Feeds and Speeds for RAKU® TOOL SB-0451

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formula for calculating speed (spindle)

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

15715 [rpm] = $\frac{3084 \text{ [ft/min]} \times 12{,}0001}{¾ \text{ [in]} \times 3{,}14}$

formula for calculating axis feed rate

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

866 [in/min] = 15715 [rpm] x 0,0276 [in] x 2 [number]

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	¾	2	3084	0,0276	15.715	866	0,394	0,787	3,386	0,787
torus	½	2	1837	0,0260	14.043	730	0,236	0,472	2,165	0,630
torus	¼	2	919	0,0256	14.043	719	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	¾	2	2133	0,0394	10.867	856	0,079	0,394	2,638	0,669
ball	½	2	1312	0,0388	10.031	778	0,047	0,236	2,047	0,413
ball	¼	2	640	0,0382	9.780	747	0,024	0,118	0,906	0,394

recommended cutting data for roughing

parameter	symbol	unit	roughing recommendation min.	ideal	max.
radial infeed:	a_e	[in]	- x D_c	**0.50 x D_c**	0.80 x D_c
axial infeed:	a_p	[in]	0.10 x D_c	**1.00 x D_c**	2.00 x D_c
number of teeth:	z_n	[number]	1	**2**	4

recommended cutting data for finishing

parameter	symbol	unit	finishing recommendation min.	ideal	max.
radial infeed:	a_e	[in]	- x D_c	**0.01 x D_c**	0.10 x D_c
axial infeed:	a_p	[in]	0,01 x D_c	**0.10 x D_c**	0.50 x D_c
number of teeth:	z_n	[number]	1	**2**	4

parameter	symbol	unit	user specifications
cutting speed:	V_c	[ft/min]	selection in the diagram
feed/tooth:	f_z	[in]	selection in the diagram
speed (spindle):	n	[rpm]	calculation by user
axis feed rate:	V_f	[in/min]	calculation by user
cutting diameter:	D_c	[in]	processing specific
tool total length:	L_0	[in]	processing specific
tool unclamping length:	L_1	[in]	processing specific
tool cutting length:	L_2	[in]	processing specific

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Our recommendations on the use of the material are based on many years of experience and current scientific and practical knowledge. They are, however, provided without any obligation on our part and do not relieve the buyer of the need for suitability tests. They do not constitute a legal relationship, nor are any protected third party rights what´s ever affected thereby.

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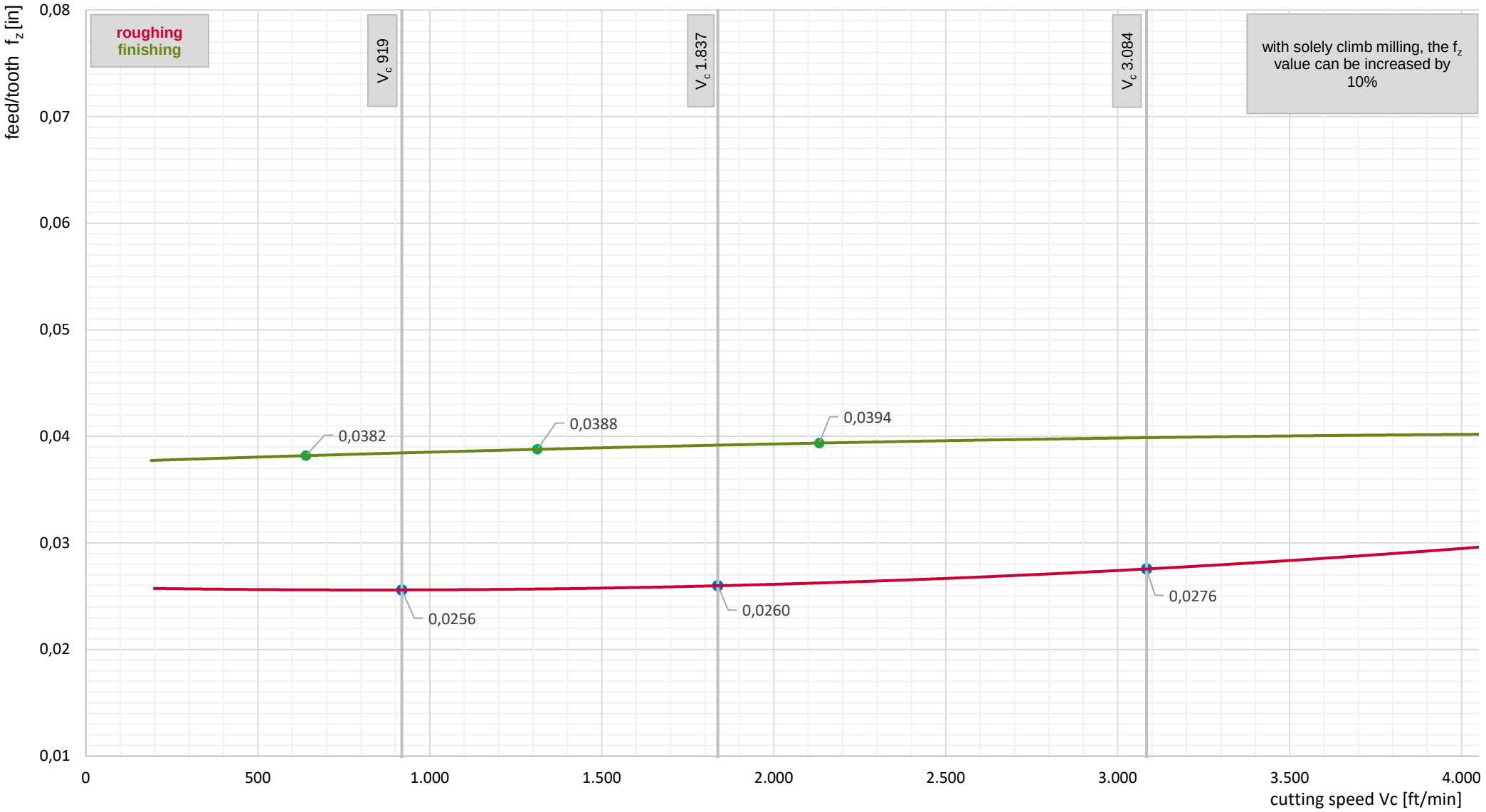

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