

# Automatic boiler blowdown systems

for time controlled bottom blowdown



**spirax**  
**/sarco**

# Automatic boiler b

## Time controlled bottom blowdown system

Even after careful feedwater treatment, boiler water still contains dissolved and suspended solids, which must be removed.

Control systems are often fitted to remove boiler water with high levels of total dissolved solids (TDS). Boilers also contain suspended solids such as scale and oxide particles which, if allowed to build up in the bottom of the boiler, may cause:

- blocked blowdown connections,
- impaired heat transfer,
- hotspots and boiler damage.

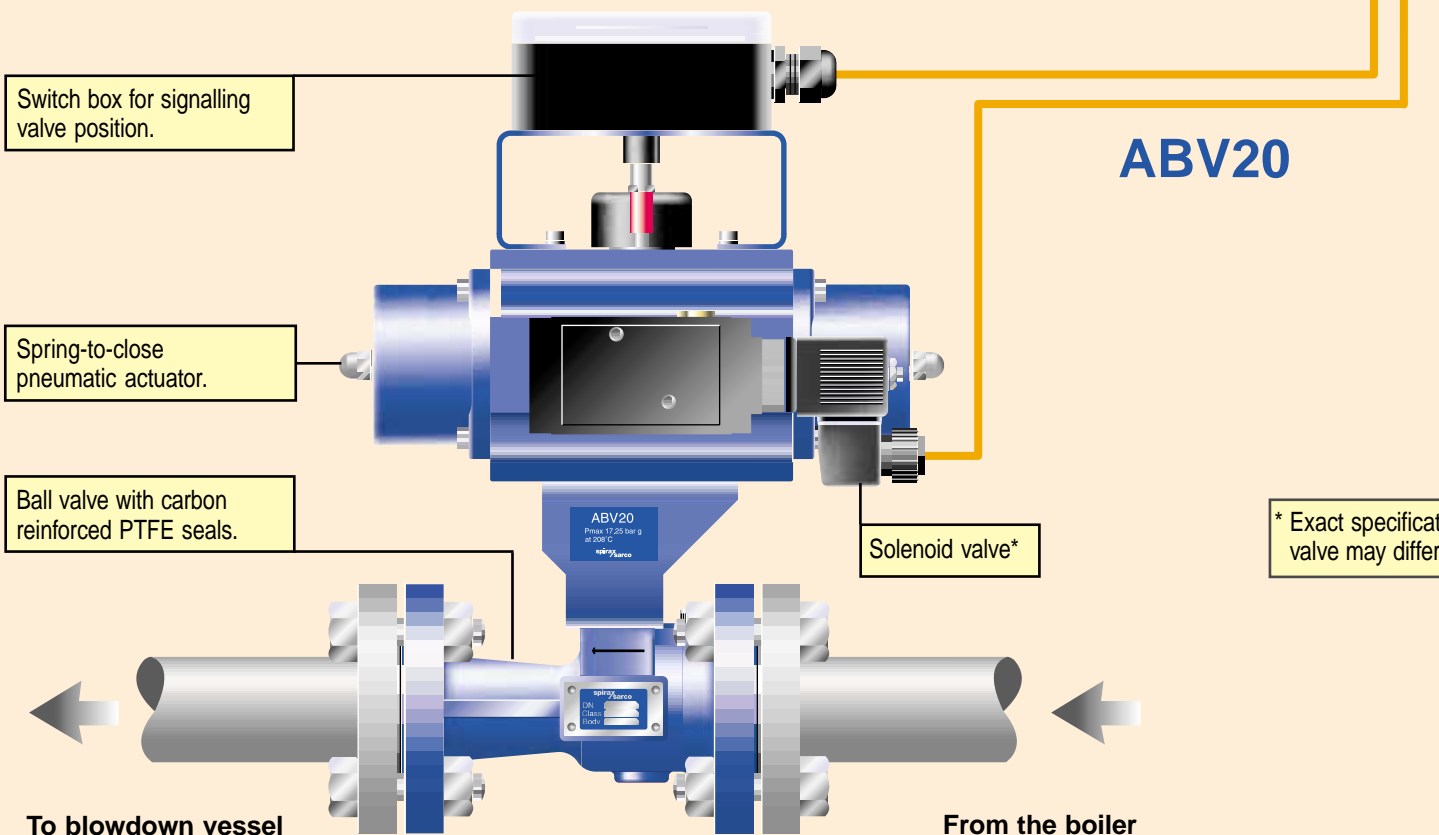
Therefore all boilers are fitted with a valve at the lowest point, which allows the build-up of sludge to be flushed regularly from the boiler, generally once per day or shift.

The traditional manual valve is an acceptable solution as long as the blowdown procedure is:

- carried out at the right time,
- not forgotten or repeated by another operator,
- not carried out during periods of high steam demand.

Manual blowdown is also time consuming for multi-boiler installations. There should be an interval between blowdowns to avoid thermal overload of the blowdown vessel. Furthermore, a skilled boiler operator may not always be available. For safety reasons, only one boiler blowdown valve must be open at a time.

Therefore, the Spirax Sarco automatic boiler blowdown systems offer considerable advantages. The system comprises a BT1000 cyclic timer and a pneumatically actuated ABV20 or BBV980A blowdown valve.



Clear 4-digit LED display which shows the amount of time until the next blowdown.

Two push buttons for straightforward setting or viewing.

No batteries are needed. Settings are stored in the memory even when the power is switched off.

The timer can be unplugged from the base without disturbing the wiring.

### ABV20 blowdown valve

- Air actuated.
- Available in 5 sizes. Suitable for pressures up to 17.25 bar g.
- 90° rotary pneumatic actuator for fast response.
- Spring return to close for safety.
- NAMUR ( VDI / VDE ) interface for solenoid valve. A remotely mounted solenoid valve may be fitted if preferred.
- A switch box mounted on the actuator provides a 'valve closed/not closed' signal to the timer.

Switch box for signalling valve position.

Spring-to-close pneumatic actuator.

Ball valve with carbon reinforced PTFE seals.

Solenoid valve\*

\* Exact specification valve may differ

To blowdown vessel

From the boiler

# lowdown systems

## s for single or multi-boiler installations

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### BT1000 timer

- A purpose built cyclic timer to control the frequency and duration of blowdown.
- Up to 9 timers can be linked to ensure only one boiler is blown down at a time.
- Programmable time delay prevents boilers blowing down in quick succession.
- Timer can release alarm relay if blowdown valve fails to close fully after a certain period.
- An external key switch may be installed to isolate all blowdown valves for boiler maintenance. Regulations may also require extra safety precautions.
- Security option allows settings to be viewed but not altered.
- BT1000 can act as cumulative timer and operate only when the boiler is firing. Ideal for boilers (e.g. stand-by boilers) which operate intermittently.

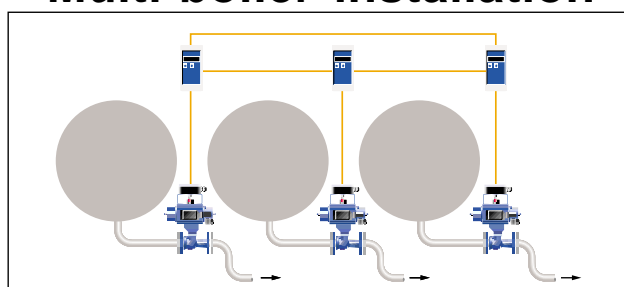
### BBV980A blowdown valve

- Air or water actuated.
- Suitable for pressures up to 32 bar g.
- Valve closes on power failure.
- Manual (hand lever) operation.
- Protection of spindle seals by an internal scraper ring.
- Optional switchbox to provide: 'valve closed/not closed' signal to the timer.

### User benefits

- Adjustable blowdown interval and duration.
- Repetition or omission of blowdown avoided.
- Valve closes on power failure.
- Automatic timed blowdown avoids wasted heat.
- Up to 9 systems can be linked.

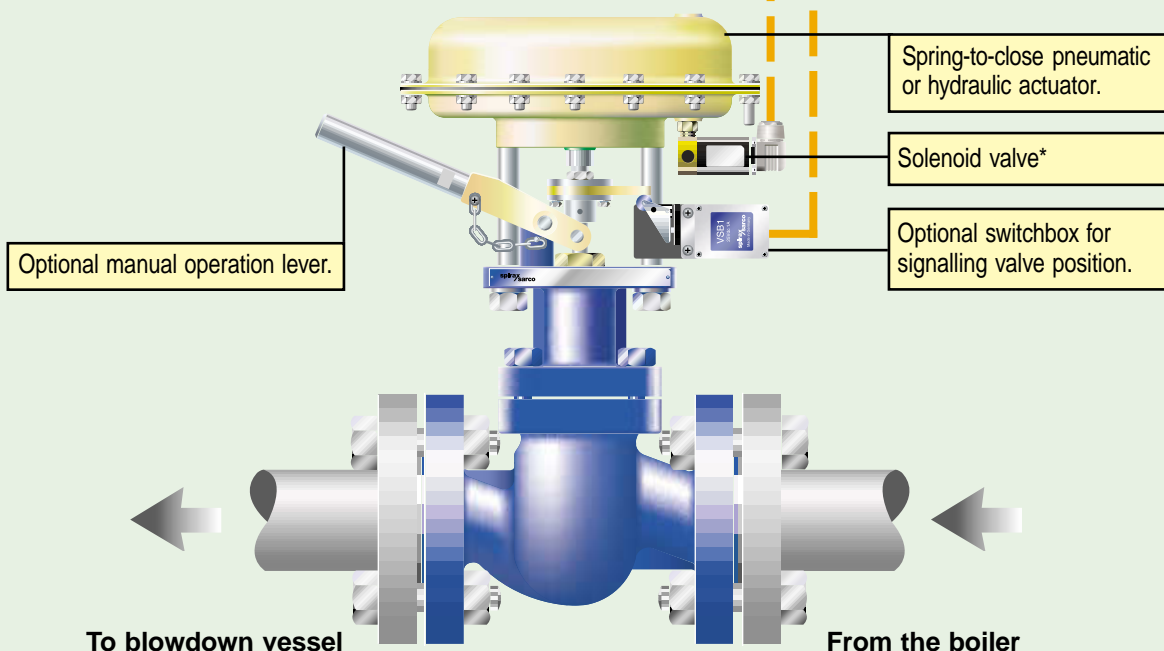
### Multi-boiler installation



### Attention

You must comply with any National or Regional regulations concerning boiler blowdown.  
 In the UK See: Factories Act and HSE Guidance Note PM60.  
 It is forbidden to work on a shutdown boiler when other boilers are operating.

### BBV980A



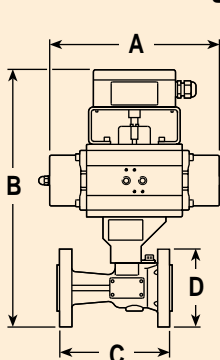
ion of solenoid  
from that shown.



## ABV20 - Technical data

Available sizes	DN25, DN32 (PN40 only), DN40, DN50 and DN65
Available flanges	PN40 or ANSI 300
Actuation fluid	Air only
Max. air/water supply pressure /temperature	6 bar g BVA225S, BVA230S 10 bar g BVA220S
Air /water connection	NAMUR mounting or 1/4" BSP (G)
Valve switchbox	LSB1 (fitted as standard)
Solenoid valve	MV series
Air set	Actuator air set

Dimensions/weights (approximate) in mm and kg

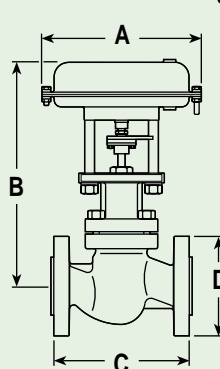


Size	Flange	Actuator	A	B	C	D	Weight
DN25	PN40	BVA220S	270	377	165	115	9.5
	Class 300	BVA220S	270	381	165	124	9.5
DN32	PN40	BVA225S	297	401	178	140	12.5
DN40	PN40	BVA225S	297	419	190	150	15.0
	Class 300	BVA225S	297	422	191	156	15.0
DN50	PN40	BVA225S	297	435	216	165	17.0
	Class 300	BVA225S	297	435	216	165	17.0
DN65	PN40	BVA230S	332	476	241	185	26.0
	Class 300	BVA230S	332	479	241	191	26.0

## BBV980A - Technical data

Available sizes	DN25*, DN32, DN40, (* PN40 only), DN50 and DN65*
Available flanges	PN40 or PN40 drilled to suit ANSI 300 flanges
Actuation fluid	Air/water
Max. air/water supply pressure /temperature	4 bar g /90°C
Air /water connection	1/4" BSP (G)
Valve switchbox	VSB1 (optional)
Solenoid valve	WAV1 (220,110, 24 Vac)
Air set	Actuator air set

Dimensions/weights (approximate) in mm and kg

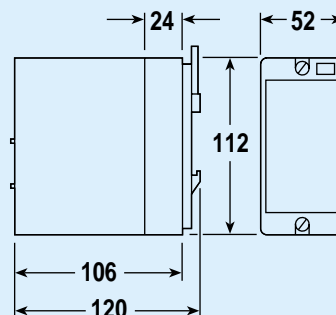


Size	Flange	Actuator	A	B	C	D	Weight
DN25	PN40	-	265	337	160	115	21
	Class 300	-	265	342	180	140	23
DN32	PN40	-	265	342	180	140	23
	Class 300	-	265	342	180	140	23
DN40	PN40	-	265	364	200	150	26
	Class 300	-	265	364	200	150	26
DN50	PN40	-	265	360	230	165	28
	Class 300	-	265	360	230	165	28
DN65	PN40	-	265	365	290	185	34

Manual operation lever DN25/32 One section required DN40/50 Two sections required DN60 Three sections required

## BT1000 timer - Technical data

Supply voltage	230 V, 115 V
Supply frequency	50 - 60 Hz
Maximum power consumption	6 VA
Accuracy (typical)	5 seconds/day
Time between blowdowns	1 - 99 hours
Time of each blowdown	0 - 99 seconds/0 - 0.99 hours
Pause time	Minimum interval between blowdowns from different boilers 0 - 9.9 hours



## How to specify

**ABV20** - Spirax Sarco ABV20 valve, with carbon reinforced PTFE seals and flanged valve connections. Rotary pneumatic actuator with NAMUR/VDI/VDE solenoid valve interface. DIN rail/chassis plate mounted BT1000 timer with LED display, push buttons to control blowdown interval and duration, and programmable delay.

**BBV980A** - Spirax Sarco BBV980A globe type bottom blowdown valve with internal scraper ring and flanged valve connections. Water or air actuated and suitable for boiler pressures up to 32 bar. DIN rail/chassis plate mounted BT1000 timer with LED display, push buttons to control blowdown interval and duration, and programmable delay.

## How to order

**ABV20 example:** 1 off DN40 Spirax Sarco ABV20 actuated boiler blowdown valve flanged to PN40. 1 off BT1000 blowdown timer. 1 off MV11 solenoid valve 240 V. Complete with air set.

**BBV980A example:** 1 off DN40 Spirax Sarco BBV980A actuated boiler blowdown valve flanged to PN40. 1 off BT1000 blowdown timer. 1 off WAV1 solenoid valve 240 V. 1 off VSB1 switch. 2 off BBV980A manual operation lever sections.

Some of the products may not be available in certain markets.

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