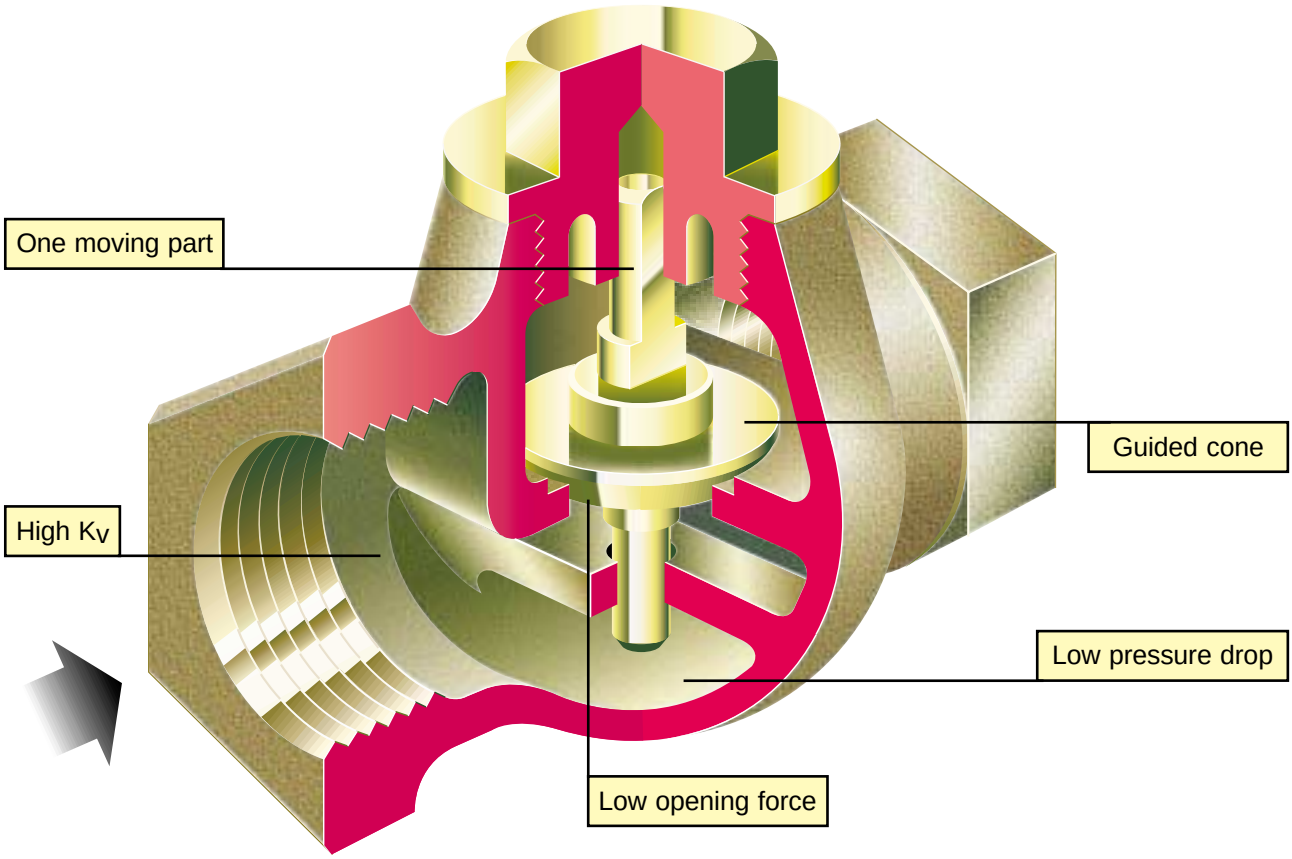
LCV1
Lift check valve

spirax sarco

The Spirax Sarco lift check valve prevents reverse flow and its associated dangers

For over fifty years Spirax Sarco have manufactured more than a million lift check valves, which have been successfully used throughout the world.



Why use the LCV1 lift check valve?

Lift check valves have two main uses:-

- The primary function of the LCV1 check valve is to prevent reverse flow, protecting any item of equipment that can be affected by this action.
- A secondary feature of the LCV1 check valve is the ability to reduce the pressure surges associated with hydraulic forces e.g. waterhammer. These hydraulic forces cause a wave of pressure to run up and down the pipework until the energy is dissipated. Independent tests show that this pressure can exceed 150 bar g, which in most cases is high enough to cause damage to plant.

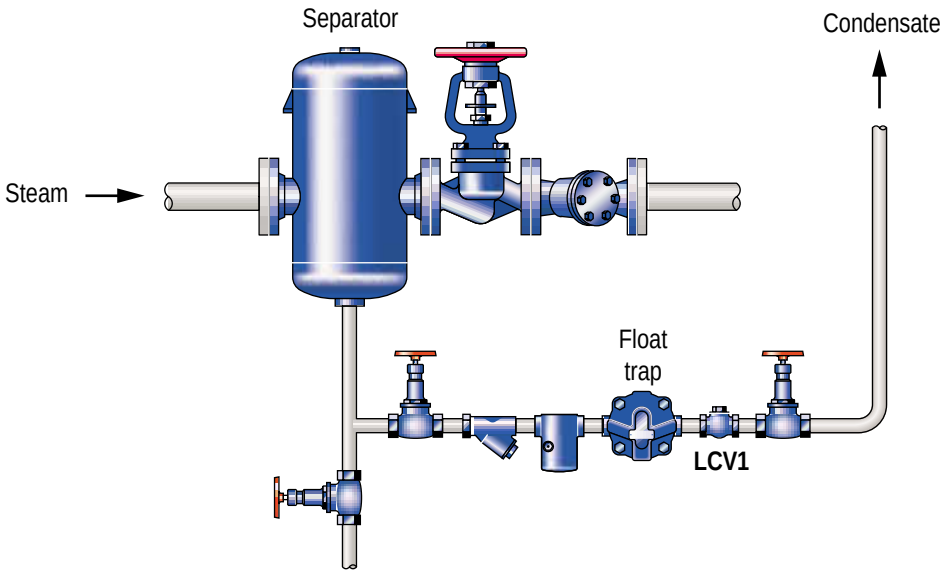
An awareness of these hazards is essential, for example, for anyone using water meters. Reverse flow will reduce the accuracy of the meter. The meter's computer will continually totalise flowrate. This figure will always be incorrect if any reverse flow has occurred. Reverse flow can also cause pressure problems in manufacturing processes, affecting product quality.

How the LCV1 works

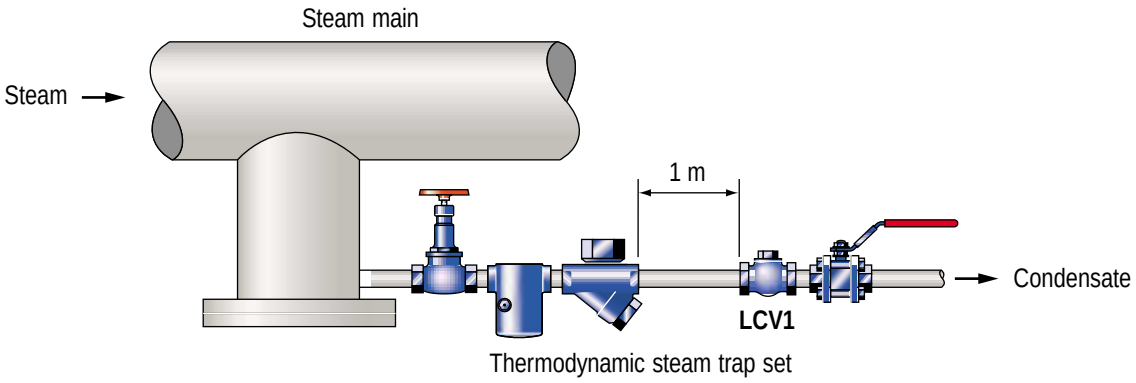
The LCV1 lift check valve is designed for use in horizontal pipelines. The flow of fluid into the check valve lifts the guided cone off its seat, thus exposing the outlet port. The cone returns to its seat when the flow ceases, due to the weight of the cone. The cone is the only moving part and since the cone and the seat are lapped during manufacture, product reliability and longevity are ensured.

Typical applications

Although undesirable, lifting condensate is a common practice. Where traps are installed prior to a riser, lift check valves should be fitted to prevent reverse flow. When condensate is discharged into a pressurised main, a lift check valve will protect trap internals from backpressure.



When fitted after a blast action trap, such as a thermostatic, inverted bucket or thermodynamic trap, the lift check valve should be installed at least 1 m downstream of the trap outlet.



Lift check valves are used for those applications where a metal-to-metal seat is acceptable. With certain automatic condensate pumps, lift check valves are fitted on the inlet and outlet of the pump body to ensure correct pump operation and prevent reverse flow.

A spring can be fitted in the pump outlet check valve (3" only) to create the degree of backpressure needed for pump operation, where the discharge head is insufficient.

Installation of a lift check valve can prolong service life, save money and provide peace of mind.

User benefits

Long life.
No maintenance needed.
Easy to install.
Reduces waterhammer damage and subsequent maintenance bills.
This product fully complies with the requirements of the European Pressure Equipment Directive 97/23/EC and carries the CE mark when so required.
Spirax Sarco's guarantee of worldwide technical support, knowledge and service.

Technical data

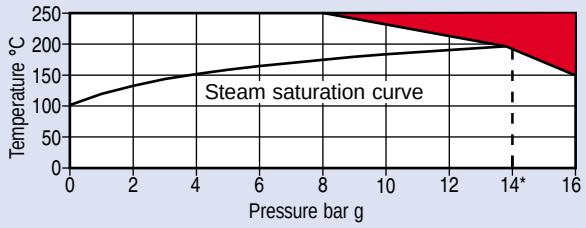
Sizes and pipe connections

½", ¾", 1", 1¼", 1½", 2" and 3"
Screwed BSP or NPT

Limiting conditions

Body design conditions PN16
PMA - Maximum allowable pressure 16 bar g
TMA - Maximum allowable temperature 250°C
Designed for a maximum cold hydraulic test pressure of 28 bar g

Operating range



The product must not be used in the red area.

K_V values

Size	½"	¾"	1"	1¼"	1½"	2"	3"
K_V	1.9	4.3	8.5	11.9	18.8	30.8	68.4

For conversion C_V (UK) = K_V x 0.97 C_V (US) = K_V x 1.17

Opening pressures in mbar

Without springs							→Flow pressures
Size	½"	¾"	1"	1¼"	1½"	2"	3"
→	6.2	7.4	6.5	7.1	7.1	6.9	-

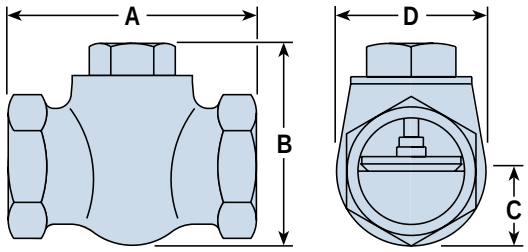
With springs fitted the opening pressure is the same as the spring strength.

Materials

Part	Material	
Body	Bronze	EN 1982 CC491K
Cone	Brass	BS 2874 CZ 114
Cap	Brass	EN 12165 CW617N
Spring (optional on 3" only)	Stainless steel	BS 2056 302 S26

Dimensions/weights

(approximate in mm and kg)



Size	A	B	C	D	Weight
½"	53	46	18	36	0.2
¾"	71	58	20	41	0.5
1"	86	71	28	56	0.8
1¼"	86	71	28	56	0.8
1½"	109	91	36	71	1.9
2"	135	104	43	86	2.7
3"	180	152	61	122	6.9

Installation

Always install horizontally with the flow in the direction as indicated on the body.

How to order

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

LCHKS

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