Instruction

General Vacuum Valve program

032R9317

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1 Introduction

This manual describes instructions in proper use of Danfoss vacuum valve program, including Manually, Electromagnetically and Pneumatically operated valves.

The valves are designed for use in high vacuum applications.

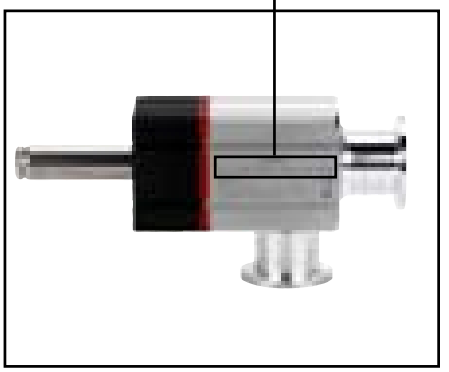
1.1 Conditions of use

Ambient temperature:	0°C to 60°C
Leakage rate:	10^{-9} mbar l/sec
Pressure range:	10^{-8} mbar - 4 bar
Max. baking temperature:	80°C

1.2 Product identification

Your Danfoss Vacuum valve can be identified by the code engraved in the valve housing.

Product Identification Code
xxxxxx xxxxxxxx x xxxxx



VV213B - Electromagnetically direct operated
VV243B - Electromagnetically servo operated
VV213H - Manually operated
VV213P - Pneumatically operated

Orifice size:
16/25/40/50

Valve housing material:
AL - Aluminium housing
SS - Stainless steel housing

Connection size
KF16/KF25/KF40/KF50
(ISO 2861-1/ DIN 28403)

Valve housing type:
Blank - L-type
I - Straight through/inline

NC000 - Normally Closed
NO000 - Normally Open

2 Installation

WARNINGS:

Take appropriate safety precautions when you install the valve in a system where dangerous process substances have been pumped, where high temperature or high pressure can occur.

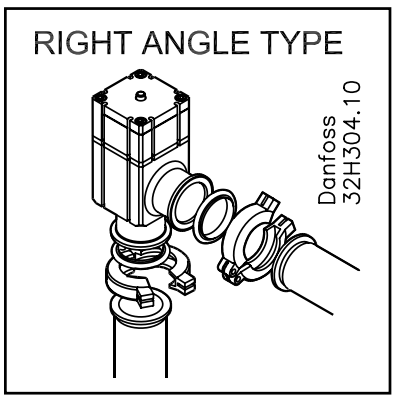
Installation of vacuum components should be carried out by skilled personnel only!

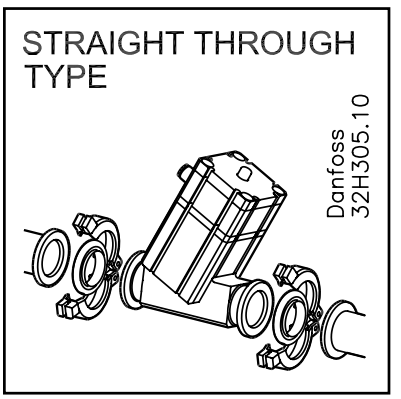
Take appropriate safety precautions when working with electrical installations.

NOTE:

Before you install your Danfoss vacuum valve, it is recommended to remove humidity from the components by baking the valve at max. 80°C .

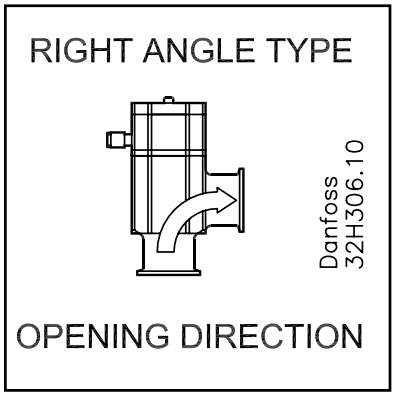
1. The valve is connected to the vacuum system with standard ISO-KF connectors.

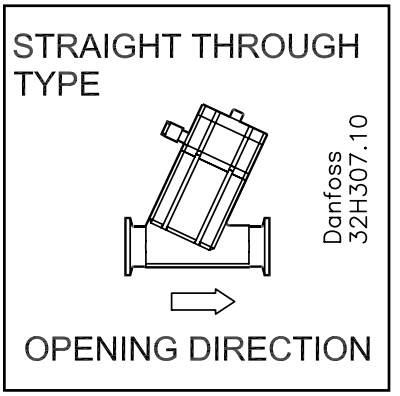


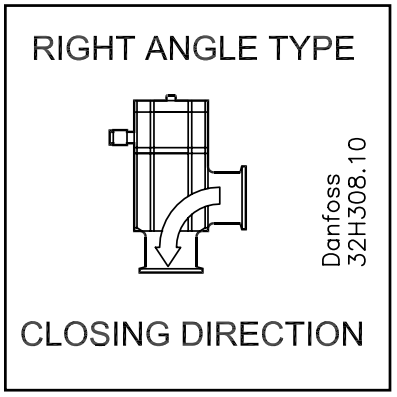


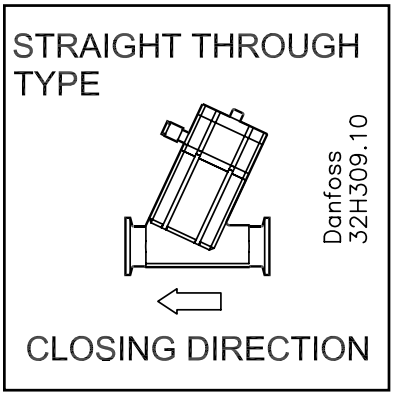
2. Note the differential pressures in respectively opening and closing direction.

Valve Type		Opening dir. ΔP [bar]	Closing dir. ΔP [bar]
Electromagnetically operated	DN16	0.3	1
	DN25	0.3	4
	DN40	0.15	2
	DN50	0.1	1.2
Pneumatically & Manually operated	DN16	2	4
	DN25	2	4
	DN40	2	2
	DN50	1.2	2









2.1 Electromagnetically Operated Valve

The Electromagnetically operated valve will work only with a Danfoss clip-on coil.
The coils are supplied with the following specifications:

Danfoss code no.	Coil type	Supply Volt-age	Control	Func-tion	Description
018F7980	BN115 CS	115	Direct	NC	Valve opens when Line applied
018F7981	BN115 CS	115	24V DC	NC	Valve opens with control signal
018F7982	BN115 CS	115	24V DC	NO	Valve closes with control signal
018F7983	BN230 CS	230	Direct	NC	Valve opens when Line applied
018F7984	BN230 CS	230	24V DC	NC	Valve opens with control signal
018F7985	BN230 CS	230	24V DC	NO	Valve closes with control signal

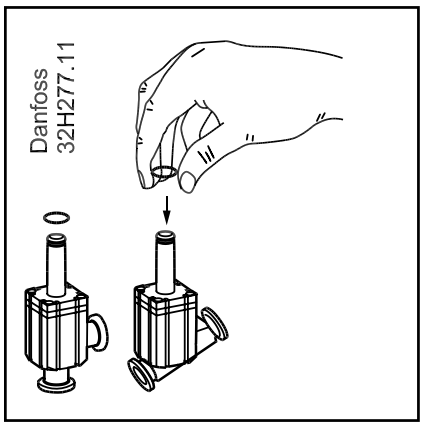
Power consumption:

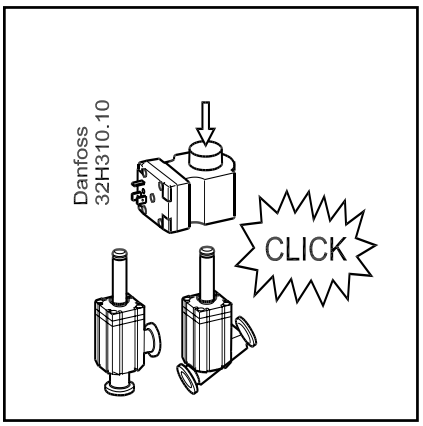
Inrush	300 W
Holding	8 W

Control signal:

0-4 V DC	Inactive
9-30 V DC, 15mA	Active

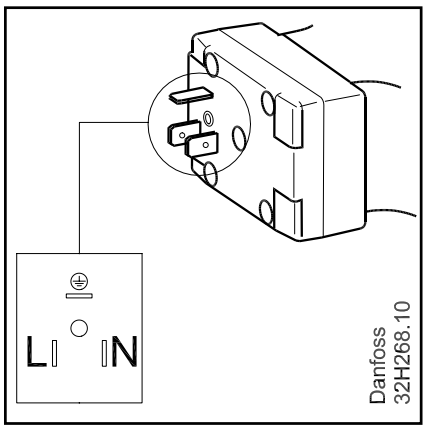
1. Mount the O-ring and the coil on the Vacuum valve. The Coil must CLICK in order to be positioned correctly.

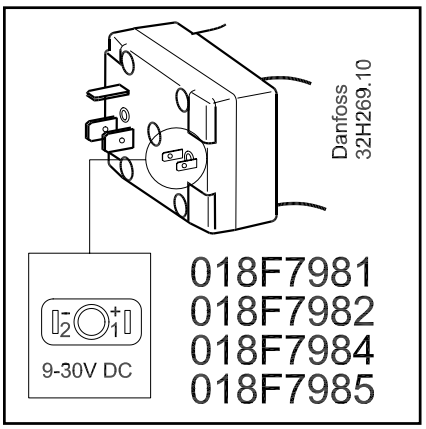




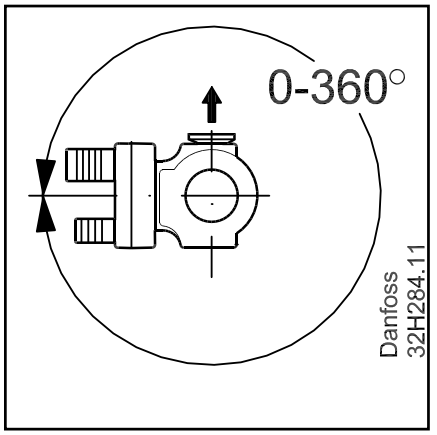
2. Mount cables in the supplied connectors according to drawing.

Mark	Description
L	Line supply - Live
N	Line supply - Neutral
λ	Protective Earth
1/ +	Control voltage - positive
2/-	Control voltage - negative

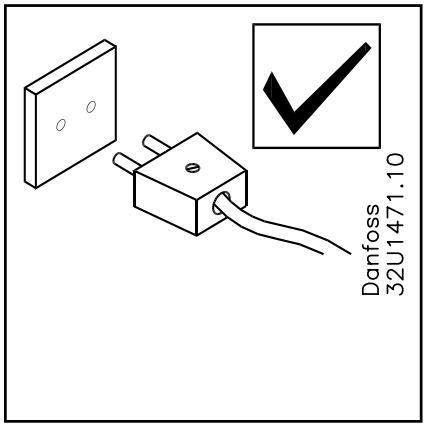


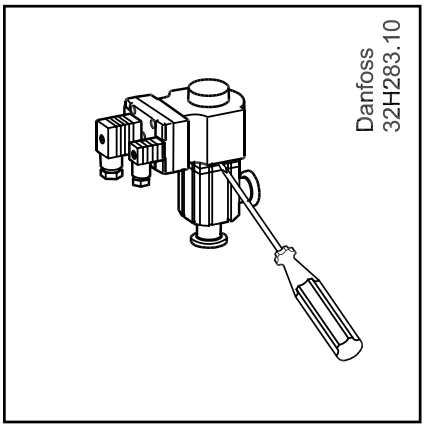


3. The Coil can be rotated to any direction on the valve body.



4. Coil replacement. Before removing the coil, power supply must be disconnected. Use a screwdriver to lever coil from valve body.

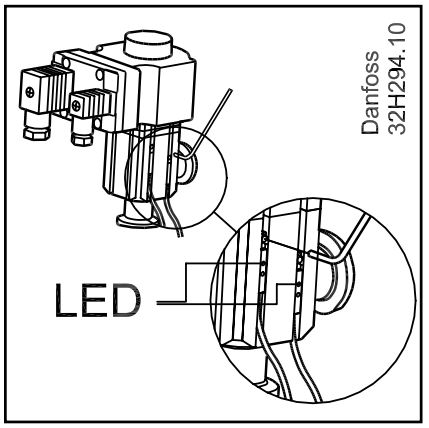


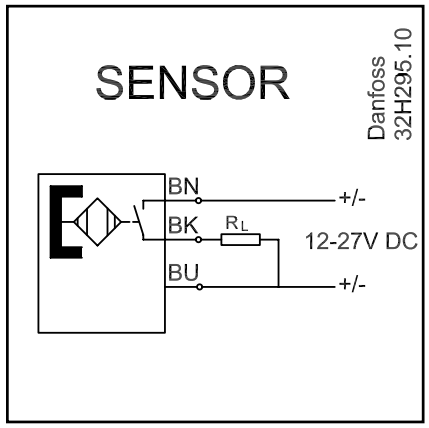


5. An Electronic Sensor (optional) can be used to electronically monitor the state of the valve. Sensor must be ordered separately.

Type	**Danfoss code no.**
Position sensor without connector	**042U2226**
Position sensor with connector	**042U2227**
Extension cable for sensor	**042U2228**

a. Place the sensor in the slot and tighten the screws gently to fix the sensor.
b. Connect the cables according to the drawing.
c. Use 2 sensors to monitor both the open and the closed position.
d. Keeping the valve closed adjust sensor for the **closed position** according to LED light by moving the sensor from the bottom of the valve (opposite valve actuator).
e. Keeping the valve open adjust sensor for the **open position** according to LED light by moving the sensor from the top of the valve (same side as valve actuator).



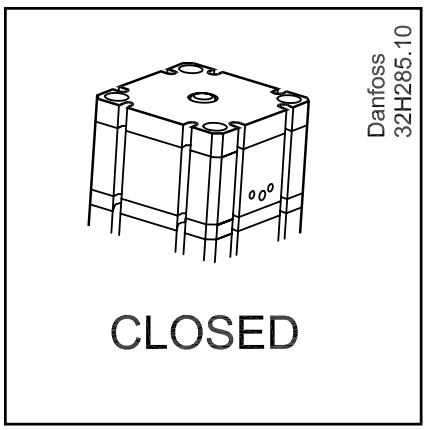


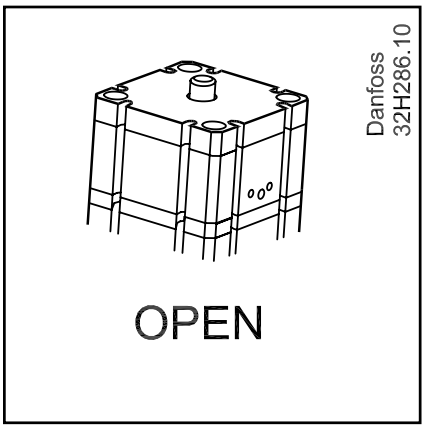
2.2 Pneumatically Operated Valve

Compressed Air supply:

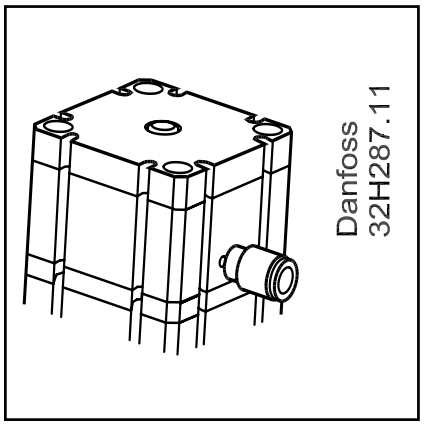
- Activation Pressure P_A = 4 - 7 Bar
- Use clean dry air only

1. Visual indicator indicates if the valve is open or closed.



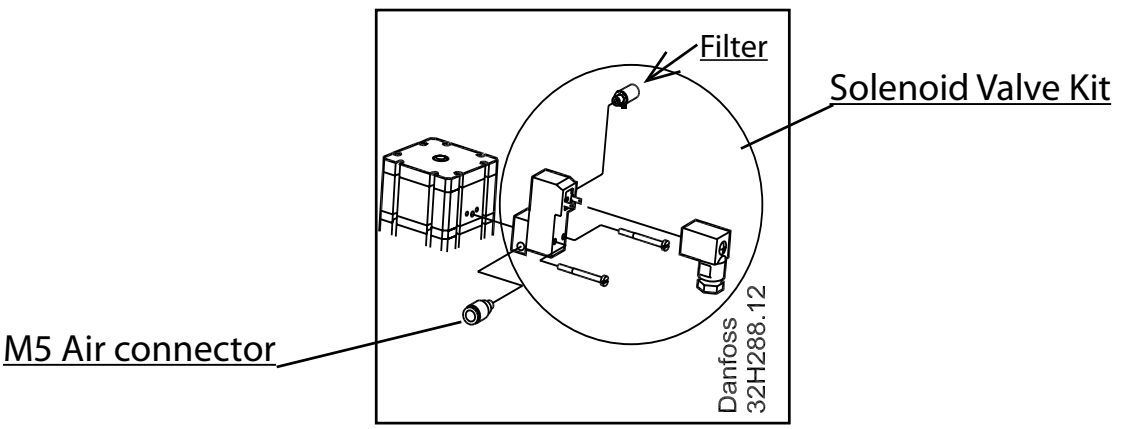


2. Connect compressed air with an M5 connector.



3. Pilot valve (optional) is used for electronic control of the pneumatic valve. Please order Pilot Valve Kit separately according to below:

Type	**Danfoss code no.**
24 V DC	**042U2221**
24 V AC	**042U2222**
115 V AC	**042U2223**
230V AC	**042U2224**



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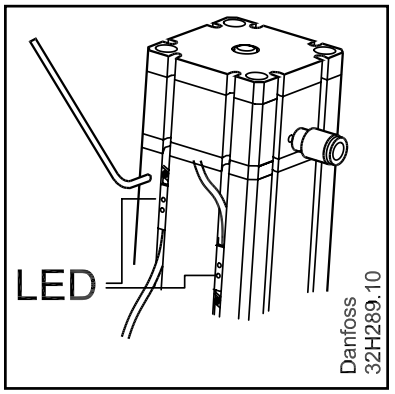
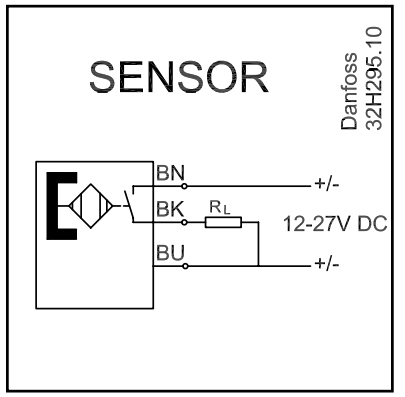
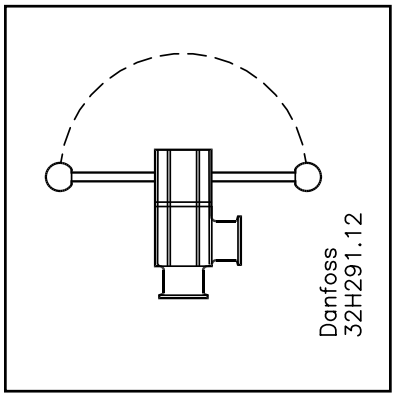


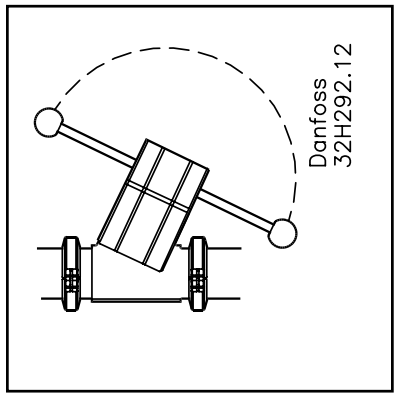


2.3 Manually operated valve

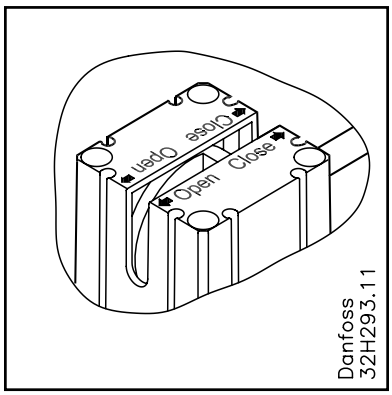
1. Use the handle to open or close the valve. The handle can be placed in different positions to facilitate step-vise opening of the valve

Step	DN16	DN25	DN40	DN50
1.	Closed		Closed	
2.	10%		10%	
3.	20%		50%	
4.	30%		100%	
5.	50%			
6.	100%			





2. Opening/closing direction is marked on the valve cover.



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