MANITOWOC ICE
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Service Bulletin

Subject: UP0310 Technical Specifications

AIR-COOLED & WATER-COOLED MODELS

GENERAL SPECIFICATIONS			
Operating Temperatures	Minimum 50°F (10°C) Maximum 100°F (38°C)		
Refrigerant Charge (R-290)	**UP0310A 115V/60Hz & 230V/60 Hz**	**UP0310A 230V/60Hz**	**UP0310W 115-230V/50-60Hz**
	5.2 oz (148 g)	4.5 oz (120 g)	3.9 oz (110 g)
Energy Use Kwh / 100 lbs	**Air-cooled**		**Water-cooled**
	Half Dice: 5.85 Kwh Dice: 5.85 Kwh Regular 5.85 Kwh		Half Dice: 4.66 Kwh Dice: 4.66 Kwh
Ice Making Water Inlet	Connection Size - 3/8" FPT (Female Pipe Thread)	Water Temperature - Minimum 40°F (4.4°C) Maximum 90°F (32°C)	Water Pressure - Minimum 20 psig (1.3 bar) Maximum 80 psig (5.5 bar)
Condenser Water Inlet	Connection Size - 3/8" FPT (Female Pipe Thread)	Water Temperature - Minimum 40°F (4.4°C) Maximum 90°F (32°C)	Water Pressure - Minimum 20 psig (1.3 bar) Maximum 150 psig (10.3 bar)
Ice Making Water Drain	Connection Size - 1/2" FPT (Female Pipe Thread)		
Condenser Water Drain	Connection Size - 1/2" FPT (Female Pipe Thread)		
Bin Drain	Connection Size - 1/2" FPT (Female Pipe Thread)		
Potable Water Use	15.5 gallons per 100 lbs of ice 58.67 liters per 45.5 kg of ice		
Electrical	**115V/60Hz/1Ph**	**208-230V/60Hz/1Ph**	**230V/50Hz/1Ph**
	Air: Min Circuit Amps - 8.0 Max Fuse Size - 15 amp Water: Min Circuit Amps - 7.0 Max Fuse Size - 15 amp	Min Circuit Amps - 5.0 Max Fuse Size - 15 amp	Min Circuit Amps - 5.0 Max Fuse Size - 15 amp
Compressor Nominal Rating	0.5 HP		
Heat of Rejection	Air Conditioning 5,500 BTU/hr (1,386 kcal/hr)	Peak 6,500 BTU/hr (1,638 kcal/hr)	
Fan Cycle Control Settings	Cut-in - 200 psig (14 bar)	Cut-out - 250 psig (17 bar)	
High Pressure Settings	Cut-in - 250 psig (17 bar)	Cut-out - 350 psig (24 bar)	
Dimensions	**Height**	**Width**	**Depth**
	38.5 in (980 mm) with legs	30.0 in (765 mm)	28.5 in (725 mm)
Clearances	**Top**	**Side**	**Back**
	5.0 in (130 mm)	5.0 in (130 mm)	5.0 in (130 mm)

Self Contained Air-cooled Ice Machines

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	10.8-11.5	11.6-13.6	14.0-16.0	1.0-2.5
80°F 27°C	11.0-12.1	12.5-14.0	13.5-15.5	
90°F 32°C	11.3-12.8	13.5-15.7	15.2-17.5	
100°F 38°C	12.1-14.2	15.2-17.5	17.5-20.0	
110°F 43°C	15.5-17.8	19.3-21.8	21.2-24.1	

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	305 lbs 138 kgs	265 lbs 120 kgs	235 lbs 107 kgs
80°F 27°C	295 lbs 134 kgs	255 lbs 116 kgs	225 lbs 102 kgs
90°F 32°C	280 lbs 127 kgs	235 lbs 107 kgs	210 lbs 95 kgs
100°F 38°C	255 lbs 116 kgs	210 lbs 95 kgs	185 lbs 84 kgs
110°F 43°C	210 lbs 95 kgs	170 lbs 77 kgs	155 lbs 70 kgs

Ice slab weight of one harvest cycle = 2.3 lbs to 2.9 lbs (1.0 kgs to 1.3 kgs).

Operating Pressures - Freeze Cycle

Air Temperature Around the Unit	Discharge Pressure	Suction Pressure
50°F 10°C	150-220 psig 10.3-15.2 bar	40-9 psig 2.8-0.6 bar
70°F 21°C	150-220 psig 10.3-15.2 bar	46-9 psig 3.2-0.6 bar
80°F 27°C	150-230 psig 10.3-15.9 bar	53-10 psig 3.7-0.7 bar
90°F 32°C	175-245 psig 12.1-16.9 bar	58-11 psig 4.0-0.8 bar
100°F 38°C	220-270 psig 15.2-18.6 bar	60-11 psig 4.1-0.8 bar
110°F 43°C	250-300 psig 17.2-20.7 bar	62-12 psig 4.3-0.8 bar

Operating Pressures - Harvest Cycle

Air Temperature Around the Unit	Discharge Pressure	Suction Pressure
50°F 10°C	100-115 psig 6.9-7.9 bar	55-70 psig 3.8-4.8 bar
70°F 21°C	100-120 psig 6.9-8.3 bar	55-75 psig 3.8-5.2 bar
80°F 27°C	115-130 psig 7.9-9.0 bar	55-85 psig 3.8-5.9 bar
90°F 32°C	130-150 psig 9.0-10.3 bar	55-95 psig 3.8-6.6 bar
100°F 38°C	150-170 psig 10.3-11.7 bar	60-110 psig 4.1-7.6 bar
110°F 43°C	170-185 psig 11.7-12.8 bar	85-125 psig 5.9-8.6 bar

Storage Capacity

Storage Bin Capacity*
119 lbs (54 kg)
*Storage Capacity is AHRI certified.

NOTE: Ice Production Derate %

- 60Hz Dice and Half Dice production derate as shown
- 60Hz Regular cube production derate is 7%.
- 50Hz Dice and Half Dice production derate is 12%.
- 50Hz Regular cube production derate is 14%.

Self Contained Water-cooled Ice Machines

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	9.8-13.1	11.2-12.8	11.9-13.5	1.0-2.5
80°F 27°C	10.0-11.2	11.4-13.0	12.3-13.8	
90°F 32°C	10.0-11.4	12.1-14.1	13.0-15.0	
100°F 38°C	10.3-11.7	12.2-14.2	13.2-15.1	
110°F 43°C	10.5-12.2	12.5-14.5	13.4-15.4	

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	305 lbs 138 kgs	265 lbs 120 kgs	235 lbs 107 kgs
80°F 27°C	300 lbs 136 kgs	255 lbs 116 kgs	225 lbs 102 kgs
90°F 32°C	295 lbs 134 kgs	235 lbs 107 kgs	210 lbs 95 kgs
100°F 38°C	290 lbs 132 kgs	250 lbs 113 kgs	235 lbs 107 kgs
110°F 43°C	270 lbs 122 kgs	245 lbs 111 kgs	230 lbs 104 kgs

Ice slab weight of one harvest cycle = 2.3 lbs to 2.9 lbs (1.0 kgs to 1.3 kgs).

Operating Pressures - Freeze Cycle

Air Temperature Around the Unit	Discharge Pressure	Suction Pressure
50°F 10°C	160-180 psig 11.0-12.4 bar	36-14 psig 2.5-1.0 bar
70°F 21°C	160-180 psig 11.0-12.4 bar	37-15 psig 2.6-1.0 bar
80°F 27°C	160-180 psig 11.0-12.4 bar	37-15 psig 2.6-1.0 bar
90°F 32°C	160-180 psig 11.0-12.4 bar	42-12 psig 2.9-0.8 bar
100°F 38°C	160-180 psig 11.0-12.4 bar	42-14 psig 2.9-1.0 bar
110°F 43°C	160-180 psig 11.0-12.4 bar	45-14 psig 2.9-1.0 bar

Operating Pressures - Harvest Cycle

Air Temperature Around the Unit	Discharge Pressure	Suction Pressure
50°F 10°C	100-140 psig 6.9-9.7 bar	55-70 psig 3.8-4.8 bar
70°F 21°C	100-140 psig 6.9-9.7 bar	55-70 psig 3.8-4.8 bar
80°F 27°C	100-140 psig 6.9-9.7 bar	55-70 psig 3.8-4.8 bar
90°F 32°C	110-160 psig 7.6-11.0 bar	55-75 psig 3.8-5.2 bar
100°F 38°C	110-160 psig 7.6-11.0 bar	55-75 psig 3.8-5.2 bar
110°F 43°C	110-160 psig 7.6-11.0 bar	55-75 psig 3.8-5.2 bar

Condenser Water Consumption

Ice Production	Water Usage
100 lbs 45.4 kgs	160 Gallons 605 Liters

Water Regulating Valve set point: 235 psig (16.2 bar)

Storage Capacity

Storage Bin Capacity*
119 lbs (54 kg)

*Storage Capacity is AHRI certified.

NOTE: Ice Production Derate %

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- 60Hz Regular cube production derate is 7%.
- 50Hz Dice and Half Dice production derate is 12%.
- 50Hz Regular cube production derate is 14%.