

**ICE DISPENSER
APPLICATION GUIDE**

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GENERAL

Remcor Ice Dispensers provide a sanitary, convenient, economical means of delivering ice into glasses or other containers without the extra work and potential health hazards associated with the scooping of ice from open bins by workers or customers.

Remcor Ice Dispensers consist basically of an insulated storage hopper and a dispensing mechanism, enclosed in a cabinet. Two types are available, depending on the method of filling the hopper.

Manual Fill Dispensers are designed to have ice poured into the hopper from a bucket or similar container. The source of this ice may be remote ice bin, bagged ice, etc.

Automatic Fill Dispensers are designed to fill directly from the icemaking source, and are available for use with several different icemakers.

In either type, ice enters the hopper at the top and exits at the bottom, thereby eliminating 'stagnant' ice, and resulting in the freshest ice with minimum waste.

Remcor Ice Dispensers are designed to give the best possible performance over a wide range of applications. However, it is important to understand the effect that certain factors, such as ice type, equipment maintenance, conditions of use, and water quality, can have on this performance.

SELECTION OF ICE TYPE

Remcor Ice Dispensers work well with a wide variety of ice types. These include hard chips or cracked pieces, small cubes (mini-cubes, cubelets, etc.) and many sizes and shapes of larger cubes. Regardless of type, the harder (colder) the ice is, the better it will be able to withstand the effects of heavy use, poor water quality, etc. without becoming 'slushy'. The following must be observed when selecting a type of ice for dispensing:

- 1) Soft flake ice, commonly in the form of 'snow' or 'ribbons', will not dispense from Remcor Ice Dispensers due to the large amount of water which is contained in these types of ice, and the ease with which they become 'slushy'.

Many of the harder forms of flake ice may work acceptably, as long as ice quality is good, but could be marginal under heavy use, or if the ice is soft due to other factors (ie. poor water quality). The 'squeeze test' can be used as an aid in determining whether one of these types of ice will dispense properly. Pick up a handful of ice and squeeze it under moderate pressure. When the pressure is released, observe the quality of the ice. If a solid 'snowball' has formed, the ice is not suitable for dispensing. If the ice falls apart into its original pieces, then it will dispense properly, if all other factors are favorable.

- 2) The maximum recommended cube size is 1" in any dimension, although cubes up to 1 3/8" may work acceptably, depending on the exact shape. Cubes which are too large will flow erratically from the dispenser.
- 3) Each type of ice has its own characteristics when being dispensed. For example, small pieces tend to 'flow' much like water, while larger cubes drop one or two at a time. It is recommended that, whenever possible, the type of ice being considered should be observed under actual dispensing operation, to insure that it meets the expectations of the user. For example, when dispensing into glasses, large cubes may make objectionable noise, and a smaller size might be preferred.
- 4) If poor water quality, extremely heavy use, etc. continually cause 'slush' formation or are anticipated in a particular installation, selection of a larger size ice might eliminate potential dispensing problems.
- 5) For portion control applications, smaller size cubes tend to give more consistent portions than large cubes.

ICE STORAGE CAPACITY

Selection of the proper ice storage capacity depends on several factors, including container size, number of vends per hour, peak and idle periods, makeup rate of the ice-maker. The following guidelines will aid in analyzing storage capacity requirements:

- 1) A container filled with ice holds approximately half of its water capacity in ice weight. For example, an eight oz. glass filled with ice will hold a maximum of approximately 4 oz. of ice. By knowing how many vends can be expected per hour, ice consumption can be calculated. For example, if 100 vends per hour are expected, the ice consumption rate would be $100 \times 4\text{oz.} = \underline{400 \text{ oz./hr}}$ or $400/16 = \underline{25 \text{ lb/hr}}$.

- 2) If the application, involves several short 'peak' periods (heavy use) with long 'idle' periods (light or no use), a dispenser with larger storage capacity might allow for the use of a smaller icemaker. For example, assume 90 lb. of ice are used during a 2 hour lunch period, with 4 hours of idle time before the dinner period (same as lunch period).

One method of equipment selection would be a relatively small dispenser (45lb. storage), which would require an icemaker capable of matching the ice consumption rate = $90 \text{ lb.}/2\text{hours} = 45\text{lb./hr.} = \underline{1080 \text{ lb./day}}$. However, this icemaker would not be operating during the idle time.

An alternate selection would be a larger dispenser (90 lb. storage), which holds enough ice for the peak period. The icemaker would provide makeup ice during the idle period, or $90 \text{ lb.}/4 \text{ hours} = 23 \text{ lb./hr.} = \underline{552 \text{ lb./day}}$.

Of course, if additional ice storage is available remote from a manual fill dispenser, then this might allow use of a smaller dispenser, but would require more frequent trips to fill the dispenser.

In general, the largest ice storage capacity which will fit in the space limitations will allow for the smallest icemaker capacity requirement and/or the fewest trips to fill the dispenser.

- 3) Additional ice requirements for built in cold plate systems must be added to the above dispensing requirements (see 'Beverage Systems').

BEVERAGE SYSTEMS

Remcor dispensers are available with two types of beverage systems. One type includes a built-in cold plate for product cooling. The other requires the use of a remote cooling system for syrup and soda. The selection of the proper type depends on the conditions of use and space limitations.

- 1) Built-in cold plate
Recommended for low to medium beverage volume, or for intermittent applications, where beverage draws are relatively infrequent. Note that a cold plate consumes an amount of ice between $\frac{1}{4}$ and $\frac{1}{2}$ of the ice dispensing requirements, depending on the conditions of use. This is in addition to the ice dispensing requirements. For this reason, cold plates are not recommended for high volume applications, unless adequate ice storage and makeup capacity is available.

- 2) Remote Cooling System is recommended for high volume applications, or when ice availability is limited. Two types of systems are available:

'Dry Refrigeration' unit utilizes a refrigerant/ beverage heat exchanger. Refrigeration system is sized to handle a maximum draw rate for an indefinite period of time.

'Ice Bank' unit uses a smaller refrigeration system to build a 'bank' of ice in a water bath during idle periods which then cools the beverage which flows through tubing immersed in the bath. These units are sized to handle a maximum number of draws, after which beverage temperatures will rise until the ice bank can be rejuvenated.

Many applications can be handled by either type of unit, and the choice is based on cost, size, etc.

ICEMAKER MAINTENANCE

It is important that the recommended icemaker maintenance and cleaning be performed regularly, in order to insure that the best possible quality of ice is provided to the dispenser. Improper adjustments, lime or scale deposits on icemaking surfaces, or dirt buildups on condensers can reduce refrigerating efficiency. Blocked water drains can result in a buildup of impurity levels. The resulting soft ice from any of these conditions will be more likely to become 'slushy' under use, in which case it will not dispense properly.

DISPENSER MAINTENANCE

Refer to the owners manual provided with each Remcor Ice Dispenser for installation, cleaning, and trouble shooting information. It is especially important that the dispenser be level and all water drains be free to prevent accumulation of water and the formation of 'slush' in the hopper. Also the dispenser lid must be in place at all times to prevent excessive melting of the ice and/or contamination.

WATER QUALITY

The quality of water supplied to the icemaker can affect the quality of ice which is produced and ultimately dispensed. High levels of impurities such as dissolved iron or salt (hard water) lower the freezing point of water, and result in softer ice. Suspended solids or air can also have a detrimental affect on ice quality. Poor quality ice tends to 'break-down' more

into 'slush', which reduces dispensing performance. Each ice-maker is affected differently by water quality, depending on its particular design. In many installations, the addition of water conditioners and/or filters can greatly improve ice quality. The icemaker manufacturer or a water specialist should be consulted to determine the best course of action to correct poor water quality, which is one of the most frequent causes of dispensing problems.

ICE HANDLING AND USE

Ice storage and transfer into manual fill dispensers must be done in such away as to maintain the highest quality of ice possible. Storage bins must drain properly, and should be kept tightly closed at all times. Ice should be transferred rapidly in clean containers to prevent excessive melting or contamination.

Idle standing with no use generally has the following effect:

In Manual Fill Dispensers, no movement of the ice will occur. This will sometimes result in the formation of large 'clumps' of ice. Upon resumption of use, many of these 'clumps' may break-up into usable pieces. Those that don't should be removed, since they could interfere with dispensing. The extent to which this occurs depends on the type of ice and length of time with no ice use.

In Automatic Fill Dispensers, periodic movement (agitation) occurs automatically, which prevents the formation of clumps, after long periods, the ice at the bottom of the hopper may become softer and 'slushier'. Before resumption of normal service, a small quantity of this soft ice should be dispensed until it is replaced by good quality ice flowing from the dispenser.

Whenever possible, periodic dispensing of a small quantity of ice every hour or two will maintain the ice quality in the hopper during idle periods.

Heavy Use of the ice dispenser results in a large amount of ice movement. Under this condition the best possible ice quality is essential to prevent excessive 'break-down' of the ice, which in extreme cases could result in the formation of 'slush' and poor dispensing.