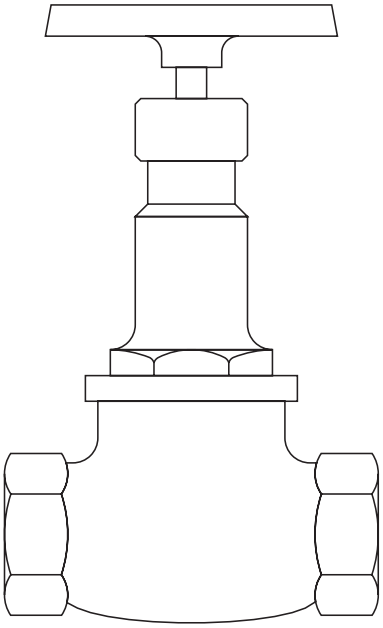
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spirax sarco

HV3
Stop Valve
Installation and Maintenance Instructions



1. Safety information
2. General product information
3. Installation
4. Commissioning
5. Operation
6. Maintenance
7. Spare parts

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1. Safety information

Safe operation of these products can only be guaranteed if they are properly installed, commissioned, used and maintained by qualified personnel (see Section 1.11) in compliance with the operating instructions. General installation and safety instructions for pipeline and plant construction, as well as the proper use of tools and safety equipment must also be complied with.

1.1 Intended use

Referring to the Installation and Maintenance Instructions, name-plate and Technical Information Sheet, check that the product is suitable for the intended use/application. Some of the products comply with the requirements of the Pressure Equipment Directive (PED) and fall within the category 'SEP'. It should be noted that products within this category are required by the Directive not to carry the CE mark.

Product		Group 1 Gases	Group 2 Gases	Group 1 Liquids	Group 2 Liquids
HV3	DN15 - DN25	-	SEP	-	SEP
	DN32 - DN40	-	SEP	-	SEP
	DN50	-	1	-	SEP

i) **The product has been specifically designed for use on steam, compressed air,water and other industrial fluids that are in Group 2 of the above mentioned Pressure Equipment Directive.**

ii) **Check material suitability, pressure and temperature and their maximum and minimum values. If the maximum operating limits of the product are lower than those of the system in which it is being fitted, or if malfunction of the product could result in a dangerous overpressure or overtemperature occurrence, ensure a safety device is included in the system to prevent such over-limit situations.**

iii) **Determine the correct installation situation and direction of fluid flow.**

iv) **Spirax Sarco products are not intended to withstand external stresses that may be induced by any system to which they are fitted. It is the responsibility of the installer to consider these stresses and take adequate precautions to minimise them.**

v) **Remove protection covers from all connections and protective film from all name-plates, where appropriate, before installation on steam or other high temperature applications.**

1.2 Access

Ensure safe access and if necessary a safe working platform (suitably guarded) before attempting to work on the product. Arrange suitable lifting gear if required.

1.3 Lighting

Ensure adequate lighting, particularly where detailed or intricate work is required.

1.4 Hazardous liquids or gases in the pipeline

Consider what is in the pipeline or what may have been in the pipeline at some previous time. Consider: flammable materials, substances hazardous to health, extremes of temperature.

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1.5 Hazardous environment around the product

Consider: explosion risk areas, lack of oxygen (e.g. tanks, pits), dangerous gases, extremes of temperature, hot surfaces, fire hazard (e.g. during welding), excessive noise, moving machinery.

1.6 The system

Consider the effect on the complete system of the work proposed. Will any proposed action (e.g. closing isolation valves, electrical isolation) put any other part of the system or any personnel at risk?
Dangers might include isolation of vents or protective devices or the rendering ineffective of controls or alarms. Ensure isolation valves are turned on and off in a gradual way to avoid system shocks.

1.7 Pressure systems

Ensure that any pressure is isolated and safely vented to atmospheric pressure. Consider double isolation (double block and bleed) and the locking or labelling of closed valves. Do not assume that the system has depressurised even when the pressure gauge indicates zero.

1.8 Temperature

Allow time for temperature to normalise after isolation to avoid danger of burns.

PTFE - Gland packing

If seals made from PTFE have been subjected to a temperature approaching 260 °C (500 °F) or higher, they will give off toxic fumes, which if inhaled are likely to cause temporary discomfort. It is essential for a no smoking rule to be enforced in all areas where PTFE is stored, handled or processed as inhalation of the fumes from burning tobacco contaminated with PTFE particles can develop 'polymer fume fever'.

1.9 Tools and consumables

Before starting work ensure that you have suitable tools and/or consumables available. Use only genuine Spirax Sarco replacement parts.

1.10 Protective clothing

Consider whether you and/or others in the vicinity require any protective clothing to protect against the hazards of, for example, chemicals, high/low temperature, radiation, noise, falling objects, and dangers to eyes and face.

1.11 Permits to work

All work must be carried out or be supervised by a suitably competent person.
Installation and operating personnel should be trained in the correct use of the product according to the Installation and Maintenance Instructions.
Where a formal 'permit to work' system is in force it must be complied with. Where there is no such system, it is recommended that a responsible person should know what work is going on and, where necessary, arrange to have an assistant whose primary responsibility is safety.
Post 'warning notices' if necessary.

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1.12 Handling

Manual handling of large and/or heavy products may present a risk of injury. Lifting, pushing, pulling, carrying or supporting a load by bodily force can cause injury particularly to the back. You are advised to assess the risks taking into account the task, the individual, the load and the working environment and use the appropriate handling method depending on the circumstances of the work being done.

1.13 Residual hazards

In normal use the external surface of the product may be very hot. If used at the maximum permitted operating conditions the surface temperature of some products may reach temperatures of 260 °C (500 °F).
Many products are not self-draining. Take due care when dismantling or removing the product from an installation (refer to 'Maintenance instructions').

1.14 Freezing

Provision must be made to protect products which are not self-draining against frost damage in environments where they may be exposed to temperatures below freezing point.

1.15 Disposal

Unless otherwise stated in the Installation and Maintenance Instructions, this product is recyclable and no ecological hazard is anticipated with its disposal providing due care is taken, EXCEPT:

PTFE - Gland packing:

- **Waste parts can only be disposed of by an approved method, not incineration.**
- **Keep PTFE waste in a separate container, do not mix it with other rubbish, and consign it to a landfill site.**

1.16 Returning products

Customers and stockists are reminded that under EC Health, Safety and Environment Law, when returning products to Spirax Sarco they must provide information on any hazards and the precautions to be taken due to contamination residues or mechanical damage which may present a health, safety or environmental risk. This information must be provided in writing including Health and Safety data sheets relating to any substances identified as hazardous or potentially hazardous.

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2. General product information

2.1 General description

A bronze bodied globe valve for steam, water, oil or air applications. To BS 5154 Series A.

Note: For further information see the following Technical Information Sheet, TI-P060-01, which gives full details of: Materials, sizes and pipe connections, dimensions, weights, operating ranges and capacities.

2.2 Sizes and pipe connections

½", ¾", 1", 1¼", 1½" and 2" screwed BSP parallel.

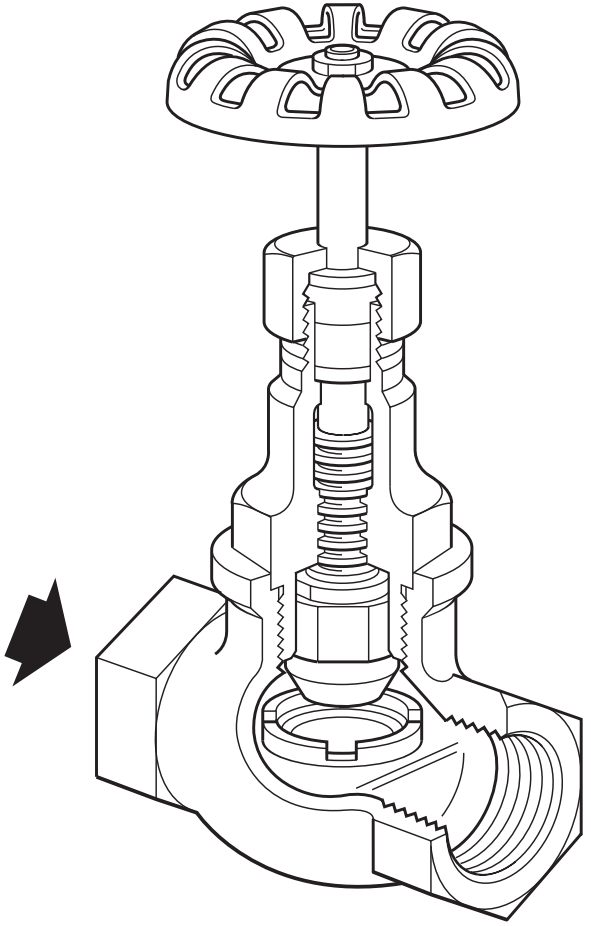
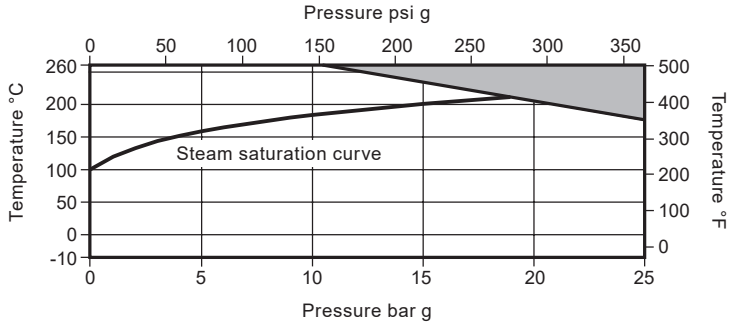


Fig. 1

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2.3 Pressure/temperature limits



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

Maximum body design conditions			PN25
PMA	Maximum allowable pressure	25 bar g @ 170 °C	(362.5 psi g @ 338 °F)
TMA	Maximum allowable temperature	260 °C @ 10.5 bar g	(500 °F @ 152 psi g)
Minimum allowable temperature		-10 °C	(14 °F)
PMO	Maximum operating pressure	25 bar g @ 170 °C	(362.5 psi g @ 338 °F)
TMO	Maximum operating temperature	260 °C @ 10.5 bar g	(500 °F @ 152 psi g)
Minimum operating temperature		-10 °C	(14 °F)
Designed for a maximum cold hydraulic test pressure of:		38 bar g	(551 psi g)

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3. Installation

Note: Before actioning any installation observe the 'Safety information' in Section 1.

Wherever practicable, valves should be installed where there is adequate space available so that they can be conveniently operated and maintained.

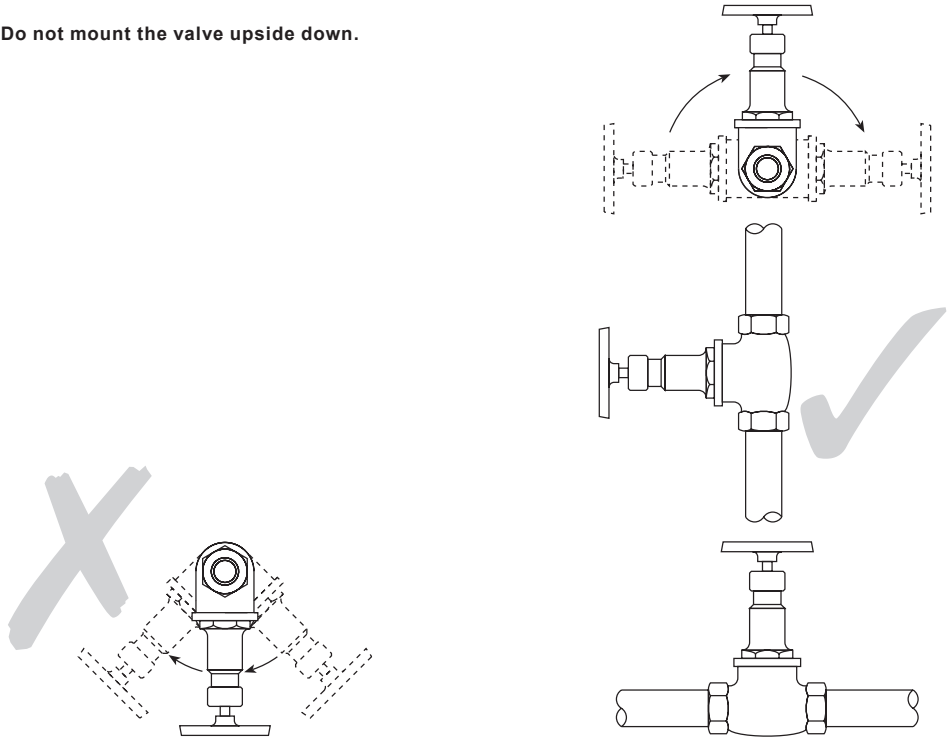
Before installing a valve, check to ensure that size, pressure rating, materials of construction, end connections, etc. are suitable for the service conditions of the particular application.

Care must be taken to ensure that all dirt which may have accumulated in the valve during storage is removed before installation, maintain cleanliness during installation since the introduction of dirt can result in damage to the valve seats and operating mechanism.

To minimise the danger of abrasive particles damaging the seats, pipeline strainers should be fitted upstream of the valves.

Install the valve in the direction of flow given by the arrow on the body with the handwheel in a suitable position. The preferred position is with the spindle vertical. The valve can be installed from the vertical to the horizontal plane (see Figure 2 below).

Do not mount the valve upside down.



Incorrect installation

Correct installation

Fig. 2

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4. Commissioning

After installation or maintenance ensure that the system is fully functional. Carry out tests on any alarms or protective devices.

5. Operation

The Spirax Sarco HV3 stop valve is operated manually by a handwheel. Special care must be taken to ensure that the movement is made in the correct direction.
To open the valve fully, turn the handwheel anticlockwise until the shaft is raised to the maximum position, and then lower the shaft by giving the wheel an ⅛ to ¼ turn clockwise to remove any backlash. This is to prevent the possibility of attempting to force open a valve, which is already fully open, resulting in damage to the stem or other components.

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6. Maintenance

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

6.1 General information

As with all mechanical devices, regular maintenance is the most efficient means of ensuring continual operational efficiency.
Regular scheduled inspection of the valves is essential, especially on valves which are only occasionally operated.

6.2 How to change the gland packing:

- Isolate the valve and allow the pressure and temperature to normalise.
- Unscrew the handwheel nut (**12**) and remove the handwheel (**11**).
- Unscrew the packing nut (**10**) and remove the gland (**9**).
- Dispose of the PTFE gland packing by observing the Safety information in Section 1.
- Replace the gland packing.
- Replace the gland (**9**) and packing nut (**10**) and tighten as required.
- Replace the handwheel, washer and handwheel nut and tighten as required.
- Open the isolation valves slowly to allow the system pressure to build up.
- Check for leaks.

6.3 How to change the seat and valve assembly:

- Isolate the valve and allow the pressure and temperature to normalise.
- Unscrew the bonnet (**5**) and remove the valve (**3**) and seat (**2**).
- Replace the valve (**3**) and seat (**2**) with new parts.
- Replace the bonnet (**5**) and tighten as required.
- Open the isolation valves slowly to allow the system pressure to build up.
- Check for leaks.

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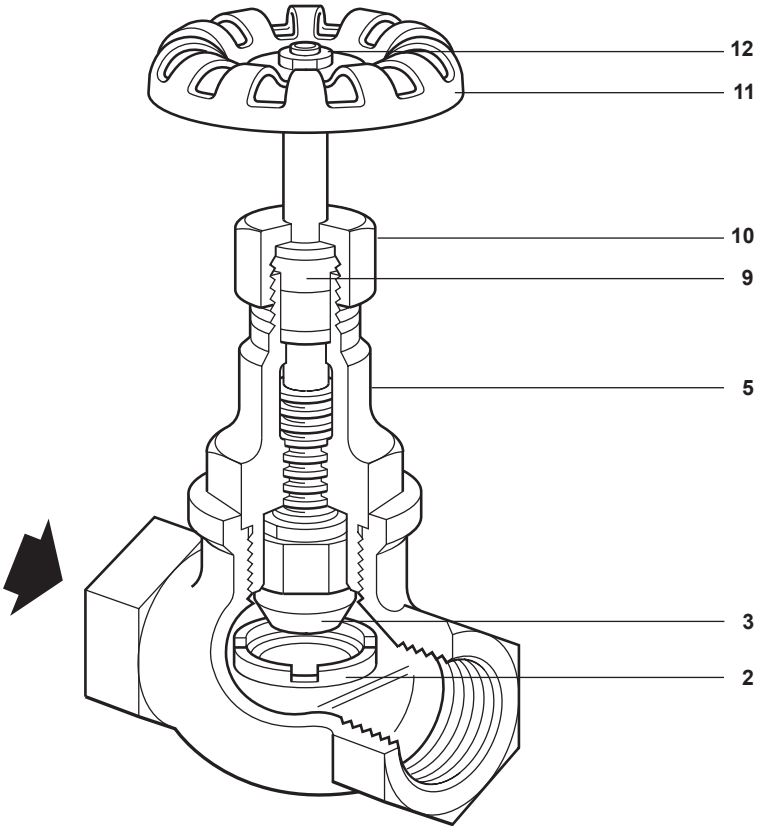


Fig. 3

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Table 1 Recommended tightening torques

Item	Part	Size	or mm	N m	(lbf ft)
2	Seat	½"		30	(22)
		¾"		40	(29)
		1"		45	(32)
		1¼"		50	(36)
		1½"		100	(72)
		2"		150	(107)
5	Bonnet	½"	25.5 A/F	100	(72)
		¾"	30.5 A/F	150	(107)
		1"	37.0 A/F	175	(125)
		1¼"	42.0 A/F	200	(143)
		1½"	47.0 A/F	250	(179)
		2"	55.5 A/F	380	(272)
10	Packing nut	½"	25.5 A/F	20	(14)
		¾"	25.5 A/F	20	(14)
		1"	25.5 A/F	25	(18)
		1¼"	30.5 A/F	40	(29)
		1½"	30.5 A/F	40	(29)
		2"	34.0 A/F	45	(32)

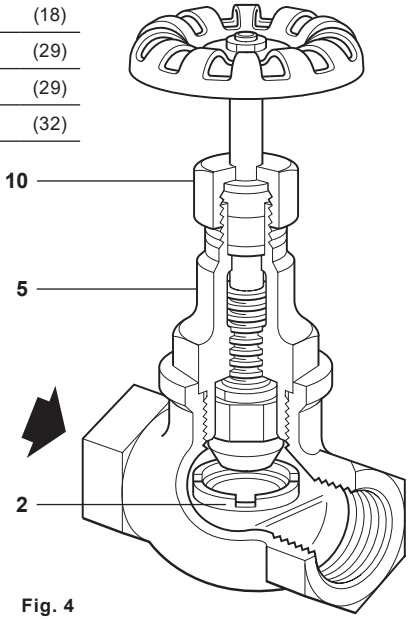


Fig. 4

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7. Spare parts

The spare parts available are shown in heavy outline. Parts drawn in a grey line are not supplied as spares.

Available spares

Valve and seat assembly	**2, 3**
Gland packing (packet of 3)	**8**

Important note:

The above spares are applicable to the HV3 stop valve only, identified by its blue handwheel.
They are not interchangeable with spares for the HV1 stop valve identified by its green handwheel, or the HV2 stop valve, identified by its red handwheel.

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.
Example: 1 - Valve and seat assembly for a 1" Spirax Sarco HV3 stop valve.

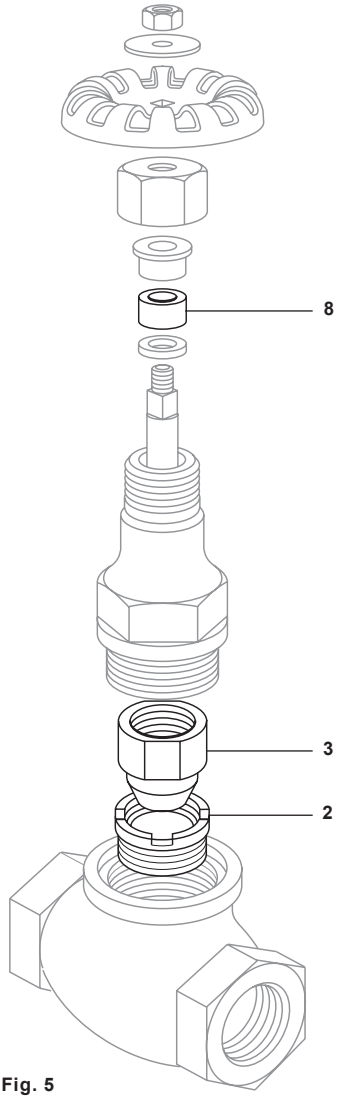


Fig. 5

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