

CAN YOUR 3D PRINTER DO THIS?

How much will Subtractive Rapid Prototyping (SRP) save you? The following examples are real world parts that were used for a variety of applications from visual concept models, to prototypes and functional production parts. All of these parts were created using Roland SRP technology which provides the following benefits: Choice of materials: Select the optimum material for your design. Why limit yourself to limited proprietary materials from 3D printer vendors? Tight tolerances and smooth surface finish: Sure some 3D printers can create smooth surfaces and tight tolerances but at a big time penalty. SRP gives you both so why compromise?



Fan Prototype

This functional model is used on our machines to blow chips out of the cutting area when milling acrylic, wood or aluminum. Once the model was created it was put to work immediately after being removed from the machine. Visit our website to see a video of this part being created and used.

Approximate part dimensions: 40mm x 40mm x 10mm | Part build time: 1.1 hour

R.O.I.	
Acetal Material	\$9.50
Labor (1/2 hr)	\$17.32
Total Cost	\$26.82
Value	\$199.00
Savings	\$172.18



Hair Dryer Prototype

When the designers wanted to test the fit and finish of a new travel sized hair dryer, they used Roland SRP technology to produce a prototype that would go beyond concept. Accurate materials, smooth surface finish and tight tolerances gave them an assembly that could stand up to thermal and impact testing.

Approximate part dimensions: 135mm x 175mm x 60mm | Part build time: 12 hours

R.O.I.	
Acetal Material	\$65.00
Labor (2 hrs)	\$69.30
Total Cost	\$134.30
Value	\$1,768.00
Savings	\$1,633.70

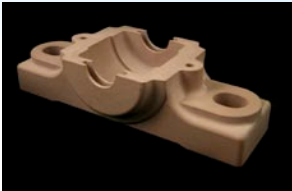


Gear Prototype

This gear was used as a prototype to test real world functionality. This is a fully operational gear cut in the exact material that the final product would be produced in. It's fit, finish, and structural integrity mimic the final product allowing for accurate component testing.

Approximate part dimensions: 51mm x 51mm x 15mm | Part build time: 3.7 hours

R.O.I.	
Nylon Material	\$5.00
Labor(1/2 hr)	\$17.32
Total Cost	\$22.32
Value	\$199.00
Savings	\$176.68



Bearing Block Prototype

Medium density tooling board provides extremely fast concept models that are dimensionally accurate. This material allows users to create concept models at a fraction of the time of plastics or non-ferrous metals giving you a dimensionally accurate, smooth surfaced model that will hold up to design reviews.

Approximate part dimensions: 165mm x 67mm x 40mm | Part build time: 3.2 hours

R.O.I.	
Tooling Board Material	\$25.00
Labor (1 hr)	\$34.00
Total Cost	\$59.00
Value	\$950.00
Savings	\$891.00



Rocker Arm Prototype

This aluminum rocker arm prototype was an early design model used to test the overall shape and function of a mountain bike part. This prototype was created in production grade material to match the production part and confirm fit, finish and functionality.

Approximate part dimensions: 140mm x 45mm x 7.5mm | Part build time: 2.1 hours

R.O.I.	
Tooling Board Material	\$25.00
Labor (1 hr)	\$34.00
Total Cost	\$59.00
Value	\$950.00
Savings	\$891.00



Fixturing Prototype

This assembly is composed of several close tolerance parts. The jig required a special fixture clamp that was not commercially available and was quickly created on a Roland SRP milling machine. The acetyl copolymer material will maintain tolerances over the entire production run.

Approximate part dimensions: 28mm x 98mm x 48mm | Part build time: 4.2 hours

R.O.I.	
Acetal Material	\$20.00
Labor (1 hr)	\$34.00
Total Cost	\$54.00
Value	\$375.00
Savings	\$321.00

CAN YOUR 3D PRINTER DO THIS?

Compare the cost of owning a Roland versus comparable 3D printers.

Comparable 3D Printer vs. Roland MDX-540A	Comparable 3D Printer ²	Roland MDX-540A
Build Area	10x10x12	15x15x6
Warranty	1 year	1 year
Machine Purchase Price	\$34,900.00	\$31,495.00
Accessories/options/support removal bath ³	\$3,000.00	\$6,970.00
Purchase Price Sub Total	\$37,900.00	\$38,465.00
Annual Maintenance	\$3,500.00	\$0.00
Annual Material Cost ¹ – Finishing costs (binders, fillers, support removal solution, support removal tools, etc)	\$2,592.00	\$432.00
Annual Cost Sub-Total	\$6,092.00	\$432.00
5 year maintenance & material cost	\$30,460.00	\$2,160.00
Total 5 year cost of ownership	\$68,360.00	\$40,625.00
5 year savings over comparable 3D printer	\$27,735.00	

Comparable 3D Printer vs. Roland MDX-40A	Comparable 3D Printer ²	Roland MDX-40A
Build Area	8x6x6	12x12x4 4.7dia x 10.6
Warranty	90 days	1 year
Machine Purchase Price	\$14,900.00	\$7,995.00
Accessories/options/support removal bath ⁴	\$3,000.00	\$4,755.00
Purchase Price Sub Total	\$17,900.00	\$12,750.00
Annual Maintenance	\$1,500.00	\$0.00
Annual Material Cost ¹ – Finishing costs (binders, fillers, support removal solution, support removal tools, etc)	\$2,592.00	\$432.00
Annual Cost Sub-Total	\$4,092.00	\$432.00
5 year maintenance & material cost	\$20,460.00	\$2,160.00
Total 5 year cost of ownership	\$38,360.00	\$14,915.00
5 year savings over comparable 3D printer	\$23,445.00	

¹ Material Cost Calculator		
Estimated cost/cubic inch	\$6.00	\$1.00
Average cu/in per part	12	12
Average cost per part	\$72.00	\$12.00
Parts per year	36	36
Total annual material cost	\$2,592.00	\$432.00

²Information correct at time of printing

³MDX-540A accessories include: safety cover, rotary 4th axis, 4 standard tools, 4 collets

⁴MDX-40A options include: dust tray, rotary 4th axis, 3D probe scanner, and 4 standard tools

Note: Parts featured on opposite side were sent to an outside service bureau whose price was average for machine shops.



To find a dealer or for more information, visit our web site at www.rolanddga.com/asd.