



Thermal actuators

TWA-ZL



Description

Danfoss thermal actuator TWA-ZL is used with Danfoss valves type VZL. The actuator can be controlled with an on/off controller, pulse width modulation (PWM) or switch.

These provide a cost effective solution for the control of hot and/or chilled water for fan coil units, small reheaters and recoolers in temperature control systems.

Main data:

- Nominal voltage: 24 V AC/DC or 230 V AC ; 50/60 Hz
- Stroke: 2,8 mm
- Full stroke travel time: 3 min
- Max. medium temperature: 120 °C

Features & benefits

- Position indicator
- Normally opened (NO) or normally closed (NC) version
- Cable included

Ordering

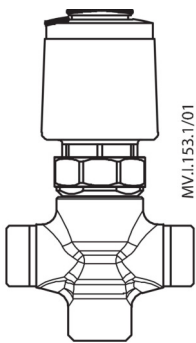
Product code numbers

Type	Power supply	Code No.
TWA-ZL NC	24 V AC/DC	082H3100
TWA-ZL NO	24 V AC/DC	082H3101
TWA-ZL NC	230 V AC	082H3102
TWA-ZL NO	230 V AC	082H3103

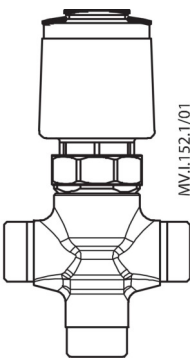
Overview

Product portfolio

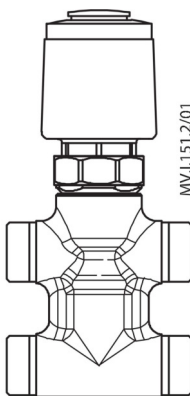
Actuator - valves combinations



TWA-ZL & VZL 2



TWA-ZL & VZL 3



TWA-ZL & VZL 4

Functions

Operation

TWA-ZL actuator works on the thermal expansion principle:

- moves actuator stem in one direction in case of heating of the actuator and
- moves actuator stem in another direction in case of no heating of the actuator

Two versions of actuators are available:

- TWA-ZL NC version, in the non-energized state actuator's stem is retracted
- TWA-ZL NO version, in the non-energized state actuator's stem is extracted

Both versions are available in 24V (SELV) or 230V.

The TWA-ZL NO has an internal spring, which is factory fixed with a split ring (fig.1) to hold the spring retracted in its off-the-shelf state. The use of split ring allows the actuator to be mounted to the valve. Once mounted, the split ring has to be removed.

Remark: In case the actuator has been dismantled and split ring removed, split ring can be added back to the actuator after the heating of the actuator.

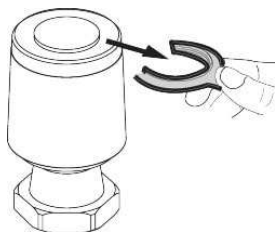


Fig. 1 Normally opened (NO) version

The actuator is equipped with a position indicator to show the position of the actuator stem (fig.2). VZL valve has closed AB port in stem up position. This is done by means of valve internal spring in case of no actuator force.

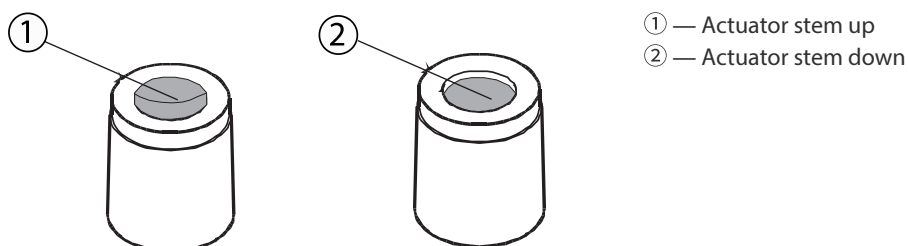


Fig. 2

TWA-ZL & VZL combinations

TWA-ZL NC & VZL:

- in the non-energized state valve path A-AB is closed (fig.3)
- in the energized state valve path A-AB is opened

TWA-ZL NO & VZL:

- in the non-energized state path A-AB is opened (fig.4)
- in the energized state path A-AB is closed

Remark for 3-port or 4-port VZL valves: Due to shorter actuator stroke in compare to the valve stroke port B can not be closed. Therefore this combination can not be used as a switch over valve.

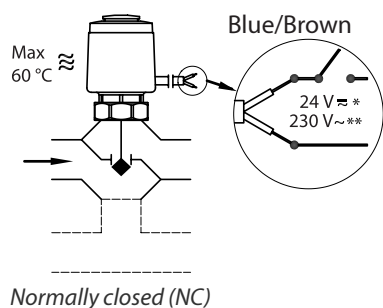


Fig. 3: TWA-ZL NC & VZL

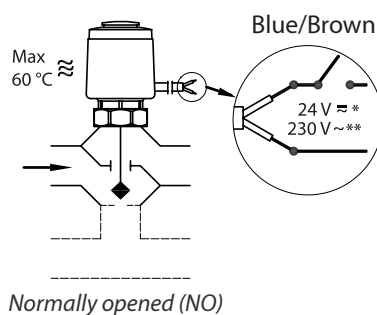


Fig. 4: TWA-ZL NO & VZL

Product details

General data

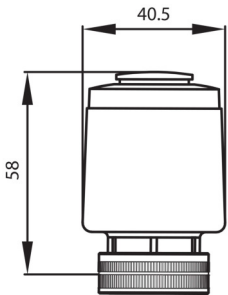
Technical data

Power supply	V	24 AC/DC	230 AC
Power consumption	VA	2	
Frequency	Hz	50/60	
Control Input		On/off and PWM	
Closing force	N	105	
Max. stroke	mm	2.8	
Full stroke travel time	min	3 ¹⁾	
Max. medium temperature	°C	120	
Ambient temperature		2 ... 60	
Storage and transport temperature		-40 ... +70	
Protection class		III	II
Grade of enclosure		IP 41	
Weight	kg	0.15	
Cable length	m	1.2	

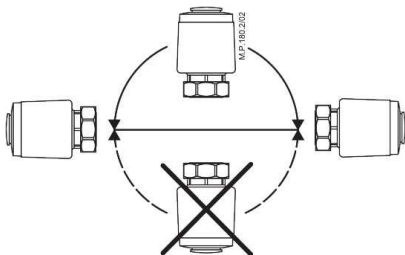
1) When heating the actuator full stroke time increases up to some minutes – it depends on the ambient temperature



Dimensions



Installation



Mechanical

Installation of the valve with the actuator is allowed in horizontal position or upwards.

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
Manufacturer's Declaration	Manufacturer's declaration BF20112024-en01	Danfoss	PED, Pressure, EU RoHS
Export Control Declaration	Gear and Thermal actuators	Danfoss	
EU Declaration	EU Declaration 250729EN2822101.01	Danfoss	LVD, EU RoHS

Contact details

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