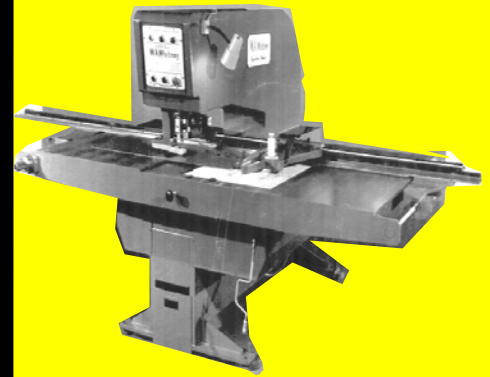
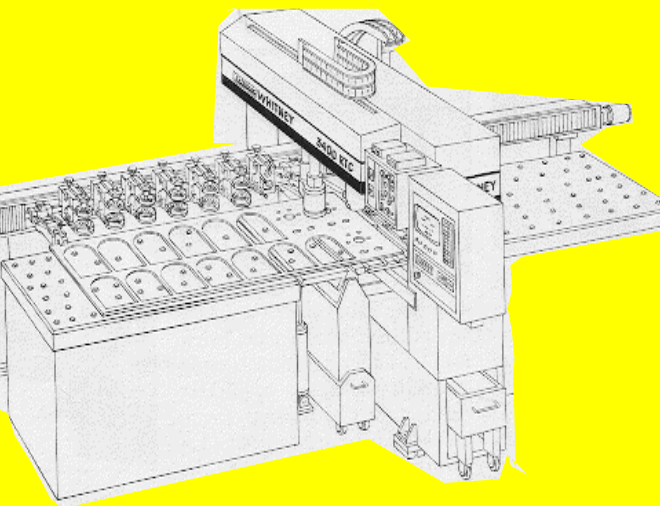


# C.E. TOOLING

# 5

Section



Reference Section 1 For Technical Information



**TOOLING FOR**  
**WHITNEY**  
**EUROMACH • BOCHERT •**  
**Ironworker Oversize**  
**Attachments**  
*and similar machines*

**28XX • Roper** (Non-Keyed)  
**36/37TC**

# ADDITIONAL COSTS FOR NON-STANDARD OPTIONS



## RADIUS OR 45° CHAMFERS + \$.00 per corner

### PUNCHES Corners 1-3 X # 4(all)

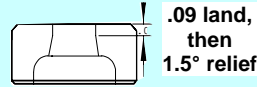
With Length under 1.625 and any size Radius or Chamfer	# X \$10.00	\$10.00
With Length over 1.625 & .032 maximum Radius or Chamfer	# X \$10.00	\$30.00
With Length over 1.625 and Radius or Chamfer over .032(.8mm)	# X \$15.00	\$40.00
<b>Add On To All <u>DIES</u> any size Radius or Chamfer</b>	# X \$10.00	\$10.00

No Extra Charge for STRIPPERS or GUIDES When Ordered With Set

Add 25% to set price for Clearance of .003 (.08mm) & <

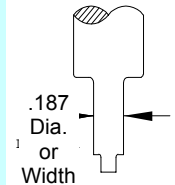
50% added to die price for **Solid Dies.**

Widths or Dia. Under .093(2,36mm) Add 30% to set price  
 Widths or Dia. Under .062(1,57mm) Add 50% to set price  
 Widths or Dia. Under .046(1,2mm) Add 100% to set price



### Optional STUBBY PUNCH

**Included in add-on cost;** Dies are produced with .090 land then a 1.5° relief is given to prevent multiple slugs from stacking causing excessive pressure on punch. Further, punches can be produced with Stubby Punch Design at no additional charge. A Stubby Punch has it's tip (diameter or width) first ground to a size of .187, then a tip is ground to the requested size for a length of .225 + thickness to be punched. (If fitted strippers are used, + .125 to tip grind length, and use strippers .187 or > in diameter or width.)



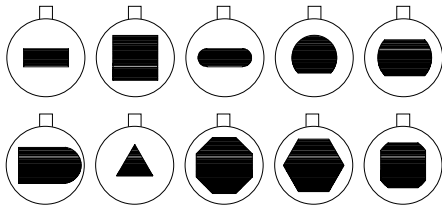
# STANDARD KEYING

10 Standard Shapes plus Rounds. (RT Rectangles • SQ=Square • OB=Obround • SD=Single-D • DD=Double-D • LD=Long-D • EQ=Equilateral • OC=Octagon • HX=Hexagon • QD=Quad-D Add \$10 per set to standard price for LD & EQ

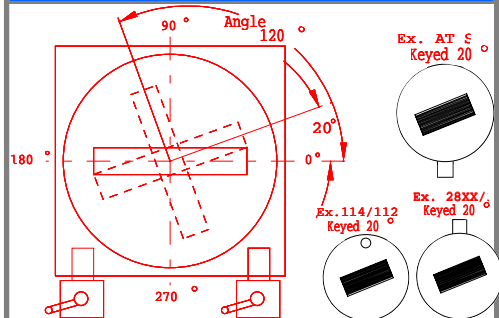
## LOOKING AT TOP OF DIE

HOLDERS ARE KEYED TWO PLACES TO ALLOW 0° & 90° INDEXING.

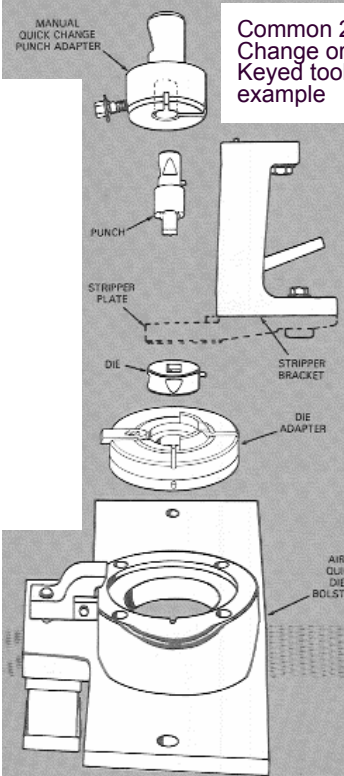
28XX & 36/37T



## Shapes on Angles or Extra Key Locations. Die View

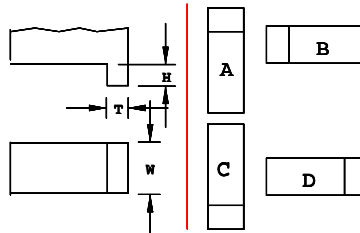


Visualize location key positioned as tool would load into turret. Start with length of shape horizontally. (Length points to 0°) **Next Rotate shape, not location key.** A sketch accompanying your order ensures keying as required! *Note: Other Manufacturers ordering diagrams may differ from C.E.'s!*



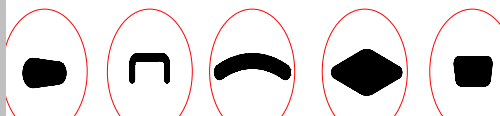
Common 28XX Quick-Change or Roper Non-Keyed tool loading example

### HEEL PUNCH DIAGRAM FACING MACHINE LOOKING DOWN AT DIE.



ADDITIONAL COST FOR HEEL FROM 1/4 TO 7/16" STANDARD POSITION "A"

## SPECIAL SHAPES



### SHIPPED IN 1-8 days

Expediting: 3 days 20%, 2 days 35%, 1 day 50%

### 10 STANDARD SHAPES

RECTANGLE • SQUARE • OBROUND • Single-D • Double-D • QUAD-D • HEXAGON & OCTAGON  
 10% PER SET EXTRA FOR LONG-D & EQUILATERAL TRIANGLE

### Guaranteed Expediting Services

FDS=Firm Delivery Service • Order by 2pm

Same or Next day guarantee—1FDS

Guaranteed to ship in 2 days – 2FDS

For Tool Styles: AT, AS, ST:  
 1 day FDS=25% 2 day FDS=10%

For Tool Styles 36tc, 28st, Lila, 92/93  
 1 day FDS=50% 2 day FDS=25%



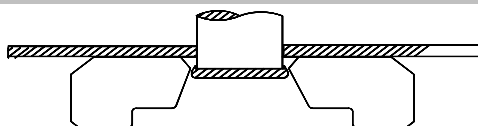
# TABLE OF CONTENTS

C.E. Tooling started out in 1966 in Chicago as a tool & die shop. In the late 1970's, we directed our energies exclusively to the manufacturing of tooling for turret and duplicator presses. Through our use of the highest steel grades combined with manufacturing processes and procedures developed from over 30 years of producing punches and dies, our Quality and Value is unbeatable! We will continue to strive for excellence to earn the business of our current and future customers.



<b>INDEX</b>	<b>PAGE</b>	<b>DELIVERY Work Days</b>
<b>Roper</b> (Non-Keyed) Style Tools <i>Whitney, Roper Whitney +</i>	<b>4</b>	1-4
<b>28XX Keyed Style</b> Tools <i>W.A. Whitney, Roper Whitney and</i>	<b>5</b>	1-4
<i>Suggested TOOLING PACKAGES for 28XX &amp; Roper Style</i>	6	
Urethane Strippers for Whitney style punches	7	1-4
Corner Rounding · <i>Trim &amp; Parts</i> · <i>Shear Proofs</i>	7	5-10
<b>36/37TC</b> Style <i>W.A. Whitney</i> Models 647 PLUS, 647 PLUS	<b>8-9</b>	3-5
PUNCH SHEARS TONNAGE REQUIREMENTS	10	-
Forming Tools, Small Form: Half Shear · Center Point · Thread	11	4-10
Forming Tools, Small Form: Extrusions · Pierce & Coin	12	4-7
Forming Tools, Large Forms: Louvers · Card Guide · Lances ·	13	8-12
SHEAR PROOF PUNCHES -Retractable Heels	14	5-20
SPECIAL SHAPE DIAGRAMS	14	12
TOOL SHARPENING SERVICE Pricing for returning tools for	15	1-4
CORNER RADIUS KIT 8 different Radius Sizes of fractional	15	1-3

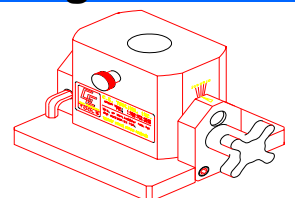
## SLUG- TRAP DIES



**ELIMINATE SLUG PULLING BY TRAPPING  
THE SLUG IN THE DIE**

## Punch Sharpening Fixture

Grind any type of shear safely, easily, and most importantly with out damaging





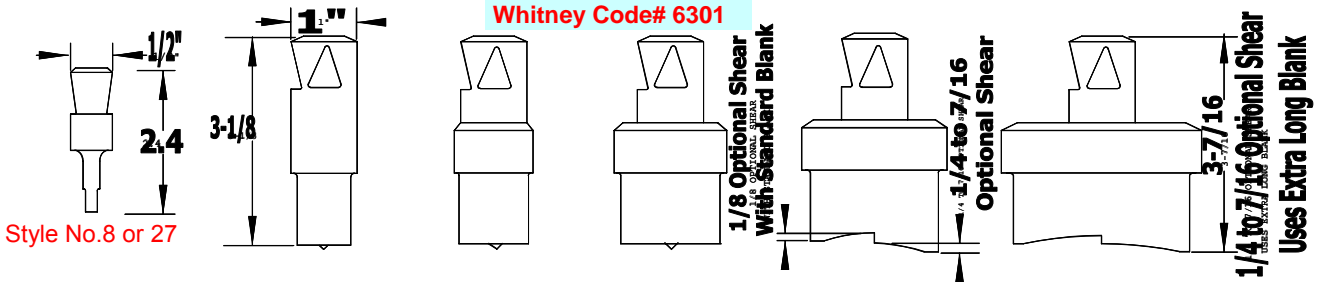
# ROPER Style NON KEYED RP

The Following are similar machine models: *Roper*#127; 129; 130; 150; 230; 231; & 331 power presses No. 15, 816, 118, 218, 32, 34, 29, 58, 68, 134, Kick & Lever Presses *PEXTO*# 218

**STANDARD PRICING IS FOR PUNCH TIP SIZES .093 (2.3MM) AND ABOVE**

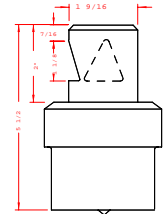
**S7 TOOL STEEL**  
Superior Shock Proof

Whitney Code# 6301

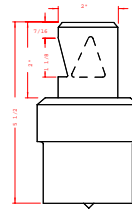


**ROPER**

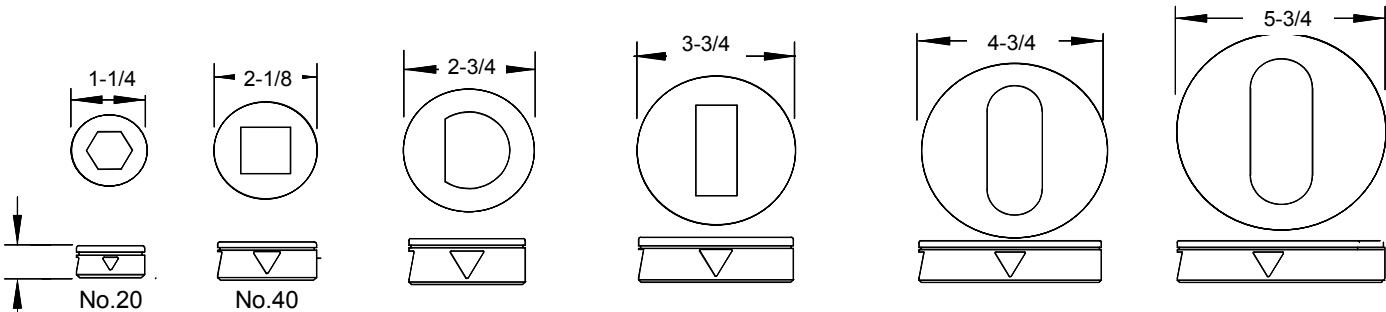
STATION	RANGE -	ROUNDS	PRICE	SHAPED	PRICE
Ref.No.8 or	.093 - 500	RP8P-r		RP8P-s	
<b>A No. 28-6301</b>	.093 - 812	RPAP-r		RPAP-s	
<b>B No. 28-6301</b>	.813 - 1.000	RPB1P-r		RPB1P-s	
	1.001 - 1.437	RPB2P-r		RPB2P-s	
<b>C No. 28-6301</b>	1.438 - 2.000	RPCP-r		RPCP-s	
	2.001 - 2.500	RPD1P-r		RPD1P-s	
<b>D No. 28-6301</b>	2.501 - 3.000	RPD2P-r		RPD2P-s	
	3.001 - 3.500	RPE1P-r		RPE1P-s	
<b>E No. 28-6301</b>	3.501 - 4.000	RPE2P-r		RPE2P-s	
	4.001 - 4.500	RPF1P-r		RPF1P-s	
<b>F No. 28-6301</b>	4.501 - 5.000	RPF2P-r		RPF2P-s	
<b>G No. 29</b>	.093 - 5.000	RPGP-r		RPGP-s	
<b>H No. 22</b>	.093 - 5.000	RPHP-r		RPHP-s	



Style No. 29



Style No. 22



Sta. A	Sta. B	Sta. C	Sta. D	Sta. E	Sta. F
5/8"	7/8"	1-5/32"	1-5/32"	1-5/32"	1-5/32"

**ROPER**

STA. O.D.	RANGE - DIAGONALLY	ROUNDS	PRICE	SHAPED	PRICE
<b>A No.20 1-1/4</b>	.093 - .762 (.824 max.)	RPA D-r		RPAD-s	
	.763 - 1.000	RPB1 D-r		RPB1 D-s	
<b>B No.40 2-1/8</b>	1.001 - 1.438 (1.465 max.)	RPB2 D-r		RPB2 D-s	
	1.439 - 2.000 (2.012 max.)	RPC D-r		RPC D-s	
<b>C No.28 2-3/4</b>	2.001 - 2.500	RPD1 D-r		RPD1 D-s	
	2.501 - 3.000 (3.012 max.)	RPD2 D-r		RPD2 D-s	
<b>D No.28 3-3/4</b>	3.001 - 3.500	RPE1 D-r		RPE1 D-s	
	3.501 - 4.000 (4.012 max.)	RPE2 D-r		RPE2 D-s	
<b>E No.28 4-3/4</b>	4.001 - 4.500	RPF1 D-r		RPF1 D-s	
	4.501 - 5.000 (5.012 max.)	RPF2 D-r		RPF2 D-s	
<b>F No.28 5-3/4</b>					
<b>J 6-3/4</b>	5.001—6.000 (6.012 max.)	RPJD-r		RPJD-s	

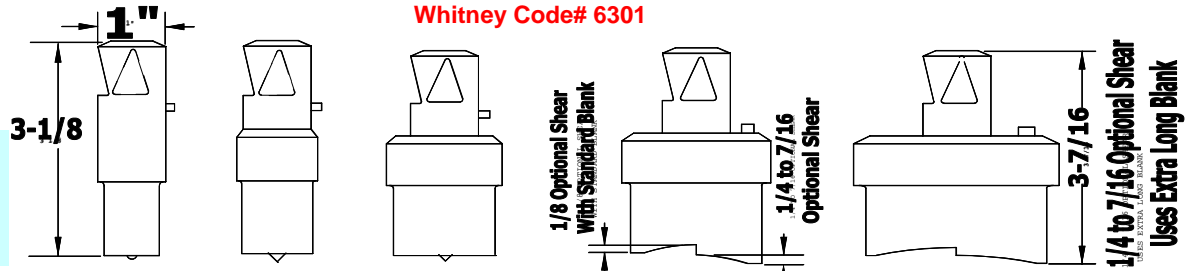


# 28XX QUICK CHANGE STYLE

STANDARD PRICING IS FOR PUNCH TIP SIZES .093(2.3MM) AND ABOVE

**S7 TOOL STEEL**  
Superior Shock Proof Steel

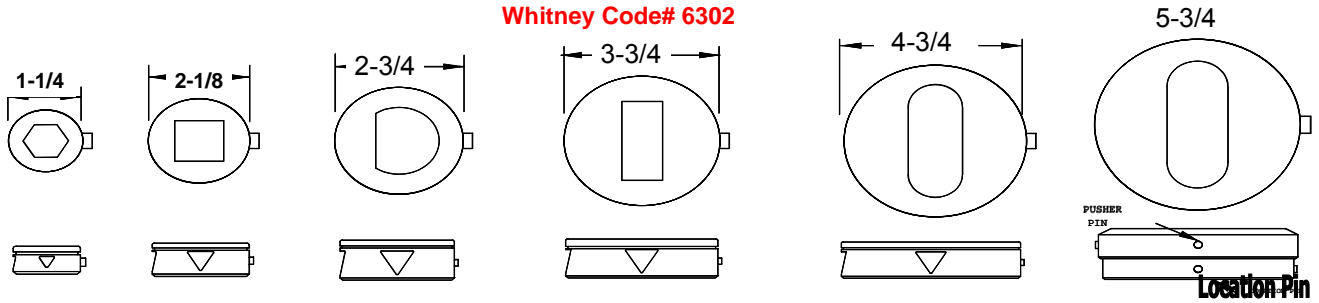
**URETHANE STRIPPERS**  
Available for all stations.  
Refer To Page 8



**ICZCP**

STA.	RANGE - DIAGONALLY	ROUNDS	PRICE	SHAPED	PRICE
<b>A</b>	.093— .812	28A P-r		28A P-s	
<b>B</b>	.813 - 1.000	28B1 P-r		28B1 P-s	
	1.001 - 1.438	28B2 P-r		28B2 P-s	
<b>C</b>	1.439 - 2.000	28C P-r		28C P-s	
<b>D</b>	2.001 - 2.500	28D1 P-r		28D1 P-s	
	2.501 - 3.000	28D2 P-r		28D2 P-s	
<b>E</b>	3.001 - 3.500	28E1 P-r		28E1 P-s	
	3.501 - 4.000	28E2 P-r		28E2 P-s	
<b>F</b>	4.001 - 5.000	28F1 P-r		28F1 P-s	
	4.501 - 5.000	28F2 P-r		28F2 P-s	

Whitney Code# 6302



Sta. A	Sta. B	Sta. C	Sta. D	Sta. E	Sta. F
Height = 5/8"	7/8"	1-5/32"	1-5/32"	1-5/32"	1.85

**D-E**

STA. O.D.	RANGE - DIAGONALLY	ROUNDS	PRICE	SHAPED	PRICE
<b>A 1-1/4</b>	.093 - .762 (.824 max.)	28A D-r		28A D-s	
<b>B 2-1/8</b>	.751 - 1.000	28B1 D-r		28B1 D-s	
	1.001 - 1.438 (1.465 max.)	28B2 D-r		28B2 D-s	
<b>C 2-3/4</b>	1.439 - 2.000 (2.012 max.)	28C D-r		28C D-s	
<b>D 3-3/4</b>	2.001 - 2.500	28D1 D-r		28D1 D-s	
	2.501 - 3.000 (3.012 max.)	28D2 D-r		28D2 D-s	
<b>E 4-3/4</b>	3.001 - 3.500	28E1 D-r		28E1 D-s	
	3.501 - 4.000 (4.012 max.)	28E2 D-r		28E2 D-s	
<b>F 5-3/4</b>	4.001 - 4.500	28F1 D-r		28F1 D-s	
	4.501 - 5.000 (5.012 max.)	28F2 D-r		28F2 D-s	

For extra pins  
at 45° increments  
add 50%

Sorry, we only add extra pins at 45° increments. For other angles, order a separate tool Keyed at angle desired.

Tip Size	15° INCREMENTS		OTHER THAN 15°	
	PUNCH +	DIE +	PUNCH +	DIE +
Up to .750" A sta.				
.750-1.438 B sta.				
1.439-3.0" C & D sta.				
3.001-5.0" E & F sta.				





# Tooling Packages 28XX, & Non-Keyed RP & 91

These prices are not valid with any other discount program.

Distributors/Dealers: limited commissions/discounts available on all these special packaged tool sets.

**C E # \*ARP28PDPAR  
Package "A"**

**RP & 28XX 31 ROUNDS .093-.75**  
Punch & 1 1/4 Dies **Sta. A**

.093, .098, .125, .128, .141, .156, .172, .187, .194,  
.203, .219, .234, .250, .266, .281, .312, .344, .375,  
.406, .437, .469, .500, .515, .531, .562, .594, .625,  
.656, .687, .719 & .750

Extra Set of Dies  
C E # \*ARP28DPAR

**C E # \*ARP28PDPBR  
Package "B"**

**RP & 28 13 ROUNDS**  
.781-1.437" Punch & 2-1/8 Dies  
**Sta. B**

781 .812 .844 .875 .937 1" 1.062  
1.125 1.187 1.25 1.312 1.375 &  
1.437

Extra Set of Dies  
C E # \*ARP28DPBR

**C E # \*ARP28PDCPR  
RP & 28  
Package "C"**

**8 ROUND PUNCHES &  
DIES**  
**Sta. C-E**

1.5 1.75 2" 2.25 2.5" 2.75  
3" 3.5" & 4"

Extra Set of Dies  
C E # \*ARP28DPCR

**C E # \*ARPPDPDS = ROPER STYLE**  
**C E # \*A28PDPDS = 28XX STYLE**  
**PACKAGE "D"**

**19 SQ.& Rect.**  
Punch & Dies  
**Sta.A-E**

SQ= .25, .313, .375, .438, .500, .531 keyed @ 45°  
.75, 1" & 2"

RT=.125X.500, .187X.500 .250X.500, .125X1",  
.200X1", .200X2", .250X2', .312X.750, .375X.750,  
& .500X1"

EXTRA SET OF DIES  
**C E # \*ARPPDPDS = ROPER STYLE**  
**C E # \*A28DPDS = 28XX STYLE**

**C E # \*ARPPDPES = ROPER  
STYLE**  
**C E # \*28DPDES = 28XX STYLE**  
**Package "E"**

**9 Obround  
Punch & Dies**

.125X.500", .187X.625", .250X.500",  
.250X.750",  
.250X1.000", .312X.750",  
.375X.750", .437X.875"  
& .500X1.000"

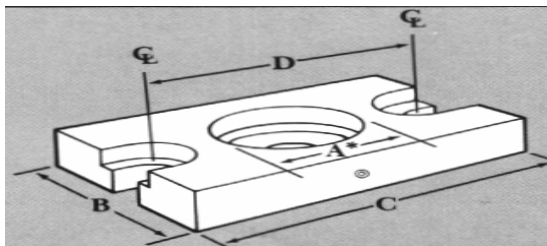
EXTRA SET OF DIES  
**C E # \*ARPPDPES = ROPER STYLE**  
**C E # \*A28DPES = 28XX STYLE**

**C E # \*ARPPDPFS = ROPER  
STYLE**  
**C E # \*A28PDPFS = 28XX  
STYLE**  
**PACKAGE "F"**  
**6 OBROUND'S**

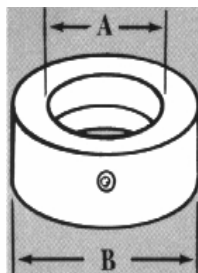
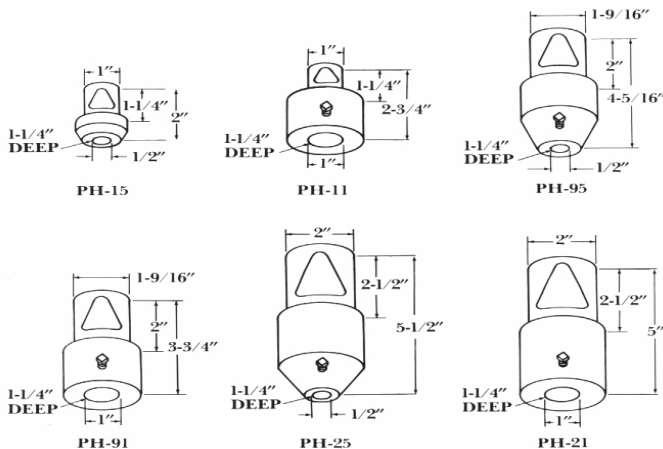
Following are .01 wider &  
2X Dia. of screw sizes  
Punch & Die

.122X.224, .148X.276,  
.174X.328, .200X.380,  
.226X.437 & .260X.500

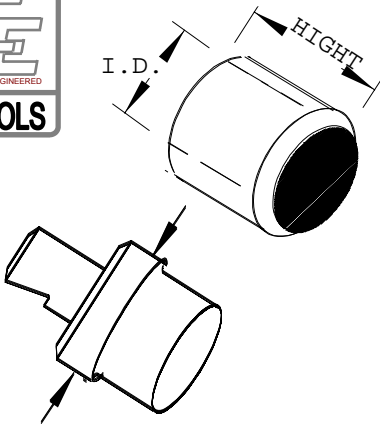
Extra Set of Dies  
**C E # \*ARPPDPFS = ROPER  
STYLE**  
**C E # \*A28PDPFS = 28XX  
STYLE**



DIE SHOES				Non Keyed		Keyed	
"A"	B	C	D	Part#	\$	Part#	\$
2-1/8	3	7	5	RPBDHS		28BDHS	
2 3/4	4	8	6	RPCDHS		28CDHS	
3 3/4	5	9	7	RPDDHS		28DDHS	
4 3/4	6	10	8	RPEHDS		23EDHS	



Die Adapter		Non Keyed		Keyed	
"A"	"B"	Part#	\$	Part#	\$
1-1/4	2-1/8	RPBADA		28BADA	
1-1/4	2-3/4	RPCADA		28CADA	
2-1/8	2-3/4	RPCBDA		28CBDA	
1-1/4	3-3/4	RPDADA		28DADA	
2 1/8	3-3/4	RPDBDA		28DBDA	
2 3/4	3-3/4	RPDCDA		28DCDA	
3 3/4	4-3/4	RPEDDA		28EDDA	



BODY O.D.

# 28XX & ROPER STYLE URETHANE STRIPPER

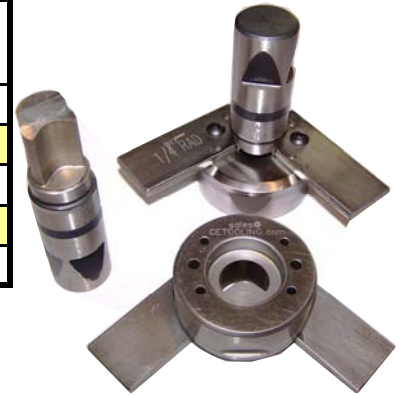
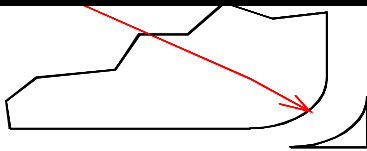
Punch Flange	Stripper I.D.	Stripper O.D.	Stripper HEIGHT	Stripper CAT.CODE	Stripper PRICE
none	.495	1"	1.25	*AKSS-012114	
none	.99"	2"	1.9"	*AUSO2-281	
1.245"	1.24"	2.5"	2.15"	*AUSO2-282	
1.495"	1.49"	2.5"	2.15"	*AUSO3-283	
1.745"	1.75"	2.5"	2.15"	*AUS23-284	
1.995"	2"	2.75"	2.12"	*AUS24-285	
2.995"	3"	3.75"	2.12"	*ASU29-286	

Specials: \*AUS\_\_ 3.5"ID X 2-1/8 Height • \*AUS\_\_ 4"ID X 2-1/8 Height

## Corner ROUNDING TOOLS

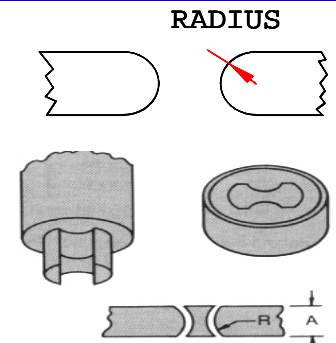
For Single station machine — Stocked dies for use with 22-7gauge  
(add "G" for die gauge, "H" for punch heel or "GH" for gauge & heel to the end of the following part numbers)

RADIUS	DIE O.D.	Roper Style Part No.	28XX Style Part No.	No Die Gauge Punch has heel	Die with Gauge & Heel on Punch
Under 3/16"	2-1/8	*SRBPDCR_	*S28BPDCR_		
3/16" to 1/4"	2-1/8	*SRPB1PDCR_	*S28BPDCR_		
1/4"-1"	2-3/4	*SRPCPDCR_	*S28CPDCR_		
1"-1-1/2	3-3/4	*SRPDPCR_	*S28DPDCR_		
1-1/2"-2"	4-3/4	*SRPEPDCR_	*S28EPDCR_		



## TRIM & PART / LATTICE

RADIUS	DIE O.D.	Roper Style Part No.	28XX Style Part No.
TO 5/16" • NO GAUGING	2-1/8	*SRBTTP	*S28BTP
TO 5/16" • WITH GAUGING	2-1/8	*SRBTTPG	*S28BTPG
TO 3/8" • NO GAUGING	2-3/4	*SRCTTP	*S28CTP
TO 3/8" • WITH GAUGING	2-3/4	*SRCTTPG	*S28CTPG
TO 5/8" • NO GAUGING	3-3/4	*SRDTP	*S28DTP
TO 5/8" • WITH GAUGING	3-3/4	*SRDTPG	*S28DTPG
TO 3/4" • NO GAUGING	4-3/4	*SRPETP	*S28ETP
TO 3/4" • WITH GAUGING	4-3/4	*SRPETPG	*S28ETPG

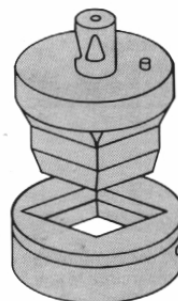


## Center & Alignment Tools

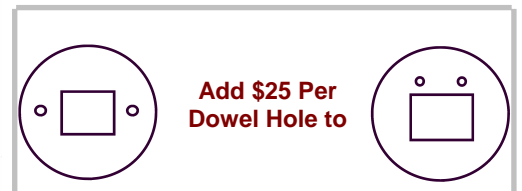
Use: Die holder is loosened to allow free movement. The alignment punch is slowly lowered into the die and from pressure onto die will align and center the die. The die holder is then secured.

Roper Style  
B Station #RPB-Align  
C Station #RPC-Align  
D Station #RPD-Align  
E Station #RPE-Align

28XX Style  
B Station #28B-Align  
C Station #28C-Align  
D Station #28D-Align  
E Station #28E-Align



Cost for Adding Dowel Pins In Die for SHEET LOCATION, OR GAUGING

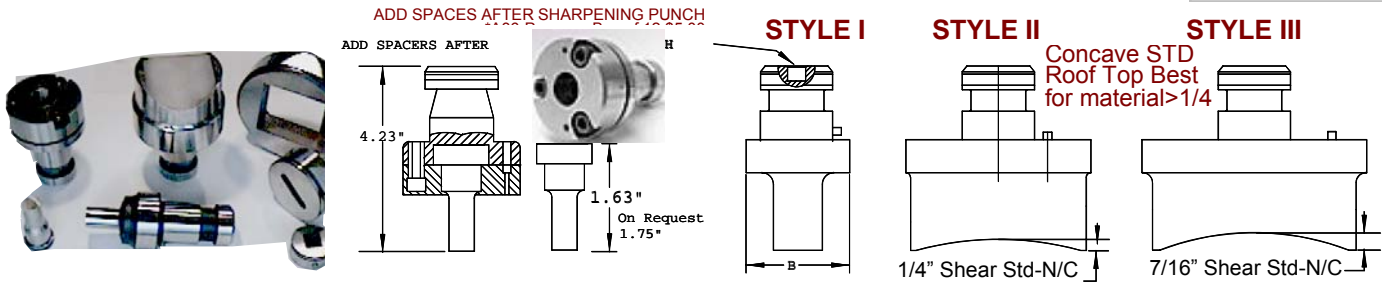




# Whitney 36TC Style Tools (36)

For Models: 647PLUS, 647PLUS II, (Max. hole=3")\* 661 -60,-84,-84ATC,-120\*647ATC,3500ATC-30,3600ATC, 3700ATC

**S7 TOOL STEEL**  
Superior Shock Proof

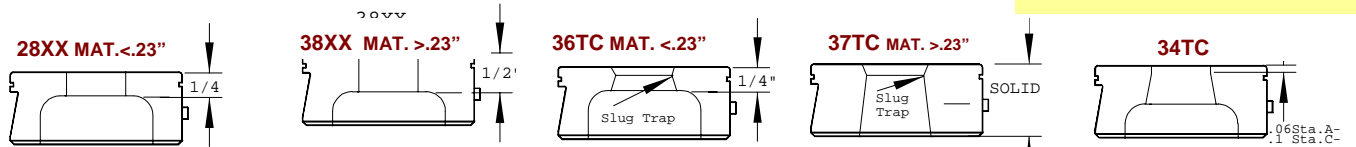
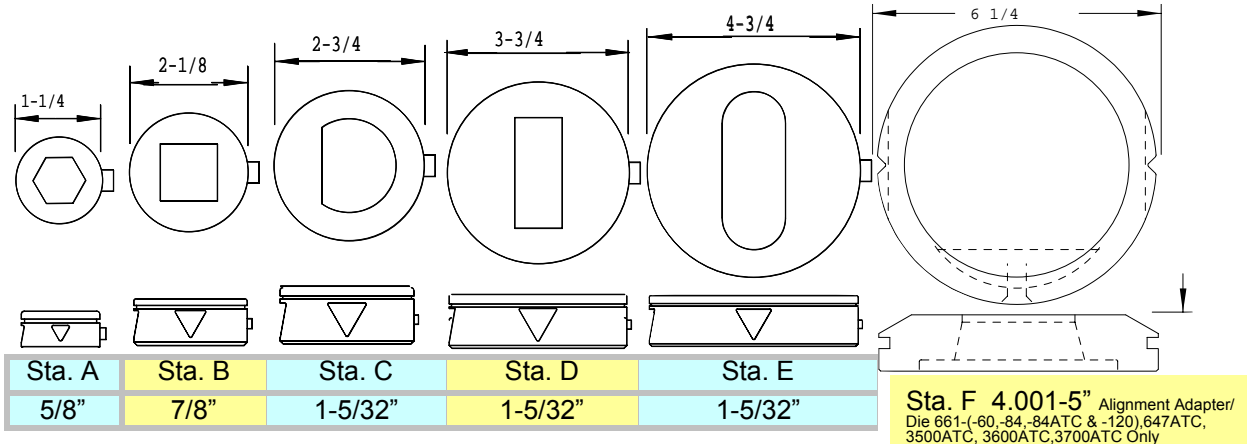


**CHUCK**

MAXIMUM CAPACITY	RD CODE	ROUNDS	SH-CODE	SHAPED
CHUCK ref.8084-79360-15000	36-000-H-r			
INSERTS 3101 .093-.75"	36-0-PI -r			
INSERTS 3103-HSS .093-.75	36-0-PIM-r			
STYLE I .093-1.250	36-1a-P-r		36-1a-P-s	
STYLE I 1.251-1.719	36-1b-P-r		36-1b-P-s	
STYLE II 1.720-2.469	36-2-P-r		36-2-P-s	
STYLE III 2.47"-4"	36-3a-P-r		36-3a-P-s	
STYLE III 4.001-5	36-3b-P-r		36-3b-P-s	

## DIE'S

Go To Page 2 for list of 10 Standard Shapes, Keying Charts, +further Options

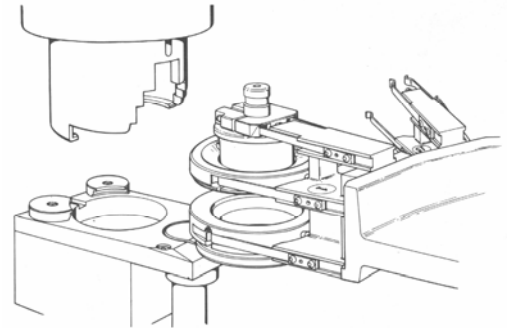
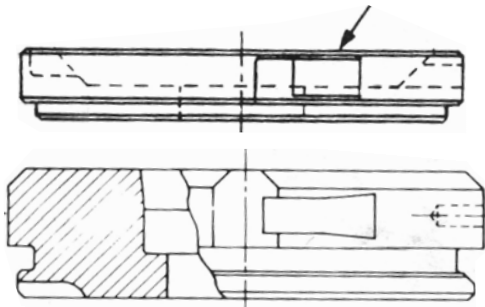
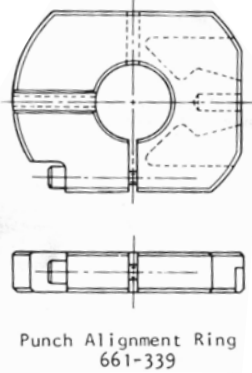


**DIE**

Sta. O.D.	CAPACITY	STYLE	CODE.	ROUND MATT <.23	STYLE	CODE	ROUND MATT >.23	STYLE	CODE	SHAPED
A 1-1/4	.093 - .824	36TC	36AD-r		37TC	37AD-r		28XX	28AD-s	
		28XX	28AD-r		38XX	38AD-r		34TC	34AD-s	
		34TC	34AD-r					38XX	38AD-s	
B 2-1/8	.751 - 1.465	36TC	36BD-r		37TC	37BD-r		28XX	28BD-s	
		28XX	28BD-r		38XX	38BD-r		34TC	34BD-s	
		34TC	34AD-r					38XX	38BD-s	
C 2-3/4	1.439 - 2.012	28XX	28CD-r		38XX	38CD-r		28XX	28CD-s	
		36TC	36CD-r		34TC	34CD-r		34TC	34CD-s	
D 3-3/4	2.001 - 3.012	28XX	28DD-r		38XX	38DD-r		28XX	28DD-s	
		36TC	36DD-r		34TC	37DD-r		34TC	34DD-s	
E 4-3/4	3.001 - 4.012	28XX	28ED-r		38XX	38ED-r		28XX	28ED-s	
		36TC	36ED-r		37TC	37ED-r		34TC	34ED-s	
F 6-1/4	4.013-5.037	36TC	36FD-r		NOT RECOMMENDED			36TC	36FDs	

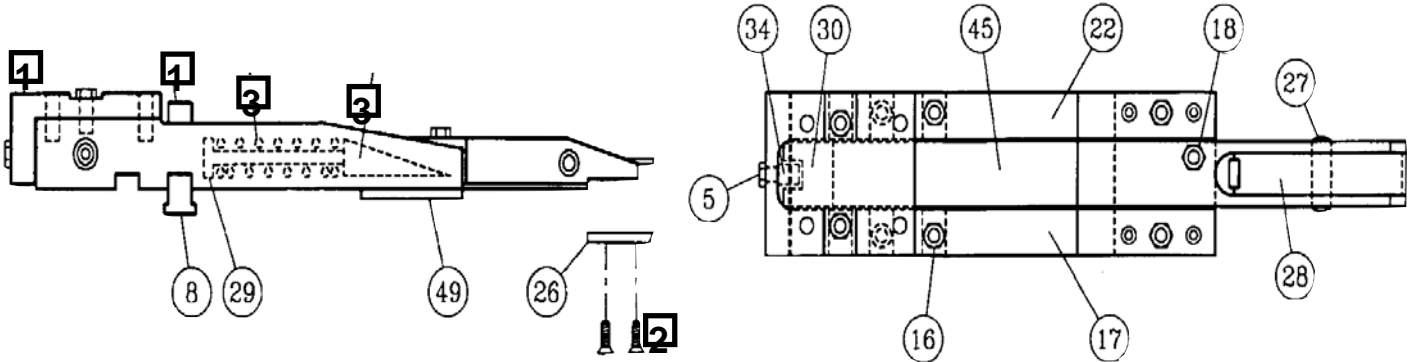
# WHITNEY 36/37TC STRIPPERS & DIE ADAPTERS ↓

DESCRIPTION: LAST 6 DIGITS of C.E. Code = Whitney own Code	Model: 647 PLUS & 647 PlusII	MODEL:661-60,-84,-84ATC,-120	647ATC•3500ATC-30• 3600ATC •3700ATC
PART #	PRICE	PART NO.	PRICE
<b>Punch Alignment Ring</b>	36AL-641-110	36AL-641-339 3+<10% 6+<20%	36AL-661-339 3+<10% 6+<20%
<b>STRIPPER 1.000 I.D.</b>	36S-641-234 3+<10% 6+<20%	36S-661-934 3+<10% 6+<20%	36S-661-934 3+<10% 6+<20%
<b>STRIPPER 1.875I.D.</b>	36S-641-235 3+<10% 6+<20%	36S-640-790 3+<10% 6+<20%	36S-661-790 3+<10% 6+<20%
<b>STRIPPER 2.625I.D.</b>	36S-641-236 3+<10% 6+<20%	36S-640-791 3+<10% 6+<20%	36S-661-791 3+<10% 6+<20%
<b>STRIPPER 3.125I.D.</b>	36S-641-535 3+<10% 6+<20%	NOT STANDARD	NOT STANDARD
<b>STRIPPER 3.625I.D.</b>	36S-641-237 3+<10% 6+<20%	36S-640-792 3+<10% 6+<20%	36S-661-792 3+<10% 6+<20%
<b>STRIPPER 4.125I.D.</b>		36S-640-792 3+<10% 6+<20%	36S-640-793 3+<10% 6+<20%
<b>STRIPPER 5.125 I.D.</b>		36S-662-906 3+<10% 6+<20%	36S-662-906 3+<10% 6+<20%
<b>DIE Adapter 1.2500.D.</b>	36ADAD-641-226 3+<10%6+<20%	36ADAD-661-334 3+<10% 6+<20%	36ADAD-661-334 3+<10% 6+<20%
<b>DIE Adapter 2.1250.D.</b>	36BDAD-641-227 3+<10% 6+<20%	36BDAD-661-335 3+<10% 6+<20%	36BDAD-661-335 3+<10%6+<20
<b>DIE Adapter 2.7500.D.</b>	36CDAD-641-228 3+<10% 6+<20%	36CDAD-661-336 3+<10% 6+<20%	36CDAD=661-336 3+<10% 6+<20
<b>DIE Adapter 3.7500.D.</b>	36DDAD-641-229 3+<10% 6+<20%	36DDAD-661-337 3+<10% 6+<20%	36DDAD-661-337 3+0% 6+<20%
<b>DIE Adapter 4.7500.D.</b>	No 4.750 STA. ON THESE MODELS	36EDAD-661-338 3+<10% 6+<20%	36EDAD-661-338 3+<10%6+<20%



## CLAMPS: WHITNEY 647-927, 630-006

Dwg	Part	DESCRIPTION	Price	Dwg	Part	DESCRIPTION	Price
00	*AMH2WCO	Complete Assembly		26	*AMH2WLJ	Removable Lower Jaw/	
05	*AMH2WCP-05	Screw, BHCS		28	*AMH2WUJ	Clamp/ Top	
08	*AMH2WCP-08	Key/ T-Slot		29	*AMH2WCP-29S	Piston / Shaft	
17	*AMH2WCP-17	Guide /Right		30	*AMH2WCP-29EC	End Cap / Only DMC Unit	
18	*AMH2WCP-18	Spring /Nut Assembly		31	*AMH2WCP-RS	Spring/Piston/Only DMC	
19	*AMH2WCP-19	Clevis Mounting Plate		33	*AMH2WCP-33	Wedge	
22	*AMH2WCP-22	Guide /Left		44	*AMH2WCP-34	Clevis	
25	*AHSFS0516	Screw, FLCS Pkg of 10		45	*AMH2WPA	Clamp Bottom / Cyl. Assembly	
				49	*AMH2WCP-49	Plate / Tie	



### Other Whitney clamp parts

CE Part#	Whitney#	Description	price
Below for models 3500, 3600 & 3700 machines			
*AMH645-606	645-606	Upper Grip Insert	



# OPTIONAL PUNCH SHEARS

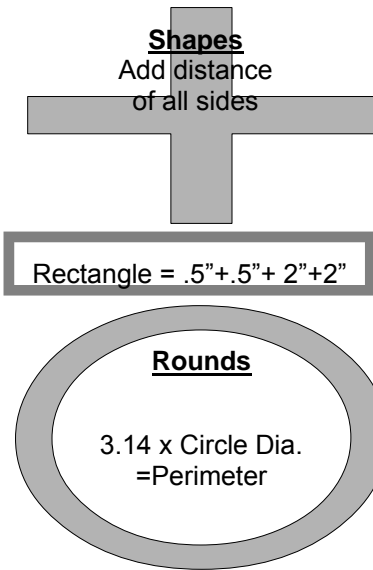
SHEARS Should be Considered for **All DIAGONAL DIMENSIONS Over 2"/50.8mm**  
And a Minimum Width of **.375(9.53MM)**

<p><b>Roof Top *ARTS</b></p>	<p><b>Inverted *AIS</b></p>	<p><b>Concave *ACS</b></p>	<p><b>Double Inverted *ADIS</b></p>	<p><b>Whisper (1-Way) *AWS</b></p>	<p><b>Spiracle *ASPS</b></p>
<p>Best all purpose shear for reducing tonnage requirement. Nibbling must be performed at 75% of punch size to avoid side loading.</p>	<p>An all purpose shear. Ideal for nibbling.</p>	<p>An all purpose shear. Ideal for nibbling. Used over Inverted Shear when punching heavy plate.</p>	<p>Best Shear for slotting tools, 3" or longer in length.</p>	<p>Reduces tonnage requirements while reducing slug deformation. Requires a very Rigid Press.</p>	<p>Ideal for rounds or squares &lt; 1.18 30.m. Lessons tool side loading "Easy to sharpen"!</p>

## FINDING TONNAGE REQUIRED

Does your press have the tonnage to pierce thick or tough material? Use this formula, and below Shear Tonnage Reduction chart to find out.

### Perimeter Distance



### TONS PER SQUARE INCH

Now, by using the below chart, find the Tons per square inch for the material you will be punching.

Type of Material	Tons per Sq. inch"	Shear Strength per sq. in.
Aluminum ( 1/2 hard sheet)	9.5	19,000 PSI
Brass (1/2 hard sheet)	17.5	35,000 PSI
Copper (rolled)	14.0	20,000 PSI
Steel, mild	25.0	50,000 PSI
Steel, ASTM-A#6	30.0	60,000 PSI
Steel, 50 carbon	35.0	70,000 PSI
Steel, cold drawn	30.0	60,000 PSI
Steel, stainless (18-8)	35.0	70,000 PSI

### FORMULA

**Multiply**  
Perimeter x Tons  
x Material Thickness

The answer to this formula is the required Tonnage needed.

**Tonnage Reduction Chart When Shear is Used.** Use the Formula above to find the tonnage required with no shear. Next, multiply that by the value found in this chart.

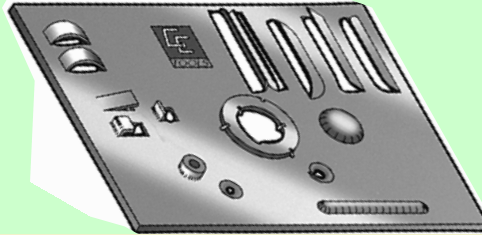
Shear Depth	16 Gage .060" 1,5mm	14 Gage .075" 1,9mm	12 Gage .105" 2,7mm	10 Gage .135" 3,4mm	8 Gage .165" 4,2mm	3/16 Gage .187" 4,8mm	1/4 Gage .250" 6,4mm	5/16 Gage .312" 7,9mm	3/8 Gage .375" 9,5mm
1/16	.5	.58	.72	.78	.83	.86	.90		
3/32		.50	.56	.67	.73	.78	.83	.87	.90
1/8		.46	.51	.56	.62	.63	.74	.85	.95
1/4				.40	.46	.49	.54	.62	.70
7/16				.25	.28	.31	.36	.41	.48



# SPECIAL APPLICATION FORMING TOOLS

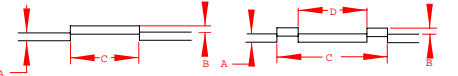
## HIGHER PRODUCTIVITY THROUGH SUPERIOR ENGINEERING

**Forming Overview: Use and Set Up:** When setting up a form tool in a punch press, close attention must be made in setting the exact depth the punch comes down forming and literally spanking the material tightly between the form punch and die. For positive stop forms, you will need to get the precise Shut Height of your machine.

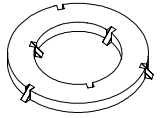


### ELECTRICAL KNOCK OUTS

Single SP-60      Double SP-61



Con-duit	Actual Size	Con-duit	Actual Size	Con-duit	Actual Size
1/2	.875	1 1/4	1.750	2 1/2	3.000
3/4	1.125	1 1/2	2.000	3"	3.625
1"	1.375	2"	2.500		



### FORM TOOL SET UP

1. Inspect the material to be punched and make sure it is within the thickness range the tool was built for. If critical to the tools design, "Mat=(material thickness)" will be etched on tool.  
place form punch in Guide Assembly, adjusting overall length to the machines Shut Height - Material Thickness.
2. **Single Sta. Press:** Adjust tools stoke of press to shortest depth, to assure the form will not over punch during first hit.  
**Turret or Whitney 36TC presses,** Set the overall length of the Form Tool/Holder, to the **SHUT HEIGHT of Press -Minus Sheet Thickness.** After this is accomplished load tool into turret.
3. Place the tool into the machine making sure the punch and die are aligned to each other.
4. Perform a single stroke of the press and check the results. Increase machines stroke and again make a single hit by the press. Patiently repeat this procedure of increasing the machines stroke depth re testing until the correct form depth is achieved. **Don't rush and over adjust, or tool damage can occur!**

**Further recommendations:** To prevent poor form quality or damage to the form tool, use forming tools only on material thickness which tool was ordered, and designed for. Further, never attempt to exceed the forming height which the tool was designed for. If critical to the tools design, "F.H.=(form height)", and "Mat=(material thickness)" for which the tool was designed to perform under is etched on tool.

### FORM TOOL PROGRAMMING SUGGESTIONS

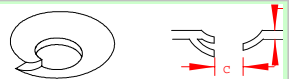
- Form tools should be the last operation performed on a sheet.
- Because a forming die is generally higher than a standard die, if using a turret machine, don't use either station adjacent to the form tool.
- With today's fast CNC presses, it is helpful to program a pause or dwell after each hit from a form tool. This gives extra time for the sheet to be stripped off tool. Further, if available program slow stroke speed.

### TOOL MAINTENANCE

•C.E. Tooling offers sharpening, or refinish of form tools at very low rates, and usually 1-3 day turn around.

Look to the form tools Use & Maintenance Sheet sent with form tools. This sheet will help with the understanding of the tools design and if required for sharpening, disassembly of a form tool. Form Tools are highly susceptible to gauling. Insist that operators use a sheet lubricant such as CLM50 (page \_\_) to help lessen galling and improve cutting edge life. If you have any questions about sharpening a particular cutting edge of a form, with tool in hand, call our engineering department (702) 736-2958 for guidance. All specials have a S-number etched on the tools. This number will allow our tool engineers to pull all information about your tool, and talk you through the process.

### THREAD FORM



Inserts P= \*FIP81 D=\*FID81

### CENTER POINT FORM



### GROUND SYMBOL



**FORM DOWN**

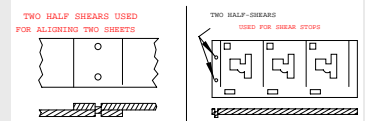
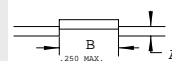
**FORM UP**

### HALF SHEAR

**FORM DOWN      FORM UP**

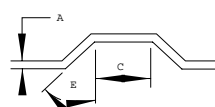
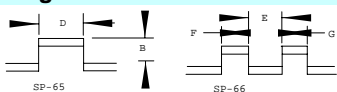
Master Unit Accepts Replaceable Half Shear Insert  
.25"(6,1mm) Maximum B dimension Dedicated Quick-Set Punch Holder and Die must be used for sizes > .25"(6,1mm)

**Replaceable Insert**  
Top \*FIP51 Bottom \*FID51

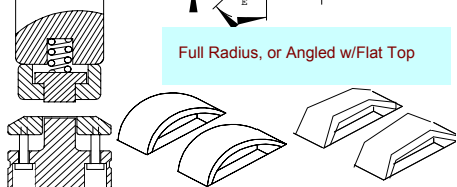


### BRIDGE TOOL

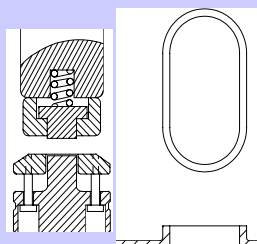
Single SP-65      Double SP-66



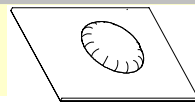
Full Radius, or Angled w/Flat Top



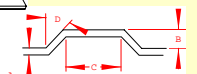
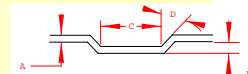
### EXTRUSION



### EMBOSSES



**Round or Shaped**



**D >= 45° DIE w/No Stripper**  
Punch and Die Cat. Code \*F28\_PD-

**D < 45° DIE w/Built in Stripper**  
Punch and Die Cat. Code \*FAT\_PD-D72

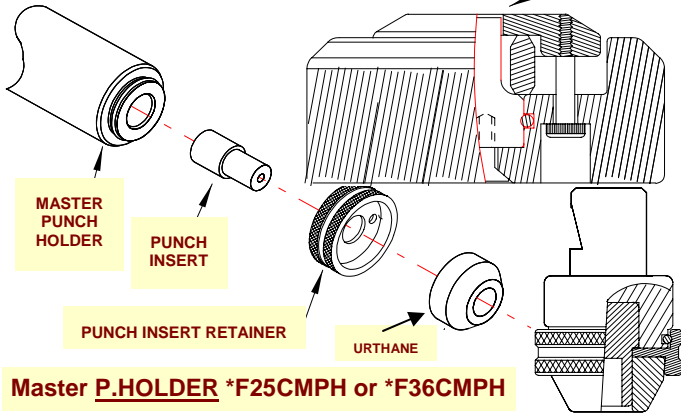
**D >= 45° DIE w/No Stripper**  
Punch and Die Cat. Code \*F28\_PD-

**D < 45° DIE w/Built in Stripper**  
Punch and Die Part#



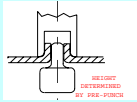
# Master Holders excepts various style form inserts All Whitney Tooling Styles

## MASTER DIE BASE 2 3/4" O.D.\*F28CDB DIE INSERT

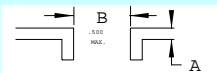


## Master P.HOLDER \*F25CMPH or \*F36CMPH

**EXTRUSION** Dedicated Punch, or if Pre-Punching Hole and B dimension is .25(6,1mm) Max., Master Holder Accepting replaceable inserts can be used. Extrusions are commonly used to accept sheet metal screws or permit tapping into a deeper distance than just the material thickness. A pre-punched hole is required as a one hit pierce and extrude gives poor hole quality, and has limited adjustment on the machine. The diameter of the pre-punched hole ultimately determines the height of the extrusion. The limitation to the height is simply the metal's limit of being drawn (stretched).



### FORM DOWN



### FORM UP



Dedicated Punch \*F\_\_AP  
Replaceable Insert top \*FIP54  
Standard Round Die

Master Holder Required  
Replaceable top Insert \*FIP50  
Bottom \*FID50W4

## "INCH" COMMON SCREW SIZES

Pre-Punch Hole is Required Below is a chart of common screw sizes, Find screw, then follow row to the right matching up to material thickness.

Material Screw	#22	#20	#18	#16	#14	#13	Extrusion B Pin Dia./ID	Pre-Pierce
#4-40	.127	.136					.090	.045
#5-40	.139	.148	.165	.180			.102	.051
#6-32	.144	.153	.171	.185			.107	.053
#8-32		.182	.199	.214	.233		.136	.064
#10-24			.213	.228	.247	.267	.150	.069
1/4-20			.268	.283	.302	.322	.205	.100

PUNCHING SHOULDN'T BE DONE IN BLANKED AREA'S

## "METRIC" COMMON SCREW SIZES

Material	,08	1,0	1,2	1,6	2,0	2,3	Extrusion B Pin Dia./ID	Pre-Pierce
M2,X,4	2,74	3,0	3,26	3,78			1,7	0,8
M2,5X,4	3,14	3,4	3,66	4,18			2,1	1,0
M3,X,5	3,64	3,9	4,16	4,68			2,6	1,3
M4,X,7		4,7	4,96	5,48	6,0	6,39	3,4	1,6
M5,X,8			5,86	6,38	6,9	7,29	4,3	2,0
M6,X,1,0			6,66	7,18	7,7	8,09	5,1	2,5

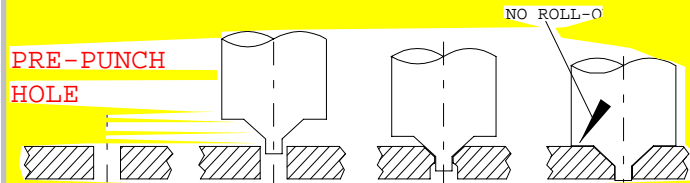
## SINGLE HIT FORM DOWN APPLICATIONS

1pc PUNCH ALLOWS PIERCE AND FORM IN ONE HIT  
Note: Without Pre-Pierce, Sheet Deformation Will Occurred.

PIERCE & COIN

PIERCE & EXTRUDE

If a Single Hit Pierced and Form is Chosen, be advised that the hole quality and tool life will be greatly reduced. Reason: The metal being coined has no where to go but to bulge on the top of sheet (roll over), against the pilot tip and pushes below the sheet leaving a large burr. This binding of the pilot tip by the material causes rapid galling which if not constantly cleaned off can cause the pilot tip to be snapped off during the stripping cycle of the stroke.



$$\text{Minimum } C = B - (2((\text{Angle}/2)\text{Tan } X \text{ mat.thickness}))$$

## COINING Process with Pre-Pierce Hole

Use Dedicated Punch, or if Coin size = or < .5"(12mm) you may use CE's Master Holder with a coin insert.

A coined hole is used to enable a flat head screw or rivet to fit flat or below the surface of the sheet. As the below diagram shows, C.E. Tooling recommends use of a pre-pierce before coining. This achieves the highest quality coined hole, with no roll-over, minimal burr, and excellent tool life.

**Pre-Pierce Hole Formula.** (Note, this will estimate to large size) after test hits, size may be reduced slightly to achieve best cosmetic results on material type and thickness being punched.

$$\text{Pre-Pierce Hole} = C + (B - C) / 2$$

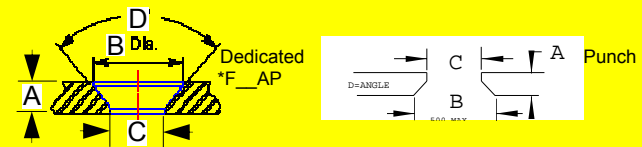
Limited success achieved forming > 80% of mat. thickness. If Coin Size is too large for the material being punched, to hold the desired "C" through hole size (with out coining past 80% of material thickness), a Nesting Die may be required so material can be formed.

Nesting Die generally +\$75 to round die.

To eliminate need for nesting die, you can increase "C" through hole size with pre-pierce, and allow "B" only to center screw.

### FORM DOWN

### FORM UP

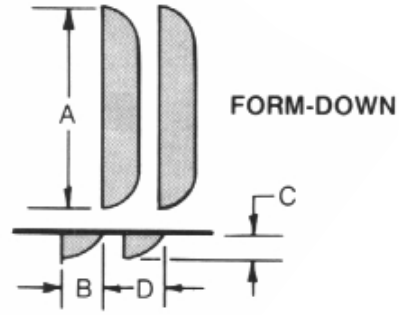
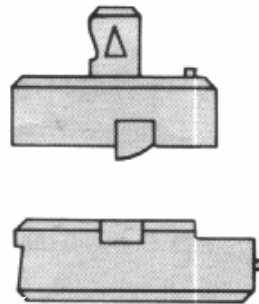
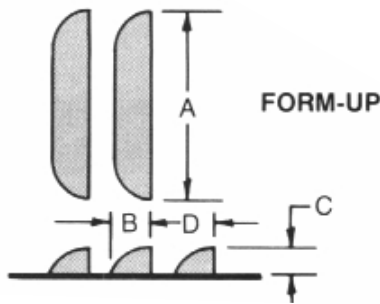
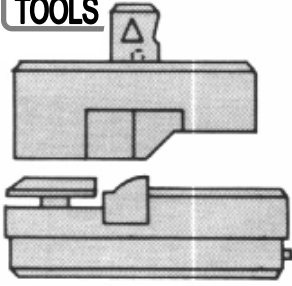


Dedicated Punch \*F\_\_AP  
or for Master Holder top Insert \*FIP56 or for Master Holder top Insert \*FIP58  
Bottom Use Standrd Round Die Master Die Holder Required Insert \*FID58

For further information and helpful Charts go to our Section 1 Technical Reference



# LOUVER & CARD GUIDE TOOLS



## Common Louver Sizes • Form Up 5-3/4 Die

Sta.	Part No.	Max. A Length	Common "B"	Common "C"	Common "D"	SET Price	Form Insert Only	Cut Insert Only
C 2-3/4	Roper Style = *FRPCFUL2 28XX Style = *F28CFUL2	2"	1/2"	3/16"	5/8"		Roper Style = *FRPCFUL2 28XX Style = *F28CFUL2	Roper Style = *FRPCFUC2 28XX Style = *F28CFUC2
D 3-3/4	Roper Style = *FRPDFUL3 28XX Style = *F28DFUL3	3"	1/2"	1/4"	3/4"		Roper Style = *FRPDFUL3 28XX Style = *F28DFUL3	Roper Style = *FRPDFUC3 28XX Style = *F28DFUC3
E 4-3/4	Roper Style = *FRPEFUL4 28XX Style = *F28EFUL4	4"	3/4"	1/4"	15/16"		Roper Style = *FRPEFUL4 28XX Style = *F28EFUL4	Roper Style = *FRPEFUC4 28XX Style = *F28EFUC4
F 5-3/4	Roper Style = *FRPFFUL_ 28XX Style = *F28FFUL_	5"	3/4"	5/16"	1-1/8"		Roper Style = *FRPFFUL_ 28XX Style = *F28FFUL_	Roper Style = *FRPFFUC_ 28XX Style = *F28FFUC_
		6"						

## Common Louver Sizes FORM DOWN

Sta.	Part No.	Max. A Length	Common "B"	Common "C"	Common "D"	SET Price	Form Insert Only
C 2-3/4	Roper Style = *FRPCFDL2 28XX Style = *F28CFDL2	2"	1/2"	3/16"	5/8"		Roper Style = *FRPCFDLI2 28XX Style = *F28CFDLI2
D 3-3/4	Roper Style = *FRPDFDL3 28XX Style = *F28DFDL3	3"	1/2"	3/16"	3/4"		Roper Style = *FRPDFDLI3 28XX Style = *F28DFDLI3
E 4-3/4	Roper Style = *FRPEFDL4 28XX Style = *F28EFDL4	4"	5/8"	1/4"	15/16"		Roper Style = *FRPEFDLI4 28XX Style = *F28EFDLI4
F 5-3/4	Roper Style = *FRPFFDL_ 28XX Style = *F28FFDL_	5"	3/4"	1/4"	1-1/8"		Roper Style = *FRPFFDLI_ 28XX Style = *F28FFDLI_
		6"					

## PROGRESSIVE STIFFENING RIB

Part Number	Part Number	Style	Std. Size	"A" 3/8	"B" 3/16	"R" 3/16
*F28PSRP	*F28PSRD	28XX				
*FRPPSRP	*FRPPSRD	RP				
*FCMPSRP	*FRPSRD	CM				

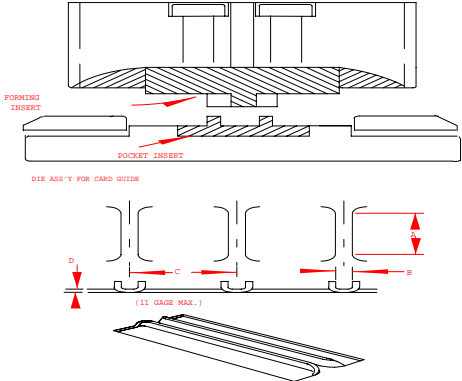
Punch is made for specific material

Unlimited Length With Nibbles

Standard Size	"A"	"B"	"R"
	3/8	3/16	3/16

Tools Keyed for 0 & 90°. For 4 Way Locating 0, 90, 180 & 270° + \$80.00

For extra pins at 45° increments add 50%



### LANCE & FORMS

DOUBLE BEND SP-77

FORM OF 90 SP-78

LESS THAN 90 SP-79

DOUBLE BEND SP-80

OPEN STYLE

LANCE STYLE (LE)



# Replaceable Insert CHARACTER

**DEDICATED MARKING UNITS** Produced to stamp Logo's, Names, Part No., etc.. Contact our tooling engineers to discuss your particular application. Cad-.DXF/.IGES files are ideal for Logo's.

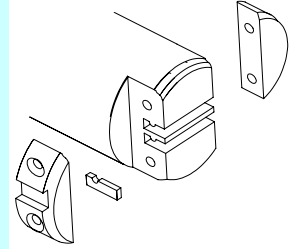
Available 1/16, 1/8, & 3/16 width X 1/4 height. 1/8 is standard • Blanks/ Spacers cost = 50% of regular character price

1/8 \*ACHAR 1/8 stamps .09X.15 1/16 \*ACHAR 1/16 stamps .06X.12 • 5/32 \*ACHAR 5/32 stamps .125"X.19, 3/16 \*ACHAR 3/16 stamps .156X.23

Spacer Kit \*ASPACER includes widths of: 6 each 1/16, 1/8 & 2 Pcs of 3/16

Lengths: CE & Amada Standard Character Length=.875" WT=.750"

(WT old styl length=.572" +\$3.50ea. Insert)



## Shear Proof Punches

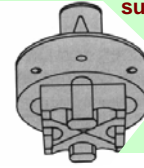
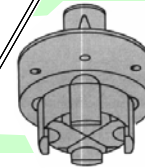
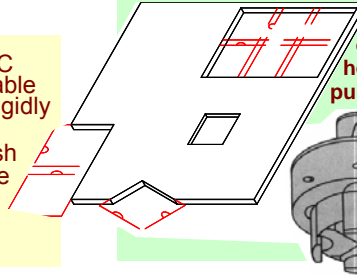
DESCRIPTION	CAT CODE	Round	Shape
1" OR 25MM	28CSP-*		
2" OR 50MM	28DSP-*		

**Unique Design:** The heel portion of our Shear Proofs are CNC Wire EDM'ed to produce 2 locating flat sides which the retractable heels are fitted to. With this design, the retractable heels are rigidly supported throughout the entire length of the punch tip.

**Maintenance:** Depress the retractable heels until they are flush to the top of punch face. Lock the heels in this position with the set screws provided in the body of the punch. Know sharpen the punch just as you would a standard punch.

**SHEAR PROOFS** are designed for applications such as Notching or Nibbling where side loading of tools occurs.

Square or Round Shear Proofs help prevent side loading through the use of Retractable Heels. One of more heels enter into the die before the actual punching occurs. This gives ridged support and helps the tool line up through out the stroke of the press.



## SPECIAL SHAPED TOOLS SHIPPED IN 3-10 DAYS

**FDS "FIRM DELIVERY SERVICE"** (EXPEDITING SERVICE) Guaranteed Delivery in 5-days + 10%, 4-days + 20%, 3-Days + 30%, 2-days + 40%, 1-day + 50%

NOTE: Ar, Br, Cr, means a radius value is requested. Further, a .015" Radius is always recommended on corners less than 90 degrees.

SP-1 SINGLE "D" STD SHAPE PRICE	SP-2 30, 60, 90 Degree	SP-3 HEXAGON STD SHAPE PRICE	SP-4 OCTAGON STD SHAPE PRICE	SP-5 TEARDROP	SP-6 TEARDROP	SP-7 KEYWAY (1)	SP-8 KEYWAY (1)
SP-9 KEYWAY (2)	SP-10 KEYWAY (4)	SP-11 KEYHOLE (1)	SP-12 KEYHOLE (2)	SP-13 KEYHOLE (4)	SP-14 KEYHOLE (1)	SP-15 KEYHOLE (2)	SP-16 KEYHOLE (4)
SP-17 KEYHOLE (1)	SP-18 KEYHOLE (2)	SP-19 KEYHOLE (4)	SP-20 KEYHOLE (1)	SP-21 KEYHOLE (2)	SP-22 KEYHOLE (4)	SP-23 KEYHOLE (1)	SP-24 KEYHOLE (2)
SP-25 KEYHOLE (4)	SP-26 KEYHOLE (1)	SP-27 KEYHOLE (2)	SP-28 KEYHOLE (4)	SP-29 KEYHOLE (1)	SP-30 KEYHOLE (2)	SP-31 KEYHOLE (4)	SP-32 KEYHOLE (1)
SP-33 KEYHOLE (2)	SP-34 KEYHOLE (4)	SP-35 KEYHOLE (1)	SP-36 KEYHOLE (2)	SP-37 KEYHOLE (4)	SP-38 KEYHOLE (1)	SP-39 KEYHOLE (2)	SP-40 KEYHOLE (4)
SP-41 KEYHOLE (1)	SP-42 KEYHOLE (2)	SP-43 KEYHOLE (4)	SP-44 KEYHOLE (1)	SP-45 KEYHOLE (2)	SP-46 KEYHOLE (4)	SP-47 KEYHOLE (1)	SP-48 KEYHOLE (2)
SP-49 KEYHOLE (4)	SP-50 KEYHOLE (1)	SP-51 KEYHOLE (2)	SP-52 KEYHOLE (4)	SP-53 KEYHOLE (1)	SP-54 KEYHOLE (2)	SP-55 KEYHOLE (4)	SP-56 KEYHOLE (1)
SP-57 KEYHOLE (2)	SP-58 KEYHOLE (4)	SP-59 KEYHOLE (1)	SP-60 KEYHOLE (2)	SP-61 KEYHOLE (4)	SP-62 KEYHOLE (1)	SP-63 KEYHOLE (2)	SP-64 KEYHOLE (4)
SP-65 KEYHOLE (1)	SP-66 KEYHOLE (2)	SP-67 KEYHOLE (4)	SP-68 KEYHOLE (1)	SP-69 KEYHOLE (2)	SP-70 KEYHOLE (4)	SP-71 KEYHOLE (1)	SP-72 KEYHOLE (2)
SP-73 KEYHOLE (4)	SP-74 KEYHOLE (1)	SP-75 KEYHOLE (2)	SP-76 KEYHOLE (4)	SP-77 KEYHOLE (1)	SP-78 KEYHOLE (2)	SP-79 KEYHOLE (4)	SP-80 KEYHOLE (1)
SP-81 KEYHOLE (2)	SP-82 KEYHOLE (4)	SP-83 KEYHOLE (1)	SP-84 KEYHOLE (2)	SP-85 KEYHOLE (4)	SP-86 KEYHOLE (1)	SP-87 KEYHOLE (2)	SP-88 KEYHOLE (4)
SP-89 KEYHOLE (1)	SP-90 KEYHOLE (2)	SP-91 KEYHOLE (4)	SP-92 KEYHOLE (1)	SP-93 KEYHOLE (2)	SP-94 KEYHOLE (4)	SP-95 KEYHOLE (1)	SP-96 KEYHOLE (2)
SP-97 KEYHOLE (4)	SP-98 KEYHOLE (1)	SP-99 KEYHOLE (2)	SP-100 KEYHOLE (4)	SP-101 KEYHOLE (1)	SP-102 KEYHOLE (2)	SP-103 KEYHOLE (4)	SP-104 KEYHOLE (1)
SP-105 KEYHOLE (2)	SP-106 KEYHOLE (4)	SP-107 KEYHOLE (1)	SP-108 KEYHOLE (2)	SP-109 KEYHOLE (4)	SP-110 KEYHOLE (1)	SP-111 KEYHOLE (2)	SP-112 KEYHOLE (4)
SP-113 KEYHOLE (1)	SP-114 KEYHOLE (2)	SP-115 KEYHOLE (4)	SP-116 KEYHOLE (1)	SP-117 KEYHOLE (2)	SP-118 KEYHOLE (4)	SP-119 KEYHOLE (1)	SP-120 KEYHOLE (2)
SP-121 KEYHOLE (4)	SP-122 KEYHOLE (1)	SP-123 KEYHOLE (2)	SP-124 KEYHOLE (4)	SP-125 KEYHOLE (1)	SP-126 KEYHOLE (2)	SP-127 KEYHOLE (4)	SP-128 KEYHOLE (1)
SP-129 KEYHOLE (2)	SP-130 KEYHOLE (4)	SP-131 KEYHOLE (1)	SP-132 KEYHOLE (2)	SP-133 KEYHOLE (4)	SP-134 KEYHOLE (1)	SP-135 KEYHOLE (2)	SP-136 KEYHOLE (4)
SP-137 KEYHOLE (1)	SP-138 KEYHOLE (2)	SP-139 KEYHOLE (4)	SP-140 KEYHOLE (1)	SP-141 KEYHOLE (2)	SP-142 KEYHOLE (4)	SP-143 KEYHOLE (1)	SP-144 KEYHOLE (2)
SP-145 KEYHOLE (4)	SP-146 KEYHOLE (1)	SP-147 KEYHOLE (2)	SP-148 KEYHOLE (4)	SP-149 KEYHOLE (1)	SP-150 KEYHOLE (2)	SP-151 KEYHOLE (4)	SP-152 KEYHOLE (1)
SP-153 KEYHOLE (2)	SP-154 KEYHOLE (4)	SP-155 KEYHOLE (1)	SP-156 KEYHOLE (2)	SP-157 KEYHOLE (4)	SP-158 KEYHOLE (1)	SP-159 KEYHOLE (2)	SP-160 KEYHOLE (4)
SP-161 KEYHOLE (1)	SP-162 KEYHOLE (2)	SP-163 KEYHOLE (4)	SP-164 KEYHOLE (1)	SP-165 KEYHOLE (2)	SP-166 KEYHOLE (4)	SP-167 KEYHOLE (1)	SP-168 KEYHOLE (2)
SP-169 KEYHOLE (4)	SP-170 KEYHOLE (1)	SP-171 KEYHOLE (2)	SP-172 KEYHOLE (4)	SP-173 KEYHOLE (1)	SP-174 KEYHOLE (2)	SP-175 KEYHOLE (4)	SP-176 KEYHOLE (1)
SP-177 KEYHOLE (2)	SP-178 KEYHOLE (4)	SP-179 KEYHOLE (1)	SP-180 KEYHOLE (2)	SP-181 KEYHOLE (4)	SP-182 KEYHOLE (1)	SP-183 KEYHOLE (2)	SP-184 KEYHOLE (4)
SP-185 KEYHOLE (1)	SP-186 KEYHOLE (2)	SP-187 KEYHOLE (4)	SP-188 KEYHOLE (1)	SP-189 KEYHOLE (2)	SP-190 KEYHOLE (4)	SP-191 KEYHOLE (1)	SP-192 KEYHOLE (2)
SP-193 KEYHOLE (4)	SP-194 KEYHOLE (1)	SP-195 KEYHOLE (2)	SP-196 KEYHOLE (4)	SP-197 KEYHOLE (1)	SP-198 KEYHOLE (2)	SP-199 KEYHOLE (4)	SP-200 KEYHOLE (1)

# BE SURE YOUR USED TOOLS ARE ALWAYS SHARPENED PROPERLY!

If facilities aren't available to properly care for your tooling, CE offers it's customers a tool sharpening service at low rates.

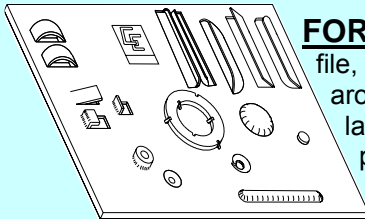
*Generally a 1-2 day turn around.*

*Sharpening your tools generally cost approximately 1/3 the "NEW" tool cost Depending on amount of roll-over! Remember, due to backtaper, you lose size on a punch and gain clearance in a die!*

PUNCH SHARPENING COST <i>FLAT (NO SHEAR)</i>	Qty	Qty	Qty
	1-3	4-10	11-25
TIP DIAGONAL .063 TO 3"			
TIP DIAGONAL 3.001" TO 6"			

DIE SHARPENING COSTS	Qty	Qty	Qty
	1-3	4-10	11-25
O.D. UP TO 2-3/4" DIAMETER			
O.D. OVER 2-3/4 TO 6-3/4"			

*Have CE remove old Ejector, and add new, Add below cost per ejector hole.  
2mm/.078" or 3mm/.109" holes add \$3.50 6mm/.236" or 1/4=.25" + \$4.50 10mm/.394" or 15mm/.590" + \$5.00 to flat punch cost.*



**FORMING TOOLS**—Assure best performance. Using the tool's print which we keep on file, our tool room will sharpen, re-set and test "YOUR" form tool. We can usually turn around a Form Tool in two to three work days. We have a minimal charge to cover labor. Our primary goal of this service is to assure long term satisfaction with C.E. products & services.

## CORNER RADIUS KITS

**Produce eight (8) different sized radius corners equally and easily.**

- \*Self-Contained Unit means fast easy set-up
- \*Requires a vertical hit from any type press
- \*Punch material up to 13 gage mild steel

### Fractional Unit:

Cat. Code \*E-RK1002

1/16, 1/8, 3/16, 1/4, 5/16, 3/8, 7/16 & 1/2

### Metric Unit: Cat. Code \*E-RK1001

2mm, 3mm, 4mm, 5mm, 6mm, 8mm, 10mm & 12mm

The Corner Radius Kit takes the "Pain" out of corner rounding. This unique, self-contained unit requires only a vertical "hit" from a mach. press, brake, etc... (soft hammer on a bench for short runs) to produce clean corner radii on sheet stock up to 13 gage mild steel. Precision self-aligning punches and dies make 30 second changeover common.

Shut ht. 3 1/8 • Base 5" x 6 1/4  
• box 10 1/2 x 6 1/2 • wgt 13 lb.



**FABRICATING TOOLS**  
and Accessories for most  
Punching, Bending and  
Shearing Equipment



**C.E. TOOLING, INC.**



**MANUFACTURING TURRET PRESS  
TOOLING SINCE 1966**

www.cetooling.com

**C.E. TOOLING, INC.**

Die-Set, Brake Press, Iron Worker, Shears, C-Frame, Tube&Pipe

*Specializing in tooling and machine parts for:*

**Amada, Behrens, Boschert, Chassis Maker, Di-Acro<sup>®</sup>,  
Ehrt, Euromach, Finnpower, Haco, Murata Wiedemann,  
Nisshinbo, Omes, Pullmax, Rainer, Roper Whitney,  
Salvagnini, Simasv, Strippit<sup>®</sup>, Trumpf, Raskin, W.A. Whitney  
and similar presses**



**CE TOOLING, INC.**

2560 W. Brooks Ave.  
N. Las Vegas NV 89032

**[sales@cetooling.com](mailto:sales@cetooling.com)**

Tel. 702 736-2598

**[www.cetooling.com](http://www.cetooling.com)**

Fax 702 736-3038



LOCAL SALES REPRESENTATIVE  
DISTRIBUTORS

