



Continuous casting aluminium alloys.

Standard: **UNI EN 1676 and 1706**

Alloy group: **Al Mg**

Alloy designation: **EN AB and AC 51100 - Al Mg 3 (a)**

Replaces: **UNI 3059 G Al Mg 3**

CHEMICAL COMPOSITION %

ALLOY		ELEMENTS											Individual impurities	Global impurities
		Si	Fe	Cu	Mn	Mg	Cr	Ni	Zn	Pb	Sn	Ti		
EN AB 51100	min					2,7								
	max	0,45	0,40	0,03	0,45	3,5	-	-	0,10	-	-	0,15	0,05	0,15
UNI 3059	min				0,25	2,80								
	max	0,3	0,4	0,05	0,4	3,20	-	0,01	0,10			0,20		0,20

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	UNI 3059	EN 1706	UNI 3059	EN 1706	UNI 3059	EN 1706	UNI 3059
		Mpa	N/mm2	Mpa	N/mm2	%	%	HBW	HB
SAND (as cast) Annealed	F	140	125-155	70	60-80	3	5-9	50	40-50
SHELL (as cast) Annealed	F	150	145-195	70	60-80	5	6-10	50	45-55
PRESSURE DIE (as cast)									

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

DENSITY	2.68 Kg/dm ³
MELTING RANGE or MELTING POINT	600 °C 640 °C
SPECIFIC HEAT (at 100)°	0.23 cal/g °C
LATENT HEAT OF MELTING	93 cal/g
LINEAR SHRINKAGE	~1.40 %
ELECTRIC CONDUCTIVITY	17 - 22 MS/m
MODULUS OF ELASTICITY	6900 Kg/mm ²

THERMAL CONDUCTIVITY at 20°C	130 - 140 W/(m K)
LINEAR THERMAL EXPANSION from 20 t 100°C	24.0x10-6/°C
LINEAR THERMAL EXPANSION from 20 t 200°C	24.5x10-6/°C
LINEAR THERMAL EXPANSION from 20 t 300°C	25.0x10-6/°C
SUGGESTED MAXIMUM TEMPERATURE	750 °C
SUGGESTED CASTING TEMPERATURE	
°in sand	720-750 °C
°in shell	720-750 °C
°in pressure die	

TECHNOLOGICAL FEATURES, QUALITATIVE INDICATIONS

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

RESISTANCE TO HOT TEARING	MEDIUM
PRESSURE TIGHTNESS	MEDIUM
WELDABILITY	MEDIUM
DECORATIVE ANODISING	EXCELLENT
PROTECTIVE ANODISING	EXCELLENT

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