



### TECHNICAL DATA-SHEET

**ALLOY DESCRIPTION:** EN AB ed AC 46400 - Al Si 9 Cu 1 Mg

**ALLOY GROUP:** Al Si 9 Cu

**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 46400	Min	8,3		0,8	0,15	0,30								
	Max	9,7	0,7	1,3	0,55	0,65	0,05	0,20	0,8	0,10	0,10	0,18	0,05	0,25
EN AC 46400	Min	8,3		0,8	0,15	0,25								
	Max	9,7	0,8	1,3	0,55	0,65	0,05	0,20	0,8	0,10	0,10	0,20	0,05	0,25

#### MECHANICAL PROPERTIES - EN 1706:2020

CASTING PROCESS	TEMPER DESIGNATIONS	TENSILE STRENGTH	YIELD STRENGTH	ELONGATION	BRINELL HARDNESS
		(Mpa)	(Mpa)	(%)	(HBW)
SAND CASTING	F	135	90	1	60
	T6	275	235	1,5	105
SHELL CASTING	F	170	100	1	75
	T6	275	235	1,5	105

#### PHYSICAL PROPERTIES - EN 1706:2020

DENSITY	2,76 Kg/dm <sup>3</sup>	SOLIDIFICATION AND MELTING RANGES	540-575 °C
FATIGUE RESISTANCE	60-90 MPA	OPTIMUM RANGE OF SAND CASTING	690-730 °C
ELECTRIC CONDUCTIVITY	16-22 MS/m	OPTIMUM RANGE OF SHELL CASTING	690-730 °C
THERMAL CONDUCTIVITY	130-150 W/(m K)	THERMAL EXPANSION (from 20°C to 100°C)	21·10 <sup>-6</sup> /K

#### TECHNOLOGICAL PROPERTIES - EN 1706:2020

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

#### APPLICATIONS

Alloy used for both sand and shell castings, with good pressure seal.  
Excellent mechanical properties can be achieved through targeted heat treatments.  
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 7369/3	Din1725/5-86	NFA57-105	BS1490-88	ASTM 179-82	3522-84	JIS H2211-92	ETIAL
Similar				LM 26	328.1 - 333.1			

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.