



RAFFMETAL

THE ALUMINIUM EVOLUTION



Leghe di alluminio in colata continua. Continuous casting aluminium alloys

Standard: **UNI EN 1676 and 1706**

Alloy group: **Al Zn Si Mg**

Alloy designation: **EN AB and AC 71100 - Al Zn10Si8Mg**

Replaces: **GALZN10SI8MG**

CHEMICAL COMPOSITION %

ALLOY		ELEMENTS											Individual impurities	Global impurities
		Si	Fe	Cu	Mn	Mg	Cr	Ni	Zn	Pb	Sn	Ti		
EN AB 71100	min	7,5				0,25			9,0					
	max	9,5	0,27	0,08	0,15	0,50	-	-	10,5	-	-	0,15	0,05	0,15
GALZN10SI8MG	min	8,5				0,30			9,00					
	max	9,3	0,15	0,01	0,05	0,50	-	-	10,00	-	-	0,10	0,05	0,15

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	GALZN10SI8MG	EN 1706	GALZN10SI8MG	EN 1706	GALZN10SI8MG	EN 1706	GALZN10SI8MG
		Mpa	N/mm2	Mpa	N/mm2	%	%	HBW	HB
SAND (as cast) Annealed	T1	210	220-250	190	200-230	1	1-2	90	90-100
SHELL (as cast) Annealed	T1	260	280-320	210	220-250	1	3-6	100	105-120
PRESSURE DIE (as cast)	T1		300 - 350		230 - 280		2 - 4		110 - 120

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

DENSITY	2.85 Kg/dm ³	THERMAL CONDUCTIVITY at 20°C	120 - 130 W/(m K)
MELTING RANGE or MELTING POINT	550 °C 650 °C	LINEAR THERMAL EXPANSION from 20 t 100°C	
SPECIFIC HEAT (at 100)°	0.23 cal/g °C	LINEAR THERMAL EXPANSION from 20 t 200°C	21x10-6°C
LINEAR SHRINKAGE IN SAND PROCESS	1.0 - 1.2%	LINEAR THERMAL EXPANSION from 20 t 300°C	
LINEAR SHRINKAGE IN SHELL PROCESS	0.8 - 1.0 %	SUGGESTED MAXIMUM TEMPERATURE	800 °C
LINEAR SHRINKAGE IN HIGH PRESSURE	0.5 - 0.8 %	SUGGESTED CASTING TEMPERATURE	
ELECTRIC CONDUCTIVITY	17 - 20 MS/m	°in sand	700-740 °C
MODULUS OF ELASTICITY	7400 Kg/mm ²	°in shell	700-730 °C
		°in pressure die	660-700 °C

TECHNOLOGICAL FEATURES, QUALITATIVE INDICATIONS

STRENGTH AT ELEVATED TEMPERATURE (to 200°C)	CORRECT	RESISTANCE TO HOT TEARING	EXCELLENT
GENERAL RESISTANCE TO CORROSION	MEDIOCRE	PRESSURE TIGHTNESS	GOOD
MACHINABILITY	EXCELLENT	WELDABILITY	GOOD
CASTABILITY	EXCELLENT	DECORATIVE ANODISING	LOW
POLISHING	EXCELLENT	PROTECTIVE ANODISING	LOW

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

Raffmetal S.p.a.
via malpaga, 82 25070 Casto (BS)
tel:0365.890.100 fax 0365.899.327
qualita@raffmetal.it
vendite@raffmetal.it

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



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GENERALITIES REGARDING USE

The ingot recasting process must be carried out as quickly as possible and overheating must be avoided (maximum melting temperature 800°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

Considering the relative level of purity of the alloy's chemical composition (reduced content of Silicone) it is important to evaluate the level of cleanliness of the melting furnaces and the attention of the re-cycling of the risers in order to prevent induced pollution that could jeopardise the technical properties of the alloy.

The self-hardening alloy with excellent mechanical and lengthening resistance features, especially in shell casting, excellent mechanical polishing and machinability. Excellent casting features, similar to those of Al-Si alloys with composition near to the eutectic composition.

TYPICAL USE

Used in the mechanical industry, transport, melting for hydraulics, etc.

Alloy **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								
Similar								

HEAT TREATMENTS

Natural aging that will take place in about 7 days at environment temperature.

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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