M1270 SERIES Assembly Specification

Assembly

1. Position of the Wire

All positions of the cable guide of a receptacle connector housing shall be loaded with only one wiring material type (color is irrelevant). Unused positions must always be loaded with a wire (“dummy wire”, filling wire), even if they are not used electrically.

90° CABLE OUTLET

With a connector in the end position (i.e. cable begins or cable ends at it), the cable tail shall be aligned flush with the connector housing and the cable guide, respectively.

The maximum permissible undercut of 0.3 mm in reference to the cable guide applies to the whole bundle of wire strands, as depicted in the figure below.

Undercut is a critical parameter of the assembly and its processing and must be monitored, ensured, and achieved.Exceed ing of the allowance results in reduced reliability.

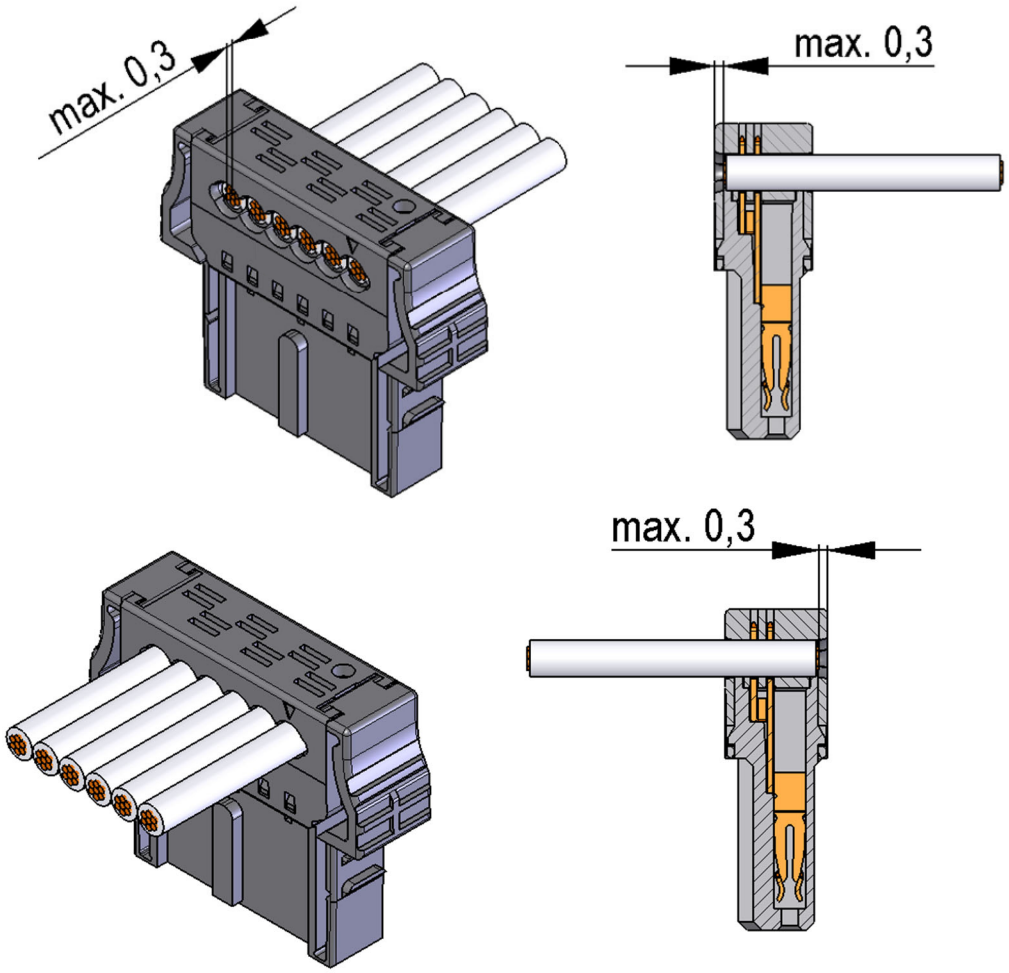

Figure 1 Undercut

The **overhang** is not critical from a connector processing perspective and can be arbitrary. Thus, a blies with a daisy-chain configuration, i.e. more than two connectors arranged on the length of the c are feasible.

Overhang, in combination with insulation retraction, a bow in the wire, and possibly with sideward-bent strands, can be the reason for isolation failures during end-of-line testing and in the field. This is of particular importance for the receptacle version that accepts wires of a 0.35 mm² conductor cross-section (insulation diameter 1.1 mm to 1.27 mm) due to their thin insulation layer. With excess overhang being present, the insulation layers may be the only physical instance ensuring an isolating air gap or creepage distance. The dielectric withstanding voltage in the datasheet may hence be impaired for the completed cable assembly.

The maximum permissible overhang depends on the needs of the specific application for the cable assembly.

When the connector is in the end position (cable begins or ends), a maximum overhang of 0.3 mm is recommended.

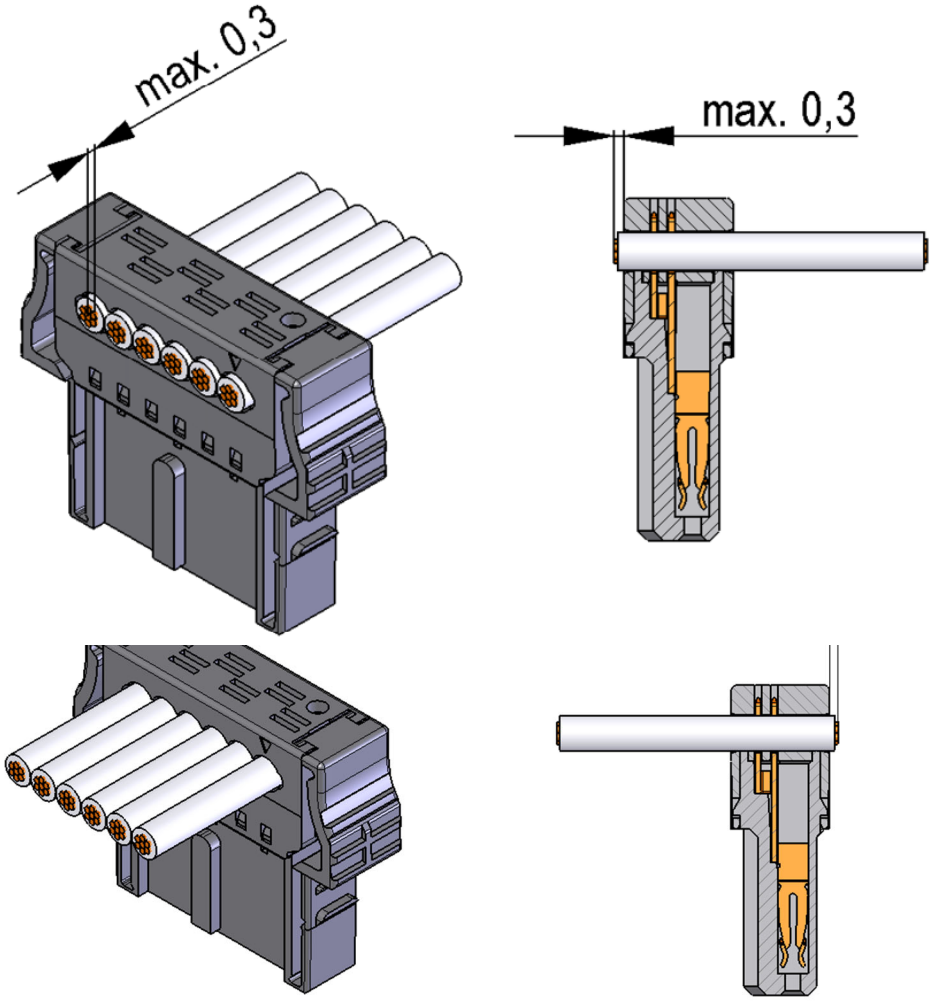

Figure 2 Overhang

180° CABLE OUTLET

It is essential to achieve sufficient insertion depth of the wires for the insulation displacement connectors with a 180° cable outlet and it is a critical parameter that must be monitored, ensured, and achieved. Failure to comply with the requirements may result in reduced reliability of the insulation displacement contacting.

The requirements to the insertion depth of the wires are different for even and odd numbers of the pin position.

For odd pin positions (1, 3, …) sufficient insertion depth is ensured if the wire completely fills the inspection window, i.e. either insulation or copper strands lie against the end of the respective inspection window (refer to the tip of the blue arrow).

For even pin positions (2, 4, …) sufficient insertion depth is ensured if the wire is visible in the respective inspection window (refer to the tip of the green arrow).

The requirements to the edges of the cut, described in section 2, must be respected.

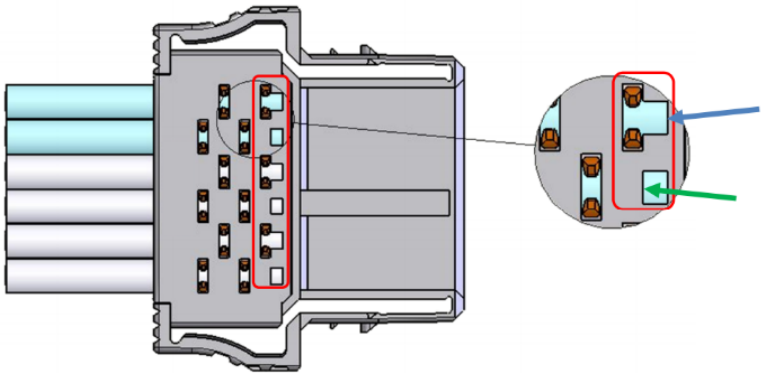

Figure 3
180° Receptacle with inspection windows and wires

2. Requirements for the Wire Ends and its Cutting Edges and Cutting Planes

The wires must be cut in a way that they can be brought to their correct final loading position without issues. A clean transection shall be achieved. The insulation shall be cut without burrs and fringes and also without a significant deformation.

The strands shall be cut within a tolerance of 0.1 mm to the same length. The bundle of strands must not be deformed in the region, where the insulation-displacement contact will cut through the insulation.

Requirements and criteria of IPC-A-620 section 3 “Preparation” are to be applied as far as applicable. Class 3 is used if there are no application-specific aspects that allowed a lower classification.

Retraction of the bundle of strands from the insulation ends (undercut position of strands in the cable) or retraction of the insulation from the ends of the strands (overhang of the strands in the wire) is allowed to be a maximum of 0.1 mm in order to achieve a correct electrical connection in the ID contact system.

Retraction ≤ 0,1 mm **Retraction > 0,1 mm**

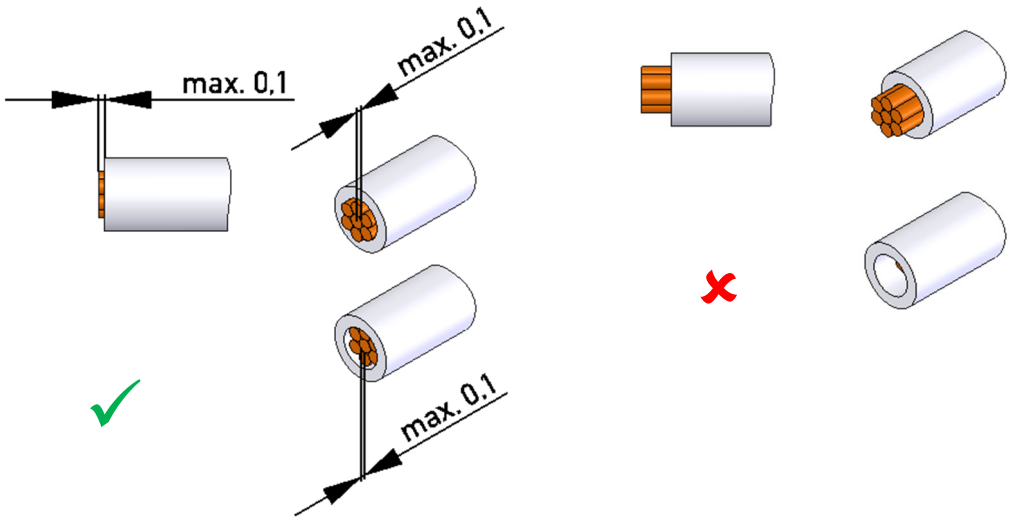

Figure 3

3. Insulation Displacement (Insulation Cutting)

Evaluated by visibility of the insulation displacement contact feature (ends of the ID flanks) in the cla mping shaft.

90° CABLE OUTLET

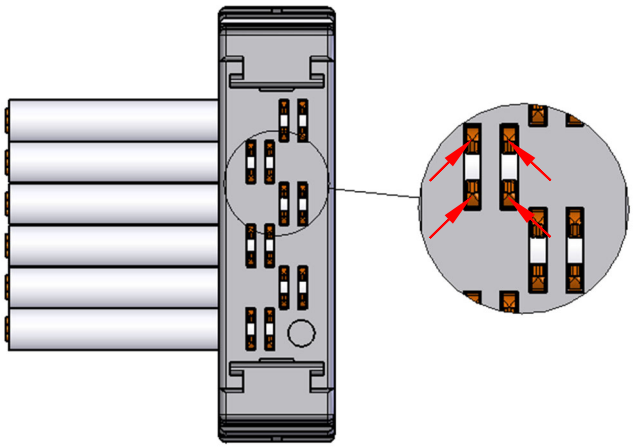

Figure 4

180° CABLE OUTLET

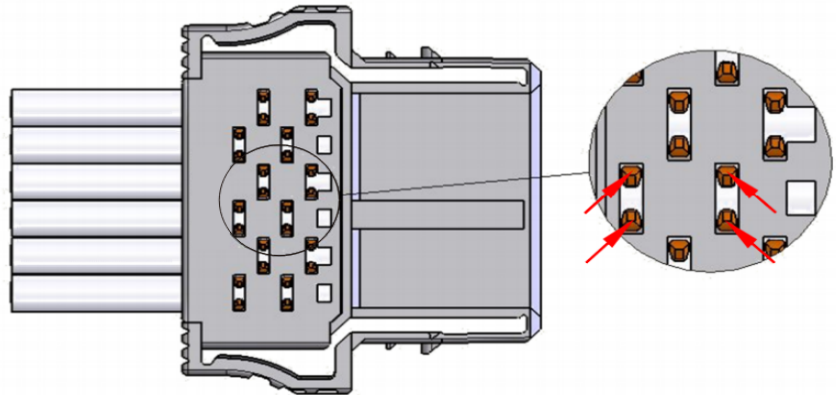

Figure 5

4. Locking of the Cable Guide

a. Visual Characteristics

There is a catch mechanism for each wire position in the receptacle connector housing which comprises a latching nose and a latching window. All latching noses must snap into their respective latching windows and be completely visible there.

NOTE:

Bulging of the cable guide may indicate incomplete latching. Minor bulging is acceptable if all latching noses have snapped into their respective openings.

90° CABLE OUTLET

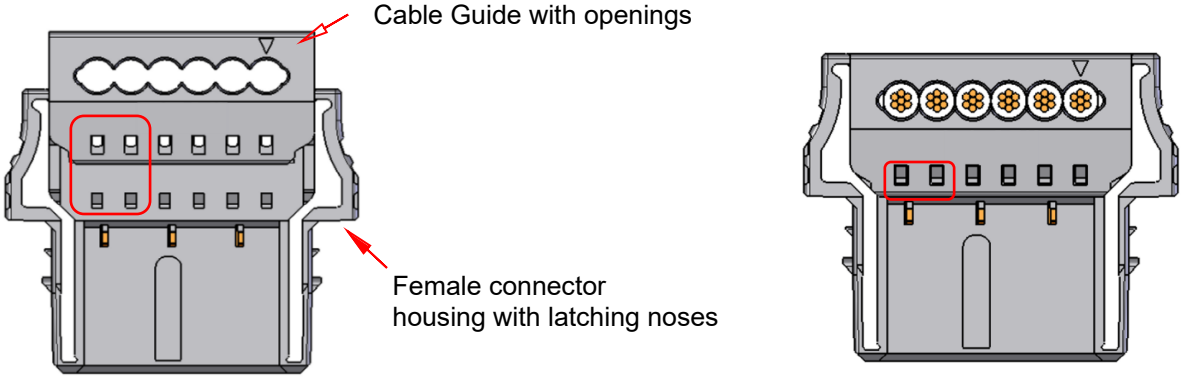

Figure 6

condition on delivery, open

Visibility of final locking of the cable guide

180° CABLE OUTLET

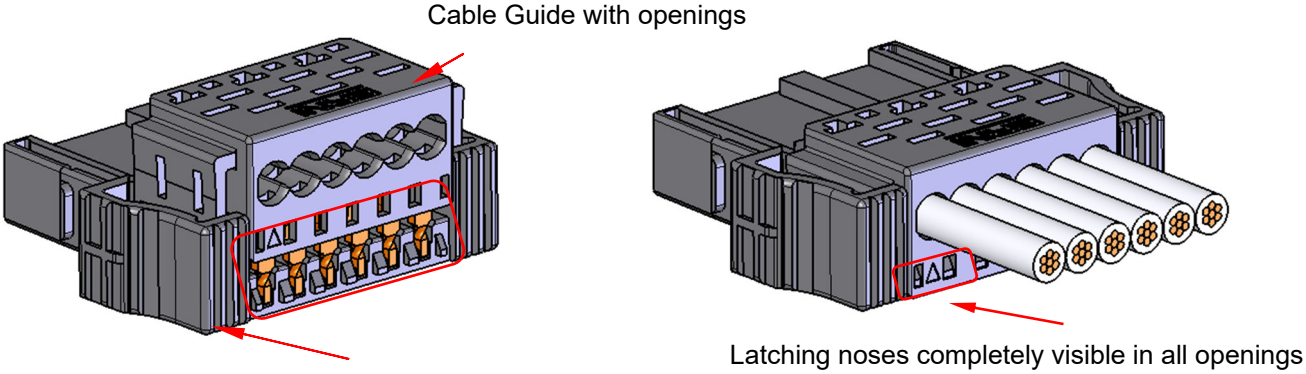

Figure 7

Condition on delivery, open

Visibility of final locking of the cable guide