

Introduction

Features

- The valve ensures only correct flow direction
- Straightway versions
- Prevents back-condensation from warm to cold evaporator
- Built-in damping piston that makes the valves suitable for installation in lines where pulsation can occur, e.g. in the discharge line from the compressor.
- supplied with spring to $\Delta p = 0.3$ bar. Used in refrigeration plant with compressors connected in parallel.
- Oversize connections provide flexibility in use.
- Max. working pressure
PS = 46 bar
- Max. test pressure
P' = 60 bar
- Temperature of the medium
– 50 → 140°C

Dimensioning and selection

When dimensioning and selecting check valves to be mounted into the compressor discharge line, it is important to be aware of the following: The differential pressure across the check valve must always be higher than the given minimum pressure drop at which the valve is completely open. This also applies to lowest capacities for compressors with capacity regulation.

In refrigeration plant with compressors connected in parallel, it is advantageous to use valve, equipped with a stronger spring than With check valve, type problems can be avoided at partial load in the refrigeration plant. The differential pressure across valve, at partial load must not be lower than minimum pressure drop for valve, with completely open valve.

Capacity
Hot gas capacity in kW

Type	Hot gas capacity kW ¹⁾ at pressure drop across valve Δp bar			
	0.05	0.07 ²⁾	0.14	0.3 ³⁾

R 600

check valve 6		0.99	1.40	2.05
check valve 10		24.6	29.3	50.8
check valve 12	3.05	3.61	5.10	7.48
check valve 16	5.36	6.34	9.00	13.2
check valve 19	7.46	8.86	12.50	18.30

R 600a

6		1.13	1.59	2.34
10		2.88	4.08	5.97
12	3.50	4.13	5.85	8.5
16	6.14	7.26	10.30	15.10
19	8.53	10.10	14.30	20.90

R 290

check valve 6		1.71	2.42	3.55
check valve 10		4.17	5.90	8.63
check valve 12	5.06	5.98	8.46	12.40
check valve 16	8.88	10.50	14.90	21.80
check valve 19	12.30	14.60	20.70	30.20

R 1270

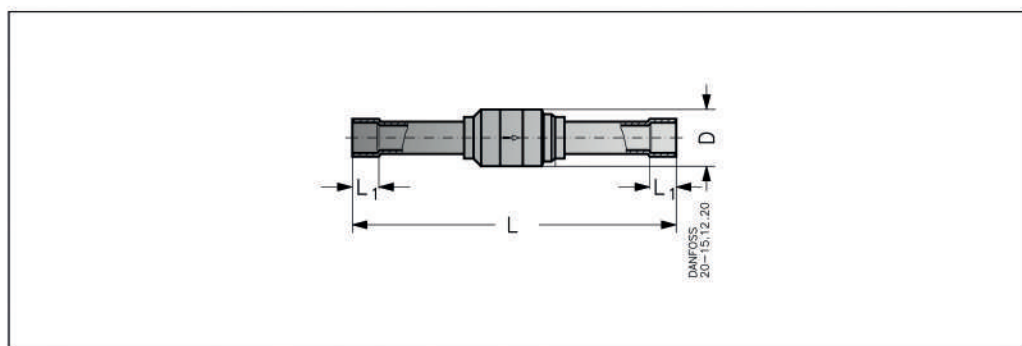
6		1.79	2.53	3.71
10		4.56	6.47	9.48
12	5.55	6.56	9.28	13.60
16	9.74	11.50	16.30	23.90
19	13.50	16.00	22.60	33.20

¹⁾ The hot gas capacities are based on condensing temp.
 $t_c = +25^\circ\text{C}$, subcooling = 4 K, evaporating temp. = -10°C
 and hot gas temp. $t_h = +60^\circ\text{C}$ ahead of valve.

²⁾ Rated capacities

³⁾ Capacity for

An increase of the hot gas temperature of
 10 K will reduce the valve capacity approx. 2%
 and vice versa.

Dimensions and weights


Connection	Type	Size		L mm.	L ₁ mm.	Ø D mm.	Weight kg.
		in.	mm.				
Solder straight- way	check valve 6	1/4	6	92	7	18	0.1
	check valve 10	3/8	10	109	9	20	0.2
	check valve 12	1/2	12	131	10	22	0.2
	check valve 16	5/8	16	138	12	28	0.3
	check valve 19	7/8	22	165	17	34	0.4

¹⁾ Oversize connections

Ordering

Type	Version	Connection in		Connection mm		Pressure drop across valve Δp ¹⁾ bar	k_v -value ²⁾ m ³ /h
		Size	Code no.	Size	Code no.		
check valves6s	Solder ODF x ODF	1/4	020-6xxx	6	020-6xxx	0.07	0.56
check valves10s		3/8	020-6xxx	10	020-6xxx	0.07	
check valves-h10s		3/8	020-6xxx	10	020-6xxx	0.3	1.43
check valves12s		1/2	020-6xxx	12	020-6xxx	0.05	2.05
check valves-h12s		1/2	020-6xxx	12	020-6xxx	0.3	
check valves16s		5/8	020-6xxx	16	020-6xxx	0.05	3.6
check valves-h16s		5/8	020-6xxx	16	020-6xxx	0.3	
check valves19s		3/4	020-6xxx	19	020-6xxx	0.05	5.5
check valves-h19s		3/4	020-6xxx	19	020-6xxx	0.3	

1) Δp = the minimum pressure at which the valve is completely open.

with a stronger spring is used in the discharge line from compressors connected in parallel.

2) The k_v value is the flow of water in m³/h at a pressure drop across valve of 1 bar, $\rho = 1000 \text{ kg/m}^3$.

Capacity
Liquid capacity in kW

Type	Liquid capacity in kW at pressure drop across valve Δp bar			
	0.05	0.07 ¹⁾	0.14	0.3 ²⁾
check valve 6		9.6	13.6	19.9
check valve 10		24.6	29.3	50.8
check valve 12	29.7	35.2	49.7	72.8
check valve 16	52.3	61.8	87.8	128.0
check valve 19	72.6	85.9	122.0	178.0

Suction vapour capacity in kW

Type	Pressure drop across valve Δp bar	Suction vapour capacity kW at evaporating temperature t_e °C		
		-30	-10 ¹⁾	+5
6	0.07	0.34	0.57	0.80
10	0.07	0.87	1.46	2.04
12	0.05	1.06	1.77	2.49
16	0.05	1.86	3.11	4.38
19	0.05	2.59	4.34	6.09

R 600

check valve 6		9.6	13.6	19.9
check valve 10		24.6	29.3	50.8
check valve 12	29.7	35.2	49.7	72.8
check valve 16	52.3	61.8	87.8	128.0
check valve 19	72.6	85.9	122.0	178.0

R 600

6	0.07	0.34	0.57	0.80
10	0.07	0.87	1.46	2.04
12	0.05	1.06	1.77	2.49
16	0.05	1.86	3.11	4.38
19	0.05	2.59	4.34	6.09

R 600a / R 290

check valve 6		8.5	12.1	17.6
check valve 10		21.7	30.8	45.0
check valve 12	26.3	31.2	44.1	64.5
check valve 16	46.3	54.8	77.3	113.4
check valve 19	64.4	76.2	107.8	157.7

R 600a

6	0.07	0.39	0.66	0.90
10	0.07	1.02	1.67	2.31
12	0.05	1.24	2.01	2.79
16	0.05	2.16	3.54	4.90
9	0.05	3.01	4.92	6.81

R 1270

check valve 6		8.8	12.5	18.3
check valve 10		22.5	31.8	46.6
check valve 12	28.2	32.3	45.6	66.8
check valve 16	47.9	56.7	80.3	118.0
check valve 19	66.8	78.8	112.0	163.0

R 290

6	0.07	0.71	1.09	1.45
10	0.07	1.82	2.79	3.71
12	0.05	2.21	3.38	4.49
16	0.05	3.87	5.93	7.88
19	0.05	5.39	8.25	10.94

1) Rated capacities

2) Capacity for valve