

BB

Dual-Plate Check Valves

BB with Anti-Corrosion Lining
EN Range DN 150 up to 1000, PN 6 up to 16

Description

Dual-plate check valves prevent backflow in horizontal and vertical pipes. They are of the wafer pattern designed to be sandwiched between flanges.

For installation in horizontal and vertical pipes with upward flow the valves can be fitted with springs. For installation in horizontal and vertical pipes with downward flow the valves must be fitted with special springs.

Dual-plate check valves are to be used for liquids, gases and vapours, provided that the specifications of the PED are taken into account.

Design

Dual-plate check valve bodies are available with plastic lining or rubber lining. The lining provides corrosion protection for applications in the chemical industry, waste-disposal and treatment plants, sewage works, seawater and water supply installations.

Body with plastic lining is available for applications with drinking water.

Body with rubber lining is available for applications with seawater.

Soft sealing seats are available, but special temperature limits must be observed for them.

Equipment with lining has as standard a soft seat made from EPDM.

End connection

Wafer-type valve for sandwiching between flanges to:

■ EN 1092-1: PN 6/10/16

Equipment types

The equipment designation specifies the body material:

BB.. GS: Grey cast iron body with rubber lining

BB.. GK: Grey cast iron body with plastic lining

EN equipment at a glance

PN	DN												
	150	200	250	300	350	400	450	500	600	700	800	900	1000
6	BB 21GS BB 21GK						BB 11GS BB 11GK						
10	BB 22GS BB 22GK						BB 12GS BB 12GK						
16	BB 24GS BB 24GK						BB 14GS BB 14GK						

Application limits based on EN 1092-1

Admissible service pressure [bar] for equipment with grey cast iron body without lining

Type	PN	Temperature [C°][1]					
		-10 / 20	100	150	200	250	300
BB 11, BB 21	6	6	6	5.4	4.8	4.2	3.6
BB 12, BB 22	10	10	10	9	8	7	6
BB 14, BB 24	16	16	16	14.4	12.8	11.2	9.6

[1]) Note that the lining material reduces the temperature limits!

Limiting conditions for equipment with soft seat

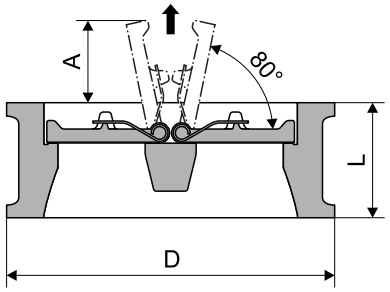
Type	Temperature [C°][1]
EPDM	– 40 to + 150
FPM (FKM)	– 25 to + 200
NBR	– 30 to + 110

[1]) Note that the lining material reduces the temperature limits!

Temperature limits for lining materials

Lining	Temperature [C°]
Rilsan	– 10 to + 90
Hard rubber	– 10 to + 90

Dimensions and Weights



DN	PN	Dimensions [mm]			Weight [kg]
		D	L	A	
150	6	209	76	40	12.0
	10/16	220	76	40	13.5
200	6	264	89	64	18.5
	10/16	275	89	64	20.0
250	6	319	114	87	33.0
	10/16	330	114	87	35.0
300	6	375	114	110	44.0
	10	380	114	110	45.0
	16	386	114	110	47.0
350	6	425	127	120	62.5
	10	440	127	120	67.0
	16	446	127	120	69.0
400	6	475	140	142	80.5
	10	491	140	142	86.0
	16	498	140	142	88.0
450	6	530	152	163	125.0
	10	541	152	163	130.0
	16	558	152	163	138.0
500	6	580	152	181	144.0
	10	596	152	181	152.0
	16	620	152	181	164.0
600	6	681	178	217	223.0
	10	698	178	217	234.0
	16	737	178	217	263.0
700	6	786	229	250	305.0
	10	813	229	250	326.0
	16	807	229	250	321.0
800	6	893	241	290	462.0
	10	920	241	290	490.0
	16	914	241	290	484.0
900	6	993	241	327	571.0
	10	1020	241	327	602.0
	16	1014	241	327	596.0
1000	6	1093	300	364	808.0
	10	1127	300	364	860.0
	16	1131	300	364	865.0

Materials

Made from grey cast iron (BB.. GS, GK)

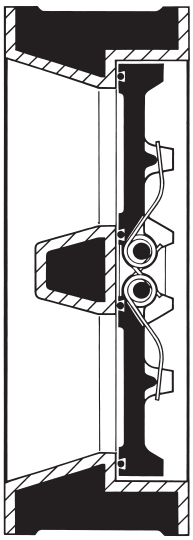
Component	EN number	ASME[1])
Body	EN-JL 1040	A126B
Dual plates for equipment with anti-corrosion lining and internals made from austenitic steel	1.4408	A351CF8M
Support and hinge pin	1.4571	A316Ti
Springs	1.4571	A316Ti
Dual plates for equipment with anti-corrosion lining and internals made from bronze	CC332G	[2])
Support and hinge pin	CW453K	C51900
Springs	CW452K	C52100

[1]) Equipment made from grey cast iron that complies with ASME specification is not available. The equivalent material specifications are stated for guidance only. Physical and chemical properties of the materials can therefore differ from the materials in accordance with ASME specification. For more details please contact the manufacturer.

[2]) There is no ASME equivalent for the EN material.

Lining materials for BB.. GS

Hard rubber based on isoprene rubber (IR), shore D hardness 75±5, max. thickness of layer 3-5 mm.



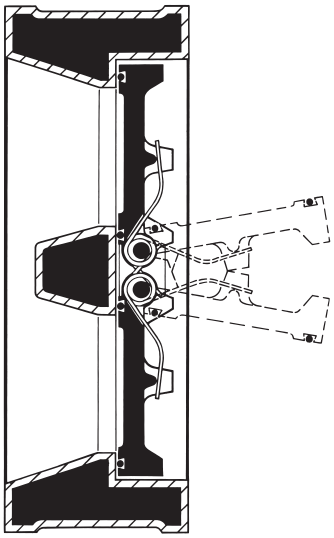
Lining materials for BB.. GK

Rilsan is a polyamide 11 based powder for fluidized bed sintering and a coating powder extracted from a purely plant based source, which means that a natural, environmentally friendly and renewable raw material is used.

Approvals/certificates acc. to KTW (recommendations for plastics in contact with drinking water) and DVGW (= German Technical Association for Gas and Water)

Shore D hardness 75±5, min. thickness of layer ≥ 0.4 mm

Other linings available on request.



Springs

The following springs are available.

Code number/ letter	Application
7 WA	Spring for 7mbar opening pressure, for horizontal installation
2 WA	Spring for 2 mbar opening pressure, for horizontal installation
5 VO	Spring for 5 mbar opening pressure, for vertical installation with downward flow

Leakage testing DIN EN 12266-1

Seat	Leakage rate
Metal, PTFE	G
EPDM, NBR, FPM	A

Dual-Plate Check Valves

BB with Anti-Corrosion Lining

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 $\dot{V}_W$ must be calculated and used in the graph.

The values indicated in the chart are applicable to valves equipped with standard spring 7 mbar and horizontal flow as well as valves with special spring 2 mbar and horizontal flow.

Specification Text

GESTRA DISCOCHECK® dual-plate check valves BB.

Wafer-type valve with short overall length to EN 558 series 16 (K3) with anti-corrosion lining:

BB..GS: Grey cast iron body with rubber lining

BB..GK: Grey cast iron body with plastic lining

With two individually suspended plates and four springs.

Type:

Nominal size DN:

Pressure rating PN/Class:

End connection:

The valves should not be used on compressors or where pulsating flow exists.

For these applications please consult us and/or specify the application in question and indicate the operating data when ordering.

Inspection & Certification

Documentation regarding material tests and in-house examination with test report EN10204 available. All inspection requirements have to be stated with the enquiry or order. After supply of the equipment certification cannot be established. Charges and extent of the above mentioned test 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.

Application of European Directives

Pressure Equipment Directive (PED)

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

BB GS and BB GK:

■ Fluids of group 2

ATEX Directive

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

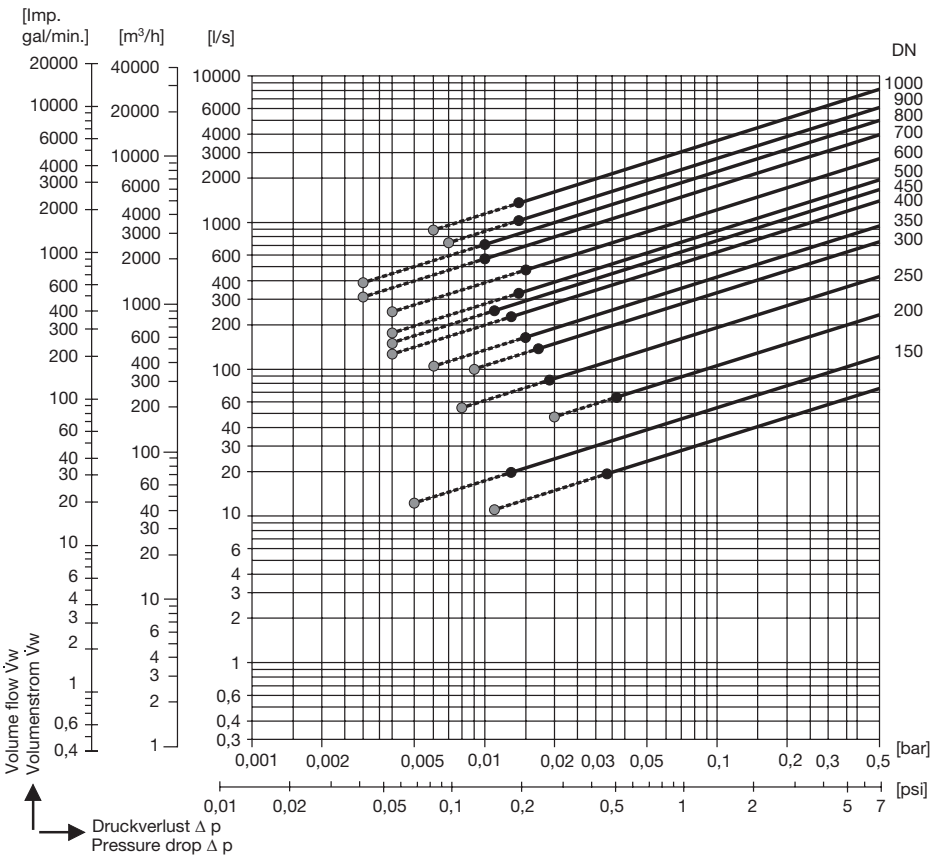
Static electricity: When installed, static electricity may arise between the equipment and the connected system.

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

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

Supply in accordance with our general terms of business.

Pressure Drop Chart



○ Required minimum volume flow $\dot{V}_W$ for valves with special spring 2 WA and horizontal flow.

● Required minimum volume flow $\dot{V}_W$ for valves with standard spring 7 WA and horizontal flow.

Flow characteristics

DN	Full opening	
	ζvalues	Kvs values [m³/h]
150	2.3	600
200	1.25	1439
250	1.2	2200
300	1.0	3800
350	0.9	5000
400	0.9	7100
450	0.9	8400
500	0.9	10180
600	0.9	14000
700	0.9	20000
800	0.9	25400
900	0.9	31000
1000	0.9	42000

Opening Pressures

Direction of flow	↑		→	↓
Spring type	Without spring	7 WA	7 WA	5 VO
DN	Opening pressures [mbar]			
150	11	18	7	5
200	12	19	7	5
250	14	21	7	5
300	15	22	7	5
350	17	24	7	5
400	19	26	7	5
450	22	29	7	5
500	23	30	7	5
600	24	31	7	5
700	29	36	7	5
800	35	42	7	5
900	41	48	7	5
1000	43	50	7	5

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