

**Packaging: Delivered condition - reference values**

Lead frames							
Reel	Strip thickness [mm]	Strip width [mm]	Coil ext. Ø max. [mm]	Coil int. Ø min [mm]	Coil max. kg	Standing rack	Rack max. kg
	to 0.8	to 80	tbd	tbd	tbd	possible	2000
	from 0.8	from 80	1400	tbd	500	necessary	2000
	Axis diameter - holder diameter						
	d <sub>A</sub> min	20 mm	30 mm	40 mm	50 mm	300 mm	
		up to 100 kg	up to 200 kg	up to 250 kg	up to 300 kg	up to 500 kg	
Pallet wound in layers	Strip thickness [mm]	Strip width [mm]	Coil ext. Ø max. [mm]	Pallet max. kg	Minimum deflection or bending radius [mm]		buckling/kinking possible
	up to 0.8	up to 80	1200	2000	tbd		tbd
	from 0.8	ab 80	1200	2000	200		yes
Full strip							
Coil: Pallet wound in layers	Strip thickness [mm]	Strip width [mm]	Coil ext. Ø max. [mm]	Coil int. Ø min [mm]	Coil max. kg	Standing rack	Rack max. kg
	up to 0.8	up to 80	1000	300	tbd	no	no
	from 0.8	from 80	1000	400	tbd	no	no
Coil: Pallet wound in layers	Strip thickness [mm]	Strip width [mm]	Pallet ext. Ø max. [mm]	Pallet max. kg	Minimum deflection or bending radius [mm]		buckling/kinking possible
	up to 0.8	up to 80	1200	2000	tbd		tbd
	from 0.8	from 80	1200	2000	200		yes

For special sizes of the ring internal diameter (RID), we kindly ask you to provide a corresponding internal core.

**In general:**

Unless other arrangements are made, the delivery = handover.

When placing an order, please always provide a corresponding unfilled packaging unit (e.g. empty reel, empty pallet, etc.)

**Electroplating**

**Plating run out:**

For flat surfaces: up to the measurement point required plating thickness is within specified tolerance, after the measurement point plating thickness runs out.

For peaks the measurement point is the middle of the peak: at the measurement point required minimum plating thickness, from the measurement point the plating runs out on both sides.

Stamping edges: unless specified in the offer, not a subject of analysis.

**Technical Cleanliness**

**Particles:**

Statements regarding cleanliness are only possible in connection with the handling, packaging, transport processes, etc. downstream.

### Substance residues:

We assume a usual level of greasing/contamination.

The auxiliary materials used such as oils and passivation agents have to be examined and released by EBB, or in consultation with the customer and EBB compared to a list of approved stamping oils.

The following auxiliary materials can lead to defects such as stains and adhesion and wetting problems in the electroplating process: paraffins (petroleum jelly); substances containing teflon (e.g. forming oils, additives or polymers); silicon and substances containing silicon (in particular organopolysiloxane); silicon and calcium sulphate); lithium grease; non-polar oils (short-chain isoparaffins); heavy oils; graphite; molybdenum sulphide; polyalphaolefins

and the following special stamping oils:

Rivolta (S.K.D. 16, S.K.D. 4002); Oest (Meba H 3111, Platinol B208); Sestral (CST 4); Avia/ Bantleon (Avilube Metapreess 9901); Weicon (chain and rope spray/ art. no.: 11500400); Scharr (Condocut 4651); Raziol (CLF 25 E, AL V); oelheld GmbH (DiaPress MFP); roloil (isomov - ms); or substances which have a negative effect on the wetting.

### Raw material without plating

Raw material free areas must be especially defined in order in consultation with the customer to define corresponding measures in particular when these areas have a function (e.g. welding, sticking, bonding, etc.).

### Whiskers

For Sn coating layers without an adequate Ni barrier layer, an increase in the growth of whiskers is likely.

### Silver (Ag) surfaces

#### Ag:

Ag semi-gloss > 80 HV

#### Thiol (ODT) passivation:

For silver enquiries without a passivation specification, we offer surface protection with thiol passivation as standard.

For silver surfaces without passivation there is always the possibility of tarnishing.

The passivation effect considerably increases the resistance to tarnishing of silver.

The temperature and abrasion resistance, the friction reducing effect and the conductance values which depend on the thickness of the coating have to be considered with regard to processes downstream, the application area and the lifecycle of the contact system during the design. A carryover into other areas is possible.

#### Selective silver:

For selective silver plating Ag splashes/residue in the remaining or transition area cannot be excluded.

### Lubrication

A carryover into other areas is possible.

### Gold (Au) surfaces

#### AuCo:

The realisable cobalt concentration in the hard gold layer is 0.10 - 0.40 weight %.

### Tin/lead (SnPb) surface

For enquiries with a tin/lead requirement, we assume that the customer has taken the applicable laws into consideration.

We expressly point out that we only offer this surface plating on the request of the customer.

As far as the legal regulations prohibit plating with a lead content, we reserve the right to withdraw from the offer or contract.

### Electropolishing

Electropolishing is carried out subject to a final specification.

### Surface roughness

Ra/Rz: the electroplating reflects the topography of the delivered surface roughness. If the product is brushed, we exclude the Ra/Rz requirements.

### Strip characteristics

**Strip inlet:** The pin tip arrangement must not be configured to be in the running direction of the strip plating line.

**Breaking points:** We assume the predetermined breaking points are sufficiently stable.

**Strip camber:** The assessment of the manufacturability is valid to a max. 1.5 mm per metre.

**Torsion / twisting:** The assessment of the manufacturability is valid to a max. 12° per metre.

**Accum. pitch error:** This must be assessed according to the article and the production process used.

**Pre-plating:** We give no warranty for pre-plating and pre-cladding.

**Rolled pins** For the flow away of the electrolyte, at the end of the pin there must be a sufficiently large enough rinsing opening which has a size of at least 0.50 mm.  
In tight capillaries there is the risk of liquid residues which can lead to stains and corrosion.

**Seam area** Due to an insufficient rinsing possibility there is the risk of liquid residues which can lead to stains and corrosion.

### General points

#### Product design:

The ordering party is responsible and liable for the product design.

The ordering party is responsible to check and approve the product for functionality and feasibility.

#### Bare areas of the strip:

Areas of the strip which are not treated will be subject to the risk of oxidisation.

#### Guarantee for component integrity after storage through Enayati

Enayati has no control over the main factors which affect the defined parameters.

We therefore, offer no guarantee for the integrity of components after storage.

#### General tolerances:

Compliance with general tolerances and geometric tolerances of stamping drawings is not included in this offer.