Swirl diffuser OD-15

Application

- Suitable for cooling, heating and transition periods,
- Effective operation across the wide range of air flows,
- Installation into suspended ceilings.

Advantages

- Higher outlet air velocity at the nozzle: achieving a more intensive ceiling effect,
- Achieving of higher throw distance in the heating mode,
- Lower static pressure drop,
- Silent operation,
- High induction.

Description

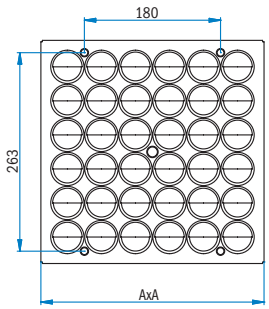
- Large number of rotational nozzles allows for variable and precise discharge direction,
- Metal part of the diffuser plate is powder- coated in RAL 9010 or according to customer specifications,
- Square diffuser plate with the rectangular nozzle layout – KK version,
- Square diffuser plate with the circular nozzle layout – KR version,
- Circular diffuser plate with the circular nozzle layout – RR version.

Features of a single nozzle

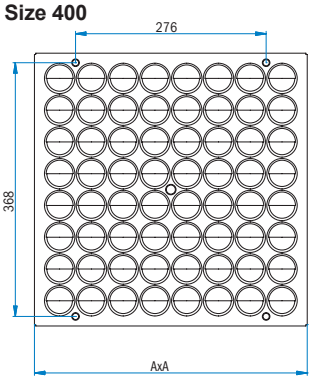
- Aerodynamic shape,
- Distinctive and discrete design.

OD-15/KK

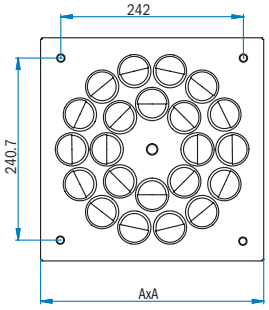
Size 300

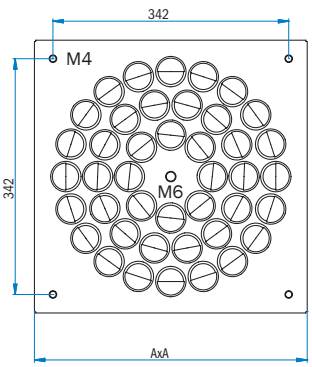


Size 400

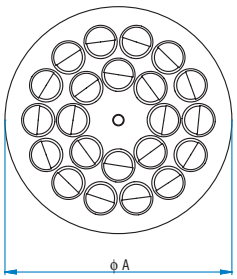


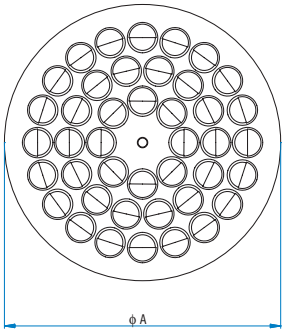
OD-15/KR





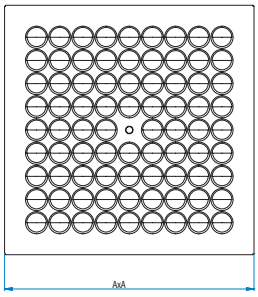
OD-15/RR



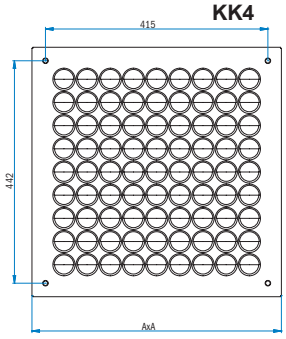


OD-15/KK

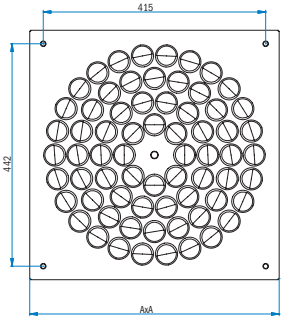
Size 500 **KK1**



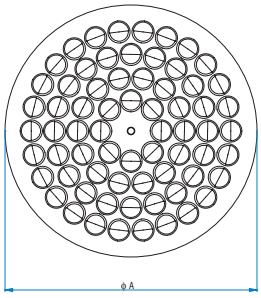
KK4



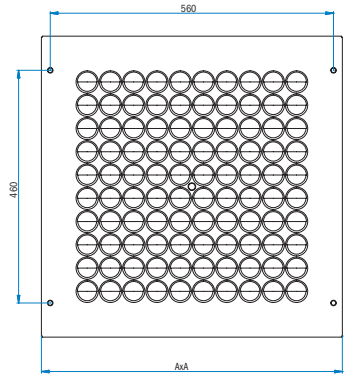
OD-15/KR

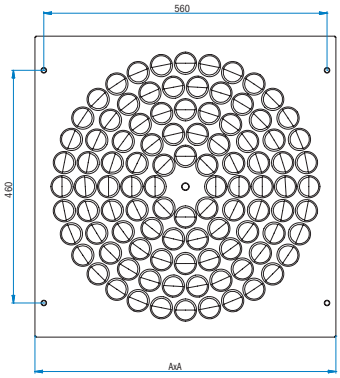


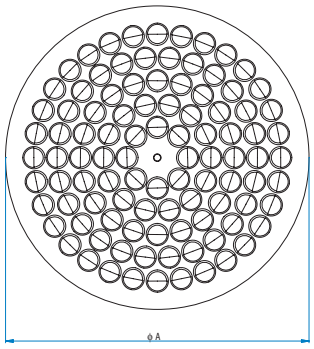
OD-15/RR



Size 600, 625





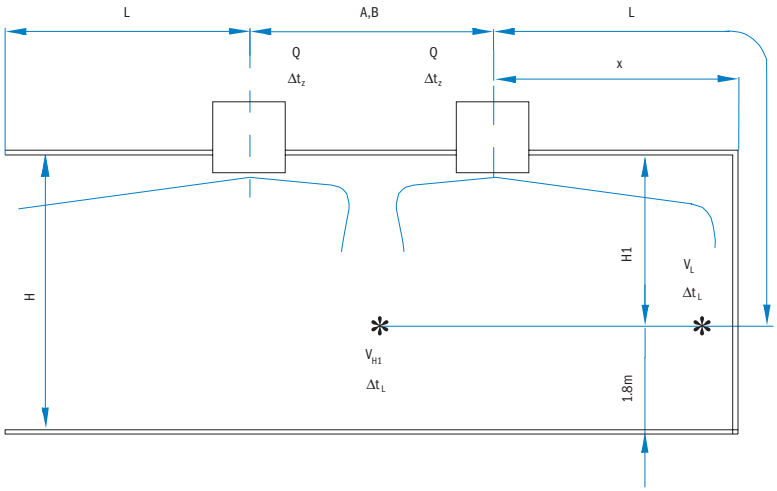


Dimension	300KK	300KR	300RR	400KK	400KR	400RR	500KK	500KR	500RR	600KK	600KR	600RR	625KK	625KR	625RR
AxA (mm)	295x295	295x295	Φ300	395x395	395x395	Φ400	495x495	495x495	Φ500	595x595	595x595	Φ600	620x320	620x620	Φ625
Number of nozzles	36	22	22	64	42	42	80	68	68	100	100	100	100	100	100

* tolerances according to standard DIN 7168 T1, middle tolerance class (m) … ±0.8 mm

Definition of symbols

Q (m³/h)	Air flow
x (m)	Horizontal distance to wall
H (m)	Room height
H1 (m)	Distance from ceilling to occupied zone
L (m)	Throw distance (L = H1+ x)
V_L (m/s)	Air velocity at the throw distance L
Δt_z (K)	Temperate difference between the supply and room air
Δt_L (K)	Temperature difference between air jet and room temperature
Δp_t (Pa)	Pressure drop
L_{WA} (dB(A))	Sound power level
V_{H1} (m/s)	Air velocity at the H1distance
A, B (m)	Distance between diffusers by length and by width
$V_{0.2}$	Isothermal throw lenght, when velocity of supply air jet 0.2 m/s for 4 way discharge



Quick selection tabels

Type	Q	[l/s]	34.7	41.7	48.6	55.6	62.5	69.4
		[m³/h]	125	150	175	200	225	250
OD-15/KK/Z/S/M size 300 Φd=125	L_{WA}	[dB (A)]	28	31	36	39	43	45
	Δp_t	[Pa]	18	25	34	45	57	70
	$L_{0.2}$	[m]		3.8	4.6	4.8	5.0	5.2
OD-15/KK/Z/V/M size 300 Φd=125	L_{WA}	[dB (A)]	27	30	34	38	41	44
	Δp_t	[Pa]	17	24	33	43	54	67

Type	Q	[l/s]	22.2	27.8	34.7	41.7	48.6	55.6
		[m³/h]	80	100	125	150	175	200
OD-15/KR/ZR/S/M size 300 Φd=160	L_{WA}	[dB (A)]	27	31	37	40	43	49
	Δp_t	[Pa]	11	17	26	37	51	66
	$L_{0.2}$	[m]		3.9	4.7	4.9	5.1	5.3
OD-15/KR/ZR/V/M size 300 Φd=160	L_{WA}	[dB (A)]	26	29	34	37	40	45
	Δp_t	[Pa]	10	16	25	36	49	64

Type	Q	[l/s]	55.6	69.4	83.3	97.2	111.1	125.0
		[m³/h]	200	250	300	350	400	450
OD-15/KK/Z/S/M size 400 Φd=200	L_{WA}	[dB (A)]	26	28	34	39	43	45
	Δp_t	[Pa]	9	14	21	28	37	47
	$L_{0.2}$	[m]	2.8	3.2	3.6	4	4.2	4.6
OD-15/KK/Z/V/M size 400 Φd=200	L_{WA}	[dB (A)]	26	28	33	38	42	45
	Δp_t	[Pa]	10	15	22	29	38	49

Type	Q	[l/s]	41.7	48.6	55.6	62.5	69.4	83.3
		[m³/h]	150	175	200	225	250	300
OD-15/KR/ZR/S/M size 400 Φd=200	L_{WA}	[dB (A)]	28	31	35	38	41	43
	Δp_t	[Pa]	11	15	19	24	30	43
	$L_{0.2}$	[m]	2.9	3.3	3.7	4.1	4.3	4.7
OD-15/KR/ZR/V/M size 400 Φd=200	L_{WA}	[dB (A)]	27	29	32	35	38	41
	Δp_t	[Pa]	10	14	19	23	29	42

Type	Q	[l/s]	69.4	83.3	97.2	111.1	125.0	138.9
		[m³/h]	250	300	350	400	450	500
OD-15/KK/Z/S/M size 500 Φd=200	L_{WA}	[dB (A)]	26	29	33	37	41	44
	Δp_t	[Pa]	13	18	25	32	41	50
	$L_{0.2}$	[m]	1.8	2.2	2.4	2.8	3.2	3.6
OD-15/KK/Z/V/M size 500 Φd=200	L_{WA}	[dB (A)]	26	28	32	37	41	44
	Δp_t	[Pa]	12	17	24	31	39	48

Type	Q	[l/s]	55.6	69.4	83.3	97.2	111.1	125.0
		[m³/h]	200	250	300	350	400	450
OD-15/KR/ZR/S/M size 500 Φd=200	L_{WA}	[dB (A)]	28	32	36	40	44	47
	Δp_t	[Pa]	10	15	22	29	39	49
	$L_{0.2}$	[m]	1.9	2.3	2.5	2.9	3.3	3.7

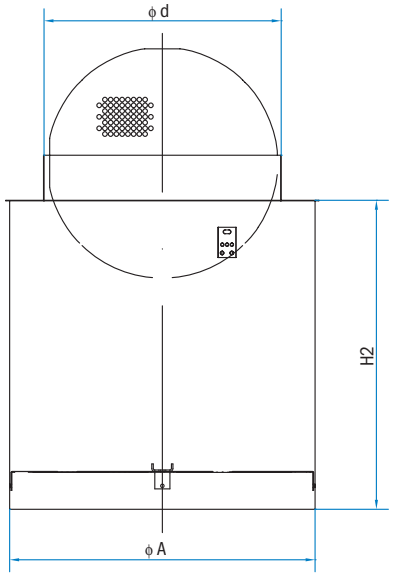
OD-15/KR/ZR/V/M size 500	L_{WA}	[dB (A)]	29	31	35	40	44	47
Φd=200	Δp_t	[Pa]	9	15	21	29	38	47

Type	Q	**[l/s]**	**97.2**	**111.1**	**125.0**	**138.9**	**152.8**	**166.7**
		[m³/h]	**350**	**400**	**450**	**500**	**550**	**600**
OD-15/KK/Z/S/M size 600,625	L_{WA}	[dB (A)]	29	32	35	39	41	44
Φd=250	Δp_t	[Pa]	13	16	21	26	31	37
	$L_{0.2}$	[m]	2.6	3	3.6	4.4	5.2	5.8
OD-15/KK/Z/V/M size 600,625	L_{WA}	[dB (A)]	29	31	35	38	41	44
Φd=250	Δp_t	[Pa]	13	17	21	27	32	38

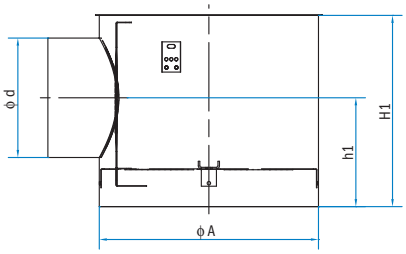
Type	Q	**[l/s]**	**97.2**	**111.1**	**125.0**	**138.9**	**152.8**	**166.7**
		[m³/h]	**350**	**400**	**450**	**500**	**550**	**600**
OD-15/KR/ZR/S/M size 600,625	L_{WA}	[dB (A)]	30	33	37	40	43	45
Φd=250	Δp_t	[Pa]	13	17	21	26	32	38
	$L_{0.2}$	[m]	2.8	3.2	3.8	4.7	5.4	6.2
OD-15/KR/ZR/V/M size 600,625	L_{WA}	[dB (A)]	30	33	37	40	43	45
Φd=250	Δp_t	[Pa]	13	17	21	26	32	38

* L_{WA} and Δp_t are given at 100 % open regulation damper

Round plenum box



(V) top entry spigot



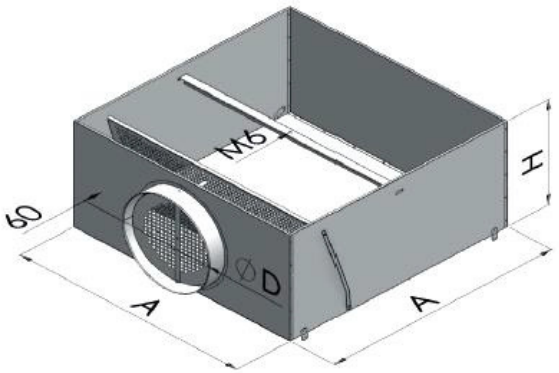
(S) side entry spigot

Size and type	ΦA (mm)	H1 (mm)	Φd (mm)	h1 (mm)	H2 (mm)
300KR,RR	290	245	158	143	245
400KR,RR	390	285	198	163	280
500KR,RR	488	285	198	163	280
600KR,RR	590	335	248	188	330
625KR,RR	590	335	248	188	330

* tolerances according to standard DIN 7168 T1, middle tolerance class (m) … ±0.8 mm

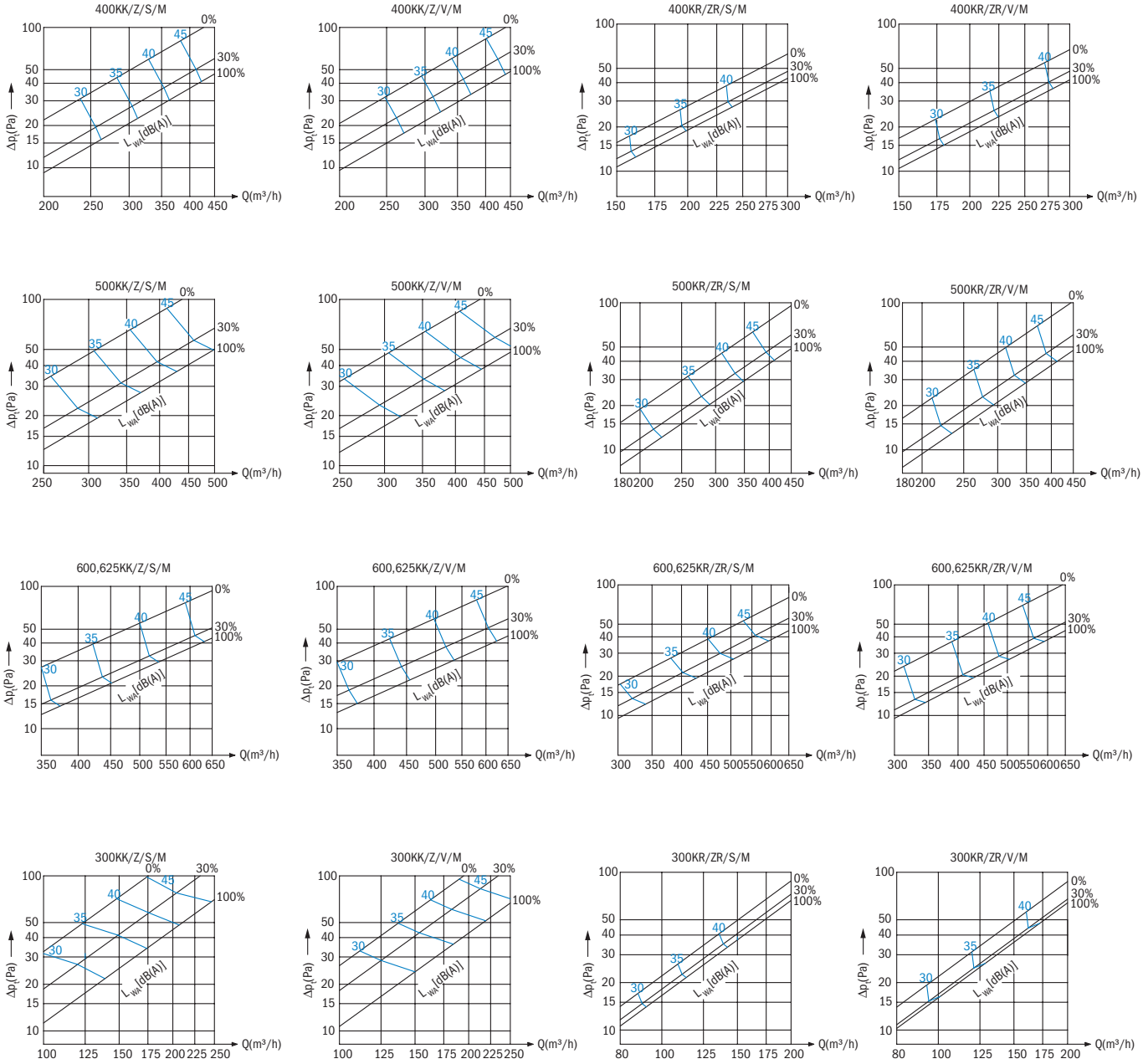
Square plenum box

Designation	Size	A [mm]	ΦD [mm]	H [mm]
K/Z/S/M/	300	290	123	175
K/Z/S/M/	400	390	198	250
K/Z/S/M/	500	490	198	250
K/Z/S/M/	600	590	248	300
K/Z/S/M/	625	590	248	300



Pressure drop, sound level

Damper opening: 0 % … closed, 100 % – opened



Type	Sound attenuation* [dB]						
	octave [Hz]						
	125	250	500	1k	2k	4k	8k
OD-15/KK/Z/S/M size 300	13	7	10	9	6	5	7
OD-15/KK/Z/V/M size 300	13	8	9	5	4	5	5
OD-15/KR/ZR/S/M size 300	13	8	13	9	7	7	7
OD-15/KR/ZR/V/M size 300	12	7	8	5	8	7	7
OD-15/KK/Z/S/M size 400	9	8	8	8	5	5	7
OD-15/KK/Z/V/M size 400	10	7	6	5	4	4	7
OD-15/KR/ZR/S/M size 400	11	8	12	10	7	6	7
OD-15/KR/ZR/V/M size 400	12	8	8	8	8	9	9
OD-15/KK/Z/S/M size 500	10	7	7	7	7	5	7
OD-15/KK/Z/V/M size 500	9	7	5	7	4	4	6
OD-15/KR/ZR/S/M size 500	9	8	9	7	5	5	6
OD-15/KR/ZR/V/M size 500	10	9	7	5	5	5	5
OD-15/KK/Z/S/M size 600,625	6	7	7	6	3	4	6
OD-15/KK/Z/V/M size 600,625	9	6	8	2	3	4	5
OD-15/KR/ZR/S/M size 600,625	5	8	7	6	4	4	5
OD-15/KR/ZR/V/M size 600,625	9	8	5	3	4	4	6

* Sound attenuation represents insertion losses; this means reduction in the level of sound power due to the inserted unit (swirl diffuser OD-15).

Ordering key

OD-15 KK1 / Z / S / M / I5 Size

1 2 3 4 5 6 7

1 Diffuser type

OD-15	Nozzle diffuser

2 Diffuser plate type

KK1	Square diffuser plate, square nozzle arrangement, central fastening
KK4	Square diffuser plate, square nozzle arrangement, fastening with four screws*
KR1	Square diffuser plate, radial nozzle arrangement, central fastening
KR4	Square diffuser plate, radial nozzle arrangement, fastening with four screws*
RR1	Circular diffuser plate, radial nozzle, central fastening

3 Plenum box

Z	Square plenum box for air supply
ZR	Circular plenum box for air supply (only KR1 and RR1)

4 Spigot

S	Side entry spigot
V	Vertical entry spigot - only on reqest

5 Air regulation

M	Volume control damper in entry spigot

6 Insulation

I5	5 mm PE thermal insulation outside of ZR plenum box
I6	6 mm PE thermal insulation outside of Z plenum box
I9	9 mm synthetic rubber based sound & thermal insulation (-40°C - 105°C) outside of ZR plenum box
I10	10 mm synthetic rubber based sound & thermal insulation (-40°C - 105°C) outside of Z plenum box
I19	19 mm synthetic rubber based sound & thermal insulation (-40°C - 105°C) outside of ZR plenum box

7 Dimensions

300	Size
400	Size
500	Size
600	Size
625	Size

* Versions KK4 and KR4 for dimensions 300, 400, 500, 600 are available only when ordering the diffusers without plenum box.