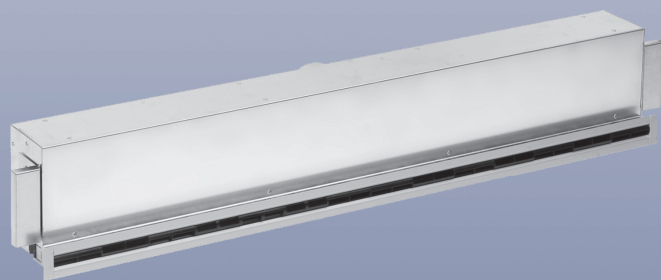


Please note,
type code is new,
see last page.



Wall slot diffuser WSD....

Preliminary remark

The adjustable wall slot diffuser WSD of KRANTZ KOMPONENTEN is a slim air outlet with aesthetic design. Since it requires little space, it is specially designed for installation in standard gypsum plasterboard walls. It generates turbulent mixing air flow.

The wall slot diffuser is particularly suitable for offices and rooms with concrete slab cooling.

The installation of the connection box and the air supply are preferably from the corridor. The slot element is inserted into the connection box from inside the room only once the room construction has been completed; it is thus protected from dirt and damage during construction. It is also easy to take off for cleaning purposes to VDI 6022.

Owing to their construction design both the connection box and the slot element have very low sound power levels and a high insertion loss. If the connection box is fitted with acoustic lining, in many cases there is no need for a crosstalk silencer.

The wall slot diffuser is available for supply air or return air, or as a combined diffuser for supply and return air.

Mode of operation

The wall slot diffuser is suitable for room depths > 4 m. The recommended installation height is between 2.4 and 3.5 m.

Depending on requirements the wall slot diffuser is manufactured with one or two rows¹⁾ in 525 mm, 1050 mm or 1125 mm length²⁾.

The supply air jets are evenly spread out. After 1 to 2 m one gets a diffuse air flow that spreads at floor level towards the facade like a displacement flow. A high level of thermal comfort is thus achieved in the room. The vertical temperature gradient is much lower than the acceptable limit value.

Construction design

The wall slot diffuser is made up of the connection box with connection spigot and the slot element.

The slot element is very easy to install; it is inserted



Fig. 1: Wall slot diffuser

into the connection box upon completion of the room construction.

The connection box is mounted either inside (Type Z) or behind (Type H) the gypsum plasterboard wall during the HVAC system installation, and connected to the duct system (see Fig. 2).

The connection box is fixed to the wall panels by screwing from inside the room, using drywall screws that are driven into the L-fasteners provided for.

Due to the construction design very good insertion loss values are achieved with all WSD models.

An abrasion-resistant acoustic lining is optionally available for the connection box whose depth remains unchanged. In many cases this acoustic lining obviates the need for a crosstalk silencer.

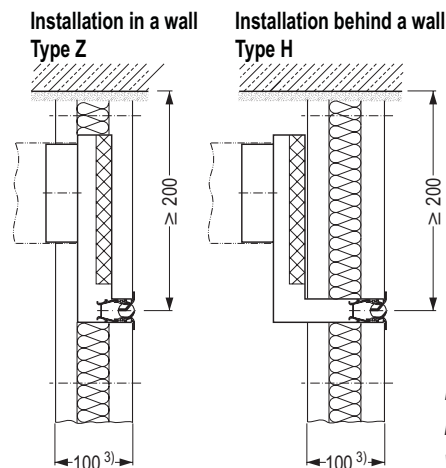


Fig. 2: Types of installation of wall slot diffuser

The combined wall slot diffuser for supply air and return air is partitioned into two independent segments of same length. The slot element has a blind slot in its middle so as to prevent any short circuit of supply air and return air. The spigots for supply air and return air respectively are optionally available with a \dot{V} damper adjustable from the room.

The adjustable air distribution elements made of plastic are preset to a certain position and secured by snap-in cams.

Application

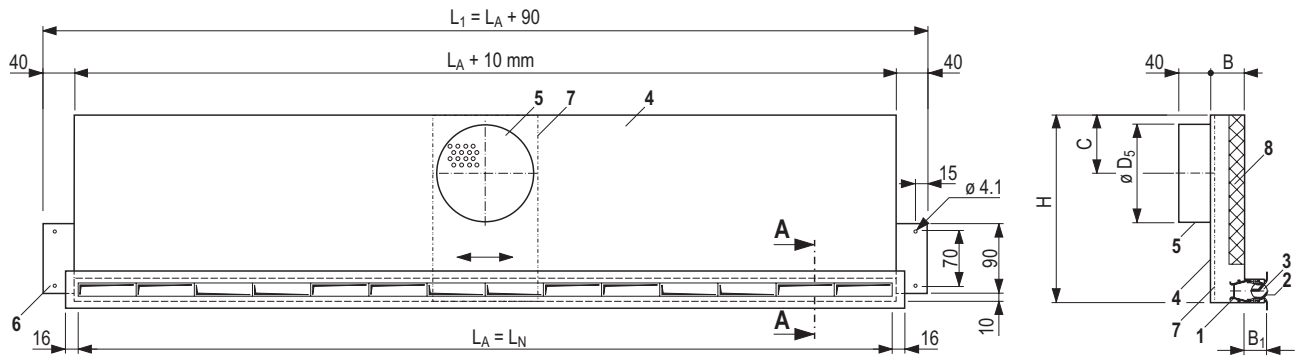
Wall slot diffuser	Activity level I		Activity level II		
	1-row design	2-row design	1-row design	2-row design	
Max. volume flow rate per m of diffuser $\dot{V}_{A \max}$	$l/(s \cdot m)$	34	53	39	67
	$m^3/(h \cdot m)$	120	190	140	240
Recommended discharge height H	m 2.4 – 3.5				
Room depth	m ≥ 4	≥ 5	≥ 4	≥ 5	
Max. cooling capacity	W/m ² 80		90		
Max. temperature difference supply air–indoor air $\Delta\vartheta$	K + 6 to – 8		+ 6 to – 10		

1) 3-row design available on request

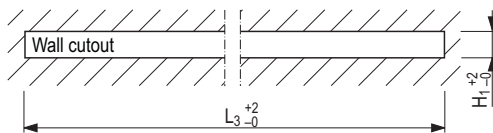
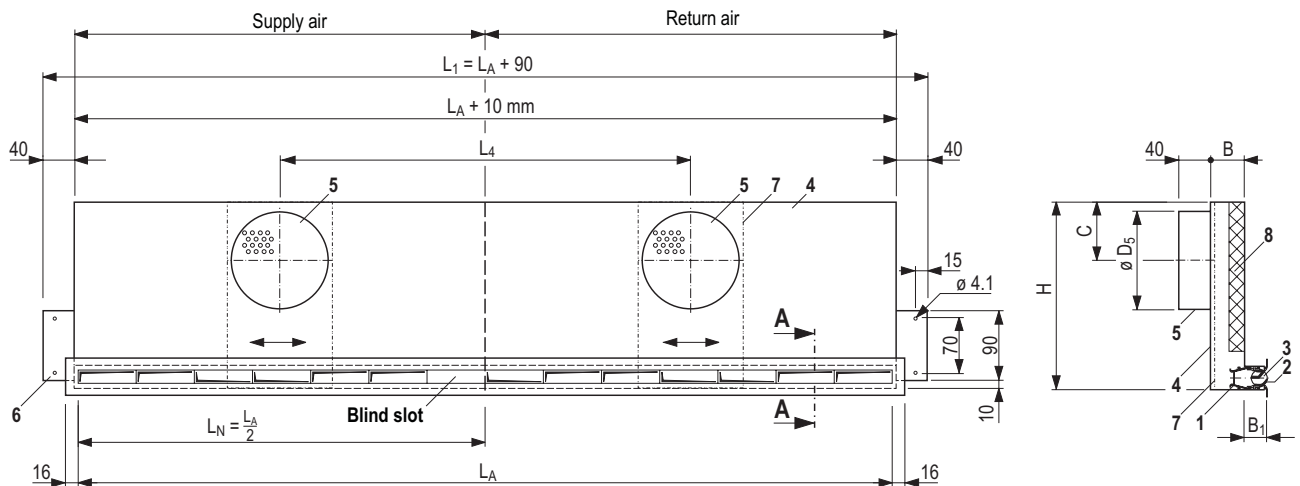
2) Other lengths or continuous strip design also available on request

3) For other wall thicknesses consult us!

Wall slot diffuser for supply air or return air

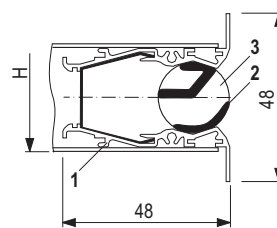


Combined wall slot diffuser for supply air and return air

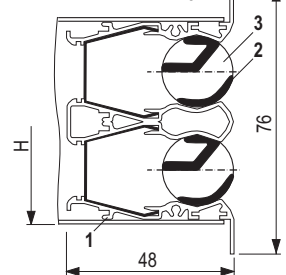


Section A - A (at scale 1:2)

1-row design



2-row design



- Key for all pages**
- 1 Slot element profile
 - 1b Wall contact profile
 - 2 Air distribution element
 - 3 Jet channel
 - 4 Connection box
 - 5 Connection spigot
 - 6 L-fastener
 - 7 V damper (optional) adjustable from room
 - 8 Acoustic lining (optional)

Design	Diffuser type	L _A mm	L ₁ mm	L ₃ ¹⁾ mm	H ₁ ¹⁾ mm	L ₄ mm	Connection type Z ²⁾		Connection type H ²⁾		Without acoustic lining				With acoustic lining								
							B mm	B ₁ mm	B mm	B ₁ mm	H mm	C mm	∅ D ₅ mm	Weight kg	H mm	C mm	∅ D ₅ mm	Weight kg					
1-row	Supply air or return air	525	615	541	34	—	45	24	45	99	140	52	79	2.6	240	52	79	240	52	79	3.6		
		1050	1140	1066							180	75	124	5.7		75	124		7.0				
	Combined	1125	1215	1141	34	530	45	24	45	99	180	75	124	6.1	240	75	124	240	75	124	7.6		
		1050	1140	1066							45	99	140	52		79	4.9		52	79	6.8		
		1125	1215	1141		567															7.3		
2-row	Supply air or return air	525	615	541	62	—	45	24	60	99	180	62	99	3.4	240	62	99	240	62	99	4.1		
		1050	1140	1066							240	92	159	7.2		280	112		199	240	92	159	8.4
		1125	1215	1141							240	92	159	7.7		280	112		199	240	92	159	8.9
	Combined	1050	1140	1066	62	530	45	24	60	99	180	62	99	6.4	240	62	99	240	62	99	7.7		
		1125	1215	1141							180	62	99	6.8		62	99		8.2				

1) Wall cutout 2) Connection type Z = Installation in a wall; connection type H = Installation behind a wall



Fig. 3: Wall slot diffuser in the recreation room of an office building



Fig. 4: Wall slot diffuser in the entrance area of an office building

Layout specifications

The wall slot diffuser is designed for commercial applications and meets the requirements of DIN 1946, Part 2, and DIN EN ISO 7730 as to allowable indoor air velocities. The layout for the cooling mode is based on the maximum allowable specific volume flow rate, the indoor air temperature and the discharge height. The place of use of the diffuser and the activity level of the room occupants are further criteria for layout. The following distinction is made:

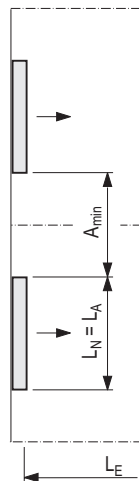
Activity level I:

- Offices with ceiling heights up to 4 m
- Mean indoor air velocity ≤ 0.2 m/s
- Max. temperature difference supply air–return air: – 8 K when cooling

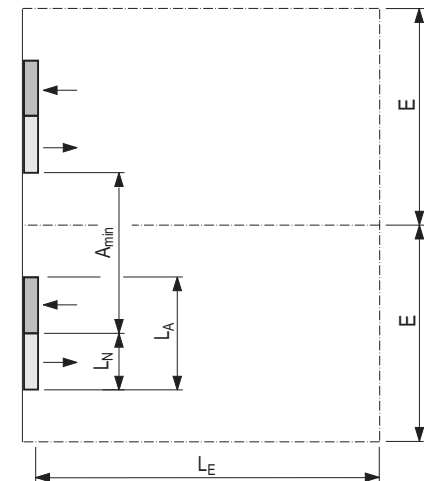
Activity level II:

- Exhibition spaces, museums, stores, foyers
- Mean indoor air velocity ≤ 0.29 m/s
- Max. temperature difference supply air–return air: – 10 K when cooling

Wall slot diffuser for supply air



Combined diffuser



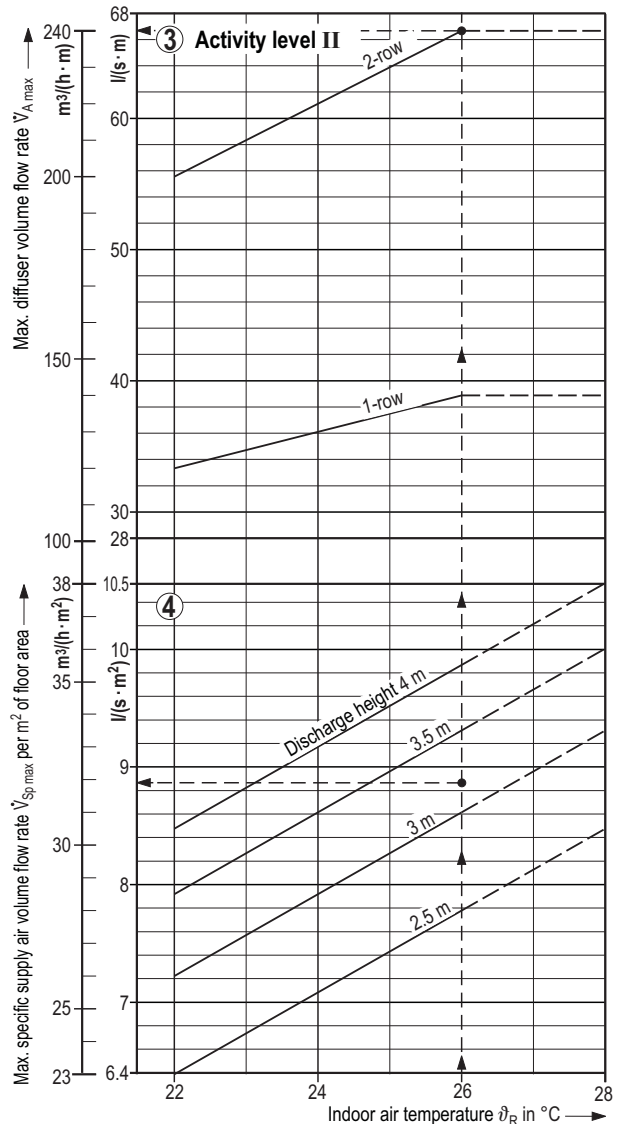
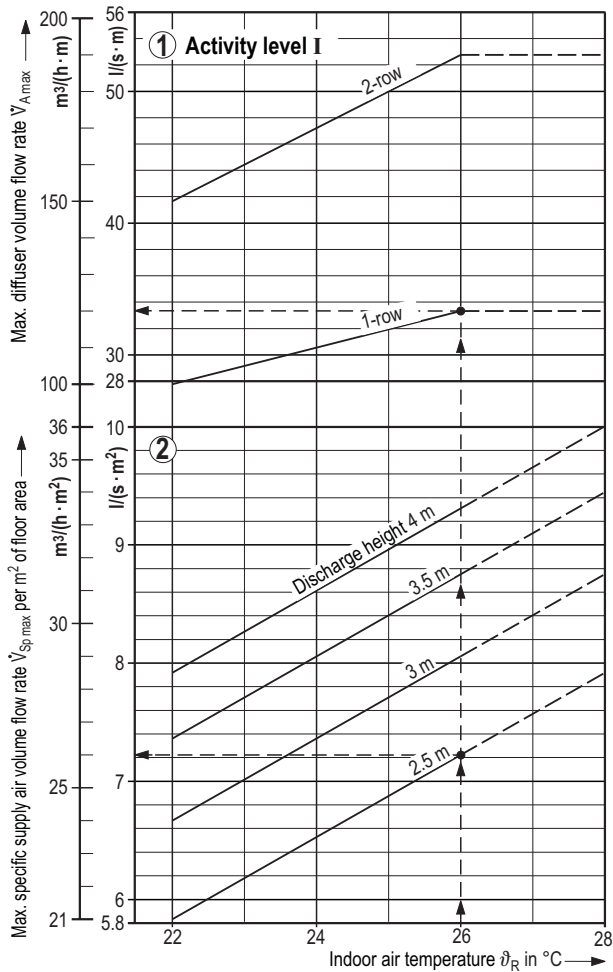
Layout

To lay out the diffuser, use the following graphs:

Key:

- E = Coverage width of supply air flow in m
- L_E = Coverage length of supply air flow in m (equates to the room depth)
- L_N = Nominal length of diffuser in m (With combined diffuser, length of supply air segment only)
- n = Number of diffusers
- \dot{V}_{Ges} = Total supply air volume flow rate in l/s (m^3/h)
- \dot{V} = Volume flow rate per diffuser in l/s (m^3/h)
- $\dot{V}_A = \frac{\dot{V}}{L_N}$ = Volume flow rate per metre of active diffuser length, in l/(s · m) ($m^3/(h \cdot m)$)
- H_A = Discharge height in m
- A_{min} = Minimum spacing required between two diffusers in m
- $\dot{V}_{Sp max}$ = Max. specific supply air volume flow rate per m^2 of floor area in l/(s · m^2) ($m^3/(h \cdot m^2)$)
- \dot{V}_{Sp} = Actual specific supply air volume flow rate per m^2 of floor area in l/(s · m^2) ($m^3/(h \cdot m^2)$)
- $\dot{V}_{A max}$ = Max. volume flow rate per m of diffuser in l/(s · m) ($m^3/(h \cdot m)$)

$$\text{Equation: } E = \frac{\dot{V}}{\dot{V}_{Sp max} \cdot L_E} ; A_{min} \geq E - L_N$$



Layout example for activity level I

Combined wall slot diffuser in an office

Ceiling height	H =	2.7 m
Discharge height	H _A =	2.5 m
Room width	B =	2.7 m
Room depth	L _E =	5.5 m
Total supply air volume flow rate	\dot{V}_{Ges} =	33 l/s
Indoor air temperature	ϑ_R =	26 °C (at max. cooling load)
Number	n =	2 units (Length L _A = 1050 mm)
Type	HI =	Installation behind the wall, with acoustic lining

1 Check $\dot{V}_{Sp} < \dot{V}_{Sp,max}$:

$$\dot{V}_{Sp} = \frac{\dot{V}_{Ges}}{B \cdot L_E} = \frac{33}{2.7 \cdot 5.5} = 2.2 \text{ l/(s} \cdot \text{m}^2)$$

From graph ②: $\dot{V}_{Sp,max} = 7.2 \text{ l/(s} \cdot \text{m}^2)$

2 $\dot{V} = \frac{\dot{V}_{Ges}}{n} = \frac{33}{2} = 16.5 \text{ l/s}$

3 $E = \frac{\dot{V}}{\dot{V}_{Sp,max} \cdot L_E} = \frac{16.5}{7.2 \cdot 5.5} = 0.42 \text{ m}$

$L_N = \frac{L_A}{2} = \frac{1.05}{2} = 0.525 \text{ m}$ (:2 since combined diffuser)

Since $E < L_N \Rightarrow$ no spacing A_{min} required

4 $\dot{V}_A = \frac{\dot{V}}{L_N} = \frac{16.5}{0.525} \approx 31.6 \text{ l/(s} \cdot \text{m)}$

$\dot{V}_A < \dot{V}_{A,max} \Rightarrow \dot{V}_{A,max} = 33 \text{ l/(s} \cdot \text{m)}$ selected from graph ①:

1-row design **WSD-K1-1050-HI**

From graph, page 7:

- 5 $L_{WA} \approx 30 \text{ dB(A)}$
 $\Delta p_{t \text{ Supply air}} \approx 33 \text{ Pa}$
 $\Delta p_{t \text{ Return air}} \approx 40 \text{ Pa}$

Layout example for activity level II

Wall slot diffuser for supply air installed in a restaurant

Ceiling height	H =	3.5 m
Discharge height	H _A =	3.2 m
Room width	B =	20 m
Room depth	L _E =	6 m
Total supply air volume flow rate	\dot{V}_{Ges} =	1000 l/s
Indoor air temperature	ϑ_R =	26 °C (at max. cooling load)
Number	n =	15 units (Length L _A = 1050 mm)
Type	HI =	Installation behind the wall, without acoustic lining

1 Check $\dot{V}_{Sp} < \dot{V}_{Sp,max}$:

$$\dot{V}_{Sp} = \frac{\dot{V}_{Ges}}{B \cdot L_E} = \frac{1000}{20 \cdot 6} = 8.3 \text{ l/(s} \cdot \text{m}^2)$$

From graph ④: $\dot{V}_{Sp,max} \approx 8.9 \text{ l/(s} \cdot \text{m}^2)$

2 $\dot{V} = \frac{\dot{V}_{Ges}}{n} = \frac{1000}{15} = 66.6 \text{ l/s}$

3 $E = \frac{\dot{V}}{\dot{V}_{Sp,max} \cdot L_E} = \frac{66.6}{8.9 \cdot 6} = 1.25 \text{ m}$

$A_{min} \geq E - L_N = 1.25 - 1.05 = 0.2 \text{ m}$

4 $\dot{V}_A = \frac{\dot{V}}{L_N} = \frac{66.6}{1.05} = 63.6 \text{ l/(s} \cdot \text{m)}$

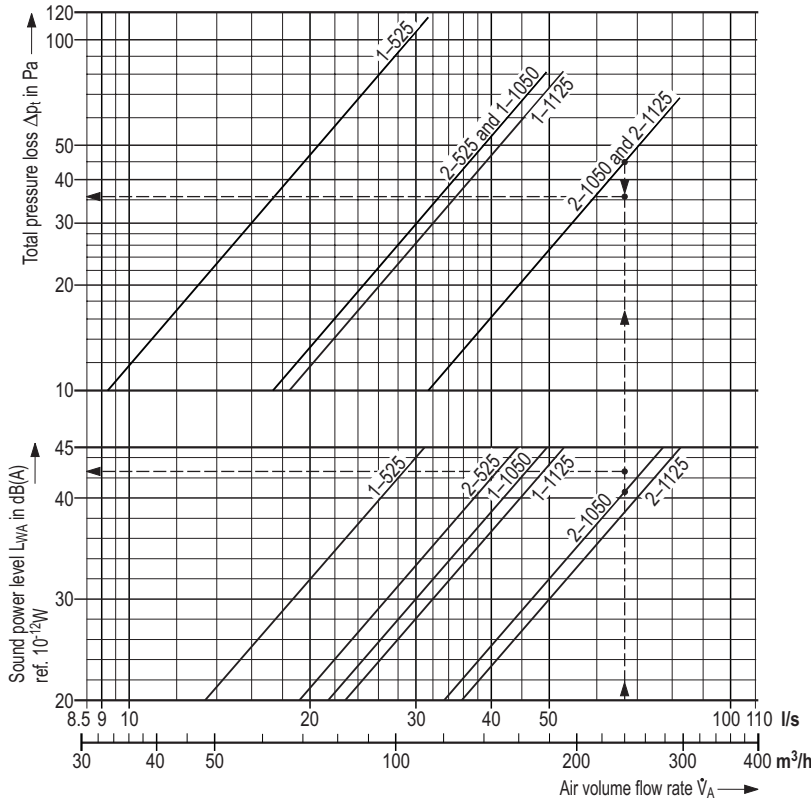
$\dot{V}_A < \dot{V}_{A,max} \Rightarrow \dot{V}_{A,max} = 66.6 \text{ l/(s} \cdot \text{m)}$ selected from graph ③:

2-row design **WSD-Z2-1050-Z**

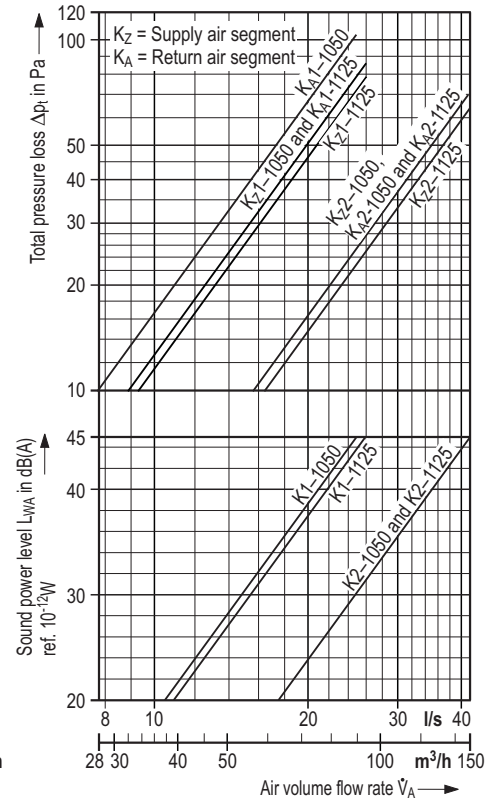
From graph, page 6:

- 5 $L_{WA} \approx 43 \text{ dB(A)}$ [41.5 dB(A) + 2 dB(A)]
 $\Delta p_t \approx 36 \text{ Pa}$ [45 Pa - 20 %]

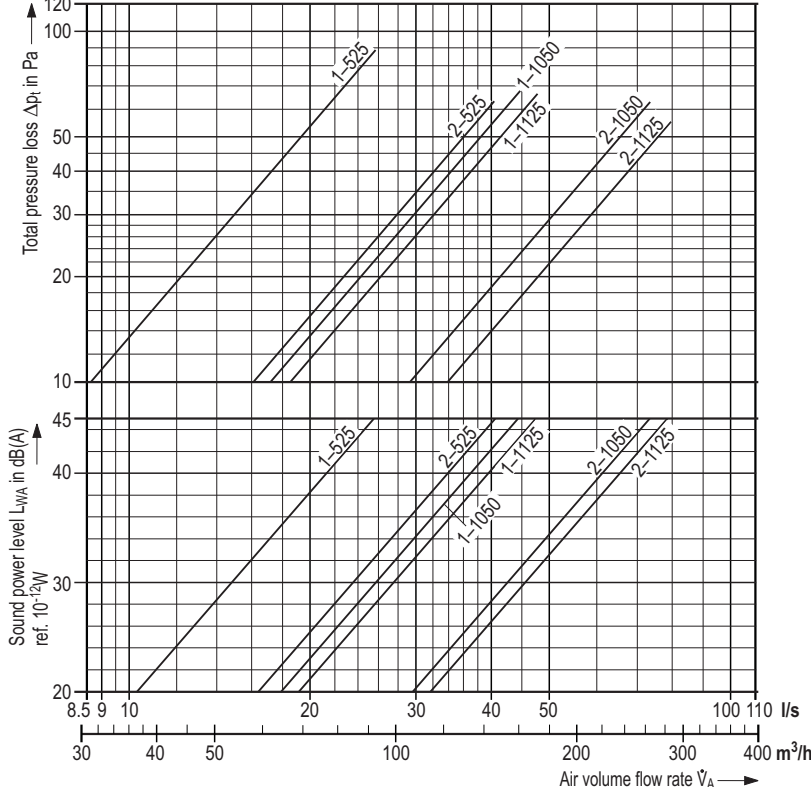
Diffuser for supply air, type ZI
(with acoustic lining)



Combined diffuser, type ZI
(with acoustic lining)



Diffuser for return air, type ZI
(with acoustic lining)



Design

1 = 1-row

2 = 2-row

Diffuser lengths:

525, 1050 and 1125

Example 2-1050:

2-row design,

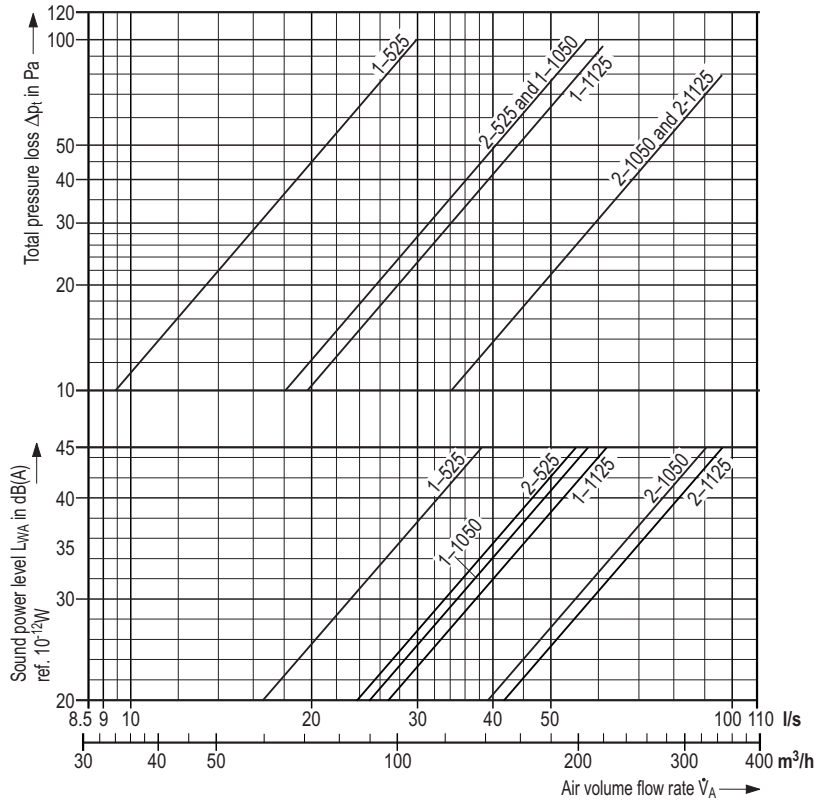
diffuser length 1050 mm

Correction table for type Z

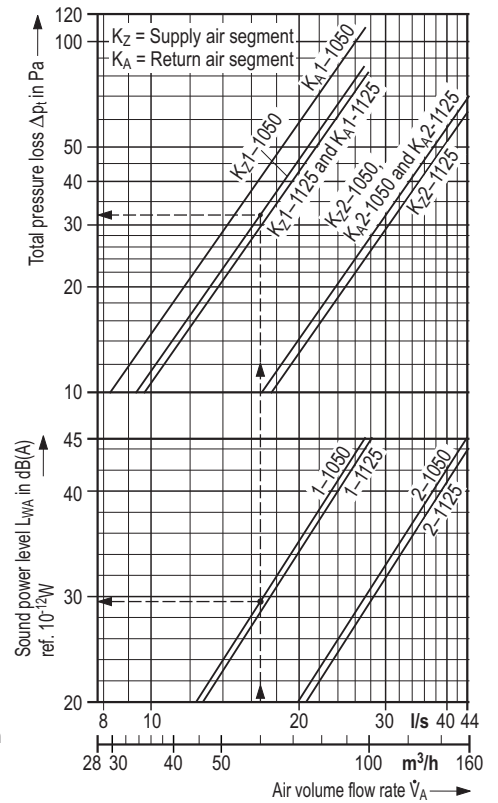
(without acoustic lining)

		Supply air	Return air	Combined	
		Supply air	Return air	Supply air	Return air
WSD_1-525-Z	L _w	+ 5	+ 3	—	
	Δp	- 10 %	- 5 %	—	
WSD_1-1050-Z	L _w	+ 3	+ 2	+ 3	
	Δp	- 9 %	- 8 %	- 6 %	- 5 %
WSD_1-1125-Z	L _w	+ 3	+ 2	+ 3	
	Δp	- 6 %	- 10 %	- 6 %	- 6 %
WSD_2-525-Z	L _w	+ 5	+ 2	—	
	Δp	- 20 %	- 25 %	—	
WSD_2-1050-Z	L _w	+ 2	+ 1	+ 2	
	Δp	- 20 %	- 15 %	- 15 %	- 15 %
WSD_2-1125-Z	L _w	+ 2	+ 1	+ 1	
	Δp	- 14 %	- 14 %	- 15 %	- 15 %

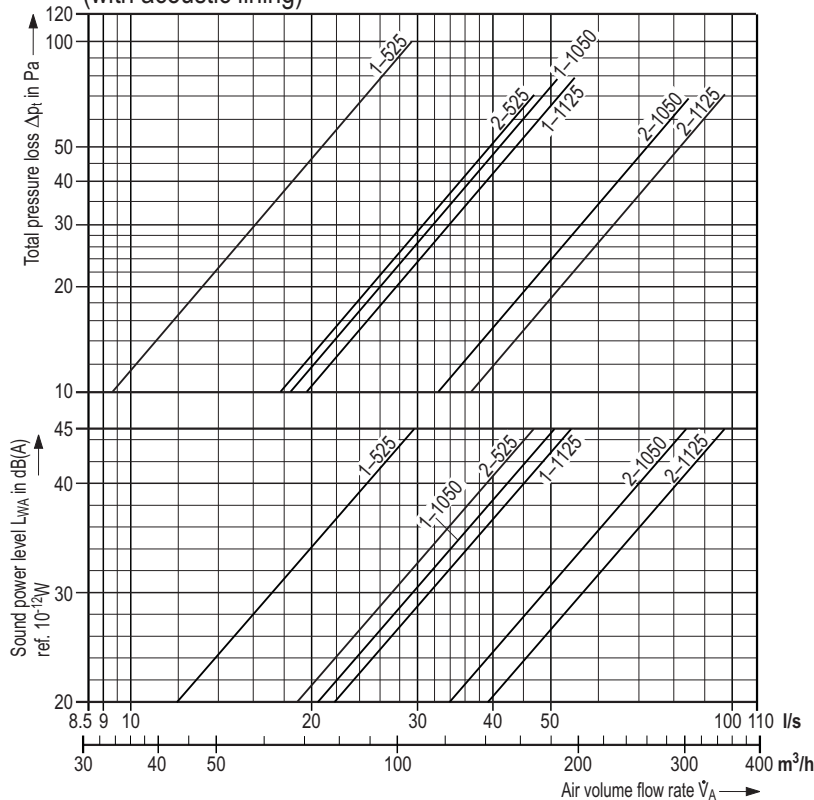
Diffuser for supply air, type HI
(with acoustic lining)



Combined diffuser, type HI
(with acoustic lining)



Diffuser for return air, type HI
(with acoustic lining)



Design

- 1 = 1-row
- 2 = 2-row

Diffuser lengths:
525, 1050 and 1125

Example 2-1050:

2-row design,
diffuser length 1050 mm

Correction table for type H
(without acoustic lining)

		Supply air		Return air		Combined	
		Supply air	Return air	Supply air	Return air	Supply air	Return air
WSD_-1-525-H	L _w	+ 5	+ 2	—	—	—	—
	Δp	- 10 %	- 5 %	—	—	—	—
WSD_-1-1050-H	L _w	+ 3	+ 2	+ 3	+ 3		
	Δp	- 10 %	- 6 %	- 6 %	- 5 %		
WSD_-1-1125-H	L _w	+ 3	+ 2	+ 3	+ 3		
	Δp	- 6 %	- 9 %	- 6 %	- 6 %		
WSD_-2-525-H	L _w	+ 5	+ 1	—	—		
	Δp	- 20 %	- 22 %	—	—		
WSD_-2-1050-H	L _w	+ 2	+ 1	+ 1	+ 1		
	Δp	- 12 %	- 16 %	- 10 %	- 12 %		
WSD_-2-1125-H	L _w	+ 2	+ 1	+ 1	+ 1		
	Δp	- 16 %	- 14 %	- 12 %	- 12 %		

Diffuser for supply air

Diffuser length LA mm	Diffuser volume flow rate \dot{V}_A		Total pressure loss Δp_t Pa	Sound power level L_w in dB ref. 10^{-12} W						
	$\frac{l}{(s \cdot m)}$	$\frac{m^3}{(h \cdot m)}$		LWA dB(A)	Octave band centre frequency in Hz					
					125	250	500	1 K	2 K	4 K
Type ZI, 1-row										
525	14	50	22	20	22	24	18	13	—	—
	22	80	58	35	34	38	33	30	22	11
	32	115	114	45	39	46	41	40	39	25
1050	22	80	16	20	23	25	17	11	—	—
	36	130	42	35	37	39	33	29	21	11
	50	180	82	45	45	46	42	40	37	28
1125	24	85	16	20	24	25	18	10	—	—
	39	140	44	35	38	38	33	30	20	10
	53	190	81	45	48	47	41	40	38	30
Type HI, 1-row										
525	17	60	31	20	23	25	18	12	—	—
	28	100	85	35	35	38	33	29	20	10
	39	140	166	45	40	45	42	40	38	24
1050	25	90	19	20	28	25	17	—	—	—
	42	150	55	35	41	38	32	29	24	14
	58	210	100	45	48	46	41	40	38	29
1125	28	100	20	20	26	25	18	11	—	—
	44	160	51	35	38	39	32	29	19	—
	63	225	100	45	49	46	40	40	38	28
Type ZI, 2-row										
525	19	70	13	20	23	25	17	10	—	—
	32	115	35	35	35	38	33	30	18	—
	44	160	66	45	41	45	42	42	35	19
1050	34	120	11	20	24	25	16	11	—	—
	56	200	32	35	38	38	32	30	22	14
	78	280	62	45	49	46	42	41	34	29
1125	36	130	13	20	25	25	16	12	—	—
	60	215	36	35	39	38	32	30	22	15
	84	300	70	45	51	47	41	41	35	31
Type HI, 2-row										
525	24	85	17	20	24	25	17	11	—	—
	40	145	49	35	35	37	35	28	23	—
	56	200	95	45	40	44	45	38	36	21
1050	39	140	13	20	26	26	16	—	—	—
	65	235	37	35	39	39	33	29	23	—
	92	330	72	45	45	45	42	40	39	26
1125	42	150	15	20	27	26	17	10	—	—
	69	250	41	35	40	39	34	29	22	—
	97	350	95	45	46	45	43	40	38	27

	Insertion loss in dB ¹⁾							Mean value
	Octave band centre frequency in Hz							
	125	250	500	1 K	2 K	4 K		
WSD-_1- 525	2	4	9	14	18	20	13	
WSD-_1-1050	3	5	10	16	20	22	15	
WSD-_1-1125	4	6	11	17	21	23	16	

1) Values apply for 1-row design; for 2-row design the values are higher by 1 dB ref. 10^{-12} W

Combined diffuser

Diffuser length LA mm	Diffuser volume flow rate \dot{V}_A		Total pressure loss Δp_t in Pa		Sound power level L_w in dB ref. 10^{-12} W						
	$\frac{l}{(s \cdot m)}$	$\frac{m^3}{(h \cdot m)}$	Supply/Return air		LWA dB(A)	Octave band centre frequency in Hz					
			Supply air	Return air		125	250	500	1 K	2 K	4 K
Type ZI, 1-row											
1050	11	39	15	20	20	18	24	19	10	—	—
	18	63	39	52	35	32	38	34	30	22	13
	24	87	74	98	45	40	46	42	42	34	25
1125	11	40	14	17	20	20	25	18	10	—	—
	18	65	38	41	35	33	38	33	30	23	13
	26	92	75	82	45	40	45	42	41	38	28
Type HI, 1-row											
1050	12	43	18	23	20	20	23	20	11	—	—
	20	72	46	58	35	33	39	33	30	22	14
	27	98	86	110	45	41	45	43	42	33	26
1125	13	45	15	16	20	19	24	17	11	—	—
	21	75	43	45	35	34	37	33	30	24	14
	28	102	83	86	45	41	45	42	40	39	29
Type ZI, 2-row											
1050	18	63	13	13	20	19	25	18	—	—	—
	28	102	33	34	35	39	38	34	30	20	—
	39	140	62	65	45	49	44	42	41	36	25
1125	18	64	11	13	20	20	24	19	—	—	—
	29	106	32	37	35	38	39	33	29	19	10
	42	150	64	74	45	49	46	42	41	36	24
Type HI, 2-row											
1050	19	70	14	14	20	20	26	19	—	—	—
	32	115	37	37	35	39	38	33	30	21	—
	44	160	70	70	45	48	45	42	41	37	23
1125	20	72	12	13	20	21	23	19	10	—	—
	33	117	34	37	35	38	38	34	29	20	11
	46	165	68	74	45	48	47	42	40	37	26

Diffuser for return air

Diffuser length LA mm	Diffuser volume flow rate \dot{V}_A		Total pressure loss Δp_t Pa	Sound power level L_w in dB ref. 10^{-12} W						
	$\frac{l}{(s \cdot m)}$	$\frac{m^3}{(h \cdot m)}$		LWA dB(A)	Octave band centre frequency in Hz					
					125	250	500	1 K	2 K	4 K
Type ZI, 1-row										
525	11	40	15	20	22	23	19	12	—	—
	18	65	43	35	30	38	34	29	25	15
	26	95	89	45	34	46	42	39	38	31
1050	18	65	11	20	24	24	19	10	—	—
	31	110	31	35	34	40	34	27	21	12
	44	160	66	45	40	48	41	39	37	28
1125	19	70	11	20	25	24	18	10	—	—
	33	120	27	35	35	39	34	28	20	11
	47	170	64	45	42	47	41	40	36	26
Type HI, 1-row										
525	13	45	17	20	23	22	20	11	—	—
	21	75	50	35	31	38	35	29	24	14
	29	105	100	45	36	46	42	40	37	30
1050	21	75	12	20	26	24	19	—	—	—
	36	130	38	35	38	38	32	29	26	15
	51	185	78	45	42	44	40	39	40	32
1125	22	80	13	20	27	23	19	10	—	—
	38	135	37	35	38	39	31	30	24	14
	56	200	80	45	44	43	41	40	36	28

Diffuser for supply air

Diffuser length LA mm	Diffuser volume flow rate \dot{V}_A		Total pressure loss Δp_t Pa	Sound power level Lw in dB ref. 10 ⁻¹² W						
	$\frac{l}{(s \cdot m)}$	$\frac{m^3}{(h \cdot m)}$		LWA dB(A)	Octave band centre frequency in Hz					
					125	250	500	1 K	2 K	4 K
Type Z, 1-row										
525	11	40	13	20	20	24	20	—	—	—
	18	65	35	31	37	35	26	20	11	—
	26	95	72	45	38	45	43	40	36	27
1050	19	70	11	20	20	25	20	—	—	—
	32	115	30	35	34	39	35	26	19	—
	44	160	60	45	42	46	44	39	34	23
1125	21	75	11	20	21	26	20	—	—	—
	35	125	29	35	35	40	35	27	18	—
	49	175	56	45	43	47	44	40	35	24
Type H, 1-row										
525	14	50	19	20	21	24	21	—	—	—
	24	85	54	35	32	37	35	27	19	12
	32	115	102	45	38	44	44	40	36	28
1050	22	80	13	20	24	26	17	10	—	—
	38	135	39	35	37	39	32	29	23	—
	53	190	75	45	47	41	41	31	35	25
1125	24	85	13	20	26	27	16	11	—	—
	40	145	38	35	38	39	32	30	23	—
	56	200	73	45	46	48	41	40	36	27
Type Z, 2-row										
525	17	60	8	20	23	24	20	—	—	—
	28	100	21	35	35	36	36	28	17	—
	39	140	40	45	40	41	45	39	36	23
1050	32	115	9	20	22	24	19	10	—	—
	53	190	25	35	34	38	34	30	19	—
	74	265	48	45	41	45	43	41	33	24
1125	35	125	10	20	23	24	19	10	—	—
	56	200	26	35	35	37	34	30	20	—
	78	280	50	45	42	45	42	42	31	21
Type H, 2-row										
525	21	75	11	20	20	24	21	—	—	—
	33	120	28	35	30	34	36	28	23	11
	47	170	55	45	35	39	43	40	38	21
1050	38	135	10	20	24	25	18	10	—	—
	61	220	28	35	37	38	33	30	21	—
	85	305	53	45	44	45	42	41	37	23
1125	40	145	11	20	25	25	17	11	—	—
	65	235	30	35	36	38	34	31	20	—
	92	330	58	45	45	44	43	41	36	22

Combined diffuser

Diffuser length LA mm	Diffuser volume flow rate \dot{V}_A		Total pressure loss Δp_t in Pa		Sound power level Lw in dB ref. 10 ⁻¹² W						
	$\frac{l}{(s \cdot m)}$	$\frac{m^3}{(h \cdot m)}$	Supply air	Return air	LWA dB(A)	Octave band centre frequency in Hz					
						125	250	500	1 K	2 K	4 K
Type Z, 1-row											
1050	10	35	12	16	20	18	22	21	—	—	—
	16	58	31	42	35	30	37	36	26	20	12
	22	80	58	79	45	37	42	46	38	32	26
1125	10	36	11	13	20	17	26	19	—	—	—
	17	60	29	32	35	30	36	36	26	20	12
	23	82	56	62	45	38	45	45	40	34	27
Type H, 1-row											
1050	11	38	13	17	20	17	21	22	—	—	—
	18	64	36	47	35	30	36	37	26	19	11
	25	90	68	88	45	37	41	45	39	33	27
1125	11	40	12	14	20	18	22	22	—	—	—
	18	66	32	34	35	30	36	35	27	20	13
	26	92	64	67	45	38	44	45	40	33	26
Type Z, 2-row											
1050	17	60	10	11	20	20	24	19	—	—	—
	27	97	26	27	35	33	36	36	27	19	—
	38	135	51	53	45	39	43	46	39	33	21
1125	17	62	9	10	20	18	23	20	—	—	—
	29	103	27	30	35	34	35	35	27	19	—
	40	145	53	59	45	43	42	45	38	35	27
Type H, 2-row											
1050	19	67	12	12	20	19	24	19	—	—	—
	31	110	30	31	35	32	35	36	27	18	—
	42	150	57	56	45	39	42	45	40	33	22
1125	19	70	10	10	20	18	22	21	—	—	—
	32	115	29	30	35	34	34	34	28	18	10
	44	160	56	58	45	41	42	44	39	36	27

Diffuser for return air

Diffuser length LA mm	Diffuser volume flow rate \dot{V}_A		Total pressure loss Δp_t Pa	Sound power level Lw in dB ref. 10 ⁻¹² W						
	$\frac{l}{(s \cdot m)}$	$\frac{m^3}{(h \cdot m)}$		LWA dB(A)	Octave band centre frequency in Hz					
					125	250	500	1 K	2 K	4 K
Type Z, 1-row										
525	10	35	12	20	18	19	22	—	—	—
	17	60	34	35	31	35	36	27	22	16
	24	85	70	45	38	44	43	38	38	34
1050	17	60	9	20	22	23	21	—	—	—
	29	105	25	35	32	38	36	24	20	—
	42	150	54	45	38	46	45	36	35	27
1125	18	65	9	20	23	22	22	—	—	—
	31	110	24	35	33	39	36	24	20	—
	44	160	57	45	39	47	45	37	36	28
Type H, 1-row										
525	11	40	14	20	19	19	22	—	—	—
	19	70	40	35	32	34	35	27	21	15
	28	100	81	45	37	43	43	37	38	33
1050	19	70	11	20	21	24	21	—	—	—
	33	120	31	35	32	38	34	28	25	13
	47	170	63	45	37	45	41	40	39	30
1125	21	75	11	20	22	23	22	—	—	—
	35	125	28	35	33	39	36	24	21	—
	50	180	60	45	39	46	45	36	35	27

Insertion loss in dB ¹⁾							Mean value
Octave band centre frequency in Hz							
	125	250	500	1 K	2 K	4 K	
WSD_-1- 525	1	2	6	8	8	8	6
WSD_-1- 525	1	3	7	9	10	10	7
WSD_-1- 525	2	3	8	10	11	11	8

1) Values apply for 1-row design; for 2-row design the values are higher by 1 dB ref. 10⁻¹² W

Features

- Turbulent mixing air flow with high level of thermal comfort
- Compact construction design for installation inside or behind a wall of 100 mm³⁾ thickness
- Overall lengths suited to standard wall support profiles
- Slot element easy to install from inside the room upon completion of room construction
- Slot element easy to take off for cleaning as per VDI 6022
- Diffuser available for supply air or return air, or as combined diffuser for supply and return air
- Diffuser in 1-row or 2-row design⁴⁾
- Adjustable air distribution elements preset and secured by cams
- Owing to the construction design all models have low sound power levels and high insertion loss values
- High insertion loss with abrasion-resistant acoustic lining of class A2 to DIN 4102, Part 1 (optional); this obviates the need for crosstalk silencers
- \dot{V} damper for volume flow modulation adjustable from room
- Recommended installation height: 2.4 to 3.5 m
- Volume flow rate up to 67 l/s (240 m³/h) per m of diffuser length, max. cooling load 80 to 120 W/m² depending on place of use and activity level

- 1) For lengths of 1050 mm and 1125 mm
 2) Other lengths on request
 3) For other wall thicknesses consult us!
 4) 3-row design on request



Fig. 5: Jet spread made visible by smoke tracer.
 Above: at an upward incline and downwards
 Right: horizontal

Type code

WSD – ___ - ___ - ___

Wall slot diffuser
 Function / Kind
 Diffuser length
 Connection type

Please note,
 type code is new,
 see last page.

Function / Kind

- Z = supply air
 A = return air
 K = combined diffuser for supply and return air¹⁾
 _1 = 1-row
 _2 = 2-row

Diffuser length

525, 1050 and 1125 mm²⁾

Connection type

- H = with connection box for installation behind a 2-layer gypsum plasterboard wall, wall thickness = 100 mm³⁾
 Z = with connection box for installation inside a 2-layer gypsum plasterboard wall, wall thickness = 100 mm³⁾

Accessories:

- _R = with \dot{V} damper adjustable from room
 _I = with acoustic lining

Example:

Wall slot diffuser for supply air, 1-row design, slot element 1050 mm in length, with connection box for installation inside a 2-layer gypsum plasterboard wall, \dot{V} damper adjustable from room, and acoustic lining

Type WSD – Z1 – 1050 – ZRI



Tender text

..... units of **diffuser for supply air**
 diffuser for return air

Wall slot diffuser for supply air or return air, in slim design, with large induction effect for generating turbulent mixing air flow close to the wall in front of the diffuser, which results in fast reduction of temperature difference and discharge velocity so as to get low-turbulence supply air flow in the occupied zone,

for installation

inside a two-layer gypsum plasterboard wall
 behind a two-layer gypsum plasterboard wall of 100 mm thickness¹⁾, for horizontal air discharge or extraction, consisting of:

slot element fitted with roller-type air distribution elements placed in a row and preset at the factory, discharge direction adjustable by turning these elements,

slot element

in 1-row design in 2-row design ³⁾

easy to push into the connection box from inside the room,

connection box with lateral L-fasteners for fixing to gypsum plasterboard panels and with round spigot at rear,

with abrasion-resistant acoustic lining,
 with V damper adjustable from room.

Technical data

Diffuser volume flow rate: l/s (m³/h)
 Diffuser length: mm
 Perm. sound power level: dB(A) ref. 10⁻¹²W

Material:

Slot element profile with angular end pieces made of aluminium,

powder-coated to RAL 9010, pure white ²⁾
 anodized in natural colour

Air distribution elements: polycarbonate (PC, UL94-V0)
 body-tinted similar to RAL 9005, jet-black
 similar to RAL 9010, pure white

Connection box: galvanized sheet metal

Make: KRANTZ KOMPONENTEN

Type: WSD-__-__-__

Tender text

..... units of **combined wall slot diffuser**

for supply air and return air, in slim design, with large induction effect for generating turbulent mixing air flow close to the wall in front of the diffuser, which results in fast reduction of temperature difference and discharge velocity so as to get low-turbulence supply air flow in the occupied zone,

for installation

inside a two-layer gypsum plasterboard wall
 behind a two-layer gypsum plasterboard wall of 100 mm thickness¹⁾, with alternating supply air and return air segments, for horizontal air discharge and extraction, consisting of:

slot element fitted with roller-type air distribution elements placed in a row and preset at the factory, discharge direction adjustable by turning these elements,

slot element

in 1-row design in 2-row design ³⁾

easy to push into the connection box from inside the room,

connection box with lateral L-fasteners for fixing to gypsum plasterboard panels, separate segments for supply air and return air, and round spigots at rear,

with abrasion-resistant acoustic lining,
 with V damper adjustable from room.

Technical data

Supply air volume flow rate: l/s (m³/h)
 Return air volume flow rate: l/s (m³/h)
 Diffuser length: mm
 Perm. sound power level: dB(A) ref. 10⁻¹²W

Material:

Slot element profile with angular end pieces made of aluminium

powder-coated to RAL
 anodized in natural colour

Air distribution elements: polycarbonate (PC, UL94-V0)
 body-tinted similar to RAL 9005, jet-black
 similar to RAL 9010, pure white

Connection box: galvanized sheet metal

Make: KRANTZ KOMPONENTEN

Type: WSD-K-__-__-__

¹⁾ For other wall thicknesses consult us!

²⁾ Other colours on request

³⁾ 3-row design available on request

Subject to technical alterations!



Caverion Deutschland GmbH

Krantz Komponenten

Uersfeld 24, 52072 Aachen, Germany

Phone: +49 241 441-1, Fax: +49 241 441-555

info@krantz.de, www.krantz.de



Wall slot diffuser

Design ³⁾

- H = with connection box for installation behind a two-layer gypsum board wall, wall thickness = 100 mm
- Z = with connection box for installation inside a two-layer gypsum board wall, wall thickness = 100 mm

Damper

- O = no volume flow damper
- R = with volume flow damper adjustable from room

Insulation

- O = without acoustic lining
- I = with acoustic lining

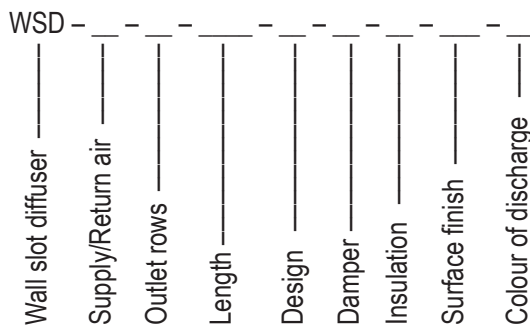
Surface finish (Slot element profile)

- elox = Aluminium, anodized in natural colour (E6EV1)
- 9010 = Face painted to RAL9010, semi-matt
- = Face painted to RAL

Colour of discharge element

- S = black similar to RAL 9005
- W = white similar to RAL 9010

Type code



Supply/Return air

- Z = Supply air
- A = Return air
- K = Combined

Outlet rows

- 1 = 1 row
- 2 = 2 rows

Length

- 525 = 525 mm
- 1050 = 1050 mm
- 1125 = 1125 mm

Subject to technical alteration.

³⁾ For other wall thicknesses consult us!