

ACTIVE CHILLED BEAMS

**BAL-12/24,
BEL-12/24, BAM**

Installation, Operation, and Maintenance

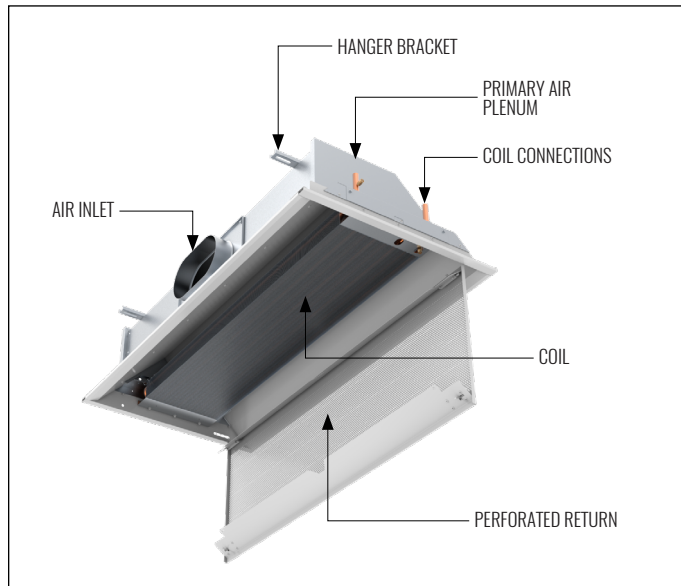
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CRITICAL OPERATIONS

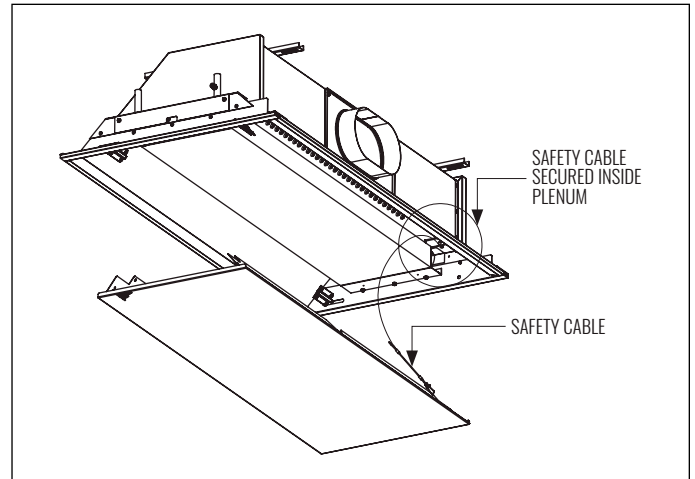
To ensure optimal system performance and consistent thermal comfort for room occupants, connect Linear Active Chilled Beams in a parallel configuration to the building's water distribution system. This setup ensures each beam receives water at the same entering temperature.

For improved serviceability and flexibility, install isolation valves on both the supply and return lines of each individual beam.



HANDLING WARNINGS

1. Team Lift Required
 - A minimum of two (2) people is required for safe handling and installation.
2. Safety Cable
 - Each Krueger chilled beam is equipped with two factory-installed safety cables—refer to drawing below for proper usage.

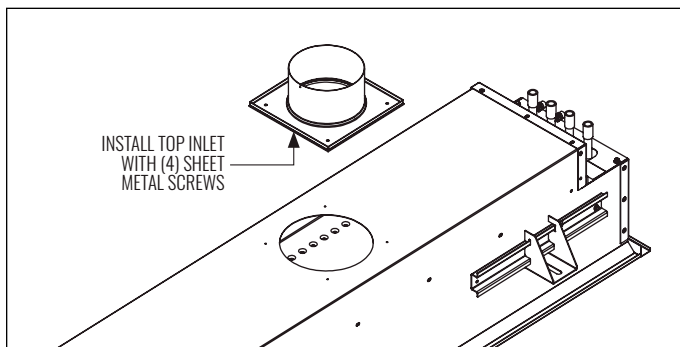


3. Storage
 - Store beams in their original packaging in a dry, sheltered location until ready for installation.
4. Protective Film
 - Leave the protective film on the beam face during construction to prevent dust or debris from causing damage. Remove only after the workspace is clean.
5. Code Compliance
 - All installations must comply with local codes and regulations.
6. Pre-Installation Checklist
 - Before beginning, gather all required tools and materials, including:
 - Isolation valves
 - Threaded rods
 - Suspension cables or hanging wire
 - Unistrut
 - Flexible duct
 - Surface-mount frames (if required)

INSTALLATION INSTRUCTIONS

BAL-24 and BAL-12 models ship with a loose inlet neck.

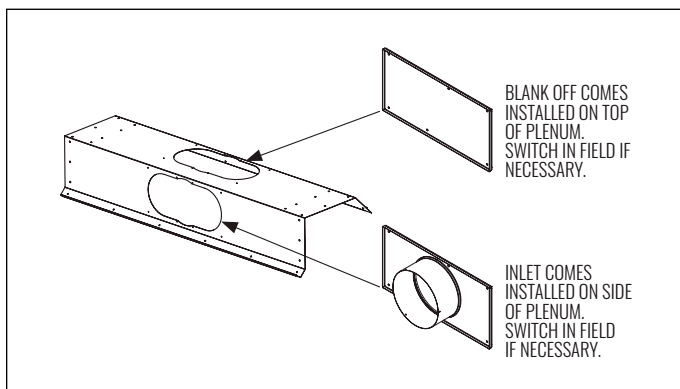
1. Secure the inlet neck to unit using six (6) #8 sheet metal screws (not included).
2. Seal all joints to prevent air leakage.



MULTI-INLET INSTALLATION PROCEDURE

(Model: BAL-24 with MI Inlet Configuration Selected)

1. Pre-Installation Check
 - The unit is shipped with both top and side inlet cutouts. The side inlet is pre-installed at the factory, and a blank-off plate is installed on the top inlet.
 - Verify that all components have been received and are in good condition.
2. Conversion to Top Inlet Configuration
 - Remove the six (6) sheet metal screws securing the side inlet, and the six (6) screws securing the top blank-off plate located on the plenum.
 - Position the blank-off plate over the side inlet cutout with the gasket side facing the beam. Secure it using six (6) sheet metal screws.
 - Install the inlet onto the top plenum opening and fasten it securely to the beam.



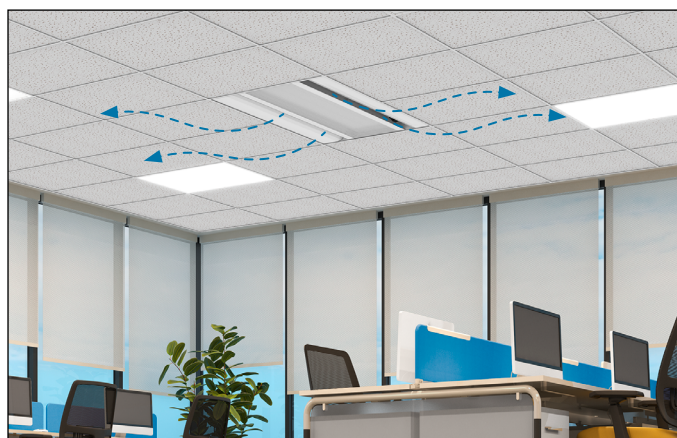
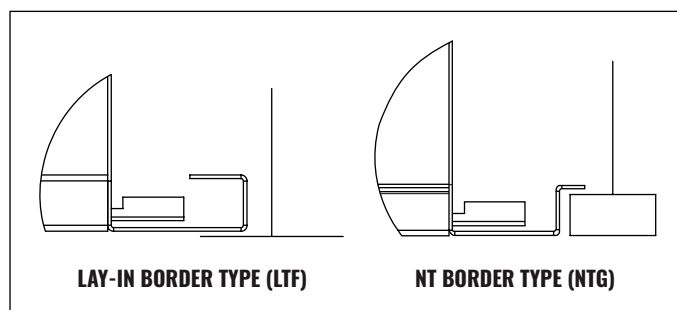
MOUNTING HEIGHT GUIDELINES

1. For both heating and cooling, install chilled beams at a maximum height of 14 feet above finished floor (AFF).
2. For cooling-only applications, beams may be installed up to 20 feet AFF.
3. Installations above these heights may reduce performance in the occupied zone.

CEILING INTEGRATION

Linear Active Chilled Beams are designed for easy integration into various ceiling types:

1. Suspended Grid Ceilings (Lay-In or Narrow-Tee)
2. Drywall Ceilings (Surface Mount Frame Required)
3. Exposed Installations

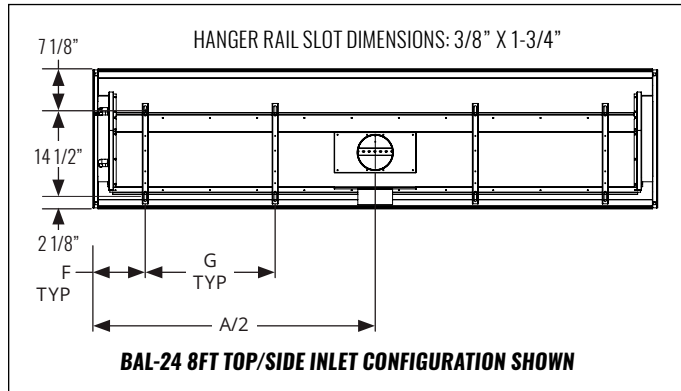


INSTALLATION IN SUSPENDED CEILING GRID SYSTEMS

SUSPENSION REQUIREMENTS

BAL-24 / BEL-24 Mounting Rails

1. BAL-24 / BEL-24 (up to 7 ft): Two (2) mounting brackets
2. BAL-24 / BEL-24 (over 7 ft): Four (4) mounting brackets

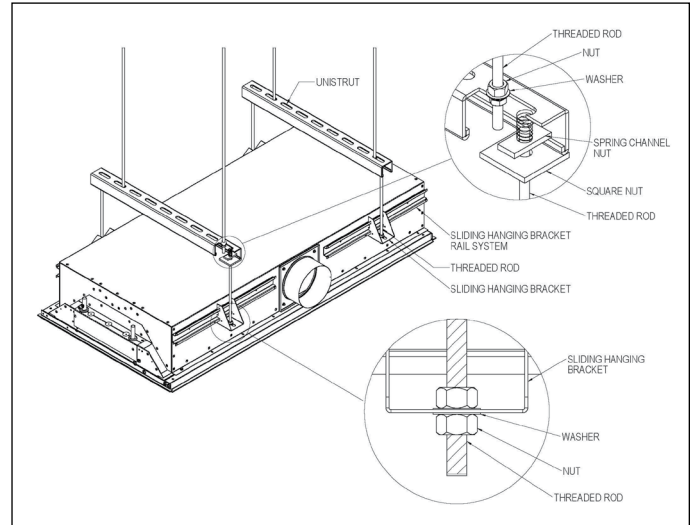


NOMINAL LENGTH	F	G
2 FT	4 1/2" (114)	NONE
3 FT	4 1/2" (114)	NONE
4 FT	6 7/8" (174)	NONE
5 FT	8 7/8" (225)	NONE
6 FT	8 7/8" (225)	NONE
7 FT	8 7/8" (225)	NONE
8 FT	8 7/8" (225)	22" (559)
9 FT	8 7/8" (225)	25" (635)
10 FT	8 7/8" (225)	30" (762)

Note: All Dimensions are given as inches (mm).

BAM / BAL-12 / BEL-12 Mounting Rails

3. BAL-12 / BEL-12 (up to 7 ft): Four (4) mounting rails
4. BAL-12 / BEL-12 (over 7 ft): Eight (8) mounting rails
5. BAM: Always includes four (4) mounting rails



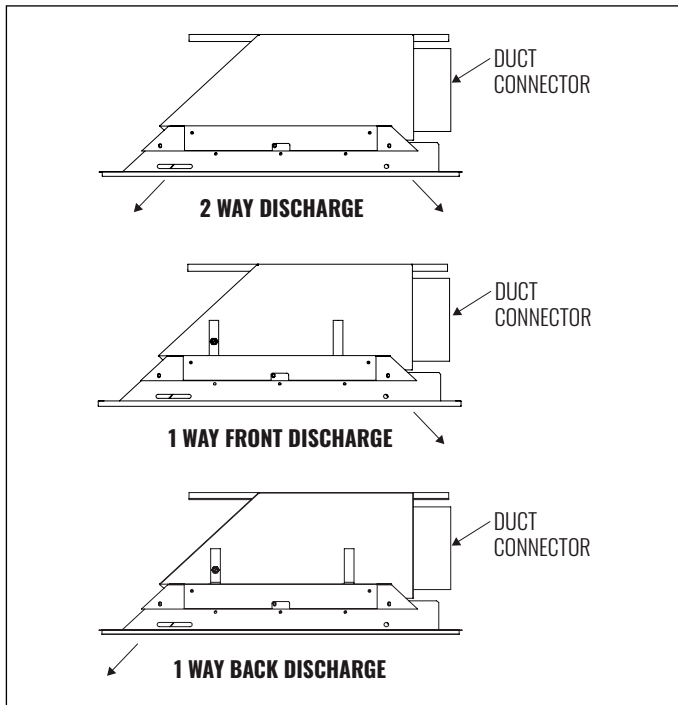
Mount the beam using mounting brackets, and threaded rod or hanging wire (not included). Optional unistrut can be used to provide alignment flexibility when installing into ceiling grids. After securing to the ceiling, level the beam and verify orientation for piping and inlet placement. (This applies to all chilled beams, both mounting rail sections above).



INLET/OUTLET AND COIL CONNECTION CONFIGURATIONS

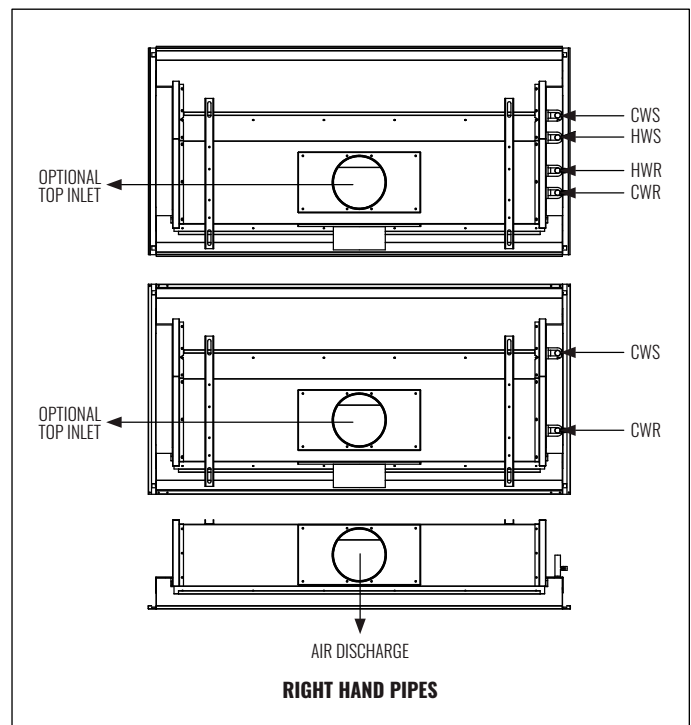
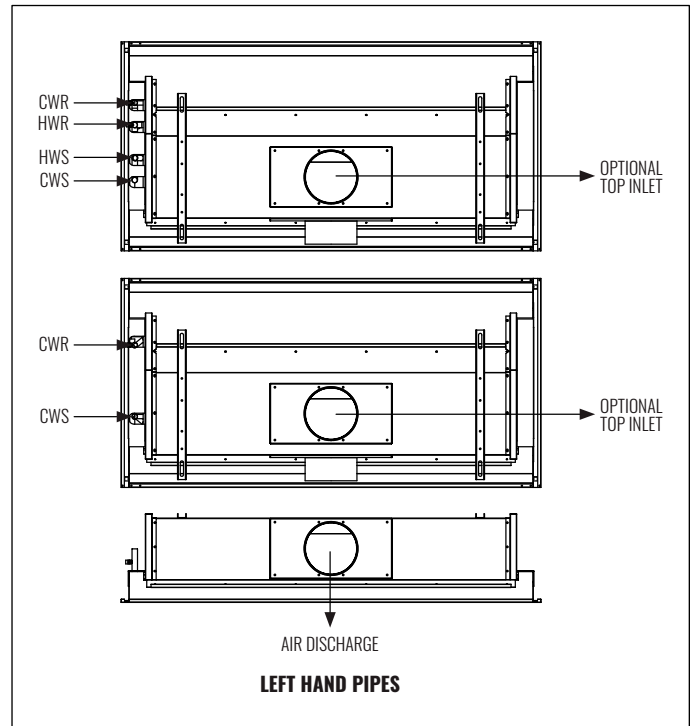
DETERMINING UNIT HANDING:

1. Side Inlet: Stand facing the primary airflow inlet. The side with the coil connections determines the unit handing. Note that a 1-way discharge unit's position can be either toward you or away from you.
2. Top Inlet: Refer to left and right hand pipes figures for details.



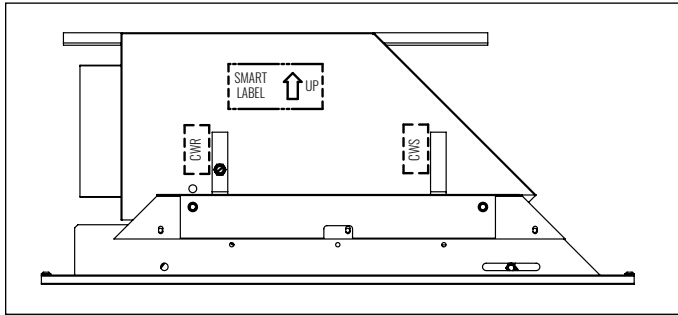
PIPING CONFIGURATION:

1. For top inlet with 2-way discharge, the piping connection can be set up from either end. The side selected will change the final layout—refer to engineering drawings for coil connection, inlet, and discharge configuration options.



BALANCING GUIDELINES

1. Once installed, connect and secure any isolation or balancing valves.
2. Refer to unit labels to identify supply and return lines.
3. Test water flow rates and inspect for leaks. Flush the system as needed to remove contaminants.

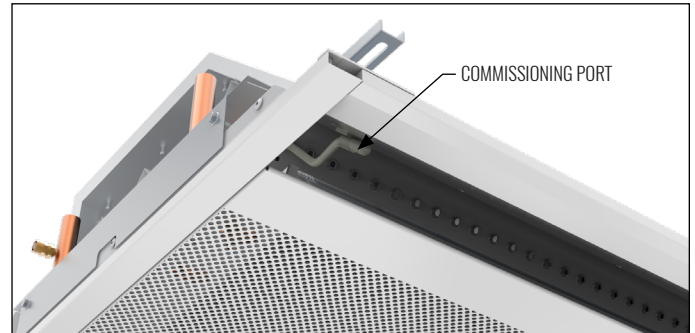
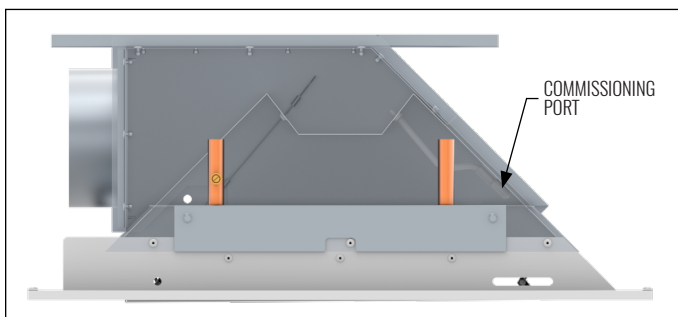


WATER COIL CONNECTION TYPES

CHILLED (WATER)	SWEAT, 1/2" MALE NPT, OR 3/4" MALE NPT
HOT (WATER)	SWEAT, 1/2" MALE NPT, OR 3/4" MALE NPT

4. Attach the inlet collar to the primary air source. Avoid sharp duct bends near the inlet. Seal all duct connections thoroughly.
5. Measure plenum static pressure using the factory-installed pressure port.
 - Remove port plug.
 - Insert a calibrated manometer (not included).
 - Use published commissioning charts for performance reference.
6. Krueger's Constant Airflow Regulator can be used for airflow balancing

MODEL	TOP	SIDE	MULTI-INLET
BAL-24/BEL-24	Ø4", Ø5", Ø6", OVAL 8", OVAL 10"	Ø4", Ø5", Ø6", OVAL 8", OVAL 10"	Ø4", Ø5", Ø6", OVAL 8", OVAL 10"
BAM	Ø4", Ø5", Ø6", Ø8"	Ø4", Ø5", Ø6", Ø8"	
BAL-12/BEL-12	Ø4", Ø5", Ø6", OVAL 8", OVAL 10"	Ø4", Ø5", Ø6", OVAL 8", OVAL 10"	



MAINTENANCE

Krueger chilled beams contain no moving parts, reducing ongoing maintenance. The primary task is cleaning the water coil.

COIL CLEANING PROCEDURE

1. Release the spring-loaded pin latches.
2. Hinge perforated face panel open for access.
3. Fold the perforated face panel fully down for access.
4. Clean using a vacuum with soft brush attachment. Do not use abrasive agents—they may damage the coil surface or painted finish.
5. Inspect the suspension system and brazed copper joints for damage or leaks.
6. After cleaning, return the perforated face panel to its original position and engage all safety locks.

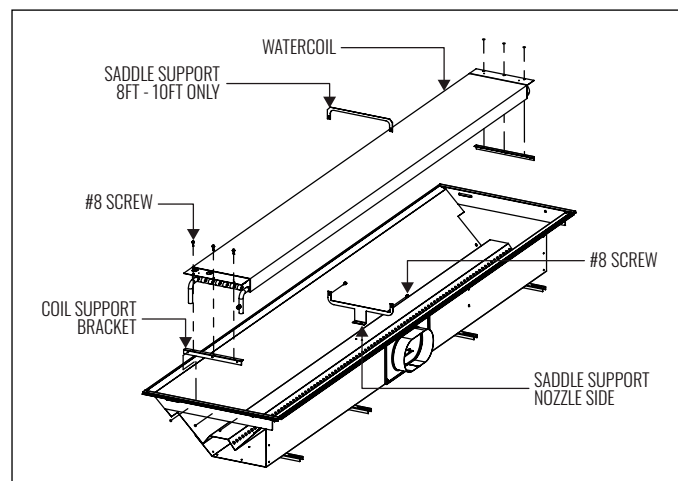


COIL REMOVAL PROCEDURE

1. Remove the Face Panel
 - Detach the face panel to access the internal components.
2. Detach Coil Covers
 - Remove the coil covers on each side by loosening the two (2) screws. This step provides clearance for coil vent access.
3. Remove Saddle Support (for units 8 ft or longer)
 - On units measuring 8 feet or longer, remove the saddle support by unscrewing the two (2) securing screws.
4. Detach the Coil from the Support Bracket
 - Gloves required to handle sharp fins.
 - Remove the three (3) screws on each side securing the coil to the coil support bracket. Carefully extract the coil from the unit.
5. Utilize the Symmetrical Coil Feature (If Needed)
 - The coil's symmetrical design allows it to be flipped in the field if required. Note that flipping the coil also necessitates flipping the coil covers upon reinstallation.

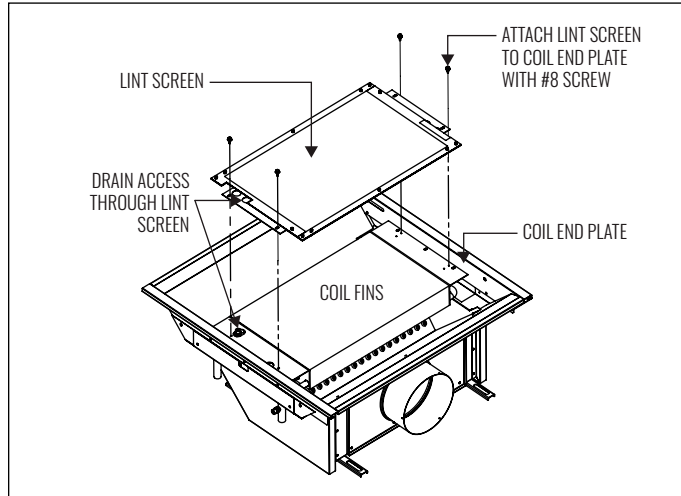
6. Reinstall Components

- Securely replace the coil, coil covers, and face panel in the reverse order of removal.

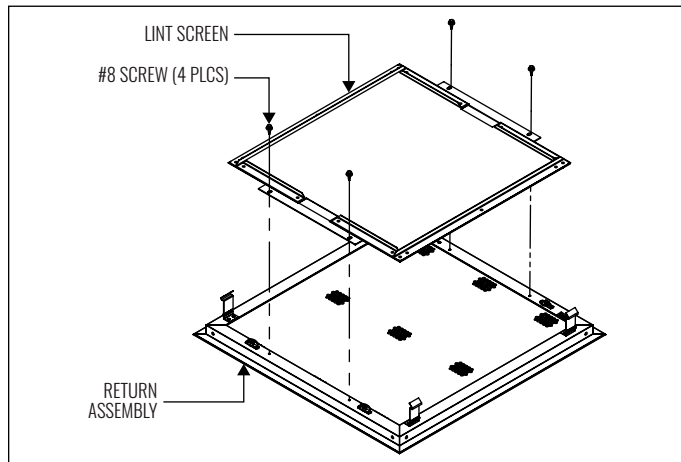


LINT SCREEN REMOVAL

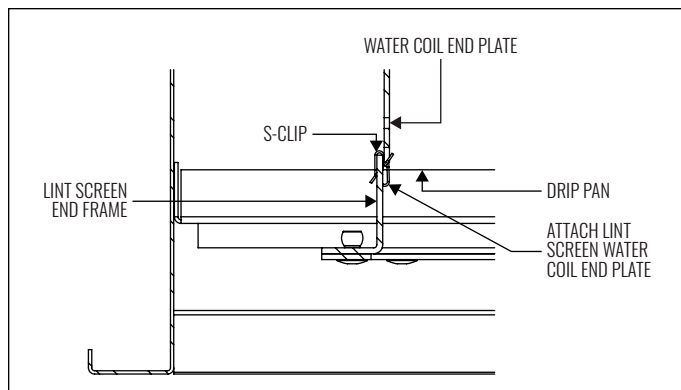
1. BAL-24: Remove face panel, then remove four (4) sheet metal screws securing the lint screen to the coil plate.



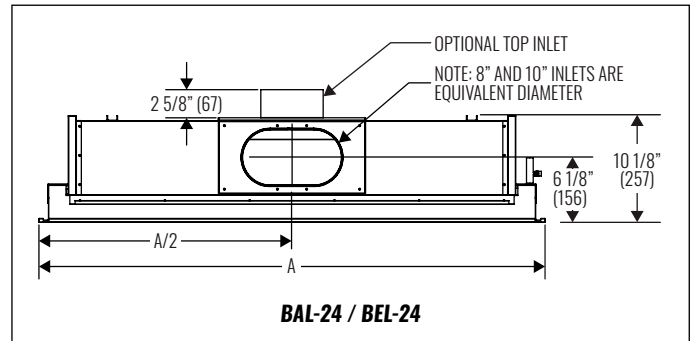
2. BAM: Remove both the face and lint screen. Remove four (4) sheet metal screws attaching the lint screen to the perforated return assembly.



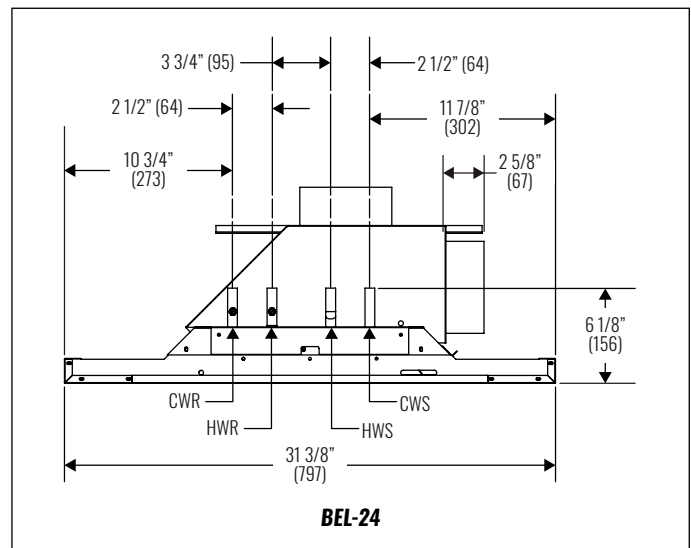
3. BAL-12: Remove the lint screen by pulling it off the S-clips on the water coil plate.

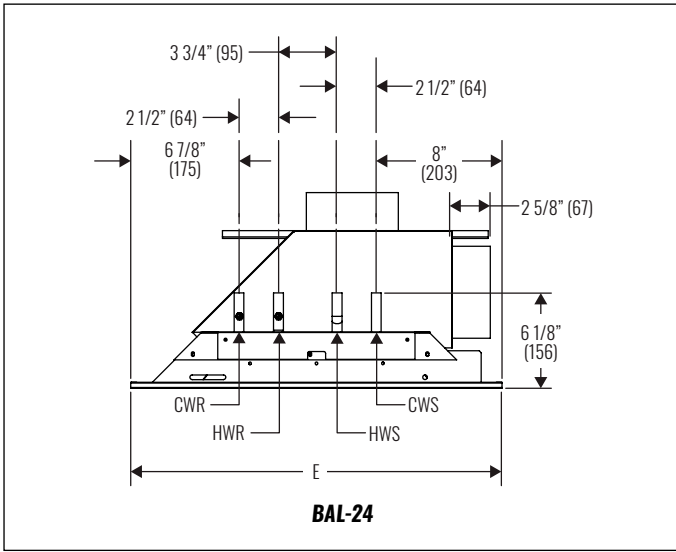


DIMENSIONS

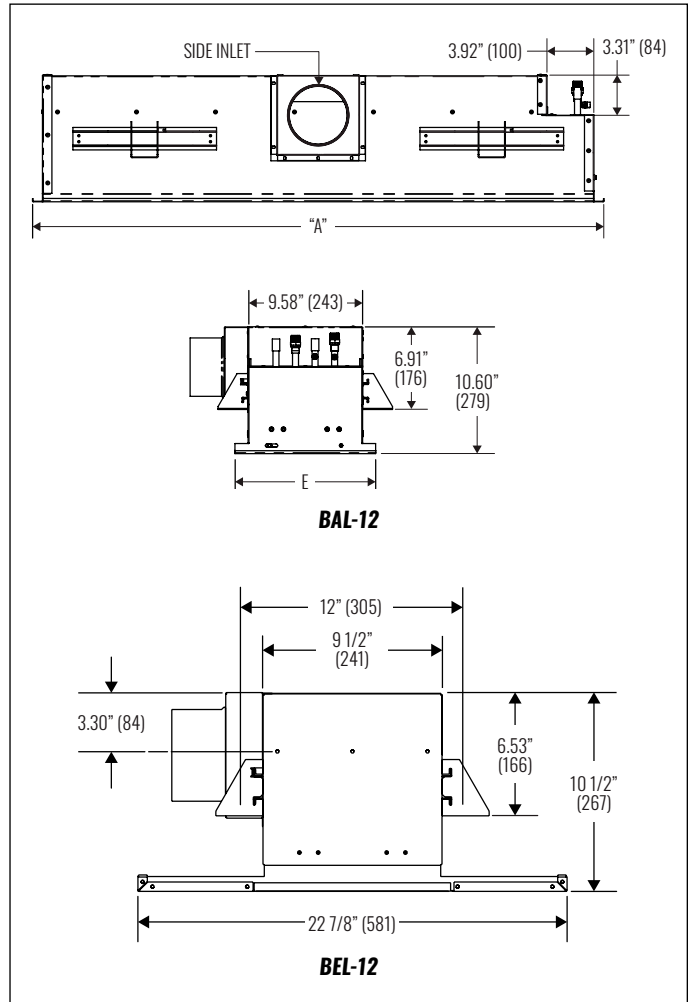


NOMINAL LENGTH	BAL-24		BEL-24
	LAY-IN	NT	
	A	A	A
2 FT	23 3/4" (603)	23 3/8" (593)	22" (558)
3 FT	35 3/4" (908)	35 3/8" (898)	34" (863)
4 FT	47 3/4" (1212)	47 3/8" (1203)	46" (1168)
5 FT	59 3/4" (1517)	59 3/8" (1508)	58" (1473)
6 FT	71 3/4" (1822)	71 3/8" (1812)	70" (1778)
7 FT	83 3/4" (2127)	83 3/8" (2117)	82" (2082)
8 FT	95 3/4" (2432)	95 3/8" (2422)	94" (2387)
9 FT	107 3/4" (2736)	107 3/8" (2727)	106" (2692)
10 FT	119 3/4" (3041)	119 3/8" (3032)	118" (2997)



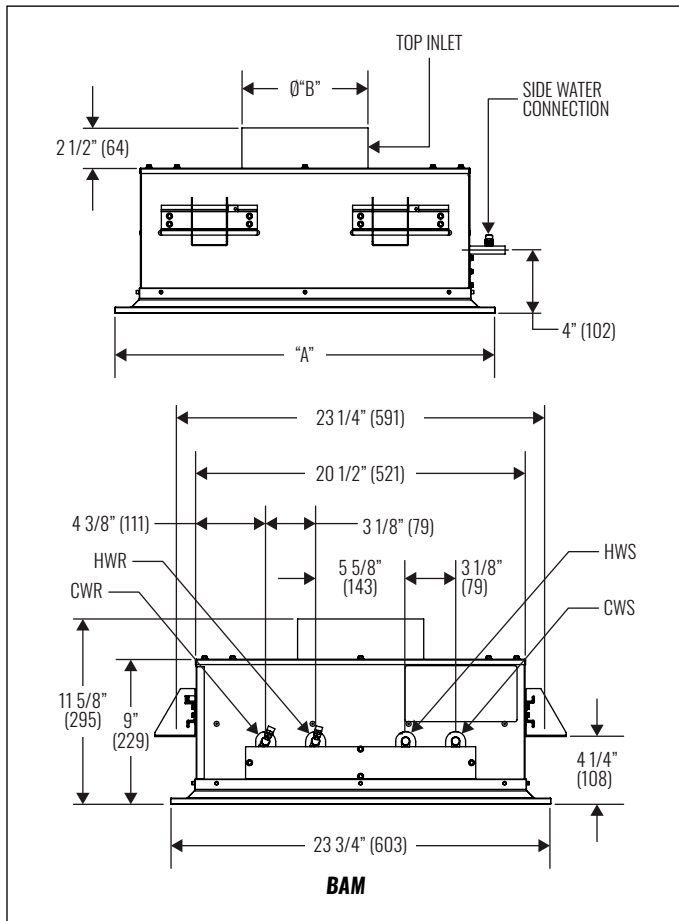


BORDER TYPE	E
LAY-IN	23 3/4" (603)
NT	23 3/8" (593)



BAL-12 / BEL-12	
NOMINAL LENGTH	A
2 FT	23 3/4" (603)
3 FT	35 3/4" (908)
4 FT	47 3/4" (1212)
5 FT	59 3/4" (1517)
6 FT	71 3/4" (1822)
7 FT	83 3/4" (2127)
8 FT	95 3/4" (2432)
9 FT	107 3/4" (2736)
10 FT	119 3/4" (3041)

BAL-12	
BORDER TYPE	E
LAY-IN	11 3/4" (298)
NT	11 5/7" (297)



NOMINAL INLET SIZE	B
4"	3 7/8" (98)
5"	4 7/8" (123)
6"	5 7/8" (149)
8"	7 7/8" (200)

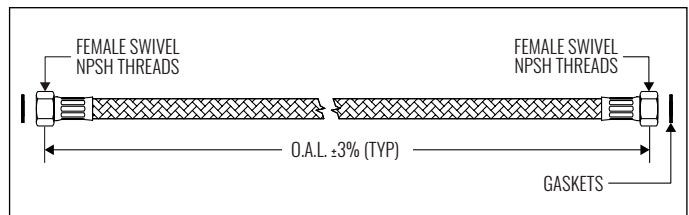
NOMINAL SIZE	A
24"x24"	23 3/4" (603)
24"x48"	47 3/4" (1212)

LENGTH	WEIGHTS (lbs)					
	DRY COIL					WET COIL
	BAL-24	BAL-12	BAM	BEL-12	BEL-24	BAL-24
2'	20	24	39	27	23	22
3'	31	34	-	37	34	35
4'	43	46	76	51	48	48

LENGTH	WEIGHT (lbs)					
	DRY COIL					WET COIL
	BAL-24	BAL-12	BAM	BEL-12	BEL-24	BAL-24
5'	50	56	-	62	56	56
6'	66	70	-	78	74	74
7'	77	82	-	91	86	86
8'	85	94	-	104	95	96
9'	96	106	-	117	107	108
10'	107	118	-	131	120	120

FLEXIBLE HOSE INSTALLATION

- Ensure the unit is ordered with 1/2" or 3/4" MPT Fittings.
- Order quantity:
 - 4 hoses for 4-pipe configurations
 - 2 hoses for 2-pipe configurations
- Use appropriate tools (not included) to make hose connections. Do not overtighten.
- Insulate supply hose connections if required by the project.



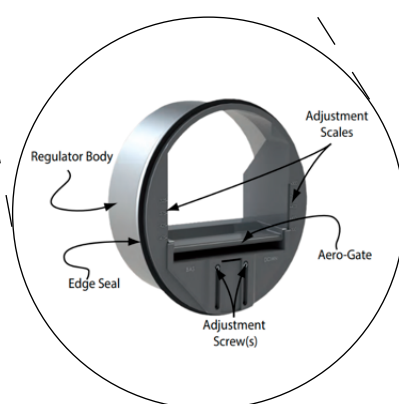
CONNECTION SIZE	LENGTH
1/2" F	12"
	18"
	24"
3/4" F	18"
	24"

MATERIALS	
CORE	FABRIC REINFORCED EPDM
BRAID	STAINLESS STEEL
FITTING	BRASS OT58
FERRULE	STAINLESS STEEL
REAL	EPDM
ADAPTER	BRASS

CONSTANT FLOW REGULATOR INSTALLATION

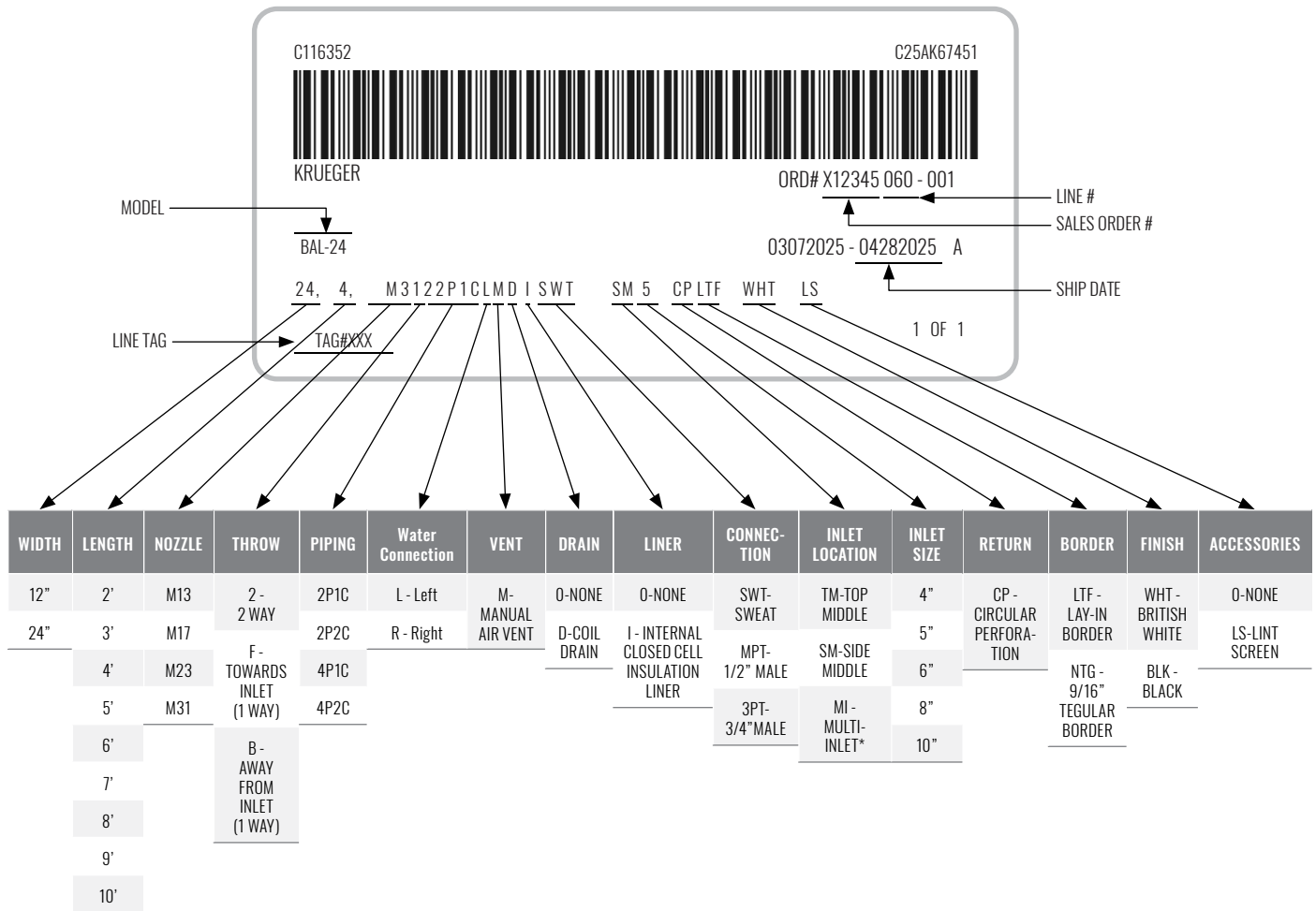
Krueger Constant Flow Regulators (model BFR) are sold separately.

1. Install the BFR at the take-off immediately off the main duct.
2. The regulator's edge seal will grip the inner duct wall.
3. Install with the base oriented downward, if applicable.
4. Adjust flow rate using a Torx® T-10 bit.



INSTALL CONSTANT FLOW REGULATOR

MANUFACTURING TAG DETAIL



Note: * 24" width units only

LIMITED WARRANTY

Unless otherwise expressly stated in KRUEGER's published specifications for the Goods, KRUEGER warrants that Goods are free from defects in material and workmanship, except for services which are warranted to be performed in a competent and diligent manner in accordance with any mutually agreed specifications. The foregoing warranty shall apply for twelve (12) months from the date of shipment from KRUEGER's facility, except for services for which the warranty shall apply for ninety (90) days from the date of performance (the "Warranty Period"). Provided Buyer informs KRUEGER in writing of any breach of warranty prior to the expiration of the applicable Warranty Period, KRUEGER shall, as its sole obligation and Buyer's sole and exclusive remedy for any breach of this warranty, repair or replace/re-perform the Goods which gave rise to the breach or, at KRUEGER' option, refund the amounts paid by Buyer for the Goods which gave rise to the breach. Any repair, replacement or re-performance by KRUEGER hereunder shall not extend the applicable Warranty Period. The parties shall mutually agree on the specifications of any test to determine the presence of a defect. Unless otherwise agreed upon by KRUEGER in writing, Buyer shall bear the costs of access, de-installation, re-installation and transportation of Goods to KRUEGER and back to Buyer. These warranties and remedies are conditioned upon (a) the proper storage, installation, operation, and maintenance of the Goods and conformance with the proper operation instruction manuals provided by KRUEGER or its suppliers or subcontractors, (b) Buyer keeping proper records of operation and maintenance during the applicable Warranty Period and providing KRUEGER access to those records, and (c) modification or repair of the Goods only as authorized by KRUEGER. KRUEGER does not warrant the Goods or any repaired or replacement parts against normal wear and tear or damage caused by misuse, accident, or use against the instructions of KRUEGER. Any modification or repair of any of the Goods not authorized by KRUEGER shall render the warranty null and void. EXCEPT AS EXPRESSLY SET FORTH HEREIN, KRUEGER MAKES NO OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTIES OF MERCHANTABILITY, NON-INFRINGEMENT OR FITNESS FOR A PARTICULAR PURPOSE WHICH ARE HEREBY DISCLAIMED TO THE EXTENT PERMITTED BY APPLICABLE LAW.

CONTACT KRUEGER

For warranties, replacement parts, technical support, or any other questions please contact:

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Chilled Beams

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CRITICAL ROOM SOLUTIONS

CHILLED BEAMS

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Underfloor Diffusers
Underfloor Terminal Units

TERMINAL UNITS

Single Duct
Fan Powered
Dual Duct
Bypass & Retrofit

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Horizontal
Vertical / Stack

DIFFUSERS

Plaque & Architectural
Louvered
Perforated
Modular Core
Linear Slot
Plenum Slot
Round
Air Nozzles

GRILLES & REGISTERS

Supply
Return
Linear Bar
Security
Industrial
Duct Mounted
Transfer
Stainless Steel



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