

VDM Metals

A company of ACERINOX

VDM[®] Aeterna[®] 3806

CuZn38Mn2NiSi

Data sheet VDM[®] Aeterna[®] 3806

February 2024

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VDM® Aeterna® 3806 is a special lead-free brass alloy, based on the well-known and proven alloy of VDM® Aeterna® HLS 3805. This lead-free alloy is suitable for sliding and high cavitation applications.

This lead-free alloy is characterized by:

- very good running and sliding properties
- high resistance to cavitation
- high wear resistance
- high fatigue strength
- high load capacity
- good machinability

Nomenclature

| Standardization | General Material Designation |
|------------------|------------------------------|
| D | VDM® Aeterna® 3806 |
| EN Material-Nr.: | Special lead-free alloy |
| Description | CuZn38Mn2NiSi |

Table 1 - Nomenclature

Chemical Composition

| | | Cu | Zn | Pb | Fe | Mn | Ni | Al | Si | Sn | Other |
|-----------------|------|------|------|-------|-----|-----|-----|-----|-----|-----|-------|
| Mass percentage | Min. | 55,5 | Rest | - | - | 1,8 | 1,5 | - | 0,5 | - | |
| | Max. | 58,5 | Rest | < 0,1 | 0,3 | 2,8 | 2,6 | 0,2 | 1,8 | 0,5 | 0,5 |

Table 2 - Chemical composition (wt.%)

Physikalische Eigenschaften

| Density | Melting range |
|-----------------------|---------------|
| 8,3 g/cm ³ | 850 - 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 | 80 | 13 | 117 | 19,5 |

Table 3 - Typical physical properties of VDM® Aeterna® 3806 alloy

Mechanical Properties

| Condition | Dimension | Yield stress | Tensile strength | Elongation | Brinell-Hardness |
|-----------|-----------|-----------------------------|-------------------------|-----------------------|------------------|
| | [mm] | R _{p 0,2} [MPa] | R _m [MPa] | A ₅ [%] | HB 2,5/62,5 |
| pressed | < Ø 60 | 300 - 370 | 450 - 530 | 10 - 20 | 125 - 155 |

Table 4 - Typical mechanical properties of VDM® Aeterna® 3806 alloy

Applications

Typical areas of application for VDM® Aeterna® 3806 are:

- Sliding applications
 - Bearings
 - Sliding shoes
- Axial piston pumps:
 - Distribution plates
 - Bearing bushes
 - Holding segments

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Disclaimer

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