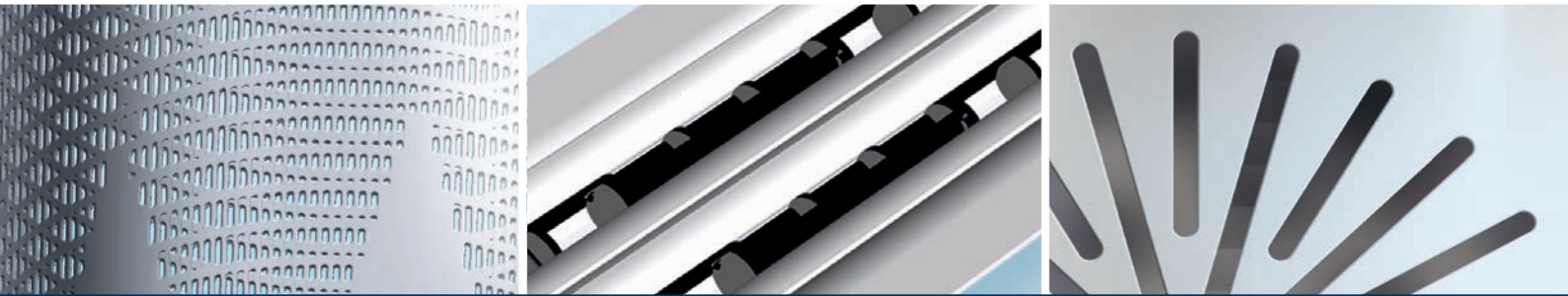


Product Overview

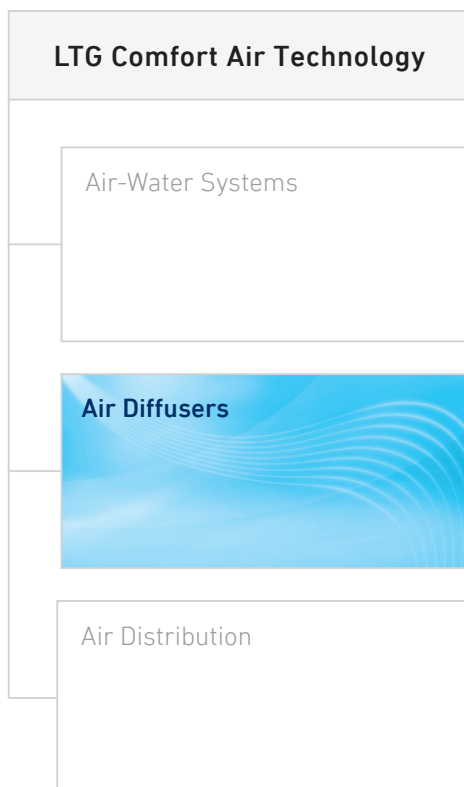
LTG Air Diffusers



Outstanding technique for highest demands.
Unique in comfort, acoustics and design.

LTG Aktiengesellschaft

Innovative Solutions for Humans and Products.



LTG air diffusers meet highest standards for quality and efficiency

For almost 90 years, LTG has pioneered air and climate technology, always a step ahead with trailblazing innovations. When it is crucial to achieve ideal environmental conditions for people and products, LTG creates inspiring, tailor-made comfort air technology solutions: These include air diffusers, air-water systems (such as induction units and fan coil units) and products for air distribution (flow rate controllers and shut-off valves).






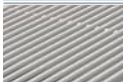

Air diffusers are most important to the operation and efficiency of air conditioning and ventilation systems. They allow ideal distribution of purified air within a room, as well as effective removal of thermal loads – important criteria for health and well-being. Even under the most demanding conditions, LTG air diffusers meet all important requirements and set the benchmark for their class.

LTG Air Diffusers

Product overview and applications

LTG air diffusers can be installed in ceilings, walls and floors. Custom diffusers are available for special applications. Ideal choice of air diffuser is dependent on building type, building use and interior design specification.


LTG Air Diffusers for Ceiling, Wall or Floor

| | Ceiling | Wall | Floor |
|----------------------------|--|---|---|
| Linear Diffusers |  LDB page 7 |  LDK-B page 13 |  LDU page 19 |
| |  LDB LTG System clean* page 7 |  LDK-B LTG System clean* page 13 |  LDU-W page 19 |
| Transfer air Device | _____ |  LDO-T page 16 | _____ |

Customized Diffusers

| | | |
|---|------------------------------------|----------------------|
|  | LDR and LDB 12/M LTG System clean* | page 23 |
|  | Step Diffuser BLQ | page 24 |
|  | Displacement Air Diffuser DLD | page 25 |
|  | Displacement Air Diffuser DLQ | page 25 |

Engineering Services

| | | |
|---|---|----------------------|
|  | LTG Engineering Services Comfort Air Technology | page 26 |
|---|---|----------------------|

Best Air Conditioning Solution for any Room Situation

LTG Aktiengesellschaft can partner your design team in all aspects of room air technology. We lay the foundations for the perfect room climate with innovative unique solutions, such as our patented LTG System clean® or our successful further development of proven LDB linear diffusers which are now also available completely made of metal. LTG will provide access to our specialist know-how from the first request to detailed planning.



In the VDI 3804 all essential ventilation and air condition concepts are compared. To VDI 3804's development LTG Aktiengesellschaft essentially contributed. On this basis, we offer high-performance products for any requirement and installation situation. These include air-water systems, air diffusers or air distribution components. LTG engineering services provide you with decades of expert know-how in comfort air and process air technology, as well as a state-of-the-art lab. We will gladly support you in selection of the best system. Contact us!

LTG planning tools – we support you!

Ask for your own DVD with helpful tools, such as dimensioning programs, streaming videos and product information! Also available: our product overviews about air diffusers and air distribution products.

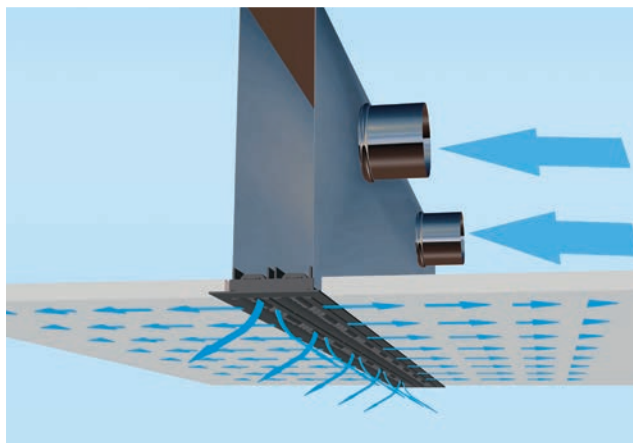
Visit us on **www.LTG-AG.com** and get detailed technical information as PDF files at „Download“.





Air Diffusers for Ceiling Installation

LDB



LDB linear air diffusers with variable settings ensure effective ventilation and optimized air conditions.

Advantages

Comfortable:

- High induction air diffusers ensure rapid mixing of supply and room air to create comfortable thermal environments
- Uniform, optimal purging of the room with fresh air
- A pleasant indoor climate thanks to uniform temperature distribution

Quiet: Low-noise air distribution, aerodynamically optimized inner cylinder contours

Variable: Limitless options for design, colour and surface appearance, can be perfectly integrated in all ceilings, thanks to a wide choice of border profiles

Flexible: Can be adjusted to individual spatial conditions without impeding operation

LTG System clean® – unique and ingenious!

Contaminants within the room air like dust, tobacco smoke, carpet abrasions, dust or oil vapour deposit around the ceiling and diffuser as a result of entrainment. The LTG System clean® prevents surface staining almost completely by providing a screen of clean supply air across the ceiling. Benefits: The costs of renovation and maintenance are considerably reduced.


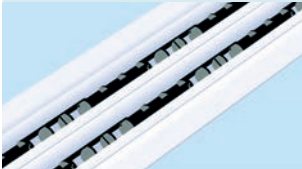
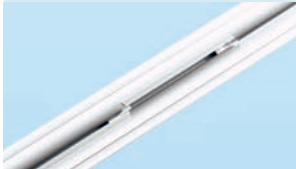
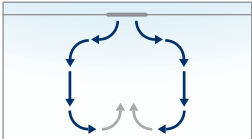
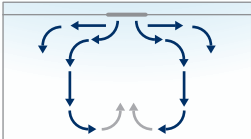
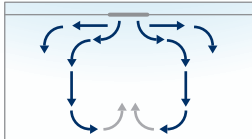
The LTG System clean® is available for the products **LDB, LDK-B and LDR** (see pages 8-9, 13-14 and 23).

Profiles and cylinders are available in all colour systems (e.g. RAL, Pantone...) and can be combined individually



Product data

NEW

| | LDB 12 | LDB 12/8 LTG System clean® | LDB 12/M LTG System clean® |
|---|---|--|---|
| |  |  |  |
| Features / Application | Inconspicuous installation in shaded joints and suspended ceilings | For high comfort, additional slot in the diffuser border profile to reduce contamination around the diffuser | Completely made from metal, non-flammable. Inconspicuous installation in suspended ceilings. Meets highest architectural demands with its narrow and unobtrusive build. With LTG System clean®. |
| Number of slot rows | 1 | 1 2 3 4 | 1 2 3 |
| Recommended volume flow rate per meter [m³/h] | 65 with $L_{wA} = 35$ dB(A) | 1 slot row: 70 2 slot rows: 130 3 slot rows: 190 4 slot rows: 250 with $L_{wA} = 30$ dB(A) | 1 slot row: 70 2 slot rows: 130 3 slot rows: 190 with $L_{wA} = 30$ dB(A) |
| Integrated sound absorber to increase cross-talk sound attenuation | ■ | ■ | ■ |
| Profile width [mm] | 15 resp. 28 | 31 to 240 | 41 to 129 |
| Length [mm] | up to 1500 | up to 2000 | up to 2500 |
| Diffuser elements adjustable | ■ | ■ | ■ |
| Connection box with integrated air regulator | — | ■ | ■ |
| Air diffusion |  |  |  |

Choice of border profiles

(can be combined with LDB 12/8 and LDB 20/8)




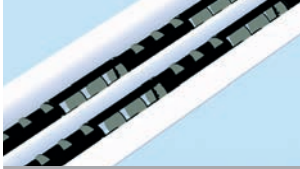








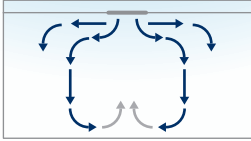
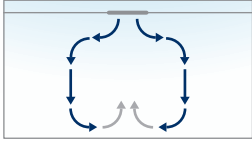
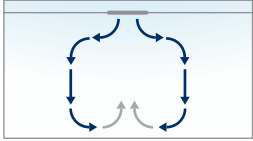



Type 5



Type 0



Type 8

| LDB 15 LTG System clean® | LDB 20/8 | LDB 50 |
|--|---|--|
|  |  |  |
| Plug in elements, additional slot in the diffuser border profile to reduce contamination around the diffuser | For high comfort | For high ceilings and large volume flow rates |
| 1 | 1 2 3 4 | 1 2 3 |
| 60 with $L_{WA} = 25 \text{ dB(A)}$ | 1 slot row: 110 2 slot rows: 190 3 slot rows: 250 4 slot rows: 300 with $L_{WA} = 35 \text{ dB(A)}$ | 1 slot row: 310 2 slot rows: 430 3 slot rows: 510 with $L_{WA} = 38 \text{ dB(A)}$ |
|  |  |  |
| 15 resp. 25 | 31 to 240 | 100 resp. 200 resp. 300 |
| up to 2000 | up to 2000 | up to 2100 |
|  |  |  |
| — |  | — |
|  |  |  |
|  |  |  |
| Type 1 | Type 4 | Type 2 |

Ceiling Installation

Wall Installation

Floor Installation

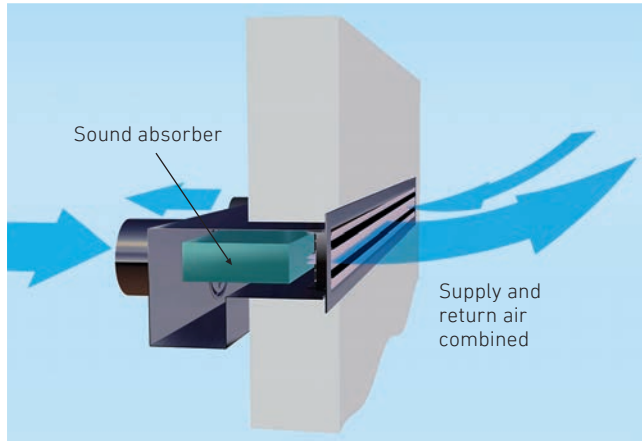
Customized Diffusers

Engineering Services



Air Diffuser Combination for Wall Installation

LDK-B



LTG's LDK-B air diffuser combination provides both supply and return air diffusion in a single device. It is not only attractive in appearance, but also for outstanding efficiency.

Advantages

Effective: Optimal ventilation always provides clean, fresh air

Quiet operation: Integrated sound absorber for high cross-talk sound attenuation

Flexible: Variable box shapes for different wall installation conditions – each easy to mount and easy to maintain

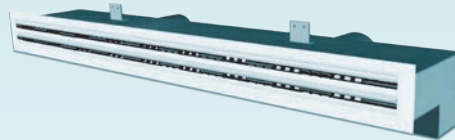
Individual: Tangential, mixed or displacement ventilation – completely based on individual needs and preferences



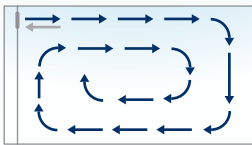
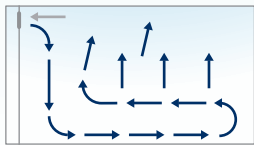
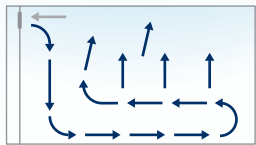
Low maintenance: Minimal staining of the adjacent surfaces, thanks to patented LTG System clean®

Also available in a custom design for supply or exhaust air only.
Other lengths and widths as well as customized solutions available upon request.

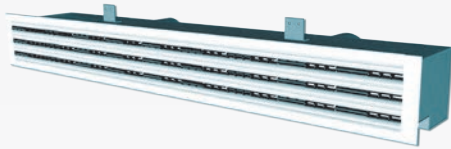
Product Data



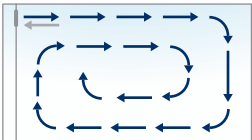
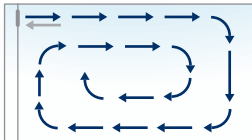
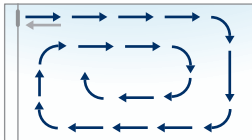
LDK-B 12/8 LTG System clean® 2 to 4 slot rows



| | 12/8/2 | 12/8/3 | 12/8/4 |
|---|---|--|---|
| LTG System clean® | ■ | ■ | ■ |
| Volume flow rate supply and return air with $L_{WA} = 35dB(A)$ [m³/h with L=1000 mm] | 75 | 85 | 105 |
| Integrated sound absorber to increase cross-talk sound attenuation | ■ | ■ | ■ |
| Lengths | Standard lengths 800, 900, 1000 und 1200 mm. Other lengths on request. | | |
| Standard height with border profile 1 [mm] | 98 | 129 | 160 |
|  | | | |
| Standard height with border profile 8 [mm] | 79 | 110 | 141 |
|  | | | |
| Air Diffusion |  |  |  |
| | Tangential air flow | Mixed/displacement air flow | Mixed/displacement air flow |

LDK-B 20/8 2 to 4 slot rows



| 20/8/2 | 20/8/3 | 20/8/4 | |
|---|---|---|---|
| — | — | — | LTG System clean* |
| 90 | 105 | 120 | Volume flow rate supply and return air with $L_{WA} = 35dB(A)$ [m ³ /h with L=1000 mm] |
| ■ | ■ | ■ | Integrated sound absorber to increase cross-talk sound attenuation |
| Standard lengths 800, 900, 1000 und 1200 mm. Other lengths on request. | | | Lengths |
| 98 | 129 | 160 | Standard height with border profile 1 [mm]  |
| 79 | 110 | 141 | Standard height with border profile 8 [mm]  |
|  |  |  | Air Diffusion |
| Tagential air flow | Tagential air flow | Tagential air flow | |

Ceiling Installation

Wall Installation

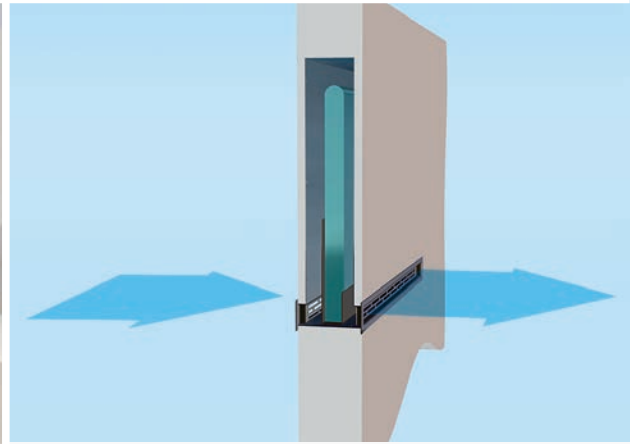
Floor Installation

Customized Diffusers

Engineering Services

Transfer Air Device

LDO-T



LDO-T transfer air devices provide significant cross-talk attenuation between adjacent rooms, whilst ensuring safe air transfer and limiting pressure differentials between rooms.

Advantages

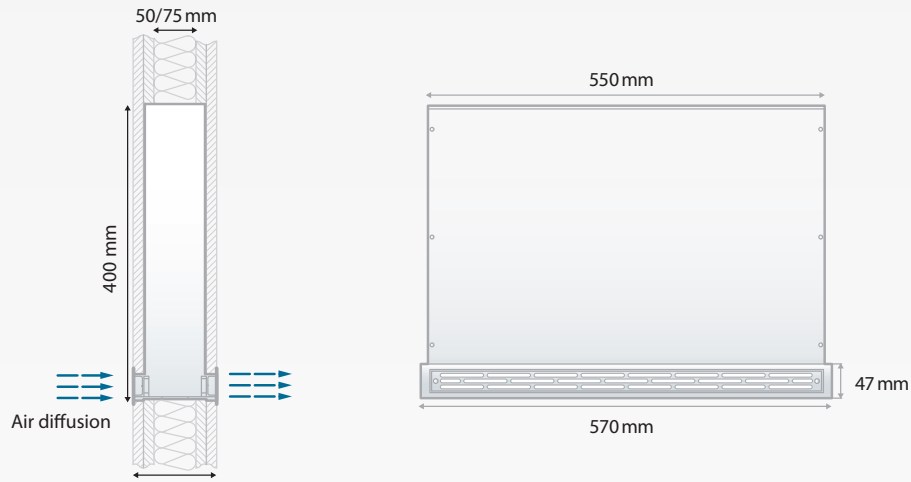
Quiet: Significant cross-talk protection with low pressure loss

Aesthetics: Discrete and pleasing appearance in a range of anodized colours

Easily removable fascias for cleaning

Safely: non-flammable

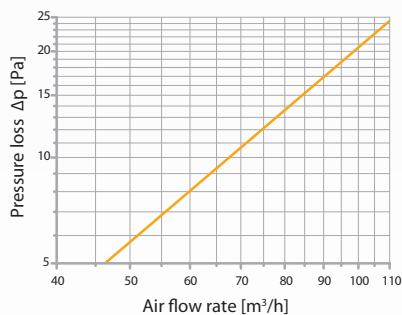
Installation



For wall thicknesses of 100 -150 mm available by default;
other dimensions on request

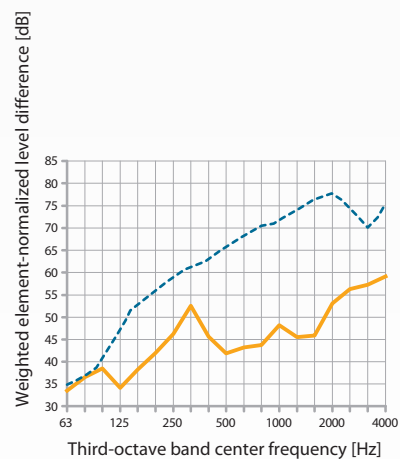
Dimensioning Diagrams

Pressure loss



— LDO-T 550

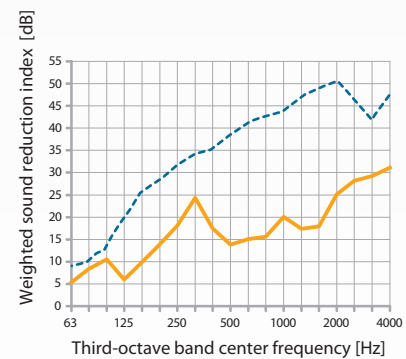
Weighted element-normalized sound level difference $D_{n,e}$



— LDO-T 550
- - - Wall boundary insulation with laboratory measurement

Weighted element-normalized sound level $D_{n,e,w} = 47$ dB (Measurements acc. to DIN EN 20140/10)

Weighted sound reduction index R



— LDO-T 550
- - - Wall boundary insulation with laboratory measurement

Weighted sound reduction index $R_w = 19$ dB (Measurements acc. to DIN EN 20140/10)

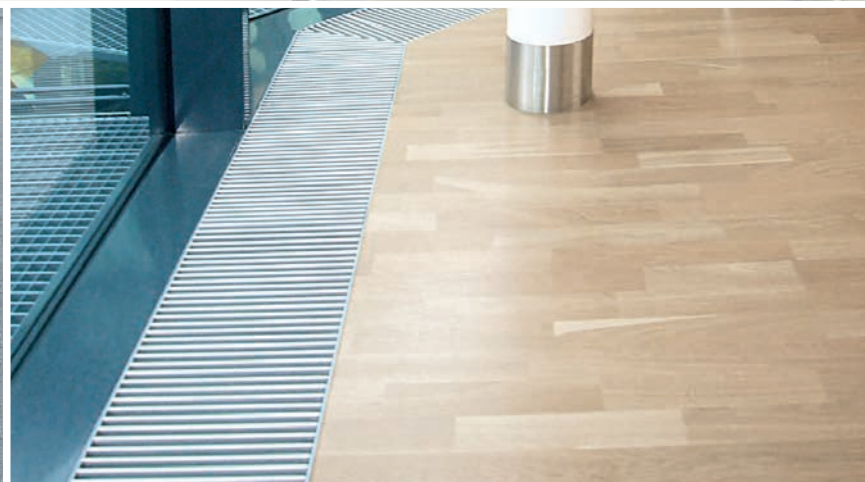
Ceiling Installation

Wall Installation

Floor Installation

Customized Diffusers

Engineering Services



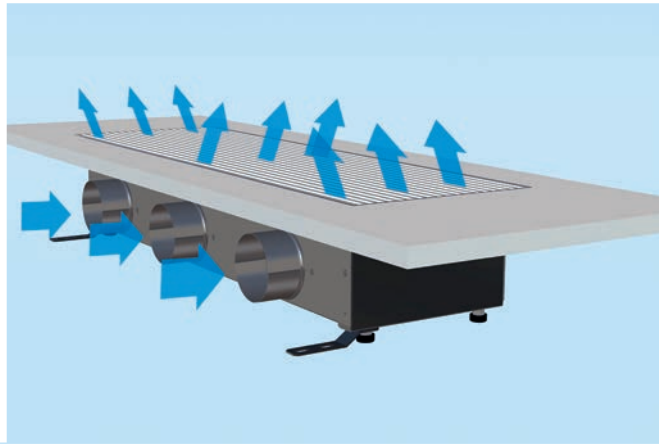
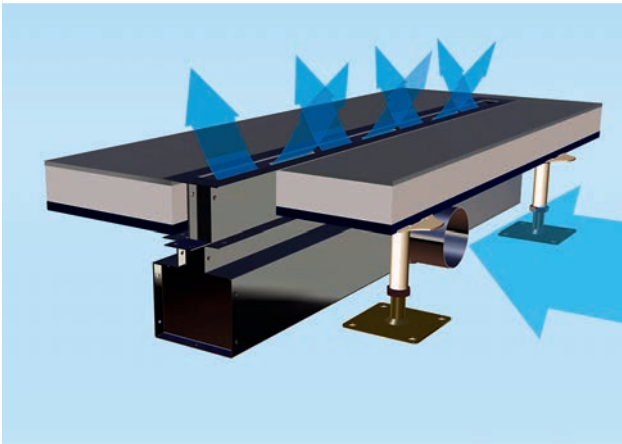
Floor



Floor-mounted Linear Air Diffusers



LDU and LDU-W



From the office to the living room: Highly inductive LDU and LDU-W floor-mounted linear diffusers heat and cool rooms comfortably and draught-free.

Advantages LDU and LDU-W

Quiet and draught-free with highly efficient ventilation

Energy efficient: Thermal shielding of glass façades

A unified look meets exacting demands for attractive design

Ideal for raised access floors, easy to mount

Advantages LDU

Easy to clean and maintain thanks to flexible exhaust grille design, removable dirt trap and air distribution plates

Advantages LDU-W

Flexible design of exhaust grid

Height-adjustable feet, easy to align

Visual continuity with other LTG floor units

Ceiling Installation

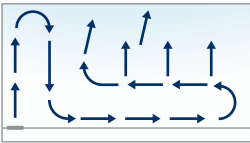
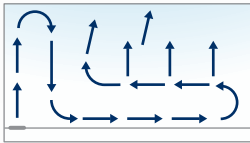
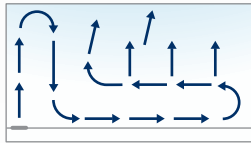
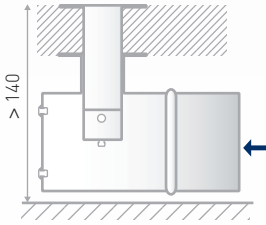
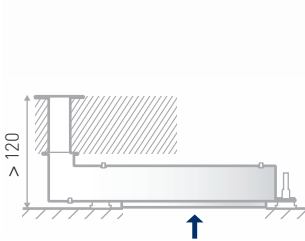
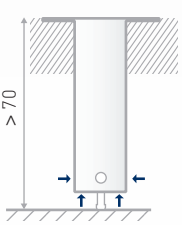
Wall Installation




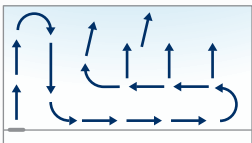
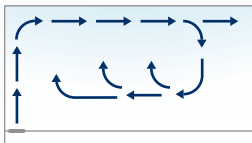
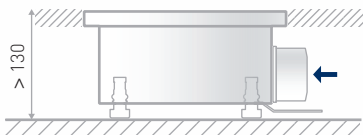

Floor Installation

Customized Diffusers

Engineering Services

Product Data

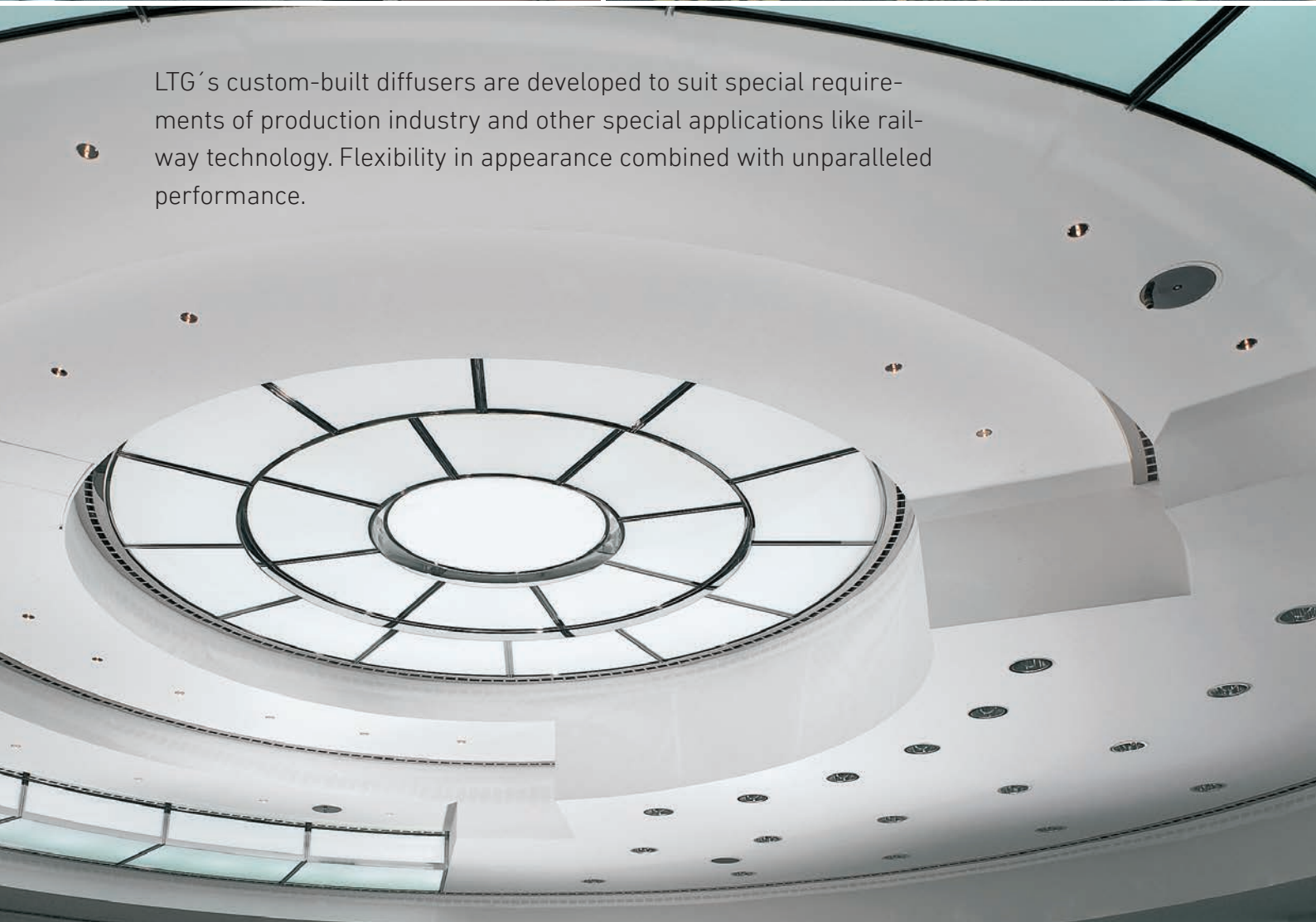
| | LDU | | |
|---|---|--|---|
| | LDU 30/.../S | LDU 30/.../U | LDU 30/.../- |
| Features | Linear air diffuser with lateral air connection socket Linear air diffuser with air connection from below Linear air diffuser without separate air connection for pressure floors | | |
| Volume flow rate with $L_{WA} = 35 \text{ dB(A)}$ [m³/h] | | | |
| Size 800 | 75 | 85 | 85 |
| Size 1000 | 80 | 100 | 100 |
| Number of slot rows | 1 | 1 | 1 |
| Integrated sound absorber to increase cross-talk sound attenuation | ■ | ■ | — |
| Air connection incl. throttle | ■ | ■ | — |
| Height-adjustable feet | — | ■ | — |
| Ventilation grilles | — | | |
| Characteristics | — | | |
| Air Diffusion |  |  |  |
| Side views (not to scale, in mm) |  |  |  |

| LDU-W (with tray) | | | |
|---|--|---|---|
| LDU-W | LDU-W/H | | |
| Linear air diffuser with foot traffic resistant grille | Linear air diffuser with foot traffic resistant grille and integrated reheater | Features | Choice of grades and grilles for LDU-W and LDU-W/H |
| up to 240 up to 300 up to 350 up to 400 | 200 240 320 400 | Volume flow rate with $L_{WA} = 35 \text{ db(A)} \text{ [m}^3/\text{h]}$ Size 850 Size 1050 Size 1250 Size 1450 |  |
| 1 to 5 slot rows | 5 | Number of slot rows | Aluminium linear grille in all anodized and colour shades |
| — | — | Integrated sound absorber to increase cross-talk sound attenuation |  |
| ■ | ■ | Air connection incl. throttle | Aluminium roller grille in all anodized shades and custom look |
| ■ | ■ | Height-adjustable feet | |
| Foot traffic resistant roller grille or linear grille | | Ventilation grille |  |
| Can be combined with LTG floor fan coil units within the LTG system design | | Characteristics | Stainless steel linear grille |
|   | | Air Diffusion | |
|  | | Side views (not to scale, in mm) |  Wooden roller grille in various wood varieties |



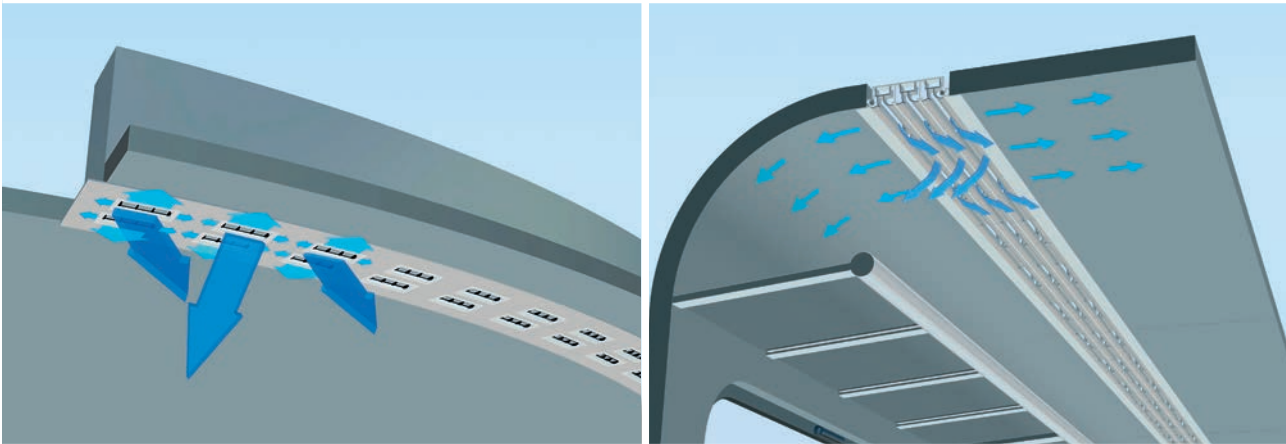
Customized Diffusers

LTG's custom-built diffusers are developed to suit special requirements of production industry and other special applications like railway technology. Flexibility in appearance combined with unparalleled performance.



Circular and Metal Air Diffuser

LDR and LDB 12/M LTG System clean®



The right diffuser for every requirement – in an attractive look and with highest thermal comfort.

Advantages

Comfortable:

- rapid mixing of fresh air and room air through highly inductive multi-single-jet technology
- uniform, ideal purging of the room with fresh air

Flexible: Individually configurable air flow depending on usage area – from the entrance area to the occupant/passenger space, from museum to show-room

Low maintenance: minimum surface staining near the diffuser thanks to patented LTG System clean®

Advantages LDR

Limitless design options – whether as a visible design element with straight or curved lines, or almost invisible: Variable shapes and colour available

Varied flow configurations through adjustable components

A safe investment: Easy to adjust to changed room conditions

Advantages LDB 12/M LTG System clean®

Vandalism-proof and non-flammable: Successful LDB-series now available **made entirely from metal**

Quiet: Low-noise air distribution through aerodynamically optimized inner cylinder contours

Narrow and unobtrusive build – perfectly integrable into train ceilings

Customized solutions on request.

Ceiling Installation

Wall Installation

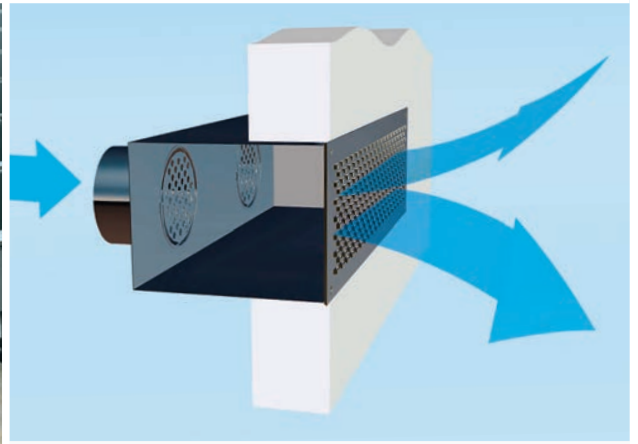
Floor Installation

Customized Diffusers

Engineering Services

Step Diffuser

BLQ



The BLQ step diffuser ensures effective ventilation of large rooms and is especially suitable for cinemas, theatres or concert halls.

Advantages

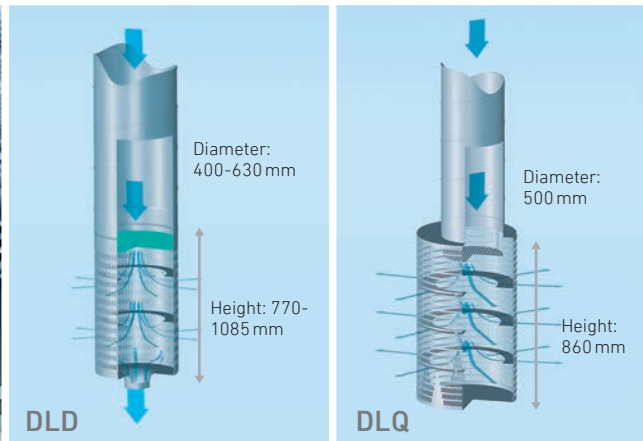
Uniform air distribution **even with large temperature differences**

Discrete: Installation in step risers allows the outlet to harmonize with existing architecture

Colour scheme based on customer's individual choice, and available in any colour system, such as RAL, Pantone and many more. Custom designs (such as anodized or stainless steel) upon request.

Displacement Air Diffusers

DLD and DLQ



Especially suited to industrial and production halls, lobbies, entrance and work areas, as well as sports facilities.

Advantages DLD

High-output: High cooling and heating performance possible (air volume 1000-9000 m³/h)

Space-saving: a single device for heating and cooling

Variable use: at heights from 3 to 12 m

User-friendly, thanks to **individually adjustable air stream**

Pleasant, uniform temperature air distribution with no risk of draught, even when installed in an occupancy area

Advantages DLQ

Especially well-suited to work areas **where overhead ventilation is not possible or where inductive mixed ventilation is not desired**

Very quiet with large air volumes
($L_{WA} = 35 \text{ dB(A)}$ at 1000 m³/h)

Flexible: Can be installed up to 4 m high or on the floor

Pleasant and draught-free, but still extremely powerful (air volume up to 1800 m³/h)

Ceiling Installation

Wall Installation

Floor Installation

Customized Diffusers

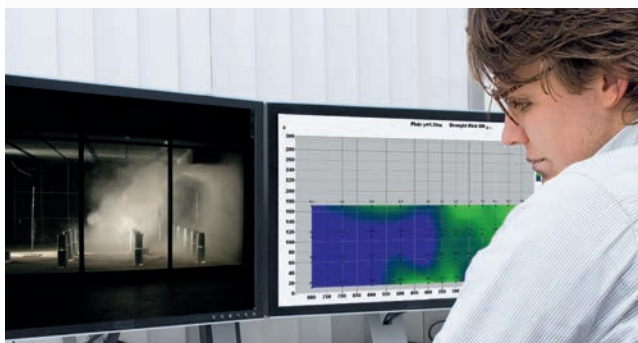
Engineering Services

LTG Engineering Services – more security for your investments!

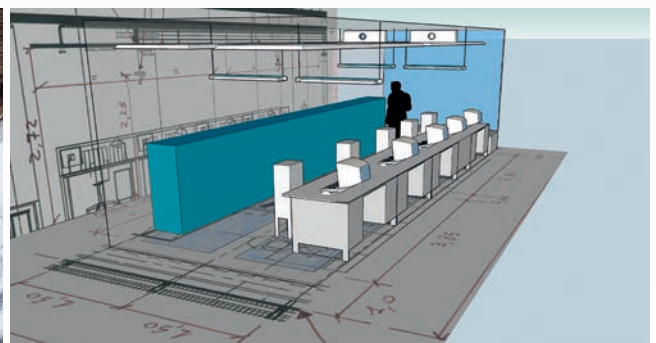
LTG Engineering Services offer reliable and detailed reports with recommendations regarding function and costs for comfort air technology installations prior to final design. As early as the design proposal for a new building or a renovation, we determine the facts and data precisely for you to secure your investment. Benefit from decades of experience and expertise!

Your advantages

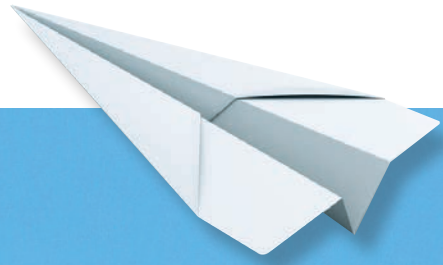
- **Cost optimized from the very start:** Investment costs, energy consumption and operation costs can be reliably calculated and specifically optimized at the planning stage.
- **Implementation risks** can be significantly **reduced**.
- **Predictable comfort:** The greatest possible thermal and olfactory comfort through simulation and testing
- **Security** when renovating comfort air technology systems
- Reduced on site commissioning because **pre-sets are made in the factory**.
- **Choice of the best climate system** to suit each building type
- Benefit from our **modern development centre with various flow laboratories, reverberation chamber, a calorimetric test stand and simulation tools** for optimizing your project.



Air flow visualization



Design and model room



Our services

- **Realistic room flow tests** in various scales (model tests or full scale) for simulating and optimizing ventilation and temperature systems
- **Comfort parameter measurements** to DIN EN ISO 7730, and **room climate evaluation** in the lab and on site
- **Evaluation and optimization** of existing ventilation systems and devices
- Evaluation and **visualization of air flows**, and **calculation of pressure losses, heat flows, ventilation efficiency** and much more, including Computational Fluid Dynamics (CFD) simulation
- **Dynamic building simulation** for calculating room climate and energy consumption of freely or mechanically ventilated buildings (daily temperature variation, heating and cooling loads)
- Acoustic and aerodynamic investigations – on site, if desired – **for assessing noise, sound level, attenuation characteristics, flow rate and pressure loss** of climate-control products and devices
- Implementation and validation of your design ideas through **construction, measurement and cost optimization**
- **Comparative studies of various room climate systems** as to costs of investment, operation and life cycle

LTG Engineering Services provide sound, detailed answers to your design questions. Talk to us!



Echo chamber



Air flow laboratory



**AIR TECH
SYSTEMS**

Comfort Air Technology

Air-Water Systems
Air Diffusers
Air Distribution

Process Air Technology

Fans
Filtration Technology
Humidification Technology

Engineering Services

Air Flow Tests
Thermodynamics
Acoustics / Comfort
Customized Solutions

LTG Aktiengesellschaft

Grenzstraße 7
70435 Stuttgart Deutschland
Tel.: +49 (711) 8201-0
Fax: +49 (711) 8201-720
E-Mail: info@ltg.de
www.LTG.net

LTG Incorporated

105 Corporate Drive, Suite E
Spartanburg, SC 29303
USA
Tel.: +1 (864) 599-6340
Fax: +1 (864) 599-6344
E-Mail: info@LTG-INC.net
www.LTG-INC.net