



LTG WAND- EN VLOERINDUCTIE-UNITS

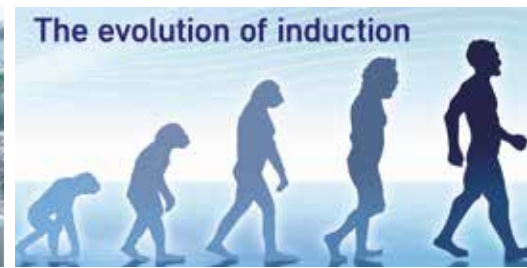
INTERLAND TECHNIEK



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KLIMAATBEHEERSING

Minimum Energy Costs – Highest Comfort

Induction Unit HFVsf System SmartFlow



HFV**sf** for demand-controlled air conditioning – now available with NFC technology.

NEW



- Maximum energy efficiency due to low primary pressures
- Demand-controlled ventilation for all kinds of use; easy adjustment to changed conditions
- Profitable also in case of refurbishment
- High user response: supply air and cooling variable
- Variable integration in existing or new parapet
- Power-off and easy parametrisation and set-up with LTG NFC app





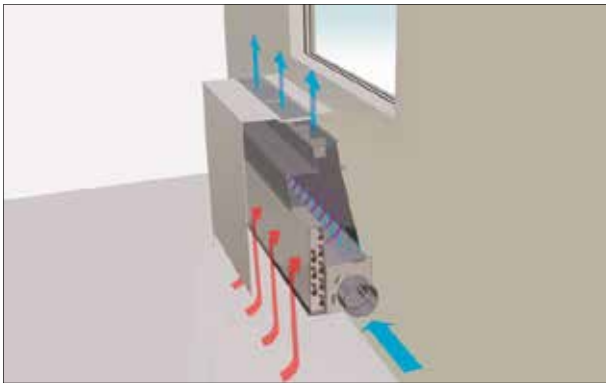
Air-water systems Induction units HFV and HFVsf/System SmartFlow

Induction technology - comfortable and efficient

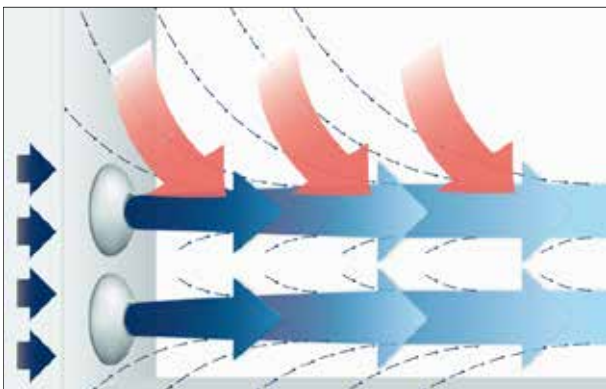
LTG induction units have been developed further continually since the first patent was registered by founder Dr. Albert Klein for an induction plant in 1915.

The induction principle

Air flowing through a nozzle forms a free jet. It pulls the surrounding air layer along at its edges and thus enlarges the flowing air volume. This "induction" takes place within the induction device. A special construction takes along room air (secondary air) through a heat exchanger, where it is cooled or heated. Together with the fresh air (primary air) the supply air then returns to the room for a comfortable climate.



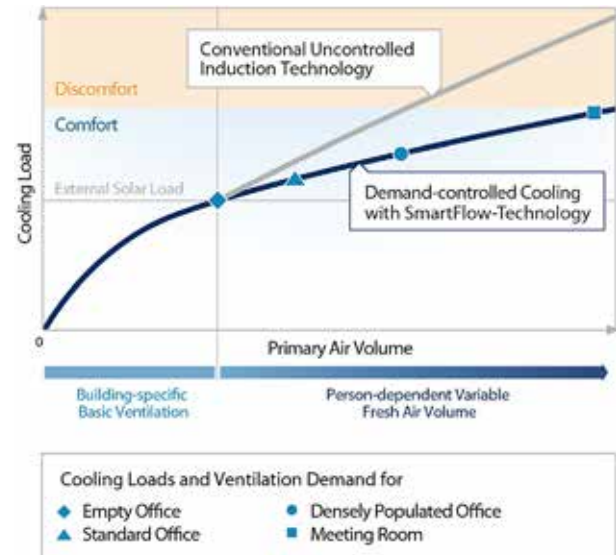
Induction unit chart



Induction principle

The System SmartFlow

Induction technology redefined - Demand-oriented air conditioning



Comparison of conventional induction technology and SmartFlow technology

The LTG System SmartFlow offers best comfort and energy consumption even under changing load stations. The ideal flow form is selected depending on required cooling output and fresh air volume. For this, the air nozzles are opened and the cold water valves are controlled. This permits achieving best comfort, acoustics and energy efficiency for any load case with a single device.

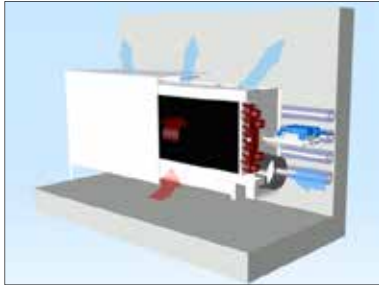
Manual (different room use) or automatic (presence or CO₂-controlled) regulation is possible. In contrast to conventional induction technology, this permits adjustment of cooling output and fresh air supply to the specific requirements.

LTG induction units of the latest generation are energy-efficient and can be operated demand-controlled with LTG SmartFlow technology.

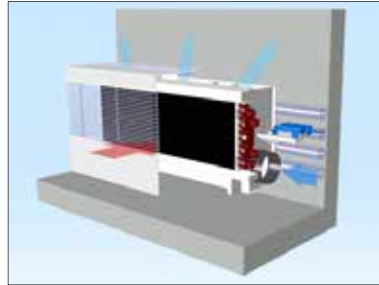


Air-water systems Induction units HFV and HFVsf System SmartFlow

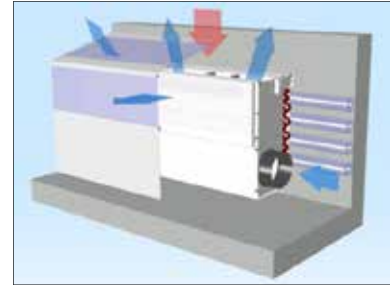
Installation examples and flow patterns



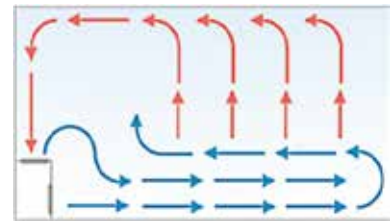
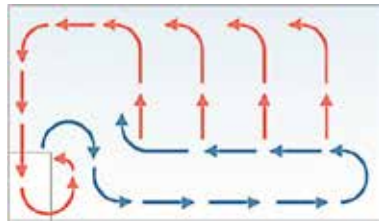
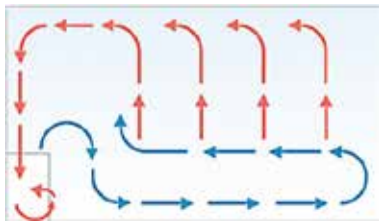
Mixed/displacement air
Closed casing
Intake from below/front
Discharge to above



Mixed/displacement air
Casing with grille
Intake from front
Discharge to above



Mixed/displacement and displacem. air
Casing with perforated sheet
Intake from above
Discharge to front and above



Product data

LTG induction unit		Type HFV-F	Type HFVsf-M2	Type HFVsf-MS
Primary airflow rate		constant	variable	
		fixed	adjustable in 2 stages	adjustable continuously
Features	<p>High <u>thermal comfort</u> thanks to overriding mixed/displacement air ventilation</p> <p>Automatic adaptation of the <u>optimum room flow</u> using actuating drive</p> <p><u>Energy saving</u> thanks to low primary pressure and DCV regulation (Demand Controlled Ventilation)</p> <p><u>Adaptation to changes</u> in room size and use</p> <p><u>Air quality regulation</u> by CO₂ sensor, presence detector</p>	<p>■</p> <p>-</p> <p>■</p> <p>■</p> <p>-</p>	<p>■■</p> <p>■</p> <p>■■</p> <p>■■</p> <p>■</p>	<p>■■■</p> <p>■■</p> <p>■■■</p> <p>■■</p> <p>■</p>
Functions	<p>Cooling/heating/fresh air supply</p> <p>On-demand ventilation</p>	<p>■</p> <p>-</p>	<p>■</p> <p>■</p>	<p>■</p> <p>■</p>
Technical data with L_{pA}=35 dB(A)³⁾	<p>Max. cooling capacity¹⁾</p> <p>Max. heating capacity²⁾</p> <p>Primary airflow rate⁴⁾</p> <p>Sound power level at 100 Pa</p>		<p>1200 W</p> <p>1900 W</p> <p>up to 160 m³/h</p> <p><28...35 dB(A)</p>	
Dimensions	Length x width x height in mm		900...1330 x 232 x 400	

■ Standard

¹⁾ At for 16 °C cold water inlet temperature / 27 °C intake temperature / 16 °C primary air temperature

²⁾ At 70 °C warm water inlet temperature / 20 °C intake temperature / 20 °C primary air temperature

³⁾ At 6 dB room absorption

⁴⁾ Boost function



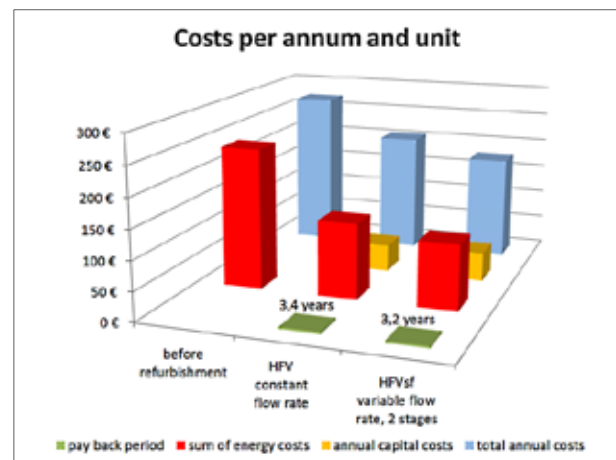
Air-water systems Induction units HFV and HFVsf/System SmartFlow

More features

- **Easy refurbishment of induction systems**
 - 1:1 replacement during operation
 - General retention of media pipes and sill panels is possible
- **Sustainable thanks to flexibility**
 - Can be subsequently adapted to changes in use (individual office/open plan office, conference room)
 - Various room flow forms are possible
 - Height of 350 mm allows for installation in a wide variety of sill arrangements
 - Complete system including ICA technology
 - Looping through of a second unit is possible
- **High user response**
 - Good user response to variations of ON/OFF, room temperature, primary air flow rate
 - Easy maintenance - through use of hygienic equipment and operation
 - Appreciable comfort improvement

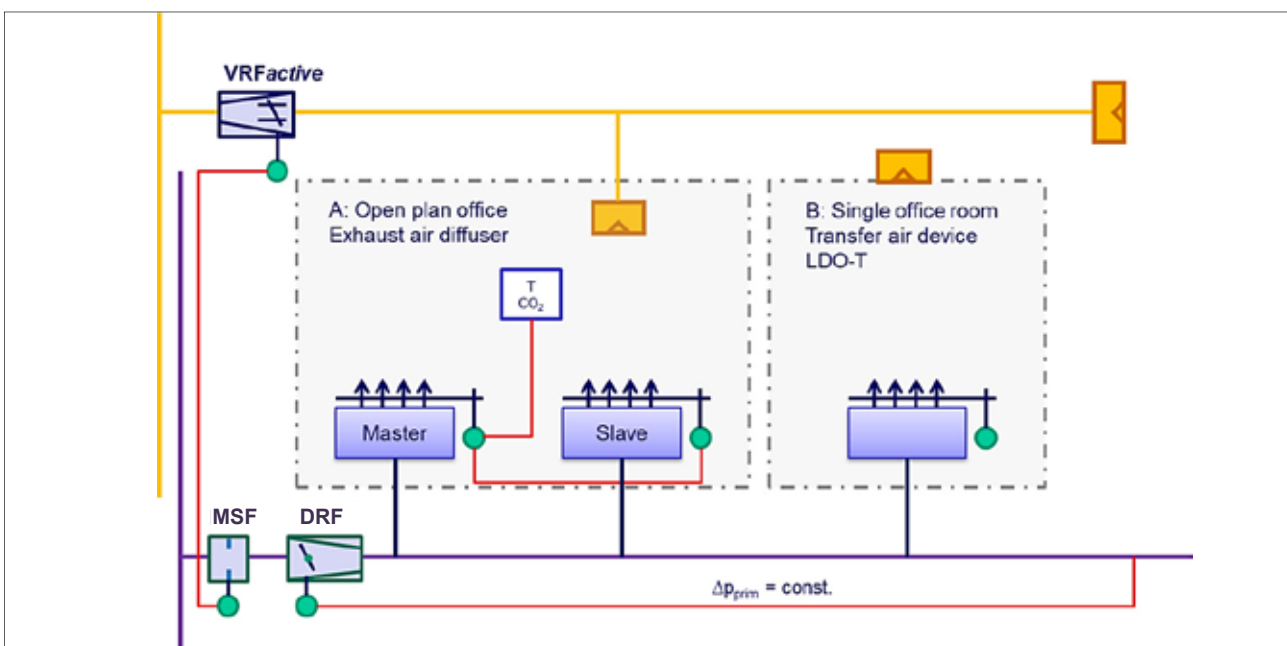
Profitability of a refurbishment solution

The energy savings from refurbishment of an old high-pressure system can cover a major part of the investment costs. At the central RLT units, in the first step the primary pressures and supply air flow rates are reduced and heat recovery is improved or retrofitted. Further savings are then possible by a requirement-dependent ventilation system, the option of switching off the equipment, lower regulated water flows and highly efficient equipment technology.



Representation of cost comparison

Example: control for supply and exhaust air



Equal balance of supply air and return air of a use zone due to pressure regulation in the supply air and adjusted return air flow rate control using set value for supply air.

Energy-efficient Heating and Cooling

Induction Unit for Parapet Installation HFG



The induction unit for any application – equally suitable for new construction and renovation objects.



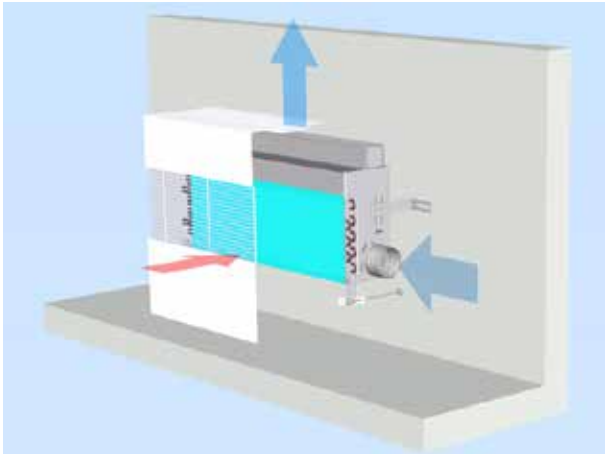
- High comfort by LTG mixed/displacement ventilation
- Many versions are suitable even for special requirements like narrow or low parapets
- High heating /cooling output
- Low-maintenance, proven and robust
- Air volume and pressure can be selected individually

Air-water systems

Induction unit for sills type HFG, low construction depth

Induction unit with high caloric heating and cooling capacity for installation in sills with casing provided by others.

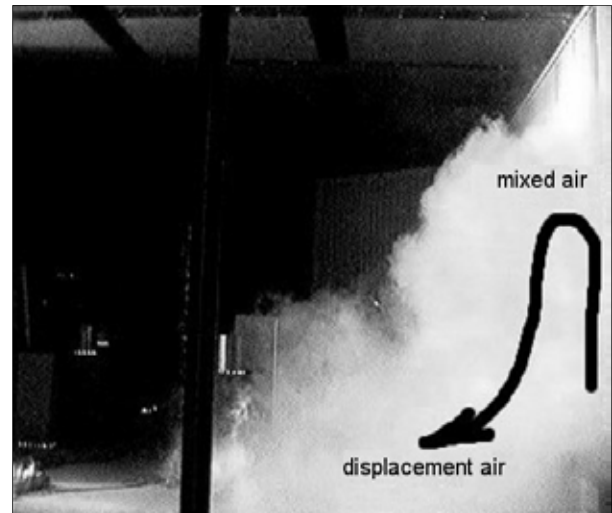
Installation



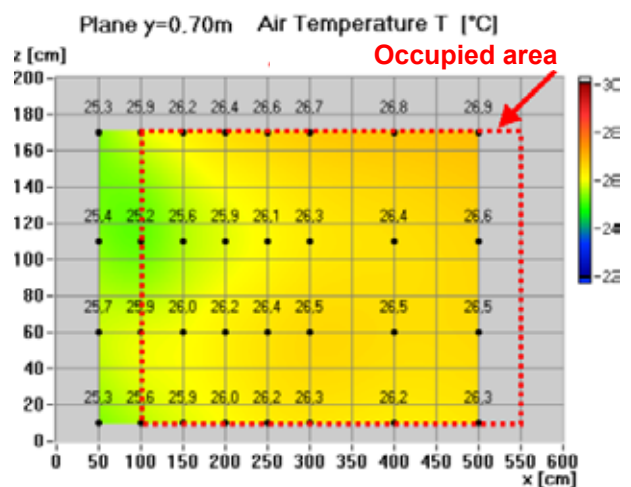
Features

- **Space saving** due to low construction depth of only 185 mm.
- Particularly aerodynamically shaped nozzles for **reducing the sound level and increasing the induction**.
- **Optimum design for users** thanks to flexible nozzle configuration.
- Air baffle elements for an **optimized and patented LTG mixed/displacement airflow**, adjustable for different room geometries.
- Replaceable nozzles for **subsequent flow rate adjustment** in the event of a change in use.
- Optimized component arrangement and injectors for top aerodynamic energy conversion of the primary air flow for **high energy efficiency**.
- Heat exchanger for efficient room heating due to **natural convection**
- **Highly tight primary air box**.
- **Sturdy design**, corrosion-protected enclosure for long operating times.
- **High comfort** due to low air speeds and very low sound power levels with high cooling and heating output
- Optional with aluminium nozzles for **increased fire protection**.
- **Great variety of LTG accessories**, among others control units, valves, flexible tubes, dampers, outlet grilles, line pressure controller etc.

Special features



Mixed/displacement airflow visualization (example), demonstrated in the LTG airflow lab



Capture of measuring data (example) as part of the LTG Engineering Services

Perfect for air conditioning of outer zones with façade glazing

Floor-mounted induction unit HFB/HFBsf



smart
flow
system
design



Compact and powerful.
Flexible and efficient.

- Optimum comfort and energy efficiency for different load situations by LTG System SmartFlow
- Demand-controlled ventilation (optional) for all applications; easy change of use possible
- High output reserve due to condensing operation
- With LTG SystemDesign: for a consistent look in all rooms, even with combination of different ventilation and air conditioning systems in the false floor
- Simplified maintenance via the floor grille and easy access to heat exchangers



Air-Water Systems Floor-mounted induction unit HFB / HFBsf System SmartFlow

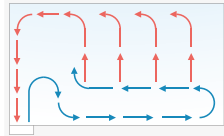
Application

Compact induction unit for ventilating, heating or/and cooling occupied zones (perimeter zones) with varying loads and transient load changes.

Characteristics

- Acoustics
 - Aerodynamically shaped nozzles for lower sound level and higher induction
 - Closed housing of sheet steel, thickness 1.5 resp. 2.5 mm, to avoid sound transmission into adjacent rooms
 - High cross-talk attenuation.
- Performance and efficiency
 - Optimized dimensioning for users due to flexible primary air flow rates.
 - High natural convection when heating without the use of primary air (e.g. when heating at night with the ventilation turned off)
 - Condensing operation is possible.
- Room air flow
 - Air guiding elements for optimized, patented LTG mixed displacement air ventilation, adjustable to a variety of room geometries.
- Design
 - Primary air balancing via floor grid possible.
 - Sturdy design and corrosion protected housing, for long operating times.
 - Flexible modular unit design. Conversion according to tenant's requirements (heating, ventilating, cooling).
 - Combined air inlet / air outlet grille not equiring any additional return air grilles.

Product data

Functions	Cooling / heating	■ / ■
	Fresh air supply	□
	Dehumidification	■
Technical data	Max. cooling output	up to 1500 W ²⁾
	Max. heating output ³⁾	up to 1500 W
Dimensions [L x B x H in mm]	1020-1450 x 332 x 191	
Air diffusion		

■ Standard □ optional on request

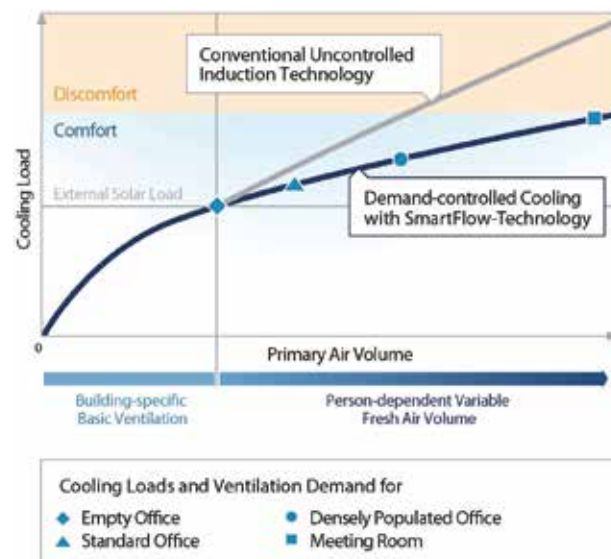
1) Bei 16 °C cold water inlet / 27 °C intake temp. / 18 °C primary air

2) Bei 6 °C cold water inlet / 27 °C intake temp. / 18 °C primary air

3) Bei 55 °C hot water inlet / 20 °C intake temp. / 18 °C primary air

LTG System SmartFlow

The LTG System *SmartFlow* offers best comfort and energy consumption even under changing load stations. The ideal flow form is selected depending on required cooling output and fresh air volume. For this, the air nozzles are opened and the cold water valves are controlled. This ensures best comfort, acoustics and energy efficiency for any load case with a single device. Manual (different room use) or automatic (occupancy or CO₂-controlled) regulation is possible. In contrast to conventional induction technology, this permits adjustment of cooling output and fresh air supply to the specific requirements.



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