























Topic	ASME Y14.5-2009	ASME Y14.5M-1994	ANSI Y14.5M-1982	ISO
Projection method	third angle 	third angle 	third angle 	first angle 
Default relationship between size & form	size controls form (Rule #1)	size controls form (Rule #1)	size controls form (Rule #1)	form is independent of size
Overriding default size/form relationship	Ⓜ	Write a note or apply straightness to a FOS.	Write a note or apply straightness to a FOS.	Ⓧ
Controlling coplanarity of multiple surfaces	Use profile of a surface, indicate number of surfaces.	Use profile of a surface, indicate number of surfaces.	Use profile of a surface, indicate number of surfaces.	Use flatness, indicate number of surfaces, write CZ (Common Zone) in tolerance frame.
Box w/ GD&T control symbols & tolerance	feature control frame	feature control frame	feature control frame	tolerance frame
Dimension used to indicate theoretically exact locations, angles, profiles, or gage and fixture dimensions	basic dimensions	basic dimensions	basic dimensions	TED (theoretically exact dimensions)
Form: Surface flatness				
Form: Median plan flatness		—	—	—
Form: Straightness	—	—	—	—
Form: Circularity	○	○	○	○ called <i>roundness</i>
Form: Cylindricity				
Orientation: Parallelism	// or 	//	//	//
Orientation: Angularity				
Orientation: Perpendicularity	⊥ or 	⊥	⊥	⊥
Location: Position 	FOS only; composite vs. single segment well-defined. RFS is the default tolerance condition and RMB is the default FOS datum condition.	FOS only; composite vs. single segment well-defined. RFS is the default tolerance condition and FOS datum condition.	FOS only. Must indicate MMC, LMC, or RFS on tolerance & FOS datum. No distinction between composite vs. two single-segment.	May be applied to a FOS or a surface. No distinction between composite vs. two single-segment.
Location: Symmetry 	Median points are coplanar to datum plane (coplanarity plus volume/mass balance).	Median points are coplanar to datum plane (coplanarity plus volume/mass balance).	Symmetry symbol not defined or used. Symmetry controlled using position RFS.	“Extracted median surface” is coplanar to datum plane.
Location: Concentricity 	Median points are coaxial to datum axis (coaxiality plus volume/mass balance).	Median points are coaxial to datum axis (coaxiality plus volume/mass balance).	“Axes of all cross-sectional elements” are coaxial to datum axis.	“Extracted median line” is coaxial to datum axis.

Topic	ASME Y14.5-2009	ASME Y14.5M-1994	ANSI Y14.5M-1982	ISO
Profile: Surface / Line				
Composite vs. two-single segment concept for position and profile	Fully described	Fully described	Undefined: no distinction.	Undefined: no distinction.
Runout: Total / Circular				
Envelope: Related vs. Unrelated	Clear distinction made.	No distinction made.	No distinction made.	No distinction made.
MMC/MMB		MMC only	MMC only	MMC only
LMC/LMB		LMC only	LMC only	LMC only
Regardless of feature size (RFS)	default condition; no symbol	default condition; no symbol (OK for position, legacy)	required for position RFS; default condition w/other cntrls	default condition for all controls, no symbol
Regardless of material boundary (RMB)	FOS datums referenced RMB by default; no symbol	FOS datum ref'd RFS default; (OK w/position, legacy)	required for position RFS; default condition w/other cntrls	none (default)
Free State			"Free State" used, no symbol.	
All around / All over		none	none	
Unequally disposed profile	or shown with phantom lines on drawing.	Shown with phantom lines on drawing.	Shown with phantom lines on drawing.	UZ (Unequal Zone)
Datum feature identification symbol				
Continuous feature / Statistical tolerance		none /	none / none	none / none
Reciprocity	none (use 0 and open size tolerance)	none (use 0 and open size tolerance)	none (use 0 and open size tolerance)	
Translation		none	none	none
Moveable datum target		none	none	none
Counterbore / Spotface		/ none	/ none	none / none
Tangent Plane			none	none
Countersink				none
Depth				none
Controlled radius	CR	CR	R (default is a "fair" curve)	none