



Check Valves Type NRV and NRVH

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Metric conversions

1 psi = 0.07 bar

 $\frac{5}{9} (t_1^{\circ}\text{F} - 32) = t_2^{\circ}\text{C}$

1 ton = 3.5 kW

1 in. = 25.4 mm

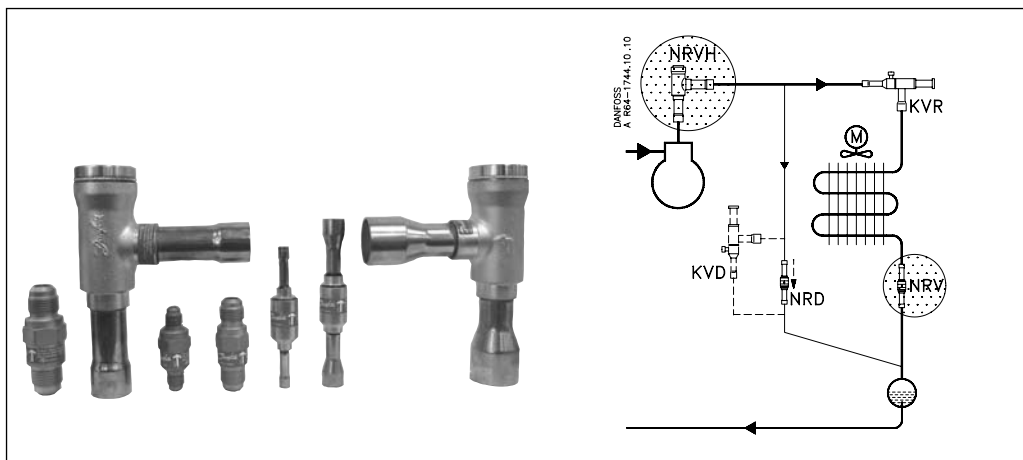
1 ft = 0.3 m

1 lb = 0.454 kg

1 oz = 28.35

US gal/min = 0.86 m³/h

Introduction



NRV check valves can be used in liquid, suction and hot gas lines in refrigeration and air conditioning systems using fluorinated refrigerants. They allow flow in only one direction and have a built-in damping piston that makes the valve suitable for installation in lines where pulsation can occur. They are available in both angleway and straightway versions.

NRVH check valves can be used in liquid and hot gas lines in refrigeration and air conditioning systems using fluorinated refrigerants. They are supplied with a stronger spring than type NRV (DP = 4.3 psi) and are especially suitable for installation in the discharge line of systems with compressors connected in parallel.

Features

- Two versions available
- Type NRV: Requires a minimum Δp of 0.6 to 1 psi for 100% flow.
- Type NRVH: Includes a stronger spring that requires a minimum Δp of 4.3 psi for 100% flow.
- Both straightway and angleway versions
- Prevents refrigerant migration from a warm evaporator to a cold evaporator
- Built-in damping piston
- Suitable for installation in lines where pulsation can occur, e.g. in the discharge line from the compressor.
- Oversize connections provide flexibility in use.

Technical data

Temperature of medium	-60 → +285°F
Maximum working pressure (PS/MWP)	667 psig
Maximum test pressure p'	870 psig
Approvals	Certification SA7200

Refrigerants CFC, HCFC and HFC

Dimensioning and selection

When selecting the right Danfoss check valve the following capacity tables on page 4 and 5 should be together with plant requirements concerning piping and connection sizes. The optimum solution should include the highest capacity at lowest pressure drop across the valve before it closes.

The differential pressure across the 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 compressor with capacity regulation.

Metric conversions
 1 psi = 0.07 bar
 $5/9 (t_1^{\circ}F - 32) = t_2^{\circ}C$

Further, when dimensioning and selecting Danfoss check valves for mounting into the compressor discharge line, it is important to be aware of the following:

In refrigeration plants with compressors connected in parallel, it is advantageous to use NRVH, since the spring is stronger than the one utilized in NRV. Also, resonance problems can be avoided at partial load in the refrigerant plant.

Ordering

Symbol	Type	Connection in.	Pressure drop ²⁾ across valve Δp psi	C_v value ³⁾ gal/min	Max. working pressure (psi)	Code no.
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NRV straightway, flare connection

	NRV 6	1/4	1.0	0.65	667	020-1040
	NRV 10	3/8	1.0	1.65	667	020-1041
	NRV 12	1/2	0.7	2.37	667	020-1042
	NRV 16	5/8	0.7	4.16	667	020-1043
	NRV 19	3/4	0.7	5.78	667	020-1044

NRV / NRVH straightway, solder connection

	NRV 6s	1/4	1.0	0.65	667	020-1010
	NRV 6s ¹⁾	3/8	1.0	0.65	667	020-1057
	NRVH 6s ¹⁾	3/8	1.0	0.65	667	020-1069
	NRV 10s	3/8	1.0	1.65	667	020-1011
	NRVH 10s	3/8	4.3	1.65	667	020-1046
	NRV 10s ¹⁾	1/2	1.0	1.65	667	020-1058
	NRVH 10s ¹⁾	1/2	4.3	1.65	667	020-1070
	NRV 12s	1/2	0.7	2.37	667	020-1012
	NRVH 12s	1/2	4.3	2.37	667	020-1039
	NRV 12s ¹⁾	5/8	0.7	2.37	667	020-1052
	NRVH 12s ¹⁾	5/8	4.3	2.37	667	020-1064
	NRV 16s	5/8	0.7	4.16	667	020-1018
	NRVH 16s	5/8	4.3	4.16	667	020-1038
	NRV 16s ¹⁾	3/4	0.7	4.16	667	020-1059
	NRVH 16s ¹⁾	3/4	4.3	4.16	667	020-1071
	NRV 19s	3/4	0.7	5.78	667	020-1019
NRVH 19s	3/4	4.3	5.78	667	020-1023	
NRV 19s ¹⁾	7/8	0.7	5.78	667	020-1054	
NRVH 19s ¹⁾	7/8	4.3	5.78	667	020-1066	

NRV / NRVH angleway, solder connection

	NRV 22s	7/8	0.6	9.83	667	020-1020
	NRVH 22s	7/8	4.3	9.83	667	020-1032
	NRV 22s ¹⁾	1 1/8	0.6	9.83	667	020-1060
	NRVH 22s ¹⁾	1 1/8	4.3	9.83	667	020-1072
	NRV 28s	1 1/8	0.6	21.96	667	020-1021
	NRVH 28s	1 1/8	4.3	21.96	667	020-1029
	NRV 28s ¹⁾	1 3/8	0.6	21.96	667	020-1056
	NRVH 28s ¹⁾	1 3/8	4.3	21.96	667	020-1068
	NRV 35s	1 3/8	0.6	33.52	667	020-1026
	NRVH 35s	1 3/8	4.3	33.52	667	020-1034
	NRV 35s ¹⁾	1 5/8	0.6	33.52	667	020-1061
	NRVH 35s ¹⁾	1 5/8	4.3	33.52	667	020-1073

¹⁾ Oversize connections

²⁾ Δp = the minimum pressure at which the valve is completely open.

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

³⁾ C_v value is the water flow in gal/min at a pressure drop across valve of 1 psi, $\rho = 10$ lbs/gal.

Metric conversions

1 psi = 0.07 bar

1 in. = 25.4 mm

US gal/min = 0.86 m³/h

Capacity

Liquid capacity

Type	Capacity in tons at pressure drop across valve Δp psi						
	1	2	3	4	5	6	7

R22

NRV/H 6	1.88	2.88	3.53	4.05	4.55	4.99	5.38
NRV/H 10	4.80	7.34	8.99	10.33	11.60	12.72	13.73
NRV/H 12	6.90	10.55	12.92	14.84	16.66	18.27	19.72
NRV/H 16	12.11	18.51	22.67	26.04	29.24	32.07	34.61
NRV/H 19	16.82	25.72	31.50	36.18	40.63	44.56	48.09
NRV/H 22	28.59	43.73	53.55	61.51	69.08	75.76	81.75
NRV/H 28	63.90	97.72	119.68	137.47	154.38	169.31	182.71
NRV/H 35	97.54	149.16	182.68	209.84	235.65	258.34	278.89

R134a

NRV/H 6	1.90	2.68	3.29	3.80	4.24	4.65	5.02
NRV/H 10	4.83	6.83	8.38	9.69	10.82	11.85	12.80
NRV/H 12	6.94	9.81	12.04	13.91	15.55	17.02	18.39
NRV/H 16	12.19	17.22	21.13	24.42	27.29	29.87	32.28
NRV/H 19	16.94	23.93	29.36	33.93	37.92	41.50	44.85
NRV/H 22	28.79	40.68	49.92	57.68	64.46	70.55	76.25
NRV/H 28	64.34	90.91	111.56	128.91	144.06	157.67	170.41
NRV/H 35	98.21	138.77	170.28	196.76	219.89	240.67	260.12

R404A/R507

NRV/H 6	1.40	1.98	2.43	2.80	3.13	3.43	3.71
NRV/H 10	3.56	5.05	6.19	7.14	7.99	8.75	9.47
NRV/H 12	5.12	7.25	8.89	10.26	11.47	12.56	13.60
NRV/H 16	8.99	12.73	15.60	18.01	20.13	22.05	23.88
NRV/H 19	12.48	17.69	21.68	25.03	27.98	30.63	33.18
NRV/H 22	21.22	30.07	36.85	42.55	47.56	52.08	56.40
NRV/H 28	47.43	67.20	82.35	95.09	106.29	116.39	126.05
NRV/H 35	72.40	102.57	125.70	145.14	162.24	177.66	192.40

R407C

NRV/H 6	1.85	2.62	3.21	3.71	4.14	4.54	4.90
NRV/H 10	4.72	6.68	8.18	9.45	10.56	11.58	12.51
NRV/H 12	6.78	9.60	11.76	13.58	15.17	16.64	17.96
NRV/H 16	11.90	16.85	20.63	23.84	26.82	29.20	31.53
NRV/H 19	16.53	23.41	28.67	33.12	36.99	40.58	43.81
NRV/H 22	28.10	39.80	48.74	55.30	62.89	68.98	74.48
NRV/H 28	62.81	88.94	108.92	125.83	140.54	154.16	166.46
NRV/H 35	95.87	135.76	166.26	192.97	214.53	235.31	254.08

The capacities are based on:
 Evaporating temperature $t_e = 40^\circ\text{F}$
 Liquid temperature $t_l = 100^\circ\text{F}$
 Superheat temperature $t_s = (t_e + 10^\circ\text{F}) = 50^\circ\text{F}$

Correction factors for liquid temperature t_l

When liquid temperature t_l ahead of the evaporator is other than 100°F , adjust the table

capacities by multiplying them by the appropriate correction factor found in the following table.

t_l °F	50	60	70	80	90	100	110	120
R22	1.18	1.15	1.12	1.08	1.04	1.0	0.95	0.9
R134a	1.21	1.18	1.14	1.1	1.05	1.0	0.94	0.87
R404A/R507	1.29	1.25	1.2	1.15	1.08	1.0	0.9	0.76
R407C	1.22	1.19	1.15	1.11	1.06	1.0	0.93	0.85
R410A	1.23	1.17	1.13	1.1	1.05	1.0	0.95	0.9

Metric conversions
 1 psi = 0.07 bar
 $5/9 (t_1^\circ\text{F} - 32) = t_2^\circ\text{C}$
 1 ton = 3.5 kW

Capacity
(continued)

Liquid capacity in Tons

Type	Liquid Capacity TR at pressure drop across valve Δp psi						
	1 ¹⁾	2	3	4 ²⁾	5	6	7
R410A							
NRV/H 6	2,3	3,1	3,9	4,7	5,5	6,3	7,1
NRV/H 10	5,8	7,8	9,9	11,9	14,0	16,1	18,1
NRV/H 12	8,3	11,2	14,2	17,1	20,1	23,0	26,0
NRV/H 16	14,5	19,7	24,8	30,0	35,2	40,1	45,5
NRV/H 19	22,2	30,1	38,0	45,9	53,8	61,8	69,7
NRV/H 22	34,3	46,5	58,7	71,0	83,2	95,4	107,7
NRV/H 28	76,4	104,0	131,3	158,6	185,9	213,3	240,6
NRV/H 35	117,0	158,7	200,4	242,1	283,8	325,5	367,2

1) Rated capacities
2) Capacity for NRVH

The capacities are based on:
 Evaporating temperature $t_e = 40^\circ\text{F}$
 Liquid temperature $t_l = 100^\circ\text{F}$
 Superheat temperature $t_s = (t_e + 10^\circ\text{F}) = 50^\circ\text{F}$

When liquid temperature t_l ahead of the evaporator is other than 100°F , adjust the table capacities by multiplying them by the appropriate correction factor found in the below table.

Correction factors for liquid temperature t_l

t_l °F	50	60	70	80	90	100	110	120
R22	1.18	1.15	1.12	1.08	1.04	1.0	0.95	0.9
R134a	1.21	1.18	1.14	1.1	1.05	1.0	0.94	0.87
R404A/R507	1.29	1.25	1.2	1.15	1.08	1.0	0.9	0.76
R407C	1.22	1.19	1.15	1.11	1.06	1.0	0.93	0.85
R410A	1.23	1.17	1.13	1.1	1.05	1.0	0.95	0.9

Metric conversions
 1 psi = 0.07 bar
 $\frac{5}{9}(t_1^\circ\text{F} - 32) = t_2^\circ\text{C}$
 1 ton = 3.5 kW

Capacity

Suction vapor capacity

Type	Pressure drop across valve Δp psi	Suction vapor capacity in tons at evaporating temperature t_e °F							
		-40	-20	0	10	20	30	40	50

R22

NRV 6	1	0.11	0.15	0.19	0.21	0.24	0.26	0.29	0.32
	2	0.15	0.20	0.26	0.30	0.34	0.37	0.41	0.45
	3	0.17	0.24	0.31	0.35	0.40	0.46	0.51	0.56
NRV 10	1	0.29	0.39	0.49	0.55	0.61	0.68	0.75	0.82
	2	0.38	0.52	0.67	0.78	0.86	0.96	1.06	1.17
	3	0.45	0.62	0.80	0.91	1.02	1.17	1.30	1.43
NRV 12	1	0.41	0.55	0.70	0.79	0.87	0.97	1.07	1.18
	2	0.55	0.74	0.95	1.11	1.23	1.37	1.51	1.67
	3	0.64	0.88	1.15	1.30	1.46	1.68	1.85	2.04
NRV 16	1	0.72	0.97	1.23	1.38	1.53	1.70	1.88	2.06
	2	0.96	1.30	1.68	1.95	2.17	2.40	2.66	2.92
	3	1.12	1.54	2.01	2.28	2.57	2.94	3.25	3.58
NRV 19	1	0.99	1.35	1.70	1.92	2.13	2.36	2.61	2.87
	2	1.33	1.80	2.33	2.71	3.01	3.34	3.69	4.06
	3	1.56	2.14	2.80	3.17	3.56	4.09	4.52	4.97
NRV 22	1	1.69	2.29	2.90	3.26	3.62	4.01	4.44	4.88
	2	2.27	3.07	3.96	4.61	5.12	5.67	6.28	6.90
	3	2.66	3.65	4.76	5.38	6.06	6.95	7.68	8.45
NRV 28	1	3.78	5.13	6.47	7.28	8.09	8.96	9.93	10.90
	2	5.07	6.85	8.85	10.30	11.44	12.68	14.03	15.43
	3	5.93	8.15	10.63	12.03	13.54	15.54	17.16	18.88
NRV 35	1	5.76	7.82	9.88	11.12	12.35	13.67	15.15	16.63
	2	7.74	10.46	13.51	15.73	17.46	19.35	21.41	23.55
	3	9.06	12.43	16.22	18.36	20.67	23.72	26.19	28.82

R134a

NRV 6	1	0.07	0.10	0.14	0.16	0.18	0.20	0.22	0.25
	2	0.09	0.13	0.18	0.21	0.24	0.28	0.32	0.36
	3	0.10	0.15	0.21	0.25	0.29	0.33	0.38	0.44
NRV 10	1	0.17	0.25	0.35	0.40	0.45	0.51	0.57	0.64
	2	0.22	0.33	0.46	0.54	0.61	0.72	0.81	0.91
	3	0.24	0.38	0.55	0.64	0.73	0.84	0.96	1.11
NRV 12	1	0.25	0.36	0.50	0.57	0.65	0.73	0.82	0.92
	2	0.32	0.48	0.66	0.77	0.88	1.04	1.16	1.30
	3	0.35	0.55	0.79	0.92	1.05	1.21	1.37	1.60
NRV 16	1	0.44	0.62	0.88	1.00	1.13	1.29	1.44	1.61
	2	0.56	0.84	1.17	1.35	1.54	1.82	2.04	2.29
	3	0.61	0.96	1.38	1.61	1.85	2.13	2.41	2.80
NRV 19	1	0.61	0.87	1.22	1.39	1.58	1.79	2.00	2.24
	2	0.78	1.16	1.62	1.87	2.14	2.53	2.84	3.18
	3	0.85	1.33	1.92	2.24	2.57	2.95	3.35	3.89
NRV 22	1	1.04	1.47	2.08	2.37	2.68	3.04	3.40	3.81
	2	1.33	1.98	2.75	3.19	3.65	4.30	4.83	5.41
	3	1.45	2.27	3.26	3.81	4.37	5.02	5.70	6.61
NRV 28	1	2.32	3.29	4.64	5.29	5.99	6.80	7.61	8.52
	2	2.97	4.42	6.15	7.12	8.15	9.60	10.79	12.08
	3	3.24	5.07	7.28	8.52	9.76	11.22	12.73	14.78
NRV 35	1	3.54	5.02	7.08	8.07	9.14	10.38	11.61	13.01
	2	4.53	6.75	9.39	10.87	12.43	14.66	16.47	18.45
	3	4.94	7.74	11.12	13.01	14.91	17.13	19.43	22.56

Metric conversions
 1 psi = 0.07 bar
 $5/9 (t_1^{\circ}\text{F} - 32) = t_2^{\circ}\text{C}$
 1 ton = 3.5 kW

The capacities are based on:
 Liquid temperature $t_l = 100^{\circ}\text{F}$
 Superheat $t_s = (t_e + 7^{\circ}\text{F})$

When liquid temperature t_l ahead of the evaporator is other than 100°F , adjust the table capacities by multiplying them by the appropriate correction factor found in the following table.

For each additional 10°F of superheat above 7°F , the table capacities must be reduced by 2%.

Correction factors for liquid temperature t_l

t_l °F	50	60	70	80	90	100	110	120
R22	1.18	1.15	1.12	1.08	1.04	1.0	0.95	0.9
R134a	1.21	1.18	1.14	1.1	1.05	1.0	0.94	0.87

Capacity
(continued)

Suction vapor capacity

Type	Pressure drop across valve Δp psi	Suction vapor capacity in tons at evaporating temperature t_e °F						
		-40	-20	0	10	20	30	40

R404A/R507

NRV 6	1	0.09	0.12	0.16	0.18	0.21	0.23	0.26	0.29
	2	0.12	0.16	0.23	0.26	0.29	0.33	0.36	0.41
	3	0.14	0.20	0.27	0.31	0.35	0.40	0.45	0.50
NRV 10	1	0.22	0.31	0.41	0.47	0.53	0.59	0.66	0.74
	2	0.31	0.42	0.58	0.66	0.74	0.84	0.93	1.04
	3	0.36	0.50	0.68	0.78	0.91	1.03	1.15	1.28
NRV 12	1	0.32	0.44	0.58	0.68	0.75	0.84	0.94	1.05
	2	0.44	0.60	0.83	0.94	1.06	1.20	1.33	1.49
	3	0.51	0.72	0.97	1.12	1.30	1.47	1.64	1.83
NRV 16	1	0.56	0.78	1.02	1.19	1.32	1.48	1.66	1.85
	2	0.77	1.05	1.46	1.66	1.86	2.11	2.34	2.62
	3	0.90	1.26	1.71	1.96	2.28	2.58	2.87	3.21
NRV 19	1	0.78	1.08	1.42	1.65	1.83	2.06	2.30	2.57
	2	1.07	1.46	2.03	2.30	2.58	2.93	3.25	3.64
	3	1.25	1.75	2.37	2.73	3.17	3.58	3.99	4.46
NRV 22	1	1.33	1.83	2.41	2.80	3.11	3.50	3.91	4.37
	2	1.81	2.49	3.45	3.91	4.39	4.97	5.53	6.18
	3	2.12	2.97	4.03	4.63	5.38	6.08	6.78	7.58
NRV 28	1	2.97	4.10	5.40	6.26	6.96	7.82	8.74	9.76
	2	4.05	5.56	7.71	8.74	9.82	11.11	12.35	13.81
	3	4.75	6.64	9.01	10.36	12.03	13.60	15.16	16.94
NRV 35	1	4.53	6.26	8.24	9.55	10.62	11.94	13.34	14.91
	2	6.18	8.48	11.78	13.34	14.99	16.96	18.86	21.08
	3	7.25	10.13	13.75	15.81	18.36	20.75	23.14	25.86

R407C

NRV 6	1	0.09	0.13	0.17	0.19	0.21	0.24	0.27	0.30
	2	0.12	0.17	0.22	0.27	0.30	0.34	0.38	0.43
	3	0.14	0.20	0.27	0.31	0.35	0.44	0.47	0.52
NRV 10	1	0.23	0.32	0.42	0.49	0.55	0.62	0.70	0.77
	2	0.30	0.43	0.58	0.69	0.78	0.87	0.99	1.10
	3	0.35	0.51	0.69	0.80	0.91	1.14	1.21	1.34
NRV 12	1	0.33	0.46	0.61	0.69	0.79	0.88	1.00	1.11
	2	0.43	0.61	0.82	0.98	1.11	1.25	1.41	1.57
	3	0.50	0.72	0.98	1.14	1.30	1.62	1.72	1.92
NRV 16	1	0.57	0.81	1.06	1.22	1.38	1.54	1.75	1.94
	2	0.75	1.07	1.44	1.72	1.95	2.19	2.47	2.75
	3	0.88	1.27	1.73	2.00	2.28	2.85	3.03	3.36
NRV 19	1	0.80	1.12	1.48	1.69	1.92	2.14	2.43	2.70
	2	1.04	1.49	2.00	2.39	2.71	3.04	3.44	3.82
	3	1.22	1.76	2.40	2.78	3.17	3.96	4.20	4.67
NRV 22	1	1.35	1.91	2.51	2.87	3.26	3.65	4.13	4.59
	2	1.76	2.53	3.40	4.06	4.61	5.17	5.84	6.49
	3	2.08	2.99	4.08	4.73	5.38	6.74	7.15	7.94
NRV 28	1	3.02	4.26	5.61	6.42	7.28	8.15	9.23	10.25
	2	3.94	5.66	7.61	9.06	10.30	11.55	13.06	14.51
	3	4.64	6.69	9.12	10.57	12.03	15.05	15.97	17.75
NRV 35	1	4.61	6.51	8.56	9.80	11.12	12.43	14.08	15.65
	2	6.01	8.65	11.61	13.83	15.73	17.62	19.93	22.15
	3	7.08	10.21	13.92	16.14	18.36	22.98	24.38	27.09

Metric conversions
 1 psi = 0.07 bar
 $\frac{5}{9}(t_1^{\circ}\text{F} - 32) = t_2^{\circ}\text{C}$
 1 ton = 3.5 kW

The capacities are based on:
 Liquid temperature $t_l = 100^{\circ}\text{F}$
 Superheat $t_s = (t_e + 7^{\circ}\text{F})$

When liquid temperature t_l ahead of the evaporator is other than 100°F , adjust the table capacities by multiplying them by the appropriate correction factor found in the following table.

For each additional 10°F of superheat above 7°F , the table capacities must be reduced by 2%.

Correction factors for liquid temperature t_l

t_l °F	50	60	70	80	90	100	110	120
R404A/R507	1.29	1.25	1.2	1.15	1.08	1.0	0.9	0.76
R407C	1.22	1.29	1.15	1.11	1.06	1.0	0.93	0.85

Capacity
(continued)
Suction vapor capacity in Tons

Type	Suction vapor capacity TR at pressure drop across valve Δp psi								
	-40	-20	-10	0	10	20	30	40	50

R410A

NRV/H 6	0,1	0,2	0,2	0,3	0,3	0,3	0,4	0,4	0,4
NRV/H 10	0,4	0,5	0,6	0,7	0,8	0,9	0,9	1,0	1,1
NRV/H 12	0,4	0,7	0,8	0,9	1,0	1,1	1,2	1,3	1,4
NRV/H 16	0,8	1,1	1,3	1,5	1,7	1,8	2,0	2,2	2,4
NRV/H 19	1,2	1,8	2,0	2,3	2,5	2,8	3,1	3,3	3,6
NRV/H 22	1,9	2,7	3,1	3,5	3,9	4,3	4,8	5,2	5,6
NRV/H 28	4,2	6,0	7,0	7,9	8,8	9,7	10,6	11,6	12,5
NRV/H 35	6,4	9,2	10,6	12,0	13,4	14,8	16,2	17,6	19,0

The suction vapour capacities are based on liquid temperature $t_l = 25^\circ\text{C}(77^\circ\text{F})$ ahead of the evaporator.

The table values refer to the evaporator capacity.

The capacities are based on dry, saturated vapour ahead of the valve.

Under operating conditions with superheated vapour ahead of the valve, the capacities are reduced by 4% for every 18°F superheat.

Correction factors for liquid temperature t_l

t_l °F	50	60	70	80	90	100	110	120
R410A	1.23	1.18	1.13	1.09	1.04	1.0	0.95	0.9

Capacity
Hot gas capacity

Type	Hot gas temperature t_c °F	Capacity in tons at pressure drop across valve Δp psi					
		2	5	10	15	20	25

R22

NRV/H 6	70	0.59	0.95	1.31	1.59	1.83	2.04
	100	0.65	1.04	1.50	1.77	2.04	2.27
	140	0.70	1.12	1.59	1.97	2.20	2.46
NRV/H 10	70	1.52	2.43	3.36	4.08	4.69	5.23
	100	1.68	2.68	3.84	4.53	5.22	5.83
	140	1.80	2.87	4.09	5.06	5.64	6.30
NRV/H 12	70	2.17	3.48	4.79	5.83	6.70	7.46
	100	2.40	3.83	5.48	6.47	7.46	8.32
	140	2.57	4.09	5.84	7.23	8.06	9.00
NRV/H 16	70	3.81	6.10	8.41	10.23	11.75	13.10
	100	4.21	6.71	9.63	11.35	13.09	14.60
	140	4.52	7.18	10.25	12.68	14.14	15.80
NRV/H 19	70	5.30	8.48	11.69	14.21	16.33	18.20
	100	5.85	9.33	13.38	15.78	18.19	20.29
	140	6.28	9.98	14.24	17.62	19.65	21.95
NRV/H 22	70	9.00	14.41	19.87	24.16	27.76	30.95
	100	9.95	15.86	22.74	26.82	30.92	34.50
	140	10.67	16.97	24.21	29.96	33.41	37.32
NRV/H 28	70	20.12	32.21	44.40	54.00	62.04	69.16
	100	22.23	35.45	50.82	59.94	69.11	77.09
	140	23.85	37.93	54.11	66.95	74.67	83.41
NRV/H 35	70	30.72	49.16	67.77	82.43	94.70	105.57
	100	33.93	54.10	77.57	91.49	105.49	117.68
	140	36.40	57.89	82.60	102.20	113.97	127.31

R134a

NRV/H 6	70	0.48	0.78	1.07	1.31	1.52	1.71
	100	0.53	0.86	1.19	1.46	1.69	1.89
	140	0.56	0.89	1.28	1.58	1.78	2.00
NRV/H 10	70	1.24	2.01	2.74	3.36	3.90	4.38
	100	1.37	2.19	3.05	3.74	4.33	4.86
	140	1.44	2.29	3.27	4.07	4.57	5.13
NRV/H 12	70	1.78	2.86	3.92	4.80	5.57	6.25
	100	1.96	3.13	4.35	5.34	6.18	6.94
	140	2.05	3.27	4.68	5.81	6.53	7.32
NRV/H 16	70	3.12	5.03	6.88	8.43	9.77	10.98
	100	3.43	5.50	7.63	9.37	10.85	12.18
	140	3.60	5.73	8.21	10.19	11.46	12.86
NRV/H 19	70	4.33	6.99	9.56	11.72	13.58	15.25
	100	4.77	7.64	10.61	13.02	15.08	16.93
	140	5.00	7.97	11.40	14.16	15.92	17.86
NRV/H 22	70	7.36	11.88	16.25	19.92	23.08	25.93
	100	8.11	12.99	18.03	22.14	25.64	28.77
	140	8.50	13.54	19.38	24.07	27.06	30.37
NRV/H 28	70	16.45	26.54	36.31	44.51	51.58	57.94
	100	18.13	29.03	40.30	49.47	57.30	64.31
	140	18.99	30.27	43.32	53.79	60.48	67.87
NRV/H 35	70	25.12	40.52	55.42	67.94	78.73	88.44
	100	27.67	44.30	61.52	75.52	87.46	98.16
	140	28.99	46.20	66.13	82.10	92.31	103.60

The capacities are based on:
 Evaporating temperature $t_e = 40^\circ\text{F}$
 Subcooling $t_{\text{sub}} = (t_c - 10^\circ\text{F})$
 Hot gas superheat $t_s = (t_c + 40^\circ\text{F})$

For each additional 10°F of superheat above 40°F, the table capacities must be reduced by 1%.

Metric conversions
 1 psi = 0.07 bar
 $\frac{5}{9}(t_1^\circ\text{F} - 32) = t_2^\circ\text{C}$
 1 ton = 3.5 kW

Capacity
(continued)

Hot gas capacity

Type	Hot gas temperature t_c °F	Capacity in tons at pressure drop across valve Δp psi					
		2	5	10	15	20	25

R404A/R507

NRV/H 6	70	0.50	0.81	1.11	1.36	1.57	1.76
	100	0.53	0.84	1.20	1.42	1.64	1.84
	140	0.51	0.81	1.16	1.43	1.59	1.78
NRV/H 10	70	1.29	2.07	2.84	3.50	4.02	4.51
	100	1.35	2.15	3.09	3.65	4.20	4.72
	140	1.31	2.08	2.96	3.67	4.09	4.56
NRV/H 12	70	1.85	2.95	4.06	4.99	5.74	6.45
	100	1.93	3.07	4.41	5.21	5.99	6.74
	140	1.86	2.96	4.23	5.23	5.84	6.52
NRV/H 16	70	3.24	5.18	7.12	8.76	10.08	11.31
	100	3.38	5.40	7.75	9.14	10.52	11.83
	140	3.27	5.20	7.43	9.19	10.25	11.44
NRV/H 19	70	4.50	7.20	9.90	12.17	14.00	15.72
	100	4.70	7.50	10.76	12.69	14.61	16.44
	140	4.54	7.23	10.32	12.77	14.24	15.89
NRV/H 22	70	7.65	12.24	16.83	20.69	23.80	26.72
	100	7.99	12.75	18.30	21.58	24.84	27.95
	140	7.72	12.29	17.55	21.70	24.21	27.01
NRV/H 28	70	17.10	27.35	37.60	46.24	53.19	59.72
	100	17.86	28.49	40.89	48.23	55.51	62.47
	140	17.26	27.46	39.22	48.50	54.11	60.37
NRV/H 35	70	26.11	41.75	57.40	70.57	81.20	91.16
	100	27.26	43.48	62.42	73.62	84.74	95.36
	140	26.35	41.92	59.87	74.03	82.60	92.15

R407C

NRV/H 6	70	0.65	1.04	1.44	1.75	2.01	2.24
	100	0.72	1.15	1.65	1.94	2.24	2.50
	140	0.72	1.15	1.64	2.03	2.27	2.53
NRV/H 10	70	1.67	2.68	3.69	4.49	5.16	5.75
	100	1.85	2.95	4.23	4.98	5.75	6.41
	140	1.86	2.95	4.21	5.21	5.82	6.49
NRV/H 12	70	2.39	3.83	5.27	6.41	7.37	8.21
	100	2.64	4.21	6.03	7.12	8.20	9.15
	140	2.65	4.22	6.01	7.44	8.30	9.27
NRV/H 16	70	4.19	6.71	9.25	11.25	12.93	14.41
	100	4.63	7.39	10.59	12.49	14.40	16.07
	140	4.65	7.40	10.56	13.06	14.57	16.27
NRV/H 19	70	5.82	9.33	12.85	15.63	17.96	20.02
	100	6.43	10.27	14.71	17.35	20.01	22.32
	140	6.46	10.28	14.67	18.15	20.25	22.61
NRV/H 22	70	9.90	15.86	21.85	26.58	30.54	34.04
	100	10.94	17.45	25.01	29.50	34.01	37.95
	140	10.98	17.48	24.94	30.85	34.42	38.43
NRV/H 28	70	22.12	35.45	48.82	59.40	68.25	76.07
	100	24.44	39.01	55.89	65.93	76.02	84.81
	140	24.55	39.06	55.73	68.95	76.93	85.89
NRV/H 35	70	33.76	54.10	74.53	90.67	104.17	116.11
	100	37.30	59.54	85.31	100.63	116.03	129.45
	140	37.47	59.62	85.07	105.24	117.43	131.10

The capacities are based on:
 Evaporating temperature $t_e = 40^\circ\text{F}$
 Subcooling $t_{\text{sub}} = (t_c - 10^\circ\text{F})$
 Hot gas superheat $t_s = (t_c + 40^\circ\text{F})$

For each additional 10°F of superheat above 40°F, the table capacities must be reduced by 1%.

Metric conversions
 1 psi = 0.07 bar
 $5/9 (t_1^\circ\text{F} - 32) = t_2^\circ\text{C}$
 1 ton = 3.5 kW

Capacity
 (continued)

Hot gas capacity in Tons

Type	Hot Gas Capacity TR(1) at pressure drop across valve Δp psi							
	1(2)	2	4(3)	5	10	15	20	25

R410A

NRV/H 6	0,5	0,6	1,0	1,1	1,9	2,7	3,5	4,3
NRV/H 10	1,2	1,6	2,4	2,9	4,9	6,9	8,9	10,9
NRV/H 12	1,8	2,4	3,5	4,1	7,0	9,9	12,8	15,7
NRV/H 16	3,1	4,1	6,2	7,2	12,3	17,4	22,5	27,5
NRV/H 19	4,8	6,3	9,4	11,0	18,8	26,5	34,3	42,1
NRV/H 22	7,3	9,7	14,6	17,0	29,0	41,0	53,0	65,1
NRV/H 28	16,4	21,8	32,5	37,9	64,8	91,7	118,6	145,4
NRV/H 35	25,0	33,3	49,7	57,9	98,9	139,9	180,9	221,9

The capacities are based on:
 Evaporating temperature $t_e = 40^\circ\text{F}$
 Subcooling $t_{\text{sub}} = (t_c - 10^\circ\text{F})$
 Hot gas superheat $t_s = (t_c + 40^\circ\text{F})$

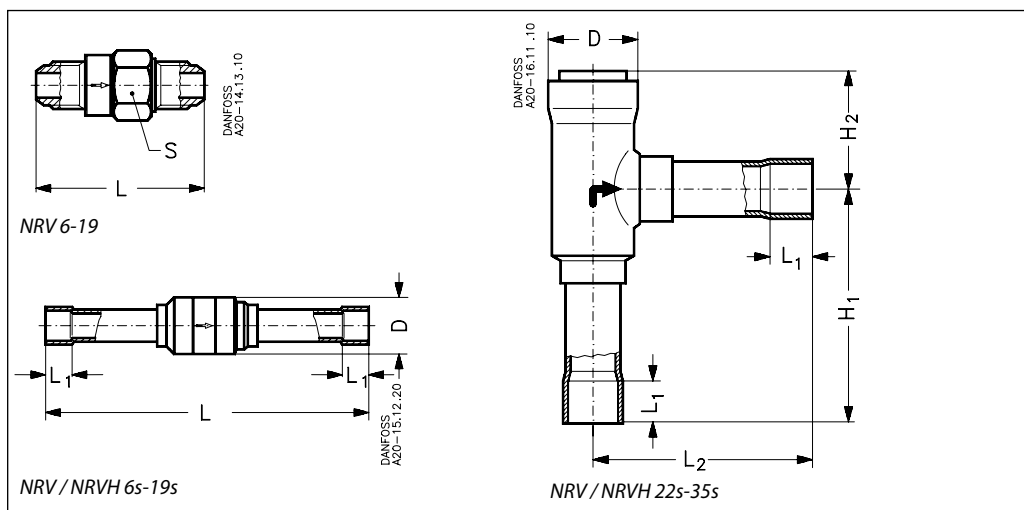
For each additional 10°F of superheat above 40°F , the table capacities must be reduced by 1%.

or

- 1) The hot gas capacities are based on condensing temp.
 $t_c = +25^\circ\text{C}(77^\circ\text{F})$,
 subcooling = 7.2°F ,
 evaporating temp. = $-10^\circ\text{C}(50^\circ\text{F})$ and
 hot gas temp. $t_h = +60^\circ\text{C}(140^\circ\text{F})$ ahead of valve.
- 2) Rated capacities
- 3) Capacity for NR VH

An increase of the hot gas temperature of 18°F will reduce the valve capacity approx. 2% and vice versa.

Dimensions and weights



Version	Type	Size in.	H ₁ in.	H ₂ in.	L in.	L ₁ in.	L ₂ in.	dia. D in.	Spanner flats in.	Weight lbs
Flare straight-way	NRV 6	1/4			2.205				0.748	0.2
	NRV 10	3/8			2.362				0.787	0.4
	NRV 12	1/2			2.717				0.945	0.4
	NRV 16	5/8			3.150				1.102	0.7
	NRV 19	3/4			3.470				1.339	0.9
Solder straight-way	NRV/H 6s	1/4			3.622	0.276		0.709		0.2
	NRV/H 6s ¹⁾	3/8			3.622	0.354		0.709		0.4
	NRV/H 10s	3/8			4.291	0.354		0.709		0.4
	NRV/H 10s ¹⁾	1/2			4.291	0.394		0.709		0.4
	NRV/H 12s	1/2			5.157	0.394		0.866		0.4
	NRV/H 12s ¹⁾	5/8			5.157	0.472		0.866		0.4
	NRV/H 16s	5/8			5.433	0.472		1.102		0.7
	NRV/H 16s ¹⁾	3/4			5.433	0.551		1.102		0.7
	NRV/H 19s	3/4			6.496	0.551		1.339		0.9
NRV/H 19s ¹⁾	7/8			6.496	0.669		1.339		0.9	
Solder angle-way	NRV/H 22s	7/8	3.701	1.850		0.669	3.465	1.417		1.1
	NRV/H 22s ¹⁾	1 1/8	3.701	1.850		0.866	3.465	1.417		1.1
	NRV/H 28s	1 1/8	5.551	2.559		0.866	4.843	1.890		2.4
	NRV/H 28s ¹⁾	1 3/8	5.551	2.559		0.984	4.843	1.890		2.4
	NRV/H 35s	1 3/8	5.551	2.559		0.984	4.843	1.890		2.4
	NRV/H 35s ¹⁾	1 5/8	5.551	2.559		1.142	4.843	1.890		2.4

Metric conversions
 1 in. = 25.4 mm
 1 lb = 0.454 kg

¹⁾ Oversize connections

ISO 9001 quality approval



Refrigeration and Air Conditioning Controls, part of the Danfoss concern, is certified in accordance with international standard ISO 9001. This means that Danfoss fulfils the international standard in respect of product development, design, production and sale.