

Groove Stamps

Technical Data Sheet



Table of Contents

Other Resources	2
Classic Groove Stamps – CMG	2
Technical Specifications:	4
Drawing	4
Standard Dimensions.....	6
How to Order Standard Stamps	7
Character Face Styles.....	8
Standard Sharp Face.....	8
Custom Dot Style	8
How to Order Multi-character or Logo Dies	9
Multi-character Dimensions.....	10
Special Length Stamps	11
Special Length Dimensions.....	12
Double Groove Type – CMDG	13
Double Groove Dimensions	14
Reverse Groove – CMGR	15
Reverse Groove Dimensions	16
Center Groove – CMV	17
Center Groove Dimensions.....	18
Long Groove – CMC	18
Long Groove Dimensions	19
Custom Groove Dies.....	21
Logo Stamp to Fill Stamp Holder	22
Standard Font	23
Punctuation	24

Other Resources

- [Overestimates of Character size](#)
- [Character Size Data](#)
- [Symbols](#)
- [Estimated Hammer Force](#)
- [Marking Pressure Chart](#)
- [Engraving Depth](#)
- [Character Size on Rounds](#)
- [Style of Fractions](#)



Our goal at Columbia Marking Tools is to engineer and manufacture high quality industrial stamps and dies with high grade tool steel, precision machining, and double pass engraving to make sure that the tools will last as long as possible.

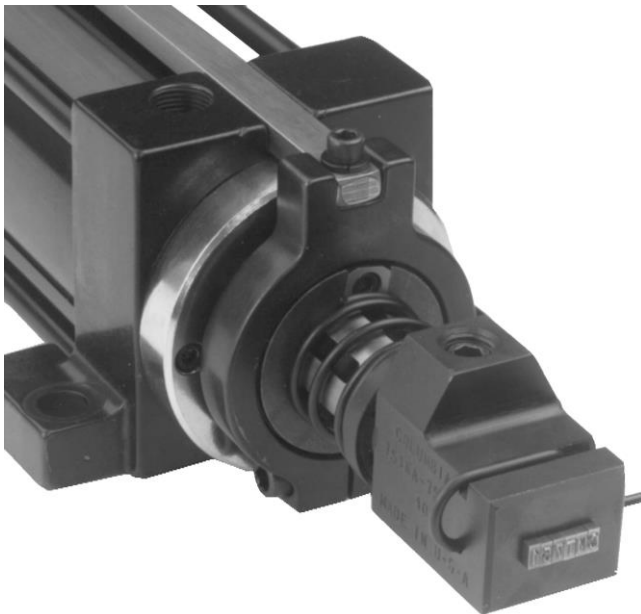


Classic Groove Stamps – CMG

The CMG – groove type is used for indentation marking and is held in the stamp recess/holder with a spring clip. The CMG groove type is used in the Models 88, 98, 288, 298 with the rod style “A”. The CMG groove type is also used in Press Holders, and Hand-holders.

Products that use Standard CMG type

- Model 88.288 – OA and OAS38 rods
- Model 98/298 – OA and OAS75 rods
- Model 451 – OA
- Model 651/751/851 – OA and OAS75 rods
- Holders 751 – KA, KB and KC
- HG holders – HAG, HBG and HCG

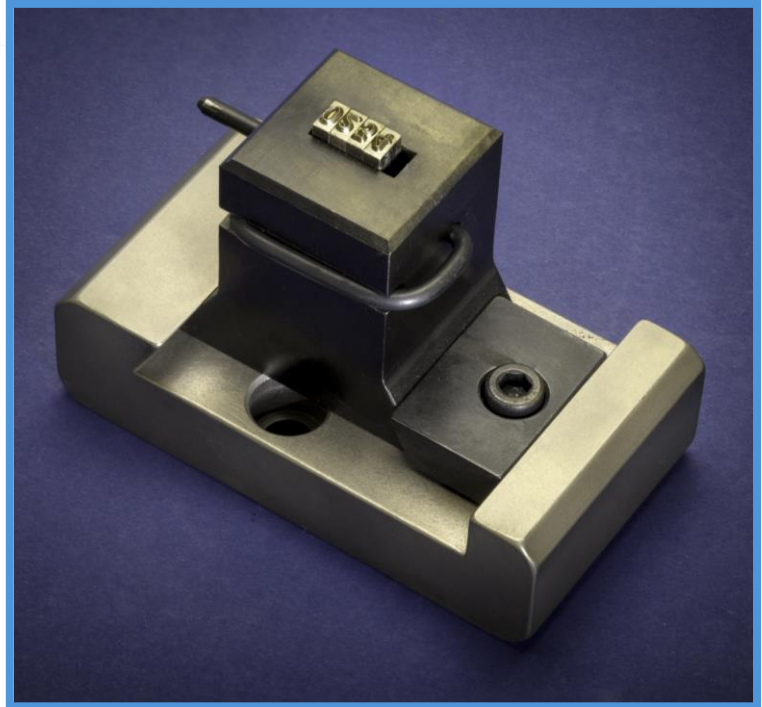


The CMG groove type is an industry standard, and with the spring clip retention method this assures a secure hold for type while allowing slight motion during the marking process.

The CMG Groove type are made in the USA with a double pass engraving for quality, clarity of mark, and longevity of the tool.

Technical Specifications:

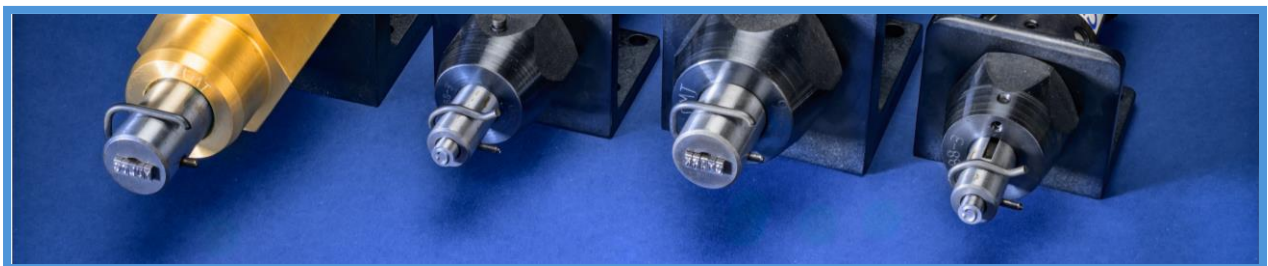
- Double pass engraved
(NOT EDM)
- W-1 Tool Steel
- 45 Degree engraving angle
- Sharp face character
- Gothic standard (San Serif) font
- Heat treated to 57-59 Rc
- Deburred
- Acc Coating for long life



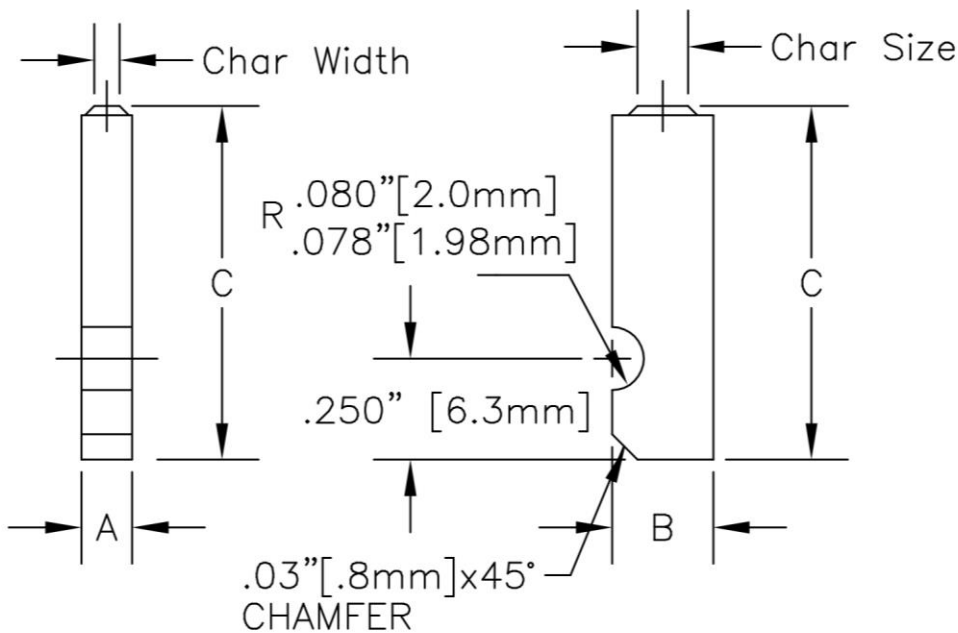
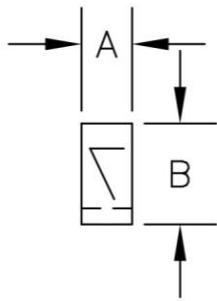
What Makes Columbia Marking Tools different?

- ✓ Quality Materials
- ✓ Precision Machining
- ✓ Double Pass Engraved
- ✓ Superior Heat Treating

Columbia Marking Tools manufactures all our stamps and dies in United States of America. Our factory in Chesterfield Michigan maintains the highest quality manufacturing standards.



Drawing



A = Width

B = Height

C = Length

Char Size –
Measured from the
top of the
character.

Char Width – Style
2A, width is 50%
of the character
size.

Tolerance -
 $+.000"/-.001"$ on all
dimensions.



Standard Dimensions

Char. Size	Catalog Number	"A"	"B"	"C"	Engraving Depth
1/32" .8mm	CMG03N	1/16" 1.6mm	1/8" 3.2mm	7/8" 22.2mm	.012" .3mm
3/64" 1.2mm	CMG05	3/64" 1.2mm	1/4" 6.3mm		.015" .32mm
1/16" 1.6mm	CMG06	1/16" 1.6mm	1/4" 6.3mm		.018" .5mm
5/64" 2.0mm	CMG08	5/64" 2.0mm	1/4" 6.3mm		.020" .5mm
3/32" 2.4mm	CMG09	3/32" 2.4mm	1/4" 6.3mm		.020" .5mm
1/8" 3.2mm	CMG13	1/8" 3.2mm	1/4" 6.3mm		.023" .6mm
5/32" 4mm	CMG16	3/16" 4.8mm	1/4" 6.3mm		.025" .6mm
5/32" 4mm	CMG16N	5/32" 4.6mm	1/4" 6.3mm		.025" .6mm
5/32" 4mm	CMG16W	5/32" 4mm	5/16" 7.9mm		.025" .6mm
3/16" 4.8mm	CMG19	3/16" 4.8mm	5/16" 7.9mm		.025" .6mm
1/4" 6.3mm	CMG25	1/4" 6.3mm	3/8" 9.5mm		.030" .8mm
5/16" 7.9mm	CMG31	5/16" 7.9mm	7/16" 11.1mm	1 25.4mm	.032" .8mm
3/8" 9.8mm	CMG38	3/8" 9.8mm	1/2" 12.7mm		.035" .9mm
1/2" 12.7mm	CMG50	1/2" 12.7mm	5/8" 15.9mm	1 1/8" 28.6mm	.050" 1.3mm

How to Order Standard Stamps

Build catalog number as shown.

- 1) Start with the basic model/stamp style.
- 2) Add the 2-digit character size notation.
- 3) Finish with the reading, alpha-numeric characters, punctuation codes, or Symbol numbers. Some symbols may require a double sized insert.

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

CMG	09	-A
Style	Char Size	Letter or Figure

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

CMG	13	-00
Style	Char Size	Blank Spacer

To order **PUNCTUATION** add suffix from [Table](#)

CMG	25	-RR
Style	Char Size	Asterisk Suffix

2 Digit Character Size

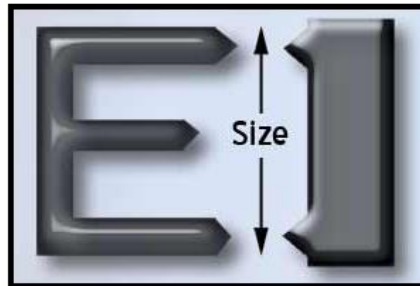
- 1/32" – 03
- 1/16" – 06
- 3/32" – 09
- 1/8" – 13
- 5/32" – 16
- 3/16" – 19
- 1/4" – 25
- 5/16" – 31
- 3/8" – 38
- 1/2" – 50



Character Face Styles

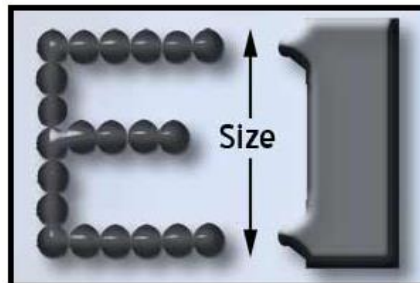
Standard Sharp Face

Standard CMF Flat Stamps are engraved as sharp face characters. This type of face style is engraved with a sharp edge. A sharp face tool penetrates more easily than flat face.



Custom Dot Style

Dot Style Characters are engraved with a series of conical 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.



To order individual **DOT STYLE** letters and figures add DOT notation to part number as shown.

CMG	09	DOT	-A
Style	Char Size	Dot-Style Notation	Letter or Figure

How to Order Multi-character or Logo Dies

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

L	CMG	13	-FoMoCo
----------	------------	-----------	----------------

Logo Die Style Char Size Stamp reads "FoMoCo". Width is A*6

L	CMG	13	-COMPANY
----------	------------	-----------	-----------------

Logo Die Style Char Size Stamp reads "COMPANY". Width is A*7

Dimensions for multi-character dies

MA = Number of characters in the legend x individual character width

B = Same as individual character height

C= Same as individual character length

Benefits of multi-character dies

1. Characters are exactly lined up.
2. Ability to reduce spacing or marking length.
3. Same wear, all characters mark same depth.
4. Easily add custom logos or characters



For Custom logo dies, please email artwork or logo, stamp style, and size required to quotes@columbiamt.com.

Multi-character Dimensions

MA = Width is determined by the number of character and spaces. Multiple the standard width of A by the total number of character and spaces.

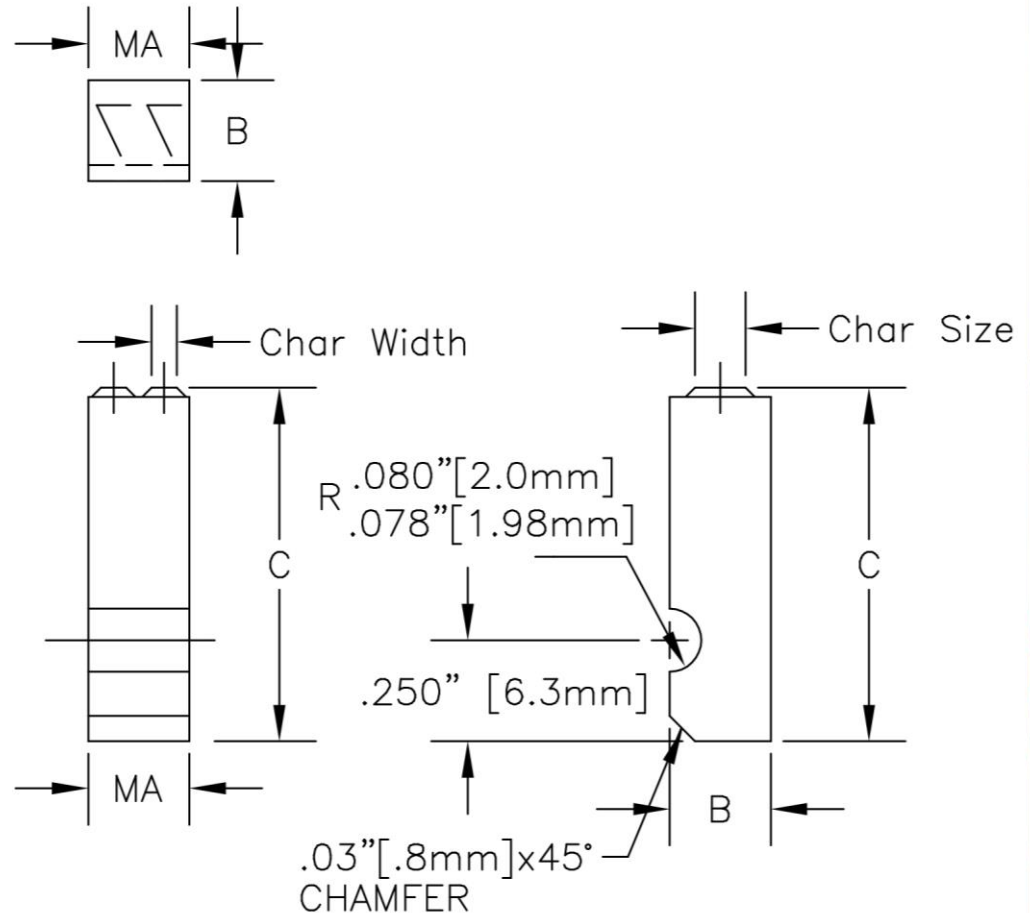
B = Height

C = Length

Char Size – Measured from the top of the character.

Char Width – Style 2A, width is 50% of the character size.

Tolerance - $\pm .000$ " / $\pm .001$ " on all dimensions.



Consideration for overall length of multi-character stamps:

- Spaces may be reduced to less than 1 standard space wide.
- Narrow characters may be reduced less than 1 standard space wide.
- A double wide stamp blank is required for some of the symbols. Symbols where the width is about the same as the height. One example is Symbol #110.

Special Length Stamps

These stamps are used when marking in a recess or needing additional reach to mark the part.

A = Width

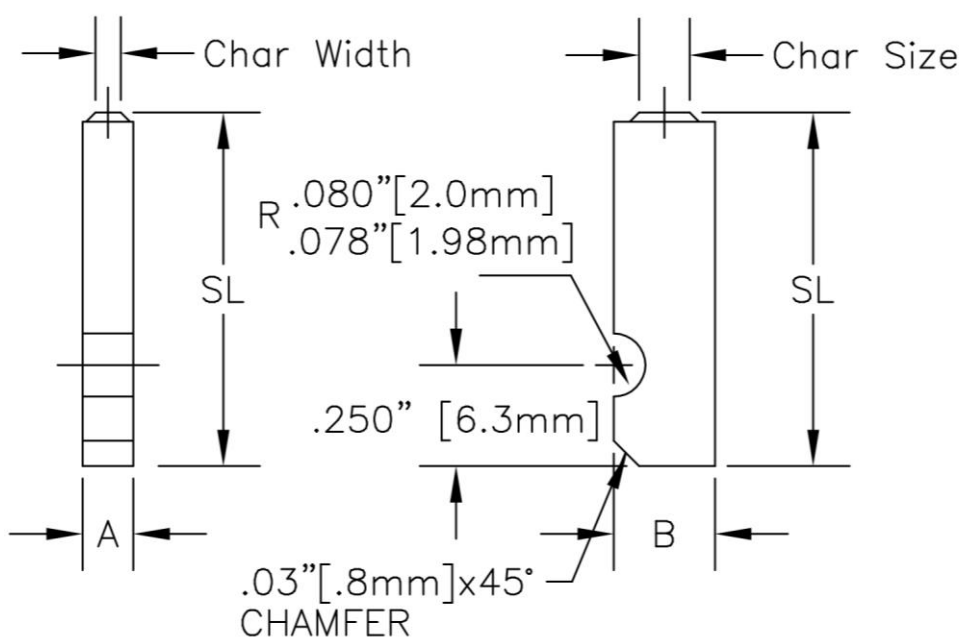
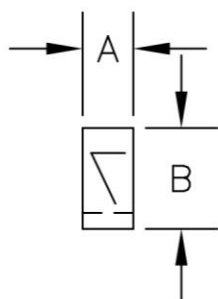
B = Height

SL = Special Length. Special lengths available for up to 2.5"

Char Size – Measured from the top of the character.

Char Width – Style 2A, width is 50% of the character size.

Tolerance - $\pm .000$ " / $-.001$ " on all dimensions.



To order individual **SPECIAL LENGTH** letters and figures add SL### notation to part number as shown.

CMG	13	SL100	-A
Style	Char Size	SL###, replace ### with the length required.	Letter or Figure

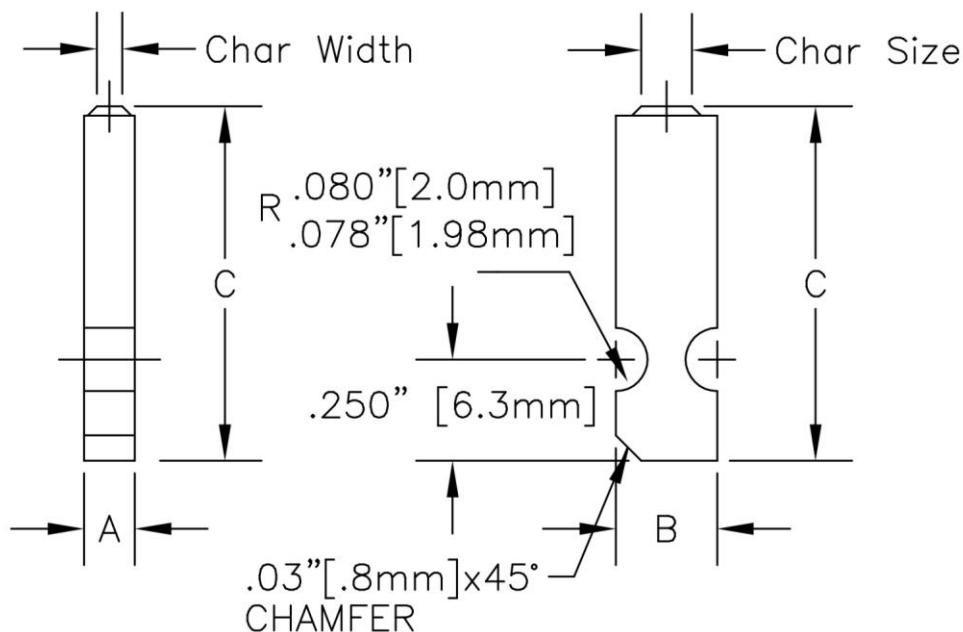
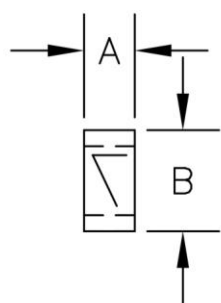
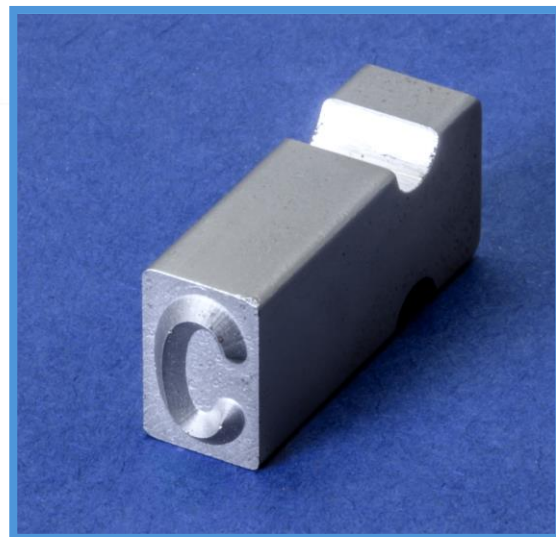
Special Length Dimensions

Char. Size	Catalog Number	"A"	"B"	"C"	Engraving Depth
1/32" .8mm	CMG03N	1/16" 1.6mm	1/8" 3.2mm	1/2" To 2.50" 12.7mm To 63.5mm	.012" .3mm
3/64" 1.2mm	CMG05	3/64" 1.2mm	1/4" 6.3mm		.015" .32mm
1/16" 1.6mm	CMG06	1/16" 1.6mm	1/4" 6.3mm		.018" .5mm
5/64" 2.0mm	CMG08	5/64" 2.0mm	1/4" 6.3mm		.020" .5mm
3/32" 2.4mm	CMG09	3/32" 2.4mm	1/4" 6.3mm		.020" .5mm
1/8" 3.2mm	CMG13	1/8" 3.2mm	1/4" 6.3mm		.023" .6mm
5/32" 4mm	CMG16	3/16" 4.8mm	1/4" 6.3mm		.025" .6mm
5/32" 4mm	CMG16N	5/32" 4.6mm	1/4" 6.3mm		.025" .6mm
5/32" 4mm	CMG16W	5/32" 4mm	5/16" 7.9mm		.025" .6mm
3/16" 4.8mm	CMG19	3/16" 4.8mm	5/16" 7.9mm		.025" .6mm
1/4" 6.3mm	CMG25	1/4" 6.3mm	3/8" 9.5mm		.030" .8mm
5/16" 7.9mm	CMG31	5/16" 7.9mm	7/16" 11.1mm		.032" .8mm
3/8" 9.8mm	CMG38	3/8" 9.8mm	1/2" 12.7mm		.035" .9mm
1/2" 12.7mm	CMG50	1/2" 12.7mm	5/8" 15.9mm		.050" 1.3mm

Double Groove Type – CMDG

These stamps are used when marking in a two-line holder or to offer flexibility in orientation of the marking legend. The dies may be used with either the pin at the top or bottom of the character.

More care must be used when setting up marking legends to assure all characters are in the proper orientation.



A = Width

B = Height

C = Length

Char Size –
Measured from
the top of the
character.

Char Width –
Style 2A, width is
50% of the
character size.

Tolerance -
+.000\"/>

To order individual **DOUBLE GROOVE** letters and figures add CMDG notation to part number as shown.

CMDG	13	-A
Style	Char Size	Letter or Figure

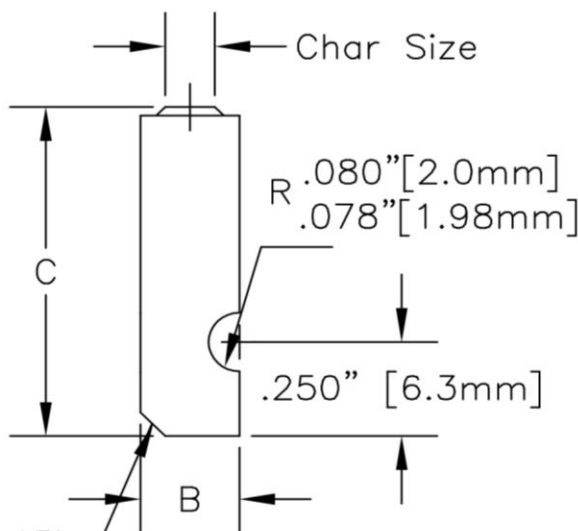
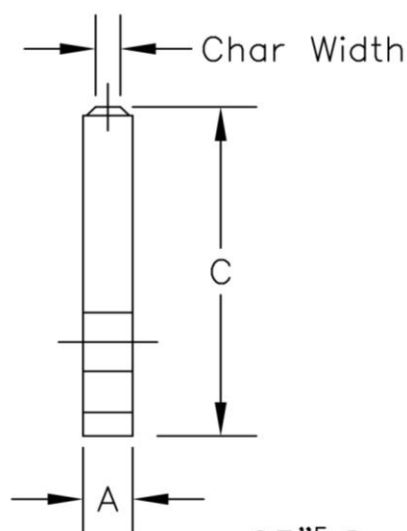
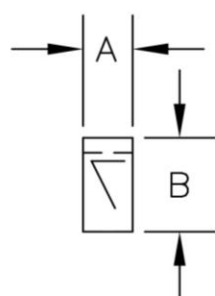
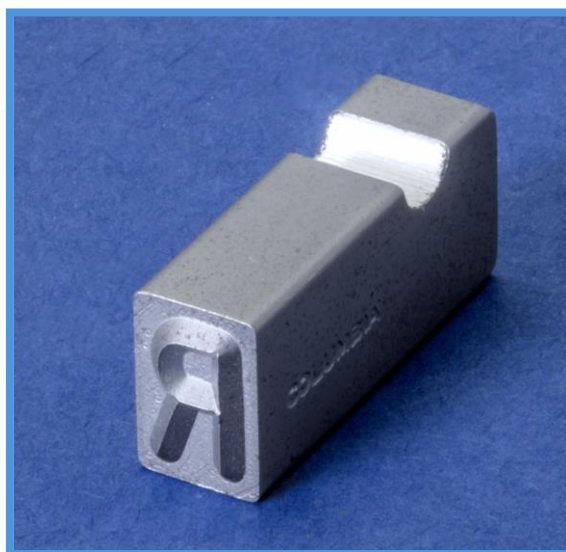
Double Groove Dimensions

Char. Size	Catalog Number	"A"	"B"	"C"	Engraving Depth
1/32" .8mm	CMDG03N	1/16" 1.6mm	1/8" 3.2mm	7/8" 22.2mm	.012" .3mm
3/64" 1.2mm	CMDG05	3/64" 1.2mm	1/4" 6.3mm		.015" .32mm
1/16" 1.6mm	CMDG06	1/16" 1.6mm	1/4" 6.3mm		.018" .5mm
5/64" 2.0mm	CMDG08	5/64" 2.0mm	1/4" 6.3mm		.020" .5mm
3/32" 2.4mm	CMDG09	3/32" 2.4mm	1/4" 6.3mm		.020" .5mm
1/8" 3.2mm	CMDG13	1/8" 3.2mm	1/4" 6.3mm		.023" .6mm
5/32" 4mm	CMDG16	3/16" 4.8mm	1/4" 6.3mm		.025" .6mm
5/32" 4mm	CMDG16N	5/32" 4.8mm	1/4" 6.3mm		.025" .6mm
5/32" 4mm	CMDG16W	5/32" 4mm	5/16" 7.9mm		.025" .6mm
3/16" 4.8mm	CMDG19	3/16" 4.8mm	5/16" 7.9mm		.025" .6mm
1/4" 6.3mm	CMDG25	1/4" 6.3mm	3/8" 9.5mm		.030" .8mm
5/16" 7.9mm	CMDG31	5/16" 7.9mm	7/16" 11.1mm	1 25.4mm	.032" .8mm
3/8" 9.8mm	CMDG38	3/8" 9.8mm	1/2" 12.7mm		.035" .9mm
1/2" 12.7mm	CMDG50	1/2" 12.7mm	5/8" 15.9mm	1 1/8" 28.6mm	.050" 1.3mm

Reverse Groove – CMGR

These stamps have the groove on the top of the character and are used when flexibility in orientation of the marking legend is required.

The Reverse Groove is a great solution to use for orientation issues and has more strength than the double groove. In addition, the stamps will all be setup in the same direction. There will be Less errors in marking legend setup as compared to the CMDG.



.03\"[.8mm]x45°
CHAMFER

A = Width

B = Height

C = Length

Char Size –
Measured
from the top
of the
character.

Char Width –
Style 2A,
width is 50%
of the
character
size.

Tolerance -
+.000\"/>

To order individual **SPECIAL LENGTH** letters
and figures add CMGR notation to part
number as shown.

CMGR	13	-A
Style	Char Size	Letter or Figure

Reverse Groove Dimensions

Char. Size	Catalog Number	"A"	"B"	"C"	Engraving Depth
1/32" .8mm	CMGR03N	1/16" 1.6mm	1/8" 3.2mm	7/8" 22.2mm	.012" .3mm
3/64" 1.2mm	CMGR05	3/64" 1.2mm	1/4" 6.3mm		.015" .32mm
1/16" 1.6mm	CMGR06	1/16" 1.6mm	1/4" 6.3mm		.018" .5mm
5/64" 2.0mm	CMGR08	5/64" 2.0mm	1/4" 6.3mm		.020" .5mm
3/32" 2.4mm	CMGR09	3/32" 2.4mm	1/4" 6.3mm		.020" .5mm
1/8" 3.2mm	CMGR13	1/8" 3.2mm	1/4" 6.3mm		.023" .6mm
5/32" 4mm	CMGR16	3/16" 4.8mm	1/4" 6.3mm		.025" .6mm
5/32" 4mm	CMGR16N	5/32" 4.6mm	1/4" 6.3mm		.025" .6mm
5/32" 4mm	CMGR16W	5/32" 4mm	5/16" 7.9mm		.025" .6mm
3/16" 4.8mm	CMGR19	3/16" 4.8mm	5/16" 7.9mm		.025" .6mm
1/4" 6.3mm	CMGR25	1/4" 6.3mm	3/8" 9.5mm		.030" .8mm
5/16" 7.9mm	CMGR31	5/16" 7.9mm	7/16" 11.1mm	1 25.4mm	.032" .8mm
3/8" 9.8mm	CMGR38	3/8" 9.8mm	1/2" 12.7mm		.035" .9mm
1/2" 12.7mm	CMGR50	1/2" 12.7mm	5/8" 15.9mm	1 1/8" 28.6mm	.050" 1.3mm

Center Groove – CMV

These stamps have the groove near the middle of the stamp. The CMV style groove stamps are uniquely used in the Mite-E-Mark 78-GA rod. The Mite-E-Mark GA rod is offered for applications with “extreme” vibrations. GA uses the upgraded Pin and O ring method of retention, and this is the most secure method of retention.



A = Width

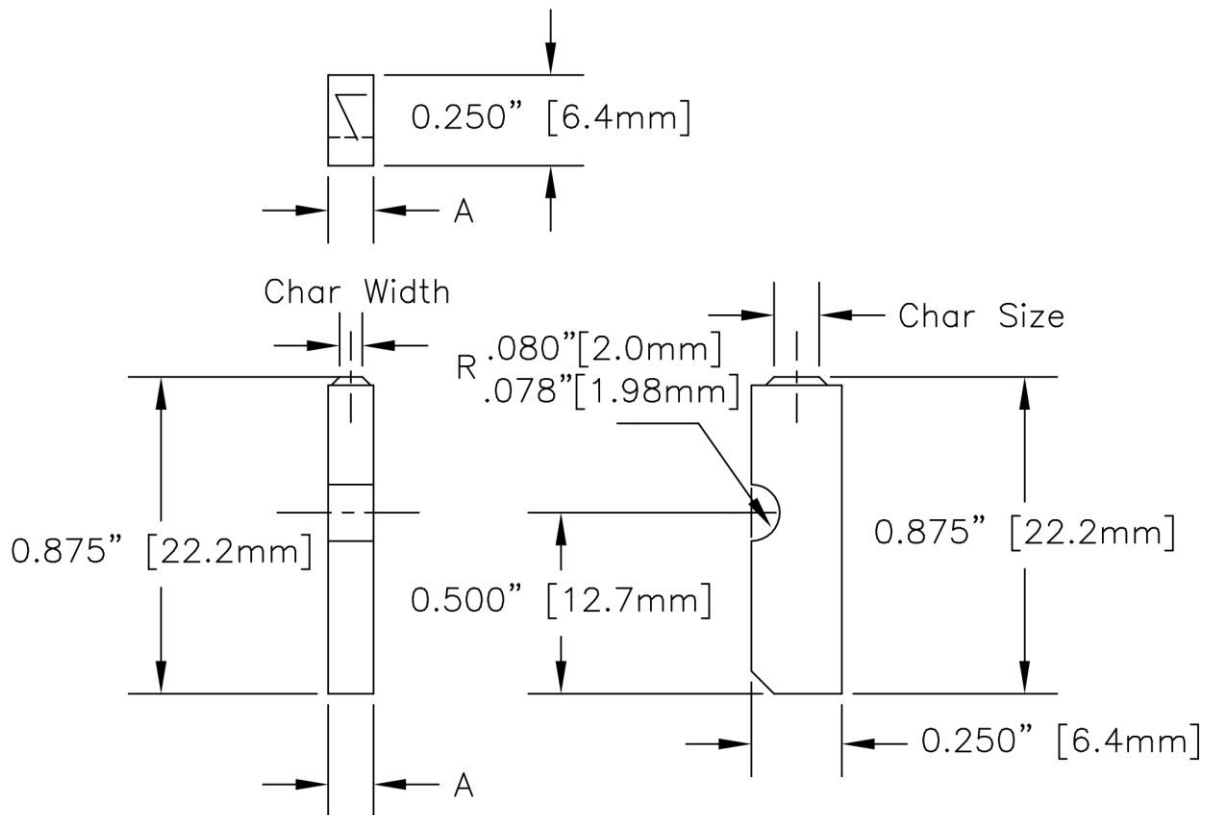
Char Size – Measured from the top of the character.

B = .25" [6.4mm]

Char Width – Style 2A, width is 50% of the character size.

C = .875" [22.2mm]

Tolerance - $\pm .000$ / $-.001$ " on all dimensions



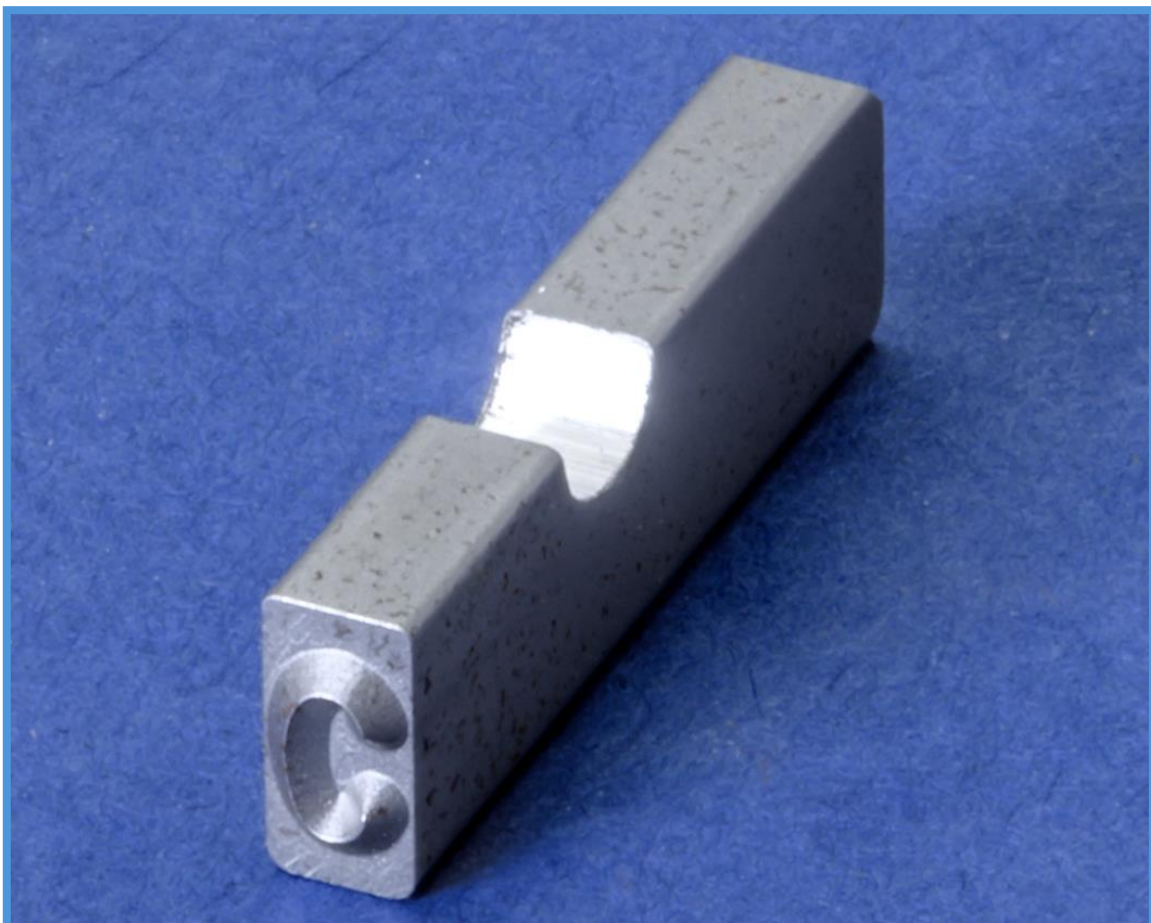
Center Groove Dimensions

Char. Size	Catalog Number	"A"	Engraving Depth
1/16" 1.6mm	CMV06	1/16" 1.6mm	.018" .5mm
3/32" 2.4mm	CMV09	3/32" 2.4mm	.020" .5mm
1/8" 3.2mm	CMV13	1/8" 3.2mm	.023" .6mm

The CMV has limited character sizes available because of the limited type capacity of the Model 78 Mite-E-Mark.

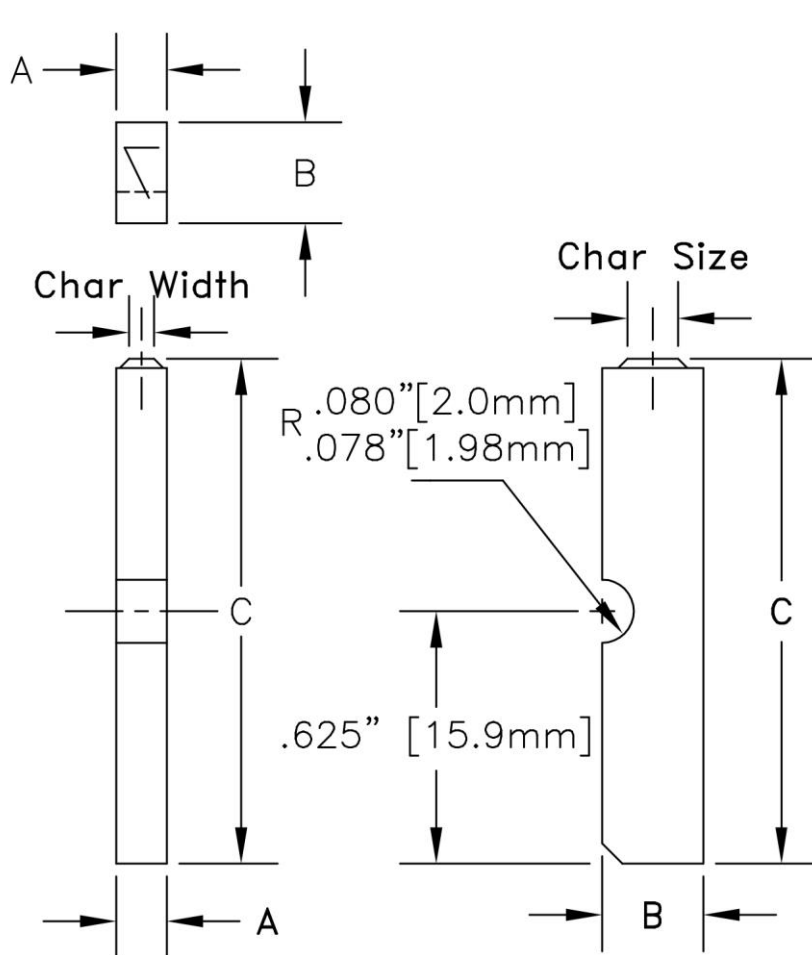
To order individual **CENTER GROOVE** letters and figures add CMV notation to part number as shown.

CMV	13	-A
Style	Char Size	Letter or Figure



Long Groove – CMC

The CMC long groove type are used in non-CMT products. These include customer made holders and dies sets.



A = Width

B = Height

C = Length

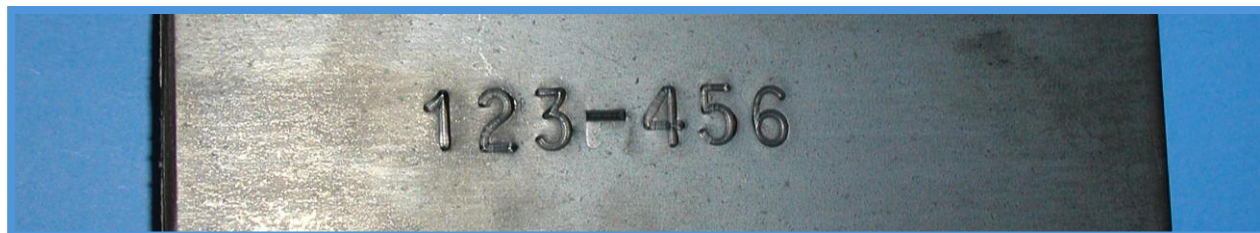
Char Size –
Measured from
the top of the
character.

Char Width –
Style 2A, width
is 50% of the
character size.

Tolerance -
+.000\"/>

To order individual **LONG GROOVE** letters
and figures add CMC notation to part number
as shown.

CMC	13	-A
Style	Char Size	Letter or Figure



Long Groove Dimensions

	Catalog Number	"A"	"B"	"C"	Engraving Depth
1/32" .8mm	CMC03	1/16" 1.6mm	1/4" 6.3mm	1 1/4" 31.75mm	.012" .3mm
1/16" 1.6mm	CMC06	1/16" 1.6mm	1/4" 6.3mm		.018" .5mm
3/32" 2.4mm	CMC09	3/32" 2.4mm	1/4" 6.3mm		.020" .5mm
1/8" 3.2mm	CMC13	1/8" 3.2mm	1/4" 6.3mm		.023" .6mm
5/32" 4mm	CMC16	3/16" 4.8mm	5/16" 7.9mm		.025" .6mm
3/16" 4.8mm	CMC19	3/16" 4.8mm	5/16" 7.9mm		.025" .6mm
1/4" 6.3mm	CMC25	1/4" 6.3mm	3/8" 9.5mm		.030" .8mm
5/16" 7.9mm	CMC31	5/16" 7.9mm	7/16" 11.1mm		.032" .8mm
3/8" 9.8mm	CMC38	3/8" 9.8mm	1/2" 12.7mm		.035" .9mm



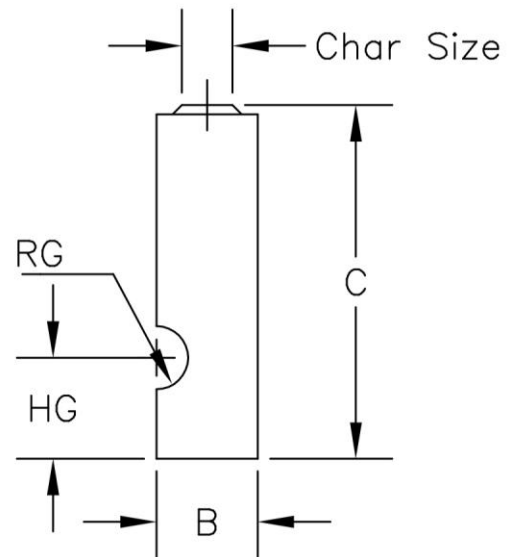
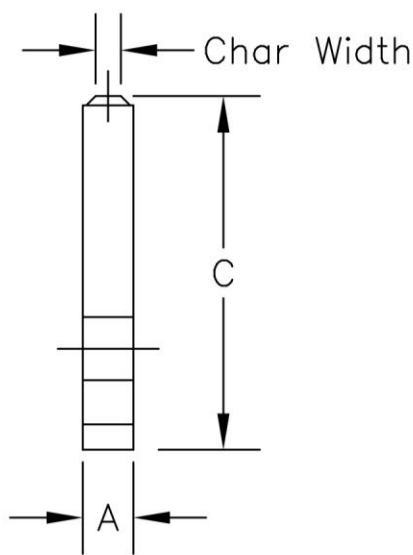
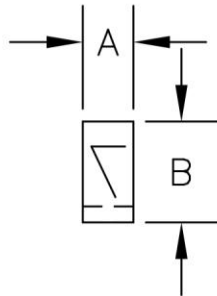
Custom Groove Dies

Columbia Marking Tools can design and manufacture custom flat type and dies. CMT can provide a quotation to any customer custom print. The print or the request may be sent to quotes@columbiamt.com.



Parameters:

- Character Size
- A – Width
- B – Height
- C – Length
- RG – Radius of groove
- HG – Height of center of groove
- Font
- Material
- Engraving Angle
- Engraving Depth



CMT will provide standard parameters for any component not defined by request or print.



Logo Stamp to Fill Stamp Holder

The quickest way to changeover between part number is to have a solid die made to fill the stamp holder or marking die pocket. The added benefits of using a solid die are in the resulting mark with the same depth and perfectly lined up marking legend.

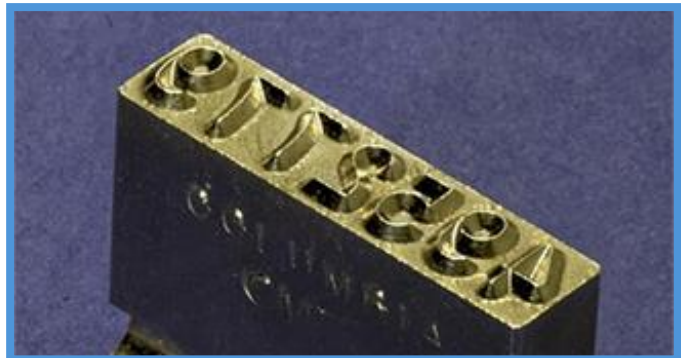
Model	Rod Style	Char. Size	Catalog Number	Number of Characters
88/288 75/85/95	OA	1/16" 1.6mm	LCMG06C4	4
88/288 75/85/95	OA	1/8" 3.2mm	LCMG13C2	2
88/288 75/85	OAS38	1/16" 1.6mm	LCMG06C6	6
88/288 75/85	OAS38	3/32" 2.4mm	LCMG09C4	4
98/298	OA	1/8" 3.2mm	LCMG13C5	5
98/298	OAS75	1/8" 3.2mm	LCMG13C6	6
651/751/851	OA	1/8" 3.2mm	LCMG13C5	5
651/751/851	OAS75	1/8" 3.2mm	LCMG13C6	6

Use the catalog code reflecting the Model and character size needed.

Then add the reading on the end of the part number. Include the notation of (sp) for spaces required if any.

For most characters the following easy equation will tell you the number of characters that can be fit on the solid die to fill a die pocket.

Pocket Width / Character Size =
Number of characters



Standard Font

Columbia Marking Tools uses a font called “Gothic”. This sans serif font is plain and easy to read.

A B C D E F G H I J K L M
N O P Q R S T U V W X Y Z
0 1 2 3 4 5 6 7 8 9

” # / , : . * ~ - > < + % \$ = & x

The alpha/numeric listing above is a reference for the style of font CMT uses. However, there are slight variations between different manufacturing processes.

Even from year to year, the exact font changes slightly. The top part on figure 3, or the top flag on the figure one may be slightly more curved or a different size. CMT strongly recommends providing a picture or rubbing for the exact font recreation when required.



Punctuation

All CMT standard die and stamps are available with a wide variety of punctuation or symbols.

How to order:

For a CMG 3/8" groove type with an Ampersand - the following code would be used:

CMG38AA

To order punctuation on a die or stamps use the appropriate code from the following list.



- AA Ampersand (&)
- BB Dollar Sign (\$)
- BS Back Slash (\)
- CC Comma (,)
- DD Dash (-)
- EE Equals Sign (=)
- GG Semi Colon (;)
- HH Apostrophe (')
- II Inch Mark, Quotes (")
- JJ Underscore (_)
- KK Question Mark (?)
- LL Colon (:)
- MM Multiplication (X)
- NN Number Sign (#)
- Degree Symbol (°)

- PP Period (.)
- QQ Percent Sign (%)
- RR Asterisk (*)
- SS Slash, Diagonal (/)
- TT Number Sign (#)
- US Underscore (_) use JJ
- UU Plus Sign (+)
- VV Left Parenthesis [(
- WW Right Parenthesis ()]
- YY Exclamation Point (!)
- ZZ At Sign (@)
- REG- Registration Symbol (®)
- PEN- Pentastar
- PUN- Punctuation Other Examples <
> ^ ~ []