since 1975

AWE ARROW HOT SPLICING PRESS

www.zp-arrow.com

100% ITALIAN PRODUCTION

THE COMPANY

ARROW was established in 1975 as a designer and manufacturer of **variable delivery pumps** for the **transfer, conveying and feeding** of any medium or high viscosity, pasty or liquid compound. The pumps are constructed with **sturdy and reliable mechanisms, easy to clean and service**, and able to guarantee the feed of machinery intended for continuous use.

"can be done"

THE CUSTOMER AS THE POINT OF DEPARTURE AND ARRIVAL

Being aware of customers' work needs has contributed to the success of our products. Behind our constant growth there is an ongoing relationship with our Italian and foreign customers. Contacts are managed with enthusiasm and passion by persons who, for training and tradition, increasingly consider the importance of customers and who constantly seek to improve the company. As a guarantee of the constant respect for company priorities and attention to customers, we obtained certification of our design, construction and testing procedures to **UNI EN ISO 9001:2008** standards and **ATEX Directive 94/9/EC**, issued by qualified Bodies recognised on an international level.

SUPPORT

Support includes a telephone and telematic service ensuring immediate replies, a shipment service able to meet requests for spare parts quikly of the order, as well as a department specially equipped for overhauling any of our pumps promptly and at **absolutely competitive costs**.

OUR "MISSION"

- **100% Italian** design and production.
- **Strictly** tested and **certified materials**.
- Maximum **attention to customers** and their requirements.
- Ongoing **research** for **new and also custom solutions**.
- **Flexibility** and maximum availability.
- On-time **deliveries**.
- Prompt **assistance**.

LABORATORY

Every equipment we produce is tested individually.
For the AWE ARROW press we can execute **splicing tests** in our laboratory for widths of 60 cm and we can test the splice strength **at high temperatures and under tensile strain**. We can guarantee, therefore, the validity of the splices with the Customer's fabrics before the press purchasing.

Swatch.

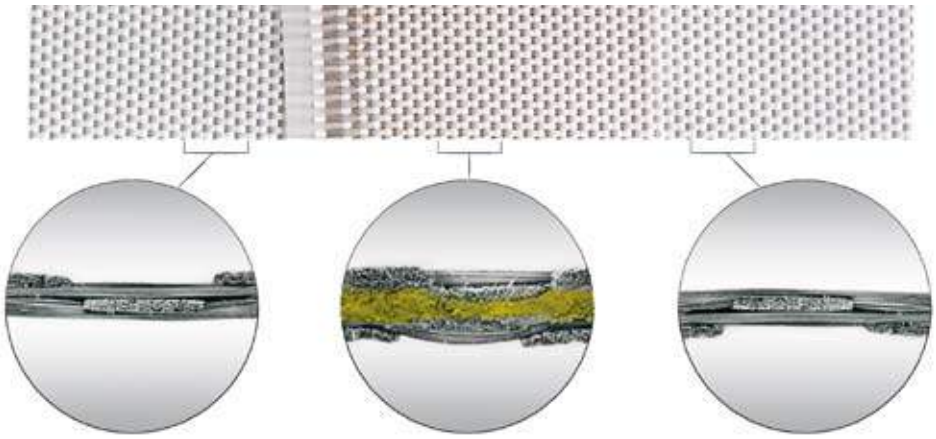
Hot tensile test.

AWE ARROW HOT SPLICING PRESS

WHY HOT SPLICING INSTEAD OF SEWING?

The AWE ARROW hot splicing press solves, once and for all, a widespread problem within industries that use continuous treatment lines of particularly “difficult” fabrics arriving from rolls.
In fact some fabrics, such as those made from glass fibre, kevlar, polyester monofilament yarns or particularly “open” fabrics, cannot be used with a cutting sewing machine which would be more suitable for a seam without over thicknesses.
In fact, with these types of fabrics, the seam cannot withstand the tension during coating, impregnation or finishing treatments, because the wefts slip.

Therefore special solutions are required such as doubling the edges, overlapping them or using double seam stitching.
This procedure generates notable overthicknesses as well as poor alignment of the wefts and the risk of creases and waste of several metres before and after the seam. The **hot splice**, on the other hand, **“seals” the two overlapping fabrics** that are correctly aligned and blocked.
The sealing is performed with a special thermosetting polymer tape that flattens and stiffens the transverse splice zone. During the subsequent processes, even hot ones, the typical problems of sewn seams **shrinkage, creases and waste are eliminated**.



Section of a fabric “sealed” in this manner enlarged 80 times.
As a result of the high pressure exerted by the heated bar, **the thickness at the adhesion point is almost equal** to the sum of the thickness of the two fabrics.

“Sealed” fabric.

Splice in the machine.

FABRICS THAT CAN BE “SEALED”

Fabrics that are difficult to stitch or those that are too “open” or those that slip when placed on top of each other so that the stitching does not hold can be joined together using this method.
The AWE ARROW hot press is used when you want a flat splice or one with minimal overthicknesses, or a splice that will not create creases and defects for several metres along the fabric’s length.
The constituent fibre must be capable of withstanding the “sealing“ temperatures that range from a minimum of 180° C to a maximum of 230° C.

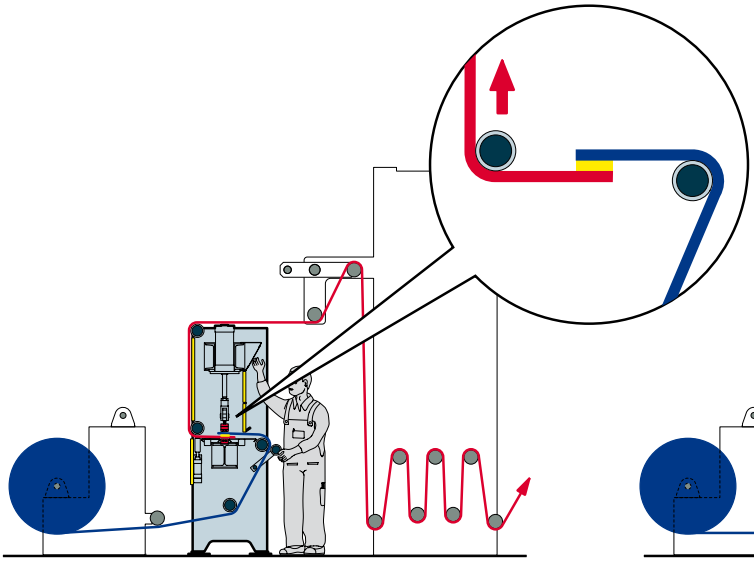
The AWE ARROW hot splicing press is used by the majority of Customers that produce, impregnate and coat fabrics or that execute continuous processing of:

- all types of glass fibre fabrics and for all kinds of textile structures
- light glass fibre fabrics, for electronic applications
- mesh fabrics, even open weave, and glass fibre non-wovens
- all kinds of carbon fibre fabrics
- kevlar fabrics
- aramidic fibre fabrics
- monofilament polyester fabrics with yarn even over 1100dtx
- polyester/cotton fabrics particularly those used for roman and vertical blinds
- industrial fabrics for conveyor belts
- polyester fabrics used for air bags
- fabrics for sails, for technical and military applications

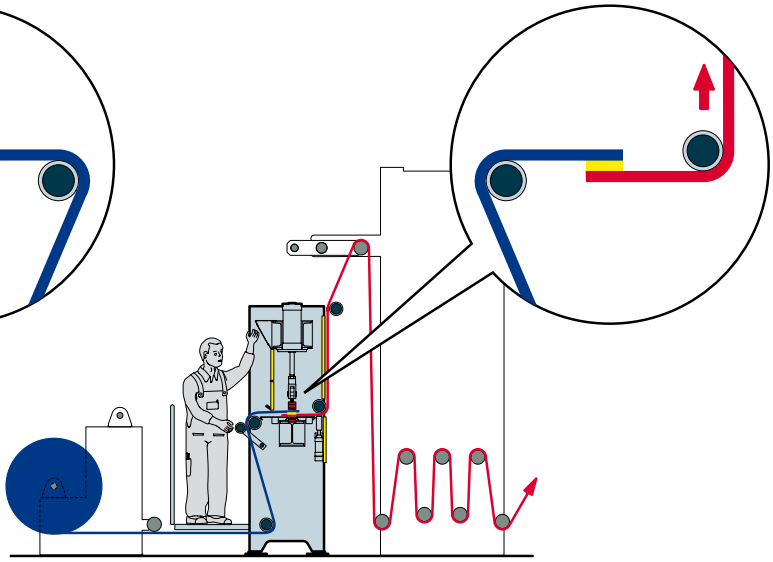
POSITIONING THE AWE ARROW PRESS

The AWE ARROW press can be positioned in two different ways, A or B, as illustrated below: with the machine in position **A** the top part of the "sealed" fabric will not have an edge that could lift up and intercept the coating blade or any other surface finishing system.

With the machine in position **B** the operator is stationed on the outside but an edge on the top of the fabric could lift up and intercept the coating blade or any other surface finishing system.
Consequently it is not recommended for this type of processing.



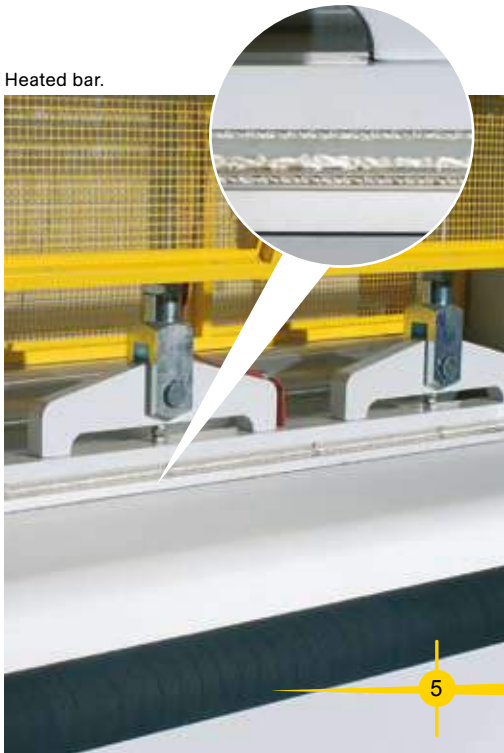
Position **A**.



Position **B**.

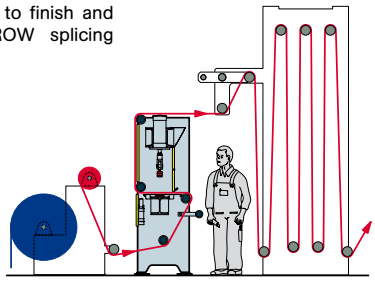
AWE ARROW splicing press width 3000 mm.

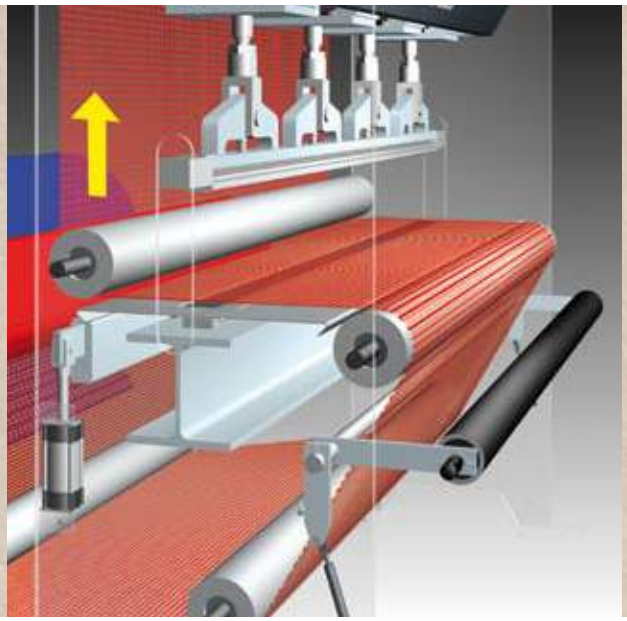
Heated bar.



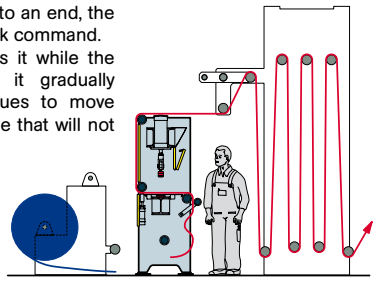
AWE ARROW PRESS: HOT SPLICING IN EIGHT

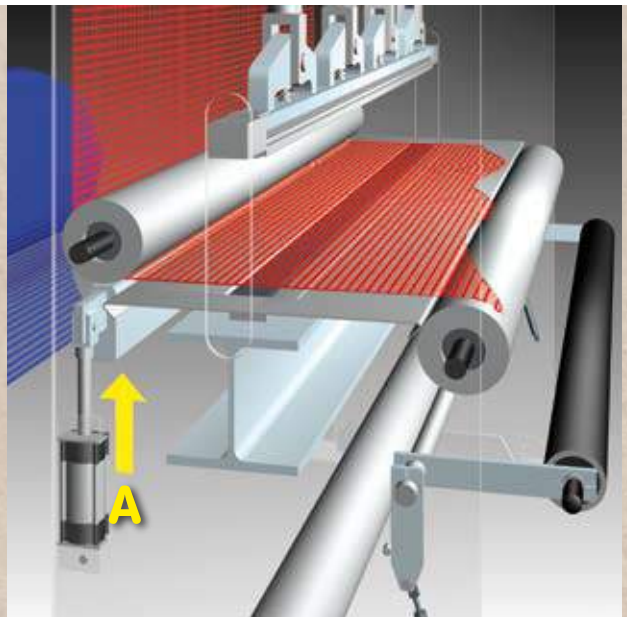
1 The fabric in process is about to finish and runs through the AWE ARROW splicing press.



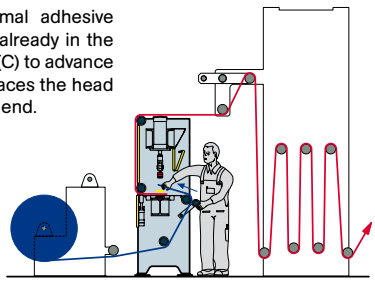


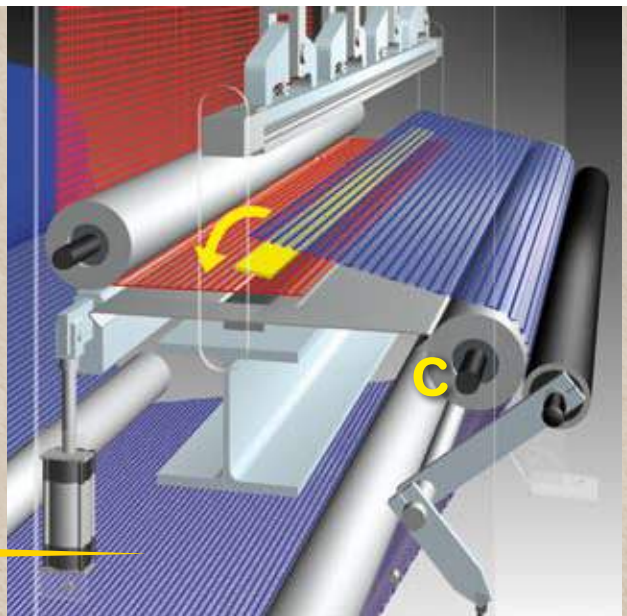
2 As the fabric on the roll comes to an end, the operator activates the fabric lock command. The pneumatic clamp (A) locks it while the accumulator positioned after it gradually cedes the fabric as it continues to move towards the fabric treatment line that will not have to be shut down.



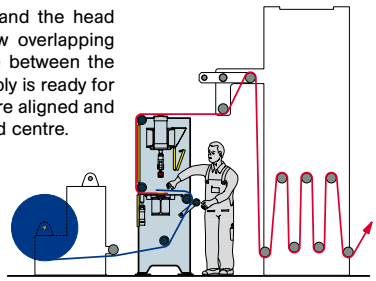


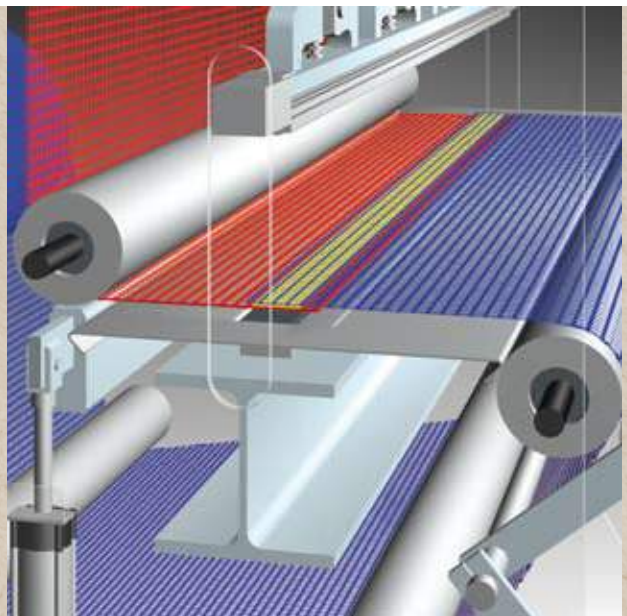
5 The operator places the thermal adhesive tape on the edge of the fabric already in the machine, he rotates the idle roll (C) to advance the new fabric by 7/8 cm and places the head end of the fabric over the other end.





6 The tail end of the old fabric and the head end of the new fabric are now overlapping with the thermal adhesive tape between the two ends and the whole assembly is ready for the hot splice. The two fabrics are aligned and stretched equally, selvedges and centre.

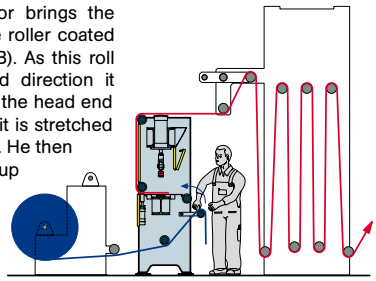


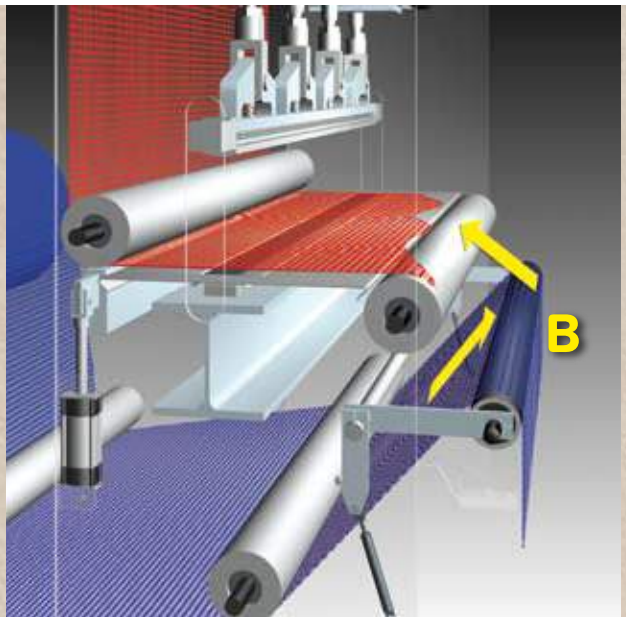


SIMPLE STEPS. PRESS STANDARD VERSION.

3

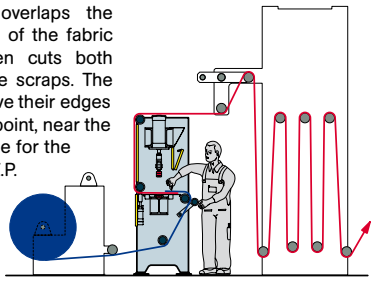
Before continuing, the operator brings the end of the new fabric up to the roller coated with high “grip” black rubber (B). As this roll only rotates in the fabric feed direction it assists the operator as he pulls the head end of the new fabric by hand until it is stretched uniformly along the entire width. He then moves the rubberised roller up to the idle roll at the machine inlet to press the fabric and keep it stretched in a uniform manner.

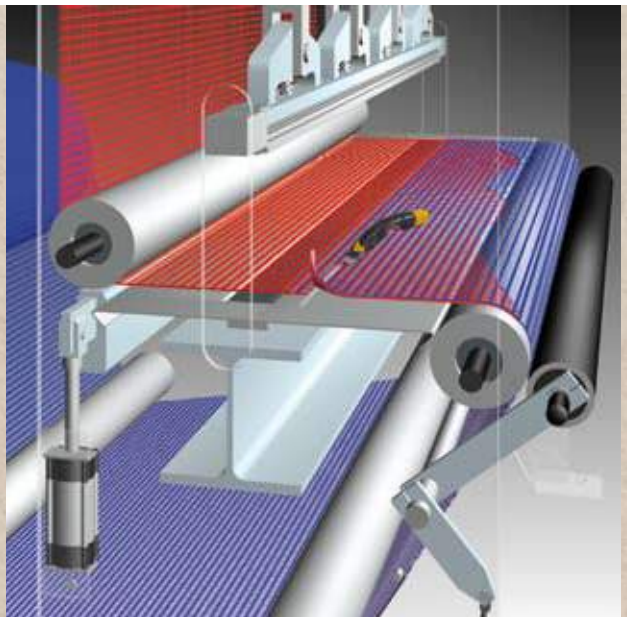




4

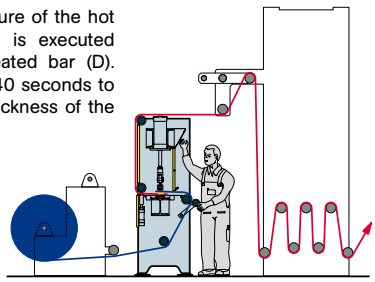
At this point the operator overlaps the head of this fabric over the tail of the fabric in the machine by hand, then cuts both simultaneously and removes the scraps. The two fabrics to be spliced now have their edges perfectly aligned. At the cutting point, near the lower heated bar, there is a guide for the electric scissors. On request Z.P. ARROW can supply this special tool which has been designed for cutting very “difficult” fabrics.

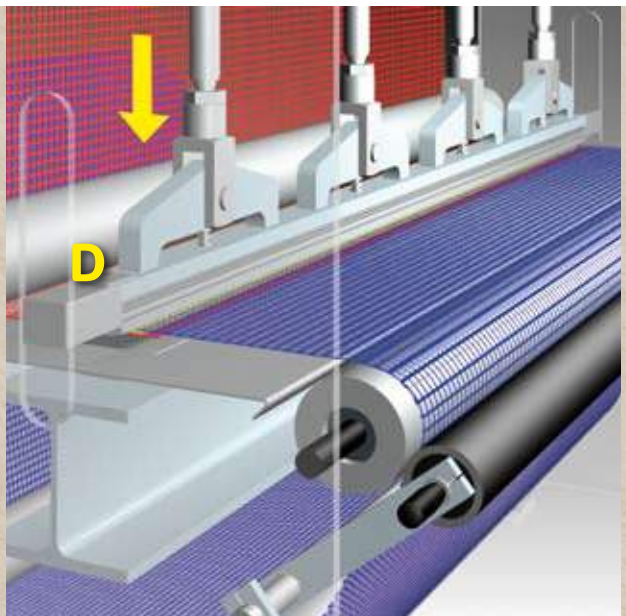




7

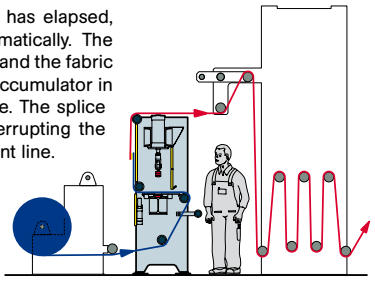
The operator activates the closure of the hot splicing press and the splice is executed under the pressure of the heated bar (D). The time required varies from 40 seconds to 1 minute, depending on the thickness of the fabric.

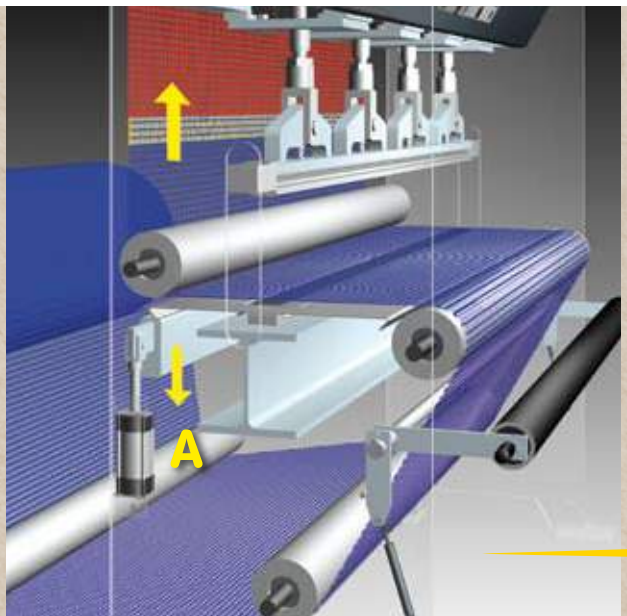




8

Once the preset pressure time has elapsed, the heated bar is raised automatically. The operator releases the clamp (A) and the fabric once more feeds towards the accumulator in the direction of the finishing line. The splice has been executed without interrupting the production of the fabric treatment line.

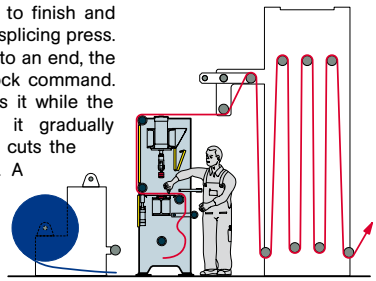




AWE ARROW PRESS WITH OPTIONAL MECHANISED

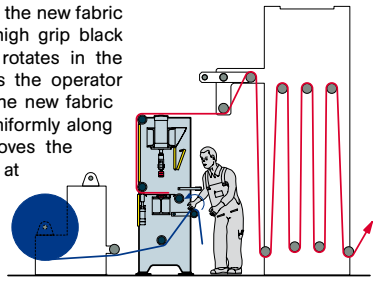
1

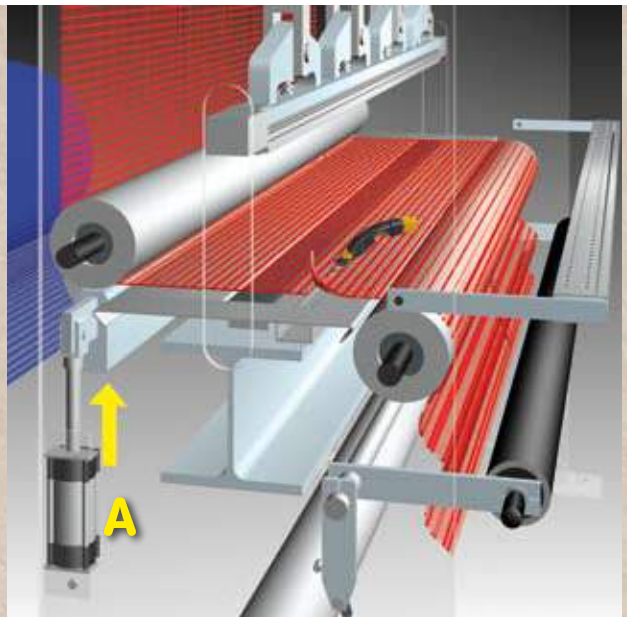
The fabric in process is about to finish and runs through the AWE ARROW splicing press. As the fabric on the roll comes to an end, the operator activates the fabric lock command. The pneumatic clamp (A) locks it while the accumulator positioned after it gradually cedes the fabric. The operator cuts the end part of the fabric at 90°. A perforated suction table holds the fabric at the point where the cut guide slot is located.

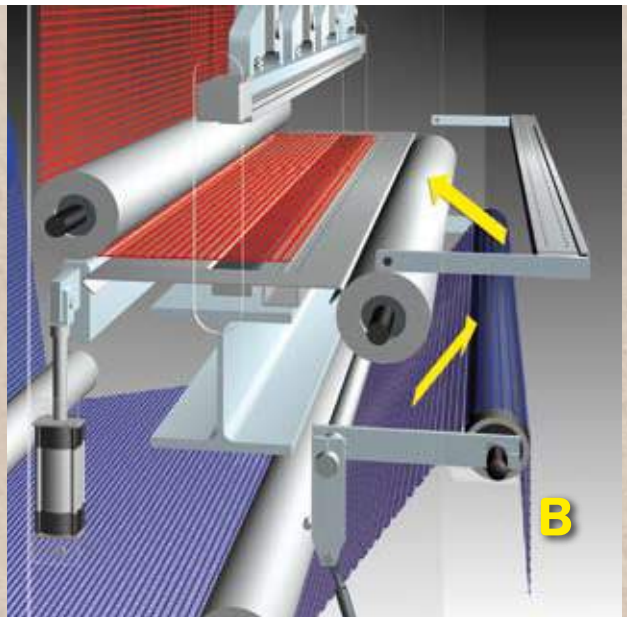


2

The operator brings the end of the new fabric up to the roller coated with high grip black rubber (B). As this roll only rotates in the fabric feed direction it assists the operator as he pulls the head end of the new fabric by hand until it is stretched uniformly along the entire width. He then moves the rubberised roller up to the roll at the machine inlet to press the fabric and keep it stretched in a uniform manner.

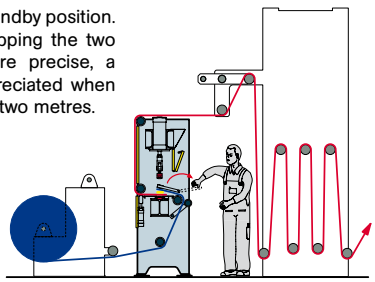






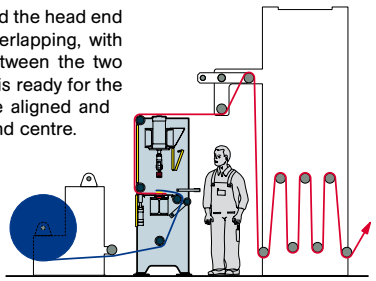
5

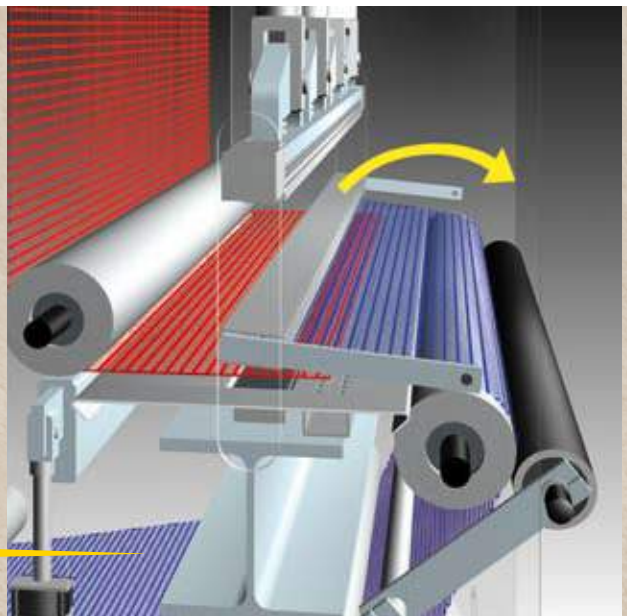
The suction bar returns to its standby position. This mechanism makes overlapping the two fabrics easier, faster and more precise, a feature that is particularly appreciated when the width of the fabric exceeds two metres.

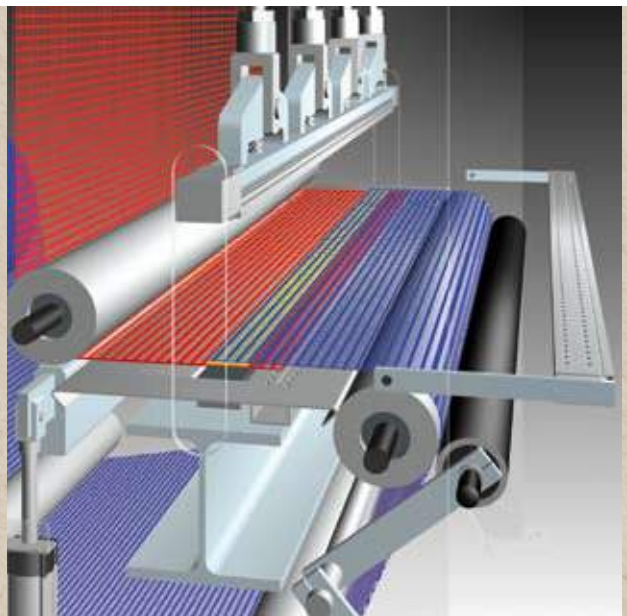


6

The tail end of the old fabric and the head end of the new fabric are now overlapping, with the thermal adhesive tape between the two ends and the whole assembly is ready for the hot splice. The two fabrics are aligned and stretched equally, selvedges and centre.



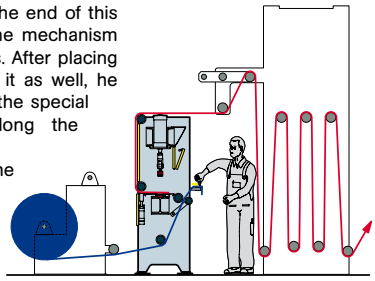




OVERLAPPING OF THE TWO FABRICS TO BE SEALED

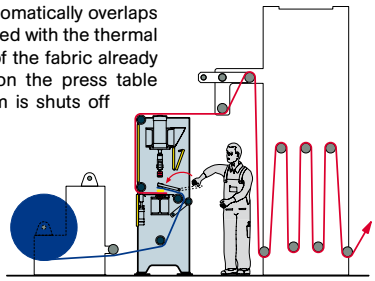
3

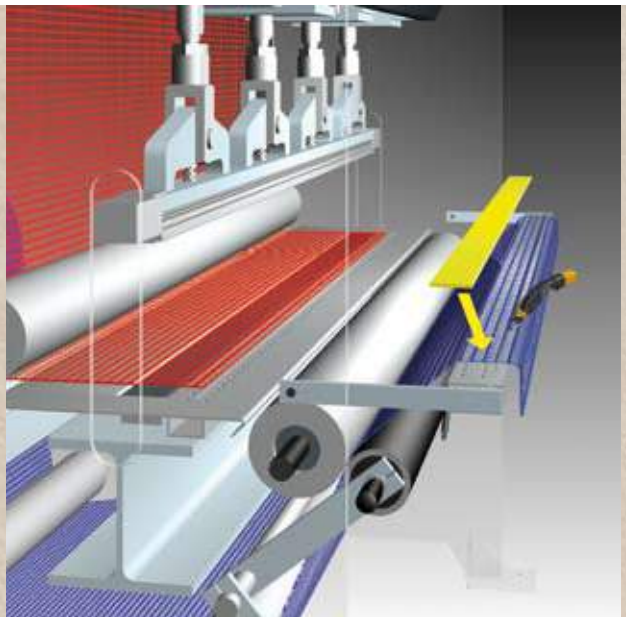
The operator places by hand the end of this fabric on the suction bar of the mechanism that will overlap the two fabrics. After placing the thermal adhesive tape on it as well, he cuts off the excess edge with the special ARROW electric scissors along the length of the guide.
The cut will be at 90° and the edge to be overlapped will remain stretched as it is held in position by the action of the suction device.

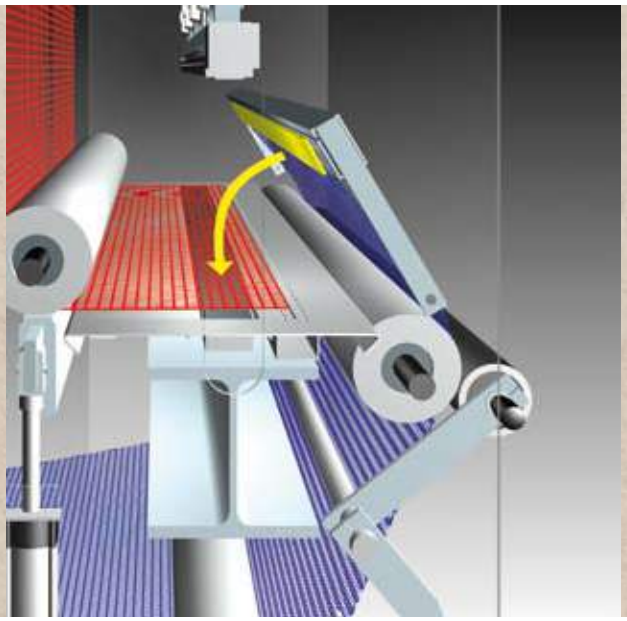


4

The suction bar rotates and automatically overlaps the end of the fabric to be spliced with the thermal adhesive tape on the tail end of the fabric already in the machine. The suction on the press table remains but on the mechanism is shuts off in order to release the fabric.

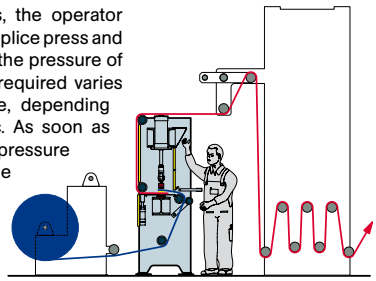






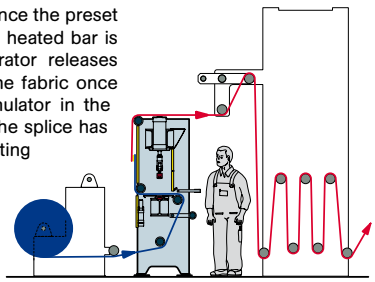
7

Just as in the standard press, the operator activates the closure of the hot splice press and the splicing is executed under the pressure of the heated bar (C). The time required varies from 40 seconds to 1 minute, depending on the thickness of the fabric. As soon as the press reaches operating pressure the suction on the press table cuts out.



8

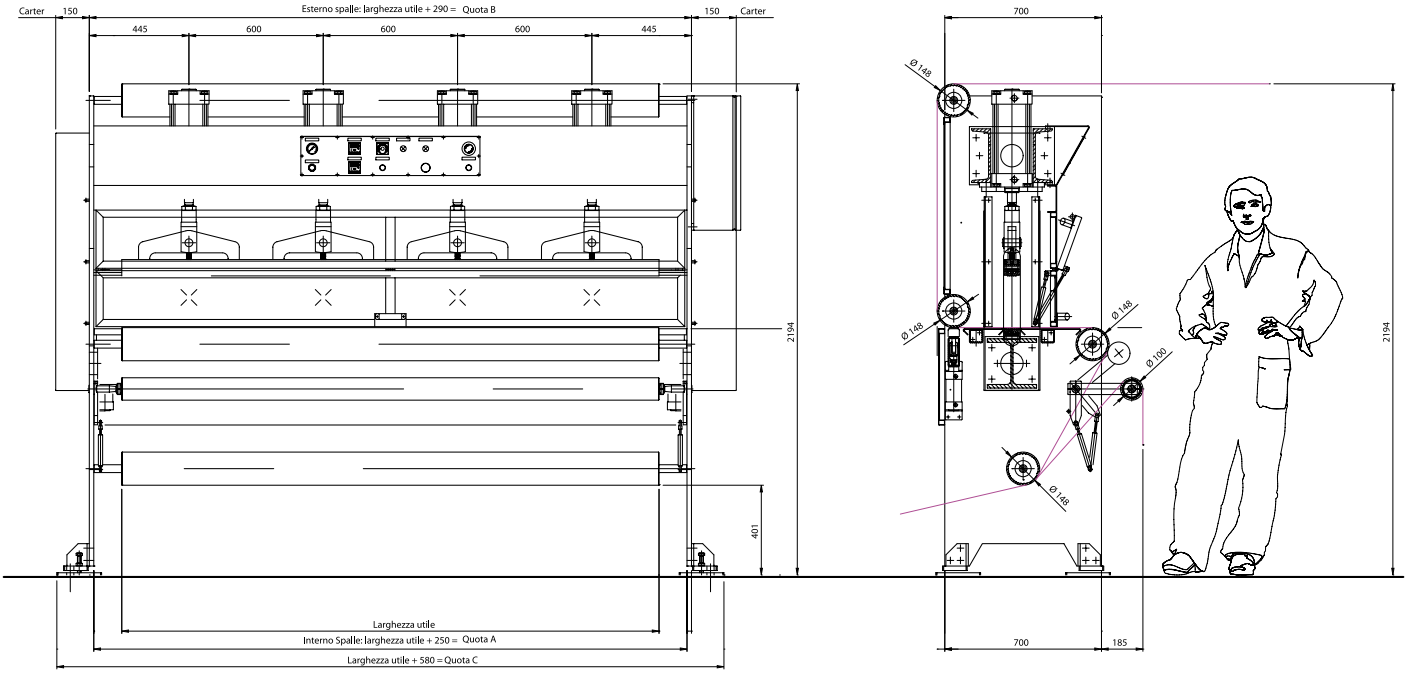
Just as in the standard press, once the preset pressure time has elapsed, the heated bar is raised automatically. The operator releases the clamping device (A) and the fabric once more runs towards the accumulator in the direction of the finishing line. The splice has been executed without interrupting the production of the fabric treatment line.



CUTTING SYSTEM

On request Z.P.ARROW can supply an electric scissors that has been designed specifically for cutting very difficult fabrics.

TECHNICAL FEATURES



WIDTH:	from 1200 mm to 4200 mm
HEATING:	with electric heating elements and adjustable up to 230 °C
VOLTAGE:	standard 380/400 V 50 Hz three phase neutral and ground; on request other voltages and/or frequencies available
SPECIFIC PRESSURE:	up to approx. 50 N/cm²

On request we can supply machines with **widths up to 5400 mm.**

MODEL	*WORKING WIDTH*	*DIMENSION A*	*DIMENSION B*	*DIMENSION C*	*POWER KW*	*WEIGHT IN KG*
AWE 120	1200	1450	1490	1780	3+3	850
AWE 180	1800	2050	2090	2380	4.5+4.5	1050
AWE 240	2400	2650	2690	2980	6+6	1250
AWE 300	3000	3250	3290	3580	7.5+7.5	1450
AWE 360	3600	3850	3890	4180	9+9	1650
AWE 420	4200	4450	4490	4780	10.5+10.5	1850

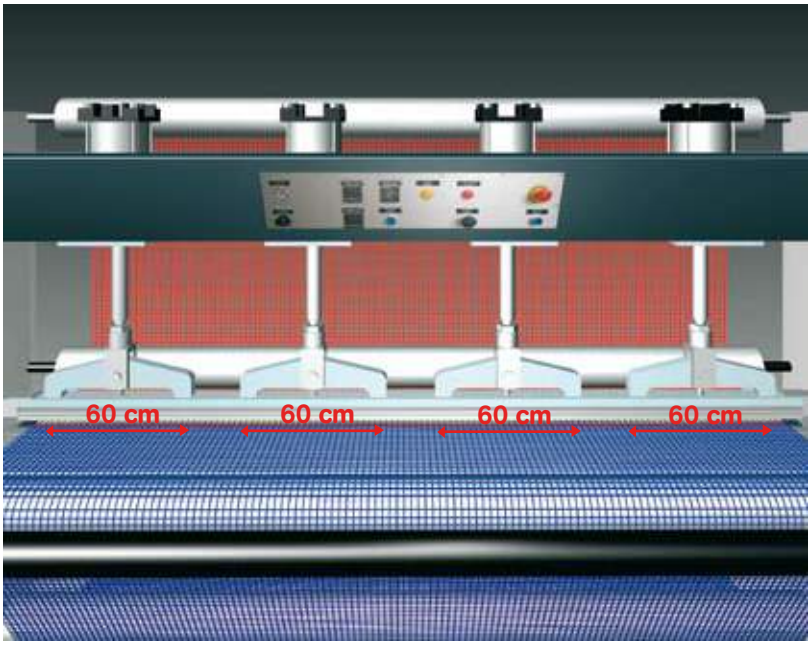
HOW IS THE MACHINE SUPPLIED AND HOW IS IT INSTALLED?

ARROW supplies the machine with CE marking, tested with your fabrics and accompanied by a detailed use and maintenance manual. To operate correctly all it requires is to be coupled to the compressed air and electric power connections provided.

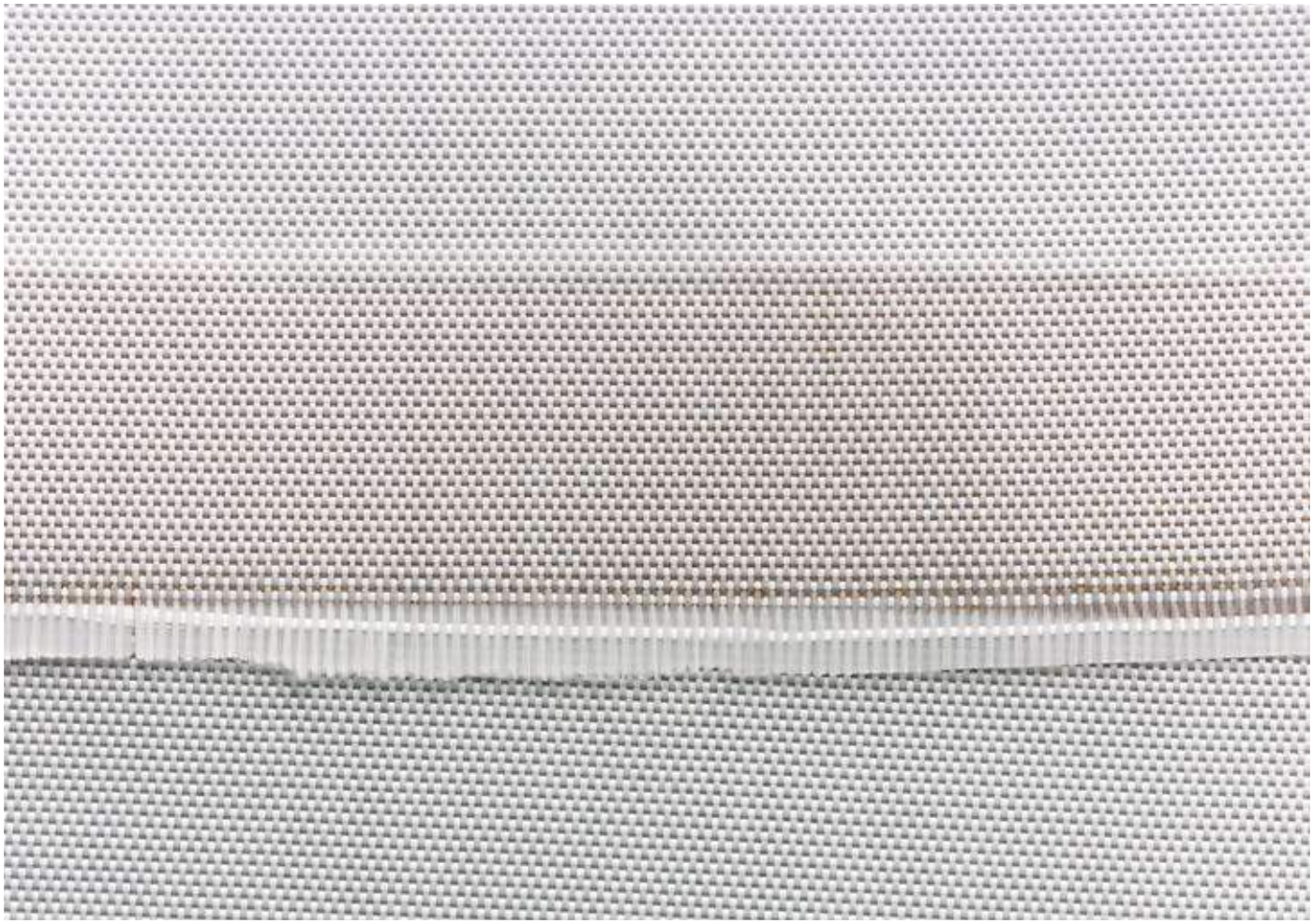
The illustrations and data are provided by way of example and are not binding.

MODULARITY AND UNIFORMITY OF THE PRESSURE

The upper heated sealing bar is continuous and a special rubber tape insert makes it flexible and slightly compressible.
The pressure is discharged to the lower bar with a set of pneumatic cylinders set up along the width of the machine, placed at every 60 cm. Each of these applies pressure to two points, and between the two points there is a special linearity regulation screw.
This type of construction guarantees excellent adherence to the lower bar and consequently the resulting pressure is extremely uniform irrespective of the press width.
The utility model has been deposited and registered as PRESSFLEX®.
The lower bar in the standard press is also heated. The temperatures above and below can be adjusted independently.
On request, and at no extra charge, the bottom part can be supplied with a non-stick elastic rubber surface that is resistant to high temperatures.



"SEALED" FABRIC



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since 1975

Z.P.ARROW s.r.l. Via Giolitti, 15 36056 Tezze sul Brenta(VI) Italy Ph. +39.0424.878080 Fax +39.0424.878140
www.zp-arrow.com e-mail: arrow@zp-arrow.com