

Feeds and Speeds for RAKU[®] TOOL MB-0720



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

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

$$520 \text{ [in/min]} = 15715 \text{ [rpm]} \times 0,0165 \text{ [in]} \times 2 \text{ [number]}$$

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	0.50 x D_c	0.80 x D_c
0.10 x D_c	1.00 x D_c	2.00 x D_c
1	2	4

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	0.01 x D_c	0.10 x D_c
0,01 x D_c	0.10 x D_c	0.50 x D_c
1	2	4

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	3084	0,0165	15.715	520	0,394	0,787	3,150	0,787
torus	$\frac{1}{2}$	2	1837	0,0179	14.043	503	0,236	0,472	2,126	0,630
torus	$\frac{1}{4}$	2	919	0,0189	14.043	531	0,118	0,236	1,024	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	3084	0,0177	15.715	557	0,008	0,079	2,165	0,669
ball	$\frac{1}{2}$	2	1837	0,0201	14.043	564	0,005	0,047	1,811	0,413
ball	$\frac{1}{4}$	2	919	0,0220	14.043	619	0,002	0,024	1,102	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

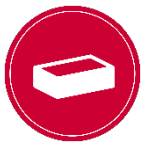
processing specific
processing specific
processing specific
processing specific

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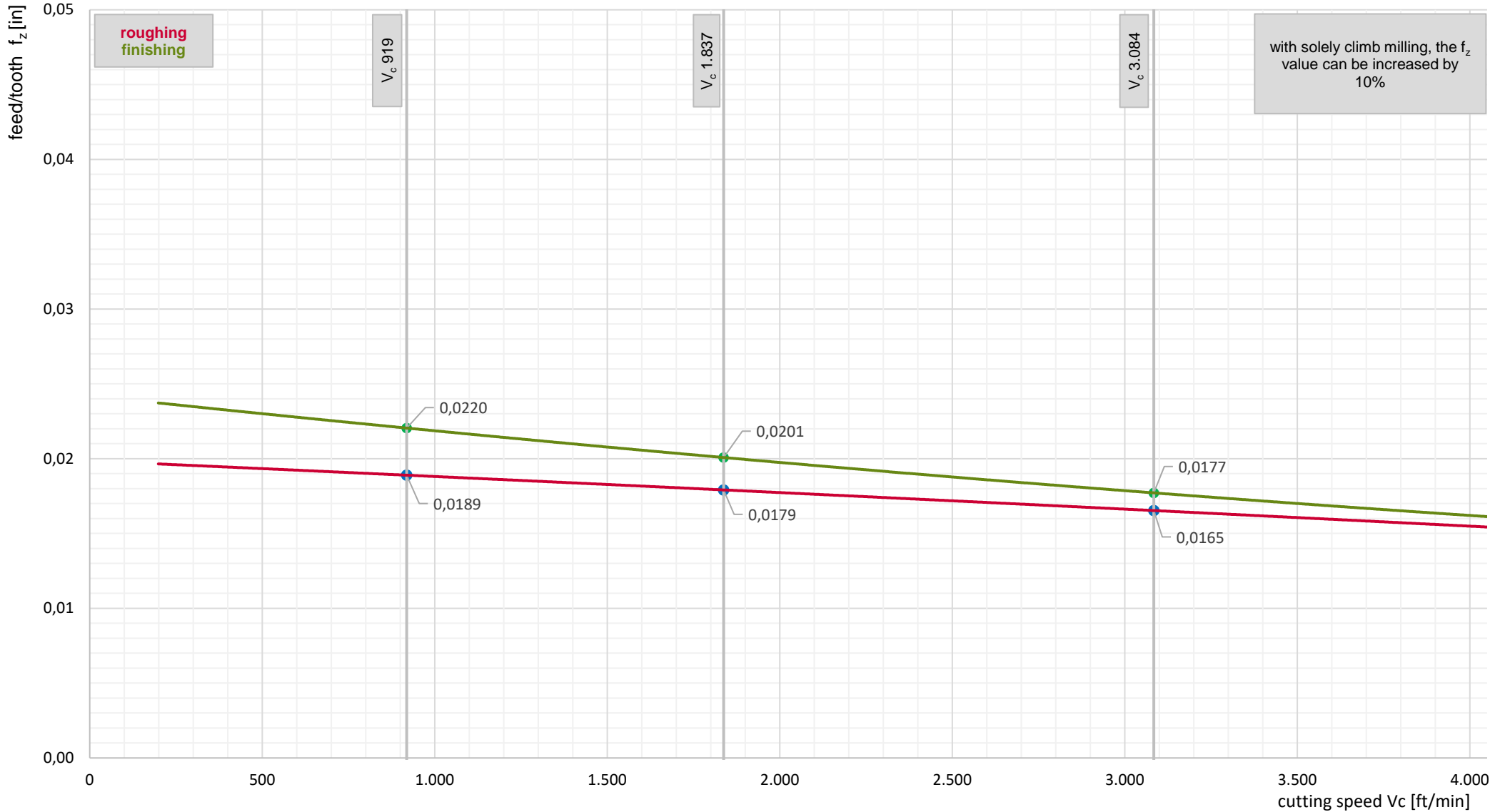
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Our recommendations on the use of the material are based on many years of experience and current scientific and practical knowledge. They are, however, provided without any obligation on our part and do not relieve the buyer of the need for suitability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

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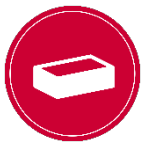
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cutting data used on the demonstrator

sequence of processing	processing strategy	a _e [in]	a _p [in]	offset [in]	f _z [in]	V _c [ft/min]
roughing torus D6	vol. roughing following contour	0,118	0,236	0,024	0,019	919
roughing torus D12	vol. roughing following contour	0,236	0,472	0,005	0,018	1837
roughing torus D20	vol. roughing following contour	0,394	0,787	0,079	0,017	3084
finishing ball D6	zigzag stroke milling	0,002	0,024	0,000	0,022	919
finishing ball D12	zigzag stroke milling	0,005	0,047	0,000	0,020	1837
finishing ball D20	zigzag stroke milling	0,008	0,079	0,000	0,018	3084

tools used on the demonstrator

tool manufacturer	tool type	D _c [in]	L ₀ [in]	L ₁ [in]	L ₂ [in]	Z _n [number]
hufschmied-tools.com/de/	PROTO-LINE / torus	1/4	2,36	1,02	0,31	2
hufschmied-tools.com/de/	PROTO-LINE / torus	1/2	3,94	2,13	0,63	2
hufschmied-tools.com/de/	PROTO-LINE / torus	3/4	4,09	3,15	0,79	2
hufschmied-tools.com/de/	PROTO-LINE / ball	1/4	2,36	1,10	0,39	2
hufschmied-tools.com/de/	PROTO-LINE / ball	1/2	3,27	1,81	0,41	2
hufschmied-tools.com/de/	PROTO-LINE / ball	3/4	4,09	2,17	0,67	2



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