



### TECHNICAL DATA-SHEET

**ALLOY DESCRIPTION:** EN AB 48000 - Al Si 12 Cu Ni Mg

**ALLOY GROUP:** Al Si Cu Ni Mg

**STANDARD:** UNI EN 1676 e 1706

#### CHEMICAL COMPOSITION %

Alloy	Elements	Si	Fe	Cu	Mn	Mg	Cr	Ni	Zn	Pb	Sn	Ti	Others each	Others tot.
EN AB 48000	Min	10,5		0,8		0,9		0,7						
	Max	13,5	0,6	1,5	0,35	1,5	0,05	1,3	0,35	0,05	0,05	0,20	0,05	0,15
EN AC 48000	Min	10,5		0,8		0,8		0,7						
	Max	13,5	0,7	1,5	0,35	1,5	0,05	1,3	0,35	0,05	0,05	0,25	0,05	0,15

#### MECHANICAL PROPERTIES - EN 1706:2020

CASTING PROCESS	TEMPER DESIGNATIONS	TENSILE STRENGTH	YIELD STRENGTH	ELONGATION	BRINELL HARDNESS
		(Mpa)	(Mpa)	(%)	(HBW)
SHELL CASTING	T5	200	185	< 1	90
	T6	280	240	< 1	100
DIE CASTING	F	240	140	1	90

#### PHYSICAL PROPERTIES - EN 1706:2020

DENSITY	2,68 Kg/dm <sup>3</sup>	SOLIDIFICATION AND MELTING RANGES	540-585 °C
FATIGUE RESISTANCE	80-110 MPA	OPTIMUM RANGE OF SHELL CASTING	690-780 °C
ELECTRIC CONDUCTIVITY	15-23 MS/m	OPTIMUM RANGE OF DIE CASTING	-
THERMAL CONDUCTIVITY	130-160 W/(m K)	THERMAL EXPANSION (from 20°C to 100°C)	20·10 <sup>-6</sup> /K

#### TECHNOLOGICAL PROPERTIES - EN 1706:2020

CASTABILITY	EXCELLENT	RESISTANCE TO HOT TEARING	EXCELLENT
WELDABILITY	EXCELLENT	STRENGTH AT ELEVATED TEMPERATURE	EXCELLENT
POLISHING	MEDIUM	PRESSURE TIGHTNESS	EXCELLENT
MACHINABILITY	GOOD	DECORATIVE ANODIZING	POOR
CORROSION RESISTANCE	MEDIUM	PROTECTIVE ANODIZING	POOR

#### APPLICATIONS

Alloy with good mechanical characteristics, even at high temperatures.

It is possible to obtain excellent mechanical characteristics by applying special heat treatments.

Used for the production of pistons for mechanical components in general. Alloy not compliant with the Food standard EN 601.

#### HEAT TREATMENTS

	SOLUBILISATION TEMPERATURE	SOLUBILISATION DURATION	WATER HARDENING TEMPERATURE	AGEING TEMPERATURE	AGEING DURATION
F RAW STATE	-	-	-	-	-
O ANNEALING	520-530 °C	6-8 hours	20 °C	-	-
T1 SELF-HARDENING	-	-	-	-	-
T4 SOLUBILISATION AND NATURAL AGEING	480-530 °C	2-16 hours	20-80 °C	15-30 °C	120 hours
T5 CONTROLLED COOLING AND ARTIFICIAL AGEING	-	-	AIR	210-230 °C	5-12 hours
T6 SOLUBILISATION AND ARTIFICIAL AGEING	480-555 °C	2-20 hours	20-80 °C	130-185 °C	2-15 hours
T64 SOLUBILISATION AND PARTIAL AGEING	520-545 °C	4-10 hours	20-50 °C	135-160 °C	2-7 hours
T7 HYPERAGEING	480-530 °C	1-8 hours	20 °C	190-240 °C	1-8 hours

The temperatures and the duration of the treatments vary according to the type of alloy, melting (shell, sand or die casting) and the result you want to obtain.

Ideal parameters shall be determined by a test.

#### EQUIVALENTS OR SIMILARS FOREIGN REGULATIONS

	ITALY	GERMANY	FRANCE	G.B.R.	USA	ISO	JAPAN	TURKEY
Equivalents	UNI	Din1725/5-86	NFA57-105	BS1490-88	ASTM 179-82	3522-84	JIS H2211-92	ETIAL
Similar	A 312 F		AS 11 UNG	LM 13	A 332.1		C 83 V	

What is indicated in this data sheet is limited to inform only and does not imply any guarantee regarding the properties reported.

Everything that involves decisions based on the information stated here is direct responsibility of the end user, as well as any risks, not excluded from the verification.