

SynFlex
Connect & Equip



SynFlex

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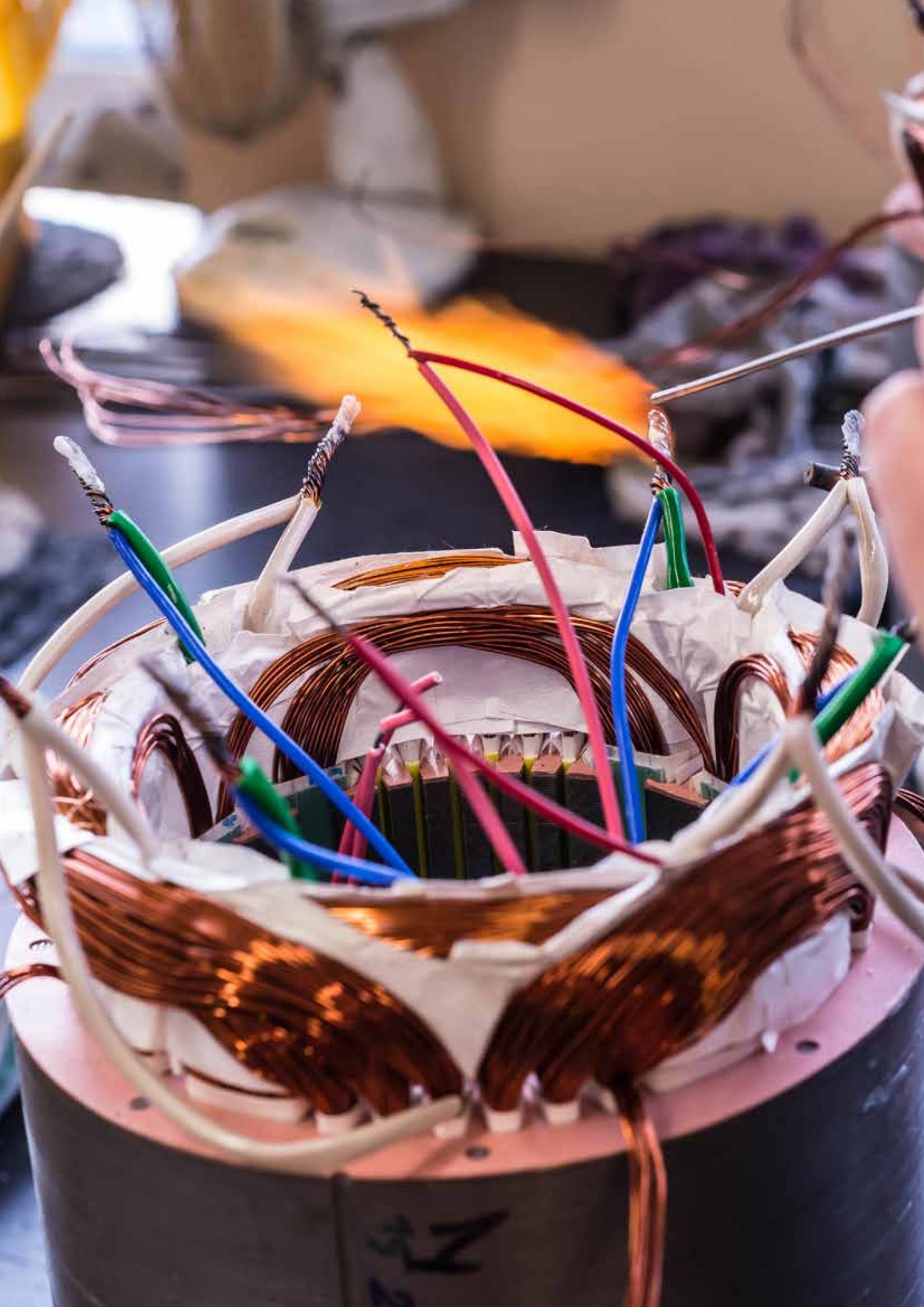
BETAtherm® is a registered trademark of Leoni Studer AG.

The Connect & Equip product range is focused on connecting cables as well as connecting and fastening elements. Here you can also find specialties from the product portfolio of SynFlex for the completion, assembly and testing of electrical motors, transformers and generators.

The SynCon® range includes the large field of connection litz cables. Highlights include the BETAtherm® 155 UL litz cables in AWG and metric specification, as well as the SynTex® 155 low-voltage control cable.

A comprehensive range of transformer terminal blocks are available for connecting transformers. In addition to a wide array of testing devices, temperature monitors, cooling fans and bandage tapes, SynParts delivers specialties such as core cooling insulation, slot wedges and fiberglass reinforced profiles.





SynCon®

Connecting Cables & Transformer Terminals

The large selection of SynFlex transformer terminal blocks is tailored to the diverse specifications of transformer manufacturers.

Both the construction and further development of the individual model lines occurs consistently under the guiding principles of:

- greater assembly convenience
- higher technical safety
- more practical accessories
- more application and market knowledge

The SynCon® transformer terminal blocks cover the cross-section range up to 10 mm². For the subsequent cross-section ranges, the terminal blocks are available in various sizes and connection technologies.

The portfolio of the transformer terminal blocks also offers the flat plug connection, green-yellow protective conductor terminals and fuse terminals for various DIN fuse inserts, which qualify this product group for a wide range of applications.

Practical accessories, as well as permanent and clear markings and marking systems (if required, within 48 hours on site upon customer request) complete the range.





Molded Transformer Terminals

VTRK

The VTRK 4 has been specially developed for connecting molded safety transformers in accordance with IEC 742/ EN 60 742/ DIN VDE 0551-1 for low-voltage halogen lamps.

Fixing is realised in a pre-punched housing recess without the aid of tools. Tapered guides in the terminal housing ensure that sealing is reliable.

The VTRK terminal product range encompasses:

- The VTRK 4 lead-out terminal for the incoming supply
- The VTRK 4-SI primary fuse terminal
- The VTRK 4-SI/C secondary fuse terminal

All models are also available with integrated extruded traction relief.

Classic Transformer Terminals

TRK / TRK-S / ZTRK

The TRK transformer terminals are suitable for installation on 2 x 10 or 2 x 35 mm mounting rails, but can also be used for installation on bobbins with integrated mounting compartments. The screw connection terminals can also be supplied with a slip-on connection.

The TRK range is designed for cross sections up to 10 mm².

The series is completed by green-yellow ground terminals and fuse terminals for DIN fuses whose housing shape ensures harmonious connection to other types of TRK terminal blocks.

Terminals for larger cross sections

Alternative transformer terminals for all connecting cross sections.

The accessories are decisive for the practical application or modular terminals. All series allow you to meet all transformer circuit requirements easily and with just a few accessories.

All the electrically relevant metal components are made of a special copper alloy with a tin-plated or nickel-plated surface. The series provides a standard range of accessories for numerous cross sections, such as end covers, slot partition plates, jumpers and identically shaped ground terminals.

Besides standard approvals like UL and CSA, special approvals such as ATEX and GL are also supplied.



Labelling systems

BLUEMARK CLED

- smear-resistant and immediately ready for use
- 10,000 tags per hour
- no warm-up
- environmentally friendly and silent

THERMOMARK CARD

- thermotransfer printer
- for marking cards
- little weight

THERMOMARK ROLL

- thermotransfer printer
- for printing of rolls and continuous material
- perfect for mobile usage

Accessoires

- numerous marking and labelling materials for marking all terminals



Insulation protected stranded wires or single conductors suitable for use as temperature resistant connection lead in electrical machines, transformers and series application in electrical engineering and electronics. Available in different colours.

BETAtherm® 145 (UL)

Thermal class B / 130 °C

- Electron-beam cross-linked lead wire made of tinned conductor insulated with polyolefine copolymer
- Suitable for class B/ F required temperature resistance
- Simple skinning even at automated machines
- Resistant to all conventional impregnants
- BETAtherm® 145 (UL) is halogen free
- Universal application in motors and transformers, lamps, switch gear
- UL approved on request

BETAtherm® 155 (UL)

Thermal class F / 155 °C

- Electron-beam cross-linked lead wire made of tinned conductor insulated with polyolefine copolymer
- Suitable for class B/ F required temperature resistance
- Simple skinning even at automated machines
- Resistant to all conventional impregnants
- Universal application in motors and transformers, lamps, switch gear
- UL approved on request

SynTex® 155 (UL)

Thermal class F / 155 °C

- Flexible conductor made of blank or tinned litz wires, coated with interlayer insulation, consisting of thread and film with PUR varnish
- Thermal class F (155 °C)
- Excellent heat pressure resistance, very good dielectric strength, halogen and silicone free
- Application in electric motors and transformers with increased demands

Silicone cables

Thermal class H / 180°C

- Cable made of tinned wires, covered with extruded silicone rubber insulation
- High temperature resistance, thermal class H (180° C)
- Good dielectric strength also for intermittent thermal overloads
- Halogen free
- Application in electric motors and transformers with very high thermal loads as a connection cable



SynTemp® Temperature Monitoring

Series S01 and S06 thermal cut-offs are moulded, permanently operating bimetal release switches which interrupt the current flow once the nominal temperature has been reached (normally closed contact). Opening/ closing combination also possible.

Permanent operation with immediate reaction once the switching temperature has been reached is ensured due to the unique free-moving and self-aligning construction of the bimetal disc in the thermal cut-off. The thermal cut-offs are available as a single component and in a twin or triplet version.

Further advantages

- high spring resistance with small spring travel
- improved space utilisation
- very high mechanical strength
- excellent long-term stability



SynProf

FRP Profiles

FRP profiles are manufactured via endless pultrusion and are based on an unsaturated polyester resin reinforced with approx. 65% fibre glass.

The FRP profiles have a high mechanical resistance and good heat and cold resistance. The profiles are excellent for damping mechanical vibrations.

Generally FRP profiles are used e.g., as slot closures in electric machines and other electronic sectors. But they are also used in cooling channels.

FRP profiles have excellent properties:

- high mechanical resistance
- good heat and cold resistance
- high impact strength
- high damping against mechanical vibrations
- good chemical resistance

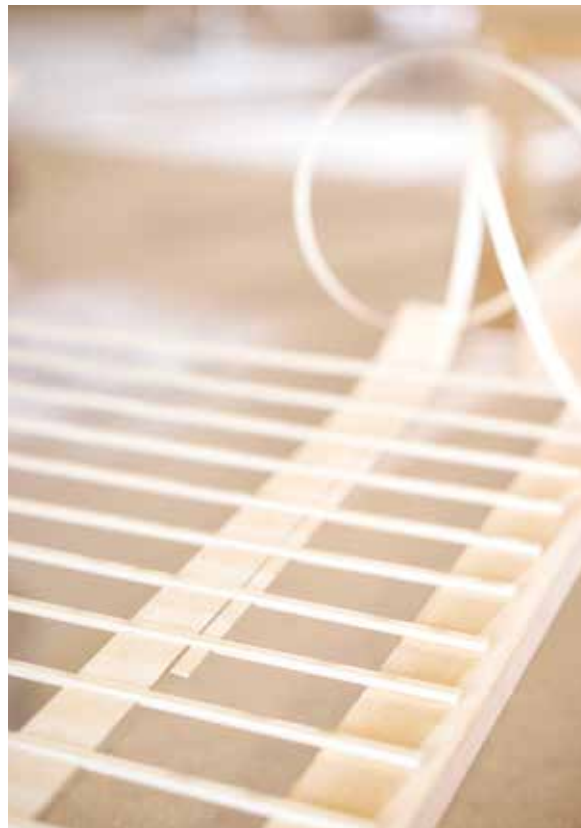
Glass-fibre-duct-spacing-mats

These are glass-fibre-profiles connected with insulating tapes.

Glass-fibre-duct-spacing-mats are a cost effective cooling channel solutions with free selectable / adjustable distances of single profiles. Also different profile-shapes can be used in one mat.

The mats are used in transformer and coils with cooling channels. They can be used in automated winding processes.

The base for the glass-fibre-duct-spacing-mats are different profiles like Dogbone, square or round. As insulating tapes the following can be used: SynTherm® YT510, SynTherm® DMD, SynTherm® APA, SynTherm® NPN, Mylar® A.



SynParts

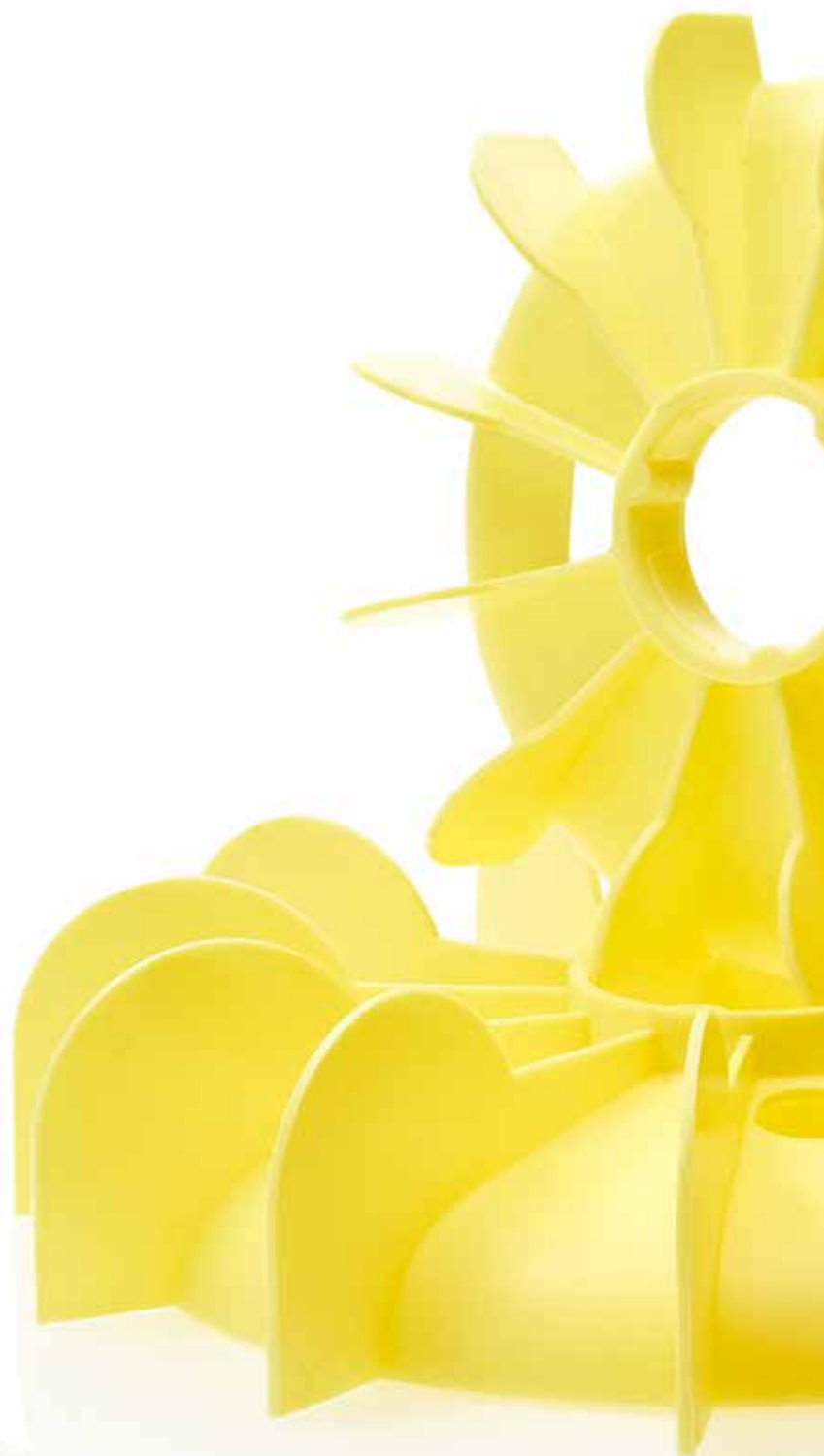
Special Parts & Accessoires

The SynParts product portfolio offers a variety of production-related products to make your life easier and ultimately safer when validating your application.

This includes various tapes for fastening, as well as the specialty of the SynTherm® YT510 crepe, which can be used as a very flexible tape to insulate cable outlets, for example. To ensure effective cooling in the transformer area, in addition to traditional fiberglass reinforced profiles and profile mats made of them, we also offer you specialties such as the pill carpet consisting of a SynTherm® YT510 and silicate ceramic pills as core cooling insulation.

For monitoring, testing and completion of your application, we have a variety of testing devices such as the PI5000 high-voltage testing set and various temperature monitors in our portfolio.

Finally, for equipping your motor, our extensive portfolio of fan blades is available for your selection.





Fan blades of the CS series

Slot wedges

Machines and testing devices

- PI5000 Induction and High Voltage Testing Set
- Measuring devices
- Drying furnaces
- Burn-out furnaces

Core cooling insulation

Transformer sheets

Only available at our SynFlex location in France

In addition to the company-specific product ranges of SHWire, SynFlex and IsoTek, the SynFlex Group offers all customers interdisciplinary services to which they have access at all times.

You can take advantage of these Group-wide services internationally at any time in all the SynFlex locations in Europe, Asia, Turkey and beyond.

SynFlex Group and UL – A strong partnership

As the first test laboratory in Europe to participate in the UL Third Party Test Data Program, the SynLab® carries out all the tests required for the enhancement and new configuration of an EIS.

The objective of this cooperation is to support customers in new approval, enhancement or adaptation of existing UL systems.

The SynLab® test laboratory – Comprehensive testing services

The SynFlex Group test laboratories at the SynFlex locations in Blomberg and Shanghai, and at headquarters of SHWire in Lügde are known for their variety of thermal, mechanical, chemical and electrical testing procedures.

The SynLab® is regularly inspected by UL, thus confirming its competence. The qualification is achieved by UL audits performed in our laboratory according to international and national standards, in particular the standard UL 1446 “Systems of Insulating Materials General”. Due to its memberships in expert committees SynFlex is involved in change and validation processes of norms and standards. Customers thus benefit from optimal project processing and a state-of-the-art laboratory that can carry out short or long-term tests according to UL 1446 and IEC standards or customer-specific tests for systems or materials.

SynServ – services of the SynFlex Group

Logistics competence

Rapid and reliable availability of goods is the core objective of logistics in the SynFlex Group. From Blomberg, we supply our logistics and production plants of our subsidiaries and affiliates worldwide. Moreover, the complete logistics of SHWire are handled via the logistics center at the Blomberg plant.

Metal trading

Fluctuating volumes of demand, volatile commodity exchange prices and the necessity of a reliable basis for calculation are realities that are extremely difficult to reconcile when dealing with metals. To provide you, as a customer and partner of SynFlex Group, with greater certainty, not only commercially but also organizationally, we offer you several services, for example copper hedging, alongside the material supply of copper and aluminum.

Product management

The product management of the SynFlex Group provides you with competent support in the development, optimization and implementation of new ideas. We calculate, test and certify materials, components, structures, products or production processes. The technical and economic know-how of our product managers bridges the gap between research and market-driven products.



SynFlex International

The network of the SynFlex Group provides its customers with consistent quality of the service and products, goods availability and professional advice. We have production and logistics capacities at every location in Europe, Asia and Turkey. Thanks to our extensive sales network, we are also active in countries where we do not have a site, and we can provide individual advice there.

SynFlex Scandinavia

With our location in Copenhagen, we deliver to all of Scandinavia and parts of the Baltic countries.

SynFlex France

With our location in Paris, we supply France, the southern countries of Spain and Portugal, as well as North Africa.

SynFlex Italy

With our location in Bologna, we deliver to customers in Italy and to neighboring countries in the Eastern Mediterranean region.

SynFlex Austria

With our location in Vienna, in addition to covering the Austrian market, we also cover the entire Eastern European region from the Czech Republic to Albania, and all the way to Ukraine.

SynFlex Poland

With our location in Warsaw, we deliver to customers in Poland, the southern Baltic countries, all the way to Belarus.

SynFlex Turkey

With our location in Istanbul, we supply customers in Turkey. At the same time, this location serves as a gateway to the Caucasus and the Middle East.

SynFlex China

With our location in Shanghai, we serve the vast Chinese market, along with all neighboring countries in Central, Southern and Eastern Asia.

At highest level.
The complete **SynFlex** product range.

Winding

Premium Winding Wires
SHWire

Winding Wires
SynWire

Litz & Special Wires
SynWire WW

**Copper &
Aluminium Foils**
SynShield®

Insulate

Insulating Materials
SynTherm®

Electrical Adhesives Tapes
SynTape®-Intertape®-Isotape®

**Electrical Insulating
Sleeving**
SynSleeve

Resins & Varnishes
SynChem

**Stamped & Shaped
Components**
SynPrep

Wrapping Tapes
SynWrap

Connect & Equip

**Connecting Cables &
Transformer Terminals**
SynCon®

Temperature Monitoring
SynTemp®

FRP Profiles
SynProf

**Special Components &
Accessoires**
SynParts

SynFlex Group

**Laboratory Services &
UL Services acc. to 1446**
SynLab®

Consulting & Services
SynServ

SynFlex International

Common Goal – Joint Progress:
The Resource of Power.



Insulation Systems, www.synflex.com



Magnet Wires, www.sh-wire.de



Electric Insulation, www.isotek-gmbh.de