A COMPLETE PRESS BRAKE DIE SERVICE

HOW TO ORDER:

General Purpose Dies:
Specify the punch and female die by catalog numbers, gauge to be formed, die openings and exact length required.

Special Design Dies:
Submit detail blueprint or sketch, give model capacity and make of press to be used and probable production.

Power Brake Die Steel:
Power brake dies are made of prehardened die steel having an excellent combination of strength, wear-resistance and toughness, heat-treated to a mean 265 brinell.

Reconditioning Service:
Reworking or resurfacing your existing dies is an important phase of our operation, a fast factory service is available at a nominal cost.

Scale:
Diagrams shown in catalog are drawn to ½" scale.

Fine Polished Finishes:
Extremely fine polished finishes can be supplied at a small additional cost.

Special Try-Out Service:
All special application dies are tested in-house. It is advisable that the customer furnish, for try-out, a sample of the actual production material, in order to avoid any variations in performance due to inconsistency of materials.

Safety Tongue:
Dimensions are ½" wide by ¾" high, safety tongue is preferable if punch is to be used in sections, where weight of punch is great, or where stripping pressure would create downward pull.

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SAFETY WARNING

We do all we can to supply dies that will produce material to your specification. Since we have no control over how the dies are actually put to use, it must be understood that it is the user who has the responsibility of making certain that a proper application with due regard to safety in operation is followed. Safety and industrial Standards must be considered to insure that point of operation protection is effective.

Our dies are never intended to be used in equipment without a means provided for preventing hands or other parts of the body from entering or remaining in the Die Space while equipment is in motion.

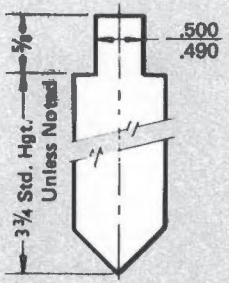
To prevent injury:

1. Insist on the die-setter being fully familiar with the press or machine manual.
2. Require dies to be set only by a qualified die-setter who is Safety conscious.
3. Provide all point of operation guards or devices necessary — the essence of this being the avoidance of exposing any part of the operator's body to the closing of the machine or press.
4. Provide hand tools to insert material, to hold or remove parts if necessary, and to keep hands at a safe distance from the point of operation.
5. Insist on Safety practices and procedures and enforce them day in and day out.
6. To ascertain proper set up, follow instructions referred to in the manual for the machine in which dies are being installed and operated.
7. Be certain that operators are trained in Safety procedures, and arrange for periodic inspection to be sure operator is following said procedure.
8. Safety Standard approved devices, such as Pull Backs, Gates, Fences and Controls should be made available for all press equipment. Two-button operation may also be necessary in some instances.

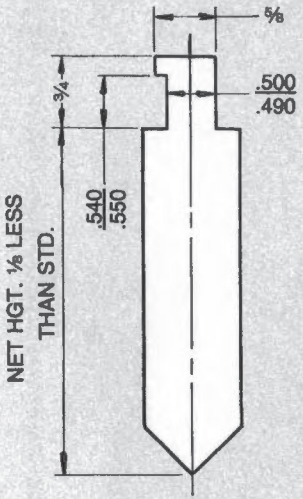
THINK SAFETY — ALWAYS

BOTTOMING PUNCHES & DIES
90° ANGLES

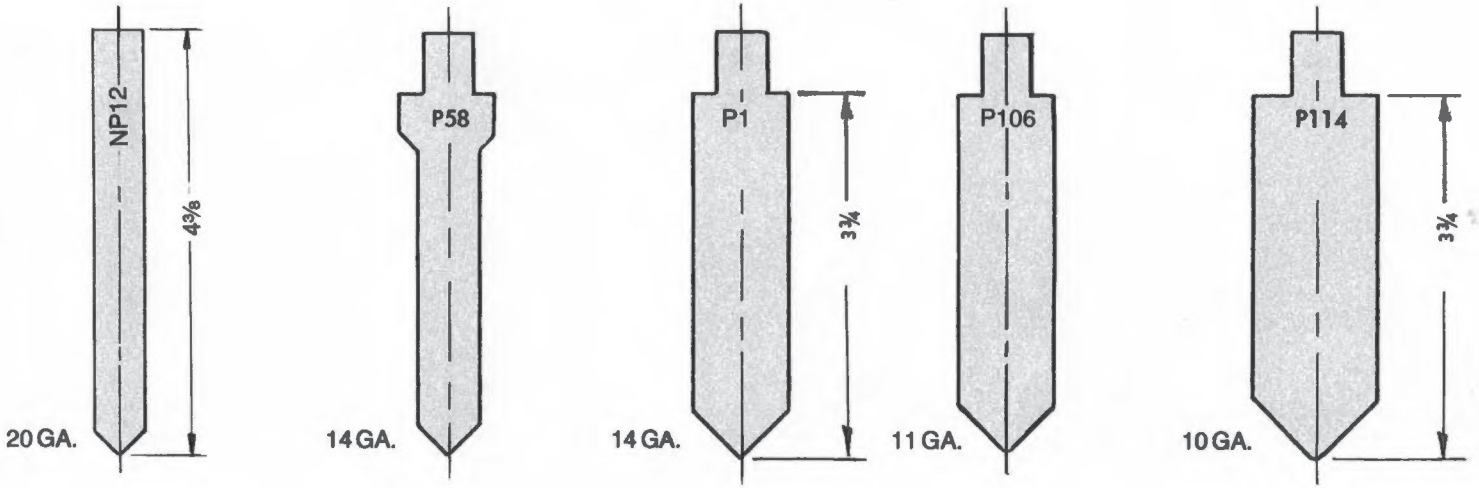
STANDARD TONGUE

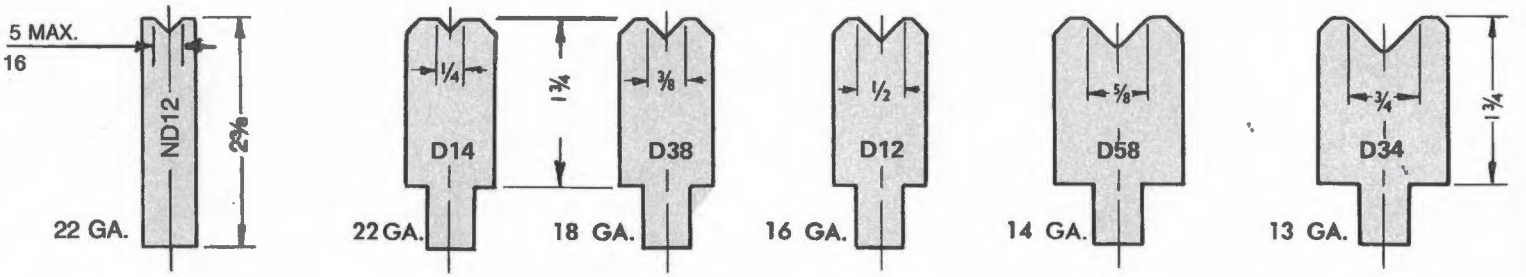


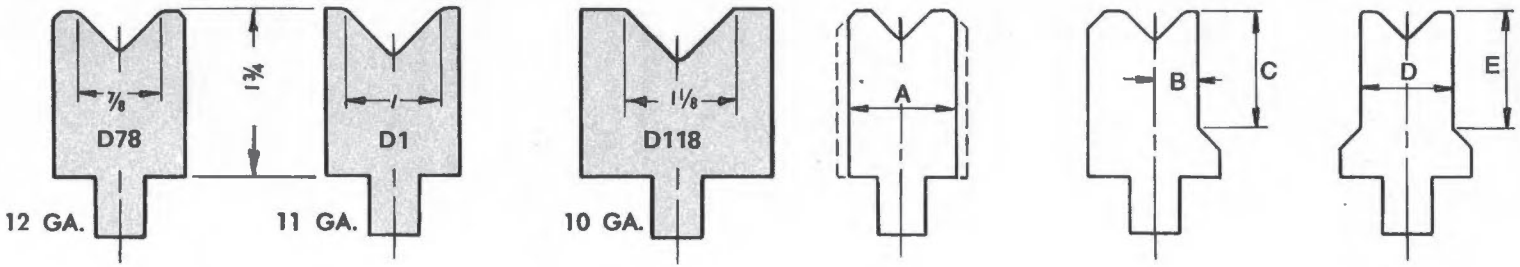
SAFETY TONGUE



90° PUNCHES AND DIES ARE THE MOST COMMONLY USED IN THE INDUSTRY FOR BOTTOM FORMING 90° BENDS IN LIGHT SHEET METAL. AIRFORMING GREATER THAN 90° BENDS IS ALSO PRACTICAL.
THEY ARE EASILY MODIFIED IN MANY WAYS TO MEET SPECIAL REQUIREMENTS, I.E., LARGER OR SMALLER RADII, SPECIAL ANGLES, CLEARING, ETC. DELIVERY TIME AND COST IS KEPT TO A MINIMUM BY USING THE ECONOMICALLY PRODUCED STANDARD TYPE UNITS AS THE BASIS FOR SPECIAL PUNCHES AND DIES.

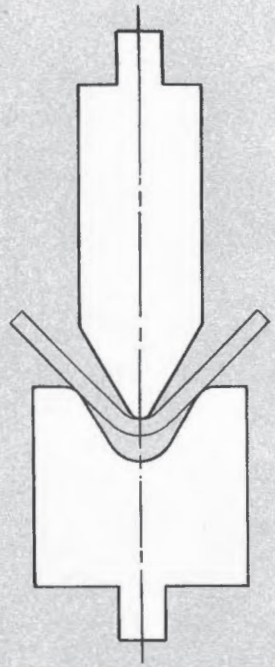




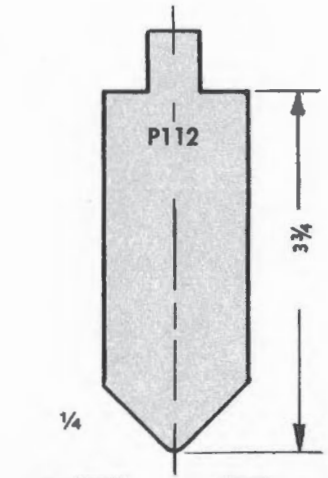


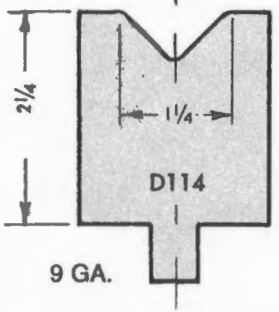
AIR FORMING PUNCHES AND DIES
85° ANGLES

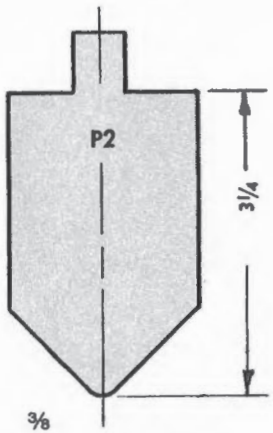
85 DEGREE PUNCHES AND DIES ARE USED TO PRODUCE 90° BENDS IN HEAVY GAUGE OR PLATE. MOST FORMING IN THIS CATEGORY IS OF THE AIR FORM TYPE TO KEEP MACHINE CAPACITY REQUIREMENT AT A MINIMUM AND PREVENT MATERIAL FRACTURE.

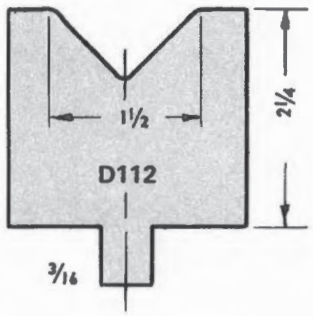


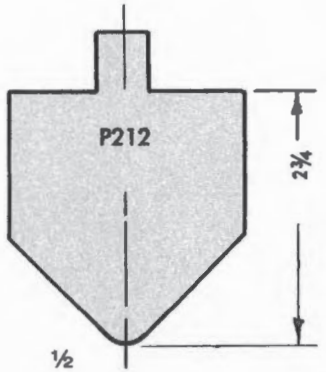
A TYPICAL SET-UP FOR AIR BENDING. THE DESIRED ANGLE OF BEND IS OBTAINED BY THE DEPTH THAT THE PUNCH ENTERS THE DIE OPENING. IN AIR BENDING, THE INSIDE RADIUS FORMED IS APPROXIMATELY 5/32 OF THE DIE OPENING, REGARDLESS OF THE TYPE OR THICKNESS OF THE METAL. IT IS THE USUAL PRACTICE IN AIR BENDING TO HAVE THE DIE OPENING EIGHT TIMES THE MATERIAL THICKNESS IN INCHES UP TO ½ INCH. THIS KEEPS THE RADIUS APPROXIMATELY EQUAL TO METAL THICKNESS. FOR PLATES HEAVIER THAN ½ INCH AND SOME HIGH-TENSILE MATERIALS. THE DIE OPENING SHOULD BE AT LEAST TEN TIMES METAL THICKNESS TO INCREASE THE RADIUS AND REDUCE THE POSSIBILITY OF FRACTURE AT THE BEND.

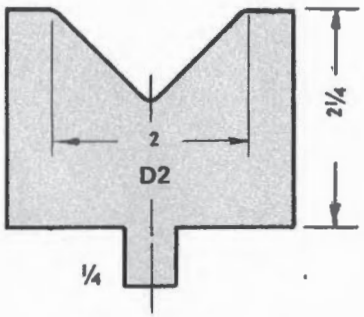


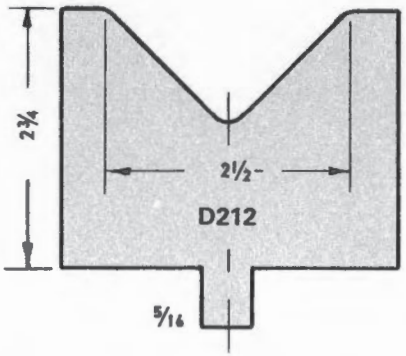


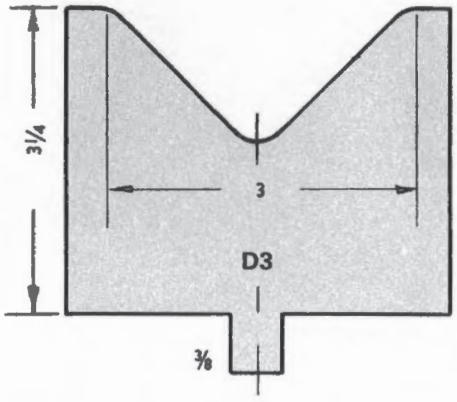


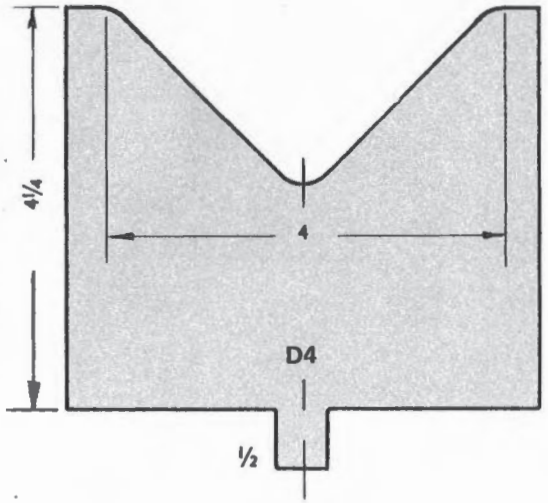




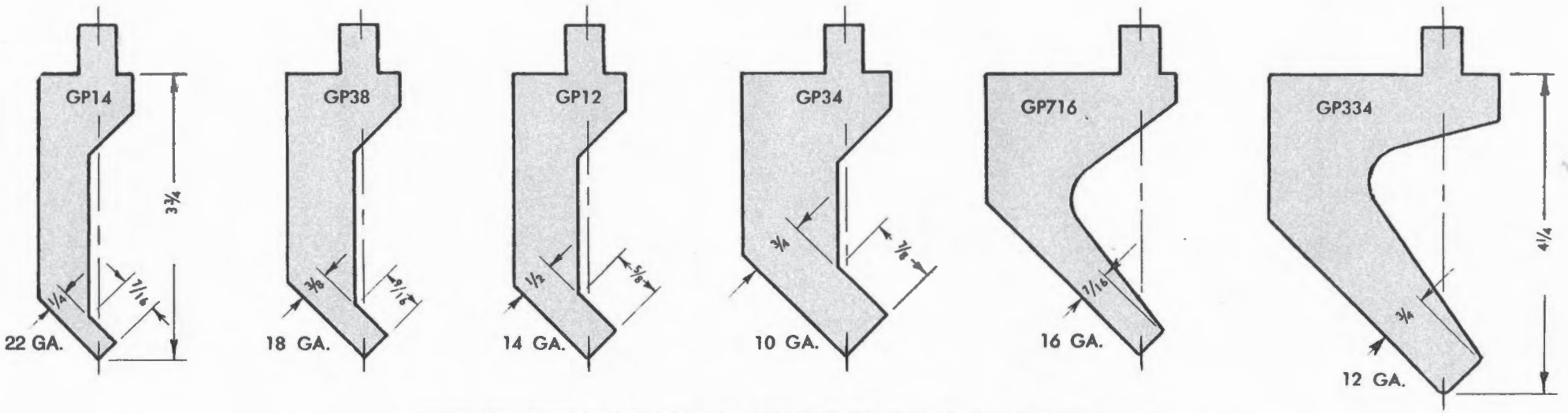






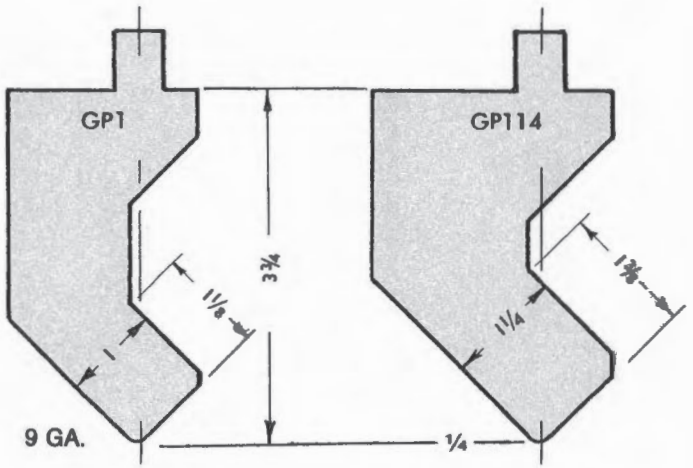


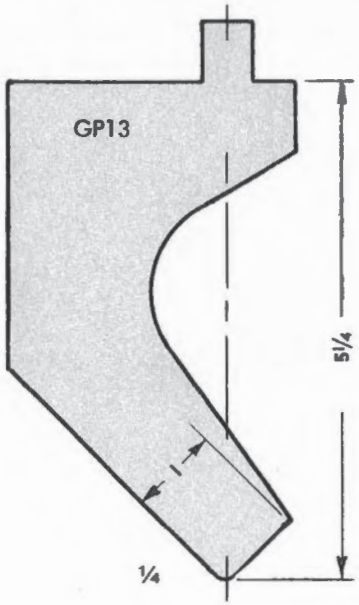
BOTTOMING GOOSENECK PUNCHES
90° ANGLES



GOOSENECK PUNCHES ARE USED TO FORM RIGHT ANGLE BENDS, CHANNEL FORMING IN TWO STROKES OR SPECIAL SHAPES WHERE 90° PUNCHES WOULD INTERFERE.

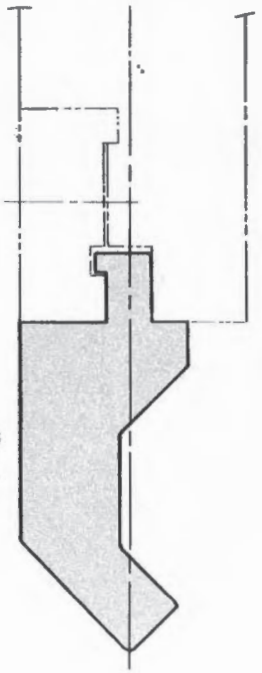
AIRFORMING GOOSENECK PUNCHES
85° ANGLES



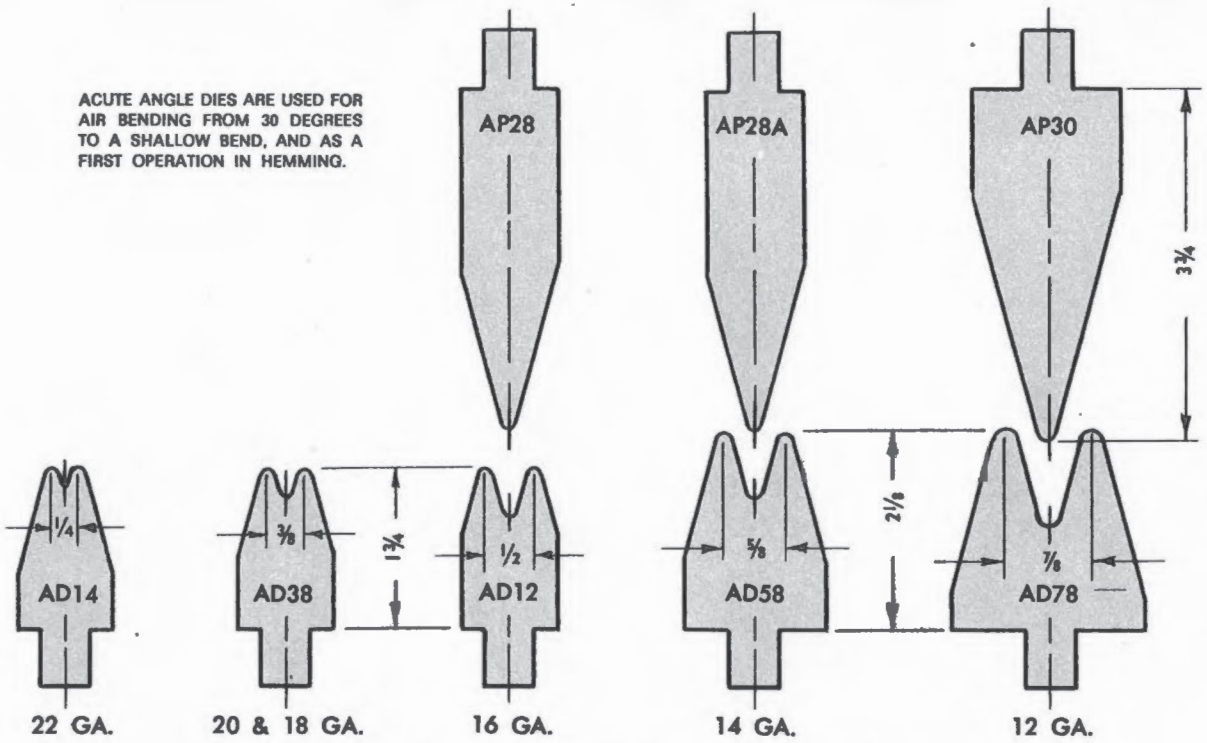


TO ALLOW A GREATER RETURN FLANGE, GOOSENECK PUNCHES GP716, GP334 AND GP13 ARE CUT BACK BEYOND CENTER LINE. THIS CUT BACK REDUCES PUNCH CAPACITY. PUNCH GP13 REQUIRES 12 INCH DIE SPACE.

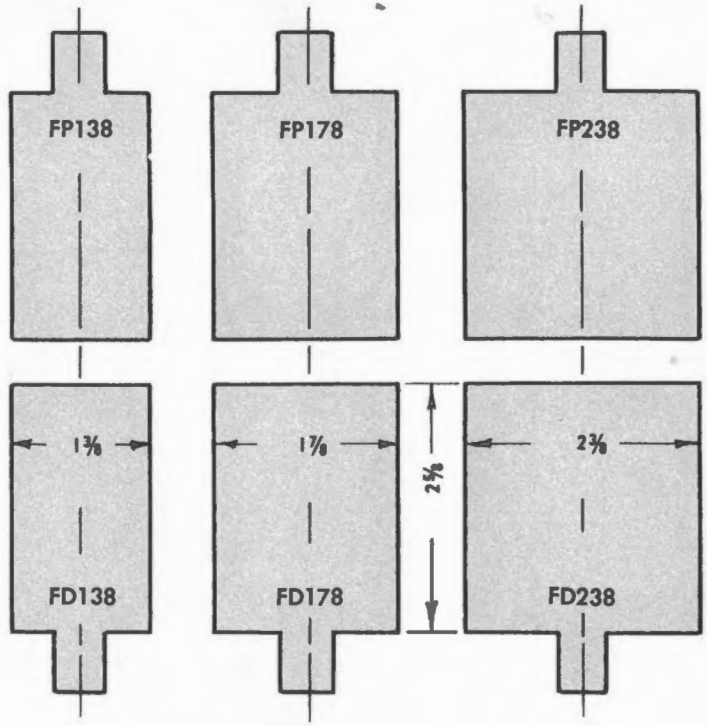
WHEN A HOOK TANG IS REQUIRED, SPECIFY DIRECTION SAFETY LIP IS TO FACE.



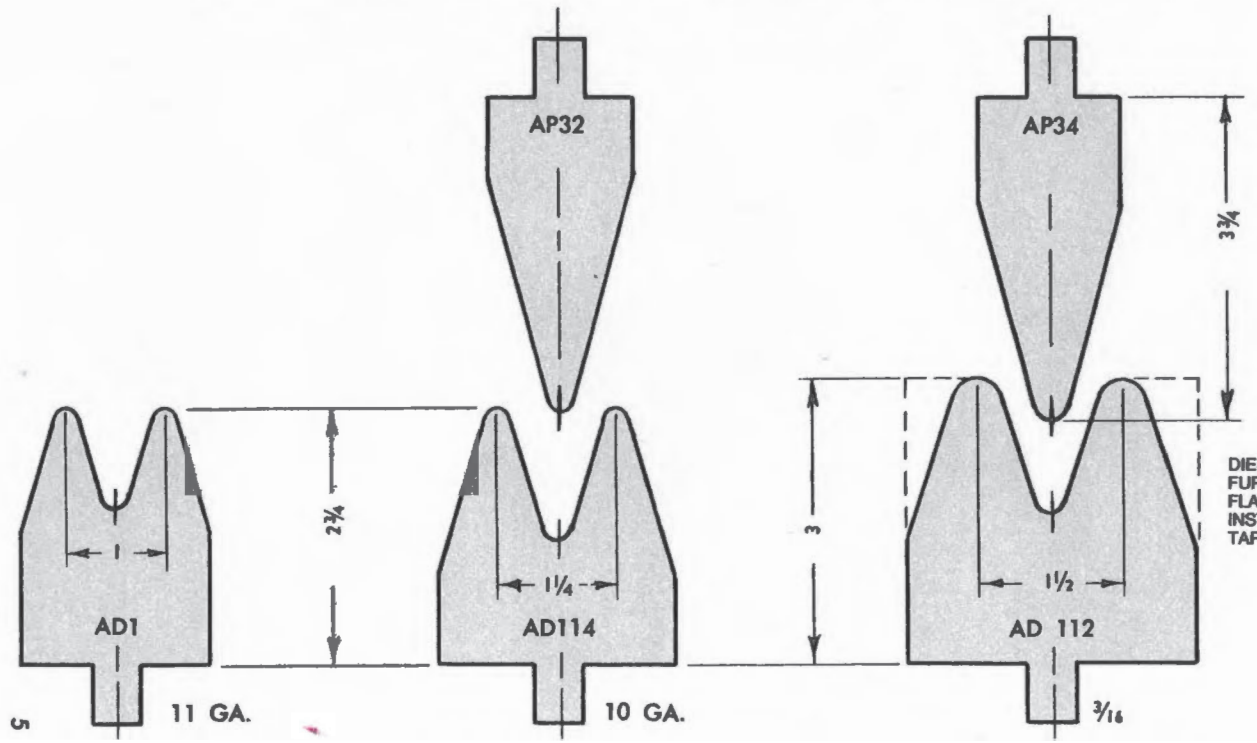
ACUTE ANGLE DIES ARE USED FOR AIR BENDING FROM 30 DEGREES TO A SHALLOW BEND, AND AS A FIRST OPERATION IN HEMMING.



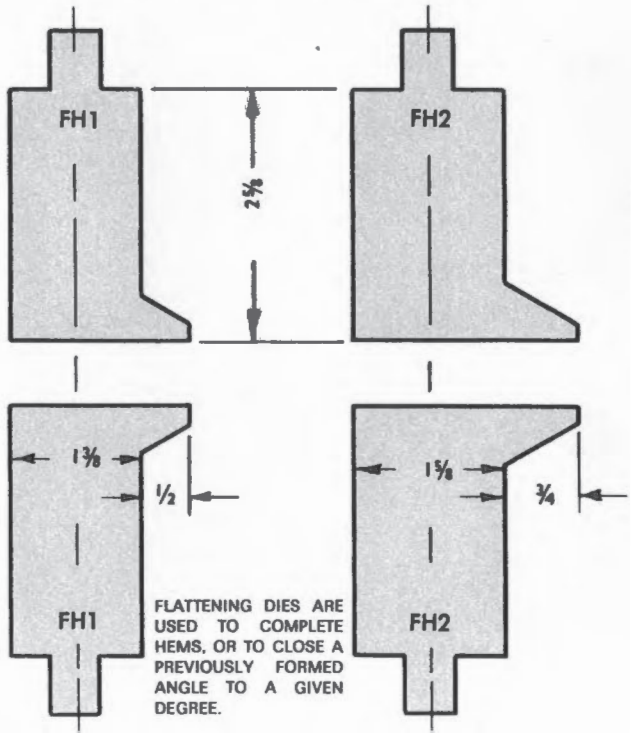
ACUTE ANGLE FORMING PUNCHES AND DIES



FLATTENING DIES

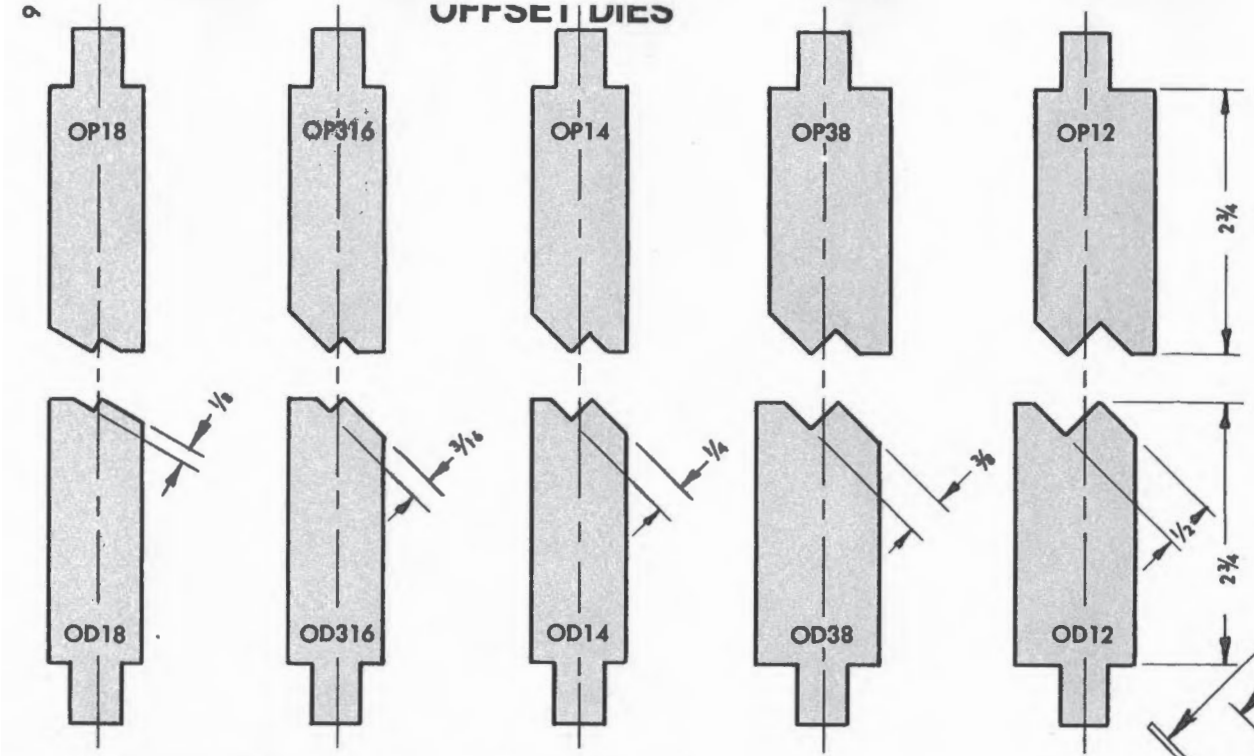


DIES CAN BE FURNISHED WITH FLAT TOPS INSTEAD OF TAPERED SIDES.

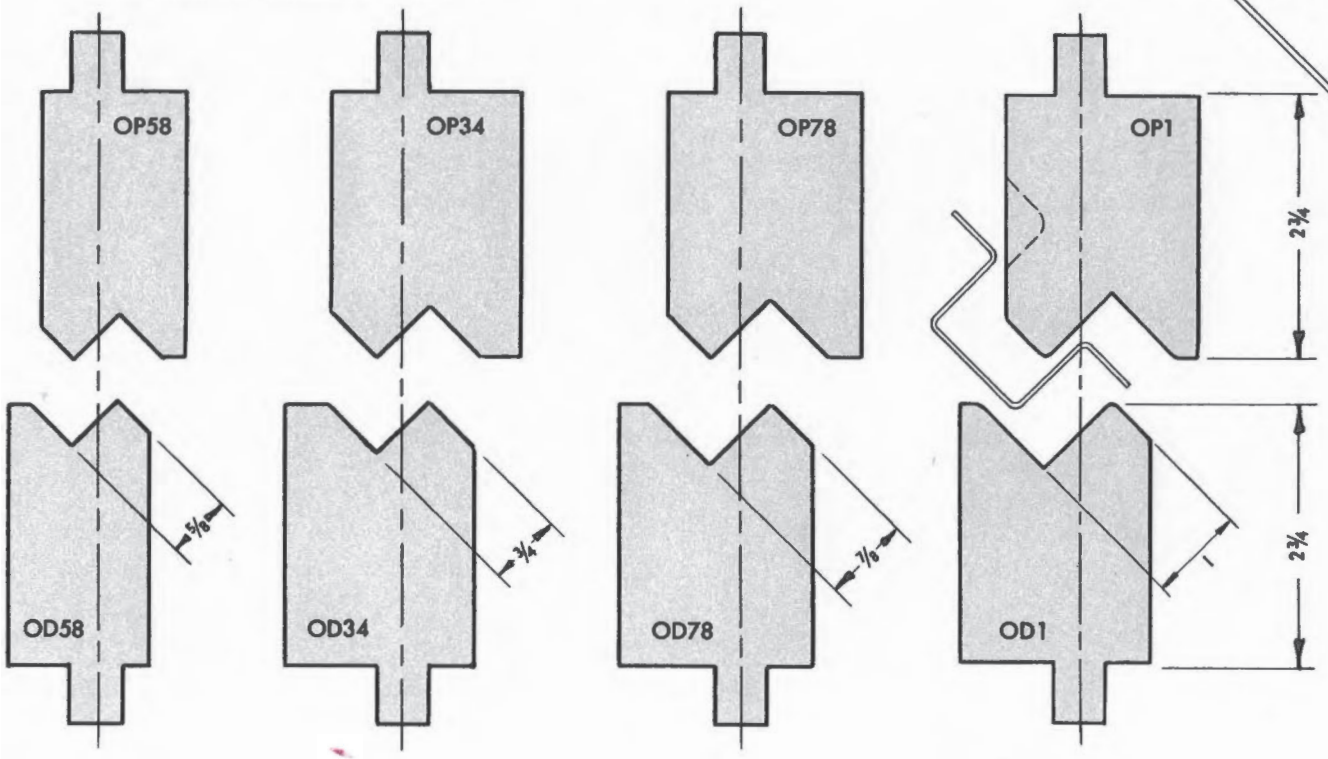


FLATTENING DIES ARE USED TO COMPLETE HEMS, OR TO CLOSE A PREVIOUSLY FORMED ANGLE TO A GIVEN DEGREE.

OFFSET DIES

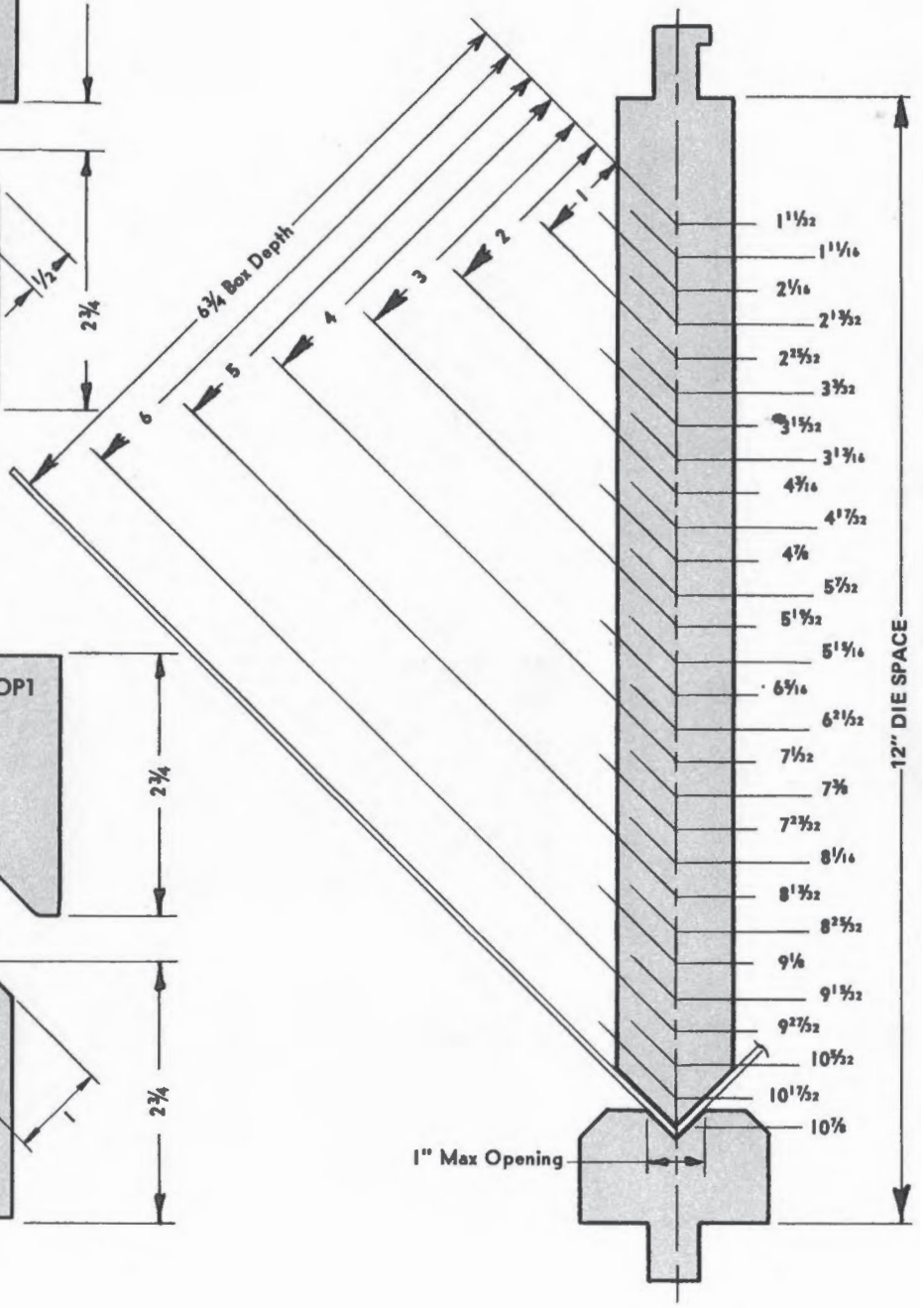


GENERAL PURPOSE OFFSET DIES FORM TWO 90° BENDS IN ONE STROKE.
SIZES SHOWN ARE SUITABLE UP TO 18 GA.

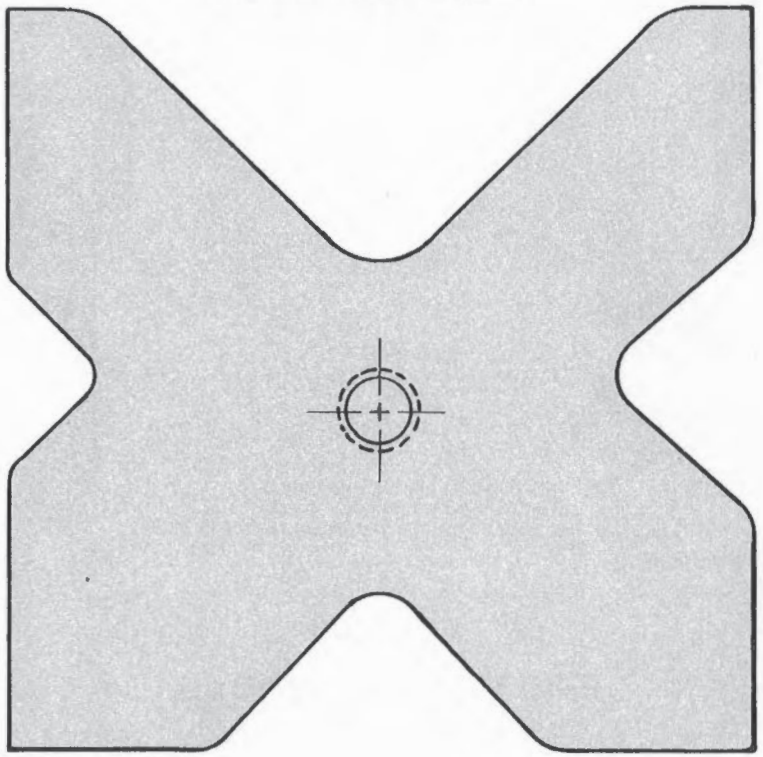


BOX FORMING

MAXIMUM PUNCH HEIGHT IS SHOWN FOR VARIOUS BOX DEPTHS ON MAXIMUM RAM WIDTH OF 2½". ANY DECREASE IN PUNCH HEIGHT REQUIRES AN INCREASE IN DIE HEIGHT UNLESS THE DIE SPACE IS TAKEN UP BY A FILLER BLOCK.



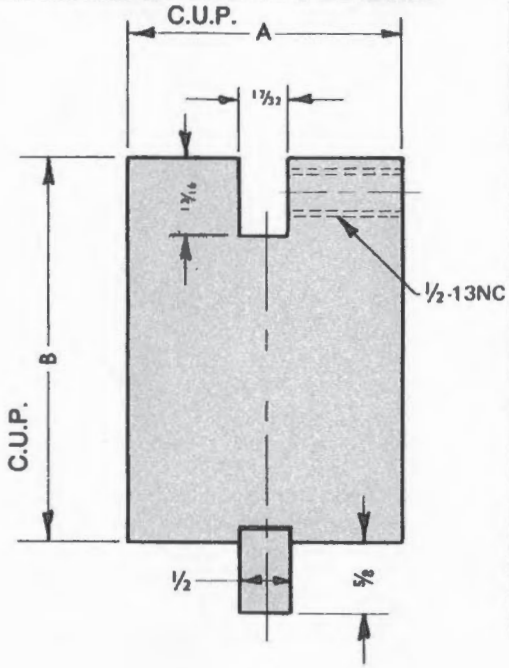
FOUR WAY DIES



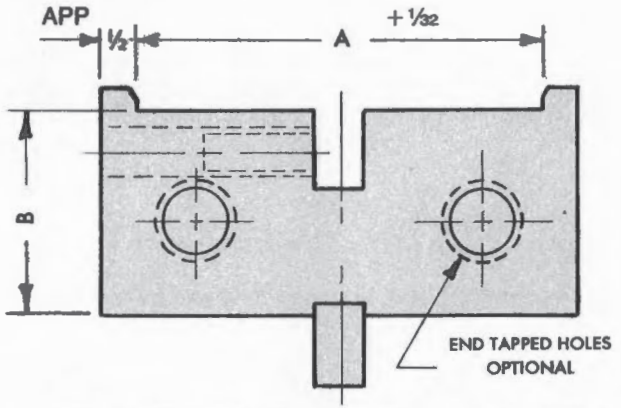
NOTE–
OPENINGS LESS THAN 1" ARE NORMALLY MADE 90°. OPENINGS 1" AND OVER ARE NORMALLY MADE 85°.

Die No.	Block Size	4 Die Openings			
4W 1	2.25	.50	.75	1.00	1.25
4W 2	2.75	.625	.875	1.125	1.50
4W 3	3.25	.75	1.00	1.50	2.00
4W 4	3.75	.875	1.125	2.00	2.50
4W 5	4.25	1.00	1.50	2.00	3.00
4W 6	4.75	1.00	1.25	2.50	3.00
4W 7	5.25	1.00	2.00	3.00	4.00
4W 8	5.75	1.25	2.00	3.00	4.00
4W9	6.75	2.00	3.00	4.00	5.00
4W10	7.75	2.00	3.00	4.00	6.00
4W 11	10.00	2.00	4.00	6.00	8.00
4W 12	12.00	3.00	4.00	6.00	10.00

CONVENTIONAL DIE HOLDERS



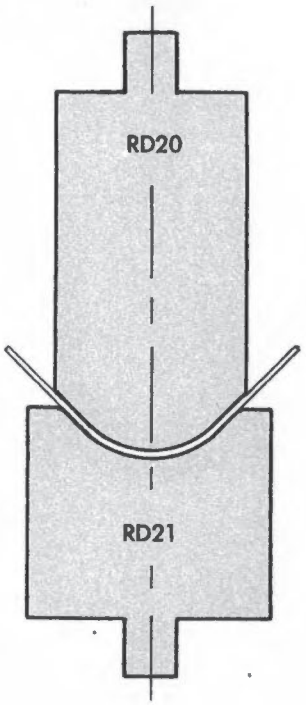
NO.	A	B
CDH A	2	1½
CDH B	2	2
CDH C	2	3
CDH D	2	4
CDH E	2	5
CDH F	3	1½
CDH G	3	2
CDH H	3	3
CDH I	3	4
CDH J	3	5
CDH K	4	2
CDH L	4	3
CDH M	4	4
CDH N	4	5
CDH O	5	2
CDH P	5	3
CDH R	5	4
CDH S	5	5



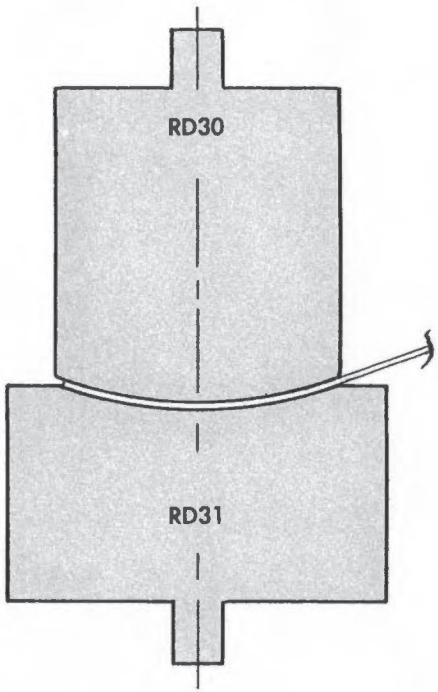
THREE AND FOUR WAY COMBINATION DIE HOLDERS

NO.	A	B
DH2 A	2¼	3½
DH2 B	2¼	5
DH2 C	2¾	3½
DH2 D	2¾	5
DH2 E	3¼	3½
DH2 F	3¼	5
DH2 G	3¾	3½
DH2 H	3¾	5
DH2 I	4¼	3½
DH2 J	4¼	5

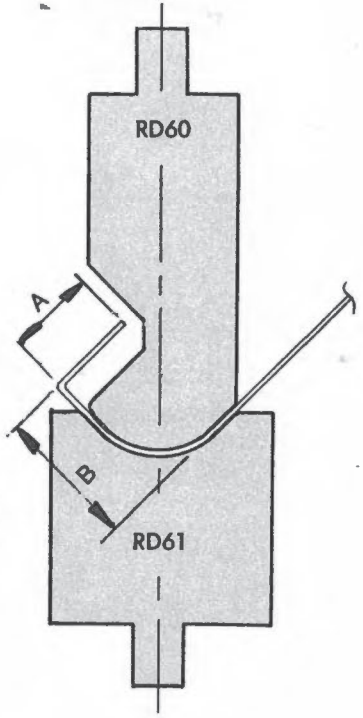
NO.	A	B
DH2 K	4¾	3½
DH2 L	4¾	5
DH2 M	5¼	3½
DH2 N	5¼	5
DH2 O	5¾	3½
DH2 P	5¾	5
DH2 R	6¾	3½
DH2 S	7¾	3½
DH2 T	10	3½
DH2 U	12	3½



FORM FITTING RADIUS DIE SET RD20-RD21 IS USED PRIMARILY FOR SMALL RADIUS BENDS ON LIGHT GA. MATERIALS.



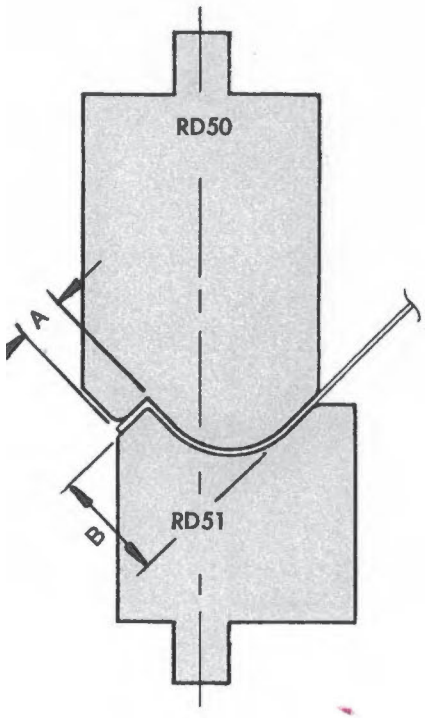
LARGER RADII ARE FORMED WITH DIES RD30-RD31 WITH GOOD RESULT.



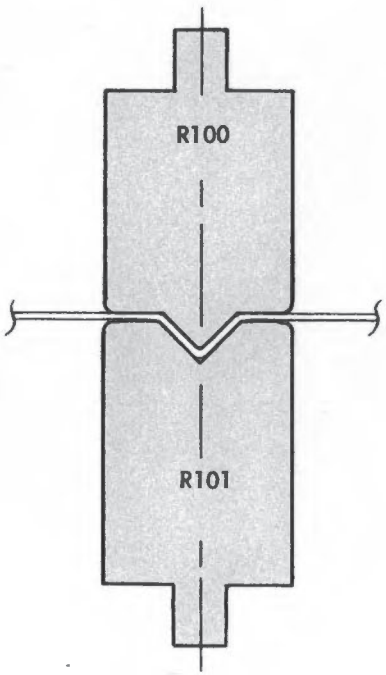
FORMING A RADIUS IN A SHEET HAVING A PRE-FORMED RETURN FLANGE IS ACCOMPLISHED BY DIE SET RD60-RD61.

RADIUS FORMING DIES

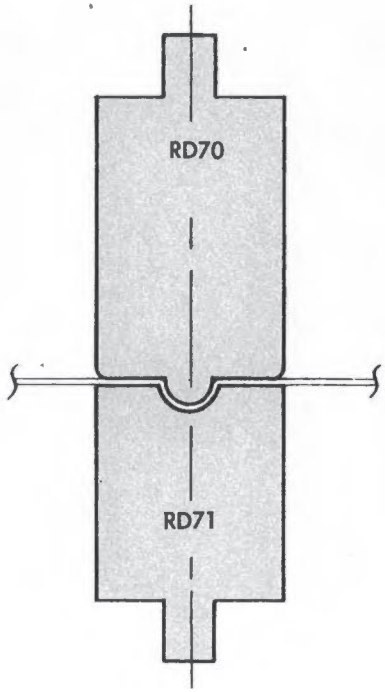
RIB FORMING DIES

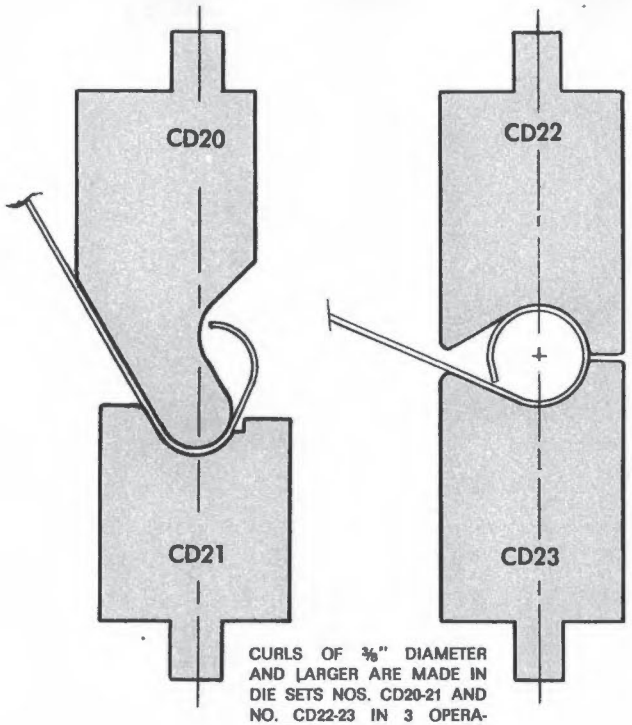


OUTSIDE FLANGE ON A RADIUS BEND CAN BE FORMED IN ONE STROKE IF SPRING BACK IS NOT TOO GREAT.

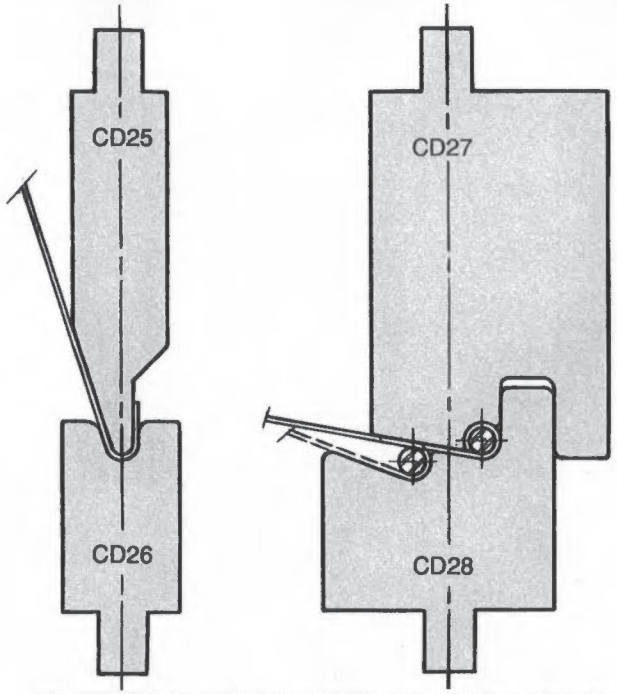


TO PRODUCE A V RIB OR RADIUS RIB DIE SET R100-101 AND RD70-71 ARE VERY POPULAR.

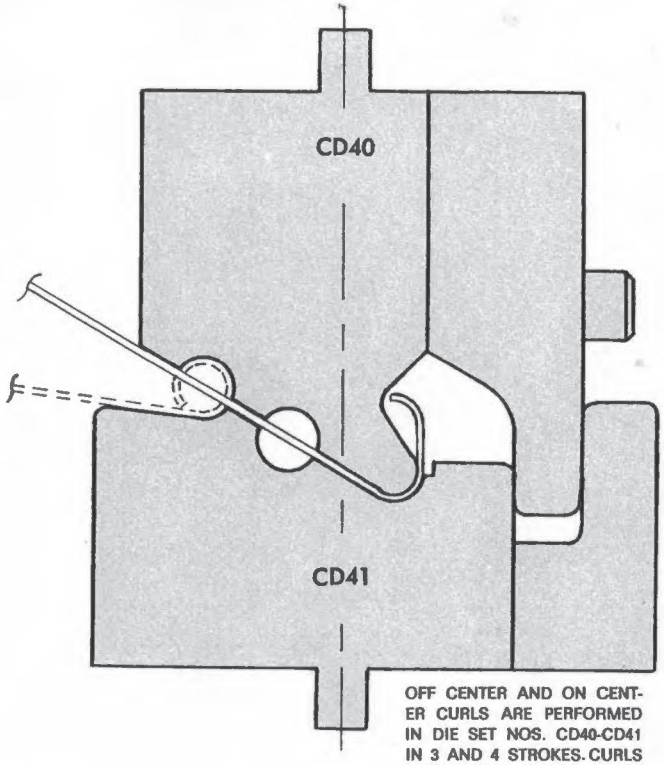




CURLS OF ⅜" DIAMETER AND LARGER ARE MADE IN DIE SETS NOS. CD20-21 AND NO. CD22-23 IN 3 OPERATIONS

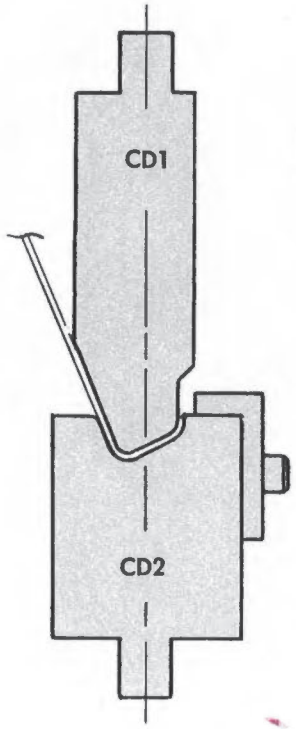


DIE SET CD25-26 AND CD27-28 FORM CURL OVER A WIRE OR MANDREL IN 3 OPERATIONS. THERE WILL BE A SLIGHT FLAT ON CURL ALONG THE CLOSING EDGE.

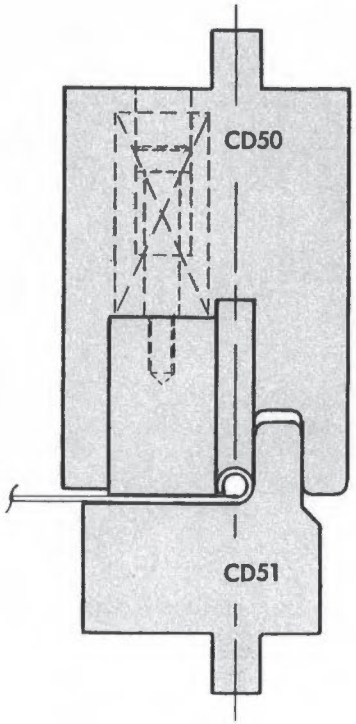


OFF CENTER AND ON CENTER CURLS ARE PERFORMED IN DIE SET NOS. CD40-CD41 IN 3 AND 4 STROKES. CURLS MAY RANGE FROM ¼" TO ½" DIA.

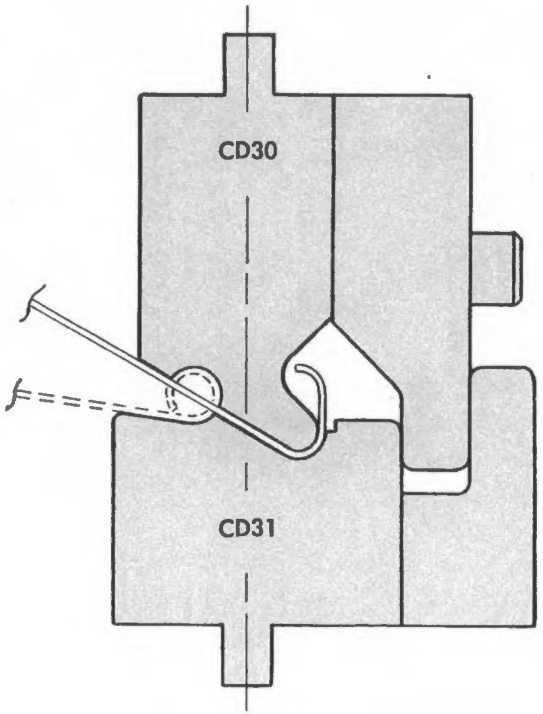
CURLING DIES



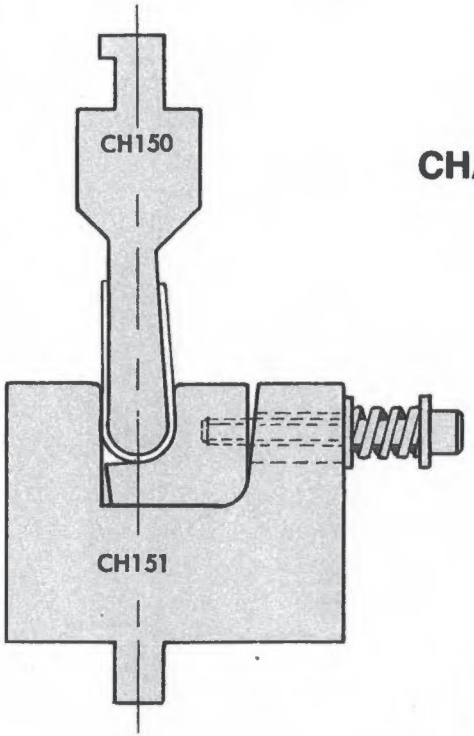
DIE SETS CD1-2 AND CD 50-51 PRODUCES AN ACCURATE, TIGHTLY FORMED CURL IN TWO OPERATIONS.



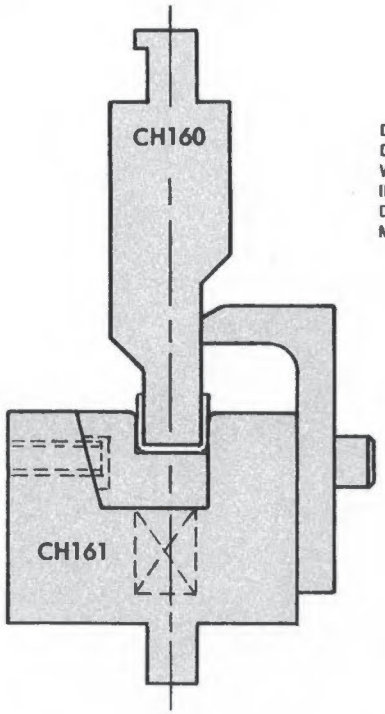
DIE SET CD30 AND CD31 PRODUCE AN OFF-CENTER CURL, ¼" TO ⅜" DIAMETER, IN THREE STROKES.



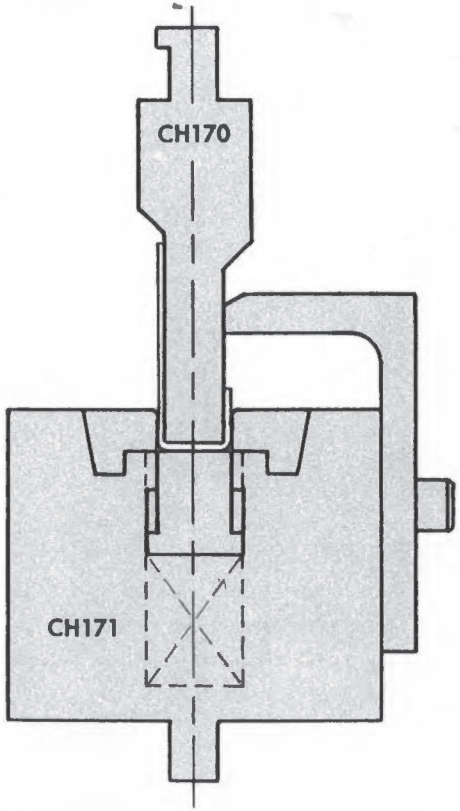
CHANNEL DIES

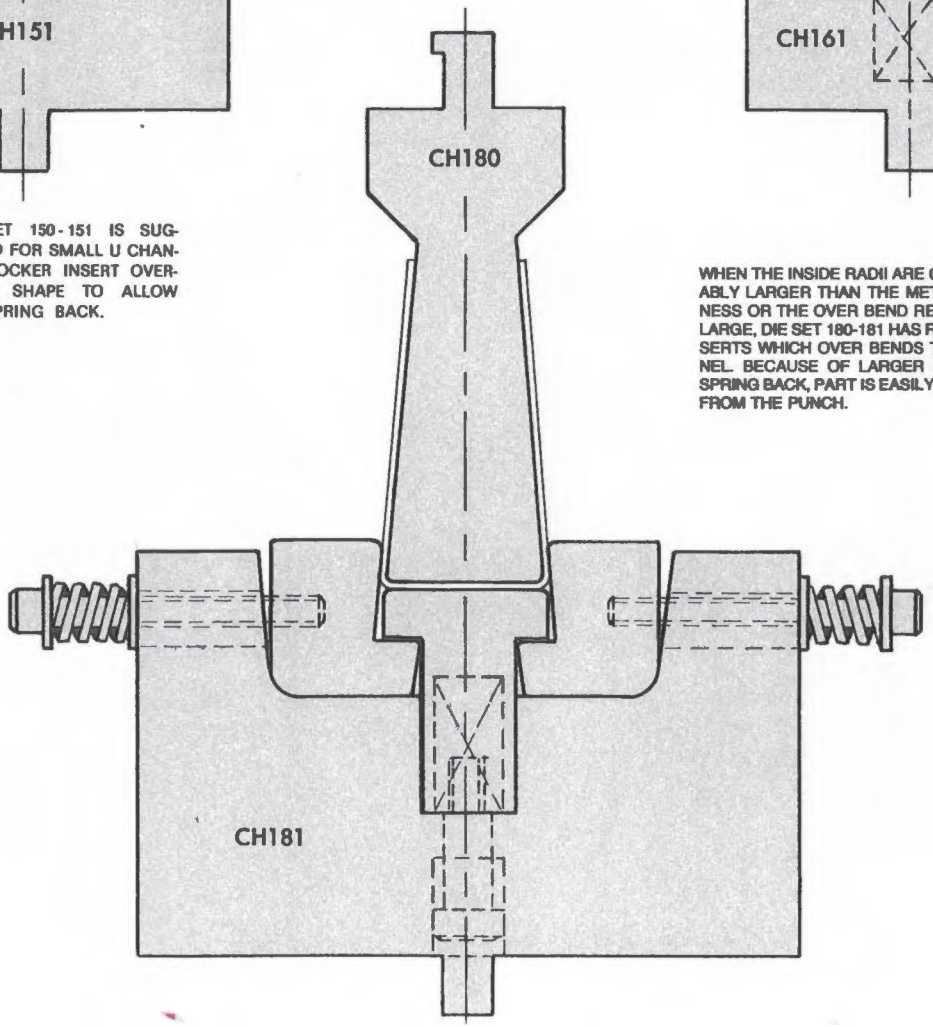


DIE SET 150-151 IS SUGGESTED FOR SMALL U CHANNEL. ROCKER INSERT OVERBENDS SHAPE TO ALLOW FOR SPRING BACK.

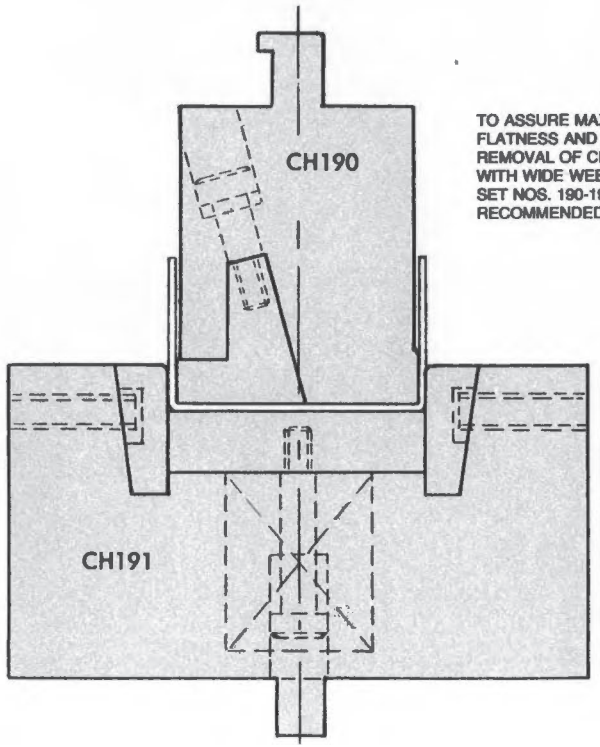


DIE SET 160-161 WILL PRODUCE A CHANNEL WITH A WEB WIDTH OF ¾" OR LESS. IF FLATNESS IS IMPORTANT, DIE SET 170-171 IS RECOMMENDED.



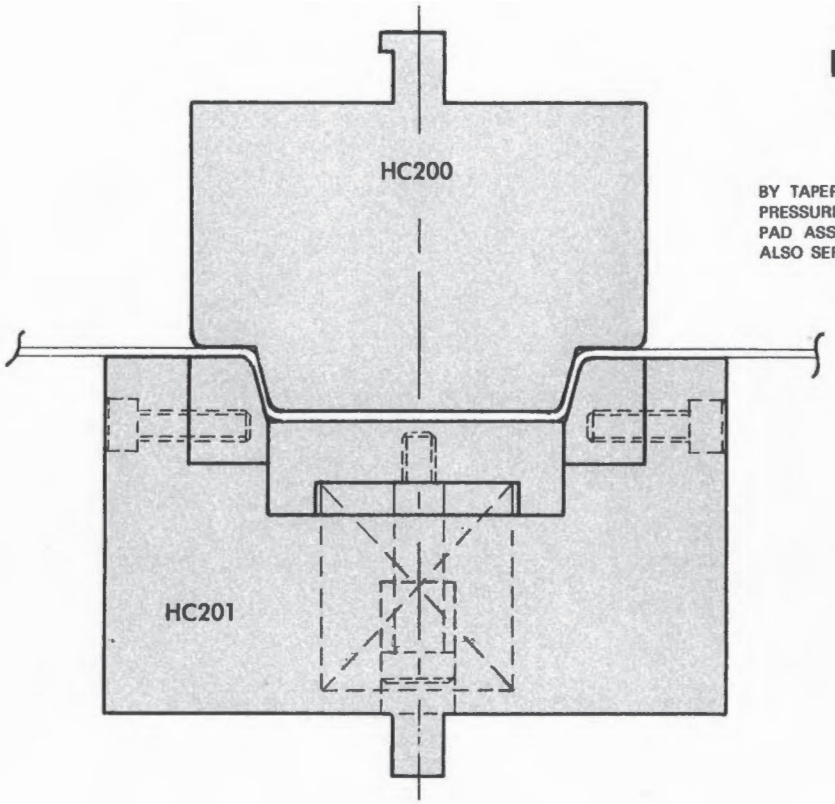


WHEN THE INSIDE RADII ARE CONSIDERABLY LARGER THAN THE METAL THICKNESS OR THE OVER BEND REQUIRED IS LARGE, DIE SET 180-181 HAS ROCKER INSERTS WHICH OVER BENDS THE CHANNEL. BECAUSE OF LARGER RADII AND SPRING BACK, PART IS EASILY REMOVED FROM THE PUNCH.

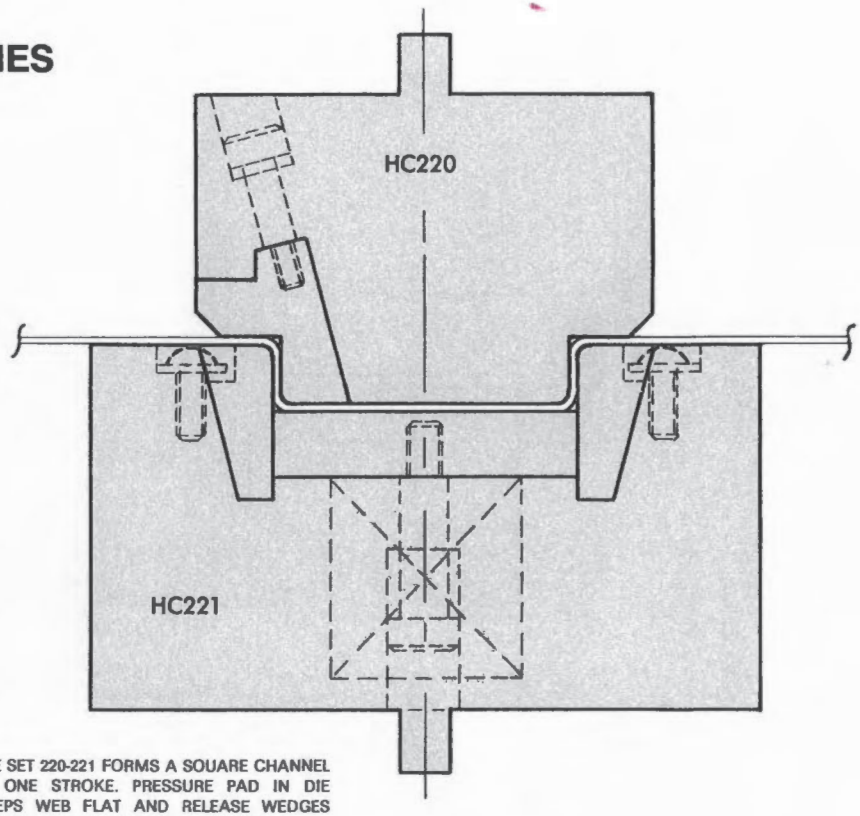


TO ASSURE MAXIMUM FLATNESS AND EASY REMOVAL OF CHANNELS WITH WIDE WEBS, DIE SET NOS. 190-191 IS RECOMMENDED.

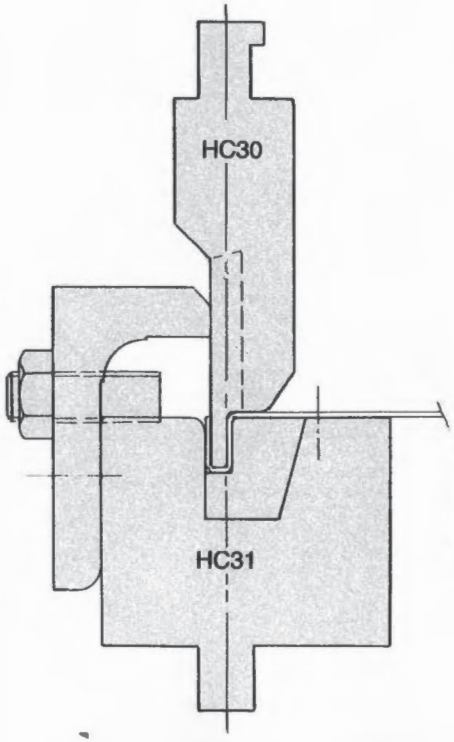
HAT CHANNEL DIES



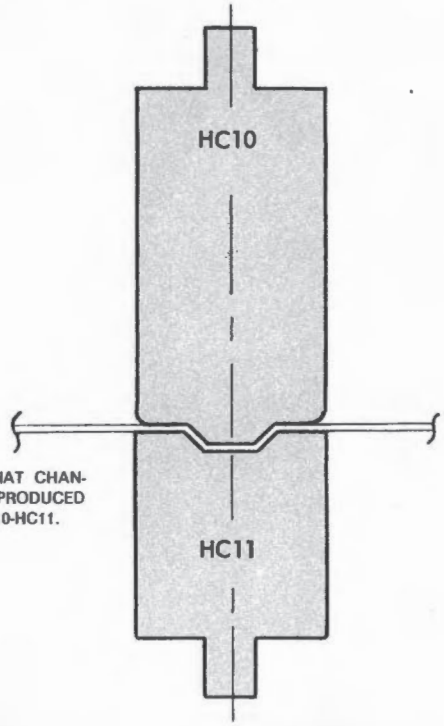
BY TAPERING SIDES OF A HAT CHANNEL, PRESSURE IS GREATLY REDUCED. PRESSURE PAD ASSURES GREATER ACCURACY AND ALSO SERVES TO EJECT THE PART.



DIE SET 220-221 FORMS A SQUARE CHANNEL IN ONE STROKE. PRESSURE PAD IN DIE KEEPS WEB FLAT AND RELEASE WEDGES PERMIT EASY REMOVAL OF PARTS.

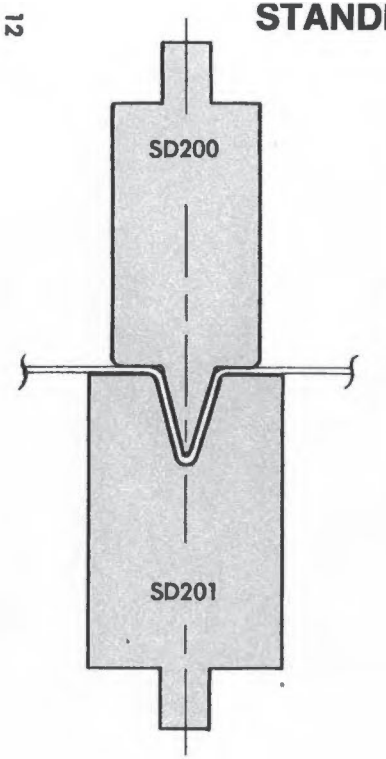


DIES HC30 - HC31 CAN BE USED TO FORM A SEMI-HAT SHAPE. STRIPPING IS ASSURED WITH RELEASE WEDGE AND HOOK STRIPPER.

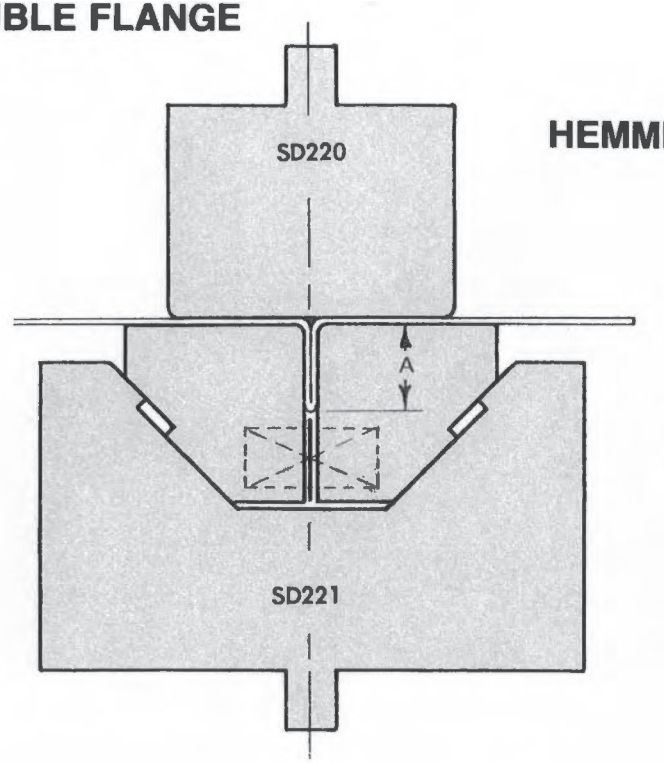


SMALL OPEN HAT CHANNELS CAN BE PRODUCED IN DIE SET HC10-HC11.

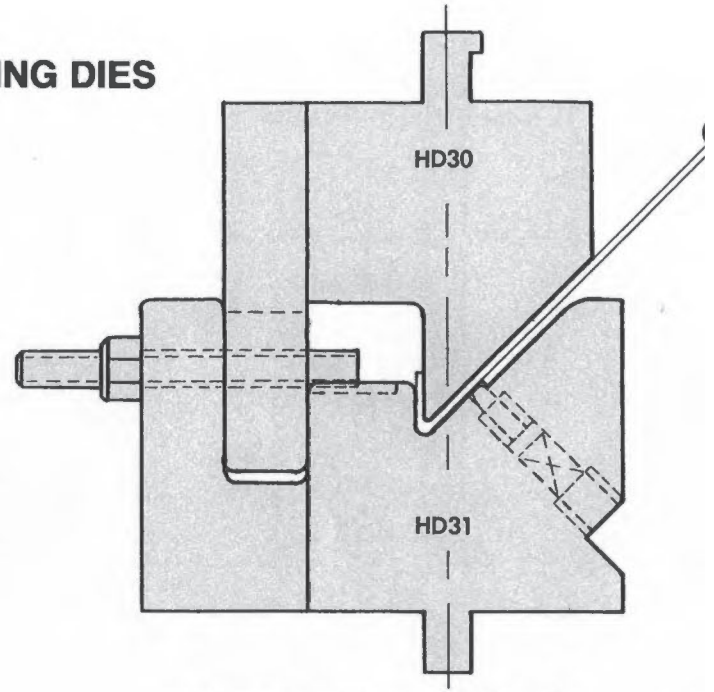
STANDING SEAM DOUBLE FLANGE



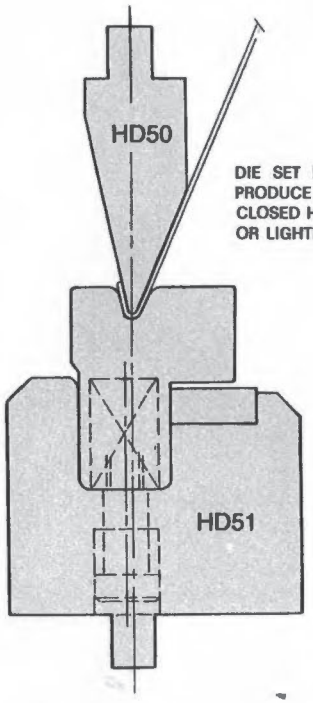
AN ACUTE ANGLE AND TWO OBTUSE ANGLES ARE FORMED IN A SINGLE STROKE IN DIE SET SD200-201. THE PARTIALLY FORMED SEAM IS THEN CLOSED IN DIE SET SD220-221. THIS DIE CAN REQUIRE A GREAT AMOUNT OF PRESSURE, DEPENDING ON HOW TIGHT THE SEAM MUST BE CLOSED.
HOWEVER, IN ORDER TO REMOVE FORMED PART, PRESS MUST OPEN 2¼ TIMES "A" DIAM.



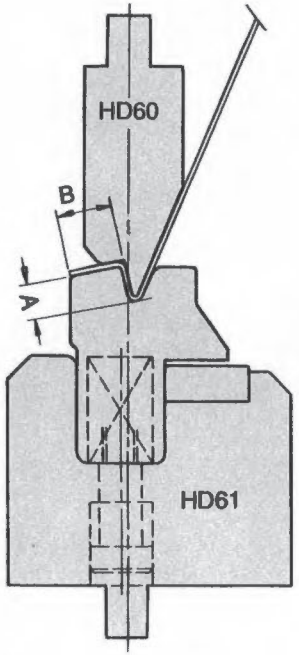
HEMMING DIES



DIE SET HD30-31 FORMS A TEARDROP OR AN OPEN HEM IN ONE HANDLING. THIS TYPE OF DIE SET IS SUITABLE FOR 14 GA. MILD STEEL AND A FOLD BACK UP TO ¾ INCH.

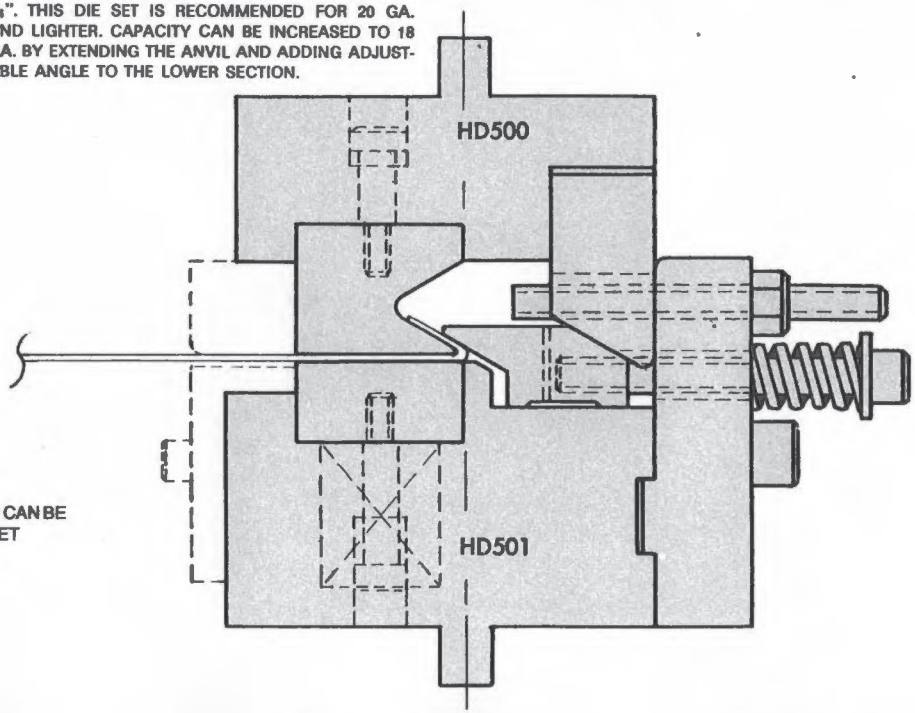


DIE SET HD50-51 WILL PRODUCE AN OPEN OR CLOSED HEM IN 18 GA. OR LIGHTER MATERIAL.



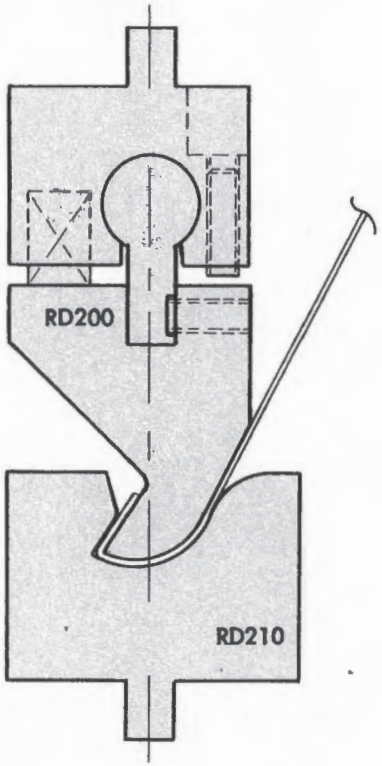
STANDING SEAMS CAN BE FORMED IN DIE SET HD60-61 IN TWO STROKES.

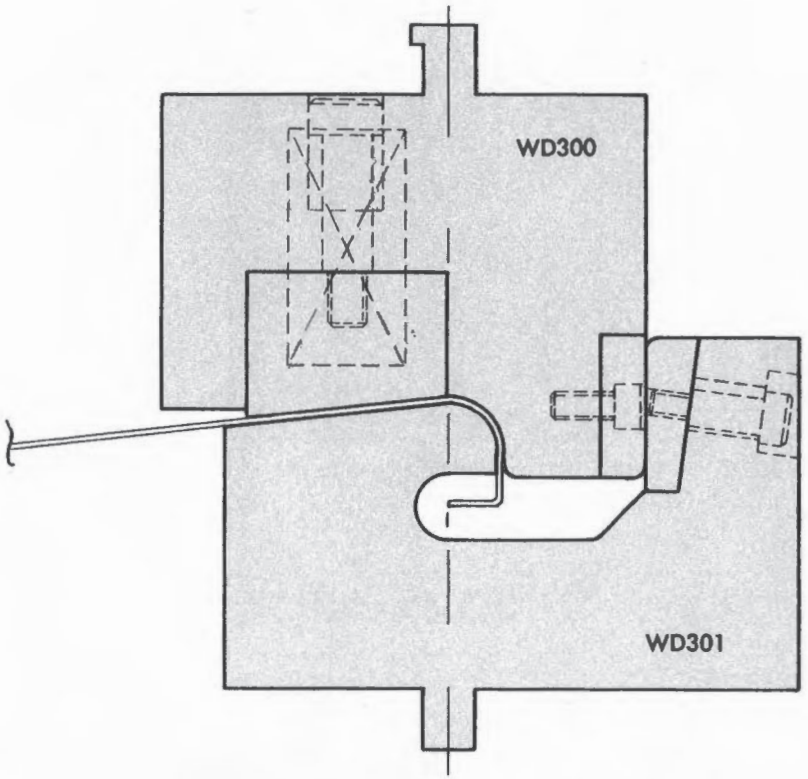
DIE SET HD500-501 IS USED FOR HIGH PRODUCTION IN HEMMING WIDE SHEETS MAX. HEM LENGTH IS ¾". THIS DIE SET IS RECOMMENDED FOR 20 GA. AND LIGHTER. CAPACITY CAN BE INCREASED TO 18 GA. BY EXTENDING THE ANVIL AND ADDING ADJUSTABLE ANGLE TO THE LOWER SECTION.

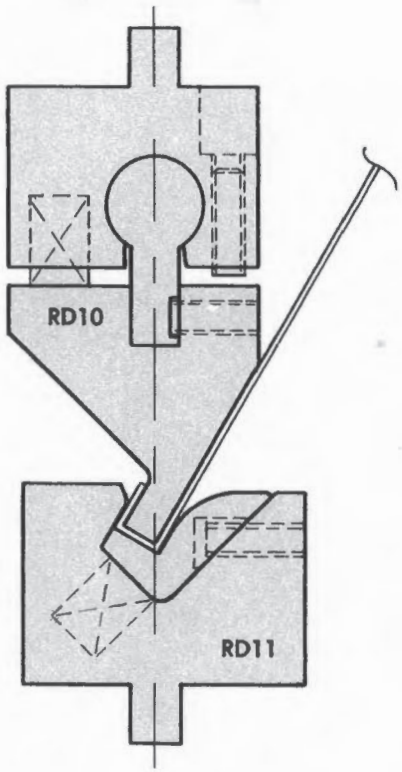


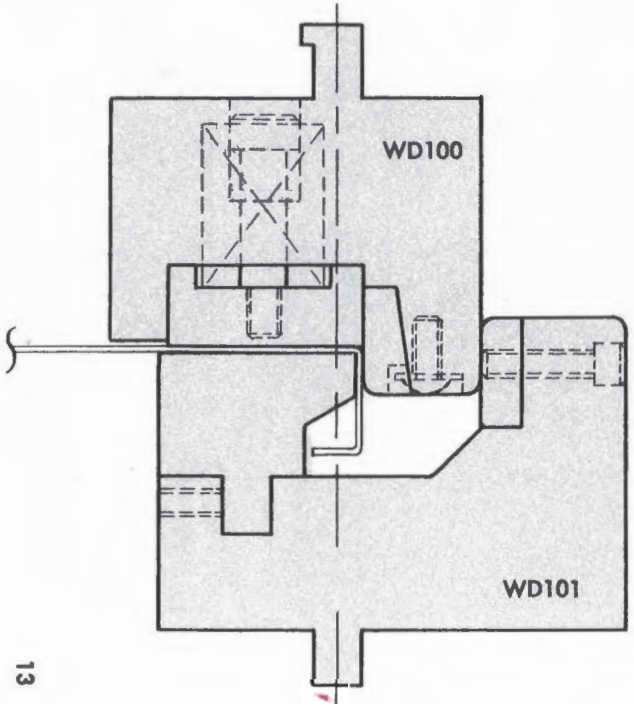
ROCKER AND WIPING DIES

CLEARANCE DIFFICULTIES ARE AVOIDED AND GOOD RESULTS IN FORMING ARE ASSURED IN A SINGLE STROKE WITH ROCKER TYPE DIES RD200-210 AND RD10-11.



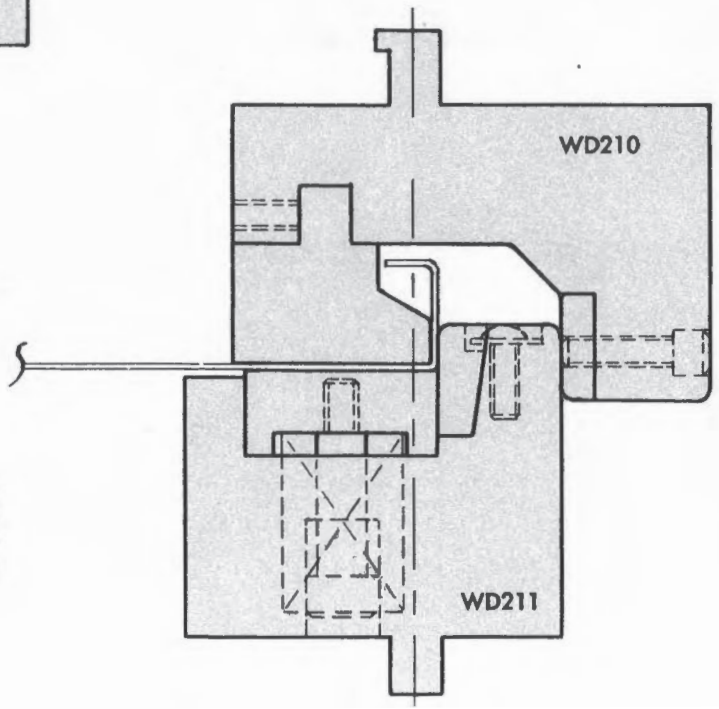




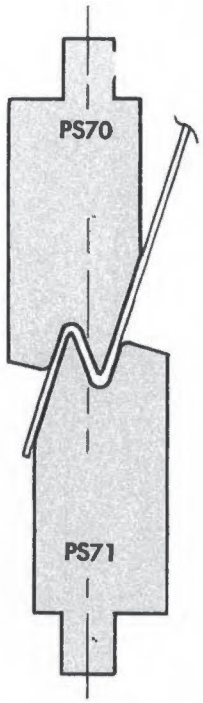


FOR WIPING A RADIUS ON THE EDGE OF A SHEET DIE SET WD300-301 IS RECOMMENDED. AN INSERT AT THE BACK OF THE PUNCH IS ADJUSTABLE BY SHIMMING TO TAKE CARE OF SMALL VARIATIONS IN METAL THICKNESS. MAXIMUM CAPACITY 16 GAUGE.

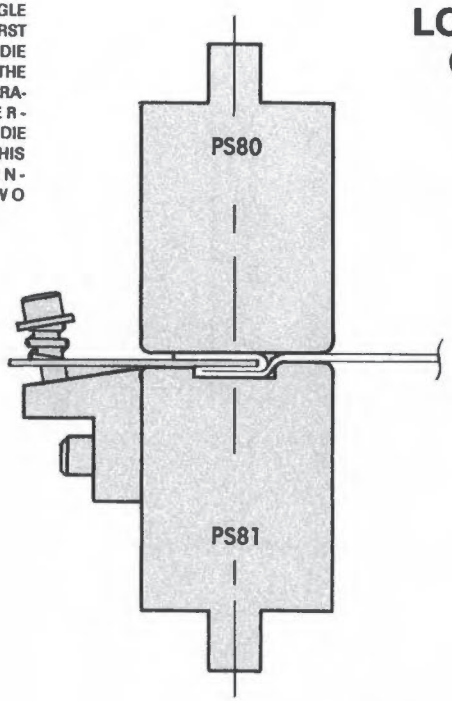
DIE SETS WD100-101 AND WD210-211 ARE RECOMMENDED FOR HIGH PRODUCTION FLANGING. THESE DIES HOLD THE SHEET FLAT WHILE WIPING A 90° FLANGE EITHER UP OR DOWN. BACK GAUGING CAN BE FITTED TO DIE SET 210-211 FRONT GAUGING IS BEST SUITED WHEN USING DIE SET WD100-101. 16 GA. MAX. CAPACITY.



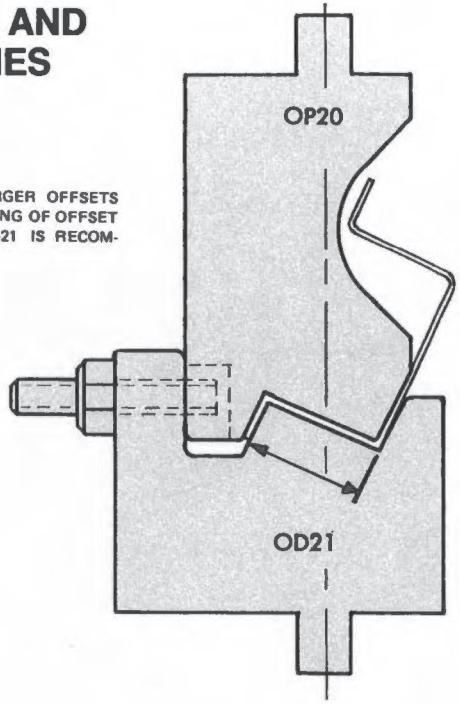
LOCK SEAM AND OFFSET DIES

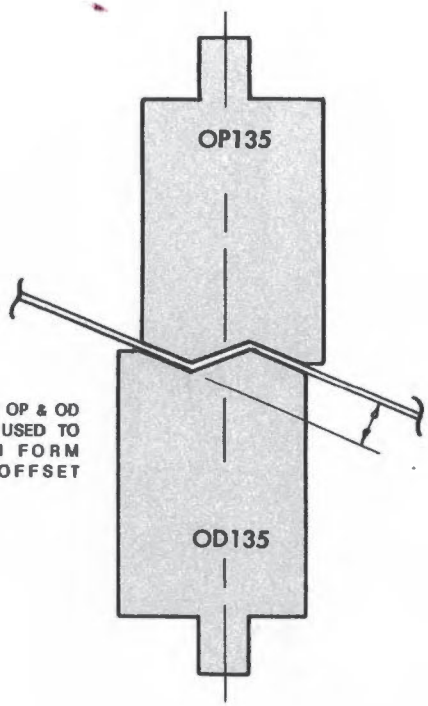


AN ACUTE ANGLE OFFSET IS FIRST FORMED IN DIE SET 70-71. THE CLOSING OPERATION IS PERFORMED IN DIE SET 80-81. THIS METHOD INVOLVES TWO HANDLINGS.



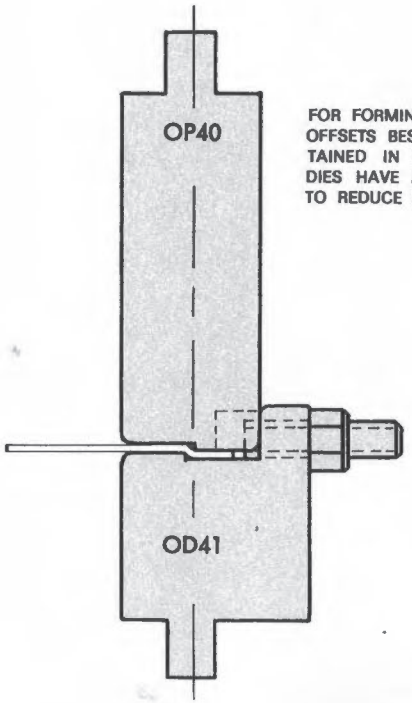
FOR FORMING LARGER OFFSETS AND PREVENT BOWING OF OFFSET WEB, DIE SET 20-21 IS RECOMMENDED.



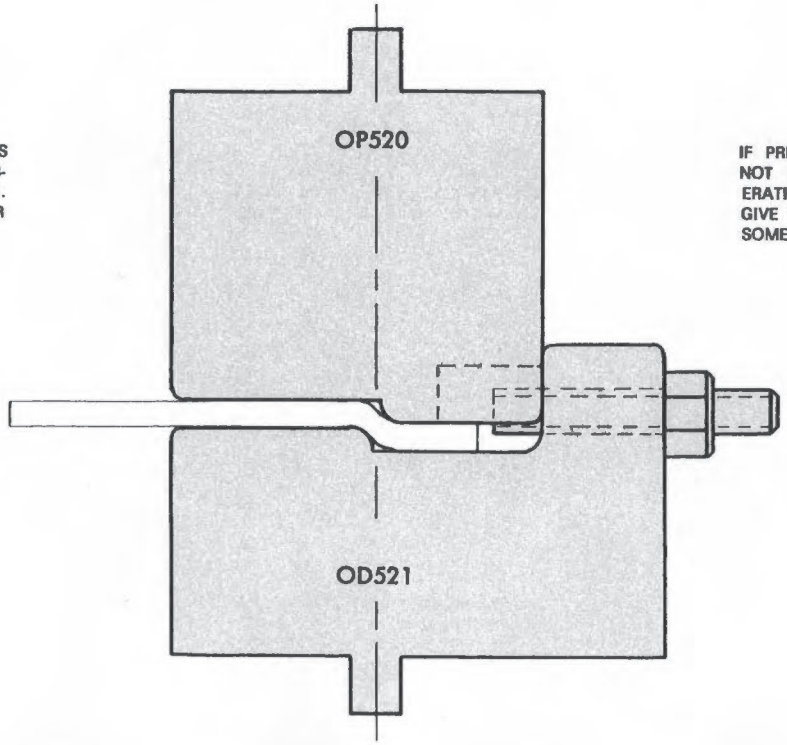


DIE SET OP & OD 135 IS USED TO BOTTOM FORM 135° OFFSET

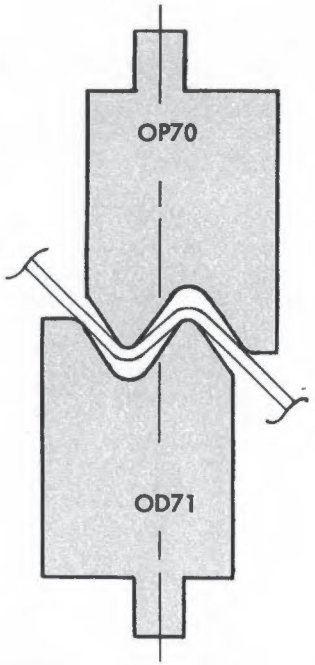
DIE SET 520-521 IS RECOMMENDED ON HEAVIER GAUGE STOCK FOR OPEN ANGLE OFFSET.

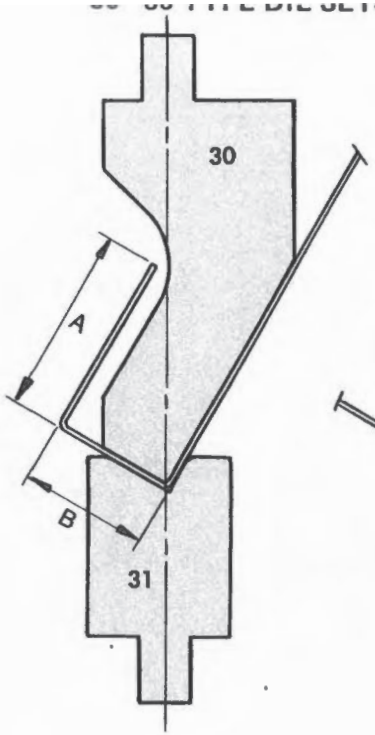


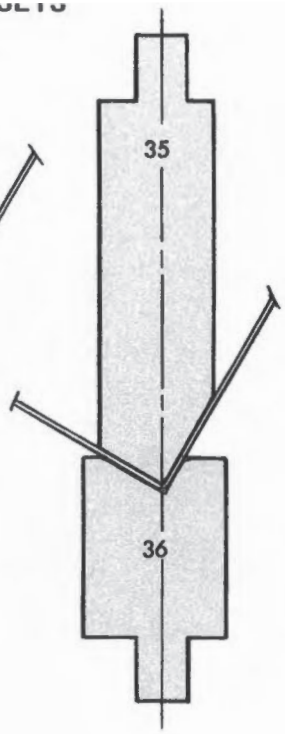
FOR FORMING METAL THICKNESS OFFSETS BEST RESULTS ARE OBTAINED IN DIE SET OP40-OD41. DIES HAVE A BACK UP LEADER TO REDUCE SPREADING.



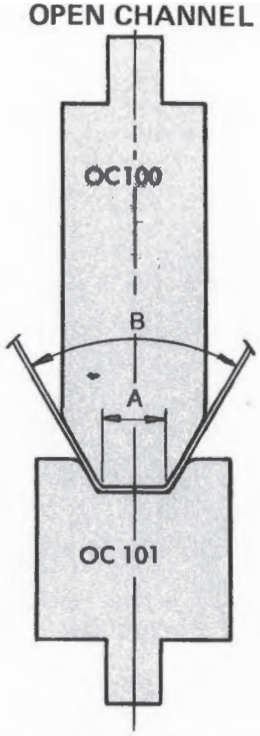
IF PRESS BRAKE CAPACITY WILL NOT PERMIT A BOTTOMING OPERATION. DIE SET OP70-71 WILL GIVE GOOD RESULTS ALTHOUGH SOME ACCURACY WILL BE LOST.

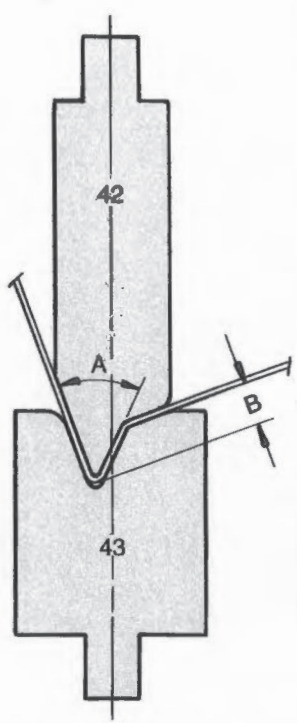




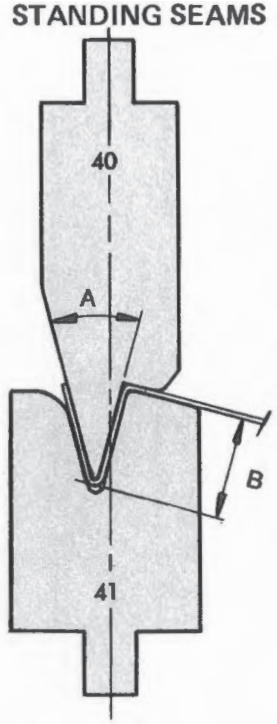


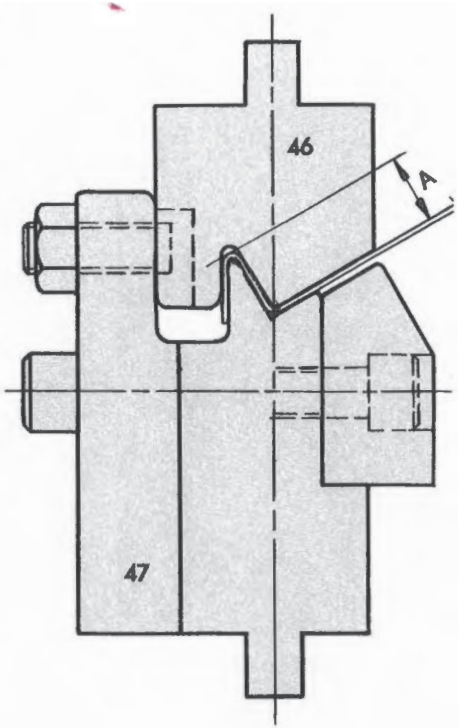
OPEN CHANNEL





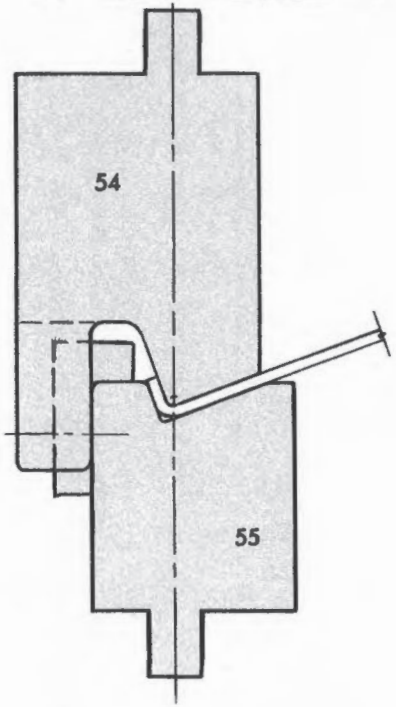
STANDING SEAMS



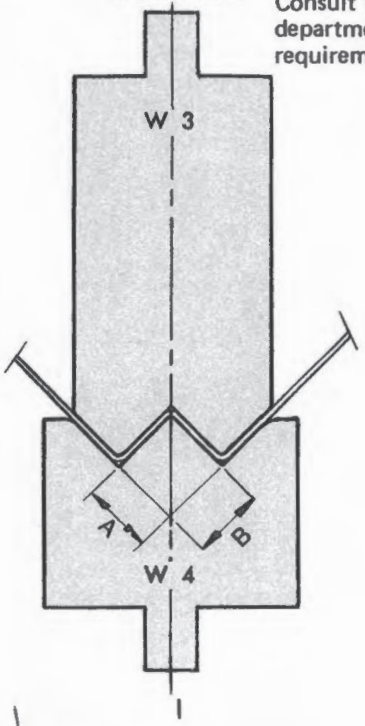


SPECIAL APPLICATION DIES

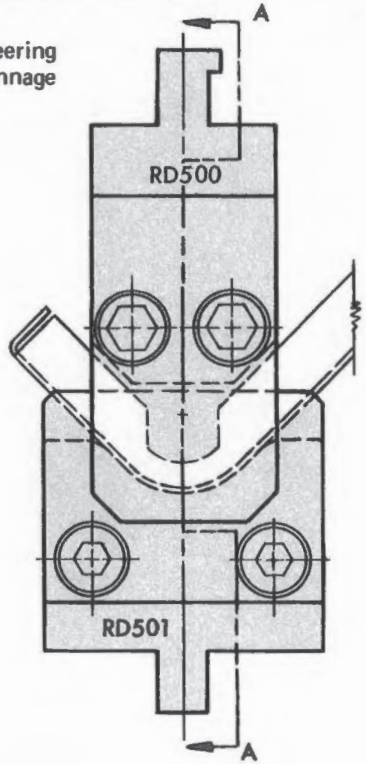
90° SHORT FLANGE



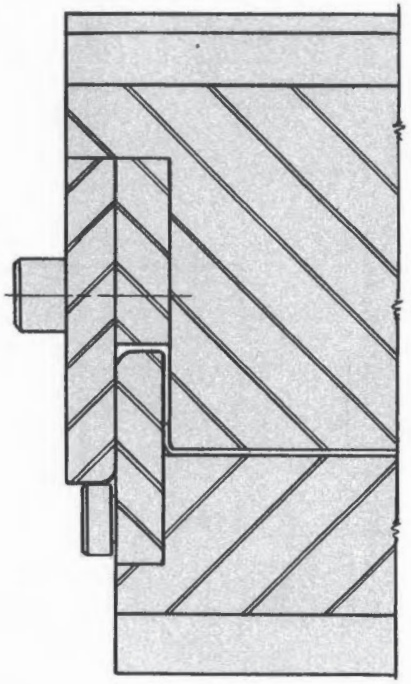
W DIE SET



Consult our engineering department for tonnage requirements.



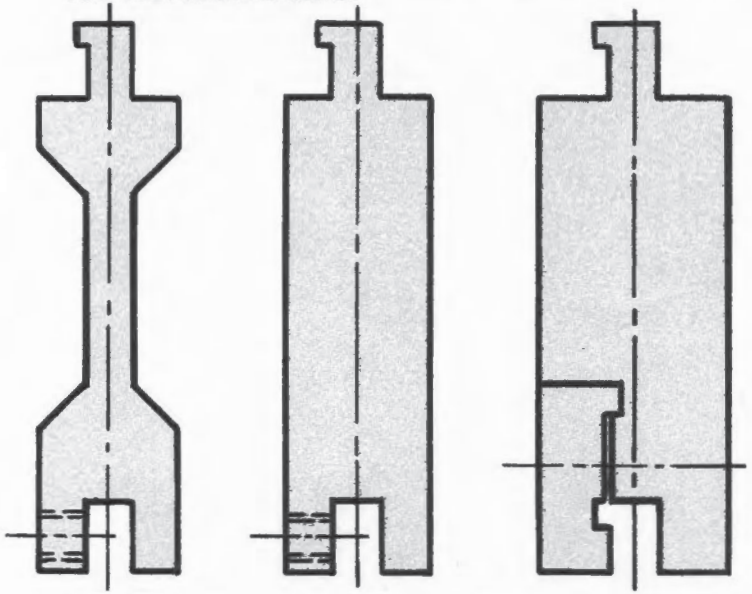
Radius Die with Inturned Flanges



Section A A

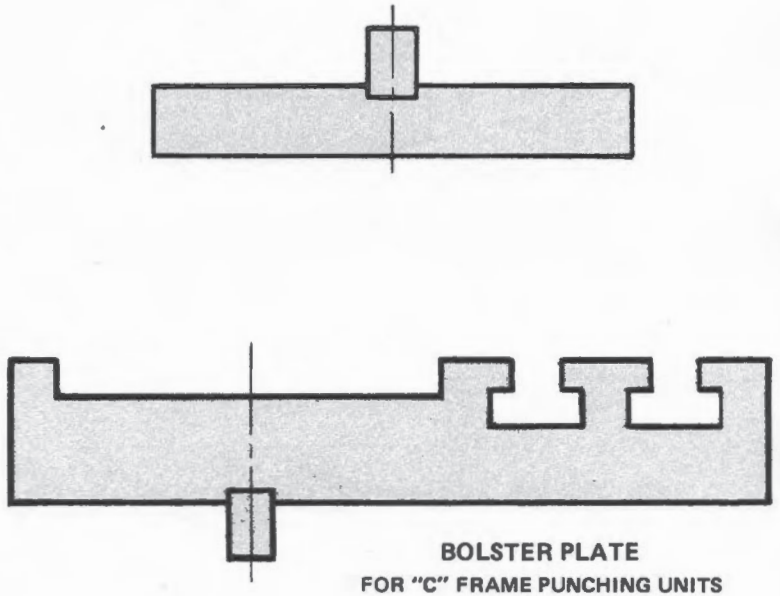
RAM ADAPTERS

RAM ADAPTERS ARE MOUNTED TO THE PRESS BRAKE RAM AND ARE USED TO FILL THE DIE SPACE IF RAM ADJUSTMENT IS INSUFFICIENT. RAM ADAPTERS CAN BE MADE ANY HEIGHT OR WIDTH TO SUIT CONDITIONS AND MAY BE CUT IN SECTIONS FOR USE IN BOX FORMING.



RA 30 RA 40 RA 50

RAM STRIKER BAR



BOLSTER PLATE
FOR "C" FRAME PUNCHING UNITS