

COATING SYSTEMS

NEUENHAUSER
ONTEC



Neuenhauser was founded in 1955 as a design and manufacturing company. It has specialized in the field of automated transport systems for the various production processes of textile spinning mills and the associated individual needs.

Neuenhauser offers a wide range of automatic systems for the transport of spinning cans, roving bobbins, and yarn packages, as well as palletizers or depalletizers and related downstream systems such as carton or polybag packaging systems. The automatic quality control of yarn packages by means of Vision Systems, named QCS, has also become an essential process in modern spinning mills.

The portfolio is rounded off by the use of Automatic Guided Vehicles (AGVs), which are widely used in various industries but are rarely found in the textile industry.

In addition to the quality feature „Made in Germany“, Neuenhauser Textile Division Automation places the greatest

value on continuous product and process innovations, the use of „state of the art“ technologies, and sustainable products. The name Neuenhauser enjoys an excellent reputation worldwide. The reference list reads like the „who is who“ in the textile industry.

The business unit Textile Machinery of ONTEC Automation GmbH was taken over by Neuenhauser in November 2022. The products of „Textile Machinery“ will be continued under the brand „Neuenhauser-ONTEC“. Sales and product management, construction and service will be located in Naila, Bavaria whereas the manufacturing plant will be located in Neuenhaus, Northwestern Germany.

Neuenhauser sees itself not only as a system supplier of automation solutions in various stages of expansion, but more as a long-term partner who always has an open ear for the daily new challenges and optimizations of the processes that our customers must face.




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1 | DESCRIPTION





Neuenhauser Coating Systems are designed for coating of woven or warp knitted fabrics, fleece and composite materials. The systems have a wide range of applications; a great number of products can be processed.

Neuenhauser Coating Systems are characterized by state of the art control- and heating technology. This results in better control possibilities of the coating process. The use of Neuenhauser Coating Systems guarantees the highest possible productivity in combination with reduced energy consumption and optimum quality of the fabric.

A clearly arranged and visually meaningful user guidance facilitates the operation of the systems. You can operate intuitively the systems already after a short introduction time.

ADVANTAGES COATING SYSTEMS

- High productivity
- Low energy consumption
- Constantly very high and reproducible quality of fabrics
- Flexible application for a wide spectrum of products
- Modular extensible construction

Our systems for production and coating of grid structures are constructed in modular design and therefore enable variable extension of the system.

Numerous additional components are available in order to increase the product variety and the productivity of the line.

Furthermore the exchange of coating agents is always possible without problems.

TECHNICAL DATA

Base material

Textile grid structures of polyester yarn, glass, basalt or carbon fibres

Coating agents

PVC plastisol, acrylates, bitumen-emulsions as well as a variety of further chemicals

Working widths

1250 - 6220 mm (50" up to 245")

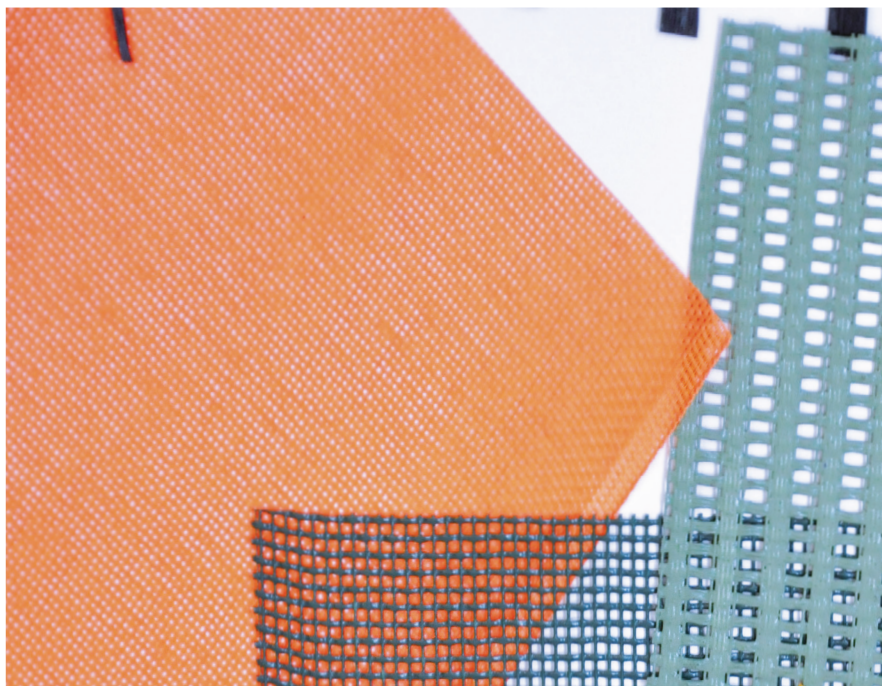
COATED TECHNICAL TEXTILES

Most geotextiles are either based on coated glass-, basalt- or carbon fibres, or on synthetic materials such as polyester, polyamide, polyethylene or polypropylen.

The worldwide sales volume of technical textiles increases every year.

The market is expected to grow strongly in the future. Based on their specific material characteristics, technical textiles constantly open and develop new fields of application.

They are mainly used in vehicle and aircraft constructions, in building construction and civil engineering as well as in the field of sports.



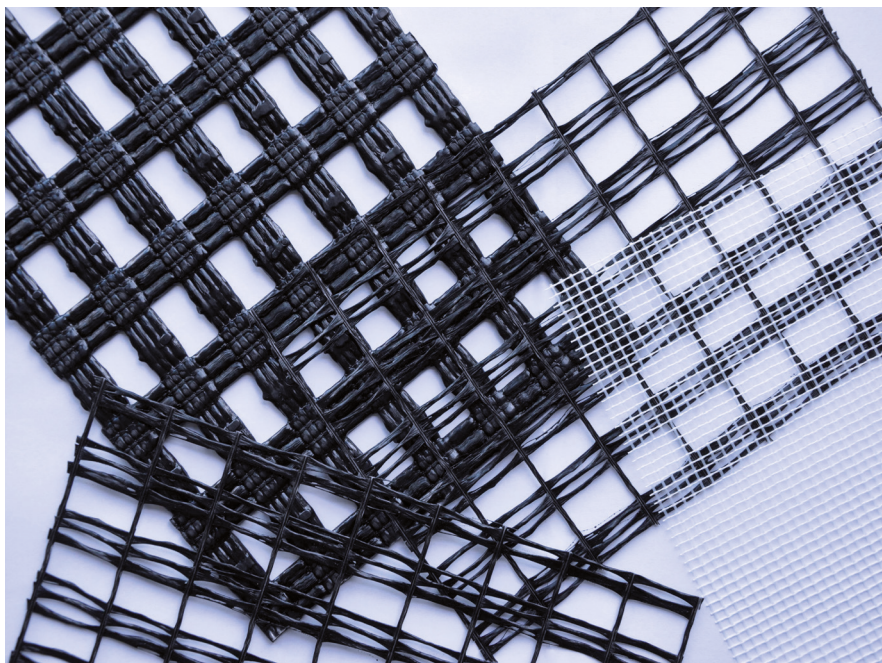
ENDPRODUCT

Civil engineering/building construction: Erosion protection, protection of dams and landfills, protection against landslides, stabilization of the subsoil in traffic routes and earthworks, windbreaks, thermal insulation, roofing membranes, facade, plaster/paint fabrics, reinforcement fabrics for floor coverings, cable insulation

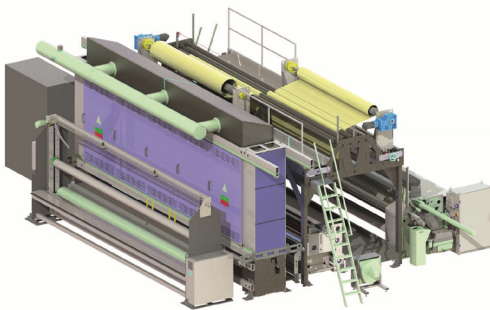
Agriculture: Nets, fences

Advertisement: Banner advertisement

Sports and games: Slope barriers, jumping mats



2 | INLINE ASSEMBLY



The Neuenhauser Coating System can be set up in combination with a weaving or warp knitting machine. This offers the advantage that one unique system supplies the end product and thus leads to a higher product quality. The fabric structure remains in better condition, no fabric damages occur. The handling is simplified, the production times are reduced.

Advantages of Inline Assembly

In one step to a product ready for sale

Less personnel deployment

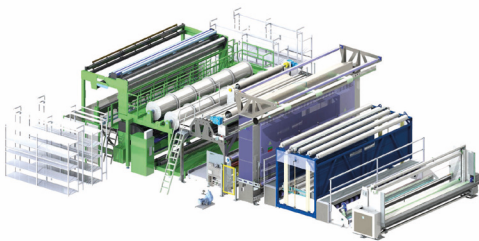
Highest product quality, since the sensitive raw material does not have to be moved

The coating system is preceded by a textile machine.

In the configuration a warp knitting machine is displayed producing textile grid structures of polyester yarn, glass fibres, basalt fibres or carbon fibres in various widths.

The Neuenhauser inline coating systems offer an interface in the control for connection to existing textile machines. Warp knitting as well as weaving machines of various manufacturers are compatible.

The Neuenhauser inline coating system can be combined with a weaving or warp knitting machine. One single system produces the end product in the best possible quality. The fabric structure remains in better condition, no fabric damages occur. There is no need of handling the grey fabrics between the individual production steps. System components such as unwinders and rewinders are not necessary. Production times are minimized.



3 | OFFLINE ASSEMBLY

The Neuenhauser Coating System is also available as a stand-alone system, suitable for feeding grey fabrics for the coating process.

The system in offline execution offers the advantage of very quick retrofitting.

The coating capacity of the system can be utilized to 100 %.

Within a few hours the conversion, for example, from coating of light plastering reinforcements with 60 g/m² to heavy geotextiles with 4000 g/m² is possible.

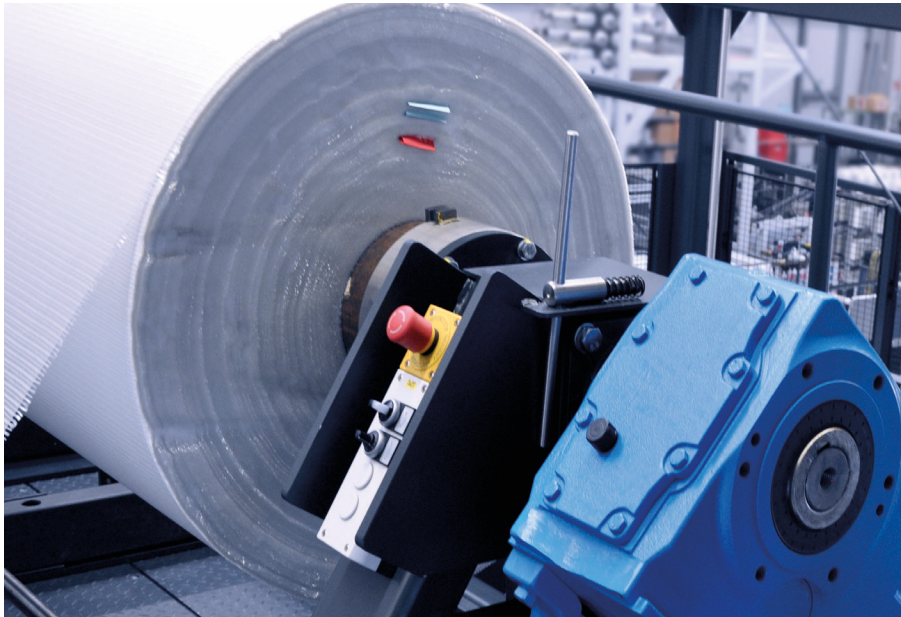
Advantages of Inline Assembly

- High production speed
- High efficiency
- No stops caused by prelocated machine



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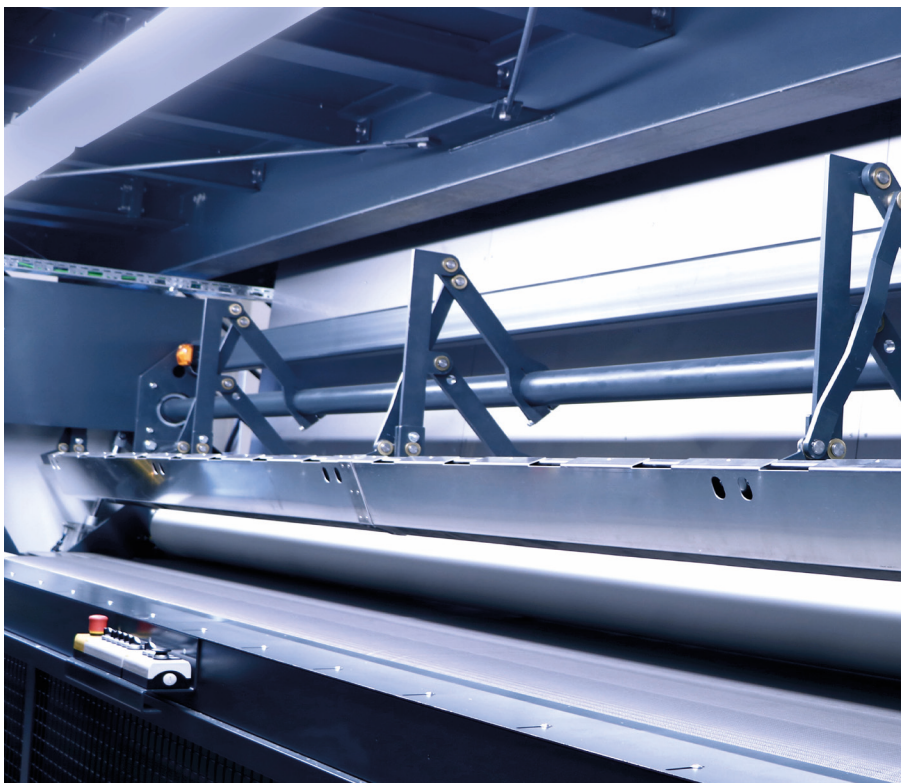
COATING SYSTEM FOR REINFORCEMENT GRIDS



UNWINDER

Highly productive coating system with two separate unwinders which work alternately.

While one winding unit is in operation, the other winding unit can be charged again



BONDING UNIT

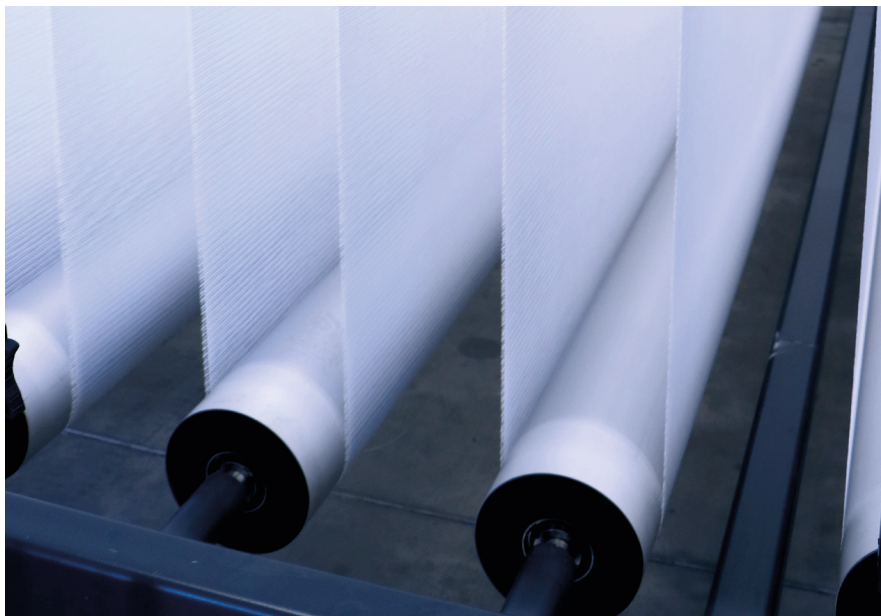
The panels can be connected by means of a bonding unit.

A special adhesive tape is fixed between the ends of the web which are then bonded by heating beams.

ACCUMULATOR OF GREY FABRICS

A spindle driven accumulator with a content of 60 m, stores sufficient grey fabric to allow a roll change and joining of fabric ends while running the line continuously.

The accumulator unit is driven via four precision spindles and operates precisely without fabric distortion.

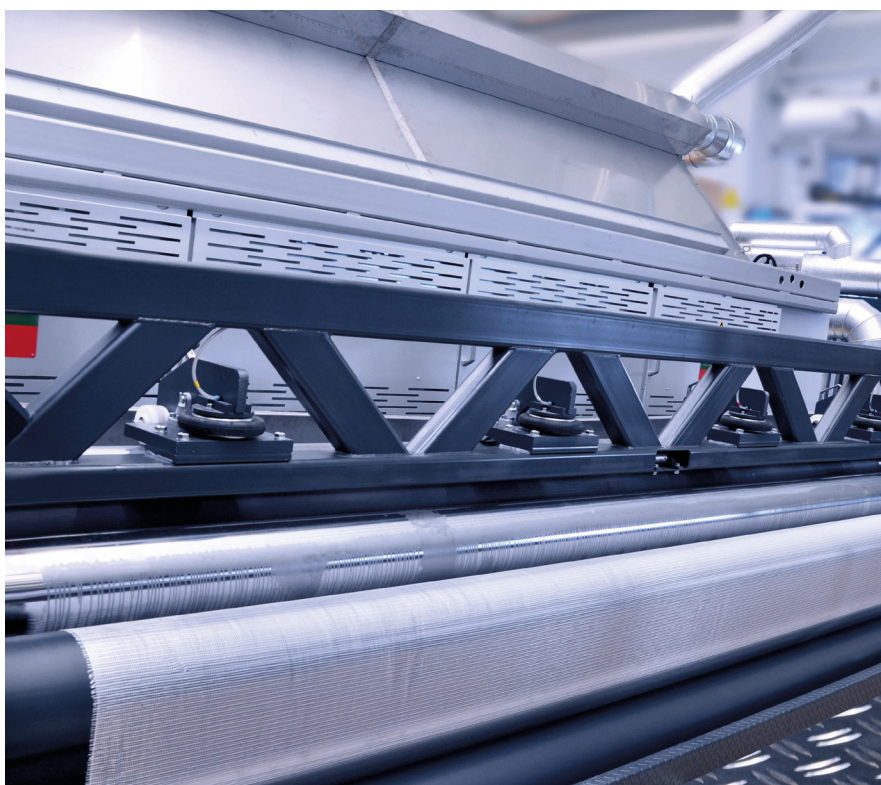


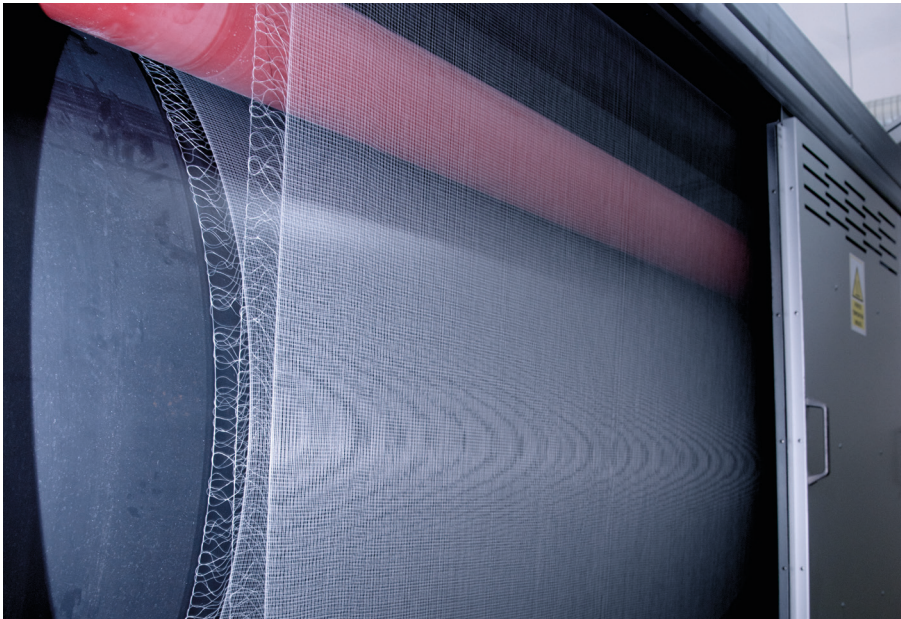
FOULARD

The coating agent is applied with a foulard system and then squeezed off by a squeezing roller combination.

The squeezing is exactly adjustable across the entire machine width via 5 pneumatic pressure rollers.

This allows a very constant application of the coating agent. A line pressure of up to 7000 N/m is available for the squeezing.





CONTACT DRYER

The coating agent is dried in the subsequent roller dryer by means of two heated rollers with a diameter of each 1000 mm. The rollers are equipped with a special anti-stick coating which prevents coating deposits from contaminating the rollers.

Thermal oil is used as heat transfer medium for the roller heating. The oil heating is effected in a boiler next to the line; it can be heated electrically or by gas/oil.



IR-DRYER

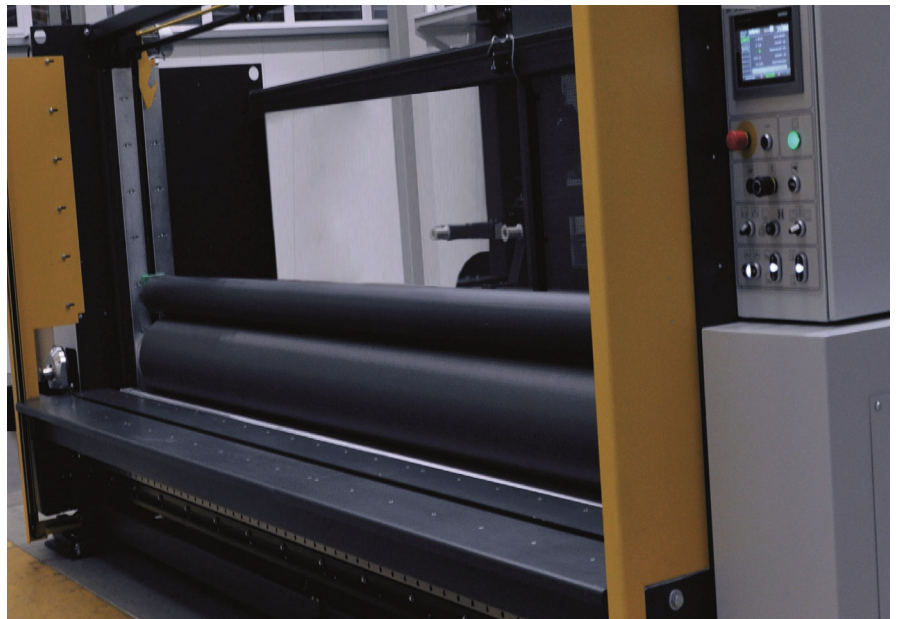
The subsequent drying of the coating agent is effected in the following infrared dryer.

Furthermore the crosslinking of the plastic coating can be finished.

FABRIC WINDER

The fabric winder at the end of the line is designed as ascending fabric winder; its drives are integrated into the overall control system.

An ejector for the finished rolls and a transversing cross cutting device allow a very quick and easy roll change.



SYSTEM CONTROL

The complete system is clearly displayed. All parameters can be adjusted and stored in a recipe management.

Most of the system values are visualized and can be filled for quality control purposes.



TECHNICAL DATA

Working width adjustable
up to 5400 mm

Production speed
up to 15 m/min

Diameter of grey fabric roll
2x 1200 mm

Roll weight of grey fabric
2x 3000 kg maximum

Content of fabric storage
up to 60 m

Squeezing pressure foulard
up to 7000 N/m

Temperature roller dryer
up to 180°C

Heating capacity roller dryer
60 up to 180 kW

Heating capacity IR dryer
up to 300 kW

Diameter of finished fabric roll
up to 1200 mm

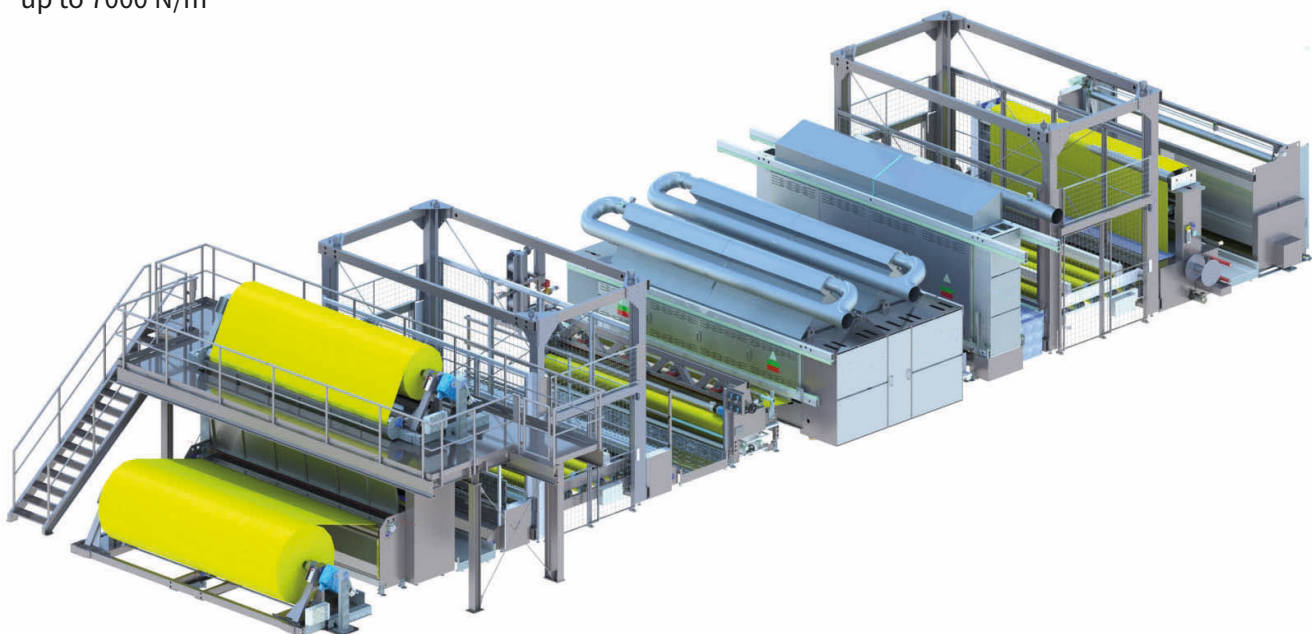
Weight of finished fabric roll
up to 4000 kg

ADVANTAGES

Due to accumulator possibilities
and the bonding unit, the system
is running constantly at a high de-
gree of utilization without marks at
the fabrics

Precise and homogeneous
consistently fabric weight

Thin finished fabric



5

COATING SYSTEM FOR GEOGRIDS WITH STENTER FRAME

Coating unit with vertically arranged stenter frame offline coating unit for coating of geotextiles.

The unit is equipped with an integrated, vertically arranged stenter frame. The geogrid is needed onto the transport chain after passing the foulard and expanded during the drying process.

Thus, shrinkage is avoided during the drying period of the PES grids and the mechanical yarn characteristic is maintained.

STRUCTURE OF THE SYSTEM

UNWINDER

The grey fabric is supplied to the process by a servo-motor controlled unwinder. The unwinder is equipped with an edge control to feed the fabric accurately into the coating unit.

FOULARD

The coating agent is applied in an immersion process and the excess material is squeezed by a horizontally arranged pair of squeeze rollers. Both nip rollers are driven. The contact pressure can be adjusted up to 1.5 tons per meter. Deflection of rollers is compensated by interlacing of rollers.

DRYER

The stenter frame chains take up the coated fabric after passing the foulard. Sensor technology at both sides provides a reliable fabric needling through relevant settings of the stenter frame chain.

The fabric is dried in an infrared heating field, which is divided into 12 separately controlled temperature zones.

Highly efficient radiators provide a constant drying of the fabric and a lower energy consumption.

DRAW-OFF UNIT

An omega draw-off unit draws the fabric out of the stenter frame area and allows a decoupling of tension forces between the drying and winding area.

FABRIC WINDER

The fabric winder at the end of the system is designed as ascending fabric winder and its drives are integrated into the overall system. An ejector for the fabric rolls and a transverse cutting device allow a very quick and easy exchange of the finished fabric rolls.

SYSTEM CONTROL

The system control has a very user-friendly configuration. The complete system is clearly displayed. All parameters can be adjusted and stored in a recipe management. Most of the system values are visualized and can be filed for quality control purposes.

TECHNICAL DATA

Working width adjustable From 3700 to 5400 mm	Expansion force up to 10 kN/m
Production speed up to 10 m/min	Heating length 8 m
Diameter of grey fabric roll 1200 mm	Heating capacity 600 kW
Roll weight of grey fabric 1500 kg	Max. fabric temperature 240°C
Squeezing pressure foulard up to 15 kN/m	Diameter of finished fabric roll 1200 mm
Fabric tension up to 20 kN/m	Weight of finished fabric roll 2500 kg

ADVANTAGES

- Mechanical values like tensile strength and stretch values of the yarn are maintained
- No shrinkage, width of the grey fabrics is maintained
- Uniform grid structure, distortion is avoided
- Space-saving, vertical arrangement of the stenter frame

6 | BASIC UNIT

FOULARD

The foulard is used for coating of the fabric. Material application is effected through a height adjustable dip and/or squeeze roller system. PVC-plastisol, acrylate or bitumen emulsions as well as a variety of other chemicals can be processed.

The stainless steel paste trough is resistant to chemicals, easy to clean and quickly exchangeable at time of product change. This assures a constantly high coating quality. The driven coating roller operates synchronously to the pre-located system. Chrome plating makes the

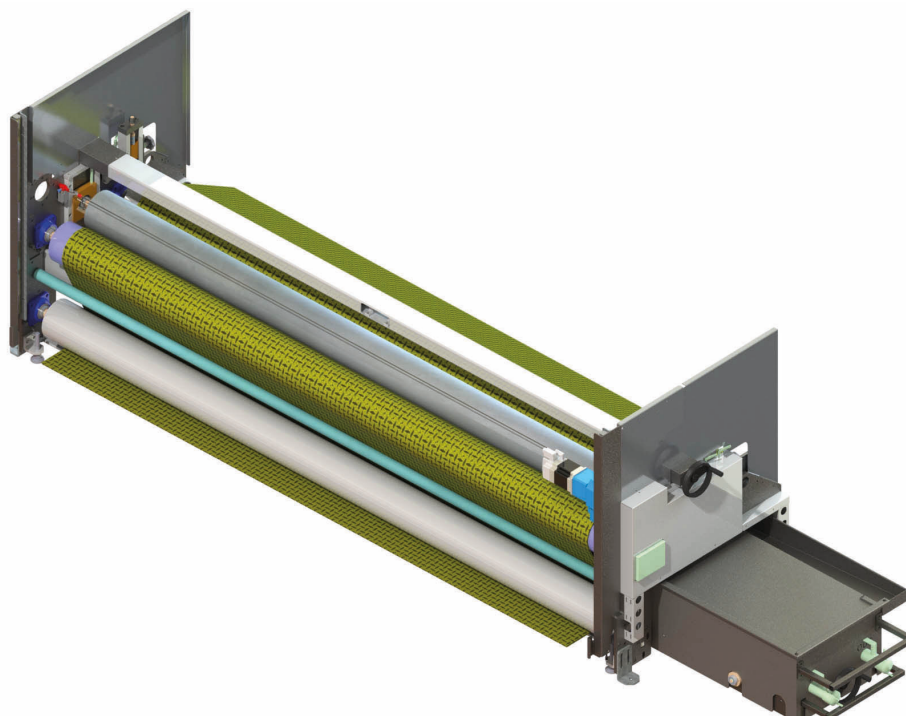
rollers resistant to chemicals and wear. The feed and dip rollers are easy to clean.

The fabric can be fed by various methods. The dip trough and the feed roller are adjustable in height and therefore can be positioned variably to the dip roller. This enables a great number of different coating types which can easily be adjusted.

For example, the fabric can be dipped with the feed roller into the coating material. Excess coating agent is removed by the squeeze roller.

It is also possible to apply the coating agent indirectly by dipping the dip roller (foularding). The most ideal coating procedure can be selected according to the material.

The foulard is available in two different versions. The alternative version offers the possibility to locate the foulard underneath the dryer. This minimizes the processing distance between coating application and drying so that direct feeding of the coated material into the dryer is possible, without touching a further roller.



DRYER

The highly efficient medium wave infrared drying system, with integrated heat output optimization, enables maximum energy utilization. The heating zones are vertically arranged and have a heat section of totally 2600 mm, divided into four (standard) to six separately controlled temperature ranges.

The water-cooled, hard-chromed deflection roller is installed at the top of the dryer, driven by a servo motor and synchronized with the complete system.

The water-cooling prevents the sticking of partly dried fabrics. Easy access of the heating segments via sliding doors.

Non-contact infrared thermometers control the separately adjustable temperatures of the individual heating zones. The flush air for the pyrometer is provided via a side channel blower.

The suction hood offers a connecting tube with 300 mm diameter. The suction system and a waste gas cleaning unit as per to the local regulations are not included in the delivery scope and must be provided by the customer.

The necessary suction capacity amounts between 3000 m³/h at 1270 mm and 12000 m³/h at 6220 mm working width.

OPTIONS

A reversing unit for fleece can be installed on the dryer.

ADVANTAGES

- Fast reacting medium wave infrared radiation heating
- Separately adjustable heating zones
- Stepless regulation
- Directional radiation
- No reflectors
- Non-contact temperature measuring
- Water cooled deflection roller
- Good access via sliding doors
- Efficient and ecologically beneficial

TECHNICAL DATA

Max. product temperature: 240 °C

Installed heating capacity:

For 4 zones

50 kW at 1.270 mm / 50“
105 kW at 2.800 mm / 110“
135 kW at 3.600 mm / 142“
155 kW at 4.000 mm / 160“
200 kW at 5.400 mm / 213“
230 kW at 6.220 mm / 245“

For 6 zones

70 kW at 1.270 mm / 50“

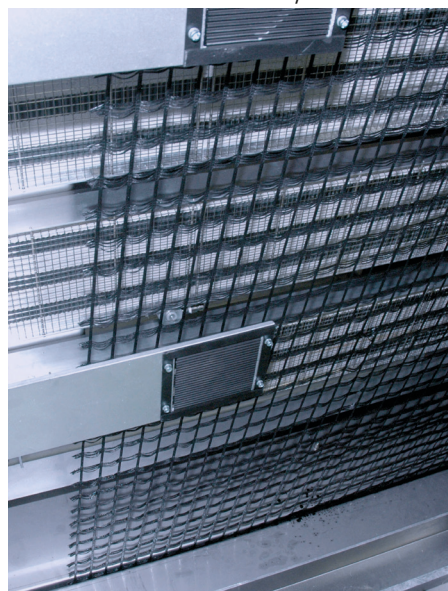
155 kW at 2.800 mm / 110“
200 kW at 3.600 mm / 142“
230 kW at 4.000 mm / 160“
300 kW at 5.400 mm / 213“
345 kW at 6.220 mm / 245“

For 8 zones

100 kW at 1.270 mm / 50“
210 kW at 2.800 mm / 110“
270 kW at 3.600 mm / 142“
310 kW at 4.000 mm / 160“
400 kW at 5.400 mm / 213“
460 kW at 6.220 mm / 245“

For 12 zones

140 kW at 1.270 mm / 50“
310 kW at 2.800 mm / 110“
400 kW at 3.600 mm / 142“
460 kW at 4.000 mm / 160“
600 kW at 5.400 mm / 213“
690 kW at 6.220 mm / 245“



ROLLER DRYER

Heated rollers offer a very efficient drying possibility due to their excellent heat transfer to the fabric. The constant surface temperature guarantees a constant drying at a low shrinking rate across the entire fabric width.

Thermal oil is used as heat transfer medium for the roller heating.

Oil heating is effected in a boiler, outside of the roller. This boiler can electrically be heated resp. heated by gas or oil. The roller surface can be equipped with different antistick coatings depending on the material to be processed.

The rollers are servo-motor driven and exactly synchronized with the drives of the overall plant.

ADVANTAGES

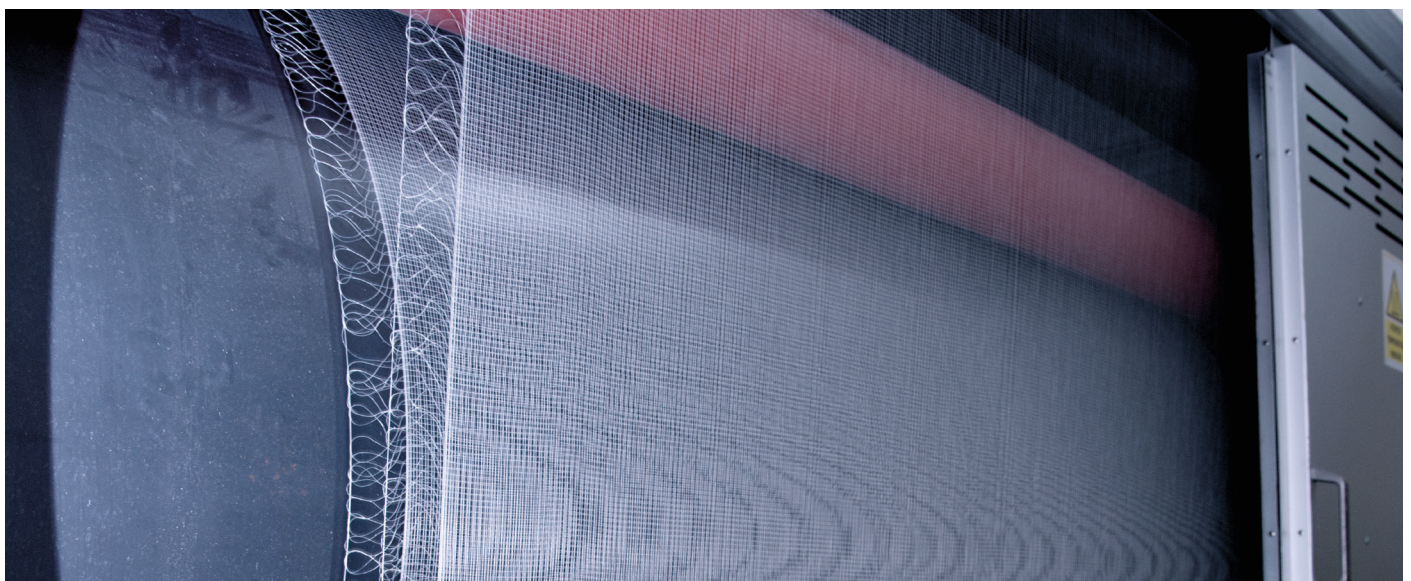
- Excellent heat transfer to the fabric
- Low energy consumption
- Very constant fabric heat treatment
- Very even fabric
- Different energy sources can be used

TECHNICAL DATA

Working width: up to 5400 mm

Drying temperature: up to 180°C

Standard roller diameter:
up to 1500 mm



FABRIC WINDER

The fabric winder has a torque-controlled roller drive (gear motor with brake). A compact winding structure is obtained by the weight of the installed pressure roller and the motor-powered traverse motion device with adjustable traverse motion torque. The optional ejector with electric motor automatically ejects the finished fabric roll. A transversal cutting device provides an easy, clean and rectangular cut of the fabric. This cutting unit substantially reduces the time required for fabric roll change.

The system is equally suitable for very light as well as very heavy products.

OPTIONS

Traverse motion device
Transversal cutter
Ejector device

ADVANTAGES

- Winding computer enables the programming of various tensile forces dependent on the winding diameter

- Pressure roller allows a compact fabric roll structure
- Equally suitable for light and heavy products

TECHNICAL DATA

Maximum winding diameter:
1200 mm

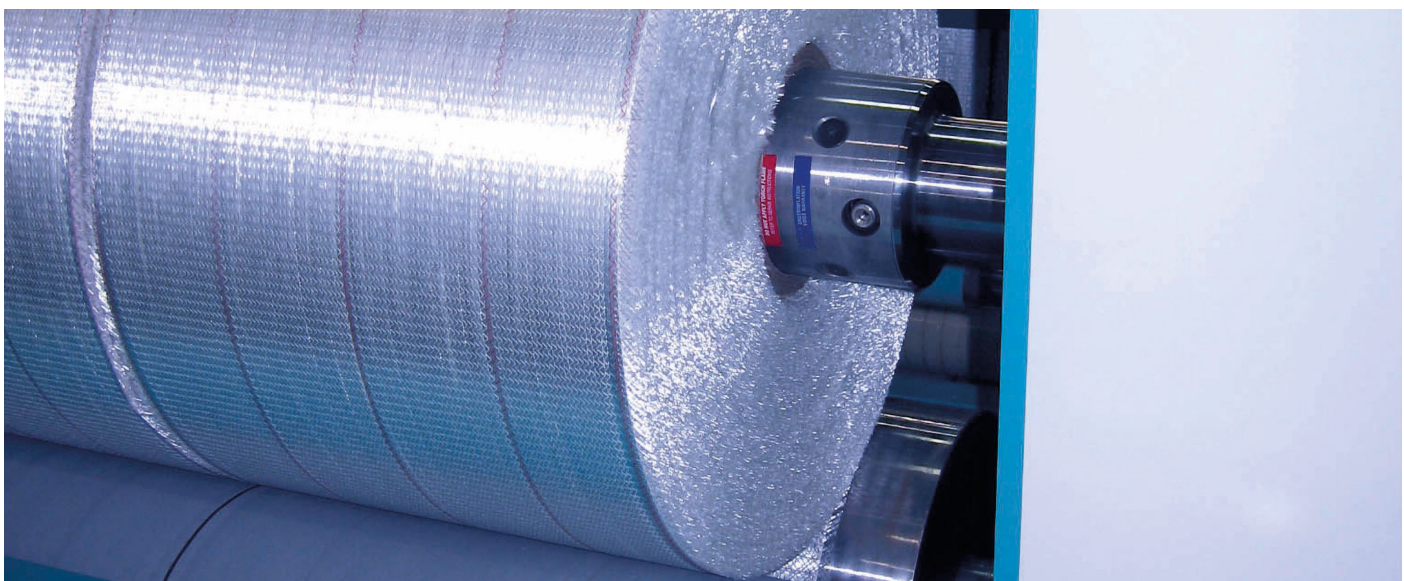
Winding speed: max. 8m/min

Maximum tensile force at the
fabric: 8000 N

Pressure roller: up to 150 kg

Size (W x H x L): FW (Fabric Width) +
900 mm x 2200 mm x 1300 mm

Weight: 800 - 5500 kg







7 | RANGE OF OPTIONS

ACCUMULATOR

The fabric storage device serves for a production capacity increase. It allows a fabric roll change without stopping the complete system. The storage volume provides sufficient time to exchange the fabric roll at the fabric winder.

The stored material is released in the next winding process.

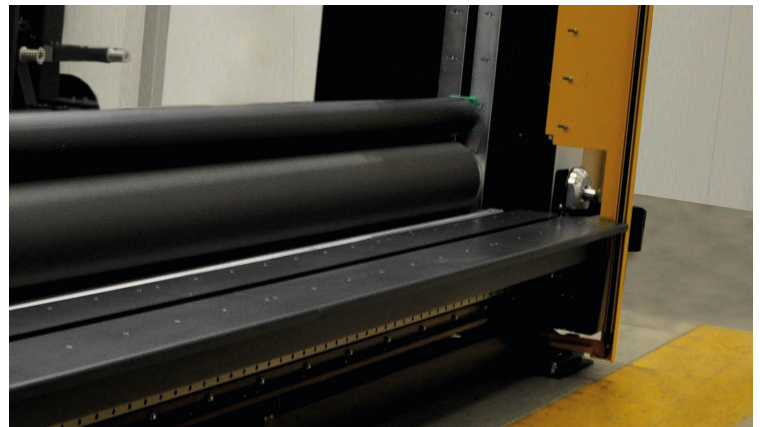
The filling level of the storage unit is automatically supervised by the control unit.



LONGITUDINAL CUTTING DEVICE

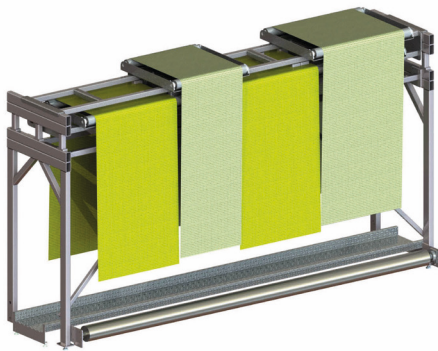
The longitudinal cutting device consists of a base carrier for knife units and a motor driven knife. The number of knife units can be extended to a maximum of eight.

The position of the different knife units is steplessly adjustable and displayed on an integrated ruler.



SPARE PARTS PACKAGE

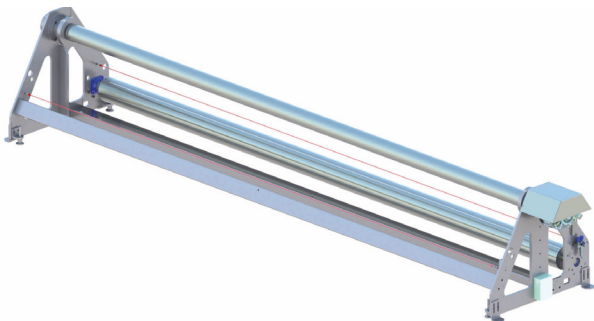
For a high availability of the system, we offer corresponding spare parts packages suitable for the individual configurations.



FABRIC SEPARATION UNIT

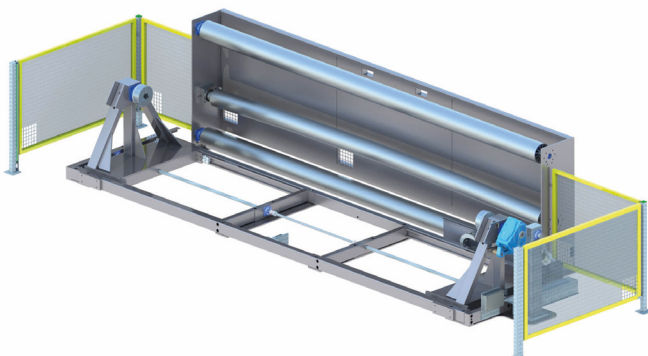
The number of fabric panels varies from two up to seven panels, depending on the working width, but the unit is not adjustable. The cut fabric panels are individually guided via adjustable rotating frame units. The deflection angle of the rotating frames and therefore the distance of the fabric bales is steplessly adjustable. A gangway is installed underneath the rotating frame unit and enables access to the longitudinal cutting devices. Two further deflection rollers allow a production without fabric separation unit for cut or uncut fabrics.

The offline version of the coating system is designed for operation with an unwinder, replacing the prelocated textile machine. Of course all options of the online coating system are also available for the offline system as well as spare parts packages suitable for the individual configurations.



UNWINDER WITH PNEUMATIC BRAKE

The grey fabric has to be wound up on a cardboard tube. The expansion shaft with cardboard tube is supported at the unwinder by two safety chucks. A proportional pressure regulator controls the brake power via diameter recording to an ultrasonic sensor. The necessary expansion shaft is not included in the standard delivery scope.



UNWINDER WITH CENTER DRIVE

The unwinder with the centre drive is equipped with chucks for the take-up of fabric rolls. These rolls are wound up on steel tubes. The distances of the take-up device are centrally steplessly adjustable. An ultrasonic sensor measures the diameter of the fabric roll. The speed and tension control of the centre drive are operated by the central control system shaft. It is not included in the standard delivery scope.

Furthermore, the unwinder is equipped with a deflection roller for fabric guiding. Safety fences at three sides of the unit and a light barrier at operation side of the unwinder guarantee safe operation.

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