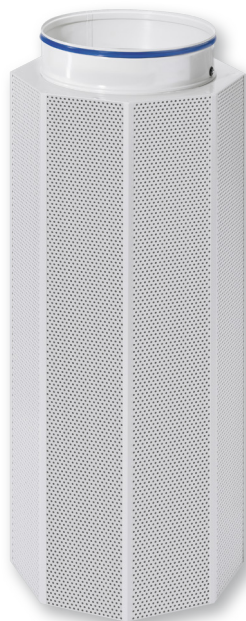


Free-standing displacement flow diffusers

Type QLV-360



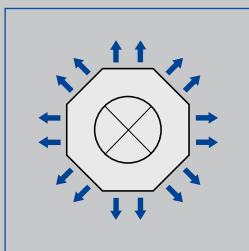
Polygon casing, 360° air discharge, for comfort and industrial zones

Polygon displacement flow diffusers with omni directional air discharge

- Spigot diameter 160 – 630 mm, nominal height 500 – 1750 mm
- Volume flow rate range 32 – 1157 l/s or 116 – 4166 m³/h
- Circular duct connection
- Duct connection at the top or bottom
- Integral airflow straightener and conical equalising element

Optional equipment and accessories

- Floor mounting plate
- Damper blade for volume flow rate balancing
- Exposed surface in RAL CLASSIC colours



QLV-360

Type		Page
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Application

Application

- Type QLV-360 displacement flow diffusers are used as supply air units for industrial and comfort zones
- Attractive design element for building owners and architects with demanding aesthetic requirements
- For free-standing installation
- Low-velocity airflow, causing only low levels of induction and resulting in low-turbulence displacement ventilation.
- Excellent air quality in the occupied zone
- Draught-free and economical ventilation and air conditioning also of larger internal spaces such as shop floors or auditoriums, with several

displacement flow diffusers in a regular arrangement

- For variable and constant volume flows
- For supply air to room air temperature differences from –6 to –1 K

Special characteristics

- Eight-way air discharge
- Duct connection at the top or bottom
- Optional damper blade for volume flow rate balancing

Nominal sizes

- ØD: 160, 200, 250, 315, 400, 500, 630 mm
- H: 500, 600, 800, 1000, 1250, 1500, 1750 mm

Description

Variants

- QLV-...-O: Spigot at the top
- QLV-...-U: Spigot at the bottom

Parts and characteristics

- Polygon casing
- Equalising element and airflow straightener that ensure a uniform supply air discharge
- Lip seal, optional for QLV-360-O

Attachments

- Damper blade for volume flow rate balancing

Accessories

- Lip seal
- Floor mounting plate

Construction features

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

Materials and surfaces

- Top cover, base and side parts made of

galvanised sheet steel

- S7: Top cover and base made of aluminium
- Corner and edge trims are extruded aluminium sections
- Airflow straightener made of plastic
- Equalising element made of synthetic fibres
- Lip seal made of rubber
- Surface powder-coated RAL 9010, pure white
- P1: Powder-coated, RAL CLASSIC colour
- S7: Surface galvanised

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

Displacement flow diffusers discharge the air from air conditioning systems with a low velocity and near the floor. The low-turbulence airflow creates a pool of fresh air that 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.

This draught-free and economical type of ventilation is also suitable for large internal spaces, such as auditoriums or shop floors, with several regularly arranged units.

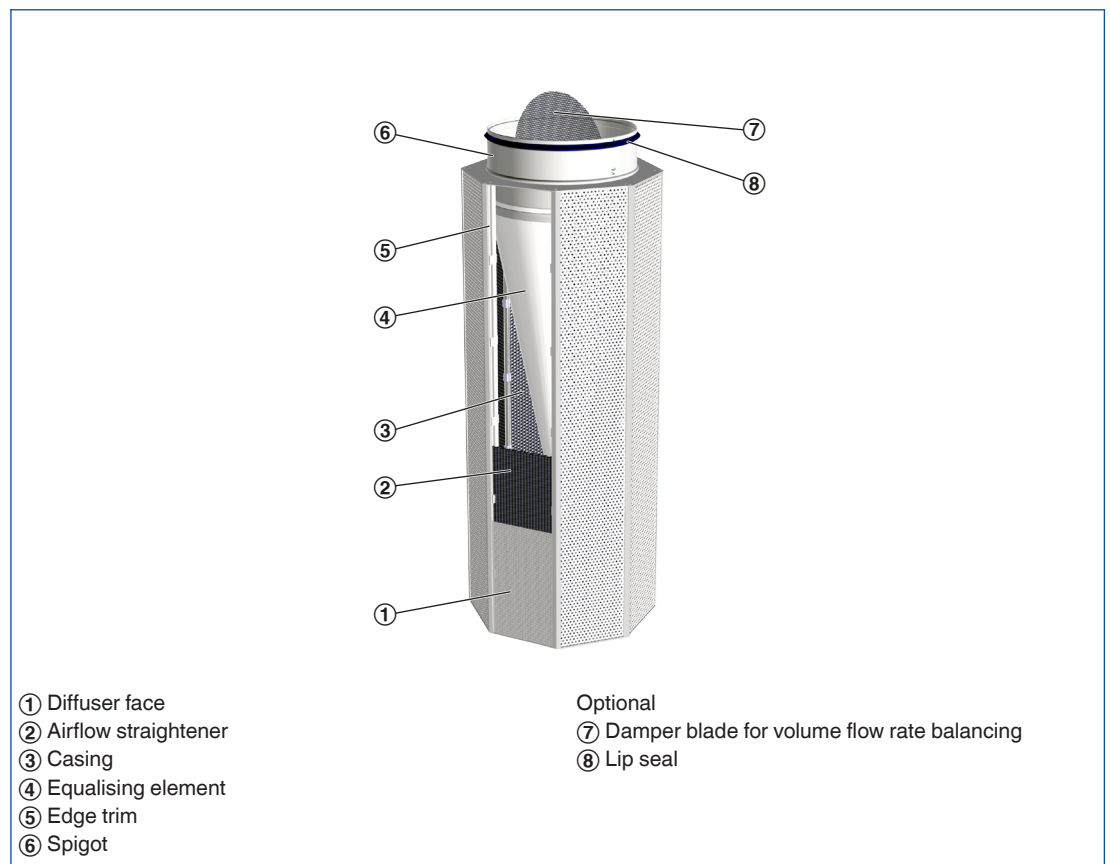
Displacement ventilation is characterised by low airflow velocities and low turbulence. The air quality in the occupied zone is very high.

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.

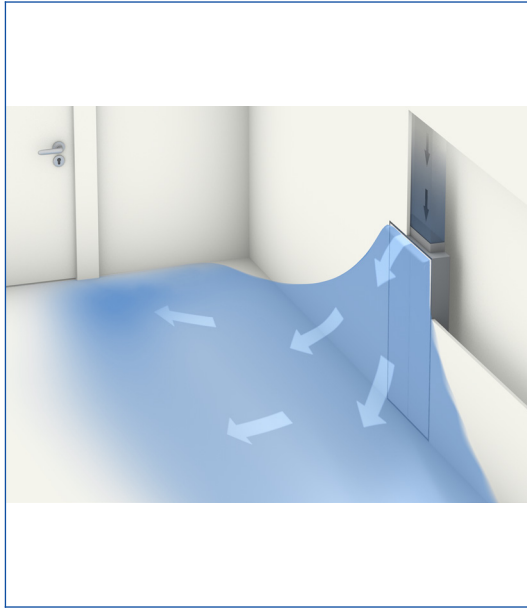
Type QLV-360 displacement flow diffusers are fitted with an equalising element and an air straightener which distribute the supply air flow equally across the entire diffuser area. The perforated sheet metal diffuser face helps to equalise the airflow further. Eight-way (360°) air discharge.

With displacement ventilation, i.e. air discharge near the floor, extract air units should be installed in the upper part of a room, above the occupied zone.

Schematic illustration of QLV-360 with circular spigot at the top

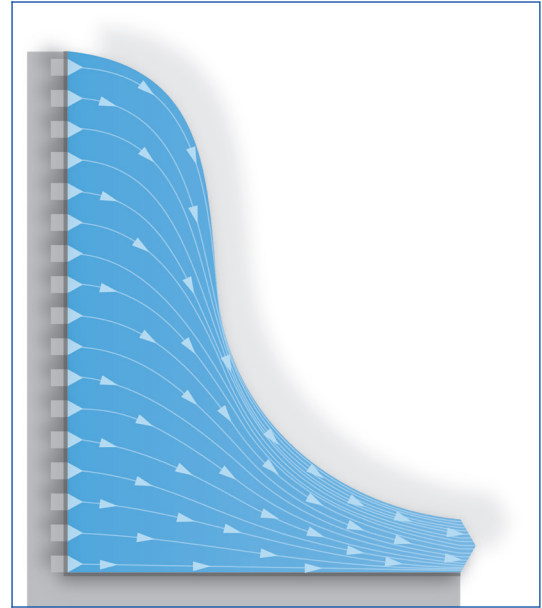


Low-turbulence displacement ventilation
airflow pattern



Three-dimensional representation

Low-turbulence displacement ventilation
airflow pattern



Side view

Nominal sizes	160 × 500 to 630 × 1750 mm
Minimum volume flow rate, at 0.1 m/s	32 – 386 l/s or 116 – 1389 m ³ /h
Maximum volume flow rate, at 0.3 m/s	97 – 1157 l/s or 348 – 4166 m ³ /h
Supply air to room air temperature difference	–6 to –1 K
Sound power level, at 0.3 m/s	50 dB(A) max.

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

QLV-360, height 500 – 800, sound power level, total differential pressure and near zone

Nominal size	\dot{V} l/s	\dot{V} m ³ /h	v_0 m/s	Damper blade position						L_{nz} m
				0°		45°		90°		
				Δp_t	L_{WA}	Δp_t	L_{WA}	Δp_t	L_{WA}	
				Pa	dB(A)	Pa	dB(A)	Pa	dB(A)	
160 × 500	32	116	0.1	6	<15	9	<15	17	17	<
	48	174	0.15	12	<15	20	20	38	28	<
	64	232	0.2	22	21	35	28	68	36	<
	97	348	0.3	50	32	79	40	152	48	<
200 × 500	39	140	0.1	4	<15	6	<15	10	<15	<
	59	211	0.15	8	<15	12	15	24	24	<
	78	281	0.2	14	<15	22	23	42	32	<
	117	421	0.3	32	26	50	34	94	43	<
250 × 500	47	169	0.1	<3	<15	3	<15	6	<15	<
	71	254	0.15	5	<15	8	<15	15	19	<
	94	338	0.2	9	<15	14	17	26	27	<
	141	508	0.3	20	20	31	29	58	38	<
160 × 600	39	139	0.1	7	<15	12	<15	24	21	<
	58	209	0.15	16	17	28	25	53	33	<
	77	278	0.2	29	25	49	33	94	41	<
	116	417	0.3	65	37	111	45	212	52	<
200 × 600	47	168	0.1	5	<15	8	<15	15	17	<
	70	253	0.15	10	<15	17	20	33	28	<
	94	337	0.2	18	19	31	28	58	36	<
	140	505	0.3	41	31	69	39	131	48	<
250 × 600	56	203	0.1	3	<15	5	<15	9	<15	<
	85	305	0.15	6	<15	11	<15	20	23	<
	113	406	0.2	11	<15	19	22	36	31	<
	169	609	0.3	26	25	43	34	80	43	<
315 × 600	70	251	0.1	<3	<15	3	<15	6	<15	<
	104	376	0.15	4	<15	7	<15	13	19	<
	139	501	0.2	7	<15	12	17	22	27	<
	209	752	0.3	17	19	28	28	50	38	<
160 × 800	52	185	0.1	12	<15	21	22	40	29	<
	77	278	0.15	26	25	48	33	91	40	<
	103	371	0.2	46	33	85	41	162	49	<
	155	556	0.3	104	44	190	52	364	60	<
200 × 800	62	225	0.1	7	<15	13	16	25	24	<
	94	337	0.15	16	19	29	28	56	36	<
	125	449	0.2	29	27	52	36	99	44	<
	187	674	0.3	64	39	117	47	223	55	<
250 × 800	75	271	0.1	4	<15	8	<15	15	20	<
	113	406	0.15	10	<15	18	22	34	31	<
	150	541	0.2	18	21	32	30	60	39	<
	226	812	0.3	40	33	72	41	136	50	<
315 × 800	93	334	0.1	3	<15	5	<15	9	15	<
	139	501	0.15	6	<15	11	17	21	26	<
	186	668	0.2	11	15	20	25	38	35	<
	278	1002	0.3	26	27	46	36	84	46	<
400 × 800	115	415	0.1	<3	<15	3	<15	6	<15	<
	173	622	0.15	4	<15	7	<15	13	22	<
	230	829	0.2	7	<15	13	19	23	30	<
	346	1244	0.3	16	21	29	31	52	41	<

<: 0.2 m/s are not achieved

The near zone values are based on a supply air to room air temperature difference of –3 K

QLV-360, height 1000 – 1250, sound power level, total differential pressure and near zone

Nominal size	\dot{V} l/s	\dot{V} m ³ /h	v_0 m/s	Damper blade position						L_{nz} m
				0°		45°		90°		
				Δp_t Pa	L_{WA} dB(A)	Δp_t Pa	L_{WA} dB(A)	Δp_t Pa	L_{WA} dB(A)	
160 × 1000	64	232	0.10	17	19	32	28	62	35	0.8
	97	348	0.15	37	30	73	39	138	46	1.0
	129	464	0.20	66	39	129	47	246	54	<
	193	696	0.30	149	50	291	58	554	66	<
200 × 1000	78	281	0.10	10	<15	20	22	37	30	0.8
	117	421	0.15	23	25	45	34	84	41	1.0
	156	562	0.20	40	33	79	42	150	49	<
	234	842	0.30	91	44	178	53	337	61	<
250 × 1000	94	338	0.10	6	<15	12	17	23	25	0.8
	141	508	0.15	14	19	27	28	51	37	1.0
	188	677	0.20	25	27	48	36	91	45	<
	282	1015	0.30	56	38	109	47	204	56	<
315 × 1000	116	418	0.10	4	<15	8	<15	14	21	0.8
	174	626	0.15	9	<15	17	23	32	32	1.0
	232	835	0.20	16	21	30	31	56	40	<
	348	1253	0.30	35	33	68	42	126	52	<
400 × 1000	144	518	0.10	<3	<15	5	<15	9	16	0.8
	216	778	0.15	6	<15	11	17	19	27	1.0
	288	1037	0.20	10	15	19	25	34	36	<
	432	1555	0.30	22	27	42	37	77	47	<
500 × 1000	177	638	0.10	<3	<15	3	<15	6	<15	0.8
	266	957	0.15	4	<15	7	<15	12	23	1.0
	354	1276	0.20	6	<15	12	20	22	31	<
	532	1914	0.30	15	22	28	32	50	43	<
315 × 1250	145	522	0.10	6	<15	11	17	21	26	1.1
	218	783	0.15	12	19	26	29	48	38	1.4
	290	1044	0.20	22	27	46	37	85	46	1.6
	435	1566	0.30	50	39	103	48	190	57	2.0
400 × 1250	180	648	0.10	3	<15	7	<15	13	22	1.1
	270	972	0.15	8	<15	16	23	29	33	1.4
	360	1296	0.20	14	21	28	31	51	41	1.7
	540	1944	0.30	31	33	63	43	116	53	2.1
500 × 1250	222	797	0.10	<3	<15	5	<15	8	18	1.1
	332	1196	0.15	5	<15	10	18	18	29	1.4
	443	1595	0.20	9	16	18	26	33	37	1.7
	665	2392	0.30	20	27	41	38	74	48	2.1
630 × 1250	276	992	0.10	<3	<15	3	<15	5	<15	1.0
	413	1488	0.15	3	<15	7	<15	12	25	1.4
	551	1984	0.20	6	<15	12	21	21	33	1.6
	827	2975	0.30	13	22	27	33	47	44	2.1

<: 0.2 m/s are not achieved

The near zone values are based on a supply air to room air temperature difference of –3 K

QLV-360, height 1500 – 1750, sound power level, total differential pressure and near zone

Nominal size	\dot{V} l/s	\dot{V} m ³ /h	v_0 m/s	Damper blade position						L_{nz} m
				0°		45°		90°		
				Δp_t	L_{WA}	Δp_t	L_{WA}	Δp_t	L_{WA}	
				Pa	dB(A)	Pa	dB(A)	Pa	dB(A)	
400 × 1500	216	778	0.10	5	<15	10	17	18	27	1.5
	324	1166	0.15	10	18	22	28	40	38	1.9
	432	1555	0.20	18	26	39	36	72	46	2.2
	648	2333	0.30	41	37	88	47	162	57	2.8
500 × 1500	266	957	0.10	3	<15	6	<15	11	22	1.5
	399	1435	0.15	7	<15	14	23	26	34	1.9
	532	1914	0.20	12	21	25	31	46	42	2.3
	797	2871	0.30	26	32	57	43	103	53	2.9
630 × 1500	331	1190	0.10	2	<15	4	<15	7	18	1.4
	496	1785	0.15	4	<15	9	18	16	29	1.8
	661	2380	0.20	8	15	16	26	29	38	2.3
	992	3570	0.30	17	27	36	37	65	49	3.0
630 × 1750	386	1389	0.10	2	<15	5	<15	10	22	1.8
	579	2083	0.15	5	<15	12	22	21	34	2.5
	771	2777	0.20	10	19	21	30	38	42	3.2
	1157	4166	0.30	21	31	48	42	86	53	4.4

<: 0.2 m/s are not achieved.

The near zone values are based on a supply air to room air temperature difference of –3 K.

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

Displacement flow diffusers for air discharge near the floor, suitable for comfort and industrial zones with special demands on architecture and design. With eight-way (360°) air discharge for low-turbulence displacement ventilation. Polygon casing for free-standing installation. Ready-to-install component which consists of a casing with spigot at the top or bottom, an equalising element and airflow straightener that ensure uniform supply air discharge, 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

- Eight-way air discharge
- Duct connection at the top or bottom
- Optional damper blade for volume flow rate balancing

Materials and surfaces

- Top cover, base and side parts made of galvanised sheet steel
- S7: Top cover and base made of aluminium
- Corner and edge trims are extruded aluminium

- sections
- Airflow straightener made of plastic
- Equalising element made of synthetic fibres
- Lip seal made of rubber
- Surface powder-coated RAL 9010, pure white
- P1: Powder-coated, RAL CLASSIC colour
- S7: Surface galvanised

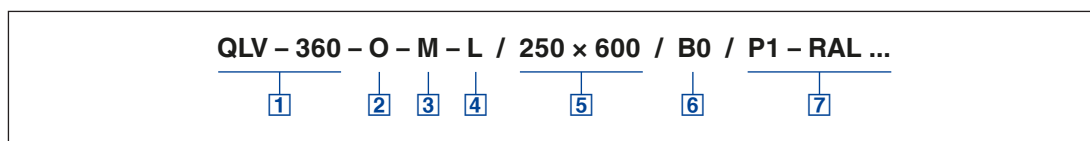
Technical data

- Nominal sizes: 160 × 500 to 630 × 1750 mm
- Minimum volume flow rate, at 0.1 m/s: 32 – 386 l/s or 116 – 1389 m³/h
- Maximum volume flow rate, at 0.3 m/s: 97 – 1157 l/s or 348 – 4166 m³/h
- Supply air to room air temperature difference: -6 to -1 K
- Sound power level, at 0.3 m/s: 50 dB(A) max.

Sizing data

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

QLV-360



1 Type

QLV-360 Displacement flow diffuser

2 Connection

Circular spigot

- O** Top
- U** Bottom

3 Damper blade for volume flow rate balancing

No entry: none

- M** With

4 Lip seal

No entry: none

- L** With (only for top spigot)
- Bottom spigots always have a lip seal

5 Nominal size [mm]

ØD × H

Spigot diameter × nominal height

Order example: QLV-360-U/250x500/P1-RAL 9016

Connection	Circular spigot at the bottom
Damper blade for volume flow rate balancing	Without
Lip seal	Without
Nominal size	250 × 500 mm
Fixing	Without
Exposed surface	RAL 9016, traffic white, gloss level 70 %

6 Fixing

No entry: none

- B0** With base plate

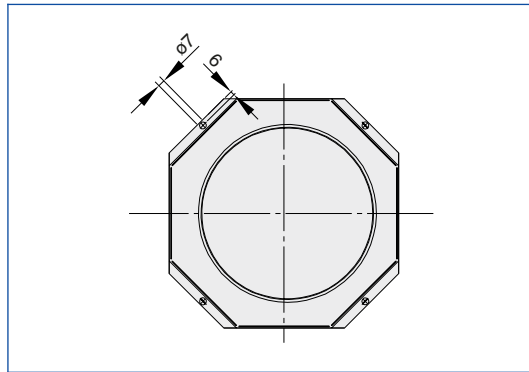
7 Exposed surface

No entry: powder-coated
RAL 9010, pure white

- P1** Powder-coated, specify RAL CLASSIC colour
- S7** Uncoated (galvanised steel, untreated aluminium)

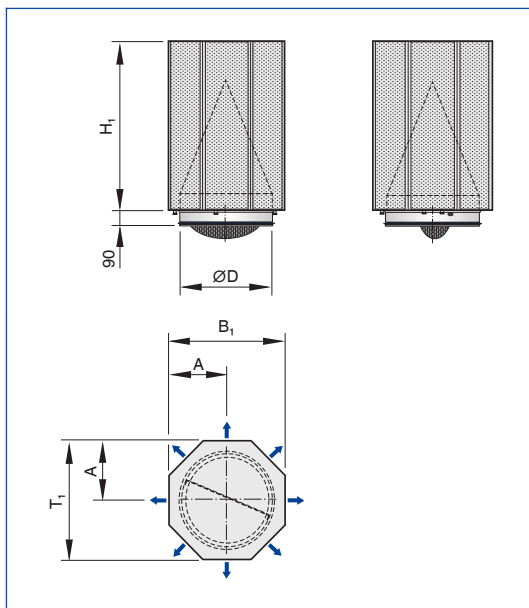
Gloss level
RAL 9010 50 %
RAL 9006 30 %
All other RAL colours 70 %

Base plate

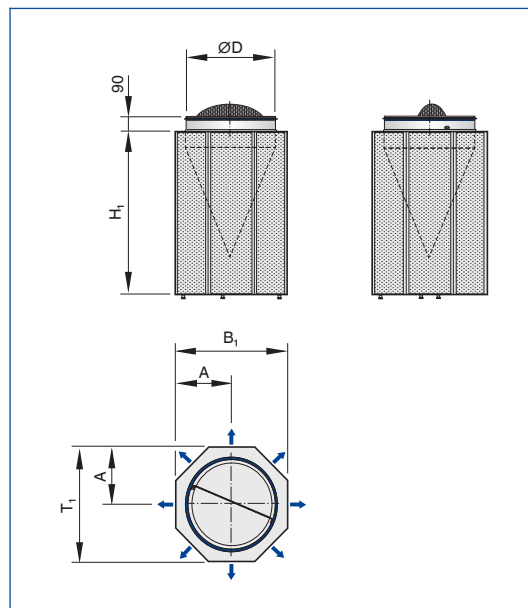


The nominal size (nominal width x nominal height) is equal to the discharge opening.

QLV-360-U



QLV-360-O



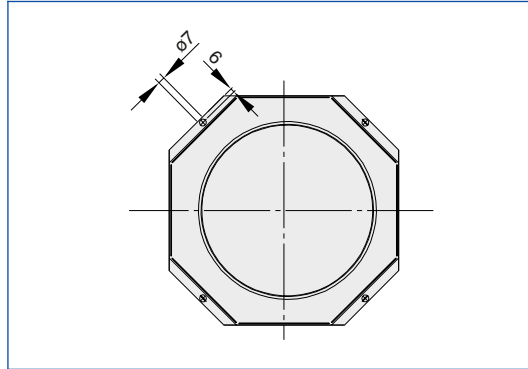
QLV-360

Nominal size	B ₁	H ₁	T ₁	ØD	A	m
	mm	mm	mm	mm	mm	kg
160x500	240	500	240	158	120	6
200x500	280	500	280	198	140	7
250x500	330	500	330	248	165	8
160x600	240	600	240	158	120	7
200x600	280	600	280	198	140	8
250x600	330	600	330	248	165	10
315x600	395	600	395	313	197	11
160x800	240	800	240	158	120	8
200x800	280	800	280	198	140	10
250x800	330	800	330	248	165	11
315x800	395	800	395	313	197	14
400x800	480	800	480	398	240	17
160x1000	240	1000	240	158	120	10
200x1000	280	1000	280	198	140	11
250x1000	330	1000	330	248	165	13
315x1000	395	1000	395	313	197	16
400x1000	480	1000	480	398	240	20
500x1000	580	1000	580	498	290	25
315x1250	395	1250	395	313	197	19
400x1250	480	1250	480	398	240	23
500x1250	580	1250	580	498	290	28
630x1250	710	1250	710	628	355	36
400x1500	480	1500	480	398	240	26
500x1500	580	1500	580	498	290	32
630x1500	710	1500	710	628	355	40
630x1750	710	1750	710	628	355	44

Installation and commissioning

- With displacement ventilation and air discharge near the floor, extract air devices should be installed in the upper part of a room, above the occupied zone.
- If necessary, carry out volume flow rate balancing with the damper blade

Base plate



Principal dimensions

B_1 [mm]

Width of diffuser face

B_4 [mm]

Width of a rectangular spigot

$\varnothing D$ [mm]

Outer diameter of the spigot

$\varnothing D_1$ [mm]

Casing diameter

H_1 [mm]

Height of diffuser face

T_1 [mm]

Casing depth

T_4 [mm]

Depth of a rectangular 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

v_0 [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} [m^2]

Effective air discharge area

All sound power levels are based on 1 pW.