



RAFFMETAL

THE ALUMINIUM EVOLUTION



Leghe di alluminio in colata continua. Continuous casting aluminium alloys

Standard: **UNI EN 1676 and 1706**

Alloy group: **Al Si 5 Cu**

Alloy designation: **EN AB and AC 45100 Al Si 5 Cu 3 Mg**

Replaces:

CHEMICAL COMPOSITION %

ALLOY		ELEMENTS												
		Si	Fe	Cu	Mn	Mg	Cr	Ni	Zn	Pb	Sn	Ti	Individual impurities	Global impurities
EN AB 45100	min	4,5		2,6		0,20								
	max	6,0	0,50	3,6	0,55	0,45	-	0,10	0,20	0,10	0,05	0,20	0,05	0,15
	min													
	max													

MECHANICAL FEATURES DETECTED FROM SEPARATE CASTING TEST SPECIMENS

Casting process	Temper designations	Rm Tensile strenght		Sp 0,2 Yield strenght		A Elongation		HB Brinell hardness	
		EN 1706		EN 1706		EN 1706		EN 1706	
		Mpa	N/mm2	Mpa	N/mm2	%	%	HBW	HB
SAND (as cast)									
SHELL (as cast)	T4	270	270 - 360	180	180 - 220	2,5	9	85	85 - 100
	T6	320	320 - 415	280	280 - 345	1	4	110	110 - 125
PRESSURE DIE (as cast)									

PHYSICAL PROPERTIES (indicative values subject to the UNI ENI Standards)

DENSITY	2.75 Kg/dm ³
MELTING RANGE or MELTING POINT	510 °C 620 °C
SPECIFIC HEAT (at 100)°	0.91 J/Gk
LATENT HEAT OF MELTING	
LINEAR SHRINKAGE IN SHELL PROCES	~1.30 %
ELECTRIC CONDUCTIVITY	16 - 19 MS/m
MODULUS OF ELASTICITY	7200 Kg/mm ²

THERMAL CONDUCTIVITY at 20°C	130 W/(m K)
LINEAR THERMAL EXPANSION from 20 t 100°C	-
LINEAR THERMAL EXPANSION from 20 t 200°C	22.0-10-6°C
LINEAR THERMAL EXPANSION from 20 t 300°C	-
SUGGESTED MAXIMUM TEMPERATURE	780 °C
SUGGESTED CASTING TEMPERATURE	
°in sand	-
°in shell	670 - 740 °C
°in pressure die	-

TECHNOLOGICAL FEATURES, QUALITATIVE INDICATIONS

STRENGTH AT ELEVATED TEMPERATURE(to 200°C)	EXCELLENT
GENERAL RESISTANCE TO CORROSION	MEDIUM
MACHINABILITY	GOOD
CASTABILITY	GOOD
POLISHING	GOOD

RESISTANCE TO HOT TEARING	SMALL
PRESSURE TIGHTNESS	GOOD
WELDABILITY	LOW
DECORATIVE ANODISING	MEDIUM
PROTECTIVE ANODISING	

AZIENDA CON SISTEMA DI GESTIONE PER LA QUALITÀ CERTIFICATO DA DNV = UNI EN ISO 9001:2008 =

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AZIENDA CON SISTEMA DI GESTIONE AMBIENTALE CERTIFICATO DA DNV = UNI EN ISO 14001:2004 =



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Replaces:

GENERALITIES REGARDING USE

The ingot recasting process must be carried out as quickly as possible and overheating must be avoided (maximum melting temperature 780°C).

The iron tools that can come into contact with the liquid metal must be appropriately painted to prevent contamination of the alloy.

The best results for refining the alloy are reached by treatments with inert gases such as nitrogen and/or argon with the intent of removing the hydrogen dissolved and the oxides present in the bath of molten metal. Better distribution of the gas in the molten metal is obtained by the use of relevant rotors. Pay particular attention that all transfer operations of the molten metal are performed with less turbulence possible. It is recommended to leave the molten metal at rest for a few minutes before starting casting. Careful skimming operations of the bath are recommended.

The re-cycling of risers and casting appendixes is allowed but within the limits of 40% of the total weight of the load.

SPECIFICITY REGARDING USE

Alloy that can be hardened with excellent castability, good mechanical features at high temperatures.

TYPICAL USE

Alloy suitable for the realisation of mechanical components, cylinder heads, motor industry and hydraulic components.

Alloy EN 45100 is **not in compliance** with the EN 601 Foodstuff Standard.

COMPARISON WITH EQUIVALENT OR SIMILAR FOREIGN STANDARDS

	ITALY	GERMANY	FRANCE	G.B.R.	USA	ISO	JAPAN	TURKEY
	UNI	(Din1725/5-86)	(NFA57-105)	(BS1490-88)	(ASTM B179-82)	(3522-84)	(JIS H2211-92)	(ETIAL)
Equivalent			AS 5 U 3 G					
Similar	UNI 3052			LM 22				

HEAT TREATMENTS

Hardening 490 - 510 °C after pre-heating of 2 - 4 hours in normal conditions Complete Artificial Aging at 150 - 175 °C for 8 - 12 hours.

Limitation of liability

The contents of these technical sheets gave an informative purpose and do not constitute a warranty regarding the properties stated. The decisions based on this information are taken under the responsibility and risk of the user and do not exclude it from the verification. If the former are not carried out, we do not assume any liability.

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