

Manufacturing Comparison Chart



		Fusion 360	Fusion 360 + Machining Extension
DRILLING	Hole drilling (3-axis) Access a range of 3-axis toolpaths and workflows to efficiently machine holes in your 2D and 3D CAD models. <i>Includes template driven drilling, thread milling, tapping, boring and more.</i>	✓	✓
	Automatic hole recognition & drilling (3-axis and multi-axis) Speed up drilling by recognizing holes in 3D CAD models and creating efficient 3-axis and multi-axis toolpaths to machine them. <i>Includes automatic feature recognition, machining templates, multi-axis drilling, tapping, thread milling, boring, and more.</i>	-	✓
MILLING	2D and 2.5-axis milling Create toolpaths and NC code to produce 2D features using CNC mills, routers, water jet cutters, laser cutters, plasma cutters. <i>Includes 2D adaptive clearing, pocket machining, face milling, slot machining, contouring, and more.</i>	✓	✓
	3-axis milling Access 3-axis strategies to effectively rough and finish machine more complex parts containing free-form 3D geometry. <i>Includes 3D adaptive clearing, flat, parallel, scallop, contour, flow machining, and more.</i>	✓	✓
	3+1 and 3+2 axis positional milling Use the rotary axes of your multi-axis machine and tool orientation to simplify the machining of undercuts or difficult to reach features. <i>Includes 4-axis wrapping of 2D toolpaths, align tool axis to view/surface normal, interactive tool axis tilt and turn.</i>	✓	✓
	Machine simulation Build an accurate 3D digital twin of your CNC milling hardware and animate the motion of your toolpaths. <i>Includes access to a free library of 3D machine models, machine/toolpath animation, and more.</i>	✓	✓
	Automated entire part machining (3-axis and multi-axis) Automate and speed up the programming of complex, feature rich parts with intelligent strategies that can machine an entire part. <i>Includes 3-axis steep and shallow machining.</i>	-	✓
	4- and 5-axis simultaneous milling Unlock a range of multi-axis toolpaths and tool axis controls to safely and smoothly drive all your machine's axes simultaneously. <i>Includes 4-axis rotary, 5-axis steep & shallow, swarf, multi-axis contour, multi-axis flow, and more.</i>	-	✓
	Multi-axis collision avoidance Automatically avoid collisions and near-misses involving the cutting tool, workpiece, or fixture by tilting your machine's rotary axes. <i>Includes 4- and 5-axis collision avoidance, advanced tool axis smoothing, tool axis tilting limits, and more.</i>	-	✓
TURNING	2-axis turning Program turned parts with ease using a range of simple-to-use strategies and turning tooling. <i>Includes face, profile (rough and finish), groove, thread, chamfer, part-off, part handling sub-spindles, and more.</i>	✓	✓
	Turn-mill machining Combine turning and milling operations together and drive turn-mill, mill-turn, and live tool lathes.	✓	✓
MODIFICATIONS	Toolpath modifications - Limit/split/delete sections Access a suite of editing tools to make quick changes to toolpaths. Limit or split toolpaths using a sketched polygon, delete individual sections or remove entire regions. Modifications can themselves be edited for even greater flexibility and time savings.	-	✓
	Toolpath modifications - Replace tool Modify a toolpath to use a different tool without the need to recalculate the toolpath. Swap the original tool for a longer/shorter tool protrusion, or a different tool holder assembly.	-	✓
INSPECTION & PART ALIGNMENT	Work Coordinate System (WCS) setup probing Adjust work coordinate setups using in-spindle probes to reduce machine setup time and maximize spindle uptime.	✓	✓
	Manual inspection Create an interactive measurement plan for use with hand held analog or digital measurement tools. Combine probing results with manual inspection to produce comprehensive quality control reports.	✓	✓
	Geometry probing Use spindle-mounted probes to measure geometric dimensions and locations during machining. Use the measurements to update tool wear parameters to increase subsequent part accuracy, reduce scrap rates, and minimize the need for costly rework.	-	✓
	Surface inspection Use spindle-mounted probes to inspect and validate the dimensional accuracy of complex surfaces during the machining process. Use the resulting inspection reports to monitor and control the accuracy of your CNC machining operations.	-	✓
	Part alignment Optimize the position of subsequent machining operations in 3, 4, or 5 axes based on surface inspection results. Use to automate initial part setup or when machining castings or additive parts that are difficult to setup manually.	-	✓
POSTS	Post-processing of NC code Access a library of free, editable post-processors to output machining code for a range of different machines and CNC controller types.	✓	✓