

SEFAR® PME

Product description

SEFAR® PME is the screen printing mesh for use in the industrial environment. It is based on an innovative, high modulus polyester yarn developed by Sefar having extraordinary tensile strength combined with very low and evenly-balanced elongation. SEFAR® PME sets new standards in the stencil making process. Its quality printing results are hugely impressive in the most demanding and innovative printing applications.

Applications

- Touchscreens
- Keypads / membrane switches
- Printed circuit boards
- Tachometers
- Flat-panel displays
- Solar cells
- Combination stencils
- High-end graphic applications

Mesh properties	Technical data*	Unit
Yarn material	High modulus polyester	PET
Color of mesh	White / Yellow	W / Y
Weave	1:1	PW

Scope of product range (Minimum to maximum values)

Mesh count	71 (180)	180 (460)	cm ⁻¹ (inch ⁻¹)
Tol. of mesh count	2 (5)	3 (8)	cm ⁻¹ (inch ⁻¹)
Thread diameter nominal**	26	48	Ø in µm
Mesh opening	24	90	µm
Mesh thickness	39	75	µm
Tol. of mesh thickness	2	4	µm
Open area	17	41	%
Theoretical ink volume	8	31	cm ³ /m ²

*All values refer to untensioned mesh. **Thread diameter nominal before weaving.

Stress-strain characteristics

Chart 1 shows the stress-strain behavior of virgin mesh (Size: 20 cm x 5 cm). The test is performed according to ISO 13934-1 and is evaluated according to DIN 53804.

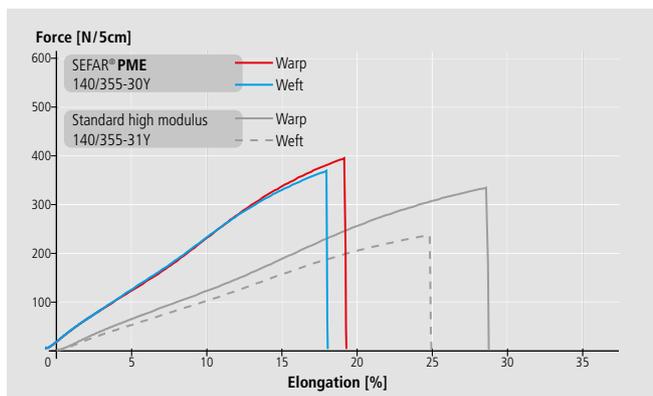


Chart 1: Stress-strain characteristics

Guaranteed tension values

Chart 2 shows the max. guaranteed tension values for a frame size of 1 m x 1 m, slope profile 50/40 mm x 38 mm x 3.2/2.0 mm. For larger frames and stretching sizes, the guaranteed tension value must be reduced by approximately 4% for each 0.5 m additional side length.

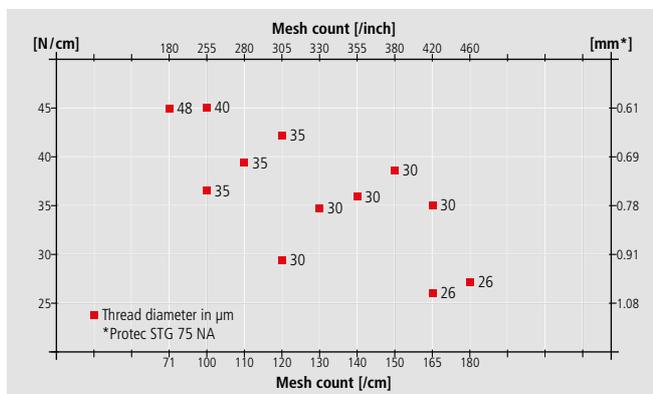


Chart 2: SEFAR® PME – guaranteed tension values

Long-term relaxation properties

The values in chart 3 refer to a tensioning process in which a tension of 30 N/cm is obtained within 3 minutes. A relaxation time of 5 minutes is observed before gluing to the frame (Size: 82 cm x 82 cm, slope profile of 50/40 mm x 38 mm x 3.2/2.0 mm). Depending on mesh type, the tension loss after 48 hours is 10 – 15% (Reference 30 N/cm), regardless of other parameters.

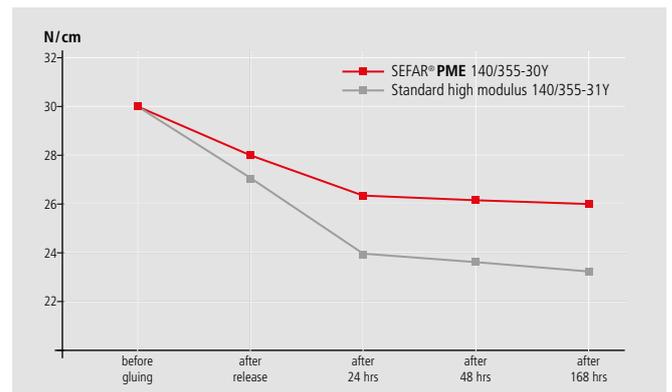


Chart 3: Tension loss

Wetting and coating properties

SEFAR® PME is suitable for all stencil systems and has optimized wettability, resulting in homogeneous distribution of water and emulsion. The surface treatment results in an optimum adhesion of fine dots and lines (Image 1) thus extends the stencil life. Optimum stencil adhesion is achieved only if the stencil material is fully exposed.

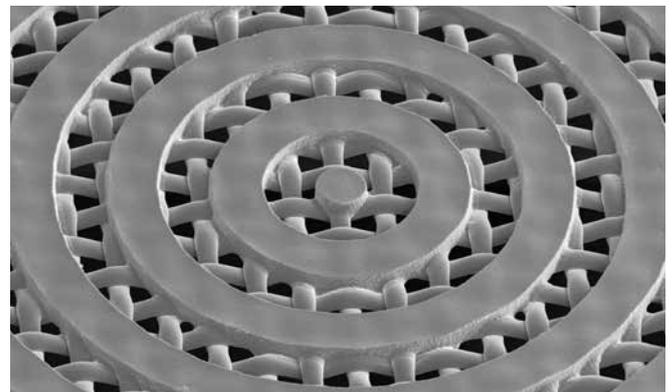


Image 1: 80 µm circle exposed on SEFAR® PME 140/355-30Y

SEFAR® PME

Printed image accuracy

Due to the outstanding tensile strength, low elongation and resultant minimum loss of tension of SEFAR® PME a long-term dimensionally stable reproduction of artwork is achieved.

Stencil parameters	Printing parameters
Image size: 300 mm x 300 mm	Machine: Thieme 1010 E
Frame: V2A, 820 mm x 820 mm (40 x 40/2.0 mm)	Snap off distance: 3.5 mm
Sample 1: SEFAR® PME 140/355-30Y Tension before printing: 25.2 N/cm	Squeegee: RKS carbon 75° shore
Sample 2: Standard high modulus 140/355-31Y Tension before printing: 23.8 N/cm	Squeegee angle: 70°
Relaxation: 72 h before exposing, 168 h before printing	Squeegee length: 340 mm
Angle: 22.5°	Squeegee pressure: 1.0 bar
Emulsion: Dual cure, 7 µm EOM, RZ value: 7 µm	Printing speed: 400 mm/s

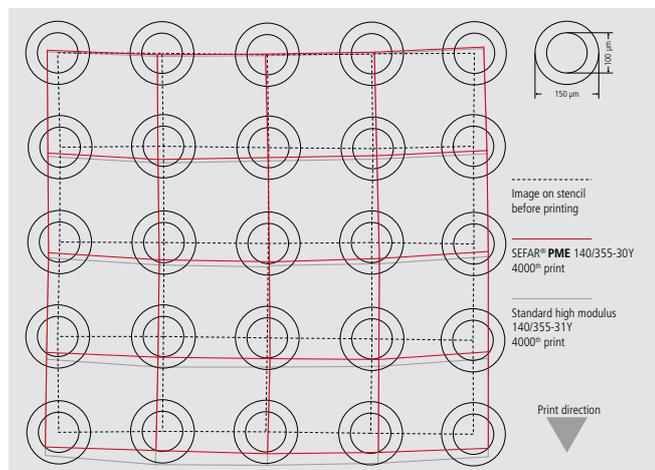


Chart 4: Comparison of dimensional change of image after 4000 prints

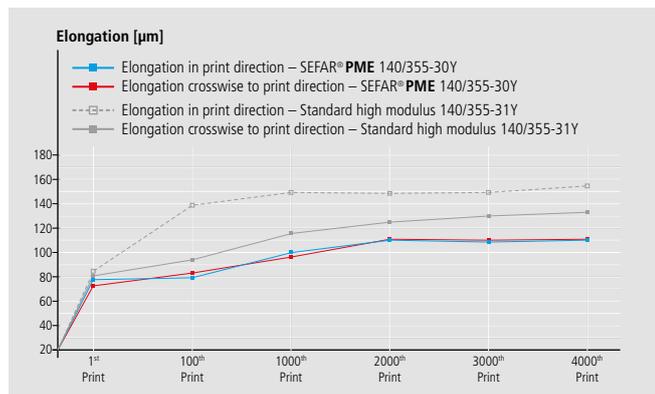


Chart 5: Dimensional gap between screen image and print

Test conditions: All values refer to the following climatic conditions: Temperature 22 ± 2 °C, relative humidity of 50 ± 10%. Aggressive chemicals and improper storage can negatively affect the physical properties of the mesh.

Note

The product data stated here and our advice on application technology, in verbal and written form and on the basis of tests and experiments, are provided to the best of our knowledge and belief; however, this information must be regarded as non-binding. It is based on our current knowledge and experience, and on standardized process and test conditions as per DIN standards 16610 / 16611 / 53804 and ISO 13934-1 / 5084. As many variations may occur due to each specific application, we are unable to provide an overall assessment regarding the range of fluctuations for processes and follow-up processes (i.e. parameters, interactions with materials and machines used, and chemical reactions). For this reason, the parameters we recommend should be understood merely as values for guidance purposes. All the illustrations, descriptions, data, diagrams and tables, etc., shown here may change without prior notice, and they do not represent the contractually agreed characteristics of the product. It is impossible for us to have control over the post-processing of our products, so the user is solely responsible in this regard. Our products are sold and distributed in accordance with the latest version of our General Terms and Conditions of Sale and Delivery.

Physical properties of polyester

- Low elongation
- Good mechanical resistance
- UV light-resistant
- Insensitive to climatic influences
- Good resilience

Chemical resistance of polyester

Polyester is generally acid resistant. However, high concentrations of strong acids in conjunction with high temperatures can limit the resistance. Alkali-resistance is limited. Ghost image removers generally contain alkaline substances. Instructions supplied by the manufacturers should be rigorously followed. Chlorine can cause bleaching of yellow-colored mesh. Polyester is resistant to all stencil cleaning solvents recommended for screen printing.

Processing instructions

The values given in chart 2 and 3 are in accordance with DIN 16610 and DIN 16611 (Screen printing industry standard), measured with the SEFAR® Tensocheck 100 and can only be guaranteed if the clamping system and the materials in use are adequate and meet the following requirements:

- SEFAR® 3A clamps or a pneumatic clamping system that ensures consistent and balanced tension
- Regularly maintained and clean clamps that are free from impurities that may damage the mesh during stretching
- A clamping system having sufficient clamping pressure (Prevents the mesh from slipping out)
- Suitable frame conditions (Profile, age, material and deformation)
- Proper condition of the frame surface (No dust or grease)
- Adequate pre-tensioning of the frame during the stretching process
- Quality, age and curing time of the adhesive system

Label and roll lengths

The labeling contains important information for further processing:

- Product line and mesh number
- Mesh count and mesh count tolerance
- Mesh thickness and mesh thickness tolerance
- Mesh width and mesh width tolerance (-0 cm / +6 cm)
- Weave type
- Gross roll length
- Invoiced roll length
- Piece number
- Date of fabrication
- Sefar identification code (SefID)

Identification of sales roll	Roll length including tolerance
4AS140030P158Y0D	25 m +/-2,5 m
4AS140030P158Y0G	50 m +/-5 m
4AS140030P158Y0L	20 m +2,49 m/-19,9 m
4AS140030P158Y0F	40 m +30 m/-12,49 m



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