







Special challenges require extraordinary solutions

Challenging solutions are our standard: Where "standard" solutions simply are not enough, exceptional solutions are required! Since 1994, we have specialised in efficient and technically demanding electrical and thermal insulation that permanently protects individual components or entire assemblies against high voltage or extreme temperature loads.

We also manufacture innovative sheet materials, sell high-precision threaded rods and alongside our customers develop effective insulation from fibre-reinforced plastics that are lighter than steel and offer a high resistance. We have an experience from almost three decades, have more than 100 committed employees worldwide - and have retained the flexibility of a start-up as an owner-managed company!

For you as a customer, this means: short routes, individual support, sustainable success. Because we are not too big and not too small, but just right for projects where you need a reliable, flexible and powerful partner.

Challenge us!

M. Wa Thomas Wernemann CEO WKT GROUP



WKT Group We create connections

Two companies, one goal: The WKT Group combines research, development and production of technical solutions that meet extreme demands for load and precision. We rely on high-performance plastics that are lighter and more resistant than steel, have an insulating effect and withstand corrosion.



Our strength is our structure: Since 1994, we have been developing and manufacturing plastic parts in the PLASTIC TEC, which protect components and assemblies against high voltage and extreme temperatures. From pilot series to mass production, we can provide all relevant stages of product development thanks to state-of-the-art CNC machines and efficient automation. Our proprietary range of high-precision threaded rods for versatile applications completes the range of the PLASTIC TEC.

Materials from in-house production

On one of the world's most modern press systems, we produce insulation sheets that meet the high requirements for electrical and thermal insulation. By using injection moulding and hot-press processes, we also produce individual components for highest mechanical requirements.



POLYESTERMATERIALS FROM IN-HOUSE PRODUCTION

INTRODUCTION



PLASTIC TEC

OUR SPECIAL PRODUCTS



We master extremes

We are aware of our responsibility: Where extreme temperatures and highest volt figures are used in railway and traffic engineering or in mechanical, motor and generator construction, there is no room for inaccuracy. That's why we develop and manufacture sophisticated insulations as well as insulated components made of composites with outstanding resistance to stress, heat and cold and even work under extreme conditions.

To this end, we at PLASTIC TEC combine an interdisciplinary team, many years of knowledge, state-of-the-art materials, modern CNC machines – and the passion for every new challenge. Our ideal scenario is to be involved right from the start: We provide you well-founded advice on materials to development, from production to packaging. A designated contact person and adherence to deadlines are the standard, whether for individual pilot series as well as for small quantities, mass production or our own product range of high-precision threaded rods. Without saying our products can withstand everything they are required to. For this reason, we rely on high-quality, fibre-reinforced plastics that in comparison to steel are lighter, tougher, and offer greater corrosion-resistance and insulation properties.

Of course, we guarantee quality assurance from start to finish: Most of our raw materials are sourced from our sister company PRESS TEC. We test third-party materials in our own laboratory – no ifs, no buts! The product quality of components is continuously monitored throughout the entire production process, including our own ultrasonic testing system, a powerful tensile testing machine and a five-axis coordinate measuring system.

This is quality management that really works. TÜV-tested to ISO 9001.

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100% QUALITY CONTROL

QUALITY MANAGEMENT These parts withstand a lot: Our certified plastics from our own production facilities form the basis for isolation and insulating components that offer highly effective protection against high voltage and extreme temperatures in a wide variety of industries permanently and reliably. Thanks to their extremely high resistance combined with low weight, they represent a genuine alternative to conventional materials such as steel.



GENERATORS / MOTORS

Generators are used to convert mechanical energy into electrical energy. Here, too, our products are used as insulating materials.



TRANSFORMERS

Transformers or converters are often used for voltage conversion. This is exactly where our components come into play. Whether as blanks, complex components or threaded rods, there are many wellknown names among our customers who rely on our insulation products.



Whether housings, cable covers or other insulating components – we effectively protect your electronics to ensure safe operation. Naturally, our insulation components are tested according to the latest fire protection standards.



WIND ENERGY

Hold on tight. For wind turbines to continuing being operated safely and efficiently in the future, wecan supply the right components from our range.From cable holders to insulating components, all inline with customer requirements... everything is possible.



SWITCHGEARS

Simple. Safe. Switches. En route to success with us. Quality based on experience. Whether bulkheads or rail brackets, we have the right products for your switchgear installations.



MECHANICAL ENGINEERING

The all-rounders: Our machine components are resistant, lightweight and offer corrosion-resistance and insulation. They are used, for example, in medical technology, in sorting and conveying systems, pharmaceutical systems, in aircraft construction, packaging and machine tool construction and in equipment construction.





COILS

Safety due to innovative insulation products. Our products provide increased safety and performance for your coils. Whether spacer strips, compensating elements or covers. We have the right product.



RAILWAY TECHNOLOGY

In railway technology, we offer you various housing systems, insulators for pantographs and other cladding/ insulation products. All products provide extremely high resistance and are easy to assemble. Of course, we are approved according to the required railway standards.

THERMAL INSULATION

Extremes are the benchmark by which we measure the quality of components for kyrotechnology and thermal insulation, which withstand the highest requirements in the steel and glass industry, in medical technology and research. That is why our components can cope with temperatures between -170°C and +1,000°C and are processed with high precision with an accuracy of 5/100 millimeters.

Our materials

The basis of effective solutions is provided by the right materials: Our components and component groups are constructed from thermosetting materials that provide the required resistance levels. For example, we ensure electrical and mechanical strength, heat resistance up to 250°C or high creep resistance in our materials.



POLYESTER LAMINATES FROM INHOUSE-PRODUCTION

Standardised material production

All thermosetting materials are produced in our sister company, PRESS TEC. Thanks to the high level of automation, we can guarantee consistently high material guality for many years. In addition, production is subject to strict internal quality assurance: The entire production process is continuously monitored. In our own laboratory, we also test our materials for all requirements, mechanically, electrically and thermally, and for exothermic cracks using an ultrasonic testing system.



GRP THREADED RODS

When innovations set the standards, market maturity has been achieved. plastics (GRP) are therefore available as a separate product range – and

GRP threaded rods from M6 – M20

stock: We have developed standardised DIN materials and standard-compliant materials that meet the highest mechanical, electrical and thermal standards for numerous applications in mechanical engineering, railway technology, cyrotechnics and wind power. Many solutions are already approved for safety-critical applications, for example according to EN 45545. We also provide comprehensive material consulting for our standard solutions.

Together with and for customers, our ma-

terial experts develop custom thermo-

setting materials or components conforming to specific properties: From special

products using glass fibre materials to

matrix reinforcement with glass balls,

from pressure-resistant fillers to colour-

fast materials in the corresponding cor-

porate design, we meet the specific

material requirements of the end product.

Standard solutions are available from

Solutions from stock

Leakage current resistant & flame resistant

THERMOSETTING - PLASTICS 💳



POLYESTER RESIN LAMINATES

The basis of polyester resin laminates are glass mats, which are used as carrier material and are impregnated with polyester resins (UP). The components are then laminated under high pressure and at high temperatures. Polyester resin laminates feature excellent electrical insulation properties and leakage resistance. They have a very low flue gas density and toxicity and are heat resistant up to 200°C.



Epoxy resin laminates are based on an epoxy resin (EP) which is laminated with a glass fibre or glass mat reinforcement. EP laminates have high mechanical strength, good electrical insulation properties and high flame resistance. The heat resistance ranges from -170°C to +250°C.



COTTON LAMINATED FABRIC

Cotton laminated fabric consists of phenol-formaldehyde resin (PF) and cotton fabrics. Fabrics impregnated with PF are produced in multiple layers and pressed at about 150°C and under high pressure.

The hard cotton fabric produced in this way has excellent mechanical strength, good sliding properties and is impervious to solvents, weak alkalis, oils and fuels. The material is heat resistant up to 120°C.



LAMINATED PAPER

Laminated paper is produced from phenol-formaldehyde resin (PF) and paper webs, which are impregnated with PF, produced in multiple layers and then pressed at about 150°C and under high pressure.

Laminted paper offers good mechanical and electrical strength. The material is heat resistant up to 120°C.

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PRESS TEC

OUR EXCELLENT INSULATION SHEETS



We realize your highest requirements

We know the connections: In a world that is becoming increasingly global, networked and digital, even the smallest component plays an important role in making the big picture work. Therefore we develop and produce high-precision components with effective electrical and thermal insulation properties that are used in transformer and switchgear construction as well as in high-voltage and traffic technology.

Our benchmark are the high demands that customers place on resilient plastic products – and above all our sister company, PLASTIC TEC. On two of the world's most modern press systems, we process thermosetting plastics into fibre-reinforced insulation sheets with a thickness of up to 130 mm, which can withstand even the highest requirements. On request, we maintain a maximum thickness tolerance of up to 0.1mm and guarantee heat resistance of up to 250°C, a high creeping current resistance and very good electrical insulation – a combination of strengths that is unique worldwide.

In addition, we produce custom moulded parts and high-precision components via injection moulding or hot-pressing, which withstand extreme mechanical requirements. At PRESS TEC, we also rely on state-of-the-art production technologies and hybrid systems that enable innovative material combinations.

We ensure above-average manufacturing quality via the digital and sensorbased monitoring of panels, components and assemblies throughout the entire production process, automatically compensating for possible fluctuations. And because twice the checks ensures twice the safety, quality control in our own laboratory is a standard procedure for us – naturally with full certification and conforming to DIN standards.





ENSURED HEAT RESISTANCE



Process: Pressing

From thermosetting plastics we manufacture high-resistant insulation sheets in the pressing process, which withstand strong mechanical, electrical and thermal influences. Our production lines as well as the possible panel formats are unique worldwide. Worldwide unique are the production lines as well as the possible sheets sizes.



PRESS FORCE

UP TO 130 MM SHEET THICKNESS

Two hydraulic presses are at the heart of the press plant: Our standard system generates up to 3,000 tons of pressing force, and our additional commissioned press generates up to 6,000 tons of pressing force. The pressing force exerted during production minimises internal stresses of the panels and results in excellent mechanical, electrical and thermal material properties – depending on the material and additive combination.

Worlwide unique sheet thickness

Our custom solution combines huge pressing force with one-off sizes: In the pressing process, we produce panels with a length of up to 3.720 mm and a thickness of 130 mm – a genuine innovation! Customers from all industries benefit from this, and not least as well our sister company PLASTIC TEC, for which we produce the complete WKT product range of standardised sheets.

Full automation for consistent quality

The feeding and positioning of raw material is fully automated via robot technology, meaning we can guarantee consistently high material quality for years to come. The production process is continuously monitored electronically as well as manually by our employees to ensure maximum material quality. To achieve this, we also rely on the our in-house material laboratory where we test panels for crack resistance with a specially designed ultrasonic testing system.







HEAT INSULATION

Process: Moulding & Injection moulding

By using moulding and injection moulding techniques we produce flat, curved and geometrically compley components from plastic. Our raw materials are Sheet Moulding Compounds (SMC), Bulk Moulding Compounds (BMC) and free-flowing thermosetting plastics, glass fibre reinforced polyester and vinyl resins with excellent material properties.

PROCESSING OF SMC AND BMC

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3 **TECHNIQUES FOR** INDIVIDUAL COMPONENT

REQUIREMENTS

Our speciality is the big picture: We provide customers with support from the tool concept through to the design. Customers benefit from short delivery times and comprehensive expertise from a single source. We are also happy to take on assembly orders and the production of complete assemblies.

Injection moulding and injection-compression moulding

Using injection moulding techniques, we process BMC moulding compounds with fibre lengths of up to 25mm as well as sprayable SMC with fibres up to 30 mm long. The process enables the production of custom moulded parts with the highestpossible surface qualities. We manufacture large components with the good surface qualities via injection moulding, all with very short cycle times. Both injection

moulding and injection-compressionmoulding have a high degree of automation and are cost-effective from medium volumes up.

Compression moulding

Flat and high mechanical load components are produced by using the compression moulding process. SMC or BMC moulding compositions are hot-pressed to achieve a high mechanical strength.

PRODUCT EXAMPLES

possible by using modular tools

LOCATIONS

WKT GROUP Daimlerstraße 5 D-49744 Geeste-Dalum

Phone: +49 5937 9706-0 Email: info@wkt-group.com www.wkt-group.com

REP. OF KOREA

WKT KOREA COMPANY No.1012, 322, Godeokjungang-ro,

Godeok-myeon, Pyeongtaek-Si, Gyeonggi-Do, Republic of Korea | 18014

Jimin Ryu

Phone: +82 (0)70 4647 0784 Mobile: +82 (0) 10 8209 8944 Email: sales@wktkorea.com https://blog.naver.com/wktkorea

UNIVERSAL INSULATING

PRODUCTS LTD. The Courtyard Buntsford Drive Stoke Pound Bromsgrove

Todd Littlehales Phone: +44 3300 240520

Mobile: +44 7971127205 Email: toddlittlehales@uipl.co.uk

CHINA/SOUTH EAST ASIA

WERKSTOFF PTE LTD 9 Temasek Boulevard 31F, Suntec Tower 2 Singapore 038989

Kelly Yang Phone: +65 67373667 Fax: +65 67373669 Email: enquiry@werkstoff.com.sg

INDIA

SUNSTREAM JDB 8-2-293/82/A/1217A VEDA ARK Complex, 2nd Floor Road No. 36, Jubilee Hills Hyderabad 500 033

Vikram Bhagia Phone: +91 8977502743 Email: sales@sunstreamjdb.com

technologies in motion

WKT GROUP Daimlerstraße 5 • D-49744 Geeste-Dalum

Phone: +49 (0) 5937 9706-0 info@wkt-group.com www.wkt-group.com