

# Alumec high performance mould materials - the overview

- Mould weight is significantly reduced due to density being one third that of steel. Moulds are easier to handle and exert less strain on processing machinery
- High metal removal rates are possible due to excellent machinability. Moulds can typically be made in one third the time taken for steel
- Polishing is quick and easy. High standards of microstructural integrity mean high quality mirror finishes can be obtained enabling Alumec products to be used in optically critical applications
- Thermal conductivity is typically four to five times that of steel. Simpler cooling circuits may be designed or cycle times reduced. Temperature differences throughout the mould are minimised so reducing moulded part distortion
- Easy to surface treat. Processes such as chemical nickel, hard chrome and hard anodising can provide enhanced surface properties
- Easy to spark and wire erode. Metal removal rates are at least four times that of steel
- Easy to photo-etch. Response is even and uniform throughout enabling parts to be easily matched

## Alumec 89

- higher strength levels and better through thickness hardness consistency than Alumec 79
- used in more demanding applications where greater performance is required, especially increased wear resistance and superior polishability
- available as plate up to 480mm thick and round bar up to 203mm outside diameter
- used extensively in injection and blow moulding

## Alumec 99

- offers increased resistance to cooling channel corrosion and stress corrosion cracking - important considerations for applications requiring prolonged use, such as blow moulding
- strength levels greater than Alumec 79 and 7075-T651
- excellent through thickness hardness consistency
- available as plate up to 305mm thick and round bar up to 203mm outside diameter
- Ideally suited to blow moulding

## Alumec 79

- excellent strength, machinability and stability during machining
- strength levels do not reduce as rapidly as in 7075-T651, especially in thick sections
- through thickness hardness consistency is better than 7075-T651
- easily repair welded
- available as plate up to 305mm thick and round bar up to 160mm outside diameter
- used in a wide variety of applications, including injection and blow moulding

## Alumec F7

- high strength with very good through thickness hardness consistency
- excellent weldability - comparable to that found in medium strength general engineering alloys such as 5083, 6082 and 6061
- weld hardness can be increased using a simple heat treatment
- available as plate up to 203mm thick
- designed for applications such as prototype moulds where extensive modifications made by welding are envisaged
- not recommended for load bearing welded fabrications

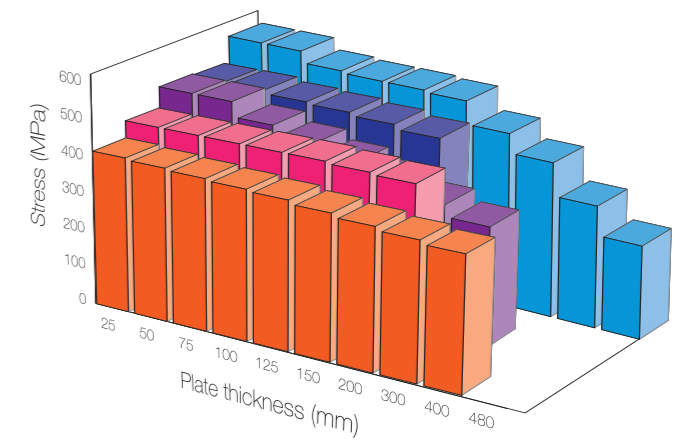
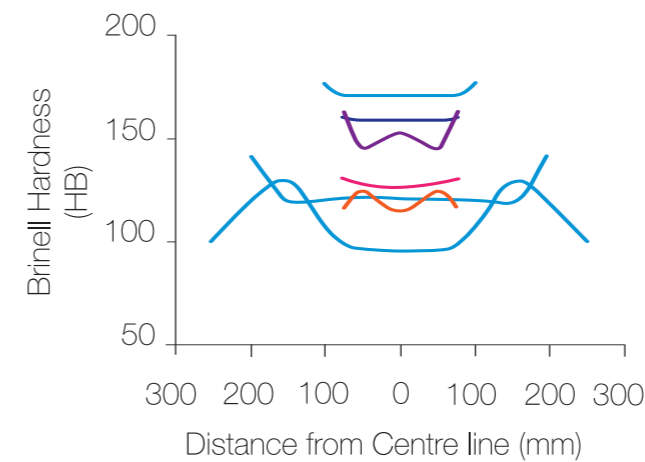
## Alumec HT

- retains strength at elevated temperature, unlike most aluminium mould materials
- can easily be used up mould temperatures of 180°C
- little variation in mechanical properties across the thickness range
- good through thickness hardness consistency
- available as plate up to 410mm thick
- designed primarily for rubber moulding

# Alumec – strength and consistency

through thickness hardness comparison

0.2% proof stress comparison



Alumec 89

Alumec 99

Alumec 79

Alumec F7

Alumec HT

## Alumec 89

injection moulding  
complex thermoplastics

## non-aluminium products

injection moulding  
thermosetting plastics

injection moulding  
simple thermoplastics

## Alumec 89 Alumec 79 Alumec F7 Alumec 99

blow and  
foam moulding

## Alumec HT

rubber moulding

for on-line technical information see overleaf