NIST Fully-Toleranced Test Case 09 - Feature and Specification Index [FTC09]

12/14/2016 Rev. D

Bryan Fischer *Advanced Dimensional Management LLC*

Feature ID	Feature Description	Specification	Element ID	Comments
F1	Datum Feature A	Flatness .01	T1	
		Datum Feature Symbol A	DF1	
F2	Datum Feature B	Ø.234 ±.008	D1	
		Perpendicularity Ø.016|A	T2	
		Datum Feature Symbol B	DF2	
F3	Datum Feature C	Ø.234 ±.008	D2	
		Position Ø.016|A|B	T3	
		Datum Feature Symbol C	DF3	
F4	Datum Feature D	Ø.750 ±.008	D3	
		Perpendicularity Ø.010|A	T4	
		Position Ø.050|A|B|C	T5	
		Datum Feature Symbol D	DF4	
F5-F6	Datum Feature E	2X Ø.221 ±.008	D4	
		Position Ø.020|A|D|B	T6	
		Datum Feature Symbol E	DF5	
F7-F10	Datum Feature F	4X Ø.250 ±.008	D5	
		Position Ø.030|A|B|C	T7	
		Datum Feature Symbol F	DF6	
F11	Datum Feature G	Ø.375 ±.008	D6	
		Position Ø.040|A|B|C	T8	
		Perpendicularity Ø.010|A	T9	
		Datum Feature Symbol G	DF7	
F12	Datum Feature H	.140 ± .008	D7	SIELD
		Position .010|A|G|B	T10	SIELD
		Datum Feature Symbol H	DF8	
F13	Radial End - Datum Feature H	Profile .008|A|G|H	T11	
F14-F17	Chamfers (cones)	4X .03 ±.01 X .03 ±.01	D8	2 dims and tols in one spec
F18-F19	Hole Pattern 1 - Panel Mounting	2XØ.234 ±.008	D9	Other 2 panel mounting holes
		Position Ø.016Ⓜ|A|B|C	T12	
F20-F23	Hole Pattern 2 - Horizontal	3X Ø.250 +.003/-.000	D10	Holes sized for PEM CLSS-032-3 self-clinching nuts
		Position Ø.050 Ⓟ.260|A|B|C Position Ø.010 Ⓟ.260|A	T13	Composite Position 2 Segments with Projected tolerance zone
F24-F27	Hole Pattern 3 - Vertical	3X Ø.250 +.003/-.000	D11	Holes sized for PEM CLSS-032-3 self-clinching nuts
		Position Ø.050 Ⓟ.260|A|B|C Position Ø.010 Ⓟ.260|A	T14	Composite Position 2 Segments with Projected tolerance zone
F28	Cutout - for FTC10 Insert	Profile .02|A|FⓂ All Around	T15	Cutout for insert into FTC10
F29-F30	Small Slots	2X .25 ±.01	D12	Width - SIELD
		Position .02Ⓜ|A|B|C	T16	SIELD
		BOUNDARY	STR1	SIELD
		2X 1.00 ±.02	D13	Length - SIELD
		Position .06Ⓜ|A|B|C	T17	SIELD
		BOUNDARY	STR2	SIELD
		4X R	D14	Ends
F31	Large Slot	.375 ±.008 X 1.500 ±.012	D15	2 dims and tols in one spec
		Position .030Ⓜ|A|B|C All-Around	T18	
		BOUNDARY	STR3	
		2X R	D16	Ends

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F32-F34	Hole Pattern 4 - Polar	3X Ø.156 ±.008	D17	
		3X Position .03|A|G|H	T19	Radial Direction - SIELD
		Represented line element	RLE1	Curve represents radial path
F32	Polar Hole 1 - Horizontal	Position .01|A|G|H	T20	Applies in X direction - SIELD
		Represented line element	RLE2	Line represents X direction
F33	Polar Hole 2 - Diagonal	Position .01|A|G|H	T21	Applies 45° to X direction - SIELD
		Represented line element	RLE3	Line represents 45° to X direction
F34	Polar Hole 3 - Vertical	Position .01|A|G|H	T22	Applies in Y direction - SIELD
		Represented line element	RLE4	Line represents Y direction
F35-F36	Dual Unit Holes	2X Ø.315 ±.008 [8 ±0.2]	D18	Inch and [mm] per DRM 11th ed.
		Position Ø.030 [0.76]|A|B|C	T23	Inch and [mm] per DRM 11th ed.
F37-F39	Hole Pattern 5 - Bidirectional Tols	3X Ø.281 ±.008	D19	
		Perpendicularity Ø.010|A	T24	
		3X Position .020|A|B|C	T25	Applies in X direction - SIELD
		Represented line element	RLE5	Line represents X direction
		3X Position .060|A|B|C	T26	Applies in Y direction - SIELD
		Represented line element	RLE6	Line represents Y direction
F40-F41	Hole Pattern 6 - SIM REQT LH	2X Ø.156 ±.008	D20	
		Position Ø.025Ⓜ|A|DⓂ|EⓂ	T27	
		SEP REQT	STR4	
F42-F43	Hole Pattern 7 - SIM REQT RH	2X Ø.156 ±.008	D21	
		Position Ø.025Ⓜ|A|DⓂ|EⓂ	T28	
		SEP REQT	STR5	
F44-F67	Profile Tolerance 1	Profile .05|A|B|C All Around	T29	Peripheral (sheared) surfaces
MCS1	MCS for Views A, B, C, D		CS1-1	Main MCS for model
	MCS for DRF A		CS1-2	Same location as CS1-1
	MCS for DRF A|B		CS1-3	Same location as CS1-1
	MCS for DRF A|B|C		CS1-4	Same location as CS1-1
MCS2	MCS for DRF A|D|B		CS2-1	
	MCS for DRF A|DⓂ|EⓂ		CS2-2	Same location as CS2-1
MCS3	MCS for DRF A|FⓂ		CS3	
MCS4	MCS for DRF A|G|B		CS4-1	
	MCS for DRF A|G|H		CS4-2	Same location as CS4-1
-	General Notes	NOTES…	STR6	Flat to screen
-	Identifier for Detail View C		VSI1	

Notes:

- Default profile tolerance from Rev A removed. Replaced by T29.
- Default profile doesn't work well for sheet metal without additional rules.
- Several specifications in this FTC contain semantically-important extension lines or annotation plane placement.

Revisions:

- Added STR6 for General Notes
- Added VSI to LEGEND
- Added VSI1 for Detail View C

LEGEND	
CS	Coordinate System
D	Dimension
DF	Datum Feature
RLE	Represented Line Element
SIELD	PMI entity contains Semantically-Important Extension Line Direction
STR	String
T	Tolerance
VSI	View or Section Identifier