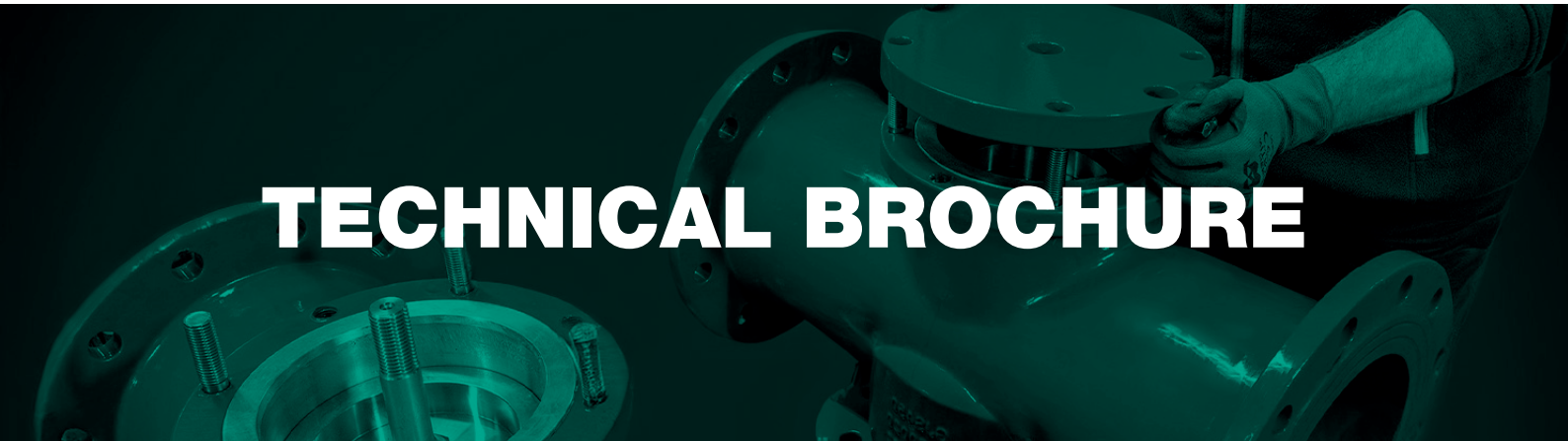
Pietro Fiorentini

SWV

Sewer air valve



TECHNICAL BROCHURE

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SWV_technicalbrochure_ENG_revB

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Pietro Fiorentini

Three functions automatic air valve for sewerage **SWV 3S**

The SWV series air valves are high-performance single-chamber combined automatic devices. Primarily intended for sewerage networks, they stand out for their reliability and durability.

The SWV 3S model ensures the smooth operation of the pipelines by performing three functions: degassing the air during operation, and managing the entrance and discharge of large volumes of air when draining and filling the pipelines.

Constructive features and advantages

- Spacious lower body with high, steeply sloping walls to prevent the accumulation of residues or impurities, and four cast ribs to guide the float.
- Upper body fitted with a deflector to protect the degassing system and the plug against contact with solids or impurities during rapid filling.
- Mobile block made entirely of AISI 316 stainless steel, consisting of a large float housed inside the lower body and a connecting rod to the air valve mechanism.
- Flat shutter made of solid polypropylene, which, unlike other materials, prevents deformation and facilitates sliding.
- Drain valve for control and maintenance operations.
- AISI 316 nozzle and gasket holder, designed to prevent gasket wear due to excessive crushing.
- Easy maintenance from above, without removing the air valve from the pipeline.
- Polypropylene bend designed for the conveyance of fluids in environments subject to the risk of flooding, and for the controlled management of gaseous emissions. As per standard for DN 50/65, on request for larger sizes.

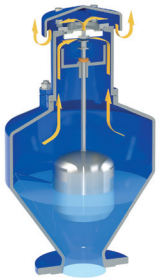
Main applications

- Sewer pipelines
- Purification plants
- Irrigation systems, in the presence of suspended solids or debris
- Cases where the air valves for treated water cannot be installed due to the risk of jamming

Operating principle

Discharge of large volumes of air

During the pipe filling, it is necessary to let out as much air as liquid enters. Thanks to the aerodynamic shape of the body and the deflector, the SWV 3S air valve prevents the mobile block from closing prematurely during this phase.



Pressurised air degassing

During operation, the air inside the pipeline accumulates at the top of the air valve, compresses, and arrives at the same pressure as the liquid.
By increasing its volume, it pushes the float down and thus allows degassing through the nozzle.

Entrance of large volumes of air

During the pipe draining or in the event of pipe burst, it is necessary to draw in as much air as there is liquid coming out to avoid depressions and serious damage to the network.

Optional functions

SWV 2S dual function version, also called vacuum breaker. Suitable for locations where no accumulated air pockets are required to be expelled during operation. It is used at upward slope changes and long ascending sections of the profile.

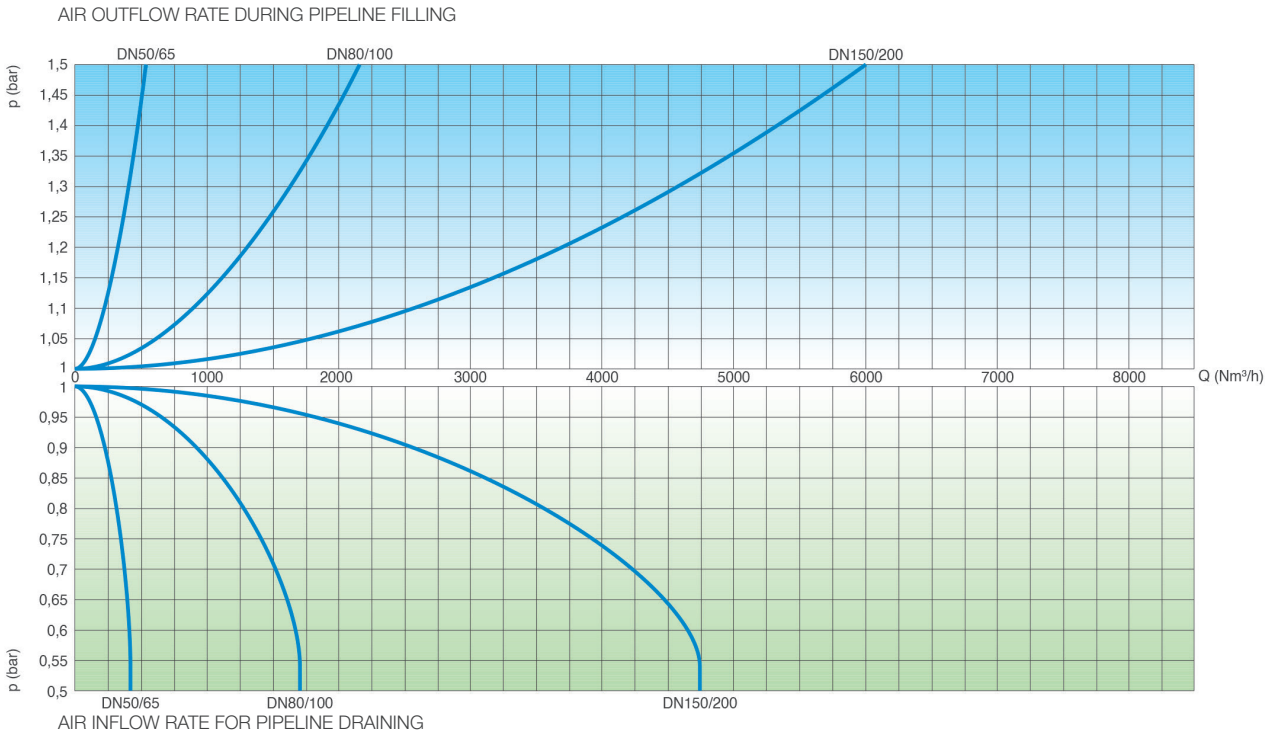
SUB version, with conveyance drain as standard in DN 50/65, available on request for SWV 3S and SWV 2S models with larger DNs. Connected to a discharge pipe, the air valve can also operate in the event of flooding of the well or the installation site , without the risk of contaminated water entering the pipeline. Another advantage of the SUB model is that it prevents water spurts during rapid air valve closing.

EO SERIES discharge only version, available for SWV 3S and SWV 2S models. This variant is designed to allow the air valve to be installed at critical points of the layout where HGL may drop below the pipe profile, thus where HGL may drop, and at any other junction where, for design reasons, air entrance must be absolutely avoided.

IO entrance only version, only available for the SWV 2S dual function model. This variant allows for the installation of the air valve at critical points of the layout where, for design reasons, air discharge must be avoided. It should be noted that, when using the IO version, the air valve does not provide any protection against overpressure caused by filling the pipeline.

Technical data

Air flow characteristic charts



Air flow charts are obtained in Kg/s from laboratory tests and numerical analysis, without filtering, and converted to Nm3/h by applying a safety factor.

Operating conditions

Maximum treated water	60°C (Version for higher temperatures on request)
Maximum pressure	16 bar
Minimum pressure	0.2 bar (lower on request)

Standard

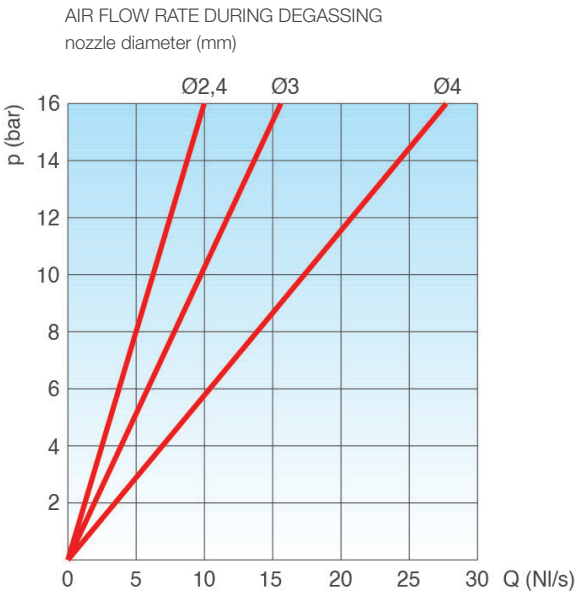
- Certification and testing according to EN 1074/4
- Drilling according to EN 1092-2
- RAL 5005 blue epoxy paint applied on fluid bed

Modifications to painting and flanging standards on request.

Choice of nozzle

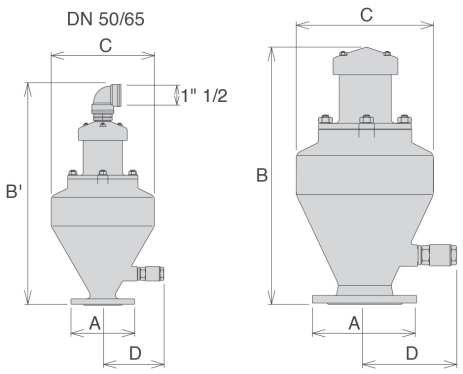
Nozzle diameter in mm depending on air valve size and PN.

	PN 10	PN 16
DN 50/65	2.4	2.4
DN 80/100	3	3
DN 150/200	4	4

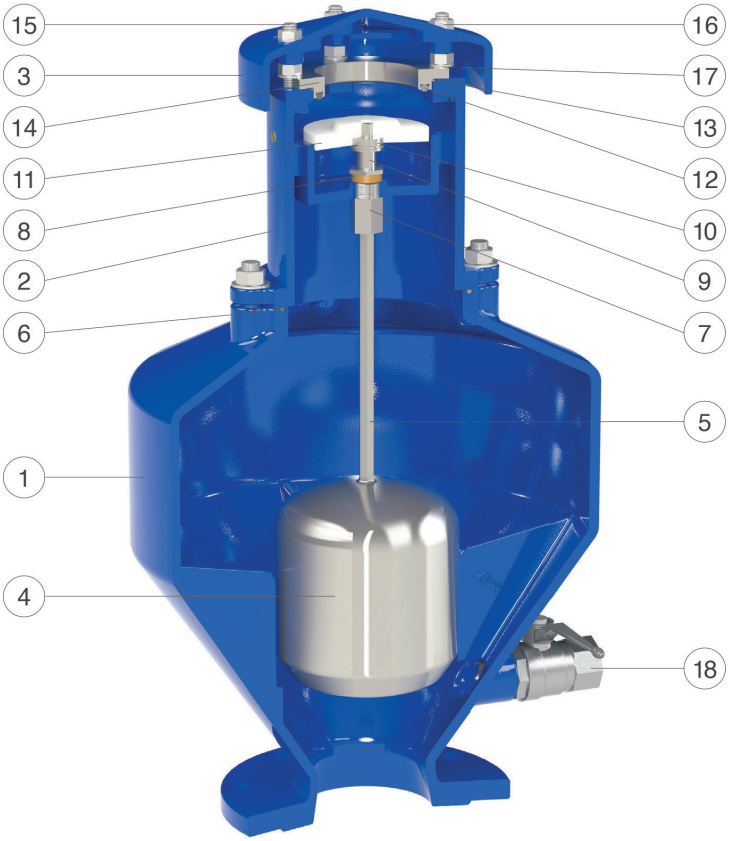


Dimensions and weights

DN mm	A mm	B mm	B' mm	C mm	D mm	Weight Kg
50/65	185	-	650	300	190	29
80/100	220	600	-	350	202	40
150	285	850	-	488	243	78
200	340	850	-	488	243	82



Construction details



Conveyance drain with threaded 1 1/2" PP bend, standard in DN 50/65.

No.	Component	Standard material	Optional
1	Lower body	ductile cast iron GJS 450-10	
2	Upper body	ductile cast iron GJS 450-10	
3	Cap	ductile cast iron GJS 450-10	
4	Float	AISI 316 stainless steel	
5	Float rod	AISI 316 stainless steel	
6	Body O-ring	NBR	EPDM/Viton/silicone
7	Guide sleeve	AISI 303 stainless steel	AISI 316 stainless steel
8	Protective gasket	NBR	
9	Support nut	AISI 316 stainless steel	
10	Nozzle unit	AISI 316 stainless steel	
11	Plug plate	polypropylene	
12	Seal seat gasket	NBR	EPDM/Viton/silicone
13	Seal seat O-ring	NBR	EPDM/Viton/silicone
14	Seal seat	AISI 304 stainless steel (AISI 303 for DN 50/65)	AISI 316 stainless steel
15	Studs	AISI 304 stainless steel	AISI 316 stainless steel
16	Nuts	AISI 304 stainless steel	AISI 316 stainless steel
17	Washers	AISI 304 stainless steel	AISI 316 stainless steel
18	Ball valve 1"	AISI 316 stainless steel	

The table of materials and components is subject to change without notice.

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Combined automatic anti-water hammer air valve for sewerage **SWV 3S-AWH**

The SWV series air valves are high-performance single-chamber combined automatic devices. Primarily intended for sewerage networks, they stand out for their reliability and durability.

The SWV 3S-AWH model performs three functions: degassing during operation, the entrance of large volumes of air when draining pipelines, and the discharge of air at a controlled speed to avoid the risk of water hammer.

Constructive features and advantages

- Spacious lower body with high, steeply sloping walls to prevent the accumulation of residues or impurities, and four cast ribs to guide the float.
- Upper body fitted with a deflector to protect the degassing system and the plug against contact with solids or impurities during rapid filling.
- Mobile block made entirely of AISI 316 stainless steel, consisting of a large float housed inside the lower body and a connecting rod to the air valve mechanism.
- Anti-shock system (AWH) consisting of a stainless steel spring and guide shaft, and a plate with sizable holes to control the air discharge.
- Drain valve for control and maintenance operations.
- AISI 316 nozzle and gasket holder, designed to prevent gasket wear due to excessive crushing.
- Easy maintenance from above, without removing the air valve from the pipeline

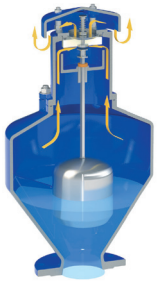
Main applications

- Lifting stations and points in sewer systems exposed to water hammer, or separation of the water column, in the event of pump shutdown
- Sewage treatment plants subject to rapid flow rate variations
- Cases where, although water hammer protection is required, the air valves for treated water cannot be installed due to the risk of jamming

Operating principle

Controlled air discharge

During air discharge, the anti-shock system (AWH) reduces the speed of the incoming water column by decreasing the outflow. This avoids rapid air valve closures, the resulting overpressure and the risk of water hammer.



Pressurised air degassing

During operation, the air inside the pipeline accumulates at the top of the air valve, compresses, and reaches the same pressure as the liquid. By increasing its volume, it pushes the float down and thus allows degassing through the nozzle.

Entrance of large volumes of air

During the pipe draining or in the event of pipe burst, it is necessary to draw in as much air as there is liquid coming out to avoid depressions and serious damage to the network.

Optional functions

SWH 3S-AWH version, also called vacuum breaker. Suitable for locations where, although protection against water hammer is required, no air release id needed. In particular, it is installed at pumps, upward slope changes and long upward sections of the profile subject to varied motion phenomena.

SUB version, with conveyance drain as standard in DN 50/65, available on request for SWV 3S-AWH and SWV 2S-AWH models with larger DNs. Connected to a discharge pipe, the air valve can also operate in the event of flooding of the well or the installation site without the risk of contaminated water entering the pipeline. Another advantage of the SUB version is that it prevents water spurts during rapid air valve closing.

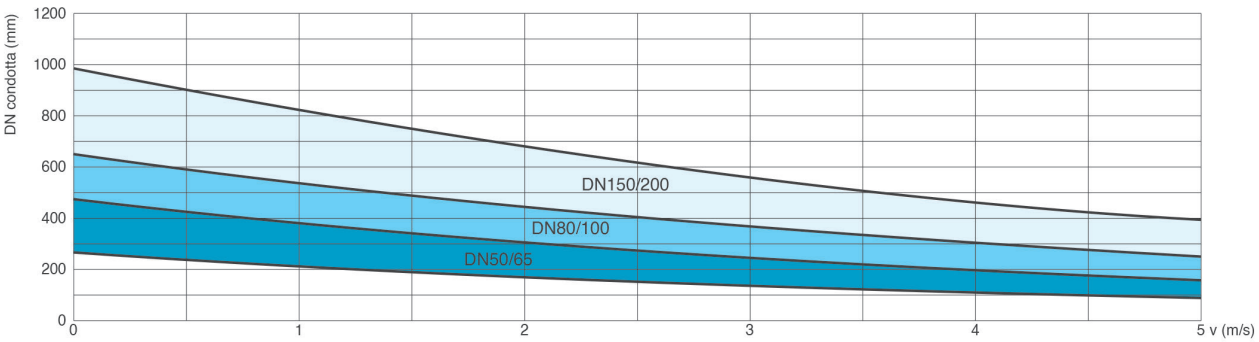
IO entrance only version, only available for the SWV TH 2S-AWH dual function model. This variant is designed for installation critical points of the layout where, for design reasons, air discharge must be avoided. It should be noted that, when using the IO version, the air valve does not provide any protection against overpressure caused by filling the pipeline.

The force of the **counter spring** as well as the sonic nozzles, both responsible of the proper operation of the AWH, can be modified according to the to the project conditions and the results of the transient analysis.

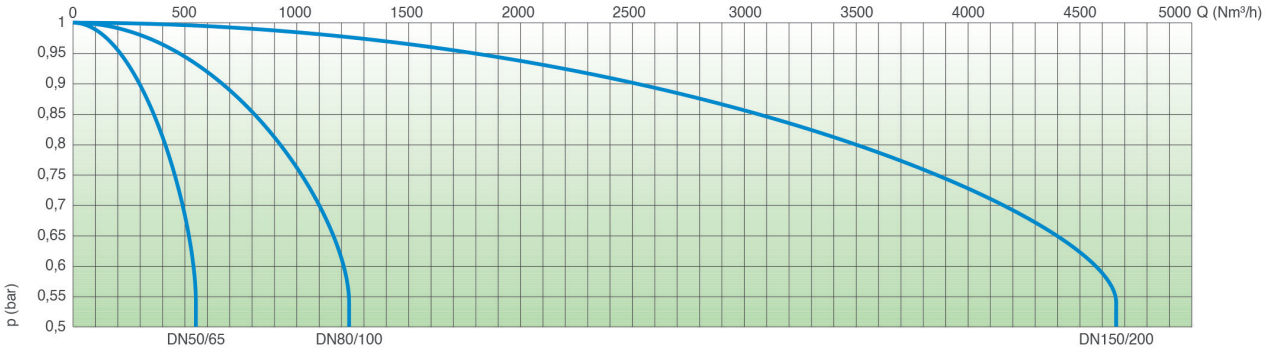
Technical data

Air valve selection chart

Preliminary dimensioning of the air valve according to pipeline diameter and required air discharge speed.



Air flow characteristic charts



AIR INFLOW RATE FOR DUCT DRAINING

The air flow rate charts were obtained in Kg/s, from laboratory tests and numerical analysis, and converted to Nm/h by applying a safety factor.

Operating conditions

Maximum treated water	60°C (Version for higher temperatures on request)
Maximum pressure	16 bar
Minimum pressure	0.2 bar (lower on request)

Standard

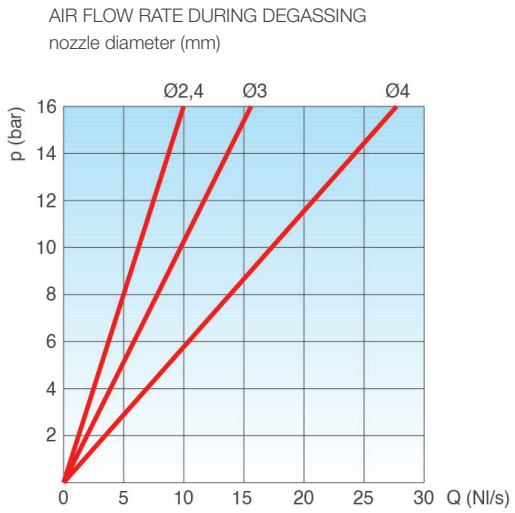
- Certification and testing according to EN 1074/4
- Drilling according to EN 1092-2
- RAL 5005 blue epoxy paint applied on fluid bed

Modifications to painting and flanging standards on request.

Choice of nozzle

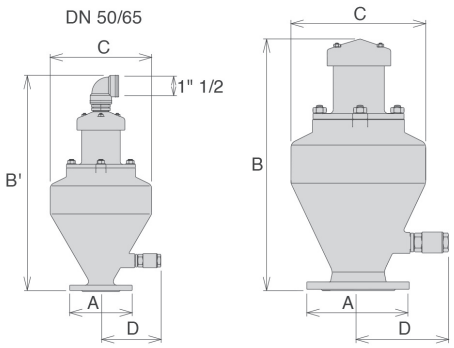
Nozzle diameter in mm depending on air valve size and PN.

	PN 10	PN 16
DN 50/65	2.4	2.4
DN 80/100	3	3
DN 150/200	4	4

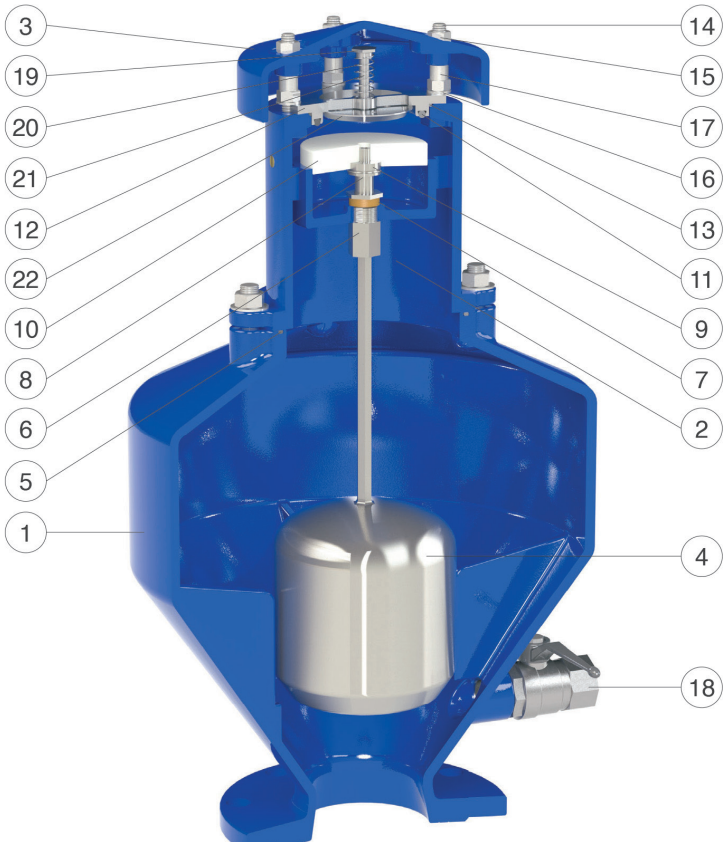


Dimensions and weights

DN mm	A mm	B mm	B' mm	C mm	D mm	Weight Kg
50/65	185	-	650	300	190	29
80/100	220	615	-	350	202	40
150	285	870	-	488	243	78
200	340	870	-	488	243	82



Construction details



Conveyance drain with threaded 1 1/2" PP bend, standard in DN 50/65.

No.	Component	Standard material	Optional
1	Lower body	ductile cast iron GJS 450-10	
2	Upper body	ductile cast iron GJS 450-10	
3	Cap	ductile cast iron GJS 450-10	
4	Float with rod	AISI 316 stainless steel	
5	Body O-ring	NBR	EPDM/Viton/silicone
6	Guide sleeve	AISI 303 stainless steel	AISI 316 stainless steel
7	Protective gasket	NBR	
8	Support nut	AISI 316 stainless steel	
9	Nozzle unit	AISI 316 stainless steel	
10	Plug plate	polypropylene	
11	Seal seat gasket	NBR	EPDM/Viton/silicone
12	AWH seal seat	AISI 304 stainless steel	AISI 316 stainless steel
13	Seal seat O-ring	NBR	EPDM/Viton/silicone
14	Studs	AISI 304 stainless steel	AISI 316 stainless steel
15	Nuts	AISI 304 stainless steel	AISI 316 stainless steel
16	Washers	AISI 304 stainless steel	AISI 316 stainless steel
17	Spacers	AISI 304 stainless steel	
18	Ball valve 1"	AISI 316 stainless steel	
19	Clamping nut (from DN 50)	AISI 303 stainless steel	AISI 316 stainless steel
20	Spring	AISI 302 stainless steel	AISI 316 stainless steel
21	Guide shaft	AISI 303 stainless steel	AISI 316 stainless steel
22	AWH plate	AISI 304 stainless steel	AISI 316 stainless steel

The table of materials and components is subject to change without notice.

Combined automatic anti-water hammer air valve for sewerage **SWV 3S-CSF**

The SWV series air valves are high-performance single-chamber combined automatic devices. Primarily intended for sewerage networks, they stand out for their reliability and durability.

The SWV 3S-CSF model ensures degassing during operation, and the entrance of large volumes of air when draining pipelines. In addition, during the filling phase, it keeps the air discharge speed within a preset safety limit to avoid the risk of water hammer.

Constructive features and advantages

- Spacious lower body with high, steeply sloping walls to prevent the accumulation of residues or impurities, and four cast ribs to guide the float.
- Upper body fitted with a deflector to protect the degassing system and the plug against contact with solids or impurities during filling.
- Mobile block made of AISI 316 stainless steel, consisting of a large float housed inside the lower body and a connecting rod to the air valve mechanism.
- Plug plate and anti-shock top plate, both made of solid polypropylene. The second, in the event of excessive discharge speed, rises, reducing the outflow.
- Drain valve for control and maintenance operations.
- AISI 316 nozzle and gasket holder, designed to prevent gasket wear due to excessive crushing.
- Easy maintenance from above, without removing the air valve from the pipeline.

Main applications

- Sewer pipelines
- Purification plants
- Irrigation systems, in the presence of suspended solids or debris
- Cases where the air valves for treated water cannot be installed due to the risk of jamming

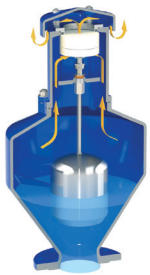
Operating principle

Discharge of large volumes of air

During the pipe filling, it is necessary to let out as much air as liquid enters. Thanks to the aerodynamic shape of the body and the deflector, the SWV 3S-CSF air valve prevents the mobile block from closing prematurely during this phase.

Controlled air discharge

During the filling of the pipeline, if the air pressure rises above a certain value, with the risk of water hammer and damage to the system, the CSF upper plate automatically rises, reducing the outflow and consequently the speed of the approaching water column.



Pressurised air degassing

During operation, the air inside the pipeline accumulates at the top of the air valve, compresses, and reaches the same pressure as the liquid. By increasing its volume, it pushes the float down and thus allows degassing through the nozzle.

Entrance of large volumes of air

During the pipe draining or in the event of pipe burst, it is necessary to draw in as much air as there is liquid coming out to avoid depressions and serious damage to the network.

Optional functions

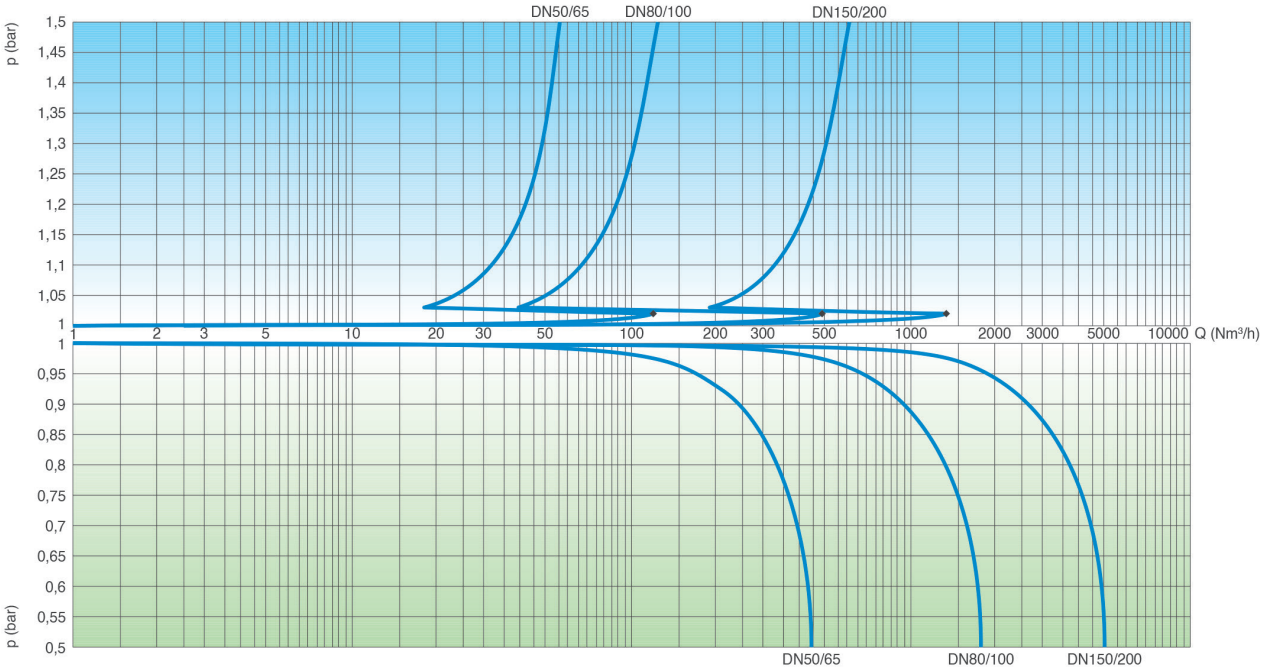
SWF 2S-CSF dual function version, also called vacuum breaker. Suitable for locations where no accumulated air pockets are required to be expelled during operation. Thanks to CSF technology, it allows large volumes of air to enter and controlled air to be discharged. It is used at upward slope changes and long ascending sections of the profile.

SUB version, with conveyance drain as standard in DN 50/65, available on request for SWV 3S-CSF and SWV 2S-CSF models with larger DNs. Connected to a discharge pipe, the air valve can also operate in the event of flooding of the well or installation site, without the risk of contaminated water entering the pipeline. Another advantage of the SUB version is that it prevents water spurts during rapid air valve closing.

Technical data

Air flow characteristic charts

AIR DISCHARGE DURING PIPE FILLING



AIR INFLOW RATE FOR DUCT DRAINING

The air flow rate charts were obtained in Kg/s, from laboratory tests and numerical analysis, and converted to Nm/h by applying a safety factor.

Operating conditions

Maximum treated water	60°C (Version for higher temperatures on request)
Maximum pressure	16 bar
Minimum pressure	0.2 bar (lower on request)

Standard

- Certification and testing according to EN 1074/4
- Drilling according to EN 1092-2
- RAL 5005 blue epoxy paint applied on fluid bed

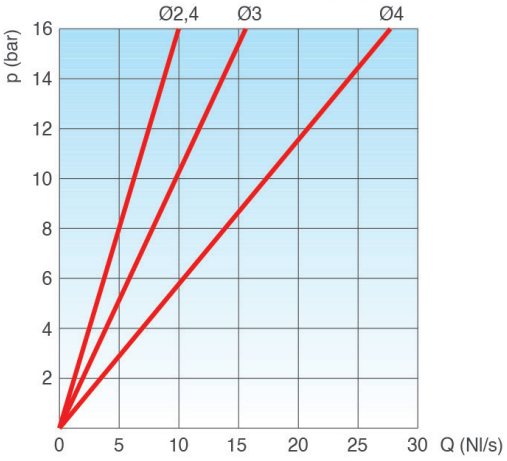
Modifications to painting and flanging standards on request.

Choice of nozzle

Nozzle diameter in mm depending on air valve size and PN.

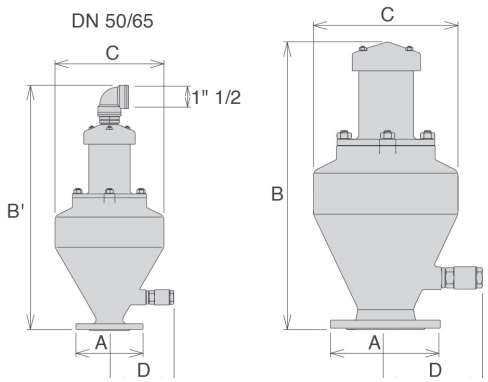
	PN 10	PN 16
DN 50/65	2.4	2.4
DN 80/100	3	3
DN 150/200	4	4

AIR FLOW RATE DURING DEGASSING
nozzle diameter (mm)

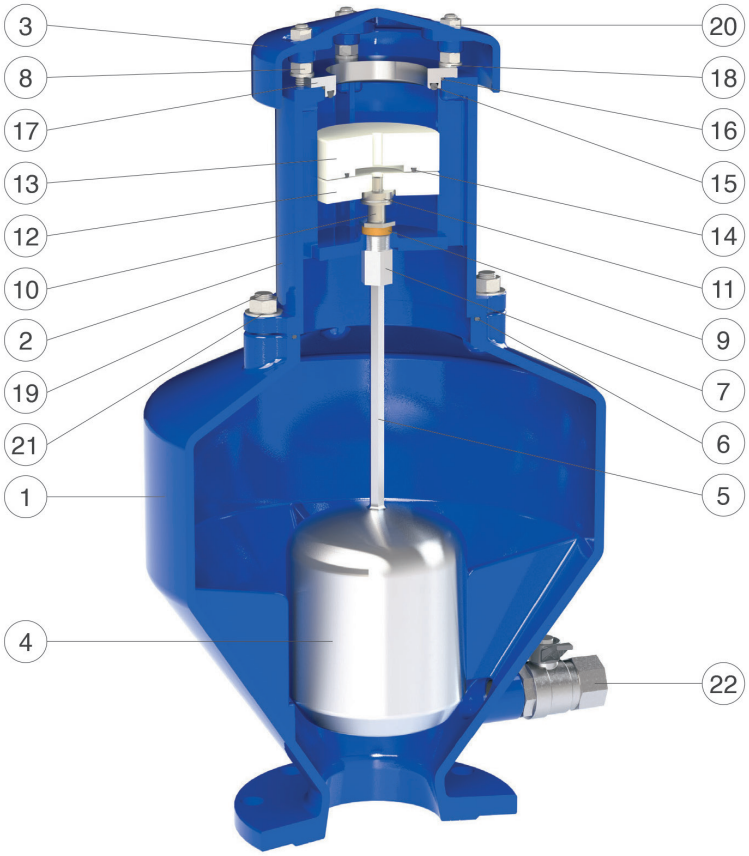


Dimensions and weights

DN mm	A mm	B mm	B' mm	C mm	D mm	Weight Kg
50/65	185	-	675	300	190	29
80/100	220	635	-	350	202	40
150	285	865	-	488	243	78
200	340	865	-	488	243	82



Construction details



Conveyance drain with 1" 1/2 PP threaded bend, standard in DN 50/65.

No.	Component	Standard material	Optional
1	Lower body	ductile cast iron GJS 450-10	
2	RFP upper body	ductile cast iron GJS 450-10	
3	Cap	ductile cast iron GJS 450-10	
4	Float	AISI 316 stainless steel	
5	Float rod	AISI 316 stainless steel	
6	Body O-ring	NBR	EPDM/Viton/silicone
7	Guide sleeve	AISI 303 stainless steel	AISI 316 stainless steel
8	Nuts	AISI 304 stainless steel	AISI 316 stainless steel
9	Protective gasket	NBR	
10	Support nut	AISI 316 stainless steel	
11	Nozzle unit	AISI 316 stainless steel	
12	CSF plug plate	polypropylene	
13	Anti-shock plate	polypropylene	
14	Anti-shock plate gasket	NBR	EPDM/Viton/silicone
15	Seal seat gasket	NBR	EPDM/Viton/silicone
16	Seal seat O-ring	NBR	EPDM/Viton/silicone
17	Seal seat	AISI 316 stainless steel	
18	Washers	AISI 304 stainless steel	AISI 316 stainless steel
19	Studs	AISI 304 stainless steel	AISI 316 stainless steel
20	Nuts	AISI 304 stainless steel	AISI 316 stainless steel
21	Nuts and washers	AISI 304 stainless steel	AISI 316 stainless steel
22	Ball valve 1"	AISI 316 stainless steel	

The table of materials and components is subject to change without notice.

Combined automatic anti-water hammer air valve for sewerage **SWV 3S-CSF-HR**

The SWV series air valves are high-performance single-chamber combined automatic devices. Primarily intended for sewerage networks, they stand out for their reliability and durability.

The SWV 3S-CSF-HR model ensures degassing during operation, and the entrance of large volumes of air when draining pipelines. In addition, during the filling phase, it keeps the air discharge speed within a preset safety limit to avoid the risk of water hammer.

Constructive features and advantages

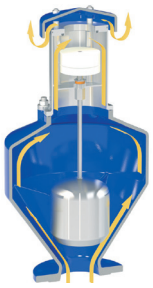
- Spacious lower body with high, steeply sloping walls to prevent the accumulation of residues or impurities, and four cast ribs to guide the float.
- Upper body fitted with a deflector to protect the degassing system and the plug against contact with solids or impurities during filling.
- Mobile block made of AISI 316 stainless steel, consisting of a large float housed inside the lower body and a connecting rod to the air valve mechanism.
- Plug plate and anti-shock top plate, both made of solid polypropylene. The second, in the event of excessive discharge speed, rises, reducing the outflow.
- Drain valve for control and maintenance operations.
- AISI 316 nozzle and gasket holder, designed to prevent gasket wear due to excessive crushing.
- Easy maintenance from above, without removing the air valve from the pipeline

Main applications

- Sewer pipelines
- Purification plants
- Irrigation systems, in the presence of suspended solids or debris

Cases where the air valves for treated water cannot be installed due to the risk of jamming

Operating principle

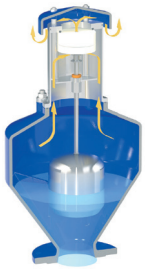


Discharge of large volumes of air

During the pipe filling, it is necessary to let out as much air as liquid enters. Thanks to the aerodynamic shape of the body and the deflector, the SWV 3S-CSF-HR air valve prevents the mobile block from closing prematurely during this phase.

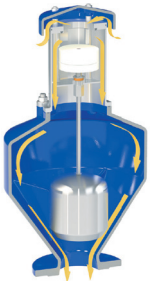
Controlled air discharge

During the filling of the pipeline, if the air pressure rises above a certain value, with the risk of water hammer and damage to the system, the CSF upper plate automatically rises, reducing the outflow and consequently the speed of the approaching water column



Pressurised air degassing

During operation, the air inside the pipeline accumulates at the top of the air valve, compresses, and reaches the same pressure as the liquid. By increasing its volume, it pushes the float down and thus allows degassing through the nozzle



Entrance of large volumes of air

During the pipe draining or in the event of pipe burst, it is necessary to draw in as much air as there is liquid coming out to avoid depressions and serious damage to the network.

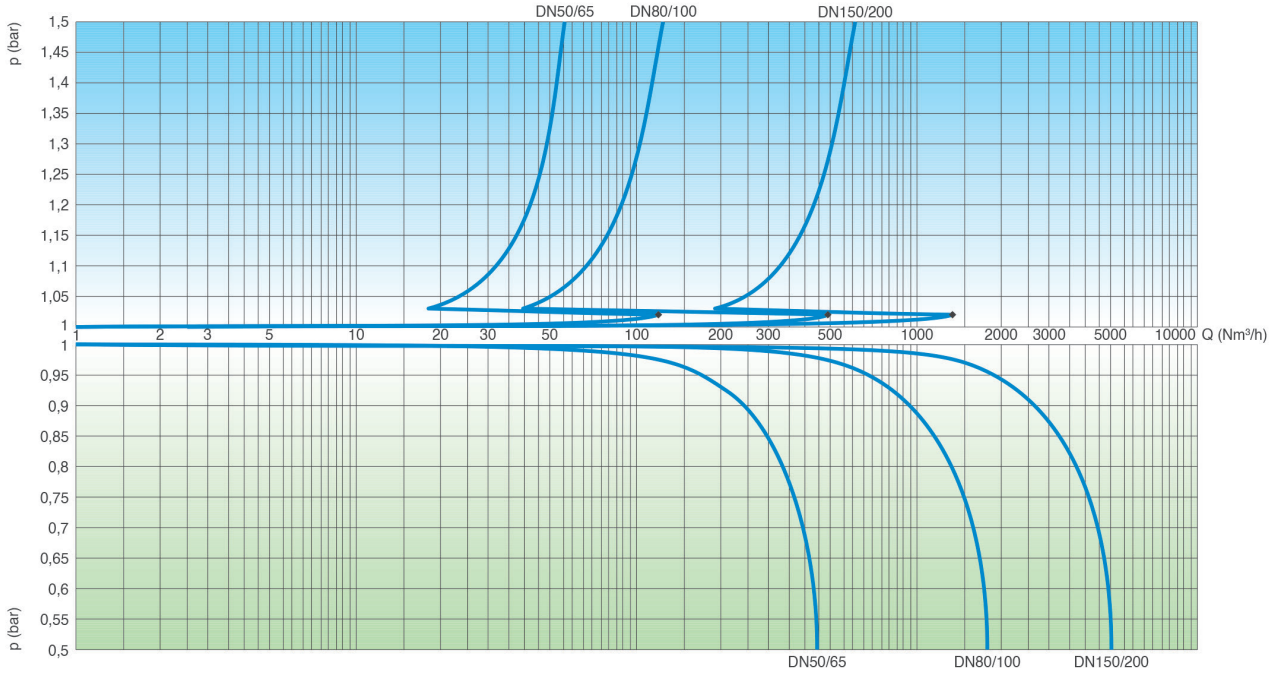
Optional functions

SWV 2S-CSF-HR version, also called vacuum breaker. Suitable for locations where no air release is needed. Thanks to CSF technology, it allows large volumes of air to enter and controlled air to be discharged. It is used at upward slope changes and long ascending sections of the profile.

SUB version, with conveyance drain as standard in DN 50/65, available on request for SWV 3S-CSF-HR and SWV 2S-CSF-HR models with larger DNs. Connected to a discharge pipe, the air valve can also operate in the event of flooding of the well or installation site, without the risk of contaminated water entering the pipeline. Another advantage of the SUB version is that it prevents water spurts during rapid air valve closing.

Technical data

Air flow characteristic charts



AIR INFLOW RATE FOR DUCT DRAINING

The air flow rate charts were obtained in Kg/s, from laboratory tests and numerical analysis, and converted to Nm/h by applying a safety factor.

Operating conditions

Maximum treated water	60°C (Version for higher temperatures on request)
Maximum pressure	16 bar
Minimum pressure	0.2 bar (lower on request)

Standard

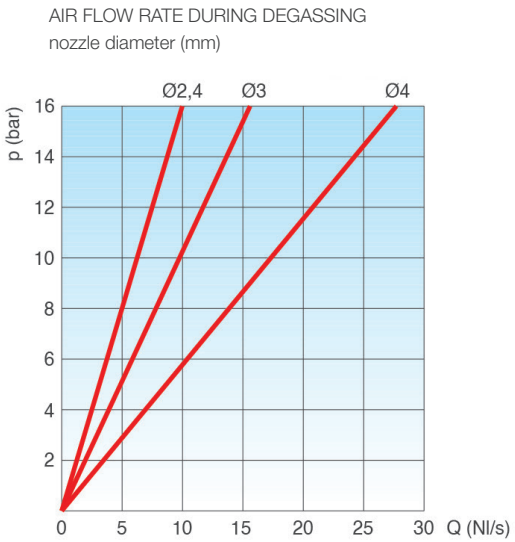
- Certification and testing according to EN 1074/4.
- Drilling according to EN 1092-2
- RAL 5005 blue epoxy paint applied on fluid bed

Modifications to painting and flanging standards on request.

Choice of nozzle

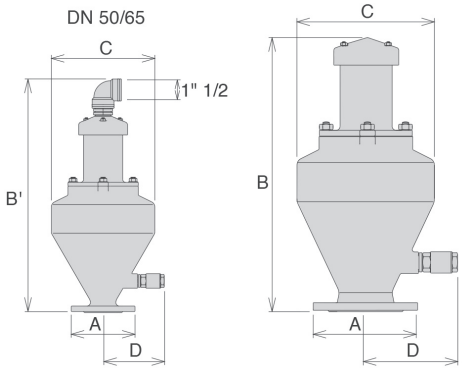
Nozzle diameter in mm depending on air valve size and PN.

	PN 10	PN 16
DN 50/65	2.4	2.4
DN 80/100	3	3
DN 150/200	4	4

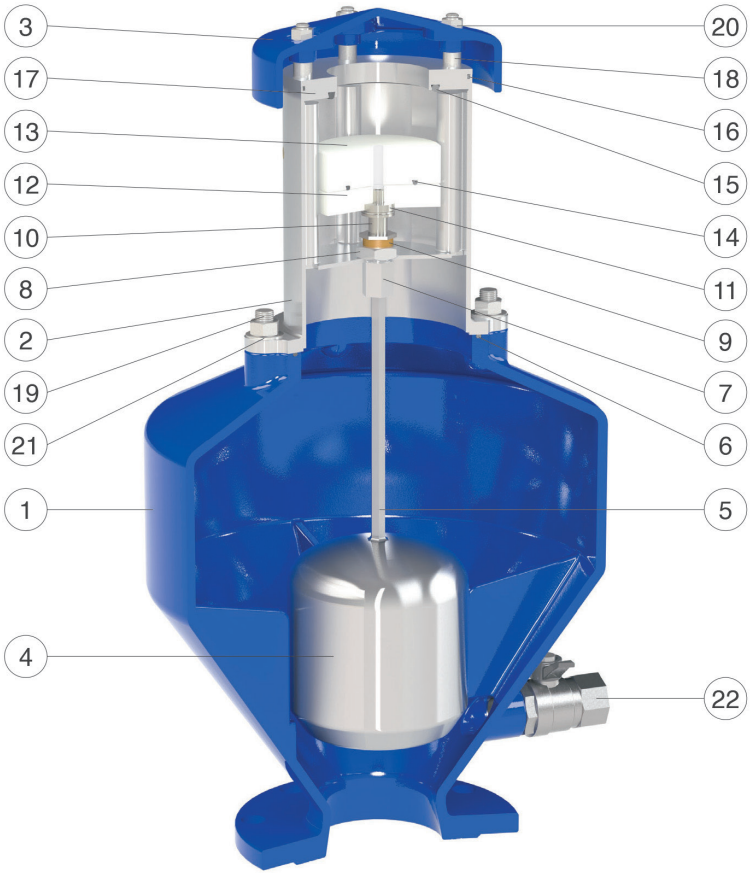


Dimensions and weights

DN mm	A mm	B mm	B' mm	C mm	D mm	Weight Kg
50/65	185	-	680	300	190	29
80/100	220	695	-	350	202	40
150	285	870	-	488	243	78
200	340	870	-	488	243	82



Construction details



Conveyance drain with threaded 1 1/2" PP bend, standard in DN 50/65.

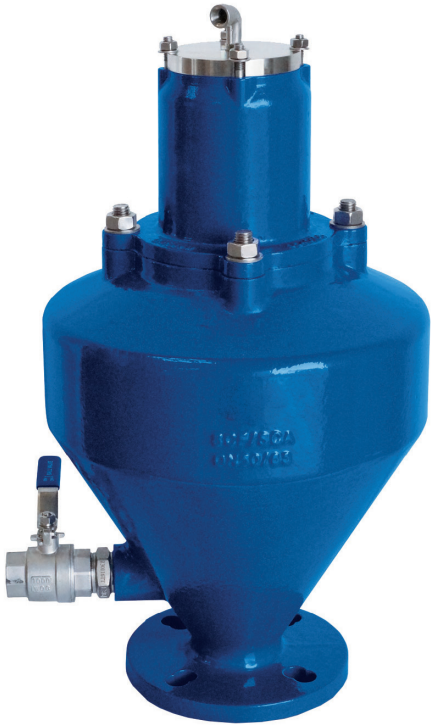
No.	Component	Standard material	Optional
1	Lower body	ductile cast iron GJS 450-10	
2	CSF upper body	ductile cast iron GJS 450-10	
3	Cap	ductile cast iron GJS 450-10	
4	Float	AISI 316 stainless steel	
5	Float rod	AISI 316 stainless steel	
6	Body O-ring	NBR	EPDM/Viton/silicone
7	Guide sleeve	AISI 303 stainless steel	AISI 316 stainless steel
8	Nuts	AISI 304 stainless steel	AISI 316 stainless steel
9	Protective gasket	NBR	
10	Support nut	AISI 316 stainless steel	
11	Nozzle unit	polypropylene	
12	CSF plug plate	polypropylene	
13	Anti-shock plate	NBR	
14	Anti-shock plate gasket	NBR	EPDM/Viton/silicone
15	Seal seat gasket	NBR	EPDM/Viton/silicone
16	Seal seat O-ring	NBR	EPDM/Viton/silicone
17	Seal seat	AISI 316 stainless steel	
18	Washers	AISI 304 stainless steel	AISI 316 stainless steel
19	Studs	AISI 304 stainless steel	AISI 316 stainless steel
20	Nuts	AISI 304 stainless steel	AISI 316 stainless steel
21	Nuts and washers	AISI 304 stainless steel	AISI 316 stainless steel
22	Ball valve 1"	AISI 316 stainless steel	

The table of materials and components is subject to change without notice.

High capacity automatic degasser air valve for sewerage **SWV-HC**

The SWV series air valves are high-performance single-chamber combined automatic devices. Primarily intended for sewerage networks, they stand out for their reliability and durability.

The SWV-HC model ensures the smooth operation of pressurised sewage systems by allowing the degassing of large quantities of air during operation.



Technical data

Operating conditions

Maximum treated water	60°C (Version for higher temperatures on request)
Maximum pressure	16 bar
Minimum pressure	0.2 bar (lower on request)

Standard

- Certification and testing according to EN 1074/4
- Drilling according to EN 1092-2
- RAL 5005 blue epoxy paint applied on fluid bed

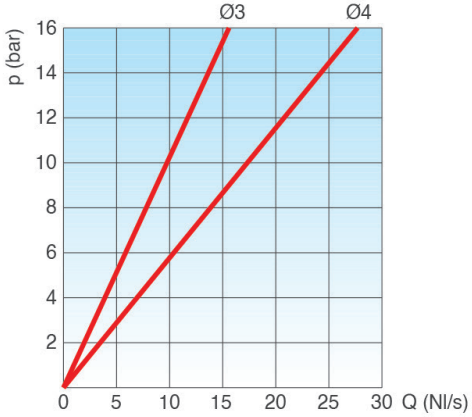
Modifications to painting and flanging standards on request.

Choice of nozzle

Nozzle diameter in mm; larger dimensions available on request.

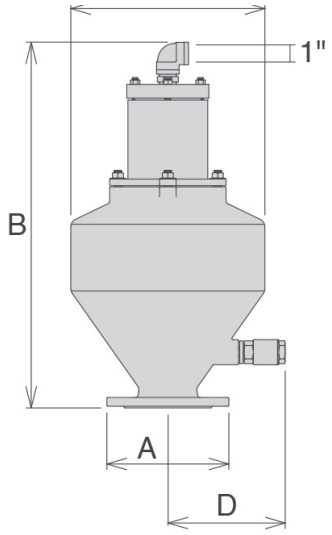
	PN 10	PN 16
DN 50/65	3	3
DN 80/100	3	3
DN 150/200	4	4

AIR FLOW RATE DURING DEGASSING
nozzle diameter (mm)

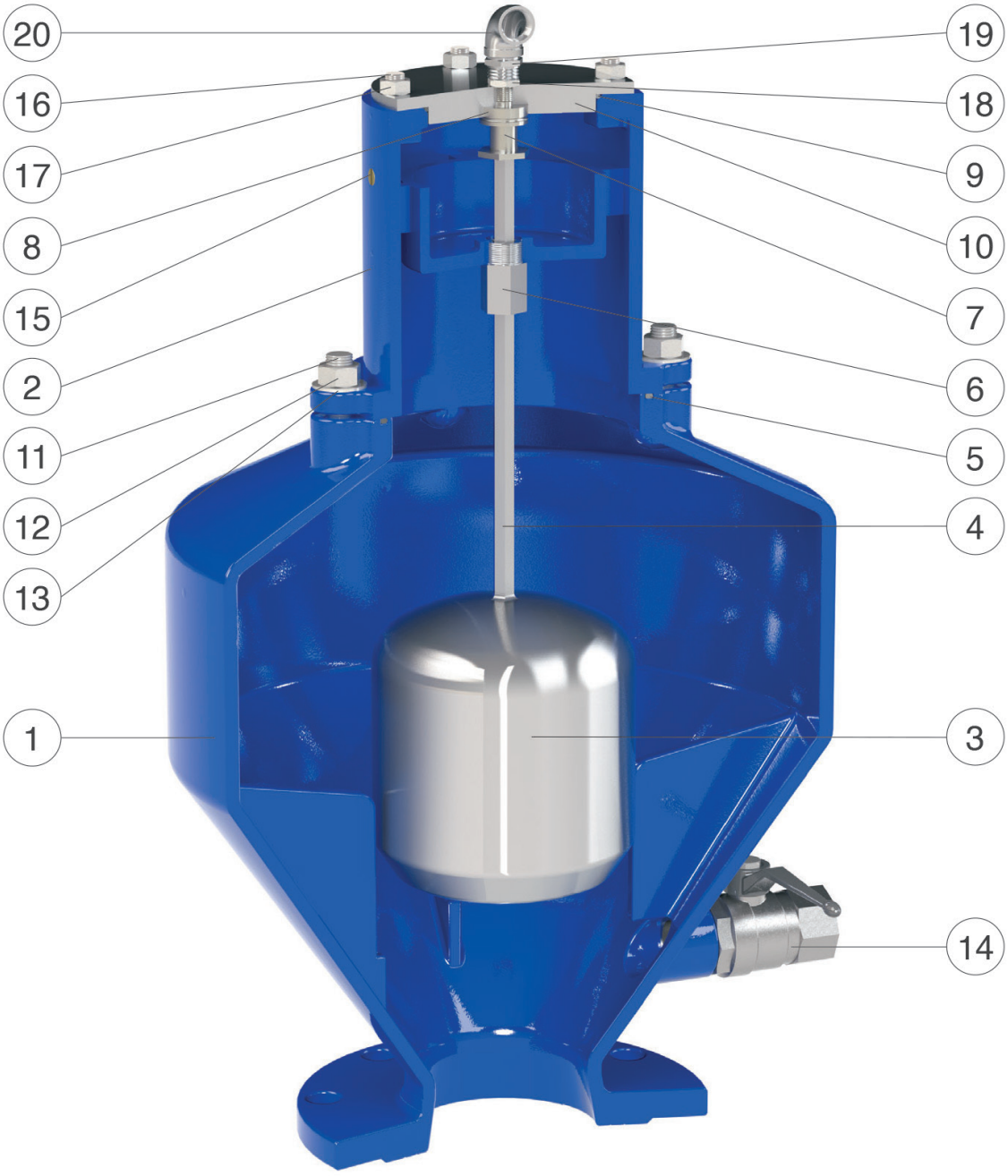


Dimensions and weights

DN mm	A mm	B mm	C mm	D mm	Weight Kg
50/65	185	550	300	190	28
80/100	220	610	350	202	38
150	285	815	488	243	73
200	340	815	488	243	77



Construction details

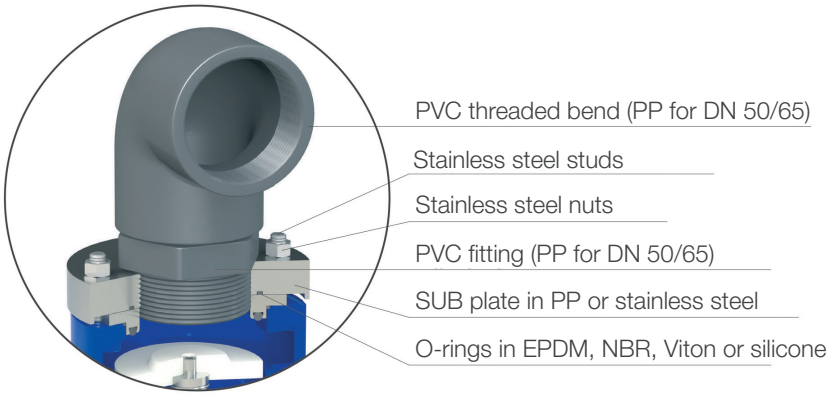


No.	Component	Standard material	Optional
1	Lower body	ductile cast iron GJS 450-10	
2	Upper body	ductile cast iron GJS 450-10	
3	Float	AISI 316 stainless steel	
4	Float rod	AISI 316 stainless steel	
5	Body O-ring	NBR	EPDM/Viton/silicone
6	Guide sleeve	AISI 303 stainless steel	AISI 316 stainless steel
7	Support nut	AISI 316 stainless steel	
8	Nozzle unit	AISI 316 stainless steel	
9	Seal seat O-ring	NBR	EPDM/Viton/silicone
10	HC seal seat	AISI 304 stainless steel	AISI 316 stainless steel
11	Studs	AISI 304 stainless steel	AISI 316 stainless steel
12	Nuts	AISI 304 stainless steel	AISI 316 stainless steel
13	Washers	AISI 304 stainless steel	AISI 316 stainless steel
14	Ball valve 1"	AISI 316 stainless steel	
15	Conical screw	brass	AISI 316 stainless steel
16	Studs	AISI 304 stainless steel	AISI 316 stainless steel
17	Nuts	AISI 304 stainless steel	AISI 316 stainless steel
18	Locking nut	AISI 304 stainless steel	AISI 316 stainless steel
19	Threaded connection	AISI 316 stainless steel	
20	Threaded bend	AISI 316 stainless steel	

The table of materials and components is subject to change without notice.

Conveyance drain - **SUB series**

The conveyance drain is standard on DN 50/65, while for other diameters it is available on request. Connected to a discharge pipe, the air valve can also operate in the event of flooding of the well or the installation site, without the risk of contaminated water entering the pipeline. Another advantage of the SUB model is that it prevents water spurts during rapid air valve closing.



Drain bend diameters

Thread size of drain bends in inches according to air valve size.

	Bend
DN 50/65	1" 1/2
DN 80/100	2" 1/2
DN150/200	4"

Operating conditions

Maximum treated water	60°C (Version for higher temperatures available on request)
Maximum pressure	16 bar
Minimum pressure	0.2 bar (lower on request)

Standard

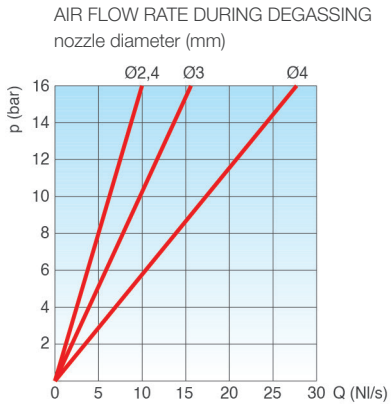
- Certification and testing according to EN 1074/4
- Drilling according to EN 1092-2
- RAL 5005 blue epoxy paint applied on fluid bed

Modifications to painting and flanging standards on request.

Choice of nozzle

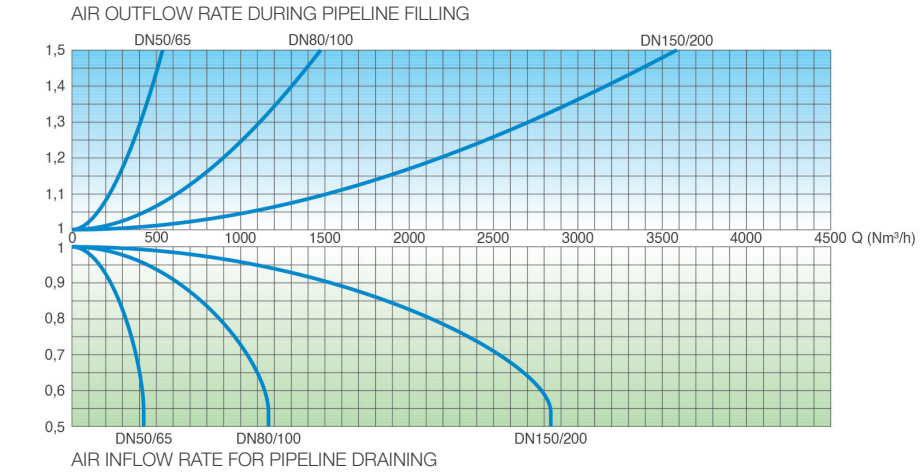
Nozzle diameter in mm depending on air valve size and PN.

	PN 10	PN 16
DN 50/65	2.4	2.4
DN 80/100	3	3
DN150/200	4	4



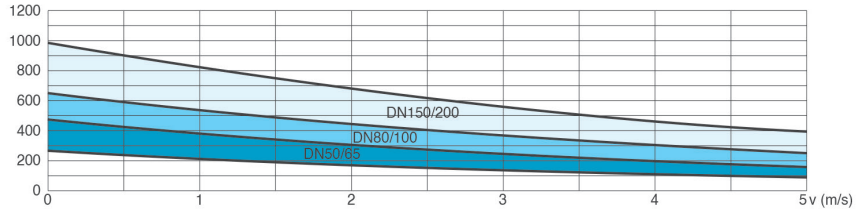
Technical data

SWV TH 3S SUB - Air flow characteristic charts

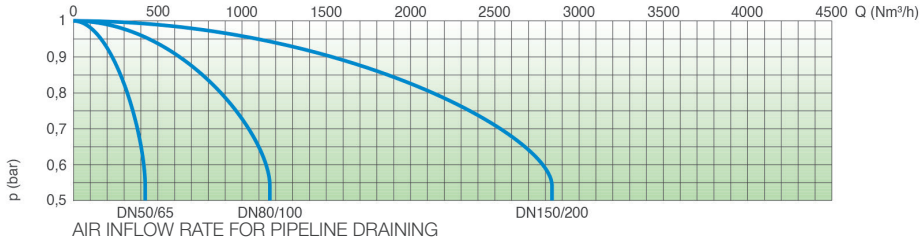


SWV 3S-AWH SUB - Air valve selection chart

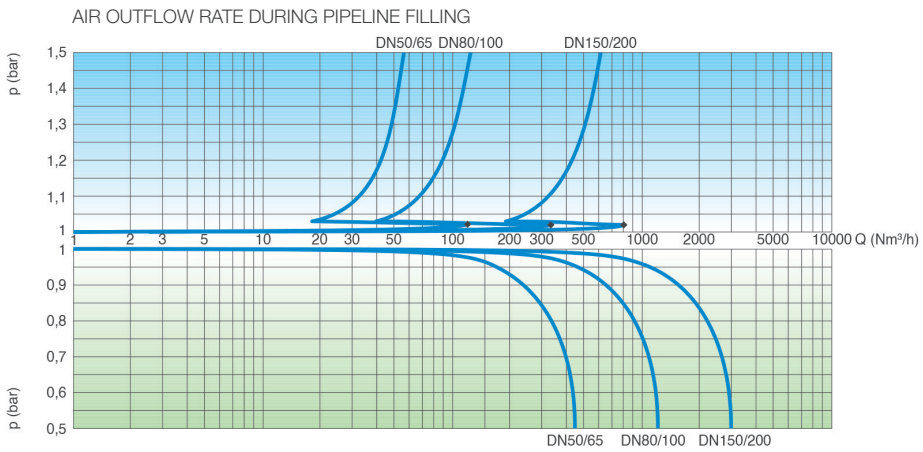
Preliminary dimensioning of the air valve according to pipeline diameter and required air discharge speed.



SWV 3S-AWH SUB - Air flow characteristic charts

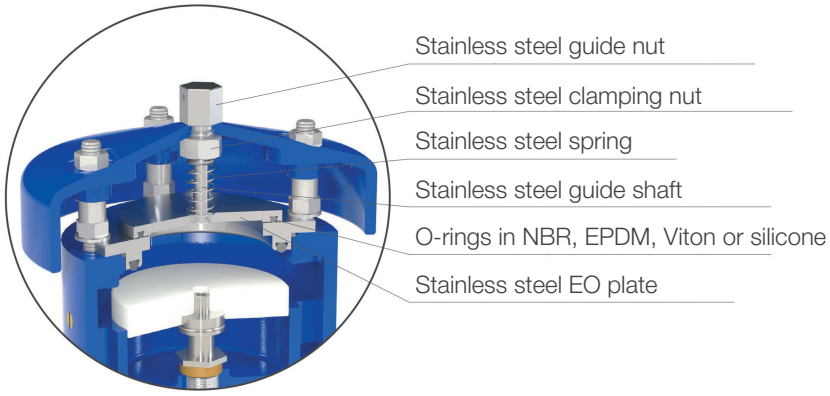


SCF 3S-CSF SUB - Air flow characteristic charts

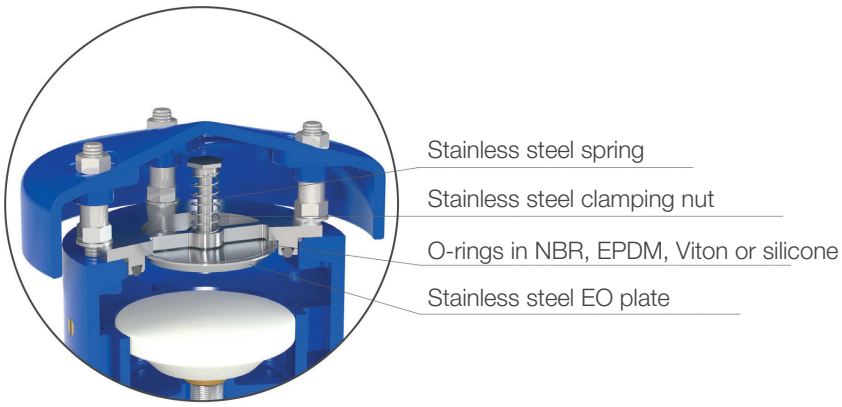


The air flow rate charts were obtained in Kg/s, from laboratory tests and numerical analysis, and converted to Nm3/h by applying a safety factor.

EO SERIES discharge only version, available for SWV 3S and SWV 2S models.
This variant is designed to allow the air valve to be installed at critical points of the layout where HGL may drop below the pipe profile, and at other junctions where, for design reasons, air entrance must be absolutely avoided. The SWV 2" EO kit consists of a check valve and a threaded bend.



SWV - IO entrance only version, only available for the SWV 2F dual function model. This variant is designed to allow for the installation of the air valve at critical points of the layout where, for design reasons, air discharge must be avoided. It should be noted that, when using the IO version, the air valve does not provide any protection against overpressure caused by filling the pipeline.



Sustainability

Here at Pietro Fiorentini, we believe in a world capable of improvement through technologies and solutions that can shape a more sustainable future. That is why respect for people, society and the environment form the cornerstones of our strategy.

Our commitment to the world of tomorrow

While in the past we limited ourselves to providing products, systems and services for the oil & gas sector, today we want to broaden our horizons and create technologies and solutions for a digital and sustainable world, with a particular focus on renewable energy projects to help make the most of our planet's resources and create a future in which the younger generations can grow and prosper.

The time has come to put the why we operate before the what and how we do it.

Pietro Fiorentini

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SWV_technicalbrochure_ENG_revB

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