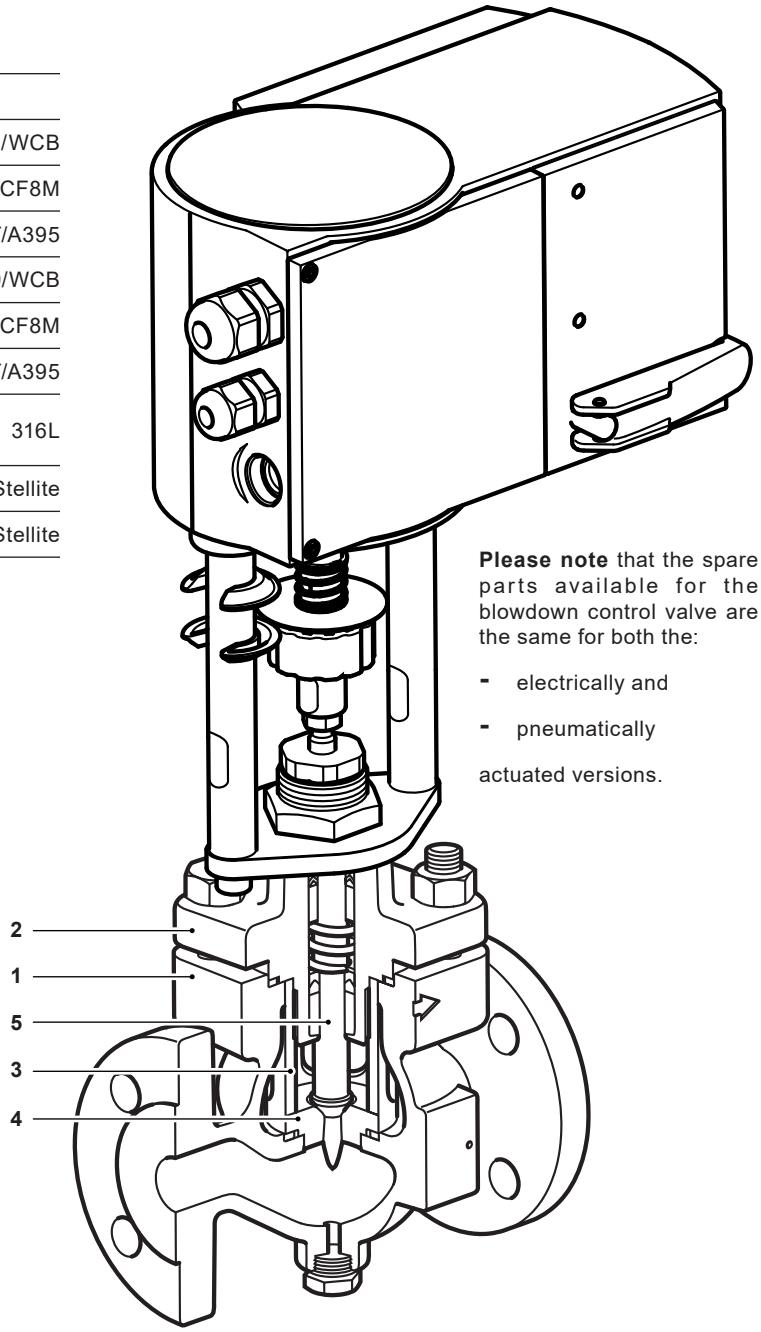
Certification
These products are available with material certification to EN 10204 3.1.
Note: All certification/inspection requirements must be stated at the time of order placement.

Size and pipe connections
½", ¾", 1", 1¼", 1½" and 2" Screwed BSP T Rp (ISO 7-1) or NPT, Socket weld and Butt weld.

DN15, DN20, DN25, DN32, DN40 and DN50 Flanged:
EN 1092 PN25 and PN40
ASME class 125, 150, 250 and 300
JIS/KS 10K and 20K

Materials

No.	Part	Material	
1	Body	Carbon steel	1.0619+N/WCB
		Stainless steel	1.4408/CF8M
		SG iron	EN-GJS-400-18-LT/A395
2	Bonnet	Forged steel	1.0460/A105N or 1.0619/WCB
		Stainless steel	1.4408/CF8M
		SG iron	EN-GJS-400-18-LT/A395
3	Seat retainer	Stainless steel	316L
4	Seat	Stainless steel	316L with Stellite
5	Plug	Stainless steel	316L with Stellite



Please note that the spare parts available for the blowdown control valve are the same for both the:

- electrically and
- pneumatically

actuated versions.

Electrical data

Actuator	AEL3 series
Supply voltage	Standard 24 Vac/dc, Optional card 230 Vac and 110 Vac
Supply frequency	50 to 60 Hz
Power consumption	12W (24 Vac/dc) 28W (230 Vac, 110 Vac)
Actuator speed	2 mm/s, 4 mm/s or 6 mm/s
Actuators thrust maximum	2 kN

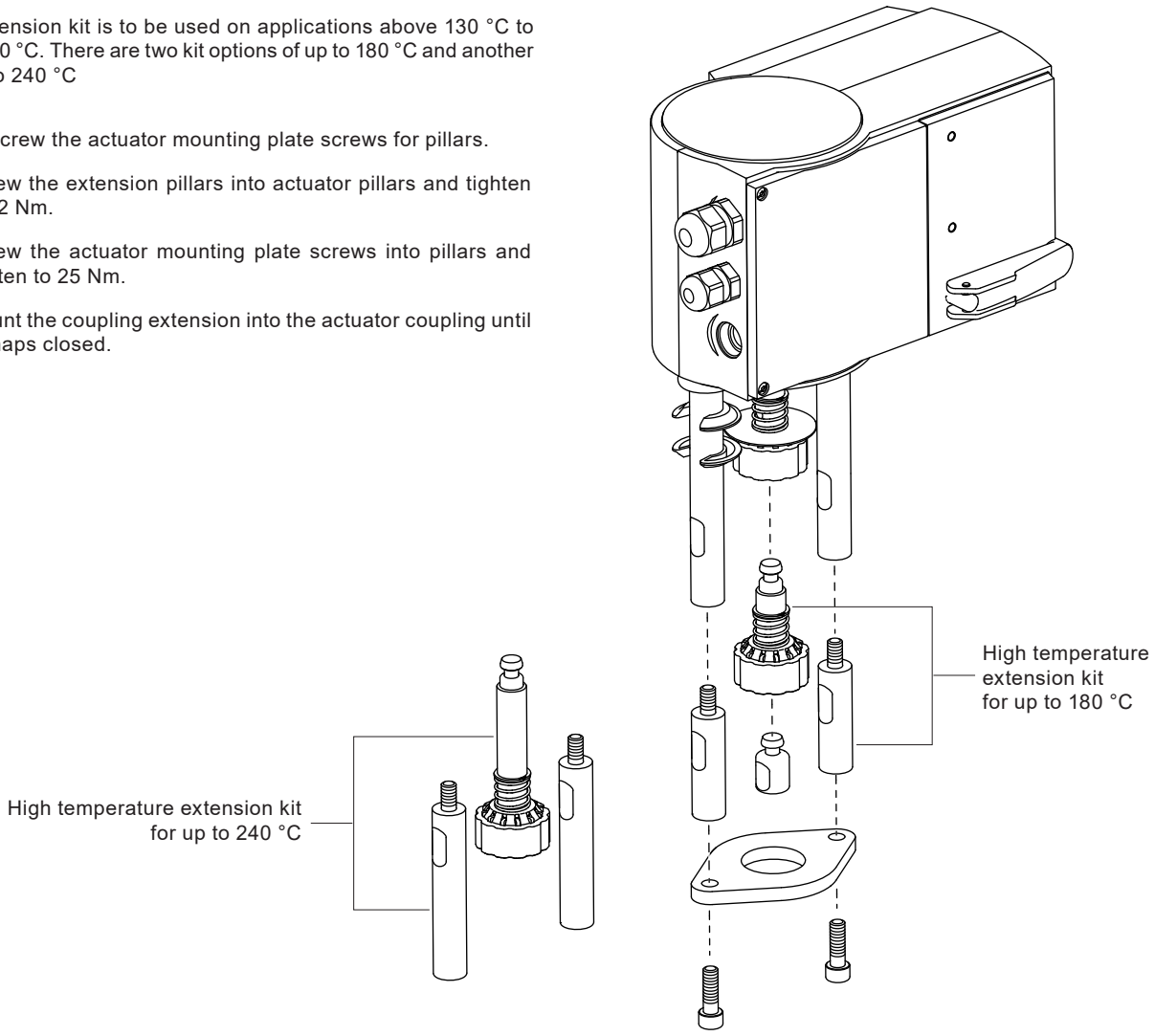
Size		Actuator	Maximum shut-off value
DN15 to DN25	**½" to 1"**	AEL3 series/PN9123E-B	103.4 bar g @100 °C
DN32 to DN50	**1¼" to 2"**	AEL3 series/PN9223E-B	

Warnings:
If the temperature of the medium in the valve is high, the drive columns and the shaft may also reach high temperatures.

High Temperature Extension:

The extension kit is to be used on applications above 130 °C to up to 240 °C. There are two kit options of up to 180 °C and another for up to 240 °C

1. Unscrew the actuator mounting plate screws for pillars.
2. Screw the extension pillars into actuator pillars and tighten to 12 Nm.
3. Screw the actuator mounting plate screws into pillars and tighten to 25 Nm.
4. Mount the coupling extension into the actuator coupling until it snaps closed.

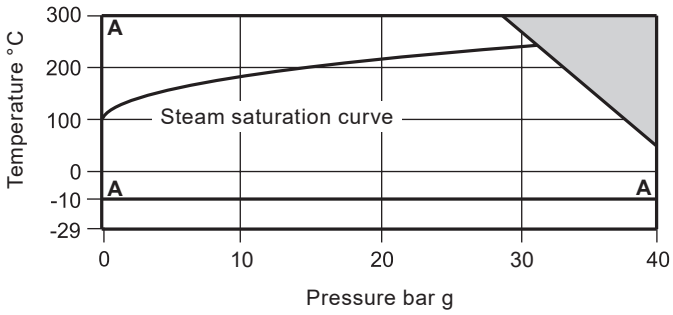


Pressure/temperature limits – BCV4_

Body design conditions:			PN40, JIS / KS 20K	ASME class 150, class 300
PMA Maximum allowable pressure	**EN**	PN40	40 bar g @ 50 °C	
	ASME	ASME 150	19.6 bar g @ 38 °C	284 psi g @ 100 °F
		ASME 300	51.1 bar g @ 38 °C	741 psi g @ 100 °F
	JIS / KS	JIS / KS 20K	34 bar g @ 120 °C	
TMA Maximum allowable temperature	**EN**	PN40	300 °C @ 27.6 bar g	
	ASME	ASME 150	425 °C @ 5.5 bar g	797 °F @ 80 psi g
		ASME 300	425 °C @ 28.8 bar g	797 °F @ 418 psi g
	JIS / KS	JIS / KS 20K	300 °C @ 20 bar g	
Minimum allowable temperature	**EN**	PN40	-10 °C	
	ASME	ASME 150	-29 °C	-20 °F
		ASME 300	-29 °C	-20 °F
	JIS / KS	JIS / KS 20K	-10 °C	
PMO Maximum operating pressure for saturated steam service	**EN**	PN40	31.1 bar g @ 237 °C	
	ASME	ASME 150	13.9 bar g @ 197 °C	201 psi g @ 386 °F
		ASME 300	41.7 bar g @ 254 °C	605 psi g @ 489 °F
	JIS / KS	JIS / KS 20K	30.6 bar g @ 236 °C	
TMO Maximum operating temperature	**EN**	PN40	300 °C @ 27.6 bar g	
	ASME	ASME 150	425 °C @ 5.5 bar g	797 °F @ 80 psi g
		ASME 300	425 °C @ 28.8 bar g	797 °F @ 418 psi g
	JIS / KS	JIS / KS 20K	300 °C @ 20 bar g	
Minimum operating temperature	**EN**	PN40	-10 °C	
	ASME	ASME 150	-29 °C	-20 °F
		ASME 300	-29 °C	-20 °F
	JIS / KS	JIS / KS 20K	-10 °C	
Designed for a maximum cold hydraulic test pressure of:			1.5 x PMA of the relative end connection of choice	

Pressure/temperature limits – BCV4_

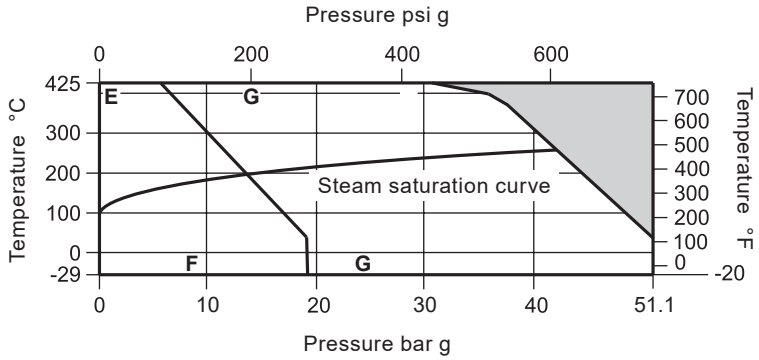
BCV41 Screwed BSP
BCV43 Flanged EN 1092



The product **must not** be used in this region.

A - A Flanged EN 1092 PN40 and Screwed BSP

BCV41 Screwed NPT
BCV42 Socket weld
BCV43 Flanged ASME

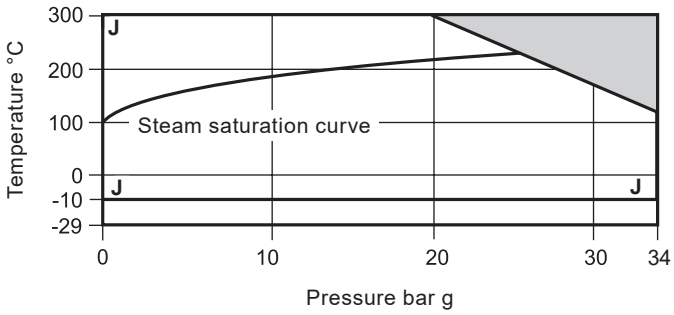


The product **must not** be used in this region.

E - F Flanged ASME class 150

E - G Flanged ASME class 300, Screwed NPT and Socket weld class 3000 (B 16.11)

BCV43 Flanged JIS / KS



The product **must not** be used in this region.

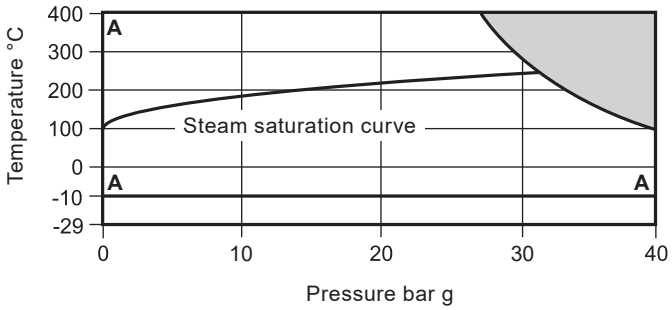
J - J Flanged JIS / KS 20K

Pressure/temperature limits – BCV6_

Body design conditions:			PN40, JIS / KS 20K	ASME class 150, class 300
PMA Maximum allowable pressure	**EN**	PN40	40 bar g @ 100 °C	
	ASME	ASME 150	19.0 bar g @ 38 °C	275 psi g @ 100 °F
		ASME 300	49.6 bar g @ 38 °C	719 psi g @ 100 °F
	JIS / KS	JIS / KS 20K	34 bar g @ 120 °C	
TMA Maximum allowable temperature	**EN**	PN40	400 °C @ 27.4 bar g	
	ASME	ASME 150	538 °C @ 1.4 bar g	1 000 °F @ 20 psi g
		ASME 300	538 °C @ 25.2 bar g	1 000 °F @ 365 psi g
	JIS / KS	JIS / KS 20K	425 °C @ 20 bar g	
Minimum allowable temperature	**EN**	PN40	-10 °C	
	ASME	ASME 150	-29 °C	-20 °F
		ASME 300	-29 °C	-20 °F
	JIS / KS	JIS / KS 20K	-10 °C	
PMO Maximum operating pressure for saturated steam service	**EN**	PN40	32.2 bar g @ 240 °C	
	ASME	ASME 150	13.8 bar g @ 197 °C	200 psi g @ 386 °F
		ASME 300	33.8 bar g @ 242 °C	490 psi g @ 467 °F
	JIS / KS	JIS / KS 20K	30.6 bar g @ 236 °C	
TMO Maximum operating temperature	**EN**	PN40	400 °C @ 27.4 bar g	
	ASME	ASME 150	538 °C @ 1.4 bar g	1 000 °F @ 20 psi g
		ASME 300	538 °C @ 25.2 bar g	1 000 °F @ 365 psi g
	JIS / KS	JIS / KS 20K	425 °C @ 20 bar g	
Minimum operating temperature	**EN**	PN40	-10 °C	
	ASME	ASME 150	-29 °C	-20 °F
		ASME 300	-29 °C	-20 °F
	JIS / KS	JIS / KS 20K	-10 °C	
Designed for a maximum cold hydraulic test pressure of:			1.5 x PMA of the relative end connection of choice	

Pressure/temperature limits – BCV6_

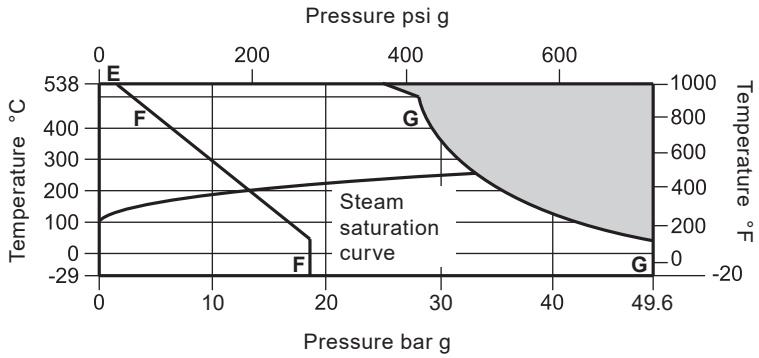
BCV61 Screwed BSP
BCV63 Flanged EN 1092



The product **must not** be used in this region.

A - A Flanged EN 1092 PN40 and Screwed BSP

BCV61 Screwed NPT
BCV62 Socket weld
BCV63 Flanged ASME

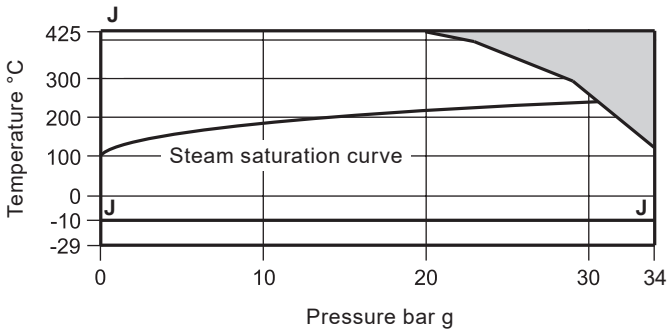


The product **must not** be used in this region.

E - F Flanged ASME class 150

E - G Flanged ASME class 300, Screwed NPT and Socket weld class 3000 (B 16.11)

BCV63 Flanged JIS / KS



The product **must not** be used in this region.

J - J Flanged JIS / KS 20K

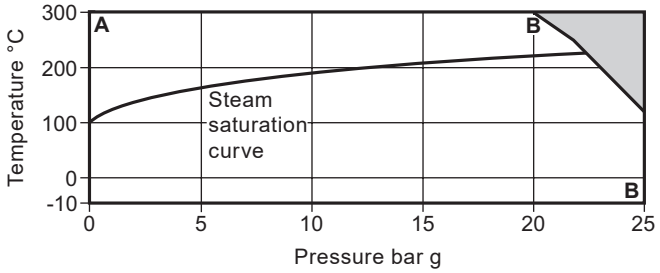
Pressure/temperature limits – BCV7_

Body design conditions:			PN25	ASME class 125 or ASME class 250
			JIS / KS 10K	
PMA Maximum allowable pressure	**EN**	PN25	25.0 bar g @ 120 °C	
	ASME	ASME 125	11.5 bar g @ 140 °C	166 psi g @ 284 °F
		ASME 250	26.7 bar g @ 140 °C	387 psi g @ 284 °F
	JIS / KS	JIS / KS 10K	13.7 bar g @ 120 °C	
TMA Maximum allowable temperature	**EN**	PN25	300 °C @ 20 bar g	
	ASME	ASME 125	232 °C @ 8.6 bar g	449 °F @ 125 psi g
		ASME 250	232 °C @ 17.2 bar g	449 °F @ 249 psi g
	JIS / KS	JIS / KS 10K	300 °C @ 9.8 bar g	
Minimum allowable temperature	**EN**	PN25	-10 °C	
	ASME	ASME 125	-29 °C	-20 °F
		ASME 250	-29 °C	-20 °F
	JIS / KS	JIS / KS 10K	-10 °C	
PMO Maximum operating pressure for saturated steam service	**EN**	PN25	22.5 bar g @ 220 °C	
	ASME	ASME 125	10.0 bar g @ 184 °C	145 psi g @ 363 °F
		ASME 250	18.0 bar g @ 209 °C	261 psi g @ 408 °F
	JIS / KS	JIS / KS 10K	12.3 bar g @ 191 °C	
TMO Maximum operating temperature	**EN**	PN25	300 °C @ 20.0 bar g	
	ASME	ASME 125	232 °C @ 8.6 bar g	449 °F @ 125 psi g
		ASME 250	232 °C @ 17.2 bar g	449 °F @ 249 psi g
	JIS / KS	JIS / KS 10K	300 °C @ 9.8 bar g	
Minimum operating temperature	**EN**	PN25	-10 °C	
	ASME	ASME 125	-29 °C	-20 °F
		ASME 250	-29 °C	-20 °F
	JIS / KS	JIS / KS 10K	-10 °C	

Designed for a maximum cold hydraulic test pressure of: 1.5 x PMA of the relative end connection of choice

Pressure/temperature limits – BCV7_

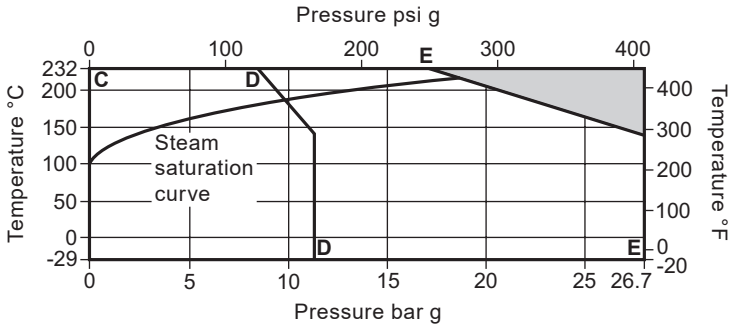
BCV71 Screwed BSP
BCV73 Flanged EN 1092



The product **must not** be used in this region.

A - B Flanged EN 1092 PN25 and Screwed BSP

BCV71 Screwed NPT
BCV73 Flanged ASME

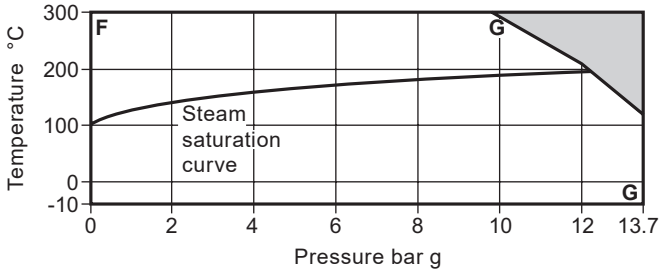


The product **must not** be used in this region.

C - D Flanged ASME class 125

C - E Flanged ASME class 250 and Screwed NPT

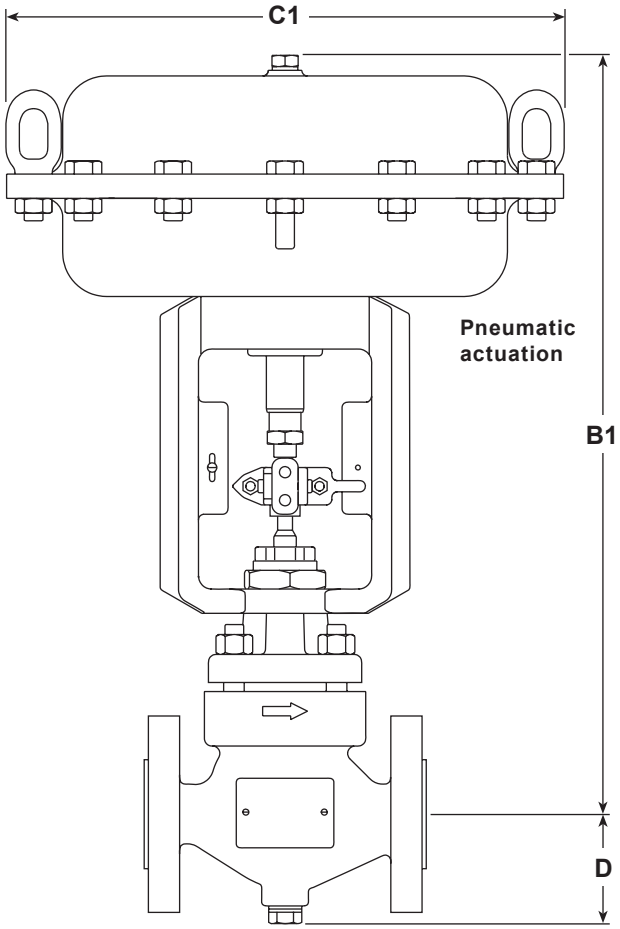
BCV73 Flanged JIS/KS

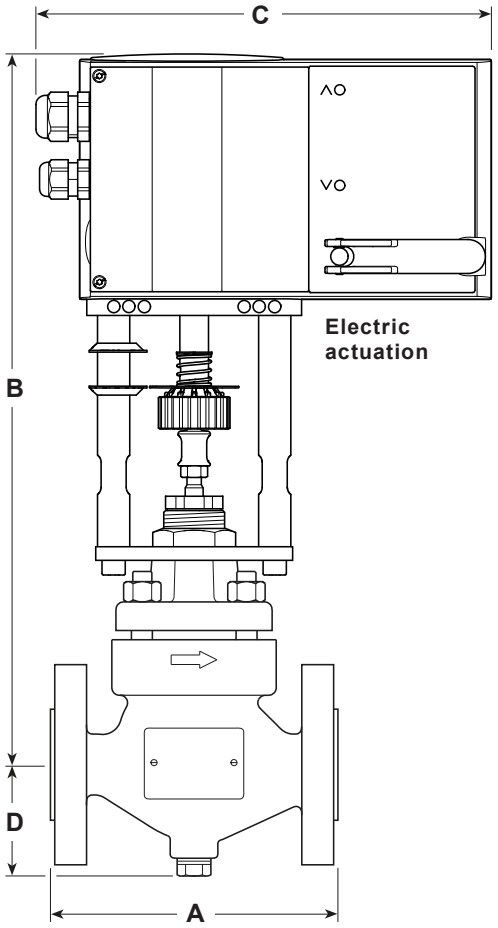


The product **must not** be used in this region.

F - G Flanged JIS/KS 10K

Dimensions (approximate) in mm





Size	ASME		PN		DN15	DN20	DN25	DN32	DN40	DN50
A	125			JIS/KS 10K	-	-	184	-	222	254
		300		JIS/KS 20K	190.5		197	-	235	267
			40		130	150	160	180	200	230
B	125			JIS/KS 10K JIS/KS 20K	392			421		416
		300								
			40							
B1	125			JIS/KS 10K JIS/KS 20K	378			432		427
		300								
			40							
C					230					
C1					170			300		
D	125			JIS/KS 10K JIS/KS 20K	42.5	57.0	54.5	65.5	76.5	84.5
		300								
			40							

Weights (approximate) in kg

Size	ASME		PN			DN15	DN20	DN25	DN32	DN40	DN50
Electric version	125				JIS/KS 10K JIS/KS 20K	12	12.8	13	19.5	20	23
		300									
			40								
Pneumatic version	125				JIS/KS 10K JIS/KS 20K	12	12.8	13	30.5	31	34
		300									
			40								

Kvs values

Valve size	DN15	DN20	DN25	DN32	DN40	DN50
Kvs value	0.5	0.5	0.5	1.6	1.6	1.6

For conversion:
Cv (UK) = Kv x 0.963
Cv (US) = Kv x 1.156

BCV selection guide

Valve size	DN15, DN20, DN25, DN32, DN40 and DN50 ½", ¾", 1", 1¼", 1½" and 2"		**DN15**
Valve series	**BCV**		**BCV**
Body material	**4** = Carbon steel **6** = Stainless steel **7** = SG iron		**4**
Connections	**1** = Screwed **2** = Socket weld - Not available for the BCV7_ **3** = Flanged		**3**
Stem sealing	**H** = Graphite		**H**
Seating	**W** = Stainless Steel 316L with Stellite		**W**
Type of trim	**S** = Standard trim		**S**
Trim-balancing	**U** = Unbalanced		**U**
Bonnet type	**S** = Standard		**S**
Bolting	**S** = Standard		**S**
Flow coefficient	To be specified		**Kvs 0.5**
Connection type	To be specified		**Flanged ASME 300**
Actuation	**PN** = Pneumatic		**PN**
	EL = Electrical	230 Vac,	
		110 Vac or	
		24 Vac/dc	

Selection example

DN15	-	BCV	4	3	H	W	S	U	S	S	-	Kvs 0.5	-	Flanged ASME 300	PN

How to order

Example: 1 off Spirax Sarco DN15 BCV43 pneumatically actuated control valve having flanged ASME 300 connections.

Safety information, installation and maintenance

For full details see the Installation and Maintenance Instructions (IM-P403-103) supplied with the product.

Installation note: The blowdown control valve should preferably be installed with the actuator vertically above the pipework and the flow direction as indicated on the valve body. It can be fitted in other positions, but not upside down.

Disposal: This product is recyclable. No ecological hazard is anticipated with the disposal of the product, providing due care is taken.

Spare parts

The spare parts available are detailed below. No other parts are supplied as spares.

Please note that the spare parts available for the BCV blowdown control valve are the same for both the electrically and pneumatically actuated versions.

Available spares

Actuator clamping nut (Only for high pressure version)		**A**
Gasket set		**B, G**
Stem seal kits	Graphite packing	**C1**
Plug stem and seat kit	Linear trim (No gaskets supplied)	**D2, E**

How to order spares

Always order spares by using the description given in the column headed 'Available spares', and state the size and type of valve and specify clearly the full product description as found on the label of the blowdown control valve body, as this will ensure that the correct spare parts are supplied.

Example: 1 off Actuator clamping nut for a Spirax Sarco DN15 BCV43 blowdown control valve.