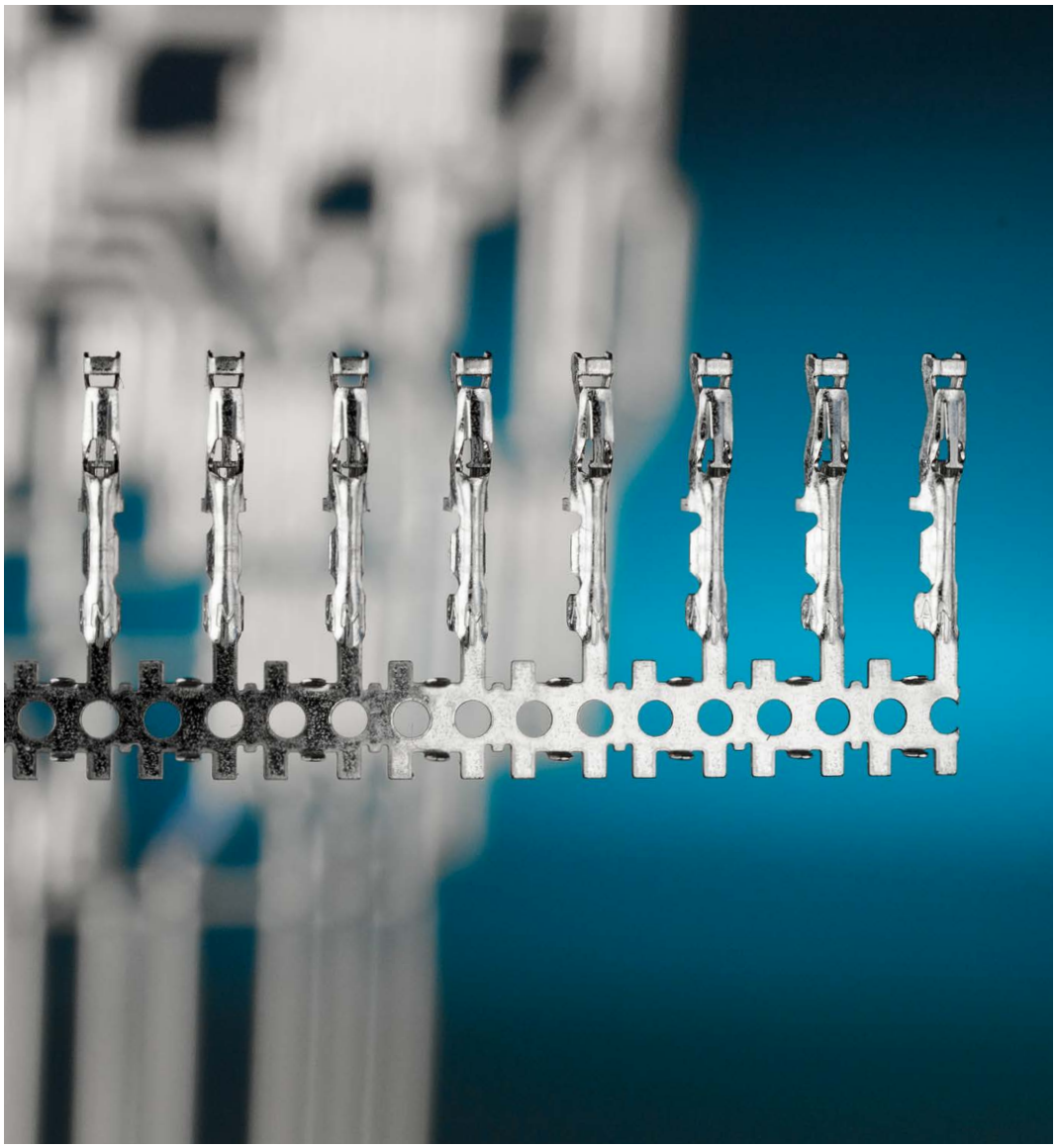
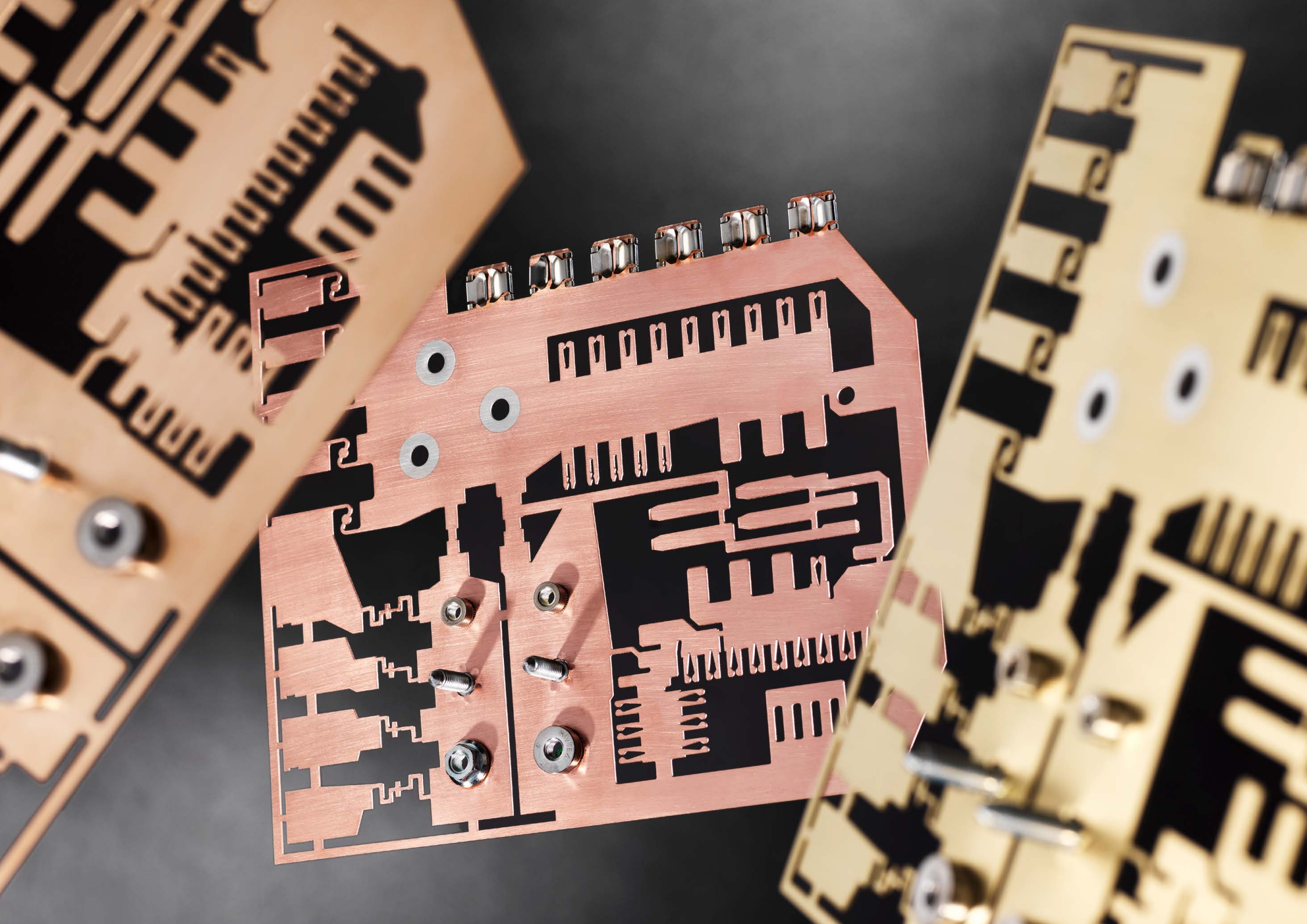
# Industrial Rolled
Connector strips

KME Germany GmbH & Co. KG
Connector strips
[EN]





# KME - The Company

With production plants in Germany, France, Italy, the UK and China, KME is one of the world's biggest manufacturers of semi-finished and finished products of copper and copper alloy.

KME leads in the development of innovative, application-oriented and customer-specific solutions. The company is an important and reliable partner for customers from the building industry, refrigeration and air-conditioning, electrical and electronic engineering, connectors and semi-conductors, automotive industry, metal processing and cable manufacture. The company also offers special-purpose products such as moulds for casting, tube bundles and products for maritime applications.

The Industrial Rolled Products division specialises in the production of high-quality copper alloys for connectors, among other things, and has the optimal conditions to satisfy the requirements of this dynamic market. As a leading supplier for the automotive and electrical engineering and electronics industries, KME offers a broad spectrum of high-tech copper and copper alloy strips of high production quality. At the German plants in Stolberg and Osnabrück, the company has special production facilities, well qualified staff and, not least, the necessary know-how.

As a group of companies that operates worldwide, KME has regional sales offices in many countries; an international service network guarantees efficient customer support. The company's own research and development centres in Europe and a quality management system certified to ISO/TS 16949 provide the solid basis for innovative products of the highest quality.

# Precision strips of copper and copper alloy

*KME produces high-quality strips of copper and copper alloy in its plants. An effective quality management system, reproducible production processes, a considerable processing depth and massive production capacities are what enable us to offer customer-oriented deliveries and solutions.*

**1. Bare strips**

**2. Pre-tinned strips**
- Hot-dip tinned
- Electrolytically tinned

**3. Special qualitys**
- Smaller dimensional tolerances
- Mechanically stress-relieved
- Thermally stress-relieved

**4. Supplied forms**
- Pancakes up to 1400 mm OD
- Drums, traverse woundstrips on wood, plastic or steel drums, or flange-less on cardboard or copper core.
  *Drum weight: 300–1500 kg*
- Multicoil packs
  Overlapping rings are welded together at the inner and outer ends.
  In the course, the material is unwound from top to bottom alternately from outside to inside as one unit.
  *Width: 15–50 mm*
  *Thickness: 0.15–0.80 mm*
  *Standard palette weight: 1800 kg*
- Pre-punched parts / finished parts according to customer drawings

## Tolerances

**Tolerances of strip thickness – blank strips –**
We offer tolerances of strip thickness in two different qualities and up to a strip width of 660 mm.

| Strip thickness in mm | Tolerances of strip thickness in mm | |
|---|---|---|
| | Standard | Precision |
| 0.08 – 0.20 | ± 0.005 | ± 0.004 |
| 0.21 – 0.30 | ± 0.007 | ± 0.005 |
| 0.31 – 0.40 | ± 0.015 | ± 0.006 |
| 0.41 – 0.50 | ± 0.015 | ± 0.008 |
| 0.51 – 0.60 | ± 0.017 | ± 0.010 |
| 0.61 – 0.70 | ± 0.020 | ± 0.010 |
| 0.71 – 0.85 | ± 0.022 | ± 0.012 |
| 0.86 – 1.30 | ± 0.025 | ± 0.015 |
| 1.31 – 2.00 | ± 0.030 | ± 0.020 |
| 2.01 – 4.00 | ± 0.045 | ± 0.025 |

**Tolerances of strip width**
For the width, two qualities are similarly available: standard and precision

| Strip thickness in mm | Strip width in mm | | | | |
|---|---|---|---|---|---|
| | bis 50 | 50 – 100 | 101 – 200 | 201 – 350 | 351 – 660 |
| 0.08 – 1.00 | + 0.20 | + 0.30 | + 0.40 | + 0.60 | + 1.00 |
| 1.01 – 2.00 | + 0.30 | + 0.40 | + 0.50 | + 1.00 | + 1.50 |
| 2.01 – 4.00 | + 0.50 | + 0.60 | + 0.70 | + 1.20 | + 2.00 |

| Strip thickness in mm | Strip width in mm | | | | |
|---|---|---|---|---|---|
| | bis 50 | 50 – 100 | 101 – 200 | 201 – 350 | 351 – 660 |
| 0.08 – 1.00 | + 0.10 | + 0.20 | + 0.30 | + 0.40 | + 0.50 |
| 1.01 – 2.00 | + 0.20 | + 0.20 | + 0.40 | + 0.60 | + 0.70 |
| 2.01 – 4.00 | + 0.30 | + 0.30 | + 0.50 | + 0.70 | + 0.90 |

# Tinned precision strips

**Tinned strips**
Owing to stiffer reliability requirements, electro-mechanical components are increasingly made of pre-tinned strips. In the automotive industry above all, hot-dip tinning has proven itself as corrosion protection and preferred contact surface billions of times over. Special tinning processes have been developed in close collaboration with the processing industry that permit higher temperature ranges, are wear-resistant and reduce mating and unmating forces.

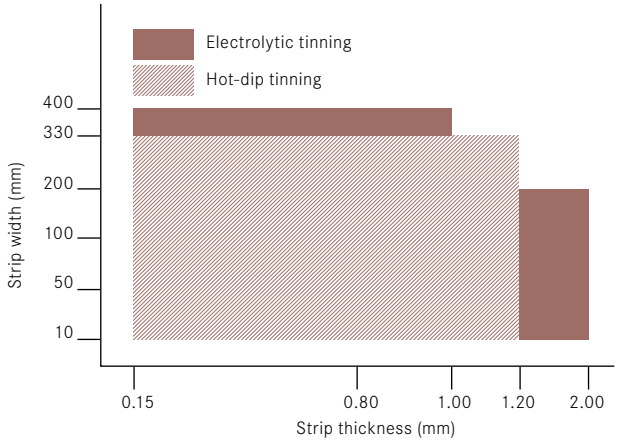
**STOL**®Sn28M – tin-silver on the new materials CuNiSi and CuCr can be used for temperature ranges above 130°C. All layers are lead-free. There has been no risk of whisker formation in practical use for 20 years. The material is suitable for soldering for several months.

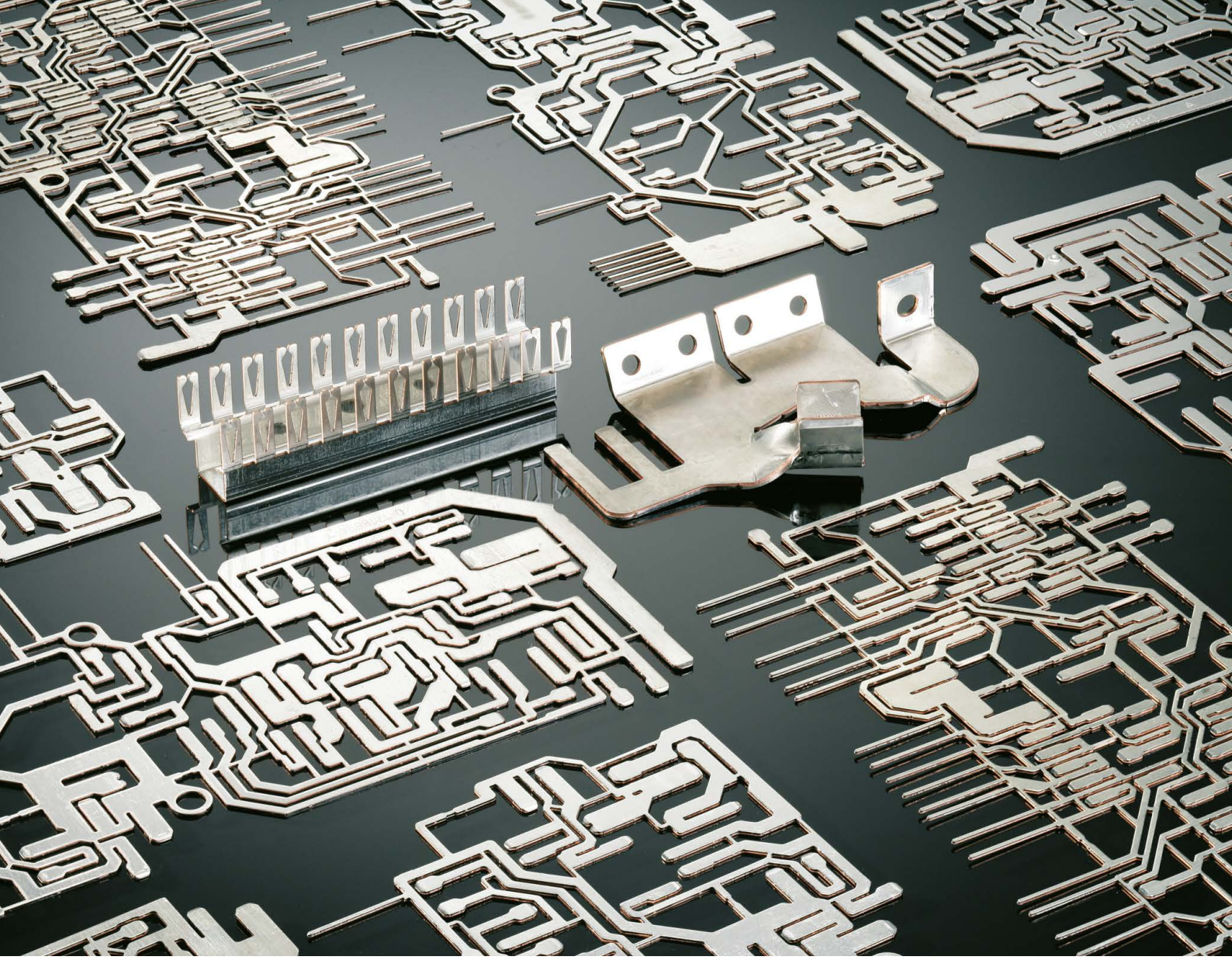
**Hot-dip tinning to DIN EN 13148 (RoHS conform)**

| | |
|---|---|
| Thickness: | 0.15 – 1.20 mm |
| Width: | up to 330 mm |
| Layers: | pure tin, tin-silver, thermal tin |
| Layer thicknesses: | 0.8 – 2 µm |
| | 1 – 3 µm |
| | 2 – 4 µm |
| | 5 – 10 µm |
| | 10 – 20 µm |

**Electroplating to DIN EN 14436**

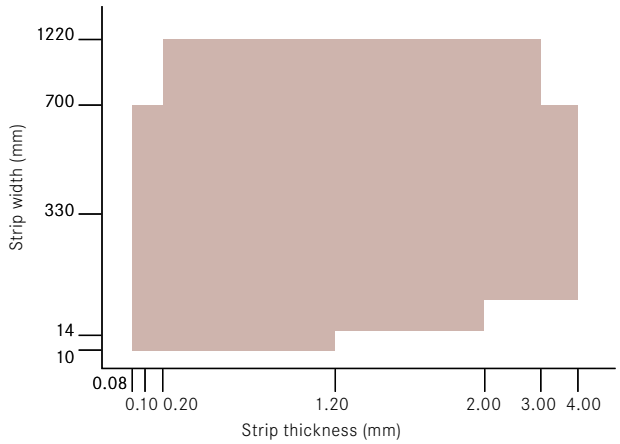
| | |
|---|---|
| Thickness: | 0.4 – 2.00 mm |
| Width: | up to 170 mm (performed by KME) |
| | to 400 (externally procured) |
| Layers: | Sn on Cu and Sn on Ni, |
| | entire surface, matt, bright, reflow |
| | Selective tinning |





**Connectors**

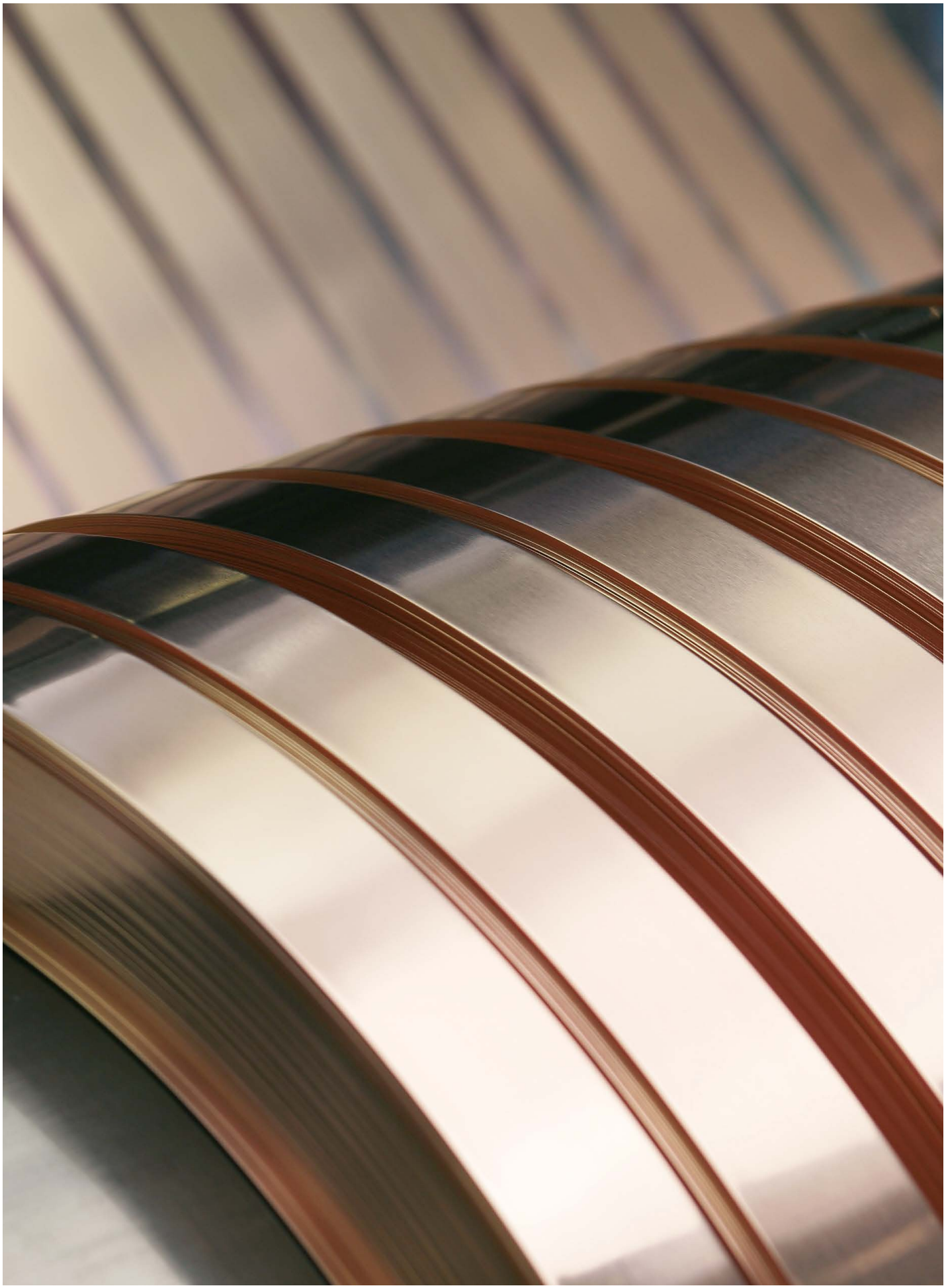
The technical requirements on electro-mechanical components have steadily increased as a result of miniaturisation. Properties such as absence of stress, close dimensional tolerances and small fluctuations in mechanical characteristics are of great importance for efficiency in processing. Key priorities for the user are functionality, reliability and appearance. KME meets these requirements with a broad spectrum of materials and surface finishes.



# Alloy products

| Material | KME | DIN EN | UNS (ASTM) | JIS | AFNOR | BS | ISO | CEN |
|---|---|---|---|---|---|---|---|---|
| Copper | Cu-ETP | E-Cu/Cu-ETP | C 11000 | C 1100 | Cu-a1 | C 101 | Cu-ETP | CW004A |
| | Cu-OFE | Cu-OFE/- | C 10100 | C 1011 | Cu-c2 | C 102 | Cu-OFE | CW009A |
| | Cu-PHC | SE-Cu58/Cu-PHC | C 10300 | - | - | - | - | CW020A |
| | Cu-HCP | SE-Cu57/Cu-HCP | C 10300 | - | Cu-c1 | C 103 | - | CW021A |
| | Cu-DLP | SW-Cu/Cu-DLP | C 12000 | C 1201 | Cu-b2 | - | Cu-DLP | CW023A |
| | Cu-DHP | SF-Cu/Cu-DHP | C 12200 | C 1220 | Cu-b1 | C 106 | Cu-DHP | CW024A |
| Bronze | CuSn4 | CuSn4 | C 51100 | C 5110 | CuSn4p | PB 101 | CuSn4 | CW450K |
| | CuSn5 | CuSn5 | C 51000 | C 5100 | – | PB 102 | CuSn5 | CW451K |
| | CuSn6 | CuSn6 | C 51900 | C 5191 | CuSn6p | PB 103 | CuSn6 | CW452K |
| | CuSn8 | CuSn8 | C 52100 | C 5210 | CuSn9p | PB 104 | CuSn8 | CW453K |
| STOL®-Alloys | STOL® 75 | CuCrSiTi | C 18070 | – | – | – | – | – |
| | STOL® 76 | CuNiSi | C 19010 | – | – | – | CuNi1,5 Si* | – |
| | STOL® 76M | CuNiSi | C 19005 | – | – | – | – | – |
| | STOL® 78 | CuMg | C 18665 | – | – | – | – | – |
| | STOL® 80 | CuSn | C 14410 | – | – | – | – | – |
| | STOL® 94 | CuNiSi | C 70310 | – | – | – | – | – |
| | STOL® 95 | CuCrZr | C 18160 | – | – | – | – | – |
| | STOL® 194 | CuFe2P | C 19400 | C 1940 | – | – | – | CW107C |
| Special materials | C14415* | CuSn0,15 | C 14415* | – | – | – | – | CW117C |
| | C15100 | CuZr0,1 | C 15100 | – | – | – | – | – |
| | C15500 | CuSnMgAg | C 15500 | – | – | – | – | – |
| | C19210 | CuFe0,1P | C 19210 | – | – | – | – | – |
| | C42500 | CuSn3Zn9/ CuSn2Zn10 | C 42500 | – | – | – | – | – |
| | C70250 | CuNi3Si | C 70250 | – | – | – | – | – |
| | C70600 | CuNi10Fe1,5Mn | C 70600 | – | – | – | – | CW352H |

** Differences in composition with individual standards*

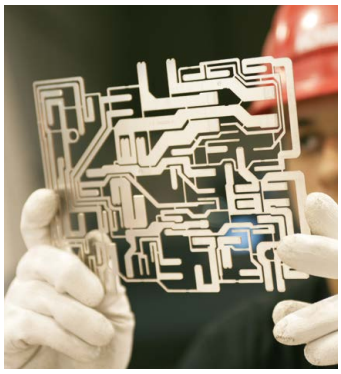


# Quality management

Through continuous improvement in in-plant processes and investment in modern quality systems, we are able to identify potential for faults at an early stage and eliminate them with suitable measures. We have an integrated quality management system that covers the entire production chain: from the metallic charge in the foundry to the finished product.

Continuously monitored and electronically controlled production stages as well as the use of modern rolling and annealing technologies are characteristic of a production process that enables us to satisfy the individual requirements of our customers. Certification to ISO/TS 16949 and its annual renewal are evidence of our successful work.

A high level of quality awareness is typical of every part of the company and is also reflected in a similarly high level of environmental responsibility. Reconciling economy and ecology in a meaningful way is one of the primary tasks tackled in the KME Group.



# Service

We are committed to solving our customers' problems. For this reason, we develop application-oriented solutions together and constantly strive to improve our products and their capabilities for further processing.

In dealing with low-alloy high-performance materials, KME has performed some pioneering achievements:

- Application-oriented developments in the area of material technologies
- Optimisation of mechanical and physical property combinations of important copper-based materials
- Further development of the CuNiSi family of materials through to peeling-resistant, high-strength materials such as **STOL**® 76M and **STOL**® 94
- Alloys for the electro-mobility industry as **STOL**® 75 and **STOL**® 95
- Hard, wear-resistant tin coatings with reduced mating and un-mating forces such as
  – **STOL**® Sn13 – thermal tin
  – **STOL**® Sn28M – tin-silver
  for increased temperature range.

Our strength is fast, practice-oriented realisation. As a result, we are geared to shorter and shorter innovation cycles – by acting, not reacting.

Close technical collaboration and mutual license agreements with Japanese and American strip manufacturers see to global availability of our products. Modern electronic communication helps us bridge time zones. Our website is geared to the specific needs of designers and technicians. Individual tasks can be processed with tools such as the "Connector Design Box". Downloads of the latest data sheets keep our customers constantly up to date.

*Visit our website and discover our useful tools at*
**www.kme.com/en/copper-division/industrial-rolled**

**Alloy Finder**

**Coil Calculator**

**Download Centre**

# Sales

*Benelux*
**KME Benelux bvba**
p/a Regus Brussels Airport
Pegasuslaan 5
1831 DIEGEM
BELGIEN
Fon +32 2 709 21 87
Fax +32 2 709 23 03
info-benelux@kme.com

*China*
**KME Metals (Shanghai) Trading Ltd.**
Room 1230, Regus 12/F building A,
CCIG International Plaza, No. 331
North Caoxi Road, Xuhui District,
200030 SHANGHAI
P.R.C.
Fon +86 21 2426 1875
Fax +86 21 2426 1877
www.kme.com.cn
info-china@kme.com

*Czech Republic*
**KME Czech Republic s.r.o.**
Váňova 3180
27201 KLADNO
TSCHECHISCHE REPUBLIK
Fon +42 312 680330
Fax +42 312 680334
info-cz@kme.com

*France*
**KME Rolled France S.A.S.**
13 bis, rue de l'Hôtel de Ville
92411 COURBEVOIE CEDEX
FRANKREICH
Fon +33 3 81 88 93 30
industrial-rolled-france@kme.com

*Hungary*
**KME Hungaria Színesfém Kft.**
Andor u. 47 - 49
VI. em. 616 - 618
1119 BUDAPEST
UNGARN
Fon +36 1 2059775
Fax +36 1 2059776
info-hu@kme.com

*Poland*
**KME Polska Sp. z o.o.**
ul. Wszystkich Świętych 11
32-650 KĘTY
POLEN
Fon +48 33 841 09 94
Fax +48 33 845 19 54
info-polska@kme.com

*Spain*
**KME Spain S.A.U.**
Ctra Sabadell Mollet, km5
Sta. Perpètua de Mogoda
08130 BARCELONA
SPANIEN
Fon +34 93 5747090
Fax +34 93 5747091
info-iberica@kme.com

*Switzerland*
**KME (Suisse) SA**
Staffelstraße 10
8045 ZÜRICH
SCHWEIZ
Fon +41 43 388 2000
Fax +41 43 388 2001
info-ch@kme.com

*United Kingdom*
**KME UK**
***Division of KME Yorkshire Limited***
Severn House, Prescott Drive
Warndon Business Park
WORCESTER
WR4 9NE
GROSSBRITANNIEN
Fon +44 1905 751800
Fax +44 1905 751801
info@kme-uk.com

*USA*
**KME America Inc.**
1000 Jorie Boulevard, Suite 111
OAK BROOK, ILLINOIS 60523
USA
Fon +1 630 990-2025
Fax +1 630 990-0258
sales@kmeamerica.com

**KME Germany GmbH & Co. KG**
P.O. Box 33 20
49023 OSNABRÜCK
Klosterstraße 29
49074 OSNABRÜCK
GERMANY
Fon +49 (0) 541 321-0
info-connectors@kme.com
info-stamping@kme.com
www.kme.com

*STOLBERG Factory*
Frankentalstraße 5
52222 Stolberg
GERMANY
Fon +49 (0) 24 02 105-0
Fax +49 (0) 24 02 105-355

Walzmaterial Industrie



0718.000.0108