

Ceiling swirl diffusers

Type SDW



Horizontal swirling air discharge



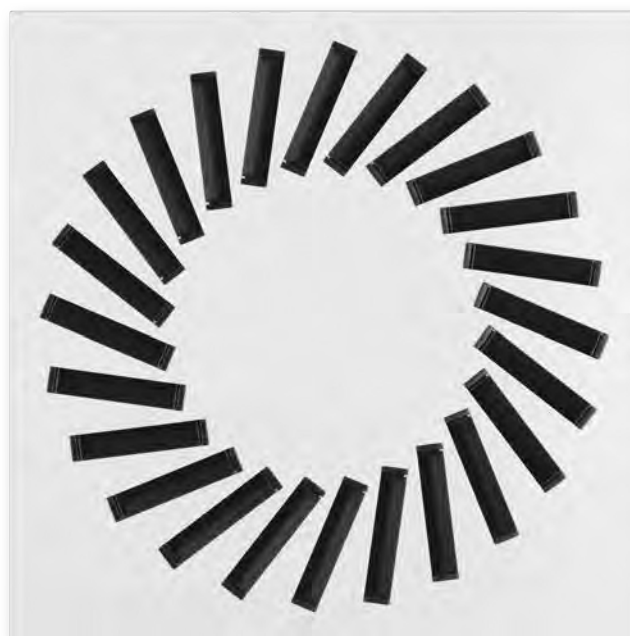
Horizontal one-way air discharge



Horizontal two-way air discharge



Plenum box with damper blade (optional)



With low sound power level for comfort zones, with individually manually adjustable air control blades

Square ceiling swirl diffusers for high room air change rates

- Nominal sizes 300, 400, 500, 600, 625
- Volume flow rate range 7 – 310 l/s or 26 – 1116 m³/h
- Diffuser face made of galvanised sheet steel, powder-coated
- For supply and extract air
- For variable and constant volume flows
- For all types of ceiling systems
- High induction results in a rapid reduction of the temperature difference and airflow velocity
- Air change rates of up to 35 per hour can be achieved by arranging several diffusers in a row with a minimum pitch of 0.9 m (centre line to centre line)
- Ideal for comfort zones

Optional equipment and accessories

- Exposed diffuser face available in RAL CLASSIC colours, air control blades in black or white
- Horizontal or vertical duct connection
- Plenum box with cord-operated damper blade and pressure tap

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Application

Application

- Type SDW ceiling swirl diffusers are used as supply air or extract air diffusers for comfort zones
- Attractive design element for building owners and architects with demanding aesthetic requirements
- Horizontal swirling supply air discharge for mixed flow ventilation
- The efficient swirl creates high induction levels, thereby rapidly reducing the temperature difference and airflow velocity (supply air variant)
- Individually adjustable air control blades to meet individual requirements
- For variable and constant volume flows
- For supply air to room air temperature differences from –12 to +10 K
- For room heights up to 4 m (lower edge of suspended ceiling)

Special characteristics

- Air control blades can be adjusted individually manually for adjusting the air pattern
- For all types of ceiling systems
- Black or white air control blades
- Air change rates of up to 35 per hour can be achieved by arranging several diffusers in a row with a minimum pitch of 0.9 m (centre line to centre line)

Nominal sizes

- 300 × 8, 400 × 16, 500 × 24, 600 × 24, 600 × 48, 625 × 24, 625 × 54

Description

Variants

- SDW: Swirl diffuser

Installation type

- Q: Face mounted
- QL: Lay-in flat 'T' bar
- QS15: Tegular 'T' bar 15x8
- QS26: Tegular 'T' bar 26x8
- QM15: Tegular 'T' bar 15x16
- QM26: Tegular 'T' bar 26x16
- QB: Push-in spring 'T' (Burgess)

Construction style

- SDW-*-Z: Supply
- SDW-*-A: Extract
- SDW-*-F: Face only (QL, QM, QS only)

Connection¹⁾

- SDW-*-AH: Horizontal extract
- SDW-*-ZH: Horizontal supply
- SDW-*-ZV: Vertical supply
- SDW-*-AV: Vertical extract
- RA: Return air baffle

¹⁾In combination with AKV-SDW

Parts and characteristics

- Square diffuser face
- Diffuser face with individually manually adjustable air control blades
- Simple installation of the diffuser face due to central fixing screw with decorative cap
- Damper blade for volume flow rate balancing (optional)

Accessories

- Plenum box with horizontal and vertical connection
- Return air baffle

Construction features

Spigot suitable for circular ducts to EN 1506 or EN 13180

Materials and surfaces

- Diffuser face made of galvanised sheet steel
- AKV: Plenum box and cross bar made of galvanised sheet steel
- Air control blades made of plastic, UL 94, V-0, flame retardant
- P3: Exposed diffuser face powder-coated RAL 9010, 20% gloss
- P2: Exposed diffuser face powder-coated RAL 9006, 30% gloss
- P4: Exposed diffuser face powder-coated RAL 9005, 20% gloss
- P6: Powder-coated, RAL CLASSIC colour 30% gloss
- Air control blades for supply air similar to RAL 9005, black; extract air variant without air control blades
- Q11: Air control blades for extract air similar to RAL 9005, black
- Q21: Air control blades for supply air and extract air similar to RAL 9010, white

Standards and guidelines

- Sound power level of the air-regenerated noise measured according to EN ISO 5135

Maintenance

- Maintenance-free as construction and materials are not subject to wear
- Inspection and cleaning to VDI 6022

Functional description

Ceiling swirl diffusers in air conditioning systems create a swirl to supply air to rooms. The resulting airflow induces high levels of room air, thereby rapidly reducing the airflow velocity and the temperature difference between supply air and room air. Ceiling swirl diffusers allow for large volume flow rates. The result is a mixed flow ventilation in comfort zones, with good overall room ventilation, creating only very little turbulence in the occupied zone.

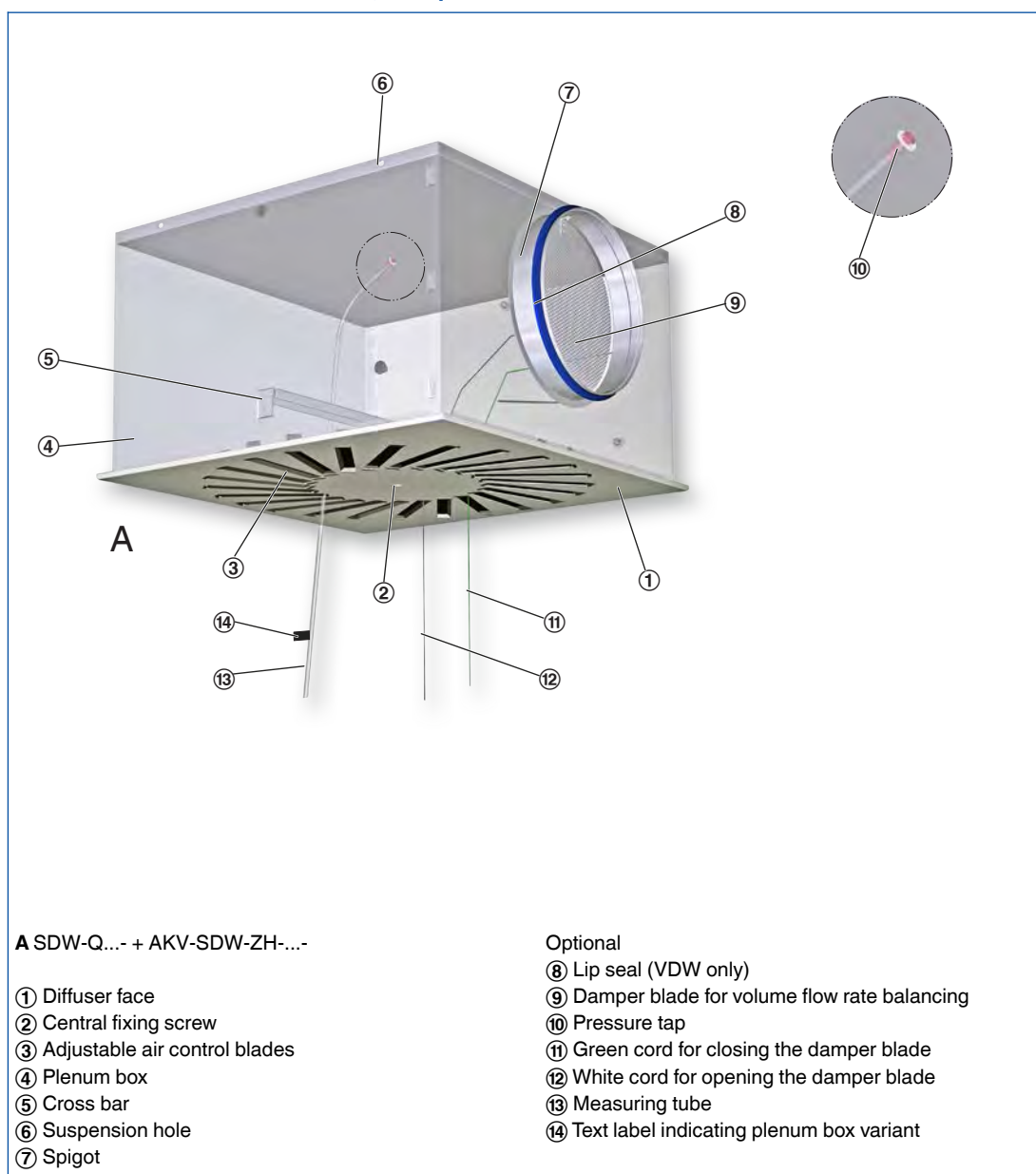
Type SDW ceiling swirl diffusers have adjustable air control blades. The air pattern can be adjusted to meet different local requirements. Horizontal air

discharge is one-way, two-way or omni directional. Vertical air discharge is possible but only for heating. The supply air to room air temperature difference may range from -12 to $+10$ K.

A damper blade (optional) simplifies volume flow rate balancing for commissioning. Pressure tap and cord-operated damper blade (optional) allow for volume flow rate balancing with the diffuser face in place.

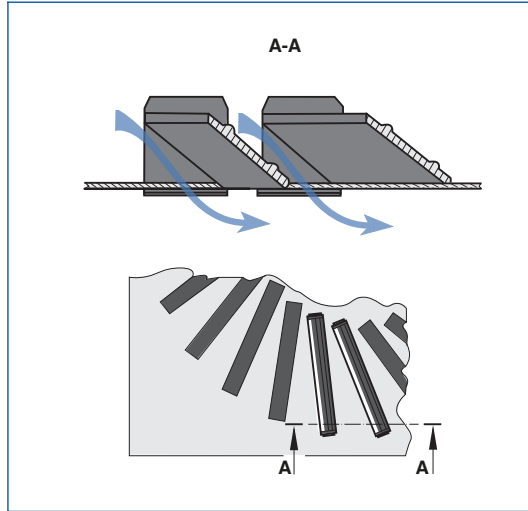
To give rooms an aesthetic, uniform look, Type SDW diffusers may also be used for extract air or supplied as face only. Air control blades are not required for extract air applications.

Schematic illustration of the SDW, with plenum box for horizontal duct connection

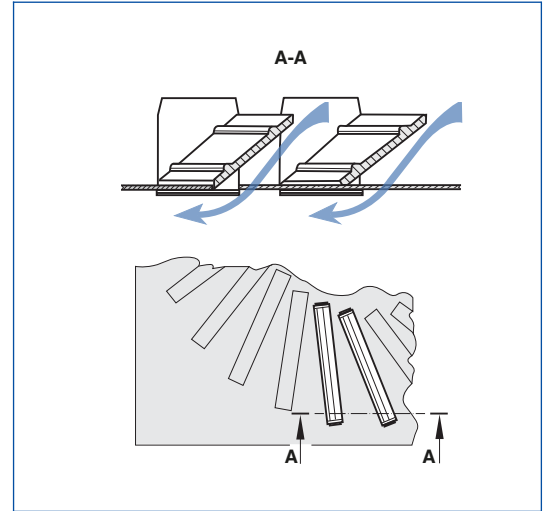


Air patterns

Air control blades set to external swirl

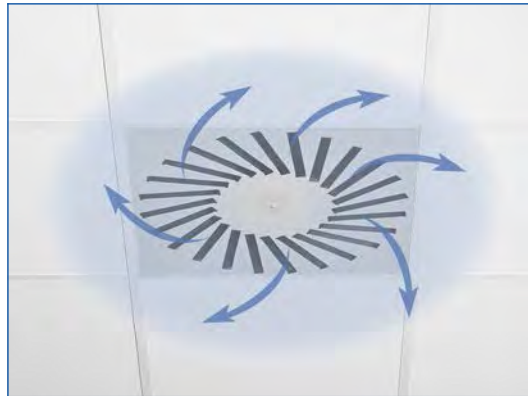


Air control blades set to internal swirl



Horizontal air discharge

Horizontal omni directional air discharge



Setting of the air control blades



All air control blades set to external swirl

Setting of the air control blades



Outer air control blades set to external swirl, inner blades set to internal swirl

Horizontal one-way air discharge

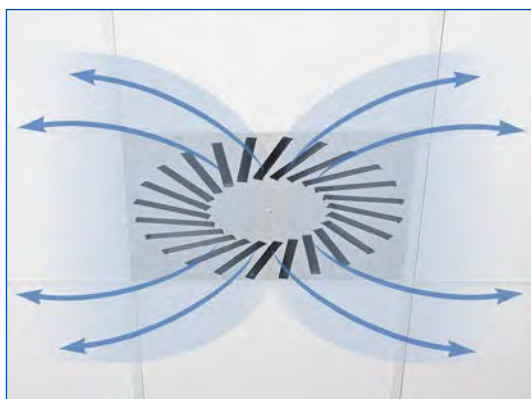


Setting of the air control blades

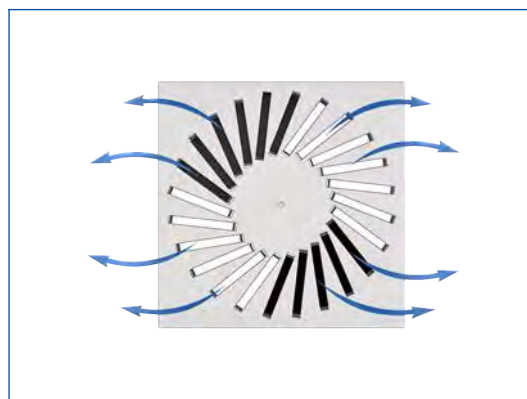


Air control blades set to internal and external swirl per half circle

Horizontal two-way air discharge



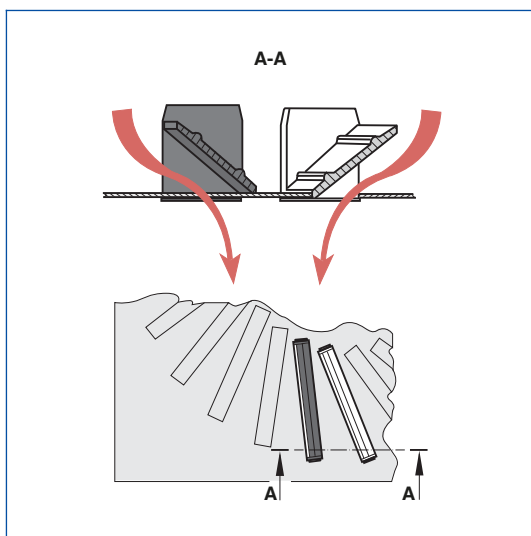
Setting of the air control blades



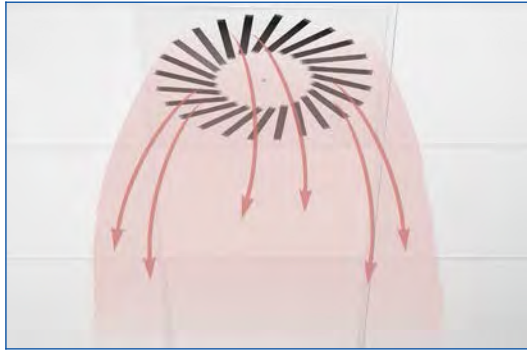
Air control blades set to internal and external swirl per quadrant

Vertical air discharge

Air control blades set to vertical air discharge



Vertical air discharge



Setting of the air control blades



Air control blades set alternately to internal and external swirl

Nominal sizes	300, 400, 500, 600, 625 mm
Minimum volume flow rate, with $\Delta t_z = -6$ K	7 – 52 l/s or 26 – 186 m ³ /h
Maximum volume flow rate, with $L_{WA} \cong 50$ dB(A)	62 – 310 l/s or 223 – 1116 m ³ /h
Supply air to room air temperature difference	-12 to +10 K

Quick sizing tables provide a good overview of the volume flow rates and corresponding sound power levels and differential pressures.

The minimum volume flow rates apply to a supply air to room air temperature difference of -6 K.

The maximum volume flow rates apply to a sound power level of approx. 50 dB (A) with damper blade position 0° .

Exact values for all parameters can be determined with our Easy Product Finder design programme.

SDW-... + AKV-SDW-ZH-... (supply air), sound power level and total differential pressure

Nominal size	\dot{V}	\dot{V}	Damper blade position					
			0°		45°		90°	
			Δp_t	L_{WA}	Δp_t	L_{WA}	Δp_t	L_{WA}
			Pa	dB(A)	Pa	dB(A)	Pa	dB(A)
	l/s	m ³ /h						
300 × 8	7	26	1	<15	1	<15	1	<15
	35	126	15	23	18	22	30	24
	60	216	45	39	53	38	87	40
	85	306	91	50	105	50	174	51
400 × 16	13	46	1	<15	1	<15	1	<15
	60	216	13	22	15	23	28	25
	100	360	36	38	42	39	78	42
	140	504	71	50	83	50	154	54
500 × 24	19	70	1	<15	1	<15	3	<15
	70	252	11	19	14	19	34	24
	125	450	35	38	45	37	108	42
	175	630	68	50	89	49	212	54
600 × 24, 625 × 24	28	102	1	<15	1	<15	2	<15
	105	378	11	20	15	21	33	22
	165	594	26	34	37	34	83	36
	260	936	65	50	91	51	205	55
600 × 48	40	145	1	<15	2	<15	5	<15
	130	468	12	21	18	23	50	29
	210	756	32	37	47	40	131	45
	305	1098	67	50	98	55	276	60
625 × 54	52	186	2	<15	2	<15	7	<15
	140	504	13	22	16	24	48	33
	225	810	34	38	41	39	125	51
	310	1116	64	50	77	52	238	64

SDW-... + AKV-SDW-ZV-... (supply air), sound power level and total differential pressure

Nominal size	\dot{V} l/s	\dot{V} m ³ /h	Damper blade position					
			0°		45°		90°	
			Δp_t Pa	L_{WA} dB(A)	Δp_t Pa	L_{WA} dB(A)	Δp_t Pa	L_{WA} dB(A)
300 × 8	7	26	1	<15	1	<15	1	<15
	30	108	12	20	14	20	22	21
	55	198	41	38	46	38	74	39
	80	288	87	50	98	51	157	52
400 × 16	13	46	1	<15	1	<15	1	<15
	55	198	11	21	13	20	26	20
	100	360	38	39	44	40	85	40
	140	504	74	50	86	51	167	52
500 × 24	19	70	1	<15	1	<15	3	<15
	70	252	10	18	14	21	35	24
	125	450	31	36	45	40	112	43
	180	648	65	50	94	54	233	59
600 × 24, 625 × 24	28	102	1	<15	1	<15	2	<15
	100	360	10	22	13	23	30	26
	170	612	28	38	38	40	87	43
	240	864	56	50	75	54	174	57
600 × 48	40	145	1	<15	2	<15	4	<15
	120	432	10	22	16	26	39	31
	200	720	27	38	43	44	109	48
	280	1008	53	50	85	58	214	63
625 × 54	52	186	2	<15	3	<15	7	<15
	130	468	10	23	16	26	42	33
	210	756	27	38	42	44	109	49
	290	1044	51	50	81	59	208	62

Single row aerodynamic quick sizing

SDW-*-Z (supply air), flow rate, $v_{h1} \leq 0.25 \text{ ms}^{-1}$

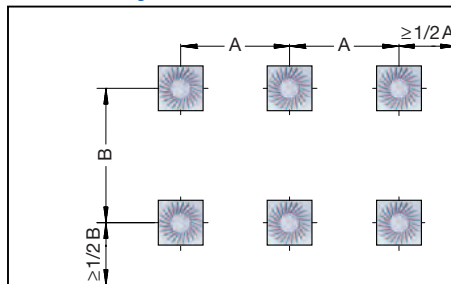
Flow rate (l/s) - Arrangement square/rectangular							
Nominal size	A (m)						
	0	1.2	1.8	2.4	3.0	3.6	4.2
300 x 8	60	60	60	60	60	60	60
400 x 16	104	102	100	104	104	104	104
500 x 24	133	133	122	124	133	133	133
600 x 24	188	150	146	160	188	188	188
600 x 48	226	180	170	180	226	226	226
625 x 24	188	150	146	160	188	188	188
625 x 54	232	196	180	190	232	232	232

Multi row aerodynamic quick sizing

SDW-*-Z (supply air), flow rate, $v_{h1} \leq 0.25 \text{ ms}^{-1}$

Flow rate (l/s) - Arrangement square/rectangular							
Nominal size	B (m)	A (m)					
		1.2	1.8	2.4	3.0	3.6	4.2
300 x 8	3.0	56	52	54	60	60	60
400 x 16		74	72	78	84	102	104
500 x 24		88	80	84	110	108	120
600 x 24		106	104	112	124	154	180
600 x 48		124	120	122	130	160	190
625 x 24		106	104	112	124	154	180
625 x 54					145	180	214
300 x 8	3.6	60	60	60	60	60	60
400 x 16		88	86	94	102	104	104
500 x 24		110	100	104	108	130	130
600 x 24		128	126	138	154	180	186
600 x 48		150	140	152	160	180	226
625 x 24		128	126	138	154	160	186
625 x 54		164	150	166	178	200	232
300 x 8	4.2	60	60	60	60	60	60
400 x 16		102	100	104	104	104	104
500 x 24		130	122	124	122	130	130
600 x 24		150	146	160	180	186	186
600 x 48		180	170	180	190	226	226
625 x 24		150	146	160	180	186	186
625 x 54		194	180	190	210	232	232

Diffuser layout



Nomenclature

\dot{V} in l/s = Flow rate
 \dot{V}_{\min} in l/s = Minimum flow rate
 A, B in m = Distance between two diffusers

Note

In all cases, the sound power level is $L_{WA} \leq 40 \text{ dB(A)}$ per diffuser and the pressure drop $\Delta P_t \leq 40 \text{ Pa}$.

Selection valid for ceiling height = 2.7...3 m.

This specification text describes the general properties of the product. Texts for variants can be generated with our Easy Product Finder design programme.

Ceiling swirl diffusers with square diffuser face. Supply air and extract air variants for comfort zones, for a maximum air change rate of 35 per hour. Diffuser face with individually manually adjustable air control blades for horizontal swirling supply air discharge creating high induction levels. For installation into all types of suspended ceilings.

Ready-to-install component which consists of the diffuser face with radially arranged, individually adjustable black or white air control blades, and of a plenum box, equalising element (only supply air variants), side entry or top entry spigot, cross bar, and suspension holes or suspension lugs.

The diffuser face is fixed to the cross bar with a central screw, concealed by a decorative cap. Spigot suitable for ducts to EN 1506 or EN 13180. Sound power level of the air-regenerated noise measured according to EN ISO 5135.

Special characteristics

- Air control blades can be adjusted individually manually for adjusting the air pattern
- For all types of ceiling systems
- Black or white air control blades
- Air change rates of up to 35 per hour can be achieved by arranging several diffusers in a row with a minimum pitch of 0.9 m (centre line to centre line)

Materials and surfaces

- Diffuser face made of galvanised sheet steel
- AKV: Plenum box and cross bar made of galvanised sheet steel

- Air control blades made of plastic, UL 94, V-0, flame retardant
- P3: Exposed diffuser face powder-coated RAL 9010, 20% gloss
- P2: Exposed diffuser face powder-coated RAL 9006, 30% gloss
- P4: Exposed diffuser face powder-coated RAL 9005, 20% gloss
- P6: Powder-coated, RAL CLASSIC colour 30% gloss
- Air control blades for supply air similar to RAL 9005, black; extract air variant without air control blades
- Q11: Air control blades for extract air similar to RAL 9005, black
- Q21: Air control blades for supply air and extract air similar to RAL 9010, white

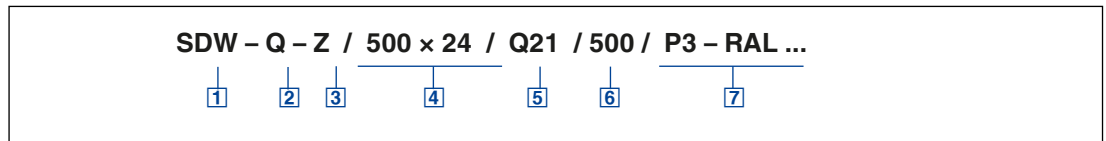
Technical data

- Nominal sizes: 300, 400, 500, 600, 625 mm
- Minimum volume flow rate, with $\Delta t_z = -6$ K: 7 – 52 l/s or 26 – 186 m³/h
- Maximum volume flow rate, with $L_{WA} \approx 50$ dB(A): 85 – 310 l/s or 306 – 1116 m³/h
- Supply air to room air temperature difference: -12 to +10 K

Sizing data

- \dot{V} _____
[m³/h]
 - Δp_t _____
[Pa]
- Air-regenerated noise
- L_{WA} _____
[dB(A)]

SDW



1 Type

SDW Swirl diffuser

2 Installation type

- Q** Square flush face
- QL** Square lay in T bar
- QM15** Square lay in threadline 15*16
- QM26** Square lay in threadline 26*16
- QS15** Square lay in threadline 15*8
- QS26** Square lay in threadline 26*8
- QB** Burgess ceiling

3 Construction style

- Z** Supply
- A** Extract
- F** Face only

4 Diffuser active size

- 300x8**
- 400x16**
- 500x24**
- 600x24**
- 600x48**
- 625x24**
- 625x54**

5 Blade type

- 0** Supply air black blades
- 0** Extract air no blades
- Q11** Extract air black blades
- Q21** Supply air white blades
- Q21** Extract air white blades

6 Panel size

No entry: diffuser size

600

750

7 Finish

- P2** RAL 9006 Gloss level:30%
- P3** RAL 9010 Gloss level:20%
- P4** RAL 9005 Gloss level:20%
- P6** Powder-coated RAL CLASSIC colour gloss level 30%

Order example: SDW-Q-Z/500x24/Q21/-/P3-RAL9010:20%

Type	SDW
Installation type	Square flush face
Construction style	Supply air
Diffuser size	500 × 24
Colour of air control blades	White
Panel size	500
Exposed surface	RAL 9010 white gloss level 20%

AKV-SDW

AKV-SDW – Q – ZH – D12 – M / 500 x 198 x 24 x 276 / E / P3 / RAL 9010 / 20%

1 2 3 4 5 6 7 8 9 10 11

1 Type

AKV-SDW

2 Installation type

Q Square flush face
QL Square lay in T bar
QM15 Square lay in threadline 15*16
QM26 Square lay in threadline 26*16
QS15 Square lay in threadline 15*8
QS26 Square lay in threadline 26*8
QB Burgess ceiling

3 Construction

ZH Horizontal supply
AH Horizontal extract
ZV Vertical supply
AV Vertical extract

4 Lining

- Not lined
D12 12mm lining
D25 25mm lining

5 Rear assembly

0 No damper
M Spigot damper
MC Cord operated spigot damper
MN Spigot damper + test point*
MNC Cord operated spigot damper + test point*

6 Active size of diffuser

300
400
500
600
625

7 Spigot size

158
198
248

8 Number of blades

8
16
24
48
54

9 Height of plenum box

- Standard height
(Extended height available on request)

10 Finish

0 Unpainted
I Painted internally
E Painted externally
C Painted internally and externally

11 Paint option

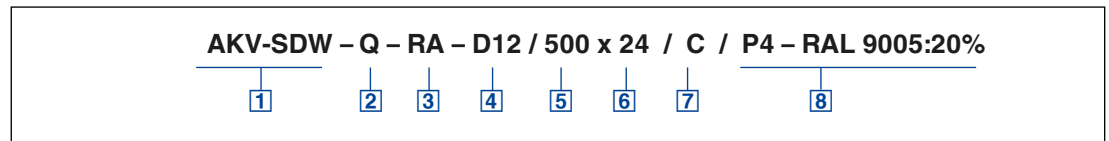
0 Not applicable
P3 RAL 9010 gloss level:20%
P4 RAL 9005 gloss level:20%
P6 Powder-coated RAL CLASSIC colour gloss level:30%

*ZH only

Order example: AKV-SDW-Q-ZH-D12-M/500x198x24x276/E/P3/RAL9010/20%

Type	AKV-SDW
Installation type	Square flush face
Construction	Horizontal supply
Lining	12mm lining
Rear assembly	Spigot damper
Active size of diffuser	500
Spigot size	198
Number of blades	24
Height of plenum box	276
Finish	Painted externally
Paint option	RAL9010:20%, white

AKV-SDW



1 Plenum type
AKV-SDW

2 Installation type

- Q** Square flush face
- QL** Square lay in T bar
- QM15** Square lay in threadline 15*16
- QM26** Square lay in threadline 26*16
- QS15** Square lay in threadline 15*8
- QS26** Square lay in threadline 26*8
- QB** Burgess ceiling

3 Construction

- RA** Return air baffle

4 Internal lining

- 0** Not lined
- D12** 12mm lining

5 Active size

- 300**
- 400**
- 500**
- 600**
- 625**

6 Number of blades

- 8**
- 16**
- 24**
- 48**
- 54**

7 Exposed surface

- C** Powder-coated

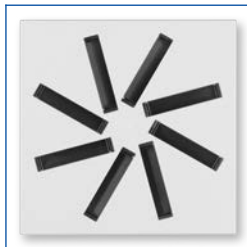
8 Paint colour

- P4** RAL 9005:20%
- P6** RAL CLASSIC colour Gloss level 30%

Order example: AKV-SDW-Q-RA-D12/500x24/C/P4-RAL9005:20%

Plenum type	AKV-SDW
Installation type	Square flush face
Construction	RA
Internal lining	12 mm lining
Active size	500
Number of blades	24
Exposed surface	Powder-coated
Paint colour	RAL 9005 gloss 20%

SDW-Q-Z/300x8



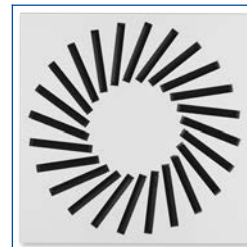
SDW-Q-Z/400x16



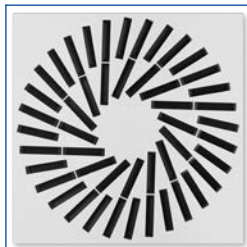
SDW-Q-Z/500x24



SDW-Q-Z/600x24



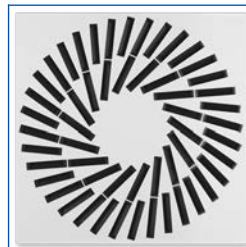
SDW-Q-Z/600x48



SDW-Q-Z/625x24



SDW-Q-Z/625x54



SDW-... + AKV-SDW-...-*H

Variant

- Ceiling swirl diffuser with square diffuser face
- With plenum box for horizontal duct connection

Nominal sizes

- 300 × 8, 400 × 16, 500 × 24, 600 × 24, 600 × 48, 625 × 24, 625 × 54

Parts and characteristics

- Square diffuser face
- Plenum box for horizontal duct connection
- Square opening to accommodate the diffuser face

- Equalising element that ensures a uniform airflow through the diffuser face (supply air variant)
- Simple installation of the diffuser face due to central fixing screw with decorative cap
- Damper blade for volume flow rate balancing (optional)
- Pressure tap and cord-operated damper blade for volume flow rate balancing (optional)

Construction features

- Spigot suitable for circular ducts to EN 1506 or EN 13180

SDW-... + AKV-SDW-...-*V

Variant

- Ceiling swirl diffuser with square diffuser face
- With plenum box for vertical duct connection

Nominal sizes

- 300 × 8, 400 × 16, 500 × 24, 600 × 24, 600 × 48, 625 × 24, 625 × 54

Parts and characteristics

- Square diffuser face
- Plenum box for vertical duct connection
- Circular opening to accommodate the diffuser face

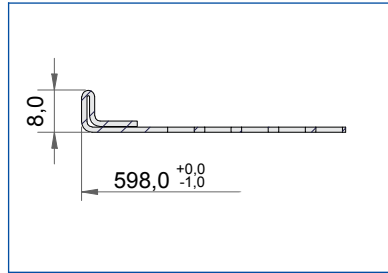
- Equalising element that ensures a uniform airflow through the diffuser face (supply air variant)
- Simple installation of the diffuser face due to central fixing screw with decorative cap
- Damper blade for volume flow rate balancing (optional)

Construction features

- Spigot suitable for circular ducts to EN 1506 or EN 13180

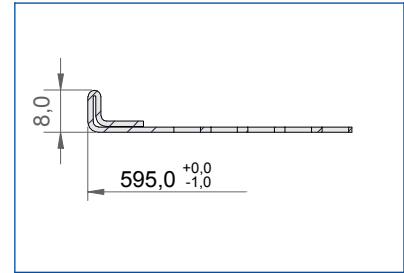
SDW installation types

SDW-...-Q



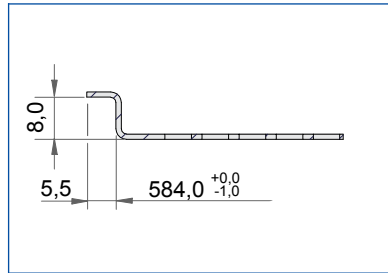
Face mounted

SDW-...-QL



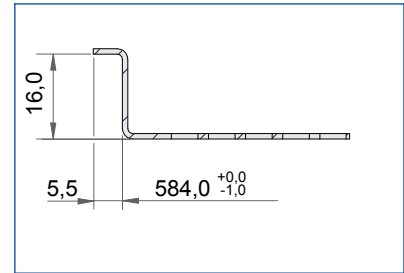
Lay-in flat 'T' bar

SDW-...-QS15



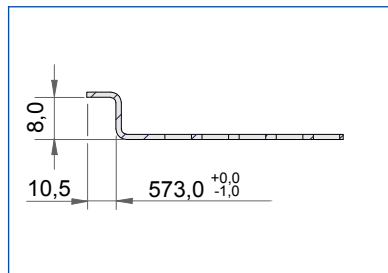
Tegral 'T' bar [15x8]

SDW-...-QM15



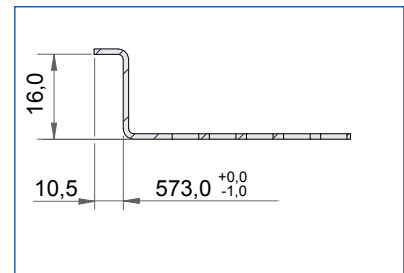
Tegral 'T' bar [15x16]

SDW-...-QS26



Tegral 'T' bar [26x8]

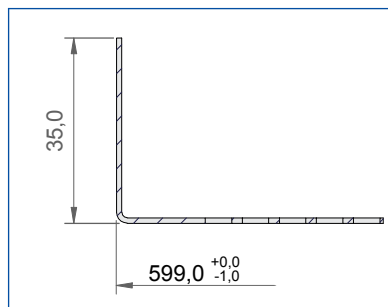
SDW-...-QM26



Tegral 'T' bar [26x16]

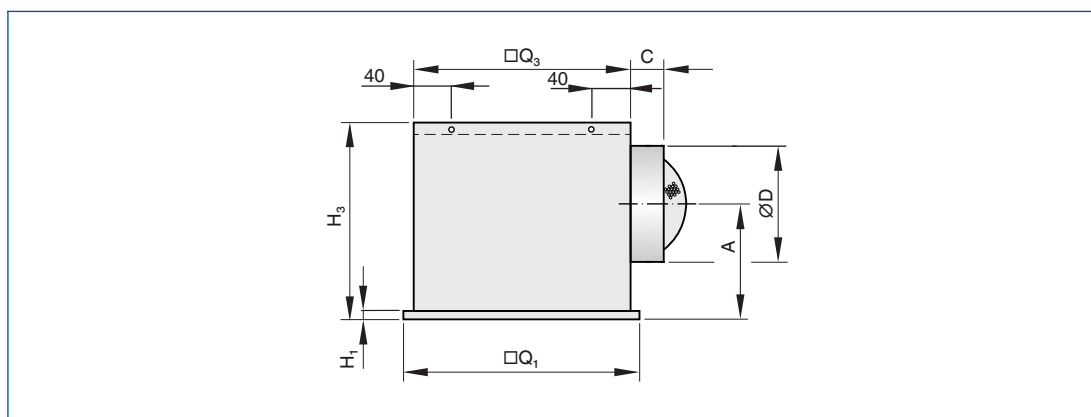
SDW-...-QB faceplate levelled via centre screw (i.e no location pip)

SDW-...-QB



Push in, spring 'T' bar

Square diffuser face with plenum box for horizontal duct connection



SDW-Q-ZH

Nominal size	ØD	H ₁	C	H ₃	□Q ₁	□Q ₃	A
	mm	mm	mm	mm	mm	mm	mm
300 × 8	158	8	40/ 75	238	298	290	134
400 × 16	198	8	40/ 75	278	398	373	154
500 × 24	198	8	40/ 75	278	498	477	154
600 × 24	248	8	40/ 75	328	598	567	179
600 × 48	248	8	40/ 75	328	598	584	179
625 × 24	248	8	40/ 75	328	623	567	179
625 × 54	248	8	40/ 75	328	623	612	179

SDW-QL-ZH

Nominal size	ØD	C	H ₃	□Q ₁	□Q ₃	A
	mm	mm	mm	mm	mm	mm
300 × 8	158	40/ 75	238	595	290	134
400 × 16	198	40/ 75	278	595	373	154
500 × 24	198	40/ 75	278	595	477	154
600 × 24	248	40/ 75	328	595	567	179
600 × 48	248	40/ 75	328	595	584	179

SDW-Q*15-ZH

Nominal size	ØD	C	H ₃	□Q ₁	□Q ₃	A
	mm	mm	mm	mm	mm	mm
300 × 8	158	40/ 75	238	584/734	290	134
400 × 16	198	40/ 75	278	584/734	373	154
500 × 24	198	40/ 75	278	584/734	477	154
600 × 24	248	40/ 75	328	584/734	567	179
600 × 48	248	40/ 75	355	584/734	550	206
625 × 54	248	40/ 75	328	734	612	179

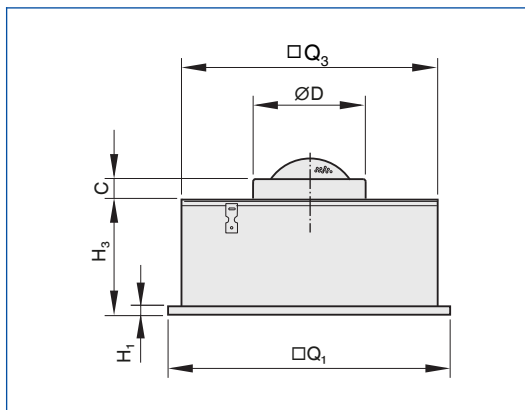
SDW-Q*26-ZH

Nominal size	ØD	C	H ₃	□Q ₁	□Q ₃	A
	mm	mm	mm	mm	mm	mm
300 × 8	158	40/ 75	238	573/723	290	134
400 × 16	198	40/ 75	278	573/723	373	154
500 × 24	198	40/ 75	278	573/723	477	154
600 × 24	248	40/ 75	328	573/723	567	179
600 × 48	248	40/ 75	355	573/723	550	206
625 × 54	248	40/ 75	328	723	612	179

SDW-QB-ZH

Nominal size	ØD	C	H ₃	□Q ₁	□Q ₃	A
	mm	mm	mm	mm	mm	mm
300 × 8	158	40/ 75	238	599/749	290	134
400 × 16	198	40/ 75	278	599/749	373	154
500 × 24	198	40/ 75	295	599/749	450	181
600 × 24	248	40/ 75	355	599/749	550	206
600 × 48	248	40/ 75	355	599/749	550	206

**Square diffuser face with plenum box
for vertical duct connection**



SDW-Q-ZV

Nominal size	ØD	H ₁	C	H ₃	□Q ₁	□Q ₃
	mm	mm	mm	mm	mm	mm
300 × 8	158	8	40/ 75	200	298	288
400 × 16	198	8	40/ 75	200	398	371
500 × 24	198	8	40/ 75	200	498	475
600 × 24	248	8	40/ 75	200	598	565
600 × 48	248	8	40/ 75	300	598	582
625 × 24	248	8	40/ 75	200	623	565
625 × 54	248	8	40/ 75	300	623	609

SDW-QL-ZV

Nominal size	ØD	C	H ₃	□Q ₁	□Q ₃
	mm	mm	mm	mm	mm
300 × 8	158	40/ 75	200	595	288
400 × 16	198	40/ 75	200	595	371
500 × 24	198	40/ 75	200	595	475
600 × 24	248	40/ 75	200	595	565
600 × 48	248	40/ 75	300	598	582

SDW-Q*15-ZV

Nominal size	ØD	C	H ₃	□Q ₁	□Q ₃
	mm	mm	mm	mm	mm
300 × 8	158	40/ 75	200	584/734	288
400 × 16	198	40/ 75	200	584/734	371
500 × 24	198	40/ 75	200	584/734	475
600 × 24	248	40/ 75	200	584/734	565
600 × 48	248	40/ 75	300	584/734	550
625 × 54	248	40/ 75	300	584/734	609

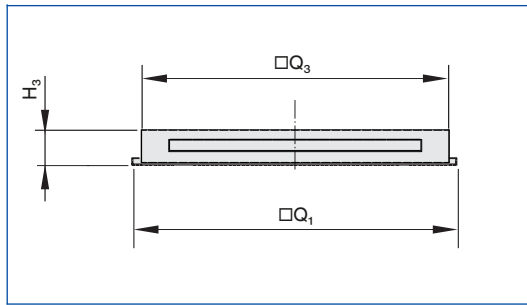
SDW-Q*26-ZV

Nominal size	ØD	C	H ₃	□Q ₁	□Q ₃
	mm	mm	mm	mm	mm
300 × 8	158	40/ 75	200	573/723	288
400 × 16	198	40/ 75	200	573/723	371
500 × 24	198	40/ 75	200	573/723	475
600 × 24	248	40/ 75	200	573/723	565
600 × 48	248	40/ 75	300	573/723	550
625 × 54	248	40/ 75	300	573/723	609

SDW-QB-ZV

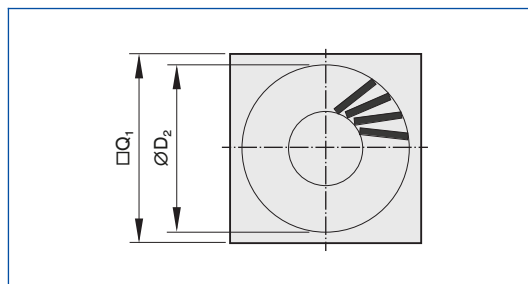
Nominal size	ØD	C	H ₃	□Q ₁	□Q ₃
	mm	mm	mm	mm	mm
300 × 8	158	40/ 75	200	599/749	290
400 × 16	198	40/ 75	200	599/749	373
500 × 24	198	40/ 75	200	599/749	477
600 × 24	248	40/ 75	200	599/749	550
600 × 48	248	40/ 75	300	599/749	550

AKV-...-RA



Nominal size	Q	QL	QS15 QM15	QS26 QM26	QB	Q QL	QM QS	QB	Q ₃
	□Q ₁					H ₃			
	mm	mm	mm	mm	mm	mm	mm	mm	
300 x 8	298	595	584/734	573/723	599/749	57	57	111	289
400 x 16	398	595	584/734	573/723	599/749	57	57	111	371
500 x 24	498	595	584/734	573/723	599/749	57	57	111	475
600 x 24	598	595	584/734	573/723	599/749	57	57	111	566
600 x 48	598	595	584/734	573/723	599/749	57	111	111	583
625 x 24	623	-	-	-	-	57	57	111	566
625 x 54	623	-	584/734	573/723	-	57	57	111	610

Diffuser face SDW-Q



SDW-Q

Nominal size	□Q ₁	∅D ₂	n	A _{eff} m ²
	mm	mm		
300 x 8	298	269	8	0.0070
400 x 16	398	352	16	0.0140
500 x 24	498	440	24	0.0210
600 x 24	598	546	24	0.0295
600 x 48	598	568	48	0.0390
625 x 24	623	546	24	0.0295
625 x 54	623	594	54	0.0470

n = no. of air control blades

Installation in T-bar ceilings



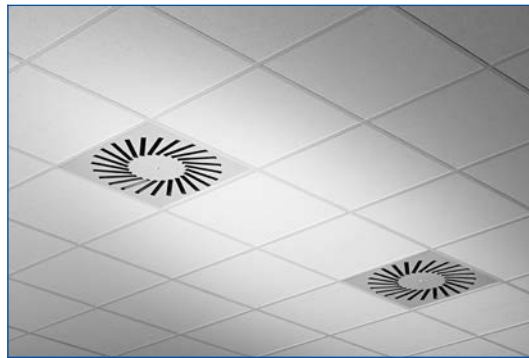
SDW-Q with black air control blades

Installation in T-bar ceilings

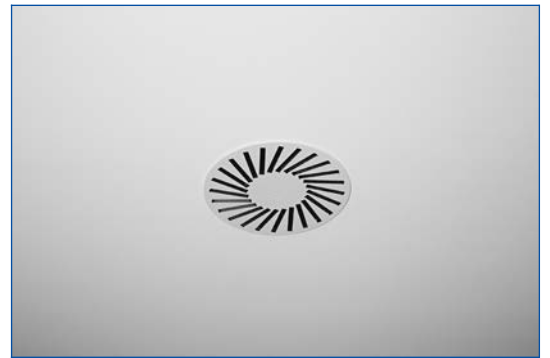


SDW-Q with white air control blades

Installation in T-bar ceilings, arrangement in a row



Installation in continuous ceilings



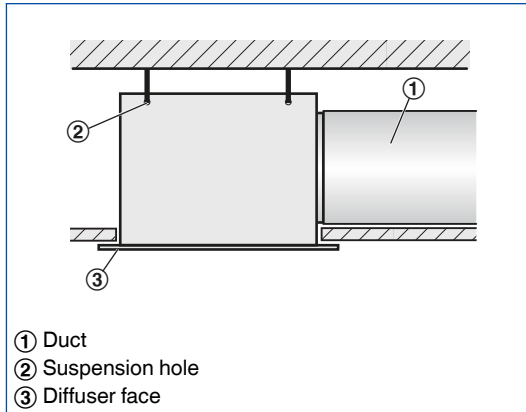
VDW-R

Installation and commissioning

- Preferably for rooms with a clear height up to 4.0 m
- Flush ceiling installation
- Horizontal or vertical duct connection
- If necessary, carry out volume flow rate balancing with the damper blade

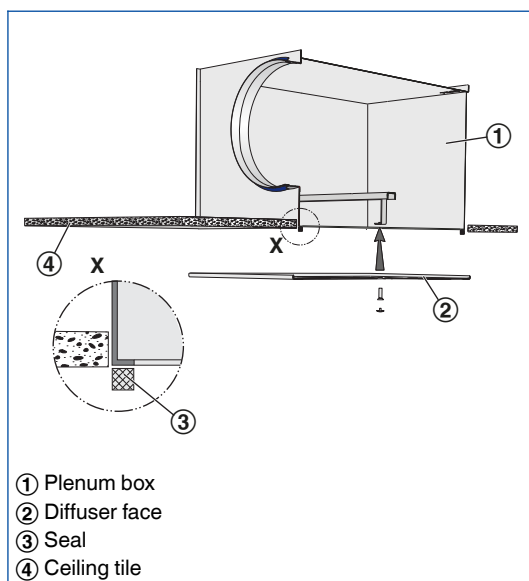
These are only schematic diagrams to illustrate installation details.

Flush ceiling installation with square plenum box



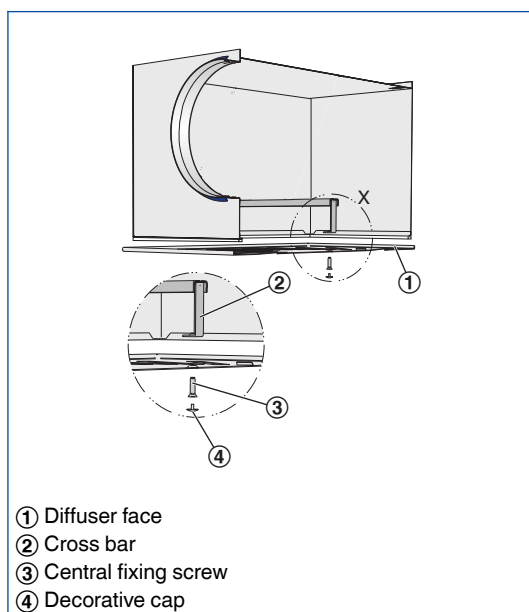
- Horizontal duct connection
- Four suspension holes
- Suspension with cords, wires or hangers, to be provided by others

Diffuser face – sealing



- The self-adhesive sealing tape (supplied) has to be applied to the return edges of the plenum box by others

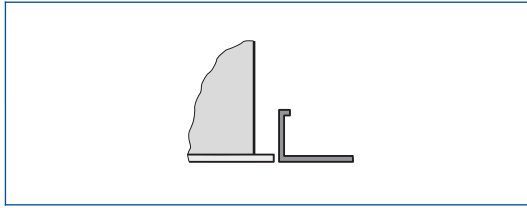
Diffuser face – central screw fixing



- Using the central fixing screw, fix the diffuser face to the cross bar of the plenum box
- Attach the decorative cap

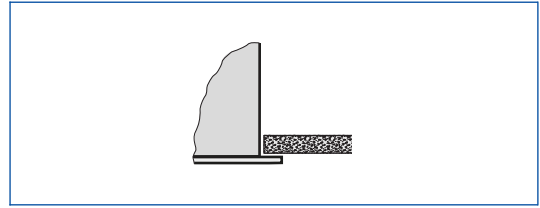
Ceiling systems

Installation into grid ceilings



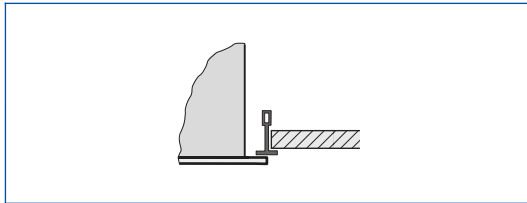
- Fix the plenum box to the ceiling
- The ceiling tile of the grid ceiling is independent of the ceiling diffuser
- Fix the diffuser face after the ceiling has been completed

Installation in continuous ceilings



- Fix plenum box (including diffuser face, if necessary) to the ceiling
- Adjust plasterboard ceiling tile as required
- If necessary, fix the diffuser face after the ceiling has been completed

Installation in T-bar ceilings



- Fix the plenum box to the ceiling
- The T-bar ceiling is independent of the ceiling diffuser
- Fix the diffuser face below the T-bars after the ceiling has been completed

Volume flow rate balancing

When several diffusers are connected to just one volume flow controller, it may be necessary to balance the volume flow rates.

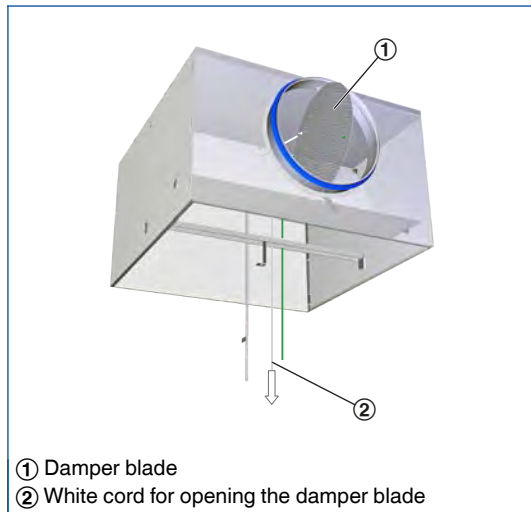
- Ceiling diffusers with plenum box and damper blade (variant -M): The diffuser face can be removed to access the damper blade; the damper blade can then be set to any position between 0 and 90°
- Ceiling diffusers with horizontal plenum box, damper blade and pressure tap (variant -MN): The diffuser face need not be removed since the damper blade can be set with the cord

Volume flow rate measurement

Ceiling diffusers with horizontal plenum box, damper blade and pressure tap (variant -MN) allow for volume flow rate balancing even with the diffuser face in place.

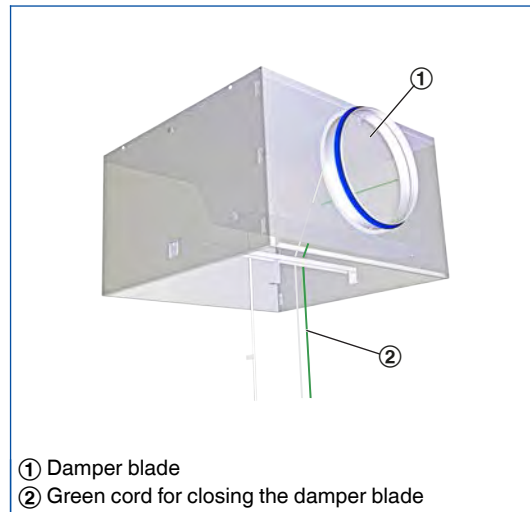
- Connect the measuring tube to the digital manometer
- Read the effective pressure
- Read the volume flow rate off the characteristic or calculate it
- If necessary, adjust the damper blade position with the cord

AKV-SDW-...-MN Volume flow rate balancing



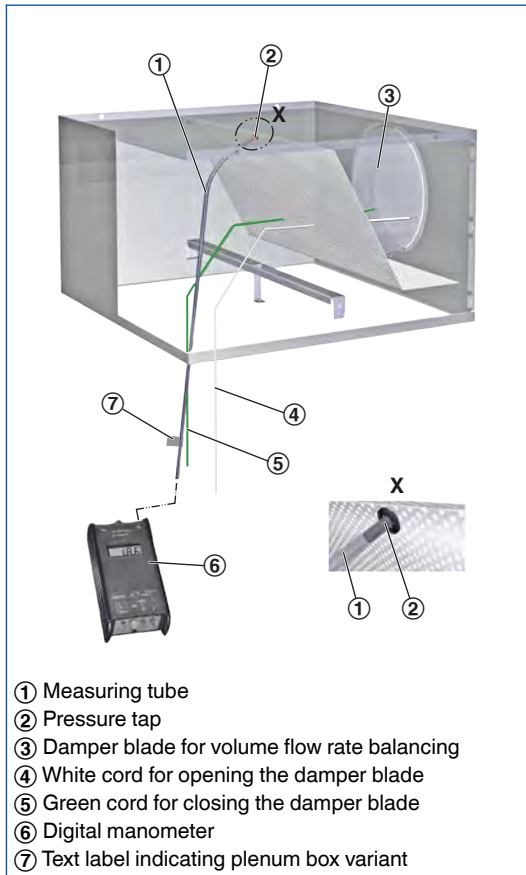
Open, 0°

AK-SDW-...-MN Volume flow rate balancing



Closed, 90°

AKV-SDW-...-MN volume flow rate measurement



Volume flow rate calculation for air density
1.2 kg/m³

$$\dot{V} = C \times \sqrt{\Delta p_w}$$

Volume flow rate calculation for other air
densities

$$\dot{V} = C \times \sqrt{\Delta p_w} \times \sqrt{\frac{1.2}{\rho}}$$

Principal dimensions

$\varnothing D$ [mm]

Outer diameter of the spigot

$\varnothing D_1$ [mm]

Outer diameter of a circular diffuser face

$\varnothing D_2$ [mm]

Diameter of a circular diffuser face style

$\varnothing D_3$ [mm]

Diameter of a circular plenum box

$\square Q_1$ [mm]

Outer diameter of a square diffuser face

$\square Q_2$ [mm]

Dimensions of a square diffuser face style

$\square Q_3$ [mm]

Dimensions of a square plenum box

H_1 [mm]

Distance (height) from the lower edge of the

suspended ceiling to the lower edge of the diffuser face

H_2 [mm]

Height of a ceiling diffuser, from the lower edge of the suspended ceiling to the upper edge of the spigot

H_3 [mm]

Height of a ceiling diffuser with plenum box, from the lower edge of the diffuser to the upper edge of the plenum box or of the spigot

A [mm]

Position of the spigot, defined by the distance of the spigot centre line to the lower edge of the diffuser

C [mm]

Length of the spigot

m [kg]

Weight

Nomenclature

L_{WA} [dB(A)]

A-weighted sound power level of air-regenerated noise

\dot{V} [m^3/h] and [l/s]

Volume flow rate

Δt_z [K]

Supply air to room air temperature difference, i.e.

supply air temperature minus room temperature

Δp_t [Pa]

Total differential pressure

A_{eff} [m^2]

Effective air discharge area

All sound power levels are based on 1 pW.