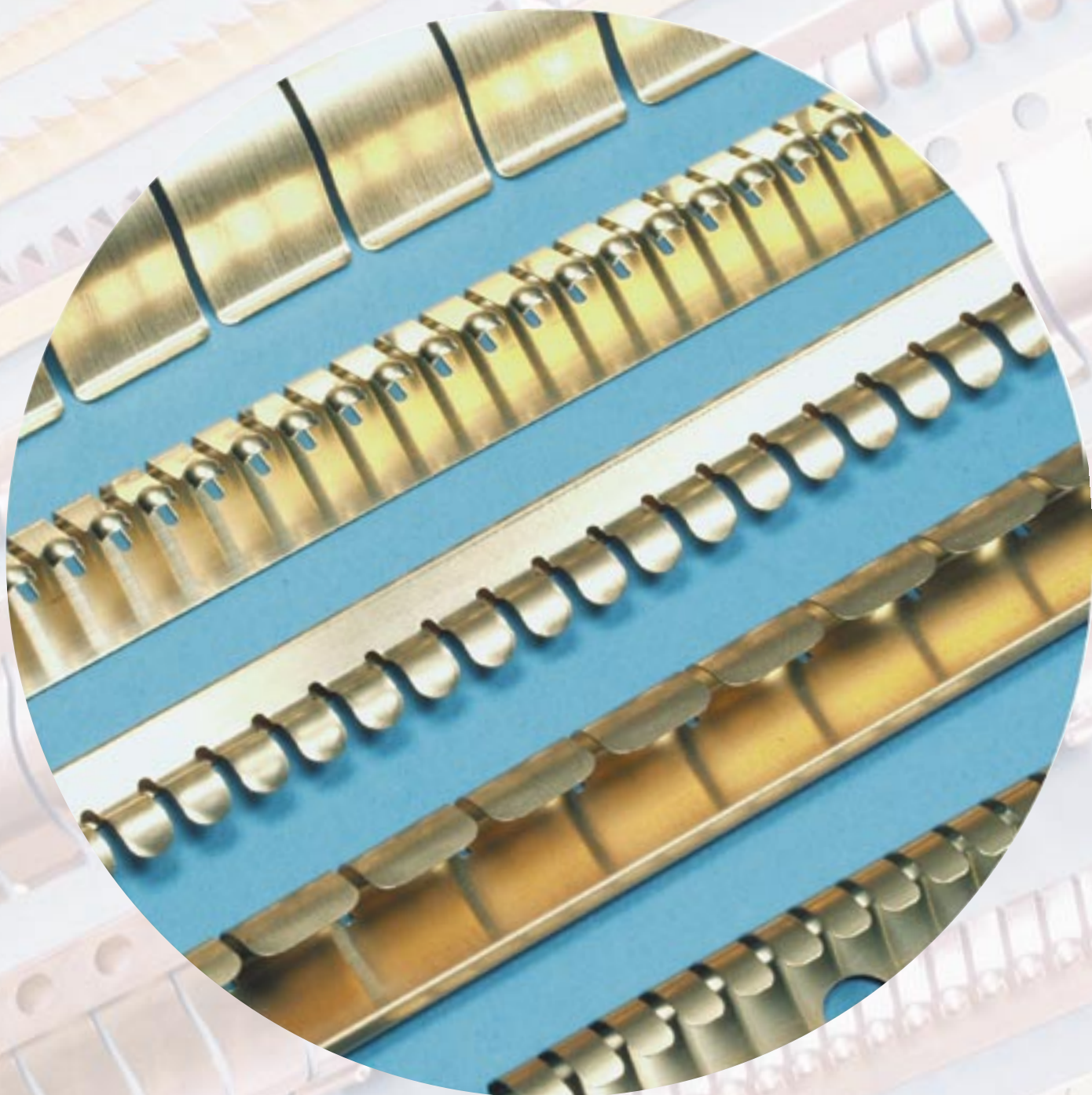


**KONTAKTFEDERN**  
**CONTACT SPRING**



**WENNMACHER**

*Electronic GmbH*



*Germany - Hong Kong - Taiwan - The Netherlands - South Africa - USA*



**WENNMACHER** Electronic GmbH - Standort Deutschland D-63785 Obernburg

**Wennmacher** Electronic GmbH has become a global enterprise with companies around the world.

Our dynamic and future minded team handles your requirements and deliveries with the emphasis on quality and cost.

**Wennmacher** Electronic GmbH offers a large assortment of electromechanical and electrotechnical products and accessories:

- Active & passive components
- Connectors & flexible interconnections
- PC-boards & assembling
- Cable & customer specific cable assemblies
- Kitting service & programming
- Complete solutions & special applications

*Our strength is project support with custom solutions from the development stage to production.*

**Wennmacher** Electronic GmbH hat sich seit ihrer Gründung zu einem weltweit umspannenden und operierenden Unternehmen entwickelt.

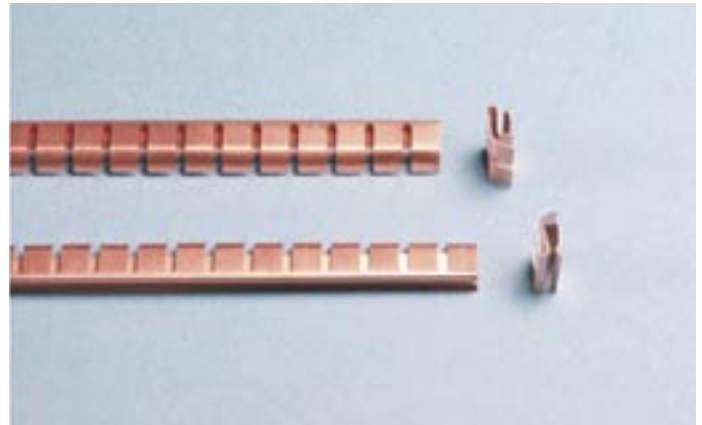
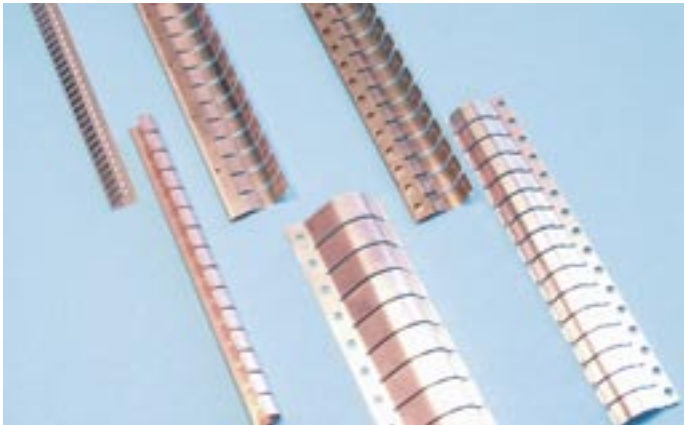
Unser Team arbeitet zukunftsorientiert, dynamisch und mit der hohen Flexibilität eines mittelständischen Unternehmens. Zuverlässige Lieferungen, hoher Qualitätsstandard und Kostengünstigkeit sind unsere selbstverständlichen Zielstellungen.

**Wennmacher** Electronic GmbH bietet ein umfangreiches Sortiment elektromechanischer und elektronischer Erzeugnisse und Zubehör, u. a.:

- Aktive / passive Bauelemente
- Steckverbinder & flexible Verbindungssysteme
- Leiterplatten & -bestückung
- Kabel & kundenspezifische Kabelkonfektionen
- Kittingservice & Programming
- Komplettlösungen und Sonderanfertigungen

Unsere Stärke ist Projektarbeit für maßgeschneiderte, kundenspezifische Lösungen, von der Entwicklung bis zur Serienproduktion.





| Prod. No. | Befestigung   | Mounting      | Seite<br>Page |
|-----------|---------------|---------------|---------------|
| Zi 1223/1 | Schraube      | Screw         | <b>8</b>      |
| Zi 1223/2 | Schraube      | Screw         | <b>8</b>      |
| Zi 1224/1 | Schraube      | Screw         | <b>8</b>      |
| Zi 1224/2 | Schraube      | Screw         | <b>8</b>      |
| Zi 4220   | Klebeband     | Adhesive tape | <b>9</b>      |
| Zi 4221   | Klebeband     | Adhesive tape | <b>9</b>      |
| Zi 4222   | Klebeband     | Adhesive tape | <b>9</b>      |
| Zi 4223   | Klebeband     | Adhesive tape | <b>9</b>      |
| Zi 4224   | Klebeband     | Adhesive tape | <b>9</b>      |
| Zi 4225   | Klebeband     | Adhesive tape | <b>9</b>      |
| Zi 4226   | Klebeband     | Adhesive tape | <b>9</b>      |
| Zi 4227   | stecken       | clip on       | <b>10</b>     |
| Zi 4230   | stecken       | clip on       | <b>10</b>     |
| Zi 5220   | Klebeband     | Adhesive tape | <b>11</b>     |
| Zi 5221   | Klebeband     | Adhesive tape | <b>11</b>     |
| Zi 5222   | Klebeband     | Adhesive tape | <b>11</b>     |
| Zi 5223   | Klebeband     | Adhesive tape | <b>11</b>     |
| Zi 5224   | Klebeband     | Adhesive tape | <b>11</b>     |
| Zi 5320   | Klebeband     | Adhesive tape | <b>12</b>     |
| Zi 5321   | Klebeband     | Adhesive tape | <b>12</b>     |
| Zi 5322   | Klebeband     | Adhesive tape | <b>12</b>     |
| Zi 5324   | Klebeband     | Adhesive tape | <b>12</b>     |
| Zi 6220   | stecken       | clip on       | <b>13</b>     |
| Zi 6221   | stecken       | clip on       | <b>13</b>     |
| Zi 6222   | stecken       | clip on       | <b>13</b>     |
| Zi 6223   | stecken       | clip on       | <b>13</b>     |
| Zi 6224   | stecken       | clip on       | <b>13</b>     |
| Zi 7220   | stecken       | clip on       | <b>14</b>     |
| Zi 7221   | stecken       | clip on       | <b>14</b>     |
| Zi 7222   | stecken       | clip on       | <b>14</b>     |
| Zi 7223   | Schraube/Niet | Srew/ Rivet   | <b>14</b>     |
| Zi 7223/1 | Schraube/Niet | Srew/ Rivet   | <b>15</b>     |
| Zi 7224   | Schraube/Niet | Srew/ Rivet   | <b>15</b>     |
| Zi 7224/1 | Schraube/Niet | Srew/ Rivet   | <b>15</b>     |
| Zi 7225   | Schraube/Niet | Srew/ Rivet   | <b>15</b>     |
| Zi 7225/1 | Schraube/Niet | Srew/ Rivet   | <b>15</b>     |
| Zi 7320   | stecken       | clip on       | <b>16</b>     |
| Zi 7321   | stecken       | clip on       | <b>16</b>     |
| Zi 7322   | stecken       | clip on       | <b>16</b>     |
| Zi 7323   | stecken       | clip on       | <b>16</b>     |

| Prod. No.    | Befestigung   | Mounting      | Seite<br>Page |
|--------------|---------------|---------------|---------------|
| Zi 7324      | stecken       | clip on       | <b>17</b>     |
| Zi 7326      | stecken       | clip on       | <b>17</b>     |
| Zi 7327      | Klebeband     | Adhesive tape | <b>17</b>     |
| Zi 8320      | Klebeband     | Adhesive tape | <b>18</b>     |
| Zi 8321      | Klebeband     | Adhesive tape | <b>18</b>     |
| Zi 8322      | Klebeband     | Adhesive tape | <b>18</b>     |
| Zi 8323      | Klebeband     | Adhesive tape | <b>18</b>     |
| Zi 8324      | Klebeband     | Adhesive tape | <b>18</b>     |
| Zi 9220      | Schraube/Niet | Srew/ Rivet   | <b>19</b>     |
| Zi 9221      | Schraube/Niet | Srew/ Rivet   | <b>19</b>     |
| Zi 9222      | Schraube/Niet | Srew/ Rivet   | <b>19</b>     |
| Zi 9223      | Schraube/Niet | Srew/ Rivet   | <b>19</b>     |
| Zi 10.1119   | Schraube      | Screw         | <b>20</b>     |
| Zi 10.1120   | Schraube      | Screw         | <b>20</b>     |
| Zi 11.1121   | Schraube      | Screw         | <b>20</b>     |
| Zi 12.1122   | Schraube      | Screw         | <b>20</b>     |
| Zi 13.1123   | Schraube      | Screw         | <b>20</b>     |
| Zi 10.1220   | Schraube      | Screw         | <b>21</b>     |
| Zi 11.1221   | Schraube      | Screw         | <b>21</b>     |
| Zi 12.1222   | Schraube      | Screw         | <b>21</b>     |
| Zi 13.1223   | Schraube      | Screw         | <b>21</b>     |
| Zi 13.1223/5 | stecken       | clip on       | <b>21</b>     |
| Zi 10.1320   | Schraube      | Screw         | <b>22</b>     |
| Zi 10.1320/1 | Schraube      | Screw         | <b>22</b>     |
| Zi 11.1321   | Schraube      | Screw         | <b>22</b>     |
| Zi 11.1321/1 | Schraube      | Screw         | <b>22</b>     |
| Zi 10.1420   | Schraube      | Screw         | <b>23</b>     |
| Zi 11.1421   | Schraube      | Screw         | <b>23</b>     |
| Zi 12.1422   | Schraube      | Screw         | <b>23</b>     |
| Zi 13.1423   | Schraube      | Screw         | <b>23</b>     |
| Zi 14.1424   | Schraube      | Screw         | <b>23</b>     |
| Zi 10.1520   | Schraube      | Screw         | <b>24</b>     |
| Zi 11.1521   | Schraube      | Screw         | <b>24</b>     |
| Zi 12.1522   | Schraube      | Screw         | <b>24</b>     |
| Zi 13.1523   | Schraube      | Screw         | <b>24</b>     |
| Zi 10.1620   | Schraube      | Screw         | <b>25</b>     |
| Zi 11.1621   | Schraube      | Screw         | <b>25</b>     |
| Zi 12.1622   | Schraube      | Screw         | <b>25</b>     |
| Zi 13.1623   | Schraube      | Screw         | <b>25</b>     |
| Zi 14.1624   | Schraube      | Screw         | <b>25</b>     |

### Kontakt- & Abschirmfedern aus Kupfer - Beryllium

### Contact- & Shielding Springs from Copper Beryllium

#### Anwendung und Eigenschaften

Die umfassenden Einsatzmöglichkeiten von Kupfer-Beryllium ergeben sich aus seinen einzigartigen Leistungsmerkmalen:

- *Hervorragende Federeigenschaften*
- *Festigkeit*
- *Biegeweichselfestigkeit*
- *Hohe Leitfähigkeit*
- *Beständigkeit gegenüber Umwelteinflüssen wie Ozon, Kernstrahlung und Licht, Lösungsmitteln und Korrosion.*

Kupfer-Beryllium ist in einem großen Temperaturbereich anwendbar, nicht brennbar, nicht entflammbar und nicht ausgasend. Es ist bei entsprechender Anwendung selbstreinigend, z.B. beim Einsatz als Türschirmung beim Öffnen und Schließen der Tür.

#### Anwendungsbereich:

- *HF-Technik*
- *Meß- und Regelungstechnik*
- *Kernphysik*
- *Luft- und Raumfahrt*
- *Elektronische Datenverarbeitung*

Kontaktfedern aus Kupfer-Beryllium können spaltüberbrückend zwischen zwei Flächen von kleinsten bis zu größten Spalten eingesetzt werden. Die Auswahl der Federn ergibt sich aus dem speziellen Anwendungsfall und der Befestigungsmethode. Die einfachste Befestigungsart ist das Aufstecken, wobei die Kontaktfeder zusätzlich mit einer T- oder D-Lanze versehen werden kann. Eine weitere Methode sind Montagelöcher zum Schrauben und Nieten.

Die Kontaktfedern sind auch mit einem nichtleitenden Klebefilm lieferbar, der bis +120°C einsetzbar ist. (Andere Typen bitte anfragen)

Die Federn eignen sich auch zum Weichlöten; hierbei ist eine galvanische Verzinnung empfehlenswert. Hartlötungen sind nur bei ungehärteten Federn möglich. Genaue Informationen können bei Bedarf erteilt werden.

Kupfer-Beryllium läßt sich im Kondensatoren-Punktschweiß-Verfahren oder im Vakuum-Elektronenstrahl-Verfahren schweißen. Auch bei diesen Verfahren lassen sich individuelle Kundenwünsche realisieren.

#### Liefervarianten:

#### Material:

*Gehärtet oder ungehärtet*

#### Oberfläche:

*Blank, verzinkt, vergoldet, versilbert, vernickelt*

*Andere Oberflächen auf Kundenwunsch*

Verschiedene Kontaktfedern sind ab Lager lieferbar. Auf Wunsch können der Anpressdruck und die Vickershärte zertifiziert werden.

#### Sonderfedern:

Auf Anfrage werden kundenspezifische Kontaktfedern entwickelt.

#### Application and Properties

*Copper beryllium owe its wide range of application to its unique performance qualities:*

- *Extraordinary elasticity*
- *Strength*
- *Fatigue strength*
- *High conductivity*
- *Resistance against environmental influences such as ozone, epipolar rays and light, also against solvents and corrosion.*

*Copper beryllium can be used under a wide temperature range and is not burnable or inflammable. It does not evolve gas either. If handled correctly, it acts self purificating, for example when it is employed as a door shield for opening and closing.*

#### Application range:

- *High frequency technology*
- *Measuring and control technology*
- *Nucleonics*
- *Aerospace*
- *Electronic data processing*

*Contact spring from copper beryllium can be used for closing gaps between two surfaces. They are able to fill any gap, from smallest to biggest sizes. The choise of the adequate spring depends on the individual application and on the way it is fixed. The easiest method is putting up. For that purpose, the contact spring can be additionally equipped with a T- or a D- lance. Fixing can also be made by means of assembly holes for bolts or rivets.*

*The contact springs can also be supplied with insulating adhesive tape which can be used under a temperature up to +120°C. (Please ask for other versions)*

*The springs are adapted for soft soldering, here tin-plating is recommended. Hard soldering is only possible with unardened springs. Detailed information can be supplied on request.*

*Copper beryllium can be soldered by means of spot welding process with condenser or by vacuum operated electron beam welding. Also this procedure admits realization of the customers individual requirements.*

#### Range of supply:

#### Material:

*hardened or unhardened*

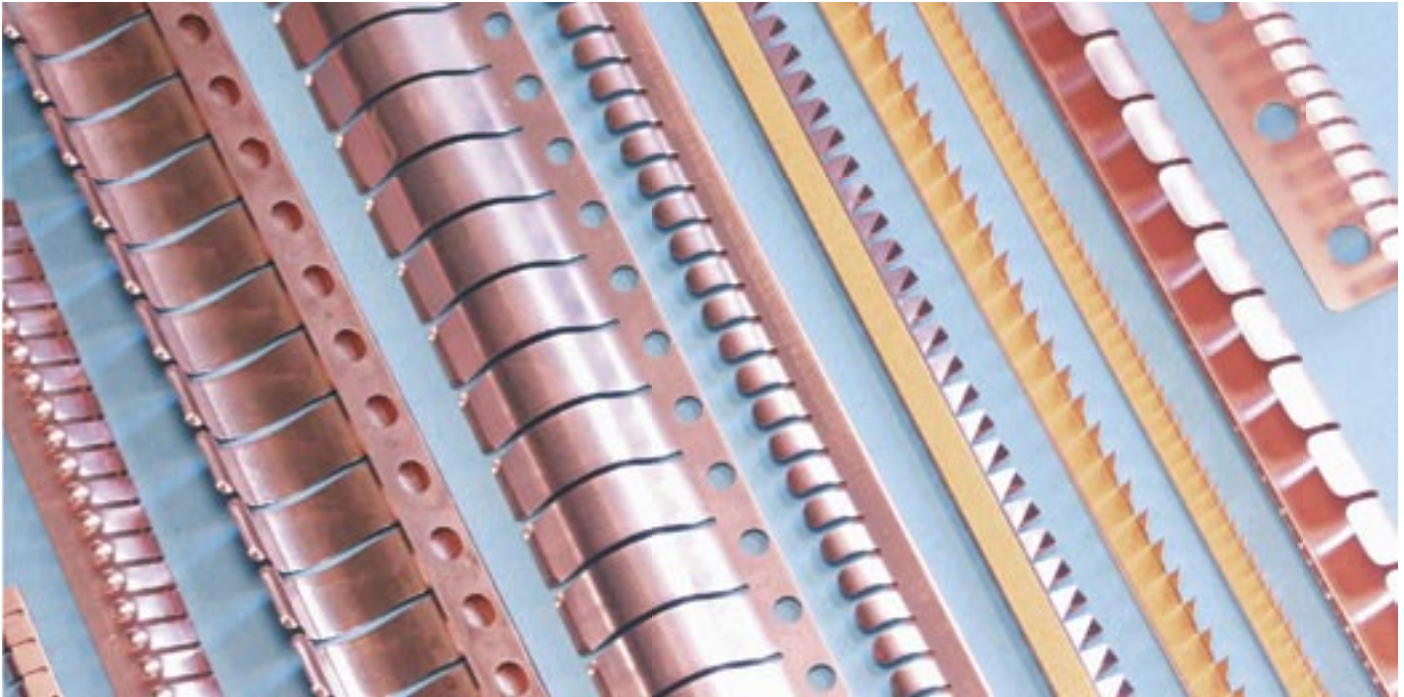
#### Surface:

*polished, tin plated, gold plated, silver plated, nickel plated other surfaces available, according to customer requirements*

*Several contact springs can be supplied ex stock. If required, contact pressure and diamond pyramid hardness can be certified.*

#### Special execution:

*Upon request customised contact springs will also be developed.*



**Materialdaten Kupfer-Beryllium - CuBe2 - Specification Copper Beryllium**

**Physikalische Eigenschaften**

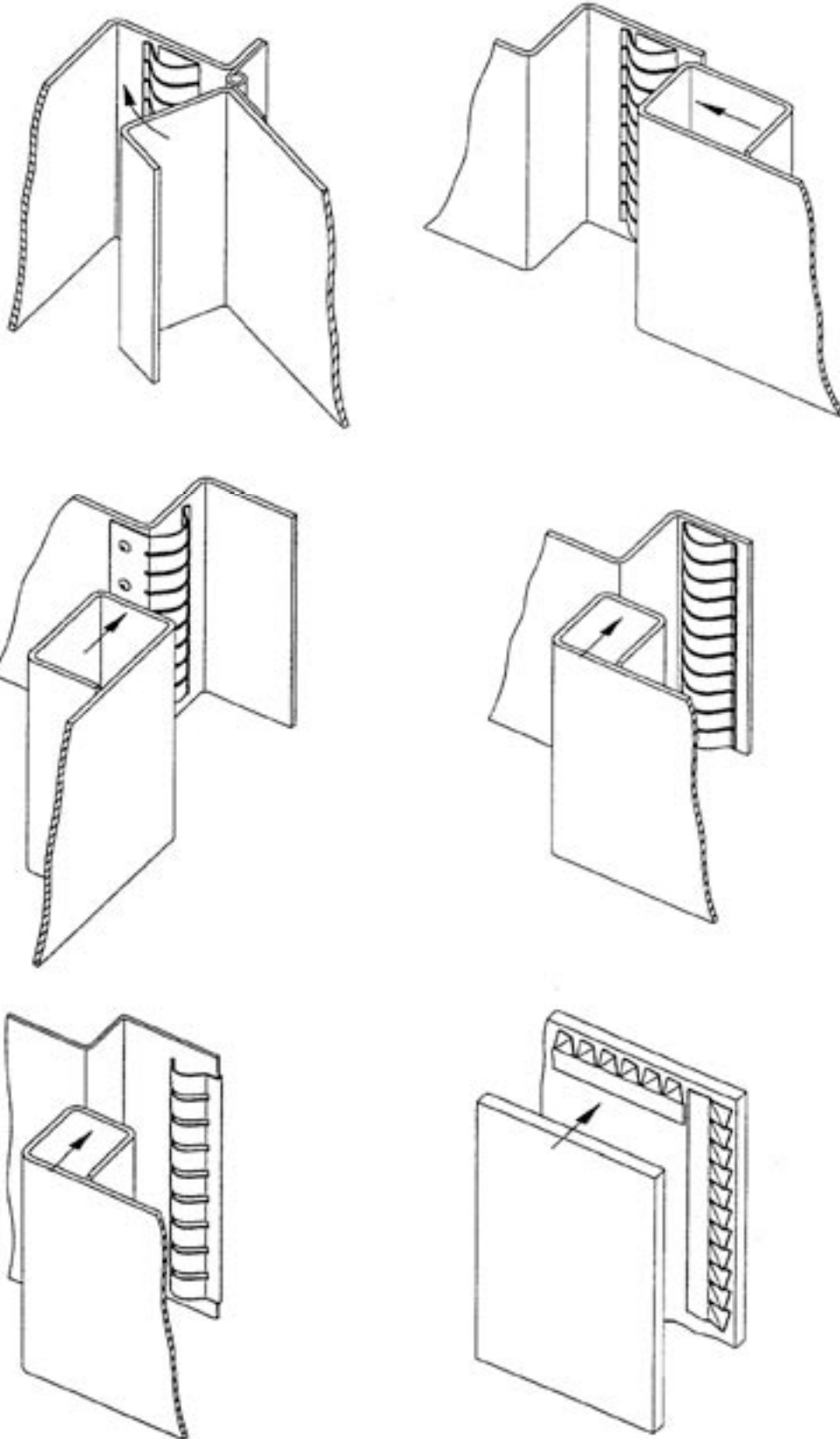
**Physical properties**

|  |   |                              |
|--|---|------------------------------|
| Spezifisches Gewicht                                   | <i>Specific greavity</i>                                | 8,4 g/cm <sup>3</sup>        |
| Schmelzbeginn  | <i>Fusing point</i>                                     | 900°C                        |
| Ausdehnungskoeffizient (20-200°C)                      | <i>Coefficient of expansion (20-200°C)</i>              | 1710 <sup>-6</sup> /°C       |
| Wärmeleitfähigkeit                                     | <i>Thermal conductivity</i>                             | 0,27 cal/cm s°C; 1,13 W/cm°C |
| Vickershärte   | <i>Diamond pyramid hardness</i>                         | 350-430 kp/mm <sup>2</sup>   |
| Zugfestigkeit  | <i>Tensile strength</i>                                 | 1200-1450 N/mm <sup>2</sup>  |
| Biegewechselfestigkeit bei 10 <sup>8</sup> Lastspielen | <i>Fatigue strength load application 10<sup>8</sup></i> | 250-290 N/mm <sup>2</sup>    |
| Elastizitätsmodul                                      | <i>Modulus of elasticity</i>                            | 135000 N/mm <sup>2</sup>     |
| Torsionsmodul  | <i>Torsion modulus</i>                                  | 47000 N/mm <sup>2</sup>      |
| Federbiegegrenze                                       | <i>Spring bending limit</i>                             | 820-950 N/mm <sup>2</sup>    |
| Elektrische Leitfähigkeit                              | <i>Electric conductivity</i>                            | 12.5-13 m/Ω mm <sup>2</sup>  |

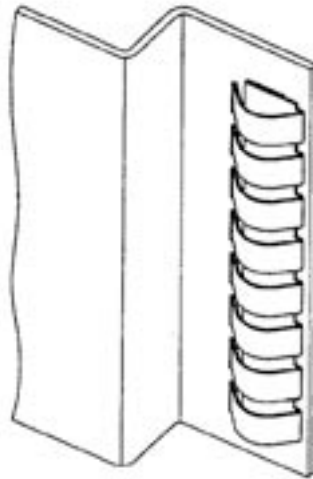
Technische Änderungen vorbehalten

*Technical data can be subject to alternation*

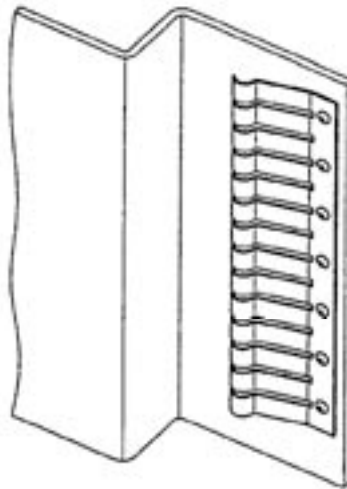
**Montagevarianten - Mounting Methods**



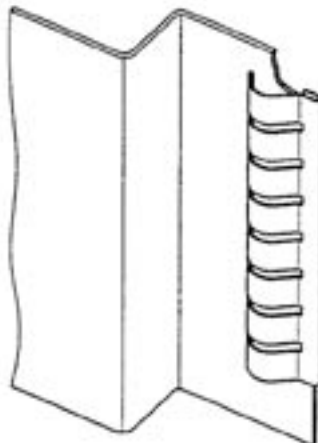
**Befestigungsmöglichkeiten - Mounting Options**



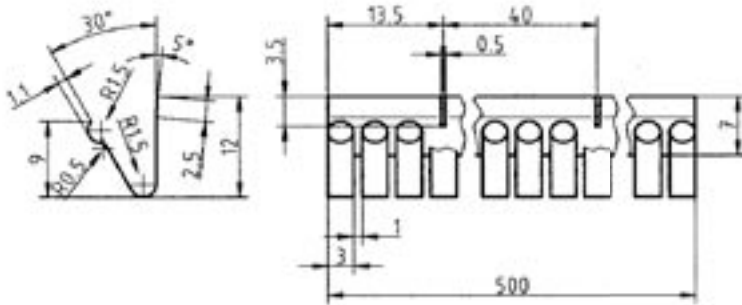
**Klebmontage**  
*Adhesive mounting*



**Nietmontage**  
*Riveting*

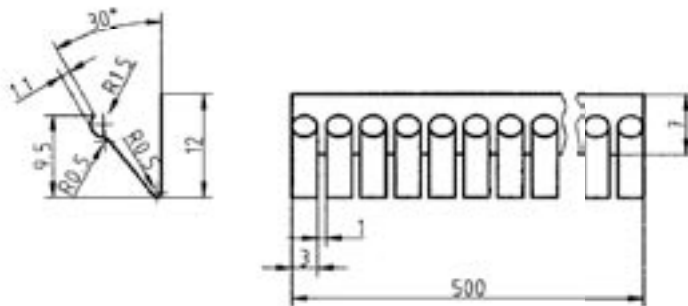


**Steckmontage**  
*Clip-on*



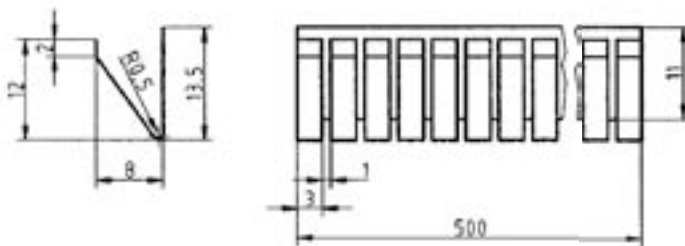
**Prod. No. Zi 1223 / 1**

Material: CuBe2 0,15 mm  
Length : 500 mm



**Prod. No. Zi 1223 / 2**

Material: CuBe2 0,15 mm  
Length : 500 mm



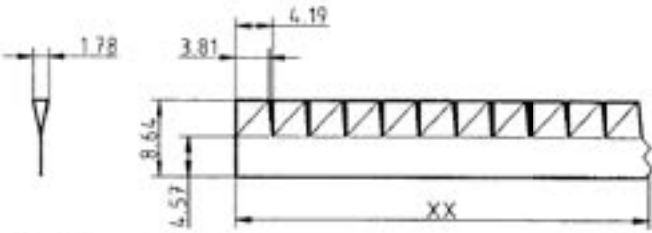
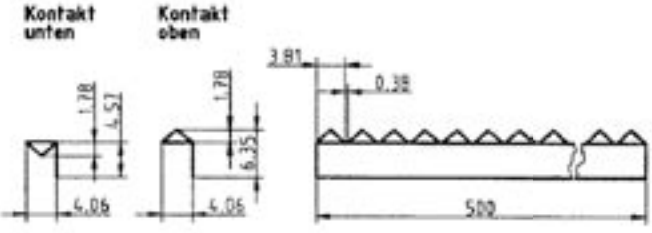
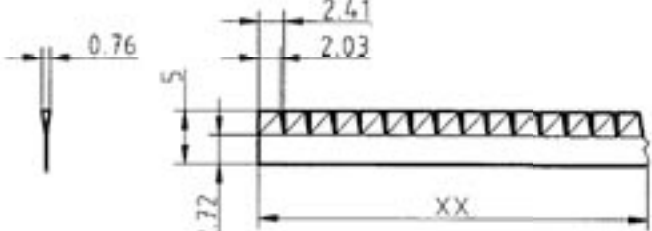
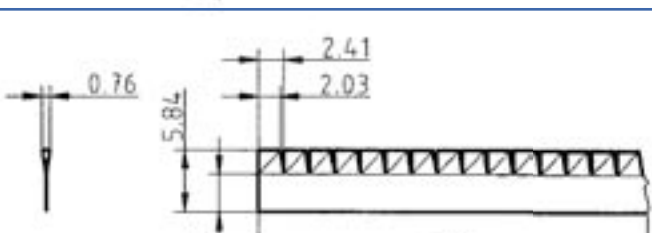
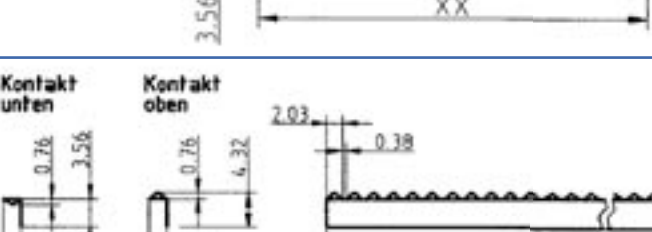
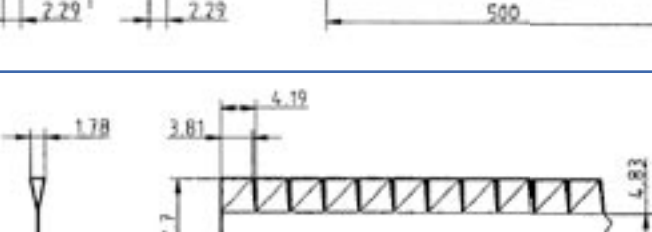
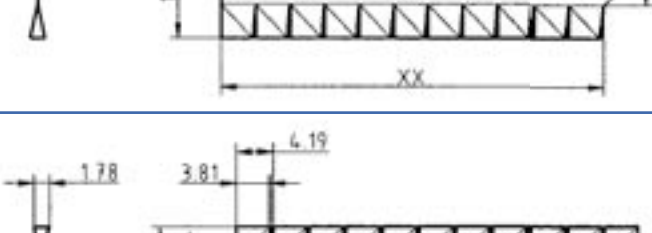
**Prod. No. Zi 1224 / 1**

Material: CuBe2 0,2 mm  
Length : 500 mm

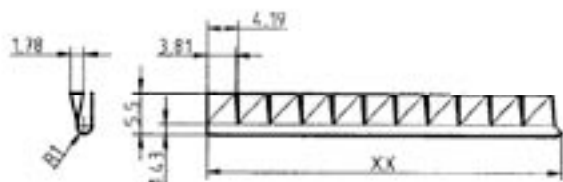


**Prod. No. Zi 1224 / 2**

Material: CuBe2 0,2 mm  
Length : 500 mm

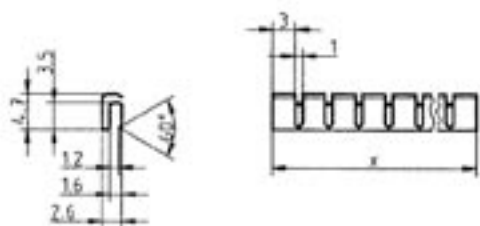
|  |  |
|--|--|
|   | <p><b>Prod. No. Zi 4220</b></p> <p>Material: CuBe2 0,06mm/0,08mm<br/>           Length : 500 mm, endless<br/>           with adhesive tape</p> |
| <p>Kontakt unten    Kontakt oben</p>    | <p><b>Prod. No. Zi 4221</b></p> <p>Material: CuBe2 0,08mm<br/>           Length : 500 mm<br/>           with adhesive tape</p>                 |
|                                        | <p><b>Prod. No. Zi 4222</b></p> <p>Material: CuBe2 0,06mm/0,08mm<br/>           Length : 500 mm, endless<br/>           with adhesive tape</p> |
|                                       | <p><b>Prod. No. Zi 4223</b></p> <p>Material: CuBe2 0,06mm/0,08mm<br/>           Length : 500 mm, endless<br/>           with adhesive tape</p> |
| <p>Kontakt unten    Kontakt oben</p>  | <p><b>Prod. No. Zi 4224</b></p> <p>Material: CuBe2 0,08mm<br/>           Length : 500 mm<br/>           with adhesive tape</p>                 |
|                                       | <p><b>Prod. No. Zi 4225</b></p> <p>Material: CuBe2 0,08mm<br/>           Length : 500 mm, endless<br/>           with adhesive tape</p>        |
|                                       | <p><b>Prod. No. Zi 4226</b></p> <p>Material: CuBe2 0,06mm/0,08mm<br/>           Length : 500 mm, endless<br/>           with adhesive tape</p> |

**Prod. No. Zi 4227**

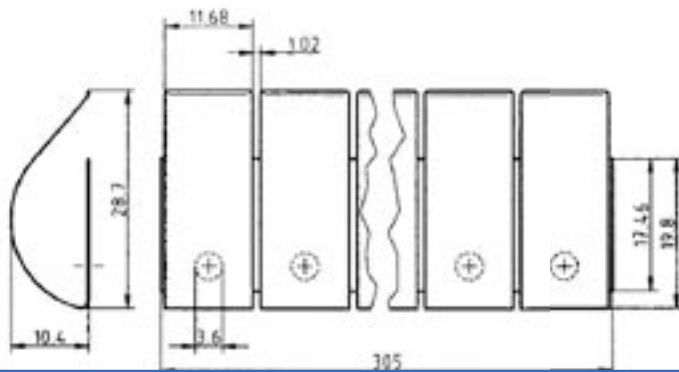


Material: CuBe2 0,08mm  
Length : 406 mm / 500 mm

**Prod. No. Zi 4230**

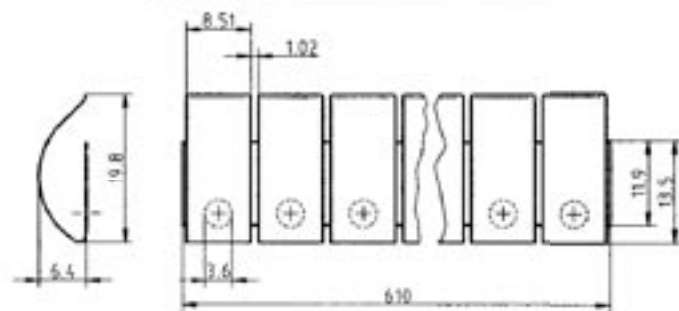


Material: CuBe2 0,08 mm  
Length : 3 mm - 59 mm



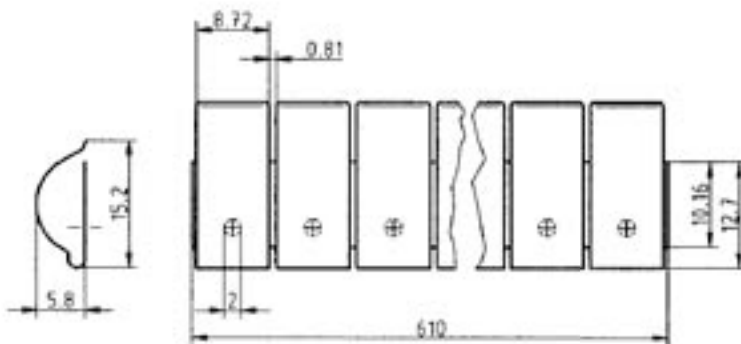
**Prod. No. Zi 5220**

Material: CuBe2 0,18mm  
Length : 304,8 mm  
with adhesive tape



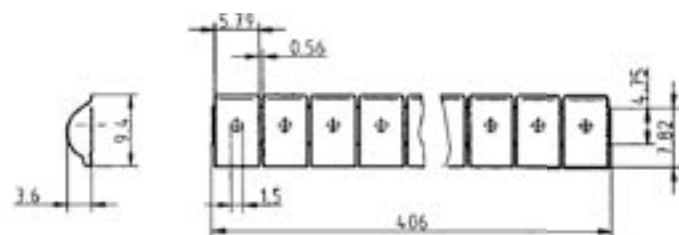
**Prod. No. Zi 5221**

Material: CuBe2 0,1mm  
Length : 609,6 mm / 7620 mm  
with adhesive tape



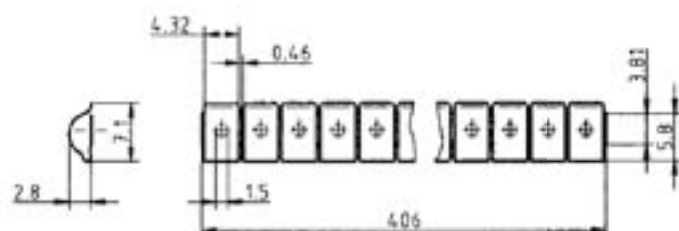
**Prod. No. Zi 5222**

Material: CuBe2 0,09mm  
Length : 609,6 mm / 7620 mm  
with adhesive tape



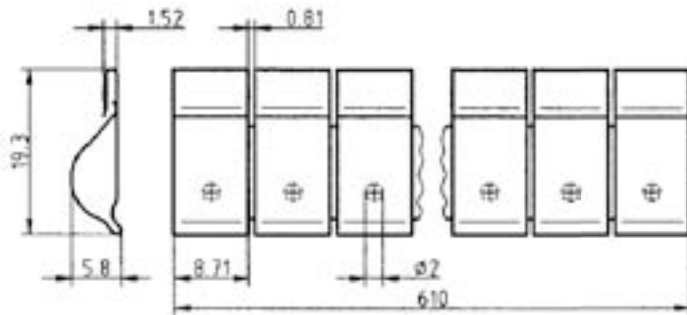
**Prod. No. Zi 5223**

Material: CuBe2 0,08mm  
Length : 406,4 mm / 7620 mm  
with adhesive tape



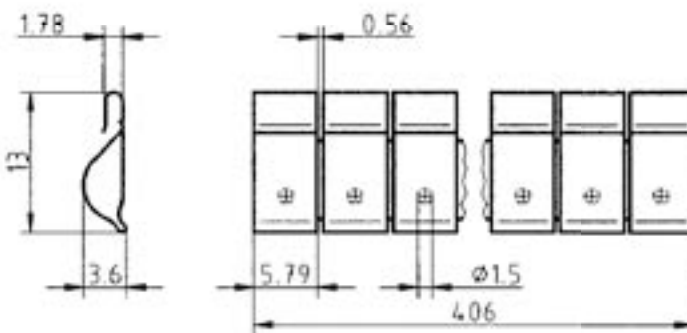
**Prod. No. Zi 5224**

Material: CuBe2 0,07mm  
Length : 406,4 mm / 7620 mm  
with adhesive tape



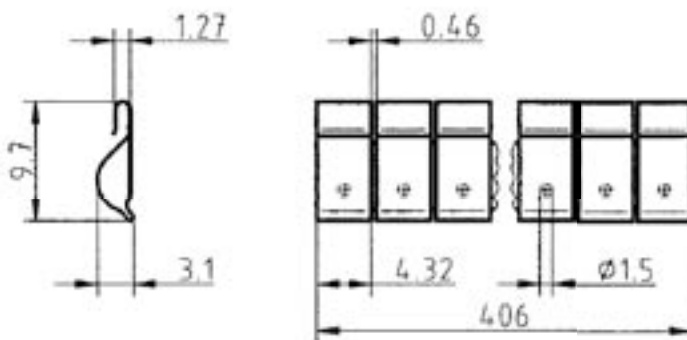
**Prod. No. Zi 5320**

Material: CuBe2 0,1mm  
Length : 609,6 mm / 7620 mm  
with adhesive tape



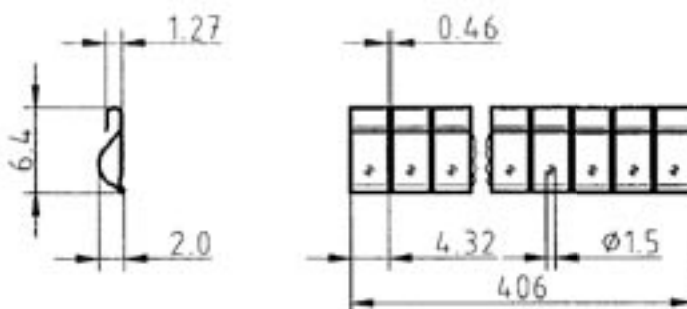
**Prod. No. Zi 5321**

Material: CuBe2 0,08mm  
Length : 406,4 mm / 7620 mm  
with adhesive tape



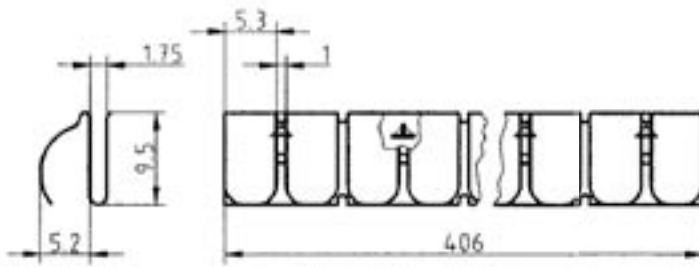
**Prod. No. Zi 5322**

Material: CuBe2 0,08mm  
Length : 406,4 mm / 7620 mm  
with adhesive tape



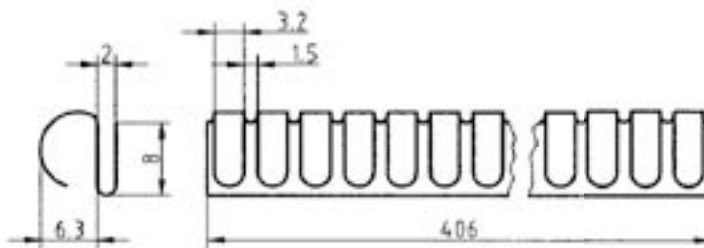
**Prod. No. Zi 5324**

Material: CuBe2 0,08mm  
Length : 406,4 mm / 7620 mm  
with adhesive tape



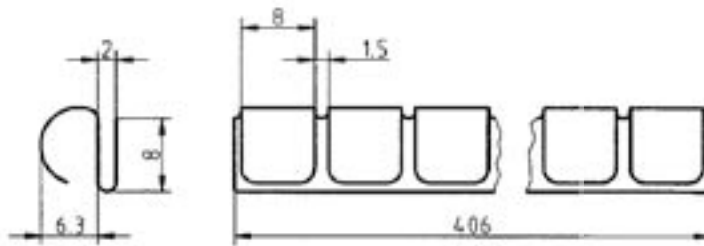
**Prod. No. Zi 6220**

Material: CuBe2 0,13mm  
Length: 406 mm



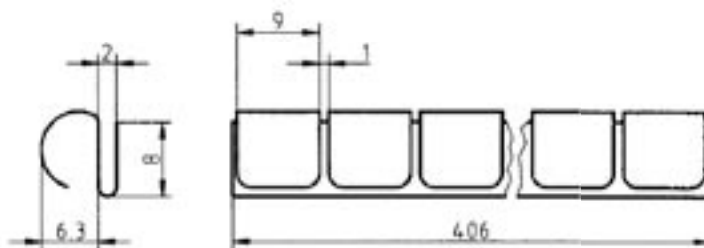
**Prod. No. Zi 6221**

Material: CuBe2 0,13mm  
Length: 406 mm / 500 mm



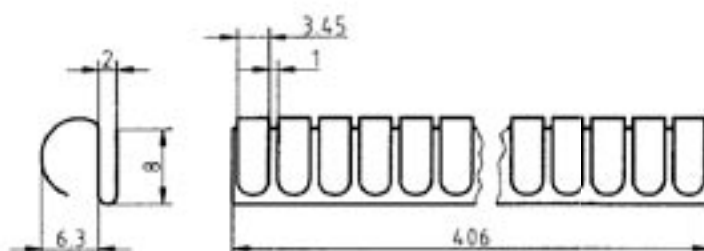
**Prod. No. Zi 6222**

Material: CuBe2 0,13mm  
Length: 406 mm / 500 mm



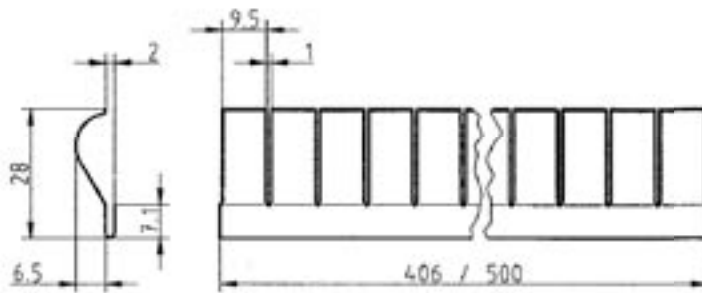
**Prod. No. Zi 6223**

Material: CuBe2 0,13mm  
Length: 406 mm / 500 mm



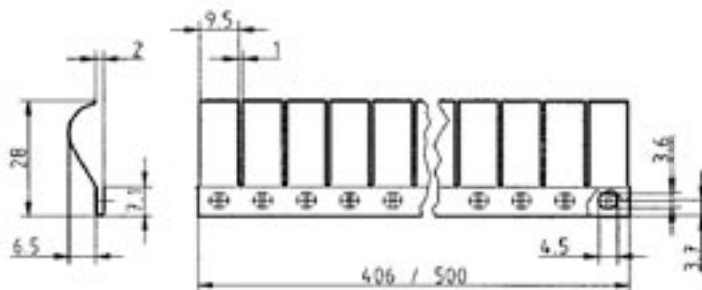
**Prod. No. Zi 6224**

Material: CuBe2 0,13mm  
Length: 406 mm / 500 mm



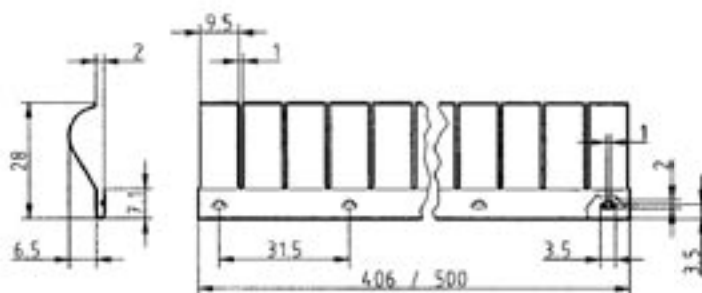
**Prod. No. Zi 7220**

Material: CuBe2 0,13mm  
Length : 406 mm / 500 mm



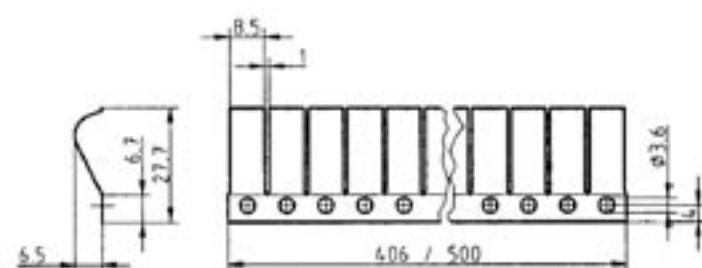
**Prod. No. Zi 7221**

Material: CuBe2 0,13mm  
Length : 406 mm / 500 mm  
with oblong hole



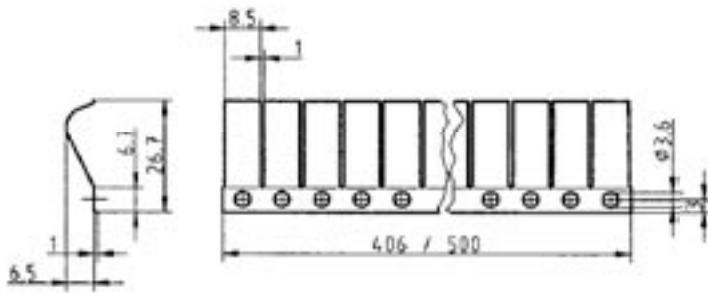
**Prod. No. Zi 7222**

Material: CuBe2 0,13mm  
Length : 406 mm / 500 mm  
with T-lance



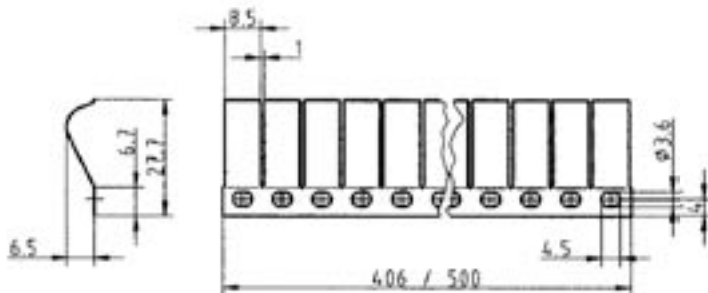
**Prod. No. Zi 7223**

Material: CuBe2 0,13mm  
Length : 406 mm / 500 mm  
and coil, 10 m



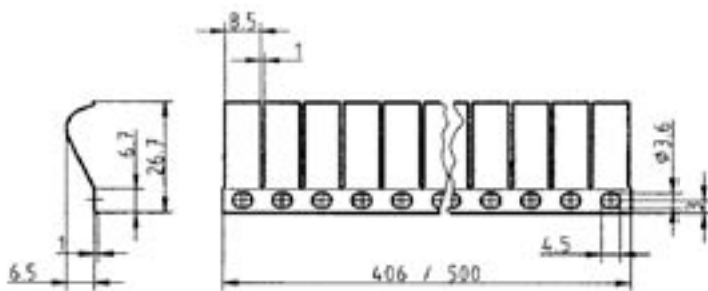
**Prod. No. Zi 7223 / 1**

Material: CuBe2 0,13mm  
Length: 406 mm / 500 mm



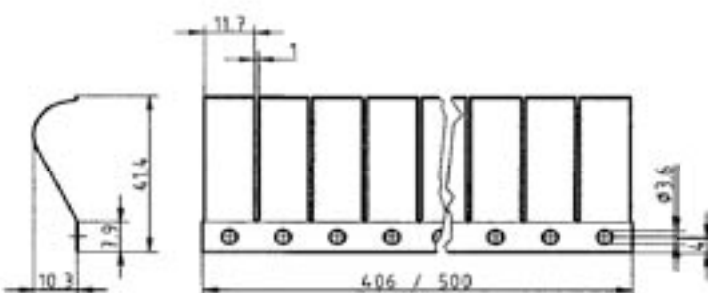
**Prod. No. Zi 7224**

Material: CuBe2 0,13mm  
Length: 406 mm / 500 mm and coil, 10 m with oblong hole



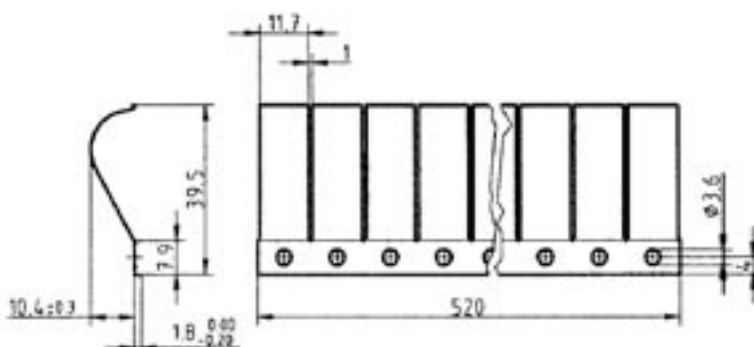
**Prod. No. Zi 7224 / 1**

Material: CuBe2 0,13mm  
Length: 406 mm / 500 mm



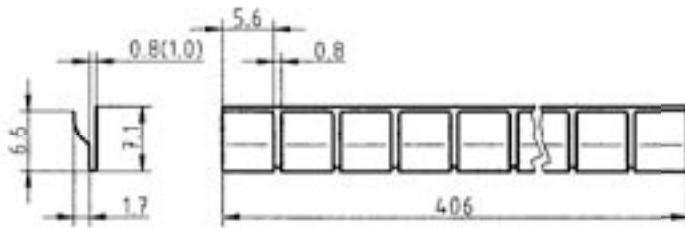
**Prod. No. Zi 7225**

Material: CuBe2 0,18mm  
Length: 406 mm / 500 mm / 7600 mm



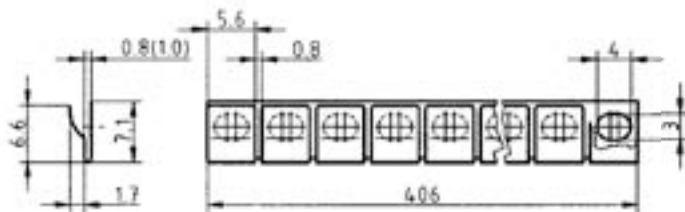
**Prod. No. Zi 7225 / 1**

Material: CuBe2 0,18mm  
Length: 406 mm / 500 mm



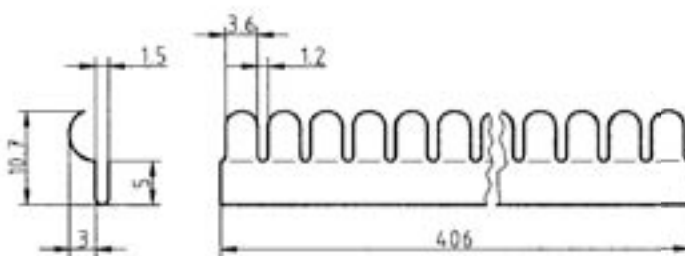
**Prod. No. Zi 7320**

Material: CuBe2 0,13mm  
Length : 406 mm / 500 mm  
0,8 mm and 1,00 mm gauge



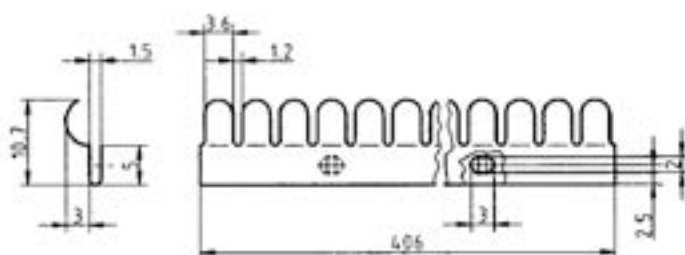
**Prod. No. Zi 7321**

Material: CuBe2 0,15mm  
Length : 406 mm / 500 mm  
0,8 mm and 1,00 mm gauge  
with oblong hole



**Prod. No. Zi 7322**

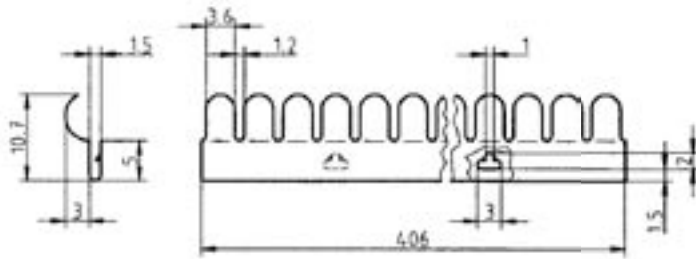
Material: CuBe2 0,13mm  
Length : 406 mm / 500 mm



**Prod. No. Zi 7323**

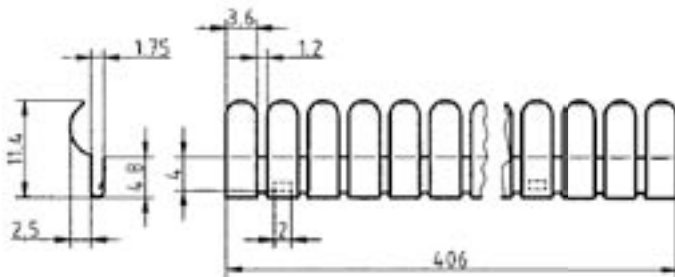
Material: CuBe2 0,13mm  
Length : 406 mm / 500 mm  
with oblong hole

**Prod. No. Zi 7324**



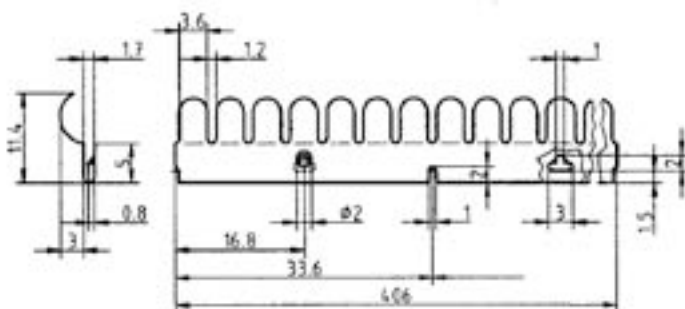
Material: CuBe2 0,13mm  
 Length : 406 mm / 500 mm  
 with T-lance

**Prod. No. Zi 7326**

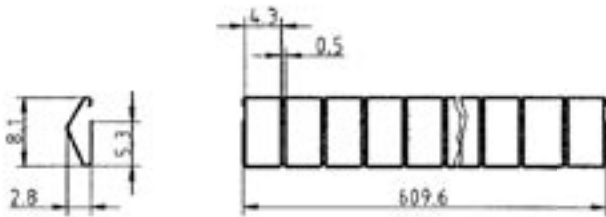


Material: CuBe2 0,076mm  
 Length : 406 mm with D-lance

**Prod. No. Zi 7327**

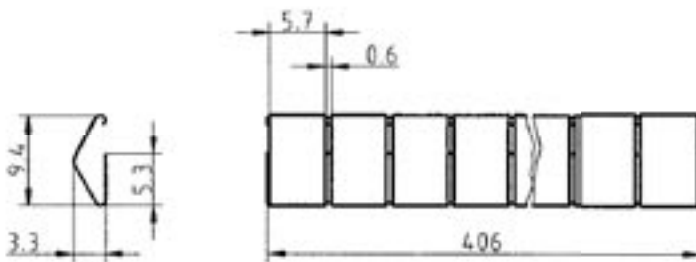


Material: CuBe2 0,13mm  
 Length : 406 mm



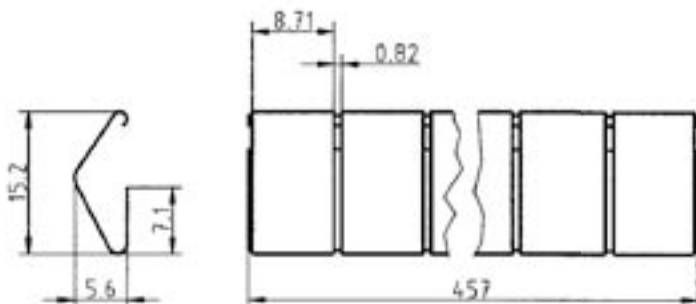
**Prod. No. Zi 8320**

Material: CuBe2 0,05mm  
Length: 457 mm / 609,6 mm  
with adhesive tape



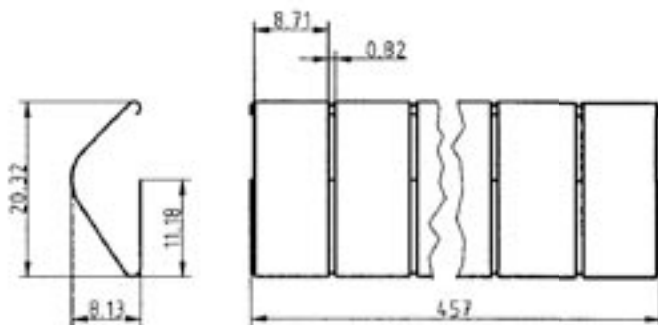
**Prod. No. Zi 8321**

Material: CuBe2 0,05mm  
Length: 406 mm  
with adhesive tape



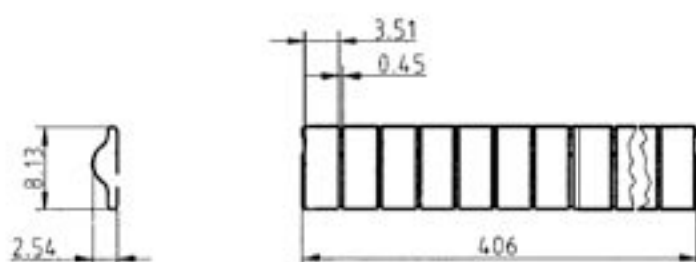
**Prod. No. Zi 8322**

Material: CuBe2 0,09mm  
Length: 457 mm  
with adhesive tape



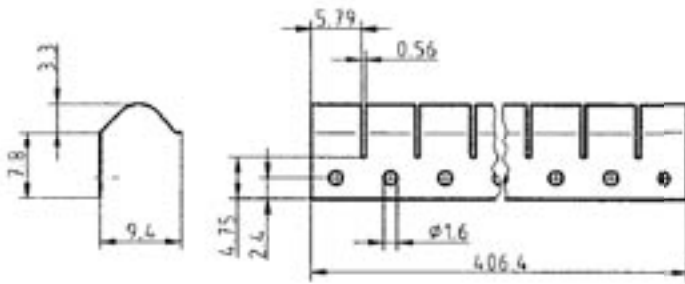
**Prod. No. Zi 8323**

Material: CuBe2 0,1mm  
Length: 457 mm  
with adhesive tape



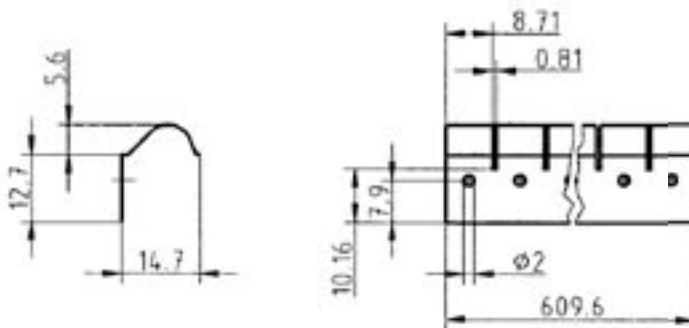
**Prod. No. Zi 8324**

Material: CuBe2 0,09mm  
Length: 406 mm  
with adhesive tape



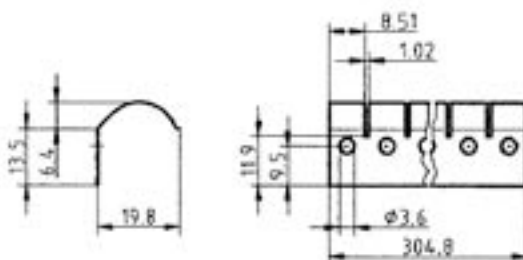
**Prod. No. Zi 9220**

Material: CuBe2 0,08mm  
Length : 406,4 mm



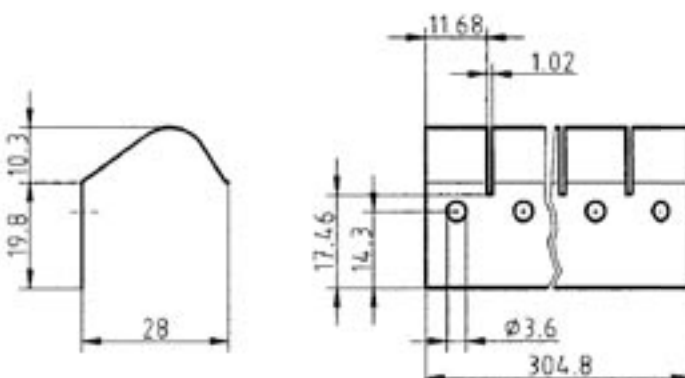
**Prod. No. Zi 9221**

Material: CuBe2 0,09mm  
Length : 609,6 mm



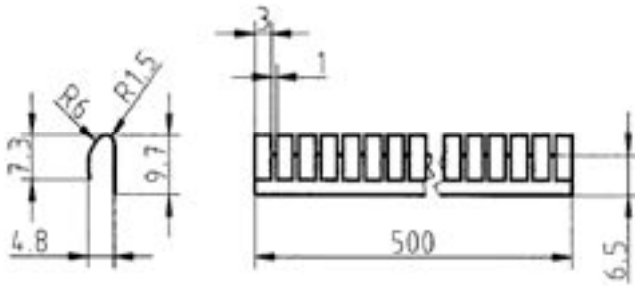
**Prod. No. Zi 9222**

Material: CuBe2 0,1mm  
Length : 304,8 mm



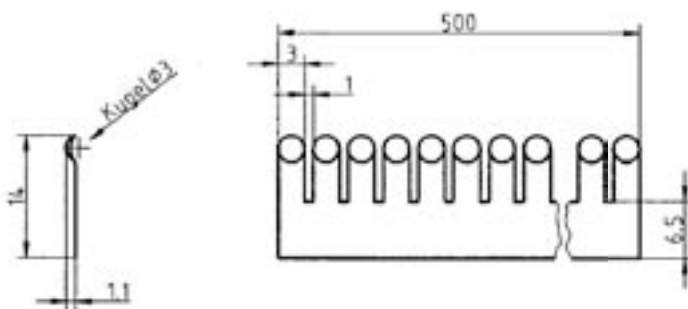
**Prod. No. Zi 9223**

Material: CuBe2 0,18mm  
Length : 304,8 mm



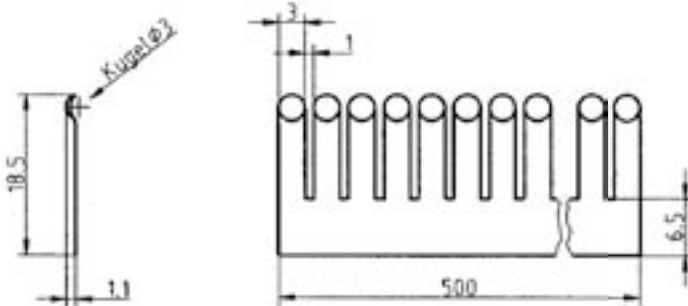
**Prod. No. Zi 10.1119**

Material: CuBe2 0,2mm  
Length: 500 mm



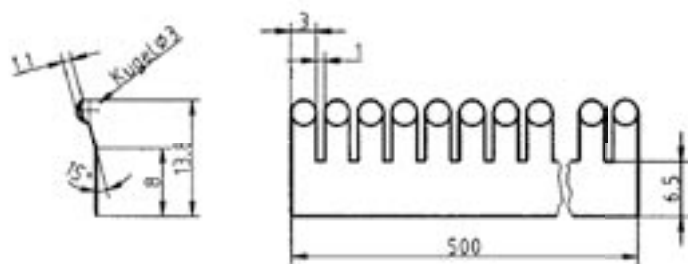
**Prod. No. Zi 10.1120**

Material: CuBe2 0,13mm/0,2mm  
Length: 500 mm



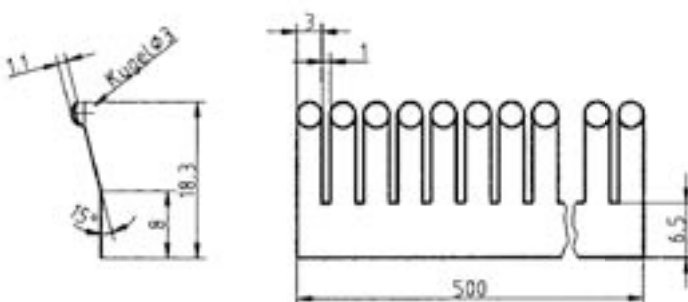
**Prod. No. Zi 11.1121**

Material: CuBe2 0,13mm/0,2mm  
Length: 500 mm



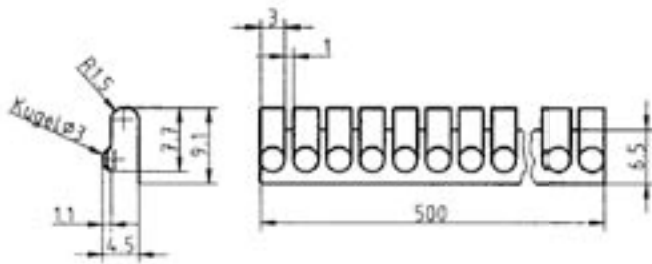
**Prod. No. Zi 12.1122**

Material: CuBe2 0,13mm/0,2mm  
Length: 500 mm



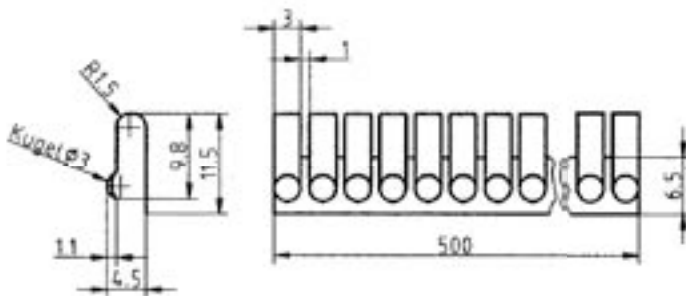
**Prod. No. Zi 13.1123**

Material: CuBe2 0,13mm/0,2mm  
Length: 500 mm



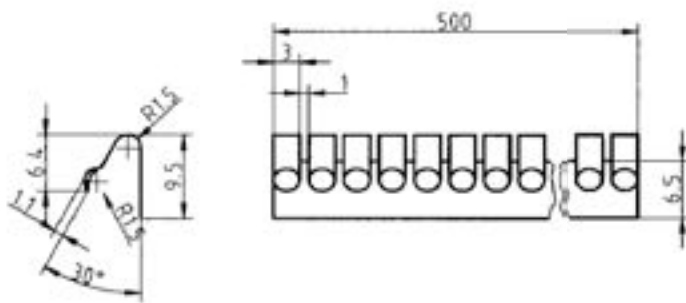
**Prod. No. Zi 10.1220**

Material: CuBe2 0,13mm/0,2mm  
Length: 500 mm



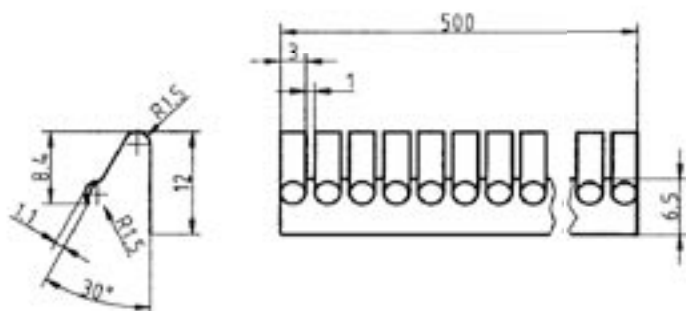
**Prod. No. Zi 11.1221**

Material: CuBe2 0,13mm/0,2mm  
Length: 500 mm



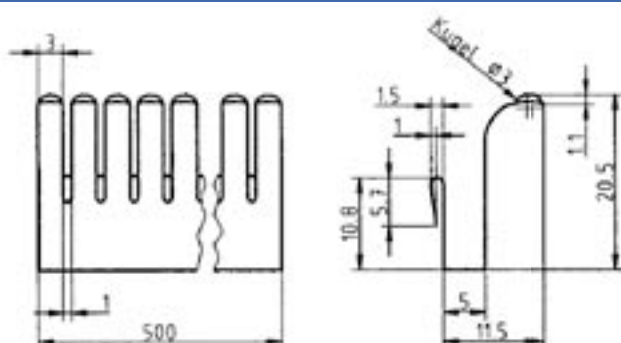
**Prod. No. Zi 12.1222**

Material: CuBe2 0,13mm/0,2mm  
Length: 500 mm



**Prod. No. Zi 13.1223**

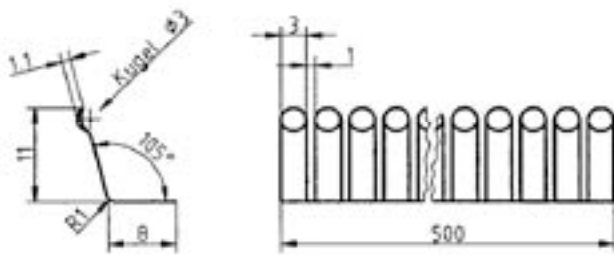
Material: CuBe2 0,13mm/0,2mm  
Length: 500 mm



**Prod. No. Zi 13.1223 / 5**

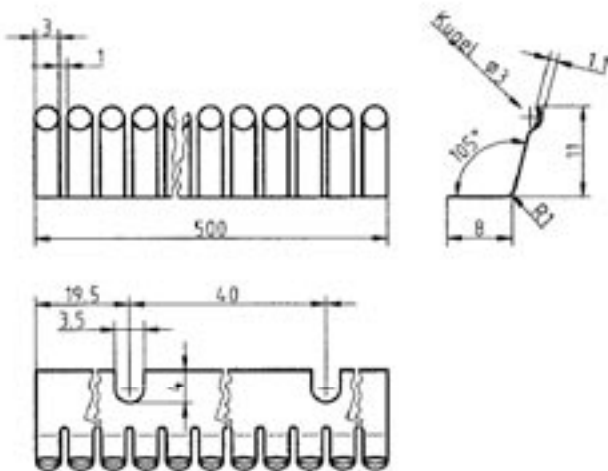
Material: CuBe2 0,13mm/0,2mm  
Length: 500 mm

**Prod. No. Zi 10.1320**



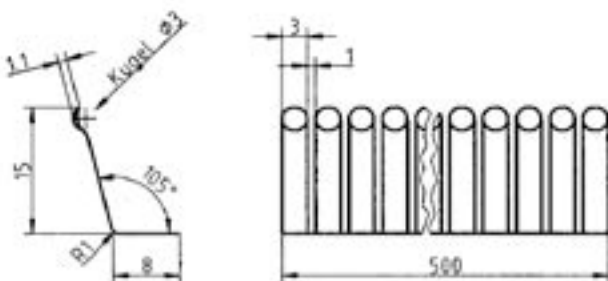
Material: CuBe2 0,13mm/0,2mm  
Length: 500 mm

**Prod. No. Zi 10.1320 / 1**



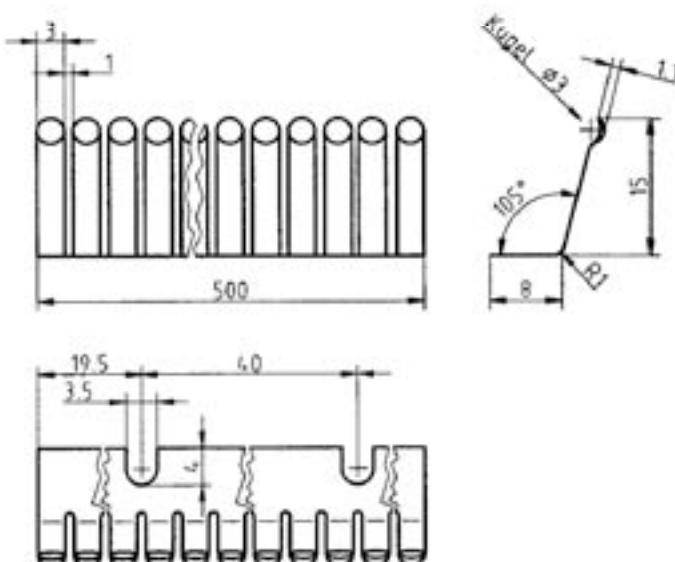
Material: CuBe2 0,2mm  
Length: 500 mm

**Prod. No. Zi 11.1321**



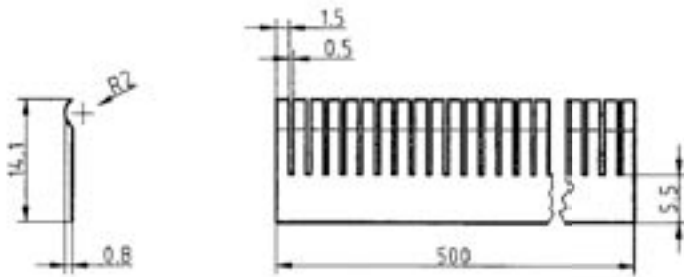
Material: CuBe2 0,2mm  
Length: 500 mm

**Prod. No. Zi 11.1321 / 1**



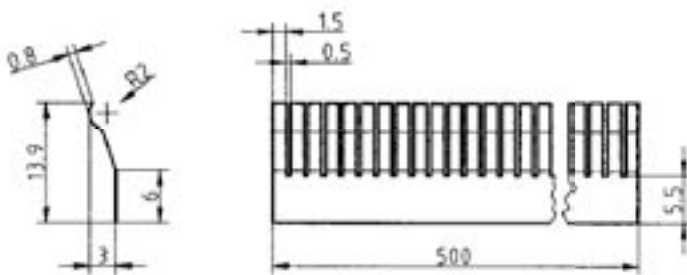
Material: CuBe2 0,2mm  
Length: 500 mm

**Prod. No. Zi 10.1420**



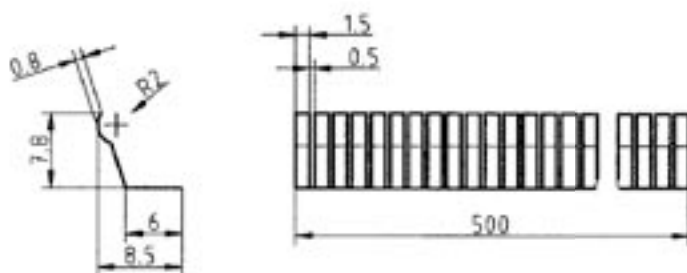
Material: CuBe2 0,15mm  
Length : 500 mm

**Prod. No. Zi 11.1421**



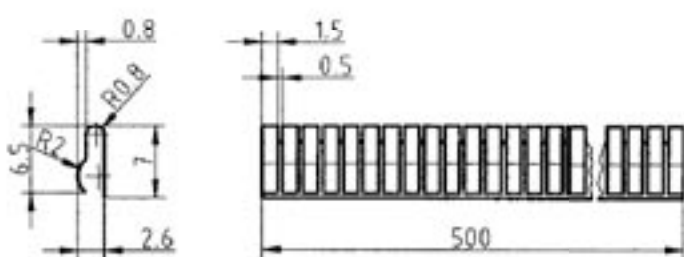
Material: CuBe2 0,15mm  
Length : 500 mm

**Prod. No. Zi 12.1422**



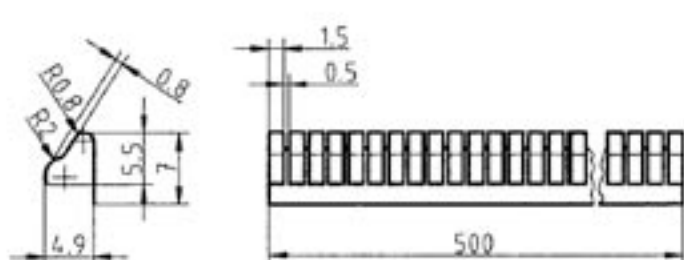
Material: CuBe2 0,15mm  
Length : 500 mm

**Prod. No. Zi 13.1423**



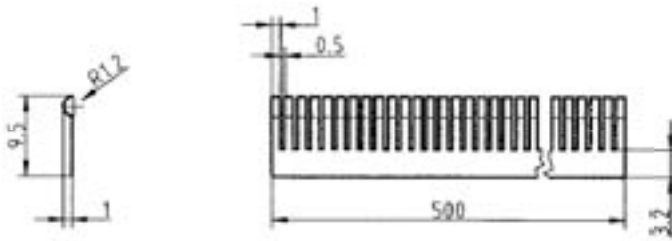
Material: CuBe2 0,15mm  
Length : 500 mm

**Prod. No. Zi 14.1424**



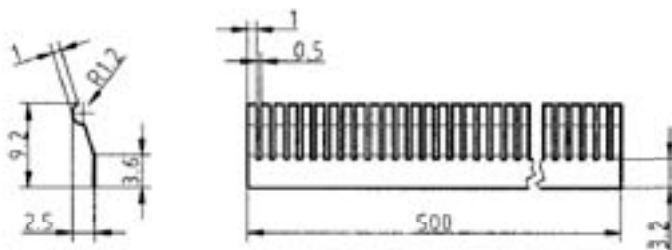
Material: CuBe2 0,15mm  
Length : 500 mm

**Prod. No. Zi 10.1520**



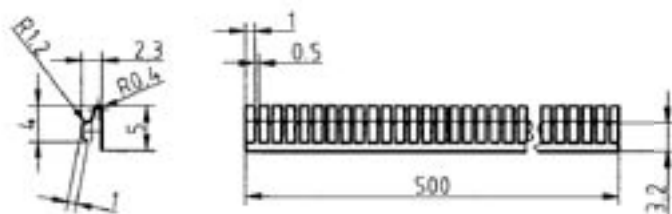
Material: CuBe2 0,10mm  
Length: 500 mm

**Prod. No. Zi 11.1521**



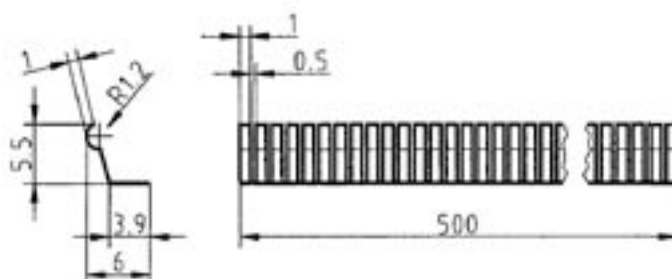
Material: CuBe2 0,10mm  
Length: 500 mm

**Prod. No. Zi 12.1522**

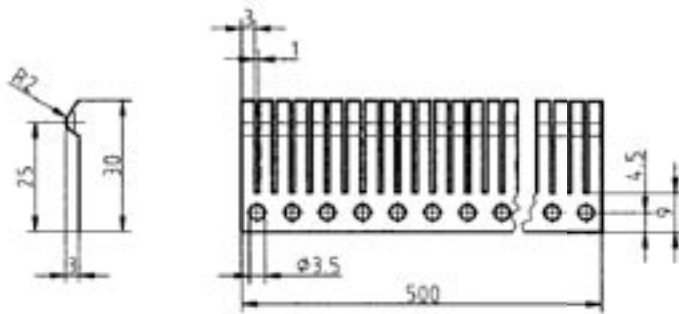


Material: CuBe2 0,10mm  
Length: 500 mm

**Prod. No. Zi 13.1523**

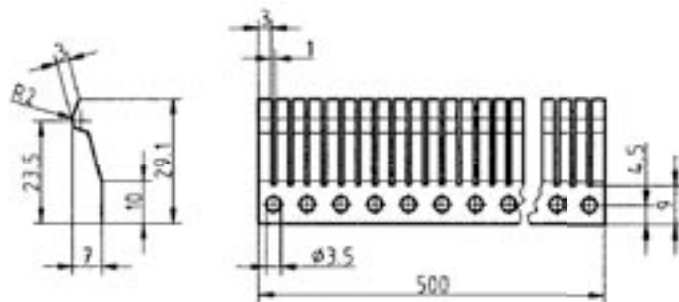


Material: CuBe2 0,10mm  
Length: 500 mm



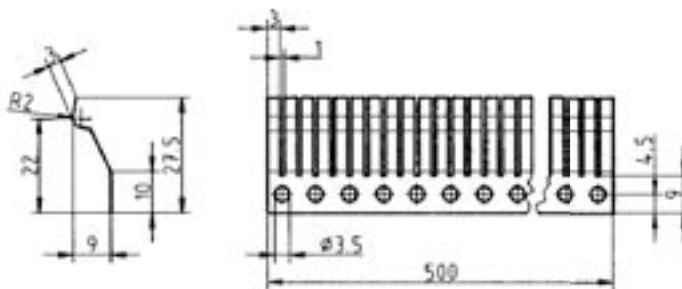
**Prod. No. Zi 10.1620**

Material: CuBe2 0,5mm  
Length : 500 mm



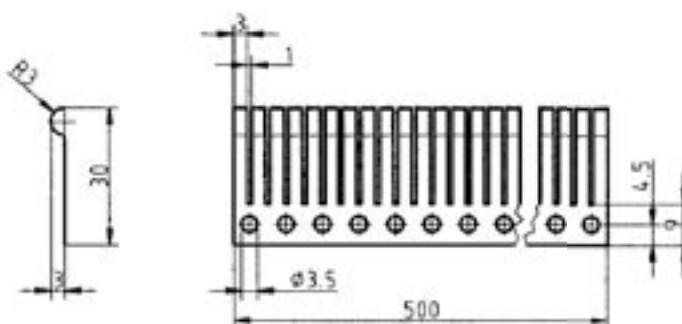
**Prod. No. Zi 11.1621**

Material: CuBe2 0,5mm  
Length : 500 mm



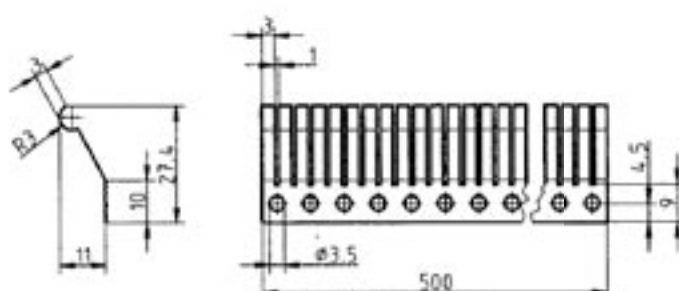
**Prod. No. Zi 12.1622**

Material: CuBe2 0,5mm  
Length : 500 mm



**Prod. No. Zi 13.1623**

Material: CuBe2 0,5mm  
Length : 500 mm



**Prod. No. Zi 14.1624**

Material: CuBe2 0,5mm  
Length : 500 mm

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**WELCON** B.V.

Eindhoven • The Netherlands

**WENNMACHER** *Electronic Ltd.*

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