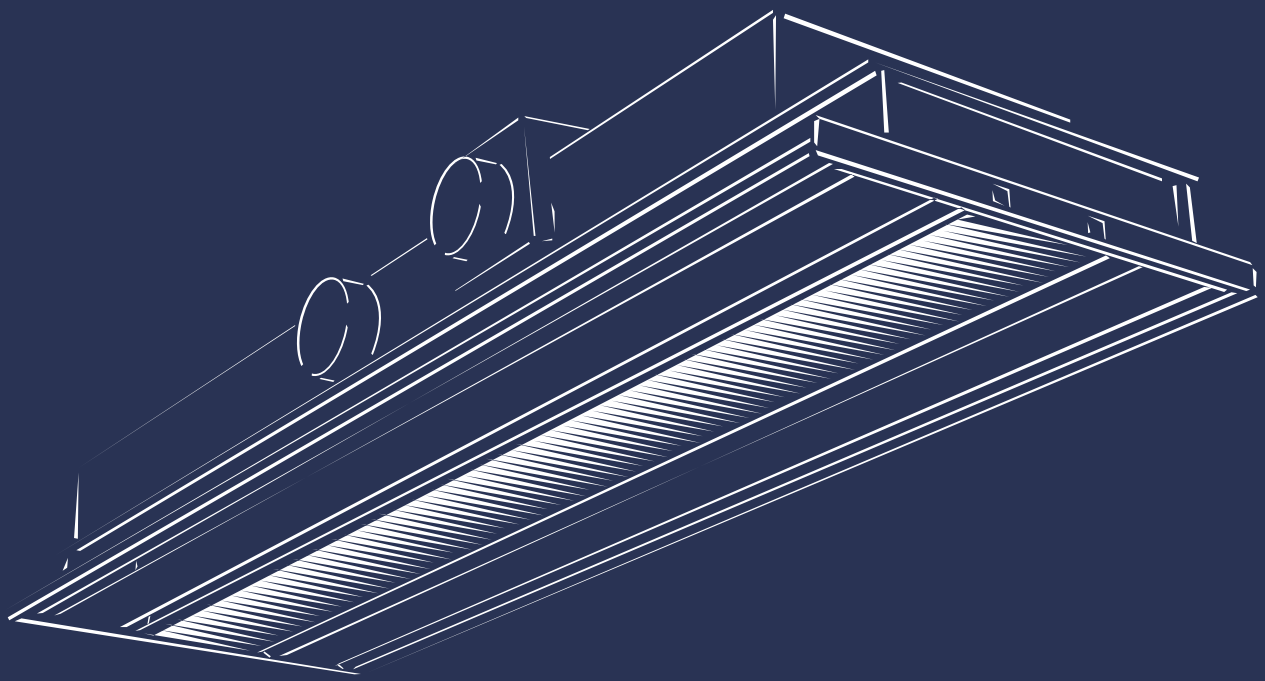


- Active Low Pressure Chilled Beam
- Extra fresh air connection for CO_2 applications
- Perforated or Linear Inlet Grille
- High Efficiency
- Low Energy Requirements
- Recommended for Green Building Solutions
- Especially designed for area's with high fresh air requirement

AIR-FIT FA®

Active Chilled Beam for CO_2 applications

Fresh Air

BARCOL-AIR

Also available:

AIR-FIT®: standard AIR-FIT® 1-foot or 2-feet wide 4-pipe

AIR-FIT K®: standard AIR-FIT® 1-foot or 2-feet wide 2-pipe

AIR-FIT B®: AIR-FIT® with top connection

AIR-FIT V®: AIR-FIT® with reduce height

AIR-FIT R®: AIR-FIT® with radiation

AIR-FIT HC®: High Capacity AIR-FIT®

HC Barcol-Air is continuously aiming to optimize construction and quality for all equipment. HC Barcol-Air has the right to adjust the product specif cations without any obligation and/or is not obliged to provide information in advance.

Index

General Description

Introduction

The AIR-FIT FA®: Creating a comfortable indoor climate with minimal energy usage and low installation space. The active chilled beam has been developed for HVAC systems, where the air handling installation supplies the necessary ventilation air, while cooling and heating energy is mainly transported by water. As a result the size of the required air handling unit and ductwork can be reduced. The installed height makes the AIR-FIT FA® most suitable for projects with limited ceiling space. This application can lead to a lower ceiling void height in the case of new building construction.

Extra Fresh Air

The AIR-FIT FA® is especially designed for Co2 controlled applications.
Especially in area's with a high and variable demand in fresh air, these beams are the best solution.
Additional primary air is supplied over a second slot (without induction air), while the initial fresh air is brought to the room via the basic AIR-FIT® technology.
The amount of additonal fresh air can be controlled by a VAV terminal.

System Technology

The system technology is based on the venturi effect of the special shaped nozzles causing induction of room air into the primary airflow.

Airfit HF High Flow Active Chilled Beams

The Airfit HF is designed specifically for those areas that require a higher ventilation rate than can normally be provided by active chilled beams. This allows the chilled beam system to be used through a building including in high occupancy areas such as meeting and conference rooms where high ventilation airflows are required.

Figure 4 : Airfit HF 600 Chilled Beam

With the Airfit HF the center part of the unit operates as a conventional active chilled beam with the primary air inducing secondary room air through the cooling coil to address the sensible cooling in the room. In addition the Airfit HF has an extra pair of outlet diffusers which are connected to a second primary air plenum. These extra outlet diffusers allow the primary airflow to be increased in response to a requirement for additional ventilation or cooling in the room.

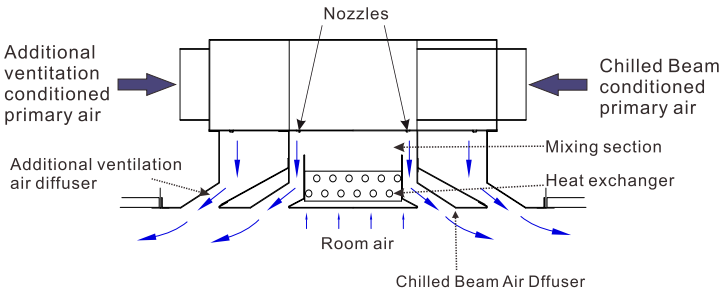


Figure 5: Operating Principle of the Airfit HF High Flow

Modes of operation

With the ability to supply higher air flows the Airfit HF system is designed to operate in two modes.

1). Chilled Beam (Low Energy) mode
When the density of occupants and the ventilation required are normal - about 0.2 people/m^2 or 5people/m^2.

2). High Flow (High Ventilation) mode
When the density of occupants and ventilation required are high - up to 0.8 people/m^2 or 1.25people/m^2.

Method of control

During normal operation the Airfit HF is intended to operate in chilled beam mode and will control the room temperature with a room temperature sensor controlling a valve that supplies the chilled water supply to the unit.

However when the occupancy level in the room increases a CO_2 sensor will detect if the CO_2 level exceeds the set point and more ventilation is required.

When that occurs the Airfit HF should be switched from Chilled Beam mode to High Flow mode and an airflow control valve in the duct to the additional ventilation air outlet will be opened to increase the ventilation airflow. The valve supplying chilled water to the chilled beam heat exchanger should be simultaneously closed.

In High Flow mode the airflow to the room and thereby the amount of cooling is varied in accordance with the demands of the room temperature sensor.

When the room temperature sensor and CO_2 sensor detect that the room temperature and CO_2 level are both below their set points, indicating that the occupancy in the room has reduced, the Airfit HF should be switched back to Chilled Beam (Low Energy) mode.

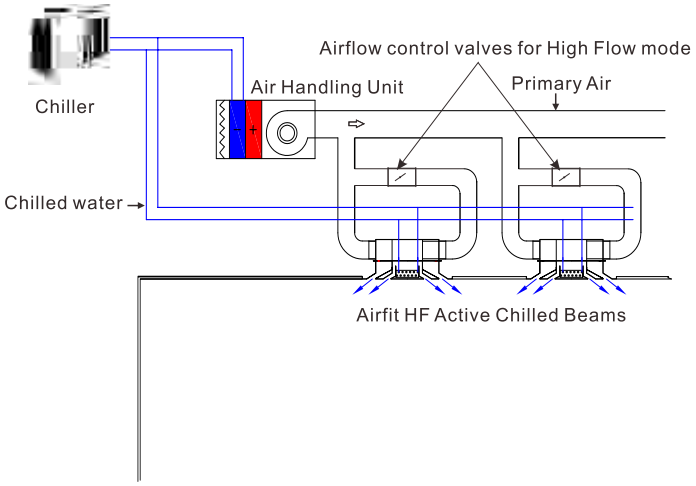


Figure 6: Airfit HF High Flow Active Chilled Beam System

Product presentation

Features of the Barcol-Air active chilled beam

Configuration Choices:

The Barcol-Air AIRFIT-HF active chilled beam is available with 2 pipe heat exchanger for cooling only or heating only change over systems or with a 4 pipe heat exchanger for simultaneous cooling and heating.

Simplicity in mounting:

With a width of 595 mm, the active chilled beam can be easily integrated into standard suspended ceilings with exposed T bar or other ceiling systems.

Different capacities:

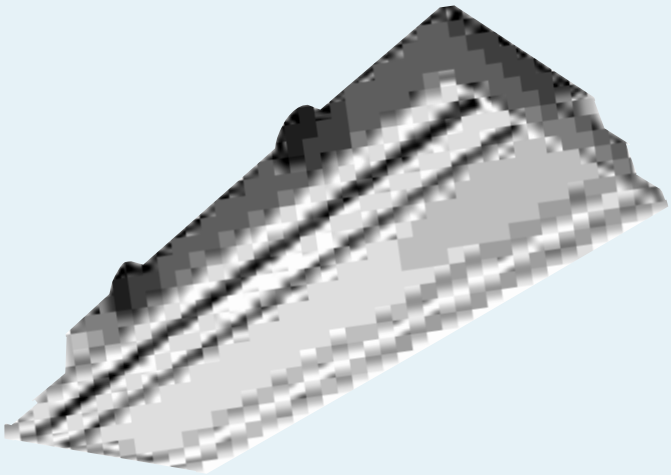
The AIRFIT-HF active chilled beams are available in different lengths from 1200 mm to 3000 mm providing a wide range of available unit capacities. Also special lengths can be made available to suit particular ceiling configurations.

Multi-nozzle technology:

The units are provided with three alternative nozzle selections. The primary air volume of every unit can be easily adjusted, even after mounting into the ceiling. A complete shut-off on one side is an available option.

Return Air Units:

The AIRFIT-HF active chilled beams can also be supplied as return air diffusers to provide a unified look with the supply air units.



Figur 10: AIRFIT-HF active chilled beam.

Air distribution in the room

The specific shape of the active chilled beam supply slot diffusers create air streams under the suspended ceiling.

These air streams provide a good distribution of the supply air into the room. The velocity of the supply air along the suspended ceiling creates the Coanda-effect whereby the air stream attaches to the ceiling, extending the throw of the supply air. It is important that the ceiling is flat and free of any obstacles, especially light fixtures situated close to the slots which can influence the Coanda-effect.

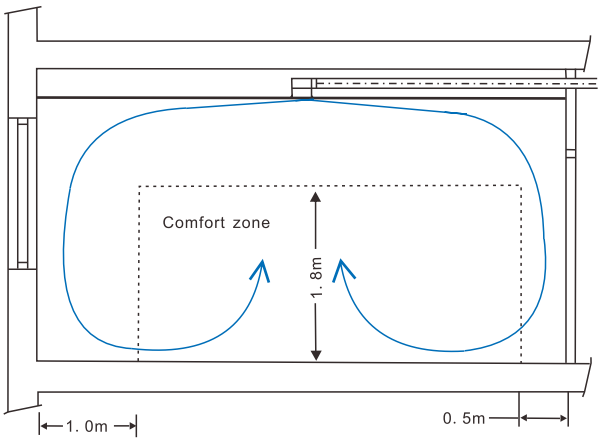


Figure 7: Air distribution

Facade-orientation

Orientation of the active chilled beam with regard to the facade has no influence on the operation and the active chilled beams can be installed either perpendicular or parallel to the facade.

The choice between these configurations should be determined by:

- Aesthetics (fitting into the pattern of the ceiling).
- Level of flexibility to create rooms within the floor plan
- Number of active chilled beams.
- Available distance for the throw; the air must have the opportunity to mix before it reaches the comfort zone.
- Disturbances from the ceiling which might influence air pattern, like lighting fixtures.
- Disturbances from the facade or floor, like radiators or floor convectors, that might influence the air pattern.

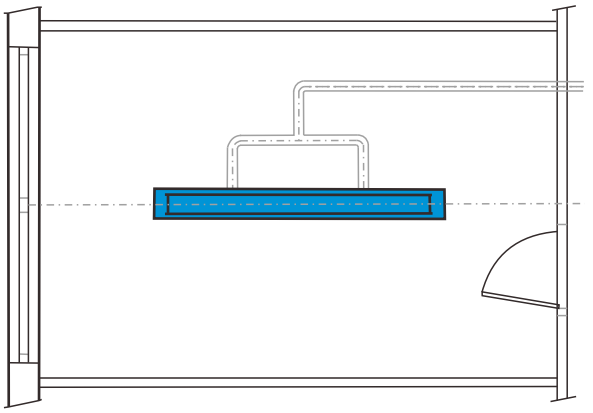


Figure 8: AIR-FIT application perpendicular to the facade

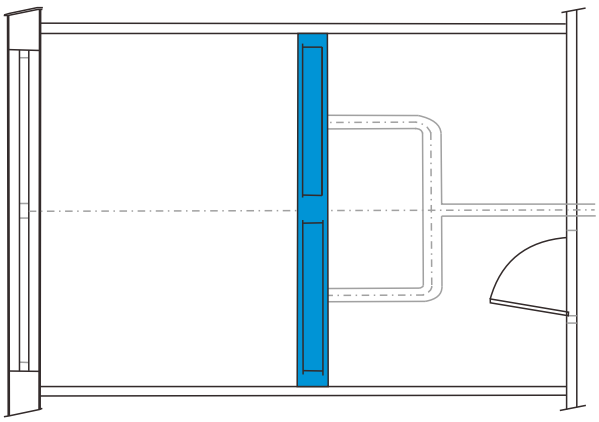
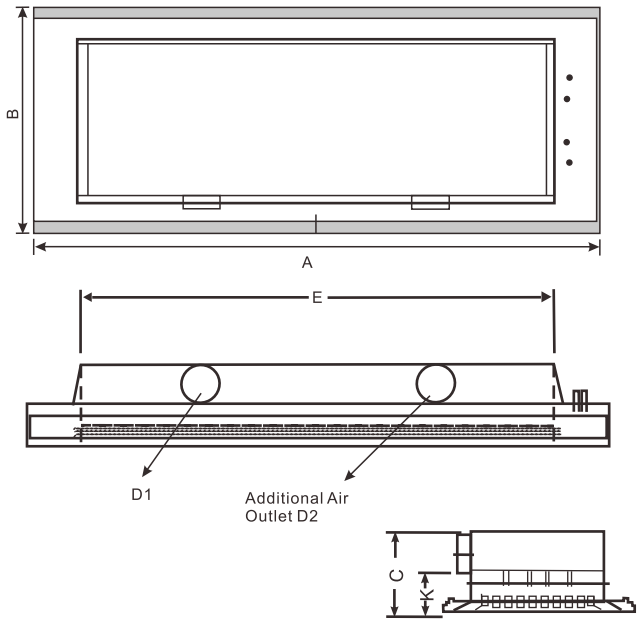
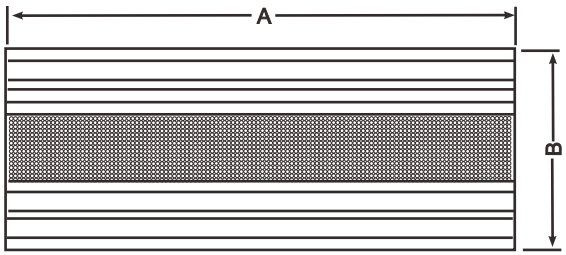


Figure 9: AIR-FIT application parallel to the facade

Dimensions AIRFIT-HF 600

AIRFIT





Product Codes:

4-pipe system: AIRFIT-HF

2-pipe system: AIRFIT-HF K

Table2: Dimensional data AIR-FIT 600

Size	**1200**	**1500**	**1800**	**2400**	**3000**
A	1194	1494	1794	2394	2994
B	593	593	593	593	593
C	242	242	242	242	242
D	1 x ø123	1 x ø123	1 x ø123	1 x ø198	1 x ø198
D1	1 x ø198	1 x ø198	1 x ø198	1 x (198*358) oval	1 x (198*358) oval
K	116	116	116	116	116
Weight (kg)[4]	38	45	50	65	80

1. Dimensions in mm.
2. On request, HC Barcol-Air can provide air connectors on the short side of the plenum.
3. Intermediate lengths are available on request.
4. Weight in kg including water content.

Selection example

1) Specified Data

Meeting Room (L x W x H)	5.4 x 7.2 x 2.7m Floor Area 39m^2
Maximum Occupancy:	20 people
Minimum ventilation rate:	30m^3/h per person
Room sensible cooling load without people:	1,500W
Sensible cooling load per person:	70W
Humidity load per person:	90g/h
Required room temperature/humidity:	
Normal	24 deg C, 50% RH, Dew Point 13 deg C
Maximum(maximum occupancy)	26 deg C, 50% RH, Dew Point 15 deg C
Primary Air temperature/humidity:	12 deg C db, 15.5 deg C wb, Dew Point 11.0 deg C, Humidity 8.16 g/kg
Heat exchanger water temperature:	Entering 15deg C, Leaving 17 deg C

2) Required Airflow

2.1 Select required ventilation airflow at maximum occupancy: = 20 people x 30 m^3/h per person = 600 m^3/h

2.2 Select the required airflow to meet the maximum sensible cooling required:
Maximum sensible cooling load W = 1,500W + (20 people x 70W) = 2900W
= air density kg/m3 x airflow rate m3/h / 3.6 x (room temp C - supply air temp C)
Accepting that maximum occupancy will only occur for limited periods then base on maximum room temperature of 26 deg C and then the required airflow = $\frac{2900 \times 3.6}{1.213 \times (26-12)}$ = 616 m^3/h

2.3 Check room humidity condition with airflow of 616 m3/h and maximum occupancy condition:
Room humidity load = 20 people x 90 g/h = 1,800g/h
= air density kg/m3 x airflow m3/h x (room humidity -supply air humidity) g/kg
Then (room humidity -supply air humidity) g/kg = $\frac{1,800}{1.213 \times 616}$ = 2.41 g/kg
So room humidity = 8.16 + 2.41 = 10.57 g/kg and at 26 deg C RH = 50%

2.4 Accept airflow of 616m3/h which meets the ventilation requirement at maximum occupancy and the sensible cooling requirement with an acceptable humidity level.

3) Select Airfit HF Units

From page 8 - Total Airflow Performance - select quantity 2 units of Airfit HF model 1800 each with an airflow of 308 m^3/h with an inlet static pressure of 100 Pa and nozzle 3 selection.

4) Determine the cooling performance of the Airfit HF model 1800 in chilled beam mode:

From page 9 - Performance Data - with 100 Pa and nozzle 3 selection and with an airside ΔT_{AC} = 24 deg C room temperature - 12 deg C= 12 deg C; the airside cooling performance will be 1.213 x 96/3.6 x 12 = 388W

With chilled water entering the cooling coil at 15 deg C the waterside ΔT_{WC} = 24 deg C room temperature -15 deg C = 9 deg C. With a water flow rate of 190l/h the cooling coil performance will be 556W.

So the total cooling capacity in Chilled Beam mode will be 388 + 556 = 944W x 2 units = 1,888W, and the Chilled Beam mode sensible cooling capacity / High Flow mode sensible cooling capacity = 1,888/2,900 = 65%

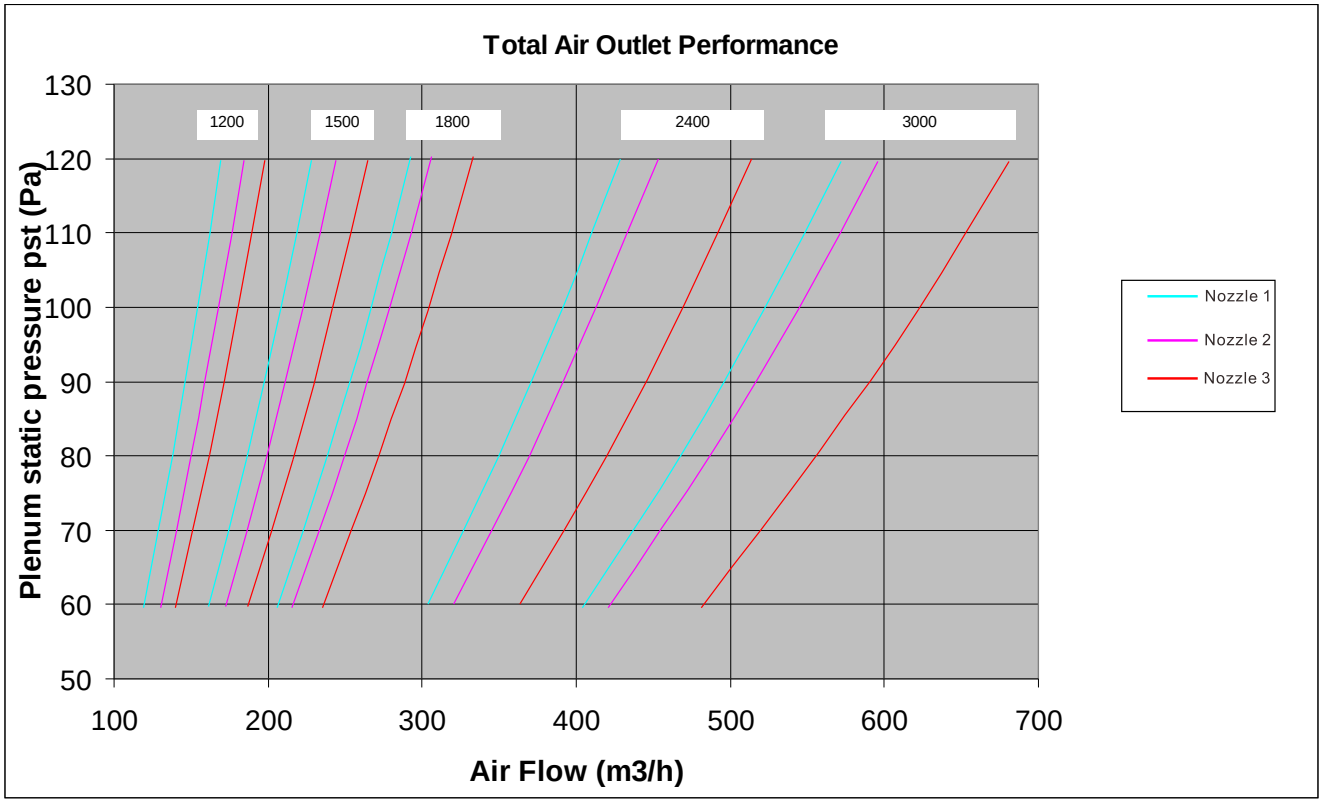
6) Selection Summary

Select quantity 2 units of Airfit HF model 1800 with individual performance as follows:

	High Flow Mode	Chilled Beam Mode
Airflow	308 m^3/h	96 m^3/h
Inlet Air Static Pressure	100 Pa	100 Pa
Sensible Cooling Capacity	1,450 W	944 W
Chilled Water flow rate:		190 l/h

Total Airflow Performance

Airfit HF	Plenum Static Pressure	Chilled Beam Outlet Airflow						Additional Air Outlet Airflow		Total Airflow = Chilled Beam Outlet Airflow + Additional Air Outlet Airflow					
Length	Pst	Nozzle 1		Nozzle 2		Nozzle 3				Nozzle 1		Nozzle 2		Nozzle 3	
mm	Pa	m^3/h	L/s	m^3/h	L/s	m^3/h	L/s	m^3/h	L/s	m^3/h	L/s	m^3/h	L/s	m^3/h	L/s
1200	60	22	6	32	9	43	12	97	27	119	33	129	36	140	39
	80	26	7	37	10	49	14	113	31	138	38	150	42	162	45
	100	29	8	42	12	55	15	126	35	154	43	167	46	181	50
	120	32	9	46	13	60	17	138	38	169	47	183	51	198	55
1500	60	31	9	42	12	57	16	130	36	161	45	172	48	187	52
	80	36	10	49	14	66	18	150	42	186	52	199	55	216	60
	100	40	11	54	15	74	20	168	47	208	58	222	62	242	67
	120	44	12	60	17	81	22	184	51	228	63	244	68	265	74
1800	60	42	12	52	14	71	20	164	46	206	57	216	60	235	65
	80	49	13	59	17	82	23	190	53	239	66	249	69	272	76
	100	54	15	67	18	92	25	212	59	266	74	279	77	304	84
	120	59	17	73	20	100	28	233	65	292	81	306	85	333	93
2400	60	56	16	74	20	117	32	247	69	303	84	321	89	364	101
	80	65	18	85	24	135	37	285	79	350	97	370	103	420	117
	100	73	20	95	26	151	42	319	89	392	109	414	115	470	130
	120	80	22	104	29	165	46	349	97	429	119	453	126	514	143
3000	60	78	22	95	26	155	43	326	91	404	112	421	117	481	134
	80	90	25	109	30	179	50	379	105	469	130	488	136	558	155
	100	100	28	122	34	200	56	422	117	522	145	544	151	622	173
	120	110	31	134	37	219	61	462	128	572	159	596	166	681	189



Performance data AIRFIT-HF 600

Cooling

Multi Nozzle	q1	q1	p_{st}	Cooling capacity air PA (W) $\Delta T_{AC} = T_{room} - T_1$(K)				ΔP_w	q_w	Cooling capacity water Pw (W) $\Delta T_{WK} = T_{room} - T_{water,in}$(K), $T_{water,in}$>dew point air + 2K								T	L_{pA}	L_{pA}	L_{pA}
				7	8	9	10			7		8		9		10					
Position	(m^3/h)	(l/s)	(Pa)	$P_{A,7K}$	$P_{A,8K}$	$P_{A,9K}$	$P_{A,10K}$	(kPa)	(l/h)	$P_{A,7K}$	$\Delta T_{w,7k}$	$P_{A,8K}$	$\Delta T_{w,8k}$	$P_{A,9K}$	$\Delta T_{w,9k}$	$P_{A,10K}$	$\Delta T_{w,10k}$	(m)	(dB(A))	(NC)	(NR)

Chilled beam size 1200 mm

Nozzle-position	m^3/h	L/s	P_{st}	$P_{A,7K}$	$P_{A,8K}$	$P_{A,9K}$	$P_{A,10K}$	Kpa	L/h	$P_{W,7K}$	$\Delta T_{w,7k}$	$P_{A,8K}$	$\Delta T_{w,8k}$	$P_{A,9K}$	$\Delta T_{w,9k}$	$P_{A,10K}$	$\Delta T_{w,10k}$	T	L_{pA}	L_{pA}	L_{pA}
1	25	7	69	59	67	75	84	1.5 4.7 9.4	70 130 190	120 165 190	1.5 1.1 0.9	135 185 215	1.7 1.2 1.0	430 500 550	3.1 2.5 2.1	515 600 660	3.4 2.7 2.3	0.5	--	--	--
	30	8	99	70	80	90	101	1.5 4.7 9.4	70 130 190	130 180 205	1.6 1.2 0.9	145 195 230	1.8 1.3 1.0	455 530 585	3.3 2.6 2.2	550 640 705	3.6 2.9 2.4	0.6	25	20	22
	35	10	134	82	94	106	117	1.5 4.7 9.4	70 130 190	150 195 220	1.8 1.3 1.0	165 215 245	2.0 1.4 1.1	500 575 625	3.6 2.8 2.4	595 685 750	3.9 3.1 2.6	0.7	30	25	27
2	35	10	73	82	94	106	117	1.5 4.7 9.4	70 130 190	135 185 215	1.7 1.2 1.0	150 205 235	1.8 1.4 1.1	470 550 605	3.4 2.7 2.3	565 660 725	3.7 3.0 2.5	0.7	--	--	--
	40	11	96	94	107	121	134	1.5 4.7 9.4	70 130 190	145 195 225	1.8 1.3 1.0	165 220 250	2.0 1.5 1.1	505 585 645	3.7 2.9 2.4	605 700 775	4.0 3.2 2.7	0.9	29	24	26
	45	13	121	106	121	136	151	1.5 4.7 9.4	70 130 190	160 205 235	2.0 1.4 1.1	175 230 260	2.1 1.5 1.2	530 610 665	3.8 3.0 2.5	635 730 800	4.2 3.3 2.7	1.0	33	28	30
3	45	13	64	106	121	136	151	1.5 4.7 9.4	70 130 190	155 210 240	1.9 1.4 1.1	170 230 270	2.1 1.5 1.2	565 655 715	4.1 3.3 2.7	675 785 860	4.5 3.5 3.0	1.0	28	23	25
	55	15	95	129	147	166	184	1.5 4.7 9.4	70 130 190	170 225 260	2.1 1.5 1.2	190 250 290	2.3 1.7 1.3	585 675 740	4.2 3.3 2.8	700 810 885	4.6 3.7 3.0	1.3	34	29	31
	65	18	133	152	174	196	218	1.5 4.7 9.4	70 130 190	185 240 275	2.3 1.6 1.2	205 265 305	2.5 1.8 1.4	605 695 760	4.4 3.5 2.9	725 830 910	4.8 3.8 3.1	1.6	39	34	36

Chilled beam size 1500 mm

Nozzle-position	m^3/h	l/s	P_{st}	$P_{A,7K}$	$P_{A,8K}$	$P_{A,9K}$	$P_{A,10K}$	KPa	L/h	$P_{W,7K}$	$\Delta T_{w,7k}$	$P_{A,8K}$	$\Delta T_{w,8k}$	$P_{A,9K}$	$\Delta T_{w,9k}$	$P_{A,10K}$	$\Delta T_{w,10k}$	T	L_{pA}	L_{pA}	L_{pA}
1	35	10	74	82	94	106	117	1.7 5.4 10.9	70 130 190	170 225 260	2.1 1.5 1.2	185 250 290	2.3 1.7 1.3	205 275 320	2.5 1.8 1.4	225 300 350	2.8 2.0 1.6	0.7	--	--	--
	40	11	97	94	107	121	134	1.7 5.4 10.9	70 130 190	175 240 275	2.1 1.6 1.2	195 265 305	2.4 1.8 1.4	218 290 335	2.6 1.9 1.5	235 315 365	2.9 2.1 1.7	0.8	28	23	25
	45	13	122	106	121	136	151	1.7 5.4 10.9	70 130 190	195 255 295	2.4 1.7 1.3	215 285 325	2.6 1.9 1.5	240 315 360	2.9 2.1 1.6	260 340 390	3.2 2.2 1.8	0.9	32	27	29
2	40	11	53	94	107	121	134	1.7 5.4 10.9	70 130 190	165 230 270	2.0 1.5 1.2	185 255 300	2.3 1.7 1.4	205 280 330	2.5 1.9 1.5	225 310 360	2.8 2.0 1.6	0.8	--	--	--
	50	14	83	117	134	151	168	1.7 5.4 10.9	70 130 190	190 255 300	2.3 1.7 1.4	210 285 330	2.6 1.9 1.5	235 315 365	2.9 2.1 1.7	255 345 395	3.1 2.3 1.8	1.1	--	--	--
	60	17	119	141	161	181	201	1.7 5.4 10.9	70 130 190	210 275 315	2.6 1.8 1.4	235 310 350	2.9 2.0 1.6	260 340 385	3.2 2.2 1.7	285 370 425	3.5 2.4 1.9	1.3	30	25	27
3	70	19	85	164	188	211	235	1.7 5.4 10.9	70 130 190	225 295 340	2.8 1.9 1.5	250 330 380	3.1 2.2 1.7	275 365 415	3.4 2.4 1.9	300 395 455	3.7 2.6 2.1	1.6	29	24	26
	80	22	111	188	214	241	268	1.7 5.4 10.9	70 130 190	240 315 360	2.9 2.1 1.6	265 350 400	3.3 2.3 1.8	295 380 435	3.6 2.5 2.0	320 415 475	3.9 2.7 2.1	1.9	32	27	29
	90	25	140	211	241	271	302	1.7 5.4 10.9	70 130 190	255 325 375	3.1 2.1 1.7	280 365 415	3.4 2.4 1.9	310 400 455	3.8 2.6 2.1	340 435 495	4.2 2.9 2.2	2.2	36	31	33

Chilled beam size 1800 mm

Nozzle-position	m^3/h	l/s	P_{st}	$P_{A,7K}$	$P_{A,8K}$	$P_{A,9K}$	$P_{A,10K}$	Kpa	L/h	$P_{W,7K}$	$\Delta T_{w,7k}$	$P_{A,8K}$	$\Delta T_{w,8k}$	$P_{A,9K}$	$\Delta T_{w,9k}$	$P_{A,10K}$	$\Delta T_{w,10k}$	T	L_{pA}	L_{pA}	L_{pA}
1	40	11	58	94	107	121	134	2.0 6.2 12.5	70 130 190	200 275 325	2.5 1.8 1.5	225 310 360	2.8 2.0 1.6	245 340 395	3.0 2.2 1.8	270 370 430	3.3 2.4 1.9	0.7	26	21	23
	45	13	73	106	121	136	151	2.0 6.2 12.5	70 130 190	210 290 340	2.6 1.9 1.5	235 320 375	2.9 2.1 1.7	260 355 415	3.2 2.3 1.9	280 385 450	3.4 2.5 2.0	0.9	30	25	27
	50	14	91	117	134	151	168	2.0 6.2 12.5	70 130 190	235 310 360	2.9 2.0 1.6	260 345 400	3.2 2.3 1.8	285 380 440	3.5 2.5 2.0	310 415 480	3.8 2.7 2.2	1.0	33	28	30
2	50	14	50	117	134	151	168	2.0 6.2 12.5	70 130 190	210 295 345	2.6 1.9 1.6	235 325 380	2.9 2.1 1.7	260 360 420	3.2 2.4 1.9	280 390 460	3.4 2.6 2.1	1.0	25	20	22
	60	17	71	141	161	181	201	2.0 6.2 12.5	70 130 190	235 320 375	2.9 2.1 1.7	260 360 415	3.2 2.4 1.9	290 395 460	3.6 2.6 2.1	315 430 500	3.9 2.8 2.3	1.3	31	26	28
	70	19	97	164	188	211	235	2.0 6.2 12.5	70 130 190	260 345 395	3.2 2.3 1.8	290 380 440	3.6 2.5 2.0	320 420 485	3.9 2.8 2.2	345 460 252	4.2 3.0 2.4	1.5	35	30	32
3	80	22	67	188	214	241	268	2.0 6.2 12.5	70 130 190	270 365 420	3.3 2.4 1.9	300 405 470	3.7 2.7 2.1	330 445 515	4.1 2.9 2.3	360 485 565	4.4 3.2 2.6	1.8	33	28	30
	90	25	84	211	241	271	302	2.0 6.2 12.5	70 130 190	290 385 440	3.6 2.5 2.0	320 425 490	3.9 2.8 2.2	350 470 540	4.3 3.1 2.4	385 510 585	4.7 3.4 2.6	2.1	36	31	33
	100	28	104	235	268	302	355	2.0 6.2 12.5	70 130 190	305 400 460	3.7 2.6 2.1	340 445 510	4.2 2.9 2.3	370 490 560	4.5 3.2 2.5	405 530 610	2.0 3.5 2.8	2.4	39	34	36

Performance data AIRFIT-HF 600 — Cooling

Multi Nozzle	q1	q1	p_{st}	Cooling capacity air PA (W) $\Delta T_{AC} = T_{room} - T_1$(K)				ΔP_w	q_w	Cooling capacity water Pw (W) $\Delta T_{WK} = T_{room} - T_{water,in}$(K), $T_{water,in}$>dew point air + 2K								T	L_{pA}	L_{pA}	L_{pA}
				7	8	9	10			7		8		9		10					
Position	(m^3/h)	(l/s)	(Pa)	$P_{A,7K}$	$P_{A,8K}$	$P_{A,9K}$	$P_{A,10K}$	(kPa)	(l/h)	$P_{A,7K}$	$\Delta T_{w,7k}$	$P_{A,8K}$	$\Delta T_{w,8k}$	$P_{A,9K}$	$\Delta T_{w,9k}$	$P_{A,10K}$	$\Delta T_{w,10k}$	(m)	(dB(A))	(NC)	(NR)

Chilled beam size 2400 mm

Nozzle-position	m^3/h	l/s	P_{st}	$P_{A,7K}$	$P_{A,8K}$	$P_{A,9K}$	$P_{A,10K}$	KPa	L/h	$P_{W,7K}$	$\Delta T_{w,7k}$	$P_{A,8K}$	$\Delta T_{w,8k}$	$P_{A,9K}$	$\Delta T_{w,9k}$	$P_{A,10K}$	$\Delta T_{w,10k}$	T	L_{pA}	L_{pA}	L_{pA}
1	55	15	56	129	147	166	184	1.4	130	385	2.5	430	2.8	430	3.1	515	3.4	1.0	--	--	--
								2.7	190	450	2.0	500	2.3	500	2.5	600	2.7				
								4.3	250	495	1.7	550	1.9	550	2.1	660	2.3				
	65	18	78	152	174	196	218	1.4	130	410	2.7	455	3.0	455	3.3	550	3.6	1.3	--	--	--
								2.7	190	480	2.2	530	2.4	530	2.6	640	2.9				
								4.3	250	530	1.8	585	2.0	585	2.2	705	2.4				
	75	21	104	176	201	226	251	1.4	130	450	3.0	500	3.3	500	3.6	595	3.9	1.5	28	23	25
								2.7	190	515	2.3	575	2.6	575	2.8	685	3.1				
								4.3	250	565	1.9	625	2.1	625	2.4	750	2.6				
2	75	21	57	176	201	226	251	1.4	130	425	2.8	470	3.1	470	3.4	565	3.7	1.5	--	--	--
								2.7	190	495	2.2	550	2.5	550	2.7	660	3.0				
								4.3	250	545	1.9	605	2.1	605	2.3	725	2.5				
	85	24	73	199	228	256	285	1.4	130	455	3.0	505	3.3	505	3.7	605	4.0	1.8	28	23	25
								2.7	190	525	2.4	585	2.6	585	2.9	700	3.2				
								4.3	250	580	2.0	645	2.2	645	2.4	775	2.7				
	95	26	91	223	255	286	318	1.4	130	475	3.1	530	3.5	530	3.8	635	4.2	2.0	32	27	29
								2.7	190	550	2.5	610	2.8	610	3.0	730	3.3				
								4.3	250	600	2.1	665	2.3	665	2.5	800	2.7				
3	110	31	64	258	295	332	369	1.4	130	505	3.3	565	3.7	565	4.1	675	4.5	2.5	32	27	29
								2.7	190	590	2.7	655	3.0	655	3.3	785	3.5				
								4.3	250	645	2.2	715	2.5	715	2.7	860	3.0				
	120	33	76	281	322	362	402	1.4	130	525	3.5	585	3.9	585	4.2	700	4.6	2.8	36	31	33
								2.7	190	605	2.7	675	3.1	675	3.3	810	3.7				
								4.3	250	665	2.3	740	2.5	740	2.8	885	3.0				
	130	36	90	305	348	392	436	1.4	130	545	3.6	605	4.0	605	4.4	725	4.8	3.1	39	34	36
								2.7	190	625	2.8	695	3.1	695	3.5	830	3.8				
								4.3	250	685	2.4	760	2.6	760	2.9	910	3.1				

Chilled beam size 3000 mm

Nozzle-position	m^3/h	l/s	P_{st}	$P_{A,7K}$	$P_{A,8K}$	$P_{A,9K}$	$P_{A,10K}$	KPa	L/h	$P_{W,7K}$	$\Delta T_{w,7k}$	$P_{A,8K}$	$\Delta T_{w,8k}$	$P_{A,9K}$	$\Delta T_{w,9k}$	$P_{A,10K}$	$\Delta T_{w,10k}$	T	L_{pA}	L_{pA}	L_{pA}
1	90	25	88	211	241	271	302	1.6	130	555	3.7	615	4.1	675	4.5	735	4.9	1.8	--	--	--
								3.2	190	635	2.9	710	3.2	780	3.5	850	3.8				
								5.2	250	700	2.4	775	2.7	855	2.9	930	3.2				
	100	28	109	235	268	302	335	1.6	130	575	3.8	640	4.2	700	4.6	765	5.1	2.0	29	24	26
								3.2	190	665	3.0	735	3.3	810	3.7	880	4.0				
								5.2	250	725	2.5	805	2.8	885	3.0	965	3.3				
	110	31	132	258	295	332	369	1.6	130	610	4.0	680	4.5	745	4.9	815	5.4	2.3	31	26	28
								3.2	190	700	3.2	775	3.5	855	3.9	930	4.2				
								5.2	250	765	2.6	845	2.9	930	3.2	1015	3.5				
2	130	36	101	305	348	392	436	1.6	130	620	4.1	690	4.6	760	5.0	830	5.5	2.9	34	29	31
								3.2	190	715	3.2	795	3.6	870	3.9	950	4.3				
								5.2	250	780	2.7	865	3.0	955	3.3	1040	3.6				
	140	39	117	328	375	422	469	1.6	130	650	4.3	720	4.8	795	5.3	865	5.7	3.1	36	31	33
								3.2	190	745	3.4	830	3.8	910	4.1	995	4.5				
								5.2	250	815	2.8	905	3.1	995	3.4	1085	3.7				
	150	42	134	352	402	452	503	1.6	130	670	4.4	740	4.9	815	5.4	890	5.9	3.4	39	34	36
								3.2	190	760	3.4	845	3.8	930	4.2	1015	4.6				
								5.2	250	830	2.9	920	3.2	1015	3.5	1105	3.8				
3	170	47	90	399	456	513	570	1.6	130	710	4.7	785	5.2	865	5.7	945	6.2	4.0	36	31	33
								3.2	190	815	3.7	905	4.1	995	4.5	1085	4.9				
								5.2	250	890	3.1	990	3.4	1085	3.7	1185	4.1				
	180	50	101	422	482	543	603	1.6	130	725	4.8	805	5.3	885	5.8	965	6.4	4.3	38	33	35
								3.2	190	830	3.8	920	4.2	1015	4.6	1105	5.0				
								5.2	250	905	3.1	1005	3.5	1110	3.8	1210	4.2				
	190	53	113	446	509	573	637	1.6	130	740	4.9	820	5.4	905	6.0	985	6.5	4.6	39	34	36
								3.2	190	845	3.8	940	4.3	1035	4.7	1130	5.1				
								5.2	250	925	3.2	1025	3.5	1130	3.9	1230	4.2				

Comments:

1. All data is based on 2-way discharge air pattern.
2. Throw data T refers to chilled beams mounted in a ceiling, 2.7-3.0m above the floor, and with horizontal discharge. It is also based on primary air temperature 8 °C below room temperature and supply water temperature 8 °C below room temperature.
3. Throw will be extended if one end of the chilled beam is mounted close to a sidewall or a similar construction.
4. Sound pressure levels are based on a room absorption of 10 dB, levels less than NC 20 are indicated by "--".
5. For non standard applications and/or selections, please contact our technical staff.
6. For explanation of the symbols see page 17.

Performance data AIRFIT-HF 600 Heating

Multi Nozzle	q1	q1	p_{st}	Heating capacity air PA (W)			ΔP_w	q_w	Heating capacity water Pw (W)								T	L_{pA}	L_{pA}	L_{pA}
				ΔTAC = Troom - T1(K)					$\Delta T_{WK} = T_{room} - T_{water,in}$(K)											
				10	15	20			20		25		30		35					
Position	(m^3/h)	(l/s)	(P_a)	$P_{A,10K}$	$P_{A,15K}$	$P_{A,20K}$	(kP_a)	(l/h)	$P_{A,20K}$	$\Delta T_{w,20k}$	$P_{A,25K}$	$\Delta T_{w,25k}$	$P_{A,30K}$	$\Delta T_{w,30k}$	$P_{A,35K}$	$\Delta T_{w,35k}$	(m)	(dB(A))	(NC)	(NR)

Chilled beam size 1200 mm

Nozzle-position	m^3/h	L/s	Pst	$P_{A,10K}$	$P_{A,15K}$	$P_{A,20K}$	Kpa	L/h	$P_{W,20K}$	$\Delta T_{w,20k}$	$P_{A,25K}$	$\Delta T_{w,25k}$	$P_{A,30K}$	$\Delta T_{w,30k}$	$P_{A,35K}$	$\Delta T_{w,35k}$	T	L_{pA}	L_{pA}	L_{pA}
1	25	7	69	83	125	167	0.5	50	230	4.0	290	5.0	345	5.9	405	7.0	0.5	--	--	--
							1.0	75	290	3.3	360	4.1	430	4.9	505	5.8				
							1.6	100	330	2.8	410	3.5	490	4.2	575	4.9				
	30	8	99	100	150	200	0.5	50	255	4.4	320	5.5	380	6.5	445	7.6	0.6	--	--	--
							1.0	75	315	3.6	390	4.5	470	5.4	550	6.3				
							1.6	100	355	3.1	445	3.8	535	4.6	625	5.4				
	35	10	134	117	175	233	0.5	50	280	4.8	350	6.0	425	7.3	495	8.5	0.7	30	25	27
							1.0	75	345	4.0	430	4.9	515	5.9	605	6.9				
							1.6	100	390	3.4	485	4.2	585	5.0	680	5.8				
2	35	10	73	117	175	233	0.5	50	365	4.6	335	5.8	400	6.9	465	8.0	0.7	--	--	--
							1.0	75	330	3.8	410	4.7	495	5.7	575	6.6				
							1.6	100	375	3.2	470	4.0	560	4.8	655	5.6				
	40	11	96	133	200	266	0.5	50	280	4.8	350	6.0	425	7.3	495	8.5	0.9	29	24	26
							1.0	75	345	4.0	435	5.0	520	6.0	605	6.9				
							1.6	100	390	3.4	490	4.2	590	5.1	685	5.9				
	45	13	121	150	225	300	0.5	50	300	5.2	375	6.4	450	7.7	525	9.0	1.0	33	28	30
							1.0	75	370	4.2	460	5.3	555	6.4	645	7.4				
							1.6	100	415	3.6	520	4.5	625	5.4	730	6.3				
3	45	13	64	150	225	300	0.5	50	270	4.6	335	5.8	405	7.0	470	8.1	1.0	28	23	25
							1.0	75	335	3.8	415	4.8	500	5.7	585	6.7				
							1.6	100	380	3.3	470	4.0	565	4.9	660	5.7				
	55	15	95	183	275	366	0.5	50	315	5.4	390	6.7	470	8.1	545	9.4	1.3	34	29	31
							1.0	75	380	4.4	475	5.4	570	6.5	665	7.6				
							1.6	100	430	3.7	535	4.6	640	5.5	750	6.4				
	65	18	133	216	325	433	0.5	50	365	6.3	455	7.8	545	9.4	635	10.9	1.6	39	34	36
							1.0	75	440	5.0	545	6.2	655	7.5	765	8.8				
							1.6	100	490	4.2	615	5.3	735	6.3	860	7.4				

Chilled beam size 1500 mm

Nozzle-position	m^3/h	l/s	Pst	$P_{A,7K}$	$P_{A,8K}$	$P_{A,9K}$	Kpa	L/h	$P_{W,7K}$	$\Delta T_{w,7k}$	$P_{A,8K}$	$\Delta T_{w,8k}$	$P_{A,9K}$	$\Delta T_{w,9k}$	$P_{A,10K}$	$\Delta T_{w,10k}$	T	L_{pA}	L_{pA}	L_{pA}
1	35	10	74	117	176	235	0.7	50	320	5.5	400	6.9	480	8.2	560	9.6	0.7	--	--	--
							1.3	75	395	4.5	495	5.7	595	6.8	690	7.9				
							2.0	100	450	3.9	560	4.8	675	5.8	785	6.7				
	40	11	97	134	201	268	0.7	50	340	5.8	425	7.3	510	8.8	595	10.2	0.8	28	23	25
							1.3	75	420	4.8	525	6.0	630	7.2	735	8.4				
							2.0	100	480	4.1	595	5.1	715	6.1	835	7.2				
	45	13	122	151	226	302	0.7	50	370	6.4	460	7.9	555	9.5	645	11.1	0.9	32	27	29
							1.3	75	455	5.2	570	6.5	680	7.8	795	9.1				
							2.0	100	515	4.4	645	5.5	775	6.7	900	7.7				
2	40	11	53	134	201	268	0.7	50	325	5.6	405	7.0	485	8.3	570	9.8	0.8	--	--	--
							1.3	75	410	4.7	510	5.8	615	7.0	715	8.2				
							2.0	100	470	4.0	585	5.0	705	6.1	820	7.0				
	50	14	83	168	251	335	0.7	50	365	6.3	455	7.8	545	9.4	635	10.9	1.1	24	19	21
							1.3	75	450	5.2	565	6.5	675	7.7	790	9.1				
							2.0	100	515	4.4	640	5.5	770	6.6	895	7.7				
	60	17	119	201	302	402	0.7	50	405	7.0	505	8.7	605	10.4	705	12.1	1.3	30	25	27
							1.3	75	495	5.7	620	7.1	740	8.5	865	9.9				
							2.0	100	560	4.8	700	6.0	840	7.2	975	8.4				
3	70	19	85	235	352	469	0.7	50	395	6.8	490	8.4	590	10.1	690	11.9	1.6	29	24	26
							1.3	75	480	5.5	600	6.9	720	8.2	840	9.6				
							2.0	100	540	4.6	675	5.8	810	7.0	945	8.1				
	80	22	111	268	402	536	0.7	50	440	7.6	550	9.5	660	11.3	770	13.2	1.9	32	27	29
							1.3	75	530	6.1	660	7.6	795	9.1	925	10.6				
							2.0	100	595	5.1	740	6.4	890	7.6	1040	8.9				
	90	25	140	302	452	603	0.7	50	495	8.5	620	10.7	745	12.8	870	14.9	2.2	36	31	33
							1.3	75	595	6.8	745	8.5	895	10.3	1045	12.0				
							2.0	100	665	5.7	835	7.2	1000	8.6	1170	10.1				

Chilled beam size 1800 mm

Nozzle-position	m^3/h	L/s	Pst	$P_{A,7K}$	$P_{A,8K}$	$P_{A,9K}$	Kpa	L/h	$P_{W,7K}$	$\Delta T_{w,7k}$	$P_{A,8K}$	$\Delta T_{w,8k}$	$P_{A,9K}$	$\Delta T_{w,9k}$	$P_{A,10K}$	$\Delta T_{w,10k}$	T	L_{pA}	L_{pA}	L_{pA}
1	40	11	58	134	201	268	0.8	50	380	6.5	480	8.2	575	9.9	670	11.5	1.7	26	21	23
							1.5	75	480	5.5	600	6.9	720	8.2	840	9.6				
							2.4	100	550	4.7	690	5.9	825	7.1	965	8.3				
	45	13	73	151	226	302	0.8	50	405	7.0	505	8.7	610	10.5	710	12.2	0.9	30	25	27
							1.5	75	510	5.8	635	7.3	765	8.8	890	10.2				
							2.4	100	580	5.0	725	6.2	870	7.5	1015	8.7				
	50	14	91	168	251	335	0.8	50	435	7.5	545	9.4	655	11.3	765	13.1	1.0	33	28	30
							1.5	75	545	6.2	685	7.8	820	9.4	955	10.9				
							2.4	100	625	5.4	780	6.7	935	8.0	1095	9.4				
2	50	14	50	168	251	335	0.8	50	410	7.0	515	8.8	615	10.6	720	12.4	1.0	25	20	22
							1.5	75	520	6.0	650	7.4	780	8.9	910	10.4				
							2.4	100	595	5.1	745	6.4	895	7.7	1045	9.0				
	60	17	71	201	302	402	0.8	50	450	7.7	560	9.6	675	11.6	785	13.5	1.3	31	26	28
							1.5	75	560	6.4	700	8.0	845	9.7	985	11.3				
							2.4	100	640	5.4	800	6.9	960	8.2	1125	9.7				
	70	19	97	235	352	469	0.8	50	490	8.4	615	10.6	740	12.7	860	14.8	1.5	35	30	32
							1.5	75	610	7.0	760	8.7	915	10.5	1065	12.2				
							2.4	100	690	5.9	865	7.4	1035	8.9	1210	10.4				
3	80	22	67	268	402	536	0.8	50	475	8.2	595	10.2	715	12.3	830	14.3	1.8	33	28	30
							1.5	75	585	6.7	730	8.4	880	10.1	1025	11.7				
							2.4	100	665	5.7	830	7.1	995	8.5	1160	10.0				
	90	25	84	302	452	603	0.8	50	525	9.0	660	11.3	790	13.6	920	15.8	2.1	36	31	33
							1.5	75	645	7.4	805	9.2	965	11.1	1125	12.9				
							2.4	100	725	6.2	910	7.8	1090	9.4	170	10.9				
	100	28	104	335	503	670	0.8	50	595	10.2	740	12.7	890	15.3	1040	17.9	2.4	39	34	36
							1.5	75	720	8.2	905	10.4	1085	12.4	1265	14.5				
							2.4	100	815	7.0	1015	8.7	1220	10.5	1425	12.2				

Performance data AIRFIT-HF 600 — Heating

Multi Nozzle	q1	q1	p_{st}	Heating capacity air PA (W)			ΔP_w	q_w	Heating capacity water Pw (W)								T	L_{pA}	L_{pA}	L_{pA}
				ΔTAC = Troom - T1(K)					ΔTWK = Troom - Twater,in(K)											
				10	15	20			20		25		30		35					
Position	(m^3/h)	(l/s)	(P_a)	$P_{A,10K}$	$P_{A,15K}$	$P_{A,20K}$	(kP_a)	(l/h)	$P_{A,20K}$	$\Delta T_{w,20k}$	$P_{A,25K}$	$\Delta T_{w,25k}$	$P_{A,30K}$	$\Delta T_{w,30k}$	$P_{A,35K}$	$\Delta T_{w,35k}$	(m)	(dB(A))	(NC)	(NR)

Chilled beam size 2400 mm

Nozzle-position	m^3/h	l/s	Pst	$P_{A,10K}$	$P_{A,15K}$	$P_{A,20K}$	Kpa	L/h	$P_{W,20K}$	$\Delta T_{w,20k}$	$P_{A,25K}$	$\Delta T_{w,25k}$	$P_{A,30K}$	$\Delta T_{w,30k}$	$P_{A,35K}$	$\Delta T_{w,35k}$	T	L_{pA}	L_{pA}	L_{pA}
1	55	15	56	183	275	366	1.8	75	530	6.1	660	7.6	795	9.1	925	10.6	1.0	--	--	--
							3.2	100	665	5.7	835	7.2	1000	8.6	1165	10.0				
							4.8	125	765	5.3	955	6.6	1145	7.9	1340	9.2				
	65	18	78	216	325	433	1.8	75	580	6.6	725	8.3	870	10.0	1015	11.6	1.3	24	19	21
							3.2	100	725	6.2	905	7.8	1085	9.3	1265	10.9				
							4.8	125	825	5.7	1030	7.1	1240	8.5	1445	9.9				
	75	21	104	250	375	500	1.8	75	640	7.3	795	9.1	955	10.9	1115	12.8	1.5	28	23	25
							3.2	100	790	6.8	990	8.5	1185	10.2	1385	11.9				
							4.8	125	900	6.2	1125	7.7	1350	9.3	1575	10.8				
2	75	21	57	250	375	500	1.8	75	600	6.9	750	8.6	900	10.3	1050	12.0	1.5	23	18	20
							3.2	100	755	6.5	940	8.1	1130	9.7	1320	11.3				
							4.8	125	865	5.9	1080	7.4	1295	8.9	1510	10.4				
	85	24	73	283	425	566	1.8	75	635	7.3	790	9.1	950	10.9	1110	12.7	1.8	28	23	25
							3.2	100	790	6.8	990	8.5	1185	10.2	1385	11.9				
							4.8	125	905	6.2	1130	7.8	1355	9.3	1580	10.9				
	95	26	91	316	475	633	1.8	75	675	7.7	845	9.7	1015	11.6	1185	13.6	2.0	32	27	29
							3.2	100	840	7.2	1050	9.0	1260	10.8	1470	12.6				
							4.8	125	955	6.6	1195	8.2	1435	9.9	1670	11.5				
3	110	31	64	366	549	733	1.8	75	660	7.6	825	9.5	990	11.3	1150	13.2	2.5	32	27	29
							3.2	100	815	7.0	1015	8.7	1220	10.5	1420	12.2				
							4.8	125	920	6.3	1150	7.9	1385	9.5	1615	11.1				
	120	33	76	400	599	799	1.8	75	715	8.2	895	10.3	1075	12.3	1255	14.4	2.8	36	31	33
							3.2	100	880	7.6	1100	9.5	1320	11.3	1540	13.2				
							4.8	125	1000	6.9	1245	8.6	1495	10.3	1745	12.0				
	130	36	90	433	649	866	1.8	75	800	9.2	1000	11.5	1200	13.7	1395	16.0	3.1	39	34	36
							3.2	100	980	8.4	1225	10.5	1470	12.6	1710	14.7				
							4.8	125	1105	7.6	1380	9.5	1660	11.4	1935	13.3				

Chilled beam size 3000 mm

Nozzle-position	m^3/h	l/s	Pst	$P_{A,7K}$	$P_{A,8K}$	$P_{A,9K}$	Kpa	L/h	$P_{W,7K}$	$\Delta T_{w,7k}$	$P_{A,8K}$	$\Delta T_{w,8k}$	$P_{A,9K}$	$\Delta T_{w,9k}$	$P_{A,10K}$	$\Delta T_{w,10k}$	T	L_{pA}	L_{pA}	L_{pA}
1	90	25	88	302	452	603	2.3	75	790	9.1	990	11.3	1185	13.6	1385	15.9	1.8	--	--	--
							3.9	100	970	8.3	1210	10.4	1455	12.5	1695	14.6				
							5.7	125	1095	7.5	1370	9.4	1645	11.3	1920	13.2				
	100	28	109	335	503	670	2.3	75	830	9.5	1040	11.9	1245	14.3	1455	16.7	2.0	29	24	26
							3.9	100	1020	8.8	1275	11.0	1530	13.1	1785	15.3				
							5.7	125	1150	7.9	1440	9.9	1730	11.9	2015	13.9				
	110	31	132	369	553	737	2.3	75	890	10.2	1110	12.7	1335	15.3	1555	17.8	2.3	31	26	28
							3.9	100	1090	9.4	1360	11.7	1635	14.0	1905	16.4				
							5.7	125	1230	8.5	1540	10.6	1850	12.7	2155	14.8				
2	130	36	101	436	653	871	2.3	75	925	10.6	1155	13.2	1385	15.9	1615	18.5	2.9	34	29	31
							3.9	100	1125	9.7	1405	12.1	1685	14.5	1965	16.9				
							5.7	125	1265	8.7	1580	10.9	1895	13.0	2215	15.2				
	140	39	117	469	704	938	2.3	75	945	10.8	1180	13.5	1415	16.2	1655	19.0	3.1	36	31	33
							3.9	100	1150	9.9	1435	12.3	1725	14.8	2010	17.3				
							5.7	125	1295	8.9	1620	11.1	1940	13.3	2265	15.6				
	150	42	134	503	754	1005	2.3	75	980	11.2	1225	14.0	1475	16.9	1720	19.7	3.4	39	34	36
							3.9	100	1195	10.3	1495	12.8	1795	15.4	2090	18.0				
							5.7	125	1345	9.2	1685	11.6	2020	13.9	2355	16.2				
3	170	47	90	570	854	1139	2.3	75	945	10.8	1180	13.5	1415	16.2	1650	18.9	4.0	36	31	33
							3.9	100	1145	9.8	1430	12.3	1715	14.7	2000	17.2				
							5.7	125	1285	8.8	1605	11.0	1930	13.3	2250	15.5				
	180	50	101	603	905	1206	2.3	75	1010	11.6	1260	14.4	1515	17.4	1765	20.2	4.3	38	33	35
							3.9	100	1225	10.5	1530	13.1	1835	15.8	2140	18.4				
							5.7	125	1375	9.5	1720	11.8	2060	14.2	2405	16.5				
	190	53	113	637	955	1273	2.3	75	1105	12.7	1385	15.9	1660	19.0	1935	22.2	4.6	39	34	36
							3.9	100	1340	11.5	1675	14.4	2010	17.3	2350	20.2				
							5.7	125	1510	10.4	1885	13.0	2260	15.5	2640	18.1				

Comments:

1. All data is based on 2-way discharge air pattern.
2. Throw data T refers to chilled beams mounted in a ceiling, 2.7-3.0m above the floor, and with horizontal discharge. It is also based on primary air temperature 8 °C below room temperature and supply water temperature 8 °C below room temperature.
3. Throw will be extended if one end of the chilled beam is mounted close to a sidewall or a similar construction.
4. Sound pressure levels are based on a room absorption of 10 dB, levels less than NC 20 are indicated by "--".
5. For non standard applications and/or selections, please contact our technical staff.
6. For explanation of the symbols see page 17.

Installation, Maintenance & Cleaning

Installation

There are two methods of installing the active chilled beam.

- Exposed Tee Systems
- Bolt-Slot Systems

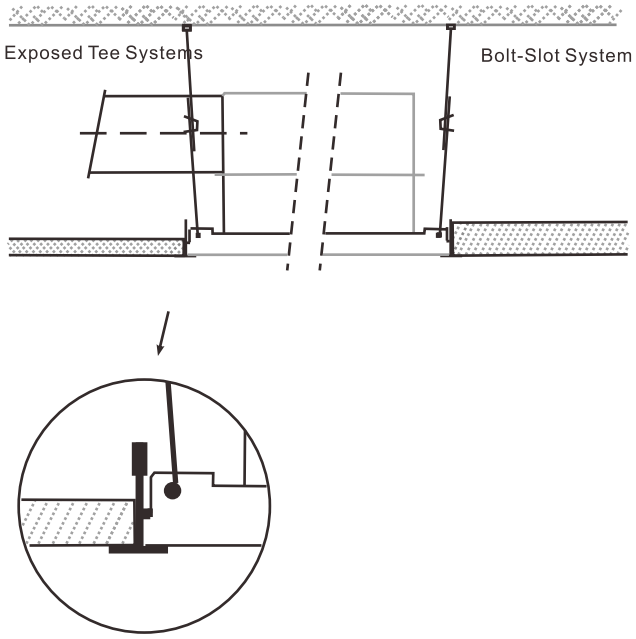


Figure 11: mounting solutions

With both methods the weight of the chilled beam must be supported by the hangers connected to the building construction, and not transferred to the ceiling.

Duct connection

The Airfit HF active chilled beam is equipped with 2 spigots for duct connections. One for the chilled beam primary air supply and one for the supply of additional ventilation air.

Coil connection

The heat exchanger is equipped with individual circuits for cooling or cooling and heating. Connections are made of copper. The cooling and heating circuits are indicated by blue and red labels respectively.

Water connections can be made by pressed or solder connections or flexible hoses with quick-lock connectors.

Airside connection

The standard configuration is with the water connections on the right side when looking into the air connector.

Maintenance

The perforated screen or linear bar diffuser can be easily removed to clean the heat exchanger per the following instructions:

Step 1. Support the diffuser with 2 hands to prevent it dropping down when released.

Step 2. Push one end of the diffuser up and then horizontally towards the end of the unit. This will allow the other end of the diffuser to drop down. The diffuser will still be connected by safety wires.

Step 3. Use a conventional vacuum cleaner with a very soft brush to clean the coil.

Refitting the diffuser is done in reverse order.

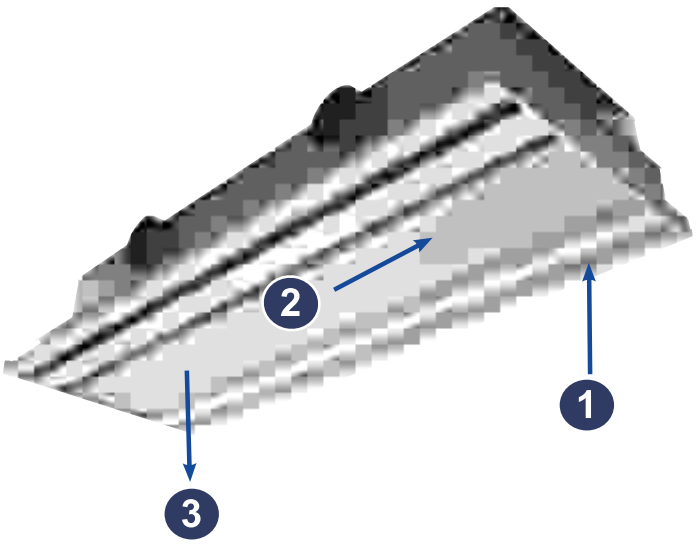


Figure 12 : Removing the induction air diffuser.

Multi-nozzle technology

The Barcol-Air active chilled beams are equipped with multi-nozzle technology.
The multi-nozzle technology consists of three nozzle groups on both sides with different diameters.
Different sized nozzle can be selected to give different airflows.

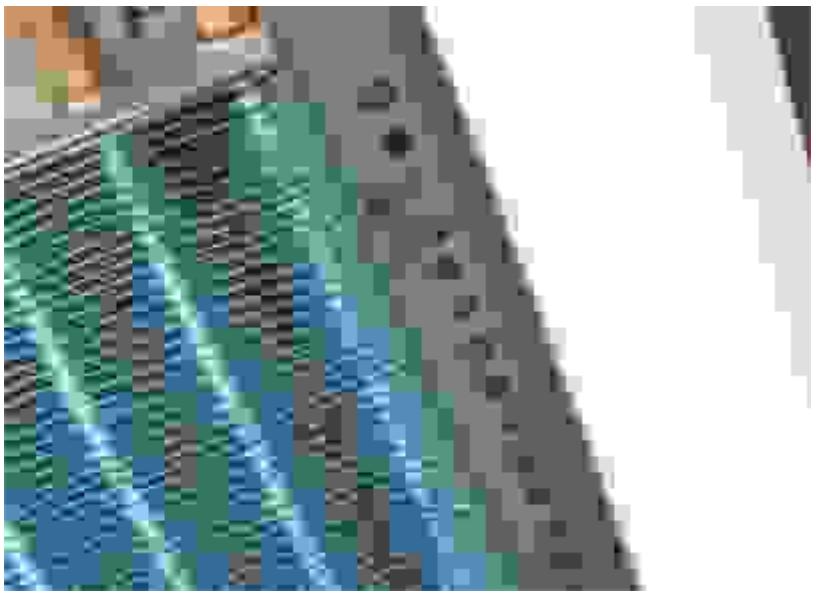
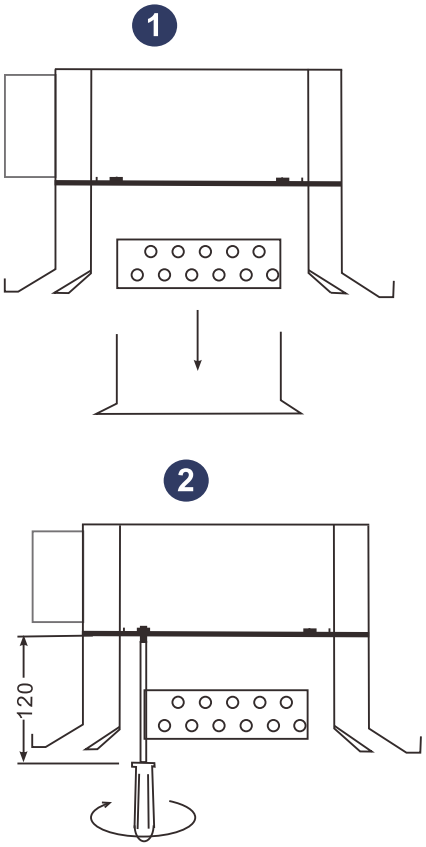


Figure 10: multl-nozzle technology



Adjusting multi-nozzle (figure 11)

The only tool needed to adjust the multi-nozzle is a screwdriver.

Step 1: Remove the induction air diffuser (see figure 10).
Step 2: Loosen all screws in the sliding plate. (One full turn).
Step 3: Move the nozzle sliding plate into the desired nozzle opening position*.
Step 4: Tighten all screws (hand tight).
Step 5: Replace the induction air diffuser.

*Factory setting: nozzle position 2.

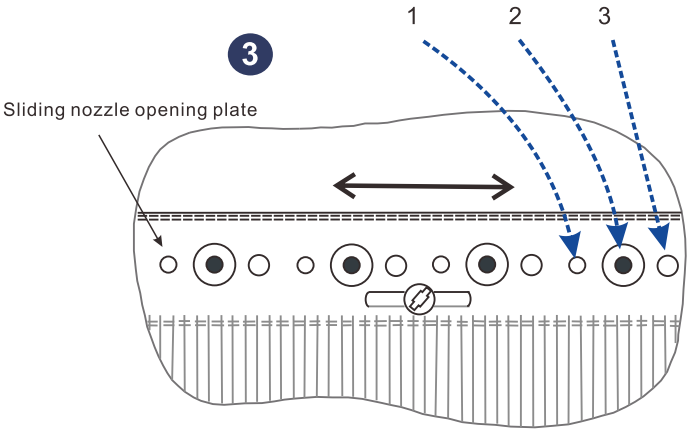
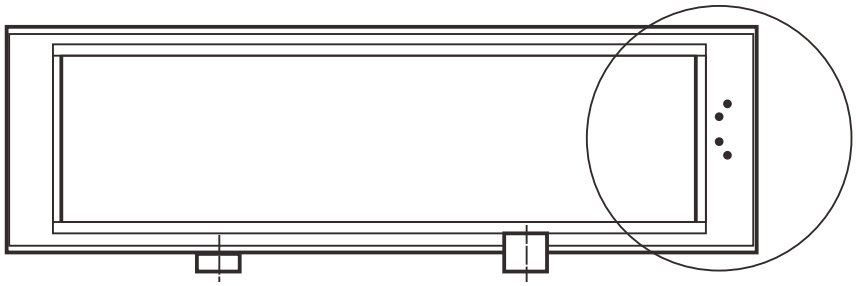


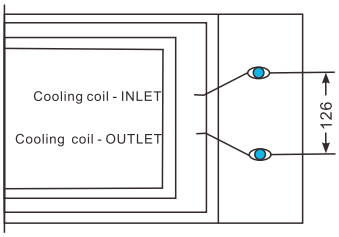
Figure 11: nozzle adjustment (standard nozzle position 2)

Water connections

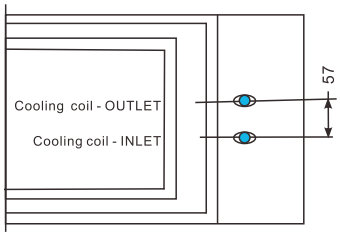


AIRFIT MODEL HF 600

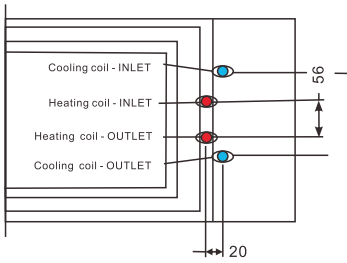
2 pipe Size 1200-1500-1800



2 pipe Size 2400-3000



4 pipe Size 1200-1500-1800



4 pipe Size 2400-3000

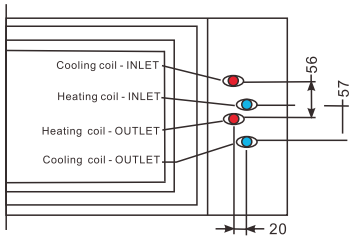


Table3: Dimensions connection

Width	600	
Size	1200-1800	2400-3000
$\varnothing d_{cold}$	12	15
$\varnothing d_{hot}$	12	

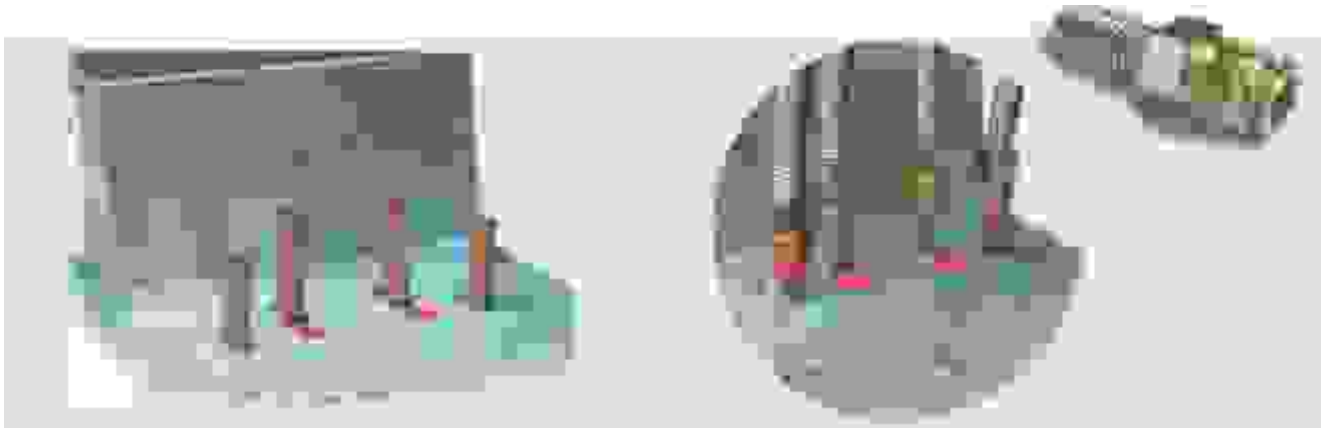


Figure 12: Heat exchanger connections, flexible hoses with quick connect couplings.

Remarks:

To ensure a leak proof connection, the copper pipe end must be undamaged, without sharp edges and perfectly circular.

Note: Cold and warm water connections are marked with blue and red labels.

Specifications

Specification HC Barcol-Air HF High Flow Active Chilled Beam

Chilled beams, manufactured by HC Barcol-Air, shall be installed to compensate for the external and internal heat loads of the building and shall maintain the thermal comfort in the room within the specified comfort and noise criteria.

For those areas requiring high ventilation rates such as meeting and conference rooms the Airfit HF (High Flow) chilled beams shall be installed with the ability to operate in two modes:
a). Chilled Beam (Low Energy) mode;
b). High Flow (High Ventilation) mode.

Control description

- Primary air shall be supplied by a fresh air handling unit into the chilled beam distribution plenum. The primary air then passes through the induction nozzles into the mixing section and from the mixing section the air will be distributed into the room by the two slot diffusers.

- The special construction of the jet nozzles (with the facility to select one of 3 difference air flows) will induce air from the room through a perforated or linear bar induction air diffuser. This air will pass through a cooling or heating coil and then mix with the primary air before being supplied back into the room.
- Primary air will also be supplied to an additional ventilation air diffuser connection to allow operation in High Flow mode.

Construction of the chilled beam:

- The distribution plenum box and circular inlet spigot connect the primary air to the chilled beam and distributes the primary air equally over the multiple jet nozzle plate. The plenum shall be made of galvanized sheet steel.

- A galvanized steel multi nozzle plate, adjustable in 3 different opening positions, injects the conditioned air into the mixing section of the beam. Different sized nozzles shall be selectable by adjusting the galvanized steel nozzle adjustment bar which can be easily repositioned using a screw driver.

- Room air is induced through the heat exchanger into the mixing section.

- Different heat exchangers shall be available to suit 2-pipe system or 4 systems. The heat exchangers shall be made of copper tubes with aluminum fins and shall have 12 mm diameter water connections depending on the length of the size of the coil. The heat exchangers shall be factory pressure tested at 20 bar. The diffuser for the induced room air shall be a perforated screen and shall be removable and provided with a safe hanging provision.

Dimensions

Width: The chilled beam shall be 593 mm wide (model 600).
Length: The units shall be available in standard lengths of 1200, 1500, 1800, 2400 and 3000 mm together with any intermediate length by special order.

Height: The height of the chilled beam (including distribution plenum) shall not be more 242mm.

Support: The chilled beam shall have 6 mm diameter mounting holes for easy installation.
The visible housing of chilled beam shall have RAL9010 polyester powder coated finish.
Other RAL colors available on request.

Return air diffusers:

- Return air diffusers shall be supplied with the same appearance as the chilled beam units.

Symbol index

q_1= Primary airflow（m^3 / h)

T_1= Primary air temperature（℃）

T_{room}= Room temperature（℃）

P_A= Capacity Primary air（W）

P_W= Capacity Heat exchanger（W）

P_{tot}= Total supplied cooling or heating capacity of the heat exchanger + primary air（W）

P_{st}= Static pressure (Pa)

L_{pA}= Sound pressure level of the unit (dB(A) /NC /NR)

q_w= Water flow through the heat exchanger (l/h)

ΔP_w= Water pressure drop of the heat exchanger（kPa)

$T_{w,in}$= Water temperature entering the heat exchanger（°C）

ΔT_w = Difference between heat exchanger entering and leaving water temperature (K)

ΔT_{AC} = Difference between room temperature and the primary air temperature in cooling mode (K)

ΔT_{wc} = Difference between room temperature and the supply water temperature in cooling mode (K)

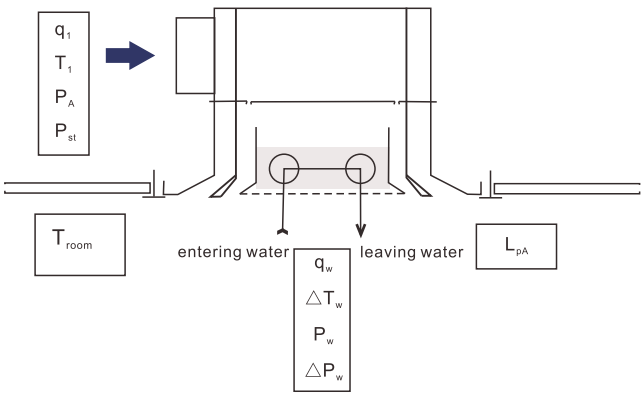
ΔT_{AH}= Difference between primary air temperature and room air temperature in heating mode (K)

ΔT_{WH} = Difference between entering water temperature and the room temperature in heating mode (K)

T = Throw: the distance between the wall and the unit or half of the distance between two units(m)

Note 1: All data provided in this catalogue is based on installations at sea level altitude.

Note 2： The primary air conditions（temperature and humidity）shall be controlled in such a way that condensation will not occur.



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