QIF PMI Report (QPR) User Guide Version 2.0

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https://www.nist.gov/services-resources/software/qif-pmi-report-software



QIF PMI Report

- QIF PMI Report (QPR) generates a spreadsheet from a QIF file and reports the Semantic PMI
 - PMI is the information that specifies dimensions, geometric tolerances, and datums defined by the QIF MBD
- A visual presentation of the PMI is created from the semantic definition
- Measurements and QPids are also reported
- QPR has been tested with QIF 2.0, 2.1, and 3.0 files
- QPR does NOT consider the Graphical PMI in a QIF file

Running QPR

N QIF PMI Report (QPR) 2.0

File Websites Help

Status

Ready to process: nist_ctc_05_asme1_ap242.qif (1114 Kb)
Opening QIF file
 QIF 3.0.0 | MBDVidia 2021.2.2105.27 | ASME | INCH | 2021-06-09T12:10
 QIF tags not supported: DatumTargetIds FeatureNominalPairs
 Saving Spreadsheet to: C:\...\QIF\Parts\NIST\nist_ctc_05_asme1_ap242-QPR.xlsx
 Opening Spreadsheet: nist_ctc_05_asme1_ap242-QPR.xlsx

File menu – single or directories of QIF files can be selected

Status tab – output messages



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Generate Spreadsheet

Examples

- The following slides show specific examples of Semantic PMI in a worksheet generated from a QIF file
- The relationship between information the QIF file, Example Model, and worksheet is shown
- The Semantic PMI example is based on QIF 2.1

Example Model – DMSC QIF Strut



	А	В	С	D	E
1	FileName, Date, Version	C:\Users\lipman\Documents	QIF\strut.qif 2017-	04-20 20:32 QIF 2.1.0	
2	App, Standard, Units	MBDVidia, Pro/ENGINEER	ASME-Y14.5-2009	NCH	
3	FeatureNominal Types	(10) Circle CircularArc Cone	ConicalSegment Cylir	nder CylindricalSegment Line	OppositeParallelPlanes Plane ToroidalSegment
4					
5	Element (id)	PMI	Name	FeatureNominal	Saved View
6	Diameter (3267, 3266)	Ø.260 ± .003	AE_DRIVEN_DIM0	Cylinder 4963	5-DATUMS 6A-FRONT 7-CHARACTERISTICS
7	Diameter (3270, 3269)	Ø.255 ± .003	AE_DRIVEN_DIM1	Cylinder 4967	5-DATUMS 6A-FRONT 7-CHARACTERISTICS
8	Diameter (3273, 3272)	Ø.160 ± .002	AE_DRIVEN_DIM2	Cylinder 4977	6C-BACK 7-CHARACTERISTICS
9	Diameter (3276, 3275)	3X Ø.254 ± .002	AE_DRIVEN_DIM3	(3) Cylinder 4959 4982 4983	6C-BACK 7-CHARACTERISTICS
10	Diameter (3279, 3278)	3X Ø.248 ± .002	AE_DRIVEN_DIM4	(3) Cylinder 4961 5134 5135	6C-BACK 7-CHARACTERISTICS
1	DistanceBetween (5213, 5212)	(6.4)	REF_DIMENSION_8	(2) CircularArc 5005 5120	0-OVERALL 6A-FRONT
	DistanceBetween (5238, 5237)	(.7)	REF_DIMENSION_16	(1) CylindricalSegment 4988	0-OVERALL 6B-RIGHT
12	2			(1) Plane 5231	
13	3 Length (3689, 3688)	(1.5)	REF_DIMENSION_10	CylindricalSegment 5218	0-OVERALL 6A-FRONT
14	4				
1	5 Datum (3252)	C		Cylinder 4967	5-DATUMS 6A-FRONT 6C-BACK
10	6 Datum (3254)	A		Plane 4975	5-DATUMS 6A-FRONT 6B-RIGHT 6C-BACK 7-CHARACTERISTICS
1	7 Datum (3263)	В		Cylinder 4963	5-DATUMS 6A-FRONT 6C-BACK
18	В				
19	9 DatumReferenceFrame (3303)	а в 🔘 с М			
20	DatumReferenceFrame (3323)	А В М			
2	1 DatumReferenceFrame (3335)	Α			
2	2				
	Flatness (3243)	≈ .005	GDT_35	Plane 4975	5-DATUMS 6B-RIGHT 7-CHARACTERISTICS
		Ň			
2		[0]			
2.	Porpondicularity (2227)	[A]	CDT 27	Cylinder 4962	
	Perpendicularity (5557)		001_37	Cymuel 4905	S-DATOMS DA-FRONT 7-CHARACTERISTICS
		Ĭ			
2	4	[B]			
_	Position (3305)	Ø.160 + .002	GDT 40	Cylinder 4977	6C-BACK 7-CHARACTERISTICS
2	5	⊕ Ø.010 A B M C M			
20	5 Position (3312)	⊕ Ø.005 A B M C M	GDT 41	Cylinder 4959	6C-BACK 7-CHARACTERISTICS
	Position (3325)	Ø.255 ± .003	GDT 38	Cylinder 4967	5-DATUMS 6A-FRONT 7-CHARACTERISTICS
		⊕ Ø.010 A B M	-		
		∇			
2	7	[C]			
2	B Position (3332)	⊕ Ø.005 A B M C M	GDT 42	Cylinder 4961	6C-BACK 7-CHARACTERISTICS

Rows

1 – File name, File date, QIF version

2 – Application that generated the QIF file, PMI Standards, Units

3 – Types of FeatureNominals found in the QIF file

7

1	A	В	С	D	E	
1	FileName, Date, Version	C:\Users\lipman\Documents	QIF\strut.qif 2017-	04-20 20:32 QIF 2.1.0	·	
2	App, Standard, Units	//BDVidia, Pro/ENGINEER	ASME-Y14.5-2009 II			
3	FeatureNominal Types	10) Circle CircularArc Cone	ConicalSegment Cylir	nder CylindricalSegment Line	OppositeParallelPlanes Plane ToroidalSegment	
4						
5	Element (id)	PMI	Name	FeatureNominal	Saved View	
6	Diameter (3267, 3266)	ð.260 ± .003	AE_DRIVEN_DIM0	Cylinder 4963	5-DATUMS 6A-FRONT 7-CHARACTERISTICS	
7	Diameter (3270, 3269)	ð.255 ± .003	AE_DRIVEN_DIM1	Cylinder 4967	5-DATUMS 6A-FRONT 7-CHARACTERISTICS	
8	Diameter (3273, 3272)	ð.160 ± .002	AE_DRIVEN_DIM2	Cylinder 4977	6C-BACK 7-CHARACTERISTICS	
9	Diameter (3276, 3275)	X Ø.254 ± .002	AE_DRIVEN_DIM3	(3) Cylinder 4959 4982 4983	6C-BACK 7-CHARACTERISTICS	
10	Diameter (3279, 3278)	X Ø.248 ± .002	AE_DRIVEN_DIM4	(3) Cylinder 4961 5134 5135	6C-BACK 7-CHARACTERISTICS	
11	DistanceBetween (5213, 5212)	6.4)	REF_DIMENSION_8	(2) CircularArc 5005 5120	0-OVERALL 6A-FRONT	
	DistanceBetween (5238, 5237)	.7)	REF_DIMENSION_16	(1) CylindricalSegment 4988	0-OVERALL 6B-RIGHT	
12				(1) Plane 5231		
13	Length (3689, 3688)	1.5)	REF_DIMENSION_10	CylindricalSegment 5218	0-OVERALL 6A-FRONT	
14						
15	Datum (3252)			Cylinder 4967	5-DATUMS 6A-FRONT 6C-BACK	
16	Datum (3254)	1		Plane 4975	5-DATUMS 6A-FRONT 6B-RIGHT 6C-BACK 7-CHARACTERISTICS	
17	Datum (3263)	rum (3263) 8 Cylinder 4963 5		5-DATUMS 6A-FRONT 6C-BACK		
18						
19	DatumReferenceFrame (3303)	A B (M) C (M)				
20	DatumReferenceFrame (3323)	а В (M)				
21	DatumReferenceFrame (3335)	λ				
22		1				
	Flatness (3243)	• .005 ▽	GDT_35	Plane 4975	5-DATUMS 6B-RIGHT 7-CHARACTERISTICS	
23		[A]				
24	Perpendicularity (3337)	0.260 ± .003 ↓ .005 A ▽ [B]	GDT_37	Cylinder 4963	5-DATUMS 6A-FRONT 7-CHARACTERISTICS	
	Position (3305)	0.160±.002	GDT_40	Cylinder 4977	6C-BACK 7-CHARACTERISTICS	
25						
26	Position (3312)	⊕ Ø.005 A B (M) C (M)	GDT_41	Cylinder 4959	6C-BACK 7-CHARACTERISTICS	
27	Position (3325)	0.255±.003	GDT_38	Cylinder 4967	5-DATUMS 6A-FRONT 7-CHARACTERISTICS	
28	Position (3332)	⊕ ø.005 A B (M) C (M)	GDT 42	Cylinder 4961	6C-BACK 7-CHARACTERISTICS	

Columns

A – Dimension, datum, datum reference frame, geometric tolerance and 'id' for each element. Second dimension 'id' is for dimension tolerance.

	А	В	C D		E	
1	FileName, Date, Version	C:\Users\lipman\Documents\	IF\strut.qif 2017-	04-20 20:32 QIF 2.1.0		
2	App, Standard, Units	MBDVidia, Pro/ENGINEER AS	ME-Y14.5-2009 IN	NCH		
3	FeatureNominal Types	(10) Circle CircularArc Cone C	onicalSegment Cylir	nder CylindricalSegment Line	OppositeParallelPlanes Plane ToroidalSegment	
4						
5	Element (id)	PMI	Name	FeatureNominal	Saved View	
6	Diameter (3267, 3266)	Ø.260 ± .003	AE_DRIVEN_DIM0	Cylinder 4963	5-DATUMS 6A-FRONT 7-CHARACTERISTICS	
7	Diameter (3270, 3269)	Ø.255 ± .003	E_DRIVEN_DIM1	Cylinder 4967	5-DATUMS 6A-FRONT 7-CHARACTERISTICS	
8	Diameter (3273, 3272)	Ø.160 ± .002	AE_DRIVEN_DIM2	Cylinder 4977	6C-BACK 7-CHARACTERISTICS	
9	Diameter (3276, 3275)	3X Ø.254 ± .002	AE_DRIVEN_DIM3	(3) Cylinder 4959 4982 4983	6C-BACK 7-CHARACTERISTICS	
10	Diameter (3279, 3278)	3X Ø.248 ± .002	AE_DRIVEN_DIM4	(3) Cylinder 4961 5134 5135	6C-BACK 7-CHARACTERISTICS	
11	DistanceBetween (5213, 5212)	(6.4)	REF_DIMENSION_8	(2) CircularArc 5005 5120	0-OVERALL 6A-FRONT	
12	DistanceBetween (5238, 5237)	(.7)	REF_DIMENSION_16	(1) CylindricalSegment 4988(1) Plane 5231	0-OVERALL 6B-RIGHT	
13	Length (3689, 3688)	(1.5)	REF DIMENSION 10	CylindricalSegment 5218	0-OVERALL 6A-FRONT	
14						
15	Datum (3252)	с		Cylinder 4967	5-DATUMS 6A-FRONT 6C-BACK	
16	Datum (3254)	Α		Plane 4975	5-DATUMS 6A-FRONT 6B-RIGHT 6C-BACK 7-CHARACTERISTICS	
17	Datum (3263)	В		Cylinder 4963	5-DATUMS 6A-FRONT 6C-BACK	
18						
19	DatumReferenceFrame (3303)	А В 🔘 С 🕅				
20	DatumReferenceFrame (3323)	А В 🕅				
21	DatumReferenceFrame (3335)	A				
22						
	Flatness (3243)	≈ .005 ▽ 	GDT_35	Plane 4975	5-DATUMS 6B-RIGHT 7-CHARACTERISTICS	
23		[A]				
24	Perpendicularity (3337)	Ø.260 ± .003 ⊥ .005 A ▽ [B]	6DT_37	Cylinder 4963	5-DATUMS 6A-FRONT 7-CHARACTERISTICS	
	Position (3305)	Ø.160±.002	GDT_40	Cylinder 4977	6C-BACK 7-CHARACTERISTICS	
25		🕀 Ø.010 А В 🛞 С 🕅				
26	Position (3312)	⊕ Ø.005 A B M C M	GDT_41	Cylinder 4959	6C-BACK 7-CHARACTERISTICS	
	Position (3325)	Ø.255 ± .003 ⊕ Ø.010 A B M ▽ 	GDT_38	Cylinder 4967	5-DATUMS 6A-FRONT 7-CHARACTERISTICS	
27	Position (3332)	լ∪ ⊕ ø.005 A B∭ Ը∭	6DT 42	Cvlinder 4961	6C-BACK 7-CHARACTERISTICS	

Columns

A – Dimension, datum, datum reference frame, geometric tolerance and 'id' for each element. Second dimension 'id' is for dimension tolerance.

B – Visual presentation of semantic PMI constructed from the element (column A) and association to other elements through a FeatureNominal

9

	А	В	С	D	E
1	FileName, Date, Version	C:\Users\lipman\Documents	QIF\strut.qif 2017-0	4-20 20:32 QIF 2.1.0	
2	App, Standard, Units	MBDVidia, Pro/ENGINEER	ASME-Y14.5-2009 IN	сн	
3	FeatureNominal Types	(10) Circle CircularArc Cone	ConicalSegment Cylin	ler CylindricalSegment Line	OppositeParallelPlanes Plane ToroidalSegment
4					
5	Element (id)	PMI	Name	FeatureNominal	Saved View
6	Diameter (3267, 3266)	Ø.260 ± .003	AE_DRIVEN_DIM0	Cylinder 4963	5-DATUMS 6A-FRONT 7-CHARACTERISTICS
7	Diameter (3270, 3269)	Ø.255 ± .003	AE_DRIVEN_DIM1	Cylinder 4967	5-DATUMS 6A-FRONT 7-CHARACTERISTICS
8	Diameter (3273, 3272)	Ø.160 ± .002	AE_DRIVEN_DIM2	Cylinder 4977	6C-BACK 7-CHARACTERISTICS
9	Diameter (3276, 3275)	3X Ø.254 ± .002	AE_DRIVEN_DIM3	3) Cylinder 4959 4982 4983	6C-BACK 7-CHARACTERISTICS
10	Diameter (3279, 3278)	3X Ø.248 ± .002	AE_DRIVEN_DIM4	3) Cylinder 4961 5134 5135	6C-BACK 7-CHARACTERISTICS
11	DistanceBetween (5213, 5212)	(6.4)	REF_DIMENSION_8	2) CircularArc 5005 5120	0-OVERALL 6A-FRONT
12	DistanceBetween (5238, 5237)	(.7)	REF_DIMENSION_16	1) CylindricalSegment 4988 1) Plane 5231	0-OVERALL 6B-RIGHT
13	Length (3689, 3688)	(1.5)	REE DIMENSION 10	CylindricalSegment 5218	0-OVERALL 6A-ERONT
14		(10)		o, manadoc Brienco 220	
15	Datum (3252)	с		Cylinder 4967	5-DATUMS 6A-FRONT 6C-BACK
16	Datum (3254)	A		Plane 4975	5-DATUMS 6A-ERONT 6B-RIGHT 6C-BACK 7-CHARACTERISTICS
17	Datum (3263)	В		Cylinder 4963	5-DATUMS 6A-FRONT 6C-BACK
18				-,	
19	DatumReferenceFrame (3303)	ALBMICM			
20	DatumReferenceFrame (3323)	ALBM			
21	DatumReferenceFrame (3335)	A			
22	,				
23	Flatness (3243)	~ .005 ▽ [A]	GDT_35	Plane 4975	5-DATUMS 6B-RIGHT 7-CHARACTERISTICS
24	Perpendicularity (3337)	Ø.260 ± .003 ⊥ .005 A ▽ 	GDT_37	Cylinder 4963	5-DATUMS 6A-FRONT 7-CHARACTERISTICS
24	Position (3305)	Ø 160 ± 002	GDT 40	Cylinder 4977	6C-BACK 7-CHARACTERISTICS
25		⊕ Ø.010 A B (M) C (M)	551_40	symuel 4977	
26	Position (3312)	🕀 Ø.005 A B 🛞 C 🕅	GDT_41	Cylinder 4959	6C-BACK 7-CHARACTERISTICS
27	Position (3325)	Ø.255±.003 ⊕ Ø.010 A B M ▽ [C]	GDT_38	Cylinder 4967	5-DATUMS 6A-FRONT 7-CHARACTERISTICS
28	Position (3332)	ALØ005LALBM LCM	GDT 42	Cylinder 4961	6C-BACK 7-CHARACTERISTICS

Columns

A – Dimension, datum, datum reference frame, geometric tolerance and 'id' for each element. Second dimension 'id' is for dimension tolerance.

B – Visual presentation of semantic PMI constructed from the element (column A) and association to other elements through a FeatureNominal

C – Element Name

	А	В	С	D	E
1	FileName, Date, Version	C:\Users\lipman\Documents	QIF\strut.qif 2017	04-20 20:32 QIF 2.1.0	
2	App, Standard, Units	MBDVidia, Pro/ENGINEER	ASME-Y14.5-2009	ИСН	
3	FeatureNominal Types	(10) Circle CircularArc Cone	ConicalSegment Cyli	nder CylindricalSegment Line	DppositeParallelPlanes Plane ToroidalSegment
4					
5	Element (id)	PMI	Name	FeatureNominal	Saved View
6	Diameter (3267, 3266)	Ø.260 ± .003	AE_DRIVEN_DIM0	Cylinder 4963	-DATUMS 6A-FRONT 7-CHARACTERISTICS
7	Diameter (3270, 3269)	Ø.255 ± .003	AE_DRIVEN_DIM1	Cylinder 4967	DATUMS 6A-FRONT 7-CHARACTERISTICS
8	Diameter (3273, 3272)	Ø.160 ± .002	AE_DRIVEN_DIM2	Cylinder 4977	C-BACK 7-CHARACTERISTICS
9	Diameter (3276, 3275)	3X Ø.254 ± .002	AE_DRIVEN_DIM3	(3) Cylinder 4959 4982 4983	C-BACK 7-CHARACTERISTICS
10	Diameter (3279, 3278)	3X Ø.248 ± .002	AE_DRIVEN_DIM4	(3) Cylinder 4961 5134 5135	C-BACK 7-CHARACTERISTICS
11	DistanceBetween (5213, 5212)	(6.4)	REF_DIMENSION_8	(2) CircularArc 5005 5120	OVERALL 6A-FRONT
	DistanceBetween (5238, 5237)	(.7)	REF_DIMENSION_16	(1) CylindricalSegment 4988	OVERALL 6B-RIGHT
12				(1) Plane 5231	
13	Length (3689, 3688)	(1.5)	REF_DIMENSION_10	CylindricalSegment 5218	OVERALL 6A-FRONT
14					
15	Datum (3252)	С		Cylinder 4967	DATUMS 6A-FRONT 6C-BACK
16	Datum (3254)	A		Plane 4975	-DATUMS 6A-FRONT 6B-RIGHT 6C-BACK 7-CHARACTERISTICS
17	Datum (3263)	В		Cylinder 4963	DATUMS 6A-FRONT 6C-BACK
18					
19	DatumReferenceFrame (3303)	а в 🔘 с М			
20	DatumReferenceFrame (3323)	А В М			
21	DatumReferenceFrame (3335)	A			
22					
23	Flatness (3243)	- .005 	GDT_35	Plane 4975	DATUMS 6B-RIGHT 7-CHARACTERISTICS
24	Perpendicularity (3337)	Ø.260 ± .003 ⊥ .005 A ▽ [B]	GDT_37	Cylinder 4963	DATUMS 6A-FRONT 7-CHARACTERISTICS
	Position (3305)	Ø.160±.002	GDT 40	Cylinder 4977	C-BACK 7-CHARACTERISTICS
25		⊕ Ø.010 A B (M) C (M)	_ ***		
26	Position (3312)	⊕ Ø.005 A B M C M	GDT 41	Cylinder 4959	C-BACK 7-CHARACTERISTICS
	Position (3325)	Ø.255±.003	GDT_38	Cylinder 4967	-DATUMS 6A-FRONT 7-CHARACTERISTICS
27		⊕ Ø.010 A B ₪ ▽ [C]	_		
28	Position (3332)	⊕ Ø.005 A B (M) C (M)	GDT 42	Cylinder 4961	C-BACK 7-CHARACTERISTICS

Columns

A – Dimension, datum, datum reference frame, geometric tolerance and 'id' for each element. Second dimension 'id' is for dimension tolerance.

B – Visual presentation of semantic PMI constructed from the element (column A) and association to other elements through a FeatureNominal

C – Element Name

D – FeatureNominals types and ids, where sometimes there are multiple FeatureNominals per Element

	А	В	С	D	E
1	FileName, Date, Version	C:\Users\lipman\Documents	QIF\strut.qif 2017-	04-20 20:32 QIF 2.1.0	
2	App, Standard, Units	MBDVidia, Pro/ENGINEER	ASME-Y14.5-2009 IN	NCH	
3	FeatureNominal Types	(10) Circle CircularArc Cone	ConicalSegment Cylir	nder CylindricalSegment Line	OppositeParallelPlanes Plane ToroidalSegment
4					
5	Element (id)	PMI	Name	FeatureNominal	Saved View
6	Diameter (3267, 3266)	Ø.260 ± .003	AE_DRIVEN_DIM0	Cylinder 4963	5-DATUMS 6A-FRONT 7-CHARACTERISTICS
7	Diameter (3270, 3269)	Ø.255 ± .003	AE_DRIVEN_DIM1	Cylinder 4967	5-DATUMS 6A-FRONT 7-CHARACTERISTICS
8	Diameter (3273, 3272)	Ø.160 ± .002	AE_DRIVEN_DIM2	Cylinder 4977	6C-BACK 7-CHARACTERISTICS
9	Diameter (3276, 3275)	3X Ø.254 ± .002	AE_DRIVEN_DIM3	(3) Cylinder 4959 4982 4983	6C-BACK 7-CHARACTERISTICS
10	Diameter (3279, 3278)	3X Ø.248 ± .002	AE_DRIVEN_DIM4	(3) Cylinder 4961 5134 5135	6C-BACK 7-CHARACTERISTICS
11	DistanceBetween (5213, 5212)	(6.4)	REF DIMENSION 8	(2) CircularArc 5005 5120	0-OVERALL 6A-FRONT
12	DistanceBetween (5238, 5237)	(.7)	REF_DIMENSION_16	(1) CylindricalSegment 4988 (1) Plane 5231	0-OVERALL 6B-RIGHT
13	Length (3689, 3688)	(1.5)	REF DIMENSION 10	CylindricalSegment 5218	0-OVERALL 6A-FRONT
14		()		- /	
15	Datum (3252)	с		Cylinder 4967	5-DATUMS 6A-FRONT 6C-BACK
16	Datum (3254)	A		Plane 4975	5-DATUMS 6A-FRONT 6B-RIGHT 6C-BACK 7-CHARACTERISTICS
17	Datum (3263)	В		Cylinder 4963	5-DATUMS 6A-FRONT 6C-BACK
18	. ,				
19	DatumReferenceFrame (3303)	A B (M) C (M)			
20	DatumReferenceFrame (3323)	AIBM			
21	DatumReferenceFrame (3335)	A			
22					
23	Flatness (3243)	~ .005 ▽ [A]	GDT_35	Plane 4975	5-DATUMS 6B-RIGHT 7-CHARACTERISTICS
24	Perpendicularity (3337)	Ø.260 ± .003 ⊥ .005 A ▽ [B]	GDT_37	Cylinder 4963	5-DATUMS 6A-FRONT 7-CHARACTERISTICS
25	Position (3305)	Ø.160±.002 ⊕ Ø.010 A B M C M	GDT_40	Cylinder 4977	6C-BACK 7-CHARACTERISTICS
26	Position (3312)	⊕ Ø.005 A B M C M	GDT 41	Cylinder 4959	6C-BACK 7-CHARACTERISTICS
	Position (3325)	Ø.255±.003	GDT_38	Cylinder 4967	5-DATUMS 6A-FRONT 7-CHARACTERISTICS
27		⊕ Ø.010 A B ₪ ▽ [C]			
28	Position (3332)	(+) Ø.005 A B (M) C (M)	GDT 42	Cylinder 4961	6C-BACK 7-CHARACTERISTICS

Columns

A – Dimension, datum, datum reference frame, geometric tolerance and 'id' for each element. Second dimension 'id' is for dimension tolerance.

B – Visual presentation of semantic PMI constructed from the element (column A) and association to other elements through a FeatureNominal

C – Element Name

D – FeatureNominals types and ids, where sometimes there are multiple FeatureNominals per Element

E – Saved Views

PMI Examples

- The following examples of semantic PMI show:
 - 1. A PMI example from the strut model and how it appears in the worksheet (column B)
 - 2. How IDs in the QIF file relate to each other
 - 3. How IDs in the resulting QPR worksheet (columns A and D) and relate to the QIF file
 - 4. The semantic information in the QIF file and how it is used to create the visual presentation (column B) of the Semantic PMI
 - Reminder: at no time is the Graphical PMI in the QIF file considered

Diameter Dimension

					[PC-004]
A	В	С	D	E	005 4
FileName, Date, Version	C:\Users\lipman\Documents	\QIF\strut.qif 2017-	04-20 20:32 QIF 2.1.0		005 A
App, Standard, Units	MBDVidia, Pro/ENGINEER	ASME-Y14.5-2009	ИСН		[DC 000]
FeatureNominal Types	(10) Circle CircularArc Cone	ConicalSegment Cylin	nder CylindricalSegment Line	e OppositeParallelPlanes Plane ToroidalSegment	[PC-002]
Element (id)	PMI	Name	FeatureNominal	Saved View	
Diameter (3267, 3266)	Ø.260 ± .003	AE_DRIVEN_DIM0	Cylinder 4963	5-DATUMS 6A-FRONT 7-CHARACTERISTICS	
Diameter (3270, 3269)	Ø.255 ± .003	AE_DRIVEN_DIM1	Cylinder 4967	5-DATUMS 6A-FRONT 7-CHARACTERISTICS	
Diameter (3273, 3272)	Ø.160 ± .002	AE_DRIVEN_DIM2	Cylinder 4977	6C-BACK 7-CHARACTERISTICS	
Diameter (3276, 3275)	3X Ø.254 ± .002	AE_DRIVEN_DIM3	(3) Cylinder 4959 4982 4983	6C-BACK 7-CHARACTERISTICS	
Diameter (3279, 3278)	3X Ø.248 ± .002	AE_DRIVEN_DIM4	(3) Cylinder 4961 5134 5135	6C-BACK 7-CHARACTERISTICS	
DistanceBetween (5213, 5212)	(6.4)	REF_DIMENSION_8	(2) CircularArc 5005 5120	0-OVERALL 6A-FRONT	
DistanceBetween (5238, 5237)	(.7)	REF_DIMENSION_16	(1) CylindricalSegment 4988	0-OVERALL 6B-RIGHT	
2			(1) Plane 5231		
3 Length (3689, 3688)	(1.5)	REF_DIMENSION 10	CylindricalSegment 5218	0-OVERALL 6A-FRONT	
4					
Datum (3252)	с		Cylinder 4967	5-DATUMS 6A-FRONT 6C-BACK	
Datum (3254)	A		Plane 4975	5-DATUMS 6A-FRONT 6B-RIGHT 6C-BACK 7-CHARACTER	RISTICS
7 Datum (3263)	В		Cylinder 4963	5-DATUMS 6A-FRONT 6C-BACK	
3					
DatumReferenceFrame (3303)	A B M C M				
DatumReferenceFrame (3323)	AIBM				
1 DatumReferenceFrame (3335)	A				
2					
Flatness (3243)	 □ 1.005 □ □ □ □ 	GDT_35	Plane 4975	5-DATUMS 6B-RIGHT 7-CHARACTERISTICS	
Perpendicularity (3337)	Ø.260 ±.003 ⊥ .005 A ▽ 	GDT_37	Cylinder 4963	5-DATUMS 6A-FRONT 7-CHARACTERISTICS	
Position (2205)	[D] Ø 160 ± 000	CDT 40	Culinder 4077		
S SITION (3305)	⊕ Ø.010 A B (M) C (M)	GD1_40	Cylinder 4977	DU-BAUN /-UHAKAUTERISTIUS	
Position (3312)	⊕ Ø.005 A B M C M	GDT_41	Cylinder 4959	6C-BACK 7-CHARACTERISTICS	
Position (3325)	Ø.255 ± .003 ⊕ Ø.010 A B M ∇ 	GDT_38	Cylinder 4967	5-DATUMS 6A-FRONT 7-CHARACTERISTICS	
3 Position (3332)	[∪] ⊕ Ø.005 A B (M) C (M)	GDT 42	Cylinder 4961	6C-BACK 7-CHARACTERISTICS	

Ø.260±.003

Diameter Dimension

	•••••••••••••••••••••••••••••••••••••••	•••••		[PC-004]
A	В	С	D	
FileName, Date, Version	C:\Users\lipman\Document	s\QIF\strut.qif 2017-	04-20 20:32 QIF 2.1.0	A 600.
App, Standard, Units	MBDVidia, Pro/ENGINEER	ASME-Y14.5-2009 I	ИСН	
FeatureNominal Types	(10) Circle CircularArc Cone	ConicalSegment Cyli	nder CylindricalSegment Line	e OppositeParallelPlanes Plane ToroidalSegment
Element (id)	PMI	Name	EeatureNominal	Saved View
5 Diameter (3267 3266)	Ø.260 ± .003	AE_DRIVEN_DIM0	Cylinc <mark>er 4963</mark>	5-DATUMS 6A-FRONT 7-CHARACTERISTICS
Diameter (3270, 3269)	Ø.255 ± .003	AE_DRIVEN_DIM1	Cylinder 4967	5-DATUMS 6A-FRONT 7-CHARACTERISTICS
Diameter (3273, 3272)	Ø.160 ± .002	AE_DRIVEN_DIM2	Cylinder 4977	6C-BACK 7-CHARACTERISTICS
Diameter (3276, 3275)	3X Ø.254 ± .002	AE_DRIVEN_DIM3	(3) Cylinder 4959 4982 4983	6C-BACK 7-CHARACTERISTICS
Diameter (3279, 3278)	3X Ø.248 ± .002	AE_DRIVEN_DIM4	(3) Cylinder 4961 5134 5135	6C-BACK 7-CHARACTERISTICS
1 DistanceBetween (5213, 5212)	<mark>(</mark> 6.4)	REF_DIMENSION_8	(2) CircularArc 5005 5120	0-OVERALL 6A-FRONT
DistanceBetween (5238, 5237)	(.7)	REF_DIMENSION_16	(1) CylindricalSegment 4988	0-OVERALL 6B-RIGHT
2			(1) Plane 5231	
3 Length (3689, 3688)	(1.5)	REF_DIMENSION_10	CylindricalSegment 5218	0-OVERALL 6A-FRONT
4				(DiamotonChanactonicticDefinition_id_[2266])
5 Datum (3252)	С		Cylinder 4967	5-DATUMS 6A-FRONT 6C-B
6 Datum (3254)	Α		Plane 4975	5-DATUMS 6A-FRONT 6B-R <iolerance></iolerance>
7 Datum (3263)	В		Cylinder 4963	5-DATUMS 6A-FRONT 6C-B <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre>S-DATUMS 6A-FRONT 6C-B </pre> <pre></pre>
<pre>8 <diametercharac< pre=""></diametercharac<></pre>	teristicNominal :	1d=132671>		<pre><minvalue decimalplaces="3">-0.003</minvalue></pre>
9 Dat <attributes< td=""><td>s n="3"></td><td></td><td></td><td><pre><definedaslimit>false</definedaslimit></pre></td></attributes<>	s n="3">			<pre><definedaslimit>false</definedaslimit></pre>
⁰ Dat <attrik< td=""><td>outeStr name="Occu</td><td>urrenceProbab</td><td>ility" value="Low</td><td>"/> </td></attrik<>	outeStr name="Occu	urrenceProbab	ility" value="Low	"/>
1 Dat <attrik< td=""><td>outeStr name="Meas</td><td>surementTool"</td><td>value="CMM"/></td><td><pre></pre></td></attrik<>	outeStr name="Meas	surementTool"	value="CMM"/>	<pre></pre>
2 <attrik< td=""><td>outeStr name="CAM</td><td>C" value="No"</td><td>/></td><td>() bidineter ondracter istreber initians</td></attrik<>	outeStr name="CAM	C" value="No"	/>	() bidineter ondracter istreber initians
Flat <td>25)</td> <td></td> <td></td> <td>MS 6B-RIGHT 7-CHARACTERISTICS</td>	25)			MS 6B-RIGHT 7-CHARACTERISTICS
Chapacton	sticDofinitionId	2266 (Chapac	topicticDofinitio	<pre>ntd> <cylinderfeaturenominal id="4963"></cylinderfeaturenominal></pre>
(Characters	scieberinicioniu.	J200 / charac	cel iscicbel inicio	<name>Nominal 4963</name>
s creaturellon				<pre><code <="" control="" pre=""> <pre></pre> <pre< td=""></pre<></code></pre>
Per <10>496	53(/10)			/EntityInternalIds n="2"\
<td>ominalIds></td> <td></td> <td></td> <td></td>	ominalIds>			
<name>AE_DF</name>	RIVEN_DIM0			
<keycharact< td=""><td>teristic></td><td></td><td></td><td><id>127</id></td></keycharact<>	teristic>			<id>127</id>
<pre> Control Contro Control Control Control Control Control</pre>	nator>9 <td>or></td> <td></td> <td><id>3262</id></td>	or>		<id>3262</id>
<td>teristic</td> <td></td> <td></td> <td><pre>>/'CN' </pre></td>	teristic			<pre>>/'CN' </pre>
6 Doc (TangetVal)	<pre>up decimalDlacos='</pre>	"2"\0 26//Tap	aetValue>	<pre>x zcu <axis></axis></pre>
Pos (DiamatanCharry	e uecimairiaces=	2 20.20\/ Idr	Bernarnes	AxisPoint>0 0 0.09
<td>HELOONOLALBOM</td> <td>></td> <td></td> <td>(Direction)0 0 1(/Direction)</td>	HELOONOLALBOM	>		(Direction)0 0 1(/Direction)
				(Avie)
				S/AXIS2
7				
8 Position (3332)	⊕ Ø.005 A B M C M	GDT 42	Cylinder 4961	6C-BACK 7-CHARACTERISTICS

Ø.260±.003 ∖



Relating QIF 'ids' to worksheet

0				[PC-004]
A	В	С	D	
1 FileName, Date, Version	C:\Users\lipman\Documents	s\QIF\strut.qif 2017	-04-20 20:32 QIF 2.1.0	003 A
2 App, Standard, Units	MBDVidia, Pro/ENGINEER	ASME-Y14.5-2009	INCH	
3 FeatureNominal Types	(10) Circle CircularArc Cone	ConicalSegment Cyl	inder CylindricalSegment L	Line OppositeParallelPlanes Plane ToroidalSegment
4				
5 Element (id)	PMI	Name	EeatureNominal	Saved View
6 Diameter (3267 3266)	Ø.260 ± .003	AE_DRIVEN_DIM0	Cylincer 4963	5-DATUMS 6A-FRONT 7-CHARACTERISTICS
7 Diameter (3270, 3269)	Ø.255 ± .003	AE_DRIVEN_DIM1	Cylinder 4967	5-DATUMS 6A-FRONT 7-CHARACTERISTICS
8 Diameter (3273, 3272)	Ø.160 ± .002	AE_DRIVEN_DIM2	Cylinder 4977	6C-BACK 7-CHARACTERISTICS
9 Diameter (3276, 3275)	3X Ø.254 ± .002	AE_DRIVEN_DIM3	(3) Cylinder 4959 4982 498	083 6C-BACK 7-CHARACTERISTICS
10 Diameter (3279, 3278)	3X Ø.248 ± .002	AE_DRIVEN_DIM4	(3) Cylinder 4961 5134 513	135 6C-BACK 7-CHARACTERISTICS
11 DistanceBetween (5213, 5212)	(6.4)	REF_DIMENSION_8	(2) CircularArc 5005 5120	0-OVERALL 6A-FRONT
DistanceBetween (5238, 5237)	(.7)	REF_DIMENSION_10	5 (1) Cylindrical Segment 49	1988 0-OVERALL 6B-RIGHT
12			(1) Plane 5231	
13 Length (3689, 3688)	(1.5)	REF_DIMENSION_1	CylindricalSegment 5218	B D-OVERALL 6A-FRONT
14				(DiameterCharacteristicDefinition_id= 2266
15 Datum (3252)	E		Cylinder 4967	5-DATUMS 6A-FRONT 6C-B
16 Datum (3254)	A		Plane 4975	5-DATUMS 6A-FRONT 6B-R (IDIEPanCE)
17 Datum (3263)	В	d d a calla	Cylinder 4963	S-DATUMS 6A-FRONT 6C-B.
18 <diametercharac< td=""><td>teristicNominal</td><td>3267 ></td><td></td><td><pre><minvalue *-0.003<="" decimalplaces="3" minvalue=""></minvalue></pre></td></diametercharac<>	teristicNominal	3267 >		<pre><minvalue *-0.003<="" decimalplaces="3" minvalue=""></minvalue></pre>
19 Dat <attributes< td=""><td>s n="3"></td><td>\mathbf{N}</td><td></td><td><pre><definedaslimit>false</definedaslimit></pre>/DefinedAsLimit></td></attributes<>	s n="3">	\mathbf{N}		<pre><definedaslimit>false</definedaslimit></pre> /DefinedAsLimit>
20 Dat <attrib< td=""><td>outestr name="Occu</td><td>IrrenceProbab</td><td>oility" value="Lo</td><td>.ow"/> </td></attrib<>	outestr name="Occu	IrrenceProbab	oility" value="Lo	.ow"/>
21 Dat <attrib< td=""><td>outeStr name="Meas</td><td>surementTool"</td><td>value="CMM"/></td><td><pre></pre></td></attrib<>	outeStr name="Meas	surementTool"	value="CMM"/>	<pre></pre>
22 Attrib	outeStr name="CAMC	C" value="No"	/>	
Flat <td></td> <td></td> <td></td> <td>MS 6B-RIGHT 7-CHARACTERISTICS</td>				MS 6B-RIGHT 7-CHARACTERISTICS
Character	sticDefinitionId	2266 Change	tenicticDefiniti	<pre>cionId> <cylinderfeaturenominal id="4963"></cylinderfeaturenominal></pre>
<pre>Characteri (FootureNet)</pre>	ipolTdc p "4"	5200 y char ac	.teristitueriniti	<name>Nominal 4963</name>
23 CFeatureNon	11101105 n = 1			<pre>ve ct <eesturedefinitionid>4962</eesturedefinitionid></pre>
Per <1d>496	3(/10>			MS 0A-
<td>minalIds></td> <td></td> <td></td> <td>Concretion internations into a state of the state of the</td>	minalIds>			Concretion internations into a state of the
<name>AE_DR</name>	RIVEN_DIM0			
<keycharact< td=""><td>eristic></td><td></td><td></td><td><id>127</id></td></keycharact<>	eristic>			<id>127</id>
<pre>24</pre>	ator> <mark>9</mark> <td>)r></td> <td></td> <td><id>3262</id></td>)r>		<id>3262</id>
A C/KeyChanac	teristic			<pre>>/**** </pre>
26 Pos (TangatValu	e decimalDlaces-"	2"\0 264/Tar	ant/alue>	X 7 CHA (Axis)
	e uecimaiPiaces=	2 /0.20(/1af	Servarue,	AxisPoint>0 0 0.09
<td>acteristicNominal></td> <td>></td> <td></td> <td>(Direction)0 0 1(/Direction)</td>	acteristicNominal>	>		(Direction)0 0 1(/Direction)
	V I			
27				
28 Position (3332)		GDT 42	Cylinder 4961	6C-BACK 7-CHARACTERISTICS

Ø.260±.003



A	ssociating	s Saved V	iews to	PMI		Ø	.260±.003 [PC-004]	
	A	в	C	D	E		005 A	1
1	FileName, Date, Version	IC:\Users\lipman\Documents	s\QIF\strut.qif 2017-	04-20 20:32 QIF 2.1.0				
2	App, Standard, Units	MBDVidia, Pro/ENGINEER	ASME-Y14.5-2009	ИСН			[PC_002]	
3	FeatureNominal Types	(10) Circle CircularArc Cone	ConicalSegment Cylin	nder CylindricalSegment Line	OppositeParallelPlanes Plane ToroidalSegmer	nt	[F0-002]	\wedge
5	Element (id)	PMI	Name	FeatureNominal	Saved View			
6	Diameter (3267 3266)	Ø.260 ± .003	AE_DRIVEN_DIM0	Cylinder 4963	5-DATUMS 6A-FRONT 7-CHARACTERISTICS			
7	Diameter (3270, 3269)	Ø.255±.003	AE_DRIVEN_DIM1	Cylinder 4967	5-DATUMS 6A-FRONT 7-CHARACTERISTICS			
8	Diameter (3273, 3272)	Ø.160 ± .002	AE DRIVEN DIM2	Cylinder 4977	6C-BACK 7-CHARACTERISTICS			
9	Diameter (3276, 3275)	3X Ø.254 ± .002	AE_DRIVEN_DIM3	(3) Cylinder 4959 4982 4983	6C-BACK 7-CHARACTERISTICS			
10	Diameter (3279, 3278)	3X Ø.248 ± .002	AE_DRIVEN_DIM4	(3) Cylinder 4961 5134 5135	6C-BACK 7-CHARACTERISTICS			
11	DistanceBetween (5213, 5212)	(6.4)	REF_DIMENSION_8	(2) CircularArc 5005 5120	0-OVERALL 6A-FRONT			
12	DistanceBetween (5238, 5237)	(.7)	REF_DIMENSION_16	(1) CylindricalSegment 4988 (1) Plane 5231	0-OVERALL 6B-RIGHT			
12	Length (3689, 3688)	(1.5)	REE DIMENSION 10	CylindricalSegment 5218				
14	Length (3003, 3000)	(1.5)	NET_DIMENSION_10	cymuncalsegment 5210		_		
15	Datum (3252)	k		Cylinder 4967	5-DATUMS 6A-FRONT 6C-BACK			
16	Datum (3254)	A		Plane 4975	5-DATUMS 6A-FRONT 6B-BIGHT 6C-BACK	CHARACTERISTICS		
17	Datum (3263)	R B		Cylinder 4963	5-DATUMS 6A-FRONT 6C-BACK	CHANACLEMISTICS		
18	<pre></pre>	teristicNominal i	d= 3267	eyimder 4505	S BATOMIS OA THONT OC BACK	<savedview i<="" td=""><td>.d="3671" label≥"5-</td><td>DATUMS"></td></savedview>	.d="3671" label≥"5-	DATUMS">
19	Dat (Attributes	n="3">				<annotat< td=""><td>ionVisibleIds n="8</td><td>"></td></annotat<>	ionVisibleIds n="8	">
20	Dat Attaih	utoStp. nomo_"Occu	unnon co Dnohoh	lity" volue-"Lou	" (>	<pre>cbT></pre>	3254	
21	Dat ACCPID	uteStr Hame= Occu	innencerrobab.	unity value= LOW			2262/14	
22	<attrib< td=""><td>utestr name= Meas</td><td>surementiool</td><td>value="CMM"/></td><td></td><td><107</td><td>3203(/10)</td><td></td></attrib<>	utestr name= Meas	surementiool	value="CMM"/>		<107	3203(/10)	
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23	<featurenom< td=""><td>inalIds n="1"></td><td></td><td></td><td></td><td><id></id></td><td>3267 (/Id></td><td></td></featurenom<>	inalIds n="1">				<id></id>	3267 (/Id>	
	Per Td 406				MS 64-FRONT 7-CHARACTERISTICS	<pre>cbt></pre>	3270	
		minalIdax				(Td)	33264/Td>	
	<name>AF DR</name>	TVEN DIMO				<td>tionVisibleIds></td> <td></td>	tionVisibleIds>	
	<keycharact< td=""><td>eristic></td><td></td><td></td><td></td><td><camerai< td=""><td>ds n="1"></td><td></td></camerai<></td></keycharact<>	eristic>				<camerai< td=""><td>ds n="1"></td><td></td></camerai<>	ds n="1">	
24	<pre>>>></pre> Control of the second seco	ator>9 <td>)r></td> <td></td> <td></td> <td><id></id></td> <td>3670</td> <td></td>)r>			<id></id>	3670	
25	<td>teristic></td> <td></td> <td></td> <td>N 7-CHARACTERISTICS</td> <td><td>Ids></td><td></td></td>	teristic>			N 7-CHARACTERISTICS	<td>Ids></td> <td></td>	Ids>	
26	Pos <targetvalu< td=""><td>e decimalPlaces="</td><td>'2">0.26<td>getValue></td><td>K 7-CHARACTERISTICS</td><td></td><td></td><td></td></td></targetvalu<>	e decimalPlaces="	'2">0.26 <td>getValue></td> <td>K 7-CHARACTERISTICS</td> <td></td> <td></td> <td></td>	getValue>	K 7-CHARACTERISTICS			
	Pos <td>cteristicNominal></td> <td>•</td> <td></td> <td>MS 6A-FRONT 7-CHARACTERISTICS</td> <td></td> <td></td> <td></td>	cteristicNominal>	•		MS 6A-FRONT 7-CHARACTERISTICS			
		⊕ Ø.010 A B (M)						
		∇						
27	D (2000)		007.40				-	
1.28	POSITION (3332)	1 H) 1 Ø.005 LA LB (M) LC (M)	GD1 42	UVIINGEL4961	DU-BAUK 7-CHARACTERISTICS		1	

Distance Between

	А	В	С	D	E
1	FileName, Date, Version	C:\Users\lipman\Documents	\QIF\strut.qif 2017-	04-20 20:32 QIF 2.1.0	
2	App, Standard, Units	MBDVidia, Pro/ENGINEER	ASME-Y14.5-2009 II	NCH	
3	FeatureNominal Types	(10) Circle CircularArc Cone	ConicalSegment Cylin	nder CylindricalSegment Line	e OppositeParallelPlanes Plane ToroidalSegment
4					
5	Element (id)	PMI	Name	FeatureNominal	Saved View
6	Diameter (3267, 3266)	Ø.260 ± .003	AE_DRIVEN_DIM0	Cylinder 4963	5-DATUMS 6A-FRONT 7-CHARACTERISTICS
7	Diameter (3270, 3269)	Ø.255 ± .003	AE_DRIVEN_DIM1	Cylinder 4967	5-DATUMS 6A-FRONT 7-CHARACTERISTICS
8	Diameter (3273, 3272)	Ø.160 ± .002	AE_DRIVEN_DIM2	Cylinder 4977	6C-BACK 7-CHARACTERISTICS
9	Diameter (3276, 3275)	3X Ø.254 ± .002	AE_DRIVEN_DIM3	(3) Cylinder 4959 4982 4983	6C-BACK 7-CHARACTERISTICS
10	Diameter (3279, 3278)	3X Ø.248 ± .002	AE_DRIVEN_DIM4	(3) Cylinder 4961 5134 5135	6C-BACK 7-CHARACTERISTICS
11	DistanceBetween (5213, 5212)	(6.4)	REF_DIMENSION_8	(2) CircularArc 5005 5120	0-OVERALL 6A-FRONT
12	DistanceBetween (5238, 5237)	(.7)	REF_DIMENSION_16	(1) CylindricalSegment 4988(1) Plane 5231	0-OVERALL 6B-RIGHT
13	Length (3689, 3688)	(1.5)	REF_DIMENSION_10	CylindricalSegment 5218	0-OVERALL 6A-FRONT
14					
15	Datum (3252)	С		Cylinder 4967	5-DATUMS 6A-FRONT 6C-BACK
16	Datum (3254)	A		Plane 4975	5-DATUMS 6A-FRONT 6B-RIGHT 6C-BACK 7-CHARACTERISTICS
17	Datum (3263)	В		Cylinder 4963	5-DATUMS 6A-FRONT 6C-BACK
18					
19	DatumReferenceFrame (3303)	а в 🔘 с 🔘			
20	DatumReferenceFrame (3323)	А В М			
21	DatumReferenceFrame (3335)	A			
22					
23	Flatness (3243)	- .005 ▽ [A]	GDT_35	Plane 4975	5-DATUMS 6B-RIGHT 7-CHARACTERISTICS
24	Perpendicularity (3337)	Ø.260 ± .003 ⊥ .005 A ▽ [B]	GDT_37	Cylinder 4963	5-DATUMS 6A-FRONT 7-CHARACTERISTICS
25	Position (3305)	Ø.160 ± .002 ⊕ Ø.010 A B M C M	GDT_40	Cylinder 4977	6C-BACK 7-CHARACTERISTICS
26	Position (3312)	⊕ Ø.005 A B (M) C (M)	GDT 41	Cylinder 4959	6C-BACK 7-CHARACTERISTICS
	Position (3325)	Ø.255±.003	GDT 38	Cylinder 4967	5-DATUMS 6A-FRONT 7-CHARACTERISTICS
27		⊕ Ø.010 A B ₪ ▽ [C]	_		
28	Position (3332)	⊕ Ø.005 A B (M) C (M)	GDT 42	Cylinder 4961	6C-BACK 7-CHARACTERISTICS



Distance Between

	A	В	С	D	E	
1	FileName, Date, Version	C:\Users\lipman\Documents	\QIF\strut.qif 2017-	04-20 20:32 QIF 2.1.0		
2	App, Standard, Units	MBDVidia, Pro/ENGINEER				
З	FeatureNominal Types	(10) Circle CircularArc Cone	ConicalSegment Cylin	nder CylindricalSegment Line	e OppositeParallelPlanes Plane ToroidalSegment	
4						
5	Element (id)	PMI	Name	FeatureNominal	Saved View	
6	Diameter (3267, 3266)	Ø.260 ± .003	AE_DRIVEN_DIM0	Cylinder 4963	5-DATUMS 6A-FRONT 7-CHARACTERISTICS	
7	Diameter (3270, 3269)	Ø.255 ± .003	AE_DRIVEN_DIM1	Cylinder 4967	5-DATUMS 6A-FRONT 7-CHARACTERISTICS	
8	Diameter (3273, 3272)	Ø.160 ± .002	AE_DRIVEN_DIM2	Cylinder 4977	6C-BACK 7-CHARACTERISTICS	
9	Diameter (3276, 3275)	3X Ø.254 ± .002	AE_DRIVEN_DIM3	(3) Cylinder 4959 4982 4983	6C-BACK 7-CHARACTERISTICS	
10	Diameter (3279, 3278)	3X Ø.248 ± .002	AE_DRIVEN_DIM4	(3) Cylinder 4961 5134 5135	6C-BACK 7-CHARACTERISTICS	
11	DistanceBetween (5213, 5212)	(6.4)	REF_DIMENSION_8	(2) CircularArc 5005 5120	0-OVERALL 6A-FRONT	····· (.7) ···
	DistanceBetween (5238, 5237)	(.7)	REF_DIMENSION_16	(1) CylindricalSegment 4988	0-OVERALL 6B-RIGHT	
12				(1) Plane 5231		
13	Length (3689, 3688)	(1.5)	REF_DIMENSION_10	CylindricalSegment 5218	0-OVERALL 6A-FRONT	
14						
15	5 Datum (3252)			Cylinder 496	5-DATUMS 6A-FRONT 6C-BACK	
16	5 Datum (3254)	A		Plane 4975	5-DATUMS 6A-FRONT 6B-RIGHT 6C-BACK 7-CHARACTERISTICS	
17	7 Datum (3263)	В	$\langle \rangle$	Cylinder 4963	5-DATUMS 6A-FRONT 6C-BACK	
18	3			\times	<distancebetweench< th=""><th>aracteristicDefinition id='5237"></th></distancebetweench<>	aracteristicDefinition id='5237">
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20	DatumReferer	BetweenCharacteri	sticNominal i	id='5238'>	<nontolerance></nontolerance>	MEASURED
21	DatumReferer	ibutes n="%">			<pre></pre> <pre> </pre>	haracteristicDefinition
22		AttributeT2 name-	" 2dv Edature	Doin" volue-"409	9 5221"/\	
	Flatness (3243	nibutor)	_buv.reacure	Fail Value- 490	CHARACTERISTICS	
				ale and a stand and a stand of the	to the town the	
22	KChar	acteristicDefinit	1011035237 (/0	LnaracteristicDet.	initionia>	
2.5	Perpendicular <feat< td=""><td>ureNominalids n="</td><td>2"></td><td></td><td>CHARACTERISTICS</td><td></td></feat<>	ureNominalids n="	2">		CHARACTERISTICS	
	<	Id>4988			CHARACTERISTICS	
	<	Id>5231				
	<th>tureNominalIds></th> <th></th> <th></th> <th></th> <th></th>	tureNominalIds>				
24	<name< th=""><th>>REF DIMENSION 16</th><th></th><th></th><th></th><th></th></name<>	>REF DIMENSION 16				
	Position (3305	haracteristic>			TICS	
25		Designation>27//De	signation			
26	Position (3312	Champetanistic)	Signatory		TICS	
	Position (3325	characteristic>	1.4.1.1.1		CHARACTERISTICS	
	· <targ< th=""><th>etvalue decimalPl</th><th>aces="1" lin€</th><th>earUnit="inch">0.</th><th>/</th><th></th></targ<>	etvalue decimalPl	aces="1" lin€	earUnit="inch">0.	/	
	<anal< th=""><th>ysisMode>THREEDIM</th><th>ENSIONAL<th>alysisMode></th><th></th><th></th></th></anal<>	ysisMode>THREEDIM	ENSIONAL <th>alysisMode></th> <th></th> <th></th>	alysisMode>		
	<td>eBetweenCharacter</td> <td>isticNominal)</td> <td>></td> <td></td> <td></td>	eBetweenCharacter	isticNominal)	>		
27	·	[C]				
28	Position (3332)	⊕ Ø.005 A B M C M	GDT_42	Cylinder 4961	6C-BACK 7-CHARACTERISTICS	

Distance Between

	A	В	С	D	E	
1	FileName, Date, Version	C:\Users\lipman\Documents				
2	App, Standard, Units	MBDVidia, Pro/ENGINEER	ASME-Y14.5-2009 II			
3	FeatureNominal Types	(10) Circle CircularArc Cone	ConicalSegment Cylin			
4						
5	Element (id)	PMI	Name	FeatureNominal	Saved View	
6	Diameter (3267, 3266)	Ø.260 ± .003	AE_DRIVEN_DIM0	Cylinder 4963	5-DATUMS 6A-FRONT 7-CHARACTERISTICS	
7	Diameter (3270, 3269)	Ø.255±.003	AE_DRIVEN_DIM1	Cylinder 4967	5-DATUMS 6A-FRONT 7-CHARACTERISTICS	
8	Diameter (3273, 3272)	Ø.160 ± .002	AE_DRIVEN_DIM2	Cylinder 4977	6C-BACK 7-CHARACTERISTICS	
9	Diameter (3276, 3275)	3X Ø.254 ± .002	AE_DRIVEN_DIM3	(3) Cylinder 4959 4982 4983	6C-BACK 7-CHARACTERISTICS	
10	Diameter (3279, 3278)	3X Ø.248±.002	AE_DRIVEN_DIM4	(3) Cylinder 4961 5134 5135	6C-BACK 7-CHARACTERISTICS	(
11	DistanceBetween (5213, 5212)	(614)	REF_DIMENSION_8	(2) CircularArc 5005 5120	0-OVERALL 6A-FRONT	····· (./) ···
	DistanceBetween (5238, 5237	(.7)	REF_DIMENSION_16	(1) CylindricalSegment 4988	0-OVERALL 6B-RIGHT	
12				(1) Plane 5231		
13	Length (3689, 3688)	(1,5)	REF_DIMENSION_10	CylindricalSegment 5218	0-OVERALL 6A-FRONT	
14	(Deturn (2252)			Culture dans doct		
15	Datum (3252)			Cylinder 496	5-DATUMS 6A-FRONT 6D BICUT 6C BACK 7 CHARACTERISTICS	
10	Datum (3254)			Plane 4979 Oulind of 4962	5-DATUMS 6A-FRONT 66-RIGHT 6C-BACK 7-CHARACTERISTICS	
10	Datum (5205)			4305	J-DATOWS OA-FRONT OC-BACK	
10	DatumReferenceFrame (3303)	ALBMINM			<distancebetweencr< th=""><th>aracteristicDefinition id= 523/ ></th></distancebetweencr<>	aracteristicDefinition id= 523/ >
20	DatumReference (0000)		>REFERENCE(/DimensionType>			
21	<pre>DatumReferer</pre>	BetweenCharacteri	MEASURED			
22	<attr< th=""><th>ibutes n="1"></th><th></th><th></th><th><th>CharacteristicDefinition></th></th></attr<>	ibutes n="1">			<th>CharacteristicDefinition></th>	CharacteristicDefinition>
	Flatness (3243	AttributeI2 name=	<u>_3dv.Fe</u> ature	ePair" value="498	8 5231"/> CHARACTERISTICS	
	<th>ributes></th> <th></th> <th></th> <th></th> <th></th>	ributes>				
	<char< th=""><th>acteristicDefinit</th><th></th></char<>	acteristicDefinit				
23	<feat< th=""><th>ureNominalIds n="</th><th>2"></th><th></th><th></th><th></th></feat<>	ureNominalIds n="	2">			
	Perpendicular	T(>4988			-CHARACTERISTICS	
		T()5231		\backslash		
	(/Eea	tureNominalIds		\backslash		
	(Namo			\backslash		
24	Position (2205	happetanistic		\backslash	TICS	
25	Position (3505	naracteristicy			1105	
25	Position (3312	Designator>21 <th>signator></th> <th></th> <th>TICS</th> <th></th>	signator>		TICS	
20	Position (3325 <th>Characteristic></th> <th></th> <th></th> <th></th> <th></th>	Characteristic>				
	<targ< th=""><th>etValue decimalPl</th><th></th></targ<>	etValue decimalPl				
	<anal< th=""><th>ysisMode>THREEDIM</th><th></th></anal<>	ysisMode>THREEDIM				
	<th>eBetweenCharacter</th> <th>isticNominal;</th> <th>></th> <th></th> <th></th>	eBetweenCharacter	isticNominal;	>		
27	·	[C]				
28	Position (3332)	⊕ Ø.005 A B M C M	GDT_42	Cylinder 4961	6C-BACK 7-CHARACTERISTICS	

	А	В	С	D	E			
1	FileName, Date, Version C:\Users\lipman\Docume		\QIF\strut.qif 2017-	04-20 20:32 QIF 2.1.0				
2	App, Standard, Units	MBDVidia, Pro/ENGINEER ASME-Y14.5-2009 INCH						
3	3 FeatureNominal Types (10) Circle CircularArc Cone ConicalSegment CylindricalSegment Line OppositeParallelPlanes Plane ToroidalSegment							
4								
5	Element (id)	PMI	Name	FeatureNominal	Saved View			
6	Diameter (3267, 3266)	Ø.260 ± .003	AE_DRIVEN_DIM0	Cylinder 4963	5-DATUMS 6A-FRONT 7-CHARACTERISTICS			
7	Diameter (3270, 3269)	Ø.255 ± .003	AE_DRIVEN_DIM1	Cylinder 4967	5-DATUMS 6A-FRONT 7-CHARACTERISTICS			
8	Diameter (3273, 3272)	Ø.160 ± .002	AE_DRIVEN_DIM2	Cylinder 4977	6C-BACK 7-CHARACTERISTICS			
9	Diameter (3276, 3275)	3X Ø.254 ± .002	AE_DRIVEN_DIM3	(3) Cylinder 4959 4982 4983	6C-BACK 7-CHARACTERISTICS			
10	Diameter (3279, 3278)	3X Ø.248 ± .002	AE_DRIVEN_DIM4	(3) Cylinder 4961 5134 5135	6C-BACK 7-CHARACTERISTICS			
11	DistanceBetween (5213, 5212)	(6.4)	REF_DIMENSION_8	(2) CircularArc 5005 5120	0-OVERALL 6A-FRONT			
12	DistanceBetween (5238, 5237)	(.7)	REF_DIMENSION_16	(1) CylindricalSegment 4988 (1) Plane 5231	0-OVERALL 6B-RIGHT			
13	Length (3689, 3688)	(1.5)	REF DIMENSION 10	CylindricalSegment 5218	0-OVERALL 6A-FRONT			
14				, 0				
15	Datum (3252)	с		Cylinder 4967	5-DATUMS 6A-FRONT 6C-BACK			
16	Datum (3254)	Α		Plane 4975	5-DATUMS 6A-FRONT 6B-RIGHT 6C-BACK 7-CHARACTERISTICS			
17	Datum (3263)	в		Cylinder 4963	5-DATUMS 6A-FRONT 6C-BACK			
18		· · · · · · · · · · · · · · · · · · ·						
19	DatumReferenceFrame (3303)	A B (M) C (M)						
20	DatumReferenceFrame (3323)	A B (M)						
21	DatumReferenceFrame (3335)	Α						
22								
23	Flatness (3243)	~ .005 ▽ [A]	GDT_35	Plane 4975	5-DATUMS 6B-RIGHT 7-CHARACTERISTICS			
24	Perpendicularity (3337)	Ø.260 ± .003 ⊥ .005 A ▽ [B]	GDT_37	Cylinder 4963	5-DATUMS 6A-FRONT 7-CHARACTERISTICS			
25	Position (3305)	Ø.160 ± .002 ⊕ Ø.010 A B Ŵ C Ŵ	GDT_40	Cylinder 4977	6C-BACK 7-CHARACTERISTICS			
26	Position (3312)	⊕ Ø.005 A B (M) C (M)	GDT 41	Cylinder 4959	6C-BACK 7-CHARACTERISTICS			
27	Position (3325)	Ø.255±.003 ⊕ Ø.010 A B M ∇ 	GDT_38	Cylinder 4967	5-DATUMS 6A-FRONT 7-CHARACTERISTICS			
27	Position (3332)	⊕ Ø.005 A B (M) C (M)	GDT 42	Cylinder 4961	6C-BACK 7-CHARACTERISTICS			

Ø.160±.002 [PC-006] ⊕ Ø.010 A B⊗ C⊗

23

			i i unic		- Ø.160±.002
A	В	С	D		E [PC-006]
FileName, Date, Version	C:\Users\lipman\Docur	ments\QIF\strut.gif 2017	-04-20 20:32 QIF 2.1.0		
App, Standard, Units	MBDVidia, Pro/ENGINE	ER ASME-Y14.5-2009	INCH		
FeatureNominal Types	(10) Circle CircularArc	Cone ConicalSegment Cyli	inder CylindricalSegment Lin	e OppositeParallelPlanes Plane Tor	roidalSegment
Element (id)	PMI	Name	FeatureNominal	Saveo	d View
Diameter (3267, 3266)	Ø.260 ± .003	AE_DRIVEN_DIM0	Cylinder 4963	5-DATUMS 6A-FRONT 7-CHARAC	< <u>DatumReferenceFrame id</u> "3303">
Diameter (3270, 3269)	Ø.255 ± .003	AE_DRIVEN_DIM1	Cylinder 4967	5-DATUMS 6A-FRONT 7-CHARAC	<datums n="3"></datums>
Diameter (3273, 3272)	Ø.160 ± .002	AE_DRIVEN_DIM2	Cylinder 4977	6C-BACK 7-CHARACTERISTICS	<datum></datum>
Diameter (3276, 3275)	3X Ø.254 ± .002	AE_DRIVEN_DIM3	(3) Cylinder 4959 4982 4983	6C-BACK 7-CHARACTERISTICS	<simpledatum></simpledatum>
Diameter (3279, 3278)	3X Ø.248 ± .002	AE_DRIVEN_DIM4	(3) Cylinder 4961 5134 5135	6C-BACK 7-CHARACTERISTICS	<pre><datumdefinitionid>3254</datumdefinitionid></pre> /DatumDefinitionId>
DistanceBetween (5213, 5212)	(6.4)	REF DIMENSION 8	(2) CircularArc 5005 5120	8-OVERALL 6A-FRONT	<materialmodifier>NUNE</materialmodifier>
DistanceBetween (5238, 5237)	(.7)	REF_DIMENSION_16	(1) CylindricalSegment 4988	0-OVERALL 6B-RIGHT	<referencedcomponent>NOMINAL</referencedcomponent>
			(1) Plane 5231		
Length (3689, 368 <u>8)</u>	(1.5)	REF DIMENSION 10	CylindricalSegment 5218	0-OVERALL 6A-FRONT	<precedence></precedence>
					<precedenceenum>PRIMARY</precedenceenum>
Datum (3252)			Cylinder 4967	5-DATUMS 6A-FRONT 6C-BACK	
Datum (3254)	A		Plane 4975	5-DATUMS 6A-FRONT 6B-RIGHT	
Datum (3263)	В	X	Cylinder 4963	5-DATUMS 6A-FRONT 6C-BACK	<datum></datum>
	-		-,		<pre>(SimpleDatum)</pre>
DatumReferenceFrame (3303)	ALBMICM				(DatumDefinitionId) 3263(/DatumDefinitionId)
DatumReferenceFrame (3323)					<pre>(MaterialModifier)MAXIMUM</pre>
DatumReferenceFrame (3335)					<pre></pre>
barannerereneer anne (5555)					<pre>//SimpleDatum></pre>
Flatness (3243)	≈ L 005	GDT 35	Plane 4975	5-DATUMS 68-RIGHT 7-CHARACT	
114(11255 (3243)	T.005	001_35	Fidile 4575	5-DATOMS OB-RIGHT 7-CHARAC	(ProcedenceEnum)SECONDARY/ (ProcedenceEnum)
	<datumdefiniti< td=""><td>ion id='3252 🌤 🗕</td><td></td><td></td><td>(/Decedence)</td></datumdefiniti<>	ion id='3252 🌤 🗕			(/Decedence)
	<attribute< td=""><td>es n="1"></td><td></td><td></td><td><pre>//Fiecedence/ //Datum></pre></td></attribute<>	es n="1">			<pre>//Fiecedence/ //Datum></pre>
Perpendicularity (2227)	<attri< td=""><td>ibuteStr name="</td><td>3dv.KeyDesignator</td><td>v value="11"/> volue</td><td></td></attri<>	ibuteStr name="	3dv.KeyDesignator	v value="11"/> volue	
rependicularity (5557)	<td>tes></td> <td>. , , , , , , , , , , , , , , , , , , ,</td> <td>/ CHANAC</td> <td></td>	tes>	. , , , , , , , , , , , , , , , , , , ,	/ CHANAC	
		a C /Datum ahal	DatumDefinit	tion for	(DatumDofinitionTM 2252) (DatumDofinitionId)
	Cacturelabe	er/calumlaber	A (2254) B	(2262)	(Material Medifier) MAXIMUM (Material Medifier)
	<pre><featureno< pre=""></featureno<></pre>	ominalids n= 1 >	A (3234), B	3203)	<pre></pre>
Desition (2205)	<id>49</id>	967(/Id>	are not sh	own	<pre></pre> </td
Position (3305)	<td>NominalIds></td> <td></td> <td>RISTICS</td> <td></td>	NominalIds>		RISTICS	
	<td>tion></td> <td></td> <td>DIGTICS</td> <td><pre></pre></td>	tion>		DIGTICS	<pre></pre>
Position (3312)		001_12	Culiadas A057	E DATUME CA FRONT 7 CUARAS	<pre><pre>cedenceEnum>TEKTIAKY </pre></pre>
Position (3325)	Ø.255 ± .003	GD1_38	Cylinder 4967	5-DATUMS 6A-FRONT 7-CHARAC	<pre> </pre>
Position (3332)	⊕ Ø.005 A B (M)	C (M) GDT_42	Cylinder 4961	6C-BACK 7-CHARACTERISTICS	





Perpen	dicular	ity To	oleran	ce	Ø.260±.003 [PC-004]
A	В	С	D	E	
1 FileName, Date, Version	C:\Users\lipman\Documents	QIF\strut.qif 2017-	04-20 20:32 QIF 2.1.0		
2 App, Standard, Units	MBDVidia, Pro/ENGINEER	ASME-Y14.5-2009 II	100 0001		
3 FeatureNominal Types	(10) Circle CircularArc Cone	ConicalSegment Cylin	PC-002		
4					
5 Element (id)	PMI	Name	FeatureNominal	Saved View	
6 Diameter (3267, 3266)	Ø.260 ± .003	AE_DRIVEN_DIM0	Cylinder 4963	5-DATUMS 6A-FRONT 7-CHARACTERISTICS	
7 Diameter (3270, 3269)	Ø.255 ± .003	AE_DRIVEN_DIM1	Cylinder 4967	5-DATUMS 6A-FRONT 7-CHARACTERISTICS	
8 Diameter (3273, 3272)	Ø.160 ± .002	AE DRIVEN DIM2	Cylinder 4977	6C-BACK 7-CHARACTERISTICS	
9 Diameter (3276, 3275)	3X Ø.254 ± .002	AE DRIVEN DIM3	(3) Cylinder 4959 4982 4983	6C-BACK 7-CHARACTERISTICS	
10 Diameter (3279, 3278)	3X Ø.248 ± .002	AE DRIVEN DIM4	(3) Cylinder 4961 5134 5135	6C-BACK Z-CHARACTERISTICS	
11 DistanceBetween (5213, 5212)	(6.4)	REF DIMENSION 8	(2) CircularArc 5005 5120	0-OVERALL 6A-FRONT	
DistanceBetween (5238, 5237)	(.7)	REF DIMENSION 16	(1) CylindricalSegment 4988	0-OVERALL 6B-RIGHT	
12	,,		(1) Plane 5234		
13 Length (3689, 3688)	(1.5)	REF DIMENSION 10	CylindricalSegment 5218	0-OVERALL 6A-FRONT	L
14	()				
15 Datum (3252)	c		Cylinder 4967	5-DATUMS 6A-FRONT 6C-BACK	
16 Datum (3254)	Δ		Plane 4975	5-DATUMS 6A-FRONT 6B-RIGHT 6C-BACK 7-CHARACTER	FRISTICS
17 Datum (3263)	B		Cylinder 4963	5-DATUMS 6A-FRONT 6C-BACK	
18	-		cymaci 4505		
19 DatumBeferenceErame (2302)					
20 DatumReferenceFrame (3303)					The Question BM share share
20 DatumReferenceFrame (3325)					The Graphical PMI above does
21 Datumkererencerrame (3555)					not look the same as the PMI in
ZZ		CDT 35	Diana 4075	E DATUME OF RIGHT 7 CHARACTERISTICS	cell R24 Datum feature R is not
23	□ 1.009 ▽ [A]	GDT_32	Plane 4975	3-DATUMIS OB-RIGHT 7-CHARACTERISTICS	attached to the feature control frame above. However,
Perpendicularity (3337)	Ø.260 ±.003 ⊥ .005 A ▽ [B]	GDT_37	Cylinder 4963	5-DATUMS 6A-FRONT 7-CHARACTERISTICS	to the left are identical because they are both associated with the same Cylinder.
Position (3305) 25	Ø.160 ± .002 ⊕ Ø.010 A B M C M	GDT_40	Cylinder 4977	6C-BACK 7-CHARACTERISTICS	
26 Position (3312)	⊕ Ø.005 A B M C M	GDT_41	Cylinder 4959	6C-BACK 7-CHARACTERISTICS	
Position (3325)	Ø.255 ±.003 ⊕ Ø.010 A B M ∇ 	GDT_38	Cylinder 4967	5-DATUMS 6A-FRONT 7-CHARACTERISTICS	
28 Position (3332)	⊕ Ø.005 A B M C M	GDT_42	Cylinder 4961	6C-BACK 7-CHARACTERISTICS	

Perpendicularity Tolerance Ø.260±.003 [PC-004] F D .005 A C:\Users\lipman\Documents\QIF\strut.qif 2017-04-20 20:32 QIF 2.1.0 FileName, Date, Version 2 App, Standard, Units MBDVidia, Pro/ENGINEER ASME-Y14.5-2009 INCH [PC-002] (10) Circle CircularArc Cone ConicalSegment Cylinder CylindricalSegment Line OppositeParallelPlanes Plane ToroidalSegment 3 FeatureNominal Types Saved View 5 Element (id) PMI Name FeatureNominal E DATUM 6 Diameter (2067 20) 6A-FRONT 7-CHARACTERISTICS <PerpendicularityCharacteristicDefinition id= "3337" 6A-FRONT 7-CHARACTERISTICS 7 Diam <StatisticalCharacteristic>false</StatisticalCharacteristic> 8 Diame 7-CHARACTERISTICS <ToleranceValue>0.005</ToleranceValue> 7-CHARACTERISTICS 9 Diame <DatumReferenceFrameId>3335(/DatumReferenceFrameId> **Z-CHARACTERISTICS** 10 Diame <MaterialCondition>NONE</MaterialCondition> 6A-FRONT 11 Distar 6B-RIGHT Distan <ZoneShape> 12 <PlanarZone/> 13 Lengt 6A-FRONT </ZoneShape> 14 </PerpendicularityCharacteristicDefinition> 15 Datum <PerpendicularityCharacteristicNominal id="3338"> 16 Datum (3254) Plane 4975 5-DATUMS <Attributes n="3"> 17 Daturn (3263) Cylinder 4963 R 5-DATUMS <AttributeStr name="OccurrenceProbability" value="Low"/> 18 <AttributeStr name="MeasurementTool" value="CMM"/> 19 DatumReferenceFrame (3303) A | B M | C M <AttributeStr name="CAMC" value="No"/> 20 DatumReferenceFrame (3323) A | B (M) 21 DatumReferenceFrame (3335) A </Attributes> 22 <CharacteristicDefinitionId 3337 (/CharacteristicDefinitionId> Flatness (3243) - 005 GDT 35 5-DATUMS Plane 4975 <FeatureNominalIds n="1"> ∇ <Id 4963 (/Id> /FeatureNominalIds> [A] <Name>GDT 37</Name> Perpendicularity (3337) Ø.260 ± .003 GDT 37 Cylinder 4963 5-DATUMS <KeyCharacteristic> ⊥ | .005 | A ∇ <Designator>8</Designator> </KeyCharacteristic> [B] </PerpendicularityCharacteristicNominal> 24 <DatumDefinition id="3263"; Ø.160 ± .002 Position (3305) <Attributes n="1"> [2 lines ⊕ | Ø.010 | A | B M | C M 25 <DatumLabel>B</DatumLabe1> ⊕ | Ø.005 | A | B M | C M 26 Position (3312) 7-CHARACTERISTICS <FeatureNominalIds pr Ø.255 ± .003 MS 6A-FRONT 7-CHARACTERISTICS Position (3325) <Id>4963 / Id> ⊕ | Ø.010 | A | B M </FeatureNominalIds> ∇ </DatumDefinition> [C] ⊕ | Ø.005 | A | B (M) | C (M) GDT 42 28 Position (3332) Cylinder 4961 6C-BACK 7-CHARACTERISTICS

Perpendicularity Tolerance Ø.260±.003 [PC-004] F D .005 A C:\Users\lipman\Documents\QIF\strut.qif 2017-04-20 20:32 QIF 2.1.0 FileName, Date, Version 2 App, Standard, Units MBDVidia, Pro/ENGINEER ASME-Y14.5-2009 INCH [PC-002] (10) Circle CircularArc Cone ConicalSegment Cylinder CylindricalSegment Line OppositeParallelPlanes Plane ToroidalSegment 3 FeatureNominal Types Element (id) Saved View 5 PMI Name FeatureNominal E DATUM 6 Diameter (2067 20) 6A-FRONT 7-CHARACTERISTICS <PerpendicularityCharacteristicDefinition id="3337" 6A-FRONT 7-CHARACTERISTICS 7 Diame <StatisticalCharacteristic>false</StatisticalCharacteristic> 8 Diame 7-CHARACTERISTICS <ToleranceValue>0.005</ToleranceValue> 7-CHARACTERISTICS 9 Diame <DatumReferenceFrameId>3335(/DatumReferenceFrameId> **Z-CHARACTERISTICS** 10 Diame <MaterialCondition>NONE</MaterialCondition> 6A-FRONT 11 Distar 6B-RIGHT Distan <ZoneShape> 12 <PlanarZone/> 13 Lengt 6A-FRONT </ZoneShape> 14 </PerpendicularityCharacter/isticDefinition> 15 Datum <PerpendicularityCharacteristicNominal id="3338"> 16 Datum (3254) Plane 4975 5-DATUMS <Attributes n="3"> 17 Daturn (3263) Cylinder 4963 B 5-DATUMS <AttributeStr name="OccurrenceProbability" value="Low"/> 18 <AttributeStr name="MeasurementTool" value="CMM"/> 19 DatumReferenceFrame (3303) A | B 🛞 | C 🕅 <AttributeStr name="CAMC" value="No"/> 20 DatumReferenceFrame (3323) A | B (M) 21 DatumReferenceFrame (3335) A </Attributes> 22 <CharacteristicDefinitionId 3337 (/CharacteristicDefinitionId> Flatness (3243) - 005 GDT 35 Plane 4975 5-DATUMS <FeatureNominalIds n="1"> ∇ <Id 4963 (/Id> </FeatureNominalIds> [A] <Name>GDT 37</Name> Perpendicularity (3337) 0.260 ± .003 GDT 37 Cylinder 4963 5-DATUMS <KeyCharacteristic> ⊥ | .005 | A ∇ <Designator>8</Designator> </KeyCharacteristic> </PerpendicularityCharacteristicNominal> [B] 24 <DatumDefinition id 3263 Ø.160 ± .002 Position (3305) $\langle Attributes n = "1" \rangle [2] lines/$ ⊕ | Ø.010 | A | B (M) | C (M) 25 <DatumLabe1>B</DatumLabe1> ⊕ | Ø.005 | A | B M | C M 26 Position (3312) 7-CHARACTERISTICS <FeatureNominalIds pr Ø.255 ± .003 Position (3325) MS 6A-FRONT 7-CHARACTERISTICS <Id>4963 / Id> ⊕ | Ø.010 | A | B M </FeatureNominalIds> ∇ </DatumDefinition> [C] ⊕ | Ø.005 | A | B (M) | C (M) GDT 42 28 Position (3332) Cylinder 4961 6C-BACK 7-CHARACTERISTICS





Other Examples

- Measurements associated with PMI
- QPid associated with PMI
- Based on QIF 2.1

Measurement and QPid

1	A	В	C	D	E	F	
1	FileName, Date, Version	C:\Users\lipman\Docume	nts\QI	F\Parts\DMSC\Tes	t\WIDGET_QIF_RESULTS W QPIDS.QIF 201	5-10-23 14:03 QIF 2.1.0	Column E shows
2	App, Standard, Units	SOLIDWORKS 2016, Check	Measurements				
3	FeatureNominal Types	(5) Circle Cylinder Oppos	sitePara	allelLines Plane P	oint		associated with the
4							Element in column A. I
5	Element (id)	PMI	Name	FeatureNominal	Measurement	QPId	at least one
6	Diameter (48, 47)	Ø19±0.13			19.007 PASS	2626c7bf-9e82-487a-b4d6-2cfa01e3f96a	
7	Diameter (67, 66)	Ø25.4±0.15			25.39 PASS	9abb5e78-b873-44f9-bbec-09e6b7b194b7	Measurement FAILS,
8	Diameter (81, 80)	Ø5±0.025			4.878 FAIL 4.89 FAIL	fd1b84c3-2b35-4063-80b3-a2d2673d5271	then the cell is colored
9	Diameter (172, 171)	Ø9.5±0.15			9.454 PASS 9.46 PASS 9.47 PASS	811229eb-2d32-481c-acd2-aace5d2e9eb3	red.
10	DistanceBetween (59, 58)	5±0.5			5.014 PASS		
11	DistanceBetween (193, 192)	75 ± 0.25			74.758 PASS		
12	DistanceBetween (197, 196)	105 ± 0.25			104.63 FAIL	09e3b2c5-5e6f-48bc-a7ac-b0c1ac6a9f44	
13	DistanceBetween (201, 200)	5±1.			4.972 PASS	d1a4b9ea-ae5c-49a1-b502-90e48b9501c0	
14	Width (209, 208)	10 ± 0.5			9.975 PASS	19d2ae25-a438-42af-a52f-6aa319f6dff3	Column F shows the
29							OPid associated with
30	Angularity (161)	∠ 0.5 H			0.095 PASS	0c910f9e-d478-4828-b423-f92116cff3b3	Element in column A
31	Flatness (12)	<i>≈</i> 0.25			0.088 PASS	9a332d97-16dd-441d-acd8-f400b09ea800	Element in column A.
32	Flatness (27)	<i>≈</i> 0.25			0.058 PASS	e74d27cd-44e0-4e55-9c17-5c1692d67d43	
33	Flatness (35)	<i>=</i> 0.25			0.053 PASS	747c1f2b-3ee2-477a-bee3-a85d793e7a20	
34	Flatness (144)	<i>≈</i> 0.25			0.057 PASS	37deb9f2-6bbb-490f-9829-b2a0992502dd	
35	Flatness (157)	<i>≈</i> 0.5			0.094 PASS	984b241a-5733-4fb9-bd74-25eda0510870	
36	Perpendicularity (17)	⊥ 0.5 B			0.114 PASS	b3f4a59a-d21f-4f97-9551-6cd28ae001ed	
37	Perpendicularity (39)	⊥ 0.5 B			0.14 PASS	91ebd5f0-8fbf-4fc5-9714-099e4bab3231	
38	PointProfile (98)	2			-0.274 PASS 0. PASS	8ef7fcb4-537b-41ab-b708-60e68da6dc6e	
39	PointProfile (108)	2			0. PASS 0.051 PASS	269fa404-1f7f-4d41-acf0-94a3ec8e2d5d	
	PointProfile (117)	2			-0.171 PASS -0.214 PASS 0. PASS 0. PASS	6374ef48-f658-42a8-875e-0acf5b618959	
40					0. PASS 0. PASS 0.186 PASS 0.196 PASS		
41	PointProfile (152)	1 B A C			-0.462 PASS 0. PASS	2a760317-1bf5-4547-ab19-28b685b6d6a7	
42	Position (51)	⊕ Ø0.5 M B A C			0.35 PASS	2e2ccaef-d894-497f-b56f-f83f907d7be0	
43	Position (70)	🕀 Ø0.5 🔘 J 🔘			0.344 PASS	1a9722a5-f1ae-409f-b21b-8c4a78fa659f	
44	Position (84)	⊕ Ø0.25 🛞 B A C			0.256 FAIL 0.3 FAIL	e0e76d74-9ee9-46d7-a3f7-d5837345b245	
45	Position (175)	⊕ Ø0.5 🛞 A B C			0.144 PASS 0.206 PASS 0.239 PASS	7d69345e-0181-4601-9044-388c1d4f6b59	
46	Position (212)	⊕ 1 M A C			0.082 PASS	adafde91-5656-4dde-9805-319384875826	

Measurement and QPid

	А	В	C D	E	F				
1	FileName, Date, Version	C:\Users\lipman\Docume	ents\QIF\Parts\DMSC\Te	st\WIDGET_QIF_RESULTS W QPIDS.QIF 203	15-10-23 14:03 QIF 2.1.0				
2	App, Standard, Units	SOLIDWORKS 2016, CheckMate 14 for SOLIDWORKS, Origin International Inc. ASME-Y14.5-1994 MM							
3	FeatureNominal Types	(5) Circle Cylinder Oppos	(5) Circle Cylinder OppositeParallelLines Plane Point						
4									
5	Element (id)	PMI	Name FeatureNomina	Measurement	QPId				
6	Diameter (48, <mark>1</mark> 7)	Ø19±0.13		19.007 PASS	2626c7bf-9e82-487a-b4d6-2cfa01e3f96a				
7	Diameter (67, 66)	Ø25.4±0.15		25-89 PAS	9abb5e78-b873-44f9-bbec-09e6b7b194b7				
8	Diameter (8 <mark>1</mark> , 80)	Ø5±0.025		4.878 FAIL 4.89 FAIL	fd1b84c3-2b35-4063-80b3-a2d2673d5271				
9	Diameter (172, 171)	Ø9.5±0.15		9.454 PASS 9.46 PASS 9.47 PASS	811229eb-2d32-481c-acd2-aace5d2e9eb3				
10	DistanceBetween (59, 58)	5±0.5		5.014 PASS					
11	DistanceBetween (193, 192)	75±0.25		74.758 PASS					
12	Dista < DiameterCharacte	eristicItem id="49"	>	AIL	-09e3b2c5-5e6f-48bc-a7ac-b0c1ac6a9f44				
13	Dista <attributes 1"="" n="</td><td>"></attributes>		ASS	d1a4b9ea-ae5c-49a1-b502-90e48b9501c0					
14	Widt <attributeqpi< td=""><td><pre>Id name="QPId"></pre></td><td></td><td>155</td><td>19d2ae25-a438-42af-a52f-6aa319f6dff3</td><td></td></attributeqpi<>	<pre>Id name="QPId"></pre>		155	19d2ae25-a438-42af-a52f-6aa319f6dff3				
29	<value>2626</value>	5c7bf-9e82-487a-b4d	6-2cfa01e3f96a (/\	Halue>					
30	Angu <th>PId></th> <th></th> <th>ASS <pre><diamotercharact< pre=""></diamotercharact<></pre></th> <th>teristicActual id="50"></th> <th></th>	PId>		ASS <pre><diamotercharact< pre=""></diamotercharact<></pre>	teristicActual id="50">				
31	Flatn (Name) 10 (Name)			ASS					
32	Flatn	+ic \		ASS	sticstatusEnum2PASS	TICSTATUSENUM			
33	Flatn			ASS	cTtomTd 40 (ChapactonicticTtomT	a.			
34	Flatn (KeyChanacteri	istic)		ASS	IIIde n="1"\	.u>			
35	Flatn (FeatureTtemIds	n="1">		ASS (Td) 46(Td)					
36	Perp <td>45</td>	45			ASS (/EestureActus	al T de S			
37	Perp <td>ds></td> <td></td> <td>SS (Value)19,007</td> <td>00000000001</td> <td></td>	ds>		SS (Value)19,007	00000000001				
38	Point <measurementdev< td=""><td>/iceIds n="1"></td><td></td><td>ASS 0. PASS / DiameterCharac</td><td>teristicActual></td><td></td></measurementdev<>	/iceIds n="1">		ASS 0. PASS / DiameterCharac	teristicActual>				
39	Point <id>15</id>			0.051 PASS	269fa404-1f7f-4d41-acf0-94a3ec8e2d5d				
	Point <td>eviceIds></td> <td></td> <td>ASS -0.214 PASS 0. PASS 0. PASS</td> <td>6374ef48-f658-42a8-875e-0acf5b618959</td> <td></td>	eviceIds>		ASS -0.214 PASS 0. PASS 0. PASS	6374ef48-f658-42a8-875e-0acf5b618959				
40	<characteristic< td=""><td>NominalId<mark>>48</mark><td>acteristicNominal</td><td>Id> 0. PASS 0.186 PASS 0.196 PASS</td><td></td><td></td></td></characteristic<>	NominalId <mark>>48</mark> <td>acteristicNominal</td> <td>Id> 0. PASS 0.186 PASS 0.196 PASS</td> <td></td> <td></td>	acteristicNominal	Id> 0. PASS 0.186 PASS 0.196 PASS					
41	Point <td>teristicItem></td> <td></td> <td>ASS 0. PASS</td> <td>2a760317-1bf5-4547-ab19-28b685b6d6a7</td> <td></td>	teristicItem>		ASS 0. PASS	2a760317-1bf5-4547-ab19-28b685b6d6a7				
42	Position (51)	⊕ Ø0.5 M B A C		0.35 PASS	2e2ccaef-d894-497f-b56f-f83f907d7be0				
43	Position (70)	⊕ Ø0.5 M J M		0.344 PASS	1a9722a5-f1ae-409f-b21b-8c4a78fa659f				
44	Position (84)	⊕ Ø0.25 M B A C		0.256 FAIL 0.3 FAIL	e0e76d74-9ee9-46d7-a3f7-d5837345b245				
45	Position (175)	⊕ Ø0.5 M A B C		0.144 PASS 0.206 PASS 0.239 PASS	7d69345e-0181-4601-9044-388c1d4f6b59				
46	Position (212)	⊕ 1∭ A C		0.082 PASS	adafde91-5656-4dde-9805-319384875826				