

GOOD HAND TOOLS AND WHERE TO PURCHASE THEM

Jack Burgess © 2021

Peer Vigor Tweezer Swiss Stainless Steel #3C

Amazon

<https://amzn.to/3pPyeba>

\$38.70

My similar tweezers were manufactured by Vigor of Switzerland who has since merged with Peer to become Peer-Vigor. I purchased him for \$35.00 in the late 1970s. So less than a dollar per year and I expect to still be using them well into the future.

Mine are stainless steel, which is more expensive than the carbon steel but stainless steel won't rust. Carbon steel tweezers are less expensive than stainless steel but harder which makes the tips more durable. But carbon steel tweezers are more likely to break if stressed, are easily magnetized, and can rust when exposed to plain water or even high humidity conditions.

If you build any models, even kits, get yourself a good set of tweezers. They will serve you well for decades.

X-acto knife

Excel knives

<https://amzn.to/2TkcpnM>

\$6.00

I'm not sure that I still have an "Xacto knife" since both of my hobby knives have a six-sided section near the end to keep them from rolling around. One is probably an Excel brand and the other is a Zona brand which I don't like as much since the hand is thicker.

I also have a scalpel which uses the same style No. 11 blades. I've gotten to like it more for cutting styrene than the Excel knife since the blade is thinner.

I suggest purchasing replacement blades in packages of 100 so that you will not be using a blade with a bent tip or a dull blade.

Needle Files

Rio Grande

<https://www.riogrande.com/product/friedrich-dick-needle-file-set-cut-5-set-of-6/114796>

\$45.00

Note: Regarding files, the higher the number, the finer the cut. This set is much like my set of files and are also 6" long.

I like the rubber grips on mine but they didn't come with those files. Here is where I might have gotten the handles:

<https://amzn.to/3pOOg4X>

For \$10, I'd purchase these files just for the rubber grips.

I also have a set of 10-piece riffler files like these:

<https://www.micromark.com/10-piece-Riffler-File-Set>

\$19.95

...but I have only used two of them since I purchased them. A single curved tip riffler would have been enough.

I also have an 8" and a 12" mill bastard file which are handy when doing rough filing. These are available at hardware stores

Sliding Pin vise

Rio Grande Jewelry Supply

<https://www.riogrande.com/product/sliding-pin-vise/113628>

\$9.99

This is so much better and a couple dollars cheaper than the Swivel Head Pin Vise sold by Micro-Mark, Walthers, and others.

Drill bits

Drill Bit City

<https://drillcity.stores.yahoo.net/>

I have been purchasing drill bits from Drill Bit City for years after some drill bits that I purchased online had broken off tips rather than having sharpen tips.

The Drill Bit City 61-80 drill bits are at:

<https://drillcity.stores.yahoo.net/highspeedtools.html>

Prices for a set of 6 drill bits range from \$8.43 to \$11.07. The smallest drill bits are easy to break if you are not careful. I always have a dozen of each of the smaller bits on hand.

General No. 13 61-80 Drill Gauge

Tool Source

https://www.toolsource.com/drill-bits-individual-c-330_331/drill-gauge-no-61-to-no-80-p-120311.html

\$14.32

This gauge will help get small drill bits back in the correct slot in your drill bit case. It can also be used to determine which drill bit will be needed to drill a hole for a piece of wire. (Assuming that you don't have a digital caliper.)

Drill bit case

Micro-Mark

20-piece Drill Bit Set with Plastic Index, #61 - #80

<https://www.micromark.com/20-piece-Drill-Bit-Set-with-Plastic-Index-61-80>

\$22.00

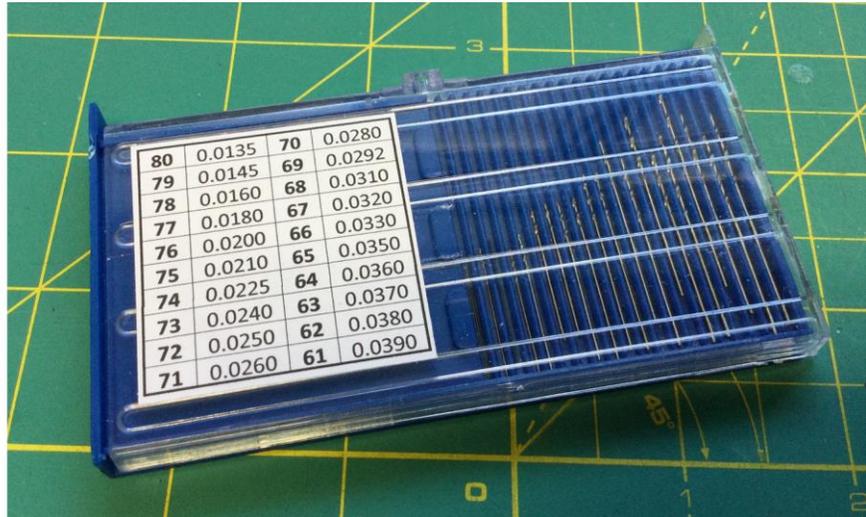
I recently replaced my old case with a new case since the lid would not stay where I removed a drill bit and I ended up replacing that bit in the wrong slot. The new case was hard to open when new. I fixed that issue by pulling the cover complete off and knocking down the top edge where the drill bits slide out. I also cut off the tap to hang to case from a hook.

I have found that the quality of the drill bits is not very good but the box is fine.

I don't pay attention to drill bit numbers and instead select them by size. If I need to drill a hole for a piece of 0.020" wire, I select the drill bit for that size. If instructions for a kit specify a drill bit number, I instead measure that part and select the drill bit based on that measurement.

Decades ago I added a drill bit size chart to the top of my drill bit case. Here is that chart (full size) and a photo of my drill bit case.

80	0.0135	70	0.0280
79	0.0145	69	0.0292
78	0.0160	68	0.0310
77	0.0180	67	0.0320
76	0.0200	66	0.0330
75	0.0210	65	0.0350
74	0.0225	64	0.0360
73	0.0240	63	0.0370
72	0.0250	62	0.0380
71	0.0260	61	0.0390



I printed this chart on repositionable Avery White Sticker Project Paper (#3383) then cut it out and stuck it on the drill bit case. Amazon has 15 sheets of this Project Paper for \$12.00. Note: This Project Paper has other modeling uses. Print the plan for a building that you are building, cut out the image, and carefully stick it to the styrene for the building sides to cut them out.

Pliers

All of my pliers are were manufactured by the Xuron Corp

<http://xuron.com/>

Note: All of their Xuron brand products are manufactured in their factory in Saco, Maine. Xuron tools are not sold through their website but are available from Amazon, Walther's, and others.

Prices shown are from Amazon.

This is the one I use the most:

#450-Tweezer Nose/ Pliers

<https://amzn.to/3iyLBec>

\$13.65

Next most used:

#485FN -Flat Nose Plier

<https://amzn.to/3xjqK2G>

\$16.90

One with one flat side jaw and a round side jaw:

489 -Combination Tip Plier

<https://amzn.to/3wdwr21>

\$14.65

An ultra-precise scissor perfect for cutting photo-etch detail parts from their sprues:

440 - High Precision Scissor

<https://amzn.to/3wgpKvQ>

\$12.72

A flush cutter but I don't use it that much since I have another flush cutter that I like better. But that tool isn't available and this is a good substitute.

410 -Micro-Shear® Flush Cutter

<https://amzn.to/3pFMy61>

\$11.99

Swanstrom Double-Ergo Super-Flush Cutters, Size 6

Rio Grande Jewelry Supply

<https://www.riogrande.com/product/swanstrom-double-ergo-super-flush-cutters-size-6/111714>

\$65.99

(Keep in mind to not use flush cutters for hard steel wire such as music wire.)

These work well but might be too large for most work. Size 5 would be a better choice.

Sprue Cutters or Gate Nippers

P-B-L

Go to:

<https://www.p-b-l.com/catalog/cfm/catalog.cfm> and select "Category 7 – Tools for serious modelers" in the Category box. It is Item PBL-803, 'Clear Vision' De-Spruing Swiss-made Nipper

\$36.95

I have three similar "nippers" which I purchased from P-B-L decades ago. Why three? Because they sold three sizes! I used them often, especially for cutting styrene parts from sprues.

0.5mm Pentel P205 Mechanical Pencil

Staples

https://www.staples.com/pentel-sharp-mechanical-pencils-5mm-black-barrel/product_499657

\$5.29

This pencil comes with lead but you might want to also purchase a box of spare lead (Item #: 617928) This is a great pencil for marking cut lines and drawing circles around pin prick holes before drilling. (To extend the lead, push the retractable button a couple of times. To retract the lead, push and hold the retractable button down while holding the pencil vertically and lower the pencil down onto the a hard surface.

Bow Pencil Drafting Compass

<https://www.draftingsteals.com/20010.html>

\$10.86

This compass was part of a drawing set I purchased for a drafting class in high school. So it is the oldest tool that I own...over 60 years and it still works! I used it a week ago when I had to mark spots to drill holes for some sill steps. I measured the distance between the posts on the sill steps with the compass and then transferred that dimension to the model and made pin pricks to drill holes for the cast sill step posts.

Taps

I expect that many modelers just drill a hole and use a screw to cut the threads. But if the pilot hole is too small, that approach most likely won't work. Instead, the better approach is to use a tapered tap to cut the needed threads.

There are many sources for small screw taps and I purchased mine from Drill Bit City:

<https://drillcity.stores.yahoo.net/taps.html>

About \$5.00 each

You will also need a T-handle tap wrench. Since you will be using very small taps, the tap wrench needs to be small and light weight. The handles on mine are about 3.75" wide and thus very easy to use like these:

<https://www.grainger.com/product/GENERAL-Tap-Wrench-6TFF5?internalSearchTerm=Tap+Wrench%2C++Handle+Type+Sliding%2C++Handle+Shape+T&suggestCofnfigId=8&searchBar=true>

\$15.02

I have two of them so that I am not changing out the tabs. One is for 2-56 screws the other for 3-48 screws. The tap wrenches are "labeled" with 2 red spots for the 2-56 screws, etc.

Note that online Tap and Drill Size Charts list the drill sizes for various taps but those recommendations are for tapping holes in metal. I use smaller drill bits than recommended when tapping styrene and resin.

When starting to cut threads you need to be sure that the tap is exactly at right angles to the material being tapped. Micro-Mark has a Drill/Tap Holder for the Press-It / Sensi-Press:

<https://www.micromark.com/Drill-Tap-Holder-for-Press-It-Sensi-Press>

\$39.95

This is the price if you already have a NWSL Sensi-Press for punching rivets which I did. If not, the entire tool is \$109.95.

Chopper

North West Short Lines Chopper II

<https://nws.com/collections/the-chopper-ii/products/the-chopper-ii>

\$49.95

See my article in the May 2019 issue of *Model Railroad Hobbyist* magazine for modifications I've done to the Chopper. Here is the link to the back issues of *MRH*:

<https://model-railroad-hobbyist.com/magazine/back-issues>

Coping Saws

Knew Concepts

<https://www.knewconcepts.com/MK3-saws.php>

5" Mk.III Fret Saw with Lever Tension (on the second row of tools)

\$79.00

A great saw and worth the price, especially for cutting rail gaps. There are a lot of distributors now since I purchased mine 8 years ago directly from the manufacturer. They are made in America.

Calipers

Amazon

<https://amzn.to/3zlwX2>

Mitutoyo 500-195-30 Advanced Onsite Sensor Absolute Scale Digital Caliper, 0-4" Range, Stainless Steel
\$119.12

I purchased my first caliper in the late 1970s before digital calipers became available. Being a bit of a traditionalist, for years I resisted purchasing a digital caliper. But when the prices of digital calipers got down to \$20, I gave up on my old ways and purchased a 4" model and later a 6" model. I eventually purchased a second 6" model when the first one failed. But one of the 6" models seemed to "eat" batteries if I forgot to turn it off after taking a measurement. The other one eventually wouldn't turn off.

So I emailed a friend, who is the owner of company that produces injected plastic freight cars, and asked for his recommendation for a "good" digital caliper. He suggested a Mitutoyo Absolute Digimatic 4" Model 500-170-30 digital caliper.

This caliper is easy to use, reads to 0.0005 inches and is easy on batteries. I am using mine continuously...what is the diameter of that brass grab iron? Measure it in inches and you then know the correct drill bit to drill the holes for it. Multiply that measurement by 87 for the HO diameter.

Bench Stone

Sharpening Supplies

<https://amzn.to/3ixSvQN>

8" DMT DuoSharp Plus Bench Stone

Mine is the Extra Coarse/ Coarse model.

\$71.10

This is a great tool for easily filing a piece of styrene to fit a certain space, etc.

GRS Precision Single Third Hand

<https://grs.com/product/third-hand-with-base-standard/>

\$68.35

This third hand replaced an inexpensive third hand made by X-acto. I have found many uses for this tool.

Coffman clamps

Coffman Graphic Solutions

AC-1-1 Original Right Clamp

<https://www.coffmaneng.com/product-page/original-right-clamp>

\$26.50 each

I consider these clamps indispensable when assembling resin box cars since they let me correctly and accurately align two sides of a car before bonding those sides together.

4" Machinist's Square

Amazon

<https://amzn.to/3cy2kKN>

\$22.64

The small size of this well-made square makes it easy to make sure that things are square and plumb.

Vises

PanaVise

<https://amzn.to/3xfbAeM>

\$67.49

I move my vise around so this one with the 381 vacuum vise works best for me. The base needs to be kept clean and can be replaced when the vacuum no longer works.

Proxxon

<https://amzn.to/358wRdV>

\$19.80

This is a nice vise for working on small parts.

Single-edge razor blades

<https://amzn.to/3ziRLFb>

\$8.99

Aluminum foil and wood tooth picks

If you use 5-minute epoxy and/or canopy glue, first put it on a small piece of aluminum foil (and mix it if it is 5-minute epoxy) and then apply it to the joint or the part being added to the model. Much neater.

Note: Wood tooth picks are hard to find in the grocery store. Try here for a box of 2-1/2" long tooth picks:

<https://amzn.to/3weFAHz>

\$4.99 for a box of 800.

Azdent brushes

Azdent MA-102 Ultrafine brushes

<https://amzn.to/3zi3CDf>

\$16.99

These are great disposable brushes for applying ZAP Z-7 Debonder and ZAP Zip Kicker. I also sometimes use them to apply ZAP CA to a joint I can't easily reach.

Disclaimer - I love good tools and don't hesitate to invest in them.