



A twisted yarn is a long continuous length of interlocked fibers, suitable for use in textile production, knitting, weaving, braiding, and rope manufacturing. The single and multi-end direct rovings are twisted to improve yarn uniformity, abrasion resistance, tenacity, elongation at break (increasing the inner-cohesion affinity of fibers), and flexural endurance. Twist is the key element that gives yarn cohesion, allowing two or more rovings to be twisted together to form a single yarn.

Twists improve spinning stability and resistance to shifting, aiding in various downstream textile processes such as weaving and knitting. Twisted yarn exhibits better unwinding or spinning stability during subsequent processing because twists enhance abrasion resistance and enable higher manufacturing throughput. Fabrics made from twisted yarn are more uniform.

Notice: a twisted yarn with lower tours per meter produces less curls than a single yarn (due to the reduction of inner torque).

FILAVA™ is a direct roving made of enhanced volcanic rock filaments and manufactured in the melt spinning process. FILAVA™ roving is a unique product thanks to a genuine and innovative treatment of the raw material, volcanic rock, which being the major ingredient, is aggregated and enriched with various mineral; additives

with the aim to increase and guarantee its original mechanical and chemical properties as well to maintain the evenness of the required mechanical properties. The components used in the batch aggregation and the fabrication process are ISOMATEX's know-how and constitute its exclusive expertise.

Single-End and Multi-End assembly direct rovings consist thousands of continuous filaments with elementary diameters from 9,0 to 11,0 µm. bonded into a single strand. A specially developed by matrices' type sizing is applied on the fiber, which guarantees an excellent infusion and resin-to-reinforcement adhesion.

FILAVA™ is unique due to its high strength, high elasticity and resistance to high temperature as well as to temperature's variation (contrarily to carbon which does not like thermal shocks). This compares well to existing high-end products (R - glassfibers, S - glassfibers).

**Packaging.** Standard packaging of twisted yarns includes cylindrical bobbins with felt- or embossed surface sleeves. The inner diameter of cardboard sleeves is 93,0 mm., the height: 290 mm. Bobbins are individually labelled and wrapped with stretched plastic film for protection and improved handling.

Commercially available bobbins have a nominal weight up to 5,0 kg.

**Storage and usage conditions.** ISOMATEX recommends storage in a cool and dry warehouse into the original packaging. For an optimal processing we recommend to use the product in ambient conditions (20 - 23 °C, 60 - 65% Relative Humidity).

FILAVA™ Conventional or Plied yarns need to be kept in the workshop at least 24 hours prior usage.



**Product description:** Conventional or Plyed yarns are strands of continuous filaments made of enhanced mineral volcanic rock (aggregated and enriched batch) twisted in the yarns. The constituent strands or rovings are treated with “by-matrices or by-process” tailor made sizing system for excellent downstream treatment and transformation’s performance as well for high adherence to matrices in composites.

**Article reference:** Multi-End Conventional Yarn, ex.: MECY BSB3 320-80(10) Z30 IS65T CS03E

Yarn type (Conventional Single or Multi-End) \_\_\_\_\_  
 Batch composition’s reference \_\_\_\_\_  
 Nominal linear density in TEX (gr/km), see below \_\_\_\_\_  
 Nominal linear density in TEX (gr/km) of constituent single-end roving \_\_\_\_\_  
 Diameter of virgin (elementary) filaments (µm.) \_\_\_\_\_  
 Twist direction (Z or S) with number of tours per meter \_\_\_\_\_  
 Sizing reference (\*) \_\_\_\_\_  
 Cardboard sleeve with felt surface for external unwinding \_\_\_\_\_

(\*) see ISOMATEX Sales department for more information  
 about compliance with organic matrices and downstream processing

**Features:** Twisted yarns are manufactured in S-twist or Z-twist direction according to the customer request. ISOMATEX SA is able to produce a wide range of twisted yarns, specifically designed for various weaving and knitting applications.

- Available from two through twenty-four ply;
- Direction of twist: S twist and/or Z;
- Sleeves: Paper Tube, paper cones and dye tubes of any size are available;
- Special features: Conversion of FILAVA™ with any available fibers to the special constructions as Hybrid Yarns (FILAVA™/Carbon, FILAVA™/Flax, FILAVA™/Aramid, etc.).

## Available linear density (TEX) of constituent strands:

Single-End Direct rovings : 68 TEX (gr/km) ..... nominal diameter of virgin fibers Ø 9,0 µm.  
 81 TEX (gr/km) ..... nominal diameter of virgin fibers Ø 10,0 µm.  
 100 TEX (gr/km) ..... nominal diameter of virgin fibers Ø 11,0 µm.

Coefficient of variation of linear density, %: less than 3,0%

**Sizing:** Content, % weight (Loss of ignition): 0,4 – 1,0 % (according to customer’s request)  
 Moisture content, % weight: less than 0,1 %  
 Resin compatibility: epoxy, polyester, vinyl ester, PA, PP, PEEK, BMI, ...etc.

**Notice:** Please refer to the “Direct roving’s technical data sheet” for more information about physical, mechanical and thermal properties of FILAVA™.

## DISCLAIMER OF LIABILITY

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