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Section 10s

PRESS BRAKE TOOLING

SOURCE CATALOG FOR AMERICAN STYLE

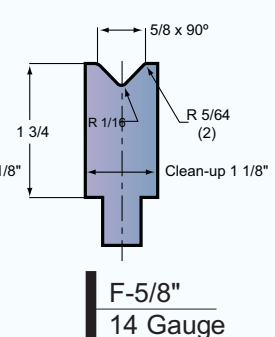
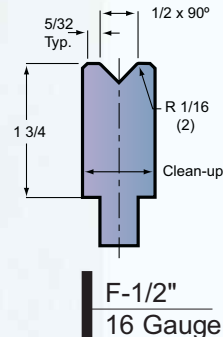
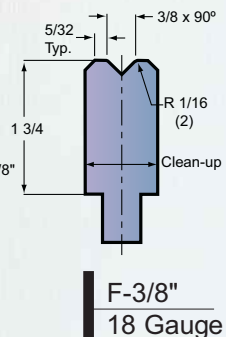
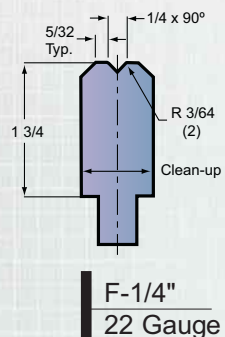
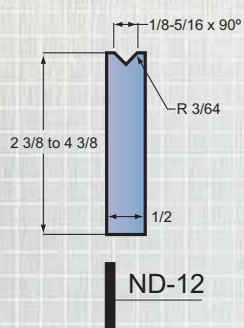
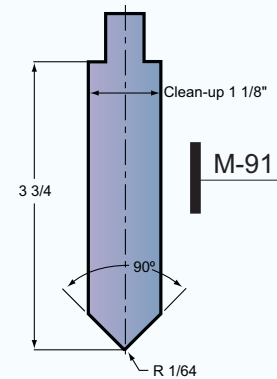
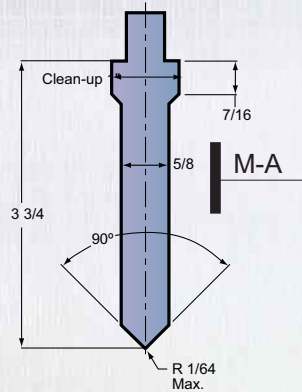
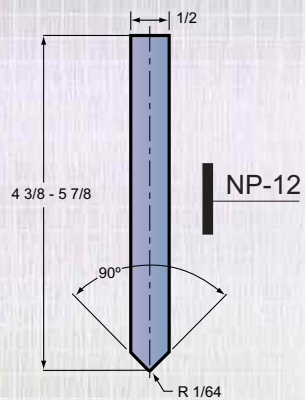
=ISO 9001/2000=

Product of USA

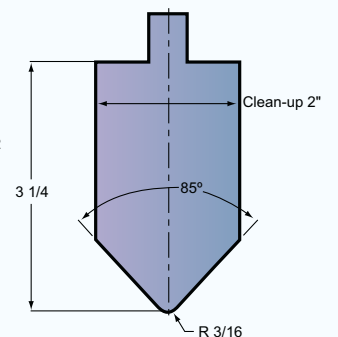
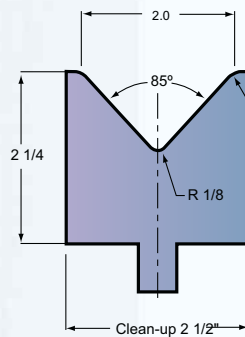
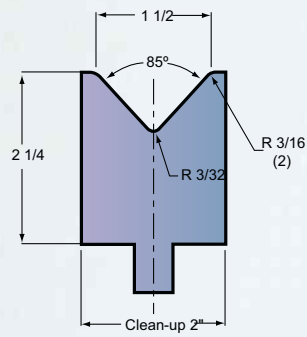
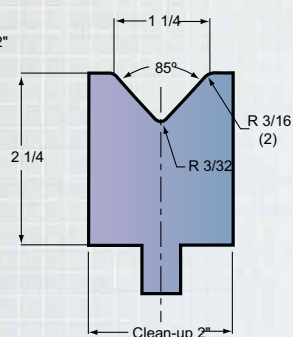
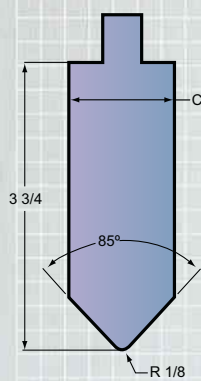
MAKE YOUR PRESS BRAKE A PRECISION TOOL



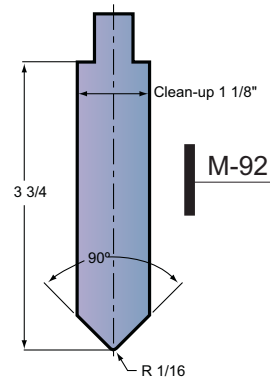
90° Forming Punches & Dies



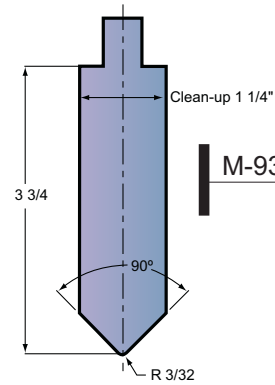
90° Air Forming Punches & Dies



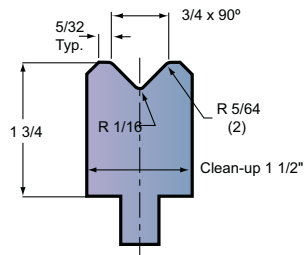
90° PUNCHES & DIES



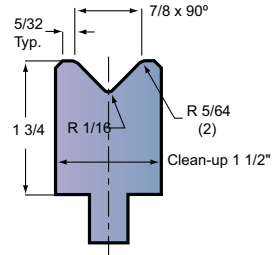
M-92



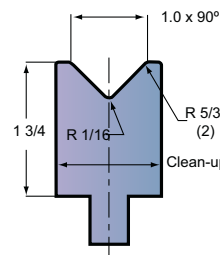
M-93



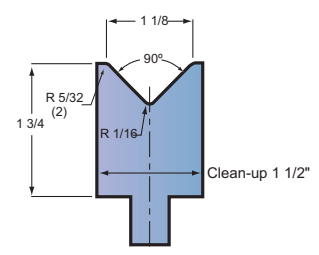
F-3/4"
13 Gauge



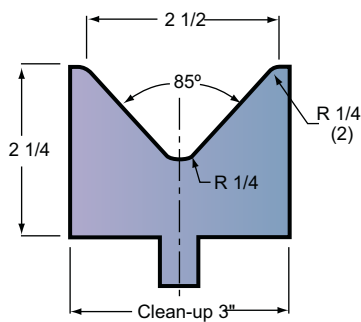
F-7/8"
12 Gauge



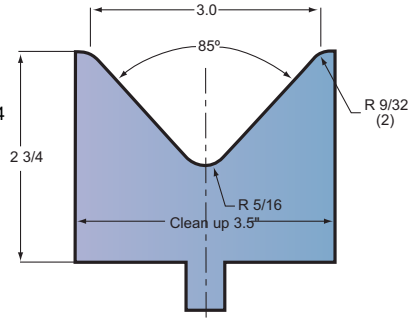
F-1"
11 Gauge



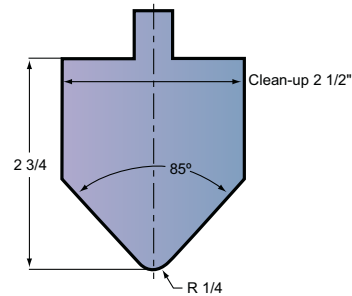
F-1-1/8"
10 Gauge



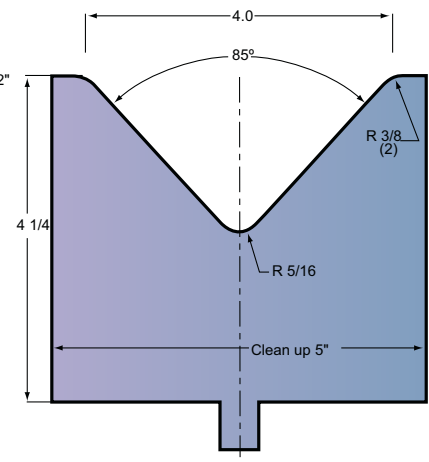
F-2-1/2"
5/16" Capacity



F-3
3/8" Capacity

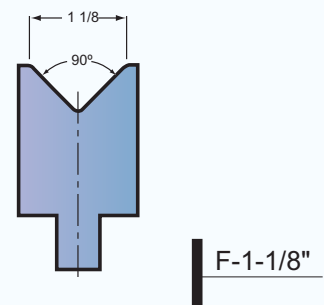
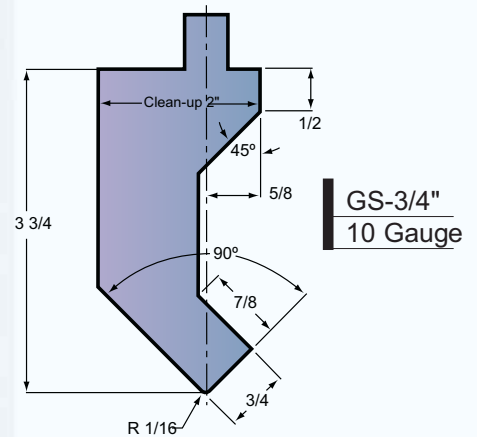
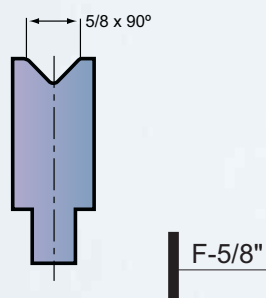
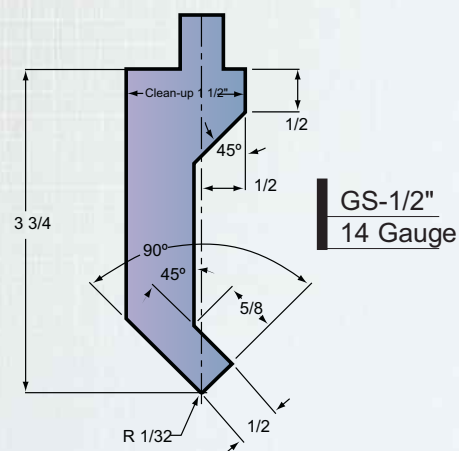
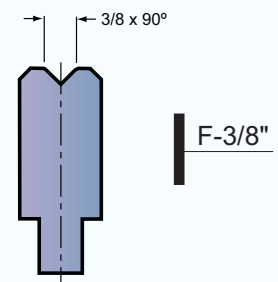
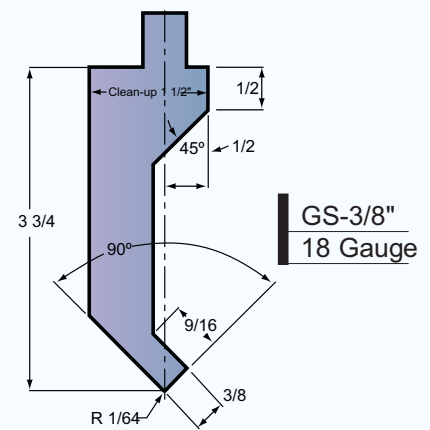
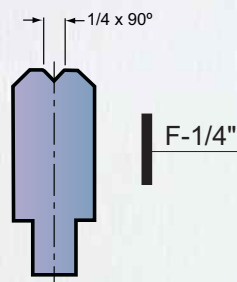
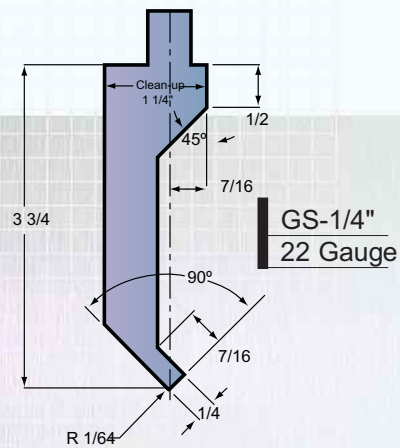


M-8C
1/2" Capacity



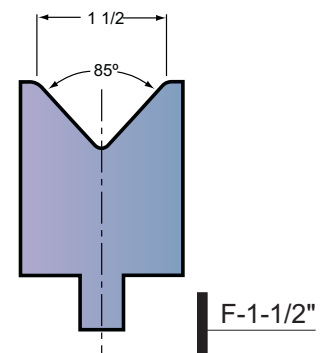
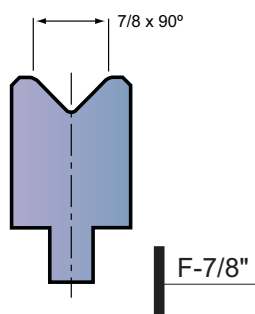
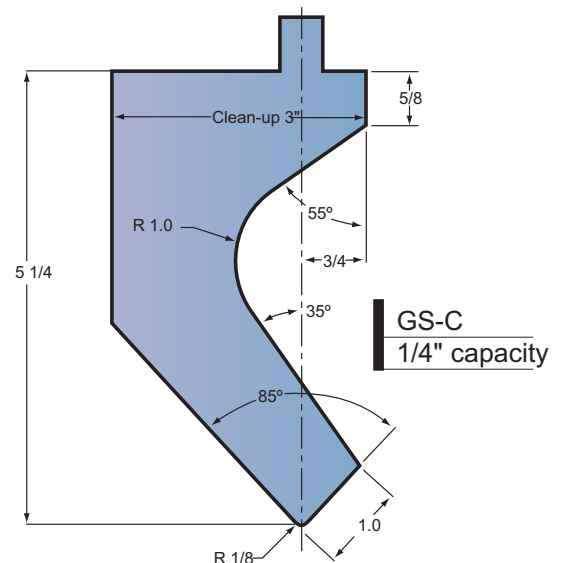
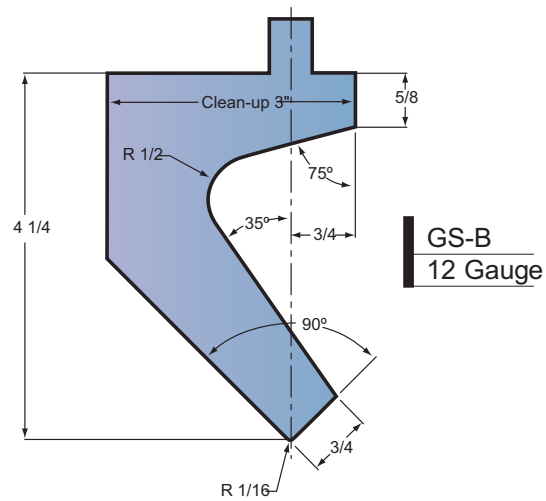
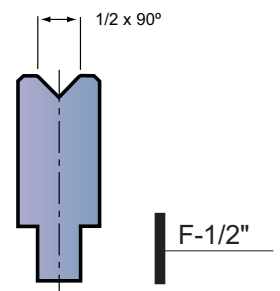
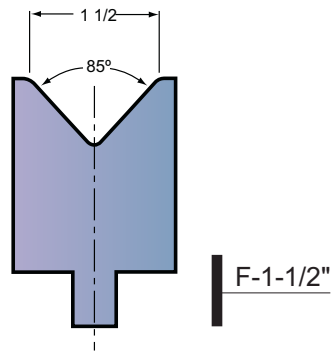
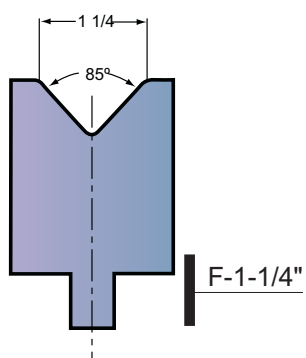
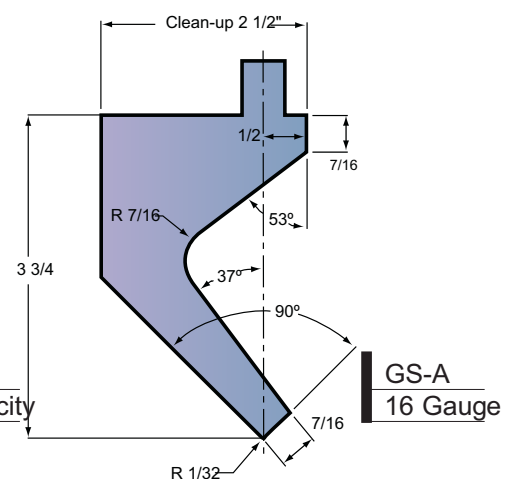
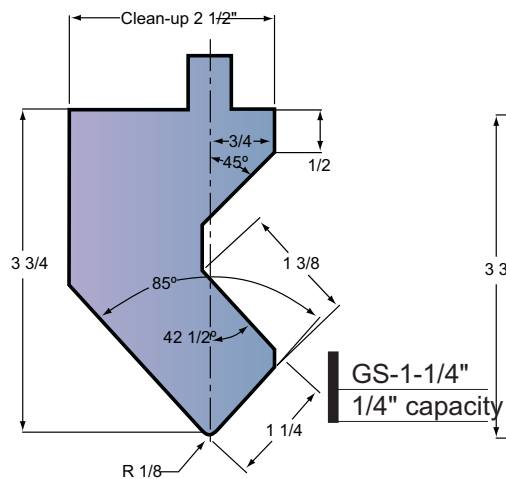
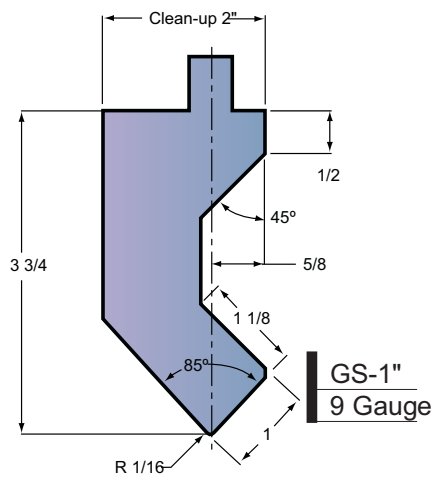
F-4"
1/2" Capacity

GOOSENECK PUNCHES

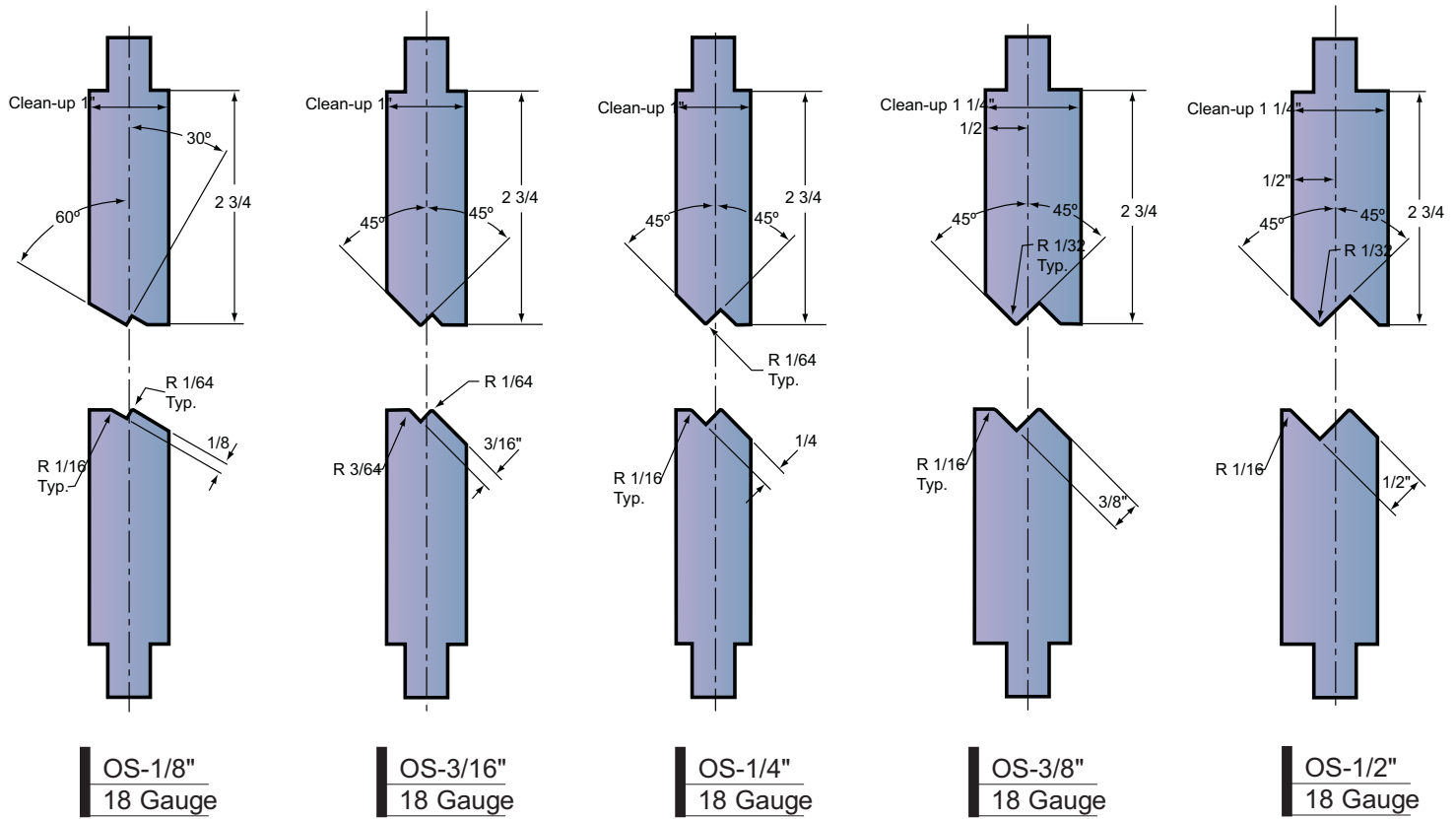


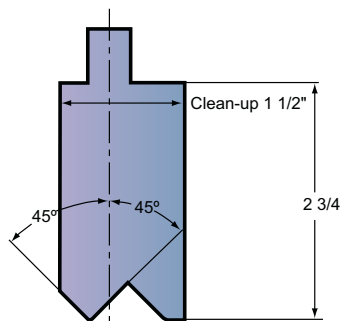
Gooseneck punches offer the benefit of clearance for a return flange as in a two stroke channel forming operation.

Dies are shown only to be suggestive of typical set-ups; see pages 6 - 7 for complete die specifications.

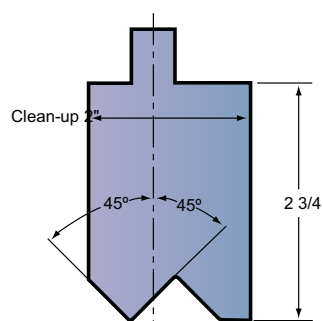


OFFSET DIES

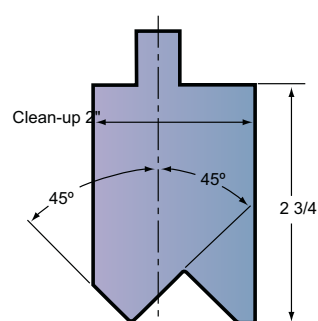




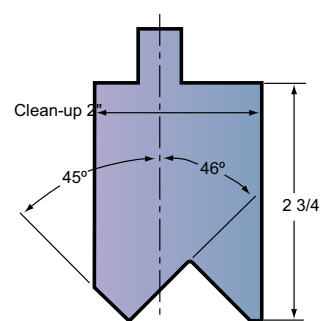
OS-5/8"
16 Gauge



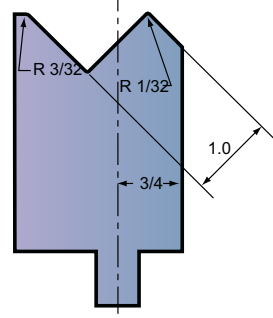
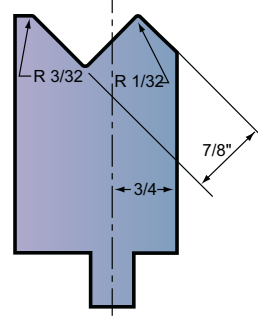
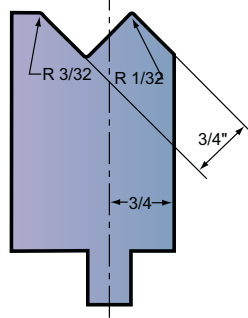
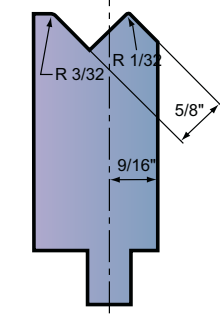
OS-3/4"
16 Gauge



OS-7/8"
16 Gauge

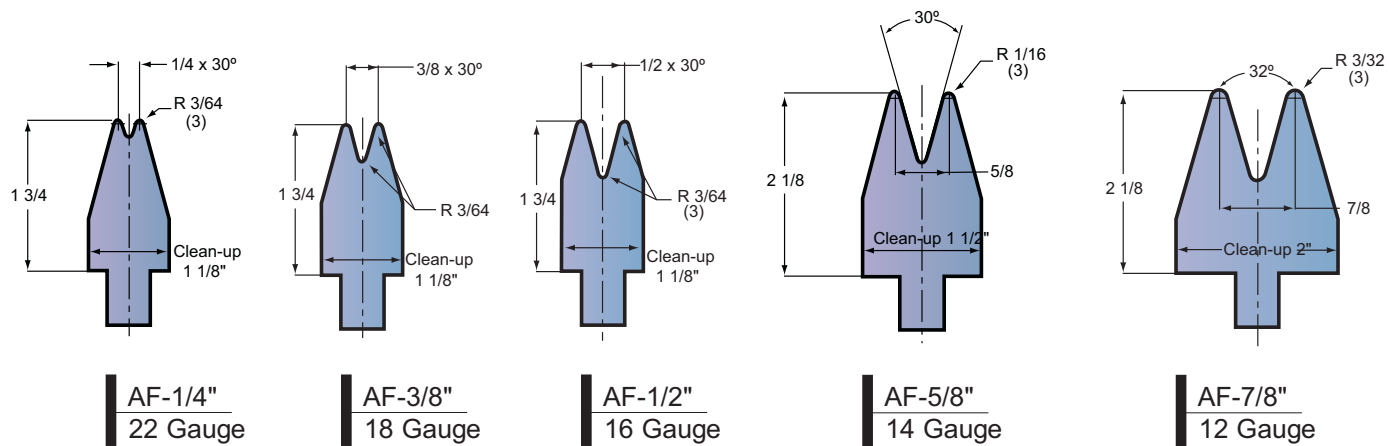
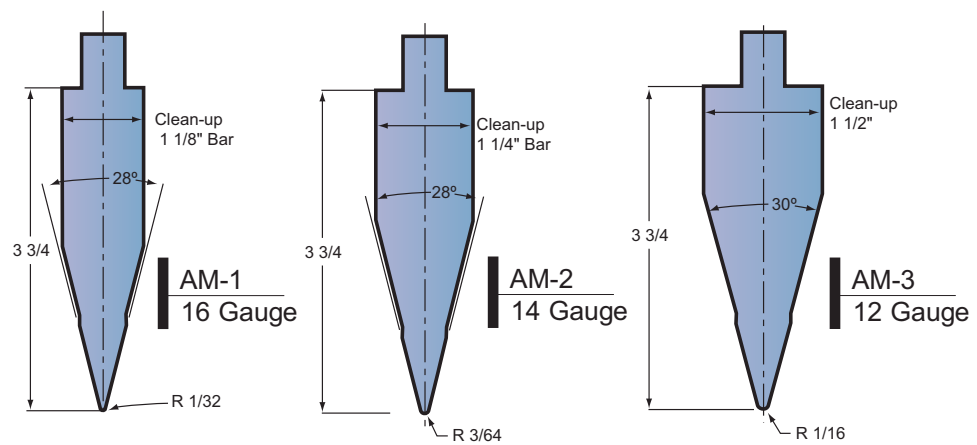


OS-1"
16 Gauge

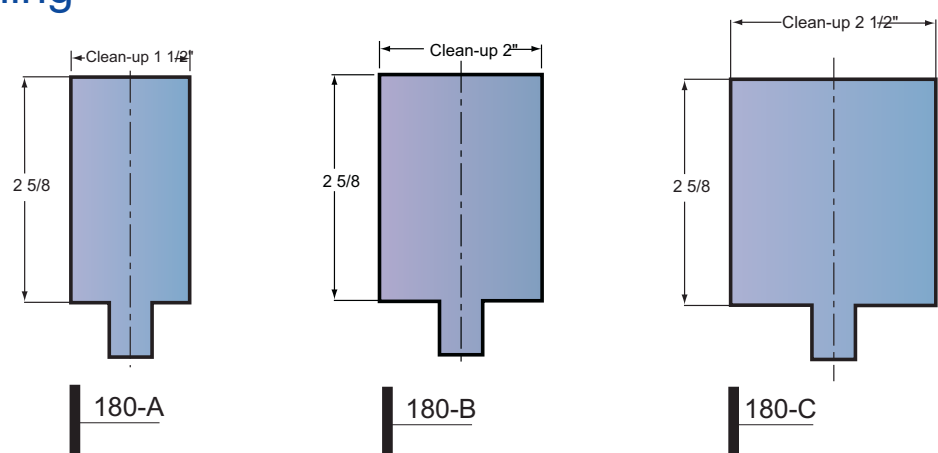




30° Forming Punches & Dies

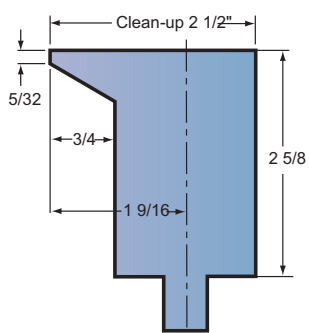
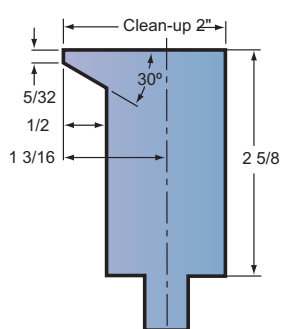
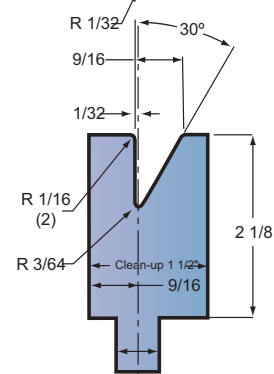
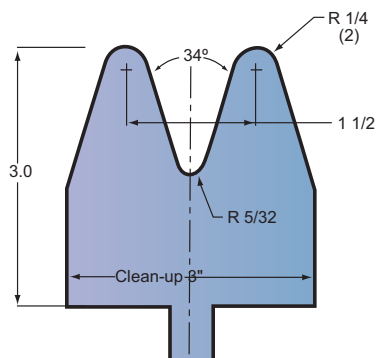
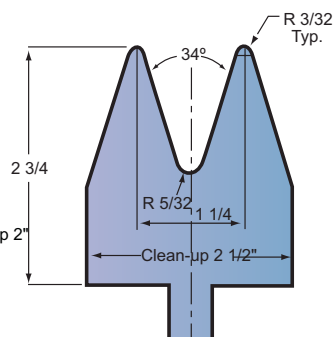
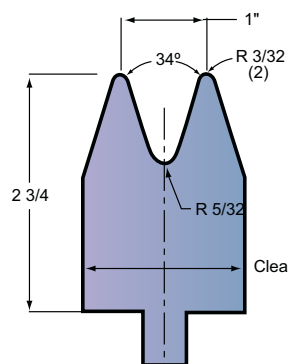
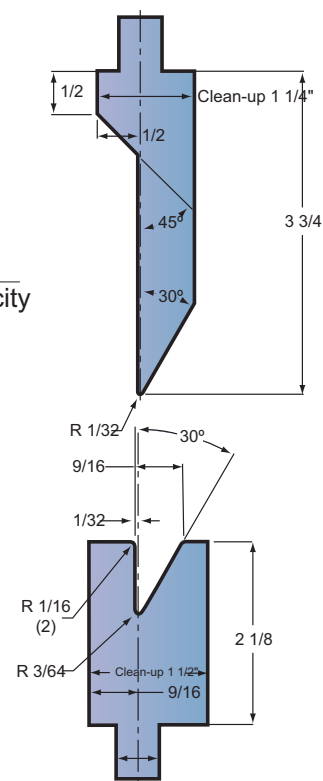
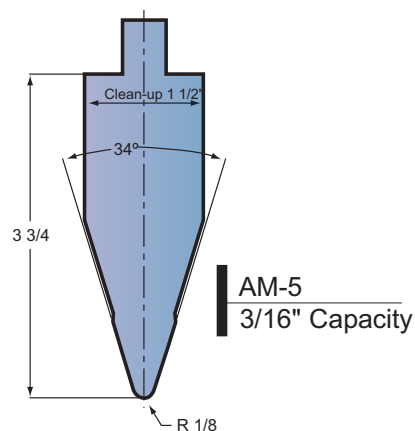
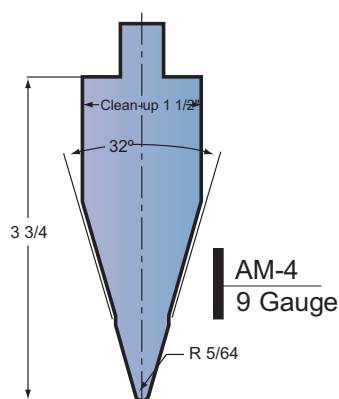


Flattening Dies



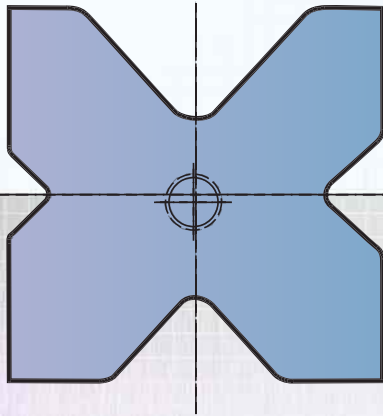
30° FORMING PUNCHES AND DIES

FLATTENING DIES



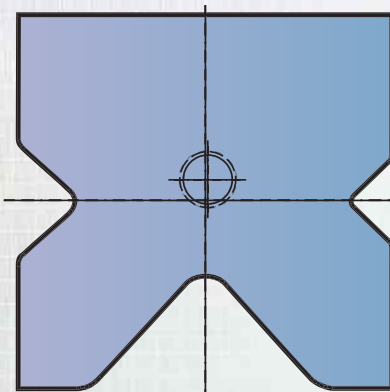
MULTI-VEE BLOCK DIES

4-Way Dies



Die No.	Block Size	4 Die Openings			
2-2MV4	2.250	0.500	0.750	1.000	1.250
2-7MV4	2.750	0.625	0.875	1.125	1.500
3-2MV4	3.250	0.750	1.000	1.500	2.000
3-7MV4	3.750	0.875	1.125	2.000	2.500
4-2MV4	4.250	1.000	1.500	2.000	3.000
4-7MV4	4.750	1.000	1.250	2.500	3.000
5-2MV4	5.250	1.000	2.000	3.000	4.000
5-7MV4	5.750	1.250	2.000	3.000	4.000
6-7MV4	6.750	1.500	2.500	3.500	5.000
7-7MV4	7.750	2.000	3.000	3.500	6.000
10MV4	10.00	2.500	3.500	4.000	8.000
12MV4	12.00	3.000	4.000	5.000	10.00

3-Way Dies



Die No.	Block Size	3 Die Openings		
2-2MV3	2.250	0.500	0.750	1.000
2-7MV3	2.750	0.750	1.125	1.500
3-2MV3	3.250	1.000	1.500	2.000
3-7MV3	3.750	1.125	2.000	2.500
4-2MV3	4.250	1.000	2.000	3.000
4-7MV3	4.750	1.250	2.000	3.000
5-2MV3	5.250	2.000	3.000	4.000
5-7MV3	5.750	1.500	2.500	4.000
6-7MV3	6.750	1.500	3.000	5.000
7-7MV3	7.750	2.000	3.500	6.000
10MV3	10.00	2.500	4.000	8.000
12MV3	12.00	3.000	6.000	10.00

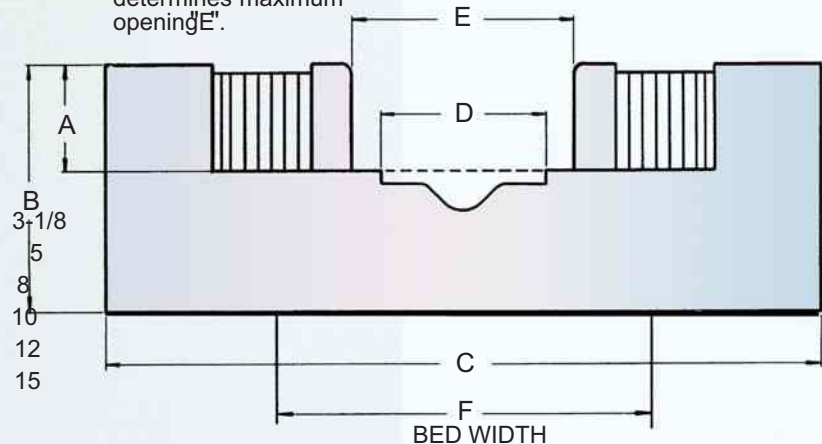
ADJUSTABLE AIR-FORMING DIE

ADJ-77

Considered the most versatile air forming component to complement a press brake. From general forming, to bumping radii.

Die No.	A	B	C	D	E	F
ADJ-77-1	1-5/8	2-7/8	8	NONE	1/4 - 3-1/2	
ADJ-77-2	2-1/4	4-1/8	12	NONE	1/2 - 5	
ADJ-77-3	2-7/8	5-3/4	16-1/4	3-1/4	3 - 8	
ADJ-77-4	3-1/4	7	19-1/2	4-1/4	5 - 10	
ADJ-77-5	4-1/4	10	20-1/2	5-1/4	5 - 12	
ADJ-77-6	6-3/4	10-1/2	28	7-3/4	8 - 15	

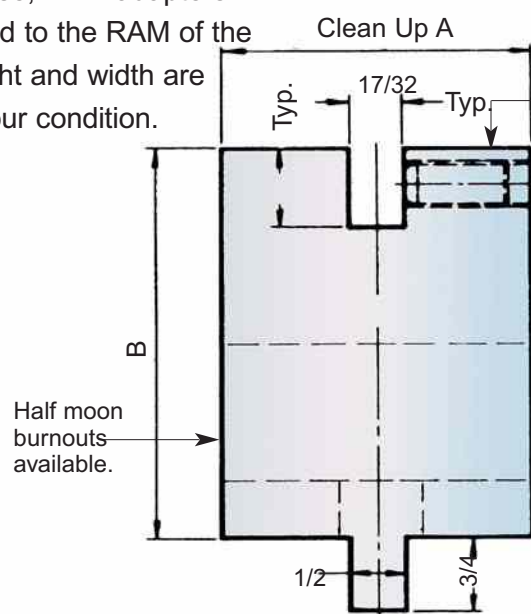
Width of press bed determines maximum opening "E".



RAM ADAPTERS AND DIE HOLDERS

It is sometimes necessary to fill die space if RAM adjustment is insufficient or if application exists.

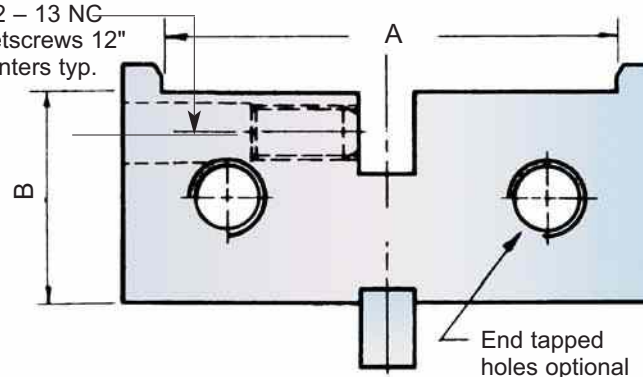
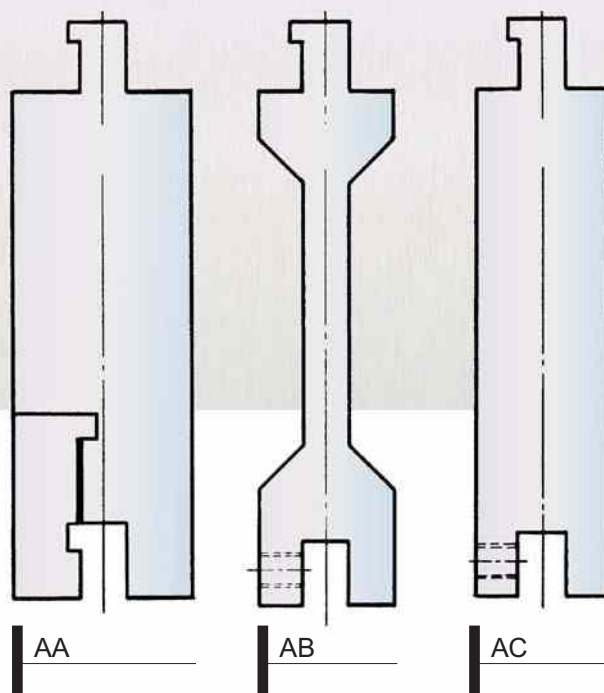
In either case, RAM adapters are mounted to the RAM of the press. Height and width are suited to your condition.



Series 200

Number	A	B
200A	2	1-1/2
200B	2	2
200C	2	3
200D	2	4
200E	2	5
200F	3	1-1/2
200G	3	2
200H	3	3
200I	3	4
200J	3	5
200K	4	2
200L	4	3
200M	4	4
200N	4	5
200O	5	2
200P	5	3
200Q	5	4
200R	5	5

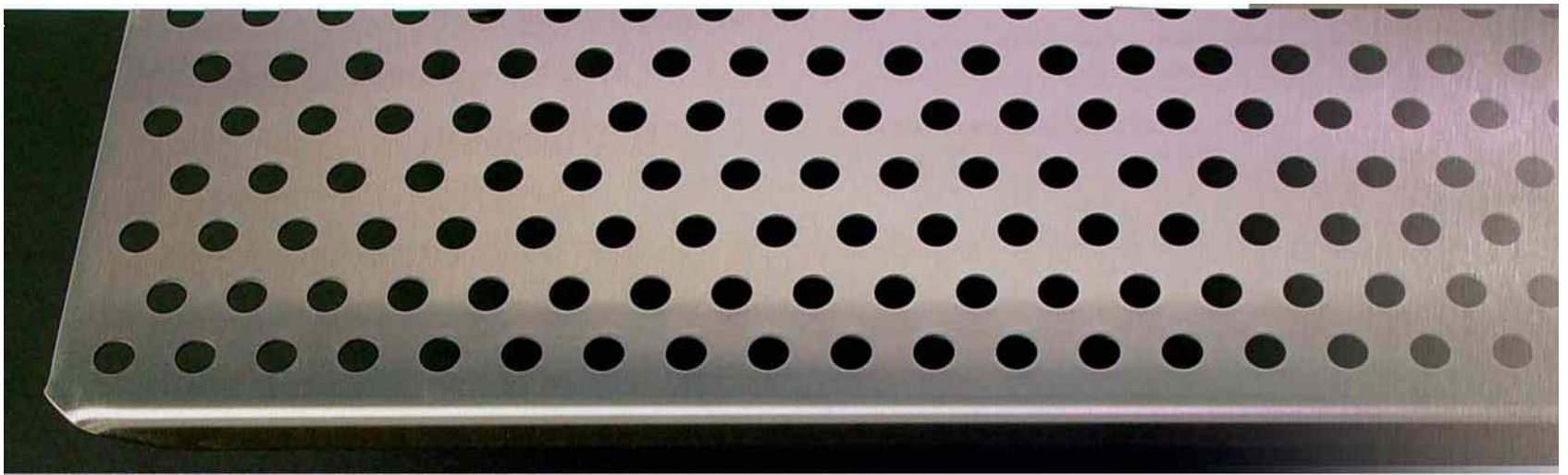
European to American Adapters



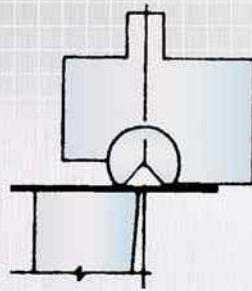
Series 600

Number	A	B
600A	2-1/4	3-1/2
600B	2-1/4	4-3/4
600C	2-3/4	3-1/2
600D	2-3/4	4-3/4
600E	3-1/4	3-1/2
600F	3-1/4	4-3/4
600G	3-3/4	3-1/2
600H	3-3/4	4-3/4
600I	4-1/4	3-1/2
600J	4-1/4	4-3/4
600K	4-3/4	3-1/2
600L	4-3/4	4-3/4
600M	5-1/4	3-1/2
600N	5-1/4	4-3/4
600O	5-3/4	3-1/2
600P	5-3/4	4-3/4
600Q	6-3/4	3-1/2
600R	7-3/4	3-1/4
600S	10	3-1/2
600T	12	3-3/4

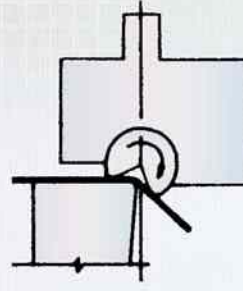
Any die holder 4" high or over can be furnished with half moon burnouts for mounting.



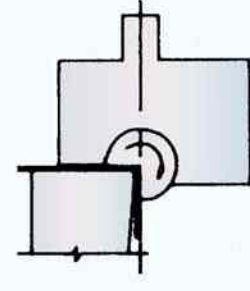
ROTARY BENDER



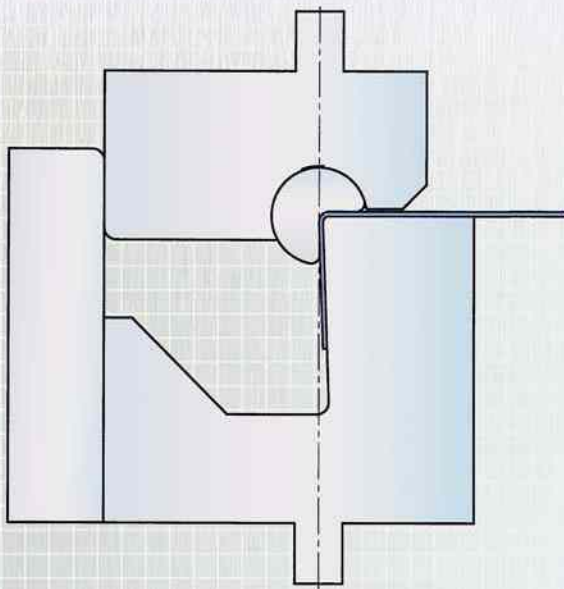
First Pressure



Midway



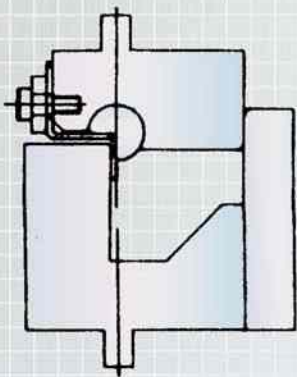
Close



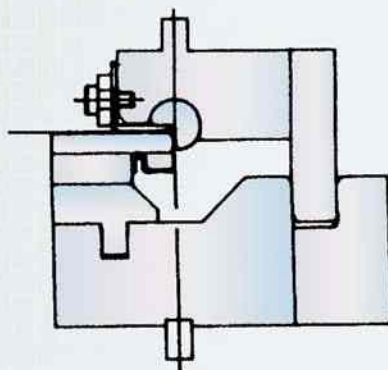
Rotary Benders

	Rocker Diameter	Range of Material	Min. & Max. Flange Length-OD
PCM-1	1"	22 - 14 Ga. (.030 - .075)	7/16" - 2"
PCM-15	1-1/2"	13 - 11 Ga. (.089 - .120)	5/8" - 2"
PCM-2	2"	10 - 8 Ga. (.134 - .164)	13/16" - 2"

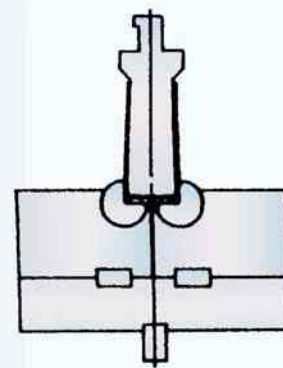
Typical Rotary Bender Applications



90° Degree Bends



Return Bends



Channel Bends

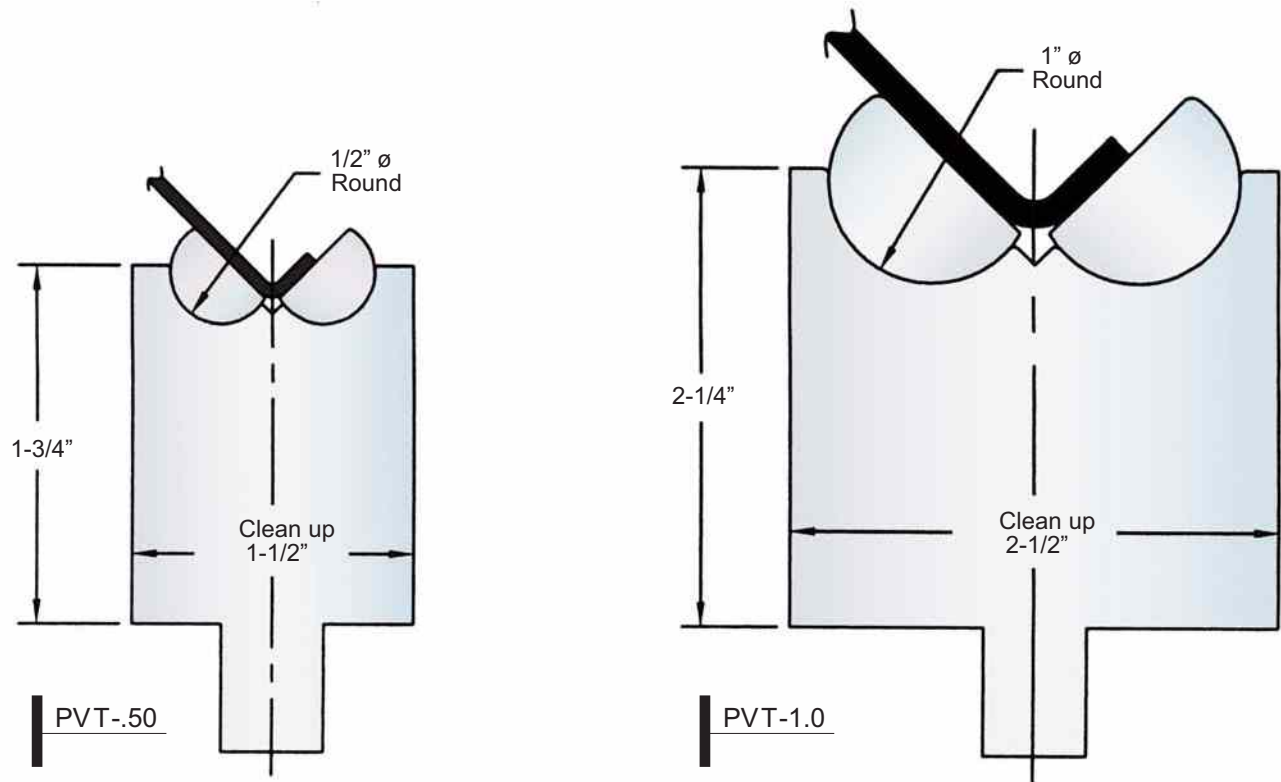


PIVOT FORM VEE DIE

The Pivot Form Vee Die is designed to offer a wide variety of benefits compared to a conventional die:

- Each die is able to form a wide variety of material thicknesses.
- Ability to form short flanges.
- Minimize marking on parts.
- Minimize distortion of holes and slots near bend line.

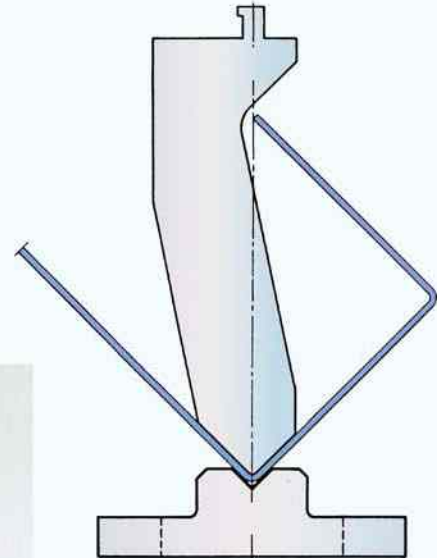
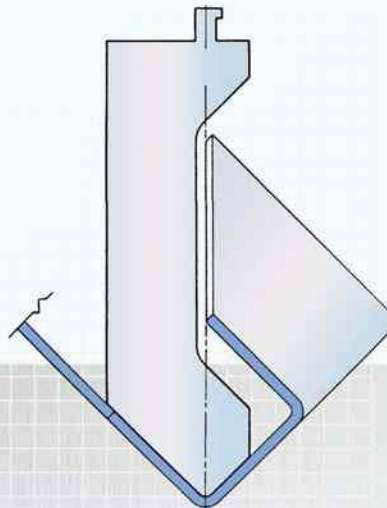
The Retractable Vee Die can be designed to fit any press brake.



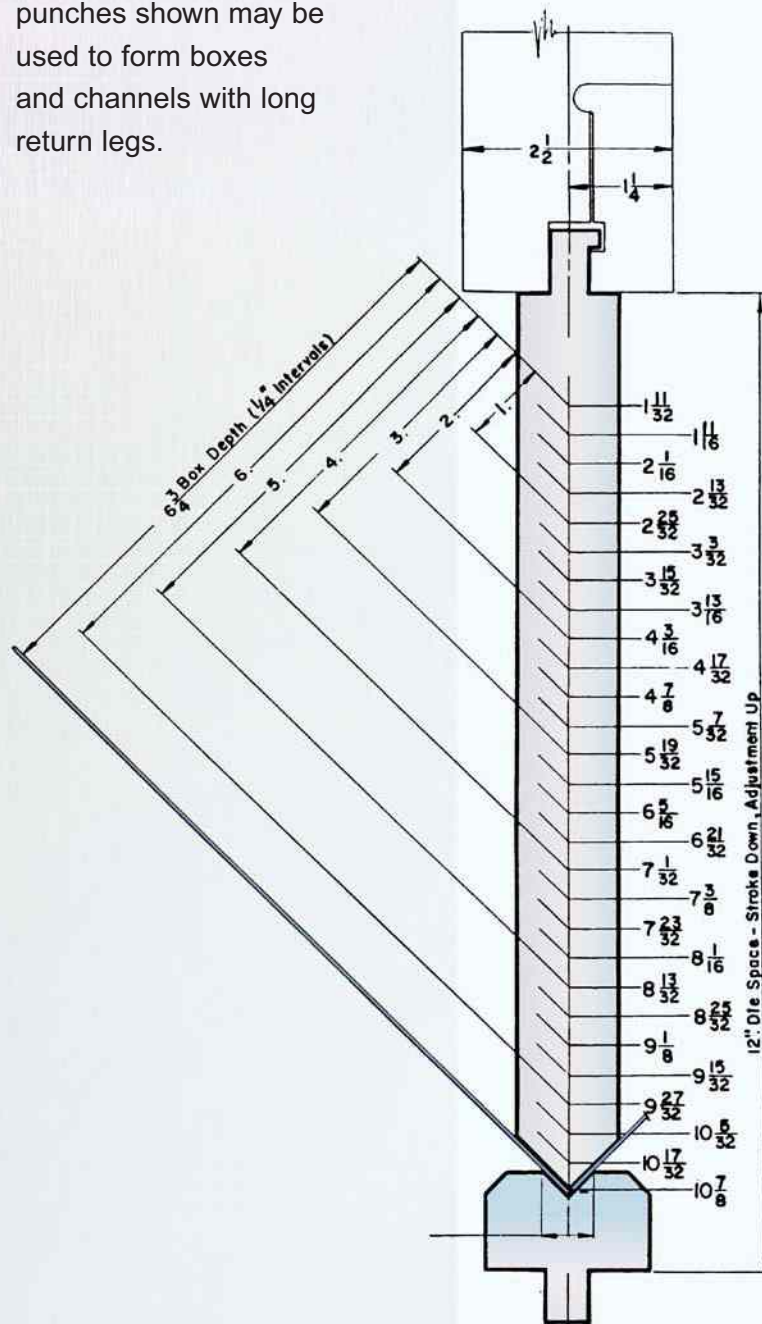
Pivot Form Vee Dies

	Diameter Rounds	Max. Material Thickness	Min. Outside Flange	Max. Outside Radius
PVT-.50	1/2"	.10"	.27"	.20"
PVT-1.0	1"	.187"	.54"	.45"

BOX FORMING DIES



These special gooseneck punches shown may be used to form boxes and channels with long return legs.



Box Forming

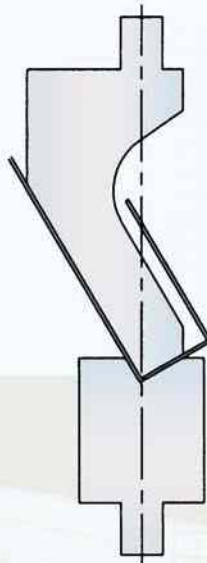
In forming a box, where 4 sides are bent up, the punch must be high enough so that when making the last two bends, the preformed sides do not strike the ram.

TIPPED ANGLE DIE SETS



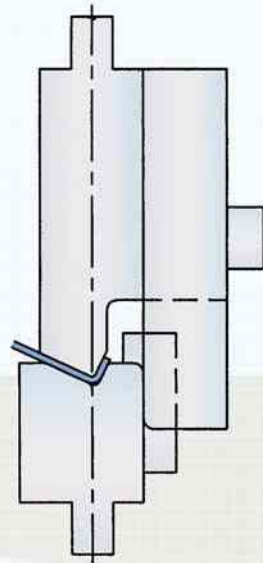
TA-22

The tipped forming angle minimizes sheet whip up and provides ram clearance on deep channels.



TA-24

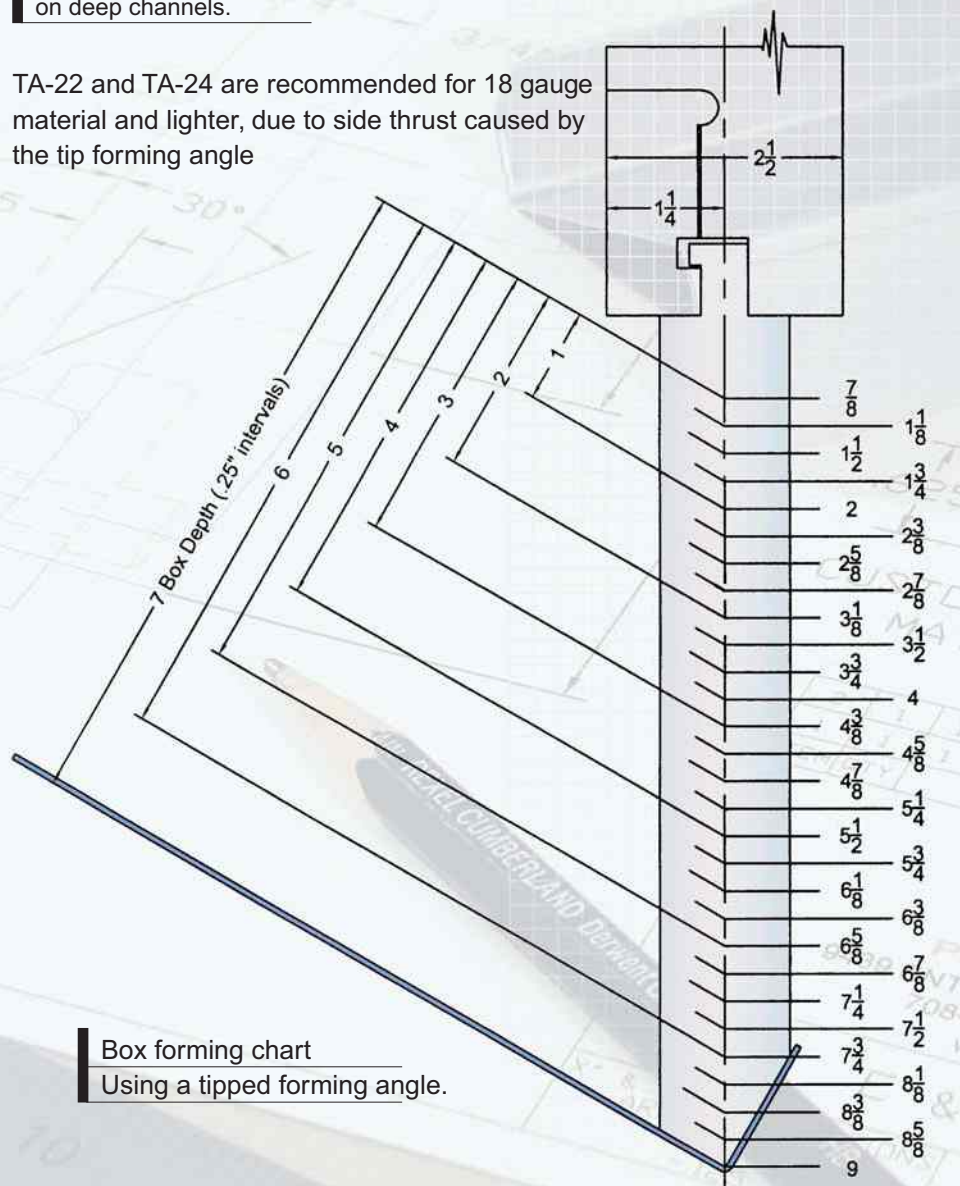
The tipped angle gooseneck allows deeper channels to be formed



TA-26

Allows shorter flanges to be formed that wouldn't be possible in conventional tools

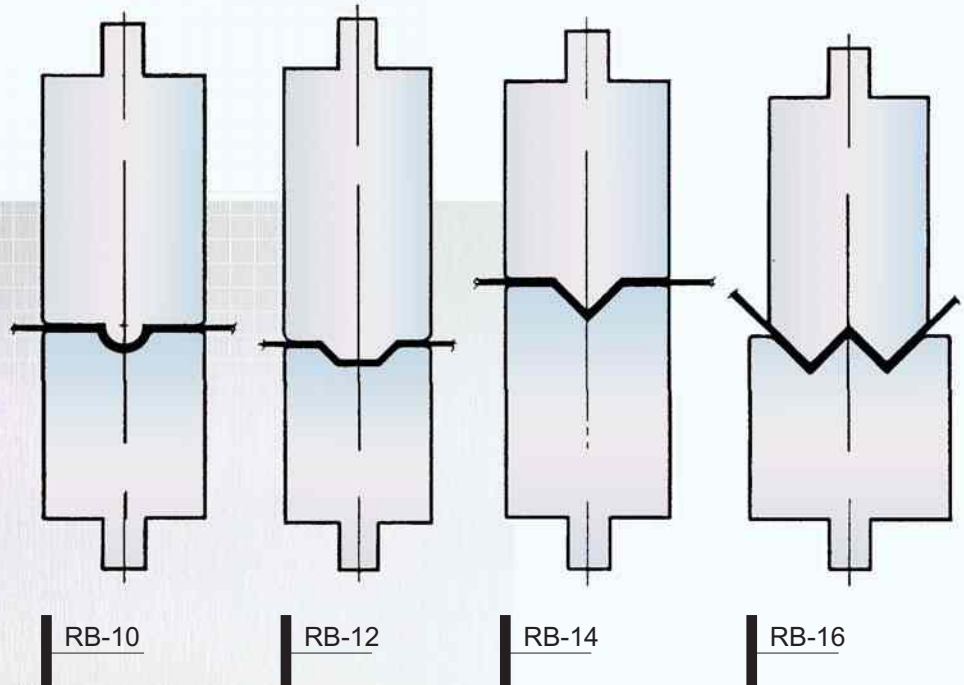
TA-22 and TA-24 are recommended for 18 gauge material and lighter, due to side thrust caused by the tip forming angle



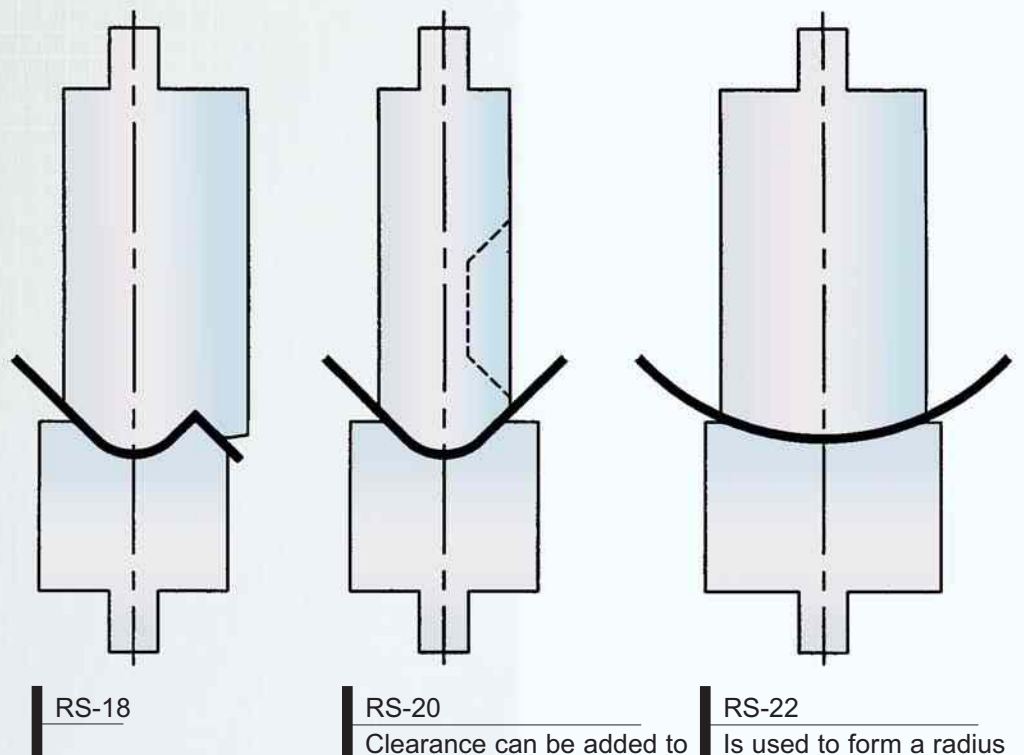
Box forming chart

Using a tipped forming angle.

RIB FORMING DIES



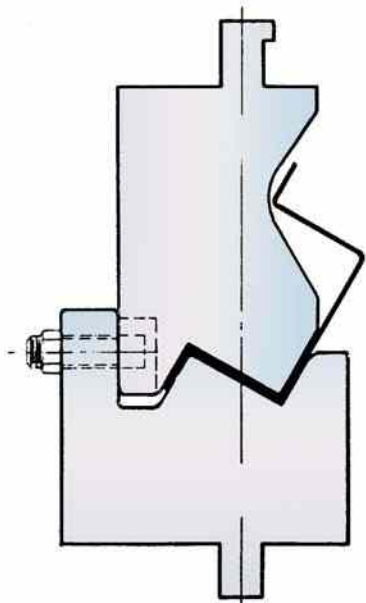
RADIUS FORMING DIES



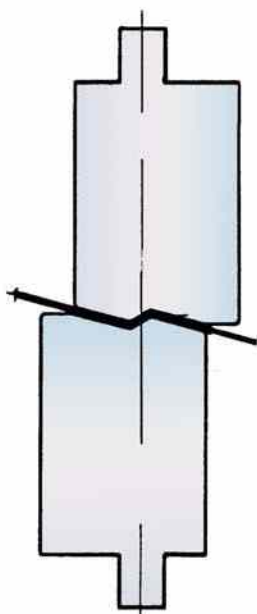
RS-20
Clearance can be added to the punch for pre-formed flanges.

RS-22
Is used to form a radius and angle in multiple hits

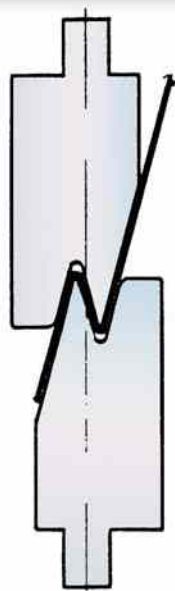
SPECIAL OFFSET DIES



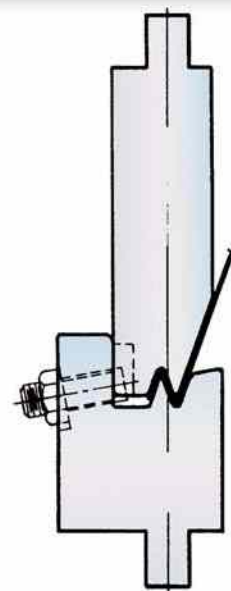
SO-26



SO-28

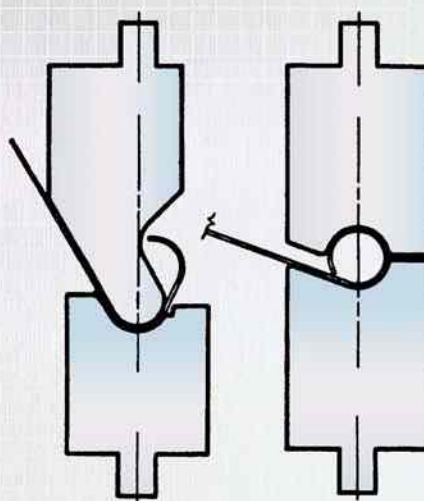


SO-30



SO-32

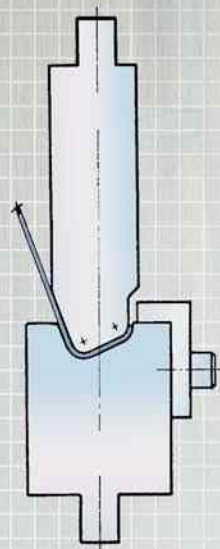
CURLING DIES



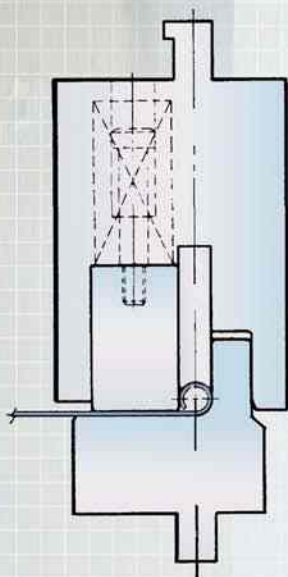
CRL-11

CRL-22

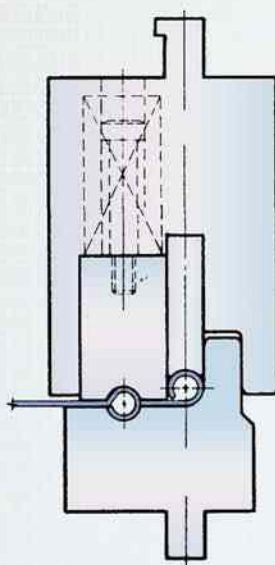
SET CRL-11&22	Curls of 3/8" dia. and larger are for regular edge beading
SET CRL-33&44	Produce the tightest and roundest curl that can be formed in two strokes
SET CRL-55	Used in place of CRL-44 with on center curl in three strokes



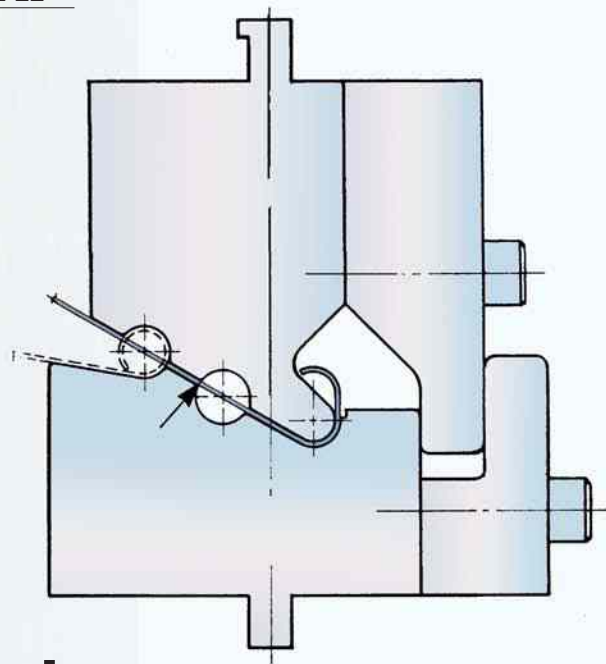
CRL-33
1st Operation



CRL-44
2nd Operation



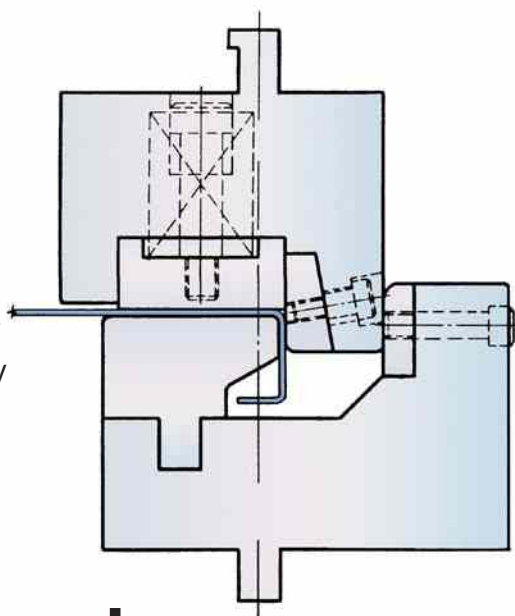
CRL-55
3rd Operation



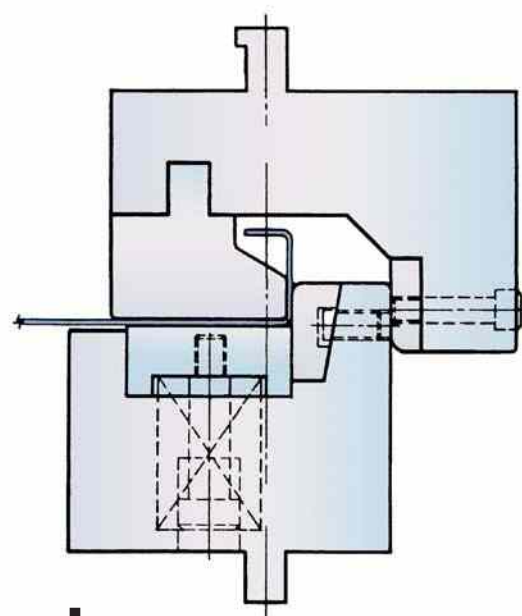
CRL-66
Forms a complete off center curl in 3 operations. Whip up minimal due to slight angle involved on the first two operations. Optional on center curl in 4 strokes

WIPING DIES

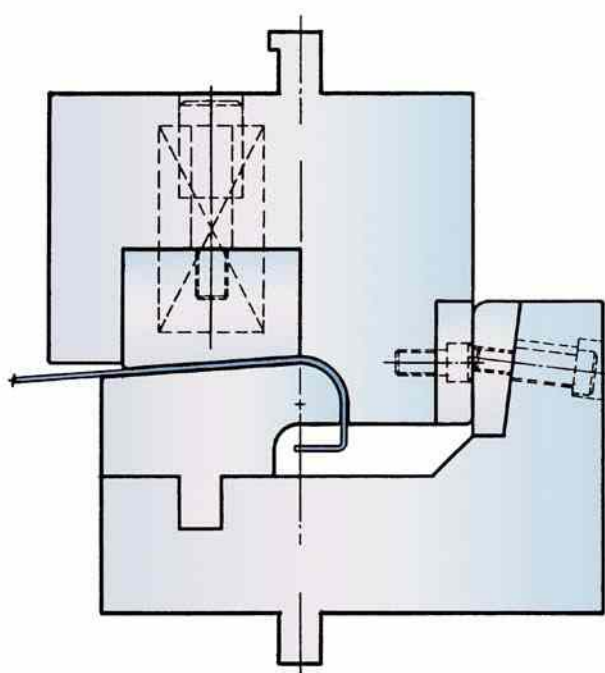
All of these die sets are used in high production flanging operations. Material whip up on the operator is non-existent. Capacity for illustrated sets – 16 Gauge.



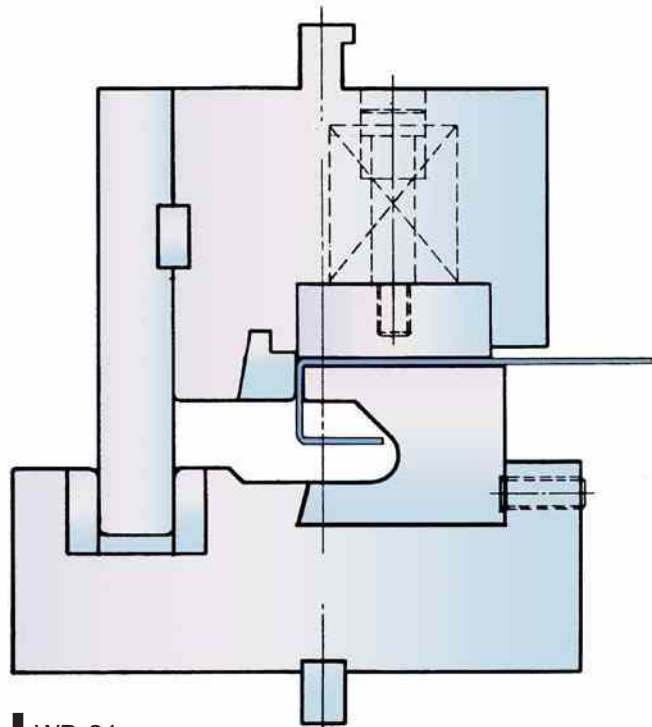
WD-01



WD-02



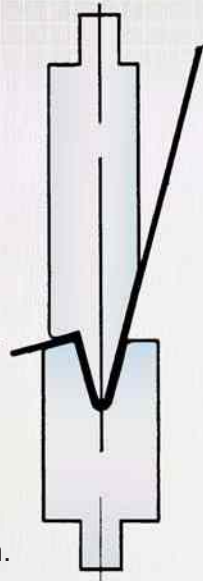
WD-23



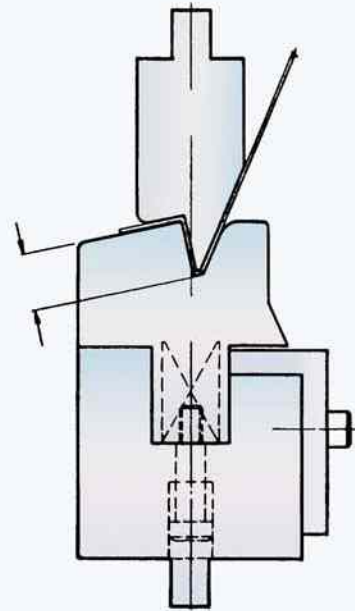
WD-24

STANDING SEAM & HEMMING DIES

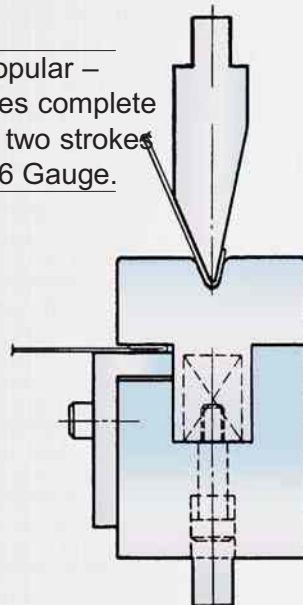
SS-9
Flattening die
required to
close hem in
second operation.



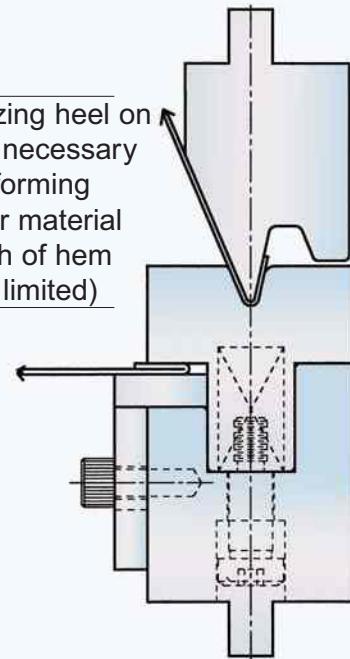
SS-18
Common
standing
seam in two
operations.

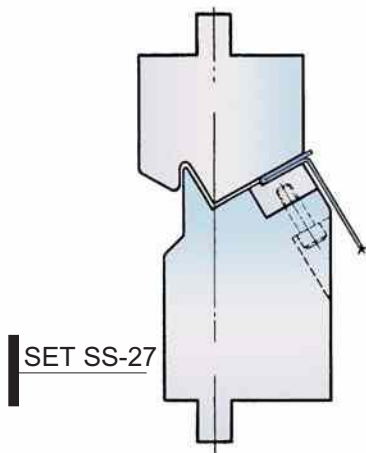
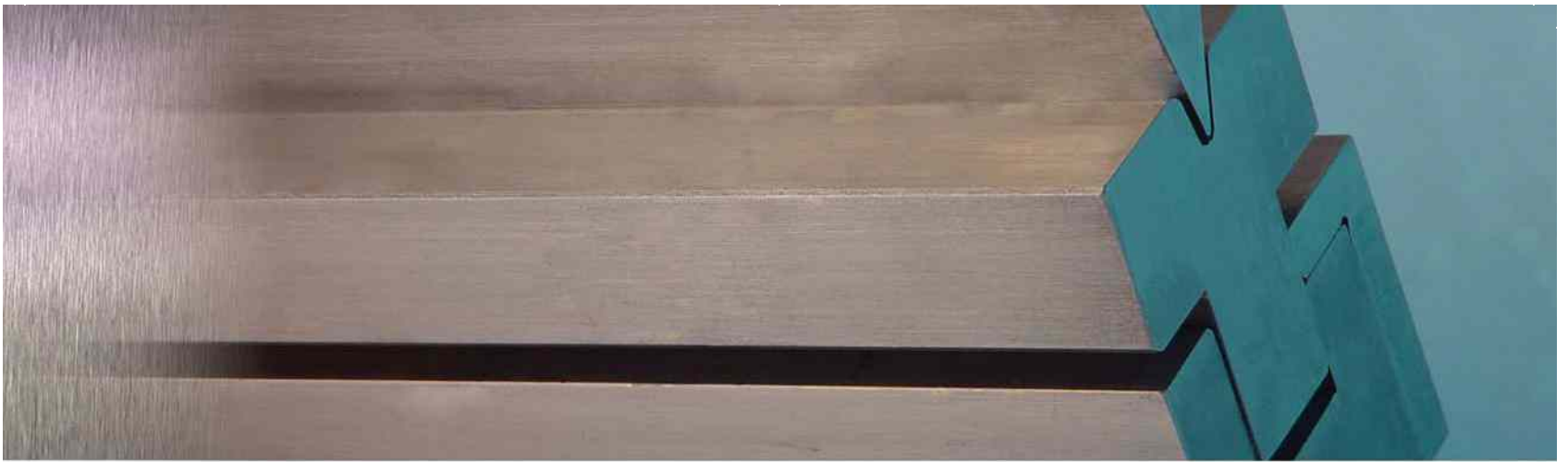


HM-01
Very popular –
produces complete
hem in two strokes
up to 16 Gauge.

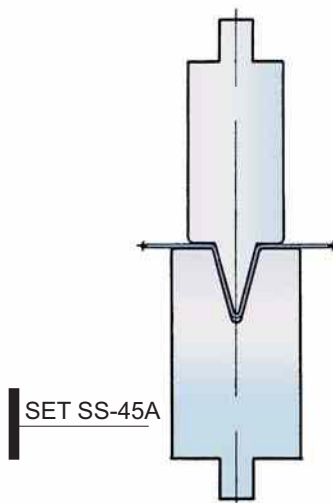
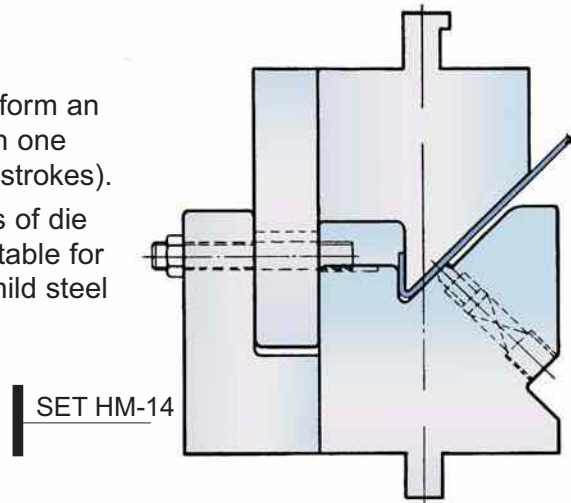


HM-02
Stabilizing heel on
punch necessary
when forming
heavier material
(Length of hem
will be limited)

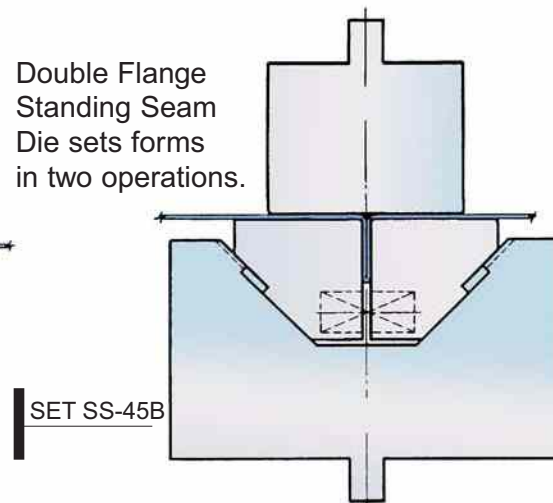




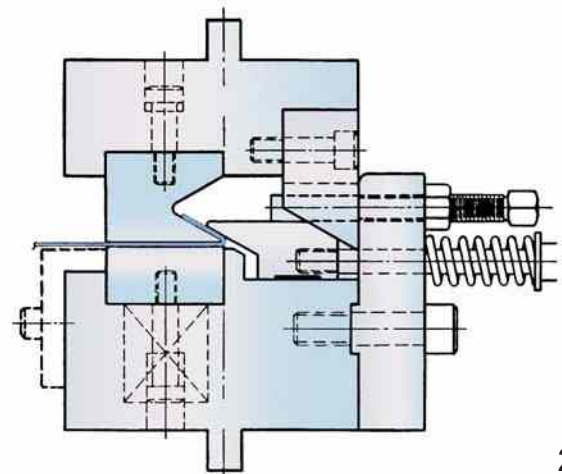
These sets form an open hem in one handling (2 strokes). These types of die sets are suitable for 14 Gauge mild steel or less.



Double Flange Standing Seam Die sets forms in two operations.



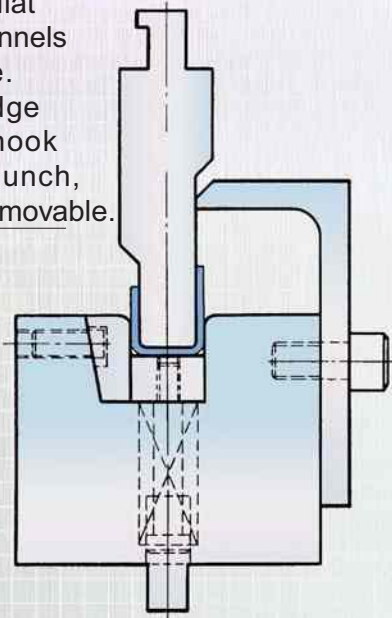
SET HM-22
For high production in hemming wide sheets with no whip up. Recommended for 20 Gauge or lighter.



CHANNEL DIES

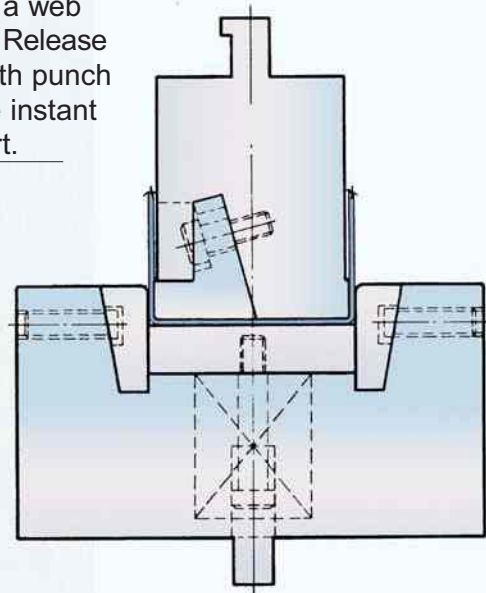
SET CHN-1

Used to form flat bottomed channels in one stroke. Release wedge on die, and hook stripper on punch, makes part removable.



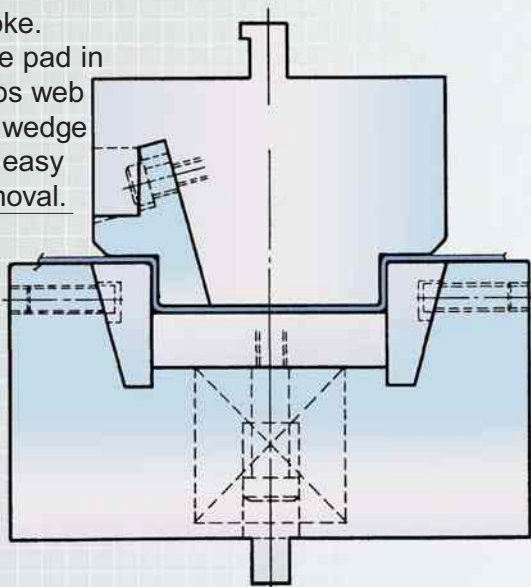
SET CHN-2

Recommended for channels with a web over 3/4" wide. Release wedges on both punch and die insure instant removal of part.



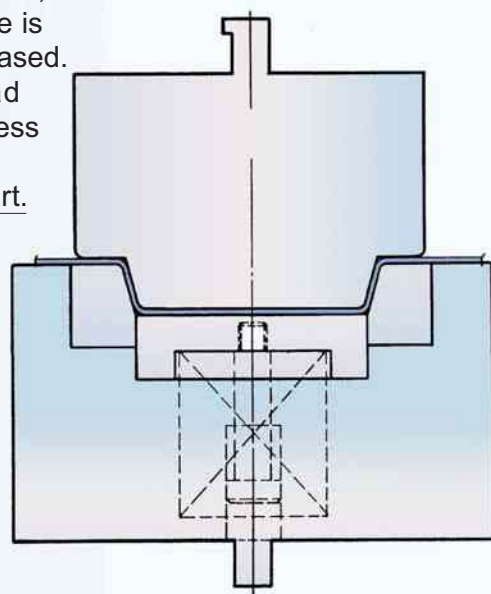
SET HCD-3

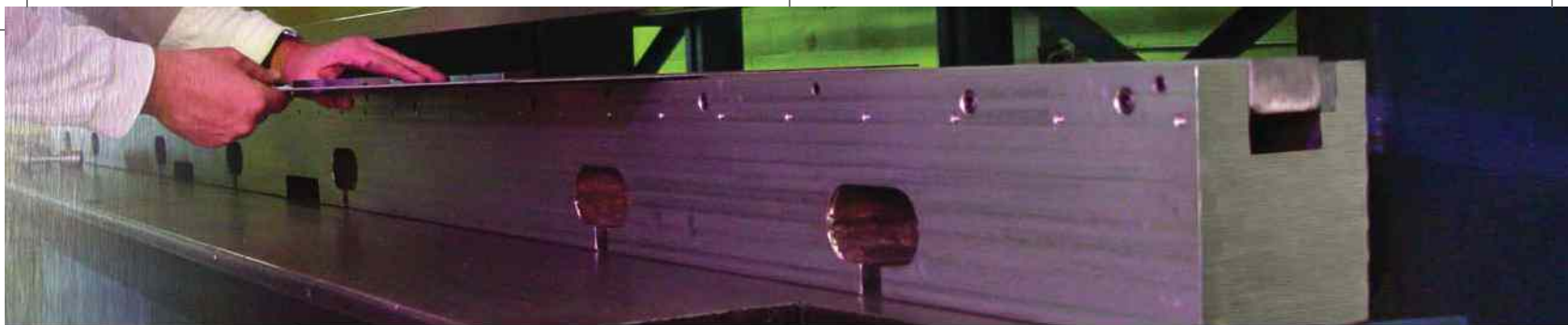
Forms four right angle bends in one stroke. Pressure pad in die keeps web flat and wedge permits easy part removal.



SET HCD-4

By tapering sides of a hat channel, press tonnage is greatly decreased. Pressure pad assures flatness of web and ejection of part.

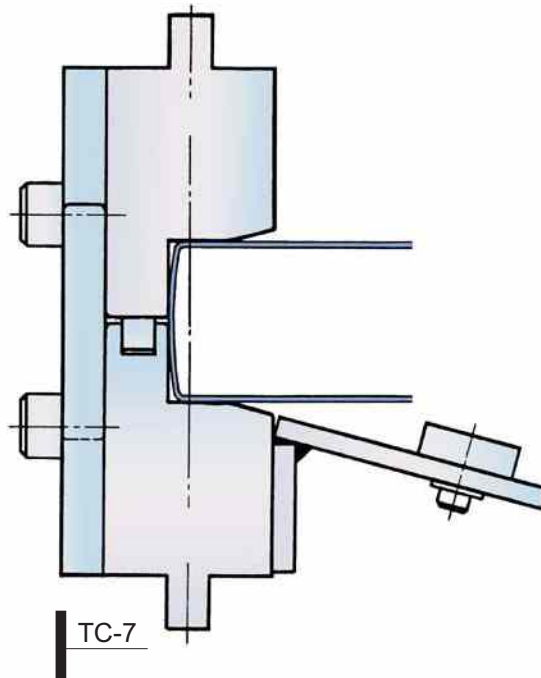
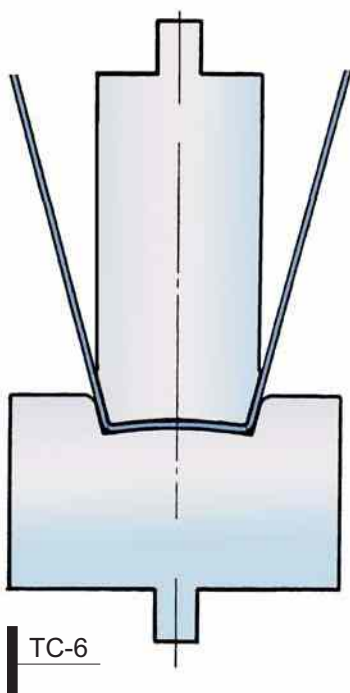
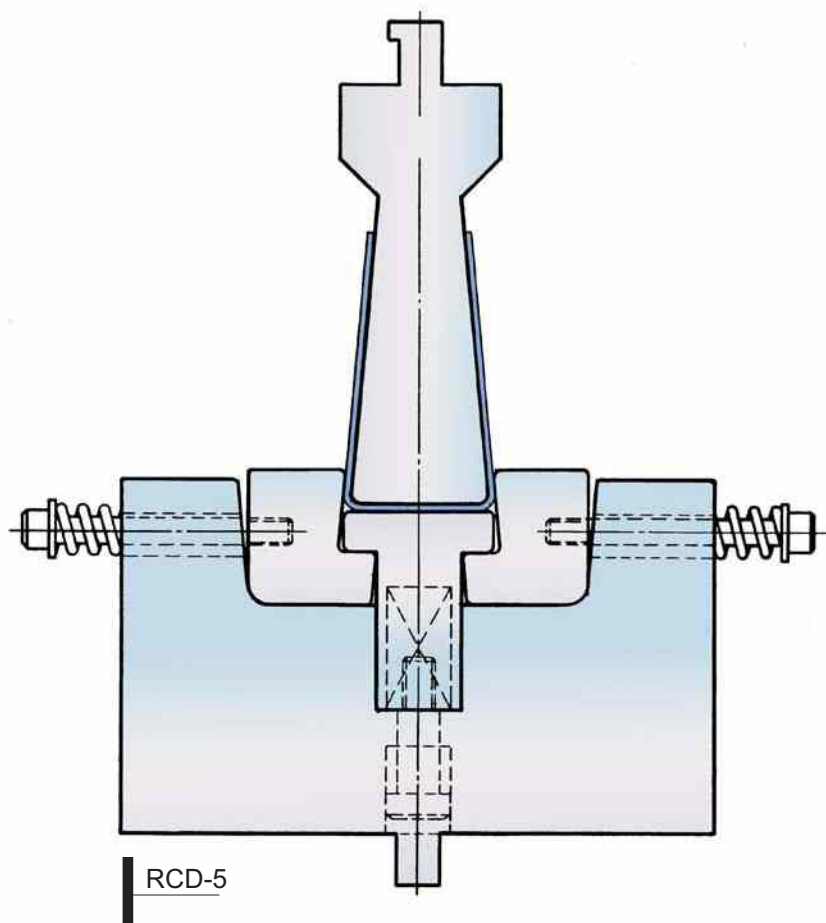




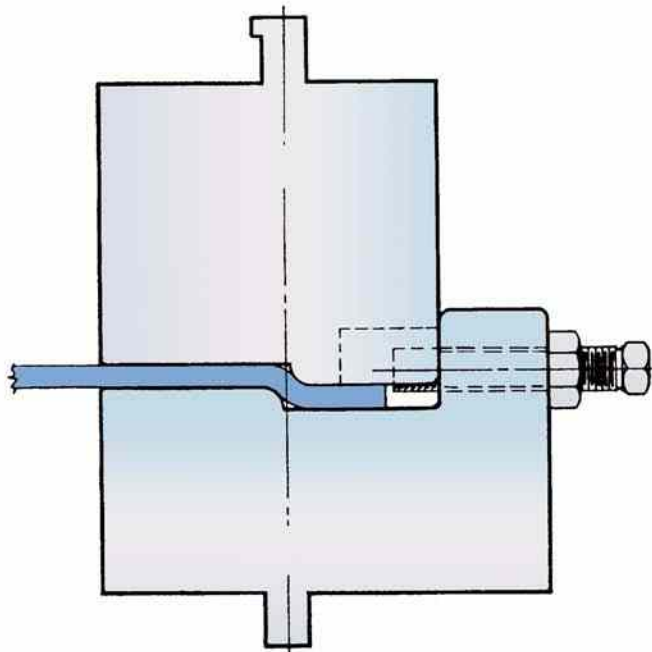
CHANNEL DIES

At times when material has a high memory value or when an excessive inside radii is required, Set RCD-5 is recommended.

Making rectangular tubes, sets TC-6 and TC-7 are suggested in combination.

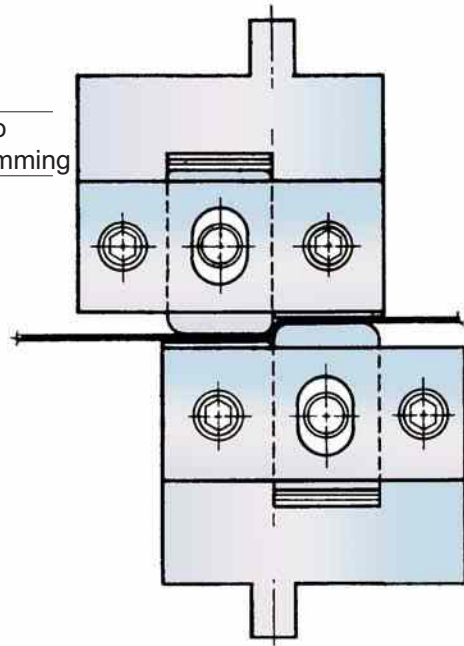


OFFSET & JOGGLE DIES

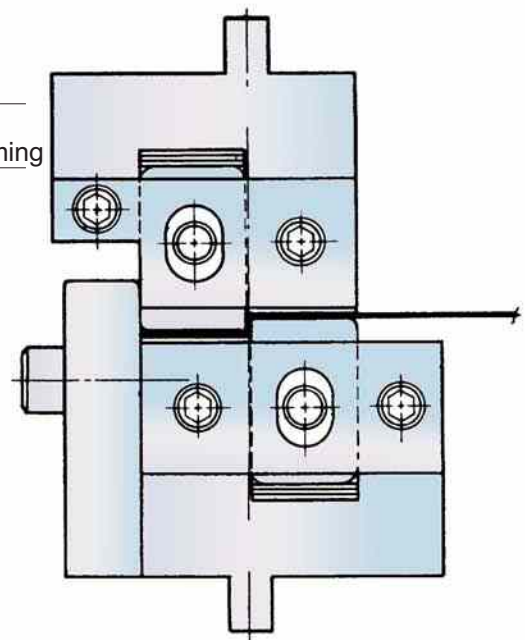


SET JGL-1
For material
thickness offsets

SET JGL-2
Adjustable to
5/16" by shimming

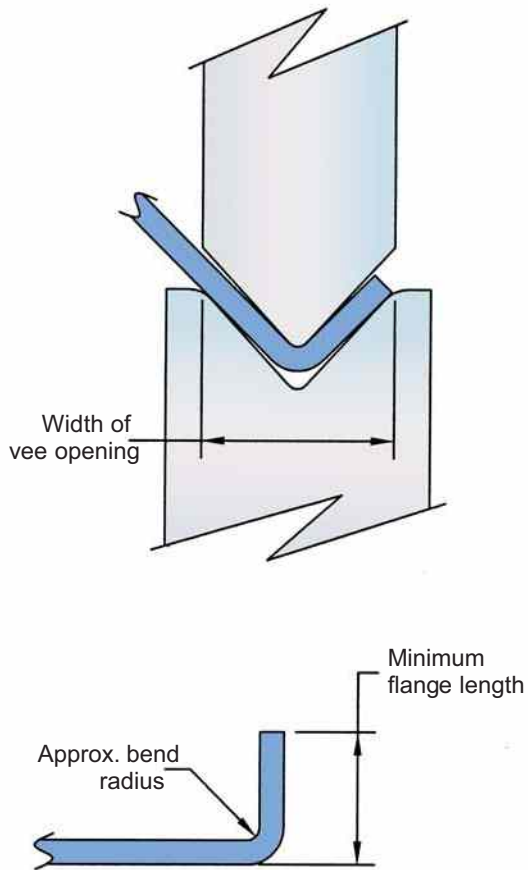


SET JGL-3
Adjustable to
5/16" by shimming



USEFUL FORMING INFORMATION

The chart gives you the minimum flange length for each vee opening, and the approx. bend radius when air bending over a particular vee opening.



Vee Opening	Minimum Flange	Approx. Bend Radius
.156	.125	.024
.25	.188	.039
.375	.281	.058
.500	.344	.078
.625	.437	.097
.75	.562	.117
.875	.656	.136
1.00	.687	.156
1.125	.812	.175
1.25	.875	.195
1.500	1.125	.234
2.00	1.375	.312
2.500	1.750	.390
3.00	2.188	.468
4.00	2.687	.625
5.00	3.500	.780
6.00	4.500	.936
8.00	5.500	1.25
10.00	6.875	1.56

See chart on following page for tonnage calculations

TONNAGE CHART

MATERIAL WIDTH OF FEMALE VEE DIE OPENING THICKNESS

Approximate tons per lineal foot of forming based on Air Bending 90° bend in mild steel.

Gauge	Dec.	1/4	5/16	3/8	7/16	1/2	5/8	3/4	7/8	1	1-1/8	1-1/4	1-1/2	2	2-1/2	3	3-1/2	4	5	6	7	8	10	12	14	15	20	24	30
20	.0360	2.5	2	1.6	1.1	1.2																							
18	.0478		3.5	2.8	2.1	1.7	1.3																						
16	.0598			6.0	5.3	3.7	2.8	2.2	1.7																				
14	.0747					5.5	4.6	3.5	3.0	2.5	2.1																		
13	.0897						6.4	5.5	4.3	3.6	3.2	2.8																	
12	.1046						9.2	6.9	6.0	5.0	4.3	3.9	3.1																
11	.1196							10.1	8.0	7.0	6.1	5.3	4.3	2.9															
10	.1345							10.3	8.7	7.8	6.9	5.7	3.9																
9	.1495								11.9	9.8	8.8	7.0	5.0	3.7															
3/16	.1870								21.5	16.9	13.9	11.2	8.3	6.7	4.9														
1/4	.2500										27.5	22.1	15.0	11.6	9.6	7.9	6.7												
5/16	.3120											39.2	26.5	19.3	15.0	12.5	10.4	7.7											
3/8	.3750												42.7	31.2	23.8	19.5	16.3	12.4	9.6										
7/16	.4380													45.5	35.2	28.5	24.4	17.4	15.0	11.5									
1/2	.5000														48.5	39.5	33.2	24.6	19.5	16.1	13.4								
5/8	.6250															57.9	42.8	33.1	27.3	23.3	17.0								
3/4	.7500																68.7	53.5	43.6	36.5	27.1	21.0							
7/8	.8750																	81	64	53	39.5	31.4							
1	1.000																			91	76	56	44						
1-1/4	1.250																					98	76	62	51	38			
1-1/2	1.500																						118.5	97.5	81	60	47		
1-3/4	1.750																							144	119	88	69	51	
2	2.000																								165	122	97	71	
2-1/2	2.500																									215	169	125	
3	3.000																										266	197	

When using material over 1/2", it is usual practice to have die opening 10 times the metal thickness.

The shaded figures represent ideal conditions for right angle bending: punch with radius equal to metal thickness and die opening, approximately eight times the metal thickness. Resulting bend has inside radius approximately equal to metal thickness. Bending pressure required for other metals as compared to 60,000 P.S.I. tensile mild steel on chart.

Soft Brass	50% of pressure listed
Soft Aluminum	50% of pressure listed
Aluminum Alloy (heat treated)	Same as steel
Stainless Steel	50% more than steel
Chrome Molybdenum	100% more than steel

PRESS BRAKE – MULTIPLE BEND ALLOWANCES RULE OF THUMB

Shape	Description	Air Form	Bottoming	NOTES
	Vee Die	60	150	Formula for making multiple bends on press brake. Shape as shown in mild steel with radii equal the metal thickness unless otherwise noted.
	Wiping	—	250	
	Offset	150	300/600	Multiply metal thickness by factor = tons per foot
	Mat'l. Thk. Offset	300	600	Stainless Steel (18-8 annealed) Type 304 1.55
	Channel	225	300	Aluminum 3303-H14 (1/2 hard) .35
	Vee Rib	200	600	5052-H34 (1/2 hard) .65
	W Die	300	600	6061-T6 .75
	Open Hat Channel	300	450	Brass 70/30 (1/2 hard) 1.10
	Square Hat Channel	—	600	Safety Warning
	Preform Curl	—	300	
	Preform Curl	—	200	It is the responsibility of the owner to make sure that the 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.
	Close Curl	—	300	
	Radius	—	180/300	We do everything possible to supply dies to produce material that fits specifications. However, there is no possible way we can control how the dies are actually used.
	Hem	150	420	Our dies are to never be used in any equipment without some means provided for preventing hands or other parts of the body from extending or remaining in the die space at any time.
Shape Considerations		Large Radii Angle Variation Concave or Convex Sides	Mat'l. Thick Radii Min. Angle Variation Maintain Flatness	Safety requirements are outlined by the American National Standards Institute Bulletin A.N.S.I. #B-11-3, as well as other local, state and federal standards which may apply.
				For further safety information and a copy of A.N.S.I. #B-11-3 write to: American National Standards Institute, Inc. 1430 Broadway New York, NY 10018.