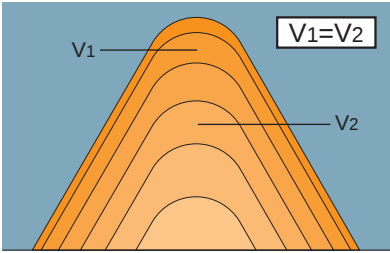
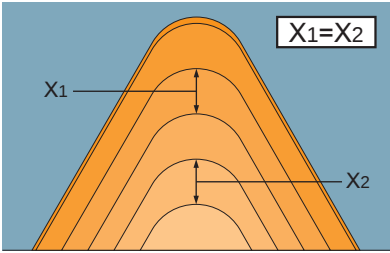


THREADING DEPTH

	Features	
	Advantages	Disadvantages
 Fixed cut area	● Easy to use. (Standard programme for threading.) ● Superior resistance to vibration. (Constant cutting force.)	● Long chips generated during the final pass. ● Complex calculation of cutting depth when changing the number of passes.
 Fixed cutting depth	● Reduced load on nose radius during the first half of the passes. ● Easy chip control. (Optional setting of chip thickness) ● Easy to calculate cutting depth when changing the number of passes. ● Good chip control.	● Subject to vibration in the later stages of cutting. (Increased cutting force) ● In some cases, changing the NC programme is necessary.

★ It is recommended to set the depth of cut of the final pass to 0.05mm—0.025mm.
Large cutting depths can cause vibration, leading to a poor surface finish.

FORMULAE

Formulae to calculate infeed for each pass in a reduced series.

$\Delta ap_n = \frac{ap}{\sqrt{n_{ap}-1}} \times \sqrt{b}$ Δap_n : Depth of cut n : Actual pass ap : Total depth of cut n_{ap} : Number of passes b : 1st pass 0.3 2nd pass 2-1 = 1 3rd pass 3-1 = 2 • • nth pass n-1	(Example) External threading (ISO Metric) Pitch : 1.0mm ap : 0.6mm nap : 5 passes 1st Pass $\Delta ap_1 = \frac{0.60}{\sqrt{5-1}} \times \sqrt{0.3} = 0.16 \rightarrow 0.16 (\Delta ap_1)$ 2nd Pass $\Delta ap_2 = \frac{0.60}{\sqrt{5-1}} \times \sqrt{2-1} = 0.3 \rightarrow 0.14 (\Delta ap_2 - \Delta ap_1)$ 3rd Pass $\Delta ap_3 = \frac{0.60}{\sqrt{5-1}} \times \sqrt{3-1} = 0.42 \rightarrow 0.12 (\Delta ap_3 - \Delta ap_2)$ 4th Pass $\Delta ap_4 = \frac{0.60}{\sqrt{5-1}} \times \sqrt{4-1} = 0.52 \rightarrow 0.1 (\Delta ap_4 - \Delta ap_3)$ 5th Pass $\Delta ap_5 = \frac{0.60}{\sqrt{5-1}} \times \sqrt{5-1} = 0.6 \rightarrow 0.08 (\Delta ap_5 - \Delta ap_4)$
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NC PROGRAMME FOR MODIFIED FLANK INFEEED

Example) M12×1.0 5 passes modified 5°

External Threading	Internal Threading
G00 Z = 5.0 X = 14.0 G92 U-4.34 Z-13.0 F1.0 G00 W-0.07 G92 U-4.64 Z-13.0 F1.0 G00 W-0.06 G92 U-4.88 Z-13.0 F1.0 G00 W-0.05 G92 U-5.08 Z-13.0 F1.0 G00 W-0.03 G92 U-5.20 Z-13.0 F1.0 G00	G00 Z = 5.0 X = 10.0 G92 U4.34 Z-13.0 F1.0 G00 W-0.07 G92 U4.64 Z-13.0 F1.0 G00 W-0.05 G92 U4.84 Z-13.0 F1.0 G00 W-0.04 G92 U5.02 Z-13.0 F1.0 G00 W-0.03 G92 U5.14 Z-13.0 F1.0 G00