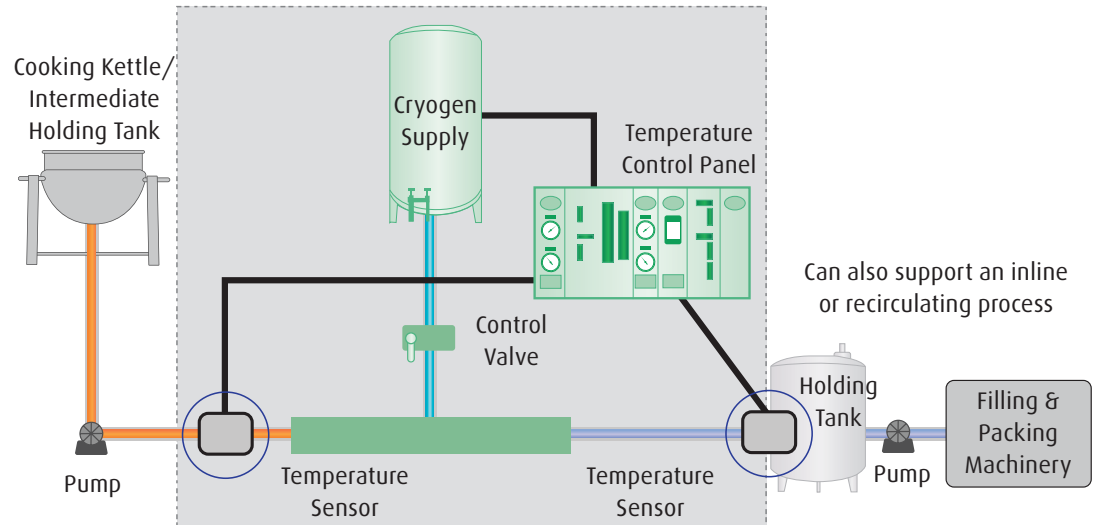




ChillStream™ In-line Liquid Food Cooling

Linde Technology



Schematic representation of the cooked liquid food cooling system

Improved Sauce Cooling

Cooling sauces, soups, custards, fruit fillings & pureés, gravy and other liquid foods following the cooking stage is a critical step for manufacturers. If not done quickly, the delay may result in decreased product quality, increased waste product, or creation of production bottlenecks. Manufacturers of liquid foods cook products at a temperature of 200°F and above, for up to 50 minutes. For many products, cooling the hot liquid food has to meet strict temperature and time parameters according to FDA/USDA requirements for microbial safety considerations. Traditional methods of cooling which include kettle cooling, scraped surface heat exchangers, or water spraying can be capital intensive, labor intensive, or time consuming. Storage cooling of bulk sauces may not meet FDA/USDA guidelines. Rapidly cooling the sauce at rate during tote filling ensures proper product temperatures. Addressing these production issues with a cryogenic gas option has been shown to be an effective measure to improve productivity where temperature control is important.

Liquid Nitrogen In-line Systems

Linde has developed an in-line, nitrogen liquid injection system that can be run either continuously or in batch mode to rapidly drop liquid product temperatures prior to being packaged. Chilling the product directly from the cook cycle – prior to packaging – addresses productivity issues. Production bottlenecks due to chilling bags of sauce can be eliminated. Product quality and microbial safety issues can be better controlled due to the rapid temperature removal cycle. Cryogenic chilling systems allow for continuous operation or adapt to batch cooling operations to reduce labor costs, maintain product quality and increase profits.

- Features**
- Rapid, uniform cooling
 - Integrates into existing equipment
 - Automated injection system
 - In-line, continuous or batch operation
 - Minimum space required
 - Uses the effective cooling of cryogenic gas
 - Easy to clean

- Benefits**
- Low capital investment; quick return
 - Improved quality and appearance
 - Maintain product integrity
 - Control manual labor costs
 - Flexible, adaptable system

A Wealth of Experience and Support

Years of research at our food technology center have identified the ideal cooling conditions for a broad range of products.

When you choose Linde, you're selecting more than the largest supplier of industrial gases in North and South America. You're also selecting a support team that includes:

- Experienced food scientists and engineers.
- A complete array of services, including on-site evaluation, designed experimental testing, installation layout and start-up support – Linde's Total System approach.
- A food technology center featuring an analytical laboratory to evaluate your product in full-sized production equipment.

It's everything you need to improve the quality and consistency of your products.

Contact Linde Today

For more information about cryogenic, process analytical and industrial gases used throughout your operation, call Linde at **1-844-44LINDE**, or visit our website at www.lindefood.com.

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