



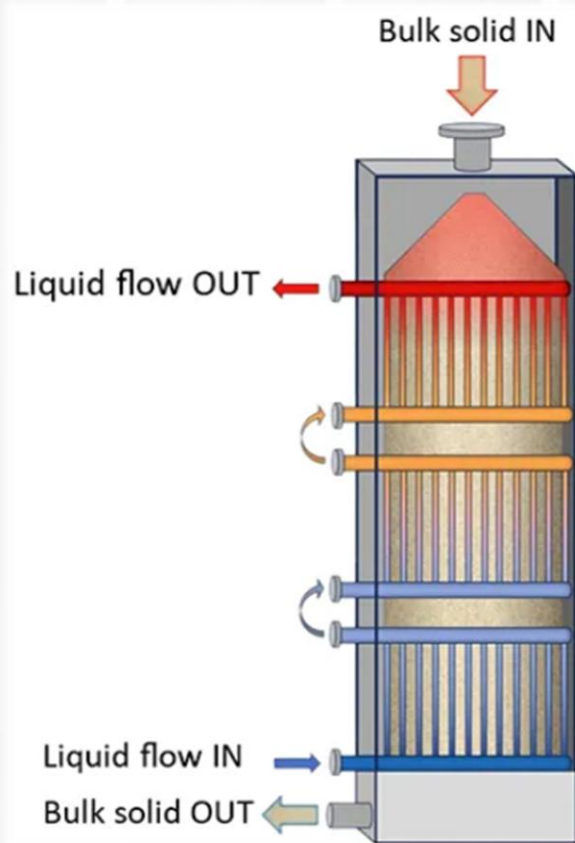
# Leering Heat Exchanger

*Heating, drying or cooling of Bulk Solids*



**A. LEERING ENSCHEDE**

*Partner in stainless steel*



The Leering Bulk Solids Heat Exchanger is a robust stainless-steel system that combines:

- **Indirect heat transfer** using double-embossed pillow plate heat exchangers (*Thermplates®*)
- **Continuous mass flow** of bulk solids through the exchanger

Operating on **gravity flow**, the system is suitable for **free-flowing bulk materials** only.



## Compact and Modular Design

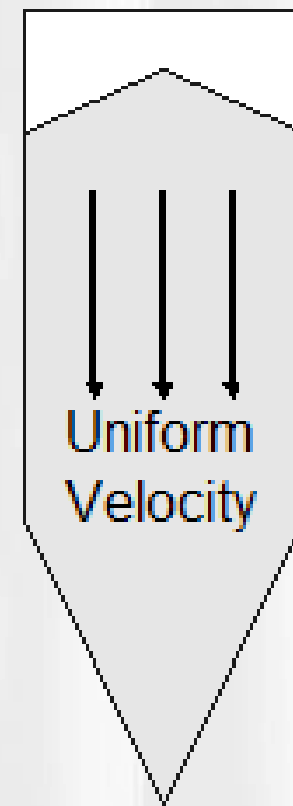
- The **vertical configuration** makes the system both **compact** and **space-efficient**.
- Its **small footprint** allows easy integration into existing plants → ideal for **de-bottlenecking**, **revamps**, and **capacity increases**.
- The **modular concept** enables stacking of additional plate banks to increase cooling or heating capacity when needed.



## Indirect Heat Transfer: Efficient and Sustainable

The **Leering Bulk Solids Heat Exchanger** utilizes indirect plate heat exchanger technology, offering significant advantages over traditional fluid bed or rotary drum systems:

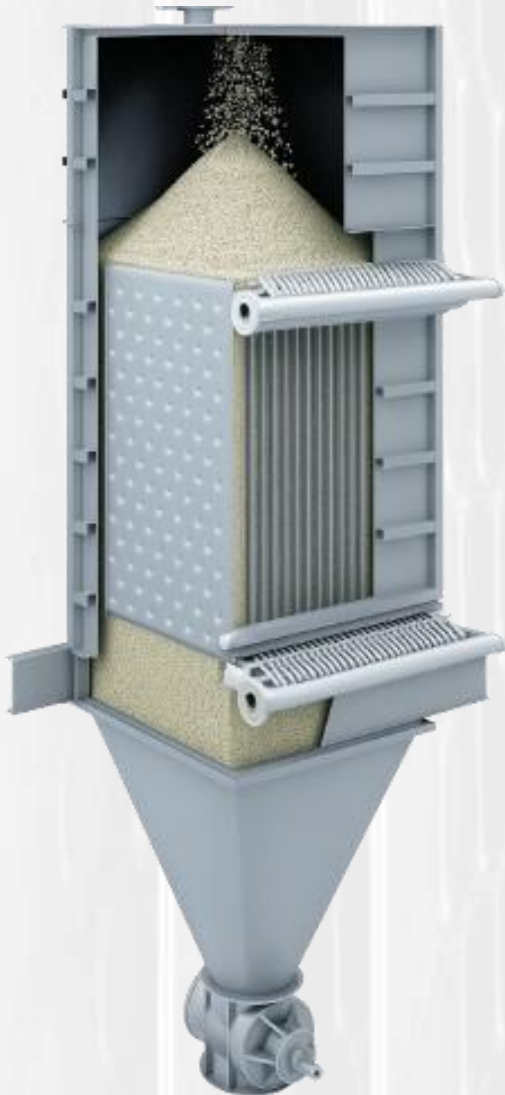
- **No large air volumes** required: eliminating the need for fans and drastically reducing energy consumption.
- **Zero emissions**, removing the need for costly air filters.
- **Compact design** with fewer components and **lower capital cost**.





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## Components



→ Inlet Hopper

→ Plate bank(s)

→ Mass Flow Device



## **Inlet Hopper and Flow Control**



- The product enters the **inlet hopper**, forming a cone and maintaining a consistent **product level above the plates**.
- Equipped with **high-level** and **low-level switches** for reliable monitoring.
- A **4–20 mA signal** is generated and processed by the controller, which adjusts the **mass flow device** to regulate product flow accordingly.



## Product and Heat Transfer Flow



- The product flows **slowly and uniformly** between the **smooth, vertically aligned plates**.
  - *Plate supports act also as **spacers** to ensure the required spacing between individual plates is maintained.*
- The **cooling or heating medium** enters at the **bottom**, circulates **upward through the plates**, and exits at the **top** via hoses and manifolds before continuing to the next plate bank.
  - *In case of steam operation, the flow direction is reversed.*



## Mass Flow Control

- A **mass flow cone** combined with a **rotary valve** generates a controlled and consistent flow of bulk solids.
- The **controller** regulates output based on feedback from the **inlet hopper**.
- Alternative flow devices include:
  - Vibratory feeders
  - Double gate feeders
  - (Tapered) screw feeders



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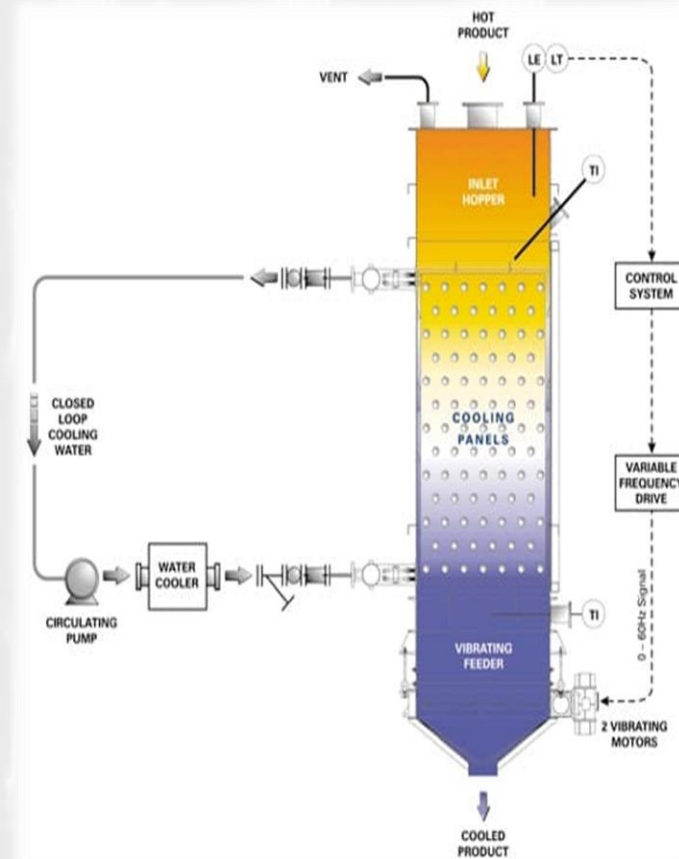
**Additional options**



## Optional Closed Loop System

An optional **Leering Closed Loop System** can be supplied for **cooling and/or heating water**.

The complete system is **mounted on a skid** for easy installation and integration.





## **Efficient and Clean Heat Transfer**

- **Indirect plate design:** no air used in the heat transfer process.
- **Up to 90% lower energy consumption** compared to air-based systems.
- **No emissions, dust, or odors**, since no air comes into contact with the product.
- **Reduced capital costs** by eliminating the need for air handling equipment such as:
  - Fans, motors, ducting, scrubbers, chillers, and emission control systems.



## **Superior Product Quality & Easy Maintenance**

- **No risk of contamination:** air-free design prevents bacterial or odor transfer and preserves product moisture.
- **Easy access and cleaning:** plate banks are designed for simple inspection.
- **Modular repair:** Due to hoses on the manifolds, individual plates can be accessed and replaced from the sides.

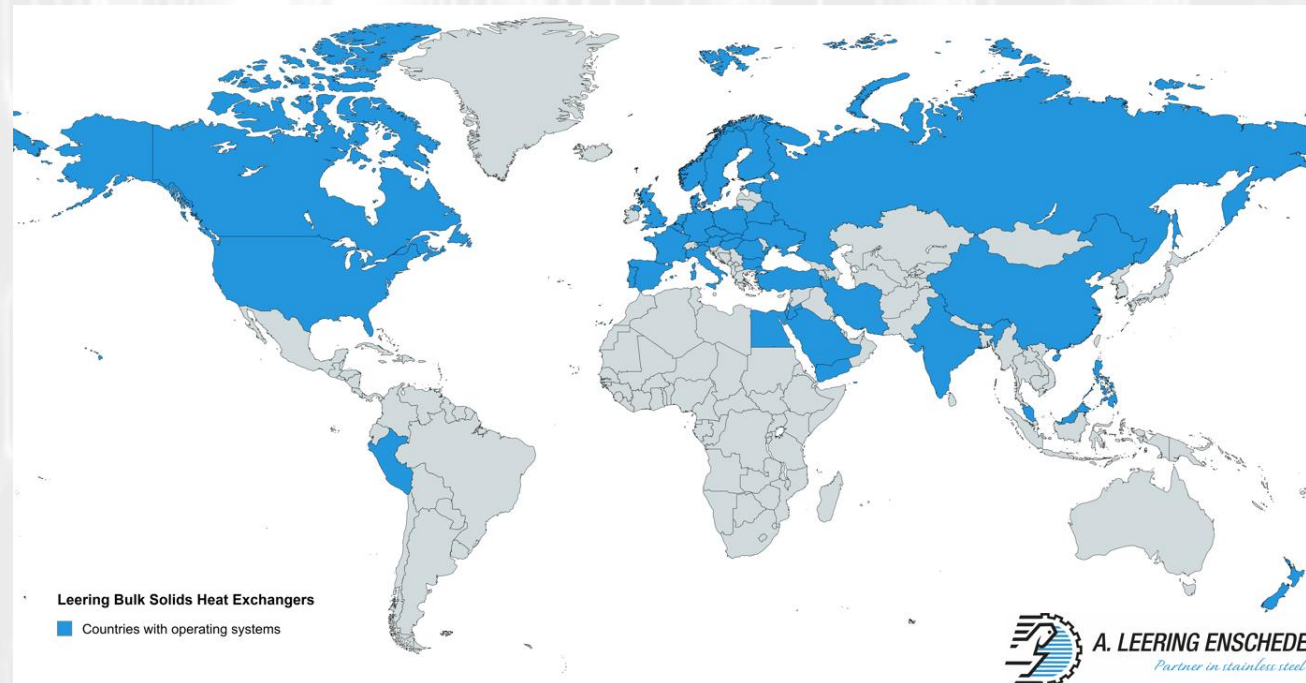


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**Global Reach**

## Manufactured in Holland - Operating world wide

- > 200 Leering Bulk Solids Heat Exchangers
- >35 countries





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## Applications

**Leering Bulk Solids Heat Exchangers** are designed to **heat, cool, or condition bulk materials** indirectly — without direct contact between the product and the heat transfer medium.

This makes them ideal for **granular, powder, or pelletized solid materials**.

**Any dry, free-flowing, and heat-sensitive product** can typically be processed using Leering Bulk Solids Heat Exchangers, provided the particle size is relatively uniform and the material doesn't cake or clump.



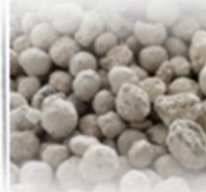


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## Applications

| Product Category                         | Typical Products                                                                 | Process Type                     | Industry / Application                        |
|------------------------------------------|----------------------------------------------------------------------------------|----------------------------------|-----------------------------------------------|
| <b>Food &amp; Agriculture</b>            | Sugar, salt, rice, seeds, grains, coffee, animal feed, fertilizers               | Heating / Cooling / Conditioning | Food processing, agriculture, feed production |
| <b>Minerals &amp; Building Materials</b> | Sand, lime, cement, gypsum, bentonite, metal powders, ash                        | Cooling / Heat Recovery          | Cement, mining, mineral processing            |
| <b>Chemicals</b>                         | Plastics (PE, PP, PET, PVC), urea, ammonium nitrate, soda ash, sulphur, pigments | Heating / Cooling                | Chemical and polymer industry                 |
| <b>Energy &amp; Recycling</b>            | Biomass, RDF/SRF, battery powders, recycled plastics                             | Cooling / Heat Recovery          | Biomass energy, waste-to-energy, recycling    |
| <b>General Processing</b>                | Powders, granulates, pellets (free-flowing solids)                               | Heating / Cooling / Conditioning | Bulk solids handling and process industries   |



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