

Centering Work in a 4-Jaw Chuck

Many people will tell you that centering work in a 4-jaw chuck quickly and accurately is a mystical skill that can be acquired only after much practice.

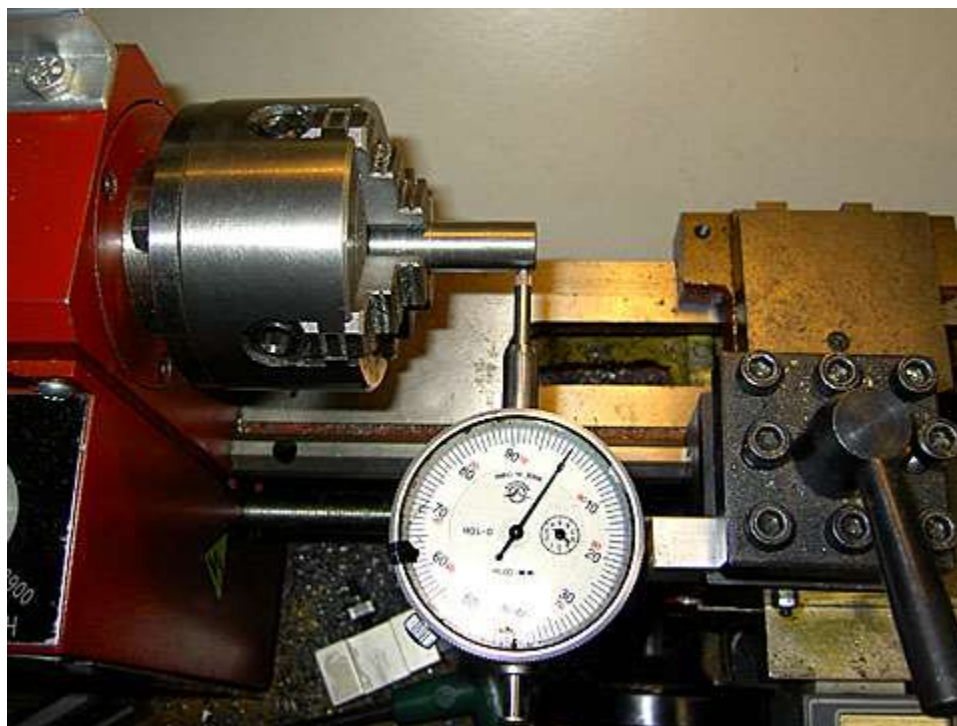
Hogwash.

Following is a procedure to center work in just two revolutions of the chuck. Use this procedure, and regardless of your skill level, you can center work quickly and accurately.

I am relatively good at the “trial and error” method of centering in a 4-jaw chuck. But I cut my time by about two-thirds the very first time I used the following procedure.

Here are the steps to center work in a 4-jaw chuck:

1. Put the workpiece in the chuck and center it by eye. 4-jaw chucks have grooves in the face of the chuck body to make this easier.
2. Set a dial indicator against the workpiece.



Indicator set against work in a 4-jaw chuck. A magnetic base works as well to hold the indicator.

3. By hand, turn the chuck through one complete revolution. Write down the high reading and the low reading from the indicator.

4. Calculate the average reading by adding the high reading to the low reading and then dividing by two.
5. $\text{Average} = (\text{High Reading} + \text{Low Reading}) / 2$
6. Turn the chuck until the indicator needle is at the average reading.
7. Turn the bezel on the dial indicator so that the zero is under the needle.
8. Rotate the chuck so that one jaw is aligned with the plunger of the dial indicator.
9. Adjust the jaw that is aligned with the dial indicator plunger and the opposite jaw so the indicator reads zero.
10. Rotate the chuck 90 degrees so another jaw is aligned with the indicator plunger.
11. Adjust the jaw that is aligned with the dial indicator plunger and the opposite jaw so the indicator reads zero.

That's it. You're done. Check your work by rotating the chuck. If you are not happy with the result, repeat steps 3 through 9.

Summary

Once you have done this a few times, these four steps will be enough to remind you how to do it:

1. Turn the work through one revolution and note the minimum and maximum readings.
2. Turn the work to the midpoint (or average) reading and zero the dial.
3. Align one jaw with the axis of the indicator. Adjust this and the opposite jaw so the indicator reads zero.
4. Turn the work 90 degrees and adjust the other two jaws so the indicator reads zero.

Centering a Square Piece

A quick way to center a square piece is to first center a round bar of the same size (that is, the diameter of the round bar is the same dimension as one side of the square piece), using the procedure described above. Then loosen two adjacent jaws to remove the round piece, put in the square piece, and retighten the same two adjacent jaws.