

## **Achieving Great Things Together**

An introduction to our company

### MADE FOR MOTION: THAT'S WHAT IT IS ALL ABOUT.

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# Wherever motion is essential, we have the right answer.





### **Drive technology**

Mechanical components are and will remain essential in drive technology. The industry's demands on components grow continuously: energy efficiency, power density, ease of servicing and electronification. Our portfolio includes couplings and torque limiters, clamping sets and universal joints as well as torque measuring shafts.



### Brake systems

Our hydraulical and electromechanical brake systems are globally used in various industries. Customer preference and parameters of the application decide on the selection of the right brake.



### Hydraulic components

For almost 50 years we have provided the industry with a continuously growing range of hydraulic components from our in-house production: accurate selection, high-quality processing, quick availability.



### Cooling systems

As a customised product or standard solution, multimedium or oil/air cooler, for mobile machines or stationary hydraulics, optionally available as a marine or ATEX version, powerful and efficient.





Construction and agricultural machines



Pumps and compressors



Indoor materials handling



Machine tools



Hydraulics



General drive technology

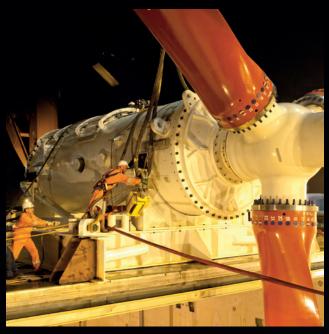


Marine / shipbuilding



Stationary energy production

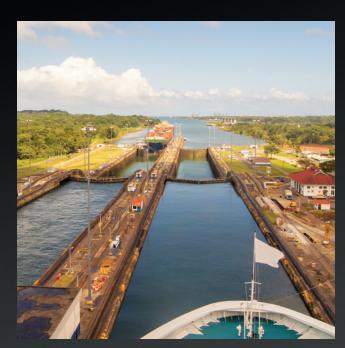
## KTR sets things in motion around the world.



In the turbines of the tidal power plant MeyGen off the northern coast of Scotland.



In the tunnel drilling machines for the Gotthard base tunnel in Switzerland.



In the new lock gates of the Panama Canal.



In the drive of the new Zugspitze cableway in Germany.



In the drives of the mobile panoramic tower City Skyriser in the Netherlands.



In the conveyor belts of the copper mine Antucoya in Chile.



In the boiler feed pumps of the steam power plant Shuqaiq in Saudi Arabia.



In the bow thrusters of MS Richard With by Hurtigruten in Norway.

# We are happy to have our quality standards verified by third parties.

If you are satisfied, we are starting to tick the right boxes. If you are convinced, then we are here to stay. Just like you, KTR makes strict demands on its products. To ensure that this is the case, we offer maximum quality assurance along the entire value chain.

This begins right at the production planning stage: integrating all operating data into the ERP system ensures that production progress is carefully recorded every step of the way. This prevents breakdowns, speeds up all processes and ensures that orders are handled without a hitch.

Many components and systems are developed and tested in the Power Transmission Center, a modern R&D centre with a multifunctional assembly hall. In this centre alone, engineers have more than 25 hydraulic and electric test benches at their disposal on which extensive durability and load tests are carried out. For example, KTR uses 3D measurement devices to check the dimensional stability of couplings and then compares the data with results from other tests, such as a finite element analysis (FEA). Torsional vibration calculations are also made for complete power transmission systems to ensure that they not only run smoothly, but also for a long time.

As there is nothing tougher than reality, KTR likes to test its products in near-realistic conditions. In the purpose-built environmental chamber, for example. Here, components are put through their paces and must prove that they can reliably perform their tasks in extreme environmental conditions at temperatures as low as -50 °C.

"Made by KTR is not a promise, it's a duty."

Guido Butscher, Head of Quality Management



#### Certificates

KTR also meets special requirements in external tests. Being one of the first companies in the field of drive technology, KTR was certified in accordance with DIN EN ISO 9001 already in 1993, including the plants in Poland, China, India and USA. Approval has also been received from all major classification societies. Individual approvals by other societies can be implemented on request without fail.

Certificate

DIN EN ISO 9001:2 DIN EN ISO 14001

torsionally flexible, rigid and stiff shaf clamping connections and unit





























# Wherever motion is essential, we have the right answer.

On land, on water and high in the air: KTR products are a driving force whenever it comes to keeping things moving. KTR is a global market leader in wind power technology and is at the forefront of pump technology. Many renowned machine manufacturers also place their trust in KTR's expertise and reliability in many other industries such as marine engineering, agricultural and construction machinery engineering, railway and transport engineering, and materials handling technology and machine tool technology.

That should come as no surprise as, after all, KTR offers an extensive selection of products. From the small 10 mm coupling weighing 6 grams for adjustment drives in car headrests through to the 2 tons coupling that is 9 metres long and used for installations supplying entire regions with water, our products boost productivity and reduce life cycle costs in many industries.

For instance, two thirds of all trams in Germany and numerous local trains all over the world feature KTR components. This also includes THE SQUAIRE Metro, the fully automatic, cable-propelled people mover at Frankfurt airport, which features tailored high-performance couplings type REVOLEX® KX-D.

Our products even quietly perform their tasks on the seabed. In a research project for the world's largest tidal power station off the north coast of Scotland, the maintenance-free steel lamina coupling RADEX®-N is already in its element – 30 m below the surface.

Incidentally, we pass on experience we gain in a sector without hesitation. For example, the anti-corrosion coating originally developed for seawater-resistant shaft connections in ship and offshore engineering now also ensures that extreme environmental influences do not cause KTR components in agricultural machine engineering to shut down.







# We do not want to predict the future, we want to prepare for it.

It is best if you set your own course for the future. KTR is an unrelenting pioneer with a high capacity for innovation and a constant stream of new designs. For example, an innovation team was set up in-house in 2012; its task is to identify potentials and evaluate current trends. And in April 2015, the new Power Transmission Center was opened; it ranks amongst the most modern R&D centres in North Rhine-Westphalia.

## Tomorrow's technology? KTR laid the foundations yesterday

40% of German drivers can see themselves topping up their next new car from a power socket. Completely new challenges needed to be met in order to turn this vision into a reality, for example, preventing leakage current that attacks the gears.

KTR found a remedy suitable for series production in curved-tooth gear coupling® BoWex®. Further developed with additional clearance between the coupling hubs, it was then put to the test in automotive construction, in the Mini E. This is how a coupling with perfect properties based on a classic construction emerged as an electric insulator. Innovation can also mean seeing tried-and-tested methods from a completely new perspective – and then transporting them into the future.

KTR has already been taking new approaches to power transmission technology for some time. In hydraulics, we are the first provider ever to launch a cooling system, the OAC eco, that features infinitely variable speed control for stationary hydraulic power transmission systems. It is sensor-based and always supplies exactly the right cooling capacity. It also features an innovatively simple autocleaning system. Fan rotation is reversed for 60 seconds, either automatically or at the press of a button. The air pressure can then be used to reliably sweep dust and dirt away. Impressively, this is all carried out while the system is in operation.

## Pole position in renewable energies

Our long-standing, knowledge-driven company is also continuously providing a breath of fresh air with innovative products when it comes to wind turbines. 1988 saw KTR supply the first coupling for wind power. We are now a global market leader among suppliers. Components from Rheine now operate in over 65,000 wind turbines, with thousands of new ones being added every year. Thanks to this expertise, KTR is also a supplier to many of tomorrow's other renewable energy fuels today. Whether for tidal power, wave power or solar heat, KTR will be there. And it already provides reliable quality when a particular technology is still in the experimental stage.



#### KTR takes responsibility

We take a clean approach to work – particularly when it involves the environment. People already expect us to be a cut above the rest.

Why does KTR play such a significant role in power transmission and fluid engineering? One reason is our careful approach. We simply take a closer look at everything. And you can be sure that this also applies where the environment is concerned. That's because ecology and economy are not incompatible contradictions, but do in fact go hand in hand. A conservationist approach to handling resources is increasingly becoming an economic necessity. Wastage not only damages nature but is also a huge cost factor due to rising prices in energy and raw materials.

### Methodical green business practices

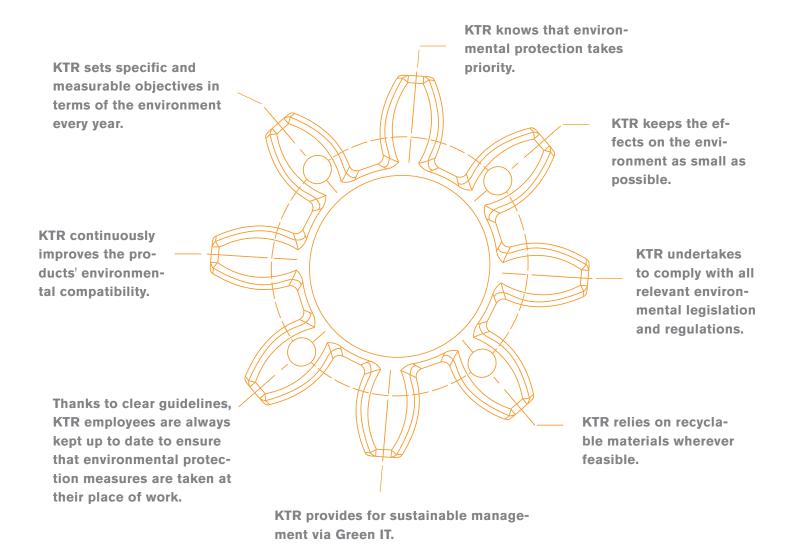
As a result, we make use of almost fully recyclable materials in production. Wherever feasible, KTR opts for recyclable materials instead of throwing materials away.

KTR is also constantly moving forwards in green IT. To cut out miles of driving and flying, we increasingly find ourselves pressing the video conference button – and not stepping on the accelerator. What's more, our IT equipment has been brought in line with our environment-, energy- and resource-conserving approach throughout its life cycle.

## The KTR environmental strategy: signed, sealed, delivered

Incidentally, an environmentally friendly approach has a long tradition at KTR. We were already certified to DIN EN ISO 14001 back in 2008. This honour is awarded to companies which take environmental protection measures in line with the PDCA method: plan, do, check and act. KTR has successfully implemented these requirements. Which is no wonder, really: after all, this method is precisely the approach that KTR takes when tackling every task.





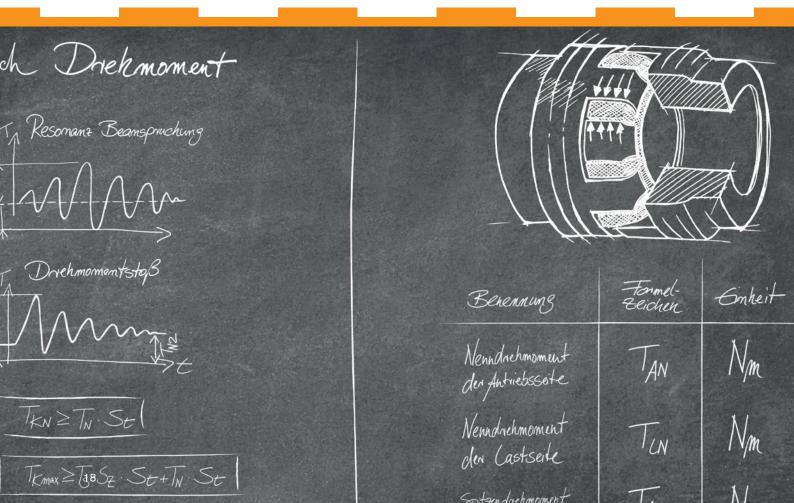
### We already deliver quality even if the product does not exist yet.

Good work requires a solid foundation. That is why KTR can assist you right from the planning stage – if you so wish. To help you, we not only put specially trained sales employees and application engineers at your disposal, but also KTR's website. Just a few clicks on www.ktr.com and you will quickly find an expert who you can bombard with questions in the 'product manager' section.

#### Useful tools let you clock off earlier

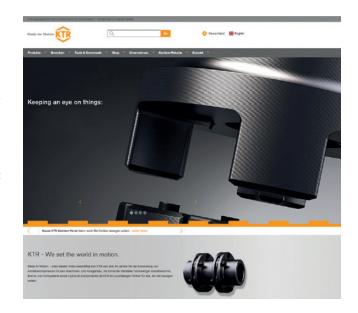
The KTR website offers yet more practical help to make your work easier, such as its extensive library of CAD models. With both 2D and 3D models, it ensures that you know what is going on at all times. What is more, there is no need to waste time searching for missing mounting instructions – you can simply print them out.

You will also find practice-based design and configuration tools for power transmission technology, hydraulic components and cooling systems on the KTR website. Simply enter the relevant parameters and a click later you



will have the right product design and size on screen – a useful service for thousands of products. In many cases, a data set is also instantly available as a DXF file. Your design draughtsmen will be pleased that they can import the component into their CAD program right away. This ensures that you complete planning much more quickly and are ready to get your project off the ground.

Of course, you can also download the latest product catalogues and brochures and glance through the extensive range at your leisure. If you prefer to browse rather than scroll, just use the online order form and have KTR send you its literature in the traditional way: by mail.







### We keep many cogs turning to get deliveries out quickly.

KTR not only provides efficiency in power transmission systems but also in its own logistics. This starts with the KTR shop, which is open 24 hours a day, continues with the constant availability of 3,500 standard KTR products and ends with orders which are delivered on the same day within Germany if placed before 2 p.m.

If you are a regular client, we will make it even easier for you. Simply rely on needs-based call-off orders as per Kanban agreements to save time on materials planning and optimise warehousing. Or would you prefer set supply times? No problem – KTR will fully adapt to your requirements.

### Just in time, all the time

We guarantee the best connections at KTR, which is why our company is also networked with clients and business partners via an SAP data hub. This also enables direct communication with other systems via Electronic Data Interchange (EDI) and guarantees short response times for orders, changes to orders, order confirmations,

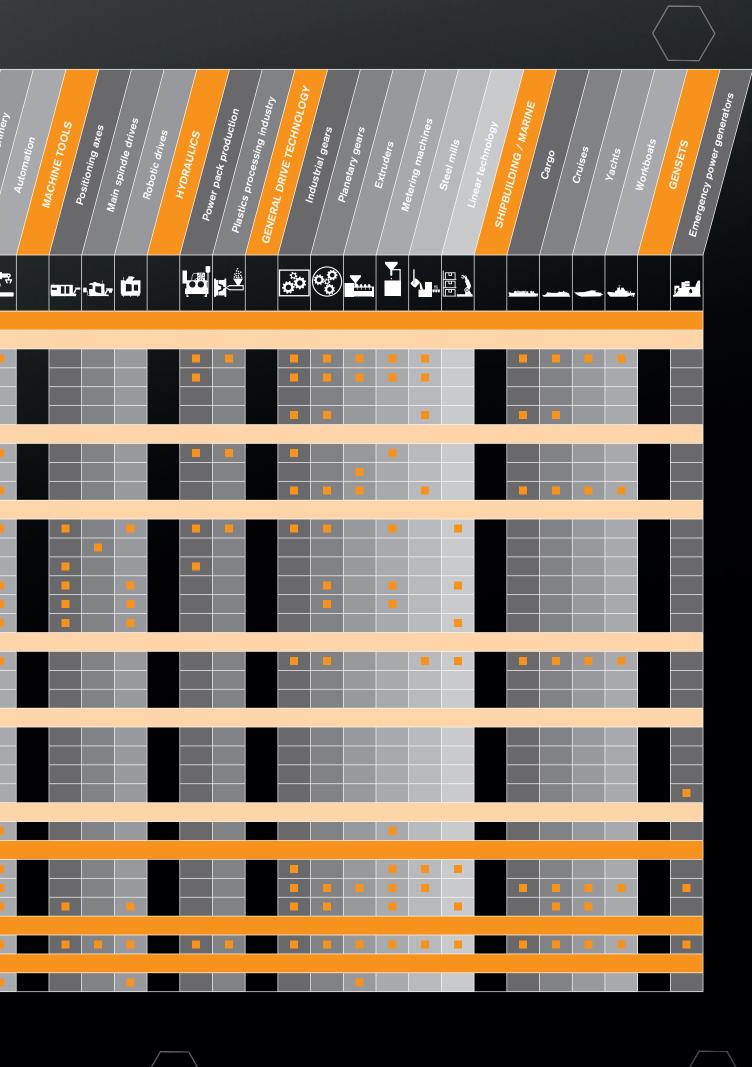
dispatch notifications and invoices. Or, to break it down: the data hub ensures speedy order processing. It is not only praised by experts, but also ensures that clients are reliably supplied when time is of the essence.

The cogs are also set in motion in our in-house logistics centre to make sure a shipment arrives at a client's premises on time. From the 61,000 holding spaces and 8,100 pallet spaces to the four loading ramps, the flow of goods is controlled by a barcode scanning system. Picking, labelling and packing run just as smoothly as the drawing up of shipping and export documents. And then it's time to hit the road: every day, our distribution partners deliver more than 800 shipments on time to locations across the world – and clients can check the status of their orders at any time using a track and trace system. Keeping up to speed is also no problem: at KTR, this is the result of an optimised logistics process.

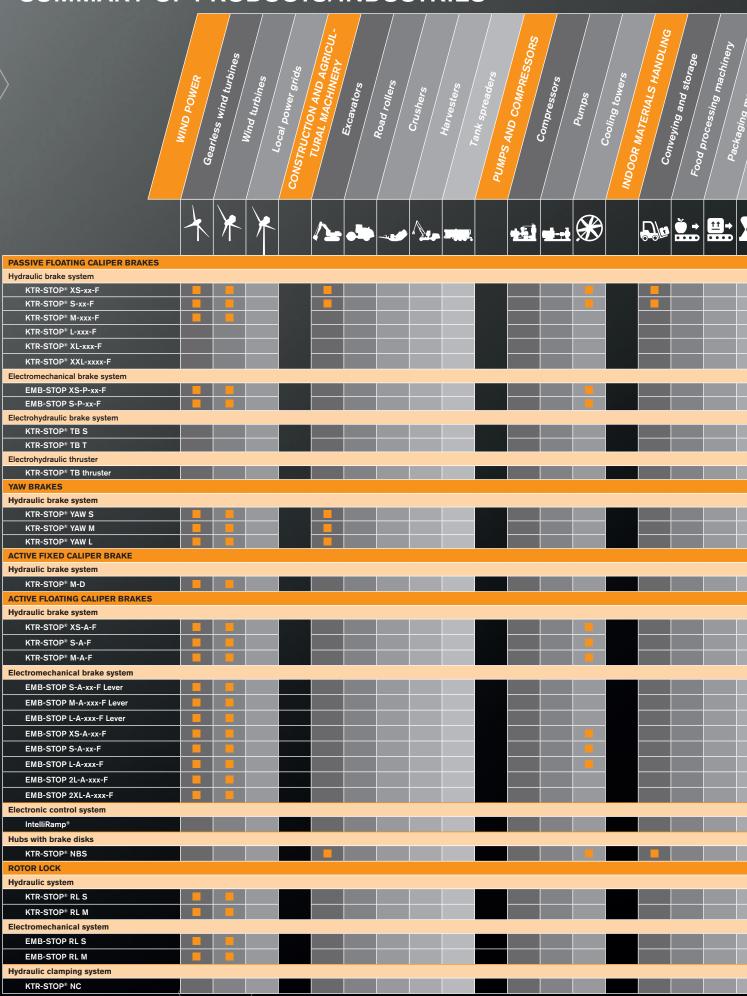


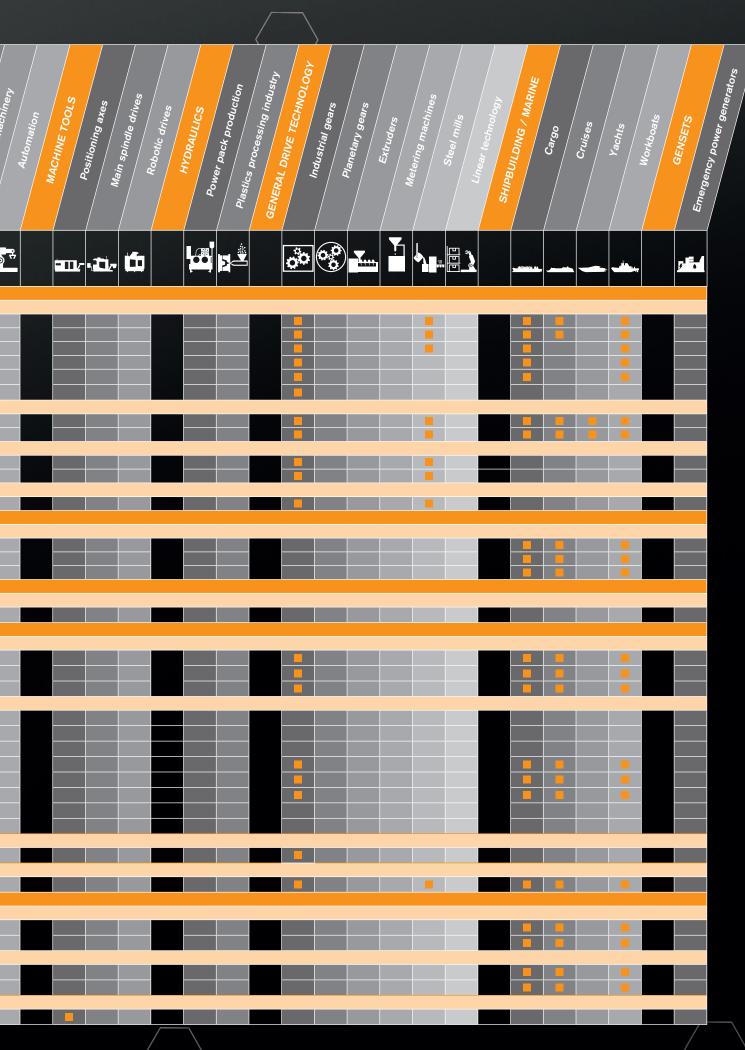
# DRIVE TECHNOLOGY SUMMARY OF PRODUCTS/INDUSTRIES





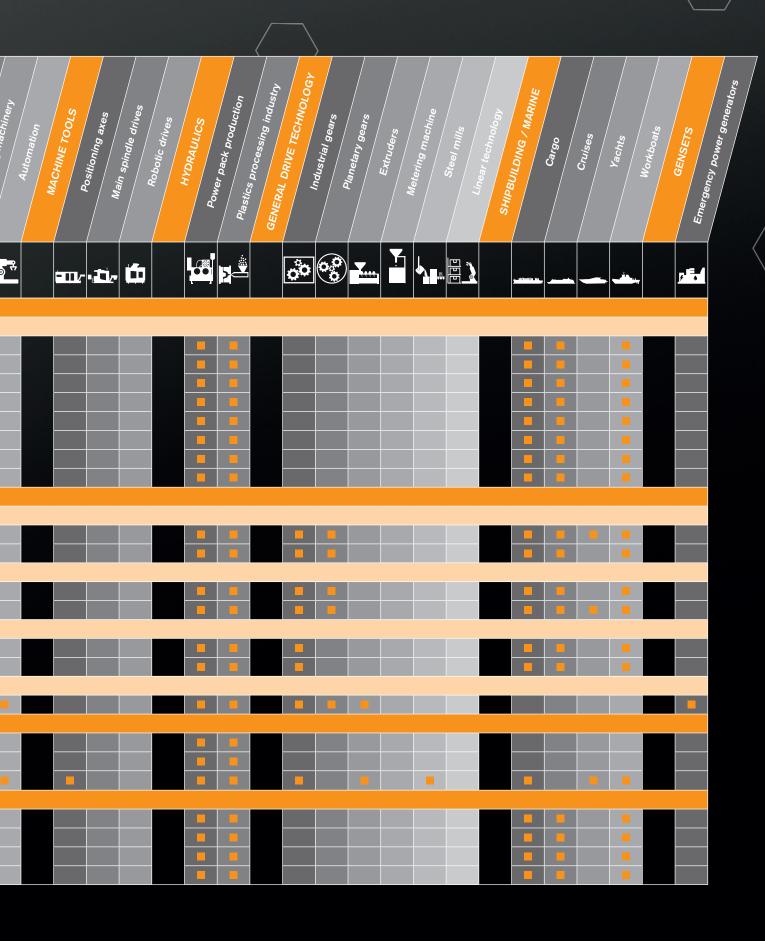
# BRAKE SYSTEMS SUMMARY OF PRODUCTS/INDUSTRIES



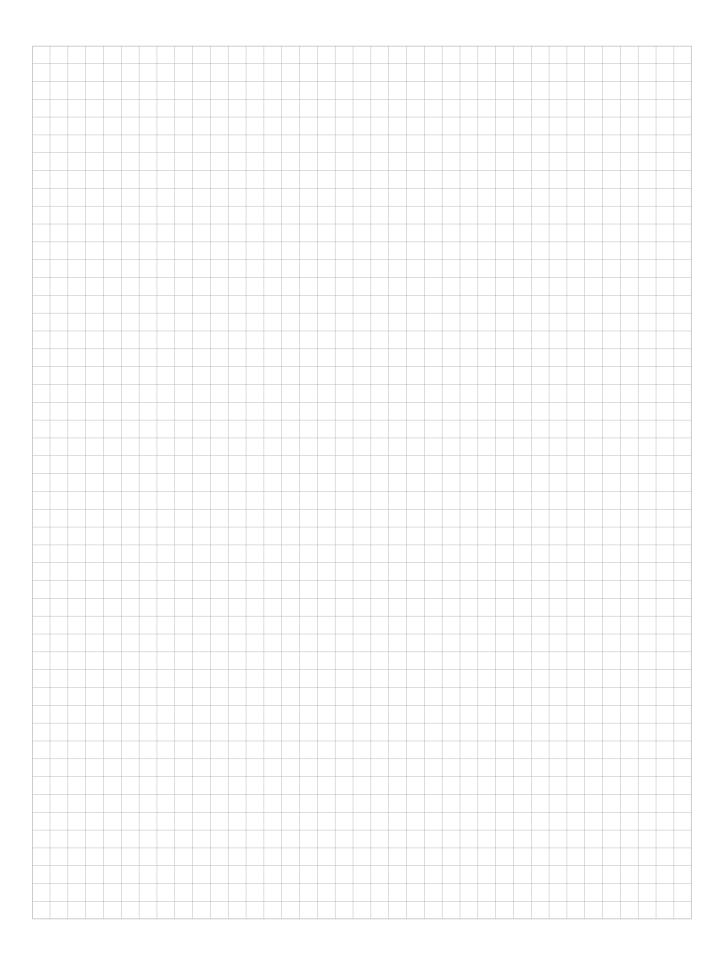


# HYDRAULIC COMPONENTS / COOLING SYSTEMS SUMMARY OF PRODUCTS/INDUSTRIES

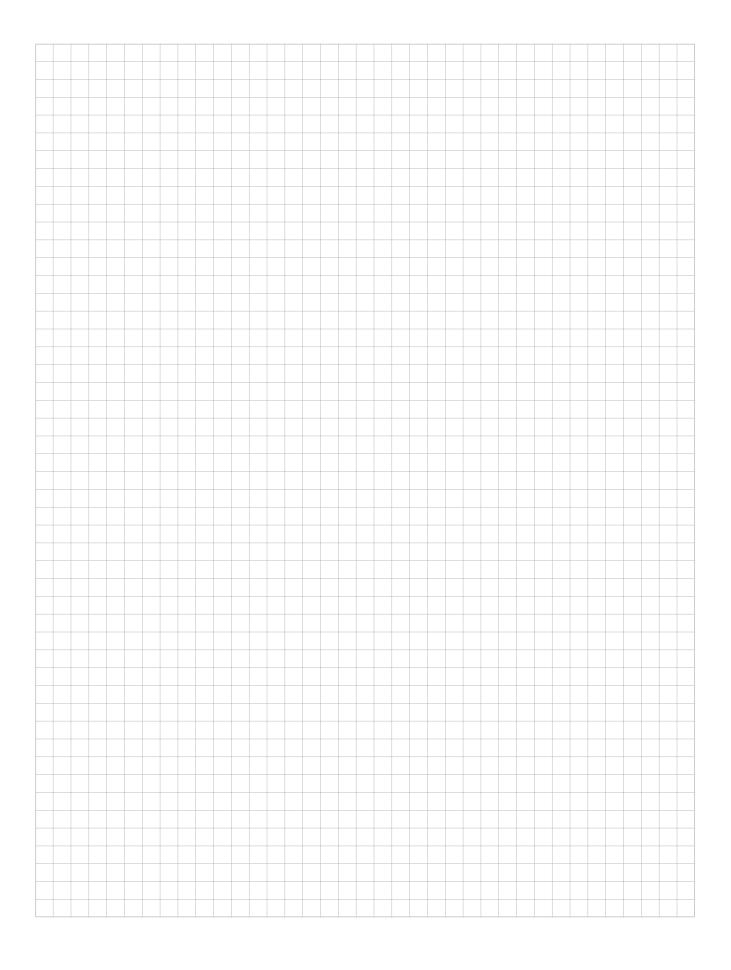




## Notes



## Notes



## **Summary of literature**

No matter if a perfect drive, a brake that takes effect, space-saving cooling or accurate hydraulics is required, if on land, by sea or at an airy height - KTR's product portfolio is just as manifold as its applications. The following catalogues and leaflets provide an overview. Available at www.ktr.com

### **Product catalogues**









### ATEX leaflet



### KTR worldwide:

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Pins Maritimes

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