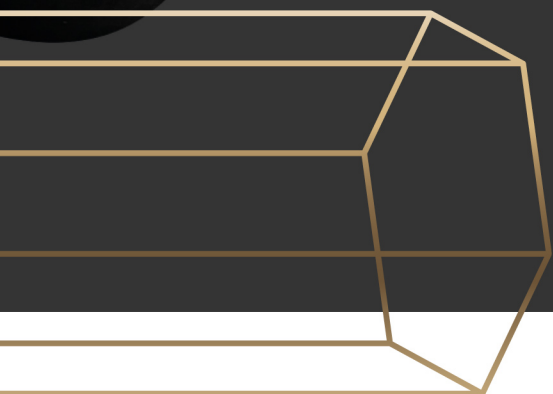




CW611N

TECHNICAL SHEET



BRASS RODS

## INTERNATIONAL REFERENCES

|            |                 |                   |                     |            |              |              |
|------------|-----------------|-------------------|---------------------|------------|--------------|--------------|
| EGM<br>611 | EN<br>CuZn39Pb1 | DIC CEN<br>CW611N | ASTM(CDA)<br>C37000 | AFNOR<br>- | BS<br>HPb591 | JIS<br>C3710 |
|------------|-----------------|-------------------|---------------------|------------|--------------|--------------|

## MAIN CHARACTERISTICS

Hot stamping and free machining alloy with a higher copper content to increase ductility and cold formability and a lower lead content for specific purposes.

## CHEMICAL COMPOSITION

| Cu<br>[%]      | Pb<br>[%] | Sn<br>[%] |
|----------------|-----------|-----------|
| 59,0 -<br>60,0 | 0,8 - 1,6 | ≤ 0,3     |

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## PHYSICAL PROPERTIES

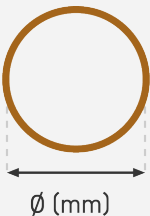
|                         |                       |
|-------------------------|-----------------------|
| Density                 | 8.44g/cm <sup>3</sup> |
| Electrical Conductivity | 13.8MS/m              |
| Electrical Conductivity | 23IACS %              |
| Thermal Conductivity    | 120W/mK               |

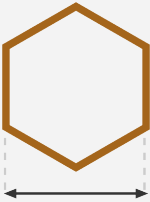
## MECHANICAL PROPERTIES

| Temper | Diameter / Wrench size [mm] | Tensile Strength Rm [N/mm <sup>2</sup> ] | Yield Strength Rp0.2 [N/mm <sup>2</sup> ] | Elongation A [%] | Hardness HB |
|--------|-----------------------------|------------------------------------------|-------------------------------------------|------------------|-------------|
| M      | 7 - 75                      | (390 - 550)                              | (180 - 450)                               | (5 - 35)         | (110 - 150) |

Please note: The mechanical properties are indicative only.

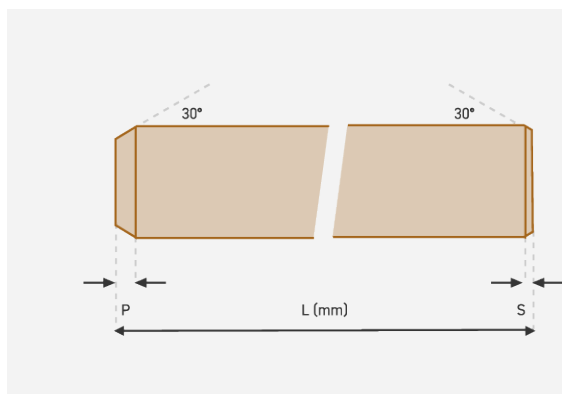
## TYPES AND FORMAT AVAILABILITY

|  | Nominal Diameter [mm] |    | Tolerances [mm]                 |             |             |
|-------------------------------------------------------------------------------------|-----------------------|----|---------------------------------|-------------|-------------|
|                                                                                     | >                     | ≤  | Type A<br>(standard tolerances) | Type B      | Type C      |
|                                                                                     | > 7                   | 10 | +0 / -0,06                      | +0 / -0,036 | +0 / -0,025 |
|                                                                                     | 10                    | 18 | +0 / -0,07                      | +0 / -0,043 |             |
|                                                                                     | 18                    | 30 | +0 / -0,08                      | +0 / -0,052 |             |
|                                                                                     | 30                    | 50 | +0 / -0,16                      | -           |             |
|                                                                                     | 50                    | 75 | +0 / -0,16                      | -           |             |

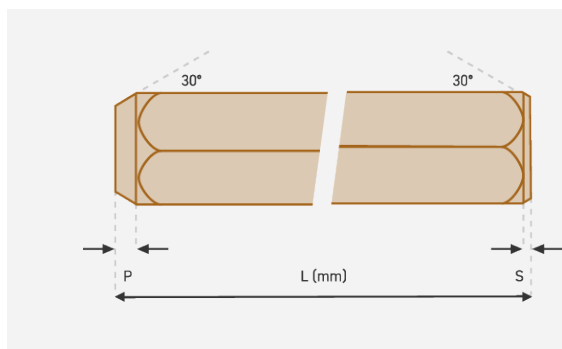
|  | Width across-flats (W mm) |    | Tolerances (mm) |  |
|-------------------------------------------------------------------------------------|---------------------------|----|-----------------|--|
|                                                                                     | >                         | ≤  | Type B          |  |
|                                                                                     | > 7                       | 10 | +0 / -0,09      |  |
|                                                                                     | 10                        | 18 | +0 / -0,11      |  |
|                                                                                     | 18                        | 30 | +0 / -0,13      |  |
|                                                                                     | 30                        | 45 | +0 / -0,16      |  |

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## SHAPES OF THE ENDS



| Shaped ends of rod chamfered (mm) |    |           |      |             |      |
|-----------------------------------|----|-----------|------|-------------|------|
| Ø                                 |    | P (point) |      | S (chamfer) |      |
|                                   |    | min.      | max. | min.        | max. |
| 7                                 | 10 | 2         | 3,5  | 2           | 3,5  |
| 10                                | 20 | 2         | 4,5  | 2           | 4,5  |
| 20                                | 30 | 3,5       | 6,5  | 3,5         | 6,5  |
| 30                                | 42 | 4         | 6,5  | 4           | 6,5  |
| 43                                | 75 | 6         | 8    | 6           | 8    |



| Shaped ends of rod pointed (mm) |    |           |      |             |      |
|---------------------------------|----|-----------|------|-------------|------|
| Ch.                             |    | P (point) |      | S (chamfer) |      |
|                                 |    | min.      | max. | min.        | max. |
| 7                               | 10 | 2         | 3,5  | 0,4         | 1,5  |
| 10                              | 20 | 2         | 4,5  | 0,5         | 2    |
| 20                              | 32 | 3,5       | 6,5  | 0,6         | 2,5  |
| 32                              | 45 | 5         | 8    | 1           | 4    |

Please note: The minimum and maximum measurements for the ends are indicative only. Specific requirements regarding the length of the ends must be evaluated and agreed in the time of order.

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### LENGTHS AND STRAIGHTENINGS

|                                     |    | Lenght                    |                                              |
|-------------------------------------|----|---------------------------|----------------------------------------------|
| >                                   | ≤  | Lenght (mm)               | Tolerances (mm)                              |
| > 7                                 | 42 | 3050                      | + 50                                         |
| 42                                  | 75 | 3050                      | + 100                                        |
| Maximum deviation from straightness |    |                           |                                              |
| >                                   | ≤  | Localized over any 400 mm | Over whole lenght L of rod in metres L ≥ 1 m |
| > 7                                 | 50 | 0,4 mm                    | 1,0 X L                                      |

|                                     |    | Lenght                    |                                              |
|-------------------------------------|----|---------------------------|----------------------------------------------|
| >                                   | ≤  | Lenght (mm)               | Tolerances (mm)                              |
| > 7                                 | 30 | 3050                      | + 50                                         |
| 30                                  | 45 | 3050                      | + 100                                        |
| Maximum deviation from straightness |    |                           |                                              |
| >                                   | ≤  | Localized over any 400 mm | Over whole lenght L of rod in metres L ≥ 1 m |
| > 7                                 | 50 | 0,6 mm                    | 1,5 X L                                      |

Please note: The straightening has to be measured according to paragraph 6.5.3 of Norms EN 12164:2016).

### OTHER SERVICES

All the turning rods (from Ø7 to Ø75 and from Ch.7 to Ch.45) are supplied in nominal lengths of 3000 mm, with point (P) and chamfer (S). Upon request, the product can be supplied with ends other than those indicated and with nominal lengths up to 5000 mm. the product is supplied in bundles of about 1000 kg closed by 3 or 4 metal strapping and paper between rods and metal strappings. Packaging with other characteristics must be evaluated and agreed upon when ordering.

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