

DRIVE

THE JOURNAL FOR COUPLING TECHNOLOGY

HOT TOPIC:
The Intelligent Coupling

PERFORMANCE

VERIFIED





Jörg Stang, Sales Manager

You can rely on us!

Dear readers,

we at R+W are also facing unprecedented challenges in the current global Corona pandemic situation. We needed to adapt our processes in a very short space of time, in order to keep our business operating as normally as possible and to provide you with the level of R+W service that you are accustomed to.

Yet European internal markets are operating subject to restrictions, which may possibly lead to delivery delays. That is why we requested you to order or inquire about critical components for your manufacturing processes in good time right at the start of the crisis. We are safeguarding our supply chains as far as possible through multiple sourcing strategies and additional covering purchases. However, should your standard coupling not be available on occasions, we are very happy to advise you about an alternative or compatible product.

Unfortunately, the Intelligent Coupling was denied its debut on the grand stage as a result of the cancellation of Hannover Messe 2020. Nevertheless, we do not wish to keep it under wraps any longer, because R+W is offering you a user-friendly, versatile hardware and software solution. You can read all the details in our Hot Topic section starting on page 4.

I wish you and your families all the best!
Stay healthy!

A handwritten signature in black ink, appearing to read 'Jörg Stang'.

Jörg Stang

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The Intelligent Coupling

Entirely wireless

“The initial Intelligent Coupling design looked like a patient in intensive care,” CEO Frank Kronmüller recalls its beginnings in 2008 with a grin. “There were cables everywhere and flashing yellow and red lights that indicated if something was working or not.” Despite this archaic spectacle, R+W was way ahead of its time. Performance data was being recorded directly in the drive train for the first time. For the user that meant considerable added value, because the measured data was therefore significantly more accurate. R+W continuously enhanced its Intelligent Coupling over the course of the intervening years.

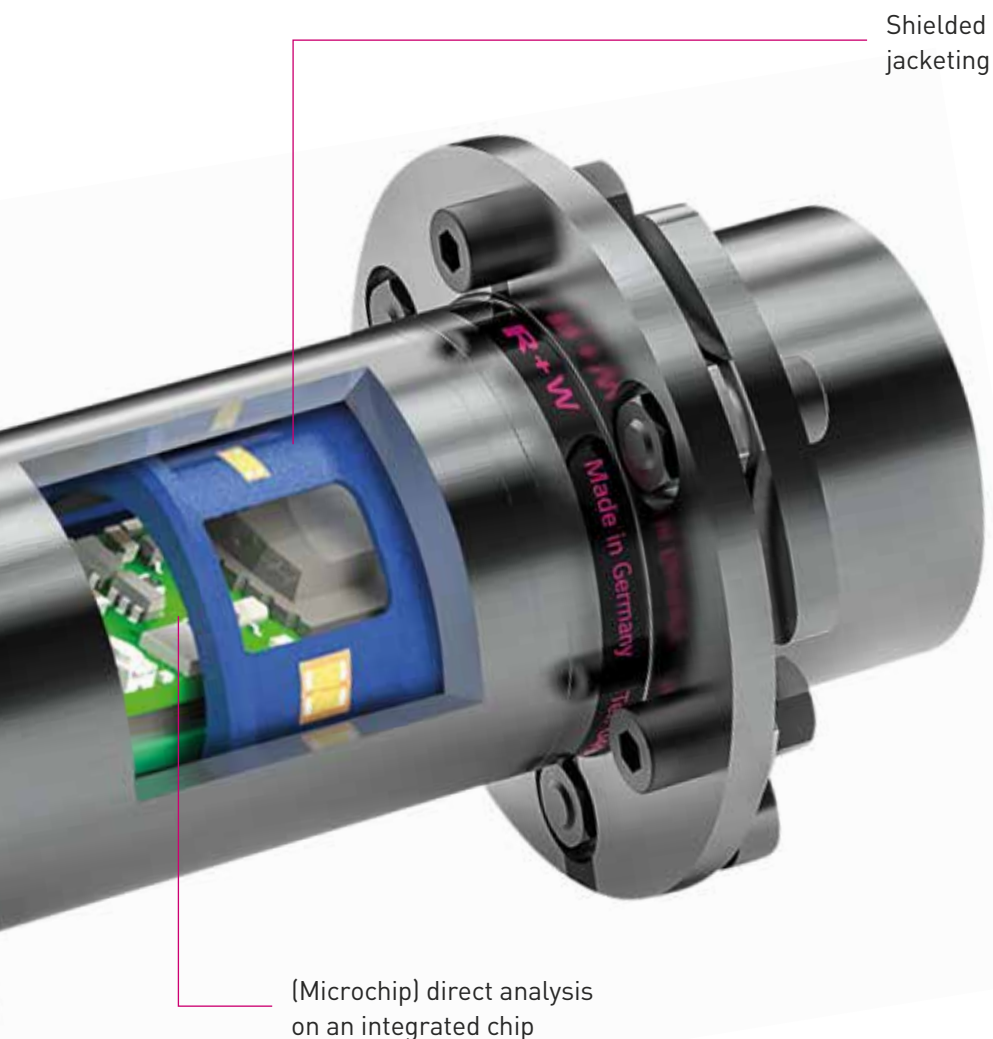
With the latest version to be launched on the market, the product development team has now reached another milestone and set a new standard: measured data can now be recorded entirely wirelessly with a high degree of accuracy directly in the drive train, and processed in a user friendly way in near real time. The benefits are massive – even for customers with existing systems: users can always view data relevant to their

Classic outer design
of a disc pack coupling



application. The smart, innovative sensor technology shortens lead times, reduces production costs and increases product quality. For example, rotating drive trains previously interfered with users’ ability to gain direct access to performance data in cases where networking cables were not feasible, or installation space was unavailable. This problem is now a thing of the past.

“The Intelligent Coupling is a smart alternative to the torque sensor. It measures a range of variables to a high degree of accuracy and yet remains cost-effective,” Sascha Markert, Head of Product Development at R+W, explains. “The operator can always monitor



Shielded jacketing

(Microchip) direct analysis on an integrated chip



ARTIFICIAL
INTELLIGENCE
BY R+W®

all dynamic parameters and relevant data on their smartphone or tablet to ensure continuous system availability,” Markert continues.

Coupling with integrated measurement electronics

Like the entirely mechanical range of R+W couplings, the Intelligent Coupling can be installed quickly and easily, and integrated into existing systems. Alternatively, the sensor technology can be retrofitted to couplings that have already been installed. Given that complex auxiliary structures are not required for installation, it also takes up very little installation space. The sensor technology measures various parameters such as torque, speed, vibration and axial load at a

given location, which are then processed by the internal electronics and simultaneously transmitted to and displayed on a wirelessly connected mobile device. The mechanical properties of the coupling are not impaired by the integrated electronics: it can continue to compensate for parallel, angular and axial misalignment while precisely transmitting rotational power.

Static power version

An integrated rechargeable battery with a charge capability of 2000 milliampere hours (mAh) enables the coupling to be installed in very confined spaces or used in mobile applications. 24/7 availability is also planned: >>



Users are able to monitor the data relevant to their application.

The Intelligent Coupling will soon be available with an inductive power supply option in the form of a small box, connected to the power grid, and installed several millimeters beneath the coupling to provide permanent non-contact energy. Power is transmitted via integrated coils on a near-field telemetry basis with no need for an external amplifier. The sensors measure torque, speed, vibration as well as tensile and compressive force at a sampling rate of 500 Hertz. This data is then processed directly by the internal electronics and is simultaneously transmitted to a wirelessly connected system.

R+W app: user-friendly display

All variables are displayed and presented clearly and in a range of different views on the mobile device using R+W's own app. Sascha Markert explains the operator-friendly user interface: "The complex measurement technology and its algorithms behind the interface are not visible to the user. Intuitive gesture control makes operation easy and convenient." In the app the dashboard view shows the data in tabular form with mean, minimum and maximum values, and various scalable diagrams track the performance variables in detail. In the multigraph, for example, two different variables can be superimposed

onto a single diagram to enable easy identification of correlations.

High degree of user benefits

"The combinable, time-dependent variables can be used, for example, to enhance transparency and assessment of the dynamic behavior of the rotating drive train. Ascertaining torque and forces can, for example, help reduce or prevent outages and downtimes and therefore increase system availability and reliability," is how Head of Product Development Sascha Markert explains the user benefits.

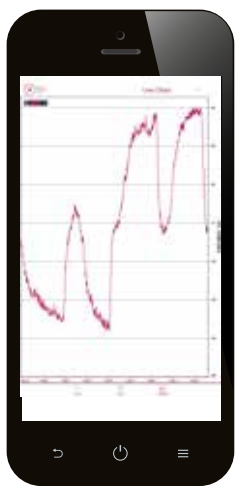
The future is set to be even smarter

R+W will also continue to work on enhancing the Intelligent Coupling in future. Intelligent disc pack couplings are set to be followed by other models with integrated sensors. Frank Kronmüller is already looking to the future: "This full potential has by no means been fully exploited yet. New functions and various algorithms to analyze variables will ensure that the coupling will be even smarter and set new standards in the marketplace." ■

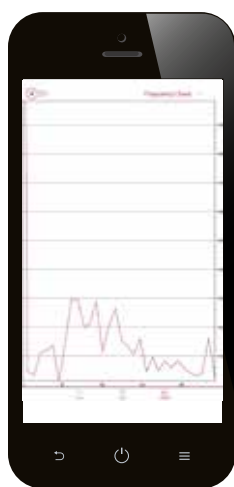


Dashboard on the tablet

The R+W app shows measured data on the dashboards in large, configurable displays.



Line chart on the smartphone



Frequency chart on the smartphone

YOUR BENEFITS AT A GLANCE

01 FOR GREATER TRANSPARENCY

Direct recording of variables in the drive train

02 MEASUREMENTS TO A HIGH DEGREE OF ACCURACY

Torque, speed, acceleration, vibration and axial loading in one place

03 COMPREHENSIVE DATA

Various scalable diagram types track performance variables in detail.

04 COMBINABLE, TIME-DEPENDENT VARIABLES

Enhanced analysis and transparency of dynamic behavior in the rotating drive train



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Space for development

Long-term thinking and action – R+W's basic philosophy is also reflected in the architecture of its new building. Space for an enhanced and expanded working environment. The company is therefore geared up to meet existing and future requirements.

The time came at last in October 2019: the relocation to the new company building in Hattsteinstrasse 4 was completed. Production at our high-performance couplings is now fully up and running here. >>





Relocating to the new building provides a number of benefits, for customers and employees alike. "The new building has given us the space we need to align processes and structures effectively with our requirements. The specific merging of locations and simultaneous expansion of existing production facilities has enabled us to enhance material flows still further. We have therefore paved the way for increasing efficiency and output, to enable R+W Antriebsselemente to continue to grow steadily in the future," CEO Frank Kronmüller explains.

Lean production: enhanced and augmented processes

All of the processes in our new lean production environment have been enhanced with the objective of efficient and time saving utilization in mind. The large centralized parts storage system also has an impact in terms of faster workflows in all areas. Customers now benefit from improved lead times resulting from the overall leaner production process. Individual manufacturing stages in the coupling production process have not only been enhanced but also expanded. The best example of this is the bonding process: the coupling passes through the individual preparation processes on roller-supported conveyor belts almost

automatically. Upgraded air-conditioned rooms with state-of-the-art precision humidity and temperature controls sustain a consistent high-quality bonding process. A new level of precision dispensing is also facilitated by volume-based metering pumps. New parts washers and dryers with specialized programs provide more intensive cleaning, ensuring liquid residues are completely eliminated from within the bellows layers.

Focus on employee health

With the relocation to the new company headquarters, R+W is providing its employees with a significantly more appealing work environment. Ergonomic workstations with plentiful natural light, enhanced occupational health and safety features, and modern meeting and breakout rooms are a few of the improvements. "Our new corporate headquarters are creating a Working Environment 4.0 that focuses on the health of our employees," Frank Kronmüller emphasizes. With an eye on the future he sums up as follows: "These new facilities mean we have plenty of space for development purposes and are superbly positioned to meet future requirements. We can now action our strategic objectives to the optimum and thus satisfy growing demand." ■



The bonding process benefits from air-conditioned rooms.



New machinery and manufacturing processes on the large shop floor



Simply faster! Enhanced manufacturing processes ensure increased productivity.



The new reception area:
modern and bright as day

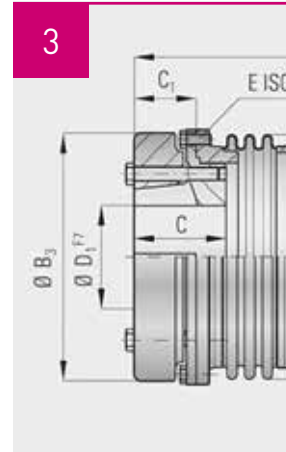


The new rooftop terrace: fresh air helps to recharge the batteries.

Product development is our strength

How a coupling is created

Every day we produce needs-based, high performance coupling solutions on behalf of our customers from all high-tech industries, and for widely varying applications. Vehicles and transportation systems, wind turbines, drilling rigs, aerospace systems, and high-tech medical devices are just a few of the areas where R+W couplings can be found. On a journey through R+W's production processes you can learn how such "impossible" couplings are created and what steps need to be taken on the way to becoming a ready-to-use product!



Conceptual design and design engineering

We remain in constant communication with the customer through the integration of smart interfaces. Accurate design drawings, drafted in modern 3D CAD systems, result from these customer conversations.

The idea

The manufacturing industry's stringent and specific demands on couplings require a high degree of creativity and engineering development. This is how needs-based solutions are created, based on decades of experience.



2



Advice

The creation of custom couplings requires in-depth communication with customers. In personal conversations, our employees inquire about the most important parameters in advance of the conceptual design process. Our expert advice is always state-of-the-art.

Manufacturing

From design engineering to implementation: our high-precision manufacturing is the result of a superbly coordinated production chain. Production has been enhanced in line with lean principles and is subject to continuous process controls.



4



5

Quality assurance

Quality requires control. The outcome: increased audit criteria, decreased error rates, and additional capacity. We do not leave anything to chance, because the world of R+W couplings is unforgiving of errors.

Warehousing /shipping

State-of-the-art warehousing and a shipping function that dovetails with production processes ensures shorter lead times and more satisfied customers.



6



7

Continuous research and development

Innovation is what drives us: our own product development team partners closely with universities in the fields of smart technology and AI when working on product innovations and special precision and industrial coupling solutions.

Disc pack couplings:

newly enhanced

R+W is currently working on expanding its LP series disc coupling product range. The new standard configurations and sizes, as well as their respective CAD models, will be available in the second half of 2020. Torque capacities offered by these robust, torsionally stiff, zero maintenance disc couplings have been significantly increased to a range of 350 to 50,000 newton meters, and with higher torques available on request. Higher torques are also available on request. With the re-engineered and well-planned standard

sizes, R+W is now offering customers a range of new options better suited to their applications. An installation friendly single flex disc coupling with extremely high torsional stiffness and a dual flex version with fully split clamping hubs for easy radial installation and removal will be offered as entirely new products. The wide range of additional options, smart versions with integrated sensor technology, as well as special customer-specific solutions round off the new edition of the portfolio nicely. ■



News

SCL range: "Best of Industry" nominee

R+W's SCL range is a nominee in the "Drive Technology" category of the fifth edition of specialist publication MM Maschinenmarkt's "Best of Industry" Awards. Readers have until June 7, 2020, to select their personal favorites from a list of industrial product innovations put forward in a total of eleven categories.

R+W is in the running with its SCL servo disc pack coupling, a flexible shaft coupling for smaller-sized, low-speed applications that offers benefits in terms of reduced material usage and ultimately less weight.

SCL couplings are particularly well suited to use in laser engraving machinery and machine tools as an alternative to complex special solutions, because they operate effectively in aggressive media and at high temperatures. Depending on the design the SCL can transmit torques ranging from 25 to 300 newton meters and its flexible disc packs enable it to compensate for parallel, angular and axial shaft misalignment.

Voting is definitely worthwhile, as all participants are entered for a chance to win some great prizes:

<https://www.maschinenmarkt.vogel.de/best-of-industry/voting20/> ■



R+W: Design Engineering Enabler status

Specialist journal "konstruktionspraxis" has given R+W the title of "Design Engineering Enabler" in the "Lightweight Construction" category. "Awarding the 'Design Engineering Enabler' title is our way of accolading companies, whose solutions have the potential of bringing lasting change to design engineering and product development," is the statement made by the Vogel Communication Group, which organizes these awards. R+W won the award for developing the TORQLIGHT range of SL models for light weight construction purposes. The intention has long been to make new designs and product upgrades lighter, more compact and therefore more efficient – and not just for the aerospace sector. The intention has long been to make new designs and product enhancements lighter, more compact and therefore more efficient not just



ENABLER DER KONSTRUKTION

in the aerospace sector. "The TORQLIGHT range of SL models, which R+W developed in collaboration with universities, is predestined for these applications. It combines high-tech materials with unique coatings in a lightweight, compact and high-performance design. Compared to standard model ranges, weight was reduced by up to 60 percent. The modular concept enables specific application needs to be actioned," is the reason given by the jury for its decision. Many thanks! We are really delighted to win this award! ■

Trade Fairs 2020

The Corona pandemic has resulted in many trade fairs being cancelled or postponed. You can find out where and when we will be exhibiting in 2020 on our website at:

www.rw-kupplungen.de/messen



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