Installation guide

Pressure switch, types RT 1AE, RT 6AEW, RT 6AEB, RT 6AES, RT 116E, RT 5E, RT 117E, RT 112E, RT 113E, RT 260AE, RT 262AE

017R9519

017R9519

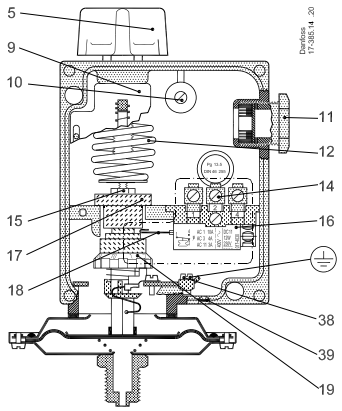
Refrigerants:

R 717 [1], HCFC, HFC and HC

[1] Only types with letter A are suitable for R 717

List of applicable standards:
for ATEX: EN 60079-0:2012+A11:2013; EN 60079-11:2012
for IECEx: IEC 60079-0:2011; IEC 60070-11:2011

1



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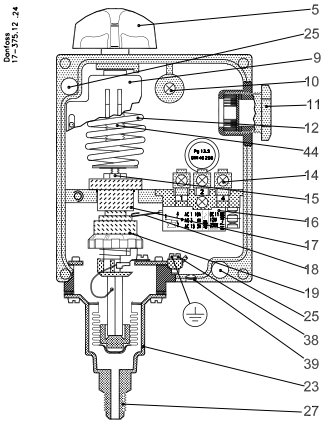

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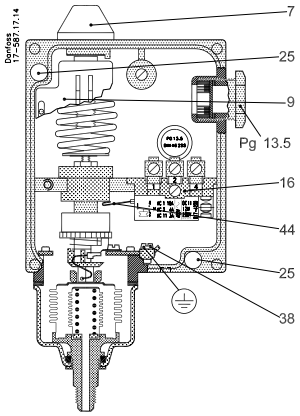

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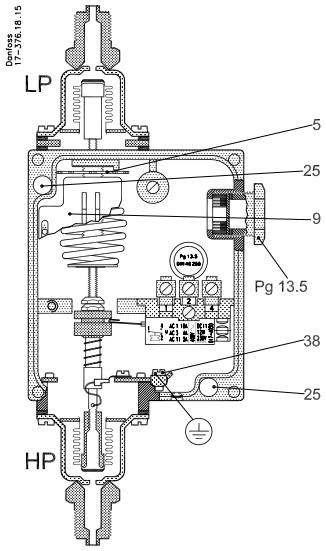

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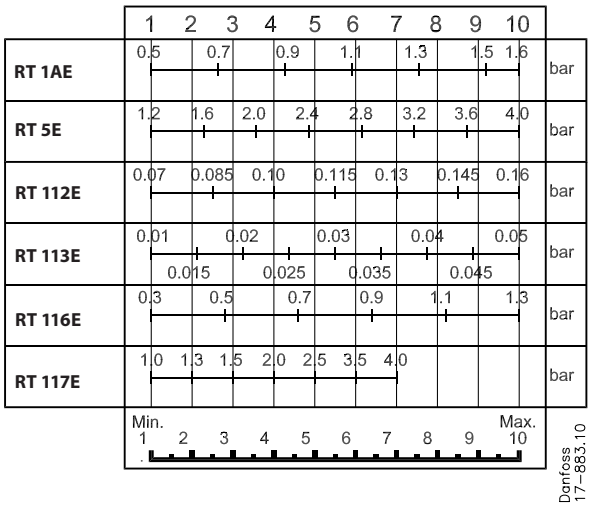

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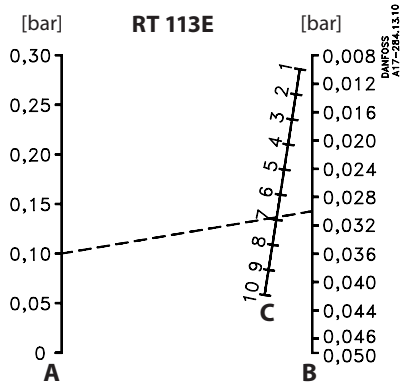
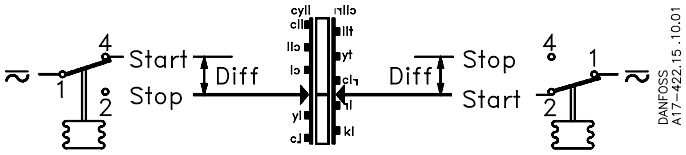


A: Range setting
B: Differential obtained
C: Differential setting

7



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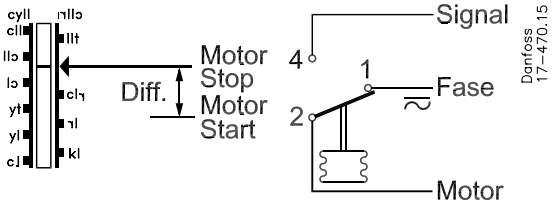

Product marking: RT 113E, RT 112E, RT 1AE, RT 116E, RT 5E, RT 117E, RT 260AE, RT 262AE

CE 0539 Ex II2G

Ex ia IIC T6...T1 Gb -20 °C ≤ Ta ≤ 65 °C
DEMKO 14 ATEX 1406X
IECEx ULD 14.0013X
U_i = 29 V I_i = 0.5 A P_i = 1 W
C_i = 0.5 nF L_i = 0.2 µH

Product marking: RT 6AEW, RT 6AEB, RT 6AES

CE 0035 0539 Ex II2G

Ex ia IIC T6...T1 Gb -20 °C ≤ Ta ≤ 65 °C
DEMKO 14 ATEX 1406X
IECEx ULD 14.0013X
U_i = 29 V I_i = 0.5 A P_i = 1 W
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Temperature class	Process temperature limit [°C]
T4 ... T1	100
T5	94
T6	79

Technical data

Maximum Working Pressure:

Type	RT 113E	RT 112E	RT 1AE	RT 116E	RT 5E	RT 6AEW RT 6AEB RT 6AES	RT 117E	RT 260AE	RT 262AE
MWP [bar]	0.4	7	22	22	22	34 [1)]	42	22	11

[1)] 28 bar P_e when used as safety equipment acc. to EN12263

Permissible ambient temperature:	-20 – 65 °C
Intrinsically safe specification:	Ui = 29 V Ci = 0.5 nF Ii = 0.5 A Li = 0.2 µH Pi = 1 W
Contact load:	max. 100 mA, 30 V a.c. / d.c.
	min. 1 mA, 5 V a.c. / d.c.
	Must be used with a certified Ex ia barrier satisfying the input parameters.

Specific conditions of use:
The enclosure fascia has been coated with a layer of stainless steel to prevent the accumulation of electrostatic charge. In order to ensure that there is no accumulation of electrostatic charge on the enclosure, the end user shall ensure that the external metal work of the enclosure is locally bonded to earth. Information on the durability of the coating with regards to use of the equipment is contained within the instruction manual.

Installation

The RT pressure switch is designed for fitting on the valve panel or the compressor. Use the mounting holes (25). If the unit can be exposend to vibration, it should be mounted on a resilient pad. If pressure pulsations occur in the system at the point where the pressure switch is connected, these should be effectively damped, as for example, by connecting the RT unit to the system via damping coil.

Electrical connection (see fig. 7 and fig. 8.)

START = make. STOP = break. DIFF = differential.
Cable diameter: 6 – 14 mm
The earth terminal (38) should be connected to earth.
Wire dimension: min. 0,75mm²

Adjustment

RT 1AE, RT 116E, RT 5E, RT 117E, RT 112E, RT 113E
(see fig. 1, fig. 2 and fig. 7)
Set the pressure switch for minimum actuating pressure (range setting). Setting is done by rotating the knob (5), at the same time reading the main scale (9).
The differential is set by rotating the differential adjusting nut (19) according to the nomogram concerned (fig. 5 or fig 6).
Maximum actuating pressure is the sum of the pressure setting and the differential.

RT 260AE, RT 262AE
See fig. 4 and fig. 7
Set the required differential pressure with the setting disc (5) while at the same time reading the scale (9).

RT 6AEW, RT 6AEB, RT 6AES (see fig. 3 and fig. 8)
After removing the seal cap (7), set the cut out pressure with the uncovered range spindle while reading the scale (9).

Safety requirements

1. The refrigeration system must always comply with European Ex installation standard, EN 60079-14, any local directive and legislation as well as any other regulation applying in the area of installation.
2. RT-E switch must be used only with reliable means of limiting the voltage and current to prevent sparks between the contact surfaces. The equipment to be used for electrical load limiting must always be approved for use in the zone concerned.
3. Cable and cable entries approved for the application must be used. Cables must not be in contact with sharp edges. The cable must be connected with adequate stress relief in order to prevent that pulling forces can be carried through the cable to the terminal.
4. In the event of pressure pulsations in the system, where the switch is connected, these must be effectively damped to prevent fatigue failure on the bellows. The cycle frequency of the RT-E switch must be kept as low as possible. The vibration level must be kept as low as possible.
5. It is recommended to regularly check the function of the RT-E switch.
6. Only apparatus designed, constructed and released by Danfoss must be used for application concerned. Danfoss can accept no responsibility in case of alterations made on the pressure switches or the use of them against the instructions of Danfoss.
7. Any overload of the RT switch must be prevented. Overloaded or damaged apparatus must be exchanged.
8. Only authorised persons, who are certified in installing and maintaining refrigration system may do the installation, maintenance and exchange of the switch.
9. Use only appropriate tools.
10. Dispose of the switch in an environmentally-friendly way.
11. RTE switches must be installed in area where is low risk of mechanical damage.
12. Components within the equipment can exceed the enclosure temperature by 1K (1°C). When the media temperature exceeds 80°C, it is the responsibility of the user to ensure that the media temperature does not cause a thermal ignition risk on parts between the media and the switch enclosure. Maximum media temperature on pressure switch is 100°C.
13. Isolation of the intrinsically safe circuit to ground and to the contact mounting screw has been verified through 500VACrms dielectric strength testing, carried out in accordance with IEC 60079-11:2011 section 10.3.
14. Surface of the front cover is sputtered with stainless steel - avoid abrasion.
15. Power must be switched off before maintenance and opening the RT-E.