

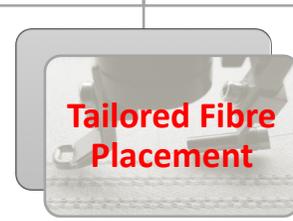
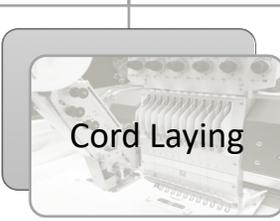
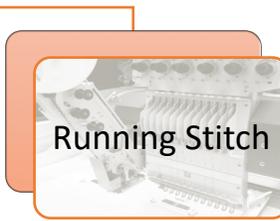
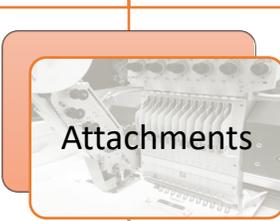
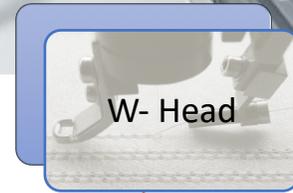
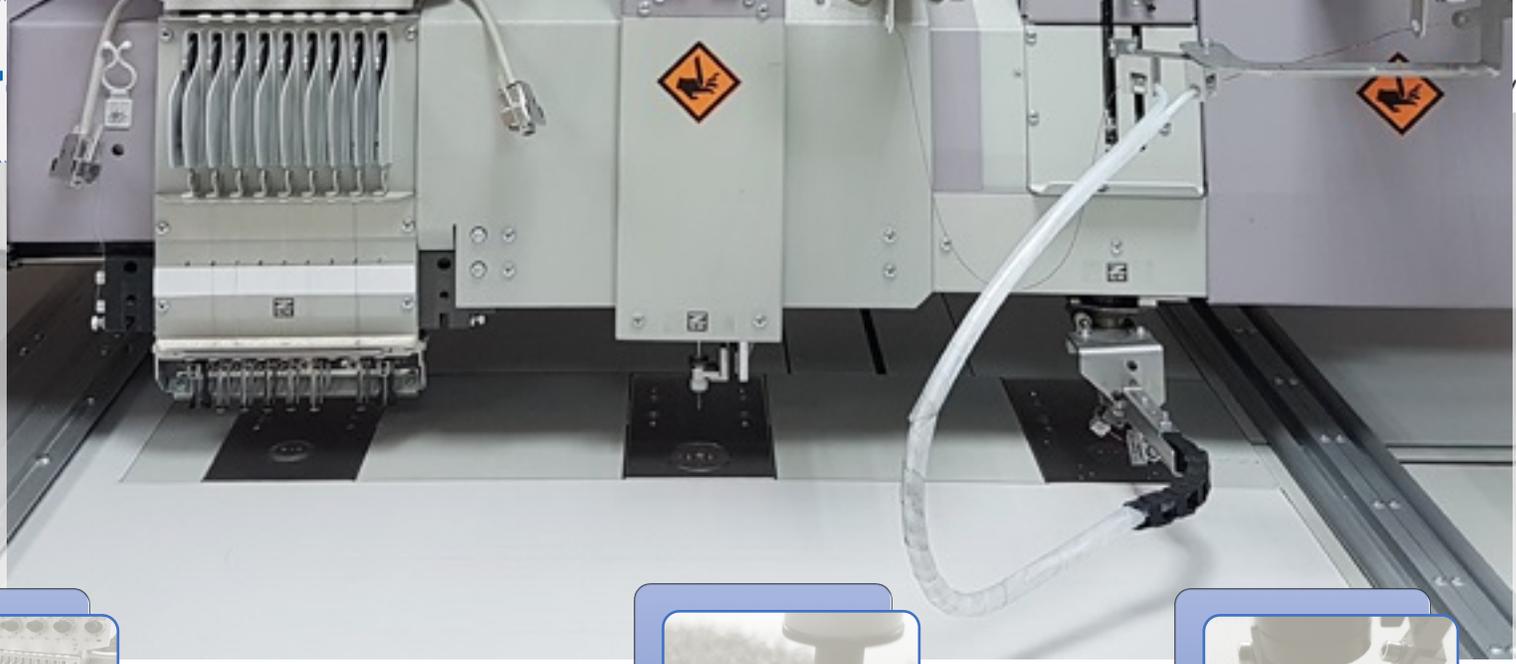
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Technical Embroidery Systems
A Division of ZSK Stickmaschinen GmbH

Embroidery & Technical Embroidery for Smart Textiles

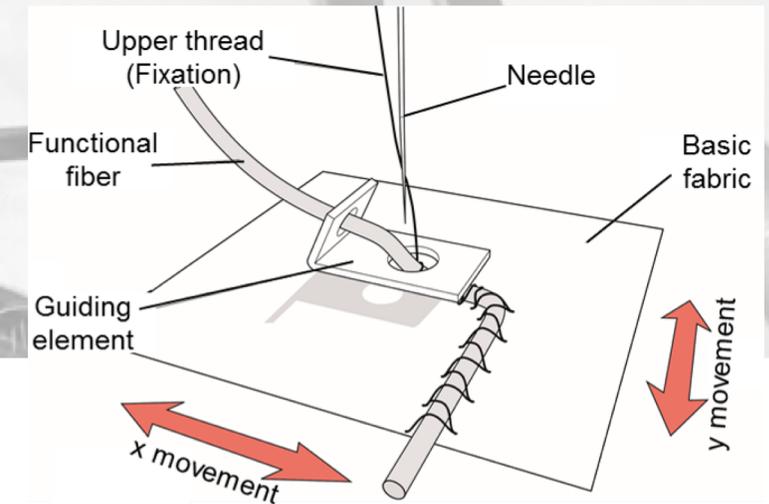
Dr. Topher Anderson, Contact: Topher@ZSK.de
ZSK Stickmaschinen GmbH – Technical Embroidery Systems
Krefeld, Germany



The ZSK W- Head

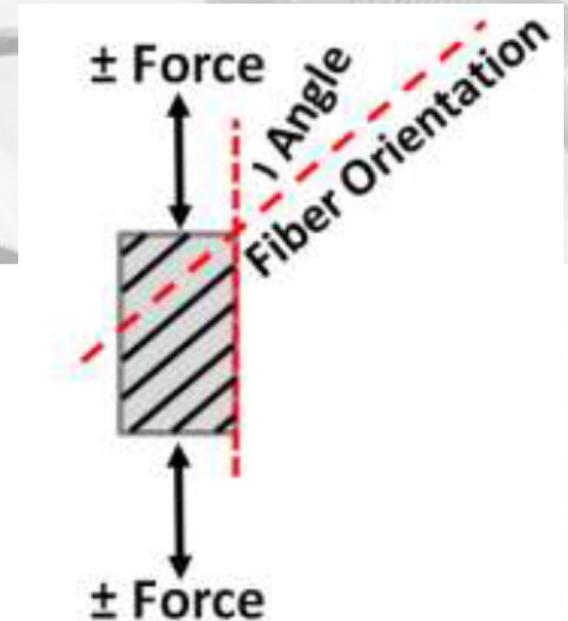
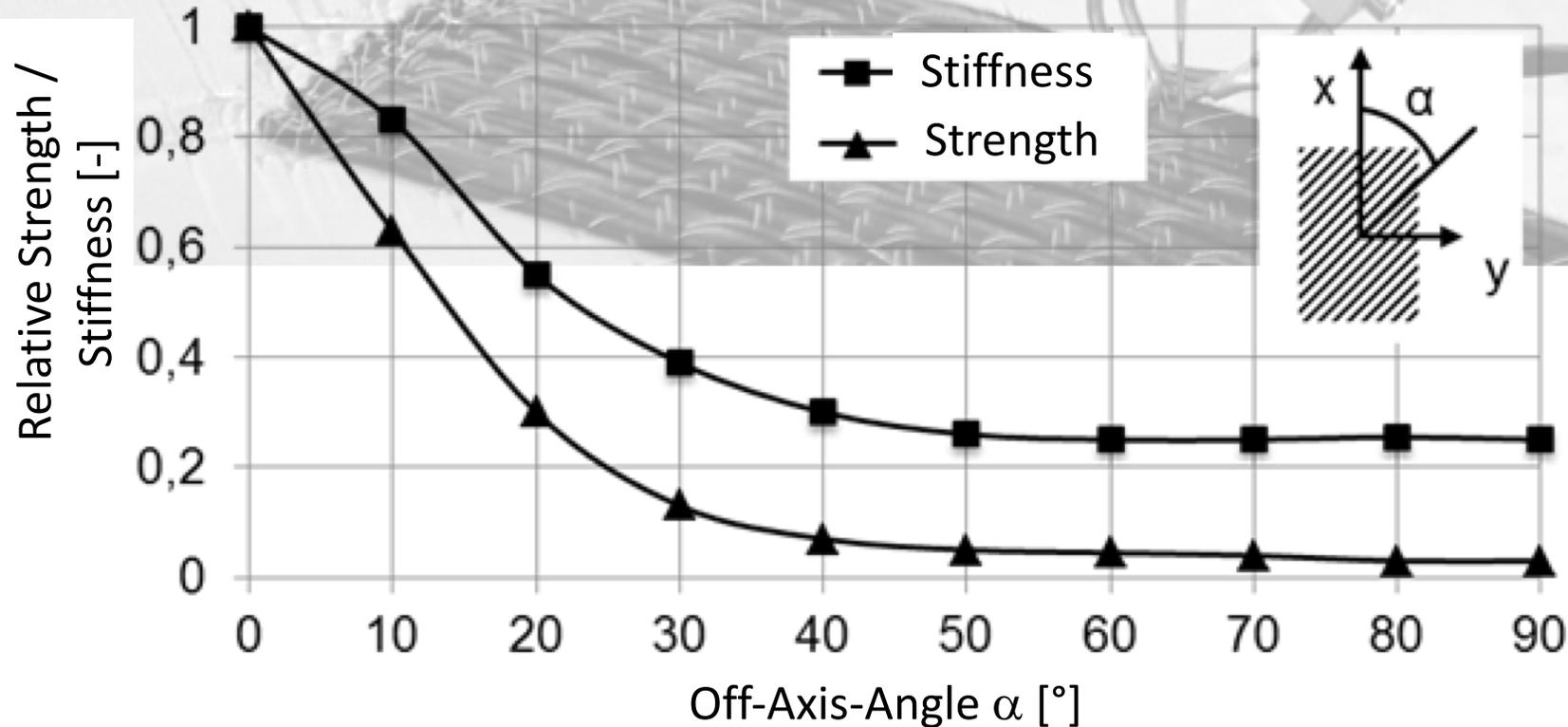
Velocity up to 850 stitches/min

- Fixation of fibrous material (functional fiber) with embroidery and bobbin thread by a zig zag stitch
 - Tailored Wire Placement (TWP)
 - Wires from 50 μm up to several mm thickness
 - Tailored Tube Placement (TTP)
 - Tubes of several diameters
 - Tailored Fiber Placement (TFP)
 - Carbon, glass, basalt, aramid, natural (e.g. Flax), thermo-plastic, ceramic fibers or metallic threads



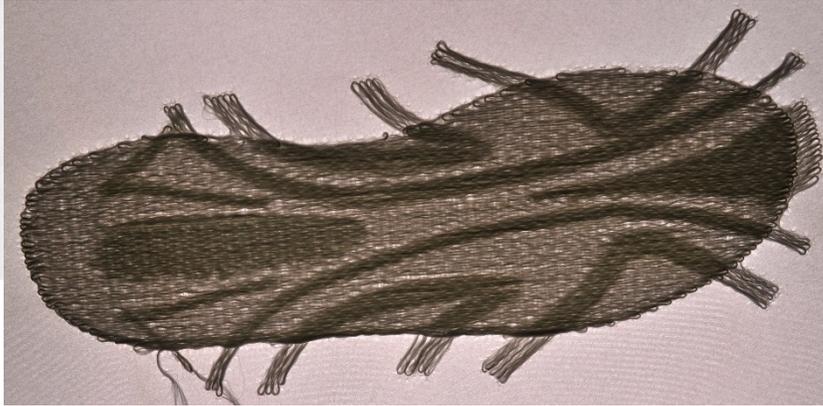
Principle of Tailored Wire/Fiber/Tube Placement [1]

Maximum Properties exist in Fiber Direction



In TFP fiber orientation is used to optimize product properties.

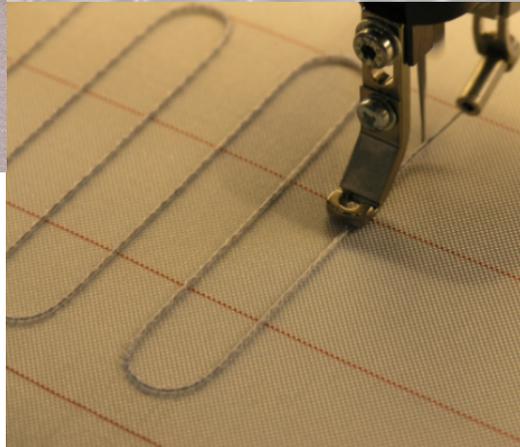
Example of Use - Tailored Fiber Placement (TFP)



Carbon fiber reinforced shoe sole obtained by laying glass fiber



Local fiber reinforcement of a heart valve scaffold for tissue engineering [1]



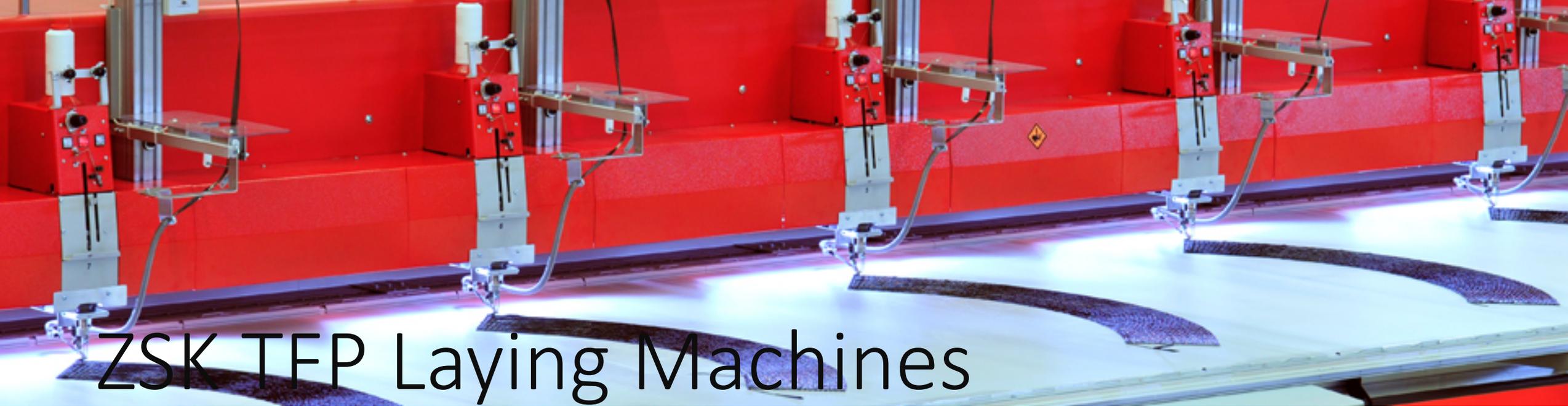
Heating textile of isolated stainless steel fibers [1]



Double feed carbon and resin fibers for a carbon component



Fast fiber laying of carbon roving for high production lightweight structures





**Up to 2.000mm deep
Embroidery Field**

TFP – Bike Saddle

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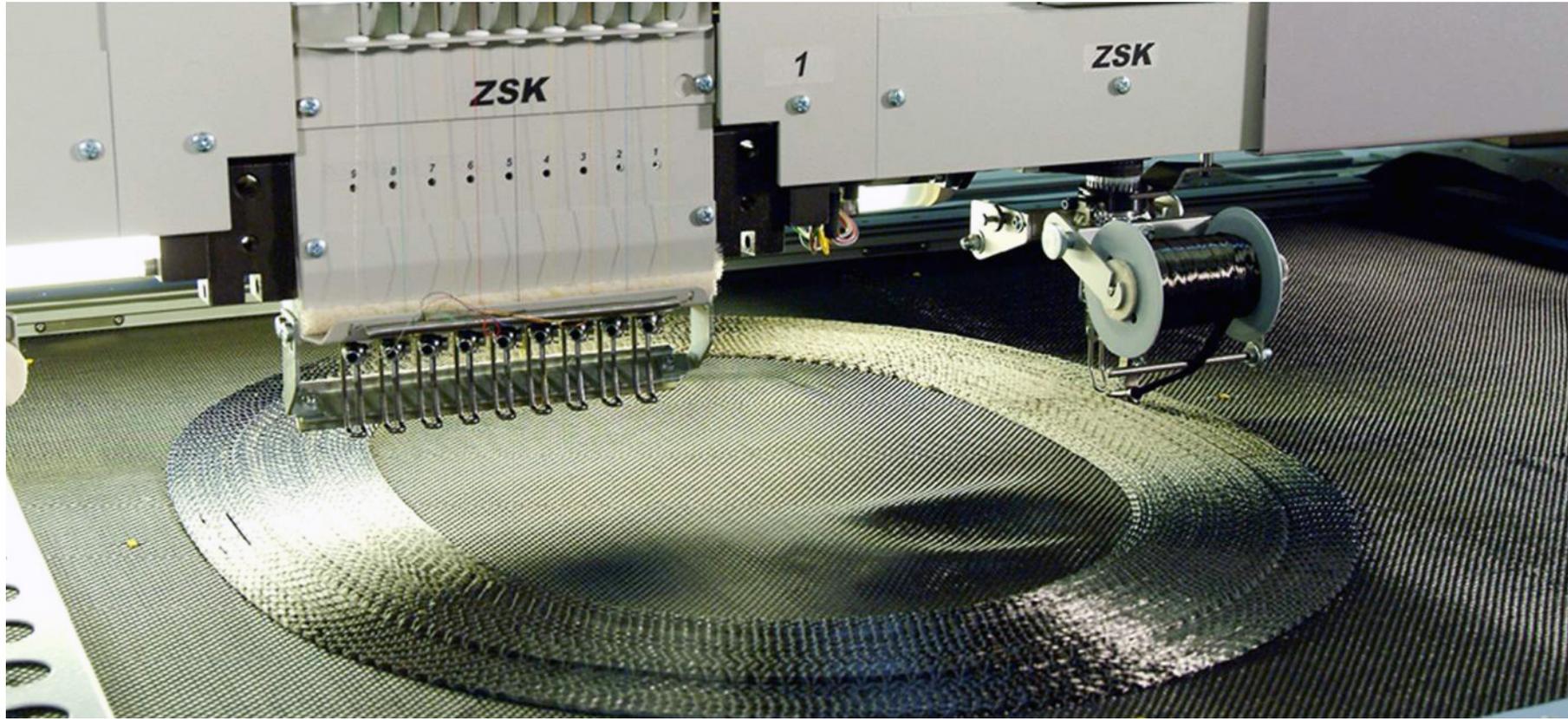
TFP – Bike Saddle

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Special Combination Machine

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Technical Embroidery Systems
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JCHA 0109 - 550

1 F Head / 9 Colors
1 K Head / 6 Colors



JCZA 0109 - 550

1 F Head / 11 Colors
1 W Head with or without active wire and fiber
supply systems



Special Combination Machine

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Technical Embroidery Systems
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SGVA 0109 - 825

1 F Head / 11 Colors
1 K Head / 6 Colors
1 W Head / 1 Color





Seattle Office

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