

VALVES FOR 160BAR-APPLICATIONS

AVR, HRAR, RV, RVA, RVAK, SS

02.07.2026

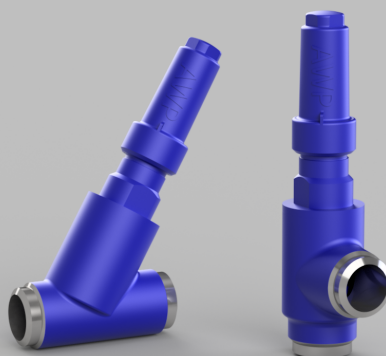


Table of contents

1 AVR / RV / RVA / RVAK.....	5
2 AVR materials.....	6
3 AVR D AE	7
4 AVR D AE NIRO	9
5 AVR E AE	11
6 AVR E AE NIRO	13
7 AVR D LE	14
8 AVR D LE NIRO	15
9 AVR E LE.....	16
10 AVR E LE NIRO.....	17
11 RV materials	18
12 RV D AE	19
13 RV D AE NIRO	20
14 RV E AE.....	21
15 RV E AE NIRO.....	22
16 RVA materials.....	23
17 RVA D AE	24
18 RVA D AE NIRO	25
19 RVA E AE	26
20 RVA E AE NIRO	27
21 RVAK materials	28
22 RVAK D AE	29
23 RVAK D AE NIRO.....	30
24 RVAK E AE.....	31
25 RVAK E AE NIRO.....	32
26 SS materials	33
27 SS D AE MW.....	34
28 SS D AE MW NIRO	35
29 SS E AE MW	36
30 SS E AE MW NIRO	37
31 SS D LE MW	38

32 SS D LE MW NIRO	39
33 SS E LE MW	40
34 SS E LE MW NIRO.....	41
35 Appendix	42
36 Valve stem sealing system	43
37 Handwheel / Cap	44
38 Comparison of European / American materials	46
39 Legal notices.....	47

1 AVR / RV / RVA / RVAK

AVR: shut-off valves - stem seal threaded bush with spring-energised PTFE ring

RV: check valve - with damping

RVA: shut-off check valve - damping, stem seal spring-energised PTFE ring

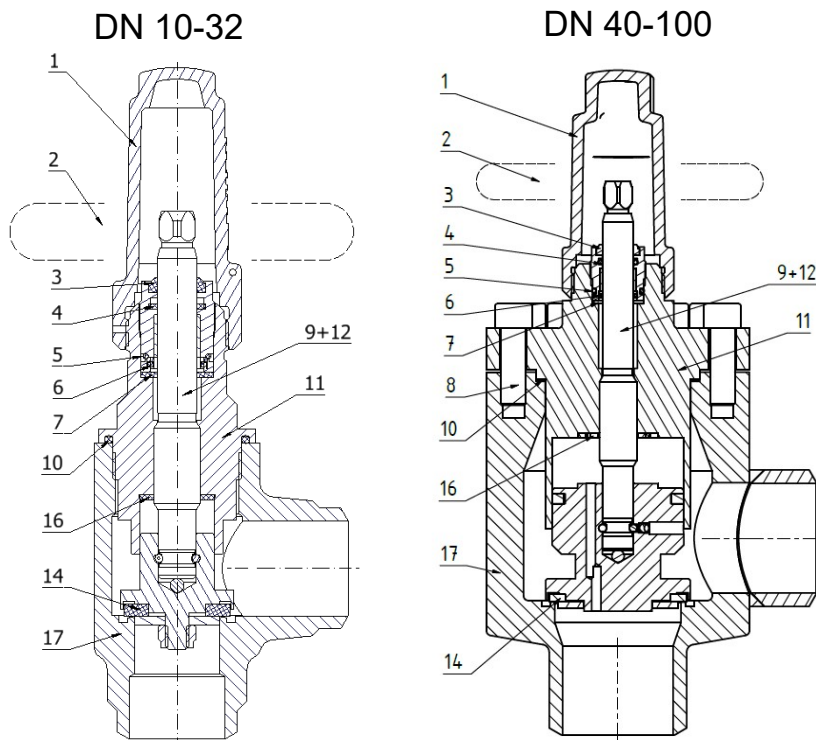
RVAK: shut-off check valve - regulating cone, damping, stem seal spring-energised PTFE ring

PS160	Connection	Form	Material	Valve type
Valve type	Materials			
AVR PS 160	Welding ends	Straight-way	St	AVR D AE
			NIRO	AVR D AE NIRO
		Angle	St	AVR E AE
			NIRO	AVR E AE NIRO
	Soldering ends	Straight-way	St	AVR D LE
			NIRO	AVR D LE NIRO
		Angle	St	AVR E LE
			NIRO	AVR E LE NIRO
RV PS 160	Welding ends	Straight-way	St	RV D AE
			NIRO	RV D AE NIRO
		Angle	St	RV E AE
			NIRO	RV E AE NIRO
RVA PS 160	Welding ends	Straight-way	St	RVA D AE
			NIRO	RVA D AE NIRO
		Angle	St	RVA E AE
			NIRO	RVA E AE NIRO
RVAK PS 160	Welding ends	Straight-way	St	RVAK D AE
			NIRO	RVAK D AE NIRO
		Angle	St	RVAK E AE
			NIRO	RVAK E AE NIRO

St = steel SS = stainless steel

2 AVR materials

Designation and materials



Part	Material for steel valves	Material for stainless steel valves
1 Cap	Aluminium AISi10Mg	Aluminium AISi10Mg
2 Handwheel	Steel	Steel
3 Wiper ring	NBR	NBR
4 O-ring A	CR, NBR, HNBR, EPDM, FPM*	CR, NBR, HNBR, EPDM, FPM*
5 O-ring B	CR, NBR, HNBR, EPDM, FPM*	CR, NBR, HNBR, EPDM, FPM*
6 Spring-loaded U-ring	PTFE	PTFE
7 Flat sealing ring for threaded bush	AFM30	AFM30
8 Bonnet screw	8.8	A2-70
9 Stem	X8CrNiS18-9 1.4305	X8CrNiS18-9 1.4305
10 Bonnet gasket	HNBR (DN40-100: AFM30)	HNBR (DN40-100: AFM30)AFM30
11 Bonnet	S355J2+N 1.0577	X5CrNi18-10 1.4301
12 Valve disc	S355J2 1.0577	X8CrNiS18-9 1.4305
14 Flat sealing ring for valve disc	PTFE	PTFE
16 Back seal	PTFE	PTFE
17 Body	P235GH 1.0345 S355J2+N 1.0577 P355N 1.0562	X5CrNi18-10 1.4301

* depending on the refrigerant used

3 AVR D AE

D: Straight-way, **AE:** Welding ends

AVR steel shut-off valve - stem seal with spring-energised PTFE ring for natural refrigerants (NH₃, CO₂) and non-corrosive gases and liquids according to EN 378-1 as well as brines

DN 10-32

DN 40-100

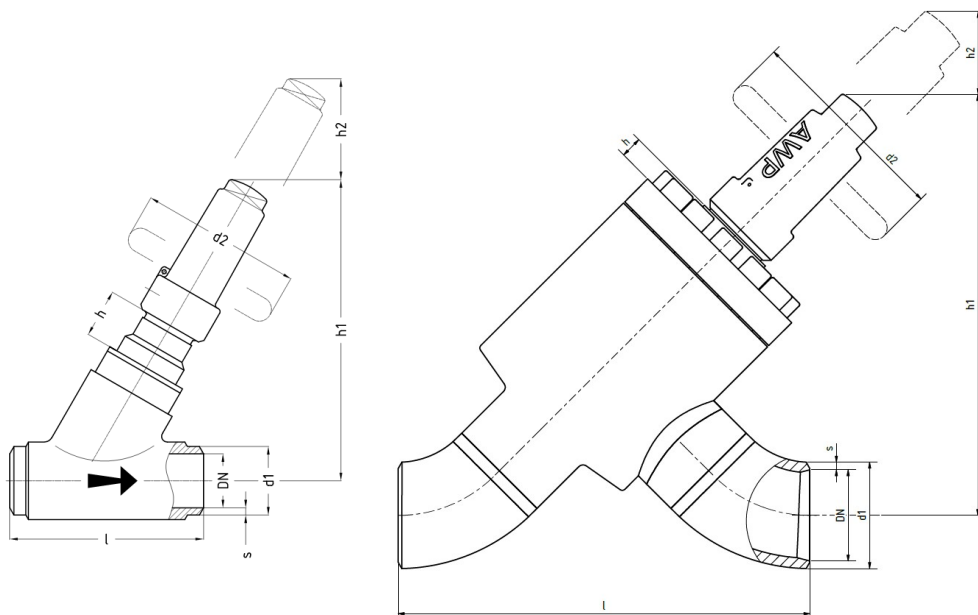


Illustration 1:

Pressure/temperature operating limits:

PS: Max. allowable operating pressure in bar

TS: Permissible operating temperature in °C corresponding to the permissible operating pressures (PS)

PN: Nominal pressure rating

	PN	-60	-10	+50	+150	TS [°C]
DN 10...32 3/8" ... 1 1/4"	PN160	120	160	160	99	PS [bar]
DN 40...100 1 1/2" ... 4"	PN160	120	160	160	160	PS [bar]

Nominal size:		Welding ends acc. to:								
		ISO Series 1								
DN	INCH	d1	s	l	h	h*)	h1	h1*)	h2	d2
10	3/8"	17.2	2.3	120	30	62	186	218	70	120
15	1/2"	21.3	2.6	120	30	62	186	218	70	120
20	3/4"	26.9	3.2	120	30	62	186	218	70	120
25	1"	33.7	3.6	120	30	62	186	218	70	120
32	1 1/4"	42.4	4.5	120	30	62	186	218	70	120
40	1 1/2"	48.3	5.6	202	12	72	251	311	110	140
50	2"	60.3	6.3	228	12	72	256	316	110	140
65	2 1/2"	76.1	8	321	9	79	334	404	130	140
80	3"	88.9	8.8	344	20	77	352	392	150	180

Nominal size:		Welding ends acc. to:								
100	4"	114.3	11	443	8	89	386	443	150	180

Table 1: Dimensions

*) for valves with bonnet extension, h2 = dismantling dimension

4 AVR D AE NIRO

D: Straight-way, **AE:** Welding ends

AVR stainless steel shut-off valve - stem seal with spring-energised PTFE ring for natural refrigerants (NH₃, CO₂) and non-corrosive gases and liquids according to EN 378-1 as well as brines

DN 10-32

DN 40-100

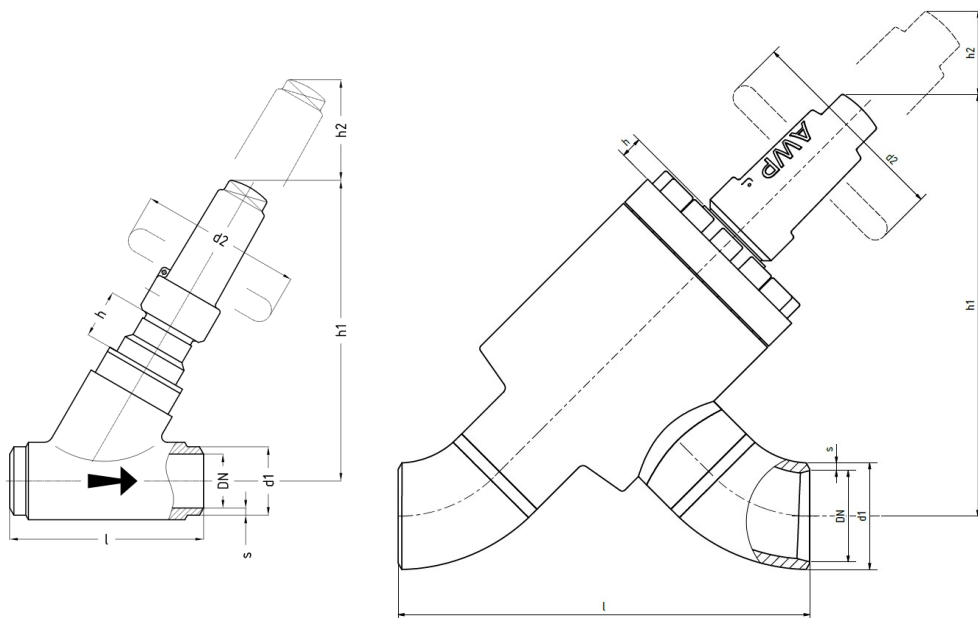


Illustration 2:

Pressure/temperature operating limits:

PS: Max. allowable operating pressure in bar

TS: Permissible operating temperature in °C corresponding to the permissible operating pressures (PS)

PN: Nominal pressure rating

	PN	-60	-10	+50	+150	TS [°C]
DN 10...32 3/8" ... 1 1/4"	PN160	160	160	160	106	PS [bar]
DN 40...100 1 1/2" ... 4"	PN160	160	160	160	160	PS [bar]

Nominal size:		Welding ends acc. to:								
		ISO Series 1								
DN	INCH	d1	s	l	h	h*)	h1	h1*)	h2	d2
10	3/8"	17.2	2.3	120	30	62	186	218	70	120
15	1/2"	21.3	2.6	120	30	62	186	218	70	120
20	3/4"	26.9	3.2	120	30	62	186	218	70	120
25	1"	33.7	3.6	120	30	62	186	218	70	120
32	1 1/4"	42.4	4.5	120	30	62	186	218	70	120
40	1 1/2"	48.3	5.6	202	12	72	251	311	110	140
50	2"	60.3	6.3	228	12	72	256	316	110	140
65	2 1/2"	76.1	8	321	9	79	334	404	130	140
80	3"	88.9	8.8	344	20	77	352	392	150	180
100	4"	114.3	11	443	8	89	386	443	150	180

Table 2: Dimensions

*) for valves with bonnet extension, h2 = dismantling dimension

5 AVR E AE

E: Angle, **AE:** Welding ends

AVR steel shut-off valve - stem seal with spring-energised PTFE ring for natural refrigerants (NH₃, CO₂) and non-corrosive gases and liquids according to EN 378-1 as well as brines

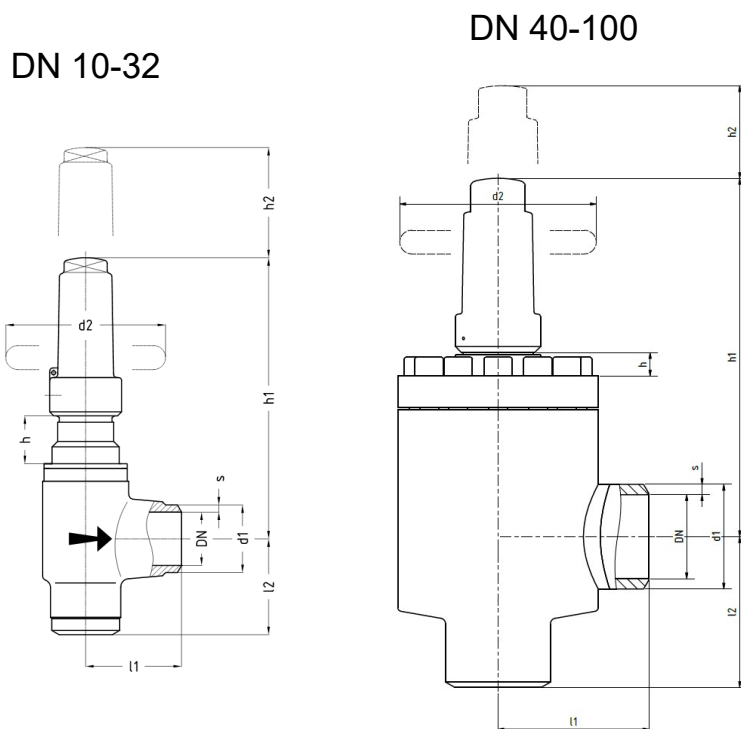


Illustration 3:

Pressure/temperature operating limits:

PS: Max. allowable operating pressure in bar

TS: Permissible operating temperature in °C corresponding to the permissible operating pressures (PS)

PN: Nominal pressure rating

	PN	-60	-10	+50	+150	TS [°C]
DN 10...32 3/8" ... 1 1/4"	PN160	120	160	160	99	PS [bar]
DN 40...100 1 1/2" ... 4"	PN160	120	160	160	160	PS [bar]

Nominal size:		Welding ends acc. to:									
		ISO Series 1									
DN	INCH	d1	s	l1	l2	h	h*)	h1	h1*)	h2	d2
10	3/8"	17.2	2.3	60	60	30	62	176	209	80	120
15	1/2"	21.3	2.6	60	60	30	62	176	209	80	120
20	3/4"	26.9	3.2	60	60	30	62	176	209	80	120
25	1"	33.7	3.6	60	60	30	62	176	209	80	120
32	1 1/4"	42.4	4.5	60	60	30	62	176	209	80	120
40	1 1/2"	48.3	5.6	85	85	12	72	229	289	110	140
50	2"	60.3	6.3	85	85	12	72	229	289	110	140
65	2 1/2"	76.1	8	112	112	9	79	245	315	130	140
80	3"	88.9	8.8	128	128	20	77	304	363	150	180
100	4"	114.3	11	160	160	8	89	304	385	150	180

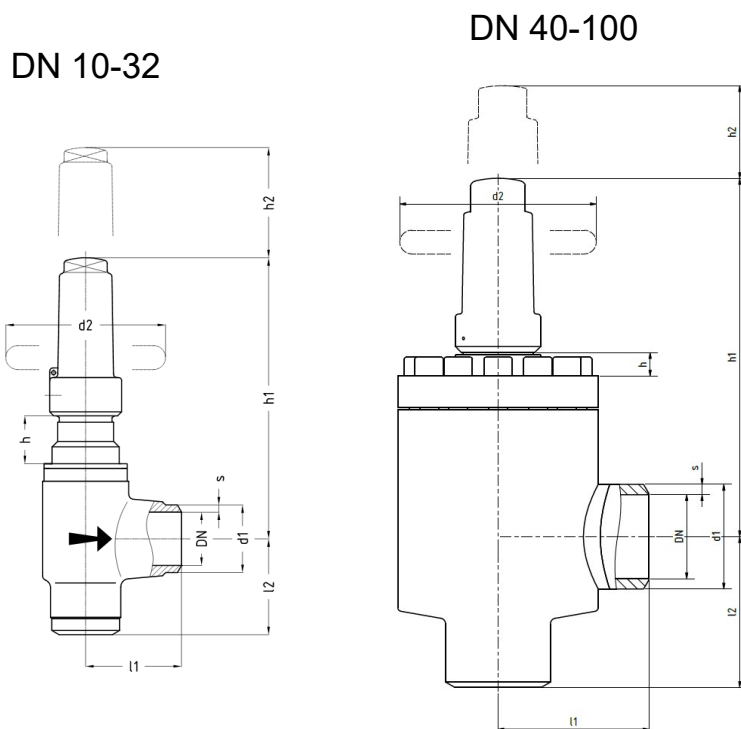
Table 3: Dimensions

*) for valves with bonnet extension, h2 = dismantling dimension

6 AVR E AE NIRO

E: Angle, **AE:** Welding ends

AVR stainless steel shut-off valve - stem seal with spring-energised PTFE ring for natural refrigerants (NH₃, CO₂) and non-corrosive gases and liquids according to EN 378-1 as well as brines



Pressure/temperature operating limits:

PS: Max. allowable operating pressure in bar

TS: Permissible operating temperature in °C corresponding to the permissible operating pressures (PS)

PN: Nominal pressure rating

	PN	-60	-10	+50	+150	TS [°C]
DN 10...32 3/8" ... 1 1/4"	PN160	160	160	160	106	PS [bar]
DN 40...100 1 1/2" ... 4"	PN160	160	160	160	160	PS [bar]

Nominal size:		Welding ends acc. to:									
		ISO Series 1									
DN	INCH	d1	s	l1	l2	h	h*)	h1	h1*)	h2	d2
10	3/8"	17.2	2.3	60	60	30	62	176	209	80	120
15	1/2"	21.3	2.6	60	60	30	62	176	209	80	120
20	3/4"	26.9	3.2	60	60	30	62	176	209	80	120
25	1"	33.7	3.6	60	60	30	62	176	209	80	120
32	1 1/4"	42.4	4.5	60	60	30	62	176	209	80	120
40	1 1/2"	48.3	5.6	85	85	12	72	229	289	110	140
50	2"	60.3	6.3	85	85	12	72	229	289	110	140
65	2 1/2"	76.1	8	112	112	9	79	245	315	130	140
80	3"	88.9	8.8	128	128	20	77	304	363	150	180
100	4"	114.3	11	160	160	8	89	304	385	150	180

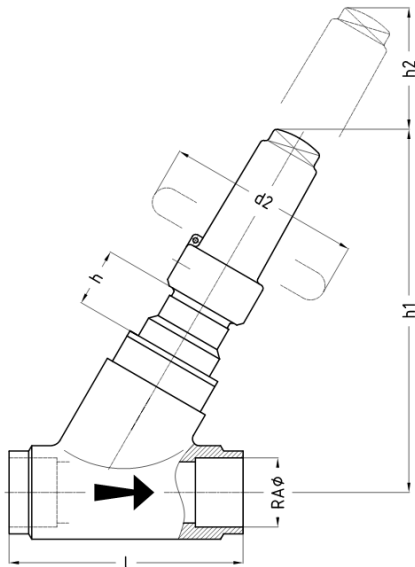
Table 4: Dimensions

*) for valves with bonnet extension, h2 = dismantling dimension

7 AVR D LE

D: Straight-way, **LE:** Soldering ends

AVR steel shut-off valve - stem seal with spring-energised PTFE ring for natural refrigerants (NH₃, CO₂) and non-corrosive gases and liquids according to EN 378-1 as well as brines



Pressure/temperature operating limits:

PS: Max. allowable operating pressure in bar

TS: Permissible operating temperature in °C corresponding to the permissible operating pressures (PS)

PN: Nominal pressure rating

DN	PN	-60	-10	+50	+150	TS [°C]
DN 10...32	PN160	120	160	160	99	PS [bar]

Nominal size:		Soldering ends acc. to:					
DN	RAØ	l	h	h1	h2	d2	
10	12	120	30	186	70	120	
15	15	120	30	186	70	120	
15	18	120	30	186	70	120	
15	LE 3/4"	120	30	186	70	120	
20	22	120	30	186	70	120	
20	LE 7/8"	120	30	186	70	120	
25	28	120	30	186	70	120	
32	35	120	30	186	70	120	

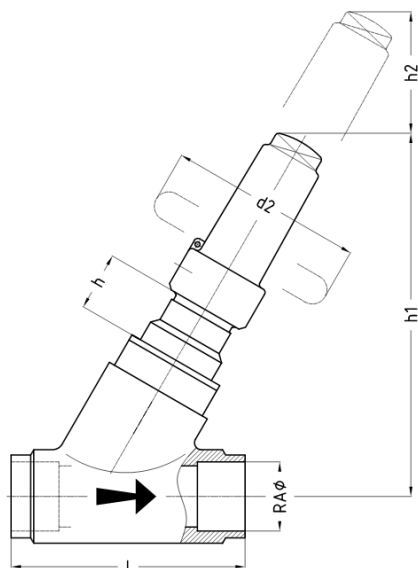
Table 5: Dimensions

h2 = dismantling dimension

8 AVR D LE NIRO

D: Straight-way, **LE:** Soldering ends

AVR stainless steel shut-off valve - stem seal with spring-energised PTFE ring for natural refrigerants (NH₃, CO₂) and non-corrosive gases and liquids according to EN 378-1 as well as brines



Pressure/temperature operating limits:

PS: Max. allowable operating pressure in bar

TS: Permissible operating temperature in °C corresponding to the permissible operating pressures (PS)

PN: Nominal pressure rating

DN	PN	-60	-10	+50	+150	TS [°C]
DN 10...32	PN160	160	160	160	106	PS [bar]

Nominal size:	Soldering ends acc. to:						
DN	RAØ	l	h	h1	h2	d2	
10	12	120	30	186	70	120	
15	15	120	30	186	70	120	
15	18	120	30	186	70	120	
15	LE 3/4"	120	30	186	70	120	
20	22	120	30	186	70	120	
20	LE 7/8"	120	30	186	70	120	
25	28	120	30	186	70	120	
32	35	120	30	186	70	120	

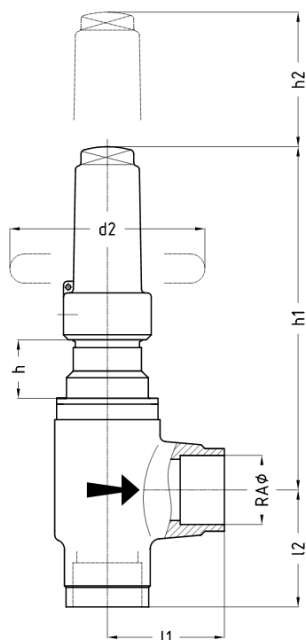
Table 6: Dimensions

h2 = dismantling dimension

9 AVR E LE

E: Angle, **LE:** Soldering ends

AVR steel shut-off valve - stem seal with spring-energised PTFE ring for natural refrigerants (NH₃, CO₂) and non-corrosive gases and liquids according to EN 378-1 as well as brines



Pressure/temperature operating limits:

PS: Max. allowable operating pressure in bar

TS: Permissible operating temperature in °C corresponding to the permissible operating pressures (PS)

PN: Nominal pressure rating

DN	PN	-60	-10	+50	+150	TS [°C]
DN 10...32	PN160	120	160	160	99	PS [bar]

Nominal size:	Soldering ends acc. to:						
DN	RAØ	l1	l2	h	h1	h2	d2
10	12	60	60	30	176	80	120
15	15	60	60	30	176	80	120
15	18	60	60	30	176	80	120
15	LE 3/4"	60	60	30	176	80	120
20	22	60	60	30	176	80	120
20	LE 7/8"	60	60	30	176	80	120
25	28	60	60	30	176	80	120
32	35	60	60	30	176	80	120

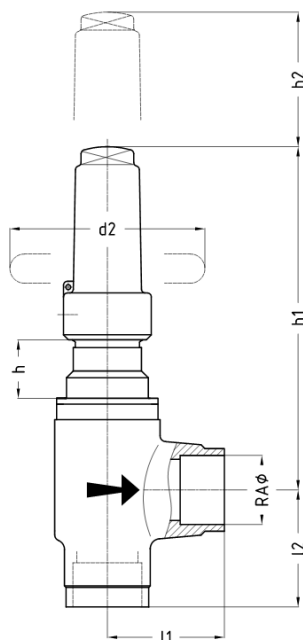
Table 7: Dimensions

h2 = dismantling dimension

10 AVR E LE NIRO

E: Angle, **LE:** Soldering ends

AVR stainless steel shut-off valve - stem seal with spring-energised PTFE ring for natural refrigerants (NH₃, CO₂) and non-corrosive gases and liquids according to EN 378-1 as well as brines



Pressure/temperature operating limits:

PS: Max. allowable operating pressure in bar

TS: Permissible operating temperature in °C corresponding to the permissible operating pressures (PS)

PN: Nominal pressure rating

DN	PN	-60	-10	+50	+150	TS [°C]
DN 10...32	PN160	160	160	160	106	PS [bar]

Nominal size:	Soldering ends acc. to:							
DN	RAØ	l1	l2	h	h1	h2	d2	
10	12	60	60	30	176	80	120	
15	15	60	60	30	176	80	120	
15	18	60	60	30	176	80	120	
15	LE 3/4"	60	60	30	176	80	120	
20	22	60	60	30	176	80	120	
20	LE 7/8"	60	60	30	176	80	120	
25	28	60	60	30	176	80	120	
32	35	60	60	30	176	80	120	

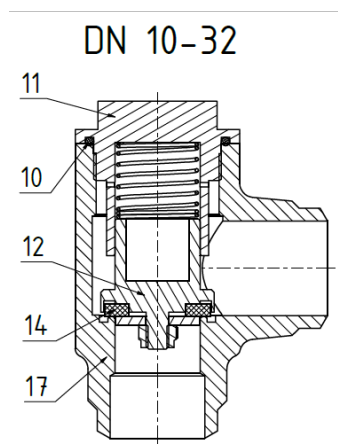
Table 8: Dimensions

h2 = dismantling dimension

11 RV materials

Designation and materials

RV - check valve



	Part	Material for steel valves	Material for stainless steel valves
10	Bonnet O-ring	HNBR	HNBR
11	Bonnet	S355J2+N 1.0577	X5CrNi18-10 1.4301
12	Valve disc	S355J2 1.0577	X8CrNiS18-9 1.4305 X5CrNi18-10 1.4301
14	Flat sealing ring for valve disc	PTFE	PTFE
17	Body	P235GH 1.0345 S355J2+N 1.0577 P355N 1.0562	X5CrNi18-10 1.4301

12 RV D AE

D: Straight-way, **AE:** Welding ends

Check valve – with damping for natural refrigerants (NH₃, CO₂) and non-corrosive gases and liquids according to EN 378-1 as well as brines

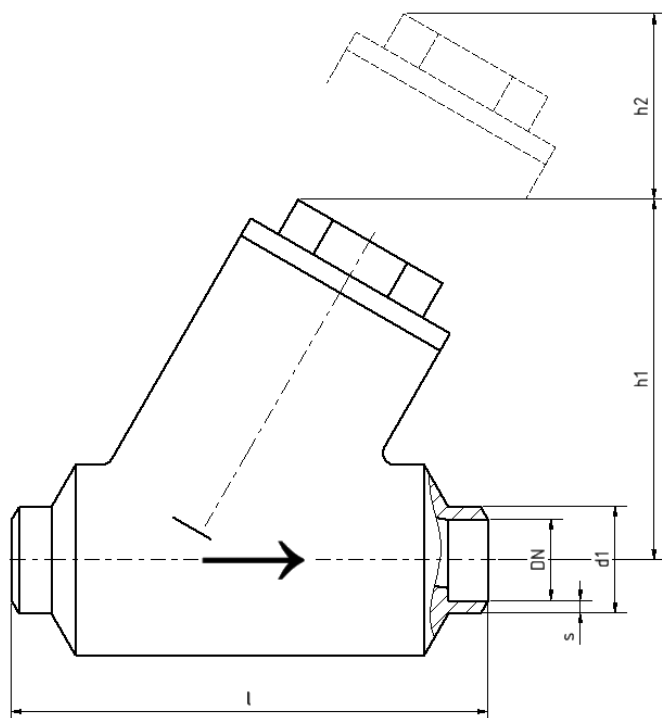


Illustration 4:

Pressure/temperature operating limits:

PS: Max. allowable operating pressure in bar

TS: Permissible operating temperature in °C corresponding to the permissible operating pressures (PS)

PN: Nominal pressure rating

DN / INCH	PN	-60	-10	+50	+150	TS [°C]
DN 20 3/4"	PN160	120	160	160	99	PS [bar]

Nominal size		Welding ends acc. to:				
		ISO Series 1				
DN	INCH	d1	s	l	h1	h2
10	3/8"	17.2	2.3	120	91	60
15	1/2"	21.3	2.6	120	91	60
20	3/4"	26.9	3.2	120	91	60
25	1"	33.7	3.6	120	91	60
32	1 1/4"	42.4	4.5	120	91	60

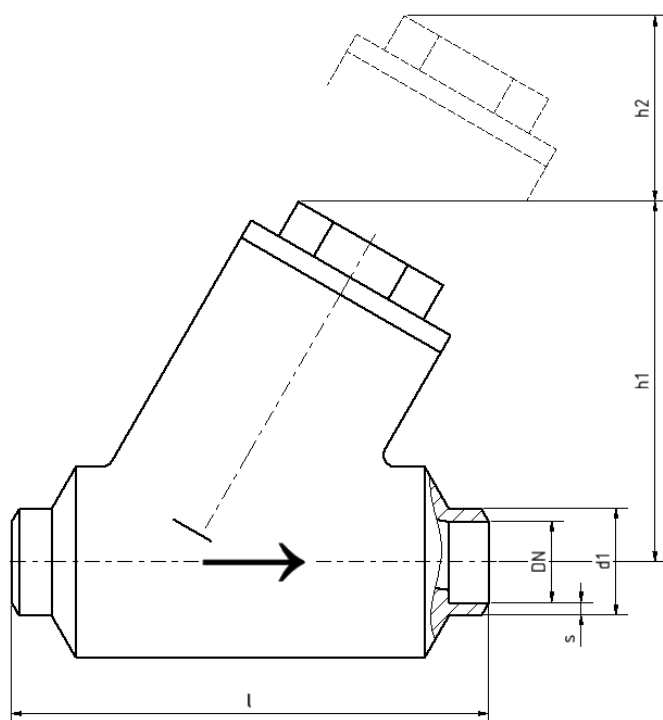
Table 9: Dimensions in mm

h2 = dismantling dimension

13 RV D AE NIRO

D: Straight-way, **AE:** Welding ends

Check valve – with damping for natural refrigerants (NH₃, CO₂) and non-corrosive gases and liquids according to EN 378-1 as well as brines



Pressure/temperature operating limits:

PS: Max. allowable operating pressure in bar

TS: Permissible operating temperature in °C corresponding to the permissible operating pressures (PS)

PN: Nominal pressure rating

DN / INCH	PN	-60	-10	+50	+150	TS [°C]
DN 20 3/4"	PN160	160	160	160	106	PS [bar]

Nominal size		Welding ends acc. to:				
		ISO Series 1				
DN	INCH	d1	s	l	h1	h2
10	3/8"	17.2	2.3	120	91	60
15	1/2"	21.3	2.6	120	91	60
20	3/4"	26.9	3.2	120	91	60
25	1"	33.7	3.6	120	91	60
32	1 1/4"	42.4	4.5	120	91	60

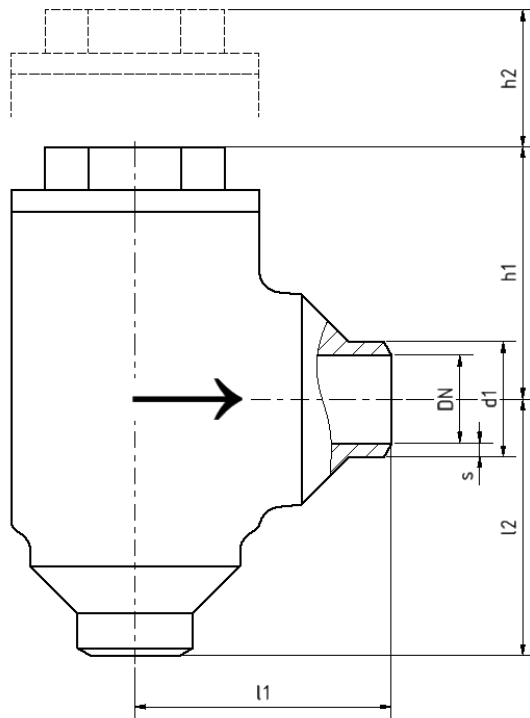
Table 10: Dimensions in mm

h2 = dismantling dimension

14 RV E AE

E: Angle, **AE:** Welding ends

Check valve – with damping for natural refrigerants (NH₃, CO₂) and non-corrosive gases and liquids according to EN 378-1 as well as brines



Pressure/temperature operating limits:

PS: Max. allowable operating pressure in bar

TS: Permissible operating temperature in °C corresponding to the permissible operating pressures (PS)

PN: Nominal pressure rating

DN / INCH	PN	-60	-10	+50	+150	TS [°C]
DN 20 3/4"	PN160	120	160	160	99	PS [bar]

Nominal size		Welding ends acc. to:					
		ISO Series 1					
DN	INCH	d1	s	l1	l2	h1	h2
10	3/8"	17.2	2.3	60	60	59	60
15	1/2"	21.3	2.6	60	60	59	60
20	3/4"	26.9	3.2	60	60	59	60
25	1"	33.7	3.6	60	60	59	60
32	1 1/4"	42.4	4.5	60	60	59	60

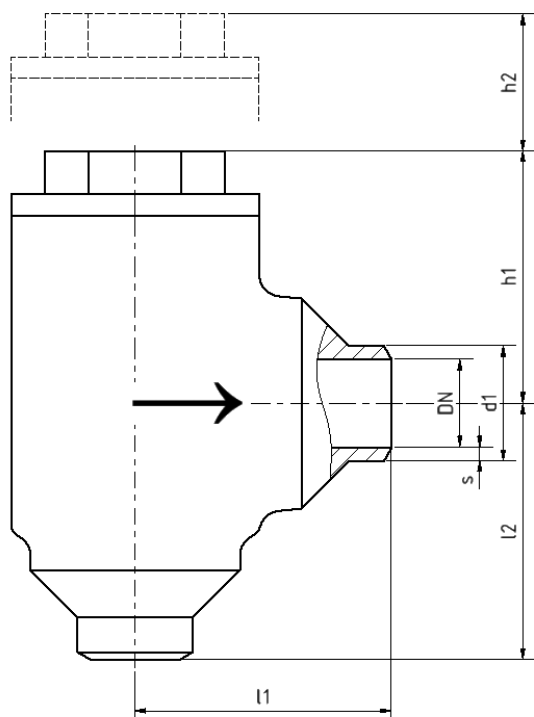
Table 11: Dimensions in mm

h2 = dismantling dimension

15 RV E AE NIRO

E: Angle, **AE:** Welding ends

Check valve – with damping for natural refrigerants (NH₃, CO₂) and non-corrosive gases and liquids according to EN 378-1 as well as brines



Pressure/temperature operating limits:

PS: Max. allowable operating pressure in bar

TS: Permissible operating temperature in °C corresponding to the permissible operating pressures (PS)

PN: Nominal pressure rating

DN / INCH	PN	-60	-10	+50	+150	TS [°C]
DN 20 3/4"	PN160	160	160	160	106	PS [bar]

Nominal size		Welding ends acc. to:					
		ISO Series 1					
DN	INCH	d1	s	l1	l2	h1	h2
10	3/8"	17.2	2.3	60	60	59	60
15	1/2"	21.3	2.6	60	60	59	60
20	3/4"	26.9	3.2	60	60	59	60
25	1"	33.7	3.6	60	60	59	60
32	1 1/4"	42.4	4.5	60	60	59	60

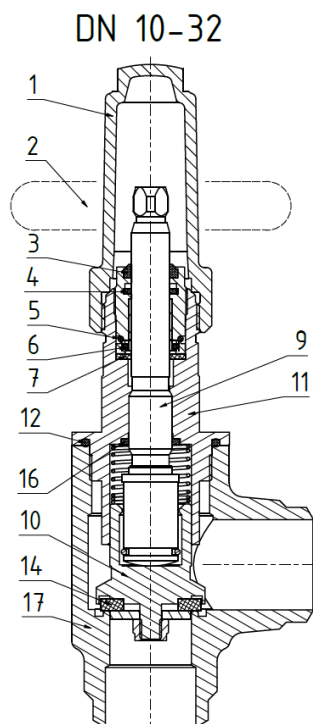
Table 12: Dimensions in mm

h2 = dismantling dimension

16 RVA materials

Designation and materials

RVA - shut-off check valve



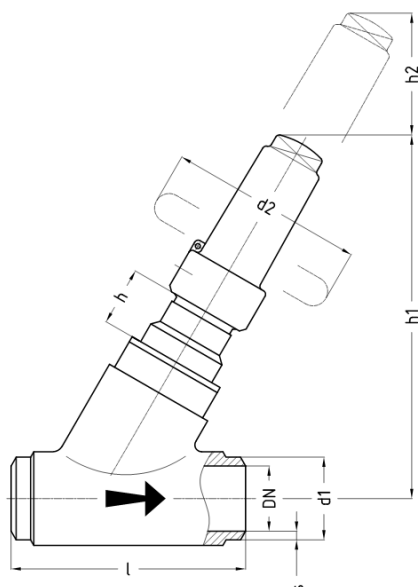
Part		Material for steel valves	Material for stainless steel valves
1	Cap	Aluminium AlSi10Mg	Aluminium AlSi10Mg
2	Handwheel	Steel	Steel
3	Wiper ring	NBR	NBR
4	O-ring A	CR, NBR, HNBR, EPDM, FPM*	CR, NBR, HNBR, EPDM, FPM*
5	O-ring B	CR, NBR, HNBR, EPDM, FPM*	CR, NBR, HNBR, EPDM, FPM*
6	Spring-loaded U-ring	PTFE	PTFE
7	Flat sealing ring for threaded bush	AFM30	AFM30
9	Stem	X8CrNiS18-9 1.4305	X8CrNiS18-9 1.4305
10	Bonnet O-ring	HNBR	HNBR
11	Bonnet	S355J2+N 1.0577	X5CrNi18-10 1.4301
12	Valve disc	S355J2 1.0577	X8CrNiS18-9 1.4305 X5CrNi18-10 1.4301
14	Flat sealing ring for valve disc	PTFE	PTFE
16	Back seal	AFM30	AFM30
17	Body	P235GH 1.0345 S355J2+N 1.0577 P355N 1.0562	X5CrNi18-10 1.4301

* depending on the refrigerant used

17 RVA D AE

D: Straight-way, **AE:** Welding ends

RVA steel shut-off check valve - with damping, stem seal with spring-energised PTFE ring for natural refrigerants (NH₃, CO₂) and non-corrosive gases and liquids according to EN 378-1 as well as brines



Pressure/temperature operating limits:

PS: Max. allowable operating pressure in bar

TS: Permissible operating temperature in °C corresponding to the permissible operating pressures (PS)

PN: Nominal pressure rating

DN / INCH	PN	-60	-10	+50	+150	TS [°C]
DN 10...32 3/8" ... 1 1/4"	PN160	120	160	160	99	PS [bar]

Nominal size:		Welding ends acc. to:							
		ISO Series 1							
DN	INCH	d1	s	l	h	h1	h2	d2	
10	3/8"	17.2	2.3	120	30	186	70	120	
15	1/2"	21.3	2.6	120	30	186	70	120	
20	3/4"	26.9	3.2	120	30	186	70	120	
25	1"	33.7	3.6	120	30	186	70	120	
32	1 1/4"	42.4	4.5	120	30	186	70	120	

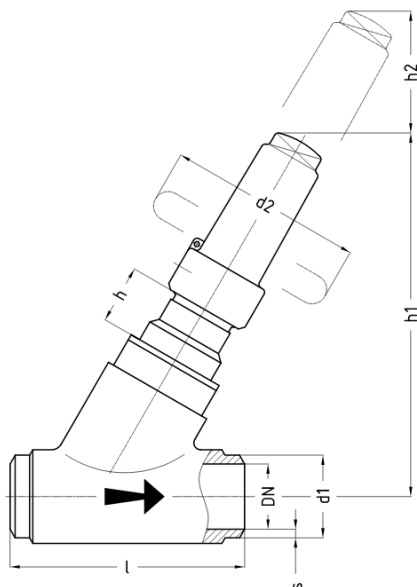
Table 13: Dimensions

h2 = dismantling dimension

18 RVA D AE NIRO

D: Straight-way, **AE:** Welding ends

RVA stainless steel shut-off check valve - with damping, stem seal with spring-energised PTFE ring for natural refrigerants (NH₃, CO₂) and non-corrosive gases and liquids according to EN 378-1 as well as brines



Pressure/temperature operating limits:

PS: Max. allowable operating pressure in bar

TS: Permissible operating temperature in °C corresponding to the permissible operating pressures (PS)

PN: Nominal pressure rating

DN / INCH	PN	-60	-10	+50	+150	TS [°C]
DN 10...32 3/8"...1 1/4"	PN160	120	160	160	99	PS [bar]

Nominal size:		Welding ends acc. to:							
		ISO Series 1							
DN	INCH	d1	s	l	h	h1	h2	d2	
10	3/8"	17.2	2.3	120	30	186	70	120	
15	1/2"	21.3	2.6	120	30	186	70	120	
20	3/4"	26.9	3.2	120	30	186	70	120	
25	1"	33.7	3.6	120	30	186	70	120	
32	1 1/4"	42.4	4.5	120	30	186	70	120	

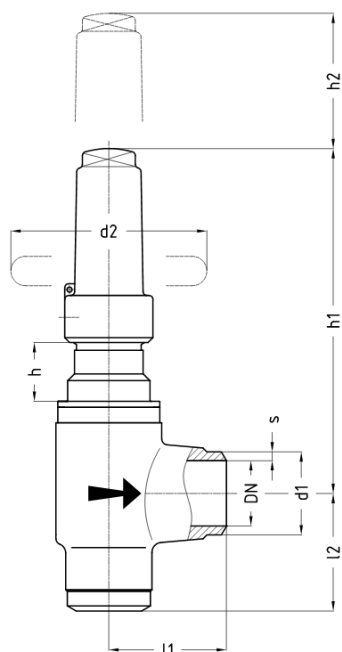
Table 14: Dimensions

h2 = dismantling dimension

19 RVA E AE

E: Angle, **AE:** Welding ends

RVA steel shut-off check valve - with damping, stem seal with spring-energised PTFE ring for natural refrigerants (NH₃, CO₂) and non-corrosive gases and liquids according to EN 378-1 as well as brines



Pressure/temperature operating limits:

PS: Max. allowable operating pressure in bar

TS: Permissible operating temperature in °C corresponding to the permissible operating pressures (PS)

PN: Nominal pressure rating

DN / INCH	PN	-60	-10	+50	+150	TS [°C]
DN 10...32 3/8"...1 1/4"	PN160	120	160	160	99	PS [bar]

Nominal size:		Welding ends acc. to:							
		ISO Series 1							
DN	INCH	d1	s	l1	l2	h	h1	h2	d2
10	3/8"	17.2	2.3	60	60	30	176	80	120
15	1/2"	21.3	2.6	60	60	30	176	80	120
20	3/4"	26.9	3.2	60	60	30	176	80	120
25	1"	33.7	3.6	60	60	30	176	80	120
32	1 1/4"	42.4	4.5	60	60	30	176	80	120

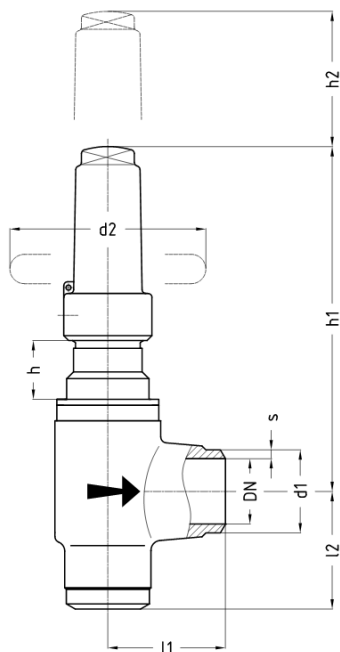
Table 15: Dimensions

h2 = dismantling dimension

20 RVA E AE NIRO

E: Angle, **AE:** Welding ends

RVA stainless steel shut-off check valve - with damping, stem seal with spring-energised PTFE ring for natural refrigerants (NH₃, CO₂) and non-corrosive gases and liquids according to EN 378-1 as well as brines



Pressure/temperature operating limits:

PS: Max. allowable operating pressure in bar

TS: Permissible operating temperature in °C corresponding to the permissible operating pressures (PS)

PN: Nominal pressure rating

DN / INCH	PN	-60	-10	+50	+150	TS [°C]
DN 10...32 3/8"...1 1/4"	PN160	120	160	160	99	PS [bar]

Nominal size:		Welding ends acc. to:							
		ISO Series 1							
DN	INCH	d1	s	l1	l2	h	h1	h2	d2
10	3/8"	17.2	2.3	60	60	30	176	80	120
15	1/2"	21.3	2.6	60	60	30	176	80	120
20	3/4"	26.9	3.2	60	60	30	176	80	120
25	1"	33.7	3.6	60	60	30	176	80	120
32	1 1/4"	42.4	4.5	60	60	30	176	80	120

Table 16: Dimensions

h2 = dismantling dimension

21 RVAK materials

Designation and materials

RVAK - shut-off check valve with regulating cone

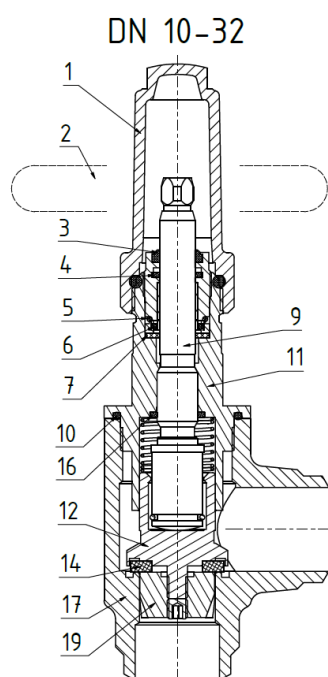


Illustration 5:

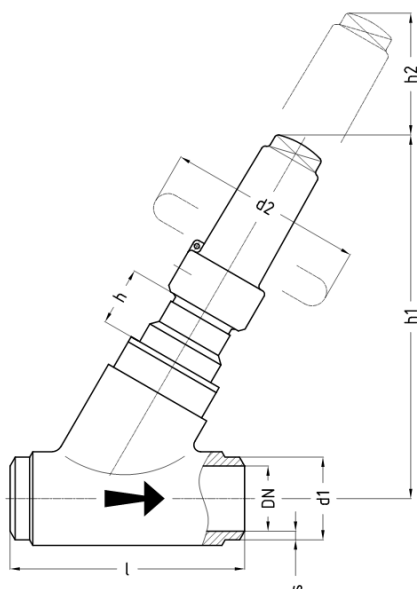
Part:		Material for steel valves	Material for stainless steel valves
1	Cap	Aluminium AISi10Mg	Aluminium AISi10Mg
2	Handwheel	Steel	Steel
3	Wiper ring	NBR	NBR
4	O-ring A	CR, NBR, HNBR, EPDM, FPM*	CR, NBR, HNBR, EPDM, FPM*
5	O-ring B	CR, NBR, HNBR, EPDM, FPM*	CR, NBR, HNBR, EPDM, FPM*
6	Spring-loaded U-ring	PTFE	PTFE
7	Flat sealing ring for threaded bush	AFM30	AFM30
9	Stem	X8CrNiS18-9 1.4305	X8CrNiS18-9 1.4305
10	Bonnet O-ring	HNBR	HNBR
11	Bonnet	S355J2+N 1.0577	X5CrNi18-10 1.4301
12	Valve disc	S355J2+N 1.0577	X8CrNiS18-9 1.4305 X5CrNi18-10 1.4301
14	Flat sealing ring for valve disc	PTFE	PTFE
16	Back seal	AFM30	AFM30
17	Body	P235GH 1.0345 S355J2+N 1.0577 P355N 1.0562	X5CrNi18-10 1.4301
19	Regulating cone	S355J2 1.0577	X8CrNiS18-9 1.4305 X5CrNi18-10 1.4301

Table 17: * depending on the refrigerant used

22 RVAK D AE

D: Straight-way, **AE:** Welding ends

RVA steel shut-off check valve - regulating cone, damping, stem seal spring-energised PTFE ring for natural refrigerants (NH₃, CO₂) and non-corrosive gases and liquids according to EN 378-1 as well as brines



Pressure/temperature operating limits:

PS: Max. allowable operating pressure in bar

TS: Permissible operating temperature in °C corresponding to the permissible operating pressures (PS)

PN: Nominal pressure rating

DN / INCH	PN	-60	-10	+50	+150	TS [°C]
DN 10...32 3/8"...1 1/4"	PN160	120	160	160	99	PS [bar]

Nominal size:		Welding ends acc. to:							
		ISO Series 1							
DN	INCH	d1	s	l	h	h1	h2	d2	
10	3/8"	17.2	2.3	120	30	186	70	120	
15	1/2"	21.3	2.6	120	30	186	70	120	
20	3/4"	26.9	3.2	120	30	186	70	120	
25	1"	33.7	3.6	120	30	186	70	120	
32	1 1/4"	42.4	4.5	120	30	186	70	120	

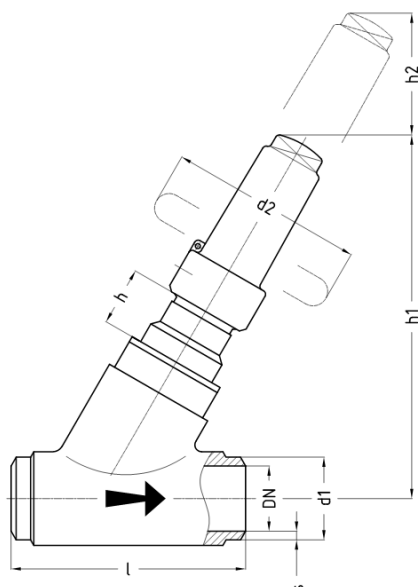
Table 18: Dimensions

h2 = dismantling dimension

23 RVAK D AE NIRO

D: Straight-way, **AE:** Welding ends

RVA stainless steel shut-off check valve - regulating cone, damping, stem seal spring-energised PTFE ring for natural refrigerants (NH₃, CO₂) and non-corrosive gases and liquids according to EN 378-1 as well as brines



Pressure/temperature operating limits:

PS: Max. allowable operating pressure in bar

TS: Permissible operating temperature in °C corresponding to the permissible operating pressures (PS)

PN: Nominal pressure rating

DN / INCH	PN	-60	-10	+50	+150	TS [°C]
DN 10...32 3/8" ... 1 1/4"	PN160	120	160	160	99	PS [bar]

Nominal size:		Welding ends acc. to:							
		ISO Series 1							
DN	INCH	d1	s	l	h	h1	h2	d2	
10	3/8"	17.2	2.3	120	30	186	70	120	
15	1/2"	21.3	2.6	120	30	186	70	120	
20	3/4"	26.9	3.2	120	30	186	70	120	
25	1"	33.7	3.6	120	30	186	70	120	
32	1 1/4"	42.4	4.5	120	30	186	70	120	

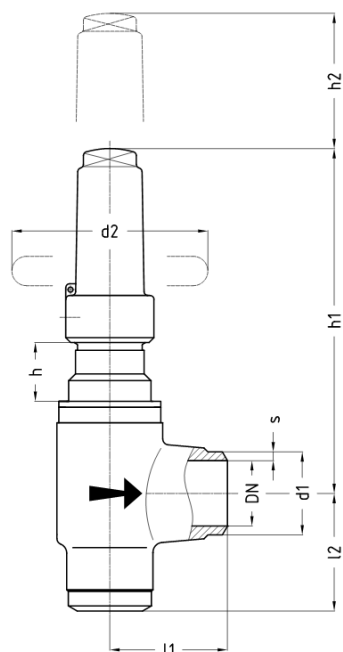
Table 19: Dimensions

h2 = dismantling dimension

24 RVAK E AE

E: Angle, **AE:** Welding ends

RVA steel shut-off check valve - regulating cone, damping, stem seal spring-energised PTFE ring for natural refrigerants (NH₃, CO₂) and non-corrosive gases and liquids according to EN 378-1 as well as brines



Pressure/temperature operating limits:

PS: Max. allowable operating pressure in bar

TS: Permissible operating temperature in °C corresponding to the permissible operating pressures (PS)

PN: Nominal pressure rating

DN / INCH	PN	-60	-10	+50	+150	TS [°C]
DN 10...32 3/8"...1 1/4"	PN160	120	160	160	99	PS [bar]

Nominal size:		Welding ends acc. to:							
		ISO Series 1							
DN	INCH	d1	s	l1	l2	h	h1	h2	d2
10	3/8"	17.2	2.3	60	60	30	176	80	120
15	1/2"	21.3	2.6	60	60	30	176	80	120
20	3/4"	26.9	3.2	60	60	30	176	80	120
25	1"	33.7	3.6	60	60	30	176	80	120
32	1 1/4"	42.4	4.5	60	60	30	176	80	120

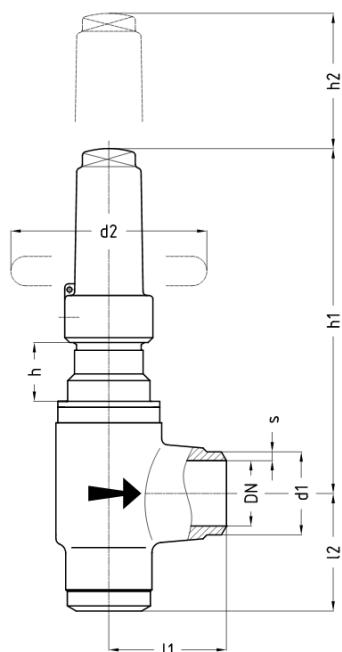
Table 20: Dimensions

h2 = dismantling dimension

25 RVAK E AE NIRO

E: Angle, **AE:** Welding ends

RVA stainless steel shut-off check valve - regulating cone, damping, stem seal spring-energised PTFE ring for natural refrigerants (NH₃, CO₂) and non-corrosive gases and liquids according to EN 378-1 as well as brines



Pressure/temperature operating limits:

PS: Max. allowable operating pressure in bar

TS: Permissible operating temperature in °C corresponding to the permissible operating pressures (PS)

PN: Nominal pressure rating

DN / INCH	PN	-60	-10	+50	+150	TS [°C]
DN 10...32 3/8" ... 1 1/4"	PN160	120	160	160	99	PS [bar]

Nominal size:		Welding ends acc. to:							
		ISO Series 1							
DN	INCH	d1	s	l1	l2	h	h1	h2	d2
10	3/8"	17.2	2.3	60	60	30	176	80	120
15	1/2"	21.3	2.6	60	60	30	176	80	120
20	3/4"	26.9	3.2	60	60	30	176	80	120
25	1"	33.7	3.6	60	60	30	176	80	120
32	1 1/4"	42.4	4.5	60	60	30	176	80	120

Table 21: Dimensions

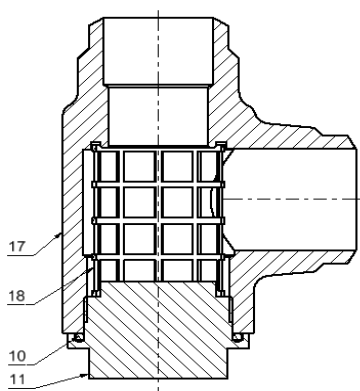
h2 = dismantling dimension

26 SS materials

Nomenclature and materials

SS strainer

DN 10-32



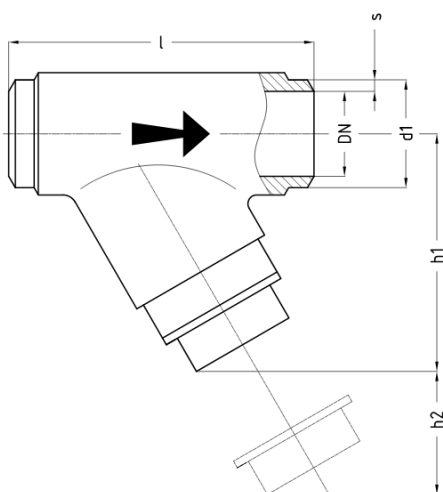
Part		Material for steel valves	Material for stainless steel valves
10	Bonnet O-ring	HNBR	HNBR
11	Bonnet	S355J2+N 1.0577	X5CrNi18-10 1.4301
17	Body	P235GH 1.0345 S355J2+N 1.0577 P355N 1.0562	X5CrNi18-10 1.4301
18	Screen, complete	X5CrNi18-10 1.4301	X5CrNi18-10 1.4301

27 SS D AE MW

D: Straight-way, **AE:** Welding ends, **MW:** Mesh size

SS steel strainer for natural refrigerants (NH₃, CO₂) and non-corrosive gases and liquids according to EN 378-1 as well as brines

Optional: Mesh size MW = 25/63/80/100/120/135/150/200/250/500/1000µm



Pressure/temperature operating limits:

PS: Max. allowable operating pressure in bar

TS: Permissible operating temperature in °C corresponding to the permissible operating pressures (PS)

PN: Nominal pressure rating

DN / INCH	PN	-60	-10	+50	+150	TS [°C]
DN 15...32 1/2" ... 1 1/4"	PN160	120	160	160	99	PS [bar]

Nominal size:		Welding ends acc. to:				
		ISO Series 1				
DN	INCH	d1	s	l	h1	h2
15	1/2"	21.3	2.0	120	93	70
20	3/4"	26.9	2.3	120	93	70
25	1"	33.7	2.6	120	93	70
32	1 1/4"	42.4	2.6	120	93	70

Table 22: Dimensions

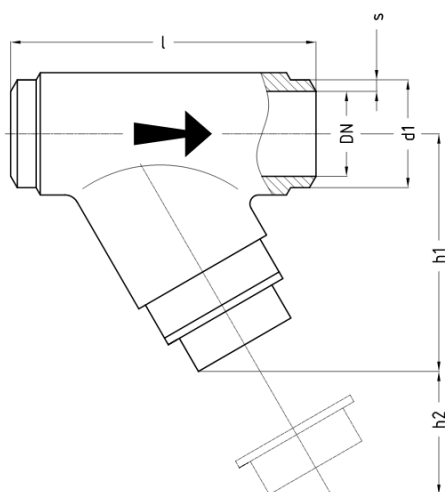
h2 = dismantling dimension

28 SS D AE MW NIRO

D: Straight-way, **AE:** Welding ends, **MW:** Mesh size

SS stainless steel strainer for natural refrigerants (NH₃, CO₂) and non-corrosive gases and liquids according to EN 378-1 as well as brines

Optional: Mesh size MW = 25/63/80/100/120/135/150/200/250/500/1000µm



Pressure/temperature operating limits:

PS: Max. allowable operating pressure in bar

TS: Permissible operating temperature in °C corresponding to the permissible operating pressures (PS)

PN: Nominal pressure rating

DN / INCH	PN	-60	-10	+50	+150	TS [°C]
DN 15...32 1/2" ...1 1/4"	PN160	160	160	160	106	PS [bar]

Nominal size:		Welding ends acc. to:				
		ISO Series 1				
DN	INCH	d1	s	l	h1	h2
15	1/2"	21.3	2.0	120	93	70
20	3/4"	26.9	2.3	120	93	70
25	1"	33.7	2.6	120	93	70
32	1 1/4"	42.4	2.6	120	93	70

Table 23: Dimensions

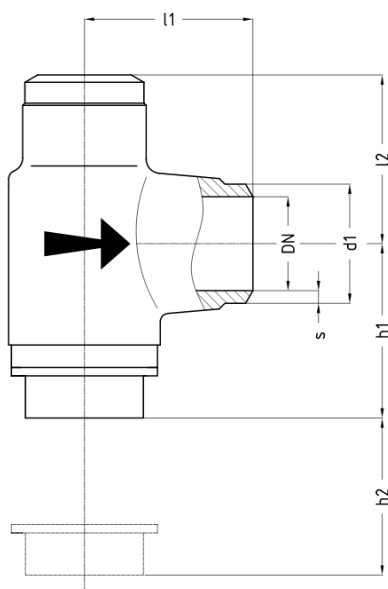
h2 = dismantling dimension

29 SS E AE MW

I: Angle, **AE:** Welding ends, **MW:** Mesh size

SS steel strainer for natural refrigerants (NH₃, CO₂) and non-corrosive gases and liquids according to EN 378-1 as well as brines

Optional: Mesh size MW = 25/63/80/100/120/135/150/200/250/500/1000µm



Pressure/temperature operating limits:

PS: Max. allowable operating pressure in bar

TS: Permissible operating temperature in °C corresponding to the permissible operating pressures (PS)

PN: Nominal pressure rating

DN / INCH	PN	-60	-10	+50	+150	TS [°C]
DN 10...32 3/8" ... 1 1/4"	PN160	120	160	160	99	PS [bar]

Nominal size:		Welding ends acc. to:					
		ISO Series 1					
DN	INCH	d1	s	l1	l2	h1	h2
10	3/8"	17.2	1.8	60	60	62	55
15	1/2"	21.3	2.0	60	60	62	55
20	3/4"	26.9	2.3	60	60	62	55
25	1"	33.7	2.6	60	60	62	55
32	1 1/4"	42.4	2.6	60	60	62	55

Table 24: Dimensions

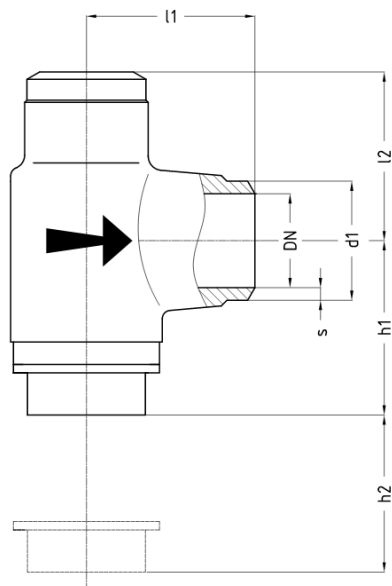
h2 = dismantling dimension

30 SS E AE MW NIRO

I: Angle, **AE:** Welding ends, **MW:** Mesh size

SS stainless steel strainer for natural refrigerants (NH₃, CO₂) and non-corrosive gases and liquids according to EN 378-1 as well as brines

Optional: Mesh size MW = 25/63/80/100/120/135/150/200/250/500/1000µm



Pressure/temperature operating limits:

PS: Max. allowable operating pressure in bar

TS: Permissible operating temperature in °C corresponding to the permissible operating pressures (PS)

PN: Nominal pressure rating

DN / INCH	PN	-60	-10	+50	+150	TS [°C]
DN 10...32 3/8" ... 1 1/4"	PN160	160	160	160	106	PS [bar]

Nominal size:		Welding ends acc. to:					
		ISO Series 1					
DN	INCH	d1	s	l1	l2	h1	h2
10	3/8"	17.2	1.8	60	60	62	55
15	1/2"	21.3	2.0	60	60	62	55
20	3/4"	26.9	2.3	60	60	62	55
25	1"	33.7	2.6	60	60	62	55
32	1 1/4"	42.4	2.6	60	60	62	55

Table 25: Dimensions

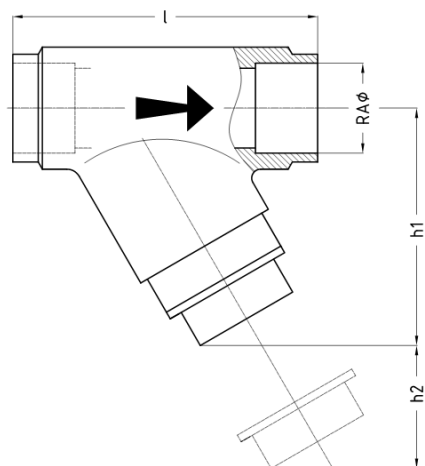
h2 = dismantling dimension

31 SS D LE MW

D: Straight-way, **LE:** Soldering ends, **MW:** Mesh size

SS steel strainer for natural refrigerants (NH₃, CO₂) and non-corrosive gases and liquids according to EN 378-1 as well as brines

Optional: Mesh size MW = 25/63/80/100/120/135/150/200/250/500/1000µm



Pressure/temperature operating limits:

PS: Max. allowable operating pressure in bar

TS: Permissible operating temperature in °C corresponding to the permissible operating pressures (PS)

PN: Nominal pressure rating

DN	PN	-60	-10	+50	+150	TS [°C]
DN 15...32	PN160	120	160	160	99	PS [bar]

Nominal size:	Soldering ends acc. to:			
DN	RAØ	l	h1	h2
15	15	120	93	70
15	18	120	93	70
15	LE3/4"	120	93	70
20	22	120	93	70
20	LE 7/8"	120	93	70
25	28	120	93	70
32	35	120	93	70

Table 26: Dimensions

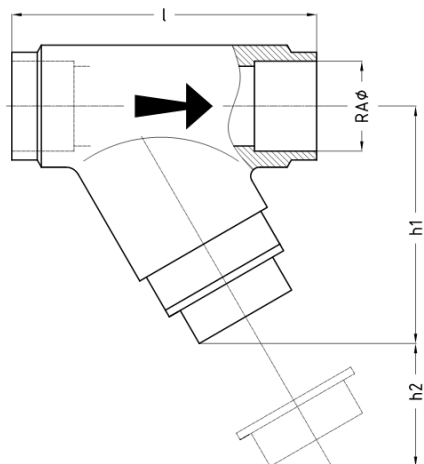
h2 = dismantling dimension

32 SS D LE MW NIRO

D: Straight-way, **LE:** Soldering ends, **MW:** Mesh size

SS stainless steel strainer for natural refrigerants (NH₃, CO₂) and non-corrosive gases and liquids according to EN 378-1 as well as brines

Optional: Mesh size MW = 25/63/80/100/120/135/150/200/250/500/1000µm



Pressure/temperature operating limits:

PS: Max. allowable operating pressure in bar

TS: Permissible operating temperature in °C corresponding to the permissible operating pressures (PS)

PN: Nominal pressure rating

DN	PN	-60	-10	+50	+150	TS [°C]
DN 15...32	PN160	160	160	160	106	PS [bar]
Nominal size:		Soldering ends acc. to:				
DN	RAØ	l	h1	h2		
15	15	120	93	70		
15	18	120	93	70		
15	LE3/4"	120	93	70		
20	22	120	93	70		
20	LE 7/8"	120	93	70		
25	28	120	93	70		
32	35	120	93	70		

Table 27: Dimensions

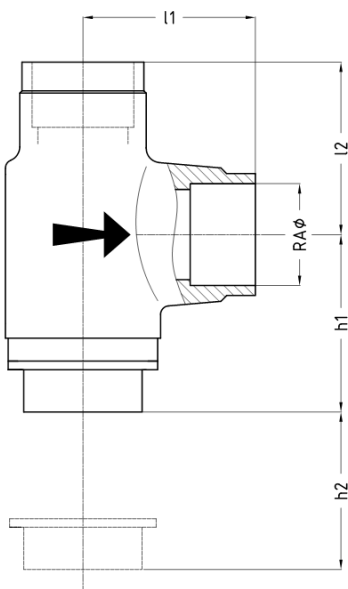
h2 = dismantling dimension

33 SS E LE MW

I: Angle, **LE:** Soldering ends, **MW:** Mesh size

SS steel strainer for natural refrigerants (NH₃, CO₂) and non-corrosive gases and liquids according to EN 378-1 as well as brines

Optional: Mesh size MW = 25/63/80/100/120/135/150/200/250/500/1000µm



Pressure/temperature operating limits:

PS: Max. allowable operating pressure in bar

TS: Permissible operating temperature in °C corresponding to the permissible operating pressures (PS)

PN: Nominal pressure rating

DN	PN	-60	-10	+50	+150	TS [°C]
DN 10...32	PN160	120	160	160	99	PS [bar]

Nominal size:		Soldering ends acc. to:					
DN	RAØ	l1	l2	h1	h2		
10	12	60	60	62	55		
15	15	60	60	62	55		
15	18	60	60	62	55		
15	LE 3/4"	60	60	62	55		
20	22	60	60	62	55		
20	LE 7/8"	60	60	62	55		
25	28	60	60	62	55		
32	35	60	60	62	55		

Table 28: Dimensions

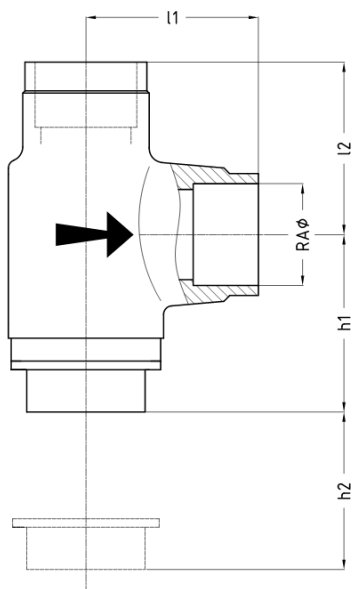
h2 = dismantling dimension

34 SS E LE MW NIRO

I: Angle, **LE:** Soldering ends, **MW:** Mesh size

SS stainless steel strainer for natural refrigerants (NH₃, CO₂) and non-corrosive gases and liquids according to EN 378-1 as well as brines

Optional: Mesh size MW = 25/63/80/100/120/135/150/200/250/500/1000µm



Pressure/temperature operating limits:

PS: Max. allowable operating pressure in bar

TS: Permissible operating temperature in °C corresponding to the permissible operating pressures (PS)

PN: Nominal pressure rating

DN	PN	-60	-10	+50	+150	TS [°C]
DN 10...32	PN160	160	160	160	106	PS [bar]

Nominal size:	Soldering ends acc. to:				
DN	RAØ	l1	l2	h1	h2
10	12	60	60	62	55
15	15	60	60	62	55
15	18	60	60	62	55
15	LE 3/4"	60	60	62	55
20	22	60	60	62	55
20	LE 7/8"	60	60	62	55
25	28	60	60	62	55
32	35	60	60	62	55

Table 29: Dimensions

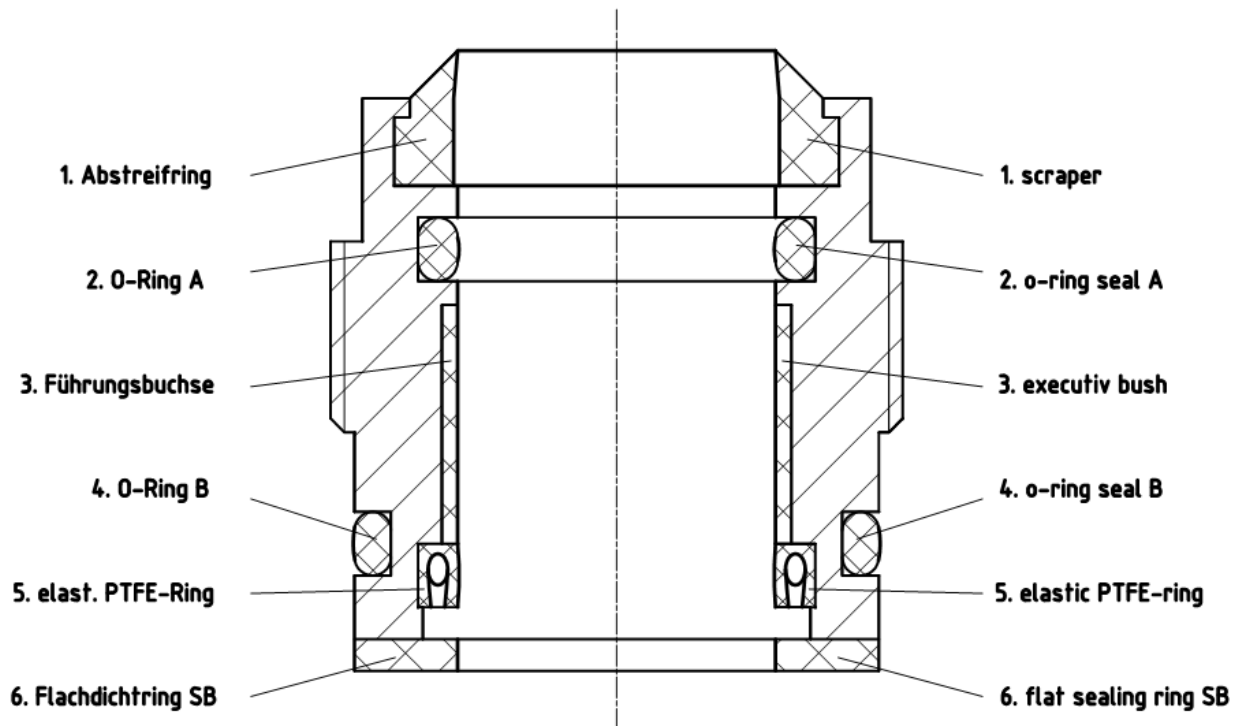
h2 = dismantling dimension

35 Appendix

36 Valve stem sealing system

The valve stem sealing system is maintenance-free.

The sealing system consists of the following components:



1. Wiper ring

The wiper ring prevents the ingress of dirt and water from the outside.

2. O-ring A

O-ring A makes the valve vacuum-tight. (Valve operation in the vacuum range at low temperatures)

3. Guide bush

The guide bush prevents damage to the stem.

4. O-ring B

O-ring B seals the outer part of the sealing system in addition to the flat sealing ring SB.

5. Resilient PTFE ring

The resilient PTFE ring is the primary seal of the sealing system. It consists of a high-performance PTFE compound with a wound stainless steel spring. This seal seals the valve to the atmosphere.

6. Flat sealing ring SB

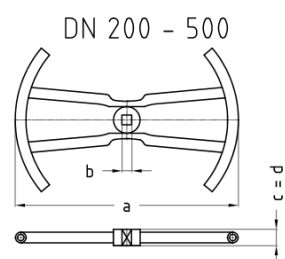
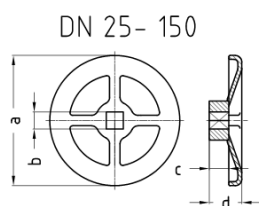
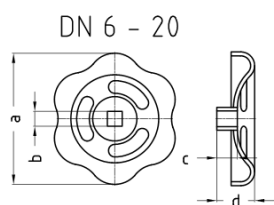
The flat sealing ring SB seals the outer part of the sealing system.

Note: GEA AWP valves have a back seal. Therefore, the removal and replacement of the sealing system is possible during operation of the plant. Please observe the instructions in our operating regulations regarding this.

37 Handwheel / Cap

HR

DN 6-500



for type: HRS AVR AVB HRAR HRAB RVA RVAK

	Diameter	Hub square	Hub height	Height
DN	a	b	c	d
6-20	60	6	9	15
25-32	120	11	14	31.0
40-65	140	12	16	32.5
80-100	200	14	22	42.0
125	315	22	28	55
150	400	22	28	60
200-500	630	28	46	46

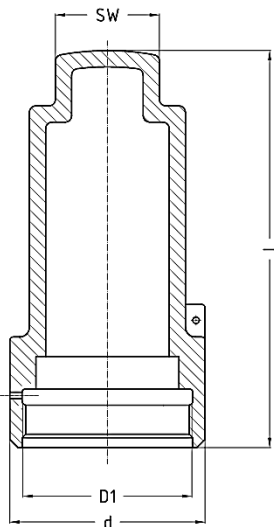
Table 30: Dimensions

K

Cap

DN 6-500

DN 6 – 500



for type: AVR AVB HRAR HRAB RVA RVAK				
	Height	Diameter	Thread	Wrench size
DN	l	d	D1	SW
6-20	65	36	M27x2	19
25-32	99	45	M36x2	24
40-65	122	60	M52x3	32
80-100	148	72	M60x3	41
125-150	165	90	M76x3	50
200-350	260	100	M80x3	60
400	319	100	M80x3	90
500	325	100	M80x3	90

Table 31: Dimensions

38 Comparison of European / American materials

GEA AWP valves contain individual parts in different materials. The following table contains all materials that GEA AWP uses for pressure-retaining parts and lists the equivalent American materials.

European material			American equivalent material	
Material number	Short name	Standard	Material standard	Grade
Valves made of carbon steel				
1.0345	P235GH, TC1 +N	DIN EN 10216-2	ASME SA-106	A + B
1.0038	S235JR +N	DIN EN 10025-2	ASME SA-570	36
1.0425	P265GH	DIN EN 10028-2	ASME SA-516	60
1.0577	S355J2 +N	DIN EN 10025-2	ASME SA-516	65
1.0562	P355N	DIN EN 10028-3		
1.0460	C22.8	VdTÜV 350/3	ASME SA-105	-
Valves made of low-temperature steel				
1.0451	P215NL +N	DIN EN 10216-4	ASME SA-333	6
1.0452	P255QL +QT	DIN EN 10216-4		
1.0566	P355NL1 +N	DIN EN 10028-3 DIN 17103 VdTÜV 354/3	ASME SA-662 ASME SA-420 ASME SA-350	B WPL6 LF2
1.0488	TStE 285	DIN 17103 VdTÜV 352/3	ASME SA-662 ASME SA-350	A LF2
Valves made of stainless steel				
1.4301	X5CrNi18-10	DIN EN 10216-5 DIN EN 10028-7 DIN EN 10222-5 DIN EN 1092-1	ASME SA-312 ASME SA-240 ASME SA-182	TP304 304 F304

Straight-way valves in non-standard design (e.g. deviating materials, third-party inspection) are only available in angle-seat form.

39 Legal notices

- GEA AWP valves must be handled in accordance with the GEA AWP operating regulations.
- The safety instructions mentioned in the operating regulations must be observed.
- A hazard analysis is available for GEA AWP valves.
- GEA AWP valves must only be handled by authorised persons.
- The instructions for the use of personal protective equipment (PPE) must be observed.
- GEA AWP valves must be used for their intended purpose.
- This catalogue has been carefully created and checked; however, it may still contain errors. The technical specifications given in the catalogue are not contractually guaranteed properties. Technical specifications are only binding if they have been confirmed by us in writing.
- We reserve the right to make technical changes.
- Further information on our declarations of conformity, operating regulations, calculation software and the general terms and conditions can be found on our website www.awpvalves.com under the Tools/Downloads tab.
- Our general terms and conditions apply.

GEA AWP GmbH
Armaturenstr. 2
17291 Prenzlau
Germany
phone: +49 3984 8559-0
fax: +49 3984 8559-18
e-mail: info@awpvalves.com

