

SPN Supply air terminal for clean rooms



Supply air terminal SPN for clean rooms is intended for ceiling installation in premises where the requirements for very clean air are high, for example clean rooms, pharmaceutical industries, etc.

The terminal includes a HEPA filter of class H13 according to EN1822-1, which ensures a very high degree of filtration. The terminal can be supplied with a HEPA filter of class H14 on request.

The diffuser is intended for ventilation systems for clean rooms of class 5 or 6, according to EN1633-1 and VDI2083, or class M5.5 and M6.5 according to standard FS209d.

The maximum number of air replacements per hour with diffuser SPN is 60. Integral measurement sockets in the terminal mean that the pressure drop can be measured and that any filter leakage can be identified. Excessively high pressure drops across the filter also indicate that it should be replaced.

Supply air terminal SPN is intended for installations in a false ceiling at a height of 2.6 – 4.6 m above the floor. The supply air flow has the form of a diffusion jet, which gives a turbulent air flow in the premises.

SPN is made from painted steel sheet, and its construction makes filter replacement rapid and easy.

Quick-selection

Size DN	Air flow l/s (m ³ /h) at sound level				Max air flow for SPN, l/s m ³ /h	
	20 dB	25 dB	30 dB	30 dB		
SPN-250	78	92 (330)	117		133	480
SPN-315	108	130 (470)	153		181	650
SPN-355	157	182 (655)	210		264	950
SPN-400	160	193 (695)	230		333	1200

Product facts

Supply air terminal SPN

Intended for ceiling installation

Has an integral connection box

Equipped as standard with a HEPA filter of class H13

Four sizes with a broad air flow range

Available with both circular and rectangular connections

Product code example:

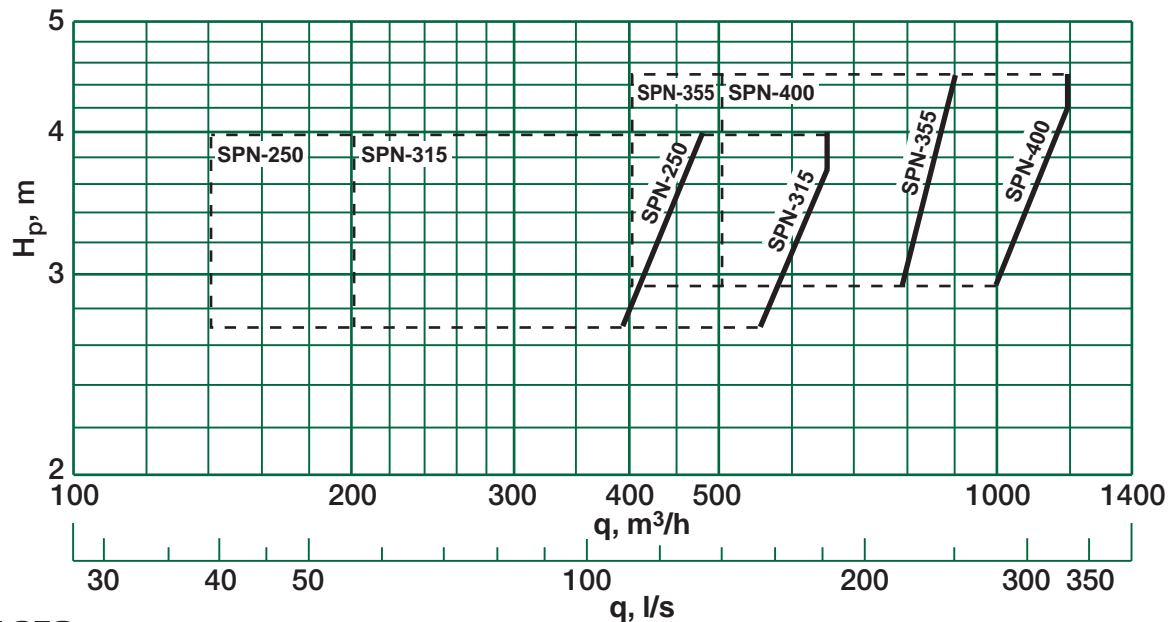
Exhaust air terminal SPN-315-1-1-1-13-1-1-1.

Terminal of size 315 with circular rubber-sealed connection with a HEPA filter of class H13, filter height 150 mm. The terminal has a measurement socket on the inside (standard).

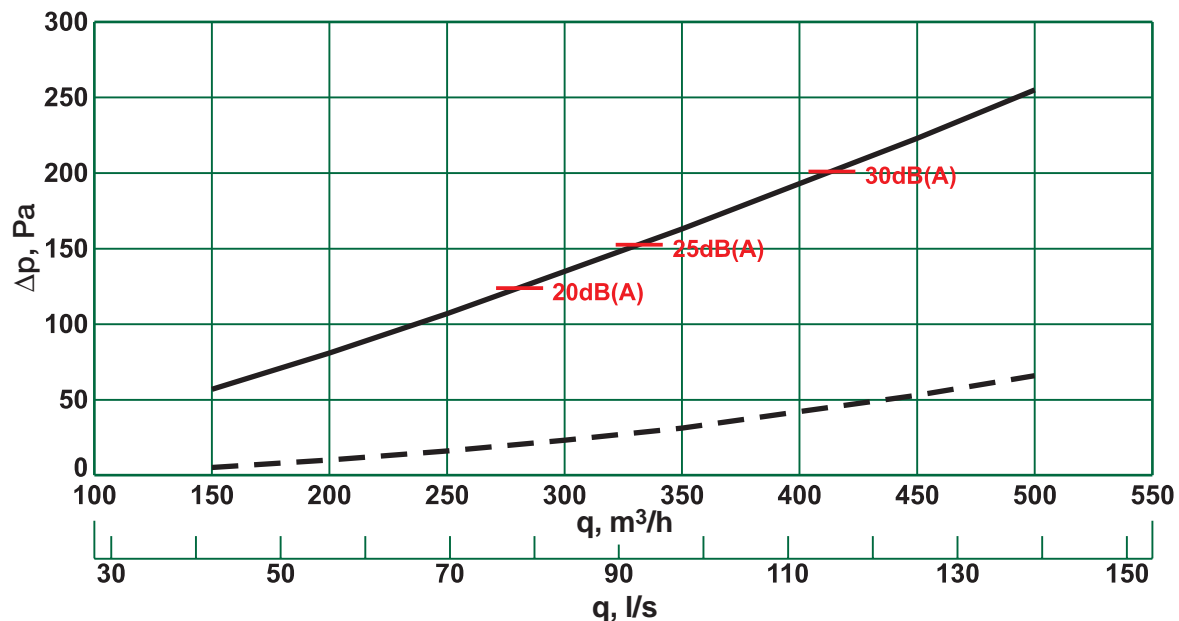
The diffuser is painted in colour RAL 9010.

Summary, air flow, pressure drop, sound levels

Summary



SPN-250



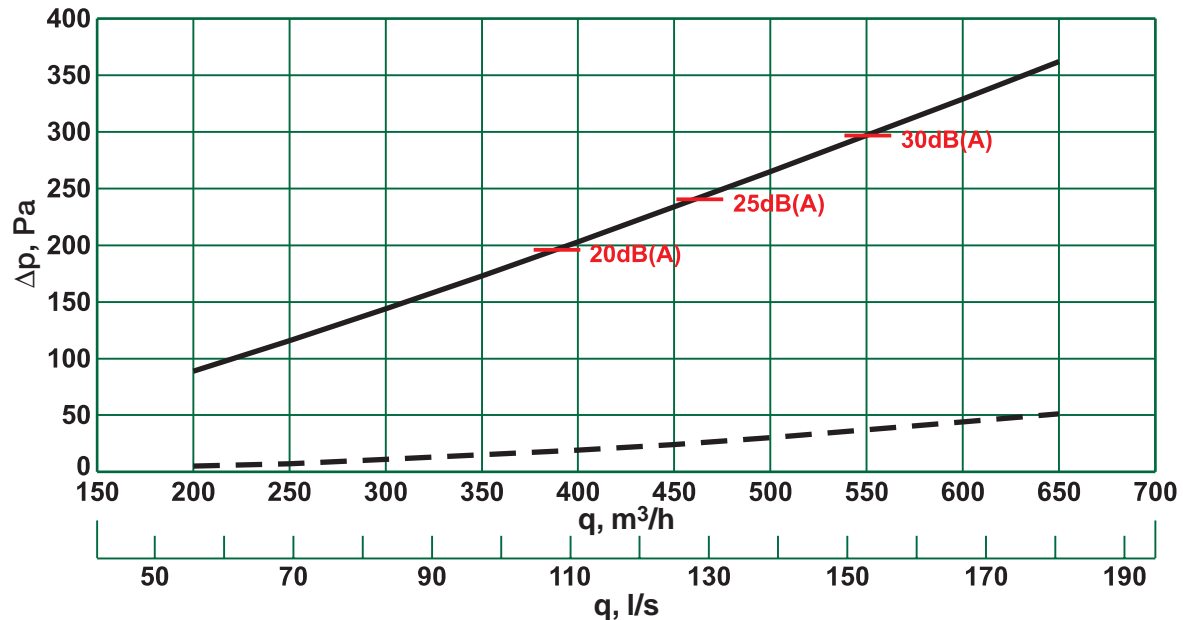
- Pressure drop for a complete SPN terminal with an original filter of class H13 with height $H = 150$ mm.
- - - Pressure drop for an SPN terminal without filter insert.

The total pressure drop with different filters installed is calculated by adding the pressure indicated by the broken line to the actual pressure drop for the filter concerned.

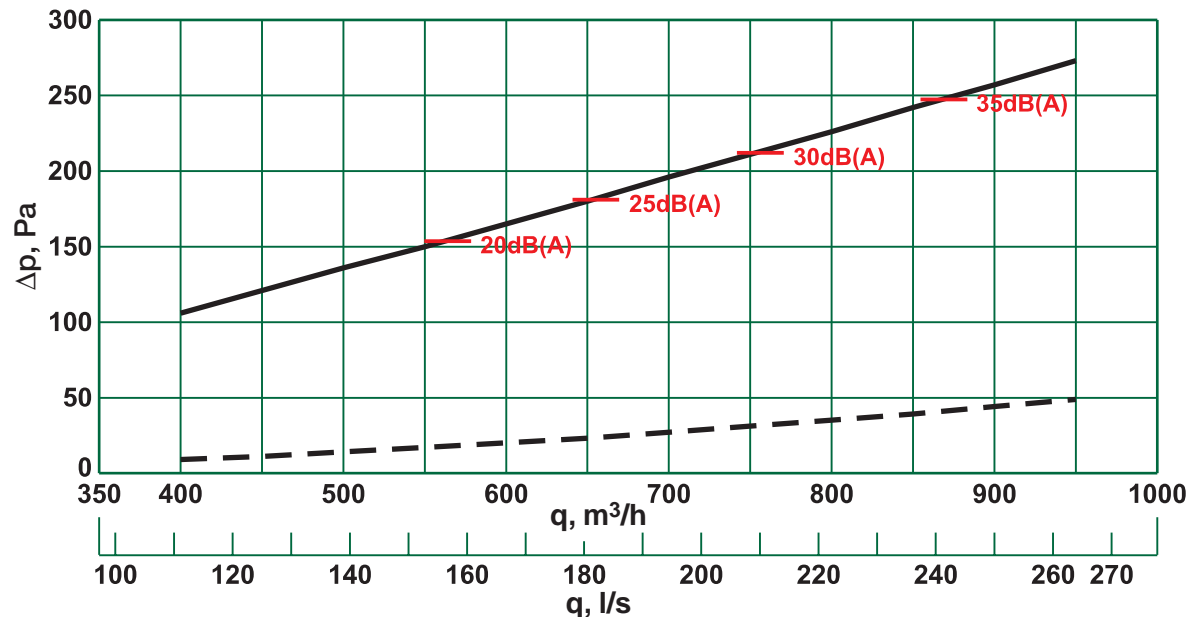
In the above graphs the sound levels in dB(A) are indicated for a reference room with $10 m^2$ room absorption, equivalent to 4 dB room attenuation. $L_W = L_{A10} + K_{OK}$

Air flow, pressure drop, sound levels

SPN-315



SPN-355



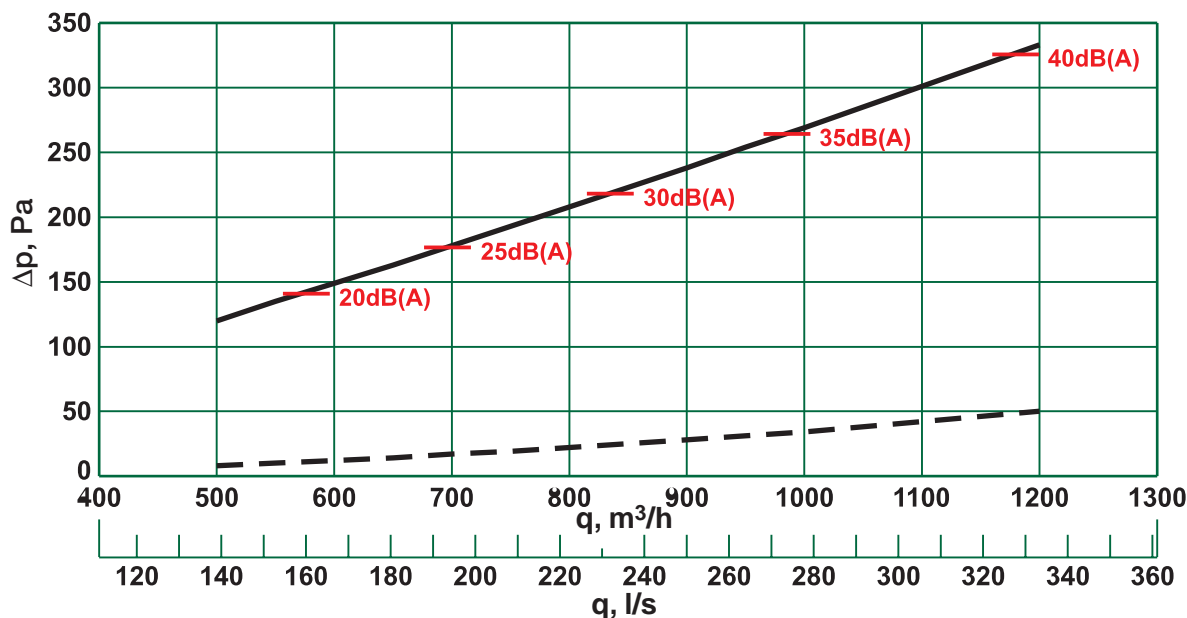
- Pressure drop for a complete SPN terminal with an original filter of class H13 with height $H = 150$ mm.
- - - Pressure drop for an SPN terminal without filter insert.

In the above graphs the sound levels in dB(A) are indicated for a reference room with 10 m² room absorption, equivalent to 4 dB room attenuation. $L_W = L_{A10} + K_{OK}$

The total pressure drop with different filters installed is calculated by adding the pressure indicated by the broken line to the actual pressure drop for the filter concerned.

Air flow, pressure drop, sound levels, final pressure drop

SPN-400



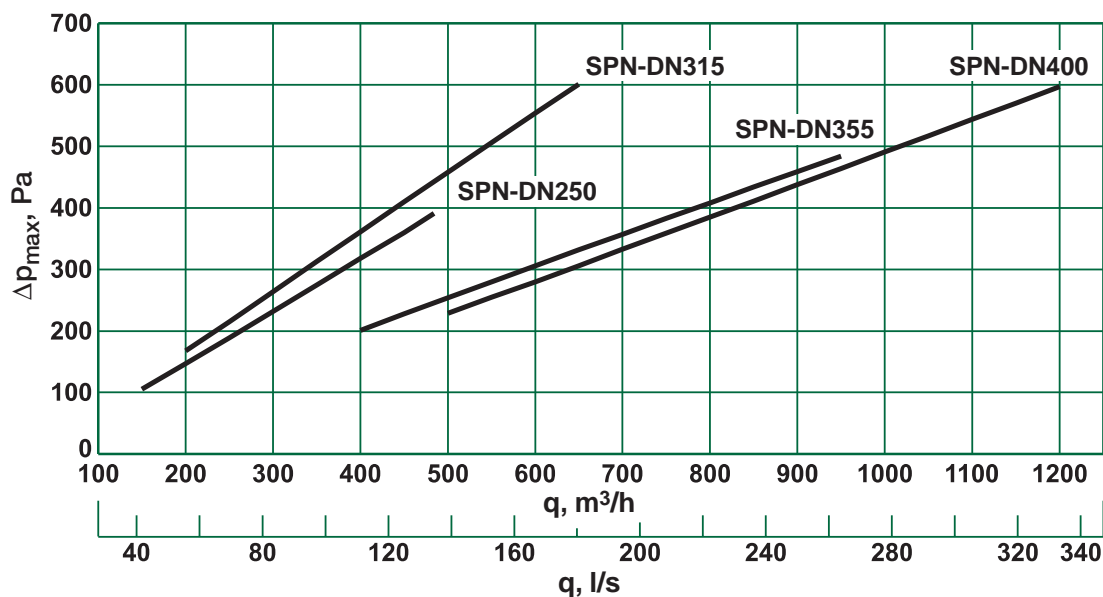
- Pressure drop for a complete SPN terminal with an original filter of class H13 with height $H = 150 \text{ mm}$.
- - - Pressure drop for an SPN terminal without filter insert.

In the above graphs the sound levels in dB(A) are indicated for a reference room with 10 m^2 room absorption, equivalent to 4 dB room attenuation. $LW = L_{A10} + K_{OK}$

The total pressure drop with different filters installed is calculated by adding the pressure indicated by the broken line to the actual pressure drop for the filter concerned.

Final pressure drop for terminal with a HEPA filter of class H13

The final pressure drop for the terminal indicates when the filter requires replacement. Measurement is performed with the help of the measurement socket marked in red in the terminal.



Acoustical data, structure and dimensions

Sound power level LW, dB per octave band

Size SPN	Air flow		Sound power level LW in octave bands						
	l/s	m³/h	125	250	500	1000	2000	4000	
250	55.6	200	–	–	–	–	–	–	
	83.3	300	36	31	22	15	–	–	
	111.1	400	40	37	30	26	18	13	
	133.3	480	43	42	36	32	27	17	
315	97.2	350	33	25	17	11	–	–	
	152.8	550	44	36	30	28	20	16	
	166.7	600	46	40	32	31	23	18	
	180.6	650	49	41	35	33	26	20	
355	166.7	600	35	28	25	18	12	–	
	222.2	800	46	39	34	29	23	11	
	250.0	900	48	42	36	35	28	19	
	263.9	950	49	44	39	37	31	24	
400	194.4	700	41	32	26	19	11	–	
	277.8	1000	51	40	35	33	27	20	
	305.6	1100	53	44	38	34	31	24	
	333.3	1200	54	46	40	37	35	26	

The sound power levels for different octave bands are obtained by adding together the sound pressure level L_{A10} , dB(A), from the graphs, and the corrections K_{ok} for the octave bands in the table with the help of the following formula:

$$L_W = L_{A10} + K_{ok}$$

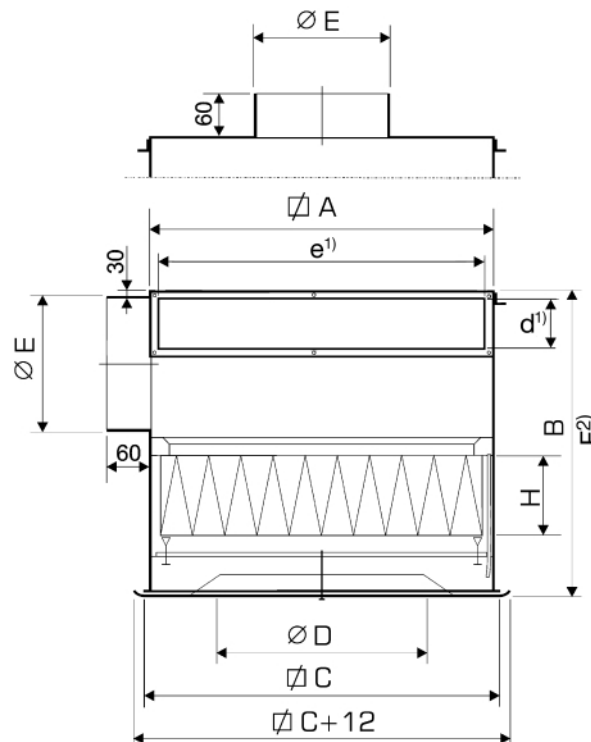
Correction K_{OK}

Size SPN	Correction K_{ok} in dB for octave bands, mean frequency, Hz							
	63	125	250	500	1000	2000	4000	8000
250	12	11	9	1	–4	–9	–17	–24
315	15	14	7	0	–3	–9	–15	–25
355	13	12	6	1	–2	–8	–17	–24
400	16	15	6	0	–4	–8	–15	–25

Definitions

q	air flow	l/s, m³/h
Δp	pressure drop	Pa
Δp_{max}	final pressure drop (indicates filter replacement)	Pa
L_{02}	throw	m
L_{A10}	sound pressure level with a room attenuation of 4 dB (10 m² room absorption area)	dB(A)
L_W	sound power level	dB
K_{ok}	octave band correction	dB

Structure and dimensions



Terminal dimensions

Size	A	B	C	D	E	d¹¹	e¹	F²	kg
250	485	530	526	250	199	80	460	380	20,4
315	485	530	526	315	199	80	460	380	20,8
355	639	580	680	355	249	80	615	380	30,0
400	639	580	680	400	249	80	615	380	30,0

1) Connection dimensions for rectangular duct connection with flange.

2) Applies for reduced height of the filter, H = 90 mm

All dimensions are indicated in mm

Filter dimensions

Size	length x width	H
250	457 x 457	150
315	457 x 457	150
355	610 x 610	150
400	610 x 610	150

Descriptive text, product code

Descriptive text

Supply air terminal SPN for clean rooms for ceiling installation with a HEPA filter of class H13 and with circular/rectangular duct connection manufactured by Fläkt Woods.

Product code

Supply air terminal	SPN-aaa-b-c-d-ee-f-g-h
Size _____ 250, 315, 355, 400	<div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div>
Duct connection shape _____ 1 = round 2 = rectangular	
Duct connection type _____ 0 = without rubber seal 1 = with rubber seal	
Connection duct position _____ 1 = on the side 2 = at the top	
Filter class _____ 13 = H13 14 = H14	
Sealing _____ 1 = rubber seal 2 = gel seal	
Measurement joint _____ 1 = inside the box 2 = outside box	
Colour _____ 1 = standard colour 9010 (if any other colour is wanted this is indicated with X in the code and the proper RAL-code)	