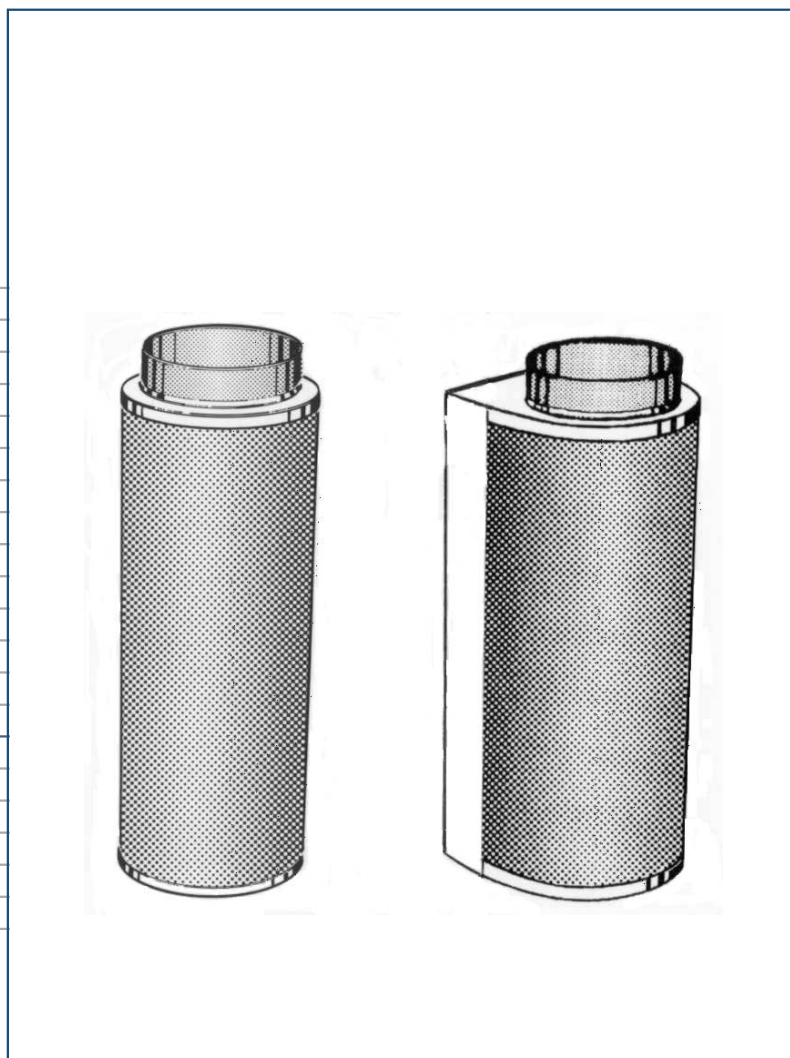


Please note,
type code is new,
see last page.

Technical Selection



**Circular and semi-circular
displacement outlet Q-Z....**

Circular and semi-circular displacement outlet

Preliminary remarks

The circular displacement outlet is installed free standing in the room or - preferably the semicircular model - placed in front of a wall or pillar on the floor.

The following criteria must be accounted for in the layout:

- Distance between outlet and workplace or seating (near zone)
- Air outlet volume flow rate
- Discharge velocity
- Possible size
- Temperature difference between supply air and indoor air

Our publication DS 4069 gives a general description of displacement ventilation with the calculation method for temperature gradients and cooling capacity. It also explains layout specifications for the near zone depending on outlet placement.

The discharge velocity should always keep below 0.25 m/s. This is assured by keeping under the maximum volume flow rates specified in the table. The requisite near zone and the displacement outlet dimensions must be observed.

Construction design and function

The main components of the displacement outlet are the housing 1 with finely perforated sheet metal casing 2 and the connection spigot 3.

The finely perforated sheet metal casing 2 generates a low-turbulence, a radial or semi-radial displacement flow to ensure the typical displacement ventilation jet pattern. The supply air spreads at about 10 to 30 cm above the floor at very low velocity.

There are three types:

Type Q-ZL: Circular displacement outlet with guidance device

Air is distributed through a built-in guidance device that directs the discharged supply air jets at a slight upward incline and stabilizes them. This diminishes a fast cold air drop and the attendant rise in air velocity near the air outlet.

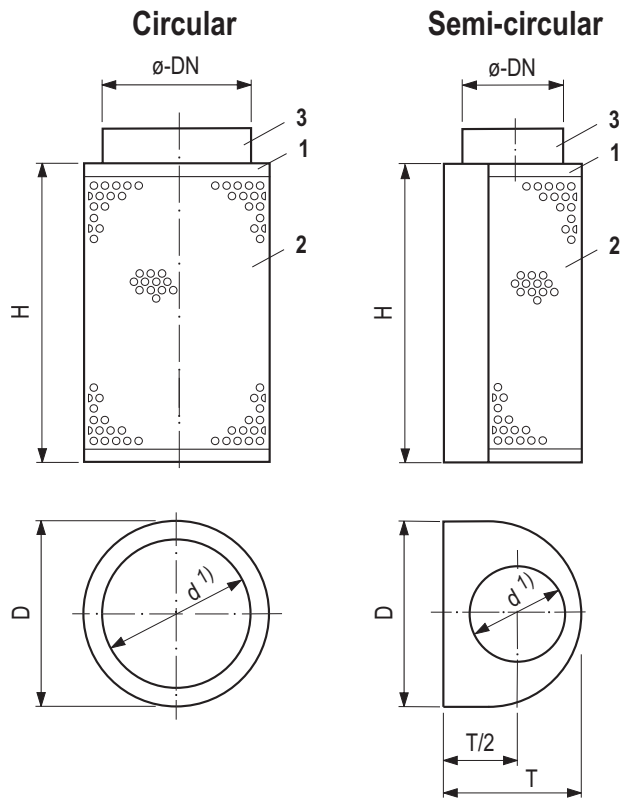
The supply air flows into the air outlet via a connection spigot from above.

Type Q-ZM: Circular displacement outlet with air distribution mat

Type Q-ZH: Semi-circular displacement outlet with air distribution mat

An air distribution mat behind the finely perforated sheet distributes the air. The mat generates an even, straight flow. The sheet metal casing is easy to open to replace the air distribution mat. The air is supplied from above or below through the connection spigot.

Dimensions, volume flow rates, weights



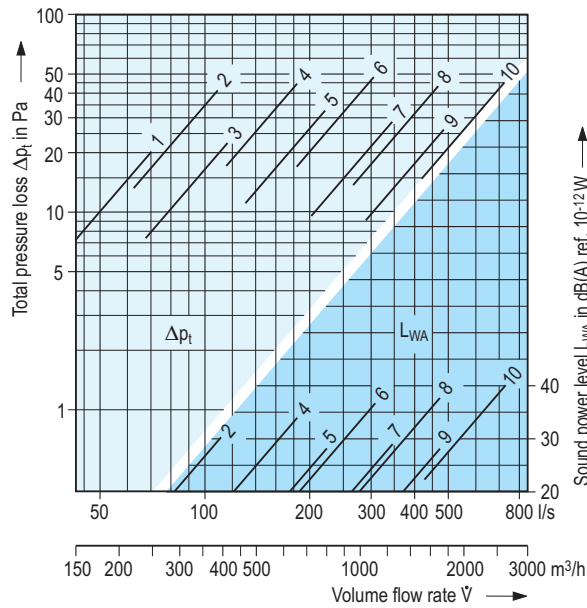
Circular and semi-circular outlet, main dimensions

Size	Dimensions			Surface area ²⁾ A m ²	Volume flow rate ³⁾				Weight		
	DN mm	D mm	H mm		T mm	$\dot{V}_{0.15}$		$\dot{V}_{0.25}$		kg	kg
Circular										Q-ZL	Q-ZM
200	250	400 600	—	0.28 0.44	42 65	150 235	70 110	250 395	5 7	4 5	
250	315	500 800	—	0.45 0.75	68 112	245 405	112 185	405 675	8 12	5 7	
315	400	750 1000	—	0.89 1.21	133 180	480 650	222 300	800 1085	14 18	9 11	
400	500	900 1200	—	1.35 1.82	200 270	725 980	335 455	1215 1635	22 27	13 16	
500	630	1000 1500	—	1.90 2.89	285 430	1025 1555	475 720	1705 2595	31 36	18 24	
Semi-circular										Q-ZH	
125	250	400 600	185	0.14 0.22	20 32	75 115	35 54	125 195	4 5	5	
160	315	500 800	220	0.23 0.38	33 55	120 200	55 93	200 335	5 7	7	
200	400	750 1000	260	0.45 0.60	65 90	240 325	110 150	400 540	9 11	11	
250	500	900 1200	310	0.68 0.91	100 135	360 490	168 225	605 815	13 16	16	
315	630	1000 1500	385	0.95 1.44	140 215	510 775	235 360	850 1295	18 24	24	
Other dimensions on request											

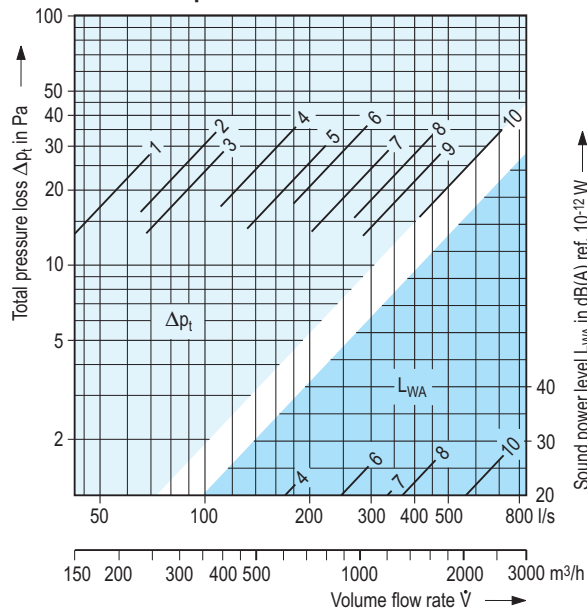
1) Connection diameter-d = DN - 1; 2) Air discharge surface area
3) for $u_0 = 0.15$ or 0.25 m/s

Circular and semi-circular displacement outlet

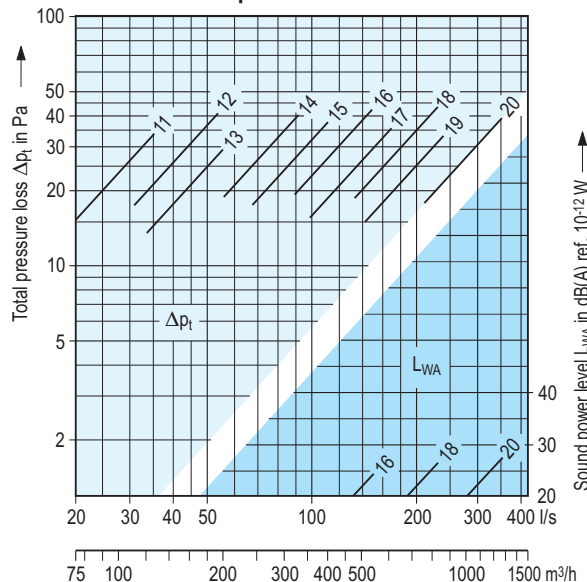
Q-ZL circular displacement outlet with guidance device



Q-ZM circular displacement outlet with air distribution mat



Q-ZH semi-circular displacement outlet with air distribution mat



Sound power level and pressure loss

Sound power level and pressure loss by air volume flow rate can be read off the following charts.

For better adjustment of the Q-ZL circular displacement outlet, the otherwise very low pressure loss has been raised by means of an additional built-in fixed damper. This also raises the sound power level. Where a lower sound power level than specified in the chart for Q-ZL is required, the air outlet is also available without a fixed damper on request.

Size serial no.		Size DN	D	H	T
Circular Q-ZL	Circular Q-ZM	mm	mm	mm	mm
1 *	1 *	200	250	400	—
2	2 *	200	250	600	—
3 *	3 *	250	315	500	—
4	4	250	315	800	—
5	5 *	315	400	750	—
6	6	315	400	1000	—
7	7	400	500	900	—
8	8	400	500	1200	—
9	9 *	500	630	1000	—
10	10	500	630	1500	—
Semi-circular Q-ZH					
11 *		125	250	400	185
12 *		125	250	600	185
13 *		160	315	500	220
14 *		160	315	800	220
15 *		200	400	750	260
16		200	400	1000	260
17 *		250	500	900	310
18		250	500	1200	310
19 *		315	630	1000	385
20		315	630	1500	385

* Sound power level ≤ 20 dB(A) ref. 10^{-12} W

Features

- Draught-free fresh air supply to occupied zone
- Very small near zone to air outlet
- Large coverage (5 to 10 m)
- Low sound power level
- Temperature difference between supply air and indoor air usually -2 to -3 K and between supply air and exhaust air up to about -12 K, depending on room height and volume flow rate
- Freestanding in room or in front of a wall
- Connection spigot above or below, depending on type
- Visually attractive design
- Made of sheet steel, painted in desired colour
- Available in many sizes
- Type Q-ZL with built-in guidance device, maintenance-free
- Type Q-ZM and Q-ZH with built-in air distribution mat, easy to maintain by simple opening of finely perforated sheet

Circular and semi-circular displacement outlet



Semi-circular placed in front of a pillar

Type code

Q - ___ - DN ___
 Displacement outlet
 Function / kind
 Size

Please note,
type code is new,
see last page.

Function / kind

- ZL = circular (cylindrical) with guidance device
- ZM = circular with air distribution mat
- ZH = semi-circular with air distribution mat

Size

- Model: circular DN 200 to DN 500
- Model: semicircular DN 125 to DN 315

Tender text

..... unit

Circular displacement outlet for floor installation, for extremely low-turbulence displacement flow and large penetration depth in commercial rooms,

Model:

- Circular, best placed freestanding in room, Air distribution via built-in
- guidance device,
- air distribution mat; air outlet housing easy to open for maintenance of the air distribution mat,
- semi-circular, best positioned in front of walls and pillars, air distribution via integrated distribution mat; air outlet housing easy to open for maintenance of the air distribution mat,

made up of:

sheet steel housing, finely perforated sheet casing and built-in air distribution devices.

Connection spigot to fit DIN 24 145 pipes (folded spiral-seam tube) or DIN 24 146 (flexible tubes),
 Position above. below. ¹⁾

Technical data:

Supply air volume flow rate: l/s (m³/h)
 Adm. sound power level: dB(A) ref. 10⁻¹² W
 Material: galvanized steel
 Quality paint, colour: RAL
 Size and nominal diameter of connection spigot: DN
 Casing diameter: mm
 Height: mm
 Make: KRANTZ KOMponentEN
 Type: Q - Z__ - DN ____

Subject to technical alterations!

¹⁾ available for Q-ZM and Q-ZH

