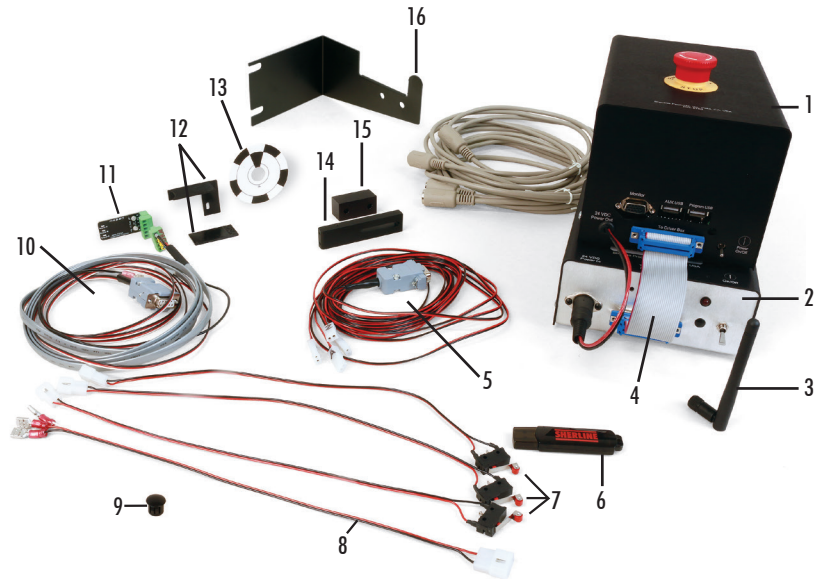




Sherline/MASSO Controller Part Information and Part Numbers

Clockwise, from upper right

1. P/N 8781 Controller box
 2. P/N 8760 4-axis CNC driver box*
 3. Wifi antenna (included with controller)
 4. P/N 87605 Parallel cable
 5. P/N 87825 Limit switch main cable bundle
 6. P/N 8762 USB 4 GB flash drive
 7. P/N 68040 Limit switches (with pigtail and connector)
 8. P/N 87830 Speed control cable
 9. P/N 68047 Plastic plug for speed control housing
 10. P/N 87820 Tach/spindle control cable bundle
 11. P/N 87810 Optical encoder
 12. P/N 87812 Encoder cover and
P/N 87813 Tach gap setter
 13. P/N 68060 Tach spindle pulley RPM sticker
 14. P/N 87814 Tach bracket
 15. P/N 87816 Standard headstock spacer
P/N 87817 3C headstock spacer (not shown)
 16. P/N 87840 Ball screw mill headstock cable support
Zip ties (not shown) for leadscrew mill cable support
- * **NOTE:** P/N 8780 includes the driver box. P/N 8781 does not include the driver box.



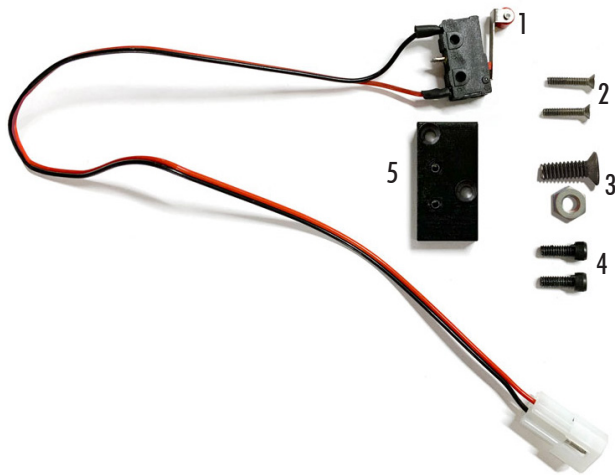
If you are ordering a controller and intend to use it for multiple (or different) machines, you will need to do the following:

1. First place an order for the machine that has the most axes first (Example: 4-axis mill).
2. Then you will need to order the optical encoder, mounting hardware, cover, and sticker for the next machine. You don't need the encoder cable because it came with the 4-axis controller.
3. You will need to purchase a second speed control cable, P/N 87830, for your other machine.
4. Then you will need to buy the limit switches, mounts, and triggers to match your second machine (see the following pages for limit switch/mounting bracket axes assembly P/Ns).
5. You will also need the instructions for uploading software when switching your controller to different machines, *How to Use the Sherline/MASSO Controller to Control Different Machines Instructions* (https://www.sherline.com/wp-content/uploads/2019/10/masso_control_different_machines_inst.pdf).

Thank you,
Sherline Products Inc.

For Ball Screw Mills

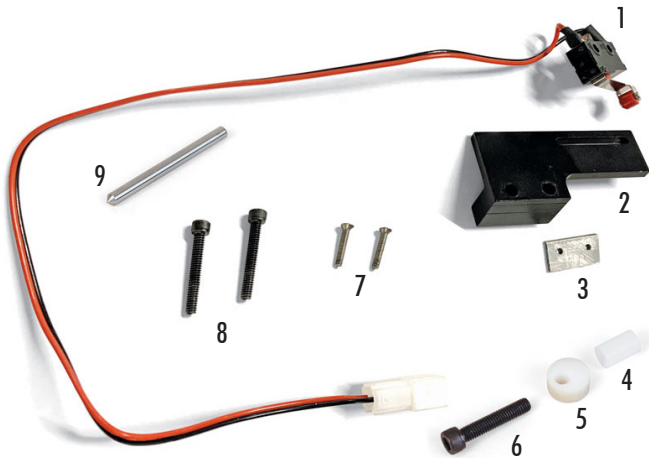
P/N 8782 X-axis limit switch, mount, and screws



X-axis limit switch parts, clockwise from top right:

- (1) P/N 68040: limit switch w/pigtail
- (2) P/N 81270: 2-56 x 3/8" Phillips head machine screws (2 ea.)
- (3) P/N 68035: 10-32 x 7/16" Phillips flat-head screw
- P/N 32100: 10-32 Hex nut (These are for the limit switch stop)
- (4) P/N 40530: 5-40 x 3/8" SHCS (2 ea.)
- (5) P/N 68026: X-axis limit switch mount
- (6) P/N 67124: Zip ties (2 ea.)

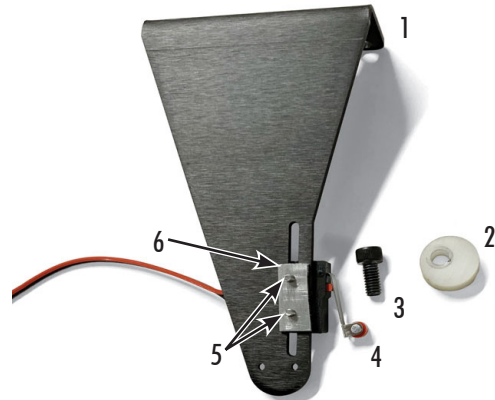
P/N 8783 Y-axis limit switch, mount, eccentric trigger, and screws



Y-axis limit switch parts, clockwise from top right:

- (1) P/N 68040: limit switch w/pigtail
- (2) P/N 68024: Y-axis limit switch mount
- (3) P/N 68046: Limit switch mounting tab
- (4) P/N 68044: Nylon spacer
- (5) P/N 68039: Eccentric trigger
- (6) P/N 40340: 10-32 x 1" SHCS
- (7) P/N 68049: #2 Phillips x 5/8" flat-head sheet metal screws (2 ea.)
- (8) P/N 67115: 5-40 x 7/8" SHCS (2 ea.)**
- (9) P/N 87841: 1/8" x 1-1/2" steel transfer punch for mill Y-axis limit switch (Retro)
- (10) P/N 67124: Zip ties (2 ea.)

P/N 8777 Z-axis switch, mount, eccentric trigger, and screws



Z-axis limit switch parts, clockwise from top:

- (1) P/N 68020: Z-axis limit switch mount
- (2) P/N 68042: Eccentric trigger
- (3) P/N 12050: 8-32 x 3/8" SHCS**
- (4) P/N 68040: Limit switch
- (5) P/N 68048: #2 Phillips x 1/2" flat-head sheet metal screws (2 ea.)
- (6) P/N 68046: Limit switch mounting tab
- (7) P/N 67124: Zip ties (2 ea.)
- (8) P/N 20970 (2 ea. Not shown. These are longer replacement screws for the stepper motor mount.)

P/N 8788 XY Ball Screw Limit Switch Assembly Set

- (1) P/N 8782: X-axis limit switch parts
- (2) P/N 8783: Y-axis limit switch parts

P/N 8785 XYZ Ball Screw Limit Switch Assembly Set

- (1) P/N 8782: X-axis limit switch parts
- (2) P/N 8783: Y-axis limit switch parts
- (3) P/N 8777: Z-axis limit switch parts

P/N 8793 XYZ & A Ball Screw Limit Switch Assembly Set

- (1) P/N 8782: X-axis limit switch parts
- (2) P/N 8783: Y-axis limit switch parts
- (3) P/N 8777: Z-axis limit switch parts
- (4) P/N 8740: A-axis limit switch parts

Metric Screw Equivalents

For those who live outside of the USA and don't have access to 8-32 and 5-40 taps, the metric equivalent to these screws is listed below.

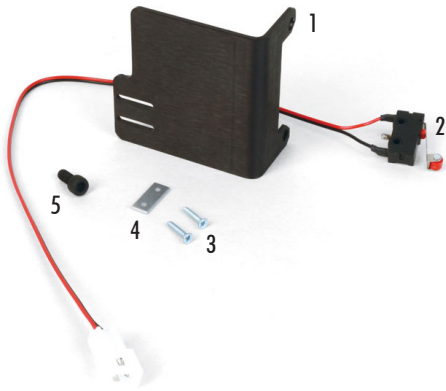
The metric thread equivalent and screw lengths for the inch screws are as follows:

**P/N 12051: 4 x 0.7 mm x 10 mm long = 8-32 x 3/8" SHCS

**P/N 67114: 3 x 0.5 mm x 22 mm long = 5-40 x 7/8" SHCS

For Leadscrew Mills

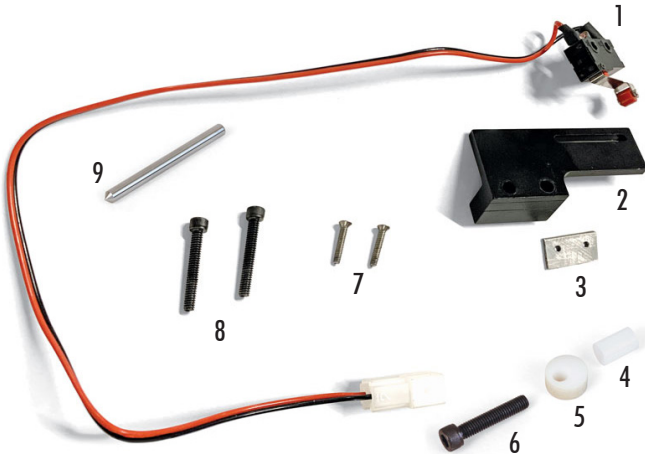
P/N 8796 X-axis limit switch, mount, and screws



X-axis limit switch parts, clockwise from top right:

- (1) P/N 68022: X-axis Limit Switch Mount
- (2) P/N 68040: limit switch w/pigtail
- (3) P/N 68048: #2 Phillips x 1/2" flat-head sheet metal screws (2 ea.)
- (4) P/N 68046: Limit switch mounting tab
- (5) P/N 12050: 8-32 x 3/8" SHCS (This is for the limit switch stop)**
- (6) P/N 67124: Zip ties (2 ea.)
- (7) P/N 20970 (2 ea. Not shown. These are longer replacement screws for the stepper motor mount.)

P/N 8797 Y-axis limit switch, mount, eccentric trigger, and screws*



Y-axis limit switch parts, clockwise from top right:

- (1) P/N 68040: limit switch w/pigtail
- (2) P/N 68024: Y-axis limit switch mount
- (3) P/N 68046: Limit switch mounting tab
- (4) P/N 68044: Nylon spacer
- (5) P/N 68039: Eccentric trigger
- (6) P/N 40340: 10-32 x 1" SHCS
- (7) P/N 68049: #2 Phillips x 5/8" flat-head sheet metal screws (2 ea.)
- (8) P/N 67115: 5-40 x 7/8" SHCS (2 ea.)**
- (9) P/N 87841: 1/8" x 1-1/2" steel transfer punch for mill Y-axis limit switch (Retro)
- (10) P/N 67124: Zip ties (2 ea.)

Metric Screw Equivalents

For those who live outside of the USA and don't have access to 8-32 and 5-40 taps, the metric equivalent to these screws is listed below.

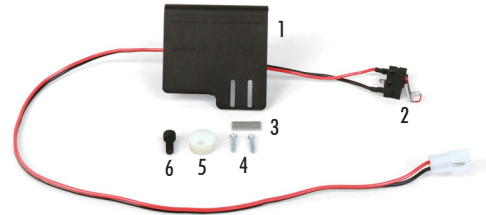
The metric thread equivalent and screw lengths for the inch screws are as follows:

**P/N 12051: 4 x 0.7 mm x 10 mm long = 8-32 x 3/8" SHCS

**P/N 67114: 3 x 0.5 mm x 22 mm long = 5-40 x 7/8" SHCS

***P/N 8797 is the same as P/N 8783 for the Ball Screw limit switch parts.**

P/N 8798 Z-axis switch, mount, eccentric trigger, and screws (5400 mills)



5000 and 5400 Z-axis limit switch parts, clockwise from top:

- (1) P/N 68022: X-axis Limit Switch Mount
- (2) P/N 68040: limit switch w/pigtail
- (3) P/N 68046: Limit switch mounting tab
- (4) P/N 68048: #2 Phillips x 1/2" flat-head sheet metal screws (2 ea.)
- (5) P/N 68042: Eccentric trigger
- (6) P/N 12050: 8-32 x 3/8" SHCS**
- (7) P/N 67124: Zip ties (2 ea.)
- (8) P/N 20970 (2 ea. Not shown. These are longer replacement screws for the stepper motor mount.)

P/N 8777 Z-axis switch, mount, eccentric trigger, and screws (2000 & 5800 mills)



2000 and 5800 Z-axis limit switch parts, clockwise from top:

- (1) P/N 68020: Z-axis limit switch mount
- (2) P/N 68042: Eccentric trigger
- (3) P/N 12050: 8-32 x 3/8" SHCS**
- (4) P/N 68040: Limit switch
- (5) P/N 68048: #2 Phillips x 1/2" flat-head sheet metal screws (2 ea.)
- (6) P/N 68046: Limit switch mounting tab
- (7) P/N 67124: Zip ties (2 ea.)
- (8) P/N 20970 (2 ea. Not shown. These are longer replacement screws for the stepper motor mount.)

P/N 8789 XY Leadscrew Limit Switch Assembly Set (All Leadscrew Mills)

- (1) P/N 8796: X-axis limit switch parts
- (2) P/N 8797: Y-axis limit switch parts

P/N 8772 XYZ Leadscrew Limit Switch Assembly Set (5400 Mills)

- (1) P/N 8796: X-axis limit switch parts
- (2) P/N 8797: Y-axis limit switch parts
- (3) P/N 8798: Z-axis limit switch parts

P/N 8799 XYZ Leadscrew Limit Switch Assembly Set (2000 & 5800 Mills)

- (1) P/N 8796: X-axis limit switch parts
- (2) P/N 8797: Y-axis limit switch parts
- (3) P/N 8777: Z-axis limit switch parts

P/N 8794 XYZ & A Leadscrew Limit Switch Assembly Set (5400 Mills)

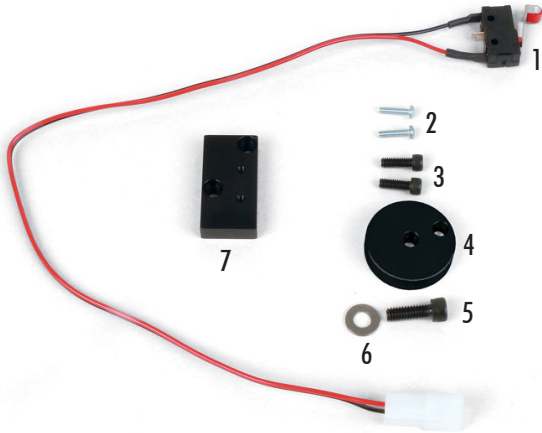
- (1) P/N 8796: X-axis limit switch parts
- (2) P/N 8797: Y-axis limit switch parts
- (3) P/N 8798: Z-axis limit switch parts
- (4) P/N 8740: A-axis limit switch parts

P/N 8779 XYZ & A Leadscrew Limit Switch Assembly Set (2000 & 5800 Mills)

- (1) P/N 8796: X-axis limit switch parts
- (2) P/N 8797: Y-axis limit switch parts
- (3) P/N 8777: Z-axis limit switch parts
- (4) P/N 8740: A-axis limit switch parts

For Ball Screw Lathes

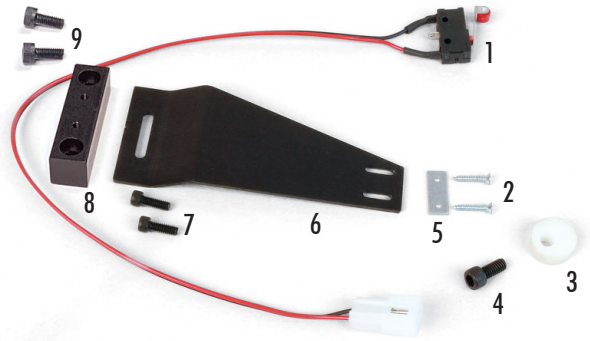
P/N 8791 X-axis limit switch, mount, eccentric trigger, and screws



X-axis limit switch parts, clockwise from top right:

- (1) P/N 68040: limit switch w/pigtail
- (2) P/N 81270: 2-56 x 3/8" Phillips head machine screws (2 ea.)
- (3) P/N 40530: 5-40 x 3/8" SHCS (2 ea.)
- (4) P/N 68041: Eccentric trigger
- (5) P/N 12050: 8-32 x 3/8" SHCS (This is for the limit switch stop)
- (6) P/N 40660: #10 washer
- (7) P/N 68028: X-axis limit switch mount
- (8) P/N 67124: Zip ties (2 ea.)

P/N 8792 Z-axis switch, mount, eccentric trigger, and screws



Z-axis limit switch parts, clockwise from top:

- (1) P/N 68040: Limit switch
- (2) P/N 68048: #2 Phillips x 1/2" flat-head sheet metal screws (2 ea.)
- (3) P/N 68042: Eccentric trigger
- (4) P/N 12050: 8-32 x 3/8" SHCS**
- (5) P/N 68046: Limit switch mounting tab
- (6) P/N 68030: Z-axis limit switch mount
- (7) P/N 40530: 5-40 x 3/8" SHCS (2 ea.)
- (8) P/N 46213: Limit switch mounting spacer
- (9) P/N 20970: 8-32 x 1/2" SHCS (2 ea.)
- (10) P/N 67124: Zip ties (2 ea.)

P/N 8795 XZ Ball Screw Limit Switch Assembly Set

- (1) P/N 8791: X-axis limit switch parts
- (2) P/N 8792: Z-axis limit switch parts

Metric Screw Equivalents

For those who live outside of the USA and don't have access to 8-32 and 5-40 taps, the metric equivalent to these screws is listed below.

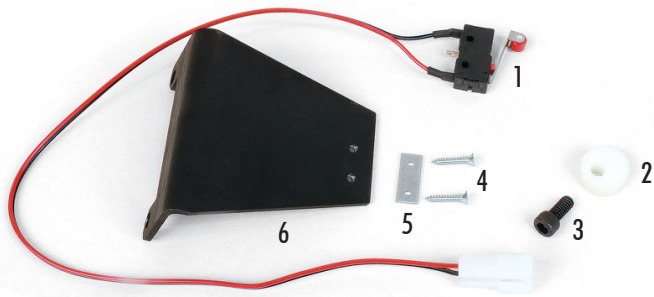
The metric thread equivalent and screw lengths for the inch screws are as follows:

****P/N 12051: 4 x 0.7 mm x 10 mm long = 8-32 x 3/8" SHCS**

For Leadscrew Lathes

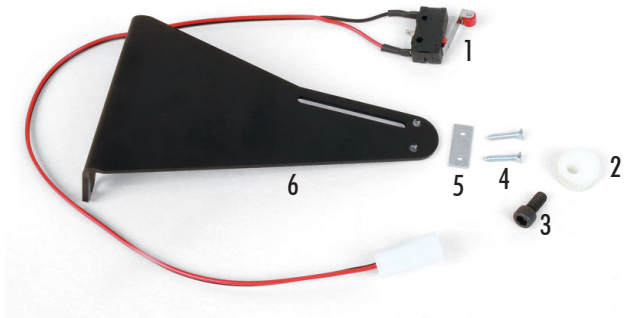
P/N 8773 X-axis limit switch, mount, eccentric trigger, and screws

P/N 8774 Z-axis switch, mount, eccentric trigger, and screws



X-axis limit switch parts, clockwise from top right:

- (1) P/N 68040: limit switch w/pigtail
- (2) P/N 68042: Eccentric trigger
- (3) P/N 12050: 8-32 x 3/8" SHCS**
- (4) P/N 68048: #2 Phillips x 1/2" flat-head sheet metal screws (2 ea.)
- (5) P/N 68046: Limit switch mounting tab
- (6) P/N 68031: X-axis limit switch mount
- (7) P/N 67124: Zip ties (2 ea.)
- (8) P/N 20970 (2 ea. Not shown. These are longer replacement screws for the stepper motor mount.)



Z-axis limit switch parts, clockwise from top:

- (1) P/N 68040: Limit switch
- (2) P/N 68042: Eccentric trigger
- (3) P/N 12050: 8-32 x 3/8" SHCS**
- (4) P/N 68048: #2 Phillips x 1/2" flat-head sheet metal screws (2 ea.)
- (5) P/N 68046: Limit switch mounting tab
- (6) P/N 68020: Z-axis limit switch mount
- (7) P/N 67124: Zip ties (2 ea.)
- (8) P/N 20970 (2 ea. Not shown. These are longer replacement screws for the stepper motor mount.)

P/N 8778 XZ Leadscrew Limit Switch Assembly Set

- (1) P/N 8773: X-axis limit switch parts
- (2) P/N 8774: Z-axis limit switch parts

Metric Screw Equivalents

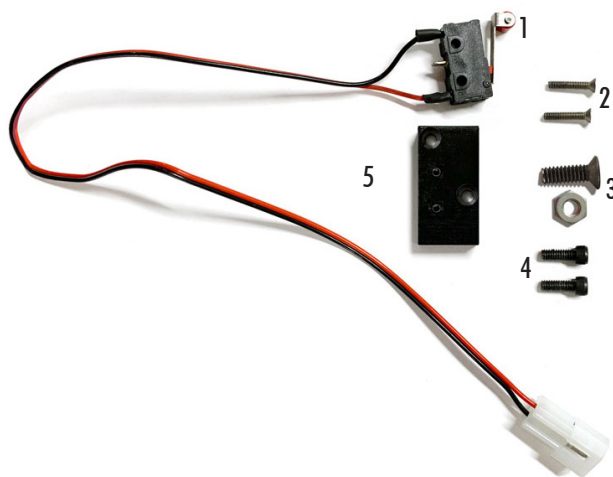
For those who live outside of the USA and don't have access to 8-32 and 5-40 taps, the metric equivalent to these screws is listed below.

The metric thread equivalent and screw lengths for the inch screws are as follows:

**P/N 12051: 4 x 0.7 mm x 10 mm long = 8-32 x 3/8" SHCS

For Chucker Lathe

P/N 8786 X-axis limit switch, mount, and screws



P/N 8790 XZ Chucker Lathe Limit Switch Assembly Set

- (1) P/N 8786: X-axis limit switch parts
- (2) P/N 8783: Z-axis limit switch parts

Metric Screw Equivalents

For those who live outside of the USA and don't have access to 8-32 and 5-40 taps, the metric equivalent to these screws is listed below.

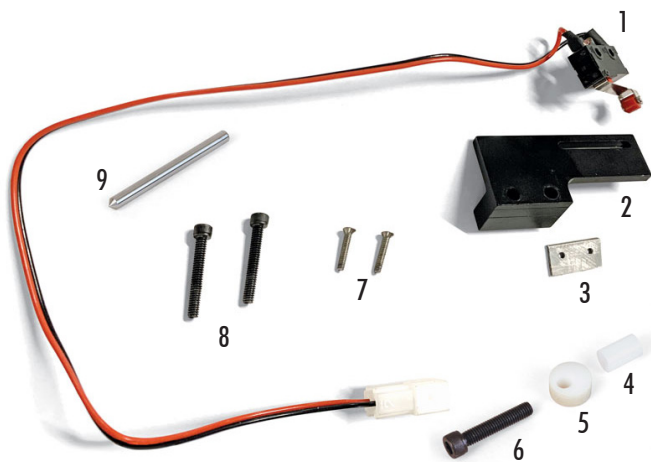
The metric thread equivalent and screw lengths for the inch screws are as follows:

****P/N 67114: 3 x 0.5 mm x 22 mm long = 5-40 x 7/8" SHCS**

X-axis limit switch parts, clockwise from top right:

- (1) P/N 68040: limit switch w/pigtail
- (2) P/N 81270: 2-56 x 3/8" Phillips head machine screws (2 ea.)
- (3) P/N 68035: 10-32 x 7/16" Phillips flat-head screw
- P/N 32100: 10-32 Hex nut (These are for the limit switch stop)
- (4) P/N 40530: 5-40 x 3/8" SHCS (2 ea.)
- (5) P/N 68026: X-axis limit switch mount
- (6) P/N 67124: Zip ties (2 ea.)

P/N 8783 Z-axis limit switch, mount, eccentric trigger, and screws



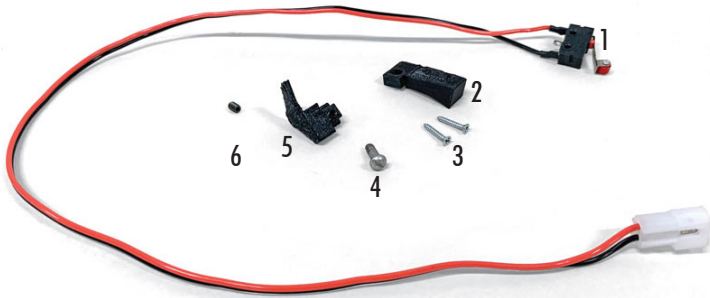
Z-axis limit switch parts, clockwise from top right:

- (1) P/N 68040: limit switch w/pigtail
- (2) P/N 68024: Y-axis limit switch mount
- (3) P/N 68046: Limit switch mounting tab
- (4) P/N 68044: Nylon spacer
- (5) P/N 68039: Eccentric trigger
- (6) P/N 40340: 10-32 x 1" SHCS
- (7) P/N 68049: #2 Phillips x 5/8" flat-head sheet metal screws (2 ea.)
- (8) P/N 67115: 5-40 x 7/8" SHCS (2 ea.)**
- (9) P/N 87841: 1/8" x 1-1/2" steel transfer punch for Z-axis limit switch (Retro)
- (10) P/N 67124: Zip ties (2 ea.)

***P/N 8786 is the same as P/N 8782 for the Ball Screw limit switch parts.**

For Rotary Table

P/N 8740 A-axis limit switch, mount, trigger, and screws



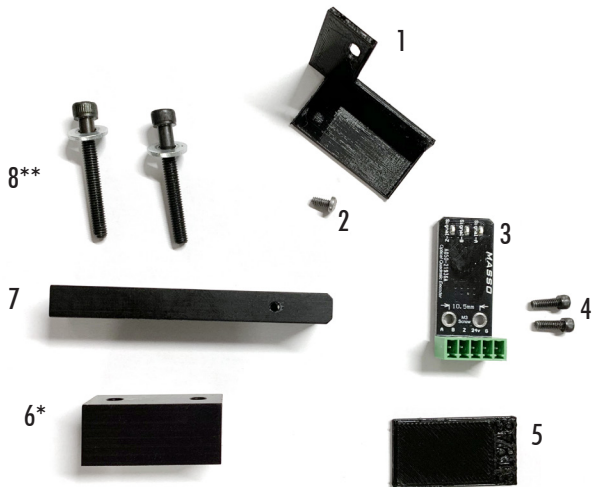
A-axis limit switch parts, clockwise from top right:

- (1) P/N 68040: limit switch w/pigtail
- (2) P/N 87094: A-axis limit switch mount
- (3) P/N 68048: #2 Phillips x 1/2" flat-head sheet metal screws (2 ea.)
- (4) P/N 87088: 6-32 x 3/8" Pan head screw
- (5) P/N 87095: A-axis trigger
- (6) P/N 87087: 8-32 x 1/4" set screw, flat bottom (for A-axis trigger)
- (7) P/N 67124: Zip ties (2 ea.)

For Optical Encoder

P/N 8767 (for all lathes, and leadscrew mills w/o cable support), P/N 8769* (for ball screw mills w/cable support)

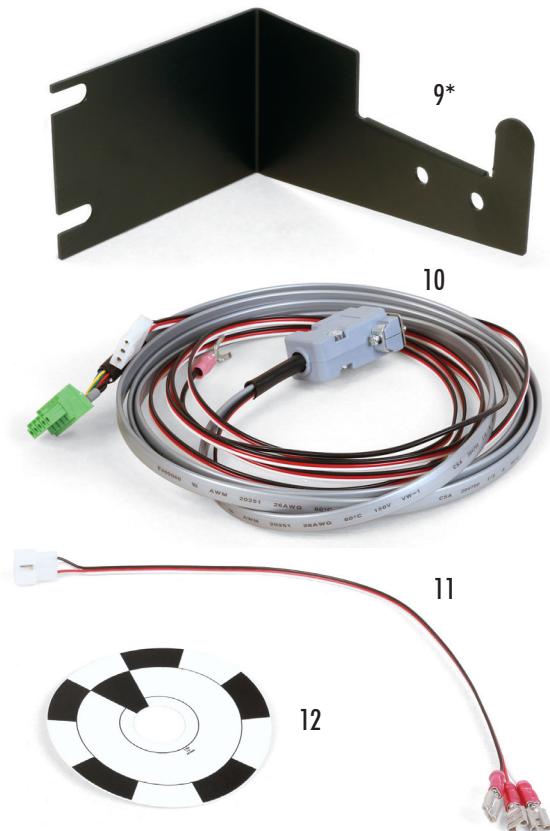
Optical encoder, mount, and screws



Encoder parts, clockwise from top right:

- (1) P/N 87812: optical encoder cover
- (2) P/N 68002: 5-40 x 3/8" SHCS
- (3) P/N 87810: optical encoder
- (4) P/N 40530: 5-40 x 3/8" SHCS (2 ea.)
- (5) P/N 87813: .129 optical encoder gauge
- (6) P/N 87816*: optical encoder spacer for standard headstock
P/N 87817*: optical encoder spacer for 3C headstock (not shown)
- (7) P/N 87814: optical encoder bracket
- (8) P/N 40720**: 10-32 x 1-1/2" SHCS and P/N 40660 #10 washers (2 ea.) for standard headstock spacer
P/N 40340**: 10-32 x 1" SHCS and P/N 40660 #10 washers (2 ea.) for 3C headstock spacer (not shown)

Encoder cables and cable support



- (9) P/N 87840: Mill headstock cable support* (ball screw mills only)
- (10) P/N 87820: Main Encoder speed control cable and ground cable
- (11) P/N 87830: Speed control cable
- (12) P/N 68060: Tach spindle pulley RPM sticker
- (13) P/N 67124: Zip ties (4 ea.)

**NOTE: The cable support ships only with P/N 8769. It is not included with any lathes or leadscrew mills. For leadscrew machines, we will use four zip ties to tie the cables to the power supply cord of the speed control.*