

# politubes

HI-TECH TUBES & FILMS

**EXCELLENCE IN  
ELECTROMECHANICAL INSULATION**

TUBES AND CAPS



**politubes**

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Politubes is an Italian manufacturing company that continues with passion a history that began back in 1969 with the production of insulating tubes and caps for the electromechanical and automotive market.

In order to guarantee superior electromechanical insulation, we only use raw materials (films, resins, papers) for the production of our tubes and caps, which represent excellence on the global market, thanks to continuous research by our R&D department.

An attentive and responsive customer service, together with a cutting-edge research centre, boasting forty years of experience, make Politubes the European leader in the production of coiled tubes and caps for electrical insulation, motor leads termination, thermoprotectors, brushless motors, hermetic pumps, compressors, transformers, capacitors or for use as simple protections of various joins.

***“ High technology precision components resulting from exclusive know-how developed from more than 40 years of experience... ”***

Politubes produces within the European Community in a modern factory covering 4000 square meters not far from the airports of Milan Linate and Milan Orio al Serio.

# A PASSION FOR QUALITY IN EVERY DETAIL



TEOU 2/8 nr E350605  
Repackaged Recognized  
Components



Certificazione ISO 9001-2015  
Politubes is ISO 9001 : 2015  
certified by Lloyd's Register  
Quality Assurance



Patent  
N° EP2763283B1



# TUBING



The spiralling technique consists of coupling a series of adhesive-spread strips, spiral-winding them around a spindle and thus obtaining a tube.

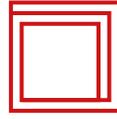
## SPIRAL WOUND TUBES

The **raw materials** used, such as Nomex®, Polyester A (Mylar® A), HS Thermo-shrinkable Polyester (Mylar® HS), AHS-2LSO semi heat-shrinkable Polyester and Polyimide film (Kapton®) are supplied by global sector leaders (DuPont™, Saint-Gobain, Mitsubishi etc.), are all UL-certified and offer superior electrical, thermal, chemical and environmental insulation.

Carefully combined, they can be used within a wide range of **temperatures** between - 50°C and + 300°C.

Choice of thicknesses between 0.05 and 0.8 mm, diameters between 1.6 and 150 mm, lengths between 6.6 mm and 14,000 mm with on-demand colours, including helical stripes for easy identification.

The tubes can also be wound in rolls with lengths of up to 1000 meters.



The lay flat tube is produced by superimposing film flaps on themselves creating a small overlap.

It maintains the dielectric strength characteristics of the films that compose it.

It has the advantage of being able to be wound in rolls or in reels with lengths of several hundred meters without joins, an essential condition for automatic machines. The flat lay tube is supplied to measure with different colours according to the specific requirements of the customer.

## LAY FLAT TUBES

These tubes are mainly used for:

1. The protection of various components.
2. Joining cables inside electric motors, transformers and compressors.
3. Isolamento degli elettrocondotti sbarre (busbars).
4. Protection from refrigeration coil condensation.
5. Heat exchangers.
6. Static capacitors.

The tubes are supplied with internal diameters of between 6 and 120 mm and thicknesses of between 50 and 180 microns.

In all the products the **adhesives** comply with all the REACH and RoHS regulations and guarantee complete maintaining of the original properties of the films used.





# CAPS



## SPIRAL WOUND ENDCAPS ULTRASONIC WELD CLOSURE

The spiral cap with ultrasound closure offers an airtight seal on one side which guarantees perfect and rapid positioning, also thanks to possible heat-shrinking of the same.

Ultrasonic welding is offered starting from the multilayer spiral tube. They can be both heat-shrinkable and non heat-shrinkable.

The **raw materials** used, including Polyester A (Mylar® A), HS heat-shrinkable polyester (Mylar® HS), Nomex®, AHS-2LSO semi heat-shrinkable polyester and polyimide film (Kapton®) are supplied by global sector leaders. They are all UL-certified and offer excellent electrical, chemical and environmental insulation.

Carefully combined, they can be used within a wide **temperature** range of between - 50°C and + 300°C.

We are also able to offer ultrasonic welding closure on tubes produced in Polyimide film. The caps are supplied with internal diameters of between 2 and 70 mm and thicknesses of between 100 and 500 microns. The standard welding length is between 3 and 5 mm.

The caps are also supplied with colours on request, including helical stripes, for easy identification.

They are used for the insulation of thermoprotectors inside electric motors, for motors lead termination, for compressors, for wiring or to protect the weldings of cables of a same phase inside the windings, also avoiding the ends of the wires damaging the parts around it.



## SPIRAL WOUND ENDCAPS DOT ULTRASONIC WELD CLOSURE

The spiral cap with ultrasonic-point closure offers the advantage of maintaining the lower welding width with respect to the classic ultrasonic closure that is created over the entire width of the tube.

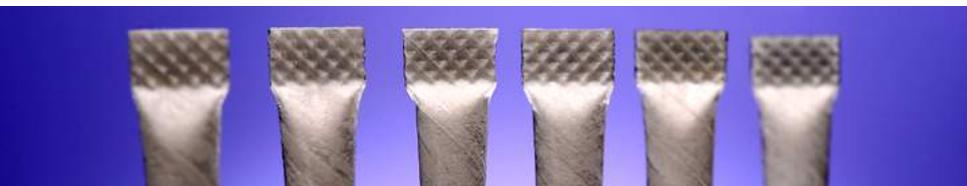
The product also offers perfect and rapid positioning thanks to the thermo-shrinking of the same.

The **raw materials** used, such as Nomex®, Polyester A (Mylar® A), HS Heat-shrinkable Polyester (Mylar® HS), AHS-2LSO semi-shrinkable Polyester and Polyimide film (Kapton®), are supplied by global sector leaders, all UL-certified and offer excellent electrical, chemical and environmental insulation.

Carefully combined, they can be used within a wide range of **temperatures** between - 50°C and + 300°C.

The caps are supplied with internal diameters of between 4 and 30 mm both in the heat-shrinkable and non heat-shrinkable version.

The caps are also supplied with customised colours, including helical stripes for easy identification.





# CAPS



## HEAT SHRINK ENDCAPS BULLNOSE CLOSURE

The heat-shrinkable cap with bullnose closure offers the possibility of having width narrowing at one end of the tube in order to facilitate insertion of the same between the copper coils inside the electric motors, avoiding any damage to the enamelled wire.

The bullnose closure is created by means of two heated plates which generate shrinking of the cap on one end. This closure offers the advantage of reducing the diameter of the tube in the welding area, decreasing the overall dimensions of the tube and facilitating its insertion.

The product offers perfect and rapid positioning also thanks to thermo-shrinking of the same.

The **raw materials** used, including Nomex®, HS heat-shrinkable polyethylene (Mylar® HS) and AHS-2LSO semi heat-shrinkable polyester are supplied by global sector leaders, are all UL-certified and offer excellent electrical, chemical and environmental insulation.

Carefully combined, they can be used within a wide range of **temperatures** between - 50°C and + 180 °C.

Bullnose caps are supplied with internal diameters of between 5 and 14 mm and thicknesses of between 100 and 500 microns. The standard welding length is between 4 and 5 mm; it can be varied upon request.

The caps are also supplied with custom colours, including helical stripes or easy identification.



## SEMI-CAPS RADIUS CLOSURE

The semi-cap has a radius closure that guarantees the easy insertion of seals into mechanical parts with sharp edges, avoiding damage.

It is used to facilitate insertion and protection of the OR (O-RING) seals in combustion engine valves in order to avoid damaging them; the radius closure also prevents the cap from slipping on the valve.

This product is also used when inserting the Dunlop, Schroder and Presta valves into tires, in order to prevent the valve metal from damaging the tyre itself.

The **raw material** used is AHS-2LSO semi heat-shrinkable polyester.

The semi-caps are supplied with internal diameters of between 5 and 12 mm, thicknesses of between 75 and 150 microns and with lengths greater than 7 mm. The radius closure can have a length of between 2 and 5 mm.

They are also supplied with colours on request, including helical grooves for easy identification.



# SPECIAL APPLICATIONS

## SHRINK FIXING TUBES

POLYESTER HEAT-SHRINKABLE SHEATHS FOR THE PERMANENT MAGNET SEALING OF BLDC BRUSHLESS MOTORS

Politubes has developed, in collaboration with DuPont™, a special spiral wound tube made of heat-shrinkable polyester (Mylar® HS) covered by an industrial patent; this tube is fitted onto the rotor with the magnets in position and instantly heat-shrunk.

The main advantages are marked cohesion of the rotor magnets, protection of the magnets against scratches, rubbing and polluting agents and the absence of danger of cracks or damage on the delicate permanent magnets during the assembly process.

Even after heat shrinkage, the tube has a small footprint and does not interfere with the air gap or with the magnetic flux of the magnets.



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## SHRINK FIBER TUBES

PROTECTIVE SLEEVES WITH HIGH MECHANICAL SEAL FOR THE PERMANENT MAGNET SEALING OF BLDC BRUSHLESS MOTORS

Politubes specialises in providing a wide range of custom-designed **heat-shrinkable** tubes in collaboration with our customers' technical departments.

In addition to the tubes produced with only heat-shrinkable polyester, we offer **Shrink Fiber** tubes with which we have managed to combine the advantages of a heat-shrinkable tube with the superior mechanical and thermal properties of glass fiber.

Thanks to this innovative system it is possible to remove a series of problems concerning the reduction of performance, to eliminate magnetic residues inside expensive steel pipes, the complications of assembly processes and the higher costs and risks as well as the damage to fragile magnets with traditional fixing systems of permanent magnets.

For those motors manufacturers seeking perfect rotor sealing together with high mechanical performance, we offer our heat shrink **Epoxy tubes**.

This heat-shrinkable tube is produced with a coating of thermosetting epoxy resin inside which, once activated, perfectly seals the rotor, guaranteeing a high mechanical seal together with thermal class H.

## NOISE REDUCTION SLEEVES

HEAT-SHRINKABLE SLEEVES FOR THE PROTECTION AGAINST AND REDUCTION OF THE NOISE OF UNIVERSAL MOTORS

Politubes offers a unique solution to reduce the noise of universal motors.

The tube is produced using heat-shrinkable Polyester (Mylar® HS) and its function is to protect and compact the surface of the rotor where cavities are located, reducing noise by several decibels; balancing of the rotor is also ensured thanks to the perfect roundness of the tube that is produced without overlaps.

With its perfect automation of insertion and instantaneous therm-shrinking of the tube on the rotor, the product is perfectly assimilated within the automated production processes.

It is supplied in thin **thicknesses** of between 55 and 100 microns and is rewound in rolls with lengths of several hundred meters in order to optimise logistics, reducing transportation costs. The tube, even after heat-shrinkage, does not interfere with the air-gap and with the magnetic flux of the motor.



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