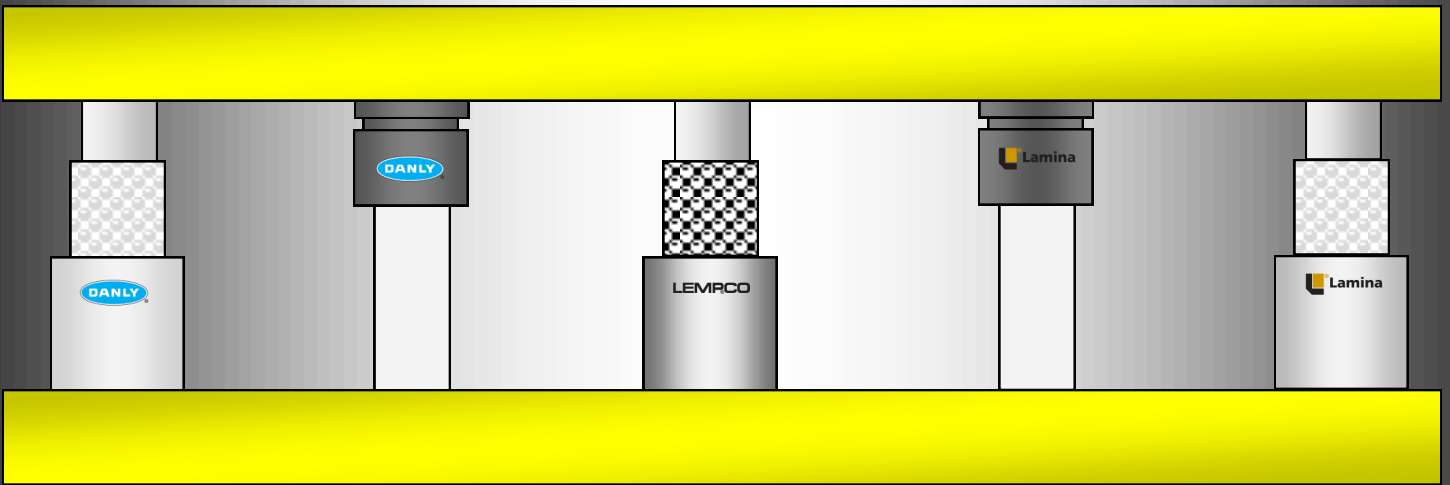
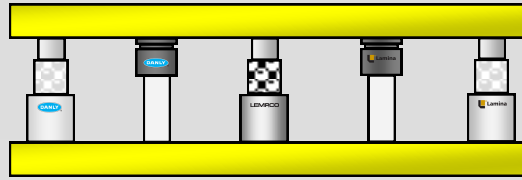


EXPRESS DIE SETS







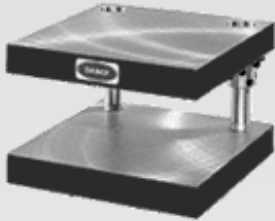
EXPRESS DIE SETS

EXPRESS DIE SET RFQ FORM

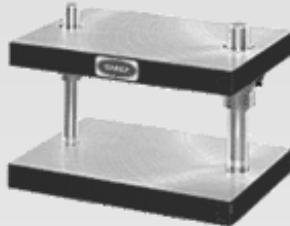
When requesting a quote for a die set, please advise the following information.
 (If your needs are outside of these parameters, please email your request with a drawing to sales@hodie.com.)

1) SPECIFY TYPE OF DIE SET

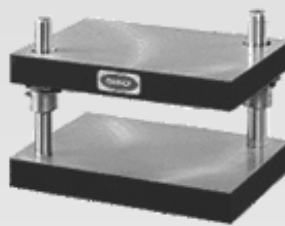
BACK POST (AS-33)



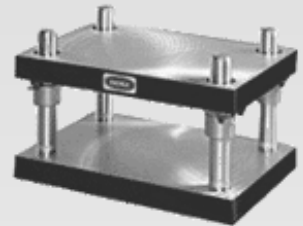
CENTER POST (AS-34)



DIAGONAL POST (AS-35)



FOUR POST (AS-37)



2) ADVISE PUNCH HOLDER (TOP PLATE) SIZE

THICKNESS*

OVERALL DEPTH (FRONT TO BACK)**

OVERALL LENGTH (LEFT TO RIGHT)**

3) ADVISE DIE HOLDER (BOTTOM PLATE) SIZE

THICKNESS*

OVERALL DEPTH (FRONT TO BACK)**

OVERALL LENGTH (LEFT TO RIGHT)**

4) SPECIFY BRAND & TYPE OF COMPONENTS



DANLY PLAIN BEARING (GO TO 5A)
 DANLY BALL BEARING (GO TO 5B)



LAMINA PLAIN BEARING (GO TO 5A)
 LAMINA BALL BEARING (GO TO 5B)



LEMPCO PLAIN BEARING N/A
 LEMPCO BALL BEARING (GO TO 5B)

5A) IF PLAIN BEARING COMPONENTS ARE DESIRED, SPECIFY PART NUMBER -OR- TYPE & SIZE

PIN PART NUMBER: _____

STRAIGHT

DEMOUNTABLE

SHOULDER

DIAMETER:

LENGTH:

BUSHING PART NUMBER: _____

STEEL

BRONZE PLATED

SOLID BRONZE

DEMOUNTABLE :
 (ADVISE SHOULDER LENGTH)

SLEEVE :
 (ADVISE OVERALL LENGTH)

5B) IF BALL BEARING COMPONENTS ARE DESIRED, SPECIFY PART NUMBER -OR- TYPE & SIZE

PIN PART NUMBER: _____

STRAIGHT

DEMOUNTABLE

SHOULDER

DIAMETER:

MINIMUM SHUT HEIGHT***:

BUSHING PART NUMBER: _____

DEMOUNTABLE :
 (ADVISE SHOULDER LENGTH)

SLEEVE :
 (ADVISE OVERALL LENGTH)

BALL CAGE / RETAINER PART NUMBER: _____

DANLY BALL CAGE

LAMINA BB RETAINER

LEMPCO RETAINER

LEMPCO ROTAINER



* e standard thickness tolerance is +.060"/-.125" and the plates are Blanchard ground. If a specific thickness tolerance and/or surface ground finish is desired, please advise.

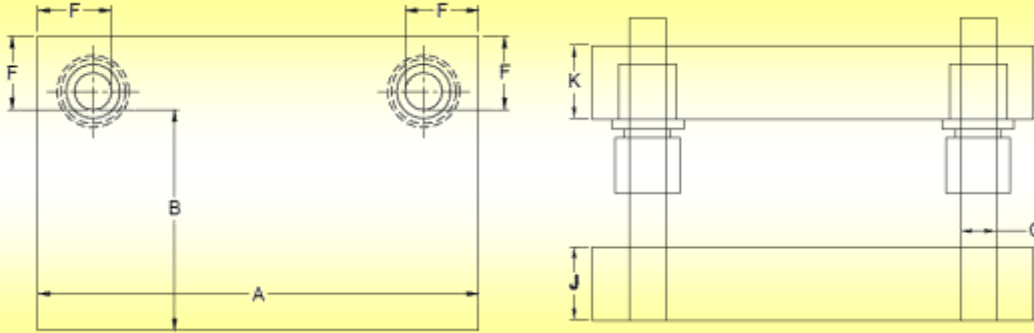
**If overall plate size is not known, please advise your desired working area, e.g. 6" in front of the pins or 12" between the bushings.

***The length of the ball bearing components is determined from the minimum shut height. The minimum shut height is the overall height of the die set, from the top of the punch holder to the bottom of the die holder in the closed position. If specific ball bearing components are not specified, we will need to know the minimum shut height before we can quote.



PLAIN BEARING STOCK DIE SETS

There are over 300 in stock PLAIN BEARING Back Post (Series AS-33) die sets with your choice* of DANLY or LAMINA Pins & Bushings.



QUICK-SHIP DELIVERY FROM STOCK

BACK POST (AS-33-PB) PLAIN BEARING DIE SETS

H&O PART NUMBER	A	B	K	J	O	OVERALL PLATE SIZE (Left to Right x Front to Back)
ELT0604	6.000"	4.000"	1-1/4"	1-1/2"	1"	6.000" x 6.250"
ELT0606	6.000"	6.000"	1-1/2"	1-1/2"	1"	6.000" x 8.000"
ELT0806	8.000"	6.000"	1-1/4"	1-1/2"	1"	8.000" x 8.000"
ELT0808	8.000"	8.000"	1-1/4"	1-1/2"	1"	8.000" x 10.000"
ELT1006	10.000"	8.000"	1-1/2"	1-1/2"	1"	10.000" x 6.000"
ELT1008	10.000"	7.750"	1-1/2"	1-1/2"	1-1/4"	10.000" x 10.000"
ELT1010	10.000"	9.750"	1-1/2"	1-1/2"	1-1/4"	10.000" x 12.000"
ELT1206	12.000"	5.750"	1-1/2"	1-1/2"	1-1/4"	12.000" x 8.000"
ELT1208	12.000"	7.750"	1-1/2"	1-1/2"	1-1/4"	12.000" x 10.000"
ELT1210	12.000"	9.750"	1-3/4"	1-3/4"	1-1/4"	12.000" x 12.000"
ELT1406	14.000"	5.750"	1-1/2"	1-1/2"	1-1/4"	14.000" x 8.000"
ELT1408	14.000"	7.750"	1-1/2"	1-1/2"	1-1/4"	14.000" x 10.000"
ELT1412	14.000"	11.500"	1-3/4"	1-3/4"	1-1/2"	14.000" x 14.000"
ELT1606	16.000"	5.750"	1-1/2"	1-1/2"	1-1/4"	16.000" x 8.000"
ELT1608	16.000"	7.750"	1-1/2"	1-1/2"	1-1/4"	16.000" x 10.000"
ELT1610	16.000"	9.500"	2"	2"	1-1/2"	16.000" x 12.000"
ELT1614	16.000"	13.500"	2"	2"	1-1/2"	16.000" x 16.000"
ELT1806	18.000"	5.500"	1-1/2"	1-1/2"	1-1/2"	18.000" x 8.000"
ELT1808	18.000"	7.500"	1-1/2"	1-1/2"	1-1/2"	18.000" x 10.000"
ELT1816	18.000"	15.500"	2"	2"	1-1/2"	18.000" x 18.000"
ELT2012	20.000"	11.500"	2"	2"	1-1/2"	20.000" x 14.000"
ELT2608	26.000"	7.500"	2"	2"	1-1/2"	26.000" x 10.000"
ELT2612	26.000"	11.500"	2"	2"	1-1/2"	26.000" x 14.000"

When ordering, please specify H&O part number & post length (L).

*The default components are Danly 5-XXXX-5 posts & 6-XX-64 steel demountable shoulder bushings. Other Danly & Lamina components are available upon request.

H&O DIE SUPPLY, INC. • 7200 Interstate 20 • Kennedale, TX 76060
www.hodie.com • sales@hodie.com • 800-222-5441

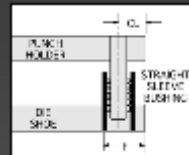


BALL BEARING STOCK DIE SETS



BACK POST BALL BEARING DIE SETS

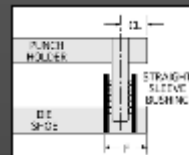
H&O's STOCK Back Post Ball Bearing Die Sets are set up to accept Lamina AP1-XXXX posts, AB1-XXXX sleeve bushings & AR1-XXXX retainers and Lempco 951-XXXX posts, 961-XXXX sleeve bushings & either 931-XXXX precision retainers or 361-XXXX Retainers. When ordering or requesting a quote, please advise the H&O part number and the minimum shut height so we can determine the component lengths. The above Lamina components are supplied as a default, unless Lempco is specified. Other Lamina, Lempco or Danly BB components are available in the plate sizes below upon request as an H&O EXPRESS die set.



H&O PART NUMBER	Overall Plate Size		Plate Thickness		Post Diameter O	Working Area		F	CL
	Length	Depth	Punch Holder K	Die Shoe J		B	A		
EBT0606	6.000"	8.000"	1 1/2"	1 1/2"	1"	5.64	6.000"	2.36"	1 1/2"
EBT0806	8.000"	8.000"	1 1/2"	1 1/2"	1"	5.64	8.000"	2.36"	1 1/2"
EBT0808	8.000"	10.000"	1 1/2"	1 1/2"	1"	7.64	8.000"	2.36"	1 1/2"
EBT1006	10.000"	8.000"	1 1/2"	1 1/2"	1"	5.64	10.000"	2.36"	1 1/2"
EBT1008	10.000"	10.000"	1 1/2"	1 1/2"	1 1/4"	7.19	10.000"	2.81"	1 3/4"
EBT1208	12.000"	10.000"	1 1/2"	1 1/2"	1 1/4"	7.19	12.000"	2.81"	1 3/4"
EBT1408	14.000"	10.000"	1 1/2"	1 1/2"	1 1/4"	7.19	14.000"	2.81"	1 3/4"
EBT1410	14.000"	12.000"	1 3/4"	1 3/4"	1 1/2"	8.78	14.000"	3.22"	2"
EBT1608	16.000"	10.000"	1 1/2"	1 1/2"	1 1/4"	7.19	16.000"	2.81"	1 3/4"
EBT1612	16.000"	14.000"	1 3/4"	1 3/4"	1 1/2"	10.78	16.000"	3.22"	2"
EBT1808	18.000"	10.000"	1 1/2"	1 1/2"	1 1/2"	6.78	18.000"	3.22"	2"
EBT1816	18.000"	18.000"	2"	2"	1 1/2"	14.78	18.000"	3.22"	2"
EBT2010	20.000"	12.000"	2"	2"	1 1/2"	8.78	20.000"	3.22"	2"
EBT2210	22.000"	12.000"	2"	2"	1 1/2"	8.78	22.000"	3.22"	2"
EBT2610	26.000"	12.000"	2"	2"	1 1/2"	8.78	26.000"	3.22"	2"

FOUR POST BALL BEARING DIE SETS

H&O's STOCK Four Post Ball Bearing Die Sets are set up to accept Lamina AP1-XXXX posts, AB1-XXXX sleeve bushings & AR1-XXXX retainers and Lempco 951-XXXX posts, 961-XXXX sleeve bushings & either 931-XXXX precision retainers or 361-XXXX Retainers. When ordering or requesting a quote, please advise the H&O part number and the minimum shut height so we can determine the component lengths. The above Lamina components are supplied as a default, unless Lempco is specified. Other Lamina, Lempco or Danly BB components are available in the plate sizes below upon request as an H&O EXPRESS die set.



H&O PART NUMBER	Overall Plate Size		Thickness		Post Diameter O	Distance Between Sleeves		'F'	'CL'
	Length	Depth	Punch Holder K	Die Shoe J		Front to Back	Left to Right		
EBF1414	14.000"	14.000"	1 1/2"	1 1/2"	1 1/2"	7.56	7.56	3.22"	2"
EBF1616	16.000"	16.000"	1 3/4"	1 3/4"	1 1/2"	9.56	9.56	3.22"	2"
EBF1818	18.000"	18.000"	1 3/4"	1 3/4"	1 1/2"	11.56	11.56	3.22"	2"
EBF2020	20.000"	20.000"	1 3/4"	1 3/4"	1 1/2"	13.56	13.56	3.22"	2"
EBF2410	24.000"	10.000"	2"	2"	1 1/2"	3.56	17.56	3.22"	2"
EBF2414	24.000"	14.000"	2"	2"	1 1/2"	7.56	17.56	3.22"	2"
EBF2418	24.000"	18.000"	2"	2"	1 1/2"	11.56	17.56	3.22"	2"
EBF2616	26.000"	16.000"	2"	2"	1 1/2"	9.56	19.56	3.22"	2"
EBF2818	28.000"	18.000"	2"	2"	1 1/2"	11.56	21.56	3.22"	2"

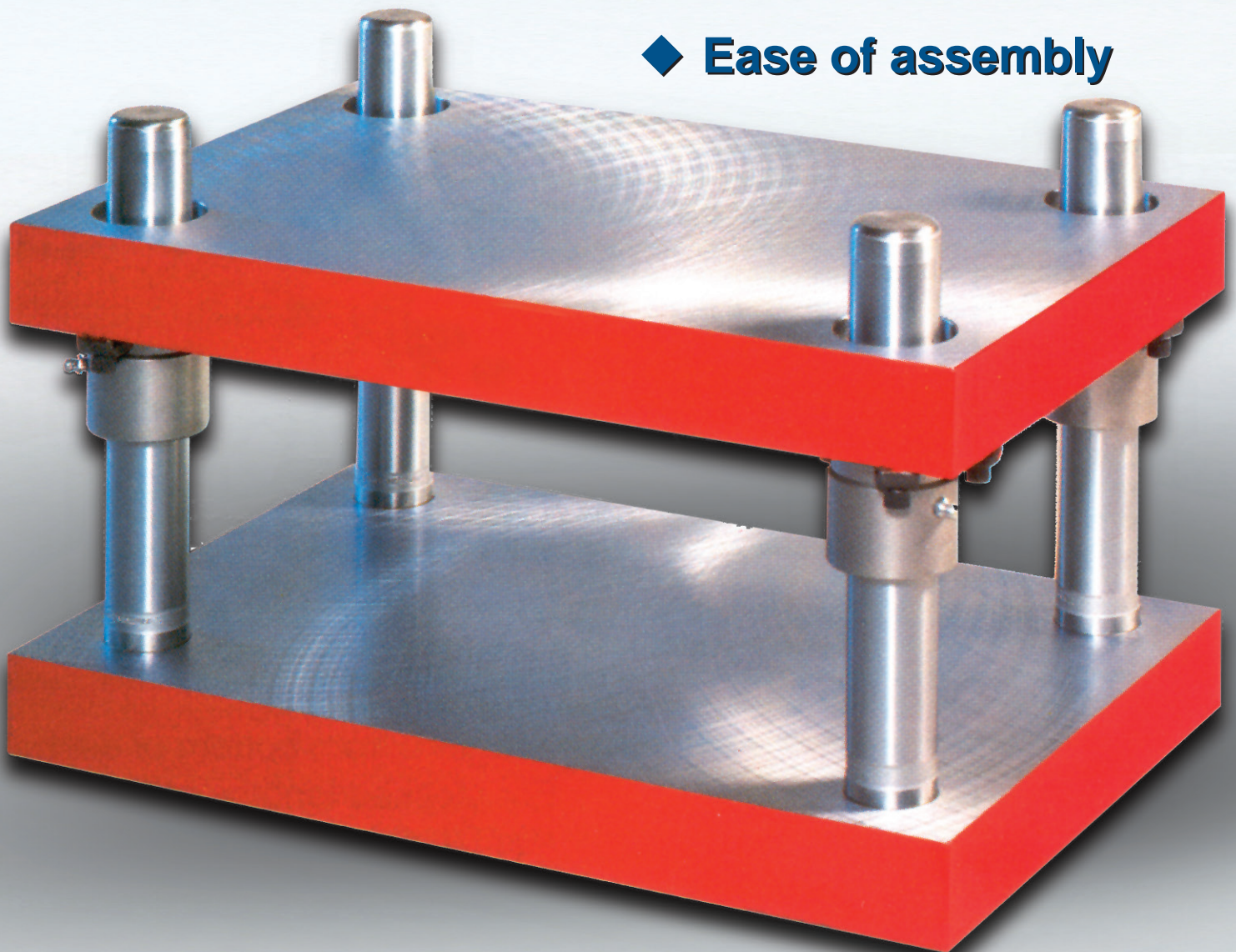
H&O DIE SUPPLY, INC. • 7200 Interstate 20 • Kennedale, TX 76060

www.hodie.com • sales@hodie.com • 800-222-5441



PLAIN BEARING BUSHING DIE SETS

- ◆ Quality, performance, economy
- ◆ Precise fit
- ◆ Ease of assembly



PLAIN BEARING BUSHING DIE SETS

Service We Deliver and Quality You Can Depend On

We are a leading manufacturer of die sets and die component products supplied globally to the parts forming industry. Backed by years of tool and die experience, quality and innovation are some of the reasons why our name is respected throughout the world. We have taken the lead role in creating and bringing new products to customers and helping them find solutions that improve their operations. Based on the capabilities we offer, we can help you to meet the demands of quick deliveries, technical support, quality products and competitive prices. We will assist you in any way to make your product a better and more profitable one.

We understand the demanding schedules of die builders and production personnel and have developed efficient manufacturing processes to shorten product lead times as well as put inventory on our shelves so you can have it in your facility when you need it. Put our network to work for you. We've got the service you've been looking for.

Included in our full line offering are both inch and metric size die sets and die components that are designed to numerous die standards including ISO, NAAMS, JIS and many large automotive and appliance manufacturers' standards. The complete product offering includes:

- Ball bearing and friction style die sets including custom and catalog sets
- Machined plate
- Guide posts & bushings
- ISO and JIS Die springs
- In-die tapping units for both mechanical and hydraulic presses
- Formathane® Urethane springs, strippers, sheets, bars, rods and die cover film
- Diemakers' supplies such as pry bars, dowel pins, hoist rings, clamps and fasteners
- Standard and self-lubricating wear product including wear plate, wear strips, gibs, keeper plates and guide blocks
- Cam units, including Mini™, Aerial and Die Mount styles
- Accu-Bend™ Rotary Benders
- Standard and Ball lock punches and retainers
- Air presses
- Pad retainers

Plain Bearing Die Sets

TABLE OF CONTENTS

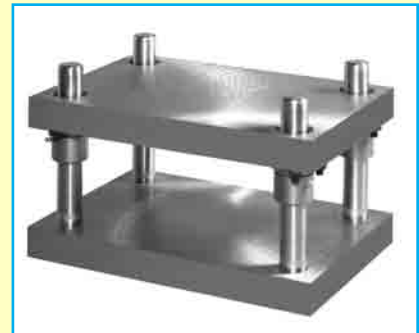
PAGE NUMBER

Back Post Plain Bearing Die Sets	2
Two Post Plain Bearing Die Sets	4
Four Post Plain Bearing Die Sets	6
Demountable Boss Die Sets	8
Heel Block Die Sets	10
Platen Die Sets	11
Blow Mold Die Sets	11
Clamping Data	12

Unlimited Sizes and Shapes

Included in this catalog are recommended minimum dimensions and popular sizes for several different types of Plain Bearing Die Sets. However, we welcome special orders for these die sets and can manufacture them in any size or shape.

Each Plain Bearing Die Set is furnished with our demountable bushings and matched, pre-fitted guide posts for accurate fit, plus ease of assembly and disassembly during diemaking and repair.



Back Post Plain Bearing Die Sets



AS-33

Special Applications

STOCK SIZES

When dimension A does not exceed 25" and dimension B does not exceed 11", see our Catalog Die Set literature.

ALSO AVAILABLE IN:

- ◆ Aluminum (QC-10)
- ◆ Ball Bearing construction
(See our Ball Bearing Bushing Die Set catalog)

TORCH-CUT HOLES

Holes of any shape can be torch-cut to your needs. Send us your CAD file.

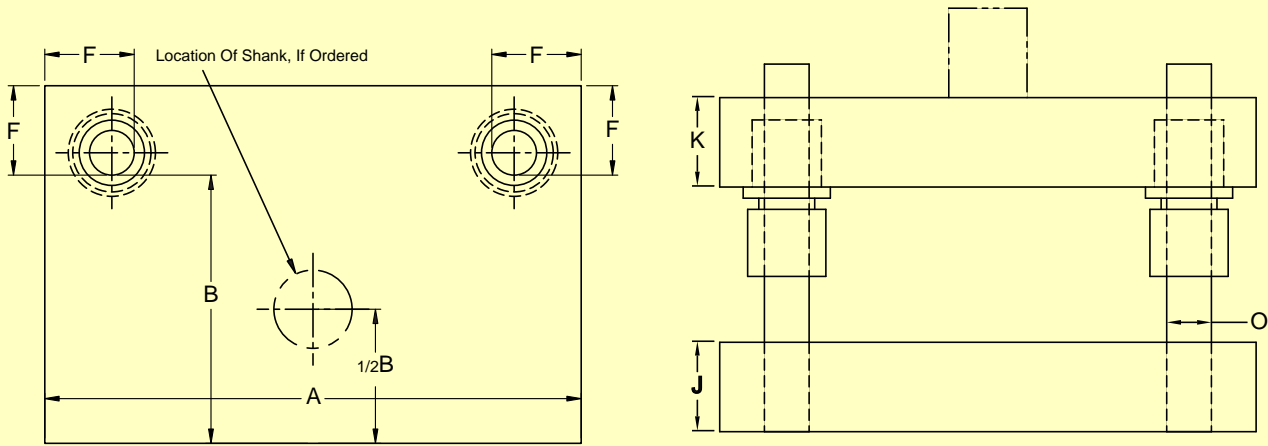
UNLIMITED SIZES

Sizes are not limited to any dimensions. Suggested minimum dimensions are shown below.

TO INSIDE OF POST	F	2	2¼	2½				2¾				3	3¾	4¼															
MINIMUM THICKNESS RECOMMENDED	K	1	1¼	1½				1¾				2	2	2															
	J	1 ³ / ₈	1½	1¾				2				2¼	3	3															
POST DIAMETER	O	1	1¼	1½				1¾				2	2½	3															
DIE SPACE A →		6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	40	45	50	55	60	65	70	80	90	100		
B ↓	6	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	
	8	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue
	10	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue
	12	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue
	14	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue
	16	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue
	18	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue
	20	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue
	22	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue
	24	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue
	26	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue
	28	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue
	30	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue
	32	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue
	34	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue
	36	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue
40	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	

NOTE: Die space sizes are grouped within shaded areas which indicate suggested guide post diameters.

Back Post Plain Bearing Die Sets



Back Post Series AS-33

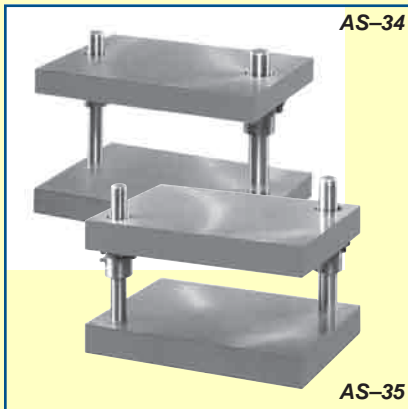
WHEN ORDERING, SPECIFY:

- Series AS-33.
- Dimensions A and B.
- Thickness of die holder J and punch holder K. Die sets are ground to ANSI standards unless specified.
- Type of bushing. Demountable steel shoulder bushings will be furnished unless otherwise specified. For other types of bushings, see our Pins & Bushings Catalog.
- Length L from bottom of die holder to top of guide post O. For stocked lengths of guide posts and types available, see our Pins & Bushings Catalog. Lengths not listed can be furnished at additional cost.
- Diameter of guide post O. When ordering guide posts, dimension F varies as follows:
- Size of shank, if ordered. Shank will be located in center of A and B dimensions, unless otherwise specified. These sets are regularly furnished without shanks. Inserted or welded steel shanks are available at additional cost in the following sizes:
 - ◆ 1" diameter x 2-1/8" long
 - ◆ 1-9/16" diameter x 2-1/8" long
 - ◆ 2" diameter x 2-7/8" long
 - ◆ 2-1/2" diameter x 2-7/8" long
 - ◆ 3" diameter x 2-7/8" long
- Clamping arrangement. L – R arrangement is normally furnished, as shown on page 12.
- How shipment should be made.

These die sets may not be returned for credit.

WHEN	O=1	1-1/4	1-1/2	1-3/4	2	2-1/2	3
	F=2	2-1/4	2-1/2	2-3/4	3	3-3/4	4-1/4

Two Post Plain Bearing Die Sets



Special Applications

STOCK SIZES

On center post sets where dimensions A and B do not exceed 10", see our Catalog Die Set literature.

ALSO AVAILABLE IN:

- ◆ Aluminum (QC-10)
- ◆ Ball Bearing construction
(See our Ball Bearing Bushing Die Set catalog)

TORCH-CUT HOLES

Holes of any shape can be torch-cut to your needs. Send us your CAD file.

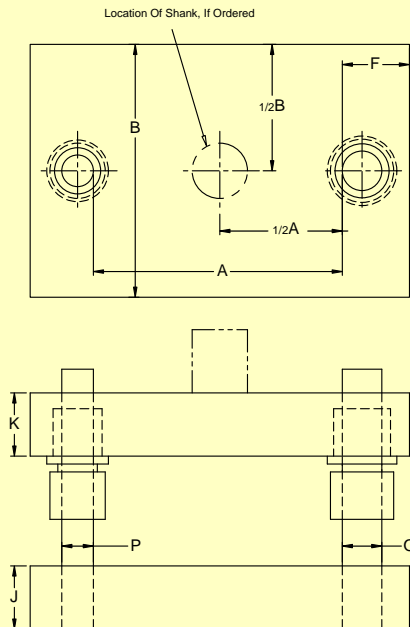
UNLIMITED SIZES

Sizes are not limited to any dimensions. Suggested minimum dimensions are shown below.

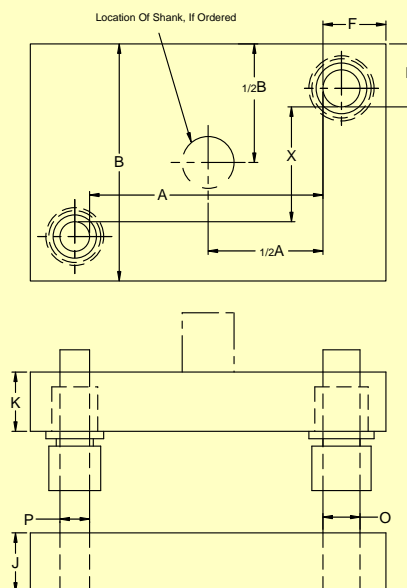
TO INSIDE OF POST	F	2¼				2½				2¾				3				3¾				4¼			
	K	1¼				1½				1¾				2				2½				3			
MINIMUM THICKNESS RECOMMENDED	J	1½				1¾				2				2¼				2¾				3¼			
	P	1				1¼				1½				1¾				2				2½			
POST DIAMETER	O	1¼				1½				1¾				2				2½				3			
		6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	40	45	50	55	60	65	70	80
DIE SPACE A →	B ↓	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	40	45	50	55	60	65	70	80
6	6	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue
6	8	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue
6	10	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue
6	12	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue
6	14	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue
6	16	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue
6	18	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue
6	20	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue
6	22	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue
6	24	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue
6	26	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue
6	28	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue
6	30	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue
6	32	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue
6	34	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue
6	36	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue
6	40	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue
6	45	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue
6	50	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue
6	55	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue
6	60	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue

NOTE: Die space sizes are grouped within shaded areas which indicate suggested guide post diameters.

Two Post Plain Bearing Die Sets



Center Post Series AS-34



Diagonal Post Series AS-35

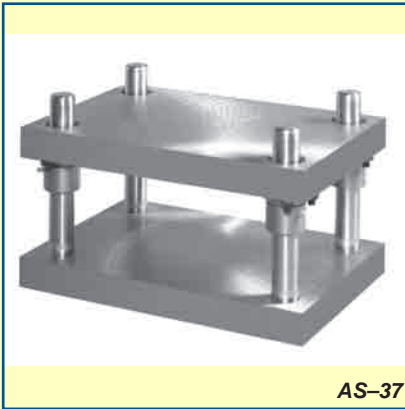
WHEN ORDERING, SPECIFY:

- Series AS-34 or AS-35.
- Dimensions A and B.
- Thickness of die holder J and punch holder K. Die sets are ground to ANSI standards unless specified.
- Type of bushing. Demountable steel shoulder bushings will be furnished unless otherwise specified. For other types of bushings, see our Pins & Bushings Catalog.
- Length L from bottom of die holder to top of guide post O. For stocked lengths of guide posts and types available, see our Pins & Bushings Catalog. Lengths not listed can be furnished at additional cost.
- Diameter of guide post O. When ordering guide posts, dimension F varies as follows:
- Size of shank, if ordered. Shank will be located in center of A and B dimensions, unless otherwise specified. These sets are regularly furnished without shanks. Inserted or welded steel shanks are available at additional cost in the following sizes:
 - ◆ 1" diameter x 2-1/8" long
 - ◆ 1-9/16" diameter x 2-1/8" long
 - ◆ 2" diameter x 2-7/8" long
 - ◆ 2-1/2" diameter x 2-7/8" long
 - ◆ 3" diameter x 2-7/8" long
- Clamping arrangement. F – B arrangement is normally furnished, as shown on page 12.
- How shipment should be made.

These die sets may not be returned for credit.

WHEN	P=1	1-1/4	1-1/2	1-3/4	2	2-1/2
	O=1-1/4	1-1/2	1-3/4	2	2-1/2	3
	F=2-1/4	2-1/2	2-3/4	3	3-3/4	4-1/4

Four Post Plain Bearing Die Sets



AS-37

Special Applications

STOCK SIZES

When dimension A does not exceed 24" and dimension B does not exceed 16", see our Catalog Die Set literature.

ALSO AVAILABLE IN:

- ◆ Aluminum (QC-10)
- ◆ Ball Bearing construction
(See our Ball Bearing Bushing Die Set catalog)

TORCH-CUT HOLES

Holes of any shape can be torch-cut to your needs. Send us your CAD file.

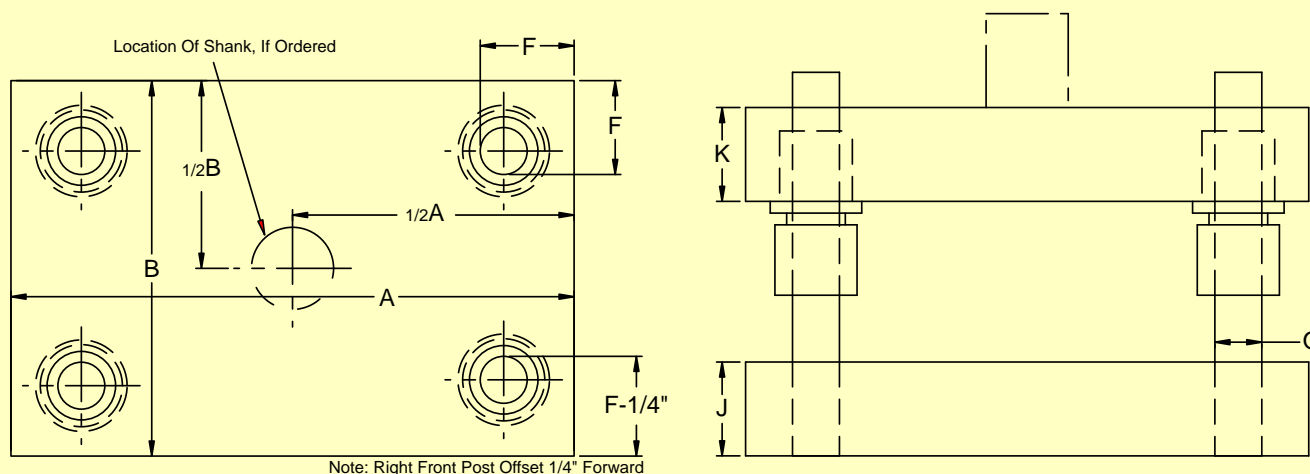
UNLIMITED SIZES

Sizes are not limited to any dimensions. Suggested minimum dimensions are shown below.

TO INSIDE OF POST	F	2¼	2¼	2½	2¾	3	3¾																							
MINIMUM THICKNESS RECOMMENDED	K	1¼	1¼	1½	1¾	2	2½																							
	J	1¼	1½	1¾	2	2¼	2¾																							
POST DIAMETER	O	1¼	1¼	1½	1¾	2	2½																							
DIE SPACE A →		6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	40	45	50	55	60	65	70	80	90	100			
B ↓	6	Light Blue	Light Blue	Light Blue	Light Blue																									
	8	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	
	10	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue
	12	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue
	14	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue
	16	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue
	18	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue
	20	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue
	22	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue
	24	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue
	26	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue
	28	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue
	30	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue
32	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	
34	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	
36	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	
40	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	
45	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	
50	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	
55	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	
60	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	

NOTE: Die space sizes are grouped within shaded areas which indicate suggested guide post diameters.

Four Post Plain Bearing Die Sets



Four Post Series AS-37

WHEN ORDERING, SPECIFY:

- Series AS-37.
- Dimensions A and B.
- Thickness of die holder J and punch holder K. Die sets are ground to ANSI standards unless specified.
- Type of bushing. See our Pins & Bushings Catalog.
- Length L from bottom of die holder to top of guide post O. For stocked lengths of guide posts and types available, see our Pins & Bushings Catalog. Lengths not listed can be furnished at additional cost.
- Diameter of guide post O. When ordering guide posts, dimension F varies as follows:
- Size of shank, if ordered. Shank will be located in center of A and B dimensions, unless otherwise specified. These sets are regularly furnished without shanks. Inserted or welded steel shanks are available at additional cost in the following sizes:
 - ◆ 1" diameter x 2-1/8" long
 - ◆ 1-9/16" diameter x 2-1/8" long
 - ◆ 2" diameter x 2-7/8" long
 - ◆ 2-1/2" diameter x 2-7/8" long
 - ◆ 3" diameter x 2-7/8" long
- Clamping arrangement. L – R arrangement is normally furnished, as shown on page 12.
- How shipment should be made.

WHEN	O=1	1-1/4	1-1/2	1-3/4	2	2-1/2	3
	F=2	2-1/4	2-1/2	2-3/4	3	3-3/4	4-1/4

These die sets may not be returned for credit.

Demountable Boss Die Sets

Special Applications

ALSO AVAILABLE IN:

- ◆ Aluminum (QC-10)
- ◆ Ball Bearing construction
(See our Ball Bearing Bushing Die Set catalog)

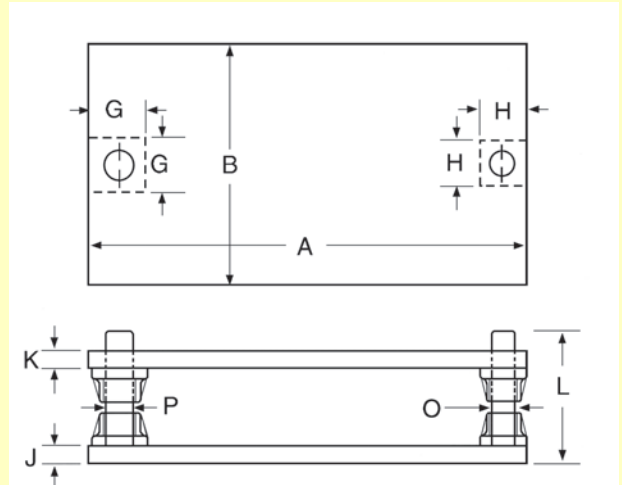
TORCH-CUT HOLES

Holes of any shape can be torch-cut to your needs. Send us your CAD file.

UNLIMITED SIZES

Sizes are not limited to any dimensions. Suggested minimum dimensions are shown below.

TO BE SPECIFIED	K	When combination #2 is used, it is recommended that die holder thickness be equal to or greater than the guide post diameter.											
	J												
BOSS BASE	G	6										7	
	H	5										6	
POST DIAMETER	P	2½										3	
	O	2										2½	
DIE SPACE A →		30	35	40	45	50	55	60	65	70	80	90	100
B ↓	6												
	8												
	10												
	12												
	14												
	16												
	18												
	20												
	22												
	24												
	26												
	28												
	30												
	32												
34													
36													
40													
45													
50													
55													
60													



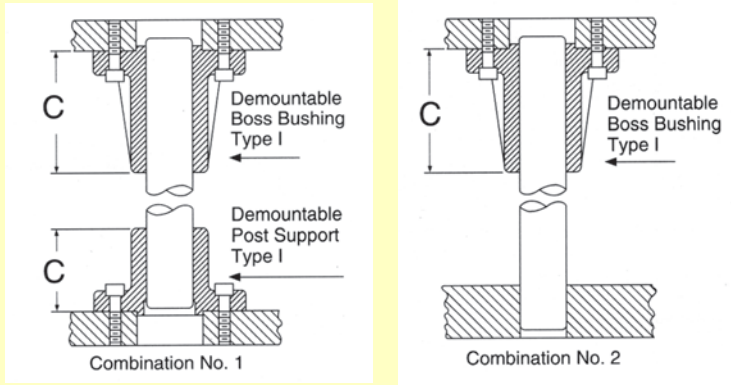
Four Post Series AS-39

WHEN ORDERING, SPECIFY:

1. Series AS-39 or AS-40.
2. Dimensions A and B.
3. Thickness of die holder J and punch holder K. Die sets are ground to ANSI standards unless specified.
4. Diameter of guide post O.
5. Length L from bottom of die holder to top of guide post O.

NOTE: Die space sizes are grouped within shaded areas which indicate suggested guide post diameters.

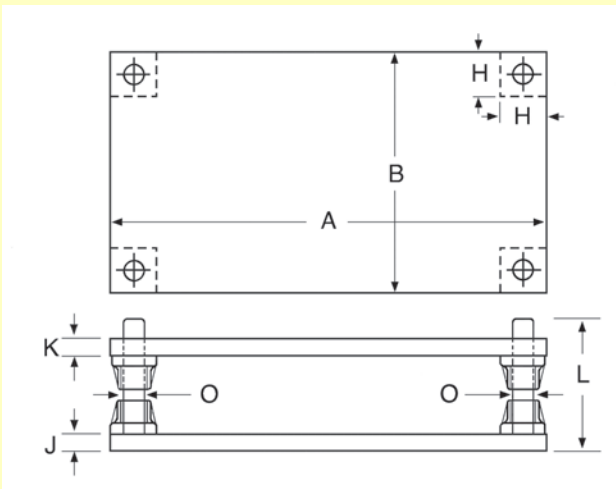
Demountable Boss All-Steel Die Sets



DEMOUNTABLE BOSS DIMENSIONS			
Guide Post Diameter	Length C	Catalog Numbers	
		Post Support	Bushing Boss
2	1-1/2	6-16-11	6-16-111
	3-1/2	6-16-12	6-16-121
	5-1/2	6-16-13	6-16-131
2-1/2	1-1/2	6-20-11	6-20-111
	3-1/2	6-20-12	6-20-121
	5-1/2	6-20-13	6-20-131
3	3-1/2	6-24-12	6-24-121
	5-1/2	6-24-13	6-24-131

UNLIMITED SIZES

Sizes are not limited to any dimensions. Suggested minimum dimensions are shown below.



Four Post Series AS-40

TO BE SPECIFIED	K	When combination #2 is used, it is recommended that die holder thickness be equal to or greater than the guide post diameter.											
	J												
BOSS BASE	H	5					6						
POST DIAMETER	O	2					2½						
DIE SPACE A →		30	35	40	45	50	55	60	65	70	80	90	100
B ↓	12												
	14												
	16												
	18												
	20												
	22												
	24												
	26												
	28												
	30												
	32												
	34												
36													
40													
45													
50													
55													
60													

WHEN ORDERING, SPECIFY:

- Boss combination No. 1 or No. 2. Combination No. 1 is well suited for heavy duty work where rigid support and ready access to the die are needed. Combination No. 2 is recommended for use when the shut-height of the press is limited.
- Length of demountable bosses and catalog numbers. See chart above.

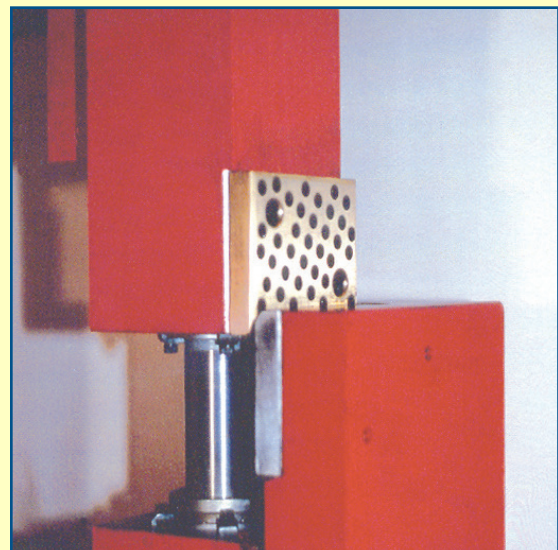
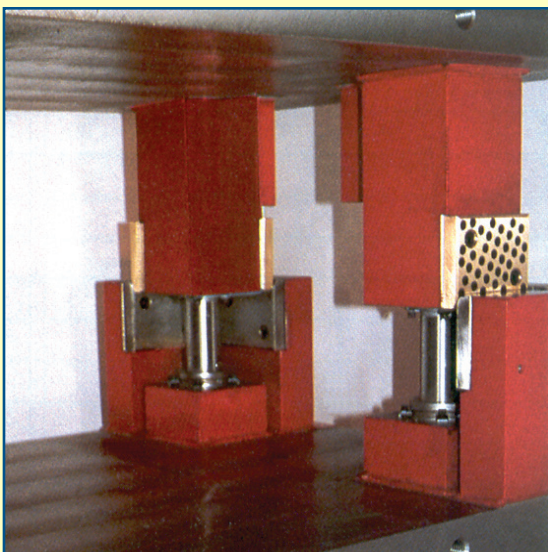
NOTE: Die space sizes are grouped within shaded areas which indicate suggested guide post diameters.

Heel Block Die Sets

Product Features

Heel Block or Wear Plate die sets provide greater rigidity and accuracy when producing large or heavy gauge parts. This type of die set is often preferred for applications which generate high internal die forces, such as blanking and forming of heavy gauge materials.

Our large scale equipment can manufacture these die sets to extremely close tolerances in virtually any configuration you require. Special torch cutting and grinding services are also available.



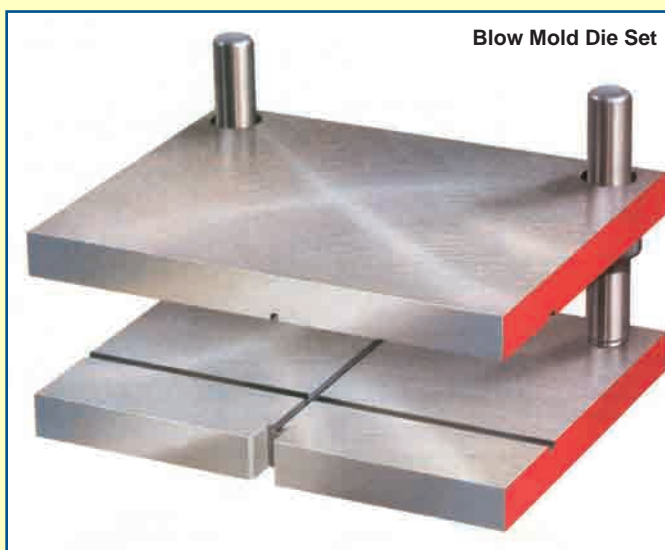
Platen and Blow Mold Die Sets

Product Features

Our nationwide network of manufacturing locations offers convenient, local service to meet your special die set and custom machining needs. These facilities have the in-house equipment, trained personnel and quality assurance procedures required to produce die sets in virtually any size, thickness or configuration.

These capabilities include the experienced manufacturing of Platen die sets for trimming, blanking or other specialized applications. Also included are Blow Mold die sets that meet the critical tolerances of injection molding.

Email your CAD files to us for a quick response on a price and delivery quotation.



Clamping Data

CLAMP DIMENSIONS FOR EXTRA LONG SHOULDER, STANDARD SHOULDER & SHORT SHOULDER DEMOUNTABLE BUSHINGS - PLAIN BEARING (Includes Bronze, Bronze-plated, Steel & Self-Lubricated Bushings)

Nom. Dia.	Clamp Part Number	Screw Part Number	Socket Head Cap Screw Description	Clamps & screws req'd per Bushing	T (in)	SIZE				LOCATION			
						A (in)	B (in)	C (in)	D (in)	L	M (in)	N (in)	K
3/4	6-95-1	9-0805-41	1/4-20x5/8 long	2	15/32	15/32	1/2	0.125	7/32	90°	25/32	1 1/64	45°
7/8	6-95-1	9-0805-41	1/4-20x5/8 long	2	15/32	15/32	1/2	0.125	7/32	90°	29/32	1 9/64	45°
1	6-90-1	9-0806-41	1/4-20x3/4 long	2	39/64	5/8	5/8	0.193	11/32	90°	1 1/16	1 3/8	45°
1 1/4	6-91-1	9-1006-41	5/16-18x3/4 long	3	11/16	25/32	5/8	0.193	3/8	120°	1 7/32	1 17/32	45°
1 1/2	6-91-1	9-1006-41	5/16-18x3/4 long	3	11/16	25/32	5/8	0.193	3/8	120°	1 3/8	1 11/16	45°
1 3/4	6-91-1	9-1006-41	5/16-18x3/4 long	4	11/16	25/32	5/8	0.193	3/8	35°	1 1/2	1 13/16	10°
2	6-91-1	9-1006-41	5/16-18x3/4 long	4	11/16	25/32	5/8	0.193	3/8	35°	1 45/64	2 1/64	10°
2 1/2	6-91-1	9-1006-41	5/16-18x3/4 long	4	11/16	25/32	5/8	0.193	3/8	40°	2 5/64	2 25/64	5°
3	6-91-1	9-1006-41	5/16-18x3/4 long	4	11/16	25/32	5/8	0.193	3/8	45°	2 5/16	2 5/8	0°
3 3/4	6-91-1	9-1006-41	5/16-18x3/4 long	4	11/16	25/32	5/8	0.193	3/8	45°	2 47/64	2 31/32	0°
4	6-91-1	9-1006-41	5/16-18x3/4 long	4	11/16	25/32	5/8	0.193	3/8	45°	3 11/64	3 13/32	0°

CLAMP DIMENSIONS FOR LOW PROFILE DEMOUNTABLE BUSHINGS - PLAIN BEARING

Nom. Dia.	Clamp Part Number	Screw Part Number	Socket Head Cap Screw Description	Clamps & screws req'd per Bushing	T (in)	SIZE				LOCATION			
						A (in)	B (in)	C (in)	D (in)	L	M (in)	N (in)	K
1	6-95-1	9-0805-41	1/4-20x5/8 long	3	39/64	15/32	1/2	0.125	7/32	120°	1 1/16	1 19/64	45°
1 1/4	6-95-1	9-0805-41	1/4-20x5/8 long	3	11/16	15/32	1/2	0.125	7/32	120°	1 3/16	1 27/64	45°
1 1/2	6-98-1	9-1004-41	5/16-18x1/2 long	3	11/16	23/32	23/32	0.193	29/64	120°	1 29/64	1 3/4	45°
1 3/4	6-98-1	9-1004-41	5/16-18x1/2 long	4	11/16	23/32	23/32	0.193	29/64	35°	1 39/64	1 29/32	10°
2	6-98-1	9-1004-41	5/16-18x1/2 long	4	11/16	23/32	23/32	0.193	29/64	35°	1 25/32	2 3/32	10°
2 1/2	6-98-1	9-1004-41	5/16-18x1/2 long	4	11/16	23/32	23/32	0.193	29/64	40°	2 9/64	2 29/64	5°

CLAMP DIMENSIONS FOR DEMOUNTABLE BUSHINGS - BALL BEARING

Nom. Dia.	Clamp Part Number	Screw Part Number	Socket Head Cap Screw Description	Clamps & screws req'd per Bushing	T (in)	SIZE				LOCATION			
						A (in)	B (in)	C (in)	D (in)	L	M (in)	N (in)	K
1	6-91-1	9-1006-41	5/16-18x3/4 long	3	11/16	25/32	5/8	0.193	3/8	120°	1 5/16	1 11/16	45°
1 1/4	6-91-1	9-1006-41	5/16-18x3/4 long	3	11/16	25/32	5/8	0.193	3/8	120°	1 7/16	1 13/16	45°
1 1/2	6-91-1	9-1006-41	5/16-18x3/4 long	4	11/16	25/32	5/8	0.193	3/8	120°	1 11/16	2 1/16	45°
1 3/4	6-91-1	9-1006-41	5/16-18x3/4 long	4	11/16	25/32	5/8	0.193	3/8	35°	1 13/16	2 3/16	10°
2	6-91-1	9-1006-41	5/16-18x3/4 long	4	11/16	25/32	5/8	0.193	3/8	35°	2 1/16	2 7/16	10°
2 1/2	6-91-1	9-1006-41	5/16-18x3/4 long	4	11/16	25/32	5/8	0.193	3/8	40°	2 5/16	2 11/16	5°
3	6-91-1	9-1006-41	5/16-18x3/4 long	4	11/16	25/32	5/8	0.193	3/8	45°	2 5/8	3	0°

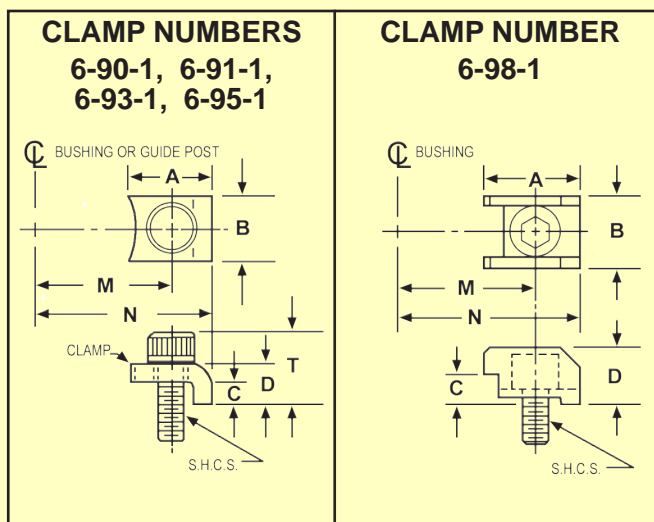
Clamping Data

CLAMP ARRANGEMENT SELECTION DATA*		
L-R FEED	F-B FEED	ROUND DIES

NOTES:

* If not specified, clamp arrangement **L-R** will be furnished. Clamp arrangement **F-B** is furnished on Center Post Sets.

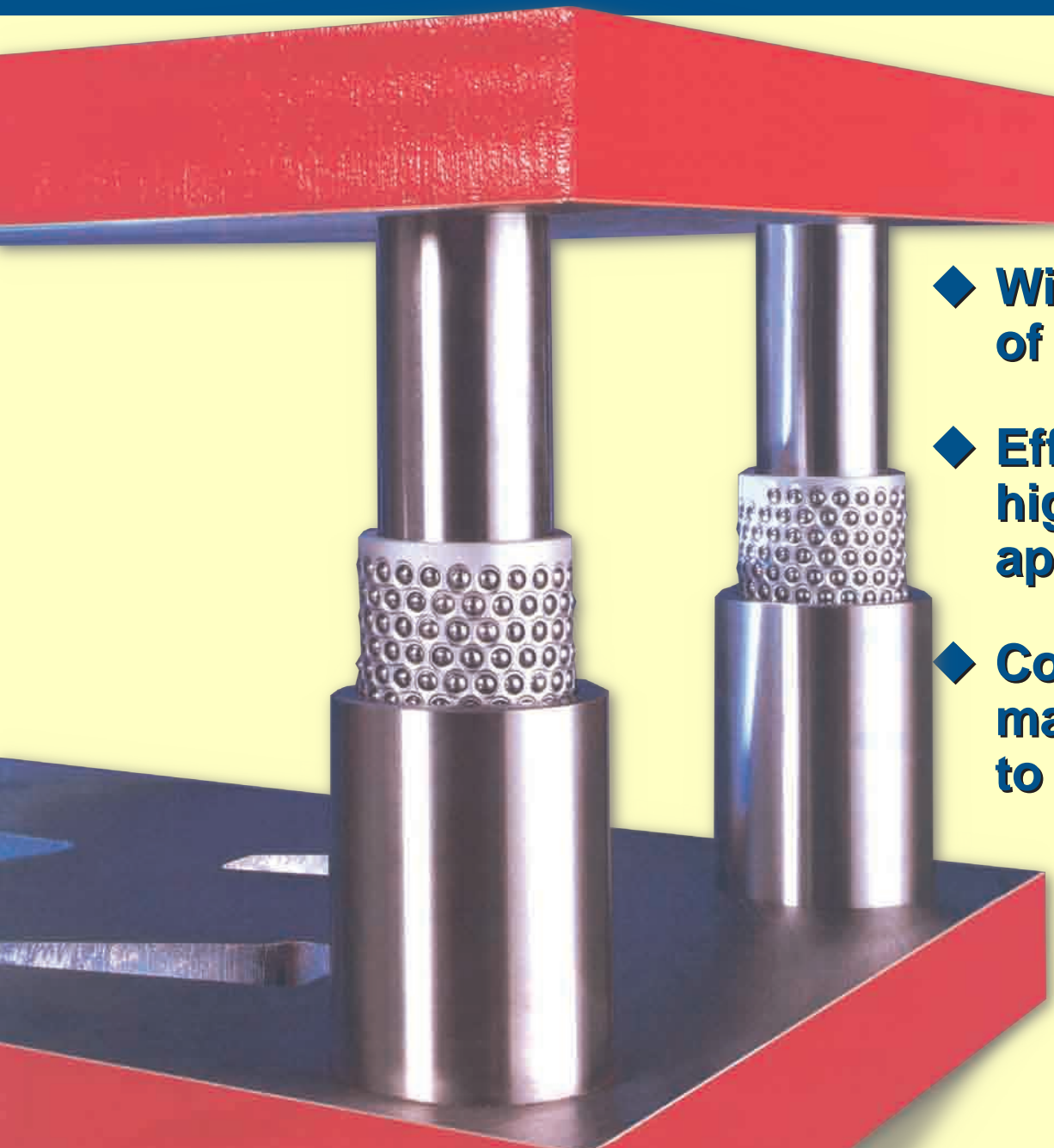
① Use 4 clamps @ 30° on offset pin and bushing only – 1-1/4" and 1-1/2" diameters.



THICKNESS OF PLATE CARRIED IN STOCK FOR IMMEDIATE FABRICATION												
1	1-1/8	1-1/4	1-3/8	1-1/2	1-5/8	1-3/4	1-7/8	2	2-1/4	2-1/2	2-3/4	3
3-1/4	3-1/2	4	4-1/2	5	5-1/2	6	6-1/2	7	7-1/2	8	8-1/2	-



BALL BEARING DIE SETS



- ◆ **Wide selection of components**
- ◆ **Effective in high speed applications**
- ◆ **Complex machining to your print**

BALL BEARING DIE SETS

Service We Deliver and Quality You Can Depend On

We are a leading manufacturer of die sets and die component products supplied globally to the parts forming industry. Backed by years of tool and die experience, quality and innovation are some of the reasons why our name is respected throughout the world. We have taken the lead role in creating and bringing new products to customers and helping them find solutions that improve their operations. Based on the capabilities we offer, we can help you to meet the demands of quick deliveries, technical support, quality products and competitive prices. We will assist you in any way to make your product a better and more profitable one.

We understand the demanding schedules of die builders and production personnel and have developed efficient manufacturing processes to shorten product lead times as well as put inventory on our shelves so you can have it in your facility when you need it. Put our network to work for you. We've got the service you've been looking for.

Included in our full line offering are both inch and metric size die sets and die components that are designed to numerous die standards including ISO, NAAMS, JIS and many large automotive and appliance manufacturers' standards. The complete product offering includes:

- Ball bearing and friction style die sets including custom and catalog sets
- Machined plate
- Guide posts & bushings
- ISO and JIS Die springs
- In-die tapping units for both mechanical and hydraulic presses
- Formathane® Urethane springs, strippers, sheets, bars, rods and die cover film
- Diemakers' supplies such as pry bars, dowel pins, hoist rings, clamps and fasteners
- Standard and self-lubricating wear product including wear plate, wear strips, gibs, keeper plates and guide blocks
- Cam units, including Box and Bump styles
- Accu-Bend™ Rotary Benders
- Standard and Ball lock punches and retainers
- Air presses
- Pad retainers

Ball Bearing Die Sets

TABLE OF CONTENTS

PAGE NUMBER

General Information	1
Back Two Post All-Steel Ball Bearing Die Sets (AS-33-BB Series)	2
Center Two Post All-Steel Ball Bearing Die Sets (AS-34-BB Series)	3
Diagonal Two Post All-Steel Ball Bearing Die Sets (AS-35-BB Series)	4
Four Post All-Steel Ball Bearing Die Sets (AS-37-BB Series)	5
Ordering Information	6
Ball Bearing Components Technical Information	7
Aluminum Die Sets	8

Product Features

- ◆ Available with straight or demountable style guide posts.
- ◆ Available with straight sleeve or demountable bushings.
- ◆ Shanks furnished, if required, at additional cost.
- ◆ Meets ANSI B 5.25 Standards.
- ◆ Special machining to your print.
- ◆ 1" to 10" plate in stock for immediate delivery.



Ball Bearing Die Sets

With competitive pressures on the rise, the longer life and easier assembly of Ball Bearing Die Sets – compared to plain bearing sets – just might be the edge you’re looking for.

Its fast assembly slashes costs in the building and maintaining of the die. And our uncompromised material quality is legendary for long-lasting, profitable value.

Total Quality Management (TQM)

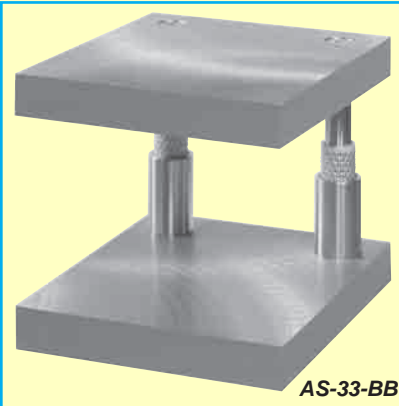
Materials for our Ball Bearing Bushing Die Sets and components are subjected 100% to inbound material inspections. Statistical process control (SPC) helps assure a high degree of precision throughout the manufacturing process. And, of course, the finished product is verified before shipment to our customers.

But, quality assurance requires even a greater commitment than just these benchmark tests. Our Total Quality Management enlists every department, every workstation, every facet of the company’s operation into a comprehensive quality effort.

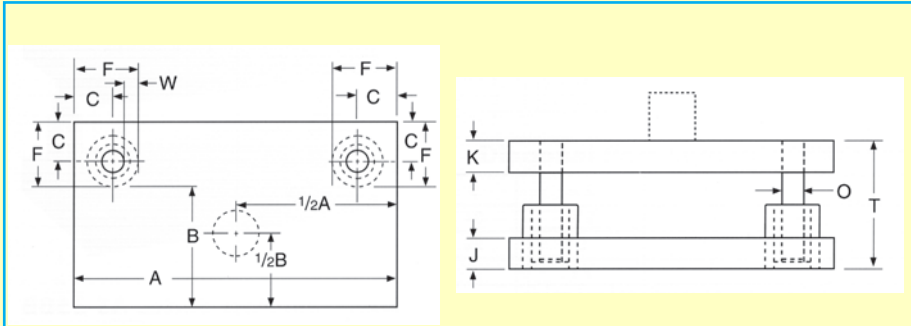
From the sales and customer service representatives who assist you with your order, to the shipping department that expedites your delivery, quality is a team effort and it’s everyone’s top priority.

Back Two Post All-Steel Die Sets

AS-33-BB Series



AS-33-BB



Refer to page 6 for dimensional callouts and ordering information.

Suggested minimal dimensions are shown below:

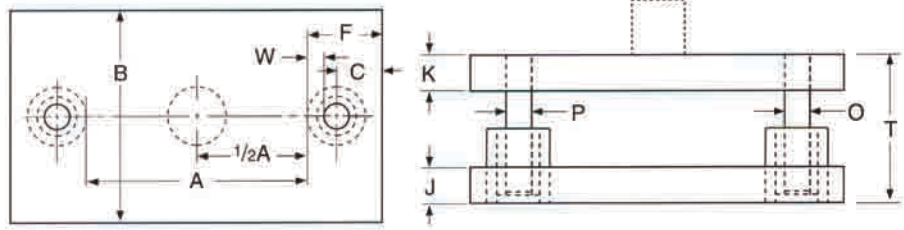
MINIMUM THICKNESS RECOMMENDED	K	1¼	1¼	1½				1¾				2	2½	3														
	J	1¼	1½	1¾				2				2¼	2¾	3¼														
POST DIAMETER	O	1	1¼	1½				1¾				2	2½	3														
DIE SPACE A →		8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	40	45	50	55	60	65	70	80	90	100		
B ↓	6	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	
	8	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue
	10	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue
	12	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue
	14	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue
	16	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue
	18	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue
	20	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue
	22	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue
	24	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue
	26	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue
	28	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue
	30	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue
	32	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue
	34	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue
	36	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue
40	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	

NOTE: Die space sizes are grouped within shaded areas which indicate suggested guide post diameters.

Center Two Post All-Steel Die Sets AS-34-BB Series



AS-34-BB



Refer to page 6 for dimensional callouts and ordering information.

Suggested minimal dimensions are shown below:

MINIMUM THICKNESS RECOMMENDED	K	1¼	1¼	1½				1¾				2	2½	3												
	J	1¼	1½	1¾				2				2¼	2¾	3¼												
POST DIAMETER	O	1	1¼	1½				1¾				2	2½	3												
DIE SPACE A		8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	40	45	50	55	60	65	70	80	90	100
B	6	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded
	8	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded
	10	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded
	12	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded
	14	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded
	16	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded
	18	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded
	20	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded
	22	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded
	24	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded
	26	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded
	28	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded
30	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	
32	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	
34	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	
36	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	
40	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	

NOTE: Die space sizes are grouped within shaded areas which indicate suggested guide post diameters.

Ordering Information

Nominal Guide Post Diameter (in)	C	Sleeve Bushing		Shoulder Bushing	
		F	W	F	W
1	1-3/4	2-11/16	7/16	2-7/8	9/16
1-1/4	1-7/8	2-15/16	7/16	3-1/16	9/16
1-1/2	2-1/8	3-3/8	1/2	3-9/16	11/16
1-3/4	2-1/4	3-5/8	1/2	3-13/16	11/16
2	2-1/2	4-1/8	5/8	4-5/16	13/16
2-1/2	2-7/8	4-3/4	5/8	5	13/16
3	3-1/4	5-3/8	5/8	5-5/8	7/8

NOTE: Diameter of larger post determines C and F dimensions for both posts.

Series	X	Y
AS-35BB	B minus 2F	—
AS-37BB	B minus 2F	A minus 2F

WHEN ORDERING, SPECIFY:

- Series number (i.e., AS-35BB).
- Dimensions A and B.
- Thickness of die holder J and punch holder K. (K thickness should be at least equal to guide post diameter O. For sleeve bushings, J thickness should be at least 1/4" larger than O.)
- Type of guide post – straight or demountable. Diameter of guide post O, if other than listed. (If larger or smaller guide post than listed is ordered, C and F dimensions will vary accordingly.)
- Type of bushing – demountable or straight sleeve.
- Demountable bushing clamp arrangement – state A, B or C (see page 7). If not specified, arrangement A will be furnished. Arrangement B is used for center post sets.
- Minimum shutheight by specifying T from bottom surface of die holder to top surface of punch holder.
- Stroke or ram movement of press.
- Operating condition (**Type I** – Preloaded, **Type II** – Relieving or **Type III** – Disengaging). Refer to our Pin & Bushing Catalog for detailed specifications.
- Size of shank, if required. These sets are regularly furnished without shanks. Inserted or welded steel shanks are available at additional cost.
 - ◆ 1-1/2" diameter x 2-1/8" long
 - ◆ 1-9/16" diameter x 2-1/8" long
 - ◆ 2" diameter x 2-7/8" long
 - ◆ 2-1/2" diameter x 2-7/8" long
 - ◆ 3" diameter x 2-7/8" long
- Clamping or lifting holes. Holes can be furnished to your specifications at additional costs.
- How shipment should be made.

Reverse Sets – Sets with B greater than A can be furnished if required for special feeding.

Special Machining – Sets can be provided with any special machining required. Send print.

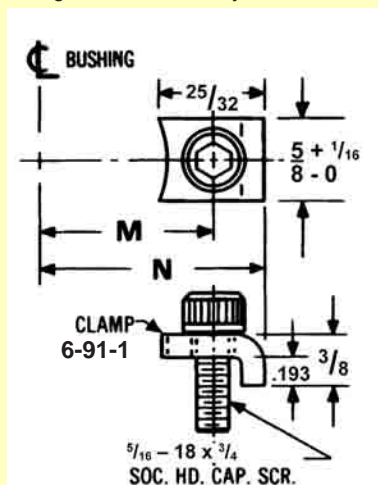
Torch-Cut Holes – Holes of any shape can be torch-cut to your needs. Send template or print.

These die sets may not be returned for credit.

Ball Bearing Components Technical Information

DEMOUNTABLE SHOULDER BUSHING CLAMP ARRANGEMENT SELECTION DATA			
NOM. POST DIA.	A (L-R FEED)	B (F-B FEED) (CENTER POST SETS)	C (ROUND DIES)
1 & 1 1/4			
1 1/2 & 1 3/4			
2			
2 1/2 & 3			

NOTE: If not specified, clamp arrangement A will be furnished. Clamp arrangement B is furnished on Center Post Sets. AS-37BB sets with 1" and 1-1/4" diameter demountable bushings are furnished with four clamps on right front corner only.



BUSHING CLAMP DATA

Nominal Post Diameter (in)	M	N	Per Bushing
1	1-5/16	1-11/16	3
1-1/4	1-7/16	1-13/16	
1-1/2	1-11/16	2-1/16	
1-3/4	1-13/16	2-3/16	4
2	2-1/16	2-7/16	
2-1/2	2-5/16	2-11/16	
3	2-5/8	3	

POST CLAMP DATA

Nominal Post Diameter (in)	M	N	Per Bushing
1	13/16	1-1/8	3
1-1/4	63/64	1-25/64	
1-1/2	1-1/8	1-17/32	
1-3/4	1-19/64	1-45/64	4
2	1-27/64	1-53/64	
2-1/2	1-43/64	2-5/64	
3	1-59/64	2-21/64	

BORING SPECIFICATIONS FOR BALL BEARING GUIDE POSTS AND BUSHINGS

Post Diameter A (in)	Bore Sizes (in)			
	Punch Holder for Posts		Die Shoe for Demountable Bushings	
	Minimum	Maximum	Minimum	Maximum
1	0.9980	0.9988	1.8748	1.8755
1-1/4	1.2480	1.2488	2.1248	2.1255
1-1/2	1.4975	1.4983	2.4998	2.5005
1-3/4	1.7475	1.7483	2.7498	2.7505
2	1.9975	1.9983	3.2498	3.2505
2-1/2	2.4970	2.4978	3.7498	3.7505
3	2.9970	2.9978	4.2498	4.2505

Aluminum Die Sets

AIRCRAFT QUALITY ALUMINUM, MADE IN THE U.S.A.

Any die set offered in steel can also be manufactured from aluminum. For some applications the advantages of light weight aluminum are worth looking into. For example, aluminum die sets weigh only about one third as much as their steel counterparts. That makes them much easier to handle, transport and store. Some feel that less weight in the die can reduce stress and wear on presses. Others report that the reduced weight of aluminum die sets can speed changeovers. For a variety of reasons, there is growing interest in aluminum.

MACHINED TO YOUR SPECIFICATIONS IN ANY SIZE OR STYLE

Aluminum is much easier to machine than steel and even intricate machining can be achieved without special tools. Aluminum die sets can be ground and EDM'd. Also drilled, planed, milled, reamed, and tapped. There's really no limitation to the machining which can be performed.

Today's aluminum is surprisingly strong, too. Tests show that aircraft aluminum outperforms 1020 hot rolled steel in both thermal conductivity and strength characteristics, as illustrated in the chart below.

VARIETY OF MATERIAL AND THICKNESSES AVAILABLE

Our die sets are usually made from QC-10™, but they are also available in 6061 or 7075 material in a variety of configurations. Plate thicknesses are available in 1, 1½, 2, 2½, 3, 3½, 3⅝, 4, 4⅝, 5, 5½, and 6 inches.

The combination of performance and value offered by steel is mighty tough to beat and there are certainly many applications where aluminum would not be the best choice. Because of the increased material expense, even with its easier machinability, aluminum die sets can be considerably more expensive than steel. And the greater malleability of aluminum could be a concern for some applications. Still, the overall benefits are worth looking into.

COMPARABLE TECHNICAL DATA

Properties	1020 H R Steel	4140 Alloy Steel	QC-10™ Aluminum	6061T651 Aluminum	7075T651 Aluminum
Tensile Strength	64	95	85	46	75
Yield Strength	50	60	77	40	65
Density	.283	.282	.103	.098	.101
Elasticity	30 x 10 ⁶	30 x 10 ⁶	10.4 x 10 ⁶	9.9 x 10 ⁶	10.3 x 10 ⁶
Brinnell	135	197	165–170	90–95	140–150
Coefficient of Expansion	6.3 x 10 ⁻⁶	6.21 x 10 ⁻⁶	13.7 x 10 ⁻⁶	13.1 x 10 ⁻⁶	13.1 x 10 ⁻⁶
Thermal Conductivity	20	24	92	95	75
Weldability	Good	Moderate	Moderate	Best	Better





Since opening in 1980, **H&O DIE SUPPLY** has been a leading supplier of die sets and steel plate products. We are proud to announce that our die sets will now come with your choice of **DANLY, LAMINA or LEMPCO** brand plain and ball bearing components. We have over 300 standard two & four post, plain & ball bearing , **STOCK DIE SETS** that are ready to ship. Short lead time **EXPRESS DIE SETS** are also available where we use the various sizes & thicknesses of plate from our inventory and bore to any configuration you need and then assembled with your choice of components. Custom die sets, plates & parallels can be manufactured to your exact specifications as well.