

2008 SECONDARY COOLANT CASE REFRIGERATION REQUIREMENTS TABLE (REV-1)



SINGLE DECK MERCHANDISERS																			
CASE MODEL	FRONT SILL TYPE	BTUH/ft ⁽¹⁾ or BTUH/Door	FLOW RATE GPM/ft	CHARGE GAL/ft	TEMPERATURE (°F)			AIR VELOCITY FPM ⁽²⁾	# DEF.	DEFROST									
					SUPPLY	DISC. AIR	RET. AIR			Electric		Timed Off		Warm Fluid		Reverse Air			
										Fail Safe (Minutes)	Temp. (°F)	Fail Safe (Minutes)	Temp. (°F)	# DEF.	Fail Safe (Minutes)	Temp. (°F)	Fail Safe (Minutes)	Temp. (°F)	
MPC	Standard MPC	617	TBD	TBD	TBD	TBD	TBD	TBD	TBD	---	---	TBD	TBD						
OC	Standard	480 ⁽³⁾	0.40	0.32	20°F	26	39	305	4	---	---	60	47	1	26	49	---	---	
	All Other Fronts	415 ⁽³⁾	0.13	0.32	20°F	29	41	305	4	---	---	---	---		26	49	---	---	
OM	Standard	480 ⁽³⁾	0.40	0.32	20°F	26	39	305	4	---	---	60	47	1	26	49	---	---	
	All Other Fronts	415 ⁽³⁾	0.23	0.32	20	27	39	305	4	---	---	---	---		26	49	---	---	
ONMZ	6" Thermopane	430 ⁽³⁾	TBD	TBD	TBD	TBD	TBD	TBD	TBD	---	---	TBD	TBD				---	---	
OMZ	6" Thermopane	550 ⁽³⁾	0.46	0.32	-20	-10	0	120	4	---	---	---	---		35	55	---	---	
OMZD	Frozen Food	11" Thermopane	456 ⁽³⁾	0.38	0.32	-20	-8	2	240	1	---	---	---	---	35 ⁽¹⁸⁾	55	---	---	
	Ice Cream	11" Thermopane	476 ⁽³⁾	TBD	TBD	TBD	TBD	TBD	TBD	---	---	TBD	TBD				---	---	
ONP	Bulk Produce	43" (Rear Sill)	401 ⁽³⁾	TBD	TBD	TBD	TBD	TBD	TBD	---	---	TBD	TBD				---	---	
OP	Cut Produce	39" (Rear Sill)	288 ⁽³⁾	0.15 / 0.36	0.32	20 / 25	31	42	180	2	---	---	60	47		26	49	---	---
		43" (Rear Sill)	401 ⁽³⁾	0.50	0.32	25°F	30	45	210	3	---	---	60	47		26	49	---	---
OP	Bulk Produce	39" (Rear Sill)	230 ⁽³⁾	0.10 / 0.24	0.32	20 / 25	26	44	180	2	---	---	60	47		26	49	---	---
		43" (Rear Sill)	374 ⁽³⁾	0.39	0.32	25°F	35	47	210	2	---	---	60	47		26	49	---	---
OWP	Cut Produce	39" (Rear Sill)	377 ⁽³⁾	TBD	TBD	TBD	TBD	TBD	TBD	TBD	---	---	TBD	TBD				---	---
		43" (Rear Sill)	525 ⁽³⁾	TBD	TBD	TBD	TBD	TBD	TBD	TBD	---	---	TBD	TBD				---	---
OWP	Bulk Produce	39" (Rear Sill)	301 ⁽³⁾	TBD	TBD	TBD	TBD	TBD	TBD	TBD	---	---	TBD	TBD				---	---
		43" (Rear Sill)	490 ⁽³⁾	TBD	TBD	TBD	TBD	TBD	TBD	TBD	---	---	TBD	TBD				---	---

2008 SECONDARY COOLANT CASE REFRIGERATION REQUIREMENTS TABLE (REV-1)



UTILITY MERCHANDISERS																			
CASE MODEL	FRONT SILL TYPE	BTUH/ft ⁽¹⁾ BTUH/Door	FLOW RATE GPM/ft	CHARGE GAL/ft	TEMPERATURE (°F)			AIR VELOCITY FPM ⁽²⁾	DEFROST										
					SUPPLY	DISC. AIR	RET. AIR		# DEF.	Electric		Timed Off		Warm Fluid		Reverse Air			
										Fail Safe (Minutes)	Temp. (°F)	Fail Safe (Minutes)	Temp. (°F)	# DEF.	Fail Safe (Minutes)	Temp. (°F)	Fail Safe (Minutes)	Temp. (°F)	
ONUMD	All Fronts	1390 ⁽³⁾	1.06	0.54	20°F	29	40	250	4	---	---	60	47		26	49	---	---	
ONUM	All Fronts	530 ⁽³⁾	0.44		20°F	28	35	TBD	4	---	---	60	47		26	49	---	---	
OUM	All Fronts	810 ⁽³⁾	0.68		20°F	27	40	TBD	4	---	---	60	47		26	49	---	---	
ON2UM	All Fronts	657 ⁽³⁾	0.37	0.54	20°F	28	35	280	4	---	---	60	47		26	49	---	---	
O2UM	Bulk Produce	1000 ⁽³⁾	0.17	0.54	20	37	44	340	4	---	---	60	47		26	49	---	---	
	Deli/Produce	1000 ⁽³⁾	0.33	0.54	20	33	39	340	4	---	---	60	47		26	49	---	---	
	Fresh Meat	1000 ⁽³⁾	0.37	0.54	20°F	28	35	340	4	---	---	60	47		26	49	---	---	
OW2UM	All Fronts	1236 ⁽³⁾	0.51		20°F	27	40		4	---	---	60	47		26	49	---	---	
ON2.5UM	All Fronts	811 ⁽³⁾	0.42	0.54	20°F	28	35	284	4	---	---	60	47		26	49	---	---	
O2.5UM	Bulk Produce	1020 ⁽³⁾	0.17	0.54	20	37	43	225	4	---	---	60	47		26	49	---	---	
	Deli/Produce	1020 ⁽³⁾	0.25	0.54	20	31	39	225	4	---	---	60	47		26	49	---	---	
	Fresh Meat	1020 ⁽³⁾	0.42	0.54	20°F	27	45	225	4	---	---	60	47		26	49	---	---	
	w/ Plexiglas Dome	Standard Front	1380 ⁽³⁾	1.10	0.54	20	27	46	305	4	---	---	---	---		30	49	---	---
O2.75UM	All Fronts	1025 ⁽³⁾	0.47	TBD	20°F	27	45	TBD	4	---	---	60	47		26	49	---	---	
O2.75MZD-F	All Fronts	1005 ⁽³⁾	TBD	TBD	TBD	TBD	TBD	TBD											
ON3UM	All Fronts	824 ⁽³⁾	0.47	0.54	20°F	28	35	230	4	---	---	60	47		26	49	---	---	
O3UM	Bulk Produce	1030 ⁽³⁾	0.17	0.54	20	38	43	225	4	---	---	60	47		26	49	---	---	
	Deli/Produce	1030 ⁽³⁾	0.33	0.54	20	30	38	225	4	---	---	60	47		26	49	---	---	
	Fresh Meat	1030 ⁽³⁾	0.47	0.54	20°F	27	45	225	4	---	---	60	47		26	49	---	---	
OW3UM	All Fronts	1349 ⁽³⁾	0.88	TBD	20°F	27	45	TBD	4	---	---	60	47		26	49	---	---	
O3UD	Standard Dairy	1030 ⁽³⁾	0.54	TBD	20°F	30	45	TBD	4	---	---	60	47		26	49	---	---	
ON3.5UM	All Fronts	1019 ⁽³⁾	0.63	0.54	20°F	28	35	204	4	---	---	60	47		26	49	---	---	
O3.5UM	Bulk Produce	1300 ⁽³⁾	0.19	0.54	20	37	45	300	4	---	---	60	47		26	49	---	---	
	Deli/Produce	1300 ⁽³⁾	0.31	0.54	20	31	41	300	4	---	---	60	47		26	49	---	---	
	Fresh Meat	1300 ⁽³⁾	0.63	0.54	20°F	30	45	300	4	---	---	60	47		26	49	---	---	
O3.5UD	Standard Dairy	1300 ⁽³⁾	0.70	0.54	20°F	30	45	300	4	---	---	60	47		26	49	---	---	
ON4UM	All Fronts	1135 ⁽³⁾	0.79	0.54	20°F	31	43	203	4	---	---	60	47		26	49	---	---	
O4UM	Bulk Produce	1460 ⁽³⁾	0.20	0.54	20	36	47	300	4	---	---	60	47		26	49	---	---	
	Deli/Produce	1460 ⁽³⁾	0.45	0.54	20	32	44	300	4	---	---	60	47		26	49	---	---	
	Fresh Meat	1460 ⁽³⁾	0.79	0.54	20°F	30	43	300	4	---	---	60	47		26	49	---	---	
ON5UM	All Fronts	1205 ⁽³⁾	0.83	0.54	20°F	31	43	240	4	---	---	60	47		26	49	---	---	
O5UM	33" Front	1490 ⁽³⁾	0.83	0.54	20°F	30	42	300	4	---	---	60	47		26	49	---	---	
ON6UM	All Fronts	1092 ⁽³⁾	0.88	TBD	20°F	28	40	TBD	4	---	---	60	47		26	49	---	---	
O6UM	33" Front	1405 ⁽³⁾	0.88	0.54	20°F	29	41	300	4	---	---	42	47		26	49	---	---	

2008 SECONDARY COOLANT CASE REFRIGERATION REQUIREMENTS TABLE (REV-1)



MULTI-DECK MERCHANDISERS																				
CASE MODEL	FRONT SILL TYPE	BTUH/ft ⁽¹⁾	FLOW RATE GPM/ft	CHARGE GAL/ft	TEMPERATURE (°F)			AIR VELOCITY FPM ⁽²⁾	DEFROST											
					SUPPLY	DISC. AIR	RET. AIR		# DEF.	Electric		Timed Off		Warm Fluid		Reverse Air				
										Fail Safe (Minutes)	Temp. (°F)	Fail Safe (Minutes)	Temp. (°F)	# DEF.	Fail Safe (Minutes)	Temp. (°F)	Fail Safe (Minutes)	Temp. (°F)		
BB	Standard BB	1290	0.49	0.48	20°F	32	45	325	4	---	---	---	---		26	49	---	---		
ONN3U	Standard ONN	665	TBD	TBD	TBD	TBD	TBD	TBD	TBD											
ONN35U	Standard ONN	700	0.47	TBD	20°F	35	45	TBD				TBD	TBD							
ONN5U	Standard ONN	990	0.63		20°F	33	44													
ON5DM	Dairy	Standard Dairy	1811 ⁽³⁾	0.80	0.48	20°F	32	47	215	4	---	---	60	47		26	49	---	---	
		2.5" Extended	1766 ⁽³⁾	0.77	0.48	20	31	44	215	4	---	---	42	47		26	49	---	---	
		5" Extended	1739 ⁽³⁾	TBD	TBD	TBD	TBD	TBD	TBD											
		7.5" Extended	1681 ⁽³⁾	0.70	0.48	20	31	40	215	4	---	---	42	47		26	49	---	---	
ON5DM	Beverage	Standard Dairy	1670 ⁽³⁾	0.95	0.48	25°F	37	53	215	4	---	---	60	47		26	49	---	---	
	Produce	2.5" Extended	1628 ⁽³⁾	0.51 / 0.93	0.48	20 / 25	36	52	215	4	---	---	42	47		26	49	---	---	
		5" Extended	1576 ⁽³⁾	TBD	TBD	TBD	TBD	TBD	TBD											
		7.5" Extended	1550 ⁽³⁾	0.48 / 0.88	0.48	20 / 25	36	52	215	4	---	---	42	47		26	49	---	---	
ON5DMH	Dairy	Standard Dairy	1840 ⁽³⁾	0.85	0.48	20°F	33	48	215	4	---	---	42	47		26	49	---	---	
		2.5" Extended	1795 ⁽³⁾	0.83	0.48	20	33	45	215	4	---	---	42	47		26	49	---	---	
		5" Extended	1779 ⁽³⁾	TBD	TBD	TBD	TBD	TBD	TBD											
		7.5" Extended	1700 ⁽³⁾	0.78	0.48	20	32	41	215	4	---	---	42	47		26	49	---	---	
ON5DMH	Beverage	Standard Dairy	1700 ⁽³⁾	0.55	0.48	20°F	37	54	215	4	---	---	60	47		26	49	---	---	
		2.5" Extended	1640 ⁽³⁾	TBD	TBD	TBD	TBD	TBD	TBD											
	Produce	2.5" Extended	1608 ⁽³⁾	0.53	0.48	20	37	53	215	4	---	---	42	47		26	49	---	---	
		7.5" Extended	1595 ⁽³⁾	0.52	0.48	20	36	52	215	4	---	---	42	47		26	49	---	---	
O5DM	Deli	2.5" Extended	1570 ⁽³⁾	0.49	0.48	20°F	30	44	270	4	---	---	60	47		26	49	---	---	
		5" Extended	1530 ⁽³⁾	0.33 / 0.48	0.48	15 / 20	30	44	270	4	---	---	42	47		26	49	---	---	
	w/ Shelf Lights	7.5" Extended	1500 ⁽³⁾	0.32 / 0.47	0.48	15 / 20	30	44	270	4	---	---	42	47		26	49	---	---	
O5DM	Dairy	Standard Dairy	1470 ⁽³⁾	0.53	0.48	25°F	36	52	270	3	---	---	60	47		26	49	---	---	
		Cut Produce	2.5" Extended	1431 ⁽³⁾	0.28 / 0.52	0.48	20 / 25	34	47	270	3	---	---	42	47		26	49	---	---
			5" Extended	1401 ⁽³⁾	0.28 / 0.51	0.48	20 / 25	34	47	270	3	---	---	42	47		26	49	---	---
	w/ Shelf Lights	7.5" Extended	1370 ⁽³⁾	0.27 / 0.49	0.48	20 / 25	34	47	270	3	---	---	42	47		26	49	---	---	
O5DM	Beverage	Standard Dairy	1470 ⁽³⁾	0.53	0.48	25°F	36	52	270	4	---	---	60	47		26	49	---	---	
		Bulk Produce	2.5" Extended	1450 ⁽³⁾	0.28 / 0.51	0.48	20 / 25	36	52	270	3	---	---	42	47		26	49	---	---
			5" Extended	1420 ⁽³⁾	0.27 / 0.50	0.48	20 / 25	36	52	270	3	---	---	42	47		26	49	---	---
	w/o Shelf Lights	7.5" Extended	1390 ⁽³⁾	0.27 / 0.49	0.48	20 / 25	36	52	270	3	---	---	42	47		26	49	---	---	
O5DMH	Deli	2.5" Extended	1620 ⁽³⁾	0.49	0.48	20°F	31	43	250	4	---	---	60	47		26	49	---	---	
		5" Extended	1570 ⁽³⁾	0.33 / 0.48	0.48	15 / 20	31	43	250	4	---	---	42	47		26	49	---	---	
		w/ Shelf Lights	7.5" Extended	1540 ⁽³⁾	0.32 / 0.47	0.48	15 / 20	31	43	250	4	---	---	42	47		26	49	---	---
O5DMH	Dairy	Standard Dairy	1495 ⁽³⁾	0.53	0.48	25°F	37	52	265	4	---	---	60	47		26	49	---	---	
		Cut Produce	2.5" Extended	1500 ⁽³⁾	0.28 / 0.52	0.48	20 / 25	35	47	265	3	---	---	42	47		26	49	---	---
			5" Extended	1470 ⁽³⁾	0.28 / 0.51	0.48	20 / 25	35	47	265	3	---	---	42	47		26	49	---	---
	w/ Shelf Lights	7.5" Extended	1440 ⁽³⁾	0.27 / 0.49	0.48	20 / 25	35	47	265	3	---	---	42	47		26	49	---	---	
O5DMH	Beverage	Standard Dairy	1495 ⁽³⁾	0.29	0.48	20°F	37	52	270	4	---	---	60	47		26	49	---	---	
		Bulk Produce	2.5" Extended	1455 ⁽³⁾	0.28 / 0.52	0.48	20 / 25	36	53	270	3	---	---	42	47		26	49	---	---
			5" Extended	1426 ⁽³⁾	0.28 / 0.51	0.48	20 / 25	36	52	270	3	---	---	42	47		26	49	---	---
	w/o Shelf Lights	7.5" Extended	1397 ⁽³⁾	0.27 / 0.49	0.48	20 / 25	36	52	270	3	---	---	42	47		26	49	---	---	

2008 SECONDARY COOLANT CASE REFRIGERATION REQUIREMENTS TABLE (REV-1)



MULTI-DECK MERCHANDISERS (Continued)																	
CASE MODEL	FRONT SILL TYPE	BTUH/ft ⁽¹⁾ or BTUH/Door	FLOW RATE GPM/ft	CHARGE GAL/ft	TEMPERATURE (°F)			AIR VELOCITY FPM ⁽²⁾	DEFROST								
					SUPPLY	DISC. AIR	RET. AIR		# DEF.	Electric		Timed Off		Warm Fluid		Reverse Air	
										Fail Safe (Minutes)	Temp. (°F)	Fail Safe (Minutes)	Temp. (°F)	# DEF.	Fail Safe (Minutes)	Temp. (°F)	Fail Safe (Minutes)
O5DR Dairy	Standard Dairy	1502 ⁽³⁾	0.89	0.48	20°F	32	47	275	4	---	---	60	47	26	49	---	---
	2.5" Extended	1502 ⁽³⁾	0.50 / 0.87	0.48	15 / 20	32	46	275	4	---	---	42	47	26	49	---	---
	5" Extended	1453 ⁽³⁾	0.49 / 0.85	0.48	15 / 20	32	42	275	4	---	---	42	47	26	49	---	---
O5DR Beverage	2.5" Extended	1422 ⁽³⁾	0.83	0.48	20°F	35	48	275	4	---	---	60	47	26	49	---	---
	5" Extended	1389 ⁽³⁾	1.11	0.48	25°F	35	48	275	4	---	---	60	47	26	49	---	---
	7.5" Extended	1422 ⁽³⁾	0.81 / 1.08	0.48	20 / 25	35	47	275	4	---	---	42	47	26	49	---	---
O5DRH Dairy	Standard Dairy	1543 ⁽³⁾	0.89	0.48	20°F	32	47	275	4	---	---	60	47	26	49	---	---
	2.5" Extended	1543 ⁽³⁾	0.50 / 0.87	0.48	15 / 20	32	46	275	4	---	---	42	47	26	49	---	---
	5" Extended	1493 ⁽³⁾	0.49 / 0.85	0.48	15 / 20	32	42	275	4	---	---	42	47	26	49	---	---
	7.5" Extended	1464 ⁽³⁾	0.48 / 0.83	0.48	15/20	32	42	275	4	---	---	42	47	26	49	---	---
O5DRH Beverage	2.5" Extended	1461 ⁽³⁾	0.83 / 1.11	0.48	20 / 25	35	48	275	4	---	---	42	47	26	49	---	---
	5" Extended	1427 ⁽³⁾	0.81 / 1.08	0.48	20 / 25	35	47	275	4	---	---	42	47	26	49	---	---
O5M	6" Thermopane	1760 ⁽³⁾	0.92	TBD	20°F	26	38	TBD	4	---	---	60	47	26	49	---	---
O5MR	6" Thermopane	1667 ⁽³⁾	0.87	TBD	20°F	31	41	TBD	4	---	---	60	47	26	49	---	---
O5Z	Standard O5Z	1840	0.87	1.15	-20	-5	0	TBD	4	---	---	---	---	20 ⁽⁷⁾	55	---	---
ONHM	Standard	1440 ⁽³⁾	0.60	0.48	15	30	41	340	4	---	---	---	---	26	49	---	---
	All Other Fronts	1440 ⁽³⁾	0.79	0.48	20°F	30	41	340	4	---	---	---	---	26	49	---	---
ONHMH	Standard	1440 ⁽³⁾	0.85	0.48	15	30	41	340	4	---	---	---	---	26	49	---	---
	All Other Fronts	1440 ⁽³⁾	0.79	0.48	20°F	30	41	340	4	---	---	---	---	26	49	---	---
OHM	Standard	1385 ⁽³⁾	0.75	0.54	20°F	28	38	350	4	---	---	---	---	26	49	---	---
	All Other Fronts	1341 ⁽³⁾	0.63	0.54	20	30	42	350	4	---	---	---	---	26	49	---	---
OHMH	Standard	1434 ⁽³⁾	0.79	0.54	20°F	29	41	330	4	---	---	---	---	26	49	---	---
	All Other Fronts	1340 ⁽³⁾	0.63	0.54	20	32	44	330	4	---	---	---	---	26	49	---	---
ONHP Cut Produce	Standard	1310 ⁽³⁾	0.65	0.48	20°F	32	45	360	3	---	---	50	47	26	49	---	---
	Bulk Produce	930 ⁽³⁾	0.36	0.48	20°F	36	48	360	3	---	---	60	47	26	49	---	---
ONHPH Cut Produce	Standard	1330 ⁽³⁾	0.66	0.48	20°F	34	46	360	4	---	---	50	47	26	49	---	---
	Bulk Produce	945 ⁽³⁾	0.36	0.48	20°F	37	47	360	3	---	---	60	47	26	49	---	---
OHP Cut Produce	Standard	1215 ⁽³⁾	0.60	0.54	20°F	31	45	440	3	---	---	30	47	20	49	---	---
	Bulk Produce	855 ⁽³⁾	0.33	0.54	20°F	36	48	250	3	---	---	60	47	26	49	---	---
OHPH Cut Produce	Standard	1460 ⁽³⁾	0.60	0.54	20°F	30	45	315	4	---	---	50	47	26	49	---	---
	Bulk Produce	1215 ⁽³⁾	0.33	0.58	20°F	31	45	315	3	---	---	60	47	26	49	---	---
OWHP Cut Produce	Standard	1592 ⁽³⁾	0.79	TBD	20°F	31	45	TBD	4	---	---	60	47	26	49	---	---
	Bulk Produce	1120 ⁽³⁾	0.79	TBD	20°F	31	45	TBD	3	---	---	60	47	26	49	---	---
OWHPH Cut Produce	Standard	1913 ⁽³⁾	0.79	TBD	20°F	30	45	TBD	4	---	---	60	47	26	49	---	---
	Bulk Produce	1592 ⁽³⁾	0.43	TBD	20°F	31	45	TBD	3	---	---	60	47	26	49	---	---
ONN	Standard	4220 ⁽³⁾	3.16	TBD	20°F	31	43	TBD	4	---	---	60	47	26	49	---	---
ONU	2.5" Extended	1450 ⁽³⁾	0.79	1.09	20°F	30	40	310	4	---	---	60	47	26	49	---	---
ORDR ⁽⁸⁾	Standard ORDR	739	0.35	0.43	20°F	28	44	310	4	---	---	42	47	26	49	---	---

2008 SECONDARY COOLANT CASE REFRIGERATION REQUIREMENTS TABLE (REV-1)



END CAP MERCHANDISERS																			
CASE MODEL	FRONT SILL TYPE	BTUH/ft ⁽¹⁾ or BTUH/Door	FLOW RATE GPM/ft	CHARGE GAL/ft	TEMPERATURE (°F)			AIR VELOCITY FPM ⁽²⁾	DEFROST										
					SUPPLY	DISC. AIR	RET. AIR		# DEF.	Electric		Timed Off		Warm Fluid		Reverse Air			
					(°F)	(°F)	(°F)			Fail Safe (Minutes)	Temp. (°F)								
ONEMZ	6" Thermopane	1800 ⁽³⁾⁽⁶⁾	TBD	TBD	TBD	TBD	TBD	TBD											
OEMZ	6" Thermopane	2918 ⁽³⁾⁽⁶⁾	2.80	2.34 ⁽⁶⁾	20°F	29	37	305	4	---	---	---	---		26	49	---	---	
ON3EM	Standard	6000 ⁽³⁾⁽⁶⁾	3.29	3.29	20°F	33	45	230	4	---	---	60	47		26	49	---	---	
O3EM	Standard	6900 ⁽³⁾⁽⁶⁾	3.29	3.95	20°F	33	45	225	4	---	---	60	47		26	49	---	---	
ON3.5EM	Standard	7100 ⁽³⁾⁽⁶⁾	4.41	3.29	20°F	33	45	204	4	---	---	60	47		26	49	---	---	
O3.5EM	Standard	8709 ⁽³⁾⁽⁶⁾	4.41	3.95	20°F	33	45	300	4	---	---	60	47		26	49	---	---	
ON4EM	Standard	6430 ⁽³⁾⁽⁶⁾	4.14	3.29	20	31	40	203	4	---	---	60	47		26	49	---	---	
ON5EM	Standard	6770 ⁽³⁾⁽⁶⁾	5.81	3.29	20°F	30	40	240	4	---	---	60	47		26	49	---	---	
OEP	Standard	2244 ⁽³⁾⁽⁶⁾	2.73	2.34	25°F	35	47	NA	4	---	---	60	47		26	49	---	---	
ON3EP	Standard	4260 ⁽³⁾⁽⁶⁾	2.88	2.34	20	NA	47	NA	4	---	---	60	47		26	49	---	---	
O3EP	Standard	2917 ⁽³⁾⁽⁶⁾	1.39	3.95	20°F	36	47	NA	4	---	---	60	47		26	49	---	---	

GLASS DOOR REACH-IN MERCHANDISERS																			
CASE MODEL	FRONT SILL TYPE	BTUH/ft ⁽¹⁾ or BTUH/Door	FLOW RATE GPM/ft	CHARGE GAL/ft	TEMPERATURE (°F)			AIR VELOCITY FPM ⁽²⁾	DEFROST										
					SUPPLY	DISC. AIR	RET. AIR		# DEF.	Electric		Timed Off		Warm Fluid		Reverse Air			
					(°F)	(°F)	(°F)			Fail Safe (Minutes)	Temp. (°F)								
ONRB ⁽⁹⁾	Deli/Dairy	Std. Reach In	830 ⁽³⁾	0.40	1.20	20°F	36	38	460	4	---	---	60	47	1	26	49	---	---
	Beverage	Std. Reach In	800 ⁽³⁾	0.39	TBD	20°F	38	40	TBD	4	---	---	60	47	1	26	49	---	---
ONRBH ⁽⁹⁾	Deli/Dairy	Std. Reach In	830 ⁽³⁾	0.40	1.20	20°F	36	38	405	4	---	---	60	47	1	24	49	---	---
	Beverage	Std. Reach In	800 ⁽³⁾	0.39	TBD	20°F	38	40	TBD	4	---	---	60	47	1	26	49	---	---
ORB	Deli/Dairy	Std. Reach In	830 ⁽³⁾	0.40	1.20	20°F	36	38	380	4	---	---	60	47	1	24	49	---	---
	Beverage	Std. Reach In	800 ⁽³⁾	0.39	TBD	20°F	38	40	TBD	4	---	---	60	47	1	26	49	---	---
ORBH	Deli/Dairy	Std. Reach In	830 ⁽³⁾	0.40	1.20	20°F	36	38	280	4	---	---	60	47	1	24	49	---	---
2, 3, 4, 5, & 6	Beverage	Std. Reach In	800 ⁽³⁾	0.39	TBD	20°F	38	40	TBD	4	---	---	60	47	1	26	49	---	---
ORBH	Deli/Dairy	Std. Reach In	930 ⁽³⁾	0.16	TBD	20°F	36	38	TBD	4	---	---	60	47	1	26	49	---	---
	Beverage	Std. Reach In	900 ⁽³⁾	0.15	TBD	20°F	38	40	TBD	4	---	---	60	47	1	26	49	---	---
ORBR	Std. Reach In	1150 ⁽³⁾	0.20	TBD	20°F	38	40	TBD	4	---	---	60	47	1	26	49	---	---	
ONRZ ⁽⁹⁾	Frozen Food	Std. Reach In	1345 ⁽³⁾	0.40	1.20	-20	-2	2	460	1	---	---	---	---		24	55	---	---
	Ice Cream	Std. Reach In	1405 ⁽³⁾	0.90	1.20	-20	-12	-8	460	1	---	---	---	---		24	55	---	---
ONRZH ⁽⁹⁾	Frozen Food	Std. Reach In	1345 ⁽³⁾	0.40	1.20	-20	-8	-4	405	1	---	---	---	---		24	55	---	---
	Ice Cream	Std. Reach In	1405 ⁽³⁾	0.90	1.20	-20	-12	-4	405	1	---	---	---	---		24	55	---	---
ORZ	Frozen Food	Std. Reach In	1345 ⁽³⁾	0.40	1.20	-20	-8	-5	380	1	---	---	---	---		24	55	---	---
	Ice Cream	Std. Reach In	1405 ⁽³⁾	0.90	1.20	-20	-12	-4	380	1	---	---	---	---		24	55	---	---
ORZH	Frozen Food	Std. Reach In	1345 ⁽³⁾	0.43	1.20	-20	-8	-4	405	1	---	---	---	---		24	55	---	---
	Ice Cream	Std. Reach In	1405 ⁽³⁾	0.90	1.20	-20	-12	-4	405	1	---	---	---	---		24	55	---	---
ONRIZ ⁽⁹⁾	Frozen Food	Std. Reach In	1162 ⁽³⁾	TBD	TBD	TBD	TBD	TBD	TBD		---	---	---	---				---	---
	Ice Cream	Std. Reach In	1234 ⁽³⁾	TBD	TBD	TBD	TBD	TBD	TBD		---	---	---	---				---	---
ONRIZH ⁽⁹⁾	Frozen Food	Std. Reach In	1062 ⁽³⁾	TBD	TBD	TBD	TBD	TBD	TBD		---	---	---	---				---	---
	Ice Cream	Std. Reach In	1079 ⁽³⁾	TBD	TBD	TBD	TBD	TBD	TBD		---	---	---	---				---	---
ORIZ	Frozen Food	Std. Reach In	1162 ⁽³⁾	TBD	TBD	TBD	TBD	TBD	TBD		---	---	---	---				---	---
	Ice Cream	Std. Reach In	1234 ⁽³⁾	TBD	TBD	TBD	TBD	TBD	TBD		---	---	---	---				---	---
ORIZH	Frozen Food	Std. Reach In	1162 ⁽³⁾	TBD	TBD	TBD	TBD	TBD	TBD		---	---	---	---				---	---
	Ice Cream	Std. Reach In	1234 ⁽³⁾	TBD	TBD	TBD	TBD	TBD	TBD		---	---	---	---				---	---
RBH	Beverage	Std. Reach In	1059	TBD	TBD	TBD	TBD	TBD	TBD		---	---	---	---				---	---
RZH	Frozen Food	Std. Reach In	1530	TBD	TBD	TBD	TBD	TBD	TBD		---	---	---	---				---	---
	Ice Cream	Std. Reach In	1630	TBD	TBD	TBD	TBD	TBD	TBD		---	---	---	---				---	---
RIZH	Frozen Food	Std. Reach In	1377	TBD	TBD	TBD	TBD	TBD	TBD		---	---	---	---				---	---
	Ice Cream	Std. Reach In	1467	TBD	TBD	TBD	TBD	TBD	TBD		---	---	---	---				---	---

2008 SECONDARY COOLANT CASE REFRIGERATION REQUIREMENTS TABLE (REV-1)



SINGLE DECK ISLAND MERCHANDISERS										DEFROST								
CASE MODEL	FRONT SILL TYPE	BTUH/ft ⁽¹⁾ or BTUH/Door	FLOW RATE GPM/ft	CHARGE GAL/ft	TEMPERATURE (°F)			AIR VELOCITY FPM ⁽²⁾	# DEF.	Electric		Timed Off		Warm Fluid		Reverse Air		
					SUPPLY	DISC. AIR	RET. AIR			Fail Safe (Minutes)	Temp. (°F)	Fail Safe (Minutes)	Temp. (°F)	# DEF.	Fail Safe (Minutes)	Temp. (°F)	Fail Safe (Minutes)	Temp. (°F)
ONIM	Meat	7" Thermopane	885 ⁽¹⁰⁾	0.90	0.43	20°F	25	34	180	4	---	---	---	---	26	49	---	---
	Deli	7" Thermopane	860 ⁽¹¹⁾	0.45 / 0.90	0.43	15 / 20	28	37	180	3	---	---	---	---	26	43	---	---
OIM	Meat	7" Thermopane	770 ⁽¹²⁾	0.90	0.43	20°F	26	31	140	3	---	---	---	---	26	49	---	---
	Deli	7" Thermopane	560 ⁽¹³⁾	0.41 / 0.86	0.43	15 / 20	28	33	140	3	---	---	---	---	26	49	---	---
ONIP	Bulk Produce	Standard	650 ⁽¹⁴⁾	TBD	TBD	TBD	TBD	TBD	TBD									
OIP	Bulk Produce	Standard	650 ⁽¹⁴⁾	0.32	0.43	20°F	34	48	140	3	---	---	44	47	26	49	---	---
ONZ	Frozen Food	4" Solid	440	0.19	0.54	-20	-12	0	180	1	---	---	---	---	20	55	---	---
	Ice Cream	4" Solid	500	TBD	TBD	TBD	TBD	TBD	TBD									
ONIZ	Frozen Food	4" Solid	440	0.19	0.54	-20	-2	7	393	1	---	---	---	---	20	55	---	---
	Ice Cream	4" Solid	500	TBD	TBD	TBD	TBD	TBD	TBD									
ONIZGG	Frozen Food	Standard ONIZGG	530	TBD	TBD	TBD	TBD	TBD	TBD									
OIZ ⁽¹⁵⁾	Frozen Food	4" Solid	520	0.55	0.36	-20	-12	-4	200	1	---	---	---	---	20	55	---	---
	Frozen Food	4" Solid	635	0.50	0.72	-20	-12	0	180	1	---	---	---	---	20	55	---	---
OWIZ	Ice Cream	4" Solid	740	TBD	TBD	TBD	TBD	TBD	TBD									
	Ice Cream	4" Solid	740	TBD	TBD	TBD	TBD	TBD	TBD									
OWEZ	Frozen Food	4" Solid	2855 ⁽⁶⁾	3.10 ⁽⁶⁾	4.25 ⁽⁶⁾	-20	-12	0	200	1	---	---	---	---	20	55	---	---
	Ice Cream	4" Solid	3490 ⁽⁶⁾	TBD	TBD	TBD	TBD	TBD	TBD									

MULTI-DECK ISLAND MERCHANDISERS										DEFROST								
CASE MODEL	FRONT SILL TYPE	BTUH/ft ⁽¹⁾ or BTUH/Door	FLOW RATE GPM/ft	CHARGE GAL/ft	TEMPERATURE (°F)			AIR VELOCITY FPM ⁽²⁾	# DEF.	Electric		Timed Off		Warm Fluid		Reverse Air		
					SUPPLY	DISC. AIR	RET. AIR			Fail Safe (Minutes)	Temp. (°F)	Fail Safe (Minutes)	Temp. (°F)	# DEF.	Fail Safe (Minutes)	Temp. (°F)	Fail Safe (Minutes)	Temp. (°F)
O2IM	Meat	6" Thermopane	1340	TBD	TBD	TBD	TBD	TBD	TBD									
	Deli	6" Thermopane	1230	TBD	TBD	TBD	TBD	TBD	TBD									
ON3IM	Meat	4" Plexiglass	1283	TBD	TBD	TBD	TBD	TBD	TBD									
	Deli	4" Plexiglass	1179	TBD	TBD	TBD	TBD	TBD	TBD									
O3IM	Meat	6" Thermopane	1527	1.13	0.48	20°F	28	38	270	3	---	---	44	47	26	49	---	---
	Deli	6" Thermopane	1470	TBD	TBD	TBD	TBD	TBD	TBD									
O3IMB	Meat	6" Thermopane	1548	1.14	0.48	20°F	28	38	270	3	---	---	44	47	26	49	---	---
	Deli	6" Thermopane	1470	TBD	TBD	TBD	TBD	TBD	TBD									
O3IMBB	Meat	6" Thermopane	1315	0.97	0.48	20°F	28	38	270	3	---	---	44	47	26	49	---	---
	Deli	6" Thermopane	1266	TBD	TBD	TBD	TBD	TBD	TBD									
O3IP	Standard	1158 ⁽¹⁶⁾	0.75	0.43	20°F	34	48	160	3	---	---	44	47	26	49	---	---	
O4ID	Meat	6" Thermopane	2450	1.13	0.48	20°F	28	43	130	3	---	---	44	47	26	49	---	---
	Deli	6" Thermopane	1950	TBD	TBD	TBD	TBD	TBD	TBD									
O4IDB	Meat	6" Thermopane	2484	1.14		20°F	28	43	TBD									
	Deli	6" Thermopane	1950	TBD	TBD	TBD	TBD	TBD	TBD									
O4IDBB	Meat	6" Thermopane	2110	0.97		20°F	28	43	TBD									
	Deli	6" Thermopane	1679	TBD	TBD	TBD	TBD	TBD	TBD									

2008 SECONDARY COOLANT CASE REFRIGERATION REQUIREMENTS TABLE (REV-1)



SERVICE MERCHANDISERS										DEFROST								
CASE MODEL	FRONT SILL TYPE	BTUH/ft ⁽¹⁾ or BTUH/Door	FLOW RATE GPM/ft	CHARGE GAL/ft	TEMPERATURE (°F)			AIR VELOCITY FPM ⁽²⁾	# DEF.	Electric		Timed Off		Warm Fluid		Reverse Air		
					SUPPLY	DISC. AIR	RET. AIR			Fail Safe (Minutes)	Temp. (°F)	Fail Safe (Minutes)	Temp. (°F)	# DEF.	Fail Safe (Minutes)	Temp. (°F)	Fail Safe (Minutes)	Temp. (°F)
OSA	w/ Shelf Lights	Std. American	320	0.40	0.22	20°F	30	39	235	2	---	---	---	---	26	49	---	---
	w/o Shelf Lights	Std. American	290	0.11 / 0.36	0.22	15 / 20	30	39	235	2	---	---	---	---	26	49	---	---
OSAG		Std. American	270	0.32	0.34	20°F	21-31	38	125	4	---	---	---	---	26	49	---	---
OSGF		Std. American	310	TBD	TBD	TBD	TBD	TBD	TBD									
OSM		Std. American	320	0.45	0.22	20°F	30	39	235	2	---	---	---	---	26	49	---	---
OGM		Std. American	226	0.40	0.22	20°F	30	39	125	4	---	---	---	---	26	49	---	---
OSMLZ		Std. American	230	TBD	TBD	TBD	TBD	TBD	TBD									
OSIO		Std. International	695 ⁽⁴⁾	0.50	0.22	20°F	24	33	180	3	---	---	50	47	26	49	---	---
OWSIO		Std. International	795 ⁽⁴⁾	0.57	0.22	20°F	24	33	180	3	---	---	50	47	26	49	---	---
OSI ⁽¹⁷⁾		Std. International	350	0.38	0.22	20°F	31	38	175	2	---	---	---	---	26	49	---	---
OWSI ⁽¹⁷⁾		Std. International	450	0.49	0.22	20°F	31	38	175	2	---	---	---	---	26	49	---	---
OSIF ⁽¹⁷⁾		Std. International	350	0.38	0.22	20°F	20°F	38	175	2	---	---	---	---	26	49	---	---
O2SI ⁽¹⁷⁾		Std. International	508	0.55	TBD	TBD	TBD	TBD	TBD									
O2SIF ⁽¹⁷⁾		Std. International	508	0.55		20°F	24	35	TBD									
OLF		Standard OLF	431	0.53	0.22	20°F	27	34	235	2	---	---	50	47	26	49	---	---
OLFG		Standard OLF	275	0.42	0.34	20°F	31	38	125	2	---	---	---	---	26	49	---	---
PDIF		Standard PDIF	400	TBD	TBD	TBD	TBD	TBD	TBD									
PDNUM	Front Deck	Standard PDNUM	570	TBD	TBD	TBD	TBD	TBD	TBD									
	Dome	Standard PDNUM	290	TBD	TBD	TBD	TBD	TBD	TBD									
PMFNUM	Front Deck	All Fronts	840	0.65	0.54	20	29	44	285	6	30	47	30	47	15	45	---	---
	Dome	All Fronts	350	0.75	0.50	20	TBD	TBD	TBD	1	---	---	60	45	---	---	---	---
PMFN2UM	Front Deck	Standard PDNUM	840	0.65	0.54	20	29	44	285	6	30	47	30	47	---	---	---	---
	Dome	Standard PDNUM	350	0.75	0.50	20	TBD	TBD	TBD	1	---	---	60	45	---	---	---	---
PSG		Standard PSG	300	0.45	0.27	26	N/A	N/A	N/A	1	---	---	50	45	---	---	---	---
PSGF		Standard PSGF	300	0.45	0.27	26	N/A	N/A	N/A	1	---	---	50	45	---	---	---	---
P2SGF		Standard P2SGF	300	0.45	0.27	26	N/A	N/A	N/A	1	---	---	50	45	---	---	---	---
OB		Standard OB	650	TBD	TBD	TBD	TBD	TBD	TBD									
OBIF		Standard OBIF	650	TBD	TBD	TBD	TBD	TBD	TBD									
OBO		Standard OBO	1150	TBD	TBD	TBD	TBD	TBD	TBD									
OBOL	Bakery	Standard OBOL	450	TBD	TBD	TBD	TBD	TBD	TBD									
	Deli	Standard OBOL	450	TBD	TBD	TBD	TBD	TBD	TBD									
CUBN		5" Thermopane	534	TBD	TBD	TBD	TBD	TBD	TBD									
CUBNH		8" Thermopane	650	TBD	TBD	TBD	TBD	TBD	TBD									
CUBW - 8'		2" Plexiglass	650	3.00	1.20	20°F	24.4°F	TBD	TBD									
CUBW - 12'		2" Plexiglass	650	3.00	2.00	20°F	26.4°F	TBD	TBD									

2008 SECONDARY COOLANT CASE REFRIGERATION REQUIREMENTS TABLE (REV-1)



- ⁽¹⁾ BTUHs/ft listed are identical to direct expansion parallel system operation
- ⁽²⁾ Average discharge air velocity at peak of defrost.
- ⁽³⁾ High efficiency fans reduce refrigeration load by 96 BTUH/far
- ⁽⁴⁾ Calculated from OSIOA Data Compressor Tables.
- ⁽⁵⁾ Primary- 650, Secondary- 425, Ambient- 275.
- ⁽⁶⁾ BTUH's listed are per case.
- ⁽⁷⁾ Defrost assist heater required - 208/3/60: 6' Case - 10.0 Amps (3600 W), 8' Case - 13.4 Amps (4800 W), 12' Case - 20.0 Amps (7200 W).
- ⁽⁸⁾ Back-up coils with a capacity of 1666 BTUH/ft at a suction temperature of 2°C°F must be used for each case to refrigerate the area immediately behind the line-up to a depth of 10'. If the cooler is longer than the ORD line-up and deeper than 10', other coils are needed to refrigerate the balance of the cooler area. Each auxiliary coil should be centered on each case and set back a distance of 3' to 5' from the back of the ORD.
- ⁽⁹⁾ All data listed for ONRB, ONRBH, ONRZ, and ONRZH is for cases configured with a 20" top shelf and 3 22" shelves below top shelf
- ⁽¹⁰⁾ ONIM (meat): +400 per wrap-around end.
- ⁽¹¹⁾ ONIM (deli): +250 per wrap-around end.
- ⁽¹²⁾ OIM (meat): +400 per wrap-around end.
- ⁽¹³⁾ OIM (deli): +250 per wrap-around end.
- ⁽¹⁴⁾ ONIP, OIP: +600 per wrap-around end.
- ⁽¹⁵⁾ Not intended for Frozen Juice application
- ⁽¹⁶⁾ O3IP: +650 per wrap-around end.
- ⁽¹⁷⁾ Humidification system required on this case if used for Fresh Meat application
- ⁽¹⁸⁾ Defrost assist heater required - 120/1/60: 6' Case - 3.4 Amps (400 W), 8' Case - 4.5 Amps (533 W), 12' Case - 6.7 Amps (800 W).

NOTES:

All medium temperature data listed is for 35% by wt. PROPYLENE GLYCOL

Inhibited Propylene Glycol solution with water, such as Dowfrost or equivalent. (Dowfrost is a trademark of the Dow Chemical Company)

All low temperature data listed is for 85% by wt. PEKASOL-50

Pekasol-50 is a registered trademark of pro KÜHSOLE GmbH. It is a solution of Potassium Formate, Potassium Acetate, water and corrosion inhibitors. Similar fluids by other manufacturers exist and may be used only with the approval of the Hill PHOENIX Research and Development Group.

Flowrates are determined by ASHRAE test conditions and may need to be adjusted based on store conditions.