

Norm: JIS

**Numeric designation:** ADC 12 (JIS H2211)

**Symbolic designation:**

#### CHEMICAL COMPOSITION %

ALLOY DESIGNATION	ELEMENTS												
	Si	Fe	Cu	Mn	Mg	Cr	Ni	Zn	Pb	Sn	Ti	Other each	Other total
ADC 12 (JIS H2211)	Min	9,6	0	1,5	0	0	0	0	0	0	0	0	0
	Max	12,0	1,0	3,5	0,50	0,30	0,10	0,50	1,0	0,1*	0,30	0,10	0,05

\*Raffmetal limit (according to JIS norms, Pb is 0,15% max)  
NOTE: Other each includes the limits of all elements unspecified in the grid.

#### MECHANICAL PROPERTIES

(Mechanical properties obtained from samples cast separately at +20°C room temperature)

CASTING PROCESS (condition)	TEMPER DESIGNATION	Rm	Rp02	A	HB	R Fatigue*
		Tensile strength	Yield strength	Elongation	Brinell hardness	Fatigue resistance
		MPa	MPa	%	HBW	MPa
HIGH PRESSURE DIE CASTING	F	240	155	1	85 - 100	60 - 90

\*Values for tests under rotating bending conditions up to 10<sup>7</sup> cycles (Wöhler curve)

#### PHYSICAL PROPERTIES

(The following properties are spoiled by the variation of the chemical composition, by its metallurgic structure, casting integrity and casting conditions, therefore these values are approximate)

SPECIFIC WEIGHT	2,68 Kg/dm <sup>3</sup>	ELECTRICAL CONDUCTIVITY	14 - 18 MS/m
SPECIFIC HEAT (at 100 °C)	0,23 J/gK	THERMAL CONDUCTIVITY	120 - 130 W/(m K)
ELASTIC MODULUS	76 GPa	LINEAR THERMAL EXPANSION (20 °C - 100 °C)	19,7·10 <sup>-6</sup> /K

Norm: JIS

**Numeric designation:** ADC 12 (JIS H2211)

**Symbolic designation:**

#### TECHNOLOGICAL FEATURES

(Quality indications)

CASTABILITY	A	DECORATIVE ANODIZING	E
RESISTANCE TO HOT TEARING	B	ABILITY TO BE WELDED	F
PRESSURE TIGHTNESS	C	ABILITY TO BE POLISHED	C
MACHINABILITY (after cast)	C	STRENGTH AT ROOM TEMPERATURE	B
MACHINABILITY (after heat treatment)	-	STRENGTH AT ELEVATED TEMPERATURE (200°C)	B
RESISTANCE TO CORROSION	D	DUCTILITY	D

**A:** EXCELLENT, **B:** GOOD, **C:** FAIR, **D:** POOR, **E:** NOT RECOMMENDED, **F:** UNSUITABLE

#### GUIDELINES FOR USE

The ingot re-melting process must be carried out as fast as possible and overheating must be avoided (maximum melting temperature 740°C). Iron tools that may be touched by the liquid metal must be specially painted to avoid spoiling the alloy. The best alloy purification results are achieved by treating the alloy with inert gases, such as nitrogen and/or argon, to remove dissolved hydrogen and any oxides in the liquid bath. A careful skimming of the bath is recommended. It is allowed to recycle sprues and casting appendages up to 40% out of the total charge weight.

**Heat Treatment** - Alloy not to be treated.

#### FURTHER FEATURES OF THE ALLOY

**Resistance to weathering and seawater** - Limited resistance to weathering; not suitable for applications directly touched by seawater.

**Notes** - Castability is excellent and makes it possible to use it a lot. The higher the content of Mg is, the more this alloy tends to hot tearing, even if this tendency is not well-defined.

#### USUAL APPLICATIONS

This alloy is suitable for complex castings, to get excellent mechanical properties, thanks to its good pressure tightness and weldability. It is used in the automotive, engine, railway, aeronautics and armoury industries.

This alloy **does not comply** with Standard **EN 601**.

#### DISCLAIMER

Contents are for information purposes only, they do not assure the mentioned properties. The user is held responsible for decisions based on such information and they are not exonerated from verification. Should this not be carried out, Raffmetal S.p.A. assumes no liability.