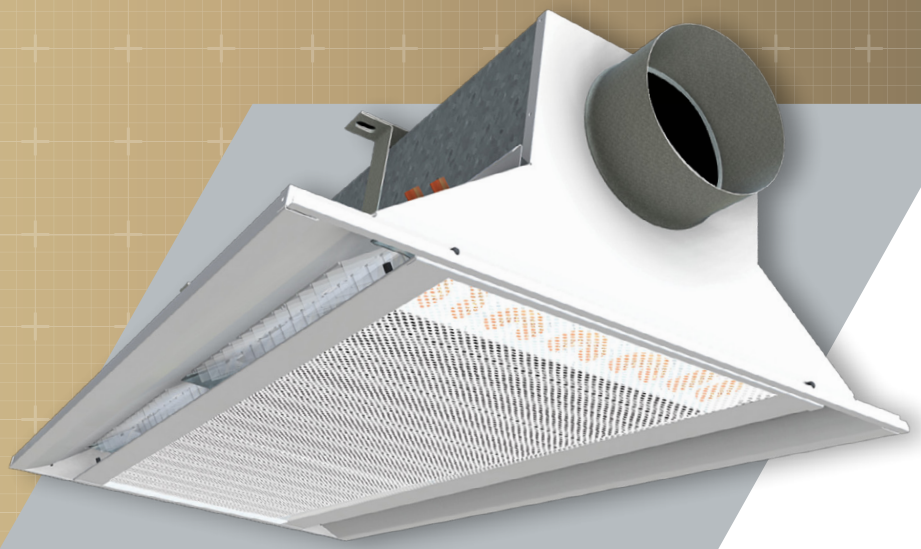
FläktGroup SEMCO

SPECIALIZED HEALTHY AIR SOLUTIONS

JUNO IQHC

ACTIVE CHILLED BEAM

TECHNICAL GUIDE



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THE JUNO IQHC

The Juno IQHC active chilled beam is one of the most versatile beams on the market. Called the "Universal Beam", due to its flexible, universal air and water connections, the Juno IQHC can be used for heating, cooling and ventilation.

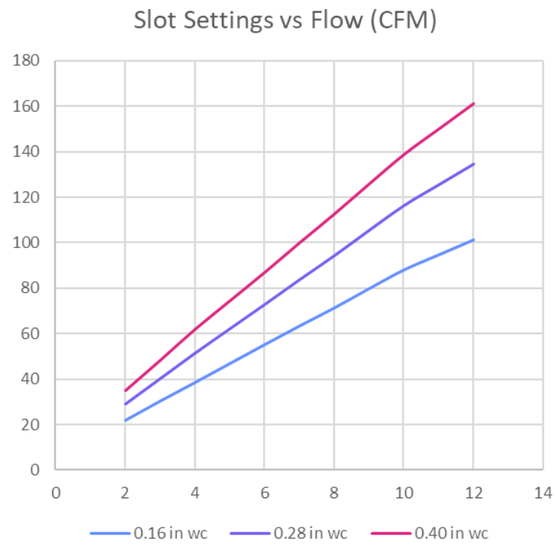
The Juno IQHC's diffusion system allows for customized energy control with adjustable induction, flow pattern control and twelve configuration slot settings. The flow pattern can easily be changed by adjusting the angles of the plastic fins in the diffusion system.

The bulk of the Juno IQHC's heating and cooling is managed by water coils instead of air nozzles, like competitor's chilled beams, resulting in favorable zone temperatures and significant energy savings.

KEY FEATURES

- Active chilled beam
- Flush mounting in false ceiling or exposed installation•
- Adjustable induction — energy control
- Adjustable air diffusion — flow pattern control
- Easy installation — fastening brackets
- Cooling and/or heating (2 or 4 pipe coil) or dual circuit coil
- Flexible, universal air and water connections
- Easy to clean and maintain
- Coanda wing and security style options available

QUICK SELECTION



The diagram shows the total cooling effect per foot at a total air pressure drop of 0.3" wc, water flow of 0.5 GPM, supply air temperature at 60°F and mean water temperature at 60.6°F.

LENGTHS AND WEIGHTS

OVERALL LENGTH		WEIGHT		
NOMINAL (FT)	ACTUAL (IN)	LENGTH (FT)	DRY (LBS)	WET (LBS)
2	23.75	2	26	28
3	35.75	3	38	41
4	47.75	4	50	53
5	59.75	5	62	66
6	71.75	6	75	78
7	83.75	7	87	91
8	95.75	8	99	103
9	107.75	9	111	116
10	119.75	10	123	128

FIGURE 1. Juno IQHC dimensions and weight

SPECIFICATIONS

All specifications are subject of alteration without further notice.

GENERAL

Chilled beam to be an integrated system for ventilation and cooling and, optionally, heating. The beams shall consist of a steel housing encasing the integral water coil(s), a plenum feeding a series of adjustable induction slots, and a face including a grille and diffusers. Chilled beam to be active with primary ventilation introduced through end, side or top duct connection. End duct connection shall be located at the same end of the beam as the coil connections. Chilled beam shall be designed to be installed within a 24" wide ceiling tile grid. Beam to have adjustable air flow, cooling effect, and flow pattern.

QUALITY ASSURANCE

Hydronic cooling capacities shall be established by testing accordance with European standard EN-14518.

CASING

Casing shall be manufactured of minimum 22 gauge galvanized steel. The steel shall be pre-painted on both sides with FläktGroup SEMCO plaster white.

Bottom plate of chilled beam shall be removable without tools for coil access.

Beam face shall consist of a room air induction section of perforated steel with 50+% free area circular, hexagonal, or linear perforation pattern flanked by two linear supply slots. The entire visible face section shall be finished in white powder coat paint or a color specified by the architect.

Each beam shall be provided with a pressure tap that may be used to measure the pressure differential 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.

The overall height of the beam shall not exceed 10.25".

COILS

Coils shall be manufactured of minimum 0.5" seamless smooth copper tubes .016" tube thickness with 0.006" aluminum fins. Fins shall be spaced at a maximum of 12.5 fins per inch. A purging nipple shall be included with each beam. Fins may be painted black as an option for reduced visibility.

Coils shall have a working pressure of at least 300 PSI, be factory tested for leakage at a minimum pressure of 360 PSI.

DUCT CONNECTION

A six (6) inch or eight (8) inch diameter spin fit primary supply air duct connection to the IQHC beam can be located at the side, end or top. An eight (8) to (6) inch diameter duct reducer can only be located at the top of the chilled beam.

INDUCTION SLOTS

The chilled beam shall be complete with velocity control and be regulated by means of variable geometry slots and shall provide either uni- or bi- directional supply.

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

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 full open.

Air measurement tubes shall be included, along with rated nameplate calculations for test and balance of primary airflow after installation.

DIFFUSERS

Diffusers shall provide the possibility to adjust the airflow pattern at different angles 0+15+30+45 mounted within the air-outlet of the beam.

Diffusers shall be provided for directional airflow adjustment along the length of the beam, with a minimum of two diffuser sections per side.

No tools shall be required for adjustment of the diffusers.

CONTROLS

Automatic temperature controls shall be provided by others.

Chilled beams can be supplied with condensate sensor.

INSTALLATION

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

FLOW PATTERN CONTROL

Flow pattern control (FPC) allows the Juno IQHC to be highly flexible. Flow pattern control is the configuration of plastic blades located inside the diffusion system. The configuration of blades determines how far and in what direction the air throw will go. The configurations can be set without tools and should be set to optimize air diffusion.

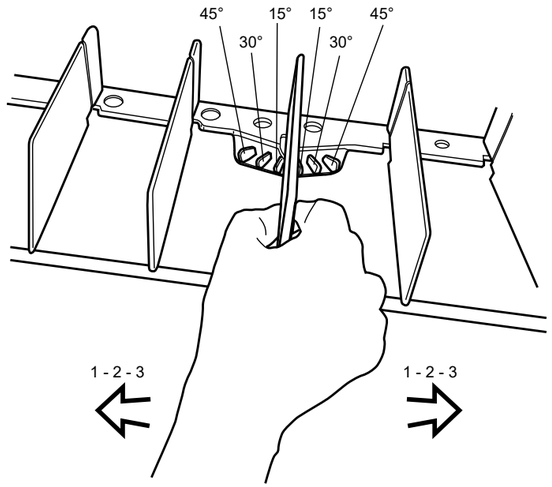


FIGURE 2. The Juno IQHC air deflector allows the plastic blades to be easily adjusted to change air direction

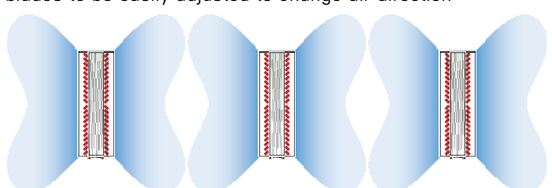


FIGURE 3. FPC blades set at opposing 30° angle settings and with comfort control in symmetrical setting.

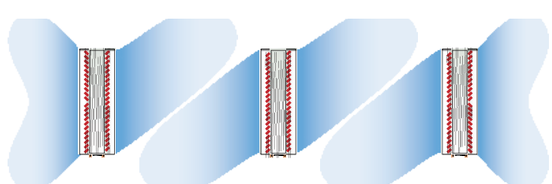
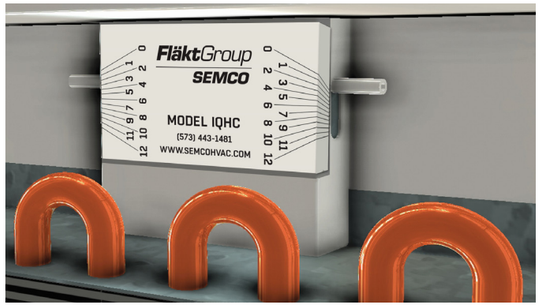


FIGURE 4. For high airflow applications as illustrated below, comfort control is in symmetrical setting, while FPC blades set at 30° angle settings on opposing units to avoid colliding air streams.

ENERGY CONTROL

Mounted on the rails of the chilled beam, the patented energy control feature, can adjust the variable slot settings on the Juno IQHC. Energy control can adjust airflow throw to either symmetrical or asymmetrical. Energy control feature is automatically aligned with the indicators on each side of the beam, providing a wide range of airflow settings for immediate and future requirements. Slot adjustment requires only a screwdriver to push the rails to the desired position.



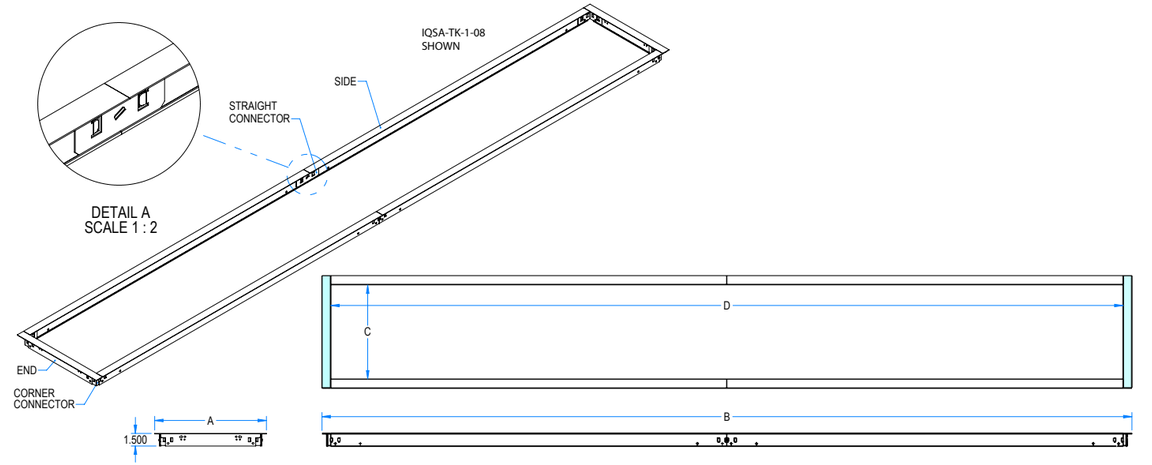
SECURITY BEAM

The Juno IQHC offers a security model option, for applications with high risk occupants, or those in need of stronger, safer beams due to security concerns. These applications include detention centers, police stations, psychiatric hospitals as well as, drug and alcohol rehabilitation centers.

Security beams are constructed out of heavy gauge metal and are mounted to the ceiling with a special 10 gauge fixed fastener, making them difficult to remove. For this reason, unlike the standard model Juno IQHC, flow pattern control is not available. The grille of the security Juno IQHC, has smaller perforation, and is bisected into two swing down panels that are attached to the beam with 3/16” thick piano hinges. The hinges are secured by tamper resistant fasteners.

DRYWALL FLANGE KITS

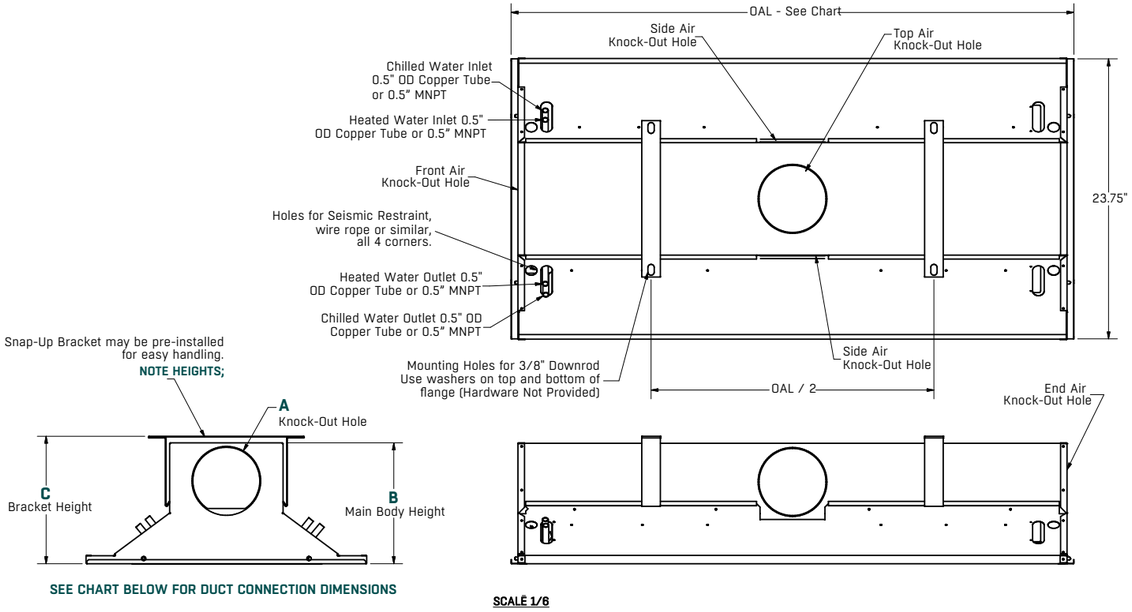
Multiple side pieces are required to create 6, 8 and 10 foot lengths. These lengths require straight connectors to create 5' to 10' lengths using 2', 3', or 4 foot side pieces. See **FIGURE 5** for exact part quantities for the length(s) required.



	JUNO IQHC DRYWALL KIT: PARTS, QUANTITIES AND OVERALL DIMENSIONS								
	2' x 2'	2' x 3'	2' x 4'	2' x 5'	2' x 6'	2' x 7'	2' x 8'	2' x 9'	2' x 10'
FLÄKTGROUP® SEMCO® KIT STRING	IQHC - TK-02	IQHC - TK-03	IQHC- TK-04	IQHC - TK-05	IQHC - TK-06	IQHC - TK-07	IQHC - TK-08	IQHC - TK-09	IQHC - TK-10
DIMENSION "A"	25.312"	25.312"	25.312"	25.312"	25.312"	25.312"	25.312"	25.312"	25.312"
DIMENSION "B"	24.5"	36.5"	48.5"	60.5"	72.5"	84.5"	96.5"	108.5"	120.5"
2' END QTY	2	2	2	2	2	2	2	2	2
2' SIDE QTY	2	—	—	2	—	4	—	—	2
3' SIDE QTY	—	2	—	2	4	2	—	6	—
4' SIDE QTY	—	—	2	—	—	—	4	—	4
CORNER CONNECTOR QTY	4	4	4	4	4	4	4	4	4
STRAIGHT CONNECTOR QTY	—	—	—	2	2	4	2	4	4

FIGURE 5. Drywall kit parts, quantities and overall dimensions

DIMENSIONS AND WEIGHTS



DUCT CONNECTIONS		
A	6 INCH Ø DUCT CONNECTION	8 INCH Ø DUCT CONNECTION
B	10.25"	12.25"
C	10.75"	12.75"

OVERALL LENGTH (OAL) CHART	
NOMINAL (FT)	ACTUAL (IN)
2	23.75
4	47.75
6	71.75
8	95.75
10	119.75

WEIGHTS		
LENGTH (FT)	DRY LBS.	WET LBS.
2	26	28
4	51	53
6	75	78
8	99	103
10	123	128

SLOT SETTINGS VS. FLOW

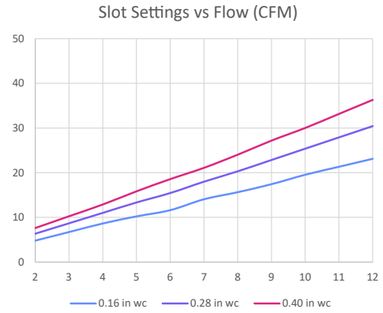


FIGURE 6. Juno IQHC 2 ft. by 6 in. standard

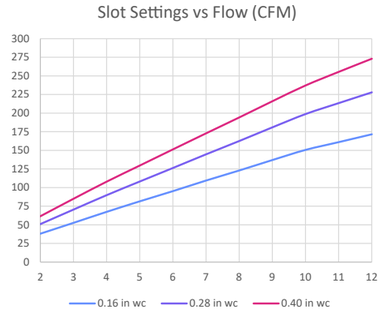


FIGURE 9. Juno IQHC 10 ft. by 8 in. large

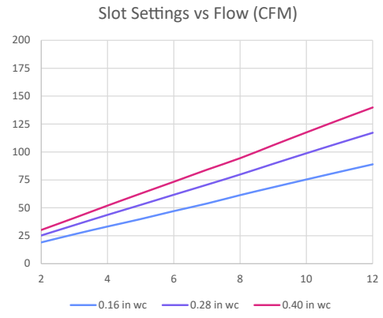


FIGURE 7. Juno IQHC 6 ft. by 6 in. standard

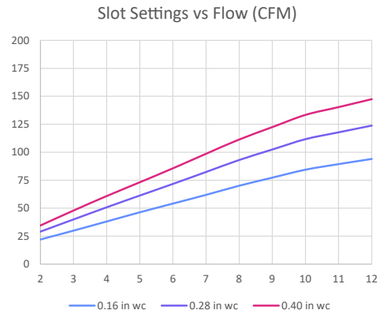


FIGURE 10. Juno IQHC 6 ft. by 6 in. large

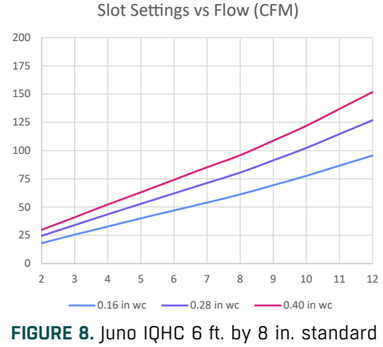


FIGURE 8. Juno IQHC 6 ft. by 8 in. standard

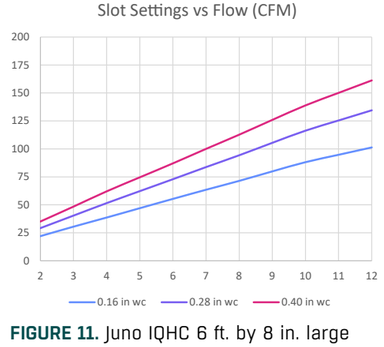


FIGURE 11. Juno IQHC 6 ft. by 8 in. large

TECHNICAL COOLING DATA

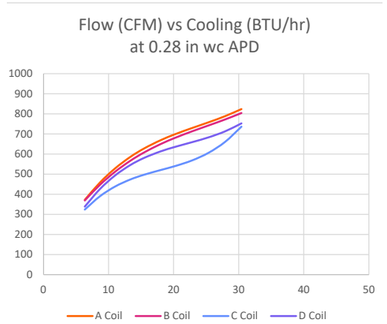


FIGURE 12. Juno IQHC 2 ft. by 6 in. standard

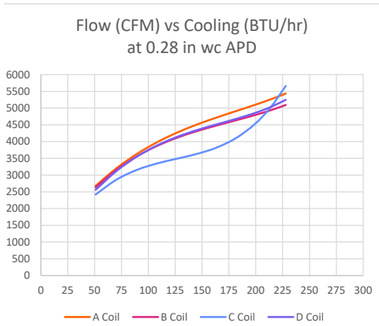


FIGURE 15. Juno IQHC 10 ft. by 8 in. large

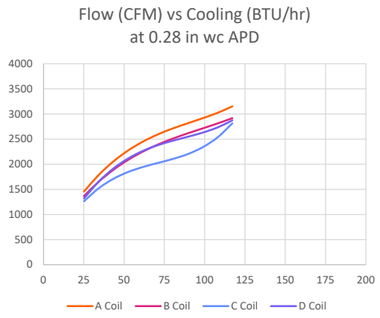


FIGURE 13. Juno IQHC 6 ft. by 6 in. standard

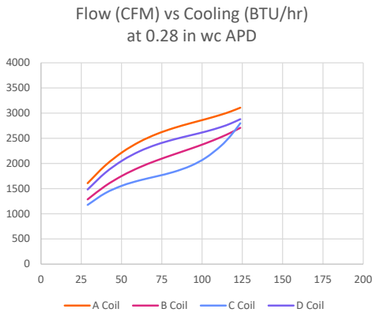


FIGURE 16. Juno IQHC 6 ft. by 6 in. large

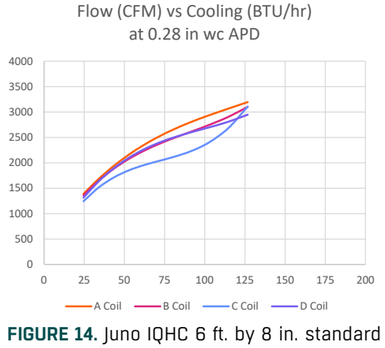


FIGURE 14. Juno IQHC 6 ft. by 8 in. standard

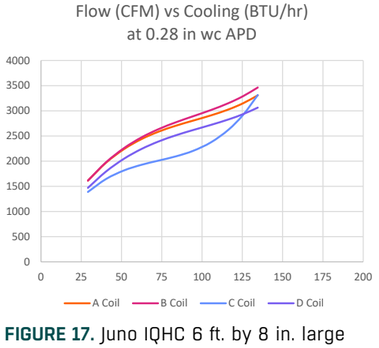


FIGURE 17. Juno IQHC 6 ft. by 8 in. large

TECHNICAL HEATING DATA

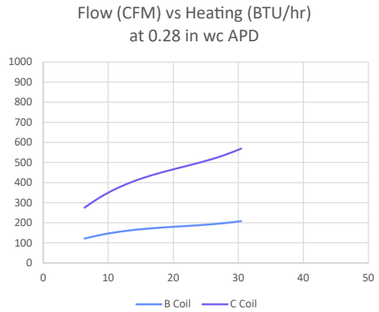


FIGURE 18. Juno IQHC 2 ft. by 6 in. standard

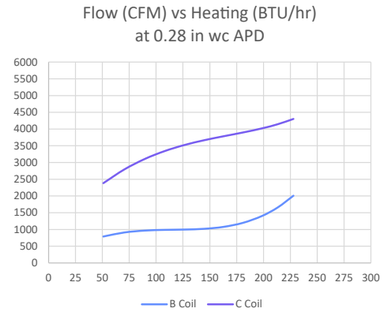


FIGURE 21. Juno IQHC 10 ft. by 8 in. large

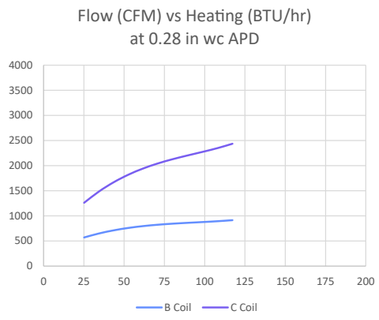


FIGURE 19. Juno IQHC 6 ft. by 6 in. standard

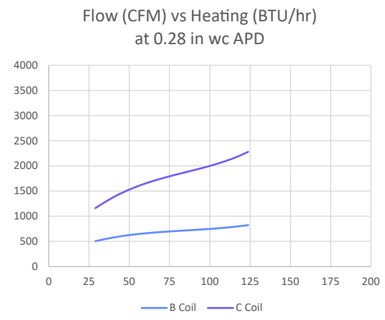


FIGURE 22. Juno IQHC 6 ft. by 6 in. large

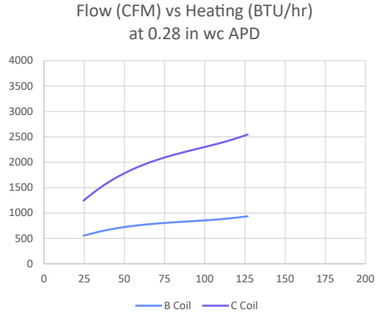


FIGURE 20. Juno IQHC 6 ft. by 8 in. standard

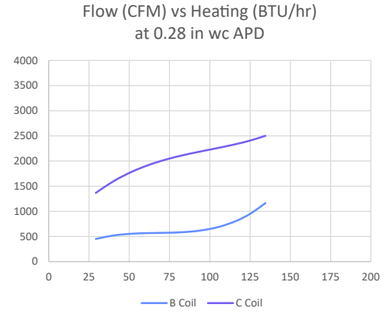


FIGURE 23. Juno IQHC 6 ft. by 8 in. large

TECHNICAL SOUND DATA

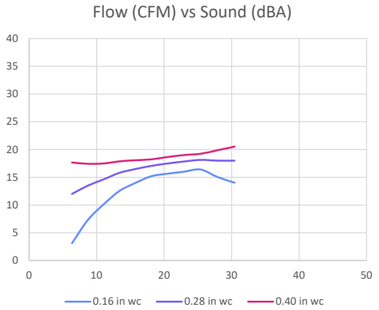


FIGURE 24. Juno IQHC 2 ft. by 6 in. standard

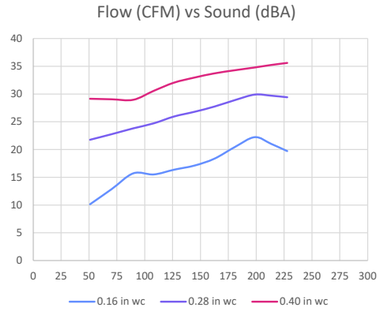


FIGURE 27. Juno IQHC 10 ft. by 8 in. standard

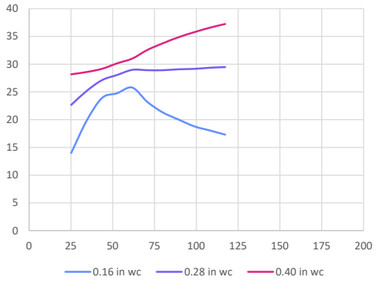


FIGURE 25. Juno IQHC 6 ft. by 6 in. standard

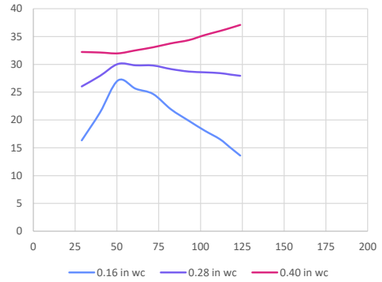


FIGURE 28. Juno IQHC 6 ft. by 6 in. large

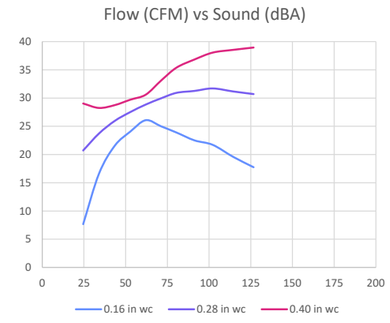


FIGURE 26. Juno IQHC 6 ft. by 8 in. standard

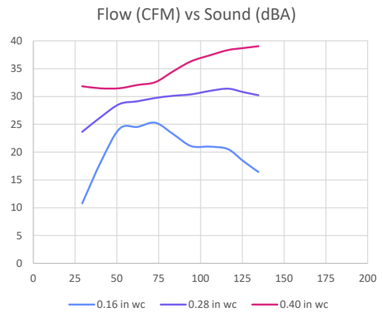


FIGURE 29. Juno IQHC 6 ft. by 8 in. large

JUNO IQHC SELECTION TOOL

If you have different operating requirements than those shown on **PAGES 7-10**, please contact your local FläktGroup® SEMCO® sales representative or visit www.semcohvac.com for more information on the FläktGroup® SELECT selection tool.

Product Catalogue /Chilled Beams /

iQ STAR JUNO CHILLED BEAM

IQHC-6-A-6-0-0-0-0-1-B-A-0-0-0

Properties

Coil:	10 rows
Coil function:	Neuton change over
Length:	180 cm / 70.9"
Beam style option:	Standard - Ceiling Flush
Connection diameter:	6"
Fin paint option:	Standard
Drop down perf. option:	Standard 3/16" dia.
Nozzle settings	8
Hose kit options:	No hose kit
Insulation:	Without
Finish options:	SEMCO standard paint
Slot opening option:	Large
Suspension:	No brackets
Trim kit:	No trim kit

ADVANCED PRODUCT PROPERTIES

Heating:	Yes
FPC angle	0
Coil connection type:	1/2" NPT male
Flow Pattern Control:	Yes

Parameters

Number of units	1		
	Air flow	Air pressure drop	
Air flow	110.4	110.4	cfm
	Water flow	Water temp out	
Inlet water temp	55	110	°F
Inlet water flow	0.5	0.5	gpm
Ceiling temp	75	72	°F
Room temp	74	72	°F
Relative humidity	45	45	%
Air temp	60	60	°F
Glycol percentage	0	0	%

version:9

RESULT | VISUALIZATION | DESCRIPTION | DOCUMENTS

	❄	🔥	
Power	4926	4591	btu/h
Coil power	3156	5999	btu/h
Supply air power	1771	-1408	btu/h
Sound Lp10A dBA	34	34	dB(A)
Air flow	110.4	110.4	cfm
Total air pressure drop	0.39	0.39	inWG
Outlet water temp	65.5	90	°F
Throw length L02	13.1	14.2	ft
Water pressure drop	0.38	0.38	ftWG

ADDITIONAL RESULT

NC value	30	30	
NR value	30	30	
Outlet air temp	68.3	78.3	°F
K-factor	180.6	180.6	#
Dew point	52.2	49.4	°F
Delta water temp	10.5	19.9	°F
Inductionfactor	5.15	5.15	
Mean water-room	46.7	60	°F

CABLE SUSPENSION

Each corner on the mounting flange of the Juno IQHC, has five suspension cable holes. Mount by threading wire through two neighboring holes on each corner of the beam.

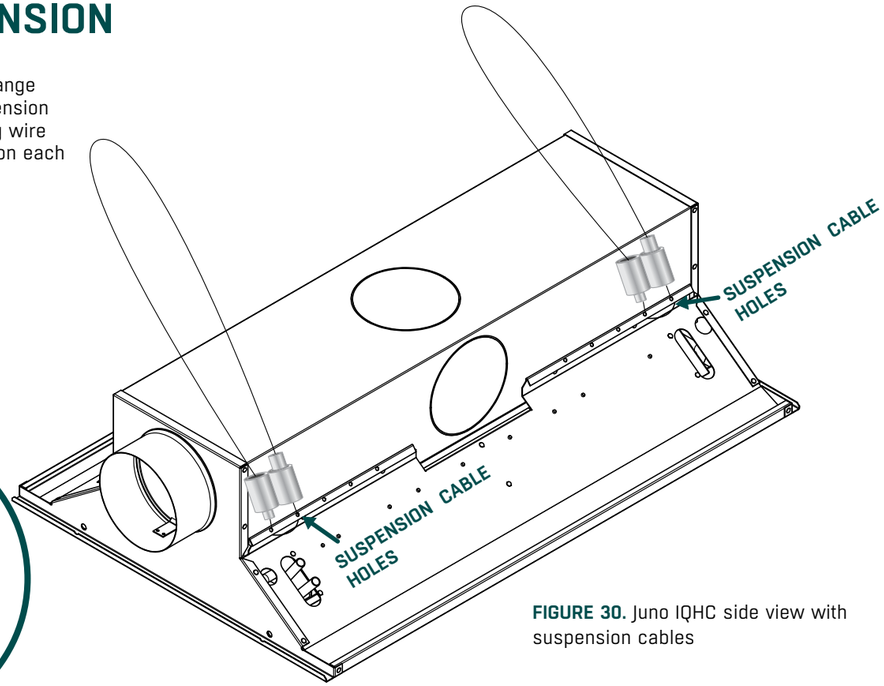


FIGURE 30. Juno IQHC side view with suspension cables

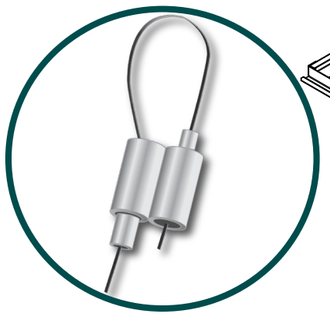
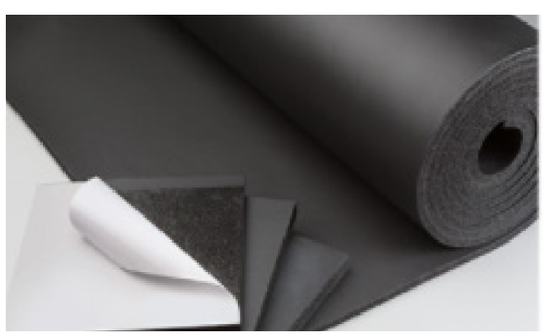


FIGURE 31. Close up of a suspension cable hanger

INSULATION

Optional external, factory installed closed-cell elastometric plenum insulation is available in thicknesses of 1/8", 1/4", or 1/2". Insulation is recommended for applications in which the primary air temperature will be less than the dewpoint in the space above the ceiling.



ACCESSORIES

INSTALLATION WITH FASTENING BRACKET (OPTIONAL)

A suspension bracket facilitates the suspension of chilled beams from the ceiling. Two brackets are used for each beam. The brackets can be ordered in advance or along with the chilled beam. The suspension brackets can be fitted directly to the ceiling or onto channel support bars.The chilled beam is simply attached by pressing it against the bracket until it clicks into place. No tools are needed. After this, the chilled beam can be adjusted lengthwise by sliding the bracket along the beam's fastening points. To adjust it sideways, slide the threaded bars along the grooves in the bracket.

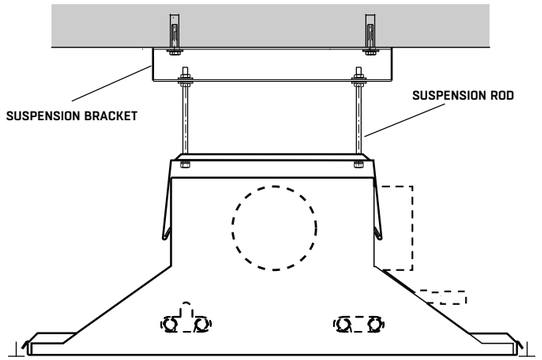


FIGURE 32. If there is a need for adjusting the installation height, suspension brackets and suspension rods can be ordered as well.

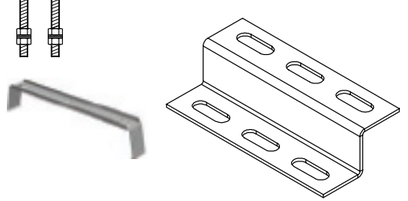


FIGURE 33. Suspension brackets

PURGING NIPPLE

The purging nipple is an optional accessory, that can be added in the selection tool.

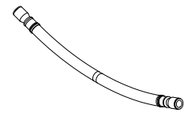


FIGURE 34. Flexible hose with push-on connection

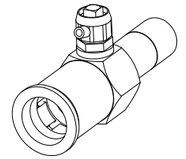


FIGURE 35. Purging nipple

COANDA WINGS

When installing the Juno IQHC in exposed applications, where the total airflow in the room is quite low, select the extended Coanda wings, which will broaden the airflow throw.

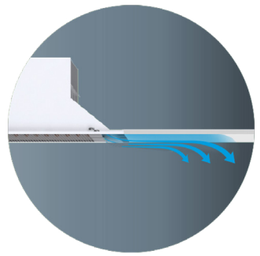


FIGURE 36. Coanda wing

PRODUCT AND ACCESSORY CODES

MAIN CODE
IQHC-a-b-c-d-e-f-g-h-i-j-k-l-m-n

NOMINAL LENGTH, FEET (a)
2 = 2 feet long
3 = 3 feet long (not available in security)
4 = 4 feet long
5 = 5 feet long (not available in security)
6 = 6 feet long
7 = 7 feet long (not available in security)
8 = 8 feet long
9 = 9 feet long (not available in security)
10 = 10 feet long

COIL OPTIONS (b)
A = 10 pass, 2-pipe connection with purge nipples
B = 10 pass, (8 cold, 2 hot) 4-pipe connection with purge nipples
C = 10 pass, (6 cold, 4 hot) 4-pipe connection with purge nipples
D = 8 pass, 2 circuit, 2-pipe connection with purge nipples

INLET SIZE (c)
6 = 6" duct opening
8 = 8" duct opening (standard and extended wing only)

BEAM STYLE OPTION (d)
0 = Standard ceiling flush
1 = Extended wing
2 = Security

FLOW PATTERN CONTROL (e)
0 = With option (standard and extended wing only)
1 = Without option

PLENUM INSULATION (f)
0 = No insulation (standard)
1 = 0.125" neoprene insulation
2 = 0.25" neoprene insulation
5 = 0.5" neoprene insulation

FINISH OPTIONS (g)
0 = FläktGroup SEMCO standard finish/color
1 = FläktGroup SEMCO standard finish/color with black interior
2 = Custom finish/color
3 = Custom finish/color with black interior
4 = Custom finish/color (special order)

SLOT OPENING OPTIONS (h)
0 = Standard
1 = Large

COIL CONNECTION OPTIONS (i)
A = 0.5" sweat
B = 0.5" NPT male
C = Custom coil end fittings (special order)

HOSE OPTION KITS (j)
A = No hose kit
B = 24" hose with 0.5" NPT female (coil must be ordered with MNPT 0.5" fittings)
C = 24" hose with 0.5" NPT female & shut off valve (coil must be ordered with MNPT 0.5" fittings
D = Custom hose and/or valve (special order)

FIN PAINT OPTIONS (k)
0 = Standard
1 = Pre-painted fin stock (black)

SUSPENSION (l)
0 = No brackets
1 = Standard FläktGroup SEMCO brackets
2 = Rigid mount kits (security only)

TRIM KIT OPTIONS (m)
0 = No trim kit
1 = Dry wall kit

DROP DOWN PERFORATIONS (n)
0 = Standard 0.1875" diameter (50% free area)
1 = Hexagon (50% free area)
2 = Custom perforation pattern (special order)

ADDITIONAL INFORMATION
LENGTH IN FEET:
2, 3, 4, 5, 6, 7, 8, 9, 10

SLOT SETTINGS AVAILABLE:
0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10

DUCT CONNECTION SIZE:
6" or 8"

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FläktGroup® SEMCO®
Corporate Headquarters
1800 East Pointe Drive
Columbia, Missouri 65201 USA
573.443.1481
sales.semco@flaktgroup.com

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