SHERLINE
INDUSTRIAL PRODUCTS DIVISION

6-Direction Industrial Machine Slide

P/N 6570 (6571) Manual, 6575 (6576) CNC-Ready

P/N 6570 Manual version shown.
(White base not included.)

Configurations

The 6-direction machine slide is available in both manual and CNC-ready configurations. The Z-axis (up/down) motion and the saddle side-to-side motion are controlled by handwheels on the manual version or by stepper motors on the CNC-ready version. The other directions of movement of the ram are controlled by manually adjusting each setting with reference to scales laser engraved on the parts. The ram can be moved in/out and pivoted side-to-side. The column can be rotated side-to-side up to 90° in either direction and can also be pivoted forward or back toward the column. There is an adjustable block (P/N 56350) to help return the column to vertical alignment in this direction.

Mounting the Column to a Base

Two 1/4-20 holes are provided in the bottom of the base on 2-inch centers for mounting. They are located 1" on either side of the center of the base. Two 1/4-20 bolts are provided for mounting, but your particular application may require longer or shorter bolts.

Alignment of the Column

Returning each axis approximately to square can be done by using the scales and scribed reference lines. Returning to exactly square in each direction should be done using a dial indicator and standard machine alignment procedures. (For detailed instructions on zeroing the column using a dial indicator, see www.sherline.com/2000inst.htm on our web site.)

Use of the Multi-Axis Manual or CNC Machine Slide

To lock the saddle in position on the Z-axis (manual models only), rotate the brass saddle locking lever counterclockwise (when seen from the top) to tighten it against the saddle nut. Rotate it clockwise to release. The locking lever is not included on the CNC version to prevent possible damage to the stepper motor by inadvertently activating it when the lever is locked.

Handwheel graduations on the manual version are .001" or .01mm on metric models. Each full rotation advances the table .050" (1.0mm on metric models). In addition to the handwheel, CNC versions have a coupler and mount to accept a stepper motor with a 23 frame size. When mounting accessories to the table using the T-nuts provided, make sure to use the proper length 10-32 screws or damage to the table can occur. When tightening the T-nuts, keep in mind that the table is aluminum. Do not overtighten!

Lubrication and Maintenance

The leadscrews should be lubricated with light oil. Clean them periodically to make sure they are free from chips and debris. Lubricate the dovetail slide surfaces with light grease. We have found a synthetic, Teflon®-based grease provides superior lubrication. The preloaded bearings are sealed and require no lubrication.

## Preloading the Handwheel or Coupling Bearings

The amount of preload on the thrust bearings is adjusted with the nut on the end of the leadscrew behind the handwheel collar (P/N 67107/67109). This nut draws the inner races of the flanged bearing together, eliminating endplay from the handwheel or CNC coupler. After adjustment, the nut is locked with Loctite®.

Gib Adjustment

Adjustable, tapered gibs are used to control "play" between the column, saddle and table. They are located on the saddle dovetails. To adjust a gib, loosen the cup point set screw that secures the gib lock (P/N 40820). Push the gib into the dovetail until the desired adjustment is achieved and then retighten the set screw to hold the gib in place. If you need to adjust or replace a worn gib more information can be found at **Sherline.com** (search for gib_inst).

Mounting Stepper Motors

It is important that the stepper motor shaft has a flat machined on it for the set screw. The flat should be located with its center .515" from the motor flange (not the boss). This is a must if you plan to remove the motor in the future. If a flat is not machined on the shaft, the point of the set screw can upset the surface of the round shaft, making it impossible to remove it from the hole in the coupling. (Motors purchased from Sherline have the proper flats machined on the shaft.)

FLANGE
BOSS
Optional rear handwheel shaft

.515   .42
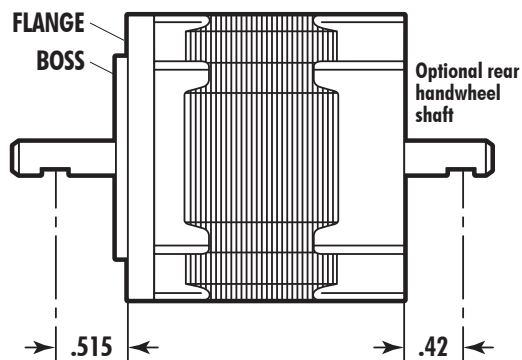
Flats machined on stepper motor shafts for set screws.

To mount the motor, start by turning the leadscrew until the coupling set screw lines up with the access hole in the motor mount. Insert the motor shaft into the coupling. With the flanges touching, carefully rotate the stepper motor shaft until the flat on the shaft is aligned with the coupling set screw. Tighten the set screw. Rotate the motor to align the four mounting screw holes, and attach the motor to the motor mount.

Don't use Loctite® on the motor shaft set screw. The shaft could end up glued to the coupler.

Many Accessories Available

Sherline Industrial products are designed to accept Sherline's entire line of miniature machine tool accessories. Four 10-32 T-nuts and socket head cap screws are provided with this slide for mounting parts or accessories to the T-slots in the table. For example, some useful accessories include a mill vise, hold-down clamp sets, 3-jaw and 4-jaw vises, tool posts, collet sets and much more. See Sherline's tool and accessory website at **Sherline.com** for a complete list of accessories including illustrated instructions on their use.

Thank you,
Sherline Products Inc.

Specifications

- **Table size:** 2.75" x 8" (70 mm x 203.2 mm)
- **Column size:** 11" (279.4 mm)
- **Travel:**

  Z-axis = 5.38" (137 mm)

  X-axis = 4.25" (108 mm)

  Column rotation = 90° L/R

  Column pivot = 90° Fwd/Back

  Column swing = 90° L/R

  Column in/out travel: 5.5" (140 mm)

- **Hold-down provision:** 2 T-slots
- **Mounting provision:** 2 holes 1/4-20 in the bottom of the base
- **Laser engraved scales indicate rotation and travel**
- **A lever locks, or unlocks, the Z-axis leadscrew**

Parts List

NO. REQ.	PART NO.	DESCRIPTION
1	32140	10-32 x 1/2" Cup Point Set Screw
1	35160	Graduated Clamping Ring
1	35170	Moveable Clamping Disk
1	40170	Saddle Nut, Plain (CNC only)
1	40177	Saddle Nut w/ Ball (Manual only)
1	40175	Saddle Locking Lever (Manual only)
2	40070	Handwheel (CNC Versions only)
3	40330	10-32 x 5/8" SHCS
1	40340	10-32 x 1" SHCS
2*	40520	10-32 x 3/16" Cup Point Set Screw
3	40600	10-32 x 1/4" Flat Point Set Screw
4	40670	10-32 x 1/2" SHCS
4	40690	10-32 x 3/4" SHCS
2	40820	Gib Lock
1	40890	Slide Screw Insert, Inch (Metric 41890)
1	40910	Saddle
1	40980	Gib, Crosslide
1	40990	Gib, Z-Axis
1	45030	Manual Column Bed (Manual only)
1	44210	8" Leadscrew, Inch (Metric 44220)
1	50211	8-32 x 1/4" Button Head Screw
2	50220	1/4-20 x 1-3/4" SHCS
2	56240	1/4-20 x 1-1/2" SHCS
1	56130	Arm Hold-Down Bolt
1	56200	Arm Hold-Down Washer
1	56210	3/8-16 x 2" Shouldered Bolt
1	56220	Swing Arm Side
2	56230	Flange Nut
1	56330	Swing Arm Side
1	56350	Column Adjustment Block
1	56400	Arm Spacer Block
1	56440	Arm Mount
1	56450	Index Tab
1	56470	3/32" x 1/2" Dowel Pin
1	56550	Column Top
1	56700	Column Base
2	67018	2" Industrial Handwheel, Inch (Manual only) (Metric 67118)
2	67019	Thrust Collar (Manual only)
1	67021	11" CNC Column Bed (CNC only)
1	67030	Z-Axis Leadscrew, Inch (Metric 67031)
1	67036	X-Axis 8" Crosslide
8	12050	8-32 x 3/8" Socket Head Cap Screw (CNC only)
2	67101	CNC Motor Mount (CNC only)
2	671052	CNC Coupler (CNC only)
2	67107	Preload Nut, Inch (Metric 67109)
4	67111	8-32 x 7/8" Socket Head Cap Screw
2	67115	5-40 x 1" Socket Head Cap Screw
4	67120	Ball Bearing w/ Flange

* CNC versions include 2 set screws for the CNC couplers

See the exploded views on the next page for the location of each part.

Exploded View and Part Numbers

NOTE: Where different, Inch part number is given first, followed by Metric part number.

*NOTE: Locking lever included on manual version only. CNC-ready version uses P/N 4017 saddle nut with no locking lever.

NOTE: Mounting bolts are 2.0" on centers.

NOTE: The saddle assembly, as shown, is reversed. Rotate the assembly 180° so the handwheel points in the opposite direction before mounting it to the column bed.