

Tips for Quick Selection Guide

Walk-In Cooler Box Load Parameters

1. 95°F ambient air temperature surrounding box.
2. 4" Styrene (R = 16.7, K = .24) walls/ceiling, 6" concrete slab floor.
3. Average product load with 5°F pulldown in 24 hours.
4. BTUH load based on 16 to 18 hour compressor run time for 35°F box (timer recommended) + 20 hours for 30°F box.
5. See Table C for adjustment to box load for glass doors.
6. For 80°F ambient temp. surrounding box deduct 12%.
7. For 4" Urethane walls + ceiling, 6" concrete slab floor deduct 12%.
8. For 10-ft. ceiling height add 10%.
9. For additional BTUH load for product cooling see Table A.

Walk-In Freezer Box Load Parameters

1. 95°F ambient air temperature surrounding box.
2. 4" Urethane (R = 25, K = .16) walls, ceiling + floor.
3. Average product load with 10 degree pulldown in 24 hours.
4. BTUH load based on 18 hour compressor run time.
5. See Table C for adjustment to box load for glass doors.
6. For 80°F ambient air temp. surrounding box deduct 12%.
7. For 20 hour compressor run time (light frost load) in lieu of 18 hour run time, deduct 11%.
8. For 10-ft. ceiling add 10%.
9. For additional BTUH load for product freezing, refer to Table D.

Table A – Product Cooling Loads for Walk-In Coolers

(24 hour pulldown/18 hour compressor operation) 24% safety factor added to loads to allow for service.

Product	Specific Heat Above Freezing	10 Degree Pulldown BTUH Load for Indicated Lbs. of Product per 24 Hours					
		500	1000	1500	2000	3000	5000
Beef	.72	240	480	720	960	1440	2400
Pork	.53	177	353	530	706	1060	1767
Veal & Lamb	.76	253	506	760	1012	1520	2533
Poultry	.79	263	526	790	1053	1580	2633
Seafood	.80	267	533	800	1066	1600	2667
Vegetables	.92	307	613	920	1226	1840	3067
Bakery Food	.74	247	494	740	988	1480	2467
Beer	1.00	333	666	1000	1333	2000	3333

Note: For product pulldown greater than 10 degrees, divide pulldown temperature by 10. Multiply this number by the BTUH shown on Table A, then add to box load.

Table B – Meat Cutting/Prep Room Load

(BTUH/hr./sq. ft. of floor area)

Floor Sq. Ft.	Approx. 65% RH Room Temperature	
	55° F	50° F
	100	93
200	88	99
300	85	95
400	81	90
500	78	87
600	75	85
700	72	81
800	69	78
900	67	75
1000	65	73
1200	62	69

Room loads based on continuous operation and includes allowance for average number of personnel, processing equipment, etc., with glass panel in one wall and walls and ceilings insulated with 3" of styrene with box located in air conditioned area. Evaporator should be low outlet velocity type to avoid drafts and should be selected for continuous operation and not less than 30°F evap. temperature.

Table C – Glass Door Loads

Box Temperature	BTU per Door
+35	1060
+30	960
0	1730
-10	1730
-20	1730

Note: Adjusted for run time load. Multiply number of doors times door load above and add to box load.

APPLICATION NOTE:

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Table D – Product Freezing Loads for Walk-In Freezers

Product	Specific Heat BTU/Lb./°F		Latent Heat BTU/Lb./°F	Freezer °F	-10°F Freezer Temp. BTUH for Indicated Lbs. Prod/Day					
	-32	+32			100	300	750	1000	1500	3000
	Beef	.72			.40	95	29	790	2370	5925
Pork	.53	.32	60	28	523	1571	3926	5235	7853	15710
Veal & Lamb	.76	.45	100	28	841	2524	6311	8414	12621	25240
Poultry	.79	.42	106	27	878	2636	6590	8787	13181	26360
Seafood	.80	.43	110	28	906	2719	6797	9063	13595	27190
Vegetables	.92	.47	130	30	1053	3159	7898	10530	15795	31590
Bakery Foods	.74	.34	53	20	520	1560	3900	5200	7800	15600

Note: Freezing loads based on product entering at 40°F maximum. For a specific pulldown time, the product load BTUH/hr. may be adjusted by multiplying the above loads by 24 and dividing by the specified pulldown time in hours. To adjust for 0°F freezer temperature, multiply the above loads by 0.97 and for -20°F freezer, multiply by 1.04.

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DIMENSIONS	FLOOR SQ. FT.	BTUH LOAD									
		+35 ROOM USAGE		+30 ROOM USAGE		0 ROOM USAGE		-10 ROOM USAGE		-20 ROOM USAGE	
		AVG.	HVY.	AVG.	HVY.	AVG.	HVY.	AVG.	HVY.	AVG.	HVY.
6x6x8	36	4750	6389	4488	6037	4583	6505	4929	7041	5274	7577
6x8x8	48	5417	7274	5119	6974	5225	7407	5630	8028	6034	8648
6x10x8	60	6055	8100	5722	7655	5806	8213	6265	8911	6725	9609
8x8x8	64	6188	8291	5848	7835	5934	8410	6405	9127	6876	9844
8x10x8	80	6954	9269	6572	8759	6631	9363	7165	10169	7699	10974
8x12x8	96	7669	10174	7247	9614	7273	10234	7867	11123	8461	12011
8x14x8	112	8366	11045	7905	10437	7922	11092	8575	12059	9227	13026
8x16x8	128	9051	11888	8553	11234	8528	11890	9237	12933	9946	13976
8x18x8	144	9748	12732	9212	12032	9169	12732	9936	13852	10702	14972
8x20x8	160	10419	13548	9846	12803	9755	13490	10576	14682	11397	15874
8x22x8	176	11540	14807	10905	13992	10817	14715	11692	15977	12567	17239
8x24x8	192	12224	15622	11552	14763	11386	15439	12314	16769	13242	18099
8x26x8	208	12874	16398	12166	15496	11976	16176	12955	17573	13935	18970
8x28x8	224	13519	17163	12775	16219	12530	16873	13562	18336	14594	19799
8x30x8	240	14187	17947	13407	16960	13108	17587	14191	19115	15274	20642
8x32x8	256	14824	18694	14009	17666	13653	18264	14786	19855	15920	21446
10x10x8	100	7789	10339	7361	9770	7386	10401	7990	11304	8594	12208
10x12x8	120	8626	11385	8152	10759	8138	11405	8809	12401	9481	13397
10x14x8	140	9439	12384	8920	11703	8887	12405	9626	13493	10365	14581
10x16x8	160	10250	13379	9686	12643	9577	13311	10379	14484	11182	15658
10x18x8	180	11049	14349	10441	13560	10279	14216	11144	15472	12009	16728
10x20x8	200	11838	15299	11187	14458	10942	15070	11868	16405	12794	17741
10x24x8	240	13391	17180	12654	16207	12751	17231	13796	18721	14842	20211
10x28x8	280	14891	18922	14072	17881	14043	18844	15205	20482	16367	22120
12x12x8	144	10038	13021	9486	12305	8991	12553	9739	13655	10486	14756
12x14x8	168	10956	14155	10353	13376	10235	14052	11055	15251	11875	16450
12x16x8	192	11886	15284	11232	14443	11029	15082	11919	16375	12810	17667
12x18x8	216	12775	16359	12072	15459	11807	16080	12767	17464	13726	18847
12x20x8	240	13681	17440	12928	16481	12573	17052	13599	18524	14626	19995
12x22x8	264	14549	18474	13749	17458	13299	17974	14392	19541	15485	21088
14x14x8	196	11993	15423	11333	14575	11126	15216	12024	16521	12923	17826
14x16x8	224	13013	16656	12297	15740	11995	16338	12971	17745	13946	19152
14x20x8	280	15011	19042	14185	17795	13687	18487	14811	20088	15935	21688
14x24x8	336	16969	21347	16036	21073	15330	20539	16598	22324	17866	24110
16x16x8	256	14148	18019	13370	17028	12939	17550	13998	19067	15056	20583
16x20x8	320	16349	20631	15450	19496	14777	19873	15996	21598	17215	23323
16x24x8	374	18506	23157	17488	21883	16563	22093	17938	24017	19313	25941
18x18x8	324	16476	20782	15570	19639	14864	19989	16090	21724	17317	23460
18x20x8	360	18128	22644	17131	21398	16305	21678	17617	23523	18930	25369
18x24x8	432	20484	25389	19357	23993	18260	24090	19739	26149	21219	28208
20x20x8	400	19470	24145	18340	22817	17386	23019	18790	24982	20194	26945
20x24x8	480	21988	27132	20779	25640	19453	25566	21036	27755	22619	29945
20x28x8	560	24963	30480	23590	28804	21963	28514	23721	30922	25479	33330
20x32x8	640	27480	33340	25969	31506	23954	30909	25884	33529	27813	36149
20x36x8	720	29946	36127	28299	34140	25919	33251	28017	36077	30115	38903
20x40x8	800	32420	38904	30637	36764	27888	35575	30153	38603	32518	41631
24x40x8	960	38694	45735	36565	43878	34681	43023	37368	46538	39939	49937
28x40x8	1120	43183	50733	40808	48970	38123	47062	41095	50921	43950	54664
32x40x8	1280	48550	56318	45880	55056	42894	51900	46146	56580	49282	60656
36x40x8	1440	54344	62804	51355	61626	46254	56259	49872	60781	53194	65186
40x40x8	1600	58738	67611	55507	66608	49583	60073	53385	64916	57070	69642

Note: Heavy usage is defined as 2x average air change. Average air changes determined by ASHRAE based on box size for 24 hour period.

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