



**ALLOY DATA SHEET**

ALLOY GROUP <sup>1</sup>	NUMERICAL DESIGNATION <sup>1</sup>	CHEMICAL DESIGNATION <sup>1</sup>	S.A.V. ALLOY CODE
<b>AISI9Cu</b>	<b>EN AB - 46400</b>	<b>EN AB-AI Si9Cu1Mg</b>	<b>01013251</b>

<sup>1</sup>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 - 46400 <sup>1</sup>	Min.	8,3	-	0,8	0,15	0,30	-	-	-	-	-	-	-	-
	Max	9,7	0,7	1,3	0,55	0,65	-	0,20	0,8	0,10	0,10	0,18	0,05	0,25

<sup>1</sup>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 - 46400 <sup>2</sup>	Min.	8,3	-	0,8	0,15	0,25	-	-	-	-	-	-	-	-
	Max	9,7	0,8	1,3	0,55	0,65	-	0,20	0,8	0,10	0,10	0,20	0,05	0,25

<sup>2</sup>EN 1706:2020 Aluminium and aluminium alloys – Castings – Chemical composition and mechanical properties

**MECHANICAL PROPERTIES<sup>2</sup>**

Minimum mechanical properties for separately cast sample

Casting method	Temper designation	Tensile strength <i>R<sub>m</sub></i> [MPa] min.	Yield strength <i>R<sub>p0,2</sub></i> [MPa] min	Elongation <i>A</i> [%] min	Brinnell hardness <i>HBW</i> min
Sand Casting	F	135	90	1	60
Chill Casting	F	170	100	1	75
	T6	275	235	1,5	105
Low Pressure die Casting	F	170	100	1	75
	T6	275	235	1,5	105
Investment Casting	-	-	-	-	-
Pressure die Casting	-	-	-	-	-
Potential mechanical properties of test specimens from castings <sup>3</sup>	.4	230	220	2	90

<sup>2</sup>EN 1706:2020 Aluminium and aluminium alloys – Castings – Chemical composition and mechanical properties

<sup>3</sup>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.

<sup>4</sup> The heat treatment has to be defined according to the type of casting produced.

**PHYSICAL PROPERTIES<sup>2</sup>**

CASTING METHOD	SAND CASTING		OTHER PROPERTIES	MACHINABILITY IN THE AS CAST STATE	
				✓	
CASTABILITY	PERMANENT MOULD CASTING		✓	MACHINABILITY AFTER HEAT TREATMENT	
	PRESSURE DIE CASTING		-	RESISTANCE TO CORROSION	
	INVESTMENT CASTING		-	DECORATIVE ANODIZING	
	FLUIDITY		B	ABILITY TO BE WELDED	
MECHANICAL PROPERTIES	RESISTANCE TO HOT TEARING		B	ABILITY TO BE POLISHED	
	PRESSURE TIGHTNESS		B	LINEAR THERMAL EXPANSION [10 <sup>-6</sup> /K] (293 K-373 K)	
	STRENGTH AT ROOM TEMPERATURE		A	ELECTRICAL CONDUCTIVITY [MS/m]	
	STRENGTH AT HIGH TEMPERATURE 200 °C		B	THERMAL CONDUCTIVITY [W/(m K)]	
	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
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<sup>2</sup>EN 1706:2020 Aluminium and aluminium alloys – Castings – Chemical composition and mechanical properties



**HEAT TREATMENT DESIGNATION<sup>2</sup>**

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)

<sup>2</sup>EN 1706:2020 Aluminium and aluminium alloys – Castings – Chemical composition and mechanical properties

**CORRELATION WITH OTHER STANDARDS**

EN AB - 46400 / EN AC - 46400

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 Si9Cu1Mg				
INGOT SPECIFICATION	-	-		-	-	-	-
SIMILAR STANDARD	328.1	-	-	7369-3	-	-	-
INGOT SPECIFICATION							

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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.