



# **Aluminium Titanate ALUTIT**

**Advanced Ceramics for the Non-ferrous Molten Metal Industry**

# ALUTIT

## Aluminium Titanate Components in Non-ferrous Molten Metals



### Aluminium Titanate (Al<sub>2</sub>TiO<sub>5</sub>)

This material distinguishes itself by a unique combination of thermal and physical properties. High-purity aluminium oxide and titanium oxide are combined into a micro-porous material via a precision-controlled reaction sintering process. A structure characterized by a microfine system of fissures gives ALUTIT its unique performances characteristics. The extremely good thermal shock resistance is a result of the very low thermal expansion and a certain amount of porosity in the microstructure. This ceramic material's poor wettability with molten metals also makes it ideal for use in foundry and metallurgical melting, especially in aluminium casting.



Suction Tube/Dosage Tubes

#### PROPERTIES

- Outstanding thermal shock resistance: temperature differences up to 900°C
- Anti-wetting properties
- Low thermal conductivity
- Very good chemical resistance/good corrosion resistance
- Low thermal expansion

#### ADVANTAGES

- Direct exposure to the molten metal feasible – even without any preheating!
- Simplified cleaning
- Energy efficiency of casting process
- Reduced melt temperature gradients
- Provides valuable solidification
- Increasing component service
- Better efficiency of casting plants
- No decomposition of the melt by degraded products of ceramic
- Low mechanical stress

## Products and Applications

ALUTIT can find its applications in metallurgy in various forms:

- Riser Tubes for LPDC (low pressure die casting)
- Breakrings for continuous casting of brass
- Nozzles/Bushes as casting mold inserts or mold joints
- Suction Tubes for vacural casting
- Dosage Tubes for dosing furnaces
- Plates, Stoppers and Closing Systems for flow control of molten masses

Furthermore, CeramTec also produces special components according to customer requirements made of Aluminium Titanate Ceramic:

- Spacers
- Crucibles
- Foundry Molds
- Spouts
- Rotors and Rotor Shafts
- Protection Tubes
- Special Components

## Shapes and Special Requirements

- Wide tolerance range  
(from fine to course tolerances)
- Sophisticated three-dimensional shapes

Depending on the version with/without:

- coating (e.g. boron nitride)
- with groove
- with drilling(s)
- with flange
- cranked or others



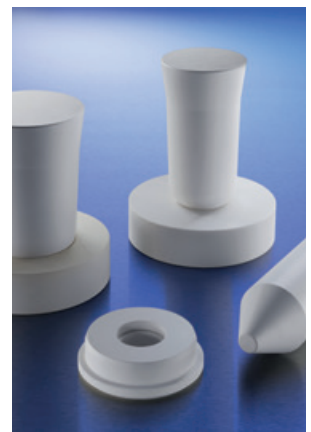
Riser Tubes



Breakrings



Nozzles/Bushes



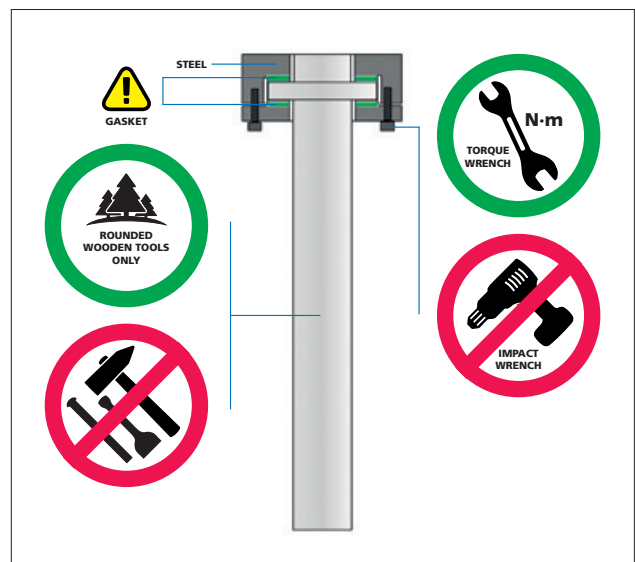
Stoppers/Plates

## Handling Instructions

When using our material it must be considered that ALUTIT is a ceramic, and therefore brittle material.

Thus, be aware when handling:

- Avoidance of any mechanical impact loads during assembly and cleaning operations
- Consideration of different thermal expansions during installation in metallic devices
- Use of round, wooden tools for cleaning (no metallic hammers, no chisels)
- Use of fibrous gasket to avoid stress levels that may result in component failure
- Removal of adherent aluminum or dross from the component immediately after takeout from the melt





All herein aforementioned measured values were determined for test samples and are applicable as standard values. The values were determined on the basis of national or international standards and if these were not available, on the basis of CeramTec internal specifications standards. Statements regarding the suitability of products for certain types of applications are based on knowledge of typical requirements that are often placed on CeramTec products in generic applications and must not be transferred to specific applications. The same applies to the indicated values. The information contained herein does not constitute a guarantee for certain properties. CeramTec and its affiliates do not assume any responsibility for the correctness of such information nor for damages consequent to its use. Please note that all product, product specifications and data detailed in this media are subject to changes.

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