

The Sandvik double belt system



Sandvik steel belts around the world

Sandvik steel belt technology forms the basis for all of our double belt systems and delivers a range of proven benefits.

- Hard and smooth surface
- Temperature resistant
- Corrosion resistant
- Easy to clean
- Endless weldable
- Wear resistant
- High thermal conductivity
- High tensile stress resistance
- Easy to repair
- Recyclable, because the steel belt can be remelted

Practically all Sandvik standard steel belts are suitable for double belt processing applications, and we can incorporate a full range of special designs to satisfy particular requirements.

- Various grades of stainless or carbon steel
- Polished or plated surfaces
- Side retainer and retaining strips
- Perforations
- Longitudinal welding
(for belt widths > 1.5 m)



Sandvik double belt systems – solutions tailored to your processing requirements



Double belt cooler for continuous production of silicon

Our extensive experience of steel belt technology, and the thousands of single belt systems we have built and installed for processes in the chemical and food industries, has resulted in the development of the Sandvik double belt system. In developing this system, we have combined all the advantages of the steel belt with a full range of highly efficient and advanced processing technologies.

The use of multiple roller sets provides a linear pressure across the belt width and a tumbling effect to the product to be treated. Constant pressure can be applied over a specific area and sets of rollers can be used to achieve a calibrating effect. The fact that

heating/cooling and pressurising elements are modular means that virtually any profile can be achieved in one double belt system. These profiles can easily be adapted or optimised according to particular process requirements; the process can even be modified by changing modules.

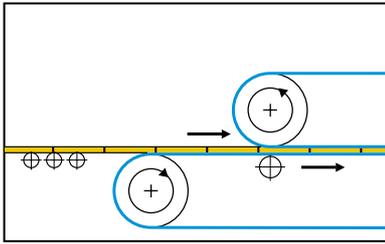
Other key advantages of the Sandvik double belt system include:

- Heat treatment or cooling is applied to both sides of the product for maximum efficiency
- Practically all common sources can be used for heating and cooling

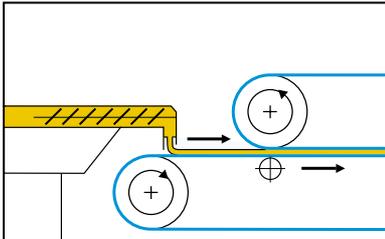
- No contact between the product and ambient air
- Vapours and fumes are reduced and kept away from the operating area
- Products which tend to curl away from a single belt unit (resulting in irregular contact and loss of capacity) can now be handled
- Most feeding devices used for single belt coolers can also be used for double belt systems

Feeding devices

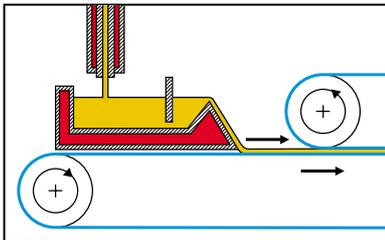
Continuous feed of web or pieces



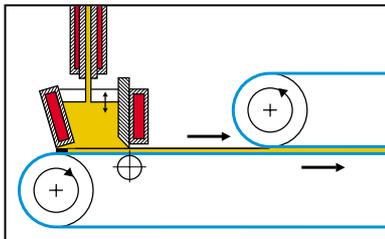
Extruder or feeding hose



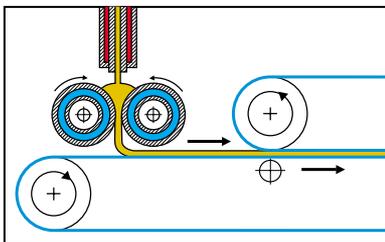
Overflow weir feeder



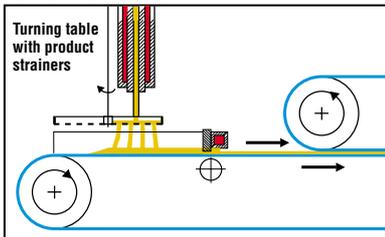
Casting box



Double roller feeder



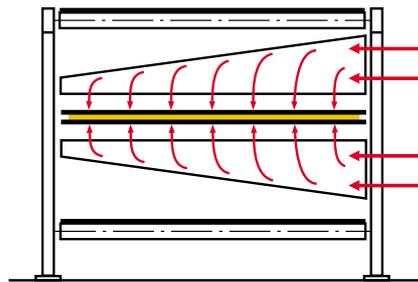
Casting box with rotary screen feeder



Maximum versatility for

Heating/Tempering

Heating with circulating air



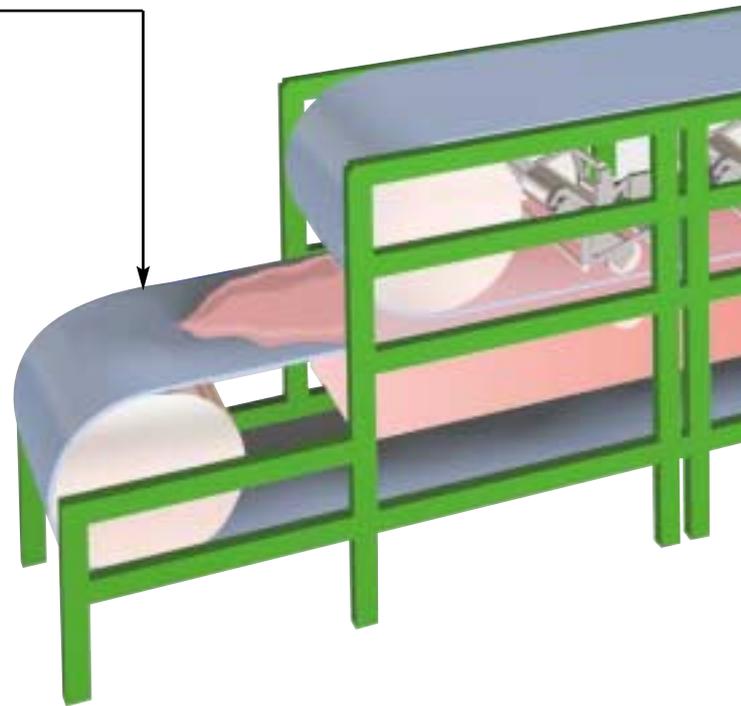
by convection

- water
- air
- roller chain

by radiation

- IR-radiation

Heating of upper and/or lower steel-belt

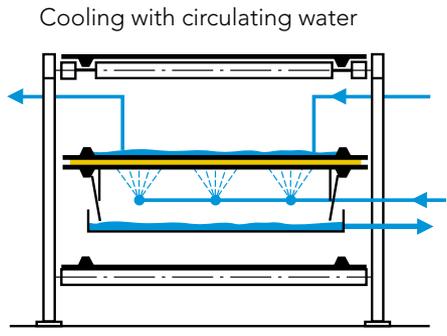


Design data:

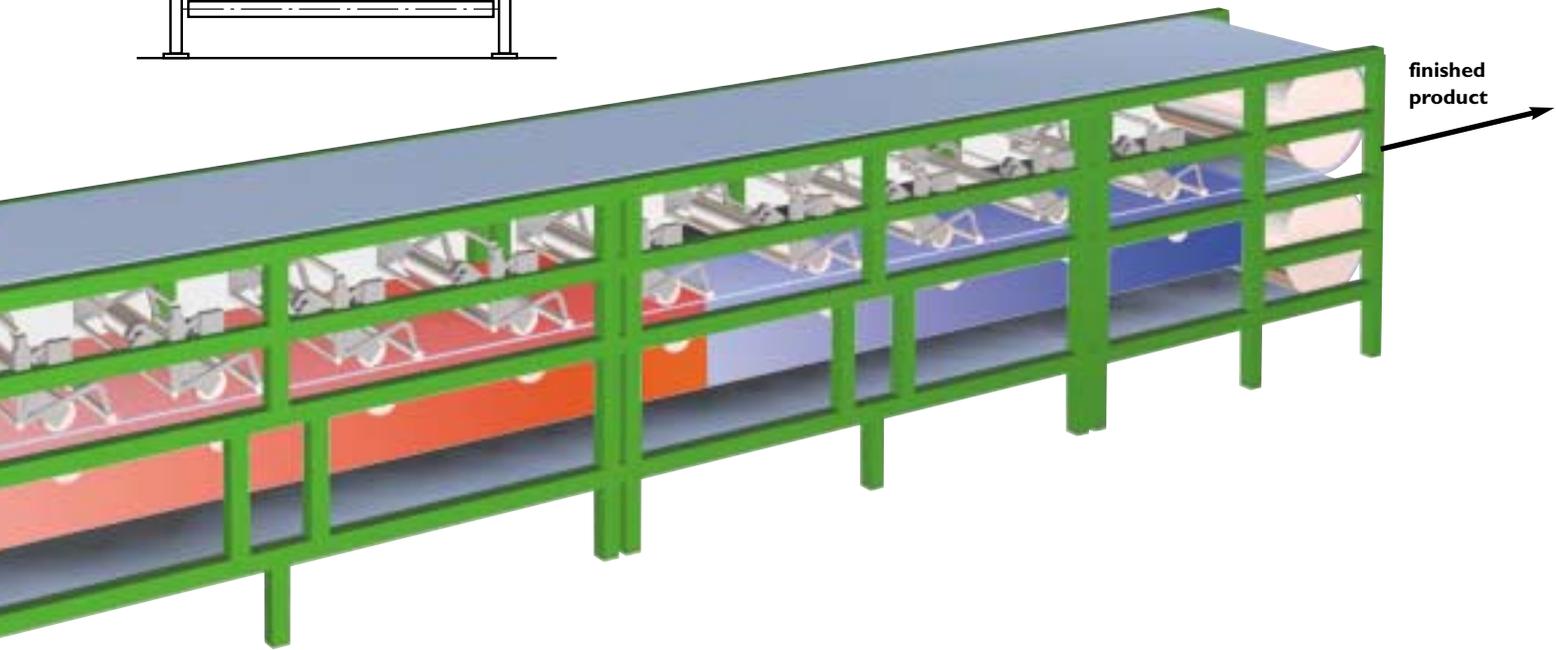
Belt width:	standard 400 - 1.500 mm special design up to 4.000 mm
Belt temperature:	max. 300 °C
Drive of upper and lower belt:	electronic synchronisation
Belt guiding:	automatic system or bonded V-ropes
Belt tensioning:	automatic

optimum performance

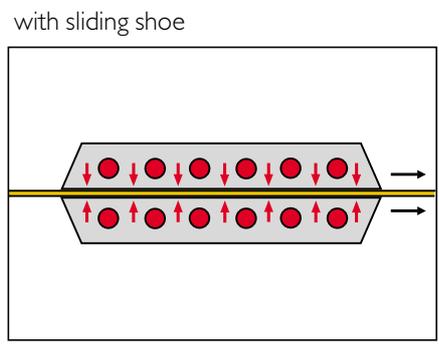
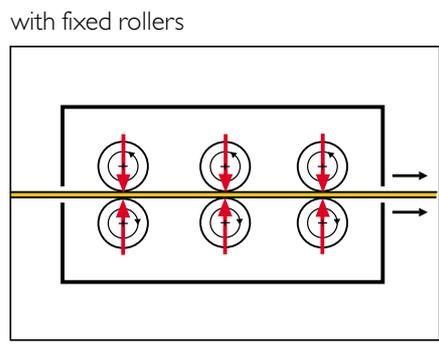
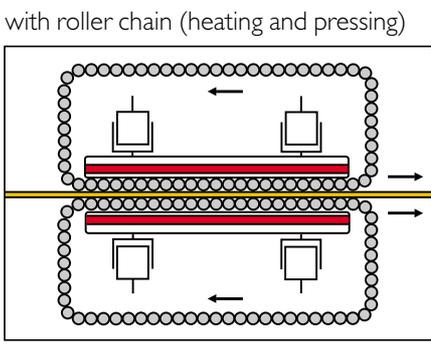
Cooling



- by convection**
- water
 - brine
 - air
 - roller chain
- Cooling of upper and/or lower steel-belt



Pressing



line pressure max 16,000 N/m (higher on request)

Suitable for wide range of applications

Process	Typical application	Characteristics
Granulation	Flaking of resin	<ul style="list-style-type: none"> • solidification through cooling from both sides (water cooling) • multi-zone cooling if required
Film casting	Membrane filter foil	<ul style="list-style-type: none"> • reaction (exotherm) • tempering and drying • cooling
Sheet casting	Artificial marble Pure PE/PP/PA-sheets	<ul style="list-style-type: none"> • controlled reaction with heating, calibration • cooling
Sheet moulding	GMT	<ul style="list-style-type: none"> • heating and calibration • cooling
Lamination	Sandwich-production Insulation material	<ul style="list-style-type: none"> • heating, melting of surface • bonding, cooling
Heating of thermoplastic sheets		<ul style="list-style-type: none"> • for subsequent moulding

A comprehensive range of feeding, heating, cooling and pressing elements enables us to satisfy the particular requirements of virtually any application or process. The panel to the left highlights just a few of the applications for which we have provided efficient, cost effective solutions.

Industry sectors for which this type of double belt process offers significant potential benefits include:

- Plastics (semi products)
- Automotive
- Construction/housebuilding (internal/external claddings)
- Insulation (heat, acoustic)
- Furniture
- Flooring

Typical elements mounted into the base of a Sandvik double belt cooler



Element:

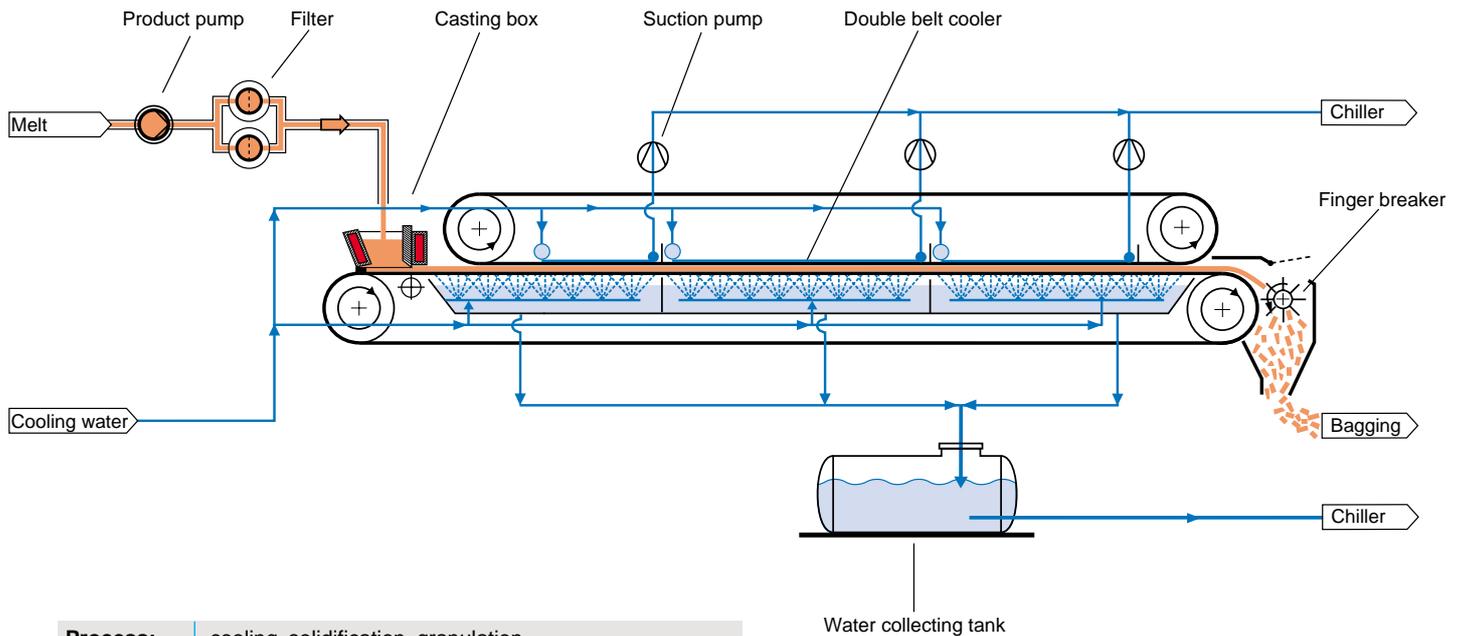
Support rollers with spray nozzles for brine, cold or hot water.



Element:

Support rollers with nozzles for hot or cold air.

Double belt system for resin granulation



Process:	cooling, solidification, granulation
Feeding:	casting box
Cooling:	chilled water, upper and lower belt
Pressure:	very low, only by weight of upper belt



Cooling zone

Versatile, efficient flaking of resins

Simultaneous cooling of the upper and lower belt results in highly efficient performance. Furthermore, as some types of resin tend to curl away from a single belt unit (resulting in irregular cooling and loss of capacity), the double belt system can be used to handle these products more efficiently.

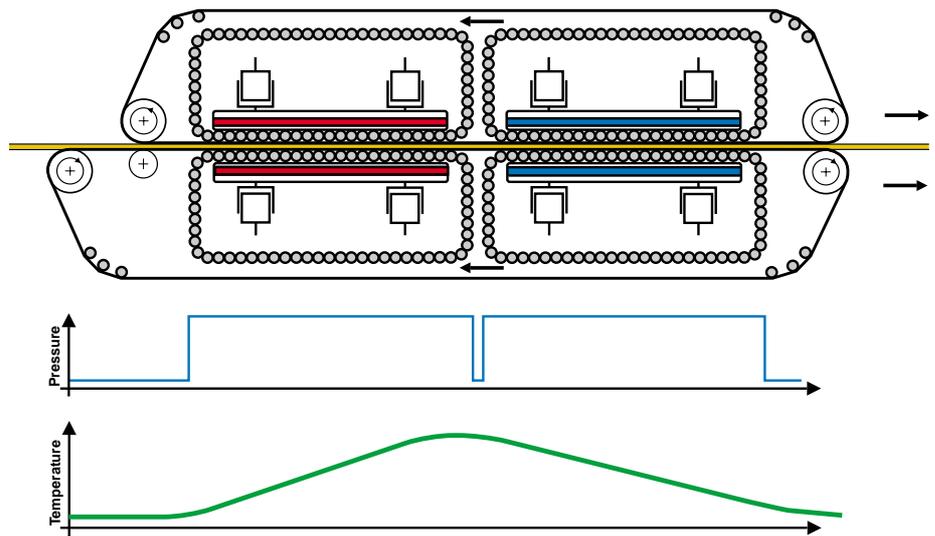
Double belt system for sheet moulding

The double belt system provides the ideal solution for continuous production of glass fiber reinforced plastics (GRP). Glass fiber mats and plastic (PE/PP) are fed into the double belt system and, through the application of heat and pressure, the glass fiber is impregnated with plastics. The product is then pressed, calibrated and cooled down under pressure.

Another key advantage is that the hard, smooth surface of the steel belt results in an excellent product surface quality; subsequent treatment of materials is unnecessary.

This system is widely employed in the manufacture of products used by the automotive, construction and electronics industries.

Delivering targeted heat and pressure



Process:	heating, pressing and calibrating with heating platens cooling and pressing with cooling platens
Feeding:	extruder
Heating:	heated platens with roller chain
Cooling:	cooled platens with roller chain



Double belt press for glass fiber reinforced plastics



Production plant for plastics
fiber compound materials



Sheet-moulding: reinforced plastics

We deliver complete installations for the continuous production of fiber reinforced and homogeneous plastics, the base materials used to form parts for the automotive, building and machine industries.

Double belt system for sheet casting

A typical sheet casting application is the production of artificial marble, in which the fluid compound – MMA fluid (methylmethacrylate), chips and filler – is combined in a batch mixer, degassed, then fed onto the lay down zone of the double belt casting unit.

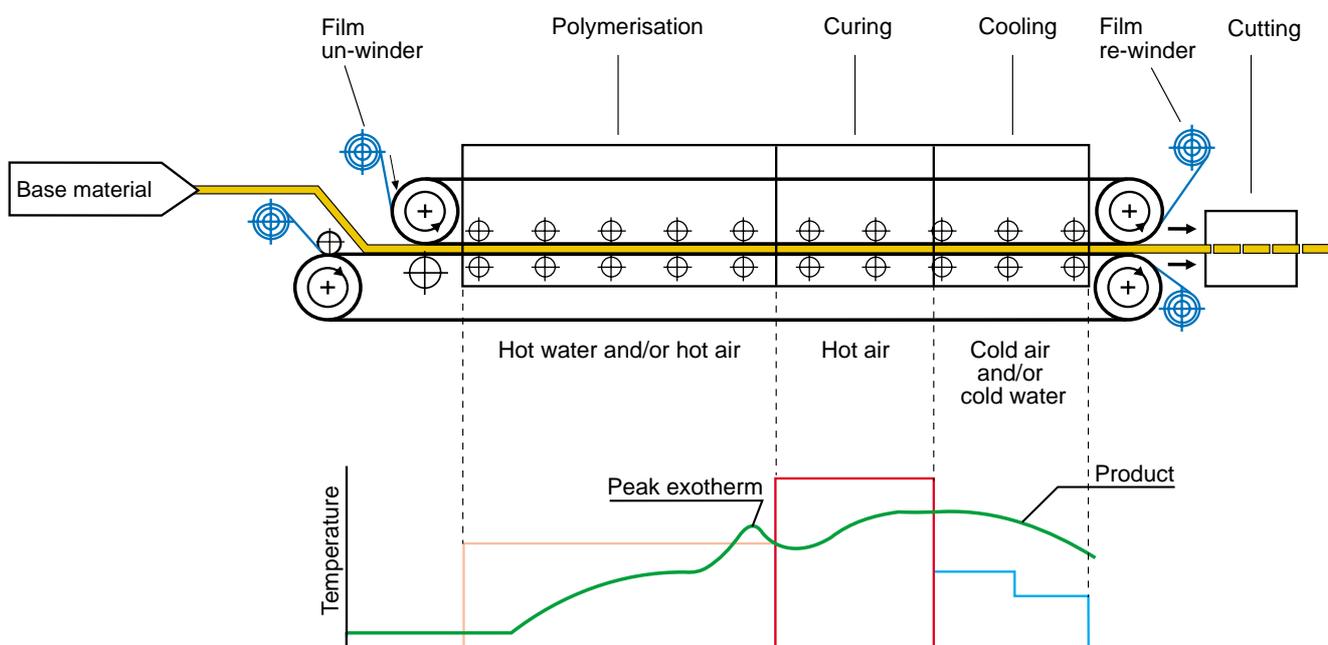
When drawn into the machine, the product, still in liquid form, is thickness-calibrated in the nip zone, which consists of a set of calibration rollers for the upper and lower belt.

The final calibration and solidification process takes place in the polymerisation zone, where the product is tempered by water sprayed against the 'non product' sides of the upper and lower belts. Final curing is completed before the product is cooled down to the specified discharge temperature.



Process:	reaction (with heating and consolidation), cooling
Feeding:	casting box
Heating:	hot air or water on lower belt hot air or water on upper belt
Cooling:	water and/or air on upper or lower belt

Sheet casting – Production of engineered stone



Complete systems from feed to finished product

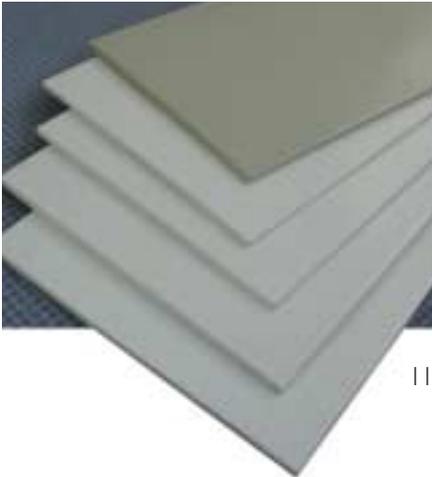


Double belt system manufactured at our workshop in Fellbach/Germany.



With more than 250 double belt systems installed worldwide (plus a huge number of single belt systems), we have the experience and technology to deliver complete system solutions from feeding to finished product.

Sheet-casting:
Insulation material



Sheet-casting:
artificial marble

Sandvik steel belt technology – multiple processes in a single unit



A typical example of the recently developed double belt press for low pressure applications for the production of fibre compound

By using individual modules for product feeding, heating, cooling, pressing and calibrating, each plant can easily be adapted to the different processing requirements of various applications.

Pilot plants are available in our test centers, where we can demonstrate our processes and enable you to assess them in production conditions – using your own products.

From simple feasibility tests to full-scale production data, we can provide the level of service you need, either from our democenters or on mobile plants installed at your own production facility.



If required, we can assume responsibility for everything from initial consultation, pilot testing, planning and design, through engineering and installation to final commissioning and servicing.



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