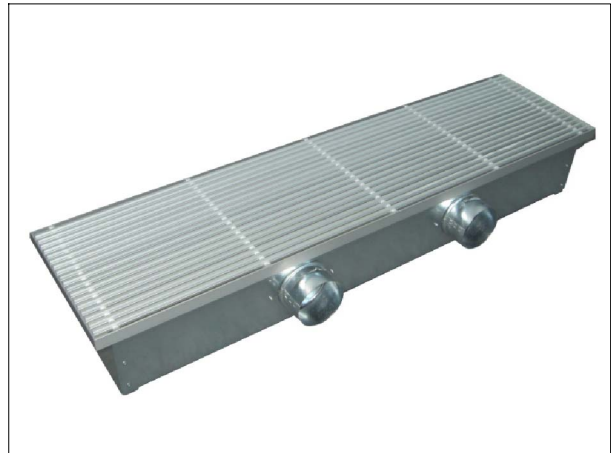


Technical Documentation

Floor-mounted air diffusers, type LDU-W / LDU-W/H



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Floor-mounted air diffusers type LDU-W and LDU-W/H

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Notes

Dimensions stated in this brochure are in mm.

Dimensions stated in this brochure are subject to General Tolerances according to DIN ISO 2768-vL.

Straightness and twist tolerances for extruded aluminum profiles according to DIN EN 12020-2.

Length tolerance: $\leq 1,5 \text{ m} \pm 1,5 \text{ mm};$
 $\geq 1,5 \text{ m} \pm 2,0 \text{ mm}.$

The surface finishes meet standard indoor use requirements, i.e. room climate requirements according to DIN EN ISO 7730. Other finishes meeting special use requirements are available on request.

You will find the actual tender documentations at the end of this document.

They are available in word format at your local dealership or at www.LTG-AG.de.

Floor-mounted air diffusers type LDU-W and LDU-W/H

View of unit



Application

Ventilation, heating and cooling of office and conference rooms as well as entrance halls requiring high temperature differences between supply air and indoor air (+15 to -8K).

Installation, Positioning

Preferably alongside facades and interior walls, flush-mounted in false floors or floor cavities.



Installation example, with LTG aluminum roller grille

Functionality

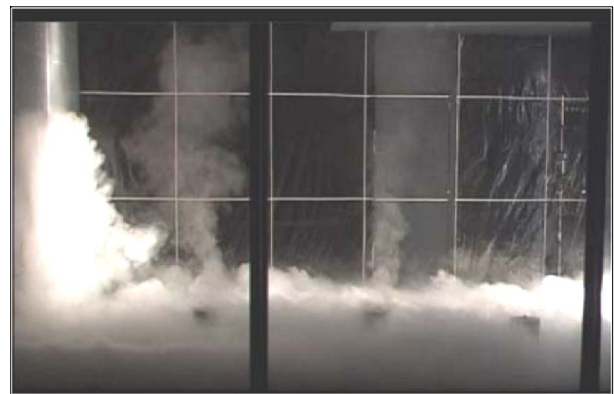
The high-induction linear diffuser splits the supply air in diverging individual jets in a localized manner in parallel to the facade.

Air speed and temperature differential are reduced rapidly.

In the cooling mode, the air jets' limited divergence creates a mixed air stream close to the facade or wall, forming a low level displacement flow in the occupied zone. This flow replaces air that "plumes" to high level from heat sources and occupants.

In the heating mode, the chilled indoor air close to the floor is rapidly mixed with the heated supply air thanks to high induction. The integrated heat exchanger (version including reheating, type LDU-W/H) has been optimized specifically for low water volumes and high caloric outputs.

Unlike traditional displacement systems, the vertical temperature gradient in the occupied zone is controlled within DIN EN ISO7030 guidelines, even with high cooling differentials.



Indoor air flow

Advantages

- High thermal and acoustic comfort
- Variable appearance provided by a range of grilles
- Good optical integration as a continuous grid band thanks to wide range of accessory adapter and end pieces
- Excellent adaptation to false floors and floor cavities thanks to Integrated height-adjustable feet, easy fixation and alignment
- Easy cleaning via removable floor grille and air distribution plate
- Easy adjustment by integrated throttle damper
- Project-based adaptation of air diffusers, supply air flow and outlet impulse

Floor-mounted air diffusers type LDU-W and LDU-W/H

Product overview, specifications

	Type LDU-W	Type LDU-W/H	
	Without reheater	With integrated reheater	
	Standard version	Standard version	Special version
Tray			
Length	800 - 1400 mm, lateral air connection sockets	850 - 1450 mm, lateral air connection sockets	—
Material	Sheet steel, galvanized		Coated black, stainless steel
Air connection	incl. throttle, lateral		incl. throttle, below
Support feet	4 integrated feet, height adjustable		—
Ventilation grille foot traffic resistant, installation in line in combination with fan coil units type VKB with same grille is possible			
Grid	LTG aluminum linear grille, anodized		LTG aluminum roller grille, width 200 mm LTG stainless steel grille
Support frame	Aluminium, anodized		Stainless steel
Air outlet plate	Coated black		—
Surface	The <u>surface finishes</u> meet standard indoor use requirements, i.e. room climate requirements according to DIN EN ISO 7730. Other finishes meeting special use requirements are available on request.		
Accessories	See price list		

Control

Control of type LDU-W/H works via standard radiator valves. The heat exchanger is provided with a bare pipe connection to connect flexible hoses via quick coupling.

Assembly, Installation

Prior to false or cavity floor installation, the air diffusers are mounted to the unfinished floor. On-site tolerances of position may be compensated via height-adjustable feet integrated in the floor-mounted air diffusers. Having completed the work on the floor and the flooring, the pre-mounted protective panel (chipboard) is removed to insert the ventilation grille.

Please observe the Installation, Operating and Maintenance Instructions included in the delivery!

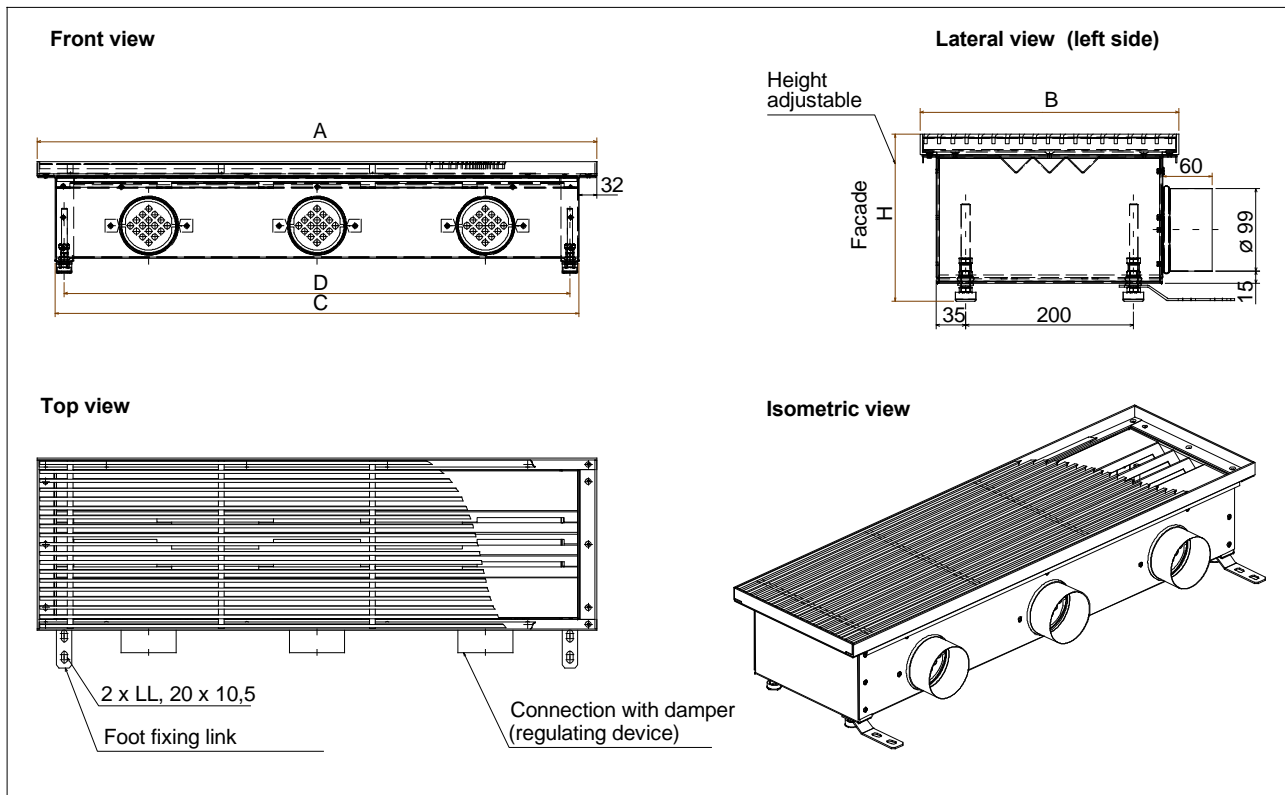
Maintenance

Cleaning of the tray acc. to VDI 6022 by easy removal of ventilation grille and air outlet plate.

Please observe the Installation, Operating and Maintenance Instructions included in the delivery!

Floor-mounted air diffusers type LDU-W

Dimensions, 3 slots, lateral air connection



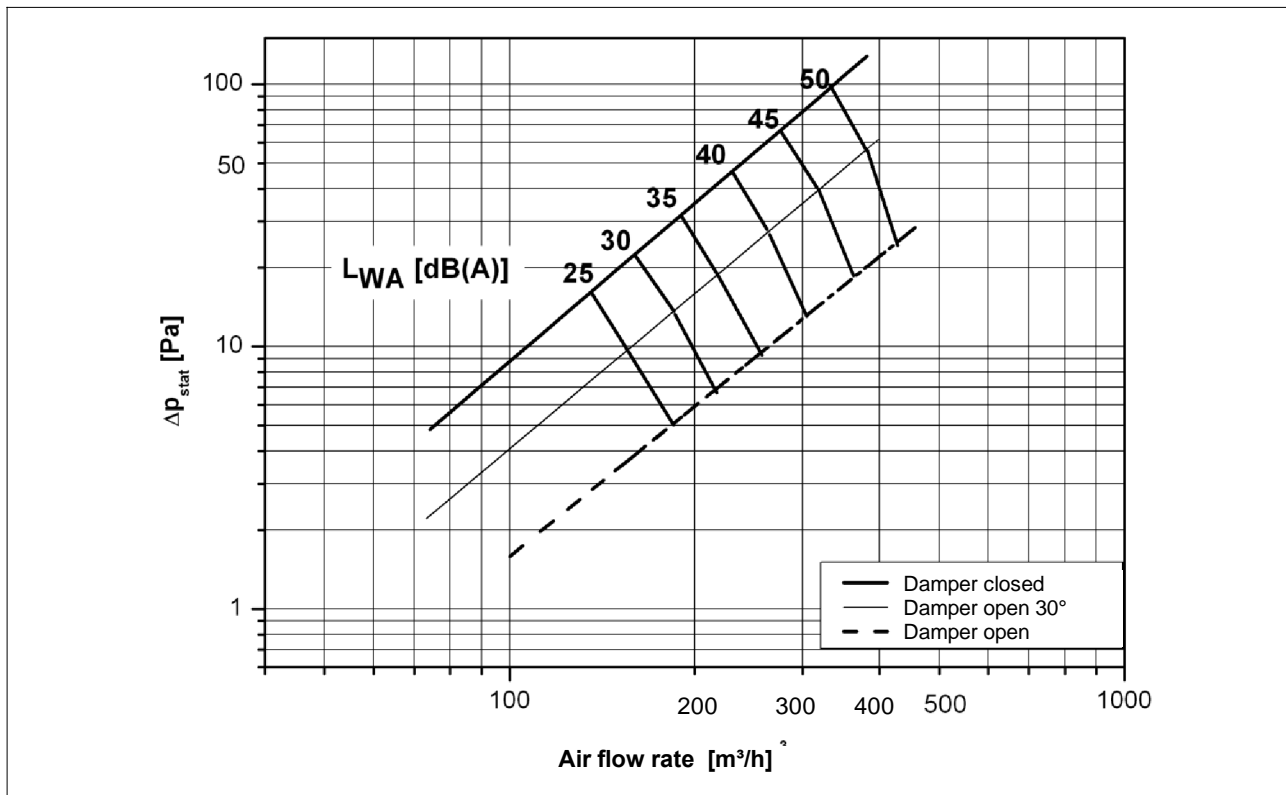
Size *	A [mm]	B [mm]	C [mm]	D [mm]	H [mm]
800	800	Aluminum	736	704	Aluminum
1000	1000	linear grille: 308			linear grille: 201
1200	1200	Stainless steel grille 305	936	904	Stainless steel grille 192
1400	1400	Aluminum roller grille 308	1136	1104	Aluminum roller grille 201
			1336	1304	

* Other dimensions on request

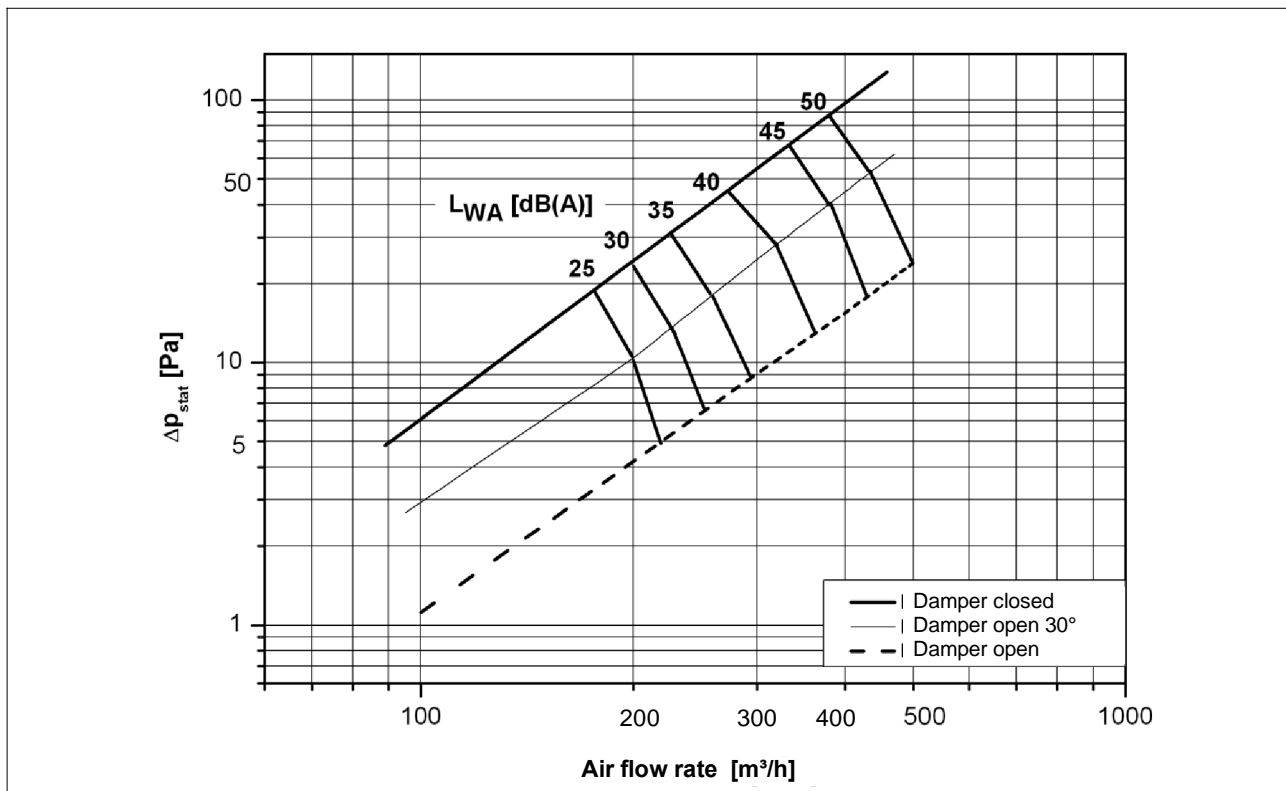
The number of air connections depends on flow rate and model size (refer to Dimensioning, page 6 and the following ones).

Floor-mounted air diffusers type LDU-W

Selection type LDU-W 3/1000, 3 slots, length 1000 mm, connection 3 x Ø 99

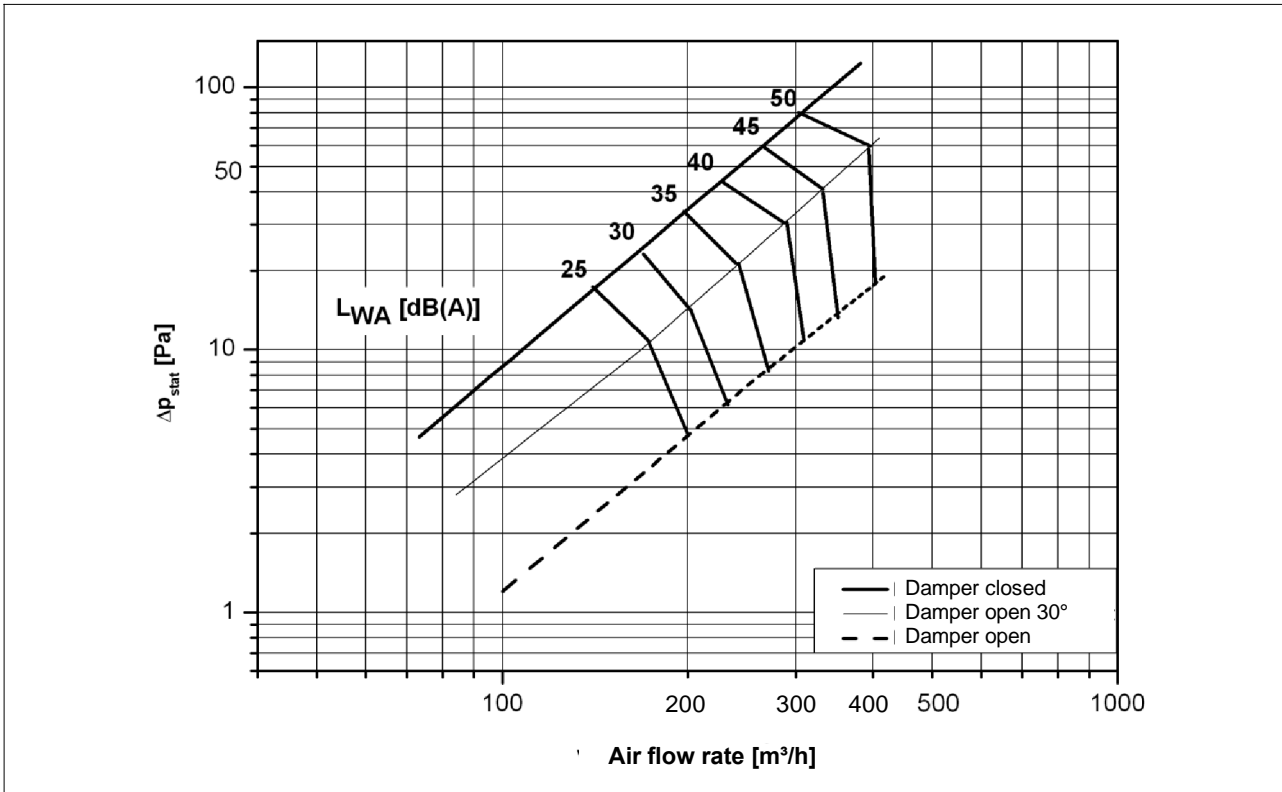


Selection type LDU-W 3/1200, 3 slots, length 1200 mm, connection 3 x Ø 99

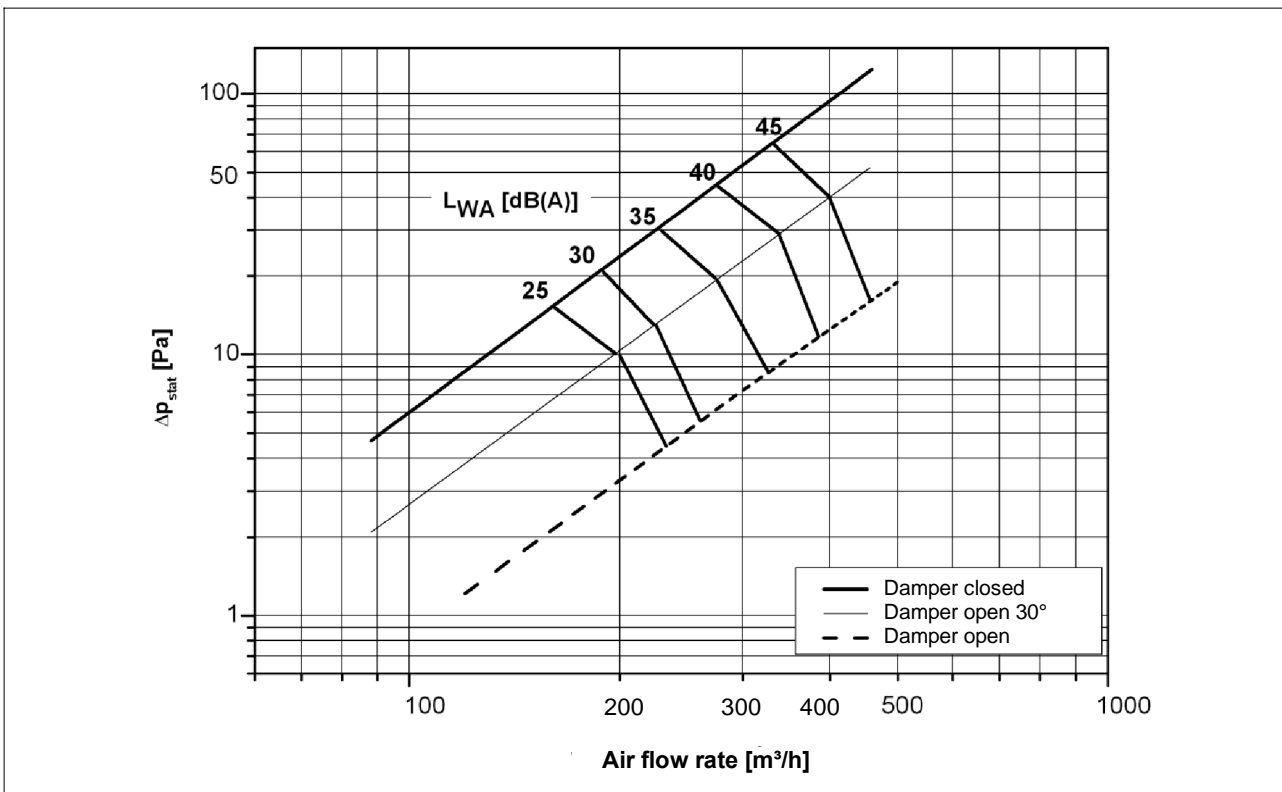


Floor-mounted air diffusers type LDU-W

Selection type LDU-W 4/1000, 4 slots, length 1000 mm, connection 3 x Ø 99

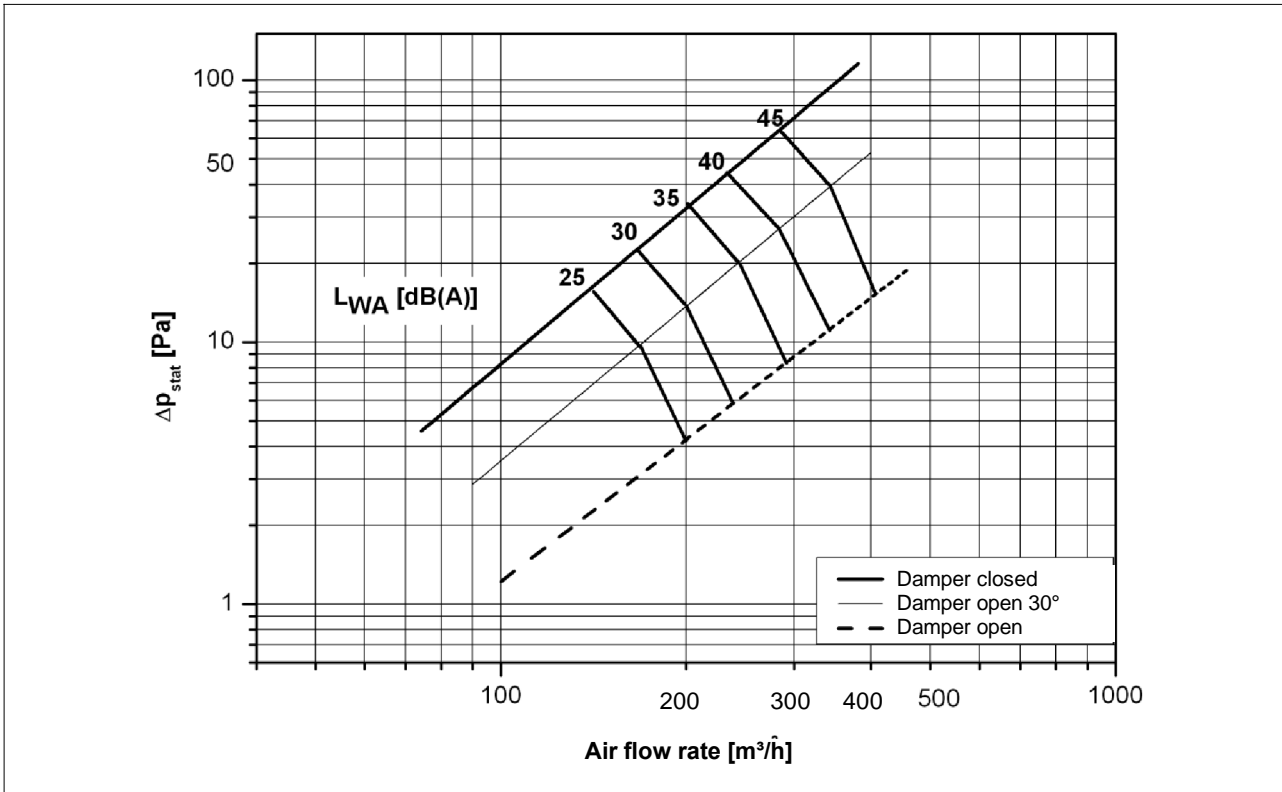


Selection type LDU-W 4/1200, 4 slots, length 1200 mm, connection 3 x Ø 99

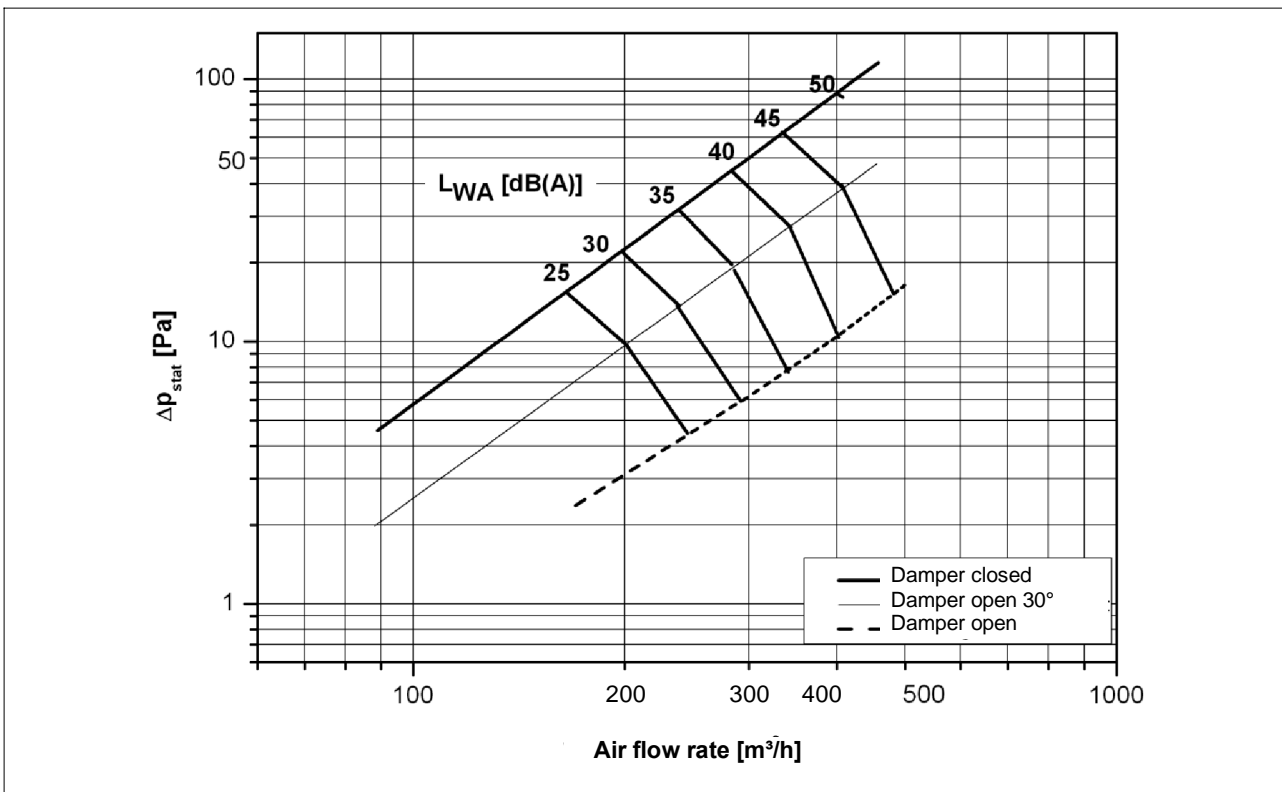


Floor-mounted air diffusers type LDU-W

Selection type LDU-W 5/1000, 5 slots, length 1000 mm, connection 4 x Ø 99

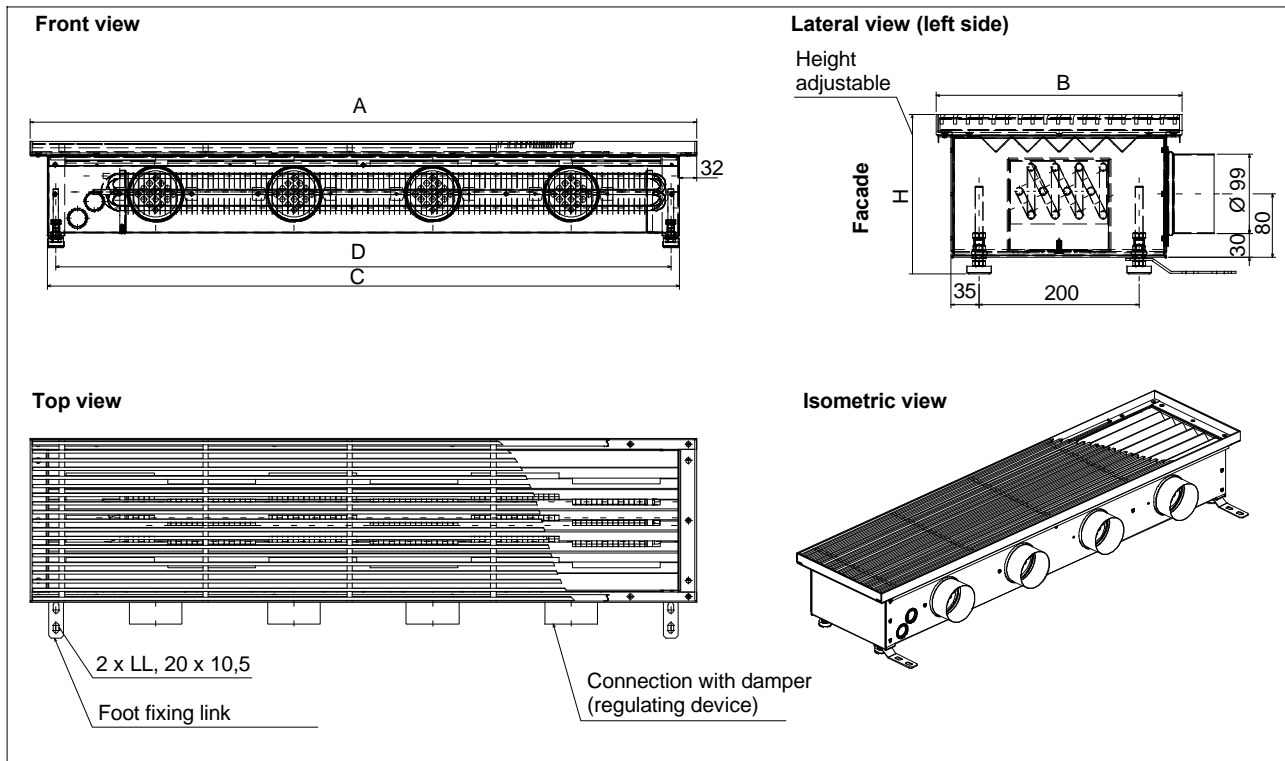


Selection type LDU-W 5/1200, 5 slots, length 1200 mm, connection 4 x Ø 99



Floor-mounted air diffusers type LDU-W/H with reheater

Dimensions



Size *	A [mm]	B [mm]	C [mm]	D [mm]	H [mm]
800	850	Aluminum linear grille: 308 Stainless steel grille: 305 Aluminum roller grille: 308	786	754	Aluminum linear grille: 201 Stainless steel grille: 193 Aluminum roller grille: 201
1000	1050		986	954	
1200	1250		1186	1154	
1400	1450		1386	1354	

* Other dimensions o request

The number of air connections depends on flow rate and model size (refer to Dimensioning, pages 6 and the following ones).

Floor-mounted air diffusers type LDU-W/H with reheater

Technical data size 800, connection 2 x Ø 99

V_P [m ³ /h]	Δp [Pa]	L_{A18} [dB(A)]	L_{wA} [dB(A)]	$Q_h / \Delta t$ [W/K]	Q_{stat} ¹⁾ [W]	$w_{oh} / \Delta p_H$ [kg/h] / [kPa]	Q_H ¹⁾ [W]
90	4	18	25	23	141	90/2	918
150	11	24	30	32	141	90/2	1267
180	16	28	34	35	141	90/2	1419

Technical data size 1000, connection 3 x Ø 99

V_P [m ³ /h]	Δp [Pa]	L_{A18} [dB(A)]	L_{wA} [dB(A)]	$Q_h / \Delta t$ [W/K]	Q_{stat} ¹⁾ [W]	$w_{oh} / \Delta p_H$ [kg/h] / [kPa]	Q_H ¹⁾ [W]
180	8	23	29	40	190	120/5	1589
210	11	25	32	44	190	120/5	1748
240	14	28	35	47	190	120/5	1900

Technical data size 1200, connection 4 x Ø 99

V_P [m ³ /h]	Δp [Pa]	L_{A18} [dB(A)]	L_{wA} [dB(A)]	$Q_h / \Delta t$ [W/K]	Q_{stat} ¹⁾ [W]	$w_{oh} / \Delta p_H$ [kg/h] / [kPa]	Q_H ¹⁾ [W]
240	8	22	28	52	238	150/9	2072
290	12	26	32	58	238	150/9	2330
320	15	28	35	62	238	150/9	2478

Technical data size 1400, connection 5 x Ø 99

V_P [m ³ /h]	Δp [Pa]	L_{A18} [dB(A)]	L_{wA} [dB(A)]	$Q_h / \Delta t$ [W/K]	Q_{stat} ¹⁾ [W]	$w_{oh} / \Delta p_H$ [kg/h] / [kPa]	Q_H ¹⁾ [W]
320	10	24	30	66	287	180/16	2659
350	12	25	32	70	287	180/16	2811
400	15	29	35	76	287	180/16	3056

1) With 60 °C water supply temperature, 20 °C primary air temperature and 20 °C room temperature

The charts show examples for the unit design. A special selection program is available for other flow rates, primary pressures, temperatures and water flow rates.

Legend

V_P - primary air flow rate

Δp - pressure loss

L_{A18} - sound pressure level at a room absorption of 18 m² Sabine (± 3 dB)

L_{wA} - sound power level (± 3 dB)

Q_h - water-side heating capacity

Δt - temperature difference between air entering the room and water supply

Q_{stat} - static heating capacity

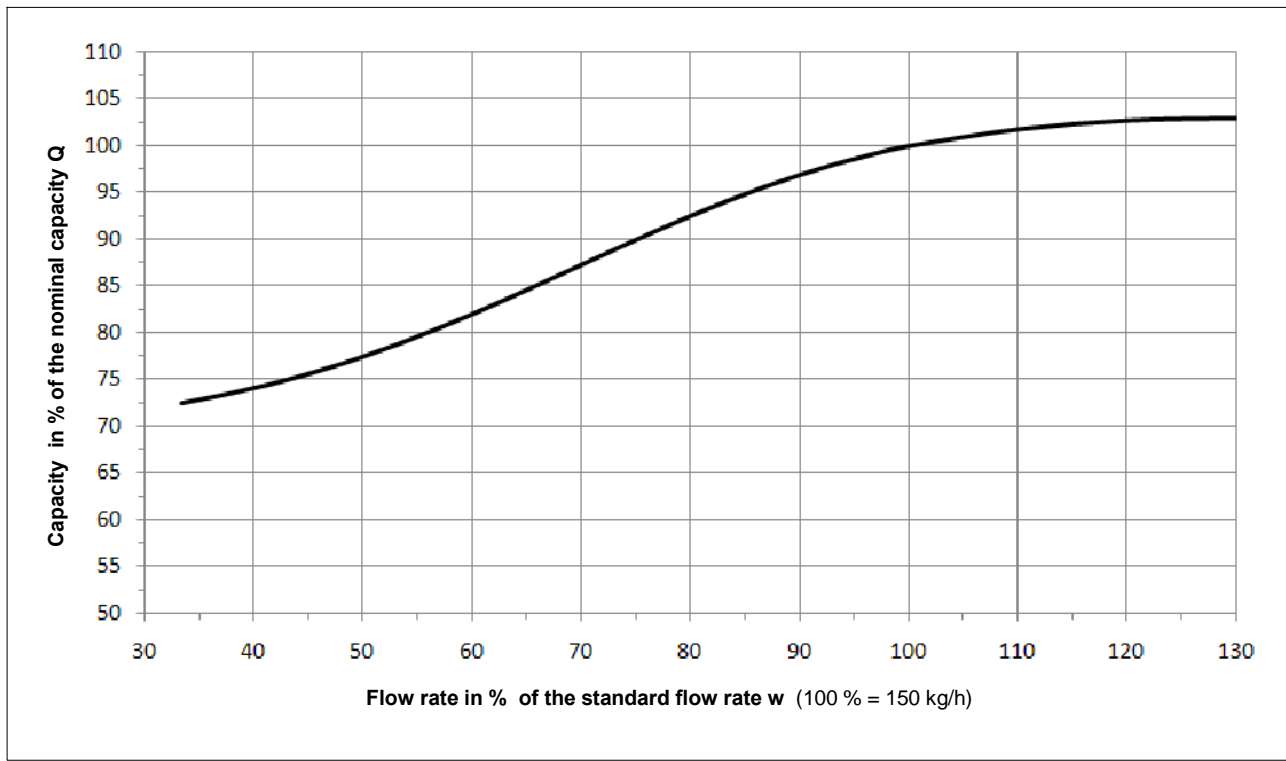
w_{oh} - standard water-flow rate (heating)

Δp_H - water-side pressure loss via heating element

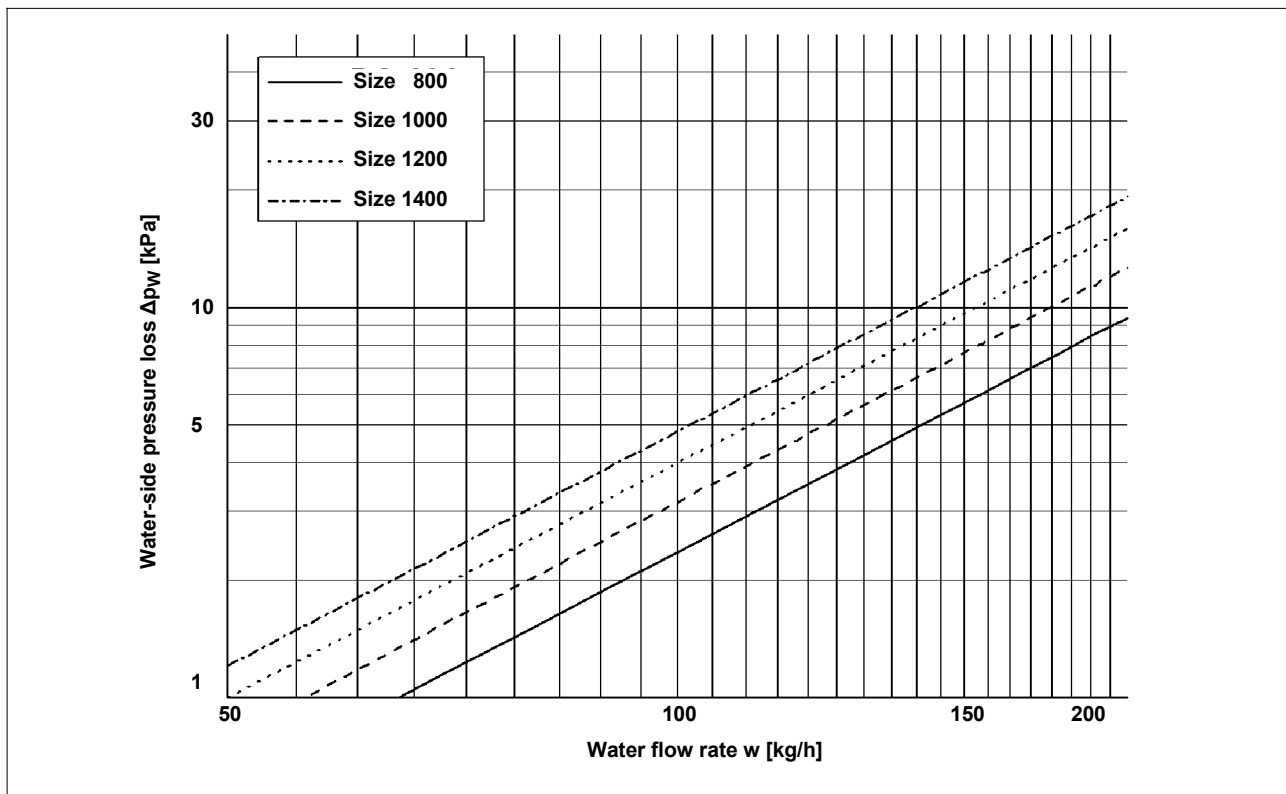
Q_H - heating capacity

Floor-mounted air diffusers type LDU-W/H with reheater

Capacity with different water flow rates



Water-side pressure loss with different water flow rates



Floor-mounted air diffusers type LDU-W and LDU-W/H

Nomenclature

LDU-W / H / 3 / 800 / 300 / OR / AE / S / 2 / 99 / DLU

Reheater: without = -
with = H

No. of slot rows: 1
2
3
4

Size [mm]: LDU-W 800
1000
1200
1400
LDU-W/H 850
1050
1250
1450

Width of grille [mm]: 200
300

Facing panel with grille frame: without = OR
left side = LR
right side = RR
both sides = BR

Ventilation grille: aluminum linear grille, anodized = AE
aluminum roller grille 20 mm = AR
stainless steel grille = E

Air connection: lateral = S
below = U

No. of connecting sockets: 1
2
3
4
5

Connecting diameter [mm]: 79
99
124
139

Damper: with damper DLU = DLU
without damper DLU = -

Specification and Schedule of Prices

Floor-mounted air diffuser type LDU-W

Edition 28.1.2011 / page 1 of 2

Qty.	Description	Unit price in €	Total price in €
	<p>Floor-mounted air diffuser type LDU-W</p> <p>High-induction, floor mounted air diffuser, optimized for mixed air ventilation close to the facade followed by an all room displacement ventilation meeting high comfort requirements, for flush mounting in false floors or floor cavities. Due to high induction suitable for heating and cooling with high temperature differences between supply air and ambient air (+15 to -8K).</p> <p><u>The unit consists of:</u></p> <p>Casing for independent installation in false floors or floor cavities. The casing includes a torsion resistant tray of galvanized sheet steel with reinforced edges, to allow for high static loads (RW > 25dB), with lateral connecting sockets and integrated throttling device.</p> <p><u>No. of connecting sockets</u></p> <ul style="list-style-type: none"> o 1x Ø 99 o 2x Ø 99 o 3x Ø 99 o 4x Ø 99 <p>Foot traffic resistant floor grille across the entire outlet width, made of aluminum, 300 mm wide, serving as an inspection opening for subsequent cleaning or access acc to VDI 6022.</p> <p>Diffuser element to create individual linear jets, inserted in the tray, consisting of galvanized sheet steel with black coated surface.</p> <ul style="list-style-type: none"> O 1-slot LDU-W / 1 O 2-slot LDU-W / 2 O 3-slot LDU-W / 3 o 4-slot LDU-W / 4 o 5-slot LDU-W / 5 <p>Casing feet with foot traffic noise insulation, 4 pieces, continuously height adjustable</p> <p><u>Technical data:</u></p> <p>Length (standard): 800 mm, 1000 mm, 1200 mm, 1400 mm Height (standard): 200 bis 280 mm Width (linear aluminum grille): 208 mm, 308 mm Flow rate: 50 to 450 m³/hm</p> <p>Manufacturer: LTG Aktiengesellschaft Series: Floor-mounted air diffusers Type: LDU-W</p>		

Specification and Schedule of Prices

Floor-mounted air diffuser type LDU-W

Edition 28.1.2011 / page 2 of 2

Qty.	Description	Unit price in €	Total price in €
	<p>Special versions and accessories (on request, additional charge)</p> <p>Casing</p> <ul style="list-style-type: none"> o Tray with air connecting socket from below o Tray of galvanized sheet steel, black coated surface <p>Foot traffic resistant floor grille (acc. to pricelist)</p> <ul style="list-style-type: none"> o Grille stainless steel, linear, foot traffic resistant o Grille aluminum (aluminum colored anodized), roller grate, foot traffic resistant o Grille of wood, roller grate, foot traffic resistant <p>Adapter pieces (acc. to pricelist)</p> <p>Casing feet</p> <ul style="list-style-type: none"> o delivered detached, 2 pieces every 200 mm 		

Specification and Schedule of Prices

Floor-mounted air diffuser type LDU-W with integrated reheater

Edition 28.1.2011 / page 1 of 2

Qty.	Description	Unit price €	Total price €
	<p>Floor-mounted air diffuser type LDU-W with integrated reheater</p> <p>High-induction, floor mounted air diffuser, optimized for mixed air ventilation close to the facade followed by an all room displacement ventilation, for flush mounting in false floors or floor cavities. Due to high induction suitable for heating and cooling with high temperature differences between supply air and ambient air (+15 to -8 K).</p> <p><u>The air diffuser consists of:</u> Casing for independent installation in false floors or floor cavities. The casing includes a torsion resistant tray of galvanized sheet steel with reinforced edges, to allow for high static loads (RW > 25 dB), an integrated reheating register and lateral connecting sockets. <u>No. of connecting sockets</u> <input type="radio"/> 1x Ø 99 <input type="radio"/> 2x Ø 99 <input type="radio"/> 3x Ø 99 <input type="radio"/> 4x Ø 99 <input type="radio"/> x Ø 99</p> <p>Foot traffic resistant floor grille across the entire outlet width, made of aluminum, 300 mm wide, serving as an inspection opening for subsequent cleaning or access according to VDI 6022.</p> <p>Diffuser element to create individual linear jets, inserted in the tray, consisting of galvanized sheet steel with black coated surface.</p> <p>Casing feet with foot traffic noise insulation, 4 pieces, continuously height-adjustable</p> <p><u>Size (construction length):</u> <input type="radio"/> 800 (850 mm) <input type="radio"/> 1000 (1050 mm) <input type="radio"/> 1200 (1250 mm) <input type="radio"/> 1400 (1450 mm)</p> <p>Manufacturer: LTG Aktiengesellschaft Series: Floor-mounted air diffusers Type: LDU-W/H</p>		

Specification and Schedule of Prices

Floor-mounted air diffuser type LDU-W with integrated reheater

Edition 28.1.2011 / page 2 of 2

Qty.	Description	Unit price €	Total price €
	<p>Technical data</p> <p>Heating mode</p> <p>Primary air temperature [°C] <input type="text"/></p> <p>Primary air flow rate [m³/h] <input type="text"/></p> <p>Air-side pressure loss [Pa] <input type="text"/></p> <p>Water supply temperature [°C] <input type="text"/></p> <p>Water flow rate [kg/h] <input type="text"/></p> <p>Water-side pressure loss [kPa] <input type="text"/></p> <p>Heating capacity [W] <input type="text"/></p> <p>Sound power level L_{WA} [dB(A)] <input type="text"/></p> <p>Sound power level at 18 m² Sabine L_{pA} [dB(A)] <input type="text"/></p> <p>Special versions and accessories (on request, additional charge)</p> <p>Casing</p> <ul style="list-style-type: none"> <input type="checkbox"/> Tray of galvanized sheet steel, black coated surface <p>Foot traffic resistant floor grille (acc. to pricelist)</p> <ul style="list-style-type: none"> <input type="checkbox"/> Grille stainless steel, linear, foot traffic resistant <input type="checkbox"/> Grille aluminum (aluminum colored anodized), roller grate, foot traffic resistant <input type="checkbox"/> Grille of wood, roller grate, foot traffic resistant <p>Adapter pieces (acc. to pricelist)</p> <p>Casing feet</p> <ul style="list-style-type: none"> <input type="checkbox"/> delivered detached, 2 pieces every 200 mm 		

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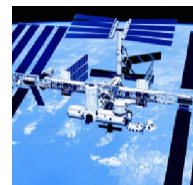
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The Program for Room Air Technology

Key components

Air diffusers for ceilings, walls and floors: LTG System clean[®], linear diffusers, displacement air diffusers, swirl diffusers Coandavent[®] · LTG chilled beam cool wave[®] · Induction units Klimavent[®] · Induction unit Coandatrol[®] · Fan coil units Raumluft · Ceiling fan coil units Ventotel[®] · Decentralized facade ventilation units Univent[®] · Airflow control units · labair[®] system: components for lab ventilation



LTG Engineering Services

Technical services for investors, architects, engineers and plant builders during design, construction and operation of buildings. Reliable and precise data relating to the ventilation of air conditioning system are given already before realization of the project, determined by measurements, calculations, building simulations and experiments.

The Program for Process Air Technology

Key components

Axial, radial and tangential fans · Fahrtwind Simulators · LTG Filtration Technology: fans, suction nozzles, dampers, filters, separators, compactors · LTG Humidification Technology: air humidifiers, product humidifiers

LTG Engineering Services

Technical services during development and operation of assembly groups, machines and plants · Analysis, simulation, optimization · Customized solutions · Mobile filtration lab / filter engineering on site