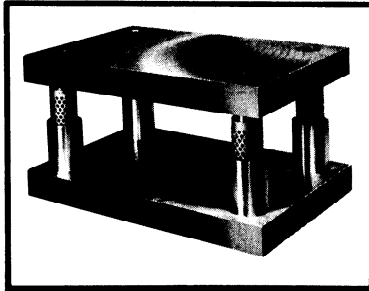




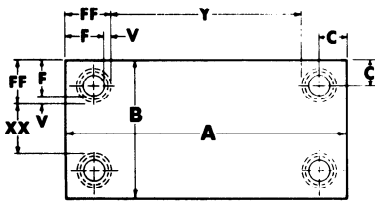
STANDARD DIE SUPPLY, INC.

NON-ROTATING BALL CAGE

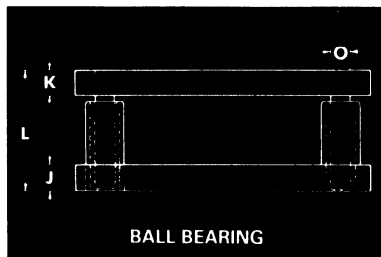
FOUR-POST BALL BEARING SPECIAL DIE SETS



Four Post—Type "BB-FP"



Right front pin offset 1/8".



Ball Bearing Component Design Selection

We recommend that for maximum ball bearing component life, the pin should stay engaged in the bushing by at least 3/4" at the maximum open height (figure 3).

If this condition cannot be met, the Type A cage length engaged in the bushing should be at least 1 1/2 times the pin diameter at the point in the press stroke where the punch is 1/4" above the material.

On long stroke applications, the pin and cage can be disengaged **only** if the press is operated at less than 150 spm and in a vertical position with accurate ram and gib alignment.

MAXIMUM PIN LENGTH

Equals (=) Minimum Shut Height Minus (-) 1/4". Figure 2. Select Nearest Standard Length from page 16.

MAXIMUM STRAIGHT SLEEVE LENGTH

Equals (=) Minimum Shut Height Minus (-) Punch Holder Thickness Minus (-) 1/4". Select Nearest Standard Length from page 17.

MAXIMUM CAGE LENGTH

Equals (=) Bushing Overall Length Minus (-) 1/2". Select Nearest Standard Length from pages 16 or 17.

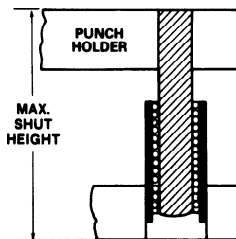


Figure 1

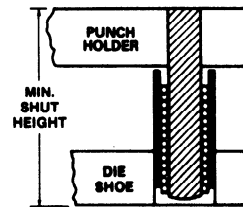


Figure 2

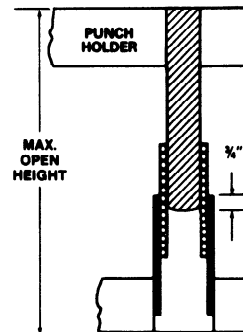


Figure 3

FOUR-POST DIE SETS

DIMENSIONS FURNISHED WHEN CUSTOMER SPECIFIES ONLY A AND B DIMENSIONS.

A L. to R. (As Spec.)	P Post Dia.	J D. H. Thk.	K P. H. Thk.
10" to 16"	1 1/4	1 1/2	1 1/2
17" to 22"	1 1/2	1 3/4	1 3/4
23" to 28"	1 3/4	2	2
29" to 40"	2	2 1/2	2 1/2
41" to 65"	2	3	3
66" to 100"	2 1/2	3 1/2	3 1/2

DIMENSIONAL VARIATIONS

Nominal Guide Post Dimension	Sleeve Bushing			
	C	F	V	FF
1	1 1/2	2	3/8	2 3/8
1 1/4	1 3/4	2 3/8	1/2	2 7/8
1 1/2	2	2 3/4	1/2	3 1/4
1 3/4	2 1/8	3	1/2	3 1/2
2	2 3/8	3 3/8	5/8	4
2 1/2	2 5/8	3 7/8	5/8	4 1/2
3	3	4 1/2	5/8	5 1/8

FORMULAS	
AA = A - 2V	S = A + 2F
BB = B - V	T = B + F
Y = A - 2FF	X = B - 2F
XX = B - 2FF	