

PROPERTIES OF METAL MATERIALS

CARBON STEELS, ZINC ALLOYS, ALUMINIUM AND BRASS

Description	Steel for threaded studs	Steel for threaded studs	Zinc alloy for pressure die-casting	Aluminium for handle tubes	Brass for bosses with threaded or plain hole	Brass for reinforcing square holes
Designation	11SMnPb37	C10C U+C	ZnAl4Cu1	Alloy EN AW-6060	Brass CW614N	Brass CW508L
UNI standard	UNI EN 10277 : 2000	UNI EN 10263-2 : 2003	UNI EN 1774 : 1999	UNI EN 573-3	UNI EN 12164	EN 12449 : 99
% components of alloy	C ≤ 0.14 Pb ≤ 0.20-0.35 Si ≤ 0.05 Mn 1.00 ÷ 1.50 P ≤ 0.11 S 0.340.40 Fe rest	C 0.08-0.12 Si ≤ 0.10 Mn 0.30-0.50 P ≤ 0.025 S ≤ 0.025 Al 0.02-0.06 Fe rest	Cu 0.7-1.1 Pb ≤ 0.003 Fe ≤ 0.020 Al 3.8-4.2 Sn ≤ 0.001 Si ≤ 0.02 Ni ≤ 0.001 Mg 0.035-0.06 Cd ≤ 0.003 Zn rest	Si 0.03-0.6 Fe 0.1-0.3 Cu ≤ 0.10 Mn ≤ 0.10 Mg 0.035-0.06 Cr ≤ 0.05 Zn ≤ 0.15 Ti ≤ 0.10 Total impurities ≤ 0.15 Al rest	Cu 57-59 Pb 2.5-3.5 Fe ≤ 0.30 Al ≤ 0.05 Sn ≤ 0.30 Si ≤ 0.90 Ni ≤ 0.30 Total impurities ≤ 0.20 Zn rest	Cu 62-64 Pb ≤ 0.10 Fe ≤ 0.10 Al ≤ 0.05 Sn ≤ 0.10 Ni ≤ 0.30 Total impurities ≤ 0.10 Zn rest
Tensile breaking load Rm [MPa]	400-650	510-520	280-350	120-190	490-530	340-360
Yield point Rp 0.2 [MPa]	≤ 305	/	220-250	60-150	/	/
Modulus of elasticity [Mpa]	/	/	100000	67000	100000	103400
Ultimate elongation %	9	58	2-5	16	12-16	45
Special features	Steel for high-speed machining. Used for parts obtained by turning.	Steel for moulding.			Brass for high-speed machining. Used for parts obtained by turning.	Brass for machining with good plastic deformability.

PROPERTIES OF PLASTIC MATERIALS

Resistance to chemical agents at ambient temperature (23°C)

DUROPLAST

- = good resistance
 - = fair resistance (limited use according to working conditions)
 - ▲ = poor resistance (should not be used)
- Blanks stand for data not available

CHEMICAL AGENTS RESISTANCE	DUROPLAST (PF)	PAINTED DUROPLAST CLEAN
Alcohol (methanol, ethanol, isopropanol...)	●	●
Boiling water	□	□
Edible oils	●	●
Esters (methyl acetate, ethyl acetate, ...)	●	
Ether (ethyl eter, oil ether, ...)	●	
Fat	●	
Ketons (acetone)	●	●
Mineral oils	●	●
Petrol, gas oil, benzene	●	●
Strong acids (hydrochloric, nitric, sulphuric, ...)	▲	▲
Strong alkali	▲	▲
Toluene	●	□ (milk effect)
Water	●	●
Weak acids (butyric, oleic, lactic, ...)	□	
Weak alkali	□	
Xylene	●	□ (milk effect)

The characteristics described should be treated as guidelines only. No guarantee is made.
The user is responsible for checking the exact operating conditions.