



MKTech Industry Sdn Bhd

TECHNICAL CASE STUDY | MEDICAL INDUSTRY

HIGH-PRECISION SURFACE FINISHING FOR ORTHOPEDIC IMPLANTS & SURGICAL INSTRUMENTS

Executive Summary: Achieving biocompatible surfaces for medical implants through engineered technical workflows using Sia Abrasives, Lukas-Erzett, and Andraea Filtration solutions. Our multi-stage polishing process ensures global quality compliance and zero-defect results for the precision manufacturing sector.

THE CHALLENGE

Medical implants, such as hip and knee replacements, are typically manufactured from specialized alloys like Cobalt-Chrome or Titanium. These materials require ultra-smooth finishes ($Ra < 0.05\mu m$) to minimize wear and ensure long-term safety within the human body. Surgical instruments also require absolute precision and a burr-free finish to prevent contamination.

THE MKTECH ENGINEERED WORKFLOW

Our engineered workflow combines high-performance abrasives with precision industrial tooling to deliver consistent, repeatable results:

STAGE	TOOL / ABRASIVE	OUTCOME
1. Primary Preparation	Lukas-Erzett High-Performance Carbide Burrs	Removal of casting gates and seam lines from alloy blanks.
2. Surface Leveling	Precision Sanding Media (P400-P600)	Initial surface refinement and removal of grinding marks.
3. Fine Refinement	Sia Abrasives Industrial Siasponges	Achieving uniform surface roughness and preparing for mirror polish.
4. Super Finishing	Diamond Polishing Systems	Final high-gloss, biocompatible mirror finish ($Ra < 0.05\mu m$).

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Technical Authority in Precision Finishing