



ALLOY DATA SHEET

| ALLOY GROUP ¹ | NUMERICAL DESIGNATION ¹ | CHEMICAL DESIGNATION ¹ | S.A.V. ALLOY CODE |
|--------------------------|------------------------------------|-----------------------------------|-------------------|
| AISI | EN AB - 44000 | EN AB-AI Si11 | 01011195 |

¹EN 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 - 44000 ¹ | Min. | 10,0 | - | - | - | - | - | - | - | - | - | - | - | - |
| | Max | 11,8 | 0,15 | 0,03 | 0,10 | 0,45 | - | - | 0,07 | - | - | 0,15 | 0,03 | 0,10 |

¹EN 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 - 44000 ² | Min. | 10,0 | - | - | - | - | - | - | - | - | - | - | - | - |
| | Max | 11,8 | 0,19 | 0,05 | 0,10 | 0,45 | - | - | 0,07 | - | - | 0,15 | 0,03 | 0,10 |

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

MECHANICAL PROPERTIES²

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 | F | 150 | 70 | 6 | 45 |
| Chill Casting | F | 170 | 80 | 7 | 45 |
| Low Pressure die Casting | F | 170 | 80 | 7 | 45 |
| Investment Casting | - | - | - | - | - |
| Pressure die Casting | - | - | - | - | - |
| Potential mechanical properties of test specimens from casting ³ | -. ⁴ | 150 ⁵ | 85 ⁵ | 14 ⁵ | 55 ⁵ |
| | -. ⁴ | 280 ⁶ | 250 ⁶ | 5 ⁶ | 100 ⁶ |

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

³It 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.

⁴ The heat treatment has to be defined according to the type of casting produced.

⁵con Mg<0,05%

⁶con Mg>0,05%

PHYSICAL PROPERTIES²

| CASTING METHOD | SAND CASTING | | OTHER PROPERTIES | MACHINABILITY IN THE AS CAST STATE | |
|-----------------------|-------------------------------------|-------------------------|--|------------------------------------|---|
| | PERMANENT MOULD CASTING | ✓ | | MACHINABILITY AFTER HEAT TREATMENT | C |
| PRESSURE DIE CASTING | - | RESISTANCE TO CORROSION | B | | |
| INVESTMENT CASTING | - | DECORATIVE ANODIZING | E | | |
| CASTABILITY | FLUIDITY | A | ABILITY TO BE WELDED | A | |
| | RESISTANCE TO HOT TEARING | A | ABILITY TO BE POLISHED | D | |
| | PRESSURE TIGHTNESS | A | LINEAR THERMAL EXPANSION [10 ⁻⁶ /K] (293 K-373 K) | 21,00 | |
| MECHANICAL PROPERTIES | STRENGTH AT ROOM TEMPERATURE | D | ELECTRICAL CONDUCTIVITY [MS/m] | 18 - 24 | |
| | STRENGTH AT HIGH TEMPERATURE 200 °C | C | THERMAL CONDUCTIVITY [W/(m K)] | 140 - 170 | |
| | DUCTILITY (SHOCK RESISTANCE) | A | | | |
| | 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 |
|------------|---------|---------|---------|--------------------|---------------|

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



HEAT TREATMENT DESIGNATION²

| 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) |

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

CORRELATION WITH OTHER STANDARDS

EN AB - 44000 / EN AC - 44000

| 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 Si11 | - | - | - |
| SIMILAR STANDARD | INGOT SPECIFICATION | - | AC3A | - | - | A-S12U | GB-AISi11 LM6 Al-Si12 |

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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.