■Specifications

MDX-40		
Acceptable material		Resins such as chemical wood and modeling wax (metal not supported)
X, Y, and Z strokes		305 (X) x 305 (Y) x 105 (Z) mm (12 (X) x 12 (Y) x 4-1/8 (Z) in.)
Distance from spindle tip to table		Maximum 125 mm (4-15/16 in.)
Table size		305 (W) x 305 (D) mm (12 (W) x 12 (D) in.)
Loadable workpiece weight		4 kg (8.8 lb)
XYZ-axis motor		Stepping motor
Feed rate		XY-axis : 0.1 to 50 mm/sec. (0.0039 to 1.9 in./s), Z-axis : 0.1 to 30 mm/sec. (0.0039 to 1.1 in./s)
Software resolution		0.01 mm/step (0.00039 in./step)
Mechanical resolution		0.002 mm/step (0.0001 mm/step)
Spindle motor		Brushless DC motor, Maximum 100 W
Spindle type		Modeling spindle
Spindle rotation		4500 to 15000 rpm
Tool chuck		Collet
Interface		USB connector, sensor connector, expansion connector
Power supply	Voltage and frequency	AC100 to 240 10 %, 50/60 Hz
	Required power capacity	2.1 A
Power consumption		Approx. 210 W
Acoustic noise level		No-load operation : 56 dB (A) or less, standby : 42 dB (A) or less (According to ISO7779)
Dimensions		669 (W) x 760 (D) x 554 (H) mm (26-3/8 (W) x 29-15/16 (D) x 21-13/16 (H) in.)
Weight		66 kg (146 lb)
Operation temperature		5 to 40 C (41 to 104 F)
Operation humidity		35 to 80 % (no condensation)
Included items		Power cord, collet, sensor, hexagonal wrench, hexagonal screw drivers, spanners, Roland Software Package CD-ROM, MODELA Player4 CD-ROM, user's manual, Roland Software Package installation and setup guide, MODELA Player4 installation and setup guide

Optional Rotary Axis Unit (ZCL-40)

Max. angle of rotation	18×10^3 (5000 rotations)
Loadable workpiece size*	Items within the range of a 42.5 mm (1-11/16 in.) radius from the center of the rotary axis by 135 mm (5-3/8 in.) long
Workpiece thickness holdable by workpiece chuck	12 to 40 mm (1/2 to 1-5/8 in.)
Loadable workpiece weight	0.5 kg (1.1 lb) (Maximum workpiece moment of inertia 6×10^{-4} kgm^2)
Control methods	4-axis control (3-axis simultaneous control)
Feed rate	11.79 rpm
Mechanical resolution	0.0225 deg.
Dimensions	357 (W) x 305 (D) x 129 (H) mm (14-1/16 (W) x 12 (D) x 5-1/8 (H) in.)
Weight	6.2 kg (13.7 lb)
Included items	Y-origin sensors (large and small), Z-origin sensor, Y-origin detection pin, center drill, live center, hexagonal wrench, cap screws (for securing Z-origin sensor), user's manual

Optional 3D Scanning Sensor Unit (ZSC-1)

Maximum scanning area	305 (X) x 305 (Y) x 60 (Z) mm (12 (X) x 12 (Y) x 2-5/16 (Z) in.)
Distance from probe tip to table	Maximum 92.4 mm (3-5/8 in.)
Table load capacity	Maximum 4 kg (8.8 lb)
Sensor	Type: Roland Active Piezo Sensor (RAPS) Effective probe length: 60 mm (2-5/16 in.) Tip bulb radius : 0.08 mm (0.00315 in.)
Scanning method	Contacting, mesh-point height-sensing
Operating speed	XY-axis : 15 to 30 mm/sec. (0.6 to 1.1 in./s) Z-axis : 1 to 30 mm/sec. (0.04 to 1.1 in./s)

*The range that can actually be cut is limited by the amount of tool extention and interference between the loaded workpiece and the tool or spindle.

■Options

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

Item	Model	Description
Square end-mills	ZHS-100	High speed steel dia.1 3(l) x 6(d) x 50(L) x 2NT
	ZHS-200	High speed steel dia.2 6(l) x 6(d) x 50(L) x 2NT
	ZHS-300	High speed steel dia.3 10(l) x 6(d) x 50(L) x 2NT
	ZHS-400	High speed steel dia.4 12(l) x 6(d) x 50(L) x 2NT
	ZHS-500	High speed steel dia.5 15(l) x 6(d) x 55(L) x 2NT
	ZHS-600	High speed steel dia.6 15(l) x 6(d) x 55(L) x 2NT
	ZHS-3015	High speed steel dia.3 15(l) x 6(d) x 50(L) x 2NT including 2 pcs.
Ball end-mills	ZCB-150	Cemented carbide R1.5 2.4(l) x 6(d) x 65(L) x 2NT
	ZCB-200	Cemented carbide R2.0 3.2(l) x 6(d) x 70(L) x 2NT
	ZCB-300	Cemented carbide R3.0 4.8(l) x 6(d) x 80(L) x 2NT
Collets (for end-mills)	ZC-23	dia.3 mm, dia.4 mm, dia.5 mm, dia.6 mm, including 1 pc. each
	ZC-23-3	dia.3 mm
	ZC-23-4	dia.4 mm
	ZC-23-6	dia.6 mm
	ZC-23-3175	dia.3.175 mm
	ZC-23-6.35	dia.6.35 mm
Chemical wood	ZSM-SS	97 mm x 147 mm x 50 mm, including 5 pcs.
Wax	ZW-200	75 mm x 175 mm x 38 mm, including 10 pcs.

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

Item	Model	Description
Engraving cutters (for plastic)	ZEC-A4013	Cemented carbide dia.4.36 x 165(L) x 0.127(W)
	ZEC-A4025	Cemented carbide dia.4.36 x 165(L) x 0.254(W)
	ZEC-A4051	Cemented carbide dia.4.36 x 165(L) x 0.508(W)
	ZEC-A4076	Cemented carbide dia.4.36 x 165(L) x 0.762(W)
Engraving cutters, quarter round (for plastic)	ZEC-A4013-QR	Cemented carbide dia.4.36 x 165(L) x 0.13(W)
	ZEC-A4025-QR	Cemented carbide dia.4.36 x 165(L) x 0.25(W)
Engraving cutters, parallel (for plastic)	ZEC-A4150	Cemented carbide dia.4.36 x 165(L) x 1.52(W)
	ZEC-A4190	Cemented carbide dia.4.36 x 165(L) x 1.91(W)
	ZEC-A4230	Cemented carbide dia.4.36 x 165(L) x 2.29(W)
	ZEC-A4320	Cemented carbide dia.4.36 x 165(L) x 3.175(W)
	ZEC-A4380	Cemented carbide dia.4.36 x 165(L) x 3.81(W)
	ZEC-A4430	Cemented carbide dia.4.36 x 165(L) x 4.34(W)
Solid collet	ZC-E436	dia.4.36 mm
Adhesive sheet for securing material	AS-10	210 mm x 140 mm, including 10 sheets

Item	Model	Description
Rotary axis unit	ZCL-40	See the above specifications
3D Scanning sensor unit	ZSC-1	See the above specifications
Replacement spindle unit	ZS-40	
Dust box	ZDX-40	666 (W) x 769 (D) x 97 (H) mm (26.33 (W) x 30.27 (D) x 3.8 (H) in.)

ISO 14001:2004 and ISO 9001:2000 Certified

Roland pursues both environmental protection and continuous quality improvement. Under the philosophy of preserving the environment and human health, Roland is actively working to abolish organic solvents in production, to reduce and recycle waste, to reduce power use, and to purchase recycled products. Roland constantly strives to provide the most highly reliable products available.

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3D Milling Machine
MDX-40

Roland®

MODELA MDX-40

SRP on Your Desktop
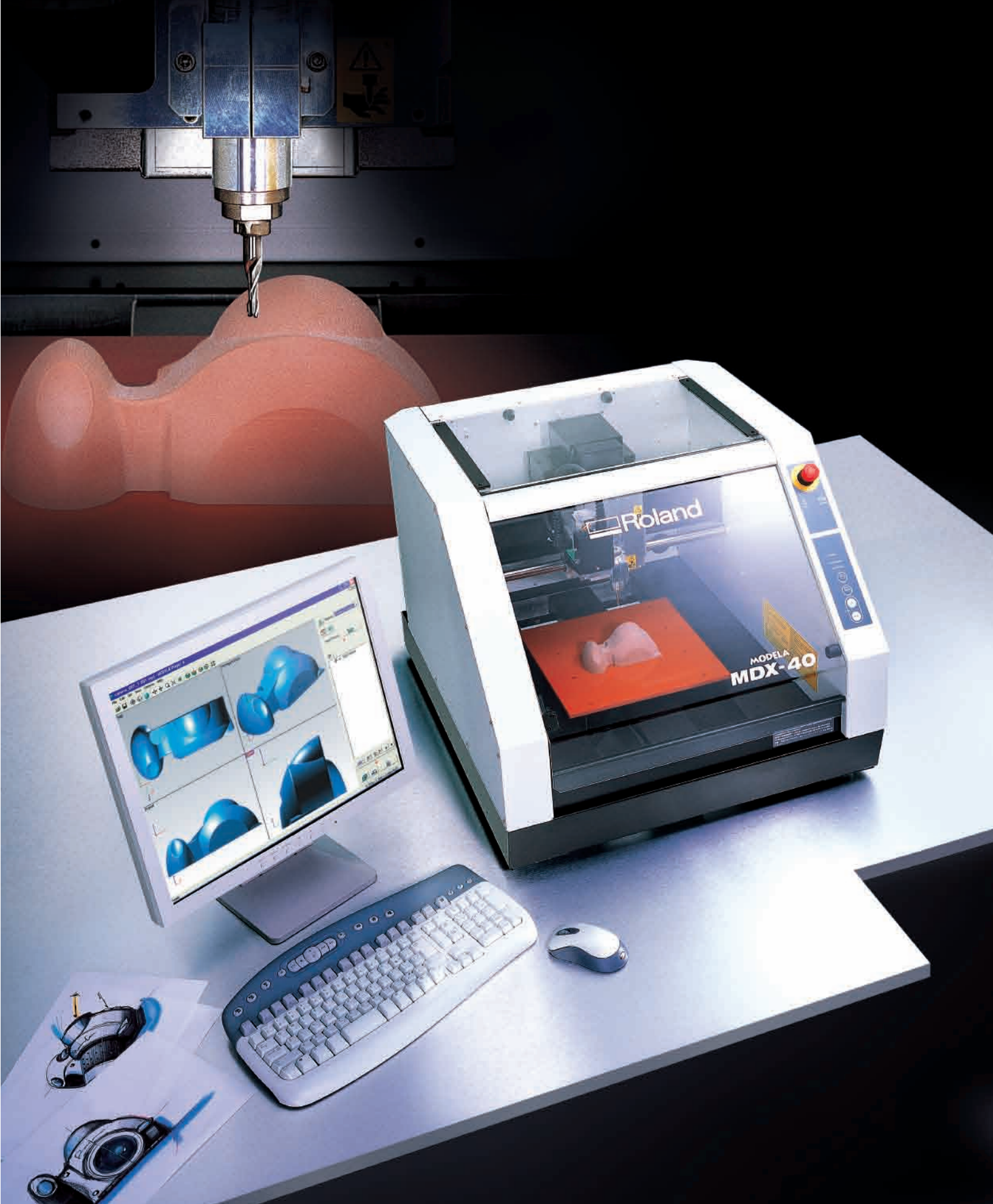
**SRP** SUBTRACTIVE RAPID PROTOTYPING

With the MDX-40 3D Milling Machine, you can quickly and easily create high-quality prototypes, parts and models right at your desktop. The MDX-40 allows industrial designers to perform a full range of subtractive rapid prototyping (SRP) applications in-house, eliminating the added time and security risks associated with outsourcing. It's a perfect tool for shortening the product development cycle and bringing complex product designs quickly to market.

*The above sample was milled in two sections.

High-Speed Performance And Generous Work Area

Featuring a powerful 100W brushless-motor spindle and 0.01mm/step software resolution, the MDX-40 quickly generates smooth-finished, beautiful results with precision every time. It accommodates a wide variety of low-priced materials including ABS, acrylic, chemical woods, plaster, styrene foam and wax. For optimum performance with a range of materials and cutters, the MDX-40 offers an adjustable spindle speed ranging from 4,500 to 15,000 rpm. Additionally, the MDX-40 features a generous work area of 305mm(X) x 305mm(Y) x 105mm(Z) (12" x 12" x 4.12"), large enough for most small- to mid-size SRP applications.
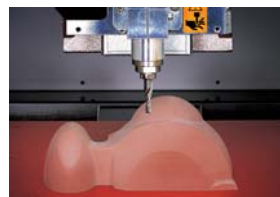
Supports Popular 3D CAD/CG Software and Includes Roland's CAM and CAM Simulation Software

The MDX-40 supports most popular 3D CAD/CG software packages and comes complete with Roland's own MODELA Player 4 CAM software and Virtual MODELA CAM simulation software. MODELA Player 4 controls an optional Rotary Axis Unit and supports industry standard file formats including STL, IGES*[1] and DXF*[2]. This advanced, easy-to-use package allows you to confirm an object from various angles and produce a 3D rendering.

With Virtual MODELA*[3], you can accurately simulate finished shapes and estimate the production time for each job. This enables you to eliminate milling errors and to optimize both time and materials.
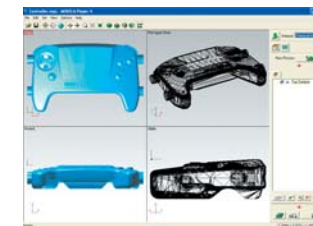
The MDX-40 also includes Roland's 3D Engrave and Dr. Engrave engraving software. All Roland software packages are compatible with Windows Vista® and Windows® XP/2000/ME/98.

*[1] IGES: compatible with IGES 5.2, surface only. *[2] DXF: compatible with 3D DXF of AutoCAD R12 format only. *[3] Virtual MODELA does not support the Rotary Axis Unit.

Easy To Operate

The MDX-40 is designed for easy operation with only four buttons: power, view, tool up and tool down. An on-screen operation panel makes using the MDX-40 even easier, allowing you to quickly select settings for both cutter movement and the cutting start location. Factory included origin sensors easily help identify the cutter tip and Z0 positions.

Optional Rotary Axis Unit and Scanning Sensor Unit

The MDX-40's Rotary Axis Unit*[4] is designed for unattended 3D milling at any angle from 0 to 360 degrees. With the Rotary Axis Unit, you can easily and accurately mill a wide variety of two- and four-sided objects. In addition, an optional scanning sensor unit*[5] can be easily installed. This unit comes with Dr. PICZA 3, full-featured scanning software that includes a wide variety of editing functions. With Dr. PICZA 3, scanning data can be exported in DXF, IGES or VRML formats, or as Point Cloud data (ASCII).

*[4] Work area is reduced with the Rotary Axis Unit
*[5] The Scanning Sensor Unit cannot be used with the Rotary Axis Unit.

Clean, Quiet and Safe Work Environment

The MDX-40 features a compact footprint and fits easily on the desktop. A machine cover ensures a clean and quiet operation, making it ideal for office use. A new optional dust box collects cutting dust, further promoting a clean work area. An emergency stop switch ensures safe operation.

Designing with MDX-40

Sketch ▶▶▶ **Create CAD Data** ▶▶▶ **Mill with MDX-40** ▶▶▶ **Inspect Surface Area** ▶▶▶ **Review Design** ▶▶▶ **Add Color and Details**
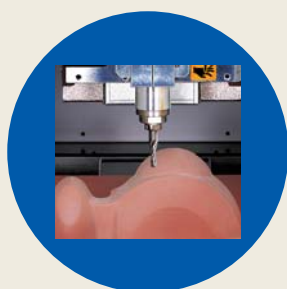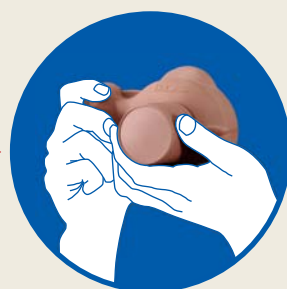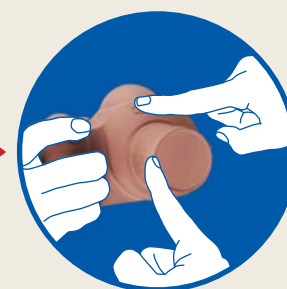
*MDX-40 with an optionally-available dust box, ZDX-40

3D Milling Machine **MDX-40**