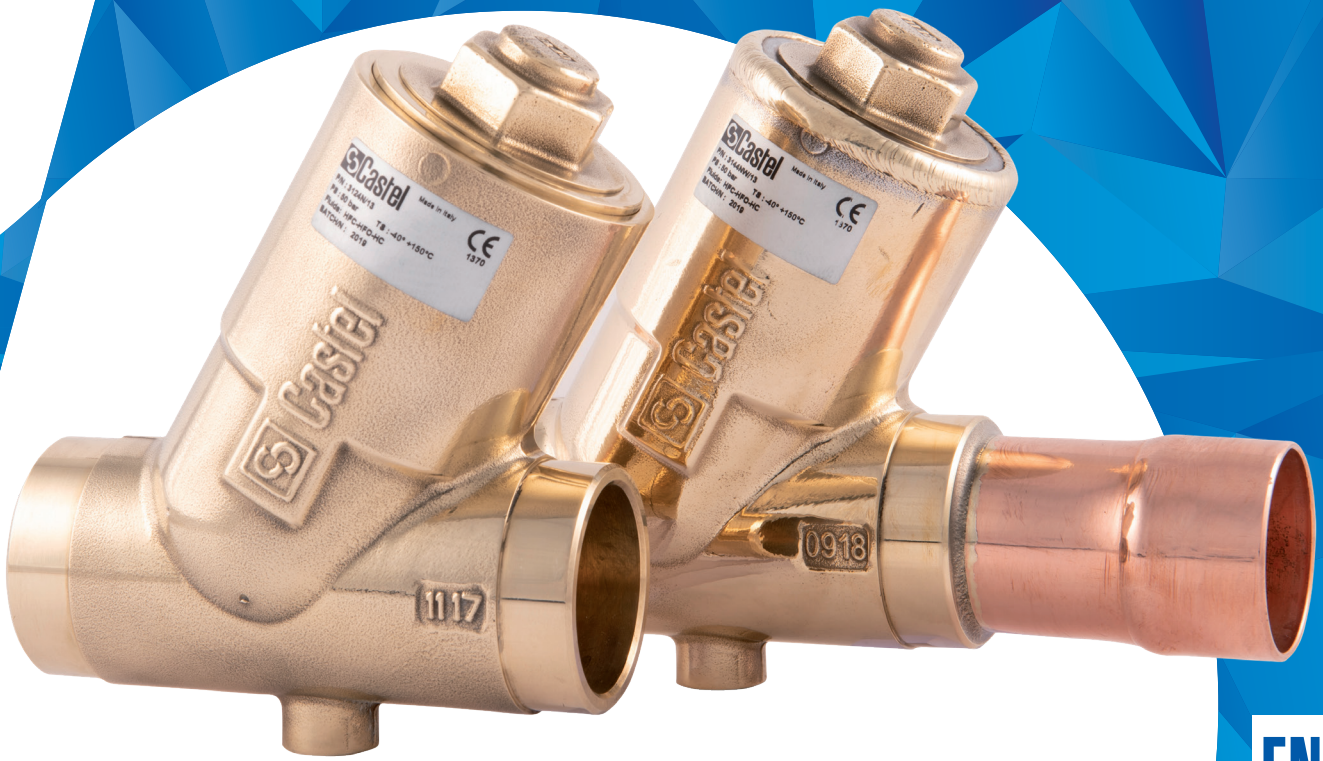
Castel
Italian technology

POLYHEDRA

CHECK VALVES



EN

HERMETIC CHECK VALVES SERIES 3144W – 3144NW – 3145W – 3145NW

For refrigeration plants that use HCFC, HFC, HFO, HC refrigerants

Applications

The check valves series 3144W, 3144NW, 3145W, 3145NW are designed for installation on commercial refrigeration systems and on civil and industrial air conditioning plants that use the following refrigerant fluids:

- HCFC (R22)
- HFC (R134a, R32, R404A, R407C, R410A, or R507)
- HFO, HFO/HFC mixtures (R1234yf, R1234ze, R448A, R449A, R450A, R452A, R452B, R454B, R513A)
- HC (R290, R600, R600a, R1270)

belonging to Groups 1 and 2, as defined in Article 13, Chapter 1, Point (a) and (b) of Directive 2014/68/EU, with reference to EC Regulation No. 1272/2008.

For specific applications with refrigerant fluids not listed above, please contact Castel Technical Department.

Installation

The valves can be installed in any section of a refrigeration system where it is necessary to avoid the consequences from undesirable flow inversion, with respect for the operating limits and the capacities. The table shows the following functional characteristics of a check valve:

- PS and TS
- Kv factor
- Minimum opening differential pressure at which the valve can open and remain opened.

The allowed operating positions are the following:

- with the piping axis horizontal and valve cover facing upward or to the side, horizontal.
- with the piping axis vertical and arrow facing either upward or downward.

Note: valves 3144W, 3144NW, 3145W, 3145NW cannot be installed with the valve cover facing downward.

Construction

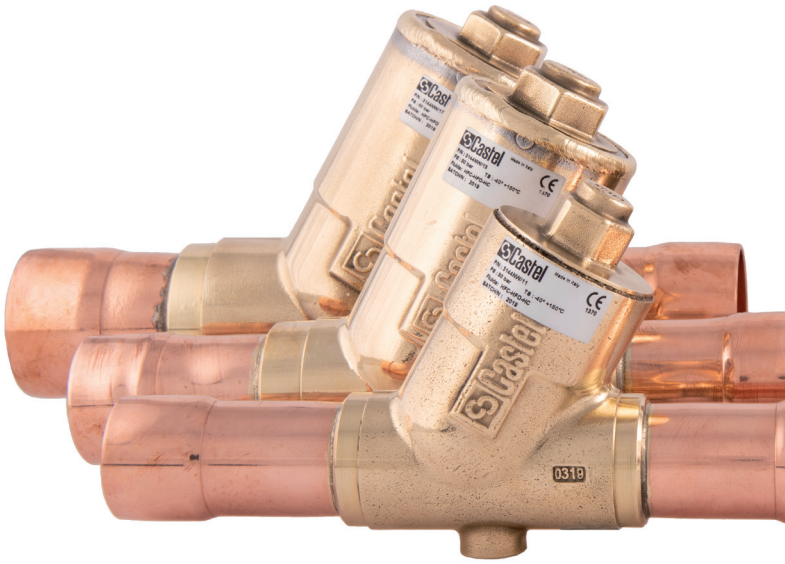
These check valves are available in the following two types:

- Valve types 3144W, 3144NW (standard spring) with a low opening differential; Δp = 0.04 bar.
- Valve types 3145W, 3145NW (reinforced spring) with a high opening differential; Δp = 0.3 bar. To be used, for example, with compressors in parallel.

To guarantee tightness between body and cover, the valves in series 3144W, 3145W are equipped with laser welds while the valves in series 3144NW, 3145NW are equipped with TIG welds.

The main parts of the check valves are made with the following materials:

- Hot forged brass EN 12420 – CW 617N for body and cover
- Copper pipe EN 12735-1 – Cu--DHP for solder connections
- Austenitic stainless steel AISI 302 for the spring
- PTFE for gasket seals



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DEMOUNTABLE CHECK VALVES SERIES 3124N – 3125N

For refrigeration plants that use HFC, HFO, HC refrigerants

Applications

The check valves series 3124N, 3125N are designed for installation on commercial refrigeration systems and on civil and industrial air conditioning plants that use the following refrigerant fluids:

- HFC (R134a, R32, R404A, R407C, R410A, or R507)
- HFO, HFO/HFC mixtures (R1234yf, R1234ze, R448A, R449A, R450A, R452A, R452B, R454B, R513A)
- HC (R290, R600, R600a, R1270)

belonging to Groups 1 and 2, as defined in Article 13, Chapter 1, Point (a) and (b) of Directive 2014/68/EU, with reference to EC Regulation No. 1272/2008.

For specific applications with refrigerant fluids not listed above, please contact Castel Technical Department.

Caution! the check valves in this brochure CANNOT be installed on systems that use HCFC (R22) refrigerant.

Construction

These check valves are available in the following two types:

- Valve types 3124N (standard spring) with a low opening differential; Δp = 0.04 bar.
- Valve types 3125N (reinforced spring) with a high opening differential; Δp = 0.3 bar. To be used, for example, with compressors in parallel.

The main parts of the check valves are made with the following materials:

- Hot forged brass EN 12420 – CW 617N for body and cover.
- Austenitic stainless steel AISI 302 for the spring
- Hydrogenated nitrile (HNBR) for outlet seal gaskets for valves in series 3124N, 3125N
- PTFE for seat gaskets

Installation

The valves can be installed in any section of a refrigeration system where it is necessary to avoid the consequences from undesirable flow inversion, with respect for the operating limits and the yields. The table shows the following functional characteristics of a check valve:

- PS and TS
- Kv factor
- Minimum opening differential pressure at which the valve can open and remain opened.

Before starting to braze the body, it is necessary to disassemble the valves in series 3124N, 3125N. It is important to avoid direct contact between the torch flame and the body, which could be damaged and compromise the proper functioning of the entire valve.

The allowed operating positions are the following:

- with the piping axis horizontal and valve cover facing upward or to the side, horizontal.
- with the piping axis vertical and arrow facing either upward or downward

Note: valves 3124N, 3125N cannot be installed with the valve cover facing downward.

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General characteristics of hermetic check valves

Catalogue Number	Connections			Kv Factor [m3/h]	Minimum Opening Pressure Differential [bar]	PS [bar]	TS [°C]		TA [°C]		Risk Category according to PED Recast
	SAE Flare	ODS					min.	max.	min.	max.	
		Ø [in.]	Ø [mm]								
3144W/7	–	7/8"	22	8,1	0,04	50	– 40	+150	– 40	+50	Art. 4.3
3144W/M28		–	28	10,4							
3144W/9		1.1/8"	–								
3144NW/11		1.3/8"	35	15,6							II
3144NW/13		1.5/8"	–	27,0							
3144NW/M42		–	42								
3144NW/17		2.1/8"	54	39,0							
3145W/7	–	7/8"	22	8,1	0,3	50	– 40	+150	– 40	+50	Art. 4.3
3145W/M28		–	28	10,4							
3145W/9		1.1/8"	–								
3145NW/11		1.3/8"	35	15,6							II
3145NW/13		1.5/8"	–	27,0							
3145NW/M42		–	42								
3145NW/17		2.1/8"	54	39,0							

General characteristics of demountable check valves

Catalogue Number	Connections		Kv Factor [m3/h]	Minimum Opening Pressure Differential [bar]	PS [bar]	TS [°C]		TA [°C]		Risk Category according to PED Recast
	ODS					min.	max.	min.	max.	
	Ø [in.]	Ø [mm]								
3124N/M22	–	22	8,1	0,04	50	-40	+150	-40	+50	Art. 4.3
3124N/7	7/8"	–								
3124N/M28	–	28	10,4							
3124N/9	1.1/8"	–								
3124N/11	1.3/8"	35	15,6							II
3124N/13	1.5/8"	–	27,0							
3124N/M42	–	42								
3124N/17	2.1/8"	54	39,0							
3125N/M22	–	22	8,1	0,3	50	-40	+150	-40	+50	Art. 4.3
3125N/7	7/8"	–								
3125N/M28	–	28	10,4							
3125N/9	1.1/8"	–								
3125N/11	1.3/8"	35	15,6							II
3125N/13	1.5/8"	–	27,0							
3125N/M42	–	42								
3125N/17	2.1/8"	54	39,0							

LOW GWP

Castel has always been aware of environmental sustainability issues and gives its contribution to a cleaner environment, supplying the refrigeration and air conditioning industry with state-of-the-art and environment-friendly technology. With its commitment and steady research in its laboratories, Castel has developed a whole range of products using natural refrigerants, which reduce emissions to the minimum.

ISO 14001

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