

# MODELS FOR UNSTRUCTURED, NON-GEOMETRIC INFORMATION OF TECHNICAL REQUIREMENTS

XSB, Inc

GLOBAL PRODUCT DATA  
INTEROPERABILITY  
**S U M M I T**  
**2019**

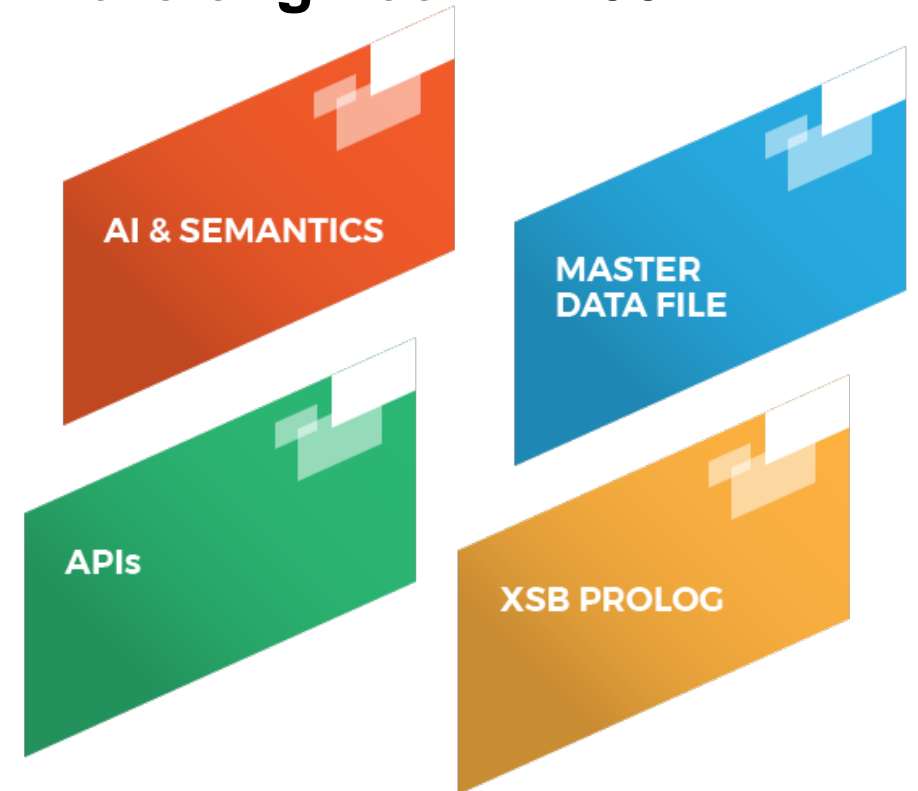


# About the Speaker: Tatyana Vidrevich

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- Chief Operating Officer at [XSB](#)
- Joined as a Data Science software engineer in 2001
- Interest:  
enabling machines  
to help humans solve  
engineering problems  
in unexplored spaces



# What is Unstructured, Non-geometric Information?

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## NOTES:

1. SPEC MIL-W-13855 AWS ANSI Y14.5M-1982 APPLY.

2. MATERIAL: STEEL, BAR, ALLOY 4320 OR 8620.

3. UNLESS OTHERWISE SPECIFIED, ALL EXTERNAL SHARP EDGES SHALL BE BROKEN 0.05 TO 0.25; INTERNAL EDGES R0.2 MAX.

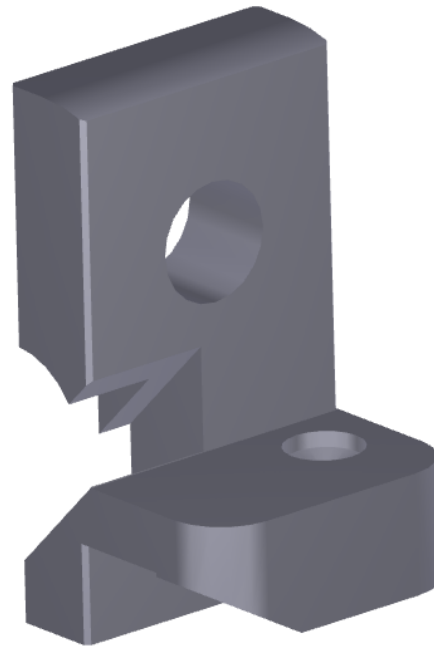
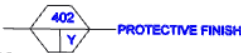
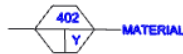
4. UNLESS OTHERWISE SPECIFIED, ALL SURFACE FINISH IS 3.2.

5. PROTECTIVE FINISH: FINISH 5.3.1.1 OR 5.3.2.1 OF MIL-STD-171.

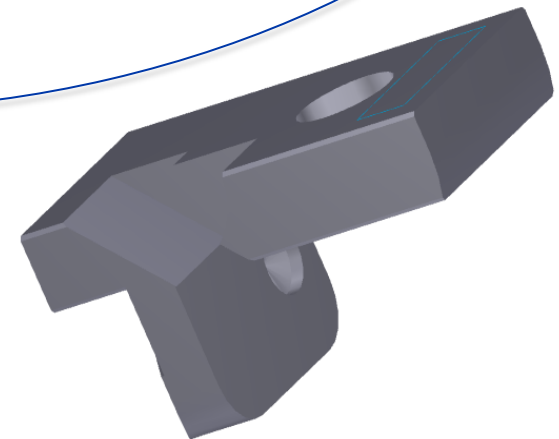
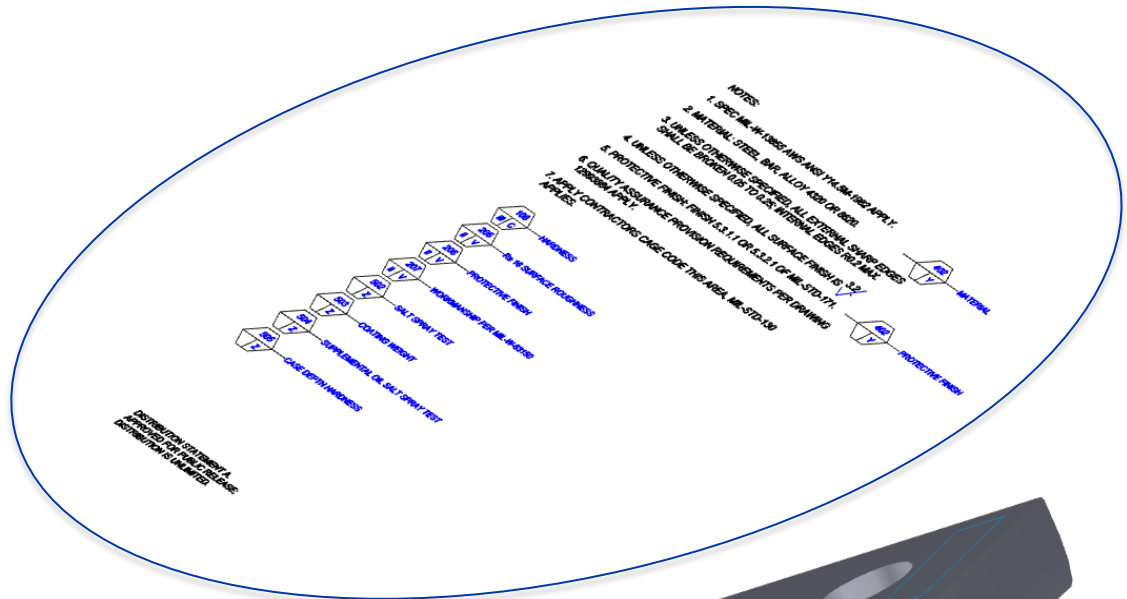
6. QUALITY ASSURANCE PROVISION REQUIREMENTS PER DRAWING 12993884 APPLY.

7. APPLY CONTRACTORS CAGE CODE THIS AREA, MIL-STD-130 APPLIES.

108	HARDNESS
III C	
205	Re 16 SURFACE ROUGHNESS
II V	
206	PROTECTIVE FINISH
II V	
207	WORKMANSHIP PER MIL-W-63150
II V	
502	SALT SPRAY TEST
Z	
503	COATING WEIGHT
Z	
504	SUPPLEMENTAL OIL SALT SPRAY TEST
Z	
505	CASE DEPTH HARDNESS
Z	



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# How About This?

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METRIC • ROUND

**KSC-C-123J**  
**JULY 17, 2009**

Supersedes  
KSC-C-123H  
September 25, 1995  
and incorporates  
Change Notices  
1 Through 6

## **SURFACE CLEANLINESS OF GROUND SUPPORT EQUIPMENT FLUID SYSTEMS, SPECIFICATION FOR**

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### **ENGINEERING DIRECTORATE**

National Aeronautics and  
Space Administration

John F. Kennedy Space Center

KSC FORM 16-17 (REV. 108) PREVIOUS EDITIONS ARE OBSOLETE (20 1506)



KSC-C-123J  
July 17, 2009

**Table 1. Fluid Surface Cleanliness Levels**

(Table 1A) Particulate Matter Contamination Levels			(Table 1B) NVR Contamination Levels		(Table 1C) Visible Contamination Levels	
Level	Particle Size Range $\mu\text{m}$ (micrometer)	Maximum Number of Particles per $0.1 \text{ m}^2$	Level	Maximum NVR (mg/ $0.1 \text{ m}^2$ )	Level	Definition
25	<5 5 to 15 >15 to 25 >25	Unlimited * 19 4 0	A	1.0	GC	Freedom from manufacturing residue, dirt, oil, grease, etc.
50	<15 15 to 25 >25 to 50 >50	Unlimited * 17 8 0	B	2.0	VC	The absence of all particulate and nonparticulate matter visible to the normal unaided eye or corrected-vision eye, commercially cleaned.
100	<25 25 to 50 >50 to 100 >100	Unlimited * 65 11 0	C	3.0	UV	Visually clean and inspected with ultraviolet light, requires precision cleaning methods
150	<50 50 to 100 >100 to 150 >150	Unlimited * 47 5 0	D	4.0	<b>Notes</b>  Allowable particulate and NVR are based on $0.1 \text{ m}^2$ (1 $\text{ft}^2$ )  Dewpoint and moisture can be waived if the critical sur- face is normally opened to the atmosphere (Test Method III, A.3.3)  * Siting is not permitted	
200	<50 50 to 100 >100 to 200 >200	Unlimited * 154 16 0	E	5.0		
250	<100 100 to 200 >200 to 250 >250	Unlimited * 39 3 0	F	7.0		
300	<100 100 to 250 >250 to 300 >300	Unlimited * 93 3 0	G	10.0		
500	<100 100 to 250 >250 to 500 >500	Unlimited * 1073 27 0	H	15.0		
750	<250 250 to 500 >500 to 750 >750	Unlimited * 205 9 0	I	25.0		
1000	<500 500 to 750 >750 to 1000 >1000	Unlimited * 34 5 0				

# Or This?

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## Original Drawing Notes

### GENERAL NOTES - RAW FORGING

51--SPECIFIED TOLERANCES INCLUDE DIE CLOSURE, LINEAR, STRAIGHTNESS AND MISMATCH TOLERANCES AS APPLICABLE

52--DRAFT ANGLES 5° ± 1° MATCHED WHERE NECESSARY

53--CORNER RADII .06 ± .03 EXCEPT AS NOTED.

54--FILLET RADII .12 ± .03 EXCEPT AS NOTED.

55--PADS SHALL BE IN AS-FORGED CONDITION NO GRINDING PERMITTED

56--MAXIMUM FLASH EXTENSION .03

57--RECORDS OF MILL HEAT AND HEAT TREATMENT TO BE FURNISHED TO VERTOL

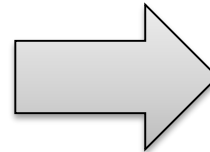
58--MARK PER VERTOL SPEC. MS 1301 GR1A01B

59--FABRICATE FORGING IN ACCORDANCE WITH SPEC. QQ-M-40.

60--DATUM DIMENSION (ZERO TOLERANCE)

FOR LOCATION OF DATUM PLANE.

61--ALTERNATE MATERIAL - ZK60A-T5 MAGNESIUM ALLOY PER QQ-M-31 OR AMS 4352. STOCK SIZE 3.00 X 5.80 X 5.10



## SWISS Conversion to Text and Data

### GENERAL NOTES - RAW FORGING

51- SPECIFIED TO STRAIGHTNESS A

52 - DRAFT ANGLE

53 - CORNER RADII 0.16 +/-

54 - FILLET RADII 0.12 +/- .03 EXCEPT AS NOTED.

55 - PADS SHA PERMITTED.

56 - MAXIMUM F

57 - RECORDS OF MILL HEAT TREATMENT TO BE FURNISHED TO VERTOL

58 - MARK PER VERTOL SPEC. MS 1301

59 - FABRICATE **FORGING IN ACCORDANCE WITH SPEC. QQ-M-40.**

60 - DATUM DIMENSIONS (ZERO TOLERANCE) FOR LOCATION OF DATUM PLANE.

61 - ALTERNATE MATERIAL - ZK60A-T5 MAGNESIUM ALLOY PER QQ-M-31 OR AMS 4352.

**MATERIAL : MAGNESIUM  
PROCESS : FORGING  
STATE : CANCELLED**

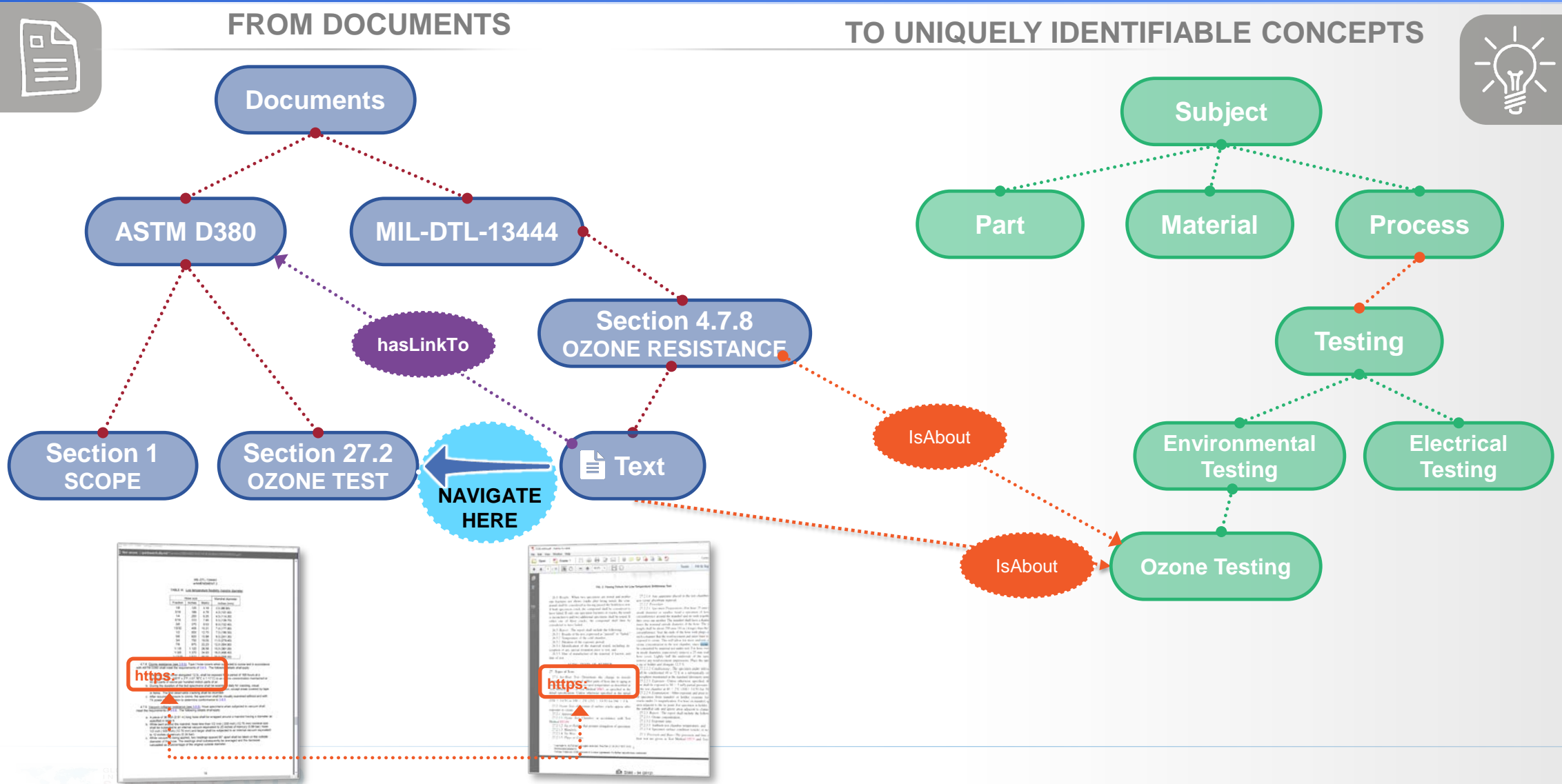
**FORGING IN ACCORDANCE  
WITH SPEC. QQ-M-40**

# Semantic Linking: “Who” am I pointing to and “why”

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FROM DOCUMENTS

TO UNIQUELY IDENTIFIABLE CONCEPTS





# Extending the Spec Model Through Requirements Extraction

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Controlled vocabulary

RESEARCH  
OBJECTIVES

Requirements found for: YACL-WP PD 99-01			
Fastener Tape			
<a href="#">Section 4.3.1</a> <a href="#">Knife pocket reinforcement webbing and lanyard cord</a>	cord	The cord shall meet the requirements in paragraph 3.3.6 when tested for breaking strength in accordance with ASTM-D-5035 .	<a href="#">ASTM D5035 11</a> <a href="#">Section 6.2</a> <a href="#">Clamps and Jaw Faces</a>
<a href="#">Section 3.3.3</a> <a href="#">Hook and Loop Fastener Tape</a>	hook	The sheer strength of the hook shall be 5.0 grams/linear yard, the peel strength of the hook shall be .5 grams/linear yard, and the weight shall be 4.5 grams/linear yard for the hook and 5.9 grams/linear yard for the loop when tested in accordance with paragraph 4.3.2 .	<a href="#">YACL-WP PD 99-01 Section 4.3.2</a> <a href="#">Hook and loop fastener tape test</a>
<a href="#">Section 3.3.8</a> <a href="#">Snap Fastener</a>	snap fastener	The snap fastener for the knife pocket shall conform to style 2, finish 2 of MIL-F-10884 and MS27980-1B (button), MS27980-6B (socket), MS27980-7B (stud) and MS27980-8B (eyelet).	<a href="#">Verification links</a>
<a href="#">Section 3.4.1</a> <a href="#">Barcode tag</a>	label	The label shall be attached without using adhesive or without piercing the fabric to prevent damage to the item.	
<div>Export</div> <div>Close</div>			

Context

# The SWISS API Delivers Data to the Apps and Standards You Already Use

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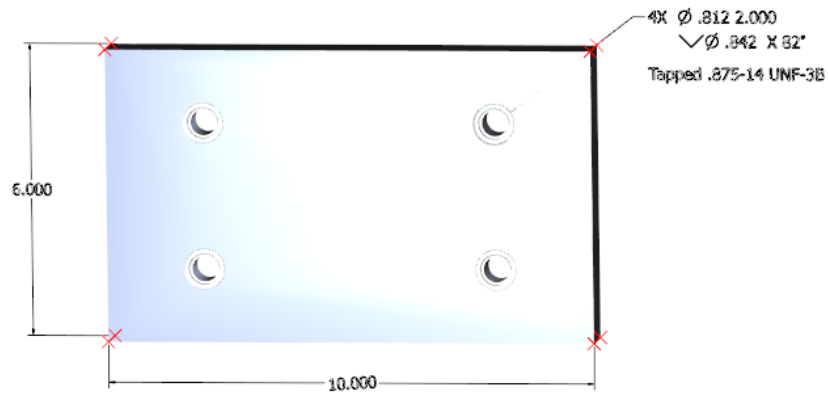




# Demonstration of the Elysium 3D PDF plugin

**Notes:**

Notes:  
1) MATERIAL ALUMINUM 5066 PER ASTM-B-209  
2) PREPARE INSTALLATION HOLES FOR MS5131-106 PER MS51335



Left	MBD-000	MBD-001	Right
------	---------	---------	-------

PMI/Annotation	Link
----------------	------

0.842

10.000

4X MS51831-108

6.000

COTS CATALOG ITEM PROCUR

NOTES: 1) INSTALL MS51831-10

Notes: 1) MATERIAL ALUMINUM

Link ASTM  
B209

Link  
MS35831

Link  
MS35835



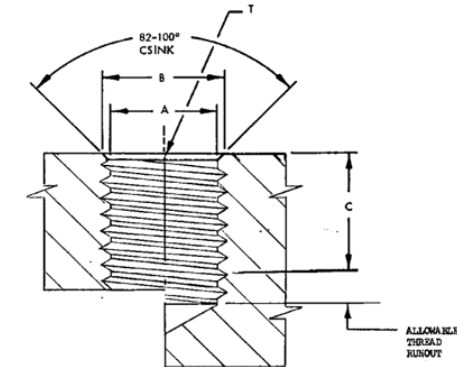
Work Instruction #	PS-AH50WI2011
REV	D
Prepared by	
Approved by	
Date	

Title: Hole preparation for Part 100001

From: MS51835B FIGURE 1.

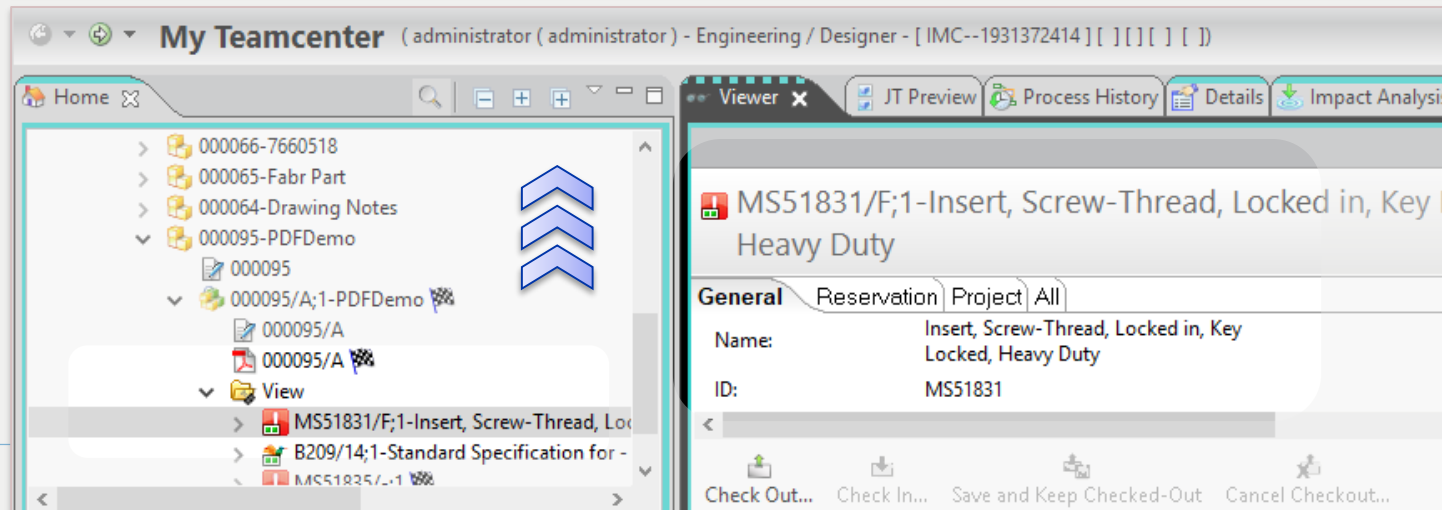
FIGURE 1.

Configuration for Tables I, II and III.



Derived from:MS51835B Paragraph

Diameter A = .771



# Five SWISS Game Changers

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## **INTEROPERABILITY**

Move effortlessly between concepts, within documents, work instructions, and industry specs. Saves time, increases accuracy.



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Every doc is connected to its authoritative source. Increases accuracy, reduces errors and risk, maximizes compliance.



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