

Cold drawn seamless

Manufacturing process

Tubular Products' seamless mechanical tubing is produced from solid round billets by rotary piercing and then rolled in an Assel mill that permits an extremely broad range of diameter/wall thickness ratios. Tubes are then processed through a multiple-pass size reducing mill and a rotary sizer.

Tube lengths from the hot mill are slowly air cooled or moved directly to a unique isothermal annealing furnace to ensure a uniform microstructure hardness to promote excellent machinability. This process contrasts with conventional slow-cool furnaces, where tubes are cooled in bundles. That can result in variations in microstructure and hardness from tube to tube and even within a tube itself.

After cooling, tubes are pickled in an acid bath to remove mill scale and inspected. Minor imperfections are removed by grinding prior to cold drawing and additional processing. During the cold drawing process, tubes are drawn in a controlled fashion over a mandrel and through a die to reduce the diameter and wall thickness. After forming and depending on customer requirements, the tubing is stress relief annealed, straightened and cut to length. Tubes are inspected for dimensional accuracy and surface finish.

Cold working, applied to both inside and outside surfaces, improves surface finish, increases tensile properties, improves machinability in many grades and results in more precise dimensions. Outside diameter and wall thickness tolerance are improved by approximately 50 percent.