CMT

COLUMBIA MARKING TOOLS

The Complete Marking Stamp and Die Catalog

Company

Columbia Marking Tools is a leading manufacturer of marking products. Our broad spectrum of custom developed machines and components have made a significant "impact" on marking technology. Our company has an extensive history of innovations and technological breakthroughs. We continuously improve our products, incorporating the latest techniques and components.

CMT uses a standard Gothic font; this is similar to the Roman font used in printing, and the Arial font on the computer.

ABCDEFGHIJKLMN OPQRSTUVWXYZ 0123456789

CMT can manufacture dies with any font required, including signatures.

Over estimates of the size of the character required are quite common. The three marks above all have the same character size. The overall impression size will vary according to the depth of the mark; this effect must be taken into consideration whenever critical space limitations are a factor.

Table of Contents

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Character Face Styles

Sharp Face Characters are engraved with a sharp edge. A sharp face tool penetrates more easily than other styles.
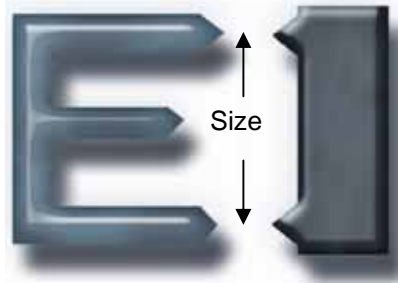
Flat Face Characters are engraved with a flat face instead of a sharp edge in order to produce a wider impression. This face is often used on brass or other non-ferrous metals. Since more material is displaced more force is required.
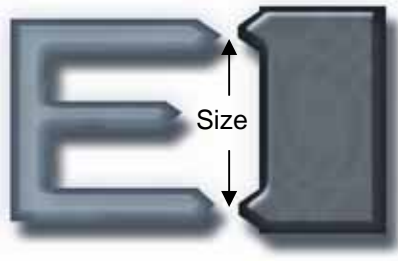
Open Face Characters have two sharp face lines to produce double line impression of an outline character. This style is used to emphasize trademarks or designs.
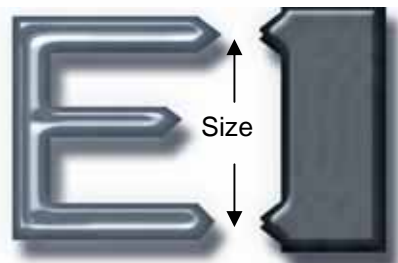
Ball Face Characters are engraved with a special rounded face for marking impressions with minimum stress at the point of marking
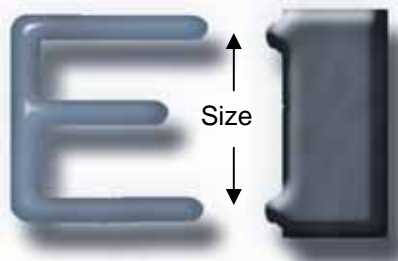
Dot Style Characters are engraved with a series of rounded dots for the lowest possible stress when marking. Recommended for high pressure fittings, aircraft and other parts where sharp tools might disrupt the molecular structure of the metal.

Marking Methods

Roll Marking on

Roll Marking on

Roll Marking on

Roll Marking on

Press Method

Tubes

Rounds

Rounds

Flats

for Flats

Press Method
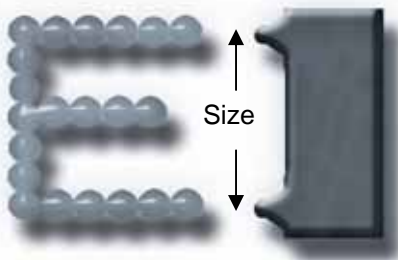
for Rounds

Estimated Maximum Force per Hammer Blow (in lbs)

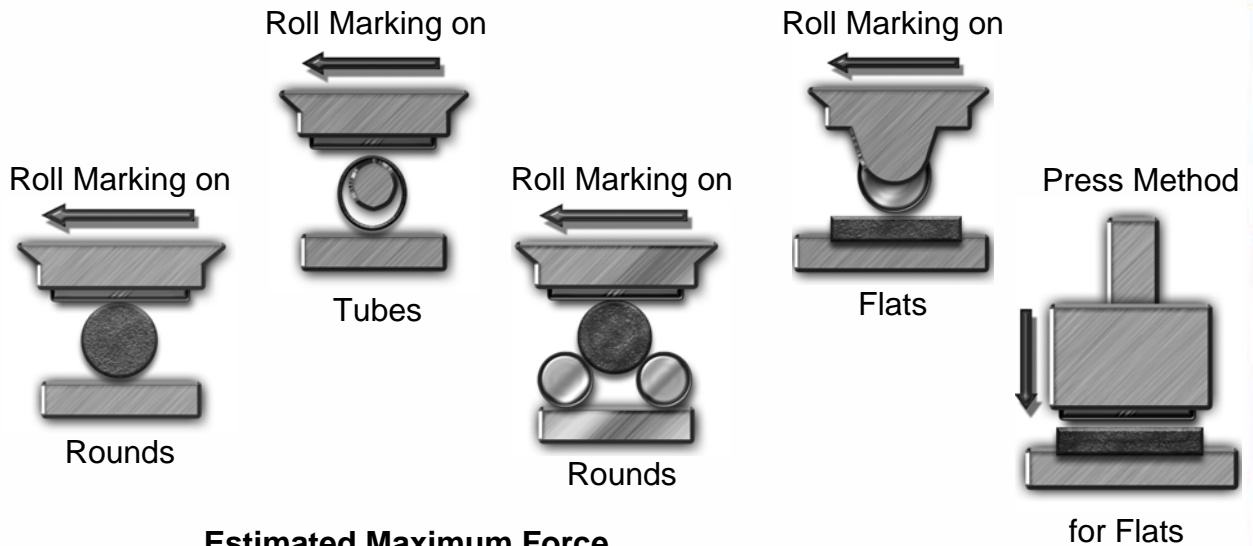| Size of Hammer	Average Machinist	Experienced Machinist	The "Big Guy"
3/4 lbs	3,000	4,000	5,000
1 lbs	4,400	6,000	7,400
1 1/2 lbs	6,000	8,000	10,000
2 lbs	9,000	12,000	15,000
2 1/2 lbs	12,800	17,000	21,200
3 lbs	22,400	30,000	37,400

Marking Pressure Data
Static Stamping Pressure per character

Pounds per Character (y-axis: 0 to 7000)

Character Size/ Optimal Depth of Mark: 1/16, .004 | 3/32, .005 | 1/8, .007 | 3/16, .009 | 1/4, .010

■ Aluminum (Cast)   ■ Brass (Soft)   ☐ 1018 Steel   ☐ Carbon Steel
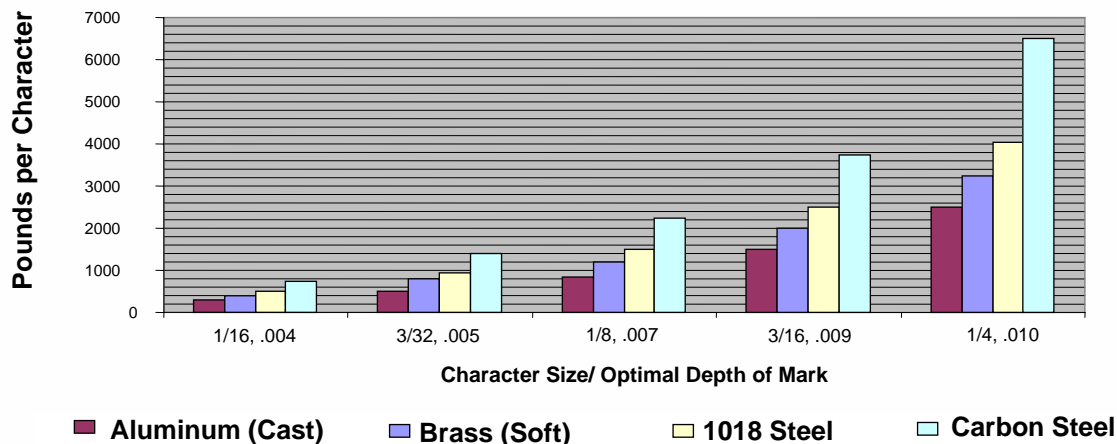
Character Size Data

Character Size Chart: For determining height, width, and spacing of characters engraved on steel roll, stamping and embossing dies.

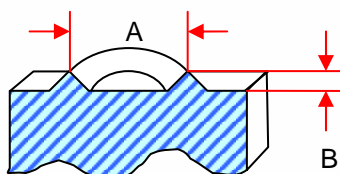| Size	Extra Condensed at 40% Style 1A	Condensed at 50% Style 2A	Standard at 60% Style 3A
1/16"	ABCDEFGIM1234567890	ABCDEFGIM1234567890	ABCDEFGIM1234567890
3/32"	ABCDEFGIM1234567890	ABCDEFGIM1234567890	ABCDEFGIM1234567890
1/8"	ABCDEFGIM1234567890	ABCDEFGIM1234567890	ABCDEFGIM1234567890
3/16"	ABCDEFGIM1234567890	ABCDEFGIM1234567890	ABCDEFGIM123456789
1/4"	ABCDEFGIM1234567890	ABCDEFGIM123	ABCDEFGIM12
5/16"	ABCDEFGIM123456	ABCDEFGIM	ABCDEFGIM
3/8"	ABCDEFGIM123	ABCDEFGIM	ABCDEFGI
1/2"	ABCDEFGIM	ABCDEF	ABCDE

Standard Engraving Depth

A Character Size	B Engraving Depth
1/32	.012
1/16	.018
3/32	.020
1/8	.023
5/32	.025
3/16	.025
1/4	.030
5/16	.032
3/8	.035
1/2	.050
5/8	.070
3/4	.078
1	.093

Example of Tier Style

Style of Fractions

Style	Lay-out	Name
TS	3/8	Tier Style
FD	3/8	Full Diagonal
SD	3/8	Staggered Diagonal
SL	3/8	Straight Line Diagonal

How to Order

ORDERING INDIVIDUAL CHARACTERS AND PUNCTUATION

Build catalog number as shown. For punctuation suffix see table below. For Symbol number tables please see charts on pages 8 and 9.

To order individual LETTERS and FIGURES add suffix of actual letter or figure to part number

To order BLANK SPACERS add suffix of "-00" to part number

To order PUNCTUATION add suffix from table below to part number

CMG	09	-A
Style	Char Size	Letter or Figure

CMF	13	-00
Style	Char Size	Blank Spacer

CM8X	25	-RR
Style	Char Size	Asterisk Suffix

ORDERING LOGO DIES AND SEGMENTS

To order LOGO DIES (multiple character stamps) in Flat stamp style add prefix "L" and suffix of ACTUAL LEGEND to catalog number.

To order SEGMENT DIES (multiple character wedge stamps) in Wedge stamp styles add prefix "S" and suffix of ACTUAL LEGEND to catalog number.

L	CMT	09N	-936k
Logo Die	Style	Char Size	Stamp reads "936K"

L	CMT	13	-PAT. PEND.
Logo Die	Style	Char Size	Stamp reads "PAT. PEND."

S	CMW	13	-Made In USA
Segment Die	Style	Char Size	Stamp reads "Made in USA"

Punctuation Symbols

| Mark	Symbol	Suffix
Dash	-	-DD
Period	.	-PP
Comma	,	-CC
Diagonal	/	-SS
Ampersand	&	-AA
Number sign	#	-TT
Multiplication	X	-MM
Equals Sign	=	-EE
Colon	:	-LL
Plus Sign	+	-UU
Asterisk	*	-RR
Percent Sign	%	-QQ
Dollar Sign	$	-BB

Legend Length

To determine MAXIMUM legend length of logo or segment dies, multiply character size by number of characters on stamp. Count spaces and punctuation marks as 1/2 a character.

If standard spacing makes legend too long for your application, SPECIFY MAXIMUM ALLOWABLE LEGEND LENGTH.

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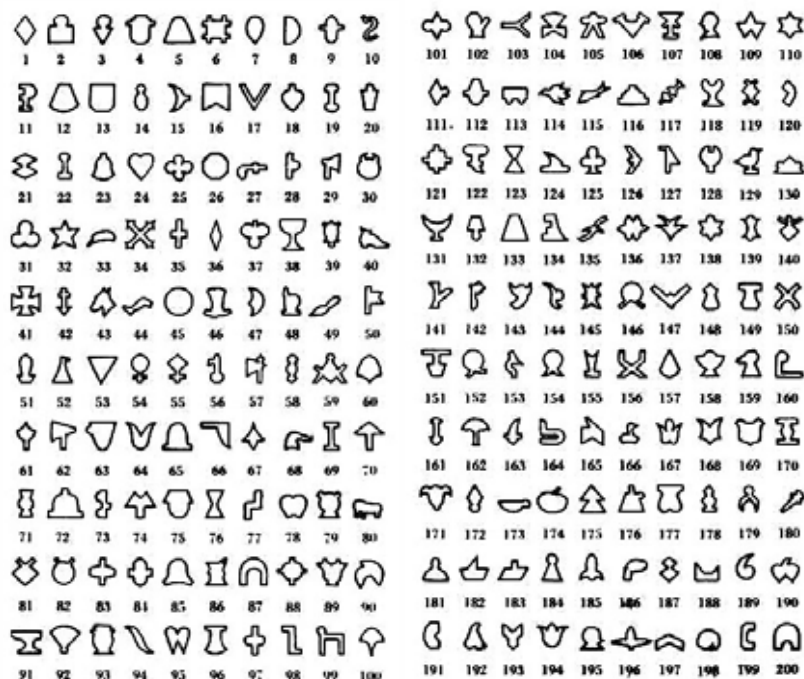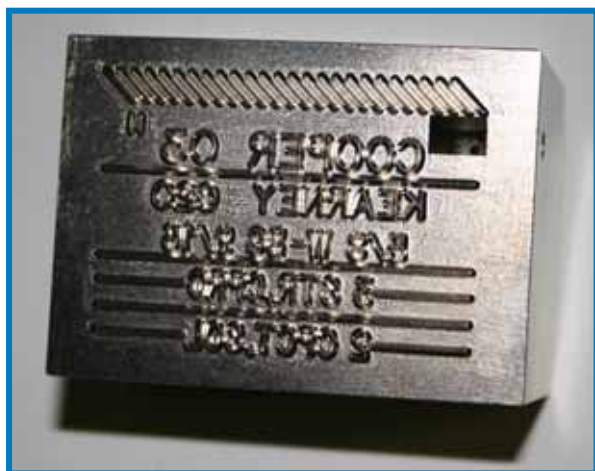
Symbols

Please select symbol number required from listing of 600 styles.

Shank Style Dies. Shank sizes and lengths made custom to suit press and application.

Plain Round Dies. Used as an insert or in a press to mark codes, trademarks, part numbers or other legends. Available in any diameter or length.
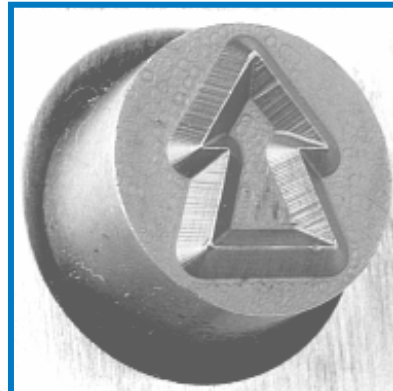

Combination Engraved Dies and Type holder. An engraved die with recesses for interchangeable type permits changing a portion of a legend while the basic engraving remains constant.
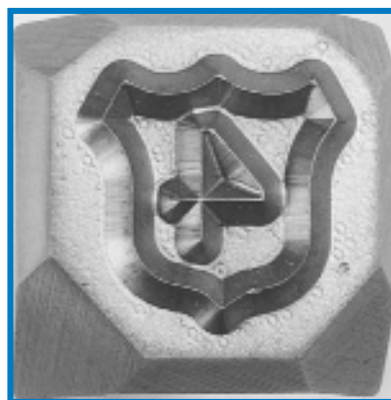

Radially Engraved Shank Style Dies. Used in a press when a radial impression is desired on a flat surface.
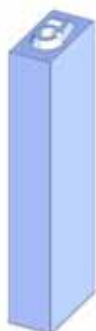
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Symbols

> - Symbols can be engraved on any type, insert, or hand stamp
> - Specify symbol required by SYM### after the catalog number of the stamp
> - Some Symbols may require a wider blank than the standard letters

Numbers or Letters may be specified inside symbols

Flat and Step Type

Flat type is held into a holder with a set screw. This method is recommended for use only in applications with smaller forces, and minimal machine vibrations.

Applications include:
- Model 78 Mite-E-Mark rod style A
- Some brands of hand holders
- Custom holders

Step style type is held into a holder with a plate or clip. This method offers very easy changing of the marking legend.

Applications include:
- Press holders – P series
- Dovetail holders – DM Series
- Hand holders – H series and R Buster

Double step type may be used in the same applications and offers orientation versatility.

Multi- Character stamps are easily ordered by extending the part number to include the "L" logo segment prefix and "C#" denoting the number of characters as the suffix.

Example: LCMS13C5-XXXXX
(XXXXX are the characters required on the stamp.)

The height (B) and the length (C) of the stamp will remain the same. The width of the stamp (A) will be the single character width multiplied by the number of characters on the stamp.
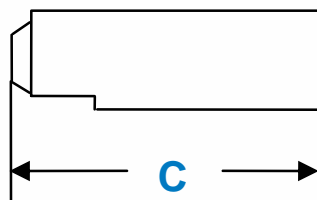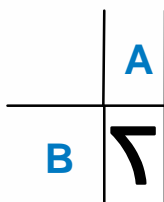
Flat, Step and Double Step Type Styles

Flat Style CMF Series

Char Size	A	B	C	Catalog No.
1/32	1/16	1/4		CMF03-
1/16	1/16	1/4		CMF06-
3/32	3/32	1/4		CMF09-
1/8	1/8	1/4	7/8	CMF13-
5/32	3/16	5/16		CMF16-
3/16	3/16	5/16		CMF19-
1/4	1/4	3/8		CMF25-
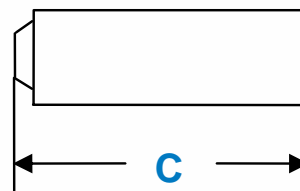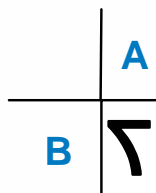
Step Style CMS Series

Char Size	A	B	C	Catalog No.
1/32	1/16	1/4		CMS03-
1/16	1/16	1/4		CMS06-
3/32	3/32	1/4		CMS09-
1/8	1/8	1/4	7/8	CMS13-
5/32	3/16	5/16		CMS16-
3/16	3/16	5/16		CMS19-
1/4	1/4	3/8		CMS25-

Double Step Style CMT Series

Char Size	A	B	C	Catalog No.
1/32	1/16	1/4		CMT03-
1/16	1/16	1/4		CMT06-
3/32	3/32	1/4		CMT09-
1/8	1/8	1/4	7/8	CMT13-
5/32	3/16	5/16		CMT16-
3/16	3/16	5/16		CMT19-
1/4	1/4	3/8		CMT25-
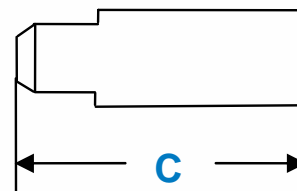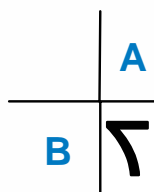
Groove Type
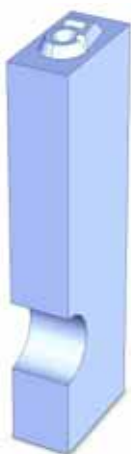
Groove type is held into a holder with a spring clip or pin. This pin is made of spring steel, and is designed to withstand impact forces.

Applications include:
- All air impact markers
- HG Series Hand holders
- Custom holders

Groove type comes in a variety of standard configurations: CMG, CMC and CMV. Custom sizes can be ordered by providing the blank information (see page 25).

Reverse Groove type is the same as the standard, but with the groove located at the top of the character. Denote reverse groove option as follows: CMGR, CMVR, CMCR.

**Multi- Character stamps** are easily ordered by extending the part number to include the "L" logo segment prefix and "C#" denoting the number of characters as the suffix.

Example: LCMG13C5-XXXXX
(XXXXX are the characters required on the stamp.)

The height (B) and the length (C) of the stamp will remain the same. The width of the stamp (A) will be the single character width multiplied by the number of characters on the stamp.
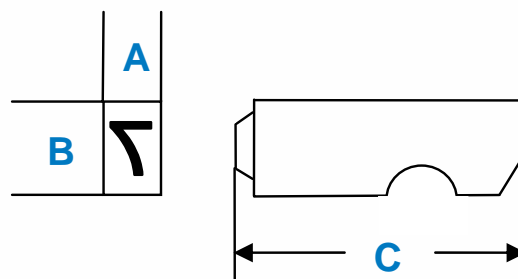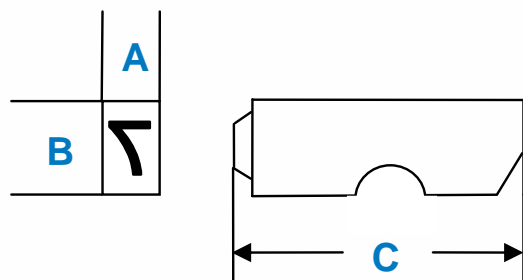
Groove Type Styles

Groove Style CMG Series
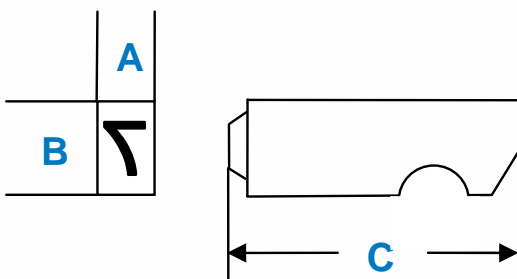
Char Size	A	B	C	Catalog No.
1/32	1/16	1/4		CMG03-
1/16	1/16	1/4		CMG06-
3/32	3/32	1/4	7/8	CMG09-
1/8	1/8	1/4		CMG13-
5/32	3/16	1/4		CMG16-
5/32	3/16	5/16		CMG16W-
5/32	5/32	1/4		CMG16N-
3/16	3/16	5/16		CMG19-
1/4	1/4	3/8		CMG25-

Custom Style CMV Series

Char Size	A	B	C	Catalog No.
1/32	1/16	1/4		CMV03-
1/16	1/16	1/4	7/8	CMV06-
3/32	3/32	1/4		CMV09-
1/8	1/8	1/4		CMV13-

Custom Style CMC Series

Char Size	A	B	C	Catalog No.
1/32	1/16	1/4		CMC03-
1/16	1/16	1/4		CMC06-
3/32	3/32	1/4		CMC09-
1/8	1/8	1/4	1 1/4	CMC13-
5/32	3/16	5/16		CMC16-
3/16	3/16	5/16		CMC19-
1/4	1/4	3/8		CMC25-

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Standard Round Inserts

CM7X

1/4" diam

Char Size

3/4"
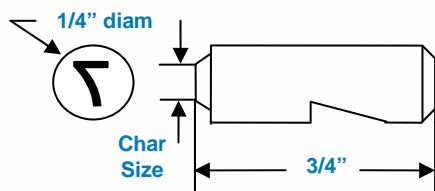
Char Size	Catalog No.
1/32	CM7X03-
1/16	CM7X06-
3/32	CM7X09-
1/8	CM7X13-
5/32	CM7X16-
3/16	CM7X19-

For use in: CMT Model 78 rod style "B"

CM8X

3/8" diam

Char Size

1 ¼"
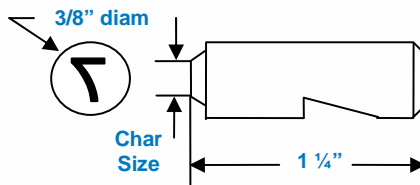
Char Size	Catalog No.
1/32	CM8X03-
1/16	CM8X06-
3/32	CM8X09-
1/8	CM8X13-
5/32	CM8X16-
3/16	CM8X19-
1/4	CM8X25-

For use in: CMT Model 88, 288, 75, 85 rod style "B", and the No 8 inspector's hammer

CM9X

1/2" diam

Char Size

1 ¼"
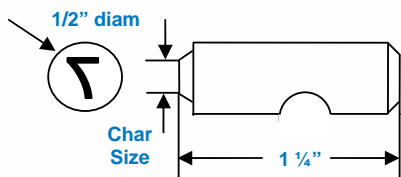
Char Size	Catalog No.
1/32	CM9X03-
1/16	CM9X06-
3/32	CM9X09-
1/8	CM9X13-
5/32	CM9X16-
3/16	CM9X19-
1/4	CM9X25-
3/8	CM9X38-

For use in: CMT Model 98, 298, 751, 851 rod style "B" character stamps

Punches

CM7XP

Catalog No.	Prick Punch
CM7XP60	60 Degree included angle
CM7XP90	90 Degree included angle
CM7XP120	120 Degree included angle

1/4" diam   Included angle   3/4"
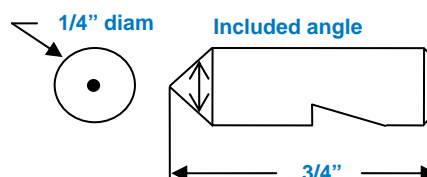
CM8XP

Catalog No.	Prick Punch
CM8XP60	60 Degree included angle
CM8XP90	90 Degree included angle
CM8XP120	120 Degree included angle

3/8" diam   Included angle   1 ¼"
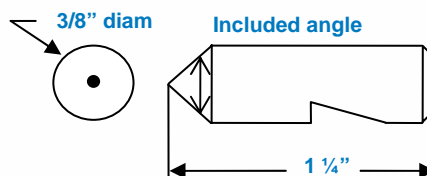
CM9XP

Catalog No.	Prick Punch
CM9XP60	60 Degree included angle
CM9XP90	90 Degree included angle
CM9XP120	120 Degree included angle

1/2" diam   Included angle   1 ¼"
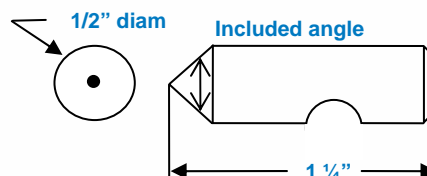
Special Length Round Inserts:
Specify special length required within the part number as shown in the examples.

CM9X	13	SL2.50	-2
Style	Char size	Overall Length	Character

CM9X	P90	SL2.75
Style	Punch Angle	Overall Length

Custom Punches:
For multiple staking locations or custom shapes. Please provide drawing or part being formed.

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Hot Stamp Type and Dies

CMT specializes in identification including: date codes, lot numbers, part numbers, and serial numbers. CMT also makes custom logo dies such as the example shown to the right.

Flat Face Standards

Shown at left is our standard flat face stamp with a flat character face height of 8%. We also have other sizes available, such as stamps with a flat character face height of 5%, 10% and 15% (shown at right).

For very large characters, greater than 1", CMT offers cross hatching of the character face. This promotes a better securing of the foil on large flat surfaces.

Extra Deep Engraving: Required when material is removed from a part after marking or for an abnormally deep mark. Branding dies are engraved extra deep with a flat face so the background of the hot die will not touch the material.
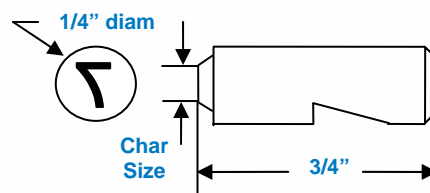
Hot Stamp Round Inserts

Custom designs for the round inserts include:
- Heat Staking
- Multi-character
- Symbols/Logos

Char Size	Catalog No.
1/16	CM7XH06-
3/32	CM7XH09-
1/8	CM7XH13-
5/32	CM7XH16-
3/16	CM7XH19-

For use in: Hot Stamp Series 900 with HX7 holders

1/4" diam

Char Size

3/4"

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Hot Stamp Type and Dies

Flat Style CMFH Series

Char Size	A	B	C	Catalog No.
1/32	1/16	1/4		CMFH03-
1/16	1/16	1/4		CMFH06-
3/32	3/32	1/4		CMFH09-
1/8	1/8	1/4	7/8	CMFH13-
5/32	3/16	5/16		CMFH16-
3/16	3/16	5/16		CMFH19-
1/4	1/4	3/8		CMFH25-
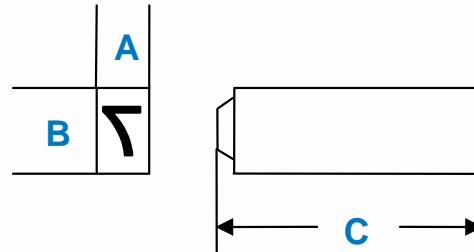
Step Style CMSH Series
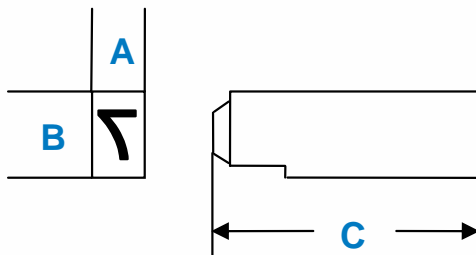
Char Size	A	B	C	Catalog No.
1/32	1/16	1/4		CMSH03-
1/16	1/16	1/4		CMSH06-
3/32	3/32	1/4		CMSH09-
1/8	1/8	1/4	7/8	CMSH13-
5/32	3/16	5/16		CMSH16-
3/16	3/16	5/16		CMSH19-
1/4	1/4	3/8		CMSH25-

Double Step Style CMTH Series

| Char Size	A	B	C	Catalog No.
1/32	1/16	1/4		CMTH03-
1/16	1/16	1/4		CMTH06-
3/32	3/32	1/4		CMTH09-
1/8	1/8	1/4	7/8	CMTH13-
5/32	3/16	5/16		CMTH16-
3/16	3/16	5/16		CMTH19-
1/4	1/4	3/8		CMTH25-
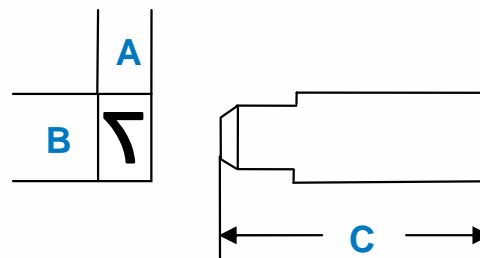
Radial Press Holder and Dies

Ideal for Marking:
- Gear blanks
- Cutter
- Pulleys
- Shafts
- Bearings
- Wheels
- Bushings

CMR Radial Type holders are designed to specific customer requirements for marking circular impressions on flat surfaces.

SD – Diameter of Press Shank

SL – Length of Press Shank

R1 – Radius to center of characters
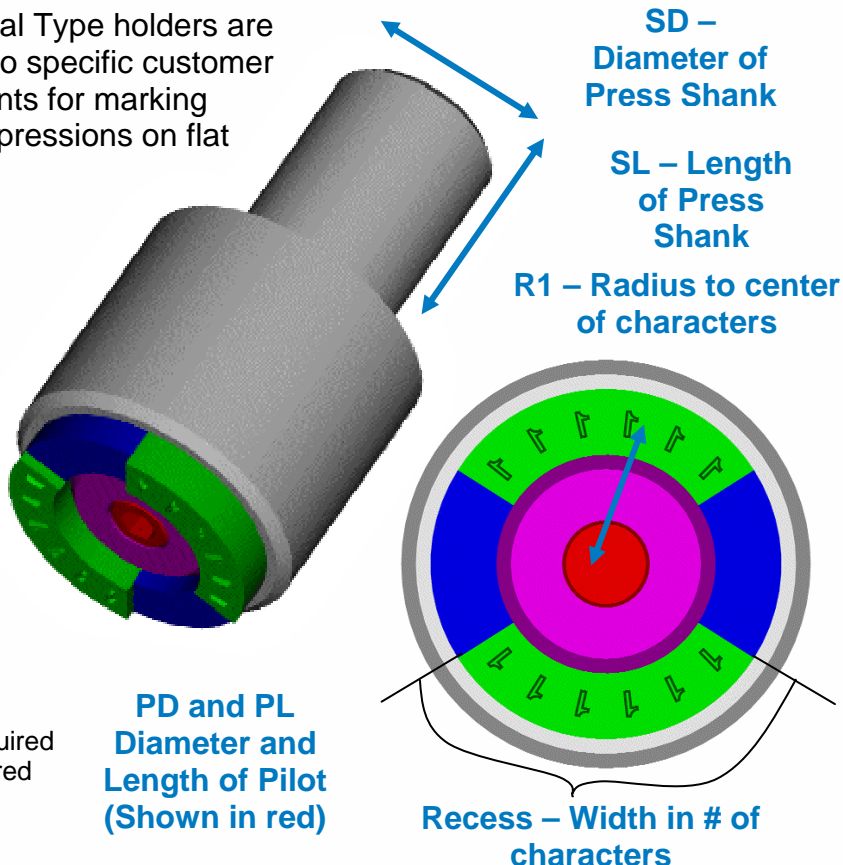
When Ordering CMR Radial Type Holders Please Specify the Following Information:

1. Character Size
2. Radius to center of character (R1)
3. Number of Recesses
4. Type Capacity of Each Recess
5. Shank Diameter (SD) & Length (SL)
6. Pilot Diameter (PD) & Length (PL) Required
7. Quantity of Letter & Figure Type Required
8. Quantity of Spacers Required

PD and PL Diameter and Length of Pilot (Shown in red)

Recess – Width in # of characters

To order CMR Radial Type and multi-character segment stamps use:
- Catalog number listed in the table below
- Plus actual letters, figures, or multi-character legend

IMPORTANT:
Please include part number of holder when re-ordering stamps

CMRA Style

CMRB Style

Radial Style CMR Series

Char Size	CMRA Style		CMRB Style		Blank Spacers
	Type	Logotype	Type	Logotype	
1/16	CMRA06-	LCMRA06-	CMRB06-	LCMRB06-	CMRA06-00
3/32	CMRA09-	LCMRA09-	CMRB09-	LCMRB09-	CMRA09-00
1/8	CMRA13-	LCMRA13-	CMRB13-	LCMRB13-	CMRA13-00
3/16	CMRA19-	LCMRA19-	CMRB19-	LCMRB19-	CMRA19-00
1/4	CMRA25-	LCMRA25-	CMRB25-	LCMRB25-	CMRA25-00

Roll Type Holders and Type

C
A
B
$^5/_{32}$" keyway
¾" diam
2 $^{13}/_{16}$" diam
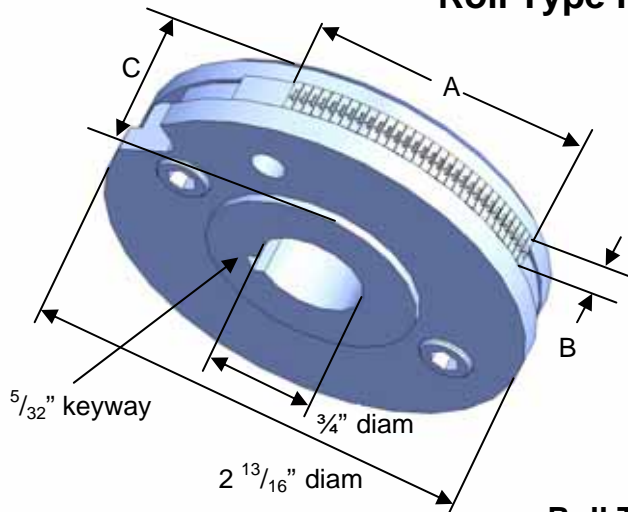
COLUMBIA roll type holders, developed to efficiently mark both flat and contoured surfaces, are designed to hold individual step style wedge type or combinations of wedge type, logo-type, and segment dies. The step in the cover plate retains the type in the holder while a take-up plate, provided with each holder, holds the type in perfect alignment.

The hub extends 1/16" past the cover plate allowing the plate to be released while the holder remains firmly locked in the carriage.

Release of the cover plate allows all type changing operations to be carried out while the holder remains in the carriage, a truly time-saving feature.

Roll Type Holders

Catalog No.	Character Sizes	Dim.			Use in Roll Carriage Cat. No.
		A	B	C	
RMA-2	1/32 1/16	7/32	2	3/4	CA-75
RMA-3	3/92 1/8	7/32	3	3/4	DCA-75
RMB-2		9/32	2	1	CA-100
RMB-3	5/32 3/16	9/32	3	1	DCA-100
RMC-2	1/4	11/32	2	1	CA-100
RMC-3		11/32	3	1	DCA-100

COLUMBIA wedge type is designed to fit into our series RM roll type holders. The step style was selected for our standard type because of the additional strength afforded by this proven design. Blank spacers are required where number of characters needed is less than capacity of holder slot. Style W standard wedge type has a wedge angle generated by a 3" marking diameter.
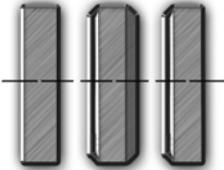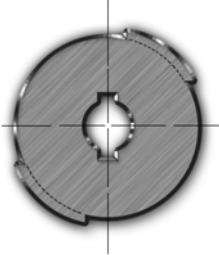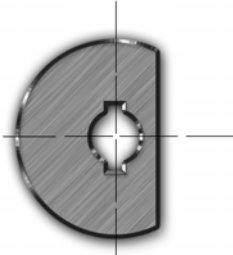

A
C
B
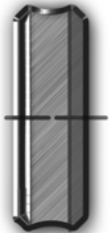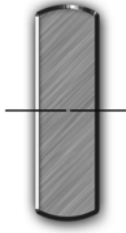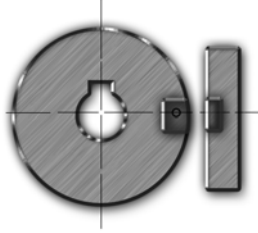
Wedge Style CMW Series

Character Size	Dimensions			Use in Holder No.	Catalog No.
	A	B	C		
1/32	1/16	1/4	7/32	RMA-2 or 3	CMW03
1/16	1/16	1/4	7/32		CMW06
3/32	3/32	1/4	7/32		CMW09
1/8	1/8	1/4	7/32		CMW13
5/32	3/16	5/16	9/32	RMB-2 or 3	CMW16
3/16	3/16	5/16	9/32		CMW19
1/4	1/4	3/8	11/32	RMC-2 or 3	CMW25

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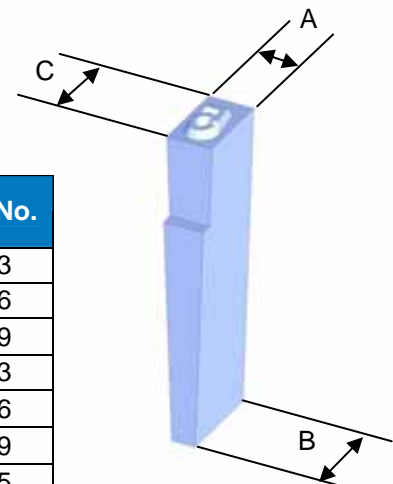
Roll Die Construction

- Machined roll die characters made to accurate geometrical proportions.
- Roll marking subjects the marking dies to great side pressures, consequently, great importance is attached to the shape of the bevels on the characters.
- COLUMBIA'S new machining process automatically provides every angle and bevel with that extra built-in strength of geometrically true characters.
- COLUMBIA roll dies exhibit greater strength and wear-resistance over an exceptionally long period of marking life.

| Shapes for Every Marking Application	
1. For marking on flat surfaces or in recesses, the engraving is on the periphery of the roll die.	**2.** For marking hexagon and octagon shaped parts on two adjacent surfaces. The two parts of the split roll dies are bolted together.
3. Two or more impression roll dies are recommended where impression takes up only a fraction of the die circumference. Additional blank cost is saved by repeating the legend on opposite side.	**4.** Roll dies with relieved section to facilitate loading and unloading of parts. Also to clear projections on marking surface.
5. For marking parallel to axis of rounds and shafts. The concave surface of the roll die must have the same radius as the part.	**6.** For marking concave surfaces. The marking surface of the roll die is machined convex to the contour of the part to be marked.
7. Roll die blanks mortised for changeable inserts. Constant reading impression engraved on die blank. Variable information is engraved on inserts.	**8.** Roll die blanks mortised for changeable wedge type inserts. Constant reading impression engraved on die blank. Variable information is made up of wedge or logo-type.

Roll Dies

Marking by means of a roll die is one of the fastest and most efficient methods known. Roll dies, used in manually operated marking fixtures, hand, air, and hydraulic marking machines, bar markers, and special purpose marking machines, solve a large variety of production marking needs.

Due to the relatively small point of contact, the roll marking method requires only a fraction of the pressure that would be needed to mark the same legend by a press method.
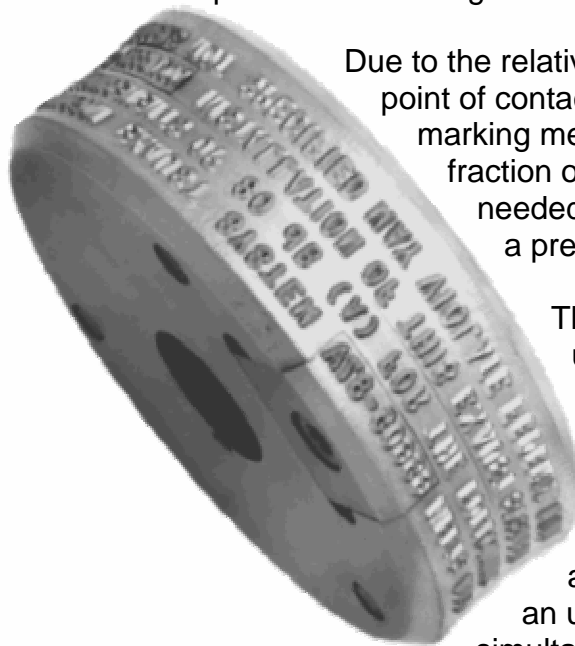
The roll die marking method is used exclusively when marking uneven surfaces by employing COLUMBIA roll marking machines. In contouring, the machine allows the roll die to follow an uneven surface while, simultaneously, keeping the impression depth uniform.
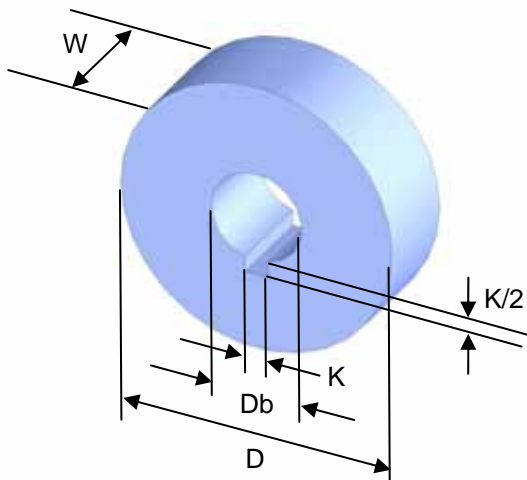
Lettering Knurl (Round Die)
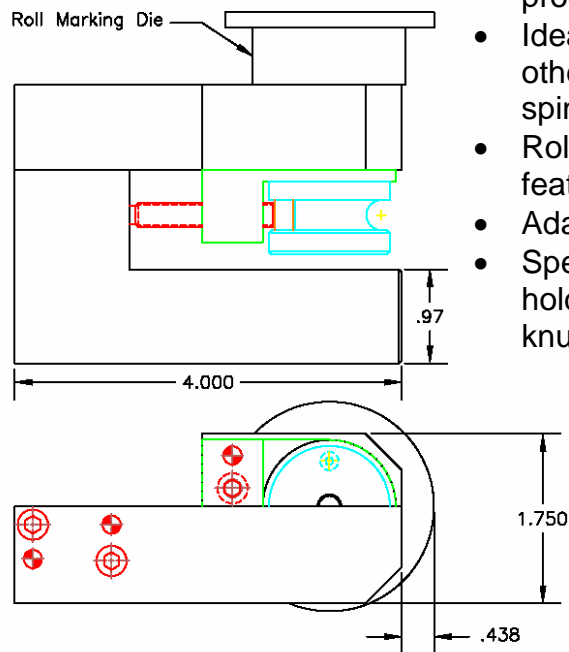D = diameter
W = width
D_b = diameter of bore
K = width of keyway
K/2 = depth of keyway
(D x W x D_b x K x K/2)

Automatic Roll Type Holder

Model R900 – Specially designed for use in CNC turning centers

- In-line operation allows for efficient marking during primary operations
- Completely eliminates need for secondary marking process
- Ideal for fittings, couplings, nozzles, collars and many other parts turned in a lathe, screw machine, multiple spindle or chucking machines
- Roll style options include spring return with locking feature, or spring return
- Adaptors and custom mounts available
- Special designs available including free running holder designed for multiple revolution marking and knurling
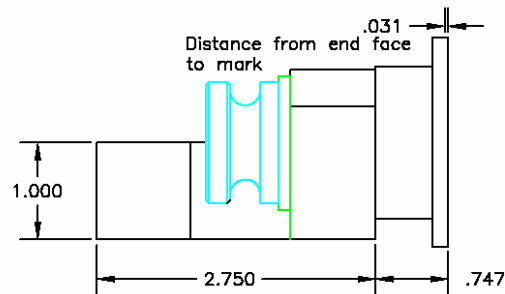
All dimensions are approximate. Please request current drawing of configuration required.
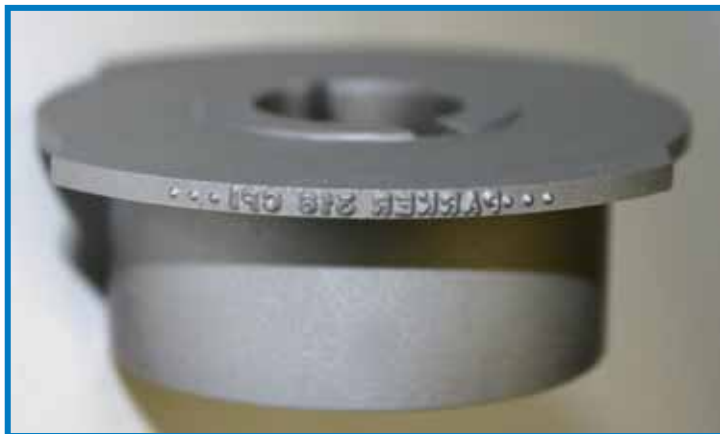
- Tool clearance ½"
- Standard shank for model 900 is ¾" or 1" sq.
- Outside die mount is required for marking within 1/32" of collet nose
- Marking dies can be either roll type holder with interchangeable type or roll dies with permanent marking legend

Roll Dies for Model R900 – please specify character size and marking legend required
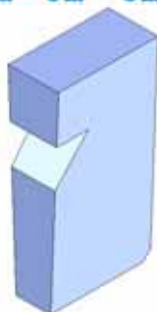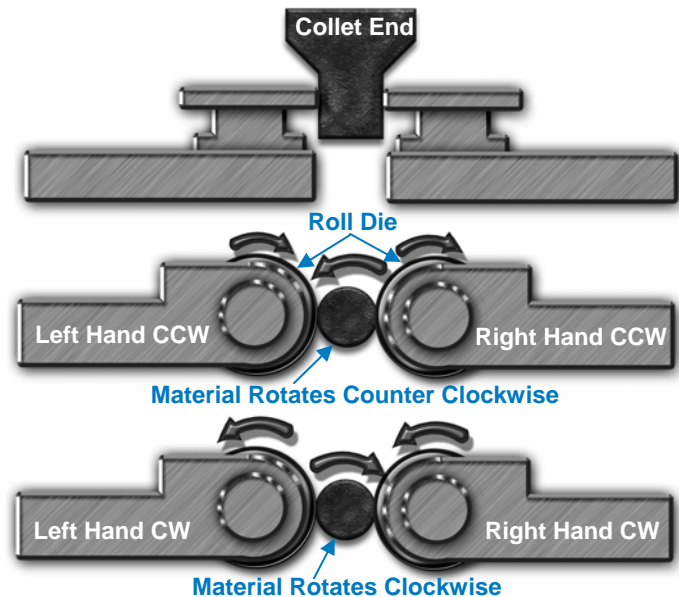
Automatic Roll Type Holder

MODEL 500 ROLL TYPE HOLDER

MODEL 800 ROLL TYPE ATTACHMENT
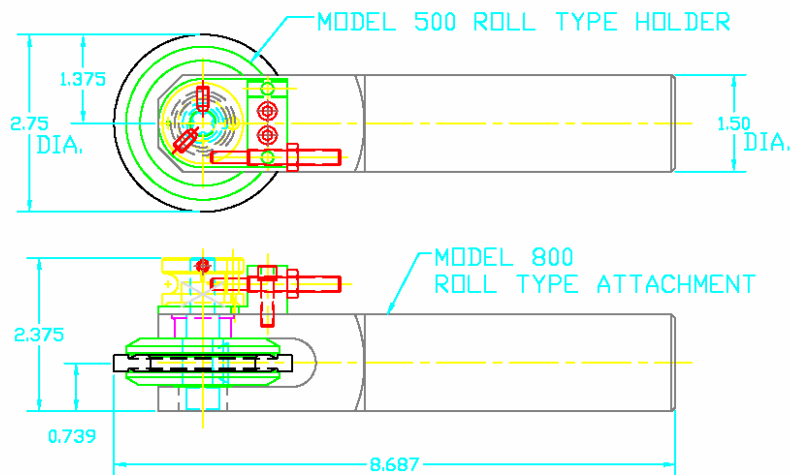
Model R800 and R500 - Screw machine adapters and holders are special tools developed to mark round parts while they are being turned in a lathe, turret lathe, or automatic screw machine. The mark is usually applied just before the cut-off operation. These holders, mounted directly in the tool posts or screw machine stations, are the stud style construction which permits marking close to the chuck or collet and simplifies the die or holder changes

How to Order Holders
1. Will die be mounted LEFT or RIGHT of shank?
2. Specify RPM and TYPE of machine on which holder will be used.
3. Minimum distance from collet to point of marking on the part.
4. Specify whether TOP of impression is TOWARD or AWAY from the collet.
5. Specify the ROTATION of the spindle (looking into the collet end of the machine)

Collet End

Roll Die

Left Hand CCW   Right Hand CCW

Material Rotates Counter Clockwise

Left Hand CW   Right Hand CW

Material Rotates Clockwise

Wedge Style CMN Series

Char Size	Catalog No.
1/16	CMN06-
3/32	CMN09-
1/8	CMN13-
3/16	CMN19-
1/4	CMN25-

- Fits in CMT R500 roll type holder and other brands
- Machined engraved for durability
- 50% cost saving over competitors

Custom Stamps and Dies

Straight Type
L = length over character
W = width
H = height
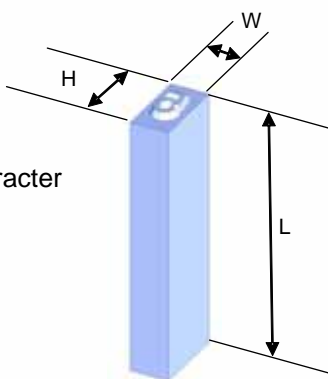
Inverted Wedge Type
L = length over character
H = height
W = width top
A = angle bottom
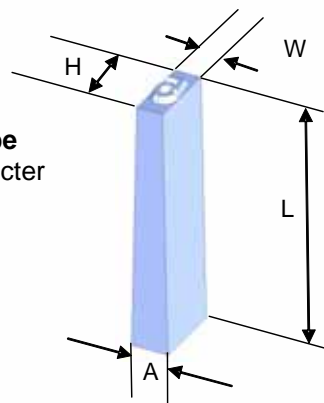
Shank Style Rectangular Die
L = length of die over character
W = width of die
H = height of die
D_s = Diameter of shank
L_s = length of shank
(L x W x H)
Shank: ($D_{s\,x}\,L_s$)
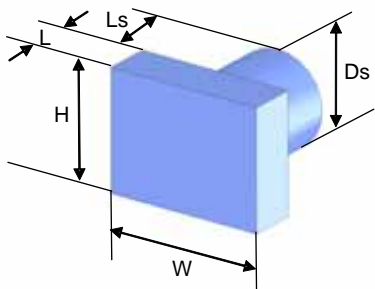
Flat Style Rectangular Die
L = length over character
W = width
H = height
Wb = distance between center of mounting holes
Db = diameter of bore
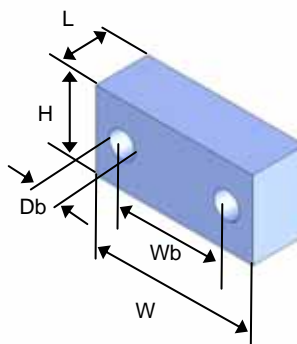
Retainer
L = length over character
W = width
Wb = distance between center of mounting holes
D_b = diameter of bore
R = radius
H = height
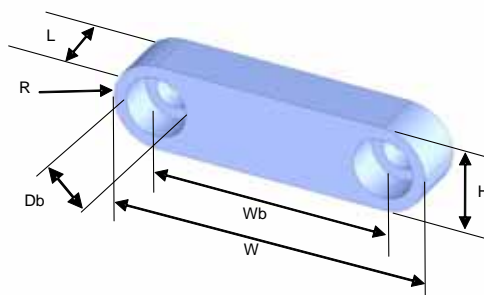
Custom Stamps and Dies

Straight Step Type
L = length over character
W = width
H = height
L_s = Length from step to bottom of die
D = depth of step
H_b = overall height of blank (LxWxH)
Step: (L_s X D)
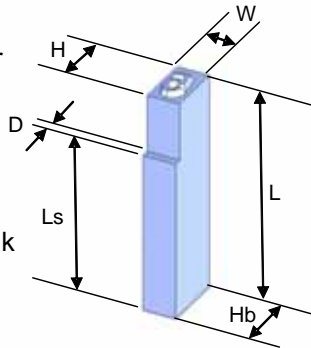
Knurl Step Type
L = length over character
W = width
H = height
L_s = length from step to bottom of die
D = depth of step
H_b = overall width of blank (LxWxH)
A = angle
Step = (L_s x D angle: A)
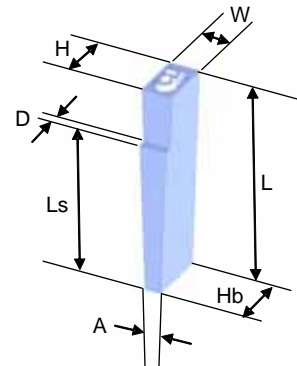
Straight Groove Type
L = length over character
W = width
H = height
L_g = length from the middle of groove to bottom of die
D = depth of groove
W_g = width of groove (LxWxH)
Groove: (L_g x Wg x D)
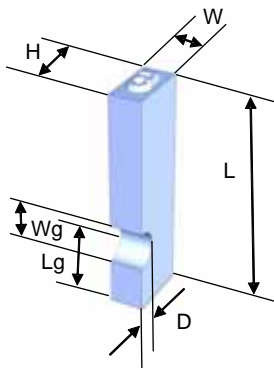
Knurl Groove Type
L = length over character
W = width
H = height
L_g = length from the middle of groove to bottom of die
D = depth of groove
W_g = width of groove (LxWxH)
Groove: (L_g x W_g x D angle: A)
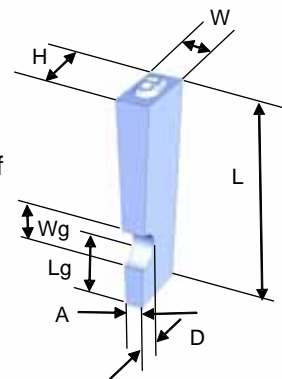
Shank Style Round Die
L = length of body over character
D = diameter of body
L_s = length of shank
D_s = diameter of shank
(D x L)
Shank: (D_s x L_s)
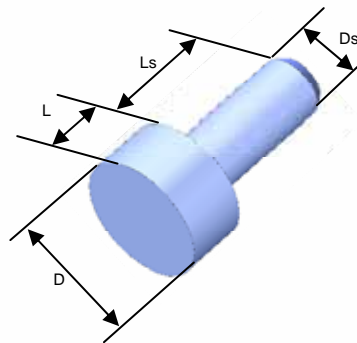
Bottoming Marker

Typical installation of CMM104 and CMM105 bottoming marker. For use in stamping presses.

Upper Ring

Punch

Lower Ring

Part

.593"
.597"

5/8"-18"
NF TAP

.38"

X

5/32"
Char.

.250"
.248"

.625"
.623"

.186"
.182"

5/8-18" NF 2

1/16" x 45"
Cham.

.09"

.06"

.403"
.401"

CMT#: CMM105
Ford#: DG1-0105
DCX#: 21-460-079

CMT#: CMM104
Ford#: DG1-104
DCX#: 21-912-0005

.252"
.254" Dia.
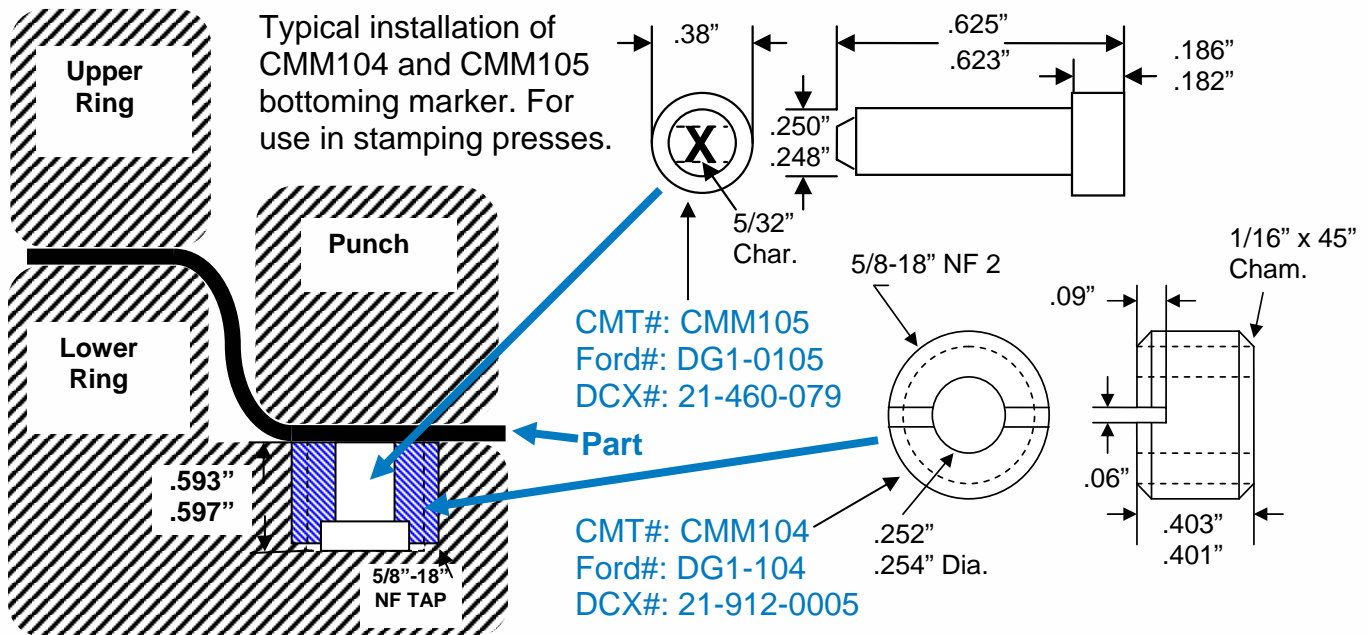
Typical installation of CMM201 and CMM202 bottoming marker. For use with forming dies having spring or air pads.

Part

CMT#: CMM201
Ford#: DG1-0201

Drill & C Bore for 3/8"
Socket Head Screws

.36" R

.252"
.254" Dia.

.44"

.624"
.621"

.62"

.38"

X

5/32"
Char.

.250"
.248"

.937"
.935"

.186"
.182"

CMT#: CMM202
Ford#: DG1-0202

Installation

Retainer

Socket Head Screws
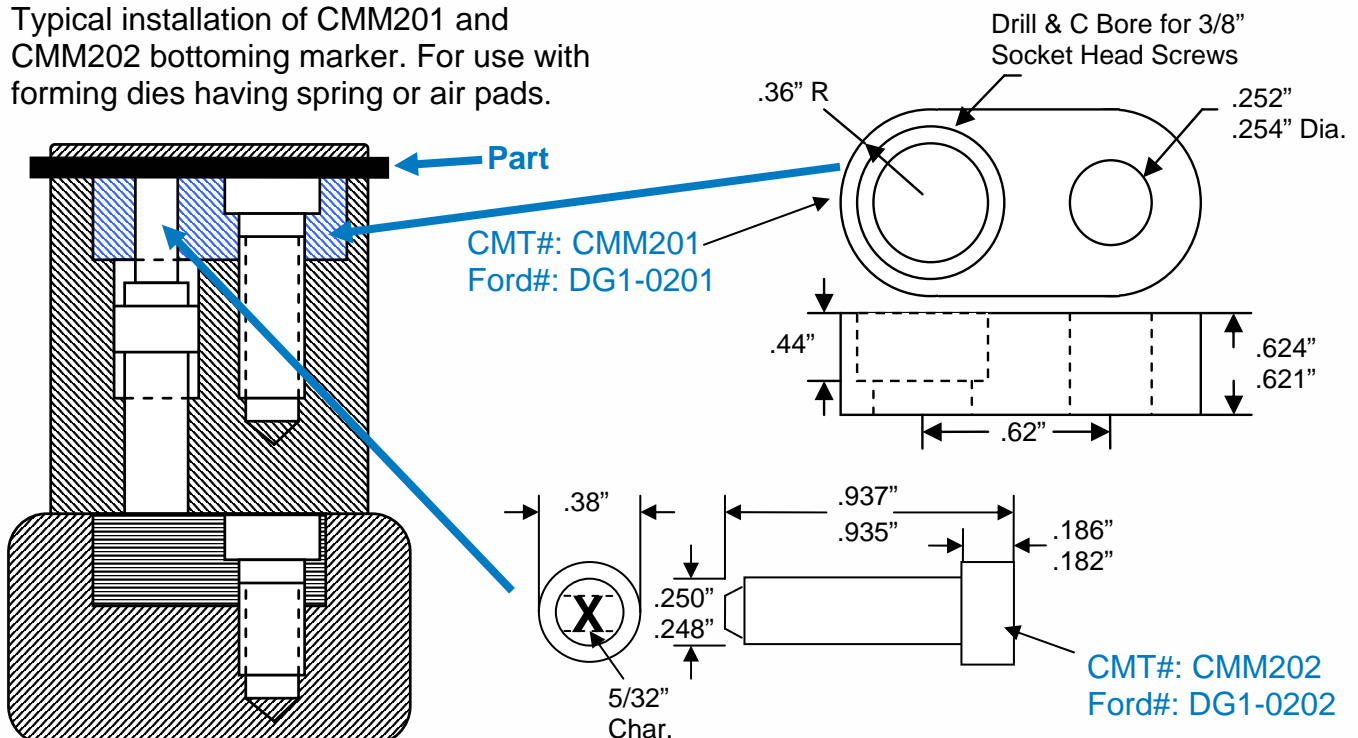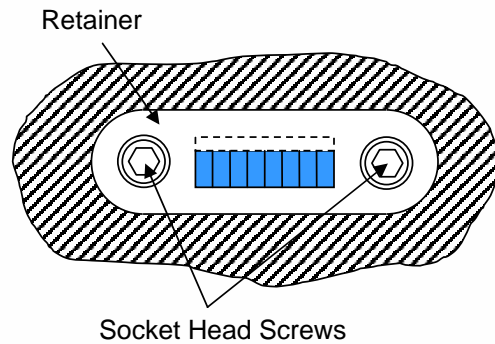
Formula For Determining Gap Width, Type Size, or Type Quantity:

Gap Width of Retainers (represented by "A" in dwgs.)÷Type Width*=Quantity of Type Retainer Can Hold

*Please note that type width is determined by desired character size

Interchangeable Stamp Inserts

Soft Base

Backing Plates
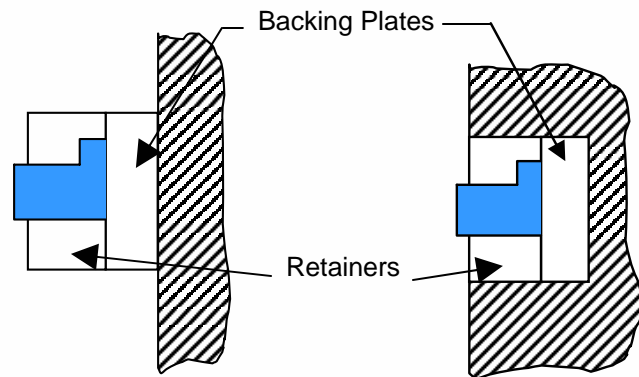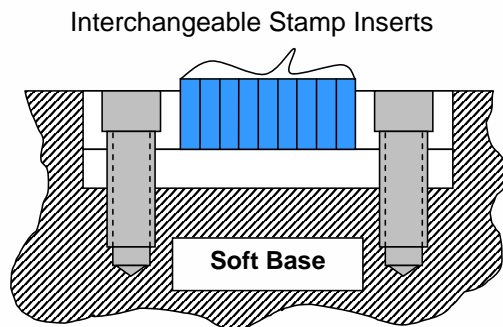
Retainers

The retainer and backing plate set can be placed in a pocket or on a flat surface.

A

B

For M8 Socket Head Screws

C Radius

18mm

19mm

6mm
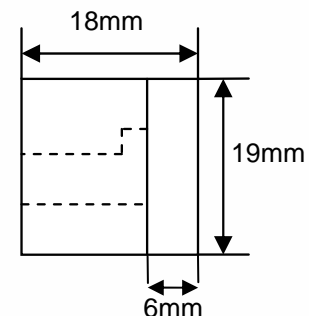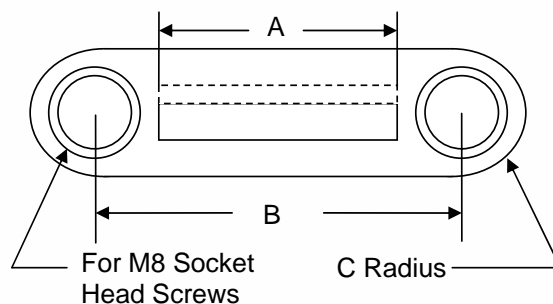
Metric Retainers for L-Shaped Type

Retainer	A	B	C	Type Style (Holder Capacity)
CMMRN18R1900	40 mm	60 mm	9.5 mm	CMM018 (10)
CMMRN18R7810	48 mm	68 mm	9.5 mm	CMM018 (12)

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Retainers

For 5/16" Socket Head Screws

C Radius
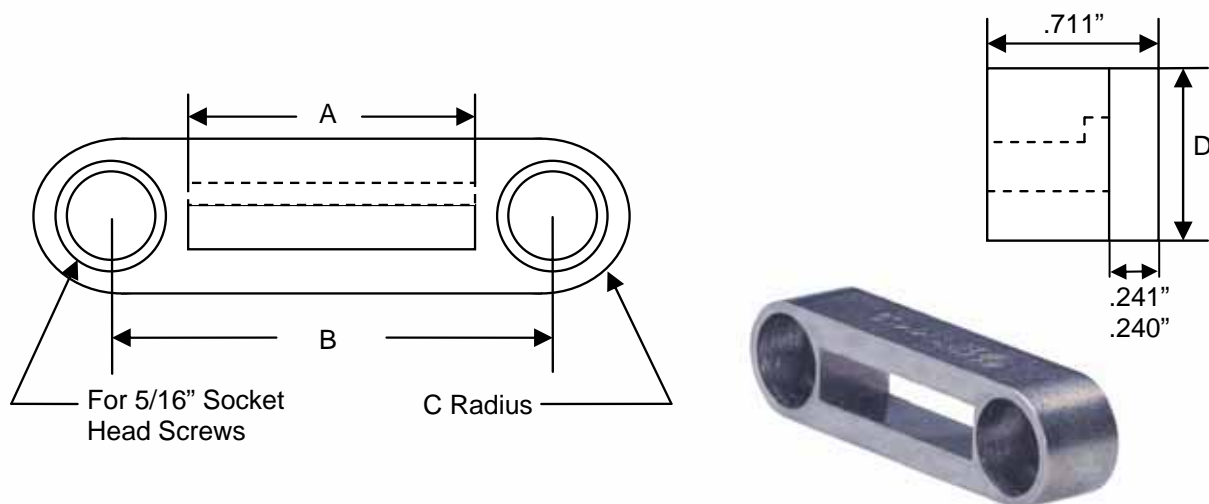
L-Shaped Type Retainers

Retainer	A	B	C	D	Type Style (Holder Capacity)
CMM101	1.31"	2.00"	.31"	.62"	CMM103 (7), CMM164 (8), CMM512 (8), CMM518 (8)
CMM510	1.64"	2.31"	.31"	.62"	CMM164 (10), CMM512 (10), CMM518 (10)
CMM412	2.25"	2.94"	.38"	.75"	CMM103 (12), CMM125 (18)
CMMRN18	1.10"	2.00"	.38"	.75"	CMM018 (7)
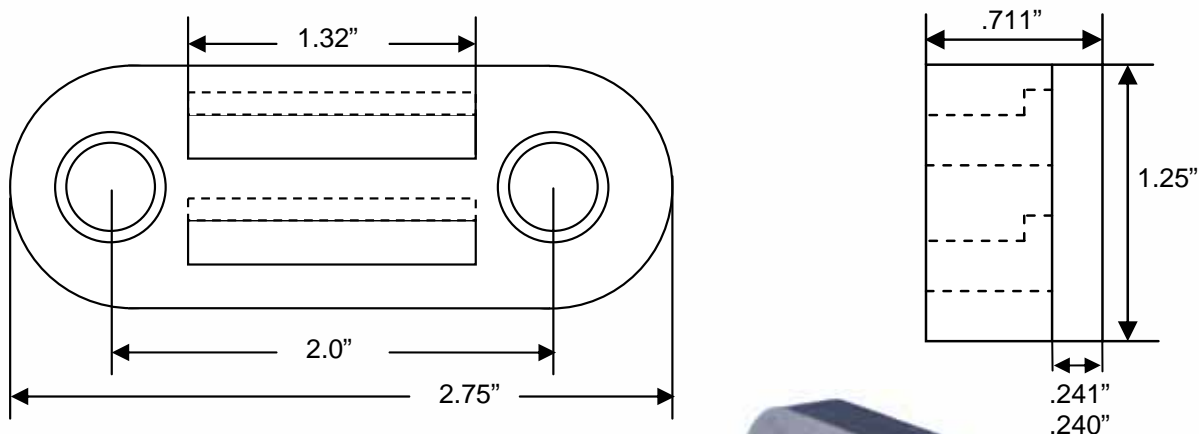
CMM106/CMM107 (retainer & backing plate set) holds (8) in each row of CMM512, CMM164, CMM518, and (7) in each row of CMM103.

L-Shaped Type

CMM018 -1/8" character fits retainers CMMRN18, CMMRN18R1900 and CMMRN18R7810

.31"
.156"
1/8" Char.
.247"
.10"
.50"

CMM103 -5/32" character fits retainers CMM101, CMM412 and CMM106

.31"
.187"
5/32" Char.
.247"
.10"
.50"
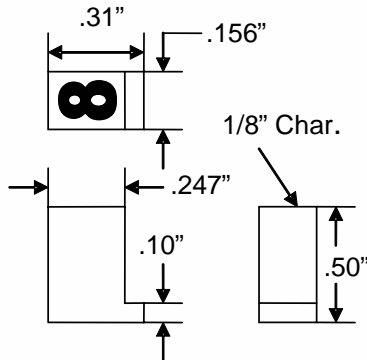
CMM518-3/16" character,
CMM164-5/32" character and
CMM512-1/8" character fits retainers CMM101, CMM106, CMM510

.31"
.164"
Various Character Sizes
.247"
.10"
.50"
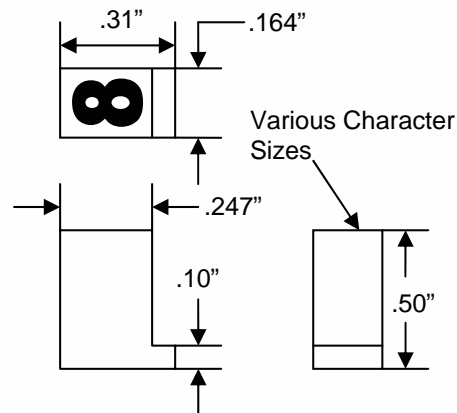
MULTI-CHARACTER SEGMENT DIES AVAILABLE

CMT can manufacture any configuration of multi-character stamps for quick and easy change over of part numbers or codes.
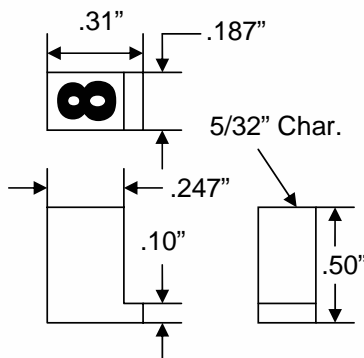
CMM125 -1/8" character fits retainers CMM412

.31"
.125"
1/8" Char.
.247"
.10"
.50"

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Retainers

C
A
B

6°

.480"
.62"
.280"
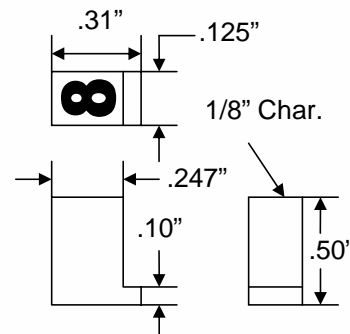
For 1/4" Socket
Head Screws
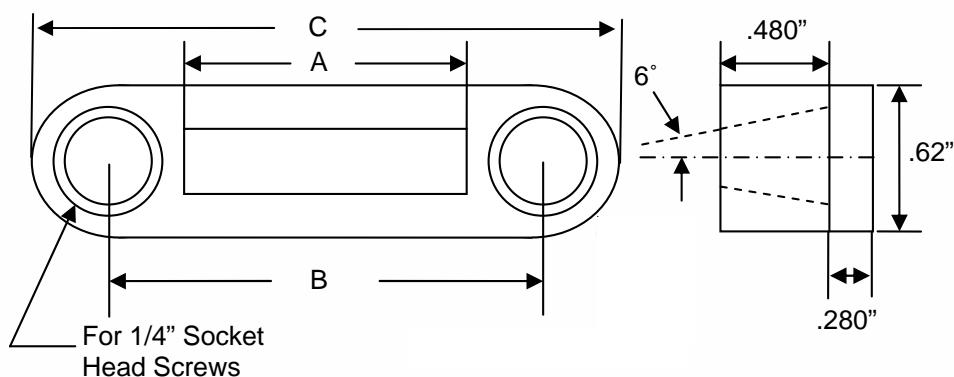
Wedge Shaped Type Retainers

Retainer	A	B	C	Type Style (holder capacity)
CMM3	.562"	1.00"	1.50"	CMM180 (3), CMM090 (6)
CMM5	.936"	1.38"	1.88"	CMM180 (5), CMM090 (10)
CMM7	1.310"	1.75"	2.25"	CMM180 (7), CMM090 (14)
CMM9	1.683"	2.25"	2.75"	CMM180 (9), CMM090 (18)

CMM180

1/8" Char.

A

6°

.50"

.308"

.185"

CMM090

3/32" Char.

A

6°

.50"

.308"
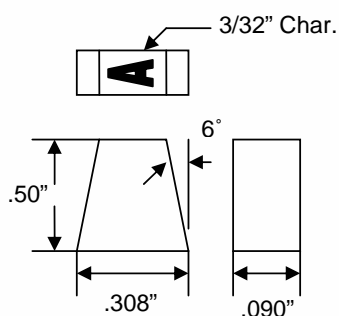
.090"
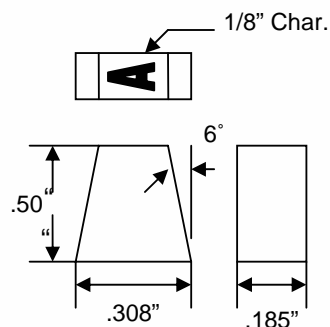
From A, B and C to your logo, CMT can engrave any marking legend onto custom die segments. For use in a stamping press or retainer system.

Retainers

CMM310

7/16" character

.50"   .607"   .288"   6°
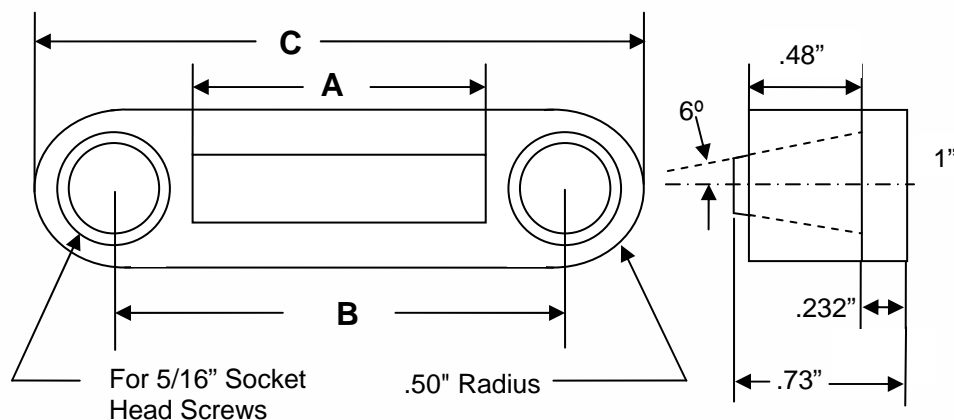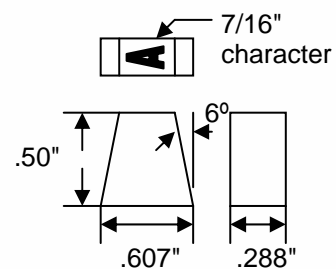
Wedge Type Retainer for 7/16" Character

Retainer	A	B	C	Type Style (Holder Capacity)
CMM301	1.44"	2.00"	2.94"	CMM310 (5)
CMM306	1.73"	2.25"	3.25"	CMM310 (6)
CMM308	2.31"	3.06"	3.81"	CMM310 (8)

CMM250

7/32" character

.50"   .373"   .25"   6°
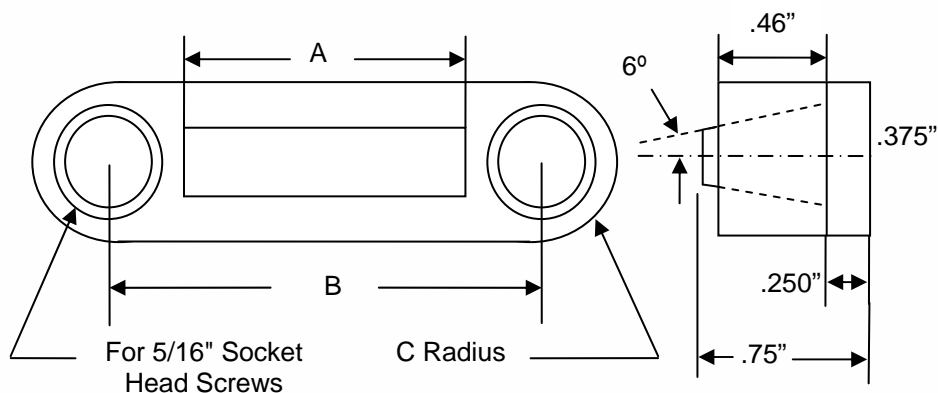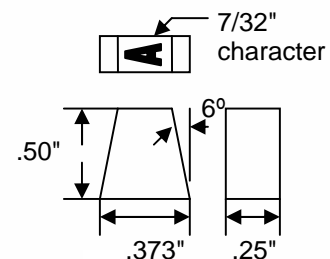
Wedge Type Retainer for 7/32" Character

Retainer	A	B	C	Type Style (Holder Capacity)
CMM50	1.25"	1.81"	.31"	CMM250 (5)
CMM54	2.265"	2.88"	.38"	CMM250 (9)

Embossing Dies

Embossing verses Semi-coining

- **Embossing:** Embossing round face characters or designs produced on sheet metal having a thickness equal to 1/8 of the character or less.

The example to the left shows the final embossed mark, a raised three on the left hand side.

The right hand side shows the two dies required to make the mark: a female die for the top of the part, and a male die under the part.
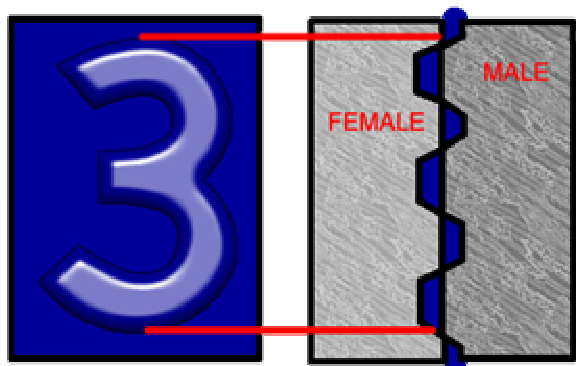
- When embossing must have sharp corners (example shown near right), height of emboss cannot exceed half of stock thickness.

More gradual contours (example shown far right), permit embossing height to exceed full material thickness without shearing the sheet metal.
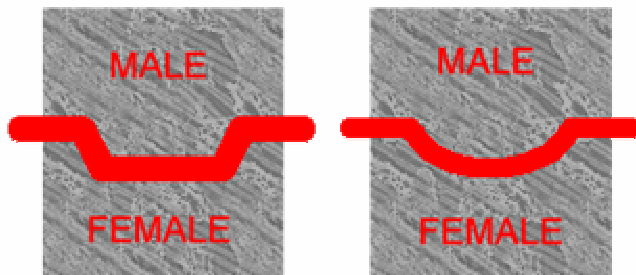
* Figure 1   ** Figure 2

- **Semi-Coining:** Produces raised characters or designs on sheet metal having a thickness exceeding 1/8 the character height.

The example to the left shows the final semi-coined mark, a raised three on the left hand side.

The right hand side shows the two dies required to make the mark: a female die for the top of the part, and a male die under the part.

Embossing Pressure Chart
For Male and Female Dies

Character Size in Inches

6"
5"
4"
3"
2"
1 1/2"
1"
7/8"
3/4"
5/8"
1/2"
3/8"
1/4"
1/8"

To find the embossing pressure required, project a straight line from the disired character size (left column) to the metal thickness (right column).

Where the line intersects the center column, the embossing pressure in *tons per character* is indicated.

Total embossing pressure will be number of characters X tonnage.

For Semi-Coining, multiply embossing pressure by 2.

Note: Multiply the embossing pressure X the material constant for metals other than steel.

	dead
Aluminum (3SO) soft	.20
Zinc	.35
Copper	.55
1/2 Hard Aluminum	.60
Brass	.80
Nickel	.875
Tobin Bronze	.875
Wrought Iron	.95
Steel	1.00
.30 C Steel	1.00
Silicon Steel	1.63
Stainless Steel	2.00

The information on this page is for estimating purposes only. Determined as approximate figures through a series of tests.

Embossing Pressure Tons per Character

100
80
60
50
40
30
20
10
8
6
5
4
3
2
1
.8
.6
.5
.4
.3
.2
.1
.08
.06
.05
.04
.03

B & S Gauge Decimal – No.

.204" – 4
.181" – 5
.162" – 6
.144" – 7
.128" – 8
.114" – 9
.101" – 10
.090" – 11
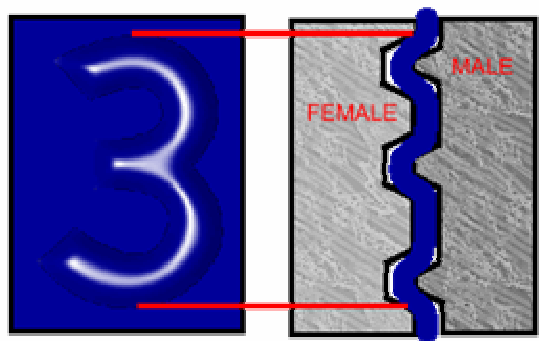.080" – 12
.072" – 13
.064" – 14
.057" – 15
.050" – 16
.045" – 17
.040" – 18
.036" – 19
.032" – 20
.028" – 21
.025" – 22
.022" – 23
.020" – 24
.018" – 25
.016" – 26
.014" – 27
.012" – 28
.011" – 29
.010" – 30
.009" – 31
.008" – 32
.007" – 33
.006" – 34
.0056" – 35
.0050" – 36
.0044" – 37
.0039" – 38
.0035" – 39
.0031" - 40

U.S.S. Guage No. - Decimal

7 - .187"
8 - .172"
9 - .156"
10 - .140"
11 - .125"
12 - .109"
13 - .094"
14 - .078"
15 - .070"
16 - .062"
17 - .056"
18 - .050"
19 - .044"
20 - .037"
21 - .034"
22 - .031"
23 - .028"
24 - .025"
25 - .022"
26 - .018"
27 - .017"
28 - .015"
29 - .014"
30 - .012"
31 - .011"
32 - .010"
33 - .0093"
34 - .0085"
35 - .0078"
36 - .0070"
37 - .0066"
38 - .0052"

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Embossing Dies

- When requesting a quotation please provide both part information; material, shape and thickness, and mark information; logo and character size.

- Embossing dies are made to order.

- Die Set - used to emboss the tailpipes of Harley-Davidson motorcycles.

These dies are expertly engraved to produce any desired letters, numbers, graduations or logos. Die face is developed to conform to contour of parts.

Final embossed part: Harley Davidson exhaust pipe.

Embossing Style Series

Char. Size	Catalog No.	
	Male	Female
1/8	CME13M	CME13F
5/32	CME16M	CME16F
3/16	CME19M	CME19F
1/4	CME25M	CME25F
5/16	CME31M	CME31F
3/8	CME38M	CME38F
1/2	CME50M	CME50F
5/8	CME62M	CME62F
3/4	CME75M	CME75F

- When embossing must have sharp corners*, height of emboss cannot exceed half of stock thickness. More gradual contours** permit embossing height to exceed full material thickness without shearing the sheet metal.

Note: See both * Figure 1 and ** Figure 2 on page 32.

- Interchangeable embossing type is supplied in all character sizes and blank styles for press applications. CME type embosses sheet metal products such as cans, shells, drums, tanks, tags and nameplates. When inquiring, specify desired character size, kind and gage of metal embossed. If formed product is to be embossed, a sample or drawing is necessary.

Type Boxes

Steel Type Boxes

- ➢ Built of sturdy steel
- ➢ Comes with handle and pull down latch
- ➢ Finished with rust and acid resistant enamel
- ➢ Easy organization of type
- ➢ Dimensions of type boxes: 13 1/4" x 12" x 3"

Steel Type Box

Model #	Bins
CMT149A	8
CMT149B	12
CMT149C	16
CMT149D	20
CMT149E	21
CMT149F	24
CMT149H	13 adjustable

Wooden Type Boxes

- ➢ Sturdy wooden boxes
- ➢ Allows easy organization of type and holder
- ➢ Type Boxes for HG and H series hand holders
- ➢ Dimensions of type box #1: 2 1/4" x 7 1/2" x 7 7/8"
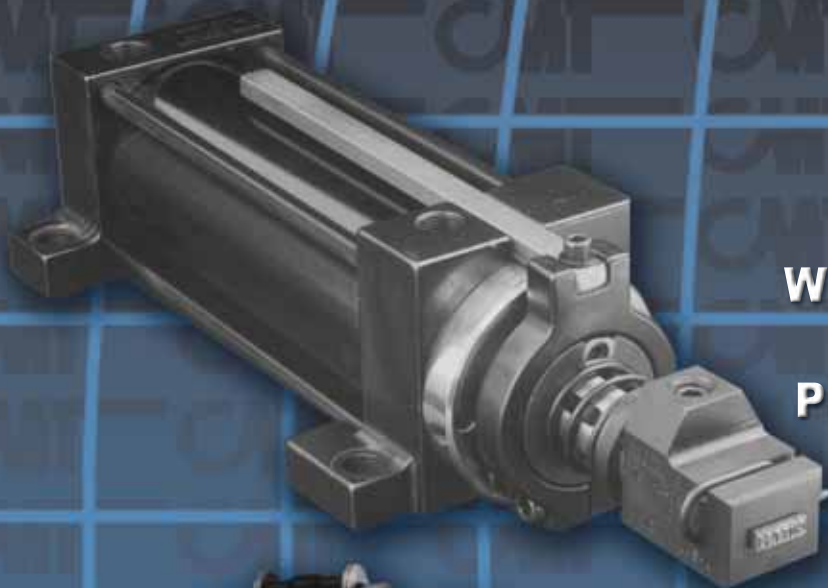- ➢ Dimensions of type box #2: 2 1/2" x 9 7/8" x 9 7/8"

Wooden Type Box

Model #	Character Size
TYPEBOX1	Type box to hold stamps with characters up to 5/32"
TYPEBOX2	Type box to hold stamps with 3/16" and larger characters

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