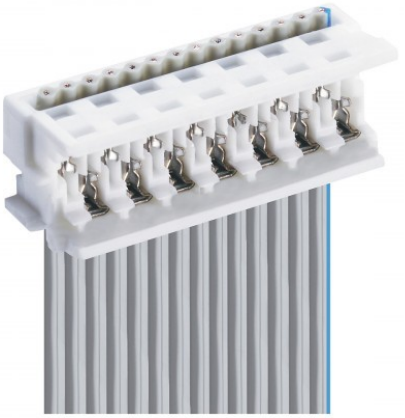
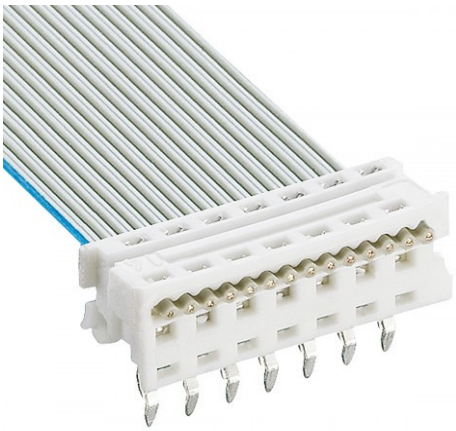
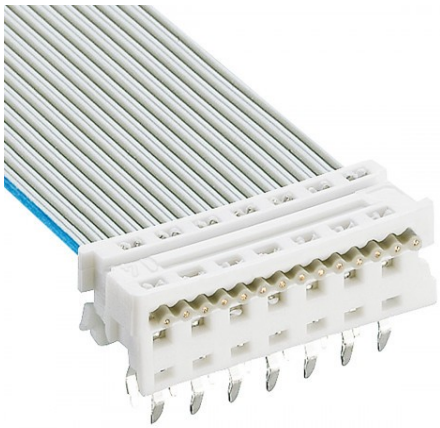
MICA



MICAL



MICALD



	Date	Name	Edition	3	4	5	6	7	8
Author	21.08.02	heg	Name	dg	fs	fs	fs	fs	fs
Checked	11.05.22	ritsch	Date	21.02.07	28.01.16	01.03.16	17.12.18	30.06.21	11.04.22

Alteration description

Edition	Alterations carried out
2	7.2.4 Test specifications for the contact insertion depth changed
3	Change of name and inspection note added
4	The 3005 plug connector has been removed (points 5.6, 5.7, 5.8 removed). Storage added (point 8). Point 1.1 (Types of products) extended. AZ30 listed as a processing tool in 3.1. Added delivery conditions in 5.1. Cable harness variant and features added in 5.4. Electrical test added in 7.10.
5	3.4 Naming and spelling of the end-stop versions corrected
6	optimized illustrations, corrected illustration 2 (indirect plug onto contact blade), changed format of processing instructions to new template
7	Processing instructions implemented in new template, correction of section 6.4 Connector height after assembly
8	optimized illustrations

Contents

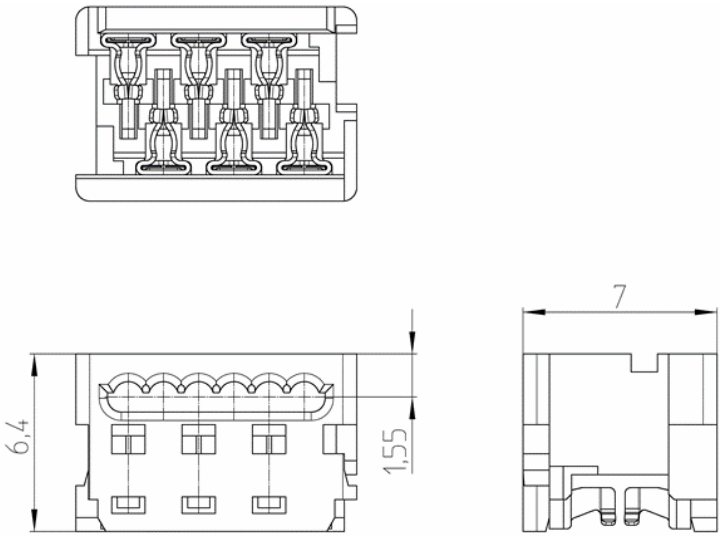
1. Product description

1.1. Product types

MICA series

Insulation displacement (IDC) connectors, for indirect mating with snap-in lock.

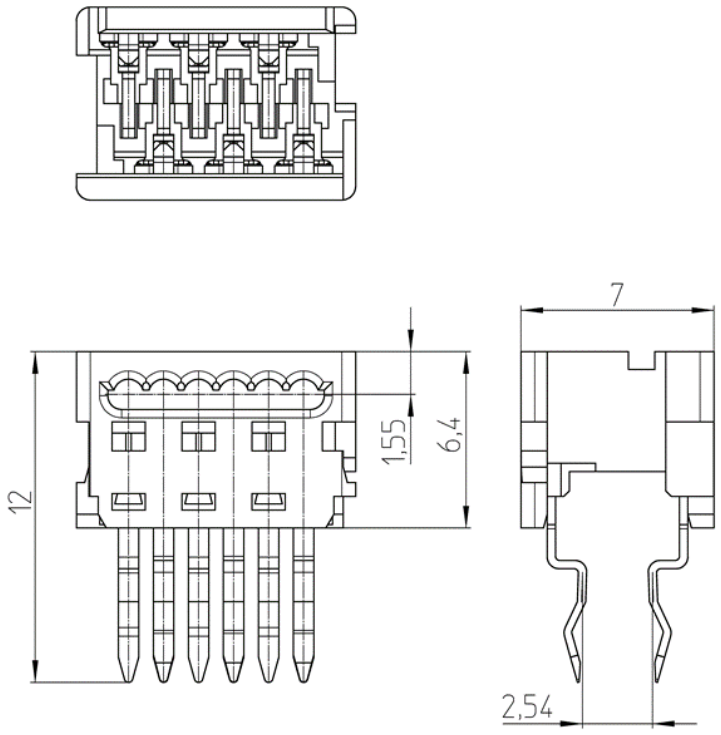
Pitch 1,27 mm
acc. to data sheet 300 01



MICAL series

Solder-in insulation displacement (IDC) connectors, with two rows of offset solder contacts.

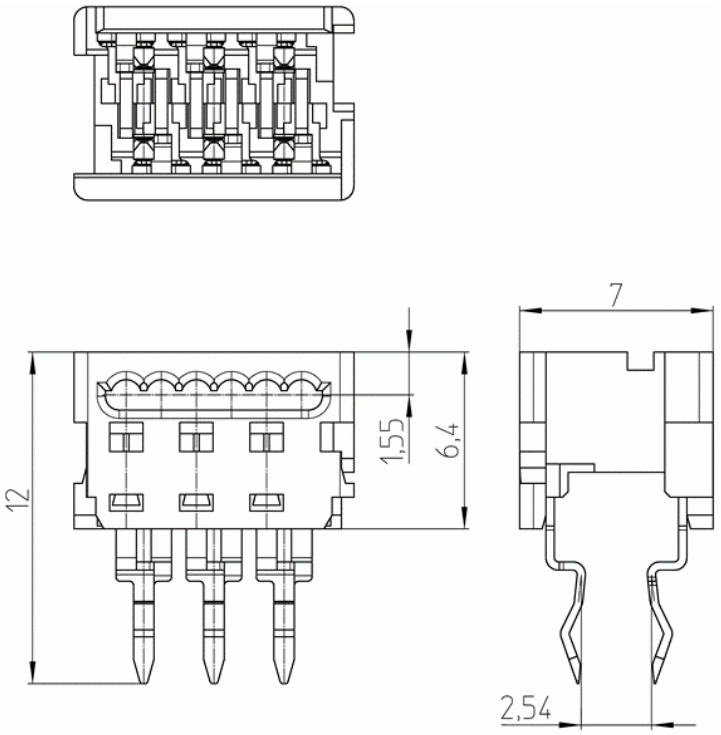
Pitch 1,27 mm
acc. to data sheet 301 03



MICALD series

Solder-in insulation displacement (IDC) connectors, with two rows of parallel solder contacts.

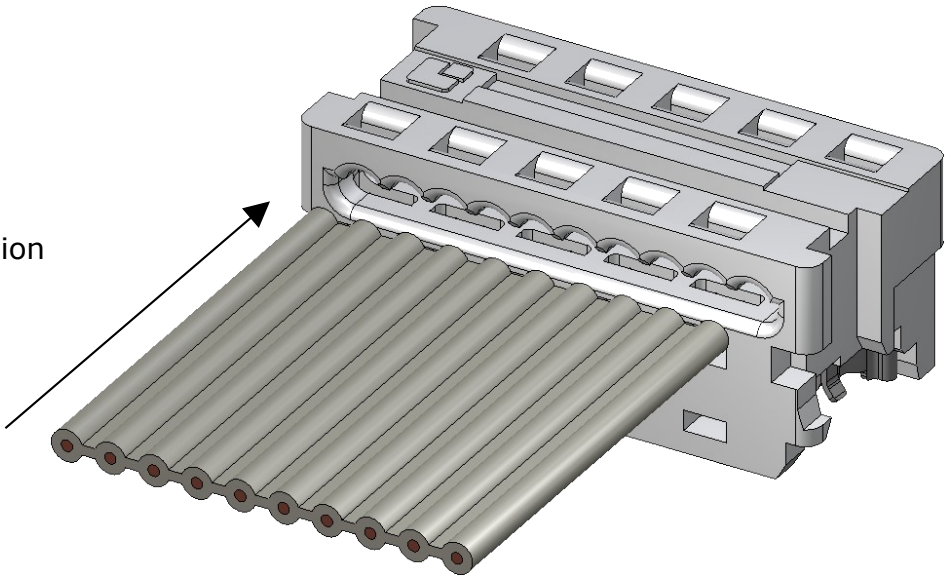
Pitch 1,27 mm
acc. to data sheet 301 04



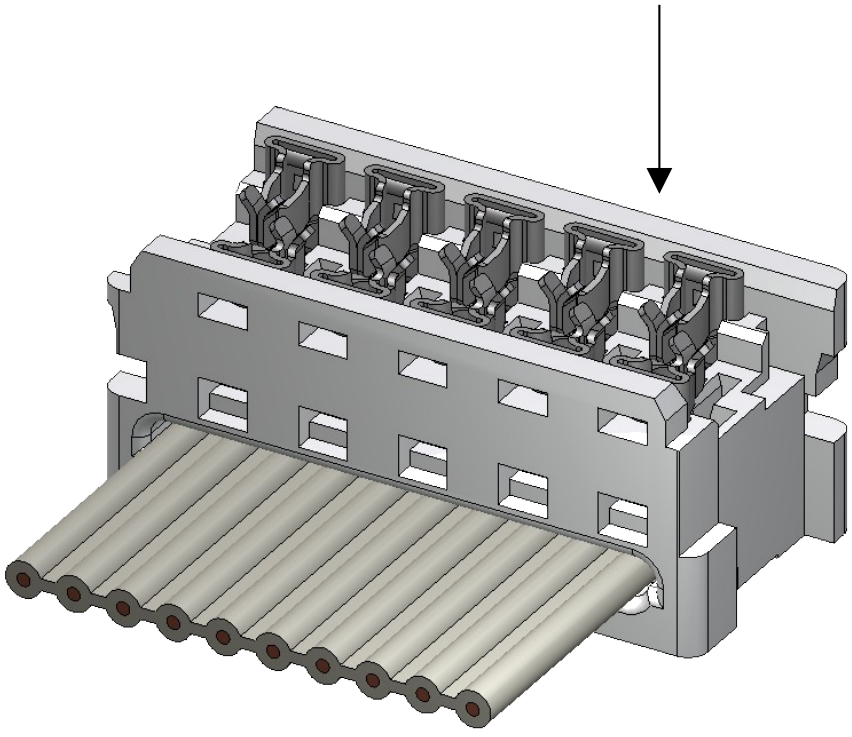
2. System features

One-piece body,
Contact springs in pre-latching position,
Pitch 1,27 mm

Wire termination



Insulation displacement connection by pressing the contacts
Wire exit 90°. The maximum bending radii of the cables and conductors are listed in the specifications from the cable manufacturer.

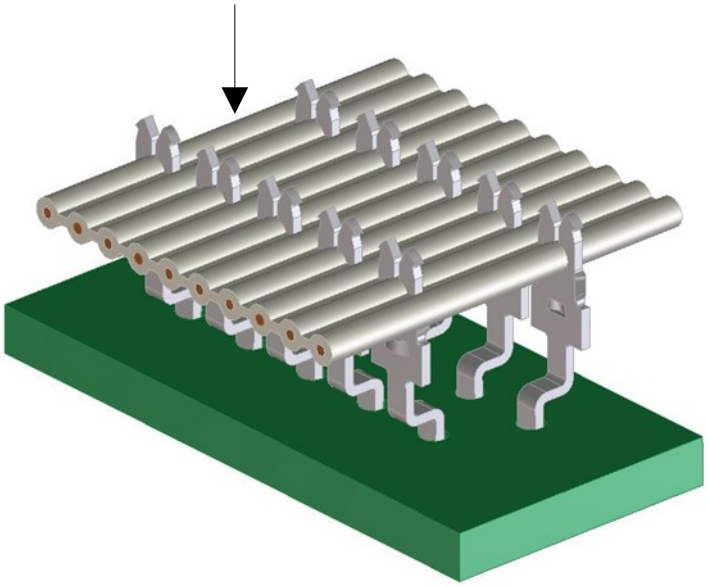


3. Contact principle

Indirect mating on the contact tab
(Type MICA)

Insulation displacement connection
(Test acc. to DIN EN 60352-4 / IEC 60352-4)

Soldering on the PCB
(Types MICAL and MICALD)



Insulation displacement connection
(Test acc. to DIN EN 60352-4 / IEC 60352-4)

4. Application tooling and machines

The function, safety and quality of the connectors are only guaranteed by using of Lumberg processing equipment. It has to be taken into account that the connectors aren't checked electrically before the processing / assembling. Because of that an electrical test should be carried out after processing / assembling.

The user bears full responsibility if any other processing equipment is used.

In case of using any lubricants or sliding agents in the feed and press areas residues (impurities) must not come into contact with the connectors.

4.1. Tools

All delivery conditions are possible.

HZ30
The HZ30 manual crimping tool is available for processing the connectors of type MICA up to 16 poles.

HZ-M30
For processing all connector types MICA / MICAL / MICALD, up to 26 poles in small series, for producing sample parts, and for repairing cable harnesses on site.

KHP30
For processing all connector types MICA / MICAL / MICALD, up to 26 poles in small series.

AZ30
The AZ30 puller pliers are recommended for use when dismantling the MICA type connectors.

4.2. Machines

The delivered condition depends on the type of machine.

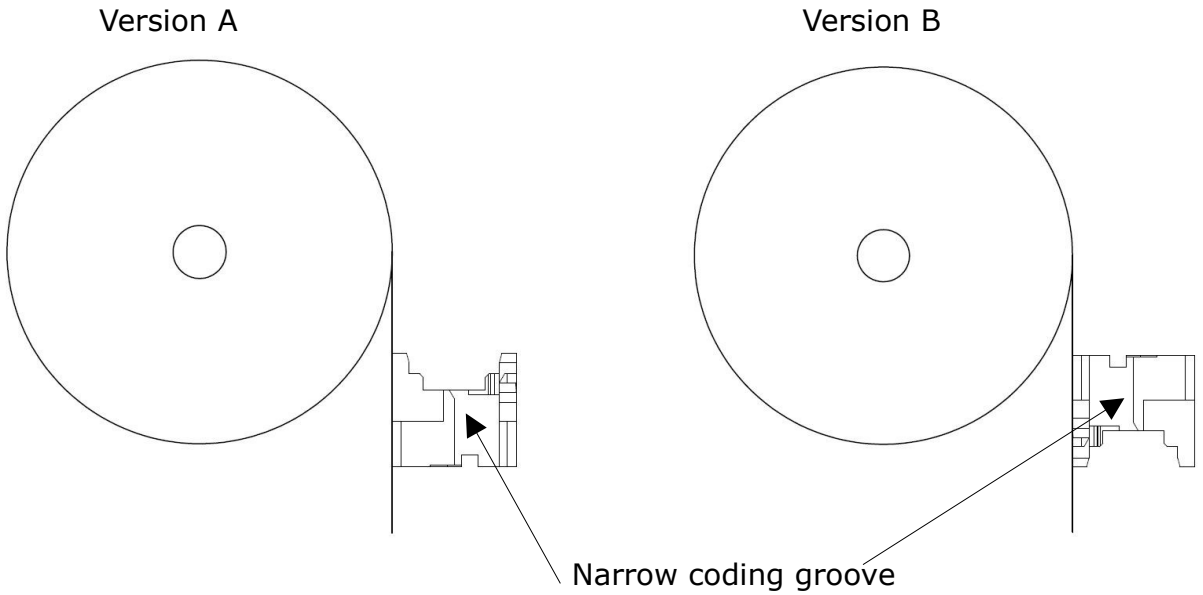
PP30
Pneumatic press for the production of small and medium-sized series. The processing machine possesses a cable stop position interrogation with automatic release of the Press.

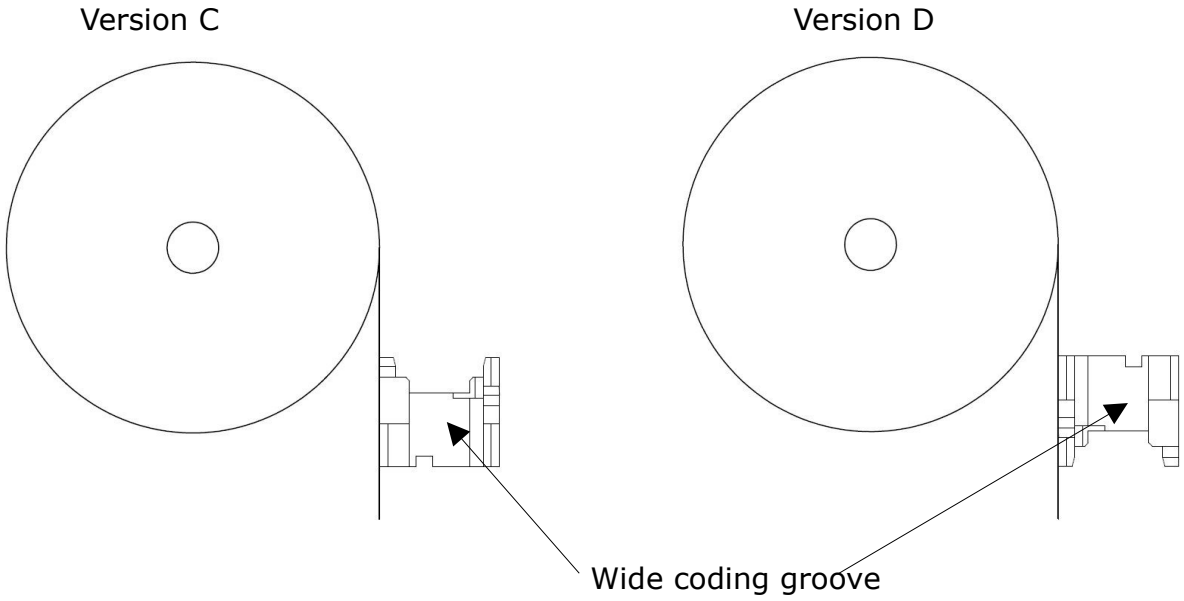
4.3. Semi-automatics

Delivery can only be made in versions A and C.

HA30e-R
Semi-automatic machine for cost-effective attachment of ribbon cables to automatically supplied MICA-series connectors. Used for medium-sized and large series. Connectors are delivered on adhesive tape and rolled in spool.

4.3.1. Uncoiling directions





4.4. Fully-automatic machines

All delivery conditions are possible.

VARICON 1000
A fully-automatic machine where the ribbon wire is cut and mated on both sides with the connectors. An electrical continuity check and short circuit test is optionally integrable. There are end-stop versions for 1-to-1 (Z-shaped) and 1-to-n (U-shaped). Used for large-scale industrial series production.

5. Cable specification

This instruction is not valid for shielded flat cables. The cable specifications must be kept. Any deviation must be discussed and approved by Lumberg.

5.1. Cable specifications cross section for connection 0,09...0,135 mm²

Technical data sheet 901 01
Flat cable AWG28 (7 x Ø0,127mm = 0,09mm²); tin-plated

Technical data sheet 901 02
Flat cable AWG28 (Ø0,32mm = 0,09mm²); tin-plated

Technical data sheet 901 04
Flat cable AWG26 (69 x Ø0,05mm = 0,135mm²); tin-plated

Other cables see – Approval list is on the internet at www.lumberg.com

6. Assembly

The cables are mated with the contact equipped connectors.

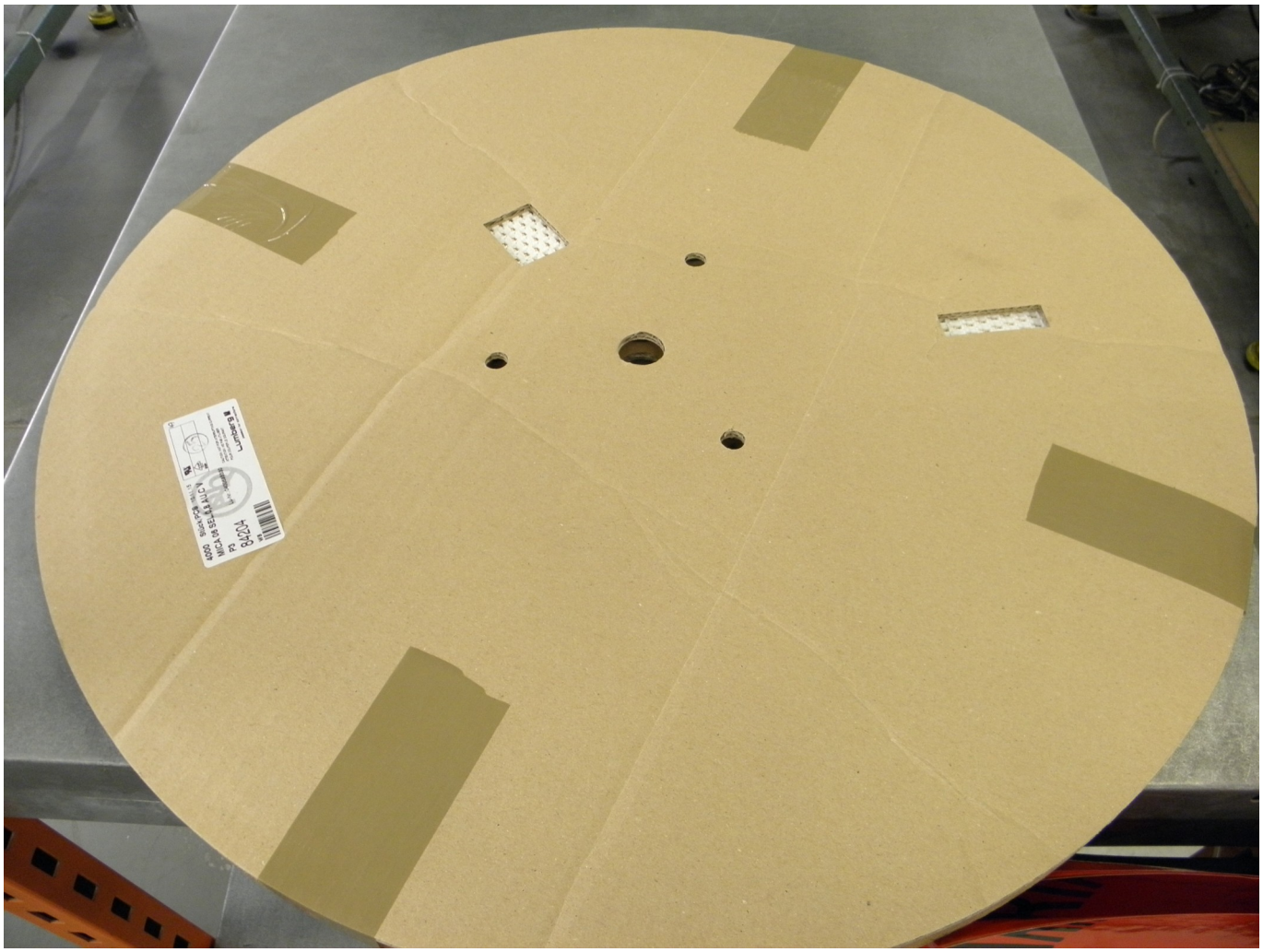
6.1. Connector feed

Depending on the kind of delivery the connector feed is as follows

- Bar stock carrier consisting of antistatic, transparent PVC

- Bulk material

- Coils adhesive taped in 4 different uncoil directions A to D (point 4.3.1)



6.2. Cutting clearance

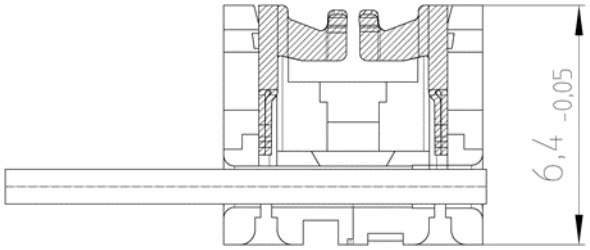
Wire cross section for connection (conductor) and insulation displacement area (ID slots) have to correspond. Only released cables are to be used for the ID slots.

6.3. Termination head

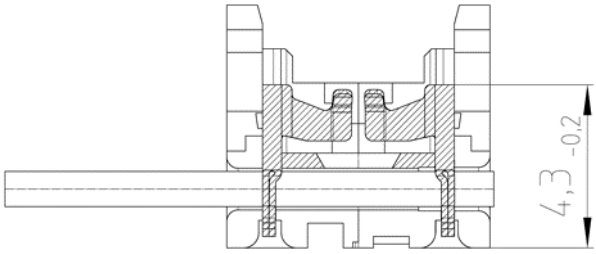
In order to guarantee a correct positioning of the contacts and not to damage the bodies during the termination of the contacts, termination head, contact and connector have to correspond. The termination heads are part of the application machines.
One mounting form exists for the type MICA, another mounting form exists for the types MICAL and MICALD.

6.4. Adjustment height of the processing machine and connector height after assembly

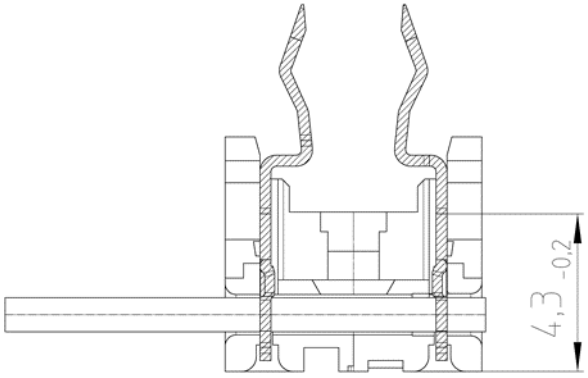
In order to guarantee a correct insulation displacement connection and the mating with suitable MICS tab headers, the contact insertion depth must comply. Attention must be paid on the correct shut height dimension of the Lumberg application equipment.
The dimension of the contacts in the pre-latching position is $6{,}4_{-0{,}05}$ mm (measured from the upper edge of the contacts to the area of support).



The crimped height is a decisive feature for the functionality of the connector once it has been assembled. This may be determined up to a maximum of 30 minutes after the crimping process. This dimension must achieve a cmk > 1,67 (for acceptance of the processing machine) and a cpk > 1,33 in series production. When adjusting the processing machine, we recommend setting the crimping dimension in the middle of the tolerance range.
The press-in dimension of the contact is $4{,}3_{-0{,}2}$ mm (measured with a depth gauge from the contact's top edge to the contact surface).



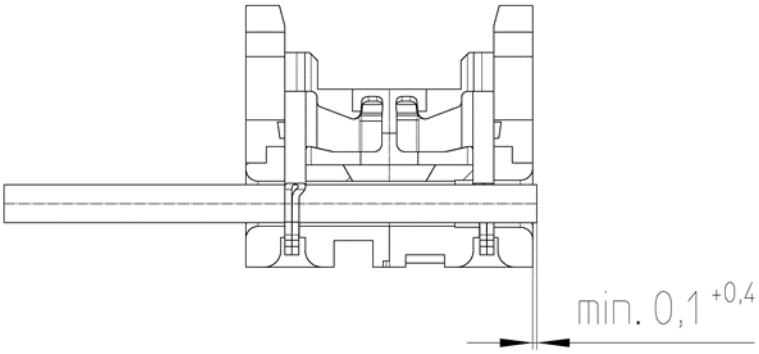
MICA



MICAL / MICALD

6.5. Wire end position

The proper conductor overhang ensures that both cutting shanks achieve contact. The proper wire end position must be considered when processing the connectors. This position must be properly checked after the connector assembly. The conductor insulation may only be removed from the specified area.



6.6. Cable

No damaged insulation of the cable in direction wire exit is allowed (visual check). The ends of the cable must be cut off without burr and deformity.

6.7. Housing

After the termination no visual damages of the housing are allowed (visual check).
The mating function must be guaranteed (functional check).
The contact must be in correct position in the housing (visual check).

7. Guarantee against incorrect mating

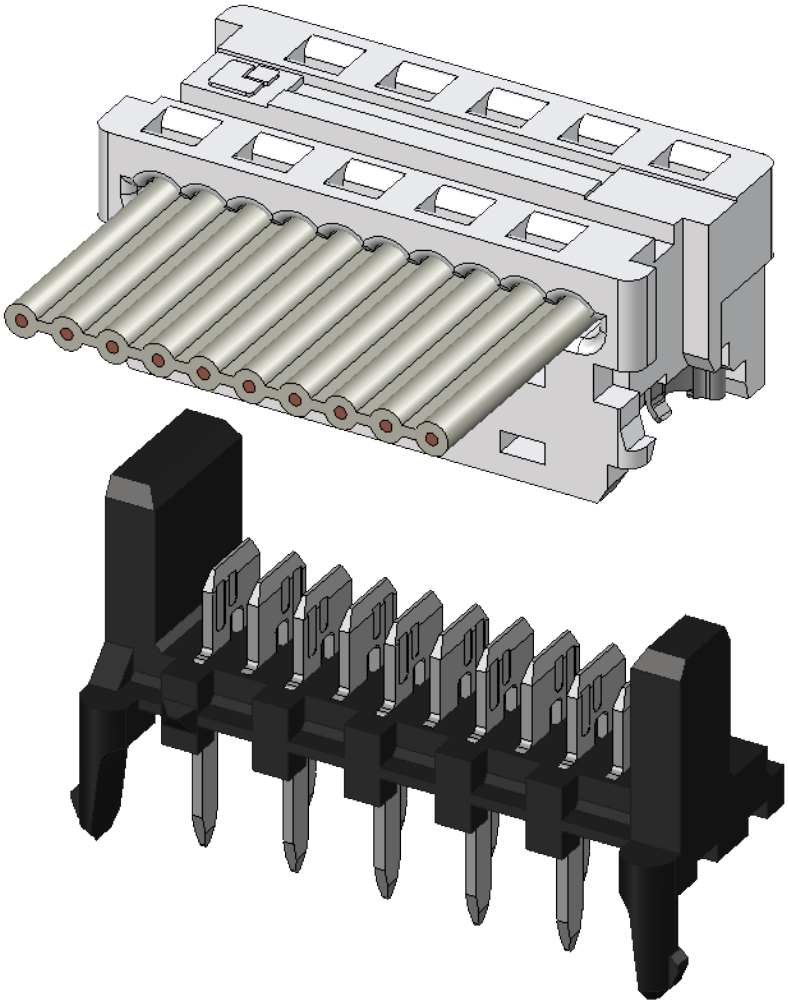
7.1. Coding

Not available.

7.2. Torsion safety

Available.

Incorrect mating of the type MICA is avoided through various wide grooves at the beginning and the end of the connector. The grooves are positive-fit with the MICS tab headers.



7.3. Colour coding

Not available.

8. Quality assurance

For all working and processing steps and alterations (e.g. product launch, changes of the cable, changes of the tool or machine …), which can affect the product quality, the responsible departments have to take care for appropriate quality assurance steps.

8.1. Quality features

The following quality features must be taken into consideration:

8.2. Quality features / IDC

- ID slot width
- Symmetry of ID slot
- Cable quality
- Contact insertion depth
- Cable protrusion

8.3. ID slot width

Lumberg guarantees correct ID slot.

8.4. Symmetry of ID slot

Symmetry of ID slot and cable tolerance ±0,1 mm is guaranteed by the body.

8.5. Cable quality

The cable must meet Lumberg specification acc. to point 5.1. Customized cables, which are listed in the release lists, have to correspond with the available specification sheets. Only Lumberg released cables are to be used. The customer bears full responsibility for the correct mating when cables are used which are not listed in the release lists.

The user must ensure that all approved conductors and cables meet the quality requirements. The conductor cross-section, concentricity, micro Shore hardness and the termination (lay) length should all be checked.

8.6. Contact insertion depth

The contact insertion depth determines the position of the conductor in the ID slot area. The locking hook of the contact spring must be concentric in the locking window. All single conductors must be in the ID slot area.

8.7. Cable protrusion

The cable protrusion according to point 6.5 must be kept. A protrusion of the cable in the housing leads to an incorrect mating. An exceeding of the maximal cable protrusion leads to uncertainties when actuating the connection.

8.8. Retention force of the wire

Specification regarding the retention force of the wire from the body on request.

8.9. Electrical testing

Electrical testing shall be performed in accordance with IPC/WHMA-A-620.
The nature extent of the electrical tests (short circuit testing, continuity testing, insulation testing, high voltage testing, etc.) should be specified depending on the application and the processing machine.

9. Storage

Tin-plated and silver-plated surfaces can undergo a physical aging process that may negatively affect their ability to be soldered. In order to maintain the best connection characteristics, make sure that the following instructions are closely followed during additional processing steps:

Storage conditions:
The parts should ideally be stored in the original packaging, at a constant temperature of 21-25°C, with a relative humidity of no more than 55%. The components should not be exposed to direct light. They should also be protected from any extreme ambient conditions (such as air pollution).

Due to the physical properties of the parts the storage times should be reduced as short as possible. Silver-plated components have to be processed within half a year and tin-plated components within one year after delivery. For components that are soldered due to their application, it is necessary to use a commercially available suitable flux.

These specifications are based on experience using components stored under optimal conditions. They do not constitute a binding commitment for the fulfillment of any characteristics.

Ask Lumberg for more information about alternative packaging options for other temperatures and environmental conditions.