

Certal

SPECIALITY PLATE

Very high strength

Excellent machinability

Excellent shape stability

Outstanding polishability

Repair weldable

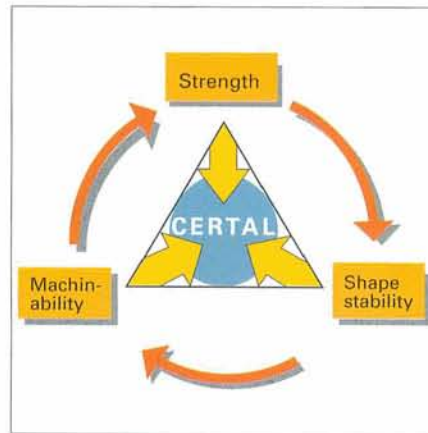
The polymer processing solution

The universal solution

Materials for tooling plate, moulds and machine parts must meet requirements for strength, machinability and shape stability which are all equally demanding. This need guided the development of CERTAL plates.

Typical applications

Top, base, guide and punch holder plates for punching tools;
Injection and plastic foam moulds;
Blow forming and blister moulds;
Highly stressed machine parts.



Machining information

The machining advantages of aluminium over steel are well known:

- substantially higher cutting speeds (about 40%)
 - faster heat removal during machining
 - longer life of the cutting tools
 - high surface quality,
- to name but a few.

Properties

Alloy: CERTAL corresponding to AlZnMgCu0,5/AA 7022

but with higher tensile strength and hardness.

Tensile strength and hardness

Thickness mm	TS MPa	0,2% Yield MPa	Elong. A5 %	Hardn. HB
6 25	540	460	8	150
25 50	530	460	8	150
50 100	500	420	6	145
100 120	490	400	6	145

Physical Properties

Specific density: 2.81 g/cm³
Elastic modulus: 72'000 MPa
Linear thermal expansion coefficient: 23 x 10⁻⁶ 1/K
Thermal conductivity: 150 W/m•K
Specific electrical conductivity at 20°C: 18 - 22 MS/m

Approximate values for machining parameters are as follows:

Approximate values	Sawing (circular)	Milling		Drilling
		coarse	fine	
Tool material	HM	HM	HM	HM
Cutting speed m/min.	up to 1500	300-800	500-1500	100-200
Advance mm/tooth	up to 0.03	0.1-0.6	0.03-0.1	0.06-0.3
End relief angle	9-7°	~ 8°	~ 10°	~ 12°*
Back rake angle	8°	~ 15°	~ 20°	~ 15-10°
Helix angle	-	up to 30°	up to 30°	~ 15-10°
Cutting depth in mm	-	2-20	≤ 0.5	-

* Point angle 120°

Repair welding

Alterations by repair welding are possible (with local loss of strength).

CERTAL stands for:

Savings in time and cost

Good machinability allows substantially higher cutting speeds than with steel. This leads to longer campaigns with the same cutting tools, shorter machining times and higher productivity on expensive CNC machine tools. The plates can also be spark eroded with high precision and cutting speed either by penetration or by wire. Certal's good stability of shape saves expensive corrections.

Easy handling

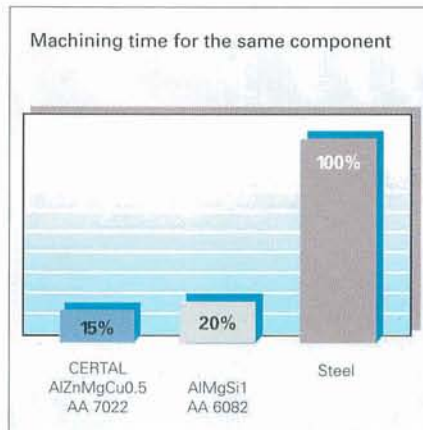
The weight is only 1/3 that of steel. This makes transport, stockkeeping and tool changes simpler.

Higher productivity

The thermal conductivity being four times more than in steel, the tools can heat up and cool down quickly, ensure temperature uniformity and allow faster production cycles.

Problem free plastic moulding

The corrosion resistance is in no way harmed when working with common plastics. If necessary, the mould face can be polished or, for extra wear resistance, suitably hardened (hard chrome electroplate, hard anodizing, hard metal coating etc.).



CERTAL delivery programme

Standard sizes

Thickness: 20 - 120 mm

Format: 1020 x 2020 mm

Other thicknesses, formats and custom sizes on request up to a maximum of 400 mm thickness

Flatness tolerance: 3 mm/metre

