Material and Process Matrix

Thermex METAL TREATING LTD.
SOLUTIONS THROUGH METALLURGY

Material	Example Grades	Q&T (Through Hardening)	Carburizing	Flame and Induction Hardening	Gas Nitriding	Liquid Nitriding
Low Carbon Mild Steels	1018, 1026	No	Yes	No	Yes, sort of.	Yes (Better).
Medium Carbon Mild Steel	1045	Yes, limited thickness.	No	Yes	Yes, sort of.	Yes (Better).
Low Carbon Alloy Steels	8620, 9310, 3312 "Super Impacto"	Not usually, but can be done.	Yes Dimensional change, possible distortion, leave grinding allowance.	No	Yes	Yes
Medium Carbon Alloy Steels	4140, 4330, 5160, 6150	Yes, growth and dimensional change.	No	Yes	Yes, should be pre-heat treated. Note final temper.	Yes, should be pre-heat treated. Note final temper.
PH Stainless	17-4, 15-5	Yes, through Age Hardening not Q&T.	No	No	Possible, but difficult.	Yes, but note corrosion resistance.
Austenitic Stainless	304, 316, 321	No	No	No	Possible, but difficult.	Yes, but note corrosion resistance.
Martensitic Stainless	410, 416, 420, 440C, 431	Yes	No	Possible, but difficult.	Possible, but difficult.	Yes, but note corrosion resistance.
Tool Steel	A2, O1, D2, H13, DC53, S7	Yes	No	Yes, but difficult.	Yes, should be pre-heat treated. Note final temper.	Yes, should be pre-heat treated. Note final temper.

Should you have any questions please contact Rob Ducharme at rducharme@thermexmetal.com