



(P/N 6519 shown)



PRODUCT DESCRIPTION

- 6519—3/4-16 Spindle w/ 30-tooth timing belt pulley
- 6520—3/4-16 Spindle w/ 2-step V-belt pulley
- 6521—ER-16 Spindle w/ 30-tooth timing belt pulley
- 6522—ER-16 Spindle w/ 2-step V-belt pulley

Industrial Tapered Headstocks with Dovetailed Bases

P/N 6519, 6520, 6521, 6522

Spindle Precautions

It is important to realize that this spindle should be considered light duty. To make the spindle versatile on Models 6501 and 6502, the spindle nose includes both a 3/4-16 external thread and a #1 Morse internal taper. A .405 (10 mm) through hole allows long stock to be passed through the spindle. This design provides a lot of versatility, but was not intended for long or out-of-round parts to be rotated at high RPM. The same precaution regarding long stock applies to the ER-16 collet models. It is up to the operator to determine if the spindle and the setup are adequate and safe for the job being attempted.

The spindle is equipped with a dust cap, but it is not totally sealed. The presence of dust from grinding operations can shorten bearing life considerably. It was also not designed to be operated in a coolant bath. The spindle shaft should be shielded from coolant spray.

Using the Headstock

These Sherline industrial headstocks were designed to be used with Sherline dovetailed columns or beds. A brass gib adjusts the tightness of the headstock and is easily replaced when worn. It features two 20mm, class 5, lifetime lubricated ball bearings with an adjustable preload nut. The preload is adjusted at the factory to .0002" (.005 mm) of endplay. This is controlled by the outer races of the bearings being held apart by the headstock case and the inner races being pulled together by the preload nut. This is appropriate for extended running at speeds in the range of 4000 RPM or less. You may need a slightly looser preload setting of .0003" for operating speeds up to 10,000 RPM.

Optional Nickel/Teflon Spindles

Most of our spindles are available with a Nickel/Teflon plating as a rustproof option for an additional cost. You can select the option to add the Nickel/Teflon plating to your spindle order.

Adjusting the Spindle Bearing Preload

If any endplay develops in the main spindle, it can be easily eliminated by readjusting the preload nut. If extended

running causes the headstock to be too hot to touch, the preload tension can be reduced slightly.

To change the adjustment, remove the spindle pulley, loosen the set screw in the preload nut and back the preload nut off 4° of rotation (counterclockwise). The bearings are lightly pressed into the case, so the inner race will not move without a sharp tap with a plastic mallet to the end of the spindle where the pulley is attached.

If you find your bearings are set too loose, you may want to take up on the endplay. You can check them with an indicator or by spinning the spindle without the motor belt engaged. If the spindle spins freely with a chuck or faceplate on it, the spindle is too loose for normal work. Adjust the preload nut until it turns only about one and one-half revolutions when spun by hand.

Mounting the Headstock to a Machine Slide

Lightly lubricate the dovetailed surfaces of the base or column material. Hook the angled edge of the dovetailed headstock base over the dovetail on the base or column. Attach the brass gib to the headstock using the three 10-32 x 5/8" socket head cap screws provided. Tighten each screw until the gib is seated evenly against the dovetail, and the headstock slides evenly on the base or bed with no side-to-side play. Tighten the three set screws in the side of the headstock against the gib adjustment screws to lock them in place. (Do not over-tighten or you can damage the threads of the attachment screws.)

Position the headstock at the end of its travel, as close to the handwheel (or stepper motor) end of the leadscrew as it will go. Rotate the leadscrew until the hole in the saddle nut aligns with the center hole in the saddle nut bracket on the headstock. Attach the saddle nut to the bracket using the 10-32 x 5/8" socket head cap screw provided. Loosen the cap screw, bring each of the 10-32 x 1/4" flat point set screws on either side of it into light contact with the saddle nut and retighten the cap screw. If binding occurs when you move the headstock, readjust the two set screws until it moves smoothly.

Accessories Available

Sherline manufactures a complete line of accessories for the headstock, including 3-jaw and 4-jaw chucks, drill chucks, collets, and special tool holders. These accessories will fit the 3/4-16 external spindle thread or the #1 Morse internal taper. See our tools and accessories website at Sherline.com, or call for a catalog.

Purchasing ER-16 Collets

ER-16 collets and collet nuts are available from major tool suppliers including the following:

- Manhattan Supply Co. (MSC)—(800) 645-7270
- McMaster-Carr—(562) 692-5911
- Travers Tool Co.—(800) 221-0270

Specifications

- Spindle base size: 3.50" long x 3.375" wide (88.9 mm x 85.7 mm)
- Spindle case height: 3.625" (92 mm)
- Spindle centerline height above bed: 2.184" (55.47 mm)
- Hole through spindle: .405" (10 mm)
- Spindle nose thread (Models 6519, 6520): 3/4-16
- Spindle nose internal taper (Models 6519, 6520): #1 Morse
- Spindle nose thread and taper (Models 6521, 6522): ER-16
- Bearings: (2) 20 mm, class 5, lifetime lubricated ball bearings with adjustable preload

- Runout at spindle nose: 0.001" or less (.0254 mm) (Most are .0005" or less (.0127 mm))
- End play (factory preload adjustment): .0002" (.0051 mm)
- Recommended continuous spindle speed: 4000 RPM or less
- Maximum spindle speed: 10,000 RPM
- Mounting provision: Dovetail with brass gib

Thank you,
Sherline Products Inc.

Parts List, Headstock

NO. REQ.	PART NO.	DESCRIPTION
1	40160	Preload Nut
1	40230	Spindle, 3/4-16 (6519, 6520)
1	40320	Bearing Dust Cover Washer
5	40330	10-32 x 5/8" Socket Head Cap Screw
2	40410	Headstock Class 5 Bearings
2	40440	#2 x 14" Self-Tapping Screws
3	40600	10-32 x 1/4" Flat Point Set Screw
2	40670	10-32 x 1/2" Socket Head Cap Screw
1	43230	2-Step V-Belt Pulley (6520, 6522)
1	65011	Headstock Case, Dovetailed Base
1	65012	Industrial Headstock Spacer
1	65013	Saddle Nut Attachment Plate
1	65014	Industrial Brass Gib
1	65016	Timing Belt Pulley (6519, 6521)
1	65023	Spindle, Er-16 (6521, 6522)
1	65026	ER-16 collet nut (6519, 6521)

Tapered Headstock with Dovetailed Base Diagram

