



ALLOY DATA SHEET

ALLOY GROUP ¹	NUMERICAL DESIGNATION ¹	CHEMICAL DESIGNATION ¹	S.A.V. ALLOY CODE
AISi7Mg	EN AB - 42000	EN AB-AI Si7Mg	01012187

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 - 42000 ¹	Min.	6,5	-	-	-	0,25	-	-	-	-	-	-	-	-
	Max	7,5	0,45	0,15	0,35	0,65	-	0,15	0,15	0,15	0,05	0,2	0,05	0,15

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

* The Alloy produced by S.A.V. S.p.A. has a lead content less than 0,1%.

CASTINGS CHEMICAL COMPOSITION

Alloy	% wt	Si	Fe	Cu	Mn	Mg	Cr	Ni	Zn	Pb*	Sn	Ti	Other Each	Other Total
EN AC - 42000 ²	Min.	6,5	-	-	-	0,2	-	-	-	-	-	-	-	-
	Max	7,50	0,55	0,2	0,35	0,65	-	0,15	0,15	0,15	0,05	0,25	0,05	0,15

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

* The Alloy produced by S.A.V. S.p.A. has a lead content less than 0,1%.

MECHANICAL PROPERTIES²

Minimum mechanical properties for separately cast sample

Casting method	Temper designation	Tensile strength <i>R_m [MPa] min.</i>	Yield strength <i>R_{p0,2} [MPa] min</i>	Elongation <i>A [%] min</i>	Brinnell hardness <i>HBW min</i>
Sand Casting	F	140	80	2	50
	T6	220	180	1	75
Chill Casting	F	170	90	2,5	55
	T6	260	220	1	90
	T64	240	200	2	80
Low Pressure die Casting	F	170	90	2,5	55
	T6	260	220	1	90
	T64	240	200	2	80
Investment Casting	F	150	80	2	50
	T6	240	190	1	75
Pressure die Casting	-	-	-	-	-

Potential mechanical properties of test specimens from castings³

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.

PHYSICAL PROPERTIES²

CASTING METHOD	SAND CASTING		OTHER PROPERTIES	MACHINABILITY IN THE AS CAST STATE	
		✓			
CASTABILITY	PERMANENT MOULD CASTING			MACHINABILITY AFTER HEAT TREATMENT	
		✓			B
	PRESSURE DIE CASTING			RESISTANCE TO CORROSION	
		-			B/C
MECHANICAL PROPERTIES	INVESTMENT CASTING			DECORATIVE ANODIZING	
		✓			D
	FLUIDITY			ABILITY TO BE WELDED	
		B			B
	RESISTANCE TO HOT TEARING			ABILITY TO BE POLISHED	
		A			C
	PRESSURE TIGHTNESS			LINEAR THERMAL EXPANSION [10 ⁻⁶ /K] (293 K-373 K)	
		B			22,00
	STRENGTH AT ROOM TEMPERATURE		ELECTRICAL CONDUCTIVITY [MS/m]		
		B		19 - 25	
	STRENGTH AT HIGH TEMPERATURE 200 °C		THERMAL CONDUCTIVITY [W/(m K)]		
		C		150 - 170	
DUCTILITY (SHOCK RESISTANCE)					
	C				
FATIGUE RESISTANCE [MPa]		80 - 110			

✓ Indicates the most commonly casting process used for each alloys

A: Optimal	B: good	C: Fair	D: Poor	E: Not Recommended	F: Unsuitable
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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 - 42000 / EN AC - 42000

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			Al Si7Mg				
INGOT SPECIFICATION							
SIMILAR STANDARD	356.1	AC4C.1 AC4C.2	-	UNI – 8024 UNI – 3599	A-S7G A-S7G03 A-S7G06	Al Si7Mg	LM25

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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.