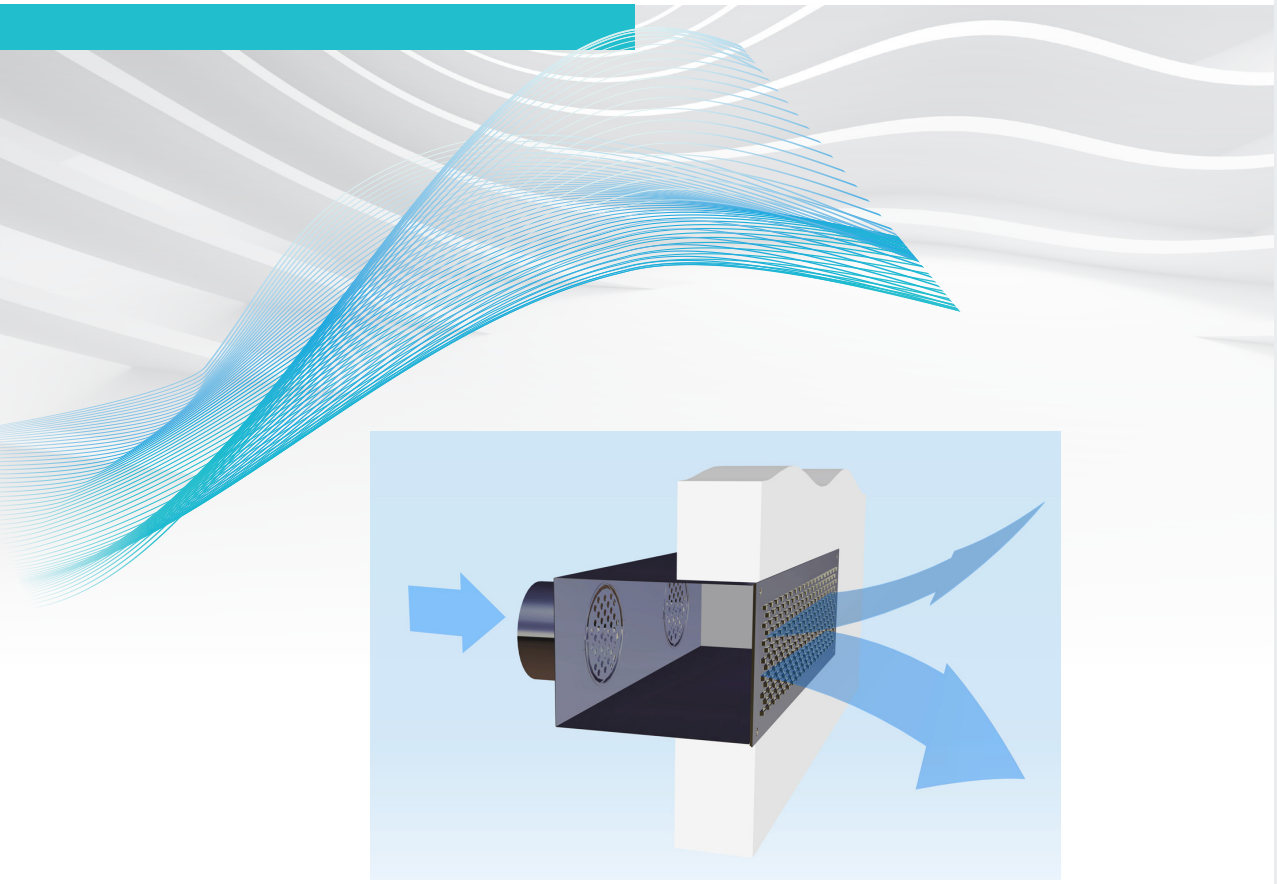
Let's realize
the potential of air
for a sustainable world

AIR TECH SYSTEMS



Technical brochure

LTG® StepVentilation

BLQ Displacement air diffuser for steps

Displacement air diffuser with concealed perforations for installation in walls or steps to generate a lowturbulence displacement flow.

Can also be used for low supply air temperatures of up to -6 K below the room air temperature, whilst maintaining maximum thermal comfort.

- **Uniform air distribution** without draughts, even with high temperature differentials
- **Discreet:** when installed in steps, the diffuser blends harmoniously into the existing architecture
- **Colour schemes can be customised to the customer's requirements in all colour systems:** for example, RAL, Pantone and many more.
- All special versions (e.g. stainless steel) available on request

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Notes

The dimensions in this technical brochure are given in mm.
The general tolerances in accordance with DIN ISO 2768-vL apply to the dimensions specified in this brochure.
Any additional specifications are provided in the drawings.
Straightness/warpage tolerances in accordance with DIN EN 12020-2.
The surface finishes have been designed for use in buildings – indoor climate in accordance with DIN 1946 Part 2.
Other requirements available on request.
The current tender documents are available in Word format from your local branch or at www.LTG-AG.com

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Applications

The BLQ diffuser is installed in walls or steps in large spaces, such as cinemas, lecture theatres or concert halls.

In museums, it is used to control the climate of sensitive exhibits in visitor areas.

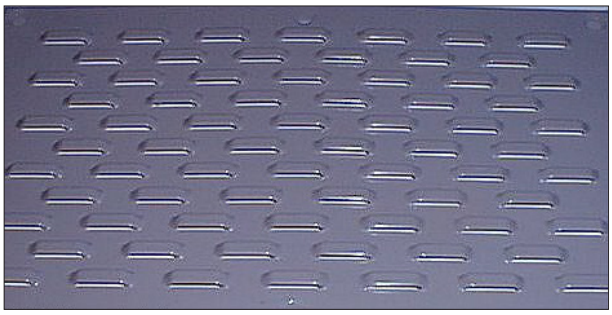
Thanks to customisable colour schemes, the diffuser grilles blend harmoniously into the existing architecture and can thus be integrated into historic buildings, for example.

The rapid reduction in outlet velocity and temperature difference enables effective air distribution and a highly comfortable indoor airflow.

This enables thermal comfort in accordance with Category A of DIN EN ISO 7730 under standard conditions and recommended operating modes. The temperature difference between supply air and extract air may be as low as -6 K; consequently, higher cooling capacities and air flow rates can be achieved compared to conventional displacement air diffusers.



Installation in steps or under seats



Concealed perforations in the outlet grilles with induction/ air mixing in the immediate vicinity of the occupant zone

Advantages

The BLQ displacement air diffuser guarantees effective ventilation of large spaces. It is characterised by the following features:

- Uniform air distribution without draughts, even with high temperature differences
- Discreet integration into steps or wall
- Custom colour schemes available to customer specifications in all colour systems
- Powder-coated to RAL 9010
- Casing made of galvanised sheet steel; front panel designed as a slotted bridge plate with concealed perforations
- Rear primary air spigot with DLU throttling device
- Air flow rate up to a maximum of 200 m^3/h per unit
- Special versions (e.g. stainless steel or custom sizes) available on request



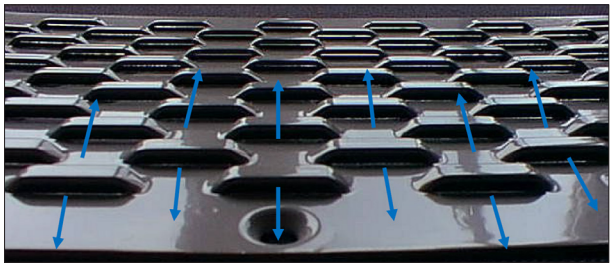
Cinema auditorium with BLQ diffusers

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Mode of operation

The BLQ displacement air diffuser offers significant advantages over a standard perforated displacement air panel:

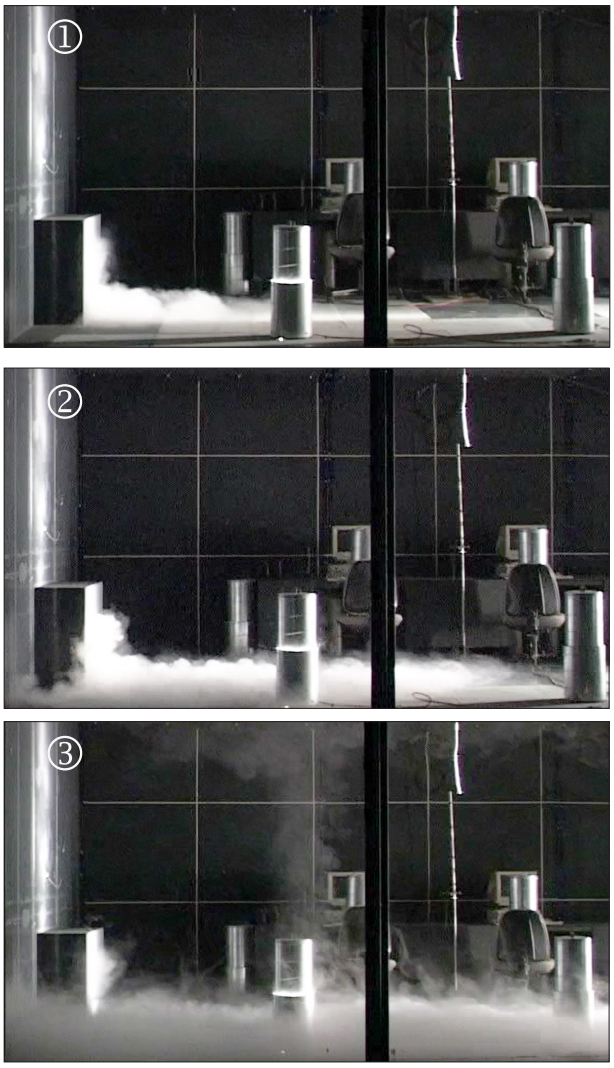
- Concealed perforations: It is not possible to see into the diffuser box or duct from the front.



- Splitting and redirecting the supply air jets in two tangential directions – downwards and upwards – results in induction/air mixing in the immediate vicinity and extends the air path outside the occupied zone.
- The temperature difference between supply air and extract air may be as low as -6 K; this enables higher cooling capacities and air flow rates to be achieved compared with conventional displacement air diffusers. Nevertheless, the highest level of thermal comfort (Category A in accordance with ISO 7730) can be maintained. This is because the rapid reduction in outlet velocity and temperature difference enables effective air distribution and a highly comfortable indoor airflow.

Flow patterns in the laboratory

The supply air is typically blown into the room at a temperature below the average room air temperature (temperature difference of up to –6 K).
Recommended discharge velocity: Maximum approx. 0.2 to 0.25 m/s.



In the near field of the diffuser, the supply air is premixed with the room air as the supply air is distributed through the slotted bridges.
The supply air then moves slowly along the floor into the room.
Local air temperatures remain within a range of min. –3 K to max. +0.5 K around the average room air temperature. The risk of draughts never exceeds the limit value of 20%, thereby ensuring a high level of thermal comfort. According to standard VDI 3804, a ventilation efficiency factor of 2 can be achieved!

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Technical data

BLQ diffuser, nominal height 140 mm:

Nominal length	[mm]	640	840	1040	1240
Air flow rate range	[m³/h]	max. 45	max. 60	max. 75	max. 90
Pressure drop		max. 5 Pa			
Sound power level L_{WA}		<20 dB(A)			
Box depth approx.	[mm]	100	100	100	100
Connection socket *	[mm]	1 x DN100	1 x DN100	1 x DN100	1 x DN100
ID No.					

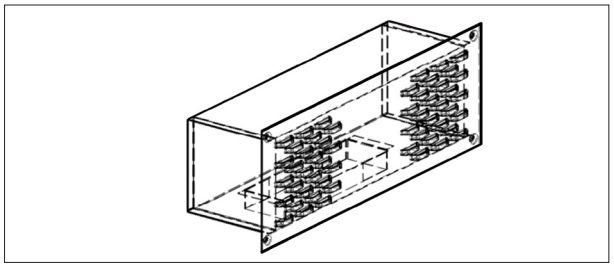
*) Connection socket with DLU throttling device

BLQ diffuser, nominal height 240 mm:

Nominal length	[mm]	640	840	1040	1240
Air flow rate range	[m³/h]	max. 90	max. 120	max. 150	max. 180
Pressure drop		max. 5 Pa			
Sound power level L_{WA}		<20 dB(A)			
Box depth approx.	[mm]	100	100	100	100
Connection socket *	[mm]	1 x DN100	2 x DN100	2 x DN100	2 x DN100
ID No.					

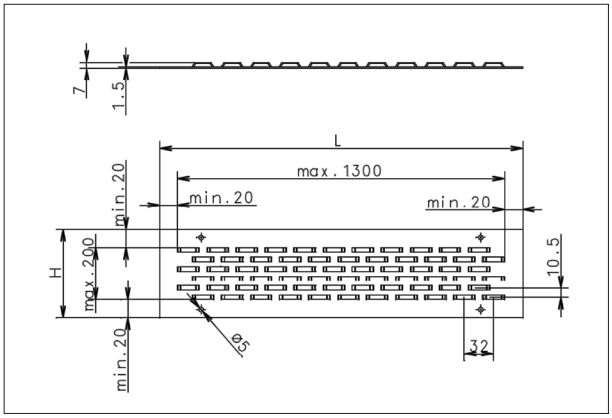
*) Connection socket with DLU throttling device

Note: The dimensions of the plenum can be tailored to the specific project and adapted to the installation conditions.



Customisation: Example with rectangular primary air connection on the underside of the plenum

The front outlet grille is secured to the rivet nuts on the plenum using 4 screws.



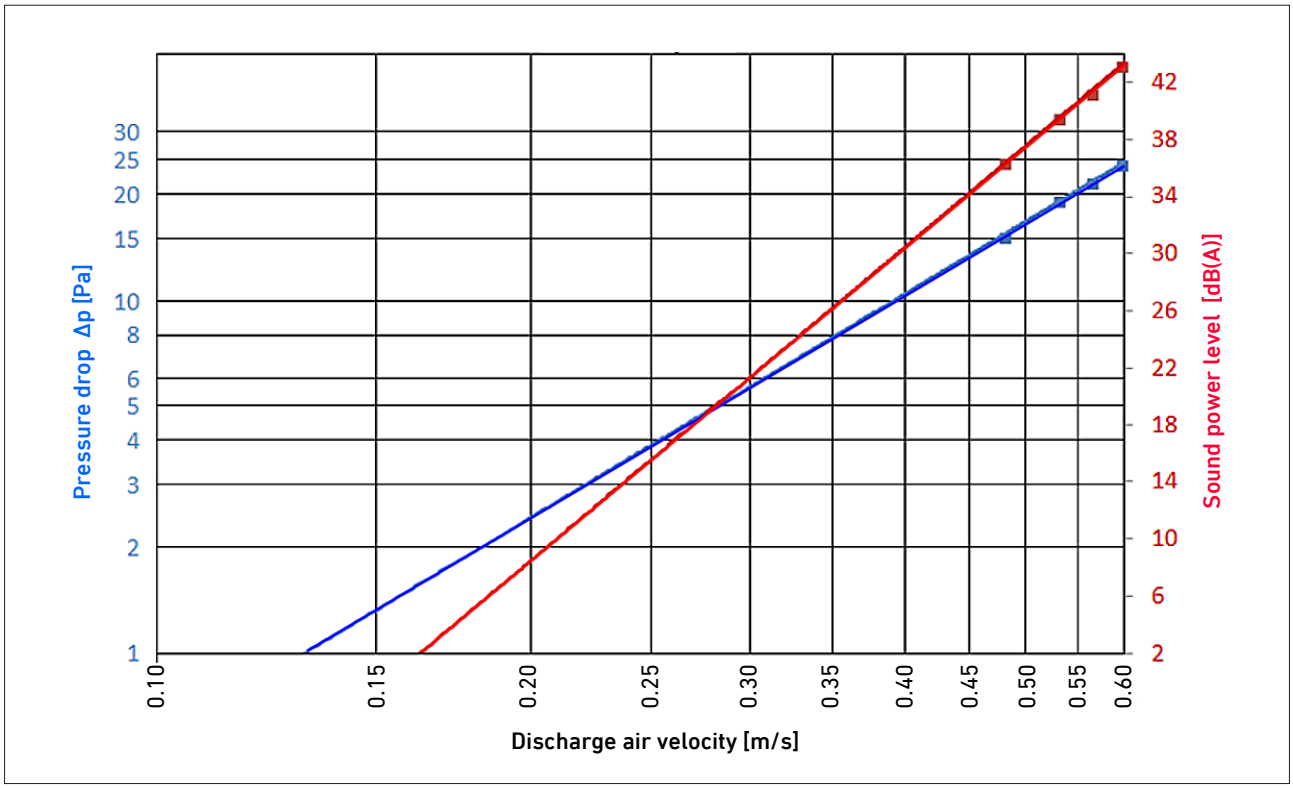
Front outlet grille

Maximum nominal length L = 1340 mm
Maximum nominal height H = 240 mm
Standard frame width = 20 mm

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Technical data

Pressure drop and sound power level as a function of the discharge air velocity



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Order code, nomenclature

BLQ / 1340 / 240 / PM9010 / S / 2 x DLU 100

(1) (2) (3) (4) (5) (6) (7) (8)

(1)	**Series**	**BLQ**	=	BLQ Displacement air diffuser for steps
(2)	**Length**	**1340**	=	L in mm, max. 1340 mm
(3)	**Height**	**240**	=	H in mm, max. 240 mm
(4)	**Surface finish and colour**	**PM9010**	=	Matt powder-coated in RAL or NCS (please specify colour)
(5)	**Connection plenum**	**O** **S**	= =	Without box, front outlet grille only Including air distribution box
(6)+(7)+(8)	**Connection socket**	**n x DLU100**	=	Number of sockets n (n = 1 or 2) × DN100 sockets with DLU throttling device

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