

KOOLAIR

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70.1

Linear slot diffusers



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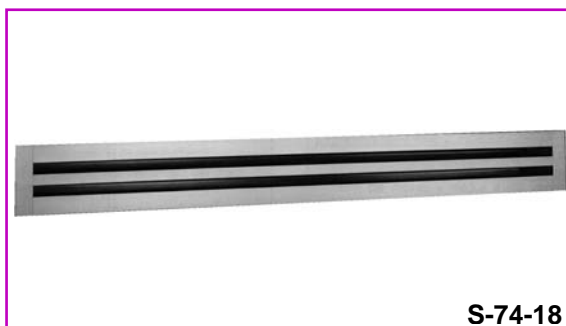
S-70-1 linear slot diffusers

S-74-18, S-72-18, S-74-25, S-72-25, S-72-25FF

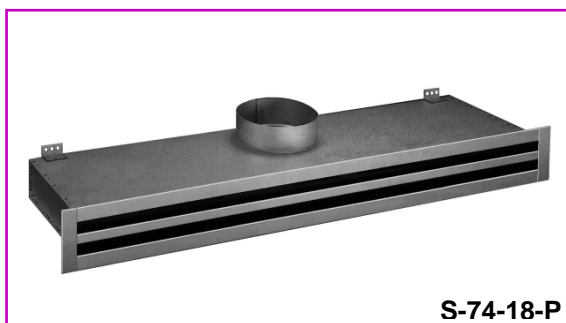
Contents

S-74-18 linear slot diffusers	
Description	4
Selection table	5
Selection in a sample project	7
S-74-25 high-capacity linear slot diffusers	
Description	8
Selection table	9
Selection in a sample project	11
S-72-25FF linear slot diff. with filter holder	
Selection table	12
Induction rate	
S-74-18 and S-74-25 diffusers	13
General dimensions	
Linear slot diffuser models	16
S-72-21/18 linear slot diffuser	
General dimensions	23
Selection table	24

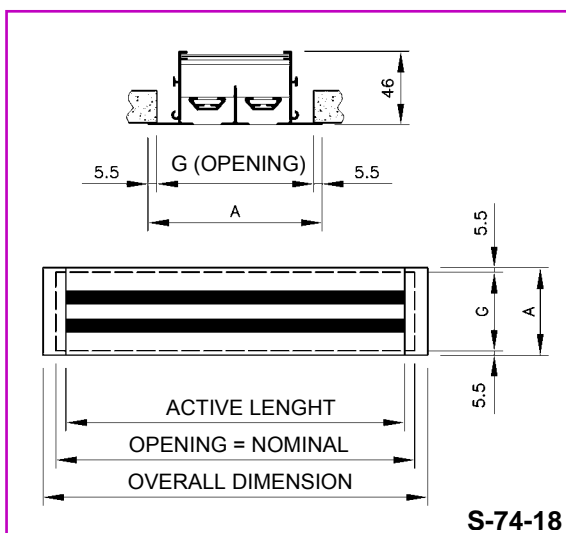
S-74/72-18 linear slot diffusers



S-74-18



S-74-18-P



S-74-18

Description

S-74-18 linear slot diffuser for supply air. Aluminium construction with standard natural anodized or standard glossy RAL-9010 white pre-lacquered finish. Black deflections vanes with a matte finish. The S-74-18-P model includes a inlet plenum made of galvanized steel sheet, with or without insulation.

Three attachment systems are available for the plenum: screws, bridges or clips. The systems are described on pages 14 and 15.

Application

S-74-18 linear slot diffusers are specially recommended for ceiling installation, with the deflection vanes allowing air flow to be adjusted from 0° to 180°. The diffusers are equipped with a sliding volume control damper. For return air, it is possible to use the S-72-18 model (which has no volume control damper).

High-quality aesthetics and performance are further enhanced by alternating the return diffusers with supply diffusers in the same continuous line. To determine the return flow, refer to the respective instructions on page 23 (recommendations).

Dimensions

The "L" dimension (length) is always active length. The nominal or OPENING dimension is equal to L+25 mm. The "G" dimension is the width of the OPENING and is listed in the dimension tables.

See overall dimensions, including frames and end caps, on pages 16 to 22.

Identification

S-74-18 diffusers are equipped with deflection vanes and volume control dampers. Models without a plenum include the mounting bridges. For return air, it is possible to use the S-72-18 model, which does not include the volume control damper but does include the deflection vanes.

All diffusers comes with end caps in the heads. In diffusers with plenum, one of the three systems for attaching the plenum to the diffuser must be defined.

S-74-18 Linear slot diff., 18 mm, with regulation.
S-72-18 Linear slot diff., 18 mm, without regulation.

PM Mounting bridge.
CL Mounting clips.

1,2,3,4 Number of slots.

PF Fix plenum.
PD Removable plenum.
PC Plenum with clips.

PFA Fix insulated plenum
PDA Removable insulated plenum
PCA Insulated plenum with clips

Selection table for S-74-18 (lateral discharge)

Q		Dim.	Length in mm and no. of ways											
			600-1	900-1	1200-1 600-2	1500-1	900-2 600-3	1200-2 600-4	900-3	1500-2	1200-3 900-4	1500-3	1200-4	1500-4
(m ³ /h)	(l/s)	A _k (m ²)	0,00598	0,00897	0,01196	0,01495	0,01794	0,02391	0,02690	0,02989	0,03587	0,04484	0,04783	0,05978
60	16,7	V _k (m/s)	2,8	1,9	1,4	1,1								
		X (m)	1,5	1,2	1,0	0,9								
		P _t (Pa)	19	8	5	3								
		dB(A)	27	<20	<20	<20								
80	22,2	V _k (m/s)	3,7	2,5	1,9	1,5	1,2							
		X (m)	2,0	1,6	1,4	1,2	1,1							
		P _t (Pa)	35	14	9	6	5							
		dB(A)	35	27	21	<20	<20							
100	27,8	V _k (m/s)	4,6	3,1	2,3	1,9	1,5	1,2	1,0					
		X (m)	2,4	2,0	1,7	1,5	1,4	1,2	1,2					
		P _t (Pa)	54	21	14	9	8	5	4					
		dB(A)	41	33	27	23	<20	<20	<20					
140	38,9	V _k (m/s)	6,5	4,3	3,3	2,6	2,2	1,6	1,4	1,3	1,1			
		X (m)	3,4	2,8	2,4	2,2	2,0	1,7	1,6	1,5	1,4			
		P _t (Pa)	106	41	28	18	15	11	8	4	4			
		dB(A)	51	42	37	32	29	23	21	<20	<20			
180	50,0	V _k (m/s)		5,6	4,2	3,3	2,8	2,1	1,9	1,7	1,4	1,1	1,0	
		X (m)		3,6	3,1	2,8	2,5	2,2	2,1	2,0	1,8	1,6	1,6	
		P _t (Pa)		68	46	30	24	18	13	7	7	5	4	
		dB(A)		49	44	39	36	30	27	25	24	<20	<20	
200	55,6	V _k (m/s)		6,2	4,6	3,7	3,1	2,3	2,1	1,9	1,5	1,2	1,2	
		X (m)		4,0	3,5	3,1	2,8	2,4	2,3	2,2	2,0	1,8	1,7	
		P _t (Pa)		84	57	36	30	22	16	9	8	6	5	
		dB(A)		52	47	42	38	33	30	28	27	22	21	
250	69,4	V _k (m/s)			5,8	4,6	3,9	2,9	2,6	2,3	1,9	1,5	1,5	1,2
		X (m)			4,3	3,9	3,5	3,1	2,9	2,7	2,5	2,2	2,2	1,9
		P _t (Pa)			89	57	47	34	24	14	13	9	8	5
		dB(A)			53	48	45	39	37	34	33	28	27	23
300	83,3	V _k (m/s)				5,6	4,6	3,5	3,1	2,8	2,3	1,9	1,7	1,4
		X (m)				4,6	4,2	3,7	3,5	3,3	3,0	2,7	2,6	2,3
		P _t (Pa)				82	68	49	35	20	19	13	11	7
		dB(A)				53	50	44	42	40	38	33	32	28
400	111,1	V _k (m/s)						4,6	4,1	3,7	3,1	2,5	2,3	1,9
		X (m)						4,9	4,6	4,4	4,0	3,6	3,5	3,1
		P _t (Pa)						87	62	35	34	23	20	13
		dB(A)						52	50	47	46	41	40	36
500	138,9	V _k (m/s)								4,6	3,9	3,1	2,9	2,3
		X (m)								5,5	5,0	4,5	4,3	3,9
		P _t (Pa)								55	53	36	32	20
		dB(A)								54	52	48	46	42
600	166,7	V _k (m/s)										3,7	3,5	2,8
		X (m)										5,4	5,2	4,6
		P _t (Pa)										52	45	29
		dB(A)										53	51	47
700	194,4	V _k (m/s)											4,1	3,3
		X (m)											6,1	5,4
		P _t (Pa)											62	40
		dB(A)											56	51
800	222,2	V _k (m/s)												3,7
		X (m)												6,2
		P _t (Pa)												52
		dB(A)												55

This selection table is based on laboratory tests as per ISO 5219 (UNE 100.710) and ISO 5135 and 3741.

The ΔT is equal to -10°C, the temperature difference between the room and the supply air.

SYMBOLS

Q	Air flow in m ³ /h
A _k	Effective area in m ²
V _k	Effective supply velocity in m/s
X	Throw of the air jet
P _t	Total pressure drop, in Pa
dB(A)	Sound power level in dB(A)

Selection table for S-74-18 (vertical discharge)

Q		Length in mm and no. of ways							
		Dim.	600-1	900-1	1200-1 600-2	1500-1	900-2	1200-2	1500-2
(m ³ /h)	(l/s)	A _k (m ²)	0,00622	0,00933	0,01243	0,01554	0,01865	0,02487	0,03109
60	16,7	V _k (m/s)	2,7	1,8					
		X (m)	1,1	0,9					
		P _t (Pa)	31	12					
		dB(A)	20	<20					
80	22,2	V _k (m/s)	3,6	2,4	1,8	1,4			
		X (m)	1,5	1,2	1,0	0,9			
		P _t (Pa)	54	21	14	9			
		dB(A)	29	22	<20	<20			
100	27,8	V _k (m/s)	4,5	3,0	2,2	1,8	1,5	1,1	
		X (m)	1,8	1,5	1,3	1,2	1,1	0,9	
		P _t (Pa)	85	33	21	14	10	6	
		dB(A)	36	29	25	21	<20	<20	
140	38,9	V _k (m/s)	6,3	4,2	3,1	2,5	2,1	1,6	1,3
		X (m)	2,6	2,1	1,8	1,6	1,5	1,3	1,1
		P _t (Pa)	166	65	42	27	20	12	7
		dB(A)	46	39	35	31	28	24	20
180	50,0	V _k (m/s)		5,4	4,0	3,2	2,7	2,0	1,6
		X (m)		2,7	2,3	2,1	1,9	1,6	1,5
		P _t (Pa)		108	69	44	32	20	11
		dB(A)		47	42	39	36	31	28
200	55,6	V _k (m/s)		6,0	4,5	3,6	3,0	2,2	1,8
		X (m)		3,0	2,6	2,3	2,1	1,8	1,6
		P _t (Pa)		133	85	54	40	24	14
		dB(A)		50	45	42	39	34	31
250	69,4	V _k (m/s)			5,6	4,5	3,7	2,8	2,2
		X (m)			3,2	2,9	2,6	2,3	2,0
		P _t (Pa)			133	85	62	38	21
		dB(A)			52	49	46	41	38
300	83,3	V _k (m/s)				5,4	4,5	3,4	2,7
		X (m)				3,5	3,2	2,7	2,4
		P _t (Pa)				122	90	54	31
		dB(A)				54	51	47	43
400	111,1	V _k (m/s)						4,5	3,6
		X (m)						3,7	3,2
		P _t (Pa)						97	54
		dB(A)						55	52
500	138,9	V _k (m/s)							4,5
		X (m)							4,0
		P _t (Pa)							85
		dB(A)							59

SYMBOLS

Q	Air flow in m ³ /h
A _k	Effective area in m ²
V _k	Effective supply velocity in m/s
X	Throw of the air jet
P _t	Total pressure drop, in Pa
dB(A)	Sound power level in dB(A)

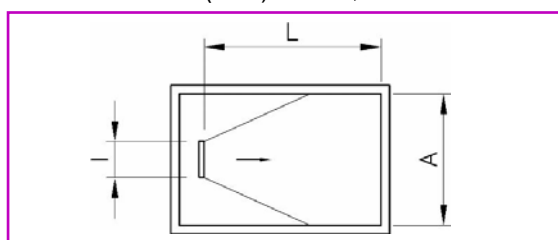
NOTES ON SELECTION TABLES

For the selection tables with lateral discharge:

- The diffuser is positioned along the longitudinal axis of the ceiling, next to the wall, in a room of the following size:

L = Length, A = Width and I = Length of the diffuser.

$$(A - I) / L = 0,5$$



- The air jet is adherent (Coanda effect), i.e., the diffuser is mounted flush with the ceiling.

For the selection tables with vertical discharge:

- The diffuser is positioned in the middle of the ceiling in a square room.

- Positioning for vertical discharge, as non-adhering jet.

- The diffuser length is less than 0,5 times the width of the room and less than 0,5 times the throw.

- The pressure P_t is measured in the duct upstream of the plenum.

- The height of the room is 3 ± 0,5 m.

- The ΔT is equal to -10 °C, the temperature difference between the room and the supply air.

- The maximum velocity is 0,25 m/s in the occupied zone.

Selection table for S-74-18 (lateral discharge)

Example

Requirements:

Air flow _____ 200 m³/h
 Throw _____ 2 to 2,5 m
 Sound power level _____ Below 30 dB(A)
 Required pressure loss _____ Below 15 Pa
 Effective velocity _____ 2 m/s
 Direction of air flow _____ Lateral

Selection:

Based on the selection table (page 5) for linear slot diffusers with lateral discharge and on the general criteria that, for HVAC facilities.

S-74-18 diffuser, two-slots, length 1500 mm.

Q (Air flow) _____ 200 m³/h (or 55,6 l/s)
 V_k (Effective velocity) _____ 1,9 m/s
 X (Throw) _____ 2,2 m
 P_t (Pressure drop) _____ 9 Pa
 dB(A) (Sound power level) _____ 28

Based on the results, the data fit the project requirements.

Correction factor based on damper opening:

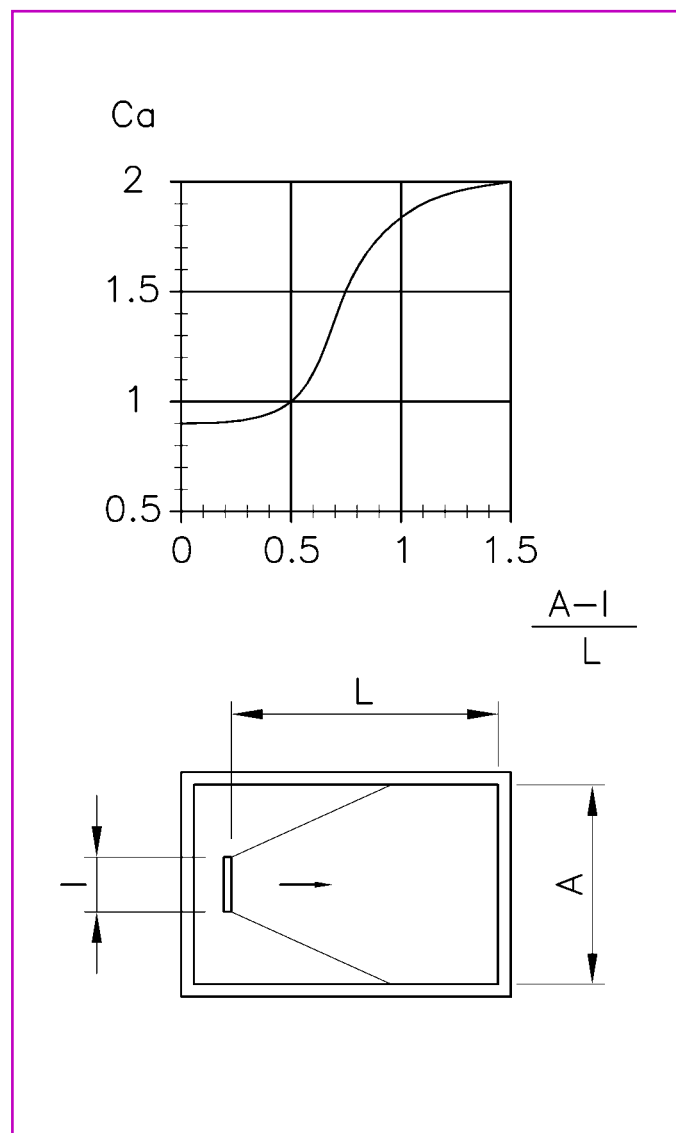
The technical data listed in the S-74-18 selection tables are for diffusers with 100% open sliding damper.

When the percentage of opening is modified, there is very little change in the actual throw, although the noise level and pressure drop would vary as follows:

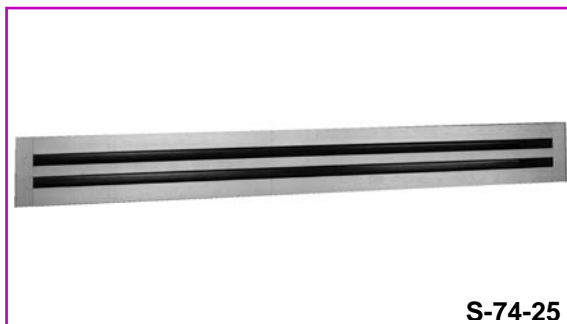
DAMPER	dB(A) SOUND POWER LEVEL	ΔP PRESSURE DROP
100% open	table value	table value
75% open	+ 2 dB	x 1,33
50% open	+ 5 dB	x 1,67
25% open	+ 10 dB	x 5

Correction factor for width-to-length ratio of the room:

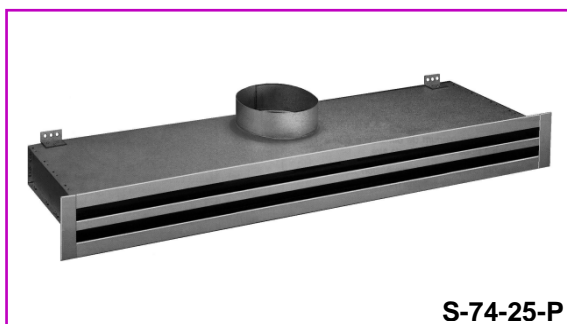
This factor is known as C_a . To calculate, divide the diffuser width less length by the length of the room. This is applicable to linear slot diffusers with lateral discharge. In diffusers with vertical discharge, C_a is equal to 1, since these diffusers have been tested in a square room ($A/L = 1$).



S-74/72-25 high-capacity linear slot diffusers



S-74-25



S-74-25-P



S-72-25FF hinged filter holder

Description

S-74-25 high-capacity linear slot diffuser for supply air. Aluminium construction in standard natural anodized or standard glossy RAL-9010 white preenamelled finish. Black deflection vanes with a matte finish. The S-74-25-P.. model includes a inlet plenum made of galvanized steel sheet, with or without insulation.

Three attachment systems are available for the plenum: screws, bridges or clips. The systems and coding are described on pages 14 to 15.

Application

S-74-25 linear slot diffusers are specially recommended for ceiling installation and allow 25% more air flow (for the same length) than the S-74-18 model, with the deflection vanes allowing the air flow to be adjusted from 0° to 180°. These diffusers are equipped with a sliding volume control damper.

Highquality aesthetics and performance are further enhanced by alternating the return diffusers with supply diffusers in the same continuous line. For return air, it is possible to use the S-72-25 or S-72-25/18 models (which do not have a control damper) or the S-72-25FF hinged filter holder model. To determine the return flow, refer to the respective instructions on page 23 (recommendations).

Dimensions

The "L" dimension (length) is always active lenght. The nominal or OPENING dimension is equal to L+25 mm. The "G" dimension is the width of the OPENING and is listed in the dimension tables (see general dimensions, including frames and end caps, on pages 19 to 22).

Identification

S-74-25 diffusers are equipped with deflection vanes and volume control damper. Models without a plenum include mounting bridges. For return air, it is possible to use the S-72-25 or S-72-25/18 models, which do not include volume control dampers but do include the deflection vanes, or the S-72-25FF filter holder model, hinged toward the outside for easy filter changes.

All diffusers comes with end caps in the heads. In diffusers with plenum, one of the three systems for attaching the plenum to the diffuser must be defined (except S-72-25FF, which may only be PF or PD).

S-74-25	Linear slot diffuser, 25 mm, adjustable.
S-72-25	Linear slot diff., 25 mm, non-adjustable.
S-72-25/18	Linear slot diffuser, 25 mm, 18-mm vane, without regulation.
S-72-25FF	Linear slot diffuser, 25 mm, hinged filter holder.

PM	Mounting bridge.
CL	Mounting clips.

1,2,3,4	Number of slots.
----------------	------------------

PF	Fix plenum
PD	Removable plenum.
PC	Plenum with clips.

PFA	Fix insulated plenum
PDA	Removable insulated plenum.
PCA	Insulated plenum with clips

Selection table for S-74-25, high-capacity (lateral discharge)

Q		Length in m and no. of ways												
		Dim.	600-1	900-1	1200-1 600-2	1500-1	900-2 600-3	1200-2 600-4	900-3	1500-2	1200-3 900-4	1500-3	1200-4	1500-4
(m³/h)	(l/s)	A _k (m²)	0,00672	0,01007	0,01343	0,01679	0,02015	0,02687	0,03022	0,03358	0,04030	0,05037	0,05373	0,06716
60	16,7	V _k (m/s)	2,5	1,7	1,2	1,0								
		X (m)	1,3	1,1	0,9	0,8								
		P _t (Pa)	13	6	3	2								
		dB(A)	27	<20	<20	<20								
80	22,2	V _k (m/s)	3,3	2,2	1,7	1,3	1,1							
		X (m)	1,7	1,4	1,2	1,1	1,0							
		P _t (Pa)	23	10	6	4	3							
		dB(A)	34	26	20	<20	<20							
100	27,8	V _k (m/s)	4,1	2,8	2,1	1,7	1,4	1,0						
		X (m)	2,2	1,8	1,5	1,4	1,3	1,1						
		P _t (Pa)	37	16	9	6	4	2						
		dB(A)	39	31	26	22	<20	<20						
140	38,9	V _k (m/s)	5,8	3,9	2,9	2,3	1,9	1,4	1,3	1,2	1,0			
		X (m)	3,0	2,5	2,1	1,9	1,8	1,5	1,4	1,4	1,2			
		P _t (Pa)	72	32	18	11	8	4	4	3	2			
		dB(A)	47	39	34	30	27	20	<20	<20	<20			
180	50,0	V _k (m/s)		5,0	3,7	3,0	2,5	1,9	1,7	1,5	1,2	1,0		
		X (m)		3,2	2,8	2,5	2,3	2,0	1,8	1,7	1,6	1,4		
		P _t (Pa)		53	30	19	13	7	6	5	3	2		
		dB(A)		45	40	36	33	27	24	22	<20	<20		
200	55,6	V _k (m/s)		5,5	4,1	3,3	2,8	2,1	1,8	1,7	1,4	1,1	1,0	
		X (m)		3,5	3,1	2,7	2,5	2,2	2,0	1,9	1,8	1,6	1,5	
		P _t (Pa)		65	37	23	16	9	7	6	4	3	2	
		dB(A)		48	43	39	35	29	26	24	20	<20	<20	
250	69,4	V _k (m/s)			5,2	4,1	3,4	2,6	2,3	2,1	1,7	1,4	1,3	1,0
		X (m)			3,8	3,4	3,1	2,7	2,6	2,4	2,2	2,0	1,9	1,7
		P _t (Pa)			57	37	25	14	11	9	6	4	4	2
		dB(A)			48	44	41	34	32	29	25	21	<20	<20
300	83,3	V _k (m/s)			6,2	5,0	4,1	3,1	2,8	2,5	2,1	1,7	1,6	1,2
		X (m)			4,6	4,1	3,8	3,3	3,1	2,9	2,7	2,4	2,3	2,1
		P _t (Pa)			82	53	37	21	16	13	9	6	5	3
		dB(A)			52	48	45	39	36	34	30	26	23	<20
400	111,1	V _k (m/s)				6,6	5,5	4,1	3,7	3,3	2,8	2,2	2,1	1,7
		X (m)				5,5	5,0	4,3	4,1	3,9	3,5	3,2	3,1	2,7
		P _t (Pa)				94	65	37	29	23	16	10	9	6
		dB(A)				55	52	46	43	41	37	33	30	25
500	138,9	V _k (m/s)						5,2	4,6	4,1	3,4	2,8	2,6	2,1
		X (m)						5,4	5,1	4,8	4,4	4,0	3,8	3,4
		P _t (Pa)						57	45	37	25	16	14	9
		dB(A)						51	49	46	42	38	36	31
600	166,7	V _k (m/s)							5,5	5,0	4,1	3,3	3,1	2,5
		X (m)							6,1	5,8	5,3	4,7	4,6	4,1
		P _t (Pa)							65	53	37	23	21	13
		dB(A)							53	51	47	43	40	35
700	194,4	V _k (m/s)								5,8	4,8	3,9	3,6	2,9
		X (m)								6,8	6,2	5,5	5,4	4,8
		P _t (Pa)								72	50	32	28	18
		dB(A)								54	50	46	44	39
800	222,2	V _k (m/s)									5,5	4,4	4,1	3,3
		X (m)									7,1	6,3	6,1	5,5
		P _t (Pa)									65	42	37	23
		dB(A)									54	50	47	42
900	250,0	V _k (m/s)										5,0	4,7	3,7
		X (m)										7,1	6,9	6,2
		P _t (Pa)										53	46	30
		dB(A)										52	50	45
1000	277,8	V _k (m/s)											5,2	4,1
		X (m)											7,7	6,9
		P _t (Pa)											57	37
		dB(A)											53	48
1200	333,3	V _k (m/s)												5,0
		X (m)												8,2
		P _t (Pa)												53
		dB(A)												52

This selection table is based on laboratory tests as per ISO 5219 (UNE 100.710) and ISO 5135 and 3741.

The ΔT is equal to -10 °C, the temperature difference between the room and the supply air.

The maximum velocity is 0,25 m/s in the occupied zone.

SYMBOLS

Q	Air flow in m³/h
A _k	Effective area in m²
V _k	Effective supply velocity in m/s
X	Throw of the air jet
P _t	Total pressure drop, in Pa
dB(A)	Sound power level in dB(A)

Selection table for S-74-25, high-capacity (vertical discharge)

		Length in m and no. of ways												
Q		Dim.	600-1	900-1	1200-1 600-2	1500-1	900-2 600-3	1200-2 600-4	900-3	1500-2	1200-3 900-4	1500-3	1200-4	1500-4
(m³/h)	(l/s)	A _k (m²)	0,00701	0,01052	0,01402	0,01753	0,02104	0,02805	0,03156	0,03506	0,04207	0,05259	0,05610	0,07012
60	16,7	V _k (m/s)	2,4	1,6	1,2	1,0								
		X (m)	1,1	0,9	0,7	0,7								
		P _t (Pa)	13	6	3	2								
		dB(A)	26	<20	<20	<20								
80	22,2	V _k (m/s)	3,2	2,1	1,6	1,3	1,1							
		X (m)	1,4	1,1	1,0	0,9	0,8							
		P _t (Pa)	22	10	6	4	2							
		dB(A)	33	24	<20	<20	<20							
100	27,8	V _k (m/s)	4,0	2,6	2,0	1,6	1,3	1,0						
		X (m)	1,8	1,4	1,2	1,1	1,0	0,9						
		P _t (Pa)	35	16	9	6	4	2						
		dB(A)	38	29	23	<20	<20	<20						
140	38,9	V _k (m/s)	5,5	3,7	2,8	2,2	1,8	1,4	1,2	1,1				
		X (m)	2,5	2,0	1,7	1,6	1,4	1,2	1,2	1,1				
		P _t (Pa)	69	30	17	11	8	4	3	3				
		dB(A)	46	37	31	26	22	<20	<20	<20				
180	50,0	V _k (m/s)		4,8	3,6	2,9	2,4	1,8	1,6	1,4	1,2	1,0		
		X (m)		2,6	2,2	2,0	1,8	1,6	1,5	1,4	1,3	1,2		
		P _t (Pa)		50	28	18	13	7	6	5	3	2		
		dB(A)		43	37	32	28	21	<20	<20	<20	<20		
200	55,6	V _k (m/s)		5,3	4,0	3,2	2,6	2,0	1,8	1,6	1,3	1,1	1,0	
		X (m)		2,9	2,5	2,2	2,0	1,8	1,7	1,6	1,4	1,3	1,2	
		P _t (Pa)		62	35	22	16	9	7	6	4	2	2	
		dB(A)		46	40	34	30	24	21	<20	<20	<20	<20	
250	69,4	V _k (m/s)			5,0	4,0	3,3	2,5	2,2	2,0	1,7	1,3	1,2	
		X (m)			3,1	2,8	2,5	2,2	2,1	2,0	1,8	1,6	1,5	
		P _t (Pa)			55	35	24	14	11	9	6	4	3	
		dB(A)			45	40	36	29	27	24	20	<20	<20	
300	83,3	V _k (m/s)			5,9	4,8	4,0	3,0	2,6	2,4	2,0	1,6	1,5	1,2
		X (m)			3,7	3,3	3,0	2,6	2,5	2,3	2,1	1,9	1,9	1,7
		P _t (Pa)			79	50	35	20	16	13	9	6	5	3
		dB(A)			49	44	40	34	31	29	25	20	<20	<20
400	111,1	V _k (m/s)				6,3	5,3	4,0	3,5	3,2	2,6	2,1	2,0	1,6
		X (m)				4,4	4,0	3,5	3,3	3,1	2,9	2,6	2,5	2,2
		P _t (Pa)				90	62	35	28	22	16	10	9	6
		dB(A)				51	47	41	38	36	32	27	25	20
500	138,9	V _k (m/s)						5,0	4,4	4,0	3,3	2,6	2,5	2,0
		X (m)						4,4	4,1	3,9	3,6	3,2	3,1	2,8
		P _t (Pa)						55	43	35	24	16	14	9
		dB(A)						46	44	41	37	32	31	26
600	166,7	V _k (m/s)							5,3	4,8	4,0	3,2	3,0	2,4
		X (m)							5,0	4,7	4,3	3,8	3,7	3,3
		P _t (Pa)							62	50	35	22	20	13
		dB(A)							48	46	42	37	35	30
700	194,4	V _k (m/s)								5,5	4,6	3,7	3,5	2,8
		X (m)								5,5	5,0	4,5	4,3	3,9
		P _t (Pa)								69	48	30	27	17
		dB(A)								50	45	40	39	34
800	222,2	V _k (m/s)									5,3	4,2	4,0	3,2
		X (m)									5,7	5,1	5,0	4,4
		P _t (Pa)									62	40	35	22
		dB(A)									49	44	42	37
900	250,0	V _k (m/s)										4,8	4,5	3,6
		X (m)										5,8	5,6	5,0
		P _t (Pa)										50	44	28
		dB(A)										47	45	40
1000	277,8	V _k (m/s)											5,0	4,0
		X (m)											6,2	5,5
		P _t (Pa)											55	35
		dB(A)											48	43
1200	333,3	V _k (m/s)												4,8
		X (m)												6,6
		P _t (Pa)												50
		dB(A)												47

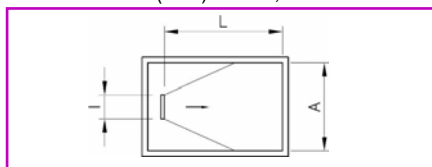
NOTES ON SELECTION TABLES

For the selection tables with lateral discharge:

- The diffuser is located along the longitudinal axis of the ceiling, next to the wall, in a room of the following size:

L = Length, A = Width and l = Length of the diffuser.

$$(A - l) / L = 0,5$$



- The air jet is adherent (Coanda effect), i.e., the diffuser is mounted flush with the ceiling.

For the selection tables with vertical discharge:

- The diffuser is located in the middle of the ceiling in a square room.
- Positioning for vertical discharge, as non-adhering jet.
- The diffuser length is less than 0,5 times the width of the room and less than 0,5 times the throw.
- The pressure P_t is measured inside the duct upstream of the plenum.
- The height of the room is 3 ± 0,5 m.
- The ΔT is equal to -10 °C, the temperature difference between the room and the supply air.
- The maximum velocity is 0,25 m/s in the occupied zone.

Selection example S-74-25, high-capacity (lateral discharge)

Example

Requirements:

Air flow _____ 600 m³/h
 Throw _____ 4 m
 Sound power level _____ Below 40 dB(A)
 Required pressure loss _____ Below 15 Pa
 Effective velocity _____ 2,5 to 3 m/s
 Direction of air flow _____ Lateral

Selection:

Based on the selection table (page 9) for linear slot diffusers with lateral discharge and on the general criteria that, for HVAC facilities:

S-74-25 diffuser, four-slots, length 1600 mm.

Q (Air flow) _____ 600 m³/h (or 166,7 l/s)
 V_k (Effective velocity) _____ 2,5 m/s
 X (Throw) _____ 4,1 m
 P_t (Pressure drop) _____ 13 Pa
 dB(A) (Sound power level) _____ 35

Based on the results, the data fit the project requirements.

Correction factor based on damper opening:

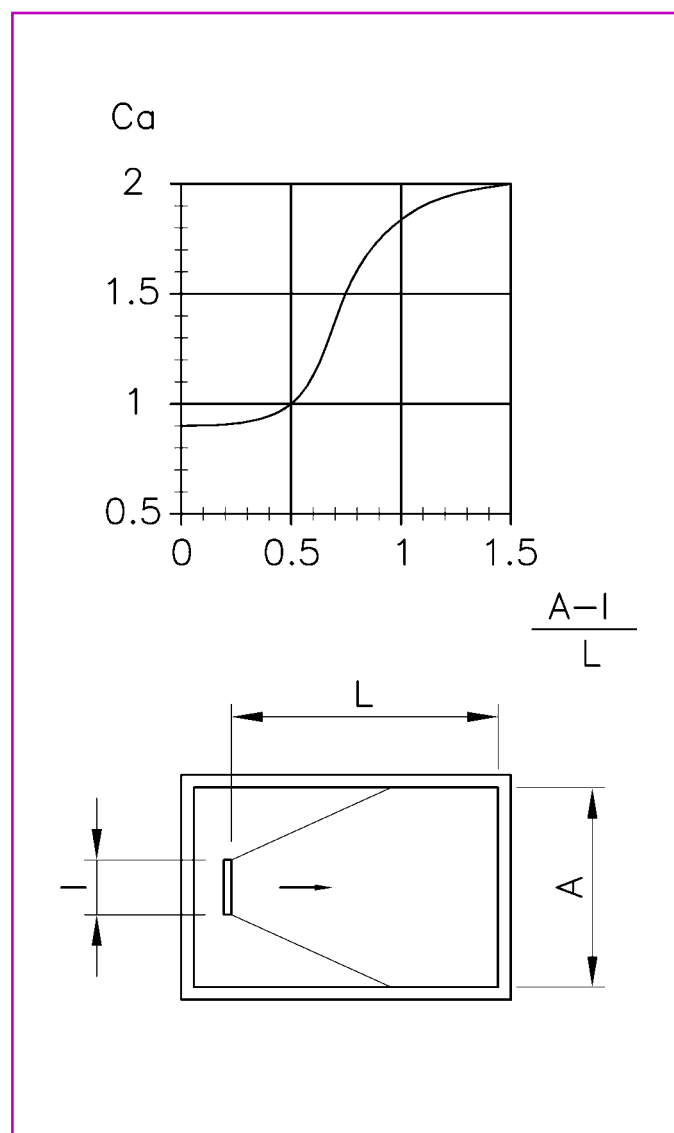
The technical data listed in the selection tables for the S-74-25 diffusers are for diffusers with 100% open sliding damper.

When the percentage of opening is modified, there is very little change in the actual throw, although the noise level and pressure drop would vary as follows:

DAMPER	dB(A) SOUND POWER LEVEL	ΔP PRESSURE DROP
100% open	table value	table value
75% open	+ 2 dB	x 1,33
50% open	+ 5 dB	x 1,67
25% open	+ 10 dB	x 5

Correction factor for width-to-length ratio of the room:

This factor is known as C_a . To calculate, divide the diffuser width less length by the length of the room. This is applicable to linear slot diffusers with lateral discharge. In diffusers with vertical discharge, C_a is equal to 1, since these diffusers have been tested in a square room ($A/L = 1$).



Selection table for S-72-25FF, for return (filter holder)

Length in m and no. of ways											
Q		Dim.	600-3	600-4	900-3	600-5	900-4 1200-3	900-5 1500-3	1200-4	1200-5 1500-4	1500-5
(m ³ /h)	(l/s)										
80	22,2	dB(A) P _{St} (Pa)	<20 4								
100	27,8	dB(A) P _{St} (Pa)	<20 6	<20 3							
160	44,4	dB(A) P _{St} (Pa)	24 15	20 8	<20 7						
200	55,6	dB(A) P _{St} (Pa)	29 23	25 13	23 10	22 8	<20 6				
300	83,3	dB(A) P _{St} (Pa)	38 52	33 29	32 23	30 19	22 13	20 8	<20 7		
400	111,1	dB(A) P _{St} (Pa)	44 93	40 52	38 41	36 33	28 23	26 15	23 13	21 8	
500	138,9	dB(A) P _{St} (Pa)	49 145	44 82	43 65	41 52	33 36	31 23	28 20	26 13	23 8
600	166,7	dB(A) P _{St} (Pa)		48 118	46 93	45 75	36 52	34 33	32 29	30 19	27 12
700	194,4	dB(A) P _{St} (Pa)			50 126	48 103	40 71	38 46	35 40	33 26	30 16
800	222,2	dB(A) P _{St} (Pa)					43 93	41 60	38 52	36 33	33 21
900	250,0	dB(A) P _{St} (Pa)					45 118	43 75	40 66	38 42	35 27
1000	277,8	dB(A) P _{St} (Pa)						45 93	42 82	41 52	38 33
1200	333,3	dB(A) P _{St} (Pa)						49 134	46 118	44 75	41 48
1400	388,9	dB(A) P _{St} (Pa)								48 103	45 66
1600	444,4	dB(A) P _{St} (Pa)								51 134	48 86
1800	500,0	dB(A) P _{St} (Pa)									50 108
2000	555,6	dB(A) P _{St} (Pa)									52 134

NOTE: The pressure drop (Pa) includes a Class G-2 filter.

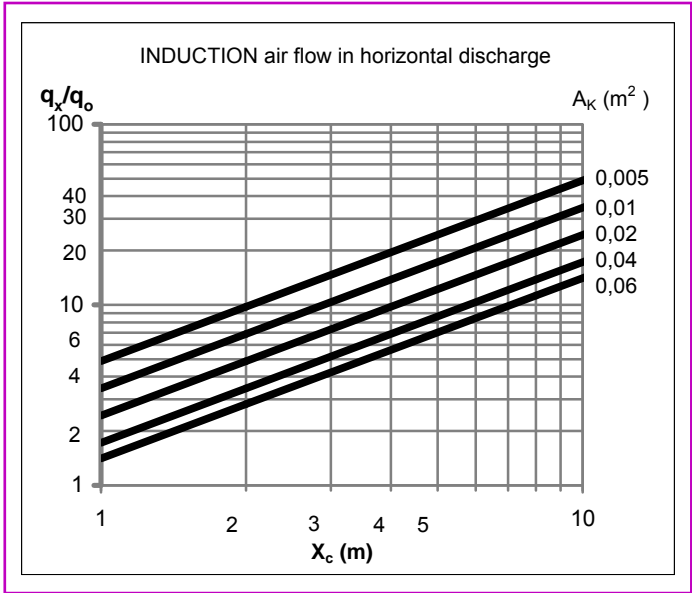
This selection table is based on laboratory tests according to ISO 5219 (UNE 100.710), ISO 5135 and ISO 3741 standards.

Induction rate

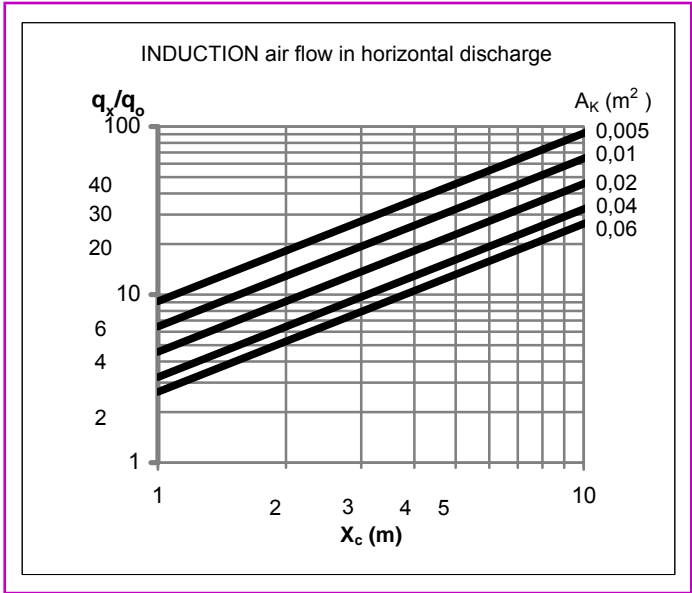
Induction effect

The induced air flow in the room can be determined using the factor (q_x/q_o) with the parameters X_c in m (corrected throw) for lateral discharge diffusers, Y (throw in m) for vertical discharge diffusers, and the effective area in m^2 (A_k).

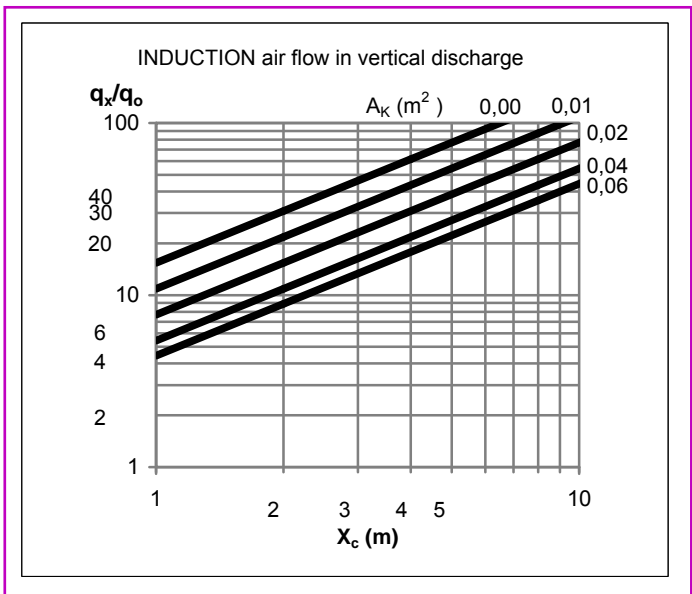
S-74-18



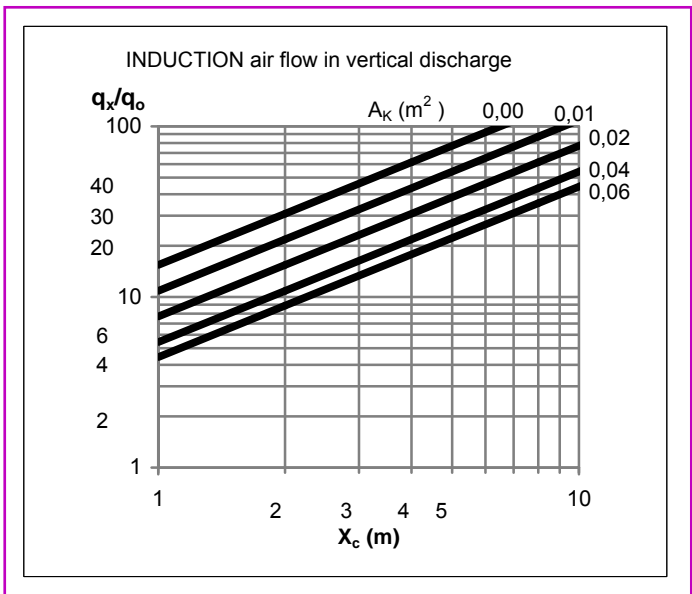
S-74-25



S-74-18



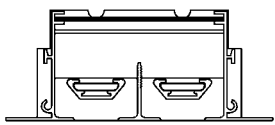
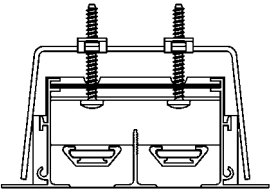
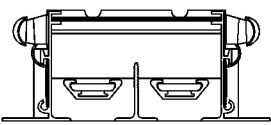
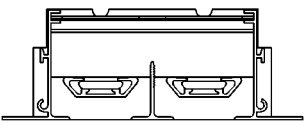
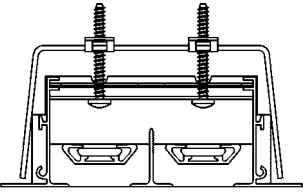
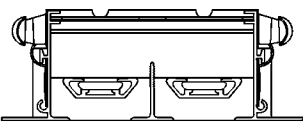
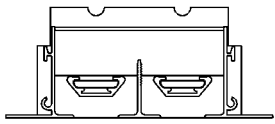
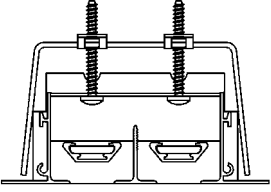
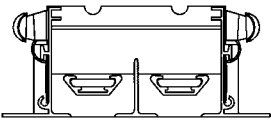
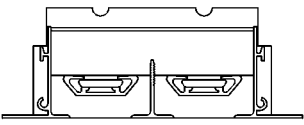
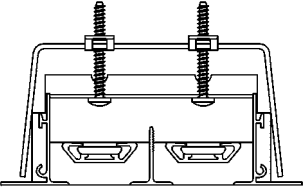
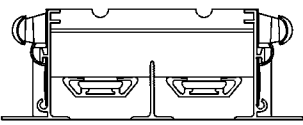
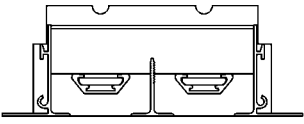
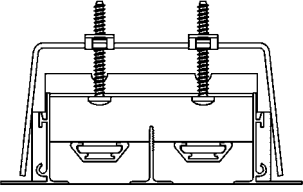
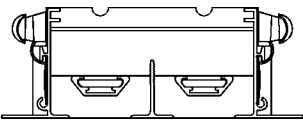
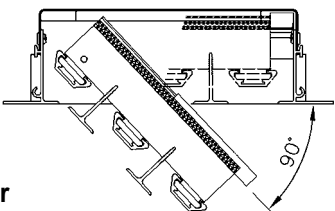
S-74-25



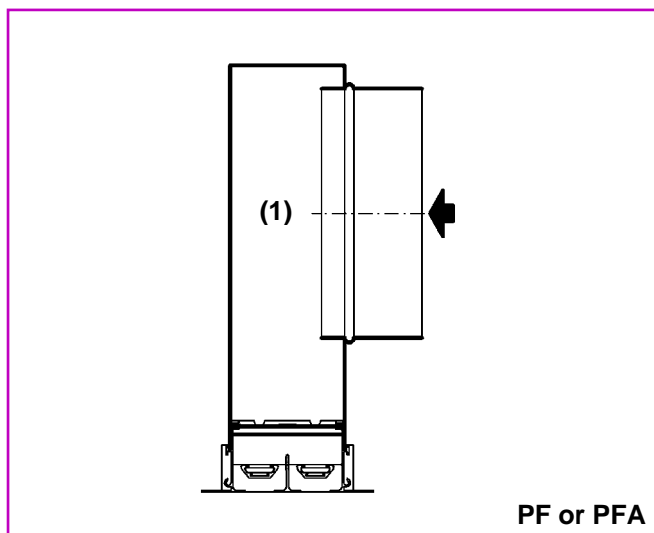
S-70-1 linear slot diffuser models

Types of linear slot diffusers

This page presents a schematic description of the linear slot diffusers, including an overview of the different versions and plenum attachment systems, as well as the filter holder model.

Diffusers screwed to plenum	Diffusers with mounting bridge	Diffusers with mounting clips
 <p>S-74-18-PF</p>	 <p>S-74-18-PM</p>	 <p>S-74-18-CL</p>
 <p>S-74-25-PF</p>	 <p>S-74-25-PM</p>	 <p>S-74-25-CL</p>
 <p>S-72-18-PF</p>	 <p>S-72-18-PM</p>	 <p>S-72-18-CL</p>
 <p>S-72-25-PF</p>	 <p>S-72-25-PM</p>	 <p>S-72-25-CL</p>
 <p>S-72-25/18-PF</p>	 <p>S-72-25/18-PM</p>	 <p>S-72-25/18-CL</p>
 <p>S-72-25/FF filter holder for return air</p>		

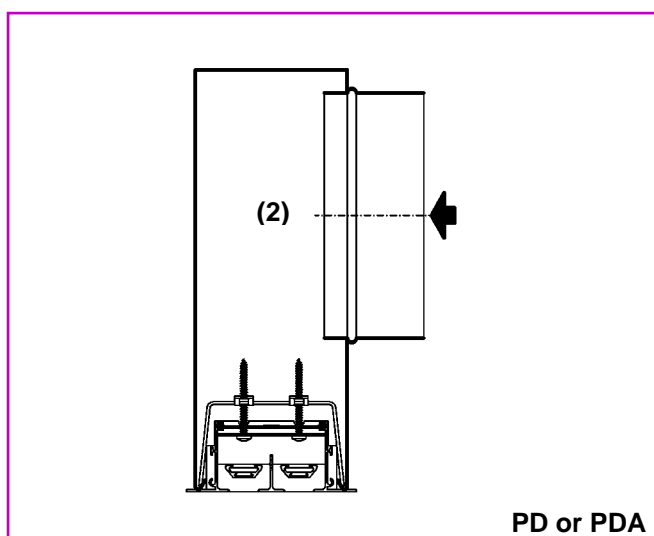
Types of plenums (PF, PD, PC)



These three types of plenum are adaptable to all linear slot diffusers of the 70 SERIES, for both supply and return air. All models have hanging tabs, that are folded for easier transport.

PF or PFA plenum

The plenums are factory-mounted on the diffuser with screws (1).

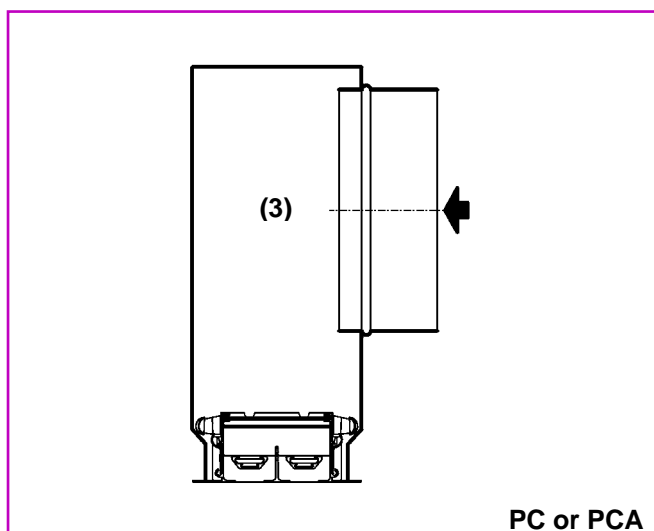


PD or PDA plenum

This model is equipped with a removable plenum, which is attached to the diffuser by bridges (2).

Access to mounting bridges

Use a screwdriver inserted in the holes in the deflection vanes, usually hidden with plastic caps.

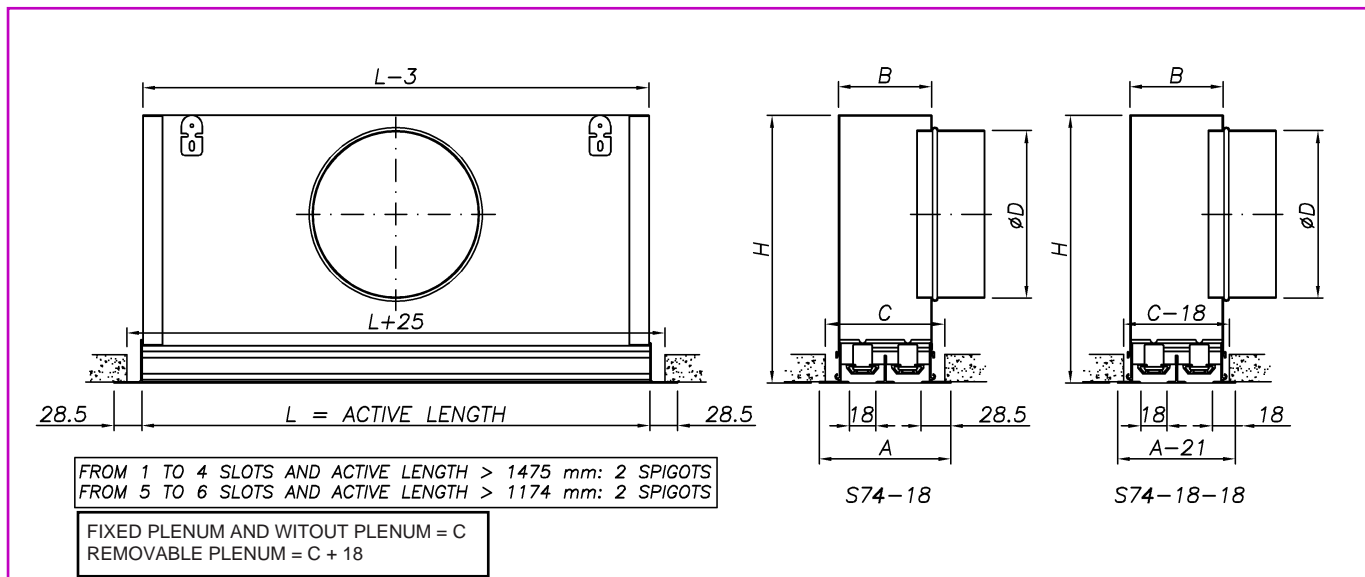


PC or PCA plenum

The plenum is mounted on the diffuser with pressure clips. This system is easy to use and allows the diffuser to be conveniently positioned after plenum mounting without the need for preliminary measurements or repositioning, except for the S-72-25FF model (3).

General dimensions of S-74-18-PF

S-74-18-PF (fix plenum) or PFA (insulated fix plenum) linear slot diffusers



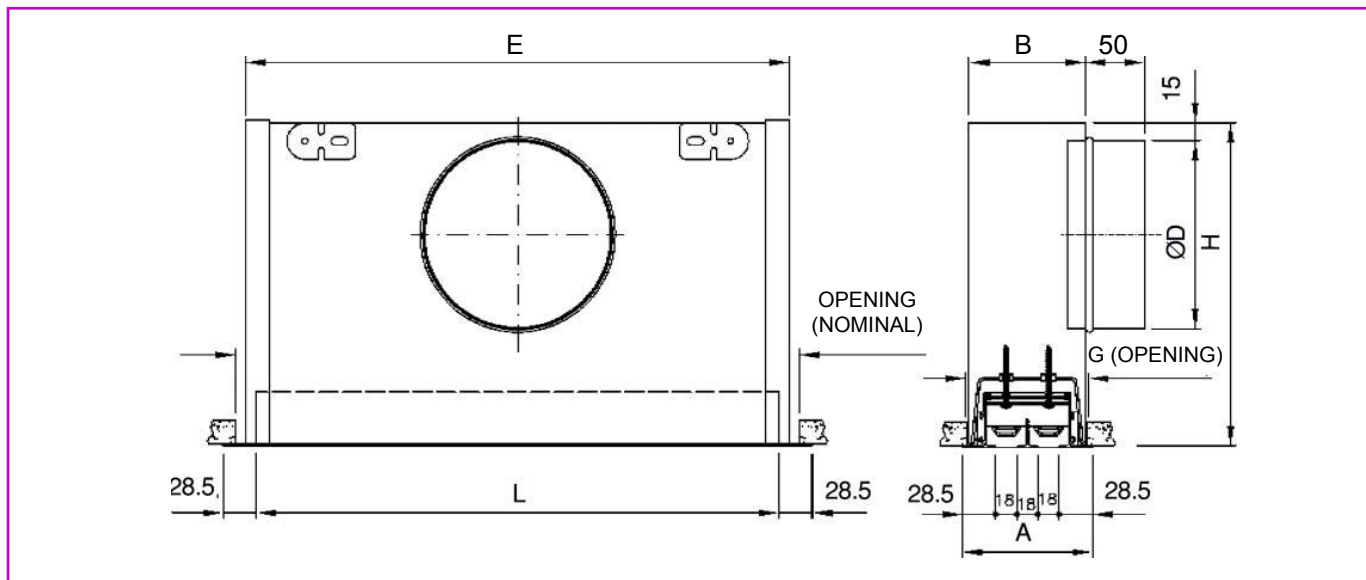
S-74-18-PF or PFA linear slot diffusers

No. of Slots	A	B	C	Ø D	H
1	75	40	48	124	225
2	111	76	84	159	275
3	147	112	120	199	325
4	183	148	156	199	325
5	219	184	192	249	375
6	255	220	228	249	375

Note: The S-72-18 diffusers without volume control damper have these same dimensions.

General dimensions of S-74-18-PD

S-74-18-PD (removable plenum) or PDA (insulated removable plenum) linear slot diffusers



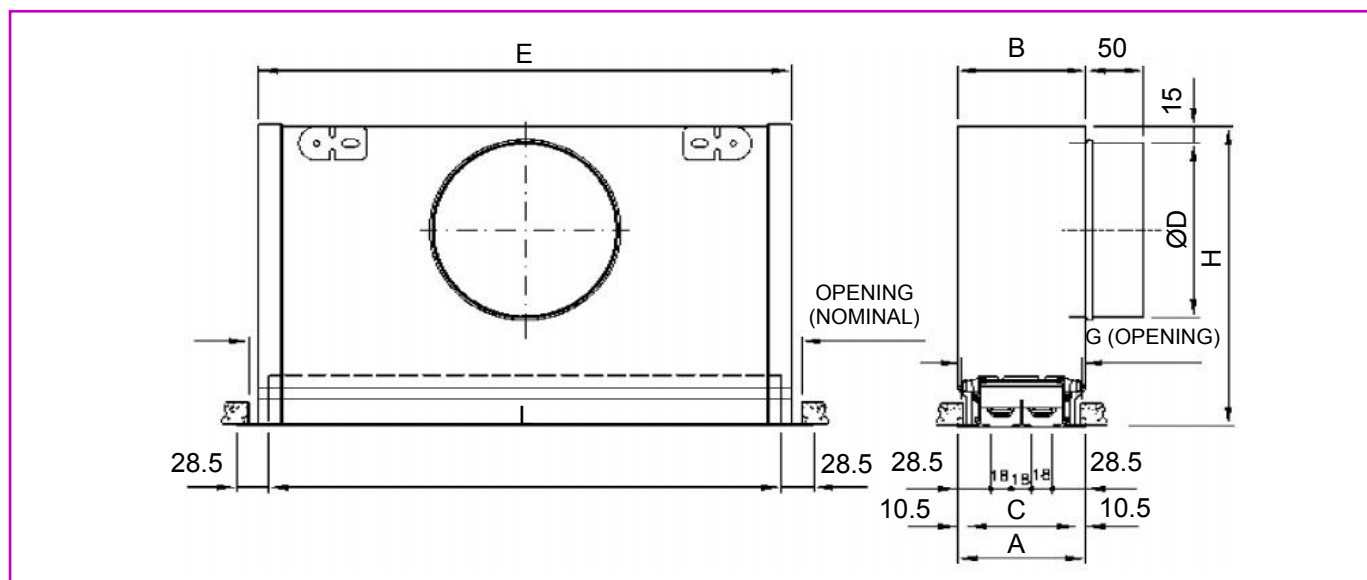
S74-18-PD or PDA linear slot diffusers

NOMINAL	No. slots	A	B	G	L	E	ØD	H
600	1	75	63	66	575	589	124	225
	2	111	99	102			159	275
	3	147	135	138			199	325
	4	183	171	174			199	325
900	1	75	63	66	875	889	124	225
	2	111	99	102			159	275
	3	147	135	138			199	325
	4	183	171	174			199	325
1200	1	75	63	66	1175	1189	124	225
	2	111	99	102			159	275
	3	147	135	138			199	325
	4	183	171	174			199	325
1500	1	75	63	66	1475	1489	124	225
	2	111	99	102			159	275
	3	147	135	138			199	325
	4	183	171	174			199	325
1800	1	75	63	66	1775	1789	2x124	225
	2	111	99	102			2x159	275
	3	147	135	138			2x199	325
	4	183	171	174			2x199	325
2000	1	75	63	66	1975	1989	2x124	225
	2	111	99	102			2x159	275
	3	147	135	138			2x199	325
	4	183	171	174			2x199	325
2025	1	75	63	66	2000	2014	2x124	225
	2	111	99	102			2x159	275
	3	147	135	138			2x199	325
	4	183	171	174			2x199	325

Note: The S-72-18 diffusers without volume control damper have these same dimensions.

General dimensions of S-74-18-PC

S-74-18-PC (plenum with clips) or PCA (insulated plenum, with clips) linear slot diffusers



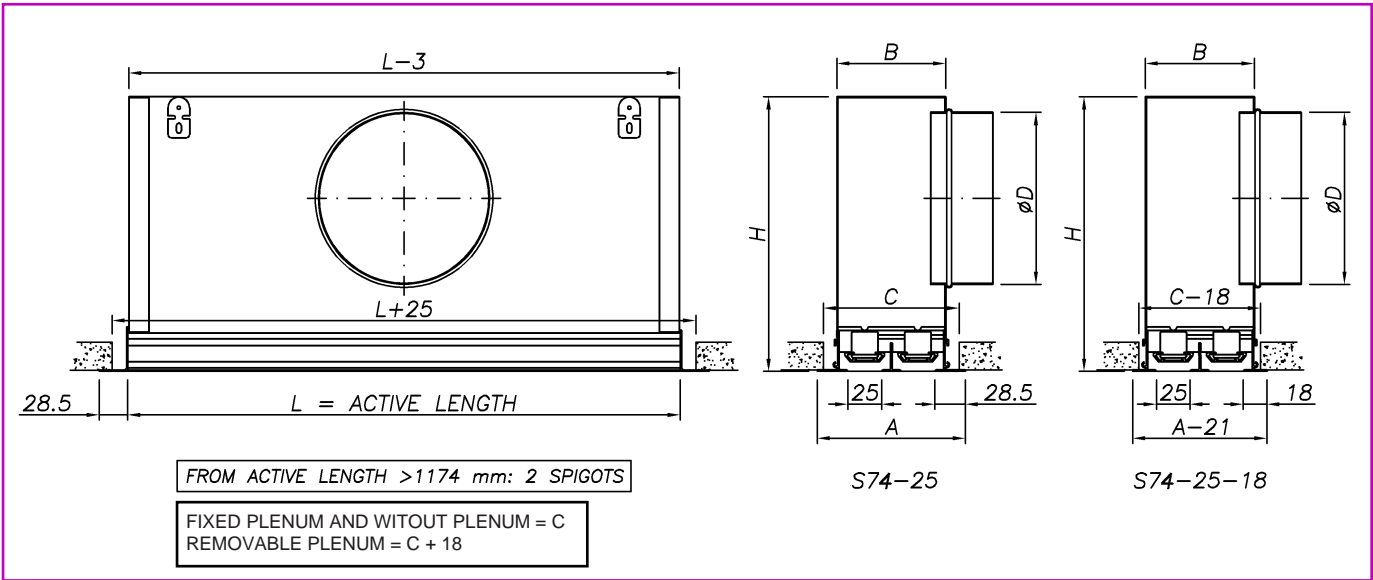
S-74-18-PC or PCA linear slot diffusers

NOMINAL	No. slots	A	B	C	G	L	E	$\varnothing D$	H
600	1	75	76	54	66	575	589	124	225
	2	111	112	90	102			159	275
	3	147	148	126	138			199	325
	4	183	184	162	174			199	325
900	1	75	76	54	66	875	889	124	225
	2	111	112	90	102			159	275
	3	147	148	126	138			199	325
	4	183	184	162	174			199	325
1200	1	75	76	54	66	1175	1189	124	225
	2	111	112	90	102			159	275
	3	147	148	126	138			199	325
	4	183	184	162	174			199	325
1500	1	75	76	54	66	1475	1489	124	225
	2	111	112	90	102			159	275
	3	147	148	126	138			199	325
	4	183	184	162	174			199	325
1800	1	75	76	54	66	1775	1789	2x124	225
	2	111	112	90	102			2x159	275
	3	147	148	126	138			2x199	325
	4	183	184	162	174			2x199	325
2000	1	75	76	54	66	1975	1989	2x124	225
	2	111	112	90	102			2x159	275
	3	147	148	126	138			2x199	325
	4	183	184	162	174			2x199	325
2025	1	75	76	54	66	2000	2014	2x124	225
	2	111	112	90	102			2x159	275
	3	147	148	126	138			2x199	325
	4	183	184	162	174			2x199	325

Note: The S-72-25 diffusers without volume control damper have these same dimensions.

General dimensions of S-74-25-PF

S-74-25-PF (fix plenum) or PFA (insulated fix plenum) linear slot diffusers



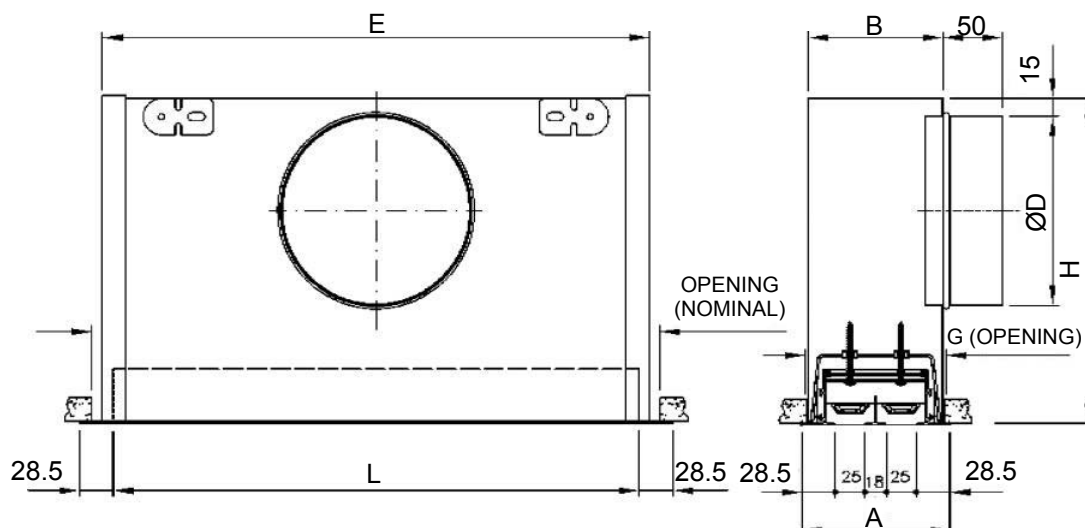
S-74-25-PF or PFA linear slot diffusers

No. of Slots	A	B	C	Ø D	H
1	82	47	73	124	225
2	125	90	116	159	275
3	168	133	159	199	325
4	211	176	202	199	325
5	254	219	245	249	375
6	297	262	288	249	375

Note: The S-72-25 diffusers without volume control damper have these same dimensions.

General dimensions of S-74-25-PD

S-74-25-PD (removable plenum) or PDA (insulated removable plenum) linear slot diffusers.



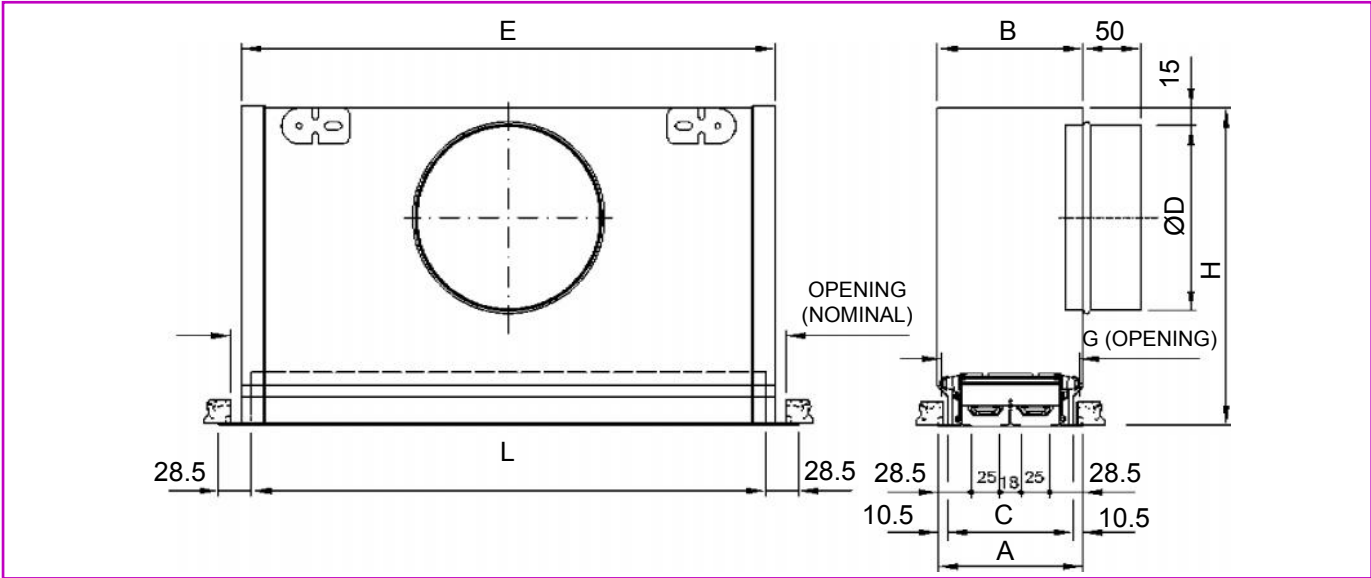
S-74-25-PD or PDA linear slot diffusers

NOMINAL	No. slots	A	B	G	L	E	ØD	H
600	1	82	70	73	575	589	124	225
	2	125	113	116			159	275
	3	168	156	159			199	325
	4	211	199	202			199	325
900	1	82	70	73	875	889	124	225
	2	125	113	116			159	275
	3	168	156	159			199	325
	4	211	199	202			199	325
1200	1	82	70	73	1175	1189	2x124	225
	2	125	113	116			2x159	275
	3	168	156	159			2x159	325
	4	211	199	202			2x199	325
1500	1	82	70	73	1475	1489	2x124	225
	2	125	113	116			2x159	275
	3	168	156	159			2x159	325
	4	211	199	202			2x199	325
1800	1	82	70	73	1775	1789	2x124	225
	2	125	113	116			2x159	275
	3	168	156	159			2x159	325
	4	211	199	202			2x199	325
2000	1	82	70	73	1975	1989	2x124	225
	2	125	113	116			2x159	275
	3	168	156	159			2x159	325
	4	211	199	202			2x199	325
2025	1	82	70	73	2000	2014	2x124	225
	2	125	113	116			2x159	275
	3	168	156	159			2x159	325
	4	211	199	202			2x199	325

Note: The S-72-25 diffusers without volume control damper have these same dimensions.

General dimensions of S-74-25-PC

S-74-25-PC (removable plenum) or PCA (insulated plenum, with clips) linear slot diffusers



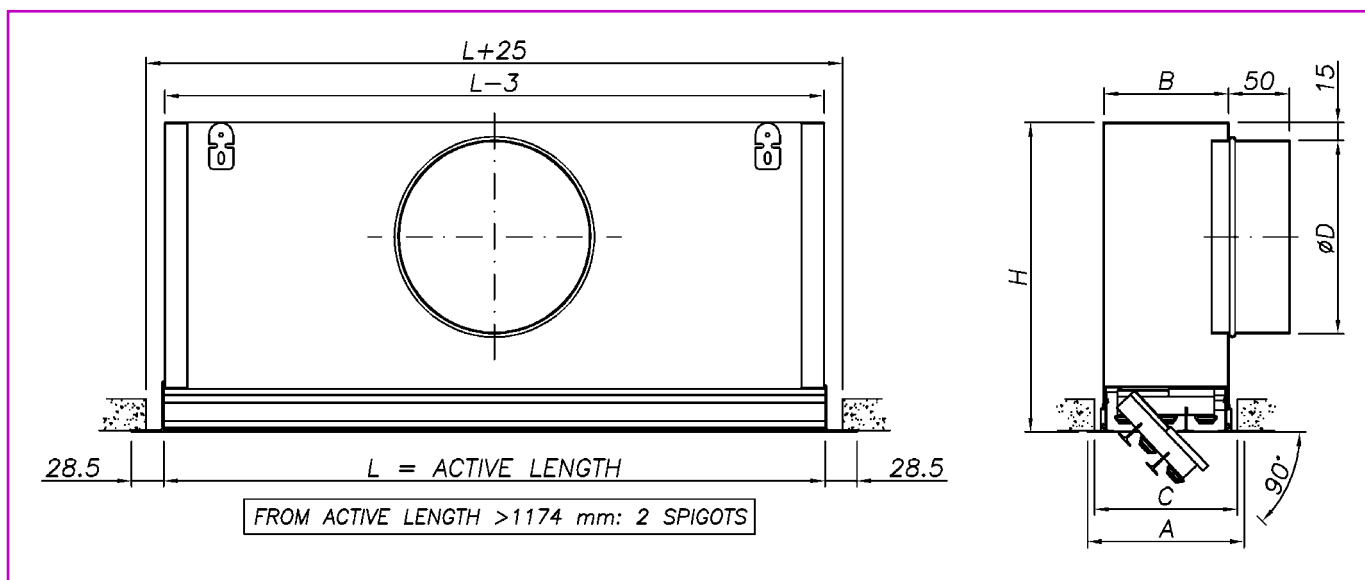
S-74-25-PC or PCA linear slot diffusers

NOMINAL	No. slots	A	B	G	L	E	ØD	H
600	1	82	83	73	575	589	124	225
	2	125	126	116			159	275
	3	168	169	159			199	325
	4	211	212	202			199	325
900	1	82	83	73	875	889	124	225
	2	125	126	116			159	275
	3	168	169	159			199	325
	4	211	212	202			199	325
1200	1	82	83	73	1175	1189	2x124	225
	2	125	126	116			2x159	275
	3	168	169	159			2x199	325
	4	211	212	202			2x199	325
1500	1	82	83	73	1475	1489	2x124	225
	2	125	126	116			2x159	275
	3	168	169	159			2x199	325
	4	211	212	202			2x199	325
1800	1	82	83	73	1775	1789	2x124	225
	2	125	126	116			2x159	275
	3	168	169	159			2x199	325
	4	211	212	202			2x199	325
2000	1	82	83	73	1975	1989	2x124	225
	2	125	126	116			2x159	275
	3	168	169	159			2x199	325
	4	211	212	202			2x199	325
2025	1	82	83	73	2000	2014	2x124	225
	2	125	126	116			2x159	275
	3	168	169	159			2x199	325
	4	211	212	202			2x199	325

Note: The S-72-25 diffusers without volume control damper have these same dimensions.

General dimensions of S-72-25FF

S-72-25FF linear slot diffusers with hinged filter holder (with or without plenum box)



S-72-25FF linear slot diffusers (with or without plenum)

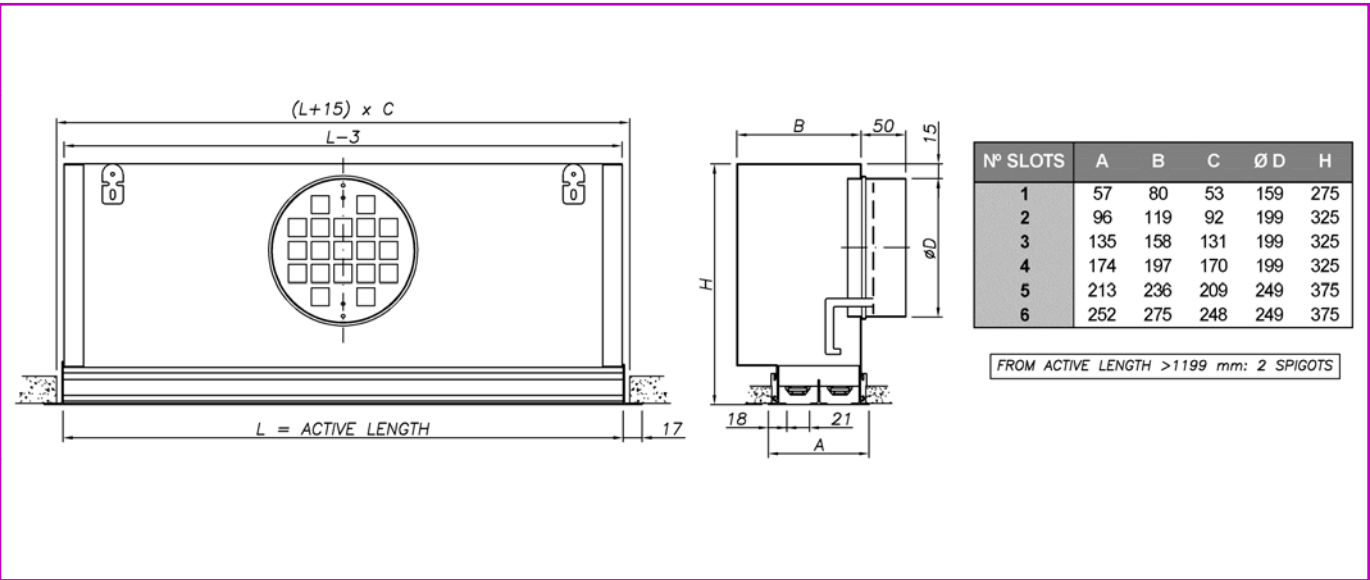
N° SLOTS	A	B	C	Ø D	H
3	168	133	159	199	325
4	211	176	202	199	325
5	254	219	245	249	375
6	297	262	288	249	375

Plenum attachment system

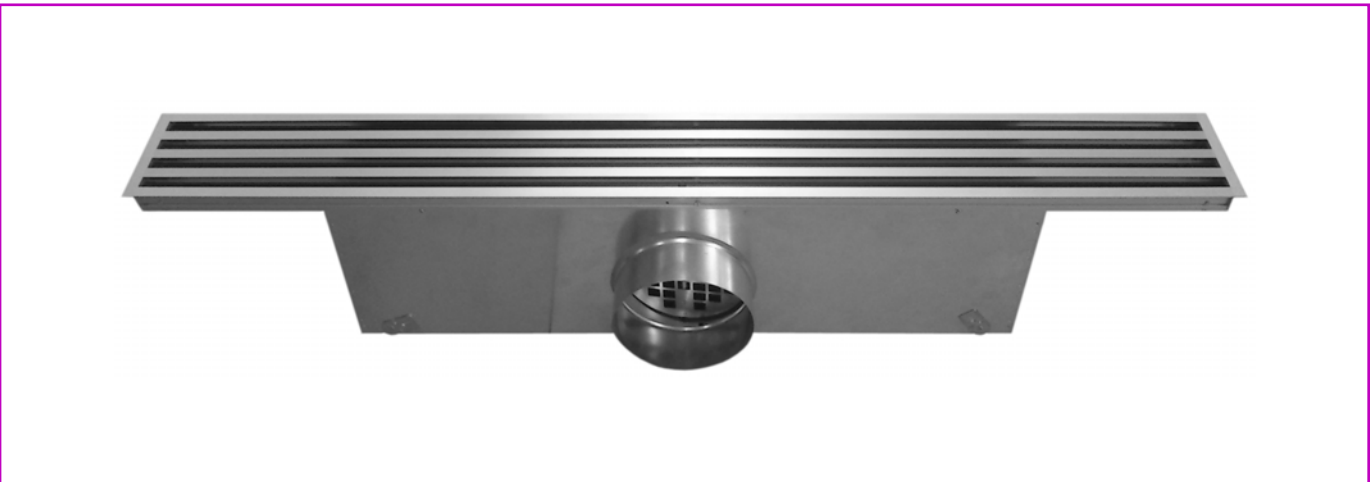
In diffusers equipped with filter holder, the attachment between the plenum box and the diffuser may be fix (PF system) or mounting bridges (PM system).

General dimensions of S-72-21/18

S-72-21/18 linear slot diffuser with narrow outer frames and 21-mm air passage.



Technical data on pages 27 and 28.



Selection table for S-72-21/18

Q		Dim.	600-1	900-1	1200-1 600-2	1500-1	900-2 600-3	1200-2 600-4	900-3	1500-2	1200-3 900-4	1500-3	1200-4	1500-4
(m ³ /h)	(l/s)	A _k (m ²)	0,00697	0,01046	0,01395	0,01744	0,02092	0,02790	0,03139	0,03487	0,04185	0,05231	0,05580	0,06975
60	16,7	V _k (m/s)	2,4	1,6	1,2									
		X (m)	1,4	1,1	1,0									
		P _t (Pa)	6	3	2									
		dB(A)	<20	<20	<20									
80	22,2	V _k (m/s)	3,2	2,1	1,6	1,3	1,1							
		X (m)	1,8	1,5	1,3	1,1	1,0							
		P _t (Pa)	11	5	3	2	1							
		dB(A)	24	<20	<20	<20	<20							
100	27,8	V _k (m/s)	4,0	2,7	2,0	1,6	1,3	1,0						
		X (m)	2,3	1,8	1,6	1,4	1,3	1,1						
		P _t (Pa)	17	8	4	3	2	1						
		dB(A)	30	22	<20	<20	<20	<20						
150	41,7	V _k (m/s)	6,0	4,0	3,0	2,4	2,0	1,5	1,3	1,2	1,0			
		X (m)	3,4	2,8	2,4	2,1	2,0	1,7	1,6	1,5	1,4			
		P _t (Pa)	39	17	10	6	4	2	2	2	1			
		dB(A)	41	33	28	23	<20	<20	<20	<20	<20			
200	55,6	V _k (m/s)	8,0	5,3	4,0	3,2	2,7	2,0	1,8	1,6	1,3	1,1	1,0	
		X (m)	4,5	3,7	3,2	2,9	2,6	2,3	2,1	2,0	1,8	1,7	1,6	
		P _t (Pa)	70	31	17	11	8	4	3	3	2	1	1	
		dB(A)	49	41	36	31	27	22	<20	<20	<20	<20	<20	
250	69,4	V _k (m/s)		6,6	5,0	4,0	3,3	2,5	2,2	2,0	1,7	1,3	1,2	1,0
		X (m)		4,6	4,0	3,6	3,3	2,8	2,7	2,5	2,3	2,1	2,0	1,8
		P _t (Pa)		48	27	17	12	7	5	4	3	2	2	1
		dB(A)		47	42	37	34	28	24	21	<20	<20	<20	<20
300	83,3	V _k (m/s)			6,0	4,8	4,0	3,0	2,7	2,4	2,0	1,6	1,5	1,2
		X (m)			4,8	4,3	3,9	3,4	3,2	3,0	2,8	2,5	2,4	2,1
		P _t (Pa)			39	25	17	10	8	6	4	3	2	2
		dB(A)			47	42	39	33	29	26	23	<20	<20	<20
400	111,1	V _k (m/s)				6,4	5,3	4,0	3,5	3,2	2,7	2,1	2,0	1,6
		X (m)				5,7	5,2	4,5	4,3	4,0	3,7	3,3	3,2	2,9
		P _t (Pa)				45	31	17	14	11	8	5	4	3
		dB(A)				50	47	41	37	34	31	26	25	21
500	138,9	V _k (m/s)					6,6	5,0	4,4	4,0	3,3	2,7	2,5	2,0
		X (m)					6,5	5,7	5,3	5,1	4,6	4,1	4,0	3,6
		P _t (Pa)					48	27	22	17	12	8	7	4
		dB(A)					53	47	43	41	37	33	31	27
600	166,7	V _k (m/s)						6,0	5,3	4,8	4,0	3,2	3,0	2,4
		X (m)						6,8	6,4	6,1	5,5	5,0	4,8	4,3
		P _t (Pa)						39	31	25	17	11	10	6
		dB(A)						52	48	46	42	38	36	32
700	194,4	V _k (m/s)							6,2	5,6	4,6	3,7	3,5	2,8
		X (m)							7,5	7,1	6,5	5,8	5,6	5,0
		P _t (Pa)							42	34	24	15	13	9
		dB(A)							52	50	46	42	41	36
800	222,2	V _k (m/s)								6,4	5,3	4,2	4,0	3,2
		X (m)								8,1	7,4	6,6	6,4	5,7
		P _t (Pa)								45	31	20	17	11
		dB(A)								54	50	46	44	40
900	250,0	V _k (m/s)									6,0	4,8	4,5	3,6
		X (m)									8,3	7,4	7,2	6,4
		P _t (Pa)									39	25	22	14
		dB(A)									53	49	47	43
1000	277,8	V _k (m/s)										5,3	5,0	4,0
		X (m)										8,3	8,0	7,2
		P _t (Pa)										31	27	17
		dB(A)										52	50	46

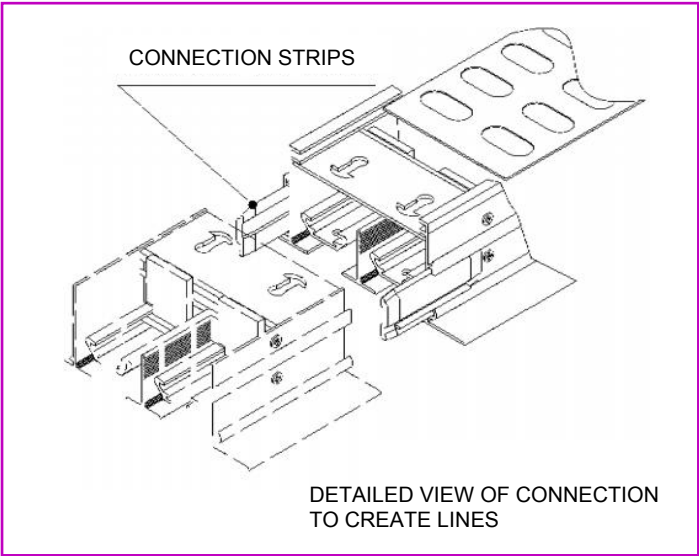
SYMBOLS

Q	Air flow in m ³ /h
A _k	Effective area in m ²
V _k	Effective supply velocity in m/s
X	Throw of the air jet
P _t	Total pressure drop, in Pa
dB(A)	Sound power level in dB(A)

Recommendations

Diffusers with length above 2000 mm.

Diffusers with a length above 2000 mm are supplied in separate sections that are assembled with union pieces for perfect alignment, with end caps in the head sections at the end.



Application of S-70-1 diffusers for return or exhaust.

For aesthetic reasons, the same components are usually installed for both air supply and return or exhaust. When a linear slot diffuser is used for exhaust, the effective crosssection for active length (A_k) is reduced by about 25%, with respect to the same type of diffuser used for supply.

Since the pressure drop of the air and the sound power level are directly related to the velocity and the effective area, this should be taken into consideration when selecting a linear slot diffuser for return, decreasing the flow by the same percentage with respect to the model selected for supply air.

In S-74-25 diffusers with a 25-mm slot, this cross-sectional loss can be offset by using the deflection vanes from the model with a 18-mm slot (S-74-18) to eliminate the above disadvantages. This diffuser is the S-72-25/18 model.

Minimum recommended velocity in occupied area V_z .

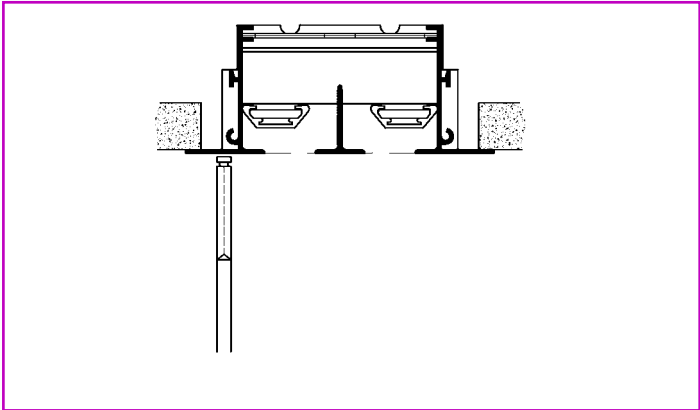
The temperature difference between cold supply air and the room air, provides the following V_z values, as the recommended velocity for the occupied zone to prevent the air jet falls to close, for lateral discharge diffusers:

ΔT Cool air impulsed ($^{\circ}C$)		0	6	9	12
V_z (recommended minimum velocity in m/s)	Diffuser outer wall near	0,15	0,20	0,25	0,30
	Diffuser inner wall near	0,15	0,25	0,30	0,35

Air flow measurement.

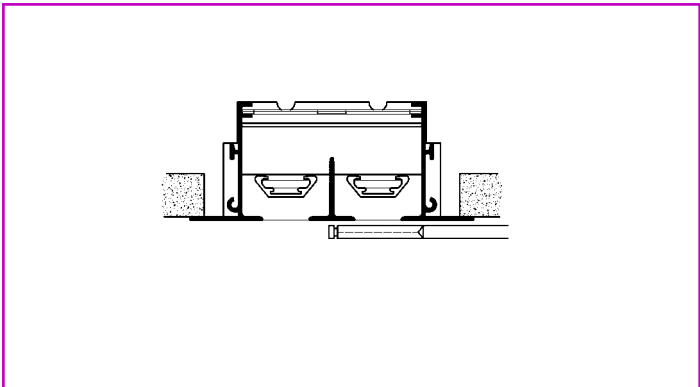
Diffusers with lateral discharge.

The air flow rate q_v is obtained from the product of the effective area of the diffuser (A_k) in m^2 and the velocity at the discharge (V_k), measured with a TSI-VELOCICALC hot wire anemometer located in the outer side frame.



Diffusers with vertical discharge.

The air flow rate q_v is obtained from the product of the effective area of the diffuser (A_k) in m^2 and the velocity at the discharge (V_k), measured with a TSI-VELOCICALC hot wire anemometer located in the discharge path.



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