

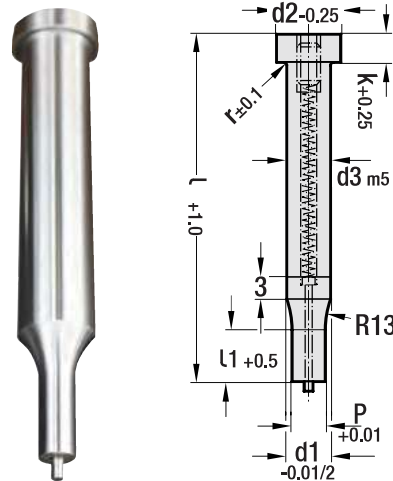
Cylinder Head Punch with Ejector Code: **SFZ**
(Blank type) ISO 8020

Material: 1.3343 (M2) completely ground
Heat Treated: (62 - 64 HRC)
Head Hardness: (52 ± 3)
Surface: ≥ 950 HV 0.3

d1	L	d2	F	k	r
5.0	71	8	2	5 mm	0.3
6.0		9	3		
8.0		11	4		
10		13	5		
13		16	5		
16		19	6		
20	125	23	6	0.4	
25	160	28	6		
32		35	6		

Order: **SFZ. d1 x L**

Material: 1.3343 (M2)
Hardness: 62 - 64 HRC



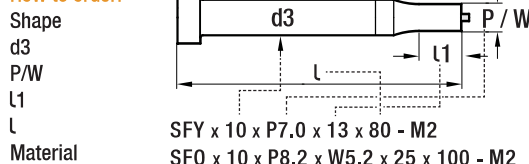
Cylinder Head Stepped Punch with Ejector

Order Codes: **SFY - SFO - SFK - SFD - SFA - SFM - SFX - SFP**

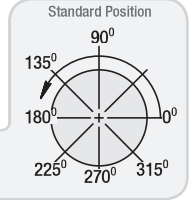
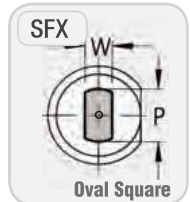
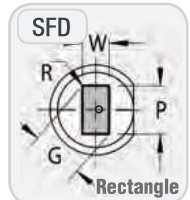
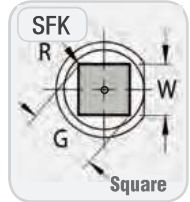
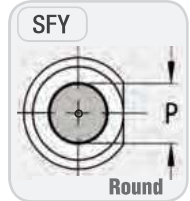
Please refer to the table on the right side →

Order d3	Head d2	d1 / Shape		Standard L1	Alternative L1		L mm
		(SFY) Round P	Other Shapes W G/P		Min.	Max.	
SF.05	8	1.6 ~ 4.99	1.6 - 5.0	13	10	-	63
SF.06	9	2.5 ~ 5.99	2.5 - 6.0	13	10	-	71
SF.08	11	3.2 ~ 7.99	3.2 - 8.0	19	13	19	80
SF.10	13	4.5 ~ 9.99	4.5 - 10	19	13	25	90
SF.13	16	6.0 ~ 12.99	6.0 - 13	19	13	25	100
SF.16	19	8.0 ~ 15.99	7.5 - 16	19	13	25	120
SF.20	23	10 ~ 19.99	8.0 - 20	19	13	25	
SF.25	28	12 ~ 24.99	9.0 - 25	19	13	25	
SF.32	35	16 ~ 31.99	10 - 32	25	19	30	

How to order:



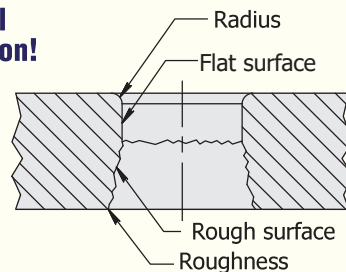
Shapes



Definition of Gap Between Punch and Die

Gap between punch and die depends on material type of stamped work pieces, material thickness, hole diameter and desired tool life. This is indicated as total percentage of stamped material thickness. It should be remembered that hole diameter of punch specifies the dimension of part to be processed. Generally, ideal gap provides serial, clear and smooth punching process with minimum tool force. When insufficient gap is left, minimum radius and burrs are obtained. However, depending on high tool forces, it shortens tool life. As a result of excessive gap, wide radius creates deformation, but tool life is increased. Some general values are presented for different materials in the following table (it is an advisory). Expressed values are total die gap recommended for unused ejector punch holes. Increasing gap to 2 times by using ejector punch, will significantly increase estimated tool life. Abrasion occurring in the most of the punches occurs by scraper forces when the punch is pulled back. Increasing gap with using ejector punches will hold abrasion on tool surface in minimum.

Technical Information!



Material	Soft	Hard
Aluminum	% 10	% 12
Bronze / Copper	% 6	% 8
Low Carbon Steel	% 10	% 12
High Carbon Steel	% 18	% 20

The standard location of key flats is at 0°. Alternate locations of 90°, 180° or 270° can be specified.

