



Inch vs. Metric Calibrations on Sherline Tools

Choosing a System of Measurement

All Sherline tools are available calibrated in either inch or metric divisions. The system you choose to work in will most likely be determined by your cultural background, training and requirements of the work you do. The system we were raised with usually remains the most comfortable, but there are also some other considerations when choosing a system that you may not have considered.

Despite the current movement to standardize the world on the metric system, my own preference is the inch system. Here's why. When working in metal, .001" (one thousandth of an inch) is a tolerance that can be achieved with cutting tools, and .0001" (one ten thousandth of an inch) is a tolerance that can be achieved by grinding. The numbers don't come out quite so neatly in the metric system. 1mm equals .03937", .1mm equals .0039" and .01mm equals .0004". The tolerance of ± 1 mm (.004") is too coarse for most work, and ± 0.1 mm (.0004") is too fine. Therefore, you end up with tolerances too tight or too loose because the draftsman often calls out a tolerance of ± 1 mm when it should be $\pm .25$ mm.

The inch system was developed by craftsmen who took into consideration the materials they were working with as they developed their system. Did you ever watch a seamstress measure cloth from her nose to her fingertips? That human dimension is normally about 36" or a "yard of cloth". It would take a basketball player with arms over 3" longer to measure meters that way. If you have been using the inch system all your life, I wouldn't consider buying a metric machine unless the requirements of your work force you to do so. You will have enough new terms to learn without having to learn a new measuring system at the same time.

Differences between Inch and Metric Sherline Tools

The difference between inch and metric models of the lathe and mill are not just the handwheel markings, but include the leadscrews, nuts, inserts, handwheels and tailstock spindle. (It is important to remember that a "nut" can be a complicated machined part, not just a simple hex nut. The tailstock spindle is an example of this.)

The handwheel on the inch models moves the slide .050" per revolution and has 50 graduations of .001". The metric model moves the slide 1mm (.03937") per revolution and the handwheel is graduated into 100 divisions. Even though the metric handwheels have finer graduations, this doesn't necessarily make them more accurate, as you don't have to stop exactly on an engraved line. You can interpolate between lines.

Coordinate Your Equipment with Your Measuring Tools

I recommend using the system you are most familiar with and for which you have the measuring tools. Don't buy a metric tool and plan to use an inch micrometer with it. Converting dimensions is a constant headache and a source of errors.

If most of the drawings you will be working with are dimensioned in metric measurements, it might be wise to buy a metric tool, even if you have to buy all new measuring tools to use with it.

Converting a Sherline Machine from One System to the Other

Parts are available to change any Sherline tool from inch to metric or vice versa. On the reverse of this page is a list of the parts you will need to make a conversion. On the lathe, each tailstock spindle has been ground to fit its extruded body, and their diameters will vary. Also, the newer style tailstock with the brass gib is superior in accuracy to the older style split tailstock. Therefore, we no longer offer just the tailstock spindle, as it would require custom grinding to fit it to your particular tailstock extrusion. A new complete tailstock should be purchased.

As you can see from the parts list on the next page, quite a few parts need to be changed to make a conversion. The time spent deciding which system to use before purchasing a machine is "time well spent" if it eliminates making a change later on.

—Joe Martin
President and Owner

Sherline Part Conversion List

Lathes—Individual Components

Inch P/N	Metric P/N	DESCRIPTION
40200	41200	Leadscrew (Model 4000/4100)
44200	44230	24" Leadscrew (Model 4400/4410)
40170	41170	Saddle Nut
44210	44220	Slide Screw
40890	41890	Slide Screw Insert
40220	41220	Feed Screw
4111A	4111M	Complete brass gib-style tailstock (with handwheel)
40050	41050	1-5/8" plain Crossslide Handwheel (1 req.) (4000 lathe)
40080	41040	1-5/8" plain Leadscrew and Spindle feed Screw Handwheels (2 req., 4000 lathe)
3428	3429	2" Adjustable Zero Handwheel, complete (Crossslide, 4400 lathe)
3455	3459	2.5" Adjustable Zero Handwheel, complete (Long leadscrew Axis, 4400 lathe)

Vertical Milling Machines—Individual Components

Inch P/N	Metric P/N	DESCRIPTION
50170	51170	Leadscrew, "X" Axis (All mill models)
50160	51160	Leadscrew, "Y" Axis (Model 5000)
54160	54170	Leadscrew, Y-Axis (Model 5400)
56160	56150	Leadscrew, Y-Axis (Model 2000)
45010	45160	Leadscrew, Z-Axis (Model 5000 and 5400)
40080	41040	1-5/8" plain Handwheel, "X" Axis (Model 5000)
40050	41050	1-5/8" plain Handwheel, "Y" Axis (Model 5000)
3400	3410	2.5" Oversize Plain Handwheel, "Z" Axis (Model 5000)
50130	51130	Backlash Nut, "X" Axis
40890	41890	Nut, "X" Axis
50140	51140	Backlash Nut, "Y" Axis
50200	51200	Nut, "Y" Axis
40170	41170	Saddle Nut, "Z" Axis
3420	3430	2" Adjustable Zero Handwheel, complete (Y-Axis)
3428	3429	2" Adjustable Zero Handwheel, complete (X-Axis)
3455	3459	2.5" Adjustable Zero Handwheel, complete (Z-Axis)
(54180)	(54190)	Mill Table, Engraved (Model 5400) (Optional)
(54020)	(54120)	12" Mill Base, Engraved (Model 5400) (Optional)
(56010)	(56020)	14" Mill Base, Engraved (Model 2000) (Optional)

(Items shown in parenthesis are upgraded or optional items which would be used instead of the standard item, which may be also listed.)

Complete Conversion Kits

Lathes—Conversion Kits

P/N	DESCRIPTION
33100	4100 Lathe (M) to 4000 (I) Conversion
33200	4000 Lathe (I) to 4100 (M) Conversion
33150	4410 Lathe (M) to 4400 (I) Conversion
33250	4400 Lathe (I) to 4410 (M) Conversion

Vertical Milling Machines—Conversion Kits

33300	5100 Mill (M) to 5000 (I) Conversion
33400	5000 Mill (I) to 5100 (M) Conversion
33350	5410 Mill (M) to 5400 (I) Conversion
33450	5400 Mill (I) to 5410 (M) Conversion*
33500	2000 Mill (I) to 2010 (M) Conversion*
33550	2010 Mill (M) to 2000 (I) Conversion*

* Does not include engraved base or table.