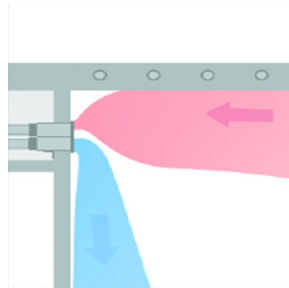




QLW-AZ



QLW-AZ

TYPE QLW-AZ

SUPPLY AND EXTRACT AIR COMBINATION FOR INSTALLATION INTO WALLS AND BULKHEADS, ONE-WAY AIR DISCHARGE, FOR COMFORT ZONES

Displacement flow diffusers with supply and extract air functions combined in one casing

- Nominal lengths 600 – 1200 mm
- Volume flow rate range 12 – 45 l/s or 43 – 162 m³/h
- Variant with cross-talk attenuator ensures very good transmission loss
- Perforated plate, square pitch
- Circular duct connections
- Horizontal duct connection

Optional equipment and accessories

- Exposed surface in RAL CLASSIC colours
- Damper blade for volume flow rate balancing
- Cross-talk attenuator
- Fixing brackets

Application

Application

- Type QLW-AZ displacement flow diffusers are supply and extract air combinations for use in comfort zones
- Attractive design element for building owners and architects with demanding aesthetic requirements
- For installation into walls or bulkheads, either individually or several diffusers arranged in a row
- Low-velocity airflow, causing only low levels of induction and resulting in low-turbulence displacement ventilation.
- Excellent air quality in the occupied zone
- For variable and constant volume flows
- For supply air to room air temperature differences from –6 to –1 K

Special characteristics

- One-way air discharge
- Diffuser face screw-fixed to casing, hence easy to remove
- Horizontal duct connection

Nominal sizes

- L: 600, 750, 900, 1050, 1200 mm

Description

Variants

- QLW-AZ-ZT: Displacement flow diffuser with cross-talk attenuator

Parts and characteristics

- Casing
- Removable diffuser face made of perforated sheet metal
- Equalising element

Attachments

- Damper blade for volume flow rate balancing

Accessories

- Lip seal
- Wall fixing bracket

Useful additions

- Retrofit cross-talk attenuator

Construction features

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

Materials and surfaces

- The casing of the displacement flow diffuser, and the cross-talk attenuator casing, diffuser face and equalising element are made of galvanised sheet steel
- Lip seal made of rubber
- Acoustic lining of the cross-talk attenuator is mineral wool
- Exposed diffuser face powder-coated RAL 9010, pure white
- P1: Powder-coated, RAL CLASSIC colour

Mineral wool

- To EN 13501, fire rating class A1, non-combustible
- RAL quality mark RAL-GZ 388
- Biosoluble and hence hygienically safe according to the German TRGS 905 (Technical Rules for Hazardous Substances) and EU directive 97/69/EC
- Faced with glass fibre fabric as a protection against erosion through airflow velocities of up to 20 m/s
- Inert to fungal and bacterial growth

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

TECHNICAL INFORMATION

Function, Technical data, Quick sizing, Specification text, Order code



Functional description

Displacement flow diffusers discharge the air from air conditioning systems with a low velocity and near the floor. The low-turbulence airflow moves along the wall and towards the floor, where it eventually covers the entire floor area. The convection from people and other heat sources causes the fresh air from the pool to rise and create comfortable conditions in the occupied zone.

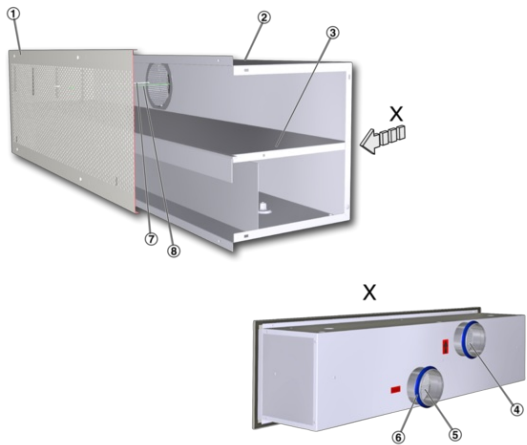
Displacement ventilation is characterised by low airflow velocities and low turbulence. The air quality in the occupied zone is very high.

Displacement ventilation with air discharge near the floor is suitable only for cooling. The maximum supply air to room air temperature difference is -6 K.

Type QLW-AZ displacement flow diffusers include an equalising element which distributes the supply air flow equally across the entire diffuser area. The perforated sheet metal diffuser face helps to equalise the airflow further. One-way air discharge.

The upper part of the diffuser face is used for extract air. This solution is ideal insofar as the extract air has to be removed above the occupied zone.

Schematic illustration of QLW-AZ without cross-talk attenuator



- ① Diffuser face
- ② Casing
- ③ Separating panel
- ④ Extract air spigot
- ⑤ Supply air spigot
- Optional
- ⑥ Lip seal
- ⑦ White cord for opening the damper blade
- ⑧ Green cord for closing the damper blade

Low-turbulence displacement ventilation airflow pattern for a supply and extract air combination



Nominal sizes	600, 750, 900, 1050, 1200 mm
Minimum volume flow rate, at approx. 0.2 m/s	12 – 25 l/s or 43 – 90 m³/h
Maximum volume flow rate, at approx. 0.4 m/s	25 – 45 l/s or 90 – 162 m³/h
Supply air to room air temperature difference	–6 to –1 K

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

QLW-AZ, sound power level and total differential pressure

Nominal size	V		v ₀	Damper blade position								
	V			0°			45°			90°		
Nominal size	V		v ₀	Δpt ①	Δpt ②	LWA	Δpt ①	Δpt ②	LWA	Δpt ①	Δpt ②	LWA
	l/s	m³/h		m/s	Pa			dB(A)			Pa	
600	12	43	0.18	7	<3	<15	9	3	<15	16	10	17
	15	54	0.23	11	3	19	13	5	21	26	15	24
600	20	72	0.30	19	5	31	24	10	32	46	27	34
	25	90	0.38	30	7	40	37	15	41	72	42	42
750	15	54	0.18	8	<3	16	10	6	19	24	16	21
	20	72	0.24	14	4	26	18	10	29	42	28	31
750	25	90	0.30	21	6	34	28	16	37	65	43	39
	30	108	0.36	31	9	41	41	24	43	94	63	45
900	20	72	0.20	11	4	24	16	9	27	38	28	29
	25	90	0.25	17	6	31	25	15	35	59	44	36
900	30	108	0.30	24	9	37	36	21	41	85	63	43
	35	126	0.35	33	12	42	49	29	46	116	86	48
1050	20	72	0.17	10	4	23	16	10	28	37	29	31
	25	90	0.22	15	6	30	25	15	36	58	45	38
1050	30	108	0.26	22	8	36	36	22	41	84	65	43
	40	144	0.35	39	15	45	64	39	51	149	116	52
1200	25	90	0.19	13	5	29	20	15	34	58	43	39
	30	108	0.23	19	8	35	29	22	40	84	61	44
1200	35	126	0.27	25	10	39	40	30	45	114	83	48
	45	162	0.34	42	17	46	66	49	52	189	138	55

① Supply air

② Extract air

QLW-AZ-ZT, sound power level and total differential pressure

Nominal size	V		v ₀	Damper blade position								
	0°			45°			90°					
Nominal size	V		v ₀	Δp _t ①	Δp _t ②	L _{WA}	Δp _t ①	Δp _t ②	L _{WA}	Δp _t ①	Δp _t ②	L _{WA}
	l/s	m ³ /h		m/s	Pa			dB(A)			Pa	
600	7	25	0.11	5	3	<15	5	4	<15	7	6	<15
	10	36	0.15	10	7	15	10	8	17	14	11	19
600	15	54	0.23	22	15	28	22	17	30	31	26	31
	20	72	0.30	40	27	38	40	31	39	54	46	40
750	10	36	0.12	9	6	15	9	7	15	13	10	20
	15	54	0.18	20	15	28	20	15	28	29	22	32
750	20	72	0.24	35	26	36	35	27	37	51	39	40
	25	90	0.30	55	41	43	55	42	44	79	61	47
900	15	54	0.15	18	14	26	19	16	28	26	16	30
	20	72	0.20	32	25	35	33	29	37	47	29	38
900	25	90	0.25	50	40	41	52	46	43	73	46	44
	30	108	0.30	73	57	46	75	66	49	106	66	49
1050	20	72	0.17	32	25	35	33	31	38	47	46	40
	25	90	0.22	50	39	42	52	49	44	74	72	46
1050	30	108	0.26	73	56	47	74	70	50	106	103	51
	35	126	0.30	99	77	52	101	95	54	145	141	55
1200	25	90	0.19	50	37	42	51	46	43	76	68	45
	30	108	0.23	73	54	47	74	66	48	109	98	50
1200	35	126	0.27	99	73	51	101	90	53	149	134	55
	40	144	0.30	129	96	55	132	117	57	194	175	59

① Supply air

② Extract air

Displacement flow diffusers as supply and extract air combinations, suitable for comfort zones with special demands on architecture and design.

With one-way air discharge for low-turbulence displacement ventilation. For wall and bulkhead installation.

Ready-to-install component which consists of a casing with horizontal spigots, an equalising element, and a perforated sheet metal diffuser face.

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

- One-way air discharge
- Diffuser face screw-fixed to casing, hence easy to remove
- Horizontal duct connection

Materials and surfaces

- The casing of the displacement flow diffuser, and the cross-talk attenuator casing, diffuser face and equalising element are made of galvanised sheet steel
- Lip seal made of rubber
- Acoustic lining of the cross-talk attenuator is mineral wool
- Exposed diffuser face powder-coated RAL 9010, pure white
- P1: Powder-coated, RAL CLASSIC colour

Mineral wool

- To EN 13501, fire rating class A1, non-combustible
- RAL quality mark RAL-GZ 388
- Biosoluble and hence hygienically safe according to the German TRGS 905 (Technical Rules for Hazardous Substances) and EU directive 97/69/EC
- Faced with glass fibre fabric as a protection against erosion through airflow velocities of up to 20 m/s
- Inert to fungal and bacterial growth

Technical data

- Nominal sizes: 600, 750, 900, 1050, 1200 mm
- Minimum volume flow rate, at approx. 0.2 m/s: 12 – 25 l/s or 43 – 90 m³/h
- Maximum volume flow rate, at approx. 0.4 m/s: 25 – 45 l/s or 90 – 162 m³/h
- Supply air to room air temperature difference: –6 to –1 K

Sizing data

- V _____ [m³/h]
- Δp_t _____ [Pa]

Air-regenerated noise

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

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

Order example: QLW-AZ-ZT/750/P1-RAL 9016

Cross-talk attenuator	With
Damper blade for volume flow rate balancing	Without
Lip seal	Without
Nominal size	750 mm
Exposed surface	RAL 9016, traffic white, gloss level 70 %

QLW - AZ - ZT - M - L / 750 / W00 / P1 - RAL ...



1 Type

QLW-AZ Displacement flow diffuser

2 Cross-talk attenuator

No entry: none
ZT With cross-talk attenuator

3 Damper blade for volume flow rate balancing

No entry: none
M With

4 Lip seal

No entry: none
L With

5 Nominal size [mm]

600
750
900
1050
1200

6 Fixing

No entry: none
W00 With mounting bracket for wall mounting (supplied separately)

7 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 %

ZT - QLW / 750



1 Type

ZT-QLW Cross-talk attenuator for Type QLW-AZ displacement flow diffusers

2 Nominal size [mm]

600
750
900
1050
1200



QLW-AZ

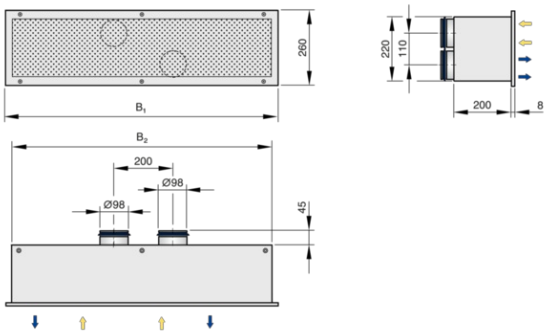


The nominal size (nominal width × nominal height) is equal to the discharge opening.

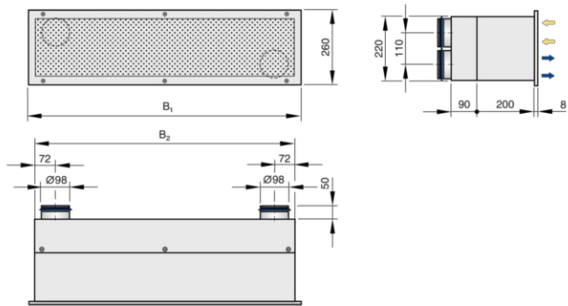
QLW-AZ

Nominal length mm L _N	QLW-AZ m kg	QLW-AZ-ZT m kg	B ₁ mm	B ₂ mm
600	5.5	7.5	640	600
750	6.5	9.5	790	750
900	7.5	11.0	940	900
1050	8.5	12.5	1090	1050
1200	10.0	14.0	1240	1200

QLW-AZ



QLW-AZ-ZT



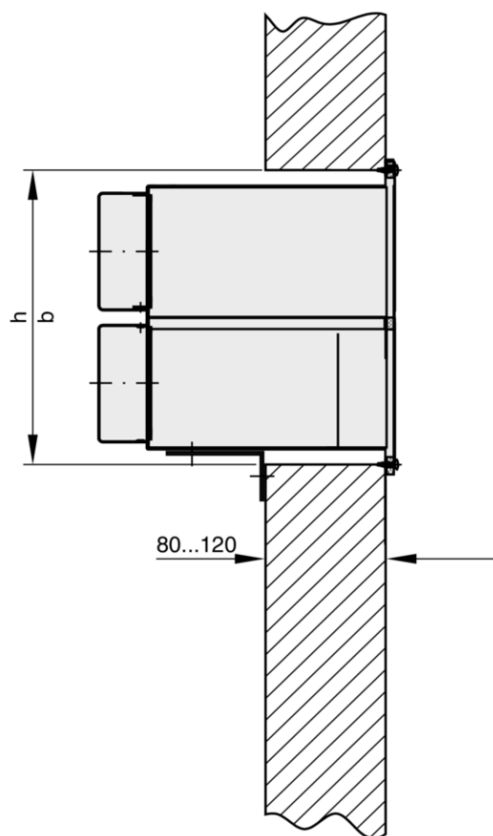
Installation details, Basic information and nomenclature

Installation and commissioning

- If necessary, carry out volume flow rate balancing with the damper blade

These are only schematic diagrams to illustrate installation details.

Installation opening



Principal dimensions

B₁ [mm]

Width of diffuser face

B₄ [mm]

Width of a rectangular spigot

ØD [mm]

Outer diameter of the spigot

ØD₁ [mm]

Casing diameter

H₁ [mm]

Height of diffuser face

T₁ [mm]

Casing depth

T₄ [mm]

Depth of a rectangular spigot

m [kg]

Weight

Nomenclature

L_{WA} [dB(A)]

A-weighted sound power level of air-regenerated noise

V [m³/h] and [l/s]

Volume flow rate

v₀ [m/s]

Theoretical airflow velocity across the diffuser area, at a distance of 0 m from the diffuser face

L_{nz} [m]

Near zone of the displacement flow diffuser, where the comfort criteria may not be achieved

The near zone is at least 0.5 m, independent of the airflow velocity

At distance L_{nz} the airflow velocity is 0.2 m/s max., measured 0.1 m above the floor

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.

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