



▲ INDUDRALL – Land Securities Head Office, London. Photo © Timothy Soar

CEILING AIR DIFFUSER

INDUDRALL, INDULCLIP, KOMBICLIP

INDUDRALL Z-A, INDULCLIP Z-A



INDULCLIP, INDUDRALL and KOMBICLIP are striking air diffusers. Available in a range of designs and colours, they are often incorporated into the ceiling architecture as an attractive design element in their own right. The excellent air distribution performance offered by these ceiling air diffusers makes them the right choice when a comfortable indoor environment is a priority.

INDULTHERM, INDULTHERM-e

Enables comfortable cooling and powerful heating. The ceiling air diffuser operates in cooling mode as a highly inductive ceiling air diffuser and supplies in heating mode the supply air with a large penetration depth into the room.





INDUDRALL – Hotel Waldmühle, Zella-Mehlis. Photo © Kiefer GmbH

INDUDRALL, INDULCLIP UND KOMBICLIP

Air diffusers designed to blend harmoniously into the ceiling architecture

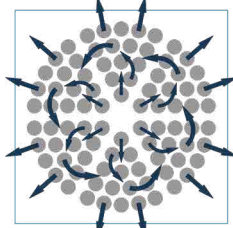
The highly inductive INDULCLIP and INDUDRALL air diffusers come in a variety of designs, shapes and colours, and can be flexibly integrated into any ceiling construction. The KOMBICLIP combines clip and swirl elements. It is particularly suitable for more discreet installations requiring lower air flow rates. Architects naturally regard choice of colour to be an important part of an interior design scheme.

While our front plates are often requested in white (RAL 9010), they can be supplied in any RAL colour. The clip and swirl elements are available as standard in matt black and light grey but can also be manufactured in any other RAL colour as a matter of course.

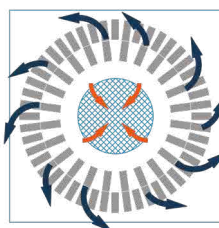
INDULCLIP



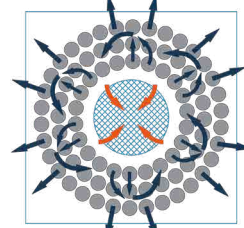
INDUDRALL



INDULCLIP Z-A



INDUDRALL Z-A



FUNCTION

The clip and swirl elements developed by Kiefer enable very high induction, so that large differences in temperature of down to -12 K between supply and ambient air can be quickly reduced to achieve draught-free air distribution. The result is energy efficiency combined with high cooling capacity for the operation of the ventilation unit, as there is no need to heat the outdoor air following heat recovery in the central unit.

In the INDUDRALL air diffuser, the flow from the front plate is fan-shaped. The single elements are combined into blocks in such a way that they form air jets for optimal ambient air induction. This makes INDUDRALL particularly suitable for high air flow rates and critical applications.

For INDULCLIP Z-A and INDUDRALL Z-A, the plenum box has a dual chamber design that allows the extract air to be drawn through a large opening in the middle of the front plate. As there is no need for additional extract air outlets, an enormous amount of space and expense is spared.



ENERGY

Low pressure losses and high temperature differences are the prerequisite for energy-efficient operation throughout the air conditioning plant.



DESIGN

A range of different design options, shapes and colours allows the architect to add creative accents with this type of diffuser too. Special designs allow plenty of scope for the architect's personal vision and design ideas.



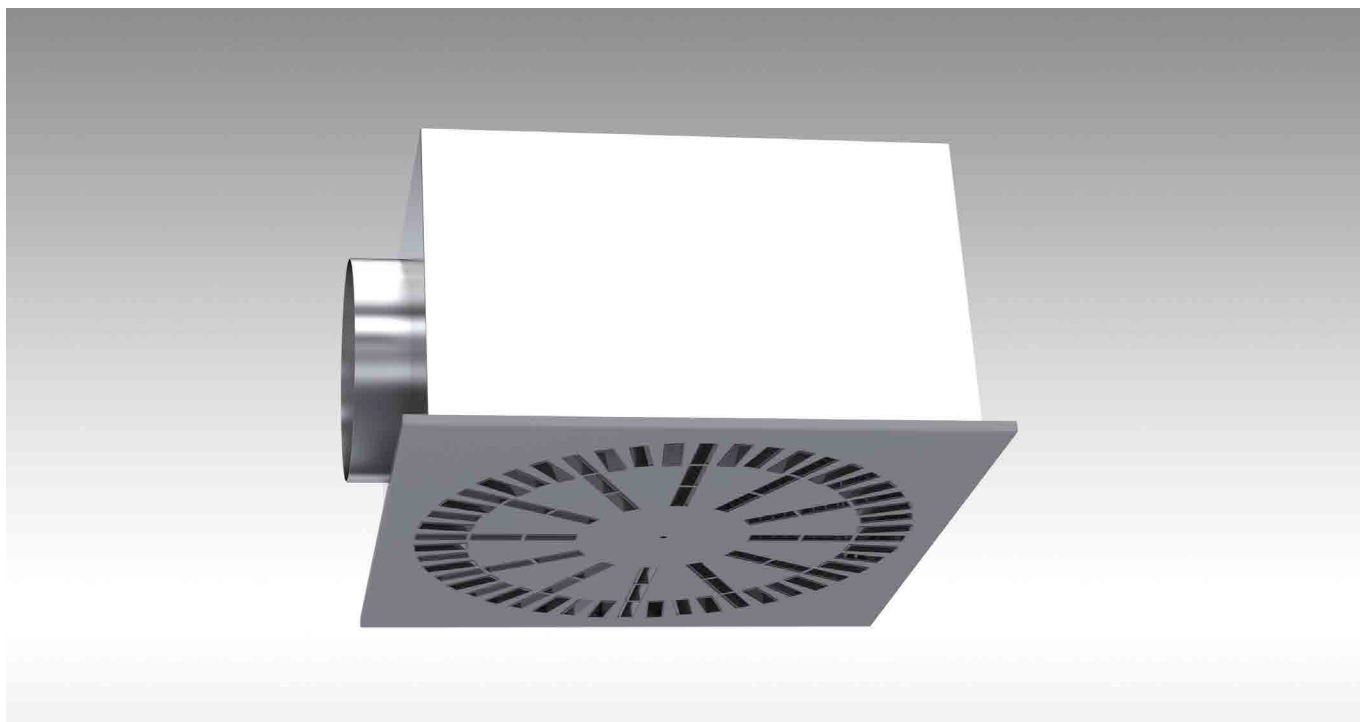
TECHNOLOGY

Kiefer air guide elements are optimised in terms of flow technology, enabling draught-free introduction of air even in demanding conditions.

TECHNICAL DATA

Sizes and types	INDULCLIP, INDUDRALL 300 mm - 800 mm, round and square KOMBICLIP 210 mm, round INDULCLIP Z-A, INDUDRALL Z-A 600 mm / 625 mm, square
Supply air temperature difference	up to -12 K
Air flow rate	20 - 1500 m ³ /h
Room heights	2.3 m to approx. 8 m
Colour front plate	RAL of choice
Colour single elements	black or light grey (RAL 7035), other colours possible on request
Butterfly damper	adjustable from the room

Further information can be found on www.kieferklima.de/en/indulclip



INSTALLATION SITUATION

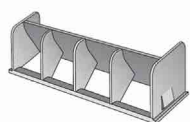
Kiefer ceiling air diffusers can be installed in any ceiling system or freely suspended, even without an intermediate ceiling. The plenum boxes are usually fitted before or during ceiling assembly, while the front plate is only attached after the ceiling has been finished. This means the outlets can be accessed at any time. Depending on the ceiling system used, the dimensions of the front plate can also be adjusted for flush mounting. Given the high induction facilitated by the clip and swirl elements, Kiefer ceiling air diffusers do not need a Coanda effect for draught-free ambient air flow. Visible suspended installations are therefore also possible without suspended ceilings and without compromising comfort.

SPECIAL FEATURES

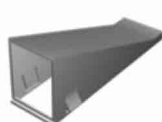
Due to the high induction facilitated by the INDULCLIP and INDUDRALL air guide elements, completely draught-free ambient air flow can be achieved, even with large differences in temperature of down to -12 K between the supply and ambient air. Unlike most competitor products, INDULCLIP and INDUDRALL, therefore, also work extremely well together with recirculation air coolers and fan coil units. INDULCLIP and INDUDRALL are also a great choice in combination with central air conditioning units. As inlet temperatures can be low, there is no need for a reheater in most situations and the cooling potential of the outdoor air is directly usable.

INDULCLIP-Air guide elements

Type C20

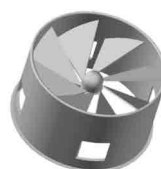


Type P20W



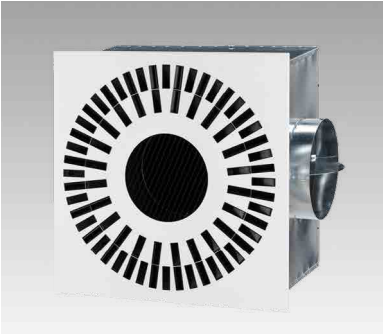
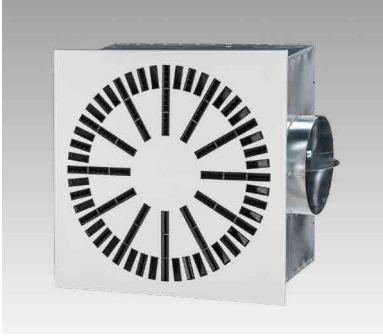
INDUDRALL-Air guide elements

Type I



Type II





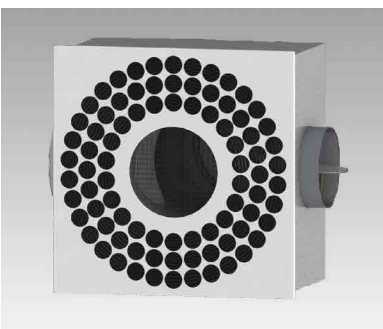
INDULCLIP / INDULCLIP Z-A

Excellent level of comfort, a striking design and proven technology – INDULCLIP has every angle covered. The powerful induction of ambient air means large cooling loads can be managed for draught-free interiors. The air diffuser is designed for use anywhere. It acts to create a uniquely feel-good climate in offices, showrooms and hospitals.

Colour front plate
INDULCLIP
Air guide elements

RAL of choice
Black or light grey (RAL 7035),
other colours possible on request

	INDULCLIP	INDULCLIP Z-A
Sizes	210 up to 800 mm	600 or 625 mm
Designs	Round or square	Square
Supply air temperature difference	- 12 K	- 10 K



INDUDRALL / INDUDRALL Z-A

Highly inductive ceiling air diffuser in a variety of designs, shapes and colours. The air guide elements, developed specifically for this ceiling air diffuser, make it possible to meet the individual requirements of each room. No other ceiling air diffuser of its type can match the flexibility of INDUDRALL.

Colour front plate
INDUDRALL
Air guide elements

RAL of choice
Black or light grey (RAL 7035),
other colours possible on request

	INDUDRALL	INDUDRALL Z-A
Sizes	300 up to 800 mm	600 or 625 mm
Designs	Round or square	Square
Supply air temperature difference	- 12 K	- 10 K

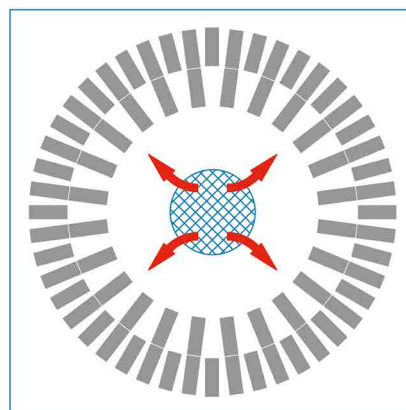
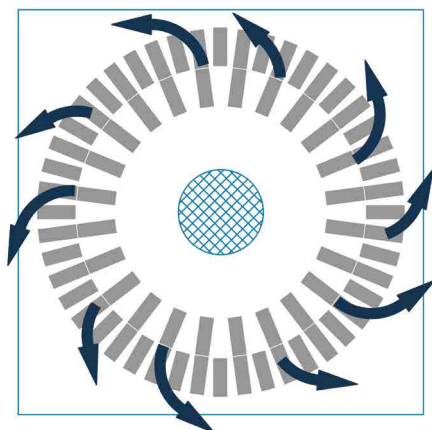


CEILING AIR DIFFUSER INDULTHERM/INDULTHERM-e

Comfortable cooling and powerful heating

The need to use air-conditioning plant for more than comfortable room cooling arises repeatedly. Where ambient air conditioning calls for a heating mode, economic considerations demand that this function be incorporated into an existing air-conditioning plant. The alternative, static heating surfaces, would often be inconvenient. INDULTHERM is an outstanding way to fulfil the requirements for an air-only system to provide

heating and cooling from a single installation. In cooling mode, supply air is distributed, draught-free, through the entire room. And, in heating mode, the diffuser distributes warm supply air in the room so that it reaches practically to the floor. Many of the familiar solutions require electrical assistance and costly control equipment and switch-gear. INDULTHERM is a cost-effective alternative.



FUNCTION

The air diffuser operates in cooling mode as a highly inductive swirl diffuser and offers a draught-free ambient air flow. When the supply air temperature rises (heating mode), it switches – automatically and with no external power supply – from horizontal to vertical air discharge with a large penetration depth.

Due to the excellent induction effect in cooling mode, the INDULTHERM air diffuser is also ideal for use with split or multi-split air conditioning units. The INDULTHERM-e has been specially developed to accommodate the rapid changes in supply air temperature that these units require. The INDULTHERM-e includes a servomotor that enables fast changeover via an external control signal (0-10 V).



ENERGY

Thermomechanical changeover from cooling to heating with no external power supply. Low pressure drop enables energy efficient operation.



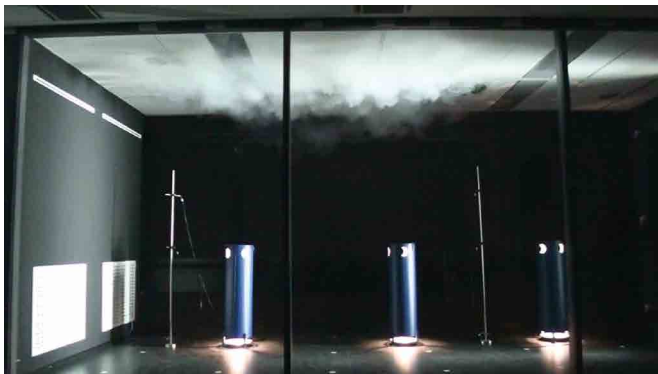
DESIGN

Attractive design, available in a square or round version.



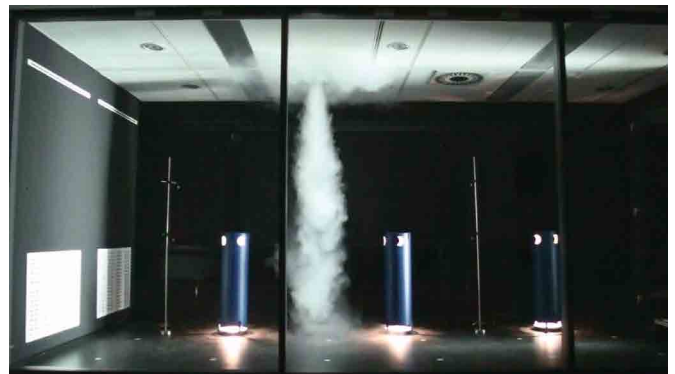
TECHNOLOGY

Air is distributed throughout the interior without creating a draught, with a temperature differential of down to -12 K. Large penetration depth in heating mode.



INDULTHERM in cooling mode:

- The INDULTHERM operates as a highly inductive ceiling air diffuser.
- Air with a temperature difference down to -14 K is distributed, draughtfree, in the room.



INDULTHERM in heating mode:

- In spite of the difference in density, warm air is distributed through the entire room practically to floor level.
- With warm supply air INDULTHERM switches automatically to a vertical air outlet with great penetration depth; no external power supply is needed.
- The INDULTHERM-e employs an electric actuator for switching.

TECHNICAL DATA

Sizes	600 mm and 625 mm
Designs	Round and square
Supply air temperature difference	Down to -12 K (cooling mode) / up to +15 K (heating mode)
Flow rate	180 - 1.000 m³/h
Room heights	3 m – ca. 7 m
Colour of front panel	RAL colour of choice
Single elements	Black or light grey (RAL 7035), other colours possible on request
Butterfly damper	Adjustable from the room

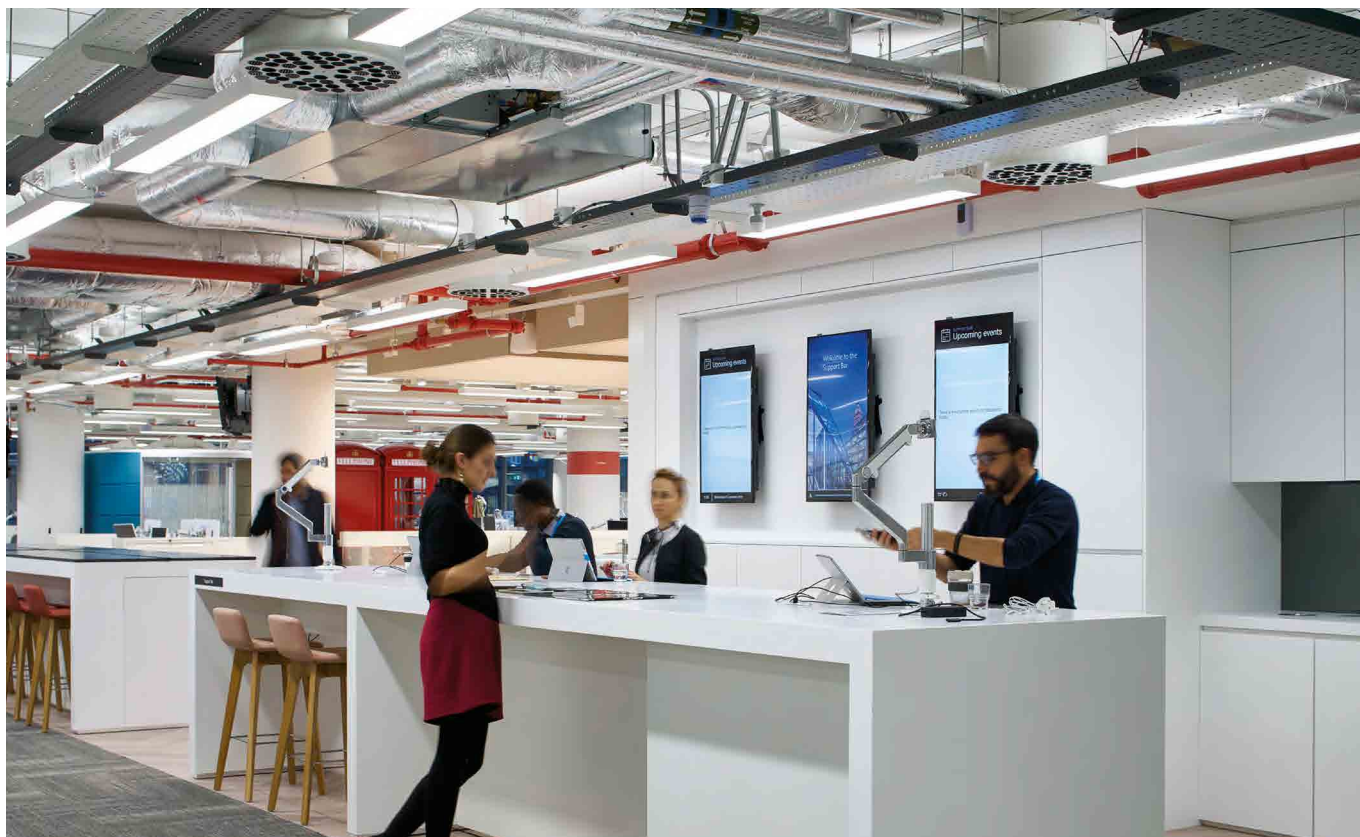


Photo © Timothy Soar

LAND SECURITIES HEADQUARTER, LONDON

PROPRIETOR Land Securities Group PLC, London. UK
ARCHITECTS KKS Space, London. UK
PLANNING OFFICE Long & Partners, London. UK



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LANDESKLINIK, TAMSWEIG

PROPRIETOR Salzburger Landeskliniken Betriebsgesellschaft mbH, AT
PLANNING OFFICE Dick + Harner GmbH, Salzburg. AT



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BIO-SEEHOTEL, ZEULENRODA

PROPRIETOR Bio-Seehotel Zeulenroda GmbH, Zeulenroda-Triebes
PLANNING OFFICE Baukonzept Planungsgesellschaft mbH, Lichtenstein / Sachsen



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BREUNINGER, STUTTGART

PROPRIETOR E. Breuninger GmbH & Co., Stuttgart
ARCHITECTS Behnisch Architects, Stuttgart
PLANNING OFFICE Prof. Dr.-Ing. Dirk Bohne GmbH, Düsseldorf

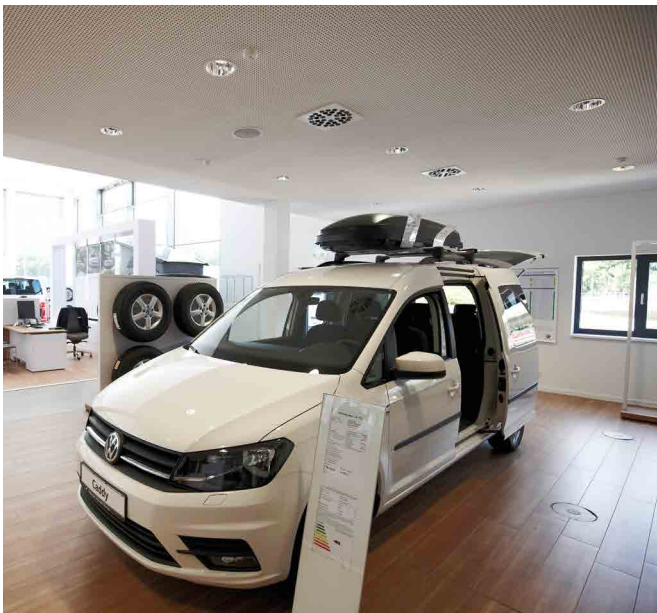


Photo © Volkswagen Group

VOLKSWAGEN AUTOMOBILE, STUTTGART

PROPRIETOR Volkswagen Group, Wolfsburg
ARCHITECTS Delta Bauplanung GmbH, Braunschweig
PLANNING OFFICE Planung Engineering Nick GmbH, Leonberg



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LIGHTHOUSE HOTEL & SPA, BÜSUM

PROPRIETOR Jens Sroka, Heimathafen Management GmbH & Co. KG
ARCHITECTS Planungsgemeinschaft Ladehoff + Hannemann & Krützfeldt
FACHPLANER Pahl & Jacobsen Ingenieurbüro für TGA, Heide



www.kieferklima.de/en

Kiefer Klimatechnik GmbH
Heilbronner Straße 380 - 388
70469 Stuttgart

phone: +49 711 81 09-0
email: info@kieferklima.de