# S.A.V. S.p.A Società Alluminio Veneto

*Aluminium alloys ingots for remelting*

## ALLOY DATA SHEET

| ALLOY GROUP[1] | NUMERICAL DESIGNATION[1] | CHEMICAL DESIGNATION[1] | S.A.V. ALLOY CODE |
|---|---|---|---|
| AlSi | EN AB - 44500 | EN AB-Al Si12(Fe)(b) | 01012562 |

[1]EN 1676:2020 Aluminium and aluminium alloys – Alloyed ingots for remelting – Specifications

## INGOTS CHEMICAL COMPOSITION

| Alloy | % wt | Si | Fe | Cu | Mn | Mg | Cr | Ni | Zn | Pb | Sn | Ti | Other Each | Other Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| EN AB - 44500[1] | Min. | 10,5 | 0,45 | - | - | - | - | - | - | - | - | - | - | - |
| | Max | 13,5 | 0,90 | 0,18 | 0,55 | 0,40 | - | - | 0,30 | - | - | 0,15 | 0,05 | 0,25 |

[1]EN 1676:2020 Aluminium and aluminium alloys – Alloyed ingots for remelting – Specifications

## CASTINGS CHEMICAL COMPOSITION

| Alloy | % wt | Si | Fe | Cu | Mn | Mg | Cr | Ni | Zn | Pb | Sn | Ti | Other Each | Other Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| EN AC - 44500[2] | Min. | 10,5 | - | - | - | - | - | - | - | - | - | - | - | - |
| | Max | 13,5 | 1,0 | 0,20 | 0,55 | 0,40 | - | - | 0,30 | - | - | 0,15 | 0,05 | 0,25 |

[2]EN 1706:2020 Aluminium and aluminium alloys – Castings – Chemical composition and mechanical properties

## MECHANICAL PROPERTIES[2]

Minimum mechanical properties for separately cast sample

| Casting method | Temper designation | Tensile strength $R_m$ [MPa] min. | Yield strength $R_{p0,2}$ [MPa] min | Elongation A [%] min | Brinnell hardness HBW min |
|---|---|---|---|---|---|
| Sand Casting | - | - | - | - | - |
| Chill Casting | - | - | - | - | - |
| Low Pressure die Casting | - | - | - | - | - |
| Investment Casting | - | - | - | - | - |
| Pressure die Casting | F | 240 | 140 | 1 | 60 |
| Potential mechanical properties of test specimens from castings[3] | - | - | - | - | - |

[2]EN 1706:2020 Aluminium and aluminium alloys – Castings – Chemical composition and mechanical properties

[3]It cannot be assumed that the given values can be reached throughout the casting since mechanical properties strongly depend on the solidification rate, the heat treatment and the soundness of the casting. Therefore, the values and the position of the area where those values can be achieved shall be agreed between supplier and customer.

## PHYSICAL PROPERTIES[2]

| | | | | | |
|---|---|---|---|---|---|
| CASTING METHOD | SAND CASTING | – | OTHER PROPERTIES | MACHINABILITY IN THE AS CAST STATE | C |
| | PERMANENT MOULD CASTING | – | | MACHINABILITY AFTER HEAT TREATMENT | - |
| | PRESSURE DIE CASTING | ✔ | | RESISTANCE TO CORROSION | B/C |
| | INVESTMENT CASTING | – | | DECORATIVE ANODIZING | E |
| CASTABILITY | FLUIDITY | A | | ABILITY TO BE WELDED | D |
| | RESISTANCE TO HOT TEARING | A | | ABILITY TO BE POLISHED | D |
| | PRESSURE TIGHTNESS | C | | LINEAR THERMAL EXPANSION [$10^{-6}$/K] (293 K-373 K) | 20,00 |
| MECHANICAL PROPERTIES | STRENGTH AT ROOM TEMPERATURE | B | | ELECTRICAL CONDUCTIVITY [MS/m] | 16 - 22 |
| | STRENGTH AT HIGH TEMPERATURE 200 °C | C | | THERMAL CONDUCTIVITY [W/(m K)] | 130 - 160 |
| | DUCTILITY (SHOCK RESISTANCE) | C | | | |
| | FATIGUE RESISTANCE [MPA] | 60 - 90 | | | |

| ✔ Indicates the most commonly casting process used for each alloys | A: Optimal | B: good | C: Fair | D: Poor | E: Not Recommended | F: Unsuitable |
|---|---|---|---|---|---|---|

[2]EN 1706:2020 Aluminium and aluminium alloys – Castings – Chemical composition and mechanical properties



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| HEAT TREATMENT DESIGNATION[2] | |
|---|---|
| **ABBREVIATION** | **HEAT TREATMENT** |
| **F** | AS CAST |
| **O** | ANNEALED |
| **T1** | CONTROLLED COOLING FROM CASTING AND NATURALLY AGED |
| **T4** | SOLUTION HEAT TREATED AND NATURALLY AGED WHERE APPLICABLE |
| **T5** | CONTROLLED COOLING FROM CASTING AND ARTIFICIALLY AGED OR OVER-AGED |
| **T6** | SOLUTION HEAT TREATED AND ARTIFICIALLY AGED |
| **T64** | SOLUTION HEAT TREATED AND ARTIFICIALLY UNDER-AGED |
| **T7** | SOLUTION HEAT TREATED AND ARTIFICIALLY OVER-AGED (STABILIZED) |

*[2]EN 1706:2020 Aluminium and aluminium alloys – Castings – Chemical composition and mechanical properties*

## CORRELATION WITH OTHER STANDARDS

**EN AB - 44500 / EN AC - 44500**

| NATION | U.S.A. | JAPAN | INTERNATIONAL | ITALY | FRANCE | GERMANY | GREAT BRITAIN |
|---|---|---|---|---|---|---|---|
| **STANDARD** | **B179** | **H2211** | **17615** | **UNI** | **NF A57-702** | **1725** | **BS 1490** |
| **STATUS** | **ACTIVE** | **ACTIVE** | **ACTIVE** | **SUPERSEDED** | **SUPERSEDED** | **SUPERSEDED** | **SUPERSEDED** |
| IDENTICAL STANDARD INGOT SPECIFICATION | - | - | Al Si12(Fe) | - | - | - | - |
| SIMILAR STANDARD INGOT SPECIFICATION | 413.2<br>A413.2 | AC3A | - | 4514 | A-S13 | GB – AlSi12 (230A)<br>GDB – AlSi12 (230) | LM 6 Al-Si12<br>LM 20 Al-Si12 |



The physical and mechanical properties shown in this data sheet have a mere informative purpose since they are detected on sample cast separately in specific cooling conditions. No liability is accepted for decisions based on the indicated physical and mechanical properties and no guarantee is given for the physical and mechanical properties indicated, as they depend on the specific conditions of casting of the cast pieces.



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