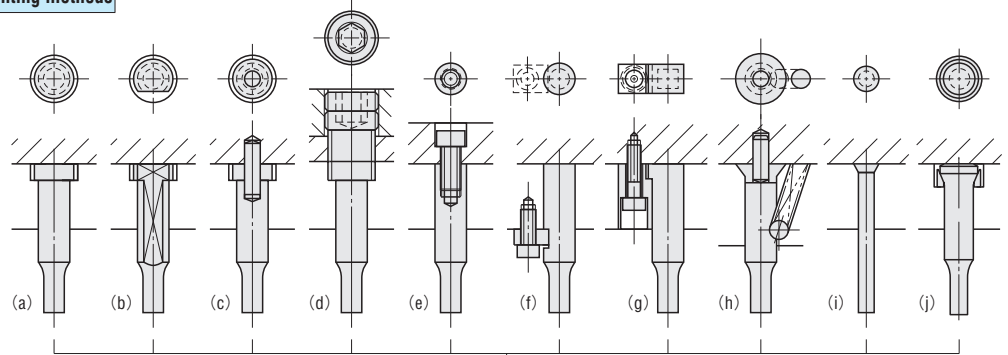
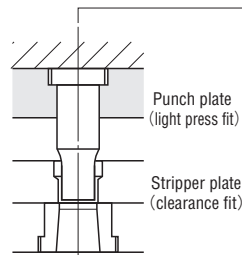


■ Punch mounting methods

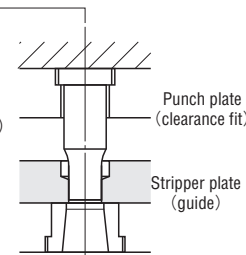


■ Punch holding methods

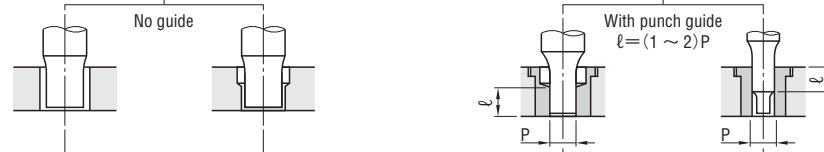
Based on punch plate (Fig. 1)



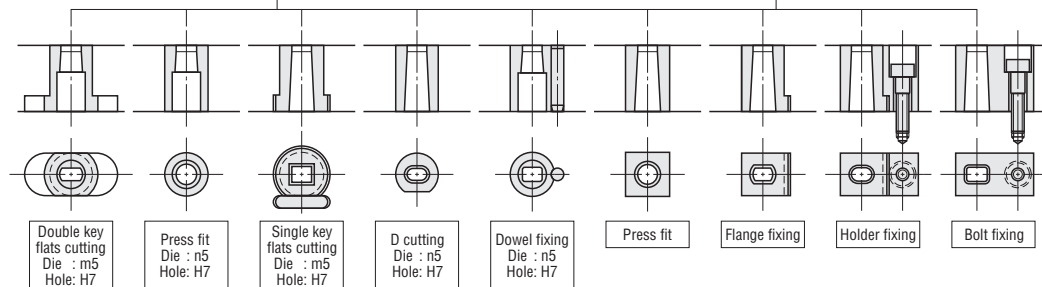
Based on stripper plate (Fig. 2)



■ Punch guiding methods



■ Die mounting methods



■ Punch mounting methods

Type	Mounting method	Remarks	Page
a	Flange fixing	The position and perpendicularity of the punch are maintained by the shank, and the head prevents the punch from coming off.	P. 53~
b	Flange (positioning with a key flat)	The position and perpendicularity of the punch are maintained by the shank, and the head prevents the punch from coming off.	P. 85~
c	Locating with dowel pin	Positional accuracy is achieved with the dowel pin, and the head fastens the punch in place.	P. 93~
d	Fixing with adjustment pins	The position and perpendicularity of the punch are maintained by the shank, and the head is fastened with a bolt.	P. 745~
e	Bolt fixing (tapping)	The position and perpendicularity of the punch are maintained by the punch plate, and the bolt prevents the punch from coming off.	P. 153~
f	Key fixing	The groove of the punch is fixed in place with a key.	P. 165~
g	Holder fixing	The head of the punch is screwed in place with a holder.	P. 395~
h	Ball lock	A steel ball inside a special retainer locks the punch groove to fasten the punch in place.	P. 693~
i	Taper fixing	A tapered part prevents the punch from coming off.	P. 183~
j	Taper+ring	A special ring supports the tapered part.	P. 135~

■ Punch holding methods

- Based on punch plate : This is the most commonly-used method, and because the punch is press-fit into the punch plate, dies can be produced easily. If the punch concentricity (Fig. 1) or accuracy of hole machining is poor, variation is likely to occur in the clearance between the punch and die. As a result, this method is not suitable for cases when clearance between the punch and die is small.
- Based on stripper plate : This method is primarily used for thin, high-precision dies. (Fig. 2) The punch tip is guided by the stripper plate, which is located close to the punch and die, making it possible to minimize precision error. The punch is held in the punch plate by a clearance fit.

■ Methods of adjusting punches and dies

- Adjustments at regrinding
If the punch shim, punch spacer, and die spacer are used, the height of the punch and die will not change when regrinding is performed.
- Adjustments of clearance
The position of the die can be easily adjusted by using the position-adjustment shims or liners.

