

How to Mount and Operate your Chuck

The function of the chuck, as any Universal chuck, is to hold and center round and hexagon stock, but by utilizing the built-in adjusting screws, your work can be centered exactly true. The basic principle that makes the chuck different from standard scroll chucks is the adjusting screws for moving the chuck body on the mounting plate for exact work alignment.

For most work, this chuck operates like any scroll chuck: stock is centered in the chuck quickly and accurately by turning the chuck pinion with the wrench furnished until the jaws grip work securely. Be sure to turn work when tightening jaws as it will assure a firm accurate grip.

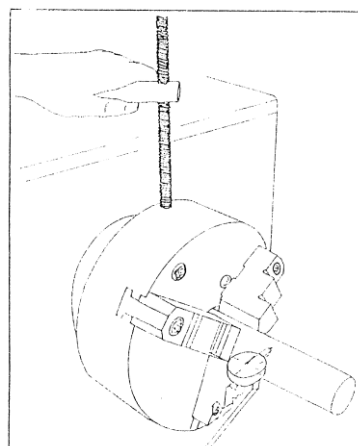
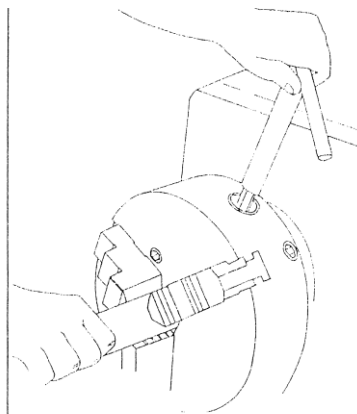
For Precision Accuracy, use the four opposed adjusting screws on the O.D. of the chuck body.

- (1) After the work is gripped, use an indicator to determine which part of the work runs high and which runs low.
- (2) Note the screw or screw numbers nearest the high point and unscrew slightly to release pressure.
- (3) Turn the chuck to the opposite screw or screws and tighten to take up half of the indicated error.
- (4) Keep making such adjustments until all screws are of the same tightness and the indicator dial hand stands still as you rotate the work. This means dead true precision.

Installing the Mounting Plate – Remove chips, dirt, etc. from the spindle and mounting plate. Nicks, burrs, etc. should be removed by careful honing on either the spindle or mounting plate. Install as follows.

Threaded Spindles – Screw mounting tight against the shoulder of the spindle.

Long Taper-Key Drive Spindles – Line keyway in mounting plate with key on spindle. Tighten nut on spindle securely onto mounting.



CAUTION: Never use more than hand pressure with the wrench furnished to tighten pinion or adjusting screws or you will destroy the precision of the chuck

A-Type Spindles – Install mounting plate with screws furnished, tighten equally and securely. Back of mounting should seat on spindle face. Do not use hammer on wrench or cheater.

Camlock-Type Spindles – Install the mounting on the spindle. Turn cam clockwise, locking mounting in position. If reference line on cams does not fall between “V” marks on spindle, you must remove the mounting from spindle and adjust cam lock studs by turning in or out one full turn (clockwise). Reference line “MUST” fall between “V” marks on spindle to insure that mounting is secured to spindle. Tighten camlock nuts with wrench provided. Each spindle has a reference line “1” at 12 o’clock and a “v” at 3 o’clock and 6 o’clock. When mounting

is properly tightened, ref "1" should be between the "V" markings. Try each cam separately. Cam studs in the mounting ARE adjustable. If ref "1" does not locate in position, adjust cam as follows. Remove cap screw beside cam stud out if reference does not go beyond "V" at 3 o'clock. Turn stud in if line goes beyond "V" at 6 o'clock. When properly adjusted, secure all cam nuts. Mounting should seat on spindle shoulder.

When mounting is securely installed, indicate chuck side. If it is more than a .0005" error, take a light truing cut, then install the chuck with screws provided.

Maintain Your Chuck Accuracy

- . Keep chuck clean – the accuracy of the chuck can be destroyed by dirt, chips and grime collecting in the scroll, jaws, and chuck slots.
- . Nicks, burrs, chips, or dirt on the lathe spindle threads, pilot or shoulder – the chuck pilot, threads or shoulder will throw the chuck out of alignment and result in inaccurate work.

Suggestions for Operations

1. Chuck work as far back as possible. Turning the work as the jaws are tightened will assure a firm grip.
2. Whenever possible, tighten the jaws around the solid part of the work.
3. Don't overload your chuck – do not chuck work larger than the diameter of the chuck.
4. Use the wrench furnished – it is designed to provide sufficient leverage to tighten the jaws. Never use a larger wrench or pipe over the end to increase the leverage.
5. Don't pound or hammer the jaws – Never use force if jaws seem to jam. Find cause of obstruction or take chuck apart. It may need cleaning and oiling. Be sure to remove chips and dirt which may have worked into jaw slots or scroll.
6. Never straighten work in the chuck.
7. Whenever possible, never extend jaws beyond the outside diameter of the chuck.
8. When checking stock in the chuck, make sure the jaws are tightened securely.
9. Six jaw chucks must be cleaned more often than 3-jaw chucks as there are twice the number of jaw openings.

How to Disassemble Chucks

First remove the chuck from the mounting plate by removing 6 screws on the face of the chuck and loosening the adjusting screws. Then remove the 6 screws on the face or back of the chuck which hold the two halves of the chuck body together. Notice the step on the hole through the center of the chuck: the back half is approximately 1/8 larger in diameter than the hole going through the front half of the chuck. If the back and the front do not easily separate, put a plug against the 1/8" shoulder and pound, with the chuck in the upright position, on bench or floor as illustrated.

Typical Chuck Applications

Three-Jaw Chuck – for average machining, we suggest the 3-jaw chuck for holding castings, forging cold or hot rolled round stock, pipes and second operation rounds and hex stock.

Six-Jaw Chuck – This chuck is suggested for tubular or thin-wall stock, second operation rounds, hex stock and round non-ferrous parts where marking is to be held to a minimum. Do not attempt to hold a part which has an irregular or rough O.D. in a 6-jaw chuck when using the furnished standard jaws.

A practical safe chuck RPM limit, based on insurance statistics, is shown below by body diameter:

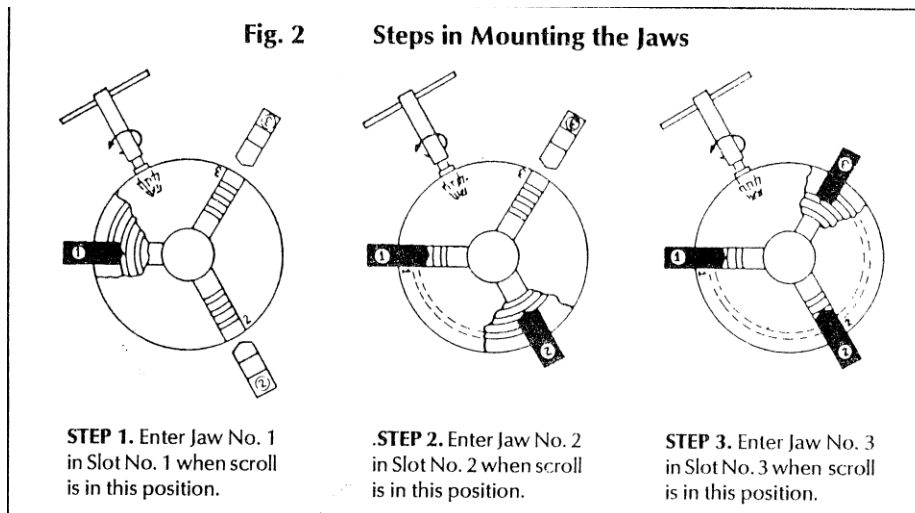
Chuck Diameter	6"	8-1/4"	10"	12"	15"
Maximum Safe RPM	3400	3100	2700	2200	1800

How to Change Jaws

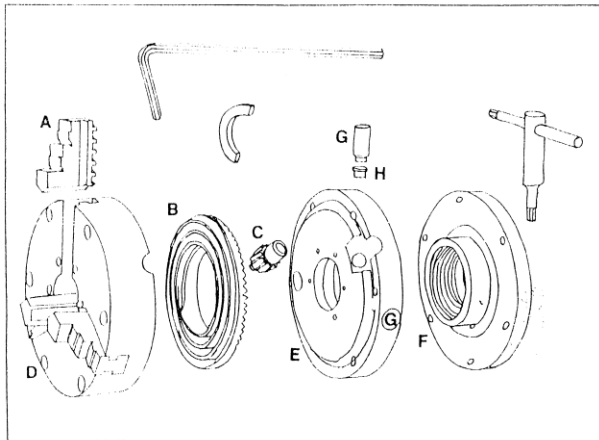
1. Remove jaws from chuck slots with chuck wrench. Wipe jaws with a clean cloth and cover with a light film of oil. Place jaws in box to prevent damage or loss.
2. Clean scroll, chuck slots and new jaws, then apply a light film of oil. Do not use too much oil. It collects dirt and chips which eventually clog the chuck jaws and scroll.
3. The jaws and chuck jaw slots are numbered 1, 2 and 3. Jaws must be inserted in the slot having the corresponding number. Do not interchange jaws from one chuck to another.
4. Turn scroll so that first thread on outside edge of scroll does not quite enter jaw slot No. 1 (see Figure 2, step 1).
5. Repeat process for jaws 2 and 3. (See Figure 2, steps 2 and 3). Continue if chuck has 6 jaws.

Important: Jaw must slide into chuck easily, never use force. If jaw must be forced, it is because jaw is misaligned or dirt and chips are lodged in the jaw or scroll. Remove jaw and carefully clean the jaw and chuck scroll.

NOTE: The procedure for 6 jaw chucks is the same as for 3 jaw chucks.



Parts of a Manual Chuck



- (A) Jaws
- (B) Scroll
- (C) Pinion
- (D) Front
- (E) Back
- (F) Mounting Plate
- (G) Socket Head Screws
- (H) Pressure Plugs

Method of Forming Chuck Jaws

Locate jaws for maximum keyway engagement in body.

For O.D. Gripping: Pre-load jaws by gripping on O.D. of thin wall ring. Use dowel pins in jaw bolt holes on top jaw style #7 or drill in solid jaw style #5 for pre-loaded dowel pins. Thin wall rings can be made from 4 or 5 turns of banding material and riveted together at both ends. Pre-load pressure should be same as that used in gripping parts.

For I.D. Gripping: Use thin wall ring on chuck O.D. over jaw ends and grip on I.D. of ring for pre-load. After turning or grinding jaws, check pre-load by gripping a round part wrapped with paper. Jaws should "print" heavier on surface farthest from chuck face. If jaws do not check properly, rebore using heavier preload pressure.

For All Chucks with Soft Jaws

If your chuck has master jaws with soft tops or solid soft jaws, be sure to align the O.D. of the chuck true before machining soft jaws. If you have several jobs using soft jaws or soft top jaws which have been hardened, they can be realigned in your chuck without returning or regrinding by making use of the adjusting screws.

Helpful Hints

When adjusting chuck for repeat accuracy of .0005" or less, you must use a TRUE ROUND part. When gripping work in chuck center hole and using drilling tailstock or taking heavy cut toward chuck, arrange for stop in spindle or on chuck face.

For conventional chucking where accuracy within .003" is sufficient, align body O.D. true and use jaw points or steps as required to hold part.

Ordering Information

When writing regarding your chuck, be sure to mention the number stamped on the chuck face. If scroll, jaws or body parts must be serviced or replaced, we recommend the chuck be returned to the factory for proper fitting of parts and grinding. All returned shipments to the factory must be prepaid.