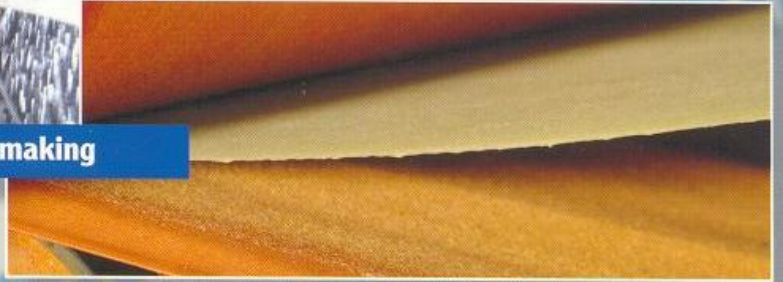


KREMPEL



Papermaking



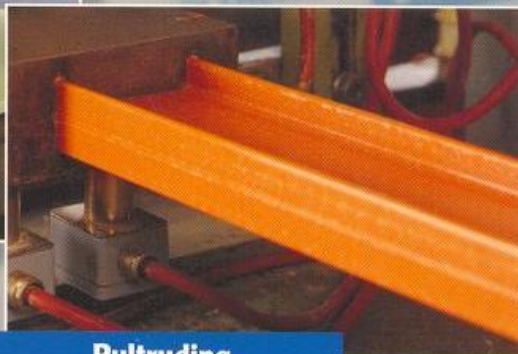
Impregnating



Laminating



Pressing



Pultruding



Winding

Hightech
made by
KREMPEL

Our future began more

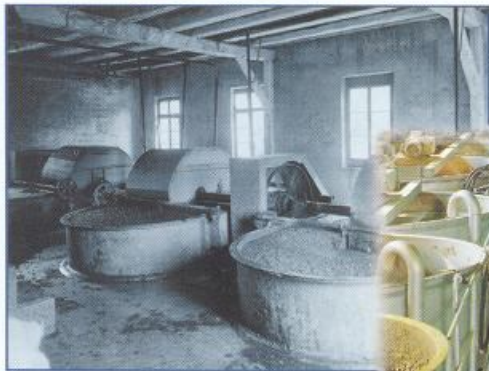
KREMPEL - Symbol for state-of-the-art technology! The founder of our company, August Krempel, would certainly be astonished if he could see how the company he founded in 1871 in Stuttgart has developed. A highly diversified company has evolved from a business trading in paper and paperboard. Today we enjoy world-wide confidence in our electrical insulations, composites and flexible base materials.



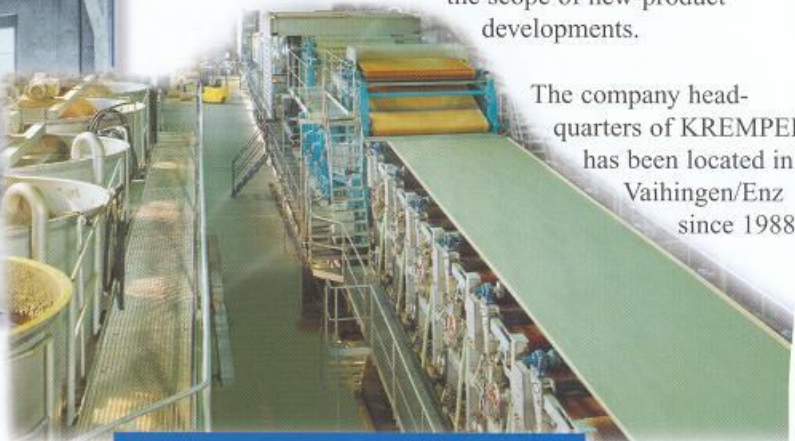
Only further developments...



“From a merchant trader to a high-tech company”: This impressive development by the KREMPEL Company is not a clever advertising slogan but rather an historical fact. The sons of the company’s founder acquired a paper mill in Vaihingen/Enz in 1911 and started up production in 1918 of “Pressboard sheets” – a cellulose-based material for electrical insulation which is still valued today. Thus the foundation stone was laid for the success of the KREMPEL development and since then, the manufacture of insulation materials has become the major division in our company.



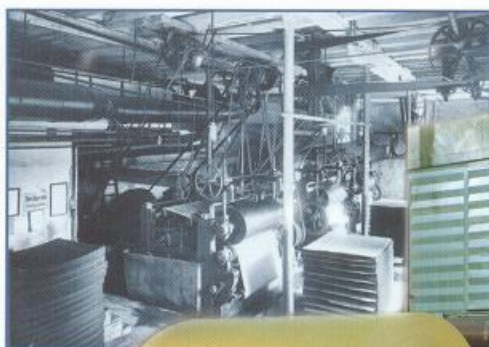
The **Vaihingen Plant** was then modernised at the end of the Sixty’s to accommodate the completely new manufacturing technologies for composite materials within the scope of new-product developments.



The company headquarters of KREMPEL has been located in Vaihingen/Enz since 1988.

... can assure continuity ...

As pressboard is not only needed as sheet material but also in reels, we commenced continuous production of presspaper reels in 1962 in the then newly erected **Kuppenheim Plant**. When certain insulation requirements called for a new generation of insulating materials, we developed the subsequently proven multi-layer insulation materials in close collaboration with our customers.



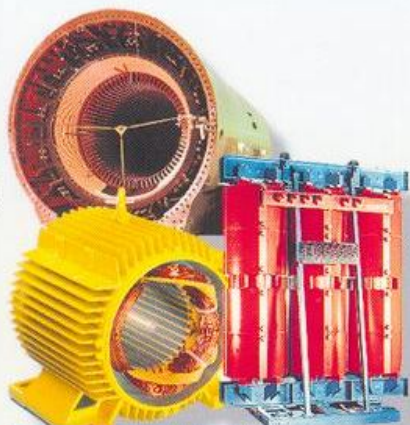
... and creativity.

In 1991 we capitalised on the opportunity given by German reunification to acquire two manufacturing facilities in Saxony. Following considerable investments, we now operate one of the world’s largest production plants for continuous manufacturing of presspaper reels in our **Thalheim Plant**, and in the **Zwönitz Plant**, we produce pressboard sheets as well as speciality paper types.

As before, KREMPEL is an independent producer of high-grade semi-finished products: High-tech made by KREMPEL.

than 125 years ago

KREMPEL electrical insulations have helped for decades in finding answers to insulation problems for motors, generators, transformers and other types of electrical equipment. Our customers include all major companies in the electrical industry throughout the world and they trust our solid advice for such engineering applications.



Electrical insulations

The skills and knowledge acquired in processing paper, fibres, films, resins and adhesives for electrical engineering applications were the basis for success in other company divisions.



Special films and laminates

KREMPEL is an authorised distributor of the DuPont Company for **KAPTON®** high-temperature films as well as for **TEDLAR®** protection and release films. Based on our extensive skills and knowledge in laminating, we also manufacture **KREMPEL special laminates** for applications in welding, safety and solar engineering.

Quality is "Our Thing"! Build on safety, build on materials from KREMPEL with the ISO-9001 assurance, some of which are also UL recognized. And the best of all: Our manufacturing processes are gentle on the environment and natural resources.



Flexible base materials



Composites

KREMPEL base materials are tested and proven starting materials in the manufacture of flexible printed circuits. KREMPEL sheets for solder masks provide the reliability in the production of electronics. Together with our customers, we look for the best technical and economical solutions in meeting the high requirements in electronic engineering.

KREMPEL composites have an established place in aerospace, plant and machinery construction, in automobile engineering, in the manufacture of sports equipment as well as in medical applications. As the base material for manufacturing high-stress components, these materials have properties and design possibilities not to be found in conventional materials. Many applications are only to be realised by modifying existing materials or by new developments.



C E R T I F I C A T E

**DQS Deutsche Gesellschaft zur Zertifizierung
von Managementsystemen mbH**
Qualitäts- und Umweltgutachter

hereby certifies that the company

August Krepel Soehne GmbH & Co.

Papierfabrikstraße 4
D - 71665 Vaihingen / Enz

with the locations

Enzweihingen and Kuppenheim,
Pfaßspanwerke Thalheim and Zwönitz,
Ernst Kühne Kunststoffwerk Waldshut

Production of electrical insulations, composites and base laminates

has implemented and maintains a

quality system

A quality audit has verified that
this quality system fulfills the requirements
of the following standard:

DIN EN ISO 9001
Issue August 1994.



Products which are convincing

Pressboard sheet



KREMPEL pressboard sheet **1** is manufactured using our special cardboard machinery. A mixture processed from cellulose fibres and water is dehydrated to a fibrous non-woven and rolled up on drums. The wound non-woven

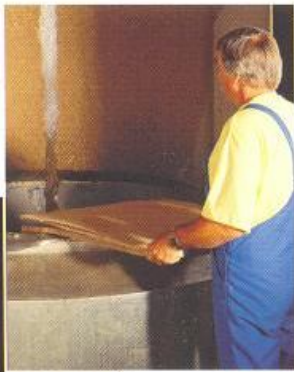
Pressboard is a cellulose product which is based on the traditional craftsmanship of "Papermaking". KREMPEL pressboard sheets **1** are manufactured at the **Zwönitz Plant**, and KREMPEL presspaper

reels **2** at the **Thalheim Plant** and at the **Kuppenheim Plant**. For special applications, we coat the presspaper reels with synthetic resins or process this to corrugated board **3**.

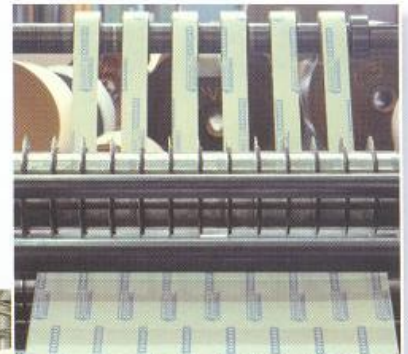
KREMPEL laminates are produced at the **Kuppenheim Plant**. We can rely on our extensive skills and knowledge in laminating for the manufacture of our flexible multi-layer insulations **4 5** and our flexible base materials **6**.



Materials from KREMPEL: The result



Laminates



KREMPEL multi-layer insulation materials **4** **5** are made by “**laminating**” plastic film with fibre materials and KREMPEL base materials **6** by “**laminating**” plastic film and metal foil together. We have special laminating machinery in service for processing the various adhesive systems we have developed. Highest

reliability in production is assured by the computer-aided control systems as well as the continuous monitoring of production control data. We also convert materials to narrow reels and tailor sheets to the requirements of our customers.

Multi-layer insulations are used mainly in electric motors and choke coils, whereas compact save-spacing circuits are produced from flexible base materials.

Presspaper reels



KREMPEL presspaper reels **2** are manufactured in a continuously running process on our specially developed papermaking machines. The purified fibre-water mixture is applied to the circular sieve and couched by filtration to give the wet multiple-layer fibrous non-woven. Water is then mechanically removed and the fibrous structure dried by hot air. The bonding of the fibrous non-woven is realised not by adding chemicals, but rather by natural hydrogen bonding only.

KREMPEL presspaper products are thus a purely natural product. Following the drying process, the raw presspaper is smoothed and compacted between the rollers of our super calenders to produce presspaper reels in accordance with specifications. KREMPEL presspaper reels are used mainly in oil-filled transformers and capacitors, as well as in electric motors, with great success.

of skills and on-going development

We “wind” rotationally symmetrical hollow bodies **9** on computer-controlled filament-winding equipment. We add customer-specific properties to our components by selecting the fibre types, resins, winding angles and cross-section best suited for the application. The design possibilities are almost unlimited.

Wound components



It is above all in aerospace applications where these lightweight yet robust materials are used. We have been an approved supplier now for many years to the aerospace industry and manufacture components for the Airbus.



Press



Several multi-layer presses, formed-part presses as well as autoclaves are available in our production facilities for the manufacture of sheet material and formed parts.

KREMPEL preregs*) are used as insulating materials in dry-type transformers and electric motors, or as the intermediate material for manufacturing components.

*) Prepreg = PREimPREGnated material



KREMPEL preregs **7** are manufactured using several different impregnating systems. We “impregnate” fabrics, non-wovens, rovings and warps with synthetic resins.

The resins normally still remain reactive and only cure to completion during subsequent processing. The reinforcing materials we use include glass, carbon and/or aramide fibres.

Impregnated materials

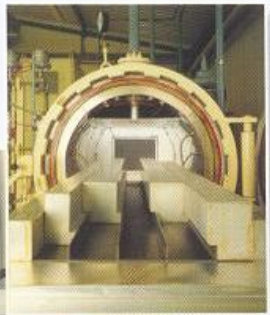


Today, the **Vaihingen Plant** is the “**Plastics Centre**” of our company. We manufacture preregs **7**, fibre-reinforced plastic sheets **8** as well as wound components **9** using modern manufacturing equipment. Our range of products is supplemented by the plastic profiles **10** manufactured at our **Waldshut Plastics Plant**.

We are able to offer our customers tailored solutions for diverse applications thanks to the extensive knowledge in the field of processing resins and fibres.

We “press” KREMPEL plastic sheets and formed parts **8** from our own preregs. This makes it possible to guarantee an extremely high quality standard and the highest possible customer satisfaction. This is possible because we manufacture the intermediate products ourselves and can thus influence the subsequent properties at a very early stage.

plastic sheets



Pultruded plastic profiles



Products which are convincing

WACOSIT® plastic profiles **10** are “pultruded” from rovings impregnated with synthetic resin. In addition to glass fibres, carbon fibres and aramide fibres are also used as reinforcing materials. More than 3,000 standard tools are available to choose from and we can thus offer a wide range of types. We are of course able to manufacture custom-designed profiles.

