

Machine building

Products and solutions for your success



Your strong partner for machine building

Machine building is a global and highly dynamic market. The competition you face as a provider is tough. It is important that you meet your customers' requirements and develop a range of products and services that allows you to remain competitive for the long term. The focus is on the cost-effectiveness, quality, flexibility, and performance of your machines. Phoenix Contact offers you a comprehensive range of products and services – making a significant contribution to your competitiveness.

Find out more with the web code

i Web code: #1255

You will find web codes throughout this brochure: a hash symbol followed by a four-digit number combination.

i Web code: #1234 (example)

This allows you to access further information on our website quickly.

It could not be simpler:

- 1. Go to the Phoenix Contact website
- 2. Enter # and the number combination in the search field
- 3. Get more information and product versions



Or use the direct link: phoenixcontact.net/webcode/#1234



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We have a long tradition of machine building

Phoenix Contact has close ties with the machine building industry. Our in-house machine building department, with 180 employees, provides support for all developmental and manufacturing business units worldwide. Therefore, we are very familiar with your daily challenges. The service portfolio ranges from creating manually operated equipment to complex production systems. Together, we develop high-quality production resources, innovative solutions, and state-of-the-art manufacturing technologies.

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The past

To maintain our independence from service providers, Phoenix Contact has operated an in-house machine building department at the Blomberg site since 1968.





The present

Today's machine building supports all Phoenix Contact business units around the globe with technologically leading solutions.

The future

We will also continue to help shape important trends and developments in machine building in the future.

Easily integrate safety technology into your machines

Safety technology is paramount in machine building. It prevents operating personnel from being put at risk or damage to the machine. Standard EN ISO 13849-1, which aims to fulfill the requirements of the Machinery Directive, has led to more stringent demands in relation to implementation of safety functions, but also to new opportunities for you as a machine builder.





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Easily integrate safety technology into your machines

With safety components from Phoenix Contact, you are always on the safe side. We provide a comprehensive portfolio for machine building, from non-contact safety switches and safety relay modules to network-capable safety solutions. All of our products are very easy to install and configure. This allows you to benefit from the fast and cost-effective implementation of safety-related applications.



Monitoring for safety doors

Use our non-contact safety switches with RFID technology for intelligent safety door and position monitoring.

Safety for every function

If you require just a small number of safety functions, a large range of safety relays is available. Thanks to two-channel wiring and force-guided contacts, the devices feature particularly reliable switching.

Monitoring several safety functions

The PSRmodular configurable safety system is a flexible safety solution for monitoring your machine or system, including the monitoring of motion and analog value data.

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Safe without a safety controller

Regardless of whether you operate a compact machine with simple safety functions or extensive, modular machine solutions: With our safe I/Os, you do not need a safety controller or a safe fieldbus system, thanks to SafetyBridge Technology.

Acquire and output safe signals in the field

The Axioline E safe IP67 I/O box allows you to process safe inputs and outputs outside of the control cabinet. The safety protocol is transmitted to the standard network via IO-Link.



Easy safety configuration

The SAFECONF software, which is available free of charge, can be used to conveniently configure your safety logic in accordance with standards with just a few clicks of the mouse. You can easily create the safety logic for SafetyBridge Technology via drag and drop.

You can download the software free of charge using the web code.

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Address



Avoid costly machine downtimes

There is nothing costlier for you or your customers than a machine that is down. Downtimes ultimately lead to production losses and extremely high costs. This makes machine availability your top priority. Reliable components and high machine availability are crucial in preventing downtimes and production losses.





Avoid costly machine downtimes

We increase your competitiveness as a machine builder with products that support the availability and, in turn, the productivity of your machine. The devices ensure long operating times and round-the-clock production. As a result, your customer avoids downtimes and costly production losses. We offer surge protection, device circuit breakers, technologically pioneering power supplies, and innovative switching devices.





Protection against overvoltages

Overvoltages put machines at risk and can lead to the destruction of important function groups. Increase safety and availability with effective surge protection in the feed-in, as end device protection, and upstream of the signal interfaces.



Selective fuse protection for circuits

Device circuit breakers enable you to provide individual protection for your equipment, whether solenoid valves, servo motors or industrial PCs. In the event of an error, only the affected actuator or sensor is shut down. All other system parts remain in operation. With various technologies and designs available, we offer the right solution for every application.

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Reliable supply

Reliably supply your control cabinet and system with energy: Our robust power supplies have been optimized to meet the stringent requirements of machine building. The integrated SFB Technology switches off faulty current paths selectively in the event of a short circuit. This means that key system parts remain in operation.







Uninterruptible supply

Reliable power supply, even when the power supply network fails: With IQ Technology, the intelligent uninterruptible power supply thinks for itself, and provides you with information whenever necessary. It can be incorporated into established networks easily and flexibly, thanks to its integrated interface for PROFINET, EtherNet/IP[™], EtherCAT or USB.

Intelligent motor switching

Switch and reverse motors quickly and reliably with hybrid motor starters. The CONTACTRON hybrid technology combines wear-free semiconductor technology with robust relay technology, thereby increasing the service life by a factor of ten compared to purely mechanical switching devices. The power distribution board allows you to implement functional solutions quickly and easily.



CONTACTRON Hybrid Technology Designed by PHOFNIX CONTACT





Protect motors cost-effectively

The CONTACTRON motor manager monitors motors for overload and underload, function, contamination, and wear. This allows you to detect all critical load states. In the event of an emergency, the motor manager protects the motor, and therefore your machine as well, since the device shuts down the drive in the event of an error.

Communicate with your machines worldwide

The global use of machines makes it increasingly important to be able to communicate with machines all around the world, as this allows you to avoid expensive on site service visits. Furthermore, modern production requires networks that support data exchange between different processes and machines. Industrial Ethernet is the fast communication standard for integrated communication between the office and the production level.



Communicate with your machines worldwide

Modems and routers connect you to your machines worldwide for efficient remote maintenance, continuous data acquisition, and automatic early warnings. Switches and access points can be used to build powerful Ethernet networks. Security routers and firewalls guarantee data security and protect your machine against unauthorized access and tampering.



Integrate fiberglass technology

For superior immunity to interference and

electrical isolation in Ethernet networks,

media converters convert the data to be

transmitted from copper to fiber optics. FO

technology allows you to bridge long distances

Global access to data

Connect to machines worldwide using modems and routers via analog dial-up connection, DSL high-speed cable, or a mobile network. Furthermore, with the mGuard Secure Cloud, you also receive a hosted, ready-to-use, secure portal for cloud-based remote maintenance which you can use with the TC Cloud Client or TC MGUARD.



into machines

with high data rates.

Protect networks and data

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The FL MGUARD security routers protect your machine and network against unauthorized access by people or malware. This allows you to avoid unplanned downtimes caused by network failure and harmful exploitation of system vulnerabilities.

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Connect mobile machine parts via WLAN

The WLAN 1100 wireless module allows you to easily install a fast and stable WLAN network on your machine. Featuring integrated antennas and extreme robustness, the space-saving module has been carefully considered down to the last detail for applications in machine building.





Distribute data in the network

Ethernet switches are the communication hubs of your industrial network. They provide reliable, efficient data exchange and can ensure the robustness of your network. Whether Managed or Unmanaged Switches – we offer the right solution.

Transfer data to the cloud

With the Cloud IoT Gateway, you make systems cloud-capable without having to intervene in the actual control architecture. The gateway supports various protocols and is installed as parallel communication with absolutely no additional engineering effort required in order to send your data to the cloud.

Easy-to-install network infrastructure

Ethernet patch panels allow quick and easy connection in the field. They are available with various connection technologies and in versions with surge protection and a Power over Ethernet injector.





Reliable acquisition and evaluation of operating data

In order to maintain your competitive edge in the market, processes must be as efficient as possible and continuously improved. Decisions regarding the optimization of machines and production processes are made based on machine and system data. The collection and evaluation of values such as flow rates, currents, or temperatures allows predictive maintenance to be carried out, thereby improving machine performance and reducing machine downtimes.



Reliable acquisition and evaluation of operating data

Acquire data, make predictions, and improve machine performance: Our components for plant data collection offer everything you need for the precise conversion, measurement, monitoring, display, and logging of consumption values. Furthermore, this data can also be pre-evaluated using a PLCnext Control device and easily transferred to the cloud. This means that you have an overview of your machine data anytime, anywhere. For optimum machine utilization and availability.



Convert currents

Use PACT current transformers to convert high alternating currents up to 4000 A into low currents of 1 A or 5 A. Current transformers for retrofitting can even be installed in confined spaces where split core current transformers would not fit. There is no need to disassemble system parts.



Our MCR current transducers can be used to acquire direct, alternating, and distorted currents. The portfolio ranges from configurable devices for precisely mapping low measuring ranges up to 55 A to universal measuring transducers for high currents up to 600 A.

Monitor machines and motors

The CONTACTRON motor and machine manager combines precise energy measurement with the display and monitoring of important parameters of motors, machines, or other three-phase consumers. Its switching and signaling thresholds can be freely parameterized.





Global access to data

Proficloud provides you with an overview of your machine and system data from anywhere in the world. For example, you can create a custom dashboard as the basis for evaluating and analyzing your operating data. This allows you to continuously improve processes based on the Proficloud solution.

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Acquire and monitor energy data

EMpro energy measuring devices acquire and monitor the electrical characteristics of your machines. They can be configured and integrated into your network in minutes. Rogowski coils are connected directly. Integrated REST interface and cloud connection open the door to the digital world.

Acquire machine data and transfer it to the cloud

PROFICLOUD

In addition to performing conventional control tasks, the PLCnext Control devices also acquire operating data and transfer the preprocessed data to Proficloud. Along with IEC 61131-3, the PLC can also be programmed in high-level languages or can use apps from the PLCnext Store.



One system for consistent configuration and marking

The configuration and planning phase takes up a large amount of time in control cabinet manufacturing. Optimizing these processes therefore gives you a significant competitive edge. This requires software that guarantees consistent data flow, from creating the circuit diagram and planning components to outputting the corresponding markings.



Interface



One system for consistent configuration and marking

The PROJECT complete planning and marking software supports the entire control cabinet manufacturing process. It imports circuit diagram data from all common CAE programs, transforms it into matching products, and creates comprehensive project documentation. The marking tool features an intuitive user interface that makes it possible to individually plan, automatically check, and directly order terminal strips.



Perfect CAE integration

PROJECT complete comes equipped with optimized interfaces to all common CAE programs. With just a click of the mouse, the software imports the data from electrical plans and automatically designs a suitable terminal strip.

Intuitive software operation

PROJECT complete provides you with a new user interface with a configurable search function and dynamic task bars. Intelligent functions automate many planning steps and provide significant time savings.

Marking system

We make your day-to-day work easier with industrial marking and identification solutions. The MARKING system provides user-friendly comprehensive solutions consisting of software, printing systems, and marking material. You can therefore design your process from planning through to the finished marking consistently and intuitively.





Comprehensive process support

The PROJECT complete planning and marking software guides you through all phases of planning terminal strips. The software provides you with individual and convenient process support, from electrical plans to supplying your finished product.



Ordering in real time

PROJECT complete places the order for your projects directly. Bills of material are transmitted to Phoenix Contact online. You immediately receive a price calculation and information on the availability of the products.

Reduce your production time with fast installation

As a machine builder, you are under increasing competitive pressure. Innovative connection technologies and professional tools shorten the installation process considerably and guarantee fast and error-free wiring. This reduces your production times and you can deliver your machines to customers faster.



You can strip and crimp your conductors in under two seconds using the Crimphandy portable hand-held device. This cuts the required processing time by up to 75%.



CF 3000-2



Reduce your production time with fast installation

Reduce the wiring time and minimize the error rate with connection technologies that are quick and easy to operate, such as Push-in connection technology, and systems that can be installed quickly. You can also use reliable and easy-to-handle tools to ensure quick installation.



Wire large conductors quickly and easily

Power-Turn Technology enables user-friendly and quick contacting of conductors from 35 to 185 mm².

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PTPOWER 35 - 185 AGK Push-in Technology Designed by PHOENIX CONTACT

The right tool for every application

Be it cutting, stripping, crimping, screwing or measuring: Our high-quality tools impress with their ergonomic design, easy handling, long service life, and excellent results.



Wire conductors without using tools

With Push-in Technology, you can contact conductors from 0.25 mm² easily – both directly and without using tools.



Acquire I/O signals in the field

Axioline E is the particularly robust I/O system for field installation and is open to all Ethernet-based communication protocols.



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Fast wiring with IO-Link

Acquire I/O signals in the field and easily increase the number of channels using just one cable and the IO-Link I/O boxes. Transmitting data and power via a single IO-Link cable reduces wiring effort. Shielded, assembled cables ensure easy and safe installation.



Connect the field level safely to the controller

VARIOFACE system cabling connects the controller to the field – easily and without any errors. Phoenix Contact offers suitable front adapters, system cables, and termination carriers.





Reduce the variety of parts and lower your storage costs

Optimally coordinated product solutions are key to keeping machine manufacturing costs as low as possible. Our universal and standardized accessories can be used in many product groups. This allows you to reduce the variety of parts and lower your storage costs while still remaining flexible. Thanks to their uniform design and operating concepts, standardized products simplify startup and maintenance for your installation engineers and service technicians.







Standardized test system

We provide comprehensive, uniform testing accessories for our products. All test plugs can make contact in the freely accessible function shaft.



Clear marking

The terminal points of our products support large-surface marking. This creates transparency in the control cabinet and facilitates startup, testing, and maintenance work.



Flexible plug-in bridge system

One plug-in bridge system for all connection technologies: the 2- to 50-pos. plug-in bridges allow you to save time when carrying out any potential bridging tasks.

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Reduce the variety of parts and lower your storage costs

Simply use the standard accessories in modern terminal block, relay, and automation systems, whether this be for bridging, marking, or testing. CLIPLINE complete provides a terminal block system for all connections. Implement all of your standard relay applications using the RIFLINE complete relay system. Use the Axioline F I/O system for all common networks.





Push-in Technology

One terminal block system for all connection technologies

CLIPLINE complete gives you the freedom to choose the appropriate connection technology. Whether Push-in, screw, spring-cage, bolt, or plug-in connection: you can combine all connection methods with the same accessories.

Individual distribution block solutions

Distribution blocks with Push-in and screw connection technology come ready to connect and are available in different numbers of positions, mounting types, and colors. They can be used right away and extended as needed. Create individual PTFIX distribution blocks quickly and easily with the online configurator.





One relay system for all standard applications

The RIFLINE complete relay system features a universal plug-in design that allows quick, easy, and error-free handling. You can implement all of your standard relay applications using the industrial relay system. The field of application ranges from coupling and timer relays to a replacement for miniature contactors.

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Flexible automation solutions

With the Axioline I/O system, automation solutions can be set up based on the modular principle. A decentralized controller such as the PLCnext Control can carry out the function of the head of an I/O station, alongside which you can arrange I/O modules from the Axioline F and Axioline Smart Elements product families in any combination.







Heavy-duty connectors with variable cable outlet

The HEAVYCON EVO connector system features a standardized mount for cable glands in sizes ranging from M20 to M40. The cable outlet direction can then be easily determined on site. This reduces procurement costs and storage costs.





Build machines with a modular and flexible concept

Today's machines must be able to quickly adapt to changes in the market. A modular concept guarantees maximum possible flexibility for your customers. The modular design also makes the transport and installation of large and extensive machines at the customer's premises easier.





Build machines with a modular and flexible concept

Modular machine and switching devices can be set up in parallel and assembled quickly, easily and safely at the destination. Plug-in systems combined with individually configurable cable feed-throughs help you to achieve this and ensure the necessary level of flexibility. If required, you can convert your machine quickly and thus increase its efficiency.



Robust industrial connectors

HEAVYCON complete heavy-duty connectors ensure secure transmission of data, signals, and power, even under the harshest conditions. By combining various transmission media in one housing, you create your customized and space-saving interface.



CrossPowerSystem – the DIN rail with built-in power distribution

CrossPowerSystem is an open platform for modular control cabinets. Three-phase devices are mounted on the power distributor via Plug and Play without tools or cables. The 20 A power supply with integrated electronic circuit breakers supplies a safe 24 V supply which can be distributed easily using additional adapter rails.



Reliable connection with sensor/actuator cabling

M8 and M12 cables and distributor boxes ensure modular and efficient wiring of signals, data, and power. With our connectors for assembly, you can flexibly adapt the cable lengths to your requirements. The Push-in Technology allows simple and reliable connection in the process. Advanced Shielding Technology is the innovative shielding concept for sensor/ actuator cabling. The large-area, material-bonding 360° shield connection is unique on the market. Liquid metal completely encloses the cable shielding during the manufacturing process and guarantees reliable data, signal, and power transmission.





Space-saving cable feed-through and plug-in terminal blocks

The modular CES cable entry system allows you to route assembled cables and lines to the field in a space-saving way.



The COMBI plug-in terminal blocks allow a modular configuration in signal and power wiring up to 41 A and 1000 V.





Worldwide service and support: We are there for you

At Phoenix Contact, the focus is always on you, the customer. With over 50 subsidiaries and more than 30 agencies around the world, we are always close by. As a result, you receive expert, first-hand advice and benefit from fast and timely delivery of a complete package consisting of high-quality, optimally coordinated components. Our expertise and high level of in-house production means we can offer customized solutions tailored to your requirements. We will also support you after the purchase with comprehensive after-sales services.







Comprehensive training program

From the basics to specialist expertise: we provide you with the skills you need in line with your specific requirements.



Product sets and junction boxes

We pre-assemble product sets, equip and wire up terminal strips as per your specifications, and integrate these into the matching junction box.



Cable assembly

We assemble your specific cable solutions in accordance with your specifications. For this purpose, use our online configurators or get in touch with your local contact person.



Open communication with customers and partners worldwide

Phoenix Contact is a global market leader based in Germany. We are known for producing future-oriented components, systems, and solutions in the fields of electrical engineering, electronics, and automation. With a global network reaching across more than 100 countries with over 17,600 employees, we maintain close relationships with our customers, something we believe is essential for our common success.

Our wide variety of innovative products makes it easy for our customers to implement the latest technology in a variety of applications and industries. We focus on developing the fields of energy, infrastructure, process, and factory automation.

You can find your local partner at

phoenixcontact.com

