





























## Nomenclature

$V_c$	Cutting speed (m/min)
$f_z$	Feed per tooth (mm/t)
$a_p$	Axial depth of cut (mm)
$a_e$	Radial depth of cut (mm)
$T$	Tool life (min)
$T_a$	Tool life (min) for annealed steel
$T_h$	Tool life (min) for hardened steel
$VB$	Vibrations velocity (mm/s)
$VB_a$	Vibrations velocity (mm/s) for annealed steel
$VB_h$	Vibrations velocity (mm/s) for hardened steel
$HRC$	hardness value by Rockwell
$R_a$	Arithmetic Surface roughness ( $\mu\text{m}$ )
$R_t$	Total Surface roughness ( $\mu\text{m}$ )
$R_z$	Average surface roughness ( $\mu\text{m}$ )
TiN	Titanium nitride
TiCN	Titanium carbonitride
TiAlN	Titanium nitride alumina

## Abbreviations

<i>RSM</i>	Response surface methodology
<i>PVD</i>	Physical vapour deposited
<i>CVD</i>	Chemical vapour deposited
<i>CNC</i>	Computer numerical control
<i>AISI</i>	American Iron and Steel Institute
<i>ANOVA</i>	Analysis of variance
<i>MS</i>	Mean of squares
<i>P%</i>	Percentage of contribution
<i>df</i>	Degree of freedom
<i>SS</i>	Sum of squares
<i>S/N</i>	Ratio signal-to-noise ratio
<i>AISI</i>	American Iron and Steel Institute