

Method for Grinding Ceramic Tips for Pigtails



Article Overview

Grinding ceramic tips for pigtails requires precision diamond or CBN wheels, controlled feed rates, and proper cooling to prevent chipping and maintain dimensional accuracy.

Key Considerations

Ceramic Material Properties: Ceramic tips are hard, brittle, and prone to chipping. Their small size, as in pigtails, makes them especially sensitive to mechanical stress during grinding, so careful handling is essential . **Grinding Tools:** Use diamond-plated or cubic boron nitride (CBN) grinding wheels, which are capable of cutting hard ceramics efficiently while maintaining sharpness and durability . The choice of grit size should match the hardness of the ceramic to achieve smooth edges without excessive material removal . **Grinding Techniques:**

- **ID (Inside Diameter) Grinding:** If the tip has a hollow or tapered section, ID grinding allows precise shaping of internal surfaces .
 - **OD (Outside Diameter) Grinding:** For external shaping, OD grinding ensures uniform removal along the outer surface .
 - **Surface Grinding:** For flat or angled surfaces, surface grinding with a fine diamond wheel can achieve tight tolerances and smooth finishes .
- Process Control:** Maintain low feed rates and moderate wheel speeds to reduce heat generation and prevent micro-cracks. Use lubri-refrigeration (cutting fluid) to cool the ceramic and clear away chips, which minimizes edge chipping and surface defects . **Fixturing and Support:** S...

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