



Magnesium Elektron

SERVICE & INNOVATION IN MAGNESIUM

Elektron ZA

Datasheet : 462

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Elektron ZA

ELEKTRON ZA is the Magnesium Zirconium alloy with the highest vibration damping index.

APPLICATIONS

Vibration tables, machine bases, casings for missile guidance systems and recording equipment.

CHEMICAL COMPOSITION

| | |
|-----------|----------|
| Zirconium | 0.3–0.8% |
| Magnesium | Balance |

TYPICAL MECHANICAL PROPERTIES

| | |
|---------------------------|---------|
| 0.2% Proof stress | 48 MPa |
| Ultimate tensile strength | 170 MPa |
| Shear stress | 55 MPa |
| Elongation | 19% |
| Shear value | 55 MPa |

MINIMUM SPECIFICATION TENSILE PROPERTIES

U.S.A. Specification MIL-M-45207

| | |
|---------------------------|---------|
| 0.2% Proof stress | 41 MPa |
| Ultimate tensile strength | 165 MPa |
| Elongation | 14% |

PHYSICAL PROPERTIES

| | |
|----------------------------------|--------------------------------------|
| Specific gravity | 1.75 |
| Coefficient of thermal expansion | $26.8 \times 10^{-6} \text{K}^{-1}$ |
| Thermal conductivity | $120 \text{ Wm}^{-1}\text{K}^{-1}$ |
| Specific heat | $1040 \text{ Jkg}^{-1}\text{K}^{-1}$ |
| Electrical resistivity | 57 nΩm |
| Modulus of elasticity | $44.1 \times 10^3 \text{ MPa}$ |
| Pattern maker's shrinkage | 1.6% |
| Melting range | 649–650°C |

DAMPING INDEX

The specific damping capacity is measured at a stress of 0.1 times 0.2% proof stress.

| | |
|----------------|------|
| ELEKTRON ZA | 60.0 |
| ELEKTRON ZRE1 | 4.5 |
| ELEKTRON RZ5 | 1.0 |
| ELEKTRON MSR-B | 0.4 |
| ELEKTRON AZ92 | 0.27 |
| ELEKTRON EQ21 | 0.22 |
| ELEKTRON ZC63 | 0.21 |
| ELEKTRON AZ91 | 0.2 |
| ELEKTRON WE54 | 0.17 |
| ELEKTRON WE43 | 0.09 |

| | |
|-------------------------|-------------|
| Manganese Copper Alloys | 20–40 |
| Grey Cast Iron | 10.0 |
| Free Cutting Brass | 0.6 |
| Aluminium Alloy 1100 | 0.3 |
| Aluminium Alloy 2011 | 0.25 |
| Most aluminium Alloys | 0.2 or less |

EQUIVALENT SPECIFICATION

| | | |
|----------|-----|-------------------------------|
| British | ZA | |
| American | KIA | ASTM B80, B403 MIL-M-45207 |



Certificate No. FM12677