



Manufacturing Aids Material Selection Guide

| | MATERIAL | ADVANTAGES | LIMITATIONS | BEST FITS |
|------------------------|--|---|--|--|
| FDM® THERMOPLASTICS | ASA | <ul style="list-style-type: none"> • Aesthetics • UV stable – long-term tooling • Moderate toughness • Color-coded tooling • T40 tip compatible • Mild alcohol resistance | <ul style="list-style-type: none"> • Low flexural modulus • Low heat resistance • Poor chemical resistance | <ul style="list-style-type: none"> • Nests and cradles • Kit boxes • Surrogate parts • Go/no-go gauges • Hand tools • Drill guides |
| | PC | <ul style="list-style-type: none"> • Moderate temperature resistance • Moderate mechanical strength | <ul style="list-style-type: none"> • Poor chemical resistance • Can stress-crack • Moisture sensitive | <ul style="list-style-type: none"> • Drill guides • Surrogate parts • Dunnage trays • Hand tools |
| | FDM Nylon 6™ | <ul style="list-style-type: none"> • Aesthetics • High toughness • High tensile strength • Mild chemical resistance | <ul style="list-style-type: none"> • Moisture sensitive • Moderate flexural modulus | <ul style="list-style-type: none"> • Go/no-go gauges • Hand tools • Surrogate parts • Cradles |
| | FDM Nylon 12™ | <ul style="list-style-type: none"> • High toughness • Best fatigue resistance • Mild chemical resistance | <ul style="list-style-type: none"> • Lower aesthetics • Moisture sensitive • Low flexural modulus | <ul style="list-style-type: none"> • End effectors • Feeders • Metal tool guards • Machine guards |
| | ULTEM™ 9085 resin | <ul style="list-style-type: none"> • High tensile strength and modulus • High temperature resistance | <ul style="list-style-type: none"> • Complexity limitations with breakaway support material | <ul style="list-style-type: none"> • Thermoforming • End effectors • Lifting tools/aids • Drill guides |
| | ABS-ESD7™ | <ul style="list-style-type: none"> • ESD properties | <ul style="list-style-type: none"> • Brittle • Can slough/crayon (not compatible with all cleanroom classes) | <ul style="list-style-type: none"> • Cradles • Trays |
| | PEKK ESD | <ul style="list-style-type: none"> • ESD properties • High temperature resistance • No VOC's outgassing • Cleanroom compatible | <ul style="list-style-type: none"> • Complexity/geometry limitations with breakaway support material | <ul style="list-style-type: none"> • Cradles • Trays • Clean room fixtures |
| POLYJET™ PHOTOPOLYMERS | Digital ABS | <ul style="list-style-type: none"> • Aesthetics • Moderate mechanical toughness | <ul style="list-style-type: none"> • Brittles over time • Color changes • Low heat resistance | <ul style="list-style-type: none"> • Assembly fixtures • Inspection fixtures |
| | Rubber-Like | <ul style="list-style-type: none"> • Non-marring | <ul style="list-style-type: none"> • Low tear resistance | <ul style="list-style-type: none"> • Assembly fixtures • Metal tool guards |
| | Digital Materials (other than Digital ABS) | <ul style="list-style-type: none"> • Aesthetics • Integrated soft-touch points • Identification text and labeling • Color-coded tooling • Higher accuracy than FDM | <ul style="list-style-type: none"> • Poor chemical resistance • Low temperature resistance • Solid builds, can be heavy | <ul style="list-style-type: none"> • Assembly fixtures • Inspection fixtures • Go/no-go gauges |



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