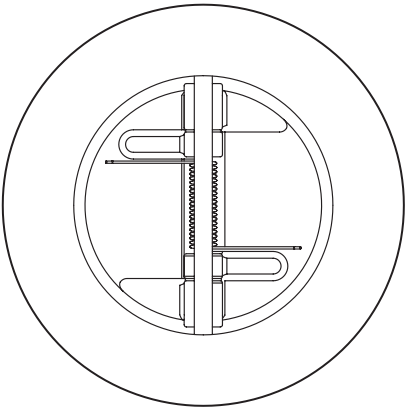
IM-P154-11-US
Issue 1

SDCV44
Split Disc Check Valves
Installation and Maintenance Instructions



1. Safety information

Safe operation of these products can only be guaranteed if they are properly installed, commissioned, used and maintained by qualified personnel 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 equip- ment 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.

The products listed below comply with the requirements of the European Pressure Equipment Directive 2014/68/EU and carry the CE mark when so required.

The products fall within the following Pressure Equipment Directive categories:

Product/Size	Group 1 Gases	Group 2 Gases	Group 1 Liquids	Group 2 Liquids
SDCV44 – DN50 Class 150 / 300	N/A	Cat I	N/A	SEP
SDCV44 – DN80 Class 150 / 300	N/A	Cat I	N/A	SEP
SDCV44 – DN100 Class 150 / 300	N/A	Cat I	N/A	SEP

i) **The SDCV44 has been specificaly designed for use on Water, Hydrocarbon, and Heat Transfer Oil. Which is in Group 1 Fluids of the Pressure Equipment Directive. SDCV44 can also be used on Steam or Air. The products use on other fluids may be possible but, if this is contemplated, Spirax Sarco should be contacted to confirm the suitability of the product for the application being considered.**

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 overtem- perature 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 before installation.**

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 hazard- ous 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 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 lock- ing 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.

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 572°F (300°C). 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 tem- peratures below freezing point.

1.15 Safety information - Product specific

See the relevant Section in the attached Installation and Maintenance Instructions for specific details relating to this product.

1.16 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.

1.17 Returning products

Customers and stockists are reminded that under 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 description

2.1 Description

SDCV44 split disc check valves are of a wafer pattern, designed to be sandwiched between ANSI 150 or 300 flanges.

Their function is to prevent reverse flow on a wide variety of fluids.

The SDCV44 is designed for use with agressive fluids, vapours, acids and alkalines at high pressures and temperatures.

The face-to-face dimension of the SDCV44 conforms to API 594. As standard the valves have a metal-to-metal seat.

Note: For additional information see the following Technical Information Sheet: TI-P154-10-US.

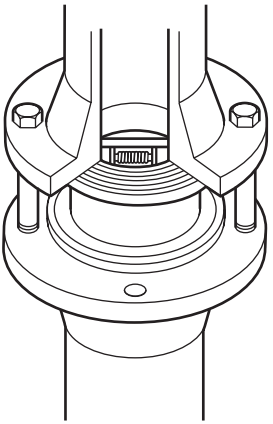
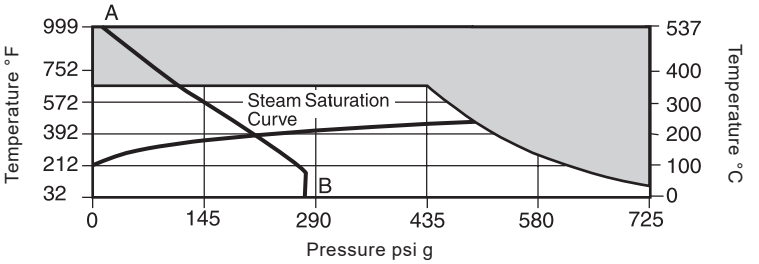


Fig. 1 SDCV disc check valve shown sandwiched between flanged connections

Pressure/temperature limits



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

A - B ANSI 150 flanges

A - C ANSI 300 flanges

Maximum body design condition			
PMA	Maximum allowable pressure	720 psi g	*(49.6 bar g)*
TMA	Maximum allowable temperature	650 °F	*(343.3 °C)*
PMO	Maximum operating pressure	720 psi g	*(49.6 bar g)*
TMO	Maximum metal seat operating temperature	650 °F	*(343.5 °C)*
Minimum operating metal seat temperature		-20 °F	*(-28.88 °C)*
Designed for a maximum cold hydraulic test pressure		1475 psi g	*(101.7 bar g)*

Note: Limited to flange rating

3. Installation

Note: Before actioning any installation observe the 'Safety information' in Section 2.

Referring to the Installation and Maintenance Instructions, name-plate and Technical Information Sheet, check that the product is suitable for the intended installation:

3.1 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.

3.2 Determine the correct installation situation and the direction of fluid flow.

3.3 Remove protective covers from all connections.

3.4 Before installing the SDCV remove the corrosion inhibitor from the flange faces and clean the machined faces on the disc and body seats using paraffin or a similar liquid. This will remove the last traces of protective coating.

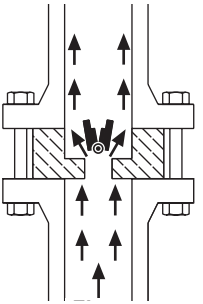
3.5 Split disc check valves simply fit between two pipe flanges (see Fig. 1). Standard gaskets are used either side of the valve together with longer bolts or studs.

Note: flanges, bolts (or studs), nuts and joint gaskets are to be provided by the installer. Normal sensible flange practice should be followed e.g. torque tightening the bolts in opposite sequence. Install the SDCV44 in the pipeline checking that it has been fitted with the flow in the direction of the arrow on the valve body. If the valve is in a horizontal pipeline the hinge pin must be in the vertical position for correct operation. Split disc check valves can be installed with the liquid/gas flowing horizontally into the valve (Fig. 2 valve shown in the open position), or with the liquid/gas flowing vertically upwards through the valve (Fig. 3 valve shown in the closed position). Split disc check valves are not recommended for installation with the liquid/gas flowing vertically down through the valve.

3.6 Split disc check valves are not suitable for use where heavily pulsating flow exists, such as close to a compressor.

3.7 Ensure suitable slinging/lifting/support equipment and procedures are used relevant to the valve size and weight.

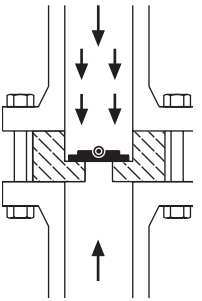
Open



Flow

Fig. 2

Closed



Flow

Fig. 3

4. Commissioning

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

5. Operation

Disc check valves are opened by the pressure of the fluid and closed by the spring as soon as the flow ceases and before the reverse flow occurs.

6. Maintenance

Before actioning any maintenance program observe the 'Safety information' in Section 2.

6.1 Before undertaking any maintenance on the valve it must be isolated from both the supply line and return line and any pressure allowed to safely normalize to atmosphere. The valve should then be allowed to cool. When reassembling, ensure that all joint faces are clean.

6.2 Remove the valve from the pipeline by loosening all flange nuts and removing sufficient bolts or studs to allow the valve to be withdrawn from between the flanges. Note: Ensure suitable slinging/lifting/support equipment and safety procedures are used relevant to the valve size and weight.

6.3 Clean the valve removing any agressive media. Valves should be checked every 6 months.

Spirax Sarco Applications Engineering Department
Toll Free at: 1-800-883-4411

SPIRAX SARCO, INC.
1150 NORTHPOINT BLVD.
BLYTHEWOOD, SC 29016
PHONE 803-714-2000
FAX 803-714-2222
www.spiraxsarco.com/global/us