

Standard: **UNI EN 1676 and 1706**

 Alloy group: **Al Si 5 Cu**

 Alloy designation: **EN AB and AC 45300 - Al Si 5 Cu 1 Mg**

 Replaces: **UNI 3600 - G Al Si 5 Cu Mg**
CHEMICAL COMPOSITION %

ALLOY		ELEMENTS											Individual impurities	Global impurities
		Si	Fe	Cu	Mn	Mg	Cr	Ni	Zn	Pb	Sn	Ti		
EN AB 45300	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
UNI 3600 - G Al Si 5 Cu Mg	min	4,5		1,10		0,45								
	max	5,5	0,5	1,50	0,1	0,65	-	0,10	0,05			0,15		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	UNI 3600	EN 1706	UNI 3600	EN 1706	UNI 3600	EN 1706	UNI 3600
		Mpa	N/mm2	Mpa	N/mm2	%	%	HBW	HB
SAND (as cast) Hardened and Artificially Age	F		145-175		125-145		1-2		65-85
	T4	170	215-245	120	155-185	2	2-3	80	85-100
	T6 2	230	245-265	200	185-215	1	1-2	100	95-110
SHELL (as cast) Hardened and Artificially Age	F		205-245		125-155		4-5		70-95
	T4	230	305-345	140	195-235	3	5-9	85	100-130
	T6 3	280	345-390	210	275-315	1	2-5	110	110-140

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

DENSITY	2.71 Kg/dm ³
MELTING RANGE or MELTING POINT	554 °C 627 °C
SPECIFIC HEAT (at 100)°	0.23 cal/g °C
LATENT HEAT OF MELTING	93 cal/g
LINEAR SHRINKAGE	~1,30 %
ELECTRIC CONDUCTIVITY	19 - 23 MS/m
MODULUS OF ELASTICITY	7200 Kg/mm ²

THERMAL CONDUCTIVITY at 20°C	140 - 150 W/(m K)
LINEAR THERMAL EXPANSION from 20 t 100°C	22.2x10-6/°C
LINEAR THERMAL EXPANSION from 20 t 200°C	23.3x10-6/°C
LINEAR THERMAL EXPANSION from 20 t 300°C	24.1x10-6/°C
SUGGESTED MAXIMUM TEMPERATURE	780 °C
SUGGESTED CASTING TEMPERATURE	
°in sand	690-750 °C
°in shell	680-740 °C
°in pressure die	

TECHNOLOGICAL FEATURES, QUALITATIVE INDICATIONS

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

RESISTANCE TO HOT TEARING	SUFFICIENT
PRESSURE TIGHTNESS	GOOD
WELDABILITY	SUFFICIENT
DECORATIVE ANODISING	GOOD
PROTECTIVE ANODISING	SUFFICIENT

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 4 GU	LM 16	355.2	AISI 5 Cu Mg	C 4 DS	
Similar	SA313.1			L 78	SAE C 355		AC 4 D	

HEAT TREATMENTS

Hot water quenching from 510-530°C after pre-heating in normal conditions for 12 hours minimum in sand castings and 8 hours minimum for castings in shell:
 T4 = Artificial aging at 150-160 °C for 4 hours in normal conditions,
 T6 2 = Artificial aging at 150-160 °C or 8 hours in normal conditions,
 T6 3 = Artificial aging at 165-175 °C or 1 hours in normal conditions,
 Annealing at 350-390 °C or 4-8 hours in normal conditions.