SICAM
Società Italiana Costruzioni Aeromeccaniche

SOLUTIONS, MACHINERY AND PLANTS
FOR TEXTILE AND FOR NONWOVEN SINCE 1953

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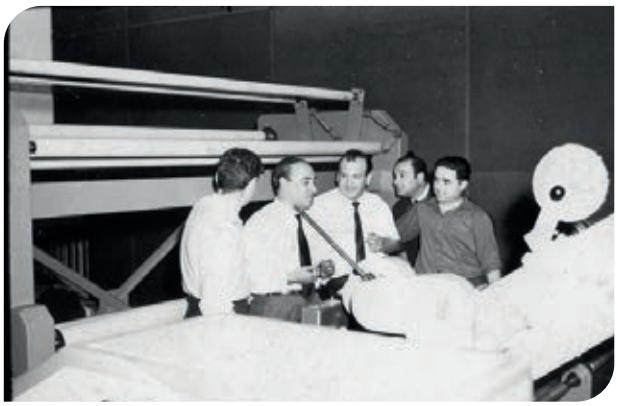

Company

SICAM manufactures machinery and complete plants for the textile and nonwovens, using its more than half a century experience in this sector.
Research, development of new solutions and innovation are the ingredients that, combined the know-how accumulated over the years, give life to SICAM production, custom made and focused towards customer needs.
The mission of the company is, indeed, in providing the best solutions to the diverse needs of its customers.
The methods of projects implementation are continuously improving, that allows us every year to offer complete plants and machinery with technological innovations and high quality standards, thanks to an active involvement in an international sector in constant evolution.
Our goal is our customers' satisfaction, as well as special attention to environmental factors; SICAM machinery and plants unify solutions allowing to protect the environment and favour energy-saving.
Nowadays a huge amount of equipment produced by SICAM are in operation in different countries of Europe, of Middle East, of Asia and of America.

Know-how, Innovation and Patents

Significant bundle of knowledge and experience gained since 1953 is the know-hows, which SICAM can rely on, constantly enriched by new solutions and by innovations due to a design in step with the times.
The knowledge and attention paid to optimization of numerous technological processes used in textile industry and manufacturing of non-wovens is the main principle in design of each machine.
Hundreds and hundreds of projects specifically created for each customer have led to a synergy between design, construction and technological processes of machinery and plants, more and more advanced and environmentally friendly.
SICAM's machines and production lines are being manufacturing with the use of modern, safe and reliable technologies obtained by the most advanced developments.

Patents

SICAM has registered diverse patents concerning implementation of innovations for thermobonding ovens, that are results of improvements and technical innovations satisfying in the best way the requirements of our customers and the market.

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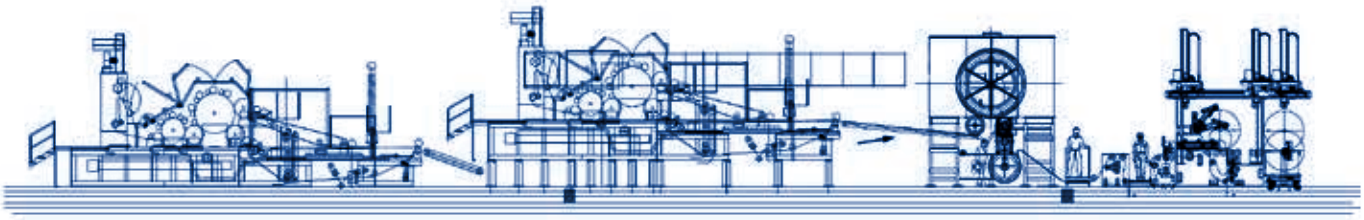
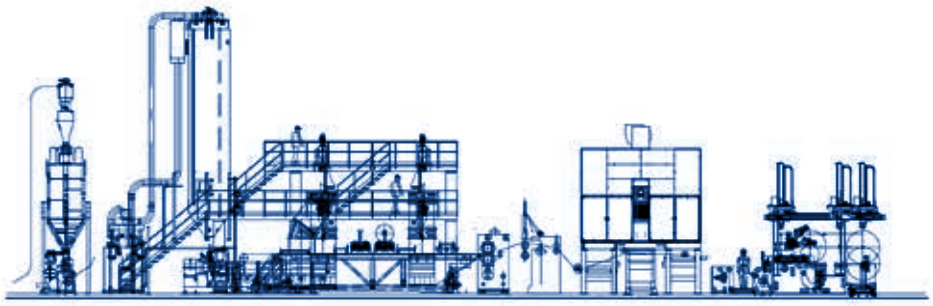
PLANTS

SICAM provides turn-key plants as innovative technological solutions to produce nonwovens.

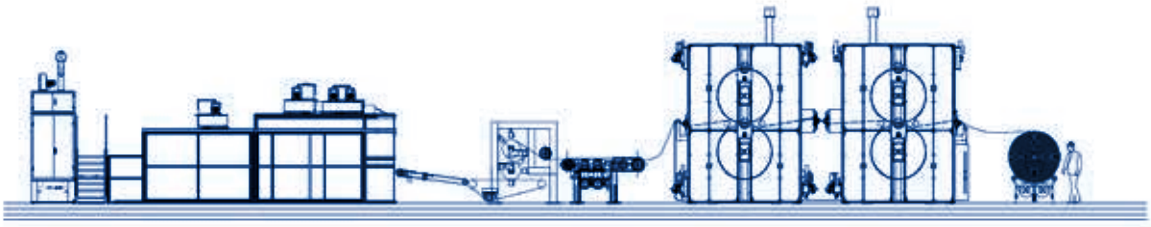
LINES FOR LIGHT WEBS FROM CARDING MACHINE



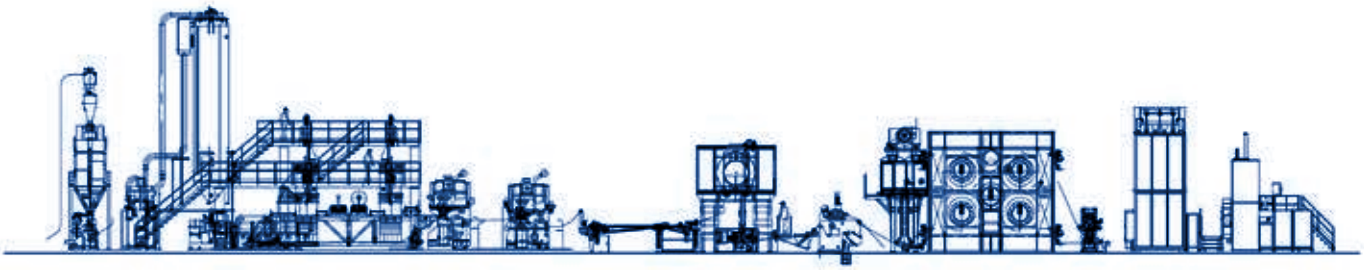
LINES FOR LIGHT WEBS FROM SPUN BOND



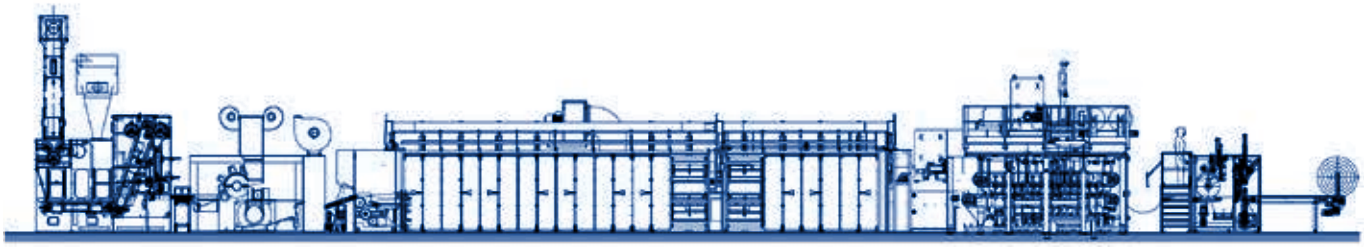
SPUN LACE LINES



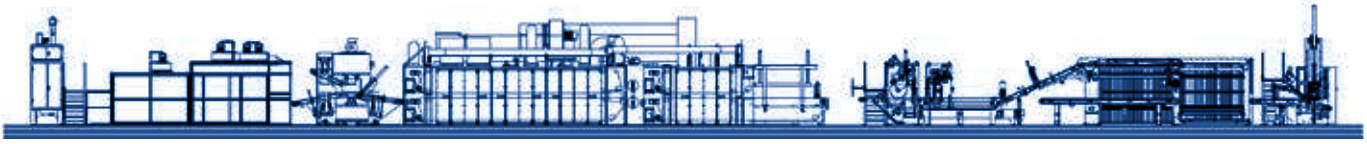
ROOFING LINES



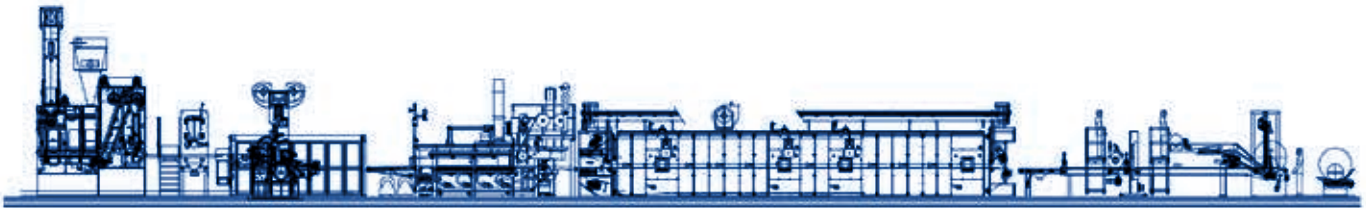
WADDING LINES



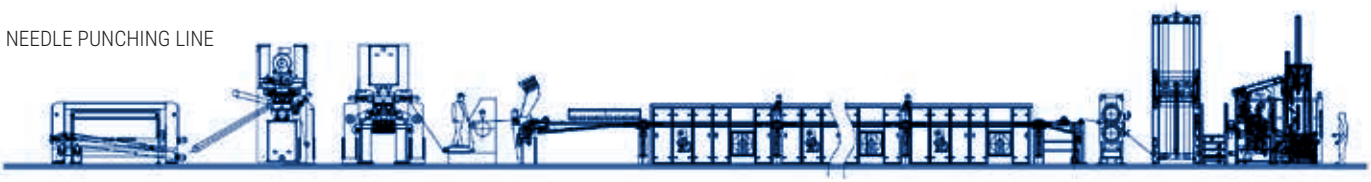
RECYCLED FIBER FELT LINES



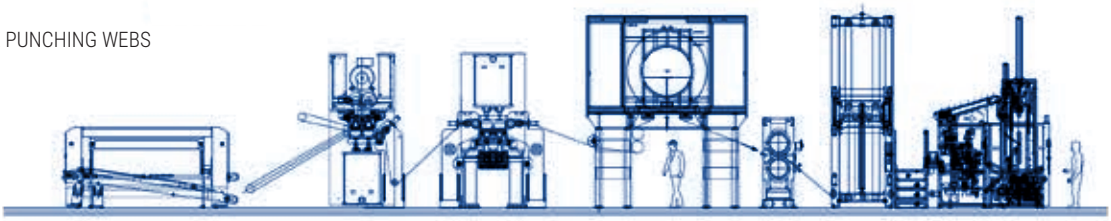
RECYCLED FIBER FELT LINES



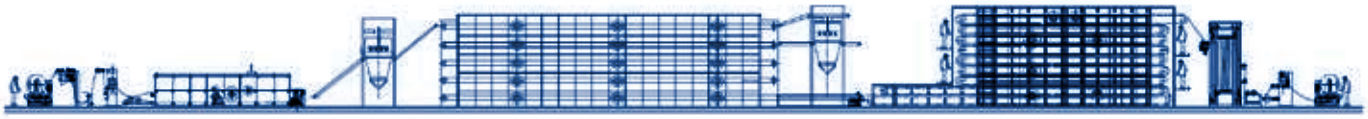
NEEDLE PUNCHING LINE



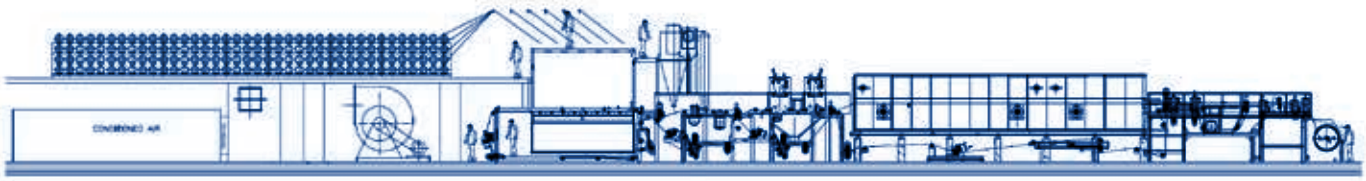
FINISHING LINES FOR NEEDLE PUNCHING WEBS



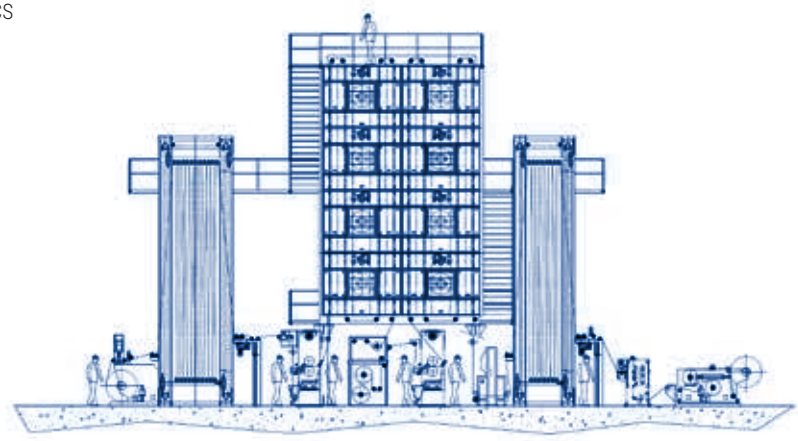
FINISHING LINES FOR NEEDLE PUNCHING WEBS (ABRASIVE WADDING)



GLASS FIBER NONWOVENS AND FABRICS

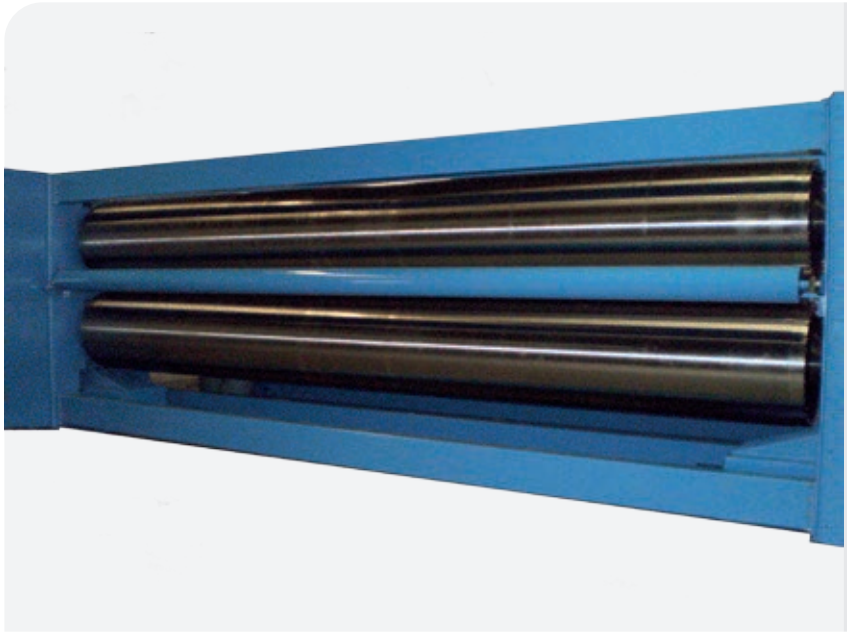


GLASS FIBER NONWOVENS AND FABRICS



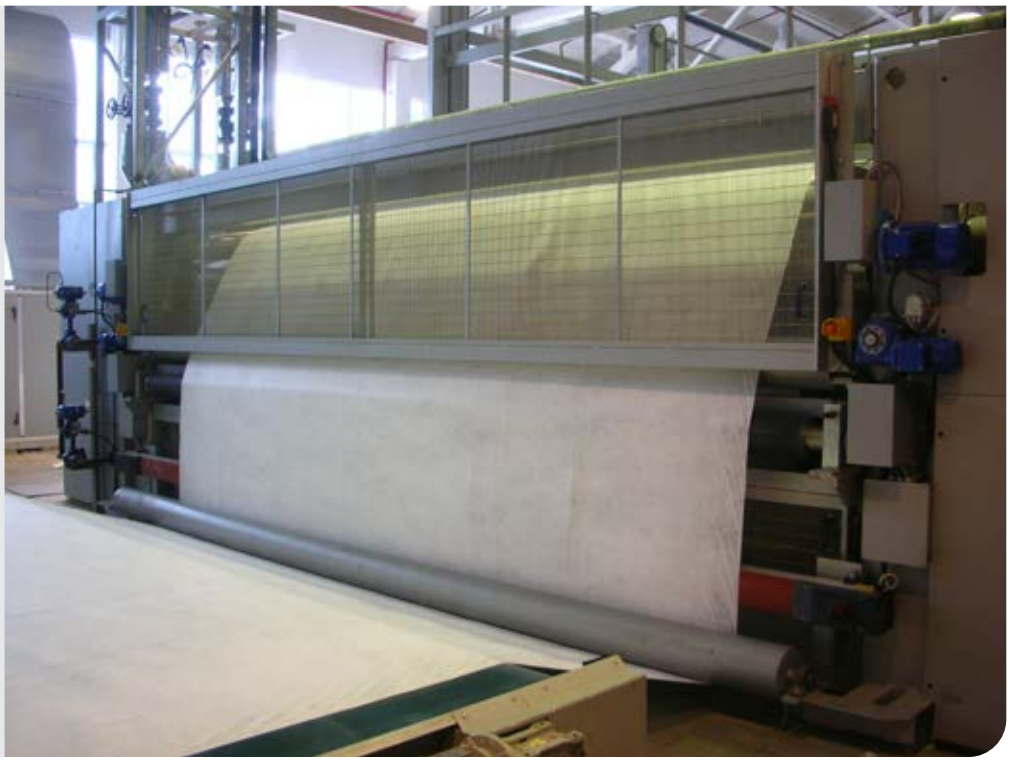
FINISHING - CALENDERS

SICAM heating calenders are characterized by uniformity of temperature distribution, by a strong construction, by easy maintenance, by simple access to all the relevant parts of the machine.
According to the requested pressure, pneumatic or hydraulic system is fitted for cylinder vertical movement.
High precision roll position is adjusted by screw jacks between the bearings housings. Software for the gap compensation according to the temperature.
Bearings gap compensation system for light weight nonwovens.
Twin drive system for roll rotation.
Roll surface according to the process requirements.
Hardened rolls (62HRC, depth 6mm) to produce geotextile solving the problem of broken needles and without metal detector.
Different kind of heating units for calenders with high flow oil pumps for excellent temperature accuracy. Flexion compensation by remote controlled roll deflection, by bombage roll or by roll with variable bombage.



Heating calender for geotextile. Compact design and hardened rolls, with 820mm diameter.

Heating calender for geotextile from Spun Bond. Placed after needle punching machine without metaldetector thanking to the hardness of the roll. Electrical devices for rolls distance adjustment, for roll deflection, for position detection out of the machine at room temperature.



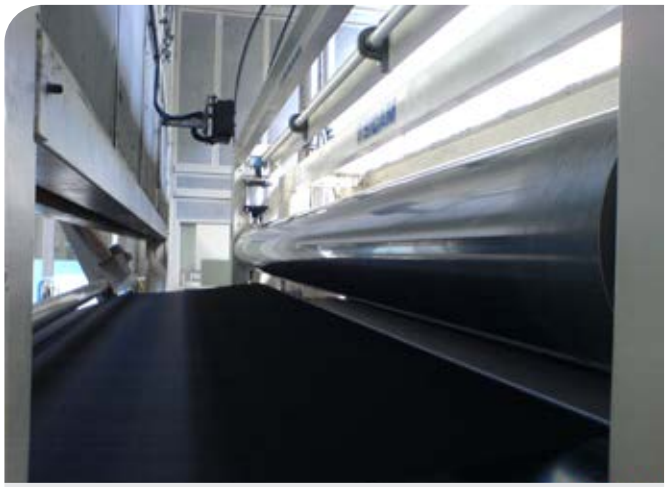
FINISHING - CALENDERS

Heating calender
See the screw jacks to adjust the roll gap and the shaft driving the encoder for the gap setting. For safety, the encoder is outside the calendar far from heat sources.

Heating unit with pumps and modulating valves.

Cooling calenders utilized in combination with ovens to fix the web at the requested density (up to 300kg/m^3).

Engraved calender for light nonwovens thermobonding, installed after carding machine or Spun Bond plant. Rolls diameter 320mm – 580mm, with peripheral drilling for oil circulation.



Smoothing calender for the surface finishing of nonwovens. Chromium plated rolls, with diameter up to 730mm. In combination with wadding ovens, after cooling section.

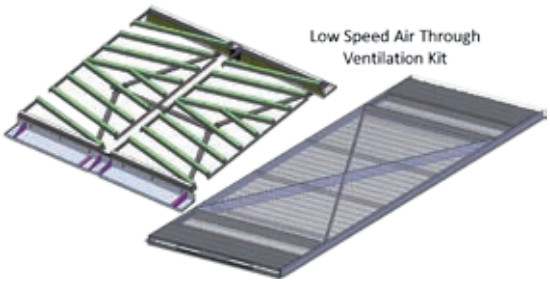
TECHNICAL FEATURES:

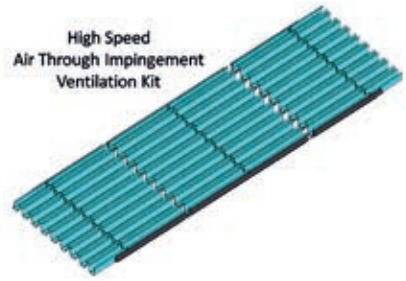
Working width:	600-8000mm
Production speed:	10-500m/min
Maximum working temperature:	250°C
Heating systems:	electrical resistance diathermic oil heated by gas or electrical boiler
Cooling systems:	by chiller or cooling tower
Working pressure:	10-150 kg/cm
Roll shape:	cylindrical or bombage shape
Roll surface:	hardened or Teflon coated or chromium plated or engraved
Rolls hardness:	induction treatment in the thickness 62hrc, nitriding treatment
Adjusting of the distance between the rolls:	hydraulicall or pneumatic

PRODUCTS AND APPLICATIONS

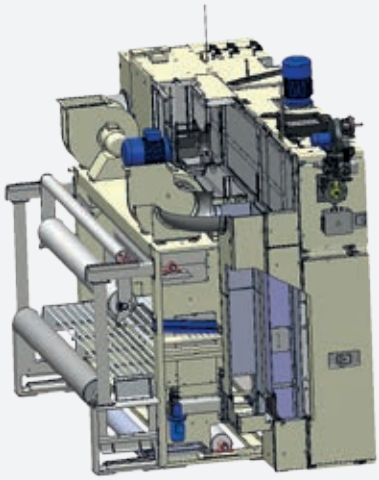
- CLOTHING - Interlinings
- WIPES AND CLEANING - Wipes
- HYGIENE, BODY CARE - Spunbond fabrics, medical webs
- MEDICAL
- CIVIL ENGENEERING/GEOTEXTILE - Geotextile
- THERMAL INSULATION, SOUND PROOFING AND BUILDING - Carriers for bituminous membrane, Insulation
- HOME FURNISHING - Mattresses felt and fiber fills nonwoven

1 oven for 2 main and different nonwoven productions: Recycled fiber felts and Thermobonded waddings.
Easy changing from heavy metallic conveyour belt for felt, to light Teflon/PPS conveyor belt for thermobonded waddings.
Kit to change ventilation from low speed air through to high speed impingement air through.
Optimization and reduction of transversal dimensions.
Unrivaled access for the inner part of the oven and completely demountable and extractable elements of the air elements inside the oven.
Temperature and airflow differentiated meter by meter and air direction adjustable meter by meter.
The energy recovery system in the entry head recovers the heat, preheating the nonwoven and in this way extends the oven of half section, increasing the production speed.

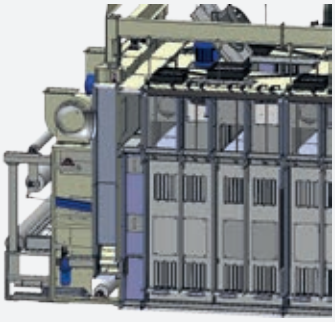


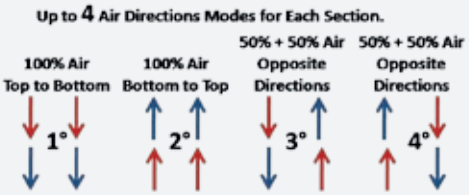


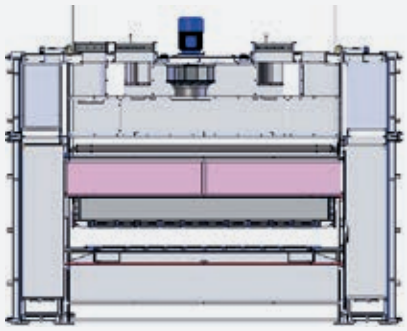
Inside the oven, opening the doors.
Complete access everywhere.



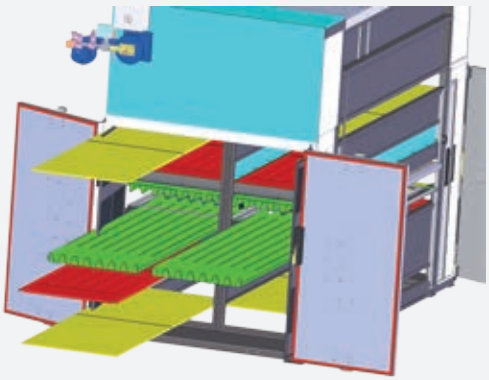
Heat recovery system.
Air through ventilation with the exhausted air. The oven useful length is increased installing this system in the entry head , with an increase also of production speed.

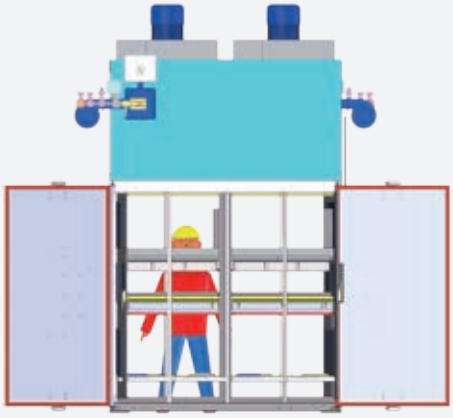






The main feature of ventilation system is the symmetrical ventilation, that allows to reach high working width with perfect temperature accuracy along the working width.





Double access by door on the two side and sliding elements.
Never so easy.

TECHNICAL FEATURES:

Working width:	1200-5000mm
Production speed:	10-50m/min
Product weight:	200-6000gsm
Thickness at the entrance:	up to 1500mm
Thickness at the exit:	5-200mm
Maximum density at the exit:	up to 300 kg/m^3 with calender
Maximum working temperature:	220°C
Heating systems:	gas burners, diathermic oil/steam/electric heat exchangers
Adjustment of ventilation width:	-750mm

PRODUCTS AND APPLICATIONS

- HOME FURNISHING - upholstery for furniture industry
- CLOTHING - fiber fill for garments
- THERMAL INSULATION, SOUND PROOFING AND BUILDING - Insulation panels for buildings
- AUTOMOTIVE INDUSTRY - Insulation material for automotive

SINGLE BELT AIR THROUGH OVEN

Wadding Thermobonding Single Belt Air Through Oven

Usually utilized for thermobonding of light weigh nonwowen or low density permeable web. High temperature accuracy and low air speed to keep bulkiness and softness.
Conveyor cooling zone at the exit to increase the density of the material. Metallic or synthetic conveyor belt.

8m long oven composed by 1 section, for wadding thermobonding. Low speed air flow accuracy for high bulkiness.

TECHNICAL FEATURES:

Working width:	1200-5500mm
Production speed:	10-150m/min
Product weight:	60-700gsm
Thickness at the entrance:	up to 400mm
Thickness at the exit:	5-80mm
Minimum density at the exit:	4-5kg/m^3 (like from the cross lapper or air lay)
Maximum working temperature:	250°C with metallic conveyors
Heating systems:	gas burners, diathermic oil/steam/electric heat exchangers

PRODUCTS AND APPLICATIONS

- HOME FURNISHING - Low density wadding
- CLOTHING - Fiber fills for garments and interlining

ADL Single Belt Air Through Oven

One single conveyor oven for ADL.
Symmetrical ventilation for high working width. Accuracy of air flow, also at very low air flow, to reach the necessary softness.

TECHNICAL FEATURES:

Working width:	1200-4000mm
Production speed:	60-300m/min
Product weight:	10-80gsm
Maximum working temperature:	250°C with metallic conveyors
Heating systems:	gas burners, diathermic oil/steam/electric heat exchangers
Air circulation:	adjustable air flow, air direction from top to bottom for ADL
Adjustment of ventilation width:	-750mm

PRODUCTS AND APPLICATIONS

- HYGIENE AND BODY CARE - Acquisition layer
- MEDICAL - Air bonded nonwovens

PES TOW Single Belt Air Through Oven

Symmetrical single conveyor oven for PP or PES TOW drying and curing.

TECHNICAL FEATURES:

Working width:	1200-2500mm
Tow production:	up to 2000 kg/h
Maximum working temperature:	120-180 °C
Heating systems:	diathermic oil/electrical/steam heat exchangers
Air circulation:	air thought from top to bottom

PRODUCTS

PP fibers
PES fibers

DOUBLE BELT THERMOBONDING OVEN

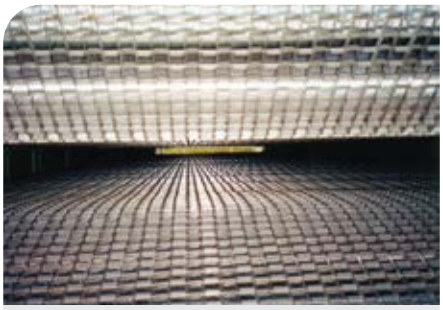
Recycled Fiber Felt Oven

SICAM double belt felt oven, strong and easy to clean, is designed to process recycled fiber web, PP or phenolic resin bonded.
The headlight of this oven is the wide access for an easy cleaning, the simple and reliable system to change air direction section by section, the perfect air through ventilation with an extremely reliable suction width adjustment.
Since 30 years SICAM has developed a negative pressure system on the complete outer insulation of the oven, to ensure the tightness of the construction avoiding any air leaks.
The above system finds the best application in these ovens for PP, for waste and dirty fibers, for phenolic bonding.

Operator side of a 6 chambers oven.

The entrance of the felt in the oven from the airlaid system.

Ventilation side of a 6 chambers oven.



Heavy conveyor belt for PP thermobonding. Magnetic system to avoid conveyor sagging.

3 Section oven operator/ventilation side.

Calendering and cooling system at the exit to fix the density of the thermoplastic felt.

Steam oven installed at the entrance of the air through oven for semi cured or fully cured automotive materials.

TECHNICAL FEATURES:

Working width:	1200-3600mm (for more width we suggest our MULTIpro oven)
Production speed:	10-35m/min
Product weight:	200-6000gsm
Thickness at the entrance:	up to 1500mm
Thickness at the exit:	5-200mm
Maximum density at the exit:	up to 300 kg/m3
Maximum working temperature:	250°C with metallic conveyors
Heating systems:	gas burners, diathermic oil/electrical/steam heat exchangers
Adjustment of ventilation width:	-750mm

PRODUCTS AND APPLICATIONS

- HOME FURNISHING - Mattresses felt
- THERMAL INSULATION, SOUND PROOFING AND BUILDING - Insulating panels
- AUTOMOTIVE INDUSTRY - Automotive felt

Wadding Thermobonding Oven

SICAM double belt oven for low speed air through thermobonding of waddings.
Ventilation direction adjustable meter per meter and air flow adjustable in each section.
Reliable suction width adjustment for a true air through ventilation.
Cooling section, magnetic conveyor system, cold calender, smoothing calender complete the plant according to the different materials.

Glass fiber/Teflon, PPS conveyors for the best surface finishing.

Metallic conveyors for waddings: reliable, strong, long life.

Panels for mattresses.

TECHNICAL FEATURES:

Working width:	1200-4200mm (for more width we suggest our MULTIpro oven)
Production speed	10-35m/min
Product weight	200-6000gsm
Thickness at the entrance	up to 1500mm
Thickness at the exit	5-300mm
Maximum density at the exit	up to 200 kg/m3
Maximum working temperature	250°C with metallic conveyors
Heating systems:	gas burners, diathermic oil/electrical/steam heat exchangers
Ventilation:	variable direction meter by meter
Adjustment of ventilation width:	-750mm

PRODUCTS AND APPLICATIONS

- CLOTHING - Fiber fills and interlining, garment, wadding of low density
- HOME FURNISHING - Wadding of low density
- THERMAL INSULATION, SOUND PROOFING AND BUILDING - Insulating panels

PERFORATED DRUM OVEN

Sicam perforated drum oven can tell a story more than fifty years long:

since when they were used in the sixties in the textile uses or in the eighties at the introduction of the nonwovens, till the most modern process innovation of these years.

Experience in the field, professionalism and flexibility have led Sicam to support cooperation with international companies, leaders for the supply of complete plants for the nonwovens. It has therefore established a win-win logic based on providing the customer a well tested good product and it is also based on a continuous improvement through learning generated by the synergies between the involved companies and Sicam.

This kind of oven is utilized in Roofing lines, Spun Lace lines, Spun Bond lines, thermobonding, chemical bonding and thermosetting lines.

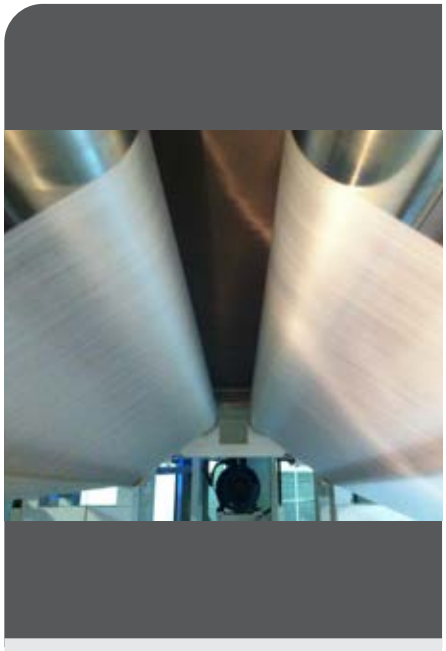
A lot of new solutions and improvements has been done by SICAM in these machineries based on well consolidated processes in continuous evolution.

The headlights of SICAM perforated drum oven are:

- Access to all parts of the oven (fan, burners, inside bearing of the drum, ventilators) only walking inside the oven, opening outside and inside doors.
- The construction is in 3 pre assembled parts: drum, ventilator, hood
- Main ventilator and drum assembled on rails for easy removal for inspection, for cleaning and for drum mesh changing.
- Air flow adjustment, along the all width for blowing and sucking in the drum. 3 adjustment segments per meters of width.

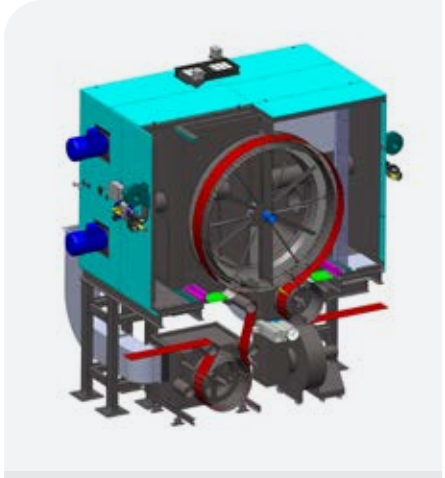
Upstream and downstream the oven is possible to install transfer rolls, cooling or heating calenders, cooling drums, foam impregnator, liquid impregnator, cylinders driers, infrared driers.

Spun Bond plant. Air through drum drier. Working speed up to 1100m/min.



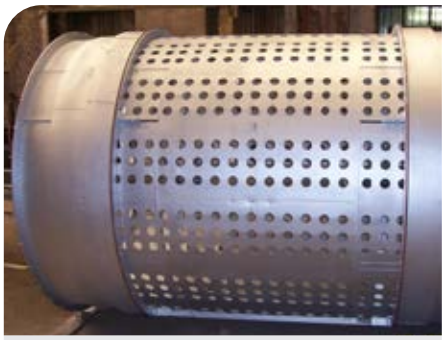
8 gsm web treated at 1100 m/min.

Heat recovery from the exhauster for preheating of fresh air.
Integration with cogeneration plant for electrical power and air heating.



Thermobonding oven with transfer roll and cooling drum.

PERFORATED DRUM OVEN



Inside drum, with adjustable working width.

High speed Spun Lace line. SICAM oven with SICAM padder.

300° + 300° enlacement angle for this vertical double drum. Drum ready for extraction, only opening the doors. See the rails in the bottom.

Thermosetting oven in a roofing plant. Temperature up to 270°C.

The pin crowns to fix transversal dimension in the thermosetting process.

Double Drum. Drum diameter 3000mm. Roofing production

4 Drums for drying and curing in Roofing plant.

TECHNICAL FEATURES:

Working width:	1200-6000mm
Production speed:	5-1100m/min
Product weight:	8-800gsm
Maximum working temperature:	250°C
Heating systems:	gas burners, diathermic oil/electrical/steam heat exchangers
Ventilation:	air through system
Drum diameter:	1600-3000mm

PRODUCTS AND APPLICATIONS

- THERMAL INSULATION, SOUND PROOFING AND BUILDING - Roofing felts
- MEDICAL - Medical products
- HYGIENE / BODY CARE - Hygiene products
- CLOTHING - Interlining
- CIVIL ENGINEERING/GEOTEXTILE - Geotextile
- AUTOMOTIVE INDUSTRY - Technical felts
- FILTRATION - Filters
- SHOES / LEATHER GOODS - Needle punched felts

STENTER FRAME

The Sicam stenter frames can tell a story more than fifty years long:

since when they were used in the sixties in the textile uses or in the eighties at the introduction of the nonwovens, till the most modern process innovation of these years.

High speed impingement ventilation on the both sides.

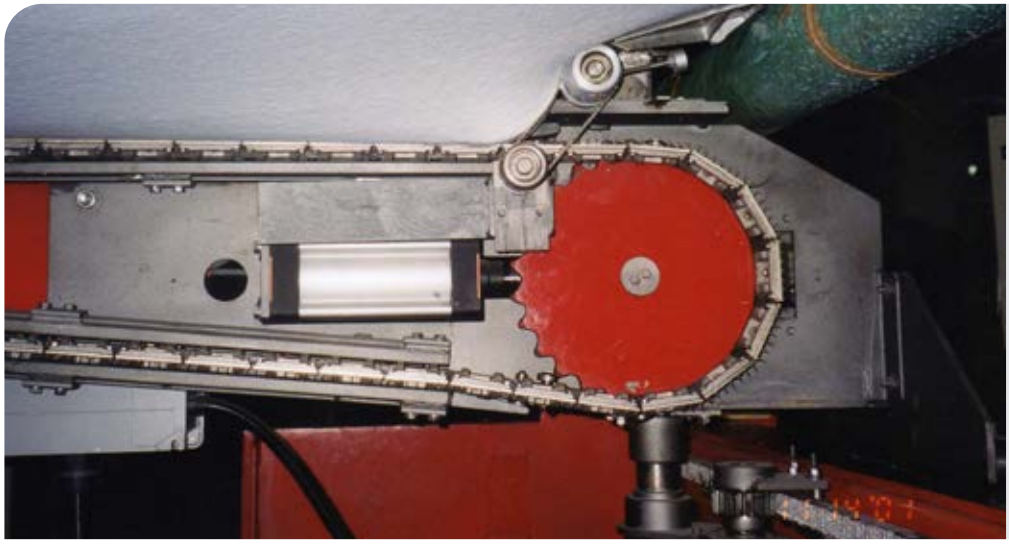
Reliable and fast chain on bearing to reach 100 m/min, also in the multilayer machine.

Particular care in the construction, by flexible elements of the hinge connecting the parallel to the conical zone, to allow a smooth and a stepless passage between the 2 zones.

The multilayer machine is utilized mainly for drying and thermofixing.

The flat machine is utilized for coating lines and for geotextile lines to correct the orientation of the fiber in the high speed production lines.

Flat stenter layout. Modular section 2250mm for preassembled container transportation.

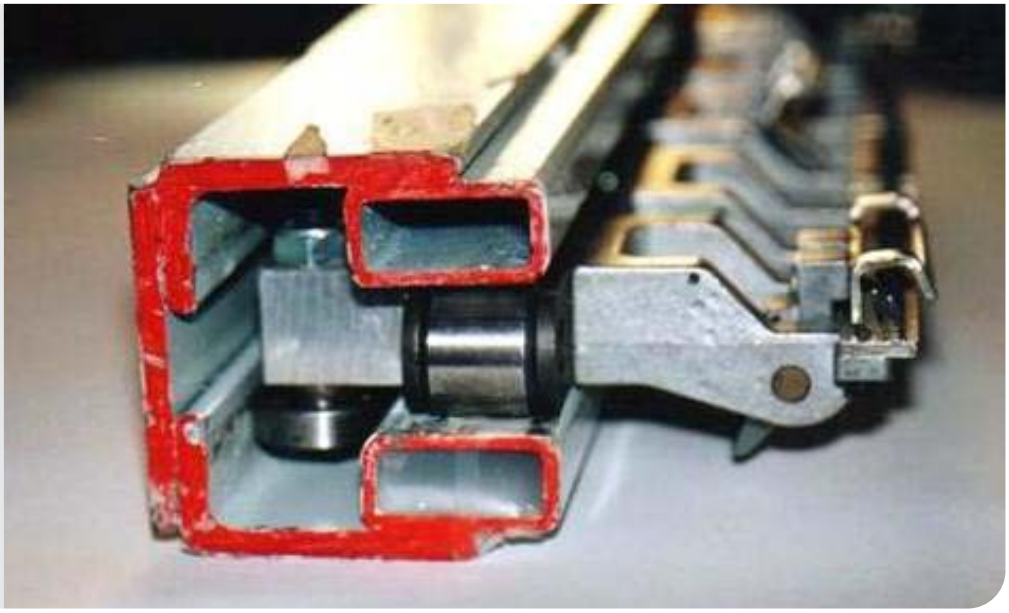


The pinning device with overfeeding system.

The web in the conical zone before the hot chamber.

Multilayer machine with 6, 8, 10 horizontal or vertical layers.

The high speed chain. Pin support and rear bearing support bolted to the chain for a quick and cheap chain revamping recovering all the expensive parts.



TECHNICAL FEATURES:

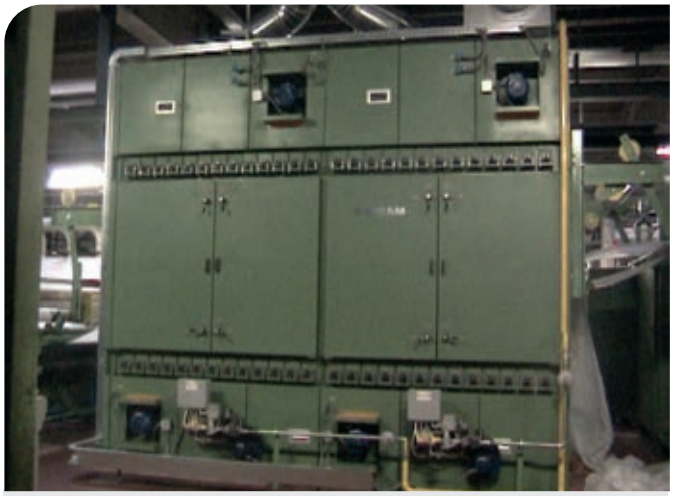
Working width:	2000-3500mm
Production speed:	2-100m/min
Product weight:	100-500gsm
Maximum working temperature:	200°C
Heating systems:	gas burners, diathermic oil/electrical/steam heat exchangers

PRODUCTS AND APPLICATIONS

- CIVIL ENGINEERING /GEO TEXTILE - Geotextile
- SHOES / LEATHER GOOD - Coated products
- HOME FURNISHING - Carpets
- WIPES AND CLEANING - Wipes
- CLOTHING - Fabrics

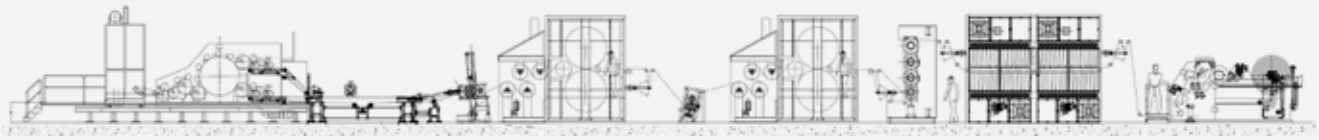
VERTICAL LAPS OVEN

This kind of oven is mainly used as curing unit for its high fabric content and so high lead time.
The web is disposed on vertical laps.
The ventilation is by impingement on the 2 sides, grazing and than symmetrical recovery on the sides of the oven.
Suitable for high speed production.
The support bearing of the rolls are in outside position, properly protected from heat.



Double oven 100m fabric content. Gas burner heating.

Curing and shrinking of high temperature filters.
Maximum temperature 290°C.



Light weight web from carding machine for interlining and medical uses.
Curing at the end for 1 minute at 100 m/min.

TECHNICAL FEATURES:

Working width:	1200-3800mm
Production speed:	5-250m/min
Product weight:	100-500gsm
Maximum working temperature:	300°C
Heating systems:	gas burners, diathermic oil/electrical/steam heat exchangers
Air circulation:	impingement on two sides

PRODUCTS AND APPLICATIONS

- FILTRATION - Filters
- CLOTHING - Non woven for shoulder pad, Interlining

AIR IMPINGEMENT OVEN

For materials suitable to support an high pressure/speed impact, Sicam has developed a double belt oven with impingement ventilation.
High speed and high air flow ensure high efficiency and short oven dimensions in comparison to the production.
Air nozzles on the both sides with double air recovery on each side.
According to the nonwoven, the nozzles can blow on the surface of the material or through the material itself.
Suitable for thermobonding, chemicalbonding or drying of wide range of nonwovens.

2 section air impingement oven, heating by oil heat exchangers.

The air nozzles.

TECHNICAL FEATURES:

Working width:	1200-4200mm
Production speed:	10-80m/min
Product weight:	100-500gsm
Maximum working temperature:	250°C with metallic conveyors
Heating systems:	gas burners, diathermic oil/electrical/steam heat exchangers
Air circulation:	impingement on one or two side with or without air through

PRODUCTS AND APPLICATIONS

- WIPES AND CLEANING - Wipes
- MEDICAL - Medical application and surgical garments
- FILTRATION - Filters

MULTI LAYERS OVEN

These ovens are used when only a small floor space is available or to allow a continuous process with alternating impregnation and drying or when different kind of ventilation are necessary in sequence.

According to the processed materials, the ventilation can be impingement on 1 side, impingement on the 2 side or air through with working width adjustment.

Conveyor belt: glass fiber Teflon coated or metallic mesh or chain with steel plates or steel pipes, according to the material.

Utilized in spray bonding plants for wadding, for abrasive, and in Spun Lace lines.

High speed spray bonding plant. WW 5000mm, production speed 70 m/min of 70gsm. Triple spray cabinets, 6m of length.

3 passes oven. WW 5000 mm, 4 section 2250mm, total length 9000mm. 4 section with alternate layout. Bottom pass with thermobonding function: Air direction changeable meter by meter, compressing and calibrating unit at the exit.

Abrasive wadding.
3 passes oven with special chain plate conveyor.

MULTI LAYERS OVEN

Spray bonding plant with 1 section oven 6m long.

Abrasive wadding. 10 passes curing oven.
WW 2500mm, content 120m.

Width adjustment in 1 pass of the 3 passes oven.

TECHNICAL FEATURES:

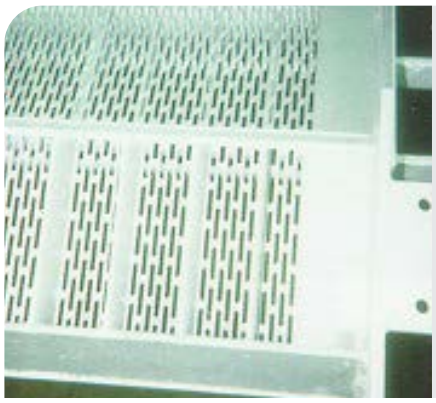
Working width:	1200-5500mm
Production speed:	5-70m/min
Product weight:	70-600gsm
Maximum working temperature:	200°C
Heating systems:	gas burners, diathermic oil/electrical/steam heat exchangers
Air circulation:	impingement or air through from top to bottom

PRODUCTS AND APPLICATIONS

- WIPES AND CLEANING - Abrasive webs
- CLOTHING - Spray bonded PES for Winter garment and interlining
- HOME FURNISHING - Sleeping bags
- FILTRATION - Filters
- HYGIENE/ BODY CARE - Cleaning pads

HIGH COMPRESSION OVEN

For the production of high density thermal insulating panels, made of glass wool, rock wool or natural/synthetic fibers bonded by phenol binders.
The high density is reachable thanking to the strong construction, to the powerful ventilation and to the special plate conveyor. Adjustment of working width.



Chain steel plated conveyor.

3 section oven for high density automotive phenol bonded felt.

TECHNICAL FEATURES:

Working width:	1600-2400mm
Production speed:	2-20m/min
Product weight:	400-2000gsm
Maximum working temperature:	120-200°C with metallic conveyors
Heating systems:	gas burners, diathermic oil/electrical/steam heat exchangers
Air circulation:	air through ventilation
Thickness at the entrance:	up to 700mm
Thickness at the exit:	5-250mm
Maximum density:	350 kg/m^3

PRODUCTS AND APPLICATIONS

- THERMAL INSULATION, SOUND PROOFING AND BUILDING - Glass fibers, natural fibers, wood fibers insulating panels

INFRARED OVEN

SICAM produces infrared channels both in vertical and horizontal layout.
Vertical infrared ovens are mainly used for pre heating of impregnated materials, linke in roofing plants or in foam bonding lines.
The infrared panels are electrical or gas powered, with medium or long wave emitters.
Safety devices shut down and move away the panels far from the material at the machine downtime.

Vertical infrared dryer. Double vertical passage.

Vertical infrared dryer. Exhaust hood on the top.

TECHNICAL FEATURES:

Working width:	1200-4500mm
Production speed:	1-100m/min
Maximum working temperature:	200°C
Heating systems:	infrared panels long or medium waves

PRODUCTS AND APPLICATIONS

- HOME FURNISHING - Carpets
- AUTOMOTIVE INDUSTRY - Automotive web and Laminated automotive felts

STEAM OVEN

SICAM steam ovens are utilized to bond the nonwovens by phenolic powder or epoxy resinn.
The final product is a semi cured felt ready for moulding. The steam oven can also assist the air through oven for the production of fully cured felts.
The steam penetrates from the bottom inside the nonwovens, activating the phenol and bonding the resin to the fibers.
This result is enough for the semi cured felt, but it is also important for the following treatment of complete curing, reducing a lot any powder loss in the oven avoiding difficult and frequent maintenance and cleaning operations.

Steam oven before air curing oven.

Steam oven only for semi cured felt, complete of cooling section at the exit.

TECHNICAL FEATURES:

Working width:	1200-3500mm
Production speed:	5-25m/min
Product weight:	150-700gsm
Heating systems:	high pressure steam generator with natural gas feeding

PRODUCTS AND APPLICATIONS

- THERMAL INSULATION, SOUND PROOFING AND BUILDING - Semi and fully cured felt for domestic appliance
- AUTOMOTIVE INDUSTRY - Semi and fully cured automotive felt

CYLINDER DRYER

SICAM cylinder driers are installed in high speeds production lines for binder drying of medical and hygiene webs.
In combination with perforated drum dryers, it is reached a very high efficiency both for production capacity and for low maintenance, as the cylinder dryer pre heats the web surface avoiding contamination on the drum of the dryer.
The cylinders can be steam heated or diathermic oil heated for higher temperature.
Spyral channels inside the cylinders for high temperature accuracy.

4 Cylinder dryer, before a vertical perforated drum dryer.

TECHNICAL FEATURES:

Working width:	1200-4500mm
Production speed:	200m/min
Product weight:	20-100gsm
Maximum working temperature:	220°C
Heating systems:	steam cylinders or diathermic oil cylinders with triple spiral
cylinder diameter:	600-800mm

PRODUCTS AND APPLICATIONS

- MEDICAL - medical application
- HYGIENE /BODY CARE - hygienical webs
- CLOTHING - interlinings
- WIPES AND CLEANING - wipes
- FILTRATION - filters
- AUTOMOTIVE INDUSTRIES - technical nonwovens

COMPARTEMENT DRYER

SICAM compartement dryers are utilized for drying of a lot of kind of materials, like glass fabric, glass bobbins or various materials in pieces.
According to the kind of material, it can be placed in trays or trolleys.
An automatic cycle system can load the trolleys in the oven through all the zone till the exit.

Oven for curing of abrasive wheels.

TECHNICAL FEATURES:

Dimension of the chamber:	according to the customer request
Maximum working temperature:	250°C

PRODUCTS AND APPLICATIONS

- WIPES AND CLEANING - Abrasive wheels
- RESIN REINFORCEMENT - Glass fibres products

MACHINES AND EQUIPEMENTS FOR GLASS FIBER NONWOVENS

The Sicam glass fibers equipments can tell a story more than fifty years long:
since they were used in the '60s, up to the latest innovations in process and design of machinery.
Experience in the field, professionalism and flexibility have led Sicam to support cooperation with international companies, leaders for the production of glass fibers products. It has therefore established a win-win logic based on providing the customer a well tested good product and also it is also based on a continuous improvement through learning generated by the synergies between the involved companies and Sicam.

SICAM production in this field is:

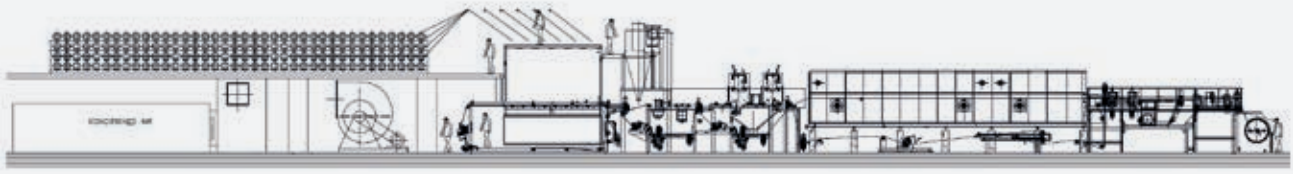
- The finishing plants utilized for impregnation and drying of glass fabrics. Impregnation padders and vertical lap air dryers.
- Chopped strand MAT plant. The nonwoven is formed by chopped glass yarn in a forming hood, with collection conveyor. Impregnation, drying, curing, cooling and winding.
- Compartments ovens. Mainly for desizing of glass fabrics after weaving to prepare it to impregnation.
- Cutting system, to be joined to stich bonding machines, to lines for translucent sheets production or to be used alone to produce chopped fibers for resin reinforcement.
- Plants for translucent sheets (flat or corrugated) production, formed by chopping units, impregnation between siliconized paper, dryers, cutting and stacking units.
- Direct winders for direct winding of glass fiber under spinnerets in glass fiber production plants.

Glass fiber in the forming hood in a chopped strand MAT plant.

The chopped strand MAT.

The MAT winding.

The 30 choppers in the cutting room.



A chopped strand MAT plant.

MACHINES AND EQUIPEMENTS FOR GLASS FIBER NONWOVENS

Oven for Chopped Strand MAT.

A glass fiber fabric impregnation plant.

Choppers at work.

Compartment oven for glass fabric desizing.

Direct glass fiber winder.

Chopping machine in a stich bonding plant.

Translucent sheet production plant.

PRODUCTS AND APPLICATIONS

RESIN REINFORCEMENT - Chopped strands mat, Electronic cards fabric
Translucent corrugated sheets

DOUBLE BELT PRESS

The SICAM double belt press allows to reach various results: increasing of the density of the product, surface finishing of the product, lamination with permeable or not permeable materials on 1 or 2 surfaces with adhesive or by melting fibers.

The working principle is based on a combination of heat and pressure.

The material, between 2 conveyors, passes under pressure between hot and cold plates.

Additional nip rolls between hot and cold zones, properly adjustable, allows to obtain different density on the final product.

Double conveyor press after thermobonding oven.

In evidence the powder distributor for lamination function.

TECHNICAL FEATURES:

Working width:	1000-3000mm
Working speed:	0,5-25 m/min
Maximum working temperature:	230°C
Heating system:	diathermic oil
Length of cooling and heating zones:	1000mm sections
Space between the conveyors:	5-250mm

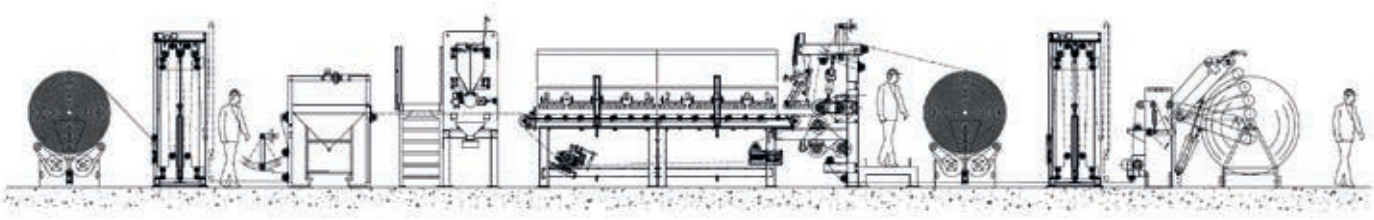
PRODUCTS AND APPLICATIONS

- THERMAL INSULATION, SOUND PROOFING AND BUILDING - Thermobonded felts and wood panels for insulation
- AUTOMOTIVE INDUSTRY - Automotive laminated panels

UNIT OF COATING AND POWDER LAMINATION WITH INFRARED OVEN

Lamination and coating unit is for the lamination of webs by powder application or for the powder application on automotive felts. The felt is unrolled, powder impregnated, heated in the oven for powder melting and then cooled in a cold calender. Possibility of lamination in the cooling calender. Accumulators for continuous production.

Infrared Oven in horizontal layout is used in powder coating or like preheater in other production line.



The conveyor belt and infrared panels in open position.

The powder distributor.

TECHNICAL FEATURES:

Working width:	1200-6000mm
Working speed:	1- 100 m/min
Maximum working temperature:	200°C
Heating system:	infrared panel, medium or long waves
Length of the oven:	1500mm sections
Powders:	CO-PA ,CO-PES, HD-PE, LD-PE, EVA, TPU

PRODUCTS AND APPLICATIONS

- AUTOMOTIVE INDUSTRY - Automotive laminated panels
- HOME FURNISHING - Carpet finishing

IMPREGNATION

SICAM supplies equipments for bath impregnation, foam impregnation, powder impregnation, spray impregnation, liquid fall impregnation, kiss roll impregnation.

This units are, usually, positioned upstream SICAM ovens and integrated in the complete production process.

- Bath impregnation. The material is impregnated in a proper vat and squizzed to prepare the web to the drying.
- Foam impregnation. Diluition with air instead of water, possible for some chemicals allows energy saving. Impregnation of 1 or 2 sides for felts and direct webs from carding machine.
- Powder impregnation. Precise and easy maintenance distributor for scattering powder, for fibers and for granulates. Oscillating brush for a constant powder fall on the material. Pivoting brush for a complete access for cleaning.
- Spry bond impregnation system, by spray guns on a reciprocating support.
- Liquid fall impregnation. Designed for liquid impregnation of nonwovens which need support conveyor during the treatment. Air sucking under the conveyor to remove the excess of binder.
- Kiss roll impregnation. A scoop roll applies the solution on a side of the web from a proper vat.

Padder with variable bombage roll for roofing plant.

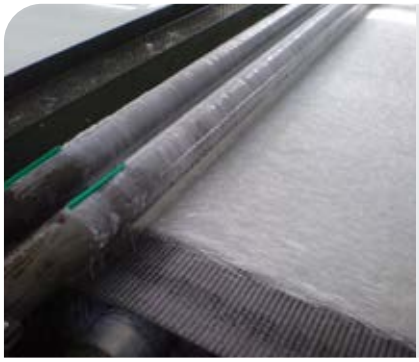
Foam impregnation in roofing plant.

3,8m wide powder distributor.

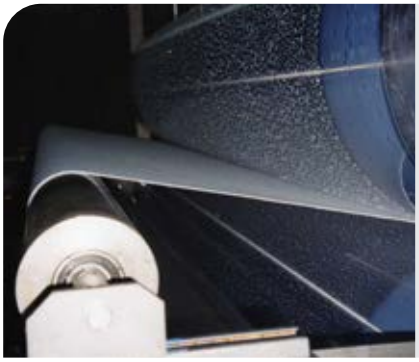
Foam impregnation in a felt plant.

Inside view of spray cabinet for abrasive.

6m long spry unit, WW 5500mm, production speed 70 m/min



Glass fiber MAT liquid fall impregnation.



the web after 1 side impregnation before the padder.

FOAM GENERATOR

For the production of foamed binders. Dilution by air for energy saving.
Less water to evaporate.

Foam generator 300-800 kg/h.

The equipements, inside the machine, for air feeding keeping density constant at any resin flow.

RESIN PREPARATION SYSTEM TO ASSIST THE IMPREGNATION MACHINES

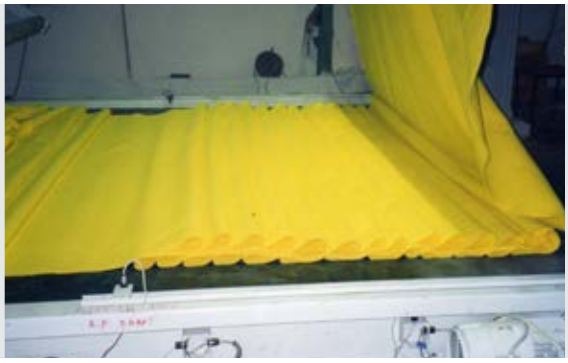
Resin preparation in lots from 500 to 2000 lt. instantaneous preparation system of small lots of 40 lt. for special products with short life before use.

A 2000 lt. lot preparation plant.

PRODUCTS AND APPLICATIONS

- THERMAL INSULATION, SOUND PROOFING AND BUILDING - Roofing felts
- CLOTHING - Interlining, winter garments, quilting Shoulder pads
- WIPES AND CLEANING - Spun lace wipes, abrasive wipes
- HYGIENE / BODY CARE - Hygiene products
- FILTRATION - Filters
- RESIN REINFORCEMENT - Glass fibres mat
- HOME FURNISHING - Carpet finishing
- AUTOMOTIVE INDUSTRY - Automotive carpets
- SHOES / LEATHER GOODS - Shoe production

SICAM PRODUCES ALSO:



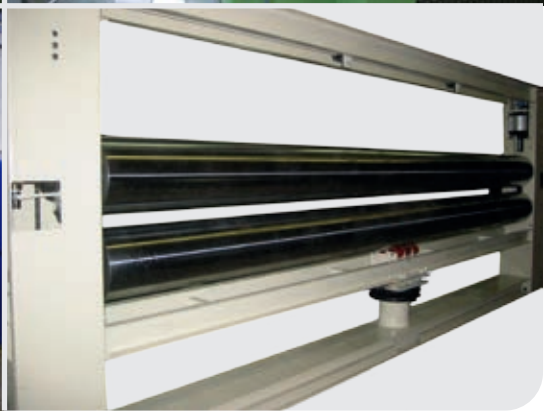
Accumulators by laps or loops.

Winders and cutting systems.

Geogrid production unit.

Cleaning and heat recovery system for exhaust of oven.



Cooling system by perforated drums, by calenders, by flat belts, by flat double belts.




Laboratory machines: flat ovens (single/double belt), perforated airthrough drum ovens, hot and cold calenders, impregnation by liquid, by foam, by powder.

SICAM s.r.l.
Società Italiana Costruzioni Aeromeccaniche

via Selvanesco 57
20141 Milano
Italia

Phones: +39 02 8266081
+39 02 89300185
Fax: +39 02 8266270

e-mail: sicamit@tin.it
sicamsrl.com