

# DISCOCHECK Dual-Plate Check Valves BB

DIN design DN 100 – 1200 mm, PN 6 – 160<sup>1)</sup>

Short overall length according to DIN EN 558-1, table 11, series 16 ( $\Delta$  DIN 3202, part 3, series K3)



## Application

For liquids, gases, vapours. In heating, air-conditioning, water-supply and cooling installations, steam and condensate systems, oil pipelines and natural gas lines. For use with sea water, in sewage works, downstream of fans and compressors. For drinking water with Levasint<sup>2)</sup> lining, and for sea water with rubber lining. With adjustable dampers for installations with waterhammer problems. Metal-to-metal or soft seat (EPDM, FPM).

- 1) If PN > 40 and DN > 500 mm please ask for corresponding data sheets.
- 2) LEVASINT® is a product of BAYER AG, Leverkusen.

## Materials

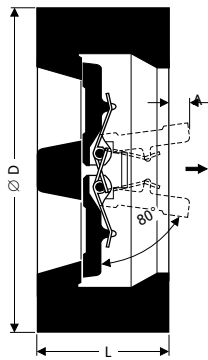
Design	Part designation	Nominal size DN	DIN reference	ASTM <sup>3)</sup> equivalent
Grey cast iron	Body	150 – 1200 mm	0.6025	A 126 Class A
	Dual plate	150 – 1200 mm	0.7040	–
Carbon steel	Body	100 + 125 mm	1.0460	A 105
	Body	from 150 mm	1.0619	A 216 WCB
	Dual plate	100 + 125 mm	1.4006	A 182 F6
	Dual plate	from 150 mm	1.0619	A 216 WCB
Stainless steel	Body	100 + 125 mm	1.4571	AISI 316 TI
	Body	from 150 mm	1.4552	A 351 CF 8 C
	Dual plate	100 + 125 mm	1.4571	AISI 316 TI
	Dual plate	from 150 mm	1.4552	A 351 CF 8 C

<sup>3)</sup> Physical and chemical properties comply with DIN grade.

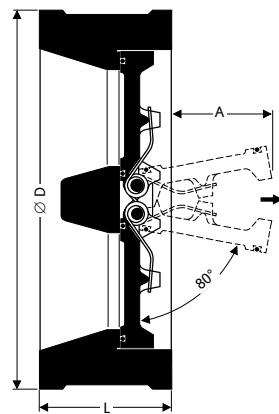
## Pressure/Temperature Ratings with metal-to-metal seat

Design	Type	PN	Max. service pressure [bar] at temperature [°C] <sup>4)</sup>											
			20	100	150	200	250	300	350	400	450	500	550	
Grey cast iron down to -10 °C at nominal pressure	BB 11 G / 21 G	6	6	6	6	5	4.5	3.6	–	–	–	–	–	
		10	10	9	9	8	7	6	–	–	–	–	–	
		16	16	15	14	13	11	10	–	–	–	–	–	
Carbon steel down to -10 °C at nominal pressure	BB 12 C / 22 C	10	10	10	9.5	8.5	7.5	7	6.5	6.5	6	–	–	
		16	16	16	15	14	12	11	10	10	10	–	–	
		25	25	25	23	22	20	18	16	16	15	–	–	
		40	40	40	37	35	32	29	27	26	25	–	–	
Stainless steel down to -105 °C at nominal pressure	BB 12 A / 22 A	10	10	9	8	8	7	7	7	6	6	6	5	
		16	16	14	13	12	12	11	11	10	10	9	8	
		25	25	21	19	19	18	17	16	16	15	14	13	
		40	40	40	38	37	35	33	31	30	29	28	25	

<sup>4)</sup> For temperatures above +300 °C special springs of Inconel X 750 are required.

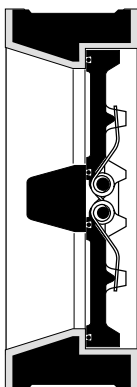


DN 100 – 125 mm

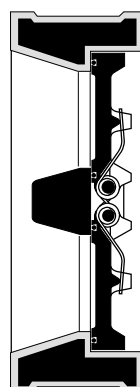


DN 150 – 1200 mm

BB with lining from DN 150 mm



Hard-rubber  
lining



Levasint  
lining

Dual plates, hinge pins and springs are not lined. Dual plates standard with O-rings of EPDM or on request with metal seating surface.



## Pressure Drop Chart

The chart is valid for water at 20 °C; for other fluids, the equivalent water volume flowrate must be calculated and used in the chart.

The values indicated in the chart are applicable to valves with 7 mbar springs with horizontal flow. With vertical flow deviations occur only within the range of partial opening.

The dashed lines in the chart are valid for valves with 2 mbar springs with horizontal flow.

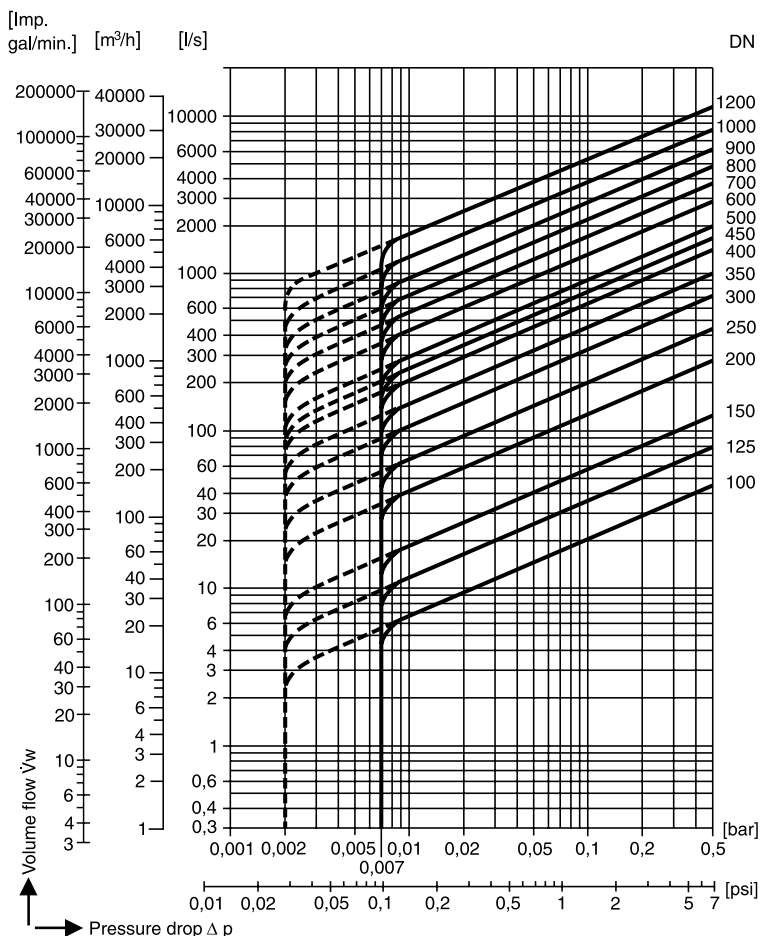
The chart and the flow characteristics apply to values up to PN 40. For valves with higher pressure ratings (PN) the loss coefficients (zeta values) and the pressure drops are increased by approx. 20%. The  $k_{vs}$  values are correspondingly reduced.

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

$\dot{V}_W$  = Equivalent water volume flow in [l/s] or [m<sup>3</sup>/h]

$\rho$  = Density of fluid (operating condition) in [kg/m<sup>3</sup>]

$\dot{V}$  = Volume flow of fluid (operating condition) in [l/s] or [m<sup>3</sup>/h]



## Opening Pressures

Differential pressures at zero volume flow.

DN	Opening pressures [mbar]			
	without spring	with upward flow with spring		
		7 WA 7 WAI	2 WA	5 VO
100	7	14	9	19
125	10	17	12	25
150	11 (15)	18 (22)	13 (17)	27 (35)
200	12 (18)	19 (25)	14 (20)	29 (41)
250	14 (18)	21 (25)	16 (20)	33 (41)
300	15 (25)	22 (32)	17 (27)	35 (55)
350	17 (25)	24 (32)	19 (27)	39 (55)
400	19 (25)	26 (32)	21 (27)	43 (55)
450	22	29	24	49
500	23 (28)	30 (35)	25 (30)	51 (61)

Values indicated in brackets apply for BB 17/18/19.

## Springs and Associated Opening Pressures

<b>7 WA</b>	Spring for 7 mbar opening pressure with horizontal installation	<b>2 WA</b>	Spring for 2 mbar opening pressure with horizontal installation.
<b>7 WAI</b>	As above, but for temperatures > 300 °C.	<b>5 VO</b>	Spring for 5 mbar opening pressure with vertical installation and downward flow.

For upward flow see opposite table.

<sup>1)</sup> If PN > 40 and DN > 500 mm ask for corresponding data sheets.

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## Dimensions and Weights

DN	PN	Dimensions [mm]			Weight <sup>2)</sup> [kg]
		D	L	A	
100 mm	10	164	64	19	7
	16	164			7
	25	171			7,5
	40	171			7,5
125 mm	10	194	70	28	12
	16	194			12
	25	196			12
	40	196			12
150 mm	6	209	76	40	12
	10	220			13,5
	16	220			13,5
	25	226			14
200 mm	6	264	89	64	18,5
	10	275			20
	16	275			20
	25	286			22
250 mm	6	319	114	87	33
	10	330			35
	16	330			35
	25	343			38
40	355	41			

DN	PN	Dimensions [mm]			Weight <sup>2)</sup> [kg]
		D	L	A	
300 mm	6	375	114	110	44
	10	380			45
	16	386			47
	25	403			51
	40	420			55
350 mm	6	425	127	120	62,5
	10	440			67
	16	446			69
	25	460			73
	40	477			79
400 mm	6	475	140	142	80,5
	10	491			86
	16	498			88
	25	517			95
	40	549			107
450 mm	6	530	152	163	125
	10	541			130
	16	558			138
	40	574			143
	6	580			144
500 mm	6	580	152	181	144
	10	596			152
	16	620			164
	25	627			168
	40	631			170

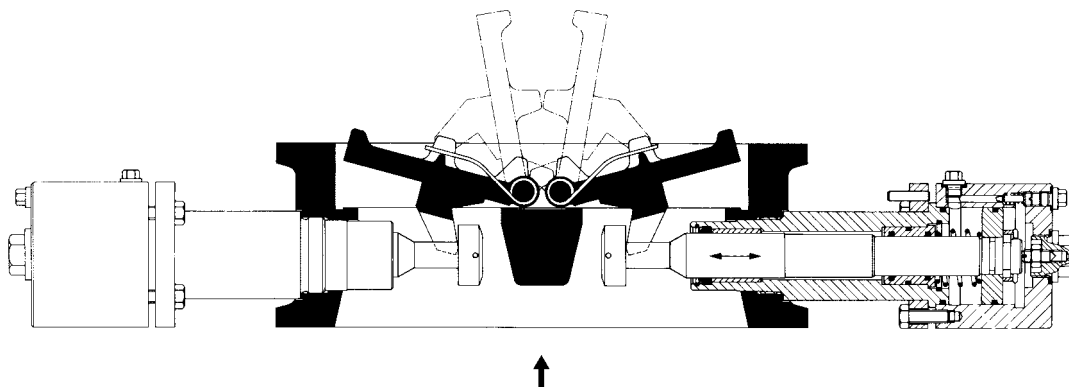
## Type Code

BB	Valve type
2	Series 1 – DN 100+125 mm and from DN 450 mm as well as from PN 63 2 – DN 150–400 mm up to PN 40
4	Pressure rating 1 – PN 6 (only grey cast iron) 2 – PN 10 4 – PN 16 5 – PN 25 6 – PN 40
C	Body material G – Grey cast iron C – Steel A – Austenitic steel
150	Nominal size DN 100 – 1200 mm
FPM	Seat HD – metal-to-metal EPDM FPM PTFE
7 WA	Springs/Opening pressures 7 WA – Spring for 7 mbar with horizontal installation 7 WA1 – Inconel spring for 7 mbar with horizontal installation 2 WA – Spring for 2 mbar with horizontal installation 5 VO – Spring for 5 mbar with downward flow

Typical example: **BB 24 C 150 FPM 7 WA**  
 Explanatory note: Dual-plate check valve BB 24, PN 16, made of cast steel type GS-C 25, DN 150 mm with FPM gasket and spring (7 mbar) for horizontal installation.

- 1) If PN > 40 and DN > 500 mm ask for corresponding data sheets.  
 2) Weights rated for cast steel grade GP 240 GH (GS-C 25).

BB with patented adjustable dampers, DN 200 – 800 mm.  
 Max. temperature rating 110 °C because of NBR gasket used.



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## Stock Codes

Materials Body/ Dual plates	Type	Nom. press. PN	Nominal size		Stock code	
			DN	inch		
Grey cast iron / S.G. (ductile) iron with soft seat EPDM	BB 21 G	6	150	6"	1402301	
	BB 21 G	6	200	8"	1402501	
	BB 21 G	6	250	10"	1402601	
	BB 21 G	6	300	12"	1402701	
	BB 21 G	6	350	14"	1402801	
	BB 21 G	6	400	16"	1402901	
	BB 11 G	6	450	18"	1403001	
	BB 11 G	6	500	20"	1403101	
	BB 11 G	6	600–1200	24"–48"	on request	
	BB 22 G	10	150	6"	1402302	
	BB 22 G	10	200	8"	1402502	
	BB 22 G	10	250	10"	1402602	
	BB 22 G	10	300	12"	1402702	
	BB 22 G	10	350	14"	1402802	
	BB 22 G	10	400	16"	1402902	
	BB 12 G	10	450	18"	1403002	
	BB 12 G	10	500	20"	1403102	
	BB 12 G	10	600–1200	24"–48"	on request	
	BB 24 G	16	150	6"	1402304	
	BB 24 G	16	200	8"	1402504	
	BB 24 G	16	250	10"	1402604	
	BB 24 G	16	300	12"	1402704	
	BB 24 G	16	350	14"	1402804	
	BB 24 G	16	400	16"	1402904	
	BB 14 G	16	450	18"	1403004	
	BB 14 G	16	500	20"	1403104	
	BB 14 G	16	600–1200	24"–48"	on request	
	Grey cast iron / aluminium bronze Body lining: hard rubber	BB 21 GS	6	150	6"	140230184
		BB 21 GS	6	200	8"	140250184
		BB 21 GS	6	250	10"	140260184
		BB 21 GS	6	300	12"	140270184
		BB 21 GS	6	350	14"	140280184
BB 21 GS		6	400	16"	140290184	
BB 11 GS		6	450	18"	140300184	
BB 11 GS		6	500	20"	140310184	
BB 11 GS		6	600–1200	24"–48"	on request	
BB 22 GS		10	150	6"	140230284	
BB 22 GS		10	200	8"	140250284	
BB 22 GS		10	250	10"	140260284	
BB 22 GS		10	300	12"	140270284	
BB 22 GS		10	350	14"	140280284	
BB 22 GS		10	400	16"	140290284	
BB 12 GS		10	450	18"	140300284	
BB 12 GS		10	500	20"	140310284	
BB 12 GS		10	600–1200	24"–48"	on request	
BB 24 GS		16	150	6"	140230484	
BB 24 GS		16	200	8"	140250484	
BB 24 GS		16	250	10"	140260484	
BB 24 GS		16	300	12"	140270484	
BB 24 GS		16	350	14"	140280484	
BB 24 GS		16	400	16"	140290484	

Materials Body/ Dual plates	Type	Nom. press. PN	Nominal size		Stock code
			DN	inch	
Carbon steel, metal-to-metal seat	BB 14 GS	16	450	18"	140300484
	BB 14 GS	16	500	20"	140310484
	BB 14 GS	16	600–1200	24"–48"	on request
	BB 22 C	10	150	6"	1432302
	BB 22 C	10	200	8"	1432502
	BB 22 C	10	250	10"	1432602
	BB 22 C	10	300	12"	1432702
	BB 22 C	10	350	14"	1432802
	BB 22 C	10	400	16"	1432902
	BB 12 C	10	100	4"	1432102
	BB 12 C	10	125	5"	1431202
	BB 12 C	10	450	18"	1433002
	BB 12 C	10	500	20"	1433102
	BB 12 C	10	600–1200	24"–48"	on request
	BB 24 C	16	150	6"	1432304
	BB 24 C	16	200	8"	1432504
	BB 24 C	16	250	10"	1432604
	BB 24 C	16	300	12"	1432704
	BB 24 C	16	350	14"	1432804
	BB 24 C	16	400	16"	1432904
	BB 14 C	16	100	4"	1432104
	BB 14 C	16	125	5"	1431204
	BB 14 C	16	450	18"	1433004
	BB 14 C	16	500	20"	1433104
	BB 14 C	16	600–1200	24"–48"	on request
	BB 25 C	25	150	6"	1432305
	BB 25 C	25	200	8"	1432505
	BB 25 C	25	250	10"	1432605
	BB 25 C	25	300	12"	1432705
	BB 25 C	25	350	14"	1432805
	BB 25 C	25	400	16"	1432905
	BB 15 C	25	100	4"	1432105
	BB 15 C	25	125	5"	1431205
	BB 15 C	25	450	18"	1433005
	BB 15 C	25	500	20"	1433105
	BB 15 C	25	600–1200	24"–48"	on request
	BB 26 C	40	150	6"	1432306
	BB 26 C	40	200	8"	1432506
	BB 26 C	40	250	10"	1432606
	BB 26 C	40	300	12"	1432706
	BB 26 C	40	350	14"	1432806
	BB 26 C	40	400	16"	1432906
BB 16 C	40	100	4"	1432106	
BB 16 C	40	125	5"	1432206	
BB 16 C	40	450	18"	1433006	
BB 16 C	40	500	20"	1433106	
BB 16 C	40	600–1200	24"–48"	on request	

<sup>1)</sup> If PN > 40 and DN > 500 mm ask for corresponding data sheets.

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DIN design DN 100 – 1200 mm, PN 6 – 160<sup>1)</sup>



## Stock Codes

Materials Body/ Dual plates	Type	Nom. press. PN	Nominal size		Stock Code
			DN	inch	
Austenitic stainless steel, metal-to-metal	BB 22 A	10	150	6"	1492302
	BB 22 A	10	200	8"	1492502
	BB 22 A	10	250	10"	1492602
	BB 22 A	10	300	12"	1492702
	BB 22 A	10	350	14"	1492802
	BB 22 A	10	400	16"	1492902
	BB 12 A	10	100	4"	1492102
	BB 12 A	10	125	5"	1491202
	BB 12 A	10	450	18"	1493002
	BB 12 A	10	500	20"	1493102
	BB 12 A	10	600–1200	24"–48"	on request
	BB 24 A	16	150	6"	1492304
	BB 24 A	16	200	8"	1492504
	BB 24 A	16	250	10"	1492604
	BB 24 A	16	300	12"	1492704
	BB 24 A	16	350	14"	1492804
	BB 24 A	16	400	16"	1492904
	BB 14 A	16	100	4"	1492104
	BB 14 A	16	125	5"	1491204
	BB 14 A	16	450	18"	1493004
	BB 14 A	16	500	20"	1493104
	BB 14 A	16	600–1200	24"–48"	on request
	BB 25 A	25	150	6"	1492305
	BB 25 A	25	200	8"	1492505
	BB 25 A	25	250	10"	1492605
	BB 25 A	25	300	12"	1492705
	BB 25 A	25	350	14"	1492805
	BB 25 A	25	400	16"	1492905
	BB 15 A	25	100	4"	1492105
	BB 15 A	25	125	5"	1491205
	BB 15 A	25	450	18"	1493005
	BB 15 A	25	500	20"	1493105
	BB 15 A	25	600–1200	24"–48"	on request
	BB 26 A	40	150	6"	1492306
	BB 26 A	40	200	8"	1492506
	BB 26 A	40	250	10"	1492606
	BB 26 A	40	300	12"	1492706
	BB 26 A	40	350	14"	1492806
	BB 26 A	40	400	16"	1492906
	BB 16 A	40	100	4"	1492106
	BB 16 A	40	125	5"	1492206
	BB 16 A	40	450	18"	1493006
	BB 16 A	40	500	20"	1493106
	BB 16 A	40	600–1200	24"–48"	on request

## Special Designs

### Special Springs

7 WAI of Inconel X 750

This spring is not suitable for DISCOCHECK dual-plate check valves made of grey cast iron.

Other special springs available on request.

### Soft seats

of EPDM for water and steam up to 150 °C

of FPM for oils, gases and air up to 200 °C

of PTFE

### Other

DISCOCHECK dual-plate check valves suitable for ANSI flanges, made of ASTM material and for pressure ratings up to PN 160 and with adjustable dampers available on request.

<sup>1)</sup> If PN > 40 and DN > 500 mm ask for corresponding data sheets.