

Installation guide

# Electric 3-way valve

## Type CTR 20

UK  
CA

027R9972

027R9972

<b>Main application:</b> Heat reclaim	<b>Refrigerant:</b> R744 for other refrigerants contact Danfoss	<b>Ambient temperature:</b> Min. -40 °C / -40 °F Max. 60 °C / 140 °F	<b>Fluid temperature:</b> Min. 0 °C / 32 °F Max. 150 °C / 302 °F
<b>Stepper motor type:</b> Bipolar		<b>Max working pressure:</b> 140 Bar / 2030 psig	<b>Total full steps:</b> 6600
<b>Phase Current:</b> 100 mA RMS / 141 mA Peak		<b>Coil resistance:</b> 52 Ohm ±10% (25 °C)	<b>Step rate:</b> 75 stp./sec.



**Note!**

Valves are delivered in approximately half opened position and is ready for brazing.



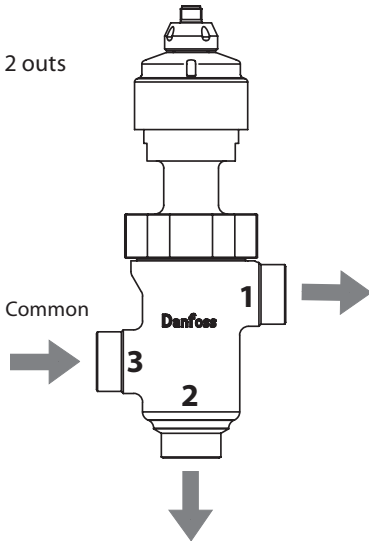
**Warning!**

Do not connect directly to AC / DC power source. Connect valve to appropriate controller/driver only. Do not operate valve while assembling or disassembling.

**Flow direction**

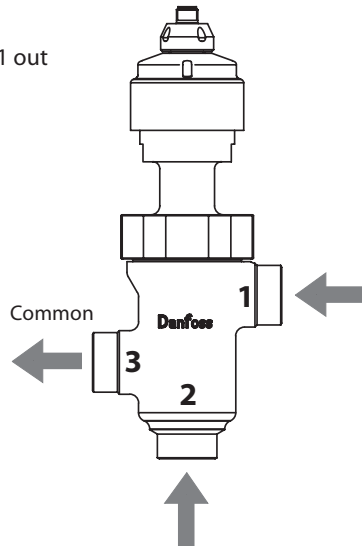
**A.**

1 in 2 outs



**B.**

2 in 1 out

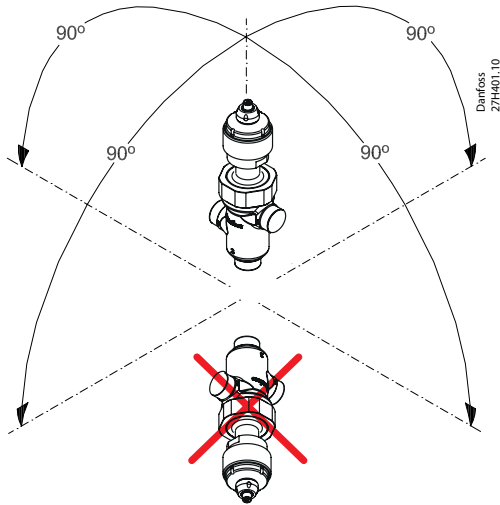


For more information on the product, please scan the QR code.

Info for UK customers only: Danfoss Ltd. Oxford Road, UB9 4LH Denham, UK

### Mounting direction

1

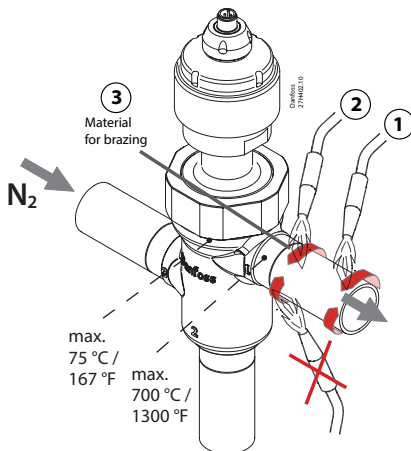


2

- Do not disassemble the valve before brazing or welding.
- the valve must be in middle position by brazing and welding (as it is delivered).

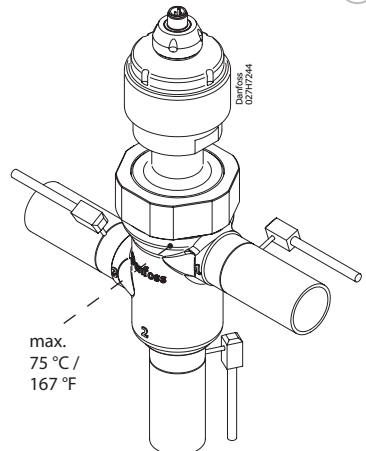
### Brazing

3a



### Welding

3b



Recommendation: Solder nozzle 4 - 6 mm N (5/32 in - 15/64 in)

Materials used for brazing:

- Flux: Metall tenacity No. 5 Powder or Braze Tec special h paste.
- Filler: Silver-Flo 55 (BS:AG 14/ DIN L-Ag55 Sn) or Silver-Flo 56 (AWS B Ag-7).

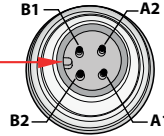
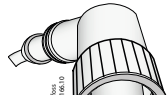
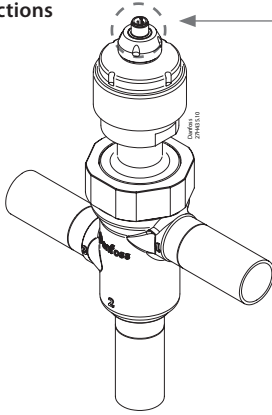
Recommendation for TIG welding

- Power approximately 60A.
- Use Shield gas charge - Argon.
- Material for welding - approximately 2 mm thick stainless steel alloy.



Filler metals containing Phosphor i.e. BS: CP 1/ DIN L-Ag 15P or BS: CP 3/ DIN L-Ag P7 must not be used.

Electrical connections

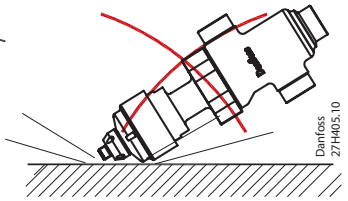
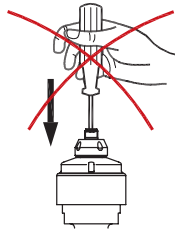
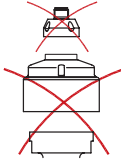
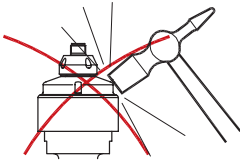


M12 connection  
on CTR valve

A1 and A2 = coil I  
B1 and B2 = coil II



Warning /



Danfoss  
271H40.5.10

For your own notes

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**Service only**

<p>①</p> <p>Spanner: 72 mm / 2.8 in</p> <p>5 X</p> <p>Unskrew the big nut with 5 rotations</p>	<p>②</p> <p>Lift the motor with a screwdriver until it is loose</p>
<p>③</p> <p>Unskrew the big nut fully</p>	<p>④</p> <p>Service kit with 3 O-rings Code no. <b>027H7248</b></p> <ul style="list-style-type: none"> <li>1 Green dot ●</li> <li>2 Red dot ●</li> <li>3 No color</li> </ul>
<p>⑤</p> <p>Align</p> <p>The "fixing" pin must be placed in the gap</p>	<p>⑥</p> <p>Max. torque: 130 Nm / 95.9 ft-lbf</p>