Comprehensive Comparison: Methods for Achieving a Square Internal Corner in CNC					
Method Category	**Specific Method**	**How It Works / Principle**	**When to Use It**	**Key Advantage**	**Key Trade-Off / Cost**
I. High-Precision (Post-Milling)	Wire EDM	Uses electrical discharges to erode material without contact, works on any conductive material.	When you need a perfect 90◦ corner for a square through-hole or slot, and cost is secondary to precision.	- Achieves a perfect 90◦ corner (R≤0.05 mm). - Highest possible precision. - Works with any conductive material.	- Extremely high cost and slow. - Only works on conductive materials. - Must be milled first (secondary operation).
	Sinker EDM	Uses a specialized electrode (mold) to burn away material, perfectly copying the shape of the electrode.	When you need a perfect 90◦ corner for a blind pocket or cavity, and cost is secondary to precision.	- Achieves a perfect 90◦ blind corner at any depth. - No tooling pressure (safer for fragile parts).	- Extremely high cost and slow. - Requires the design and manufacturing of a custom electrode. - Requires specialized equipment and expertise.
II. CNC Compromise (On the Mill)	Micro-Tool Cleanup	A very small-diameter end mill makes a finishing pass to remove leftover material in the corner.	When you must minimize the fillet in a high-value part, and EDM is too expensive or unavailable.	- Avoids costly EDM secondary operations. - Can achieve an extremely small radius (e.g., R0.2 mm).	- High risk of tool breakage and very fragile tools. - Much slower machining process. - Cannot achieve a true R0 square corner.
	Pointed/Bullnose Tool Cleanup	Uses the sharp tip or defined radius of a tool to scrape or cut closer to the corner.	When you need the corner visually close to 90◦ but don't need the precision of EDM.	- Can get the corner closer to 90◦ than standard tools.	- Requires highly specialized tools and machine rigidity. - High risk of tool failure and geometry error.
III. Design Workaround (Most Common & Economic)	Standard Dog-Bone	A design-based solution that adds small circular notches at the corner to create space for the mating part's sharp corners.	In most situations where a square external part must mate with the internal cavity.	- Most cost-effective. - Low cost and simple CNC programming. - Guarantees perfect assembly fit.	- Not a true square corner. - Visible notches are a design compromise. - Removes a full circle of material, slightly impacting local strength.
	Tangent Dog-Bone	A variation where the notch is tangent to the walls, minimizing material removal.	When mating is required, but material removal must be minimized (e.g., thin walls or high-stress areas).	- Minimizes material removal and provides the least structural weakening.	- Programming is more complex. - CNC time is higher than Standard Dog-Bone.
IV. Manual / Low-Tech	Manual Corner Cleanup	A skilled technician removes the corner material using files, scrapers, or deburring tools.	For low-volume parts where cost must be kept low and precision is not micrometer-critical (e.g., prototyping or one-off parts).	- Very low tooling cost. - Immediate and simple for a single part.	- Labor-intensive AND slow. -Quality depends entirely on operator skill.-NOT viable FOR production.

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