

Our solution

The Spirax Sarco automatic boiler bottom blowdown system is designed to be efficient and cost effective. The system comprises a BT1000 cyclic timer and an actuated ABV20 or a DFG300A blowdown valve for boiler pressures up to 32 bar.



Advantages of automatic boiler bottom blowdown

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

Benefits to your business

Our time-controlled bottom blowdown system brings many benefits to your plant and business:

- The system can be used for single or multi-boiler installations.
- Less water, fuel and treatment chemicals are needed.
- Saves the time required for manual supervision for other important tasks.
- Cleaner and more efficient boiler.
- Reduced operating cost (reduction in consumption, disposal, treatment and heating of water).
- Minimised energy loss from boiler blowdown can save about 2% of a facility's total energy use with an average simple payback of less than one year.
- Promotes safer boiler operation.
- Reduced labour costs.

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Some products, services or solutions may not be available in certain markets

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Automatic boiler bottom blowdown systems

for the accurate and efficient control of bottom blowdown



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Automatic boiler bottom blowdown systems

The importance of accurate bottom blowdown

Regular bottom blowdown regimes are designed to remove sludge from the bottom of a boiler, but can be overlooked. A build-up of sludge will lead to inefficient operation, and even a risk of boiler explosion.

Potential problems

Water in steam boilers generally contains two types of impurities, dissolved solids such as chemical salts and suspended solids like particles of sand, scale or oxides. Boiler bottom blowdown is the process used to manage suspended solids.

As water is evaporated to form steam, the level of suspended solids increases. Water treatment chemicals are often added causing the particles to gather together (floculate) and fall to the bottom of the boiler. Precipitated solids can form sludge at the bottom of the boiler. Without regular bottom blowdown, this can build up, eventually touching the boiler tubes, causing impaired heat transfer, hot spots and even the potential risk of boiler explosion.

Prevention

To avoid this problem, water is periodically discharged or 'blown down'. A bottom blowdown valve is opened, allowing a blast discharge to clear the boiler. This is normally carried out daily, (or once per shift) for just a few seconds. The water is usually piped to a blowdown vessel to cool.

This importance of a proper bottom blowdown regime is easily overlooked and an unsuitable bottom blowdown regime can cause:

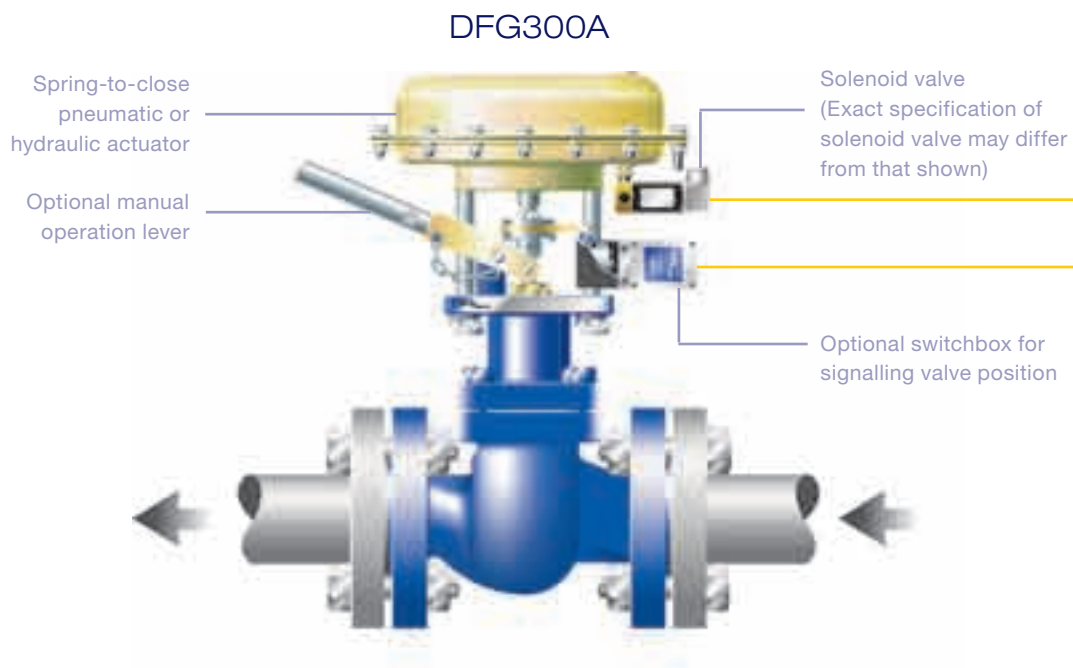
- Inefficient operation and possible danger due to sludge build-up.
- Waste of water and heat through excessive bottom blowdown: particularly relevant on multi-boiler systems.

Balancing the cost of blowdown



A balance has to be established between the requirements of removing the suspended solids from the boiler system and running the boiler plant cost effectively. Achieving this balance ensures the production of high quality steam whilst not wasting energy.

Our solution


To select the appropriate blowdown valve to suit your application refer to specifications and drawings below.



Valve specification table

		Available sizes	Available flanges	Actuation medium	Boiler pressure	Safety	Operation
	ABV20	DN25, DN32 (PN40 only), DN40, DN50 and DN65	EN 1092 PN40 or ANSI 300	Air only	Up to 17.25 bar g	Spring return to close for safety	NAMUR (VDI/VDE) interface solenoid valve. A remotely mounted solenoid valve may be fitted if preferred.
	DFG300A	DN25, DN32, DN40 and DN50	EN 1092 PN40	Air / water	32 bar g at 239°C	Valve closes on power failure	Manual hand lever (Option 1) pneumatically actuated valve. A completely manual version of valves is also available, the DFC

BT1000 timer specification table

		Supply voltage	Supply frequency	Maximum power consumption	Accuracy (typical)
	BT1000 timer	230 Vac and 115 Vac	50 - 60 Hz	6 VA	5 seconds/day



BT1000

- 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

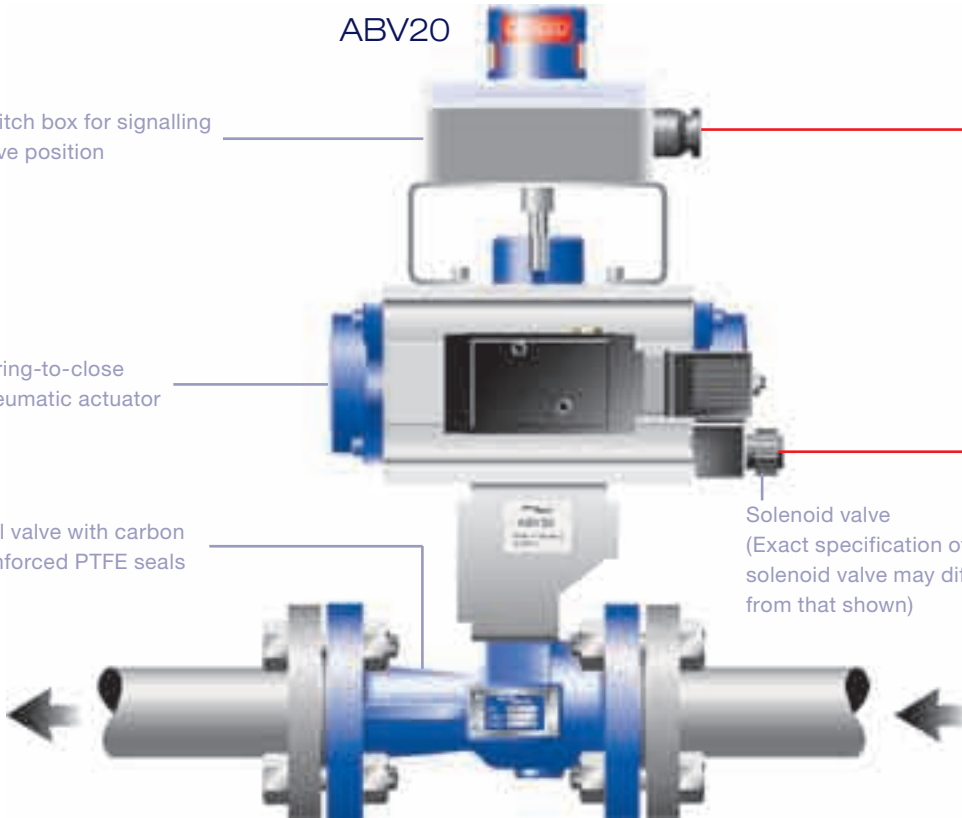
ABV20

Switch box for signalling valve position

Spring-to-close pneumatic actuator

Ball valve with carbon reinforced PTFE seals

Solenoid valve
(Exact specification of solenoid valve may differ from that shown)



	Maximum air / water supply pressure / temperature	Air / water connection	Valve switchbox	Solenoid valve	Air set
e for may be	6 bar g BVA225S 6 bar g BVA230S 10 bar g BVA220S	NAMUR mounting or ¼" BSP (G)	LSB3 (fitted as standard) A switchbox mounted on the actuator provides a 'valve closed / not closed' signal to the timer.	MV series	Actuator air set
) on ve. of this 3300M.	6 bar g / 70°C	¼" BSP (G)	DFG300 mechanical limit switch Optional switchbox to provide 'valve closed / not closed' signal to the timer.	DFG solenoid valve 230, 110 and 24 Vac	Actuator air set

	Time between blowdowns	Time of each blowdown	Pause time. Minimum interval between blowdowns from different boilers
	1 - 99 hours	0 - 99 seconds or 0 - 0.99 hours	0 - 9.9 hours