

ACCU-CHILL® SC. Rapid, reliable in-line cooling for sauces.



Challenge In the food industry, cooling hot consumable liquids such as sauces and soups presents manufacturers with a number of challenges. To comply with food safety requirements, operators need to rapidly cool sauces in order to minimise bacterial growth. Food regulations limit the length of time that food can be kept at temperatures of between 4 and 60°C. It is thus critical to lower the temperature as fast as possible to reduce food safety risks and maintain product quality.

Traditional cooling approaches rely on water immersion techniques or jacketed, tubular, scraped-surface heat exchangers. These conventional methods are very time-consuming, leading to bottlenecks and production limitations. In addition, adding hot sauces to cold products can cause ice crystals to form, compromising product quality. Last but not least, conventional technologies such as kettle cooling and scraped-surface heat exchangers entail relatively high capital investment costs. Many manufacturers would thus welcome a cooling solution combining rapid, high-quality outcomes with low investment outlay.

Solution Linde's ACCU-CHILL® SC system uses our patented continuous cryogenic injector technology to inject extremely cold liquid nitrogen (LIN) directly into a specially designed tubular mixing chamber. The low temperature of the LIN (-196 °C) efficiently transfers cold to the sauce without freezing it. The subsequent mixture of gas and sauce is then transferred to the chilled vessel. This in-line process rapidly chills hot sauces within seconds instead of hours, thus increasing production capacity and improving flexibility.

ACCU-CHILL SC comprises an in-line chilling injector, a nitrogen manifold and a nitrogen phase separator. It uses gaseous nitrogen (GAN) to purge the lines and the injector after chilling to ensure that no product residue remains in the system.

- Benefits**
- Rapid in-process cooling for faster production cycles and higher throughput
 - Improved product quality
 - Lower capital investment cost
 - Energy efficiency
 - Low-maintenance, hygienic design for ease of cleaning (less water and downtime required)
 - Small footprint
 - Increased control and flexibility in production processes
 - Reduced product waste and handling

Target markets ACCU-CHILL SC is ideal for higher viscosity sauces that can be pumped when cooled, such as gravies, pasta sauces and soups. It is also suited to ready meals and cheese, and works in perfect harmony with our CRYOLINE® PE pellet freezer.

Technical details Each ACCU-CHILL SC chilling system is tailor-designed with precision-engineered components to suit your specific processing needs. The ACCU-CHILL SC system includes the following components:

- In-line sauce injector with flex hoses
- LIN injection manifold
- Control panel
- LIN phase separator
- Exhaust system
- Liquid nitrogen storage tank and piping

Technical data

Overall width (diameter)	508 mm / 20 inches
Overall height	1829 mm / 72 inches
Total weight	68 kg / 150 lbs
Outlet connection	102 mm / 4 inches
Inlet connection	63 mm / 2.5 inches
Electrical	480 V / 50 A / 60 Hz