

ZIP Radiant Ceiling Panels



Installation, Operation and Maintenance

Heating

Cooling

Fresh Air

Clean Air



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IMPORTANT: Submittal documentation, specific to each project, supersedes the general guidelines contained within this manual.

General information

This installation and start-up instructions literature is for ZIP Radiant Ceiling Panels. Radiant ceiling panels are hydronic units designed for year-round cooling and heating. Your equipment is initially protected under the Zehnder Rittling standard five year warranty provided the steps

outlined in this manual for initial inspection, installation, periodic maintenance and normal every day operation of the equipment are followed. This manual should be thoroughly reviewed prior to the installation, start-up or maintenance of the equipment. If any questions arise, please contact your local Zehnder Rittling sales representative or the factory before proceeding any further.

ZIP Radiant Ceiling Panels are a vital part of a building's heating/cooling system and therefore must be properly maintained to provide many years of trouble-free heating/cooling. As long as the following procedures are followed, the system will remain problem-free.

Safety considerations

The installation of ZIP Radiant Ceiling Panels and all associated components, parts and accessories which make up the installation, shall be in accordance with the regulations of all authorities having jurisdiction and must conform to all applicable codes. Only trained and qualified service personnel using good judgment and safe practices should install, repair and/or service air conditioning equipment.

Untrained personnel can perform basic maintenance functions such as cleaning panels. All other operations should be performed by trained service personnel.

When working on air conditioning equipment, observe precautions in the literature, tags and labels attached to the equipment and all other safety precautions that may apply.

Improper installation, adjustment, alteration, service, maintenance, or use can cause hazardous conditions which may cause serious personal injury and/or property damage. Consult a qualified installer, service agency, or your sales representative for information or assistance.

The equipment must always be properly supported by rigging and lifting equipment. Any temporary supports used during installation or maintenance must be designed to adequately hold the equipment in place until equipment is permanently fastened and set in its final location. All supports must meet applicable local codes and ordinances.

All fastening devices must be designed to mechanically hold the assembly in place without the ability to loosen or break away due to system operation or vibration.

Gloves should always be worn for protection against heat, sharp edges and all other possible hazards. Safety glasses should always be worn, especially when drilling, cutting or working with chemicals.

Never pressurize equipment beyond specified pressures. Always pressure test with an inert fluid such as water or dry nitrogen to avoid possible damage or injury in the event of a leak or component failure during testing.

Please follow standard safe practices regarding the handling, installing or servicing of mechanical equipment.

Read these instructions thoroughly and follow all warnings or cautions attached to the equipment. Consult

local building codes for special installation requirements.

Understand the signal words: danger, warning and caution.

⚠ DANGER

Identifies the most serious hazards which will result in severe personal injury or death.

⚠ WARNING

Signifies hazards that could result in personal injury or death.

⚠ CAUTION

Used to identify unsafe practices, which would result in minor personal injury or product and property damage.

The manufacturer assumes no responsibility for personal injury or property damage resulting from improper or unsafe practices during the handling, installation, service or operation of the equipment. The installation of ZIP Radiant Ceiling Panels and all associated components, parts and accessories shall be in accordance with the regulations of all authorities having jurisdiction and must conform to all applicable codes. It is the responsibility of the installing contractor to determine and comply with all applicable codes and regulations.

Receiving

Upon delivery, examine the shipment against the bill of lading to make sure all of the panels have been received and then check each panel carefully for shipping damage. Any damage should be reported to the freight carrier and a claim should be filed with them. Ensure the shipping company makes proper notation of any shortages or damage on all copies of the freight bill. Concealed damage not discovered during unloading must be reported to the shipping company within 15 days of receipt of the shipment.

All panels are shipped F.O.B. factory. Therefore, Zehnder Rittling is not responsible for damage during transit. It is the responsibility of the installing contractor to inspect and verify that the panels shipped were in fact the correct type, length, etc. Any discrepancies should be reported to the local Sales Representative for immediate resolution prior to unpackaging and installation. The factory should be notified of any warranty repairs required in writing before any corrective action is taken. The factory must be fully informed of the expected costs before the work is begun. Zehnder Rittling is not responsible for any repairs or alterations made by the purchaser

without Zehnder Rittling's written consent and will not accept any back charges associated with these repairs or alterations. The return of damaged equipment will not be accepted without written authorization from Zehnder Rittling.

A unit that has received a written Return Goods Authorization will be inspected by Zehnder Rittling upon receipt. Any damage, missing parts, reworking or repackaging resulting from prior installation will constitute just cause for Zehnder Rittling to issue partial credit.

Unpacking and preparation

All panels are carefully inspected at the factory throughout the entire fabrication and assembly processes under Zehnder Rittling's stringent quality assurance program.

It is the sole responsibility of the customer to provide the protection necessary to prevent vandalism and weather deterioration of the equipment. Under no condition should the panels be left unprotected from the elements. If the equipment is not needed immediately at the job site, it should be left in its shipping carton and stored in a clean, dry area of the building or in a warehouse. Do not remove any equipment from its shipping package until it is needed for installation. The equipment is NOT suitable for outdoor installations.

Carefully remove each panel from the container and inspect for hidden damage. Any hidden damage should be recorded and immediately reported to the carrier and a claim should be filed. In the event a claim for shipping damage is filed, the panel shipping container, and all packing must be kept for physical inspection by the freight carrier.

Cap open ends of piping that are stored on a job site. Take special care to prevent foreign materials from entering the piping in areas where painting, dry walling, or spraying of fireproof material, etc., has not yet been completed. Before installing any of the system components, be sure to examine each pipe, fitting and valve, and remove any dirt or foreign material found in or on these components. Some job conditions may require some form of temporary unit covering during construction.

⚠ CAUTION

DO NOT store or install panels in corrosive environments or in locations subject to temperature or humidity extremes (e.g., attics, garages, rooftops, etc.). Corrosive conditions and high temperature or humidity can significantly reduce system performance, reliability and overall service life.

Storage

ZIP Radiant Ceiling Panels must be stored on edge in a back-to-back and face-to-face alternating pattern.

Improper storage configuration could result in damage to the panel.



Handling and installation

While all equipment is designed for durability and fabricated with heavy gauge materials and may present a robust appearance, great care must be taken to assure that no undue force is applied to the piping, connection or aluminum surface during handling. Gloves should be worn when handling finished, painted panels and should never be set down on unclean, hard surfaces. Perspiration or grease from an ungloved hand can potentially leave a mark on the panel. Failure to follow these instructions may lead to scratching or gouging of the finished surface.

Although Zehnder Rittling does not become involved with the design and selection of support methods and/or components, it should be recognized that unacceptable operating characteristics and/or performance may result from poorly implemented unit support. Additionally, proper clearance must be provided for service and removal of the equipment.

⚠ WARNING

Improper mounting could result in the unit falling from its position, causing personal injury or even death.

After mounting the panel, it is then ready for the water service connections. At this time it should be verified that the proper types of services are actually provided to the unit. On those units requiring chilled water and/or hot water, the proper line size and water temperature should be available to the unit.

ZIP Radiant Ceiling Panels should be transported vertically to prevent damage.

Do not transport panels horizontally. This could result in damage to the panel.

Handling and installation

When installing radiant panels, you should have both the mechanical piping plan and the radiant ceiling panel shop drawing. Before starting with the installation, please familiarize yourself with the panels and their location by reviewing both drawings. All panels will arrive on site cut to the length given to the manufacturer and with expansion allowance.

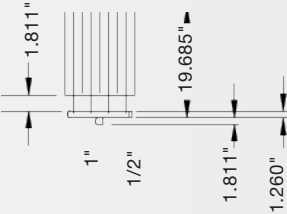
All radiant panels should be installed by workers wearing clean gloves to ensure a dirt-free surface. Attach mounting kits to panel and to anchor points found in the ceiling above the panel. Upon completion of all piping connections, the system should be pressure tested with water in accordance with the project specifications. An insulation blanket, should cover the entire back of the panel. Cut the blanket to pass around

the interconnecting piping and suspension chains. Make sure that each insulation blanket butts up tightly with the adjoining blanket. Do not place insulation blanket over lighting fixtures. Interconnecting piping and headers do not require insulation and is not recommended by Zehnder Rittling to be insulated unless specifically required per specification.

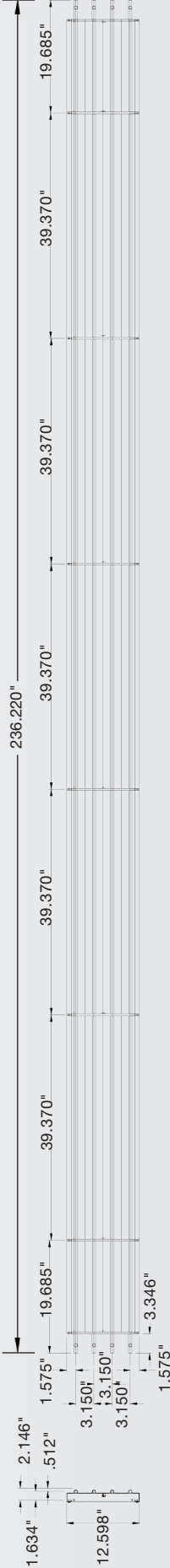


Dimensional data, standard panels

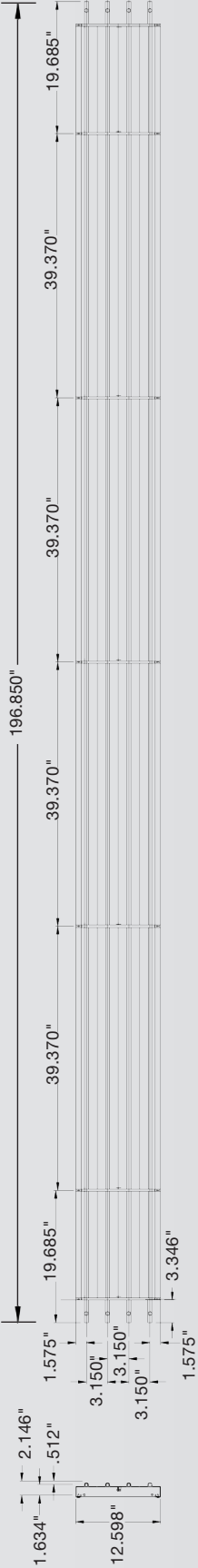
Typical for all



ZIP L60

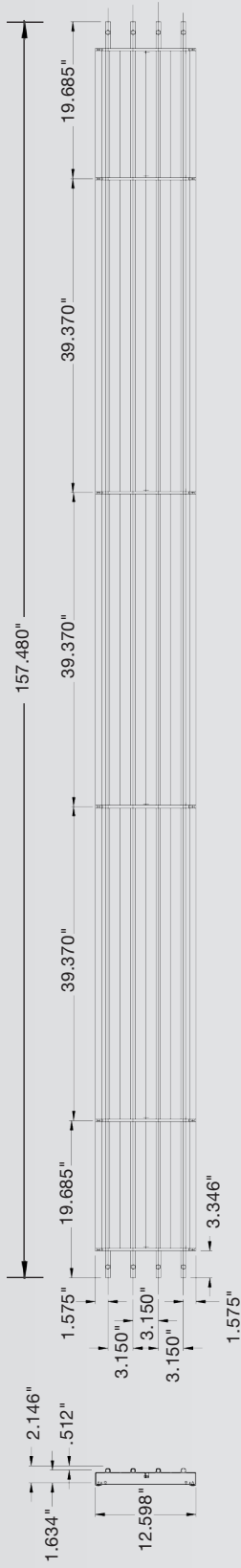


ZIP L50

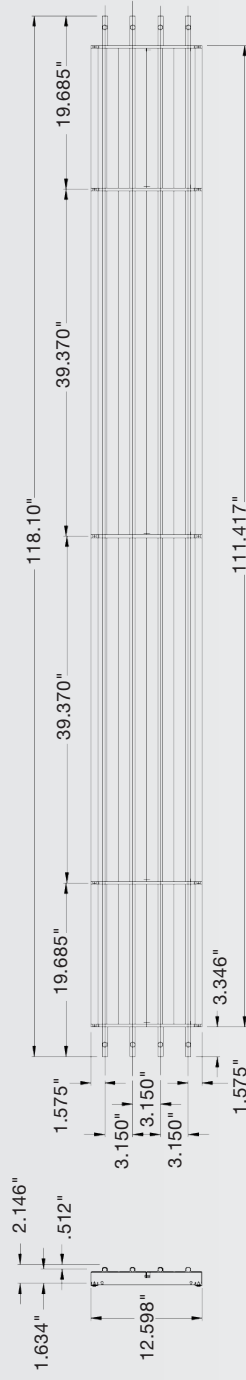


Dimensional data, standard panels

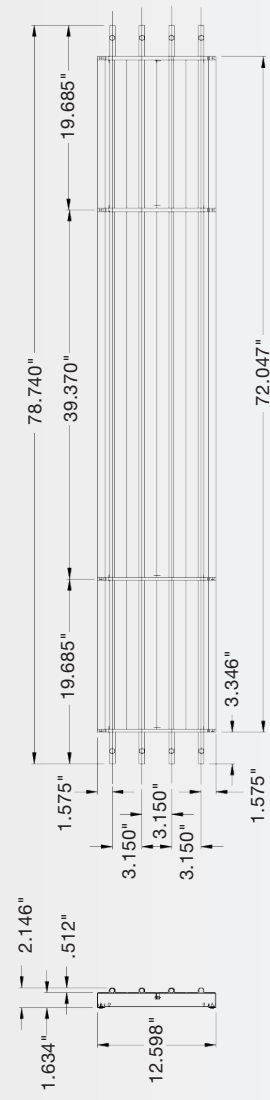
ZIP L40



ZIP L30

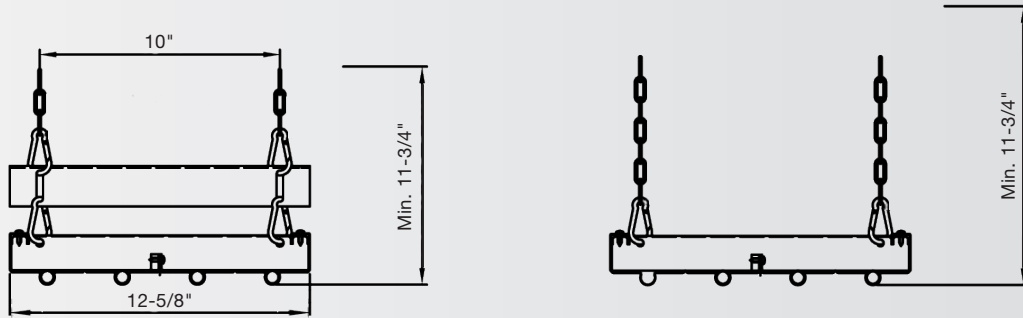


ZIP L20

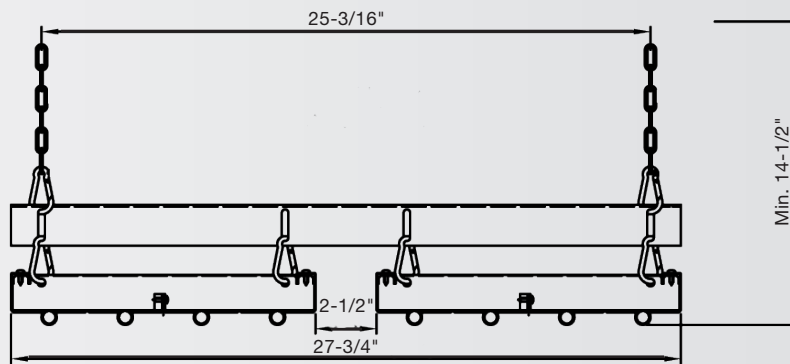


Dimensional data, standard panels

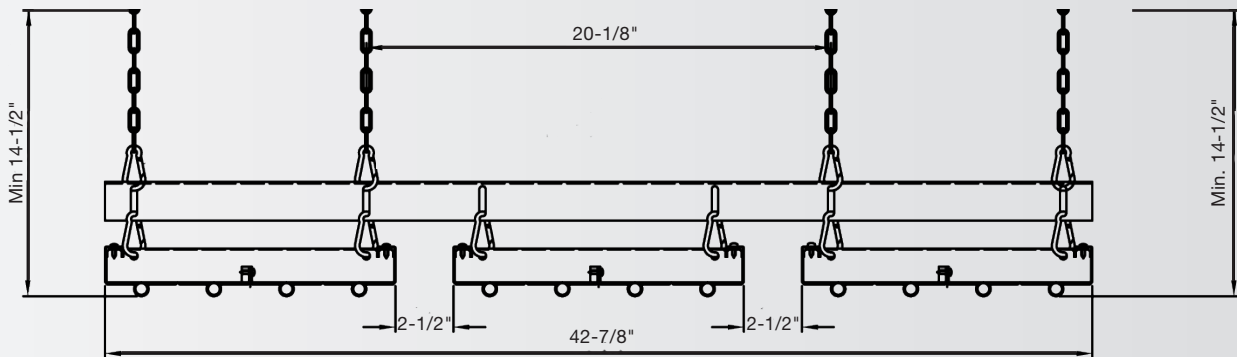
ZIP 1



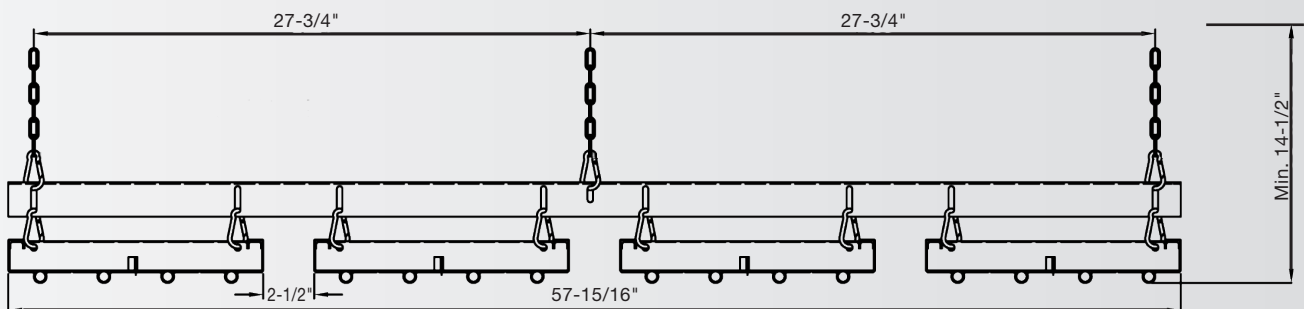
ZIP 2



ZIP 3



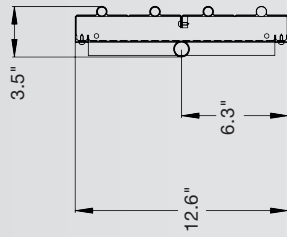
ZIP 4



**Dimensional data,
superimposed
header**



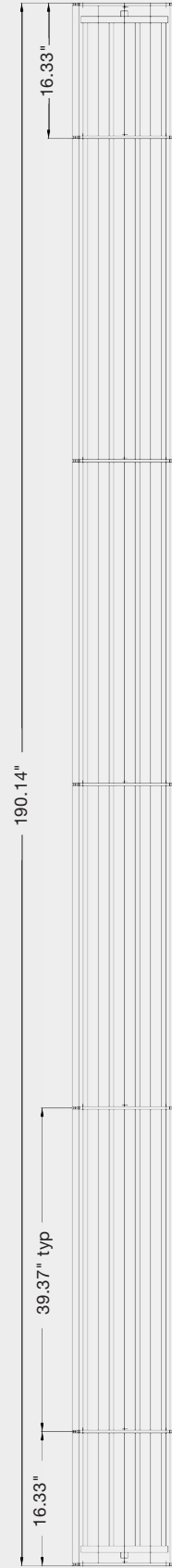
Typical for all



ZIP L60



ZIP L50

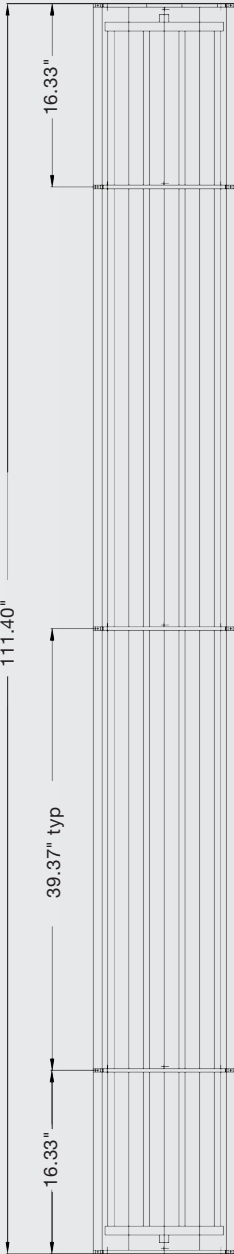


**Dimensional data,
superimposed
header**

ZIP L40



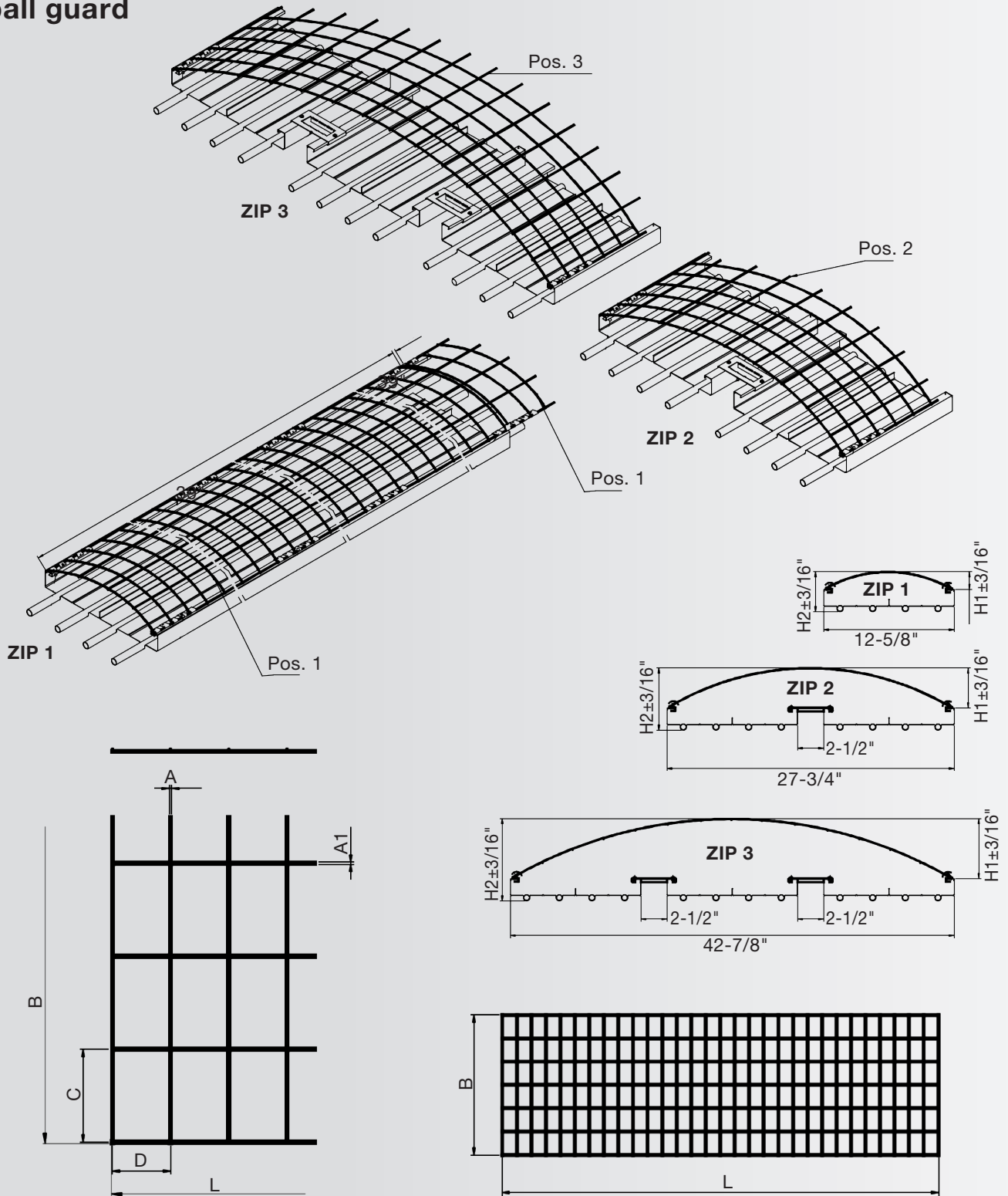
ZIP L30



ZIP 20

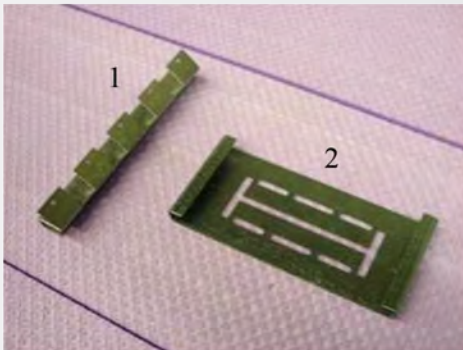


Dimensional data, ball guard

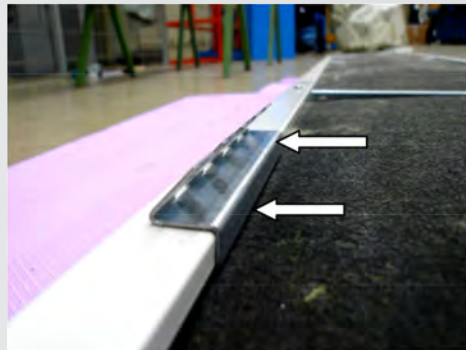


Pos.	Model	Length	Width	C	D	Wire thickness		Ball guard installed height	Overall height installed ball guard
		L	B			A	A1	H1	H2
1	ZIP 1	39"	12-5/8"	80	1-3/4"	5/64"	5/64"	1-3/4"	4"
2	ZIP 2		28-3/8"					4"	6-1/8"
3	Zip 3		44-1/16"					5-7/8"	7-7/8"

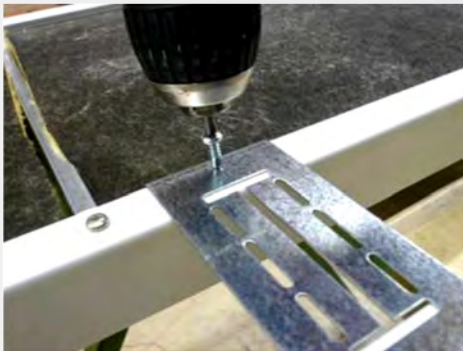
Mounting instructions for ball guard accessory



1. Support profile (1) for fixing of ball guards on the edge of the module and connection profile (2) for fixing the gap between modules of ZIP2 and ZIP3. 1 and 2 are supplied loose.



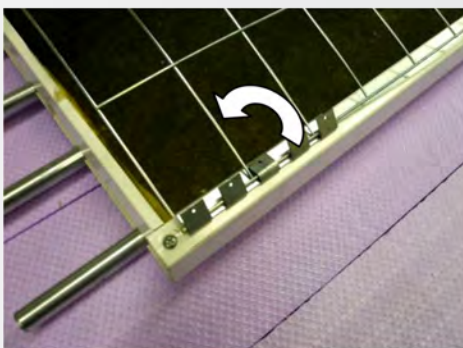
2. Position support profiles at the outer edge of the ZIP ceiling panel. Mount support profiles at the beginning of the panel and then every 12"-13".



3. Fix connection profile for ZIP2 and ZIP3 with parker screws. Mount connection profiles at the beginning of the panel and then every 8 feet.



4. Fix ball guards in the support profiles.



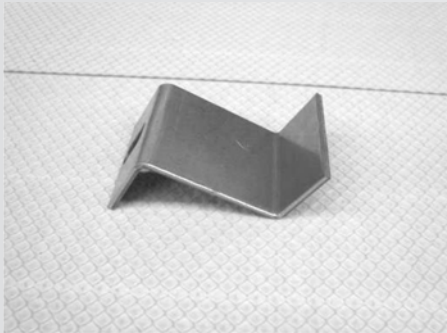
5. Fixing of ball guards by bending support profile.



6. Fix support profiles with a parker screw.

Mounting instructions for Z-profile clip and U-profile clip

ZIP Radiant Ceiling Panels can be mounted directly to the ceiling or through the use of hanging rods.



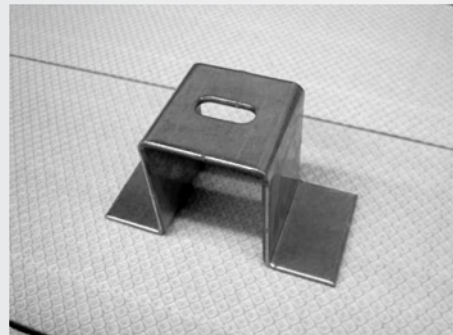
1. Use Z-profile clip for direct mounting of ZIP ceiling panel on the ceiling.



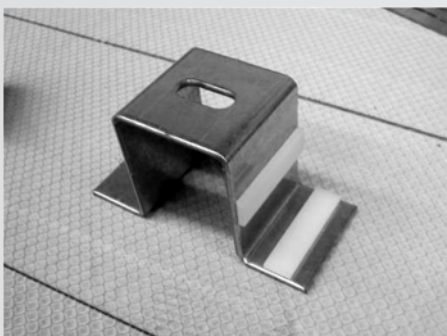
2. Z-profile clip is delivered with two teflon strips that protect the panel against scratches.



3. Fix ceiling panels with Z-profile clip and suitable mounting material on the ceiling. Mounting material has to be provided on site.



4. For ZIP2-ZIP4 fix double ZIP U-profile clip in the gap between 2 panels.

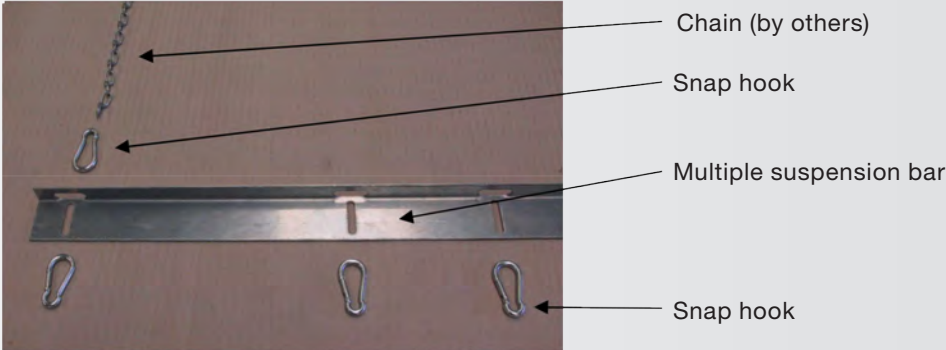


5. U-profile is delivered with two teflon strips that protect the panel against scratches.

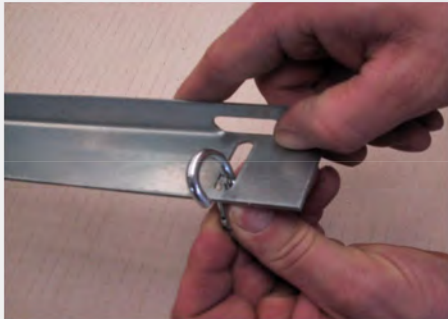


6. Fix U-profile clip with suitable mounting material on the ceiling. Mounting material has to be provided on site.

Mounting instructions multi mounting axis



1.



2. Connect snap hook for panel profile.



3. Connect snap hook to the chain.



4. Connect snap hook with chain to the multiple suspension bar.



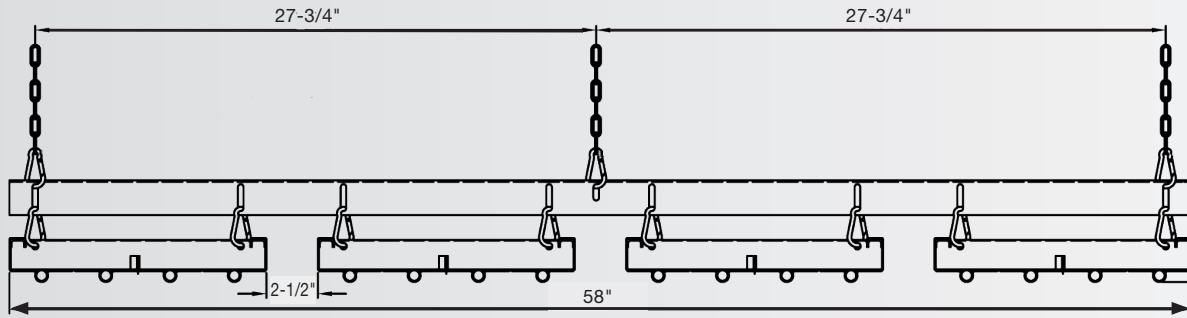
5. Mounting of chain and multiple suspension bar at the ceiling.



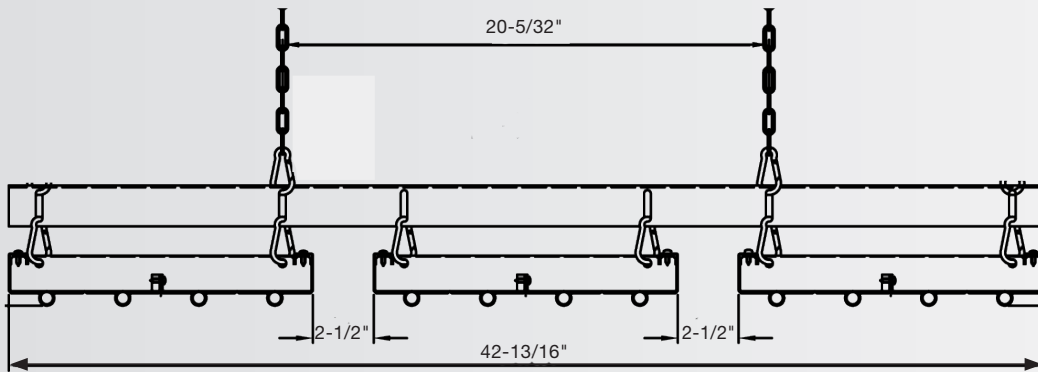
6. Connect the snap hooks of the multiple suspension bar to the installation hole of the mounting axis of the ZIP panel.

Mounting examples

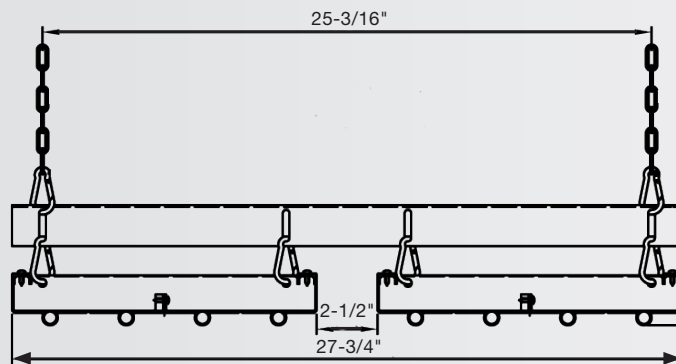
ZIP 4



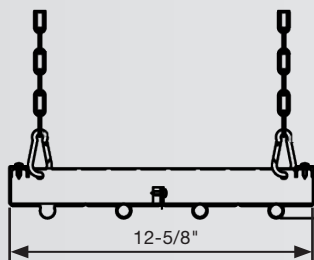
ZIP 3



ZIP 2



ZIP 1



Snap hook with chain

Multi mounting axis

Snap hook

ZIP panel

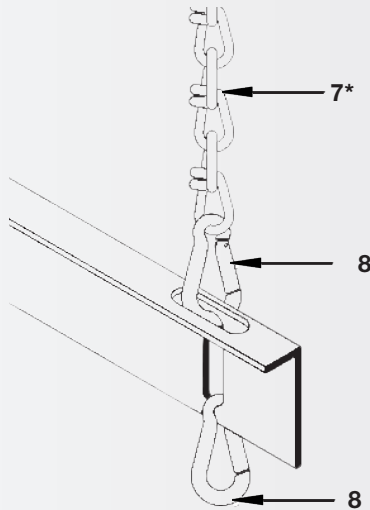
Suspension systems

- 1 Hexagon nut, M8
- 2 Push-in anchor
- 3 Carrier clamp, M8
- 4 Security clip
- 5 Flat leaf screw, M8

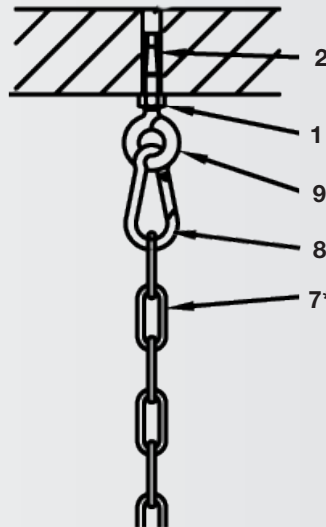
- 6 Trapezoidally formed suspension element, M8
- 7 *Chain link (by others)
- 8 Spring loaded gate link
- 9 Eye bolt

- 10 Plain washer
- 11 Hex bolt, M8 x 40
- 12 Hex bolt, M8 x 110

*Provided by customer
All individual components galvanized.

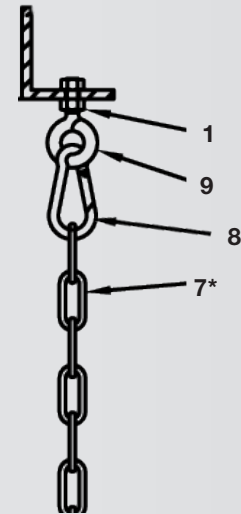


Fastening to **multi-suspension bars with spring hooks** and knotted-link chain.



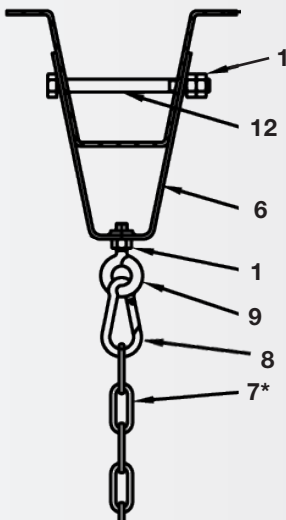
Installation kit KN 53

Fastening to concrete ceiling with steel drive anchors, eye bolts and spring hooks.



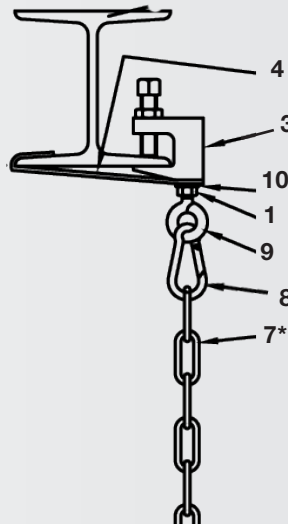
Installation kit KN 54

Fastening to steel section with eye bolts and spring hooks.



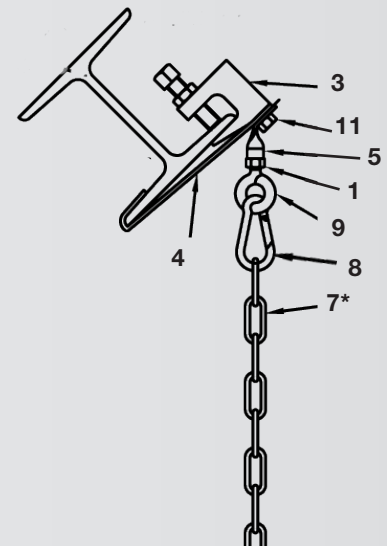
Installation kit KN 56

Fastening to trapezoidally formed sheet steel mounting member with trapezoidally formed suspension element, eye bolts and spring hooks.



Installation kit KN 58

Fastening to horizontal steel girders with carrier clamps, eye bolts and spring hooks.



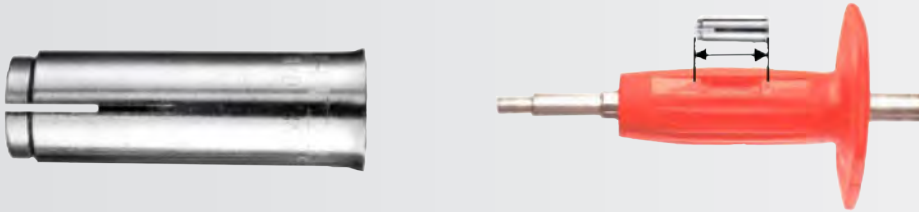
Installation kit KN 57

Fastening to inclined steel girders with carrier clamps, eye bolts and spring hooks.

Suspension systems

Push-in anchor setting instructions

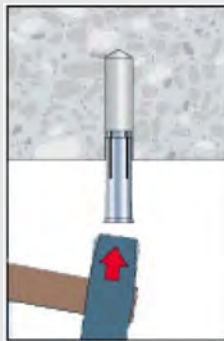
Check setting tool (anchor must fit exactly into recess)



Drill borehole



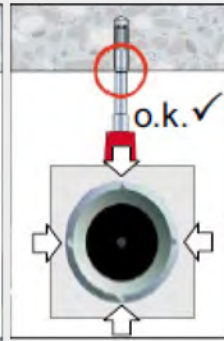
Clean borehole



Push in anchor



Expand anchor until marking on flared end

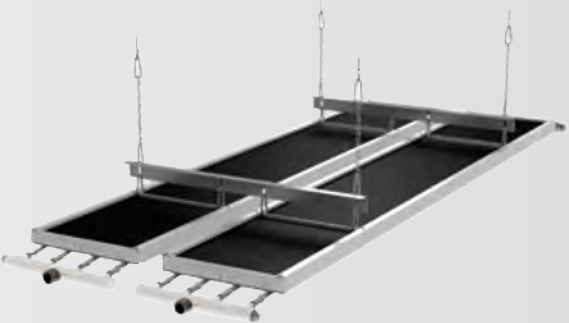


		M8 x 40
Drill-Bit-Ø	d_o [mm]	10
Hole depth	h_1 [in]	1-21/32"
Embedment depth	h_v [in]	1-9/16"
Screwing depth	l_s [in]	3/8" - 1/2"
Tightening torque (screw)	T_{inst} [Nm]	3

Suspension systems

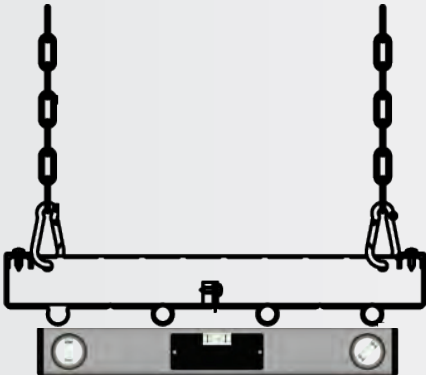
There are many different possible forms of suspension and fixing. Using multiple suspension bars when positioning several Zehnder Rittling ZIP modules next to one another reduces the number of installation sets required.

Quantity of Multiple Suspension Bars per Module	
ZIP L20	2
ZIP L30	2
ZIP L40	2
ZIP L50	3
ZIP L60	3



Level modules

For proper function, ZIP Radiant Ceiling Panels must be leveled both in the longitudinal direction and in the traverse direction.



Chilled/hot water connections

Submittals and product literature detailing unit operation, controls and connections should be thoroughly reviewed before beginning the connection of the various cooling and/or heating mediums to the panels.

All shipped loose valves, hoses, and interconnectors should be installed as required and all service valves should be checked for proper operation.

After the module connections are completed, the system should be tested for leaks. Since some components are not designed to hold pressure with a gas, hydronic systems should be tested with water. Test pressure must not exceed 100 psig. Pressure testing should be completed prior to sheet rocking, finished floors, painting, caulking, etc.

▲ CAUTION

All panels must be protected from freezing after initial filling with water. Even if the system is drained, panels may still hold enough water to cause damage when exposed to temperatures below freezing.

In the event that leaking or defective components are discovered, the Zehnder Rittling Sales Representative must be notified before any repairs are attempted. All leaks should be repaired before proceeding with the installation.

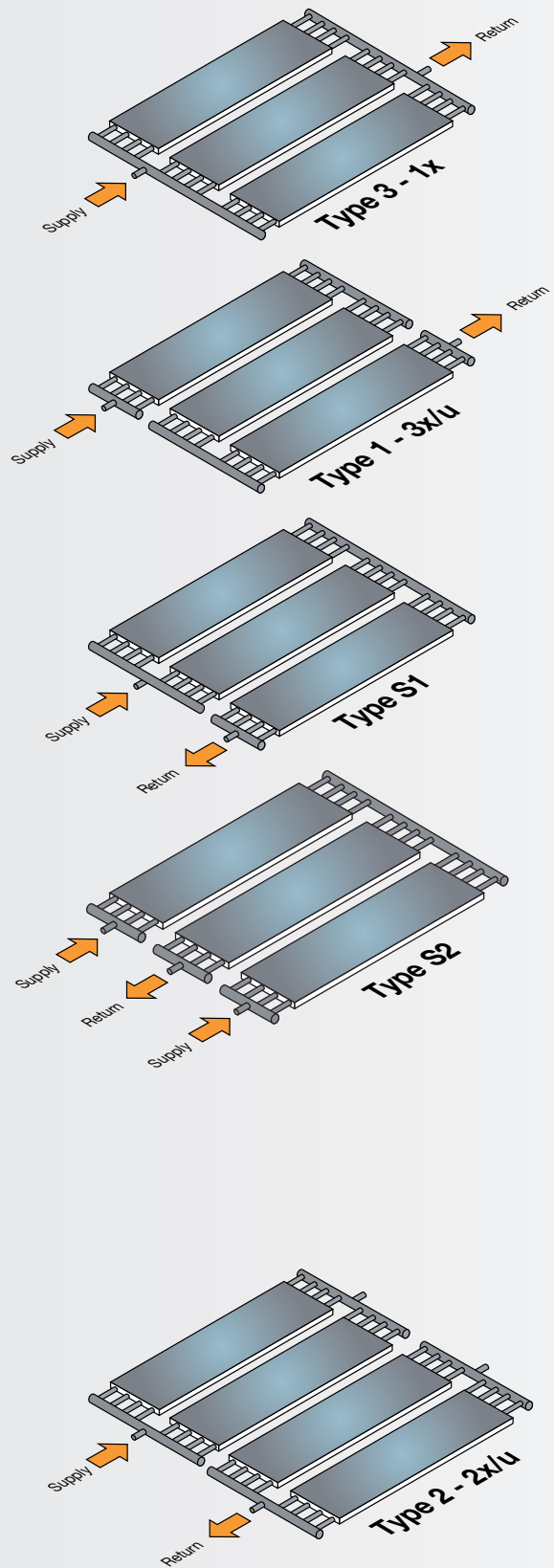
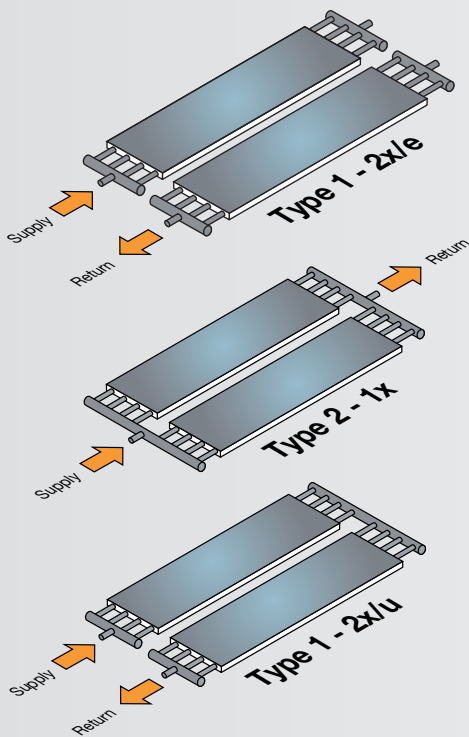
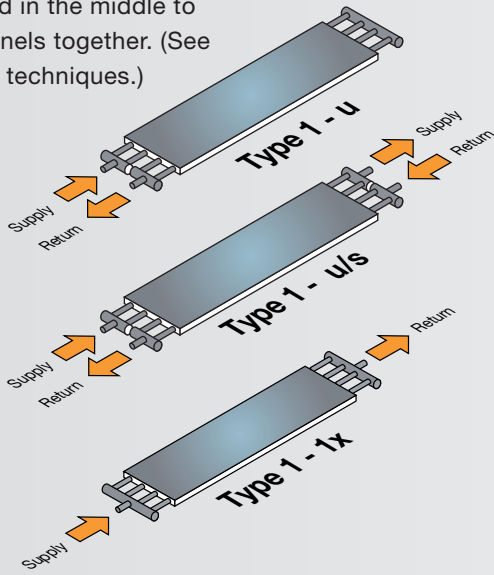
After fixing any leaks, air should be vented from the system by reintroducing water at 0.5 GPM or higher. The water temperature should be brought up gradually to the design temperature. The design water temperature drop will only be attained when building is under full load.

After system integrity has been established, the panels should be insulated in accordance with the project specifications. This is the responsibility of the installing or the insulation contractor if not already purchased and provided by Zehnder Rittling. Zehnder Rittling will not accept any charges associated with re-insulating panels if the installing contractor failed to establish system integrity prior to insulating.

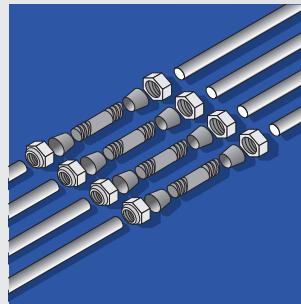
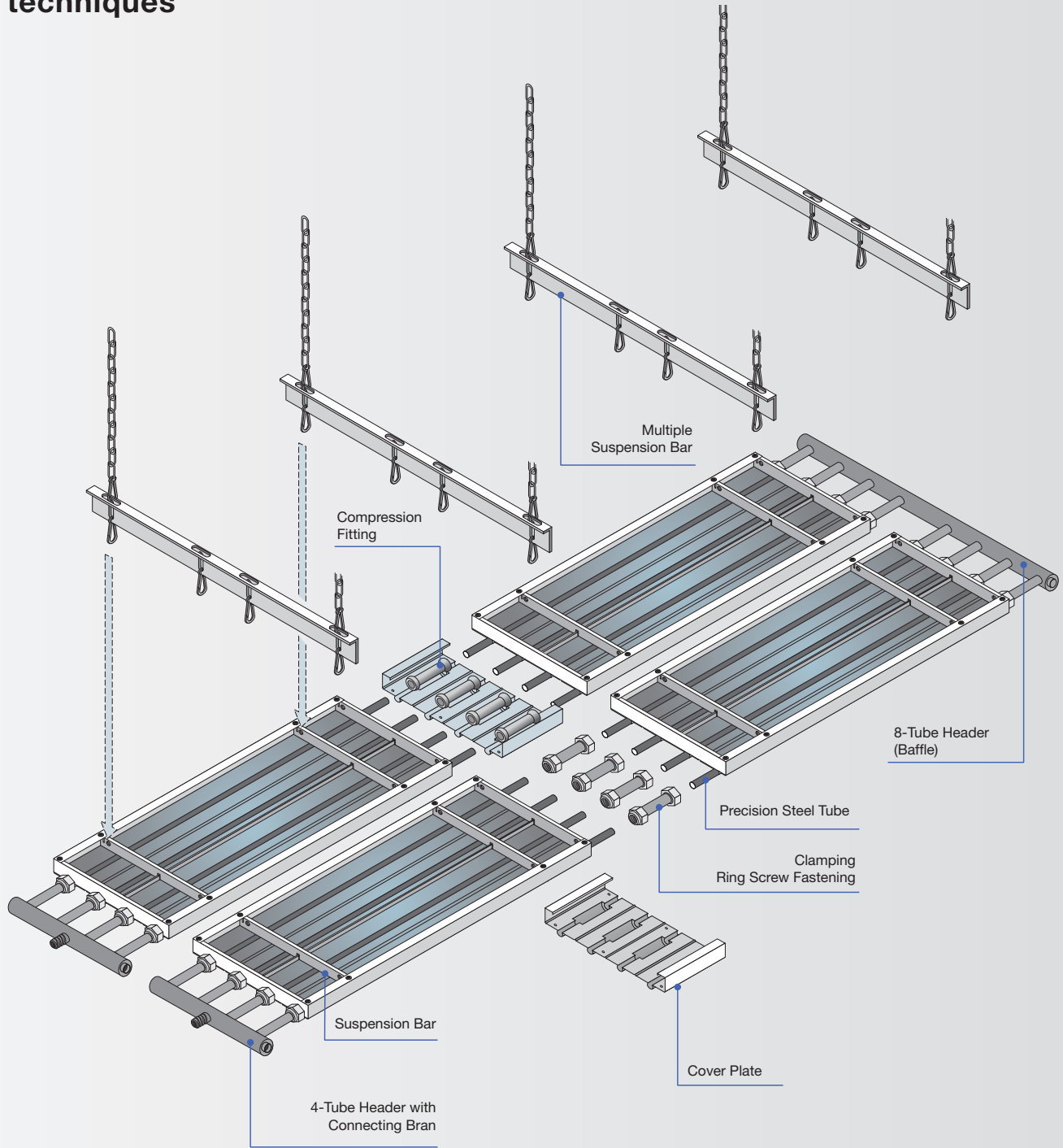
Possible hydraulic connections

The Zehnder Rittling ZIP Radiant Ceiling Panels offer a variety of possible connections.

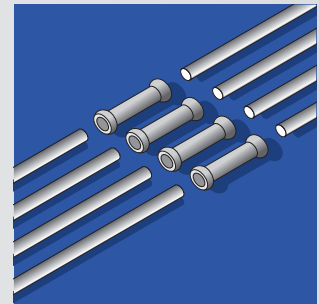
Here are the available configurations. Panels can be assembled in series with headers and collectors on each end of the run and compression or screw fittings used in the middle to connect panels together. (See connection techniques.)



Connection techniques



Detail of the clamping ring screw fastening.



Detail of the compression fittings.

Mounting instructions for screw fittings



1. Set consists of two union nuts for threaded joints, two plastic locking rings and one double pipe nipple.



2. First put the union nut, followed by the locking ring on the tube ends of the ZIP module.



3. Repeat with the double pipe nipple.



4. Align the second ZIP module and connect the mounted threaded joints and locking rings. Ensure the double pipe nipple is positioned centrally.



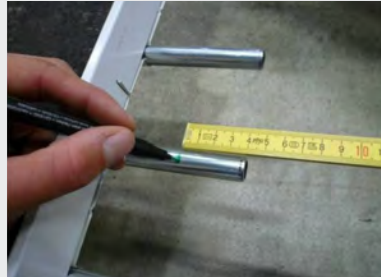
5. Secure threaded joints with a 7/8" open end wrench. The required torque is 35-40 Nm.

Mounting instructions for compression fitting

We provide compression fittings 15mm with Mapress contour. Please use only suitable pressing tongs and press machines M15.



1. Compression fittings are supplied loose, packed in a plastic bag.



2. Mark half of the total length of compression fitting (input depth) on the tube ends of both panels. Adherence to the indicated input depth is absolutely necessary to ensure mechanical stability of the connection.



3. Check correct position of the joint ring before mounting the compression fitting. Remove any dust from the joint ring in order not to affect the quality of the connection.



4. Position compression fitting with careful turning and pushing in axial direction on the tube. Do not bend the tube in the compression fitting. This could damage the joint ring.



5. Align the ceiling panels besides the compression fittings then move compression fitting back to the mark on the second tube end.

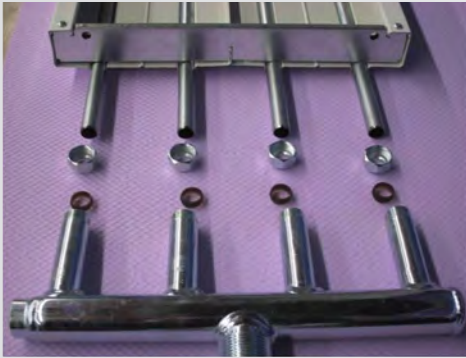


6. Check correct position of compression fitting in the middle of the coupling joints. Both marks have to be still visible. Connection tube on tube.

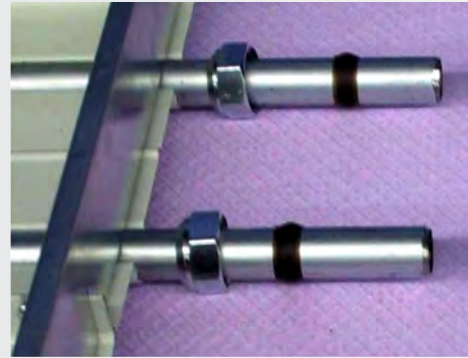


7. Check the position of the compression fitting then fix compression fittings alternately, using pressing tongs, from outside to inside (1-2-3-4). Continually check the correct positioning of the compression fitting during the crimping process.

Mounting instructions for collectors/headers



1. Delivery of headers/collectors together with plastic locking rings and union nuts for threaded joints. Locking rings and union nuts are delivered loose.



2. Place union nut then locking ring on tube ends of the ZIP module.



3. Put nipples of header/collector on the tube ends of ZIP module.



4. Tighten union nuts by hand.



5. Secure threaded joints with an open end wrench NW 22. The required torque is 35-40 Nm.

Mounting instructions for cover plates



1. Cover plates are protected by a protection film and packed with a piece of insulation.



2. Remove protection film before installation.



3. Center cover plate on the joint of 2 modules.



4. Fix cover plate with a soft pressure. Cover plate has to click into place.



5. Press long side of cover plate on the lateral upstand of the ZIP module.



6. Bend securing clip over the interior upstand of the ZIP module.

Installation for flexible hoses

Do not exceed the permissible bending radius R_{min} during transport, installation and operation. If the permissible bending radius cannot be met, the configuration should be changed. The nominal dimension L (see Table on page 30) must be achieved. When bending, enough hose length must be available to form an open arc. Otherwise the hose will be kinked and compromised at the connections.

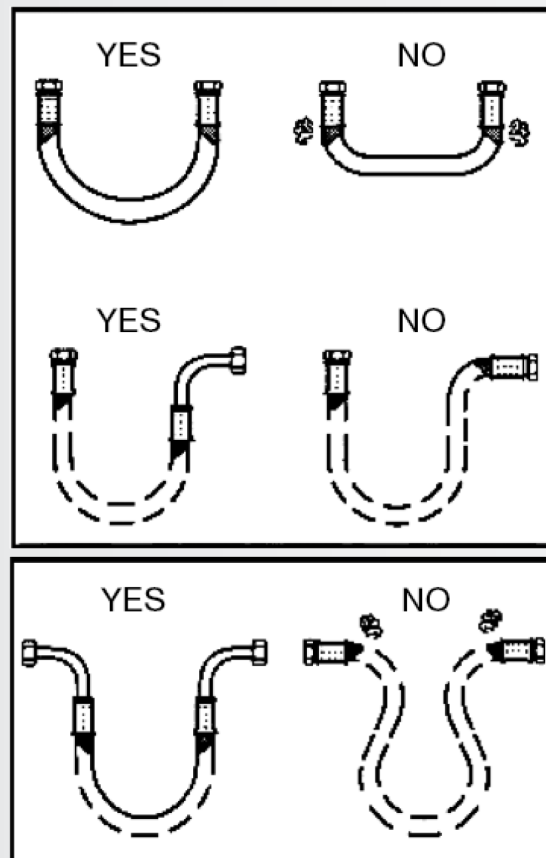
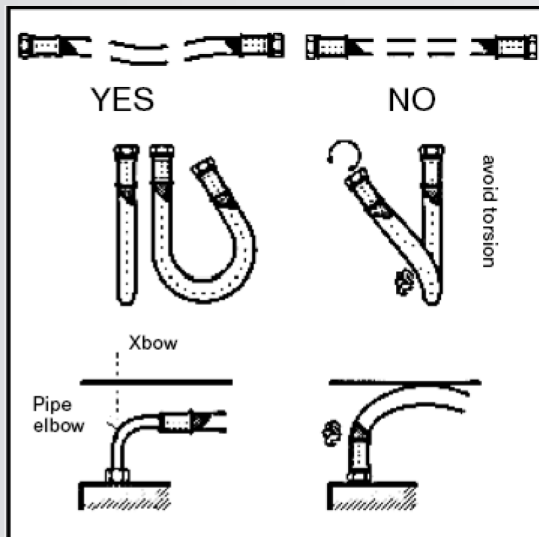
In no circumstances should the hose be twisted or kinked. The flexible hose must not be loaded, either during assembly or in operation by external tensile load or compression stress. After the second connection of the flexible hose has been connected, the rigid connections (external thread) must not be tightened or turned again as this may cause the flexible hose to twist and damage.

Under system pressure and heat, there may be a slight change in the length of the tube. Flexible hoses used for in-line connections must therefore be installed so that expansions can be compensated. The installer is responsible for the integrity of the connection. The material of the seals should be checked in any installation to ensure that it is suitable for the application. The nominal diameter should be selected to ensure that no noise may occur.

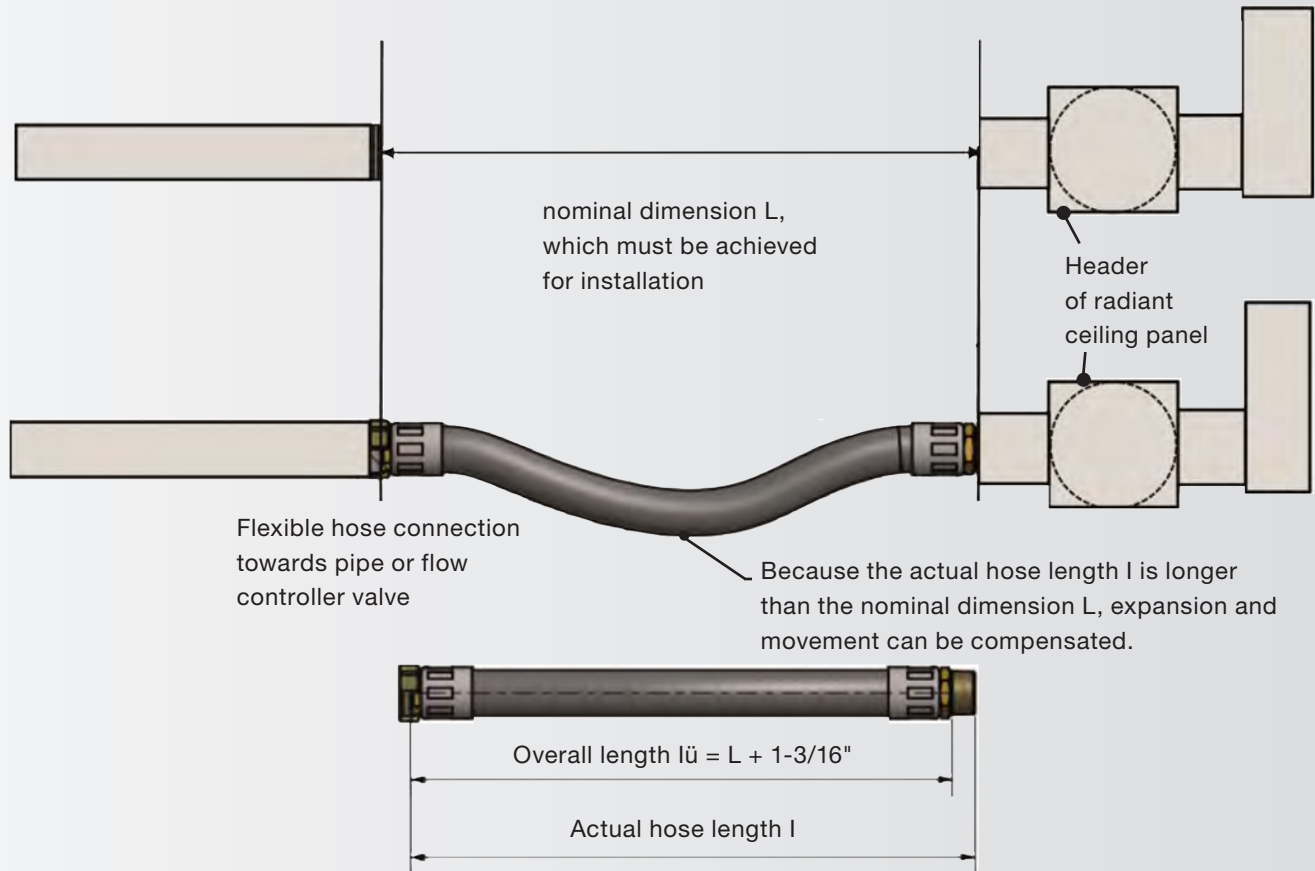
Radiant panels must be installed strictly in accordance with DIN 1988 and any relevant prevailing standards. Care must be taken during storage and transportation to prevent damage: products should be kept

protected from light in a dry, frost free condition, ideally at temperatures between 50°F and 95°F. Flexible hoses should be stored clear from any chemicals. Failure to install products according to aforementioned standards and best practices may invalidate warranty. Particular care must be taken to protect against corrosive, electrochemical and bacteriological pollution.

Zehnder Rittling reserves the right to modify these instructions at any time. This edition supercedes any previous instructions which are rendered invalid.

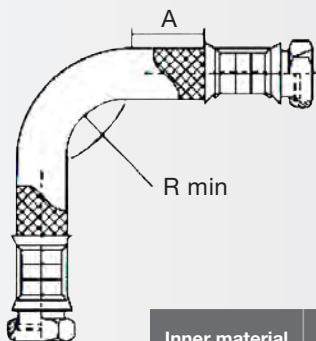


Installation for flexible hoses



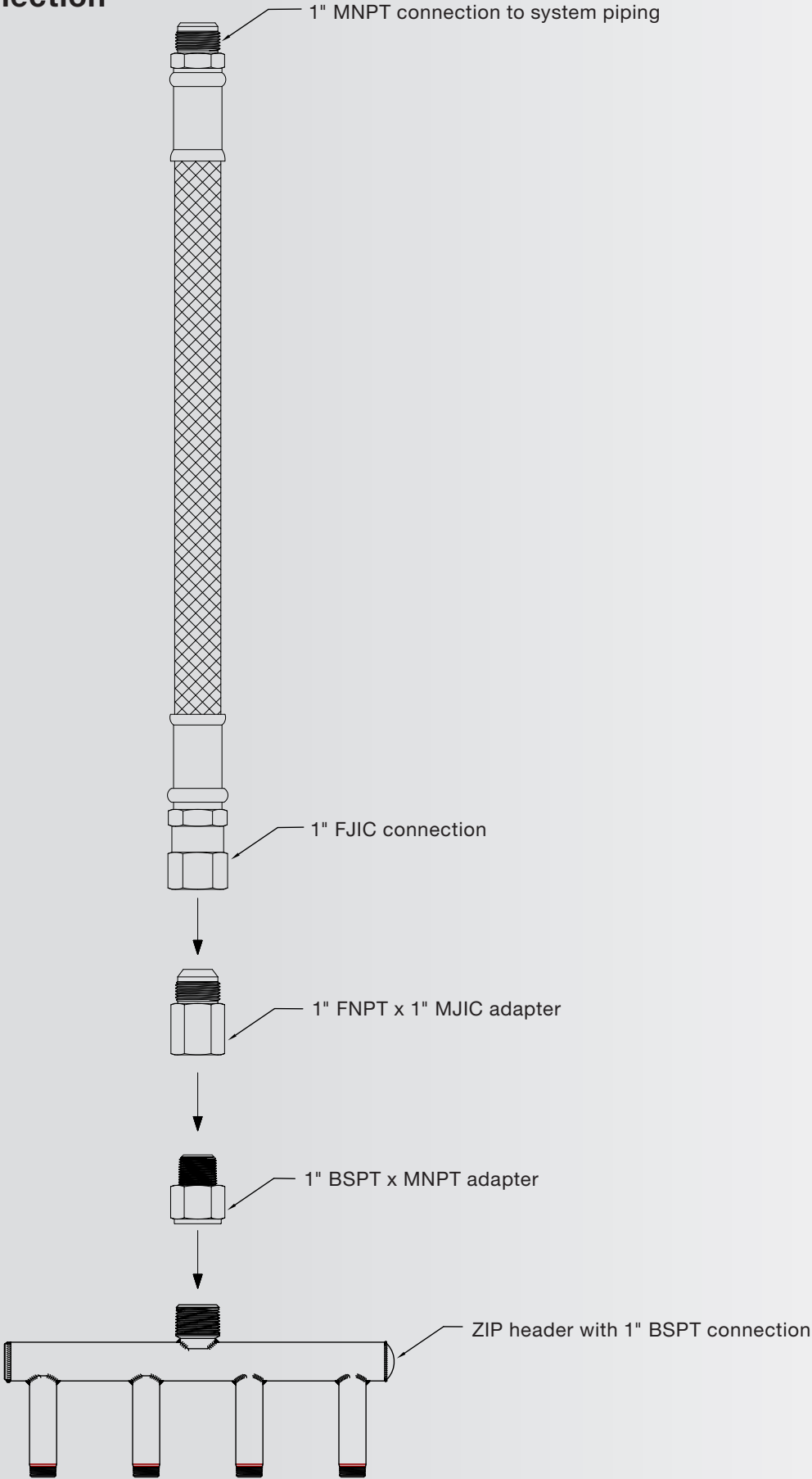
Over length $l_{ü}$ - Extra length due to expansion of the radiant ceiling panels + 1-3/16"

Nominal diameter	Nominal dimension L	Overall length $l_{ü}$	Actual hose length I
1"	20"	21-3/16"	21-3/4"
1-1/4"	20"	21-3/16"	21-3/4"



Inner material	Connections	Braiding	Nominal diameter	A and R min	Max. working temperature	Max. operating pressure
EPDM (open to diffusion)	Nickel-plated brass	Stainless steel AISI 304	1"	3-15/16"	212°F	145 psi
			1-1/4"	6-5/16"		

Hose connection



Cooling/heating system

Prior to the water system start-up and balancing, the chilled/hot water system should be thoroughly flushed to clean out dirt and debris which may have accumulated in the piping during construction. During this procedure, all panel service valves must be in the closed

position. This will prevent any foreign material from entering the panel's piping and clogging valves and metering devices. Strainers should be installed in the piping mains to prevent this material from entering the units during normal operation.

During system filling, air venting from the panel is accomplished through the main system air vents.

⚠ CAUTION

Inspect the entire system for potential air traps and independently vent those areas as required. In addition, some systems may require repeated venting over time to fully eliminate air in the system.

Water system balancing

A complete knowledge of the hydronic system, including its components and controls, is essential to proper water system balancing and should only be completed by a qualified expert. The system must be complete, and all components must be in operating condition before beginning the water system balancing procedures.

Each hydronic system has different operating conditions depending on the devices and controls installed for the particular application. The actual balancing technique may vary from one system to another.

After the proper system operation is established, the appropriate operating conditions such as water temperatures, flow rates and pressure drops should be recorded for future reference.

It is recommended that balancing of the system should be done during the winter when full flow will be realized. Before and during water system balancing, conditions may exist due to incorrect system pressures which may result in noticeable water noise or undesired valve operation. After the entire system is balanced, these conditions will not exist on properly designed systems. If any of these conditions persist, recheck the system for air that may not have been properly vented during start-up.

Water treatment

Proper water treatment is a specialized industry and therefore it is recommended to consult an expert in this field to analyze the water for compliance with the water quality parameters listed below and to specify the appropriate water treatment program. The expert may recommend rust inhibitors, scaling preventative, antimicrobial growth agents or algae preventatives. Anti-freeze solutions, glycols, may also be used to lower the freezing point.

All Zehnder Rittling ZIP panels are constructed with steel tubes. It is the end user's responsibility to ensure that any of the water delivery components are compatible with the treated water.

Failure to provide proper water quality will void the ceiling panel's warranty.

Water content	Required concentration
Sulphate	< 10 mg/L
pH	8.5-10.0
Chlorides	< 50 mg/L
Phosphate	< 30 mg/L
Iron	< 0.2 mg/L
Copper	< 10 µg/L
Dissolved solids	< 50 mg/L
Calcium carbonate hardness	14.6 gr/gal
Particulate quantity	< 10 ppm
Particulate size	800 micron max

Start up, operation, maintenance and cleaning

Start up

Each zone of Zehnder Rittling ZIP Radiant Ceiling Panels should be pressure tested for leaks as required in the specifications. All system piping should be thoroughly cleaned, flushed, drained and refilled before the radiant panels are connected into the system.

With boiler in operation and circulators on, set control valves to full flow position. Flow in excess of 0.5 GPM per circuit is required to remove air from tubing and interconnects on the panel. Gradually bring the system to design temperature. The actual temperature drop through the panel will only be achieved when building is under design load. Balancing the radiant

ceiling system without calibrated balancing valves should be done during a cloudy day in the wintertime. After balancing, return the control valves to automatic operation.

Operation

- Maximum temperature: 203 °F
- Minimum temperature: 40 °F
- Maximum pressure: 73 psig
- Ensure air is removed from system at start-up and during operation.

Maintenance

Maintenance is minimal for this type of cooling/heating system. Keeping strainers clean is the only real required maintenance concerning the piping system. Any descaling of the piping system should be performed as in any other hydronic heating system. The panels are designed to last and should be resistant to any damage. However, if there is noticeable damage to any of the panels, the piping should be inspected for leaks and the panels should be checked to make sure they are securely fastened.

Cleaning

The surface of the panels is easily cleaned with an industrial vacuum to remove dirt and dust. If the panels can not be adequately cleaned in this manner, use a damp cloth or sponge and mild detergent. Avoid abrasive cleaners on the painted surface. Frequent changing of the rinse water will help minimize streaking. All cleaning should be performed with thermostats in the off position and panels at room temperature. This will also help avoid streaking.

Replacement parts

Factory replacement parts should be used wherever possible to maintain unit performance and its normal operating characteristics.

Replacement parts may be purchased through the local Zehnder Rittling Sales Representative.

Contact the local Sales representative or factory before attempting any unit modifications. Any modifications

not authorized by the factory could result in personnel injury, damage to the unit, and will void the manufacturer's warranty.

When ordering parts, the following information should be supplied to ensure proper part identification:

- Complete unit model number
- Complete part description including any identifying numbers on the part

On warranty replacements, it is often necessary to return the faulty component to receive credit. Contact

the local Sales Representative who will get authorization from the factory including an RGA (Returned Goods Authorization) to be used when sending components back for inspection. Any returned components sent back to the factory without the proper RGA attached will cancel any outstanding credit.

Equipment start-up checklist

Receiving and inspection

- Panel received undamaged
- Panel received complete as ordered

Handling and installation

- Panel protected from dirt and foreign matter
- Panel mounted level and square

- Proper access is provided for panel and accessories
- Proper chilled/hot water line sizes to panel
- All services to panel in code compliance
- Insulation is in place

Cooling/heating connections

- Connect field piping to panel
- Pressure test all piping for leaks
- All air vented from system

Unit start-up

- General visual inspection and system inspection
- Close all panel isolation valves
- Flush water systems
- After system has been flushed, ensure all isolation valves are open

