



RAFFMETAL

THE ALUMINIUM EVOLUTION



Leghe di alluminio in colata continua. Continuous casting aluminium alloys

Standard: **UNI EN 1676 and 1706**

Alloy group: **Al Zn Mg**

Alloy designation: **EN AB and AC 71000 - Al Zn 5 Mg**

Replaces:

CHEMICAL COMPOSITION %

| ALLOY | | ELEMENTS | | | | | | | | | | | | |
|-------------|-----|----------|-----|------|-----|------|------|------|-----|------|------|------|-----------------------|-------------------|
| | | Si | Fe | Cu | Mn | Mg | Cr | Ni | Zn | Pb | Sn | Ti | Individual impurities | Global impurities |
| EN AB 71000 | min | | | 0,15 | | 0,45 | 0,15 | | 4,5 | | | 0,12 | | |
| | max | 0,25 | 0,7 | 0,35 | 0,4 | 0,7 | 0,6 | 0,05 | 6 | 0,05 | 0,05 | 0,2 | 0,05 | 0,15 |
| No Name | min | | | | | | | | | | | | | |
| | max | | | | | | | | | | | | | |

MECHANICAL FEATURES DETECTED FROM SEPARATE CASTING TEST SPECIMENS

| Casting process | Temper designations | Rm Tensile strenght | | Sp 0,2 Yield strenght | | A Elongation | | HB Brinell hardness | |
|-----------------------------|---------------------|------------------------|-----------|--------------------------|-----------|-----------------|--------|------------------------|---------|
| | | EN 1706 | N/mm2 | EN 1706 | N/mm2 | EN 1706 | | EN 1706 | |
| | | Mpa | | Mpa | | % | % | HBW | HB |
| SAND (as cast) Annealed | T1 | 190 | 200 - 240 | 120 | 130 - 160 | 4 | 5 - 7 | 60 | 70 - 80 |
| | | | | | | | | | |
| SHELL (as cast) Annealed | T1 | 210 | 220 - 280 | 130 | 140 - 180 | 4 | 6 - 12 | 65 | 70 - 80 |
| | | | | | | | | | |
| PRESSURE DIE (as cast) | | - | - | - | - | - | - | - | - |

PHYSICAL PROPERTIES (indicative values subject to the UNI EN Standards)

| | | | |
|-----------------------------------|-------------------------|--|-------------------|
| DENSITY | 2.81 Kg/dm ³ | THERMAL CONDUCTIVITY at 20°C | 130 - 140 W/(m K) |
| MELTING RANGE or MELTING POINT | 570 °C 620 °C | LINEAR THERMAL EXPANSION from 20 t 100°C | - |
| SPECIFIC HEAT (at 100)° | 0.93 J/Gk | LINEAR THERMAL EXPANSION from 20 t 200°C | 23.0-10-6°C |
| LINEAR SHRINKAGE IN SAND | 0,013 | LINEAR THERMAL EXPANSION from 20 t 300°C | - |
| LINEAR SHRINKAGE IN SHELL PROCES | 0,013 | SUGGESTED MAXIMUM TEMPERATURE | 780 °C |
| LINEAR SHRINKAGE IN HIGH PRESSURE | | SUGGESTED CASTING TEMPERATURE | |
| ELECTRIC CONDUCTIVITY | 19 - 21 MS/m | °in sand | 620 - 650 °C |
| MODULUS OF ELASTICITY | 7200 Kg/mm ² | °in shell | 620 - 650 °C |
| | | °in pressure die | - |

TECHNOLOGICAL FEATURES, QUALITATIVE INDICATIONS

| | | | |
|---|------------|---------------------------|--------|
| STRENGTH AT ELEVATED TEMPERATURE (to 200°C) | LOW | RESISTANCE TO HOT TEARING | MEDIUM |
| GENERAL RESISTANCE TO CORROSION | GOOD | PRESSURE TIGHTNESS | MEDIUM |
| MACHINABILITY | EXCELLENT | WELDABILITY | LOW |
| CASTABILITY | SUFFICIENT | DECORATIVE ANODISING | GOOD |
| POLISHING | GOOD | PROTECTIVE ANODISING | |

AZIENDA CON SISTEMA DI GESTIONE PER LA QUALITÀ CERTIFICATO DA DNV
= **UNI EN ISO 9001:2008** =

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AZIENDA CON SISTEMA DI GESTIONE AMBIENTALE CERTIFICATO DA DNV
= **UNI EN ISO 14001:2004** =



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GENERALITIES REGARDING USE

The ingot recasting process must be carried out as quickly as possible and overheating must be avoided (maximum melting temperature 780°C).

The iron tools that can come into contact with the liquid metal must be appropriately painted to prevent contamination of the alloy.

The best results for refining the alloy are reached by treatments with inert gases such as nitrogen and/or argon with the intent of removing the hydrogen dissolved and the oxides present in the bath of molten metal. Better distribution of the gas in the molten metal is obtained by the use of relevant rotors. Pay particular attention that all transfer operations of the molten metal are performed with less turbulence possible. It is recommended to leave the molten metal at rest for a few minutes before starting casting. Careful skimming operations of the bath are recommended.

The re-cycling of risers and casting appendixes is allowed but within the limits of 40% of the total weight of the load.

SPECIFICITY REGARDING USE

Considering the relative level of purity of the alloy's chemical composition (reduced content of Silicone) it is important to evaluate the level of cleanliness of the melting furnaces and the attention of the re-cycling of the risers in order to prevent induced pollution that could jeopardise the technical properties of the alloy.

TYPICAL USE

Self-hardening alloy indicated for decorative anodic oxidation and constructions with welded joints. Components for general mechanical constructions, handles, textile machines, etc.

Alloy **not in compliance with the EN 601** foodstuff Standard

COMPARISON WITH EQUIVALENT OR SIMILAR FOREIGN STANDARDS

| | ITALY | GERMANY | FRANCE | G.B.R. | USA | ISO | JAPAN | TURKEY |
|------------|----------|----------------|-------------|-------------|----------------|-----------|----------------|---------|
| | UNI | (Din1725/5-86) | (NFA57-105) | (BS1490-88) | (ASTM B179-82) | (3522-84) | (JIS H2211-92) | (ETIAL) |
| Equivalent | | | A Z 5 G | LM 31 | | - | - | |
| Similar | UNI 3602 | | | | AA 712.2 | | | |

HEAT TREATMENTS

Natural aging that will take place in 20 days at environment temperature.

Limitation of liability

The contents of these technical sheets gave an informative purpose and do not constitute a warranty regarding the properties stated. The decisions based on this information are taken under the responsibility and risk of the user and do not exclude it from the verification. If the former are not carried out, we do not assume any liability.

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