INDRO FORGE
DESIGN - PROTOTYPES - PRODUCTION

BAYVIEW YARDS PROTOTYPING LAB

CAPABILITIES CHART

ADDITIVE

OUTCOME	MACHINE & USAGE	EXAMPLE APPLICATIONS	SCALE / SIZE	FIDELITY	LAYER HEIGHT	MATERIAL	DURABILITY	KEY ADVANTAGES
Production ready heavy duty pieces that need the stronger material properties of metal. These pieces will likely have a unique geometry, perhaps combining multiple pieces in an assembly into a single 3D printed piece. The resulting piece is solid metal and ready to be further machined or installed.	Markforged Metal X	Sacrificial tooling, End-use parts, engineering pieces, industrial effectors, defense pieces, manufacturing jigs and effectors, aerospace pieces, automotive pieces, robotics pieces.	30 x 22 x 18 cm	HIGH	.05-.125mm (Post-Sinter)	17-4 PH Stainless Steel A2 & D2 Tool Steel Inconel 625 Copper H13 Tool Steel	5 / 5 stars 4.5/5 4.5/5 3/5 4.5/5	End use metal printing Fast and reliable (high resolution) Wide range of metals
These pieces rival the aesthetic quality of injection moulded pieces. Can be used in final production designs. Fine details and excellent surface finish are apparent in these pieces. Material options can increase durability where needed. Dissolvable support material means no noticeable areas of where the supports were. Small-batch manufacturing can be used for pieces. The Fortus produces pieces that are the gold standard.	Fortus	End-use parts, engineering pieces, industrial effectors, defense pieces, manufacturing jigs and effectors, aerospace pieces, automotive pieces, robotics pieces.	40.6 x 35.5 x 40.6 cm or (16 x 14 x 16 in)	HIGH	.127 -.330 mm	ASA PC ABS-M30i ABS-M30 ULTEM 9085/1010 ANTERO	3.5/5 stars 4/5 3.5/5 3.5/5 4.5/5 4/5	High resolution with highly resistant materials - Diverse application scenario - Wide range of materials available - Perfect for engineering, functional or end-use product - Reliable - Bigger print size
Large prints that can be used in installations. Given the massive scale, pieces are suitable in a MVP. With further post-processing, pieces could be used in a final installation. Great option for developing positives for further use in vacuum-forming. While the printer is not as fast, it can be used for small-batch manufacturing given the large build platform size. Experimental multi-material (2) prints is also possible, allowing for pieces that combine rigid and flexible.	BigRep	Full scale prototypes, base tool, molds, end-use products, consumer product representation, mock-ups, more	105 x 105 x 105 cm	MEDIUM	0.2 - 1.2 mm	PLA TPU More coming soon!	3.5 / 5 stars 3.5 / 5 stars Coming soon!	HUGE printing size - Inexpensive
High quality pieces that can be installed into a final design. Variety of materials that can give high strength, high temperature, flexibility, and more. Surface finish requires post-processing due to supports. Offers great tolerances with repeatable results. Widest selection of bio-compatible materials.	Formlabs Form2	Engineering pieces, functional prototypes, enclosures, mechanisms, healthcare pieces, detailed visual concepts, end-use parts, artistic, sales models, jewelry.	14.5 × 14.5 × 18.5 cm or (5.7 × 5.7 × 7.3 in)	VERY HIGH	.025 – .3 mm	STANDARD TOUGH & DURABLE FLEXIBLE & ELASTIC RIGID & STRUCTURAL CASTABLE	2.5/5 stars 4/5 2.5/5 3/5 1/5	High resolution with highly resistant materials - - Diverse application scenario - Fairly inexpensive - Wide range of resins available - Engineering and aesthetic use
High quality pieces that can be installed into a final design. Variety of materials that can give high strength, high temperature, flexibility, and more. Less post-processing needed on the Form3 from supports. Small-batch manufacturing is possible on this larger build platform, however the cost should be considered. Offers great tolerances with repeatable results. Widest selection of bio-compatible materials.	Formlabs Form3	Engineering pieces, functional prototypes, enclosures, mechanisms, healthcare pieces, detailed visual concepts, end-use parts, artistic, sales models, jewelry.	14.5 × 14.5 × 18.5 cm or (5.7 × 5.7 × 7.3 in)	VERY HIGH	.026 – .3 mm	STANDARD TOUGH & DURABLE FLEXIBLE & ELASTIC RIGID & STRUCTURAL CASTABLE	2.5/5 stars 4/5 2.5/5 3/5 1/6	Very high resolution with highly resistant materials - - Diverse application scenario - Fairly inexpensive - Wide range of resins available - Engineering and aesthetic use
Extremely durable pieces to be used in final designs where there is high stress or high impact scenarios. These pieces will stand the test of time. Can be further enforced with rings of carbon fibre or kevlar that is inlayed. Excellent for pieces that have a unique geometry while still needing to be light weight and durable.	Markforged Mark2	End-use parts, engineering pieces, industrial effectors, defense pieces, manufacturing jigs and effectors, aerospace pieces, automotive pieces, robotics pieces.	32.0 x 13.2 x 15.4cm	MEDIUM	.1-.2 mm	ONYX with CARBON FIBER INLAY GLASS FIBER INLAY KEVLAR INLAY	4/5 stars	Closed Cell Infill with Continuous Fiber - Reinforcement Continuous Fiber Reinforcement (CFR) - Perfect to replace steel jigs and fixtures - Highly resistant to stress and impact
Prints that are suitable for usage in a MVP to beta test with users or demonstrate to stakeholders. A fast and inexpensive way to rapidly iterate pieces, while having enhanced quality from the Tinkerines. Excellent for concept designs. Can also be used with experimental / exotic materials for a variety of properties such as conductivity, varying flexibility shore hardness, elements of materials such as glass, bronze, wood, and even more.	Prusa I3 MK3	Functional test pieces, brackets, enclosures, test jigs, visual looks-like prototype, concept and artistic models, educational pieces, test pieces, form concepts.	25 x 21 x 21 cm or 9,84 x 8,3 x 8,3 in)	MEDIUM	0.05 – 0.35 mm	EXOTICS PETG ABS PLA ASA FLEX	N/A 3.5/5 2/5 3/5 stars 3.5/5 2.5/5	-Reliable -Fast iterations -Inexpensive -Wide colour array available -Easily recyclable prints
Detailed and fully coloured concept design. Excellent at illustrating concepts for stakeholders by giving a tangible piece and representing the scale. Not for use in MVPs or final production given its delicate material. Perfect option for conceptual designs.	Projet 660							
Draft prints that are suitable to show as a concept design. A fast and inexpensive way to rapidly iterate pieces for form, fit, and function. Use this option before moving onwards to a more expensive printer to finalize your design. Advantageous for small- batch manufacturing with multiple printers operating in parallel.	Tinkerine Ditto Pro	Visual looks-like prototype, concept and artistic models, educational pieces, electronics enclosures, test pieces, form concepts.	37 x 39 x 43.6 cm or (14.6 x 15.4 x 17.2 in)	LOW	0.2 - 0.3 mm	PLA	1.2 / 5 stars	- Fast iterations - Inexpensive - Wide colour array available - - Easily recyclable prints