

NAF

Diffusers with absolute filter H13 class



Description:

A rectangular steel or aluminium diffuser with movable or fixed vanes, equipped with a plenum box and an absolute filter H13 class.

Intended use

NAF diffusers are used in facilities with increased air quality requirements, for example, hospitals, laboratories (to keep the purity of tested samples and limit the escape of harmful pollutants), the food industry, pharmaceutical facilities and assembly rooms for microelectronics. H13 class particulate filters provide a very high degree of air supply purity.

Design

Supply diffuser

Plenum boxes are equipped with diffusers for the following ceiling mountings: SDA4, ALDA4, NS4, NS5, NS8 and NS9 or with grilles for wall mounting of the ST and AL type series. The diffusers are powder-coated in white, RAL9010, as standard. They can also be coated in another RAL colour on request.

Plenum box

NAF diffusers are equipped with a plenum box with a side or top circular connection pipe with a damper. The damper is manufactured in two versions: suitable for inside the box with a lever and suitable for outside the box next to the connection pipe. The standard plenum box is made of galvanised steel painted in the colour RAL 9010. It can be made of stainless steel on request. In standard versions, there are stubs for connecting a differential pressure switch, installed in the plenum box casing. The box is equipped with a connection pipe for the filter integrity control (carrying out tracer-gas leak tests) as standard. The structure of the box allows for the use of test methods in accordance with ISO 14644: Cleanrooms and Associated Controlled Environments – Part 3: Test methods

Front panel versions

NS4



NS5



NS8



NS9



ALDA/SDA



Structure

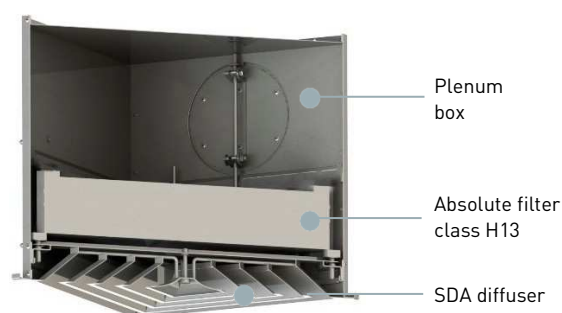


Figure 1. The structure of NAF diffuser with SDA ceiling diffuser.

Air filter

The filter is seated within the housing on a special aluminium frame and mounted with a 4 mm hex wrench using the corners with grub screws that are delivered loose. The air filter is manufactured to class H13 in accordance with PN EN 1822: 2009 in a housing made of galvanised sheet metal. Verification of the degree of contamination of the air filter is possible using a differential pressure switch connected to the stubs mounted in the box casing. It is recommended that the differential pressure switch is used for the optimum operation of the diffuser.

Design guidelines

For proper operation of the diffuser, the recommended airflow velocity through a class H13 150 mm filter should not exceed 0.75 m/s and for the 292 mm filter – 1.5 m/s. Final flow resistance: 500 Pa. Maximum working temperature: 70°C. It is recommended that the air filters are replaced when the pressure drop measured at the filter in use exceeds twice the value of the pressure drop stated for a new filter.



Dimensions

Box with Pd damper

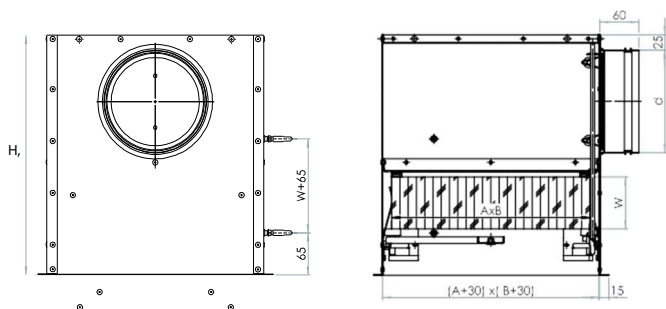


Figure 2. Dimensions of the box with the side connection pipe and Pd damper adjusted from the inside.

Table 1. Version of the NAF box with the side connection pipe and Pd damper adjusted from the inside.

Filter dimensions		H13 filter capacity	Initial flow resistance for H13 filter	Connection pipe	Box height	Weight with a filter
A x B [mm]	W [mm]	V [m³/h]	Δp [Pa] +/- 10%	Ød [mm]	H ₁ [mm]	m [kg]
305 x 305	78/80	250	250	158	370	11.5
	150	250	250	158	440	12
	292	500	255	198	620	16
305 x 610	78/80	500	240	198	410	18
	150	500	240	198	480	19
	292	1000	250	248	670	24
405 x 405	78/80	440	235	198	410	15.5
	150	440	235	198	480	17
440 x 540	78/80	650	225	248	460	19
	150	650	225	248	530	21.5
457 x 457	78/80	560	230	248	460	19
	150	560	230	248	530	21.5
535 x 535	78/80	770	225	248	460	21.5
	150	770	225	248	530	23.5
575 x 575	78/80	890	220	248	460	23
	150	890	220	248	530	25
610 x 610	78/80	1000	220	248	460	25
	150	1000	220	248	530	27

Box with Pg damper

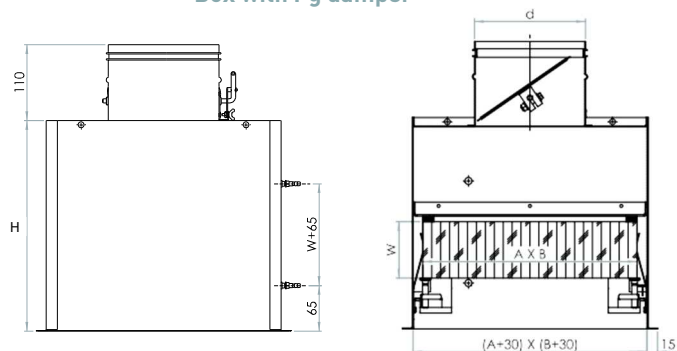


Figure 3. Dimensions of the box with the top connection pipe and Pg damper adjusted in the connection pipe.

Table 2. Version of the NAF box with the top connection pipe and Pg damper adjusted on the connection pipe.

Filter dimensions		H13 filter capacity	Initial flow resistance for H13 filter	Connection pipe	Box height	Weight with a filter
A x B [mm]	W [mm]	V [m³/h]	Δp [Pa] +/- 10%	Ød [mm]	H ₂ [mm]	m [kg]
305 x 305	78/80	250	250	158	300	11.5
	150	250	250	158	370	12
	292	500	255	198	510	16
305 x 610	78/80	500	240	198	300	18
	150	500	240	198	370	19
	292	1000	250	313	510	24
405 x 405	78/80	440	235	198	300	15.5
	150	440	235	198	370	17
440 x 540	78/80	650	225	248	300	19
	150	650	225	248	370	21.5
457 x 457	78/80	560	230	248	300	19.5
	150	560	230	248	370	21
535 x 535	78/80	770	225	248	300	21.5
	150	770	225	248	370	23.5
575 x 575	78/80	890	220	313	300	24
	150	890	220	313	370	26
610 x 610	78/80	1000	220	313	300	26.5
	150	1000	220	313	370	28
610 x 762	78/80	1250	220	313	300	33
	150	1250	220	313	370	36
610 x 915	78/80	1500	220	313	300	37
	150	1500	220	313	370	39



In a standard 600 x 600 mm ceiling module, you cannot use the NAF diffuser with an A x B filter dimension greater than 535 x 535 mm.

Box with Pb damper

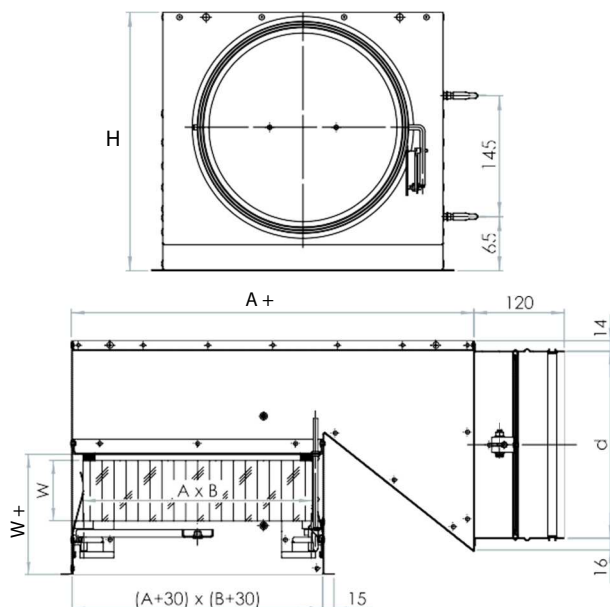


Figure 4. Dimensions of the box with the side connection pipe and Pb damper adjusted on the connection pipe.

Filter dimensions are available on individual request (Pg and Pb only).

A x B [mm]	W [mm]
610 x 610	292
610 x 762	292
610 x 915	292

Table 3. Version of the NAF box with the side connection pipe and Pb damper adjusted on the connection pipe.

Filter dimensions		H13 filter capacity	Initial flow resistance for H13 filter	Connection pipe	Height	Weight with a filter
A x B [mm]	W [mm]	V [m³/h]	Δp [Pa] +/- 10%	Ød [mm]	H ₁ [mm]	m [kg]
305 x 305	78/80	250	250	158	300	11.5
	150	250	250	158	370	12
	292	500	255	198	510	16
305 x 610	78/80	500	240	198	300	18
	150	500	240	198	370	19
	292	1000	250	313	510	25
405 x 405	78/80	440	235	198	300	15.5
	150	440	235	198	370	17
440 x 540	78/80	650	225	248	310	19
	150	650	225	248	370	21.5
457 x 457	78/80	560	230	248	310	19.5
	150	560	230	248	370	21
535 x 535	78/80	770	225	248	310	21.5
	150	770	225	248	370	23.5
575 x 575	78/80	890	220	313	375	25
	150	890	220	313	375	27
610 x 610	78/80	1000	220	313	375	28
	150	1000	220	313	375	30
610 x 762	78/80	1250	220	313	375	35
	150	1250	220	313	375	58
610 x 915	78/80	1500	220	313	375	39
	150	1500	220	313	375	41

Square ceiling diffusers

Filter size	305 x 305	405 x 405	457 x 457	535 x 535 (for 600x600 ceiling)	575 x 575	610 x 610
NS4						
NS5 (for 600x600 ceiling)						
NS8						
NS9						
SDA4 ALDA4						

Rectangular ceiling diffusers

Filter size

305 x 610

440 x 540

610 x 762

610 x 915

SDA4
ALDA4

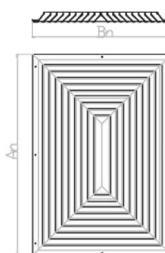
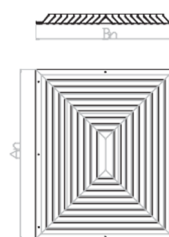
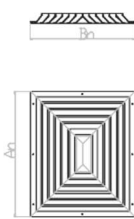


Table 4. Square filters.

Filter size	Diffuser type	Dimension C, D [mm]	Crown size	Dimension An [mm]	Dimension Dn [mm]	Dimension Dz [mm]	Number of slots	Effective area A _{eff} [m ²]
305 x 305	NS4	-	300	368	130	250	36	0.0100
	NS5	-	300	594	84	250	20	0.0167
	NS8	-	300/8	368	89	262	8	0.0097
	NS9	-	310	368	82	262	8	0.0089
	SDA4	333	-	373	-	-	4	0.0545
	ALDA4	333	-	373	-	-	4	0.0545
405 x 405	NS4	-	350	468	129	350	36	0.0138
	NS5	-	400	594	115	350	24	0.0301
	NS8	-	500/16	468	162	357	16	0.0194
	NS9	-	400	468	82	352	16	0.0216
	SDA4	433	-	473	-	-	6	0.911
	ALDA4	433	-	473	-	-	6	0.911
457 x 457	NS4	-	350	520	130	350	36	0.0138
	NS5	-	500	594	150	450	28	0.0468
	NS8	-	600/24	520	210	420	24	0.0292
	NS9	-	500	520	142	452	24	0.0353
	SDA4	485	-	525	-	-	7	0.1139
	ALDA4	485	-	525	-	-	7	0.1139
535 x 535 (for 600x600 ceiling)	NS4	-	540	598	200	540	48	0.0367
	NS5	-	-	-	-	-	-	-
	NS8	-	600/24	598	210	420	24	0.0292
	NS9	-	500	598	142	452	24	0.0353
	SDA4	563	-	603	-	-	8	0.1575
	ALDA4	563	-	603	-	-	8	0.1575

Filter size	Diffuser type	Dimension C, D [mm]	Crown size	Dimension An [mm]	Dimension Dn [mm]	Dimension Dz [mm]	Number of slots	Effective area A _{eff} [m ²]
575 x 575	NS4	-	540	638	200	540	48	0.0367
	NS5	-	-	-	-	-	-	-
	NS8	-	600/48	638	128	562	48	0.0583
	NS9	-	600	638	112	552	40	0.0551
	SDA4	603	-	643	-	-	9	0.1774
	ALDA4	603	-	643	-	-	9	0.1774
610 x 610	NS4	-	540	673	100	540	48	0.0367
	NS5	-	-	-	-	-	-	-
	NS8	-	625/54	673	146	579	54	0.0656
	NS9	-	600	673	112	552	40	0.0551
	SDA4	638	-	678	-	-	9	0.2035
	ALDA4	638	-	678	-	-	9	0.2035

Table 5. Rectangular filters.

Filter size	Diffuser type	Dimension C x D [mm]	Dimension An [mm]	Dimension Bn [mm]	Number of slots	Effective area A _{eff} [m ²]
305 x 610	SDA4/ ALDA4	638 x 333	678	373	4	0.0946
440 x 540	SDA4/ ALDA4	568 x 468	608	508	6	0.13
610 x 762	SDA4/ ALDA4	790 x 638	830	678	9	0.248
610 x 915	SDA4/ ALDA4	943 x 638	983	678	9	0.2906

Installation

There are four Ø8 holes in the NAF box for installation by means of slings. If the filter is square-shaped (A = B), the diffuser is mounted to the plenum box by means of the central screw and for the rectangular-shaped filter (A ≠ B), to the mounting bracket in the box with screws passed through the holes in the diffuser frame.



NAF – Diffusers with absolute filter H13 class

When ordering, please provide information in accordance with the following pattern:

NAF - <A> x x <W> - <d> <R> - <P> <RAL> / <ADD>

Where:

A	Air filter width in mm selected from the table above
B	Air filter length in mm selected from the table above
W	Air filter thickness in mm selected from the table above
d	Connection pipe diameter in mm
R	Damper in a connection pipe:
	Pb – Damper in the side connection pipe adjusted on the connection pipe
	Pd – Damper in the side connection pipe adjusted with a lever from inside the box
	Pg – Damper in the top connection pipe adjusted on the connection pipe
P	Finish*
	SL – coated steel
	SN – Stainless steel, grade 1.4301 (304 according to AISI, 0H18N9 according to PN)
RAL	Finish*
ADD	Specify additional accessories here, as below: **

Accessories

H13	A x B x W absolute filter (delivered separately in a cardboard packaging made of five layers of damage-resistant corrugated board and PE foil)
NS4	Swirl ceiling diffuser with fixed vane
NS5	Swirl ceiling diffuser with fixed vanes
NS8	Swirl ceiling diffuser with movable vanes
NS9	Swirl ceiling diffuser with movable vanes
SDA4	Four-way square/rectangular ceiling diffuser, steel
ALDA4	Four-way square/rectangular ceiling diffuser, aluminium

* Optional values – if not specified, default values will be used

** For square diffusers: installation on the central bolt (K1) only, for rectangular diffusers: installation with screws (K8) only

1. It is possible to equip a NAF diffuser with accessories for wall mounting with the ST and AL type series ventilation grilles; when ordering, please specify the grille type precisely using the order code provided in the datasheet for the respective grille.
2. It is possible to equip a NAF diffuser with an E11 or H14 class air filter. When ordering provide the required filter class.

Example product labelling: **NAF-305x305x150-158Pb-SL9010/H13, SDA4**



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IMPLEMENTATIONS