Tools

McMaster Carr Tools and Accessories
www.mcmaster.com
McMaster Carr has a wide selection of tools so the tools listed are not the only ones available. You will mainly find tools here for doing prototyping and larger model-making. Check out these pages of the catalog. (2383, 2384) Miniature tools are located on page 2386 and 2376. You can also do a search for endmill and it will help you find exactly what you are looking for.

There might be tools listed here that you don't have a collet for, or that does not fit your machine, this list is for all the Roland milling machines.
Here are the tools we normally purchase

3/8" Shank
3/8" x 4" Long, 2 FL, Flat 88876A68
3/8" x 4" Long, 4 FL, Ball 88805A68

1/4" Shank
1/4" x 4" Long, 2 FL, Flat 8876A64
1/4" x 4" Long, 4 FL, Ball 88805A64
1/4" x 6" Long Flat 8848A719

3/16" Shank
3/16" x 3" Long, 2 FL, Flat 3066A62
3/16" x 3" Long, 4 FL, Ball 88805A62

1/8" Shank
1/8" x 3" Long 2 FL Flat 8876A48
1/8" x 3" Long 4 FL Ball 88805A55
1/16" x 1 ½" Long 2 FL Flat 8876A11
1/16" x 1 ½" Long 2 FL Ball 88805A
1/32" x 1 1/2" Long, 2 FL, Flat 8876A28
1/32" x 1 1/2" Long, 2 FL, Ball 88805A12

1/8" Quick Change Tool Stops are on Page 2349 Drill Bit Stop Collars

Dowel Pins for doing flip fixture cutting are on page 3121

Harvey Tools
www.harveytool.com
Harvey Tools makes all kinds of tooling for industry. They have a lot of what McMaster has plus they have the best selection of miniature tools. For example a .010 inch flat endmill with a long reach. So if you are doing work that requires extra length of the cutting tool this is the place to go. Also check out the special plastic cutting tools. They make better cuts in plastics and like materials. There pricing is comparable to McMaster Carr.
Here are some we buy

1/8" Shank
1/16" x 2 1/2" Long, 3 FL, Flat Harvey 13662
1/16" x 2 1/2" Long, 3 FL, Ball Harvey 13862
1/32" x 2 1/2" Long, 3 FL, Flat Harvey 13631
1/32" x 2 1/2" Long, 3 FL, Ball Harvey 13831
Bits and Bits Company
www.bitsbits.com
Bits and Bits Company make a lot of different type of tools. They have the really small profile tools that are used for jewelry cutting and miniature tools for prototyping. They can also be used as a resource to call and ask what would be best for your application. They will also custom make any tool you might need. The tools we typically use are the profile and the pyramid tools. They are great in cutting unbelievable detail into wax. Since they have a pyramid shape they are stronger then a straight endmill when going to really small sizes.

Here are some we buy
1/8” Shank
.062” x 1 1/2” Long, 2FL, Flat Bits&Bits DP062F
.032” x 1 1/2” Long, 2FL, Flat Bits&Bits DP032F
1 1/2” Long, 30 Degree, Profile Bits&Bits 815-PR30-.010 Tip
1 1/2” Long, 30 Degree, Pyramid Bits&Bits 815-PY30-.005 Tip
1 1/2” Long, 15 Degree, Profile Bits&Bits 815-PR15-.010 Tip
1 1/2” Long, 15 Degree, Pyramid Bits&Bits 815-PY15-.005 Tip
1 1/2” Long, 10 Degree, Pyramid Bits&Bits 815-PY10-.003 Tip

Antares
http://www.antaresinc.net/
Antares makes all kinds of engraving tools, so if you want to do engraving with your machine goto this website and you can learn all about engraving, and what exact too to buy for your application. They also have a few tools for 3D Cutting as well.

Materials

Golden West Manufacturing
www.goldenwestmfg.com
Goldenwest makes some really neat materials and one of my favorite, Butterboard, this can also be purchased from McMaster Carr as machinable plastic. This material is easy to cut and creates some of the best surface finish of all the machinable medias. One really nice feature is that you can get this in very thick pieces, in fact they will even make special pieces for you. For example most materials you are limited to about 2 inches thick, they will do any thickness you want. Plus the material can be purchased in liquid format and cast to any size.

Huntsman - Renshape
www.renshape.com
Renshape is very well known throughout the modeling world for its machinable medias. They have about 10 different versions, all with some advantage over the other. I find the 440, one of the better ones to cut. However there is a red foundry board that has amazing compressive strength that can actually be cut to make a stamping die. Request a sample kit and you then you can have them in your hands so you will know what will work best for your application.

Freeman Supply
www.freemansupply.com
This company could be come an everyday staple to your modeling needs. They supply the Renshape machinable boards plus, liquid casting systems, and waxes. They have a valuable online library of how-to videos to teach you how to use there materials to make models. You can request samples of the Renshape Boards form these guys, plus samples of there castable
materials. If you are not familiar with casting then take some time to learn more about it, it could save you some machining time when making multiple parts of the same model.

**General Plastics Manufacturing**
[www.generalplastics.com](http://www.generalplastics.com)
General Plastics makes the foams that I send out in the training kits. They have any density that you might want. I really like to cut the foams and make sure the end result is going to be satisfactory before I spend the time cutting the actual material. These are all so great for form models to put into your hands in about an hour, of course depending on the machine. You buy this in 24” x 48” sheets so you get a lot for your money. You can also buy this from McMaster Carr on the same page as Butterboard page 3412. McMaster however does not have the wide selection that going direct does. Also they have tooling boards as well, I have never used them but expect they are very close to the same as the others. Request a sample of some of the materials and you can pick what you like.

**McCausey Lumber**
McCausey Lumber has many different boards for a brand name Obomodulan, they are made in Germany. Plus they have some other materials look under model and pattern shop products. Request a sample kit, the Obomodulan brand has a lot of nice boards.

**Necuron**
[http://www.necumer.de/com/](http://www.necumer.de/com/)
Necuron has some really nice materials as well they are from Germany but have a local US stocking location and sales office.

**McMaster Carr**
[www.mcmaster.com](http://www.mcmaster.com)
McMaster Carr same as the tool supplier above has a great selection of engineering plastics for purchase. They have ABS, Delrin, Polycarbonate, Acrylic, and any thing else you could possibly think of. They have the materials in different sizes, both round and square, and extruded shapes. I buy almost all of my materials from them, a one stop shop. Plus you receive the stuff normally the next day, because they usually have a warehouse that is 1 day via UPS ground to most locations. I am sure there are other places that supply engineering grade plastics, I am not sure though they are as fast as these guys.

These company’s all have samples they can send out. They normally have a small sample kit that has one of each piece of material for each specific product number. Some actually will send you a very large board to try out. McMaster you normally have to buy the sample piece though.

If you find better sources for either tools or materials please let me know I will add them to the sheet to share with others.

Sincerely,

Thomas Buck
865-805-6831 Phone
877-485-4115 Fax
[thuck@productdevelopmentinc.com](mailto:thuck@productdevelopmentinc.com)
[www.productdevelopmentinc.com](http://www.productdevelopmentinc.com)

"Using Technology to Streamline Product Development"