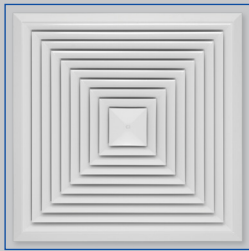
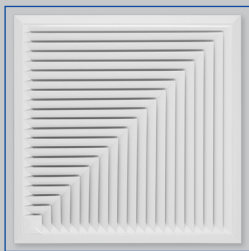


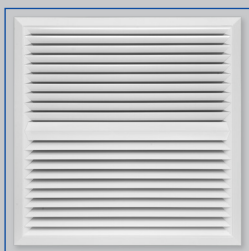
Horizontal air discharge



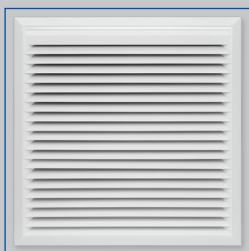
DLQ-AK-4



DLQ-AK-2E



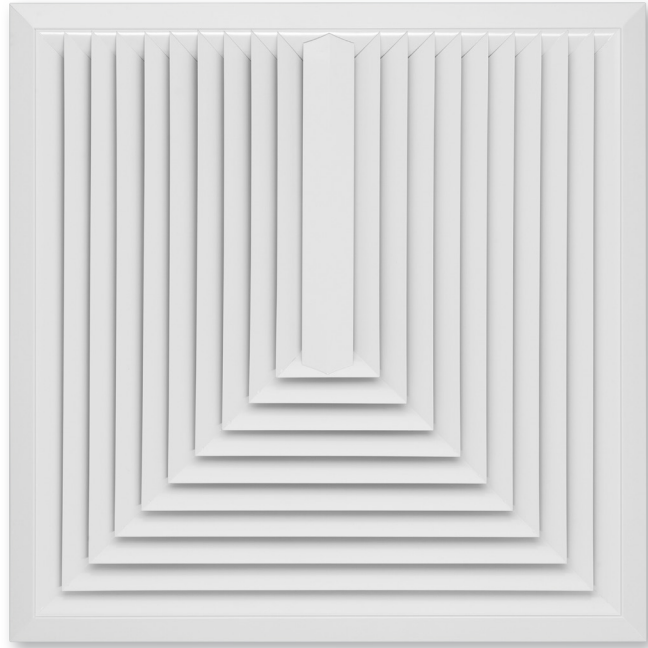
DLQ-AK-2



DLQ-AK-1

Ceiling diffusers

Type DLQ-AK



For horizontal one-way to four-way supply air discharge, with fixed air control blades – sheet steel diffuser face

Square ceiling diffusers

- Nominal sizes 300, 400, 500, 600, 625
- Volume flow rate range 40 – 565 l/s or 144 – 2034 m³/h
- Square diffuser face
- Diffuser face made of galvanised sheet steel, powder-coated
- For supply 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

Optional equipment and accessories

- Exposed diffuser face available in RAL CLASSIC colours
- Horizontal duct connection
- Plenum box with damper blade

Type		Page
DLQ-AK	General information	DLQAK – 2
	Function	DLQAK – 4
	Technical data	DLQAK – 5
	Quick sizing	DLQAK – 6
	Specification text	DLQAK – 7
	Order code	DLQAK – 8
	Variants	DLQAK – 9
	Dimensions and weight	DLQAK – 10
	Product details	DLQAK – 11
	Installation examples	DLQAK – 13
	Installation details	DLQAK – 14
	Basic information and nomenclature	DLQAK – 15

Application

Application

- Type DLQ-AK ceiling diffusers are used as supply air diffusers for comfort zones
- Attractive design element for building owners and architects with demanding aesthetic requirements
- Horizontal one-way to four-way supply air discharge for mixed flow ventilation
- High induction results in a rapid reduction of the temperature difference and airflow velocity (supply air variant)
- For variable and constant volume flows
- For supply air to room air temperature differences from –10 to +10 K
- For room heights up to 4 m (lower edge of

suspended ceiling)

- For all types of ceiling systems

Special characteristics

- Horizontal one-way to four-way supply air discharge
- Diffuser face made of formed sheet steel, powder-coated
- For all types of ceiling systems
- Spigot side can be selected
- Horizontal duct connection

Nominal sizes

- 300, 400, 500, 600, 625

Description

Variants

- DLQ-AK-1: One-way air discharge
- DLQ-AK-2: Two-way air discharge
- DLQ-AK-2E: Two-way air discharge, for corners
- DLQ-AK-3: Three-way air discharge
- DLQ-AK-4: Four-way air discharge

Parts and characteristics

- Square diffuser face with fixed air control blades
- Diffuser front frame
- Diffuser face is attached to the plenum box and cannot be removed

Attachments

- M: Damper blade for volume flow rate balancing

Construction features

- Spigot suitable for circular ducts to EN 1506 or EN 13180
- Spigot with groove for lip seal (if accessory lip seal has been ordered)

Materials and surfaces

- Diffuser face made of formed sheet steel
- Damper blade and plenum box made of galvanised sheet steel
- Lip seal made of rubber
- Diffuser face powder-coated RAL 9010, pure white
- P1: Powder-coated, RAL CLASSIC colour

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

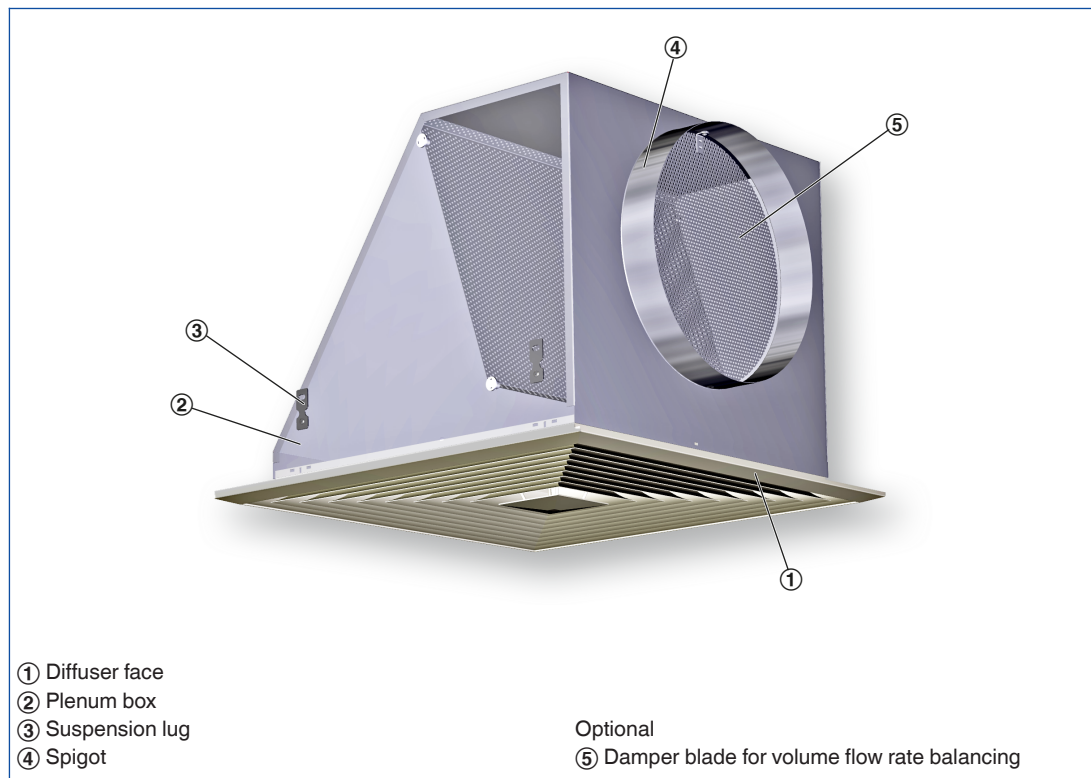
- Inspection and cleaning to VDI 6022

Functional description

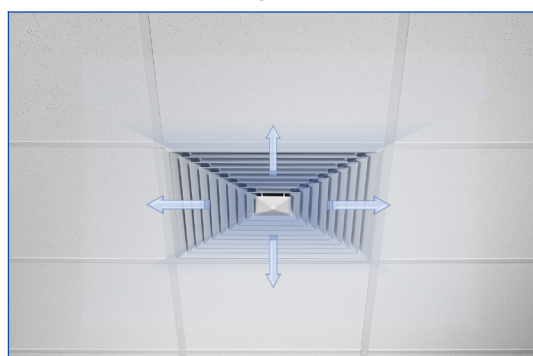
Ceiling diffusers direct the air from air conditioning systems into the room. The resulting airflow induces high levels of room air, thereby rapidly reducing the airflow velocity and the temperature difference between supply air and room air. Ceiling diffusers allow for large volume flow rates.

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 DLK-AK ceiling diffusers have fixed blades. Horizontal air discharge is one-way to four-way. The supply air to room air temperature difference may range from -10 to $+10$ K.

Schematic illustration



Horizontal air discharge



Nominal sizes	300, 400, 500, 600, 625 mm
Minimum volume flow rate	40 – 150 l/s or 144 – 540 m ³ /h
Maximum volume flow rate, with $L_{WA} \cong 50$ dB(A)	545 – 565 l/s or 1962 – 2034 m ³ /h
Supply air to room air temperature difference	-10 to +10 K

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

The maximum volume flow rates apply to a sound power level of approx. 50 dB (A).

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

DLQ-AK-1, DLQ-AK-2, DLQ-AK-3, DLQ-AK-4 (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	40	144	10	16	12	19	18	23
	65	234	26	31	32	34	47	38
	95	342	56	42	67	45	101	49
	120	432	90	50	107	53	161	57
400	50	180	4	<15	6	<15	10	13
	105	378	19	28	25	32	42	35
	160	576	45	41	58	45	99	48
	215	774	81	50	105	54	178	57
500	100	360	5	16	7	19	14	23
	180	648	16	32	22	35	46	39
	260	936	33	43	47	46	97	50
	340	1224	57	50	80	53	166	57
600	150	540	4	14	7	19	14	23
	265	954	14	31	21	36	44	40
	385	1386	29	42	44	47	94	51
	505	1818	50	50	76	55	161	59
625	150	540	4	11	7	16	15	21
	265	954	14	28	21	33	46	38
	385	1386	29	39	44	44	97	49
	545	1962	59	50	88	55	194	60

DLQ-AK-2E (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	40	144	9	16	11	18	17	22
	65	234	24	31	28	33	45	37
	95	342	50	42	61	44	96	48
	120	432	80	50	97	52	153	56
400	50	180	4	<15	6	9	10	13
	105	378	19	28	25	31	45	35
	160	576	45	41	59	44	104	48
	215	774	82	50	106	53	188	57
500	100	360	5	12	7	16	15	20
	180	648	16	30	23	34	47	38
	260	936	34	41	47	45	98	49
	350	1260	61	50	86	54	178	58
600	150	540	4	11	7	15	13	20
	265	954	13	29	21	33	41	38
	385	1386	27	41	43	45	87	50
	515	1854	48	50	78	54	155	59
625	150	540	4	8	7	13	14	17
	265	954	13	26	21	31	42	35
	385	1386	27	38	43	43	89	47
	565	2034	58	50	93	55	193	59

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

Ceiling diffusers with square diffuser face. For supply air only, for comfort zones. Diffuser face with fixed air control blades for horizontal one-way to four-way supply air discharge. For installation into all types of suspended ceilings.

Ready-to-install component which consists of the diffuser face with fixed air control blades, front frame with perimeter seal, plenum box, side entry spigot and suspension holes.

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

- Horizontal one-way to four-way supply air discharge
- Diffuser face made of formed sheet steel, powder-coated
- For all types of ceiling systems
- Spigot side can be selected
- Horizontal duct connection

Materials and surfaces

- Diffuser face made of formed sheet steel
- Damper blade and plenum box made of

- galvanised sheet steel
- Lip seal made of rubber
- Diffuser face powder-coated RAL 9010, pure white
- P1: Powder-coated, RAL CLASSIC colour

Technical data

- Nominal sizes: 300, 400, 500, 600 mm
- Minimum volume flow rate: 440 – 150 l/s or 144 – 540 m³/h
- Maximum volume flow rate, with $L_{WA} \approx 50$ dB(A): 545 – 565 l/s or 1962 – 2034 m³/h
- Supply air to room air temperature difference: –10 to +10 K

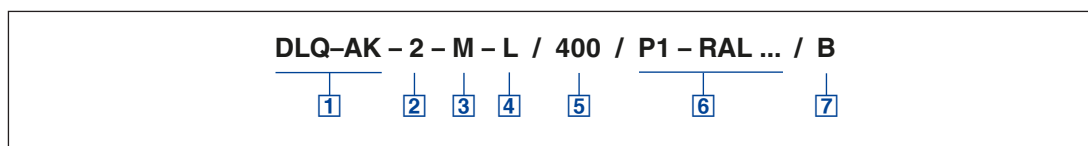
Sizing data

- \dot{V} _____ [m³/h]
- Δp_t _____ [Pa]

Air-regenerated noise

- L_{WA} _____ [dB(A)]

DLQ-AK



1 Type

DLQ-AK Ceiling diffuser

2 No. of sides for air discharge

1

2

2E

3

4

3 Damper blade for volume flow rate balancing

No entry: none

M With

4 Accessories

No entry: none

L With lip seal

5 Nominal size [mm]

300

400

500

600

625

Order example: DLQ-AK-3-M/600/P1-RAL 9006/A

No. of sides for air discharge	3
Connection	Plenum box, horizontal connection
Damper blade for volume flow rate balancing	With
Nominal size	600
Exposed surface	RAL 9006, white aluminium, gloss level 30%
Spigot side	A

6 Exposed surface

No entry: powder-coated RAL 9010, pure white

P1 Powder-coated, specify RAL CLASSIC colour

Gloss level

RAL 9010 50 %

RAL 9006 30 %

All other RAL colours 70 %

7 Spigot side

No specification required in case of 4-way air discharge

A

B

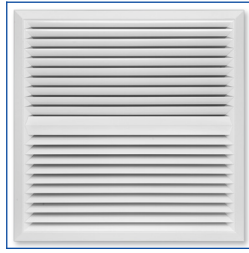
C

D

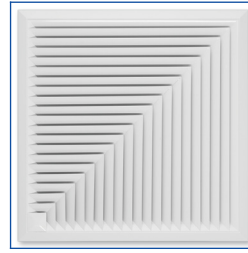
DLQ-AK-1



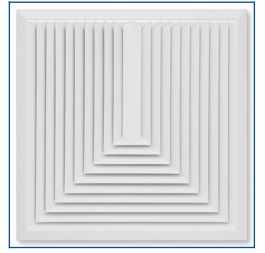
DLQ-AK-2



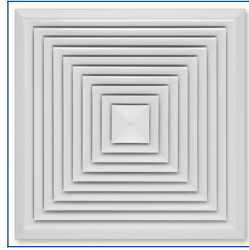
DLQ-AK-2E



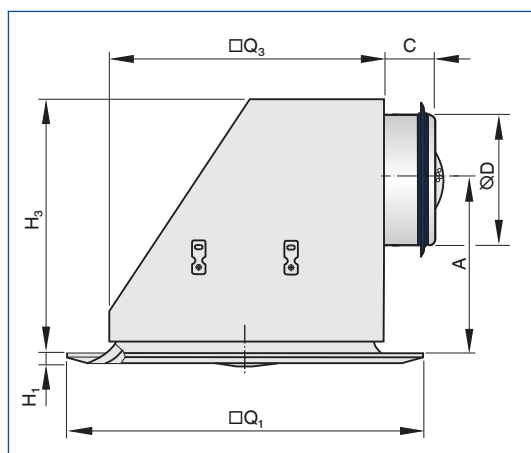
DLQ-AK-3



DLQ-AK-4



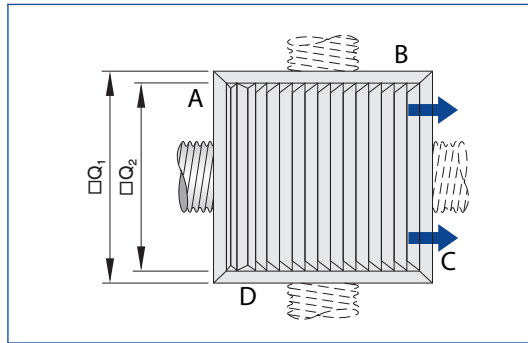
DLQ-AK



DLQ-AK

Nominal size	Q_1	H_1	Q_3	H_3	$\varnothing D$	A	C	m
	mm	mm	mm	mm	mm	mm	mm	kg
300	298	13	195	277	158	162	42	3.0
400	398	13	295	307	198	177	42	4.5
500	498	13	395	377	248	217	42	7.0
600	598	13	495	427	313	235	42	10.0
625	623	13	520	427	313	235	42	10.5

Diffuser face DLQ-AK-1

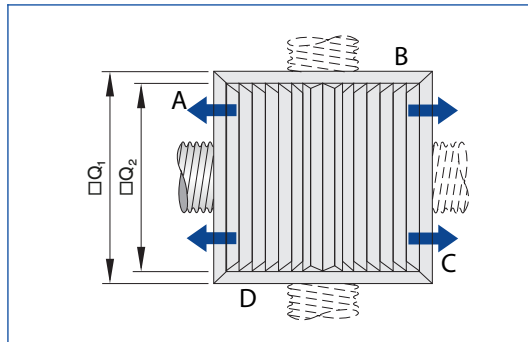


Spigot sides – A, B, C, D

DLQ-AK-1

Nominal size	$\square Q_1$	$\square Q_2$	A_{eff} m ²
	mm	mm	
300	298	246	0.0175
400	398	346	0.0370
500	498	446	0.0675
600	598	546	0.1100
625	623	571	0.1230

Diffuser face DLQ-AK-2

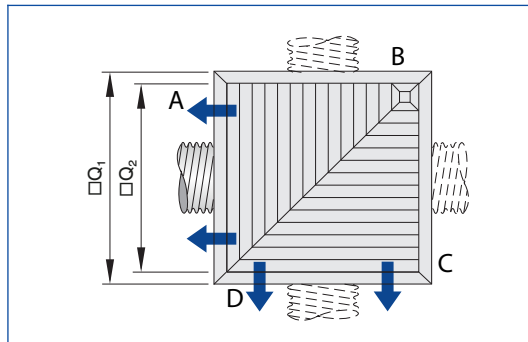


Spigot sides – A, B, C, D

DLQ-AK-2

Nominal size	$\square Q_1$	$\square Q_2$	A_{eff} m ²
	mm	mm	
300	298	246	0.0165
400	398	346	0.0350
500	498	446	0.0610
600	598	546	0.1040
625	623	571	0.1150

Diffuser face DLQ-AK-2E

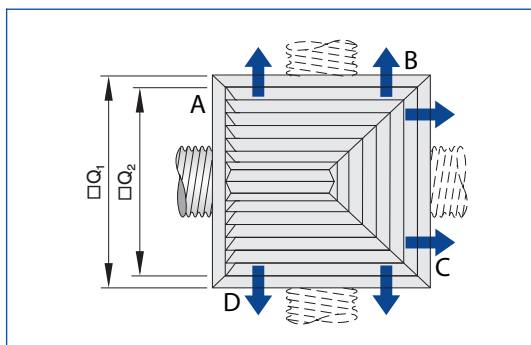


Spigot sides – A, B, C, D

DLQ-AK-2E

Nominal size	$\square Q_1$	$\square Q_2$	A_{eff} m ²
	mm	mm	
300	298	246	0.0182
400	398	346	0.0385
500	498	446	0.0671
600	598	546	0.1144
625	623	571	0.1265

Diffuser face DLQ-AK-3

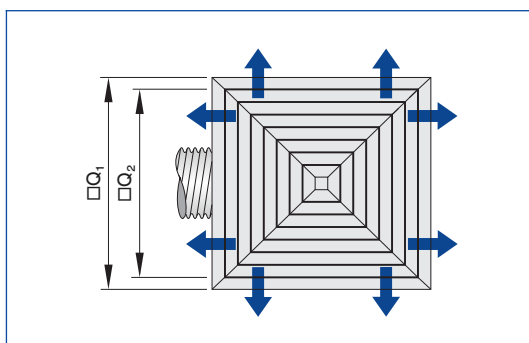


Spigot sides – A, B, C, D

DLQ-AK-3

Nominal size	□Q ₁ mm	□Q ₂ mm	A _{eff} m ²
300	298	246	0.0175
400	398	346	0.0370
500	498	446	0.0675
600	598	546	0.1100
625	623	571	0.1230

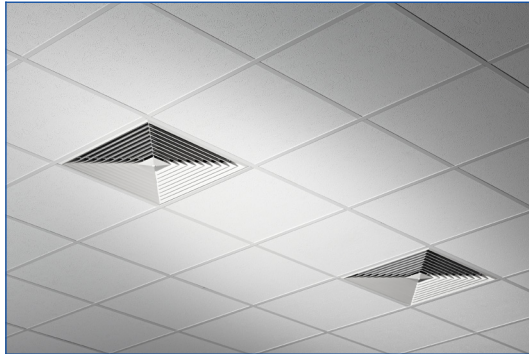
Diffuser face DLQ-AK-4



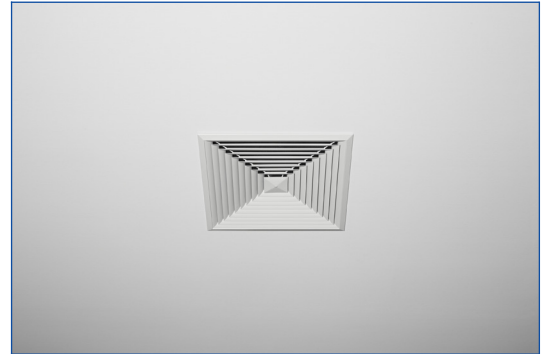
DLQ-AK-4

Nominal size	□Q ₁ mm	□Q ₂ mm	A _{eff} m ²
300	298	246	0.0175
400	398	346	0.0370
500	498	446	0.0675
600	598	546	0.1100
625	623	571	0.1230

Installation in T-bar ceilings, arrangement in a row



Installation in continuous ceilings

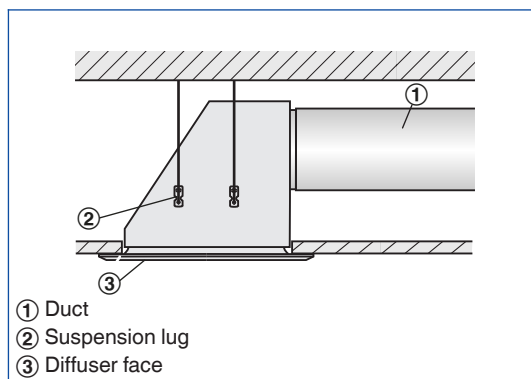


Installation and commissioning

- 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.

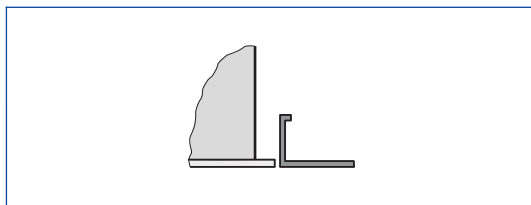
Flush ceiling installation



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

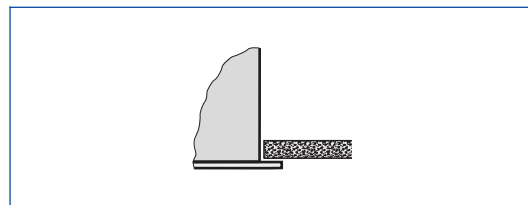
Ceiling systems

Installation into grid ceilings



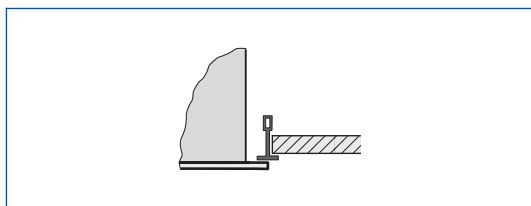
- Fix the plenum box to the ceiling
- The ceiling tile of the grid ceiling is independent of the ceiling diffuser
- Fix the diffuser face after the ceiling has been completed

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

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 suspended ceiling 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 suspended ceiling

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.