

VDM Metals

A company of ACERINOX

VDM[®] Aeterna[®] 3831

CuZn37Mn3Al2Si

Data sheet Aeterna[®] 3831

February 2024

VDM® Aeterna® 3831

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VDM® Aeterna® 3831 is a lead-free brass alloy of CW713R EN Material Nomenclature Group. VDM® Aeterna® alloys are generally used on sliding applications. Because of these good sliding properties, the alloy is increasingly applied in the area of axial piston pumps.

VDM® Aeterna® 3831 alloy is characterized by the following features:

- good sliding properties
- high strength and high hardness
- high wear resistance
- good resistance to aggressive media / oils
- very good machinability

Nomenclature

| Standardization | General Material Designation |
|------------------|------------------------------|
| D | VDM® Aeterna® 3831 |
| EN Material-Nr.: | CW713R lead-free |
| Description | CuZn37Mn3Al2Si |

Table 1 - Nomenclature

Chemical Composition

| | Cu | Zn | Pb | Fe | Mn | Ni | Al | Si | Sn | Other |
|------|------|------|-------|-----|-----|-----|-----|-----|-----|-------|
| Min. | 57,0 | Rem. | - | - | 1,3 | - | 1,3 | 0,3 | - | - |
| Max. | 59,0 | Rem. | < 0,1 | 0,8 | 3,0 | 1,1 | 2,0 | 1,5 | 0,5 | 0,3 |

Table 2 - Chemical composition, (wt. %)

Physical Properties

| Density | Melting range |
|-----------------------|---------------|
| 8,1 g/cm ³ | 880 - 890° C |

| Temperature | Heat conductivity | Electrical conductivity | Young's modulus | Coefficient of thermal expansion |
|-------------|-----------------------|-------------------------|-------------------|----------------------------------|
| °C | $\frac{W}{m \cdot K}$ | $\frac{MS}{m}$ | $\frac{kN}{mm^2}$ | $\frac{10^{-6}}{K}$ |
| 20 | 76 | 10 | 100 | 19,5 |

Table 3 - Typical physical properties of VDM® Aeterna® 3831 alloy

Mechanical Properties

| Condition | Dimension | Yield strength | Tensile strength | Elongation | Brinell-Hardness |
|-----------|-------------|-----------------------------|-------------------------|-----------------------|------------------|
| | [mm] | R _{p 0,2} [MPa] | R _m [MPa] | A ₅ [%] | HB 2,5/62,5 |
| R540 | Ø 15 - Ø 70 | 230 - 270 | 540 - 580 | 12 - 20 | 140 - 190 |

Table 4 - Typical mechanical properties of VDM® Aeterna® 3831 alloy

Applications

Typical areas of application of lead-free VDM® Aeterna® 3831 alloy are:

- Sliding application in general
 - Sliding bearings
 - Synchronizer rings
- Axial piston pumps:
 - Distribution plates
 - Bearing bushes
 - Holding segments

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Disclaimer

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