INTRODUCTION

The system provides comfortable and effective sensible cooling to the space, featuring an optimized nozzle design that delivers high capacity with low noise levels. It is ideal for induction unit and unit ventilator retrofit projects, offering quick and simple installation. Additionally, it is available in nominal lengths of up to 6 feet, making it versatile for various applications.

MODEL

BAS - Under Sill Active Chilled Beam

FEATURES

- 3’ to 6’ lengths
- Left hand or right hand coil connections
- Left hand, right hand, or rear air inlet locations
- 2-pipe and 4-pipe coil configurations
- Configured nozzle geometry for capacity optimization
- Commissioning port with roomside access for balancing
- Mounting brackets with adjustments in two directions
- 1/2” Sweat water coil connections
- Coil air vent
- Condensate tray with drain connection for field plumbing

OPTIONS

- Internal closed cell foam insulation
- Coil drain valve
- 1/2” MPT water coil connections
- 12”, 18” or 24” stainless steel braided hoses
- Constant volume regulator

ADVANTAGES

- Removal of high thermal loads is possible in this air/water system
- The height of the air duct system is reduced to a minimum, due to the low supply of primary air
- Substantial reduction in the operating costs, due to low primary air volume
- Improvement of the thermal comfort inside the room
- Contributing sound levels below NC-30
- Coil lint screen
- Constant volume regulator

APPLICATION

Krueger active chilled beams benefit from the use of using hydronic coils and induced air to reduce energy consumption associated with removal of sensible thermal loads. The primary air is supplied to the chilled beam subsequent to it being discharged through a series of nozzles located along the length of the beam. The nozzles inject the primary air into the mixing chamber at velocities capable of inducing plenum or soffit air through the water coil and where it mixes with the primary supply air. This mixture of air is then discharged into the space through ceiling slot diffusers. This provides high cooling outputs with low amounts of primary air. The reduced volume of air results in the reduction of the air handler capacity and size, smaller duct sizes, and the overall energy consumption.

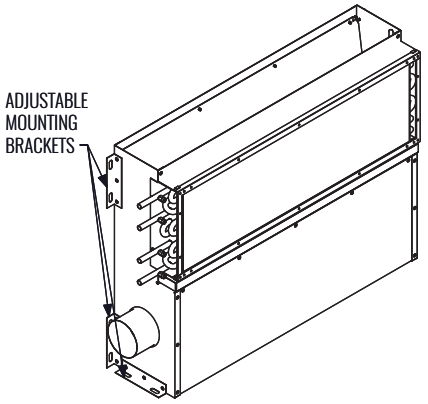
The supplied air from the air handling unit is tempered and dehumidified to handle the latent load. The remaining loads in the space are addressed with the heat exchanger which is incorporated into the chilled beam. Applications with low latent cooling loads could use 100% outdoor air allowing for use of a dedicated outdoor air system with energy recovery further reducing total system energy consumption.

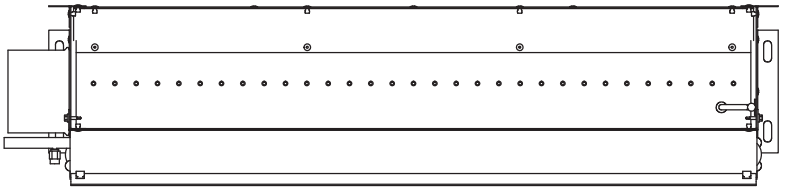
The BASs are offered for both, cooling and heating, lengths from 3’ to 6’. They can be easily integrated in retrofit projects where induction units, unit ventilator, or other under sill units are being replaced. Under sill active beams save significant energy and reduce sounds levels compared to other under sill mounted products. Additionally, the utilization of most or all of the existing piping and duct work minimizes project costs.

BAS

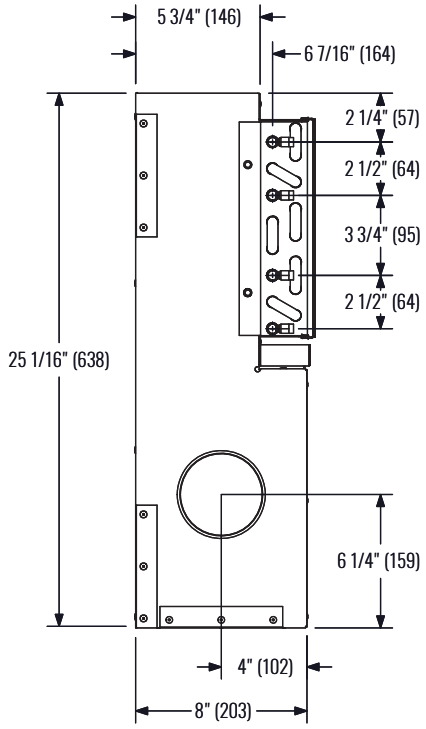
Under Sill Active Chilled Beam

DIMENSIONAL DATA

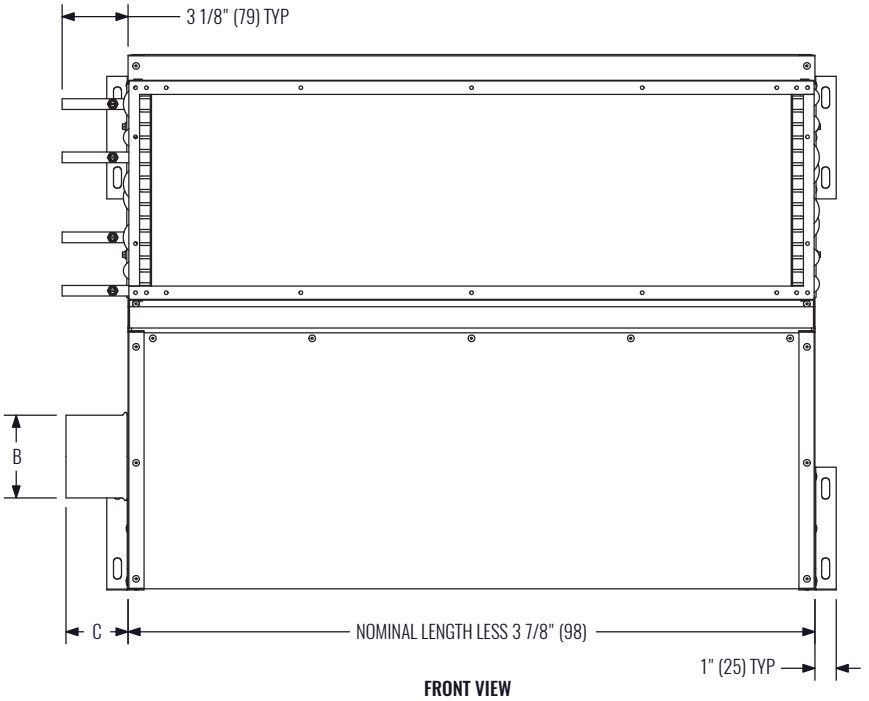




TOP VIEW



SIDE VIEW

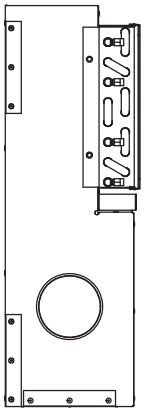


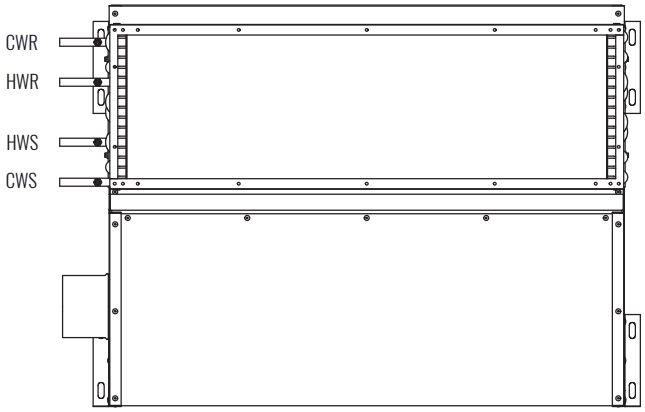
FRONT VIEW

NOMINAL INLET	B	C
4" ROUND	3 7/8" (98)	3" (76)
5" ROUND	4 7/8" (124)	3" (76)
6" OVAL	5 1/4" (133) x 6" 1/4 (159)	2 1/4" (57)
8" OVAL	5 1/4" (133) x 9 3/8" (238)	2 1/4" (57)

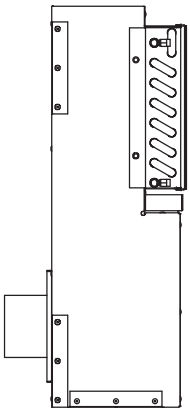
NOTE: Dimensions in parentheses are in millimeters.

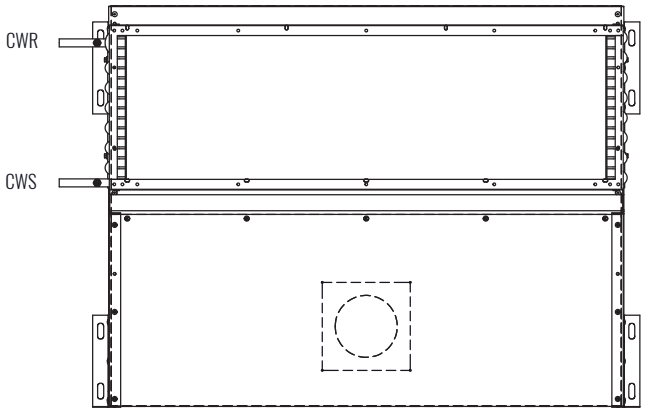
PIPING & HANDING





4 PIPE, LEFT HAND, LEFT INLET
FRONT VIEW





2 PIPE, LEFT HAND, REAR MIDDLE INLET
FRONT VIEW

CWS - Cold Water Supply
CWR - Cold Water Return
HWS - Hot Water Supply
HWR - Hot Water Return

PERFORMANCE DATA | 4-PIPE COOLING

NOMINAL LENGTH ft	NOZZLE SIZE	PRIMARY AIR			SOUND	COIL SENSIBLE COOLING (Btu/h)								INDUCTION RATIO	PRI + IND.
		INLET DIA.	FLOW RATE	INLET ΔPs		1.0 GPM		1.5 GPM		2.0 GPM		2.5 GPM			TOTAL FLOW RATE
		in	CFM	(in H_2O)	NC	TOTAL	ΔP COIL	TOTAL	ΔP COIL	TOTAL	ΔP COIL	TOTAL	ΔP COIL		CFM
3	M13	4	6	0.27	15	657	2.20	676	5.00	682	8.80	687	1.80	6.1	43
			8	0.47	17	848		877		887		894			57
			10	0.74	20	1027		1068		1083		1093			71
	M17	4	8	0.20	15	690		711		717		722		4.9	47
			12	0.44	16	982		1020		1034		1043			71
			16	0.79	20	1244		1303		1326		1342			94
	M23	4	16	0.20	15	1109		1155		1173		1184		3.5	72
			25	0.48	17	1575		1665		1702		1728			113
			32	0.79	20	1882		2009		2065		2105			144
	M31	4	28	0.22	16	1395		1463		1489		1508		2.8	106
			42	0.50	22	1886		2007		2059		2097			160
			52	0.77	25	2193		2356		2430		2482			198
4	M13	4	8	0.25	15	864	2.90	893	6.40	903	1.50	910	2.30	6.1	57
			12	0.56	19	1225		1279		1300		1314			85
			14	0.76	21	1393		1461		1488		1507			99
	M17	4	12	0.23	15	1008		1045		1059		1068		4.9	71
			18	0.52	18	1414		1483		1511		1531			106
			22	0.78	21	1653		1749		1788		1815			130
	M23	4	22	0.20	15	1482		1556		1586		1607		3.5	99
			34	0.48	18	2066		2209		2271		2316			153
			42	0.74	21	2393		2587		2675		2737			189
	M31	4	38	0.22	18	1834		1942		1986		2018		2.8	144
			55	0.47	24	2404		2588		2671		2729			209
			70	0.76	31	2824		3081		3202		3287			266
5	M13	4	10	0.25	15	917	3.50	942	7.90	955	1.80	964	2.80	6.1	71
			14	0.49	19	1224		1270		1293		1308			99
			18	0.81	22	1500		1570		1606		1630			128
	M17	4	15	0.24	15	1065		1100		1117		1129		4.9	89
			22	0.51	20	1460		1526		1560		1583			130
			28	0.83	23	1811		1915		1967		2004			165
	M23	4	30	0.24	15	1690		1778		1823		1854		3.5	135
			45	0.55	20	2434		2612		2706		2772			203
			55	0.82	24	2784		3025		3153		3245			248
	M31	6 *	50	0.24	19	2080		2205		2269		2313		2.8	190
			75	0.54	24	2877		3119		3248		3339			285
			95	0.86	28	3331		3668		3852		3983			361
6	M13	4	12	0.26	16	1087	4.10	1123	9.30	1141	2.10	1154	3.30	6.1	85
			16	0.45	20	1396		1454		1483		1504			114
			22	0.86	24	1785		1885		1936		1971			156
	M17	4	18	0.24	16	1262		1310		1334		1351		4.9	106
			26	0.50	21	1693		1783		1829		1861			153
			32	0.76	24	2015		2143		2209		2255			189
	M23	6 *	35	0.23	16	1923		2037		2095		2136		3.5	158
			50	0.47	20	2646		2858		2970		3048			225
			64	0.77	24	3149		3459		3625		3744			288
	M31	6 *	55	0.21	20	2231		2375		2450		2503		2.8	209
			82	0.46	25	3126		3410		3562		3669			312
			105	0.75	28	3641		4044		4265		4424			399

NOTES: Reference page C3-70 for operational conditions used for performance notes.

PERFORMANCE DATA | 4-PIPE HEATING

NOMINAL LENGTH ft	NOZZLE SIZE	PRIMARY AIR			SOUND	COIL SENSIBLE HEATING (Btu/h)								INDUCTION RATIO	PRI + IND.
		INLET DIA.	FLOW RATE	INLET ΔPs		0.5 GPM		1.0 GPM		1.5 GPM		2.0 GPM			TOTAL FLOW RATE
		in	CFM	(in H_2O)	NC	TOTAL	ΔP COIL	TOTAL	ΔP COIL	TOTAL	ΔP COIL	TOTAL	ΔP COIL		CFM
3	M13	4	6	0.27	15	1277	0.10	1423	0.50	1465	1.10	1477	2.00	6.1	43
			8	0.47	17	1623		1836		1899		1921			57
			10	0.74	20	1940		2223		2312		2344			71
	M17	4	8	0.2	15	1338		1495		1539		1553		4.9	47
			12	0.44	16	1860		2127		2209		2238			71
			16	0.79	20	2307		2694		2821		2870			94
	M23	4	16	0.2	15	2084		2401		2502		2539		3.5	72
			25	0.48	17	2846		3410		3605		3685			113
			32	0.79	20	3312		4075		4350		4471			144
	M31	4	28	0.22	16	2578		3021		3167		3225		2.8	106
			42	0.5	22	3347		4083		4345		4458			160
			52	0.77	25	3798		4747		5102		5261			198
4	M13	4	8	0.25	15	1656	0.20	1870	0.60	1934	1.40	1956	2.50	6.1	57
			12	0.56	19	2286		2653		2769		2814			85
			14	0.76	21	2568		3017		3163		3222			99
	M17	4	12	0.23	15	1913		2181		2263		2292		4.9	71
			18	0.52	18	2603		3061		3212		3272			106
			22	0.78	21	2979		3580		3786		3870			130
	M23	4	22	0.2	15	2718		3208		3369		3434		3.5	99
			34	0.48	18	3613		4472		4782		4917			153
			42	0.74	21	4082		5182		5601		5792			189
	M31	4	38	0.22	18	3295		3972		4205		4301		2.8	144
			55	0.47	24	4141		5205		5603		5782			209
			70	0.76	31	4704		6115		6672		6932			266
5	M13	4	10	0.25	15	1742	0.20	1984	0.80	2040	1.70	2068	3.10	6.1	71
			14	0.49	19	2269		2650		2750		2799			99
			18	0.81	22	2709		3247		3400		3477			128
	M17	4	15	0.24	15	2002		2307		2382		2419		4.9	89
			22	0.51	20	2645		3160		3305		3378			130
			28	0.83	23	3324		3922		4145		4260			165
	M23	4	30	0.24	15	3075		3659		3849		3946		3.5	135
			45	0.55	20	4335		5269		5656		5858			203
			55	0.82	24	4809		6027		6549		6827			248
	M31	6 *	50	0.24	19	3829		4503		4773		4912		2.8	190
			75	0.54	24	4998		6229		6753		7032			285
			95	0.86	28	5571		7213		7942		8339			361
6	M13	4	12	0.26	16	2035	0.20	2354	0.90	2431	2.10	2470	3.70	6.1	85
			16	0.45	20	2554		3023		3148		3211			114
			22	0.86	24	3151		3865		4081		4191			156
	M17	4	18	0.24	16	2329		2732		2836		2888		4.9	106
			26	0.5	21	3010		3667		3860		3959			153
			32	0.76	24	3585		4362		4639		4783			189
	M23	6 *	35	0.23	16	3402		4164		4409		4535		3.5	158
			50	0.47	20	4633		5729		6188		6429			225
			64	0.77	24	5293		6819		7488		7849			288
	M31	6 *	55	0.21	20	3975		4830		5142		5305		2.8	209
			82	0.46	25	5341		6769		7384		7711			312
			105	0.75	28	5961		7884		8755		9233			399

NOTES: Reference page C3-70 for operational conditions used for performance notes.

PERFORMANCE DATA | 2-PIPE COOLING

NOMINAL LENGTH ft	NOZZLE SIZE	PRIMARY AIR			SOUND	COIL SENSIBLE COOLING (Btu/h)								INDUCTION RATIO	PRI + IND.
		INLET DIA.	FLOW RATE	INLET ΔPs		1.0 GPM		1.5 GPM		2.0 GPM		2.5 GPM			TOTAL FLOW RATE
		in	CFM	(in H_2O)	NC	TOTAL	ΔP COIL	TOTAL	ΔP COIL	TOTAL	ΔP COIL	TOTAL	ΔP COIL		CFM
3	M13	4	6	0.27	15	683	2.90	703	6.60	709	1.50	714	2.30		43
			8	0.47	17	881		912		922		929		6.1	57
			10	0.74	20	1067		1110		1125		1135			71
	M17	4	8	0.2	15	717		739		746		751			47
			12	0.44	16	1021		1060		1074		1084		4.9	71
			16	0.79	20	1293		1354		1378		1394			94
	M23	4	16	0.2	15	1153		1201		1219		1231			72
			25	0.48	17	1637		1730		1769		1796		3.5	113
			32	0.79	20	1956		2088		2146		2187			144
	M31	4	28	0.22	16	1450		1520		1548		1567			106
			42	0.5	22	1960		2086		2140		2179		2.8	160
			52	0.77	25	2279		2449		2525		2580			198
4	M13	4	8	0.25	15	898	3.80	928	8.60	939	1.90	946	3.00		57
			12	0.56	19	1273		1329		1351		1366		6.1	85
			14	0.76	21	1448		1518		1546		1566			99
	M17	4	12	0.23	15	1047		1086		1100		1110			71
			18	0.52	18	1469		1542		1570		1591		4.9	106
			22	0.78	21	1718		1817		1858		1887			130
	M23	4	22	0.2	15	1540		1617		1648		1670			99
			34	0.48	18	2147		2295		2360		2406		3.5	153
			42	0.74	21	2487		2689		2780		2845			189
	M31	4	38	0.22	18	1906		2018		2064		2097			144
			55	0.47	24	2498		2690		2776		2836		2.8	209
			70	0.76	31	2935		3202		3327		3416			266
5	M13	4	10	0.25	15	952	4.70	979	1.30	993	2.40	1002	3.70		71
			14	0.49	19	1272		1320		1343		1360		6.1	99
			18	0.81	22	1559		1632		1669		1694			128
	M17	4	15	0.24	15	1107		1143		1161		1173			89
			22	0.51	20	1517		1586		1621		1645		4.9	130
			28	0.83	23	1882		1990		2045		2083			165
	M23	4	30	0.24	15	1756		1848		1894		1927			135
			45	0.55	20	2529		2715		2812		2881		3.5	203
			55	0.82	24	2893		3143		3277		3372			248
	M31	6 *	50	0.24	19	2162		2291		2358		2404			190
			75	0.54	24	2990		3242		3375		3470		2.8	285
			95	0.86	28	3462		3812		4003		4139			361
6	M13	4	12	0.26	16	1130	5.50	1167	1.60	1186	2.80	1199	4.40		85
			16	0.45	20	1451		1511		1541		1563		6.1	114
			22	0.86	24	1855		1959		2011		2048			156
	M17	4	18	0.24	16	1311		1361		1386		1404			106
			26	0.5	21	1760		1853		1900		1934		4.9	153
			32	0.76	24	2094		2227		2296		2344			189
	M23	6 *	35	0.23	16	1999		2117		2177		2219			158
			50	0.47	20	2750		2970		3086		3168		3.5	225
			64	0.77	24	3273		3594		3768		3891			288
	M31	6 *	55	0.21	20	2318		2468		2546		2601			209
			82	0.46	25	3249		3544		3701		3813		2.8	312
			105	0.75	28	3784		4202		4432		4597			399

NOTES: Reference page C3-70 for operational conditions used for performance notes.

PERFORMANCE DATA | 2-PIPE HEATING

NOMINAL LENGTH ft	NOZZLE SIZE	PRIMARY AIR			SOUND	COIL SENSIBLE HEATING (Btu/h)								INDUCTION RATIO	PRI + IND.
		INLET DIA.	FLOW RATE	INLET ΔPs		0.5 GPM		1.0 GPM		1.5 GPM		2.0 GPM			TOTAL FLOW RATE
		in	CFM	(in H_2O)	NC	TOTAL	ΔP COIL	TOTAL	ΔP COIL	TOTAL	ΔP COIL	TOTAL	ΔP COIL		CFM
3	M13	4	6	0.27	15	1832	0.70	2042	2.90	2101	6.60	2120	1.50	6.1	43
			8	0.47	17	2328		2634		2725		2756			57
			10	0.74	20	2783		3190		3317		3364			71
	M17	4	8	0.2	15	1919		2145		2209		2229		4.9	47
			12	0.44	16	2669		3051		3169		3212			71
			16	0.79	20	3311		3866		4047		4118			94
	M23	4	16	0.2	15	2990		3445		3589		3643		3.5	72
			25	0.48	17	4084		4893		5172		5287			113
			32	0.79	20	4753		5847		6242		6415			144
	M31	4	28	0.22	16	3699		4335		4544		4627		2.8	106
			42	0.5	22	4803		5858		6234		6397			160
			52	0.77	25	5450		6812		7320		7549			198
4	M13	4	8	0.25	15	2376	1.00	2684	3.80	2775	8.60	2806	1.90	6.1	57
			12	0.56	19	3279		3806		3974		4038			85
			14	0.76	21	3685		4329		4539		4623			99
	M17	4	12	0.23	15	2744		3130		3246		3289		4.9	71
			18	0.52	18	3734		4393		4608		4694			106
			22	0.78	21	4275		5137		5432		5553			130
	M23	4	22	0.2	15	3901		4603		4835		4928		3.5	99
			34	0.48	18	5183		6417		6861		7055			153
			42	0.74	21	5857		7435		8037		8311			189
	M31	4	38	0.22	18	4728		5699		6033		6171		2.8	144
			55	0.47	24	5942		7468		8040		8297			209
			70	0.76	31	6750		8774		9573		9946			266
5	M13	4	10	0.25	15	2499	1.20	2847	4.70	2927	1.30	2967	2.40	6.1	71
			14	0.49	19	3256		3803		3945		4016			99
			18	0.81	22	3887		4660		4878		4988			128
	M17	4	15	0.24	15	2873		3310		3417		3471		4.9	89
			22	0.51	20	3795		4535		4742		4847			130
			28	0.83	23	4769		5627		5948		6112			165
	M23	4	30	0.24	15	4412		5250		5523		5663		3.5	135
			45	0.55	20	6220		7560		8116		8406			203
			55	0.82	24	6901		8648		9397		9796			248
	M31	6 *	50	0.24	19	5494		6462		6849		7048		2.8	190
			75	0.54	24	7171		8938		9690		10089			285
			95	0.86	28	7994		10349		11396		11965			361
6	M13	4	12	0.26	16	2920	1.40	3377	5.50	3488	1.60	3544	2.80	6.1	85
			16	0.45	20	3665		4338		4517		4608			114
			22	0.86	24	4521		5546		5855		6013			156
	M17	4	18	0.24	16	3342		3920		4069		4144		4.9	106
			26	0.5	21	4319		5261		5539		5681			153
			32	0.76	24	5144		6259		6656		6862			189
	M23	6 *	35	0.23	16	4881		5975		6327		6508		3.5	158
			50	0.47	20	6647		8220		8880		9225			225
			64	0.77	24	7595		9784		10745		11263			288
	M31	6 *	55	0.21	20	5704		6930		7379		7612		2.8	209
			82	0.46	25	7664		9712		10595		11064			312
			105	0.75	28	8553		11312		12562		13248			399

NOTES: Reference page C3-70 for operational conditions used for performance notes.

PERFORMANCE DATA

NOTES:

1. All performance data based on test performed in accordance with ASHRAE Standard 200-2018.
2. All performance data based on installation with matched Krueger 1600 (1600E) Linear Bar Grille - contact the Krueger Specialty Group for performance with other grilles.
3. ΔP_s values are measured in inches of water.
4. NC values are based on room absorption of 10 dB. A dash (-) indicates an NC value less than 15.
5. ΔP_{Coil} values are measured in inches of water. ΔP_{Coil} values in shaded cells indicate use of a two circuit coil. All other values represent a single circuit coil.
6. Induction ratio is multiplied by the volume flow rate of primary air to estimate the volume flow rate of room air entrained through the coil.
7. * denotes oval inlet air connection.

COOLING PERFORMANCE:

- Cooling capacity listed (TOTAL) is the total sensible heat removal by the beam's integral coil. It does not include any contribution or offset by the primary air.
- Capacity is based on 18^{0}F ΔT between the induced air and the chilled water supply. Table 1 provides correction factors for other temperature differentials.
- Primary air sensible cooling contribution can be calculated by the following equation:

  $q_{SENSPA} = 1.085 \times CFM_{PA} \times (T_{ROOM} - T_{PA})$
- Primary air latent cooling can be calculated by the following equation:

  $q_{LATENT} = 0.69 \times CFM_{PA} \times (W_{ROOM} - W_{PA})$

where W_{ROOM} and W_{PA} are the humidity ratio of the room and primary air respectively expressed in Grains of moisture per pound dry air.

TABLE 4: CORRECTION FOR (ΔT) BETWEEN ENTERING AIR AND ENTERING CHILLED WATER

ACTUAL ΔT	10	12	14	16	**18**	20	22	24
MULTIPLY TABLE VALUE BY:	0.56	0.67	0.78	0.89	**1.00**	1.11	1.22	1.33

HEATING PERFORMANCE:

- Heating capacity listed (TOTAL) is the sensible heat added by the beam's integral coil. It does not include any contribution or offset by the primary air.
- Capacity is based on 50^{0}F ΔT between the induced air and the heating water supply. Table 2 provides correction factors for other temperature differentials.
- Primary air sensible heating offset (or contribution) can be calculated by the following equation:

  $q_{SENSPA} = 1.085 \times CFM_{PA} \times (T_{PA} - T_{ROOM})$
- If the primary air temperature is lower than that of the room, it will offset the coil's heating.
- If the primary air temperature is higher than that of the room, it will contribute to the coil's heating.

TABLE 2: CORRECTION FOR (ΔT) BETWEEN ENTERING AIR AND ENTERING HEATING WATER

ACTUAL ΔT	20	30	40	**50**	60	70	80	90	100	110	120
MULTIPLY TABLE VALUE BY:	0.40	0.60	0.80	**1.00**	1.20	1.40	1.60	1.80	2.00	2.20	2.40

LEGEND:

ΔP_S = Unit Inlet Pressure [in wg]

qCoil = Sensible Capacity, Coil [Btu/h]

ΔCoil = Water coil pressure drop [ft wg]

q_{SENSPA} = Sensible Capacity, Primary Air [Btu/h]

W_{ROOM} = Humidity Ratio of the Room

CFM_{PA} = Air Flowrate, Primary Air [CFM]

T_{PA} = Temperature Primary Air [^{0}F]

T_{ROOM} = Temperature Room Air [^{0}F]

q_{LATENT} = Latent Capacity, Primary Air [Btu/h]

W_{PA} = Humidity Ratio of the Primary Air

ENGINEERING SPECIFICATION & CONFIGURATION

Furnish and install active chilled beams in the sizes, configurations and capacities indicated on the project schedules and plans. Unit shall comprise a primary air connection, a pressurized inlet plenum feeding a series of room air induction nozzles and an associated heat transfer coil contained in a single unit housing.

UNIT CASING

The unit casing shall be constructed from a minimum 20-gauge galvannealed sheet steel. Units shall have a maximum casing height of 25 1/16".

FINISH

Concealed surfaces shall be G90 galvannealed steel.

PRIMARY AIR INLETS

Manufacturer shall provide round or oval inlet collars of diameter(s) as indicated on the project plans and schedules and suitable for connection to common flexible or rigid ductwork sizes. The inlet collar shall be roll-formed to facilitate the connection of flexible or rigid ductwork. Inlet location may be side or top as indicated on the project plans and schedules. Nozzles shall be of a fixed size, selected with respect to cooling and heating requirements, and constructed of formed sheet metal.

PRIMARY AIR PLENUM PRESSURE TAP

A plenum air pressure tap shall be mounted within the pressurized plenum for measuring the pressure differential between the primary air plenum and the room. The pressure tap manometer connection port shall be fitted to the end of a plastic tube accessible from the diffuser face. Airflow calibration charts that relate the pressure differential reading with the primary airflow rates, shall be furnished with the IOM's.

MOUNTING RAILS

Factory installed mounting rails shall incorporate slotted holes for hanging using threaded rods.

HYDRONIC HEAT TRANSFER COIL

Integral heat transfer coils shall be provided with connections for either 2 or 4 pipe water connections as indicated on plans and schedules. Four pipe configurations shall require separate supply and return connections for chilled and hotwater. The coil shall be mounted horizontally and shall be manufactured with seamless copper tubing (1/2" or 3/4" outside diameter as indicated on the plans and schedules) with minimum .016" wall thickness mechanically fixed to aluminum fins. The aluminum fins shall be limited to no more than ten (10) fins per inch. The coil shall have a working pressure of at least 360 PSI, and be factory tested for leakage at a minimum pressure of 500 PSI.

Each chilled beam shall be provided with factory integrated manual air vents.

COILS

- **(Optional)** Coil shall be provided with factory integrated drain fittings. Unless otherwise specified, coil connections shall be bare copper for field sweating to the water supply circuit(s).
- **(Optional)** The chilled water coil shall be provided with NPT male threaded fittings. These fittings must be suitable for field connection to a similar NPT female flexible hose spigot and shall be at least 1 1/2" long to facilitate field connection (by others).

Connections shall face upwards to avoid issues with coordination of ceiling installation. The coil shall be rated and certified in accordance with AHRI Standard 410.

PACKAGING

Beams shall be delivered to site clean with hydronic coils flushed and fitted with protective caps. Protective film shall be applied to the entire beam face to prevent ingress of dirt. Units shall be shipped to site in cartons and labeled with identification tagging.

THE MANUFACTURER SHALL PROVIDE THE FOLLOWING ACCESSORIES

- **(Optional) Water Connection Hoses:** Manufacturer shall provide 1/2" or 3/4" dia. x (12"), (18") or (24") long stainless-steel braided hoses with female swivel connections. Hoses shall be constructed with a KEVLAR® reinforced EPDM core with stainless steel ferrules. Hoses shall be tested for working pressures up to 400 PSIG (at max. operating temperature of 248°F) with a burst pressure of 1600 PSIG.
- **(Optional) Airflow Regulators:** Manufacturer shall supply UL94 V-0 rated ABS polymer and UL2043 listed constant volume regulators (BFR's). BFR's shall be designed to fit inside rigid round ductwork and located at a minimum distance of three duct diameters upstream of the active chilled beam primary air inlet.

ENGINEERING SPECIFICATION & CONFIGURATION

1. **SERIES: (XXX)**
   BAS - Under Sill, Active Chilled Beam

2. **BEAM LENGTH: (X)**
   3 - 3 ft
   4 - 4 ft
   5 - 5 ft
   6 - 6 ft

3. **AIR PATTERN-NOZZLE TYPE: (XXX)**
   M13 - M13
   M17 - M17
   M23 - M23
   M31 - M31

4. **COIL TYPE: (XXXX)**
   2P1C - 2 Pipe Coil - 1 Circuit
   2P2C - 2 Pipe Coil - 2 Circuit
   4P1C - 4 Pipe Coil - 1 Circuit
   4P2C - 2 Pipe Coil - 2 Circuit

5. **COIL ACC1: (X)**
   M - Manual Air Vent

6. **COIL ACC2: (X)**
   0 - None
   D - Drain Pan

7. **WATER CONNECTION: (X)**
   L - Left Handing
   R - Right Handing

8. **PIPING TYPE: (XXX)**
   SWT - Sweat
   MPT - 1/2" Male Pipe Thread

9. **INLET CONFIGURATION: (X)**
   LH - Left Hand
   RH - Right Hand
   RM - Rear Middle

10. **INLET SIZE: (X)**
    4 - 4" Round
    5 - 5" Round
    6 - 6" Oval
    8 - 8" Oval

11. **INSULATION: (X)**
    0 - None
    I - Internal Closed Foam Insulation

SAMPLE CONFIGURATION: BAS - 3 - M13 - 2P1C - M - 0 - R - MPT - RH - 4 - 0