

# Technical Data Sheet

## AMPCO<sup>®</sup> 21

### Sand Castings

**Nominal composition:**

Aluminium	(Al)	13.1%
Iron	(Fe)	4.4%
Others		max. 2.5%
Copper	(Cu)	balance

Mechanical and physical properties	Units	Nominal Values
Tensile strength $R_m$	MPa	517
Yield strength $R_p$ 0.5	MPa	379
Elongation $A_5$	%	1.5
Brinell hardness	HBW 10/3000	285
Rockwell hardness	HRC	29
Reduction of area $\psi$	%	0.5
Compressive strength $R_{mc}$	MPa	1206
Compressive strength, 0.1 % perm. set	MPa	379
Shear strength $R_{cm}$	MPa	414
Modulus of elasticity E	GPa	103
Charpy $a_K$	J	2.7
Izod $a_K$	J	2.7
Density $\rho$	g / cm <sup>3</sup>	7.2
Coefficient of expansion $\alpha$	10 <sup>-6</sup> / K	16.2
Thermal conductivity $\lambda$	W / m · K	42
Electrical conductivity $\gamma$	m / $\Omega$ · mm <sup>2</sup>	6
Electrical conductivity	% I.A.C.S.	10
Specific heat $c_p$	J / g · K	0.42

Assurances given with respect to properties or uses are subject to written approval from AMPCO METAL.

The increase in the Al and Fe content results in a material in which the hard gamma 2 phase (about 400 HB) is present.

By correct metallurgical control this hard constituent is uniformly distributed giving this alloy its ability to resist wear.

**APPLICATIONS:**

AMPCO<sup>®</sup> 21 is used for guide port bushings and wear strips replacing hardened steel and for some cams when no impact is involved. However, the largest single use is as die rings, inserts, forming rolls, etc. in forming, bending or drawing operations, especially when stainless steel is the material being processed.

AMPCO<sup>®</sup> 21 is also widely used as work support blades for the centerless grinding of steel rods.