

Ventilation and bleeding valves

Two-stage valves of the series BEV-GF DBP no. 4341803/EP 0661 483

STRATE vent valves guarantee the optimum venting and air release of pressure pipes. The valves are designed according to the actual working pressure or operating pressure at the installation location. The dimensioning, and thus the choice of valve type, mainly depends on the maximum flow rate in the pressure pipe.

Bleeding

The design of the first stage (coarse bleeding) is determined by the maximum pumping capacity in the pressure pipe. The maximum pumping capacity can result e.g. during filling of the pressure pipe or when all pumps are in operation. This means that the first bleeding stage of the valve must be able to remove as much air as the water entering the system in any planned operating state. The coarse bleeding stage allows a rapid filling of the system and a rapid reduction in the air pockets at the start of the pumping process.

The second stage (fine bleeding) has the function of dissipating air and gas which collects in the high points of the system during pumping under working pressure. This requires the float weight and the nozzle cross-section to match the working pressure in the high point.

Ventilation and pressure compensation

In pressure pipes with falling or rising sections, a partial vacuum can form within these sections after the end of pumping, which can lead to pipe

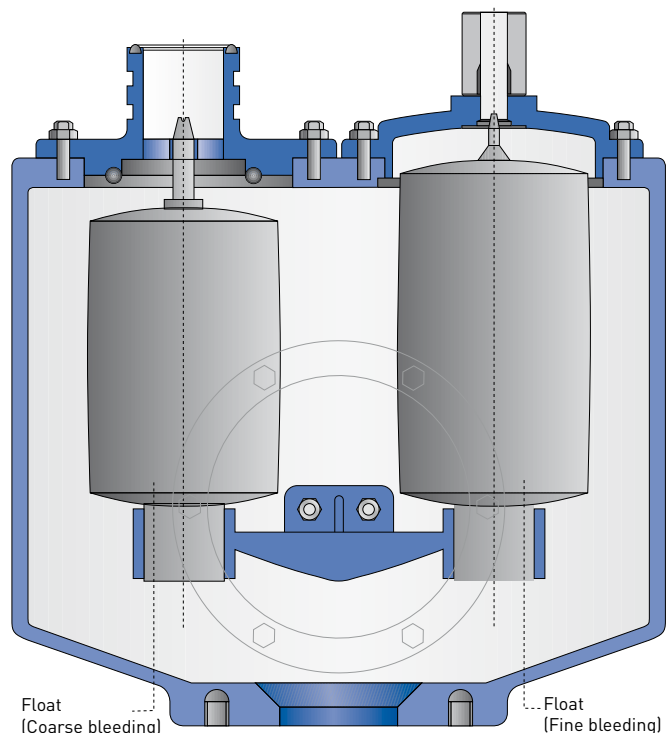
damage and pressure surges. If partial vacuum occurs, the coarse and fine bleeding stages open, the pressure pipe is ventilated and the formation of vacuum effectively avoided.

The valves are set to working pressure at the manufacturer's factory. The STRATE BEV vent valves are classified in the following pressure stages:

- Standard version:
Working pressure: 2 bar / 4 bar / 6 bar at the installation location
Pressure rating housing and flange connection: PN 10

- Special version:
Working pressure: up to 16 bar at the installation location
Pressure rating housing and flange-connection: max. PN 16

At a maximum pumping head of 60 mWS, which corresponds to most application cases, the standard valve with a maximum working pressure of 6 bar can be used at the point of installation. The following applies in long pipe systems: the further the high point to be vented is from the pump, the more the working pressure is reduced at the point of installation. For the valves to be planned exactly, STRATE project engineers require all the data for both the pressure pipe system and the pumping station.



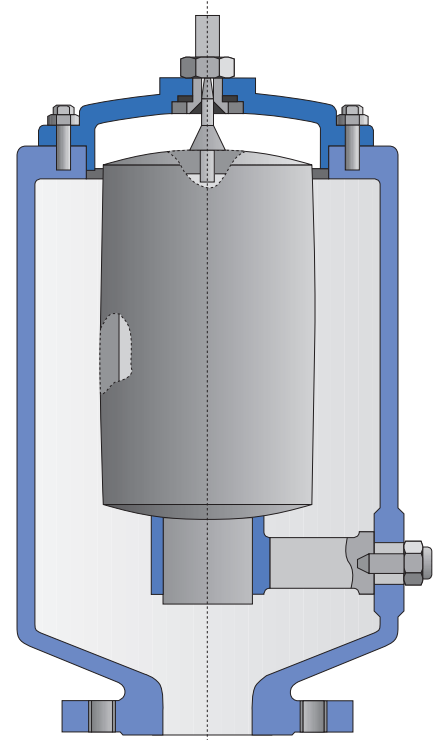
Ventilation and bleeding valves

Single-stage valves of the series BEV-F (fine bleeding) DBP no. 4341803

The STRATE BEV-F is a single-stage venting valve whose function only corresponds to the second bleeding stage (fine bleeding) of the two-stage valves of the type BEV-GF described overleaf. The same conditions as described there apply for the design.

Special applications for this valve type:

- Installation at high points which remain under hydrostatic pressure even when the pump is at a standstill due to the routing of the pressure pipe, and which thus do not require coarse bleeding
- Installation at high points in pressure pipe systems with low flow rates

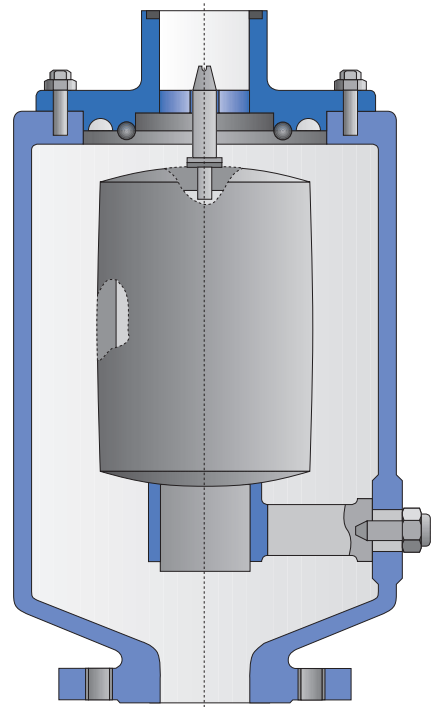


Single-stage valves of the series BEV-G (coarse bleeding) DBP no. 4341803

The STRATE BEV-G is a single-stage venting valve whose function only corresponds to the first bleeding stage (coarse bleeding) of the two-stage valves of the type BEV-GF described overleaf. The same conditions as described there apply for the design. Adjustment to match the operating pressure is not necessary for the first bleeding stage since coarse bleeding under pressure is always closed.

Special applications for this valve type:

- Ventilation of individual sections in falling or rising pressure pipes, particularly as vacuum protection
- Fast bleeding of high points where fine bleeding is not appropriate (short pump run times)



Ventilation and bleeding valves

Capacity table

Valve type BEV ...	Bleeding flow m ³ /h		Flange DN/PN	Weight kg
	* 1st stage	** 2nd stage		
20-F-50 ³⁾	–	20	50/10	27
40-2F-80 ²⁾	–	2x20	80/10	60
450-G-50	450	–	50/10	27
1000-G-100 ¹⁾	1000	–	100/10	60
2000-G-150 ¹⁾	2000	–	150/10	70
450/20-GF-80	450	20	80/10	65
1000/20-GF-100	1000	20	100/10	130
2000/40-GF-150 ¹⁾	2000	40	150/10	130

* The pump flow rate must not exceed the bleeding rate of the first stage.

** The bleeding rate at 2 bar over operating pressure at the installation point.

Please ask about higher working pressures (up to 16 bar) as well as for larger bleeding rates.

Special design sizes on request.

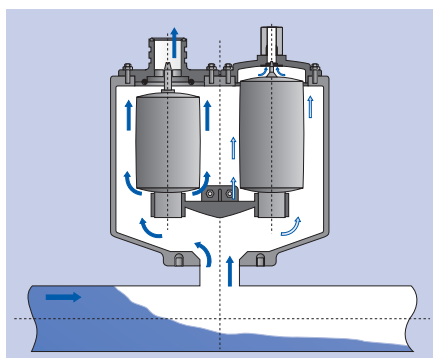
¹⁾ Housing: St 37 welded

²⁾ Corresponds to former BEV 125-2S

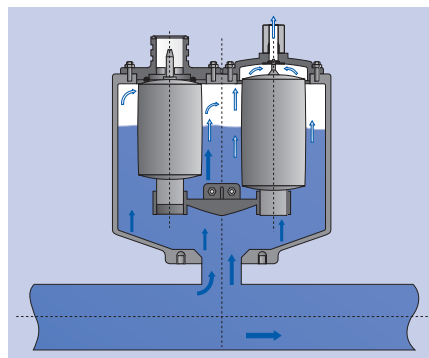
³⁾ Corresponds to former BEV 125-S

How the BEV valve series GF works

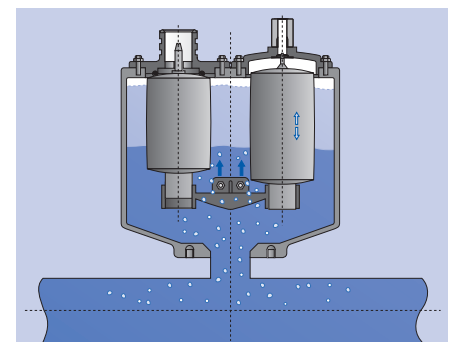
1. When the pumping stage starts, the pumped medium flows into the pressure pipe. The air in the pressure pipe escapes through the opened valve until the following pumped medium forces the coarse bleeding float against the seat and closes the first stage (coarse bleeding) of the valve.



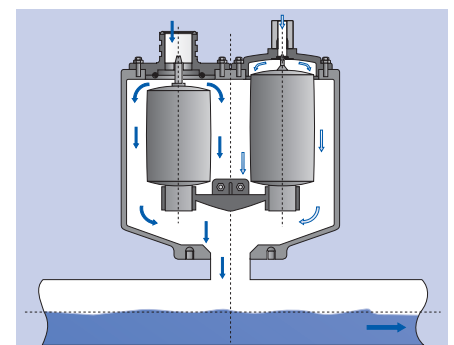
2. The air still present in the valve escapes more slowly through the second stage (fine bleeding) until the fine bleeding float is also forced up by the pumped medium and the 2nd stage closes..



3. The air cushion above the floats prevents contact of the valve seat of the 1st and 2nd stage with the pumped medium. Gases compressed by the pumping process collect in the valve housing, displace the pumped medium and force the 2nd bleeding stage to open; they escape due to overpressure inside the valve. The incoming medium makes the fine bleeding float close the 2nd stage again. This process is repeated as long as air or gas collects in the valve. The 1st bleeding stage (coarse bleeding float) remains closed.

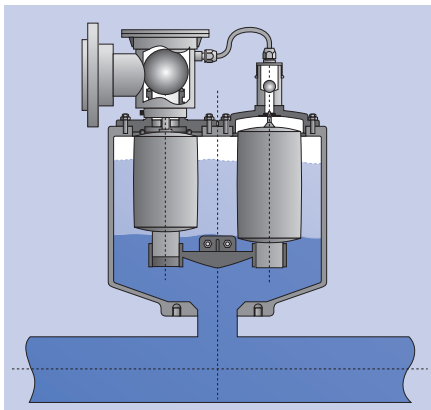


4. After the end of the pumping stage, both bleeding stages open. The pressure pipe is ventilated.

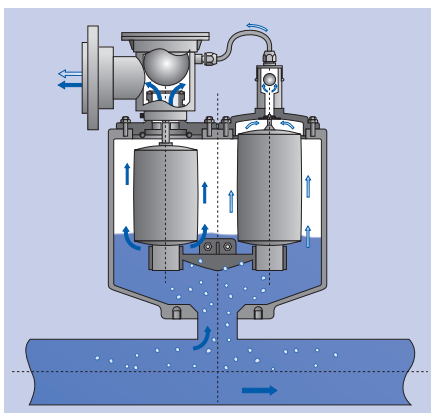


Ventilation and bleeding valves

5. If the ventilation and bleeding valve is equipped with air ingress protectors, they close the ventilation device and prevent ventilation of the pressure line. A partial vacuum forms in the valve housing and pressure pipe, the pumped medium is retained in the pipe. No air can be drawn into the pipe from the outside which would have to be expelled during the next pumping stage.



6. Any air remaining and gases forming in the pressure pipe rise to the high point and are expelled through the open valve when pumping starts again.



Maintenance

Requirements

The reliable and proven STRATE BEV venting valves have been developed especially for pumping effluent and sludge; however, the sometimes extremely high level of soiling in the effluent requires the valves to be checked regularly. This checking allows soiling to be recognised in good time and any functional problems to be avoided.

Maintenance intervals

STRATE BEV venting valves are extremely reliable. This is achieved by the patented design especially for effluent and the use of appropriate materials. A high-grade EGD or 2-component coating on epoxy resin basis ensure smooth soiling-resistant surfaces within the housing. The

floats are made of a plastic material (NCPE 8093) which prevents deposits to a major extent. Regular maintenance is still recommended despite these valve properties, however. The maintenance intervals must be stipulated by the operator depending on operating conditions and according to observation.

The first maintenance inspection should take place after 4 weeks to determine a first empirical value for the following maintenance work.

Maintenance

The maintenance required is described in the special installation and maintenance instructions for the individual BEV types.

The perfect ventilation and bleeding valve for your special requirements

- Can be selected after consultation with us, please return the project planning sheet to us by e-mail, fax or post for this purpose.

STRATE project engineers will be happy to answer any questions you or your planning office may have related to the selection of the suitable STRATE vent valve – BEV – or other matters.

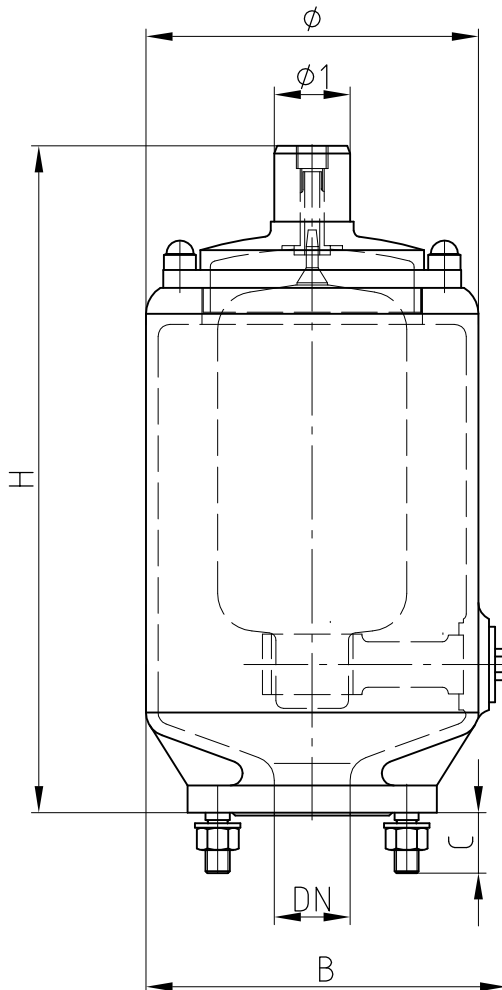


You will find your project planning sheet in this catalogue under "Project planning aids".



You can also find an online version in our download centre!
www.strate.com

Ventilation and bleeding valves



Materials:
 Housing: EN-GJS-400-15
 Float: Plastic NCPE
 Nozzle and valve face: Stainless steel 1,4301
 Screws: Stainless steel A2/A4
 Protection against corrosion: EGD coating
 Colour: RAL 6011

BEV	Bleeding rate m ³ /h max.	Flange DN/PN	Dimensions in mm				C	Weight kg
			ϕ	B	H	$\phi 1$		
20-F-50	20	50/10	220	240	445	50	40	27.0

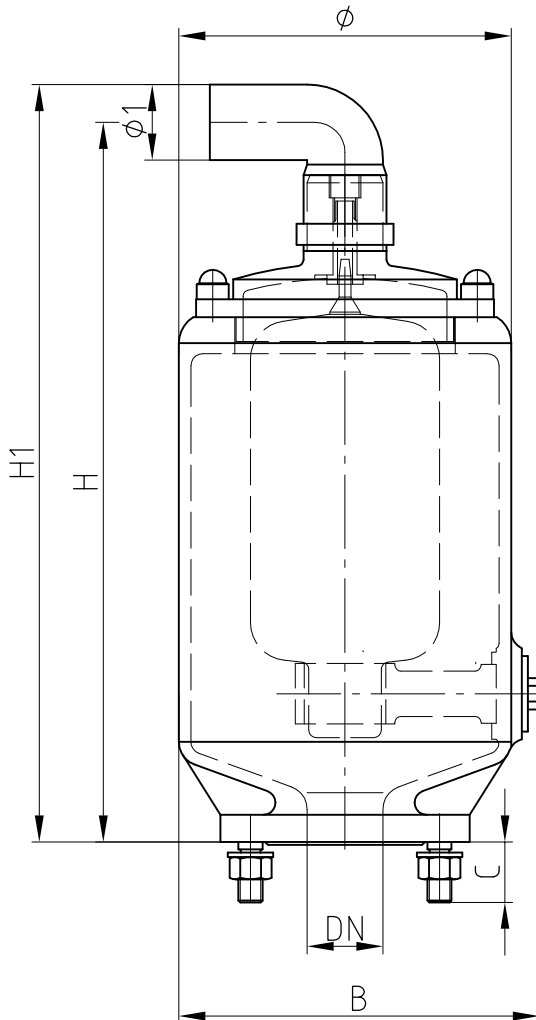
The pump flow rate must not exceed the bleeding rate of the first stage. max. bleeding rate at 2 bar working pressure at the installation location.

Please ask about higher working pressures (up to 16 bar) as well as for larger bleeding rates. Special design sizes on request.

Copyright according to DIN 34	Sample drawing: BEV-F
Scale:	

Subject to technical modifications and errors.

Ventilation and bleeding valves



Materials:
 Housing: EN-GJS-400-15
 Float: Plastic NCPE
 Nozzle and valve face: Stainless steel 1,4301
 Screws: Stainless steel A2/A4
 Ventilation connector: PVC
 Protection against corrosion: EGD coating
 Colour: RAL 6011

BEV	Bleeding rate m ³ /h max.	Flange DN/PN	ø	Dimensions in mm					Weight kg
				B	H	H1	ø1	C	
20-F-50	20	50/10	220	240	475	500	50	40	27.0

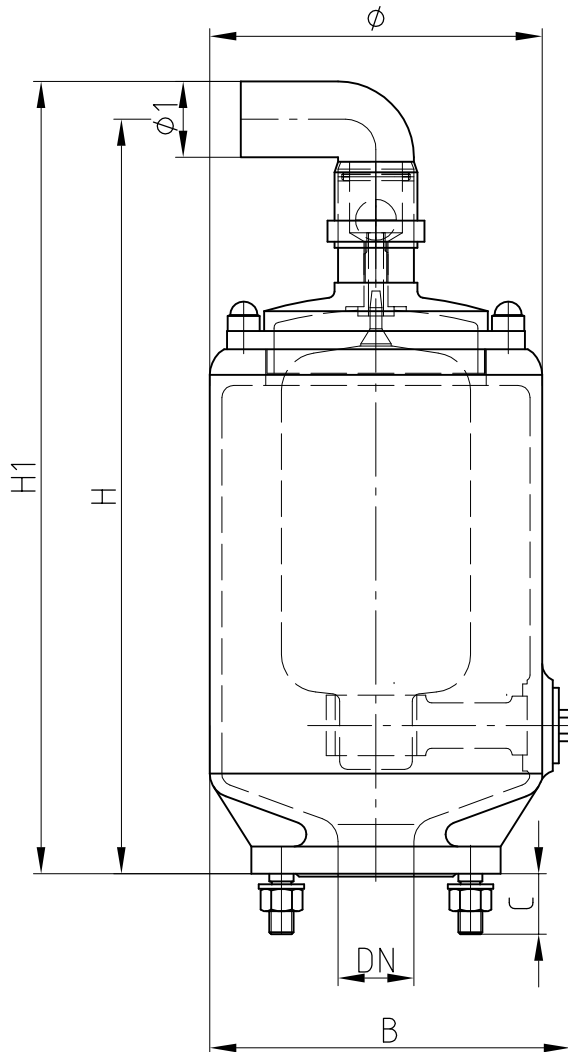
The pump flow rate must not exceed the bleeding rate of the first stage.
max. bleeding rate at 2 bar working pressure at the installation location.

Please ask about higher working pressures (up to 16 bar) as well as for larger bleeding rates.
Special design sizes on request.

Copyright according to DIN 34	Sample drawing: BEV-F with ventilation connector LA
Scale:	

Subject to technical modifications and errors.

Ventilation and bleeding valves



Materials:

Housing:	EN-GJS-400-15
Float:	Plastic NCPE
Nozzle and valve face:	Stainless steel 1,4301
Screws:	Stainless steel A2/A4
Ventilation connector:	PVC
Colour:	RAL 6011

BEV	Bleeding rate m ³ /h max.	Flange DN/PN	ø	Dimensions in mm				Weight	
				B	H	H1	ø1	C	kg
20-F-50	20	50/10	220	240	500	525	50	40	27.2

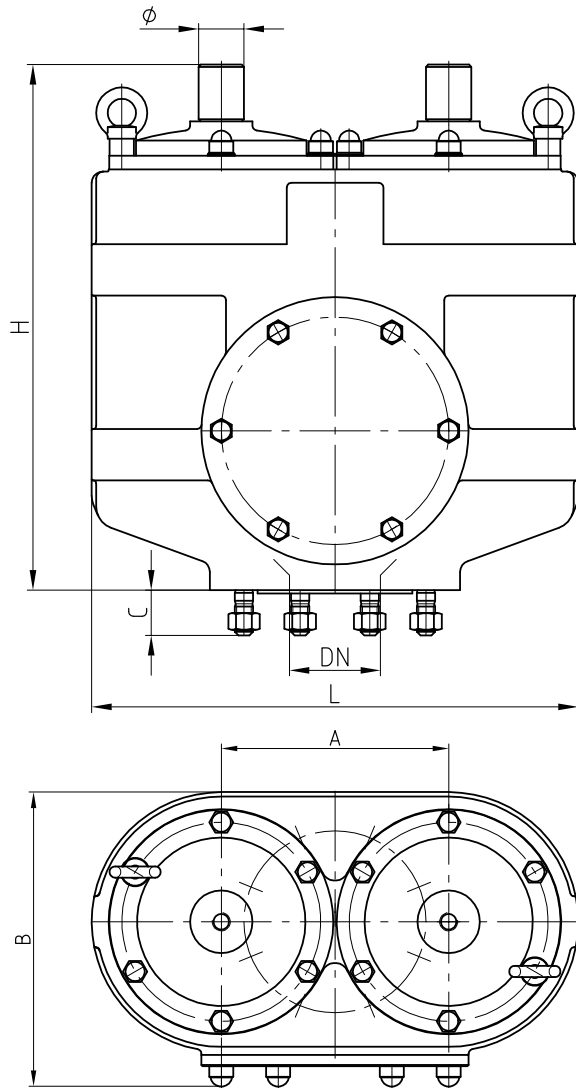
The pump flow rate must not exceed the bleeding rate of the first stage.
max. bleeding rate at 2 bar working pressure at the installation location.

Please ask about higher working pressures (up to 16 bar) as well as for larger bleeding rates.
Special design sizes on request.

Copyright according to DIN 34	Sample drawing: BEV-F with air ingress protector BSP
Scale:	

Subject to technical modifications and errors.

Ventilation and bleeding valves



Materials:
 Housing: EN-GJS-400-15
 Float: Plastic NCPE
 Nozzle and valve face: Stainless steel 1,4301
 Screws: Stainless steel A2/A4
 Protection against corrosion: EGD coating
 Colour: RAL 6011

BEV	Bleeding rate m ³ /h max.	Flange DN/PN	Dimensions in mm					Weight kg	
			L	B	A	H	ø		C
40-2F-80	2x20	80/10	428	260	200	462	50	40	60.0

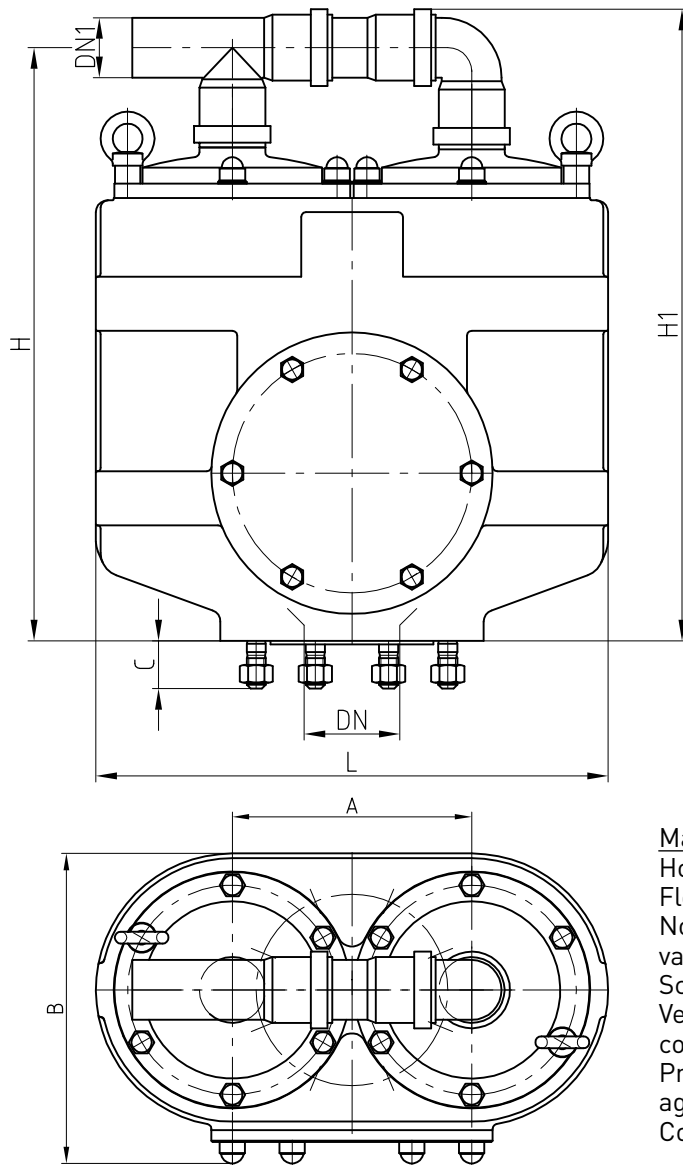
The pump flow rate must not exceed the bleeding rate of the first stage.
max. bleeding rate at 2 bar working pressure at the installation location.

Please ask about higher working pressures (up to 16 bar) as well as for larger bleeding rates.
Special design sizes on request.

Copyright according to DIN 34	Sample drawing: BEV-2F
Scale:	

Subject to technical modifications and errors.

Ventilation and bleeding valves



Materials:

Housing:	EN-GJS-400-15
Float:	Plastic NCPE
Nozzle and valve face:	Stainless steel 1,4301
Screws:	Stainless steel A2/A4
Ventilation connector:	PVC
Protection against corrosion:	EGD coating
Colour:	RAL 6011

BEV	Bleeding rate m ³ /h max.	Flange DN/PN	Dimensions in mm					Weight kg		
			DN1	L	B	A	H		H1	C
40-2F-80	2x20	80/10	50	428	260	200	500	530	40	60.0

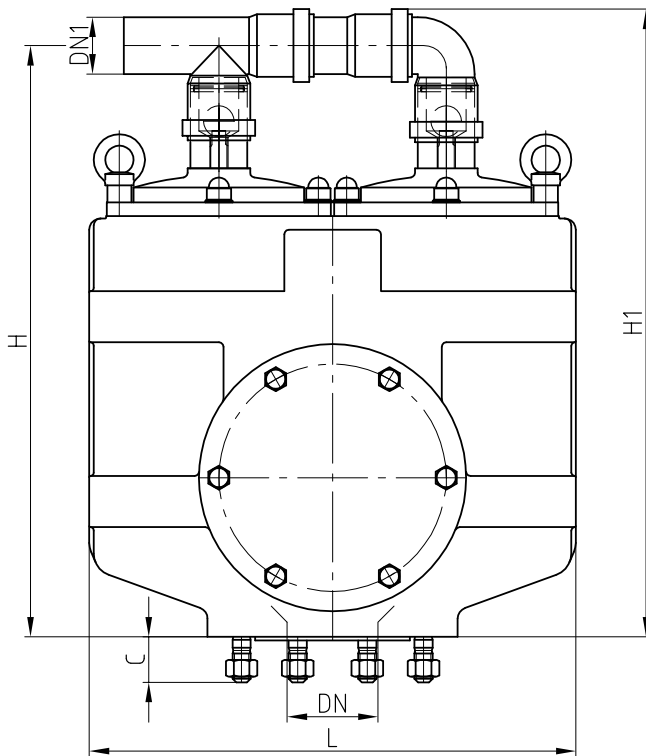
The pump flow rate must not exceed the bleeding rate of the first stage.
max. bleeding rate at 2 bar working pressure at the installation location.

Please ask about higher working pressures (up to 16 bar) as well as for larger bleeding rates. Special design sizes on request.

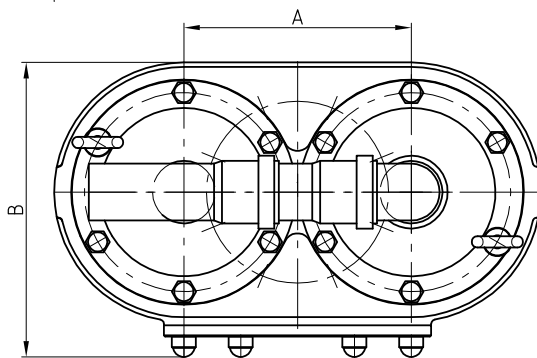
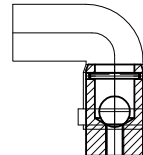
Copyright according to DIN 34	Sample drawing: BEV-2F with ventilation coupler BLV
Scale:	

Subject to technical modifications and errors.

Ventilation and bleeding valves



Air ingress protector



Materials:

Housing: EN-GJS-400-15
 Float: Plastic NCPE
 Nozzle and valve face: Stainless steel 1,4301
 Screws: Stainless steel A2/A4
 Ventilation connector: PVC
 Protection against corrosion: EGD coating
 Colour: RAL 6011

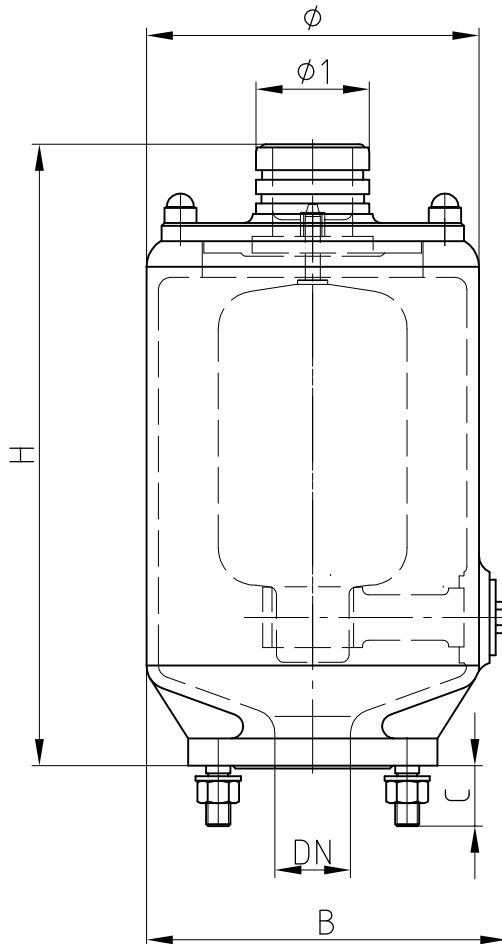
BEV	Bleeding rate m ³ /h max.	Flange DN/PN	Dimensions in mm					Weight kg		
			DN1	L	B	A	H		H1	C
4.0-2F-80	2x20	80/10	50	428	260	200	520	555	40	60.0

Please ask about higher working pressures (up to 16 bar) as well as for larger bleeding rates.
 Special design sizes on request.

Copyright according to DIN 34	Sample drawing: BEV-2F with air ingress protector BSP-G
Scale:	

Subject to technical modifications and errors.

Ventilation and bleeding valves



Materials:
 Housing: EN-GJS-400-15
 Float: Plastic NCPE
 Nozzle and valve face: Stainless steel 1,4301
 Screws: Stainless steel A2/A4
 Protection against corrosion: EGD coating
 Colour: Permacor 3326/EG 1) RAL 6011

BEV	Bleeding rate m ³ /h max.	Flange DN/PN	ϕ	Dimensions in mm				Weight kg
				B	H	$\phi 1$	C	
450-G-50	450	50/10	220	240	410	70	40	27.0
1000-G-100 1)	1000	100/10	273	315	430	110	40	60.0
2000-G-150 1)	2000	150/10	355.6	387	535	160	60	70.0

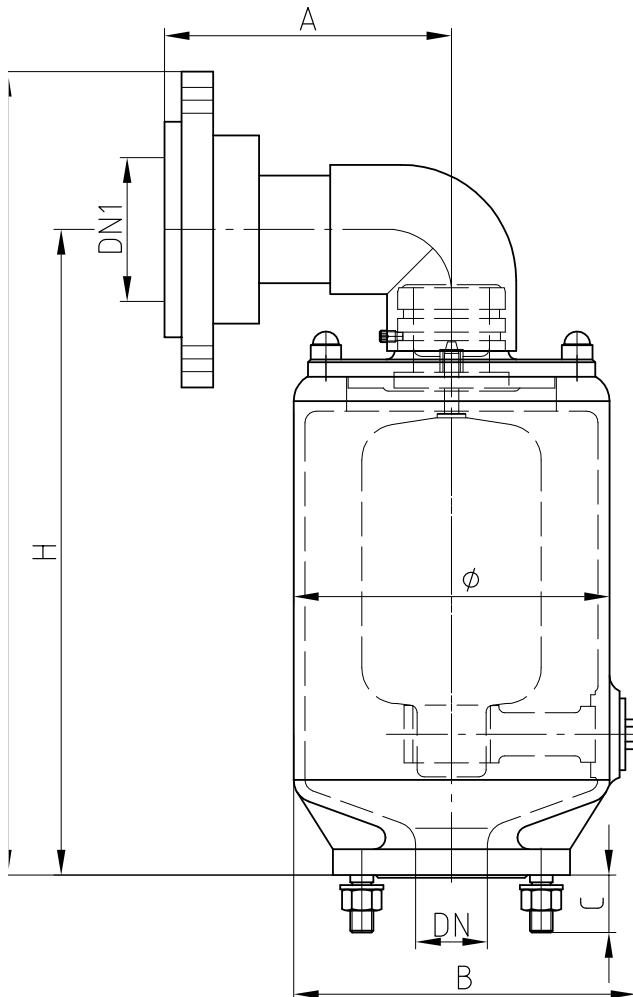
The pump flow rate must not exceed the bleeding rate of the first stage.

Please ask about higher working pressures (up to 16 bar) as well as for larger bleeding rates. Special design sizes on request.

Copyright according to DIN 34	Sample drawing: BEV-G
Scale:	

Subject to technical modifications and errors.

Ventilation and bleeding valves



Materials:	
Housing:	EN-GJS-400-15 S235JRG2 1)
Float:	Plastic NCPE
Nozzle and valve face:	Stainless steel 1,4301
Screws:	Stainless steel A2/A4
Ventilation connector:	PVC
Protection against corrosion:	EGD coating Permacor 3326/EG 1)
Colour:	RAL 6011

BEV mit LA-F	Bleeding rate		Flange		Dimensions in mm					Weight
	m ³ /h max.	DN / PN	DN1	ø	A	B	H	H1	C	kg
450-G-50	450	50/10	100	220	200	240	450	560	40	29,5
1000-G-100 1)	1000	100/10	100	273	190	315	505	615	40	63,5
2000-G-150 1)	2000	150/10	150	355,6	265	387	650	795	60	76,5

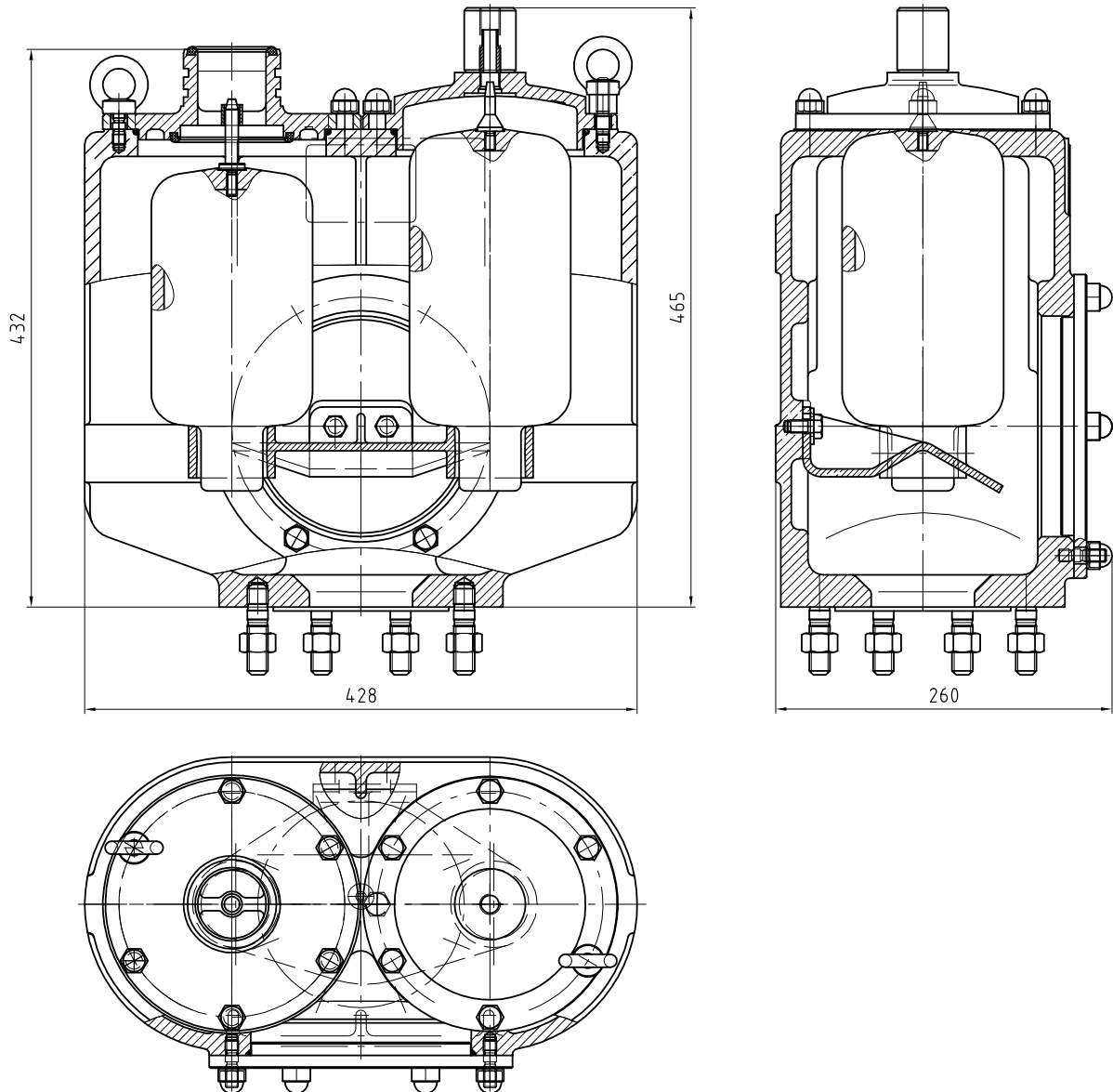
The pump flow rate must not exceed the bleeding rate of the first stage.

Please ask about higher working pressures (up to 16 bar) as well as for larger bleeding rates. Special design sizes on request.

Copyright according to DIN 34	Sample drawing: BEV-G with ventilation connector LA-F
Scale:	

Subject to technical modifications and errors.

Ventilation and bleeding valves



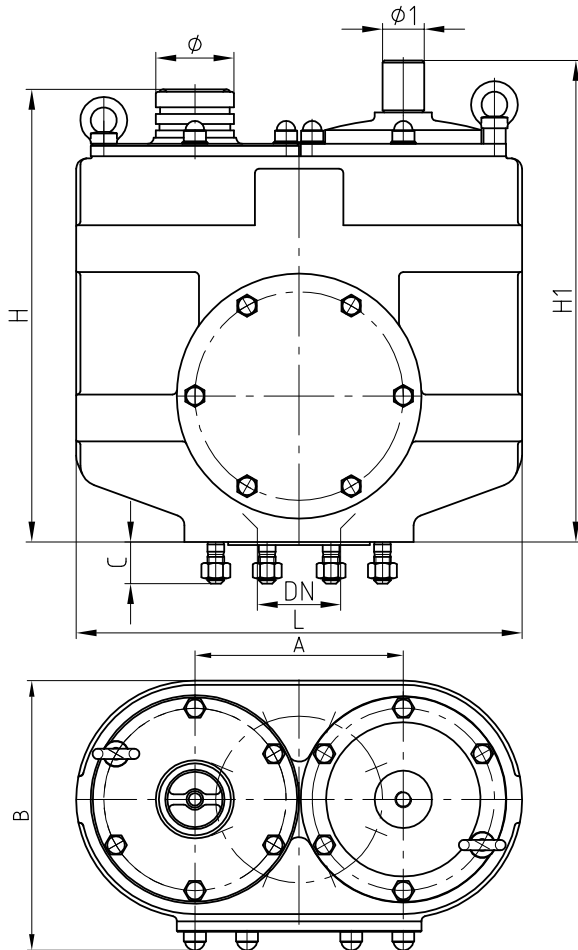
Copyright according to DIN 34

Scale:

Sample drawing: BEV-GF

Subject to technical modifications and errors.

Ventilation and bleeding valves



Materials:

Housing:	EN-GJS-400-15 S235JRG2	1)
Float:	Plastic NCPE	
Nozzle and valve face:	Stainless steel 1,4301	
Screws:	Stainless steel A2/A4	
Protection against corrosion:	EGD coating Permacor 3326/EG 1)	
Colour:	RAL 6011	

BEV	Bleeding rate x m ³ /h xx		Flange DN/PN	Dimensions in mm								Weight kg
	1. St.	2. St.		L	B	A	H	H1	ϕ	$\phi 1$	C	
450/20-GF-80	450	20	80/10	428	260	200	432	465	70	50	40	60.0
1000/20-GF-100	1000	20	100/10	615	370	260	535	565	100	50	40	125.0
2000/40-GF-150 1)	2000	40	150/10	720	390	300	535	565	160	50	60	130.0

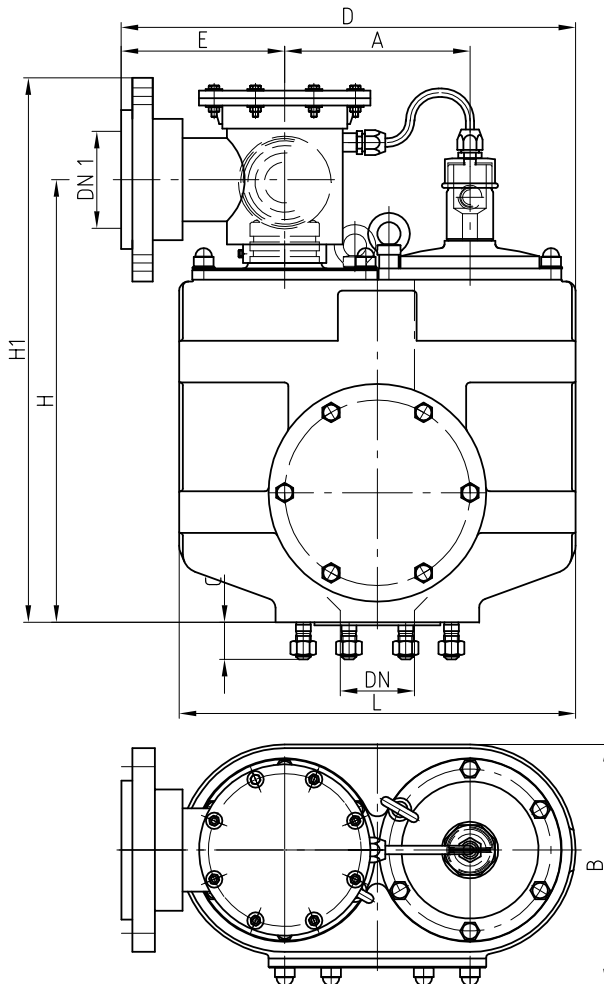
- x The pump flow rate must not exceed the bleeding rate of the first stage.
xx max. bleeding rate at 2 bar working pressure at the installation location.

Please ask about higher working pressures (up to 16 bar) as well as for larger bleeding rates. Special design sizes on request.

Copyright according to DIN 34	Sample drawing: BEV-GF
Scale:	

Subject to technical modifications and errors.

Ventilation and bleeding valves



Materials:
 Housing: EN-GJS-400-15
 S235JRG2
 Plastic NCPE
 Float:
 Nozzle and valve face: Stainless steel 1,4301
 Screws: Stainless steel A2/A4
 Ventilation coupler: PVC
 Protection against corrosion: EGD coating
 Permacor 3326/EG 1)
 Colour: RAL 6011

BEV mit BSP-G-F	Bleeding rate m ³ /h xx		Flange DN / PN	DN1	L	B	Dimensions in mm					Weight kg	
	1. St.	2. St.					A	H	H1	E	D		C
450/20-GF-80	450	20	80/10	100	428	260	200	480	590	175	490	40	63.5
1000/20-GF-100	1000	20	100/10	100	615	370	260	595	705	215	655	40	128.5
2000/40-GF-150 1)	2000	40	150/10	150	720	390	300	615	760	255	765	60	137.5

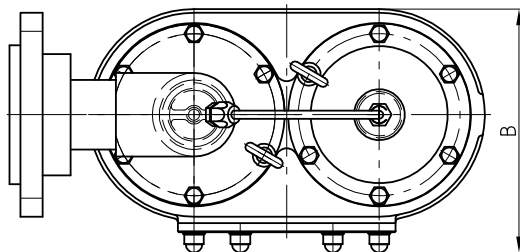
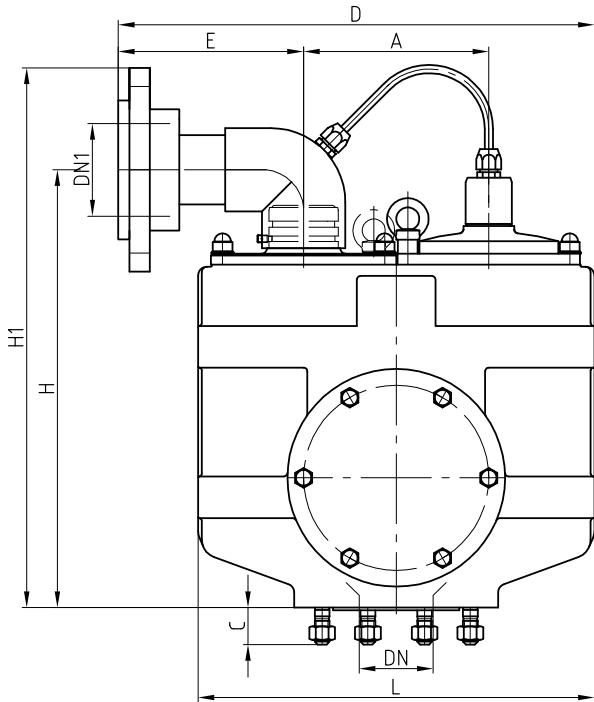
x The pump flow rate must not exceed the bleeding rate of the first stage.
 xx max. bleeding rate at 2 bar working pressure at the installation location.

Please ask about higher working pressures (up to 16 bar) as well as for larger bleeding rates. Special design sizes on request.

Copyright according to DIN 34	Sample drawing: Air ingress protector BSP-G-F
Scale:	

Subject to technical modifications and errors.

Ventilation and bleeding valves



Materials:

Housing:	EN-GJS-400-15 S235JRG2	1)
Float:	Plastic NCPE	
Nozzle and valve face:	Stainless steel 1,4301	
Screws:	Stainless steel A2/A4	
Ventilation connector:	PVC	
Protection against corrosion:	EGD coating Permacor 3326/EG 1)	
Colour:	RAL 6011	

BEV	Bleeding rate x m ³ /h xx		Flange DN / PN	DN1	L	B	Dimensions in mm					Weight kg	
	1. St.	2. St.					A	H	H1	E	D		C
450/20-GF-80	450	20	80/10	100	428	260	200	475	585	200	515	40	63.0
1000/20-GF-100	1000	20	100/10	100	615	370	260	610	720	190	625	40	128.0
2000/40-GF-150 1)	2000	40	150/10	150	720	390	300	650	795	115	775	60	137.0

- x The pump flow rate must not exceed the bleeding rate of the first stage.
- xx max. bleeding rate at 2 bar working pressure at the installation location.

Please ask about higher working pressures (up to 16 bar) as well as for larger bleeding rates. Special design sizes on request.

Copyright according to DIN 34	Sample drawing: Ventilation coupler BLV-F
Scale:	

Subject to technical modifications and errors.