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
AlSi5Cu	EN AB-45300	EN AB-Al Si5Cu1Mg	01012203

[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-45300[1]	Min.	4,5	-	1,0	-	0,40	-	-	-	-	-	-	-	-
	Max	5,5	0,55	1,5	0,55	0,65	-	0,25	0,15	0,15	0,05	0,20	0,05	0,15

[1]EN 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-45300[2]	Min.	4,5	-	1,0	-	0,35	-	-	-	-	-	-	-	-
	Max	5,5	0,65	1,5	0,55	0,65	-	0,25	0,15	0,15	0,05	0,25	0,05	0,15

[2]EN 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 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	T4	170	120	2	80
	T6	230	200	<1	100
Chill Casting	T4	230	140	3	85
	T6	280	210	<1	110
Low Pressure die Casting	T4	230	140	3	85
	T6	280	210	<1	110
Investment Casting	-	-	-	-	-
Pressure die Casting	-	-	-	-	-
Potential mechanical properties of test specimens from castings[3]	-[4]	280	210	1	110

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

PHYSICAL PROPERTIES[2]

CASTING METHOD	SAND CASTING	✔	OTHER PROPERTIES	MACHINABILITY IN THE AS CAST STATE	B
	PERMANENT MOULD CASTING	✔		MACHINABILITY AFTER HEAT TREATMENT	B
	PRESSURE DIE CASTING	–		RESISTANCE TO CORROSION	D
	INVESTMENT CASTING	–		DECORATIVE ANODIZING	D
CASTABILITY	FLUIDITY	C		ABILITY TO BE WELDED	-
	RESISTANCE TO HOT TEARING	B		ABILITY TO BE POLISHED	B
	PRESSURE TIGHTNESS	C		LINEAR THERMAL EXPANSION *[10^{-6}/K] (293 K-373 K)*	22
MECHANICAL PROPERTIES	STRENGTH AT ROOM TEMPERATURE	B		ELECTRICAL CONDUCTIVITY *[MS/m]*	19 - 23
	STRENGTH AT HIGH TEMPERATURE 200 °C	B		THERMAL CONDUCTIVITY *[W/(m K)]*	140 - 150
	DUCTILITY (SHOCK RESISTANCE)	B			
	FATIGUE RESISTANCE *[MPA]*	70 - 100			

✔ 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-45300 / EN AC-45300

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 Si5Cu1Mg	-	-	-	-
SIMILAR STANDARD INGOT SPECIFICATION	355.1	AC4D.1 AC4D.2	-	3600	-	-	LM16

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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