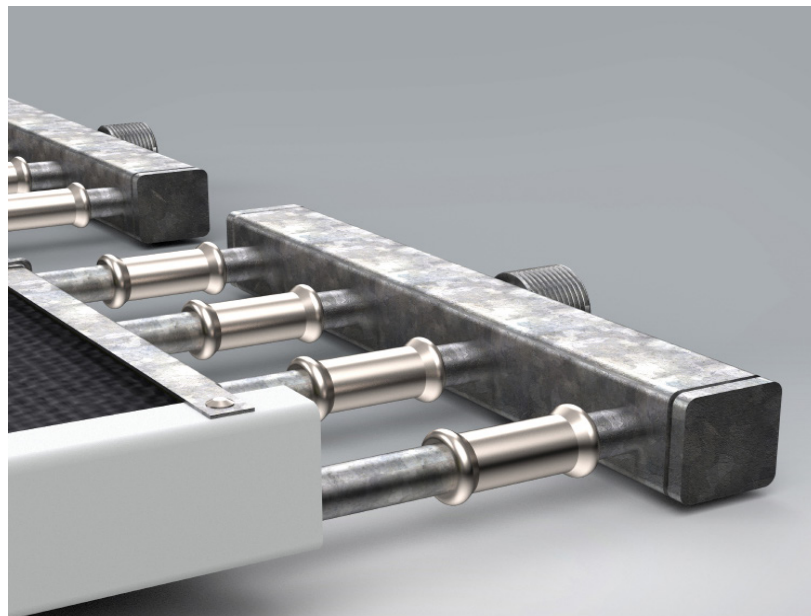


ituString+[®]

INSTALLATION INSTRUCTIONS



Read more about the ItuString+ system at www.itula.com

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1. ORDER OF INSTALLATION

Things to check before starting the installation

- The accuracy of the plans in relation to the installation site
- Make sure that fixing points can carry the load of the ceiling panels to be mounted
- Check the spacing for the fixings in the ItuString+ suspension axes document
- Suitability of the fixing accessories used for the mounting
- Location of pipes in relation to the panels to be mounted
- Picking note and delivery
- Suitability of the lifting equipment for safe installation
- Personal protective equipment
- Make sure that you have suitable accessories and equipment for the installation
- Sheltered storage for radiant ceiling panels before and during the installation
- Whether or not packaging materials can be recycled.
- Getting to know the documentation:
 - Project-specific part list and installation drawing
 - ItuString+ lifting instruction
 - ItuString+ suspension axes
 - ItuString+ cover plate installation
 - ItuString+ ball guard mounting

Order of installation

1. Things to check before starting the installation
2. Mounting the appropriate brackets to the ceiling (not included in the delivery)
3. Mounting the suspension chains to the ceiling
4. Attaching the bearer to the chains
5. Aligning and levelling of the bearer
6. Preparing the panels for installation on the floor (at this point it is easy to check the positioning of the radiant panel components)
7. Lifting the panel and attaching it to the bearer
8. Checking the alignment and putting the sleeve crimp fittings in place
9. Crimp connections
10. Network connection
11. Attaching cover plates and ball guards, if any
12. Pressure test with air
13. Pressure test with water and pressure test report
14. Putting the covers insulation in place



2. GENERAL INSTALLATION INSTRUCTIONS

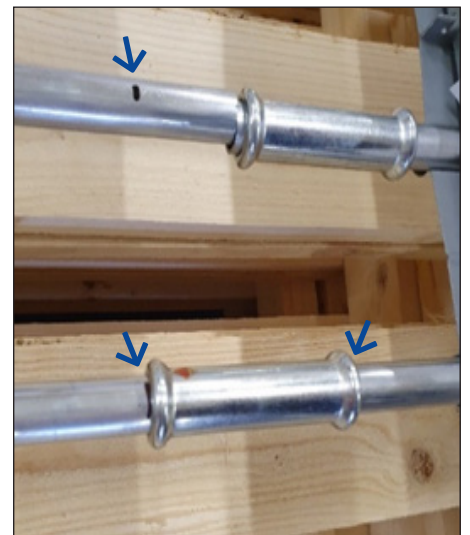
Remove the red protection caps from the pipe-ends. These caps prevent from dirt getting in the pipes during transportation, storage and handling of the modules.



Check that the sleeve O-ring is intact and wipe off any dirt.

The easy way to slip on the sleeve is to turn it axially. Bending the pipe can break the sleeve O-ring. Push the sleeves against the panel so that they are not in the way when you mount the panels.

The sleeve should be placed in the middle. Mark the endpoint of the sleeve on both pipes to be connected. When positioning the sleeve, make sure that you can see both markings.



3. INSTALLATION OF MANIFOLDS

Use a marker to draw a line on the manifold at 25 mm. Draw a line 45 mm from the end of the panel pipe.



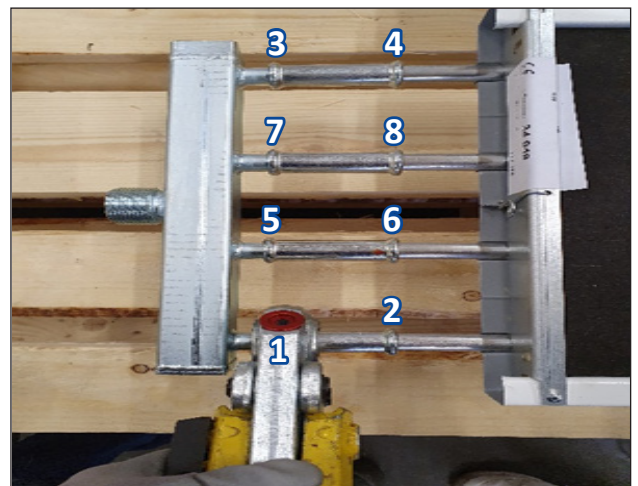
Pull the crimp fittings to the markings.



Before crimping, ensure that the fittings stop at the markings.

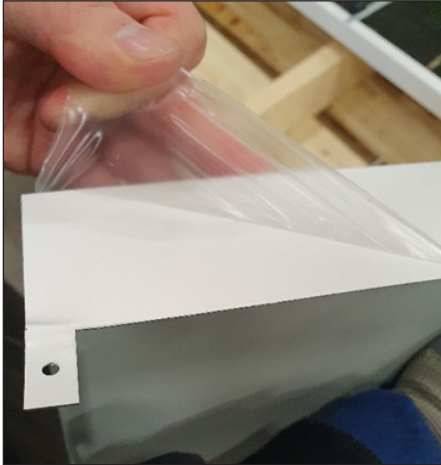


Crimp the fittings in the order shown in the picture.



4. INSTALLATION OF COVER PLATES

Remove the protective film from the cover plates.



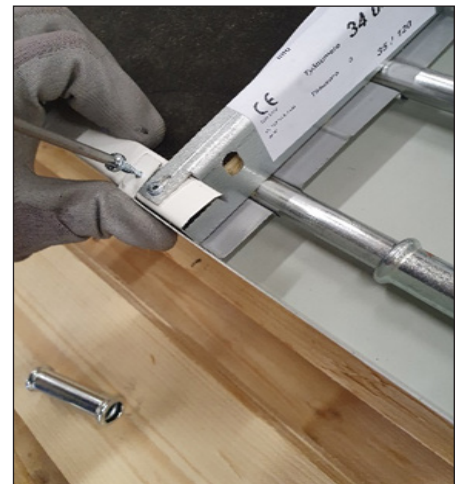
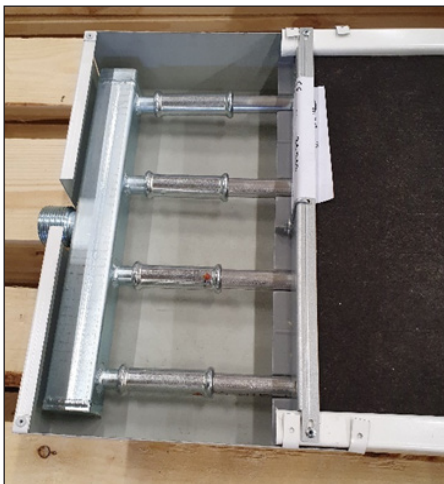
Place the cover plate between the panels. Make sure that the brackets can be turned over the edge of the panel.



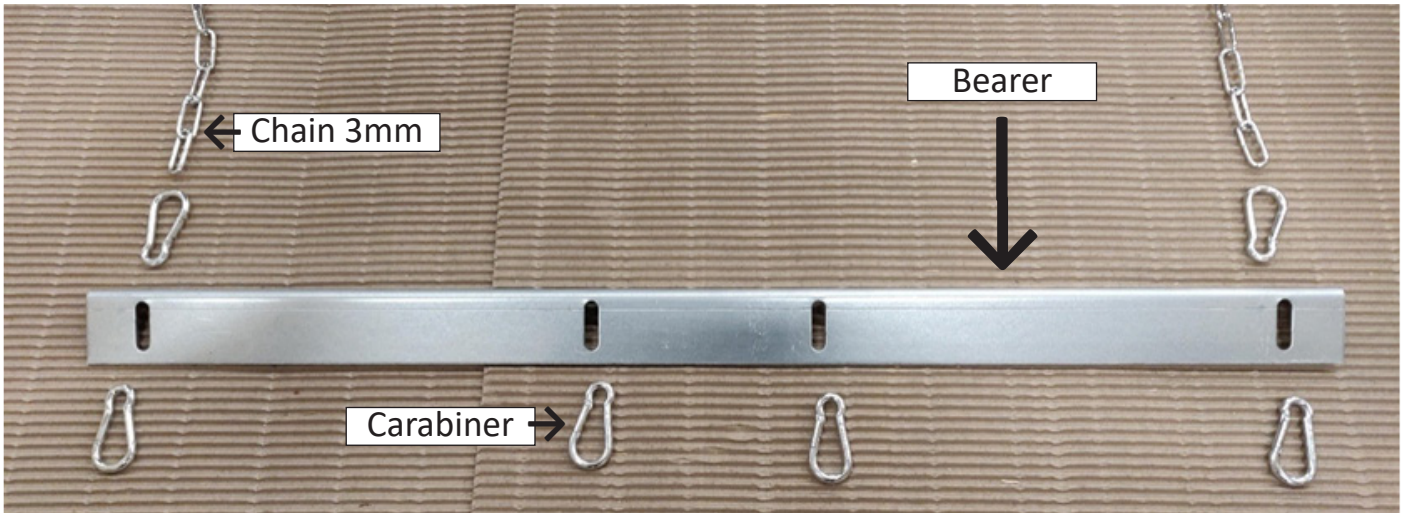
Attach the bracket to the edge of the panel with a self-tapping sheet metal screw.



Place the end cover as shown in the images below, and turn the brackets over the edge of the panel. Attach the end cover with self-tapping sheet metal screws.



5. ASSEMBLING THE BEARER



A carabiner is attached to the lower part of the bearer.

Attach the carabiner to the chain.

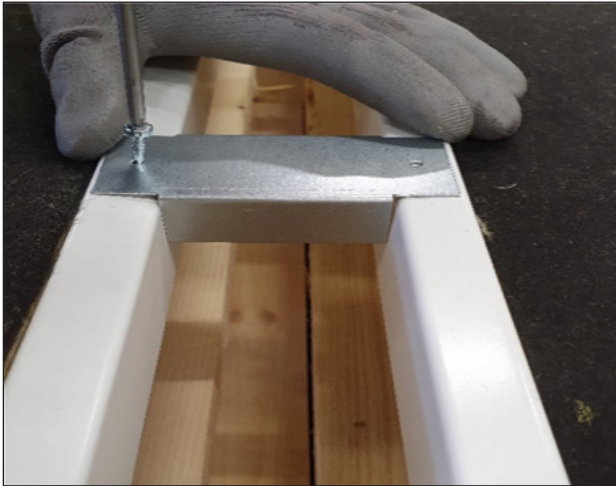


Mount the chain to the ceiling and attach the bearer to the chain using a carabiner. The panels are attached to the bearer. N.B.: carabiners must be positioned narrow end up!

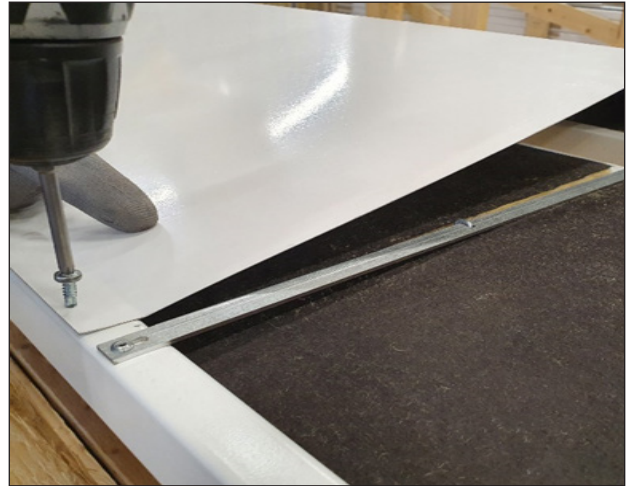


6. INSTALLATION OF BALL GUARDS

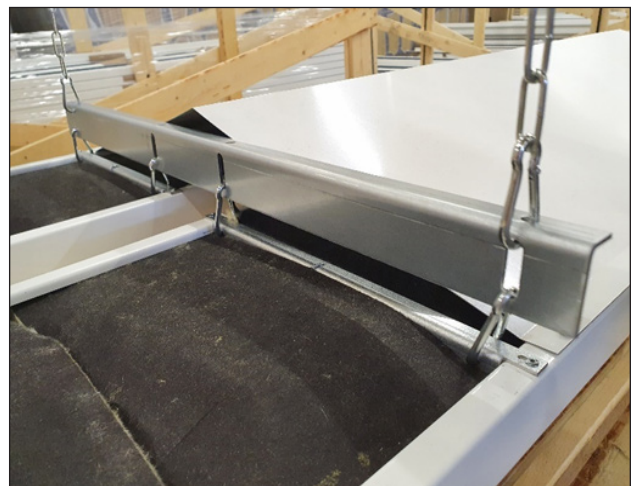
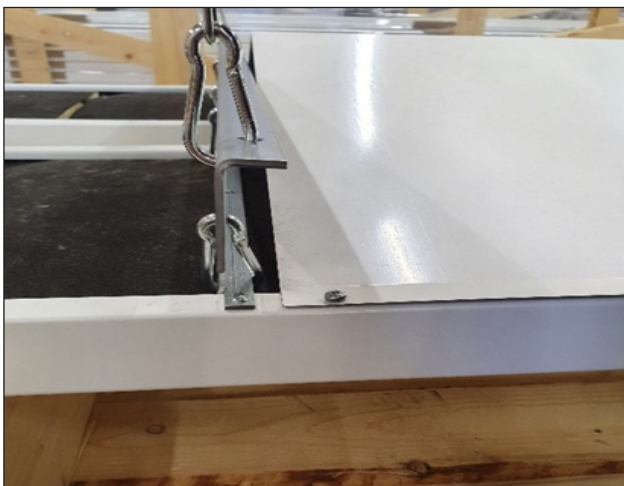
Attach the support between the panels with self-tapping sheet metal screws. The distance between the supports is about 3 metres.



Mount the ball guard between the suspensions with self-tapping sheet metal screws.



Before mounting, ensure that there is a gap of about 1 cm between the suspension and the ball guard to allow the bearer to fit straight.

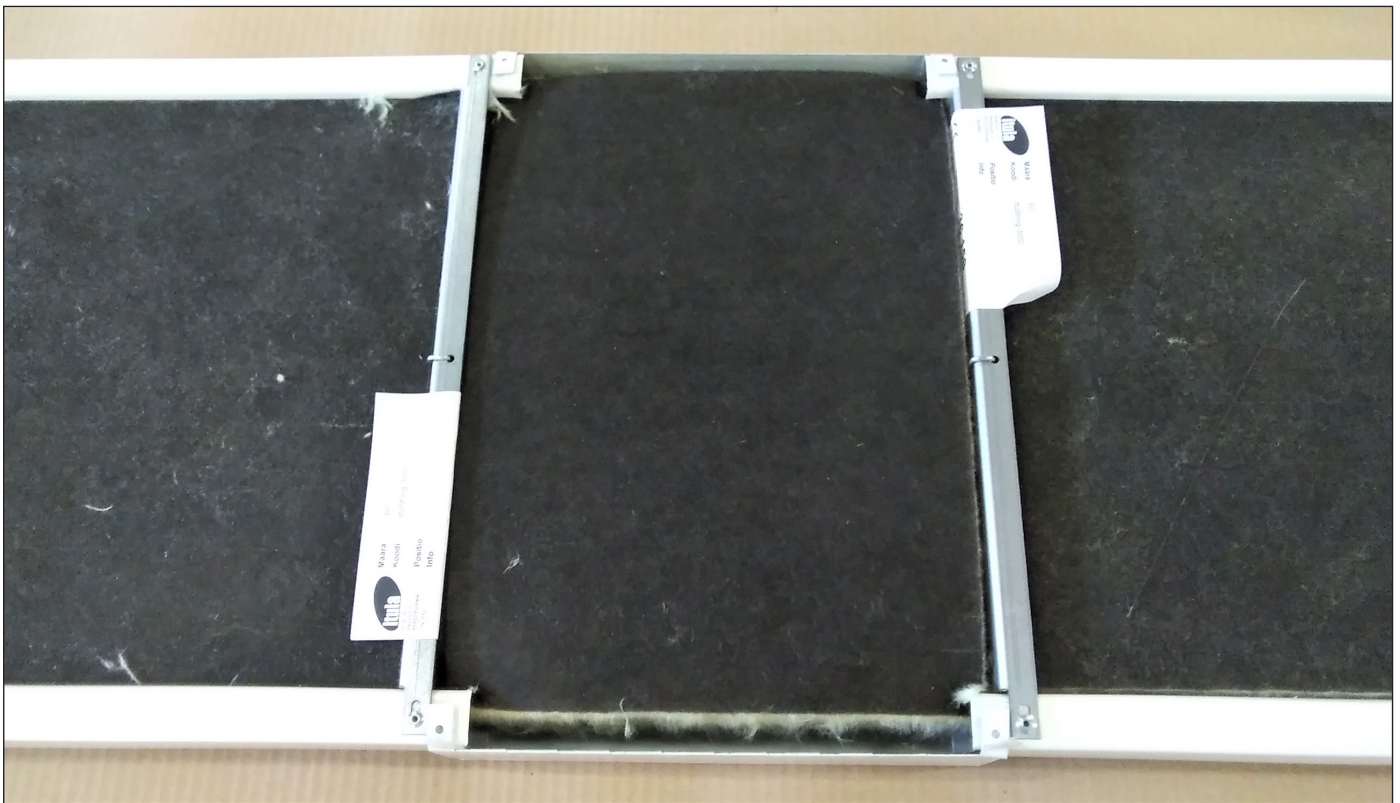


7. PRESSURE TEST AND WATER QUALITY




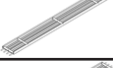

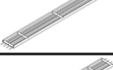














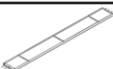



The ItuString+ system must first be tested with compressed air to ensure that it is installed correctly. If no leaks are found, a pressure test can be carried out with water. A pressure test report must always be compiled according to local regulations and practices.

For steel pipes in heating and cooling networks to resist corrosion, the network must be free of oxygen. All air must be removed from the network before the system is put into use. All air must also be carefully removed from the network after any maintenance operations. Water quality must meet country-specific state of the art requirements for closed circuit systems.

After documented pressure testing, you can put the covers insulation in place.



8. PARTS

Code	Image	Item	Length (m)	Number of pipes	Insulation
ItuString-6000-ECO		ItuString+ heating/cooling panel 6000mm	6	4	-
ItuString-5000-ECO		ItuString+ heating/cooling panel 5000mm	5	4	-
ItuString-4000-ECO		ItuString+ heating/cooling panel 4000mm	4	4	-
ItuString-3000-ECO		ItuString+ heating/cooling panel 3000mm	3	4	-
ItuString-6000-ECO-2		ItuString+ heating/cooling panel 6000mm	6	2	-
ItuString-5000-ECO-2		ItuString+ heating/cooling panel 5000mm	5	2	-
ItuString-4000-ECO-2		ItuString+ heating/cooling panel 4000mm	4	2	-
ItuString-3000-ECO-2		ItuString+ heating/cooling panel 3000mm	3	2	-
ItuString-6000		ItuString+ heating/cooling panel 6000mm	6	4	Glass wool and black glass-fiber
ItuString-5000		ItuString+ heating/cooling panel 5000mm	5	4	Glass wool and black glass-fiber
ItuString-4000		ItuString+ heating/cooling panel 4000mm	4	4	Glass wool and black glass-fiber
ItuString-3000		ItuString+ heating/cooling panel 3000mm	3	4	Glass wool and black glass-fiber
ItuString-6000-2		ItuString+ heating/cooling panel 6000mm	6	2	Glass wool and black glass-fiber
ItuString-5000-2		ItuString+ lämmitys/jäähdytyspaneeli 5000mm	5	2	Glass wool and black glass-fiber
ItuString-4000-2		ItuString+ heating/cooling panel 4000mm	4	2	Glass wool and black glass-fiber
ItuString-3000-2		ItuString+ heating/cooling panel 3000mm	3	2	Glass wool and black glass-fiber
ItuString-6000-E		ItuString+ heating/cooling panel 6000mm	6	4	Polyester insulation
ItuString-5000-E		ItuString+ heating/cooling panel 5000mm	5	4	Polyester insulation
ItuString-4000-E		ItuString+ heating/cooling panel 4000mm	4	4	Polyester insulation
ItuString-3000-E		ItuString+ heating/cooling panel 3000mm	3	4	Polyester insulation
ItuString-6000-E-2		ItuString+ heating/cooling panel 6000mm	6	2	Polyester insulation
ItuString-5000-E-2		ItuString+ heating/cooling panel 5000mm	5	2	Polyester insulation
ItuString-4000-E-2		ItuString+ heating/cooling panel 4000mm	4	2	Polyester insulation
ItuString-3000-E-2		ItuString+ heating/cooling panel 3000mm	3	2	Polyester insulation

Accessories		
Code	Image	Item
ITUIP-100001		ItuString+ cover plate, RR20 (~RAL9016)
ITUIP-100002		ItuString+ end cover, RR20 (~RAL9016)
ITUIP-100002-NO		ItuString+ end cover, RR20 (~RAL9016)
ITUIP-100002-2		ItuString+ end cover, RR20 (~RAL9016)
ITUIP-100003		ItuString+ glass wool insulation for cover plate
ITUIP-100003-E		ItuString+ polyester insulation for cover plate
ITUIP-100004		ItuString+ ball guard support
ITUIP-100008		ItuString+ dust protective shield, 310x420
ITUIP-100009		ItuString+ dust protective shield, 310x1000
ITUIP-100014		ItuString+ chain 3mm, 50 m
ITUIP-100020		ItuString+ manifold 2 pipes 1''M
ITUIP-100040		ItuString+ manifold 4 pipes 1''M
ITUIP-100041		ItuString+ manifold 4 pipes
ITUIP-100704		ItuString+ 2 bearer
ITUIP-101088		ItuString+ 3 bearer
ITUIP-101472		ItuString+ 4 bearer
ITUIP-BG1-370		ItuString+ 1 ball guard, 370 mm, RR20 (~RAL9016)
ITUIP-BG1-972		ItuString+ 1 ball guard, 972, mm RR20 (~RAL9016)
ITUIP-BG2-370		ItuString+ 2 ball guard, 370 mm, RR20 (~RAL9016)
ITUIP-BG2-972		ItuString+ 2 ball guard, 972 mm, RR20 (~RAL9016)
ITUIP-BG3-370		ItuString+ 3 ball guard, 370 mm, RR20 (~RAL9016)
ITUIP-BG3-972		ItuString+ 3 ball guard, 972 mm, RR20 (~RAL9016)
ITUIP-100012		Carabiner 5x50 mm (100 pcs in a bag)
0487459		Crimp fitting slide sleeve 15mm, length 71 mm