

Non-Return Valve for Sandwiching between Flanges

PN 6/10/16, ASME Class 125

RK 44, DN 15-200, NPS ½-8

Description

RK non-return valves are used to prevent the return flow of fluid in pipes. Wafer-type non-return (check) valves for sandwiching between flanges, designed with spring for installation in any position. Without spring only for vertical pipes with upward flow. Centring ring or self-centring valve body. Non-return valves are used to prevent the return flow of fluid in pipes. The equipment may only be used within the admissible pressure and temperature ratings, with due consideration of chemical and corrosive influences. Suitable for liquid, gas and steam. Please note the classification according to the Pressure Equipment Directive (PED).

Pressure and temperature ratings for valves with metal-to-metal seat

RK 44	T [°C]	DIN/EN, PN 16								Design
		-200	-10	120	150	180	200	250	300	
DN 15 – 100 (½ – 4")	p [barg]	16.0	16.0	16.0	16.0	16.0	13.5	8.0		Metal-to-metal (standard)
DN 125 – 200 (5 – 8")	p [barg]		16.0	16.0	14.4	13.4	12.8	11.2	9.6	Metal-to-metal (standard)

Valve seats

Valve disc/cone	tmin [°C]	tmax [°C]	Application	Leakage rate
Metal-to-metal RK 44, DN 15-100 (½-4")	-200	200	Liquid, gas, steam	EN 12266-1, P12, leakage rate D
Metal-to-metal RK 44, DN 125-200 (5-8")	-10	300	Liquid, gas, steam	EN 12266-1, P12, leakage rate D
EPDM	-40	150	Water, condensate, steam	EN 12266-1, P12, leakage rate A
FPM	-25	200	Mineral oil, gas, air	EN 12266-1, P12, leakage rate A

Please check chemical resistance at www.gestra.com in the "Chemical resistance" database.

Connections of wafer-type valves¹⁾

EN	Standard valves for fitting between flanges to	ASME
DIN EN 1092, form B 1, PN 6/10/16	BS 10 Table D, E, F	B 16.1 Class 125 FF B 16.5 Class 150 RF ²⁾

¹⁾ DN 15–100 (½ – 4") with spiral centring ring.

²⁾ ASME class 150 RF only suitable for DN 125 – DN 200 (5 – 8").

Dimensions

Nominal size	[mm] [inch]	15 ½	20 ¾	25 1	32 1¼	40 1½	50 2	65 2½	80 3	100 4	125 5	150 6	200 8
Dimensions	L ⁴⁾	16	19	22	28	31.5	40	46	50	60	90	106	140
	Ø D	42	49	58	74	84	97	117	132	152	184	209	264
Weight	[kg]	0.1	0.2	0.25	0.5	0.7	1.1	1.4	2	3.2	7.7	11	22

⁴⁾ Short overall length to DIN EN 558, series 49.

Materials

DN 15 – 100 (½ – 4")	DIN/EN	ASTM/ASME equivalent	Category
Body, seat and guide ribs	CC480K-GS	B 584 C90 500	Bronze
Valve disc, spring retainer	1.4571	A182 F 316	Austenitic stainless steels
Spring	1.4571	A313 Type 316	Austenitic stainless steels
Spiral centring ring	1.4310	A 313 Type 302	Austenitic stainless steels
DN 125 – 200 (5 – 8")	DIN/EN	ASTM/ASME equivalent	Category
Body, seat	5.1301	A126 Class A	Grey cast iron
Valve cone, spindle guide	CC480K-GS 2.1050	B 584 C90 500	Bronze
Spring	1.4571	A313 Type 316	Austenitic stainless steels

Optional extras

- Special springs: 20 mbar to 1000 mbar
- Without spring
- RK valve seat: EPDM / FPM
- Silicone-free
- Oil and grease-free
- Pickled and passivated
- Orifice hole

Non-Return valve for Sandwiching
between Flanges PN 6/10/16, ASME
Class 125

RK 44, DN 15-200, NPS ½-8

Opening pressures

Differential pressure at zero volume flowrate.

DN	Opening pressures [mbar]			
	Direction of flow			
	without spring	with spring		
	↑	↑	→	↓
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

Special springs for particular opening pressures available on request for an extra charge: between 20 and 1000 mbar for DN 15-50, 20 and 700 mbar for DN 65 and 80, 20 and 500 mbar for DN 100-200.

Enquiry specification

GESTRA DISCO non-return valve

RK 44

DN:

Valve seat: metal-to-metal / EPDM / FPM

Wafer-type non-return valve for sandwiching between flanges PN 6/10/16, Class 125 FF

Short overall length to EN 558, series 49

DN 15-100 (½-4"):

Body with spiral centring ring for horizontal and vertical pipes.

Closing spring: 1.4571, opening pressure: 5 mbar for downward flow, specially designed spring retainer ensures centric spring support.

DN 125-200 (5-8"):

Self-centring body thanks to an adapted diameter for horizontal and vertical pipes.

Spring: 1.4571, opening pressure: 10 mbar for downward flow, centric cone and spring guide.

Please note

The selected non-return valve must ensure that the minimum volume flowrate keeps the valve disc in the open position (see pressure drop chart, "Full opening/stable range"). Systems with a pulsating flow, e.g. with compressors, may require specially designed non-return valves. When ordering, please expressly state your particular application and provide operating data that is as accurate as possible.

Please note our general terms of business.

Pressure drop chart

The curves in the chart are valid for water at 20°C. To read the pressure drop for other fluids, calculate the equivalent water volume flowrate $\dot{V}_w$.

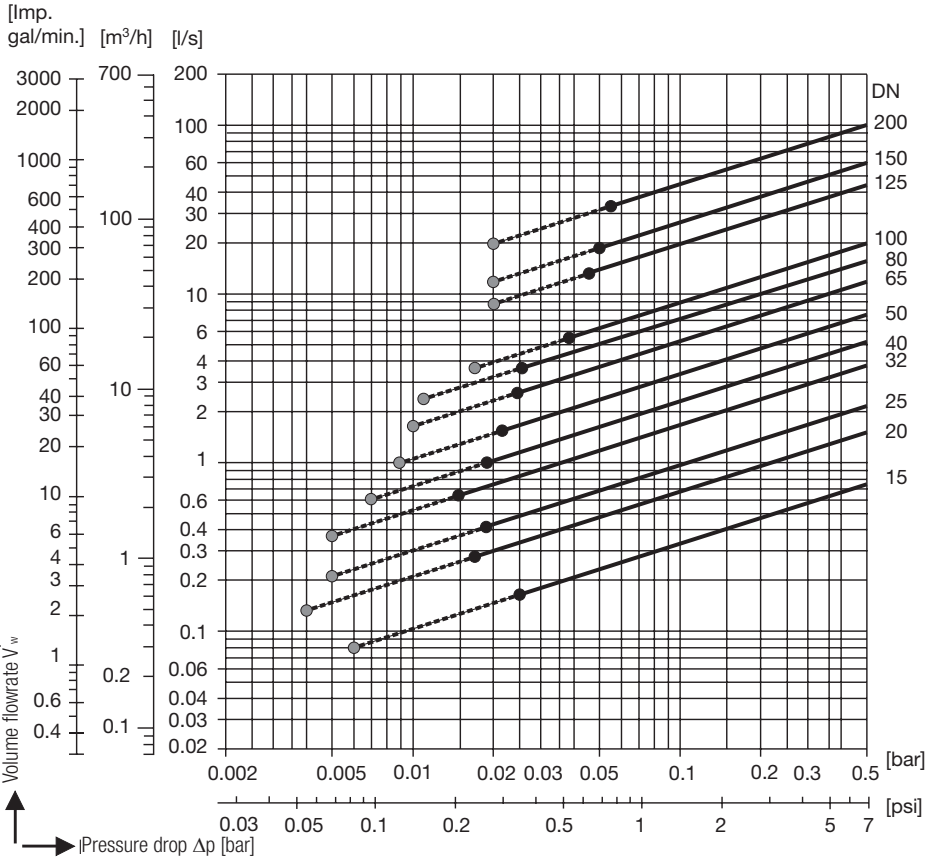
Pressure drops in the chart apply to valves with standard spring for use in horizontal pipes and to valves without spring for use in vertical pipes with upward flow.

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

$\dot{V}_w$ = equivalent water volume flowrate in [l/s] or [m³/h]

ρ = density of fluid in operating state in [kg/m³]

$\dot{V}$ = volume flowrate of fluid in operating state in [l/s] or [m³/h]



● Required minimum volume flowrate $\dot{V}_w$ for valves without spring for use in vertical pipes with upward flow.

● Required minimum volume flowrate $\dot{V}_w$ for valves with standard spring for use in horizontal pipes.

When ordering please state

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

Acceptance tests

An inspection certificate to EN 10204 can be provided as verification of material and construction tests. All test requirements must be stated in the request for a quote or in the order. Test certificates can no longer be issued once delivery has been made. The standard test scope and costs of the above-mentioned test certificates can be found in our price list "Test and Inspection Charges for Standard Equipment". If you require a different test scope, please request a separate quote.

Application of European Directives

Pressure Equipment Directive

The equipment conforms to this directive and can be used for the following fluids:

■ Group 2 fluids

ATEX Directive

The RK equipment does not have its own potential ignition source and is therefore not subject to this directive.

Static electricity: Once installed, static electricity may arise between the equipment and the connected system.

If used in potentially explosive atmospheres, the plant manufacturer or owner is responsible for discharging or preventing possible static charge.

If it is possible for fluid to escape, e.g. through actuating mechanisms or leaks in threaded joints, the plant manufacturer or owner must take this into consideration when dividing the area into zones.

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