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CHART FOR DETERMINING THE HELIX ANGLES OF SCREW THREADS

SHOWING HELIX ANGLES FOR DIAMETERS FROM 0.05 TO 10 INCHES AND THREADS PER INCH FROM 1 TO 100

By I. H. FULLMER

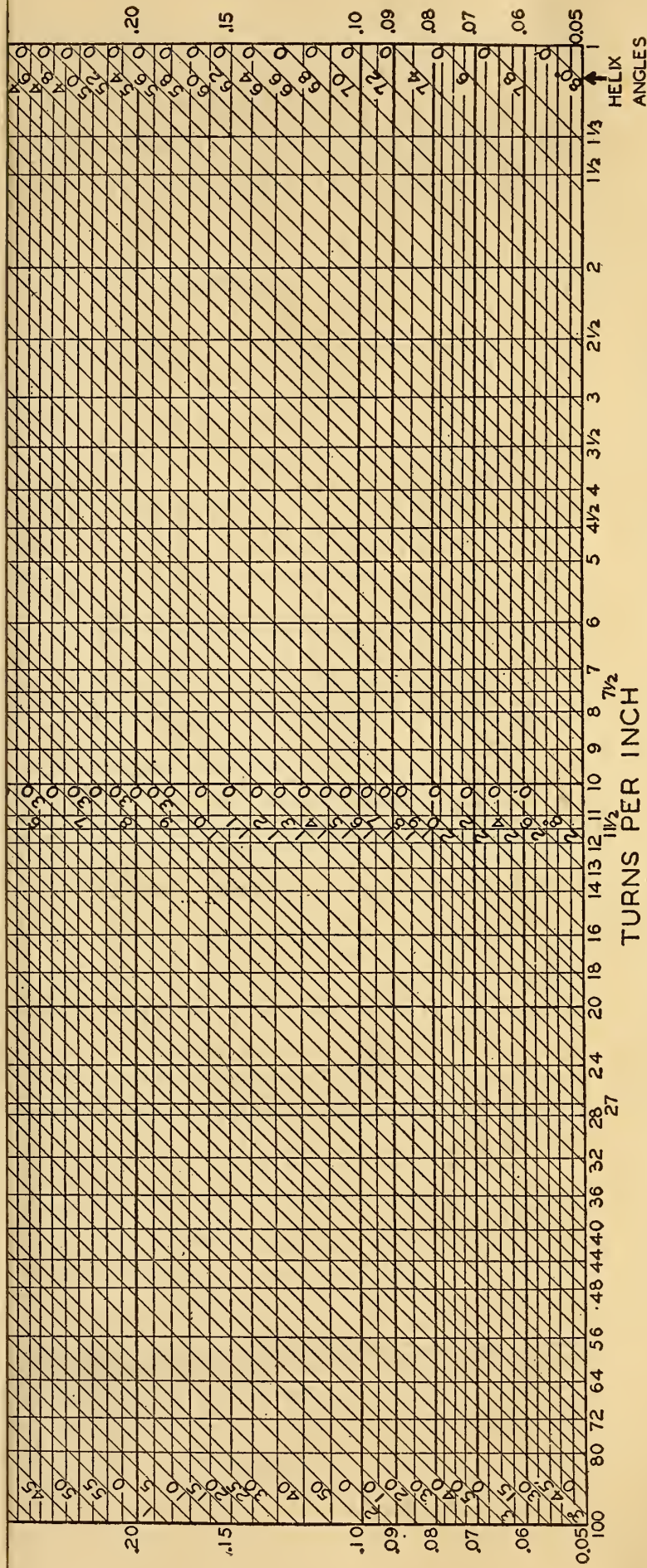


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This chart shows graphically the relationships among diameters, leads, and helix angles of screw threads or other helical surfaces. It is a means for readily determining the helix angle at the major, pitch, or minor diameters of any of the standard pitches of the American National coarse, fine, hose coupling, pipe, and Acme threads as given in the 1928 Report of the National Screw Thread Commission. Usually, however, it is the helix angle corresponding to the pitch diameter which it is desirable to know.

The range of the chart includes diameters from 0.05 to 10 inches and 1 to 100 threads per inch. Diameters are represented by a vertical logarithmic scale, designated on each side of the chart, and leads (or pitches of single-thread screws) on a horizontal logarithmic scale along the top. For convenient use of the chart, vertical lines are drawn corresponding to the threads per inch of the various standard systems and these are designated along the bottom of the chart. The abscissa for a nonstandard pitch can be readily determined by interpolation on the lead

scale and transferred to the diameter ordinate by means of a pair of dividers. The diagonal lines of the chart represent helix angles as designated.

Example.—To determine the helix angle at the pitch line of a $\frac{1}{2}$ "-20, 60° screw thread: The basic pitch diameter is 0.4675". Reading opposite 0.468 on the diameter scale on the vertical line corresponding to 20 turns per inch, the diagonal line immediately below is 2° 0' and interpolation gives the helix angle as 1° 57'.

There may be occasions, as in designing power transmission or conveying screws, when the helix angle would first be selected and a suitable corresponding combination of diameter and lead or pitch determined.

Interesting comparisons of various standard screw-thread systems can also be made by plotting them on this chart.

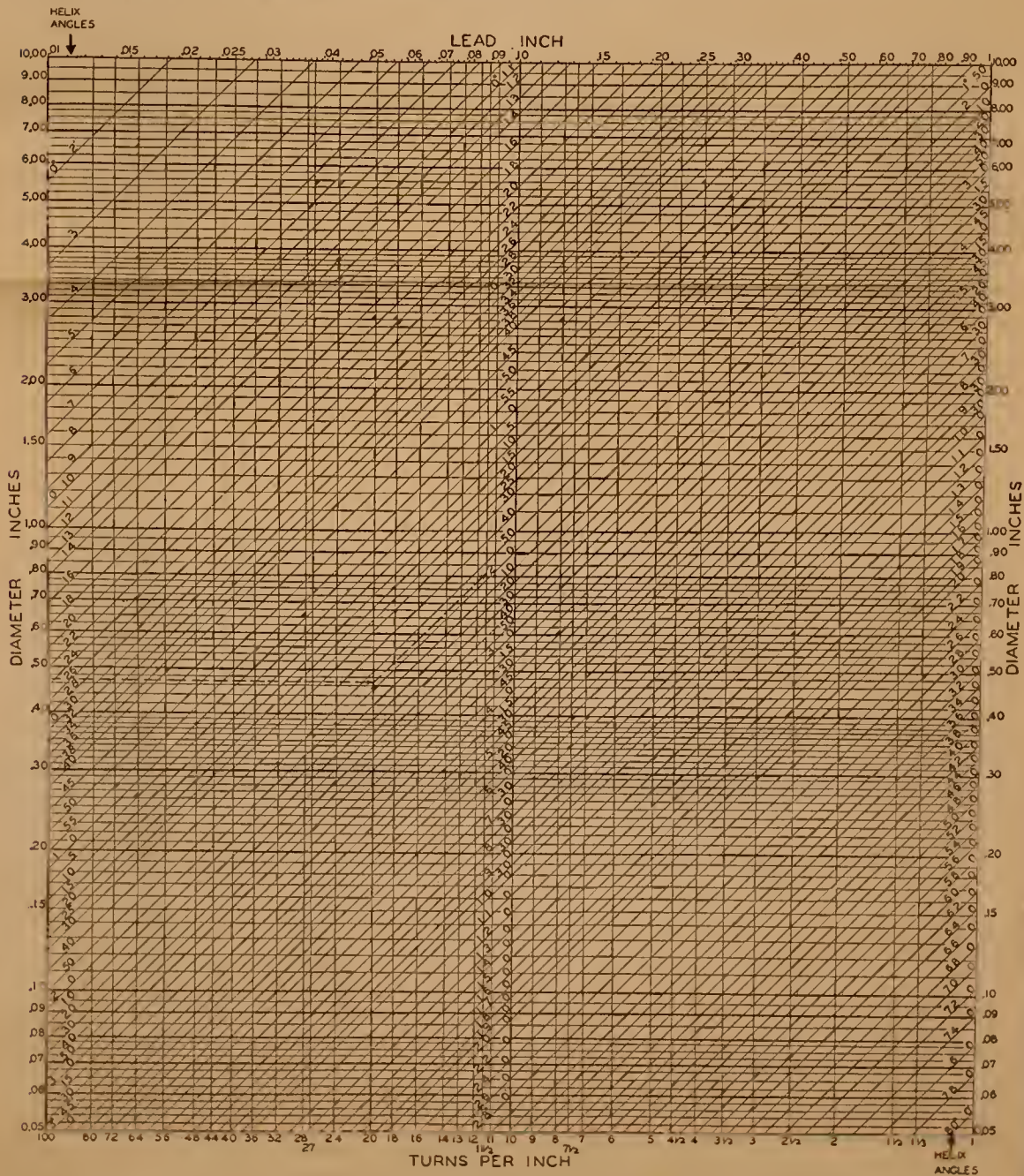


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