


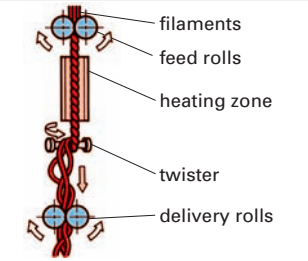

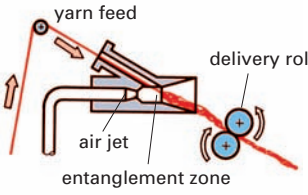
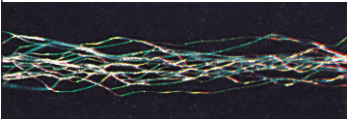
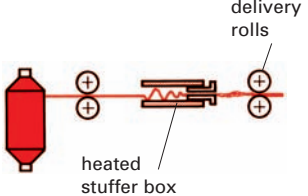
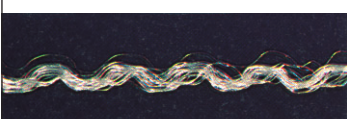
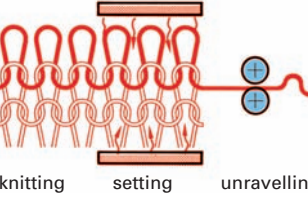
## 2.5 Textured Yarns

### Texturing

Flat continuous filament yarns made from thermoplastic (heat-formable) materials can be made permanently bulky by various processes. This is called texturing and it results in:

- increased volume
- increased extensibility and elasticity
- lower lustre
- better thermal insulation due to the enclosed air
- higher vapour permeability and moisture transport
- softer and more comfortable fabrics

### Important Texturing Processes

<p><b>False-twist texturing</b></p> 	 <p>filaments feed rolls heating zone twister delivery rolls</p>	<p>The yarn is drawn through a heated zone whilst a pre-determined, high level of false twist is inserted followed by cooling and untwisting. The heat softens the filaments and the deformation imparted by the twist is permanently set during cooling.</p> <p>This is the most economical, and therefore the most common process.</p>
<p><b>Air-jet texturing</b></p> 	 <p>yarn feed delivery rolls air jet entanglement zone</p>	<p>The yarn is fed through a turbulent air stream, created by a jet. Usually the air is cold but occasionally hot air or steam may be used. The air jet causes entangled loops to be formed in the filaments.</p> <p>The resulting textured yarn is very bulky with permanent crimps and loops. Can be used for non-thermoplastic filaments.</p>
<p><b>Stuffer-box texturing</b></p> 	 <p>delivery rolls heated stuffer box</p>	<p>The yarn is fed into a heated chamber where it is compressed. The zigzag deformations are permanently set by subsequent cooling. The filaments can no longer lie close together so the yarn is bulky.</p>
<p><b>Knit-deknit texturing</b></p> 	 <p>knitting setting unravelling</p>	<p>The yarn is knitted into a tube on a circular knitting machine. The knitted fabric is heat set and then unravelled. The shape of the knitted loops is set into the yarn, which develops a bouclé (crinkle yarn) appearance.</p>

### Types of Textured Yarns

Whatever the texturing process used, textured yarns can be classified into three groups:

**Stretch yarns:** Highly elastic yarns with a crimp extension of 150 to 300%.

**Stabilised yarns:** Yarns which have been given an additional setting treatment to reduce their elasticity and crimp extension.

**Bulked yarns:** Voluminous yarns with crimps and loops having normal extensibility and elasticity. The term bulked yarn is often used generally to cover all continuous filament textured yarns and bulked staple fibre yarns.

#### High-bulk yarns

Man-made staple fibres can also be made into bulky, voluminous yarns. Such high-bulk yarns are usually made by blending acrylic fibres of high and low potential shrinkage. During a subsequent heat treatment, the high-shrinkage fibres contract causing the other fibres to buckle. A similar effect can be obtained by using bicomponent fibres.

### Applications for Textured Yarns

Stockings and tights (panty hose), swimwear, sportswear, outerwear, underwear, carpets, sewing and overedge stitching threads for extensible fabrics.