Twa

Modular Active
Chilled
Beams

CATALOGUE

Modular Active Chilled Beam
PRODUCT FEATURES

2’ WIDE – 2-WAY DISCHARGE UNIT

SUMMARY

The unit is a high capacity active chilled beam designed to provide sensible cooling, ventilation and heating within a given space. Primary air is supplied to the beam, via the central air handling unit, and is utilized to provide the outdoor air (O/A) requirements for ventilation, latent cooling, and also to induce room air through the coil which provides either sensible cooling or heating to the space.

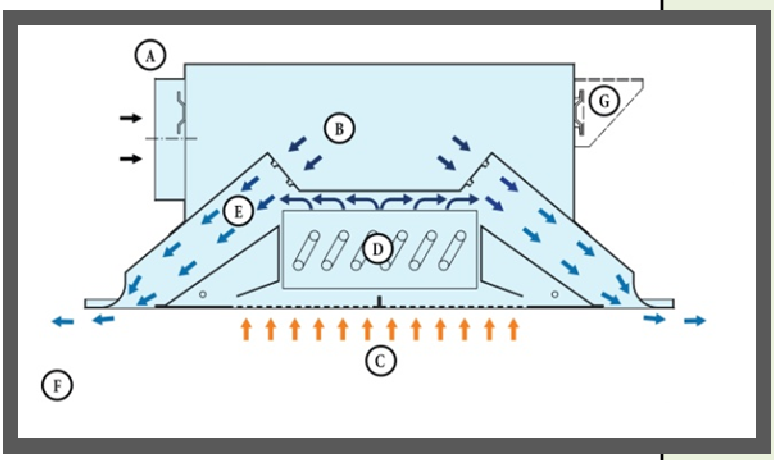
The beam is available in:
Standard 2’, 4’, 6’ & 8’ lengths; and
Non-Standard 5’, 7’ & 10’ lengths

The coil is available in:
2’, 3’, 4’, 5’, 6’, 7’, 8’, 9’ & 10’ lengths
Note: The chosen beam can hold coil lengths up to the length of the beam body

FEATURES & BENEFITS

- Very low noise signature
- Supply air can be limited to O/A requirements
- Throw pattern reduces the likelihood of drafts
- Minimal maintenance required
- Spring latched “Bomb-Bay” doors for easy access to the coil
- Lowers building operating costs
- Capture LEED credits for both energy savings and innovation
- All metal construction
- Powder coated finish

AIR PATTERN



A. Primary air (supply air) duct connection with 1” Standing Collar
B. Primary air plenum
C. Secondary air (induced room air)
D. Unit mounted coil (two and/or four pipe available)
E. Mixed air (primary with secondary)
F. Discharge air
G. Adjustable mounting brackets (typical of 4)

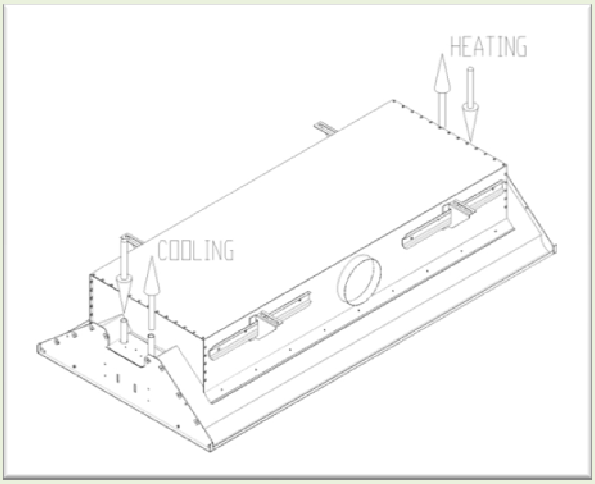
2' WIDE – 2-WAY DISCHARGE UNIT

HANDING

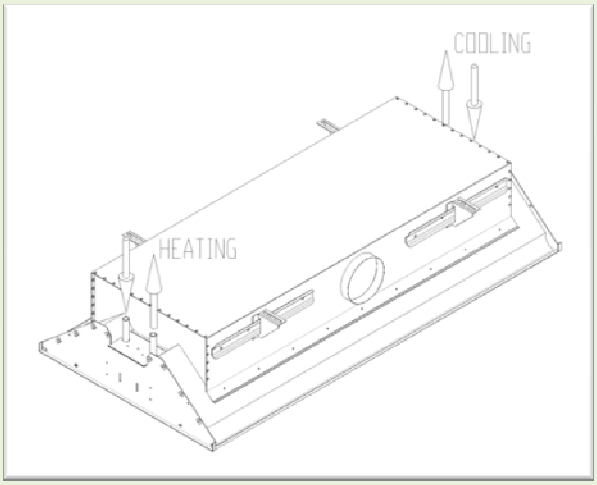
The cooling and heating coil headers are located at opposite ends of the beam with respect to each other. The handing becomes important when determining the orientation of the beam with respect to the connections made to the duct branch and water distribution lines. The coil can be turned 180° to allow for two pre-determined arrangements to best orientate the beam for these connections:

Left Handing: With the beam installed properly in the ceiling and one was to face the duct connection on the beams plenum box, the cooling coil header connections would be on the person's left.

Right Handing: With the beam installed properly in the ceiling and one was to face the duct connection on the beams plenum box, the cooling coil header connections would be on the person's right.



Left Handing

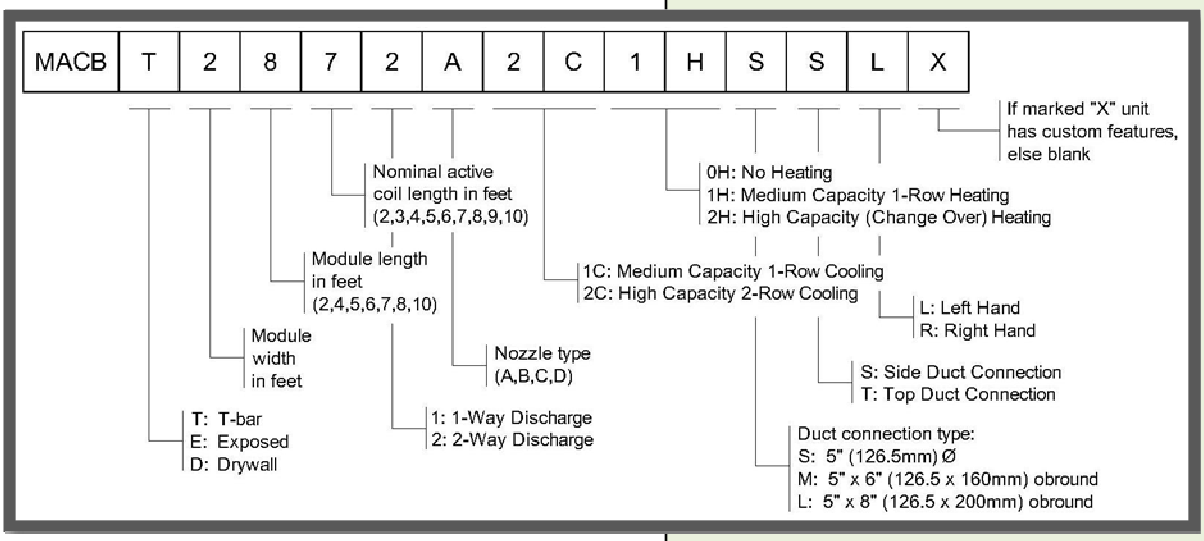


Right Handing

NOMENCLATURE

The nomenclature is Twa Panel Systems Inc's alpha-numeric representation for a given chilled beam model. The model number includes information about particular details of that beam as depicted in the diagram below.

NOMENCLATURE DIAGRAM

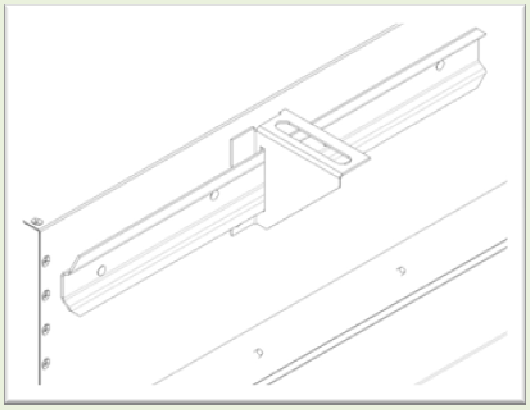


INSTALLATION

The modular active chilled beams can be installed within a wide range of ceiling types including T-bar, drywall and wood. The unit is hung from the structure of the building by either aircraft cable or threaded rod by way of four adjustable hangers located at the four corners of the plenum box. The unit can be adjusted in all planes to provide a finished looking fit in all ceiling types.

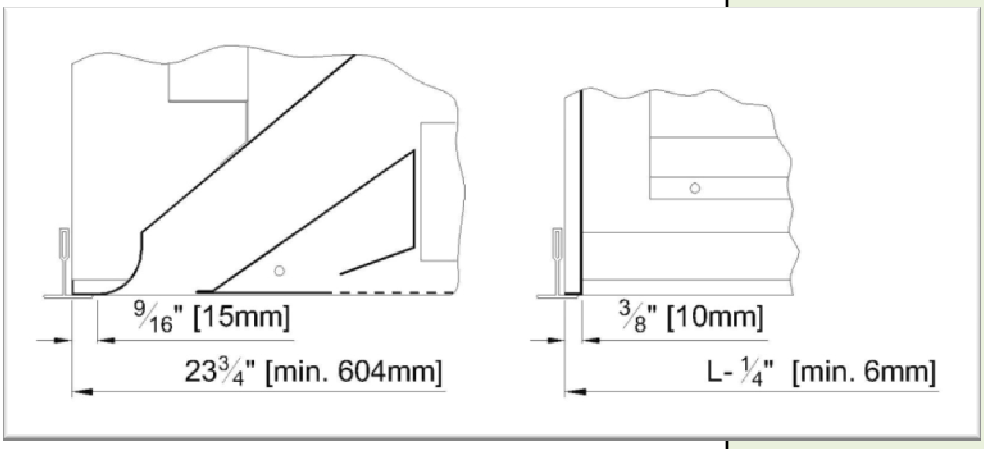
For solid ceiling types such as drywall or wood a contractor or factory supplied frame can be provided to ensure a professional finish around the rough opening.

If required, dummy sections or false fronts can be ordered to continue a run or to achieve an Architectural expression.

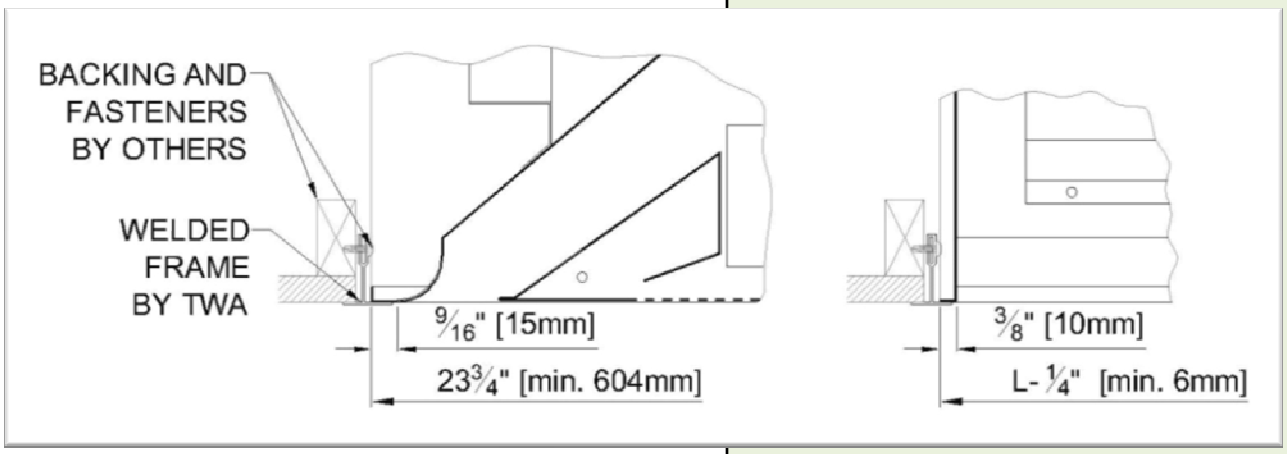


Hanger Bracket (Typical of 4)

T-BAR MOUNTING DIAGRAM



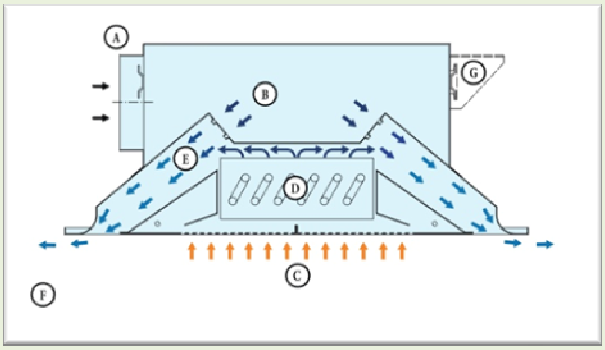
DRYWALL MOUNTING DIAGRAM



2’ WIDE – 2-WAY DISCHARGE UNIT

BEAM OPERATION

The primary supply air delivered by the building system enters the beams plenum at the duct connection (A). Static pressure is developed in the plenum (B) by the driving air from the fan and is converted to velocity pressure as the air travels through the nozzle plate. The change from static to velocity pressure causes a low pressure area immediately after the nozzle plate that induces room air through the perforated grille and coil (C & D) which entrains with the primary air, mixes (E) and exits the beam (F). As the air exits, the Coanda effect along the ceiling (or fin with regards to exposed beams) is utilized to throw the air horizontally. As the air travels further from the beam horizontally the Coanda effect decays and the air begins to fall into the space. The result is enhanced air distribution throughout the space.



MAINTENANCE

The beams are not equipped with filters, drain pans or any moving parts so maintenance issues are minimal. The only scheduled maintenance required is cleaning the coil to ensure dust has not fouled the fins. This requires setting a cleaning schedule for the building and using a vacuum with a horse hair attachment to clear away any debris on and inside the coil. Access to the coil is easily achieved through the “bomb bay doors”.

AIR DISTRIBUTION

Air distribution from a chilled beam differs slightly from standard air diffusers in the fact that supply air (Primary) and room air (secondary) mix within in the beam before entering the space, and therefore, this leads to a higher discharge air temperature. In addition, the exit air velocity can be significantly lower with chilled beams when compared to other types of air diffusers such as slot diffusers.

COANDA EFFECT

The Coanda effect can be defined as the attraction of a fluid jet to a nearby surface. The Coanda is a result of entrainment of the surrounding fluid at the perimeter of the jet and when in close proximity to a surface, that prevents air entrainment, the jet will pull itself towards the surface. This effect is utilized at the discharge slot of the beam to create horizontal throw away from the beam, due to the Coanda at the ceiling surface.

- A typical air jet will lose Coanda at ~100 fpm (0.5 m/s)

INDUCTION

The induction is closely related to the Coanda effect as the entrainment of the surrounding fluid at the nozzles inside the beam is the driving force for inducing the room air through the coil.

AIR VELOCITY

The horizontal discharge produces the highest air velocity around the perimeter ceiling and walls outside the occupied area and as the air travels from the perimeter of the occupied zone into the centre of the space, the air velocity rapidly decreases. At approximately 3.3’ [1 m] into the occupied area the air velocity decreases by about half.

- A typical discharge velocity for chilled beams is approx. 400 fpm (2 m/s) and some slot diffusers are as high as 1200 fpm (6 m/s).

PLENUM PRESSURE

The static plenum pressure within the beam, which is created through fan power, has an important effect for inducing room air through the coil and producing the discharge air velocity (throw) into the space.

If the static pressure is too low then the beam nozzle will not create enough velocity pressure to induce the required room air through the coil, reducing the effectiveness of the heat transfer. Also, the lower velocity pressure at the nozzle will decrease the discharge velocity of the air from the beam, and if low enough, the Coanda will not be able to form. If the Coanda is unable to form then the air would drop directly into the space, significantly reducing the comfort of its occupants.

If the static pressure is too high then the operation of the beam would produce excessive noise that could be disruptive to the occupants of the space.

- Coanda becomes fragile with an approximate beam plenum static pressure of 0.4 $in_{w.c.}$ (100 Pa) or less and typical static pressure values for beams are between 0.6–1.1 $in_{w.c.}$ (150–275 Pa)
- From 0.4”$_{w.c.}$ (100Pa) to 1.2”$_{w.c.}$ (300Pa) the heat transfer capacity of the beam can increase by 1.7 times.
- Below 0.4”$_{w.c.}$ (100Pa) is not recommended as the Coanda effect becomes fragile and could be disrupted by the opening/closing of a door, movement of people…etc.
- Properly designed beams can operate up to 1.2”$_{w.c.}$ (300Pa) without becoming excessively noisy.

AIR DISTRIBUTION CONTINUED

DISCHARGE PATTERN

The throw from the standard 2-Way discharge chilled beams can be illustrated, as in Fig 1, to help visualize air flow and help determine the correct spacing from the wall and other beams to provide comfort within the occupied zone. The occupied space represents the area of space occupied by people during their daily duties and is defined as the volume of air 16" [450 mm] from the perimeter walls, 4" [102 mm] off the floor to a height of 66" [1676 mm].

An average air velocity is measured at the points P2 & P3 and the resultant values have a direct correlation to the distances L2 & L3, respectively. L2 is the distance from the beam discharge to the wall, and if unobstructed, the air stream will cling to the ceiling (travelling horizontally) and then follow the wall down to the floor. As the air is discharged from the beam it begins to slow and as segments of the air stream slow to approximately 100 fpm [0.5 m/s] they break free from the Coanda and fall into the space. If the beam is located closer to the wall, as opposed to further away, a larger amount of driven air will reach the wall and follow it down to the floor producing greater air velocities at P2. L3 is the distance from the beam discharge to the midpoint between two similar parallel beams. The affect at L3 & P3 is similar to L2 & P2, but differs in the fact that as the air clings to the ceiling, and travels horizontally, it does not encounter the wall, but the opposing air stream from the parallel beam. As the two air streams collide, turbulent eddies form and air deviates from its horizontal path and is driven down into the space. The closer the proximity of the beams to one another (smaller L3) will result in more air being driven down into the space and greater air velocities will be recorded at P3.

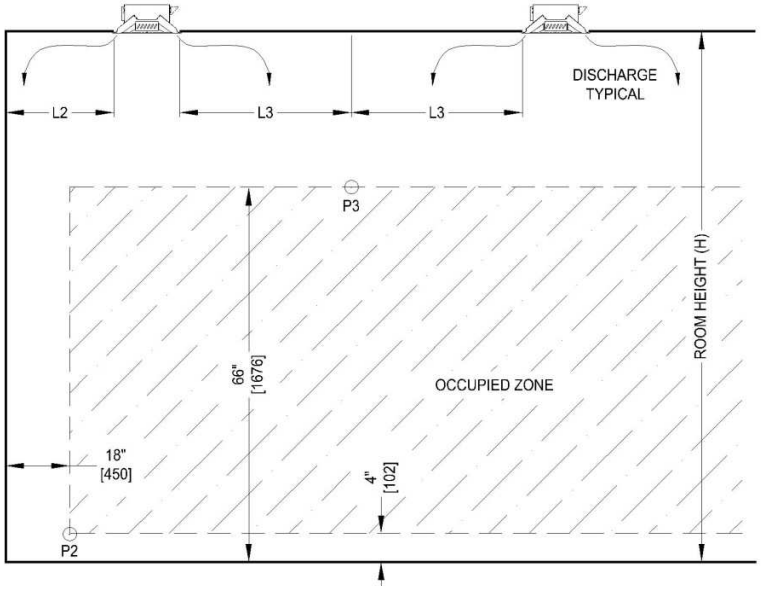


Fig 1: Air Distribution Diagram

- L2 is the distance from the discharge of the beam to the perimeter wall.
- L3 is the distance from the discharge of the beam to the midpoint between two parallel beams
- Average air velocities are measured at points P2 & P3 at the perimeter of the occupied zone and velocities rapidly decrease further into the occupied area.
- Designing for 80 fpm (0.4m/s) at the perimeter (P2 & P3) will generally provide comfortable air movement within the space.

DESIGN CONSIDERATIONS

CONDENSATION

The standard chilled beam is not equipped with a drain pan and, therefore, preventing the formation of condensate on the coil, while cooling, is an important design consideration when designing a space with chilled beams. To prevent condensation from forming on the coil, the entering water temperature (E.W.T.) of the coil must be above the room air dew point temperature of the space. The dew point temperature of the space is dependent on the ability of the air system to dehumidify the primary air to a level such that the amount of primary air supplied to a space is capable of offsetting the latent cooling requirements for that space.

- The entering water temperature (E.W.T.) for cooling is generally chosen between 59 and 65°F (15-18°C).

The latent cooling loads are produced by various sources such as people, showers, dishwashers and the outdoor climate to list a few. Outdoor climate is especially dependent if the building envelope is of poor quality and/or if the building is installed with operable windows. Areas that have a relatively high dew point temperature due to high latent loads, such as office meeting rooms, pose design challenges for chilled beams because typically to maintain the E.W.T. above the dew point temperature of such spaces reduces the effectiveness of the heat transfer through the coil, and therefore, lowers the capacity of the beam. In other areas, such as kitchens or change rooms complete with showers, chilled beams may not be recommended due to the high levels of uncontrolled humidity.

INDUCTION RATIO

The induction ratio is the amount of room air induced through the coil due to the amount of primary air passing through the nozzle plate (e.g. 5:1 is a beam that induces 5 units of room air with respect to one unit of primary air). The four types of Twa Modular Chilled Beam nozzles (A,B,C,D) have different induction ratios with respect to one another to provide different amounts of primary to handle different levels of required latent capacities.

For a chosen beam, the nozzle type is fixed and the four types offer flexibility when choosing a beam for a certain space. An “A” nozzle offers a larger amount of capacity with respect to a smaller amount of primary air while the “D” nozzle offers a smaller amount of capacity with respect to a larger amount of primary air. A & B nozzles are typically utilized for spaces with high sensible loads and low latent loads while the C & D nozzles are typically utilized for spaces with high sensible loads and high latent loads.

- Generally, the A & B nozzles are utilized in low occupancy zones (low latent loads) with high sensible loads while the C & D nozzles are utilized in high occupancy zones (high latent loads) also with high sensible loads.

AFFECT FROM WINDOW GLAZING

If there are windows located within the space, the temperature of the glazing can cause local air movement, due to convective currents, that can interfere with air movement from the beams. Where possible, the beams should be arranged perpendicular to the windows to avoid interference of the air flows and, therefore reducing the likelihood of developing drafts. Orientating the beam perpendicular also allows the induction to draw air off the glazing reducing the convective currents.

ASHRAE STANDARDS

ASHRAE STANDARD 55

Standard 55 is the predominant North American standard for "Thermal Environmental Conditions for Human Occupancy". The direction of the standard is based on theoretical and empirical data; and its purpose is to identify contributing factors that affect both the indoor thermal environment and individuals comfort.

The standard acts as a guide for building designers, owners, and operators in determining appropriate HVAC systems that provide an adequate amount of thermal comfort for the majority of the population that occupy the building.

The Twa MACB's have been designed to follow the guidelines of standard 55 to ensure the thermal comfort requirements are met under normal operation. Chilled beams generally have an effect on 3 of the 6 primary factors that affect the thermal comfort of an individual as stated in the standard. These three factors are the air temperature, air speed and humidity of a given space.

The beams allow for control of these three factors by regulating the sensible heat transfer capacity of the coil to achieve the desired air temperature, by discharging air horizontally which compels the highest air velocities to be directed around the perimeter of the room outside of the occupied zone, and supplying dehumidified primary air to regulate the relative humidity of the space.

ASHRAE STANDARD 62.1

Standard 62.1 is the predominant North American standard for "Ventilation for Acceptable Indoor Air Quality". The direction of the standard is based on theoretical and empirical data; and its purpose is to identify contributing factors that affect indoor air quality (IAQ) and to specify minimum ventilation rates to provide acceptable IAQ for human occupancy in various space types.

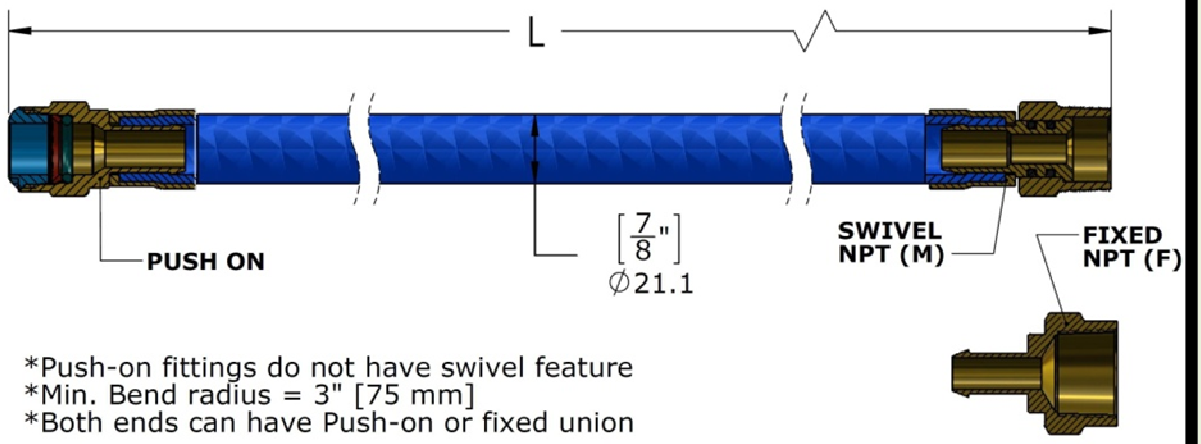
The standard acts as a guide for building designers, owners, and operators in determining appropriate HVAC systems that provide an adequate amount of ventilation to provide a safe environment for the occupants of the building.

The Twa MACB's have been designed to follow the guidelines of standard 62.1 to ensure that the required minimum ventilation rates required for a given space are met while also providing the required cooling/heating loads.

A main element of designing a system with chilled beams is to limit the air system requirements to the outdoor air (O/A) requirements as defined by standard 62.1 or slightly above. This lowers the total air required for the building while still ensuring a high level of IAQ for the occupants.

ACCESSORIES

FLEXIBLE STAINLESS STEEL HOSES



*Push-on fittings do not have swivel feature
*Min. Bend radius = 3" [75 mm]
*Both ends can have Push-on or fixed union

END 1	L= (Length in inches)	END 2
☐ 1/2 NPT (M / F)	☐ 12" [305 mm]	☐ 1/2 NPT (M / F)
☐ 3/4 NPT (M / F)	☐ 18" [457 mm]	☐ 3/4 NPT (M / F)
☐ SWIVEL	☐ 24" [610 mm]	☐ SWIVEL
☐ FIXED	☐ 30" [762 mm]	☐ FIXED
☐ 1/2 PUSH ON	☐ 36" [914 mm]	☐ 1/2 PUSH ON
	☐ 48" [1219 mm]	
	☐ 60" [1524 mm]	

EPDM rubber hose with S.S. braided jacket

Working Pressure:	150 PSI
Test Pressure:	300 PSI
Fittings:	Brass (C36000)
Crimp Shell (Ferrule):	Brass (C27000)
Hose I.D.:	5/8"Ø (EPDM Rubber)
Braided Jacket:	304 S.S.

FITTING TYPES

- Push-on
- Threaded Union:

  Male (Fixed or Swivel)
  Female (Fixed or Swivel)

2 – Way Discharge Modular Active Chilled Beam
PERFORMANCE DATA

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2' High Performance (2-Row) Cooling Coil

Nozzle Type	Primary Air Volumetric Flow Rate [CFM]	Static Plenum Pressure [$in_{w.c.}$]	Sound Pressure [dB(A)]	Primary Air Sensible Cooling Capacity [BTUh] $\Delta T = T_{Room} - T_{Primary\ Air}$ [°F]				Coil Sensible Cooling Capacity [BTUh] $\Delta T = T_{Room} - T_{Chilled\ Water}$ [°F]					Water Pressure Drop [$Ft_{w.c.}$]	Water Flow Rate [GPM]
				5	10	15	20	9	11	13	15	17		
A	7	0.4	<22	38	76	114	152	288	352	416	480	544	3.9	**0.75**
								291	356	421	485	550	6.9	**1.00**
								293	358	423	489	554	10.8	**1.25**
	8	0.6	24	47	93	140	186	370	452	534	617	699	3.9	**0.75**
								375	459	542	625	709	6.9	**1.00**
								378	462	546	630	715	10.8	**1.25**
	10	0.8	27	54	107	161	215	428	524	619	714	809	3.9	**0.75**
								435	532	629	726	822	6.9	**1.00**
								440	537	635	733	830	10.8	**1.25**
	11	1.0	30	60	120	180	240	476	581	687	793	898	3.9	**0.75**
								484	592	699	807	915	6.9	**1.00**
								489	598	707	816	925	10.8	**1.25**
	12	1.2	33	66	132	197	263	517	632	747	862	977	3.9	**0.75**
								527	645	762	879	996	6.9	**1.00**
								534	652	771	890	1008	10.8	**1.25**
B	8	0.4	<22	43	86	129	172	267	327	386	446	505	3.9	**0.75**
								270	330	390	450	510	6.9	**1.00**
								272	332	393	453	513	10.8	**1.25**
	9	0.6	24	53	106	158	211	352	430	508	587	665	3.9	**0.75**
								357	436	515	594	674	6.9	**1.00**
								359	439	519	599	679	10.8	**1.25**
	11	0.8	27	61	122	183	244	408	498	589	680	770	3.9	**0.75**
								414	506	598	690	782	6.9	**1.00**
								418	511	604	696	789	10.8	**1.25**
	12	1.0	30	68	136	205	273	453	553	654	755	855	3.9	**0.75**
								461	563	665	768	870	6.9	**1.00**
								465	569	672	776	879	10.8	**1.25**
	13	1.2	33	75	149	224	299	493	602	712	821	931	3.9	**0.75**
								502	613	725	836	948	6.9	**1.00**
								507	620	733	846	959	10.8	**1.25**
C	12	0.4	<22	69	138	207	276	350	428	506	584	662	3.9	**0.75**
								355	434	513	592	671	6.9	**1.00**
								358	437	517	596	676	10.8	**1.25**
	15	0.6	24	84	169	253	338	429	524	619	714	809	3.9	**0.75**
								435	532	629	726	822	6.9	**1.00**
								440	537	635	733	831	10.8	**1.25**
	17	0.8	27	98	195	293	390	490	599	708	817	926	3.9	**0.75**
								499	610	721	832	943	6.9	**1.00**
								505	617	729	841	954	10.8	**1.25**
	19	1.0	30	109	218	327	437	538	657	777	896	1016	3.9	**0.75**
								549	671	793	915	1036	6.9	**1.00**
								555	679	802	926	1049	10.8	**1.25**
	21	1.2	33	119	239	358	478	578	707	835	963	1092	3.9	**0.75**
								591	722	853	985	1116	6.9	**1.00**
								599	732	865	998	1131	10.8	**1.25**
D	17	0.4	<22	93	187	280	373	335	410	485	559	634	3.9	**0.75**
								340	415	491	566	642	6.9	**1.00**
								342	418	494	571	647	10.8	**1.25**
	20	0.6	24	114	229	343	457	415	507	599	692	784	3.9	**0.75**
								421	515	609	702	796	6.9	**1.00**
								425	520	615	709	804	10.8	**1.25**
	23	0.8	27	132	264	396	528	475	580	686	791	897	3.9	**0.75**
								483	591	698	806	913	6.9	**1.00**
								489	597	706	814	923	10.8	**1.25**
	26	1.0	30	148	295	443	591	521	637	753	868	984	3.9	**0.75**
								531	649	768	886	1004	6.9	**1.00**
								538	657	777	896	1016	10.8	**1.25**
	29	1.2	33	162	323	485	647	566	692	818	944	1070	3.9	**0.75**
								579	707	836	964	1093	6.9	**1.00**
								586	716	847	977	1107	10.8	**1.25**

Notes:

1. For medium performance (1-Row) cooling coil capacities, multiply the coil sensible cooling capacities by 0.80 and divide the water flow rate by 2.0
2. Capacities are based on air and water working fluids at sea level

2 – Way Discharge Modular Active Chilled Beam
PERFORMANCE DATA

Twa

3' High Performance (2-Row) Cooling Coil

Nozzle Type	Primary Air Volumetric Flow Rate [CFM]	Static Plenum Pressure [$in_{w.c.}$]	Sound Pressure [dB(A)]	Primary Air Sensible Cooling Capacity [BTUh]				Coil Sensible Cooling Capacity [BTUh]					Water Pressure Drop [$Ft_{w.c.}$]	Water Flow Rate [GPM]
				$\Delta T = T_{Room} - T_{Primary\ Air}$ [°F]				$\Delta T = T_{Room} - T_{Chilled\ Water}$ [°F]						
				5	10	15	20	9	11	13	15	17		
A	12	0.4	<22	65	130	195	260	505	617	729	842	954	2.5	**1.00**
								511	624	738	851	965	4.0	**1.25**
								515	629	743	858	972	5.7	**1.50**
	14	0.6	24	80	159	239	319	631	771	911	1051	1191	2.5	**1.00**
								640	782	924	1066	1208	4.0	**1.25**
								646	789	933	1076	1220	5.7	**1.50**
	16	0.8	27	92	184	276	368	721	881	1041	1201	1361	2.5	**1.00**
								732	895	1058	1221	1384	4.0	**1.25**
								741	905	1070	1234	1399	5.7	**1.50**
	18	1.0	30	103	206	309	412	799	976	1153	1331	1508	2.5	**1.00**
								813	994	1174	1355	1536	4.0	**1.25**
								823	1006	1189	1372	1554	5.7	**1.50**
	20	1.2	33	113	225	338	451	858	1049	1239	1430	1620	2.5	**1.00**
								875	1069	1263	1458	1652	4.0	**1.25**
								886	1083	1280	1477	1674	5.7	**1.50**
B	13	0.4	<22	74	148	222	296	459	561	663	764	866	2.5	**1.00**
								463	566	669	772	875	4.0	**1.25**
								467	570	674	778	881	5.7	**1.50**
	16	0.6	24	90	181	271	362	594	727	859	991	1123	2.5	**1.00**
								602	736	870	1004	1138	4.0	**1.25**
								608	743	878	1013	1148	5.7	**1.50**
	19	0.8	27	105	209	314	418	687	840	993	1145	1298	2.5	**1.00**
								698	853	1008	1163	1318	4.0	**1.25**
								705	862	1018	1175	1332	5.7	**1.50**
	21	1.0	30	117	234	351	467	762	931	1100	1269	1439	2.5	**1.00**
								775	947	1119	1291	1464	4.0	**1.25**
								784	958	1132	1306	1481	5.7	**1.50**
	23	1.2	33	128	256	384	512	827	1011	1195	1379	1563	2.5	**1.00**
								843	1030	1217	1405	1592	4.0	**1.25**
								853	1043	1233	1422	1612	5.7	**1.50**
C	21	0.4	<22	118	235	353	471	589	720	851	982	1113	2.5	**1.00**
								597	729	862	995	1127	4.0	**1.25**
								602	736	870	1004	1137	5.7	**1.50**
	26	0.6	24	144	288	432	577	718	878	1037	1197	1357	2.5	**1.00**
								730	892	1054	1217	1379	4.0	**1.25**
								738	902	1066	1230	1394	5.7	**1.50**
	30	0.8	27	166	333	499	666	820	1002	1184	1366	1548	2.5	**1.00**
								835	1020	1206	1391	1577	4.0	**1.25**
								845	1033	1221	1409	1597	5.7	**1.50**
	33	1.0	30	186	372	558	744	897	1097	1296	1496	1695	2.5	**1.00**
								916	1119	1323	1526	1730	4.0	**1.25**
								928	1135	1341	1547	1753	5.7	**1.50**
	36	1.2	33	204	408	611	815	963	1177	1391	1605	1819	2.5	**1.00**
								984	1203	1422	1640	1859	4.0	**1.25**
								999	1221	1443	1665	1887	5.7	**1.50**
D	30	0.4	<22	166	333	499	666	594	726	859	991	1123	2.5	**1.00**
								602	736	870	1004	1138	4.0	**1.25**
								608	743	878	1013	1148	5.7	**1.50**
	36	0.6	24	204	408	611	815	725	886	1047	1208	1369	2.5	**1.00**
								737	900	1064	1228	1391	4.0	**1.25**
								745	910	1076	1241	1407	5.7	**1.50**
	42	0.8	27	235	471	706	942	827	1011	1194	1378	1562	2.5	**1.00**
								842	1030	1217	1404	1591	4.0	**1.25**
								853	1043	1232	1422	1611	5.7	**1.50**
	47	1.0	30	263	526	789	1052	905	1107	1308	1509	1710	2.5	**1.00**
								924	1129	1335	1540	1745	4.0	**1.25**
								937	1145	1353	1561	1769	5.7	**1.50**
	51	1.2	33	288	576	864	1153	972	1187	1403	1619	1835	2.5	**1.00**
								993	1214	1434	1655	1876	4.0	**1.25**
								1008	1232	1456	1680	1904	5.7	**1.50**

Notes:

1. For medium performance (1-Row) cooling coil capacities, multiply the coil sensible cooling capacities by 0.80 and divide the water flow rate by 2.0
2. Capacities are based on air and water working fluids at sea level

2 – Way Discharge Modular Active Chilled Beam
PERFORMANCE DATA

Twa

4' High Performance (2-Row) Cooling Coil

Nozzle Type	Primary Air Volumetric Flow Rate [CFM]	Static Plenum Pressure [$in_{w.c.}$]	Sound Pressure [dB(A)]	Primary Air Sensible Cooling Capacity [BTUh]				Coil Sensible Cooling Capacity [BTUh]					Water Pressure Drop [$Ft_{w.c.}$]	Water Flow Rate [GPM]
				$\Delta T = T_{Room} - T_{Primary\ Air}$ [°F]				$\Delta T = T_{Room} - T_{Chilled\ Water}$ [°F]						
				5	10	15	20	9	11	13	15	17		
A	16	0.4	<22	92	185	277	369	699	855	1010	1166	1321	1.6	**1.00**
								710	868	1026	1184	1342	2.5	**1.25**
								718	878	1037	1197	1356	3.5	**1.50**
	20	0.6	24	113	226	339	452	869	1062	1255	1448	1641	1.6	**1.00**
								886	1083	1280	1477	1674	2.5	**1.25**
								898	1097	1297	1496	1696	3.5	**1.50**
	23	0.8	27	131	261	392	522	989	1209	1429	1648	1868	1.6	**1.00**
								1011	1236	1461	1685	1910	2.5	**1.25**
								1027	1255	1483	1711	1939	3.5	**1.50**
	26	1.0	30	146	292	438	584	1092	1335	1577	1820	2063	1.6	**1.00**
								1119	1368	1617	1865	2114	2.5	**1.25**
								1138	1391	1644	1897	2150	3.5	**1.50**
	28	1.2	33	160	320	479	639	1170	1430	1690	1950	2210	1.6	**1.00**
								1201	1468	1735	2002	2269	2.5	**1.25**
								1223	1495	1767	2038	2310	3.5	**1.50**
B	19	0.4	<22	105	209	314	419	643	786	929	1072	1215	1.6	**1.00**
								653	798	943	1088	1233	2.5	**1.25**
								659	806	952	1099	1245	3.5	**1.50**
	23	0.6	24	128	256	384	513	819	1001	1183	1366	1548	1.6	**1.00**
								835	1020	1205	1391	1576	2.5	**1.25**
								845	1033	1221	1408	1596	3.5	**1.50**
	26	0.8	27	148	296	444	592	943	1153	1362	1572	1781	1.6	**1.00**
								963	1177	1391	1606	1820	2.5	**1.25**
								977	1194	1412	1629	1846	3.5	**1.50**
	29	1.0	30	165	331	496	662	1042	1273	1505	1737	1968	1.6	**1.00**
								1067	1304	1541	1778	2015	2.5	**1.25**
								1084	1325	1565	1806	2047	3.5	**1.50**
	32	1.2	33	181	362	544	725	1128	1379	1630	1881	2131	1.6	**1.00**
								1157	1415	1672	1929	2186	2.5	**1.25**
								1178	1439	1701	1963	2224	3.5	**1.50**
C	30	0.4	<22	166	333	499	666	811	991	1171	1351	1531	1.6	**1.00**
								826	1009	1193	1376	1560	2.5	**1.25**
								836	1022	1207	1393	1579	3.5	**1.50**
	36	0.6	24	204	408	611	815	983	1201	1420	1638	1857	1.6	**1.00**
								1005	1228	1452	1675	1898	2.5	**1.25**
								1020	1247	1474	1700	1927	3.5	**1.50**
	42	0.8	27	235	471	706	942	1117	1365	1613	1861	2109	1.6	**1.00**
								1145	1399	1654	1908	2163	2.5	**1.25**
								1165	1424	1682	1941	2200	3.5	**1.50**
	47	1.0	30	263	526	789	1052	1218	1489	1760	2031	2301	1.6	**1.00**
								1252	1531	1809	2087	2366	2.5	**1.25**
								1276	1560	1843	2127	2410	3.5	**1.50**
	51	1.2	33	288	576	864	1153	1304	1594	1883	2173	2463	1.6	**1.00**
								1343	1641	1940	2238	2536	2.5	**1.25**
								1370	1675	1979	2283	2588	3.5	**1.50**
D	42	0.4	<22	235	471	706	942	819	1001	1183	1365	1547	1.6	**1.00**
								834	1019	1205	1390	1575	2.5	**1.25**
								844	1032	1220	1407	1595	3.5	**1.50**
	51	0.6	24	288	577	865	1153	992	1213	1433	1654	1874	1.6	**1.00**
								1015	1240	1465	1691	1916	2.5	**1.25**
								1030	1259	1488	1717	1946	3.5	**1.50**
	59	0.8	27	333	666	999	1332	1127	1377	1628	1878	2128	1.6	**1.00**
								1156	1413	1669	1926	2183	2.5	**1.25**
								1176	1437	1699	1960	2221	3.5	**1.50**
	66	1.0	30	372	744	1117	1489	1229	1503	1776	2049	2322	1.6	**1.00**
								1264	1545	1826	2107	2388	2.5	**1.25**
								1288	1574	1861	2147	2433	3.5	**1.50**
	72	1.2	33	408	815	1223	1631	1316	1608	1900	2193	2485	1.6	**1.00**
								1355	1656	1957	2259	2560	2.5	**1.25**
								1383	1690	1998	2305	2612	3.5	**1.50**

Notes:

1. For medium performance (1-Row) cooling coil capacities, multiply the coil sensible cooling capacities by 0.80 and divide the water flow rate by 2.0
2. Capacities are based on air and water working fluids at sea level

2 – Way Discharge Modular Active Chilled Beam
PERFORMANCE DATA

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5' High Performance (2-Row) Cooling Coil

Nozzle Type	Primary Air Volumetric Flow Rate [CFM]	Static Plenum Pressure [$in_{w.c.}$]	Sound Pressure [dB(A)]	Primary Air Sensible Cooling Capacity [BTUh]				Coil Sensible Cooling Capacity [BTUh]					Water Pressure Drop [$Ft_{w.c.}$]	Water Flow Rate [GPM]
				$\Delta T = T_{Room} - T_{Primary\ Air}$ [°F]				$\Delta T = T_{Room} - T_{Chilled\ Water}$ [°F]						
				5	10	15	20	9	11	13	15	17		
A	21	0.4	<22	119	239	358	478	885	1082	1278	1475	1671	1.9	**1.00**
								903	1103	1304	1504	1705	3.0	**1.25**
								915	1118	1322	1525	1728	4.3	**1.50**
	26	0.6	24	146	293	439	585	1093	1336	1579	1822	2065	1.9	**1.00**
								1121	1370	1619	1868	2117	3.0	**1.25**
								1140	1393	1646	1899	2153	4.3	**1.50**
	30	0.8	27	169	338	507	676	1240	1515	1791	2066	2342	1.9	**1.00**
								1275	1558	1842	2125	2408	3.0	**1.25**
								1299	1588	1877	2166	2455	4.3	**1.50**
	34	1.0	30	189	378	567	755	1364	1668	1971	2274	2577	1.9	**1.00**
								1407	1720	2032	2345	2658	3.0	**1.25**
								1437	1756	2076	2395	2714	4.3	**1.50**
	37	1.2	33	207	414	620	827	1458	1782	2106	2431	2755	1.9	**1.00**
								1507	1842	2177	2512	2847	3.0	**1.25**
								1542	1884	2227	2569	2912	4.3	**1.50**
B	24	0.4	<22	136	271	407	542	816	998	1179	1360	1542	1.9	**1.00**
								831	1016	1201	1386	1570	3.0	**1.25**
								842	1029	1216	1403	1590	4.3	**1.50**
	29	0.6	24	166	332	498	664	1033	1263	1493	1722	1952	1.9	**1.00**
								1058	1293	1528	1763	1998	3.0	**1.25**
								1075	1313	1552	1791	2030	4.3	**1.50**
	34	0.8	27	192	383	575	767	1185	1448	1712	1975	2238	1.9	**1.00**
								1217	1487	1758	2028	2299	3.0	**1.25**
								1239	1515	1790	2066	2341	4.3	**1.50**
	38	1.0	30	214	429	643	857	1305	1595	1885	2175	2465	1.9	**1.00**
								1344	1643	1941	2240	2539	3.0	**1.25**
								1371	1676	1981	2285	2590	4.3	**1.50**
	42	1.2	33	235	469	704	939	1409	1723	2036	2349	2662	1.9	**1.00**
								1455	1778	2102	2425	2748	3.0	**1.25**
								1487	1818	2148	2478	2809	4.3	**1.50**
C	38	0.4	<22	215	430	646	861	1021	1248	1475	1702	1929	1.9	**1.00**
								1045	1277	1509	1741	1974	3.0	**1.25**
								1061	1297	1533	1769	2005	4.3	**1.50**
	47	0.6	24	263	527	790	1054	1231	1505	1779	2052	2326	1.9	**1.00**
								1266	1547	1829	2110	2391	3.0	**1.25**
								1290	1577	1864	2150	2437	4.3	**1.50**
	54	0.8	27	304	609	913	1217	1393	1702	2012	2321	2631	1.9	**1.00**
								1437	1757	2076	2396	2715	3.0	**1.25**
								1469	1795	2121	2448	2774	4.3	**1.50**
	60	1.0	30	340	680	1020	1361	1515	1852	2188	2525	2862	1.9	**1.00**
								1568	1916	2265	2613	2962	3.0	**1.25**
								1605	1962	2319	2675	3032	4.3	**1.50**
	66	1.2	33	373	745	1118	1490	1617	1976	2336	2695	3054	1.9	**1.00**
								1677	2050	2423	2795	3168	3.0	**1.25**
								1720	2102	2485	2867	3249	4.3	**1.50**
D	54	0.4	<22	304	609	913	1218	1031	1260	1489	1718	1947	1.9	**1.00**
								1055	1289	1524	1758	1993	3.0	**1.25**
								1072	1310	1548	1786	2025	4.3	**1.50**
	66	0.6	24	373	746	1118	1491	1243	1519	1795	2071	2347	1.9	**1.00**
								1278	1562	1846	2130	2414	3.0	**1.25**
								1303	1592	1882	2171	2461	4.3	**1.50**
	76	0.8	27	431	861	1292	1722	1405	1718	2030	2342	2655	1.9	**1.00**
								1451	1773	2096	2418	2740	3.0	**1.25**
								1483	1812	2142	2471	2801	4.3	**1.50**
	86	1.0	30	481	963	1444	1925	1529	1868	2208	2548	2887	1.9	**1.00**
								1582	1934	2286	2637	2989	3.0	**1.25**
								1620	1980	2340	2701	3061	4.3	**1.50**
	94	1.2	33	527	1054	1581	2108	1631	1994	2356	2719	3081	1.9	**1.00**
								1693	2069	2445	2821	3197	3.0	**1.25**
								1736	2122	2508	2894	3279	4.3	**1.50**

Notes:

1. For medium performance (1-Row) cooling coil capacities, multiply the coil sensible cooling capacities by 0.80 and divide the water flow rate by 2.0
2. Capacities are based on air and water working fluids at sea level

2 – Way Discharge Modular Active Chilled Beam
PERFORMANCE DATA

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6' High Performance (2-Row) Cooling Coil

Nozzle Type	Primary Air Volumetric Flow Rate [CFM]	Static Plenum Pressure [$in_{w.c.}$]	Sound Pressure [dB(A)]	Primary Air Sensible Cooling Capacity [BTUh]				Coil Sensible Cooling Capacity [BTUh]					Water Pressure Drop [$Ft_{w.c.}$]	Water Flow Rate [GPM]
				$\Delta T = T_{Room} - T_{Primary\ Air}$ [°F]				$\Delta T = T_{Room} - T_{Chilled\ Water}$ [°F]						
				5	10	15	20	9	11	13	15	17		
A	26	0.4	<22	144	288	432	576	1046	1278	1510	1743	1975	2.2	1.00
								1070	1308	1546	1784	2022	3.5	1.25
								1088	1329	1571	1813	2055	5.1	1.50
	31	0.6	24	176	353	529	705	1286	1572	1857	2143	2429	2.2	1.00
								1324	1618	1912	2206	2500	3.5	1.25
								1350	1650	1950	2250	2550	5.1	1.50
	36	0.8	27	204	407	611	815	1453	1776	2099	2422	2745	2.2	1.00
								1502	1835	2169	2503	2837	3.5	1.25
								1536	1877	2218	2560	2901	5.1	1.50
	40	1.0	30	228	455	683	911	1595	1949	2304	2658	3012	2.2	1.00
								1653	2021	2388	2756	3123	3.5	1.25
								1695	2072	2448	2825	3202	5.1	1.50
	44	1.2	33	249	499	748	997	1701	2079	2457	2835	3213	2.2	1.00
								1768	2161	2554	2947	3339	3.5	1.25
								1816	2219	2622	3026	3429	5.1	1.50
B	29	0.4	<22	163	326	490	653	965	1179	1394	1608	1822	2.2	1.00
								986	1205	1424	1643	1862	3.5	1.25
								1001	1223	1445	1668	1890	5.1	1.50
	35	0.6	24	200	400	599	799	1216	1486	1756	2026	2296	2.2	1.00
								1249	1527	1805	2082	2360	3.5	1.25
								1273	1556	1839	2122	2405	5.1	1.50
	41	0.8	27	231	462	692	923	1389	1698	2007	2315	2624	2.2	1.00
								1433	1752	2070	2389	2708	3.5	1.25
								1465	1790	2115	2441	2766	5.1	1.50
	46	1.0	30	258	516	774	1032	1526	1865	2204	2543	2882	2.2	1.00
								1579	1930	2281	2632	2983	3.5	1.25
								1617	1977	2336	2695	3055	5.1	1.50
	50	1.2	33	283	565	848	1130	1644	2009	2375	2740	3106	2.2	1.00
								1707	2086	2465	2844	3223	3.5	1.25
								1751	2140	2529	2918	3307	5.1	1.50
C	47	0.4	<22	264	528	792	1056	1221	1493	1764	2035	2307	2.2	1.00
								1255	1534	1813	2092	2371	3.5	1.25
								1279	1563	1848	2132	2416	5.1	1.50
	57	0.6	24	323	646	969	1292	1465	1790	2116	2441	2767	2.2	1.00
								1514	1850	2187	2523	2860	3.5	1.25
								1549	1893	2237	2581	2925	5.1	1.50
	66	0.8	27	373	746	1119	1493	1650	2017	2384	2751	3117	2.2	1.00
								1713	2094	2475	2855	3236	3.5	1.25
								1758	2148	2539	2930	3320	5.1	1.50
	74	1.0	30	417	834	1251	1669	1790	2188	2585	2983	3381	2.2	1.00
								1864	2278	2692	3107	3521	3.5	1.25
								1917	2343	2769	3195	3621	5.1	1.50
	81	1.2	33	457	914	1370	1827	1905	2329	2752	3176	3599	2.2	1.00
								1990	2432	2874	3316	3758	3.5	1.25
								2050	2506	2961	3417	3873	5.1	1.50
D	67	0.4	<22	378	755	1133	1510	1245	1521	1798	2074	2351	2.2	1.00
								1280	1565	1849	2134	2418	3.5	1.25
								1305	1595	1885	2175	2465	5.1	1.50
	82	0.6	24	462	925	1387	1849	1492	1823	2154	2486	2817	2.2	1.00
								1543	1886	2228	2571	2914	3.5	1.25
								1579	1930	2281	2631	2982	5.1	1.50
	95	0.8	27	534	1068	1602	2136	1680	2053	2426	2800	3173	2.2	1.00
								1745	2133	2521	2908	3296	3.5	1.25
								1791	2189	2587	2985	3384	5.1	1.50
	106	1.0	30	597	1194	1791	2387	1821	2226	2631	3035	3440	2.2	1.00
								1898	2320	2742	3163	3585	3.5	1.25
								1953	2387	2821	3255	3689	5.1	1.50
	116	1.2	33	654	1307	1961	2614	1938	2369	2800	3230	3661	2.2	1.00
								2026	2476	2926	3376	3826	3.5	1.25
								2088	2552	3016	3480	3945	5.1	1.50

Notes:

1. For medium performance (1-Row) cooling coil capacities, multiply the coil sensible cooling capacities by 0.80 and divide the water flow rate by 2.0
2. Capacities are based on air and water working fluids at sea level

2 – Way Discharge Modular Active Chilled Beam
PERFORMANCE DATA

Twa

7' High Performance (2-Row) Cooling Coil

Nozzle Type	Primary Air Volumetric Flow Rate [CFM]	Static Plenum Pressure [$in_{w.c.}$]	Sound Pressure [dB(A)]	Primary Air Sensible Cooling Capacity [BTUh]				Coil Sensible Cooling Capacity [BTUh]					Water Pressure Drop [$Ft_{w.c.}$]	Water Flow Rate [GPM]
				$\Delta T = T_{Room} - T_{Primary\ Air}$ [°F]				$\Delta T = T_{Room} - T_{Chilled\ Water}$ [°F]						
				5	10	15	20	9	11	13	15	17		
A	30	0.4	<22	171	342	513	685	1216	1486	1756	2027	2297	2.6	**1.00**
								1250	1527	1805	2083	2361	4.0	**1.25**
								1273	1556	1839	2122	2405	5.8	**1.50**
	37	0.6	24	210	419	629	838	1488	1819	2150	2480	2811	2.6	**1.00**
								1539	1881	2223	2565	2907	4.0	**1.25**
								1575	1925	2275	2625	2975	5.8	**1.50**
	43	0.8	27	242	484	726	968	1676	2049	2421	2794	3166	2.6	**1.00**
								1741	2128	2515	2902	3289	4.0	**1.25**
								1787	2184	2582	2975	3376	5.8	**1.50**
	48	1.0	30	271	541	812	1082	1834	2242	2650	3057	3465	2.6	**1.00**
								1912	2337	2762	3187	3612	4.0	**1.25**
								1968	2405	2843	3280	3718	5.8	**1.50**
	53	1.2	33	296	593	889	1185	1952	2386	2820	3254	3688	2.6	**1.00**
								2041	2494	2948	3401	3855	4.0	**1.25**
								2105	2572	3040	3508	3975	5.8	**1.50**
B	34	0.4	<22	194	388	582	776	1125	1375	1624	1874	2124	2.6	**1.00**
								1153	1410	1666	1922	2179	4.0	**1.25**
								1174	1434	1695	1956	2217	5.8	**1.50**
	42	0.6	24	238	475	713	951	1410	1723	2036	2350	2663	2.6	**1.00**
								1455	1779	2102	2426	2749	4.0	**1.25**
								1487	1818	2149	2479	2810	5.8	**1.50**
	49	0.8	27	274	549	823	1098	1605	1962	2319	2675	3032	2.6	**1.00**
								1665	2035	2405	2774	3144	4.0	**1.25**
								1707	2086	2465	2845	3224	5.8	**1.50**
	55	1.0	30	307	614	921	1227	1758	2149	2540	2930	3321	2.6	**1.00**
								1830	2236	2643	3050	3456	4.0	**1.25**
								1881	2299	2717	3135	3553	5.8	**1.50**
	60	1.2	33	336	672	1008	1344	1890	2310	2730	3150	3570	2.6	**1.00**
								1973	2411	2850	3288	3727	4.0	**1.25**
								2032	2484	2936	3387	3839	5.8	**1.50**
C	55	0.4	<22	309	617	926	1234	1395	1706	2016	2326	2636	2.6	**1.00**
								1440	1760	2080	2400	2720	4.0	**1.25**
								1472	1799	2126	2453	2780	5.8	**1.50**
	67	0.6	24	378	756	1133	1511	1667	2037	2407	2778	3148	2.6	**1.00**
								1731	2115	2500	2885	3269	4.0	**1.25**
								1776	2171	2566	2961	3355	5.8	**1.50**
	77	0.8	27	436	873	1309	1745	1871	2287	2703	3119	3535	2.6	**1.00**
								1953	2387	2821	3255	3688	4.0	**1.25**
								2011	2458	2905	3352	3798	5.8	**1.50**
	87	1.0	30	488	975	1463	1951	2024	2474	2924	3374	3824	2.6	**1.00**
								2120	2591	3062	3533	4004	4.0	**1.25**
								2189	2675	3161	3648	4134	5.8	**1.50**
	95	1.2	33	534	1068	1602	2137	2151	2629	3107	3585	4063	2.6	**1.00**
								2259	2761	3263	3765	4267	4.0	**1.25**
								2337	2856	3376	3895	4414	5.8	**1.50**
D	79	0.4	<22	443	885	1328	1770	1424	1741	2058	2374	2691	2.6	**1.00**
								1471	1798	2125	2452	2779	4.0	**1.25**
								1504	1838	2172	2506	2841	5.8	**1.50**
	96	0.6	24	542	1084	1625	2167	1700	2077	2455	2833	3211	2.6	**1.00**
								1766	2159	2552	2944	3337	4.0	**1.25**
								1814	2217	2620	3023	3426	5.8	**1.50**
	111	0.8	27	626	1252	1877	2503	1908	2331	2755	3179	3603	2.6	**1.00**
								1992	2435	2877	3320	3763	4.0	**1.25**
								2053	2509	2965	3421	3877	5.8	**1.50**
	124	1.0	30	700	1399	2099	2798	2063	2521	2979	3438	3896	2.6	**1.00**
								2162	2642	3123	3603	4083	4.0	**1.25**
								2233	2730	3226	3722	4218	5.8	**1.50**
	136	1.2	33	766	1532	2298	3064	2191	2677	3164	3651	4138	2.6	**1.00**
								2303	2814	3326	3838	4350	4.0	**1.25**
								2384	2914	3444	3973	4503	5.8	**1.50**

Notes:

1. For medium performance (1-Row) cooling coil capacities, multiply the coil sensible cooling capacities by 0.80 and divide the water flow rate by 2.0
2. Capacities are based on air and water working fluids at sea level

2 – Way Discharge Modular Active Chilled Beam
PERFORMANCE DATA

Twa

8' High Performance (2-Row) Cooling Coil

Nozzle Type	Primary Air Volumetric Flow Rate [CFM]	Static Plenum Pressure [$in_{w.c.}$]	Sound Pressure [dB(A)]	Primary Air Sensible Cooling Capacity [BTUh]				Coil Sensible Cooling Capacity [BTUh]					Water Pressure Drop [$Ft_{w.c.}$]	Water Flow Rate [GPM]
				$\Delta T = T_{Room} - T_{Primary\ Air}$ [°F]				$\Delta T = T_{Room} - T_{Chilled\ Water}$ [°F]						
				5	10	15	20	9	11	13	15	17		
A	35	0.4	<22	198	396	595	793	1380	1686	1993	2299	2606	2.9	**1.00**
								1423	1739	2056	2372	2688	4.5	**1.25**
								1454	1777	2100	2423	2746	6.5	**1.50**
	43	0.6	24	243	485	728	971	1680	2053	2426	2799	3173	2.9	**1.00**
								1745	2132	2520	2908	3296	4.5	**1.25**
								1791	2189	2587	2985	3383	6.5	**1.50**
	50	0.8	27	280	561	841	1121	1886	2305	2724	3143	3562	2.9	**1.00**
								1968	2405	2843	3280	3718	4.5	**1.25**
								2027	2478	2928	3379	3829	6.5	**1.50**
	56	1.0	30	313	627	940	1253	2058	2515	2973	3430	3887	2.9	**1.00**
								2157	2636	3115	3594	4074	4.5	**1.25**
								2228	2723	3218	3713	4208	6.5	**1.50**
	61	1.2	33	343	686	1029	1373	2186	2672	3157	3643	4129	2.9	**1.00**
								2298	2808	3319	3829	4340	4.5	**1.25**
								2379	2907	3436	3964	4493	6.5	**1.50**
B	40	0.4	<22	225	450	674	899	1278	1562	1846	2130	2414	2.9	**1.00**
								1315	1608	1900	2192	2484	4.5	**1.25**
								1341	1640	1938	2236	2534	6.5	**1.50**
	49	0.6	24	275	550	826	1101	1593	1947	2301	2655	3010	2.9	**1.00**
								1652	2019	2386	2753	3120	4.5	**1.25**
								1693	2070	2446	2822	3198	6.5	**1.50**
	56	0.8	27	318	636	954	1272	1808	2210	2612	3013	3415	2.9	**1.00**
								1884	2302	2721	3140	3558	4.5	**1.25**
								1938	2369	2799	3230	3661	6.5	**1.50**
	63	1.0	30	355	711	1066	1422	1975	2414	2853	3292	3731	2.9	**1.00**
								2066	2525	2984	3443	3903	4.5	**1.25**
								2131	2605	3079	3552	4026	6.5	**1.50**
	69	1.2	33	389	778	1168	1557	2119	2589	3060	3531	4002	2.9	**1.00**
								2223	2717	3211	3706	4200	4.5	**1.25**
								2299	2810	3321	3832	4343	6.5	**1.50**
C	63	0.4	<22	357	715	1072	1429	1577	1928	2278	2629	2979	2.9	**1.00**
								1635	1998	2361	2724	3088	4.5	**1.25**
								1675	2048	2420	2792	3164	6.5	**1.50**
	78	0.6	24	437	875	1312	1750	1875	2292	2708	3125	3542	2.9	**1.00**
								1957	2391	2826	3261	3696	4.5	**1.25**
								2015	2463	2911	3358	3806	6.5	**1.50**
	90	0.8	27	505	1010	1516	2021	2098	2564	3031	3497	3963	2.9	**1.00**
								2201	2690	3179	3668	4157	4.5	**1.25**
								2275	2780	3286	3792	4297	6.5	**1.50**
	100	1.0	30	565	1130	1694	2259	2264	2767	3270	3773	4276	2.9	**1.00**
								2384	2913	3443	3973	4502	4.5	**1.25**
								2471	3020	3569	4118	4667	6.5	**1.50**
	110	1.2	33	618	1237	1855	2474	2400	2933	3466	4000	4533	2.9	**1.00**
								2535	3098	3662	4225	4788	4.5	**1.25**
								2634	3219	3805	4390	4975	6.5	**1.50**
D	91	0.4	<22	512	1023	1535	2046	1607	1964	2321	2678	3035	2.9	**1.00**
								1666	2036	2407	2777	3147	4.5	**1.25**
								1708	2088	2468	2847	3227	6.5	**1.50**
	111	0.6	24	626	1253	1879	2505	1909	2333	2757	3181	3605	2.9	**1.00**
								1993	2436	2879	3322	3765	4.5	**1.25**
								2054	2510	2967	3423	3879	6.5	**1.50**
	128	0.8	27	723	1447	2170	2893	2134	2609	3083	3557	4032	2.9	**1.00**
								2241	2739	3237	3735	4233	4.5	**1.25**
								2318	2833	3348	3863	4378	6.5	**1.50**
	144	1.0	30	809	1617	2426	3235	2302	2814	3325	3837	4348	2.9	**1.00**
								2426	2965	3504	4044	4583	4.5	**1.25**
								2517	3076	3635	4194	4754	6.5	**1.50**
	157	1.2	33	886	1771	2657	3542	2440	2982	3524	4066	4608	2.9	**1.00**
								2579	3153	3726	4299	4872	4.5	**1.25**
								2682	3278	3874	4470	5066	6.5	**1.50**

Notes:

1. For medium performance (1-Row) cooling coil capacities, multiply the coil sensible cooling capacities by 0.80 and divide the water flow rate by 2.0
2. Capacities are based on air and water working fluids at sea level

2 – Way Discharge Modular Active Chilled Beam
PERFORMANCE DATA

2' Medium Performance (1-Row) Heating Coil

Nozzle Type	Primary Air Volumetric Flow Rate [CFM]	Static Plenum Pressure [$in_{w.c.}$]	Sound Pressure [dB(A)]	Primary Air Capacity [BTUh]				Coil Heating Capacity [BTUh]					Water Pressure Drop [$Ft_{w.c.}$]	Water Flow Rate [GPM]
				$\Delta T = T_{Room} - T_{Primary\ Air}$ [°F]				$\Delta T = T_{Hot\ Water} - T_{Room}$ [°F]						
				-5	5	10	15	15	25	35	45	55		
A	7	0.4	<22	38	-38	-76	-114	344	573	803	1032	1261	0.9	**0.50**
								353	588	824	1059	1294	2.0	**0.75**
								356	593	830	1067	1304	3.5	**1.00**
	8	0.6	24	47	-47	-93	-140	417	695	973	1251	1528	0.9	**0.50**
								429	715	1001	1287	1573	2.0	**0.75**
								433	722	1011	1300	1589	3.5	**1.00**
	10	0.8	27	54	-54	-107	-161	470	783	1096	1409	1722	0.9	**0.50**
								485	808	1131	1454	1777	2.0	**0.75**
								490	817	1143	1470	1797	3.5	**1.00**
	11	1.0	30	60	-60	-120	-180	513	855	1197	1539	1880	0.9	**0.50**
								530	884	1237	1591	1944	2.0	**0.75**
								537	894	1252	1610	1967	3.5	**1.00**
	12	1.2	33	66	-66	-132	-197	540	900	1260	1619	1979	0.9	**0.50**
								559	931	1304	1676	2049	2.0	**0.75**
								566	943	1320	1698	2075	3.5	**1.00**
B	8	0.4	<22	43	-43	-86	-129	316	527	738	949	1160	0.9	**0.50**
								324	540	757	973	1189	2.0	**0.75**
								327	544	762	980	1198	3.5	**1.00**
	9	0.6	24	53	-53	-106	-158	397	661	925	1190	1454	0.9	**0.50**
								408	680	952	1223	1495	2.0	**0.75**
								412	686	960	1235	1509	3.5	**1.00**
	11	0.8	27	61	-61	-122	-183	454	757	1060	1363	1666	0.9	**0.50**
								468	781	1093	1405	1718	2.0	**0.75**
								473	789	1104	1420	1736	3.5	**1.00**
	12	1.0	30	68	-68	-136	-205	488	814	1139	1465	1790	0.9	**0.50**
								504	840	1176	1513	1849	2.0	**0.75**
								510	850	1190	1530	1870	3.5	**1.00**
	13	1.2	33	75	-75	-149	-224	523	871	1220	1568	1916	0.9	**0.50**
								541	901	1261	1622	1982	2.0	**0.75**
								547	912	1277	1642	2006	3.5	**1.00**
C	12	0.4	<22	69	-69	-138	-207	395	658	921	1184	1447	0.9	**0.50**
								406	676	947	1217	1488	2.0	**0.75**
								409	682	955	1228	1501	3.5	**1.00**
	15	0.6	24	84	-84	-169	-253	470	783	1096	1410	1723	0.9	**0.50**
								485	808	1131	1455	1778	2.0	**0.75**
								490	817	1144	1470	1797	3.5	**1.00**
	17	0.8	27	98	-98	-195	-293	520	867	1214	1561	1907	0.9	**0.50**
								538	897	1255	1614	1973	2.0	**0.75**
								545	908	1271	1634	1997	3.5	**1.00**
	19	1.0	30	109	-109	-218	-327	558	929	1301	1673	2045	0.9	**0.50**
								578	963	1348	1733	2119	2.0	**0.75**
								585	976	1366	1756	2146	3.5	**1.00**
	21	1.2	33	119	-119	-239	-358	596	993	1391	1788	2186	0.9	**0.50**
								619	1031	1444	1856	2268	2.0	**0.75**
								627	1045	1464	1882	2300	3.5	**1.00**
D	17	0.4	<22	93	-93	-187	-280	382	637	891	1146	1401	0.9	**0.50**
								393	654	916	1178	1440	2.0	**0.75**
								396	660	924	1188	1452	3.5	**1.00**
	20	0.6	24	114	-114	-229	-343	462	771	1079	1387	1695	0.9	**0.50**
								477	795	1113	1431	1749	2.0	**0.75**
								482	803	1125	1446	1768	3.5	**1.00**
	23	0.8	27	132	-132	-264	-396	512	854	1195	1537	1878	0.9	**0.50**
								530	883	1236	1589	1942	2.0	**0.75**
								536	893	1251	1608	1965	3.5	**1.00**
	26	1.0	30	148	-148	-295	-443	550	916	1282	1649	2015	0.9	**0.50**
								569	949	1328	1708	2087	2.0	**0.75**
								576	961	1345	1729	2114	3.5	**1.00**
	29	1.2	33	162	-162	-323	-485	578	963	1348	1733	2118	0.9	**0.50**
								599	998	1398	1797	2196	2.0	**0.75**
								607	1012	1416	1821	2226	3.5	**1.00**

Notes:

1. Capacities are based on air and water working fluids at sea level
2. The Primary air provides cooling to the space when the capacity values are negative and heating when the values are positive

2 – Way Discharge Modular Active Chilled Beam
PERFORMANCE DATA

Twa

3' Medium Performance (1-Row) Heating Coil

Nozzle Type	Primary Air Volumetric Flow Rate [CFM]	Static Plenum Pressure [$in_{w.c.}$]	Sound Pressure [dB(A)]	Primary Air Capacity [BTUh]				Coil Heating Capacity [BTUh]					Water Pressure Drop [$Ft_{w.c.}$]	Water Flow Rate [GPM]
				$\Delta T = T_{Room} - T_{Primary\ Air}$ [°F]				$\Delta T = T_{Hot\ Water} - T_{Room}$ [°F]						
				-5	5	10	15	15	25	35	45	55		
A	12	0.4	<22	65	-65	-130	-195	571	951	1332	1713	2093	1.1	**0.50**
								592	986	1381	1775	2170	2.4	**0.75**
								600	999	1399	1799	2199	4.2	**1.00**
	14	0.6	24	80	-80	-159	-239	687	1145	1603	2061	2519	1.1	**0.50**
								716	1193	1671	2148	2626	2.4	**0.75**
								728	1213	1698	2183	2668	4.2	**1.00**
	16	0.8	27	92	-92	-184	-276	770	1284	1798	2311	2825	1.1	**0.50**
								806	1344	1881	2418	2956	2.4	**0.75**
								821	1368	1915	2462	3010	4.2	**1.00**
	18	1.0	30	103	-103	-206	-309	825	1375	1924	2474	3024	1.1	**0.50**
								865	1442	2019	2595	3172	2.4	**0.75**
								882	1470	2058	2646	3234	4.2	**1.00**
	20	1.2	33	113	-113	-225	-338	880	1466	2053	2639	3226	1.1	**0.50**
								925	1542	2159	2775	3392	2.4	**0.75**
								945	1574	2204	2834	3463	4.2	**1.00**
B	13	0.4	<22	74	-74	-148	-222	544	906	1268	1631	1993	1.1	**0.50**
								563	938	1313	1689	2064	2.4	**0.75**
								570	950	1330	1710	2090	4.2	**1.00**
	16	0.6	24	90	-90	-181	-271	655	1091	1528	1964	2401	1.1	**0.50**
								681	1136	1590	2044	2499	2.4	**0.75**
								692	1153	1615	2076	2537	4.2	**1.00**
	19	0.8	27	105	-105	-209	-314	746	1244	1741	2238	2736	1.1	**0.50**
								780	1300	1820	2339	2859	2.4	**0.75**
								794	1323	1852	2381	2910	4.2	**1.00**
	21	1.0	30	117	-117	-234	-351	799	1332	1865	2398	2931	1.1	**0.50**
								838	1396	1954	2513	3071	2.4	**0.75**
								853	1422	1991	2560	3129	4.2	**1.00**
	23	1.2	33	128	-128	-256	-384	853	1422	1990	2559	3128	1.1	**0.50**
								896	1493	2091	2688	3285	2.4	**0.75**
								914	1524	2133	2743	3352	4.2	**1.00**
C	21	0.4	<22	118	-118	-235	-353	649	1081	1514	1946	2379	1.1	**0.50**
								675	1125	1575	2025	2475	2.4	**0.75**
								685	1142	1599	2056	2513	4.2	**1.00**
	26	0.6	24	144	-144	-288	-432	767	1279	1790	2302	2813	1.1	**0.50**
								803	1338	1873	2408	2943	2.4	**0.75**
								817	1362	1907	2452	2997	4.2	**1.00**
	30	0.8	27	166	-166	-333	-499	846	1409	1973	2537	3100	1.1	**0.50**
								888	1480	2072	2663	3255	2.4	**0.75**
								906	1509	2113	2717	3321	4.2	**1.00**
	33	1.0	30	186	-186	-372	-558	903	1506	2108	2710	3313	1.1	**0.50**
								951	1585	2219	2853	3488	2.4	**0.75**
								972	1619	2267	2915	3563	4.2	**1.00**
	36	1.2	33	204	-204	-408	-611	946	1577	2208	2839	3470	1.1	**0.50**
								998	1664	2330	2995	3661	2.4	**0.75**
								1021	1702	2383	3063	3744	4.2	**1.00**
D	30	0.4	<22	166	-166	-333	-499	655	1091	1527	1964	2400	1.1	**0.50**
								681	1135	1590	2044	2498	2.4	**0.75**
								692	1153	1614	2075	2536	4.2	**1.00**
	36	0.6	24	204	-204	-408	-611	774	1290	1806	2322	2838	1.1	**0.50**
								810	1350	1890	2430	2970	2.4	**0.75**
								825	1375	1925	2475	3024	4.2	**1.00**
	42	0.8	27	235	-235	-471	-706	853	1422	1990	2559	3127	1.1	**0.50**
								896	1493	2090	2688	3285	2.4	**0.75**
								914	1523	2133	2742	3352	4.2	**1.00**
	47	1.0	30	263	-263	-526	-789	911	1519	2126	2734	3341	1.1	**0.50**
								960	1600	2239	2879	3519	2.4	**0.75**
								981	1634	2288	2942	3596	4.2	**1.00**
	51	1.2	33	288	-288	-576	-864	955	1591	2227	2864	3500	1.1	**0.50**
								1007	1679	2351	3022	3694	2.4	**0.75**
								1030	1717	2404	3091	3778	4.2	**1.00**

Notes:

1. Capacities are based on air and water working fluids at sea level
2. The Primary air provides cooling to the space when the capacity values are negative and heating when the values are positive

2 – Way Discharge Modular Active Chilled Beam
PERFORMANCE DATA

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4' Medium Performance (1-Row) Heating Coil

Nozzle Type	Primary Air Volumetric Flow Rate [CFM]	Static Plenum Pressure [$in_{w.c.}$]	Sound Pressure [dB(A)]	Primary Air Capacity [BTUh]				Coil Heating Capacity [BTUh]					Water Pressure Drop [$Ft_{w.c.}$]	Water Flow Rate [GPM]
				$\Delta T = T_{Room} - T_{Primary\ Air}$ [°F]				$\Delta T = T_{Hot\ Water} - T_{Room}$ [°F]						
				-5	5	10	15	15	25	35	45	55		
A	16	0.4	<22	92	-92	-185	-277	784	1306	1828	2351	2873	1.3	**0.50**
								820	1367	1914	2461	3008	3.0	**0.75**
								836	1393	1950	2507	3064	5.3	**1.00**
	20	0.6	24	113	-113	-226	-339	937	1562	2187	2811	3436	1.3	**0.50**
								988	1647	2306	2965	3624	3.0	**0.75**
								1010	1684	2358	3031	3705	5.3	**1.00**
	23	0.8	27	131	-131	-261	-392	1046	1744	2441	3139	3836	1.3	**0.50**
								1109	1848	2587	3327	4066	3.0	**0.75**
								1137	1895	2653	3411	4169	5.3	**1.00**
	26	1.0	30	146	-146	-292	-438	1117	1861	2606	3350	4095	1.3	**0.50**
								1188	1979	2771	3563	4354	3.0	**0.75**
								1220	2033	2846	3659	4472	5.3	**1.00**
	28	1.2	33	160	-160	-320	-479	1169	1949	2729	3508	4288	1.3	**0.50**
								1247	2078	2909	3740	4571	3.0	**0.75**
								1282	2137	2992	3847	4701	5.3	**1.00**
B	19	0.4	<22	105	-105	-209	-314	747	1245	1743	2241	2739	1.3	**0.50**
								781	1301	1822	2342	2863	3.0	**0.75**
								795	1324	1854	2384	2914	5.3	**1.00**
	23	0.6	24	128	-128	-256	-384	894	1491	2087	2683	3280	1.3	**0.50**
								941	1569	2196	2824	3451	3.0	**0.75**
								961	1602	2243	2884	3525	5.3	**1.00**
	26	0.8	27	148	-148	-296	-444	999	1665	2332	2998	3664	1.3	**0.50**
								1057	1761	2466	3170	3875	3.0	**0.75**
								1082	1804	2525	3247	3968	5.3	**1.00**
	29	1.0	30	165	-165	-331	-496	1083	1806	2528	3250	3973	1.3	**0.50**
								1150	1917	2684	3451	4218	3.0	**0.75**
								1181	1968	2755	3542	4329	5.3	**1.00**
	32	1.2	33	181	-181	-362	-544	1135	1892	2649	3406	4163	1.3	**0.50**
								1209	2014	2820	3626	4431	3.0	**0.75**
								1242	2070	2898	3726	4554	5.3	**1.00**
C	30	0.4	<22	166	-166	-333	-499	885	1475	2066	2656	3246	1.3	**0.50**
								931	1552	2173	2794	3414	3.0	**0.75**
								951	1585	2219	2853	3487	5.3	**1.00**
	36	0.6	24	204	-204	-408	-611	1040	1734	2427	3121	3814	1.3	**0.50**
								1102	1837	2572	3307	4041	3.0	**0.75**
								1130	1883	2636	3390	4143	5.3	**1.00**
	42	0.8	27	235	-235	-471	-706	1142	1903	2664	3425	4186	1.3	**0.50**
								1215	2026	2836	3646	4457	3.0	**0.75**
								1249	2082	2915	3748	4580	5.3	**1.00**
	47	1.0	30	263	-263	-526	-789	1216	2027	2837	3648	4459	1.3	**0.50**
								1299	2165	3032	3898	4764	3.0	**0.75**
								1338	2230	3122	4014	4906	5.3	**1.00**
	51	1.2	33	288	-288	-576	-864	1271	2118	2966	3813	4660	1.3	**0.50**
								1362	2269	3177	4085	4992	3.0	**0.75**
								1404	2340	3276	4212	5148	5.3	**1.00**
D	42	0.4	<22	235	-235	-471	-706	893	1489	2085	2680	3276	1.3	**0.50**
								940	1567	2194	2820	3447	3.0	**0.75**
								960	1600	2240	2881	3521	5.3	**1.00**
	51	0.6	24	288	-288	-577	-865	1050	1749	2449	3149	3848	1.3	**0.50**
								1113	1854	2596	3338	4080	3.0	**0.75**
								1141	1901	2662	3422	4183	5.3	**1.00**
	59	0.8	27	333	-333	-666	-999	1134	1890	2647	3403	4159	1.3	**0.50**
								1207	2012	2817	3622	4426	3.0	**0.75**
								1241	2068	2895	3722	4549	5.3	**1.00**
	66	1.0	30	372	-372	-744	-1117	1208	2013	2818	3623	4428	1.3	**0.50**
								1290	2150	3009	3869	4729	3.0	**0.75**
								1328	2213	3098	3983	4869	5.3	**1.00**
	72	1.2	33	408	-408	-815	-1223	1282	2137	2991	3846	4701	1.3	**0.50**
								1374	2290	3206	4122	5038	3.0	**0.75**
								1417	2362	3307	4252	5197	5.3	**1.00**

Notes:

1. Capacities are based on air and water working fluids at sea level
2. The Primary air provides cooling to the space when the capacity values are negative and heating when the values are positive

2 – Way Discharge Modular Active Chilled Beam
PERFORMANCE DATA

5' Medium Performance (1-Row) Heating Coil

Nozzle Type	Primary Air Volumetric Flow Rate [CFM]	Static Plenum Pressure [$in_{w.c.}$]	Sound Pressure [dB(A)]	Primary Air Capacity [BTUh]				Coil Heating Capacity [BTUh]					Water Pressure Drop [$Ft_{w.c.}$]	Water Flow Rate [GPM]
				$\Delta T = T_{Room} - T_{Primary\ Air}$ [°F]				$\Delta T = T_{Hot\ Water} - T_{Room}$ [°F]						
				-5	5	10	15	15	25	35	45	55		
A	21	0.4	<22	119	-119	-239	-358	983	1639	2295	2950	3606	1.6	**0.50**
								1039	1732	2425	3118	3811	3.6	**0.75**
								1064	1773	2483	3192	3901	6.4	**1.00**
	26	0.6	24	146	-146	-293	-439	1169	1949	2729	3508	4288	1.6	**0.50**
								1247	2078	2909	3740	4571	3.6	**0.75**
								1282	2137	2992	3847	4701	6.4	**1.00**
	30	0.8	27	169	-169	-338	-507	1300	2167	3033	3900	4767	1.6	**0.50**
								1395	2324	3254	4184	5113	3.6	**0.75**
								1439	2399	3358	4318	5277	6.4	**1.00**
	34	1.0	30	189	-189	-378	-567	1384	2306	3229	4152	5074	1.6	**0.50**
								1491	2484	3478	4472	5465	3.6	**0.75**
								1542	2569	3597	4625	5653	6.4	**1.00**
	37	1.2	33	207	-207	-414	-620	1446	2410	3375	4339	5303	1.6	**0.50**
								1562	2604	3646	4687	5729	3.6	**0.75**
								1619	2698	3777	4856	5935	6.4	**1.00**
B	24	0.4	<22	136	-136	-271	-407	940	1566	2193	2819	3446	1.6	**0.50**
								991	1652	2312	2973	3634	3.6	**0.75**
								1013	1689	2365	3040	3716	6.4	**1.00**
	29	0.6	24	166	-166	-332	-498	1119	1865	2610	3356	4102	1.6	**0.50**
								1190	1983	2776	3570	4363	3.6	**0.75**
								1222	2037	2852	3667	4481	6.4	**1.00**
	34	0.8	27	192	-192	-383	-575	1245	2075	2905	3735	4565	1.6	**0.50**
								1332	2220	3108	3996	4884	3.6	**0.75**
								1373	2288	3203	4118	5033	6.4	**1.00**
	38	1.0	30	214	-214	-429	-643	1345	2242	3139	4036	4933	1.6	**0.50**
								1446	2411	3375	4339	5303	3.6	**0.75**
								1494	2491	3487	4483	5480	6.4	**1.00**
	42	1.2	33	235	-235	-469	-704	1407	2345	3283	4222	5160	1.6	**0.50**
								1517	2529	3540	4552	5563	3.6	**0.75**
								1570	2617	3664	4711	5758	6.4	**1.00**
C	38	0.4	<22	215	-215	-430	-646	1106	1843	2580	3317	4055	1.6	**0.50**
								1175	1959	2743	3526	4310	3.6	**0.75**
								1207	2012	2816	3621	4425	6.4	**1.00**
	47	0.6	24	263	-263	-527	-790	1292	2153	3014	3875	4736	1.6	**0.50**
								1385	2309	3232	4156	5079	3.6	**0.75**
								1429	2382	3335	4288	5240	6.4	**1.00**
	54	0.8	27	304	-304	-609	-913	1392	2320	3247	4175	5103	1.6	**0.50**
								1500	2499	3499	4499	5498	3.6	**0.75**
								1551	2585	3620	4654	5688	6.4	**1.00**
	60	1.0	30	340	-340	-680	-1020	1478	2463	3448	4433	5419	1.6	**0.50**
								1599	2665	3731	4797	5863	3.6	**0.75**
								1658	2763	3868	4973	6079	6.4	**1.00**
	66	1.2	33	373	-373	-745	-1118	1565	2608	3651	4694	5737	1.6	**0.50**
								1700	2833	3966	5100	6233	3.6	**0.75**
								1767	2944	4122	5300	6478	6.4	**1.00**
D	54	0.4	<22	304	-304	-609	-913	1116	1860	2604	3348	4092	1.6	**0.50**
								1187	1978	2769	3560	4351	3.6	**0.75**
								1219	2031	2844	3656	4469	6.4	**1.00**
	66	0.6	24	373	-373	-746	-1118	1303	2172	3041	3909	4778	1.6	**0.50**
								1398	2330	3262	4194	5127	3.6	**0.75**
								1443	2405	3367	4329	5291	6.4	**1.00**
	76	0.8	27	431	-431	-861	-1292	1404	2340	3276	4211	5147	1.6	**0.50**
								1513	2522	3531	4540	5549	3.6	**0.75**
								1566	2610	3654	4698	5742	6.4	**1.00**
	86	1.0	30	481	-481	-963	-1444	1490	2484	3478	4471	5465	1.6	**0.50**
								1614	2689	3765	4841	5916	3.6	**0.75**
								1674	2789	3905	5021	6136	6.4	**1.00**
	94	1.2	33	527	-527	-1054	-1581	1578	2630	3682	4733	5785	1.6	**0.50**
								1715	2859	4002	5146	6290	3.6	**0.75**
								1783	2972	4161	5350	6539	6.4	**1.00**

Notes:

1. Capacities are based on air and water working fluids at sea level
2. The Primary air provides cooling to the space when the capacity values are negative and heating when the values are positive

2 – Way Discharge Modular Active Chilled Beam
PERFORMANCE DATA

6' Medium Performance (1-Row) Heating Coil

Nozzle Type	Primary Air Volumetric Flow Rate [CFM]	Static Plenum Pressure [$in_{w.c.}$]	Sound Pressure [dB(A)]	Primary Air Capacity [BTUh]				Coil Heating Capacity [BTUh]					Water Pressure Drop [$Ft_{w.c.}$]	Water Flow Rate [GPM]
				$\Delta T = T_{Room} - T_{Primary\ Air}$ [°F]				$\Delta T = T_{Hot\ Water} - T_{Room}$ [°F]						
				-5	5	10	15	15	25	35	45	55		
A	26	0.4	<22	144	-144	-288	-432	1154	1923	2693	3462	4231	1.9	**0.50**
								1229	2049	2869	3688	4508	4.3	**0.75**
								1264	2107	2949	3792	4634	7.6	**1.00**
	31	0.6	24	176	-176	-353	-529	1365	2275	3186	4096	5006	1.9	**0.50**
								1469	2449	3428	4407	5387	4.3	**0.75**
								1519	2531	3544	4556	5569	7.6	**1.00**
	36	0.8	27	204	-204	-407	-611	1512	2521	3529	4537	5546	1.9	**0.50**
								1639	2732	3825	4917	6010	4.3	**0.75**
								1701	2835	3969	5103	6237	7.6	**1.00**
	40	1.0	30	228	-228	-455	-683	1606	2677	3748	4819	5890	1.9	**0.50**
								1749	2915	4081	5247	6413	4.3	**0.75**
								1820	3033	4246	5459	6672	7.6	**1.00**
	44	1.2	33	249	-249	-499	-748	1700	2833	3967	5100	6234	1.9	**0.50**
								1859	3099	4338	5578	6817	4.3	**0.75**
								1939	3232	4525	5818	7111	7.6	**1.00**
B	29	0.4	<22	163	-163	-326	-490	1103	1838	2573	3308	4044	1.9	**0.50**
								1172	1953	2735	3516	4297	4.3	**0.75**
								1203	2006	2808	3610	4412	7.6	**1.00**
	35	0.6	24	200	-200	-400	-599	1307	2178	3049	3920	4791	1.9	**0.50**
								1402	2337	3272	4206	5141	4.3	**0.75**
								1447	2412	3377	4342	5307	7.6	**1.00**
	41	0.8	27	231	-231	-462	-692	1469	2448	3428	4407	5387	1.9	**0.50**
								1589	2648	3707	4766	5825	4.3	**0.75**
								1647	2745	3843	4941	6039	7.6	**1.00**
	46	1.0	30	258	-258	-516	-774	1562	2603	3644	4686	5727	1.9	**0.50**
								1697	2828	3959	5090	6221	4.3	**0.75**
								1763	2939	4114	5290	6465	7.6	**1.00**
	50	1.2	33	283	-283	-565	-848	1631	2718	3806	4893	5980	1.9	**0.50**
								1778	2963	4148	5333	6518	4.3	**0.75**
								1851	3085	4319	5552	6786	7.6	**1.00**
C	47	0.4	<22	264	-264	-528	-792	1312	2186	3061	3936	4810	1.9	**0.50**
								1408	2347	3286	4224	5163	4.3	**0.75**
								1454	2423	3392	4361	5330	7.6	**1.00**
	57	0.6	24	323	-323	-646	-969	1524	2540	3556	4572	5588	1.9	**0.50**
								1653	2754	3856	4958	6060	4.3	**0.75**
								1716	2859	4003	5147	6291	7.6	**1.00**
	66	0.8	27	373	-373	-746	-1119	1637	2729	3820	4912	6003	1.9	**0.50**
								1785	2975	4165	5355	6545	4.3	**0.75**
								1859	3098	4337	5576	6816	7.6	**1.00**
	74	1.0	30	417	-417	-834	-1251	1734	2890	4046	5202	6358	1.9	**0.50**
								1900	3166	4432	5699	6965	4.3	**0.75**
								1983	3306	4628	5950	7272	7.6	**1.00**
	81	1.2	33	457	-457	-914	-1370	1831	3052	4273	5494	6715	1.9	**0.50**
								2016	3359	4703	6047	7391	4.3	**0.75**
								2110	3517	4924	6331	7738	7.6	**1.00**
D	67	0.4	<22	378	-378	-755	-1133	1335	2226	3116	4006	4897	1.9	**0.50**
								1435	2392	3348	4305	5262	4.3	**0.75**
								1482	2471	3459	4447	5435	7.6	**1.00**
	82	0.6	24	462	-462	-925	-1387	1529	2549	3568	4588	5608	1.9	**0.50**
								1659	2765	3870	4976	6082	4.3	**0.75**
								1722	2870	4019	5167	6315	7.6	**1.00**
	95	0.8	27	534	-534	-1068	-1602	1665	2775	3885	4995	6105	1.9	**0.50**
								1818	3030	4242	5454	6666	4.3	**0.75**
								1894	3157	4420	5683	6946	7.6	**1.00**
	106	1.0	30	597	-597	-1194	-1791	1763	2939	4114	5290	6465	1.9	**0.50**
								1934	3224	4513	5802	7092	4.3	**0.75**
								2021	3368	4716	6063	7411	7.6	**1.00**
	116	1.2	33	654	-654	-1307	-1961	1835	3058	4281	5504	6727	1.9	**0.50**
								2020	3366	4712	6059	7405	4.3	**0.75**
								2114	3524	4934	6343	7753	7.6	**1.00**

Notes:

1. Capacities are based on air and water working fluids at sea level
2. The Primary air provides cooling to the space when the capacity values are negative and heating when the values are positive

2 – Way Discharge Modular Active Chilled Beam
PERFORMANCE DATA

7' Medium Performance (1-Row) Heating Coil

Nozzle Type	Primary Air Volumetric Flow Rate [CFM]	Static Plenum Pressure [$in_{w.c.}$]	Sound Pressure [dB(A)]	Primary Air Capacity [BTUh]				Coil Heating Capacity [BTUh]					Water Pressure Drop [$Ft_{w.c.}$]	Water Flow Rate [GPM]
				$\Delta T = T_{Room} - T_{Primary\ Air}$ [°F]				$\Delta T = T_{Hot\ Water} - T_{Room}$ [°F]						
				-5	5	10	15	15	25	35	45	55		
A	30	0.4	<22	171	-171	-342	-513	1333	2221	3109	3998	4886	2.2	**0.50**
								1432	2386	3341	4295	5250	4.9	**0.75**
								1479	2465	3451	4436	5422	8.8	**1.00**
	37	0.6	24	210	-210	-419	-629	1568	2614	3660	4705	5751	2.2	**0.50**
								1704	2840	3977	5113	6249	4.9	**0.75**
								1771	2952	4133	5314	6495	8.8	**1.00**
	43	0.8	27	242	-242	-484	-726	1731	2885	4039	5194	6348	2.2	**0.50**
								1896	3160	4424	5688	6953	4.9	**0.75**
								1980	3299	4619	5939	7259	8.8	**1.00**
	48	1.0	30	271	-271	-541	-812	1835	3058	4281	5504	6727	2.2	**0.50**
								2020	3366	4712	6059	7405	4.9	**0.75**
								2114	3524	4934	6343	7753	8.8	**1.00**
	53	1.2	33	296	-296	-593	-889	1911	3185	4459	5733	7007	2.2	**0.50**
								2111	3519	4927	6334	7742	4.9	**0.75**
								2215	3692	5169	6646	8123	8.8	**1.00**
B	34	0.4	<22	194	-194	-388	-582	1276	2126	2977	3827	4678	2.2	**0.50**
								1367	2278	3190	4101	5012	4.9	**0.75**
								1410	2350	3290	4229	5169	8.8	**1.00**
	42	0.6	24	238	-238	-475	-713	1504	2507	3509	4512	5514	2.2	**0.50**
								1629	2715	3801	4888	5974	4.9	**0.75**
								1690	2817	3944	5071	6198	8.8	**1.00**
	49	0.8	27	274	-274	-549	-823	1662	2770	3878	4986	6094	2.2	**0.50**
								1814	3024	4233	5443	6652	4.9	**0.75**
								1890	3151	4411	5671	6932	8.8	**1.00**
	55	1.0	30	307	-307	-614	-921	1786	2977	4168	5359	6550	2.2	**0.50**
								1962	3270	4578	5886	7194	4.9	**0.75**
								2051	3419	4787	6154	7522	8.8	**1.00**
	60	1.2	33	336	-336	-672	-1008	1862	3104	4345	5587	6828	2.2	**0.50**
								2053	3421	4790	6158	7527	4.9	**0.75**
								2151	3585	5019	6453	7887	8.8	**1.00**
C	55	0.4	<22	309	-309	-617	-926	1489	2482	3475	4468	5461	2.2	**0.50**
								1612	2687	3762	4837	5911	4.9	**0.75**
								1672	2787	3902	5016	6131	8.8	**1.00**
	67	0.6	24	378	-378	-756	-1133	1722	2870	4018	5166	6314	2.2	**0.50**
								1885	3142	4399	5656	6913	4.9	**0.75**
								1968	3280	4592	5904	7215	8.8	**1.00**
	77	0.8	27	436	-436	-873	-1309	1870	3117	4364	5611	6858	2.2	**0.50**
								2063	3438	4813	6188	7563	4.9	**0.75**
								2162	3603	5044	6485	7927	8.8	**1.00**
	87	1.0	30	488	-488	-975	-1463	1977	3296	4614	5932	7251	2.2	**0.50**
								2192	3654	5115	6576	8038	4.9	**0.75**
								2304	3841	5377	6913	8450	8.8	**1.00**
	95	1.2	33	534	-534	-1068	-1602	2055	3426	4796	6166	7537	2.2	**0.50**
								2287	3812	5337	6862	8387	4.9	**0.75**
								2410	4017	5623	7230	8837	8.8	**1.00**
D	79	0.4	<22	443	-443	-885	-1328	1518	2530	3543	4555	5567	2.2	**0.50**
								1646	2743	3840	4937	6035	4.9	**0.75**
								1708	2847	3986	5125	6264	8.8	**1.00**
	96	0.6	24	542	-542	-1084	-1625	1731	2885	4039	5193	6347	2.2	**0.50**
								1896	3160	4424	5688	6952	4.9	**0.75**
								1979	3299	4619	5938	7258	8.8	**1.00**
	111	0.8	27	626	-626	-1252	-1877	1879	3132	4384	5637	6890	2.2	**0.50**
								2073	3455	4837	6219	7601	4.9	**0.75**
								2173	3622	5071	6520	7968	8.8	**1.00**
	124	1.0	30	700	-700	-1399	-2099	1985	3309	4633	5956	7280	2.2	**0.50**
								2202	3670	5137	6605	8073	4.9	**0.75**
								2315	3858	5402	6945	8489	8.8	**1.00**
	136	1.2	33	766	-766	-1532	-2298	2062	3437	4812	6187	7562	2.2	**0.50**
								2296	3827	5357	6888	8419	4.9	**0.75**
								2420	4033	5646	7259	8872	8.8	**1.00**

Notes:

1. Capacities are based on air and water working fluids at sea level
2. The Primary air provides cooling to the space when the capacity values are negative and heating when the values are positive

2 – Way Discharge Modular Active Chilled Beam
PERFORMANCE DATA

Twa

8' Medium Performance (1-Row) Heating Coil

Nozzle Type	Primary Air Volumetric Flow Rate [CFM]	Static Plenum Pressure [$in_{w.c.}$]	Sound Pressure [dB(A)]	Primary Air Capacity [BTUh]				Coil Heating Capacity [BTUh]					Water Pressure Drop [$Ft_{w.c.}$]	Water Flow Rate [GPM]
				$\Delta T = T_{Room} - T_{Primary\ Air}$ [°F]				$\Delta T = T_{Hot\ Water} - T_{Room}$ [°F]						
				-5	5	10	15	15	25	35	45	55		
A	35	0.4	<22	198	-198	-396	-595	1501	2501	3501	4502	5502	2.5	**0.50**
								1625	2709	3792	4876	5960	5.6	**0.75**
								1686	2810	3935	5059	6183	9.9	**1.00**
	43	0.6	24	243	-243	-485	-728	1758	2929	4101	5273	6444	2.5	**0.50**
								1927	3212	4497	5782	7067	5.6	**0.75**
								2014	3356	4699	6041	7384	9.9	**1.00**
	50	0.8	27	280	-280	-561	-841	1934	3223	4512	5801	7090	2.5	**0.50**
								2139	3565	4991	6417	7842	5.6	**0.75**
								2246	3743	5240	6737	8234	9.9	**1.00**
	56	1.0	30	313	-313	-627	-940	2045	3408	4771	6134	7497	2.5	**0.50**
								2274	3790	5306	6823	8339	5.6	**0.75**
								2395	3992	5589	7186	8783	9.9	**1.00**
	61	1.2	33	343	-343	-686	-1029	2126	3544	4962	6379	7797	2.5	**0.50**
								2375	3958	5541	7124	8707	5.6	**0.75**
								2507	4178	5850	7521	9193	9.9	**1.00**
B	40	0.4	<22	225	-225	-450	-674	1438	2397	3356	4315	5274	2.5	**0.50**
								1553	2589	3624	4660	5695	5.6	**0.75**
								1609	2681	3754	4827	5899	9.9	**1.00**
	49	0.6	24	275	-275	-550	-826	1688	2813	3938	5063	6188	2.5	**0.50**
								1845	3074	4304	5534	6763	5.6	**0.75**
								1923	3206	4488	5770	7053	9.9	**1.00**
	56	0.8	27	318	-318	-636	-954	1859	3098	4338	5577	6816	2.5	**0.50**
								2049	3415	4781	6147	7513	5.6	**0.75**
								2147	3578	5009	6440	7871	9.9	**1.00**
	63	1.0	30	355	-355	-711	-1066	1993	3322	4651	5979	7308	2.5	**0.50**
								2211	3685	5159	6634	8108	5.6	**0.75**
								2326	3876	5426	6977	8527	9.9	**1.00**
	69	1.2	33	389	-389	-778	-1168	2074	3457	4840	6223	7606	2.5	**0.50**
								2311	3851	5392	6932	8473	5.6	**0.75**
								2436	4060	5684	7308	8932	9.9	**1.00**
C	63	0.4	<22	357	-357	-715	-1072	1671	2786	3900	5014	6129	2.5	**0.50**
								1825	3042	4259	5476	6693	5.6	**0.75**
								1903	3171	4439	5708	6976	9.9	**1.00**
	78	0.6	24	437	-437	-875	-1312	1924	3206	4488	5771	7053	2.5	**0.50**
								2127	3545	4962	6380	7798	5.6	**0.75**
								2232	3721	5209	6697	8185	9.9	**1.00**
	90	0.8	27	505	-505	-1010	-1516	2083	3472	4860	6249	7637	2.5	**0.50**
								2321	3869	5416	6963	8511	5.6	**0.75**
								2447	4079	5711	7342	8974	9.9	**1.00**
	100	1.0	30	565	-565	-1130	-1694	2197	3662	5127	6592	8057	2.5	**0.50**
								2462	4104	5746	7387	9029	5.6	**0.75**
								2605	4342	6079	7815	9552	9.9	**1.00**
	110	1.2	33	618	-618	-1237	-1855	2280	3800	5321	6841	8361	2.5	**0.50**
								2566	4277	5988	7698	9409	5.6	**0.75**
								2721	4536	6350	8164	9978	9.9	**1.00**
D	91	0.4	<22	512	-512	-1023	-1535	1701	2835	3968	5102	6236	2.5	**0.50**
								1860	3100	4340	5580	6820	5.6	**0.75**
								1940	3234	4527	5821	7114	9.9	**1.00**
	111	0.6	24	626	-626	-1253	-1879	1931	3218	4505	5792	7080	2.5	**0.50**
								2136	3559	4983	6407	7830	5.6	**0.75**
								2242	3737	5231	6726	8221	9.9	**1.00**
	128	0.8	27	723	-723	-1447	-2170	2090	3483	4876	6269	7662	2.5	**0.50**
								2329	3882	5435	6988	8541	5.6	**0.75**
								2457	4094	5732	7370	9007	9.9	**1.00**
	144	1.0	30	809	-809	-1617	-2426	2203	3672	5141	6609	8078	2.5	**0.50**
								2470	4116	5763	7409	9056	5.6	**0.75**
								2613	4355	6098	7840	9582	9.9	**1.00**
	157	1.2	33	886	-886	-1771	-2657	2285	3809	5332	6855	8379	2.5	**0.50**
								2572	4287	6002	7717	9431	5.6	**0.75**
								2728	4547	6366	8185	10005	9.9	**1.00**

Notes:

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