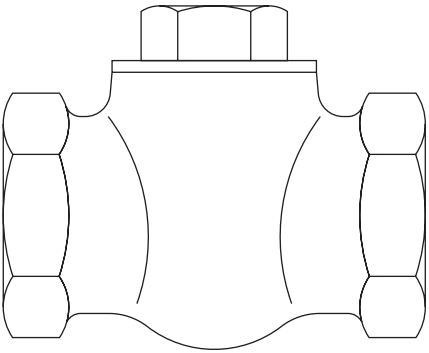
LCV1
Lift Check Valve
Installation and Maintenance Instructions



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1. Safety information

Safe operation of the unit can only be guaranteed if it is properly installed, commissioned and maintained by a qualified person (see Section 11 of the attached Supplementary Safety Information) 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, nameplate and Technical Information Sheet, check that the product is suitable for the intended use/application.
The product listed below complies with the requirements of the European Pressure Equipment Directive 2014/68/EU and carry the CE mark with the Notifying Body number when so required.

The product falls within the following Pressure Equipment Directive and Safety Regulation categories:

Product		Group 2 Gases	Group 2 Liquids
LCV1	DN15 - DN65	SEP	SEP
	DN80	1	SEP

i) This 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/ Safety Regulation.

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.

vi) Prior to use, the user shall ensure the fluid compatibility with the equipment material.

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.

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 Isolation

Consider the effect on the complete system of the work proposed. Will any proposed action (for example; 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

Before attempting any maintenance consider what is or may have been in the pipeline. Ensure that any pressure is isolated and safely vented to atmospheric pressure before attempting to maintain the product, this is easily achieved by fitting Spirax Sarco depressurisation valves type DV (see separate literature for details) and consider double isolation (double block and bleed) and the locking or labelling of closed valves. Do not assume that the system is depressurised even when a pressure gauge indicates zero.

1.8 Temperature

Allow time for temperature to normalise after isolation to avoid the danger of burns and consider whether protective clothing (including safety glasses) is required.

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.

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 400 °C (752 °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, these products are recyclable and no ecological hazard is anticipated with their disposal providing due care is taken.

Please visit the Spirax Sarco product compliance web pages
https://www.spiraxsarco.com/product-compliance
for up to date information on any substances of concern that may be contained within this product.
Where no additional information is provided on the Spirax Sarco product compliance web page, this product may be safely recycled and/or disposed providing due care is taken.
Always check your local recycling and disposal regulations.'

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.

2. General product information

2.1 Description

The LCV1 is a bronze lift check valve, which is designed for installation in horizontal lines to prevent reverse flow.

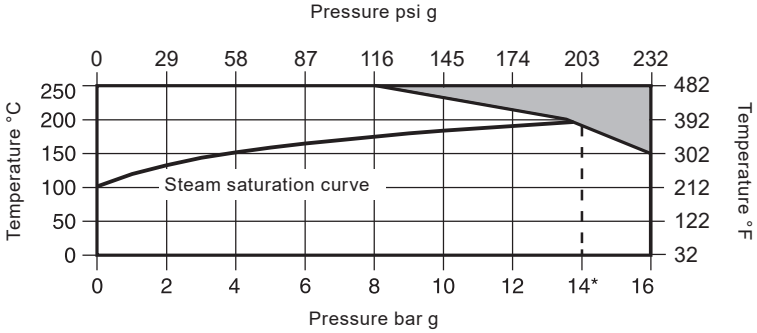
Note: For additional information see the following Technical Information Sheet, TI-P029-01.

2.2 Sizes and pipe connections

½", ¾", 1", 1¼", 1½" and 2".

Screwed BSP T Rp (ISO 7-1) or NPT

2.3 Pressure/temperature limits



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

*PMO	Maximum operating pressure for saturated steam is	14 bar g	(203 psi g).
Maximum body design conditions			PN16
PMA	Maximum allowable pressure	16 bar g	(232 psi g)
TMA	Maximum allowable temperature	250 °C	(482 °F)
PMO	Maximum operating pressure	14 bar g	(203 psi g)
TMO	Maximum operating temperature	250 °C	(482 °F)
Designed for a maximum cold hydraulic test pressure of:		28 bar g	(406 psi g)

3. Installation

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

Referring to the Installation and Maintenance Instructions, body marking and Technical Information Sheet, check that the product is suitable for the intended installation.

- Check materials, pressure and temperature and their maximum values. If the maximum operating limit of the product is lower than that of the system in which it is being fitted, ensure that a safety device is included in the system to prevent overpressurisation.
- Determine the correct installation situation and the direction of fluid flow.
- Remove protective covers from all connections.
- The LCV1 must be installed in horizontal pipework only with the cap at the top.
- When fitted after blast action steam traps (thermodynamic and inverted bucket), the LCV1 should be installed at least 1 m (3 ft) downstream of the trap outlet.
- Always fit a check valve downstream of any steam trap which discharges into a condensate return line where back pressure is present.

4. Commissioning

After installation or maintenance ensure that the system is fully functioning.

5. Operation

The LCV1 is a lift type check valves which allow fluid control in the direction of the flow arrow (shown on the body) but prevents reverse flow.

6. Maintenance

This product is non-maintainable. If it fails, the complete valve must be replaced.

7. Spare parts

There are no spare parts available.

How to order a new product

Example: 1 off Spirax Sarco 1" BSP LCV1 lift check valve.