

LAPPING EXTERNAL THREADS

By GEOMETER



GIVEN acquaintance with the principles involved, the lapping of external threads of the V-type involves little more difficulty than the lapping of conventional bores, shafts, ends, edges and flat surfaces.

The lapping may be local to correct errors where there is a tight place on the thread, or it may be performed over the entire length to smooth the whole profile and bed it to a nut for this to work easily and without shake. Faults in any of the elements of the thread can be dealt with separately as required—on the top radius, the root radius, or the flanks.

In general, the lapping process can be applied where a shortish thread is just too tight for the mating part or where a long thread is not uniform

throughout; where no die is available for correction or where time and trouble would be required to set up the part accurately in a lathe; where use of a die or lathe would not be appropriate because the thread is hard; and particularly where a thread needs to be well finished such as if it is on the feedscrew of a simple measuring device or tool.

When a tap corresponding to the pitch and diameter of the thread is available, it can be employed for a lap of the split-nut variety to correct and smooth the whole of a thread profile. A piece of brass or aluminium alloy is drilled and tapped, drilled for a bolt, then split, as at A.

Initially, if too tight, it can be opened with a wedge; or alternatively, it can be made longer, provided with a second bolt, and cut right through

to clamp on—which, incidentally, simplifies cleaning. Use of the lap can be by hand or it can be held by hand while the part with the thread is rotated in the lathe—when it is advantageous if the lathe can be reversed. Cleaned of abrasive and applied dry, the lap finally serves as a very good gauge for checking uniformity of the thread, end to end.

A lap more speedy to use on work in the lathe can be made from a steel or brass nut with a good thread shape. A piece of material is soldered on for a handle, then the nut is cut through to leave rather less than half attached, as at B. This lap can be dropped on the thread where required, lifted off, applied again—and a “tight” area lapped down with the minimum of effort. It can also be started off the extreme running-on end of the thread for this to be lapped equally with portions further back.

A lap of the same type, but engaging only a single “groove” of the thread, can be made from flat strip material filed approximately to thread angle and pressed on with both hands after the manner of a file, edgewise, and in line with the lead of the thread, as at C. Abrasive can be applied with a brush to the thread—and for the lap to run off the end of a right-hand one, the lathe must rotate backwards.

The same type of lap can be used for correcting the flanks of threads without touching the root radius, merely by ensuring the bottom is flattened, as at D1, where contact is on the sloping sides.

On the same principle, using a strip of suitable thickness material rounded at the edge, and bolted between two thicker pieces to provide stability, as at D2, the root radius only of a thread can be lapped, as at E.

Another method of doing this is to draw a wire of appropriate diameter into the abrasive-brushed thread, as at E, the wire preferably having a handle each end for manipulation without danger to fingers.

For correcting the top diameter radius of a thread, laps can be blocks of lead into which the thread has been carefully forced in a vice, as at F. □

