

Imagine.

DVE
Digital Value Engineering

Roland®

3D Milling Machine
MODELA Series

MDX-40A

Setting a New Standard for Desktop Rapid Prototyping

CAM
Software
Included

SRP
Player

SRP
SUBTRACTIVE
RAPID PROTOTYPING



Photo: MDX-40A and optionally available ZCL-40A rotary axis unit

The Roland MDX-40A 3D milling machine is an affordable, easy-to-use prototyping solution that supports a wide range of materials including resin. A new optional rotary axis unit is available, supporting larger materials.

Remote control prototype



Prototype of an MP3 Player cover



Automotive gearshift
prototype assembled
with parts milled on
the MDX-40A

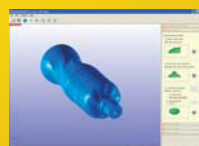


Compact and Affordable, the MDX-40A is the Perfect Tool for Desktop Prototyping

Much smaller than NC machines, the MDX-40A features a compact footprint of 669mm(W) x 760mm(D) x 554mm(H) (26.4" x 30" x 21.9") and operates on standard household power supplies. With the MDX-40A, you can produce high-quality product prototypes right at your desktop. Support for G-code NC programming language makes the MDX-40A well suited for both professional and educational applications.

No Special Training Required

Roland SRP Player CAM software is included and features simple step-by-step settings for easy operation and high quality milling. With SRP Player, you can preview your job on-screen to confirm the cutting path for superior results every time. In addition, every MDX-40A includes ClickMILL™ software, allowing you to easily complete surfacing work. You can round edges, add pockets and holes, make fixtures and add last minute modifications, all without your CAD software.



ClickMILL

New Rotary Axis Unit for Larger Applications

In addition to a flat work table, the MDX-40A features a new optional rotary axis unit that supports materials up to 270mm (10.63") long by 120mm (4.72") in diameter, four times the capacity of the previous model. You can now mill a 500ml (16.9oz.) PET bottle. Objects can be milled unattended at any angle from 0 to 360 degrees.



Enhancements for Maximum Ease-of-Use

Designed for greater ease-of-use, the MDX-40A supports a new on-screen operation panel that allows you to adjust the location of the endmill and quickly program settings. Using this panel, you can move the cursor in vertical, horizontal and oblique directions and to the desired position for the most efficient tool path. You can also adjust the speed of cursor movements for easier origin setting. The MDX-40A saves time and material by allowing you to adjust milling conditions such as spindle rotation and speed while the unit operates (override function).



Specifications	
Acceptable material	Resins such as chemical wood and modeling wax (metal not supported)
X, Y, and Z operation strokes	305 (X) x 305 (Y) x 105 (Z) mm (12 (X) x 12 (Y) x 4.13 (Z) in.)
Distance from collet tip to table	Maximum 123 mm (4.84 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 drive system	Stepping motor
Feed rate	XY-axis: 7 to 3,000 mm/min. (0.28 to 118 in./m)
	Z-axis: 7 to 1,800 mm/min. (0.28 to 70.8 in./m)
	*2 mm/min step for 7 to 60 mm/min(0.28 to 2.36in./m) *60 mm/min step for 60 to 3,000 mm/min(2.36 to 118in./m)
Software resolution	NC-code: 0.001mm/step (0.000039 in./step), RML-1: 0.01 mm/step (0.00039 in./step)(RML-1)
Mechanical resolution	0.002 mm/step (0.000078 in./step) (micro-step control)
Spindle motor	Brushless DC motor, Maximum 100 W
Spindle rotation	4,500 to 15,000 rpm
Tool chuck	Collet method
Interface	USB*1 (compliant with Universal Serial Bus Specification Revision 1.1)
Control command sets	NC-code, RML-1
Power requirements	AC100 to 240 10%, 2.1 A, 50/60 Hz (Overvoltage category II, IEC 60664-1)
Power consumption	Approx. 210 W
Acoustic noise level	No-load operation: 56 dB (A) or less, Standby: 42 dB (A) or less
Dimensions	669 (W) x 760 (D) x 554 (H) mm [26.4 (W) x 30 (D) x 21.9 (H) in.]
Weight	65 kg (144 lb)
Environment	Temperature: 5 to 40 C (41 to 104 F), Humidity: 35 to 80% (no condensation)
Nonconductive pollution degree	2 (as specified by IEC 60664-1)
Included items	Power cord, USB cable, collet (ZC-23-6), Z0 sensor, hexagonal wrench, hexagonal screw drivers, spanners, Roland Software Package CD-ROM, SRP Player CD-ROM, user's manual, SRP Player installation and setup guide

*1 Use the included USB cable. Never use a USB hub or the like.

System Requirements for Included Software	
OS	Windows® 8(32/64-bit), Windows® 7(32/64-bit), Windows Vista®(32-bit) or Windows® XP(32-bit)*2 and Internet Explorer 6.0 or later
CPU	Pentium® 4, 2.4GHz or faster recommended
RAM	1GB or more recommended (2GB or more recommended for Windows Vista®)
Video card and monitor	A resolution of 1024 x 768 or more recommended (video card compatible with OpenGL recommended) and at least 16-bit highcolor
Free hard-disk space	72MB or more recommended
Optical drive	CD-ROM drive

*2 It does not support Windows Vista(64-bit) or Windows XP(64-bit).

Optional Rotary Axis Unit (ZCL-40A)	
Maximum angle of rotation	99999.999 degrees
X, Y, and Z operation strokes	271 (X) x 305 (Y) x 68 (Z) mm (10.67 (X) x 12.01 (Y) x 2.68 (Z) in.)
Maximum loadable workpiece size	Items within the range of a 60 mm(2.36 in.) radius from the center of the rotary axis by 270 mm(10.7 in.)long.*3
Maximum size holdable by workpiece clamp	Thickness: 10 to 45 mm (0.39 to 1.77 in.) Diameter: 20 to 50 mm (0.79 to 1.97 in.)
Loadable workpiece weight	1kg (2.2 lb) (including clamps)
Feed rate	Maximum 11.79 rpm
Software resolution	0.001 degrees
Mechanical resolution	0.005625 degrees/step (micro-step control)
Dimensions	470 (W) x 286 (D) x 115 (H) mm (18.5 (W) x 11.3 (D) x 4.53 (H) in.)
Weight	7.5 kg (16.5 lb)
Included items	Detection bar, detection pin, center drill, live center, cap screws, rubber cap, and user's manual

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

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 2.36 (Z) in.)	
Distance from probe tip to table	Maximum 92.4 mm (3.64 in.)	
Table load capacity	Maximum 4 kg (8.8 lb)	
Sensor	Type	Roland Active Piezo Sensor (RAPS)
	Effective probe length	60 mm (2.36 in.)
	Tip bulb radius	0.08 mm (0.00315 in.)
Scanning method	Contacting, mesh-point height-sensing	

Optionally Available Items

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
Ball end-mills	ZHS-3015	High speed steel dia 3 15(l) x 6(d) x 50(L) x 2NT, including 2 pcs.
	ZCB-150	Cemented carbide R1.5 25(l) x 2.4(Lc) x 6(d) x 65(L) x 2NT
	ZCB-200	Cemented carbide R2.0 25(l) x 3.2(Lc) x 6(d) x 70(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

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

Item	Model	Description
Engraving cutters (for plastic)	ZEC-A4013	Cemented carbide dia 4.36 x 165(L) x 0.127(W)*4
	ZEC-A4025	Cemented carbide dia 4.36 x 165(L) x 0.254(W)*4
	ZEC-A4051	Cemented carbide dia 4.36 x 165(L) x 0.508(W)*4
	ZEC-A4076	Cemented carbide dia 4.36 x 165(L) x 0.762(W)*4
	ZEC-100	Cemented carbide dia 6 x 50(L) x 0.225(W)*5
Engraving cutters, quarter round (for plastic)	ZEC-A4013-QR	Cemented carbide dia 4.36 x 165(L) x 0.13(W)*4
	ZEC-A4025-QR	Cemented carbide dia 4.36 x 165(L) x 0.25(W)*4
Engraving cutters, parallel (for plastic)	ZEC-A4150	Cemented carbide dia 4.36 x 165(L) x 1.52(W)*4
	ZEC-A4190	Cemented carbide dia 4.36 x 165(L) x 1.91(W)*4
	ZEC-A4230	Cemented carbide dia 4.36 x 165(L) x 2.29(W)*4
	ZEC-A4320	Cemented carbide dia 4.36 x 165(L) x 3.175(W)*4
	ZEC-A4380	Cemented carbide dia 4.36 x 165(L) x 3.81(W)*4
Solid collet	ZEC-A4430	Cemented carbide dia 4.36 x 165(L) x 4.34(W)*4
	ZC-E436	dia 4.36 mm
Adhesive sheet for securing material	AS-10	210 mm x 140 mm, including 10 sheets

*4 Solid collet(ZC-E436) is required.
*5 Collet(ZC-23-6) is required.

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

Item	Model	Description
Rotary axis unit	ZCL-40A	See the above specifications
3D Scanning sensor unit	ZSC-1	See the above specifications
Replacement spindle unit	ZS-40	
Dust box	ZDX-40	669 (W) x 769 (D) x 97 (H) mm [26.33(W) x 30.27(D) x 3.8(H) in.]

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.



Roland reserves the right to make changes in specifications, materials or accessories without notice. Your actual output may vary. For optimum output quality, periodic maintenance to critical components may be required. Please contact your Roland dealer for details. No guarantee or warranty is implied other than expressly stated. Roland shall not be liable for any incidental or consequential damages, whether foreseeable or not, caused by defects in such products. Three-dimensional shapes may be protected under copyright. Customers are responsible for observing laws and ordinances when scanning. All trademarks are the property of their respective owners. Reproduction or use of copyrighted material is governed by local, national, and international laws. Customers are responsible for observing all applicable laws and are liable for any infringement. Roland DG Corp. has licensed the MMP technology from the TPL Group.