

Q-Series 4 Way Blow Induction Beams

Catalog





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Heating and cooling ceiling systems



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NuClimate Active Overhead Induction Beam

An Induction Beam takes a source of primary air at an inlet static pressure ranging from 0.2" to 1" of WC. It distributes this air through a bank of specially designed aerodynamic nozzles and discharges the air at a high velocity into a mixing chamber. This creates a differential pressure which enables a draw of room air across a coil. This imparts either cooling or heating to the induced air as it passes over the coil. The primary air and induced air are mixed and discharged through a grille in a coanda effect air distribution at the ceiling. This air circulates throughout the room and is gently drawn back up through the return section of the Induction Beam grille. The total room air circulation is created solely by the induction principle within the terminal. This eliminates the need for an electric motor and its power source. As a result, the Induction Beam is a very quiet and efficient way to provide comfort in a space. Unlike a conventional Chilled Beam, Induction Beams have drain pans as a standard. Induction Beams are most often referred to as a fan coil unit without the fan or motor. The drain pan adds a number of advantages that include; reduced system first cost, less mechanical equipment, simplified controls, increased design flexibility, and greater liability control.

Induction Beams provide a lower first cost option when compared to a traditional sensible only chilled beam system. Induction Beams can use much colder water temperatures thus providing much higher BTU/CFM ratio's. This usually equates to fewer beams being required to meet the room loads. Less beams can also mean less primary air is required. Induction Beams enhance the savings and effectiveness of primary air systems. When using Induction Beams, the primary air system, which includes the air handler and the supply and exhaust ductwork, can be sized to handle only the required ventilation air. This reduces the size of the equipment and ductwork making it easier to fit into a building space. This also reduces the energy required to supply the ventilation to the building. Induction beams do not require the elaborate controls associated with sensible only Chilled Beam systems to control condensation before it occurs. Also, Induction Beams do not require an additional piping loop with heat exchangers, mixing valves, booster pumps or condensate sensors to maintain the water temperature above the dew point, which is required in traditional sensible only Chilled Beam systems.

Q-Series All Way Blow Models

All Way Blow Ceiling Mounted Induction Beam

The model Q360 is an all-way blow, ceiling mounted Induction Beam that blows in all directions and provides the very best in air distribution. The model Q360 is supplied with a 48" x 48" concentric supply/return diffuser which discharges air through louvers on all sides and returns air through the center egg crate return section. It is offered in 3 series: Series 24 is low capacity, Series 31 is medium capacity, and Series 38 is high capacity.

Q360 Model

Q360 units were primarily created for high population density spaces that require between 143 CFM and 476 CFM of ventilation air. Q360 units are available in 2- and 4-pipe configurations. These units have drain pans and can be designed to handle both sensible and latent loads in the occupied space.

MiniQ Model

MINIQ360 units were primarily created for high population density spaces that require between 45 CFM and 155 CFM of ventilation air. MINIQ360 units are available in 2- and 4-pipe configurations. These units have drain pans and can be designed to handle both sensible and latent loads in the occupied space.

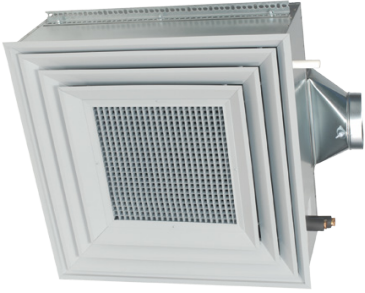
Induction Beams are perfect for:

- Airport Gateways
- Aerobic and Fitness Rooms
- Classrooms
- Conference Rooms
- High Population Density Areas
- Medical Office
- Multi-person Office Spaces



Size Options

Q360 All Way Blow



4' x 4'



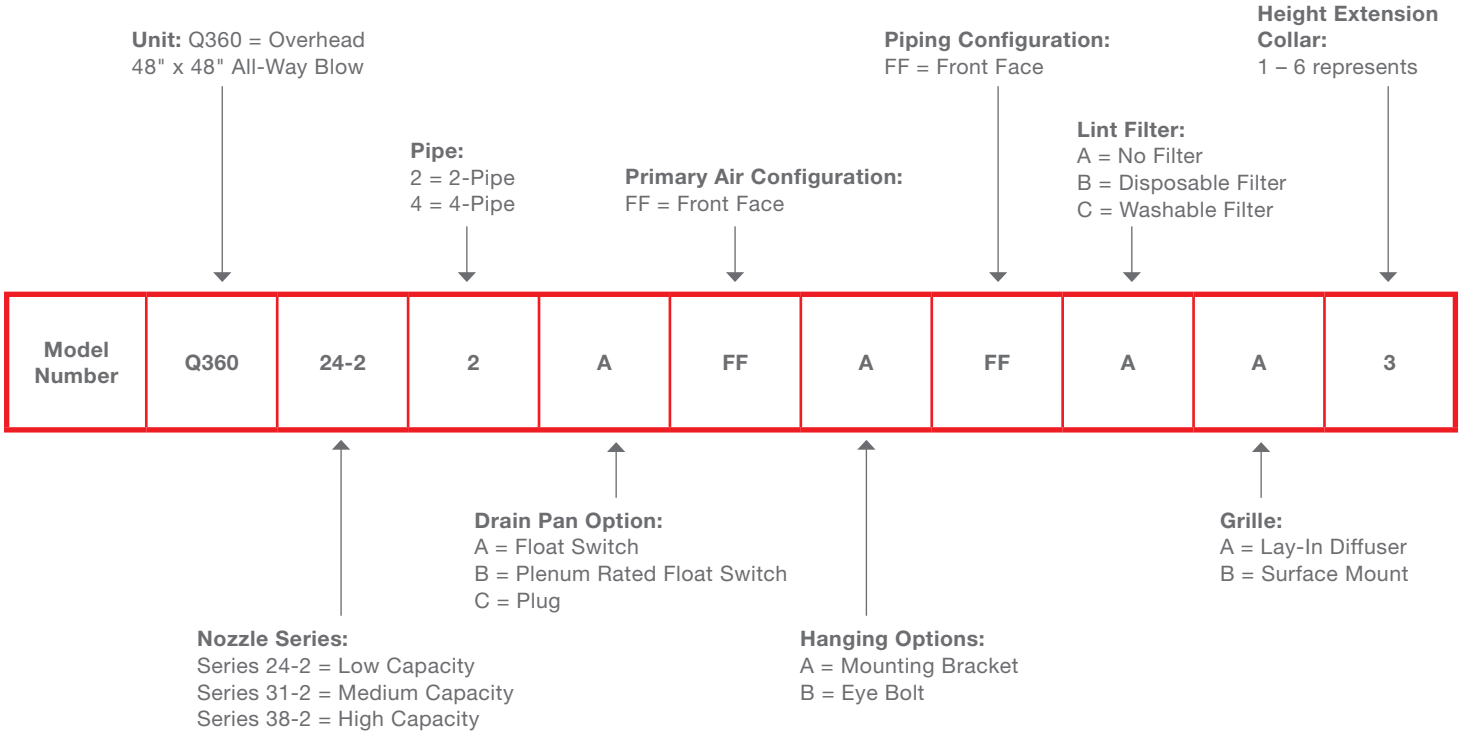
Mini Q360 All Way Blow



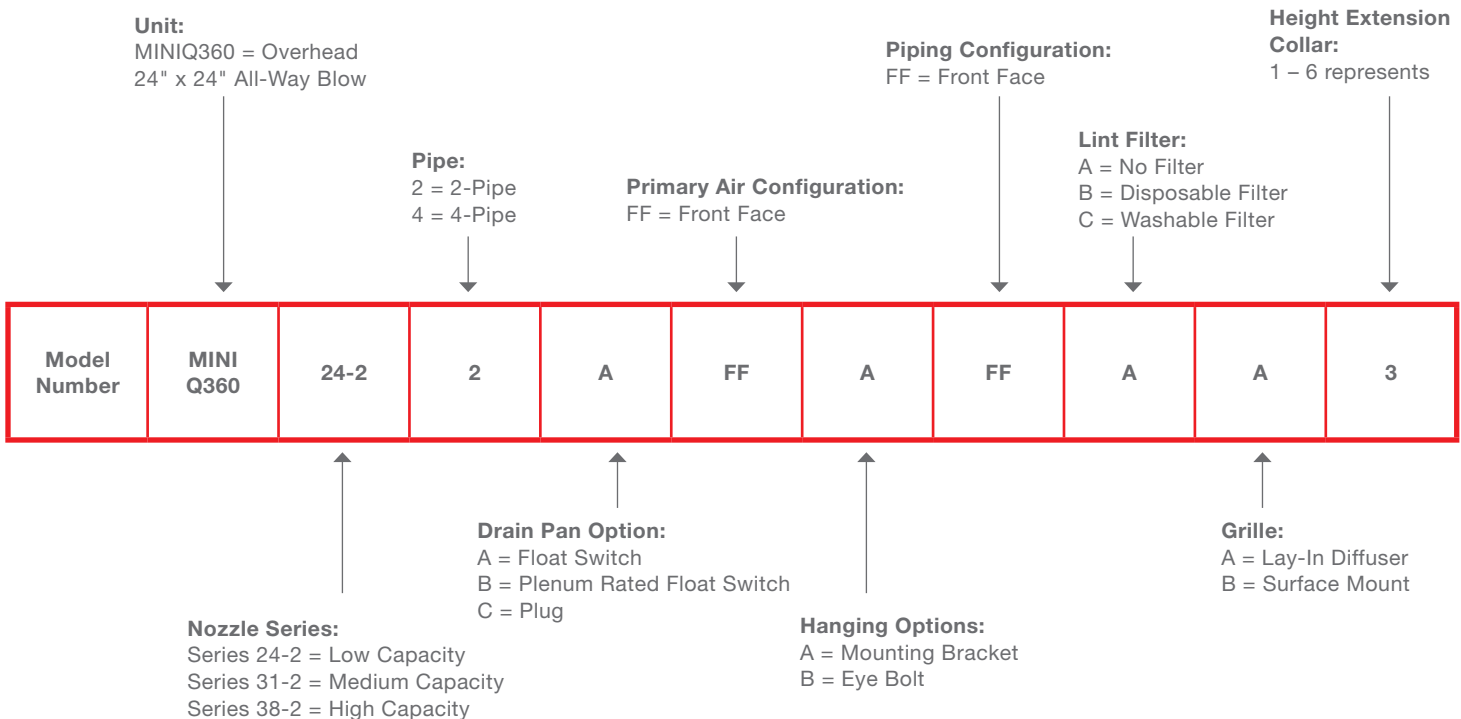
2' x 2'



Q360 Nomenclature



Mini Q360 Nomenclature



Model Specifications

Standard Dimensions:

- **Q360:** 47 ¾" long x 47 ¾" wide x 18" high
- **MiniQ:** 23 ¾" long x 23 ¾" wide x 15" high

Height:

- **Q360:** 14"

Weight Dry:

- **Q360:** 130 lbs.
- **MiniQ:** 60 lbs.

Weight Wet:

- **Q360:** 150 lbs.
- **MiniQ:** 76 lbs.

Induction Beam Construction:

- 20 gauge galvanized sheet metal construction

Return Air Chamber:

- Insulated
- Aerodynamically designed

Primary Air Chamber:

- 8" round collar primary air connection
- Primary air connection is located on the front face (FF)

Induction Nozzles:

- Available in Size 24, 31, or 38
- DuPont Hytrel 4069 engineered polymers
- Temperature range of -40F to 122F
- Rated in accordance with UL94 and UL746

Fasteners:

- Pop rivet SSD62SSBS 3/16 DIA. X .063-.125 grip range
- Typical ultimate strength in pounds; Shear 1000; Tensile 1375

Coils

- 2-Pipe units are available with 2 or 3 row cooling coils
- 3 row copper coil ½" OD (4-Pipe = 2 rows cooling and 1 row heating)
- Sheet Metal: 16 gauge galvanized
- Fins: 11 aluminum fins per inch
- Tested at 350 PSI water pressure
- All coils are ARI performance certified to the most current standard.

Coil Connections

- 2-Pipe Units: There is one common ¾" CWS/HWS and one common ¾" CWR/HWR on every unit
- 4-Pipe Units: There is one ¾" CWS, one ¾" HWS, one ¾" CWR, and one ¾" HWR on every unit.

Drain Pans

- Units have one ¾" CPVC or Copper drain pan connection
- 1½" deep with sloped bottom for drainage when required
- Drain pan extends out past coil return bends to catch any condensation
- Drain pans can be supplied with a float safety switch, a trap (not required), or a plug (sensible only applications)

Grille

- 47¾" x 47¾" lay-in grille available in various colors
- Surface mounted grille available in various colors
- Grille is shipped loose for field installation

Interior Insulation

- Sound Coat Sound Foam – "M" and "M" with surface film treatment. Acoustic quality, open cell, flexible polyether based urethane foam

Pressure Tap:

- Units can be supplied with a pressure tap on the primary air collar for easy balancing

Mounting:

- Bracket for use with wire hanging systems
- Contact factory for special hanging methods

Float Switch:

- Standard – Potted (electrically water sealed) reed magnetic switch
- Plenum rated – Switch components and wire are tested to UL 508 and UL 2043 listed
- No moving parts – Prewired with 6-foot UL CMP cable
- Suitable for use in plenum spaces
- 24 volts AC, 1.25 amp switching capacity

Lint Filters (Optional):

- 1/2" Cleanable Lint Screen—aluminum with woven nylon mesh
- 1/2" Fiberglass disposable panel filters complies with UL 217V

Height Extension for Additional Pitch for Gravity Drain(Optional):

- Unit can be built adding an additional 3" to facilitate additional height for gravity drain pitch from drain pan
- Must be added to overall height dimension shown on drawing

Exterior Insulation (Optional):

- The exterior of the beam cabinet and the primary air tube shall be insulated at the factory with Armacell model AP sheet insulation. Insulation shall be ¼" thick to prevent beam cabinet from sweating.
- Thermal conductivity of 0.27 BTU-in/hr. ft² F per ASTM C 177 or C 518.
- Water vapor permeability of 0.08 (1.16 x 10⁻¹⁰) per ASTM E 96
- Water absorption % by volume of 0.2% per ASTM E 84
- Flame spread rating shall be 25 or less per ASTM E 84
- Smoke spread rating shall be 50 or less per ASTM E 84
- Upper temperature limit shall be 220F/105C
- Lower temperature limit shall be 70F/57C
- Specific compliance shall include ASTM C 534 Type II sheet grade 1, ASTM E 84, NFPA 255, UL 723, CAN/ULC S-102, UL94 5V-A, V-0, File E 55798, NFPA 90A, 90B, ASTM D 1056, 2B1, Mil-P-15280J Form S, Mil-C-3133C (Mil Std 670B) Grade SBE 3, MEA 107-89-M, City of Los Angeles –RR 7642, CGSB Can 2-51.40-M80, ASTM C 1534

Unit Specifications

Summary

- A.** This section describes Active Overhead Induction Beams.
- B.** Model Q360 (all-way blow) – Size 48" x 48"
- C.** Model MINIQ360 (all-way blow) – Size 24" x 24"

Submittals

- A.** Submit as specified herein.
- B.** Submit for review product data for all items. Data shall be complete with the following information:
 1. Operating weight and dimensions of assembled units.
 2. Performance data, including water-tube, air flow, water pressure drop, air-side pressure drop, and noise and air velocities.
 3. Construction details, including materials of construction and fastening methods.
 4. Certified test data for air and sound for each beam.
 5. Coils must be ARI certified to the most current standard.

Warranty

- A.** Units shall be warranted against failures on parts for a period of 18 months from shipment or 12 months from startup, whichever occurs first. The on-board heating and cooling coil shall carry a 5 year limited warranty on equipment failure.
- B.** In-warranty labor shall be the responsibility of the installing contractor within the 12 month in-warranty period.

Manufacturers

- A.** Units shall be as manufactured by NuClimate Air Quality Systems, Model Q360 supplied with a diffuser to fit 48" x 48" ceiling grid spaces as specified on drawings. Model MINIQ360 supplied with a diffuser to fit 24" x 24" ceiling grid spaces as specified on drawings.
- B.** Considering the innovative technology utilized to engineer and manufacturer the applied equipment specified for this project the following substitution considerations shall apply to any manufacture requesting prior approval.
- C.** Fifteen day prior to bid date any manufacturer who would like to be considered shall submit the following information via certified mail to the design professional:
 1. Audited financial statements demonstrating the capital strength of the manufacturer to be considered given the nature of the owners resource in the event of any product application challenges.
 2. Detailed organization chart listing all degreed engineers with resumes documenting their experience directly relating to high performance low pressure heat transfer systems.
 3. Company documentation of their channel of distribution for the manufacturer listing the local representative and the projects that the local representative has completed utilizing this specific technology.
 4. Complete listing of all installation the manufacturer has shipped nationally including school name, engineering firm, construction manager, and contacts.
 5. Submittal documentation for every product proposed including schedule and performance for each with physical and thermal calculations.

6. Control sequence recommendations and guidelines to eliminate all indoor air quality concerns.
7. Service organization credentials listing all service technicians, their location, and experience servicing this specific technology systems.
8. Any and all costs associated with using a substituted product shall be the responsibility of the Mechanical contractor. This includes but is not limited to redesign fees, additional piping and ductwork, and controls required.

General

- A.** It is the design intent of these specifications to provide a fully integrated HVAC system with all parts working together. These induction beams need clean, dehumidified primary air from a dedicated outdoor air unit, hot and chilled water from a boiler and chiller, piping, and controls to coordinate each component to perform as intended. In addition to the items mentioned above that are specified on other sections in division 15, wiring and power requirements in division 16 may also be impacted. Changes, modifications, or substitutions on any component will impact all the other parts of the system and can not be made without a careful review of all related specifications.
- B.** Induction beam unit shall be primary air flow units designed to induce a secondary airflow within the conditioned space using the primary conditioned air supply. Units shall be designed for ceiling installation with factory supplied hanging brackets. Hanger rods or other approved hanging system to be field supplied and installed in the field by installing contractor.
- C.** Units shall be equipped with a 8" round primary air intake connection, an air plenum with air induction nozzles, chilled/hot water coil (s), supply and a return chilled water piping connections, supply and return hot water piping connections, one sloped 1 ½" deep drainable condensate pan with a ¾" condensate drain connection, and one combination supply / return air grille suitable for all-way blow coanda effect room air distribution. The grille shall have a hinged core to provide full access to the return air side of the coil. The unit shall be capable of inducing the secondary airflow within the conditioned space using the velocity pressure of the primary airflow. This secondary air must flow directly from the room to the unit and shall not use the ceiling as a return air plenum. Induction beams using the ceiling plenum as a return air path are not acceptable.
- D.** A static pressure port is factory supplied on the aerodynamic inlet fitting so the balancing contractor can read via a pressure airflow gauge the inlet pressure to the induction beam and set the proper pressure to meet the airflow schedules on the drawings.
- E.** Each Q360 unit shall be equipped with a multiple row water coil for chilled water and hot water. Latent conditioning of the primary air supplied to the space shall be performed at the Dedicated Outdoor Air unit and controlled by exhaust air humidity sensors. Humidity within the building envelope is to be controlled to not exceed 55% relative humidity.

- F.** The Q360 unit has one drain pan and one drain pan connection. This drain pan shall be 1 ½" in depth and sloped in the direction of the condensate connection. The drain pan outlet connection shall be a ¾" copper FNPT fitting. CPVC connections are also available upon request.
- G.** When the Induction beam is being used for latent conditioning the drain pan shall be connected to a building drainage system by the installing contractor. For sensible only, non drainable applications, the sloped 1 ½" deep drainable condensate pan shall be provided with a UL approved safety float switch shipped loose for field installation by the installing contractor. Wiring of the float switch is to be done by the contractor in the field and connected to the DDC controls by the ATC.
- H.** The Q360 unit shall contain an integral factory supplied supply/return diffuser to evenly distribute the mixed primary air in an all-way blow coanda effect air distribution pattern. The diffuser shall incorporate multiple louvers in each direction for the supply air to the space. The diffuser shall fit into a standard ceiling grid. The grille return section shall be egg crate. The grille shall be hinged for easy access to the interior of the unit without tools. Access to the unit interior shall occur through the grille face from within the occupied space.
- I.** A test report showing the velocities within the space and the throw values shall be included in the approval process. Noise levels shall be certified below NC35 at 1.0" primary air inlet pressure. The primary air connection is a single 8" diameter aerodynamic inlet fitting, which directs the primary air to the nozzles.

Casings

- A.** The entire unit shall be constructed of 20 gauge galvanized sheet metal. The primary air plenum and nozzles shall be designed and configured to provide uniform air distribution with low noise operation to all nozzles.

Induction Nozzels

- A.** Induction nozzles shall be aerodynamically designed and made of DuPont Hytrel 4069 engineering polymers with a temperature range of -40 to 122 degrees and tested and rated by test method UL94 and UL746. Each nozzle shall incorporate a tapered design allowing the airflow to enter the nozzle more effectively and perform more efficiently without dirt build up.

Water Coil Assembly

- A.** Coils shall be of the hot and chilled water type utilizing aluminum fins and copper tubes. Coils shall be two or four pipe configuration as scheduled. Coils shall be mounted vertically not horizontally. Coil connections shall be ¾" sweat connections or as indicated on the drawings.
- B.** Each coil must be one flat plate assemblies with no interconnecting joints to minimize leakage. Coils shall be built of minimum ½" seamless copper tubing. Copper tube wall shall be a minimum .016 thickness. Coils shall be factory leak tested at 350 PSI water. Each coil shall be

of the fin plate design surrounding the copper tube wall via fin spacing of 11 fins per inch. Fins shall be mechanically bonded to copper tubes. Each coil shall be enclosed on the ends with sealed flanges to eliminate leakage around the coil.

- C.** A water coil assembly shall consist of a two row thick copper tube with aluminum fin coil(s) for cooling and heating. A drainable condensate pan shall be provided to collect any condensate that might form. Drip trays are unacceptable as a drain pan.
- D.** Control valves for cooling and heating can control one or more induction unit in a given zone. Control valves for the units shall be supplied by the Automatic Temperature Control Contractor.

Quality Assurance

- A.** All Induction Beams shall be tested for performance, throws, and sound levels. Test reports shall be submitted with contractor submittals.

Control Systems

- A.** All controls shall be provided by the Automatic Temperature Control Contractor.

Additional Height for gravity drain (optional)

- A.** To accommodate long drain line runs the Induction Beam cabinet can be provided with an additional 1" to 6" of height. The additional height allows the drain pan connections to be 4.75" to 9.75" above the ceiling line instead of the standard 3.75".

Exterior Cabinet Insulation (optional)

- A.** The exterior of the beam cabinet and the primary air plenum shall be insulated at the factory with Armacell model AP sheet insulation. Insulation shall be ¼" thick and shall meet the following criteria:
 1. Thermal conductivity of 0.27 BTU-in/hr. ft2 F per ASTM C177 or C 518.
 2. Water vapor permeability of 0.08 (1.16 x 10⁻⁹) per ASTM E 96
 3. Water absorption % by volume of 0.2% per ASTM E 84
 4. Flame spread rating shall be 25 or less per ASTM E 84
 5. Smoke spread rating shall be 50 or less per ASTM E 84
 6. Upper temperature limit shall be 220F/105C
 7. Lower temperature limit shall be 70F/57C
 8. Specific compliance shall include ASTM C 534 Type II sheet grade 1, ASTM E 84, NFPA 255, UL 723, CAN/ULC S-102, UL94 5V-A, V-0, File E 55798, NFPA 90A, 90B, ASTM D 1056, 2B1, Mil-P-15280J Form S, Mil-C-3133C (Mil Std 670B) Grade SBE 3, MEA 107-89-M, City of Los Angeles – RR 7642, CGSB Can 2-51.40-M80, ASTM C 1534

Lint Filters (optional)

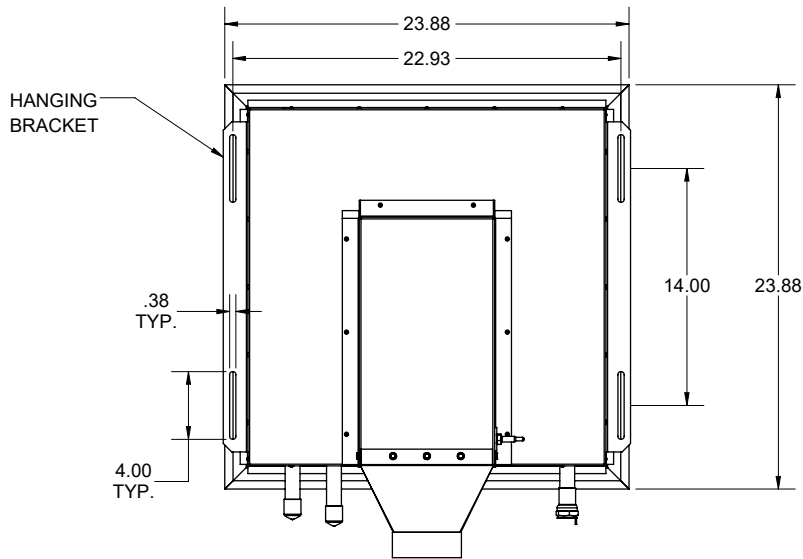
- A.** Lint filters shall be supplied by the beam manufacturer as washable or disposable type.
- B.** Washable filters are ½" in depth and have an aluminum frame with woven nylon mesh media.
- C.** Disposable panel filters are ½" in depth and have fiberglass media. Disposable filter comply with UL 217V.

Installation

- A.** Follow manufacturer's installation instructions and recommendations for all equipment.
- B.** Install Induction Beams in ceiling in such a manner as to allow easy access to all controls.
- C.** Use the hanging brackets on each unit which are supplied by the manufacturer. Induction beams shall be supported using field supplied threaded rod or other secure hanging systems.
- D.** Provide primary supply air connection and seal with duct sealer after installation. A volume control balancing damper shall be installed at the branch takeoffs for each induction beam for the air balancing contractor. A static pressure port is factory supplied on the aerodynamic inlet tube so the balancing contractor can read via a pressure airflow gauge the inlet pressure to the induction beam and set the proper pressure to meet the airflow schedules on the drawings.
- E.** Provide water supply / return connection and install shut off valves and temperature control valves.
- F.** Connect the condensate drain to available building drains if required on plans. Connect and wire safety float switch if provided in sensible only applications.

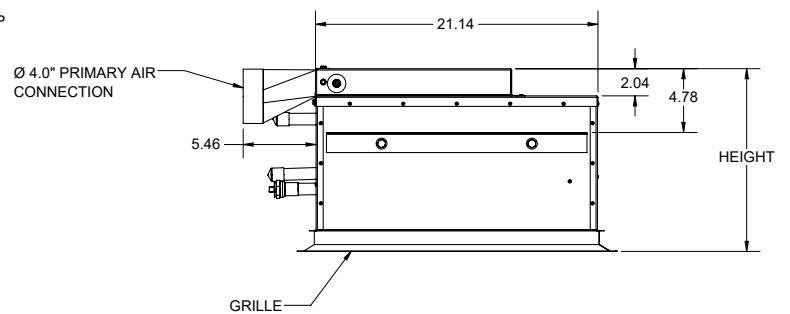
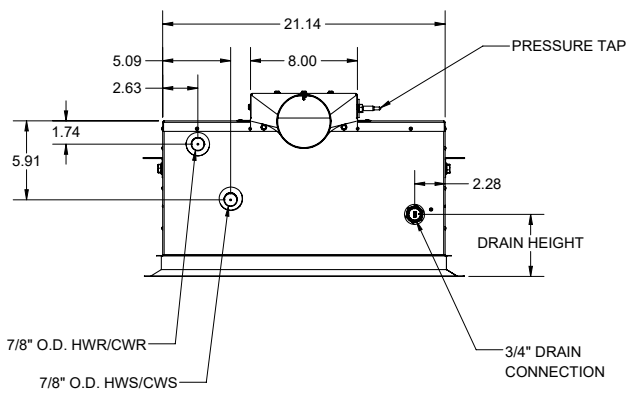
Dimensions and Data

MINI Q360 – 2 Pipe

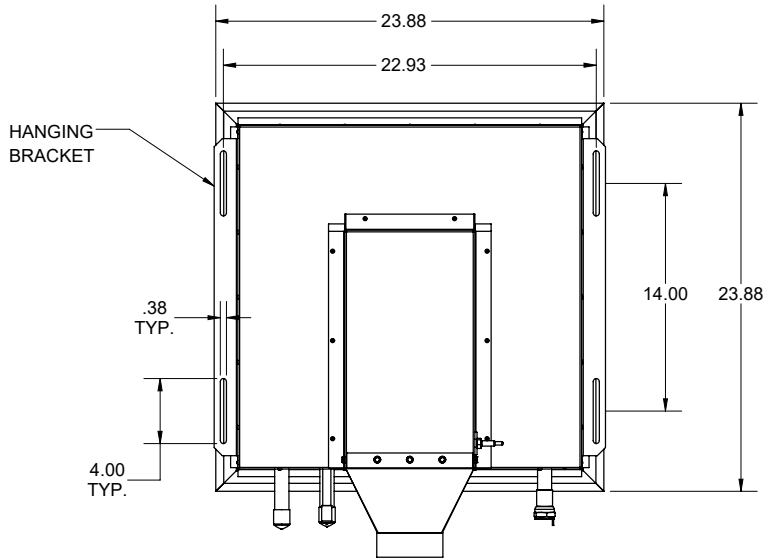


Dimensional Data

Extension	Height	Drain Height
None	13.68"	4.65"
3"	16.88"	7.65"
4"	17.68"	8.65"
5"	18.68"	9.65"
6"	19.68"	10.65"

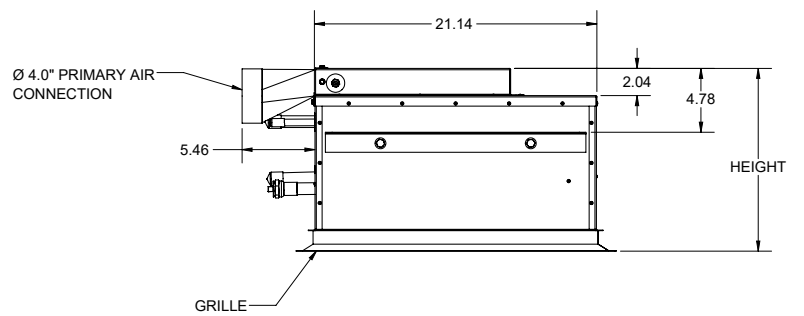
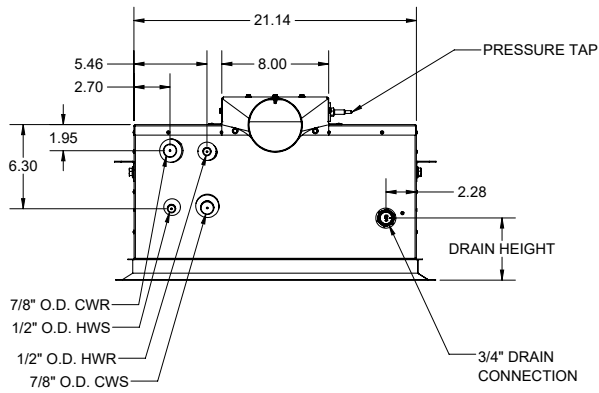


MINI Q360 – 4 Pipe

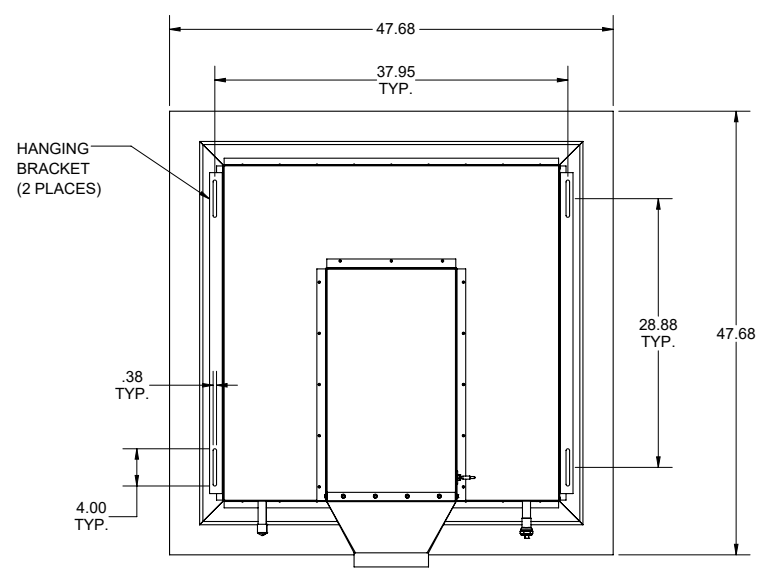


Dimensional Data

Extension	Height	Drain Height
None	13.68"	4.65"
3"	16.88"	7.65"
4"	17.68"	8.65"
5"	18.68"	9.65"
6"	19.68"	10.65"

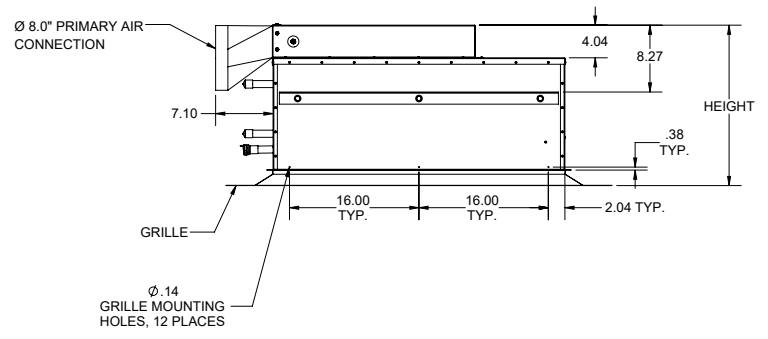
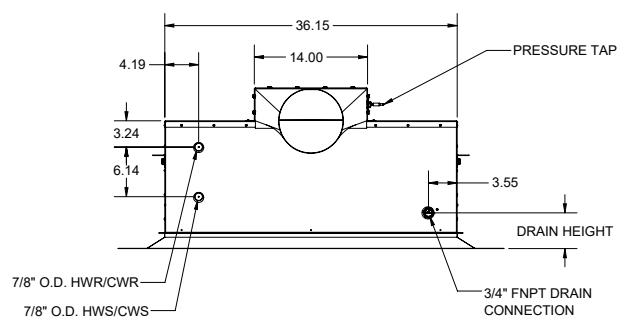


Q360 – 2 Pipe

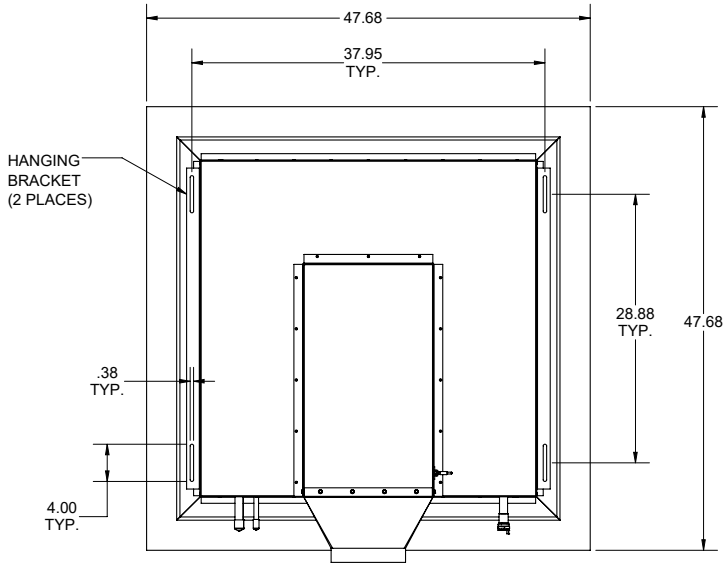


Dimensional Data

Extension	Height	Drain Height
None	19.83"	4.41"
3"	22.83"	7.41"
4"	23.83"	8.41"
5"	24.83"	9.41"
6"	25.83"	10.41"

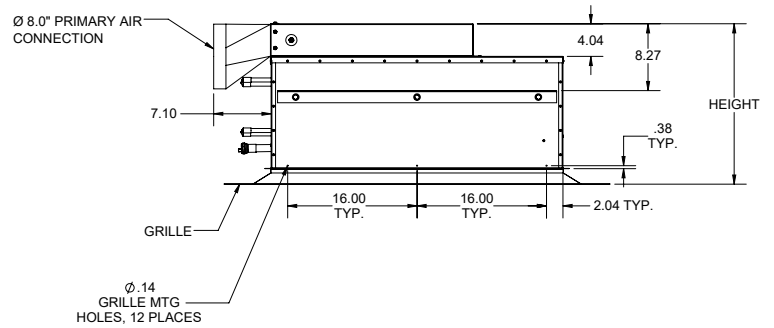
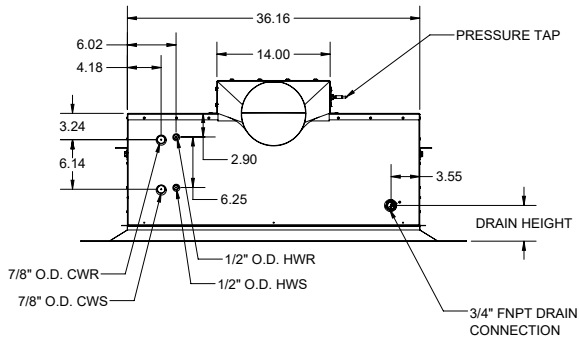


Q360 – 4 Pipe



Dimensional Data

Extension	Height	Drain Height
None	19.83"	4.41"
3"	22.83"	7.41"
4"	23.83"	8.41"
5"	24.83"	9.41"
6"	25.83"	10.41"



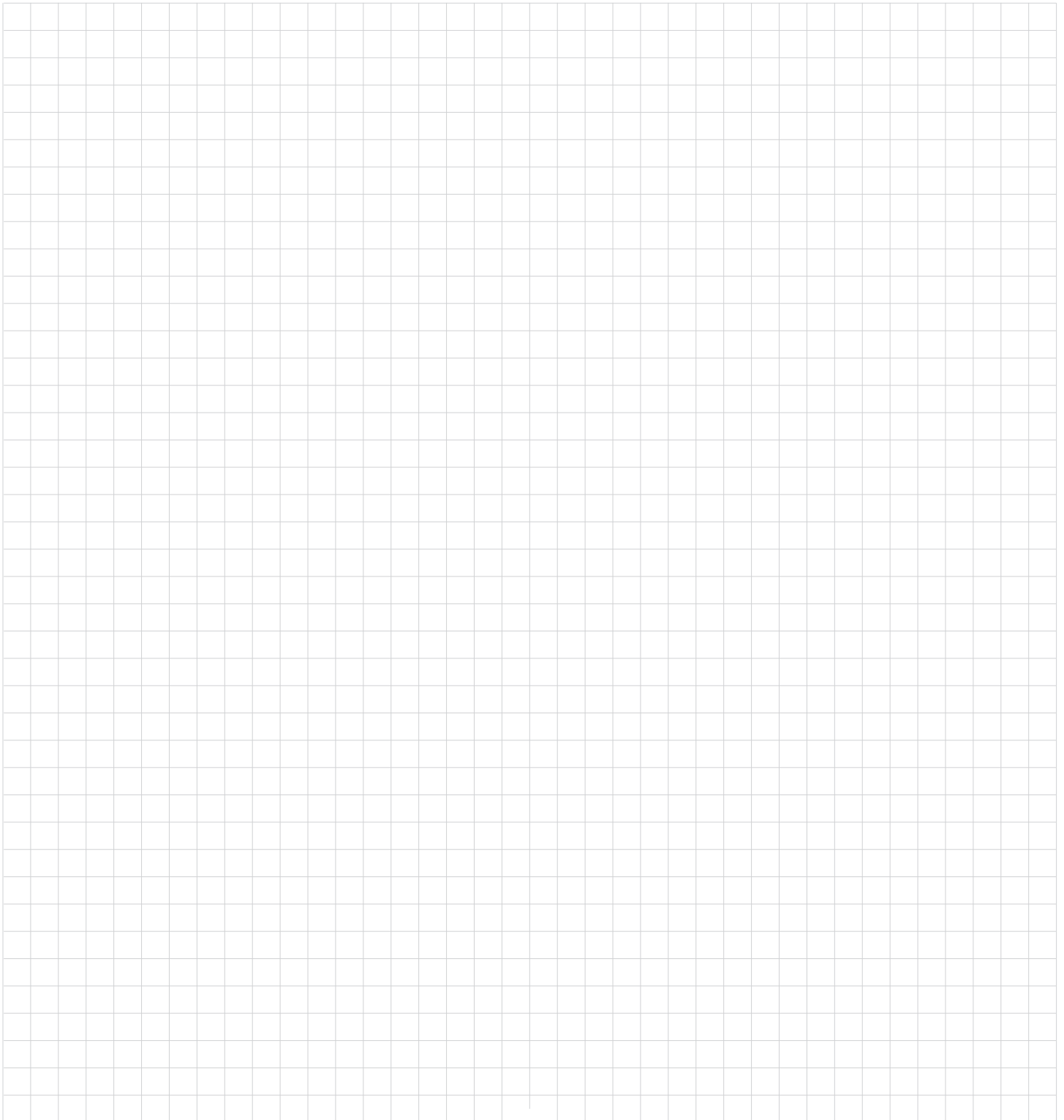


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The broad and clearly structured portfolio from the Zehnder Group is split into four product lines. Consequently, we can provide the right product, the perfect system and the matching service for all types of projects - from new builds to renovations, single- or multiple- family homes, as well as commercial projects. This variety ensures that our wealth of experience is continuously expanding, providing tangible added value to our customers on a daily basis.



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Our individual decorative radiators for living and bathrooms not only make a home warmer but also more attractive. Created by renowned designers, they impress with excellent functionality.

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MANUFACTURER OF THE

1ST

STEEL RADIATOR IN THE WORLD

121

YEARS OF INNOVATIVE TRADITION

AROUND

3,000

EMPLOYEES

FOUNDED IN

1895

REPRESENTED IN COUNTRIES

19

1,800,000

TONNES OF CO₂ SAVED SINCE 2005

WARRANTY

Zehnder guarantees its products to be free from defects in material and workmanship for a period of two years from date of shipment from our Buffalo, NY factory, whichever comes first.

Should there be any defects in the good(s), the purchaser should promptly notify Zehnder. Upon receipt of written consent from Zehnder, the purchaser shall return the defective good(s) to the factory for inspection with freight prepaid. If inspection shows the goods to be defective, Zehnder will at its discretion repair or replace the said item(s).

Defects arising from damage due to shipment, improper installation, negligence or misuse by others are not covered by this warranty.



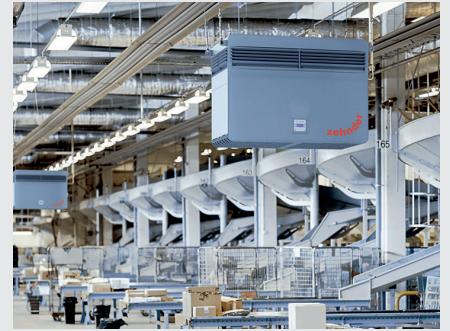
Comfortable indoor ventilation

Our comfortable indoor ventilation is energy-efficient and provides a healthy indoor climate. It promotes the well-being of the occupants and increases the value of the property.



Heating and cooling ceiling systems

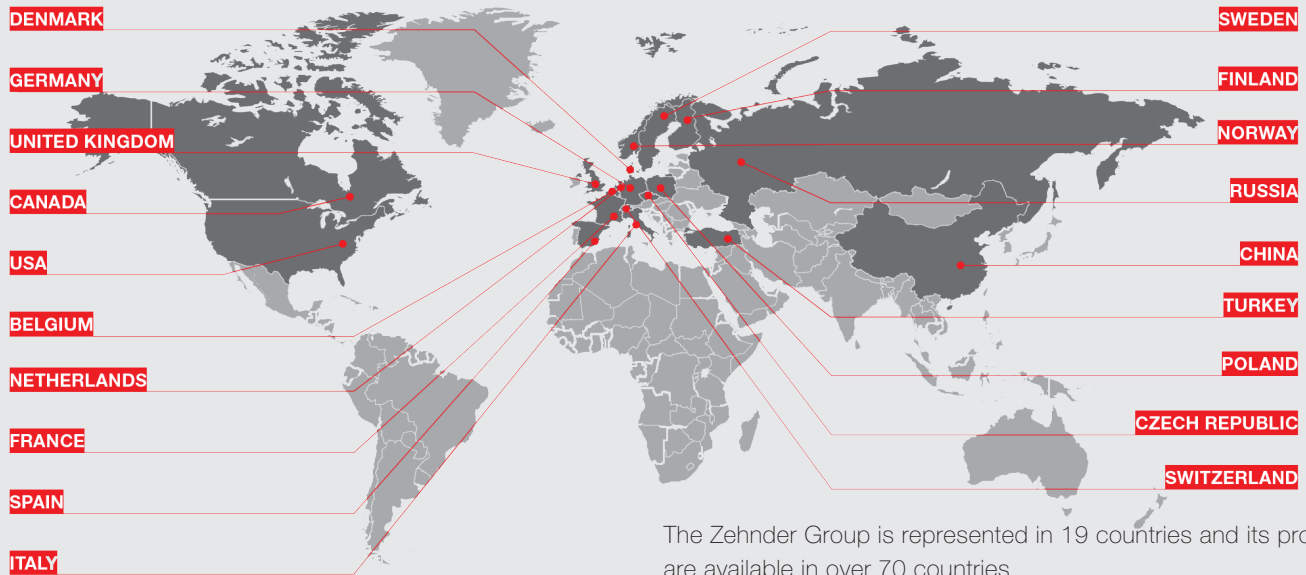
Zehnder heating and cooling ceiling systems are convenient and energy-efficient for heating and cooling. They are perfectly attuned to the relevant environment.



Clean air solutions

Clean air solutions from Zehnder reduce the level of dust in the air, create a healthier working climate and reduce the amount of cleaning required.

BEST CLIMATE IN THE WORLD



This warranty is extended only to the original purchaser from Zehnder.

IMPORTANT: Approved submittal documentation, specific to each project, supersedes the general guidelines contained within this document.

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The Zehnder brand offers excellent indoor climate solutions within the sectors of decorative radiators, clean air solutions, comfortable indoor ventilation and heating and cooling ceiling systems.

