

LAYING OUT A NEW JOB

We show two layouts of tool equipment, feeds, speeds, and production. One made from steel and the other from brass. If the description on these two layouts is followed carefully, it should enable your production man, foreman, or operator to easily tool up for an ordinary piece.

Brass, aluminum, and leaded steel are usually run at a higher spindle speed except when using the 2:1 (brass) threading method. Then, the maximum work spindle speed of 2500 R.P.M. is recommended. The 6:1 (steel) threading method can be used for speeds in excess of 2500 R.P.M. NOTE - Only run the machine at the spindle speed needed to do the job, excessive revolutions only laps the tools away and causes more wear on the work spindle bearings.

For steel work, the surface feet depends on the nature of the piece and the operations to be performed. Usually 165 to 280 surface feet for free cutting cold rolled steel and leaded stock. 50 to 80 surface feet for tool steel. A good idea of feeds and speeds of various tools can be formed by consulting almost any mechanical handbook or data machining handbook furnished by the mills. In our charts you will find a table of stocks and their resultant surface feet. The spindle speed gears can now be selected.

In our charts is also a table for time cycles and the proper feed change gear. By using these two tables you can easily determine all the speeds and feeds required for any job ranging from the slowest to the fastest, on the 75, 60, or 45 cycle machine. Determine the longest operation. When possible, divide into two or more operations. Divide the length of feed required on the longest operation by the feed per revolution. This will give you the number of effective revolutions required. After finding the number of effective revolutions required for the longest operation, consult the charts. In the column of the determined spindle speeds select the number nearest the number of effective revolutions needed. Follow along this line to the left and find the number of seconds required to make the piece, the gross production per hour and also the feed gears to be used.

If the piece is to be threaded with tap or solid die, the correct cam to be used, and location of the block on the cam lever can be found in the threading tables. Read the instructions on the threading attachment for an explanation of when and how to use the various threading methods.

On the preceeding page is a tool layout for a steel bushing. After consulting a data machining handbook for speeds and feeds and from the nature of the operations to be performed it was decided to use 270 surface feet for 9/16 diameter stock grade 12L14. We find 267 surface feet to be the closest in our chart. By following across the page to the left we find the spindle speed to be 1810 R.P.M. The spindle change gears to be a 35 tooth driver, and a 29 tooth driven gear. After looking at this job to determine the longest operation we find that we can divide the forming into the first and second positions. The drilling can be divided in the second and third posi-