Manufacturing Aids Material Selection Guide

	MATERIAL	ADVANTAGES	LIMITATIONS	BEST FITS
FDM® THERMOPLASTICS	ASA	• Aesthetics • UV stable – long-term tooling • Moderate toughness • Color-coded tooling • T40 tip compatible • Mild alcohol resistance	• Low flexural modulus • Low heat resistance • Poor chemical resistance	• Nests and cradles • Kit boxes • Surrogate parts • Go/no-go gauges • Hand tools • Drill guides
	PC	• Moderate temperature resistance • Moderate mechanical strength	• Poor chemical resistance • Can stress-crack • Moisture sensitive	• Drill guides • Surrogate parts • Dunnage trays • Hand tools
	FDM Nylon 6™	• Aesthetics • High toughness • High tensile strength • Mild chemical resistance	• Moisture sensitive • Moderate flexural modulus	• Go/no-go gauges • Hand tools • Surrogate parts • Cradles
	FDM Nylon 12™	• High toughness • Best fatigue resistance • Mild chemical resistance	• Lower aesthetics • Moisture sensitive • Low flexural modulus	• End effectors • Feeders • Metal tool guards • Machine guards
	ULTEM™ 9085 resin	• High tensile strength and modulus • High temperature resistance	• Complexity limitations with breakaway support material	• Thermoforming • End effectors • Lifting tools/aids • Drill guides
	ABS-ESD7™	• ESD properties	• Brittle • Can slough/crayon (not compatible with all cleanroom classes)	• Cradles • Trays
	PEKK ESD	• ESD properties • High temperature resistance • No VOC's outgassing • Cleanroom compatible	• Complexity/geometry limitations with breakaway support material	• Cradles • Trays • Clean room fixtures
POLYJET™ PHOTOPOLYMERS	Digital ABS	• Aesthetics • Moderate mechanical toughness	• Brittles over time • Color changes • Low heat resistance	• Assembly fixtures • Inspection fixtures
	Rubber-Like	• Non-marring	• Low tear resistance	• Assembly fixtures • Metal tool guards
	Digital Materials (other than Digital ABS)	• Aesthetics • Integrated soft-touch points • Identification text and labeling • Color-coded tooling • Higher accuracy than FDM	• Poor chemical resistance • Low temperature resistance • Solid builds, can be heavy	• Assembly fixtures • Inspection fixtures • Go/no-go gauges

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