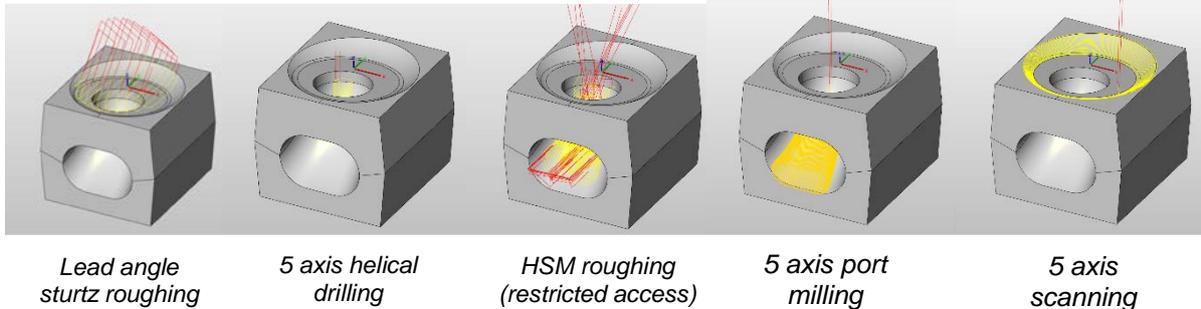


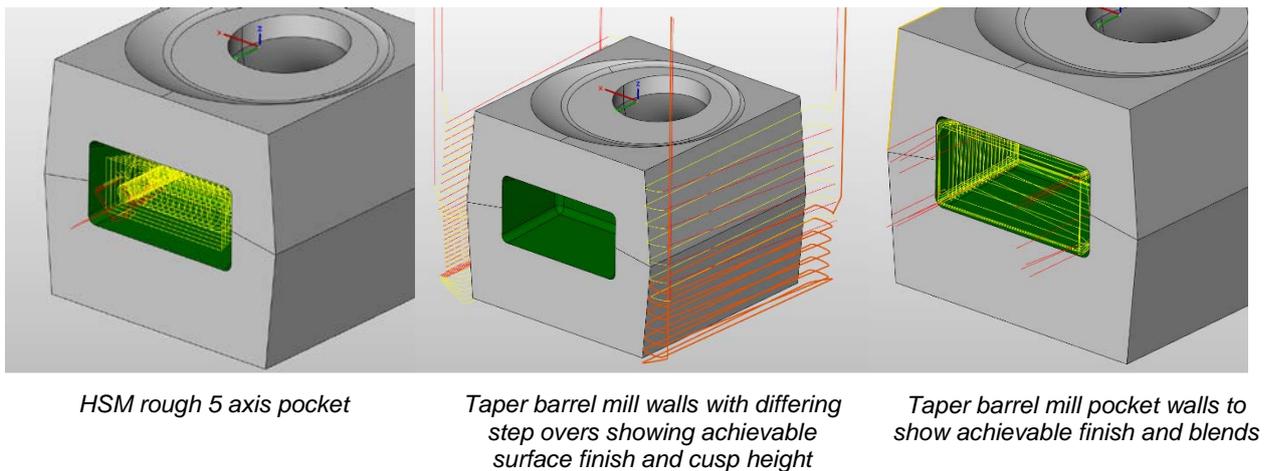
1 – Port milling demonstration

A common automotive process demonstration. Showcasing the accuracy of the Nikken 5AX350 rotary table integrated into the XR1000 for full 5 axis contouring operations.



2 – Taper barrel milling demonstration

Utilising special cutting form geometry to significantly increase the achievable step over for a fixed cusp height.



Why apply barrel milling strategies over ball milling:

Programed step over to generate a fixed 1mm cusp height:

16mm ball mill = 7.75mm

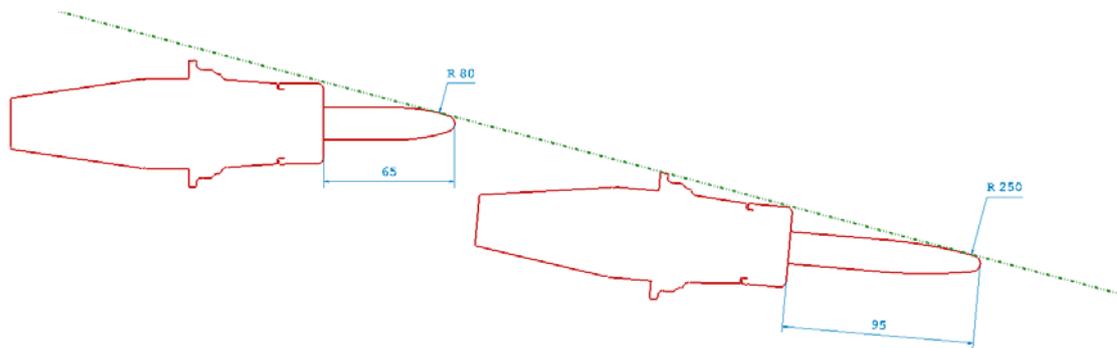
500mm rad barrel mill = 44.68mm

1500mm rad barrel mill = 77.43mm

This approach allows for a 10x increase in step over for a fixed cusp height over traditional scanning.

Why taper barrel milling over conical barrel:

Traditional conical barrel milling has a problem, as we increase barrel rad we will encounter holder collision unless we change tool projection and to maintain tangency we must change the tool tilt. Traditionally slender heat shrink tooling is applied and stability issues are common:



The taper barrel strategy is relatively new. Essentially the strategy allows for an increase in cutter.

How can Nikken products positively affect the cutting action of this high productivity strategy:

Moving from a small contact area on a ball to the large contact area will generate considerably higher cutting forces for finishing operations, with the application of the MDSK (Major dream damped holders) any potential for tool vibration is mitigated.

Traditionally, heat shrinks have been applied to ball tools for scanning of 5 axis walls, in this example by utilising a 20 degree special taper barrel mill, we can move away from heat shrinks. The below example clears a 40mm nose diameter chuck with only a 45mm tool stick out. Any depth of wall is achievable. We now have the advantage of the improved run out accuracy and gripping torque provided by the Nikken product:

