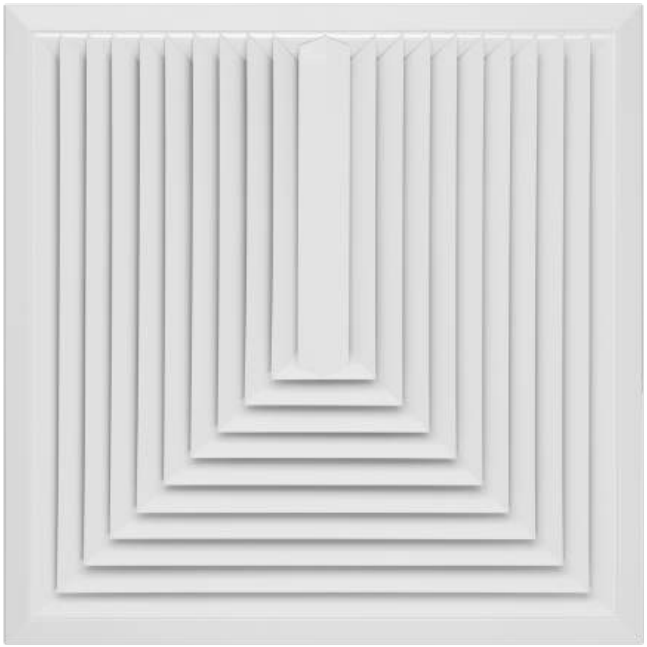
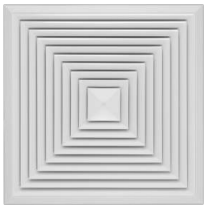
Horizontal air discharge

Ceiling diffusers

DLQ-AK





DLQ-AK-4

DLQ-AK-2E

DLQ-AK-2

DLQ-AK-1

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 constant and variable 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 element

General information

Application

Type DLQL-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

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-type front border
- Diffuser face is attached to the plenum box (not removable)

Attachments

- M: Damper element for volume flow rate balancing

Construction features

- Spigot suitable for circular ducts to EN 1506 or EN 13180
- Spigot with groove for lip seal (only for accessory lip seal)

Material and surfaces

- Diffuser face made of formed sheet steel
- Damper element 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 and tear
- Inspection and cleaning according to VDI 6022

Function

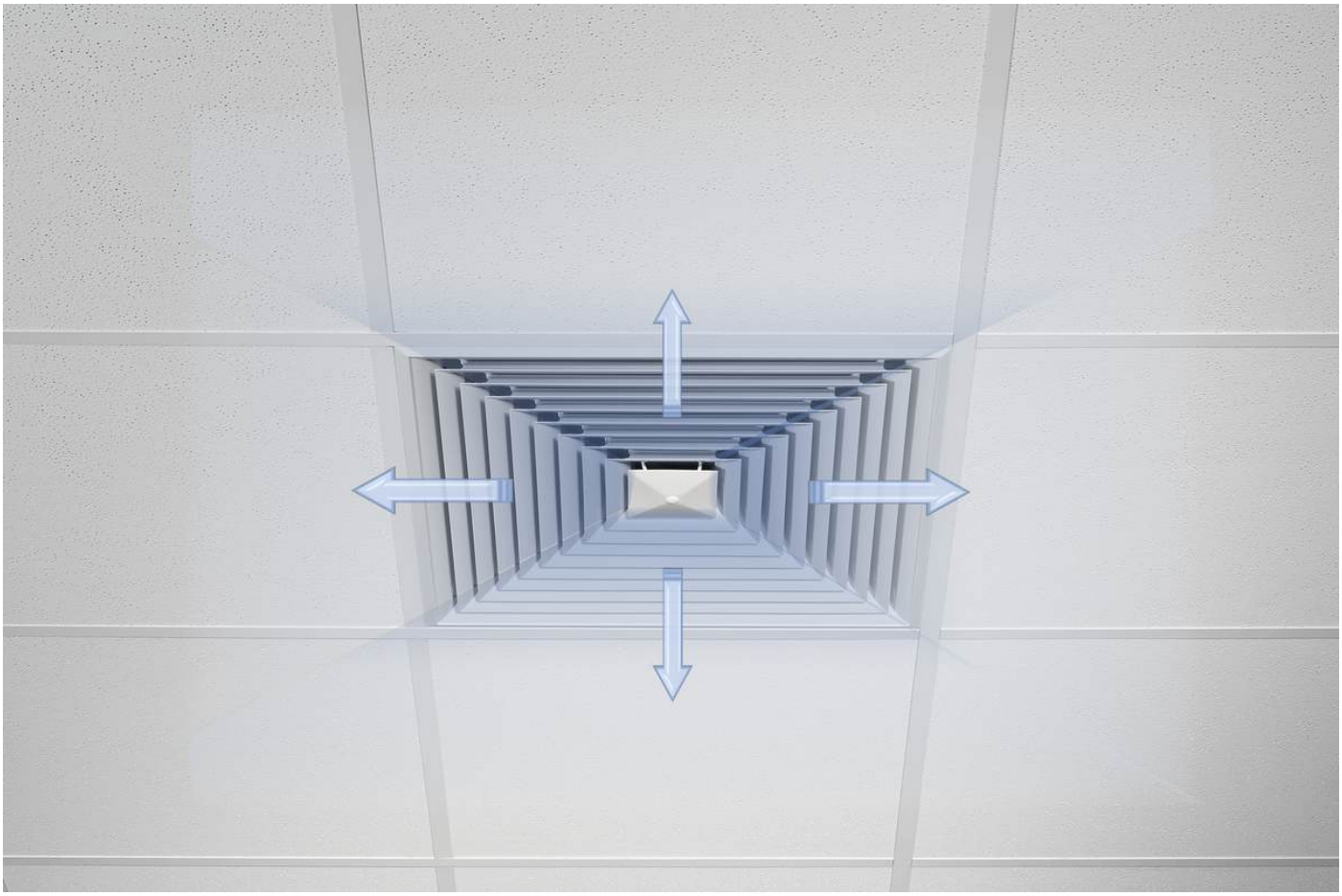
Ceiling diffusers direct the air from air conditioning systems into the room. The resulting airflow induces high levels of indoor air, thereby rapidly reducing the airflow velocity and the temperature difference between supply air and room air. Ceiling diffusers allow for large volume flow rates. The result is a mixed flow ventilation in comfort zones, with good overall indoor ventilation, creating only low turbulence in the occupied zone.
Ceiling diffusers type DLK-AK have fixed blades. Horizontal air discharge is one-way to four-way. The supply air to room air temperature difference range from -10 to +10 K.

Schematic illustration

1 Diffuser face
2 Plenum box
3 Suspension lug
4 Spigot

Optional
5 Damper blade for flow rate balancing

Horizontal air discharge



Technical data

Nominal sizes	300, 400, 500, 600, 625 mm
Minimum volume flow rate	40 – 150 l/s or 144 – 540 m³/h
Maximum volume flow rate, at L_{WA} ≅ 50 dB(A)	545 – 565 l/s or 1962 – 2034 m³/h
Supply air to room air temperature difference	-10 to +10 K

Quick sizing

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

NS	q_v [l/s]	q_v [m³/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

NS	q_v [l/s]	q_v [m³/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

NS	q_v [l/s]	q_v [m³/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)]
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

Specification text

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. As supply air diffusers in 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, consisting of the diffuser face with fixed air control blades, front border with circumferential seal, plenum box, side entry spigot, and suspension holes.
Spigot, suitable for ducts according 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

Material and surfaces

- Diffuser face made of formed sheet steel
- Damper element 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, 625 mm
- Minimum volume flow rate: 440 – 150 l/s or 144 – 540 m³/h
- Maximum volume flow rate, at L_{WA} ≅ 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

- q_v [m³/h]
- Δp_t [Pa]

Air-regenerated noise

- L_{WA} [dB(A)]

Order code

DLQ-AK – 2 – M – L / 400 / P1 - RAL 9016 / B
1 2 3 4 5 6 7

1 Type
DLQ-AK Ceiling diffuser

2 No. of sides for air discharge
1, 2, 2E, 3, 4

3 Damper element for volume flow rate balancing
No entry: without damper screen
M with damper screen

4 Accessories
No entry: without accessories
L with lip seal

5 Nominal size [mm]
300, 400, 500, 600, 625

6 Exposed surface
No entry: powder-coated, RAL 9010 (pure white)
P1 powder-coated, specify RAL CLASSIC colour

Gloss level
RAL 9010 GU 50
RAL 9006 GU 30
All other RAL colours GU 70

7 Spigot side
No specification required in case of 4-way air discharge
A, B, C, D

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

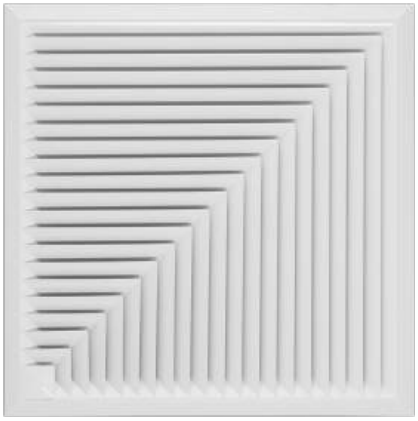
No. of sides for air discharge	3
Connection	Plenum box, horizontal connection
Damper unit for volume flow rate balancing	With
Nominal size	600
Exposed surface	RAL 9006, white aluminium, gloss level 30%
Spigot side	A

Variants

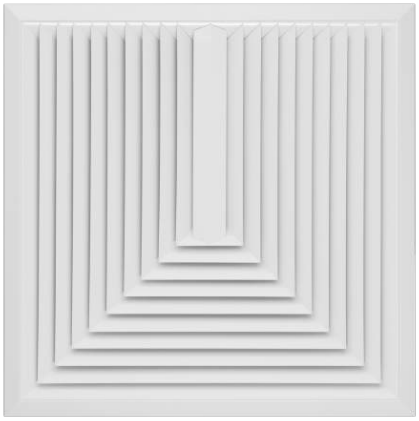
DLQ-AK-1

DLQ-AK-2

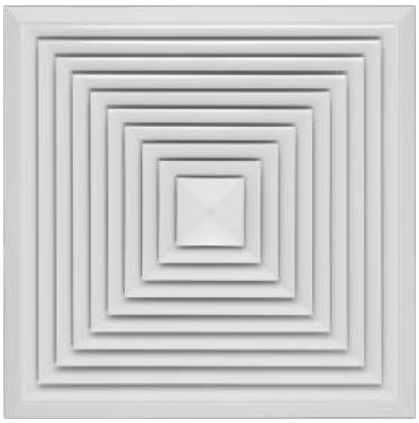
DLQ-AK-2E



DLQ-AK-3

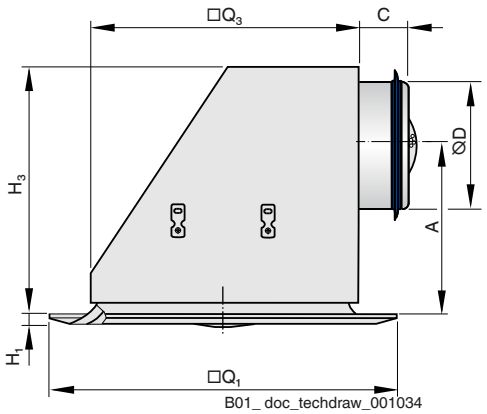


DLQ-AK-4



Dimensions

DLQ-AK

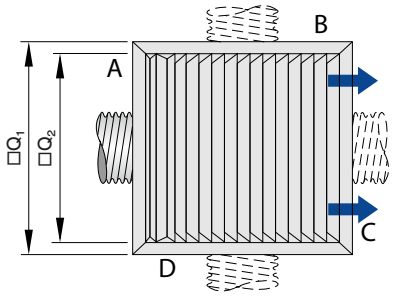


DLQ-AK

NS	□Q_1 [mm]	H_1 [mm]	□Q_3 [mm]	H_3 [mm]	ØD [mm]	A [mm]	C [mm]	m [kg]
300	298	13	195	277	158	162	42	3
400	398	13	295	307	198	177	42	4.5
500	498	13	395	377	248	217	42	7
600	598	13	495	427	313	235	42	10
625	623	13	520	427	313	235	42	10.5

Product details

Diffuser face DLQ-AK-1

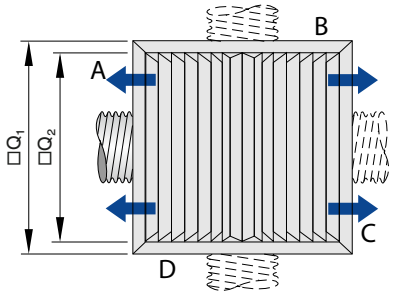


A, B, C, D spigot position

DLQ-AK-1

NS	□Q_1 [mm]	□Q_2 [mm]	A_{eff} [m²]
300	298	246	0.0175
400	398	346	0.037
500	498	446	0.0675
600	598	546	0.11
625	623	571	0.123

Diffuser face DLQ-AK-2

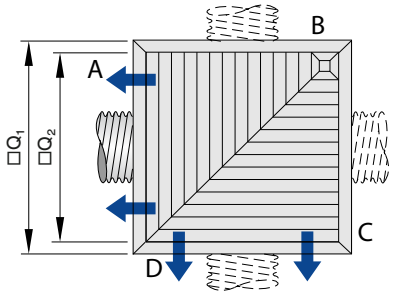


A, B, C, D spigot position

DLQ-AK-2

NS	□Q_1 [mm]	□Q_2 [mm]	A_{eff} [m²]
300	298	246	0.0165
400	398	346	0.035
500	498	446	0.061
600	598	546	0.104
625	623	571	0.115

Diffuser face DLQ-AK-2E

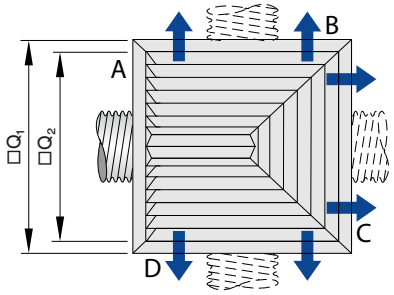


A, B, C, D spigot position

DLQ-AK-2E

NS	□Q_1 [mm]	□Q_2 [mm]	A_{eff} [m²]
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

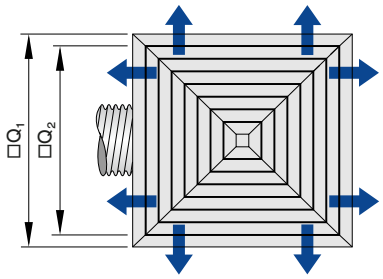


A, B, C, D spigot position

DLQ-AK-3

NS	□Q_1 [mm]	□Q_2 [mm]	A_{eff} [m²]
300	298	246	0.0175
400	398	346	0.037
500	498	446	0.0675
600	598	546	0.11
625	623	571	0.123

Diffuser face DLQ-AK-4



DLQ-AK-4

NS	□Q_1 [mm]	□Q_2 [mm]	A_{eff} [m²]
300	298	246	0.0175
400	398	346	0.037
500	498	446	0.0675
600	598	546	0.11
625	623	571	0.123

Installation in T-bar ceilings, arrangement in a row

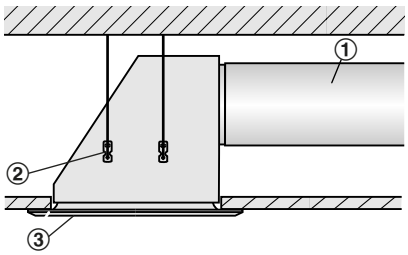
Installation in continuous ceilings

Installation and commissioning

Preferably for clear room heights up to 4.0 m
Flush ceiling installation
Horizontal or vertical duct connection
If necessary, carry out volume flow rate balancing on damper element

The schematic diagrams are provided to illustrate installation details.

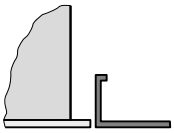
Flush ceiling installation



1 Air duct
2 Suspension lug
3 Diffuser face

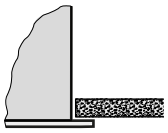
Horizontal duct connection
Four suspension lugs
On-site suspension with cords, wires or nonius hangers, to be provided by the client

Installation into grid ceilings



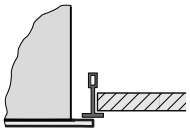
Fix the plenum box to the ceiling
The ceiling tile of the grid ceiling is independent of the ceiling diffuser
Fix the diffuser face after the ceiling has been completed

Installation in continuous ceilings



Fix plenum box (including diffuser face, if applicable) to the ceiling
Adjust plasterboard ceiling tile flush with ceiling or with offset
If necessary, fix the diffuser face only 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-bar after the ceiling has been completed

Nomenclature

ØD [mm]
Outer diameter of the spigot

$ØD_1$ [mm]
Outer diameter of a circular diffuser face

$ØD_2$ [mm]
Diameter of a circular diffuser face style

$ØD_3$ [mm]
Diameter of a circular plenum box

$□Q_1$ [mm]
Outer diameter of a square diffuser face

$□Q_2$ [mm]
Dimensions of a square diffuser face style

$□Q_3$ [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

L_{WA} [dB(A)]
A-weighted sound power level of air-regenerated noise

q_v [m³/h]; [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} [m²]
Effective air discharge area

All sound power levels are based on 1 pW.