ENGINEERING TOMORROW

Data Sheet

Check valve Type **CCV**

Magnetic type



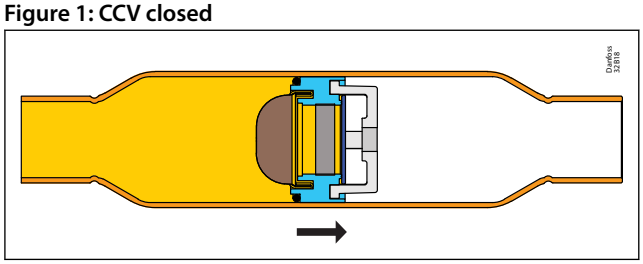
Magnetic type check valves are designed for installation in commercial refrigerating systems and in residential or industrial air conditioning plants. They are used to control the unidirectional flow of refrigerant to prevent backflow; the magnetic actuator guarantees a high reliability standard.

Features:

- Ensure the correct flow direction
- Hermetic construction design, is applicable for flammable refrigerants
- Magnetic closure element for high reliability standard
- Low pressure drop during operation
- 100% copper connections for easier soldering
- Can be installed in any position and direction in the system
- Declaration according to PED Directive 2014//68/EU
- UL 207 approval for all models

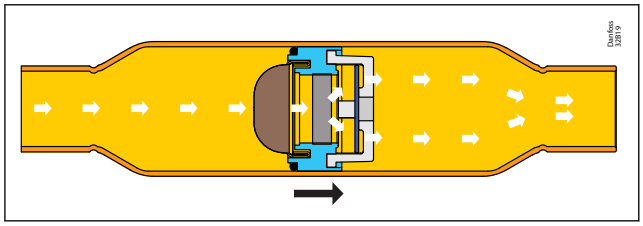
Functions

Figure 1: CCV closed



When the differential pressure is less than Min. opening pressure or has reverese pressure, CCV is closed. The diaphragm is attracted by magnet and stay in the left of the bracket.

Figure 2: CCV opened



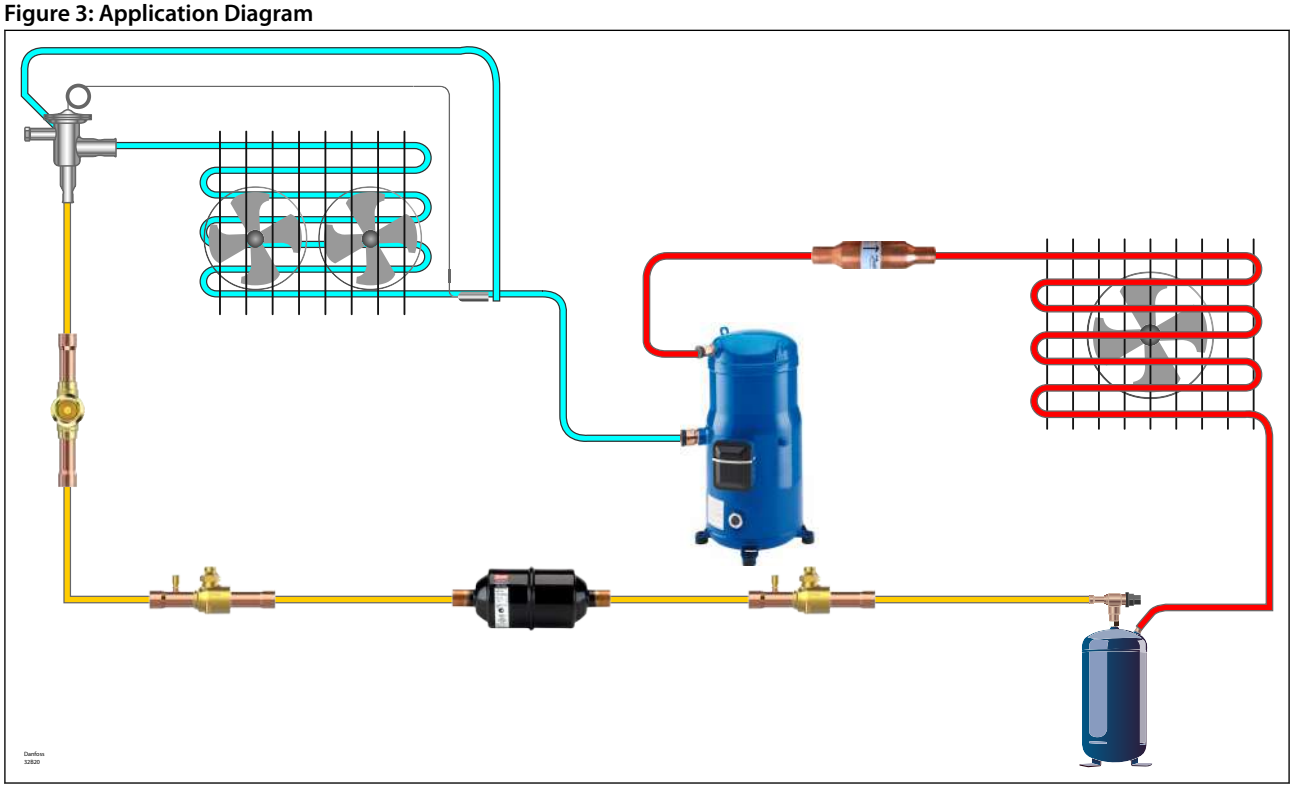
When the refrigerant flows through the valve and the differential pressure is more than Min. opening pressure, the diaphragm will move to the right of bracket, then the valve will open.

Application

Typical applications for CCV valves are:

- Cold room
- Heat pump
- Chillers
- VRF

Figure 3: Application Diagram



Media

Table 1: Media

Valve type	Description	PED category [Fluid Group I][1]	PED category [Fluid Group II][2]
CCV 6s-28s	R134a, R22/R407C, R290, R404A/R507A, R407A, R407F, R407H, R410A, R448A, R449A, R449B, R450A, R452A, R452B, R454A, R454B, R454C, R455A, R513A, R515B, R516A, R600, R600a, R1233zd(E), R1234ze(E), R1234yf, R1270	Art. 4.3	Art. 4.3
CCV 35s		N/A	

[1] Fluid group I (flammable or toxic refrigerants)
[2] Fluid group II (non-toxic and non-flammable refrigerants)

Features	Description
Refrigerant oil	POE,PVE,PAG,PAO;Mineral oils

NOTE:

- For a complete list of approved refrigerants, visit http://store.danfoss.com/ and search for individual code numbers, where refrigerants are listed as part of product details.
- This product is approved for R290, R452B, R454A, R454B, R454C, R455A, R516A, R600, R600a, R1234ze(E), R1234yf and R1270 by ignition source assessment in accordance to standard EN ISO 80079-36.
- R1234ze(E) can be used for CCV size up to 35s according to the PED category I, Fluid II
- For the CCV in oil line application, please contact Danfoss for detailed information.
- CCV 35s can be used with flammable refrigerants, without declaration of PED category II

Product specification

Technical data

Table 2: Technical data

Technical data	Values
Max. working pressure	CCV 6s - 28s: 45 bar / 653 psig CCV 35s: 45 bar/653 psig (032B1039) CCV 35s: 35 bar/508 psig (032B1035)
Max. backward differential pressure	CCV 6s - 22s: 45 bar / 653 psig CCV 28s - 35s: 30 bar / 435 psig in liquid line CCV 28s - 35s: 40 bar / 580 psig in gas line
Media temperature range	-50 °C - 155°C /-58 °F - 311°F
Environmental transport/storage temperature and humidity	-40 – 65 °C /-40 – 150 °F. Air humidity: RH≤95%.
Flow direction	Single flow
Filter	30 meshes/inch2
Serviceable	No

Identification

Relevant product data is available on the product and box label. An example of a box label and product label are shown, including an explanation of the content.

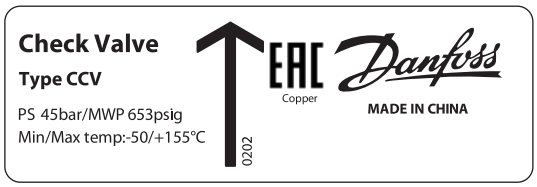
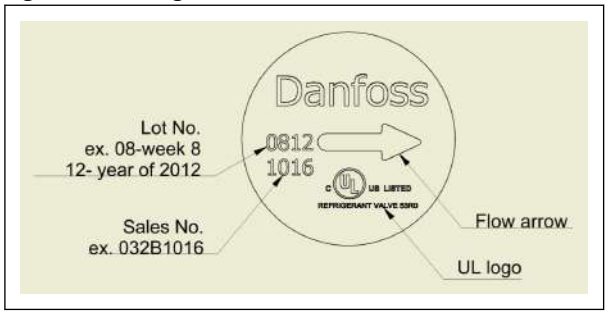
Box label	Product label
	

Table 3: Product and label text

Position	Inscription	Explanation
Box label	CCV 6s	Product type
Box label	032B1014	Code number
Box label; Product label	Check valve	Product name
Box label	ODF 1/4 in	Connection size and type
Box label; Product label	PS 45 bar/MWP 653 psig	Max. working pressure in bar and psig
Box label	BE4322B	Code for production place and time (BE = Wuqing, week 43, year 2022, weekday B = Tuesday)
Box label; Product label	MADE IN CHINA	Manufacturing site acc. to EN standards
Box label	EAN code	Barcode for individual code no. identification according to EAN standard
Product label	Min/Max temp: -50/+155 °C	Media temperature range in °C
Product label	Arrow	Open direction
Box label; Product label	Additional information: Relevant approval authority logos	-

Marking

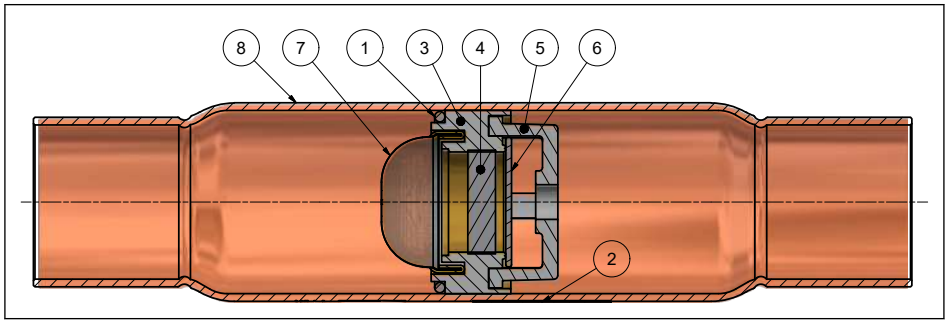
Figure 4: Marking





Design and Materials

Figure 5: Design and materials



Position	Description	Material
1	Solder ring	Sn-Cu alloy
2	Product label	Paper
3	Valve seat	Brass
4	Magnet	Al-Ni-Co alloy
5	Bracket	Al alloy
6	Diaphragm	Steel
7	Filter 30 mesh	Steel +Brass
8	Valve body tube	Copper

Dimensions

We have chosen to show dimensions of the major versions.

You will find downloadable dimension drawings for individual code numbers on Danfoss store as part of the Visuals tab for individual code numbers.

Weights also differ depending on the design of the individual code numbers. Weights are available as part of the technical data for individual code numbers on Danfoss store.

Figure 6: CCV Dimensions

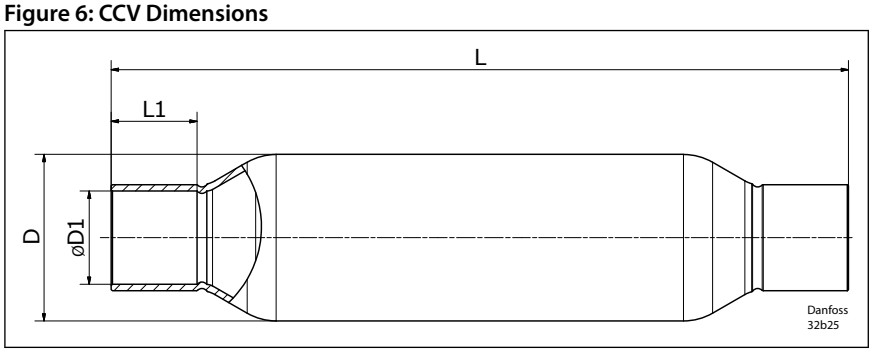


Table 4: Dimensions and weight in SI units

Type	Connection size	[øD1]	[øD1] tolerance	L	L1	D	Net weight	Code no.
		[mm]	[mm]	[mm]	[mm]	[mm]	[kg]	
CCV 6s	¼ in.	6.42	0/+0.15	102	10	22.3	0.08	032B1014
	6 mm	6.07						032B1006
CCV 10s	⅜ in.	9.65		102	10	22.3	0.08	032B1038
	10 mm	10.07						032B1010
CCV 10s [1]	½ in.	12.75		102	14	22.3	0.08	032B1013
	12 mm	12.07						032B1015
CCV 12s	½ in.	12.75		127	14	28.7	0.13	032B1048
	12 mm	12.07						032B1012
CCV 16s	⅝ in.	16.07		127	15	28.7	0.14	032B1016
	16 mm							
CCV 16s [1]	¾ in.	19.05		127	18	28.7	0.14	032B1017
	19 mm							
CCV 16s [1]	⅞ in.	22.3		127	21	28.7	0.14	032B1079
	22 mm							
CCV 19s	¾ in.	19.05		178	18	34.6	0.27	032B1019
	19 mm							
CCV 22s	⅞ in.	22.3		178	21	41.7	0.37	032B1078
	22 mm							
CCV 28s	1 ⅛ in.	28.65		213	25	54.4	0.75	032B1118
	28 mm	28.08						032B1028
CCV 35s(45bar)	1 ⅜ in.	35.05	0/+0.25	238	26	68	1.35	032B1039
	35 mm							
CCV 35s(35bar)	1 ⅜ in.	35.05		238	26	66.7	1.06	032B1035
	35 mm							

[1] Oversize connections

Figure 7: CCV Dimensions

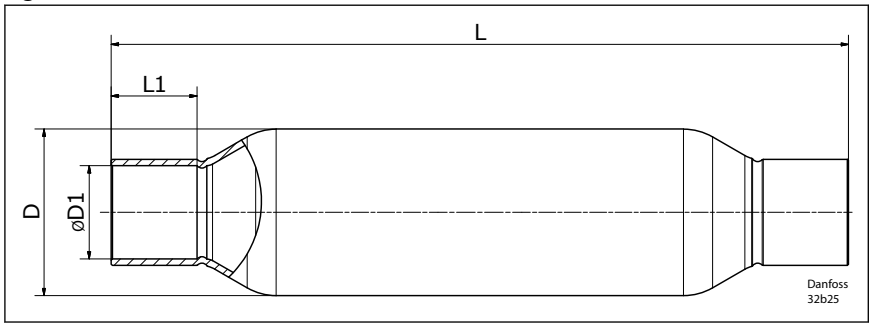


Table 5: Dimensions and weight in US units

Type	Connection size	[øD1]	[øD1] tolerance	L	L1	D	Net weight	Code no.
		[in.]	[in.]	[in.]	[in.]	[in.]	[lbs]	
CCV 6s	¼ in.	0.25		4.02	0.39	0.88	0.18	032B1014
	6 mm	0.24						032B1006
CCV 10s	⅜ in.	0.38		4.02	0.39	0.88	0.18	032B1038
	10 mm	0.40						032B1010
CCV 10s[2]	½ in.	0.50		4.02	0.55	0.88	0.18	032B1013
	12 mm	0.48						032B1015
CCV 12s	½ in.	0.50		5.00	0.55	1.13	0.29	032B1048
	12 mm	0.48						032B1012
CCV 16s	⅝ in.	0.63		5.00	0.59	1.13	0.31	032B1016
	16 mm							
CCV 16s[2]	¾ in.	0.75	0/+0.006	5.00	0.71	1.13	0.31	032B1017
	19 mm							
CCV 16s[2]	⅞ in.	0.88		5.00	0.83	1.13	0.31	032B1079
	22 mm							
CCV 19s	¾ in.	0.75		7.01	0.71	1.36	0.60	032B1019
	19 mm							
CCV 22s	⅞ in.	0.88		7.01	0.83	1.64	0.82	032B1078
	22 mm							
CCV 28s	1⅛ in.	1.13		8.39	0.98	2.14	1.65	032B1118
	28 mm	1.11						032B1028
CCV 35s(45bar)	1⅜ in.	1.38		9.37	1.02	2.68	2.98	032B1039
	35 mm							
CCV 35s(35bar)	1⅜ in.	1.38	0/+0.01	9.37	1.02	2.63	2.34	032B1035
	35 mm							

[2] Oversize connections

Ordering

Multipack contains several items, individually packed, so that customers can purchase 1 item and receive all relevant documentation.

Type	Code no.	Multi pack Qty/ pack	Connection Solder ODF × ODF		Kv[2]	Cv[2]	Min. OPD Δp[3]		Max. working pressure: PS/MWP	Max.backwards diff. pressure[4]	Media temperature range	PED category [Fluid Group 1]	PED category [Fluid Group 2]
			in.	mm	[m³/h]	[gal/ min]	[bar]	[psi]					
CCV 6s	032B1014	102	¼	-	0.95	1.10	0.02	0.29	45 bar / 653 psig	45 bar / 653 psig	-50 °C ~ +155 °C / -58 °F ~ +311 °F	Art. 4.3	Art. 4.3
	032B1006	102	-	6	0.95	1.10							
CCV 10s	032B1038	102	⅜	-	1.31	1.51							
	032B1010	102	-	10	1.31	1.51							
CCV 10s[1]	032B1013	102	½	-	1.31	1.51							
	032B1015	102	-	12	1.31	1.51							
CCV 12s	032B1048	72	½	-	2.6	3.01							
	032B1012	72	-	12	2.6	3.01							
CCV 16s	032B1016	72	⅝	16	2.9	3.35							
CCV 16s [1]	032B1017	72	¾	19	2.9	3.35							
	032B1079	72	⅞	22	2.9	3.35							
CCV 19s	032B1019	28	¾	19	4.2	4.86							
CCV 22s	032B1078	24	⅞	22	7.1	8.21							
CCV 28s	032B1118	12	1⅛	-	14.3	16.53							
	032B1028	12	-	28	14.3	16.53				30bar/ 435psig / 40bar/ 580psig			
CCV 35s	032B1039	5	1⅜	35	22.5	26.01						-	
	032B1035	5			22.5	26.01			35 bar / 508 psig				

[1] Oversize connections

[2] The Kv / Cv is the flow of water at fully open position. The unit is specified as: [m³/h – gal/min] at a pressure drop across valve of 1 bar/14.5 psig, ρ = 1000 kg/m³ / 62.4 lb/ft³.

[3] Δp = Minimum Opening Pressure Differential

[4] The Max. backward differential pressure is the maximum differential pressure across the valve from reverse direction.(the differential pressure from outlet to inlet of valve)CCV 28s - 35s: 30 bar / 435 psig in liquid line ; 40 bar / 580 psig in gas line

Certificates, declarations, and approvals

The list contains all certificates, declarations, and approvals for the product. Individual code number may have some or all of these approvals, and certain local approvals may not appear on the list.

Some approvals may change over time. You can check the most current status at danfoss.com or contact your local Danfoss representative if you have any questions.



Table 6: Certificates, declarations, and approvals

File name	Document type	Document topic	Approval_authority
EAC KZ 7100841.13.12.01345	EAC Declaration	EAC	EAC - Eurasian Customs Union
EAC KZ 7100841.13.12.01346	EAC Declaration	EAC	EAC - Eurasian Customs Union
EAC RU Д-DK.БЛ08.В.01690_19	EAC Declaration	EAC	EAC - Eurasian Customs Union
LLC CDC EURO-TYSK UA.TR.089.1015.02-22	Pressure Safety Certificate	UA	LLC CDC EURO TYSK - Ukraine
033F4006	Manufacturers Declaration	China RoHS	Danfoss
033F4017	Manufacturers Declaration	EN ISO 14903:2017 Level A1	Danfoss
033F4053	Manufacturers Declaration	PED, ROHS	Danfoss
UL SA7200	Mechanical - Safety Certificate	UL 207	UL

ENGINEERING TOMORROW

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