

DRIVE 01|22

**R+W**  
A POPPE + POTTHOFF COMPANY

# DRIVE

THE JOURNAL FOR COUPLING TECHNOLOGY

**HOT TOPIC:**  
From Würth to all  
corners of the globe





## Facing the future with confidence

Dear readers,

the last couple of years have been an ordeal for the entire economy and for companies in all industries. We are pleased and happy to say that we are facing the future with confidence, despite all the imponderables. Our strategies and corporate structures have proven their worth, and the signs are pointing to growth, both in product development and headcount terms.

As a leading provider of drive components, we continue to play in the global premier league. The headline topic of this issue is therefore "From Wörth to all corners of the globe". Our precision products are in use almost everywhere, across industries and countries, even in places where hardly anybody would expect to find them. We introduce you to the "hidden champions" of our portfolio in this issue.

Furthermore, we are proud to have contributed our engineering solutions, expertise and passion to Europe's largest "green engineering" project: the successful renaturation of the Emscher river in the Ruhr region.

Last but not least, we would like to introduce you in this issue to some of our new employees, provide you with insights into our company and present some innovative new products.

I wish you an inspiring read.

Jörg Stang  
Head of Sales

Content & Editorial  
**2-3**

**4-7**  
Products & Innovation  
From Wörth to all corners of the globe

**8-9**  
The Green World of R+W  
Clean, quiet, environmentally compatible

**10-11**  
Company  
Consistent pumping station safety

**12-13**  
Company  
New employees on our team  
Safety in compact form: SKH

**14-15**  
News  
DRIVE:ON: new "versatile test stand" video  
News



From Wörth to all corners of the globe



Companies from a wide range of different industries around the globe use couplings made by R+W. Even in space, astronauts on board the International Space Station (ISS) use custom-made safety couplings manufactured in Wörth. Playing the role of “hidden champions”, couplings ensure power transmission reliability. Not everyone is aware of their full range of applications, but everybody relies on them, from aviation to laboratory technology, from mining to railway technology, from wind turbines to water treatment plants. As a provider of solutions to industry, R+W’s portfolio includes innovative couplings for almost any application.



Every product group in R+W’s portfolio also includes specific models, which can be regarded as hidden favourites, because they are used in many places and have real fans among design engineers across all industries. We present some of these versatile products here.

#### **Zero-backlash precision**

The appeal of metal bellows couplings lies in the maximum precision they deliver, and they are used wherever positioning accuracy has top priority: in medical devices, test stands, wind turbines or the highly dynamic servo axes installed in machine tools, wood processing or packaging machinery and much more besides. Irrespective of whether they are required to perform major or minor tasks, R+W offers metal bellows couplings in a wide range of different designs. Depending on the model selected, they guarantee torque transmission ranging from 2 to 10,000 Nm. The BK5 model is the proven flagship of the metal bellows coupling range. It was developed in 1993, because systems of this kind were not available on the market at that time. “The BK5 was not an enhancement or a modification of existing models – we came up with something entirely new,” is what Managing Director Frank Kronmüller says about the invention that numerous design engineers all over the world have opted to use since then.

### Characteristics Metal bellows couplings BK5

Press-fit connection

Absolutely backlash-free

Easy to install and remove

Wear and maintenance free

Electrically and thermally insulating

**Dynamic motion meets damping**

The main advantages of elastomer couplings include vibration damping, zero-backlash transmission and electrical isolation. Although part of a wider group known as jaw couplings, the elastomer coupling, however, features one key additional component (its actual centrepiece): an elastomer segment inserted between both hub halves.



This elastomer insert transmits torques ranging from 0.5 to 25,000 Nm at zero backlash and compensates for axial, lateral and angular shaft misalignments. It enhances the entire drive train and delivers damping capability, torsional rigidity and thermal stability. This damping capability is particularly important in systems and equipment subject to frequent impact, reversing, or vibratory loads.

The first elastomer couplings were launched on the market in 1999. Since then, their compact size, convenient press fit design and extremely high concentricity have delivered definite competitive advantages. The EKL model with clamping hub in particular is a true all-rounder that is suited to a wide range of applications, including for example photovoltaic systems, where it ensures that solar collectors are always properly aligned with the sun.

**Simpler, faster, more cost-effective**

Large distances have to be spanned in many applications, for instance in conveyor and crane systems, production and paint lines or in machine tools, packaging machinery or printing presses. Where previously intermediate support bearings had to be installed across these long distances, modern R+W line shafts have been bridging gaps of up to six metres since 1995. This saves time and money as far as assembly and maintenance are concerned. The R+W portfolio features two types of these innovative, zero-backlash connectors: vibration-damping line shafts with elastomer inserts, and torsionally stiff line shafts, based on the proven metal bellows coupling. Their special self-supporting designs enable them to span longer distances, compensate for axial, angular and parallel shaft misalignment, and transmit torque ranging from 10 to 25,000 Nm. The EZV model deserves special mention here. It demonstrates R+W's power of innovation and market leadership, because no other provider has line shafts of this kind in its portfolio.

<b>Characteristics</b> <b>Elastomer couplings:</b> <b>EKL</b>
Compact design
Low moment of inertia
Easy to install
Vibration-damping
Electrically isolating
Zero-backlash transmission
Press-fit connection



## Characteristics

### Line shafts: EZV

Continuously variable in length
Can be installed radially using split clamping hubs
Standard length up to 4 m
No intermediate support bearing required

which are even used on board the International Space Station (ISS), for example, thanks to the weight savings of up to 60 percent that they provide.

Even if you rarely see them: R+W couplings really are versatile. Available in a diverse range of versions, they are used in many different industries and always ensure maximum precision and safety. ■



Matching accessories, consisting of optional intermediate shafts and intermediate bearings, are also available from R+W.

#### Safe, reliable lightweight designs

R+W's mechanical safety couplings provide guaranteed reliable overload protection for drive components. They operate on the spring loaded ball-detent principle and function as absolute emergency release units in machinery. Compared to safety couplings that are based on compressed air, electronics or other technologies, they convince with easy handling, stable disengagement torque settings and an incomparably rapid overload reaction time of 3 to 5 milliseconds. These safety couplings are extremely versatile, given their different sizes, functionalities and suitability for torques ranging from 0.1 to 450,000 Nm.

The SL model series deserves special mention here. It is suited to all applications in which compact size and weight play a key role alongside safety. For example, in the aerospace industry where every gram counts and the highest standards of precision and reliability need to be met, the SL can be a great choice. R+W has been developing lightweight safety couplings since 2010,

## Characteristics

### Safety couplings: SL

Up to 60 % weight savings
Straightforward, compact design
Continuously adjustable torque
Easy to install



"R+W goes green" series

## Clean, quiet, environmentally compatible

There is a reason why electromobility is gaining in popularity: e-vehicles ensure clean air, they are quiet, economical and efficient. With the introduction of hybrid vehicles and the installation of multiple charging points for cars and e-bikes, R+W is setting a climate protection example internally. The purchase of e-vehicles is also planned to be expanded in the future.

"The entire R+W fleet is gradually being converted to electric. Our employees also account for a large proportion of the fully electric vehicles driven, and more are being added all the time. Four out of the eleven company vehicles are now electrically powered", says Holger Vogt, Managing Director at R+W. This is why multiple charging points were installed in the company parking lot – and of course, the next vehicle purchased will also be an e-car.

### Better environmental footprint

Overall, when assessed over the course of their lifetimes, e-cars have a significantly better environmental footprint than conventional vehicles with combustion engines. Because they are charged using green electricity from renewable energy sources, CO<sub>2</sub> emissions when driving are almost zero. They also ensure clean air, because they emit no exhaust gases and therefore no particulate matter or pollutants. Another bonus is noise protection, as e-cars are considerably quieter than conventional cars. This is of major benefit to everybody, especially in sprawling metropolitan areas.

### Taking responsibility

"We wanted to set an example in terms of sustainability and resource conservation", Maximilian Crößmann, Managing Director, explains. Taking social responsibility also plays a key role for R+W, alongside the sustainability aspect.



Company-owned charging point

are leading the way and can proactively set an example", says Holger Vogt. R+W therefore regards the long-term switch to a sustainable fleet of vehicles as a logical step



Low-maintenance and energy-efficient – the new fleet at R+W

In the view of electric vehicle drivers, charging at the workplace will be a key basic requirement for encouraging electromobility usage, given long idle times, regularity and reliable availability. "As a commercial enterprise we

to demonstrating social responsibility outside of the company itself. ■



## Consistent pumping station safety

Proven R+W safety couplings provide reliable overload protection to the turbines in the newly built large pumping station in Oberhausen and are therefore making a valuable contribution to the renaturation of the Emscher river.

One of Europe's largest "green engineering" projects has been successfully completed. The course of the Emscher river in the Ruhr region has been transformed and revitalised from a biologically lifeless sewer into a vibrant body of water. The figures for this major project make impressive reading: 73 kilometres of new underground sewers, up to 40 metres deep, 30 years project duration, 100 years minimum service life, handling sewage generated by 2.2 million people, 3 large pumping stations, investment volume of 5 billion Euros.



The deepest construction site in the Ruhr region

### Underground sewer relieves pressure on the river

The new Emscher underground sewer (AKE) represents the project's "main artery" and takes the pressure off the Emscher. It runs for 73 kilometres from Dortmund to Dinslaken beneath motorways, railway lines, the Rhine-Herne Canal and industrial parks over a distance of 51 kilometres. The sewer commences at a depth of eight metres and requires a gradient of 1.5 per mille. To ensure that it does not end up 80 metres below ground, the water is raised again at specific points with the aid of three pumping stations in Gelsenkirchen, Bottrop and Oberhausen.

### R+W couplings protect pump drives

The pumping station in Oberhausen, featuring a depth of 44 metres and a diameter of 50 metres, is the centrepiece of this main sewage artery. Here, ten underground pumps convey up to 16,500 litres of water per second 40 metres upwards. The pumps' turbines and drive trains are protected by R+W safety couplings. These disconnect the system within a few milliseconds, if a foreign object gets into the pump's impellers. That can easily happen in a sewer, for instance, due to pieces of wood getting stuck or the dreaded "braid formation" phenomenon, caused by fibrous shreds, wet wipes and sanitary products.



### Wear and maintenance free safety couplings

Pump and motor overload disconnection is a process involving disc springs that exert an axial force on ball bearings, which are loaded into detents. As soon as the tangential force acting on the ball bearings becomes too great, they are pushed into the safety segments, which cuts off the mechanical connection between the turbine and the drive. "Its special design means that the STR/25 coupling model is practically maintenance- and wear-free, yet can be flexibly adjusted", is how Christopher Monka, Senior Account Manager at R+W, explains the particular features of the couplings used. The spring-loaded ball-detent principle also has the advantage of enabling the trigger point to be defined exactly. The safety couplings installed in the Oberhausen pumping station are full disengagement versions, which means that the safety mechanism can be reengaged manually and within a matter of minutes – simply with the aid of a rubber mallet. Even though the 80 kg couplings on the 5 m line shaft are already formidable, they by no means represent the limit of what is feasible. The largest safety coupling manufactured by R+W weighed more than 20 metric tons and had a disengagement torque of 20 million Nm.

### Renaturation thanks to engineering

At the beginning of the 1990s, hardly any local residents imagined that the Emscher would ever live again. Today, nature has returned, and trout, demoiselles and even kingfishers have resettled here. A great success, in which R+W's passion, expertise and technology played a role. ■

## FACTS + FIGURES<sup>rk</sup>

# 73 km

of new underground sewers

# 40 m

depth

# 51 km

route

handles sewage of

# 2.2 million

people

# 30 years

project duration

# 100 years

minimum service life

# 5 billion Euro

investment volume



Video  
"Engineering restores nature"

# New employees on our team

At a current headcount of more than 250 employees, R+W is continuing to grow. In recent months, new colleagues have joined our team in various departments. They bring many years of experience, new ideas and a breath of fresh air to the company and are helping R+W continuously to evolve as a company and to enhance its products. We introduce four of them below.

## **Magdalena Schramm | Account Management**

Magdalena Schramm has been on board since September 2021 and is a welcome addition to the Account Manager team. She has 8 years of sales experience and is the contact person for the northern region of Baden-Württemberg. She is available to answer any questions you may have about selecting the right coupling for your application.



## **Heiko Bachmann | Process Expert ERP**

Digital processes support and aid sales – but are also becoming increasingly complex. Heiko Bachmann, who joined the R+W team in October 2021, has a handle on this complexity. He looks after the sales module and other digital processes that focus on sales.



## **Martin Portka | Engineering**

Martin Portka brings many years of experience in the automotive industry, toolmaking and special-purpose mechanical engineering in the vacuum technology sector to the Engineering team at R+W. He has been a valuable asset to our team since October 2021 and is responsible for design-engineering special couplings for customer orders. He is also involved in the development and launch of new product ranges and is a key user of the newly rolled out CAD software.



## **Kevin Klinke | Quality Management**

Kevin Klinke has been responsible for quality assurance in the company since November 2021. He is tasked with setting up a professional supplier management and supplier development system. He also assists the team with day-to-day quality management work and monitors incoming and outgoing goods as well as complaints processing.



# Safety in compact form: SKH

This zero-backlash precision safety coupling with split clamping hub is a new product in R+W's portfolio.



SKH datasheet



Installation space in machinery is often restricted for design reasons and therefore requires particularly compact and reliable components. The issue of safety also plays a major role alongside space, because machinery failures are usually very costly. For this reason R+W has developed a new and reliable product solution: the SKH, a zero backlash precision safety coupling, which is now available in a fully split clamping hub version, facilitating easy lateral installation.

The appeal of the new high-precision connector lies in the combination of the proven spring-loaded ball-detent principle and disc springs specially developed by R+W. In the event of a machine crash or overload, the SKH disengages the driving and driven components within just a few milliseconds, preventing damage to other components as well as costly machine downtime.

The connection with the two fully split clamping hubs enables the SKH to be easily installed, even in restricted spaces with hard to move components. Standard torque transmission ranges from 0.1 to 2,800 Nm, while operating temperature ranges between -30° and + 100° Celsius. Higher torques and temperatures are feasible on request ([www.rw-couplings.com/contact](http://www.rw-couplings.com/contact)). Our experienced specialists at R+W also develop solutions for specific requirements. ■

## Product benefits Safety coupling: SKH

Precision torque limitation

Easy lateral installation

Reduced installation time and prevention of downtime



# DRIVE:ON



Video

## New “versatile test stand” video

A new edition in the R+W video series explains the possible applications and benefits of the versatile test stand.

Test stands are a fundamental part of quality assurance and uses include development of prototypes and end-of-line testing. As part of the quality control process at R+W, test stands monitor the disengagement torque of a safety coupling or the adhesive bonding of a metal bellows coupling, for example.

A particular feature: the test stand is equipped with its own products like smart sensors and the SL safety coupling. In the video, Magdalena Schramm (Account Management) and Christian Arnold (Quality) present the test stand and demonstrate how R+W ensures short set-up times as well as how it visualizes and documents results. ■

## Webinars – to be continued!



R+W will be offering further webinars from the “Become an Expert” series starting in autumn 2022.

In these webinars our experts communicate their coupling knowhow live and free of charge. Topics will include modern sensor technology and special solutions. We will inform you about the exact dates in good time. ■

### Membership in the EPTDA

The EPTDA (European Power Transmission Distributors Association) is the leading mechanical power transmission and motion control (PT/MC) industry organisation in the EMEA region. More than 230 power transmission distributors and manufacturers in Europe, the Middle East and Africa have been networking on this sales and distribution platform since 1998. A wide range of events throughout the year enable members to keep in touch with each other and with what is going on in the market. R+W is delighted to be a part of this community from now

on, and is confident that by joining, it will not only achieve its objectives but also expand its business network.



## New machinery safeguards the future

R+W continuously invests in new technologies and production machinery, in order to keep on enhancing and expanding its high degree of vertical integration and range of custom solutions. This is a key strategy that continues to enable R+W to secure its position as a global technology and market leader in the mechanical drive components sector.

### Precision to perfection

R+W has invested in two new lathes manufactured by Weiler Werkzeugmaschinen GmbH to produce precision couplings. The appeal of the new lathes lies in their state-of-the-art control and drive technology, as well as the maximum precision they deliver. That not only simplifies their production line operation, but customers also benefit from new custom solution options and consistently premium quality.



ler Werkzeugmaschinen GmbH to produce precision couplings. The appeal of the new lathes lies in their state-of-the-art control and drive technology, as well as the maximum precision they

### Coupling component cleaner

The new, compact component cleaner ensures maximum cleanliness for all coupling components at the R+W plant. This is achieved by using the spray/flood cleaning process: on the one hand the cleaning chamber is partially flooded, while on the other, the components are spray-cleaned with the aid of a patented mechanism that rotates the cleaning and feed system. This combination is particularly effective, because it can also handle undercuts and hidden inner contours.

Thanks to rapid draining times of its cleaning chamber (which has an above-average capacity of 105 litres), the new component cleaning system makes a valuable contribution to reducing non-productive process times. The device is also easy and convenient to operate, thanks to its touch-screen control system in the familiar Windows design.



### Top-level tested quality

Quality assurance (QA) is an essential part of the production process at R+W. All couplings as well as their individual components are inspected by the QA department before they are delivered to customers. A contourgraph is now enabling the QA team to conduct top-level product testing. With the aid of seven movable axes, the device inspects the contours, roughness and roundness, tootinging as well as thread measurements on coupling components. Exceptional precision and ease of operation are the hallmarks of this device.



Contourgraph testing is an integral part of the quality assurance process for components featuring complex, yet essential-to-functionality geometries. That is why safety coupling components in particular undergo this process.



A POPPE + POTTHOFF COMPANY

Why not stay informed and  
sign up for our Info Service:

**<https://www.rw-couplings.com/newsletter-subscription/>**

Or follow us on Facebook and LinkedIn:

  **R+W Antriebselemente GmbH**

**Editors:**

R+W Antriebselemente GmbH  
Hattsteinstraße 4  
63939 Wörth am Main, Deutschland  
[www.rw-kupplungen.de](http://www.rw-kupplungen.de)

**Editorial:**

Nadine Distl-Paulus / Sina Odenwald /  
Tobias Fischer  
[distl-paulus@rw-kupplungen.de](mailto:distl-paulus@rw-kupplungen.de)  
[odenwald@rw-kupplungen.de](mailto:odenwald@rw-kupplungen.de)  
[fischer@rw-kupplungen.de](mailto:fischer@rw-kupplungen.de)

**Layout and Execution:**

C&G: Strategische Kommunikation GmbH  
[www.wir-verstehen-technik.de](http://www.wir-verstehen-technik.de)