Complete Cooling Systems for Processing Industries

SANDVIK presents a complete systems approach

The Sandvik Cooling System has all the advantages of steel...

1. Steel conducts heat well. So you can see how a thin steel conveyor belt on the move will rapidly conduct heat away from your product.

2. A steel belt is ideal for processing and conveying purposes. High load-carrying capacity and long service life are additional advantages.

3. Steel allows discharge devices, scrapers, knives, etc., to be used without damage to the belt.

4. A steel belt can handle hot, sticky, oily, even sharp and abrasive materials.

5. A steel belt is easy to clean and hygienic and is used to great advantage in the food industry.

6. Sandvik Steel Belts are ideal, not only for cooling, but also for heating, drying and freezing.

...and the advantages of a belt cooling system...

1. A belt cooler permits continuous operation . . . in this illustration, continuous cooling, solidification and crystallization.

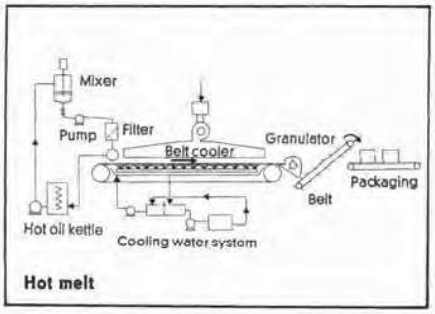
2. The material processed on a Sandvik steel belt cooler is cooled from below. A coolant is sprayed on the underside of the belt. No coolant ever reaches the top surface of the belt or the product.

3. In special solidification and crystallization processes, as well as in cooling sensitive materials, several cooling zones with different temperatures can be arranged.

4. A belt cooler makes for easy loading and unloading. The material is fed on the moving belt at one end and it is scraped off or simply breaks off by itself at the other.

5. Steel belts are smooth and solid. They have no joints, slats, hinges or other dirt-catching crevices. They are easily cleaned and maintained.

...plus Sandvik delivers a complete-line package...



Hot melt

For many years Sandvik has developed experience in many products and with numerous processing techniques. Today the Sandvik Conveyor Group has expanded their system capability and will deliver complete production lines, for example for Hot Melt, Aluminium Sulphate, Gelatine, Polyester, Powder Paint, etc.

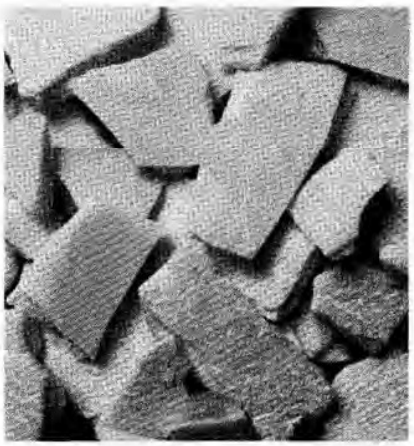
Put Our Experience to Work for You
Sandvik Cooling Systems will improve your production methods because Sandvik Systems are made to suit your product and process.
Sandvik Conveyor as a single-source supplier will be your reliable partner in planning, design and construction of complete production lines.

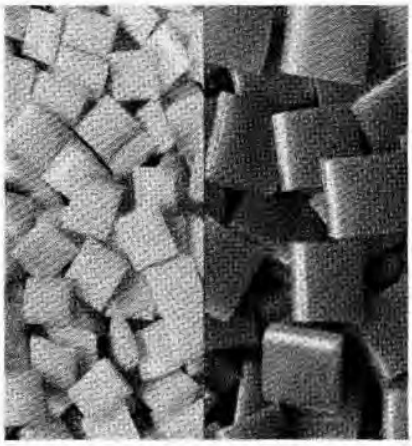
...which adds-up to economical processing for a variety of products.

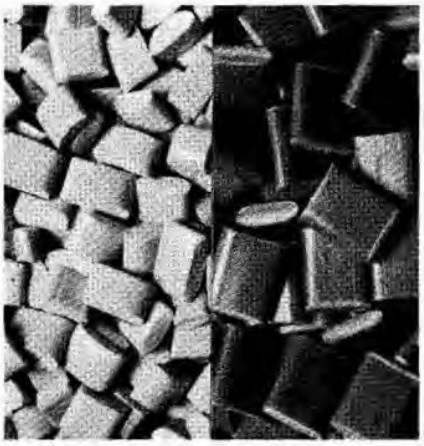
Cooling, with the Sandvik Cooling System, adds up to savings in labor, reduction of scrap, higher product quality and minimized cleaning and maintenance costs.
No wonder over 200 different products throughout the world are cooled on Sandvik Cooling Systems. Take a look at a few of these applications:

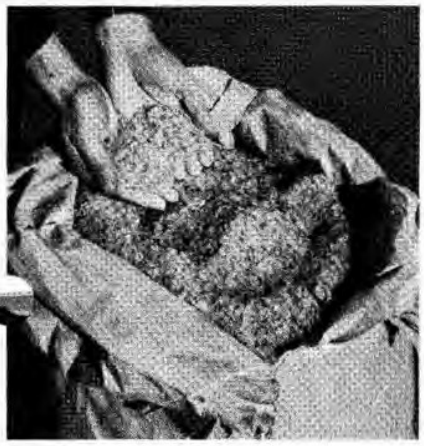
Chemical Industry
Glue, Maleic Anhydride, Aluminium Sulphate, Sulphur, Hot Melts, Pitch, Plastics, Polyester, Bitumen, Resins, Rubber, Waxes.

Food Industry
Caramel, Sugar Candy, Cheese, Chewing Gum, Chocolate Drops, Fruit, Gelatine, Vegetables, Raw Sugar, Vitamin Concentrate, various Instant Powder products.

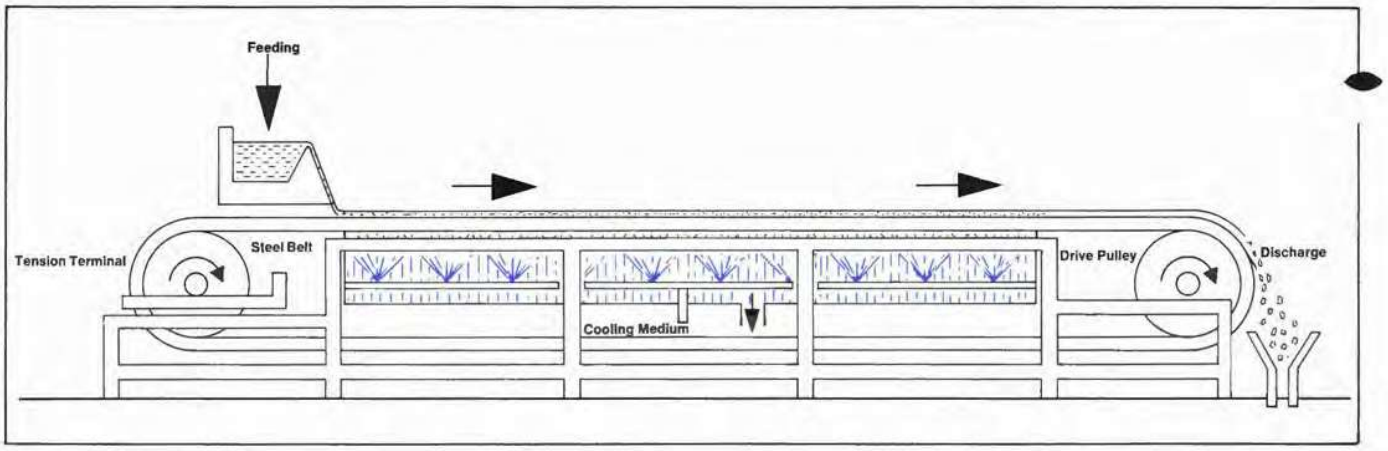




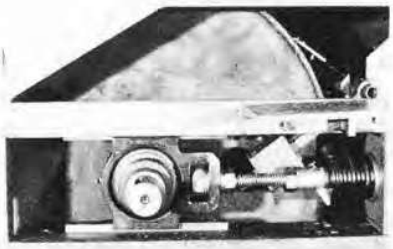




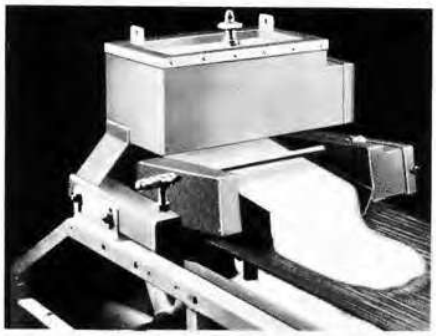
Here's how the Sandvik Belt Cooler works



Tension Terminal
The tension pulley can be adjusted for alignment and tension.



Feeding
The feeding device is purpose-designed to meet individual needs and to optimize production.

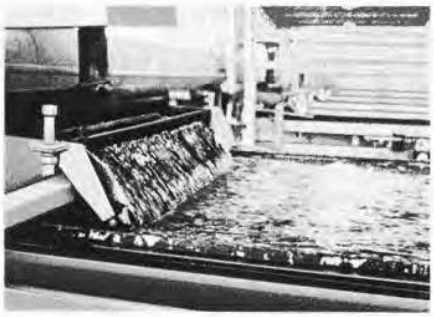


Discharge

Other Feeding Possibilities

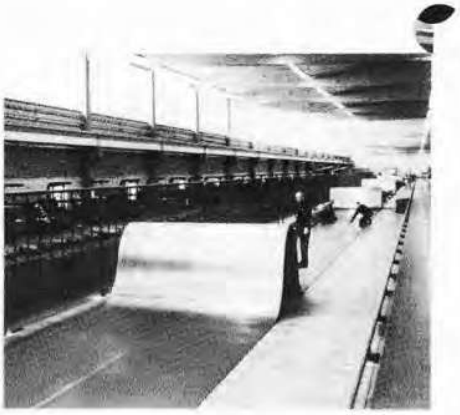
Product feeding with a double squeeze roller (example powder paint).

Stripformer for low and high viscosity hot melts.



Liquid sulphur is fed onto the steel belt cooler at 145° C (250° F) via a steam heated weir feeder.

The Steel Belt
The special physical properties (high thermal conductivity) make the steel belt an ideal product carrier for the processing industry.
In the food industry the sanitary properties of steel belts are especially welcome. Hot, sticky, oily, liquid, powdery, granular or pasty products can be conveyed and processed without problems.

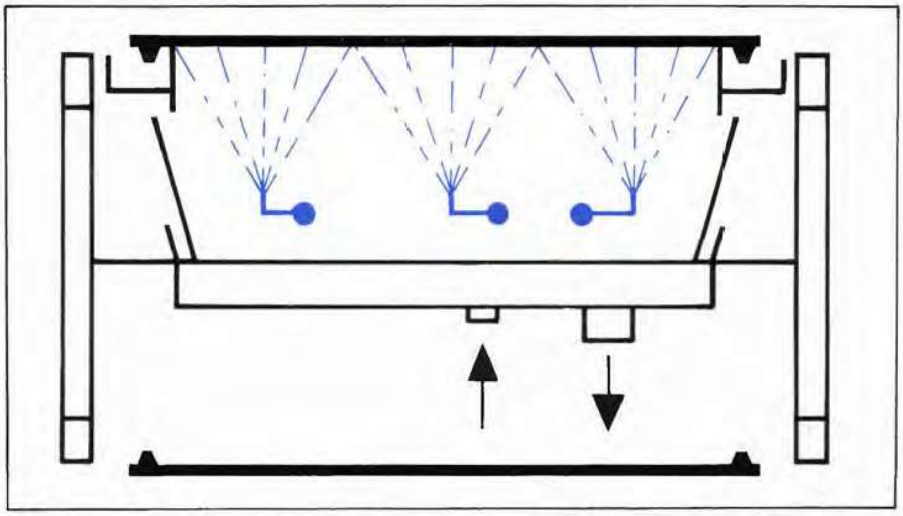


True - Tracking System
Vee ropes bonded to the inside surface of the belts assure accurate tracking and positive, vibration-free belt drive.

Cooling Units in Standard Widths

Steel belt width	Effective width
mm	mm
400	280
600	480
800	680
000	880
1200	1080
1500	1380

Standard cooling zones in lengths of 2.5 m and 5 m with separate "in" and "out" connections for the coolant.

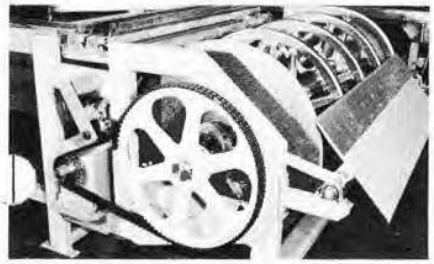


Cross section of a spray type cooling system

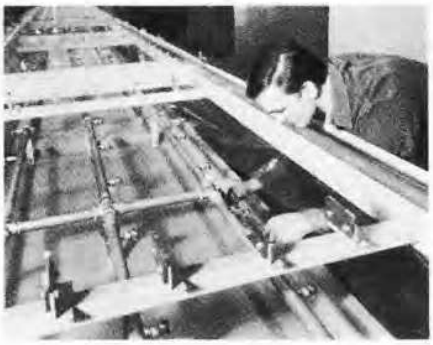
Side Skirts
If the material is a liquid and does not solidify before reaching the belt edges, retaining side-skirts are used.
Four possible retaining techniques are available:

- Rubber edging a height of 16-50 mm (5/8-2") for low viscosity material that breaks loose from rubber easily.
- Stationary skirts of plastic or metal for non-sticky materials with high viscosity.
- Air skirts formed by air blowing from pipes on both sides of the belt to prevent overflow.
- Skirts of rubber profile driven by friction against the belt. These return at the point where the material is set. This somewhat simplifies the discharge. Rubber profile skirts can be arranged vertically or horizontally.

Drive Pulley



The drive pulley is powered by an electric motor.

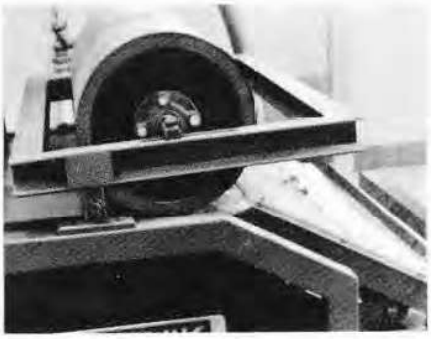


Cooling Medium
Recirculation thru chilling equipment can be employed to save on coolant. This recirculation is made in a counter-flow direction and can be used in both single temperature and multi-zone cooling systems. The most common coolant is water. When lower processing temperatures are required brine or glycol are used.

Discharge
At the discharge end the curved surface is usually sufficient to break the material loose from the belt.

Other Discharge Possibilities

Breaker equipment at end pulley, if specially sized product is required.



Rubber-lagged roller crusher for random sized product.

Rotary cutter for specific lengths (ie. hot melt adhesives).

Planning a cooling system for your specific product and production requirements

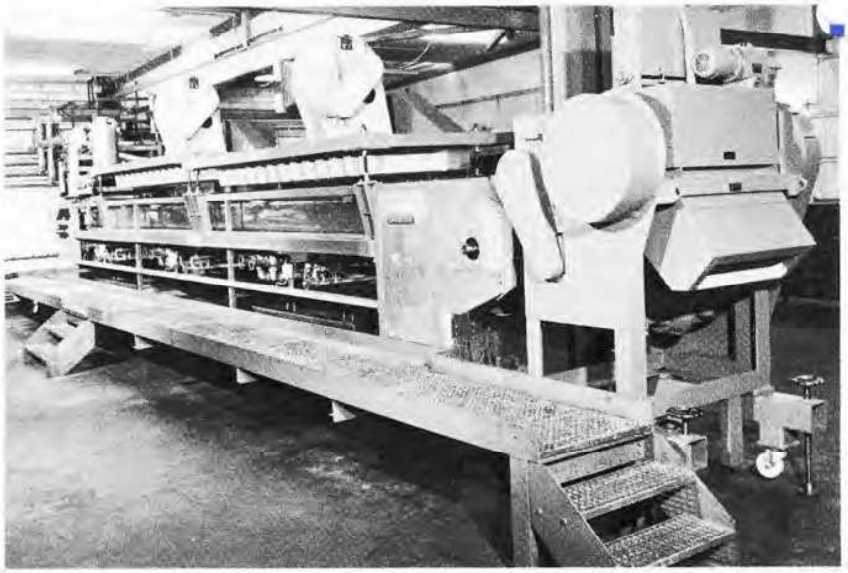
The Sandvik Test Center
The processing specialists in Sandvik's Test Center will help you plan the most efficient and economical production system. Whether you require simple feasibility tests or full-scale production data, our testing laboratories can provide the service.

The Test Center is fully instrumented and equipped to establish projectable, accurate production rates and utility consumption data. From this information and other product data, the design and cost requirements of a full-scale operation can be predetermined.

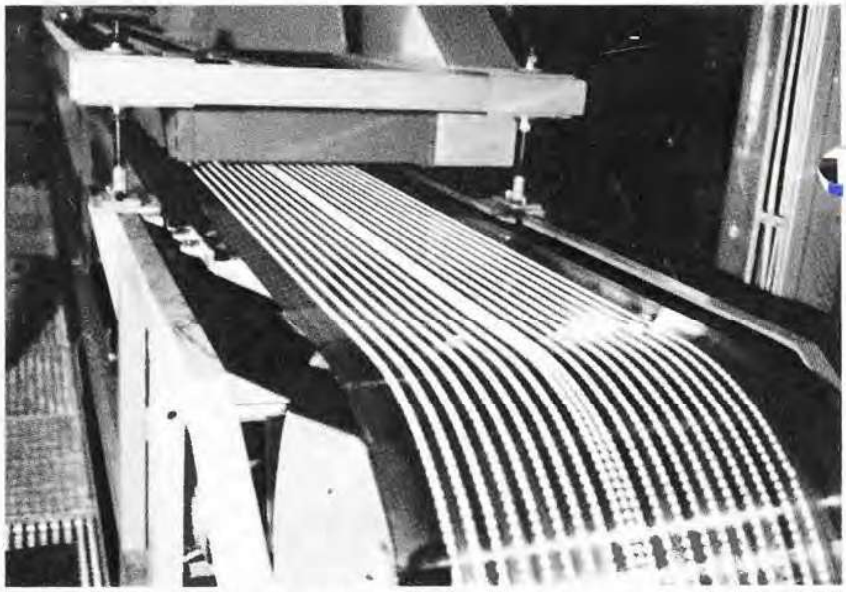
The Test Center will furnish design data for a system that meets all your production and quality objectives.

- Develop the handling techniques necessary for maximum yield of saleable product.
- Provide samples of finished product for your evaluation.
- Determine the heat transfer characteristics of your product.
- Check the release characteristics of your product.
- Define the utility consumption you will need.

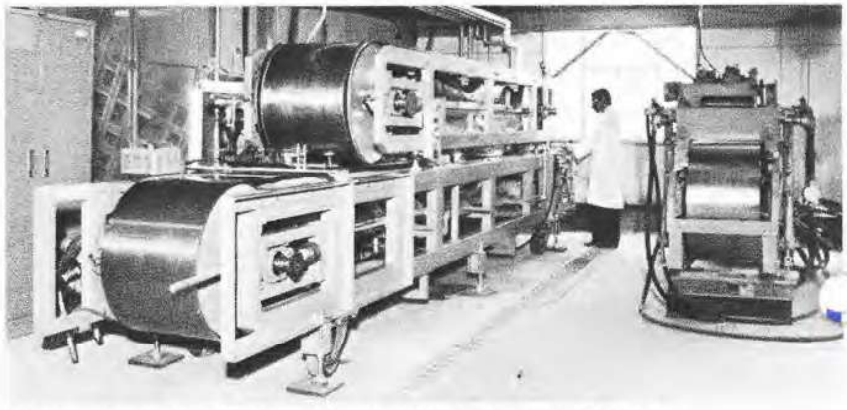
Our Test Center is also equipped to determine how your product should be fed, controlled and discharged. Having used Sandvik's complete testing program you can be sure that the system supplied will meet your production, operating cost and quality objectives.



1. Hot melt line in our Fellbach test center/West Germany.



2. Successful tests with resin pastilles.



3. Test units as single and double belt coolers are at your disposal.

SANDVIK

CM-79.442

Sulphur
Forming and Handling Systems

SANDVIK
Process Systems

200 Tons per Hour

Sandvik offers total systems capability in sulphur forming and handling.

- Relying on our experience we can design construct and fully commission complete systems that are capable of solidifying and forming sulphur in modern and efficient storage and handling facilities.
- We make it safe, simple and economical to process.
- Sulphur forming provides flexibility in storing and handling which gives you protection from short term negative market fluctuations.

TYPICAL INSTALLATION