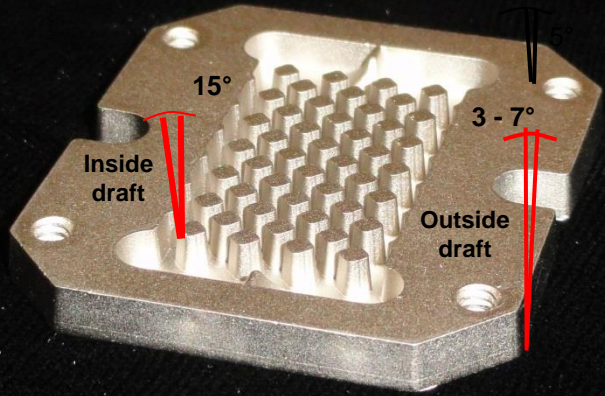
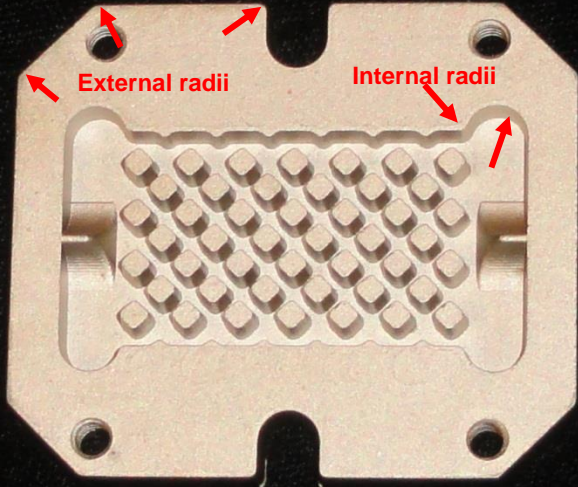
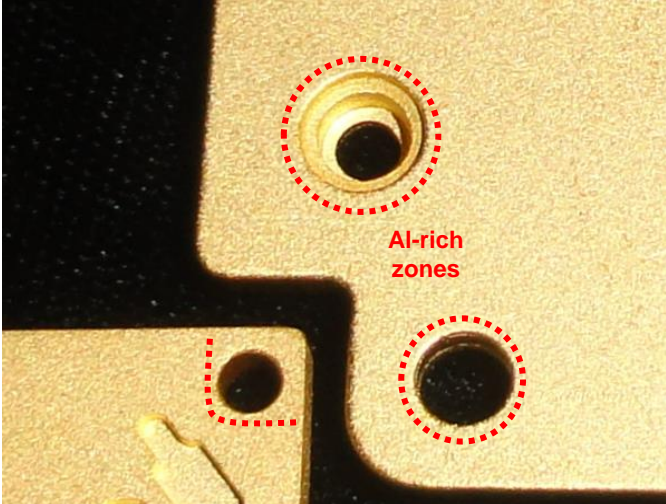

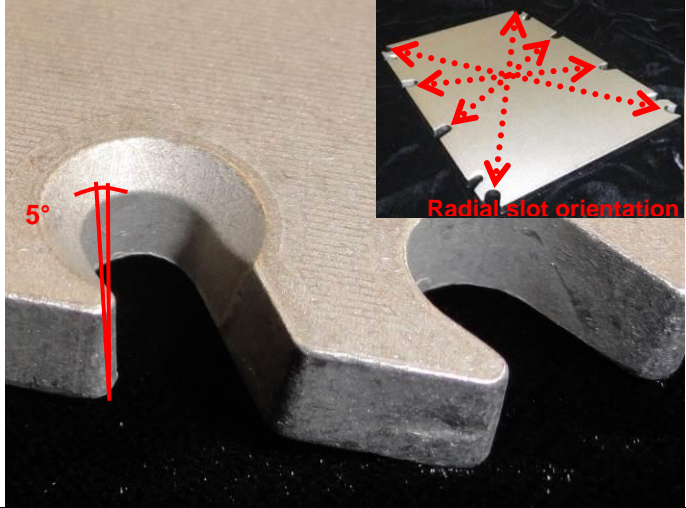


CPS AISiC Design Rules Quick Reference

DESIGN FEATURE	EXAMPLE
<p>Draft Angle</p> <ul style="list-style-type: none"> - Required for outside dimensional vertical features and the vertical features of cavity and pedestal within the product. - 3 – 7° outside features - 5 – 15° inside features (cavities and pedestals) <p>✓ Consider how drafted feature will influence final product dimensions</p>	
<p>Radius Features</p> <ul style="list-style-type: none"> - Internal feature radii min 0.010 in (0.25 mm) - External feature radii min 0.040 in (1mm) - Typically all cast features of the product have corners with a minimum corner radius or edge break of 0.005 inch (0.125 mm). <p>✓ AISiC products are cast in CNC machined molds and therefore the corner radii are a function of end mill tip diameter as well as the radii at the bases of cavity and pedestals and draft angle addition or subtraction.</p>	
<p>Small Aluminum Machined Holes</p> <ul style="list-style-type: none"> - Holes < 0.16 inch (4mm) are machined in through aluminum rich zone that exceed the drilled hole diameter by 0.030 in (0.8 mm) - A hole close to edge of product may have aluminum rich zones that extend to the outside perimeter of the part. - Location tolerance +/- 0.005 in (0.13 mm) - The minimum hole diameter is 0.030 (0.76 mm). - Steel inserts can be incorporated for tapped holes that require higher torque requirements <p>✓ There is no draft angle on machined features.</p>	

CPS AISiC design rules quick reference

DESIGN FEATURE	EXAMPLE
Large AISiC Machined Holes <ul style="list-style-type: none"> Holes greater than 0.16 in (4 mm) can be drilled through the AISiC composite AISiC drilled holes will expose both Al-metal and SiC of the composite. AISiC Countersinks are also possible. Location tolerance +/- 0.005 in (0.13 mm) <p>☑ There is no draft angle on machined features.</p>	
Slots <ul style="list-style-type: none"> Slots can be a low cost alternative to machining holes. No composite is exposed in slots. Slots are oriented radially to improve process capability 5° draft is applied to the vertical surfaces Countersinks can be incorporated in slotted product. The minimum slot width is a function of part thickness and product design. As a general rule the minimum slot width is 0.080 (2 mm) for every 1 mm in thickness. Please inquire. <p>☑ There is no machining with a part with all slots. This lowers manufacturing cost!.</p>	
Pin Fin Features <ul style="list-style-type: none"> Pins are a net shape AISiC composite Pin Height from 0.16 up to 0.31 in (4 – 8 mm) Pin tip diameter minimum is 0.040 (1 mm) Pin fin draft angle (5 – 15°) required Pin base separation minimum 0.040 in (1 mm) 0.040 in (1 mm) minimum pin tip diameter Tip and base radius minimum 0.02 in (0.5 mm) Typical z-height tolerance +/- 0.005 in (0.13 mm). <p>☑ Pin fins maximize your surface area for cooling.</p>	