CyberMetrics
GD&T™ Font 4.0

GEOMETRIC DIMENSIONING AND TOLERANCING FONT

Complies with ASME Y14.5, ISO 1101

and QS-9000 symbol requirements

International Institute of GD&T
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Stillwater, Minnesota 55082
651-275-8952
www.iigdt.com

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Special Thanks

CyberMetrics would like to thank Dr. Greg Hetland of the International Institute of Geometric Dimensioning and Tolerancing (iigdt.com) for his suggestions and feedback during the development of GD&T Font Version 4.

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Introduction

CyberMetrics GD&T Font 4.0, is a professionally designed, affordably priced font designed for creating ANSI/ASME/ISO GD&T symbols and feature control frames. The font also includes the QS-9000 critical characteristic and safety symbols used within the automotive industry. GD&T Font lets you enter geometric dimensioning and tolerancing symbols in CAD, word processing, database, spreadsheet, and flowcharting programs using only your mouse or keyboard.

Features

- Easy to install, simple to use Windows TrueType font
- Includes symbols used in geometric dimensioning and tolerancing
- Special characters make it easy to create composite feature control frames
- Surface finish symbols
- QS-9000 critical characteristic and safety symbols
- Letters, numbers, and other useful drafting symbols
- Professionally designed to comply with ANSI/ASME Y14.5M, ISO 1101, and QS-9000 requirements
- Carefully crafted to provide optimal results even at very small or large point sizes
- Can be used with any printer that supports TrueType fonts
- Works exactly like other Windows symbol fonts with your existing software[*]

Benefits

- Helps you create better-looking, professional-grade documents using *real* GD&T and QS-9000 symbols instead of letter codes and abbreviations

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[*] Works with any software application that allows you to choose fonts and specify their size and line spacing, including Word, Excel, Lotus 1-2-3, MS Access, Visio, Flowcharter, Paintbrush, and many others.

- Makes it easy for you to accurately convey GD&T tolerancing requirements, features, critical characteristics, and safety symbols
- Works on both Windows and Macintosh computers (Macintosh font files are also included)
- Entering symbols with your mouse or keyboard instead of creating them in a drawing program saves time and provides consistent appearance

What's New in Version 4.0?

We've added 13 new symbols to GD&T Font 4.0, including 7 surface finish symbols, 5 statistical symbols, and the μ symbol. Not only that, we've added all of these symbols without removing existing symbols or changing their location on the keyboard, to ensure that backward compatibility with previous versions of GD&T Font is preserved.

Installing GD&T Font

Save all open documents and exit all running applications; then insert the GD&T Font CD in your CD drive and double-click on the installer file Setup.exe.

The GD&T Font installer will install GD&T Font in your Fonts folder so it is ready for use. It will also create a folder titled "GD&TFont" on your hard drive; the path will be C:\Program Files\GD&TFont. This folder will contain a copy of the GD&T font manual and a character chart in Microsoft Word format.

Upgrading from an earlier version of GD&T Font

If you are upgrading from an earlier version of GD&T Font, you must uninstall the earlier version before installing GD&T Font 4.0. To uninstall an earlier version:

1. Go to **Start | Settings | Control Panels**
2. Double-click on the **Fonts** icon to open the **Fonts** window.
3. Select **CyberMetricsGDT** in the **Fonts** window, then press the **DELETE** key.
4. A message will appear asking you to confirm that you wish to delete the font. Click **Yes** to continue; the font will be deleted.

You can now install GD&T Font 4.0.

Using GD&T Font

You can use any of the following methods to insert font symbols into your applications.

> **Note:** If you will be using symbols from GD&T Font in Microsoft Excel 97 SR-2, please follow the special instructions for character entry described in the section "Character Display in Excel 97 SR-2" on page 13 of this manual.

Application Symbol Selection Window

Many applications offer a command for inserting font symbols from a symbol selection window. For example, in Microsoft Word, choose **Insert | Symbol**; a symbol selection window appears:
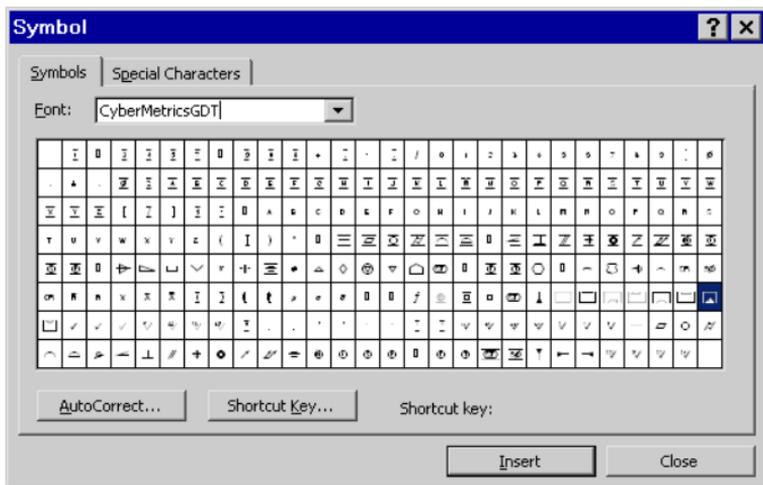
◎To copy the symbol to your document, double-click on it or click the *Insert* button.

Note: The exact appearance and operation of this window may vary depending on the operating system and version of Microsoft Word you are running.

Character Map Utility

If your application does not have a built-in symbol selection utility, you can use the Windows Character Map utility instead **(Start | Accessories | System Tools | Character Map).**
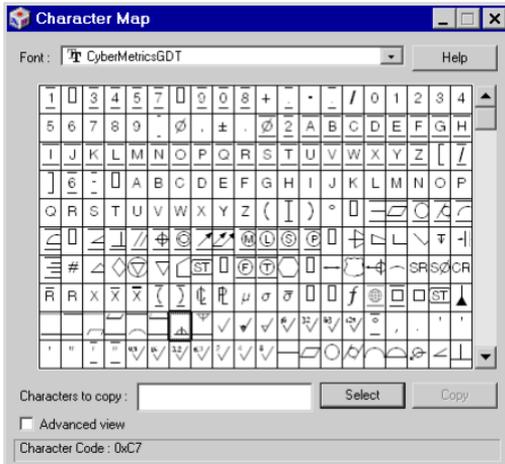
Follow these steps to enter characters from the Character Map utility.

1. Place the text cursor at the place in your document where you want to enter GD&T symbols. Set the font to *CyberMetricsGDT*.

2. Run the Character Map utility (located in the **Accessories | System Tools** program group).

3. Set the Character Map font to *CyberMetricsGDT*.

4. Select one or more symbols to copy by double-clicking on the symbol(s) or clicking the *Select* button. Click once on a symbol in the grid to view it at a larger size.

5. Click the *Copy* button. You can close the **Character Map** utility or leave it running in the background until you need it again.

6.   Return to your document and paste the symbols into it by choosing **Paste** from your application's **Edit** menu or by pressing **CTRL-V** on your keyboard).

Note: The exact appearance and operation of this window may vary depending upon the operating system you are running.

Microsoft Word Character Chart

A character chart in Microsoft Word format is included on the GD&T font disk. If you wish, you can copy characters from this document into your own Microsoft Word documents.

Keyboard Entry of GD&T Symbols

The alphanumeric characters a-z, 1-0, are easily entered by typing those characters on the keyboard; hold down the shift key for A-Z and !-). The left bracket ([) enters the left-hand border of a feature control frame; similarly, the right bracket (]) enters the right-hand border and the vertical line (|) enters an interior division. Thus, A|B is entered [A|B].

Other symbols may be entered in Windows by entering the appropriate **ALT+ASCII DECIMAL CODE**. The ASCII Decimal Symbol Table on the next page shows which characters are associated with which ASCII codes.

Follow these steps to enter symbols from the keyboard:

1.   Place the text cursor in your document where you want to enter GD&T symbols. Set the font to *CyberMetricsGDT*.

2.   Look up the symbol's 4-digit code number in the ASCII Decimal Table on page 8 of this manual.

3.   While holding your **ALT** key down, type the 4-digit code number using the numeric key pad on the right side of your keyboard (do not use the number keys at the top of your keyboard).

4.   Release the **ALT** key; the symbol will appear on your screen.

For example, press **ALT-0133** to produce this symbol: ⌒

CyberMetrics GD&T Font– ASCII Decimal Symbol Table (Windows)

NUL	0001	0002	0003	0004	0005	0006	0007	0008	0009	0010	0011	0012	0013	0014	0015
0016	0017	0018	0019	0020	0021	0022	0023	0024	0025	0026	0027	0028	0029	0030	0031
0032	0033	0034	0035	0036	0037	0038	0039	0040	0041	0042	0043	0044	0045	0046	0047
space	1̄		3̄	4̄	5̄	7̄		9̄	0̄	8̄	+	⁻.	-	⁻.	/
0048	0049	0050	0051	0052	0053	0054	0055	0056	0057	0058	0059	0060	0061	0062	0063
0	1	2	3	4	5	6	7	8	9	⁻.	∅	,	±	.	∅̄
0064	0065	0066	0067	0068	0069	0070	0071	0072	0073	0074	0075	0076	0077	0078	0079
2̄	Ā	B̄	C̄	D̄	Ē	F̄	Ḡ	H̄	Ī	J̄	K̄	L̄	M̄	N̄	Ō
0080	0081	0082	0083	0084	0085	0086	0087	0088	0089	0090	0091	0092	0093	0094	0095
P̄	Q̄	R̄	S̄	T̄	Ū	V̄	W̄	X̄	Ȳ	Z̄	[	/̄	]	6̄	⁻.
0096	0097	0098	0099	0100	0101	0102	0103	0104	0105	0106	0107	0108	0109	0110	0111
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
0112	0113	0114	0115	0116	0117	0118	0119	0120	0121	0122	0123	0124	0125	0126	0127
P	Q	R	S	T	U	V	W	X	Y	Z	(	I	)	°	Del
0128	0129	0130	0131	0132	0133	0134	0135	0136	0137	0138	0139	0140	0141	0142	0143
⎯	⟋	○	⌀⟋	⌒	⌓	▯	≤	⊥	∥	⊕	◎	↗	⟗	Ⓜ	Ⓛ
0144	0145	0146	0147	0148	0149	0150	0151	0152	0153	0154	0155	0156	0157	0158	0159
Ⓢ	Ⓟ	▯	▷	◝	⊔	∨	⊽	⊣⊢	≡	#	△	◇	◹	▽	⌓
0160	0161	0162	0163	0164	0165	0166	0167	0168	0169	0170	0171	0172	0173	0174	0175
⟨ST⟩		Ⓕ	Ⓣ	◇		↔	⌔	↔⊕	⌒	SR	SØ	CR	R̄	R	X
0176	0177	0178	0179	0180	0181	0182	0183	0184	0185	0186	0187	0188	0189	0190	0191
X̄	X̿	(	)	₵	₽	μ	σ	σ̄			f	⊕	▱	□	⟨ST⟩
0192	0193	0194	0195	0196	0197	0198	0199	0200	0201	0202	0203	0204	0205	0206	0207
▲	▢	▢	⌓	⌒	⌒	⌒	⏦	Ψ̄	✓	✓	✓	¹⁶✓	³²✓	⁶³✓	¹²⁵✓
0208	0209	0210	0211	0212	0213	0214	0215	0216	0217	0218	0219	0220	0221	0222	0223
○̄	,	.	'	'	ʼ	"	̄'	̄"	⁰·⁸✓	¹⁶✓	³²✓	⁶³✓	²✓	⁴✓	⁸✓
0224	0225	0226	0227	0228	0229	0230	0231	0232	0233	0234	0235	0236	0237	0238	0239
⎯	⟋	○	⌀⟋	⌒	⌓	⌔	≤	⊥	∥	⊕	◎	↗	⟗	≡	Ⓜ
0240	0241	0242	0243	0244	0245	0246	0247	0248	0249	0250	0251	0252	0253	0254	0255
Ⓛ	Ⓢ	Ⓟ		Ⓕ	Ⓣ	⟨ST⟩	SØ	▼	►	◄	⁰·⁰⁵✓	⁰·¹✓	⁰·²✓	⁰·⁴✓	

Composite feature control frames

GD&T Font includes characters designed to make it easier to create composite feature control frames in any application. A composite feature control frame consists of two rows of characters preceded by a geometric characteristic symbol as shown here:
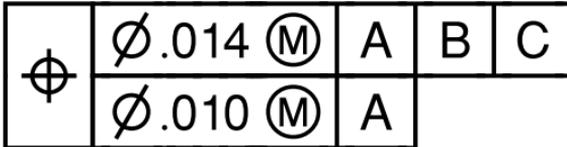
To make this possible using only the characters in a font without having to create a table in a word processor or spreadsheet program, or by drawing boxes in a drawing program, it is necessary to split some symbols so that a character for the top half of the symbol is entered at the beginning of the first line of the frame, and a corresponding character for the bottom half of the symbol is entered at the beginning of the second line. Thus, the composite feature control frame illustrated above consists of two lines; the first is

and the second is
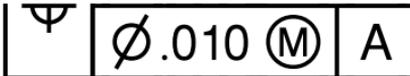
To create a composite feature control frame, follow these steps:

1.   In your word processing or other application, set the font to *CyberMetricsGDT* at an appropriate size. (The examples shown in this manual are set at 24 point.)

2.   Set the line spacing (sometimes called *leading*) to match the point size of the font exactly; that is, if your font is 24 point, your line spacing should be set to 24 point as well. This will ensure that the borders of your composite feature control frame align properly.
    Note: The location of line spacing controls may vary according to the application you are using. Often line spacing is controlled as a part of paragraph formatting. This is true in Microsoft Word. To set line spacing in Word, select **Format | Paragraph…** The following dialog box appears:
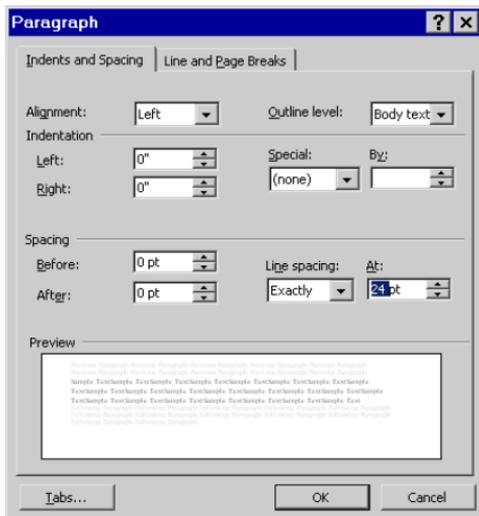
Choose **Exactly** from the drop-down box labeled **Line spacing**; set the value in the At field equal to the point size of the font (in this case, 24 point) and click the **OK** button. Many word processing applications and spreadsheets are set by default to add a little extra space between lines of text in a paragraph. If this spacing is left alone, the lines of your composite feature control frame will be spaced too far apart and its borders will not align correctly.
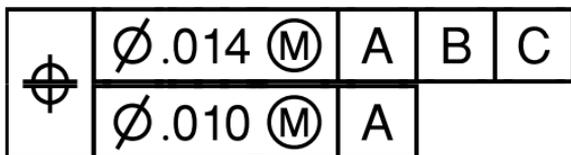
The characters shown here are 24-point; line spacing for the paragraph is left at Microsoft Word's default value, so the borders of this composite feature frame do not meet.
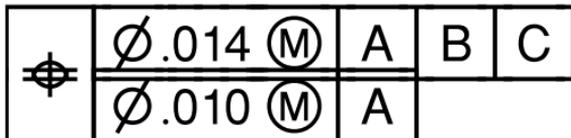
The line spacing of this paragraph is set to 21 points, so the borders of this composite feature frame overlap.

The line spacing of this paragraph is set to 24 points, to match the point size of the characters; this composite feature frame fits together correctly.

3. Enter the character for the top half of the desired geometric symbol; for instance, [⬡] .

4. Then, enter a left bracket character ([ ) as you would at the beginning of a feature control frame and continue entering the characters in the first line.

5. Begin a new line and enter the characters for the second line of the composite feature frame, in the same way you entered the characters in the first line, beginning with the character for the bottom half of the desired geometric symbol; in this case, [▽] .

The thin space *character*

The borders of some composite feature control frames may not align vertically if provision is not made to space them out properly, as seen in the example below:

To remedy this, we have provided a *thin space* character. Use this character to fill out spaces in a composite feature control frame so that its vertical borders align correctly. This character is entered as **ALT** + 0058, or more simply by typing a colon where desired. In the example shown below, we have entered several thin spaces between the s̄ and the Ⓜ̄ characters to ensure that the borders of the boxes to the right of these characters align properly.

The datum feature *character*

GD&T Font 4.0 provides *datum feature* characters (⅃ ⊺ ►– –◄).
These characters are used as shown below:
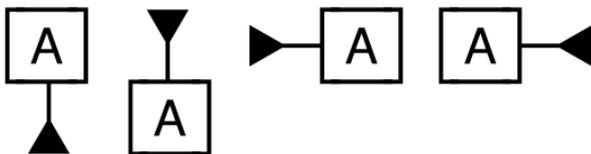
        As with feature control frames, to ensure a proper fit with the
characters on the line above or below (A), the line spacing of
paragraphs containing the datum feature character must match the
point size of the font exactly.

Tech Tips

Character Display in Excel 97 SR-2

Certain extended characters in GD&T Font (in particular, many of those with ASCII decimal codes 0128 through 0159) do not display or print correctly in Microsoft Excel 97 SR-2 and in subsequent updates to SR-2, under Microsoft Windows 95 or 98.

This problem is not limited to GD&T Font; it affects many other symbol fonts that use extended ASCII characters, including Webdings and Wingdings. It appears whether characters are entered by hand using ASCII decimal codes or through the Character Map utility. (Excel 97 does not have a built-in **Insert Symbol** feature.)

Article **Q264184** in Microsoft's online support knowledge base *(http://search.support.microsoft.com)* explains: "Excel 97 SR-2 does not handle some Unicode mapping correctly in Windows 95/98." In other words, this version of Excel is unable to convert some keystrokes in some fonts into the characters those keystrokes represent.

To find out if you are running Excel 97 SR-2, select **About Microsoft Excel** from Excel's **Help** menu. The exact version is displayed in the first line of copy below the title bar of the **About Microsoft Excel** window.

Solutions

1. According to Microsoft, this problem does not occur in Excel 2000; therefore, upgrading to Excel 2000 or later should correct it.

2. This problem can also be dealt with by generating the desired characters in Microsoft Word through **Insert | Symbol...**, selecting and copying them, then pasting them into Excel using the **Paste Special...** command. Select *Unicode Text* in the **Paste Special** dialog box

as shown here and click *OK.* The text will appear as a
series of boxes in your worksheet; select this text and
format it as *CyberMetricsGDT*.
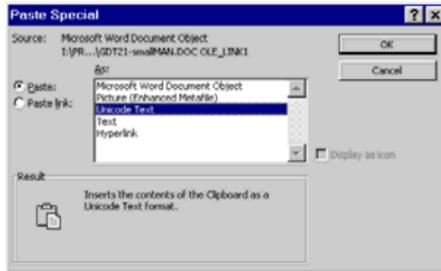
Frequently Asked Questions about GD&T Font

Standards used in symbol design

**Q. Do the symbols in GD&T Font comply to internationally
recognized standards?**

A. The symbols in GD&T Font are designed in compliance with *ASME
Y14.5M-1994 (Reaffirmed 1999)* and meet ASME/ANSI/ISO
standards. Critical characteristic and safety symbols used within the
automotive industry are based on the QS-9000 quality standard.

Copying from one application to another

**Q. I copied a series of GD&T symbols from a document in one
application and pasted them into another document in a
different application. The characters I pasted appeared in the
wrong font and the wrong size. Why didn't they appear in
GD&T Font after I pasted them?**

A. Formatting information is usually lost when copying from one
application to another, either because the receiving application
cannot interpret the formatting information correctly or because the
sending application simply does not allow formatting to be copied.
    Unfortunately, there is no reliable workaround for this problem;
you must select the characters and reformat them in GD&T Font.

Displaying GD&T characters on a web site

Q. How do I display GD&T characters on my web site?

A. We recommend that you use a graphics program such as PC Paintbrush, Adobe Photoshop, or Macromedia Fireworks to create the elements you want and save or export them as a GIF or JPEG graphic.

Sending a document to other people

Q. I want to send a document containing GD&T characters to someone who doesn't have the font. Can I send them a copy of the font?

A. Giving a copy of GD&T Font to anyone who is not licensed to use it violates your user license agreement. If you need to send someone a document containing GD&T characters, we recommend that you use Adobe Acrobat to create a PDF (Portable Document Format) version of the document with the font embedded.

Other Products

CyberMetrics, the developer of GD&T Font, offers other calibration management and maintenance management products you may find useful. Here is a small sampling; for more information on these products, please call CyberMetrics Sales at **1-800-777-7020** or visit *www.cybermetrics.com* on the World Wide Web.

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