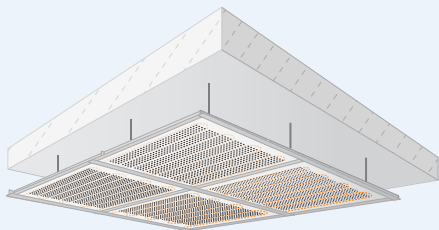
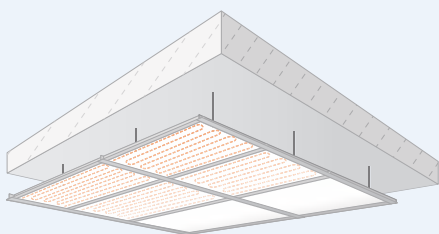
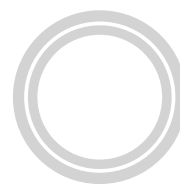


MCCH

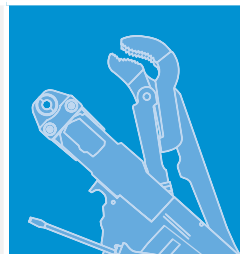
G R I D

MODULAR CEILING. COOLING AND HEATING.
INSTALLATION.

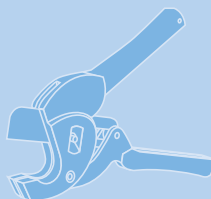
ModuleGridCeiling.



Classic.



Acoustic.



PDF

1. Safety information	3
1.1 General	3
1.2 Guarantee conditions	3
1.3 Maximum flow temperature.....	3
1.4 Humidity.....	3
1.5 Load bearing wall.....	3
1.6 Visible side/rear side of the ModulePanel.....	3
1.7 Standards.....	3
1.8 ModulePanels storage	4
1.9 Variomodal pipe 11.6x1.5 Laser	4
1.10 Storage of pre-insulated Variomodal pipe 16x2 Laser.....	4
2. Preparation / Substructure	5
2.1 General	5
2.2 Dimensions	5
3. ModulePanels	6
3.1 ModulGridPanels-Classic – Overview.....	6
3.2 ModulGridPanels-Acoustic – Overview.....	6
3.3 Installing the ModuleGridPanels	7
3.4 Hydraulic connection & pressing.....	8
3.5 Dismantling the ModuleGridPanels.....	10
3.6 Fastening loads to the ModuleGridCeiling	10
4. Protocols	11
4.1 Leak-tightness test.....	11
4.2 Preheating Protocol.....	11

1.1 General

These installation instructions are intended for authorised specialist personnel.
Observe the applicable local regulations and standards for electrical and heating installations.

1.2 Guarantee conditions

If the heating system is installed or commissioned incorrectly, all claims on the basis of the manufacturer's warranty and guarantee become void. Our currently applicable installation instructions are an integral part of our guarantee!

1.3 Maximum flow temperature

The maximum flow temperature for the ModulePanels is 50 °C. For reasons of comfort, do not exceed $t_{mH} = 35\text{ °C}$ ($t_v/t_r = 40/30\text{ °C}$) with the ModuleGridCeiling.

Cooling ceiling: The surface temperature should not reach or fall below the dew point temperature.

(t_v/t_r = flow/return temperature, t_{mH} = mean hot water temperature = $\frac{t_v + t_r}{2}$)

1.4 Humidity

The relative humidity must not exceed 70 % during storage, installation and additional processing of the ModulePanels and during the construction phase and normal use of the building. Wet plaster and wet screed must be applied and have dried before installation of the ModulePanels.

The ModulePanels can be used in rooms up to moisture class W3 (ÖNORM B 3407). They are not approved for installation from moisture class W4 (e.g. canteens and shower blocks) upwards.

1.5 Load bearing wall

Low "static" single loads up to 2 kg (max. 6 kg/m²) can be fixed directly on the ModuleCeiling (see chapter 3.6). Heavier suspended elements must only be attached to the substructure and not to the ModulePanels. These loads are to be taken into account when installing the substructure.

1.6 Visible side/rear side of the ModulePanel

The visible side of the ModulePanel (the smooth side) faces into the room and the rear side (with the integrated Variomodular pipe) faces the substructure.



1.7 Standards

The validity of the standards specified in these installation instructions was last verified on 16 March 2017!
If necessary, amendments to standards must be checked!



1.8 ModulePanels storage

The ModulePanel are gypsum fibreboard 18 mm with a pre-integrated Variomodular pipe 11.6x1.5 Laser (aluminium multi-layer composite pipe)

The ModulePanels are supplied on pallets.

When storing the ModulePanel pallets, you should ensure that the storage area can support them.

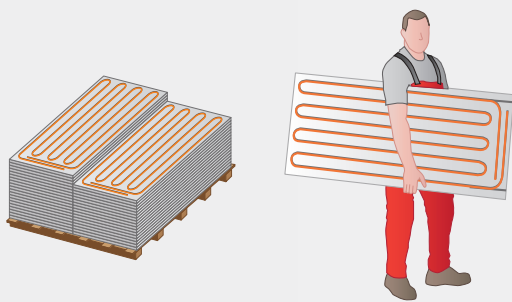
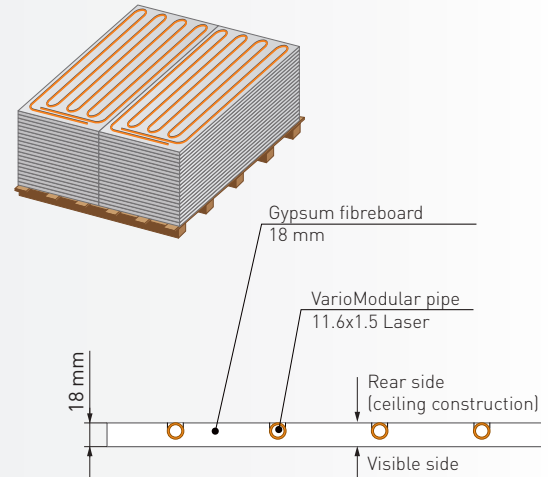
Each ModulePanel weighs 20.5 kg/m².

The ModulePanels must be laid flat on a level surface.

They should be protected from moisture. Panels that have become damp for a short time should only be used after they have completely dried out.

If they are re-stacked during transport on the building site, the visible side of the ModulePanels should be laid so that they face downwards.

Vertical storage deforms the panels and damages the edges. It is possible to transport the panels horizontally inside the building with a lift truck or other panel transportation vehicle.



<< It is best to carry individual ModulePanels vertically.

1.9 Variomodular pipe 11.6x1.5 Laser

The Variomodular pipe 11.6x1.5 Laser is an aluminium multi-layer composite pipe (100% oxygen diffusion-tight). It is pre-integrated in the ModulePanels.

In order to prevent the Variomodular pipe from being damaged by drilling or chiselling during the construction phase, high-visibility warning signs should be placed at appropriate locations.

In terms of weather resistance, the same instructions apply to the Variomodular pipe 11.6x1.5 Laser as to the pre-insulated Variomodular pipe 16x2.

1.10 Storage of pre-insulated Variomodular pipe 16x2 Laser

The pre-insulated Variomodular pipe is an aluminium multi-layer composite pipe (100% oxygen diffusion-tight) which includes insulation.

Damage (e.g. denting and scratching) is to be avoided during storage, transport, unloading, unwinding and laying. This type of damage has a detrimental effect on the creep behaviour.

In order to prevent damage to the Variomodular pipe during the construction phase, high-visibility warning signs should be placed at appropriate locations. The Variomodular pipe is only weather-resistant to a limited extent, must be shielded from direct sunlight and must not be stored outdoors.

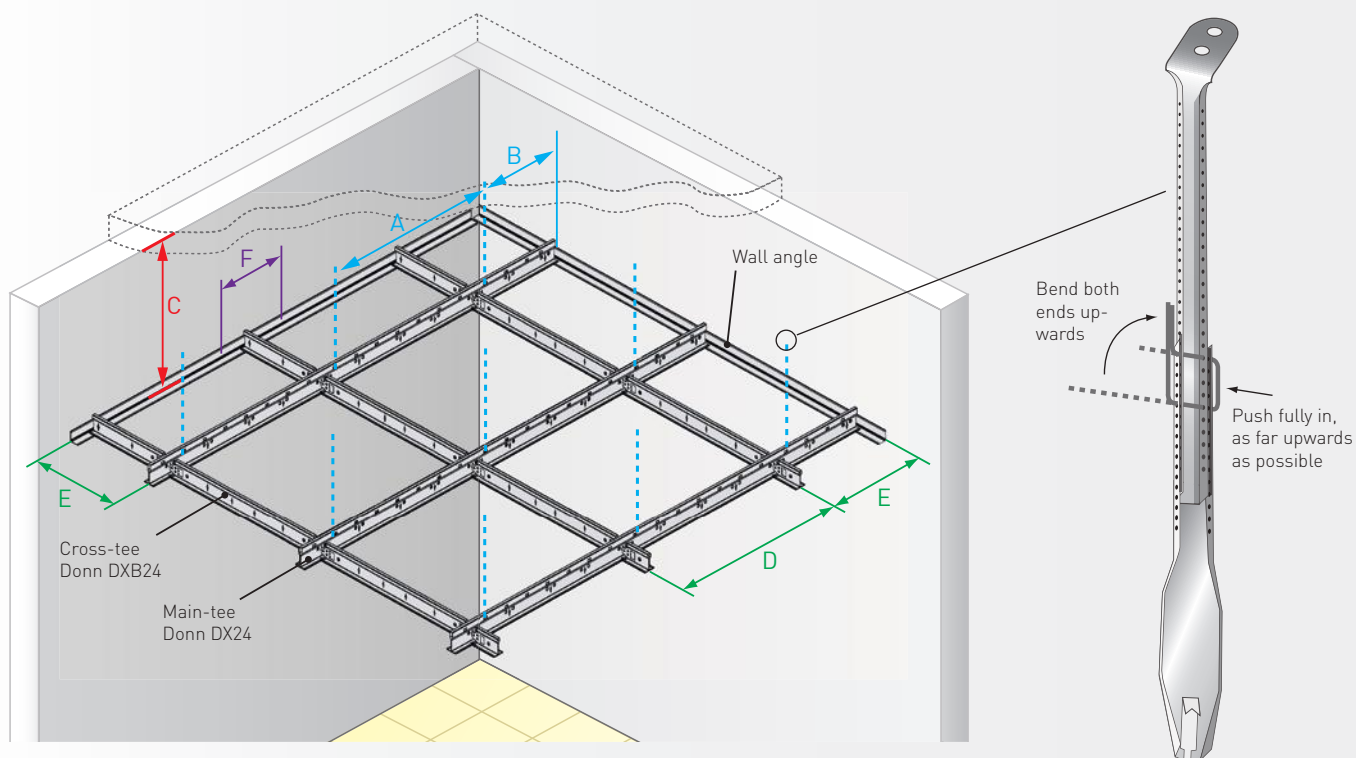
The interaction of the air's oxygen with UV rays damages the pipes. Normal temporary storage on the construction site for a few days is permissible.



2.1 General

The substructure should be completed before installing the panels. The substructure must be suitable for 18 mm sharp-edged panels and designed to support a panel weight of at least 25 kg/m². The weight of ceiling fixtures (e.g. lights) should be individually taken into consideration (see chapter 1.6).

2.2 Dimensions



e.g. USG company's DONN® DX B24 suspension grid system (www.usg.de)

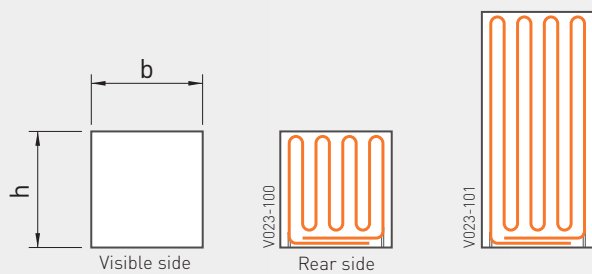
Hanger DONN® Nr. 288

- A....Distance between the hangers
- B....Distance between the hangers and the wall
- C....Distance to the ceiling
- D....Grid dimension
- E....Distance between the wall angle and the main- and cross-tee sections
- F....Distance for fixing the wall angle

Grid dimension	A	B	C	D	E	F
625 x 625	≤ 800 mm	≤ 400 mm	≥ 200 mm	625 mm	≥ D/2	≤ 350 mm
1250 x 625	≤ 800 mm	≤ 400 mm	≥ 250 mm	1250 mm	≥ D/2	≤ 350 mm

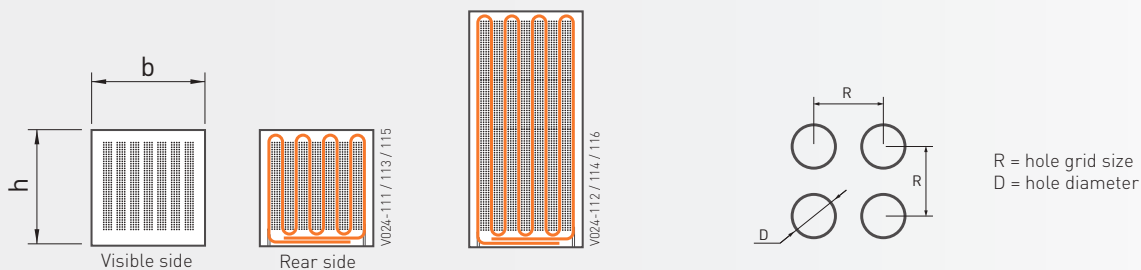
Please also observe the manufacturer's specifications for installing the suspension grid system.

3.1 ModulGridPanels-Classic – Overview



Part no.	Colour code	Product code	h [mm]	b [mm]	A [m ²]	Heating/cooling area, A _{HK} [m ²]	Weight/ Panel
V023-100		MRDC-0615-615	615	615	0.38	0.38	7.8 kg
V023-101		MRDC-1240-615	1240	615	0.76	0.76	15.2 kg

3.2 ModulGridPanels-Acoustic – Overview

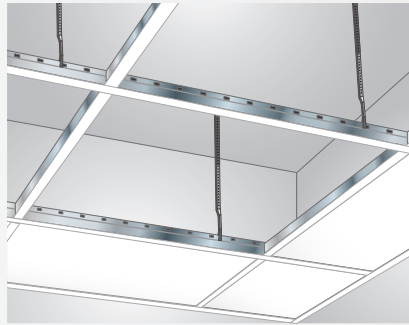
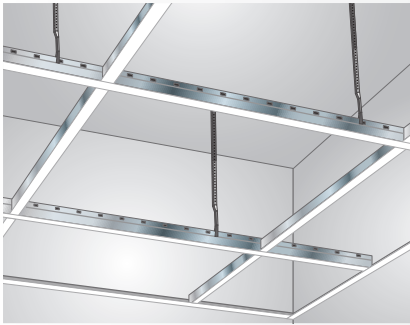


Part no.	Colour code	Product code	h [mm]	b [mm]	A [m ²]	D [mm]	R [mm]	Heating/cooling area, A _{HK} [m ²]	Weight/ Panel
V024-111		MRDA-0615-615-B06	615	615	0.38	6	16	0.38	6.9 kg
V024-112		MRDA-1240-615-B06	1240	615	0.76	6	16	0.76	13.5 kg
V024-113		MRDA-0615-615-B08	615	615	0.38	8	16	0.38	6.6 kg
V024-114		MRDA-1240-615-B08	1240	615	0.76	8	16	0.76	12.5 kg
V024-115		MRDA-0615-615-B10	615	615	0.38	10	16	0.38	6.3 kg
V024-116		MRDA-1240-615-B10	1240	615	0.76	10	16	0.76	12.0 kg

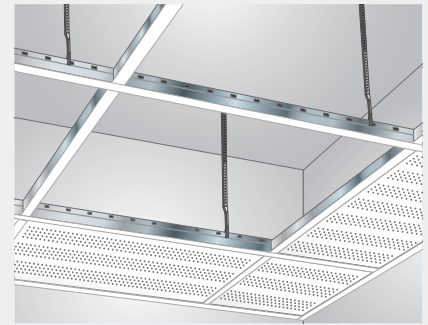
3.3 Installing the ModuleGridPanels

Before installing the panels it must be ensured that the panels' surface coating (e.g. paint) has been completed. The panels must be installed carefully to ensure that the coating is not damaged (wear clean and white work gloves!).

1 First of all insert the edge panels (plain panels):

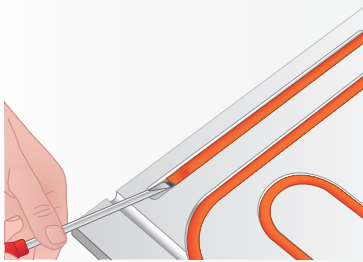


Example: ModuleExpansionPanels-Classic

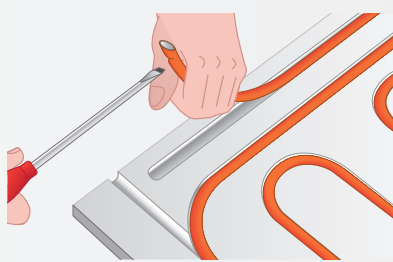


Example: ModuleExpansionPanels-Acoustic

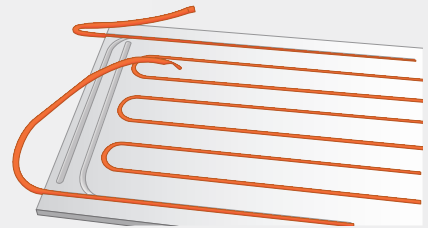
2 ModuleGridPanels - Fold out the pipe:



Move the Variomodule pipe out of its „parking position“...

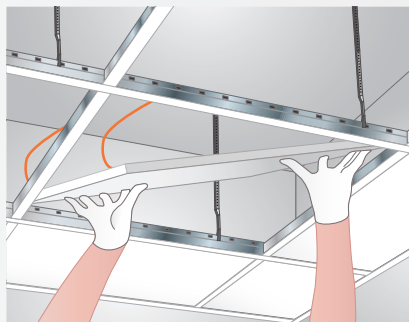
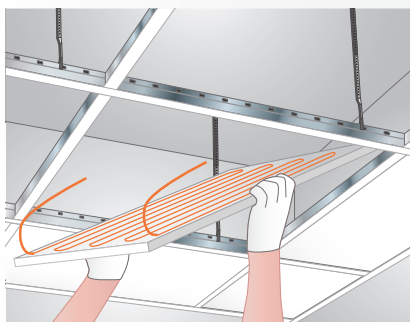


....

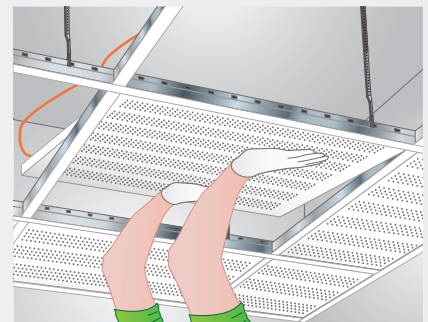


... and insert it into the groove along the long side of the panel.

3 Install the ModuleGridPanels:



Example: ModuleGridPanels-Classic

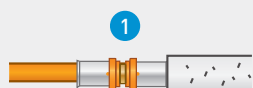
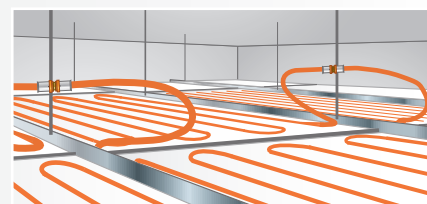
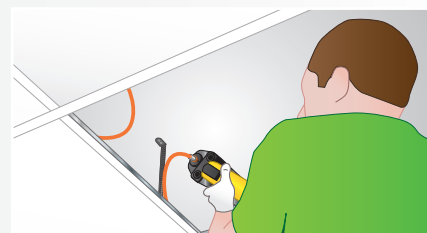
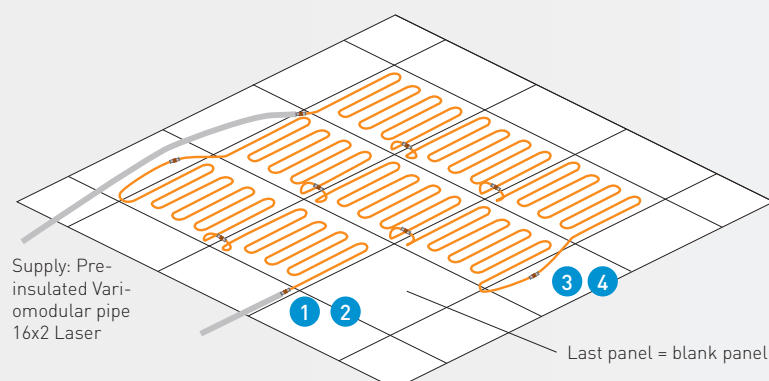


Example: ModuleGridPanels-Acoustic

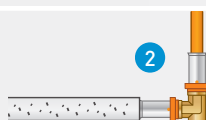
3.4 Hydraulic connection & pressing

ModulePanel connection options:

Maximum heating/cooling surface area per circuit: 6.25 m² (e.g. 16x V023-100)



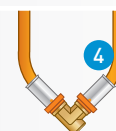
Press-fit coupling 16x11.6



Press-fit angled coupling 90° 16x11.6



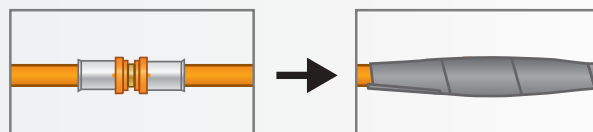
Press-fit coupling 11.6x11.6



Press-fit angled coupling 90° 11.6x11.6

Corrosion prevention notice:

The connecting elements are to be protected (after the pressure test) in accordance with ÖN H5155. For example, using cold shrink tape or corrosion protection tape.



Once the panels and the heating/cooling distribution manifolds are installed, the panels are connected to the desired circuits. The pre-insulated Variomodular pipe 16x2 Laser is used as the supply pipe.

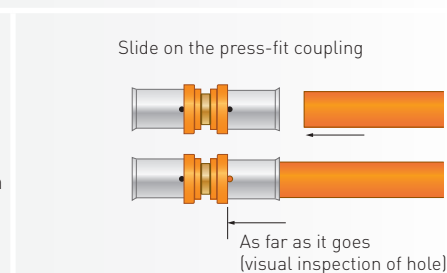
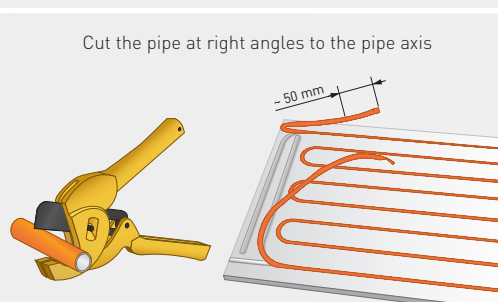
Caution! A lasting, tight connection is only guaranteed if original Variotherm system components are used:

- Pre-insulated Variomodular pipe 16x2 Laser or Variomodular pipe 11.6x1.5 Laser
- Variotherm calibration and chamfering tool
- Variotherm press-fit coupling and Variotherm pressing tool

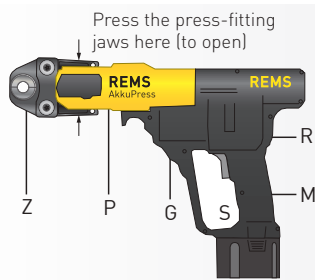
Maintenance

The press-fitting jaws and pressing tool must be checked at least once a year for correct operation by REMS or an authorised REMS customer service workshop.

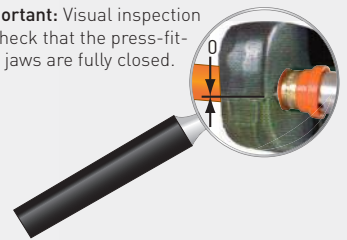
Preparing the pipe:



Pressing procedure for AkkuPress:

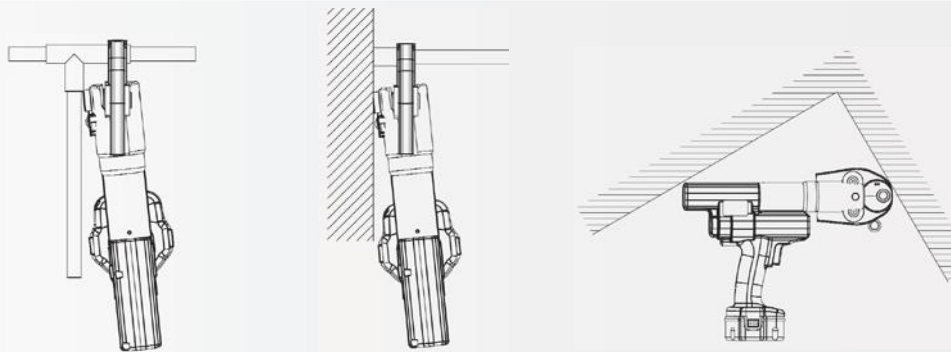


Important: Visual inspection to check that the press-fitting jaws are fully closed.

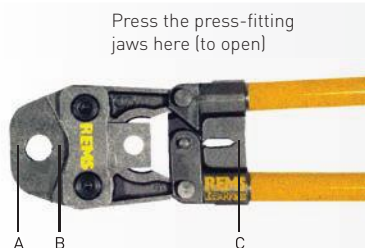


- Push the press-fitting jaws (Z) together by hand (causing the press-fitting jaws to open) far enough so that the press-fitting jaws can be placed over the press-fit coupling ②. Place the pressing tool with press-fitting jaws on the press-fit coupling at a right angle to the pipe axis.
- Release the press-fitting jaws so that they close around the press-fit coupling ③.
- Hold the pressing tool at the housing grip (G) and at the motor grip (M). When using an REMS AkkuPress, hold the switch (S) pressed until the press-fitting jaws are fully closed. This is indicated by an audible click.
- Press the reset lever (R) until the pressing rollers (P) have retracted completely. Press the press-fitting jaws (Z) together by hand so that the jaws can be removed from the press-fit coupling (see also the REMS AkkuPress operating manual).

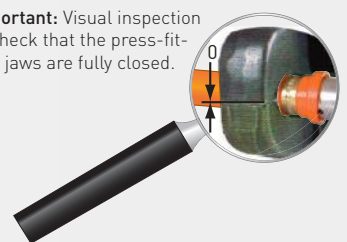
The following situations must be avoided (danger of gearbox breakage!):



Pressing procedure for Eco-Press:

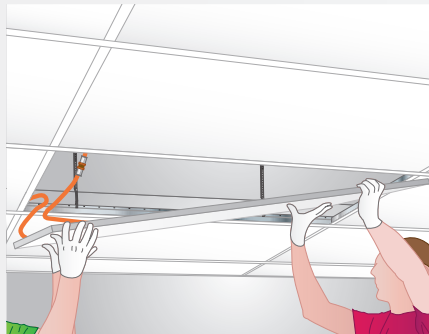


Important: Visual inspection to check that the press-fitting jaws are fully closed.



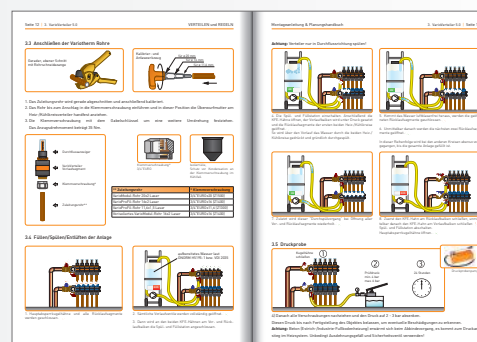
- The pressing tool's lever length can be adjusted to suit the pressing force and the available space on site. Use the provided pipe arms with sleeve sockets for extension. Always screw pipe arms tight before use (danger of accidents!). Secure the selected press-fitting jaws with plug-in bolts.
- Pull the pipe arms far enough apart (press-fitting jaws open) so that the press-fitting jaws can be slid over the press-fit coupling ②. Place the press-fitting jaws on the press-fit coupling at a right angle to the pipe axis.
- Push pipe arms together until they reach the stop position (C) (a click is heard when they reach the stop). Only if the press-fitting jaws are fully closed at (A) and at (B) has a correct press connection been carried out. > Visual check ③.
- Re-open the pipe arms so that the jaws can be removed from the press-fit coupling (see also the REMS Eco-Press operating manual).

3.5 Dismantling the ModuleGridPanels



Important: Always support panels!
(provide strain relief for pipes!)

Details regarding the system and heating circuit pipes and the room temperature control are provided in the [DISTRIBUTION and CONTROL](#) design and installation manual.

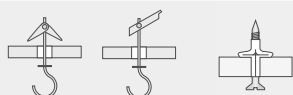


3.6 Fastening loads to the ModuleGridCeiling

Low "static" loads can be fixed directly on the ModuleCeiling as prescribed by the following table:

Caution: Do not damage the Variomodular pipes!

Fixing components - Observe the instructions of the dowel manufacturer!



Permissible single loads for individual hanging on ModulePanel (dowel distance ≥ 300 mm)

2 kg

Max. permissible area load per m^2 ModulePanel (dowel distance ≥ 300 mm)

6 kg

Heavier suspended elements must only be attached to the substructure and not to the ModulePanels. Additional loads must be designed for the substructure.

Construction project: _____

Building owner/Occupant: _____

Client: _____

Heating installation technician: _____

Architect: _____

Other: _____

4.1 Leak-tightness test

The circuits of the Variotherm ModuleCeiling are to be checked for leak-tightness via a water pressure test. The test pressure should be min. 4 bar and max. 6 bar. If there is a risk of freezing, appropriate measures should be taken, e.g. use of antifreeze and controlling the building's temperature.

- Installation of ModulePanels finished on: _____
- Installation of pipe connections finished on: _____
- Pressure test started on: _____ with test pressure ____ bar
- Pressure test finished on: _____ with test pressure ____ bar
- System pressure during the completion work was ____ bar
- The system water was treated (e.g. per ÖNORM H5195-1) ☐ Yes ☐ No
- Antifreeze was added to the system water ☐ Yes ☐ No
- The system was checked for leak-tightness on: _____ and approved

Approval:

Building owner/Occupant/Client

Construction management/Architect

Heating installation technician

4.2 Preheating Protocol

Preheating of the Variotherm ModuleCeiling

- Completion work finished on: _____
- Preheating started on: _____
- Supply temperature set to 23 – 30 °C and retained for 1 day completed ☐
- Increase to a supply temperature of 30 – 40 °C and maintained for ½ day completed ☐
- Set to maximum calculated supply temperature plus 5 °C
[Caution: The maximum supply temperature of the ModuleCeiling is: 50 °C] completed ☐
- Maintained for ½ day, set falling supply temperature to 30 °C, maintain for 1 day completed ☐
- Heating switched off on: _____
- Operating state and outdoor temperature on handover:

Approval:

Building owner/Occupant/Client

Construction management/Architect

Heating installation technician

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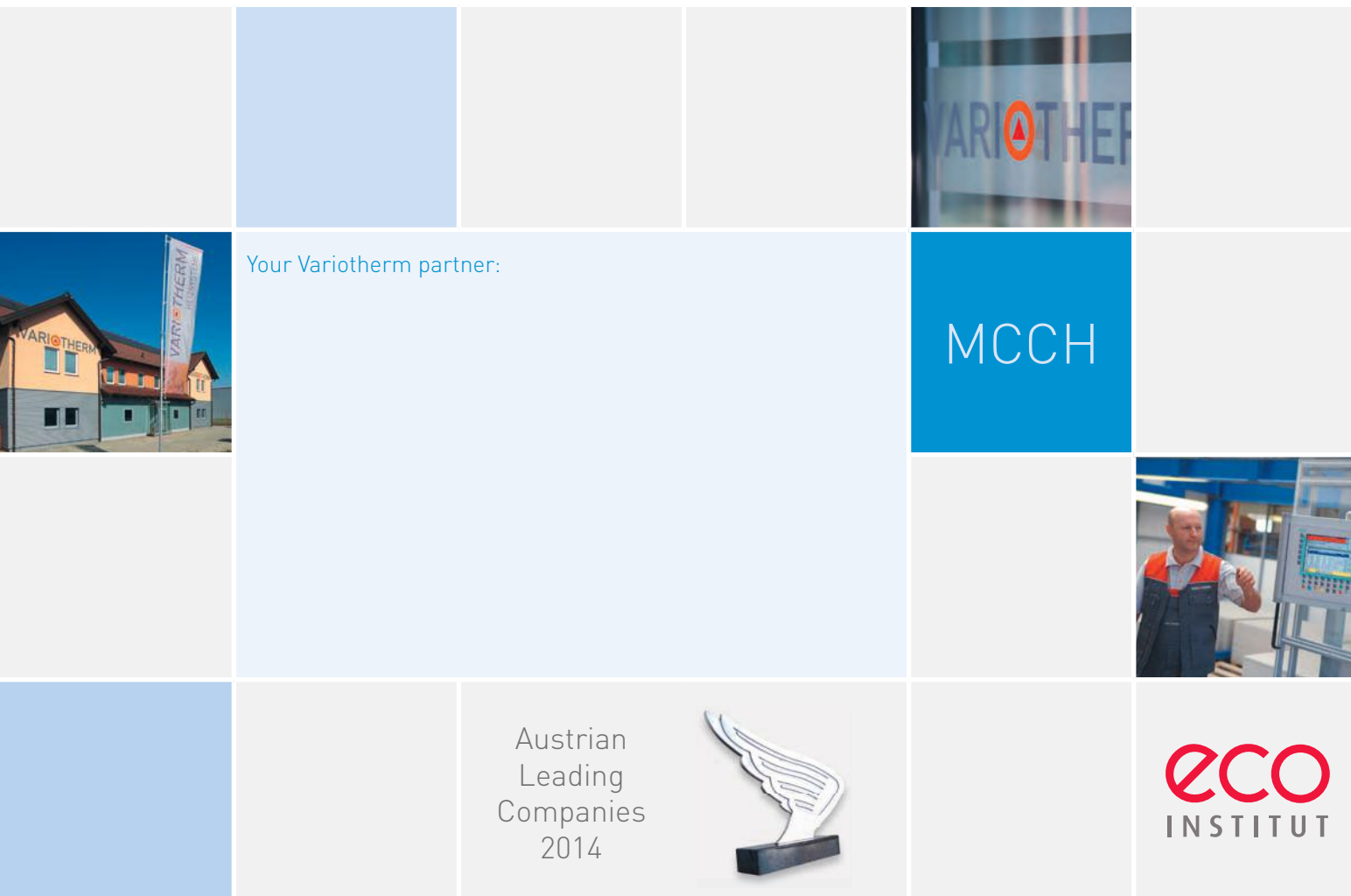
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VARIOTHERM HEIZSYSTEME GMBH

GÜNSELSDORFER STRASSE 3A
2544 LEOBERSDORF
AUSTRIA

Phone: 0043 22 56 - 648 70-0

Fax: 0043 22 56 - 648 70-9

office@variotherm.com www.variotherm.com