



Electrical actuators

AME 55 / AME 56

Description

The actuators AME 55 / AME 56 are used with valves:

- VFM 2 (DN 65-150) only in combination with AME 55,
- VFS 2 (DN 15-50) only in combination with AME 56. Clutch available on special request,
- VFS 2 (DN 65-100),
- VL 2/3 (DN 100),
- VF 2/3 (DN 100-150),
- VL 2/3 & VF 2/3 (DN 65, 80) - only in combination with AME 56 and adapter **065Z0312**,
- AFQM (DN 65-125) and AFQM 6 (DN 40-50).

Features & benefits

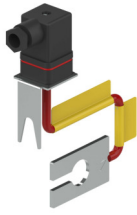
- "Self adjustment" function
- Load related "Switch off" function that prevents valve or actuator to be overloaded
- Diagnostic LED

Ordering

Product code numbers

Type	Supply voltage [V] AC	Code number	VVS DK
AME 55	24	082H3022	460946055
AME 56	24	082H3025	460946056

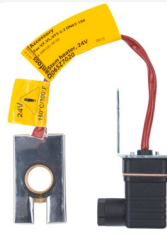
Accessories code numbers



065Z7020

STEM HEATER

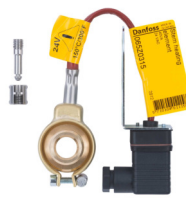
STEM HEATER



065Z7022

Stem heater AMV55/56

Stem heater AMV55/56



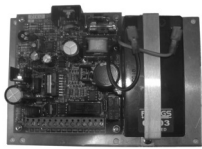
065Z0315

Stem heater for AMV(E) 335/435, AME 435 QM, NovoCon M

Stem heater for AMV(E)
335/435, AME 435 QM,
NovoCon M

065Z0312

AdapAMx55/56/y23- VRB/G,VF/L2009dn65-80

AdapAMx55/56/y23-
VRB/G,VF/L2009dn65-80

082H7090

AM-PBU 25, Supply voltage [V] AC: 24

AM-PBU 25



065Z7551

Spare part Clutch for AMV(E) 55/56 for VFS DN15-DN50

Spare part Clutch for AMV(E)
55/56 for VFS DN15-DN50

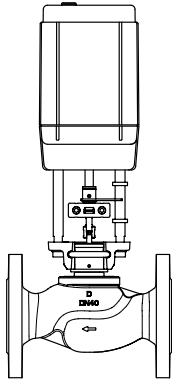
Accessory code numbers only for Danish market:

Code No.	VVS nr.
065Z0315	46 0946.906
065Z7020	46 0946.903
065Z7022	46 1006.904
065Z0312	46 0946.914

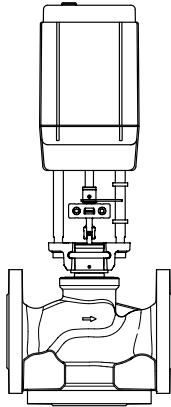
Overview

Product portfolio

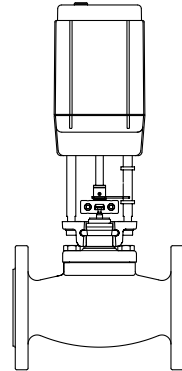
Actuator - valve combinations



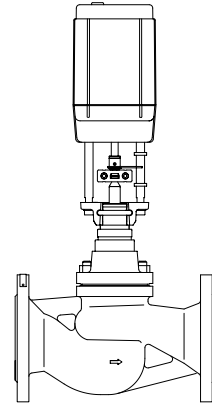
AME 56 +
VL 2, VF 2 (DN 65-80) +
adapter **065Z0312**



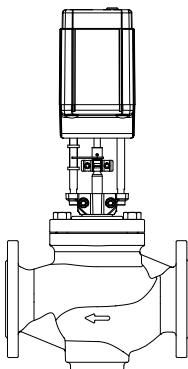
AME 56 +
VL 3, VF 3 (DN 65, 80) +
adapter **065Z0312**



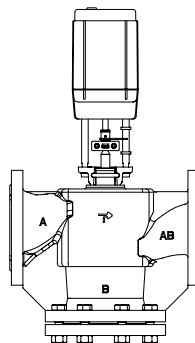
AME 56 +
VFS 2 (DN 15-50) +
clutch **065Z7551**



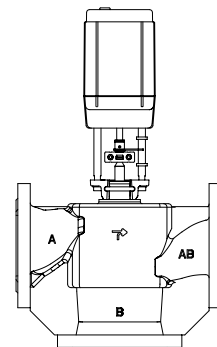
AME 55, AME 56 +
VF 2 (DN 65-100)



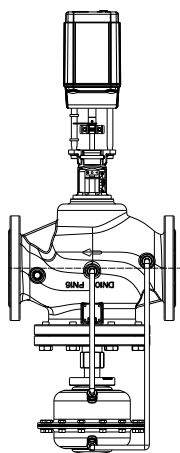
AME 55 +
VFM 2 (DN 65-150)



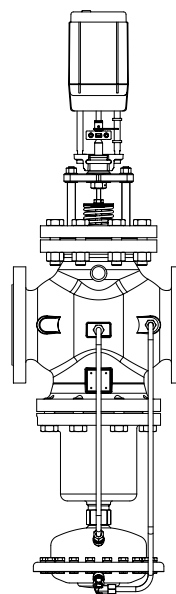
AME 55, AME 56 +
VL 2 (DN 100)
VF 2 (DN 100-150)



AME 55, AME 56 +
VL 3 (DN 100)
VF 3 (DN 100-150)



AME 55 +
AFQM 2 (DN 65-250),
AME 56 +
AFQM 2 (DN 65-125)



AME 55, AME 56 +
AFQM (DN 65-125)
AFQM 6 (DN 40-50)

Functions

Operation

Commissioning

Complete the mechanical and electrical installation and perform the necessary checks and tests:

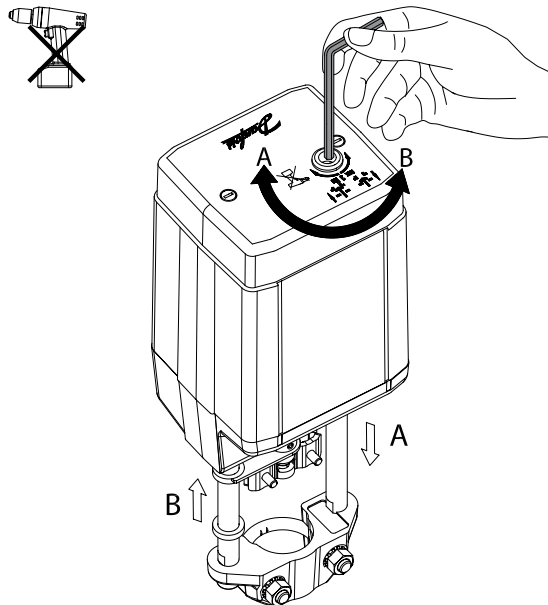
- Isolate control medium. (e.g. self-adjustment in a steam application without suitable mechanical isolation could cause a hazard).
- Apply the power. Note that the actuator will now perform the self-adjustment procedure.
- Apply the appropriate control signal and check the valve stem direction is correct for the application.
- Ensure that the actuator drives the valve over its full stroke, by applying the appropriate control signal. This action will set the valve stroke length.

The unit is now fully commissioned.

Commissioning / testing feature

The actuator can be driven to the fully open or closed positions (depending on valve type) by connecting SN to terminals 1 or 3.

Manual override



The manual override is applied by rotating the 4 mm Allen key (not supplied) to the required position. Observe the direction of the rotation symbol.

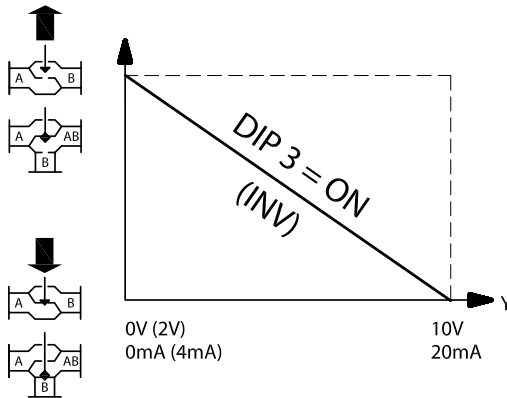
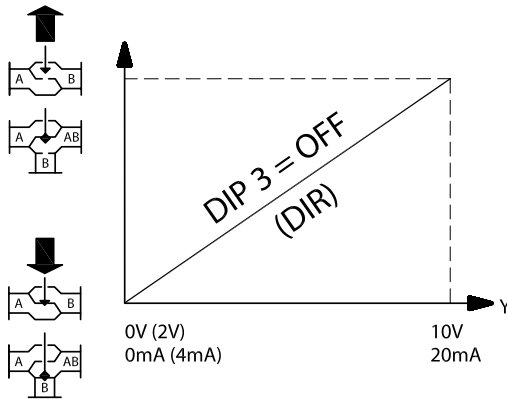
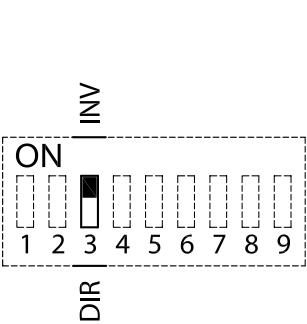
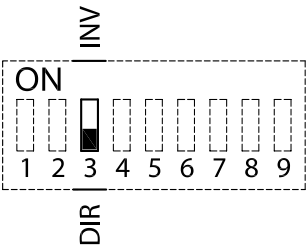
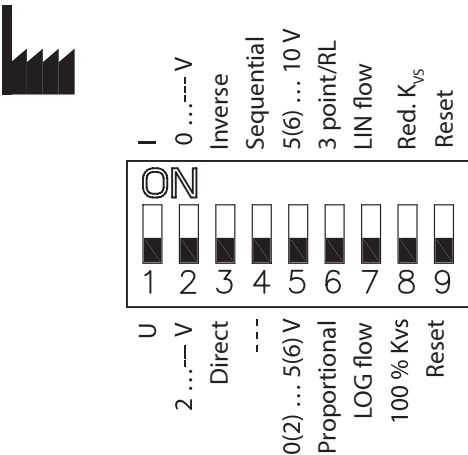
- Disconnect control signals
- Adjust valve position using an Allen key
- Set valve to closed position
- Restore control signals

If manual override has been used then X and Y signal are not correct until the actuator reaches its end position. If this is not accepted reset the actuator, or apply accessory active return signal kit.

Usage of electrical drill machine is not allowed.

Settings

DIP switch setting



The actuator has a selection of DIP switches under the removable cover. The switch provides the following functions:

DIP1: U/I - Input signal type selector:

- If set to OFF position, input signal Y is set to voltage (V). If set to ON position, input signal Y is set to be current (mA).

DIP2: 0/2 - Input signal range selector:

- If set to OFF position, the input signal is in the range from 2 V to 10 V (voltage input) or from 4 mA to 20 mA (current input). If set to ON position, the input signal is in the range from 0 V to 10 V (voltage input) or from 0 mA to 20 mA (current input).

DIP3: D/I - Direct or inverse acting selector:

- If set to OFF position, the actuator is direct acting (actuator's stem extends by voltage increase). If actuator is set to ON position the actuator is inverse acting (actuator's stem retracts by voltage increase).

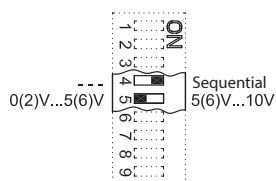
DIP4: —/Seq - Normal or sequential mode selector:

- Two actuators can be set to work parallel with one control signal. If the SEQUENTIAL is set then an actuator responds to split control signal (see 0(2) V ... 5(6) V / 5(6) V ... 10 V).

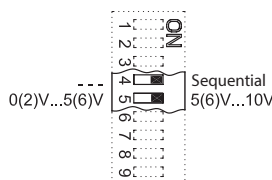
Note: This combination works in combination with DIP5: 0(2) V ... 5(6) V / 5(6) V ... 10 V

DIP5: 0-5 V/5-10 V - Input signal range in sequential mode:

- This function is available if DIP4: --- / Sequential is set to ON, otherwise the actuator operates in full control range 0(2)-10V or 0(4)-20mA).
- When DIP5 is set to Off the actuator will match the range of the control signal:
 - 2 ... 6 V (when DIP1 and DIP2 are set to Off)
 - 0 ... 5 V (when DIP1 is set to Off and DIP2 is set to ON)
 - 4 ... 12 mA (when DIP1 is set to ON and DIP2 is set to Off)
 - 0 ... 10 mA (when DIP1 & DIP2 are set to ON)



- When DIP5 is set to ON the actuator will match the range of the control signal:
 - 6 ... 10 V (when DIP1 and DIP2 are set to Off)
 - 5 ... 10 V (when DIP1 is set to Off and DIP2 is set to ON)
 - 12 ... 20 mA (when DIP1 is set to ON and DIP2 is set to Off)
 - 10 ... 20 mA (when DIP1 & DIP2 are set to ON)



DIP6: Prop./3-pnt - Modulating or 3-point mode selector:

Actuator can operate in modulating (DIP 6 to OFF) or in "simple" 3-point mode, if the 3-point function is selected (DIP 6 to ON).

Modulating mode; DIP 6 set to OFF (factory setting)

- After the actuator has been connected to power supply, the actuator will start the self-adjustment procedure. The indicator LED flashes until self-adjustment is finished.
- Actuator's stem will run to its totally extended or retracted position by bridging SN signal to terminals 1 or 3 and will remain in this position as long as potential is present.

It is not allowed to bridge SP to terminal 1 or 3 when DIP 6 is set to OFF .

3-point mode; DIP 6 set to On

Look carefully wiring diagrams as wiring is different for controllers with triacs output (ECL) in comparison to controllers with relay output.

- Connect SN (Neutral) and power supply (24Vac) via controller to terminals 1 or 3.
- Return signal X (depends on DIP 2, 3, 4 & 5) is possible if connected power supply to SP and SN.

DIP7: LOG/LIN - Equal percentage or linear flow through valve selector¹⁾:

- Characteristic of valve is unchanged by factory setting (DIP 7 OFF).

Danfoss valves as VF, VFS and VFM that are suitable to operate with actuator have logarithmic (equal percentage) flow characteristic. By setting switch to LIN flow the characteristic of motorized valve will be affected. Combination of actuator and valve will work together as valve with LINEAR characteristic.

DIP8: 100 % KVS/Reduced KVS - Flow reduction through valve selector¹⁾:

- If set to OFF position, the flow through valve is not reduced. If set to ON position, the flow through valve reduced by half of increment standard K_{VS} values (example: valve with K_{VS} 16 and DIP8 set to ON – maximum flow through the valve is K_{VS} 13 (middle between standard K_{VS} 16 and K_{VS} 10).

¹⁾ **Note:** To be used only in combination with valves with equal percentage characteristic

DIP9: Reset:

- Changing this switch position will cause the actuator to go through a self-adjustment procedure.



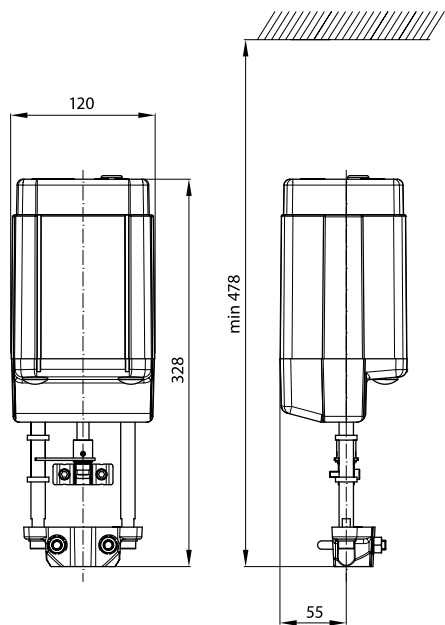
Product details

General data

Technical data

Type	AME 55	AME 56
Power supply (Vac)	24AC; +10%... -15%	24AC; +10%... -15%
Power consumption (VA)	9	19.5
Duty cycle	S3 60% ED (IEC 60034)	S3 60% ED (IEC 60034)
Frequency (Hz)	50/60	50/60
Control input Y (Vdc)	0-10 (2-10) Ri = 24 kΩ	0-10 (2-10) Ri = 24 kΩ
Control input Y (mA)	0-20 (4-20) Ri = 500 Ω	0-20 (4-20) Ri = 500 Ω
Output signal X (Vdc)	0-10 (2-10)	0-10 (2-10)
Closing force (N)	2000	1500
Max. stroke (mm)	40	40
Speed (s/mm)	8	4
Max. medium temperature (°C)	200	200
Ambient temperature (°C)	0 ... 55	0 ... 55
Storage and transport temperature (°C)	-40 ... 70	-40 ... 70
Ambient humidity	95 % r.h., non-condensing	95 % r.h., non-condensing
Protection class	III	III
Grade of enclosure	IP 54	IP 54
Weight (kg)	3.8	3.8

Dimensions



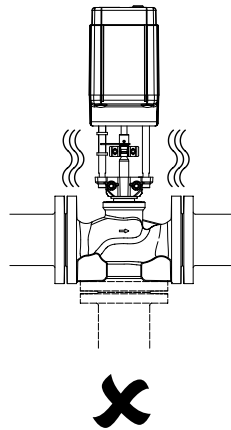
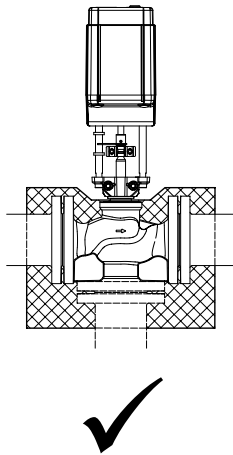
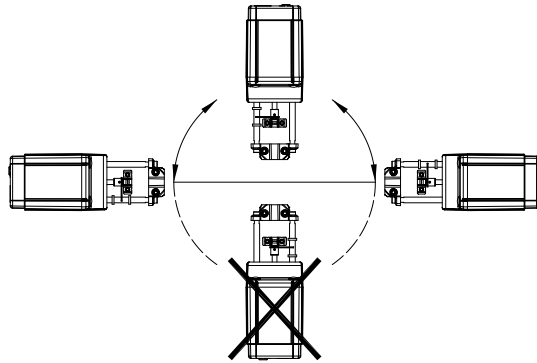
Installation

Mechanical

The actuator should be mounted with the valve stem (use a 4 mm Allen key - not supplied) in either horizontal position or pointing upwards. Use a M8/SW13 key (not supplied) to fit the actuator to the valve body. Allow for necessary clearance for maintenance purposes.

Red rings position indication should be pushed together before commissioning. They indicate the position of valve opening degree after self-adjustment.

Arrange proper valve insulation in order to avoid direct heat transfer toward actuator.



Electrical

Electrical connections can be accessed by removing the cover. Two M16 × 1.5 cable entries are provided. Both entries are provided with a rubber grommet for use with flexible cable. Note that in order to maintain the enclosure IP rating, appropriate cable glands must be used.

Wiring length	Recommended square of the wiring
0-50 m	0.75 mm ²
> 50 m	1.5 mm ²

Wiring



24 Vac only.

Automatic self-adjustment procedure

The actuator will automatically adjust to the stroke of the valve, when power supply is first time connected to the actuator or when the actuator is reset. The LED indicator flashes until self-adjustment is finished. The duration depends on the spindle travel and will normally last a few minutes. To restart self-adjustment, change the position of RESET switch (DIP9).

If the supply voltage is switched off or falls below 80% in more than 0.1s, the current valve position will be stored in the memory also after a power supply cut-out.

Signal on terminals 1 or 3 have priority toward Y input signal.

Diagnostic LED

The red diagnostic LED is located on the pcb under the cover. It provides indication of following operational states:

Constant light:

- normal operation

No light:

- no operation or no power supply

Intermittent light (1 Hz):

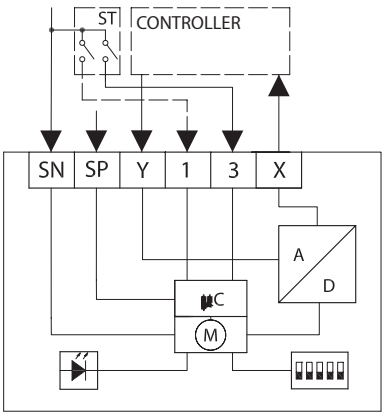
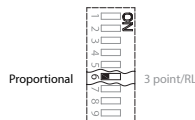
- self-adjusting-mode

Intermittent light (3 Hz):

- power supply too low
- insufficient valve stroke (<20 s)
- end-position cannot be reached.

DIP 6 = OFF

Wiring for modulating mode



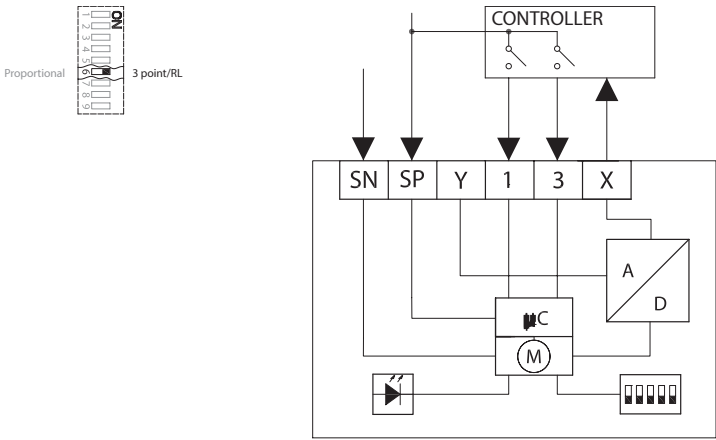
SN	0 V	Neutral
SP	24 Vac	Power supply
Y	0(2)-10 Vdc 0(4)-20 mA	Input
1	SN	Input
3		
X	0(2)-10 Vdc	Output



DIP 6 = ON

Wiring for 3-point floating mode
Controller with relay output

Actuator needs to perform self-adjustment prior changing DIP 6 to ON. Output signal depends on DIP 2, 3&5 setting.

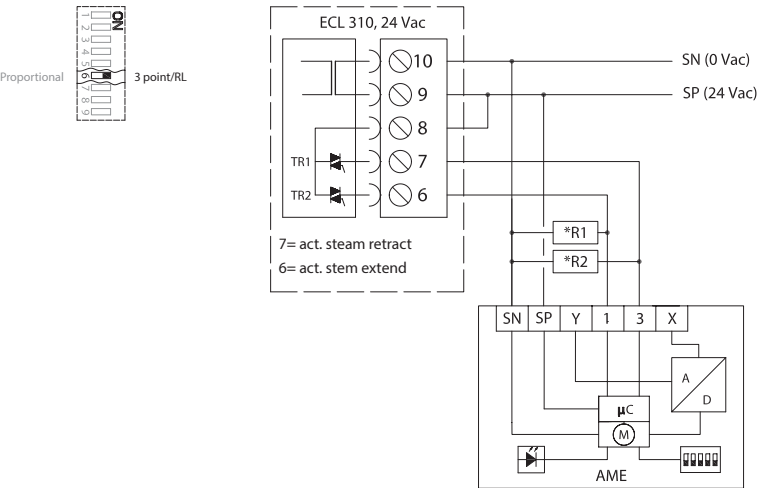


SN	0 V	Neutral
SP	24 Vac	Power supply
1	SP	Input
3		
X	0(2)-10 Vdc	Output

DIP 6 = ON

Wiring for 3-point floating mode
Controller with triacs output ECL

Actuator needs to perform self-adjustment prior changing DIP 6 to ON. Output signal depends on DIP 2, 3&5 setting.



SN	0 V	Neutral
SP	24 Vac	Power supply
1	SP	Input
3		
X	0(2)-10 Vdc	Output

Certificates, declarations and approvals

The list contains all certificates, declarations, and approvals for this product type. Individual code number may have some or all of these approvals, and certain local approvals may not appear on the list.

When you click on the link you will be directed to the latest version of the 'Declaration of Conformity'. Products developed and sold before this date of issue conform to the directives/standards in force at the time of their sale.

Approval type	Title	Certification body	Approval topic
UA Declaration	UA Actuators 2024-06-27	Danfoss	LVD
Export Control Declaration	Actuators pressure flow and temperature	Danfoss	
EU Declaration	Danfoss EU 221011EN0815101	Danfoss	LVD
EU Declaration	EU Declaration of conformity 260619EN2801	Danfoss	Packaging

Contact details

Online support

Danfoss offers a wide range of support along with our products, including digital information, software, mobile apps and expert guidance. See the possibilities below.



The Danfoss Design center

Discover the Design Center, our advanced digital platform that streamlines product selection. With integrated tools and enhanced type pages, it's simpler than ever to access product information and documentation, and to select the right products. Check the availability of Danfoss products at partner locations and enjoy seamless transitions from selection to purchase with our basket-to-basket functionality. Whether you're buying from our distributors or directly from the Product Store, the Design Center simplifies your experience. Learn more at: designcenter.danfoss.com.



The Danfoss product store

The Danfoss Product Store is a one-stop shop available 24/7 for our customers, no matter where you are in the world or what area of industry you work in. Browse our catalog, check product details and documentation, view your prices and product availability, and quickly finalize your purchase. Start browsing at: store.danfoss.com.



Danfoss Partner Portal/Product Data tool

Designed to support you with easy access to product data extracts, essential resources, tools, and information. The Partner Portal provides a centralized hub for product documentation, training materials, marketing assets, and technical support, ensuring you have everything you need to succeed and grow your business with Danfoss. The Partner Portal is available 24/7 at: partner.danfoss.com and is ready to support your business.



Find technical documentation

Find technical documentation you need to get your project up running. Get direct access to our official collection of data sheets, certificates and declarations, manuals and guides, 3D models and drawings, case stories, brochures, and much more. Start searching now at: documentation.danfoss.com.



Danfoss Learning

Danfoss Learning is a free online learning platform. It features courses and materials specifically designed to help engineers, installers, service technicians, and wholesalers better understand the products, applications industry topics, and trends that will help you do your job better. Find your local Danfoss website here: learning.danfoss.com.



Get local information and support

Local Danfoss websites are the main sources for help and information about our company and products. Find product availability, get the latest regional news, or connect with a nearby expert - all in your own language. Find your local Danfoss website here: danfoss.com.

Danfoss A/S

Climate Solutions . danfoss.com . +45 7488 2222

Any information, including, but not limited to information on selection of product, its application or use, product design, weight, dimensions, capacity or any other technical data in product manuals, catalogues description, advertisements, etc. and whether made available in writing, orally, electronically, online or via download, shall be considered informative, and is only binding if and to the extent, explicit reference is made in a quotation or order confirmation. Danfoss cannot accept any responsibility for possible errors in catalogues, brochures, videos and other material. Danfoss reserves the right to alter its products without notice. This also applies to products ordered but not delivered provided that such alterations can be made without changes to form, fit or function of the products. All trademarks in this material are property of Danfoss A/S or Danfoss group companies. Danfoss and the Danfoss logo are trademarks of Danfoss A/S. All rights reserved.
