



A twisted yarn is a long continuous length of interlocked fibers, suitable for use in the production of textile, knitting, weaving, braiding and rope manufacturing.

The single and multi-end direct rovings are twisted with aim to improve the yarn uniformity, abrasion resistance, tenacity, the elongation at break (the inner-cohesion affinity of fibers increases) and flexural endurance. Twist is the key element that gives yarn cohesion, therefore two or more rovings can be twisted together to form a single yarn.

Twists improves spinning stability, the shifting resistance and helps any kind of downstream textile processing (weaving, knitting, ... etc). The twisted yarn has better unwinding or spinning stability in the subsequent processing due to the fact that twists increase the abrasion resistance and allows achieving a higher manufacturing throughput. The twisted yarn and the fabrics which have been produced out of it, are more even.

Notice: a twisted yarn with lower tours per meter produces less curls than a single yarn (due to the reduction of the 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 Plied yarns (Twisted yarns) are strands of continuous filaments made of enhanced mineral volcanic rock (aggregated and enriched batch). The constituent strands 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 BSB3.7 320-80(10) Z30 IS65T

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 of constituent single-end roving	_____	_____	_____	_____	_____
Diameter of virgin (elementary) filaments (µm.)	_____	_____	_____	_____	_____
Twist direction (Z or S) with number of tours per meter	_____	_____	_____	_____	_____
Sizing reference (*)	_____	_____	_____	_____	_____

(*) Do not hesitate to get in touch with ISOMATEX Sales department for more information

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 twist;
- 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 constituents 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 properties of FILAVA™.

DISCLAIMER OF LIABILITY

The above shown data is presented solely as a guide in the selection of a fiber reinforcement. The information mentioned in this leaflet is based on actual ISOMATEX’ laboratory data and field test experience. Because of numerous factors in downstream processability affecting results, we consider this information to be reliable, but do not guarantee its applicability to the user’s process or assume any liability arising out of its use or performance. The end-user, by accepting the products described herein, assume the responsibility for thoroughly testing any application to determine its compliance before committing to production. It is important for the end-user to determine the properties of its own commercial compounds when using this or any other fiber reinforcement. WE MAKE NO WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING THOSE OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. STATEMENTS AND DATA IN THIS DOCUMENT SHALL NOT BE UNDERSTOOD AS REPRESENTATIONS OR WARRANTIES OR AS INDUCEMENTS TO INFRINGE ANY PATENT OR VIOLATE ANY LAW, SAFETY CODE, OR INSURANCE REGULATION.