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spirax sarco

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 have been specifically 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:

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

Available models:

Material	Connections			
	Screwed	Socket weld	Flanged	Butt weld
Carbon steel	**BCV41**	**BCV42**	**BCV43**	**BCV44**
Stainless steel	**BCV61**	**BCV62**	**BCV63**	**BCV64**
SG iron	**BCV71**		**BCV73**	
Alloy steel		**BCV82**	**BCV83**	**BCV84**

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 and positioners:

Version	Actuator	Positioners
Electric	AHL1 series	
Pneumatic	PN9_ _ _ series	PP5 (pneumatic)
		EP5 (electropneumatic)
		ISP5 (intrinsically safe electropneumatic)
		SP200is, SP400 and SP500 (microprocessor based electropneumatic)
		SP300 (digital communications)

Standards
These products fully comply with the requirements of the European Pressure Equipment Directive 97 / 23 / EC.

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.

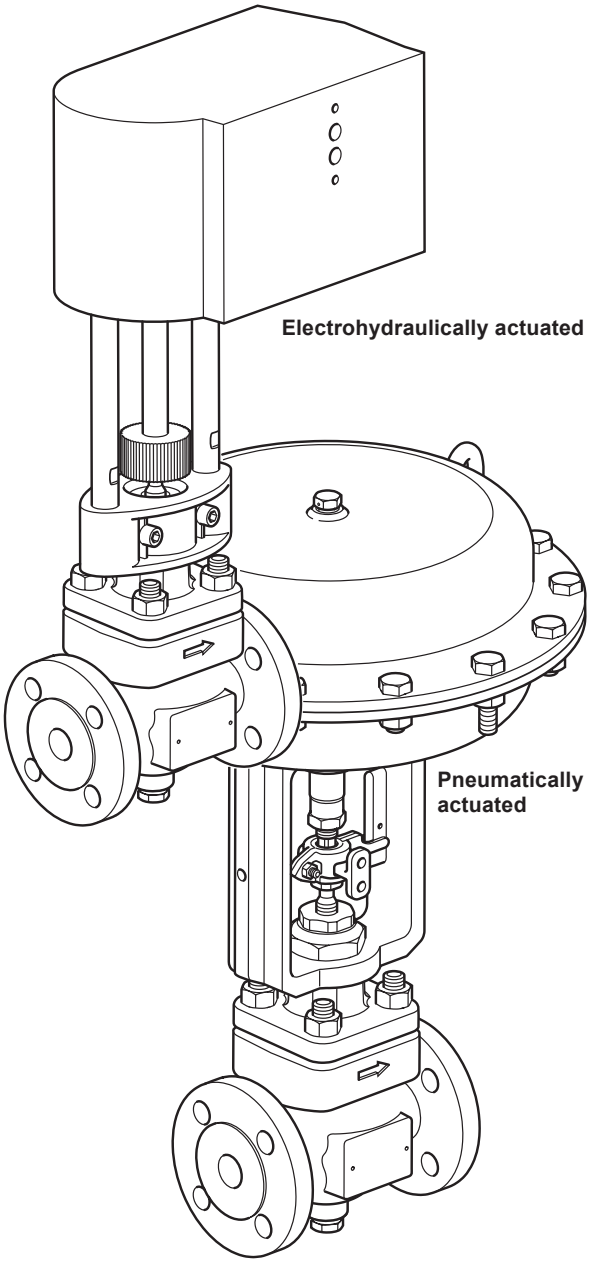
Operation

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.

Size and pipe connections

½", ¾", 1", 1¼", 1½" and 2" Screwed BSP or NPT, Socket weld and Butt weld.

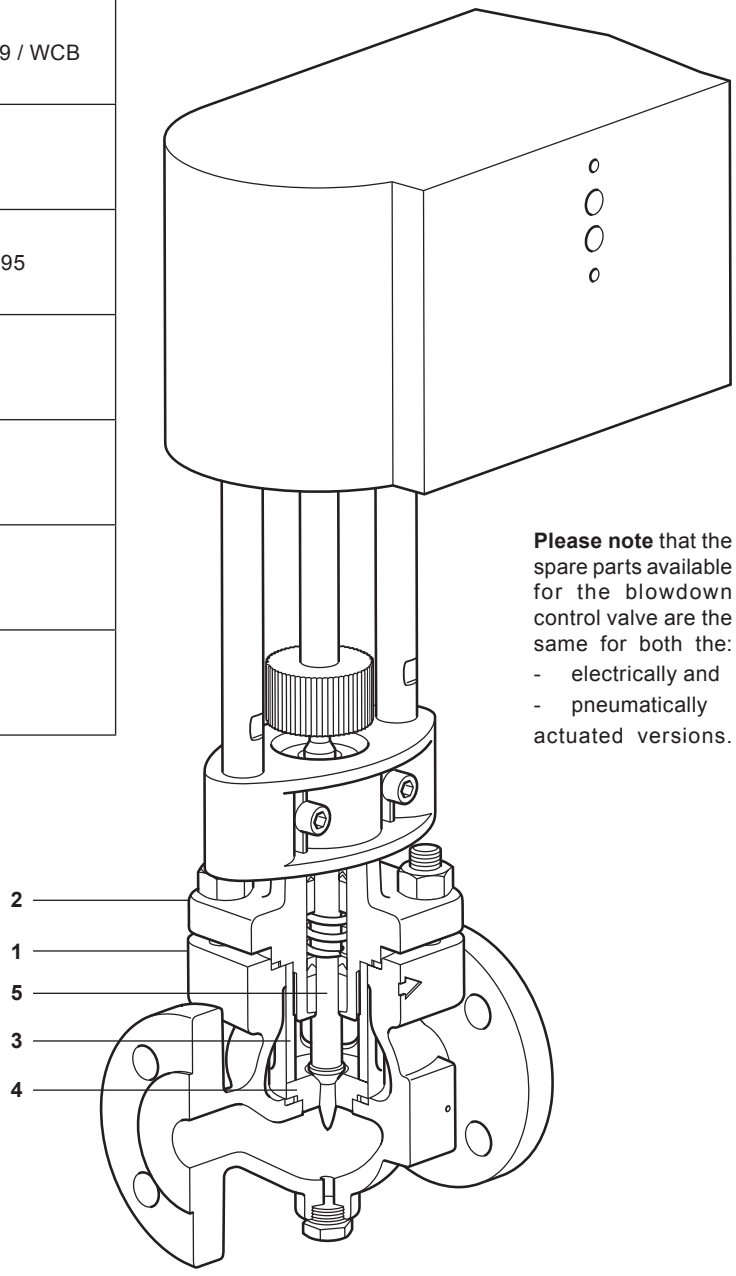
DN15, DN20, DN25, DN32, DN40 and DN50 Flanged:
EN 1092 PN25, PN40, PN63 and PN100
ASME class 125, 150, 250, 300 and 600
JIS / KS 10K, 20K, 30K and 40K



Materials

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

No.	Part	Material	
1.	**Body**	Carbon steel	1.0619+N / WCB
		Stainless steel	1.4408 / CF8M
		SG iron	EN-GJS-400-18-LT / A395
		Alloy steel	1.7357 / WC6
2.	**Bonnet**	Forged steel	1.0460 / A105N or 1.0619 / WCB
		Stainless steel	1.4408 / CF8M
		SG iron	EN-GJS-400-18-LT / A395
		Alloy steel	1.7357 / WC6
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	AHL1 series
Supply voltage	Standard 24 Vac, Optional card 230 Vac and 110 Vac
Supply frequency	50 to 60 Hz
Power consumption	10 to 18
Actuator speed	2 mm/s, 4 mm/s or 6 mm/s
Actuators thrust maximum	2 kN
Maximum shut-off value	42 bar g

Size	Actuator	Maximum shut-off value
DN15 to DN25 ½" to 1"	AHL1 series / PN9123E	42 bar g
DN32 to DN50 1¼" to 2"	AHL1 series / PN9223E	

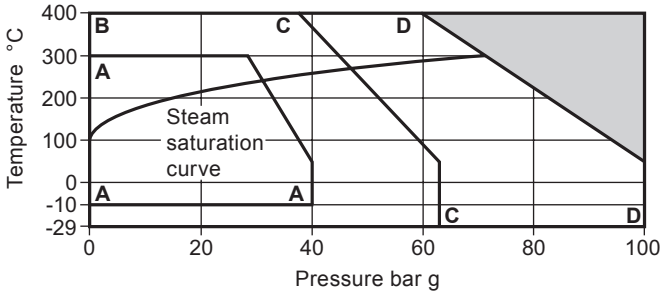
Pressure / temperature limits – BCV4_

Body design conditions:			PN40, PN63 or PN100 JIS/KS 20K, 30K or 40K	ASME class 150, class 300 or ASME class 600
PMA Maximum allowable pressure	**EN**	PN40	40 bar g @ 50 °C	
		PN63	63 bar g @ 50 °C	
		PN100	100 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
		ASME 600	102.1 bar g @ 38 °C	1480 psi g @ 100 °F
	JIS/KS	JIS/KS 20K	34 bar g @ 120 °C	
		JIS/KS 30K	51 bar g @ 120 °C	
		JIS/KS 40K	68 bar g @ 120 °C	
TMA Maximum allowable temperature	**EN**	PN40	300 °C @ 27.6 bar g	
		PN63	400 °C @ 37.5 bar g	
		PN100	400 °C @ 59.5 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
		ASME 600	425 °C @ 57.5 bar g	797 °F @ 834 psi g
	JIS/KS	JIS/KS 20K	300 °C @ 20 bar g	
		JIS/KS 30K	425 °C @ 30 bar g	
		JIS/KS 40K	425 °C @ 40 bar g	
Minimum allowable temperature	**EN**	PN40	-10 °C	
		PN63	-29 °C	
		PN100	-29 °C	
	ASME	ASME 150	-29 °C	-20 °F
		ASME 300	-29 °C	-20 °F
		ASME 600	-29 °C	-20 °F
	JIS/KS	JIS/KS 20K	-10 °C	
		JIS/KS 30K	-29 °C	
		JIS/KS 40K	-29 °C	
PMO Maximum operating pressure for saturated steam service	**EN**	PN40	31.1 bar g @ 237 °C	
		PN63	47.0 bar g @ 261 °C	
		PN100	70.8 bar g @ 287 °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
		ASME 600	80.0 bar g @ 295 °C	1160 psi g @ 563 °F
	JIS/KS	JIS/KS 20K	30.6 bar g @ 236 °C	
		JIS/KS 30K	44.6 bar g @ 258 °C	
		JIS/KS 40K	58.5 bar g @ 276 °C	
TMO Maximum operating temperature	**EN**	PN40	300 °C @ 27.6 bar g	
		PN63	400 °C @ 37.5 bar g	
		PN100	400 °C @ 59.5 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
		ASME 600	425 °C @ 57.5 bar g	797 °F @ 834 psi g
	JIS/KS	JIS/KS 20K	300 °C @ 20 bar g	
		JIS/KS 30K	425 °C @ 30 bar g	
		JIS/KS 40K	425 °C @ 40 bar g	
Minimum operating temperature	**EN**	PN40	-10 °C	
		PN63	-29 °C	
		PN100	-29 °C	
	ASME	ASME 150	-29 °C	-20 °F
		ASME 300	-29 °C	-20 °F
		ASME 600	-29 °C	-20 °F
	JIS/KS	JIS/KS 20K	-10 °C	
		JIS/KS 30K	-29 °C	
		JIS/KS 40K	-29 °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



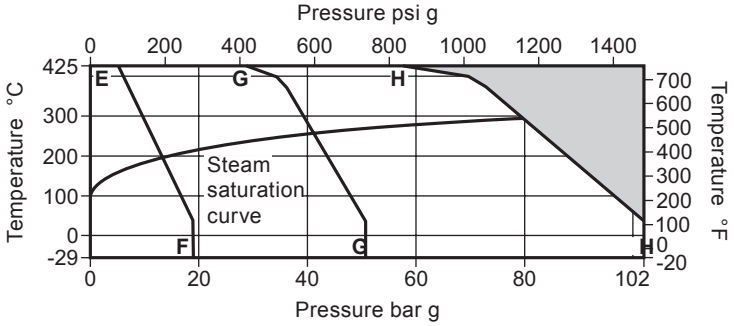
The product **must not** be used in this region.

A - **B** Flanged EN 1092 PN40 and Screwed BSP

B - **C** Flanged EN 1092 PN63

B - **D** Flanged EN 1092 PN100

BCV41 Screwed NPT
BCV42 Socket weld
BCV43 Flanged ASME
BCV44 Butt weld



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

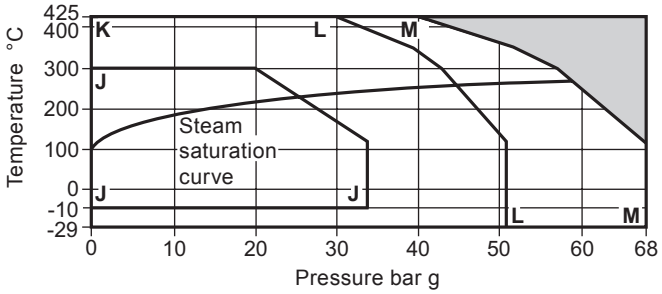
E - **F** Flanged ASME class 150

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

E - **H** Flanged ASME class 600, Socket weld class 6000 (B 16.11) and Butt weld

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BCV43 Flanged JIS / KS



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

J - **J** Flanged JIS/KS 20K

K - **K** Flanged JIS/KS 30K

L - **L** Flanged JIS/KS 40K

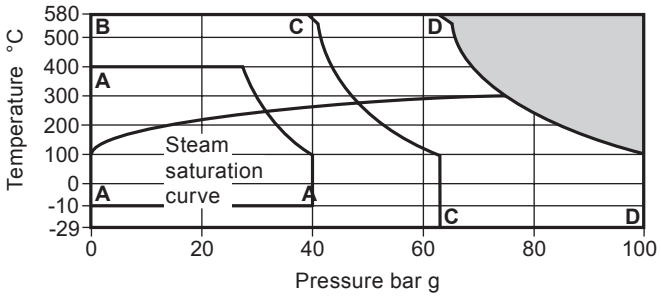
Pressure / temperature limits – BCV6_

Body design conditions:			PN40, PN63 or PN100 JIS/KS 20K, 30K or 40K	ASME class 150, class 300 or ASME class 600
PMA Maximum allowable pressure	**EN**	PN40	40 bar g @ 100 °C	
		PN63	63 bar g @ 100 °C	
		PN100	100 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
		ASME 600	99.3 bar g @ 38 °C	1440 psi g @ 100 °F
	JIS/KS	JIS/KS 20K	34 bar g @ 120 °C	
		JIS/KS 30K	51 bar g @ 120 °C	
		JIS/KS 40K	68 bar g @ 120 °C	
TMA Maximum allowable temperature	**EN**	PN40	400 °C @ 27.4 bar g	
		PN63	580 °C @ 39.5 bar g	
		PN100	580 °C @ 62.7 bar g	
	ASME	ASME 150	538 °C @ 1.4 bar g	1000 °F @ 20 psi g
		ASME 300	538 °C @ 25.2 bar g	1000 °F @ 365 psi g
		ASME 600	538 °C @ 50.0 bar g	1000 °F @ 725 psi g
	JIS/KS	JIS/KS 20K	425 °C @ 20 bar g	
		JIS/KS 30K	490 °C @ 30 bar g	
		JIS/KS 40K	490 °C @ 40 bar g	
Minimum allowable temperature	**EN**	PN40	-10 °C	
		PN63	-29 °C	
		PN100	-29 °C	
	ASME	ASME 150	-29 °C	-20 °F
		ASME 300	-29 °C	-20 °F
		ASME 600	-29 °C	-20 °F
	JIS/KS	JIS/KS 20K	-10 °C	
		JIS/KS 30K	-29 °C	
		JIS/KS 40K	-29 °C	
PMO Maximum operating pressure for saturated steam service	**EN**	PN40	32.2 bar g @ 240 °C	
		PN63	49.2 bar g @ 264 °C	
		PN100	75.1 bar g @ 291 °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
		ASME 600	64.6 bar g @ 281 °C	937 psi g @ 538 °F
	JIS/KS	JIS/KS 20K	30.6 bar g @ 236 °C	
		JIS/KS 30K	44.6 bar g @ 258 °C	
		JIS/KS 40K	58.5 bar g @ 276 °C	
TMO Maximum operating temperature	**EN**	PN40	400 °C @ 27.4 bar g	
		PN63	580 °C @ 39.5 bar g	
		PN100	580 °C @ 62.7 bar g	
	ASME	ASME 150	538 °C @ 1.4 bar g	1000 °F @ 20 psi g
		ASME 300	538 °C @ 25.2 bar g	1000 °F @ 365 psi g
		ASME 600	538 °C @ 50.0 bar g	1000 °F @ 725 psi g
	JIS/KS	JIS/KS 20K	425 °C @ 20 bar g	
		JIS/KS 30K	490 °C @ 30 bar g	
		JIS/KS 40K	490 °C @ 40 bar g	
Minimum operating temperature	**EN**	PN40	-10 °C	
		PN63	-29 °C	
		PN100	-29 °C	
	ASME	ASME 150	-29 °C	-20 °F
		ASME 300	-29 °C	-20 °F
		ASME 600	-29 °C	-20 °F
	JIS/KS	JIS/KS 20K	-10 °C	
		JIS/KS 30K	-29 °C	
		JIS/KS 40K	-29 °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



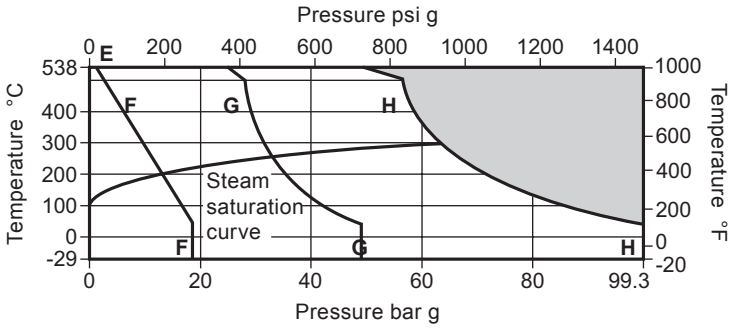
The product **must not** be used in this region.

A - **B** Flanged EN 1092 PN40 and Screwed BSP

B - **C** Flanged EN 1092 PN63

B - **D** Flanged EN 1092 PN100

BCV61 Screwed NPT
BCV62 Socket weld
BCV63 Flanged ASME
BCV64 Butt weld



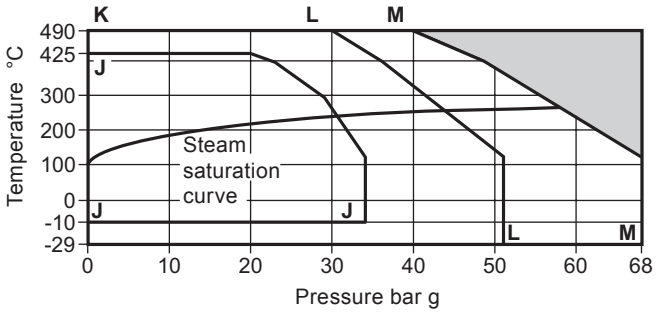
The product **must not** be used in this region.

E - **F** Flanged ASME class 150

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

E - **H** Flanged ASME class 600, Socket weld and Butt weld class 6000 (B 16.11)

BCV63 Flanged JIS / KS



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

J - **J** Flanged JIS/KS 20K

K - **L** Flanged JIS/KS 30K

K - **M** Flanged JIS/KS 40K

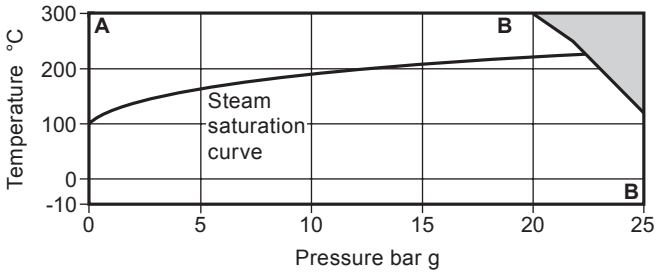
Pressure / temperature limits – BCV7_

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_

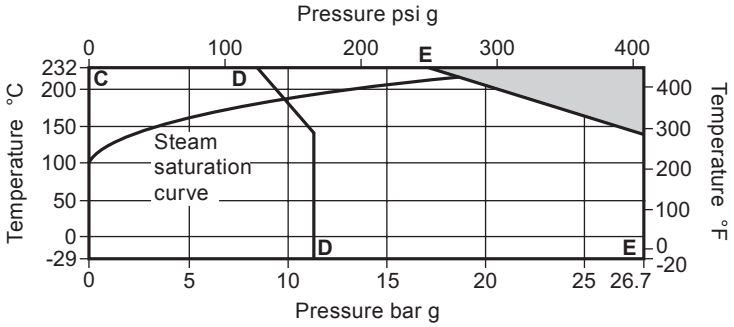
BCV71 Screwed BSP
BCV73 Flanged EN 1092



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

A - **B** Flanged EN 1092 PN25 and Screwed BSP

BCV71 Screwed NPT
BCV73 Flanged ASME

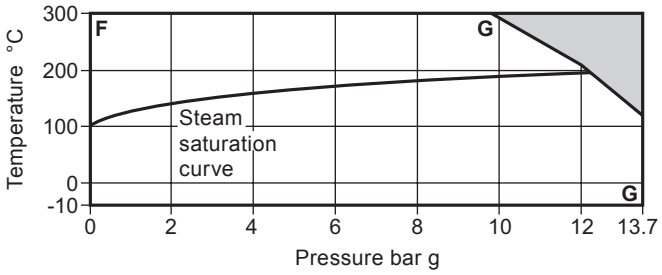


The product **must not** be used in this region.

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.

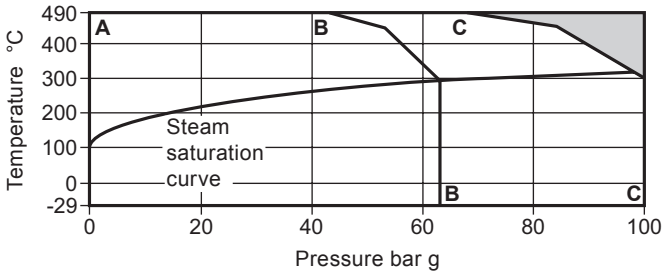
F - **G** Flanged JIS/KS 10K

Pressure / temperature limits – BCV8_

Body design conditions:			PN63 or PN100 JIS/KS 30K or 40K	ASME class 600
PMA Maximum allowable pressure	**EN**	PN63	63 bar g @ 300 °C	
		PN100	100 bar g @ 300 °C	
	ASME	ASME 600	103.4 bar g @ 50 °C	1 500 psi g @ 122 °F
	JIS/KS	JIS/KS 30K	51 bar g @ 120 °C	
		JIS/KS 40K	68 bar g @ 120 °C	
TMA Maximum allowable temperature	**EN**	PN63	490 °C @ 42.8 bar g	
		PN100	490 °C @ 68.0 bar g	
	ASME	ASME 600	538 °C @ 29.8 bar g	1 000 °F @ 432 psi g
	JIS/KS	JIS/KS 30K	490 °C @ 30.0 bar g	
		JIS/KS 40K	510 °C @ 40.0 bar g	
Minimum allowable temperature	**EN**	PN63	-29 °C	
		PN100	-29 °C	
	ASME	ASME 600	-29 °C	-20 °F
	JIS/KS	JIS/KS 30K	-29 °C	
		JIS/KS 40K	-29 °C	
PMO Maximum operating pressure for saturated steam service	**EN**	PN63	63.0 bar g @ 280 °C	
		PN100	99.0 bar g @ 310 °C	
	ASME	ASME 600	85.7 bar g @ 300 °C	1 243 psi g @ 572 °F
	JIS/KS	JIS/KS 30K	44.6 bar g @ 257 °C	
		JIS/KS 40K	58.6 bar g @ 274 °C	
TMO Maximum operating temperature	**EN**	PN63	490 °C @ 42.8 bar g	
		PN100	490 °C @ 68.0 bar g	
	ASME	ASME 600	538 °C @ 29.8 bar g	1 000 °F @ 432 psi g
	JIS/KS	JIS/KS 30K	490 °C @ 30.0 bar g	
		JIS/KS 40K	510 °C @ 40.0 bar g	
Minimum operating temperature	**EN**	PN63	-29 °C	
		PN100	-29 °C	
	ASME	ASME 600	-29 °C	-20 °F
	JIS/KS	JIS/KS 30K	-29 °C	
		JIS/KS 40K	-29 °C	
Designed for a maximum cold hydraulic test pressure of:			1.5 x PMA of the relative end connection of choice	

Pressure / temperature limits – BCV8_

BCV83 Flanged EN 1092

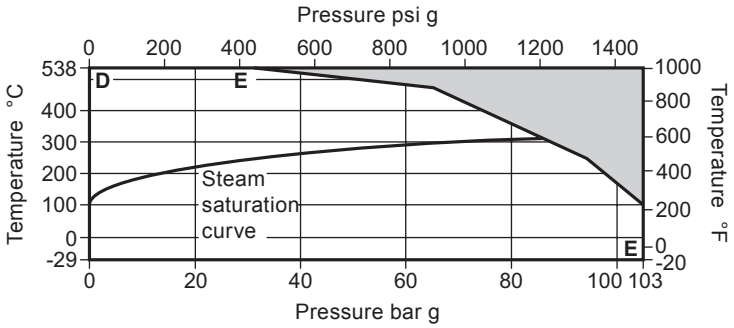


The product **must not** be used in this region.

A - **B** Flanged EN 1092 PN63

A - **C** Flanged EN 1092 PN100

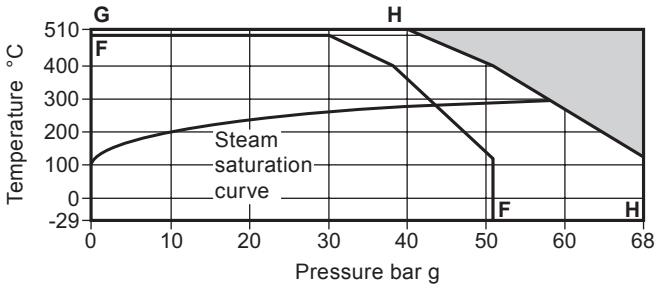
BCV82 Socket weld
BCV83 Flanged ASME
BCV84 Butt weld



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

D - E Flanged ASME class 600, socket weld and butt weld

BCV83 Flanged JIS / KS



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

F - **F** Flanged JIS/KS 20K

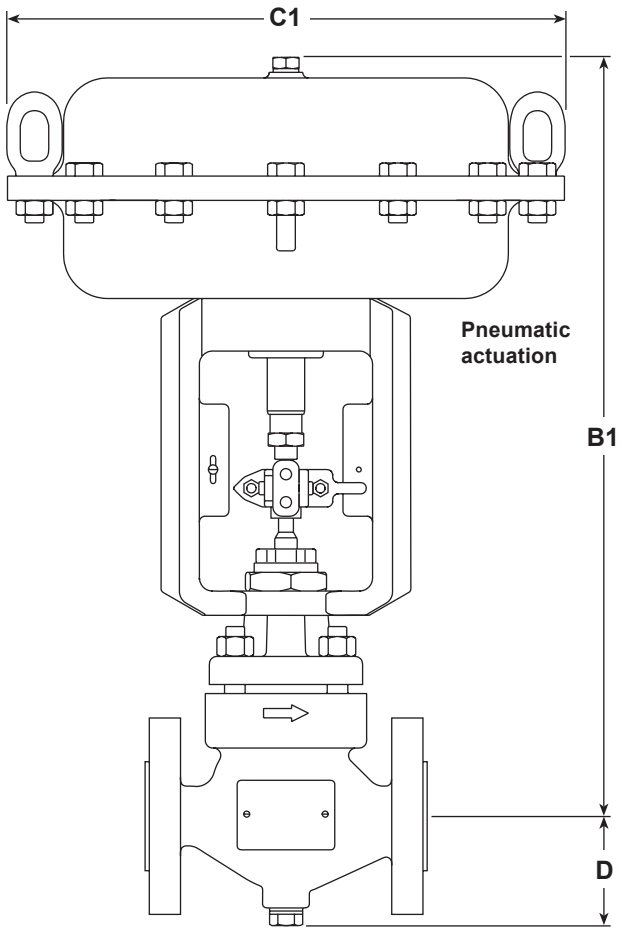
G - **H** Flanged JIS/KS 30K

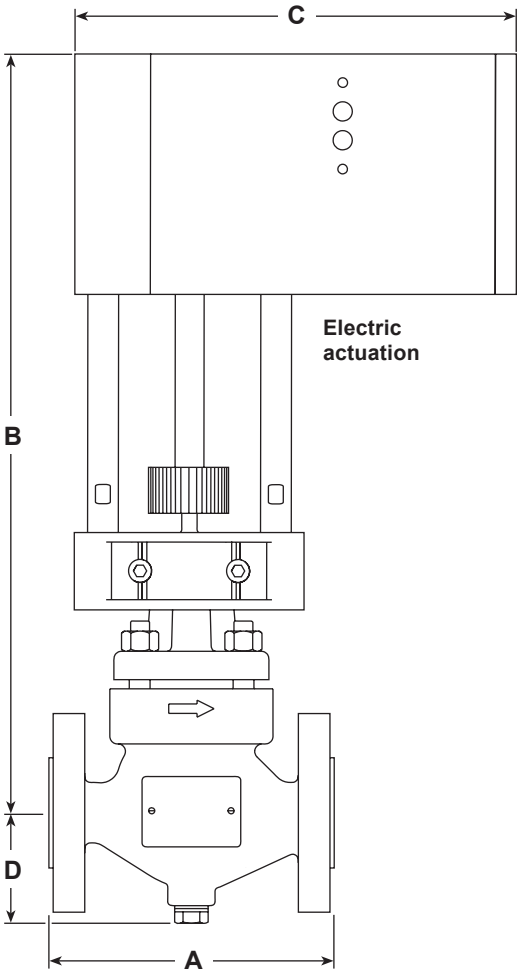
K_{VS} values

Valve size	DN15	DN20	DN25	DN32	DN40	DN50
K_{VS} value	0.5	0.5	0.5	1.6	1.6	1.6

For conversion: C_V (UK) = K_V x 0.963 C_V (US) = K_V x 1.156

Size	ASME			PN			DN 15	DN 20	DN 25	DN 32	DN 40	DN 50
A	125					JIS/KS 10K	-	-	184	-	222	254
		300				JIS/KS 20K	190.5		197	-	235	267
			600			JIS/KS 30K JIS/KS 40K	203	206	210	251	251	286
				40			130	150	160	180	200	230
					100		210	230		260	260	300
B	125					JIS/KS 10K JIS/KS 20K	392			421		416
		300										
				40								
			600		100	JIS/KS 30K JIS/KS 40K	422			449		
B1	125					JIS/KS 10K JIS/KS 20K	378			432		427
		300										
				40								
			600		100	JIS/KS 30K JIS/KS 40K	408			460		
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								
			600		100	JIS/KS 30K JIS/KS 40K	49.5		56.5	71.5		85.5
Weight												
Electric version	125					JIS/KS 10K JIS/KS 20K	12	12.8	13	19.5	20	23
		300										
				40								
			600		100	JIS/KS 30K JIS/KS 40K	16	18	19	25	28	33
Pneumatic version	125					JIS/KS 10K JIS/KS 20K	12	12.8	13	30.5	31	34
		300										
				40								
			600		100	JIS/KS 30K JIS/KS 40K	16	18	19	36	39	44





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 **8** = Alloy steel	**4**
Connections	**1** = Screwed - Not available for the BCV8_ **2** = Socket weld - Not available for the BCV7_ **3** = Flanged **4** = Butt weld - Not available for the BCV7_	**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	**K_{VS} 0.5**
Connection type	To be specified	**Flanged ASME 300**
Actuation	**PN** = Pneumatic **EL** = Electrical 230 Vac, 110 Vac or 24 Vac	**PN**

Selection example

DN15	-	**BCV**	**4**	**3**	**H**	**W**	**S**	**U**	**S**	**S**	-	**K_{VS} 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		**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.

