

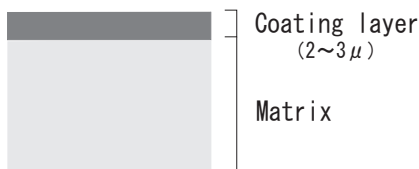
## LIFE COUNTERMEASURE FOR TOOLING

In punching process with a NC turret punch press, tool life has a major effect on productivity and cost. This chapter has summarized some measures including **Super Dry Punch**, as measures for the tool life.

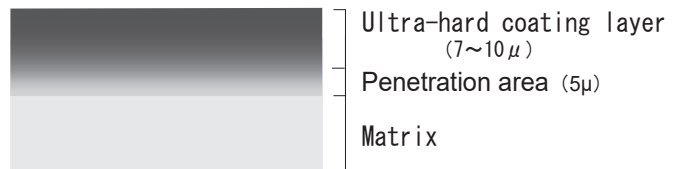
### Super Dry Punch (SDP)

- **Super Dry Punch (SDP)** supports **Dry Processing** without using press processing oil. It exerts outstanding effects on difficult-to-process materials such as stainless steel.
- Excellent durability is achieved by the double effect of the "super hard coating (Hv 2,500~3,000)" on the surface and the "penetration layer" to the punch base material. Eliminated the "film peeling" defect that occurs when stainless steel is processed with conventional coating punches such as TiN (gold) and TiCN (gray purple).

Conventional coating



Super Dry Punch (SDP)



### Durability test results of Super Dry Punch and TiCN coating

Surface Treatment	TiCN Coating	Super Dry Punch (SDP)
Material & Thickness	SUS304 t=2.0	SUS304 t=2.0
Working Oil	Not in use (Non-oil Process)	Not in use (Non-oil Process)
The number of hits	About 20,000 hits	About 82,000 hits

### SURFACE TREATMENT VARIATION (APPROPRIATE)

Total performance	Punch type	Appropriate Material				Characteristics
		Stainless steel	Mild steel	Aluminum	Galvanized	
High Performance ↑↓ Cost Performance	Super Dry Punch (SDP)	★★★★★	★★★★★	★★★	★★★	Highly effective in SUS material
	Heavy Duty Punch (HDP)	★★★★★	★★★★★	★★★★★	★★★★★	Excellent heat resistance
	Conic Long Life Punch (CLP)	★★★★	★★★★	★★★★★	★★★★★	Emphasizing balance and Long life
	Conic Hard Punch (CHP)	★★★	★★★★	★★★★★	★★★★	High Cost Performance
	M2...No surface treatment	★★	★★★	★★★	★★★	
	D2...No surface treatment	★	★	★★	★	

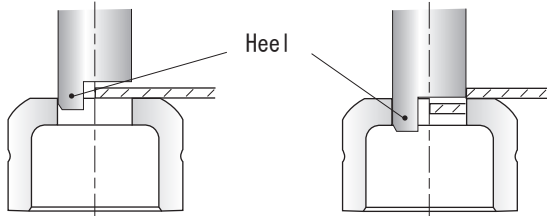
# LIFE COUNTERMEASURE FOR TOOLING

## SLITTING (NIBBLING) PROCESSING

### HEEL TOOL

A tool that equipped with fixed heel part to punch and the heel part enters the die before the punch strikes the material, prevents deviation of the punch during removal.

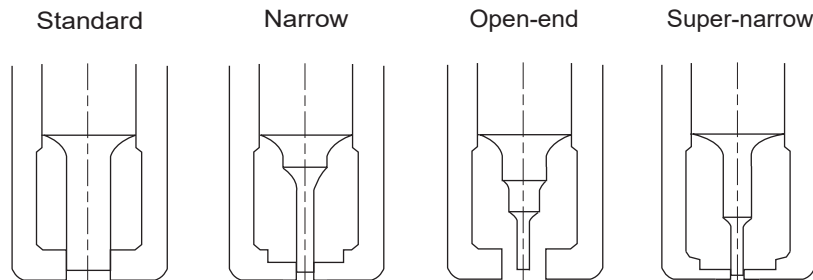
※There is a limit on slitting direction.



In addition to this, there is also a **sharp roof tool** that has a movable heel part at the cutting edge to reduce restrictions on the slitting direction.

## NARROW PUNCH

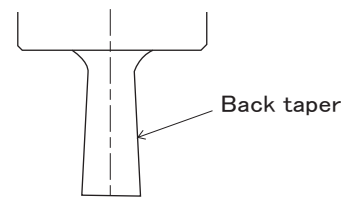
There is a punch type such as **narrow type, open end type, super narrow type etc.** which made it difficult to break by shortening the effective punch length and increasing the strength of the punch.



## THICK PLATE PROCESSING

### BACK TAPER

A tool that provide taper relief on the punch and reduce seizure and contact with the material.



## OTHER LIFE COUNTERMEASURES

1. Check for misalignment of turret station and wear of turret key etc.
2. Combined use with tools for slug pulling measures.
3. Implementation of early regrinding.
4. Put a small rounding on the corner of Square / Rectangle punch.

As life countermeasures of the tool, it is recommended to select a tool that is acceptable for the processing conditions such as the quality and thickness of material.

For **More** information,  
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