Imagine.

Roland®

DVE
Digital Value Engineering

Desktop 3D Scanning and Milling

MODELA Model:

MDX-20/15

Transforming Ideas into Reality:Roland Revolutionizes 3D CAD

MAIN FEATURES

1 Easy-to-Use, Compact Design

The MDX-20/15's stylish good looks and compact size make it an attractive addition to your desktop. Yet, it is also a very powerful performer, one that is surprisingly easy to use, even for first time users. Just plug it in to your computer as you would a desktop printer with an RS-232C cable. By following the simple instructions included in PDF format, even a beginner can be scanning and milling in minutes.

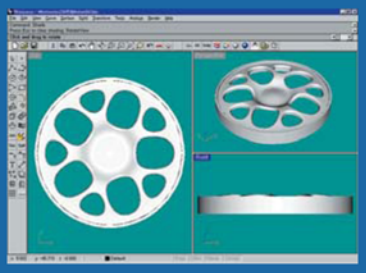
2 Choose from Two Models

MDX-20 **Maximum work area:**
203.2mm(X) x 152.4mm (Y) x 60.5mm (Z)
8 in. (X) x 6 in. (Y) x 2-3/8 in. (Z)

MDX-15 **Maximum work area:**
152.4 mm (X) x 101.6 mm (Y) x 60.5 mm (Z)
6 in. (X) x 4 in. (Y) x 2-3/8 in. (Z)

3 Compatible with Popular Software

Adding to its functionality, the MDX-20/15 works with a variety of popular 3D CAD and computer graphics software programs, including SolidWorks®, Rhinoceros®, VectorWorks®, LightWave®, VisualMill and 3d Studio Max,® allowing you to design in the program you're most comfortable with.



4 3D Scanning and Milling in One

The MDX-20/15 is the culmination of over ten years of innovative product development in scanning and milling by Roland engineers. Utilizing innovative Roland Active Piezo Sensor (R.A.P.S.) technology, the MDX-20/15 is a precision 3D scanner, capable of scanning objects at 4 to 15 mm per second with a resolution of up to 0.05 mm (0.002"). Selecting the sensor unit with the spindle turns the MDX-20/15 into a powerful CNC mill capable of cutting light metals, including aluminum and brass.

Modeling & Scanning

Desktop 3D Scanning and Milling

MODELA Model: MDX-20/15

The Power of 3D Modeling on Your Desktop

Seeing your ideas take shape has always been the dream of the 3D designer. Today's powerful, lower-cost CAD workstations and software help make this dream a reality as never before. The reality is, however, it can still take days or weeks to go from a CAD drawing to having a part, mold, or prototype. But not any longer. Now Roland's MDX-20 and MDX-15 put you in control with the power of 3D scanning and milling on your desktop.

Easy-to-use and compatible with many popular 3D CAD software programs, the MDX-20/15 is an affordable, all-in-one scanning and milling device, perfect for a variety of product design tasks, from model and jewelry making to molds, rapid prototyping, small lot production and package design. Use it to test and modify your designs, reducing errors, time and cost.

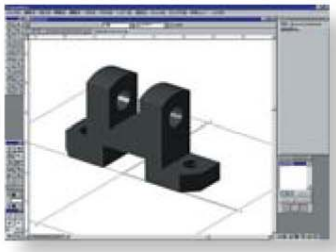
Model: MDX-20
Max operation area : 203.2 mm (X) x 152.4 mm (Y) x 60.5 mm (Z)

Model: MDX-15
Max operation area : 152.4 mm (X) x 101.6 mm (Y) x 60.5 mm (Z)

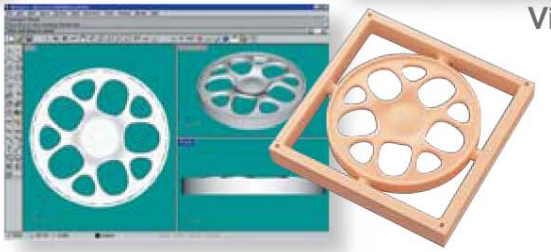
Streamline the E

Compatible with Popular 3D Software

SolidWorks®

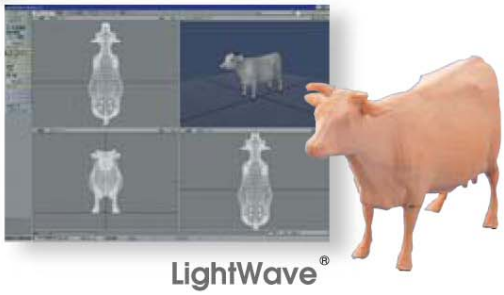


VisualMill



Rhinoceros®

3d studio max®



LightWave®

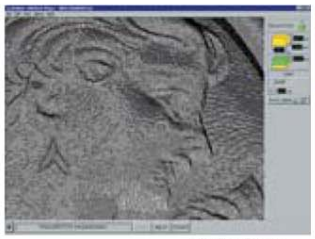
Applications Software Included

The MDX-20/15 comes standard with powerful application software compatible with Windows® 95/98/Me/NT® 4.0/2000/XP, Windows Vista®, Windows®7 and 8* making it easy to use right out of the box.
*Dr.PICZA is not compatible with Windows®8.

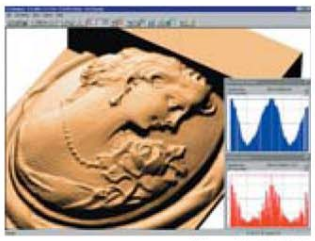
MODELA Player is a numeric control software application that allows importing of 3D files from most popular computer graphics and CAD applications. Included with MODELA Player are libraries of various tool diameters and shapes with their pre-determined cutting speeds and depths. MODELA Player facilitates uniform 3D scaling, selection of milling direction and automatic generation and display of the tool path.

Virtual MODELA provides a quick preview of the entire milling operation. This powerful feature eliminates milling errors, enables simulation of finished shapes and estimates production time.

Dr. PICZA Scanning Software features a dynamic graphic display and diverse editing functions. Dr. PICZA features control functions such as scan pitch and area settings, plus numerous editing functions including a handy convex/concave inversion function for making molds, a mirror function for creating symmetric data, a tilt adjustment function, curve smoothing, and a function for adjusting the height of surfaces. A preview function lets you check the image from any angle using a wide frame. You can even display color and texture renderings. PICZA scanning data can be stored in its original format, or exported in DXF, IGES, VRML, or as Point Cloud data (ASCII).



MODELA Player



Virtual MODELA

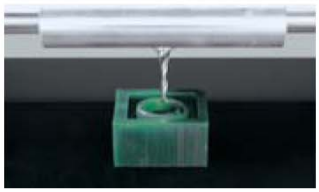
Dr.PICZA

Entire Design Process

Milling

The advantages of physical models are many, including the ability to check fit, weight, and center of gravity, etc., and then make changes as necessary. With the MDX-20/15's spindle unit installed, you're ready to transform your ideas into reality. A variety of tools can be used, including straight-end mills or cutters for rough cuts and square edges, or ball-end mills for finishing. The MDX-20/15 mills ABS, acrylic, woods, plaster, styrene foam, chemical wood, modeling wax, and light metals such as aluminum and brass.

Spindle unit

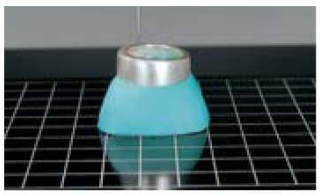


MODELA Player quickly imports your design and prepares for milling. To begin, set the model's scale and milling direction from the tool and material libraries in the software. Next, select the size and type of materials to be milled. MODELA Player automatically sets the best milling parameters based on the materials you choose. Then click start. That's all there is to it. Your ideas are quickly transformed into reality, whether mockups, prototypes, molds, or small lot production of finished parts.

Scanning

The MDX-20/15 is ideal for reverse engineering. Before beginning your designs, you can use the MDX-20/15 to scan and digitize data from an existing part or mold for your CAD drawings. Due to the precision of its Roland Active Piezo Sensor (R.A.P.S.) technology, the MDX scans a wide range of objects, including soft objects like clay and fruit, etc., that conventional contact scanners can't. It can even scan glass or acrylic - an impossibility with optical scanners because their light beams pass through the material.

Sensor unit



To begin scanning, simply install the sensor unit on the device. Open the *Dr. Picza* software which controls processing, define the scan area and select the level of resolution you would like - from 5.00 mm up to 0.05 mm. Click "Scan" and the MDX-20/15 goes to work. For fine detail areas, you can rescan at a higher resolution. The MDX-20/15 automatically combines two or more scans.

SPECIFICATIONS

	MDX-20	MDX-15
XY table size	220 mm (X) x 160 mm (Y) (8-5/8 in. x 6-1/4 in.)	170 mm (X) x 110 mm (Y) (6-11/16 in. x 4-5/16 in.)
Max. operation area	203.2 mm (X) x 152.4 mm (Y) x 60.5 mm (Z) (8 in. (X) x 6 in. (Y) x 2-3/8 in. (Z))	152.4 mm (X) x 101.6 mm (Y) x 60.5 mm (Z) (6 in. (X) x 4 in. (Y) x 2-3/8 in. (Z))
Max. table load weight	1000 g (2.2 lb.)	500 g (1.1 lb.)
Interface	Serial (RS-232C)	
Control keys	STANDBY key, VIEW key, TOOL-UP key, TOOL-DOWN key	
LED	SCANNING MODE LED, MODELING MODE LED, VIEW LED	
Power Pack	Exclusive AC adapter (DC+19V 2.1 A)	
Acoustic noise level	Standby mode : under 35 dB (A) Operation mode (not cutting) : under 70 dB (A) (According to ISO 7779)	
External dimensions	476.8 mm (W) x 381.6 mm (D) x 305 mm (H) (18-13/16 in. (W) x 15-1/16 in. (D) x 12-1/16 in. (H))	426 mm (W) x 280 mm (D) x 305 mm (H) (16-13/16 in. (W) x 11-1/16 in. (D) x 12-1/16 in. (H))
Weight (unit only)	13.7 kg (30.2 lb.)	9.6 kg (21.2 lb.)
Operation temperature	5 to 40℃ (41 - 104˚F)	
Operation humidity	35 to 80 % (no condensation)	
Accessories	AC adapter: 1, power code: 1, Roland Software Package CD-ROM: 1, MODELA Player 4 CD-ROM: 1, spindle unit: 1, sensor unit: 1, cap screw M4x15 : 4, tool:1, set screw M3x3 : 2, double-sided tape: 1, front cover: 1, hexagonal wrench (size : 3 mm) :1, hexagonal wrench (size : 1.5 mm): 1, positioning pins: 3, clay: 1, MDX-20/15 user's manual: 1, USB to RS232C converter cable: 1	

*The MDX-20/15 includes PS-6 (a spindle unit with a jaw diameter of 6 mm) as standard accessory. The MDX-20/15 for U.S. and Canada includes PS-1/8 instead of PS-6.

Modeling Functions	
Tool chuck	6 mm or 1/8 in. tool chuck included
Spindle motor	10W (DC motor)
Software resolution	0.025 mm/step (0.000984 in./step)
Mechanical resolution	0.00625 mm/step (0.000246 in./step)
Revolution speed	6500 rpm
Feed rate	0.1 to 15 mm/sec. (0.00393 to 9/16 in./sec.)
Acceptable material	Wood, Plaster, Resin (modeling wax, styrenform), Chemical wood
Acceptable tool	End mill, Drill

Scanning Functions	
Sensor	Roland Active Piezo Sensor (R.A.P.S.) Probe length 60 mm (2-5/16 in.), tip bulb diameter 0.08 mm (0.00315 in.)
Scanning method	Contacting, mesh-point height-sensing
Scanning pitch (Dr. PICZA)	X/Y-axis directions -- 0.05 to 5.00 mm (0.002 to 0.20 in.) (settable in steps of 0.05 mm (0.002 in.)) Z-axis direction -- 0.025 mm (0.000984 in.)
Scanning speed	4—15 mm/sec. (1/8—9/16 in./sec.)
Exportable file formats	DXF, VRML, STL, 3DMF, IGES, Grayscale, Point Group and BMP

OPTIONS

Spindle unit with tool chuck

Product number	Applicable tool shank diameter	Quantity per package
PS-3	3 mm	1 pce.
PS-4	4 mm	1 pce.
PS-5	5 mm	1 pce.
PS-6	6 mm	1 pce.
PS-1/8	3.175 mm (1/8")	1 pce.
PS-1/4	6.35 mm (1/4")	1 pce.

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The MDX-20/15 for U.S. and Canada includes PS-1/8 instead of PS-6.

Engraving tool

dia = shank diameter, L = overall length, W = blade width

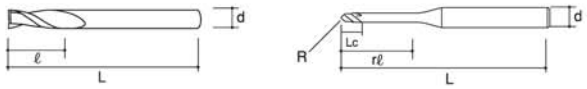
Product number	Specifications (unit = mm)	Quantity per package	Required spindle unit
ZEC-100	dia = 6(d), 50(L)	1 pce.	PS-6
ZEC-A2013	dia = 3.175, 114(L) x 0.127(W) (for plastic)	1 pce.	PS-1/8
ZEC-A2025	dia = 3.175, 114(L) x 0.254(W) (for plastic)	1 pce.	PS-1/8
ZEC-A2051	dia = 3.175, 114(L) x 0.508(W) (for plastic)	1 pce.	PS-1/8
ZEC-A2076	dia = 3.175, 114(L) x 0.762(W) (for plastic)	1 pce.	PS-1/8
ZEC-A2150	dia = 3.175, 114(L) x 1.52(W) (Parallel, for plastic)	1 pce.	PS-1/8
ZEC-A2190	dia = 3.175, 114(L) x 1.91(W) (Parallel, for plastic)	1 pce.	PS-1/8
ZEC-A2230	dia = 3.175, 114(L) x 2.29(W) (Parallel, for plastic)	1 pce.	PS-1/8
ZEC-A2320	dia = 3.175, 114(L) x 3.175(W) (Parallel, for plastic)	1 pce.	PS-1/8
ZEC-A2013-QR	dia = 3.175, 114(L) x 0.13(W) (Quarter round, for plastic)	1 pce.	PS-1/8
ZEC-A2025-QR	dia = 3.175, 114(L) x 0.25(W) (Quarter round, for plastic)	1 pce.	PS-1/8
ZEC-A2013-BAL	dia = 3.175, 114(L) x 0.13(W) (for aluminum and brass)	1 pce.	PS-1/8
ZEC-A2025-BAL	dia = 3.175, 114(L) x 0.25(W) (for aluminum and brass)	1 pce.	PS-1/8

End mill

dia = flute diameter, R = flute radius, ℓ = flute length, rℓ = reach length, L = overall length, d = shank diameter, NT = number of flute

Description	Product number	Specifications (unit = mm)	Quantity per package	Required Spindle unit
Square end mill Made of high speed steel	ZHS-100	dia = 1, 3ℓ x 6d x 50L x 2NT	1 pce.	PS-6
	ZHS-200	dia = 2, 6ℓ x 6d x 50L x 2NT	1 pce.	PS-6
	ZHS-300	dia = 3, 10ℓ x 6d x 50L x 2NT	1 pce.	PS-6
	ZHS-400	dia = 4, 8ℓ x 6d x 60L x 2NT	1 pce.	PS-6
	ZHS-500	dia = 5, 10ℓ x 6d x 60L x 2NT	1 pce.	PS-6
	ZHS-600	dia = 6, 15ℓ x 6d x 55L x 2NT	1 pce.	PS-6
	ZHS-3015	dia = 3, 15ℓ x 6d x 50L x 2NT	2 pce.	PS-6
Square end mill Made of cemented carbide	ZUS-500	dia = 5, 25ℓ x 5d x 60L x 2NT	1 pce.	PS-5
Ball end mill Made of cemented carbide	ZCB-150	R1.5 25rℓ x 2.4Lc x 65L x 6d x 2NT	1 pce.	PS-6
	ZCB-200	R2 25rℓ x 3.2Lc x 70L x 6d x 2NT	1 pce.	PS-6
	ZCB-300	R3 30rℓ x 4.8Lc x 80L x 6d x 2NT	1 pce.	PS-6

*Please use a spindle unit for the desired shank diameter.



Replacement spindle motor

Product number	Specifications	Quantity per package
MM-40	Motor unit, 10 W / DC motor	1 pce.

*The spindle motor of the MDX-20/15 is consumptive.
It is recommended to exchange the whole assembly for every 700 hour usage.

Modeling wax

Product number	Specifications
ZW-200	175 mm(W) x 75 mm(D) x 38 mm(H),10 pcs.

Safety cover for MDX-15 only

Product number	Specifications
ZBX-15	550 mm(W) x 450 mm(D) x 462 mm(H) (21-11/16"(W) x 17-3/4"(D) x 18-1/4"(H))

Roland®

AUTHORIZED DEALER:

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