



HOW ARE RAGG TUNING FORKS MADE?

Tuning forks are manufactured either from special hardened and tempered steel or heat treated aerospace alloys. Steel forks are pressed, forged or machined from solid special steel blocks. After marking the forks with their frequencies they are tempered using red hot salts which fully hardens them. The forks are then individually polished, rough tuned and finished by hand and are ready for fine tuning.

Tuning forks are triple tuned to ensure absolute accuracy and long term stability of tuning. As the tuning forks pass through the production process they are “rough” tuned and then brought increasingly into correct pitch as they approach the final tuning operation.

The steel has a “memory” and the molecules in the steel have a tendency to move around while the steel settles and so despite having been brought into tune one can find it changed hours or even a day later. To be sure that this phenomenon is correctly addressed, triple tuning is employed whereby a final tune is done after the finished forks have been left to settle overnight at a constant ambient temperature (nominal 20°C).

Although a frequency counter is still used to tune some of the special frequency forks, most of our tuning forks are tuned by reference to an oscilloscope “trace”. “Standard” tuning forks certified by the National Physical Laboratory are driven electronically and the pulse of the frequency is passed through the oscilloscope to produce a circular “trace”. The production fork is then struck and placed into an electro-magnetic field and the pulse from this fork is taken into the oscilloscope where it is compared with the standard trace. If the fork is high or low the trace starts to rotate in either a clockwise or anti-clockwise direction and the speed of any rotation tells the tuner what to do, i.e. whether a tiny amount of steel is to be filed off one of the legs or the ends of the prongs. With experience this can be done very speedily and once the trace has ceased to rotate the fork is perfectly in tune.

A final finish is applied to each tuning fork either by blueing, chrome plating or coating the steel surface. This preserves the integrity of the fork while enhancing the appearance.

Buy Professional [Ragg Tuning Forks](#) (John Walker) from Indigo® Instruments.