

# Feeds and Speeds for RAKU<sup>®</sup> TOOL SB-0141



## formula for calculating speed (spindle)

$$n = \frac{V_c \times 12,0001}{D_c \times \pi}$$

$$15715 \text{ [rpm]} = \frac{3084 \text{ [ft/min]} \times 12,0001}{\frac{3}{4} \text{ [in]} \times 3,14}$$

## formula for calculating axis feed rate

$$V_f = n \times f_z \times z_n$$

$$856 \text{ [in/min]} = 10867 \text{ [rpm]} \times 0,0394 \text{ [in]} \times 2 \text{ [number]}$$

## recommended cutting data for roughing

parameter	symbol	unit
radial infeed:	$a_e$	[in]
axial infeed:	$a_p$	[in]
number of teeth:	$Z_n$	[number]

roughing recommendation		
min.	ideal	max.
- x $D_c$	<b>0,50 x <math>D_c</math></b>	0,80 x $D_c$
0,10 x $D_c$	<b>1,00 x <math>D_c</math></b>	5,00 x $D_c$
1	1	2

## recommended cutting data for finishing

parameter	symbol	unit
radial infeed:	$a_e$	[in]
axial infeed:	$a_p$	[in]
number of teeth:	$Z_n$	[number]

finishing recommendation		
min.	ideal	max.
- x $D_c$	<b>0,10 x <math>D_c</math></b>	0,80 x $D_c$
- x $D_c$	<b>0,50 x <math>D_c</math></b>	1,00 x $D_c$
1	1	2

## validated cutting data for roughing

Type	$D_c$ [in]	$Z_n$ [number]	$V_c$ [ft/min]	$f_z$ [in]	n [rpm]	$V_f$ [in/min]	$a_e$ [in]	$a_p$ [in]	$L_1$ [in]	$L_2$ [in]
torus	$\frac{3}{4}$	2	2133	0,0394	10.867	856	0,394	0,787	3,386	0,787
torus	$\frac{1}{2}$	2	1280	0,0394	9.780	770	0,236	0,472	2,165	0,630
torus	$\frac{1}{4}$	2	640	0,0394	9.780	770	0,118	0,236	0,906	0,315

## validated cutting data for finishing

Type	$D_c$ [in]	$Z_n$ [number]	$V_c$ [ft/min]	$f_z$ [in]	n [rpm]	$V_f$ [in/min]	$a_e$ [in]	$a_p$ [in]	$L_1$ [in]	$L_2$ [in]
ball	$\frac{3}{4}$	2	1640	0,0512	8.359	856	0,079	0,394	2,638	0,669
ball	$\frac{1}{2}$	2	984	0,0512	7.523	770	0,047	0,236	2,047	0,413
ball	$\frac{1}{4}$	2	459	0,0512	7.021	719	0,024	0,118	0,906	0,394

parameter	symbol	unit
cutting speed:	$V_c$	[ft/min]
feed/tooth:	$f_z$	[in]

speed (spindle):	n	[rpm]
axis feed rate:	$V_f$	[in/min]

cutting diameter:	$D_c$	[in]
tool total length:	$L_0$	[in]
tool unclamping length:	$L_1$	[in]
tool cutting length:	$L_2$	[in]

user specifications
selection in the diagram
selection in the diagram

calculation by user
calculation by user

processing specific
processing specific
processing specific
processing specific

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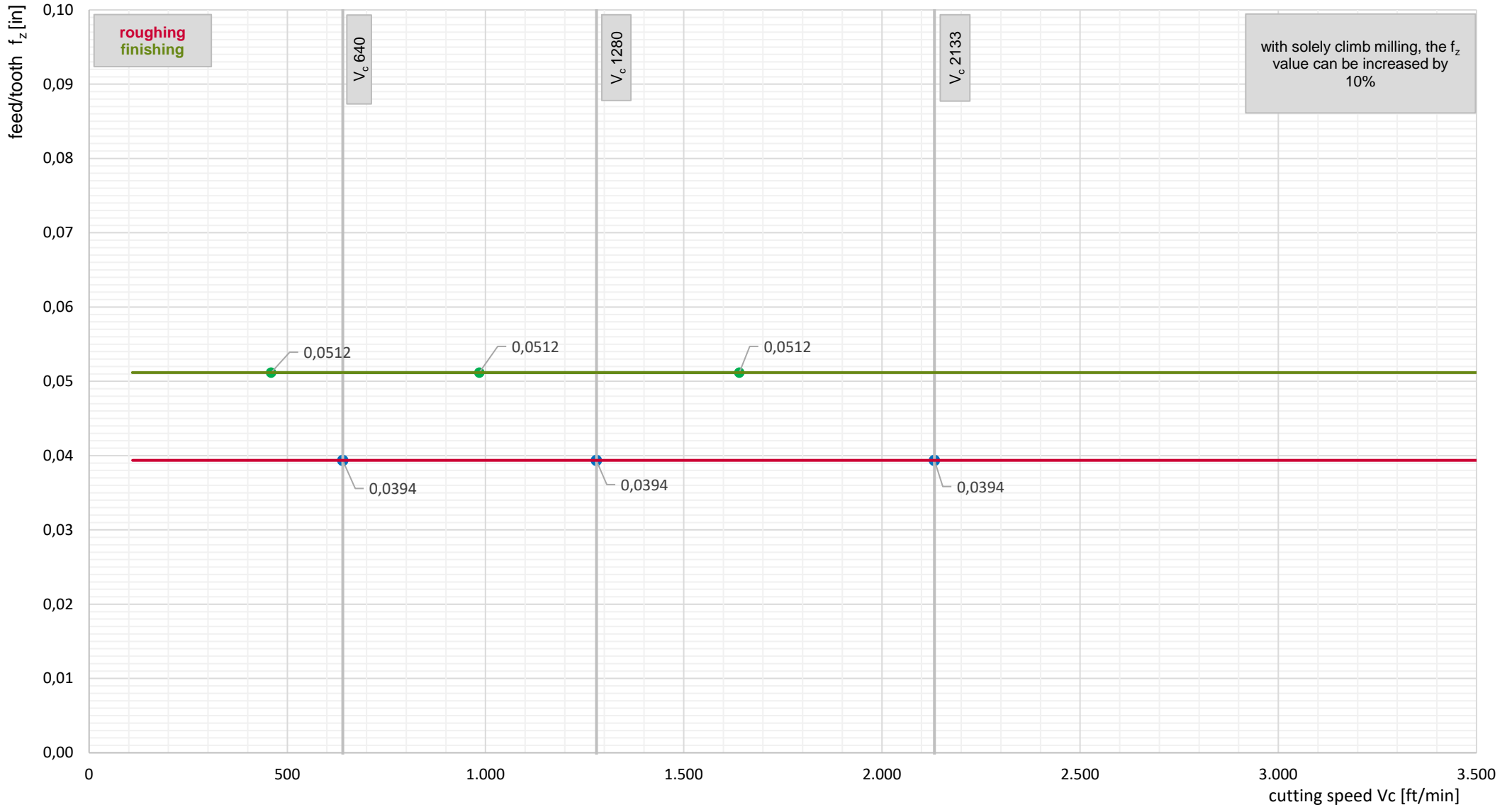
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