

Displacement Flow Diffusers

Type QLK

for comfort areas



TROX[®] TECHNİK

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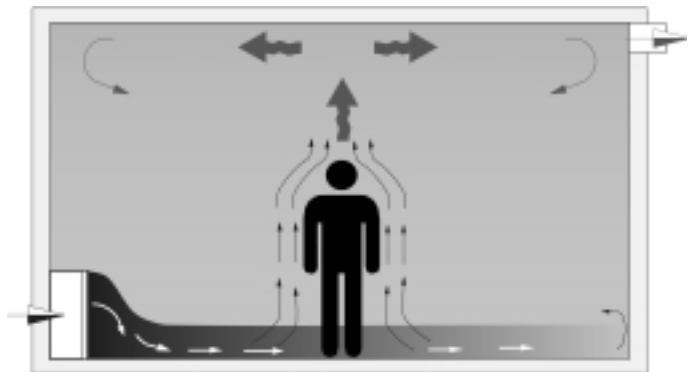


Type QLK displacement flow diffusers are normally used for comfort conditioning applications.

In contrast to the conventional method of mixing primary air from ceiling or wall diffusers with room air, displacement flow diffusers ensure a low-turbulence air supply. The discharge velocity is very low.

Whereas with the mixing flow the aim is to achieve a high as possible induction rate, the displacement flow principle uses a very low-induction air flow. Depending on the degree of activity of people in the occupied zone, the supply air can be introduced with a temperature difference of -1 to -6 K in relation to the room air.

In displacement flow applications, the supply air spreads out over the floor and drawn up by convection caused by heat sources (electrical equipment, people, etc.). The supply air always finds its way to the heat sources, whose thermal loads are to be removed. If the principle of displacement flow is applied, the extract air outlets should be at a high level. By distributing displacement flow diffusers evenly, even large halls can be air-conditioned economically and without draughts.



Construction · Dimensions · Material

Construction

There are three constructions of the displacement flow diffusers of the QLK Series:

- Type QLK- 90 – 90° construction for installation in corners
- Type QLK-180 – 180° construction for installation against walls
- Type QLK-360 – 360° construction for free-standing installation

The units consist of a casing with an angled slotted front face. In the interior of the unit, there is a honeycomb-type grid which serves as an air flow straightener.

The units are supplied with top entry circular spigots. Upon request, the spigot can also be supplied with a lip seal.

Material

The casing, front cover and spigot are made of sendzimir galvanised sheet steel.

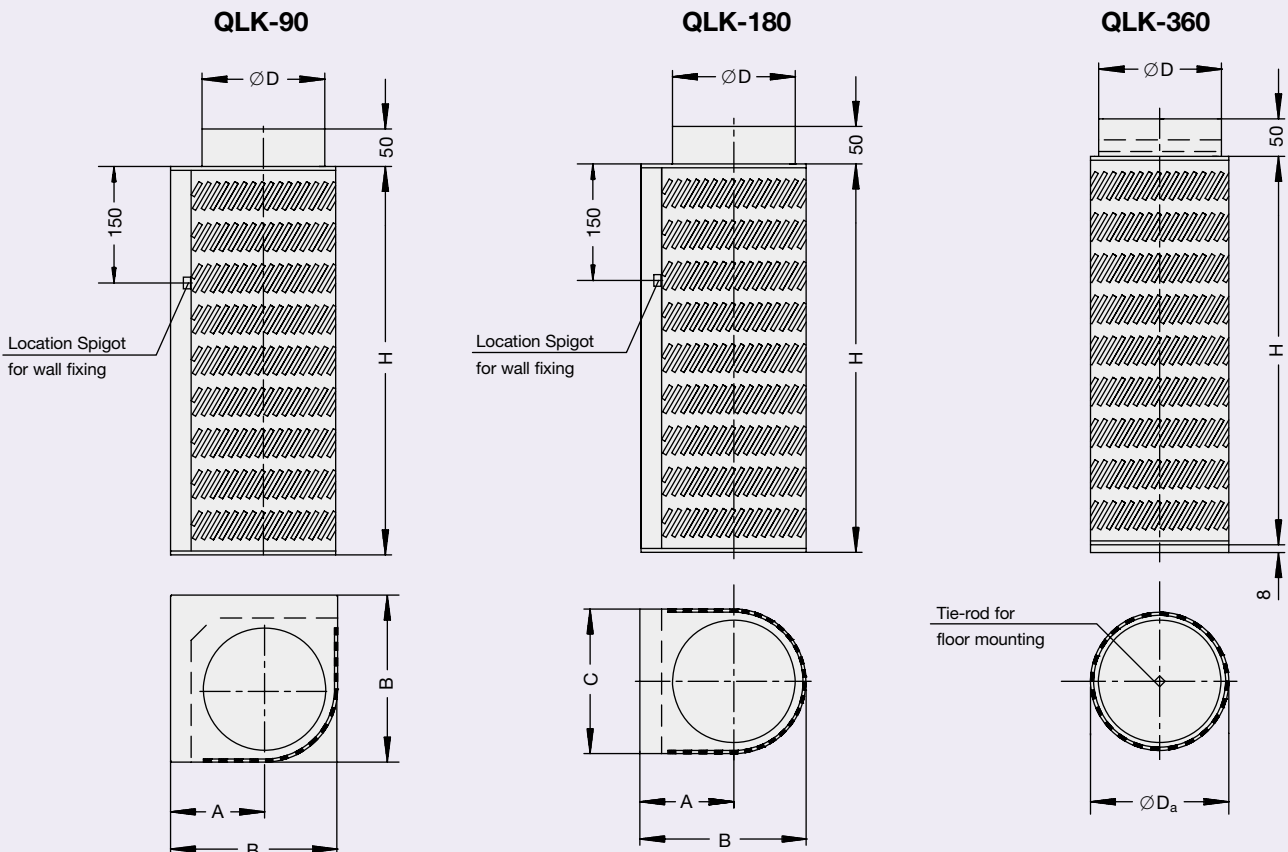
The surface is pretreated and powder-coated in the colour pure white (RAL 9010), optionally stove-enamelled in the colour according to the RAL colour chart.

The honeycomb grid is made of polyethylene in a white colour.

The lip seal is made of rubber.

Dimensions in mm						* H (mm)
Size	Ø D	Ø D _a	A	B	C	
160	158	188	121	215	188	500
200	198	228	141	255	228	600
250	248	278	166	305	278	800
315	313	343	198	370	343	1000

* Any combination of nominal size with H dimensions are available.



Installation

The type QLK units are fixed with the wall bracket (QLK-90, QLK-180) or the floor fixing (QLK 360) which are available as accessories. The brackets are fixed with plugs and screws.

Upon request, the following mounting accessories can be supplied with the units:

Figure 1

Type QLK-90

The wall bracket supplied is fixed as shown in the drawing below. The QLK-90 is then positioned on the wall bracket with the location spigot.

Figure 2

Type QLK-180

The wall bracket supplied is fixed as shown in the drawing below. The QLK-180 is then positioned on the wall bracket with the location spigot.

Figure 3

Type QLK-360

The tie rod with floor plate supplied is fixed to the floor by means of plugs and screws. Placing the QLK-360 over the tie rod, the rod is then located in the spigot tie bar and the assembly clamped in position by means of a washer and wing nut.

Installation

Figure 1

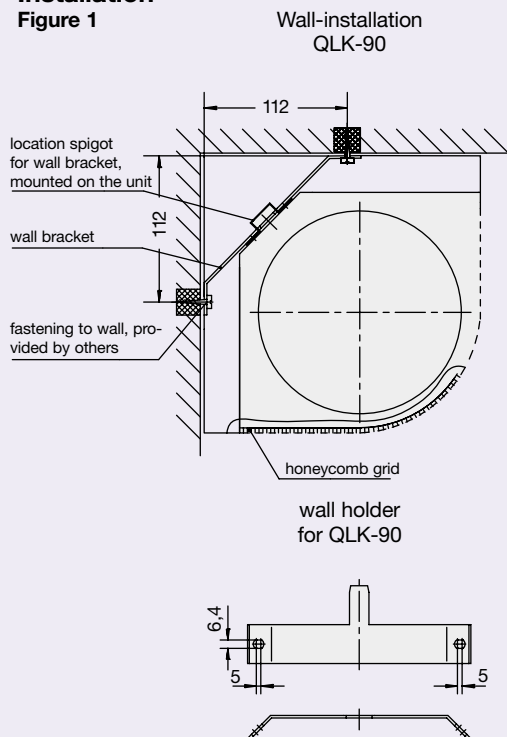


Figure 3

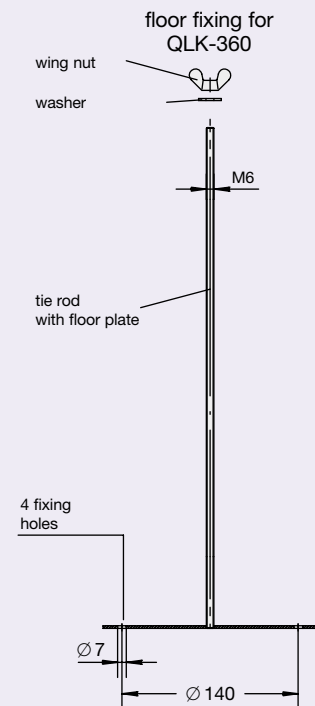
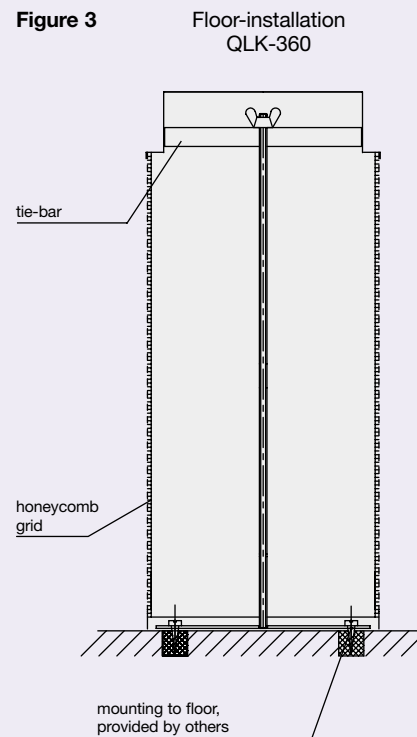
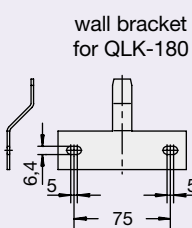
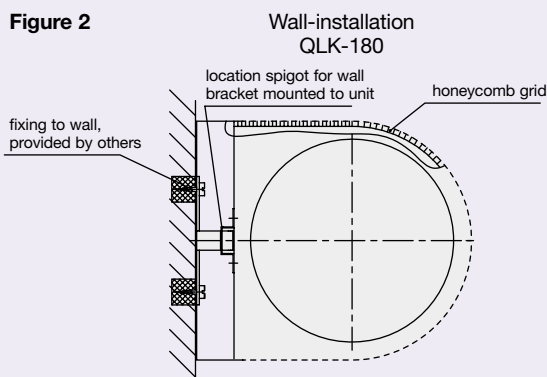


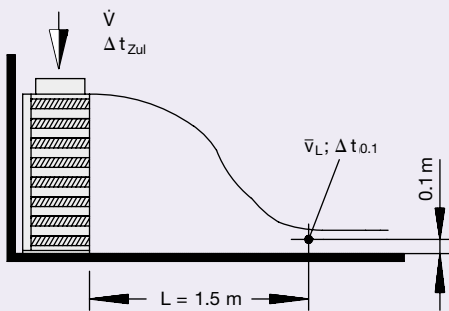
Figure 2



Nomenclature · Technical Data

Nomenclature

- \dot{V} in l/s: Volume flow rate per diffuser
- \dot{V} in m³/h: Volume flow rate per diffuser
- L in m: Distance from diffuser
- \bar{v}_L in m/s: Maximum air velocity at distance L from diffuser and distance 0.1 m above floor
- t_{zul} in °C: Supply air temperature
- $t_{1,1}$ in °C: Temperature at 1.1 m room height
- $t_{0,1}$ in °C: Temperature in 0.1 m above floor
- Δt_{zul} in K: Temperature differential $t_{1,1} - t_{zul}$
- $\Delta t_{0,1}$ in K: Temperature differential $t_{0,1} - t_{zul}$
- Δp_t in Pa: Total pressure drop (supply pressure)
- L_{WA} in dB(A): A-weighted sound power level



- $\Delta t_{zul} = t_{1,1} - t_{zul} = 1 \dots 6 \text{ K}$
- $\Delta t_{0,1}$ with $L = 1.5 \text{ m} \leq 0.5 \times \Delta t_{zul}$
- $\bar{v}_L \leq 0.2 \text{ m/s}$ with $L = 1.5 \text{ m}$
- $\Delta p_t \approx 20 \text{ Pa}$
- $L_{WA} \approx 30 \text{ dB(A)}$

Technical Data

Construction	90°							
	160		200		250		315	
Size	l/s	m ³ /h	l/s	m ³ /h	l/s	m ³ /h	l/s	m ³ /h
max. volume flow (\dot{V})								
500	35	126	40	144	50	180	60	216
Height 600	40	144	50	180	60	216	75	270
(mm) 800	55	198	65	234	80	288	100	360
1000	70	252	80	288	100	360	125	450

Construction	180°							
	160		200		250		315	
Size	l/s	m ³ /h	l/s	m ³ /h	l/s	m ³ /h	l/s	m ³ /h
max. volume flow (\dot{V})								
500	50	180	60	216	75	270	90	324
Height 600	60	216	70	252	85	306	105	378
(mm) 800	80	288	95	342	115	414	140	504
1000	100	360	120	432	145	522	180	648

Construction	360°							
	160		200		250		315	
Size	l/s	m ³ /h	l/s	m ³ /h	l/s	m ³ /h	l/s	m ³ /h
max. volume flow (\dot{V})								
500	60	216	75	270	90	324	110	396
Height 600	75	270	90	324	105	378	130	468
(mm) 800	95	342	115	414	140	504	175	630
1000	120	432	145	522	175	630	215	774

Order Details

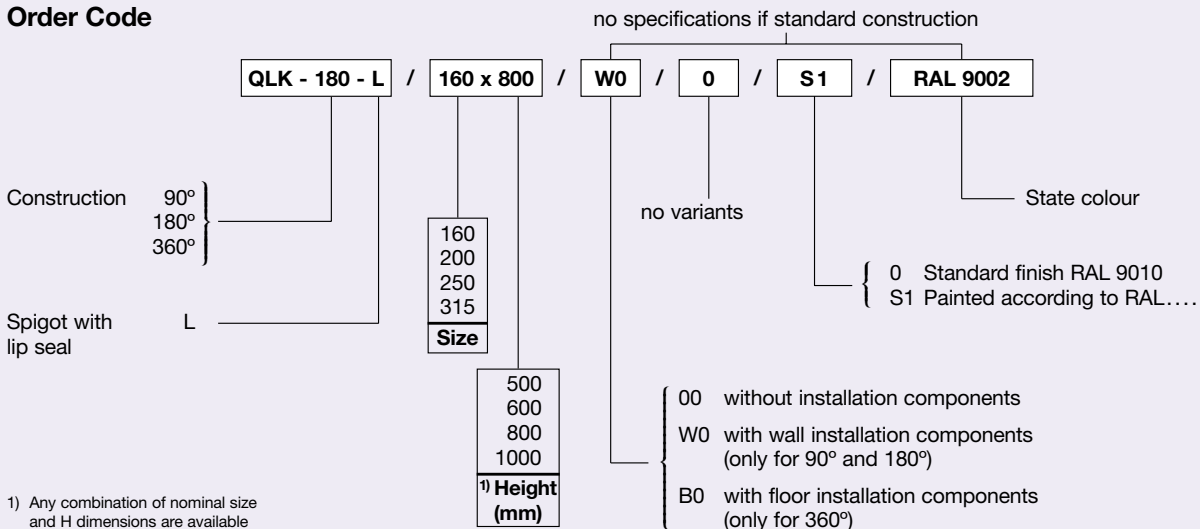


Auckland (Head Office)
 31 Station Road, Penrose, Auckland, NZ
 PO Box 12021, Penrose, Auckland 1135
 Ph: +64-9-579 2185 Fax: +64-9-579 2181

Christchurch
 Level 3, 161 Kilmore Street, Christchurch, NZ
 PO Box 17709, Sumner, Christchurch 8008
 Ph: +64-3-379 7884 Fax: +64-3-379 7874

Web: www.cookeindustries.co.nz Email: sales@cookeindustries.co.nz

Order Code



Accessories

Wall installation W0 (QLK-90, QLK-180)
 Floor installation B0 (QLK-360)

Specification Text

Displacement flow diffuser for corner, wall and free-standing installation, 90°, 180° and 360° constructions, for low discharge velocity to achieve low-turbulence air supply, consisting of the casing with connection spigot at the top (optionally with lip seal) and the angled slotted front face with honeycomb-type grid.

Material

Casing and front cover are made of sendzimir sheet steel, the surface is pretreated, optionally stove-enamelled in the colour according to the RAL colour chart, lip seal made of rubber. The honeycomb grid is made of polyethylene in a white colour.

Order Example

Make: TROX
 Type: QLK - 180 - L / 160 x 800 / W0 / S1 / RAL 9002