

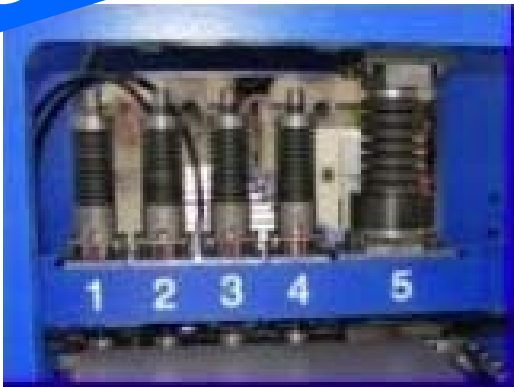


# C.E. TOOLING

## Section 9.7




See Section 1 For Technical Information



# BOSCHERT

(AT/TR/MT) TOOLING

# ADDITIONAL COSTS FOR NON-STANDARD OPTIONS



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

<b>PUNCHES</b>	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

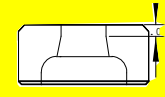
No Extra Charge for STRIPPERS or GUIDES When Ordered With Set

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

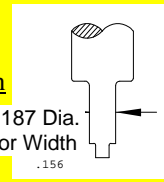
Add 50% to die price for **Solid Dies.**

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

**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 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.)



.09 land, then 1.5° relief

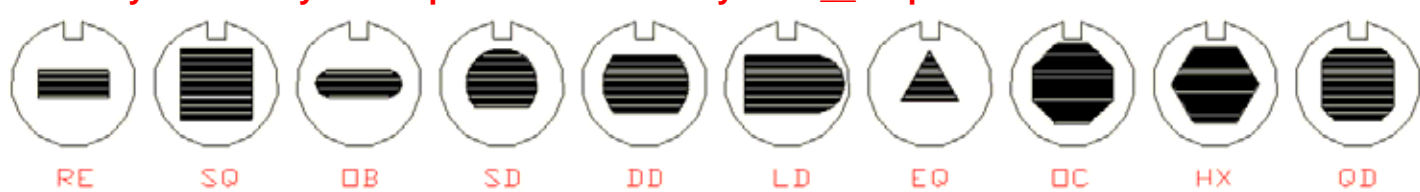


Optional **STUBBY PUNCH**  
.187 Dia. or Width  
.156

## STANDARD KEYING DIE SIZES I & II

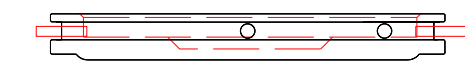
10 Standard Shapes plus Rounds. RT Rectangles • SQ=Square • OB=Oround • SD=Single-D • DD=Double-D  
 LD=Long-D • EQ=Equilateral • OC=Octagon • HX=Hexagon • QD-Quad-D Add \$10 per set to standard price for LD & EQ

Dies only have 1 key. Shapes shown with Key at 0°. Request 90° or 45° no additional fee.



### DIES KEYED ON ANGLES OTHER THAN 0° INCREMENTS

STATION	Of 15° increments	Other Than 15°
I SMALL	\$20.00	\$25.00
II MEDIUM	\$30.00	\$35.00
III LARGE	\$50.00	\$65.00

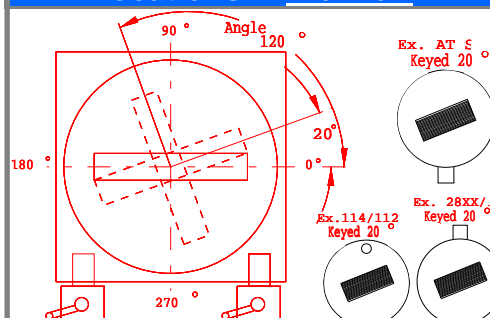


### EXTRA KEY WAY ON DIES

Please Fax a Print Showing Location of Extra Key(s) in Relationship to Shape

STATION	Of 15° increments	Other Than 15°
I SMALL	\$35.00	\$50.00
II MEDIUM	\$40.00	\$60.00
III LARGE	Not Available	Not Available

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



Visualize location **key** positioned as tool would load into turret. Start with length of shape horizontal. (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!*

10 STANDARD SHAPES

1 - 4 work day delivery.

RECTANGLE • SQUARE • OBROUND • Single-D  
 Double-D • QUAD-D • HEXAGON • OCTAGON  
 + \$10 PER SET FOR: LONG-D & EQUILATERAL

Guaranteed Expediting Services

FDS=Firm Delivery Service • Order by 3pm,  
**Same or Next day guaranteed + \_\_\_%**  
**Guaranteed to ship in 2 days + \_\_\_%**

Tool Styles: AT, AS, ST:  
 1 day FDS=25% 2 day FDS=10%  
 Tool Styles 36tc, 28st, Lila, 92/93  
 1 day FDS=50% 2 day FDS=25%



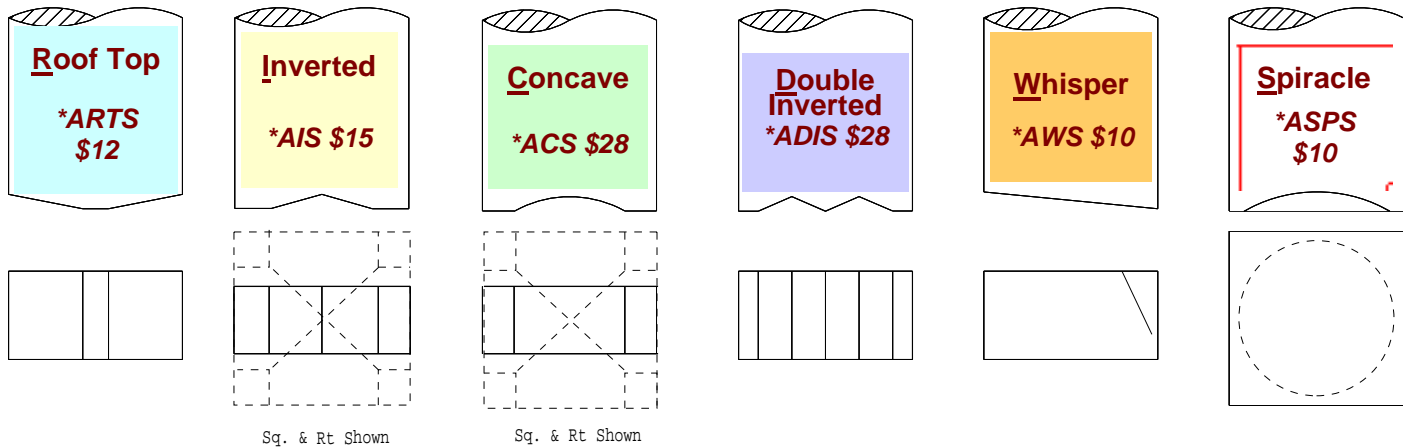
# Table of Contents

C.E. Tooling, started out in 1966 in Chicago as a tool & die shop. In the late 70'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.

TOOL DESCRIPTION	PAGE	DELIVERY Work Days
Standard & Long Punches, Dies & Strippers + Die Adapter	4-5	1-4 Size 3 5-12
Heavy Duty Punches, Dies	6	3-8
Insert Blade Punch, Alignment Rings,	7	1-5
SLOTTING/PARTING TOOLS 2•4•1™/ Next™	9	1-4
MULTI-TOOLS REVO	9	1-4
Copper Buss Bar AT-Long Tooling	10 & 11	1-4
FORMING TOOLS • SET UP, PROGRAMMING SUGGESTIONS & MAINTENANCE	13	3-10
COINING, EXTRUSIONS, HALF SHEARS,	14	2-5
ELECTRICAL KNOCK OUTS, BRIDGE TABS, THREAD FORMS, STIFFENING RIBS, LOUVER & CARD GUIDES	15-16	6-15

## OPTIONAL PUNCH SHEARS

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



**TiC Titanium Nitride Coating:Gold**

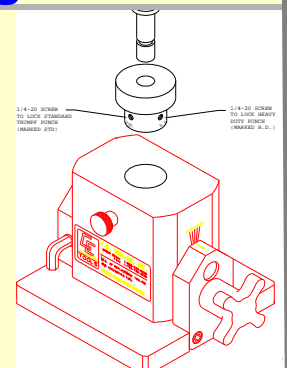
STA.	SIZE I	SIZE II	SIZE III
COST			

**TiCN Titanium Carbo-nitride:Grey/Blue**

STA.	SIZE I	SIZE II	SIZE III
COST			

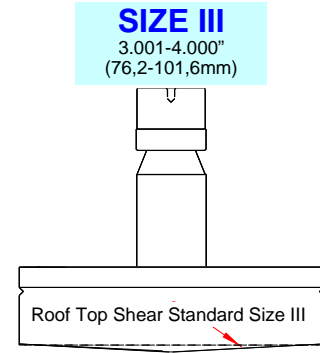
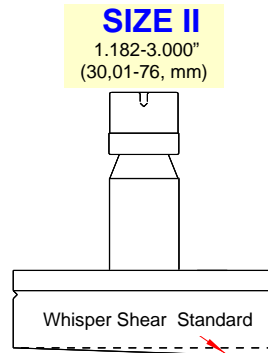
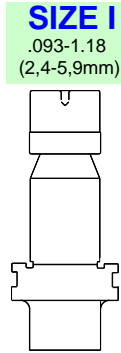
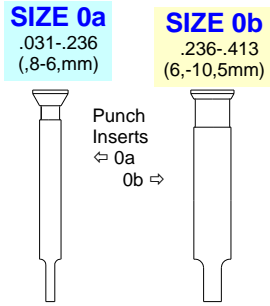
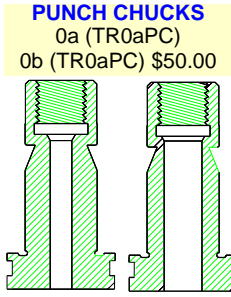
## Punch Sharpening Fixtures

To be used on a Surface Grinder,  
Sharpen any type of shear safely, easily, and most importantly with out damaging punch.





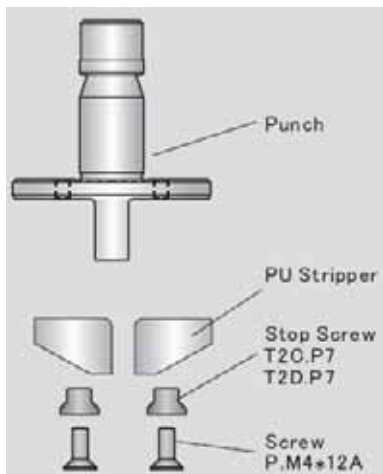
# TRUMPF PUNCH *See Page 6 for H.D.*



Ref: Haco/OMes Presses has maximum Punch Length = 74mm, including shear

STATION	RANGE DIAGONALLY Pricing for Tip Sizes of .093(2,3mm) &>	ROUND Part #	Price	SHAPE Part #	Price Station 2&3 OB
<b>0a</b>	.031-.236 / .8-6.0mm	TR0aPr	12.00	TR0aPs	30.00
<b>0b</b>	.237 -.413 / 6,0-10,5mm	TR0bPr	15.00	TR0bPs	47.50
<b>I</b> 74mm length	.031-.590 / .8-15,mm	TR1Pr	37.00	TR1Ps	78.25
	.591-1.181 / .8-30,mm				
<b>II</b> 77mm length	1.182-1.575"/30,-40,0mm	TR2aPrW	60.00	TR2aPsW	91.00
	1.182-2" / 30,-50,8mm	TR2bPrW	75.00	TR2bPsW	98.00
	2.001-2.362"/50,8-60,0mm	TR2cPrW	84.00	TR2cPsW	108.50
	2.363-3" /60,1-76,2mm	TR2dPrW	93.50	TR2dPsW	130.00
<b>III</b> 77mm length	3.001-3.5" / 76,2-88,9mm	TR3aPrR	100.00	TR3PsR	
	3.501-4" / 88,9-101,6mm	TR3bPrR	112.50	TR3PsR	
<b>Coatings: TiN Titanium Nitrite/TiCN Titanium Carbon-Nitrite Sta. 1 + Sta. 2 + Sta. 3 +</b>					

## SLOTING TOOL

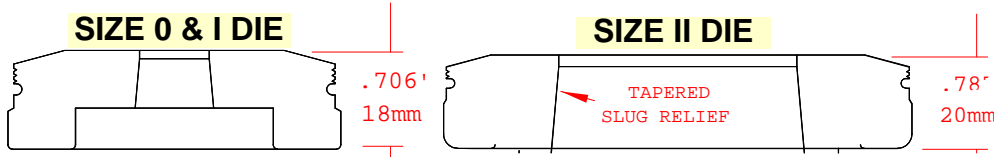


STATION	Sta. II Slotting Tool Punch with built in Urethane Strippers DESCRIPTION	Part #	Price
<b>II</b> 77mm length	Punch Assembly	TR2c P2RE	
	Punch	TR2c P9RE	
	PU Stripper	TR2c P8	
	Punch Assembly	TR2d P2RE	
	Punch	TR2d P9RE	
	PU Stripper	TR2d P8	

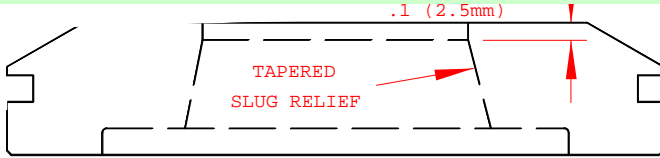


# TRUMPF DIES

See Page 6 for H.D.



**Size III DIE** keyed 0, 90 & 45 **Only One Key Location on ATC**(Auto Tool Change). For ATC, specify radial or Tangent Setting *Size 3 Dies & Strippers are 2-3 week delivery*



## DIE ADAPTERS

CONVERTS SIZE	TRUMPF Ref. #	PART #	PRICE
1 TO 2	7336-1ZM/02	TRDA1-2	86.00
1 TO 2 w/Shim	7336-1ZM/06	TRDA1-2sh	

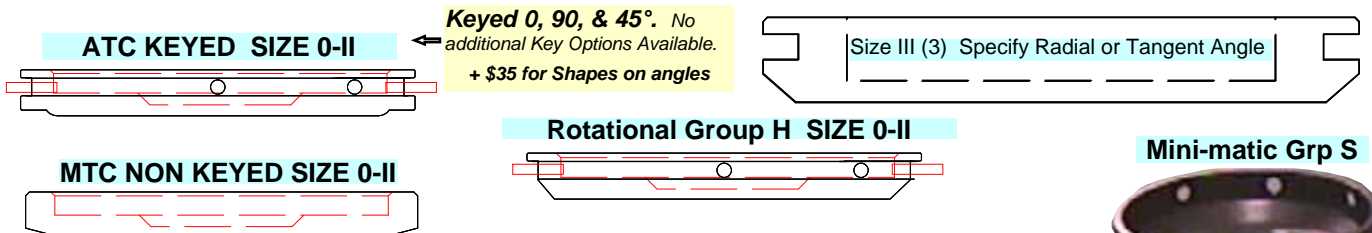
Station	Size Range -DIAGONALLY	Part# Round	Price	Part# Shaped	Price
I	.093-1.260 2,4-32,mm	TR1-D-r	34.25	TR1-D-s★	72.80
	.093-1.528* 2,4-38.8mm*				
	<i>* For Group S Mini-Matic</i>				
II	1.261-3.032 32,-77,mm	TR2-D-r	71.70	TR2-D-s★	131.65
III ATC or MTC	2.8"-4.134 71,-105,mm	TR3-D-r		TR3-D-S★	
Euromach	" "	TR3-Deb		TR3-DEb-S★	
OMES	" "	TR3-DOM-r		TR3-DOM-S★	
Boschert	" "	TR3Dbe-r		TR3Dbe-S★	

## DIE SHIM

Station	PART #	PRICE
I	TRDA1-2	4.50
II	TRDA1-2sh	5.75

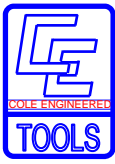
# TRUMPF STRIPPER PLATES

**Order Strippers by Punch size + Clearance:** If Clearance is not specified .06"/1,5mm will be used. When punching materials >16gage .06"/1,5mm, .2" 1,5mm is a good clearance. NOTE: **.4"10,mm should be the minimum actual width or diameter ordered** to prevent punch flange from bottoming out on stripper. This is because punch tips lengths are stubbed for sizes <.4



Station	Size Range	Keyed/Non-Keyed	Part#	Round	Shaped
				Price	Price
0, I, & II	Up to 3.032 77,mm	ATC:KEYED	TR1-Sa-*	29.50	TR1-Sa-s* 47.00
		MTC:Non-Keyed	TR1-Sm-*	29.50	TR1-Sm-s* 47.00
		Rotation Grp. H	TR1-S5-*	30.50	TR1-S5-s* 45.00
	Up to 1.528" / 38,8mm	Mini-matic Grp. S			
Size III	2.8-4.134" 71-105mm	All Size III are ATC:KEYED	TR3-Sa-r		TR3-Sa-s*
Sta. 0 & 1 Urethane Pop On Stripper		Sta. 0a (.24 hole) *ATR0aUS Sta. 0b (.41 hole) *ATR0bUS		Sta.1: Available with 3 different through hole sizes .590, .890, and 1.190 Cat# *ATR1US-(hole size)	





# HEAVY DUTY TOOLING

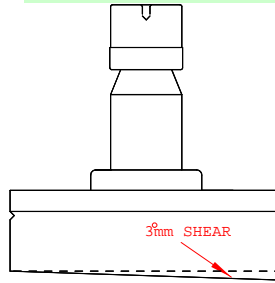
## SIZE I

.407-1.181 10,3-30mm

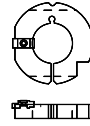


## SIZE II

1.182-3.0 30,01-76,2mm



Alignment Ring for Heavy Duty Punch

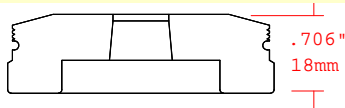


Ring Complete	TRAR-1/4
Spare Key	TRAR-1/4-K
Key Screw	TRAR-1/4-KS
Clamp	TRAR-1/4-CS

STATION	RANGE / DIAGONALLY	ROUND	PRICE	SHAPED	PRICE
I	.407-1.181 (10,3-30,mm)	TR1-Phd-r-RD	53.50	TR1-Phd-s	123.05
II	1.182-2" (30,-50,8mm)	TR2a-Phd-r-RD	80.00	TR2a-Phd-sW	144.45
	2.001-3" (50,8-76,2mm)	TR2b-Phd-r-RD	170.00	TR2b-Phd-Sr	200.00

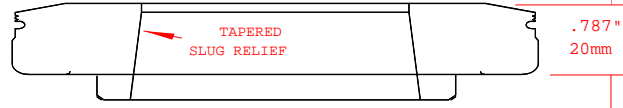
## SIZE I DIE

Maximum Opening .984+.059 .25, +1,5mm



## SIZE II DIE

Maximum Opening 2.126+.059 54mm + 1,5mm



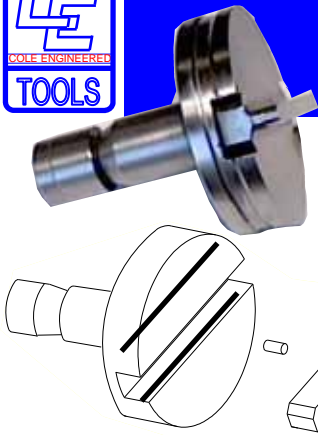
0 & I	.Max. .984 +.059	TR1-D-r-RD	34.25	TR1-D-s★	72.80
II	Max. 2.125 +.125	TR2-Dhd-r-RD	107.00	TR2-Dhd-s★	165.85

TRUMPF TRUMATIC Group MACHINE MODELS	MAXIMUM	TOOL CHANGER ATC -AUTOMATIC	SPECIAL TOOLING
A 700•701•900• 901 • A 901E • 902 • 500 B CS75	SIZE II	MTC: Non-Keyed Stripper ATC: Keyed Stripper	Some of these machines can also except std: Size 1 punches & Dies.
MINIMATIC tooling style machine TC-120R • TC-160R	SIZE II	Spec. MiniMatic Stripper MiniMatic: Alignment Rings Punches 0-30mm Size 1, 30-38 size 2 w/max flange 40,6 Flat Faced unless spec. Die Only Size 0/1 available. Although normally Size 1 normally goes to 30mm we extend to 38mm for Mini Matic Machines.	
C CN1200S/A•CS15•CS20•CS20A•MP25/p• MP25•MP25CNC D 20 • 20A•202MTC20TC20A • TC202M	SIZE III	MTC: Non-Keyed Stripper	
E 150K•151K•152K•TC180K•180LK•180PK• 202K•225•300PK•235•300K•300PK•400K	SIZE III	ATC: Keyed Stripper	
F 150W•152W•180W•180LW•180WD•180ELX• 180swift•185•240•250•260	SIZE II	ATC: Keyed Stripper	
TC- 20aW•202W•300W•300PW•300top• 300lw•350W•400W	SIZE III	Size 0-II=Non-Keyed Size III=Keyed Stripper	Size 0-II Strippers are MTC: Non-Keyed. Size III Strippers are ATC: Keyed
H 190R•200R•500R•600L	Size II	Keyed Rotational Grp.H&I	This is a new stripper for H Group Mach.
I 2000R•2010R•2020R•5000R•6000L• 3000•3000L	Size II		
S 100•120R•600	Size I	Mini-Matic Grp.S	
HACO -OMES MODELS			
Model 1 or 2,Omatic 130 DTR, Omatic 212 RH	SIZE II	ATC: Keyed Stripper	Max. Punch Height =74mm and then 73 with 1mm shear As for Stripper Plates up to Size
Model 3... Millennium 3015	SIZE III		
Boschert			
	Size II		
Durma			
	Size II		



# REPLACEMENT INSERT BLADE PUNCH

Reduce costs of common used slotting punches  
 Size Range Width .125 (3mm) - .3158 (8mm) Length 1.5(38mm) - 3.000(76.2mm)



**HOLDER**  
Part# TR2IH

Genuine Trumpf Style S/A  
T2956156 Replacement Blade

Use with **Stripper Plate** of Actual Size .4"+ X punch length, 2.2"/55.9mm  
 Holder is relieved to this size to allow extended punch grind life.

LENGTH	OBOUND		RECTANGLE	
	Part#	PRICE	Part#	
1.500 - 2.000" (38,1mm -	TR2IBa-OB		TR2IBa-RT	
2.001-3.000" (57,1,8mm-	TR2IBb-OB		TR2IBb-RT	



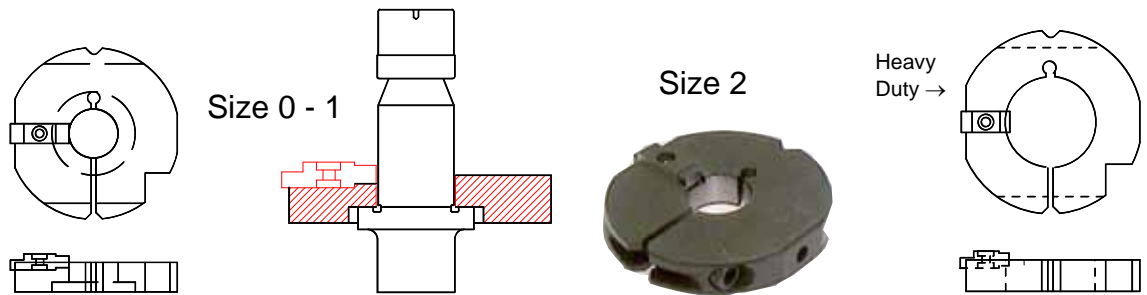
Die holder	Code	Price
Die holder 1 (No brush, for RE blade)	T0Q620	
Die holder 2 (Wt. brush, for RE blade)	T0Q630	
Die holder 3 (No brush, for OB blade)	T0Q640	
Die holder 4 (Wt. brush, for OB blade)	T0Q650	

	Code	Price
Punch holder	T0Q500	
Key	T0Q510	
Screw for punch blade	T0Q520	
Punch blade 5x30mm	T0Q530	
Punch blade 5x56mm	T0Q540	
Punch blade 5x76.2mm	T0Q550	

	Die blade	Code	Price
Blade(RE.)	5x30mm(Solid)	T0Q560	
	5x30mm(Assembly)	T0Q570	
	5x56mm(Solid)	T0Q580	
	5x56mm(Assembly)	T0Q590	
Blade(OB.)	5x76.2mm(Solid)	T0Q600	
	5x76.2mm(Assembly)	T0Q610	

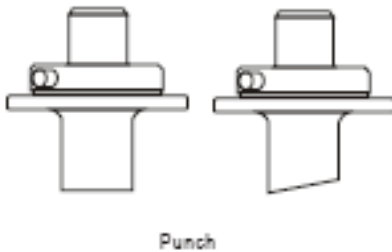
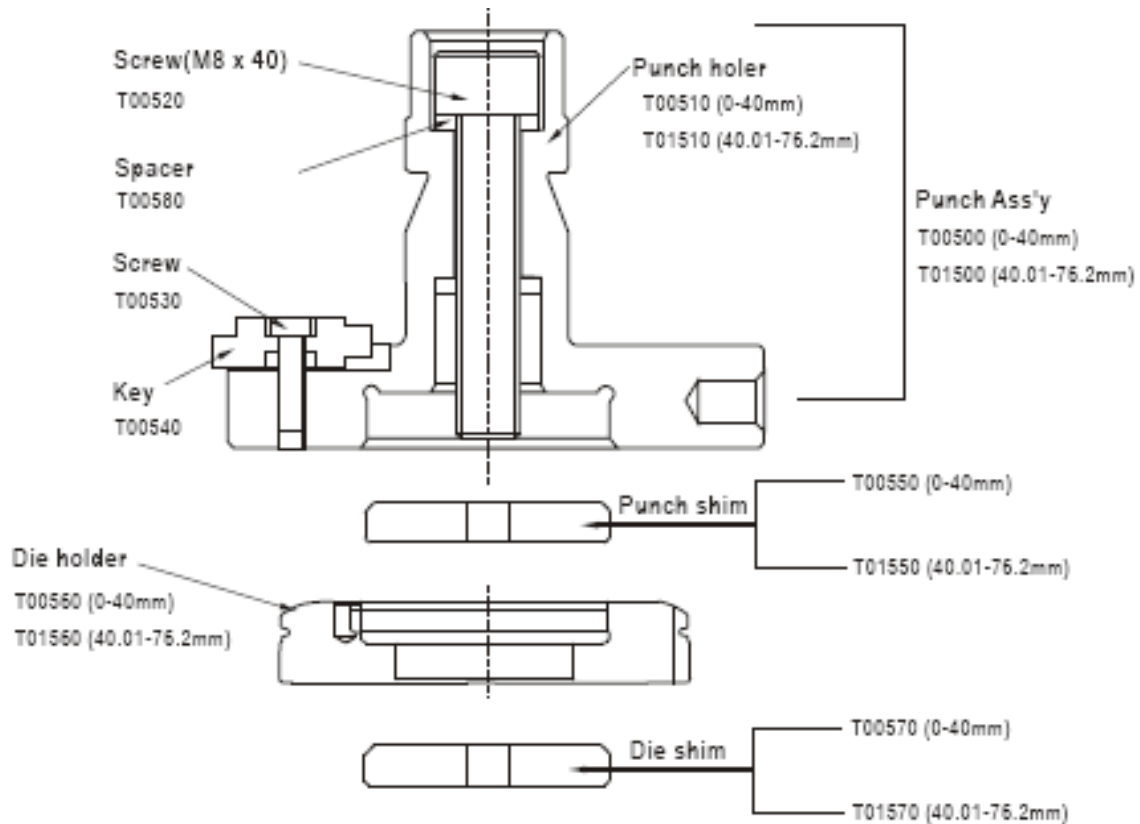
Note: For thickness below 3.0mm; 1.0mm grind life for blade

## Alignment Rings

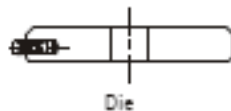


SIZE & TYPE	Mate Ref. No.	Trumpf Ref. No.	Cat. Code	PRICE
SIZE 0 - 1 MTC	VANTD	7336-OJS/01	TRAR-0/1	\$67.00
SIZE II MTC	VAPTD	7336-1JS/01	TRAR-1/1	\$44.00
SIZE 0 & 1 ATC	VANTE	7336-OJS/02	TRAR-0/2	\$79.00
SIZE 2 & 3 ATC	VAPTE	7336-1JS/02	TRAR-1/2	\$67.50
Heavy Duty I & II	VANTF	7336-1JS/04	TRAR-1/4	\$75.00
Special -Bolt On	VAPTF		TRAR-SPEC	\$75.00

# SLOTTING/PARTING TOOLS 2•4•1™/Next™



Size	Round(flat)	Round(shear)	Shape(flat)	Shape(shear)
2.36~30.00mm	T1T100	T1T110	T1T120	T1T130
30.01~40.00mm	T1T140	T1T150	T1T160	T1T170
40.01~56.00mm	T2T100	T2T110	T2T120	T2T130
56.01~66.00mm	T2T140	T2T150	T2T160	T2T170
66.01~76.20mm	T2T180	T2T190	T2T200	T2T210



Size	Round	Price	Shape	Price
0~40.00mm	T1T400		T1T410	
40.01~56.00mm	T2T400		T2T410	

Go to Page 5 & 6 for Stripper & Dies



# C.E. TOOLING, INC.

## BOSCHERT-REVO MULTI-TOOL (MT)

### 4 Station CE style N

Range.030-.984" ,8-25,mm

PUNCH Grind Life: .060"/1,5mm  
Minimum length 2.795/71mm

DIE Grind Life: .06"/1,5MM  
Minimum length=.728/18,5mm

### 6 Station CE style O

Range.030-0.787" 8-20,mm

PUNCH Grind Life: .060"/1,5mm  
Minimum length 2.795/71mm

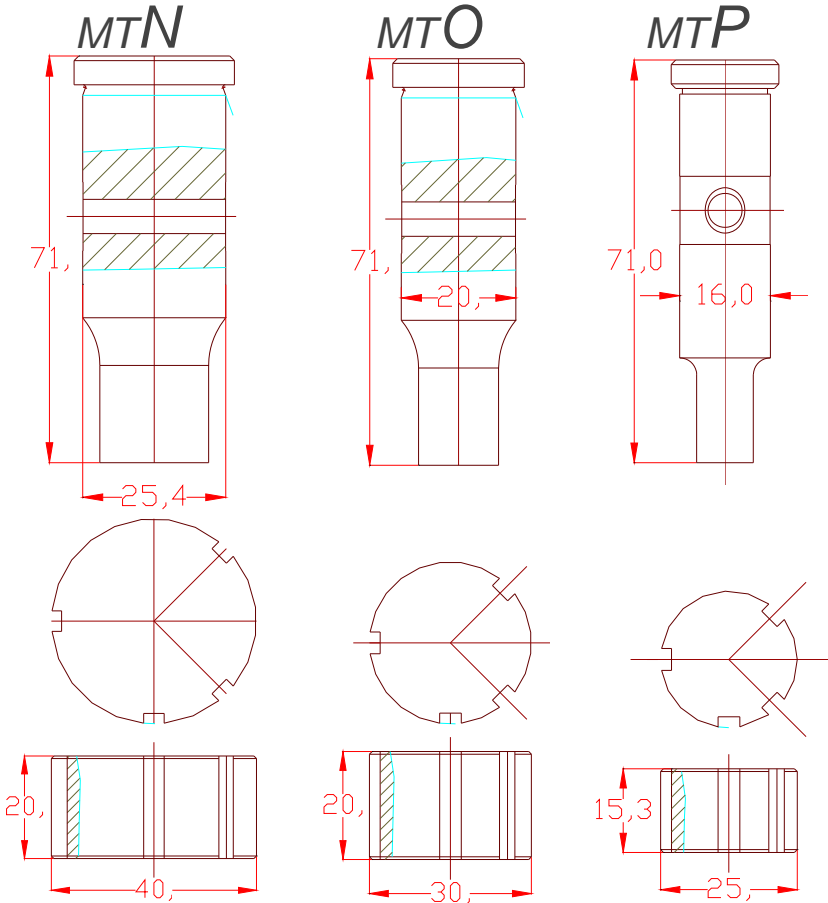
DIE Grind Life: .06"/1,5MM  
Minimum length=.728/18,5mm

### 7 or 8 Station CE style P

Range.030-.629" ,8-16,mm

PUNCH Grind Life: .060"/1,5mm  
Minimum length 2.795/71mm

DIE Grind Life: .06"/1,5MM  
Minimum length=.602/15,3mm



STYLE	Shape	Punch M2 Steel CATALOG CODE	PRICE Dia. or Width >.093/2,3mm	Die A2 Steel Slug Trap™ CATALOG CODE	PRICE Dia. or Width >.093/2,3mm
N 4 Sta.	Round	MTNP-r	70.00	MTND-r	65.00
	Shape	MTNP-s	82.50	MTND-s	82.50
O 6 Sta.	Round	MTOP-r	70.00	MTOD-r	65.00
	Shape	MTOP-s	82.50	MTOD-s	82.50
P 7 or 8 Sta.	Round	MTPP-r	70.00	MTPD-r	65.00
	Shape	MTPP-s	82.50	MTPD-s	82.50

Shaped Dies have two (2) key slots keyed 0, 90 or for Squares 0 & 45 For shapes on other angles \$18 to Punch and \$18 to Die **Goto Page 2 for ordering diagram for tools on Angles**

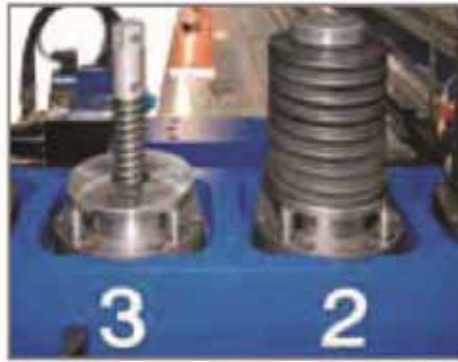


# Copper Buss Bar Punching Machine

## AT LONG TOOLS CU Profi & WK II



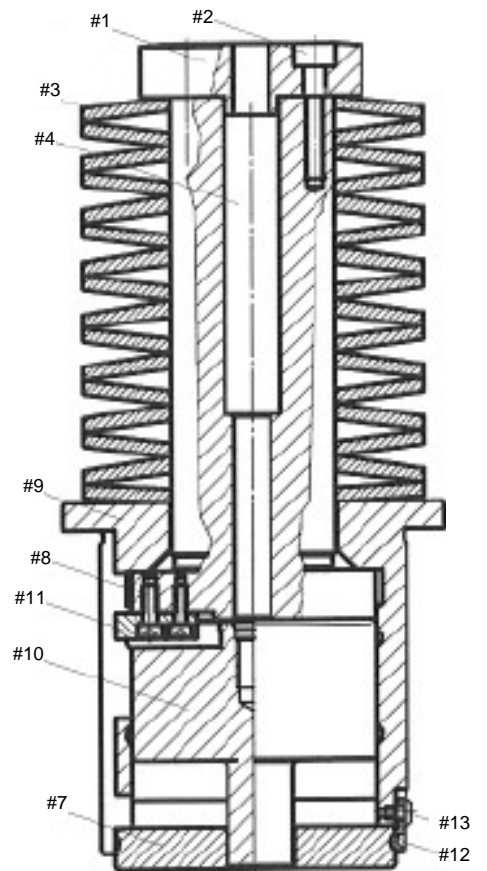
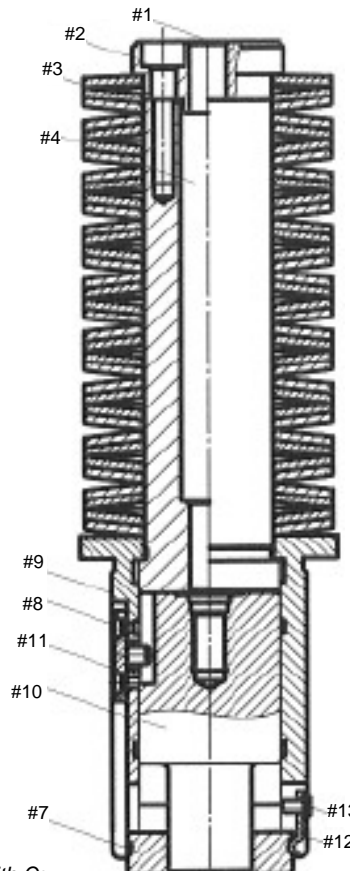
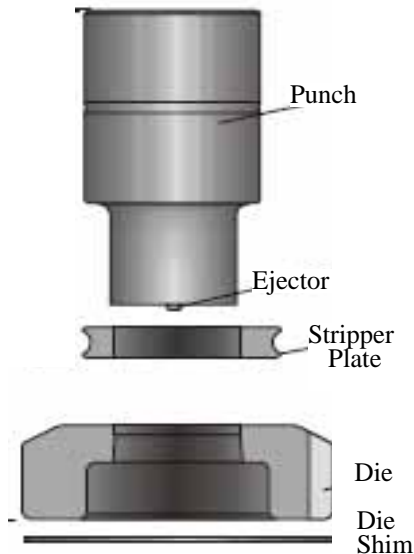
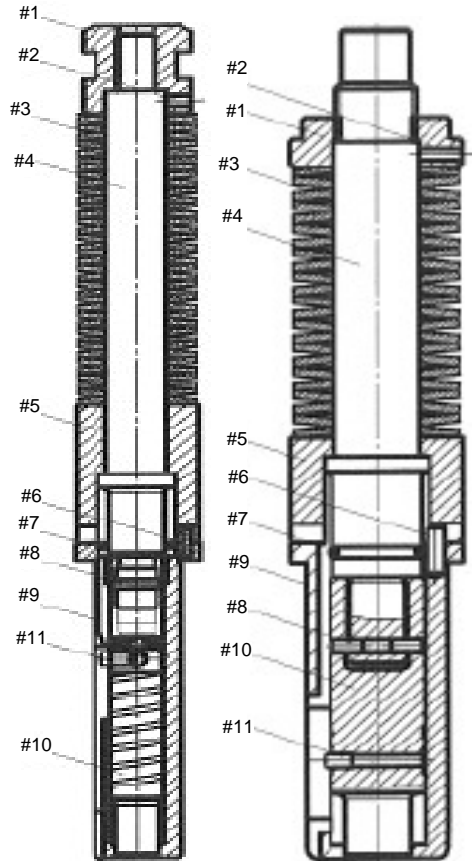
4 - or 6 - way Multitool



Maximum tool size of 9 mm diameter



Easy tool change



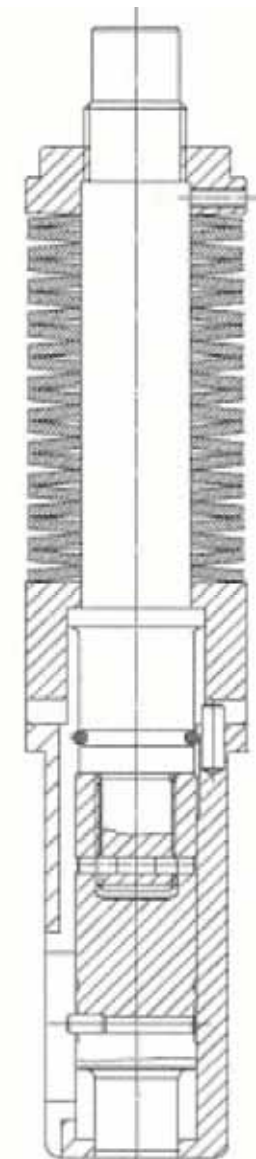


# Copper Buss Bar Punching Machine

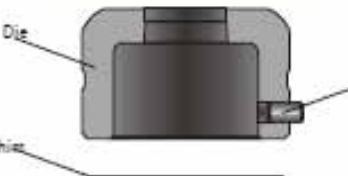
## AT LONG TOOLS CU Profi & WK II



AT-Long Tooling Punches are M2 High Speed Steel with ½° back taper



Ite. # Pos	DESCRIPTION	Part No.	STATION			
		-r=Round -s=Shaped	-1.250" -31,7m	-2.00" -50,8	-3.50" -88,9	
		Part#	A	B	C	D
	<b>Complete Punch Assembly</b>	AT_-PA-Ig-u-r	236.65	330.65	901.55	1179.85
		AT_-PA-Ig-u-s	426.20	549.10	957.95	1260.65
10	<b>PUNCH M2, HD ½° back taper</b>	AT_-Pu-hd-r	65.00	100.00	115.00	140.00
		AT_-Pu-hd-s	100.00	184.00	155.60	199.20
		Coating TiN +	20	30	55	65
		Coating TiNC +	30	40	70	80
		Coating Alpha +	35	45	75	85
23	<b>DIE W/SLUG Z-HUGGER S/O</b>	AT_D-so-r	25.00	28.50	70.85	93.45
		AT_D-so-s	48.50	55.00	119.85	162.70
9	<b>Guide Only (All Keyed)</b>	AT_-Gw-s	64.10	128.00	331.70	350.00
7	<b>STRIPPER PLATE</b>	AT_Sam-r	n/a	n/a	25.0	31.75
		AT_Sam-s	n/a	n/a	35.35	52.90
1	<b>Punch HEAD</b>	AT_-PH	40.00	40.00	34.00	40.70
2	<b>Screw 4pc</b>	ATCDE-8X25	n/a	n/a	3.75	3.75
3	<b>Disc Spring a=__,b=__,c=35,d=16</b>	AT_-SD	60.00	95.00	200.00	274.00
4	<b>Connector / Punch Driver</b>	AT_PD			230.00	250.00
5	<b>Spacer</b>	AT_-SPACER	75.00	75.00	n/a	n/a
6	<b>Pin</b>	AT_CU-Pin	1.50	1.50	n/a	n/a
7	<b>O-RinG</b>	AT_CU-Oring	1.50	1.50	n/a	n/a
8	<b>Safe Pin or Key Screw</b>	AT-CU-#8	1.50	1.50	n/a	n/a
11	<b>Pin or Guide Key-w/screws</b>	ATD_-K	1.50	1.50	35.60	34.25
12	<b>STRIPPER CLIPS</b>	ATCDE-SC	n/a	n/a	16.60	16.60
13	<b>Screws Only for Stripper Clip Ea.</b>	*A-BHCS-M4X_	n/a	n/a	\$ .35	3.50
18	<b>Punch SHIM</b>	*A-AT_P-Shim	n/a	n/a	9.00	12.00
19	<b>Die SHIM</b>	*A-AT_D-Shim	3.50	3.50	8.00	10.00
21	<b>Punch EJECTOR #=hole Ø</b>	*A-EJ-C# #=3, 6,			1.25	



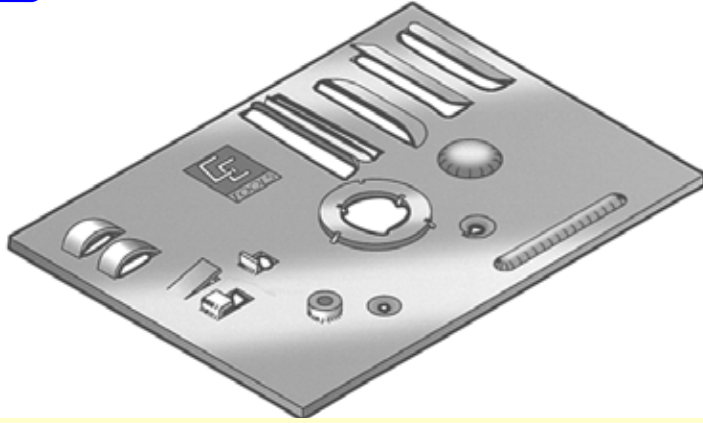
### SHEARING STATION TOOLS

RT: 4 X 60 or 8 X 60mm Punch \$525 Die \$641  
Qty Break 3+ reduce 20% 6+ 35%



# SPECIAL APPLICATION FORMING TOOLS

## HIGHER PRODUCTIVITY THROUGH SUPERIOR ENGINEERING



**Superior Engineering from C.E. Tooling doesn't just mean Superior Products, and Higher Productivity. With C.E., it also means Higher Tool Value.**

C.E. TOOLING has designed its Forming Tools to take advantage of a Master Planed Family of Components. Listed by each type of Forming Application is a BASE UNIT Part No. Once you have a particular BASE UNIT purchased to produce one type of form, at your discretion, you may be able to re use components on future Special Application tools which call for the same BASE UNIT.

### SET UP INSTRUCTIONS

To use a form tool in a punch press, close attention must be made in setting the exact depth the punch comes down forming the steel, and spanking the material tightly between the form punch and die. This is accomplished by adjusting the penetration depth of stroke.

1. Set the machines punch stroke to its shortest depth.
2. Inspect the material to be punched and make sure it is within the thickness range the tool was built for.
3. Place the tool into the machine making sure the punch and die are aligned to each other. Form dies are usually higher than a standard die. *Turret Style Presses Only:* Lifter dies placed on either side of the form die is always recommended as they assist in smoothly lifting up the sheet to the form dies height.
4. Perform a single stroke of the press and check the results. Increase punch penetration depth by a small increment of .02 (.5mm) or less. Depending on the machine, this is either done through a programmable control, or mechanical adjustment of key or sharpening pin. Patiently repeat this procedure of making single hits and adjusting the tools stroke, until the correct form depth is achieved.

**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 the 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, don't program the use of 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 his 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 received with the form tool to help with the understanding of the disassembly of a form tool. The most damaging effect to form tools is galling. 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, contact our engineering department 702 736-2958 or eng@cetooling.com 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.

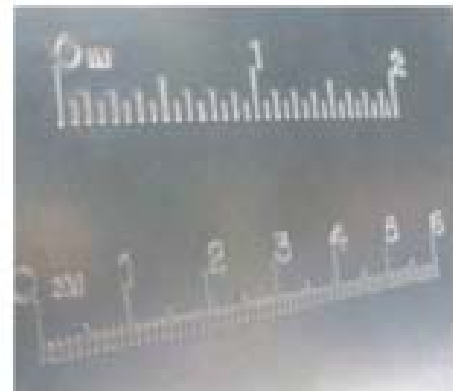


# SPECIAL APPLICATION FORMING TOOLS

HIGHER PRODUCTIVITY THROUGH SUPERIOR ENGINEERING



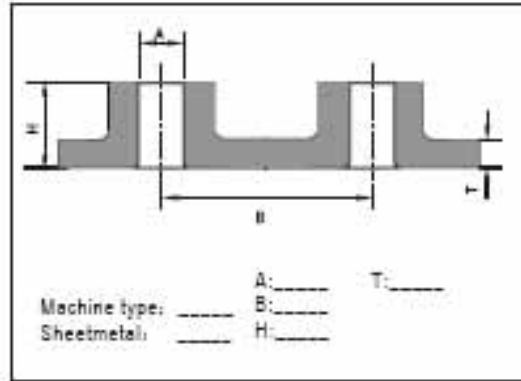
## Multi-SCRIBE



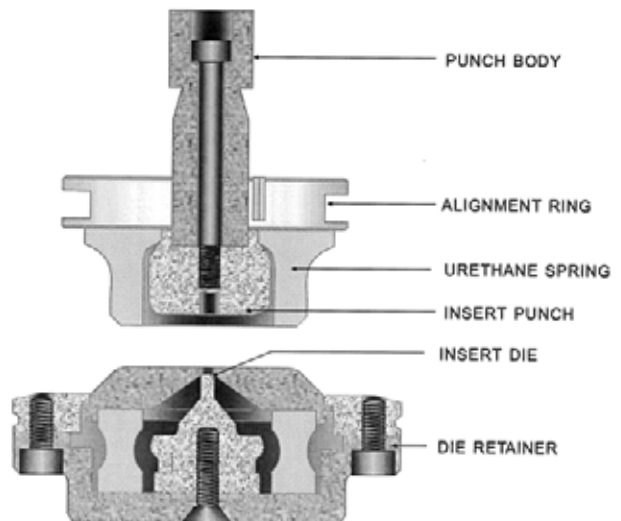
Machine type: \_\_\_\_\_  
Sheetmetal: \_\_\_\_\_  
Thickness: \_\_\_\_\_  
Size: \_\_\_\_\_  
Depth: \_\_\_\_\_

1. Mark letters and number on sheetmetal.
2. Require different punch pressure for letter size and depth.
3. Form up or form down.
4. Please fill in the left form.

## EXTRUSION



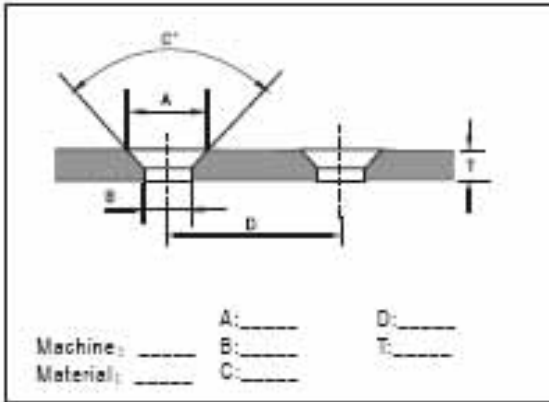
1. Replaceable insert design on extrusion Dia. Less 6.35mm.
2. B station, Max. thickness: 2mm for mild steel or AL.1mm for stainless.
3. Max.H: 2 -2.5X T.
4. Need prepunch.
5. Two Types: Form up and Form down.
6. Please fill in the above form.





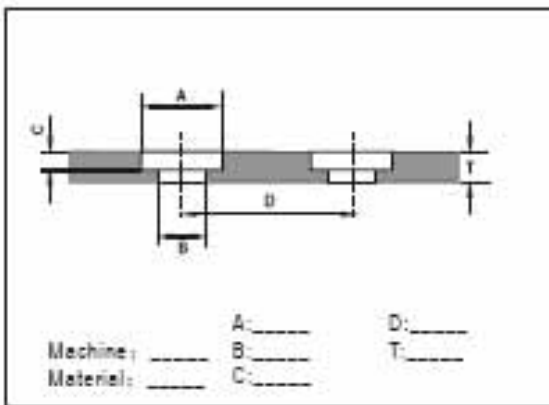
# SPECIAL APPLICATION FORMING TOOLS

HIGHER PRODUCTIVITY THROUGH SUPERIOR ENGINEERING



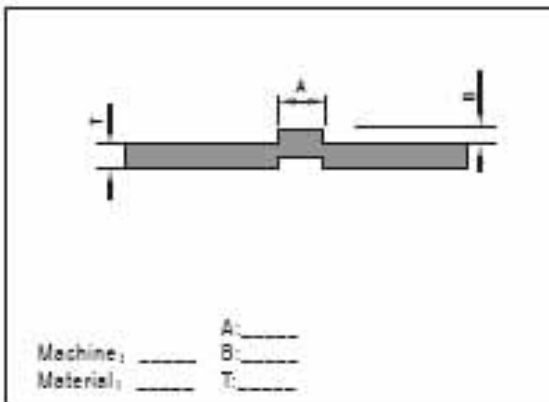
Coining tool

1. Advise to prepunch in all coining.
2. Two Types: Form up and Form down.
3. Please fill in the form on the left.



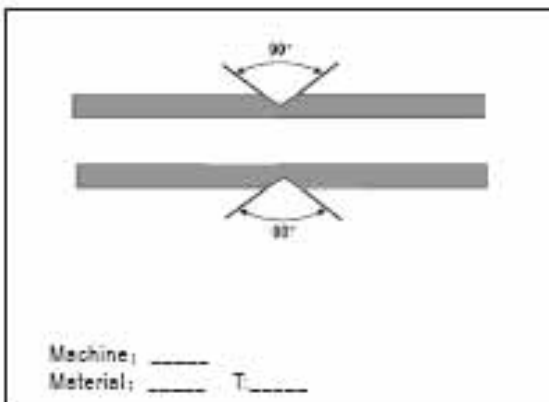
Coining tool

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2. Two Types: Form up and Form down.
3. Please fill in the form on the left.

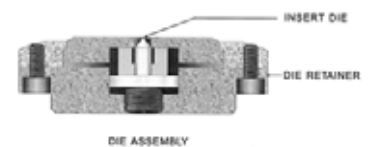
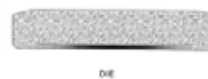
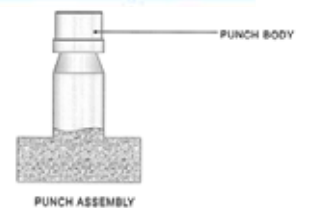
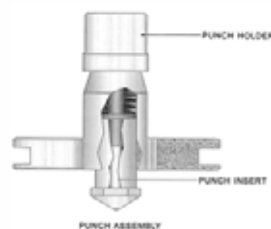


Half shear

1. Max. B size :0.6 X thickness.
2. Two Types: Form up and Form down.
3. Slow machine speed to give tool enough time to strip.



Centerpoint





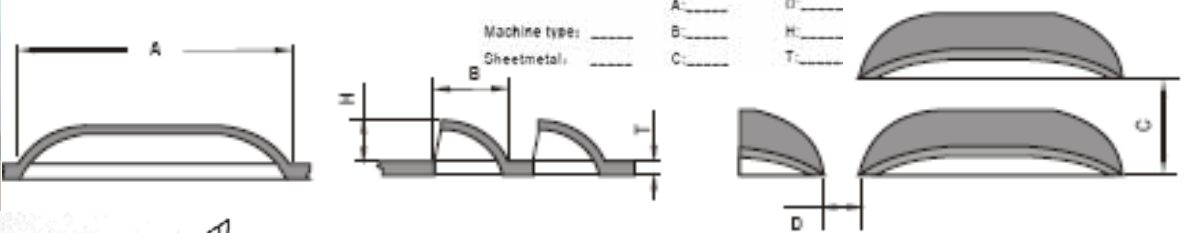
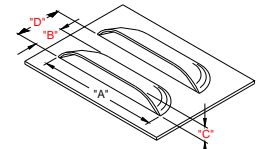
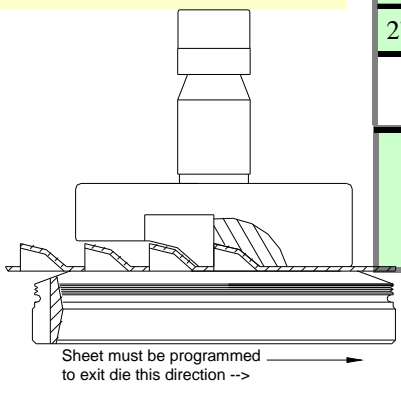
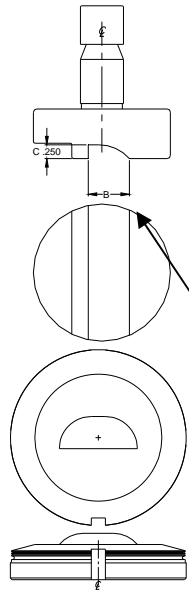
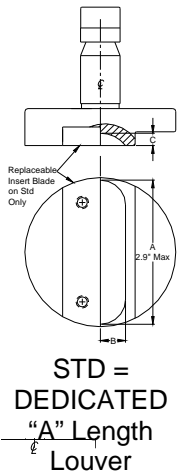


# LOUVER CLOSED END STYLE TOOLS

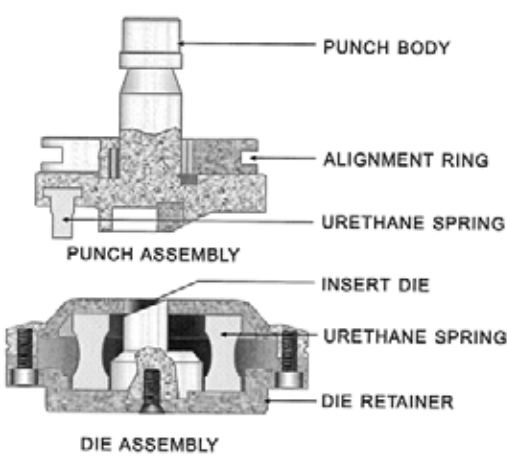
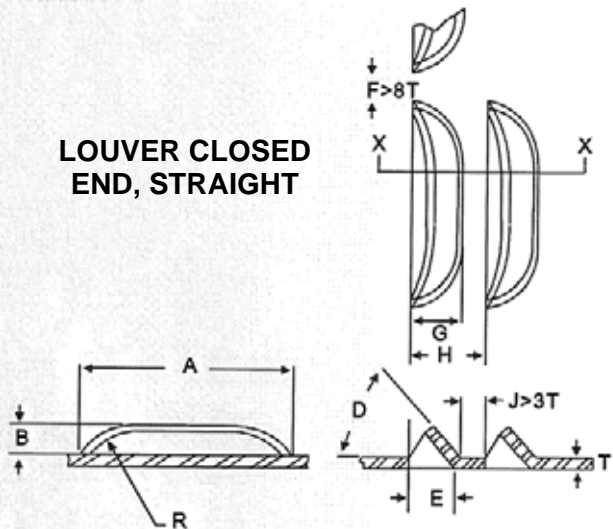
C.E. TOOLING OFFERS BOTH  
**STD=DEDICATED "A"**  
**OR PROGRESSIVE**  
 STYLE LOUVERS AND CARD-GUIDES.

STANDARD SIZES			
"A" LENGTH	"B"	"C"	"D"
1.25" 30mm	1/2"	3/16"	3/4"
2" 50mm			
2-	5/8"	1/4"	15/16"

Other size available.  
 Max "A" Length Sta. I: 1 1/4" / 30mm  
 Sta. II: 2.9" 60mm  
**Progressive "A" is unlimited.**



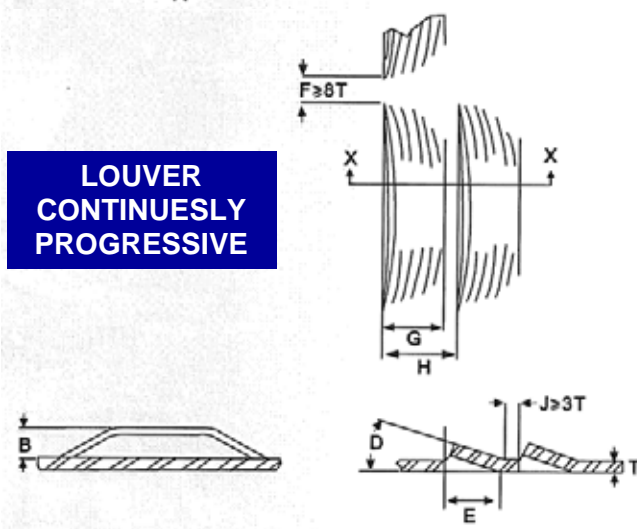
## LOUVER CLOSED END, STRAIGHT



## GENERAL INFO

Machine Type:	
Machine Model:	
Material Type:	
Tool Component:	

## LOUVER CONTINUOUSLY PROGRESSIVE



## TOOL INFO

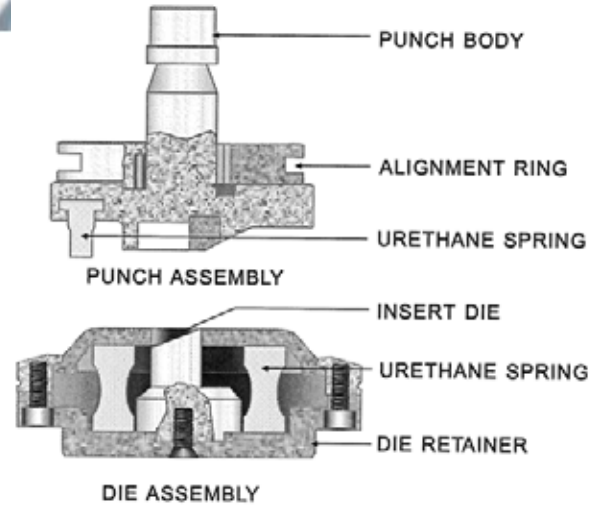
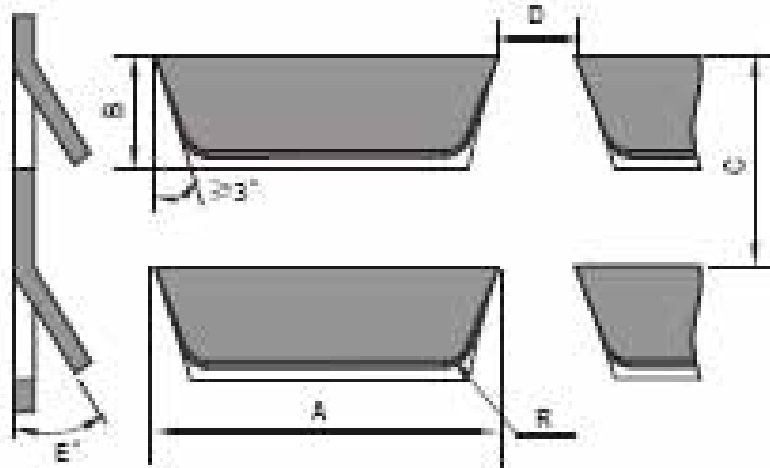
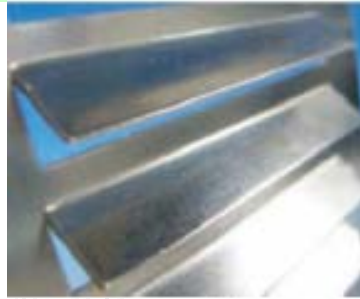
A	
B	
C(Angle):	
D(Angle):	
E:	
F:	
G:	
H:	
J:	
R:	
T(Thickness):	



# SPECIAL APPLICATION FORMING TOOLS

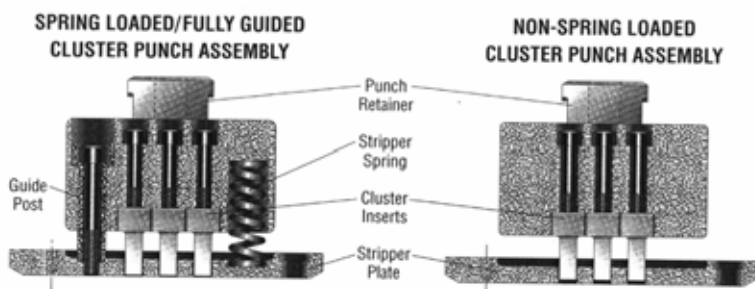
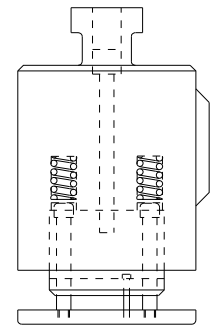
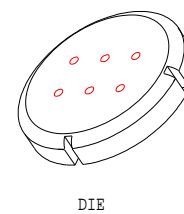
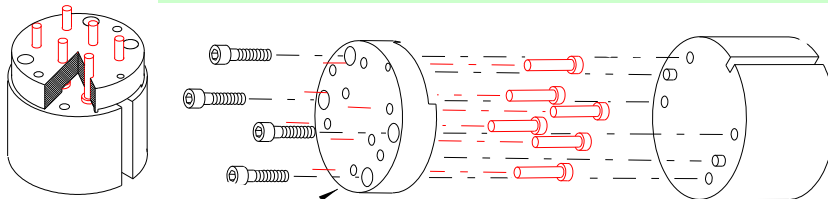
HIGHER PRODUCTIVITY THROUGH SUPERIOR ENGINEERING

**LOUVER OPEN  
END RADIUS**



## CLUSTER / GANG PUNCHING

Cluster Tools reduce hits required but most importantly reduce sheet war page, common problem of multiple single hits in close proximity.



# SHAPED TOOLS SHIP IN 1-5 WORK DAYS

Standard Delivery is 3-5 work days. Expedite Guarantee 3 days, +10%, 2 days +30%, 1 day, +50%

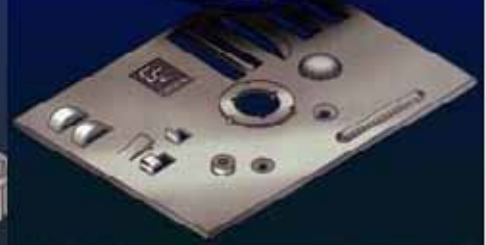
NOTE: Ar, Br, Cr, means a radius value is requested. Further, a .015" Radius is always recommended on corners less than 90 degrees.

<p>SP-1 SINGLE "D" STD SHAPE PRICE</p>	<p>SP-2 30, 60, 90 Degree</p>	<p>SP-3 HEXAGON STD SHAPE PRICE</p>	<p>SP-4 OCTAGON STD SHAPE PRICE</p>	<p>SP-5 TEARDROP</p>	<p>SP-6 KEYWAY (1)</p>	<p>SP-7 KEYWAY (1)</p>	<p>SP-8 KEYWAY (1)</p>	<p>SP-9 KEYWAY (2)</p>	<p>SP-10 KEYWAY (4)</p>	<p>SP-11 KEYHOLE (1)</p>	<p>SP-12 KEYHOLE (2)</p>	<p>SP-13 KEYHOLE (1)</p>	<p>SP-14 KEYHOLE (2)</p>	<p>SP-15 KEYHOLE (4)</p>	<p>SP-16 KEYHOLE (4)</p>	<p>SP-17 KEYHOLE (4)</p>	
<p>SP-18 KEYWAY (2)</p>	<p>SP-19 KEYWAY (4)</p>	<p>SP-20 KEYWAY (4)</p>	<p>SP-21 KEYWAY (4)</p>	<p>SP-22 KEYWAY (4)</p>	<p>SP-23 KEYWAY (4)</p>	<p>SP-24 KEYWAY (4)</p>	<p>SP-25 KEYWAY (4)</p>	<p>SP-26 KEYWAY (4)</p>	<p>SP-27 KEYWAY (4)</p>	<p>SP-28 KEYWAY (4)</p>	<p>SP-29 KEYWAY (4)</p>	<p>SP-30 KEYWAY (4)</p>	<p>SP-31 KEYWAY (4)</p>	<p>SP-32 KEYWAY (4)</p>	<p>SP-33 TO APEX RECOMMEND .015 RAD ON ALL CORNERS</p>	<p>SP-34 TO APEX</p>	<p>SP-35 TO APEX</p>
<p>SP-36 KEYWAY (4)</p>	<p>SP-37 KEYWAY (4)</p>	<p>SP-38 KEYWAY (4)</p>	<p>SP-39 KEYWAY (4)</p>	<p>SP-40 KEYWAY (4)</p>	<p>SP-41 KEYWAY (4)</p>	<p>SP-42 KEYWAY (4)</p>	<p>SP-43 KEYWAY (4)</p>	<p>SP-44 6° BLEED RADIUS OPTIONAL</p>	<p>SP-45 KEYWAY (4)</p>	<p>SP-46 KEYWAY (4)</p>	<p>SP-47 KEYWAY (4)</p>	<p>SP-48 KEYWAY (4)</p>	<p>SP-49 KEYWAY (4)</p>	<p>SP-50 BOW TIE</p>	<p>SP-51 BOW TIE</p>	<p>SP-53 75° 60° NOTE: For use in Auto Index.</p>	<p>SP-54 60° BLEED RADIUS OPTIONAL</p>

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



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

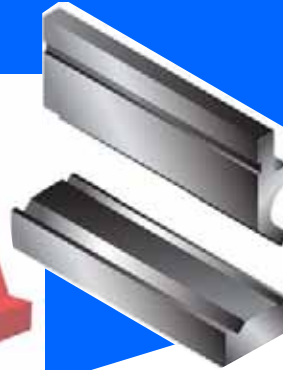
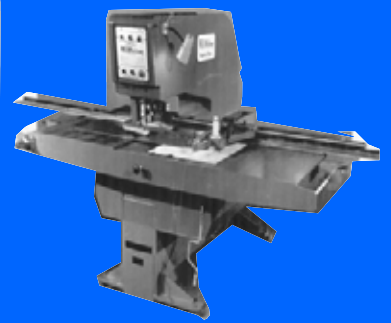
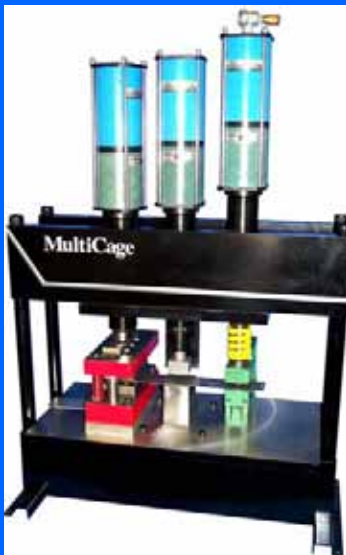


www.cetooling.com

C.E. TOOLING, INC.



**MANUFACTURING TURRET PRESS  
TOOLING SINCE 1966**



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

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