

Data sheet

Pressure switch

RT



RT Pressure switches incorporate a pressure controlled, single-pole change over switch where the contact position depends on the pressure in the connection port and the set value.

The RT series consists of pressure switches, differential pressure switches and pressure switches for neutral zone regulation, all for general use within the industrial and marine segments. The series also covers safety pressure switches dedicated for steam boiler plants.

For installations in which operation is particularly critical from safety and economic points of view, the use of fail-safe pressure switches is recommended.

The use of gold-plated contacts is also recommended in such installations, provided operation involves only a few switching cycles or signal currents and voltages.

Features

- Simple design
- High accuracy
- High repeatability
- Long operation life time
- Available with all major marine approvals
- Safety Integrity Level:
SIL 2 according to IEC 61508

Approvals

RT 1	RT 1A / RT 121	RT 5A	RT 1AL	RT 5	RT 30AW / RT 30AB / RT 30AS / RT 19W / RT 19B / RT 19S	RT 31W / RT 31B / RT 31S / RT 32W / RT 32B	RT 33B / RT 35W / RT 112W	RT 110	RT 112	RT 113	RT 116 / RT 117 / RT 200	RT 117L / RT 200L	RT 260A / RT 262A	RT 265A / RT 260AL / RT 262AL / RT 263AL / RT 266AL	Approvals
•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	CE marked acc. to EN 60947-4/-5
					•	•	•								VD TÜV, Germany
•				•	•			•	•	•	•				Det Norske Veritas and Germanischer Lloyd, DNV GL
				•				•	•		•				Lloyds Register of Shipping, LR
				•				•	•	•	•				Bureau Veritas, BV
•	•			•				•	•	•	•		•		Registro Italiano Navale, RINA
•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	Russian Maritime Register of shipping, RMRS
•	•	•		•				•	•	•	•				Nippon Kaiji Kyokai, NKK
•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	China Compulsory Certificate, CCC

Note:

in addition we refer to the certificates, the copies of which can be ordered from Danfoss

All RT are:

- CE marked in accordance with EN 60947-4/-5 for sale in Europe.
- Further, the RT 19, RT 30, RT 35, RT 112 W, RT 33, RT 31 and RT 32 series is CE marked in accordance with PED 2014/68/EU, category IV, safety equipment.

Overview/Survey

0	5	10	15	20	25	30 [bar]	Range p_e [bar]	Type
							-1 – 0	RT 121
							0 – 0.3	RT 113
							0.1 – 1.1	RT 112
							0.2 – 3	RT 110
							-0.8 – 5	RT 1 / RT 1A
							0.2 – 6	RT 200
							1 – 10	RT 116
							4 – 17	RT 5 / RT 5A
							10 – 30	RT 117
							0.1 – 1.1	RT 112
							0 – 2.5	RT 33B / RT 35W
							1 – 10	RT 30AW / RT 30AB / RT 30AS
							2 – 10	RT 31W / RT 31B / RT 31S
							5 – 25	RT 19W / RT 19B / RT 19S
							5 – 25	RT 32W / RT 32B
							-0.8 – 5	RT 1 AL
							0.2 – 3	RT 110L
							0.2 – 6	RT 200L
							4 – 17	RT 5AL
							10 – 30	RT 117L
							-1 – 6	RT 266AL
							-1 – 6	RT 263AL
							-1 – 9	RT 262AL / RT 262A
							-1 – 18	RT 260AL / RT 260A
							-1 – 36	RT 260A
							-1 – 36	RT 265A

**Technical data
and code nos.**

When ordering, please state type and code number.

The type designation
for the letters below means:
A: Unit suitable for ammonia
L: Unit with neutral zone

Pressure switches



RT 113
for manual setting;
cover with windows

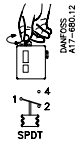
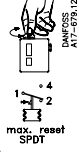
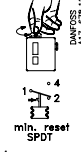
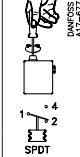


RT 116
for tamper proof;
cap and blank cover



RT 262 A
Differential pressure switch

Preferred versions

Regulation range [bar]	Adjustable/ fixed mechanical differential [bar]	Max. working pressure PS [bar]	Max. test pressure P _e [bar]	Pressure connection ISO 228/1	Code no.				Type
					 DANFOSS AT7-080.12 1 2 3 4 SPDT	 DANFOSS AT7-078.12 1 2 3 4 max. reset SPDT	 DANFOSS AT7-078.12 1 2 3 4 min. reset SPDT	 DANFOSS AT7-077.12 1 2 3 4 SPDT	
-1 - 0	0.09 - 0.4	7	8	G 3/8 A	017-521566	-	-	-	RT 121
0 - 0.3	0.01 - 0.05	0.4	0.5	G 3/8 A	017-519666	-	-	-	RT 113
0.1 - 1.1	0.07 - 0.16	7	8	G 3/8 A	017-519166	-	-	017-519366	RT 112
0.1 - 1.1	0.07	7	8	G 3/8 A	-	017-519266	-	-	RT 112
0.2 - 3	0.08 - 0.25	7	8	G 3/8 A	017-529166	-	-	017-529266	RT 110
0.2 - 3	0.08	7	8	G 3/8 A	-	-	017-511066	-	RT 110
-0.8 - 5	0.5 - 1.6	22	25	7/16-20 UNF	017-524566	-	-	-	RT 1
-0.8 - 5	0.5	22	25	7/16-20 UNF	-	-	017-524666	-	RT 1
-0.8 - 5	0.5 - 1.6	22	25	G 3/8 A ¹⁾	017-500166	-	-	-	RT 1A
-0.8 - 5	0.5	22	25	G 3/8 A ¹⁾	-	-	017-500266	-	RT 1A
-0.8 - 5	1.3 - 2.4	22	25	G 3/8 A ¹⁾	017-500766	-	-	-	RT 1A
0.2 - 6	0.25 - 1.2	22	25	G 3/8 A	017-523766	-	-	017-524066	RT 200
0.2 - 6	0.25	22	25	G 3/8 A	-	017-523866	017-523966	-	RT 200
1 - 10	0.33 - 1.30	22	25	G 3/8 A	017-520366	-	-	017-520066	RT 116
1 - 10	0.33	22	25	G 3/8 A	-	017-520466	017-519966	-	RT 116
4 - 17	1.2 - 4	22	25	G 3/8 A ¹⁾	017-525566	-	-	-	RT 5
4 - 17	1.2 - 4	22	25	G 3/8 A	-	-	-	017-525366	RT 5
4 - 17	1.2	22	25	G 3/8 A ¹⁾	-	017-509466 ²⁾	-	-	RT 5
4 - 17	1.2 - 4	22	25	G 3/8 A ¹⁾	017-504666 ²⁾	-	-	-	RT 5A
4 - 17	1.3	22	25	G 3/8 A ¹⁾	-	017-504766 ²⁾	-	-	RT 5A
10 - 30	1 - 4	42	47	G 3/8 A	017-529566	-	-	017-529666	RT 117

¹⁾ Supplied with ø6 / ø10 mm weld nipple.

²⁾ With seal cap.

Pressure switches with adjustable neutral zone

Regulation range [bar]	Mechanical differential [bar]	Adjustable neutral zone [bar]	Max. working pressure. PS [bar]	Max. test pressure P _e [bar]	Pressure connection	Code no.	Type
-0.8 - 5	0.2	0.2 - 0.9	22	25	G 3/8 A ¹⁾	017L003366	RT 1AL
0.2 - 3	0.08	0.08 - 0.2	7	8	G 3/8 A	017L001566	RT 110L
0.2 - 6	0.25	0.25 - 0.7	22	25	G 3/8 A	017L003266	RT 200L
4 - 17	0.35	0.35 - 1.4	22	25	G 3/8 A ¹⁾	017L004066	RT 5AL
10 - 30	1	1 - 3.0	42	47	G 3/8 A	017L004266	RT 117L

¹⁾ Supplied with ø6 / ø10 mm weld nipple.

Differential pressure switches

Regulation range (Δp) [bar]	Mechanical differential [bar]	Adjustable neutral zone [bar]	Operation range for LP bellows [bar]	Max. working pressure. PS [bar]	Max. test pressure P _e [bar]	Pressure connection ISO 228/1	Code no.	Type
0 - 0.9	0.05	0.05 - 0.23	-1 - 6	7	8	G 3/8 A ¹⁾	017D008166	RT 266AL
0.1 - 1.0	0.05	0.05 - 0.23	-1 - 6	7	8	G 3/8 A ¹⁾	017D004566	RT 263AL
0.1 - 1.5	0.1	0.1 - 0.33	-1 - 9	11	13	G 3/8 A ¹⁾	017D004366	RT 262AL
0.1 - 1.5	0.1	-	-1 - 9	11	13	G 3/8 A ¹⁾	017D002566	RT 262A
0 - 0.3	0.035	-	-1 - 10	11	13	G 3/8 A ¹⁾	017D002766 ²⁾	RT 262A
0.5 - 4	0.3	0.3 - 0.9	-1 - 18	22	25	G 3/8 A ¹⁾	017D004866	RT 260AL
0.5 - 4	0.3	-	-1 - 18	22	25	G 3/8 A ¹⁾	017D002166	RT 260A
0.5 - 6	0.5	-	-1 - 36	42	47	G 3/8 A ¹⁾	017D002366	RT 260A
1.5 - 11	0.5	-	-1 - 31	42	47	G 3/8 A ¹⁾	017D002466	RT 260A
1 - 6	0.5	-	-1 - 36	42	47	G 3/8 A ¹⁾	017D007266 ³⁾	RT 265A

¹⁾ Supplied with ø6 / ø10 mm nipple. / ²⁾ Non-snap action contacts (see spare parts and accessories, contact system 017-018166).

³⁾ With SPST and SPDT contact system for alarm and cut off function at 0.8 and 1 bar.

Materials in contact with the medium

Material	Part	W.no.	DIN	RT 1	RT 1A	RT 5	RT 5A	RT 110	RT 112	RT 113	RT 116	RT 117	RT 121	RT 200 / RT 200L	RT 260A	RT 260A / 262A / RT 262AL	RT 260AL	RT 265A	RT 263AL / RT 266AL
Stainless steel 18/8	Bellows	1.4306	17440	x	x	x	x	x	x		x	x	x	x	x	x	x	x	x
Stainless steel 17/7	Spring	1.4568	17224	x						x		x	x	x					
Brass	Housing	2.0402	17660			x		x	x		x	x	x	x					
Brass	Bellows ring	2.0321	17660			x		x	x		x	x	x	x					
Free-cutting steel	Flare connection	1.0718	1651	x															
Deep-drawn steel (nick.plated surface)	Housing	1.0338	1623	x	x		x								x	x	x	x	x
Non-alli. carbon steel C 20	Weld connect. for connection	1.0402	1652		x		x								x	x	x	x	x
Aluminium	Gasket	3.0255	1712		x		x			x					x	x	x	x	x
NBR rubber	Diaphragm									x									
Deep-drawn steel (surface DIN 50961 weld connection Fe/Zn 5C)	Diaphragm housing with welded connector	1.0338	1623							x									
Spring thread	Spring	1.1250	17223		x														

Materials in contact with the medium, PED approved switches

Material	Part	W.no.	DIN	RT 19W / RT 19B / RT 19S	RT 30AW / RT 30AB / RT 30AS	RT 31W / RT 31B / RT 31S	RT 32WB	RT 33B / RT 35W	RT 112 W
Stainless steel 18/8	Bellows	1.4301	17440	x	x	x	x	x	x
Stainless steel 17/7	Orifice	1.4305	17440	x	x				
Steel C 15	Connector	1.0401	1652	x	x				
Deep-drawn steel + Ni	Bellows ring	1.0338	1623	x	x	x	x	x	x
Stainless steel 17/7	Bellows spring	1.4568	17224		x			x	
Stainless steel	Ring	1.4305	17440		x				
Deep-drawn steel + Ni	Housing	1.0338	1623	x	x	x	x	x	x
Stainless steel	Bellows connect.	1.4305	17440			x			
Stainless, weldable freecutting steel	Connector	1.4301	17440			x	x	x	x
Deep-drawn steel + Sn	Spring guide	1.0338	1623					x	
Brass	Housing	2.0402	17660						
Brass	Bellows ring	2.0321	17660						

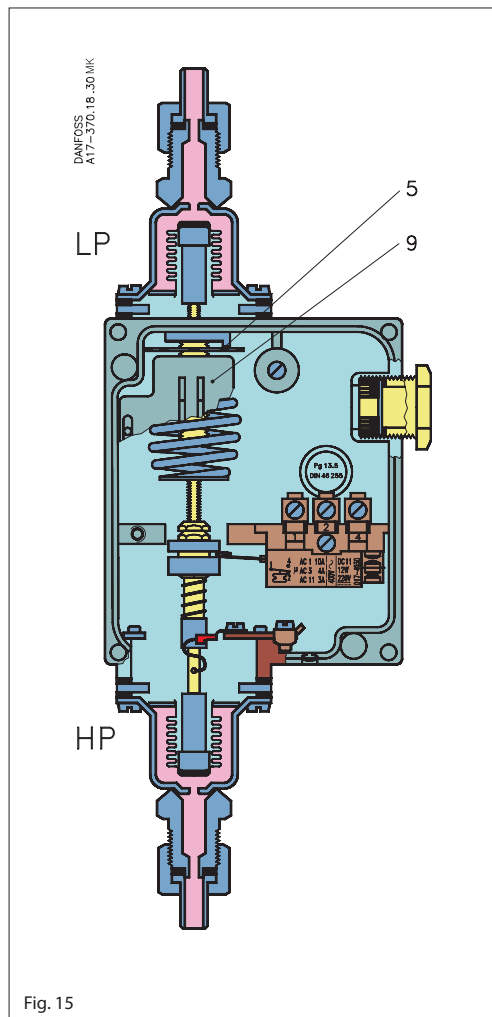
Application

Control and monitoring of pressure differentials

A differential pressure switch is a pressure controlled switch that cuts in and cuts out the current dependent on the pressure differential between the counteracting bellows

elements and the set scale value. This unit is also available with an adjustable neutral zone (like the RT-L which is described on page 9.

Setting



The setting disc (5) becomes accessible when the front cover is removed. The differential pressure is set by turning the disc with a screwdriver while reading the scale (9).

For differential pressure switches with a changeover contact system, the contact differential is given as the differential pressure switches have a fixed differential. In units with an adjustable neutral zone, the neutral zone disc must also be set. See diagram in fig. 16.

- 5. Setting disc
- 9. Range scale

Note:

When installing, the low pressure connection (LP) must always be upwards

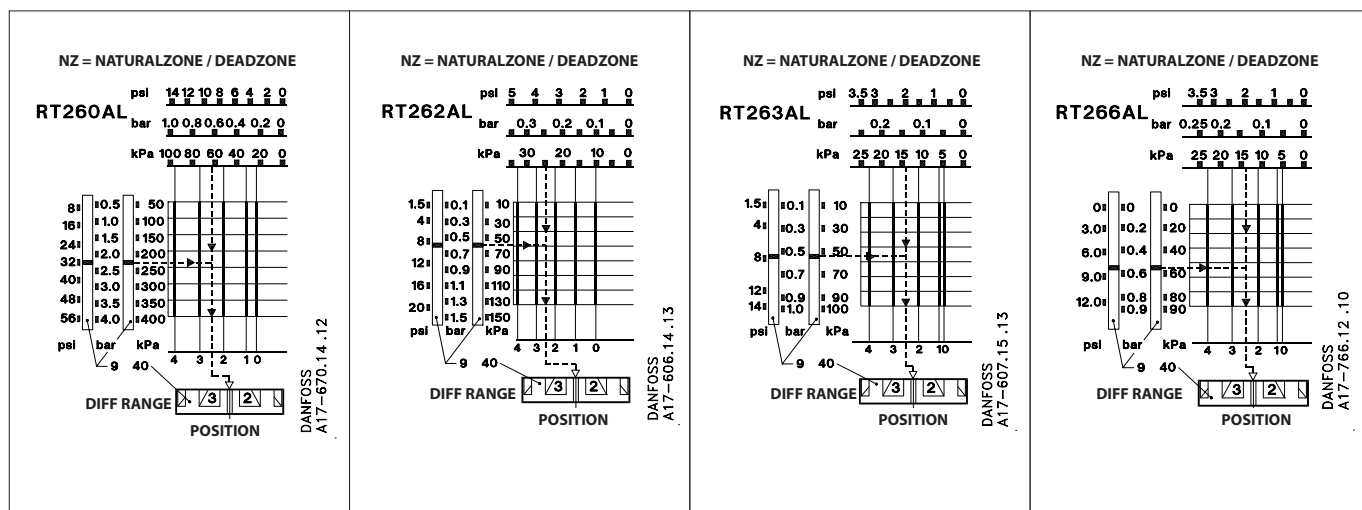


Fig. 16