GESTRA Steam Systems

Product Range A2

Non-Return Valve

RK 86, 86A for Flanges PN 10/16/25/40, DN 15-200
ASME Class 125/150/300

RK 86, RK 86A

Description

Wafer-type non-return (check) valve for sandwiching between flanges. Valve with spring for installation in any position. Without spring only for vertical lines with upward flow. Self-centering valve body. Application for liquids, gases and vapours (observe classification according to PED).

Pressure/Temperature Rating

RK 86	DIN, EN, ASME B16.5, Class 300										Design
[°C]	–200	–10	20	100	200	300	350	400	500	550	
DN 15 – 100		51	51	46.4	43.9	38.9					metal-to-metal (standard)
[bar] g		51	51	46.4	43.9	38.9	36.9				metal-to-metal with Nimonic®-springs
DN 125 – 200		51	51	46.4	43.9	38.9					metal-to-metal (standard)
[bar] g		51	51	46.4	43.9	38.9	36.9	34.5			metal-to-metal with Nimonic®-springs

RK 86 A	DIN, EN, ASME B16.5, Class 300										Design
[°C]	–200	–10	20	100	200	300	350	400	500	550	
DN 15 – 200	49.6	49.6	49.6	42.3	35.8	31.6					metal-to-metal (standard)
[bar] g	49.6	49.6	49.6	42.3	35.8	31.6	30.4	29.3	27.3	24.0	metal-to-metal with Nimonic®-springs

Valve seat sealing	**t_{min} [°C]**	**t_{max} [°C]**	**Application**	**Leakage rate**
metal-to-metal RK 86, DN 15-100	–10	350	Liquids, gases, steam	DIN 3230-3, BN 2, BO 3
metal-to-metal RK 86, DN 125-200	–10	400	Liquids, gases, steam	DIN 3230-3, BN 2, BO 3
metal-to-metal RK 86A, DN 15-200	–200	550	Liquids, gases, steam	DIN 3230-3, BN 2, BO 3
PTFE	–190	250	Aggressive fluids	DIN 3230-3, BN 2, BO 3
EPDM	–40	150	Water, condensate, steam	DIN 3230-3, BN 1, BO 1
FPM	–25	200	Mineral oils, gases, air	DIN 3230-3, BN 1, BO 1

Chemical resistance see GESTRA Database "Chemical Resistance"

End Connections

DIN[1]	ASME	BS 10[3]	JIS[4]
EN 1092-1 PN 10/16/25/40[2]	B 16.1 Class 125 FF B 16.5 Class 150/300 RF	Table D, E, F, H, J	B2238 10K

[1] DN 125–200 mm (5–8"): On request form D or E acc. to EN 1092.
[2] DN 15–100 mm (½–4") also suitable for PN 6.
[3] For installation between flanges DN 15 mm (½"), BS 10, table H and J, please use RK 86/86A, DN 20 mm (¾").
[4] As standard for installation between Fl. JIS 10K (except DN 80 mm). When ordering please indicate nominal size (reworking required).

Dimensions

Nominal sizes			15	20	25	32	40	50	65	80	100	125	150	200
		[mm]	½	¾	1	1¼	1½	2	2½	3	4	5	6	8
		[inch]												
Dimensions [mm]	L[5]		16	19	22	28	31.5	40	46	50	60	90	106	140
	Z_{min}		44	53	64	73	83	96	110	128	151			
	Z_{max}		67	76	82	93	104	118	136	158	186			
∅ D	PN 10/16											194	220	275
	PN 25											194	226	286
	PN 40											194	226	293
	Class 125/150											194	220	275
	Class 300											216	251	308
Weight		[kg]	0.27	0.38	0.52	0.8	1.12	1.78	2.43	3.37	5.34	11	14	25

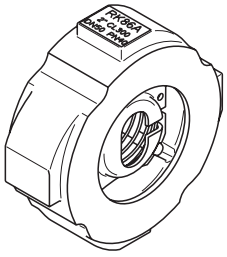
[5] Short overall length according to EN 558-1, series 49 (≙ DIN 3202, part 3, series K4)

Materials

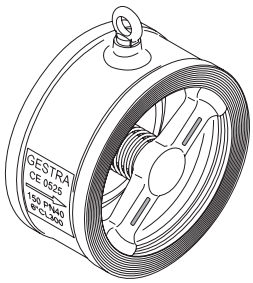
DN 15–100 (¼ – 4")		DIN/EN	ASTM	Category
Body, seat and guide ribs	RK 86	1.4317	A743-CA6-NM	Chromium steel
	RK 86 A	1.4408	A351CF8M	Stainless steel
Valve disc, spring retainer		1.4571		Stainless steel
Spring				Stainless steel

DN 125–200 (5 – 8")		DIN/EN	ASTM	Category
Body	RK 86	1.0619	A216 WCB	Cast steel (carbon steel)
	hard faced seat	1.4502		
	RK 86 A	1.4408	A351CF8M	Stainless steel
Valve cone	RK 86	1.4006	A182F6	Chromium steel
Guide	RK 86	1.4107		Chromium steel
Guide	RK 86 A	1.4408		Stainless steel
Valve cone	RK 86 A	1.4571	A182F316	Stainless steel
Spring	RK 86 and 86A	1.4571		Stainless steel

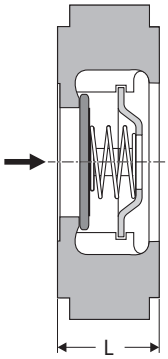
*) For the use in hygienic installations, foodstuff industry, pharmaceutical industry and similar applications please order RK 86 A in **pickled** design.

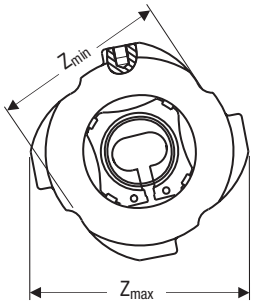


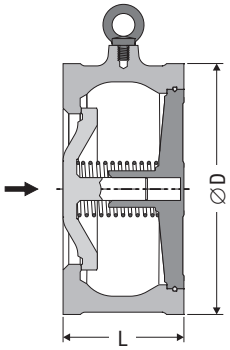
DN 15-100 mm (½ – 4")
Standard design fitted with M8 antistatic connection



DN 125-200 mm (5 – 8")
Standard design fitted with M8 antistatic connection







Non-Return Valve

RK 86, 86A for Flanges PN 10/16/25/40, DN 15-200 ASME Class 125/150/300

Opening pressures

Differential pressures at zero volume flow

DN	Opening pressures in mbar			
	Direction of flow			
	without springs	with springs		
	⬆	⬆	➡	⬇
15	2.5	10	7.5	5
20	2.5	10	7.5	5
25	2.5	10	7.5	5
32	3.5	12	8.5	5
40	4.0	13	9	5
50	4.5	14	9.5	5
65	5.0	15	10	5
80	5.5	16	10.5	5
100	6.5	18	11.5	5
125	12.5	35	22.5	10
150	14.0	38	24.0	10
200	13.5	37	23.5	10

1 mbar = 0.0145 psi = 100 mm w.g. = 0.4 in w.g.

On request at extra charge, special springs for opening pressures:
Between 5 and 1000 mbar for DN 15–50 mm (½–2"), between 5 and 700 mbar for DN 65 and 80 mm (2½, 3"), between 5 and 500 mbar for DN 100–200 mm (4–8").

Enquiry Specification

GESTRA DISCO Non-return valve type RK 86 / RK 86A for flanges PN 10/16/25/40.

Wafer design with extremely short overall length to EN 558-1, series 49.

Suitable for fitting between pipe flanges to DIN/EN, BS and ASME. Self-centering valve body (DN 15 – DN 100). The valve disc rests on two of the four guide ribs, independently of the flange standard. Broad sealing surfaces. Installation in any position. Connection for electrostatic discharge line as standard. Stronger springs for other opening pressures are also available on request. Metal-to-metal or soft (EPDM, FPM) seats. Design in accordance with PED 97/23/EC, with CE marking. Specification of nominal pressure, size, body materials etc. in accordance with EN 19.

Please note:

The selected non return valve must ensure that the minimum volume flowrate keeps the valve disk in the open position (see Pressure Drop Chart / stable range). Valve construction is very robust, but they are not recommended for use on compressors or where pulsating flow exists. If in doubt please consult us and we will carry out the pressure drop calculation and select a suitable valve.

Supply in accordance with our general terms of business.

Pressure Drop Chart

The curves given in the chart are valid for water at 20 °C. To read the pressure drop for other fluids the equivalent water volume flowrate must be calculated and used in the graph.

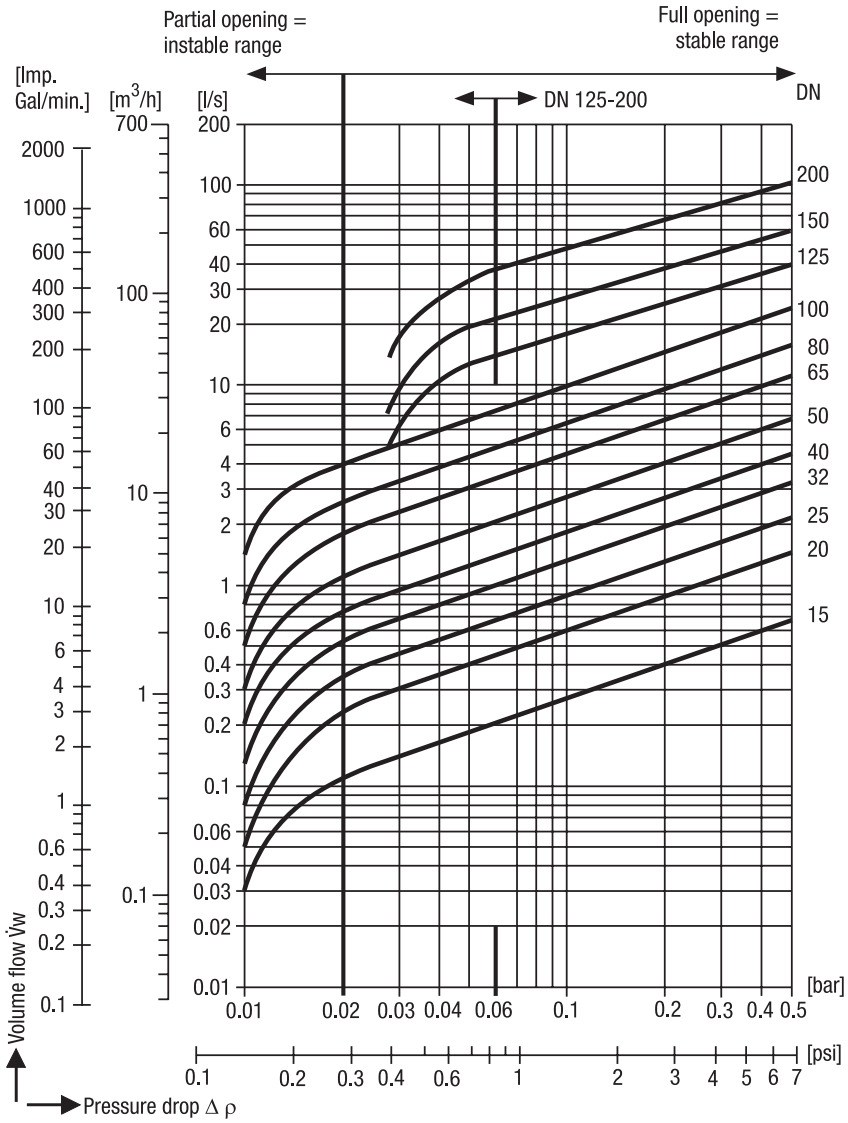
The values indicated in the chart are applicable to spring-assisted valves with horizontal flow. With vertical flow insignificant deviations occur only within the range of partial opening.

$$\dot{V}_w = \dot{V} \cdot \sqrt{\frac{\rho}{1000}}$$

$\dot{V}_w$ = Equivalent water volume flow in l/s or m³/h

ρ = Density of fluid (operating condition) in kg/m³

$\dot{V}$ = Volume of fluid (operating condition) in l/s or m³/h



When ordering please state:

Fluid, flowrate, service pressure and temperature, standard of pipe flange.

The following test certificates can be issued on request, at extra cost:

In accordance with EN 10204-2.1, -2.2, 3.1 and 3.2.

All inspection requirements have to be stated with the order. After supply of the equipment certificates can no longer be established. Charges and extent of the above mentioned certificates as well as the different tests confirmed therein are listed in our price list "Test and Inspection Charges for Standard Equipment".

For other tests and inspections than those listed above, please consult us.

PED (Pressure Equipment Directive)

The equipment complies with the requirements of the Pressure Equipment Directive 97/23/CE. Applicable with fluids of group 1 and 2. With CE marking (apart from equipment that is excluded from the scope of the PED according to section 3.3). For more information refer to our PED Declaration of Conformity.

ATEX (Atmosphère Explosible)

The equipment does not have its own potential source of ignition and is therefore excluded from the scope of the ATEX Directive 94/9/EC. Applicable in Ex zones 0, 1, 2, 20, 21, 22 (1999/92/EC). The equipment does not bear an Ex marking. For more information refer to our ATEX Declaration of Manufacturer.

GESTRA AG

P. O. Box 10 54 60, D-28054 Bremen
Münchener Str. 77, D-28215 Bremen

Telephone +49 (0) 421 35 03 - 0, Fax +49 (0) 421 35 03-393

E-Mail gestra.ag@flowserve.com, Internet www.gestra.de

FLOWSERVE GESTRA

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