

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                |                              |                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                              |                                                                                                                                                             |                              |                                  |                              |                     |             |    |      |               |                                    |            |             |               |            |             |          |           |          |         |    |   |   |                 |           |           |          |   |    |   |   |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|----------------------------------|------------------------------|---------------------|-------------|----|------|---------------|------------------------------------|------------|-------------|---------------|------------|-------------|----------|-----------|----------|---------|----|---|---|-----------------|-----------|-----------|----------|---|----|---|---|
| <div>Datasheet:</div> <div>EN Cu-HCP / CW021A<br/>99,95% Pure Copper<br/>Cold rolled</div> <div>Alumeco ApS<br/>13-01-2025</div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                              | <div>Internal alloy name: CW021A</div> <div>Metal: Copper</div> <div>Chemical Symbol: Cu-HCP</div> <div>EN: EN Cu-HCP</div> <div>UNS: C10300</div> <div>SIS: -</div> <div>GB: TU0.003 / C10300</div> <div>JIS: -</div> <div>Also known as: -</div> <div>Alloy type: Electrical conducting</div>                |                              |                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                              |                                                                                                                                                             |                              |                                  |                              |                     |             |    |      |               |                                    |            |             |               |            |             |          |           |          |         |    |   |   |                 |           |           |          |   |    |   |   |
| <div>Main usage:</div> <div><ul style="list-style-type: none"><li>Electrical conductors</li><li>Industrial applications – e.g. boilers, pressure tanks, piping etc.</li><li>Components for impact extrusion</li></ul></div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                              | <div>Important norms and literature:</div> <div>General Standards</div> <div>EN 1652: Copper and copper alloys - Plate, sheet, strip and circles for general purposes</div> <div>Geometric Tolerance</div> <div>EN 1652: Copper and copper alloys - Plate, sheet, strip and circles for general purposes</div> |                              |                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                              |                                                                                                                                                             |                              |                                  |                              |                     |             |    |      |               |                                    |            |             |               |            |             |          |           |          |         |    |   |   |                 |           |           |          |   |    |   |   |
| <div>Main properties:</div> <div><ul style="list-style-type: none"><li>High thermal and electrical conductivity</li><li>Good atmospheric corrosion resistance</li><li>Good welding and soldering properties as well as resistance to hydrogen</li></ul></div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                |                              |                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                              |                                                                                                                                                             |                              |                                  |                              |                     |             |    |      |               |                                    |            |             |               |            |             |          |           |          |         |    |   |   |                 |           |           |          |   |    |   |   |
| <div>Chemical composition in %: EN 1652</div> <table><tr><td>Cu</td><td>Bi</td><td>P</td><td>Pb</td><td colspan="2">Other elements</td></tr><tr><td></td><td></td><td></td><td></td><td>Each</td><td>Together</td></tr><tr><td>Min. 99,95</td><td>Max. 0,0005</td><td>0,002 – 0,007</td><td>Max. 0,005</td><td>-</td><td>0,03</td></tr></table>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                |                              | Cu                                                                                                                                                                                                                                                                                                                   | Bi                                                                                                                                                                                                                                                                                           | P                                                                                                                                                           | Pb                           | Other elements                   |                              |                     |             |    |      | Each          | Together                           | Min. 99,95 | Max. 0,0005 | 0,002 – 0,007 | Max. 0,005 | -           | 0,03     |           |          |         |    |   |   |                 |           |           |          |   |    |   |   |
| Cu                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Bi                                                                                                                                                                                                                                                                                           | P                                                                                                                                                                                                                                                                                                              | Pb                           | Other elements                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                              |                                                                                                                                                             |                              |                                  |                              |                     |             |    |      |               |                                    |            |             |               |            |             |          |           |          |         |    |   |   |                 |           |           |          |   |    |   |   |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                |                              | Each                                                                                                                                                                                                                                                                                                                 | Together                                                                                                                                                                                                                                                                                     |                                                                                                                                                             |                              |                                  |                              |                     |             |    |      |               |                                    |            |             |               |            |             |          |           |          |         |    |   |   |                 |           |           |          |   |    |   |   |
| Min. 99,95                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Max. 0,0005                                                                                                                                                                                                                                                                                  | 0,002 – 0,007                                                                                                                                                                                                                                                                                                  | Max. 0,005                   | -                                                                                                                                                                                                                                                                                                                    | 0,03                                                                                                                                                                                                                                                                                         |                                                                                                                                                             |                              |                                  |                              |                     |             |    |      |               |                                    |            |             |               |            |             |          |           |          |         |    |   |   |                 |           |           |          |   |    |   |   |
| <div>Mechanical properties: EN 1652</div> <table><tr><td>Material Condition</td><td>Thickness range</td><td>Rm MPa</td><td>Rp0,2 MPa</td><td>A50mm for thickness up to 2,5 mm</td><td>A for thickness up to 2,5 mm</td><td>Hardness HBW</td><td>Hardness HV</td></tr><tr><td></td><td>mm</td><td>(Min. – Max.)</td><td></td><td>%</td><td>%</td><td></td><td></td></tr><tr><td>R220 (soft)</td><td>0,10 - 5</td><td>220 - 260</td><td>Max. 140</td><td>33</td><td>42</td><td>-</td><td>-</td></tr><tr><td>R240 (1/2 hard)</td><td>0,10 - 10</td><td>240 - 300</td><td>Min. 180</td><td>8</td><td>15</td><td>-</td><td>-</td></tr></table> <div>* Information values only;</div>                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                |                              | Material Condition                                                                                                                                                                                                                                                                                                   | Thickness range                                                                                                                                                                                                                                                                              | Rm MPa                                                                                                                                                      | Rp0,2 MPa                    | A50mm for thickness up to 2,5 mm | A for thickness up to 2,5 mm | Hardness HBW        | Hardness HV |    | mm   | (Min. – Max.) |                                    | %          | %           |               |            | R220 (soft) | 0,10 - 5 | 220 - 260 | Max. 140 | 33      | 42 | - | - | R240 (1/2 hard) | 0,10 - 10 | 240 - 300 | Min. 180 | 8 | 15 | - | - |
| Material Condition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Thickness range                                                                                                                                                                                                                                                                              | Rm MPa                                                                                                                                                                                                                                                                                                         | Rp0,2 MPa                    | A50mm for thickness up to 2,5 mm                                                                                                                                                                                                                                                                                     | A for thickness up to 2,5 mm                                                                                                                                                                                                                                                                 | Hardness HBW                                                                                                                                                | Hardness HV                  |                                  |                              |                     |             |    |      |               |                                    |            |             |               |            |             |          |           |          |         |    |   |   |                 |           |           |          |   |    |   |   |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | mm                                                                                                                                                                                                                                                                                           | (Min. – Max.)                                                                                                                                                                                                                                                                                                  |                              | %                                                                                                                                                                                                                                                                                                                    | %                                                                                                                                                                                                                                                                                            |                                                                                                                                                             |                              |                                  |                              |                     |             |    |      |               |                                    |            |             |               |            |             |          |           |          |         |    |   |   |                 |           |           |          |   |    |   |   |
| R220 (soft)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 0,10 - 5                                                                                                                                                                                                                                                                                     | 220 - 260                                                                                                                                                                                                                                                                                                      | Max. 140                     | 33                                                                                                                                                                                                                                                                                                                   | 42                                                                                                                                                                                                                                                                                           | -                                                                                                                                                           | -                            |                                  |                              |                     |             |    |      |               |                                    |            |             |               |            |             |          |           |          |         |    |   |   |                 |           |           |          |   |    |   |   |
| R240 (1/2 hard)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 0,10 - 10                                                                                                                                                                                                                                                                                    | 240 - 300                                                                                                                                                                                                                                                                                                      | Min. 180                     | 8                                                                                                                                                                                                                                                                                                                    | 15                                                                                                                                                                                                                                                                                           | -                                                                                                                                                           | -                            |                                  |                              |                     |             |    |      |               |                                    |            |             |               |            |             |          |           |          |         |    |   |   |                 |           |           |          |   |    |   |   |
| <div>Physical properties:</div> <table><tr><td>Density (20 °C)</td><td>Solidification range</td><td>Electrical conductivity</td><td>Thermal conductivity (20 °C)</td><td>Thermal expansion (20 - 300 °C)</td><td>Annealing temperature</td><td>E – modulus (20 °C)</td></tr><tr><td>g/cm³</td><td>°C</td><td>%ACS</td><td>W/m K</td><td>µm m<sup>-1</sup> K<sup>-1</sup></td><td>°C</td><td>N / mm²</td></tr><tr><td>8,94</td><td>1083</td><td>100</td><td>385</td><td>17</td><td>-</td><td>115.000</td></tr></table>                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                |                              | Density (20 °C)                                                                                                                                                                                                                                                                                                      | Solidification range                                                                                                                                                                                                                                                                         | Electrical conductivity                                                                                                                                     | Thermal conductivity (20 °C) | Thermal expansion (20 - 300 °C)  | Annealing temperature        | E – modulus (20 °C) | g/cm³       | °C | %ACS | W/m K         | µm m <sup>-1</sup> K <sup>-1</sup> | °C         | N / mm²     | 8,94          | 1083       | 100         | 385      | 17        | -        | 115.000 |    |   |   |                 |           |           |          |   |    |   |   |
| Density (20 °C)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Solidification range                                                                                                                                                                                                                                                                         | Electrical conductivity                                                                                                                                                                                                                                                                                        | Thermal conductivity (20 °C) | Thermal expansion (20 - 300 °C)                                                                                                                                                                                                                                                                                      | Annealing temperature                                                                                                                                                                                                                                                                        | E – modulus (20 °C)                                                                                                                                         |                              |                                  |                              |                     |             |    |      |               |                                    |            |             |               |            |             |          |           |          |         |    |   |   |                 |           |           |          |   |    |   |   |
| g/cm³                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | °C                                                                                                                                                                                                                                                                                           | %ACS                                                                                                                                                                                                                                                                                                           | W/m K                        | µm m <sup>-1</sup> K <sup>-1</sup>                                                                                                                                                                                                                                                                                   | °C                                                                                                                                                                                                                                                                                           | N / mm²                                                                                                                                                     |                              |                                  |                              |                     |             |    |      |               |                                    |            |             |               |            |             |          |           |          |         |    |   |   |                 |           |           |          |   |    |   |   |
| 8,94                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 1083                                                                                                                                                                                                                                                                                         | 100                                                                                                                                                                                                                                                                                                            | 385                          | 17                                                                                                                                                                                                                                                                                                                   | -                                                                                                                                                                                                                                                                                            | 115.000                                                                                                                                                     |                              |                                  |                              |                     |             |    |      |               |                                    |            |             |               |            |             |          |           |          |         |    |   |   |                 |           |           |          |   |    |   |   |
| <div>Properties and information's (3 Excellent; 2 Good; 1 Poor/not recommendable)<sup>1</sup></div> <table><tr><td><div>Machinability (Zerspanbarkeitsindex): 20*</div><div>* (CuZn39Pb3 = 100)</div><div>Forming Methods:</div><div>Hot Formability: 2</div><div>Cold Formability: 3</div><div>Corrosion resistance:</div><div>Atmosphere: 2</div><div>Waters and alkaline: 2</div><div>Acids, Ammonia, Seawater etc.: 1</div></td><td><div>Joining Methods:</div><div>Soldering: 3</div><div>Brazing: 3</div><div>Laser welding 1-2</div><div>Gas-shielded arc welding: 1</div><div>TIG welding: 2-3</div><div>MIG welding: 2-3</div><div>Spot/seam welding 1</div><div>Butt welding 2</div><div>Gluing/adhesion: 2</div></td><td><div>Surface Treatment:</div><div>Polishing:</div><div>Mechanical: 3</div><div>Electrolytic: 3</div><div>Galvanizing: 3</div><div>Hot Dipping: 3</div></td></tr></table> |                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                |                              | <div>Machinability (Zerspanbarkeitsindex): 20*</div> <div>* (CuZn39Pb3 = 100)</div> <div>Forming Methods:</div> <div>Hot Formability: 2</div> <div>Cold Formability: 3</div> <div>Corrosion resistance:</div> <div>Atmosphere: 2</div> <div>Waters and alkaline: 2</div> <div>Acids, Ammonia, Seawater etc.: 1</div> | <div>Joining Methods:</div> <div>Soldering: 3</div> <div>Brazing: 3</div> <div>Laser welding 1-2</div> <div>Gas-shielded arc welding: 1</div> <div>TIG welding: 2-3</div> <div>MIG welding: 2-3</div> <div>Spot/seam welding 1</div> <div>Butt welding 2</div> <div>Gluing/adhesion: 2</div> | <div>Surface Treatment:</div> <div>Polishing:</div> <div>Mechanical: 3</div> <div>Electrolytic: 3</div> <div>Galvanizing: 3</div> <div>Hot Dipping: 3</div> |                              |                                  |                              |                     |             |    |      |               |                                    |            |             |               |            |             |          |           |          |         |    |   |   |                 |           |           |          |   |    |   |   |
| <div>Machinability (Zerspanbarkeitsindex): 20*</div> <div>* (CuZn39Pb3 = 100)</div> <div>Forming Methods:</div> <div>Hot Formability: 2</div> <div>Cold Formability: 3</div> <div>Corrosion resistance:</div> <div>Atmosphere: 2</div> <div>Waters and alkaline: 2</div> <div>Acids, Ammonia, Seawater etc.: 1</div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | <div>Joining Methods:</div> <div>Soldering: 3</div> <div>Brazing: 3</div> <div>Laser welding 1-2</div> <div>Gas-shielded arc welding: 1</div> <div>TIG welding: 2-3</div> <div>MIG welding: 2-3</div> <div>Spot/seam welding 1</div> <div>Butt welding 2</div> <div>Gluing/adhesion: 2</div> | <div>Surface Treatment:</div> <div>Polishing:</div> <div>Mechanical: 3</div> <div>Electrolytic: 3</div> <div>Galvanizing: 3</div> <div>Hot Dipping: 3</div>                                                                                                                                                    |                              |                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                              |                                                                                                                                                             |                              |                                  |                              |                     |             |    |      |               |                                    |            |             |               |            |             |          |           |          |         |    |   |   |                 |           |           |          |   |    |   |   |
| <div><sup>1</sup>Information extracted from Kupferverband:</div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                |                              |                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                              |                                                                                                                                                             |                              |                                  |                              |                     |             |    |      |               |                                    |            |             |               |            |             |          |           |          |         |    |   |   |                 |           |           |          |   |    |   |   |

## Tolerances for Cold rolled Products of CW021A

Dimensions: EN 1652:1997\*

### Tolerances on thickness of cold rolled products (sheet, strip and circles)

| Nominal thickness<br>$t$ (mm) | Tolerance on thickness for nominal widths $w$ (mm) |                    |                     |                      |
|-------------------------------|----------------------------------------------------|--------------------|---------------------|----------------------|
|                               | $w \leq 350$                                       | $350 < w \leq 700$ | $700 < w \leq 1000$ | $1000 < w \leq 1250$ |
| $0,1 < t \leq 0,2$            | $\pm 0,018$                                        | -                  | -                   | -                    |
| $0,2 < t \leq 0,3$            | $\pm 0,022$                                        | $\pm 0,03$         | $\pm 0,04$          | -                    |
| $0,3 < t \leq 0,4$            | $\pm 0,025$                                        | $\pm 0,04$         | $\pm 0,05$          | $\pm 0,07$           |
| $0,4 < t \leq 0,5$            | $\pm 0,030$                                        | $\pm 0,05$         | $\pm 0,06$          | $\pm 0,08$           |
| $0,5 < t \leq 0,8$            | $\pm 0,040$                                        | $\pm 0,06$         | $\pm 0,07$          | $\pm 0,09$           |
| $0,8 < t \leq 1,2$            | $\pm 0,050$                                        | $\pm 0,07$         | $\pm 0,09$          | $\pm 0,10$           |
| $1,2 < t \leq 1,8$            | $\pm 0,060$                                        | $\pm 0,08$         | $\pm 0,10$          | $\pm 0,11$           |
| $1,8 < t \leq 2,5$            | $\pm 0,070$                                        | $\pm 0,09$         | $\pm 0,11$          | $\pm 0,13$           |
| $2,5 < t \leq 3,2$            | $\pm 0,080$                                        | $\pm 0,10$         | $\pm 0,13$          | $\pm 0,17$           |
| $3,2 < t \leq 4,0$            | $\pm 0,10$                                         | $\pm 0,12$         | $\pm 0,15$          | $\pm 0,20$           |
| $4,0 < t \leq 5,0$            | $\pm 0,12$                                         | $\pm 0,14$         | $\pm 0,17$          | $\pm 0,23$           |
| $5,0 < t \leq 6,0$            | $\pm 0,14$                                         | $\pm 0,16$         | $\pm 0,20$          | $\pm 0,26$           |
| $6,0 < t \leq 7,0$            | $\pm 0,16$                                         | $\pm 0,19$         | $\pm 0,23$          | $\pm 0,29$           |
| $7,0 < t \leq 8,0$            | $\pm 0,18$                                         | $\pm 0,22$         | $\pm 0,26$          | $\pm 0,32$           |
| $8,0 < t \leq 9,0$            | $\pm 0,20$                                         | $\pm 0,25$         | $\pm 0,29$          | $\pm 0,35$           |
| $9,0 < t \leq 10,0$           | $\pm 0,22$                                         | $\pm 0,28$         | $\pm 0,32$          | $\pm 0,38$           |

\* Values are referred from Table 5 of EN 1652:1997

Dimensions: EN 1652:1997\*

### Tolerances on width of cold rolled strip

| Nominal thickness<br>$t$ (mm) | Tolerance on thickness for nominal widths $w$ (mm) |                   |                    |                    |                    |                    |                     |
|-------------------------------|----------------------------------------------------|-------------------|--------------------|--------------------|--------------------|--------------------|---------------------|
|                               | $w \leq 50$                                        | $50 < w \leq 100$ | $100 < w \leq 200$ | $200 < w \leq 350$ | $350 < w \leq 500$ | $500 < w \leq 700$ | $700 < w \leq 1250$ |
| $0,1 < t \leq 1,0$            | +0,2<br>0                                          | +0,3<br>0         | +0,4<br>0          | +0,6<br>0          | +1,0<br>0          | +1,5<br>0          | +2,0<br>0           |
| $1,0 < t \leq 2,0$            | +0,3<br>0                                          | +0,4<br>0         | +0,5<br>0          | +1,0<br>0          | +1,2<br>0          | +1,5<br>0          | +2,0<br>0           |
| $2,0 < t \leq 2,5$            | +0,5<br>0                                          | +0,6<br>0         | +0,7<br>0          | +1,2<br>0          | +1,5<br>0          | +2,0<br>0          | +2,5<br>0           |
| $2,5 < t \leq 3,0$            | +1,0<br>0                                          | +1,1<br>0         | +1,2<br>0          | +1,5<br>0          | +2,0<br>0          | +2,5<br>0          | +3,0<br>0           |
| $3,0 < t \leq 4,0$            | +2,0<br>0                                          | +2,3<br>0         | +2,5<br>0          | +3,0<br>0          | +4,0<br>0          | +5,0<br>0          | +6,0<br>0           |

\* Values are referred from Table 6 of EN 1652:1997

Dimensions: EN 1652:1997\*

### Tolerances on width of plate and sheet

| Nominal thickness<br>$t$ (mm) | Tolerance on thickness for nominal widths $w$ (mm) |                     |              |
|-------------------------------|----------------------------------------------------|---------------------|--------------|
|                               | $w \leq 350$                                       | $350 < w \leq 1250$ | $1250 < w$   |
| $t \leq 2,0$                  | +2,0<br>0                                          | +6,0<br>0           | By agreement |
| $2,0 < t \leq 5,0$            | +4,0<br>0                                          | +8,0<br>0           |              |
| $5,0 < t$                     | +8,0<br>0                                          | +10,0<br>0          |              |

\* Values are referred from Table 7 of EN 1652:1997

Dimensions: EN 1652:1997\*

### Tolerances on length of plate, sheet and strip cut for lengths up to 5000 mm

| Length               | Nominal thickness (mm) | Tolerance on length (mm) |
|----------------------|------------------------|--------------------------|
| As Manufactured (ML) | $t \leq 15$            | $\pm 50$                 |
| Fixed length (FL)    | $t \leq 5,0$           | +10<br>0                 |
|                      | $5,0 < t$              | +15<br>0                 |

\* Values are referred from Table 8 of EN 1652:1997

| Dimensions: EN 13599:2014*<br>Squariness of cut plate and sheet |                                                                       |                      |            |
|-----------------------------------------------------------------|-----------------------------------------------------------------------|----------------------|------------|
| Nominal width<br>$w$ (mm)                                       | Maximum allowable differences between diagonals, for lengths $l$ (mm) |                      |            |
|                                                                 | $1000 < l \leq 2000$                                                  | $2000 < l \leq 3000$ | $3000 < l$ |
| $350 < w \leq 700$                                              | 6                                                                     | 7                    | 8          |
| $700 < w \leq 1250$                                             | 8                                                                     | 9                    | 10         |
| $1250 < w$                                                      | By agreement                                                          |                      |            |

\* Values are referred from Table 9 of EN 1652:1997

| Dimensions: EN 1652:1997*<br>Tolerances on diameter for circles |                                                                       |                      |              |
|-----------------------------------------------------------------|-----------------------------------------------------------------------|----------------------|--------------|
| Nominal diameter<br>$d$ (mm)                                    | Maximum allowable differences between diagonals, for lengths $l$ (mm) |                      |              |
|                                                                 | $1000 < l \leq 2000$                                                  | $2000 < l \leq 3000$ | $3000 < l$   |
| $d \leq 500$                                                    | $\pm 1$                                                               | $\pm 1,5$            | $\pm 2$      |
| $500 < d \leq 1000$                                             | $\pm 2$                                                               | $\pm 2,5$            | $\pm 3$      |
| $1000 < d \leq 2000$                                            | $\pm 3$                                                               | $\pm 3,5$            | $\pm 4$      |
| $700 < d$                                                       | -                                                                     | -                    | By agreement |

\* Values are referred from Table 10 of EN 1652:1997

| Dimensions: EN 1652:1997*<br>Edgewise curvature $c$ |                                                         |                    |
|-----------------------------------------------------|---------------------------------------------------------|--------------------|
| Nominal width<br>$w$ (mm)                           | Maximum edgewise curvature $c$ for thicknesses $t$ (mm) |                    |
|                                                     | $t \leq 1,0$                                            | $1,0 < t \leq 4,0$ |
| $3 < w \leq 8$                                      | 12                                                      | -                  |
| $8 < w \leq 15$                                     | 8                                                       | 10                 |
| $15 < w$                                            | 4                                                       | 6                  |

\* Values are referred from Table 11 of EN 1652:1997