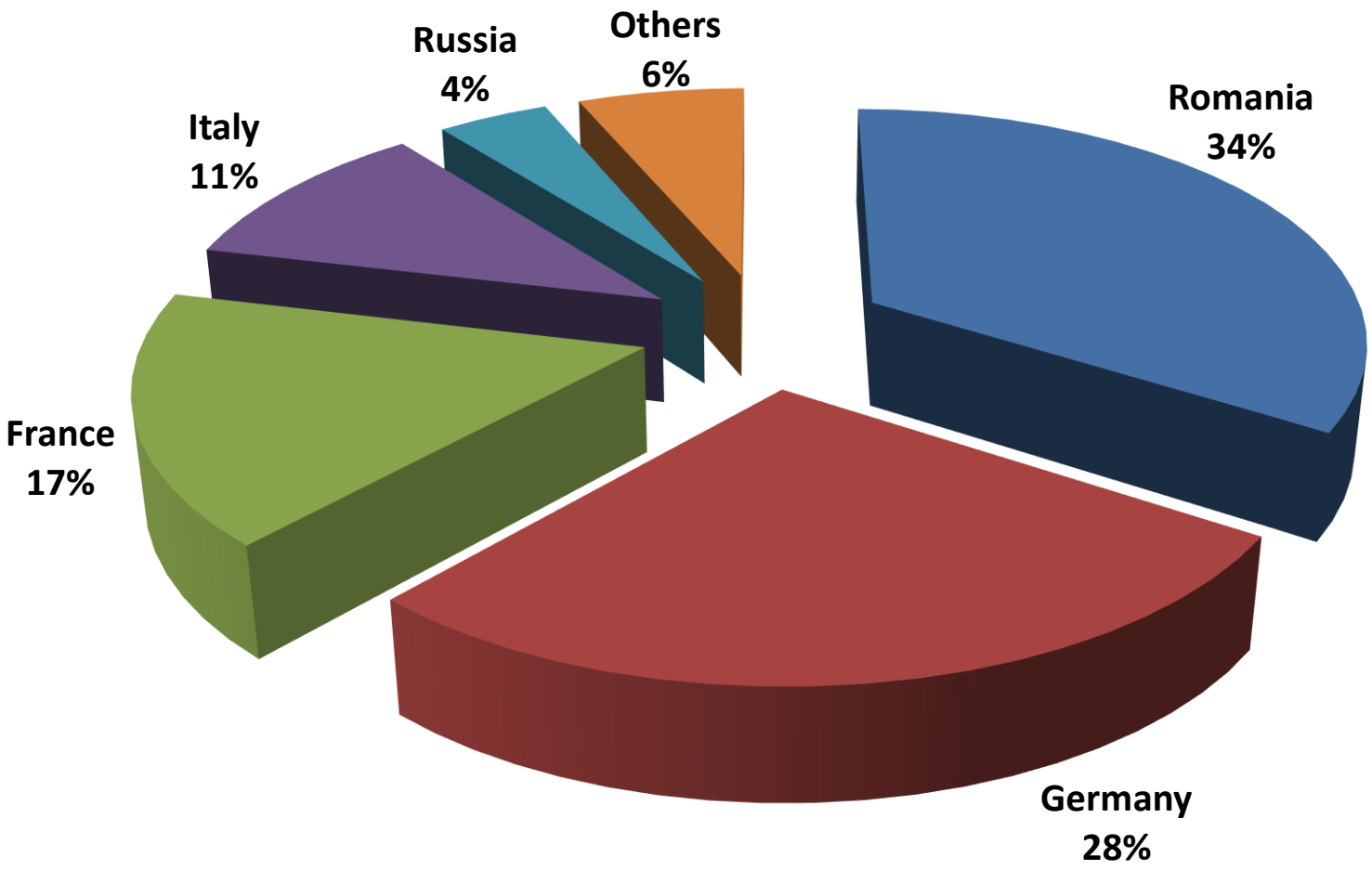
SWISS KNITTING TECHNOLOGY

STEIGER

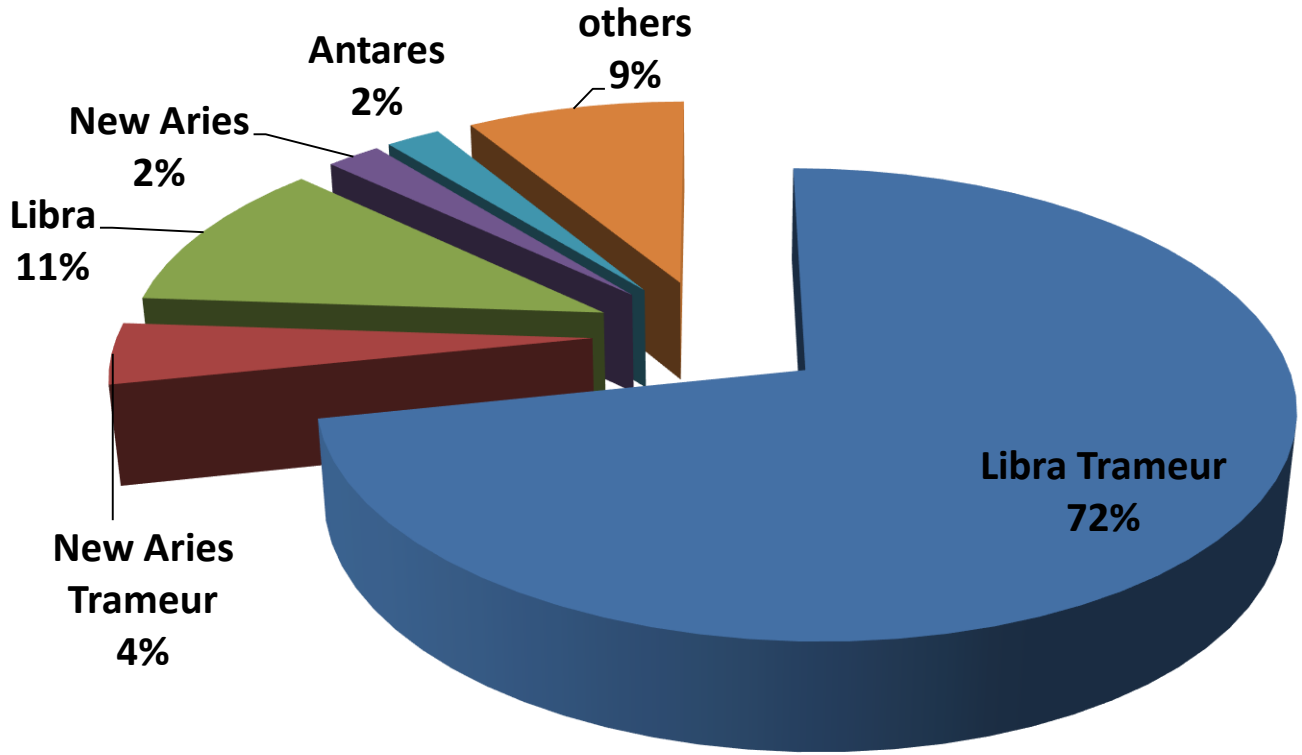
Steiger participations SA

- Founded in 1949 in France
- In Vionnaz since 1963
- Worldwide around 100 employees
- Average Turnover : 20 mioCHFs
- World leader for the medical applications
- Technological leader in the Intarsia knitting
- Owner of the Building in Vionnaz since 2014
- European project Mapicc 3 D

2015 Sales from Switzerland by country



2015
Sales from Switzerland by Machine type



Taurus 2.170 XP



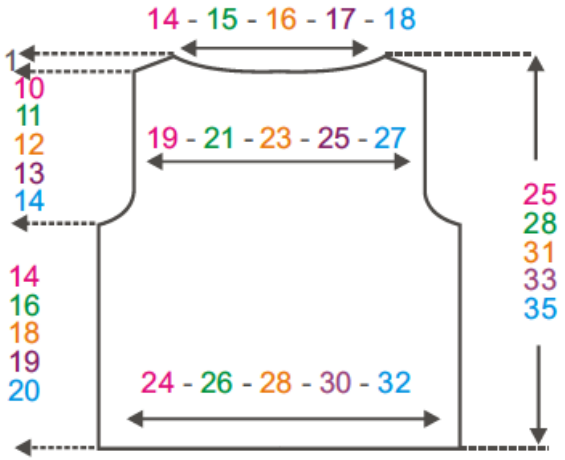


Taurus 2.170 XP opens new horizons

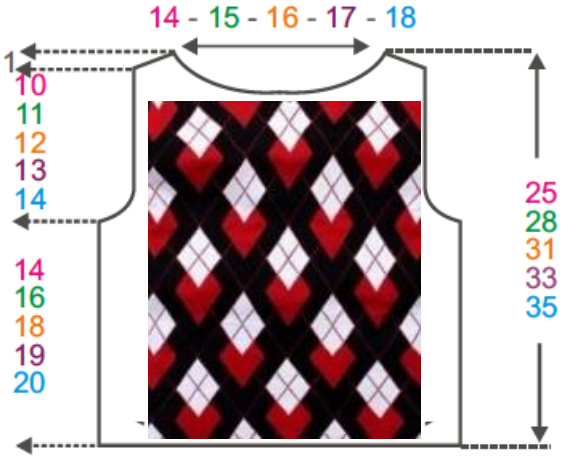
- **Patented compound needle and storage punch**
- **Complete garment knitting**
- **Intarsia**
- **Multi layer knitting**
- **In-lay knitting**
- **2 systems**
- **24 X-Y motorized yarn-guides**
- **170 cm**

Knittwear with standard process

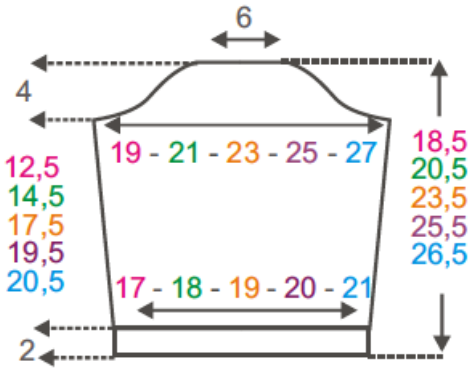
Patron dos



Patron devant

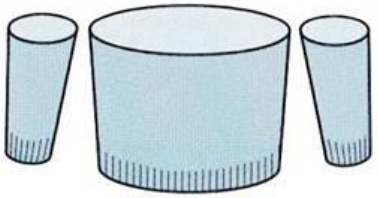


Patron manches

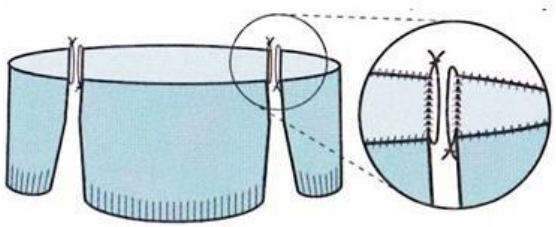


The front, the back and the 2 sleeves produced on the knitting machines are manually linked together

Knittwear with Taurus 2.170 XP

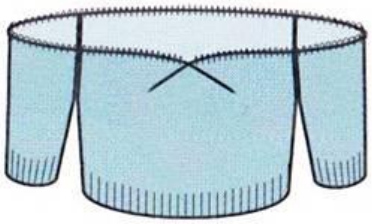


1-On travaille le corps et les manches en rond et on laisse les mailles en attente sur des aiguilles auxiliaires



2-On place les mailles des aisselles et des manches face à face

3-On travaille sur les mailles restantes pour le « yoke », les épaules

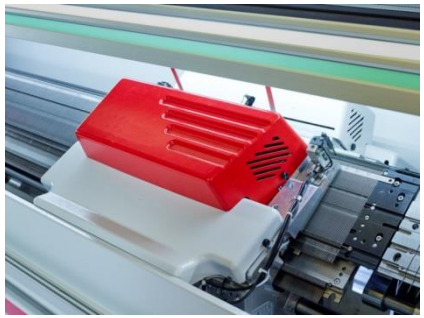


4-On diminue les mailles pour former les épaules

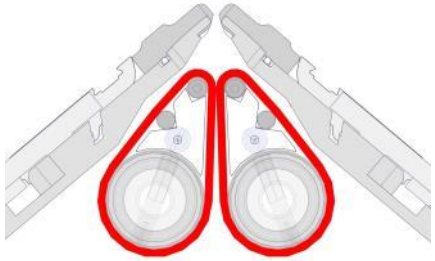
5-On assemble en grafting les mailles des aisselles

6-On termine par le col
et le pull est fini !

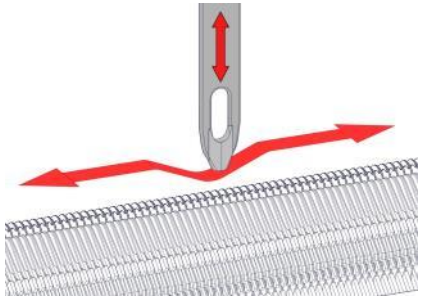
Taurus 2.170 XP Highlights



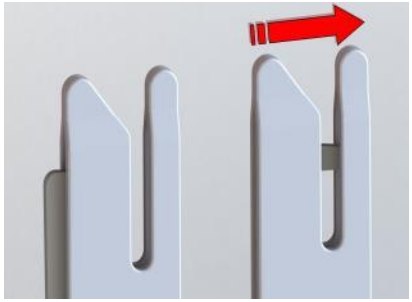
Open carriage
direct yarn path,low tension



Take down
Unique 3D knitting form



Motorized yarn guides
X-Y program-mable



Controlled knitting comb
100% hooking with any press-on yarn

Taurus 2.170 XP Highlights

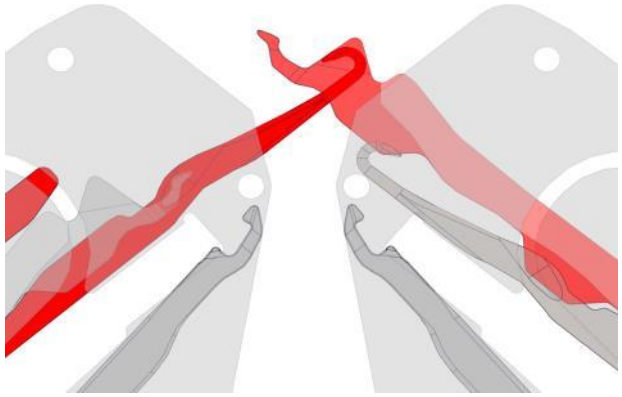
Motorized clamp
Action independent from carriage

Control panel
Touch sensitive LED ribbons

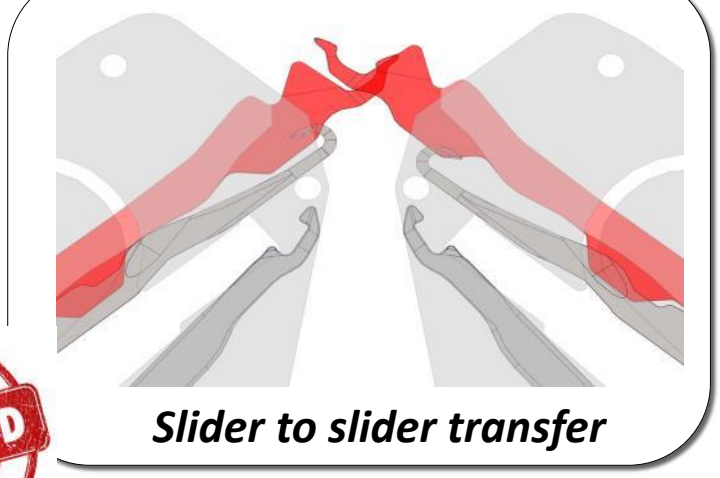
Fan striping bars
Max visibility with easy threading

Compound needle (patented)
Complete garment knitting

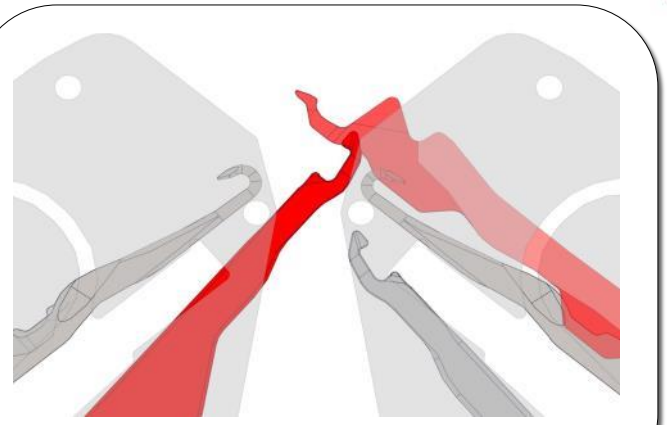
Compound needle
Storage punch



Needle to slider transfer



Slider to slider transfer



Storage punch to slider

To move stitches laterally, it is not necessary that the opposing needles are empty since they can receive the stitches on their slider and then return them. A further step was taken with the addition of a storage punch located under the needle. Selected by a mono-selector, it adds a third storage capability of the stitch, necessary for complete garment knitting

ANTARES 3.130





ANTARES 3.130

- Intarsia
- Multi layer knitting
- In-lay knitting
- 3 systems
- 32 X-Y motorized yarn-guides

A new concept of scalable machine is born with the Antares 3.130. This machine is a platform that can accept specific equipment depending on knitwear products. The recognised strengths of Steiger as the take-down and the open carriage are optimized on the Antares 3.130. New features appear such the horizontally and vertically motorised yarn-guides, a controlled comb.

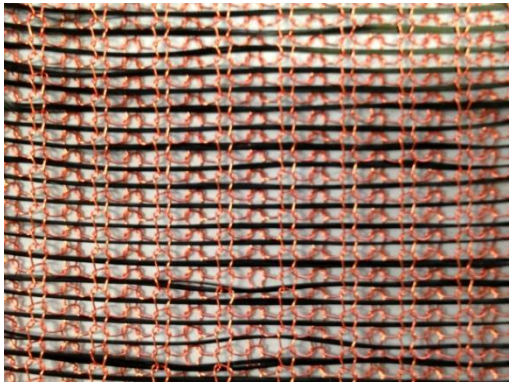
LIBRA 3.130 SC Trameur

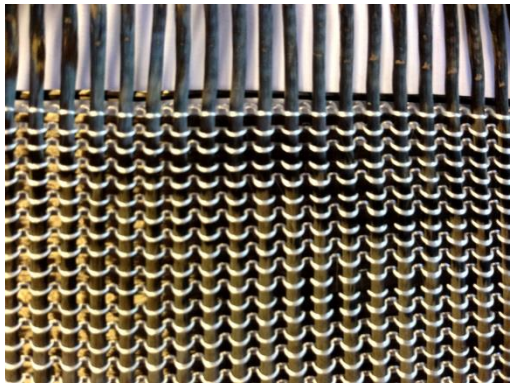




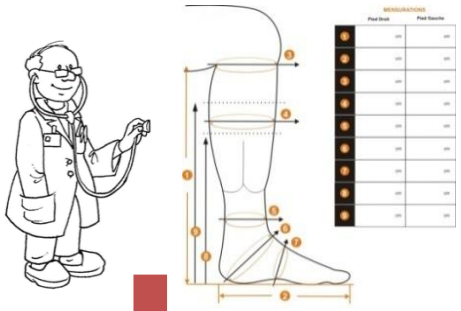
LIBRA 3.130

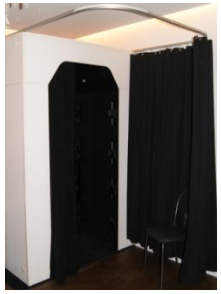
- Intarsia
- In-lay knitting
- 3 systems
- 16 yarn-guides
- 2 in-lay controlled yarn guides





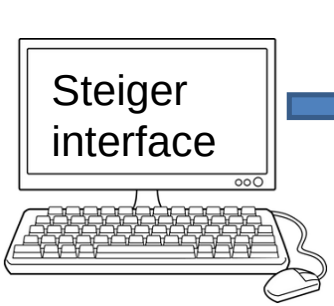
Turn-key solution for customized products

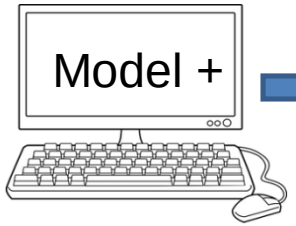




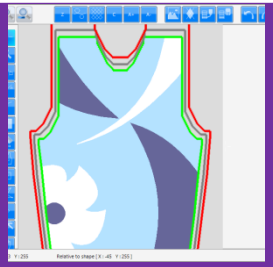
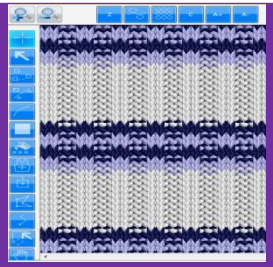
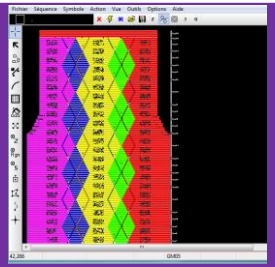
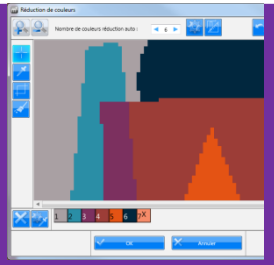
Body scanner

Fully automatic production within 24 h





MODEL +

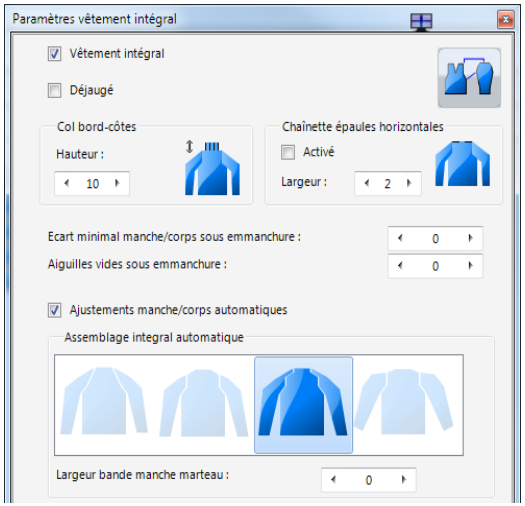
MODEL + Intuitive! Powerful!

Features :

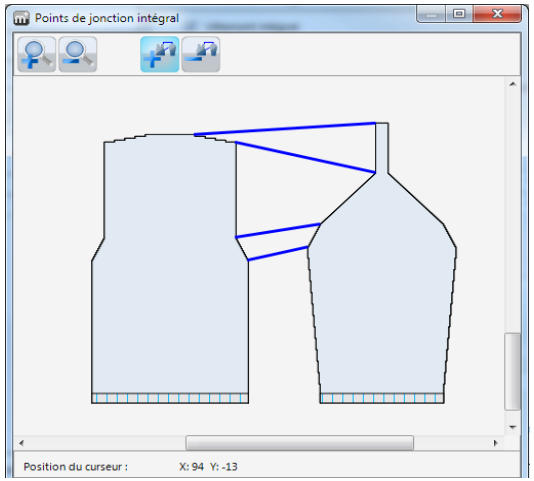
- Fast creation of complete garment articles
- Different sleeve/body connection types
- Sewing points management
- Auto-creation of the different sizes of the sample
- Stitch linking 3D view

Customer benefits :

- Complete garment garments can now be created very easily
- Very important time saving in the complete garment product creation with several sizes
- 3D simulation function to detect potential knitting problems



Complete garment options



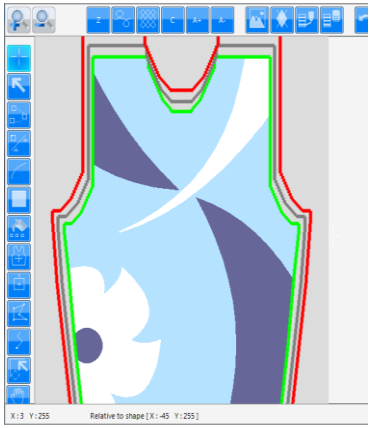
Sewing point

3D simulation of the stitch linking

MODEL + a must for Intarsia

Features :

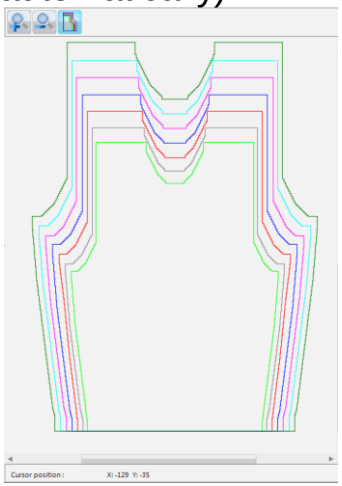
- Garment shape creation wizard
- Collar creation wizard
- Management of sizes
- Basic shape library
- Color reduction for intarsia design
- Shape processing for structured or intarsia samples
- Real time 3D stitch linking simulation
- Stitch aspect view for color designs
- Design layers functions



Drawing functions for intarsia

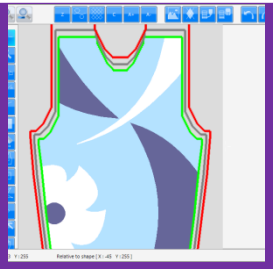
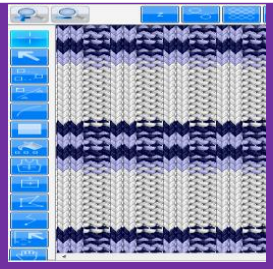
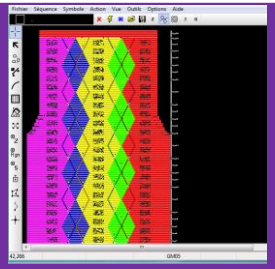
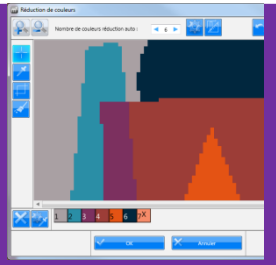
Customer benefits :

- Fast creation of the different parts and sizes of an article in a few clicks
- Resulting knitting programs instantly calculated taking into account the technical settings selected by the user
- A wizard composed of 3 steps help the user to realize the sample
- Huge productivity gain for shaped intarsia design (collars and cast-offs are handled automatically)



Management of sizes

Netcontrol 2.0

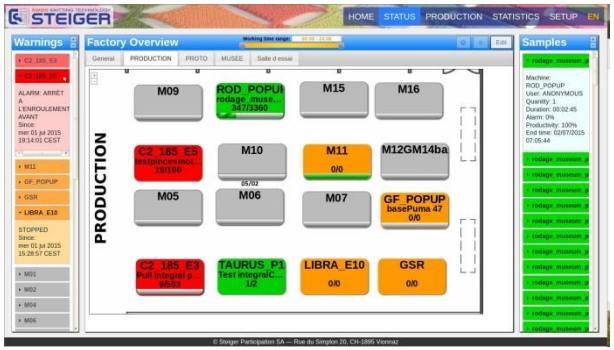
Netcontrol 2.0

Features:

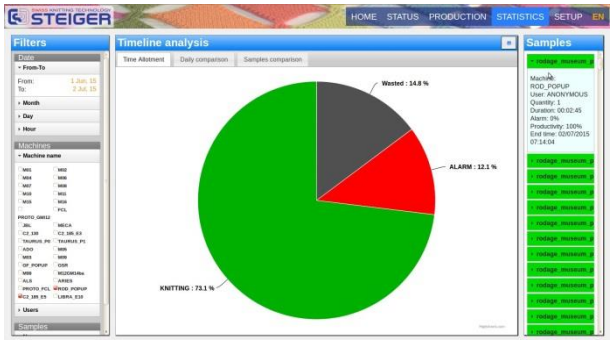
- Networking machines
- Online monitoring of the machines' status
- Centralised production management
- Statistics

Customer benefits:

- Simplified production supervision
- Cost reduction
- Quality and productivity monitoring
- Increased productivity

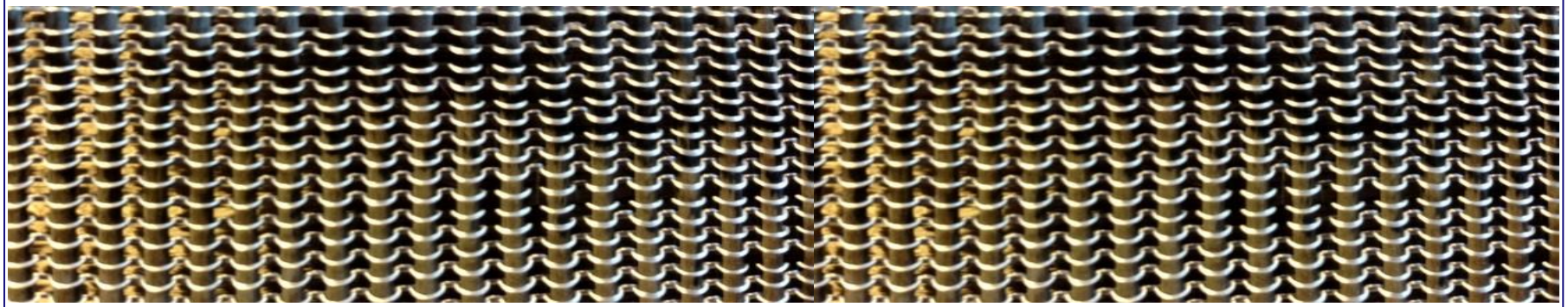


Display of the shop-floor with machine status



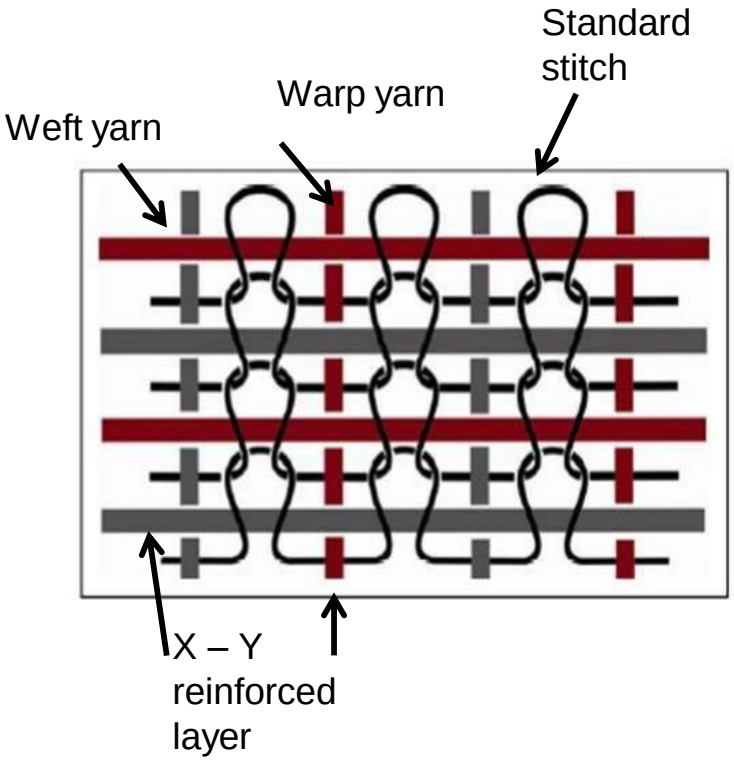
Production's reporting and statistics

Innovation



Mapicc 3 D:
Knitting machine for carbon fiber

- **Up to now knitting technology is 2D**
- **Objective : manufacturing system for 3D shaped, multilayered products based on yarns**



Mapicc 3D Partners

- **Total budget 5’000’000 EUR**
- **Project end 2015**

MAPICC 3D PROJECT’S COORDINATOR :

ENSAIT (Ecole Nationale Supérieure des Arts et Industries Textiles, Roubaix (France),

PROJECT PARTNERS ARE:

Coexpair S.A (Belgium),

Mecacorp (France),

Technische Universität Dresden (Germany),
Faculty of Mechanical Science and Engineering, ITM and IFKM

Reden (Netherlands)

Latvijas Finieris (Latvia),

Tencate Systems BV (Netherlands),

Volvo Truck (Germany),

Aria (France)

Engineering System International GmbH (Germany)

Armines (France),

ESI GROUP (France),

University of Zagreb, Faculty of Textile Technology (Croatia),

Dylco (France),

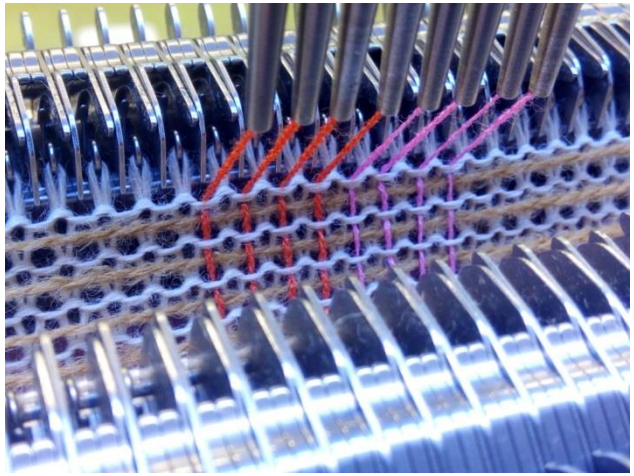
Politecnico di Milano – Department of Aerospace Engineering (Italy)

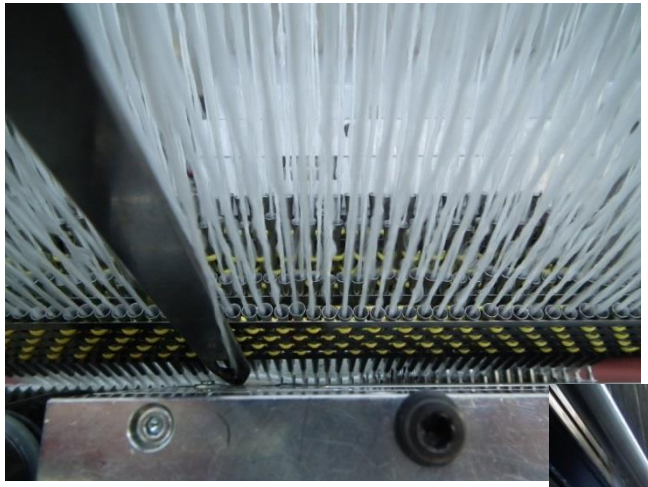
Steiger (Swiss),

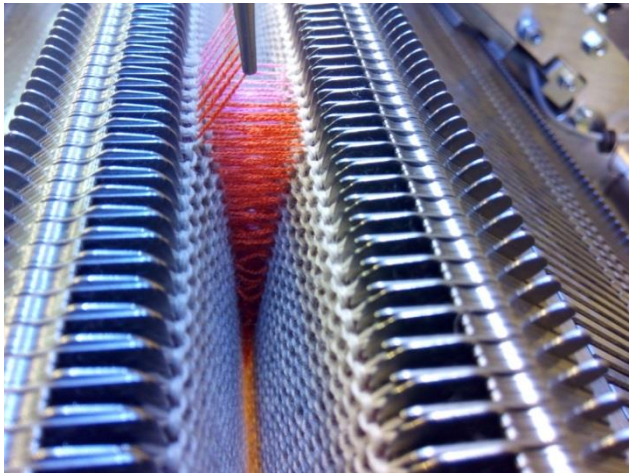
Alstom Transport SA (Spain),

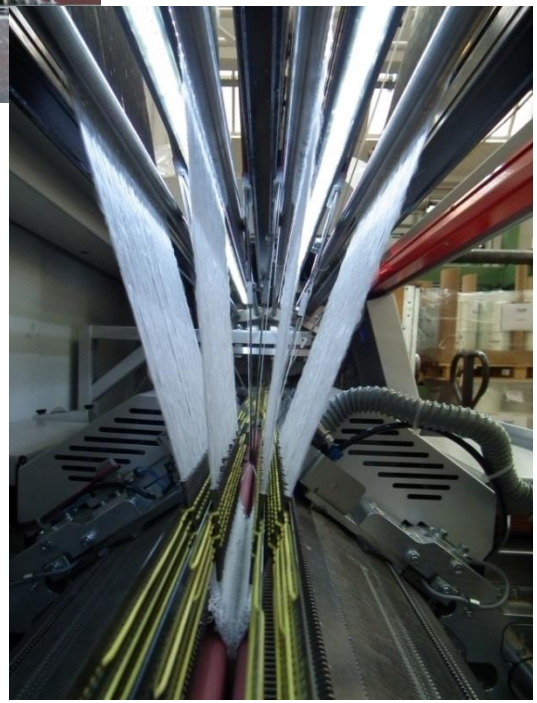
Riga Technical University (Latvia),

Aries 3D in Dresden University





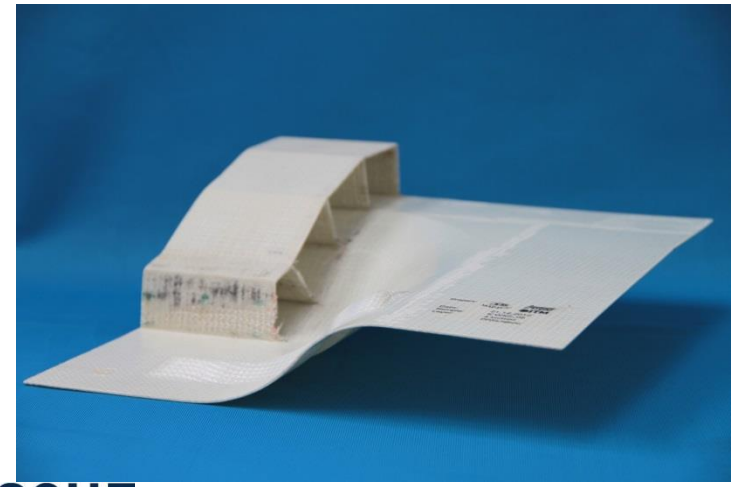




3D knitting an industrial tool

SWISS KNITTING TECHNOLOGY STEIGER

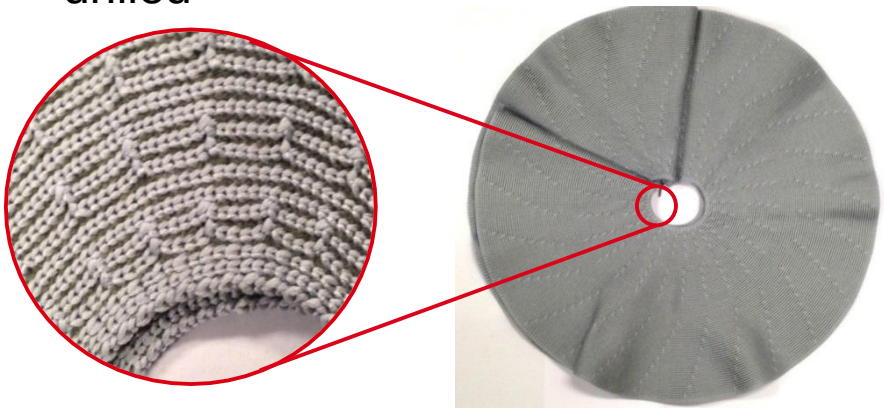
- Simulation of the mechanical constraint on the part
- Design of a composite textile structure with equivalent mechanical characteristics
- Part programming with multilayer and 3D structure
- 3D Knitting
- Molding by autoclave at 190 oC



Automotive application

Carbon fiber knitted preform for F1

- The machine knits a disk in spiral
- The spiral is compressed and molded at high temperature 190 oC
- The disk is machined, surfaced and drilled



Snow chain

- Inox wire 0.5 mm mixed with Polyamide yarn, for rolling band
- Elastic yarn for the easy sock installation