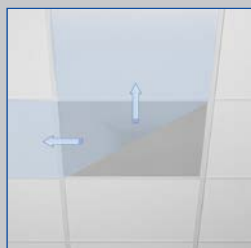


Ceiling diffusers

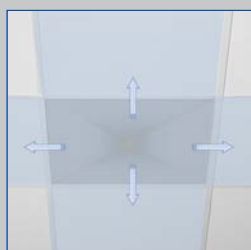
Type DLQL



Horizontal one-way air discharge



Horizontal two-way air discharge



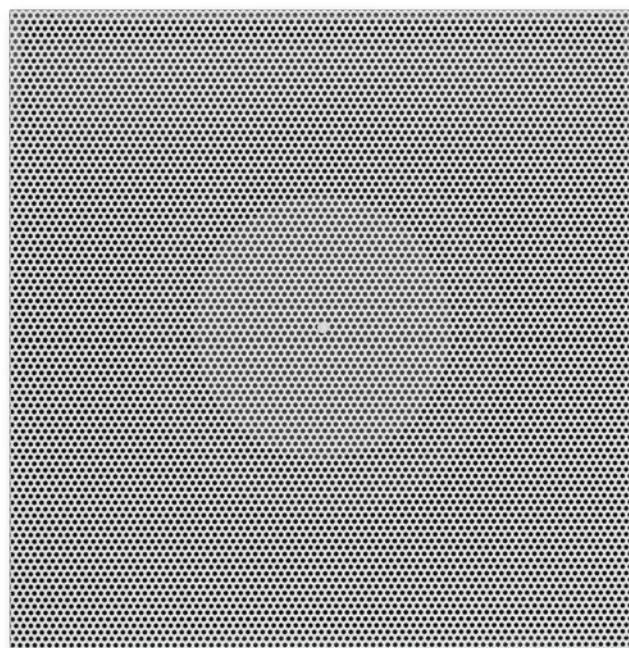
Horizontal four-way air discharge



Horizontal duct connection



Vertical duct connection



For horizontal one-way to four-way air discharge, for comfort zones, with fixed baffle element

Square ceiling diffusers

- Nominal sizes 250, 300, 400, 500, 600
- Volume flow rate range 6 – 285 l/s or 22 – 1026 m³/h
- Square diffuser face
- 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
- Perforated diffuser face with special baffle element for horizontal air discharge and high induction levels

Optional equipment and accessories

- Exposed diffuser face available in RAL CLASSIC colours
- Horizontal or vertical duct connection
- Blanking plates for adjusting the discharge direction
- Plenum box with damper blade

Type		Page
DLQL	General information	DLQL – 2
	Function	DLQL – 4
	Technical data	DLQL – 6
	Quick sizing	DLQL – 7
	Specification text	DLQL – 12
	Order code	DLQL – 13
	Variants	DLQL – 14
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	Installation examples	DLQL – 18
	Installation details	DLQL – 19
	Basic information and nomenclature	DLQL – 21

Application

Application

- Type DLQL ceiling diffusers are used as supply air or extract air diffusers for comfort zones
- Perfect integration with suspended perforated sheet metal ceilings
- 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
- Perforated diffuser face made of galvanised sheet steel
- For all types of ceiling systems
- Horizontal or vertical duct connection

Nominal sizes

Ceiling tile

- 248, 298, 398, 498, 598, 623 (intermediate sizes 249 to 622, in increments of 1 mm)

Air terminal device

- 250, 300, 400, 500, 600

Description

Variants

- DLQL-P: Grid ceilings and continuous plaster-board ceilings
- DLQL-T: T-bar ceilings
- DLQL-*-Z: Supply air
- DLQL-*-A: Extract air

Connection

- H: Horizontal duct connection
- V: Vertical duct connection

Parts and characteristics

- Perforated square diffuser face with special baffle element
- Simple installation of the diffuser face due to central fixing screw with decorative cap (variant -P)

Attachments

- M: Damper blade for volume flow rate balancing with horizontal connection

Accessories

- Lip seal

Useful additions

- Blanking plates

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)
- Perforated plate has a free cross section of approx. 46 %
- Hole diameter is 5 mm, the rows of holes are offset from each other

Materials and surfaces

- Perforated diffuser face made of galvanised sheet steel
- Casing, damper blade and plenum box made of galvanised sheet steel
- Baffle element made of acoustic fleece
- Lip seal made of rubber
- Casing powder-coated RAL 9005, jet black
- Diffuser face dip 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

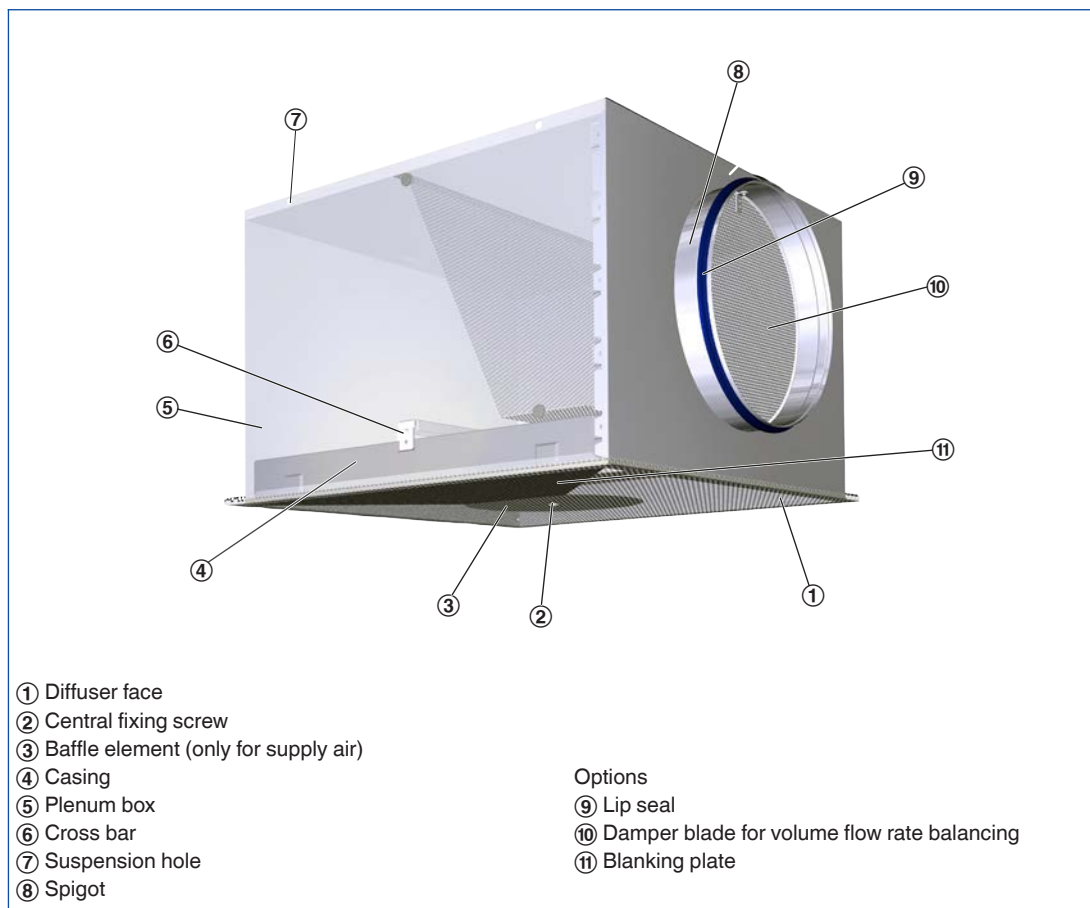
Functional description

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 DLQL ceiling diffusers are fitted with a spe-

cial baffle element that creates a horizontal air discharge and high induction levels. Horizontal air discharge is one-way to four-way. The supply air to room air temperature difference may range from -10 to $+10$ K.

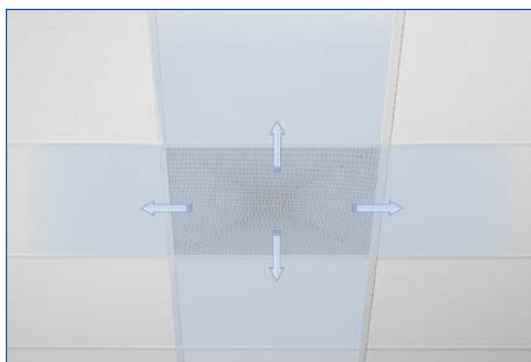
To give rooms an aesthetic, uniform look, Type DLQL diffusers may also be used for extract air.

Schematic illustration of the DLQL for supply air with one blanking plate

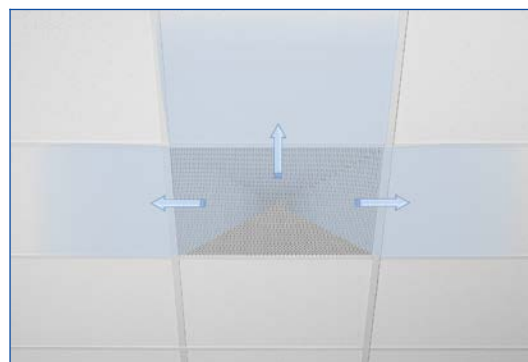


Air patterns

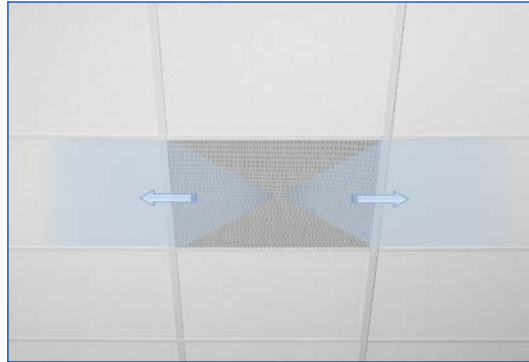
Four-way air discharge without blanking plate



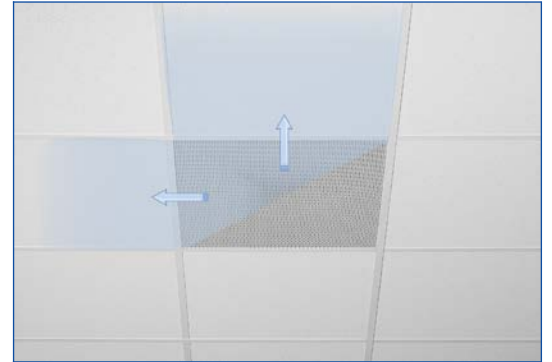
Three-way air discharge with one blanking plate



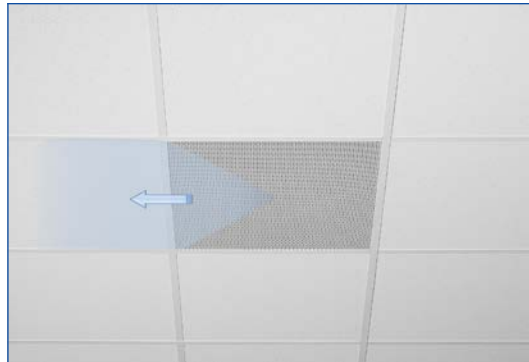
Two-way air discharge with two blanking plates



Two-way air discharge with two blanking plates



One-way air discharge with three blanking plates



Nominal sizes – ceiling tile	248, 298, 398, 498, 593, 598, 618, 623 mm
Nominal sizes – diffuser	250, 300, 400, 500, 600 mm
Minimum volume flow rate	6 – 145 l/s or 22 – 522 m ³ /h
Maximum volume flow rate, with $L_{WA} \cong 50$ dB(A)	275 – 285 l/s or 990 – 1026 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 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) (DLQL*-Z-H: with damper blade position 0°).

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

DLQL*-Z-H with one-way air discharge (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}
			l/s	m ³ /h	Pa	dB(A)	Pa	dB(A)
250	5	18	3	<15	4	<15	6	<15
	13	45	19	20	23	22	38	24
	20	73	49	38	58	40	97	42
	28	100	92	50	111	52	185	54
300	7	26	3	<15	3	<15	6	<15
	17	63	17	26	20	28	33	30
	28	100	41	40	50	42	83	44
	38	136	78	50	93	52	155	54
400	13	46	4	<15	5	<15	8	<15
	25	88	15	28	18	30	29	32
	36	130	32	41	38	43	63	45
	48	172	55	50	67	52	111	54
500	20	73	4	<15	5	<15	8	<15
	38	139	14	26	17	28	28	30
	57	205	30	40	36	42	60	44
	75	271	52	50	63	52	105	54
600	29	104	4	<15	4	<15	7	<15
	56	202	14	26	17	28	28	30
	83	299	30	40	36	42	60	44
	110	396	53	50	64	52	106	54

DLQL*-Z-H with two-way air discharge (supply air), sound power level and total differential pressure

Nominal size	\dot{V}	\dot{V}	Damper blade position					
			0°		45°		90°	
	l/s	m³/h	Δp_t Pa	L_{WA} dB(A)	Δp_t Pa	L_{WA} dB(A)	Δp_t Pa	L_{WA} dB(A)
250	10	36	5	<15	6	<15	10	<15
	21	74	20	30	24	32	41	34
	31	112	47	42	56	44	93	46
	42	151	84	50	100	52	167	54
300	15	52	5	<15	6	<15	9	<15
	28	101	18	27	21	29	35	31
	42	150	39	40	47	42	78	44
	55	199	68	50	82	52	136	54
400	26	93	6	<15	8	15	13	17
	42	151	17	30	20	32	33	34
	58	209	32	41	38	43	64	45
	74	267	52	50	62	52	104	54
500	40	145	6	<15	7	<15	11	<15
	67	241	15	28	18	30	30	32
	94	338	30	41	36	43	60	45
	121	434	49	50	59	52	99	54
600	58	209	6	<15	7	<15	11	<15
	97	348	16	28	19	30	32	32
	135	487	31	40	37	42	62	44
	174	627	51	50	61	52	102	54

DLQL*-Z-H with three-way air discharge (supply air), sound power level and total differential pressure

Nominal size	\dot{V}	\dot{V}	Damper blade position					
			0°		45°		90°	
	l/s	m³/h	Δp_t Pa	L_{WA} dB(A)	Δp_t Pa	L_{WA} dB(A)	Δp_t Pa	L_{WA} dB(A)
250	15	54	7	16	8	18	13	20
	27	96	21	32	26	34	43	36
	38	138	44	43	53	45	88	47
	50	181	75	50	90	52	150	54
300	22	78	7	<15	8	<15	14	<15
	37	132	19	29	23	31	39	33
	51	185	38	41	46	43	76	45
	66	239	63	50	76	52	127	54
400	39	139	8	17	10	19	16	21
	58	208	18	31	22	33	36	35
	77	276	32	42	39	44	64	46
	96	344	50	50	60	52	100	54
500	60	218	7	<15	9	16	14	18
	94	338	17	30	21	32	34	34
	127	458	32	41	38	43	63	45
	161	579	50	50	61	52	101	54
600	87	313	7	<15	9	<15	15	15
	136	489	18	29	21	31	35	33
	184	664	33	41	39	43	66	45
	233	840	52	50	63	52	105	54

DLQL*-Z-H with four-way air discharge (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	L_{WA}	Δp_t	L_{WA}	Δp_t	L_{WA}
			Pa	dB(A)	Pa	dB(A)	Pa	dB(A)
250	20	72	8	22	9	20	15	21
	33	118	23	35	25	34	40	34
	46	164	44	44	48	43	77	43
	58	210	72	50	79	50	127	50
300	28	101	9	<15	10	16	18	16
	44	158	22	30	25	31	44	31
	60	216	41	42	46	42	81	42
	76	273	65	50	74	50	130	50
400	50	180	10	19	13	22	24	24
	71	257	21	33	26	34	49	36
	93	334	35	42	44	43	82	44
	114	412	53	50	66	51	124	51
500	78	281	9	16	10	15	19	16
	115	415	20	31	22	31	41	31
	153	550	35	42	39	42	72	42
	190	684	55	50	60	50	112	50
600	114	410	9	15	11	15	18	16
	168	605	20	30	23	31	40	31
	222	799	35	41	41	42	70	41
	276	994	54	50	63	50	108	49

DLQL*-Z-V with one-way air discharge (supply air), sound power level and total differential pressure

Nominal size	\dot{V}		Δp_t	L_{WA}
	l/s	m ³ /h	Pa	dB(A)
250	5	18	5	<15
	10	38	22	29
	16	58	52	41
	21	77	94	50
300	7	26	3	<15
	16	58	16	27
	25	91	37	41
	34	123	69	50
400	13	46	4	<15
	23	84	14	30
	34	121	29	42
	44	158	49	50
500	20	73	3	<15
	39	141	12	28
	58	209	26	41
	77	277	46	50
600	29	104	4	<15
	53	191	12	29
	77	278	25	41
	101	365	43	50

DLQL*-Z-V with two-way air discharge (supply air), sound power level and total differential pressure

Nominal size	\dot{V}		Δp_t	L_{WA}
	l/s	m ³ /h	Pa	dB(A)
250	10	36	6	<15
	18	65	20	31
	26	95	43	42
	35	124	74	50
300	15	52	4	<15
	27	97	15	27
	40	143	32	41
	52	188	55	50
400	26	93	5	<15
	40	145	13	29
	55	197	24	41
	69	249	39	50
500	40	145	4	<15
	66	238	12	29
	92	332	23	41
	118	425	37	50
600	58	209	5	<15
	93	335	12	28
	128	461	23	41
	163	587	37	50

DLQL*-Z-V with three-way air discharge (supply air), sound power level and total differential pressure

Nominal size	\dot{V}		Δp_t	L_{WA}
	l/s	m ³ /h	Pa	dB(A)
250	15	54	7	15
	26	92	20	31
	36	130	39	42
	47	168	66	50
300	22	78	6	<15
	37	132	16	28
	52	186	31	41
	67	240	52	50
400	39	139	6	17
	57	205	13	31
	75	270	23	42
	93	336	35	50
500	60	218	5	<15
	93	334	12	30
	125	451	21	41
	158	567	34	50
600	87	313	5	<15
	134	481	12	28
	180	649	21	40
	227	816	34	50

DLQL*-Z-V with four-way air discharge (supply air), sound power level and total differential pressure

Nominal size	\dot{V}		Δp_t	L_{WA}
	l/s	m ³ /h	Pa	dB(A)
250	20	72	8	16
	32	115	19	31
	44	158	36	42
	56	200	58	50
300	28	101	5	<15
	46	167	15	27
	65	234	29	40
	83	300	48	50
400	50	180	6	15
	72	259	13	30
	94	337	22	41
	115	416	34	50
500	78	281	6	15
	113	405	12	30
	147	529	20	41
	182	654	31	50
600	114	410	5	<15
	172	618	12	29
	229	825	21	41
	287	1033	33	50

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 perforated square diffuser face. Supply air and extract air variants for comfort zones. Diffuser face with baffle element for horizontal one-way to four-way supply air discharge. For flush installation into all kinds of suspended grid or continuous plasterboard ceilings. Ready-to-install component which consists of the diffuser face with baffle element (only for supply air), and either a casing with top entry spigot or a plenum box with side entry spigot. Perforated diffuser face suitable for central screw fixing (variant -P). The perforated plate has a free cross-section of approx. 46 % The hole diameter is 5 mm and the rows of holes are offset from each other. 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
- Perforated diffuser face made of galvanised sheet steel
- For all types of ceiling systems
- Horizontal or vertical duct connection

Materials and surfaces

- Perforated diffuser face made of galvanised sheet steel
- Casing, damper blade and plenum box made of galvanised sheet steel
- Baffle element made of acoustic fleece
- Lip seal made of rubber
- Casing powder-coated RAL 9005, jet black
- Diffuser face dip coated RAL 9010, pure white
- P1: Powder-coated, RAL CLASSIC colour

Technical data

- Nominal sizes – ceiling tile: 248, 298, 398, 498, 593, 598, 618, 623 mm
- Nominal sizes – diffuser: 250, 300, 400, 500, 600 mm
- Minimum volume flow rate: 6 – 145 l/s or 22 – 522 m³/h
- Maximum volume flow rate, with $L_{WA} \cong 50$ dB(A): 275 – 285 l/s or 990 – 1026 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)]

DLQL

DLQL – T – Z – H – M – L / 600 x 593 / P1 – RAL ...								
1	2	3	4	5	6	7	8	9

1 Type

DLQL Ceiling diffuser

2 Ceiling system

P Grid or plasterboard ceiling
T T-bar ceiling

3 System

Z Supply air
A Extract air

4 Connection

H Horizontal
V Vertical

5 Damper blade for volume flow rate balancing

No entry: none
M With (only for connection type H)

6 Accessories

No entry: none
L With lip seal

7 Nominal size [mm]

250
300
400
500
600

Order example: DLQL-T-Z-H-M-L/600x593

Ceiling system	T-bar ceiling
System	Supply air
Connection	Horizontal
Damper element for volume flow rate balancing	With
Accessories	With lip seal
Nominal size	600
Size of diffuser face plate	593
Exposed surface	RAL 9010, pure white, gloss level 50 %

DLQL-AB

DLQL – AB / 250	
1	2

1 Type

DLQL-AB Blanking plate for ceiling diffuser DLQL

2 Nominal size [mm]

250
300
400
500
600

DLQL-Z-H



DLQL-...-H

Designed for high comfort

Together with renowned designers and architects we have developed ceiling, wall, staircase and floor diffusers and grilles that are not only aesthetic design elements, but also meet demanding ventilation and acoustic requirements.

Variant

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

Nominal sizes

Ceiling tile

- 248, 298, 398, 498, 598, 623 (intermediate sizes 249 to 622, in increments of 1 mm)

Air terminal device

- 250, 300, 400, 500, 600

DLQL-Z-V



Parts and characteristics

- Perforated square diffuser face with special baffle element
- Simple installation of the diffuser face due to central fixing screw with decorative cap (variant -P)

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)

DLQL-...-V

Variant

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

Nominal sizes

Ceiling tile

- 248, 298, 398, 498, 598, 623 (intermediate sizes 249 to 622, in increments of 1 mm)

Air terminal device

- 250, 300, 400, 500, 600

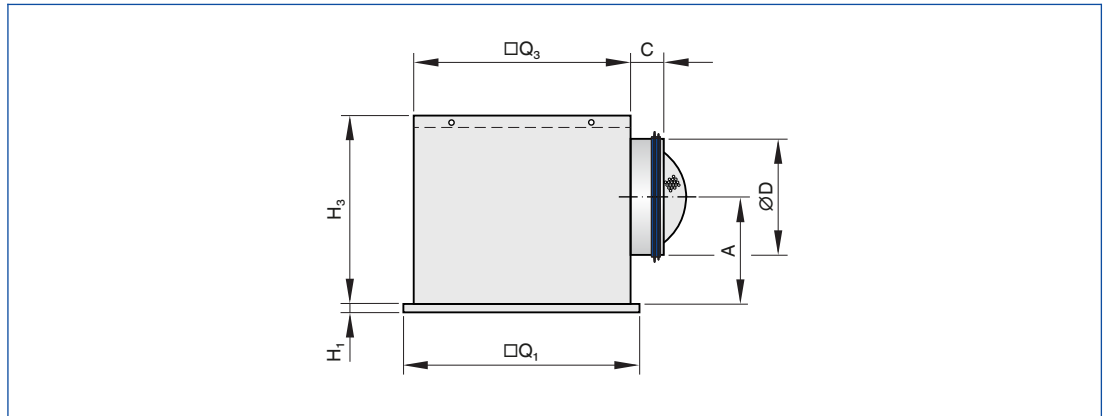
Parts and characteristics

- Square diffuser face
- Plenum box for vertical duct connection

Construction features

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

Square diffuser face with plenum box for horizontal duct connection



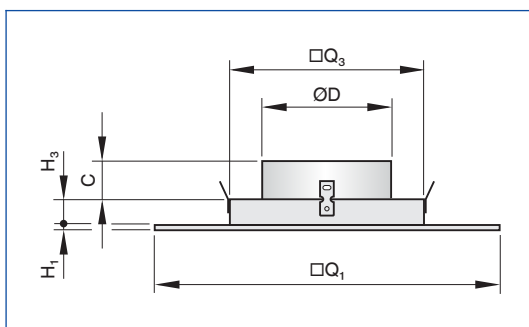
DLQL-...-H

Nominal size	DLQL-P	DLQL-T								
	□Q ₁		ØD	H ₁	□Q ₃	H ₃	A	C	Plenum box	m
	mm	mm	mm	mm	mm	mm	mm	mm		kg
250	248	593	158	8	216	250	139	50	AK-Uni-008	2.8
300	298	593	158	8	290	250	139	50	AK-Uni-001	4.0
400	398	593	198	8	372	295	164	50	AK-Uni-002	6.5
500	498	593	248	8	476	345	189	48	AK-Uni-010	9.6
600	598	593	313	8	590	410	222	50	AK-Uni-012	13.8

DLQL-T: □Q₁ = 618 is available for T-bar ceilings with grid size 625

DLQL-P : □Q₁ to 623 mm available

DLQL...-V



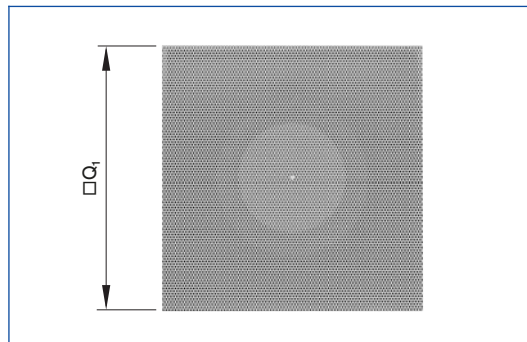
DLQL-...-V

Nominal size	DLQL-P	DLQL-T						
	$\square Q_1$		$\varnothing D$	H_1	$\square Q_3$	H_3	C	m
	mm	mm	mm	mm	mm	mm	mm	kg
250	248	593	123	8	198	20	50	0.9
300	298	593	158	8	272	26	50	1.2
400	398	593	198	8	354	36	50	2.0
500	498	593	248	8	458	47	50	3.1
600	598	593	313	8	572	56	50	4.4

DLQL-T: $\square Q_1 = 618$ is available for T-bar ceilings with grid size 625

DLQL-P : $\square Q_1$ to 623 mm available

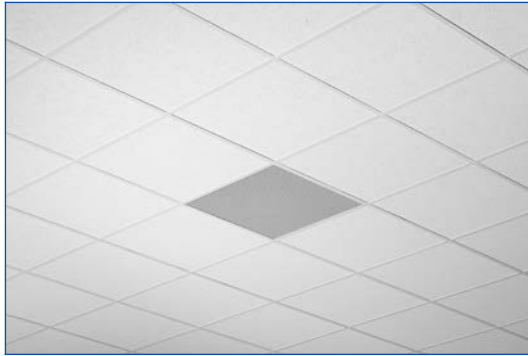
Diffuser face DLQL



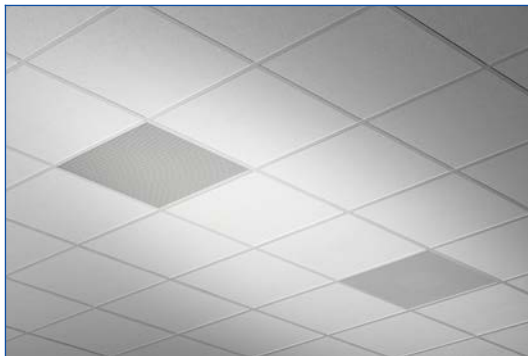
DLQL

Nominal size	DLQL-P	DLQL-T	A_{eff} m ²
	□Q ₁ mm	□Q ₁ mm	
250	248	593	0.0100
300	298	593	0.0145
400	398	593	0.0258
500	498	593	0.0403
600	598	593	0.0580

Installation in T-bar ceilings



Installation in T-bar ceilings, arrangement in a row

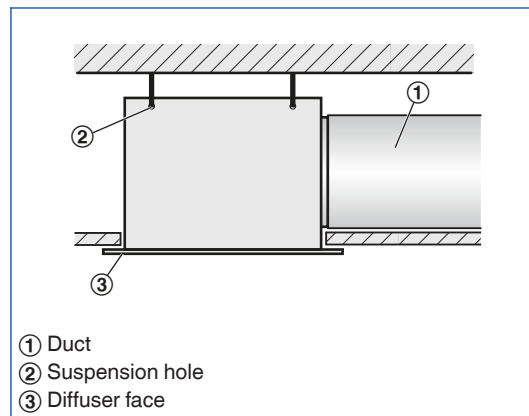


Installation and commissioning

- Preferably for rooms with a clear height up to 4.0 m
- Installation in plasterboard, grid and T-bar ceilings
- Horizontal or vertical duct connection
- If necessary, carry out volume flow rate balancing with the damper element

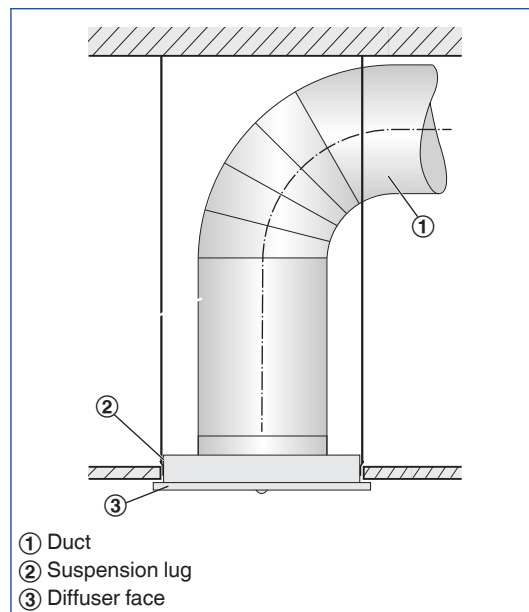
These are only schematic diagrams to illustrate installation details

Flush ceiling installation with square plenum box



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

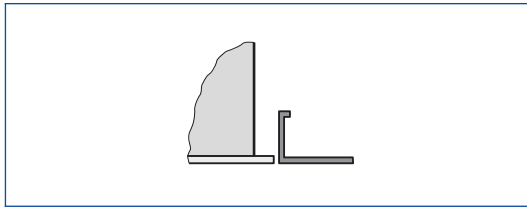
Flush ceiling installation with vertical connection



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

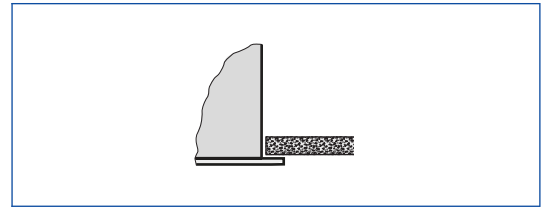
Ceiling systems

Installation into grid ceilings



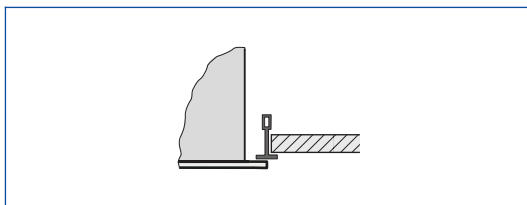
- Fix the plenum box to the ceiling
- The ceiling tile of the grid ceiling is independent of the ceiling diffuser
- Fix the diffuser face after the ceiling has been completed

Installation in continuous ceilings



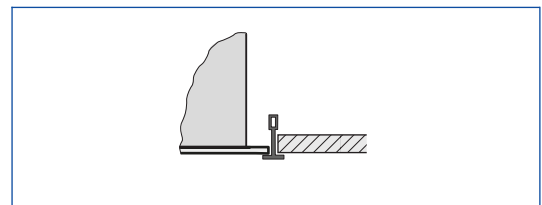
- Fix plenum box (including diffuser face, if necessary) to the ceiling
- Adjust plasterboard ceiling tile as required
- If necessary, fix the diffuser face after the ceiling has been completed

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

Installation in T-bar ceilings, diffuser face rests on T-bars



- Fix the plenum box to the ceiling, if necessary
- The diffuser rests on the T-bars

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} [m³/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} [m²]

Effective air discharge area

All sound power levels are based on 1 pW.