

## Efficient Cooling for Temperature Sensitive Processes

At North Star Ice Equipment, we use our decades of experience to design automatic ice plants that meet the specific demands of chemical and dyestuff manufacturers. A complete cooling solution with 24-hour operation and precise temperature control, North Star automatic ice plants produce top quality flake ice that is ready to use without further processing. The flake ice can be stored in large quantities until it is needed and then automatically delivered in metered amounts to multiple reactors throughout the facility. As a result, North Star ice plants provide optimal temperature control, increasing process efficiency and improving product quality.

## System Components

**Control Panel** Ice making, storage and delivery is controlled by a state-of-the-art control panel with touch screen operator interface. A built-in modem supports remote troubleshooting and program updates. North Star integrated control panels have received UL 508a certification, as well as ETL, cUL and CE listings. Icing stations have separate panels to control ice delivery and metering.

**North Star Flake Ice Makers** Known for their long life and dependability, each North Star unit can produce up to 53 tons (48.5 MT) of superior sub-cooled flake ice per day, and can be specified with a carbon steel or stainless steel freezing surface. North Star flake ice makers produce ice more efficiently in terms of energy and horsepower savings than any other ice maker.

**Pneumatic Delivery System** The North Star system can deliver between 15 and 40 tons (13.6 and 36.4 MT) of ice per hour to multiple individually measured use points. Delivery locations can be above or below the ice storage and up to 546 yards (500 meters) away.

**Ice Storage System** To ensure that ice is always available when it is needed, the system includes ice storage up to 280 tons (255 MT) per unit. The North Star ice rake in the storage bin levels the ice as it is made and also moves ice out of the bin during delivery. No ice is lost during this process, further improving efficiency.

## North Star Increases Plant and Process Efficiency

A North Star automatic ice plant offers a number of benefits over the traditional use of block ice in chemical and dyestuff plants:

- **Faster, more predictable cooling:** Flake ice has the largest cooling surface area of any type of ice, so it cools more quickly and produces the same results time after time.
- **Better temperature/process control with less ice:** Due to North Star's faster cooling and precise metering, temperatures can be easily held within the optimal range for the specified reaction.
- **No ice or water loss:** The North Star system is completely contained, so ice is not lost due to melting.
- **Labor reduction:** Because the North Star system makes, stores, and delivers ice automatically, the cost to purchase, transport and process block ice is saved.
- **Higher delivery rate:** North Star can automatically deliver up to 40 tons (36.4 MT) of ice per hour.
- **Speeds process time:** With more efficient cooling, better temperature control and higher delivery rates, plant process time decreases and outputs increase.
- **Quick return on investment:** Many customers who formerly purchased block ice have seen a 100% return on investment in the first year after installing a North Star automatic ice plant.