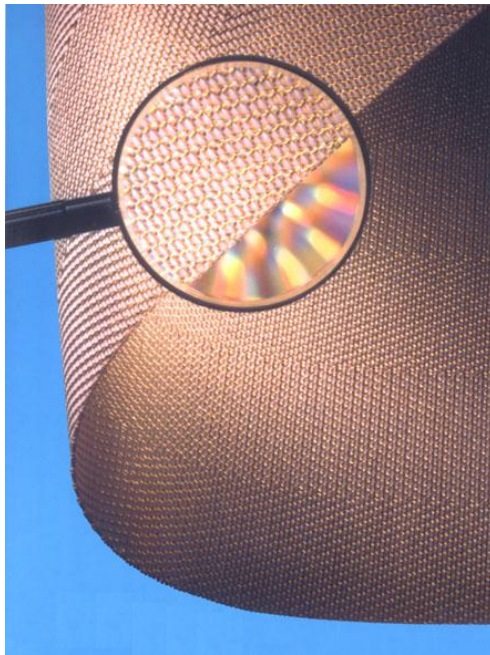


COPSIL™



from **marathon**

THE NEW CONCEPT IN
PRESS MAT TECHNOLOGY

After many years of extensive development we are proud to announce the launch of the next generation of press mat technology. Our new concept has embraced our own skills in the field of high performance textiles with those of metallurgists and elastomer technologies to produce a press compensating medium of unsurpassed performance. We are indebted to a team of laminate manufacturers who have worked closely with us in the evaluation of our many prototype fabrics. Their criticisms and encouragement have driven our desires to produce a press mat with the ultimate characteristics of heat transfer, compensation and resilience.

THE LOGIC

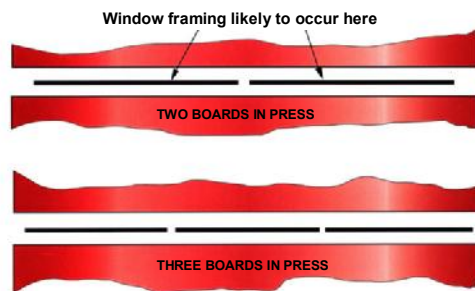
Textile fibres normally used in the manufacture of press mats cannot offer long term resistance to cycling compressive forces without permanent deformation and loss of compensation.

Logical reasoning suggested that the substitution of an elastomer in place of textile fibres could offer tremendous improvements in compensating ability. The properties of high performance silicone elastomers presented a new dimension to the science of pressure compensation.



Silicone could allow new and exciting innovations in the weaving of the mat to maximise heat transfer and compensation capabilities simultaneously.

The changing of board sizes using the same press mat has always been a problem throughout the industry. This creates the so called window framing effect – an undesirable transmission of the previous board size onto the new production. Again, logic suggested that this problem could at least be alleviated if not totally solved by the introduction of a silicone elastomer.



Various types of metallic alloys had to be tried because those previously used in press mats could not accept the high stresses associated with the enhanced compensation of silicone.

Imagine the savings in inventories throughout the industry if one single design of press mat could fulfil all needs.

*The challenge was set.
The technologists responded.*

THE ACHIEVEMENT

The culmination of many theories and empirical tests has resulted in a masterpiece of textile design without the use of textile fibres.

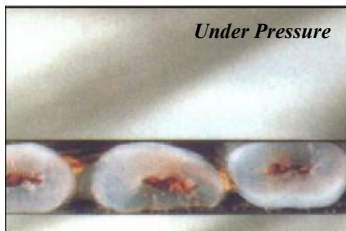
The silicone weft encapsulates a copper wire which serves to distribute heat laterally across the mat. Our product name Copsil is derived from the combination of copper and silicone in the weft.



Application of pressure produces a flat plateau with a high metallic content which considerably elevates the thermal efficiency of the mat.



Heat transfer is a function of the thermal conductivity of the wire used in the warp, the number of wires per unit area, and the contact efficiency of the wire against the platen and the caul plate.



The amount of inbuilt compensation varies with the diameter of the silicone strand and the number of strands per unit of mat length.

Heat resistant tapes for securing the mats into the press can be sewn into place before despatch.

The price per square metre of Copsil is quite similar to a conventional press mat of the same weight. Users of heavier mats could see a cost advantage when changing to Copsil.

THE UPSHOT

Compensation - Much improved on current conventional press mats of any weight.

Working life – Loss of compensation usually terminates the operating life of any press mat. Our improvement in compensation ability also improves operating life.

Heat transfer – At least as good as conventional lightweight mats but very much better than heavier mats. Platen temperatures and cycle times have been reduced in some plants.

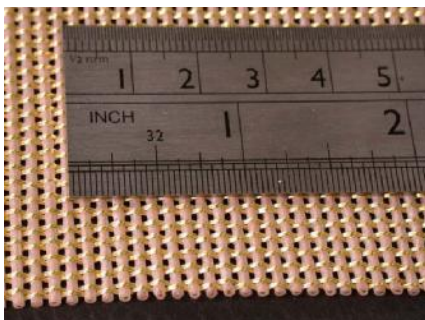
Window framing effect – Silicone elastomer will not permanently deform under pressure. Differing board sizes can be manufactured without a problem.

Oil contamination – Water soluble degreasing of accidental oil spillage is quite possible as silicone elastomer is impervious to oil.

Shrinkage – The mat has excellent dimensional stability and shrinkage is minimal.

Press noise reduction – This is an unexpected bonus reported by many of our trialling teams.

One design – One type and weight of press mat will suffice for all applications previously requiring a multiplicity of types and weights.



THE FUTURE

It is hoped that the current one design philosophy will be maintained as the laminate industry moves into the Copsil era. However, the basic concept of using silicone elastomer, a material which is reluctant to take on a new configuration even after the application of intense pressure, opens up new horizons for future development.

Variations in silicone thickness and weave pattern will permit almost infinitely variable combinations of compensation and heat transfer according to the demands from the industry.

Our technologists have developed an innovative product which will bring enormous benefits to laminators in the quest for improved methods and profits. They are not resting. Further developments to find even better solutions is ongoing and will continue until all limiting boundaries have been overcome in the most economical and efficient manner. We will continue to work together with the Laminate Industry for the Laminate Industry.

COPSIL™

Outstanding Technological Achievement

THE 1999 QUEEN'S AWARD FOR
TECHNOLOGICAL ACHIEVEMENT

Technical Specification of COPSIL™

Textile Data

Type of weave	Plain	Twill	Twill	Twill
Nominal fabric weight	3100 g/m ²	3200 g/m ²	3500 g/m ²	3900 g/m ²
Nominal metallic content by weight	79.00%	76.38%	76.29%	79.95%
Nominal thickness before use	2.00mm	2.00mm	2.00mm	2.00mm
Warp yarns per decimetre (metallic)	84	83	83	114
Weft yarns per decimetre (silicone)	43	50	59	49
Maximum available width	3000mm	3000mm	3000mm	3000mm

Silicone Elastomer Data

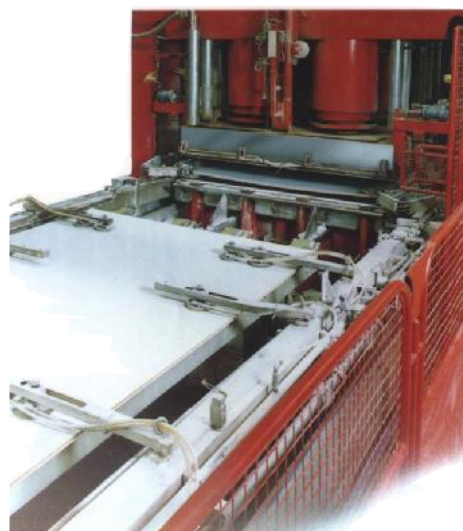
Hardness	70 IRHD
Colour	Clear translucent
Wall thickness	0,4mm
Moisture and Ozone Stability	Excellent
Chemical Stability	Excellent
Oil resistance	Excellent
Flexibility temperature range	-65°C to 265°C
Density	1,2 g/cm ³
Elongation at break	300%
Cut-through resistance	Excellent

Metallurgical Data

Warp	Brass 70/30 Alloy (BS2873)
Weft	Annealed Copper (BS4109)

Mat Performance Data

Thermal conductivity	0,139 W/mK (BS4745)
Thermal resistance	0,141 tog (BS4745)
Maximum continuous temperature	230°C
Nominal Maximum Pressure	100 bar
Expected number of cycles	indefinable – subject to press conditions



MARATHON enjoys an enviable reputation in the laminate industry for prompt delivery of press mats to all parts of the World.

Our emphases on the need for rapid service will ensure that COPSIL™ is usually available for immediate despatch from stock. This philosophy, coupled with the concept of a single mat weight, gives the user a positive opportunity to review stock levels of compensating mats.

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