KELOX® underfloor heating system

The installed heat

KE KELIT®
INNOVATIVE PIPE SYSTEMS

At the centre of events ...

The quality of a product is not a property given by nature. It is the logical consequence of a series of decisions made by a company:

- Recognition of market requirements and the shortcomings of existing solutions
- Choice of suitable raw materials
- Conformity to the latest technological standards
- Establishment of entry, intermediate and end controls
- Cooperation with institutions and test institutes

... the medium pipe

A new concept which combines different materials and has properties which are tailor-made for the application. The superior design of the KELOX floor heating pipe:

The adhesive layers

Temperature and ageing resistant and strength transmitting layers made of functional polymers.

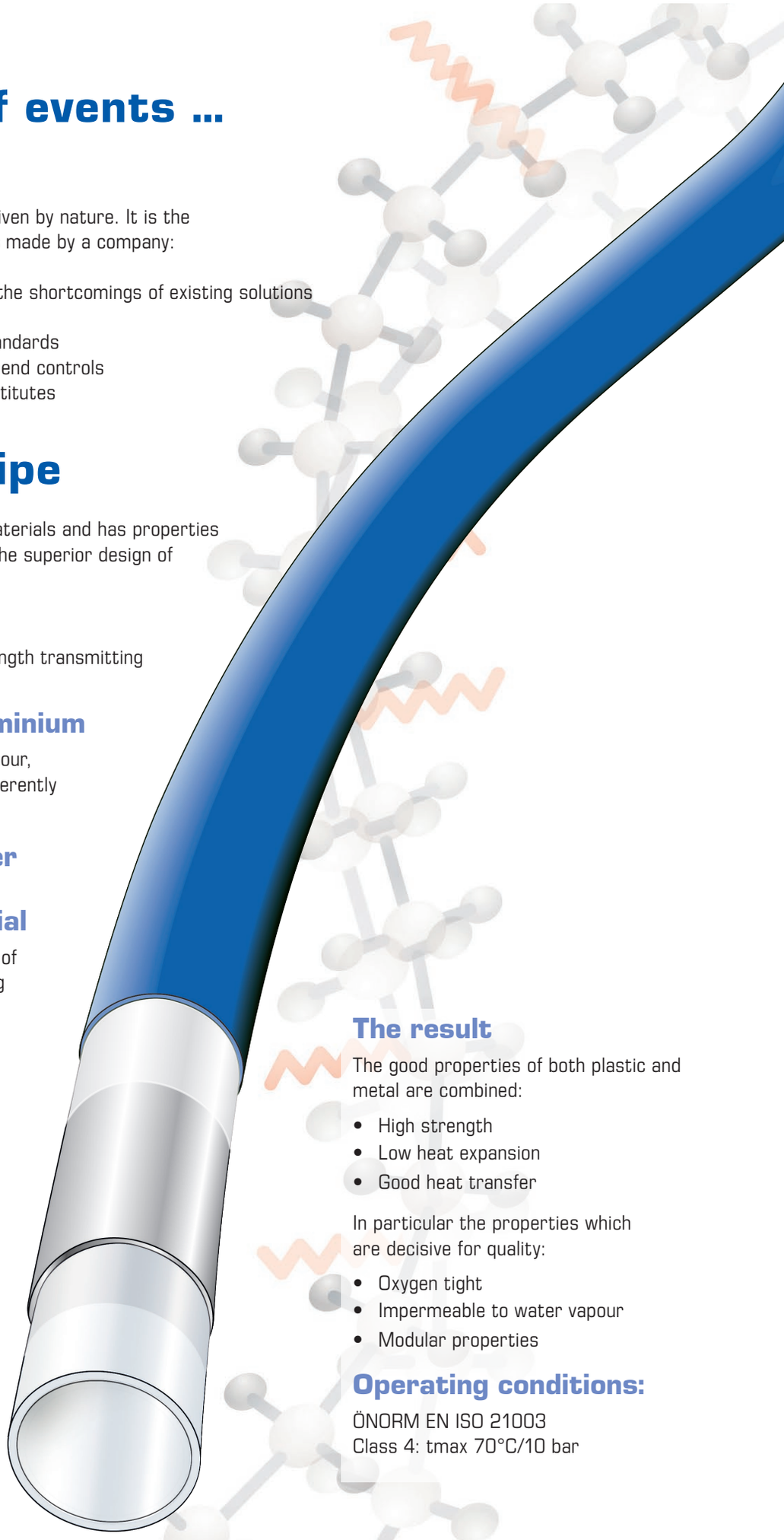
The backbone made of aluminium

Neutral, impermeable to gas and water vapour, resistant to hot and cold conditions and inherently stable, aluminium is an ideal partner.

The inside and outside layer are made of identical corrosion-resistant material

The unique molecular structure comprising of a linear ethylene main chain and interlocking lateral chains provides the material with highly specific properties:

- Increased flexibility
- No tendency to fatigue
- Excellent impact strength
- Low frictional resistance
- Very high strength
- Excellent resistance to stress cracking
- Long term stability
- Resistant to heating water



The result

The good properties of both plastic and metal are combined:

- High strength
- Low heat expansion
- Good heat transfer

In particular the properties which are decisive for quality:

- Oxygen tight
- Impermeable to water vapour
- Modular properties

Operating conditions:

ÖNORM EN ISO 21003
Class 4: tmax 70°C/10 bar

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Requirement No.1: oxygen-tight

Underfloor heating pipes must be oxygen-tight.

Oxygen (O2) is dissolved in the water. This is vital for fish.
For metal surfaces in a heating circuit, it can become deadly: Dissolved oxygen bonds with the iron in a steel surface (e.g. boiler, radiator, ...) into iron oxide.

Caution

If pipes in a heating circuit are O2 -permeable, new oxygen can repeat-edly diffuse from the outside in and is constantly bonded again to iron. This leads to the following damage pattern:

- Accumulation of silt in heating pipes and malfunction of heating circuits due to blockage
- Expensive signs of corrosion
- Complex renovation measures

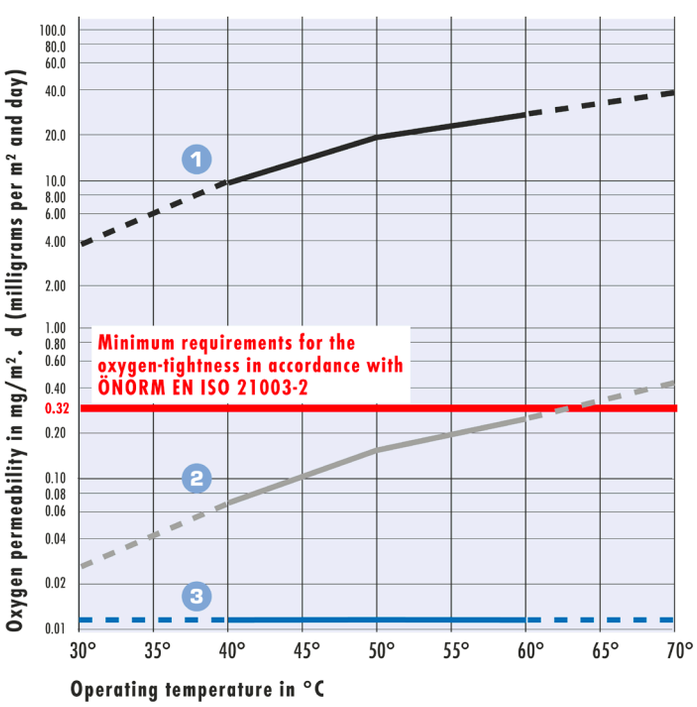
The regulation

Because underfloor and wall heating systems have an unusually high pro-portion of pipes, this results in large diffusion surfaces.
Modern standards (ÖNORM EN ISO 21003) therefore specify the minimum requirements regarding oxygen-tight-ness of heating pipes:

≤ 0,32 mg/m² and day

The solution

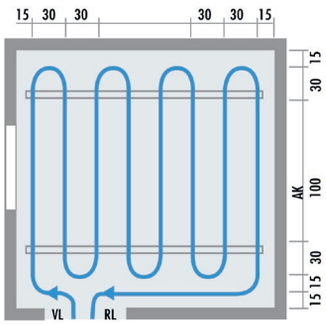
KELOX FB module pipes underbid such standard requirements by 100 times! The aluminium intermediate layer is not only a supporting backbone in relation to strength, expansion and stability, but also an effective oxygen barrier and therefore is a guarantor for a long lifetime with assured functionality.



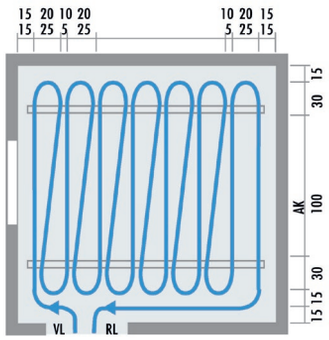
1. Cheap pipe without O2 barrier layer
2. Pipe with outside barrier layer
3. KELOX FB pipe with integrated metal insert

KELOX FB clamping rail system

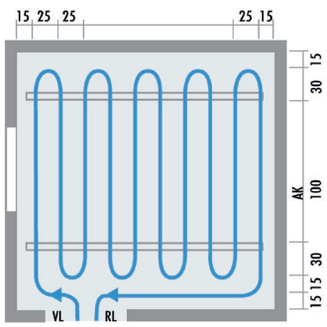
Laying modules with KM610 KELOX FB clamping rail



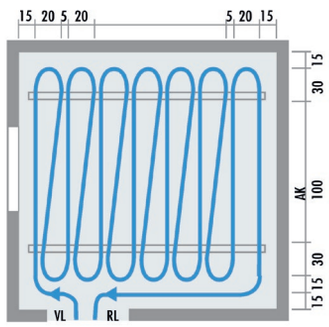
Laying module ID 30



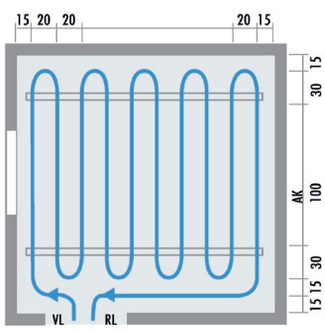
Laying module ID 15



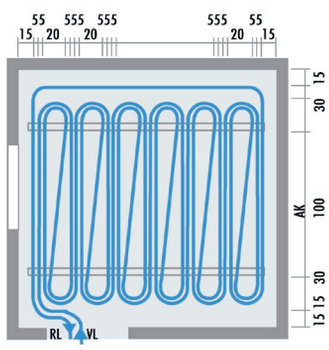
Laying module ID 25



Laying module ID 12



Laying module ID 20



Laying module ID 7

AK = Distance of the FB clamping rails (max. 100cm).

Meander installation

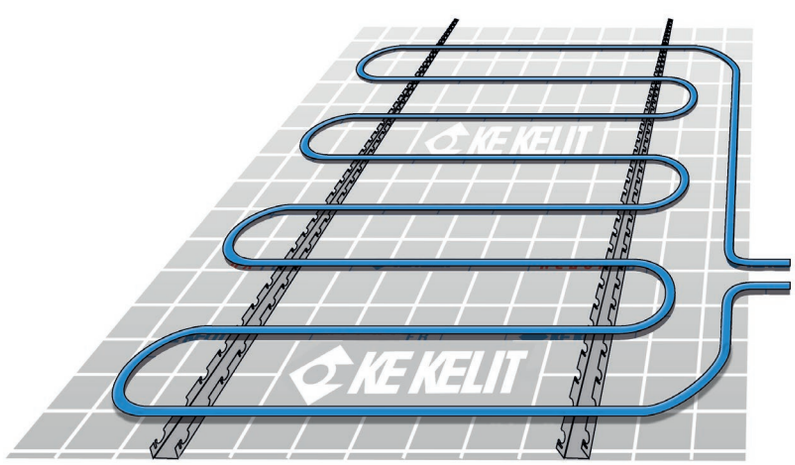
The meander installation using FB clamping rails or FB fixing plate uses the module characteristics of the KELOX FB particularly effectively:

- The (warmer) flow can be positioned where the greatest heat emission is required:
  - outside walls
  - window areas
  - terrace entrances
- Peripheral zones with increased heat output can be selected without any problem
- Constant development of the surface temperature (no waviness).

Advantages

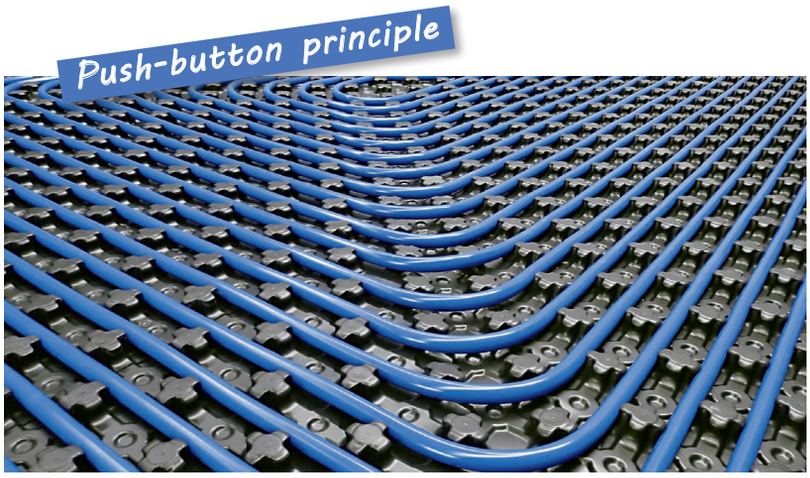
KELOX FB pipes have modular characteristics:

- Can be laid without spring-back
- The most thermally favourable type of installation can be selected
- Pipes remain laid – in the way that they are bedded
- They have a consistent installation characteristic, regardless of the temperature
- For underfloor and wall heating KELOX FB pipe d16 x 2mm



Maximum pipe length:
120m/heating circuit (output-dependent)

KELOX FB fixing plate system



The installation of the KELOX FB module pipe on the FB fixing plate can be com-bined well with the typical module characteristics of the pipe. Convenient installa-tion and connecting of the FB fixing plates through the well thought-out design of the father-mother nubs on each of one longitudinal and lateral side of the FB fixing plates. Laying is possible in a spiral and meandering shape.

Assembly of the KM613 FB fixing plate

The assembly of the KM613 FB fixing plate takes place after installation the KM630 FB edge insulating strips on the substructure of the floor/insulation. One longitudinal and one lateral edge of the FB fixing plates are designed as scaled-down father nubs, which are marked with the KELIT logo between the nubs.

The first ❶ plate must be placed in the space, such that the father nubs (marked red) point towards the “inside of the space”; the other plates can be lightly laid on the plates that are already laid according to the “push-button principle” ❷
Due to the recess on the corners ❸ offset installation is not necessary.

Advantages

- The pipe-holding nubs keep the pipe in its position
- Specifically appropriate on an un-stable subsurface, such as granular insulation, Perlite etc..
- Meandering of spiral installation possible
- Low insulation downwards, due to air inlet in the nubs

Material

Polystyrene plate with deep-drawn pipe holding nubs for sturdy fastening of the KELOX FB module pipe d16mm, connection of the individual plates by overlapping.

Size

Length: 1,45m, Width: 0,85m, Height: 20mm

Vapour diffusion resistance

Sd 13.2m – used as a vapour brake – no FB grid foil necessary.

Insulation

Low insulation through air inlet in the nubs, no footfall sound insulation.

Installation distances

ID 5, 10, 15, 20, 25 and 30cm

Load-bearing capacity

5,0 kN/m^2

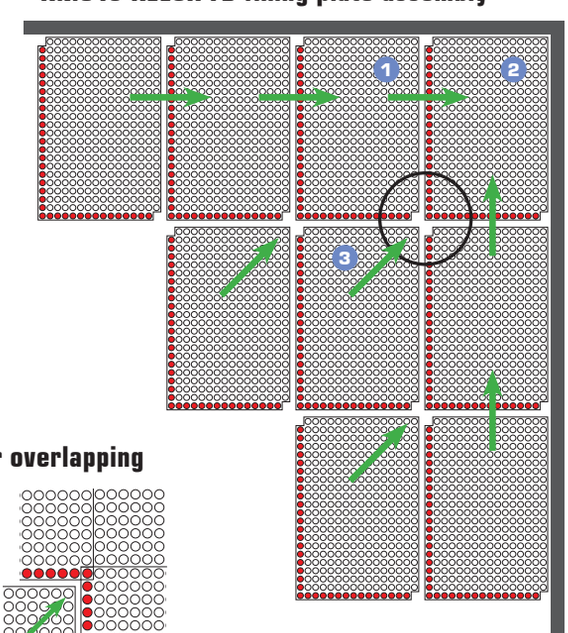
Required materials

Due to overlapping, add a minimum of 10 % additional requirement!

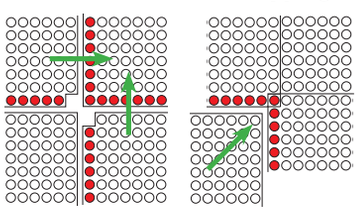
Maximum pipe length:

120m/heating circuit (output- dependent)

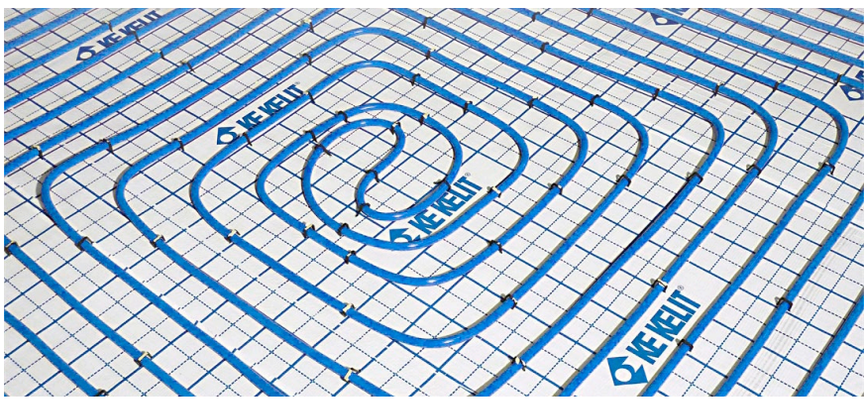
KM613 KELOX FB fixing plate assembly



Detailed corner overlapping



KELOX FB stable plate system



Due to the typical module characteristics, the KELOX FB module pipes are virtually ideally suited for installation and fastening using KELOX FB staples on the KELOX FB staple plates.
KELOX ULTRA PE-RT FB pipe (red)
is a plastic pipe alternative made of PE-RT. Oxygentight and water-vapour-diffusion-tight.

KM635 KELOX FB staple plates

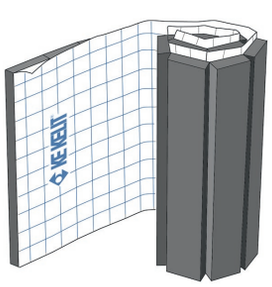
The FB staple plates are available in rolls. Furthermore, the rolls have an overlapping edge, including an adhe-sive strip, applied on the longitudinal side and one lateral side.
Through the improved lambda value, the KM635 staple plate with a 28/25mm thickness (6,5 kN) has the same insulation value as a conventional PS plate with a 33/30mm thickness.

The installation of the KELOX FB module pipe or ULTRA PE-RT pipe is individually possible in a spiral or meandering shape.

Outputs

The outputs of the FB staple system are identical to the outputs of the FB clamping rail systems and are shown in these performance tables, based on installation distance, floor covering, room and heating water temperatures.

ATTENTION! Protect FB staple plate from direct sunlight, do not store outdoors!



Material
Lambdapor made of expanded Poly-styrene EPS-T plus 033 in accordance with ÖNORM B 6000, free from HFC and CFC, including lamination with HD-PE fabric and PE coating, including overlapping edge with adhesive strip and graduation

Thickness
28/25mm (6,5kN)
28/26mm (10kN)
tolerance in accordance with ÖNORM EN 13163 + 3mm

Size
Reel material: 10 x 1m

Thermal conductivity
Lambda value: 0.032 W/mK

Dynamic rigidity
Rigidity in accordance with ÖNORM EN 29052-1
< 20MN/m^3 (6,5kN)
< 30MN/m^3 (10kN)

Footfall sound improvement factor
6,5 kN = approx. 30 dB
10 kN = approx. 27 dB

Load-bearing capacity - as required
Total load max. 6,5 kN/m^2
Total load max. 10 kN/m^2

Flexural strength
In accordance with ÖNORM EN 12089
>50 kPa (> 0.05 N/m^2)

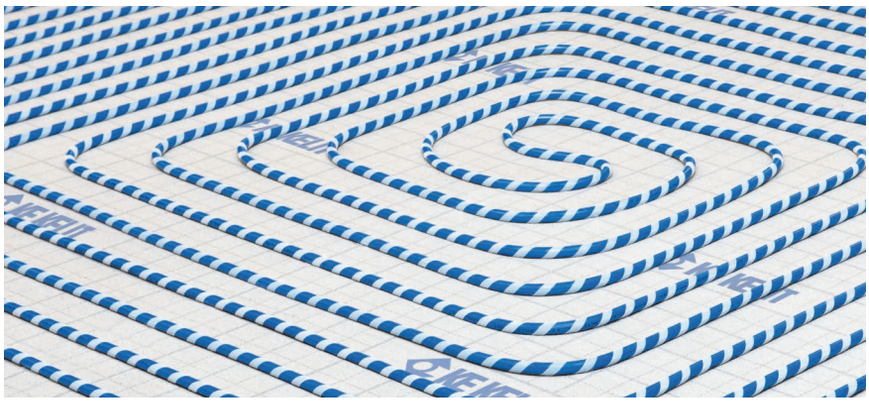
Water vapour diffusion coefficient of friction
S_d: approx. 75m - used as vapour brake. No FB grid foil necessary.

Temperature resistance
80 to 85°C - short-term up to 95°C

Fire behaviour
In accordance with ÖNORM EN 13501-1 “E”

Maximum pipe length
120m/heating circuit (output-depen-dent)

KELOX FB velcro plate system



KMU121K KELOX-ULTRAX FB velcro pipe (blue)
are virtually ideally suited for installation and fixing on the KELOX FB velcro plate without additional fastening, due to the typical module characteristics and wrapped velcro strips.

KU101K ULTRA PE-RT FB velcro pipe (red)
is a plastic pipe alternative made of PE-RT. Oxygentight and water-vapour-diffusion-tight, with wrapped velcro strip.

KM636 KELOX FB velcro plates

The FB velcro plates are available in rolls. Furthermore, the rolls have an overlapping edge, including an adhesive strip, applied on the longitudinal side and one lateral side.

Through the improved lambda value, the FB velcro plate with a 28/25mm thickness (6,5 kN) has the same insulation value as a conventional PS plate with a 33/30mm thickness.

The installation of the KELOX FB velcro pipe is individually possible in a spiral or meandering shape.

Outputs

The heat outputs of the FB velcro systems are identical to the outputs of the FB clamping rail systems and are shown in these performance tables, based on installation distance, floor covering, room and heating water temperatures.

The assembly of the KELOX FB velcro pipe takes place WITHOUT additional fastening on the FB velcro plate, which makes faster and more efficient assembly possible.

ATTENTION! Protect FB velcro plates from direct sunlight, do not store outdoors!

Material
Made of Lambdapor made (expanded Polystyrene) EPS-T 650 plus in accordance with ÖNORM B 6000, free from HFC and CFC, lamination with velour fabric and PE coating, including overlapping edge with adhesive strip and graduation.

Thickness
28/25mm (6,5kN)
28/26mm (10kN)
tolerance in accordance with ÖNORM EN 13163 + 3mm

Size
Reel material: 10 x 1m thermal conductivity Lambda value 0.032 W/mK

Thermal conductivity
Lambda value 0.032 W/mK

Dynamic rigidity
In accordance with ÖNORM EN 29052 -1
< 20MN/m^3 (6,5kN)
< 30MN/m^3 (10kN)

Footfall sound improvement factor
6,5 kN = approx. 30 dB
10 kN = approx. 27 dB

Load-bearing capacity
Total load max. 6,5 kN/m^2
Total load max. 10 kN/m^2

Flexural strength
In accordance with ÖNORM EN 12089
≥ 50 kPa (≥ 0,05 N/mm^2)

Water vapour diffusion coefficient of friction
Sd: approx. 35m - used as vapour brake. No FB grid foil necessary

Temperature resistance
80 to 85°C - shortterm up to 95°C

Fire behaviour
In accordance with ÖNORM EN 13501-1 “E”

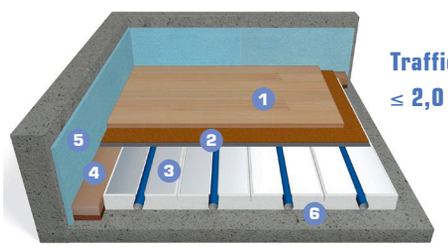
Maximum pipe length
120m/heating circuit (output-dependent)

KELOX dry drywall construction system

Universal, optimised underfloor heating system for all new and old buildings. Particularly suitable for renovations, additions and use in drywall and wood constructions. Through the optimum transfer of heat directly to the surface floor by means of aluminium baffle plates, the system is extremely responsive.

The system elements, made of high-pressure resistant Polystyrene λ= 0,035 W/m K), can have various surface floors applied to them directly after pipe installation, depending on the traffic load. This enables a short building time and low mounting height.

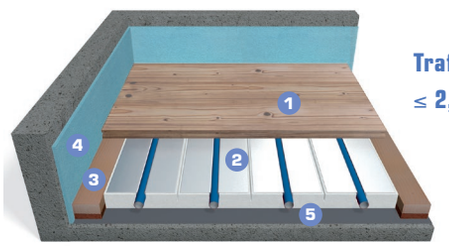
In order to avoid unevenness and cracks later, the KELOX dry elements must be applied evenly and fully to the dry, adhesive, clean and crush-resistant subsurface. The system elements cannot compensate existing unevenness!



Traffic load
≤ 2,0 kN/m²

Parquet - Direct application

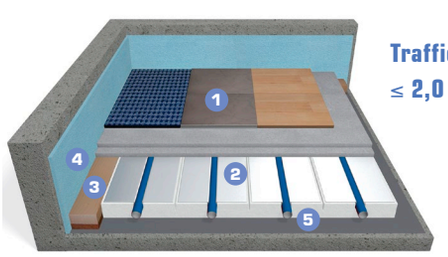
1. Parquet ≥14mm
2. Structure-borne noise and sound insulation strip 2– 3mm
3. KM660 system element 30mm and KELOX FB pipe
4. KM683 frame wood 30mm
5. KM634 edge insulating strips
6. if applicable, moisture barrier



Traffic load
≤ 2,0 kN/m²

Solid wood planks on flooring joints Direct application

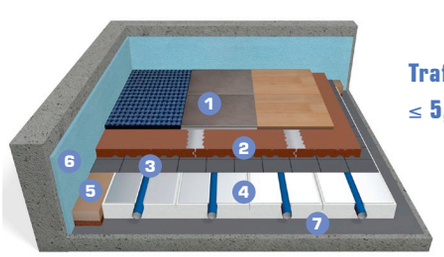
1. Wood planks ≥22mm
2. KM660 system element 30mm and KELOX FB pipe
3. KM683 frame wood 30mm and flooring joint
4. KM634 edge insulating strips
5. if applicable, moisture barrier and footfall sound insulation film



Traffic load
≤ 2,0 kN/m²

Carpet, floor tiles, parquet, laminate, plastic covering on dry-screed/Fermacell

1. Carpet, floor tiles, parquet, laminate screed element installed with offset joints 2 x 10mm (Fermacell)
2. KM660 system element 30mm and KELOX FB pipe
3. KM683 frame wood 30mm
4. KM634 edge insulating strips
5. if applicable, moisture barrier and footfall sound insulation film



Traffic load
≤ 5,0 kN/m²

Carpet, floor tiles, parquet, laminate, plastic covering on Estrichziegel® Creapur

1. Carpet, floor tiles, parquet, laminate
2. Estrichziegel 20mm (Cerapur)
3. KM631 grid foil
4. KM660 system element 30mm and KELOX FB pipe
5. KM683 frame wood 30mm
6. KM634 edge insulating strips
7. if applicable, moisture barrier and footfall sound insulation film

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KELOX dry swinging underfloor heating or sport flooring

This installation application is a special form of an underfloor heating system, particularly for elastically mounted floors of gymnasiums etc.

1. Thermal insulation according to information from the swinging floor manufacturer
2. If applicable, moisture barrier on site
3. Permanently elastic, vaporising elastomer inserts, in multiple layers, if applicable
4. **KELOX dry system** element with laminated aluminium heat-conducting baffle 0.5 mm, for installation distances of 12,5cm or 25cm
5. **KELOX FB module pipe**
6. Flooring joints
7. Swing boards as sub-floor
8. If required, covering foil or vapour barrier, e.g. **KELOX FB grid foil**
9. Parquet top covering, possibly structured in multiple layers
10. Alternative top covering made of plastic for sport floors

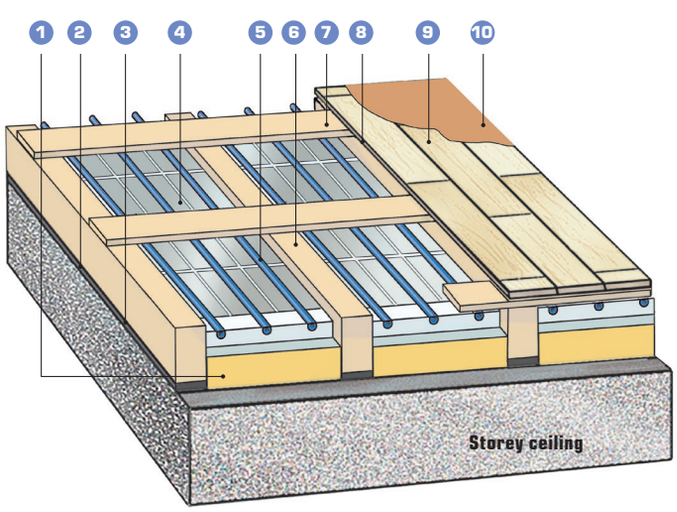
Advantages

The module characteristics of the pipe with drywall construction system elments are particularly important, on additional holders for the FB module pipes necessary.

- good heat emission of the KELOX dry system elements
- alternative mounting options possible

Variant:

If a floor structure is alternatively selected, which is realised with KM610 KELOX FB clamping rails and KMU120 KELOX FB module pipes instead of KELOX dry system elements, if required, the heat emission of the pipe can be enlarged using heat-conducting baffles that can additionally be clipped onto the KELOX FB module pipes.

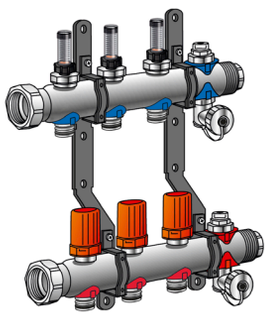


KELOX FB installation requirements

- define the installation distance in every room according to the output requirement and select the FB system.
- in external wall and window areas, provide peripheral zones with a maxi-mum width of 1 m with a compacted installation distance.
- lead the flow line to where the greatest heat requirement is expected (window, outside door areas, etc).
- do not exceed the pipe length per heating circuit, pay attention to the maximum output-dependent pressure loss d16 max. 120m; d20 max. 150m; d25 max. 180m
- the installation type of the KELOX FB pipes in a spiral or meandering shape is shown as an example in the FB structure types.
- improve the sound insulation by using the KM630 KELOX footfall sound insulation.
- Avoid joining points in the screed area and remember at the same time to utilise the roll length optimally. Connections in the floor structure must be precisely positioned and labelled in a revision drawing in accordance with ÖNORM EN 1264.
- avoid crossing points through intelligent pipe layout.
- already avoid future noise bridges during pipe installation. Therefore, fully install the KM634 KELOX FB edge insulating strips. Screed expansion: ≈ 2mm/5m.
- through the assembly of the KM614 KELOX FB joint protection tubes, guarantee the full functionality of the future thermal expansion joints of the screed. According to ÖNORM EN 1264, maximum field sizes of 40m² are permitted with a maximum side length of 8m without an additional expansion joint! The ratio of length to width must not exceed 2 : 1.
- to determine the screed moisture, apply the KM619 FB measuring points for safe marking of the drill holes in the screed.
- Avoid screed faults, use KM640 KELOX FB screed additive to prevent cracks. The screed thicknesses are defined by the building physicist on the basis of use, insulation thickness and screed quality.
- ensure the density of the heating circuits during the screed laying by means of a water pressure test! (Pay attention to anti-freeze).
- pay attention to the bake-out process! In accordance with ÖNORM B 2242-2, every underfloor heating system must be subjected to a bake-out process after the screed dries out and prior to installing the floor coverings. The functional heating of the screed in accordance with ÖNORM EN 1264-4 only serves the purpose of verifying the functionality of the underfloor heating and does not replace the bake-out process.

Manifold bar – metal-plated brass

KM590E KELOX FB manifold
KMP590M PROTEC FB push fitting manifold



Return flow water meter. Flow double spindle valve Operating conditions: tmax 80°C – 6bar

The viewing window of the return flow meter is only for the purpose of reading off the water quantity. Through the fixed setting of the water quantity on the double spindle valve of the flow, in accordance with ÖNORM EN 1264-4, the water quantity is not changed, even after opening and closing of the individual heating circuits. As the flow values of the individual heating circuits influence one another during setting, it can be necessary to slightly correct the values in a second step.

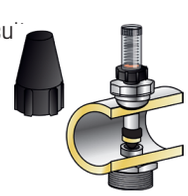
Advantages

- FB manifold bars extendible with mounted union nut 1" WITHOUT additional connection fittings
- F-double spindle valve per heating circuit (red)
- RF-water meter per heating circuit (blue)
- Upgradable with contact thermometer Ø 35mm to 80°C
- Rotatable drainage and separate bleeding at the highest point
- Heating circuit outlets 3/4" EURO CONE
- KMP590M pre-assembled at the factory for easy installation with KMP552 push couplings (d16/d20)

The specified water quantity from the calculation serves as a basis for setting the required water flow in each heating circuit.

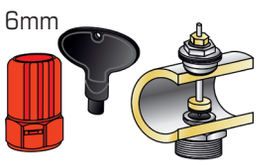
KM590E/KMP590M FB return flow bar

- One water meter installed in each heating circu
- Water quantity scale on the measuring tube of 0.5–2.5 l/min, convertible to 0.5–5 l/min, provided with a protective cap



KM590E/KMP590M FB flow bar

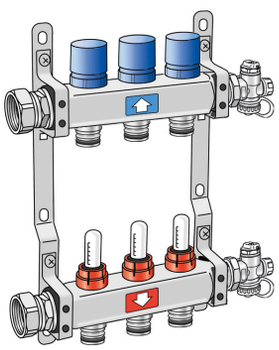
- Double spindle valve for setting the water quantity installed in each heating circuit
- Key for setting the double spindle valve 6mm
- Manual handle for opening and closing the individual heating circuits
- Threaded connector for KM596 KELOX- thermal motor M 30 x 1.5mm



The required water quantity is set using the double spindle valve on the flow and read off of the fully opened return flow meter.

Manifold bar – stainless steel

KMU590E KELOX-ULTRAX FB manifold
KMP590E PROTEC FB push fitting manifold



Return flow double spindle valve. Flow water meter Operating conditions: tmax 70°C – 6bar

The viewing window of the flow meter is for the purpose of reading off the flow water quantity. Through the fixed setting of the water quantity on the return valve, in accordance with ÖNORM EN 1264-4, the water quantity is not changed after opening and closing of the heating circuits.
As the flow values of the individual heating circuits influence one another during setting, it can be necessary to slightly correct the values in a second step.

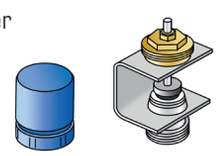
Advantages

- RF-double spindle valve per heating circuit (blue)
- F-water meter per heating circuit (red)
- Drainage and separate bleeding at the highest point
- Heating circuit outlets 3/4" EURO CONE
- KMP590E pre-assembled at the factory for easy installation with KMP552 push couplings (d16/d20)

The specified water quantity from the calculation serves as a basis for setting the required water flow in each heating circuit.

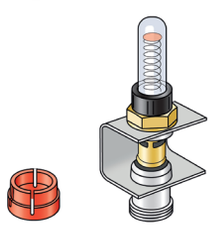
KMU590E/KMP590E FB return flow bar

- Double spindle valve for setting the water quantity installed in each heating circuit
- Manual handle for opening and closing the individual heating circuits
- Threaded connector for KM596 KELOX-thermal motor M 30 x 1.5mm



KMU590E/KMP590E FB flow bar

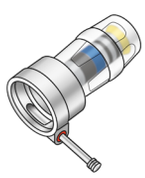
- Water meter installed in each heating
- Water quantity scale on measuring tube of 0.5– 5 l/min
- Setting fixable with locking cap



The required water quantity is set using the double spindle valve on the return flow and read off of the fully opened flow meter.

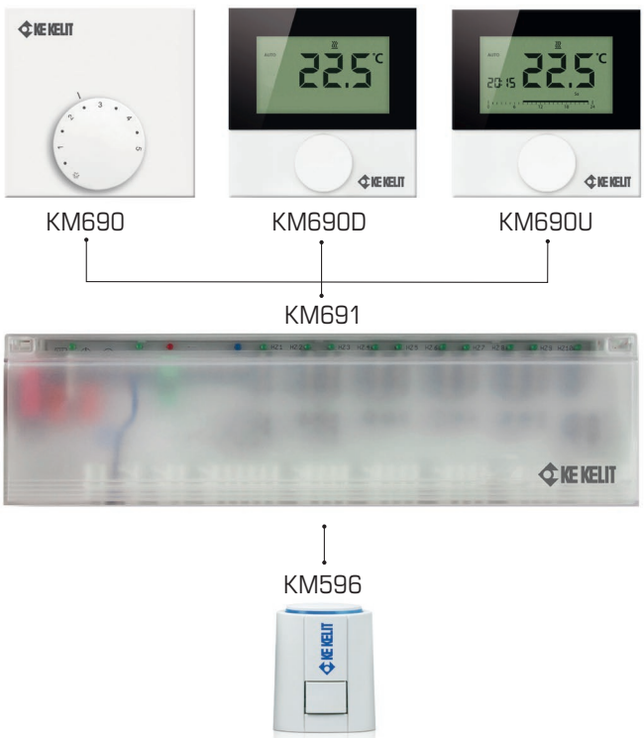
KMP552 KELOX PROTEC push coupling

- Protec push fitting for secure and easy connection to the pipe
- Compatible with all KELOX pipes (d16/d20)
- For connecting to KMP590M and KMP590E



Intelligent room control unit of the future

KELOX individual room control unit with 230V voltage



KM690 KELOX room thermostat analogue
- Flat, high-quality design
- Easy installation

KM690D KELOX room thermostat digital-standard
KM690U KELOX room thermostat digital-control
- Flat, high-quality design
- User-friendly, intuitive operation
- Easy installation

KM691 KELOX connection unit 230V
- 230V version, with 6 zones
- Pump/boiler relay
- Suitable for heating and cooling
- Tried-and-tested, easy installation

KM596 thermal motor
- 230V in currentless-closed (NC)
- Only 1 Watt power consumption

Performance features of KELOX room thermostat versions

KM690D KELOX room thermostat digital-standard
- Large, clearly laid out LC display
- Flat design and small dimensions (86 x 86 x 31 mm)
- Standalone controller or realisable in the system
- Correction of the actual temperature recording
- Limitation of the adjustment range of the target temperature
- Valve and frost protection function
- High-quality design disk made of scratch-resistant plastic
- High functional stability

KM690U KELOX room thermostat digital-control

like KM690D, additional
- Large, clearly laid out LC display with backlighting - enables the display to even be read in the dark
- For heating and cooling systems
- Smart Start / Smart Stop function
- Comfort programmes of heating and cooling mode
- Change over input
- Suitable for NC and NO mode

Performance features of the KELOX connection unit

KM691 KELOX connection unit 230V
- 6 zones
- 230 V design
- Up to 15 thermal motors connectible
- For heating and cooling systems
- Easy, intuitive installation and operation
- Tried-and-tested cable feed and standard-compliant strain relief
- Screw-free clamp connection technology
- Clearly laid out terminal clamps
- Lowering channel for time-controlled lowering of the room temperature
- Pump, boiler controller
- Adjustable shut-off delay for the pump and boiler control
- Connection for a temperature-limiter/dewpoint sensor
- High functional stability
- Maintenance-free

KELOX wireless and BUS room control unit with 24V voltage

Perfect connection with a system. The new generation of the comfort individual room control unit: Easily universally implementable for energy efficiency and user comfort at the highest level — even controllable using a smartphone and PC.

KM692K KELOX BUS room thermostat digital
KM694K KELOX wireless room thermostat digital

- Flat, high-quality design
- User-friendly, intuitive operation
- Wireless or BUS model

KM693 KELOX BUS connection unit 24V
KM695 KELOX wireless receiver 24V

- 24V versions, 8 zones with Ethernet
- Wireless or BUS model
- All-in-one solution for all applications
- Tried-and-tested, easy installation
- Supply voltage 230V, control voltage 24V

KM596 thermal motor

- 24V in currentless-closed (NC) or current less-open (NO)
- Only 1 Watt power consumption

Ethernet interface for integration into the home network and worldwide access via the Internet

Performance features of the individual room control unit

- Communication of the system components wirelessly (868 MHz wireless technology) or 2-wireBUS
- Intuitive operation, centralised programming, easy installation
- Up to 20 % energy saving through intelligent control
- Various inputs and outputs for interaction with external devices/systems
- Ethernet interface for easier, room-by-room operation, programming and setup of the individual room control unit system, as well as visualisation of the states via PC or smartphone
- MicroSD card slot for system upgrade and upload of system parameters
- Bidirectional wireless solution for secure communication between the system components
- Integrated system clock
- Individual programming and setting of any heating zone
- LC display with information about operating states and functions
- Perfect interaction of control systems across several floors via serial bus (syBUS) or 868-MHz wireless technology
- Complete fittings for optimum energy management
- Smart Start function
- XML interface for easy integration into external systems

Detailed description for

KM692K KELOX BUS room thermostat digital
KM694K KELOX wireless room thermostat digital

Scratch-resistant plastic

Generously-sized LC display (60 mm × 40 mm)

Flat design (approx. 22 mm) and small dimensions (86 mm × 86 mm)

Comfortable operation with a rotary knob (push-turn mechanics) with fine, dynamic catch

Power supply

KM692K: via 2 wire bus
KM694K: 2x AAA batteries,
battery service life approx. 2 years

With LC display

The KELOX room thermostat shines with a functional, language-neutral display. The internationally understandable symbols guarantee intuitive operation. With three menu levels, the functions that the user/installer needs are always available.
This also guarantees that important functions are not accidentally shifted.

- Basic Functions
- Enhanced Functions
- Expert Level Error
- Error signal
- Signal Child Lock
- Battery
- Off function
- Wireless
- Temperature
- Date/Time
- Auto Function
- Daytime Mode
- Night Mode
- Dewpoint
- Cooling
- Heating
- At-Home Function
- Party Function
- Floor Heating
- Holiday Function

Performance features of the KELOX wireless and bus room thermostats

- Self-explanatory, language-neutral operation
- Clearly laid out LC display with backlighting (KM692K)
- High-quality design disk made of scratch-resistant plastic
- Fast, delay-free data communication
- Limitation of the adjustment range of the room temperature
- Adjustment range 5 ... 30 °C
- Permanent display of room temperature, system time and operating state

Functions and settings for users, such as

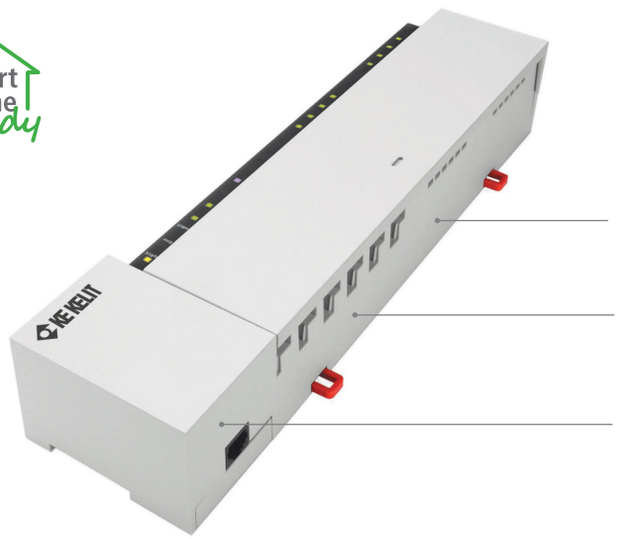
- Day, Automatic, Presence, ECO Mode (Night Status),
- Party Function, Holiday Function with Date
- 4 pre-set lifestyle time programs
- Adjustment range of target temperature limitable
- Date and time with automatic summer/winter time switch
- Information about low battery state (wireless version)
- Operating lock for public buildings

Settings for installation engineers (code-secured) such as:

- Heating type selection (control selectable according to 2-point or PI behaviour per heating zone)
- Enable active heating/cooling switching
- Set frost protection temperature
- Block heating or cooling
- Pump/boiler output parametrisable
- Smart Start function

Detailed description for

KM693 KELOX BUS connection unit 24V
KM695 KELOX wireless receiver 24V



All-in-one: for heating and/or cooling systems

Tried-and-tested cable feed and strain relief

Wireless and BUS models: 24V model in 8 zones

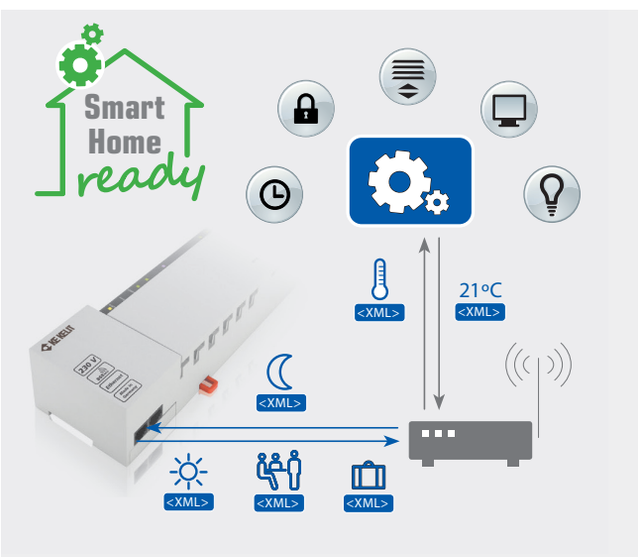
Performance features

- Connection of up to 12 KM596 thermal motors, 1 to 2 per zone
- State displays via LED:
- system LEDs/1 LED per zone
- Various control algorithms settable per heating zone
- Ethernet interface for network integration
- Multi-day solution – coupling of up to 7 connection units/ receivers per via wireless and/or bus
- Desired effect of the system (NC/NO) configurable
- Lowering (ECO mode) room-by-room via integrated system clock or centrally via external switch signal
- Operating modes (frost protection, heating, cooling, ECO, automatic, emergency mode)
- Boiler outlet
- Dewpoint monitoring
- Parametrisable valve protection function in all outlets
- Integrated, parametrisable pump module including pump protection function
- Connection option for a safety temperature limiter or dew point monitor on the connection unit/on the receiver
- Transformer housing in matching design
- Accessories such as external antenna or repeaters

Smart Start / Smart Stop

After 2 to 3 days, the controller has analysed the behaviour of the rooms. The start and end of the heating phase is optimised such that the desired temperature is reached at the pre-set times.

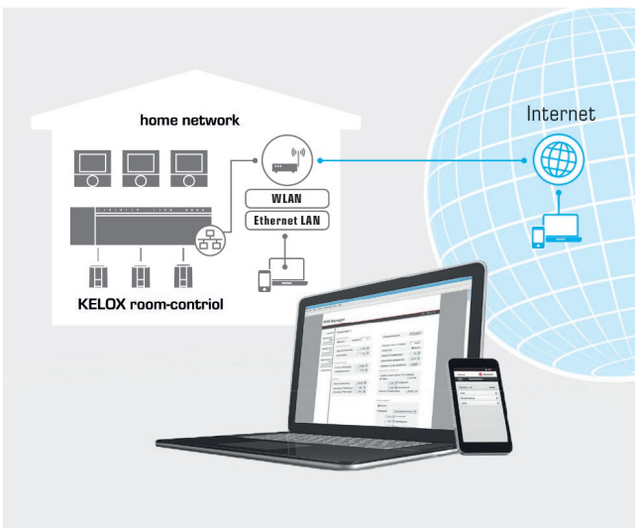
Advantages



Smart Home ready

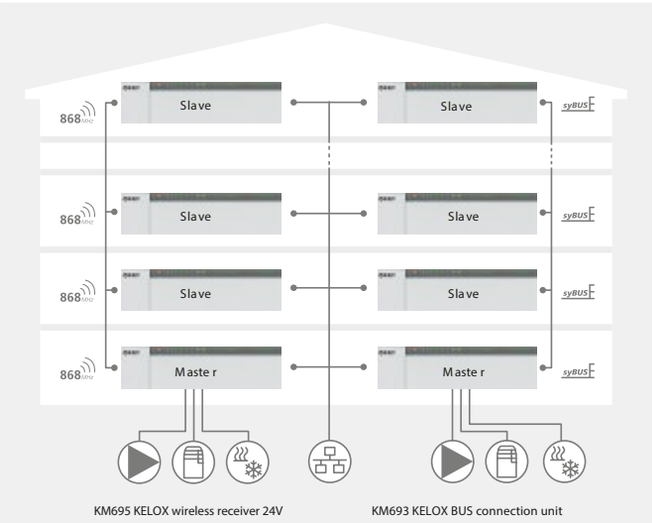
The connection units enable the controlling of the KELOX individual room control unit system locally through a home network and worldwide via the Internet.

Via the XML interface, the option is available to straightforwardly integrate the KELOX individual room control unit into overriding building automation systems.
The existing home network can be used for this (router, WLAN, Switch etc.). Integration scenarios into the building control technology and with EIB / KNX applications are also realisable.



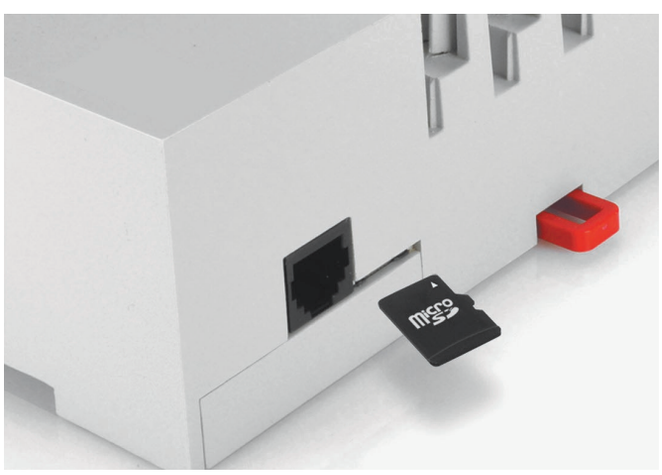
KELOX individual room control unit with ethernet

Monitoring and control via PC or smartphone via the home network or the Internet for worldwide access.



Multi-day solution

The coupling of the connection units (KM693) or the wireless receivers (KM695) for the multi-day solution can be realised via wireless 868 MHz and/or the syBUS system bus.

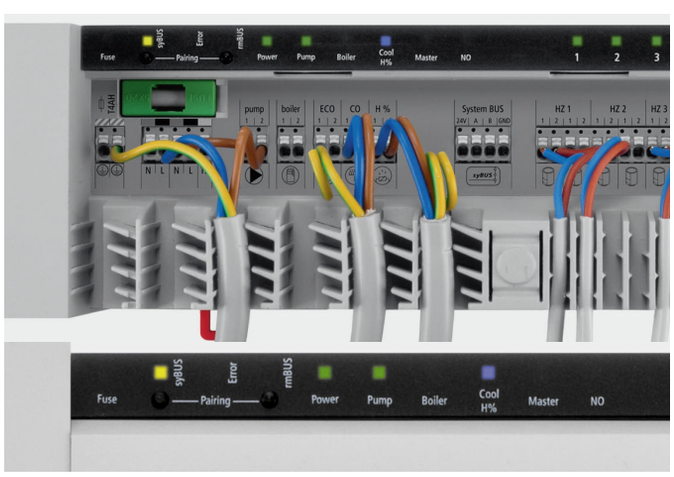


MicroSD card slot

The connection units/receivers have a MicroSD card slot for firmware upgrade or for convenient, clearly laid out online parametrisation on the PC.

Ethernet interface

- Easy integration into the home network & worldwide access
- Web-based application software for comfortable control and visualisation of the states via PC or smartphone
- XML data exchange with any external systems



Easy installation and startup

Clear connection with the system due to the tried-and-tested cable feed and strain relief, as well as the screw-free plug-in/clip connection technology, guarantees fast, secure installation.

Everything under control

The state of the current operation and proper functionality are always in view with LEDs: Operating state, NO/NC, lock, pairing, cooling, system error, alarm, heating zone, dew-point.

KE KELIT®

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