MODELA *Series*

For more information about these products,
visit Roland DG online at
www.rolanddg.com

Imagine.

Roland®

MODELA SRP Solutions

Dramatically Improve Your Product Designs with Smooth, High-Quality Prototypes

Powerful, High-Precision 3D Milling in a Wide Range of Manufacturing Materials

- Produces large prototypes, parts and jigs
- Mills a wide variety of materials including plastics, aluminum and brass
- Features a large work area of 500mm (X) x 400mm (Y) x 155mm (Z) [19.6" (X) x 15.7" (Y) x 6.1" (Z)]
- Advanced smoothing functions produce smooth curves and surfaces
- Powerful Roland SRP Player CAM software is included
- Built-in Automatic Tool Changer available (MDX-540A and MDX-540SA)
- Other advanced options: Rotary Axis Unit supports 360 degree and multiple-surface cuts; T-slot table provides stable production

MODELA PROII Standard SRP Model
MDX-540/540A

MODELA PROII Precision SRP Model
MDX-540S/540SA

Standard 3D Milling for Product Design and Part Prototyping

NEW

- Compact size fits on the desktop and is ideal for office use
- Mills resin materials including plastics and chemical wood
- Large work area of 305mm (X) x 305mm (Y) x 105mm (Z) [12" (X) x 12" (Y) x 4.12" (Z)]
- Easy-to-use on-screen operation panel and user interface
- Powerful Roland SRP Player CAM software included

MODELA
MDX-40A

*ZSC-1 optional sensor unit supports 3D scanning with the MDX-40A

Compact, Easy-to-Use MODELA Fits on the Desktop

- Compact and easy-to-use, even for novices
- Supports resin materials such as modeling wax and chemical wood
- Two models available:
  MDX-20: work area of 203.2mm (X) x 152.4mm (Y) x 60.5mm (Z) [8" (X) x 6" (Y) x 2.38" (Z)]
  MDX-15: work area of 152.4mm (X) x 101.6mm (Y) x 60.5mm (Z) [6" (X) x 4" (Y) x 2.38" (Z)]
- Easy-to-use Roland MODELA PLAYER 4 CAM software included
- Offers precision 3D scanning when operated with the spindle unit

MODELA
MDX-20/15

Roland®

AUTHORIZED DEALER:

Printed in Japan. RDG-416072599 10 FEB E-3 P-S

DVE
Digital Value Engineering

www.rolanddg.com

Now In-House Prototyping is Faster, Easier and More Precise Than Ever. MODELA Takes Product Design To a New Level.

Prototyping is critical to the product development process, allowing designers to both see and touch the results of their work. With a prototype, designers can review their designs at every angle and assess many attributes not reflected in printed designs or on screen — including the precise size, surface finish and ease of manufacturing of a design. Roland MODELA series 3D milling machines produce precision prototypes quickly and easily, making them ideal for in-house designing.

Roland SRP Technology

Subtractive Rapid Prototyping (SRP) is a unique prototyping method that mills materials to create a model. By contrast, Stereolithography and other additive rapid prototyping technologies produce models by layering a laminating agent. SRP has several advantages over additive rapid prototyping including lower costs, support for a wider variety of low-priced materials, and the ability to produce beautiful finishes with smooth, curved surfaces. SRP's precision results allow designers to accurately review the look and feel of a product as well as its design.

Create Precision Prototypes In-House with MODELA Subtractive Rapid Prototyping (SRP) Technology

MODELA with SRP technology supports a wide variety of prototyping materials for the applications driving your business.

Design Prototypes

Product designers rely on prototypes to thoroughly review a design and to inspect its surface finish. The MODELA series creates prototypes in ABS and other materials used to produce actual products. As a result, you can review a prototype that closely matches your final product.

Jigs,molds and Part Production

The MDX series produces precision molds, parts and jigs for small lot production. They can also be used to produce a portion of a product. The MDX-540/540A series mills light metals such as aluminum and brass to meet a range of production demands.

Working Prototypes

MODELA allows you to produce and assemble precision prototypes part by part, in your choice of materials. When assembled, you can evaluate the structure, movement, functioning and other attributes of your prototype.

Materials supported by the MODELA Series

Model Material	MDX-540/MDX-540A	MDX-40A	MDX-20/MDX-15
Chemical wood	Yes	Yes	Yes
ABS	Yes	Yes	Yes
Acrylic	Yes	Yes	Yes
POM	Yes	Yes	Yes
Modeling wax	Yes	Yes	Yes
Polyurethane	Yes	Yes	Yes
Aluminum	Yes	No	No
Brass	Yes	No	No

The MODELA Advantage

The MODELA system offers many advantages starting with affordability. Low initial and running costs significantly lower overall costs of prototyping. In addition, many MODELA users find that MODELA SRP technology has helped increase their knowledge of manufacturing processes. As a result, their designs are better suited for mass production and/or mold making and their development cycles are shorter.

Cost Savings

Development Department for an Audio Products Manufacturer

"We successfully lowered our prototyping costs with MODELA."

Before Installing MODELA:
We had to outsource prototyping. The costs were excessive and we were looking for ways to reduce them.

After Installing MODELA:
Within our first year of installing MODELA, we realized significant cost savings. At first, we were concerned about whether we really could operate the machine without previous milling experience. We quickly learned the skills we needed and were effectively using the machine within a week. We have since established a successful system to produce prototypes both in-house and through outsourcing depending on the application.

Shorter Development Cycles

Design Department for an Agricultural Instruments Manufacturer

"Now we can complete a MODELA prototype the next day – instead of waiting one week for our outsourcing suppliers to create it."

Before Installing MODELA:
It took more than a week to just order a prototype when factoring in the internal approvals and paperwork involved. It was difficult to communicate effectively with our outsourcing suppliers to ensure accurate production of assembly fixtures for our product prototypes.

After Installing MODELA:
Now we can immediately produce a prototype after finishing the design. We can complete a prototype for a simple part the same day - and for larger, more complex parts the following day.

Better Quality Products

Design Department for an Electric Appliance Manufacturer

"Now that we can produce our own prototypes, we can create as many as we need to meet our high quality design standards."

Before Installing MODELA:
We couldn't obtain a prototyping budget for small-lot production. Instead, we assessed the design using the CAD data we could view on screen. There were many details we couldn't visualize so our review process was compromised.

After Installing MODELA:
MODELA transformed our discussions and the entire review process by allowing our project members to both see and hold the completed prototype. We are now able to create as many prototypes as we need to perfect our designs.

Increased Production Efficiency

Production Control Department for an Electronics Manufacturer

"With MODELA, we have standardized our finishing process for formed/molded parts."

Before Installing MODELA:
We relied on skilled professionals to manually finish formed and molded parts for our high-end product line. While inefficient, this system worked so we were hesitant to try something new.

After Installing MODELA:
With MODELA, burrs can be removed for exceptional quality results. MODELA has increased our productivity by allowing our skilled professionals to engage in more complex work.

Lower Security Risks

Development Department for a Cosmetics Manufacturer

"We have successfully established our own internal system and no longer have to take new product designs outside the company before their release."

Before Installing MODELA:
Our cosmetics designs are highly confidential and must be protected from competitors. Before we had the MODELA system, we needed outside suppliers to produce our prototypes.

After Installing MODELA:
Now we prototype container designs securely in-house. We no longer risk exposing our designs to others outside the company before their release.

MODELA Series Features

Subtractive Rapid Prototyping Technology is what sets MODELA apart from the competition: beautifully smooth finishing, low running costs, and support for a wide variety of materials. In addition, MODELA is a powerful teaching platform for the skills and techniques required for product design, prototyping and jig/part production.

Low Running Cost

For a small initial investment, the Roland MODELA series allows you to use a wide variety of common, low-cost manufacturing materials.* MODELA includes powerful software and is designed for ease of use. No previous experience is required to generate high quality prototypes right at your desktop.

*Refer to the chart on page 4 for supported materials.

Beautiful Finish

Smooth round curves and a beautiful finish — MODELA eliminates the need for labor intensive post-processing such as surface finishing.

Mills a Wide Variety of Manufacturing Materials

MODELA allows you to mill a wide variety of materials used to produce actual products including ABS, POM, acrylic, modeling wax, chemical wood and more. The high-performance MDX-540 can also mill light metals such as brass and aluminum.
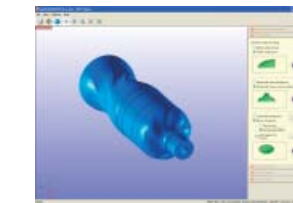
Confirms Manufacturing Results

With subtractive RP technology, users can thoroughly review the surface finish of their prototypes by actually touching and holding them. The prototyping process can be repeated as many times as needed to optimize design quality. Highly accurate prototypes improve communication between design team members and the production department for a smoother, shorter product development cycle.

Powerful, Easy-To-Use CAM Software Included

Every MODELA comes with easy-to-use Roland CAM software that transforms 3D CAD or CG data into milling data. No previous experience is required.

• Roland SRP Player

(Optional professional CAM software available)

• File formats compatible with SRP Player software (included in MDX-540/540A and MDX-40A)

File extension	Software version/File type	Data that can be imported	Comments
IGES (IGS)	5.2	Curved surface only (element number: 128, 143, 144)	No 2D drawing
STL	Binary, ASCII	Polygon mesh	–
DXF	Rhinoceros 1.0, 1.1, 2.0, 3.0, 4.0	Polygon mesh	No 2D drawing but MODELA can cut 2D using included Dr. Engrave.
3dm	–	Polygon mesh and curved surface	No 2D. Reads hidden data

• File formats compatible with MODELA Player 4 software (included in MDX-20/15)

File extension	Software version/File type	Data that can be imported	Comments
IGES (IGS)	5.2	Surface only	No solid 2D drawing
STL	Binary, ASCII	Polygon mesh	–
DXF	AutoCAD® Release 12J	3D face and polyline	Able to read polyline in 3D mesh and polymesh. No solid 2D drawing
XVL	XVL3	–	–

Professional Prototyping, Even for Novice Users

Roland DG products are designed for ease of use. Even novices can achieve professional results without previous experience or special skills. The MDX is compact and fits comfortably into your office or shop environment. You also get legendary Roland reliability and world-class service and support including training through Roland workshops and seminars.
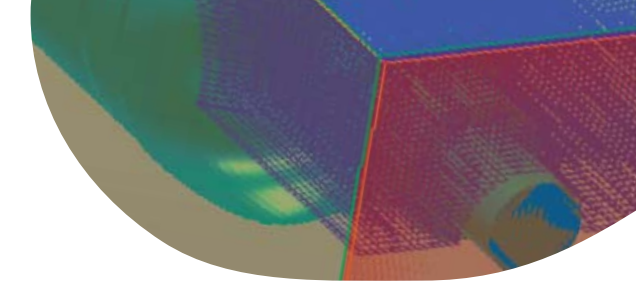
Roland DG Creative Center

Roland DG Academy

Chemical wood

Wood

Chemical wood

Realistic finishes and appearances can be added with the Roland VersaUV printer/cutter. See page 10.
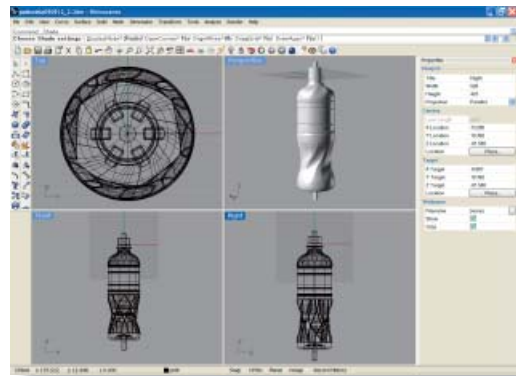
ABS

POM

Acrylic

MODELA Prototyping Workflow
(Using MDX-40A)

Producing prototypes with MODELA requires just two simple steps: first, create the design data; second, mill your prototype. Even beginners can mill a 3D prototype with MODELA.
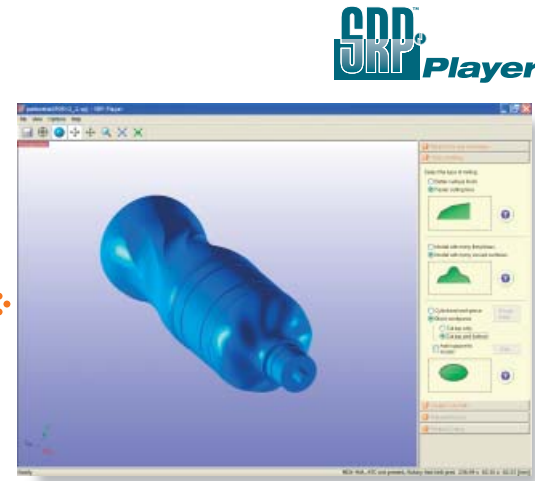

Create Data

DXF: Polygon mesh
(2D not compatible)
IGES: IGES 5.2
(curved surface compatible, 2D not compatible.)
3DM: Rhinoceros 1.0, 1.1, 2.0, 3.0
(2D not compatible)

Import the design file

3D CAD/CG

MODELA allows you to design your prototypes using popular 3D CAD/CG software such as Solidworks®, Rhinoceros®, Shade and others. You can also use your own software to generate data in one of the file formats listed here.

CAM

Every MDX-40A comes with powerful Roland SRP Player CAM software. Programming SRP Player settings is an easy, step-by-step process. The display will guide you through each step.

*MODELA Player 4 is included in the MDX-20/15.

Just Five Steps Generate the Ideal Tool Path for Your Prototype

Step1	Step2	Step3	Step4	Step5

| Determine the size and orientation of your prototype. | Select the type of milling required. | Generate your tool paths. | Preview the milling process virtually on screen. | Begin milling. |

*You may require additional settings depending on the material used and size of your prototype.

Milling with MODELA

1 Attach the material to the mill.

2 Attach the milling cutter.

3 Start milling.

4 MODELA mills 360 degrees automatically with the Rotary Axis Unit.

5 Remove the milling support.

6 Finish.

How you position the material differs depending on the shape of the material and your prototype design. The Rotary Axis Unit was used to produce this bottle prototype.

Attach the milling cutter best suited for the material and milling conditions. You can quickly set the origin on screen.

Once you finish attaching the milling cutter and positioning the material, close the cover. You are now ready to start milling. Select the Start Cutting button on your screen and the MDX will begin milling.

With the optional Rotary Axis Unit, objects can be milled unattended at any angle from 0 to 360 degrees and around multiple surfaces.

Once MODELA has finished milling, remove the part from the supports that secured the material to the unit and file the cut surfaces away.

Your prototype displays accurate dimensions and smooth curves. It can be made more realistic by adding a painted finish (not shown).

Advanced Prototyping

More advanced prototyping can be completed by combining the MODELA with a Roland 3D scanner and/or a Roland inkjet printer. You will be able to produce more realistic prototypes in an enhanced prototyping environment.
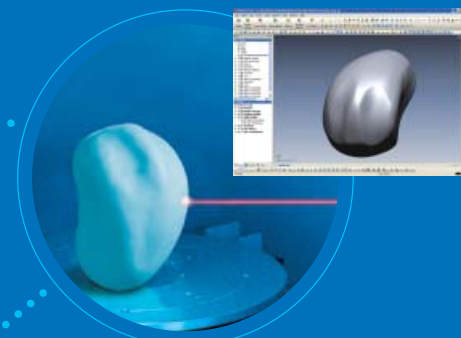
3D Laser Scanner

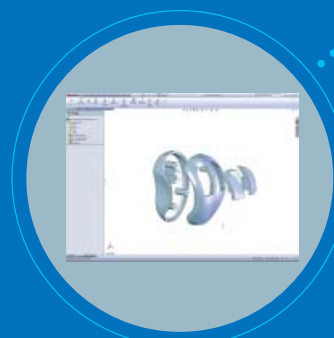### Advancements in Product Design with Reverse Engineering

When you combine your MODELA with a Roland LPX-RE series 3D laser scanner, 3D objects and clay models that are produced manually can easily be transformed into 3D CAD data for your design.

1 **Create clay model.**

2 **Scan the clay model with the LPX.**

Edit the scanned data with PixForm Pro II.

3 **Edit the scanned data with 3D CAD.**

4 **Produce a prototype with MODELA.**

• Scans a wide variety of objects including hard surfaces and soft materials
• Roland Pixform Pro II reverse modeling software is included and takes you from prototyping to the production process. Pixform Pro II generates lines, surfaces and models based on the data scanned with your LPX — data that can be used in 3D CAD software.
• Three models are available: the LPX-1200 high-quality scanner, the LPX-600 for scanning larger objects, and the compact, easy-to-use LPX-60 scanner

*Three-dimensional shapes may be protected under copyright. Customers are responsible for observing laws and ordinances when scanning.
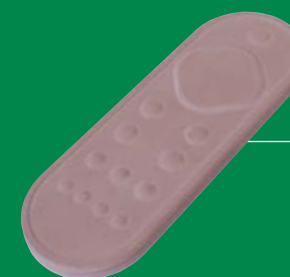
LPX-600RE

LPX-60RE

LPX-1200RE

3D LASER SCANNER
PICZA LPX RE Series

RE
Reverse Engineering

UV-LED Inkjet Printer/Cutter

Add Special Printed Effects to Your In-House Prototypes

With the addition of a Roland VersaUV UV-LED inkjet printer/cutter, you can create more complete prototypes at an affordable cost. VersaUV prints in multiple layers for a wide range of textures and effects. For example, you can print VersaUV graphics on transparent film to create a decal or membrane panel as an external facing for your prototype. The results will accurately reflect the final product — including labeling and finishes.

Print decals or membrane panels for external facing with VersaUV.

Create a prototype with MODELA.

The Power of Presentation with VersaUV

Layered printing for three-dimensional effects

Rich glossy finishes

Sophisticated matte finishes

Prints on hundreds of substrates including genuine leather

Prints fabrics

Creates product labels with transparent film

Energy Efficient UV-LED Lamps, High Resolution Printing, Contour Cutting and More

• The newest UV-LED lamp technology is designed for low energy consumption and high-quality prints
• The LEC-330 is able to print on card stock, plastic board and polycarbonate, etc., up to 1 mm (0.04") thick for a wide variety of prototyping applications (except metal)
• Maximum print resolution of 1440 dpi for beautiful results across a wide range of applications
• Roland VersaWorks RIP software is built on the genuine Adobe PostScript® 3™ engine for consistent print quality
• Prints and contour cuts graphics in virtually any shape, all on one device

VersaUV
PRINT&CUT   LEC-330 / LEC-300
UV-LED Inkjet Printer/cutter

Adobe PostScript 3

Print

UV LED

Maximum media width	Maximum printing/ cutting width
762mm(30")	736mm(29")