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Angled variants of the 720/770 series
**Designed for tight installation spaces**

 **Plastic angled connectors with snap-in locking are sensitive to faulty handling and thus challenging in design terms. For the 720 miniature series, binder has developed a safe and robust field-attachable angled version addressing applications with restricted installation conditions. An angled solution is now also available for the miniature NCC 770 series – featuring variable direction of the cable outlet.**binder, a leading supplier of industrial circular connectors, has complemented its 720 and 770 product series by field-attachable angled variants. Such compact angled connectors are used in device, building, and plant engineering: Particularly where secure electrical connections need to be established in confined spaces, the angled versions of the 720/770 series with snap-in or bayonet locking provide a reliable and space-saving alternative to the straight versions.

**Background: operational safety as a design priority**
In the case of the 720 snap-in series connectors, the electrical connection is fixed mechanically by snap hooks engaging in an appropriate slot, thus locking the interface. However, this type of locking is susceptible to incorrect handling: If the connector is pulled off at an angle to its axis rather than axially, this can destroy the plastic snap hooks, depending on the amount and direction of the pulling force. In order to prevent this application fault, the product developers at binder have inserted a threaded ring between the contact body and the angled housing. Even when force is applied at an angle to the connector axis, the snap hooks are thus protected against damage and the connectors can withstand loads far in excess of the standard requirements.

By means of the additional threaded ring, two further design requirements could be met:

* The concept enables binder to also offer the 770 series as an angle variant using many identical parts.
* The contact body can be rotated in steps of 90° allowing the user for choosing the direction of cable outlet.

Cable routing is problematic for housings angled at 90° in general. As known from other product series, bending the cable by 90° is often difficult. Therefore, an angle of 100° was chosen for the new housings, which considerably simplifies cable assembly.
**The angled connectors in detail**The new angled versions of the 720 snap-in series are used for example in lighting technology installations, greenhouse heating systems, and e-bikes. The series is specified for rated voltages from 60 V to 250 V, and currents from 2 A to 7 A. For the 3- to 12-pin interfaces, cable termination is achieved by soldering. They comply with protection degree IP67 (mated) and can withstand more than 500 mating cycles.

NCC (Not Connected Closed) angled connectors of the 770 series with bayonet locking are used, for instance, in compact handheld control panels, in medical homecare devices, and in laboratory metering instruments that have to be installed in a particularly space-saving manner - for example, in the immediate vicinity of a wall. The 8-pin interfaces are also equipped with solder terminals; rated voltage and current are 175 V and 2 A, respectively. In addition to IP67 when mated, the female panel mount connectors also achieve IP67 protection when unmated thanks to binder's NCC technology. The connectors withstand more than 5,000 mating cycles.

In addition to black, the connectors of both the 720 and 770 series are available in red, green and blue colors as well as in white (RAL 9002), which is typical for medical applications.

**About binder**binder, headquartered in Neckarsulm, Germany, is a family-owned company characterized by traditional values and one of the leading specialists for circular connectors. Since 1960, binder has been synonymous with the highest quality. The company works with more than 60 sales partners on six continents and employs around 2,000 people worldwide.

The binder group includes the binder headquarters, 16 affiliated companies, two system service providers as well as an innovation and technology center. In addition to Germany, the binder sites are located in Austria, China, France, Hungary, the Netherlands, Singapore, Sweden, Switzerland, the UK, and the USA.
Figure caption:
Angled versions of the 720 and 770 series facilitate device connectivity where installation space is limited. Photo: binder

Fields of application:

* Lighting and heating technology, e-mobility (720 series)
* Mobile and laboratory instrumentation, medical technology, laboratory metrology (770 series)

Features:

* Locking system: snap-in (720 series), bayonet (770 series)
* Termination: solder
* Pin count: 3-pin to 12-pin (720 series), 8-pin (770 series)
* Rated voltage: 60 V to 250 V (720 series), 175 V (770 series)
* Colored versions
* Variable cable outlet
* Protection degree: IP67 (connected)
* Mating cycles: > 500 (720 series), > 5,000 (770 series)

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