

Supply Chain Best Practice

Subject:

FAIR Validation (First Article Inspection Report)

Prepared by: M. Kloc (Manufacturing Engineering)
Date: February 9th, 2011
Issue: 002

Revision: J. Kozik (Manufacturing Engineering)
Date: March 30th, 2012

1.0 Scope

This Best Practice describes rules for FAIR_issue_and validation as a sub-process of part approval.

2.0 Purpose

This Best Practice addresses the need to standardize the method of reporting requirements using FAIR Forms, to eliminate requests for rework.

3.0 Intent

This Best Practice is intended as a guideline to be implemented by the WSK, PWK and P&WC supply chain when compiling FAIR in the line with company quality standards.

4.0 P&WC Applicable Documents

SAE AS9102 Revision A	Aerospace First Article Inspection Requirement
ASQR01 Revision 6	Supplier Quality System Requirements
MOWI 0902401	First Article Inspection Record (P&WC Campus 41)
MOP 090240 FAI & FIR	First Article Inspection and Full Inspection Report (P&WC Campus 1)

5.0 Definitions

FAI	First Article Inspection
FAIR	First Article Inspection Report
FIR	Full Inspection Report
IPT	Integrated Product Team
MOP	Manufacturing Operation Procedure
MOS	Manufacturing Operation Sheet
PPDP	Progressive Product Definition Process
QN	Quality Notification
QR	Quality Review
PO	Purchase Order
SMD	Supplement Material Data
SPD	Supplement Product Data

Lot:

A "Lot" of parts is a quantity of parts manufactured with the same set-up, regardless of whether they bear the same lot number.

FAI:

Full inspection of a part of the first production lot. Results of such inspection should be reported using FAI.

Supplement FAI:

A full or partial FAI required for part characteristics that changed because of drawing revision or letter change, process change, where only the affected characteristics are addressed.

Attribute Data:

A result of characteristic measurement stating whether it complies/fails to comply with, meets/fails to meet the drawing requirements (for example, go/no-go gage, accept/reject, pass/fail, etc.).

Design Characteristics:

Those dimensional, visual, functional, mechanical, and material features or properties, which describe and constitute the design of the article as specified by Drawing Requirements. These characteristics can be measured, inspected, tested, or verified to determine conformance to the design requirements. Dimensional features include in-process locating features such as machining locations (forging/casting), dimensions on forgings and castings, and, weld/braze joint preparation necessary for acceptance of the finished joint. Material features or properties may include processing variables and sequences, which are specified by the drawing (e.g., heat treat temperature, fluorescent penetrant class, ultrasonic scans, sequence of welding and heat treat). These ensure characteristics are measured securely and may not be misinterpreted.

Drawing Requirements:

Requirements of the drawing (including Part Lists), specification or purchasing document to which the article is to be made. These include any notes, specifications, and lower-level drawings invoked.

First Article Inspection (FAI):

A complete, independent, and documented physical and functional inspection process to verify that prescribed production methods have produced an acceptable item as specified by engineering drawings, planning, purchase order, engineering specifications, and/or other applicable design documents.

First Article Inspection Report (FAIR):

Forms and a package of documentation for a part number or assembly, including FAI results.

First Production Run Parts:

The first group of parts that are the result of a planned process designed to be used for future production of these same parts. Prototype parts, or parts built using methods different from those intended for the normal production process, shall not be considered as part of the first production run.

Multiple Characteristics:

Identical characteristics that occur at more than one location (e.g., "4 Places") but are established by a single set of drawing requirements (e.g., rivet hole size, dovetail slots, corner radii, holes to cool rounded corners, chemical milling pocket/slot thickness).

Product:

The result of a process, which in the context of this Standard includes finished parts and assemblies. It also includes forgings and castings.

Reference Characteristics:

The characteristics that are used for "information only" or to show relationship. These are dimensions without tolerances or reference to other dimensions on the drawing.

Standard Catalog Hardware:

Standard parts having all characteristics identified by text description, National/Military Standard Drawing, or catalog item.

Variable Data:

Quantitative measurements taken on a continuous scale. For example, a diameter of a cylinder or a gap between mating parts.

6.0 FAIR Validation requirements

Note: requirements in the purchase order always take precedence.

6.1 FORM 1 required information

6.1.1. Part Number:

Number of the part used for (FAI).

6.1.2. Part Name:

Name of the part as shown on the drawing.

6.1.3. Serial Number:

Serial or consecutive number of the part.

6.1.4. FAI Report Number:

The first article inspection report number that identifies the FAI. This may be an internal supplier number.

6.1.5. Part Revision Level:

Latest part revision that affects the part under FAI. The part revision letter should be indicated at the PO. If there is no revision, indicate as "-"; "N/C"; "N/A".

6.1.6. Drawing Number:

Drawing number associated with the FAI part.

6.1.7. Drawing Revision Level:

The revision letter of the engineering drawing. The part revision letter should be indicated at the PO. If there is no revision, indicate as "-"; "N/C"; "N/A".

6.1.8. Additional Changes:

Provide reference number(s) of any changes that are incorporated in the product but not reflected in referenced drawing/part revision level (e.g., change in the drawing, engineering changes, manufacturing changes, deviation or exclusion from certain drawing requirement, etc. e.g. CIPHER, RCA, SF). If there is no changes, indicate as "-"; "N/C"; "N/A".

6.1.9. Manufacturing Process Reference:

A link between the part number and a manufacturing process number according to which part was made.

6.1.10. Organization Name:

Name of the Organization performing particular FAI.

6.1.11. Supplier Code:

Supplier Code is a unique number given by WSK, P&W Kalisz or PWC referred to in the purchase order.

6.1.12. P.O. Number:

Customer's Purchase Order number.

6.1.13. Detail part or an Assembly FAI:

Check as appropriate depending on whether FAI is performed for a detail part assembly.

6.1.14. Full or Partial FAI:

Check as appropriate. For a partial FAI, provide the baseline part number (including revision letter) to which this partial FAI is performed and the reason for it. For example, changes in the drawing, process, manufacturing location, etc.

6.1.15 and .16 and .17 and .18:

This section is required only if FAI is performed for an assembly.

6.1.15. Part Number:

Detail part or sub-assembly number, which is to be included in the assembly for which FAI was performed.

6.1.16. Part Name:

Part name indicated in the drawing to be included in the assembly for which FAI was performed.

6.1.17. Part Serial Number

Part Serial Number of the part to be included in the assembly for which FAI was performed.

6.1.18. FAI Report Number

FAI Report Number of a detail part.

6.1.19. Signature:

Name and signature of the person who prepared FAI Form 1.

Note: The signature on this form certifies the following:

- 1) that all characteristics are accounted for; meet drawing requirements or are properly documented for disposition.
- 2) corrective actions regarding non-conforming characteristics have been successfully closed.

6.1.20. Date

Date when FAI Form 1 was prepared.

6.1.21. Reviewed by:

Name of the person from the Organization who approved FAI report- DQCR/DSQR or - otherwise - name of Quality Manager or designated Quality Engineer.

6.1.22. Date

Date when FAI report was completed.

6.1.23. Customer Approval.

This field is used by Customer to approve the report, if required.

6.1.24. Date

Date when FAI form was approved by Customer.

6.2.1. Part Number:

Number of the part used for FAI.

6.2.2. Part Name:

Name of the part as shown on the drawing.

6.2.3. Serial Number:

Serial or consecutive number of the part.

6.2.4. FAI Report Number:

The first article inspection report number that identifies the FAI. This may be an internal supplier number.

6.2.5. Material or Process Name:

Enter the name of material or process.

6.2.6. Specification:

Enter material or process specification number (include permitted alternates, if used), class and material form (e.g., sheet, bar, etc.). Include all "Make From" materials that are incorporated into the FAI part. For raw materials/ semi-finished goods, include all materials that are incorporated into the FAI part, (e.g., weld/braze filler materials, balls for ball brazing, etc.), and Standard Catalog hardware (e.g., AN, MS fasteners); but do not include processing materials such as acid etchants.

6.2.7. Code:

Enter any required code from the Customer for material or process listing, when required.

6.2.8. Special Process Supplier Code:

Supplier code performing special process(es) or supplying material, as applicable. Also add Special process' supplier name and address.

6.2.9. Customer Approval Verification:

Indicate if the special process or material source is approved by the Customer. Write N/A if Customer approval is not required.

6.2.10. Certificate of Conformance Number:

Number of the certificate (e.g., special process completion certification, raw material/semi-finished goods test report number, traceability number).

6.2.11. Functional Test Procedure Number:

Functional Test Procedure number called out as Design Requirement.

6.2.12. Acceptance Report Number:

The functional test certification indicating that test requirements have been met.

6.2.13. Comments:

When applicable.

6.2.14. Prepared By:

Name of the person who prepared form.

6.2.15. Date:

Date when form was completed.

6.3. FORM 3 required information

6.3.1. Part Number:

Number of the part for FAI.

6.3.2. Part Name:

Name of the part as shown on the drawing.

6.3.3. Serial Number:

Serial or consecutive number of the part.

6.3.4. FAI Report Number:

The first article inspection report number that identifies the FAI. This may be an internal supplier number.

6.3.5. Characteristic Number:

Unique number assigned to each Design Characteristic.

6.3.6. Reference Location:

Location of the Design Characteristic (e.g., drawing zone, specification location (page number and section), etc.).

6.3.7. Characteristic Designator:

If applicable, characteristic type (e.g., key, flight safety, critical, major, etc.).

6.3.8. Requirement:

Specified requirement for the Design Characteristic (e.g., drawing dimensional characteristics with nominal and tolerances included, drawing notes, specification requirements, etc.).

6.3.9. Result:

List measurement(s) obtained for the Design Characteristics.

- For Multiple Characteristics list each characteristic as individual values or a list once with the minimum and maximum values- measured. If a characteristic is found to be non- conforming then that characteristic must be listed separately with the measured value noted.
- If a Design Requirement requires verification testing, then the actual results will be recorded on the form. If a laboratory report or certificate of test is included in the FAIR, then these results need not be written on the form, input the report/certificate number in this field. The laboratory report or certificate of test must show specific values stated in the requirements and actual results.

- For metallurgical characteristics with visual verification requirement that are rated against standard photographs, list the photo number of the closest comparison. A statement of conformance is acceptable (input the reference number in this field). For part marking, ensure that marking is legible, correct in content and size and properly located- per applicable specification. Additionally, take photographs of characteristics and attach them into FAI report.

6.3.10. Designed Tooling:

Input an identification number of a manufacturing tool or CNC program, which ensure such characteristic quality.

6.3.11. Non-Conformance Number:

Input a non-conformance document reference number if the characteristic is found to be non- conforming.

6.3.12. Prepared by

Name and signature of the person who prepared this form.

6.3.13. Date:

Date when form was completed.

6.3.14. Contents of this field depend on the Customer requirements. A process planner shall contact the Customer to agree on such contents. Unless the Customer provides otherwise, the field shall contain the following columns.

6.3.14.1. Acceptance Plan:

Characteristic inspection frequency

6.3.14.2. FAI Inspection Measuring Equipment:

Input a reference number of FAI inspection measuring equipment.

6.3.14.3. Production Inspection Measuring Equipment:

Input a reference number of production inspection measuring equipment used in serial production.

6.3.14.4. FAI Inspector Identification:


Stamp of the inspector who performed part FAI. If a statement, certificate etc. is issued for the characteristic, input their number.

7.0 FAIR Validation Examples



Note: Below attached procedures and revisions are for reference only, for accurate revisions please use latest RSI

7.1 Drawing Notes

<i>Char. No</i>	<i>Requirement</i>	<i>Results</i>
1	DO NOT SCALE DRAWING	COMPLY / CONFORMING
2	DIMENSIONS ARE IN INCHES UOS.	COMPLY / CONFORMING
3	DWG INTERPRETATIONS PER SPEC CPW 90.	COMPLY / CONFORMING
4	BREAK EDGES .003 - .015 UOS.	.006-.010 MIN CHAR 32 (LOC 7D) ACTUAL = .006 MAX CHAR 43 (LOC 5B) ACTUAL = .010
5	CORNERS MUST HAVE FILLETS R .005 - .020 UOS	CHAR 41 (LOC 6B) ACTUAL = R.008-.016 IF APPLICABLE
6	CONTROLLED PROCESSES PER SPEC CPW 330 UOS.	COMPLY / CONFORMING
7	SURFACE TEXTURE PER SPEC CPW 31 UOS.	COMPLY / CONFORMING SEE BELOW
7.1	For surfaces with a total size tolerance up to and including .002 inch (0.05 mm) 63 AA MAX	24 AA - 60 AA MIN CHAR 20 (LOC 6F) ACTUAL = 24 AA MAX CHAR 25 (LOC 5D) ACTUAL = 60 AA
7.2	Drilled holes (holes less than 2 inches (50.8 mm) diameter, and with a total size tolerance in excess of .002 inch (0.05 mm)) 250 AA MAX	CHAR 43 (LOC 5B) ACTUAL = 60 AA - 63 AA
7.3	All other surfaces unless otherwise specified above or on the drawing 125 AA MAX	63 AA - 120 AA MIN CHAR 41 (LOC 6B) ACTUAL = 63 AA MAX CHAR 19 (LOC 6F) ACTUAL = 120 AA
8	MARK IDENT PER SPEC CPW 10 CLASS 2 UOS.	COMPLY SEE BELOW
8.1	METHOD USED	DOT PEENING

8.2	.003 MAX. DEPTH OF THE LETTER	.000 - .001
8.3	.060 - .160 HEIGHT OF THE LETTER	.061
8.4	.020 MIN FROM THE END OF EDGES RADIUS UOS.	.026 - .080
9		COMPLY SEE BELOW
9.1	PART NUMBER	3044081-01
9.2	REV. LETTER	N/A
9.3	SUPPLIER CODE	711267
9.4	2D MATRIX READBLE	N/A
9.5	MARKING PHOTO	SEE ATTACHEMENT
10	THIS DRAWING IS SUPPORTED BY ASSOCIATED CAD / CAM FILES PER SPEC CPW 433.	ACKNOWLEDGE
11	UOS ALL DIA TP Φ .010(M) A B(M)	Φ .0003-.0019 MIN CHAR 33 (LOC 7D) ACTUAL = Φ .0003 MAX CHAR 32 (LOC 7D) ACTUAL = Φ .0019
12	UOS ALL DIM APPLY WHEN SURF /G/ IS FLAT .001 & \emptyset -F- MAINTAINS A CL ENV OF \emptyset 13.993 IN FREE STATE OR CONSTRAINED. CONSTRAINT CONTACT ALLOWED ONLY ON SURF /G/, /H/ & \emptyset /F/	IN CONSTRAINED STATE /G/ FLATNESS IS .0006 \emptyset -F- CL ENV IS \emptyset 13.9910
13	IN FREE STATE SURF /G/ IS FLAT .004 & \emptyset /F/ IS \emptyset 13.983 – 13.997	IN FREE STATE /G/ FLATNESS IS .003 \emptyset /F/ IS \emptyset 13.9910

7.2 Features

<i>Char. No</i>	<i>Requirement</i>	<i>Results</i>
14	.780 - .770 (4PL)	.776 - .777
15	.780 - .770 (4PL)	.776 4 PL
16	DIA 1.735 - 1.733	DIA 1.7338 - 1.7342
17	DIA 1.735 - 1.733 AVG	DIA 1.7338 AVG
18	R .040 - .020 (4PL)	R .030 4 PL
19	CHAM .030-.050 x 45° ± 2°	CHAM .045 x 45°
20	PERP Φ .001(S) A	Φ .0002
21	RUNOUT .001 A B	.0008
22	TP Φ .010(M) A B(M)	Φ .0057
23	TP Φ .010(M) A B(M)	AFTER MMC TOL IS Φ .0120 ACTUAL IS Φ .0110
24	PROF .060 A B (+/- .030)	(-).015 - (+).020
25		12 AA \perp
25a		60 AA
26	2.540 (BASIC DIM's)	2.540 BASIC

7.3 Threads

<i>Char. No</i>	<i>Requirement</i>	<i>Results</i>
27	.250 - 20 UNJC-3B	SEE BELOW
27.1	PITCH DIAMETER [.2176 - .2211] REF CPW30 TABLE A2-A	COMPLY / CONFORMING GO-NO GO THREAD GAUGE/ .2185 - .2200
27.2	PITCH	COMPLY / CONFORMING GO-NO GO THREAD GAUGE
27.3	INSIDE DIAMETER [FOR INTERNAL THREAD] [MINOR DIA .2013 - .2121] REF CPW30 TABLE A2-A	.2111
27.4	OUTSIDE DIAMETER [FOR EXTERNAL THREAD] [MAJOR DIA .2419 - .2500] REF CPW 30 TABLE A2-A	.2421
27.5	SQUARENESS OF PITCH DIA TO FACE FOR CLASS 3, 3B & 3BG [.003 INCH PER INCH OF DEPTH MAX] REF CPW 30 PAR 3.1.7	.002
27.6	SURFACE TEXTURE EXTERNAL THREAD - 63AA INTERNAL THREAD - 125AA UOS REF CPW 30 PAR 3.1.2.4	COMPLY / CONFORMING COMPARED TO MASTER
27.7	VISUAL CPW 543	COMPLY / CONFORMING

7.4 Spline

<i>Char. No</i>	<i>Requirement</i>	<i>Results</i>
28	SPLINE DATA	SEE BELOW
28.1	NO OF TEETH 36	36
28.2	DP 24	BASIC
28.3	PA 22,5 DEG	BASIC
28.4	BASE DIA 1.385819	BASIC
28.5	PD 1.50000	BASIC
28.6	FORM DIA 1.5774 (MIN-INT SPLINE/MAX-EXT SPLINE)	1.5776
28.7	ROOT DIA 1.594-1.609 (MAJOR DIA-INT SPLINE)	1.602
28.8	FILLET R.009 MIN	R.012 (MIN VALUE)
28.9	SPACE WIDTH (INT SPLINE) OR TOOTH THICKNESS (EXT SPLINE): EFFECTIVE .0654 MIN, ACTUAL .0683 MAX (ALTERNATIVELY MEASUREMENT OVER PINS + PIN DIA)	.0675
28.10	TOOTH TOLERANCE PER SPEC CPW 29 CLASS 5: LEAD ERROR .001 TOOTH TO TOOTH SPACING: .0006 ACC SPACING: .0008	LEAD ERROR .0007 TOOTH TO .0003 ACC .0007
28.11	INVOLUTE TOLERANCE PER SPEC CPW 29 CLASS 5: AT TIP DIA: +.0002/-.0003 AT PD DIA: +/- .0001 AT FORM DIA: +.0002/-.0003	AT TIP DIA .0000 +.0001 -.0002
28.12	SURFACE TEXTURE ON INVOLUTE SURF. OF TEETH BETWEEN MAJOR AND FORM DIA 63 RA	43 RA
28.13	BREAK EDGES PER SPEC CPW 29 CLASS 5	AT TIP .003 AT ENDS .004 INTERSECTION POINTS .006

7.5 Gear

<i>Char. No</i>	<i>Requirement</i>	<i>Results</i>
29	GEAR DATA	SEE BELOW
29.1	NO OF TEETH 36	36
29.2	HELIX LH 13.4310 DEG	BASIC
29.3	LEAD 39.100566	BASIC
29.4	DP 10.43	BASIC
29.5	PA 22,5 DEG	BASIC
29.6	BASE DIA 1.385819	BASIC
29.7	PD 1.50000	BASIC
29.8	FORM DIA 1.5774 (MIN-INT GEAR/MAX-EXT GEAR)	1.5776
29.9	FORM DIA ROLL ANGLE 10.9891	BASIC
29.10	ROOT DIA 1.594-1.609	1.602
29.11	CHORDAL TOOTH THICKNESS .1520-.1540 (ALTERNATIVELY MEASUREMENT OVER BALLS + BALL DIA)	.1530
29.12	FILLET R.009 MIN	R.012 (MIN VALUE)
29.13	TOOTH TOLERANCE PER SPEC CPW 29 DRIVE SIDE CLASS 31/NON DRIVE SIDE CLASS 3 LEAD ERROR .001/.003 TOOTH TO TOOTH SPACING: .0006/.0016 ACC SPACING: .0008/.0022	.0007/.0015 .0003/.001 .0007/.0012
29.14	INVOLUTE TOLERANCE PER SPEC CPW 29 DRIVE SIDE CLASS 31 AT TIP DIA: +.0002/-.0003 AT PD DIA: +/- .0001 AT FORM DIA: +.0002/-.0003 NON DRIVE SIDE CLASS 3 AT TIP DIA: +.0002/-.0003 AT PD DIA: +/- .0001 AT FORM DIA: +.0002/-.0003	DRIVE SIDE .0000 +.0001 -.0002 NON DRIVE SIDE .0000 +.0001 -.0002

29.15	SURFACE TEXTURE ON INVOLUTE SURF. OF TEETH BETWEEN MAJOR AND FORM DIA: DRIVE SIDE: 63 RA NON DRIVE SIDE: 125 RA	43/66 RA
29.16	BREAK EDGES PER SPEC CPW 29 CLASS 5	AT TIP .003 AT ENDS .004 INTERSECTION POINTS .006

7.6 AMS & CPW req.

<i>Char. No</i>	<i>Requirement</i>	<i>Results</i>
30	MATERIAL: AMS 5512 OR AMS 5646 SST	AMS 5646 SST USED SEE CofC ATTACHED
31	AMS 5616 SST	COMPLY / SEE CERT. 60362237 TW METALS
32	CPW 21-22	COMPLY / SEE CERT. 139794 BRASIMET
33	CPW 21-22	HEAT TREATED AS PER CPW 21-22
34	(AB) THERMAL SPRAY ENCLOSED AREA PER SPEC 33-16, .005- .011 THICK. THERMAL SPRAY PER SPEC CPW 33-18 IS OPTIONAL DIMENSIONS APPLY AFTER COATING AND FINISHING. WITNESS OF COATING ON SURF /AC/ & /AD/ IS PERMISSIBLE.	CONFORM THERMAL SPRAY PER SPEC CPW 33-16 N THICKNESS .008 TO .010 NO WHITNESS OF COATING ON SURF /AC/ & /AD/ VISUALLY ACCEPTABLE
35	SHIPPING CLOSURE REQ'D PER SPEC CPW34, CLOSE OPENING BY METHOD 1 (2, 3 OR 4)	COMPLY / CONFORMING CPW 34 METHOD 1 (2, 3 OR 4) SEE ATTACHEMENT (PHOTO REQ'D)
36	THREADS PER SPEC CPW30	PER SPEC CPW 30 REFER TO IDENT OF THREAD FOR REQUIREMENT
37	CPW 152-09 REF TABLE 3 max particle size 500 um max max weight 7mg max	COMPLY / CONFORMING particle size 200 um, weight 5 mg

7.7 SPD req.

<i>Char. No</i>	<i>Requirement</i>	<i>Results</i>
36	ASQR-01	CONFORM REQUIREMENTS ASQR-01 Rev 6

37	CPW 107	CONFORM REQUIREMENTS ASQR-01 Rev 6
38	CPW 100	CONFORM REQUIREMENTS CPW 100 N
39	CPW109	CONFORM REQUIREMENTS ASQR 20.1 Rev 4
40	CVIS 0 (PREFACE)	CONFORM REQUIREMENTS CPW 543 L
41	FPI: ALL OVER PART CFPM-1 FPS E.4 AFTER MACHINING	CONFORM FPI: ALL OVER PART CFPM-1 FPS E.4 AFTER MACHINING
42	FPI: FUSION WELDS, CFPM-1, CFPS E.5, AFTER WELDING	CONFORM CFPM-1J, CFPS E.5 K, AFTER WELDING
43	X-RAY: FUSION WELDS, CXRM-1, CXRS E.5, CLASS B, AFTER WELDING	CONFORM CXRM-1G, CXRS E.5, CLASS B, AFTER WELDING
44	FPI: ALL OVER PART, CFPM-1, CFPS E.1 & E.5, AFTER FINAL MACHINING	CONFORM CFPM-1J, CFPS E.1B & E.5K AFTER FINAL MACHINING
45	X-RAY TECHNIQUE APPROVAL REQUIRED	X-RAY TECHNIQUE NOT APPROVED X-RAY FILMS ATTACHED
46	ENGINEERING SOURCE APPROVAL DATA (PA)	PROCESS APPROVED ID D8607 ISS: 0 LV1, DATE 2007-11-12
47	ENGINEERING SOURCE APPROVAL DATA (SS)	SOURCE APPROVED

8.0 Drawing interpretation tubes assembly per spec CPW626

Note: Below attached procedures and revisions are for reference only, for accurate revisions please use latest RSI

8.1 Drawing Notes


Char. No	Requirement	Results																																														
1	DRAWING DEFINITION PER SPEC CPW 626 UOS	AS PER SPEC CPW 626 F ACCEPT																																														
2	COMPUTER DATA FILE: 2.1 THIS DRAWING IS SUPPORTED BY ASSOCIATED CAD/CAM FILES PER SPEC CPW 433. 2.2 FOR ITEM 101 REFER TO PARTS LIST FOR CURRENT REV. LETTER OF ASSOCIATED CTA	ACKNOWLEDGE																																														
3	FOR SUPPLEMENTARY PRODUCT DATA, SEE SPD30L2032	USED SPD30L2032 ISS. 01 ACCEPT																																														
4	<p>TUBE DATA</p> <table border="1"> <thead> <tr> <th colspan="7">TUBE DATA</th> </tr> <tr> <th>ASSY NO.</th> <th>TUBE DETAIL</th> <th>O.D.</th> <th colspan="2">TUBE DATA</th> <th>DEV. LGTH.</th> <th>MIN. DIA. AT BENDS</th> </tr> </thead> <tbody> <tr> <td>30L2032-01</td> <td>S1</td> <td>0.375</td> <td>0.028</td> <td></td> <td>27.133 REF</td> <td>0.338</td> </tr> <tr> <th rowspan="2">TUBE DETAIL NO.</th> <th rowspan="2">TUBE POINTS IDENTIFIER</th> <th colspan="3">COORDINATES</th> <th>RADIUS OR FER. LENGTH</th> <th rowspan="2">REMARKS</th> </tr> <tr> <th>X</th> <th>Y</th> <th>Z</th> <th>FER. LENGTH</th> </tr> <tr> <td></td> <td>ASPT1</td> <td>0.000</td> <td>0.000</td> <td>0.000</td> <td>0.144 FER. LENGTH</td> <td></td> </tr> <tr> <td></td> <td>INDF1</td> <td>0.087</td> <td>-0.547</td> <td>0.000</td> <td></td> <td></td> </tr> </tbody> </table>	TUBE DATA							ASSY NO.	TUBE DETAIL	O.D.	TUBE DATA		DEV. LGTH.	MIN. DIA. AT BENDS	30L2032-01	S1	0.375	0.028		27.133 REF	0.338	TUBE DETAIL NO.	TUBE POINTS IDENTIFIER	COORDINATES			RADIUS OR FER. LENGTH	REMARKS	X	Y	Z	FER. LENGTH		ASPT1	0.000	0.000	0.000	0.144 FER. LENGTH			INDF1	0.087	-0.547	0.000			ACKNOWLEDGE
TUBE DATA																																																
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	ASPT1	0.000	0.000	0.000	0.144 FER. LENGTH																																											
	INDF1	0.087	-0.547	0.000																																												
5	<p>TOLERANCE AT ASSEMBLY POINTS LOCATION (SR) ASPT2 THEOR. 15.494 +/- .020</p> <table border="1"> <thead> <tr> <th colspan="2">TOLERANCE AT ASSEMBLY POINTS LOCATION (SR)</th> </tr> <tr> <th>AT</th> <th>TOLERANCE</th> </tr> </thead> <tbody> <tr> <td>ASPT2</td> <td>± 0.020</td> </tr> </tbody> </table>	TOLERANCE AT ASSEMBLY POINTS LOCATION (SR)		AT	TOLERANCE	ASPT2	± 0.020	ACT: 15.482 /-.012/																																								
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7	<p>MTS3 - DESIGNATION SST 300 SERIES</p> <table border="1"> <thead> <tr> <th>ADAPTER-TUBE TO BOSS</th> <th>MATERIAL</th> <th>CTA REV LTR</th> <th>REMARKS</th> </tr> </thead> <tbody> <tr> <td>TUBE-NO.4 & 5 BRG FEED LINE,ASYO</td> <td></td> <td></td> <td>MTS3, BZ2, PV400</td> </tr> <tr> <td>NOMENCLATURE</td> <td>MATERIAL</td> <td>CTA REV LTR</td> <td>REMARKS</td> </tr> <tr> <td colspan="4">PARTS LIST</td> </tr> </tbody> </table>	ADAPTER-TUBE TO BOSS	MATERIAL	CTA REV LTR	REMARKS	TUBE-NO.4 & 5 BRG FEED LINE,ASYO			MTS3, BZ2, PV400	NOMENCLATURE	MATERIAL	CTA REV LTR	REMARKS	PARTS LIST				AMS 5570 ACCEPT																														
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8	<p>BZ2 CPW 296 (SILVER, HIGH TEMP)</p> <table border="1"> <thead> <tr> <th>ADAPTER-TUBE TO BOSS</th> <th>MATERIAL</th> <th>CTA REV LTR</th> <th>REMARKS</th> </tr> </thead> <tbody> <tr> <td>TUBE-NO.4 & 5 BRG FEED LINE,ASYO</td> <td></td> <td></td> <td>MTS3, BZ2, PV400</td> </tr> <tr> <td>NOMENCLATURE</td> <td>MATERIAL</td> <td>CTA REV LTR</td> <td>REMARKS</td> </tr> <tr> <td colspan="4">PARTS LIST</td> </tr> </tbody> </table>	ADAPTER-TUBE TO BOSS	MATERIAL	CTA REV LTR	REMARKS	TUBE-NO.4 & 5 BRG FEED LINE,ASYO			MTS3, BZ2, PV400	NOMENCLATURE	MATERIAL	CTA REV LTR	REMARKS	PARTS LIST				AS PER SPEC CPW 296 E ACCEPT																														
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PARTS LIST																																																

9	PRESSURE TEST PV400, THEOR: 400-440 PSIG				ACT:439-430 PSIG PER SPEC CPW 903 E 3.1.1
	ADAPTER-TUBE TO BOSS	×	×		
	TUBE-NO.4 & 5 BRG FEED LINE, ASYO	×	×	MTS3 B72 PV400	
	NOMENCLATURE	MATERIAL	CTA REV LTR	REMARKS	
PARTS LIST					

8.2 SPD requirements

<i>Char. No</i>	<i>Requirement</i>	<i>Results</i>
1	ASQR-01	CONFORM REQUIREMENTS ASQR-01 Rev 6
2	CPW 100	CONFORM REQUIREMENTS CPW 100 N
3	CPW 543	CONFORM REQUIREMENTS CPW 543 L
4	CPW 618	CONFORM REQUIREMENTS CPW 618 D
5	CPW 903	CONFORM REQUIREMENTS CPW 903 E
6	FPI: FUSION WELDS, CFPM-1, CFPS E.5, AFTER WELDING	CONFORM CFPM-1J, CFPS E.5 K, AFTER WELDING
7	X-RAY: FUSION WELDS, CXRM-1, CXRS E.5, CLASS B, AFTER WELDING	CONFORM CXRM-1G, CXRS E.5, CLASS B, AFTER WELDING ACCEPT
8	X-RAY TECHNIQUE APPROVAL REQUIRED	X-RAY TECHNIQUE APPROVED
9	EXTERNAL BRAZED JOINTS, NOT PART OF FLUID PASSAGEWAY (E.G. BRACKETS AND WEAR SLEEVES) DO NOT REQUIRE THIS INSPECTION.	ACKNOWLEDGE

8.3 Requirements per spec CPW 626 appendix C.1.1

<i>Char. No</i>		<i>Requirement</i>	<i>Results</i>
1	C.1.1.A	DIMENSION ARE IN INCHES UOS	ACKNOWLEDGE
2	C.1.1.B	DRAWING INTERPRETATION PER SPEC CPW 90	AS PER SPEC PWA 360 T
3	C.1.1.C	BREAK EDGES .003-.015 UOS	.008-.011
4	C.1.1.D	CONTROLLED PROCESSES PER SPEC CPW 330 UOS	AS PER SPEC CPW 330 R ACCEPT SEQ# 8 (req. spec. 8.1)
5	C.1.1.E	SURFACE TEXTURE PER SPEC CPW 31 UOS ALL SURFACES ✓	AS PER SPEC CPW 31 H ACCEPT
6	C.1.1.F	▶ MARK IDENT PER SPEC CPW 10 CLASS 99 UOS (SEE FIG.J-3 FOR EXCEPTION). MAX DEPTH: .005	AS PER SPEC CPW 10 BB CLASS 99 ACCEPT DEPTH: .0026
7	C.1.1.G	(SR) SIMULTANEOUS REQUIREMENT, TUBE MAY BE SUPPORTED (OR CONSTRAINED) AT POINTS - ASPT, CLPT, JBKT, SLVE & ENPT	LABELED DIMENSIONS CHECK SIMULTANEOUS
8	C.1.1.H	TUBE BEND RADII ARE TO TUBE CENTERLINE. RADII TOLERANCES +.062" UOS	ACCEPT
9	C.1.1.I	 SHIPPING CLOSURE REQUIRED PER SPEC CPW 34. CLOSE OPENING BY METHOD 2	AS PER SPEC CPW 34 K METHOD 2 ACCEPT
10	C.1.1.J	UOS, PRODUCT DEFINITION DATA IS DEFINED FROM DATUMS / -X-/, / -Y- /, AND / -Z- /	ACKNOWLEDGE
11	C.1.1.K	CLEANLINESS CONTROL PER SPEC CPW 152-90 UOS THEOR: Max 250 μm	AS PER SPEC CPW 152-90 B UP TO 250μm

8.4 Requirements per spec CPW 626 appendix C.1.2

<i>Char. No</i>		<i>Requirement</i>	<i>Results</i>
1	C.1.2.A	(T) THREADS ARE IN TRUE DIRECTION WITHIN 1°30' IN RELATION TO /X/Y/Z/	N/A
2	C.1.2.B	(FD) THIS FACE MUST BE IN TRUE DIRECTION WITHIN .015 PER INCH OF DIAMETER	ACKNOWLEDGE


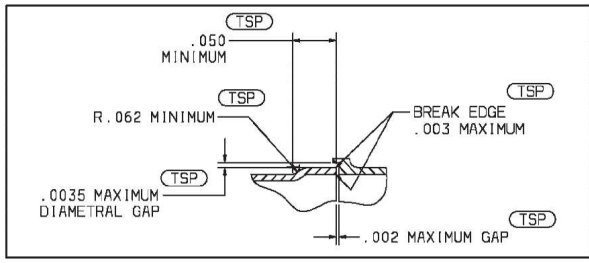
3	C.1.2.C	TUBE ASSEMBLY MUST NOT LEAK WHEN EXPOSED TO PRESSURE IDENTIFIED (WHEN APPLICABLE) PER CORRESPONDING ATTRIBUTE SPECIFIED ON THE DRAWING (see Fig. A-4) AND TESTED PER CPW 903	ACCEPT
4	C.1.2.D	WHEN REQUIRED, ADHESIVE LABEL MUST BE PLACED APPROXIMATELY AT IDENTIFIED LOCATION ON A CLEAN, DRY SURFACE, FREE FROM DIRT, OIL, GREASE OR ANY OTHER SUBSTANCE WHICH MIGHT ADVERSELY AFFECT LABEL ADHERENCE. LABEL ORIENTATION SHOULD REFLECT FLOW DIRECTION AS SHOWN ON DRAWING WITH A MINIMUM LABEL CIRCUMFERENTIAL OVERLAP OF 25%.	N/A (if not req.)
5	C.1.2.E	" REF DEVELOPED LENGTH TUBE" IN DRAWING TUBE DATA TABLE DOES NOT INCLUDE AN ALLOWANCE FOR FUSION WELD SHRINKAGE OR FLARING OPERATION	ACKNOWLEDGE
6	C.1.2.F	THRUST WIRES MUST BE FLUSH WITH OR UNDER-FLUSH TO THE HEX NUT SURFACE	N/A

8.5 Requirements per spec CPW 626 appendix D.1

<i>Char. No</i>		<i>Requirement</i>	<i>Results</i>
1	D.1.A	ABRASIVE FINISHING (IF USED) BY SILICON CARBIDE ONLY.	DONE BY SILICON CARBIDE
2	D.1.B	(P) IN PROCESS TACK WELD PERMISSIBLE	DONE- ACCEPT
3	D.1.C	(BZB) BRAZE PER SPEC (BZA) EXCEPT 50% MIN. JOINING AND 50% MIN. LINE OF BRAZE REQUIRED	ACCEPT
4	D.1.D	(BZA) BRAZE PER CODE BZX WHERE BZX IS THE BRAZING REQUIREMENT CALLED OUT ON THE DRAWING	ACCEPT
5	D.1.E	IN PROCESS ANNEAL PER SPEC CPW 21-3 IF NECESSARY	NOT DONE (if not req.)
6	FIG D-1	(BZA) (P)	SEQ# 2, 4 (req. spec. CPW 626 8.4)
7	FIG D-1	.060" MAX	.047"
8	FIG D-2	(BZB) (P)	N/A (if not req.), SEQ# 2,3 (req. spec. CPW 626 8.4)
9	FIG D-3	(BZB) (P)	N/A (if not req.), SEQ# 2,3 (if done , req. spec. CPW 626 8.4) (if done)

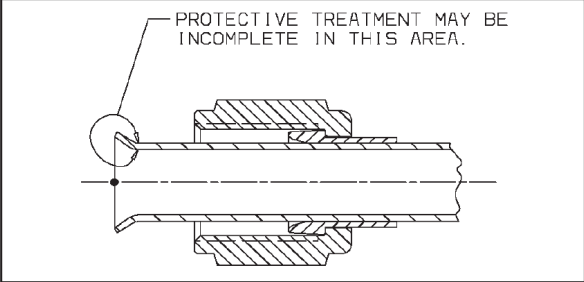
8.6 Requirements per spec CPW 626 appendix E.1

Note: Below attached procedures and revisions are for reference only, for accurate revisions please use latest RSI

Char. No		Requirement	Results
1	E.1.1A	(FW) MIN FILLET SIZE OF WELD TO BE EQUAL TO THE SMALLEST THICKNESS OF THE TWO PARTS BEING WELDED TOGETHER	ACKNOWLEDGE
2	E.1.1B	(TSP) TRIMMING AND SIZING PERMITTED TO MAINTAIN ASSEMBLY REQUIREMENTS	ACKNOWLEDGE SEQ#6,7,8,9,10 (req. spec. CPW 626 8.5)
3	E.1.1C	UOS ALL WELDS ARE CLASS "B"	SEQ# 4,5 (req. spec. CPW 626 8.5)
4	E.1.1D	WELD PER SPEC CPW 24-2	CPW 24-2 V ACCEPT
5	FIG E-1	 A OR J OR T CLASS "B" FINISHING PROHIBITED	ACCEPT CLASS B FINISHING NOT PERFORMED
6	FIG E-2	(TSP) .050 MINIMUM 	NOT DONE
7	FIG E-2	(TSP) R .062 MINIMUM	NOT DONE
8	FIG E-2	(TSP) .0035 MAXIMUM DIAMETRAL GAP	.000
9	FIG E-2	(TSP) BREAK EDGE .003 MAXIMUM	.003
10	FIG E-2	(TSP) .002 MAXIMUM GAP	.000
11	E.1.1E(1)	WELD PER SPEC CPW 24-2	CPW 24-2 V ACCEPT (if done)
12	E.1.1E(2)	HEAT TREAT PER SPEC CPW 21-22. HARDNESS 26-32 HRC OR EQUIVALENT. HARDENING MAY BE CONCURRENT WITH BRAZE	AS PER SPEC CPW 21-22 AJ ACCEPT (if done)

13	E.1.1F(1)	WELD PER SPEC CPW 24-3	CPW 24-3 V ACCEPT (if done)
14	E.1.1F(2)	STRESS RELIEF PER SPEC CPW 21-15	AS PER SPEC CPW 21-15 AJ ACCEPT (if done)
15	E.1.1G(1)	WELD PER SPEC CPW 24-33	CPW 24-33 V ACCEPT (if done)
16	E.1.1G(2)	HEAT TREAT PER SPEC CPW 21-32. HARDNESS 36 HRC MIN OR EQUIVALENT	AS PER SPEC CPW 21-32 AJ ACCEPT (if done)
17	E.1.1H(1)	WELD PER SPEC CPW 24-333	CPW 24-333 V ACCEPT (if done)
18	E.1.1H(2)	HEAT TREAT PER SPEC CPW 21-32. HARDNESS 36 HRC OR EQUIVALENT FOR N7 ALLOY ONLY. HARDNESS REQUIREMENT IS WAIVED ON WEARS SLEEVES OR "J" BRACKETS FOR TUBES HAVING BRAZED WEAR SLEEVES OR "J" BRACKET MADE FROM S3 MATERIAL CODE	AS PER SPEC CPW 21-32 AJ ACCEPT (if done)
19	E.1.1I(1)	WELD PER SPEC CPW 24-23	CPW 24-3 V ACCEPT (if done)
20	E.1.1I(2)	STRESS RELIEF PER SPEC CPW 21-15	AS PER SPEC CPW 21-15 AJ ACCEPT (if done)
21	E.1.1J(1)	WELD PER SPEC CPW 24-66 EXCEPT MINIMUM THICKNESS OF WELD MUST NOT BE LESS THAN THICKNESS OF PARENTAL MATERIAL	AS PER SPEC CPW 24-66 V ACCEPT (if done)
22	E.1.1J(2)	STRESS RELIEF PER SPEC CPW 21-15	AS PER SPEC CPW 21-15 AJ ACCEPT (if done)
23	E.1.1J(3)	PRIOR TO WELDING CLEAN PER SPEC CPW 435	CPW 435 A ACCEPT (if done)
24	E.1.1K(1)	WELD PER SPEC CPW 24-4	CPW 24-4 V ACCEPT (if done)
25	E.1.1K(2)	HEAT TREAT PER CPW 21-32 AFTER WELDING	AS PER SPEC CPW 21-32 AJ ACCEPT (if done)

8.7 Requirements per spec CPW 626 appendix G.1

Char. No		Requirement	Results
1	G.1.A(1)	AFTER THE TUBE BRNDING AND WELDING OPERATION COMPLETED TREAT THE DETAIL TUBE PER SPEC CPW 20-1	AS PER SPEC CPW 20-1 ACCEPT (if done)
2	G.1.A(1)	AFTER FLARING PROTECTIVE TREATMENT PER SPEC CPW 20-1 MAY BE INCOMPLETE 	AS PER SPEC CPW 20-1 ACCEPT (if done)

8.8 Requirements per spec CPW 626 appendix H.1


Char. No		Requirement	Results																																
1	FIG H-1 & TAB H-1	E = .024" - .032" Tab. H-1: Dimensions for Tube Wall Thickness (see Fig. H-1) <table border="1" data-bbox="438 1034 992 1187"> <thead> <tr> <th>NOMINAL THICKNESS</th> <th>"E" WALL THICKNESS</th> <th>"F" MINIMUM THICKNESS AT BENDS</th> </tr> </thead> <tbody> <tr> <td>.028</td> <td>.024-.032</td> <td>.020</td> </tr> <tr> <td>.035</td> <td>.030-.040</td> <td>.025</td> </tr> <tr> <td>.049</td> <td>.042-.056</td> <td>.035</td> </tr> <tr> <td>.058</td> <td>.049-.067</td> <td>.042</td> </tr> <tr> <td>.065</td> <td>.055-.075</td> <td>.047</td> </tr> </tbody> </table>	NOMINAL THICKNESS	"E" WALL THICKNESS	"F" MINIMUM THICKNESS AT BENDS	.028	.024-.032	.020	.035	.030-.040	.025	.049	.042-.056	.035	.058	.049-.067	.042	.065	.055-.075	.047	.026														
NOMINAL THICKNESS	"E" WALL THICKNESS	"F" MINIMUM THICKNESS AT BENDS																																	
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2	FIG H-1 & TAB H-1	F MIN = .020"	.025																																
3	FIG H-1 & TAB H-2	∅ A = .370" - .380" Tab. H-2: Dimensions for Tube Details (see Fig. H-1) <table border="1" data-bbox="459 1352 987 1476"> <thead> <tr> <th>Nominal Tube O.D.</th> <th>∅A</th> <th>∅B</th> <th>∅C REF</th> <th>∅C (Ti Alloy Only) REF</th> <th>∅D</th> <th>G</th> <th>H NOTE 1</th> </tr> </thead> <tbody> <tr> <td>250</td> <td>.245-.255</td> <td>.2375-.2390</td> <td>.225</td> <td>.230</td> <td>.380</td> <td>.002</td> <td>.410</td> </tr> <tr> <td>.3125</td> <td>.3075-.3175</td> <td>.2995-.3010</td> <td>.281</td> <td>.288</td> <td>.440</td> <td>.002</td> <td>.410</td> </tr> <tr> <td>.375</td> <td>.370-.380</td> <td>.3625-.3640</td> <td>.338</td> <td>.345</td> <td>.500</td> <td>.002</td> <td>.410</td> </tr> </tbody> </table>	Nominal Tube O.D.	∅A	∅B	∅C REF	∅C (Ti Alloy Only) REF	∅D	G	H NOTE 1	250	.245-.255	.2375-.2390	.225	.230	.380	.002	.410	.3125	.3075-.3175	.2995-.3010	.281	.288	.440	.002	.410	.375	.370-.380	.3625-.3640	.338	.345	.500	.002	.410	.377
Nominal Tube O.D.	∅A	∅B	∅C REF	∅C (Ti Alloy Only) REF	∅D	G	H NOTE 1																												
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4	FIG H-1 & TAB H-2	∅ C = .338" MIN	.354																																
5	FIG H-1 & TAB H-2	THIS ∅ FOR THIS DISTANCE DO NOT REDUCE WALL THICKNESS	.026																																
6	FIG H-1 & TAB H-2	H MIN = .410"	.515																																
7	FIG H-1 & TAB H-2	∅ AVG B = .3625" - .3640"	AVG DIA .3627																																

8	FIG H-1 & TAB H-2	∅ D= .500" CLEARANCE ENVELOPPE AT ALL STRAIGHTS RELATIVE TO /X/Y/Z/ UNLESS OTHERWISE SPECIFIED	WITHIN .500
9	FIG H-1 & TAB H-2	∅ K= .440" CLEARANCE ENVELOPPE RELATIVE TO /X/Y/Z/ FOR THIS DISTANCE	WITHIN .440
10	FIG H-1 & TAB H-2	.470 MIN	SEQ# 9 (req. spec. CPW 626 8.7)

8.9 Requirements per spec CPW 626 appendix J.1

<i>Char. No</i>		<i>Requirement</i>	<i>Results</i>
1	FIG J-2		SEQ# 6 (req. spec. CPW 626 8.2)
2	FIG J-2		SEQ# 9 (req. spec. CPW 626 8.2)
3	FIG J-2	FERRULE LENGHT	ACKNOWLEDGE
4	TAB J-12	∅ W C L ENV REL TO /X/Y/Z/ W= .205 INDF1	ACT: .209
5	TAB J-12	BASIC WELD JOINT	ACKNOWLEDGE
6	TAB J-12	∅ V	ACKNOWLEDGE

8.10 Requirements per spec CPW 626 appendix K.1

<i>Char. No</i>		<i>Requirement</i>	<i>Results</i>
1	FIG K-1	POINT A (AS IDENTIFIED ON DWG IN TUBE DATA TABLE)	SEQ# 4 (req. spec. CPW 626 8.1)
2	FIG K-1	"J" BRACKET POINT (JBKT)	SEQ# 4 (req. spec. CPW 626 8.1)
3	FIG K-1	BRACKET WITHIN /  / .060(M)/ X/Y/Z/	ACT: .034 ACT: .030
4	FIG K-1	INDF	SEQ# 4 (req. spec. CPW 626 8.1)
5	FIG K-1	POINTS A & JBKT	SEQ# 4 (CPW 626 8.1)
6	FIG K-1	THIS SURFACE IS IN TRUE DIRECTION WITHIN 2° INDF1 INDF2	ACT. 0°5' ACT. 0°12'

7	FIG K-1	BRACKET OUTSIDE SURFACE	ACKNOWLEDGE
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8.11 Requirements per spec CPW 626 appendix L.1

<i>Char. No</i>		<i>Requirement</i>	<i>Results</i>
1	FIG L-1	J = .530 CLEARANCE ENVELOPE RELATIVE TO X,Y,Z FOR THIS DISTANCE	WITHIN .530
2	FIG L-1	/ \varnothing .1060" (M) / X/Y/Z/ SLEEVE 1	.050
3	FIG L-1	MISMATCH PERMITTED WITHIN TOLERANCE SHOWN	ACKNOWLEDGE
4	FIG L-1	SLEEVE POINT \varnothing	SEQ# 4 (req. spec. CPW 626 8.1)
5	FIG L-1	GAP PERMISSIBLE BOTH SIDES ANGULAR RELATION TO OTHER FEATURES NOT IMPORTANT	ACKNOWLEDGE

8.12 List specification PWC related with CPW 626

CPW 10 - Identification Marking - Items, Castings and Forgings
 CPW 20 - Protective treatments
 CPW 21 - Heat Treatments
 CPW 24 - Welding - Arc, Gas Electron and Laser Beam
 CPW 30 - Thread Standards, Straight Screw, Buttress, Acme and Taper Pipe
 CPW 31 - Surface Texture (Roughness, Waviness and Lay)
 CPW 34 - Shipping Closures
 CPW 85 - Brazing, Gold-Nickel Alloy
 CPW 90 - Drawing Interpretations
 CPW 152 - Cleanliness Requirements of Product Items
 CPW 296 - Brazing, Silver, High Temperature
 CPW 330 - Engineering Controlled Processes and Environmentally Hazardous Materials
 CPW 402 - Grinding of Titanium and Titanium Alloys
 CPW 420 - Application of Inorganic Protective Coatings
 CPW 433 - Computer Files for CAD/CAM Data
 CPW 435 - Cleaning of Titanium Alloys
 CPW 475 - Brazing Filler Metal, Nickel-Palladium-Chromium
 CPW 903 - Pressure Soundness - Test and Acceptance Requirements

8.13 List specification AMS related with CPW 626

AMS 2664 - Brazing, Silver, for Use Up to 800°F (427°C)
 AMS 2665 - Brazing, Silver, for Use Up to 400°F (204°C)
 AMS 2670 - Copper Brazing
 AMS 2675 - Nickel Alloy Brazing

8.14 Material specification, code material and proces.

a) Material Specification: MT

CODE	DESIGNATION
MTS3	SST 300 series
MTS4	SST 400 series
MTN6	Nickel Alloy (INCONEL 600 or 625)
MTN7	Nickel Alloy (INCONEL 718)
MTTi	Titanium Alloy
MTAL	Aluminum Alloy
MTS3N6	Combination of S3 and N6 Material Code
MTN6N7	Combination of N6 and N7 Material Code

EX: MTS3, BZ 2, PV500

└─ Code for the process/material type
 └─ Code Prefix identifying the process/material type

b) Brazing Specification: BZ

CODE	DESIGNATION
BZ1	CPW 85 (Gold-Nickel Alloy)
BZ2	CPW 296 (Silver, High Temp.)
BZ3	CPW 475 (Ni-Pd-Cr)
BZ4	AMS 2664 (Silver, High Temp.)
BZ5	AMS 2665 (Silver, Low Temp.)
BZ6	AMS 2670 (Copper Furnace)
BZ7	AMS 2675 (Nickel Alloy) see Note.
Note: Braze filler metal per AMS 4777 preferred.	

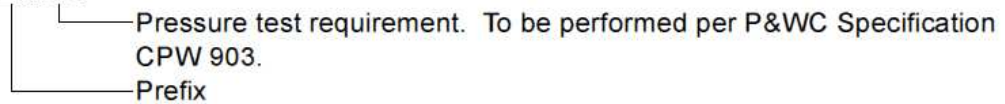
c) Welding Specification: WD

CODE	DESIGNATION
WDS3	See welding note for S3 material code
WDS4	See welding note for S4 material code
WDN6	See welding note for N6 material code
WDN7	See welding note for N7 material code
WDS3N6	See welding note for S3N6 material code
WDN6N7	See welding note for N6N7 material code
WDTI	See welding note for TI material code
WDAL	See welding note for AL material code

d) Pressure Soundness Test Value: PV

CODE	PRESSURE VALUE
EXAMPLE	
PV10	10 PSIG
PV500	500 PSIG

EX: PV 500



e) Tube End Flaring FL

CODE	SPECIFICATION
FL1	AS4330 (Standard Flaring)
FL2	AS33583 (Double Flaring)

Note:

- For clarification of any subject not included in this document please contact at:
GP.PWC.PWK.SQA@PWK.COM.PL - PWK suppliers
GP.PWC.WSK.DSFS@WSKRZ.COM - WSK suppliers
- Actual version of Best Practice is available at webpage:
<http://www.wskrz.com/en/offer/suppliers/supplier-quality-assurance/cook-books/>
<http://www.pwk.com.pl/en/company/pwk-suppliers-quality-req/>