This document will explain what a composite tolerance is, what a multiple single segment tolerance is, and what the difference is.

A composite tolerance is indicated by two lines with a single Tolerance of Position or Profile symbol.

A composite tolerance is always applied to a pattern.

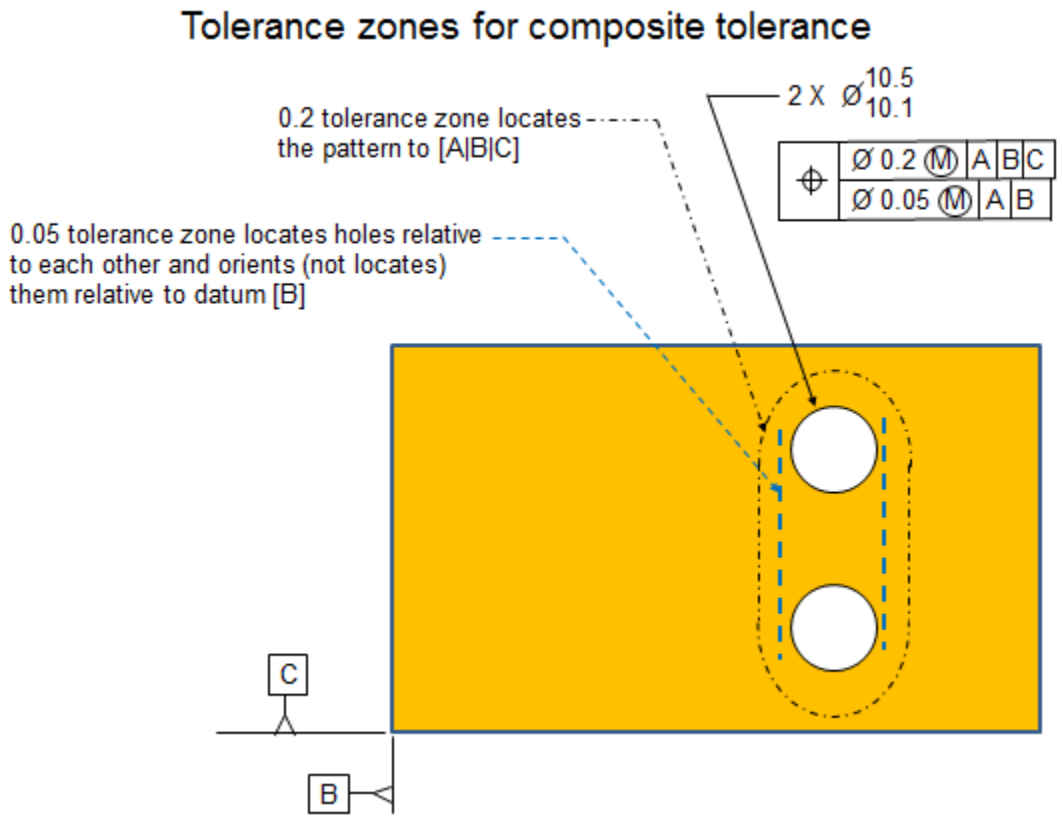
In a composite tolerance, the top line controls position. It would control orientation also if there were no bottom line.

The bottom line controls spacing between the components in the pattern and orientation of the pattern relative to datums. The bottom line never controls location relative to a datum.

⌖	Ø0.2 Ⓜ	A	B	C
	Ø0.05 Ⓜ	A	B	

⌓	0.2	A	B	C
	0.05	A	B	

The figure below shows an example of a pattern of holes controlled by a composite tolerance.



The figure below shows the rules for composite tolerances. Note that the rules are slightly different for the 2009 standard vs. the 1994 standard.

Rules for composite tolerance

1994 Standard

1. For Tolerance of Position, the composite tolerance must be applied to a set of multiple features of size

2. A composite control may only contain two segments

3. The upper segment controls the location of the pattern

4. The lower segment controls the spacing and orientation of the pattern

5. The tolerance value of the lower segment must always be a refinement of the tolerance value of the upper segment

6. Any datum references and datum modifiers in the lower segment must be the same and in the same order as those in the upper segment

2009 Standard

1. For Tolerance of Position, the composite tolerance must be applied to a set of multiple features of size

2. A composite control may contain more than two segments

3. The upper segment controls the location of the pattern

4. The lower segments control the spacing and orientation of the pattern

5. The tolerance value of the lower segments must always be a refinement of the tolerance value of the upper segment

6. Any datum references and datum modifiers in the lower segment must be the same and in the same order as those in the upper segment. Projected tolerance symbols are allowed and may be unique to a given line. The projected tolerance zone applies only to the segment in which the symbol is shown.

A multiple single segment tolerance is a Tolerance of Position callout or a Profile callout, with two or more lines. Each line has a separate symbol.

Each line is independent. Each line controls position and/or orientation to the specified datums.

⌖	Ø0.2 Ⓜ	A	B	C
⌖	Ø0.05 Ⓜ	A	B	

⌓	0.2	A	B	C
⌓	0.05	A	B	

⌖	Ø0.2 Ⓜ	A	B	C
⌖	Ø0.05 Ⓜ	A	D	

⌓	0.2	A	B	C
⌓	0.05	A	D	

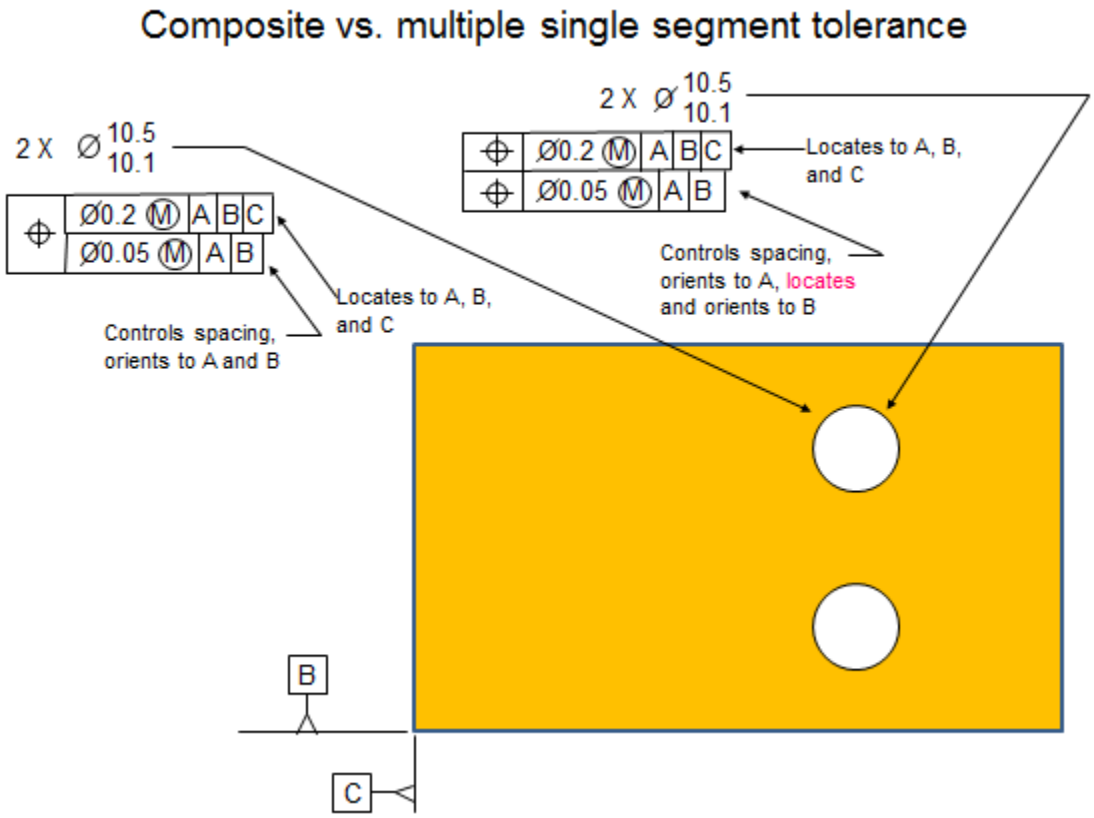
⌖	Ø0.2 Ⓜ	A	B	C
⌖	Ø0.05 Ⓜ	A	D	
⌖	Ø0.01 Ⓜ	A		

Multiple single segment tolerances have only one rule:

Rules for multiple single segment tolerance

1. Datum references and datum modifiers in the lower segment must NOT be the same and in the same order as those in the upper segment

In some cases, composite tolerances and multiple single segment tolerances will have different meanings as shown below:



In some cases, composite tolerances and multiple single segment tolerances will have the same meaning as shown below: