TRD12•16, ERD12

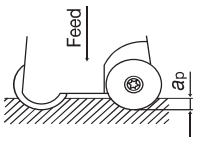
Standard cutting conditions

Work materials	Grades	Cutting speed *Vc* (SFM)	Feed per tooth *f* (in/t)	
			T/ERD12	T/ERD16
Carbon steels (1018,1055) < 300 HB	**AH120**	390 ~ 720	.012 ~ .020	.012 ~ .024
	AH330	460 ~ 790	.008 ~ .016	.008 ~ .020
	UX30	260 ~ 390		
Alloy steels (4140, 4340) < 300 HB	**AH120**	330 ~ 660	.008 ~ .018	.008 ~ .020
	AH330	390 ~ 720	.006 ~ .014	.006 ~ .016
	UX30	200 ~ 390		
Die steels (H13,P20 etc.) < 300 HB	**AH120**	260 ~ 590	.008 ~ .014	.010 ~ .018
	AH330	330 ~ 660	.004 ~ .012	.004 ~ .016
Stainless steels (JIS SUS304 etc.)	**AH130•AH140**	330 ~ 660	.008 ~ .012	.008 ~ .016
Grey Cast irons (JIS CLASS 25-40)	**AH120**	390 ~ 790	.012 ~ .020	.012 ~ .024
	AH330	490 ~ 820	.008 ~ .016	.008 ~ .020
Hard materials < A980	**AH120**	200 ~ 460	.003 ~ .010	.004 ~ .012

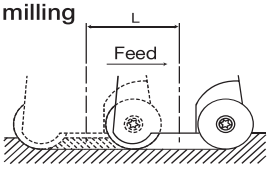
Note: When the depth of cut is smaller than .078 in, use the higher limit of feed values shown above. When larger than .118 in, use the lower limit of the feed values.

Plunging + traverse feed milling (Unit: in)

Plunging



Traverse feed milling

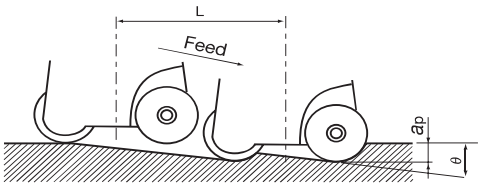


Unit: in

Cat. No.	Max. plunging depth (*ap*)	Min. traverse length to flatten the bottom surface (L)
TRD12050RU	.157	Tool diameter $\varnothing D_1$ - .433
TRD16080RU TRD16100RU TRD16125RU	.216	Tool diameter $\varnothing D_1$ - .591
ERD12125RSU/RLU ERD12150RSU/RLU ERD12200RSU/RLU	.157	Tool diameter $\varnothing D_1$ - .433

Notes:
- In plunging, the maximum plunging depth is limited as shown in the above table.
- In plunging, set the Z-axis feed in a range of .002 to .004 in/t.
- When plunging, use peck-feed every .039 in (or smaller than .039 in) to break chips.

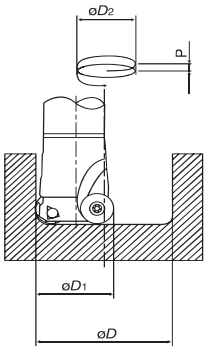
Ramping



Cat. No.	Max. ramping angle θ
TRD12050RU	8°
TRD16080RU	4°
TRD16100RU	3°
TRD16125RU	2°
ERD12125RSU/RLU	16°
ERD12150RSU/RLU	8°
ERD12200RSU/RLU	6°

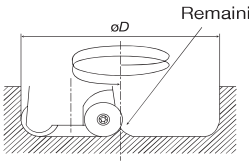
Notes:
- tanθ = depth of cut: ap / length of tool pass: L
- In ramping, the ramping angle should be set within the maximum ramping angle.

Helical feed drilling



Unit: in

Cat. No.	Min. machining dia.		Max. machining dia		P
	øD	*øD₂*	*øD*	*øD₂*	
TRD1205RU	3.47	1.50	3.86	1.89	< .236
TRD16080RU	5.67	2.52	6.22	3.07	< .315
TRD16100RU	7.24	3.31	7.80	3.85	
TRD16125RU	9.21	4.29	9.76	4.84	
ERD12125RSU/RLU	2.05	.750	2.44	1.25	< .236
ERD12125RSU/RLU	2.68	1.10	3.07	1.50	
ERD12200RSU/RLU	3.47	1.50	3.86	1.89	



øD1 : Tool diameter
øD : Drilling diameter
øD2 : Tool pass diameter
P : Z-axis feed per one round of tool pass (Pitch of helical cycle)

- In helical feed hole machining, the machinable hole diameters are limited by the tool diameter as shown in the above tables.
- When machining between the minimum and maximum machining diameters, a projection remains in the center of the bottom surface of the hole as shown in the Figure at right. Remove it by traverse feed milling.