THE DUNHAM TOOL COMPANY
DIVISION OF LISLE CORPORATION
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MACHINING AND OPERATING INSTRUCTIONS: DUNHAM TOOL EXPANDING COLLETS

PLEASE READ COMPLETE INSTRUCTIONS BEFORE BEGINNING

Note: *Loosen draw bolt locking cross set screw {1} in threaded bushing before installing collet for initial sizing.*

A. HOW TO INSERT THE EXPANDING COLLET IN THE COLLET CHUCK

With collet closer in collet open position, place expanding collet in collet chuck/spindle and adjust the collet closing mechanism (*as you would for any 5C collet*), until collet is fully seated (male taper of collet just touching female taper of collet seat).

When properly adjusted, even with collet closing mechanism in released position, the spring-loaded threaded bushing {4} causes the tapered part of collet to remain seated in collet taper of machine. Thus, only the draw bolt will move in and out when the collet closing mechanism is cycled. This permits a machined shoulder to be used for locating and holding a width dimension within .001".

Note: You may want to turn down the closing power of your collet closer at this point. Please note that hydraulic collet closers will need to be turned down to prevent damage to collet (100 to 150 PSI reference).

Warning: *Over expansion of the mandrel end of the collet may exceed elastic limit of material causing permanent damage to collet.*

B. MACHINING THE MANDREL

1. Back off the draw bolt {3} in the center of the collet to 1/8" protrusion from front face of collet. This will prevent the collet from expanding when activated.

2. Next activate the collet closing mechanism to the collet closed position.

3. Now you can manually screw in the draw bolt {3} until you have caused .005" of expansion in the mandrel O.D. at the very front end of collet. (*It is advised at this point that you operate the collet closing mechanism, expanding and contracting the mandrel multiple times before machining, this will break in the expanding collet.)*

4. Once the mandrel has been expanded (*as directed in step 3*) you are now ready to turn the mandrel to size. You may want to turn the mandrel to .001" to .002" larger than the maximum part size to start out.

   Example: A part with an I.D. of 1" plus or minus .002", machine mandrel to 1.003" or 1.004"diameter. This will permit holding parts of high or low tolerance.

You can test your part fit and skim cut more off the mandrel diameter if needed following the same procedure.

***Caution**: Light cuts and feeds are recommended when turning collet to desired size. It is advisable to recheck the .005" expansion before taking the final cut.*

***Caution**: Over expansion will greatly reduce accuracy. We recommend expansions not to exceed .006" when close concentricity is desired. Expansion of .010" to .015" can be obtained, but concentricity may be impaired.*

5. Once you have completed the machining of the collet you can release the collet closer to return the mandrel to its relaxed state.

6. Remove the collet from the collet chuck.

7. Tighten the draw bolt {3} until the male taper of the bolt is in contact with the female taper in the collet body in its relaxed state. This should just touch, and not cause any expansion.

8. Now you can tighten the draw bolt locking cross set screw {1} located on the threaded bushing {4} to lock the draw bolt in place. Now your collet is ready to be used.

C. <u>How to increase holding force</u>

More holding force can be obtained by gradually adjusting the collet closing mechanism until the collet holds part sufficiently to perform desired operation.

***Caution**: When collet closing mechanism is adjusted for increased holding force, <u>Do Not Expand and Contract Collet without Part on Mandrel.</u> Without part on mandrel, over expansion may occur causing permanent damage to collet.*

D. <u>Maintenance</u>

1. Keep the collet clean, and the draw bolt {3} lightly lubricated to avoid the collet sticking in the expanded position.

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