FEATURES and PROCESSING CONDITIONS of CUT KNURLING.

FEATURES

Processing productivity is enhanced compared with the rotating forming method.
(Productivity depends on materials, processing length, applied machines, etc.)

❶ The cut knurling method can be applied to difficult-to-process materials (such as copper alloy, aluminum, stainless steel, resin, and so on)
❷ Expansion of the diameter of materials can be reduced to a minimum through cut knurling processing.
❸ The head of the holder is designed to be minimum in size and sturdy to be as diverse as possible.
❹ The load given to the machine at time of cut knurling processing is reduced enough to ensure the retention of precision. Small-diameter and cylindrical materials can be processed.
❺ Special ball bearings are provided between the knurling wheel and rotating axis to realize a smooth rotation and to avoid the clogging and sticking of cut chips, thereby lengthening the life of and preventing the damage to the wheel.

Processing Conditions

■Table 1 Processing Conditions Table (Estimated Value)

Outside diameter \ Materials		Carbon steels	Mild steel	Stainless steel	Aluminum	Copper	Brass	Nylon resin ※ Remarks
φ3～φ12	Velocity V (m/min)	40	50	30	80	50	60	50
	Speed S (mm/rev)	0.08	0.10	0.06	0.16	0.10	0.10	0.08
φ12～φ50	Velocity V (m/min)	40	50	30	80	50	60	50
	Speed S (mm/rev)	0.10	0.12	0.08	0.20	0.12	0.12	0.10
φ50～φ250	Velocity V (m/min)	35	45	25	75	45	55	45
	Speed S (mm/rev)	0.10	0.12	0.08	0.20	0.12	0.12	0.10

※ Caution : The figure is indicated with reference to MC nylon (MC901) and dulacon (M90-44)
Please contact us for figures of other materials.

❶ Cut Speed (Revolution Speed)

$Vm/min = \frac{\pi \cdot D \cdot N}{1000}$

D＝Diameter of processing material
N＝No. of revolution per minute rpm

❷ Feeding Speed

Smm／min＝N・S ′

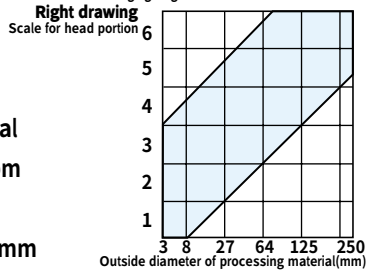
S ≒Feeding value per revolution mm
N＝No. of revolution per minute rpm

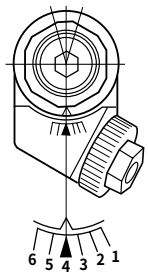
❸ Cutting Value

The cutting value of the cut knurling holder is based on approximately 80% of the knurling pitch.

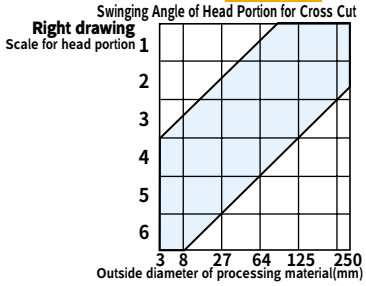
TA＝P・0.8　　P= knurling pitch

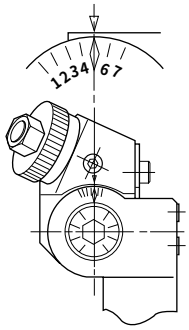
■Table 2
Swinging Angle of Head Portion for Cross Cut





■Table 3 NewType
Swinging Angle of Head Portion for Cross Cut





■Table 4 Processing Range of Stepped Part (Unit: mm)

KH-1CS20, KH-1CN20N / KH-1CS25, KH-1CN25N		KH-1CA08, KH-1CA10 / KH-1CA12, (R)		KH-2CS20, KH-2CN20N / KH-2CS25, KH-2CN25N		KH-2CA08, KH-2CA10 / KH-2CA12, (R)	
X (Step difference)	Y	X (Step difference)	Y	X (Step difference)	Y	X (Step difference)	Y
1.0～4.0	1.5～5.0	under 0.5	0.6	1.0～4.0	1.5～5.0	under 0.5	0.6
over 4.0	8.5	0.5～2.0	0.6～3.5	4.0～7.0	5.0～8.5	0.5～2.0	0.6～3.5
		2.0～4.0	3.5～5.5	7.0～48.0	8.5	2.0～4.0	3.5～5.5
		over 4.0	5.5	over 48.0	25.0	over 4.0	5.5