Ventilating and Bleed valve Type 591

The 591 valve has a combination of functions. On the one hand the valve allows for a large air discharge whilst filling the pipe and a large air intake whilst draining the pipe.
The valve also automatically discharges air while in operation in order to prevent any blockages at points of air culmination.

Automatic function:
The air inside pipelines accumulates at pipe summits. When air bubbles appear in the valve, the float inside the valve will drop which allows the air to be released. When the water rises again, the float is automatically lifted and the valve closes.

Kinetic function:
When emptying a pipeline, the float will drop completely. This allows for a large air volume intake through the large orifice. When filling the pipeline, the water flow inside the pipe will force the air out through the orifice.

Calculation basis for the right valve

Dimensioning

The working pressure range should be defined so that the maximum operating pressure lies within this range, otherwise the valve will not open. The appropriate type and size of ventilating and bleed valve should be selected so that the respective air volume can be conducted off under working pressure.

Opening conditions type 595

DN (mm)	10	15	20	25	32	40	50	65	80	100
Required vacuum to lift the cone (bar)	0.028	0.028	0.030	0.030	0.035	0.040	0.050	0.060	0.060	0.060

Density of the medium

To ensure that the cone has optimal lift, the specific weights of the cone materials should be noted in relation to the density of the medium.

Cone material	Density
PP-H	0.91 g / cm^3
ABS	1.03 g / cm^3
PP-TV (talc)	1.05 g / cm^3
PVC-U	1.38 g / cm^3
PVC-C	1.50 g / cm^3
PVDF	1.78 g / cm^3

Calculations for valve configuration

To select the correct valve size, the max. flow (Q in m^3/h) is first calculated.
To do this, the flow velocity of the medium (vr) is required, as is the inner diameter of the medium-conveying pipe (di).

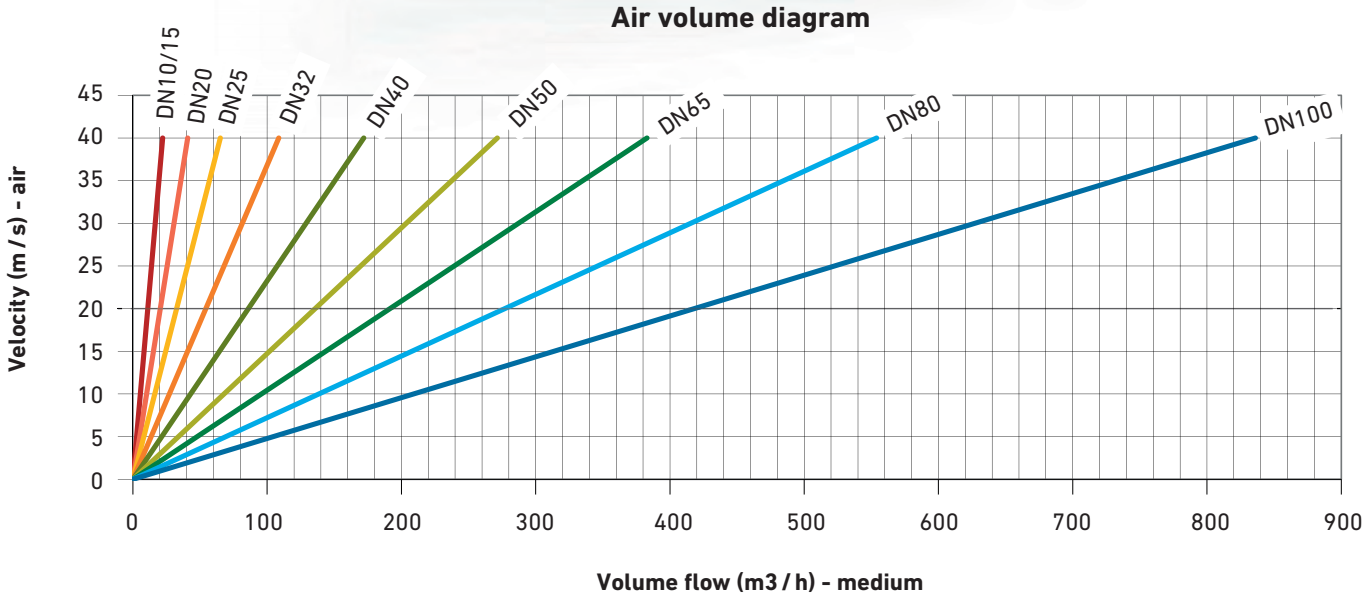
$$Q = Vr * \frac{\pi}{4} * di^2 * 0.001 * 3.6$$

The volume flow of the medium can be equated with the gas volume to be discharged or filled.
If several aerating or deaerating valves are used, each valve must be configured for the maximum flow velocity. With the calculated volume flow, the correct valve dimension can be determined from the air volume diagram. The velocity in this diagram corresponds to the discharge velocity of the gases at the valve. It is recommended that, if possible, 20m/s is not exceeded to prevent excessive wear on the valve.

Air volume diagram

For smooth operation and a long service life, bleeders should not be overdimensioned. If the flow rate is too high for the predetermined nominal diameter of the connector, the problem can be remedied by increasing the working pressure range with correspondingly lower flow rate.

For more information, please see the Georg Fischer Planning Fundamentals, which serves as a detailed reference work in selecting a valve, or consult our website.



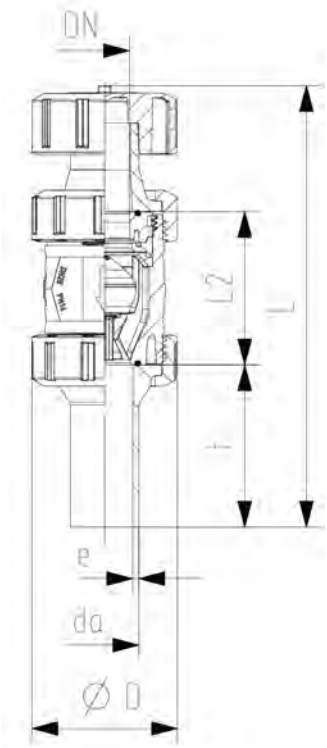
A speed of more than 20 m/s is not recommended. We suggest about 10 to 15 m/s as optimal speed range.

Type 591

Ventilating and bleed valve Type 591
With butt fusion spigots long
PE100 SDR11 metric

Model:

- Material: PVC-U/PE
- With protection cap up to DN50 made of PP-GF, DN65-100 made of POM
- Floater made of PP-H
- Designed for easy installation and removal
- Compact installation length

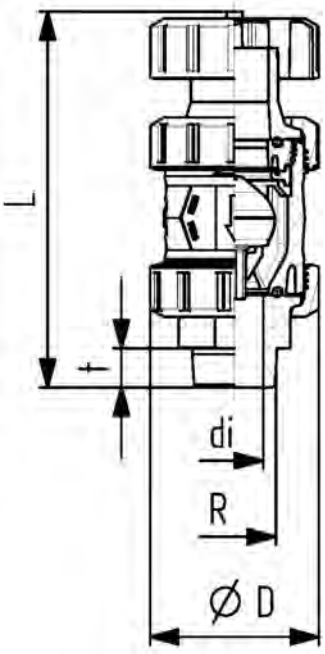


d [mm]	DN [mm]	PN [bar]	EPDM Code	FPM Code	D [mm]	L [mm]	L2 [mm]	t [mm]	e [mm]	closest inch [inch]
20	15	16	**161 591 121**	**161 591 130**	50	175	56	69	2.25	½
25	20	16	**161 591 122**	**161 591 131**	58	195	65	76	2.30	¾
32	25	16	**161 591 123**	**161 591 132**	68	207	71	76	2.90	1
40	32	16	**161 591 124**	**161 591 133**	84	230	85	82	3.70	1 ¼
50	40	16	**161 591 125**	**161 591 134**	97	254	89	91	4.60	1 ½
63	50	16	**161 591 126**	**161 591 135**	124	298	101	110	5.80	2
75	65	16	**161 591 127**	**161 591 136**	166	334	136	125	6.80	2 ½
90	80	16	**161 591 128**	**161 591 137**	200	360	141	140	8.20	3
110	100	16	**161 591 129**	**161 591 138**	238	411	164	160	10.00	4

Ventilating and bleed valve
Type 591 PVC-U
With BSP brass thread

Model:

- With protection cap up to DN50 made of PP-GF, DN65-100 made of POM
- Floater made of PP-H
- Designed for easy installation and removal
- Compact installation length



d [mm]	DN [mm]	PN [bar]	EPDM Code	FPM Code	di [mm]	D [mm]	L [mm]	t [mm]	R [inch]
16	10	16	**161 591 139**	**161 591 149**	10	50	135	13.0	⅜
20	15	16	**161 591 140**	**161 591 150**	13	50	140	14.0	½
25	20	16	**161 591 141**	**161 591 151**	16	58	156	16.5	¾
32	25	16	**161 591 142**	**161 591 152**	20	68	172	19.0	1
40	32	16	**161 591 143**	**161 591 153**	26	84	195	21.5	1 ¼
50	40	16	**161 591 144**	**161 591 154**	33	97	216	22.5	1 ½
63	50	16	**161 591 145**	**161 591 155**	40	124	252	27.0	2
75	65	16	**161 591 146**	**161 591 156**	58	166	292	38.2	2 ½
90	80	16	**161 591 147**	**161 159 157**	70	200	311	41.3	3
110	100	16	**161 591 148**	**161 159 158**	95	238	354	47.3	4