Feeds and Speeds for RAKU® TOOL SB-0470

RAMPF discover the future

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

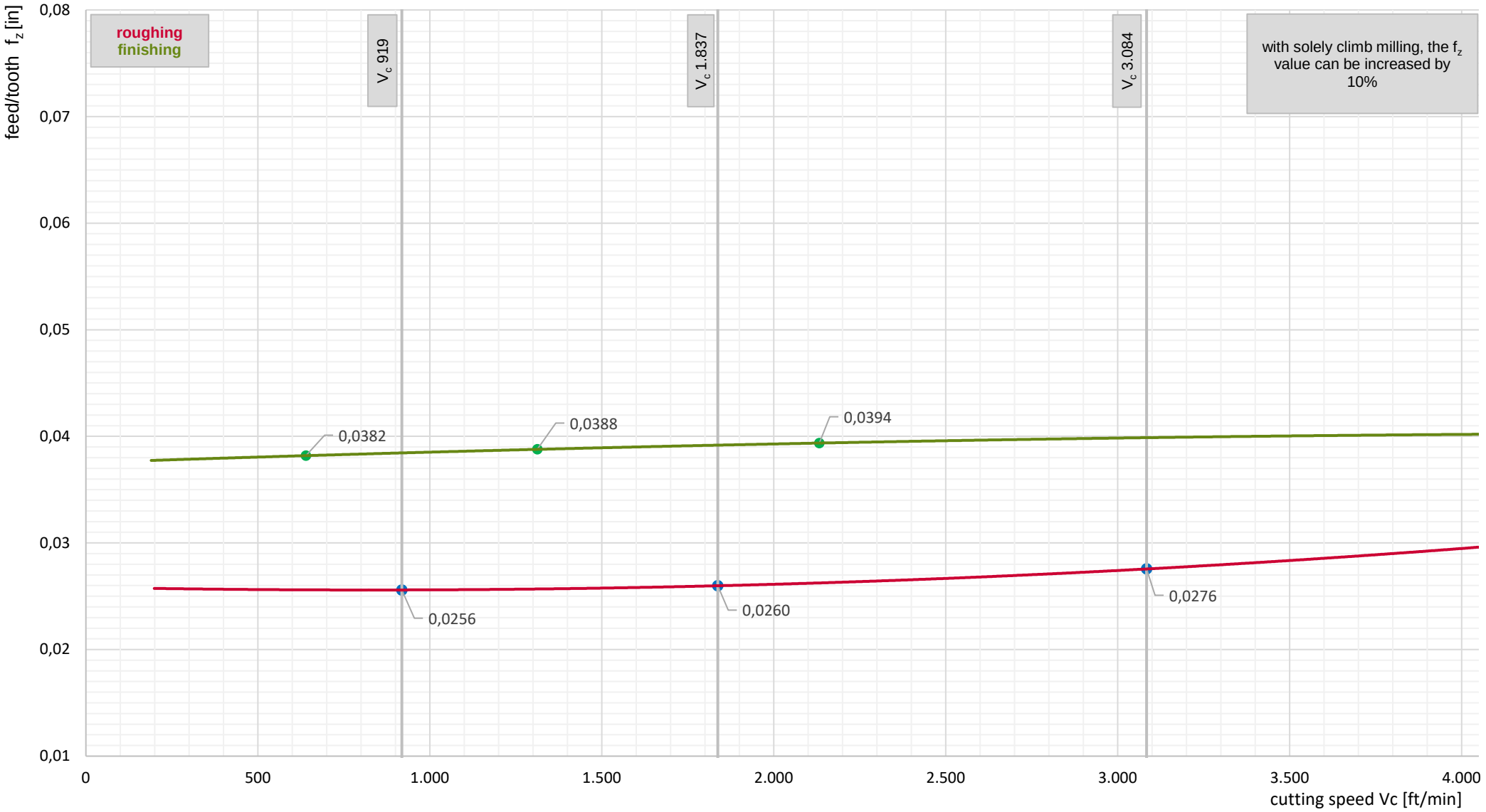
parameter	symbol	unit	user specifications
cutting speed:	V_c	[ft/min]	selection in the diagram
feed/tooth:	f_z	[in]	selection in the diagram
speed (spindle):	n	[rpm]	calculation by user
axis feed rate:	V_f	[in/min]	calculation by user
cutting diameter:	D_c	[in]	processing specific
tool total length: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

RAMPF Group, Inc.

49037 Wixom Tech Drive I Wixom, MI 48393, USA
T +1.248.295.0223 I F +1.248.295.0224
E info.us@rampf-group.com

Feeds and Speeds for
RAKU® TOOL SB-0470

RAMPF
discover the future



RAMPF Group, Inc.

49037 Wixom Tech Drive I Wixom, MI 48393, USA
T +1.248.295.0223 I F +1.248.295.0224
E info.us@rampf-group.com

Feeds and Speeds for
RAKU® TOOL SB-0470

RAMPF
discover the future

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	0,026	919
roughing torus D12	vol. roughing following contour	0,236	0,472	0,047	0,026	1903
roughing torus D20	vol. roughing following contour	0,394	0,787	0,079	0,028	3084
finishing ball D6	zigzag stroke milling	0,024	0,024	0,000	0,038	640
finishing ball D12	zigzag stroke milling	0,047	0,047	0,000	0,039	1509
finishing ball D20	zigzag stroke milling	0,079	0,079	0,000	0,039	2133

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	¼	2,36	0,91	0,31	2
hufschmied-tools.com/de/	PROTO-LINE / torus	½	3,94	2,17	0,63	2
hufschmied-tools.com/de/	PROTO-LINE / torus	¾	4,09	3,39	0,79	2
hufschmied-tools.com/de/	PROTO-LINE / ball	¼	2,36	0,91	0,39	2
hufschmied-tools.com/de/	PROTO-LINE / ball	½	3,27	2,05	0,41	2
hufschmied-tools.com/de/	PROTO-LINE / ball	¾	4,09	2,64	0,67	2

RAMPF Group, Inc.

49037 Wixom Tech Drive I Wixom, MI 48393, USA
T +1.248.295.0223 I F +1.248.295.0224
E info.us@rampf-group.com