Ing. Büro für Kontakttechnologie
Dipl. Ing. (FH) Andreas Veigel

DIN/VDE · EN · IEC

Status 07.02.2026

Processing Instructions for WIZON Terminations

1. General Information

WIZON terminations have **three functional areas**:
holding, **winding**, and **contacting** (see illustration).

They must be mounted in a **holding hole** inside an **insulating plastic carrier**.

This hole, with the **correct diameter and depth**, fixes the contact position in all three directions:

- **x–y direction**: position of the holes in the PCB
- **z direction**: hole depth defines the vertical position of the press-fit contact
  (usually centered in the PCB thickness, or adjusted for other applications such as connectors or welding tabs)

2. Conditions

The **plastic carrier material** is defined by the user and must match the WIZON termination.
During wire winding, the termination is exposed to **rotational pulling forces**, so the plastic must be strong enough to hold the termination securely.

This must be checked in **preliminary tests**.
If necessary, the **holding section of the** termination **can be reinforced**.

Holding hole design

- A **round holding hole** is sufficient for most applications
  → Diameter = width of the termination's holding section (for thermoplastics)
- A **rectangular holding hole** is required if
  the gap between a round hole and the termination is **smaller than half the wire diameter**
  → This must be checked during design

Hole edge

The hole must have **sharp edges**, with **no chamfer**.
A chamfer can pull the wire into the hole during press-in and may cause the wire to break.

Termination tip and hole depth

The termination has a **tapered tip** to help insertion and protect the hole edge.
However, this reduces the support surface for press-in force.

Depending on the plastic hardness, the **hole depth must be adjusted** accordingly.

After winding, pressing the termination into the carrier sets the correct height for pressing into the PCB.

Holding force requirement

After the PCB is pressed in, the WIZON termination **must not move**.

This means:

- The **holding/support force** in the plastic carrier
  must be **greater than the maximum PCB press-in force**

Termination and carrier can be adapted within certain design limits.

For dimensional coordination between PCB, PCB support, and press-fit contact, this document is helpful:
https://www.bizon-kontakt.de/en/files/Guide-Bizon-en_mkiahevg.pdf

3. Preliminary Tests

3.1 Plastic strength

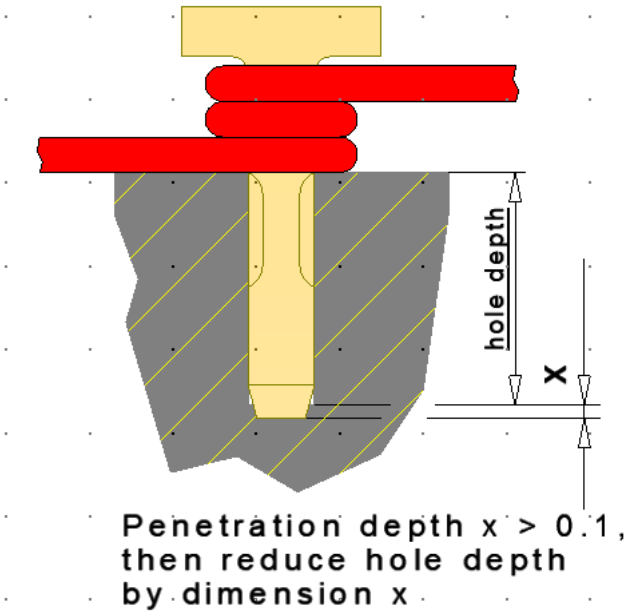
The winding force must **not loosen or tilt the** termination.

- The holding section of the termination can be reinforced
- If a very thick wire bends the termination during winding,
  use the **next larger** termination **size**

3.2 Support at the bottom of the hole

Because the termination tip has a smaller support surface, soft plastics may allow the termination to sink further when the PCB is pressed in.

This must be avoided.



Test procedure:

1. Measure the force needed to fully press the wound termination into the holding hole
2. Compare it with the **maximum PCB press-in force**

- If holding force > PCB press-in force → OK
- If holding force < PCB press-in force:
    - Increase force to PCB press-in force
    - Measure the additional sinking distance (**x**)
    - Reduce hole depth by **x**

After PCB press-in, the whole contact must no longer move.

In production, **correct press-in depth** has priority over force (force–distance curve).

4. Processing (Winding & Pressing)

- Wire turns must lie **tight next to each other**
- **No overlapping turns** allowed
- The same winding tension as for the spool can usually be used.

Minimum winding requirement

For reliable electrical connection with **8 gastight contact points**:

- At least **3 full wire turns** must be wound
- After final press-in, **all 3 turns must be on the sharp-edged contact section**

The winding height of the winding section is designed as:
Hw = 3 × wire outer diameter (Da)

Using thinner wires

If thinner wires are used:

- Ensure **at least 3 turns** are still located in the contact section
- More turns may be wound if needed

If the winding section is fully inside the plastic carrier in final position, the setup is safe.

With thin wire and 3 turns, the termination may be pressed deeper (deeper hole) to save space above the carrier.

 Important:
The shoulder must **never press on the wire winding**.

- Leave an air gap between shoulder and wire
- The wire must not be compressed from both top and bottom

Two separate windings on one termination

If two windings are applied:

- Prevent the end of the first winding and start of the second from moving during press-in (use fixation or winding strategy)
- The end of the first and start of the second winding should be **as close as possible**, as if the winding were continuous

Thin wires (< 0.15 mm)

- Winding tension only as high as necessary for an adjacent winding
- Cracks in the insulation are **not allowed**
- Strong wire stretching at small edge radii is not allowed
  → otherwise the wire may break during press-in

Check that:

- Gap between hole and termination < ½ **wire diameter**
- Otherwise, use a **rectangular holding hole**

Breaking off the wire

If the wire is torn off:

- It must be done using **an extra turn over the sharp contact section**
- Otherwise, the entire winding will overstretch and break during press-in

Pressing into the holding hole

- Press **only on the shoulder**
- **Never press on the contact tip**
- The tool hole must guide the contact **without force**

5. Summary

Plastic carrier

- Check material strength for suitability

Holding hole

- Diameter = width of termination holding section
- Fine adjustment depending on plastic type
- Adjust depth if necessary
- Use rectangular hole if round hole gap is too large for thin wire

PCB

- Hole size according to contact size and standard
- Coordinate height between PCB support and contact
- Target: contact center = PCB center + 0.2 mm in press-in direction

WIZON termination

- At least **3 tight, non-overlapping wire turns**
- Termination must always sit on the hole bottom
- At least **3 turns must be inside the contact section**
- For two separate windings, follow section 4