FINAL ADVANCED MATERIALS

**DATA SHEET**

Rev. N° 0 - 15.05.2023

# 7MG.021
# Brass

## Summary



Physical variables included in this documentation are provided by way of indication only and do not, under any circumstances, constitute a contractual undertaking. Please contact our technical service if you require any additional information.


Final Advanced Materials Sàrl
4 avenue de Strasbourg
68350 Didenheim – France
Tel : +33 (0) 3 67 78 78 78

Final Advanced Materials GmbH
Basler Strasse 115
79115 Freiburg – Deutschland
Tel: + 49 (0) 761 47 87 336

www.final-materials.com


## Overview

Brass is a non-magnetic and non-ferrous alloy consisting of copper and zinc. It is appreciated for its good machinability and the fact that it can be polished. Its physical properties depend greatly on its composition.

Brass can thus also be alloyed with other materials to improve certain properties, such as corrosion resistance or hardness.

It is often used in the manufacture of mechanical parts and plumbing fixtures.

## Applications

- General mechanics
- Mining industry
- Measuring and precision instruments
- Plumbing fixtures, lock fittings, building hardware
- Hydraulic connectors


info@final-materials.com

# Brass

## Benefits

- Malleable
- Easily machinable
- Excellent corrosion resistance
- Easy to cast

## Characteristics

| Property | | Unit | CW614N/CuZn39Pb3 | CW603N/CuZn36Pb3 |
|---|---|---|---|---|
| Composition | Cu | Wt. % | 57.00 – 59.00 | 60.00 – 62.00 |
| | Al | | 0.05 | 0.05 |
| | Pb | | 2.5 – 3.5 | 2.5 – 3.5 |
| | Fe | | 0.3 | 0.3 |
| | Sn | | 0.3 | 0.2 |
| | Ni | | 0.3 | 0.3 |
| | Zn | | BAL | BAL |
| | Autres | | 0.2 | 0.2 |
| Tensile strength | | N/mm² | 360 - 550 | 340 – 550 |
| Yield point ($Rp_{0.2}$) | | N/mm² | 150 - 420 | 160 – 450 |
| Elongation at break ($A_5$) | | % | 8 - 20 | 8 – 20 |
| Brinell or Vickers hardness | | HB or HV | 90 - 150 | 90 - 150 |
| Electric conductivity | | % I.A.C.S. | 25 | 22 |
| Thermal conductivity | | W/(m.K) | 117 | 100 |
| Coefficient of thermal expansion | | $10^{-6}$/L | 21 | 20.6 |
| Density | | g/cm³ | 8.5 | 8.5 |
| Elastic modulus | | GPa | 96 | 102 |
| Thermal capacity | | J/Kg.K | 377 | 380 |

# Machining capacities

**Specific capacity limits:**

Turning: Up to Ø90 mm and 600 mm in length
Loading of max. length 3.000 mm bar material

Milling: Up to a thickness of 200 mm (must be approved according to the plan)

Free-cutting: Up to Ø32 mm max.

# Main characteristics

| Property | | Unit | Inconel® 625 | Inconel® 718 |
|---|---|---|---|---|
| Composition | C | Wt. % | ≥ 0.10 | ≥ 0.80 |
| | Mn | | ≥ 0.50 | ≥ 0.35 |
| | Si | | ≥ 0.50 | ≥ 0.35 |
| | P | | ≥ 0.015 | ≥ 0.015 |
| | S | | ≥ 0.015 | ≥ 0.015 |
| | Cr | | 20.00 – 23.00 | 17.00 – 21.00 |
| | Co | | ≥ 1.00 | ≥ 1.00 |
| | Mo | | 8.00 – 10.00 | 2.80 – 3.30 |
| | Fe | | ≥ 5.00 | bal |
| | Al | | ≥ 0.40 | 0.20 – 0.80 |
| | Ti | | ≥ 0.40 | 0.65 – 1.15 |
| | Ni | | ≤ 58.00 | 50.00 – 55.00 |
| | Nb/Cb | | 3.15 – 4.15 | 4.75 – 5.50 |
| | Ta | | ≥ 0.05 | ≥ 0.05 |
| | Cu | | ≥ 0.50 | ≥ 0.30 |
| | B | | - | ≥ 0.006 |
| | Pb | | - | ≥ 0.0005 |
| | Se | | - | ≥ 0.0003 |
| | Bi | | | ≥ 0.00003 |
| ISO symbol | | | NiCr22Mo9Nb | NiCr19Fe19Nb5Mo3 |
| ISO number | | | 2.4856 | 2.4668 |
| Density | | g/cm³ | 8.44 | 8.19 |
| Melting point | | °C | 1.350 | 1.336 |
| Expansion coefficient from 20 to 100 °C | | $10^{-6}$/°C | 12.8 | 13 |
| Shear modulus | | GPa | 79 | 77.2 |
| Elastic modulus | | GPa | 205.8 | 204.9 |