

Key Operated Blowdown Valve Installation and Maintenance Instructions

1. General safety information

Your attention is drawn to the relevant Supplementary Safety Information sheet supplied with the product as well as to any National or local regulations.

Ensure the boiler is drained and vented to atmosphere before commencing installation or maintenance.

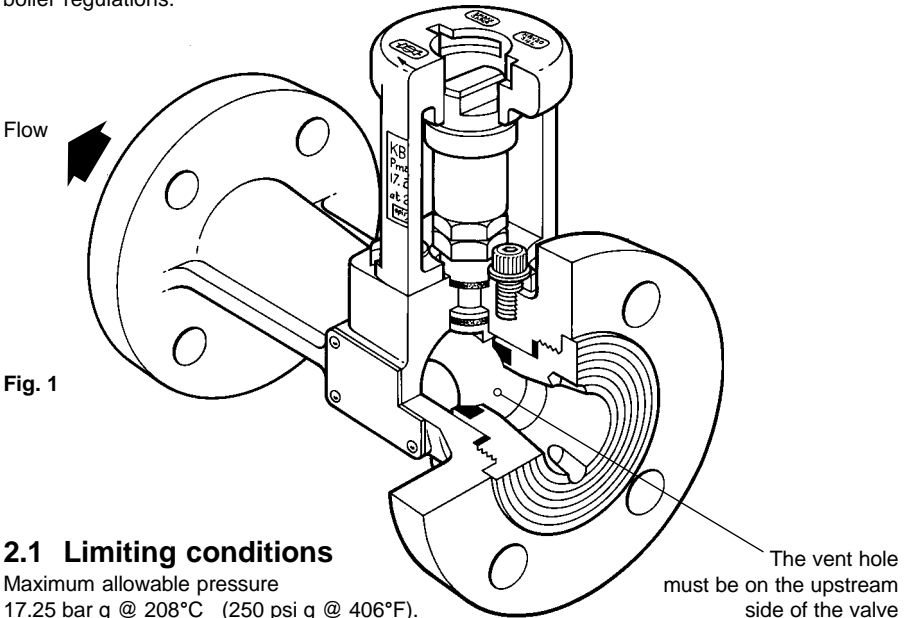
Safe operation of the product depends on it being properly installed, commissioned and maintained by a qualified person in compliance with the operating instructions. It is essential to comply with general installation and safety instructions for pipeline and plant construction, as well as to make proper use of tools and safety equipment.

The product is designed and constructed to withstand the forces encountered during normal use. Use of the product for any other purpose, or failure to install the product in accordance with these Installation and Maintenance Instructions, could cause damage to the product, will invalidate the CE marking, and may cause injury or fatality to personnel.

2. General product information

The KBV20 is a carbon steel ball valve with a stainless steel ball, adaptor and housing, and reinforced PTFE seats. Two types of key are available, one standard length, and an extended 'T' bar type, for use where access to the valve is limited.

Note: The key cannot be removed when the valve is open, to ensure compliance with boiler regulations.



2.1 Limiting conditions

Maximum allowable pressure
17.25 bar g @ 208°C (250 psi g @ 406°F).

3.1 Removing the housing

- With valve closed, remove the three socket cap screws and washers ($\frac{7}{32}$ " or $\frac{5}{16}$ " A/F).
- Withdraw the housing and adaptor.

3.2 Fitting the key operation kit to a valve:

- Ensure that the valve is in the closed position. (Lever, if fitted, at 90° to centre line of the valve)
- Remove stem nut ($\frac{7}{8}$ " A/F), spring washer, and lever if fitted.
- Remove stop screw ($\frac{1}{2}$ " or $\frac{5}{8}$ " A/F), if fitted.
- Check that the gland nut torque is to 24 - 30 N m (18 - 22 lbf ft).
- Fit lock-nut ($\frac{7}{8}$ " A/F) to the stem ensuring that the gland nut does not move and disturb the torque setting.
- Fit a second lock-nut on the DN25 and DN32 sizes as above.
- Place the adaptor inside the housing, and fit the assembly ensuring that the adaptor slot fits over the valve stem. Align the three tapped holes in the valve body with the housing slots.
- Fit the washers and socket cap screws, ($\frac{7}{32}$ " or $\frac{5}{16}$ " A/F) and tighten $\frac{1}{4}$ turn when screwed down.
- Fit the operating key (supplied separately) and check that it cannot be removed unless the valve is closed.

4. Maintenance

Note: Before actioning any maintenance programme observe the 'General Safety information' in Section 1.

We recommend that the valve is checked for dirt and corrosion when the boiler is inspected. The valve stem should also be checked for signs of leakage. Minor leaks may be stopped by tightening the gland nut torque to 24 - 30 N m (18 - 22 lbf ft).

WARNING: Ball valves can trap pressurised media in the body cavity, so make sure that there is no pressure to, or in, the valve body before loosening and removing the flange bolts. Should the valve require refurbishing (or simply dismantling for inspection) a special tool is required to remove the screw-in insert.

The tool may be fabricated from a suitable thickness of plate (with rounded off edges) to fit into and across the counter-bored holes in the insert.

Alternatively the entire valve may be returned to Spirax Sarco for service exchange.

For blowdown applications it is important that carbon reinforced PTFE stem seals are used and not graphite.

4.1 Dismantling the valve assembly

Remove the key operation kit as described in Section 3.1.

4.2 Dismantling the valve body

As mentioned in Section 4, a special tool is required to unscrew the insert which retains the valve internals. Considerable force may be required to 'break' the joint and a strong vice rigidly mounted is a necessity.

Penetrating oil may be used to help but do not apply heat, (see the warning below).

WARNING: If the old Viton 'O' ring has been subjected to a temperature of 315°C (599°F) or higher then it may have decomposed and formed hydrofluoric acid. Avoid skin contact and inhalation of any fumes as the acid will cause deep burns and damage the respiratory system.

Once the insert has been removed the ball can be withdrawn. To remove the valve stem loosen the lock-nut(s) and gland nuts then tap the stem into the body using a soft face hammer to avoid damage to the thread.

4.3 Preparation

Remove all traces of old seals using a soft metal scraper if necessary. Note the number and position of the stem seals. The bottom seal may need to be prised from its housing - take care not to scratch the back surface. Ideally the bare casting should be shot-blasted internally and degreased to remove all loose rust and deposits. The ball and stem may also require cleaning. If the valve has seized, the stem may need to be replaced.

4.4 Rebuilding the valve

Place the required number of stem seals on the stem and carefully insert into the body casting - try to avoid scratching the stem bore. Place the top stem seals and press down into the gland. Fit the gland follower, disc springs (if used) and gland nut. Tighten the nut to pull the stem up and locate the stem seals. Fit the new seats and drop in the ball.

Caution: The vent hole must be on the upstream side of the valve (see Fig. 1).

Ensure that the ball locates on the stem spigot. Place a new insert seal (of the type previously used) and tighten the insert until it 'bottoms out'. Torque tighten the gland nut to 24 - 30 N m (18 - 22 lbf ft) or until the disc springs flatten (if used).

4.5 Testing

Ensure that the stem can rotate freely, without undue friction. Carry out seat leakage and body hydraulic tests as appropriate.

Seat leakage test at	6 bar g	(87 psi g)	(air under water)
Cold hydraulic test at	60 bar g	(870 psi g)	(PN40)
	78 bar g	(1 131 psi g)	(Class 300)

4.6 Assembly

Re-fit the key operation kit as described in Section 3.2. If a new valve body assembly has been purchased it may be necessary to increase the hole diameter in the base of the housing so that it will clear the disc springs.

5. Spare parts

A complete spares kit is available which includes all seals and gaskets and a valve ball.

Caution: The vent hole in the ball must be on the upstream side of the valve (see Fig. 1).

Spare valve stems are also available.

To order quote the valve type, application (e.g. boiler blowdown) and nominal size (DN).

Example: 1 off Spares kit for a Spirax Sarco DN50, PN40 KBV20, used for bottom blowdown.