

AUTOMATIC ASSEMBLING LINE WITH SEWING OF TECHNICAL FABRICS AND NON-WOVENS FOR GEOTEXTILE AND OTHER APPLICATIONS.

ING. FABIO MONTI (Managing director of the company MONTI-MAC)

The market is looking for technical fabrics and nonwovens in very big widths for groundcovers, landfill linings, and other industrial, geologic and building applications. The producers of these fabrics and nonwovens are therefore looking to improve and increase the automation of the sewing of different layers to realize these big surfaces. The manual confection of today is subject to high labour cost due to difficult manipulations whereby the high weights to be manipulated call for several people.

The company MONTI MAC has developed already several machines that have an important impact on the confection cost by making it easier and much faster. These machines are running in some very important and famous European companies with big success.

MONTI MAC is a company founded in 1931 which allowed them to gather more than 75 years of experience in sewing machines, cutting machines and complete preparation and confection lines. The range of machines started from the easiest manual machine till the very sophisticated and full automatic lines. They have applications in the large range of textile applications, such as: traditional fabrics for clothing, terry towels, knitted fabrics, upholstery, curtains, bed sheets, blankets, carpets and in the last year's also technical fabrics and nonwovens.

Especially for technical fabric and nonwoven applications a new project was launched resulting in the newest assembly lines with sewing applications.

AUTOMATIC LINE MODEL R210-3 GEO

The line mod. R2103 SPECIAL, which can be realised in different conceptual solutions, allows to work simultaneously 2 or 3 layers of technical fabrics (geotextiles, felts, nets, nonwovens and so on) coupling and assembling them by one or more lateral seams according to the working requirements. The most requested operations are the following:

1/ coupling and assembling of 2 layers with automatic seam parallel to one selvedge in order to obtain a web with double width of the original one, or better equal to the sum of the two widths of the layers involved

2/ coupling and assembling of 3 layers with 2 automatic seams parallel to the selvedges on "staggered" layers. Specifically, the bottom and middle layer are sewn on one side and the middle and top layer are sewn on the opposite side. In this way, the fabric obtained will size 3 times the width of the original fabric involved.

Both of the operations described above are followed by taking up the joined fabrics on rolls and prepare them for shipment.

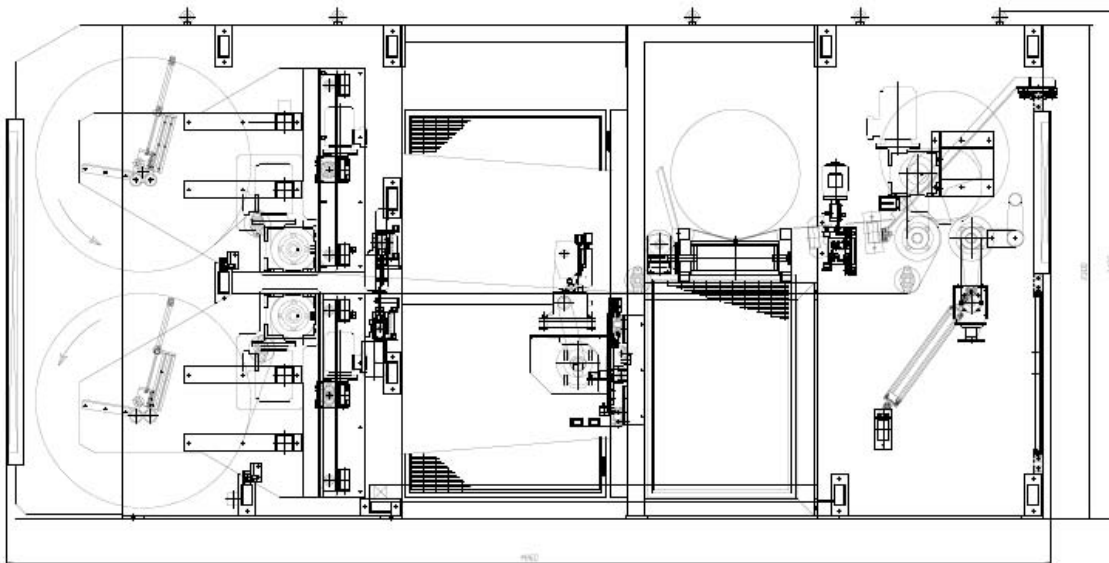
TECHNICAL FEATURES:



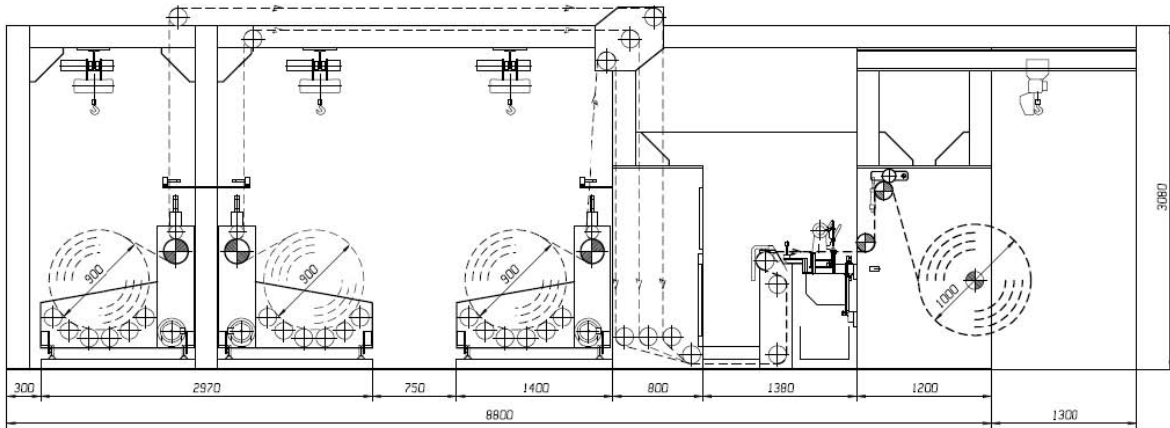
Max. fabric width:	Up to 5200mm
Min. width:	as per requirements of each single customer
Kind of seam:	overlock 1 needle, 3 threads (for NETS) chain stitch at 1 or 2 needles (for GEOTEXTILE)
Speed:	up to 15 meters/minute in relation with the fabric type , the type of sewing machine and the set stitch length
Max. fabric weight:	up to 1000g/m ²
Fabrics inlet:	in roll, max. diameter 900mm
Roll max. weight at inlet:	600 kg
Fabric outlet:	in roll, max. diameter 1400mm
Roll max. weight at outlet:	1000 kg

INSTALLATION LAYOUT:

Following drawings illustrate 2 examples of units working 2 or 3 layers simultaneously.



WORKING 2 LAYERS (side view)



WORKING 3 LAYERS (side view)

WORKING CYCLE:

Each single roll at the line inlet is automatically aligned with the sewing line in order to establish the best possible quality from the following sewing operations.

An individual draft group for each fabric layer offers the possibility to adjust autonomously and independently the single tensions of each layer according to the sewing process requirements.

The sewing is realised by means of an automatic sewing group having the features and the type of seam according to customer's requirements (for example chain stitch seam at 1 or 2 needles, or overlock seam 3 threads – more used for nets for agriculture). Each sewing head is equipped with electronics controlling the process and border guiding to adjust the sewing line in relation to the distance desired between the seam and the product edge. A local draft group, (rear puller) will grant the sewing of the product with the right tension even in presence of products having different rigidity, compactness and thickness.

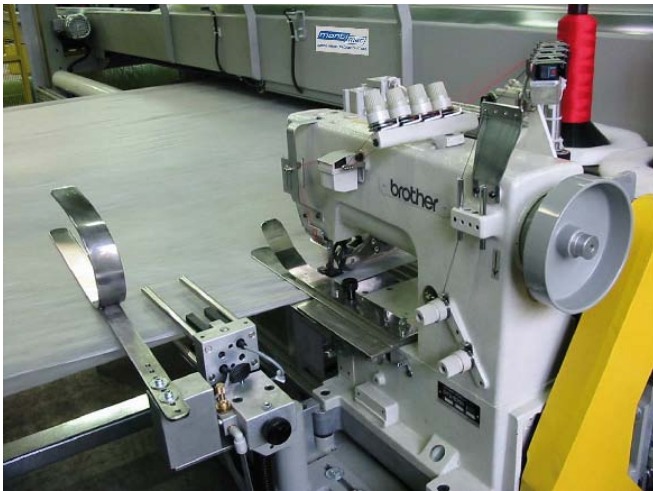
Carried out the sewing operation, the product is up wound on a paper core and confectioned according the requirements of each customer. It will be possible to obtain big rolls with a diameter up to 1400mm or small rolls with automatic roll unloading, product cross cutting and transportation to a following packaging station at the end of the line.

MAIN PARTS OF THE AUTOMATED LINE :

1. Fabric insertion group with independent drafting units for each fabric layer and automated alignment.



2. Seaming unit with adjustable distance between seaming line and fabric edge. Different seaming type are available : chain stitch, overlock



3. Cross cutting and winding on cardboard tubes after sewing / assembling. Eventually automatic transport of the rolls to a packing station can be added.



4. Automatic conveying to the packing station by means of motorised conveyor belts.



5. Winding of the sewn product on big rolls with auxiliary lifting system.



These are only 2 examples of lines but we know that every customer has his own way of working and restrictions. Therefore MONTI MAC is a very flexible company that studies a project together with each individual customer. Almost each confection line has his own lay-out and options required by the customer. The strength of MONTI MAC is having his own engineering office in the company.

MONTI -MAC s.r.l.

via Repubblica 11
22075 LURATE CACCIVIO-COMO (I)
Tel :+39 031 390655 -Fax +39 031 390095
e-mail: info@montimac.it www.montimac.it



Agent for Belgium and Netherlands:
DTA – Dewaele Technical Agencies
Hazwindstraat 71 8540 Deerlijk
Tel: 0032(0)56 73 56 73
Fax: 0032(0) 56 70 21 59
contact: Geert De Smeyter
geertdesmeyer@dta-industrial.be



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