

INTRODUCING VACUUMSCHMELZE CORPORATION

VACUUMSCHMELZE is one of the world's leading producers of special metallic materials with exceptional physical, in particular, magnetic properties and ensuing products. It was founded in 1923 and has grown to an international enterprise. Today there are over 3.000 people working for the corporation at production sites and sales offices in more than 40 countries on all continents, generating an annual turnover of approx. 300 million Euro.

The most important international key industries rely on our products when versatility in material properties is called for. Our main customers are found in communication and data technology, the automotive industry,

drive technology and electrical installation technology. Rapidly growing markets include automation and processing technology, measurement and control techniques, the watch making industry and medical technology. In addition our products are also found in air and space industries as well as in household appliances.

The Cores and Components Division offers an extensive product range from cores for ground fault interrupters through to components and complete modules for modern xDSL technologies. VACUUMSCHMELZE products deliver our expertise in product design and production and employ our advanced materials for optimum performance.

SOFT MAGNETIC CORES

The unique combination of permeability and minimal losses are the key factors of our materials. Our product range embraces tape-wound cores made from crystalline, amorphous and nanocrystalline soft magnetic, metallic alloys.



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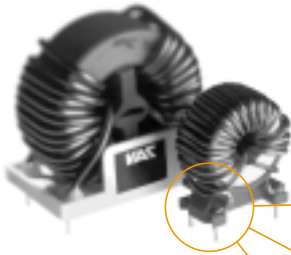
ponents for digital communication technology and precision current transformers for electronic energy meters. Our specialists offer comprehensive advice on our products and, in many cases, detailed information on applications. To this end we employ simulation and dimensioning programs to improve on our product recommendations.

PRODUCTS

- Current Transformers for Residual Current Circuit Breakers and Electronic Earth Leakage Breakers
- Current Transformers for Electronic Energy Meters
- Amorphous and Nanocrystalline Cores for Magnetic Amplifiers
- Low Loss Nanocrystalline Cores for Power Transformers
- Nanocrystalline Cores for EMC / Common Mode Chokes
- Amorphous Cores for Spike Blocker
- Pulse Power Cores
- Amorphous Cores for Telecommunication

Our high-grade NiFe cores of ULTRAPERM[®], which for years have played a life-saving role as differential transformers in ground fault interrupters remain unsurpassed as the most successful technology on the market. Amorphous (VITROVAC[®]) and nanocrystalline (VITROPERM[®]) alloys are produced by modern rapid solidification technology as thin ribbons directly from the melt. These soft magnetic materials combine the high permeabilities of crystalline NiFe alloys with the good frequency behaviour of ceramic ferrites.

Common applications are magnetic amplifiers for computer power supplies, current compensated chokes for radio frequency interference suppression, inductive com-



INDUCTIVE COMPONENTS

As a leading supplier of inductive components VACUUMSCHMELZE is offering a comprehensive product range for industrial applications, automotive and telecommunication.

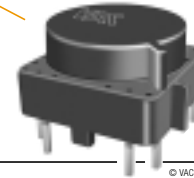
INDUSTRIAL APPLICATIONS

The primary objectives are cost-effective design, optimized volume and maximum reliability. Our experienced engineers are specialists in their fields. In all applications, our customers benefit from our extensive materials base, global manufacturing facilities, experience in international markets, and participation in standardization bodies worldwide. We work closely with our customers to fully understand their needs and thus develop the most highly optimized solutions.

Certified manufacturing facilities in Asia and Slovakia, as well as global procurement enable cost-effective solutions of high quality. In addition, VACUUMSCHMELZE's consultative approach offers worldwide support that is based on a broad knowledge of applications.

Our particular strengths have always been quality products in a wide range of standard series, as well as customized solutions for special application problems. Our customers benefit from the full extent of our know-how:

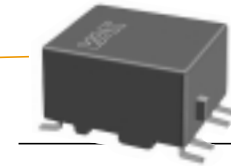
- Knowledge of our customer's application requirement
- Customized layout and design possible
- Knowledge of relevant international standards and regulations
- Choice of optimum core material
- Core production based on own crystalline, amorphous and nanocrystalline materials
- Continuous product support and product development
- Logistic systems for just-in-time and ship-to-line delivery
- Quality standard to DIN ISO 9001:2000 / ISO/TS 16949



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PRODUCTS

- Drive Transformers for Semiconductor Switches,
- Power Transformers and Storage Chokes for SMPS, UPS and Converters,
- EMI, PFC and Storage Chokes,
- Magnetic Amplifier Chokes,
- Current Sensors for Precise AC and DC Current Measurement,
- Chokes for Data and Signal Lines,
- Current Transformers for Electronic Watt-hour Meters



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AUTOMOTIVE APPLICATIONS

The trend in modern vehicles is towards an increase in both the number and complexity of electronic systems. This is leading to a higher demand for efficient, compact power systems and control units. To meet this requirement, VACUUMSCHMELZE offers several new ranges of inductive components for automotive applications.

We provide a range of standard products and are flexible in tailoring these, based on our unique materials and processes, to suit our customers' specific needs. Component verification is carried out in our own, well equipped, modern design center. Our Quality Management System, certificated according to the standards VDA 6.1 and ISO/TS 16949, accompanies our products from the development to the application.

PRODUCTS AND CURRENT DEVELOPMENTS

- Chokes for Voltage Stabilisation
e.g. Gasoline and Diesel Injection Systems
- Compact Size-high Efficiency Transformers
e.g. Decentral Power Supplies
- Mechanically Robust, Compact Sized EMC Chokes with Excellent Attenuation Performance
- Precise and Temperature Stable Current Sensors with Magnetic Field Probe e.g. for Battery Management
- Flexible, Weight-optimized Antennae
e.g. for Keyless Entry Systems

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For further information concerning VACUUMSCHMELZE's products please visit: WWW.VACUUMSCHMELZE.COM



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TELECOMMUNICATION

Since VACUUMSCHMELZE's strategic shift in 1985 towards supplying the telecom industry with advanced inductive components, the IT world has dramatically developed. From the beginning, we have been one of the leading forces behind these advances. VACUUMSCHMELZE's cutting-edge products have been part of the original progress in ISDN technology. Our current activities focus on XDSL and PLC technologies. In cooperation with leading integrated circuit (IC) manufacturers we offer optimized magnetic component design.

All components are engineered to combine excellent electrical performance, compact size and design to cost considerations. Our customers benefit from a unique know-how along the process chain from materials to filter designs:

- Material selection from own nanocrystalline and amorphous alloys to ferrites
- Cost and size optimized designs with sophisticated software support
- World-wide procurement
- Certified production facilities in Asia
- Participation in standardization committees like ETSI or ANSI
- Close contacts with PTT's and IC-manufacturers

PRODUCTS

- ISDN components like S_{01} , S_{2M} , U_{101} , U_{P0} Interface Transformers and Modules
- ADSL Filter Components for CO and CPE Sides
- ADSL Low Pass Filter Modules
- xDSL High Pass Transformers
- Complete ADSL CPE POTS and ISDN Splitters
- ADSL Microfilters
- ADSL CO Splittercards
- Power Line Communication Transformers
- Two-, Fourfold and Multiple Common Mode Chokes

VACUUMSCHMELZE GMBH & CO. KG

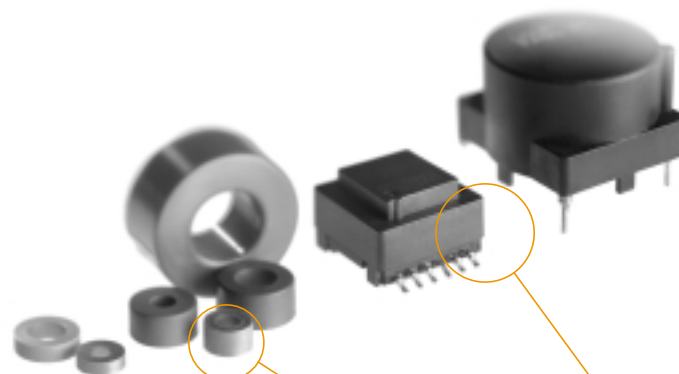
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CORES AND COMPONENTS