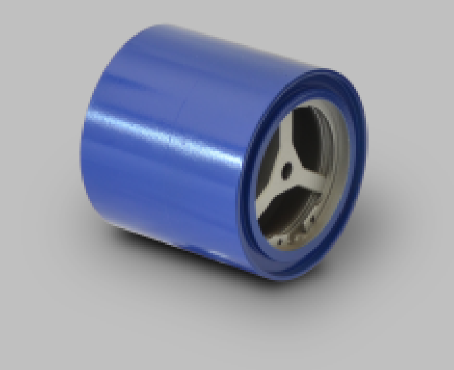

OPERATING INSTRUCTIONS FOR CHECK VALVES

RVZ (313, 315, 316, 319)

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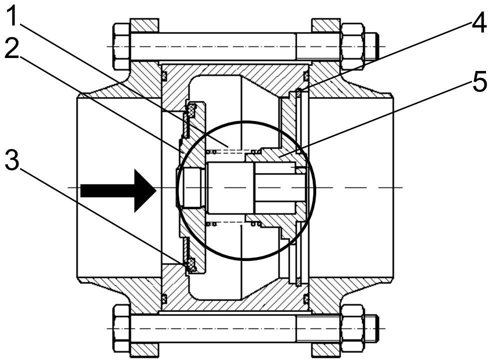
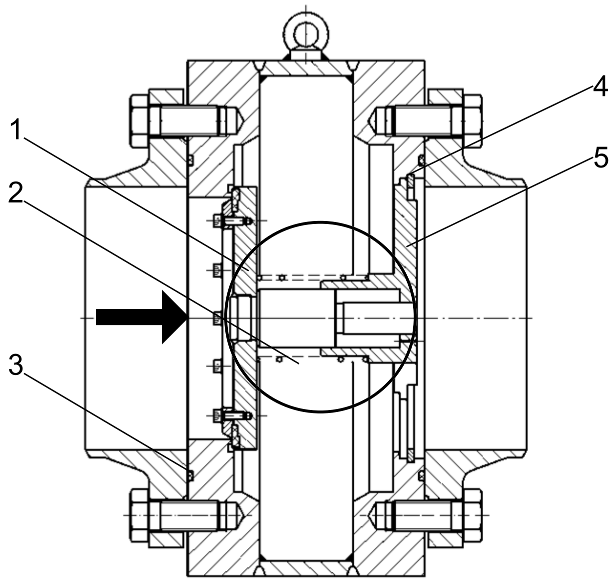
319 92, 319 94, 319 96	With integrated damping and linear ball bearing
31292	For installation in the oil separator

DN 40 - DN 150



1 Compression spring	2 Valve disc
3 O-ring	4 Retaining ring
5 Guide bush	

DN 200 - DN 350

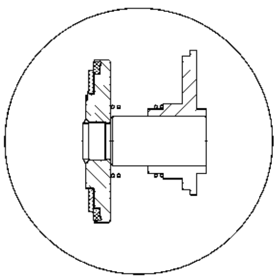


1 Valve disc	2 Compression spring
3 O-ring	4 Retaining ring
5 Guide bush	

1.1 Pressure spring without damping

Pressure spring without integrated damping.
Types:

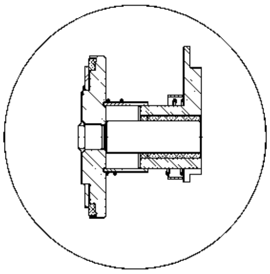
- 313 91
- 313 93
- 313 95



1.2 Pressure spring with damping and linear ball bearing

Compression spring with integrated damping and linear ball bearing
Types:

- 312, 313, 315, 316, 319 (92)
- 313, 315, 316, 319 (94)
- 313, 315, 316, 319 (96)



2 Technical characteristics

Body material	Selection acc. to AD-2000 Series W
Steel	P235GH, S235JR, S355J2
Low-temperature steel	P215NL, P255QL, P355NL1
NIRO	X5CrNi18-10 or equivalent

3 Pressure/temperature operating limits

PN	DN	TB (MWT) [°C]	-60 1)	-60 2)	-10	+50	+150
25	40 - 350	PS (MWP) [bar]	25	18.7	25	25	25
40	40 - 350		40	30	40	40	40
63	40 - 150		63	47.2	63	63	63
1)Load case I (TT, NIRO) 2) Load case II (St)							
Permissible ambient temperature range (°C) -50 to +50							

4 Operating Mediums

Suitable for operation with refrigerants acc. to EN 378 Part 1, e.g. NH^3, R22, R134a or mixtures with refrigeration oil, as well as for neutral gaseous and liquid media and glycol-based cooling brine.

5 Flow coefficient

DN	40	50	65	80	100	125	150	200	250	300	350
	38.0	62.5	93.0	135.0	180.0	310.0	480.0	680.0	980.0	1370	2030

External leakage, seat <15g refrigerant per year at p=10 bar above valve disc

6 Safety instructions

NOTICE

Gefahr durch unsachgemäße Handhabung!

Sachschaden möglich.

- ▶ Ventile mit Transport- oder Lagerschäden nicht einbauen.
- ▶ Ventile müssen frei von Achskräften, Biege- und Torsionsmomenten sein und dürfen nicht als Fixpunkte von Rohrleitungen dienen.
- ▶ Bei Autogenschweißung oder Hartlötung darf die Flamme das Ventil nicht berühren.
- ▶ Verunreinigungen vom Innenraum der Ventile fernhalten.
- ▶ Ventile nur bei druckloser, abgesaugter und ausreichend belüfteter Rohrleitung demontieren.

7 Anwendung

AWP-Rückschlagventile sind geeignet für den Einsatz in Kältemittelkreisläufen von Industrie-Kälteanlagen. Sie werden sowohl auf der Druck- als auch auf der Saugseite des Verdichters eingesetzt bzw. in Rohrleitungen, in denen nur eine Strömungsrichtung zugelassen ist.

8 Functional description

AWP check valves are self-acting shut-off devices. They are opened by the pressure of the operating medium beneath the valve disc. In the event of standstill or flow reversal, the check valve closes automatically, assisted by the spring force or the weight of the valve disc.

Type 313 91, 313 93, 313 95

Particularly suitable for horizontal installation, as it is without damping. In vertical installation with flow from bottom to top and low capacity requirement <40%, this type may tend to vibrate.

Type 312(313,316)92, 313(316) 94, 313(316) 96

Particularly suitable for vertical installation with flow from bottom to top. Due to the presence of a damping device, this type is particularly suitable for strongly fluctuating capacity requirements. Even the lowest flow velocities do not cause the valve disc to vibrate.

Type 315(319) 92, 315(319) 94, 315(319) 96

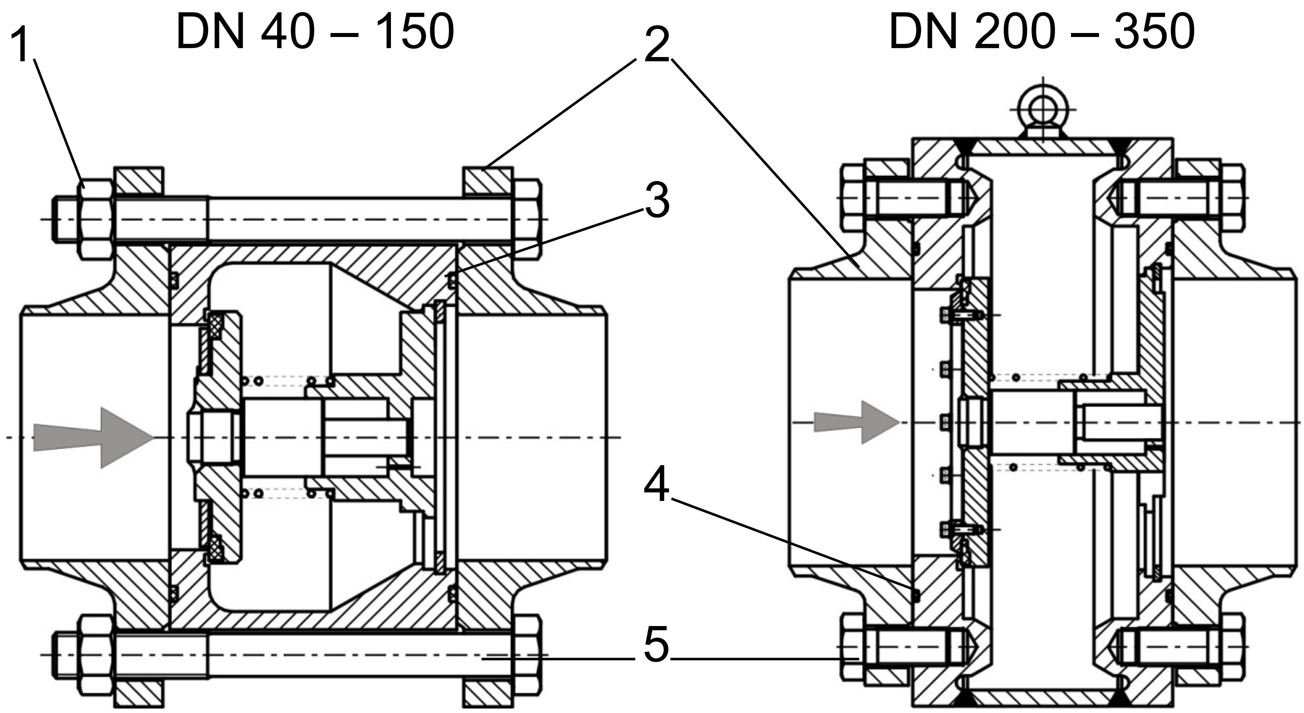
Particularly suitable for vertical installation with flow from top to bottom.

Type 31691 and 31991

Are suitable for use in oil circuits and liquid lines.

The tightness of the seal depends decisively on the differential pressure across the valve disc. The seal at the valve seat is provided by a Teflon flat sealing ring. To ensure perfect functional behaviour, ensure that the actual minimum flow rate (e.g. at partial load) is never less than 20% of the maximum nominal valve capacity based on a pressure loss of 0.1 bar.

9 Installation



1 Hexagon nuts	2 Welding neck flanges
3 O-rings	4 O-rings
5 Hexagon screws	

Blowing out the pipelines after valve installation can damage the Teflon flat sealing ring on the valve disc and is not permissible. Welding neck flanges according to DIN EN 1092-1 in pressure ratings PN25, PN40, PN63 and flanges according to ASME B16.5 300lbs, 600lbs are used as clamping flanges.

1. Clean pipework and system components before installation.
   NOTICE! The deviation from parallelism or perpendicularity of the welding ends or flange facings must not exceed 1°. Connecting flanges must be axially aligned. Components with transport and storage damage must not be installed. After removing the pipe plugs, the component can be welded in or installed. Observe the direction of flow (see arrow on nameplate).
2. Remove pipe plugs/foil.
3. Then install the valves.
4. Tighten hexagonal bolts and nuts crosswise and evenly.
5. Place O-rings into the grooves using low-temperature grease.

9.1 Installation position

Installation system
Type: 313 91, 313 93, 313 95
Without damping
Horizontal only [+/-15°]

Type: 312(313,316) 92, 313(316) 94, 313(316) 96
With damping

Vertical [+/-15°] with flow from bottom to top and horizontal

Type: 315(319) 92, 315(319) 94, 315(319) 96
With damping
Vertical [+/-15°] with flow from top to bottom and horizontal

	Opening pressure [bar]
Horizontal	0.02 to 0.04 (fully open 0.1 to 0.15)
Vertical	0.025 (fully open 0.0)

External leakage, seat <15g refrigerant per year at Δ p=10 bar above valve disc

10 Wartung

AWP-Rückschlagventile arbeiten wartungsfrei. Treten Mängel im Funktionsverhalten auf, ist eine Reparatur möglich. Während der Garantiezeit dürfen Reparaturen nur durch den Hersteller (AWP) bzw. mit dessen Einverständnis durch geschultes Instandhaltungspersonal des Betreibers der Anlage vorgenommen werden.

10.1 Disassembly

After loosening the hexagon screws, remove as many screws as necessary until the valve can be rotated out of the clamping flanges. If the clamping flanges exert too much pressure on the check valve, they must be pushed apart using a suitable device. Remove retaining ring according to DIN 472 with suitable assembly pliers DIN 5256 ZGJ. Carefully remove the guide bush together with the pressure spring and the valve disc from the housing.

11 Transport, storage and disposal

AWP components are transported protected against impact and covered with foil.

- Storage must take place in dry rooms.
- Ensure that the connection ports are sealed intact.
- Contamination of any kind must be kept away from the interior.
- The external surfaces are provided with a corrosion protection coating for dry storage at room temperature, which is effective for at least 1 year.
- The corrosion protection coating CELEROL® Reaktionsgrund 918 is a good adhesion promoter for 1- and 2-component top coats.
- Dismantle for disposal.
- Collect lubricants during dismantling. The materials must be separated from one another and disposed of in accordance with local regulations.

12 Garantie

Unless agreed otherwise, the statutory warranty provisions apply. For further information, please also refer to our General Terms and Conditions, available on our website **awpvalves.com**.

13 Spare parts

Spare parts orders must contain the following information:

- Quantity
- Designation acc. to images for type
- Order number
- Nominal size of the valve
- Year of manufacture of the valve

DN	Valve disc Order number Type 313/312/315	Order number Type 316/319	Compression spring Order number Type 312/313	Order number Type 316
40	31391(92)K14.5125001		56 20 56	
50	31391(92)K15.5125001		56 20 56	
65	31391(92)K17.5125001		32702.13.8233003	
80	31391(92)K18.5125001		13911.13.8 233003	
100	31391(92)K19.5125001	31691(92)K19.5125001	13911.14.8233003	30991E19.8233003
125	31391(92)K20.5125001	31691(92)K20.5125001	30791.21.8233013	29500E17.8 233003
150	31391(92)K21.5125001	31691(92)K21.5125001	30791.21.8233023	29500E17.8233003
200	31391(92)E23.5125001	31691(92)E23.5125001	30791.23.8 233003	30991E23.8233003
250	31391(92)E24.5125001	31691(92)E24.5125 001	30791.24.8 233003	30992E24.8233003
300	31391(92)E25.5125001	31691(92)E25.5125 001	30791.25.8 233003	30992E25.8233003
350	31391(92)E26.5125001	31691(92)E26.5125 001	562033	30991E26.8233003

DN	Valve insert, cpl. Order number Type 312		Order number Type 313	Order number Type 316
40	312 92E14.5 110 00 1		313 91(92)E14.5 110 00 1	
50	312 92E14.5 110 00 1		313 91(92)E15.5 110 001	
65	312 92E17.5 110 00 1		313 91(92)E17.5 110 001	
80	312 92E18.5 110 00 1		313 91(92)E18.5 110 001	
100	312 92E19.5 110 00 1		313 91(92)E19.5 110 001	316 92E19.5 110 001
125	312 92E20.5 110 00 1		313 91(92)E20.5 110 001	316 92E20.5 110 001
150	312 92E21.5 110 00 1		313 91(92)E21.5 110 001	316 92E21.5 110 001
200			313 91(92)E23.5 110 001	316 92E23.5 110 001
250			313 91(92)E24.5 110 001	316 92E24.5 110 001
300			313 91(92)E25.5 110 001	316 92E25.5 110 001
350			313 91(92)E26.5 110 001	316 92E26.5 110 001

Accessories

For design with flanges according to DIN EN 1092-1 type 11 B1 / C22.8 and O-ring seal
DN 40-150 = PN 40 DN 200-350 = PN 25

DN	Welding neck flanges Order number	Hexagon screws Quantity	Dimensions	Hexagon nuts Quantity	Dimensions
40	263 50.14.5 031 10 4	4	M16 x 130	4	M16
50	263 50.15.5 031 10 4	4	M16 x 150	4	M16
65	263 50.17.5 031 10 4	8	M16 x 150	8	M16
80	263 50.18.5 031 10 4	8	M16 x 180	8	M16
100	263 50.19.5 031 10 4	8	M20 x 200	8	M20
125	263 50.20.5 031 10 4	8	M24 x 210	8	M24
150	263 50.21.5 031 10 4	8	M24 x 220	8	M24
200	263 50.23.5 031 10 4	24	M24 x 60		
250	263 50.24.5 031 10 4	24	M27 x 60		

DN	Welding neck flanges Order number	Hexagon screws Quantity	Dimensions	Hexagon nuts Quantity	Dimensions
300	263 50.25.5 031 10 4	32	M27 x 60		
350	263 50.26.5 031 10 4	32	M30 x 65		

Flange	Facing designation	Screw/nut thread
EN 1092-1	Form B1	Metric
Type 11	Form C	
PN25		
PN40		
PN63		
ASME B16.5	RF	Metric / Inch
300 lbs		
600 lbs		

In case of doubt, please contact our Sales Support either via our website awpvalves.com/contact or by email to **info@awpvalves.com**. The most reliable method to correctly identify the required spare part is to send a photo of the nameplate on which the serial number of the valve is clearly visible.

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Latest revision: 02.02.2026