MANITOWOC ICE
2110 SOUTH 26TH STREET, MANITOWOC, WI 54220

800-545-5720
WWW.MANITOWOCICE.COM

Service Bulletin

Subject: MP0700 Technical Specifications

AIR-COOLED & WATER-COOLED MODELS

50 HZ ONLY

GENERAL SPECIFICATIONS			
Operating Temperatures	Minimum 2°C Maximum 43°C		
Refrigerant Charge (R-290)	**Air-cooled Models**	**Water-cooled Models**	**Energy Use Air-cooled Kwh / 100 lbs** Half Dice: 4.41 Kwh Dice: 4.28 Kwh
	226 g	330 g	
Electrical 208-230V/50 Hz/1 Ph	**Air-cooled Models**	**Water-cooled Models**	**Energy Use Water-cooled Kwh / 100 lbs** Dice: 3.45 Kwh
	Min Circuit Amps - 5.4 Max Fuse Size - 15 amp	Min Circuit Amps - 3.9 Max Fuse Size - 15 amp	
Ice Making Water Inlet	Connection Size - 10 mm FPT (Female Pipe Thread)	Water Temperature - Minimum 2°C Maximum 32°C	Water Pressure - Minimum 1.4 bar Maximum 5.5 bar
Ice Making Water Drain	Connection Size - 13 mm FPT (Female Pipe Thread)		
Condenser Water Inlet	Connection Size - 10 mm FPT (Female Pipe Thread)	Water Temperature - Maximum 32°C	**Standard** Water Pressure - Minimum 1.4 bar Maximum 19.0 bar **High Pressure Option** Water Pressure - Minimum 1.4 bar Maximum 24.1 bar
Condenser Water Drain	Connection Size - 13 mm FPT (Female Pipe Thread)		
Bin Drain	Connection Size - 19 mm FPT (Female Pipe Thread)		
Large Capacity Bin Drain	Connection Size - 25 mm MPT (Male Pipe Thread)		
Potable Water Use	14.05 gallons per 100 lbs of ice 53.19 liters per 45.5 kg of ice		
Compressor Nominal Rating	1.08 HP		
Heat of Rejection	Air Conditioning 8935 BTU/hr (2252 kcal/hr)	Peak 10915 BTU/hr (2751 kcal/hr)	
Fan Cycle Control Settings	Cut-in - 23.1 bar ± 0.34	Cut-out - 19 bar ± 0.34	
High Pressure Settings	Cut-in - 31 bar ±0.69	Cut-out - 41.4 bar ± 0.69	
Dimensions	**Height**	**Width**	**Depth**
	546 mm	762 mm	622 mm
Clearances Air & Water	**Top**	**Side**	**Back**
	203 mm	203 mm	127 mm

Self Contained Air-cooled Ice Machines

MYP0700A-251

Cycle Times

Freeze Time + Harvest Time = Total Cycle Time

Air Temperature Around the Unit	Freeze Time (Minutes) Water Temperature 50°F 10°C	70°F 21°C	90°F 32°C	Harvest Time
70°F 21°C	9.4-10.0	9.4-10.7	10.5-11.2	0.5-1.3
80°F 27°C	9.7-10.4	10.4-10.8	10.8-11.6	
90°F 32°C	10.3-10.7	11.7-12.4	11.5-13.2	
100°F 38°C	10.7-11.4	12.0-12.5	12.5-13.6	
110°F 43°C	11.2-11.7	13.0-14.0	14.0-14.5	

Cycle times and pressures vary with operating condition.
Production and cycle times are for dice cube - Half dice cube cycle times can be 2 - 3 minutes faster, depending on water and ambient temperature

24 Hour Ice Production

Air Temperature Around the Unit	Water Temperature 50°F 10°C	70°F 21°C	90°F 32°C
70°F 21°C	285 kgs	270 kgs	255 kgs
80°F 27°C	276 kgs	257 kgs	252 kgs
90°F 32°C	266 kgs	254 kgs	239 kgs
100°F 38°C	250 kgs	241 kgs	225 kgs
110°F 43°C	236 kgs	223 kgs	212 kgs

Ice slab weight of one harvest cycle = 1.9 kgs to 2.2 kgs.

230/50/1 is approximately 12% lower than 230/60/1

Operating Temperatures - Freeze Cycle

Air Temperature Around the Unit °C	Discharge Temperature (°C)	Suction Temperature (°C)
50°F 10°C	41-62	-10-17
70°F 21°C	40-60	-7-16
80°F 27°C	43-67	0-19
90°F 32°C	50-78	-10-21
110°F 43°C	62-96	-5-26

Operating Temperatures - Harvest Cycle

Air Temperature Around the Unit	Discharge Temperature (°C)	Suction Temperature (°C)
50°F 10°C	40-60	-2-6
70°F 21°C	40-60	-1-8
80°F 27°C	40-67	2-12
90°F 32°C	51-76	1-15
110°F 43°C	62-95	10-21

Operating Temperatures - Freeze Cycle

Air Temperature Around the Unit	Harvest Valve Inlet Temp (°C)
50°F 10°C	38-46
70°F 21°C	38-47
80°F 27°C	41-48
90°F 32°C	39-60
110°F 43°C	59-66

MDP0700A-251

Cycle Times

Freeze Time + Harvest Time = Total Cycle Time

Air Temperature Around the Unit	Freeze Time (Minutes)			Harvest Time
	Water Temperature			
	50°F 10°C	70°F 21°C	90°F 32°C	
70°F 21°C	9.1-10.1	10.8-11.4	11.9-13.2	0.6-1.0
80°F 27°C	9.9-10.8	11.2-11.9	11.9-12.9	
90°F 32°C	10.8-10.3	11.4-12.3	12.6-13.3	
100°F 38°C	10.6-11.8	11.8-12.3	12.7-13.9	
110°F 43°C	12.2-13.0	13.0-14.3	13.3-15.4	

Cycle times and pressures vary with operating condition.
Production and cycle times are for dice cube - Half dice cube cycle times can be 2 - 3 minutes faster, depending on water and ambient temperature

24 Hour Ice Production

Air Temperature Around the Unit	Water Temperature		
	50°F 10°C	70°F 21°C	90°F 32°C
70°F 21°C	294 kgs	261 kgs	241 kgs
80°F 27°C	280 kgs	254 kgs	232 kgs
90°F 32°C	255 kgs	232 kgs	219 kgs
100°F 38°C	226 kgs	221 kgs	204 kgs
110°F 43°C	217 kgs	198 kgs	182 kgs

Ice slab weight of one harvest cycle = 1.9 kgs to 2.2 kgs.

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Operating Temperatures - Freeze Cycle

Air Temperature Around the Unit °C	Discharge Temperature (°C)	Suction Temperature (°C)
50°F 10°C	31-43	-12-16
70°F 21°C	45-62	-8-16
80°F 27°C	50-70	-9-17
90°F 32°C	50-77	-7-20
110°F 43°C	59-94	-3-24

Operating Temperatures - Harvest Cycle

Air Temperature Around the Unit	Discharge Temperature (°C)	Suction Temperature (°C)
50°F 10°C	32-52	-3-6
70°F 21°C	44-62	0-7
80°F 27°C	48-71	3-11
90°F 32°C	53-77	6-15
110°F 43°C	60-94	11-21

Operating Temperatures - Freeze Cycle

Air Temperature Around the Unit	Harvest Valve Inlet Temp (°C)
50°F 10°C	44-63
70°F 21°C	34-43
80°F 27°C	40-48
90°F 32°C	44-50
110°F 43°C	56-64

Self Contained Water-cooled Ice Machines

MDP0700W-251

Cycle Times

Freeze Time + Harvest Time = Total Cycle Time

Air Temperature Around the Unit	Freeze Time (Minutes)			Harvest Time
	Water Temperature			
	50°F 10°C	70°F 21°C	90°F 32°C	
70°F 21°C	10.1-10.4	10.7-11.4	11.6-12.5	0.8-1.4
80°F 27°C	10.7-11.2	11.5-12.1	11.5-12.6	
90°F 32°C	10.7-11.2	11.7-12.1	12.2-13.4	
100°F 38°C	11.0-11.6	11.9-13.1	12.6-13.7	
110°F 43°C	10.8-11.4	11.9-12.8	13.0-13.6	

24 Hour Ice Production

Air Temperature Around the Unit	Water Temperature		
	50°F 10°C	70°F 21°C	90°F 32°C
70°F 21°C	276 kgs	248 kgs	226 kgs
80°F 27°C	265 kgs	240 kgs	228 kgs
90°F 32°C	259 kgs	250 kgs	221 kgs
100°F 38°C	261 kgs	245 kgs	220 kgs
110°F 43°C	254 kgs	234 kgs	207 kgs

Ice slab weight of one harvest cycle = 1.9 kgs to 2.2 kgs.

230/50/1 is approximately 12% lower than 230/60/1

Operating Temperatures - Freeze Cycle

Air Temperature Around the Unit °C	Discharge Temperature (°C)	Suction Temperature (°C)
50°F 10°C	47-70	-14-16
70°F 21°C	49-71	-12-16
80°F 27°C	46-73	-12-15
90°F 32°C	49-74	-12-16
110°F 43°C	48-76	-12-16

Operating Temperatures - Harvest Cycle

Air Temperature Around the Unit	Discharge Temperature (°C)	Suction Temperature (°C)
50°F 10°C	46-70	0-9
70°F 21°C	48-71	2-9
80°F 27°C	47-71	-1-8
90°F 32°C	49-75	-1-10
110°F 43°C	49-76	0-10

Operating Temperatures - Freeze Cycle

Air Temperature Around the Unit	Harvest Valve Inlet Temp (°C)
50°F 10°C	41-60
70°F 21°C	38-58
80°F 27°C	44-59
90°F 32°C	42-51
110°F 43°C	46-62

Condenser Water Consumption

Ice Production	Water Usage
100 lbs 45.4 kgs	58 gallons 220 liters

Water Regulating Valve set point: 170 psig (11.7 bar)