Effects of process variables

MANIK TRADING technical reference table

Variable	Dominant effect	Control
Carbon/alloying	Hardenability and Ms	Heat analysis and relevant CE index
Section size	Surface/core cooling-rate difference	Hardness traverse and simulation
Quench severity	Hardness versus distortion/crack	Temperature, agitation and concentration
Tempering temperature	Hardness reduction and ductility increase	Furnace uniformity and soak
Tempering delay	Stress and cracking risk	Maximum permitted delay

Source / basis: ISO 4885 — Heat-treatment vocabulary