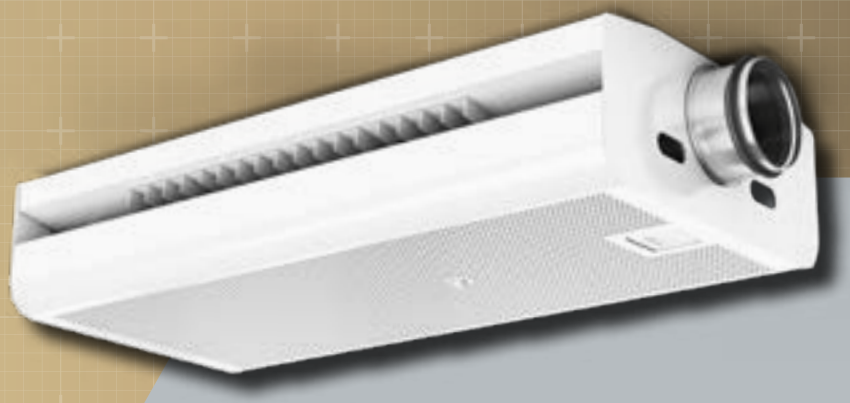
FläktGroup®

SEMCO®

NOVA II IQFI

EXPOSED CHILLED BEAM

TECHNICAL GUIDE



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THE NOVA II IQFI

The NOVA II IQFI is an exposed, active chilled beam, that can be used to heat, cool, and ventilate a zone. The NOVA II IQFI comes equipped with adjustable blades, for flow pattern control and adjustable induction to achieve optimal comfort and flexibility.

With the addition of the optional Pi® actuator, the NOVA II IQFI becomes pressure independent, making it suitable to be used with any duct work system and for retrofitting. Installing the Pi® actuator also allows the NOVA II IQFI to employ a demand controlled ventilation function, which will determine airflow levels based upon the occupancy of a space — further increasing the NOVA II IQFI's efficiency, flexibility and comfort. Without the Pi® actuator, the airflow nozzles would be manually adjusted with a screwdriver.

The NOVA II IQFI is an aesthetically pleasing, ceiling-mounted, exposed, active chilled beam. It is available in round or square profiles.

KEY FEATURES

- Length 47.3" - 129.9" (every 11.8")
- Ventilation, heating and cooling
- Adjustable induction — energy control
- Adjustable air diffusion — flow pattern control
- Easy installation — fastening brackets
- Can be free-hanging or ceiling mounted
- Water coil heating and/or cooling (2 pipe coil)
- Easy to clean and maintain
- Energy efficient, saving money on operating and life-cycle costs
- Nozzles: 0-36 mm
- Factory mounted controls
- Perforated swing down front panel for easy access

OPTIONS

- Round or rectangular shape profiles
- Pressure independent (Pi) actuator
- Controls

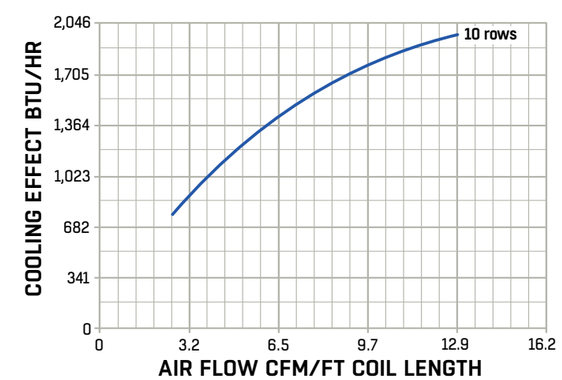
APPLICATIONS

- Offices
- Conference rooms

	OVERALL LENGTH	WEIGHT	
	ACTUAL LENGTH (IN)	DRY (LB)	WET (LB)
NOVA II - 120	47.3	44	46
NOVA II - 150	59.1	53	55
NOVA II - 180	70.9	62	64
NOVA II - 210	82.7	71	73
NOVA II - 240	94.5	79	82
NOVA II - 270	106.3	88	90
NOVA II - 300	118.1	97	101
NOVA II - 330	129.9	106	110

FIGURE 1. NOVA II IQFI dimensions and weight

QUICK SELECTION



The diagram shows that the total cooling effect per btu/hr at a total pressure of 0.28 in. w.c., water flow q_w = 0.8 gpm, temperature difference between room air supply and supply air Δt = 14.4°F and temperature difference between mean water temperature and room temperature Δt = 14.4°F.

SPECIFICATIONS

GENERAL

Chilled beam to be an integrated system for ventilation, 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 the end connection. End duct connection may be located at the same or opposite end of the beam as the coil connections. Chilled beam shall be designed to be installed exposed. 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-15116.

CASING

Casing shall be galvanized steel. Exposed faces of galvanized steel shall be powder coated RAL-9003, white 30% gloss.

Bottom housing of chilled beam can swing down without tools for coil access.

Beam face shall consist of a room air induction section of perforated steel with 18+% 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.

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 7.6".

COILS

Coils shall be manufactured of seamless smooth copper tubes with aluminum fins. An optional purging nipple may be included with each beam.

Coils shall have a working pressure of 95 PSI, with coils factory tested for leakage at a minimum pressure of 230 PSI.

DUCT CONNECTION

A 4.9" diameter spin fit primary supply air duct connection to the IQFI beam is located at the end.

ADJUSTABLE INDUCTION

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 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 barb tubing 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. No tools shall be required for adjustment of the diffusers.

CONTROLS

Standard configuration ships without controls for use with optional 24V integrated controller with room controller, condensate sensor and/or occupancy sensor (PIR), may be ordered for use with 0-10V control valves by others.

Automatic temperature controls shall be provided by others.

INSTALLATION

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

All specifications are subject to alteration without further notice.

FLOW PATTERN CONTROL

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

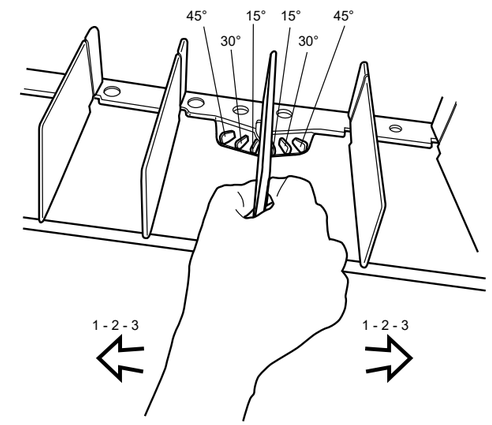


FIGURE 2. The NOVA II IQFI air deflector allows the plastic blades to be easily adjusted to change air direction

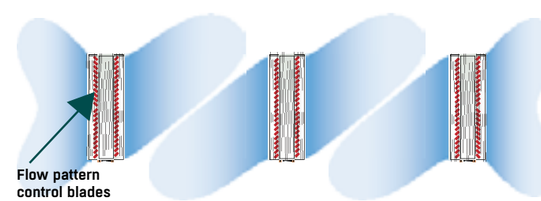


FIGURE 3. For high airflow applications, as illustrated above, a symmetrical flow can be set at opposing 30° angles, to avoid colliding airstreams with other beams in the zone, by changing the direction of the control blades, as illustrated in red.

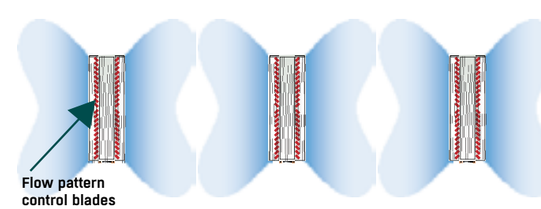
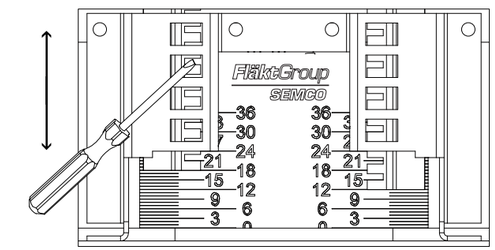
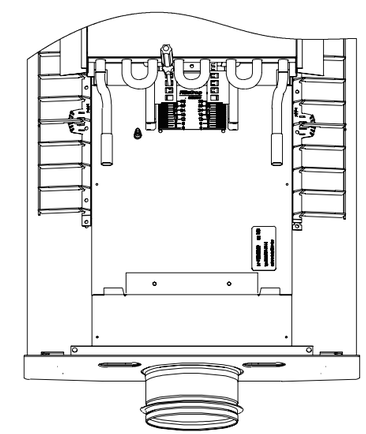


FIGURE 4. For normal airflow applications, as illustrated above, a symmetrical flow can be set by changing the direction of the control blades, as illustrated in red.

ENERGY CONTROL

Mounted on the rails of the chilled beam, the patented energy control feature, can adjust the variable nozzle settings on the NOVA II IQFI. Energy control can create a symmetrical or asymmetrical flow of air leaving the beam. The energy control feature is automatically aligned with the indicators on each side of the beam, providing a wide range of airflow setting options for immediate and future requirements. Nozzle adjustment requires only a screwdriver to push the rails to the desired position.

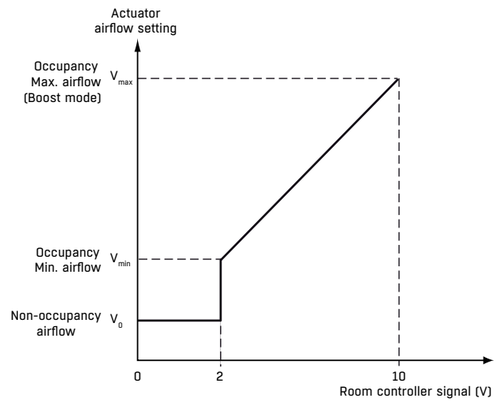




PRESSURE INDEPENDENT ACTUATOR® (OPTIONAL)

The Pi® actuator is an optional flow control device, that can be mounted directly to the NOVA II IQFI allowing ventilation flow to adjust in response to changes in demand or upstream pressure. Attaching a Pi® actuator to a chilled beam, allows the chilled beam to be even more flexible in terms of its ability to quickly adapt to changing space conditions. The Pi® actuator adjusts the nozzles to allow only the amount of ventilation flow needed for current occupancy levels, regardless of the pressure changes occurring in the duct work system. Air quality can also be controlled, when a CO_2 sensor is connected to the controller. Unlike competitors' pressure independent controls, which can only be used with larger static pressure regain duct systems, the Pi® actuator can be used with any duct system. Making it is easy for engineers to incorporate the NOVA II IQFI with Pi® into their designs. The Pi® actuator can be quickly removed and installed on another beam, making it incredibly versatile. In cases of redesigns or remodels, the Pi® actuator may be retrofitted to meet updated needs.

The demand control ventilation feature of the Pi® actuator allows chilled beams to be even more energy efficient due to its three modes: unoccupied, standard occupancy, and high occupancy. These modes control how much air is delivered in a given zone and modulate the air nozzles in response to occupancy. Unoccupied mode, provides a minimum primary air flow for the induction required to allow the beam's coil to satisfy the zone's sensible demand. While occupied mode provides the required primary air flow for the zone.



NOTE: When using a Pi® actuator, a PIR or CO_2 sensor (or both) must provide occupancy feedback. Duct pressure must be maintained between 0.2 and 0.6 PSI.

CAUTION: If a Pi® actuator is installed on a NOVA II IQFI as a part of a retrofit, a damper before the chilled beam is not necessary and any previously installed dampers should be set to fully-open positions or removed.

TECHNICAL AND SOUND DATA

CONDITIONS FOR COOLING PERFORMANCE TABLES

Total cooling effect of beam, P_{TOT} = cooling effect of coil, P_{COIL} + cooling effect of supply air, P_{AIR}.

- Air side total pressure drop of 0.28 IN. W.C.
- Water flow rate of 0.8 GPM per circuit.
- Δt = 14.4°F between room temperature and mean water temperature.
- Δt = 14.4°F between room temperature and supply temperature.

Performance for water flows other than 0.8 GPM, can be found in the FläktGroup® SEMCO® selection tool, SELECT.

The tables here are based on tests done according to the EN 15116 standard. The purpose of this standard is to be able to compare performances of different chilled beams on the same terms. The external heat supply method has been supplied evenly over the floors and walls, such that on-coil temperature is the same as the temperature at 43 in. above floor level (seated head height). In actual conditions, the temperature difference is normally 1.8°F. This is why the temperature Δt should be increased by 1.8°F to avoid over dimensioning of the beam.

This means that the table value concerned can be increased by 10%. As such, it is not common for selections in SELECT to have 1.8°F increase between ceiling temperature and room temperature.

DEFINITIONS

q_{AIR}	Supply airflow, CFM
P_{TOT}	Total cooling effect of the coil, BTU/HR
P_{COIL}	Cooling effect of the coil, BTU/HR
$P_{COIL\ HEAT}$	Heating effect of the coil, BTU/HR
Δt	Difference between room air temperature and average water or primary air temperature, °F.
ΔP_W	Pressure drop water, ft. H_2O
L_{A10}	Sound pressure level in a room with 108 ft² room absorption dB(A)

SOUND POWER LEVEL

NOVA II	CORRECTION K dB | OCTAVE BAND, MIDDLE FREQUENCY, HZ							
	63	125	250	500	1,000	2,000	4,000	8,000
120	4	3	4	3	0	-8	-17	-18
150	4	3	4	3	0	-8	-17	-18
180	4	3	4	3	0	-8	-17	-18
210	4	3	4	3	0	-8	-17	-18
240	4	3	4	3	0	-8	-17	-18
270	4	3	4	3	0	-8	-17	-18
300	4	3	4	3	0	-8	-17	-18
330	4	3	4	3	0	-8	-17	-18
TOL ±	4	2	2	1	1	2	3	8

The sound power levels for every octave band are obtained by adding together the sound pressure level L_{A10}, dB(A), and the corrections K_{OCT} given in the table above, according to the following formula:

$$L_W = L_{A10} + K_{OCT}$$

Correction K_{OCT} is the average in the area of application of the chilled beam.

SOUND ATTENUATION

The average sound attenuation ΔL of the chilled beam from duct to room includes the end reflection of the connecting duct.

SOUND ATTENUATION IN SUPPLY AIR DUCT OF THE BEAM ΔL, dB OCTAVE BAND, MIDDLE FREQUENCY, HZ							
63	125	250	500	1,000	2,000	4,000	8,000
26	17	16	20	19	19	24	20

TECHNICAL DATA FOR **COOLING**

TWO-WAY CHILLED BEAM 10 ROWS, 1 CIRCUIT (2-PIPE SYSTEM) AT PRESSURE DROP 0.28 IN. W.C. ON THE AIR SIDE

BEAM LENGTH = 42.2" (COIL LENGTH = 29.1")

NOZZLE OPENING mm	q_{AIR} CFM	P_{TOT} (BTU/HR) FOR Δt (°F)			P_{COIL} (BTU/HR) FOR Δt (°F)			L_{A10} dB(A)
		10.8°F	14.4°F	18°F	10.8°F	14.4°F	18°F	
6	9	590	740	894	659	611	764	<20
12	16	935	1,164	1,396	973	921	1,153	<20
18	23	1,187	1,467	1,747	1,174	1,119	1,399	<20
24	29	1,372	1,682	1,989	1,290	1,232	1,539	<20
30	36	1,515	1,836	2,157	1,351	1,283	1,604	20
36	42	1,638	1,965	2,293	1,379	1,310	2,296	23

FIGURE 5. Water flow, q_W = 0.8 GPM, pressure drop ΔP_W = 1 FT. H_2O

BEAM LENGTH = 70.9" (COIL LENGTH = 52.8")

NOZZLE OPENING mm	q_{AIR} CFM	P_{TOT} (BTU/HR) FOR Δt (°F)			P_{COIL} (BTU/HR) FOR Δt (°F)			L_{A10} dB(A)
		10.8°F	14.4°F	18°F	10.8°F	14.4°F	18°F	
6	16	1,089	1,372	1,655	846	1,129	1,413	<20
12	28	1,696	2,119	2,539	1,266	1,686	2,109	<20
18	40	2,136	2,638	3,143	1,512	2,017	2,522	<20
24	52	2,470	3,023	3,576	1,662	2,214	2,767	20
30	65	2,716	3,289	3,863	1,716	2,290	2,863	25
36	76	2,921	3,184	4,084	1,747	2,327	2,911	32

FIGURE 6. Water flow, q_W = 0.8 GPM, pressure drop ΔP_W = 2 FT. H_2O

BEAM LENGTH = 94.5" (COIL LENGTH = 76.4")

NOZZLE OPENING mm	q_{AIR} CFM	P_{TOT} (BTU/HR) FOR Δt (°F)			P_{COIL} (BTU/HR) FOR Δt (°F)			L_{A10} dB(A)
		10.8°F	14.4°F	18°F	10.8°F	14.4°F	18°F	
6	22	1,539	1,938	2,337	1,194	1,594	1,993	<20
12	40	2,433	3,037	3,664	1,815	2,419	3,023	<20
18	58	3,061	3,781	4,184	2,167	2,887	2,522	<20
24	76	3,733	4,316	5,101	2,358	3,143	3,610	22
30	93	3,873	4,685	5,497	2,436	3,248	4,060	27
36	109	4,142	4,961	5,784	2,460	3,279	4,098	32

FIGURE 7. Water flow, q_W = 0.8 GPM, pressure drop ΔP_W = 1.8 FT. H_2O

BEAM LENGTH = 118.1" (COIL LENGTH = 100.0")

NOZZLE OPENING mm	q_{AIR} CFM	P_{TOT} (BTU/HR) FOR Δt (°F)			P_{COIL} (BTU/HR) FOR Δt (°F)			L_{A10} dB(A)
		10.8°F	14.4°F	18°F	10.8°F	14.4°F	18°F	
6	27	2,006	2,539	3,071	1,594	2,126	2,658	<20
12	49	3,112	3,897	4,682	2,354	3,139	3,924	<20
18	72	3,910	4,845	5,780	2,805	3,740	4,675	21
24	94	4,480	5,487	6,493	3,023	4,030	5,036	24
30	116	4,883	5,913	6,944	3,095	4,125	5,156	29
36	136	5,193	6,224	7,258	3,098	4,129	5,163	31

FIGURE 8. Water flow, q_W = 0.8 GPM, pressure drop ΔP_W = 23 FT. H_2O

BEAM LENGTH = 59.1" (COIL LENGTH = 40.9")

NOZZLE OPENING mm	q_{AIR} CFM	P_{TOT} (BTU/HR) FOR Δt (°F)			P_{COIL} (BTU/HR) FOR Δt (°F)			L_{A10} dB(A)
		10.8°F	14.4°F	18°F	10.8°F	14.4°F	18°F	
6	12	843	1,061	1,280	659	877	1,095	<20
12	21	1,303	1,628	1,952	972	1,297	1,621	<20
18	31	1,655	2,047	2,440	1,174	1,566	1,959	<20
24	41	1,921	2,351	2,781	1,290	1,720	2,118	<20
30	18	2,129	2,580	3,030	1,351	1,802	2,252	<20
36	60	2,296	2,757	3,214	1,379	1,836	2,296	22

FIGURE 9. Water flow, q_W = 0.8 GPM, pressure drop ΔP_W = 1.3 FT. H_2O

BEAM LENGTH = 82.7" (COIL LENGTH = 64.6")

NOZZLE OPENING mm	q_{AIR} CFM	P_{TOT} (BTU/HR) FOR Δt (°F)			P_{COIL} (BTU/HR) FOR Δt (°F)			L_{A10} dB(A)
		10.8°F	14.4°F	18°F	10.8°F	14.4°F	18°F	
6	18	1,324	1,672	2,017	1,041	1,385	1,733	<20
12	33	2,041	2,552	3,061	1,529	2,037	2,546	<20
18	48	2,573	3,184	3,794	1,836	2,447	3,057	<20
24	63	2,986	3,658	4,330	2,013	2,685	3,358	<20
30	77	3,289	3,985	4,685	2,095	2,791	3,491	28
36	92	3,532	4,238	4,941	2,116	2,822	3,528	30

FIGURE 10. Water flow, qW = 0.8 GPM, pressure drop ΔP_W = 1.6 FT. H_2O

TECHNICAL DATA FOR **COOLING**

TWO-WAY CHILLED BEAM 10 ROWS, 1 CIRCUIT (2-PIPE SYSTEM) AT PRESSURE DROP 0.28 IN. W.C. ON THE AIR SIDE

BEAM LENGTH = 106.3" (COIL LENGTH = 88.2")

NOZZLE OPENING mm	q_{AIR} CFM	P_{TOT} (BTU/HR) FOR Δt (°F)			P_{COIL} (BTU/HR) FOR Δt (°F)			L_{A10} dB(A)
		10.8°F	14.4°F	18°F	10.8°F	14.4°F	18°F	
6	25	1,791	2,259	2,730	1,409	1,880	2,351	<20
12	45	2,798	3,497	4,197	2,099	2,798	3,497	<20
18	65	3,484	4,313	5,139	2,481	3,306	4,132	21
24	85	4,030	4,934	5,838	2,716	3,620	4,524	22
30	104	4,385	5,306	6,231	2,771	3,695	4,620	25
36	123	4,682	5,606	6,531	2,774	3,699	4,624	28

FIGURE 11. Water flow, q_W = 1.6 GPM, pressure drop ΔP_W = 2 FT. H_2O

BEAM LENGTH = 129.9" (COIL LENGTH = 111.8")

NOZZLE OPENING mm	q_{AIR} CFM	P_{TOT} (BTU/HR) FOR Δt (°F)			P_{COIL} (BTU/HR) FOR Δt (°F)			L_{A10} dB(A)
		10.8°F	14.4°F	18°F	10.8°F	14.4°F	18°F	
6	33	1,426	1,797	2,168	1,110	2,385	2,982	<20
12	57	2,155	2,691	3,229	1,613	3,460	4,327	<20
18	82	2,721	3,367	4,011	1,937	4,156	5,197	22
24	106	3,091	3,782	4,473	2,074	4,453	5,565	24
30	130	3,331	4,024	4,719	2,083	4,473	5,593	28
36	151	3,541	4,240	4,937	2,094	4,494	5,616	32

FIGURE 12. Water flow, q_W = 0.8 GPM, pressure drop ΔP_W = 2.4 FT. H_2O

BEAM LENGTH = 106.3" (COIL LENGTH = 88.2")

NOZZLE OPENING mm	q_{AIR} CFM	P_{TOT} (BTU/HR) FOR Δt (°F)			P_{COIL} (BTU/HR) FOR Δt (°F)			L_{A10} dB(A)
		10.8°F	14.4°F	18°F	10.8°F	14.4°F	18°F	
6	25	1,716	2,160	2,607	1,338	1,7811	2,228	<20
12	45	2,822	3,528	4,238	2,122	2,829	3,535	<20
18	65	3,576	4,432	5,288	2,569	3,426	4,282	21
24	85	4,115	5,050	5,985	2,801	3,736	4,671	22
30	104	4,484	5,439	6,398	2,873	3,828	4,787	25
36	123	4,784	5,743	3,214	2,876	3,835	4,794	28

FIGURE 13. Water flow, q_W = 1.6 GPM, pressure drop ΔP_W = 1.5 FT. H_2O

BEAM LENGTH = 118.1" (COIL LENGTH = 100.0")

NOZZLE OPENING mm	q_{AIR} CFM	P_{TOT} (BTU/HR) FOR Δt (°F)			P_{COIL} (BTU/HR) FOR Δt (°F)			L_{A10} dB(A)
		10.8°F	14.4°F	18°F	10.8°F	14.4°F	18°F	
6	33	2,242	1,672	2,818	1,733	2,310	2,887	<20
12	57	3,521	2,552	4,4017	2,648	3,528	4,412	<20
18	82	4,501	3,184	5,579	3,235	4,313	5,391	22
24	106	5,115	3,658	6,275	3,477	4,637	5,797	24
30	130	5,517	3,985	6,688	3,511	4,682	5,852	28
36	151	5,845	4,238	7,015	3,511	4,682	5,852	32

FIGURE 14. Water flow, q_W = 1.6 GPM, pressure drop ΔP_W = 1.8 FT. H_2O

BEAM LENGTH = 59.1" (COIL LENGTH = 40.9")

NOZZLE OPENING mm	q_{AIR} CFM	P_{TOT} (BTU/HR) FOR Δt (°F)			P_{COIL} (BTU/HR) FOR Δt (°F)			L_{A10} dB(A)
		10.8°F	14.4°F	18°F	10.8°F	14.4°F	18°F	
6	27	1,959	2,474	2,989	1,546	2,061	2,576	<20
12	49	3,156	3,955	4,753	2,399	3,197	3,996	<20
18	72	4,040	5,016	5,995	2,934	3,910	4,887	21
24	94	4,634	5,692	6,749	3,177	4,235	5,292	24
30	116	5,019	6,094	7,172	3,231	4,306	5,384	29
36	136	5,326	6,401	7,479	3,231	4,306	5,384	31

FIGURE 15. Water flow, q_W = 1.6 GPM, pressure drop ΔP_W = 1.7 FT. H_2O

TECHNICAL DATA FOR UNEVEN AIR DISTRIBUTION

A chilled beam with two-way air distribution utilizes the coil in full capacity, which is not the case in one-way distribution or middle positions.

BEAM LENGTH, CM	120		150		180		210		240	
NOZZLE SETTINGS, MM	CFM	10 ROWS (BTU/HR)	CFM	10 ROWS (BTU/HR)	CFM	10 ROWS (BTU/HR)	CFM	10 ROWS (BTU/HR)	CFM	10 ROWS (BTU/HR)
36-06	27	962	36	1,358	47	1,730	57	2,105	69	2,436
36-12	29	1,396	41	1,959	53	2,508	64	3,037	78	3,562
30-06	22	949	31	1,341	41	1,710	49	2,088	60	2,423
30-12	26	1,102	36	1,549	47	1,989	57	2,416	69	2,836
24-06	9	921	27	1,300	34	1,672	41	2,037	50	2,368
24-12	19	1,344	31	1,887	41	2,436	49	2,952	59	3,474
18-06	23	867	22	1,222	28	1,573	33	1,918	41	2,242
18-12	19	1,020	26	1,433	34	1,853	40	2,242	50	2,655

BEAM LENGTH, CM	270		300		330	
NOZZLE SETTINGS, MM	CFM	10 ROWS (BTU/HR)	CFM	10 ROWS (BTU/HR)	CFM	10 ROWS (BTU/HR)
36-06	79	2,791	89	3,129	103	3,494
36-12	90	4,060	100	4,542	115	4,972
30-06	67	2,788	75	3,126	88	3,429
30-12	78	3,284	87	3,634	100	3,968
24-06	56	2,750	63	3,078	73	3,419
24-12	70	4,013	74	4,480	85	4,944
18-06	46	2,593	50	2,934	59	3,272
18-12	56	3,054	61	3,439	71	3,808

FIGURE 32. Cooling capacity (BTU/HR) for the coil with 10 rows at Δt = 14.4°F, total pressure 0.28 W.C. and water flow 0.8 GPM.

NOVA IQFI SELECTION TOOL

If you have different operating requirements than those shown on PAGES 6-11, please contact your local FläktGroup® SEMCO® sales representative or visit www.semcohvac.com for more information on the FläktGroup® SELECT selection tool.

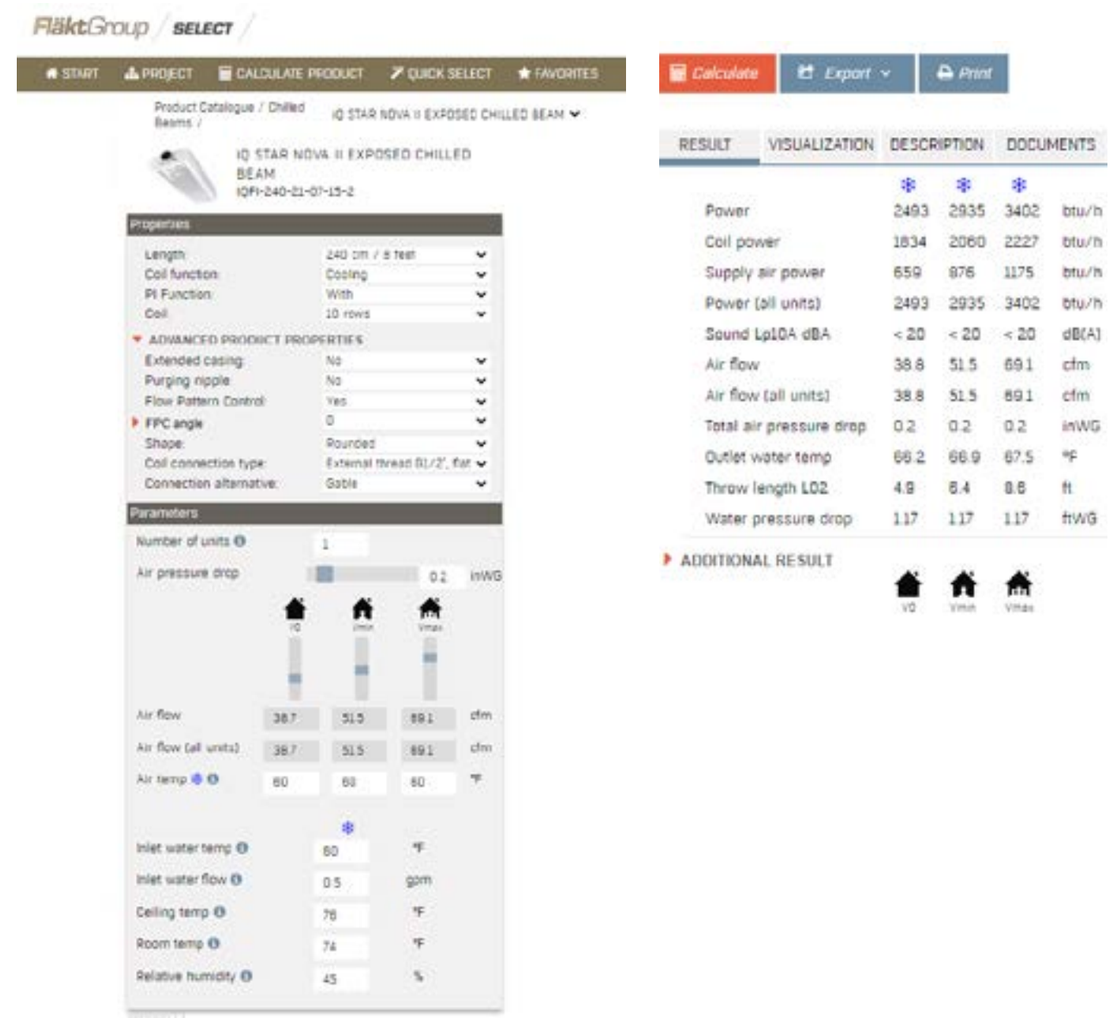
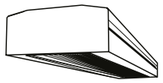


FIGURE 33. An example of a NOVA II IQFI selection done using SELECT

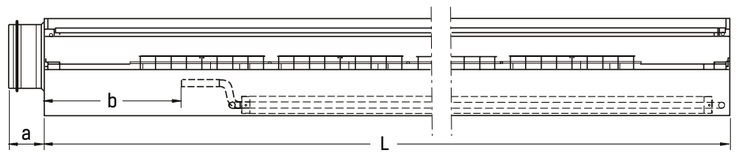
DIMENSIONS AND WEIGHTS

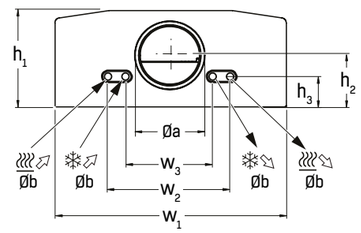
NOVA II IQFI — RECTANGULAR PROFILE



Rectangular Profile
bb = 11, 12, 13, 14

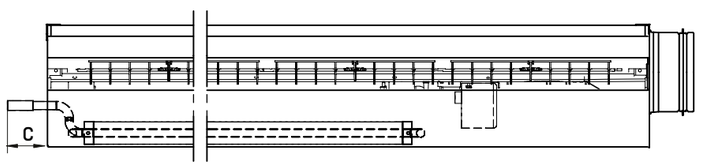
STANDARD

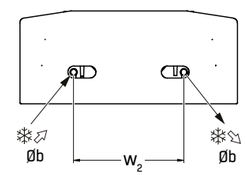




IQFI-aaa-11-09-d
IQFI-aaa-11-10-d

STANDARD





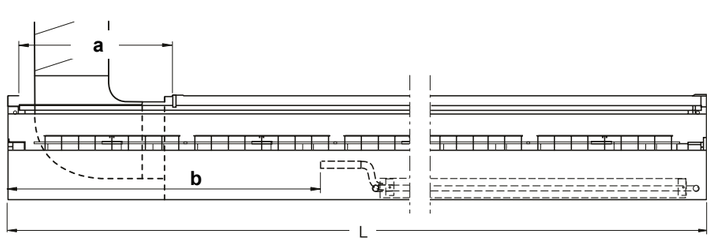
= Cooling water in
= Cooling water out
= Heating water in
= Heating water out

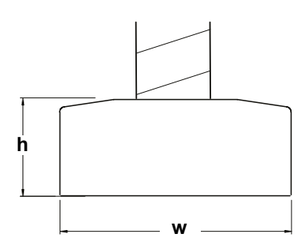
IQFI-aaa-12-07-d
IQFI-aaa-12-08-d
IQFI-aaa-12-13-d
IQFI-aaa-12-14-d

Øa	Øb	a	b	c	w1	w2	w3	h1	h2	h3
4.9"	0.6"	2.7"	10.7"	2.4"	17.7"	9.0"	6.2"	7.6"	4.6"	2.6"

The air connection has a male connection for bb = 11" and 12"

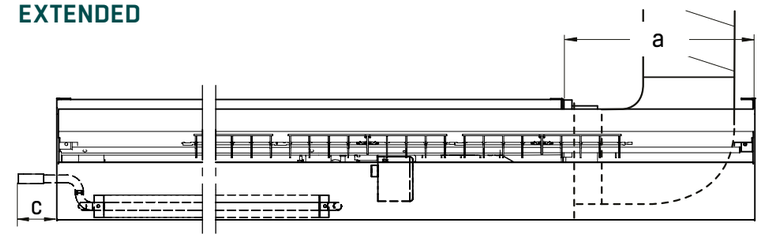
EXTENDED

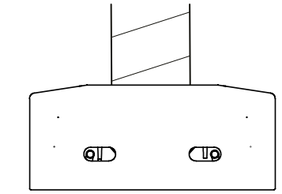




IQFI-aaa-13-07-d

EXTENDED



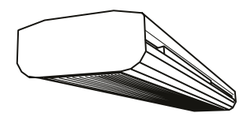


IQFI-aaa-14-07-d
IQFI-aaa-14-08-d
IQFI-aaa-14-13-d
IQFI-aaa-14-14-d

Øa	Øb	a	b	c	w	h
4.9"	0.6"	11.0"	22.6"	2.4"	17.7"	7.6"

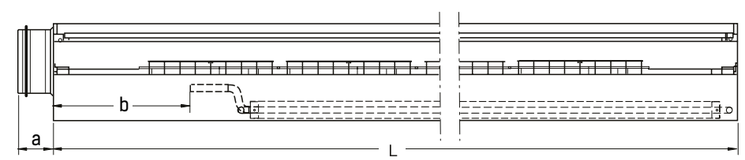
The air connection has a female connection for bb = 13" and 14".
All water connections have a male connection.
All dimensions are in inches.

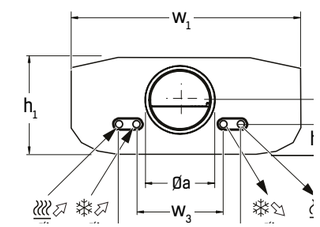
NOVA II IQFI — ROUNDED PROFILE



Rounded Profile
bb = 21, 22, 23, 24

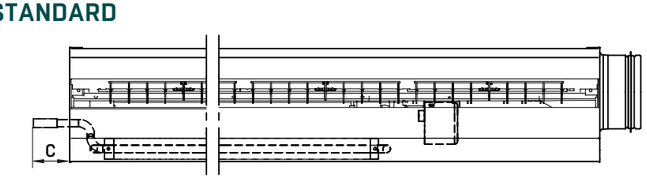
STANDARD

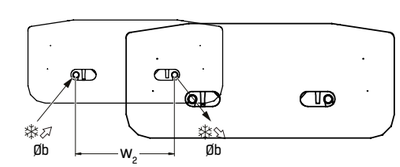




IQFI-aaa-21-09-d
IQFI-aaa-21-10-d

STANDARD





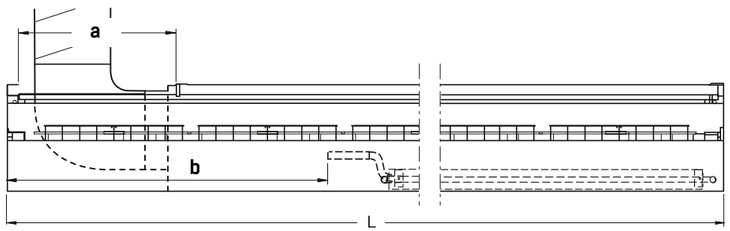
= Cooling water in
= Cooling water out
= Heating water in
= Heating water out

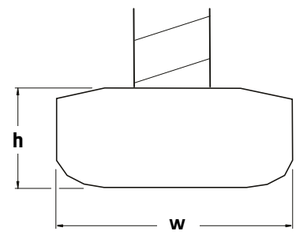
IQFI-aaa-22-07-d
IQFI-aaa-22-08-d
IQFI-aaa-22-13-d
IQFI-aaa-22-14-d

Øa	Øb	a	b	c	w1	w2	w3	h1	h2	h3
4.9"	0.6"	2.7"	10.7"	2.4"	17.7"	9.0"	6.2"	7.6"	4.6"	2.6"

The air connection has a male connection for bb = 21" and 22"

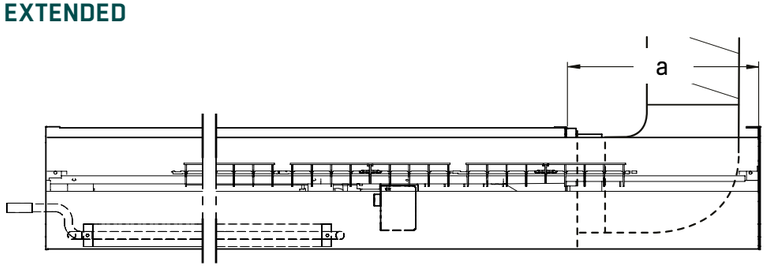
EXTENDED

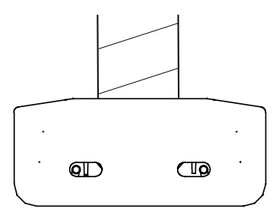




IQFI-aaa-23-cc-d

EXTENDED





IQFI-aaa-24-07-d
IQFI-aaa-24-08-d
IQFI-aaa-24-13-d
IQFI-aaa-24-14-d

Øa	Øb	a	b	c	w	h
4.9"	0.6"	11.0"	22.6"	2.4"	17.7"	7.6"

The air connection has a female connection for bb = 23" and 24".
All water connections have a male connection.
All dimensions are in inches.

NOVA II IQFI LENGTHS FOR STANDARD MODELS:

IQFI-aaa-11-09-d
IQFI-aaa-11-10-d
IQFI-aaa-12-07-d
IQFI-aaa-12-08-d
IQFI-aaa-12-13-d
IQFI-aaa-12-14-d

IQFI-aaa-21-09-d
IQFI-aaa-21-10-d
IQFI-aaa-22-07-d
IQFI-aaa-22-08-d
IQFI-aaa-22-13-d
IQFI-aaa-22-14-d

LENGTH (aaa) IN INCHES	120	150	180	210	240	270	300	330
	47.2"	59.1"	70.9"	82.7"	94.5"	106.3"	118.1"	129.9"

NOVA II IQFI LENGTHS FOR EXTENDED MODELS:

IQFI-aaa-13-cc-d
IQFI-aaa-14-07-d
IQFI-aaa-14-08-d
IQFI-aaa-14-13-d
IQFI-aaa-14-14-d

IQFI-aaa-23-cc-d
IQFI-aaa-24-07-d
IQFI-aaa-24-08-d
IQFI-aaa-24-13-d
IQFI-aaa-24-14-d

LENGTH (aaa) IN INCHES	120	150	180	210	240	270	300
	59.1"	70.9"	82.7"	94.5"	106.3"	118.1"	129.9"

WATER CONTENT

WATER VOLUME COOLING/HEATING	COIL ROWS	WATER CONTENT PER LENGTH COIL GAL/FT
COOLING	10 ROWS	0.09
HEATING	2 ROWS	0.02

WATER CONNECTION TYPE IQFI-aaa-bb-cc-d

CC POSITION	TYPE
07, 08, 13, 14	PLAIN TAIL 15 MM
15, 19	G½" EXTERNAL THREAD, CYLINDRICAL

All water connections are male.

WEIGHTS

LENGTH (aaa) IN INCHES	47.2	59.0	70.9	82.7	94.5	106.3	118.1	129.9
BEAM DRY WEIGHT, LB.	44.0	52.9	61.7	70.6	79.4	88.2	97.0	105.8
BEAM WATER FILLED, LB	46.3	55.1	63.9	72.8	81.6	90.4	101.4	110.2

ACCESSORIES

INSTALLATION WITH FASTENING BRACKET

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.

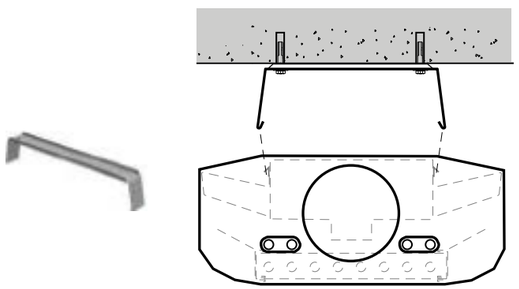
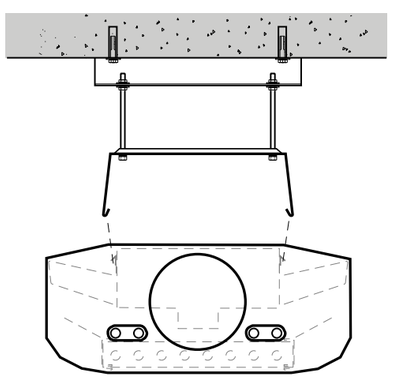


FIGURE 33. NOVA II IQFI fastening bracket



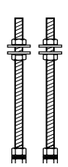


FIGURE 34. If there is a need for adjusting the installation height, suspension brackets and suspension rods can be ordered as well.

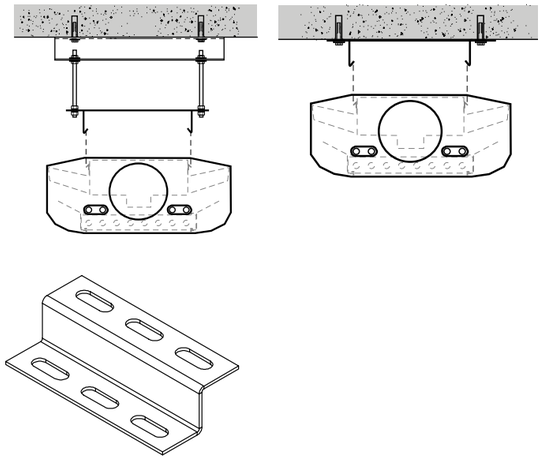
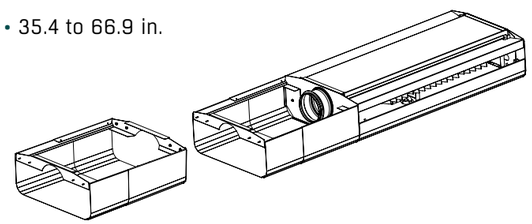


FIGURE 35. Suspension bracket

DUCT ENCLOSURE

Duct enclosure is available in three size ranges for concealing water pipes and air ducts:

- 11.8 to 19.7 in.
- 19.7 to 35.4 in.
- 35.4 to 66.9 in.



PURGING NIPPLE

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

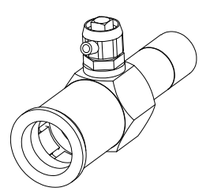


FIGURE 36. Purging nipple

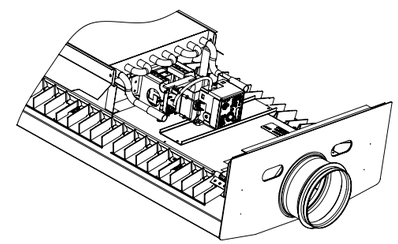
FLEXIBLE WATER CONNECTIONS

Optional, available with NOVA II IQFI with threaded coil connection.

FIGURE 37. Flexible hose with push-on connection.

PI® ACTUATOR NOZZLE

This chilled beam can be ordered with pressure independent airflow control function which requires installation of IGAZ-35nozzle actuator. The actuator also can be supplied loose for post installation.



ROOM CONTROLLER STRA-24

The STRA-24 is a pre-programmed room controller intended to control the temperature and, if the Pi actuator is installed, the CO_2 level in rooms. It operates the control valves (by others) and the Pi actuator. It is pre-programmed with communication and is intended for use in premises with high comfort and low energy demands.

The STRA-24 is able to optimize energy consumption in rooms depending on different parameters: occupancy, CO_2 level and timetable.

Different modes are offered: OFF, standby, occupied, and boost. For each mode different sequences between water and air are possible.

For more information regarding this product and related accessories, please see the STRA-24 technical guide.

For more information on installation please see the NOVA II IQFI installation and owner's manual.

INTEGRATED CONTROLS

NOVA II IQFI is available with an integrated control option, (modulating control valves by others) by ordering the STRZ-76 accessory. The room controller can be positioned in three different locations, depending on the desired level of accessibility.

All actuators are installed on the NOVA II IQFI, before it leaves the factory. The condensate sensor and/or passive infrared presence detector (PIR) are factory wired to a terminal block, which is mounted behind the front plate of the unit. The PIR is mounted and integrated into the front plate. If a Pi actuator (IQAZ-35) is chosen, it will be wired to the terminal block as well.

All integrated controls offer Modbus® or Bacnet® communication as standard.

From the room controller, it is possible to make the commissioning, increase and decrease temperature and display main information. For more information regarding this product and related accessories, please see the STRA-24 technical guide and STRA accessories guide.

USED WITHOUT A BEAM CONTROLLER (FOLLOWER)

Used for parallel control. On-site the installer needs to connect the room controller from the leader beam to the terminal block placed on top of the NOVA II IQFI.

ACCESSORY CODE:	STRZ-76-00-cc-1-ee
CONNECTION SOCKET:	YES
COOLING/HEATING:	COOLING, COOLING & HEATING*
EXTERNAL TEMPERATURE SENSOR INCLUDED:	NO

**If the chilled beam has cooling and heating, the actuators are placed on the outside of the beam,*

CONTROLLER SUPPLIED LOOSE

The room controller is supplied loose. On-site the installer needs to connect the room controller to the terminal block placed behind the front plate of the NOVA II IQFI. This configuration used the integrated temperature sensor in the room controller. Optional condensation sensor is factory wired.

ACCESSORY CODE:	STRZ-76-01-cc-1-ee
CONNECTION SOCKET:	YES
COOLING/HEATING:	COOLING, COOLING & HEATING*
EXTERNAL TEMPERATURE SENSOR INCLUDED:	NO

**If the chilled beam has cooling and heating, the actuators are placed on the outside of the beam,*

CONTROLLER MOUNTED BEHIND FRONT PLATE

The room controller is factory mounted and wired on top of the front plate of the NOVA II IQFI, hidden from sight. In this configuration, the temperature sensor built into the room control tower is used. The temperature and optional condensation sensors are factory wired.

ACCESSORY CODE:	STRZ-76-02-cc-1-ee
CONNECTION SOCKET:	YES
COOLING/HEATING:	COOLING**
EXTERNAL TEMPERATURE SENSOR INCLUDED:	NO

***The heat of the chilled beam requires an external temperature sensor to be placed on the wall (sold separately).*

CONTROLLER INTEGRATED IN FRONT PLATE

The room controller is integrated and wired into the front plate of the NOVA II IQFI. This configuration uses the temperature sensor built into the room controller. tower is used. The optional condensation sensor is factory wired.

ACCESSORY CODE:	STRZ-76-03-cc-1-ee
CONNECTION SOCKET:	YES
COOLING/HEATING:	COOLING**
EXTERNAL TEMPERATURE SENSOR INCLUDED:	NO

***The heat of the chilled beam requires an external temperature sensor to be placed on the wall (sold separately).*

PRODUCT AND ACCESSORY CODES

PRODUCT CODES — NOVA II IQFI CHILLED BEAM

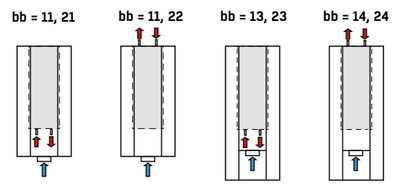
IQFI-aaa-bb-cc-d

Length (aaa)

120 cm (47.2”), 150 cm (59.1”), 180 cm (70.9”), 210 cm (82.7”), 240 cm (94.5”), 270 cm (106.3”), 300 cm (118.1”), 330 cm (129.9”)

Construction (bb)

11 = Normal flow, rectangular shape, air/water same gable
12 = Normal flow, rectangular shape, air/water opposite gables
13 = Normal flow, rectangular shape, air/water same gable, extended 11.8” (only aaa = 120, 150, 180, 210, 240, 270, 300)
14 = Normal flow, rectangular shape, air/water opposite gables extended 11.8” (only aaa = 120, 150, 180, 210, 240, 270, 300)
21 = Normal flow, round shape, air/water same gable
22 = Normal flow, round shape, air/water opposite gables
23 = Normal flow, round shape, air/water same gable extended 11.8” (only aaa = 120, 150, 180, 210, 240, 270, 300)
24 = Normal flow, round shape, air/water opposite gables, extended 11.8” (only aaa = 120, 150, 180, 210, 240, 270, 300)



Coil Construction (cc)

07 = Cooling 10 tubes
08 = Cooling 10 tubes with purging nipple
13 = Parallel flow cooling 10 tubes (only aaa = 270, 300, 330)
14 = Parallel flow cooling 10 tubes with purging nipple (only aaa = 270, 300, 330)
15 = Cooling 10 tubes, G ½” external thread, cylindrical
19 = Parallel flow cooling 10 tubes, G ½” external thread, cylindrical (only aaa = 270, 300,330)

Comfort Control (d)

1 = Without flow pattern control
2 = With flow pattern control

ACCESSORY CODES

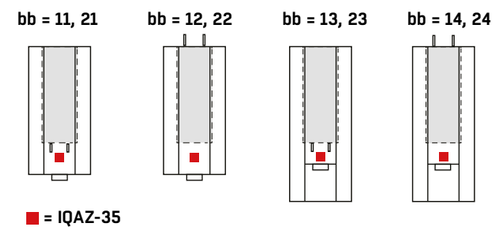
Pi® Function Actuator **IQAZ-35-02-c-1-e**

Cable Execution (c)

1 = Cable 39.4 in. without contact

Installation (e)

1 = Installed on chilled beam
2 = Supplied loose



Pre-Set Pi® Actuator **IQAZ-36-bbb-ccccc**

K100% (bbb)

247 = IQFI-120
355 = IQFI-150
455 = IQFI-180
550 = IQFI-210
670 = IQFI-240
765 = IQFI-270
850 = IQFI-300
955 = IQFI-330

Airflow V_0, V_{min}, V_{max} in l/s (ccccc)**

cc----=V_0
--cc--=V_{min}
----cc = V_{max}

cc (L/S) = 0.47 x q (CFM)

****Ordering example below for an NOVA II IQFI-150**

Eg: IQAZ-36-355-020420

- k100% = 355
- V_0 = 4.24 cfm (2 l/s)
- V_{min} = 8.48 cfm (4 l/s)
- V_{max} = 42.38 cfm (20 l/s)

Integrated Controls **STRZ-76-bb-cc-1-05**

Only for IQFI, product code bb = 11 and 21

Placement of Controller (bb)

00 = Without room controller (follower)
01 = Supplied loose
02 = Mounted behind front plate
03 = Integrated in front plate

Sensors and valve kit (valve and actuator) (cc)

00 = Without sensor, valve and actuators — cooling

Options only for bb = 00 and 01

12 = Cooling only, valve by others and condensate sensor
13 = Cooling only, valve by others, passive infrared sensor (PIR)
14 = Cooling only, valve by others, condensate and PIR sensor
16 = Cooling and heating, valves by others and condensate sensor
17 = Cooling and heating, valves by others and PIR sensor
18 = Cooling and heating, valves by other, condensate sensor and PIR sensor

NOTE: Valves provided by contractor **MUST BE** of 24V NC type.

Fastening Brackets **QFAZ-18-1-2**

Set with 2 piecec, 1 set per beam

2 = Painted RAL 9003 gloss 30% (NCS 0500-N)

Fastening Brackets (Low-Build) **QFAZ-19-1-1**

Set with 2 pieces, unpainted, 1 set per beam

Suspension Rods M8 **QFAZ-12**

Set with 2 pieces, length 19.69,” 2 sets per beam

Suspension Bracket **QFAZ-11-1**

Set with 2 pieces, unpainted, 1 set per beam

Flexible Hose **IQCB-HK-D**

Length = 24” with ½” NPT female one end and G ½” other

Flexible Hose **IQCB-HK-E**

Length = 24” with ½” NPT female one end and G ½” other, with shut off valve

Purging Nipple **IQAZ-32-15-0**

Duct Enclosure **IQAZ-30-bbb-c**

Length (bbb)
050 = 11.8” - 19.7”
090 = 19.7” - 35.4”
170 = 35.4” - 66.9”

Design (cc)
1 = Rectangular shape
2 = Rounded shape

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