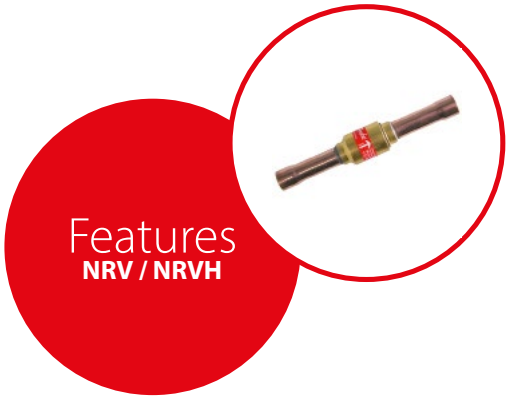
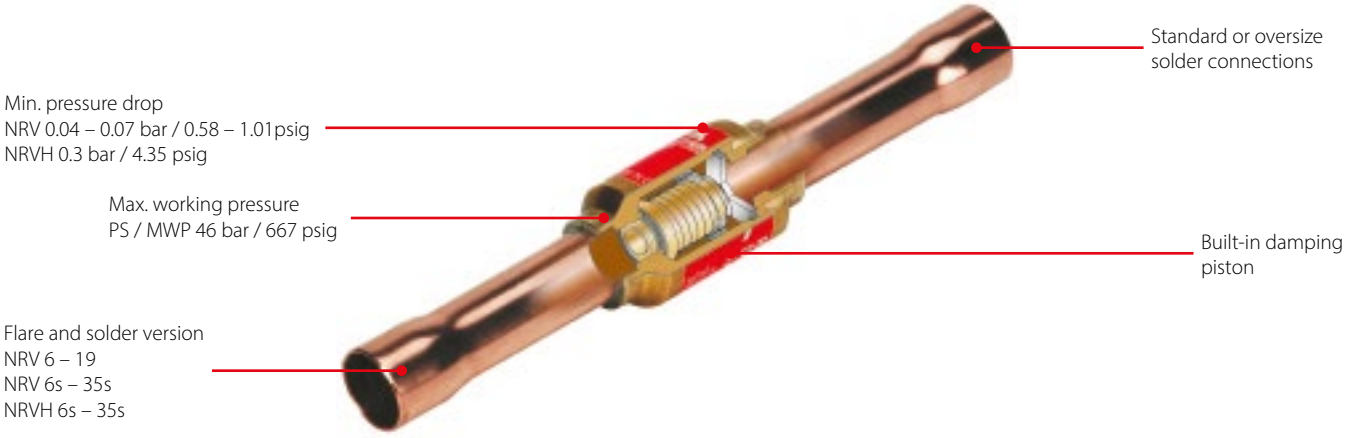
NRV / NRVH, Check valves

NRV and NRVH check valves can be used in liquid, suction and hot gas lines in refrigeration and air conditioning plants. Special versions, with a max. working pressure of 90 bar / 1305 psig are available for CO_2 applications. The valves ensure the correct flow direction and prevent back-condensation from a warm part of the system to the cold evaporator.

The hermetic tight design of solder versions meet the environmental demands for today and future. A built-in damping piston makes the valves suitable for installation in lines where pulsation can occur, e. g. in the discharge line from the compressor.





Facts

Application:

- Traditional refrigeration
- Heat pump systems
- Air conditioning units
- Liquid coolers
- Transport refrigeration
- Applicable to R134a, R22/R407C, R404A/R507, R407A, R407F,R410A, R32, R290, R600, R600a, R1270, R448A, R449A, R450A, R452A, R452B, R454B, R513A, R1234ze, R1234yf
  For a fully updated list of approved refrigerants, visit www.products.danfoss.com and search for individual code numbers, where refrigerants are listed as part of product specifications.
- Resonance problems can be avoided at partial load in the refrigeration plant
- Oversize connections provide flexibility in use
- Prevents back-condensation from warm to cold system part
- Ensures correct flow direction
- Hermetic tight design for solder versions.
- 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.
- Available in both straightway and angleway versions
- Solder versions are compliant with ATEX hazard zone 2
- NRVH type check valve is with stronger spring and it's recommended to use for compressors in parallel (i.e. power packs) where higher level of pulsation and vibration are expected.

Technical data and ordering

NRV / NRVH - Check valves

Technical data

Type	Description
Temperature range	-50 – 140 °C / -58 – 285 °F
Max. working pressure (PS / MWP)	46 bar / 667 psig
Approvals	C UL US LISTED, EAC

Note
-Only solder version, connection sizes from 6 s to 22 s are allowed for flammable refrigerant.
-R1234ze can be used for NRV size up to 35s according to the PED category I, Fluid II.

NRV - Check valve, straight-way, flare

Ordering

Type	Connection type	Connection		Pressure drop across valve		K_V - value [2]	C_V - value [2]	Code no.
		[in]	[mm]	Δp [bar] [1]	Δp [psig] [1]	[m³/h]	[gal/min]	
NRV6	Straight-way - flare	¼	6	0.07	1.01	0.56	0.65	020-1040
NRV 10	Straight-way - flare	⅜	10	0.07	1.01	1.20	1.39	020-1041
NRV 12	Straight-way - flare	½	12	0.05	0.72	2.05	2.37	020-1042
NRV 16	Straight-way - flare	⅝	16	0.05	0.72	3.60	4.16	020-1043
NRV 19	Straight-way - flare	¾	19	0.05	0.72	5.50	6.36	020-1044

[1]) Δp = the minimum pressure at which the valve is completely open.
[2]) The K_V / C_V value is the flow of water in [m³/h] / [gal/min] at a pressure drop across valve of 1 bar / 14.5 psig, ρ = 1000 kg/m³ / 2205 lbs/G.

NRV - Check valve, straight-way, solder ODF

Ordering

Type	Connection type	Connection		Pressure drop across valve		K_V - value [2]	C_V - value [2]	Code no.
		[in]	[mm]	Δp [bar] [1]	Δp [psig] [1]	[m³/h]	[gal/min]	
NRV 6s	Straight-way - Solder	¼	–	0.07	1.01	0.56	0.65	020-1010
	Straight-way - Solder	–	6	0.07	1.01	0.56	0.65	020-1014
NRV 6s [3])	Straight-way - Solder	⅜	–	0.07	1.01	0.56	0.65	020-1057
	Straight-way - Solder	–	10	0.07	1.01	0.56	0.65	020-1050
NRV 10s	Straight-way - Solder	⅜	–	0.07	1.01	1.20	1.39	020-1011
	Straight-way - Solder	–	10	0.07	1.01	1.20	1.39	020-1015
NRV 10s [3])	Straight-way - Solder	½	–	0.07	1.01	1.20	1.39	020-1058
	Straight-way - Solder	–	12	0.07	1.01	1.20	1.39	020-1051
NRV 12s	Straight-way - Solder	½	–	0.05	0.72	2.05	2.37	020-1012
	Straight-way - Solder	–	12	0.05	0.72	2.05	2.37	020-1016
NRV 12s [3])	Straight-way - Solder	⅝	16	0.05	0.72	2.05	2.37	020-1052
NRV 16s	Straight-way - Solder	⅝	16	0.05	0.72	3.60	4.16	020-1018
NRV 16s [3])	Straight-way - Solder	–	18	0.05	0.72	3.60	4.16	020-1053
	Straight-way - Solder	¾	19	0.05	0.72	3.60	4.16	020-1059
NRV 19s	Straight-way - Solder	–	18	0.05	0.72	5.50	6.36	020-1017
	Straight-way - Solder	¾	19	0.05	0.72	5.50	6.36	020-1019
NRV 19s [3])	Straight-way - Solder	⅞	22	0.05	0.72	5.50	6.36	020-1054

[1]) Δp = the minimum pressure at which the valve is completely open.
[2]) The K_V / C_V value is the flow of water in [m³/h] / [gal/min] at a pressure drop across valve of 1 bar / 14.5 psig, ρ = 1000 kg/m³ / 2205 lbs/G.
[3]) Oversize connections.
This product is approved for R290, R600, R600a and R1270 by ignition source assessment in accordance to standard EN13463-1.

NRV - Check valve, angle-way, solder ODF

Ordering

Type	Connection type	Connection		Pressure drop across valve		K_V - value [2]	C_V - value [2]	Code no.
		[in]	[mm]	Δp [bar] [1]	Δp [psig] [1]	[m³/h]	[gal/min]	
NRV 22s	Angle-way - solder	⅞	22	0.04	0.58	8.5	9.83	020-1020
NRV 22s [3])	Angle-way - solder	1⅛	–	0.04	0.58	8.5	9.83	020-1060
	Angle-way - solder	–	28	0.04	0.58	8.5	9.83	020-1055
NRV 28s	Angle-way - solder	1⅛	–	0.04	0.58	16.5	19.07	020-1021
	Angle-way - solder	–	28	0.04	0.58	16.5	19.07	020-1025
NRV 28s [3])	Angle-way - solder	1⅛	35	0.04	0.58	16.5	19.07	020-1056
NRV 35s	Angle-way - solder	1⅛	35	0.04	0.58	29.0	33.52	020-1026
NRV 35s [3])	Angle-way - solder	1⅛	–	0.04	0.58	29.0	33.52	020-1061
	Angle-way - solder	–	42	0.04	0.58	29.0	33.52	020-1027

[1]) Δp = the minimum pressure at which the valve is completely open.
[2]) The K_V / C_V value is the flow of water in [m³/h] / [gal/min] at a pressure drop across valve of 1 bar / 14.5 psig, ρ = 1000 kg/m³ / 2205 lbs/G.
[3]) Oversize connections.

Technical data and ordering

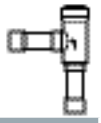
NRVH - Check valve, straight-way, solder ODF

Ordering

Type	Version	Connection		Pressure drop across valve		K_V - value [2]	C_V - value [2]	Code no.
		[in]	[mm]	Δp [bar] [1]	Δp [psig] [1]	[m³/h]	[gal/min]	
NRVH 6s [3]	Straight-way - solder	⅜	–	0.30	4.35	0.56	0.65	020-1069
	Straight-way - solder	–	10	0.30	4.35	0.56	0.65	020-1062
NRVH 10s	Straight-way - solder	⅜	–	0.30	4.35	1.20	1.39	020-1046
	Straight-way - solder	–	10	0.30	4.35	1.20	1.39	020-1036
NRVH 10s [3]	Straight-way - solder	½	–	0.30	4.35	1.20	1.39	020-1070
	Straight-way - solder	–	12	0.30	4.35	1.20	1.39	020-1063
NRVH 12s	Straight-way - solder	½	–	0.30	4.35	2.05	2.37	020-1039
	Straight-way - solder	–	12	0.30	4.35	2.05	2.37	020-1037
NRVH 12s [3]	Straight-way - solder	⅜	16	0.30	4.35	2.05	2.37	020-1064
NRVH 16s	Straight-way - solder	⅜	16	0.30	4.35	3.60	4.16	020-1038
NRVH 16s [3]	Straight-way - solder	–	18	0.30	4.35	3.60	4.16	020-1065
	Straight-way - solder	¼	19	0.30	4.35	3.60	4.16	020-1071
NRVH 19s	Straight-way - solder	–	18	0.30	4.35	5.50	6.36	020-1008
	Straight-way - solder	¾	19	0.30	4.35	5.50	6.36	020-1023
NRVH 19s [3]	Straight-way - solder	⅞	22	0.30	4.35	5.50	6.36	020-1066

[1] 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.
[2] The K_V / C_V value is the flow of water in [m³/h] / [gal/min] at a pressure drop across valve of 1 bar / 14.5 psig, ρ = 1000 kg/m³ / 2205 lbs/G.
[3] Oversize connections.
This product is approved for R290, R600, R600a and R1270 by ignition source assessment in accordance to standard EN13463-1.

NRVH - Check valve, angle-way, solder ODF



Ordering

Type	Connection type	Connection		Pressure drop across valve		K_V - value [2]	C_V - value [2]	Code no.
		[in]	[mm]	Δp [bar] [1]	Δp [psig] [1]	[m³/h]	[gal/min]	
NRVH 22s	Angle-way - solder	⅞	22	0.30	4.35	8.5	9.83	020-1032
NRVH 22s [3]	Angle-way - solder	1⅛	–	0.30	4.35	8.5	9.83	020-1072
	Angle-way - solder	–	28	0.30	4.35	8.5	9.83	020-1067
NRVH 28s	Angle-way - solder	1⅛	–	0.30	4.35	16.5	19.07	020-1029
	Angle-way - solder	–	28	0.30	4.35	16.5	19.07	020-1033
NRVH 28s [3]	Angle-way - solder	1⅛	35	0.30	4.35	16.5	19.07	020-1068
NRVH 35s	Angle-way - solder	1⅛	35	0.30	4.35	29.0	33.52	020-1034
NRVH 35s [3]	Angle-way - solder	1⅛	–	0.30	4.35	29.0	33.52	020-1073
	Angle-way - solder	–	42	0.30	4.35	29.0	33.52	020-1035

[1] 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.
[2] The K_V / C_V value is the flow of water in [m³/h] / [gal/min] at a pressure drop across valve of 1 bar / 14.5 psig, ρ = 1000 kg/m³ / 2205 lbs/G.
[3] Oversize connections.

NRV 10s H - Check valve for R744 (CO_2)

Technical data

Type	Description
Refrigerants	R744 (CO_2)
Oil	POE, PAG
Temperature range	-50 – 140 °C / -58 – 285 °F
Max. working pressure (PS / MWP)	90 bar / 1305 psig
Approvals	C UL US LISTED, EAC

NRV 10s H - Check valve, straight-way - solder ODF

Ordering

Type	Connection type	Connection size		Differential pressure to start opening the valve		Pressure drop across valve ΔP_2		K_V - value [2]	C_V - value [2]	Code no.
		[in]	[mm]	[bar] [1]	[psi] [1]	[bar] [1]	[psi] [1]	[m³/h]	[gal/min]	
NRV 10s H	Straightway Solder ODF	⅜	–	0.4	5.8	1.0	14.5	0.9	1.04	020-4000
	Straightway Solder ODF	–	10	0.4	5.8	1.0	14.5	0.9	1.04	020-4300

[1] ΔP_1 = the minimum pressure at which the valve start opening.
ΔP_2 = the minimum pressure at which the valve is completely open.
[2] The K_V / C_V value is the flow of water in [m³/h] / [gal/min] at a pressure drop across valve of 1 bar / 14.5 psig, ρ = 1000 kg/m³ / 2205 lbs/G.