

CBAL-24 / 4-PIPE COOLING

Nominal Length ft	Nozzle Size	Primary Air			Sound NC	Coil Sensible Cooling (Btu/h)								Induction ratio	Throw ft.
		Inlet Dia.	Flow Rate	Inlet ΔPS		0.5 GPM		1.0 GPM		1.5 GPM		2.0 GPM			
		Inches	CFM	(in. H2O)		qCOIL	ΔCOIL	qCOIL	ΔCOIL	qCOIL	ΔCOIL	qCOIL	ΔCOIL		
4	B1	4	15	0.20	-	1,483	0.72	1,842	2.88	1,992	6.49	2,078	1.10	0 - 1 - 4	
			20	0.35	-	1,782		2,214		2,395		2,498		1 - 2 - 7	
			25	0.54	-	2,072		2,573		2,784		2,904		1 - 3 - 10	
	B2	4	20	0.15	-	1,307		1,623		1,756		1,831		1 - 1 - 5	
			30	0.35	-	1,877		2,332		2,522		2,631		1 - 3 - 10	
			40	0.62	22	2,237		2,778		3,005		3,135		2 - 5 - 14	
	B3	5	40	0.18	-	1,515		1,882		2,036		2,124		2 - 4 - 12	
			60	0.40	23	2,249		2,794		3,022		3,153		4 - 8 - 18	
			80	0.71	30	2,657		3,301		3,571		3,725		7 - 12 - 21	
	B4	6	70	0.21	19	1,705		2,118		2,291		2,390		2 - 6 - 14	
			105	0.48	29	2,449		3,043		3,291		3,433		6 - 11 - 20	
			140	0.86	37	2,918		3,625		3,921		4,091		10 - 14 - 23	
6	B1	4	20	0.16	-	1,774	1.01	2,203	4.03	2,383	9.06	2,486	2.26	0 - 1 - 4	
			30	0.35	-	2,549		3,166		3,424		3,572		1 - 2 - 9	
			40	0.62	22	3,037		3,772		4,080		4,257		2 - 4 - 13	
	B2	5	30	0.15	-	1,868		2,321		2,510		2,619		1 - 2 - 6	
			45	0.33	16	2,684		3,334		3,607		3,763		2 - 3 - 12	
			60	0.60	24	3,199		3,973		4,298		4,483		3 - 6 - 17	
	B3	6	60	0.16	16	2,163		2,691		2,911		3,037		2 - 5 - 14	
			90	0.36	26	3,117		3,867		4,183		4,363		5 - 10 - 21	
			120	0.64	34	3,709		4,607		4,984		5,199		8 - 14 - 26	
	B4	10*	105	0.19	-	2,438		3,028		3,276		3,417		3 - 7 - 18	
			160	0.45	21	3,503		4,351		4,706		4,910		7 - 13 - 25	
			215	0.81	29	4,173		5,184		5,608		5,850		12 - 18 - 29	
8	B1	4	25	0.17	-	2,030	1.32	2,522	5.28	2,728	1.54	2,846	2.74	0 - 1 - 4	
			40	0.43	20	3,233		4,016		4,344		4,532		1 - 2 - 10	
			55	0.81	28	3,852		4,785		5,176		5,400		2 - 5 - 16	
	B2	5	40	0.19	-	2,370		2,944		3,185		3,322		1 - 2 - 7	
			60	0.43	22	3,405		4,230		4,575		4,773		2 - 4 - 14	
			80	0.76	30	3,958		4,917		5,318		5,548		3 - 7 - 19	
	B3	8	80	0.21	-	2,748		3,414		3,693		3,852		2 - 5 - 16	
			120	0.47	18	3,949		4,905		5,306		5,535		5 - 12 - 25	
			160	0.83	25	4,705		5,844		6,322		6,595		9 - 16 - 30	
	B4	10*	145	0.22	17	3,092		3,841		4,155		4,335		4 - 8 - 21	
			215	0.49	27	4,443		5,519		5,970		6,228		8 - 16 - 29	
			285	0.86	34	5,294		6,576		7,113		7,421		14 - 21 - 33	
10	B1	5	35	0.16	-	2,743	1.63	3,407	6.53	3,685	1.91	3,845	3.40	1 - 1 - 5	
			52	0.36	20	3,796		4,715		5,101		5,321		1 - 3 - 12	
			69	0.63	27	4,523		5,618		6,077		6,340		2 - 5 - 18	
	B2	6	55	0.18	-	2,889		3,589		3,882		4,050		1 - 2 - 9	
			80	0.38	24	3,998		4,967		5,373		5,605		2 - 5 - 17	
			105	0.66	31	4,764		5,918		6,401		6,678		4 - 9 - 22	
	B3	8	100	0.16	-	3,350		4,161		4,501		4,696		3 - 6 - 18	
			150	0.35	22	4,637		5,760		6,230		6,499		6 - 13 - 28	
			200	0.62	30	5,525		6,862		7,423		7,744		10 - 18 - 33	
	B4	10*	180	0.15	21	3,486		4,331		4,685		4,887		4 - 9 - 23	
			240	0.27	29	4,400		5,465		5,912		6,167		7 - 15 - 30	
			300	0.43	35	5,146		6,392		6,915		7,213		11 - 19 - 34	

Note: Reference page U37 for operational conditions used for performance notes



CBAL-24 / 4-PIPE HEATING

Nominal Length ft	Nozzle Size	Primary Air				Sound NC	Coil Heating (Btu/h)								Induction ratio	Throw ft.		
		Inlet Dia. Inches	Flow Rate CFM	Inlet ΔPS (in. H2O)	0.5 GPM		1.0 GPM		1.5 GPM		2.0 GPM							
					qCOIL		ΔCOIL	qCOIL	ΔCOIL	qCOIL	ΔCOIL	qCOIL	ΔCOIL					
4	B1	4	15	0.20	-	2,243	0.18	0.71	1.59	2.83	2,787	3,014	3,145	5.9	0 - 1 - 4			
			20	0.35	-	2,696					3,349	3,623	3,780		1 - 2 - 7			
			25	0.54	-	3,134					3,893	4,211	4,393		1 - 3 - 10			
	B2	4	20	0.15	-	1,977					2,455	2,656	2,771		4.8	1 - 1 - 5		
			30	0.35	-	2,840					3,528	3,816	3,981			1 - 3 - 10		
			40	0.62	22	3,384					4,204	4,547	4,743			2 - 5 - 14		
	B3	5	40	0.18	-	2,292					2,847	3,080	3,213			4	2 - 4 - 12	
			60	0.40	23	3,403					4,227	4,572	4,770				4 - 8 - 18	
			80	0.71	30	4,020					4,994	5,402	5,636				7 - 12 - 21	
	B4	6	70	0.21	19	2,579					3,204	3,466	3,615				2.5	2 - 6 - 14
			105	0.48	29	3,706					4,603	4,979	5,194					6 - 11 - 20
			140	0.86	37	4,415					5,485	5,933	6,189					10 - 14 - 23
6	B1	4	20	0.16	-	2,684	0.28	1.11	2.50	4.44	3,334	3,606	3,762	5.9				0 - 1 - 4
			30	0.35	-	3,856					4,790	5,181	5,405					1 - 2 - 9
			40	0.62	22	4,594					5,707	6,173	6,440					2 - 4 - 13
	B2	5	30	0.15	-	2,827					3,511	3,798	3,962		4.8			1 - 2 - 6
			45	0.33	16	4,061					5,045	5,457	5,693					2 - 3 - 12
			60	0.60	24	4,839					6,011	6,502	6,783					3 - 6 - 17
	B3	6	60	0.16	16	3,278					4,072	4,404	4,595			4		2 - 5 - 14
			90	0.36	26	4,710					5,850	6,328	6,602					5 - 10 - 21
			120	0.64	34	5,612					6,970	7,540	7,866					8 - 14 - 26
	B4	10*	105	0.19	19	3,688					4,581	4,956	5,170				2.5	3 - 7 - 18
			160	0.45	30	5,299					6,583	7,120	7,428					7 - 13 - 25
			215	0.81	38	6,314					7,843	8,484	8,851					12 - 18 - 29
8	B1	4	25	0.17	-	3,072	0.34	1.35	3.04	5.40	3,816	4,127	4,306	5.9				0 - 1 - 4
			40	0.43	20	4,891					6,076	6,572	6,856					1 - 2 - 10
			55	0.81	28	5,828					7,239	7,831	8,169					2 - 5 - 16
	B2	5	40	0.19	-	3,586					4,454	4,818	5,026		4.8			1 - 2 - 7
			60	0.43	22	5,152					6,400	6,922	7,222					2 - 4 - 14
			80	0.76	30	5,989					7,439	8,046	8,394					3 - 7 - 19
	B3	8	80	0.21	-	4,158					5,165	5,587	5,828			4		2 - 5 - 16
			120	0.47	18	5,974					7,421	8,027	8,374					5 - 12 - 25
			160	0.83	25	7,118					8,842	9,565	9,978					9 - 16 - 30
	B4	10*	145	0.22	17	4,679					5,812	6,287	6,558				2.5	4 - 8 - 21
			215	0.49	27	6,722					8,350	9,032	9,423					8 - 16 - 29
			285	0.86	34	8,010					9,949	10,762	11,227					14 - 21 - 33
10	B1	5	35	0.16	-	4,150	0.42	1.68	3.77	6.70	5,155	5,576	5,817	5.9				1 - 1 - 5
			52	0.36	20	5,743					7,134	7,717	8,051					1 - 3 - 12
			69	0.63	27	6,843					8,500	9,195	9,592					2 - 5 - 18
	B2	6	55	0.18	-	4,371					5,429	5,873	6,127		4.8			1 - 2 - 9
			80	0.38	24	6,050					7,514	8,128	8,480					2 - 5 - 17
			105	0.66	31	7,208					8,953	9,685	10,103					4 - 9 - 22
	B3	8	100	0.16	-	5,069					6,296	6,810	7,105			4		3 - 6 - 18
			150	0.35	22	7,015					8,714	9,426	9,833					6 - 13 - 28
			200	0.62	30	8,358					10,383	11,231	11,716					10 - 18 - 33
	B4	10*	180	0.15	21	5,275					6,552	7,087	7,394				2.5	4 - 9 - 23
			240	0.27	29	6,657					8,269	8,944	9,331					7 - 15 - 30
			300	0.43	35	7,786					9,671	10,461	10,914					11 - 19 - 34

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CBAL-24 / 2-PIPE COOLING

Nominal Length ft	Nozzle Size	Primary Air			Sound NC	Coil Sensible Cooling (Btu/h)								Induction ratio	Throw ft.
		Inlet Dia.	Flow Rate	Inlet ΔPS		0.5 GPM		1.0 GPM		1.5 GPM		2.0 GPM			
		Inches	CFM	(in. H2O)		qCOIL	ΔCOIL	qCOIL	ΔCOIL	qCOIL	ΔCOIL	qCOIL	ΔCOIL		
4	B1	4	15	0.20	-	1,587	0.93	1,972	3.72	2,133	8.38	2,225	1.92	0 - 1 - 4	
			20	0.35	-	1,970		2,447		2,647		2,761		1 - 2 - 7	
			25	0.54	-	2,272		2,822		3,052		3,184		1 - 3 - 10	
	B2	4	20	0.15	-	1,431		1,778		1,923		2,006		1 - 1 - 5	
			30	0.35	-	2,062		2,561		2,770		2,890		1 - 3 - 10	
			40	0.62	22	2,453		3,047		3,296		3,438		2 - 5 - 14	
	B3	5	40	0.18	-	1,802		2,238		2,421		2,525		2 - 4 - 12	
			60	0.40	23	2,459		3,054		3,304		3,446		4 - 8 - 18	
			80	0.71	30	3,007		3,736		4,041		4,215		7 - 12 - 21	
	B4	6	70	0.21	19	1,904		2,365		2,558		2,669		2 - 6 - 14	
			105	0.48	29	2,708		3,363		3,638		3,795		6 - 11 - 20	
			140	0.86	37	3,243		4,028		4,357		4,545		10 - 14 - 23	
6	B1	4	20	0.16	-	1,904	1.35	2,366	5.40	2,559	1.58	2,670	2.81	0 - 1 - 4	
			30	0.35	-	2,780		3,453		3,735		3,897		1 - 2 - 9	
			40	0.62	22	3,286		4,082		4,416		4,606		2 - 4 - 13	
	B2	5	30	0.15	-	1,968		2,445		2,644		2,759		1 - 2 - 6	
			45	0.33	16	2,910		3,614		3,909		4,078		2 - 3 - 12	
			60	0.60	24	3,418		4,245		4,592		4,791		3 - 6 - 17	
	B3	6	60	0.16	16	2,478		3,078		3,329		3,473		2 - 5 - 14	
			90	0.36	26	3,469		4,309		4,661		4,863		5 - 10 - 21	
			120	0.64	34	4,188		5,202		5,627		5,870		8 - 14 - 26	
	B4	10*	105	0.19	19	2,643		3,283		3,552		3,705		3 - 7 - 18	
			160	0.45	30	3,858		4,792		5,183		5,407		7 - 13 - 25	
			215	0.81	38	4,624		5,744		6,213		6,482		12 - 18 - 29	
8	B1	4	25	0.17	-	2,196	1.77	2,727	7.08	2,950	2.07	3,078	3.68	0 - 1 - 4	
			40	0.43	20	3,504		4,353		4,708		4,912		1 - 2 - 10	
			55	0.81	28	4,191		5,206		5,631		5,874		2 - 5 - 16	
	B2	5	40	0.19	-	2,449		3,042		3,291		3,433		1 - 2 - 7	
			60	0.43	22	3,667		4,555		4,928		5,140		2 - 4 - 14	
			80	0.76	30	4,281		5,317		5,752		6,000		3 - 7 - 19	
	B3	8	80	0.21	-	3,083		3,830		4,143		4,322		2 - 5 - 16	
			120	0.47	18	4,372		5,431		5,875		6,128		5 - 12 - 25	
			160	0.83	25	5,244		6,514		7,046		7,351		9 - 16 - 30	
	B4	10*	145	0.22	17	3,444		4,277		4,627		4,827		4 - 8 - 21	
			215	0.49	27	4,885		6,067		6,563		6,847		8 - 16 - 29	
			285	0.86	34	5,798		7,202		7,790		8,127		14 - 21 - 33	
10	B1	5	35	0.16	-	2,983	2.19	3,705	8.76	4,008	2.56	4,181	4.55	1 - 1 - 5	
			52	0.36	20	4,196		5,212		5,638		5,882		1 - 3 - 12	
			69	0.63	27	5,010		6,224		6,732		7,023		2 - 5 - 18	
	B2	6	55	0.18	-	3,304		4,105		4,440		4,632		1 - 2 - 9	
			80	0.38	24	4,459		5,538		5,991		6,250		2 - 5 - 17	
			105	0.66	31	5,335		6,627		7,169		7,479		4 - 9 - 22	
	B3	8	100	0.16	-	3,579		4,446		4,809		5,017		3 - 6 - 18	
			150	0.35	22	5,114		6,352		6,871		7,168		6 - 13 - 28	
			200	0.62	30	6,111		7,590		8,210		8,565		10 - 18 - 33	
	B4	10*	180	0.15	21	3,432		4,264		4,612		4,811		4 - 9 - 23	
			240	0.27	29	4,945		6,143		6,645		6,932		7 - 15 - 30	
			300	0.43	35	5,307		6,592		7,131		7,439		11 - 19 - 34	

Note: Reference page U37 for operational conditions used for performance notes



CBAL-24 / 2-PIPE HEATING

Nominal Length ft	Nozzle Size	Primary Air				Sound NC	Coil Heating (Btu/h)								Induction ratio	Throw ft.			
		Inlet Dia. Inches	Flow Rate CFM	Inlet ΔPS (in. H2O)			0.5 GPM		1.0 GPM		1.5 GPM		2.0 GPM						
							qCOIL	ΔCOIL	qCOIL	ΔCOIL	qCOIL	ΔCOIL	qCOIL	ΔCOIL					
4	B1	4	15	0.20	-	2,105	0.93	3.72	8.38	1.92	2,615	2,829	2,951	5.9	0 - 1 - 4				
			20	0.35	-	2,613					3,245	3,511	3,662		1 - 2 - 7				
			25	0.54	-	3,013					3,743	4,048	4,223		1 - 3 - 10				
	B2	4	20	0.15	-	1,898					2,357	2,550	2,660		4.8	1 - 1 - 5			
			30	0.35	-	2,734					3,396	3,674	3,833			1 - 3 - 10			
			40	0.62	22	3,253					4,041	4,371	4,560			2 - 5 - 14			
	B3	5	40	0.18	-	2,389					2,968	3,211	3,349			4.0	2 - 4 - 12		
			60	0.40	23	3,261					4,051	4,382	4,571				4 - 8 - 18		
			80	0.71	30	3,989					4,954	5,359	5,591				7 - 12 - 21		
	B4	6	70	0.21	19	2,525					3,136	3,393	3,539				2.5	2 - 6 - 14	
			105	0.48	29	3,591					4,461	4,825	5,034					6 - 11 - 20	
			140	0.86	37	4,301					5,342	5,779	6,029					10 - 14 - 23	
6	B1	4	20	0.16	-	2,526	1.35	5.40	1.58	2.81	3,138	3,394	3,541	5.9				0 - 1 - 4	
			30	0.35	-	3,687					4,580	4,954	5,168					1 - 2 - 9	
			40	0.62	22	4,359					5,414	5,856	6,109					2 - 4 - 13	
	B2	5	30	0.15	-	2,610					3,242	3,507	3,659		4.8			1 - 2 - 6	
			45	0.33	16	3,859					4,793	5,185	5,409					2 - 3 - 12	
			60	0.60	24	4,533					5,631	6,091	6,354					3 - 6 - 17	
	B3	6	60	0.16	16	3,286					4,082	4,415	4,606			4.0		2 - 5 - 14	
			90	0.36	26	4,601					5,715	6,182	6,449					5 - 10 - 21	
			120	0.64	34	5,554					6,899	7,463	7,786					8 - 14 - 26	
	B4	10*	105	0.19	19	3,506					4,355	4,710	4,914				2.5	3 - 7 - 18	
			160	0.45	30	5,116					6,355	6,874	7,171					7 - 13 - 25	
			215	0.81	38	6,133					7,618	8,240	8,596					12 - 18 - 29	
8	B1	4	25	0.17	-	2,912	1.77	7.08	2.07	3.68	3,617	3,913	4,082	5.9				0 - 1 - 4	
			40	0.43	20	4,647					5,773	6,244	6,514					1 - 2 - 10	
			55	0.81	28	5,558					6,904	7,468	7,791					2 - 5 - 16	
	B2	5	40	0.19	-	3,248					4,035	4,365	4,553		4.8			1 - 2 - 7	
			60	0.43	22	4,864					6,042	6,535	6,818					2 - 4 - 14	
			80	0.76	30	5,678					7,052	7,629	7,958					3 - 7 - 19	
	B3	8	80	0.21	-	-					5,080	5,495	5,732			5,919		4.0	2 - 5 - 16
			120	0.47	24	18					7,203	7,791	8,128			8,499			5 - 12 - 25
			160	0.83	32	25					8,639	9,345	9,749			10,199			9 - 16 - 30
	B4	10*	145	0.22	26	17					5,673	6,137	6,402			6,602	2.5		4 - 8 - 21
			215	0.49	36	27					8,047	8,704	9,081			9,499			8 - 16 - 29
			285	0.86	44	34					9,552	10,332	10,779			11,279			14 - 21 - 33
10	B1	5	35	0.16	-	-	2.19	8.76	2.56	4.55	4,914	5,315	5,545	5.9		1 - 1 - 5			
			52	0.36	20	20					6,913	7,478	7,801			8,081			1 - 3 - 12
			69	0.63	27	27					8,254	8,929	9,314			9,714			2 - 5 - 18
	B2	6	55	0.18	-	-					5,444	5,888	6,143		6,343	4.8			1 - 2 - 9
			80	0.38	24	24					7,346	7,946	8,289		8,659				2 - 5 - 17
			105	0.66	31	31					8,790	9,508	9,919		10,319				4 - 9 - 22
	B3	8	100	0.16	18	-					5,897	6,379	6,654		6,914			4.0	3 - 6 - 18
			150	0.35	29	22					8,425	9,113	9,507		9,919				6 - 13 - 28
			200	0.62	36	30					10,067	10,889	11,360		11,831				10 - 18 - 33
	B4	10*	180	0.15	28	21					5,655	6,117	6,381		6,611		2.5		4 - 9 - 23
			240	0.27	36	29					8,147	8,813	9,194		9,614				7 - 15 - 30
			300	0.43	41	35					9,743	10,457	10,966		11,516				11 - 19 - 34

Note: Reference page U37 for operational conditions used for performance notes

CBAL-12 / 4-PIPE COOLING

Nominal Length ft	Nozzle Size	Primary Air			Sound NC	Coil Sensible Cooling (Btu/h)								Induction ratio	Throw ft.	
		Inlet Dia.	Flow Rate	Inlet ΔPS		1.0 GPM		2.0 GPM		3.0 GPM		4.0 GPM				
		Inches	CFM	(in. H2O)		qCOIL	ΔCOIL	qCOIL	ΔCOIL	qCOIL	ΔCOIL	qCOIL	ΔCOIL			
4	A1	5	26	0.22	17	992	1.48	5.92	1.71	3.04	1,271	1,363	1,423	4.6	3-4-6	
			32	0.33	23	1,185					1,466	1,573	1,641		3-5-7	
			38	0.47	28	1,268					1,569	1,683	1,757		4-5-8	
			44	0.63	32	1,370					1,695	1,819	1,898		4-6-8	
	A2	6	36	0.14	-	1,096					1,357	1,455	1,518		3.7	3-4-7
			48	0.24	20	1,318					1,631	1,750	1,826			4-6-8
			60	0.38	26	1,497					1,853	1,988	2,074			5-7-9
			72	0.55	31	1,641					2,030	2,178	2,272			6-7-10
	A3	8	55	0.15	-	1,135					1,404	1,506	1,572		2.9	3-5-8
			75	0.28	21	1,383					1,711	1,836	1,916			5-7-10
			95	0.44	28	1,581					1,957	2,099	2,190			6-8-11
			115	0.65	33	1,845					2,284	2,450	2,556			7-8-12
6	A1	6	30	0.17	-	1,167	2.12	8.48	1.80	3.20	1,445	1,550	1,617	4.6	2-4-7	
			40	0.30	18	1,403					1,736	1,862	1,943		3-5-8	
			50	0.46	24	1,597					1,976	2,120	2,212		4-6-9	
			60	0.67	30	1,749					2,164	2,321	2,422		5-7-10	
	A2	6	55	0.19	16	1,489					1,842	1,976	2,062	3.7	4-5-9	
			70	0.30	23	1,737					2,150	2,306	2,406		5-7-10	
			85	0.45	28	1,957					2,422	2,598	2,711		6-8-11	
			100	0.62	33	2,118					2,621	2,811	2,934		7-9-12	
	A3	8	85	0.21	20	1,552					1,920	2,060	2,149	2.9	4-6-10	
			110	0.35	27	1,829					2,264	2,428	2,534		6-8-12	
			135	0.53	33	2,070					2,562	2,747	2,867		7-9-13	
			160	0.74	38	2,323					2,875	3,084	3,218		8-10-14	
8	A1	8	40	0.16	-	1,525	2.76	1.40	3.15	5.60	1,887	2,024	2,112	4.6	3-4-8	
			53	0.27	19	1,825					2,258	2,422	2,527		4-6-9	
			66	0.42	25	2,076					2,569	2,755	2,875		5-7-10	
			79	0.61	30	2,269					2,808	3,012	3,143		6-8-11	
	A2	8	70	0.17	15	1,890					2,339	2,509	2,618	3.7	4-6-10	
			95	0.32	23	2,296					2,841	3,048	3,180		5-8-12	
			120	0.51	30	2,626					3,250	3,486	3,638		7-9-13	
			145	0.74	35	2,888					3,574	3,834	4,000		8-10-14	
	A3	8	110	0.21	18	1,990					2,463	2,642	2,757	2.9	5-7-12	
			145	0.37	26	2,371					2,934	3,148	3,285		6-9-13	
			180	0.56	32	2,703					3,345	3,588	3,745		8-10-15	
			215	0.80	37	3,046					3,770	4,043	4,219		9-11-16	
10	A1	8	55	0.18	15	1,942	3.40	1.76	3.96	7.04	2,403	2,577	2,690	4.6	4-5-9	
			70	0.30	22	2,272					2,811	3,016	3,147		4-7-10	
			85	0.44	27	2,535					3,137	3,365	3,511		5-8-11	
			100	0.61	31	2,748					3,400	3,647	3,806		6-9-12	
	A2	8	90	0.19	16	2,310					2,858	3,066	3,199	3.7	5-7-11	
			120	0.35	24	4,226					5,230	5,609	5,854		6-9-13	
			150	0.54	30	3,162					3,913	4,197	4,380		8-10-15	
			180	0.78	36	3,462					4,284	4,595	4,795		9-11-16	
	A3	8	130	0.22	17	2,313					2,862	3,070	3,204	2.9	5-8-13	
			170	0.37	25	5,885					7,283	7,812	8,152		7-10-14	
			210	0.56	31	3,155					3,904	4,188	4,370		8-11-16	
			250	0.80	35	3,398					4,205	4,510	4,706		10-12-17	

Note: Reference page U37 for operational conditions used for performance notes



CBAL-12 / 4-PIPE HEATING

Nominal Length ft	Nozzle Size	Primary Air			Sound NC	Coil Heating (Btu/h)								Induction ratio	Throw ft.
		Inlet Dia.	Flow Rate	Inlet ΔPS		1.0 GPM		2.0 GPM		3.0 GPM		4.0 GPM			
		Inches	CFM	(in. H2O)		qCOIL	ΔCOIL	qCOIL	ΔCOIL	qCOIL	ΔCOIL	qCOIL	ΔCOIL		
4	A1	5	26	0.22	17	2,634	0.06	0.24	3,373	0.54	3,618	0.96	3,775	4.6	3-4-6
			32	0.33	23	3,144			3,891		4,174		4,355		3-5-7
			38	0.47	28	3,365			4,165		4,467		4,661		4-5-8
			44	0.63	32	3,635			4,499		4,826		5,036		4-6-8
	A2	6	36	0.14	-	2,909			3,600		3,861		4,029		3-4-7
			48	0.24	20	3,498			4,329		4,643		4,845		4-6-8
			60	0.38	26	3,973			4,917		5,274		5,504		5-7-9
			72	0.55	31	4,354			5,388		5,779		6,030		6-7-10
	A3	8	55	0.15	-	3,011			3,726		3,996		4,170		3-5-8
			75	0.28	21	3,670			4,541		4,871		5,083		5-7-10
			95	0.44	28	4,196			5,193		5,570		5,812		6-8-11
			115	0.65	33	4,897			6,060		6,500		6,783		7-8-12
6	A1	6	30	0.17	-	3,098	0.09	0.36	3,834	0.81	4,113	1.44	4,292	4.6	2-4-7
			40	0.30	18	3,723			4,608		4,942		5,157		3-5-8
			50	0.46	24	4,238			5,244		5,625		5,870		4-6-9
			60	0.67	30	4,641			5,743		6,160		6,429		5-7-10
	A2	6	55	0.19	16	3,951			4,889		5,244		5,473		4-5-9
			70	0.30	23	4,610			5,705		6,120		6,386		5-7-10
			85	0.45	28	5,195			6,429		6,895		7,196		6-8-11
			100	0.62	33	5,620			6,955		7,460		7,785		7-9-12
	A3	8	85	0.21	20	4,117			5,095		5,465		5,703		4-6-10
			110	0.35	27	4,855			6,008		6,444		6,725		6-8-12
			135	0.53	33	5,493			6,797		7,291		7,608		7-9-13
			160	0.74	38	6,165			7,629		8,183		8,539		8-10-14
8	A1	8	40	0.16	-	4,046	0.12	0.48	5,007	1.08	5,371	1.92	5,605	4.6	3-4-8
			53	0.27	19	4,842			5,992		6,427		6,707		4-6-9
			66	0.42	25	5,508			6,816		7,311		7,629		5-7-10
			79	0.61	30	6,021			7,451		7,992		8,340		6-8-11
	A2	8	70	0.17	15	5,016			6,208		6,659		6,948		4-6-10
			95	0.32	23	6,093			7,540		8,087		8,439		5-8-12
			120	0.51	30	6,970			8,625		9,251		9,654		6-9-13
			145	0.74	35	7,664			9,485		10,173		10,616		8-10-14
	A3	8	110	0.21	18	5,281			6,535		7,010		7,315		5-7-12
			145	0.37	26	6,292			7,787		8,352		8,716		6-9-13
			180	0.56	32	7,173			8,878		9,522		9,937		8-10-15
			215	0.80	37	8,083			10,003		10,730		11,197		9-11-16
10	A1	8	55	0.18	15	5,152	0.14	0.56	6,376	1.26	6,839	2.24	7,137	4.6	4-5-9
			70	0.30	22	6,028			7,460		8,002		8,350		4-7-10
			85	0.44	27	6,726			8,324		8,928		9,317		5-8-11
			100	0.61	31	7,291			9,023		9,678		10,099		6-9-12
	A2	8	90	0.19	16	6,128			7,584		8,135		8,489		5-7-11
			120	0.35	24	11,213			13,877		14,885		15,533		6-9-13
			150	0.54	30	8,391			10,384		11,138		11,623		8-10-15
			180	0.78	36	9,186			11,368		12,193		12,724		9-11-16
	A3	8	130	0.22	17	6,137			7,595		8,146		8,501		5-8-13
			170	0.37	25	15,616			19,326		20,729		21,631		7-10-14
			210	0.56	31	8,371			10,360		11,112		11,596		8-11-16
			250	0.80	35	9,016			11,157		11,967		12,488		10-12-17

Note: Reference page U37 for operational conditions used for performance notes



CBAL-12 / 2-PIPE COOLING

Nominal Length ft	Nozzle Size	Primary Air			Sound NC	Coil Sensible Cooling (Btu/h)								Induction ratio	Throw ft.	
		Inlet Dia.	Flow Rate	Inlet ΔPS		1.0 GPM		2.0 GPM		3.0 GPM		4.0 GPM				
		Inches	CFM	(in. H2O)		qCOIL	ΔCOIL	qCOIL	ΔCOIL	qCOIL	ΔCOIL	qCOIL	ΔCOIL			
4	A1	5	26	0.22	17	1,092	1.96	7.84	2.25	4.00	1,398	1,500	1,565	4.6	3-4-6	
			32	0.33	23	1,303					1,613	1,730	1,805		3-5-7	
			38	0.47	28	1,395					1,726	1,852	1,932		4-5-8	
			44	0.63	32	1,507					1,865	2,000	2,087		4-6-8	
	A2	6	36	0.14	-	1,206					1,492	1,601	1,670		3.7	3-4-7
			48	0.24	20	1,450					1,794	1,925	2,009			4-6-8
			60	0.38	26	1,647					2,038	2,186	2,281			5-7-9
			72	0.55	31	1,805					2,233	2,395	2,500			6-7-10
	A3	8	55	0.15	-	1,248					1,545	1,657	1,729		2.9	3-5-8
			75	0.28	21	1,521					1,883	2,019	2,107			5-7-10
			95	0.44	28	1,739					2,153	2,309	2,409			6-8-11
			115	0.65	33	2,030					2,512	2,695	2,812			7-8-12
6	A1	6	30	0.17	-	1,284	2.82	1.44	3.24	5.76	1,589	1,705	1,779	4.6	2-4-7	
			40	0.30	18	1,543					1,910	2,049	2,138		3-5-8	
			50	0.46	24	1,757					2,174	2,332	2,433		4-6-9	
			60	0.67	30	1,924					2,381	2,553	2,665		5-7-10	
	A2	6	55	0.19	16	1,638					2,027	2,174	2,268	3.7	4-5-9	
			70	0.30	23	1,911					2,365	2,537	2,647		5-7-10	
			85	0.45	28	2,153					2,665	2,858	2,983		6-8-11	
			100	0.62	33	2,330					2,883	3,092	3,227		7-9-12	
	A3	8	85	0.21	20	1,707					2,112	2,265	2,364	2.9	4-6-10	
			110	0.35	27	2,012					2,490	2,671	2,788		6-8-12	
			135	0.53	33	2,277					2,818	3,022	3,154		7-9-13	
			160	0.74	38	2,555					3,162	3,392	3,540		8-10-14	
8	A1	8	40	0.16	-	1,677	3.67	1.88	4.23	7.52	2,076	2,226	2,323	4.6	3-4-8	
			53	0.27	19	2,007					2,484	2,664	2,780		4-6-9	
			66	0.42	25	2,283					2,826	3,031	3,163		5-7-10	
			79	0.61	30	2,496					3,089	3,313	3,457		6-8-11	
	A2	8	70	0.17	15	2,079					2,573	2,760	2,880	3.7	4-6-10	
			95	0.32	23	2,525					3,125	3,352	3,498		5-8-12	
			120	0.51	30	2,889					3,575	3,835	4,002		7-9-13	
			145	0.74	35	3,177					3,931	4,217	4,400		8-10-14	
	A3	8	110	0.21	18	2,189					2,709	2,906	3,032	2.9	5-7-12	
			145	0.37	26	2,608					3,228	3,462	3,613		6-9-13	
			180	0.56	32	2,974					3,680	3,947	4,119		8-10-15	
			215	0.80	37	3,351					4,147	4,448	4,641		9-11-16	
10	A1	8	55	0.18	15	2,136	4.53	2.36	5.31	9.44	2,643	2,835	2,959	4.6	4-5-9	
			70	0.30	22	2,499					3,093	3,317	3,462		4-7-10	
			85	0.44	27	2,788					3,451	3,701	3,862		5-8-11	
			100	0.61	31	3,023					3,740	4,012	4,187		6-9-12	
	A2	8	90	0.19	16	2,540					3,144	3,372	3,519	3.7	5-7-11	
			120	0.35	24	4,648					5,753	6,170	6,439		6-9-13	
			150	0.54	30	3,478					4,305	4,617	4,818		8-10-15	
			180	0.78	36	3,808					4,712	5,055	5,275		9-11-16	
	A3	8	130	0.22	17	2,544					3,148	3,377	3,524	2.9	5-8-13	
			170	0.37	25	6,474					8,011	8,593	8,967		7-10-14	
			210	0.56	31	3,470					4,295	4,606	4,807		8-11-16	
			250	0.80	35	3,737					4,625	4,961	5,177		10-12-17	

Note: Reference page U37 for operational conditions used for performance notes



CBAL-12 / 2-PIPE HEATING

Nominal Length ft	Nozzle Size	Primary Air			Sound NC	Coil Heating (Btu/h)								Induction ratio	Throw ft.
		Inlet Dia.	Flow Rate	Inlet ΔPS		1.0 GPM		2.0 GPM		3.0 GPM		4.0 GPM			
		Inches	CFM	(in. H2O)		qCOIL	ΔCOIL	qCOIL	ΔCOIL	qCOIL	ΔCOIL	qCOIL	ΔCOIL		
4	A1	5	26	0.22	17	4,214	1.96	7.84	5,397	2.25	5,788	4.00	6,040	4.6	3-4-6
			32	0.33	23	5,031			6,226		6,678		6,969		3-5-7
			38	0.47	28	5,384			6,663		7,147		7,458		4-5-8
			44	0.63	32	5,817			7,198		7,721		8,057		4-6-8
	A2	6	36	0.14	-	4,654			5,760		6,178		6,447		3-4-7
			48	0.24	20	5,597			6,926		7,429		7,753		4-6-8
			60	0.38	26	6,358			7,868		8,439		8,806		5-7-9
			72	0.55	31	6,966			8,620		9,246		9,649		6-7-10
	A3	8	55	0.15	-	4,817			5,961		6,394		6,672		3-5-8
			75	0.28	21	5,871			7,266		7,794		8,133		5-7-10
			95	0.44	28	6,713			8,308		8,911		9,299		6-8-11
			115	0.65	33	7,835			9,696		10,400		10,853		7-8-12
6	A1	6	30	0.17	-	4,957	2.82	1.44	6,135	3.24	6,580	5.76	6,867	4.6	2-4-7
			40	0.30	18	5,957			7,372		7,908		8,252		3-5-8
			50	0.46	24	6,780			8,391		9,000		9,392		4-6-9
			60	0.67	30	7,426			9,190		9,857		10,286		5-7-10
	A2	6	55	0.19	16	6,321			7,823		8,391		8,756	4-5-9	
			70	0.30	23	7,376			9,128		9,791		10,218	5-7-10	
			85	0.45	28	8,312			10,286		11,033		11,513	6-8-11	
			100	0.62	33	9,992			11,128		11,936		12,456	7-9-12	
	A3	8	85	0.21	20	6,588			8,152		8,744		9,125	4-6-10	
			110	0.35	27	7,768			9,613		10,311		10,760	6-8-12	
			135	0.53	33	8,788			10,876		11,665		12,173	7-9-13	
			160	0.74	38	9,863			12,206		13,092		13,662	8-10-14	
8	A1	8	40	0.16	-	6,474	3.67	1.88	8,011	4.23	8,593	7.52	8,967	4.6	3-4-8
			53	0.27	19	7,747			9,587		10,283		10,731		4-6-9
			66	0.42	25	8,812			10,906		11,697		12,207		5-7-10
			79	0.61	30	9,634			11,922		12,788		13,344		6-8-11
	A2	8	70	0.17	15	8,026			9,933		10,654		11,117	4-6-10	
			95	0.32	23	9,748			12,064		12,940		13,503	5-8-12	
			120	0.51	30	11,151			13,800		14,802		15,447	7-9-13	
			145	0.74	35	12,262			15,175		16,277		16,986	8-10-14	
	A3	8	110	0.21	18	8,449			10,457		11,216		11,704	5-7-12	
			145	0.37	26	10,068			12,459		13,364		13,946	6-9-13	
			180	0.56	32	11,478			14,204		15,235		15,899	8-10-15	
			215	0.80	37	12,933			16,005		17,167		17,915	9-11-16	
10	A1	8	55	0.18	15	8,243	4.53	2.36	10,202	5.31	10,942	9.44	11,419	4.6	4-5-9
			70	0.30	22	9,645			11,936		12,803		13,360		4-7-10
			85	0.44	27	10,761			13,318		14,285		14,906		5-8-11
			100	0.61	31	11,666			14,437		15,485		16,159		6-9-12
	A2	8	90	0.19	16	9,805			12,135		13,016		13,582	5-7-11	
			120	0.35	24	17,941			22,203		23,815		24,852	6-9-13	
			150	0.54	30	13,425			16,614		17,820		18,596	8-10-15	
			180	0.78	36	14,697			18,188		19,509		20,358	9-11-16	
	A3	8	130	0.22	17	9,819			12,152		13,034		13,601	5-8-13	
			170	0.37	25	24,986			30,921		33,166		34,610	7-10-14	
			210	0.56	31	13,394			16,576		17,779		18,553	8-11-16	
			250	0.80	35	14,425			17,851		19,148		19,981	10-12-17	

Note: Reference page U37 for operational conditions used for performance notes



NOTES:

1. All performance data based on test performed in accordance with ASHRAE Standard 200-2015
2.  $\Delta P_s$  values are measured in inches of water
3. NC values are based on room absorption of 10 dB. A dash (-) indicates an NC value less than 15.
4. Throw values are based on isothermal supply air and represent throw distances to terminal velocities of 150, 100 and 50 fpm respectively
5.  $\Delta P_{Coil}$  values are measured in feet of water.  $\Delta P_{Coil}$  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

Cooling performance:

- Cooling capacity listed (qCOIL) is the 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°F  $\Delta T$  between the induced air and the chilled water supply.
- Primary air sensible cooling contribution can be calculated by the following equation:

$$qSENSPA = 1.085 \times CFMPA \times (TPA - TROOM)$$

- Primary air latent cooling can be calculated by the following equation:

$$qLATENT = 0.69 \times CFMPA \times (WROOM - WPA)$$

where WROOM and WPA are the humidity ratio of the room and primary air respectively expressed in Grains of moisture per pound dry air

TABLE 4: CORRECTION FOR ( $\Delta T$ ) BETWEEN ENTERING AIR AND ENTERING CHILLED WATER

Actual $\Delta T$	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 (qCOIL) is the 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 50°F  $\Delta T$  between the induced air and the chilled water supply.
- Primary air sensible heating offset (or contribution) can be calculated by the following equation:

$$qSENSPA = 1.085 \times CFMPA \times (TPA - TROOM)$$

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

Legend:

$\Delta P_s$  = Unit Inlet Pressure [in wg]

qCoil = Sensible Capacity, Coil [Btu/h]

$\Delta P_{Coil}$  = Water coil pressure drop [ft wg]

qSENSPA = Sensible Capacity, Primary Air [Btu/h]

CFMPA = Air Flowrate, Primary Air [CFM]

TPA = Temperature Primary Air [°F]

TROOM = Temperature Room Air [°F]

qSENSPA = Latent Capacity, Primary Air [Btu/h]

