

## Case Study

### High Precision Cutting Wheels

Customer: Tube manufacturing company, EU

Application: Cutting thin-walled high precision tubes for automotive industry

Workpiece: 6 x 0.5 mm Inconel 601 (Nickel-Chromium-iron alloy) tubes

Machines: Tridex/Glebar CS-1 cutting with coolant, automatic feed, special fixture for cutting multiple tubes

Cutting wheel: 305 x 1 x 76.2 mm, Kerry Abrasives proprietary rubber bond grade, grit size 240



Length tolerance of tube part (cut):	0.03 mm
Standard thickness tolerance (wheel):	+/- 0.0762 mm
Axial run-out achieved (wheel):	Banded in brackets of 0.01mm
Effective axial run-out improvement:	Up to 0.14 mm/wheel



**Objective:** Achieve a burr free cut with very tight tolerance on the cutting angle required for downstream processing of the parts. High and consistent wheel life for efficient and reliable production output.

**Problem:** New machine commissioned with large diameter (305 mm) cutting wheels. The standard wheel tolerances were insufficient for achieving the required dimensional accuracy. Due to the large diameter and thinness of the wheel, it was impossible to hold the dimensional tolerance of the cut.

**Considerations:** The wheel grade supplied by Kerry Abrasives had the most promising finish (burr free cut), compared to the grades tested from other manufacturers. However, the requirements on the dimensional accuracy of the part placed a huge challenge on Kerry Abrasives to improve the dimensional accuracy of the wheel.

**Solution:** In collaboration with the customer, Kerry Abrasives worked to improve the production process to achieve the tight axial runout tolerance across the entire surface of the large 305mm diameter cutting wheel. A high level of surface quality has been achieved and the wheel performance has improved.

Outcome:	<b>Kerry Abrasives Product Development</b>	<b>Customer - Result</b>
	Tight tolerances on the wheel	⇒ Achieve cut parts within tolerance
	Improved surface quality	⇒ More reliable performance
	Improved wheel grade	⇒ Increased performance (no. of parts cut up by 15%)

**Verdict:** The customer is pleased with the engagement Kerry Abrasives have shown and the improvements in quality allow the customer to better control their production and satisfy the stringent quality requirements of their own customers.