FläktGroup®
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SPECIALIZED
HEALTHY
AIR SOLUTIONS

AURORA IQSA

ACTIVE CHILLED BEAMS

INSTALLATION & OWNER'S MANUAL

TABLE OF CONTENTS

INTRODUCTION

This manual describes how to erect, store, clean and maintain the Aurora IQSA chilled beam. Each section provides information to guide the installation and maintenance of all components. It should also be noted that a section or sections of this manual might not apply to your system.

DIMENSIONS AND WEIGHTS

OVERALL LENGTH (OAL)		
MODEL	NOMINAL	ACTUAL
IQSA - 120	4'	47.2"
IQSA - 180	6'	70.9"
IQSA - 240	8'	94.5"
IQSA - 300	10'	118.1"

WEIGHT			
MODEL	NOMINAL LENGTH	DRY (LBS)	WET (LBS)
IQSA - 120	4'	31	32
IQSA - 180	6'	46	48
IQSA - 240	8'	62	65
IQSA - 300	10'	77	81

STANDARD SUBMITTAL: ACTIVE CHILLED BEAMS

A) GENERAL:

1) Chilled beam to be an integrated system for ventilation, cooling and heating. The beams shall consist of galvanized steel housing encasing the integral water coil(s), a plenum feeding a series of adjustable induction slots, a grille, and diffusers. Chilled beam to be active with primary ventilation introduced through side duct connection. Chilled beam shall be designed to be installed within a 24" ceiling tile grid. Beam to have adjustable induction slots.

B) QUALITY ASSURANCE:

1) Hydronic cooling capacities shall be established by testing accordance with European standard EN-15118.

C) CASING:

1) Casing shall be mainly made of galvanized steel sheet.

2) Beam face shall consist of a room air induction section of perforated steel with a circular, perforation pattern flanked by two linear supply slots.

3) The overall height of the beam shall not exceed 8.5".

D) COILS:

1) Coils shall be manufactured of ½" seamless smooth copper tubes with a 0.016" tube thickness and 0.0075" aluminum fins. Fins shall be spaced at a maximum of 9 fins per inch. An optional purging nipple may be included with each beam.

2) Coils have a maximum recommended working pressure of 95 psi.

E) DUCT CONNECTION:

1) A 5" supply air duct connection for the IQSA primary supply air duct, is factory installed onto the beam and can be located on the coil connection side or the top.

F) INDUCTION SLOTS:

1) The chilled beam shall be regulated by means of variable geometry slots and beam shall provide either uni- or bi-directional supply.

2) Slots will be adjustable without the need for tools or removal of the beam from its installation.

3) Slots will permit 0-100% airflow from each side of the beam with the opposing side providing the converse percentage. Slots will be shipped from the factory fully opened.

4) Each beam shall be provided with a pressure tap that may be used to measure the pressure differential reading between the primary air plenum and the room. An airflow calibration calculation which relates this pressure differential reading with the primary airflow rate shall also be provided by the beam manufacturer.

G) CONTROLS

1) Chilled beams can be supplied with a condensate sensor.

2) Automatic temperature controls shall be provided by others.

H) INSTALLATION:

1) Chilled beams shall be supported by adjustable hanging brackets supported from threaded rods (by others), with manufacturer's rigid mounting kit, or cable hanging system (by others).

PRE-INSTALLATION

Chilled beams can accumulate dust, dirt and corrosive matter (like salt) during shipment. If chilled beams appear to be dirty when received, follow the maintenance instructions on **PAGE 8** to clean soon after arrival. Abrasives and solvents should not be used without first consulting FläktGroup® SEMCO®.

RECEIVING AND INSPECTION

Upon delivery, confirm that the quantity and model(s) received matches the bill of lading. If there is any discrepancy, immediately notify FläktGroup® SEMCO®.

Inspect the packages for signs of damage. If damage is suspected, contact FläktGroup® SEMCO® immediately. If no visible damage is apparent, the unit should be properly stored until installation.

If the chilled beams must be stored before installation, store indoors on a hard, dry surface and protected from damage and moisture.

SYSTEM INSTALLATION

SUSPENSION NEAR STRUCTURE

1) Chilled beams shall be independently suspended from the structure above by four (4) cables (see **FIGURE 1**) or four (4) threaded rods of 3/8" diameter. (See **FIGURE 3**) The upper end of the rods may be anchored into the structure or suspended from metal channels that are:

a. Mounted perpendicular to the beam length

b. At least four inches wider than the beam

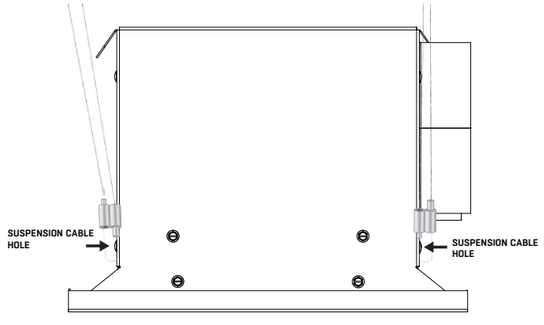


FIGURE 1. Aurora IQSA suspension near structure with cables.

2) Hangers shall be provided for rod installation (See **FIGURE 2**). These hangers will have a snap type connection with the beam that will allow for the beam to be repositioned along the length of the beam. The hangers will have oval mounting holes which will allow for the beam to have fine adjustment perpendicular to the length beam while the metal channel will have gross adjustment along the same adjustment path.

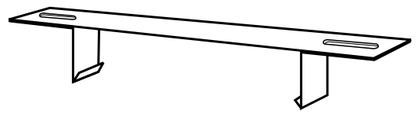


FIGURE 2. Aurora IQSA hanger

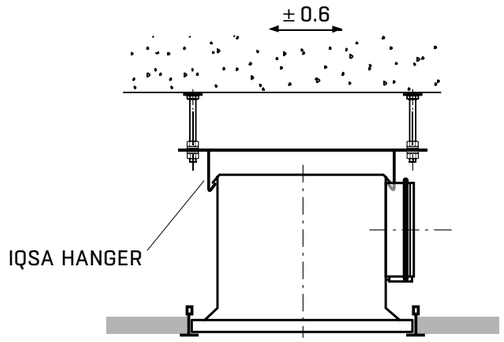


FIGURE 3. Aurora IQSA suspension near structure with hanger.

SUSPENSION TIGHT TO STRUCTURE

1) The beam is then to be positioned within the acoustical ceiling grid and leveled horizontally by adjusting the nuts connecting the threaded rods to the beam brackets. (See **FIGURE 4**)

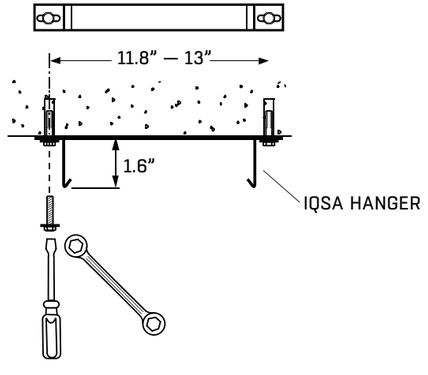


FIGURE 4. Aurora IQSA suspension tight to structure.

SUSPENSION BELOW STRUCTURE

1) The beam is then to be positioned within the acoustical ceiling grid by threading the suspension rods up into the suspension bracket (by others) and into the Aurora IQSA hanger. Tighten nuts with a wrench. (See **FIGURE 5**)

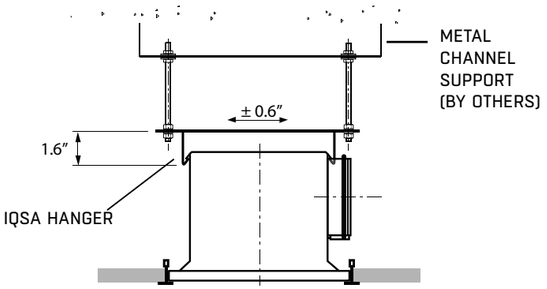


FIGURE 5. Aurora IQSA suspension below the structure.

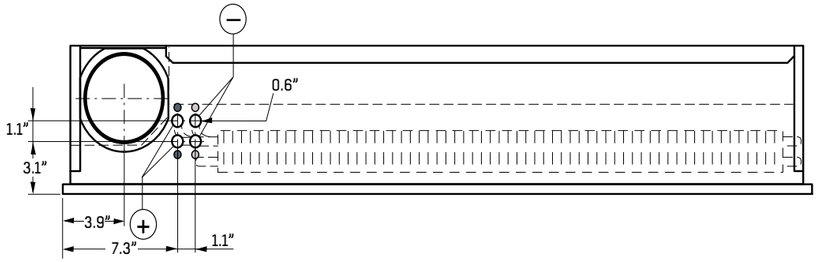
SYSTEMS FLUSHING

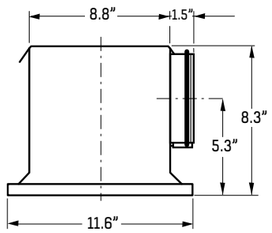
1) Before connecting the supply water system(s) to the beams, contractor shall flush the piping system to assure that all debris and other matter have been removed.

ALTERNATIVE AIR CONNECTIONS

SIDE DUCT CONNECTION

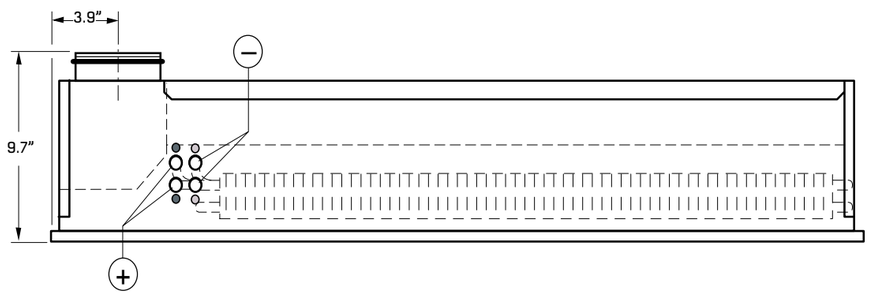
IQSA-aaa-1-c-d-e

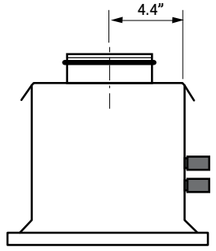




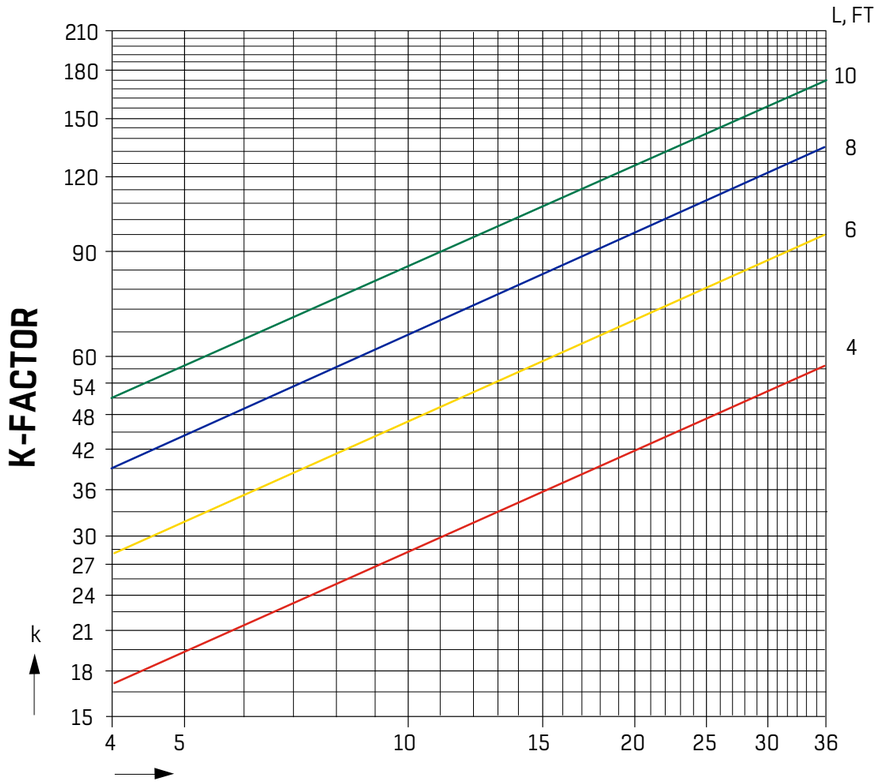
TOP DUCT CONNECTION

IQSA-aaa-3-c-d-e



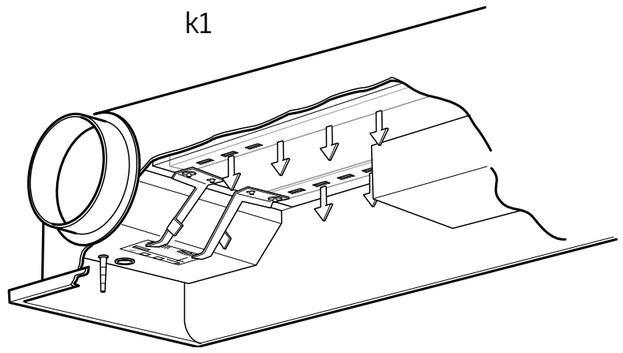


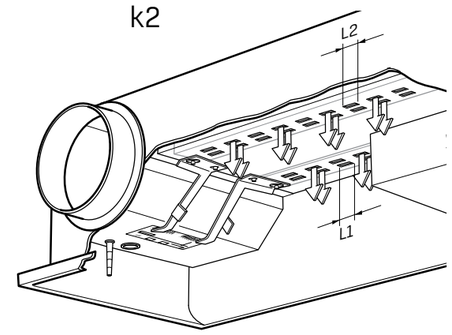
AURORA IQSA PRIMARY AIRFLOW (CFM) COMMISSIONING



L1 + L2 = NOZZLE OPENING (MM)

$$q(CFM) = k\sqrt{p(in.\ w.c.)}$$



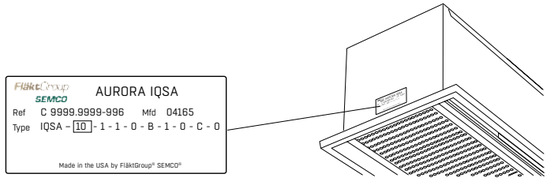


k2 = k1 x 2

ADJUSTING ENERGY CONTROL

1) The Aurora IQSA energy control nozzles can be adjusted with just a screwdriver. (See **FIGURE 6**)

2) Air pressure must be checked at this time. (See **FIGURE 7**)



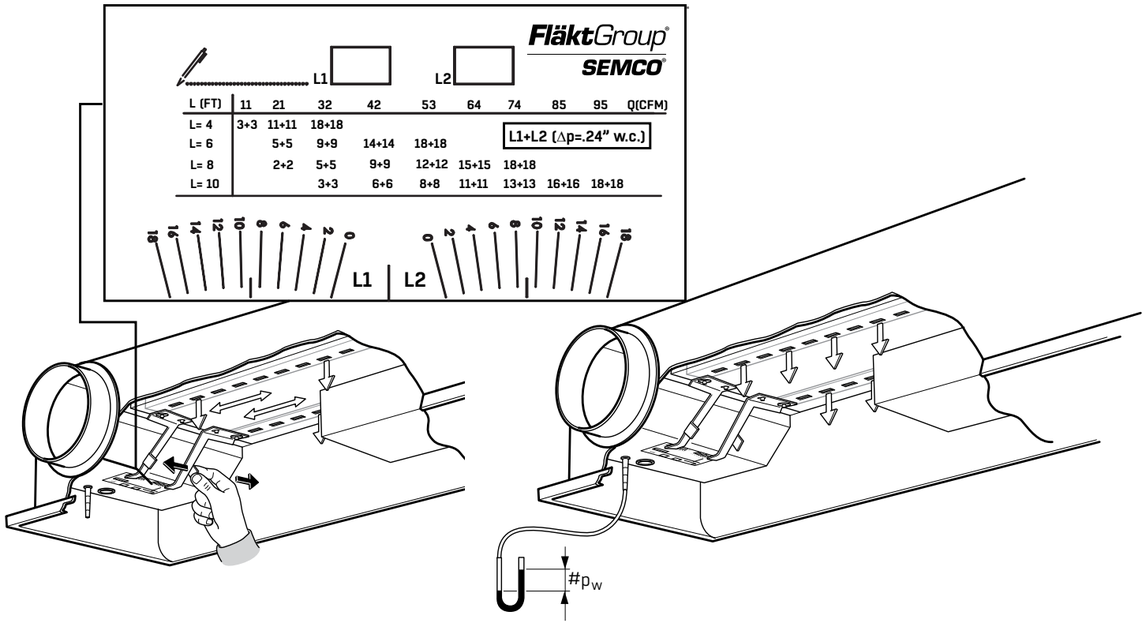


FIGURE 6. Adjusting Aurora IQSA energy control

FIGURE 7. Checking the Aurora IQSA pressure.

DUCT CONNECTIONS

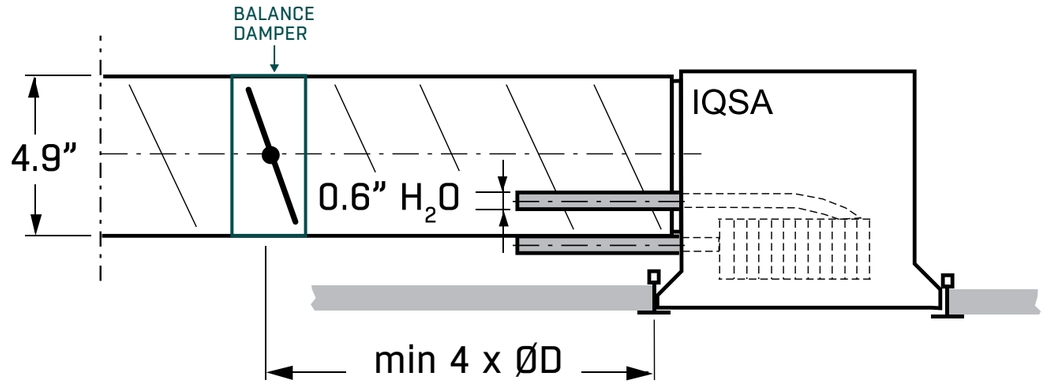


FIGURE 8. Maintain separation greater than four (4) duct diameters from the upstream damper (or change in direction to air inlet).

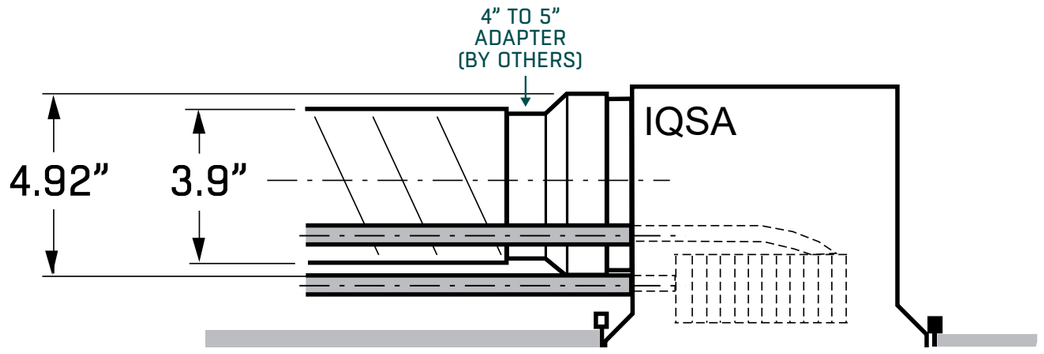


FIGURE 9. Use concentric reducer when connecting to duct other than 5" Ø.

CLEANING AND MAINTENANCE

1) Wipe down the exterior of the chilled beam with soap and water, as needed. (See **FIGURE 10**)

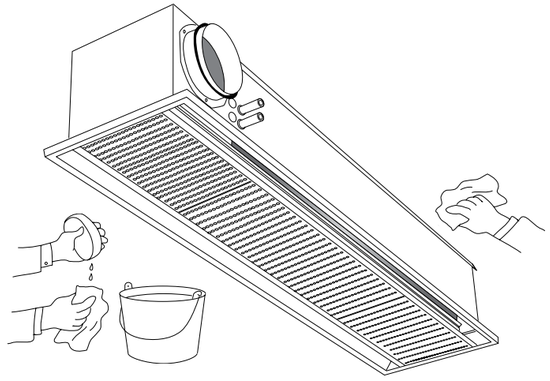


FIGURE 10

2) Open the cover to access the coil. (See **FIGURE 11**)

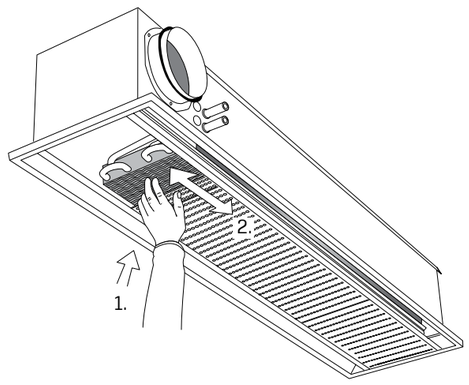


FIGURE 11

3) Vacuum the coil with a vacuum brush attachment every 5 - 10 years, or as needed. (See **FIGURE 12**)

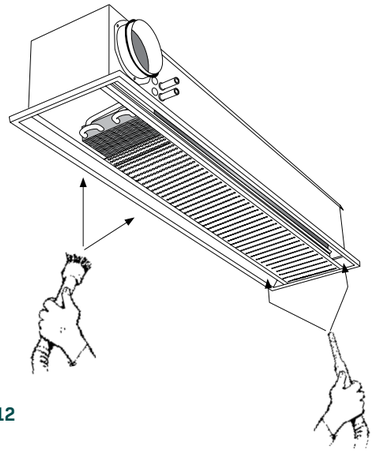


FIGURE 12

4) Dust cap may be removed for cleaning air entry section. (See **FIGURE 13**)

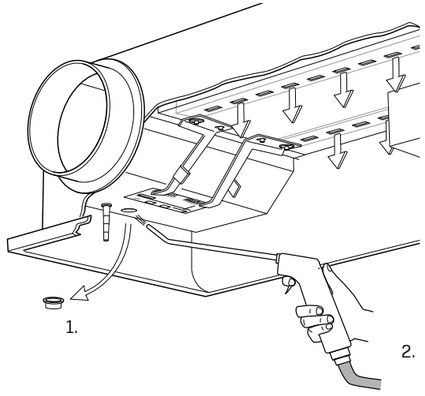


FIGURE 13

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EXCELLENCE IN SOLUTIONS

FläktGroup SEMCO delivers smart, energy-efficient, air-quality solutions to support every building application. We offer our customers innovative technologies, high-quality products and outstanding performance supported by more than fifty years of accumulated industry experience. The broadest offering on the market and a strong market presence in 65 countries worldwide guarantees that we are always by your side, ready to deliver: Excellence in Solutions.

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