

We distribute energy

Safe ▪ Reliable ▪ Innovative - for more than 50 years



Setting standards.

ENERGY – This word is always on our agenda: In the development and manufacturing of our high-safety low voltage and medium voltage switchgears. In the planning and implementation of complex control systems. In the permanent orientation on the pioneering spirit of company founder Wilfried Köhl for the placement of top records in the industry. Especially, however, in the guarantee of availability, personal protection and state-of-the-art technology for the electrical systems of our customers and partners in their daily business.

KÖHL POWER DISTRIBUTION SYSTEMS ... Part of your success!

The company

Since its founding in 1971, the KÖHL company group has developed from a simple electrician's business to an internationally active technology enterprise. The focus of all KÖHL units is the alignment to innovative technical solutions and the execution of sophisticated projects.

The company group's extensive switchgear competence is represented by KÖHL s.à r.l. POWER DISTRIBUTION SYSTEMS. With manufacturing locations in Luxembourg and Germany, state-of-the-art power distribution systems for medium and low voltage, as well as complex control systems, are developed, planned, produced and installed for customers in their projects.

The focus here lies on customers with the highest requirements on system availability and personal safety during the operation of electrical systems. With exceptional technological measures, KÖHL s.à r.l. POWER DISTRIBUTION SYSTEMS has developed a name for having the safest switchgears on the market in the course of its extensive business presence with its customers in the areas of power plants, oil and gas, chemistry, industry and especially data centres. It is a technology leader in many areas.



Your partner worldwide.

Globally present – locally available. We are always in your vicinity with our branch establishments and sophisticated licensing partner network. Based on our extensive experience in the electrotechnical product and project business, we support you in your international projects, all over the world. Contact us!

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Innovation as passion.

Interview with Managing Director Dirk Wichterich and Michael Krämer, Director Sales and Business Development, about constant further development, internationalisation and the key to success.

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Intelligent energy distribution



Dirk Wichterich
Managing Director

For many years, KÖHL POWER DISTRIBUTION SYSTEMS has already been active in the switchgear business and successfully held its own among numerous well-known, national and international competitors. What is the key to your success?

Dirk Wichterich: We do indeed have extensive experience with power distribution systems – in the past years, however, we have enormously developed further in regard to the optimisation of processes and the qualification of our employees. We independently develop and plan very complex switchgears and control systems in numerous projects. Due to our innovative power, we are seen very positively on the international market. Especially our complete service for our customers and personal technical consultation distinguishes us from the competition very strongly to some extent.

Your company motto says: “Upgrade Your Safety” – Safety is thus very important in your company?

Michael Krämer: In many regards. In the vicinity of the low voltage and medium voltage systems of our customers, we work with huge physical forces. In some ways you can compare us with an animal tamer - we have to tame power and steer it intelligently. In the process, the safety of users at their production facilities is always a priority; any chance of personnel injury absolutely must be prevented. Handling power in such concentrated amounts is always dangerous! We generally move in a very sophisticated market because our customers need the security that their systems run reliably. Data centres, large chemical factories, power plants – power distribution systems in these areas must run 24 hours a day non-stop, which we guarantee with our redundant technology.

Your products stand out from the crowd due to the high degree of innovation, do you also work together with well-known research institutes to develop and refine new technologies?

Dirk Wichterich: Technical progress is our passion – among other things, we have developed an RFID-based monitoring system, which provides our customers with permanent condition monitoring of their switchgears. It is the basis for predictive maintenance intervals so that the production process does not have to be interrupted for such tasks as was previously the case. In regard to the well-known Industry 4.0 concept, this is a very progressive method, not only for the process industry.

You have been working on expanding your target markets in international business for some time. Have sustainable successes been achieved until now in this case?

Michael Krämer: Indeed - in addition to our own project activities, we also have international licensees, who manufacture our innovative products in their home regions, such as the Middle East. We want to further expand this partner network in the coming years and are always looking for appropriate companies, while having high quality requirements on our partners. In general, our objective is the sustainable management and development of international projects on a high level without the usual problems related to spatial distance between the contractor and customer.



Michael Krämer
Director Sales and Business Development

System solutions.

We provide you with the right concepts for your electrotechnical requirements. Here, we accompany you from the first to the last step of your projects and organise their settlement from a single source.

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Consulting / Planning

Precise planning is the foundation stone for the success of each project. In the conceptual design phase already up to the project post-care, we assume responsibility and develop the right system configuration for the respective requirement together with our customer.

In the process, we use state-of-the-art systems for network study and short-circuit current calculation for the design of the components and resulting spatial conditions.

Engineering / Project management

A team of well-educated engineers is responsible for the implementation of customer wishes during the project planning phase and the resulting creation of the production plans and system functions on the basis of automated engineering tools.

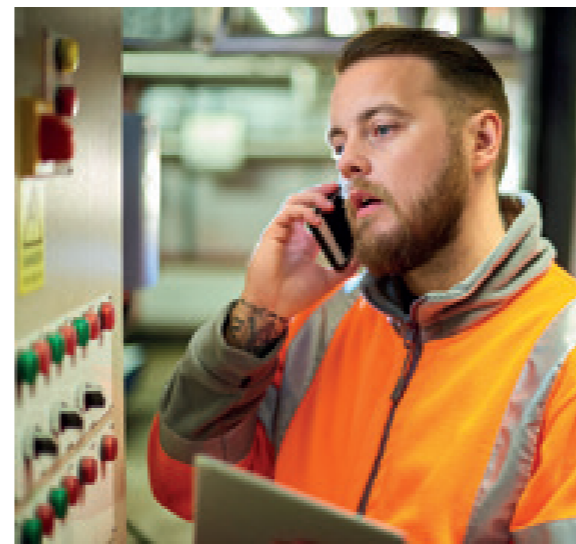
Up to customer acceptance at the factory, they are in charge for the individual production process. Experienced project managers then guarantee a smooth process and observation of the deadlines on site.

Production / Quality management

KÖHL systems are manufactured entirely on its own premises. The entire process, from copper and sheet metal manufacturing over electrical panel assembly to detailed final inspection, is subject to the extensive regulations of our quality manual according to the EN ISO 9001:2008 standard.

Commissioning

The mounting and commissioning of the systems provided by KÖHL naturally belong to the scope of services of our company. In this way, we guarantee that an operating high-quality project transfer can be confirmed to the customer.



Medium voltage competence.

The name **MediPower** represents powerful medium voltage switchgear systems. With permanent further development and high testing effort, KÖHL fully guarantees its customers the efficient performance of this product according to the requirements of IEC 62271-200.

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MediPower

— KÖHL MediPower KMP A3 Strong • Safe • Highly Available

The air insulated medium voltage switchgear for primary applications uncompromisingly convince due to expressive arguments.

— Strength

The ratings speak for themselves: 17.5kV, 3150A, 40kA/3s and the accidental arc qualification IAC AFLR 40kA/1s in combination with the massive frame construction and heavy, multi-locked doors show the high standard at first glance, even in case of critical applications.



— Safety

Well-conceived constructive measures prioritise personal protection to safeguard the user against the effects of any accidental arcs that occur.

The successfully passed tests confirm this circumstance by certificate under internal arc conditions according to the latest standard IEC 62271-200 for all panel types.

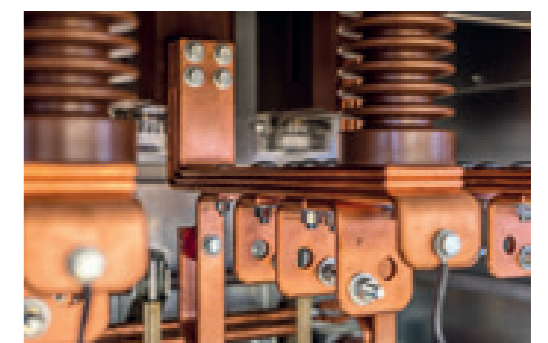


■ Internal pressure relief for every functional room.

— High Availability

Intelligent design and the use of high-quality materials reduce the necessity of shutdowns for time-consuming maintenance to a minimum.

Due to a design using withdrawable technology the user can exchange circuit breakers – or even measuring devices, if required – directly and quickly without much effort.



■ Elaborate cable connection.

Low voltage competence.

For more than 50 years, the specialist for arc fault protection has further developed the technology of its innovative low voltage switchgears. Today, KÖHL offers two different product lines from a completely type tested standard to the world's highest safety level on the market.

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ModuPro

ModuCon

MODAN®

ModuVar

Power distribution to the point Modular • Safe • Intelligent

The proven systems offer well-conceived solutions for all low voltage requirements up to 6300A. The basis is individually equippable functional units which have proven their efficiency according to the high requirements of IEC 61439-2 based on corresponding type test certificates.

A variety of different panel types and ratings guarantee the individual and effective implementation of our customers' requirements.

In the process, we can react precisely to the on-site environment due to a flexible design with different bus bar layers, cable connection possibilities from different directions or the type tested connection of a bus bar system.

Well-conceived constructive measures guarantee passive system protection within the scope of availability and personal safety to safeguard the user against the effects of any accidental arcs that occur.

The successfully passed tests under internal arc conditions according to the standards IEC/TR 61641 resp. IEC 61439-2 Supplement 1 confirm this circumstance by certificate.

High Safety For maximum requirements far beyond all standards

For years, the names **ModuPro** and **ModuCon** have stood for the world's highest standard in regard to personal safety and system availability. Through extensive constructive measures and the use of materials of the best quality, KÖHL has transferred its high standard in medium voltage switchgears to its low voltage applications. The result is an uncompromising concept with test results far beyond the known standards IEC 61439-2 and IEC/ TR 61641.

With permanent development and innovative engineering skill, we have perfected the principle of passive arc fault protection: A self-supporting construction made of heavy steel plate and stainless steel with accordingly designed

interlock technology guarantees absolute resistance against the energy that occurs in an accidental arc and conducts its energy upwards through pressure relief channels in a targeted manner – in the process, the effects are limited to the failure area and the user is protected even when the door is open!

Perfect internal separation with multiple metallic bulkings and additional passive and active protective measures complete the personal protection concept, thus ensuring the highest safety standard in the world for low voltage switchgears!

Safety Upgrade Solutions.

KÖHL switchgears for medium and low voltage already have impressive values with regards to system safety and availability. With these additional solutions, KÖHL presents innovations and measures for perfecting personal and system protection.

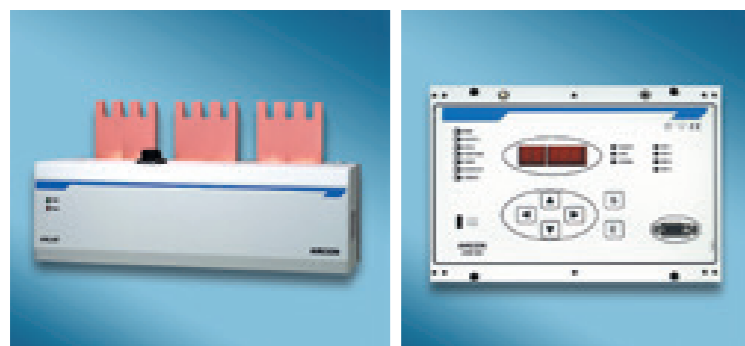
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Active arc fault protection

To counter the physical forces of an accidental arc with an additional barrier for the protection of people and equipment and prevent the development of a dangerous flue gas mixture, KÖHL has been offering its customers a proven technical solution with active accidental arc protection systems for many years.

This solution can be directly installed in new systems at delivery or retrofitted into endangered existing systems.



Example ARCON® Arc fault protection systems



Permanent condition monitoring

With its innovative TOR system, KÖHL presents an easy opportunity for permanent condition monitoring of power distribution systems, which then assume a key position in the "Industry 4.0 – Smart Factory" concept.

The system reports the risk of internal faults early on wirelessly by RFID technology using the indicator temperature and offers the opportunity to the user to perform corresponding maintenance and/or servicing work within regular shutdown times without the necessity of additional cost-intensive production standstills.



Automation systems • I&C • Distribution boards

Since 1971, KÖHL has been offering tailored concepts for customers and partners in the areas of control systems, automation systems, I&C panels, building management systems and distribution boards. Due to high flexibility in the division of production areas, large projects with a high number of units can be implemented without a problem.

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Know-how and system solutions.
For more than 50 years.

Control and automation systems

Regardless of whether the respective system is being self-planned or manufactured according to customer requirement – KÖHL convinces with profound know-how and sophisticated processes in system construction. Here, it does not matter if a prototype, a one-time application or serial production is needed – our employees always guarantee the competent settlement of **YOUR** project.

I&C technology and intelligent building management

Intelligent hardware concepts on a brand-independent basis permit the development of solutions that perfectly match the respective application of instrumentation and control (I&C) technology or state-of-the-art building management systems with and for the customer. In the process, both communication standards recognised worldwide and combinable products of well-known manufacturers belong to our portfolio.

Small- and subdistributions for energy and buildings

KÖHL's expertise in high-energy switchgear manufacturing (medium voltage and low voltage) continues here in the form of low-energy distribution systems up to 1600A, extensive subdistributions for large building projects to small, local distribution or control boxes.

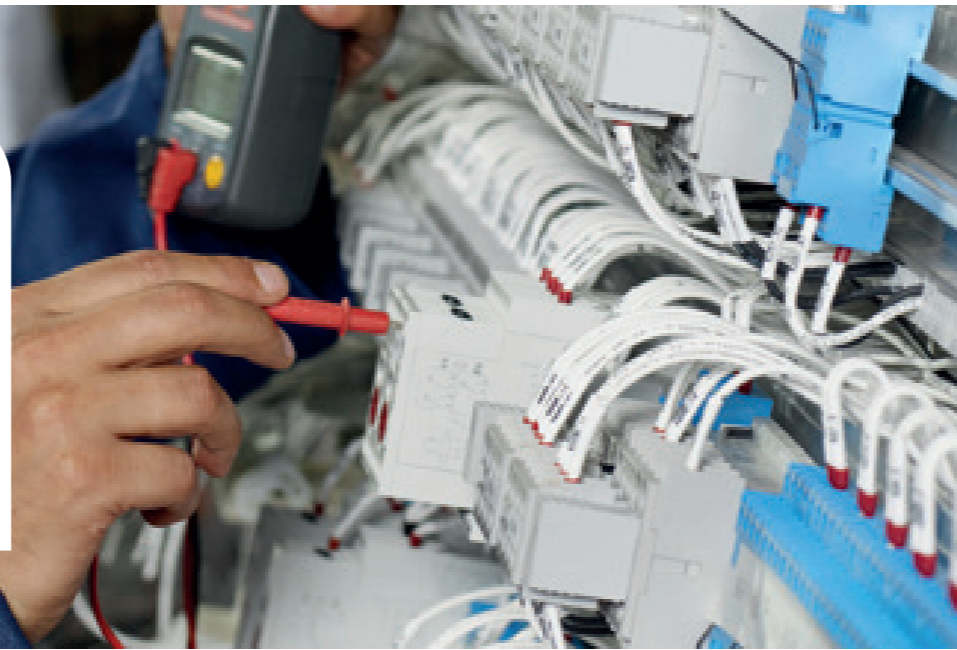
Regardless of the size of the application, state-of-the-art production processes are used on all levels. The associated high quality standards of ISO 9001-2008 apply. An extensive testing procedure also guarantees the perfect condition of each product by certificate before delivery.



100% service competence.

Always ready: With individual life-cycle service programmes, KÖHL offers its customers competent support in the daily servicing of systems from all areas of electrical and automation applications based on its extensive experience.

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—Maintenance, inspection and testing

All measures for the servicing of switchgears are offered and settled according to the legal specifications from a single source. Regular expert maintenance increases both the availability and the service life of the systems.

—Troubleshooting and optimisation

If needed, the KÖHL After-Sales-Service provides fast and uncomplicated help up to the reactivation of the affected systems. In addition, optimisation measures based on the fault analysis can be implemented to prevent similar events in future.

All work is performed by certified personnel according to the strict regulations of SCC** (Safety Certificate Contractors) and proven with corresponding protocols.



—Retrofitting and expansion

The exchange of older switchgears for a new system is sometimes not feasible for economic reasons even if the existing technology no longer corresponds with requirements. KÖHL assumes the technical equipping of the existing system using circuit breaker retrofitting kits of various manufacturers or even through additional panels based on state-of-the-art components and up-to-date control and protection concepts.

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