M12 push-pull locking system

The new standard in automation technology

PHOENIX CONTACT

M12 push-pull fast-locking system

The new standard in automation technology

Easy connection, fast-locking: M12 connectors with push-pull fast-locking system guarantee secure, tool-free plugging, even in confined spaces and with a high cabling density. Versions with internal locking also enable compact housing designs.

Your advantages

- Plug-and-produce: quick and reliable connection even in confined spaces
- Greater flexibility: one M12 device connection for screw and push-pull connectors
- Easy design-in: countersunk M12 ports for compact device concepts
- Flying leads: connectors with internal and external locking
- Highly future-proof: standardized product range for worldwide availability

Scan the QR code and watch the video

Your advantages at a glance

Plug-and-produce

With the cross-manufacturer locking system, plugging is now reliable and convenient – even in confined spaces. You will reduce installation times by up to 80% compared to screw connections.

Greater flexibility

The M12 duo contour allows for a flexible field wiring with proven M12 screw connectors or the new push-pull fast-locking technology. An easy push-pull device integration is even possible for existing M12 solutions.

More compact designs

The new M12 push-pull concept with countersunk M12 ports allows flush integration into the housing. Through the higher packing density your device designs become more compact.

Flying leads

Realize extensions in the field easily. You can realize flying leads with connectors with push-pull internal and external locking.

Individual cabling

With M12 push-pull connectors designed for assembly, you can determine flexible cable lengths. The easy and tool-free Push-Lock connection enables convenient on-site wiring.

Highly future-proof

The consistently standardized push-pull product range guarantees worldwide availability. Cross-manufacturer compatibility with the IEC 61076-2-010 standardization.

M12 push-pull portfolio

Consistent easy and tool-free installation

We provide consistent cabling with M12 push-pull fast-locking system directly on the machine or system: from the IP67 power supply, through field devices, right through to the connector and assembled cable. With our comprehensive product range, you can easily integrate decentral sensors, actuators, cameras, and I/O stations into your network tool-free.

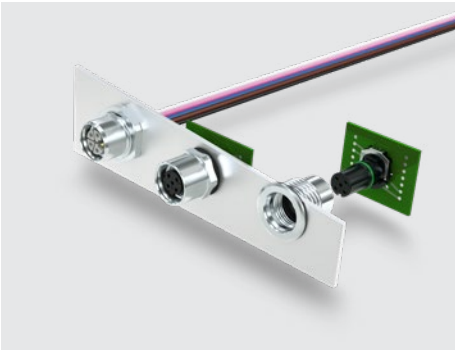
Find out more with the web code

For detailed information, use the web codes provided in this brochure. Simply enter # and the four-digit number in the search field on our website.

Web code: #1234 (example)

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

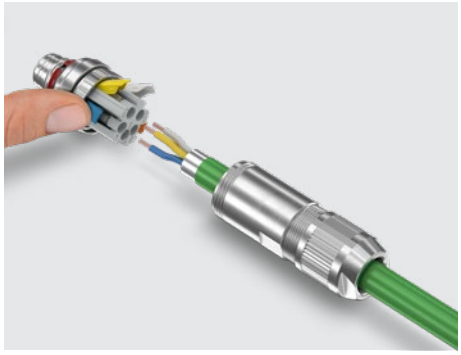
The product range at a glance



Device connectors

The more versatile the connection solutions, the more flexibly you can develop your devices. Our range includes one- and two-piece device connectors with raised and recessed housing screw connections for front and rear mounting. The connectors are available for wave, THR, and SMD soldering processes as well as with litz wire connection. Countersunk port versions allow for compact housing designs.

Web code: #2677



Field connectors designed for assembly

You can wire different cable lengths flexibly on-site with connectors for assembly. Connectors with Push-Lock connection enable the easy and tool-free connection of rigid and flexible conductors with or without ferrules. The color and numerical coding of the contact levers prevents connection errors.

Web code: #2680

Assembled cables

You have access to a comprehensive range of assembled cables for quick and convenient field cabling. With straight and angled designs in both shielded and non-shielded versions, we provide the right connector and the corresponding cable for every requirement. Halogen-free PUR cables, which we use as standard, already meet the relevant requirements in many fields of application.

Web code: #2679

Distributors and distributor boxes

Design your cabling in accordance with your specific requirements. Save space and interfaces with T and Y distributors. Distributor boxes bundle several cables into one master cable that is connected to the controller. Due to versions with plug-in cover connection and PCB terminal blocks with Push-in technology, installation is consistently tool-free. Shielded versions with 360° shielding ensure reliable transmission.

Web code for distributors: #2881

Web code for distributor boxes: #2886

IP67 I/O devices

Acquire input and output signals with IP67 I/O devices directly in your systems and machines. The Axioline E devices support all market-relevant Industrial Ethernet protocols.

Web code: #2896

IP67 power supplies

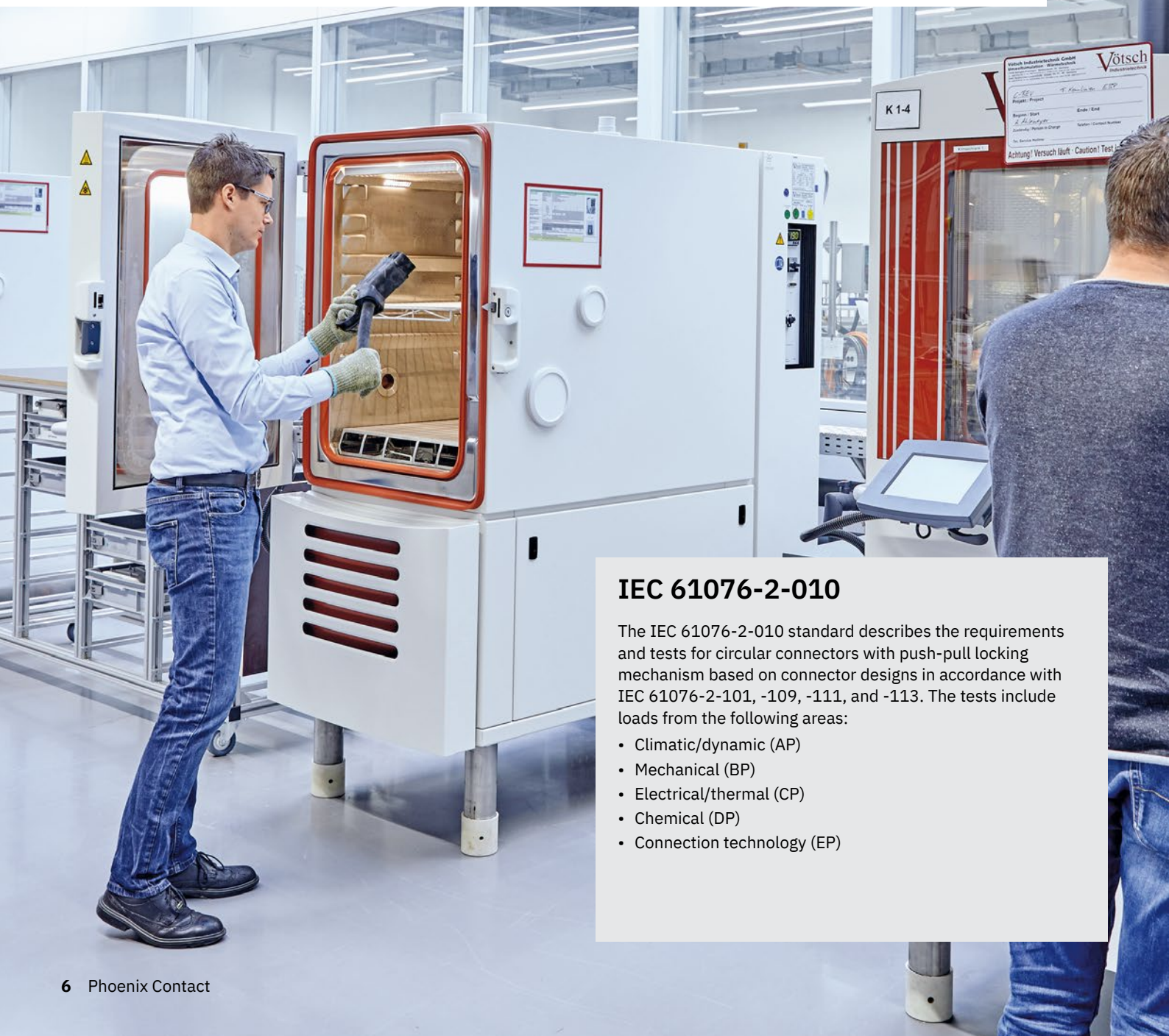
The robust power supplies with IP67 degree of protection are ideally suited for distributed supply in the field. The weather-resistant aluminum die-cast housing protects the devices against dust and water. This enables the IP67 switching grid components to ensure high system availability even in harsh ambient conditions.

Web code: #2906

M12 push-pull quality

Tested safety and durability

Field cabling is subject to a large number of environmental influences. Connectors and devices with push-pull fast-locking system from Phoenix Contact are reliable and robust. That is our claim and also our promise to you. To test their safety and durability, the test objects are subjected to extreme conditions in our development and technology laboratory. In addition to intensive qualification tests prior to series production approval, the quality is monitored during the process throughout the entire product lifecycle.



IEC 61076-2-010

The IEC 61076-2-010 standard describes the requirements and tests for circular connectors with push-pull locking mechanism based on connector designs in accordance with IEC 61076-2-101, -109, -111, and -113. The tests include loads from the following areas:

- Climatic/dynamic (AP)
- Mechanical (BP)
- Electrical/thermal (CP)
- Chemical (DP)
- Connection technology (EP)

Particularly high resilience under extreme external influences

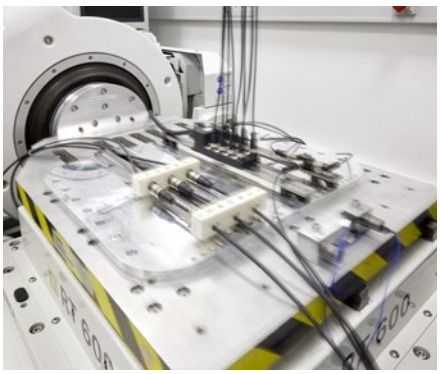
IP protection tests

M12 push-pull provides reliable protection against dust and water in accordance with IEC 60529. The connectors and devices are tested in accordance with IPX5 and IPX7 requirements. During these tests, the test objects must withstand jet water of 12.5 L/min. for >3 minutes and are immersed for 30 minutes in 1 m-deep water without any damage.

Shock and vibration test

In many applications, M12 push-pull connectors are exposed to vibrations and shocks. We simulate these interferences on the vibrating table. During this, contact interruptions of >1 µs are not permitted.

- In accordance with IEC 60512-6-4, the test includes sinusoidal oscillations of 10 Hz to 500 Hz and an acceleration of 50 m/s² over a duration of two hours per axis.
- In accordance with IEC 60512-6-3, the test includes six shocks per axis and an acceleration of 490 m/s² for 11 ms.
- In accordance with the standard for railway applications, EN 61373 Cat-1B, the test includes noise-induced vibrations from 5 Hz to 150 Hz and an acceleration of up to 5.72 m/s². The test objects are tested for a period of five hours.



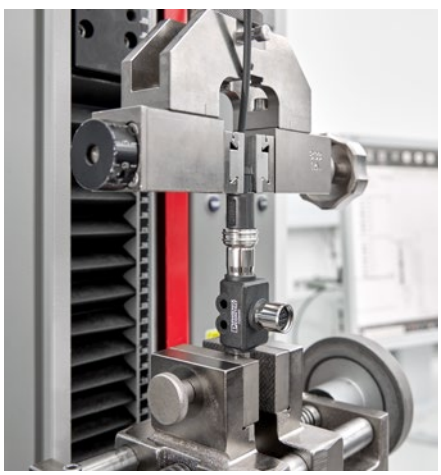
Locking mechanism – holding force test and rotation test

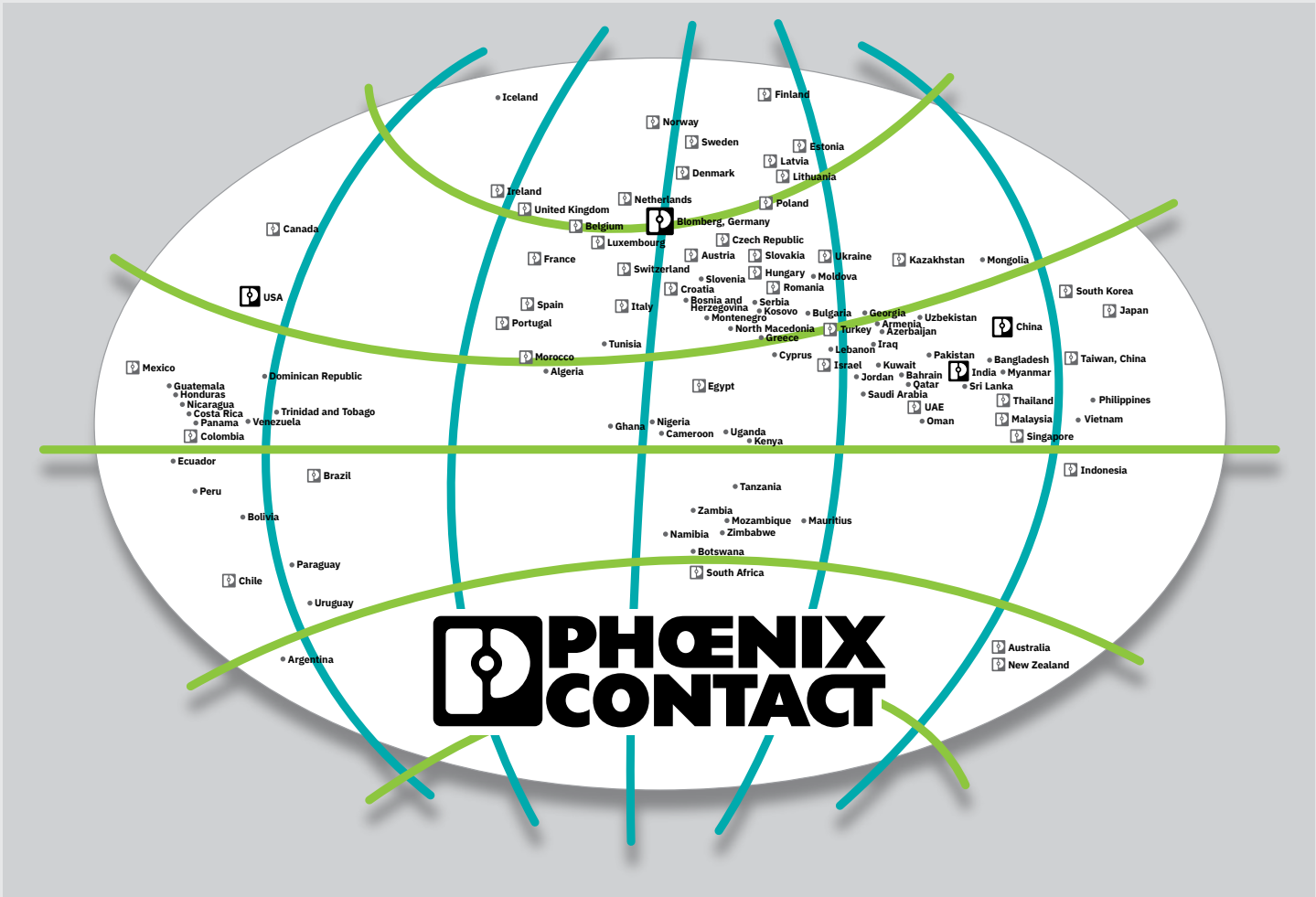
To test the tensile load capacity in accordance with IEC 60512-13-2, M12 push-pull connectors must withstand a tensile force of 300 N over 60 s.

During the rotary test in accordance with IEC 60998-2-1, a vertically fixed M12 push-pull connector is connected to a mating connector. A 5 kg test weight is suspended from the end of the conductor. The conductor is moved around its own axis 150 times. For test part 2 in accordance with UL 2238a, the push-pull locking system is subjected to a 360° rotation with a load of ≥13.7 N.

Neither the plug nor the cable may be damaged during any of the three tests.

In addition, the locking mechanism of the connector must not come loose. Finally, it must still be easy to unlock the plug-in connection.





Open communication with customers and partners worldwide

Phoenix Contact is a global market leader based in Germany. We are known for producing future-oriented products and solutions for the electrification, networking, and automation of all sectors of the economy and infrastructure. With a global network reaching across more than 100 countries with over 21,000 employees, we maintain close relationships with our customers, something we believe is essential for our common success.

Our wide range of innovative products makes it easy for our customers to implement the latest technology in a variety of applications and industries. This especially applies to the target markets of energy, infrastructure, industry, and mobility.

You can find your local partner at

phoenixcontact.com

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