

# Mayer & Cie. Know How Panel

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Learning from the experts

Fine gauges in circular knitting



# Fine Gauge Circular Knits

- Applications of fine gauge knits
- Machines, yarns etc. for fine gauge knits
- The „Fine Gauge Rule“
- Challenges and Solutions



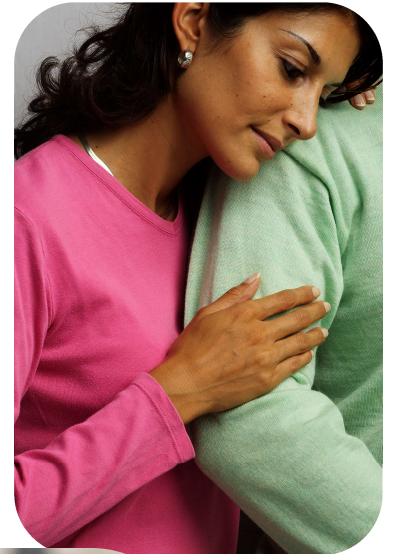
## Possible fields of application of fine gauge knitwear

*... underwear and foundation garment*

*... functional wear (e.g. for sports)*

*... swim wear*

*... technical applications (e.g. filter fabrics)*



**Commercially  
relevant  
fine gauges &  
diameters**

**Standard fine gauges:**

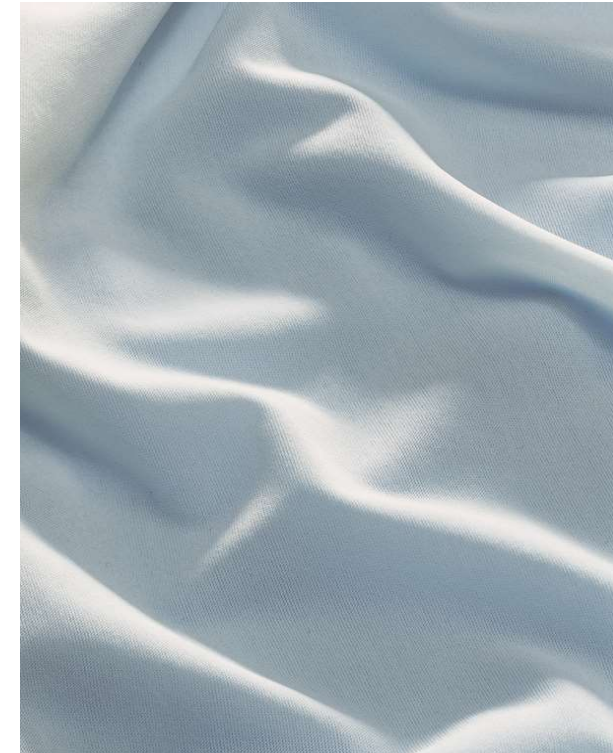
- Mechanical SJ/DJ : **gg 36-44**
- Electronic SJ/DJ : **gg 36-40**

**Niche sector „Ultra fine gauges“:**

- Mechanical SJ: **up to gg 60**
- Mechanical DJ: **up to gg 50**
- Jacquard SJ: **up to gg 60**

**Typical machine diameters:**

- 30" & 34"





**Commercially**

**relevant**

**Yarn types**

### **Polyester (PES)**

- Mostly used
- Cheaper compared to PA or CO
- Texturized recommended
- dtex 76 – 22

### **Polyamid (PA)**

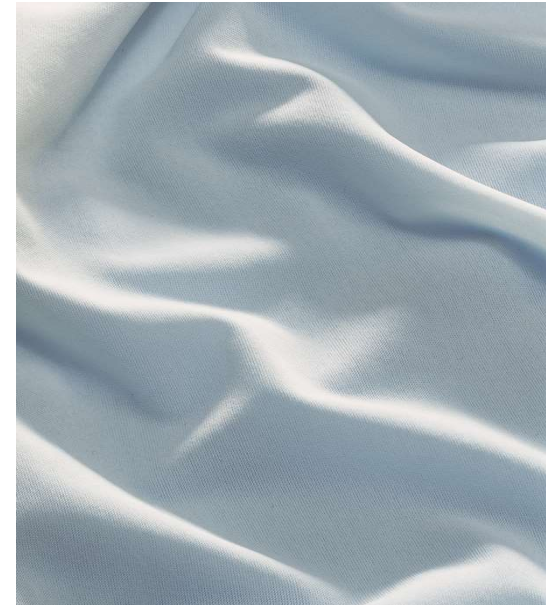
- Softer hand
- More expensive
- More critical for stripes & barrés
- dtex 76 – 22

### **Cotton (CO)**

- Least affected for stripes & barrés
- Most expensive
- Less suitable for functional wear
- Ne50 – Ne120

### **Elastomer yarn**

- Higher percentage more critical for stripes
- dtex 22/1 – 11/1



Fine gauge fabric production ...

***... far more than just a few more needles!!!***

Sensitivity of fabric ...

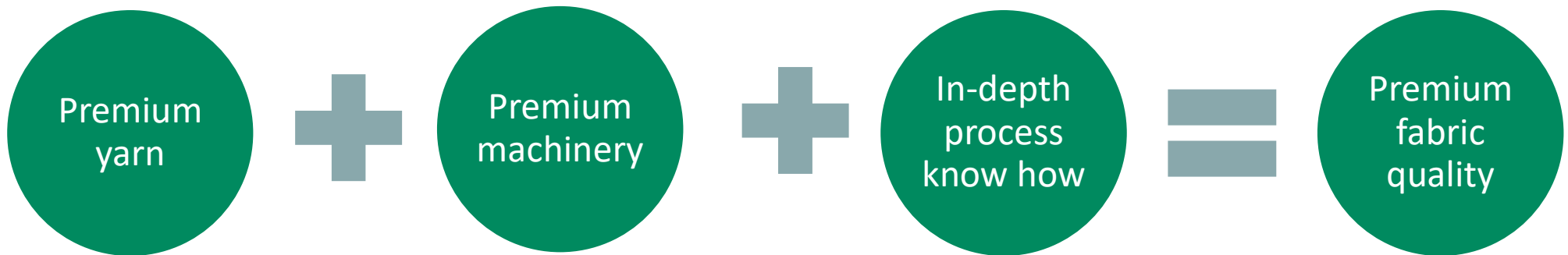
***... does require specialized processes!!!***

Key quality challenges in fine gauges ...

***... NO horizontal lines & NO vertical lines!!!***

As a consequence: „**The fine gauge rule**“

*Highest standards on yarn, machinery & know-how!!*



*Compromising on any of these components means compromising on fabric quality.*

## Challenge 1:

To avoid vertical lines

Mostly caused by condition of knitting elements:

- **needle & sinker**
- **cylinder, dial, sinker ring**

**Highest quality of all knitting elements required!!**



## Challenge 2:

To avoid horizontal lines & barré effects

Influencing factors manifold:

- **yarn type**
- **yarn feeding**
- **stitch forming area/knitting head**
- **take down & winding of fabric**
- **machine settings & machine condition**





## Horizontal lines

Mostly caused by **yarn tension variations** of individual feeders!!

## Challenge

Keep consistent yarn tension from yarn bobin to knitting point!!

## Possible reasons

- **Damaged yarn bobin – unwinding uneven**
- **Electrostatic charge in yarn creel tubes (esp. filament yarn)**
- **Cross over of yarn on feed wheel**
- **Yarn guide surface rough or damaged**
- **Divergent stitch length adjustment on individual feeders**

**Barré effects**

Mostly caused by **not concentric** and/or **not horizontal knitting head**

**Challenge**

High precision of equipment & optimum adjustment of machine

**Possible reasons**

- **More likely in Interlock machines than in Single Jersey machines**
- **Cylinder out of center**
- **Position of dial to cylinder not concentric or not leveled**
- **Position of cams divergent in one area from the rest**
- **Likely after relocation of knitting machine**



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