

AVIVA Model 3™

Ruby Red Brass™

Free Machining D.Z.R. "Lead Free" Commercial Brass

(No Bismuth, Silicon, Arsenic or other user unfriendly elements)

Since January 2010, the USA Plumbing Industry has replaced traditional free machining brass C36000 with lead free alternatives. This requirement is backed by legislation enacted in the states of California (California Health & Safety Code, "AB 1953") and Vermont State (Senate Bill S.0152). On January 4, 2014 the Reduction of Lead in Drinking Water Act (RLDWA) went into effect, revising the definition of lead free by lowering the maximum lead content of the wetted surfaces of plumbing products (such as pipes, pipe fittings, plumbing fittings and fixtures) from 8% to a weighted average of not more than 0.25% Pb. This established a statutory method for the calculation of lead content and eliminated the requirement that lead free products be in compliance with voluntary standards established in accordance with SDWA Section 1417(e) for leaching of lead from new plumbing fittings and fixtures. It also supports the industry demand for lead free materials and is compliant with the 3874 Reduction of Lead in Drinking Water Act.

In response to the above initiatives, Aviva Metals® is proud to announce the development of Aviva Model 3, Ruby Red Brass, Free Machining DZR (Dezincification-Resistant) "Lead Free" Commercial Brass which has patents pending for North America and has already received patents in several European and Asian countries. We have been involved with R&D on this Free Machining and "true" DZR Lead Free Brass alternative, and now we have the solution that we believe is far superior to any other lead free brass being offered anywhere in the world!

Aviva Model 3, Ruby Red Brass, Free Machining DZR "Lead Free" Commercial Brass proves to meet manufacturer's expectations in numerous ways inclusive of the fact that it is readily and easily recyclable, (and is the first true green brass) as it will not contaminate leaded brasses. Aviva Model 3, Ruby Red Brass, Free Machining DZR "Lead Free" Commercial Brass has excellent machinability, 90% min (when compared to C360 Brass), and has mechanical properties similar to traditional free cutting brasses. It also has outstanding conductivity 37% IACS min (45% higher than C360 Brass) and does not contain Silicon, Bismuth, or Arsenic. It has excellent cold working abilities, thread rolls very well and can be electroplated like copper. Model 3 Brass can be produced with a very low iron content, which results in a very low magnetic permeability unit of 0.99992 c.g.s. or less.

Aviva Model 3 Ruby Red Brass is now being sold in a complete size range from 1/16" (1.60mm) diameter to 16" (405mm) diameter solid bars, hexes and squares up to 4" (101mm). We can provide Model 3 in wire coils suitable for Swiss machining with close tolerances +/-0.0005" (H8) standard. We also sell hollow bars within the same size ranges (based on our customers specification). Ingots will be available for re-melting for use in sand and permanent mold casting applications.

COMPLIANT WITH

- California "AB 1953"
- NSF 61
- Annex G
- SDWA 1417
- RoHS



Aviva Model 3™ *Ruby Red Brass*™

Free Machining DZR “Lead Free” Commercial Brass

COMPARISON OF MODEL 3 VS C36000 BRASS – MECHANICAL PROPERTIES

| Temper | | Diameter or Distance Between Parallel Surfaces | Tensile Strength, min (MPa) | | Yield Strength at 0.5% Extension Under Load, min (MPa) | | Elongation, min (%) | | Hardness (HRB) | | Machinability | | Conductivity (% IACS) | |
|--------|----------|--|-----------------------------|--------|--|--------|---------------------|--------|----------------|--------|---------------|--------|-----------------------|--------|
| Code | Name | Diameter | Model 3 | C36000 | Model 3 | C36000 | Model 3 | C36000 | Model 3 | C36000 | Model 3 | C36000 | Model 3 | C36000 |
| H02 | 1/2 Hard | 1/2” (12.7 mm and under) | 365 | 395 | 225 | 170 | 14 | 7 | 62-75 | 60-80 | 90% min | 100% | 37% | 26% |
| | | 1/2” - 1” (12.7 mm - 25.4 mm) | 345 | 380 | 215 | 170 | 16 | 10 | 58-75 | 55-75 | 90% min | 100% | 37% | 26% |
| | | 1” - 2” (25.4 mm - 50.2 mm) | 305 | 345 | 200 | 140 | 18 | 15 | 42-75 | 45-70 | 90% min | 100% | 37% | 26% |

All wire sizes in coils will have mechanical properties designed to meet our customers specifications

CHEMICAL COMPOSITION

| | Cu | Zn* | Pb | Te | Sn | Ni | Fe | Impurities |
|-----|------|------|------|------|------|------|------|------------|
| min | 85.5 | - | - | 0.30 | - | - | - | - |
| max | 87.5 | 14.5 | 0.09 | 0.90 | 0.20 | 0.10 | 0.10 | 0.025 |

* Cu-Zn alloys containing more than 15% Zn are susceptible to a de-alloying process called dezincification “D.Z.R.” or white rust, where the selective removal of Zn leaves a relatively porous and weak layer of copper and copper oxide. This is also considered as stress cracking and creates catastrophic failures.

Aviva Model 3 contains less than 15% zinc, and therefore is a true DZR Brass, with guaranteed corrosion resistance.

DISTINCT ADVANTAGES OF AVIVA MODEL 3, *Ruby Red Brass* FREE MACHINING DZR “LEAD FREE” COMMERCIAL BRASS

- 25-40% Higher yield strength than C360 Brass
- Significantly higher elongation over C360 Brass
- 45% Higher electrical conductivity over C360 Brass
- Excellent plating characteristics
- Excellent thread rolling characteristics
- A true DZR Brass with less than 15% Zinc
- Readily recyclable - Will not contaminate Leaded Brasses
- Small sizes of diameter and hex bars available, plus hollow bars and wire sizes
- Extended tool life due to excellent machinability
- No tooling change outs required or resetting of CNC machines - Use the same setting as regular leaded brass
- Wire in coils as small as 0.062” (1.6mm) diameter +/-0.0005” tolerances

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