

RATHGEBER Group

Facts & Figures

smart-TEC GmbH & Co. KG is a RATHGEBER Group company headquartered in Oberhaching near Munich. Customised RFID/NFC transponders have been developed here for over 20 years. The spectrum ranges from self-adhesive, printed RFID and NFC labels to robust, durable, weather and temperature-resistant RFID/NFC transponders for industrial applications. The majority of the RFID/NFC transponders are certified for use in explosion-protected zones. In cooperation with system partners, *smart-TEC* also offers comprehensive project support.

 <p>Andreas Schrägler Managing Partner</p>	<p>1948 Company formation of RATHGEBER GmbH & Co. KG</p>
 <p>Andrea Schrägler Managing Director</p>	<p>RATHGEBER Group RATHGEBER GmbH & Co. KG, smart-TEC GmbH & Co.KG, RATHGEBER k.s., RATHGEBER Sp.z o. o.</p>
 <p>Klaus Dargahi Managing Director of <i>smart-TEC</i></p>	<p>Sites Company headquarters in Oberhaching near Munich, production plant I (Mindelheim, Germany), production plant II (Bystřice, near Brno, Czech Republic), sales headquarters in Wrocław, Poland</p>
	<p>Workforce Approx. 358 worldwide</p>
	<p>Annual turnover in euros 2023: 41.5 m, 2022: 41.7 m, 2021: 37.7 m, 2020: 31.8m, 2019: 34.7m, 2018: 35.5 m, 2017: 34.8 m.</p>



Company headquarters in Oberhaching near Munich



Plant I, Mindelheim, Germany



Plant II, Bystřice, Czech Republic

- Experts in the field of RFID and NFC for over 20 years
- Worldwide partner network (reader manufacturers, systems integrators, software developers, etc.)
- Active memberships of various professional associations (AIM, dmt Förderverein (printing and media technology association), GS1 Solution Partner, Digital Data Chain Consortium (DDCC))
- All processes and products are subject to the highest quality standards and meet the requirements of the DIN EN ISO 9001:2008 and DIN EN ISO 14001:2004 environmental management systems
- The company focuses on customised RFID and NFC solutions

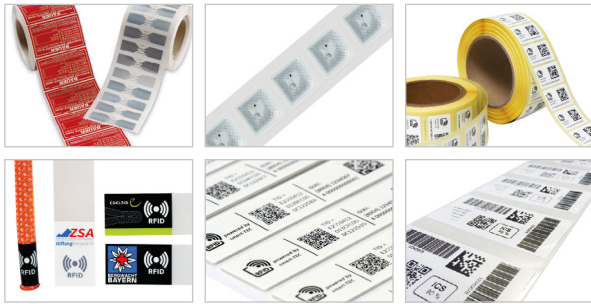
Core competencies

- Well-founded consulting expertise in terms of processes and optimisation potential relating to Industry 4.0 and IoT
- Over 30 different production technologies
- Specialist in robust, durable and weather-resistant RFID/NFC industrial transponders and RFID/NFC labels – programmed, printed, blank, different security features
- Materials, design, shape, overprint, chip technology, chip programming, format and adhesive properties are specially adapted to meet project requirements
- Labelling specialist in the chemical, railway and construction industries
- Comprehensive project support ranging from customised consulting to preparing technical feasibility studies, project design, selection of suitable RFID/NFC hardware and software components through to project implementation and support

RFID and NFC products

smart-TEC specialises in all aspects of RFID and NFC technology. We possess more than 70 years of experience in the field of product labelling for the marketing and technology areas of our parent company RATHGEBER, which makes us the ideal partner for smart, customised RFID and NFC solutions. Cooperating closely with prominent companies in the sector is our guarantee that you will always remain at the cutting edge of technology.

RFID / NFC labels (LF/HF/UHF)



smart-LABEL

- Very thin and self-adhesive
- Blank or printed
- All common chip types and frequencies
- Individual chip coding and programming
- Various materials and adhesives
- Adaptation to customer-specific requirements: Shape, size, material, adhesive, overprint, programming and security features - hologram, security punching, microprinting, personalisation, etc.

Digital metal label (LF/HF/UHF)



smart-PLATE

- Metal label with integrated RFID/NFC technology
- All common chip types and frequencies
- Individual chip coding and programming
- Printed or laser-engraved metal label
- Wide range of fastening options (riveting, screwing, gluing, welding, etc.)
- Wide range of materials and material thicknesses (aluminium, stainless steel, etc.)

RFID / NFC industrial transponders – including explosion-protected versions (LF/HF/UHF)



smart-DOME

- Customer-specific adaptation of design, colour, shape, attachment (also miniaturised)
- Very high resistance to mechanical, thermal and chemical stresses
- Mount-on-metal version for metallic surfaces
- All common chip types and frequencies
- Overprint, laser labelling and chip coding to meet customer requirements
- ATEX, IECEx and UKEX-certified

RFID / NFC emblems (LF/HF/UHF)



smart-CHROMOTION

- All common chip types and frequencies
- 3D haptics, freedom of design and colour selection
- Chip coding and personalisation to meet customer requirements
- Can be applied to almost all textiles

Certified quality and environmentally conscious management

Environmental protection plays an important role throughout the RATHGEBER Group. The group's environmental management system has long been certified to DIN EN ISO 14001:2015. Moreover, the RATHGEBER Group is the first climate-neutral company in the sector. Our plants in Germany and Bystřice (Czech Republic) manufacture exclusively to DIN EN ISO 9001:2015 certified quality standards.



Competence Centre

Our Competence Centre provides an interface between customers, sales, development, product management, measurement laboratory, partner companies and all other necessary specialist departments within the RATHGEBER Group. It offers a wide range of different services in the field of RFID and NFC technology.

An international team offers customised process consulting and optimisation and delivers customer training workshops and seminars that are tailored to specific needs and problems. This allows us to explain how processes can be accelerated and made more traceable, secure and cost-effective thanks to RFID and NFC technology.

Process consulting and optimisation



- ✓ Training in the field of RFID and NFC technology
- ✓ Workshops and seminars – at our premises, in the customer's own environment or online
- ✓ In-depth consulting expertise for optimising processes in the context of Industry 4.0 and IoT
- ✓ Comprehensive project support, from customer-specific consulting to the implementation of feasibility studies, cost-benefit analyses and project design
- ✓ Selection of suitable RFID and NFC hard- and software components

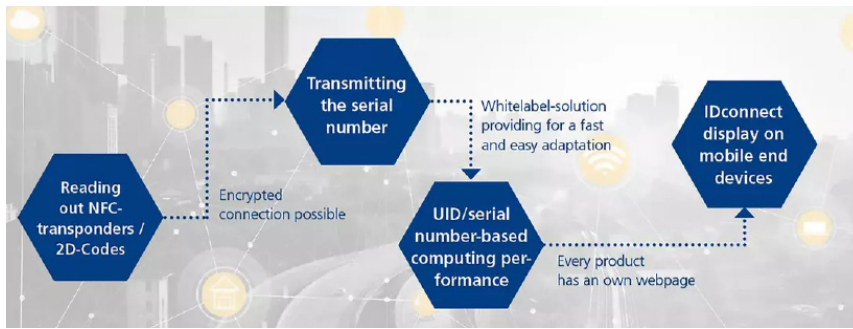
Performance measurements at in-house laboratories or in the customer environment



- ✓ Determination of the orientation-dependent range/response field strength for optimising the alignment of the RFID/NFC reader to the RFID/NFC transponder
- ✓ Performance of RFID/NFC transponders for the HF frequency (13.56 MHz) and UHF frequencies (868 and 915 MHz)
- ✓ Read and write range of RFID/NFC transponders taking various scenarios into consideration
- ✓ Extensive tests at our laboratory and in the customer environment
- ✓ Detailed documentation of our test results and recommendations based on what is technically feasible

IDconnect – links analogue products to the digital world

The first decisive step into the age of IoT (Internet of Things) and Industry 4.0 is to digitally identify a product or machine. This is accomplished either via a printed 2D code or an integrated RFID/NFC transponder with a unique worldwide unique serial number (UID).

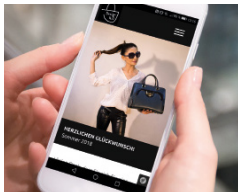


When the 2D code or RFID/NFC transponder is read using a smartphone or tablet, IDconnect provides product or machine-specific information directly online – without needing an additional app. The NFC transponder's globally unique chip identification number (UID) or serial number assigned in 2D code format is linked to the customised IDconnect.

IDconnect is a flexible and adaptable state-of-the-art solution on a white label basis. Individual content, processes, documentation, marketing campaigns, images and videos, together with modifications to the corporate design can be made or customised quickly and flexibly.

The login area allows content to be specifically assigned. Examples include maintenance forms for cooperation partners and product registrations for registered end customers.

IDconnect in the consumer environment (B2C)

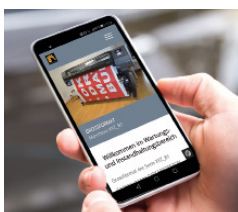


Product labelling

Using their smartphones, customers can quickly and easily scan the NFC transponder integrated in their handbags. They are directed to the individual IDconnect website without having to use an additional app. Product information, images, videos, certificates and documents can be made available to the customer. As needed, the provider delivers marketing and sales campaigns such as competitions, vouchers and special offers. Interaction is achieved by using integrated contact forms, customer registrations, links to websites

and social media channels. The evaluation of Google Analytics and geo-based data offers information about consumer behaviour and serves as a foundation for further strategic planning.

IDconnect in the industrial environment (B2B)



Labelling of industrial machines

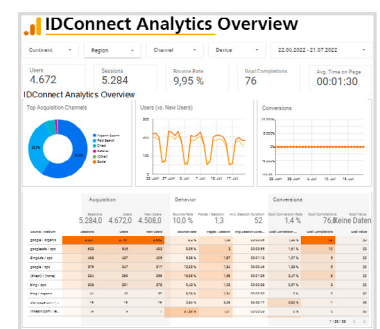
IDconnect optimises and documents processes, making them faster, more traceable and more cost-effective. The NFC transponder or 2D code attached to the machine is read using a smartphone or tablet. Among others, IDconnect facilitates the display of machine characteristics (production date, type designation, technical parameters, etc.), the documentation of maintenance and repair activities, the definition of processes and the timed control of reminder or update functions. Additional information can be made available via

contact forms, via uploads and downloads and by directly linking service partners. Geolocation provides transparency for planning, analyses and evaluations.

Using IDconnect for analyses and trend research

By combining NFC, IDconnect and Google Analytics you can generate and specifically evaluate individual customer data. Learn more about the buying behaviour of your target groups and understand individual user behaviour on the basis of interests, page views, bounce and click behaviour.

Performing such analyses allows you to use IDconnect to send your customers individual offers, tips and information on a time-controlled basis and react specifically to your market's needs. IDconnect provides a customer registration process and login options.



References

As an expert in smart labelling solutions, we have been customising all forms of RFID and NFC technology for over 20 years. We harness our know-how to develop and produce RFID/NFC transponders that are customised to your requirements, in terms of their shape, colour, size, overprint, material and type of attachment – in addition to their resistance to thermal, chemical and mechanical stresses.



Memberships and partnerships



AIM

The global industry association for automatic identification (AutoID), data capture and mobile data communication. It was established in the USA in 1972: www.AIMglobal.org. AIM-D is the local "chapter" of this network and is responsible for Germany, Austria and Switzerland. AIM promotes the development and application of Auto-ID technologies: Labelling, identification and automatic data capture using barcode, matrix code, RFID and sensors.



Digital Data Chain Consortium (DDCC)

The DIN SPEC 91406 Consortium was founded in January 2019 by 28 companies, including plant operators and technology suppliers to the process industry. In October 2021, 43 companies, including the members of the DIN SPEC 91406 Consortium, the VDI Technical Committee 2770 and the Digital Platforms for Asset Management and Maintenance in the Process Industry working group, founded the Digital Data Chain Consortium (DDCC).

The aim of the Digital Data Chain Consortium is to establish the complete digital data chain from the manufacturer to the plant operator. This includes, on the one hand, the further development of the national standards DIN SPEC 91406 and VDI Guideline 2770 into international ISO/IEC standards and, on the other hand, the further development of cloud-based information exchange platforms for the provision of digital manufacturer information.

IDTA

IDTA – The Future of the Digital Twin

The IDTA (Industrial Digital Twin Association) is a powerful alliance that actively and innovatively shapes the future of digital twins. A digital twin bridges physical industrial products with the digital world. In order to successfully implement and disseminate technologies internationally in the context of Industry 4.0, a common understanding between all stakeholders in industry, universities, associations and research establishments is needed. IDTA is the central point of contact for all stakeholders and, among others, creates and harmonises the necessary specifications and sub-models for the asset administration shell.



GS1 Solution Partner

GS1 Germany supports efficient, cross-company processes along the value-added chain. Working for clients from different industries, GS1 Germany is systematically driving the implementation of identification, data carrier, communication and process standards. Its solutions are practical and always oriented around markets and trends. Intensive communication with representatives of businesses from every sector and area of activity ensures high levels of acceptance and investment security.



dmt-Förderverein

The dmt-Förderverein supports the course of study in printing and media technology, as well as its consecutive master's degree in print media, technology and management at the University of Munich. It sets a practical course for creating a common network between students, alumni and companies. The focus lies on promoting young talent and arranging contacts for internships, student research projects and courses. The association also supports graduates with their career entry and promotes the sharing of experience, as well as knowledge and technology transfer between the scientific and practical fields.



RFID-ANWENDERZENTRUM MÜNCHEN

Successful use of RFID technology requires interdisciplinary work in subject areas ranging from high-frequency technology to the design of efficient logistics processes. The RFID User Centre in Munich brings together science, developers and manufacturers of RFID hardware, users and associations, and provides them with an interdisciplinary platform. The RFID User Centre pools the competencies of the various sectors and forms a strong network. This is the only way that future-proof RFID solutions can be considered as a whole and successfully realised. Through cooperation between experts from all relevant disciplines, it is possible to learn from the best, develop successful concepts and ultimately introduce them to the market.



CNM

As the central point of contact for an interdisciplinary network approach, the CNM is the largest NFC network nationwide and maintains contact with over 200 nationally and internationally active companies, associations and institutions. We offer our project partners access to current specialist knowledge and experts focussing on the topic of NFC, as well as support in the development of specific NFC ideas and products. Our goal is to be a technological force for innovation, with a high competitive market potential.