

Operating Guide

NVD non-return valves



NVD 462/402



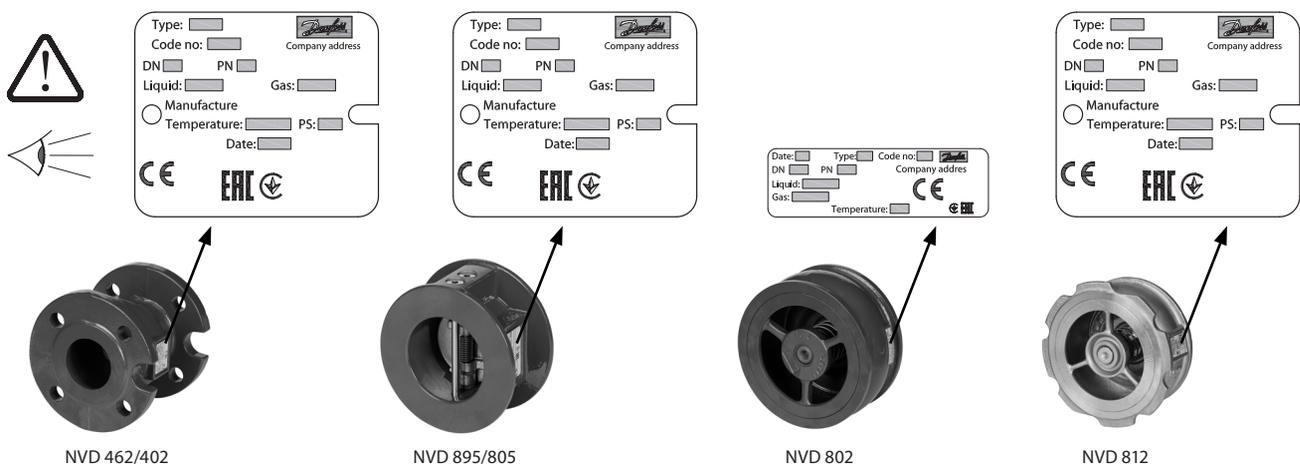
NVD 895/805



NVD 802



NVD 812



Introduction

Before fitting the valve to the installation, make sure that the operating conditions are compatible with the details given on the identification plate, this instruction notice, the manufacturer's details (tariff, recommended uses, advisory service).

Danfoss cannot be held responsible for the malfunctioning of the valve nor for damage or injury resulting from failure to respect these details.

Transport and storage

Before installation:

- The valve must not be removed from its original packaging.
- The valve must be stored inside premises which are clean, dry and free from UV light.
- On site, the valve must not be removed from its original packaging and must be protected from the surrounding elements (dust, sand, rain,...)

During handling and installation:

- Valves which do not have lifting rings must be handled using adequate straps. These should not be liable to damage coatings on the valve casing. Any valve which has undergone a considerable impact must be returned to Danfoss for checking. A crack which is invisible to the naked eye may in time lead to a leak into the atmosphere.
- Avoid bumping coated parts especially around the surfaces of the flange.

Installation

General remarks:

- The installation must take place under the supervision of an authorised person taking account of local safety instructions and advice.
- The handling of valves must be done by staff trained in all technical aspects of their operation.
- Before installation the pipes must be depressurised and purged (empty of fluid) in order to avoid any danger to the operator.
- The pipe work must be correctly aligned so that no extra stress is exerted on the valve casing.
- The valve is a fragile piece of equipment and must not be used to align or break the flanges of pipework.
- For valves of a type to be inserted between flanges, check the compatibility of the connection flanges against the operating pressure:
- the PN number of the flanges must be greater or equal to the operating pressure.

NVD non-return valves

Installation position:

- An arrow on the valve casing indicates the direction of the flow.
- If the non-return valve has a drain plug, this should be positioned in the lower part of the valve. If the non-return valve has an inspection plate, this should be easily accessible.
- The installation positions (horizontal, vertical) of the valve are given on our technical datasheets.

Fitting to the pipe work:

Make sure that

- the surfaces of the flanges or other threaded or welded connections are clean and undamaged.
 - the valve can be easily fitted between the flanges without damaging the surface of the flanges or joint.
- Prise apart the flanges with a suitable tool (without damaging the flanges) if the fit is too tight.
- nothing interferes with the movement of the closing system while the valve is operating.

For 3 piece non-return valves which have to be welded the valve must be taken off the flanges for welding to the pipework so that it is not damaged.

On a new installation, never weld the flanges with the valve in place - risk of burning the internal components:

- The flange bolts must be tightened in accordance with current regulations.

Installation conditions:

- It is recommended that the valve be positioned some distance from any change of direction in the pipe work or from other apparatus in order not to place it in a turbulent zone which would increase its wear. (Between 3 and 5 times the diameter in a straight line both upstream and downstream of the valve)
- At the outlet of a rotodynamic pump type, it is recommended that a valve which conforms to the recommendations FD CEN/TR 13932 is installed.

Commissioning:

Before putting valve into operation, check that:

- The working conditions are compatible with the details given on the identification plate, this instruction notice and the manufacturer's details (technical datasheet, price list catalogue, advisory service).

The valve works effectively when tried (check several times).

On a new installation or after maintenance, the circuit must be rinsed with the valve completely open in order to remove solid matter which may damage the internal parts of the valve.

The installation should be put under pressure progressively to avoid damage which might occur to internal components.

Make sure that when flow stops the valve maintains pressure well and that there is no water-hammer which might damage the valve or installation. If there is water-hammer, an anti-water hammer system must be added to the installation.

During a prolonged stoppage, a change in the state of the fluid may result in damage when the installation is brought back into service (solidification....). Establish an adequate procedure programme for cleaning the system.

Maintenance

Maintenance and repair work must be carried out by qualified personnel.

During opening and closing tests, the operator must be careful not to put fingers or any other object in the trajectory of the closing system. Manipulate the valve and its components carefully to avoid damage.

Removing the valve from the installation:

- The pipe must be depressurised and purged (emptied of its fluid) in order to avoid any danger to the operator. If the installation has carried fluids which are dangerous in themselves if in contact with the outside atmosphere (inflammable, corrosive, toxic, explosive...) it must be thoroughly cleaned to eliminate all risks.
- All fluid remaining in the valve must be removed.
- The temperature of the valve must be lower than 35°C to avoid all risk of burning.
- If necessary, perform the operation using suitable protection (clothing, gloves, mask...).

Maintenance of the valve:

- All spare parts must be genuine Danfoss. All the parts in the maintenance kit must be used. The list of spare parts are given in the technical datasheets.
- The reference number of the valve and the manufacture serial number indicated on the identification plate must be quoted in any request for spare parts and during any claim or return of parts.
- Using grease is not permitted in a « silicone-free » environment.
- Grease must be compatible with the fluid being carried and the constraints of the installation.
- After maintenance, it is recommended that the valve be re-tested by a trial under pressure at 1.5 X PMA (test P11 according to the standard EN12266-1).

Safety:

As well as the indications given in the preceding paragraphs of this notice, it is imperative that the following instructions be followed :

- This notice must be available on site where valves are installed.
- Internal rules and legislation current in the country concerned with respect to health and safety at work must be applied and respected.
- The valve and its control must not undergo any modification without prior approval from our advisory service. Danfoss is not responsible for any damage which may be caused by the use of parts, accessories or controls which are not genuine Danfoss.

The use of non-return valves as foot valves or at the end of the line is forbidden for fluids other than water supply, distribution and evacuation. Consult our Advisory Service for other fluids.

- Opening inspection plates or purging system while the valve is functioning is forbidden.

To carry out this type of intervention follow the paragraph "Removing the valve from the installation."