

Principal manufacturing routes

MANIK TRADING technical reference table

Route	Starting material and forming	Critical control point
SMLS	Round billet, piercing and rolling/drawing	Billet center, eccentricity and inner surface
HFW/ERW	Coil, continuous forming and high-frequency welding	Edges, heat input, upset and flash removal
SAWL	Plate, longitudinal forming and submerged-arc welding	Longitudinal fit-up and multi-pass quality
SAWH	Coil/plate, helical forming and SAW	Seam angle, forming and longer weld length
Cold-drawn tube	Mother tube plus die/mandrel drawing	Area reduction, lubrication and final heat treatment

Source / basis: ASTM steel tubular product specifications