

ABV40i Air Actuated Boiler Blowdown Valve

Description

The Spirax Sarco ABV40i one piece end entry, reduced bore ball valve is fitted with a 90° rotary spring return pneumatic actuator, for boiler blowdown duties. It is used in conjunction with a Spirax Sarco blowdown timer to provide timed control of bottom blowdown, ensuring that the recommended boiler blowdown cycles occur with minimum heat loss, avoiding duplication or omission. The pneumatic actuator, (which can also be operated with other non-corrosive gases), moves through 90° to open the valve, and has a spring return fail-close operation. A switch box is mounted on the actuator, and either or both microswitches may be wired to a Building Management System if required.

Note: The BT1050 blowdown timer uses one switch only to indicate 'valve fully closed' or 'valve not fully closed' positions, and does not indicate that the valve has opened fully. A solenoid valve is required, which may be directly mounted to the NAMUR (VDI/VDE 3845) interface on the actuator. A suitable solenoid valve may be selected from the Spirax Sarco MV range. Alternatively, an air supply may be connected directly to the actuator port 'A' (1/4" BSP), where it is necessary to install the solenoid valve remote from the actuator. A standard 1/4" BSP 3-way solenoid valve may also be used.

3-port/2-way NAMUR mounting solenoid types:

MV11 - 230 Vac, **MV12** - 110 Vac, **MV13** - 24 Vac, **MV14** - 24 Vdc

The ABV40i must be installed with the flow in the direction of the arrow on the body.

Principal features:

- Automatic timed blowdown minimises wasted heat.
- Suitable for boiler pressures up to 250.1 psig (17.25 bar).
- Spring return for fail-safe operation.
- Pneumatic actuator for fast response.

Standards

These products comply with the requirements of the European Pressure Equipment Directive 97/23/EC and carries the CE mark when so required.

ISO mounting in accordance with ISO 5211.

Antistatic device complying with ISO 7121 and BS 5351.

Certification

These products are available with certification to EN 10204 3.1.

Note: All certification/inspection requirements must be stated at the time of order placement.

Sizes and pipe connections

1" (DN25), 1¼" (DN32), 1½" (DN40), 2" (DN50) and 2½" (DN65)

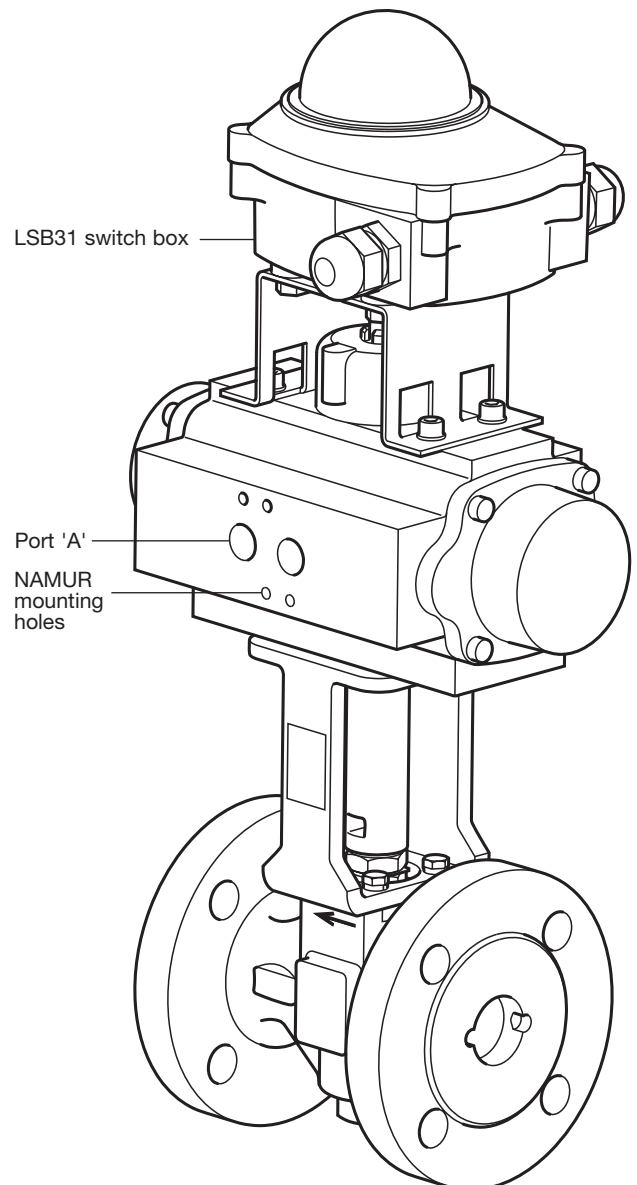
ASME (ANSI) B 16.5 Class 300.

Available flange options:

Flange	Face-to-face	Flange thickness
PN40 (F4)	DIN 3002 F4	EN 1092 Part 1
ASME (ANSI) 300	ASME B 16.10	ASME B 16.5

Technical data

Operating time (full stroke)	0.25 - 0.6 seconds		
Operating media	Clean compressed air Non-corrosive gas		
Compressed air consumption @ 87 psig (6 bar g)	DN25 1"	BVA315S/14 actuator	0.0071 ft ³ / stroke
	DN32 1¼"	BVA320S/14 actuator	0.0212 ft ³ / stroke
	DN40 1½" DN50 2"	BVA325S/14 actuator	0.0283 ft ³ / stroke
	DN65 2½"	BVA330S/14 actuator	0.0388 ft ³ / stroke
LSB31 switch rating	10 A 250 Vac		
Protection rating	IP67		
Switch sensor	Mechanical 2 - SPDT		



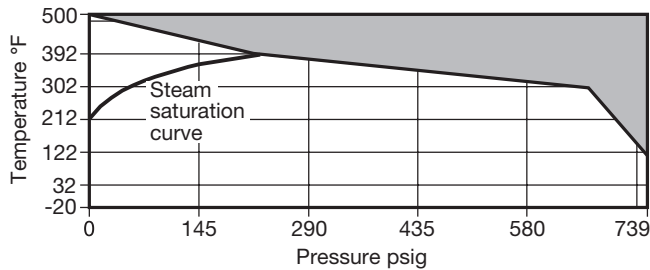
Local regulation may restrict the use of this product below the conditions quoted. Limiting conditions refer to standard connections only.
In the interests of development and improvement of the product, we reserve the right to change the specification.

TI-P405-45-US 7.17

ABV40i Air Actuated Boiler Blowdown Valves

Pressure / temperature limits

ABV40i



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

Valve

Body design conditions	ASME (ANSI) 300
PMA Maximum allowable pressure	740 psig @ 100°F (51 bar g @ 38°C)
TMA Maximum allowable temperature	500°F @ 0 psig (260°C @ 0 bar g)
Minimum allowable temperature	-20°F (-29°C)
PMO Maximum operating pressure for saturated steam service	250.1 psig (17.25 bar g)
TMO Maximum operating temperature	500°F @ 0 psig (260°C @ 0 bar g)
Minimum operating temperature	-20°F (-29°C)
Note: For lower operating temperatures consult Spirax Sarco	
ΔPMX Maximum differential pressure is limited to the PMO	
Designed for a maximum cold hydraulic test pressure of:	1109 psig (76.5 bar g)

Actuator

Maximum ambient temperature	176°F (80°C)
Minimum ambient temperature	32°F (0°C)
Maximum air supply pressure	116 psig (8 bar g)
Minimum air supply pressure	Depends on operating conditions

MV series solenoid

Maximum ambient temperature	122°F (50°C)
Minimum ambient temperature	32°F (0°C)

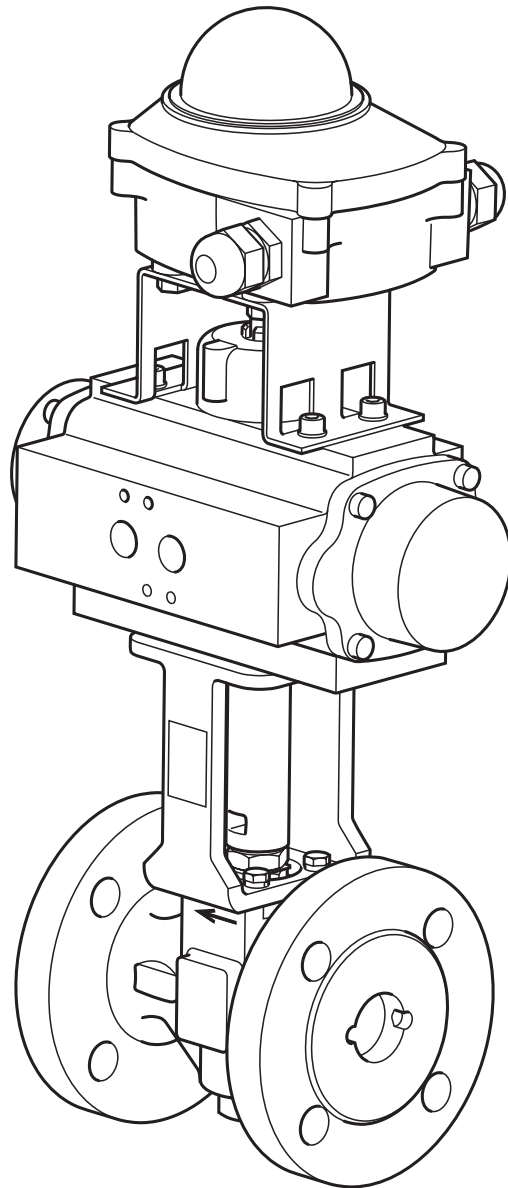
Valve coefficients

Size	DN25 1"	DN32 1¼"	DN40 1½"	DN50 2"	DN65 2½"
Cv value	34.6	46.2	93.6	119.1	227.8

Materials

Valve

Body and insert	Zinc plated carbon steel	ASTM A216 WCB
Stem seals	Antistatic R-PTFE	
Vented ball	Austenitic stainless steel	AISI 316
Stem	DN65 2½"	Austenitic stainless steel AISI 316
	DN25 - DN50 1" - 2"	Martensitic stainless steel AISI 420
Seats	Carbon and graphite reinforced PTFE	PDR 0.8



Actuator

Body, piston and end caps	Aluminium - anodised
Pinion	Carbon steel - nickel plated
'O' ring seals	Nitrile rubber

How to specify

Air actuated ball valve, DN40 (1½"), PN40 (ANSI 300) with carbon reinforced seats, 90 degree rotary pneumatic actuator and switch box. NAMUR compatible solenoid valve 220 / 240 Vac.

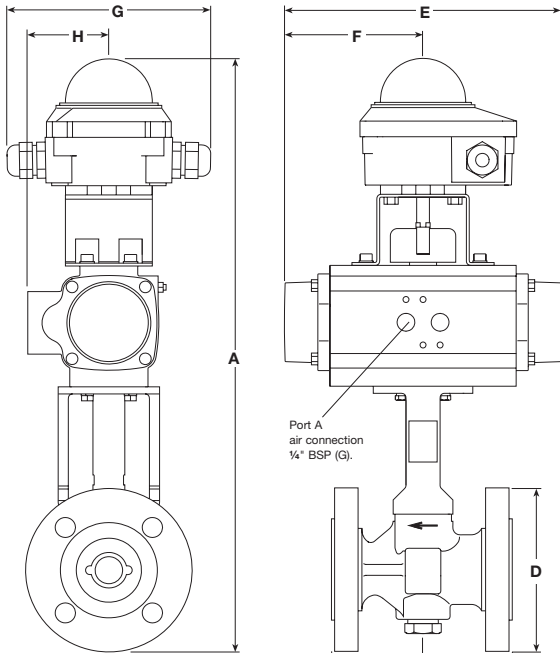
How to order

Example: 1 off Spirax Sarco DN40 (1½"), ABV40i air actuated boiler blowdown valve having ANSI 300 flanged connections plus 1 off MV11 solenoid valve 220 / 240 Vac.

ABV40i Air Actuated Boiler Blowdown Valves

Dimensions / weights approximate in inches and pounds

Valve size	Actuator type	Flange	A	B	C	D	E	F	G	H	Weight
DN25 (1")	BVA315S/14	PN40 (F4)	16.42" (417mm)	4.92" (125mm)	2.48" (63mm)	4.53" (115mm)	7.72" (196mm)	3.86" (98mm)	5.51" (140mm)	2.20" (56mm)	14.77lbs (6.7kg)
		Class 300	16.57" (421mm)	6.49" (165mm)	4.06" (103mm)	4.88" (124mm)	7.72" (196mm)	3.86" (98mm)	5.51" (140mm)	2.20" (56mm)	14.99lbs (6.8kg)
DN32 (1¼")	BVA320S/14	PN40 (F4)	17.95" (456mm)	5.12" (130mm)	2.56" (65mm)	5.51" (140mm)	8.54" (217mm)	4.27" (108.5mm)	5.51" (140mm)	2.60" (66mm)	20.28lbs (9.2kg)
		Class 300	17.72" (450mm)	7.01" (178mm)	2.56" (65mm)	5.28" (134mm)	8.54" (217mm)	4.27" (108.5mm)	5.51" (140mm)	2.60" (66mm)	20.72lbs (9.4kg)
DN40 (1½")	BVA325S/14	PN40 (F4)	18.70" (475mm)	5.51" (140mm)	2.76" (70mm)	5.91" (150mm)	10.16" (258mm)	5.08" (129mm)	5.51" (140mm)	2.80" (71mm)	25.79lbs (11.7kg)
		Class 300	18.82" (478mm)	7.48" (190mm)	4.72" (120mm)	6.14" (156mm)	10.16" (258mm)	5.08" (129mm)	5.51" (140mm)	2.80" (71mm)	28.66lbs (13kg)
DN50 (2")	BVA325S/14	PN40 (F4)	19.21" (488mm)	5.91" (150mm)	2.95" (75mm)	6.50" (165mm)	10.16" (258mm)	5.08" (129mm)	5.51" (140mm)	2.80" (71mm)	31.09lbs (14.1kg)
		Class 300	19.21" (488mm)	8.50" (216mm)	5.55" (141mm)	6.50" (165mm)	10.16" (258mm)	5.08" (129mm)	5.51" (140mm)	2.80" (71mm)	33.29lbs (15.1kg)
DN65 (2½")	BVA330S/14	PN40 (F4)	20.87" (530mm)	6.69" (170mm)	3.54" (91mm)	7.28" (185mm)	11.77" (299mm)	5.89" (149.5mm)	5.51" (140mm)	3.07" (78mm)	45.64lbs (20.7kg)
		Class 300	20.98" (533mm)	9.49" (241mm)	6.38" (162mm)	7.52" (191mm)	11.77" (299mm)	5.89" (149.5mm)	5.51" (140mm)	3.07" (78mm)	51.37lbs (23.3kg)



Port A
air connection
¼" BSP (G).

Spare parts

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

Please note: There are no spares available for the switch box.

To ensure correct operation and maintain the warranty, use only Spirax Sarco original parts.

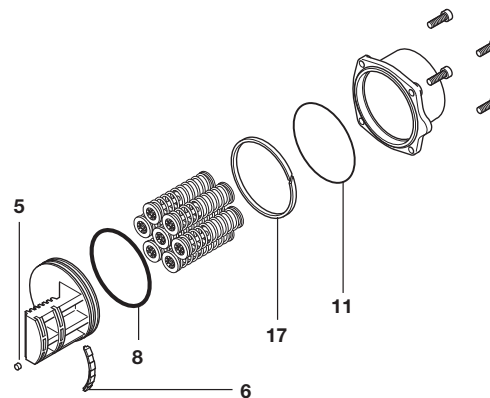
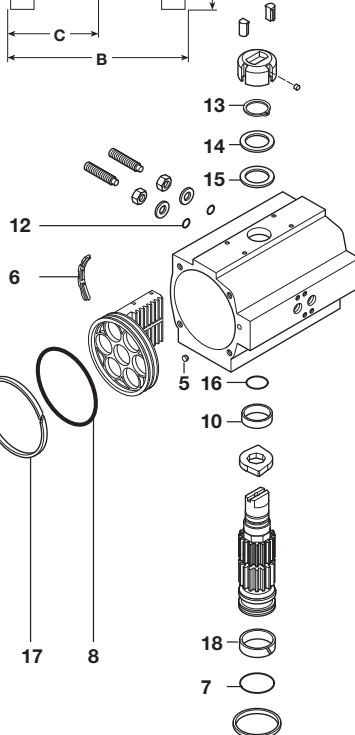
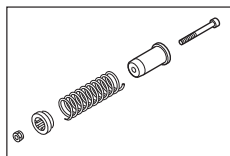
Before actioning any maintenance programme observe the 'Safety Information' in Section 1 of IM-P405-46 supplied with the unit.

Actuator

Spare parts for the BVA300S/14

The available spare parts for the BVA300S/14 are listed opposite. No other parts are available as spares.

Exploded view
of the spring set



Spare parts

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

Available spares

BVA300 series	'O' rings set (NBR)	7, 8, 11, 12, 16
maintenance kit	Pinion washers	13, 14, 15
	Others	5, 6, 10, 17, 18

How to order spares

Always order spares by using the description given in the column headed 'Available spares' and state the nomenclature of the pneumatic actuator that they are intended for.

Note: all the spares mentioned above are sold together in one spare part kit.

Example: 1 - BVA300 series maintenance kit with 'O' rings in NBR for a Spirax Sarco BVA320S/14 pneumatic actuator.

ABV40i Air Actuated Boiler Blowdown Valves

Valve

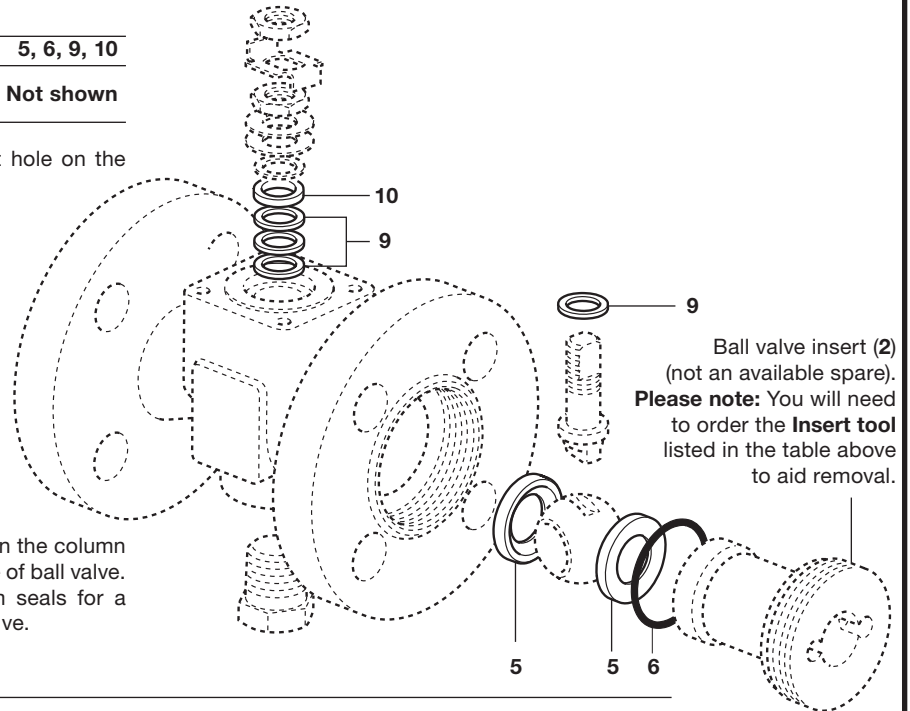
1" to 2" Spare parts

The spare parts available are shown in solid outline. Parts drawn in broken line are not supplied as spares.

Available spares

Seats, insert 'O' ring and stem seals	5, 6, 9, 10
Insert tool - Required to aid the removal of the ball valve insert (2)	Not shown

Caution - The ball must be installed with the vent hole on the upstream side of the valve.



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 ball valve.

Example: 1 set of seats, insert 'O' ring and stem seals for a Spirax Sarco DN50 (2") ABV40i boiler blowdown valve.

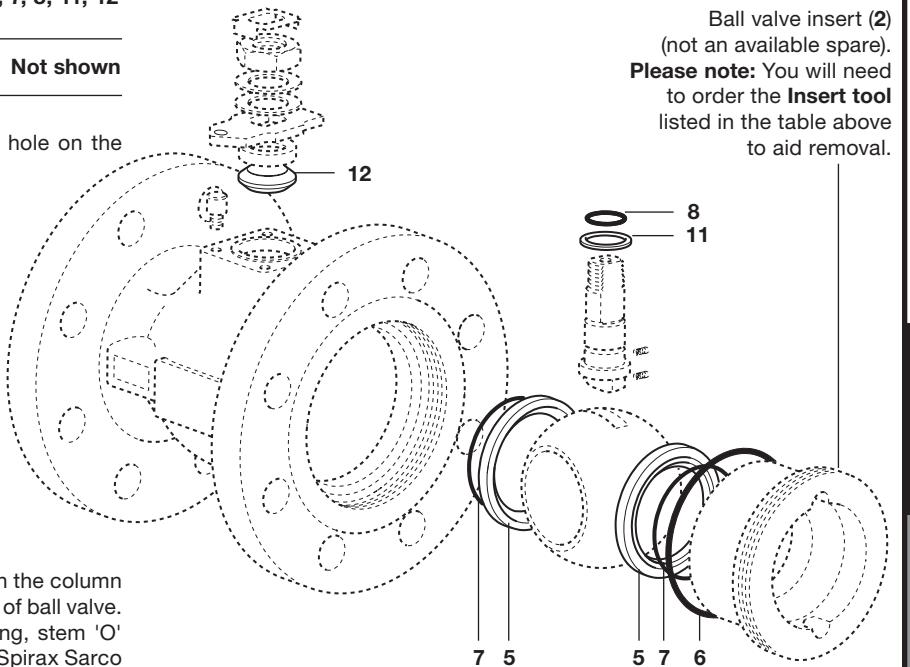
DN65 Spare parts

The spare parts available are shown in solid outline. Parts drawn in broken line are not supplied as spares.

Available spares

Seats, insert 'O' ring, seat 'O' ring, stem 'O' ring, lower stem seals and upper stem packing	5, 6, 7, 8, 11, 12
Insert tool - Required to aid the removal of the ball valve insert (2)	Not shown

Caution - The ball must be installed with the vent hole on the upstream side of the valve.



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 ball valve.

Example: 1 set of seats, insert 'O' ring, seat 'O' ring, stem 'O' ring, lower stem seals and upper stem packing for a Spirax Sarco DN50 (2") ABV40i boiler blowdown valve.