NOMENCLATURE

Issues on the Surface Integrity of Case Hardened Steel Materials

A	=	Furnace Temperature in degree Celsius
AISI	=	American Iron and Steel Institute
ANOVA	=	Analysis of Variance
B	=	Quenching time in minutes
C	=	Tempering temperature in degree Celsius
CA_{opt}	=	Case depth value obtained at optimum process variable A
CB_{opt}	=	Case depth value obtained at optimum process variable B
CC_{opt}	=	Case depth value obtained at optimum process variable C
CD_{opt}	=	Case depth value obtained at optimum process variable D
CE_{opt}	=	Case depth value obtained at optimum process variable E
C.F	=	Correction factor
D	=	Tempering time in minutes
E	=	Preheating temperature in degree Celsius
EN	=	European Standards published by the European Committee for Standardization
fm	=	Volume fraction of martensite
G1	=	Group 1
G2	=	Group 2
HA_{opt}	=	Hardness value obtained at optimum process variable A
HB_{opt}	=	Hardness value obtained at optimum process variable B
HC_{opt}	=	Hardness value obtained at optimum process variable C
HD_{opt}	=	Hardness value obtained at optimum process variable D
HE_{opt}	=	Hardness value obtained at optimum process variable E
HRA	=	Rockwell Hardness A scale
HRC	=	Rockwell Hardness C scale
LA_{opt}	=	Helix variation (Left) value obtained at optimum process variable A
LB_{opt}	=	Helix variation (Left) value obtained at optimum process variable B
LC_{opt}	=	Helix variation (Left) value obtained at optimum process variable C
LD_{opt}	=	Helix variation (Left) value obtained at optimum process variable D
LE_{opt}	=	Helix variation (Left) value obtained at optimum process variable E
Ms	=	Starting temperature of marteniste formation
M_f	=	Temperature of martensite transformation ends
N	=	Number of levels
P	=	Power potential in $kW/inch^2$
Q	=	Quench flow rate litres/minutes
r	=	Number of replicates
RA_{opt}	=	Runout value obtained at optimum process variable A

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RB_{opt}	=	Runout value obtained at optimum process variable B
RC_{opt}	=	Runout value obtained at optimum process variable C
RD_{opt}	=	Runout value obtained at optimum process variable D
RE_{opt}	=	Runout value obtained at optimum process variable E
S	=	Scan speed in meter/minutes
SSE	=	Sum of Squares of Error
SST	=	Total sum of squares
SST_r	=	Sum of Squares of Treatment with replicates
SSA	=	Sum of Squares of Variables
Tq	=	Quenchant temperature at which fraction of martensite is formed
TTT	=	Temperature-Time-Transformation diagram
VHN	=	Vickers Hardness Number
β	=	Predicted mean response

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