



Technical Fabrics

Agro textiles

Airbag and OPW airbag

Awning and light tent fabrics

Carpet backing

Car seats

Coating fabrics

Conveyor belts

Gauze

Geo grids

Heavy canvas / Filter fabric

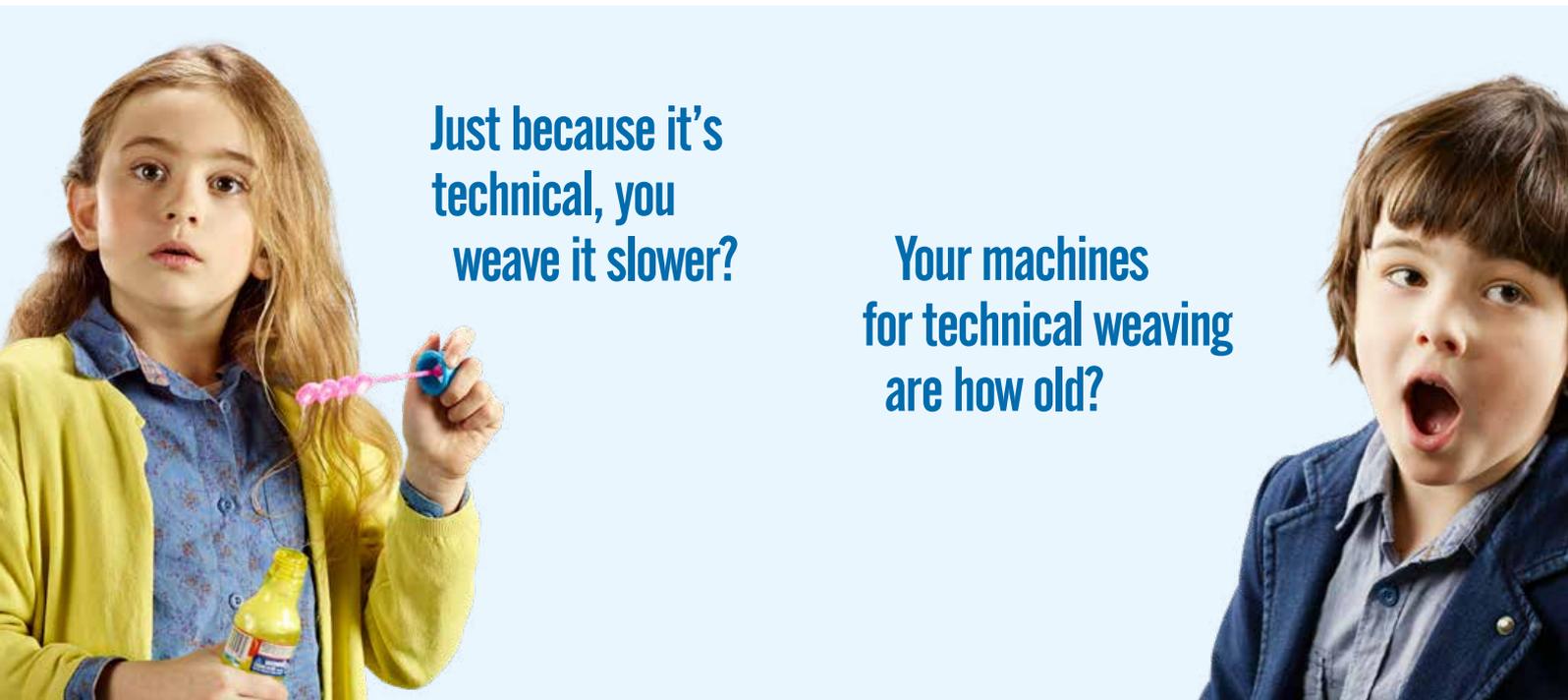
High-speed leno weaving

Industrial glass fibers

Light filament fabrics

Para-aramids

Tire cord



**Just because it's
technical, you
weave it slower?**

**Your machines
for technical weaving
are how old?**

His **eagerness to grow** is our benchmark.



Picanol weaving machines for technical fabrics

Picanol develops, produces and markets high-tech weaving machines. Especially for weavers who want to get the most out of technical fabrics, Picanol weaving machines provide the right platform to stay ahead. Always.

Picanol supports these machines with the same strong world-wide service organization that serves its machines sold for apparel and household applications. Service stations are located at all "gravity points" of the global textile industry.

Within the Picanol Group, the Technical Fabrics Group (a specialized team of product managers and technicians) constantly strives to optimize the existing solutions and to explore exciting new applications (such as super-wide weaving in the field of technical textiles).

Since 2002, all Picanol machines are fitted with the Sumo direct drive as standard. This direct drive reduces power consumption and maintenance requirements.

This brochure gives an overview of some of the most common technical textile segments served by Picanol.

New applications are added every year, so please consult your Picanol representative to check out the possibilities offered for your specific application.

For more information about the specific machine types, see Picanol's general machine brochures, available at www.picanol.be.



Your fabric is so special, only one machine in the world can weave it?

So when you need technical support, you have nobody to call?



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www.picanol.app

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Picanol weaving machines for technical fabrics

- **OmniPlus-*i* airjet weaving machine** (widths: 190, 220, 250, 280, 340, 360 and 400 cm)
- **OMNIplus 800 TC airjet tire cord weaving machine** (width: 190 cm)
- **OptiMax-*i* rapier weaving machine** (widths: 190, 210, 220, 230, 250, 300, 320, 340, 360, 380, 400, 430, 460 and 540 cm)

A special guided positive rapier execution is available for the insertion of bulky, or coarse wefts for the production of technical fabrics S.A. carpet-backing and agrotextiles.

Yarns processed

- **Spun, single, multiple**
- **Multifilaments (twisted, entangled, without torsion, high-twisted)**
- **Cabled yarns**
- **Tapes (flat, profiled, fibrillated, PP, PE, PET, PTFE and PLA)**
- **Monofilament (PP, PE, PET, PA)**
- **Glass fiber (cabled, twisted, voluminized, also basalt and quartz)**
- **Glass rovings**

For the exact range of yarns that can be processed on Picanol machines, please consult your Picanol representative.



Airbag, including one-piece-woven cushions

Depending on the application, OptiMax-*i* rapier can be offered and is also suitable for One Piece Woven Cushions woven under Jacquard. Free Flight rapiers have an advantage in that the warps do not necessarily need to be sized. Also, the denser types of constructions can be achieved more easily on OptiMax-*i*, without sacrificing much speed. The machine works with reinforced backrest and reinforced cloth take-up as typical warp tensions might be at a higher level than normal. The Picanol-type full-width temple does not need to be cut to length. Laser warp stop motions are offered as an option.

Awning and light tent fabrics

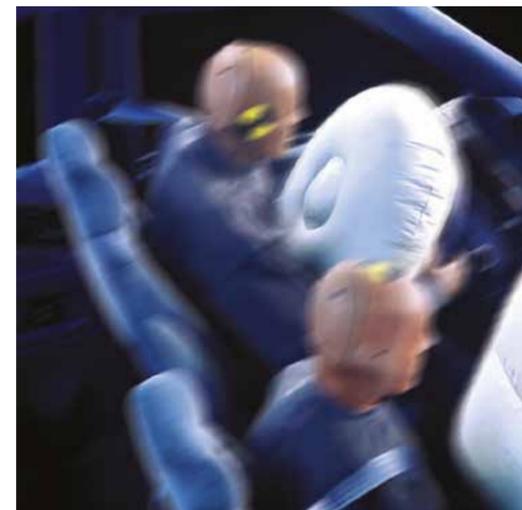
For season-dependent production of awning fabrics, OptiMax-*i* rapier and OmniPlus-*i* airjets are ideal thanks to the flexibility of the weaving system. Both machines can run curtains or garden furniture fabrics as well, with minimal adjustments. OptiMax-*i* is preferred when a high number of harnesses is to be used or when extreme densities are required. Both machines can handle slub yarns. Temple rollers and full-width temples are easily interchangeable. Knot-free weaving is available as an option.

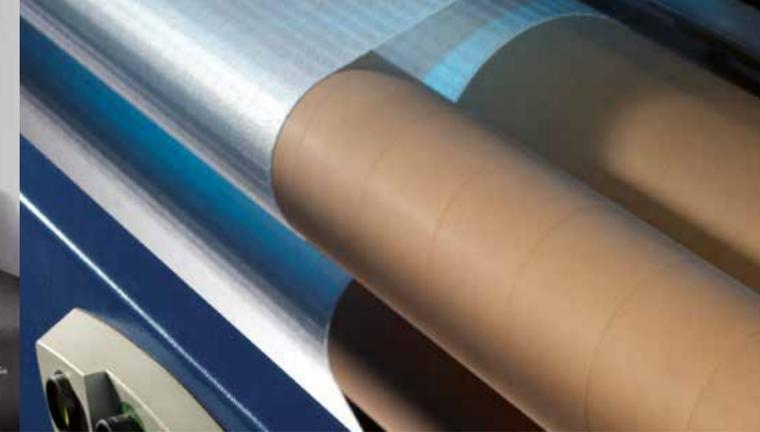
Materials other than acrylics, such as yarn-dyed polyesters, can also be processed with a high quality throughput, thanks to the latest developments in air insertion on OmniPlus-*i* airjet machines.

OmniPlus-*i*.
The benchmark in airjet weaving.



OptiMax-*i*.
The benchmark in flexible rapier weaving.





Car seats

When weft variety allows it, car seats are best woven on the high-speed OmniPlus-*i*. Thanks to the deployment of hybrid harness frames allowing top speeds on heavy dobby patterns maximum production speeds can be reached. In case of texturized weft yarns that can deposit spin finish or oligomers, OptiMax-*i* rapier machines are recommended. Where a broad range of fancier weft materials – such as flock yarns, chenilles or monofils – need to be processed, OptiMax-*i* rapiers will perform at highest efficiencies and high speeds.

Thanks to a reinforced backrest and cloth take-up, the appearance remains consistent over the width of the fabric. Temple rollers and full-width temples are easily interchangeable. Beams up to 1100 mm are possible as well as fancy-beam arrangements.



Coating fabrics

Picanol offers its high-speed Free Flight OptiMax-*i* rapier machines in widths up to 460 cm for coating fabrics. This rapier machine can handle T0, V0 and T60 yarns in weft and warp, in single and double insertion (up to 1100 dTex). Also monofil yarns up to 0.3 mm diameter can be woven with the standard set of grippers. The rapier machine can handle the widest variety of yarn types, supplied by the widest range of yarn suppliers.

For very open constructions, a direct take-up roller is fitted in order to safeguard the integrity of the fabric. Knot-free weaving is available as an option. The cover of the fabric is always optimum thanks to a small shed opening resulting in low warp tension. The warp tension is controlled by a precise warp tension meter. Temple rollers can be positioned outside the useful width of the fabric so as not to distort the pick line.



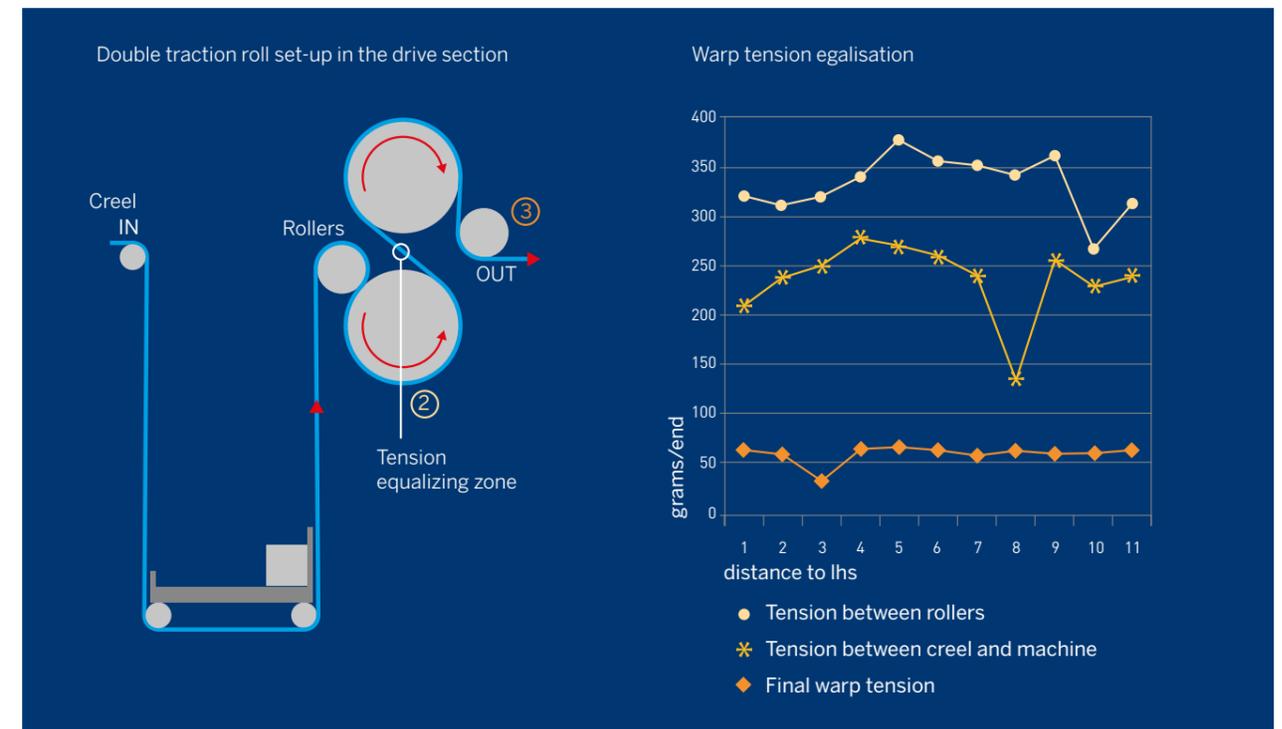
Tire cord

The OMNI*plus* 800 TC is the most advanced tire cord weaving machine currently available. The basic OMNI*plus* 800 airjet weaving machine is completed with modules such as drawing-in device, special cloth take-up and weight-compensated batching motion.

Since reliability is paramount in conversion operations, Picanol has opted for integrated controls. Motors, drives, electronics and software are all produced by Picanol. This reduces the number of control boxes, cables, printed circuits and connectors to a bare minimum (trouble-shooting becomes easier).

Equipped with air tuckers, the OMNI*plus* 800 TC reaches speeds of up to 900 rpm. Tuck-in lengths of 20 to 45 mm are possible. Patents apply. Mechanical tuckers (type 40 mm) are also available on request for special applications such as heavy viscose cords. Picanol is unique in that the profiled reeds don't have to be cut to width due to the mechanical tuckers. This greatly reduces the article change time.

Please also consult our OMNI*plus* 800 TC brochure for more details: see www.picanol.be for brochure downloads.





Gauze, flocking backing, Osnaburg or tape backing

Picanol offers OmniPlus-*i* airjets for these types of fabric. Very high speeds can be attained through the use of positive cam boxes. The profiled reed does not need to be cut to length thanks to the weft detector in front of the reed. In this way several widths of fabric can be processed without having to change the reed. The automatic pick remover (PRA) enables the machine to reach very high efficiency. Arrangements are available for elastic yarns, as well as to obtain special fabric constructions for plaster-reinforcement fabrics. When closed selvages are required, high speed pneumatic tuckers (ATI) can be specified. Tuckers are mostly needed for flocking backings or Osnaburg fabrics.

OptiMax-*i* rapier machines can also be used to weave these open fabrics; they offer additional flexibility s.a. capabilities to weave high torsioned and elastic yarns in warps and welt.



Industrial glass fiber

The OptiMax-*i* rapier is available in widths from 190 cm to 360 cm. It is suitable for all types of glass fiber yarns, including silica and basalt (although for these yarns the machine specifications might be different).

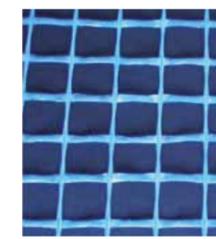
- Split beams and top beam configurations are possible.
- Multi-panel weaving is possible.
- Small shed opening, wear-resistant grippers and scissors, with the possibility to run with very low warp tension.
- Motor-assisted 3-end glass split motion.
- Optispeed for difficult-to-weave yarns woven in a pattern.
- Configurations for open weaving without distortion and/or unidirectional fabrics are available.
- Glass take-up with double chrome-plated press rollers.
- For center and surface winders.
- Special prewinders with low-friction finish and special programmable weft brakes.
- Can process wefts from 5 Tex up to 600 Tex at high speeds.

Sumo direct drive (dust-tight construction) and absence of setting points or grease points under the warp line offer additional advantages for glass weavers.

For certain fabrics, temples or even full-width temples can be added.

Picanol advises the use of Burcklé reeds with the right finish and hardness for glass fibers.

High-speed leno weaving, OptiLeno



High-speed leno weaving is available on the OptiMax-*i* rapier machine. A very wide range of yarns can be processed in warp as well as weft direction. These include monofil up to 0.7 mm, PP tapes, multifilaments, glass fiber and spun yarns.

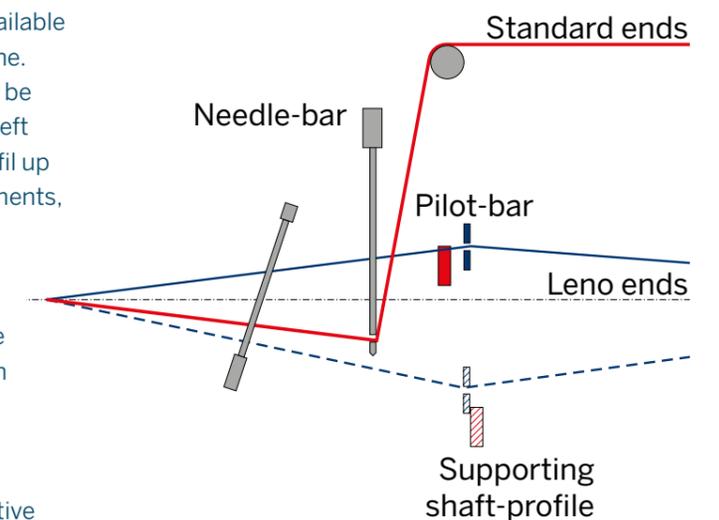
The "Steher" and "Dreher" ends do not cross in the back shed, and thanks to the straight path of the yarns through the eyelets it is possible to weave with extremely low warp tension.

All parts in contact with the yarns are polished and hardened. The leno system combines a Stäubli positive cam box for the vertical component of the shed formation with an electric motor for the selection. Weft insertion is guaranteed thanks to the appropriate rapier system.

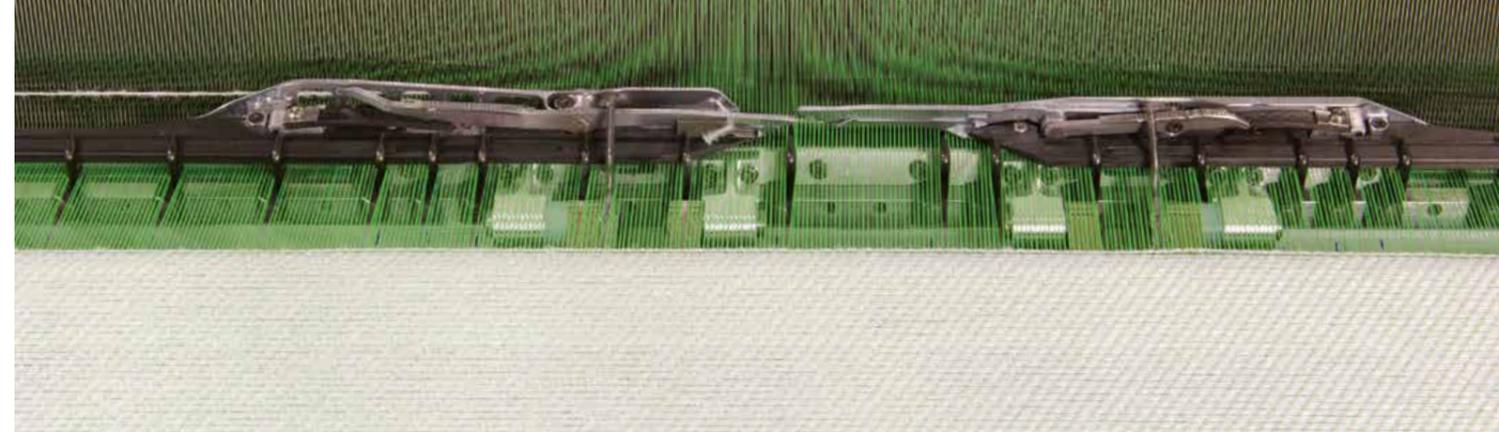
For the production of crimp-free fabrics, a double-beam solution is offered. The system is built to make drawing-in and style changing user-friendly.

The high-speed OptiLeno leno system can be changed over to standard harness frames in only a few hours, thanks to its modular design. The harness suspension elements stay in the machine, which saves time.

The OptiLeno is preferred by many customers when heddle-based systems cannot be used due to quality requirements such as wear particles accumulating in the fabric or uncontrolled fiber damage spoiling the fabrics.



Let's grow together with the **Guided Positive Gripper** on Picanol's OptiMax-*i* machines!



The highly successful OptiMax-*i* rapier platform is designed to deal with all markets and in particular the technical fabrics segment. It is therefore equipped with multiple sley drives, positioned over the width of the fabric in order to maintain a strong and stable beat-up, independent of drawing-in width.

The OptiMax-*i* equipped with GPG rapiers reaches insertion speeds of 1500 meters per minute and so is competitive with the latest wide projectile machines in terms of performance. However, having flexible positive grippers enables new and exciting market segments to be explored.

The machine is fitted as standard with the Sumo direct drive, offering onboard speed control without frequency convertors. Furthermore this direct drive is virtually maintenance-free, because clutches, friction brakes, belts and chains are all eliminated. There are not even any cooling fans, as the highly efficient main motor is cooled and lubricated by the closed oil circulation of the machine itself.

The machine comes as standard in 4 colors, and can be equipped with one to four prewinders by simply connecting them to the CAN bus box at no extra cost.

A new backrest for super-wide weaving shows no bending thanks to a new design that supports the warp compensating element at several places over the width of the machine.

Mechanical tuckers as well as hot-wire or electrically cut selvages can be offered.

Stäubli-type cam boxes and electronic dobbies as well as the high-speed Optileno system – all of them interchangeable – can be fitted in order to serve the most demanding applications. Besides being able to weave existing types of fabrics with a better price/performance-ratio compared to existing technologies, the OptiMax-*i* GPG rapier system makes it possible to mix completely different types of wefts, such as monofil and multifilament,

or course-spun with a fine texturized yarn. It is even possible to double-insert certain types of yarns, such as two 1100 dTex PES yarns, as often seen in geotextiles, conveyor belting and coating fabrics, something almost impossible to achieve on projectiles.

GPG OptiMax-*i* machines can even handle stiff yarns such as polypropylene tapes up to 3 mm and monofil yarns up to 0.7 mm, opening up many possibilities in agro-textiles and the carpet-backing business.

Multi- and monofilaments covered with PVC such as found in outdoor furniture and sunscreens can be woven successfully with GPG OptiMax-*i* machines, at highest competitive speeds.

Fibrillated yarns and even bulky BCF yarns are well within the range of this system and will open up some interesting market segments in the near future. As the OptiMax-*i* structure accepts Posileno frames with levers positioned on top or at the bottom of

the frames, more complicated leno fabrics such as anti-hail nets and geogrids can be woven at highest speeds and at moderate cost for the weaver.

The OptiMax-*i* equipped with Guided Positive Gripper will soon become a new standard for a market looking to go beyond what is possible today, with the very best price/performance ratio.

A new wasteless system in 4 colors, Introduced at ITMA Barcelona 2019 is called EcoFill 4C. The LHC catch-cord is omitted and weft-waste at the left-hand-side is eliminated.





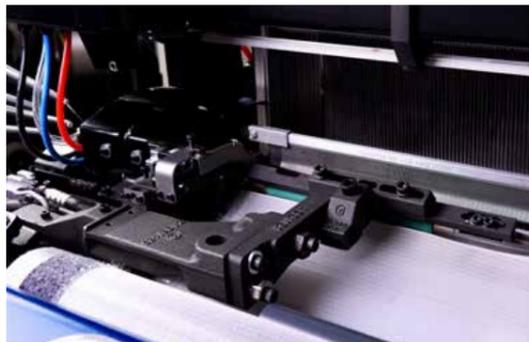
Light filament fabrics, spinnaker, parachute, computer ribbon

Light filament fabrics are best woven on OmniPlus-*i* airjet machines. The sensors in the prewinders and the weft detectors are designed to deal with very fine mono and multi-filament yarns being processed at very high speeds.

Thanks to the machine controls it is easy to avoid starting marks or weaving marks completely, by making maximum use of the possibilities of electronic let-off, take-up and Sumo direct drive. When using the ARVD option, air consumption is reduced to a minimum.

Picanol recommends the use of GTP hybrid harness frames with heddle dampers for these fabrics. Split beams can be used on double-width machines.

OptiMax-*i* with Free Flight rapiers can also be used for these types of fabrics and is sometimes preferred in mixed weaving operations due to the high flexibility of the machine park.



Heavy canvas / Heavy filter execution

Thanks to a special reinforced backrest, S-TUBE, reinforced cloth take-up, special asymmetrical cams in the Staubli cam box, reinforced reed and reed-holder and selected accessories, all existing types of heavy canvas can be woven.

This execution reaches 15% higher cover factors compared to an already robust standard execution of OptiMax-*i*. The drawing inn width reaches up to 250 cm.



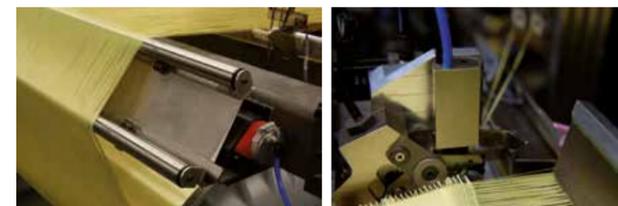
Light- to medium-weight conveyor belts

Picanol offers its high-speed Free Flight OptiMax-*i* rapier machines in widths up to 360 cm for light- to medium-weight conveyor belts. Thanks to a reinforced backrest and reinforced take-up gears, the OptiMax-*i* machine can handle fabrics up to EP 250 in typical width of 250 cm, or EP200 in widths of up to 360 cm. Picanol's free flight grippers offer the possibility to weave with a small shed opening, resulting in lower warp tension. The warp tension is controlled by a precise warp tension meter. Temple rollers can be positioned outside the useful width of the fabric so as not to distort the pick line.

The insertion of coarser wefts is secured by adapted prewinders and programmable brakes.

Cam boxes as well as dobbies can be offered.

An arrangement for weaving from creels can be offered, including weaver platform.



Para-aramids or ballistics

Picanol's OptiMax-*i* grippers can handle all para-aramids and mixes of aramids. The Free-Flight grippers make it possible to weave with an extremely small shed opening, reducing filament damage in warp.

A specially designed backrest, called Direct Warp Control (DWC), makes it possible to weave with very low warp tensions. The warp tension itself is controlled by a precise warp tension meter. To further reduce the risk of filament damage, Burcklé reeds with special dents are recommended.

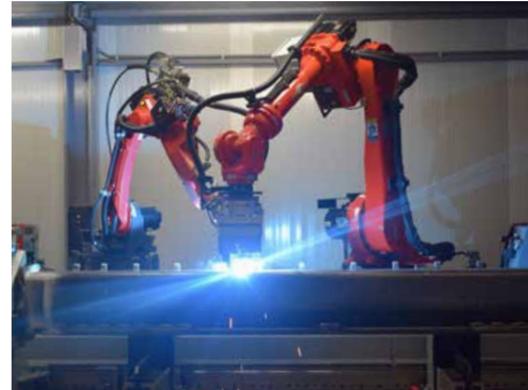
The OptiMax-*i* machine offers a powerful beat-up thanks to sley drives positioned directly underneath the reed holder. On wider widths, extra sley drives are provided. This results in a perfectly straight beat-up line, needed to obtain stable fabric parameters.

The weft insertion has been adapted to accommodate waxed yarns. The prewinders are therefore given a special geometry, complemented by programmable brakes. The result is a constant and low weft tension.

When single-pick fabrics are being woven, an EcoFill-4C weft waste saver can be used, reducing the waste length by more than 5 cm and leaving just a short weft waste at the right hand side. When EcoFill is not used, the machine is equipped with a secure EDC rotary cutter. Both are interchangeable.

The fabric remains undistorted thanks to the use of seamless rubber covering on the sand roller. Take-up in the machine is usually specified even when a batching motion is installed, so as to securely take up samples that are too short to reach the batching motion.

Built in the factory of **the future**



Training is part of the deal Picanol makes with its customers

Well-trained employees are a real asset to your company. Skilled staff make your machines run at optimum performance, producing excellent fabric quality and resulting in superb plant efficiency.

We feel it is our duty to help your employees to improve their skills and knowledge. Hence, in 2015 we decided to invest in a state-of-the-art Technical Training Center in Ieper.

Three fully equipped rooms (each with weaving machines, cut models, mini workshop etc.) cover a total area of 270 m². This new knowledge center allows Picanol to train technicians from customers around the world in optimal conditions.

All facilities are there to give your employees a warm welcome. If your employees are not able to travel to one of our training centers, our instructors come to you and will organize training at your premises.

Spare Parts & WeaveUp

Weaving machines are one of your most important investments. Keeping them in optimal condition is essential to safeguard the high value of this asset and to remain competitive as a weaver in a globalizing world.

Use of original Picanol parts guarantees a continued high performance of the Picanol weaving machines.

Moreover, timely replacement of original parts enables Picanol's customers to run their machines in the most economical way.

Regardless of the age of the machine, the use of original parts will keep the machine in top condition which has a positive influence on the value of the machine throughout its life time.

Furthermore, to expand your weaving range and/or increase your machine performance, Picanol offers upgrade packages for installed Picanol machines. WeaveUp upgrades add state-of-the-art technology to your machines, which apart from the benefits in weaving equally increase the value of your investment.

Scan the pictures of the factory with the Picanol app and see the factory come alive.



Curious about our **upcoming news**?

Download our new app on your mobile phone or tablet and thanks to the news notifications feature you will be the first to know about all our innovations. This app is updated frequently so keep an eye out for new arrivals and updates.

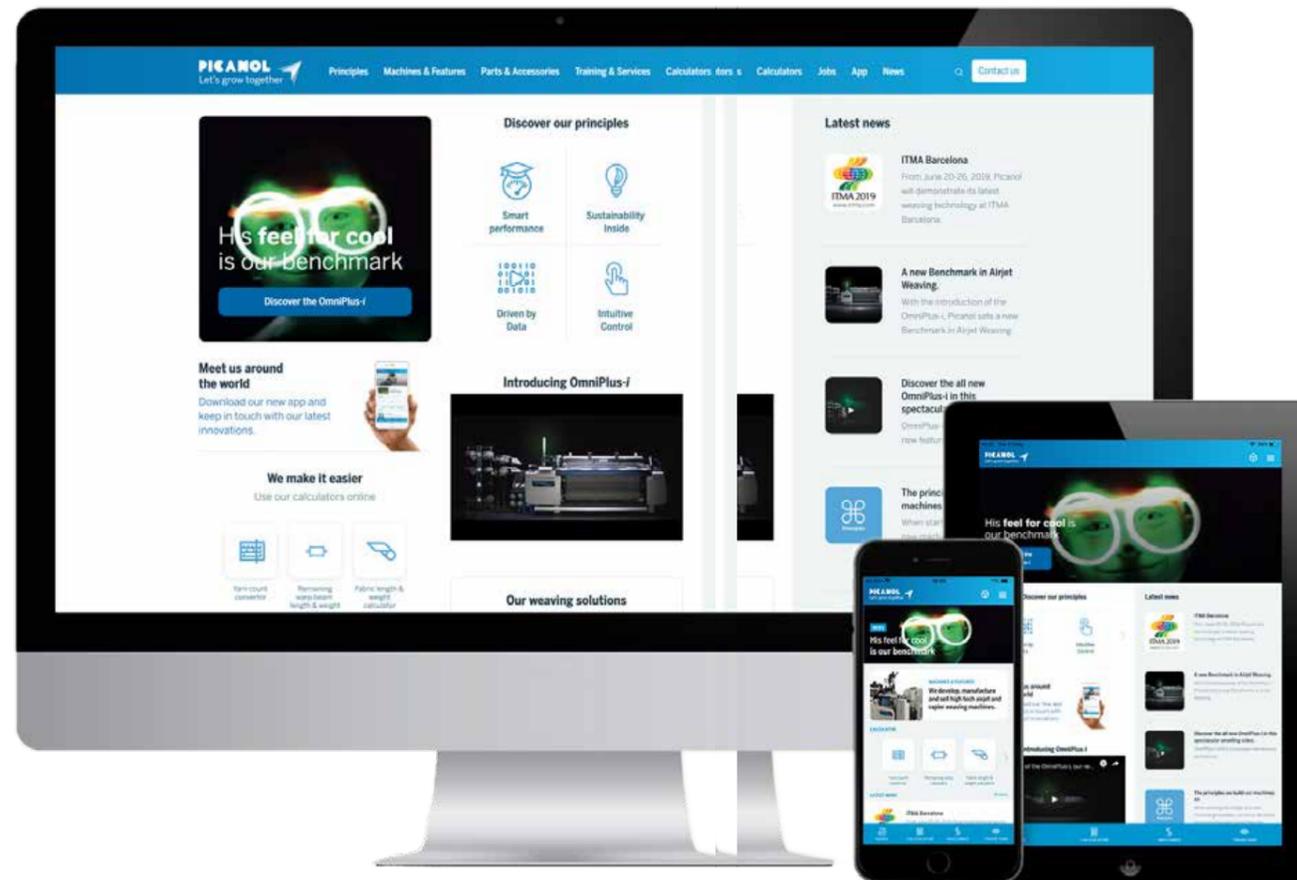
You can also subscribe to our **newsletter** at www.picanol.be/newsletter to be the first to learn about our latest news, updates and events.

Book your training course

As already mentioned, training is part of the deal Picanol makes with its customers.

A full list of our training courses can be found on our **website**: www.picanol.be/training-services.

For more information, please contact your local Picanol agent or Customer Service Representative (CSR). See www.picanol.be/agents for contact details.



We make it easier

Our calculators, freshly designed, developed to make weavers' everyday lives easier.

Visit our website www.picanol.be and discover our new integrated weaving calculators online, or **download the app** with the calculators.



Meet us around the world

During the year, Picanol is present at events and trade fairs around the world. Thanks to the "Trade Fair" function on our app, **you can prepare for your visit**.

With the Picanol app you can discover the machines and the features on show at the main trade fairs, in preparation for your visit. Download the app at www.picanol.app.



Download the app at: www.picanol.app or scan here for the app.

About Picanol

The Picanol Group is an international, customer-oriented group specialized in the development, production and sale of weaving machines, cast iron parts and controllers.

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Its Weaving Machines division (Picanol) develops, manufactures and sells high-tech weaving machines based on airjet or rapier insertion technology. Picanol supplies weaving machines to weaving mills worldwide and also offers to its customers products and services such as weaving frames and reeds, training, upgrade kits and spare parts. For more than eighty years, Picanol has played a pioneering role in the global industry and is currently one of the world's leading weaving machine manufacturers.



The Industries division covers all the other activities not related to weaving machines. Proferro comprises all foundry activities and the group's machining activities. It produces cast iron parts for compressors and agricultural machinery, and parts for Picanol weaving machines.

PsiControl designs, develops, manufactures and supports, among other things, controllers in various industries such as textile machinery, compressors and fleet management. Melotte is a high-precision producer of metal components, molds and reconditioned molds. It has also played a leading role in the 3D printing of components for a number of years.

Next to the head office in Ypres (Belgium), the Picanol Group has production facilities in Asia and Europe, linked to its own worldwide service and sales network. The Picanol Group employs more than 2,300 employees worldwide and has been listed on the Euronext Brussels exchange (PIC) since 1966. Since 2013, the Picanol Group has also had a reference interest in the Tessenderlo Group (Euronext: TESB).

Next to Ieper, Picanol has two first-in-class training centers located in Suzhou (China) and Greenville (USA). All our training centers are specialized in technical training on weaving machines for machine operators, fitters and weaving managers.

Our team is always at your disposal for further information or questions.

www.picanol.be



The illustrations and descriptions in this publication do not commit Picanol in any way: specifications may change as a result of developments in engineering and materials. EN 24.09.2019.

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