Roland

Turning your ideas into reality. Since 1986

3D PRINTER **ARM-10** MILLING MACHINE **SRM-20**

Individuals created the world around us by giving form to their dreams and ideas. We believe imagination and ideas are our most powerful force, opening up limitless possibilities. Our goal is to provide everyone the ability to turn their creativity into the satisfaction of monozukuri -- the enjoyment of making things. monoFab desktop tools are based on the 3D modeling technology that Roland DG pioneered and has continually enhanced since 1986. Incorporating both additive and subtractive 3D technologies, you can now realize your creativity like never before. The fabrication facility of the future is here -- right on your own desk.

monoFab

Roland OnSupport ensures convenience and peace of mind

Roland OnSupport software connects lifestyles with resources and increases the efficiency of our products. Software updates are available through OnSupport. In addition, notifications of completed production and job reports are sent directly to your cell phone or computer so you can be confident in knowing the progress of your models, even when you are away from your desk.

*Use of Roland OnSupport requires an Internet connection.

1. Download software updates and drivers.
2. Now you can concentrate on other tasks and an email will keep you informed of the job status.
3. Support information for your model is accessible with just one mouse click. No more frustration and wasted time trying to find what you need.
4. Improve your skills with useful information available exclusively through OnSupport.

Unmatched service and support

Roland DG Creative Center : Our own collection of real-world applications is a great source of information and inspiration. Explore our digital product gallery for new ideas you can apply to your own business.

Roland DG Academy : To get the most from your product, take advantage of our extensive training resources worldwide. Roland Academy teaches everything from product basics to advanced production techniques, applications and more.

Roland DG Care : As a Roland owner, you get complete support for the life of your product. A full range of customer services is offered.

ECO Roland DG products that feature this environmental label meet the company's criteria for environmental consciousness, a set of standards based on ISO 14021 self-declaration type II. For more information, please visit www.rolanddg.com.

monoFab ARM-10

Specifications (ARM-10)		
Build technology		Layer projection system
Build size		130 (W) x 70 (D) x 70 (H) mm (5.1 (W) x 2.7 (D) x 2.7 (H) inches) [Job volume of resin is up to 300 g (0.7 lbs)]
Build speed		10 mm/h (Layer pitch = 0.15 mm)
Light source		UV-LED (Ultraviolet light emitting diode)
XY resolution		0.2 mm
Z axis resolution		0.01mm
Power requirements		Machine: DC 24 V, 0.6 A, Dedicated AC adapter: AC 100 V to 240 V±10%, 50/60 Hz
Power consumption		15 W
Acoustic noise level		During operation: 55 dB (A) or less, During standby: 49 dB (A) or less
Dimensions / Weight		430 (W) x 365 (D) x 450 (H) mm (17.0 (W) x 14.4 (D) x 17.8 (H) inches) / 17 kg (37.5 lbs)
Interface		USB
Environment	During operation	Temperature of 20 to 30°C, 68 to 86°F, 35 to 80% relative humidity (noncondensing)
	Not operating	Temperature of 5 to 40°C, 41 to 95°F, 20 to 80% relative humidity (noncondensing)
Included items		AC adapter, Power cord, USB cable, Liquid material vat, Printing and washing tools (Metallic spatula, Plastic spatula, Tweezers, Washing container x 2, Hexagonal wrench, Spanner, Rubber gloves, Work tray, etc.), Startup page information card, Read this first

monoFab SRM-20

Specifications (SRM-20)		
Cuttable material		Resins such as chemical wood and modelling wax (metal not supported), substrates for machining
X, Y, and Z operation strokes		203.2 (X) x 152.4 (Y) x 60.5 (Z) mm (8 (X) x 6 (Y) x 2.38 (Z) inches)
Distance from collet tip to table		Maximum 130.75mm (5.15 inches)
Table size		232.2 (X) x 156.6 (Y) mm (9.14 (X) x 6.17 (Y) inches)
Loadable workpiece weight		2 kg (4.4 lbs)
X-, Y-, and Z-axis drive system		Stepping motor
Operating speed		6 ~ 1800mm/min (0.24 ~ 70.87inches/min)
Software resolution		0.01 mm/step (RML-1), 0.001mm/step (NC code) [0.00039 inches/step (RML-1), 0.00039 inches/step (NC code)]
Mechanical resolution		0.000998594 mm/step (0.00000393 inches/step)
Spindle motor		DC motor Type 380
Maximum spindle rotation		7,000 rpm
Cutting tool chuck		Collet method
Interface		USB
Control command sets		RML-1, NC code
Power requirements		Machine: DC24V, 2.5A, Dedicated AC adapter: AC 100V±10%, 50/60Hz
Power consumption		Approx. 55W
Acoustic noise level		During operation: 65 dB (A) or less (when not cutting), during standby: 45 dB (A) or less
Dimensions / Weight		431.0 (W) x 426.6 (D) x 426.2 (H) mm (17.0 (W) x 16.80 (D) x 16.78 (H) inches) / 19.6 kg (43.2 lbs)
Environment		Temperature of 5 to 40°C (41 to 104 °F), 35 to 80% relative humidity (noncondensing)
Included items		AC adapter, Power cord, USB cable, Cutting tool, Collet, Set screw, Spanners (7.10mm / 0.28, 0.39 inches), Hexagonal wrench (size 2.5 mm / 0.08, 0.12 inches), Positioning pins, Doublesided tape, Startup page information card, Read first[Booklet]

Optionally Available Items (ARM-10)

Item	Model	Description
Resin	PR10-SET	350 g bottle
Liquid material vat	LM610	For replacement

Optionally Available Items (SRM-20)

Item	Model	Description
Endmills		
Square endmills	ZHS-100	High speed steel dia. 1.3(.1)×6(.6×.50)L×2NT
	ZHS-200	High speed steel dia. 2.6(.1)×6(.6×.50)L×2NT
	ZHS-300	High speed steel dia. 3.1(2.(.1×6(.6×.50)L×2NT
	ZHS-400	High speed steel dia. 4.1(2.(.1×6(.6×.50)L×2NT
	ZHS-500	High speed steel dia. 5.1(2.(.1×6(.6×.55)L×2NT
	ZHS-600	High speed steel dia. 6.1(2.(.1×6(.6×.55)L×2NT
	ZHS-3015	High speed steel dia. 3.1(2.(.1×6(.6×.50)L×2NT, 2piece
Ball endmills	ZCB-150	Cemented Carbide R1.5 2(1.6)(.4)×6(.6×.55)L×6(.6×2NT
	ZCB-200	Cemented Carbide R2 2(1.6)(.4)×7.2(.6×.70)L×6(.6×2NT
	ZCB-300	Cemented Carbide R3 3(2.4)(.6)×8(.6×.80)L×6(.6×2NT
Engraving cutters		
Engraving cutters (for plastic)	ZEC-100	Cemented Carbide dia. 6×50 (L)×0.025 (W)
Collets		
Collets (for endmills)	ZC-20-30	dia. 3 mm
	ZC-20-32	dia. 3.175 mm
	ZC-20-40	dia. 4 mm
	ZC-20-60	dia. 6 mm
Other		
Spindle motor	SM-20	For replacement
Spindle unit	SS-20	For replacement

Unit: mm, dia. = flute diameter, R = flute radius, lc = cutting length, l = flute length, d = shank diameter, L = overall length, NT = number of flutes

System Requirements (ARM-10/SRM-20)

Operating system	Windows® 7/8/8.1 (32-bit/64-bit edition)*
CPU	Intel® Core™ 2 Duo or more (Core™ i5 or more recommended)
RAM	1GB (2GB or more recommended)
Video card and monitor	A resolution of 1,280×1,024 or more recommended
Free harddisk space	100 MB or more recommended
Other requirements	Internet connection and web browser, Internet Explorer® version 10 or more recommended

*Roland OnSupport and included software for SRM-20 are 32-bit application, which run on 64-bit Windows® with WoW64 (Windows 32-bit on Windows 64-bit).

Roland

AUTHORIZED DEALER:

Printed in Japan, RDG-416100999 AUG 14 D-3 D-S

www.rolanddg.com

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DVE Digital Value Engineering

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ARM-10 3D PRINTER **SRM-20** MILLING MACHINE

PROTOTYPING WORKFLOW

Design

Design

3D Modeling

3D CAD/CG data is opened in the included Roland software where it is optimized for either 3D printing or milling.

3D Printing

ARM-10

By using the ARM-10 3D printer, designs which would challenge standard milling, such as undercuts and complex shapes, can be produced with just a few software steps. Your ideas are transformed into tangible 3D objects quickly and easily, allowing you to validate your designs.

SRM-20

The SRM-20 milling machine produces beautiful finishes, including smooth, curved surfaces and accurate, fine details. Precision milling makes it ideally suited for creating prototypes which require mechanical checks and confirmation of fit. And, due to its ability to cut a wide range of materials, models will look and feel closer to the final production runs and are ready for final validation.

3D Milling

Check

A real prototype can be manufactured at an early stage of the design process, enabling detailed inspection of aesthetics, structure, movement, fit, etc. Modifications to the design can then be made at the most effective time, without additional costs.

Finish

A CREATOR'S VIEW

"Allowing the user to personally experience aspects of both design and engineering"

Product Designer
Hiroshi Yasutomi

— The actual 3D sample production process

I produced an active speaker prototype using monoFab. I used the ARM-10 3D printer to produce the external parts since these shapes are complex, and used the SRM-20 milling machine to model the cabinet where milling precision as well as selecting the suitable material was required. In this way, I made the most of the respective strengths of the 3D printer and the milling machine, using them each as appropriate for the purpose and form. By using 3D printers and milling machines together, work can quickly progress to significantly reduce workflow. Actually, I think this probably made it possible to produce a sample in a much shorter time than usual. It also frees up time to try out additional ideas, and if mistakes are made early on in the prototype stage, these can be used to generate feedback that will result in production of a final version with greater precision.

— How can monoFab be leveraged in the design process?

What is really important in product design is to create beautifully comfortable designs. Furthermore, it is required to consider what type of personal experience is ultimately delivered and which enjoyable things can be proposed to the user. It's not really possible, however, to share personal experience through sketches or words alone. At times like that, the use of 3D printers or milling machines to give form to objects delivers something that can be touched by hand and truly experienced, which can then be used to check user-friendliness. It's even possible to grasp structural inconsistencies at early stages that could not be seen in sketches. With monoFab and its two means of expression – printing and milling – I thought this would provide a powerful tool for creating personal experiences through prototyping, not only in design but also in engineering.

> www.rolanddg.com/monofab/interview/01.html

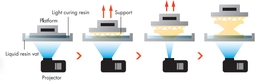
3D PRINTER

3D desktop printer brings your ideas to life

monoFab ARM-10

Projector-type 3D printer fits on your desk

The newly developed desktop ARM-10 3D printer brings together Roland DG's 3D modeling technologies. It features a proprietary projector lens and Roland's imageCure resin, creating 3D models using UV light. The acrylic resin becomes semi-transparent when cured. Post-processing, such as support removal, polishing, and adding color are simple to do.



The UV lamp instantly cures and laminates acrylic resin to build 3D shapes. The projection system allows simultaneous production of multiple objects within the same work area, enabling efficient 3D printing.

Roland software supports 3D printing operation even for novice users

monoFab Player AM enables data correction, with a healing function to fill in any gaps in 3D data and simplification of meshes, layout editing and automatic support generation. The user-friendly interface is easy to use, making it ideal even for beginners.

monoFab Player AM

Create complex shapes with minimum resin consumption

With 3D printing, parts which previously required multi-axis milling, such as complex objects with undercuts, can be built quickly and easily. By using a suspended build system, resin consumption is kept to a minimum, making model production efficient and affordable.

Includes support tray and containers to remove excess uncured resin. Also spatula and tweezers for support removal.

MILLING MACHINE

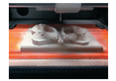
Desktop milling machine for precision 3D modeling

monoFab SRM-20

The next evolution in compact milling machines

The SRM-20 is Roland's latest generation desktop milling machine for the office, studio and educational environment. Since pioneering desktop milling in 1986, Roland has continued to perfect our expertise in delivering accuracy and efficiency in a compact format. The SRM-20 incorporates innovative features, including a new spindle, collet, circuit boards and control software. The result is a leap forward in milling precision, speed and ease of use.

The SRM-20 can mill a variety of non-proprietary materials typically used for prototyping, including chemical wood, acrylic and modeling wax. Optional collets are also available to extend the mill's capability with a wide range of end mill shapes and sizes, ideal for creating beautiful finishes and intricate details.



Designed for clean and secure use in your office or classroom

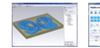
The SRM-20 includes an interlocked full cover and a dust-collection tray to keep your environment clean and clear of waste material. For increased safety, opening the cover automatically stops the machine.

Simple operation for optimum results

Designed for ease of use, the SRM-20 supports Roland's unique "VPanel," an on-screen operation panel for the computer. By using the speed-controlled 4-way cursor movement, the origin point can be set quickly and accurately. Spindle RPM and milling speed can be altered during milling, allowing full control over the results and milling time.

3 types of software included for ease of use, even for beginners

MODELA Player 4 is a CAM software that automatically calculates and displays the cutting tool path from 3D data created in commercial 3D CAD software or downloaded from the Internet. iModela Creator is a 2D milling software for processing 2D data such as text and graphics. ClickMILL provides the user with direct control of the machine without the need to access CAD or CAM software when drilling holes or cutting pockets and other finishing processes. All software can be used individually as needed.



MODELA Player 4

iModela Creator

ClickMILL

> www.rolanddg.com/monofab/