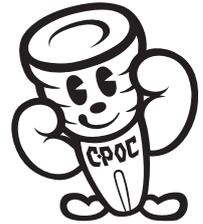


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### SELECT SPECIFICATION OF PUNCH

When ordering punches, please select and refer to the following specifications.

#### ■ Selection of punch material and surface treatment

Grade	Type of Punch	Characteristic
<div style="display: flex; align-items: center;"> <div style="margin-right: 10px;"> </div> <div style="text-align: center;"> <p>High Performance</p> </div> </div>	Super Dry Punch (SDP)	Excellent durability is realized by the W effect of the “super-hard film and permeation layer to punch base material” on the surface. Suitable for dry processing without press oil. Excellent effect on difficult-to-process materials such as stainless steel. Currently, Only the following shapes are supported. ●RO  ●SQ  ●RE  ●OB
	Heavy Duty Punch (HDP)	Coating with excellent heat resistance. The coating is difficult to peel off even with heat generated continuously.
	Conic Long Life Punch (CLP)	Suitable for a wide range of work materials such as high corrosion resistant hot-dip galvanized steel sheets, mainly Mild Steel.
	Conic Hard Punch (CHP)	It has been made “Special Treatment” to the punch cutting edge. This is a low-cost tool that is effective not only for cutting edge wear but also for preventing galling.
	High Speed Steel (HSS)	Supports a wide range from Aluminum to Mild steel and Stainless steel. Harder than D2 and has excellent durability.
<div style="display: flex; align-items: center;"> <div style="margin-right: 10px;"> </div> <div style="text-align: center;"> <p>Cost Performance</p> </div> </div>	D2	The most basic type of tool material. It is a basic tool that excels in cost performance and adapts to all workpieces.

#### ■ Selection of punch shear angle

The shear angle of the punch is effective for reducing punching load, preventing slug pulling, and silencing.

When ordering, please indicate the presence and type of shear angle.

Shear option	Characteristec
Roof top shear	Best shear for punching with maximum tonnages. CONIC standard angle of shear is 2° or 5°. Easy to sharpened up.
Concave shear	Best shear for slitting and nibbling because it inverts stresses. More susceptible to breakage because of a sharp focal point for stresses when piercing thick material. Difficult to sharpen without dedicated jigs. <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="text-align: center;"> <p>Resistant direction to punch tip</p> <p>In case of roof top shear</p> </div> <div style="text-align: center;"> <p>In case of concave shear</p> </div> </div>
Inverted shear	

※ In general, small diameter punches do not have a shear angle because the removal load is small. Also, there is no shear angle for the blank type (if the slug is a product) because the blank is deformed.

For details, see Technical Information Vol.24.

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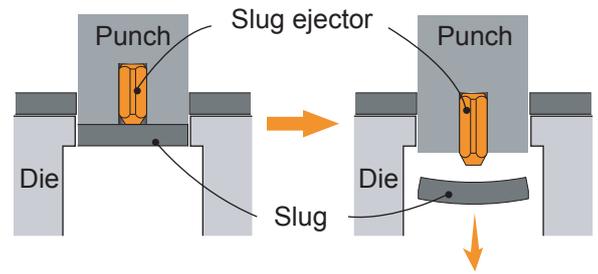
### ■ Slug ejector

Slug ejector is effective in preventing slug pulling. The round shape is  $\phi 4$  or more, and the standard square shape is attached to the punch edge of 6 width or more as standard in our company.

In addition, if you give us an instruction, we will attach it to a standard square blade with a width of 6 or more for free.

When processing thick plates with small-diameter and narrow punches, the slug ejector holes may cause punch damage. In that case, please indicate "No slug ejector".

Fig.1 Pushing slug mechanism by slug ejector

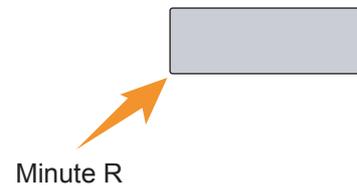


### ■ Minutes corner "R" on punch tip

As a measure to prevent chipping at the blade edge, we have added a small R of about R0.2 to the four corners of square and rectangle punches.

If you don't need it, please let us know.

Fig.2 Minutes corner R on the punch tip of SQ and RE shape punches.



### ■ Coating treatment

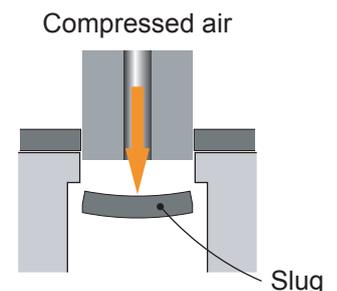
In addition to Super Dry Punch (SDP), Heavy Duty Punch (HDP), Conic Long Life Punch (CLP), and Conic Hard Punch (CHP), you can also select various "coating treatments" that improve the life of the tool.

Coating option	Characteristec
Tuff coat	Salt bath nitriding treatment to our premium high speed steel. It shows high performance preventing from peeling off. Hardness of surface is Hv900 - 1,100.
TiCN coat	Ticn treatment to our premium high speed steel. Hardness of surface is Hv2,700 - 3,000 which is harder than Tin coating.
TiN coat	Tin treatment for our premium high speed steel. Good for mild steel. Hardness of surface is Hv2,000 - 2,500.
CrN coat	CrN treatment to our premium high speed steel. Good for aluminum. Hardness of surface is Hv1,700 - 2,100.

### ■ Air-hole specification

From the air hole in the center position of punch body, compressed air is blown directly onto the slug to forcibly drop the slug.

Fig.3 Air-hole specification



For More information, please contact CONIC tool sales desk.

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