Ice Rink Chillers

M&M Refrigeration/Sabroe has a long history of delivering high quality and reliable chiller packages for Ice Rinks. Working with M&M Refrigeration/Sabroe allows you to benefit from our extensive experience acquired from hundreds of installations in all type of conditions all over the world. We will be glad to assist you with frequently asked questions:

- What is the load?
- What temperature levels should be chosen?
- What primary and secondary refrigerant shall I choose?
- Rink floor construction:
  pipe size
  pipe spacing
  pipe material
  insulation
  floor heating
  material above pipes
- Configuration and sizing of headers
- Heat recovery for snow melt, floor heating and arena heating
- Condenser type and sizing

M&M REFRIGERATION, INC. has launched a new series of packaged Ice Rink Chillers based on the well known M&M Refrigeration/ Sabroe reciprocating compressors, highly efficient shell and tube evaporators with integrated surge drum, and the very reliable, user friendly and "state of the art" M&M Microprocessor Control System.

The wide range of standard basic Ice Rink Chillers consists of two-compressor units for single rinks and three-compressor units for double rinks.

As standard refrigerant combinations, ammonia/calcium chloride and R22/ethylene glycol have been chosen. Other refrigerant and compressor combinations can easily be offered on request.

For each of the two standard refrigerant combinations there are ten different sizes with nominal capacities from 66 TR to 282 TR.

Ice rink chiller package with three SMC 108 compressors

SABROE

M&M REFRIGERATION, INC.

Standard Range

Ammonia/Calcium Chloride	Capacity	Compressors		Motors	Evaporator	Pumps	Brine Flow	Brine Connections		Heat Rejection	Dimensions L x W x H (approx.)	Weight (approx.)
M&M Model	No.TR	Model No.	RPM	HP	ESSB No.	HP	GPM	Out	In	MBH	Feet	Lbs.
IRC-11-A	68	2 x SMC 104 L	1232	2 x 50	8040C4	2 x 25	630	6"	6"	1020	20 x 8 x 8	15500
IRC-12-A	81	2 x SMC 104 L	1490	2 x 60	8040C3	2 x 25	735	6"	6"	1210	20 x 8 x 8	15500
IRC-13-A	94	2 x SMC 106 L	1170	2 x 75	8040C3	2 x 30	865	8"	8"	1400	20 x 8 x 8	16000
IRC-14-A	107	2 x SMC 106 L	1330	2 x 75	8050C2	2 x 30	980	8"	8"	1600	24 x 8 x 8	17000
IRC-15-A	130	2 x SMC 108 L	1232	2 x 100	8050C2	2 x 40	1200	10"	10"	1940	24 x 8 x 8	17500
IRC-16-A	155	2 x SMC 108 L	1490	2 x 125	8050C2	2 x 40	1420	10"	10"	2330	24 x 8 x 8	18000
IRC-21-A	192	3 x SMC 108 L	1170	3 x 100	9060D2	3 x 25	1745	10"	2"x 8"	2850	30 x 8 x 8-/™	22000
IRC-22-A	215	3 x SMC 108 L	1330	3 x 100	9060D2	3 x 30	1965	10"	2"x 8"	3205	30 x 8 x 8-/™	22500
IRC-23-A	232	3 x SMC 108 E	1170	3 x 125	9060D2	3 x 40	2125	12"	2"x 10"	3510	30 x 8 x 8-/™	23000
IRC-24-A	282	3 x SMC 112 L	1170	3 x 150	9060E2	3 x 40	2580	12"	2"x 10"	4200	30 x 9-/™ x 9	29000

R22/Ethylene Glycol	Capacity	Compressors		Motors	Evaporator	Pumps	Brine Flow	Brine Connections		Heat Rejection	Dimensions L x W x H (approx.)	Weight (approx.)
M&M Model	No.TR	Model No.	RPM	HP	ESKB No.	HP	GPM	Out	In	MBH	Feet	Lbs.
IRC-11-F	66	2 x SMC 104 S	1490	2 x 50	7030A2	2 x 25	570	6"	6"	1010	20 x 8 x 8	14500
IRC-12-F	81	2 x SMC 106 S	1232	2 x 60	8030A2	2 x 25	700	6"	6"	1240	20 x 8 x 8	15000
IRC-13-F	98	2 x SMC 106 S	1490	2 x 75	8030B2	2 x 30	850	8"	8"	1510	20 x 8 x 8	15000
IRC-14-F	108	2 x SMC 108 S	1232	2 x 75	8030B2	2 x 30	940	8"	8"	1655	20 x 8 x 8	15500
IRC-15-F	131	2 x SMC 108 S	1490	2 x 100	8030C2	2 x 40	1140	10"	10"	2025	20 x 8 x 8	16500
IRC-16-F	152	2 x SMC 112 S	1170	2 x 125	8060A1	2 x 40	1325	10"	10"	2325	30 x 9-/™ x 9	20000
IRC-21-F	182	3 x SMC 108 S	1490	3 x 100	8060A1	3 x 25	1615	10"	2"x 8"	2840	30 x 8 x 8-/™	20500
IRC-22-F	218	3 x SMC 112 S	1100	3 x 100	8060B1	3 x 30	1885	10"	2"x 8"	3310	40 x 8 x 9	26000
IRC-23-F	232	3 x SMC 112 S	1170	3 x 125	8060B1	3 x 40	2015	12"	2"x 10"	3540	30 x 9-/™ x 9	27000
IRC-24-F	273	3 x SMC 112 S	1490	3 x 150	8060C1	3 x 40	2425	12"	2"x 10"	4260	40 x 8 x 9	28000

Capacity is based on 17°F inlet brine temperature and 14°F leaving brine temperature. Condensing temperature is 95°F with 5°F subcooling from condenser. Compressors and evaporator are balanced to an evaporating temperature between 5°F and 10°F. Calcium chloride concentration is 21% and ethylene glycol concentration is 40%. Pumps are based on 50 feet of total head in the piping system outside the chiller package. Packages running 1170 RPM are with direct drive compressor units; other RPM are with V-belt driven compressor units. All ratings are based on 60 Hz power supply.

The standard Ice Rink Package includes the following main components:

- Two reciprocating compressor units for Single Rink Packages
- Three reciprocating compressor units for Double Rink Packages
- One flooded evaporator with carbon steel tubes for ammonia and enhanced copper tubes for R22
- Liquid feed with high side float
- Oil separators for reciprocating compressors
- Oil pot for manual oil drain on ammonia packages
- Oil rectifier and automatic oil recovery system on R22 packages
- One brine pump, one stand-by brine pump for Single Rink Packages
- Two brine pumps, one stand-by brine pump for Double Rink Packages
- Microprocessor control system (wired)
- MCC for all the above mentioned equipment plus starter for jacket pump (if required), condenser pump, and condenser fans, all wired with a main breaker.
- Mounting and piping of all equipment mentioned above on a common steel base

The following optional equipment is available:

- Snow melt and under floor heat exchangers including pumps
- Heat exchanger for arena heating including pumps
- Condenser (evaporative, air cooled or water cooled)
- PC based control system with computer graphics for remote monitoring, controls, alarms etc.

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