Y14.5M-2009.ttf & WeldSymbols.ttf

© Peter Kanold 2010

These fonts are public domain freeware - copying & redistributing it is encouraged.
You may use them in what ever personal or commercial way you would like. Credit to me if it is used in a commercial package would be nice but is not mandatory.

This font follows the guideline of the ASME Y14.5M-2009 technical specification. Rather than reverse engineering this font you would likely be better off just going right to the standard for the complete font details.

The font is specifically designed for use in geometric dimensioning & tolerancing. If you are unaware of what GD&T is, the following will be pretty much gibberish:

The font is capable of producing both boxed (basic) & unboxed feature control frames
It includes some rudimentary surface finish and welding symbols as well.

Be aware that some programs allow only characters with ASCII values of 255 or less. Because of this I created the WeldSymbols.ttf font. It has the welding symbols with ASCII values of 255 or less.

There is also a Windows program available that will make creating feature control frames, surface finish and welding symbols much easier. It's called *Y14.5M-2009.exe*. It should be available some where in the web. It creates some font strings for feature control frames, but creates BMP bitmaps of the composite, surface finish and welding symbols. It is nothing fancy but does the jobs. I hope to upload it to www.fontspace.com for those interested in using it, but I am not sure if this is allowed by the web site. We shall see. For the program to run, both the *WeldSymbols.ttf* font and the *Y14.5M-2009.ttf* must be installed of the target PC.

Y14.5M-2009 Standard Symbols
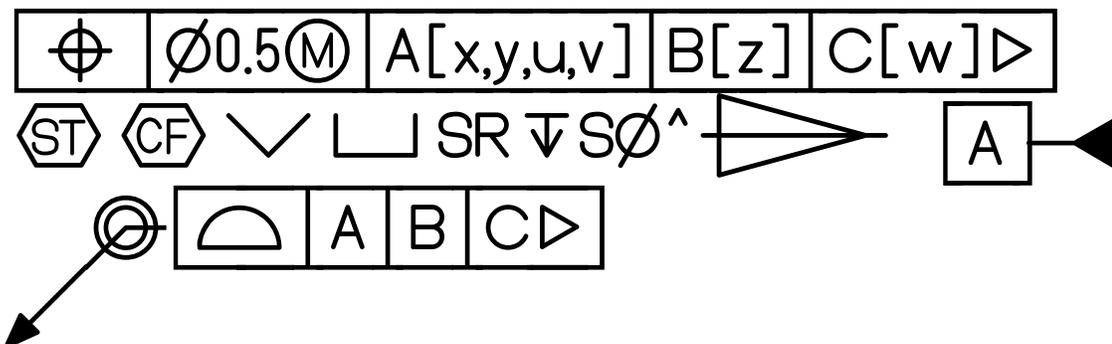
Y14.5M-2009 Stacked and Composite Tolerance

⊕	⌀0.5 Ⓜ	A	B	C
	⌀1 Ⓜ	A		

2X ⌀19.05±0.25

⊕	⌀0.5 Ⓜ	A	BⓂ	CⓂ
	⌀0.12 Ⓜ	A		
	⌀0.07 Ⓜ			

⌒	0.5	A	B	C
	1	A		

▱	0.5
	0.05/□25

⊕	⌀0.5	A	B	C
⊕	⌀05	A		

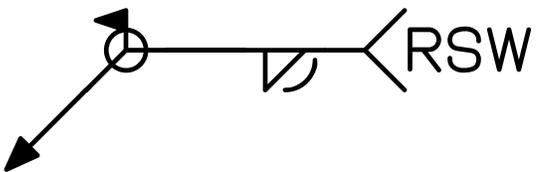| ⌒	1	A
//	0.5	A
▱	0.12	

Surface Finish Symbols

JIS Surface Finish Symbols

~

Welding Symbols
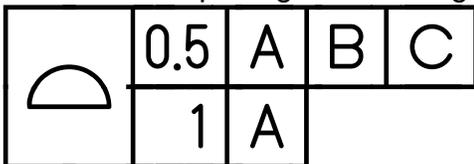
RSW
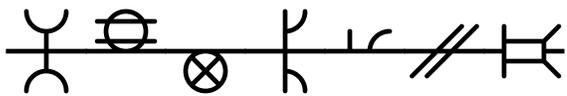
AIAG APQP Symbols

Quality related symbols

σ σ̂ X̄ R̿

Standard and Special Boxes

Ø19.05   Ø19.05   Ø19.05   Ø19.05
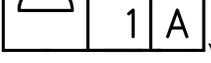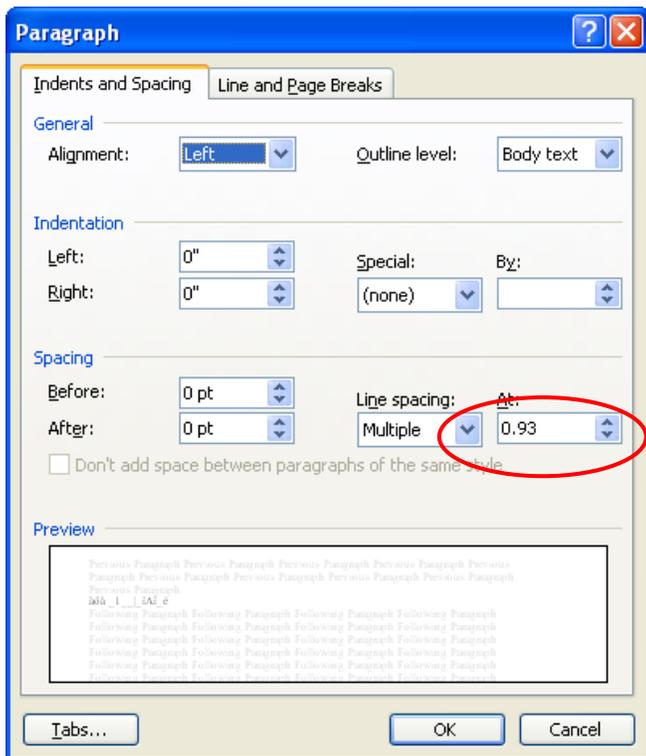
The font uses some unusual metrics to create boxes around characters. Rather than using separate characters for boxed and unboxed letters, the font uses special characters to box the preceding letter. The special characters are "_" *[low line]*, "~" *[tilda]* and "`" *[accent grave]*. There are other characters that control the start, transition and end of boxed characters these include "{" *[left curly bracket]* , "|" *[vertical line]* ,"}" *[right curly bracket]* , "æ" *[latin ae]* "ç" *[latin c with cedilla]* , "è" *[latin e with grave]* among others. For details see the table of characters below. For example, to produce $\boxed{\varnothing 19.05}$ the characters required are {Ø_1`9`.`0`5}. The curly brackets start and end the box, the low-line and grave accents add the box around each preceding character.
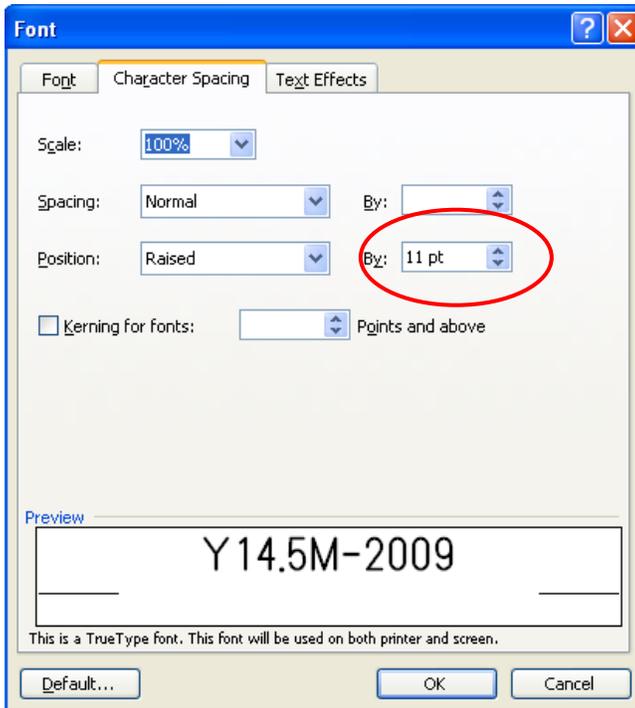
Creating composite tolerance feature control frames is a little more involved. It requires the use of word processors special character controls. With Microsoft Word® these functions are the **Paragraph Line Spacing** and **Font Character Spacing** settings. These commands combine to control overlap between line spacing. The settings for this 30 point feature control frame:
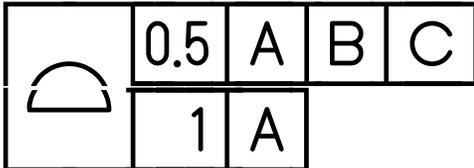

is as follows: The first line ( )has no special settings. Just standard single spacing. The second line( ) however has the following Paragraph settings:
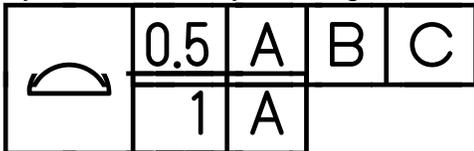
and the following Font settings:

These settings allow for the two lines to overlap. These settings change depending on the point size used. With no overlap you will get this:

If you over do it, you will get this:

You will just have to experiment to get the spacing correct for the font point size you are using. The same method is used to create any other multi line items like surface finish or weld symbols.

Good Luck – I hope you find it useful
Peter Kanold
-OO-