

C.E. TOOLING


Section 7

Reference Section 1 For Technical Information

TRUMPF STYLE TOOLING
BOSCHERT, EUROMACH, ITEK, OMES



ADDITIONAL COSTS FOR NON-STANDARD OPTIONS



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

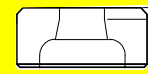
PUNCHES	Corners 1-3 X #	4(all)
With Length under 1.625 and any size Radius or Chamfer	# X \$10.00	\$10.00
With Length over 1.625 & .032 maximum Radius or Chamfer	# X \$10.00	\$30.00
With Length over 1.625 and Radius or Chamfer over .032(.8mm)	# X \$15.00	\$40.00
Add On To All <u>DIES</u> any size Radius or Chamfer	# 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

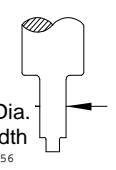
Add 50% to die price for **Solid Dies.**

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



.09 land, then 1.5° relief

Optional **STUBBY PUNCH**

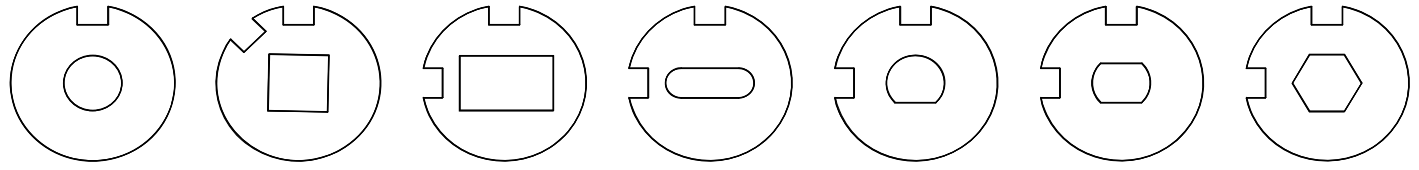


.187 Dia. or Width
.156

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.)

STANDARD KEYING DIE SIZES I & II

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



DIES KEYED ON ANGLES OTHER THAN 0 & 90 DEGREES

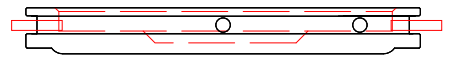
STATION	Of 15° increments	Other Than 15°
I SMALL	\$20.00	\$25.00
II MEDIUM	\$30.00	\$35.00
III LARGE	\$50.00	\$65.00

EXTRA KEY WAY ON DIES

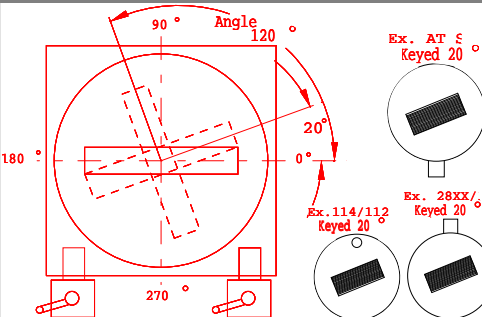
Please Fax a Print Showing Location of Extra Key(s) in Relationship to Shape

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

Keyed Strippers achieve 0, 90 & 45°. No additional Key Options Available. + \$35 for Shapes on angles (any increment).



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%



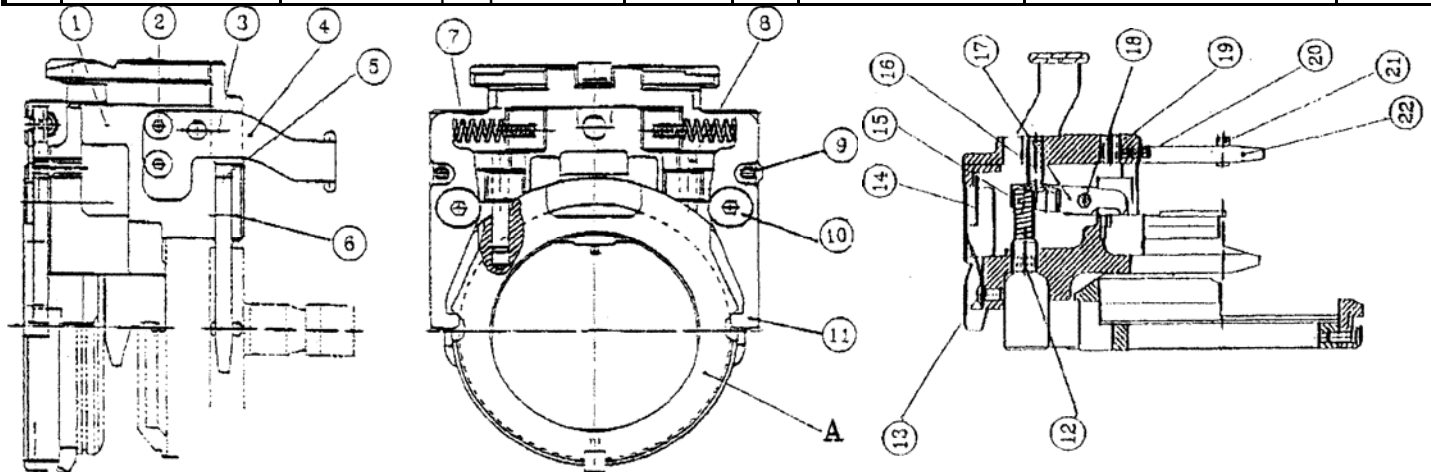
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C.E. Tooling, started out in 1966 in Chicago as a tool & die shop. In the late 70's we directed our energies exclusively to the manufacturing of tooling for turret, and duplicator presses. Through our use of the highest steel grades, combined with 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
Size 0-III Standard Punches, and Dies	4	1-4 Size 3 5-12
Strippers + Heavy Duty Punches, Dies	5	1-4
Tooling Packages, Nibbling Punches, Alignment Rings, Die Adapter,	6	3-8
Replaceable Insert Blade Punch, Optional Punch Shears, and Punch Sharpening Fixture	7	1-5
MULTI-TOOLS Reference, MT also available for 4 sta. Borchert Presses. Prices as Trumpf 4 sta.	8	
COPY NIBBLER TOOLS & MINI-MATIC TOOLS	9	1-4
SPECIAL APPLICATION TOOLS		
FORMING TOOLS • SET UP, PROGRAMMING SUGGESTIONS & MAINTENANCE	11	3-10
COINING, EXTRUSIONS, HALF SHEARS,	12	2-5
ELECTRICAL KNOCK OUTS, BRIDGE TABS, THREAD FORMS, STIFFENING RIBS, LOUVER & CARD GUIDES	13-14	6-15

Tool Cartridge Models 500, 200, 190, 600 Group H

Dwg No.	Part Number	Description	Price	Dwg No.	Part Number	Description	Price
0	*A-MH1TCO	Complete Unit		12	*A-MH1TCP-10	Special Set Screw	
1	*A-MH1TCP-19	Body/Incl. Bottom Plate		13	*AMHSBS05x10	Button Head Screw Pkg. Of 10	
2	*AMHSCS06x16	Socket Cap Screw Pkg. of 10		14	*A-MH1TCP-08	Clip	
3	*A-MH1TCP-20	Bottom Plate		15	*A-MH1TCP-04B	Spring for Item #17	
4	*A-MH1TCP-18	Handle		16	*A-MHSSS06X16	Set Screw Pkg. of 10	
5	*A-MH1TCP-06	Dial /Set Screw Included		17	*A-MH1TLJ	Catch, Lower Jaw	
6	*A-MH1TCP-01	Spring Set Screw for #22		18	*A-MH1TCP-36	Dowel (5X50mm)	
7	*A-MH1TCP-04	Spring		19	*A-MH1TCP-07	Roll Pin 5X10mm Pkg. of 10	
8	*A-MH1TCP-27	Dowel 6 X 36mm		20	*A-MH1TCP-09	Roll Pin 4mm Pkg. 10	
9	*A-MH1TCP-05	Roll Pin 3/16X1" Pkg. of 10		21	*A-MH1TCP-22A	Dowel Pin	
10	*A-MH1TCP-28	Shoulder Bolt		22	*A-MH1TCP-22	Upper Arm	
11	*A-MH1TCP-17	Lower Arm 2pcs per unit					

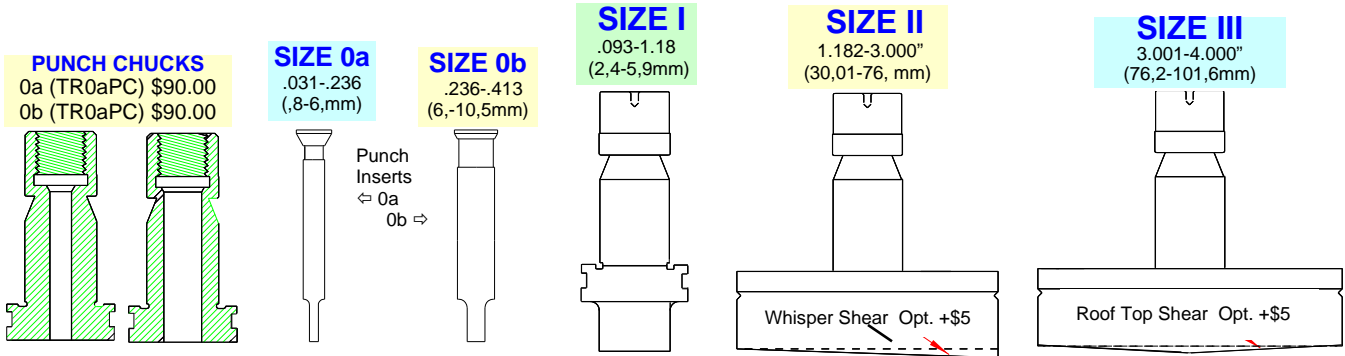




TRUMPF STANDARD TOOLING

Pricing is for Punch Tip Sizes .093 (2,3mm) and Above

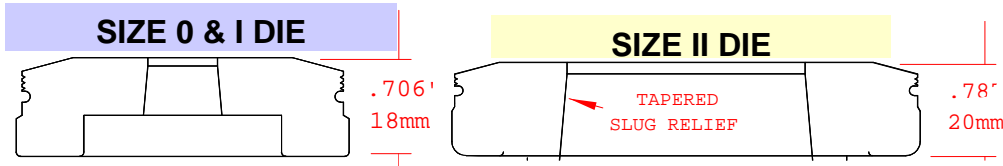
Ref: Haco/OMes Presses, max. Punch Length = 74mm, then 1mm



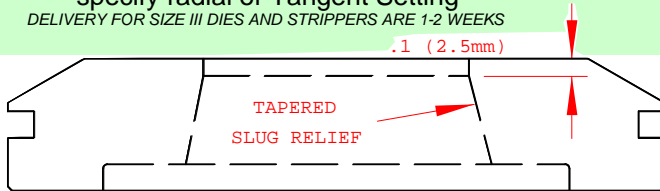
PUNCH

STA. STATION	RANGE DIAGONALLY Tip Sizes of .093(2,3mm) &>	ROUNDS CATALOG CODE	PRICE .093/2,3 &>	SHAPED CATALOG CODE ★Exchange with 2 digit Shape Code	PRICE .093/2,3 &> SQ=□	PRICE .093/2,3 &> RT=□	OB=OBRUND SD=SINGLE-D DD=DOUBLE-D HX=HEXAGON
0 (HSS) <small>HIGH SPEED STEEL</small>	.031-.236 (.8-6.0MM)	TR0a-P-r-RD					
	.237 -.413 (6,0-10,5mm)	TR0b-P-r-RD		TR0b-P-s★			
I (HSS)	.031-1.181 (.8-30,mm)	TR1-P-r-RD		TR1-P-s★			
II <small>HIGH SPEED STEEL</small>	1.182-2" (30,-50,8mm)	TR2a-P-r-RD		TR2a-P-s★			
	2.001-3" (50,8-76,2mm)	TR2b-P-r-RD		TR2b-P-s★			
III <small>D2 STEEL</small>	3.001-3.5" (76,2-88,9mm)	TR3a-P-r-RD		TR3a-P-s★			
	3.501-4" (88,9-101,6mm)	TR3b-P-r-RD		TR3b-P-s★			

Coatings: TiN Titanium Nitrite / TiCN Titanium Carbon-Nitrite Sta. 1 + Sta. 2 2" (50,8)+ Sta. 2 2.001-3" (76,2)+



Size III DIE keyed 0, 90 & 45 **Only One Key Location** is available for use in ATC (Auto Tool Change). For ATC, specify radial or Tangent Setting
DELIVERY FOR SIZE III DIES AND STRIPPERS ARE 1-2 WEEKS



DIE

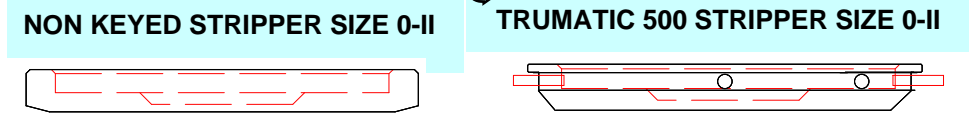
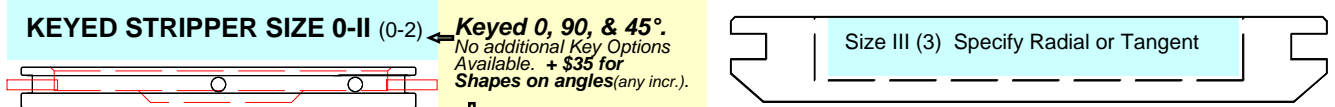
Station	Size Range -DIAGONALLY	Cat. Code	RD	Cat. Code	SQ	RT	OB,SD,DD,HX
0 & I	.093-1.260 (2,4-32,mm)	TR1-D-r-RD		TR1-D-s★			
II	1.261-3.032 (32,-77,mm)	TR2-D-r-RD		TR2-D-s★			
III ATC or MTC	2.8"-4.134 (71,-105,mm)	TR3-D-r-RD		TR3-D-s★			
Euromach	" "	TR3-DEb-RD		TR3-DEb-S★			
OMES	" "	TR3-DOM-RD		TR3-DOM-S★			
Boschert	" "	TR3Dbe-RD		TR3Dbe-S★			



STRIPPER PLATES

Pricing is for Punch Tip Sizes .093 (2,3mm) and Above

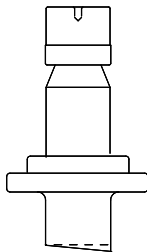
Order Strippers by Punch size + Clearance: If Clearance is not specified .06"/1.5mm will be used. When punching materials >16gage .06"/1.5mm, .2" 1.5mm is a good clearance. NOTE: **.4"10,mm should be the minimum actual width or diameter ordered** to prevent punch flange from bottoming out on stripper. This is because punch tips lengths are stubbed for sizes <.4



				SQ	RT	OB, SD, DD, HX
0, I, & II (0,1, & 2)	.093-3.032 (2,4-77,mm)	ATC:KEYED	TR1-Sa-r-RD			
		MTC:Non-Keyed	TR1-Sm-r-RD			
		T5:TRAUMATIC	TR1-S5-r-RD			
Size III (3)	2.8-4.134" (71-105,mm)	All Size III are ATC:KEYED	TR3-Sa-r-RD			
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 Punches & Dies

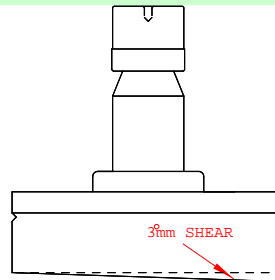
SIZE I
.407-1.181 (10,3-30MM)



Wisper Shear

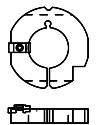
Stocked Sizes	
Round	Shapes
12mm .500	12mm .500
15mm .625	15mm .625
20mm .750	20mm .750
	25 mm 1.000

SIZE II
1.182-3.0 (30,01-76,2MM)



Alignment Ring for Heavy Duty Punch

Go to page 6 for pricing

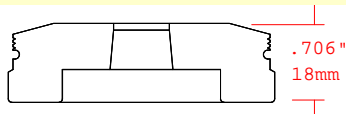


Ring Complete	TRAR-1/4
Spare Key	TRAR-1/4-K
Key Screw	TRAR-1/4-KS
Clamp Screw	TRAR-1/4-CS

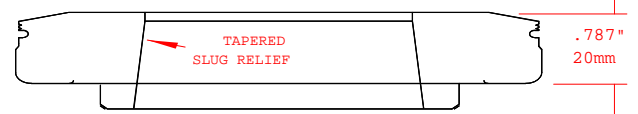
PUNCH

STA. STATION	RANGE DIAGONALLY	ROUNDS CATALOG CODE	PRICE	SHAPED CATALOG CODE *Exchange with 2 digit Shape Code	PRICE SQ=□	PRICE RT=	OB=OBROND SD=SINGLE-D DD=DOUBLE-D HX=HEXAGON
I (HSS)	.407-1.181 (10,3-30,mm)	TR1-Phd-r-RD		TR1-Phd-s★			
II HIGH SPEED STEEL	1.182-2" (30,-50,8mm)	TR2a-Phd-r-RD		TR2a-Phd-s★			
	2.001-3" (50,8-76,2mm)	TR2b-Phd-r-RD		TR2b-Phd-s★			

SIZE I DIE
Maximum Opening .984+.059 (25, +1,5mm)



SIZE II DIE Maximum Opening 2.126+.059 (54mm + 1,5mm)



DIE

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



TOOLING PACKAGES

Prices are not valid with any other discount program • Distributors: Limited Commission/Discounts available

37 ROUNDS 2 Punch Chucks Size 0a & 0b, 12 Sta. 0a Inserts, 7 Sta. 0b Inserts, 18 Sta. I Punches, 2 Strippers
 .5 & 1", & 36 Dies. *ATRTP-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
 .781 .812 .844 .875 .937 1"
Extra Set of 37 Dies *ATRTP-Ad

7 SQUARES *ATRTP-B
 7 Punches, 7 Dies, 2 Stripper
 .25sq .313sq .375sq .438sq .500sq .750sq
Extra Set of 7 Dies *ATRTP-Bd

4 SQUARES 4 Punches,
 2 Stripper, 4 Dies. *ATRTP-C
 1.0X1.0sq & 2.0X2.0sq
Extra 4 Dies *ATRTP-Cd

6 RECTANGLES 6 Punches,
 1 Stripper, 6 Dies. *ATRTP-D
 .125X.500 .125X1" .187X.500 .250X.500 .2
 50X1" .375X1" Stripper = .375X1.0"
Extra 6 Dies *ATRTP-Dd

4 RECTANGLES 4 Punches,
 2 Stripper, 4 Dies. *ATRTP-E
 .200X2.00 .200X3.0 .250X2.0 .250X3.0
 Stripper .250X2.0" & .250X3.0"
Extra 4 Dies *ATRTP-Ed

11 OBOUND'S 11 Punches,
 2 Stripper, 11 Dies. *ATRTP-F
 .25X.5" .250X1" .312X1" .437X.875 .
 .5X1" (Following are .01 wider & 2X dia. of screw sizes)
 .122X.224 .148X.276 .174X.328 .200X.380 .22
 6X.437 .260X.500 /Strippers= .5X1.0"
Extra 11 Dies *ATRTP-Fd

Sp-44 4-way .2web Radius Tools
 Ref. diagram on P10 **5 Punches, 5 Dies,**
1 Stripper. *ATRTP-G
 .063, .125, .188, .25, .312/Stripper 1"dia.
Extra Set of 5 Dies *ATRTP-Gd

4-82° Countersink Form Down
4 Punches & Dies *ATRTPH
 #4, #6, #8, #10 Screws Ref. P7-9

Punch Alignment Jig
 Basic Unit to align punch to alignment rings. Unit can also be used to hold part for sharpening on Surface Grinder.
 Cost = \$425.00

Punch Alignment Jig Instructions

- Insert Punch with Alignment Ring loose into Jig.
- Press & Hold Machinist Sq. on Flat of Punch, while tightening set screw of Jig Press & Hold Machinist Sq. on Alignment ring, while tightening Screw of Alignment Ring. (You may need to use T-style 5mm Allen wrench.)
- Remove from Jig, if felt needed give alignment ring screw an

NIBBLING PUNCHES
 "TiN" TITANIUM NITRIDE COATING

ROUND'S
 TR1PNB-R-RD \$57.50
 12,mm .500"
 20,mm .750"
 25,mm 1.000"

SQUARE'S
 TR1PNB-S-SQ
 12,mm .500"
 20,mm .750"
 TR2PNB-S-SQ
 25,mm 1.000"

Spherical

DIE ADAPTERS

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

Alignment Rings

Size 0 - 1

Size 2

Heavy Duty →

ALIGNMENT RINGS PROVIDE SUPPORT AND PROPER AXIAL ORIENTATION FOR PUNCHES

TRUMPF & Similar Machine Styles

MTC: Trumpf TC20, TC20A, TC202M, CS15, CS20, CS20A, CN700/701/900/901/901E/902 CN1200A/1200S, 202M, MP25, MP25CNC, CS75 Berchart

TRUMATIC 150K, 151K, 152K, 180K, 180LK, 180PK 180KD, 225, 235, 202K, 300K, 300LK, 300PK, 150W, 152W, 180W, 180WD, 180LW, 20aW, 202W, 300W, 300top, 300PW, 300LW, 400W, 180ELX, 180swift, 185, 225, 235, 240, 250, 260, 202W, 300W, 300PW, 400W, 400K, SUNIMAT400, TR500 • Euromach Duplicators, HACCO Single & Turrets

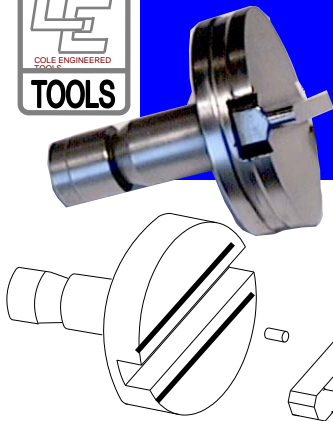
SIZE & TYPE	Mate Ref. No.	Trumpf Ref. No.	Cat. Code	PRICE
SIZE 0 - 1 MTC	VANTD	7336-OJS/01	TRAR-0/1	
SIZE II MTC	VAPTD	7336-1JS/01	TRAR-1/1	
SIZE 0 & 1 ATC	VANTE	7336-OJS/02	TRAR-0/2	
SIZE 2 & 3 ATC	VAPTE	7336-1JS/02	TRAR-1/2	
Heavy Duty I & II	VANTF	7336-1JS/04	TRAR-1/4	
Special -Bolt On	VAPTF		TRAR-SPEC	



REPLACEMENT INSERT BLADE PUNCH

Reduce costs of common used slotting punches

Size Range Width .125 (3,mm) - .3158 (8,mm)
Length 1.5(38,mm) -3.000(76,2mm)



HOLDER Code
TR2IH

1 WAY SHEAR

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.

REPLACEABLE INSERT BLADES CE & TRUMPF STYLE

LENGTH	OBROUND		RECTANGLE		Genuine Trumpf Style S/A T2956156 Replacement Blade	
	Part#	PRICE	Part#		Part#	PRICE
1.500 - 2.000" (38,1mm - 57,1mm)	TR2IBa-OB		TR2IBa-RT		TR2IBc-RT =TR2956156	
2.001-3.000" (57,1,8mm-76,2mm)	TR2IBb-OB		TR2IBb-RT		TR2IBd-RT =TR2956156	

OPTIONAL PUNCH SHEARS

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

<p>Roof Top *ARTS</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>Inverted *AIS</p> <p>An all purpose shear. Ideal for nibbling.</p>	<p>Concave *ACS</p> <p>An all purpose shear. Ideal for nibbling. Used over Inverted Shear when punching heavy plate.</p>	<p>Double Inverted *ADIS</p> <p>Best Shear for slotting tools, 3" or longer in length.</p>	<p>Whisper *AWS</p> <p>Reduces tonnage requirements while reducing slug deformation. REQUIRES VERY RIDGED PRESS, such as a Trumpf!</p>	<p>Spiracle *ASPS</p> <p>Ideal for rounds or squares < 1.18 (30,mm). Reduces tonnage, lessens tool side loading and is easy to sharpen.</p>
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TiC Titanium Nitride Coating:Gold

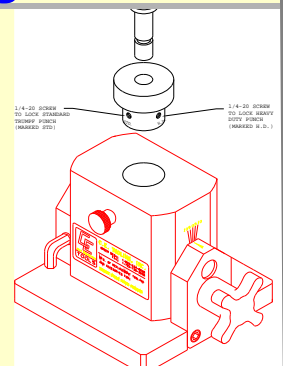
STA.	SIZE I	SIZE II	SIZE III
COST			

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 Style MULTI-TOOL

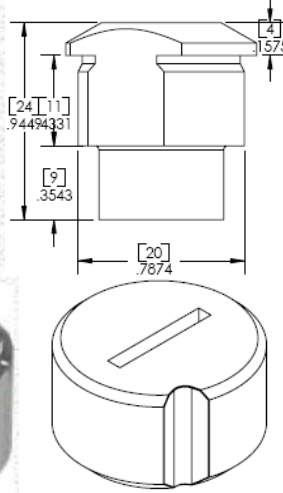
Replacement Punches & Dies

Dwg./CNC-Job/TRMT.2d

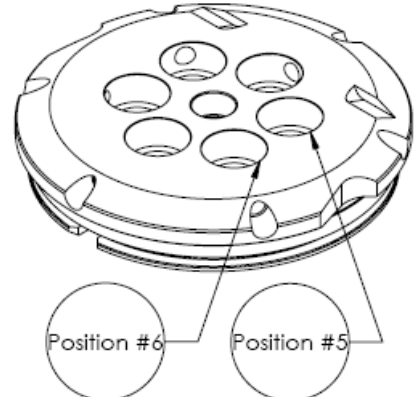


CE does not produce Holders, for these Multi-Tools.

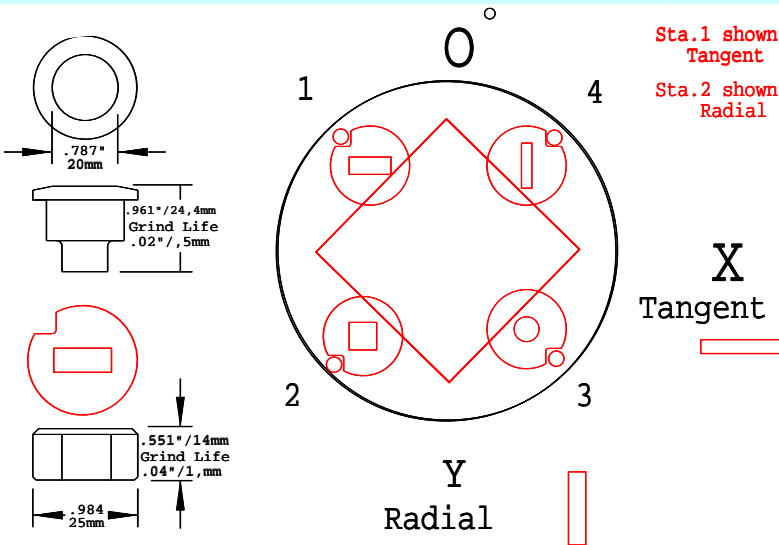
Only Punches & Dies



OMES 6sta. Multi-Tool uses Trumf style 4 sta. Punch & Dies



4 Station Multi-Tool 0-.63" / 0-16,mm

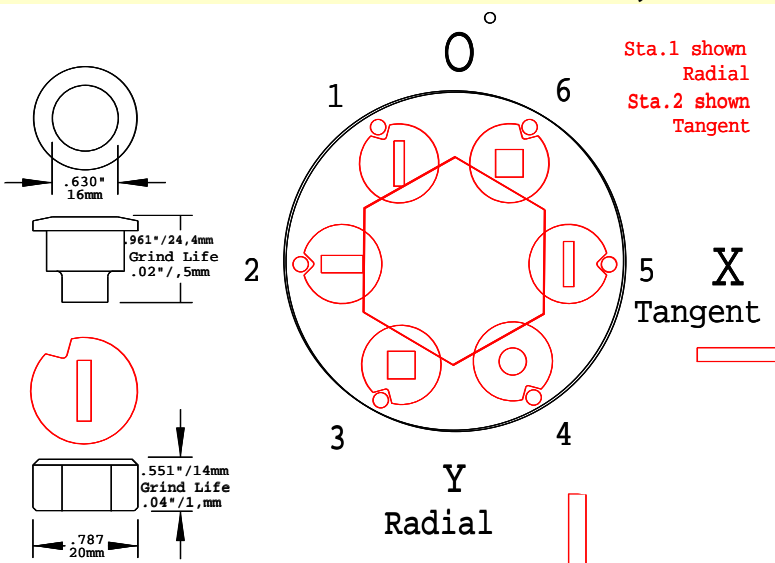


No premium adder for small sizes

Trumpf Models TC 240, TC 260
Also used for OMES 6 sta. Holder

4 Station	SHAPE	CAT.- CODE	PRICE
PUNCH	RD-ROUND	TRMT4PrRD	
	SQ-SQUARE	TRMT4PsSQ	
	RT-RECTANGLE	TRMT4PsRT	
	OB-OBROUND	TRMT4PsOB	
	SD-SINGLE-D	TRMT4PsSD	
	DD-DOUBLE-D	TRMT4PsSD	
	QD-QUAD-D	TRMT4PsQD	
	HX-HEXAGON	TRMT4PsHX	
DIE	RD-ROUND	TRMT4DrRD	
	SQ-SQUARE	TRMT4DsSQ	
	RT-RECTANGLE	TRMT4DsRT	
	OB-OBROUND	TRMT4DsOB	
	SD-SINGLE-D	TRMT4DsSD	
	DD-DOUBLE-D	TRMT4DsSD	
	QD-QUAD-D	TRMT4DsQD	
	HX-HEXAGON	TRMT4DsHX	

3&6 Station Multi-Tool -.413" / -10,5mm



Trumpf Models TC 240, TC 260

6 Station	SHAPE	CAT.- CODE	PRICE
PUNCH	RD-ROUND	TRMT6PrRD	
	SQ-SQUARE	TRMT6PsSQ	
	RT-RECTANGLE	TRMT6PsRT	
	OB-OBROUND	TRMT6PsOB	
	SD-SINGLE-D	TRMT6PsSD	
	DD-DOUBLE-D	TRMT6PsSD	
	QD-QUAD-D	TRMT6PsQD	
	HX-HEXAGON	TRMT6PsHX	
DIE	RD-ROUND	TRMT6DrRD	
	SQ-SQUARE	TRMT6DsSQ	
	RT-RECTANGLE	TRMT6DsRT	
	OB-OBROUND	TRMT6DsOB	
	SD-SINGLE-D	TRMT6DsSD	
	DD-DOUBLE-D	TRMT6DsSD	
	QD-QUAD-D	TRMT6DsQD	
	HX-HEXAGON	TRMT6DsHX	

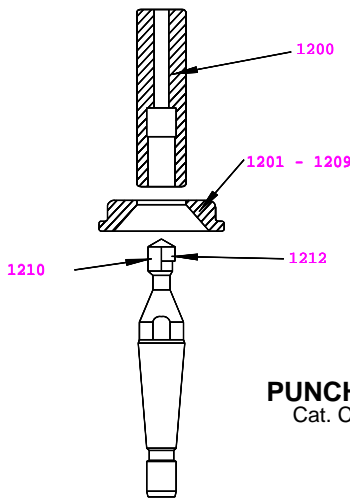


TRUMPF COPY-NIBBLER CN

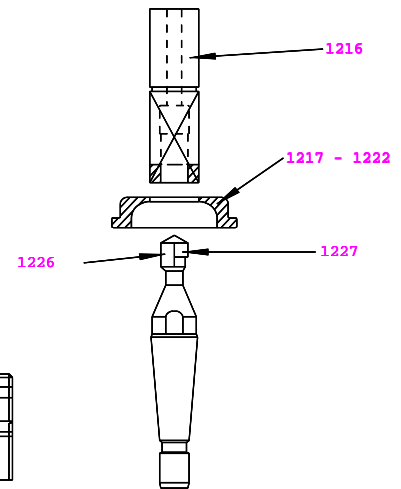
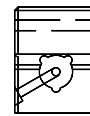
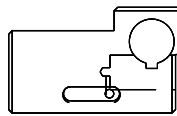
FOR THE FOLLOWING MACHINE MODELS IF EQUIPPED
 CN500 • CN700 • CN701 • CN900 • CN901 • CN902 • CN1200 • SUNIMAT 400 • CS75 • CS20

12mm Diameter ROUND Ø
 (HOLLOW PUNCH, CUTTING ALL-ROUND)

12mm QUAD-D
 (HOLLOW PUNCH, CUTTING ALL-ROUND)



PUNCH HOLDER
 Cat. Code CNPH



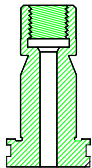
ITEM	DESCRIPTION	CAT. CODE	PRICE	ITEM	DESCRIPTION	CAT. CODE	PRICE
1200	HOLLOW PUNCH	TRCN728-31		1216	QUAD-D PUNCH	TRCN728-45	
1201	DIE 12,1mm	TRCN728-33		1217	DIE 12,1mm	TRCN728-49	
1202	DIE 12,2mm	TRCN728-34		1218	DIE 12,2mm	TRCN728-46-	
1204	DIE 12,4mm	TRCN728-35		1220	DIE 12,4mm	TRCN728-47	
1206	DIE 12,6mm	TRCN728-36		1222	DIE 12,6mm	TRCN728-48	
1208	DIE 12,8mm	TRCN728-37		1225	DIE 13,0mm	TRCN728-526	
1209	DIE 13,2mm	TRCN728-488					

Item 1210	GUIDE PIN for Steel(ST)	TRCN728-56		1212	GUIDE PIN for Aluminum(AL)	TRCN728-56	
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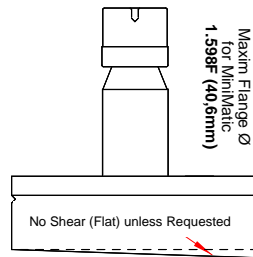
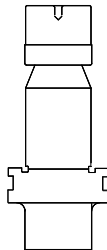
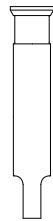
TRUMPF MiniMatic Tools

FOR TRUMPF MACHINE MODELS TC-120R • TC-160R

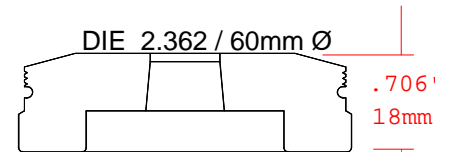
PUNCH CHUCKS
 0a (TR0aPC)
 \$90.00



Punch Inserts
 ⇄ 0a
 ⇄ 0b



Maxim. Flange Ø
 1.598" (40.6mm)



MiniMatic Stripper



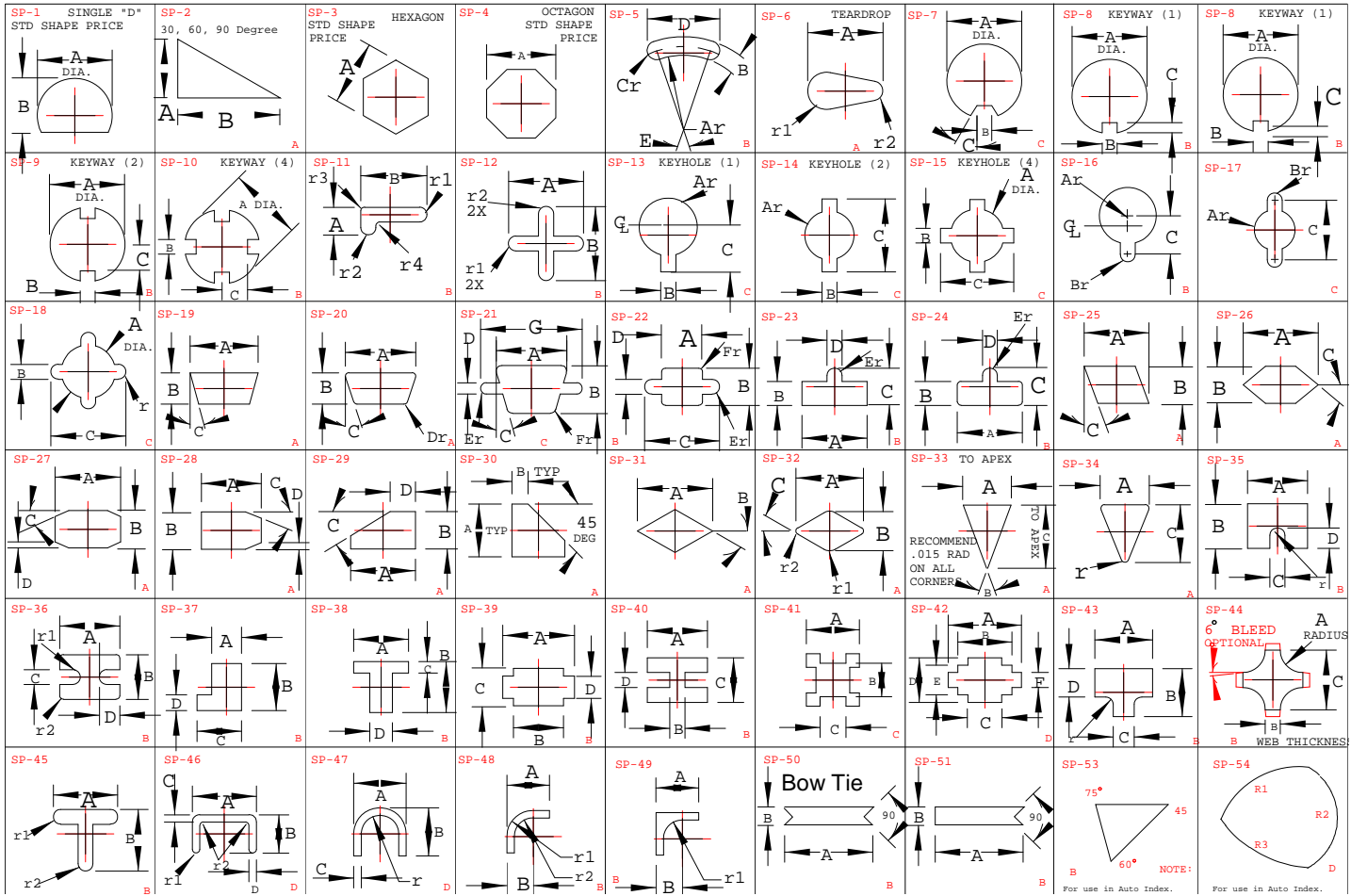
Description	Range Diagonal Tip Sizes of .093(2,3mm) >	ROUNDS CATALOG CODE	PRICE	SHAPED CATALOG CODE *Exchange with 2 digit Shape Code	PRICE SQ=□	PRICE RT=□	OB=OBRUND SD=SINGLE-D DD=DOUBLE-D HX=HEXAGON
Insert 0a	.093-.234 (2,4-5,9mm)	TR0a-P-r-RD					
Insert 0b	.235 -.406 (6,0-10,3mm)	TR0b-P-r-RD		TR0b-P-s★			
PUNCH	.093-1.181 (2,4-30,mm)	TR1-P-r-RD		TR1-P-s★			
PUNCH	1.182-1.5" (30,-38mm)	TR2M-P-r-RD		TR2M-P-s★			
DIE	.093-1.260 (2,4-32,mm)	TR1-D-r-RD		TR1-D-s★			
DIE	1.261-1.53"(32,-38,8mm)	TR1M-D-r-RD		TR1M-D-s★			
STRIPPER	.2-1.574 (5,-40,mm)	TRM-S-r-RD		TRM-S-s★			



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.

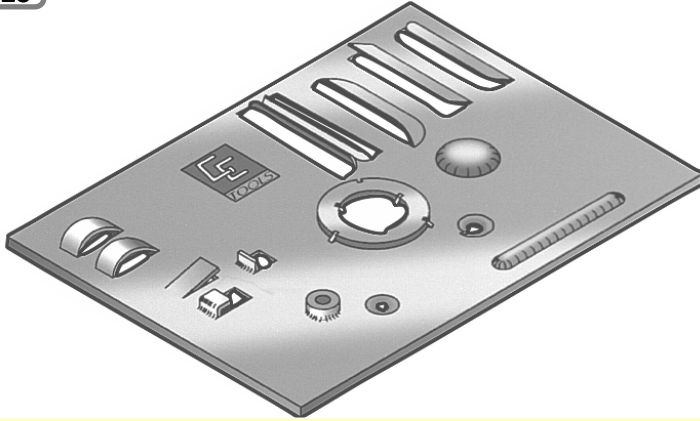


TRUMPF TRUMATIC MACHINE MODELS	MAXIMUM STATION	TOOL CHANGER ATC -AUTOMATIC MTC -MANUAL	SPECIAL TOOLING REQUIREMENTS
COPY NIBBLER 700 • 701 900 901 • 901E • 902 • 500 • CS75	SIZE II	MTC: Non-Keyed Stripper ATC: Keyed Stripper	Some of these machines can also except std: Size 1 punches & Dies.
MINIMATIC tooling style machine TC-120R • TC-160R	SIZE II 0-38mm 40,6 maximum Flange	Spec. MiniMatic Stripper MiniMatic: Alignment Rings Punches 0-30mm Size 1 30-38 Size 2 Punches 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.	
TC20 • TC20A • 202M CS15 • CS20 • CS20A • CN1200A	SIZE III	MTC: Non-Keyed Stripper	STRIPPER INTERMEDIARY RING Ref. Trumpf Part No. 7336-2za/02
CN1200S • MP25 • MP25CNC TC20TC20A • TC202M			STRIPPER INTERMEDIARY RING Ref. Trumpf Part No. 7336-2ZA/01
TC- 150K • 151K • 152K • TC180K 180LK • 180PK • 202K • 225 • 300PK • 235 • 300K • 300PK • 400K	SIZE III	ATC: Keyed Stripper	
TC- 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
TR500 (Trumatic 500) m /TR200	Size II	ATC: 0-II Trumatic500 keyed	This is a new stripper
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 use ATC style =TR1Sa ATC style
Model 3... Millennium 3015	SIZE III		



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 hit 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.

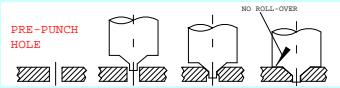


SPECIAL APPLICATION FORMING TOOLS

HIGHER PRODUCTIVITY THROUGH SUPERIOR ENGINEERING

COINING (Counter Sink) TOOL

Master Unit Accepts Replaceable Coining Insert
 .5(12mm) maximum B dimension go to P7-13 for larger sizes



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-punched hole before the actual coining is performed. This achieves the highest quality coined hole, with no roll-over, minimal burr, and excellent tool life. To calculate the correct size of the pre punched hole, take C + (50% of B-C). This formula has proved safe & successful for common coining sizes and material thickness. If any adjustment is needed, it will be in the slight reduction of the pre-punched hole.

If a one operation 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 get 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.

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.

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

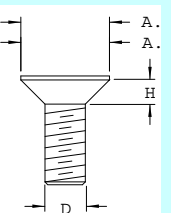
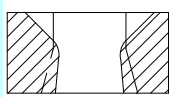
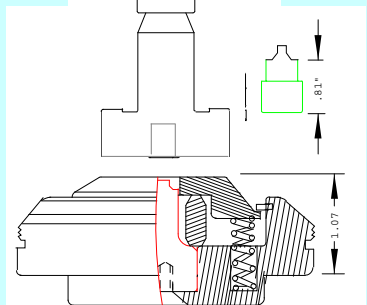
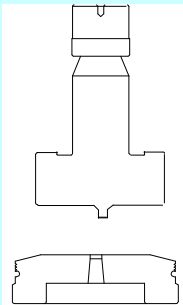
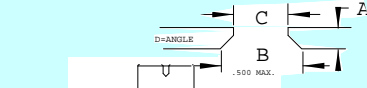
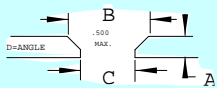
Note: **Minimum C = B-2((Angle/2)TAN x mat.thickness)**
 Limited Warantee for Form Depth past 80% of material thickness.

FORM DOWN

IPunch *FTR1P56 \$140.00
 Standard Size I Round Die \$30.00

FORM UP

Punch *FTRP58 \$80.00 use with 1/8" stripper plate
 BOTTOM INSERT *FID58 \$55.00
 Size II DIE Base *FTR2DB Die Stripper *FTRSBU-L \$245



Pre-Pierce Hole for common screw sizes

Find Mat. (left column) then follow across to Screw Size

Material	#4	#5	#6	#8	#10	1/4	5/16	3/8	1/2	
.048	.187	.213	.238							
.060	.177	.204	.228	.281	.332					
.075	.149	.191	.219	.206	.323	.437				
.090	.144	.180	.205	.257	.302	.422				
.105		.161	.196	.242	.295	.422	.546			
.120			.177	.234	.281	.406	.531			
.135				.209	.272	.390	.515	.656	.765	
.150					.261	.386	.500	.640	.750	
.164					.242	.375	.500	.626	.734	
.180						.359	.494	.625	.718	
.250							.316	.397	.547	.672

SAE Flat Head Screw Data

Size	D	A	A	A	H	.5H	1.3h
#4	.112	.225	.207	.195	.057	.034	.087
#5	.125	.252	.232	.220	.075	.038	.098
#6	.138	.279	.257	.244	.083	.042	.108
#8	.184	.332	.308	.292	.100	.050	.130

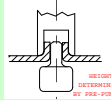
Size D A A A. H .5H 1.3h

Size	D	A	A	A.	H	.5H	1.3h
#10	.190	.385	.359	.340	.116	.058	.151
1/4	.250	.507	.477	.452	.153	.077	.199
5/16	.313	.635	.600	.568	.191	.096	.248
3/8	.375	.782	.722	.685	.230	.115	.299
1/2	.500	.875	.831	.775	.223	.112	.290

EXTRUSION TOOL FORM UP

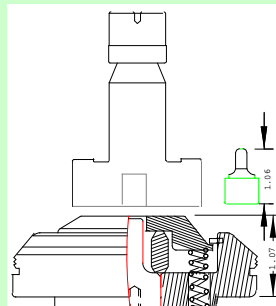
Master Unit Accepts Replaceable Extrusion Insert
 .25"(6,1mm) Maximum B dimension Go To P7-13 for larger sizes

Pre-Punch Hole is Required. 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). Page 1-17 has a chart of standard screw sizes, and the appropriate tool sizes.
PUNCH *FTR1P50 \$80.00 Use with 1-5/8" Round Stripper
Replaceable Bottom Insert *FID50W4 \$55.00 Die Base Unit *FTR2DBU Stripper Plate Unit *FTRSBU-L
 Delivery 3-5 Days!

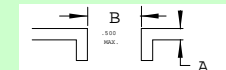


FORM UP

(pictured)



FORM DOWN



COMMON SCREW SIZES "INCH" Find screw, then follow row to the right for B, matching up to material thickness. Last column =Pre-Punch

Material A Screw Size	#22	#20	#18	#16	#14	#13	Extrusion (B) Pin Dia./ID	Recommended Pre-Punch
.03"	.036	.048	.06	.075	.09			
#4-40	.12	.13					.090	.045
#5-40	.13	.14	.16	.18			.102	.051
#6-32	.14	.15	.17	.18			.107	.053
#8-32		.18	.19	.21	.23		.136	.064
#10-			.21	.22	.24	.26	.150	.069
1/4-			.26	.28	.30	.32	.205	.100

COMMON SCREW SIZES "METRIC"

Material A Screw Size	.08	1,0	1,2	1,6	2,0	2,3	Extrusion (B) Pin Dia./ID	Recommended Pre-Punch
M2,X	2,7	3,0	3,2	3,7			1,7	0,8
M2,5	3,1	3,4	3,6	4,1			2,1	1,0
M3,X	3,6	3,9	4,1	4,6			2,6	1,3
M4,X		4,7	4,9	5,4	6,0	6,3	3,4	1,6
M5,X			5,8	6,3	6,9	7,2	4,3	2,0
M6,X				6,6	7,1	7,7	5,1	2,5

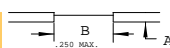
PUNCHING SHOULDN'T BE DONE IN BLANKED AREA'S

HALF SHEAR

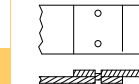
FORM DOWN **FORM UP**

Master Unit Accepts Replaceable Half Shear Insert (6,1mm)
 Maximum B dimension Go To P7-13 for larger sizes.

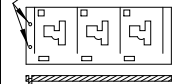
Replaceable Bottom Insert
 Bottom *FID51 \$
 Delivery 2-5 days



TWO HALF SHEARS USED FOR ALIGNING TWO SHEETS



TWO HALF-SHEARS USED FOR BREAK STOPS

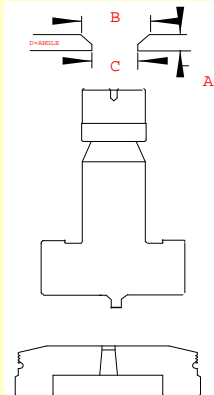




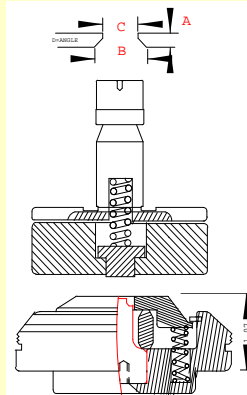
SPECIAL APPLICATION FORMING TOOLS

HIGHER PRODUCTIVITY THROUGH SUPERIOR ENGINEERING

COINING



FORM DOWN
Standard Round Size I Die

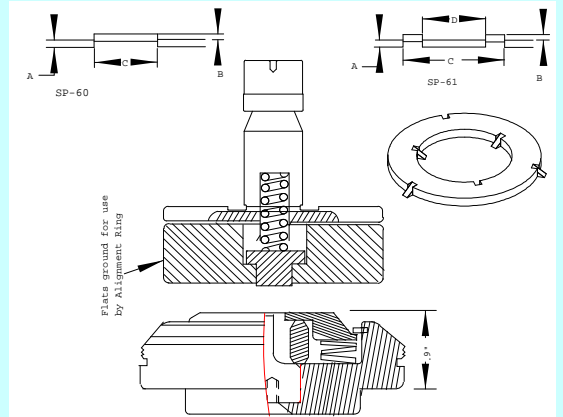


FORM UP
Die Base Unit *FTR2DBU
Stripper Base Unit *FTR2SBU_

ELECTRICAL KNOCK OUTS

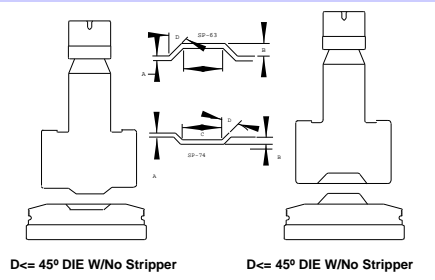
SINGLE

DOUBLE



Die Base Unit *FTR2DBU Stripper Base *FTR2SBU_

EMBOSES ROUND OR SHAPED



D<= 45° DIE W/No Stripper

D<= 45° DIE W/No Stripper



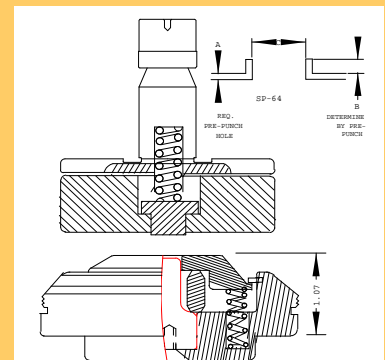
D>45° Die Base Unit *FTR2DBU

D>45° Die Base Unit *FTR2DBU

Stripper Base Unit *FTR2SBU_ Stripper Base Unit *FTR2SBU_

EXTRUSION UP

Note: for C < .251 Go to P7-9



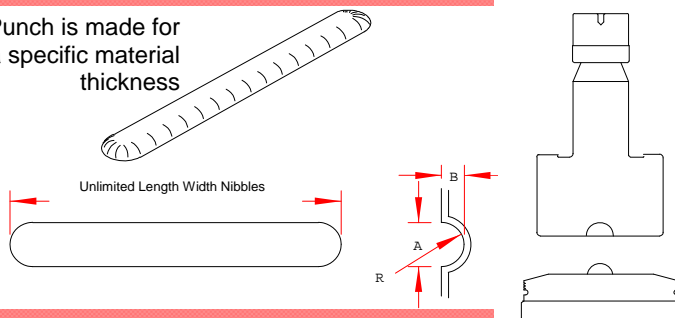
Die Base

*FTR2DBU Stripper Base *FTR2SBU_

Unit

PROGRESSIVE STIFFENING RIB TOOL

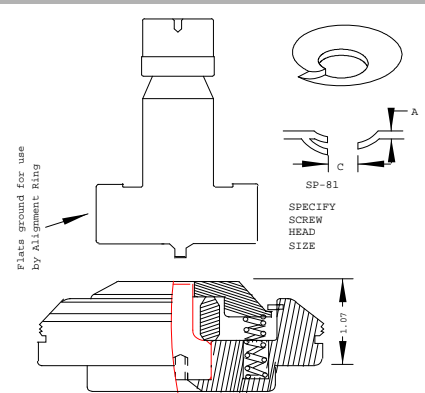
Punch is made for a specific material thickness



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

Other sizes available

THREAD FORM



Die

Unit *FTR2DBU
Stripper Base Unit *FTR2SBU-L

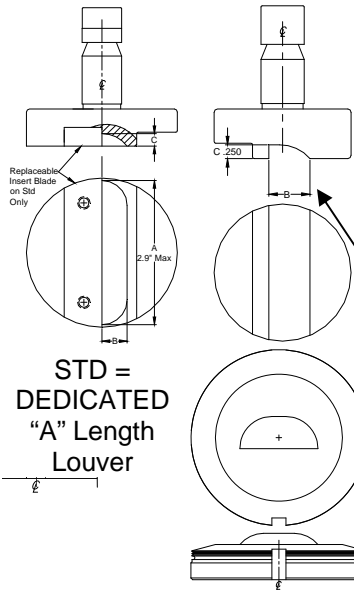
Base



LOUVER STYLE TOOLS

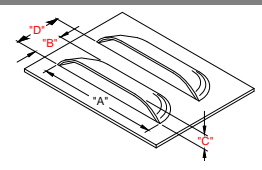
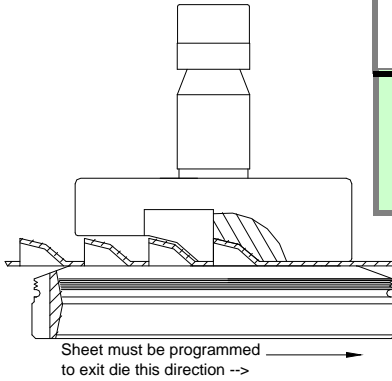
HIGHER PRODUCTIVITY THROUGH SUPERIOR ENGINEERING

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.



LANCE & FORM

Size 2 = -estimate

BRIDGE TOOLS

Size 2 = single \$1.09
 double \$1.25 estimate

CARD GUIDE

Standard & Progressive

Die Base Unit *FTR2DBU Stripper Base Unit *FTR2SBU_

Size 2 = estimate

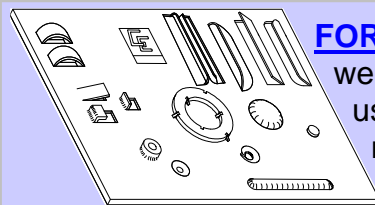
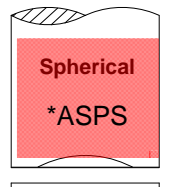
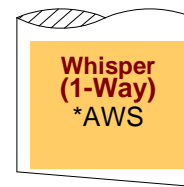
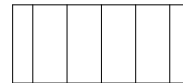
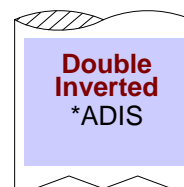
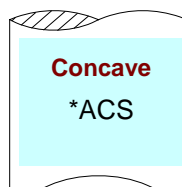
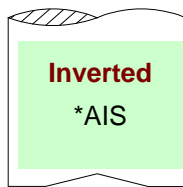
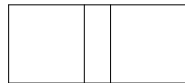
ENSURE YOUR TOOLS ARE SHARPENED PROPERLY

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.*

PUNCH SHARPENING COST <i>FLAT (NO SHEAR)</i>	Qty 1-3	Qty 4-10	Qty 11-25
MAXIMUM DIAGONAL UP TO 2-1/4"			
TIP DIAGONAL 2-1/4 TO 5"			
TIP DIAGONAL 5" TO 8"			

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

Have CE remove old Ejector and add new to your punches at our low additional cost!
2mm/.078" or 3mm/.109" holes +\$2.50 6mm/.236" or 1/4=.25" + \$3.5 10mm/.394" or 15mm/.590" + \$4.00



FORMING TOOLS Assure best performance. Using the tool's prints, which we keep on file, our tool room will **sharpen, re-set, and test.** 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.

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.

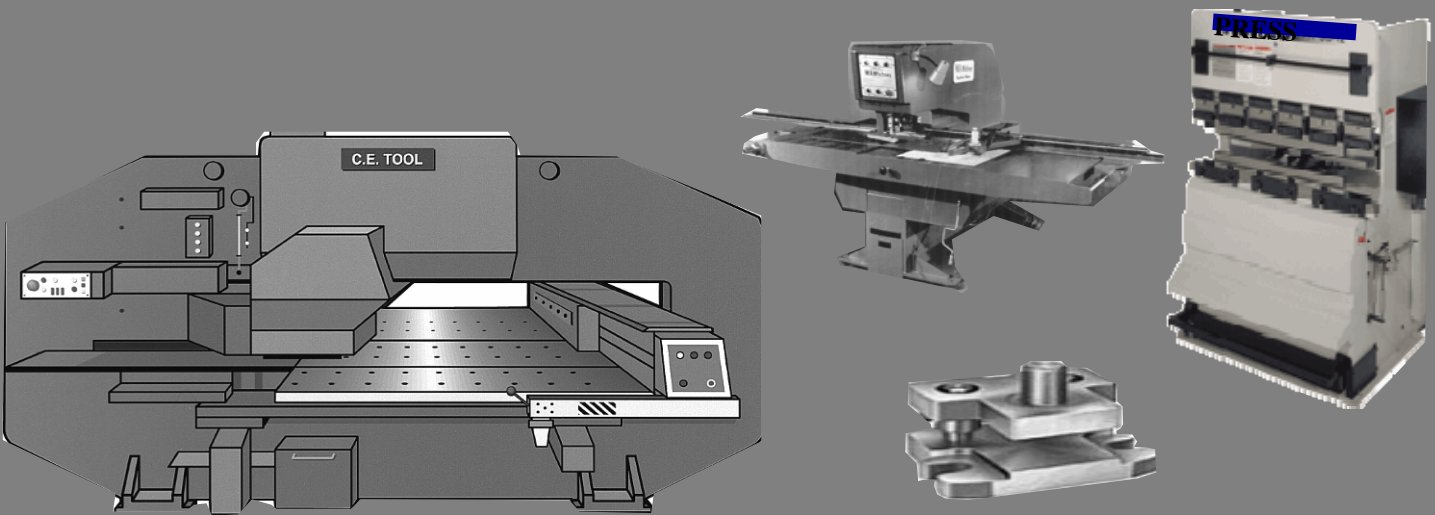


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