Workorder	Part ID	Qty	Drawing ID / Rev	Engineer
64880/1		1	SE121 / A	BLUE/DOUG MCCORKLE

NSCX PROTOTYPE VACUUM VESSEL SEGMENT

Sub ID	Part ID	Qty	Drawing ID / Rev
0	NSCX PROTOTYPE VACUUM VESSEL SEGMENT	1	SE121 / A

Operation	Resource	QtyPer	StartQty	EndQt	Drawing ID / Rev
Sub: 0 / Seq: 10	700-BLUE TEAM, ENGINEERING	1.00	1.00	1.00	SE121 / A
(F)	SOW 3.2.1 TASK 2 MIT/QA PLANS FOR PVVS FOR VVSA				

IDC Count : 0 Dwg Count: 0 Pgm Count: 0 QAP Count: 1 NDT Count: 0 WPS Count: 0

Piece #	Part ID	Qty	Drawing ID / Rev	Vendor	Dimensions
10	INCONEL625_062_GTAW-WELD WIRE/GTAW, .062 DIA Vendor Part ID: INCONEL625_062_GTAW Mfg Part ID: INCONEL 625	10.0		4434	
(F)					

Piece #	Part ID	Qty	Drawing ID / Rev	Vendor	Dimensions
30	INCONEL625_093_GTAW-WELD WIRE/GTAW, .093 DIA Vendor Part ID: INCONEL625_093_GTAW Mfg Part ID: INCONEL 625	15.0		4434	
(F)					

Operation	Resource	QtyPer	StartQty	EndQt	Drawing ID / Rev
Sub: 0 / Seq: 11	700-BLUE TEAM, ENGINEERING	1.00	1.00	1.00	
(F)	SOW 3.1 TASK 1 3.1.1 METHODS FOR FABRICATING VVSA 3.1.2 DESIGN CHANGES 3.1.3 PRELIMINARY MIT/AQ FOR VVSA 3.1.4 BUDGETARY COST/SCHEDULE FOR VVSA				

IDC Count : 0 Dwg Count: 0 Pgm Count: 0 QAP Count: 0 NDT Count: 0 WPS Count: 0

Operation	Resource	QtyPer	StartQty	EndQt	Drawing ID / Rev
Sub: 0 / Seq: 12	700-BLUE TEAM, ENGINEERING	1.00	1.00	1.00	
(F)	SOW 3.3.1 & SOW 3.3.2 Task 8 3.3.1 FINAL MIT/QA FOR VVSA 3.3.2 FINAL COST/SCHEDULE FOR VVSA				

IDC Count : 0 Dwg Count: 0 Pgm Count: 0 QAP Count: 0 NDT Count: 0 WPS Count: 0

Workorder	Part ID	Qty	Drawing ID / Rev	Engineer
64880/1		1	SE121 / A	BLUE/DOUG MCCORKLE

Operation	Resource	QtyPer	StartQty	EndQt	Drawing ID / Rev
Sub: 0 / Seq: 13	700-BLUE TEAM, ENGINEERING	1.00	1.00	1.00	
(F)	ENGINEERING, PLANNING & PROJECT MGT				
	TASK 9				

FOLLOWING IS A LIST STANDARD OPERATING PROCEDURES AND WORK INSTRUCTIONS THAT APPLY IN PART OR IN WHOLE TO THE EXECUTION OF THIS WORK ORDER.
ENGINEERING OPERATIONS WILL BE PERFORMED PER THE FOLLOWING STANDARD OPERATING PROCEDURES: ENG-SOP-01; ENG-SOP-02; ENG-SOP-03; ENG-SOP-04.
CAD / CAM OPERATIONS WILL BE PERFORMED PER THE FOLLOWING STANDARD OPERATING PROCEDURE: CAD-SOP-01;
MANUFACTURING OPERATIONS WILL BE PERFORMED PER THE FOLLOWING STANDARD OPERATING PROCEDURES: MFG-SOP-01; MFG-SOP-02; MTL-SOP-01; PC-SOP-01; QA-SOP-01; QA-SOP-03;
QUALITY ASSURANCE AND INSPECTION OPERATIONS WILL BE PERFORMED PER THE FOLLOWING STANDARD OPERATING PROCEDURES: QA-SOP-01; QA-SOP-05
RECEIVING INSPECTION OPERATIONS WILL BE PERFORMED PER THE FOLLOWING STANDARD OPERATING PROCEDURE: QA-SOP-04
IN-PROCESS INSPECTION OPERATIONS WILL BE PERFORMED PER THE FOLLOWING STANDARD OPERATING PROCEDURE: QA-SOP-02
SHIPPING OPERATIONS WILL BE PERFORMED PER THE FOLLOWING STANDARD OPERATING PROCEDURE: SH-SOP-01
MACHINING OPERATIONS WILL BE PERFORMED PER THE FOLLOWING STANDARD OPERATING PROCEDURE: TLG-SOP-01
WELDING OPERATIONS WILL BE PERFORMED PER THE FOLLOWING STANDARD OPERATING PROCEDURES: WLD-SOP-02; WLD-SOP-03; WLD-SOP-05; WLD-SOP-06

ENGINEERING OPERATIONS WILL BE PERFORMED PER THE FOLLOWING WORK INSTRUCTIONS: ENG-WI-001; ENG-WI-002; ENG-WI-003; ENG-WI-005; ENG-WI-007; ENG-WI-008; ENG-WI-010; ENG-WI-013; ENG-WI-014; ENG-WI-015.
CAD / CAM OPERATIONS WILL BE PERFORMED PER THE FOLLOWING WORK INSTRUCTIONS: CAD-WI-004; CAD-WI-005
MANUFACTURING OPERATIONS WILL BE PERFORMED PER THE FOLLOWING WORK INSTRUCTIONS: MFG-WI-018; PC-WI-001; PC-WI-003; PC-WI-004;
CLEANING / WASHING OPERATIONS WILL BE PERFORMED PER THE FOLLOWING WORK INSTRUCTION: MFG-WI-005
MACHINING OPERATIONS WILL BE PERFORMED PER THE FOLLOWING WORK INSTRUCTIONS: MFG-WI-008; MFG-WI-009; MFG-WI-010;
SUBCONTRACT OPERATIONS WILL BE PERFORMED PER THE FOLLOWING WORK INSTRUCTION: PC-WI-005; PUR-WI-002
NON-DESTRUCTIVE TESTING OPERATIONS WILL BE PERFORMED PER THE FOLLOWING WORK INSTRUCTIONS: NDT-WI-001; NDT-WI-011
QUALITY ASSURANCE, IN-PROCESS INSPECTION OPERATIONS AND/OR RECEIVING INSPECTION OPERATIONS WILL BE PERFORMED PER THE FOLLOWING WORK INSTRUCTIONS: QA-WI-001; QA-WI-006; QA-WI-007; QA-WI-008; QA-WI-010; QA-WI-012; QA-WI-015; QA-WI-017; QA-WI-020; QA-WI-021; QA-WI-022; QA-WI-023; QA-WI-026; QA-WI-028; QA-WI-029; QA-WI-031.
SHIPPING OPERATIONS WILL BE PERFORMED PER THE FOLLOWING WORK INSTRUCTIONS: SH-WI-002; SH-WI-003; SH-WI-003; SH-WI-004; SH-WI-005; SH-WI-007.
MACHINING OPERATIONS WILL BE PERFORMED PER THE FOLLOWING WORK INSTRUCTIONS: TLG-WI-001;
WELDING OPERATIONS WILL BE PERFORMED PER THE FOLLOWING WORK INSTRUCTIONS: WLD-WI-001; WLD-WI-002; WLD-WI-003; WLD-WI-004; WLD-WI-005; WLD-WI-006; WLD-WI-007; WLD-WI-008
BLAST BOOTH OPERATIONS WILL BE PERFORMED PER THE FOLLOWING WORK INSTRUCTIONS: SB-WI-001; SB-WI-002; SB-WI-003
MATERIAL PROCUREMENT OPERATIONS WILL BE PERFORMED PER THE FOLLOWING WORK INSTRUCTIONS: PUR-WI-001; PUR-WI-002; PUR-WI-003; PUR-WI-008;

IDC Count : 0 Dwg Count: 0 Pgm Count: 0 QAP Count: 0 NDT Count: 0 WPS Count: 0

Operation	Resource	QtyPer	StartQty	EndQt	Drawing ID / Rev
Sub: 0 / Seq: 20	825-FINAL INSPECTION - PLANTS 1	1.00	1.00	1.00	SE121 / A
(F)	FINAL VISUAL INSPECTION (ENGINEERING CONCURRENCE REQUIRED).				
	VERIFY CLEANLINESS PER 64880-NCSX-CSPEC-120-01-00-3.3.2.4				

Workorder	Part ID	Qty	Drawing ID / Rev	Engineer
64880/1		1	SE121 / A	BLUE/DOUG MCCORKLE

COMPILE ELECTRONIC DATA BOOK INFORMATION PER MTM QAP.
TAKE SEVERAL PHOTOGRAPHS OF PART
PREPARE C OF C AND REQUEST FOR SHIPPING RELEASE (CONTACT ENGINEERING (DOUG McCORKLE) FOR RELEASE FORM IF NOT AVAILABLE ELECTRONICALLY.

IDC Count : 0 Dwg Count: 0 Pgm Count: 0 QAP Count: 0 NDT Count: 0 WPS Count: 0

Operation	Resource	QtyPer	StartQty	EndQt	Drawing ID / Rev
Sub: 0 / Seq: 30	425-SHIPPING - PLANTS 1 & 2	1.00	1.00	1.00	SE121 / A
(F)	SHIP PER CUSTOMER RELEASE FORM				

(CONTAINER MANUFACTURED IN SUB I.D. 28)
AT A MINIMUM ENSURE THE PART IS COMPLETELY WRAPPED WITH PLASTIC FOAM AND SHRINK WRAP.
SPECIAL CRATE REQUIREMENTS:
CONTAINER MUST BE CLEARLY MARKED WITH THE FOLLOWING INFORMATION:
SUPPLIER:
MAJOR TOOL & MACHINE, INC.
1458 E. 19TH ST.
INDIANAPOLIS, IN 46218
CONTENTS:
SE121 NCSX PVVS

IDC Count : 0 Dwg Count: 0 Pgm Count: 0 QAP Count: 0 NDT Count: 0 WPS Count: 0

Operation	Resource	QtyPer	StartQty	EndQt	Drawing ID / Rev	Service ID
Sub: 0 / Seq: 9999	600-DO NOT USE - PC AUTO PROJE	1.00	1.00	1.00		TESTNG/MISC

Drw N/A IDC N/A IDC Count : 0 Dwg Count: 0 Pgm Count: 0 QAP Count: 0 NDT Count: 0 WPS Count: 0

Sub ID	Part ID	Qty	Drawing ID / Rev
1	SE121 PROTOTYPE VACUUM VESSEL	1	SE121 / A
			Parent Sub:0 Op:20

Operation	Resource	QtyPer	StartQty	EndQt	Drawing ID / Rev
Sub: 1 / Seq: 10	230-FABRICATION - WEIDNER	1.00	1.00	1.00	SE121-001P / A
(F)	FABRICATION OPERATION # 1				

INSTALL THE FOLLOWING DIE FORMED PANELS ONTO FABRICATION FIXTURE:
SE121-001P-2 PANEL 1
SE121-001P-2 PANEL 2
SE121-001P-2 PANEL 3
SE121-001P-2 PANEL 4
SE121-001P-2 PANEL 5
START BY SETTING THE DATUM -B- SURFACE (10 DEGREE OFFSET) ONTO THE MACHINED REGISTER OF THE BUILD FIXTURE BASE-PLATE. TRIM, FIT, AND ALIGN EACH PANEL TO IT'S RESPECTIVE ADJACENT PANEL AND FIXTURE REST STOPS. NOTE THAT THE FIXTURE REST STOPS ARE POSITIONED AT NOMINAL (+.090") GEOMETRIC POSITION TO AVOID STARTING ANY LOWER THAN MID-TOLERANCE. GAPS BETWEEN THE PRODUCTION PANELS AND FIXTURE REST STOPS (UP TO .090") ARE PERMITTED.
THE TOP EDGE OF EACH PANEL SHOULD REST APPROXIMATELY .04" ABOVE THE FIXTURE RISER FACE.
ENSURE THE MATERIAL THICKNESS IS ADEQUATE TO ALLOW TYPICAL REDUCTION RESULTING FROM GRINDING / BENDING / POLISHING THE WELDS. INSPECT

Workorder	Part ID	Qty	Drawing ID / Rev	Engineer
64880/1		1	SE121 / A	BLUE/DOUG MCCORKLE

THICKNESS WITH A U-T GAGE. NOTIFY ENGINEERING (DOUG McCORKLE) IF CONCERNS EXIST.
ENSURE EACH PANEL IS ALIGNED (SMOOTH AND CONTINUOUS) TO ITS ADJACENT MEMBER AND MIS-MATCH IS MINIMIZED. CWI / ENGINEERING CONCURRENCE REQUIRED.
PURGE EACH WELD JOINT WITH 100% ARGON. PURGE DAM MATERIAL MUST BE MADE FROM EITHER 625 INCONEL OR 300 SERIES STAINLESS STEEL.
TACK WELD ALL FIVE PANELS TOGETHER.
ASSIST Q/A WITH PROFILE VERIFICATION.
Part Number: SE121
Part Description: NCSX PVVS

IDC Count : 2 Dwg Count: 1 Pgm Count: 0 QAP Count: 2 NDT Count: 0 WPS Count: 1

Operation	Resource	QtyPer	StartQty	EndQt	Drawing ID / Rev
Sub: 1 / Seq: 20	805-INPROCESS INSPECTION - PLA	1.00	1.00	1.00	SE121-001P / A
(F)	INSPECTION OPERATION # 1				

AFTER PART IS COMPLETELY TACK WELDED, INSPECT / VERIFY POSITIONING, FITUP, AND PROFILE OF TACK WELDED PER THE FOLLOWING:
ENSURE THE PART PROFILE IS WITHIN THE UPPER HALF OF THE APPLIED BI-LATERAL TOLERANCE AS FOLLOWS: VARIFY THAT NO INSPECTION POINT IS ABOVE THE HIGH LIMIT OF TOLERANCE (OUTWARD) OR BELOW NOMINAL (INWARD).
RECORD ACTUAL (HIGH/LOW RANGE) ON MTM IDC
REPORT ANY OUT OF TOLERANCE READINGS VIA MTM NCR
NOTIFY ENGINEERING (DOUG McCORKLE) FOR EVALUATION OF RESULTS PRIOR TO RELEASING THE PART BACK TO PRODUCTION.
ENSURE THE FIXTURE DATUM TARGETS ARE ADEQUATELY POSITIONED FOR THE NEXT SEQUENTIAL INSPECTION
INSPECT AND RECORD THE MAGNETIC PERMEABILITY OF THE WELD ZONES.
Part Number: SE121
Part Description: NCSX PVVS

IDC Count : 2 Dwg Count: 1 Pgm Count: 0 QAP Count: 2 NDT Count: 0 WPS Count: 0

Operation	Resource	QtyPer	StartQty	EndQt	Drawing ID / Rev
Sub: 1 / Seq: 30	230-FABRICATION - WEIDNER	1.00	1.00	1.00	SE121-001P / A
(F)	FABRICATION OPERATION # 2				

INSTALL STIFFENER (FIXTURING) TO THE TOP OF THE VESSEL. TACK WELD THE STIFFENER TO THE PART.
NOTE THAT THE STIFFENER MATERIAL IS ALSO INCO 625, NO TABS REQUIRED.

BACK PURGE THE WELD JOINT SURFACES WITH 100% ARGON. PURGE DAM MATERIAL MUST BE MADE FROM EITHER 625 INCONEL OR 300 SERIES STAINLESS STEEL.
WELD ROOT PASSES (INCREMENTALLY, USING BACK-STEPPING METHOD TO MINIMIZE SHRINKAGE) ON ALL FIVE WELD JOINTS.
NOTE THAT THE BACK SIDE OF THE JOINT MUST REMAIN PURGED UNTIL THE ENTIRE JOINT IS COMPLETELY FILLED.
CWI VISUAL INSPECT ROOT WELDS 100% UNDER 8X MAGNIFICATION PER ASME CODE ARTICLE 6, SECTION V. ACCEPTANCE PER AWS D1.6, 6.29.1.
Test Certification: CWI CERTIFICATE Rev:
Part Number: SE121
Part Description: NCSX PVVS

IDC Count : 0 Dwg Count: 1 Pgm Count: 0 QAP Count: 3 NDT Count: 0 WPS Count: 1

Operation	Resource	QtyPer	StartQty	EndQt	Drawing ID / Rev

Workorder	Part ID			Qty	Drawing ID / Rev	Engineer
64880/1				1	SE121 / A	BLUE/DOUG MCCORKLE

Sub: 1 / Seq: 40	805-INPROCESS INSPECTION - PLA	1.00	1.00	1.00	SE121-001P / A
(F)	INSPECTION OPERATION # 2				

AFTER THE ROOT WELDS ARE COMPLETE (FABRICATION DEPT. WILL COORDINATE); RE-INSPECT / VERIFY PART PROFILE IS WITHIN APPLIED TOLERANCE AND RECORD WELDING SHRINKAGE / DISTORTION REALIZED TO THIS POINT.
RECORD ACTUAL (INDIVIDUAL) MEASUREMENTS ON INSPECTION FORM (SE121-2MTM). RECORD ACTUAL (HIGH/LOW RANGE) ON MTM I.D.C.
INSPECT AND RECORD MAGNETIC PERMEABILITY.
REPORT ANY OUT OF TOLERANCE READINGS VIA MTM NCR.
NOTIFY ENGINEERING (DOUG McCORKLE) FOR EVALUATION OF RESULTS PRIOR TO RELEASING PART. NOTE THAT PROFILE READINGS SHOULD REMAIN NEAR TO ABOVE NOMINAL. INWARD DISTORTION APPROACHING THE LOW LIMIT OF TOLERANCE MUST BE ADDRESSED (AND CORRECTIVE ACTION IMPLEMENTED) PRIOR TO COMPLETING WELDING PROCESS.
ENSURE THE FIXTURE DATUM TARGETS ARE ADEQUATELY POSITIONED FOR THE NEXT SEQUENTIAL INSPECTION.
Part Number: SE121
Part Description: NCSX PVVS

IDC Count : 2 Dwg Count: 1 Pgm Count: 0 QAP Count: 2 NDT Count: 0 WPS Count: 0

Operation	Resource	QtyPer	StartQty	EndQt	Drawing ID / Rev
Sub: 1 / Seq: 70	230-FABRICATION - WEIDNER	1.00	1.00	1.00	SE121-001P / A
(F)	FABRICATION OPERATION # 3				

AFTER OBTAINING ENGINEERING PROFILE ACCEPTANCE, AND AUTHORIZATION TO PROCEED, WELD THE REMAINDER OF THE STRUCTURAL WELD JOINTS.
SEQUENCE WELDING TO MINIMIZE DISTORTION AND NUMBER OF INTER-PASSES.
CWI VISUAL INSPECT EACH WELD PASS 100% UNDER 8X MAGNIFICATION PER ASME CODE ARTICLE 6, SECTION V. ACCEPTANCE PER AWS D1.6, 6.29.1.
AFTER WELDING IS COMPLETE, REMOVE ANY STIFFENING / SUPPORT DEVICES. BLEND / TOUCH UP ATTACHMENT WELDS AS REQUIRED.
LAYOUT THE PORT ASSEMBLY LOCATION. (ANGULAR LOCATION / OVERALL LENGTH AND OUTLINE ARE SCRIBED ON FIXTURE). UTILIZE THE LASER TRACKER TO ENSURE POSITION.
WELD THE PORT EXTENSION SUB-ASSEMBLY IN PLACE PER DRAWING.
BACK PURGE THE WELD JOINT SURFACES WITH 100% ARGON. PURGE DAM MATERIAL MUST BE MADE FROM EITHER 625 INCONEL OR 300 SERIES STAINLESS STEEL.
NOTE THAT THE BACK SIDE OF THE JOINT MUST REMAIN PURGED UNTIL THE ENTIRE JOINT IS COMPLETELY FILLED.
CWI VISUAL INSPECT THE PORT EXTENSION WELD 100% UNDER 8X MAGNIFICATION PER ASME CODE ARTICLE 6, SECTION V. ACCEPTANCE PER AWS D1.6, 6.29.1.
FINISH POLISHING AND CLEANING THE INTERIOR SURFACES OF THE PORT SUB-ASSEMBLY. RESTORE TO A 32 MICRO-INCH SURFACE FINISH. REFER TO CLEANING PROCEDURE # 64880NSCX-CSPEC-120-01-00-3.3.2.4.
INSTALL THE VACUUM TEST CAP TO THE CONFLAT FLANGE.

Test Certification: CWI CERTIFICATE Rev:
Part Number: SE121
Part Description: NCSX PVVS

IDC Count : 0 Dwg Count: 1 Pgm Count: 0 QAP Count: 3 NDT Count: 0 WPS Count: 1

Operation	Resource	QtyPer	StartQty	EndQt	Drawing ID / Rev	Service ID
Sub: 1 / Seq: 73	450-SUBLET	1.00	1.00	1.00	SE121-001P / A	MISC/SUBLET
(F)	VACUUM TEST THE PORT EXTENSION SUB-ASSEMBLY (WELDED TO THE VESSEL WALL) PER THE FOLLOWING:					

Workorder	Part ID	Qty	Drawing ID / Rev	Engineer
64880/1		1	SE121 / A	BLUE/DOUG MCCORKLE

THE PORT UNDER TEST SHALL BE EVACUATED USING A TURBO MOLECULAR PUMP TO AN INTERNAL PRESSURE OF LESS THAN OR EQUAL TO 1 X 10(-7) TORR.
THE TOTAL HELIUM LEAK RATE FOR THE PORT EXTENSION SHALL BE LESS THAN OR EQUAL TO 1.7 X 10(-9) TORR-L/S.
Part Number: SE121
Part Description: NCSX PVVS
Customer: PPPL
Test Certification: VACUUM TEST CERTIFICATE Rev:

IDC Count : 0 Dwg Count: 1 Pgm Count: 0 QAP Count: 4 NDT Count: 0 WPS Count: 0

Operation	Resource	QtyPer	StartQty	EndQt	Drawing ID / Rev
Sub: 1 / Seq: 75	818-MQS CONTRACTOR X-RAY	1.00	1.00	1.00	SE121-001P /
(F)	100% RADIOGRAPHIC INSPECT THE 5 STRUCTURAL WELDS (LOCATIONS IDENTIFIED ON PART) PER THE FOLLOWING: .....TBD.....				

Specification: TBD
Method: TBD
Acceptance: TBD
Map(s): RADIOGRAPHIC INSPECTION MAP Rev:
Part Number: SE121
Part Description: NCSX PVVS
Material Type: 625 INCONEL
Test Certification: RADIOGRAPHIC CERTIFICATE Rev:
Material Thickness: .375"

IDC Count : 0 Dwg Count: 0 Pgm Count: 0 QAP Count: 9 NDT Count: 0 WPS Count: 0

Operation	Resource	QtyPer	StartQty	EndQt	Drawing ID / Rev
Sub: 1 / Seq: 80	805-INPROCESS INSPECTION - PLA	1.00	1.00	1.00	SE121-001P / A
(F)	INSPECTION OPERATION # 3				

RE-INSPECT / VERIFY PART PROFILE IS WITHIN APPLIED TOLERANCE AND RECORD PRIMARY STRUCTURAL WELDING SHRINKAGE / DISTORTION.
RECORD ACTUAL (INDIVIDUAL) MEASUREMENTS ON INSPECTION FORM (SE121-2MTM). RECORD ACTUAL (HIGH/LOW RANGE) ON MTM IDC
INSPECT AND RECORD MAGNETIC PERMEABILITY.
REPORT ANY OUT OF TOLERANCE READINGS VIA MTM NCR.
NOTIFY ENGINEERING (DOUG McCORKLE) FOR EVALUATION OF RESULTS PRIOR TO RELEASING PART.
ENSURE THE FIXTURE DATUM TARGETS ARE ADEQUATELY POSITIONED FOR THE NEXT SEQUENTIAL INSPECTION.

Part Number: SE121
Part Description: NCSX PVVS

IDC Count : 2 Dwg Count: 1 Pgm Count: 0 QAP Count: 2 NDT Count: 0 WPS Count: 0

Operation	Resource	QtyPer	StartQty	EndQt	Drawing ID / Rev
Sub: 1 / Seq: 90	230-FABRICATION - WEIDNER	1.00	1.00	1.00	SE121-002P / --
(F)	FABRICATION OPERATION # 4				

LAYOUT AND CUT THE PORT EXTENSION TUBE OFF OF THE VESSEL PER DRAWING (NORMAL TO VESSEL WALL).
PLASMA CUT THE PORT OPENING IN THE VESSEL WALL PER DRAWING. (CUT UNDERSIZE TO ALLOW FOR ADEQUATE SIZING / CLEANUP). UTILIZE A CIRCLE CUTTING DEVICE TO ENSURE SIZE AND ROUNDNESS.

Workorder	Part ID	Qty	Drawing ID / Rev	Engineer
64880/1		1	SE121 / A	BLUE/DOUG MCCORKLE

GRIND / BLEND THE OPENING SMOOTH MAINTAINING THE DIMENSIONAL RELATIONSHIP OF THE OPENING AND PORT STUB PER DRAWING.
PREP THE EDGES OF THE PORT STUB AND PORT EXTENSION TUBE FOR RE-INSTALLATION AND WELDING.
POSITION AND WELD THE WELD BACKING RING (SE121-003P-4) IN PLACE (TO THE END OF THE DETACHED PORT EXTENSION) PER DRAWING SE121-003P.
RE-INSTALL THE PORT EXTENSION TO THE PORT STUB AND WELD IN PLACE PER DRAWING SE121-003P..
GRIND / POLISH THE PORT SUB-ASSEMBLY INTERIOR WELD SMOOTH.
ASSIST Q/A WITH PROFILE AND PORT EXTENSION POSITION VERIFICATION.
AFTER INSPECTION IS COMPLETE, REMOVE PART FROM FIXTURE.
PERFORM FINAL COSMETIC UPGRADE. PREPARE PART FOR FINAL BLAST AND FINAL VISUAL INSPECTION.

IDC Count : 0 Dwg Count: 0 Pgm Count: 0 QAP Count: 0 NDT Count: 0 WPS Count: 1

Operation	Resource	QtyPer	StartQty	EndQt	Drawing ID / Rev
Sub: 1 / Seq: 100	805-INPROCESS INSPECTION - PLA	1.00	1.00	1.00	SE121 / A

(F)
INSPECT PROFILE IN THE AREA OF THE PORT STUB / PORT EXTENSION.
INSPECT MAGNETIC PERMEABILITY IN THE AREA OF THE PORT STUB / PORT EXTENSION WELDING.
INSPECT THE INTERIOR SURFACE FINISH OF THE PORT EXTENSION.
RECORD IDC DATA
Part Number: SE121
Part Description: NCSX PVVS

IDC Count : 3 Dwg Count: 0 Pgm Count: 0 QAP Count: 2 NDT Count: 0 WPS Count: 0

Operation	Resource	QtyPer	StartQty	EndQt	Drawing ID / Rev
Sub: 1 / Seq: 110	260-SANDBLAST	1.00	1.00	1.00	SE121 / A

(F)
MASK THE INTERIOR SURFACES AND FLANGE FACE. BLAST THE OUTSIDE SURFACE 100% USING 220 GRIT VIRGIN ALUMINUM OXIDE.

IDC Count : 0 Dwg Count: 0 Pgm Count: 0 QAP Count: 0 NDT Count: 0 WPS Count: 0

Operation	Resource	QtyPer	StartQty	EndQt	Drawing ID / Rev
Sub: 1 / Seq: 115	230-FABRICATION - WEIDNER	1.00	1.00	1.00	SE121 / A

(F)
REMOVE MASKING AND PROTECTIVE PLASTIC
CLEAN PART PER .....

IDC Count : 0 Dwg Count: 0 Pgm Count: 0 QAP Count: 0 NDT Count: 0 WPS Count: 0

Operation	Resource	QtyPer	StartQty	EndQt	Drawing ID / Rev
Sub: 1 / Seq: 120	805-INPROCESS INSPECTION - PLA	1.00	1.00	1.00	SE121 / A

(F)
FINAL PROFILE INSPECTION. INSPECT AND RECORD THE VESSEL PROFILE AND PORT EXTENSION POSITION.
FINAL MAGNETIC PERMEABLITY VERIFICATION.
VERIFY MAGNETIC PERMEABILITY OF THE STRUCTURAL WELDS, VESSEL WALL, PORT EXTENSION TUBE, CONFLAT FLANGE, FLANGE TO TUBE WELD.
RECORD IDC DATA
Part Number: SE121
Part Description: NCSX PVVS

IDC Count : 5 Dwg Count: 0 Pgm Count: 0 QAP Count: 2 NDT Count: 0 WPS Count: 0

Sub ID	Part ID	Qty	Drawing ID / Rev
14	SE121-001P-2 PANEL # 1	1	I /

Workorder	Part ID	Qty	Drawing ID / Rev	Engineer
64880/1		1	SE121 / A	BLUE/DOUG MCCORKLE

Parent Sub:1 Op:10

Operation	Resource	QtyPer	StartQty	EndQt	Drawing ID / Rev
Sub: 14 / Seq: 10	410-BURNOUT TABLE	1.00	1.00	1.00	SE121-001P / A

(F)
1. PRIOR TO BEGINNING WORK, CONTACT Q/A TO PERFORM A SERIES OF MATERIAL THICKNESS AND MAGNETIC PERMEABILITY TESTS ON THE RAW MATEIRAL (PRIOR TO MATERIAL PROCESSING AND HANDLING BY MTM).
2. NEST AND PROGRAM PER PROVIDED GEOMETRY.
3. BURNOUT AND CLEANUP PANEL PER NESTING / PROGRAM.
4. CLEANUP EDGES / RADIUS CORNERS (.03" MIN. RAD). ENSURE ALL DROSS AND RE-CAST LAYER IS REMOVED. ENSURE THE CUT SURFACE IS BLENDED SMOOTH.
5. NOTIFY Q/A FOR VERIFICATION PRIOR TO MOVING TO THE NEXT WORK CENTER.

Specification: ASTM A800 Rev: 91
Part Number: SE121-001P-2 PANEL 1
Part Description: DIE FORMED PANEL
Customer: PPPL
Specification: ASTM B443 Rev: 93

IDC Count : 1 Dwg Count: 1 Pgm Count: 0 QAP Count: 0 NDT Count: 0 WPS Count: 0

Piece #	Part ID	Qty	Drawing ID / Rev	Vendor	Dimensions
10	INCONEL 625_5-PLATE,NICKEL ALLOY .375" THK	1.0		1810	

Vendor Part ID: INCONEL 625_5

(F)
INCONEL 625 (UNS N06625) PER ASTM B 443-00
ANNEALED
MAGNETIC PERMEABILITY SHALL NOT EXCEED 1.00 (REF. ASTM A800).
SURFACE MUST BE PROTECTED FROM CONTACT WITH IRON AND IRON ALLOY MATERIALS
CERTS & MILL TEST REPORTS REQ'D WITH SHIPMENT.

Material Certification:
Part Number: SE121-2A
Part Description: DIE FORMED PANEL # 1

Operation	Resource	QtyPer	StartQty	EndQt	Drawing ID / Rev
Sub: 14 / Seq: 15	805-INPROCESS INSPECTION - PLA	1.00	1.00	1.00	SE121-001P / A

(F)
INSPECT BLANK SIZE PER DRAWING
VERIFY EDGES ARE SMOOTH AND CORNERS HAVE RADII APPLIED PER PREVIOUS SEQUENCE.
INSPECT MATERIAL THICKNESS PER ASTM B443
VISUAL INSPECT SURFACE FINISH PER ASTM B443
INSPECT MAGNETIC PERMEABILITY PER ASTM A800
RECORD IDC DATA
APPLY PROTECTIVE PLASTIC TO BOTH SIDES OF PANEL
(AVAILABLE IN WIP STORAGE)
Specification: ASTM A800 Rev: 91
Part Number: SE121-001P-2 PANEL 1
Part Description: DIE FORMED PANEL
Customer: PPPL

Workorder	Part ID	Qty	Drawing ID / Rev	Engineer
64880/1		1	SE121 / A	BLUE/DOUG MCCORKLE

Specification: ASTM B443 Rev: 93

IDC Count : 1 Dwg Count: 1 Pgm Count: 0 QAP Count: 5 NDT Count: 0 WPS Count: 0

Operation	Resource	QtyPer	StartQty	EndQt	Drawing ID / Rev
Sub: 14 / Seq: 18	415-ROLLING/SHEAR/BRAKE PRESS	1.00	1.00	1.00	SE121-001P / A

(F)
ROLL PANEL BLANK INTO A CONE PER PROCESS DRAWING.
ENSURE PLATE ROLLS ARE COMPLETELY CLEAN AND FREE OF DIRT, GRIME, FOREIGN MATTER, AND RAISED METAL PRIOR TO ROLLING.
ENSURE THE PANEL BLANKS ARE PROTECTED WITH PLASTIC SHEET DURING THE ENTIRE PROCESS.
NOTIFY ENGINEERING (DOUG McCORKLE) PRIOR TO PROCEEDING.

IDC Count : 0 Dwg Count: 1 Pgm Count: 0 QAP Count: 0 NDT Count: 0 WPS Count: 0

Operation	Resource	QtyPer	StartQty	EndQt	Drawing ID / Rev
Sub: 14 / Seq: 20	341-PACIFIC 750	1.00	1.00	1.00	SE121-001P / A

(F)
LOAD, ALIGN, AND BOLT DIE SET # _____ INTO THE 750 TON HYDRAULIC PRESS.
ENSURE THE DIE SET FACES ARE CLEAN AND FREE OF DIRT, OIL, GRIME, FOREIGN MATTER, RAISED OR EMBEDDED MATERIAL, ETC....
LOAD THE PANEL BLANK (OR CONE) INTO THE DIE SET.
HYDRAULIC FORM THE PANEL TO ACHIEVE THE GEOMETRICAL SHAPE CONFORMING TO INSPECTION GAGE #_____.
PANEL TO GAGE GAP TOLERANCE: .08" MAX.
NOTIFY Q/A FOR PROFILE IDC VERIFICATION
ENSURE THE PANEL MATERIAL EXTENDS BEYOND THE PERIMETER OF THE TRIM-LINES OF THE GAGE BY AT LEAST 1" (TO PROVIDE ADEQUATE STOCK ALLOWANCE FOR RE-POSITIONING, RE-STRIKING, AND ACCURATE TRIMMING).
Part Number: SE121-001P-2 PANEL 1
Part Description: DIE FORMED PANEL

IDC Count : 1 Dwg Count: 1 Pgm Count: 0 QAP Count: 2 NDT Count: 0 WPS Count: 0

Operation	Resource	QtyPer	StartQty	EndQt	Drawing ID / Rev
Sub: 14 / Seq: 25	260-SANDBLAST	1.00	1.00	1.00	SE121-001P / A

(F)
SHOT BLAST THE ENTIRE PANEL 100% USING 180-220 GRIT VIRGIN ALUMINUM OXIDE MEDIA TO REMOVE ANY RESIDUE FROM THE FORMING PROCESS.

IDC Count : 0 Dwg Count: 1 Pgm Count: 0 QAP Count: 0 NDT Count: 0 WPS Count: 0

Operation	Resource	QtyPer	StartQty	EndQt	Drawing ID / Rev
Sub: 14 / Seq: 27	230-FABRICATION - WEIDNER	1.00	1.00	1.00	SE121-001P / A

(F)
INSTALL AND WELD ANNEAL BRACING IN PLACE PER ENGINEERING SKETCH
ENSURE PART IS CLEAN AND READY FOR SOLUTION ANNEAL CYCLE

IDC Count : 0 Dwg Count: 1 Pgm Count: 0 QAP Count: 0 NDT Count: 0 WPS Count: 1

Operation	Resource	QtyPer	StartQty	EndQt	Drawing ID / Rev	Service ID
Sub: 14 / Seq: 30	520-SUBLET, EXOTIC HEAT TREAT	1.00	1.00	1.00	SE121-001P / A	THRML TR/NA SA

(F)
SOLUTION ANNEAL FORMED PANEL PER THE FOLLOWING:
HOLD AT 1900 DEGREES F. (+/- 15 DEGREES) HOLD FOR 45 MINUTES (+/ 5 MINUTES)
Specification: AMS2774 Rev: JUL95
Certification: H/T CERTIFICATE
Part Number: SE121-001P-2 PANEL 1

Workorder	Part ID	Qty	Drawing ID / Rev	Engineer
64880/1		1	SE121 / A	BLUE/DOUG MCCORKLE

Part Description: DIE FORMED PANEL
Customer: PPPL
Furnace charts: FURNACE CHART

IDC Count : 0 Dwg Count: 1 Pgm Count: 0 QAP Count: 6 NDT Count: 0 WPS Count: 0

Operation	Resource	QtyPer	StartQty	EndQt	Drawing ID / Rev
Sub: 14 / Seq: 32	230-FABRICATION - WEIDNER	1.00	1.00	1.00	SE121-001P / A

(F) REMOVE ANNEAL BRACING AND PREPARE PANEL FOR RE-STRIKE / FINAL FORMIMG. ENSURE ALL WELDS ARE COMLPETELY REMOVED AND BLENDED FLUSH AND SMOOTH TO THE BASE MATERIAL. USE CAUTION TO AVOID GOUGES and/or HEAVY SCRATCHES ON THE PANEL SURFACES.

IDC Count : 0 Dwg Count: 1 Pgm Count: 0 QAP Count: 0 NDT Count: 0 WPS Count: 0

Operation	Resource	QtyPer	StartQty	EndQt	Drawing ID / Rev
Sub: 14 / Seq: 35	805-INPROCESS INSPECTION - PLA	1.00	1.00	1.00	SE121-001P / A

(F) VISUAL INSPECT SURFACE FOR DAMAGE, PITTING, GOUGES, SCRAPES ETC.....
NOTIFY ENGINEERING (DOUG McCORKLE) FOR CONCURRENCE
VERIFY MAGNETIC PERMEABILITY AND RECORD I.D.C. DATA
Part Number: SE121-001P-2 PANEL 1
Part Description: DIE FORMED PANEL

IDC Count : 1 Dwg Count: 1 Pgm Count: 0 QAP Count: 2 NDT Count: 0 WPS Count: 0

Operation	Resource	QtyPer	StartQty	EndQt	Drawing ID / Rev
Sub: 14 / Seq: 40	341-PACIFIC 750	1.00	1.00	1.00	SE121-001P / A

(F) LOAD, ALIGN, AND BOLT DIE SET # _____ INTO THE 750 TON HYDRAULIC PRESS.
ENSURE THE DIE SET FACES ARE CLEAN AND FREE OF DIRT, OIL, GRIME, FOREIGN MATTER, RAISED OR EMBEDDED MATERIAL, ETC....
LOAD THE PREFORMED PANEL INTO THE DIE SET.
"RE-STRIKE" HYDRAULIC FORM THE PANEL TO ACHIEVE THE GEOMETRICAL SHAPE CONFORMING TO INSPECTION GAGE #_____.
PANEL TO GAGE GAP TOLERANCE: .08" MAX.
VERIFY PROFILE TO INSPECTION GAGE #_____. GAP TOLERANCE: .08" MAX.
NOTIFY INSPECTOR FOR Q/A IDC VERIFICATION
LAYOUT AND PRICK-PUNCH TRIM-LINES ON THE PANEL ESTABLISHED FROM THE MACHINED PERIMETER OF THE INSPECTION GAGE.

Part Number: SE121-001P-2 PANEL 1
Part Description: DIE FORMED PANEL

IDC Count : 1 Dwg Count: 1 Pgm Count: 0 QAP Count: 2 NDT Count: 0 WPS Count: 0

Operation	Resource	QtyPer	StartQty	EndQt	Drawing ID / Rev
Sub: 14 / Seq: 50	260-SANDBLAST	1.00	1.00	1.00	SE121-001P / A

(F) SHOT BLAST THE ENTIRE PANEL 100% USING 180-220 GRIT VIRGIN ALUMINUM OXIDE MEDIA TO REMOVE ANY RESIDUE FROM THE FORMING PROCESS.

IDC Count : 0 Dwg Count: 1 Pgm Count: 0 QAP Count: 0 NDT Count: 0 WPS Count: 0

Operation	Resource	QtyPer	StartQty	EndQt	Drawing ID / Rev
Sub: 14 / Seq: 60	230-FABRICATION - WEIDNER	1.00	1.00	1.00	SE121-001P / A

(F) TRIM PERIMETER TO PROVIDED TRIM-LINES. NOTE THAT INSTALLING THE WELD PREP IS NOT REQUIRED AT THIS STAGE (ADDITIONAL FITTING / TRIMMING MAY BE REQUIRED AT INSTALLATION)

Workorder	Part ID	Qty	Drawing ID / Rev	Engineer
64880/1		1	SE121 / A	BLUE/DOUG MCCORKLE

SAND AND POLISH THE INSIDE SURFACE 100% TO ACHIEVE A 32 MICRO SURFACE FINISH (WITH THE EXCEPTION OF THE WELDING / TRIMMING ZONES).
CLEAN PANEL PER CLEANING PROCDURE 64880NSCX-CSPEC-120-01-00-3.3.2.4. (PRE-PRODUCTION NOTE: DOCUMENT IS PRELIMINARY AND WILL BE REVISED / RE-NAMED PRIOR TO USE)

IDC Count : 0 Dwg Count: 1 Pgm Count: 0 QAP Count: 0 NDT Count: 0 WPS Count: 0

Operation	Resource	QtyPer	StartQty	EndQt	Drawing ID / Rev
Sub: 14 / Seq: 70	805-INPROCESS INSPECTION - PLA	1.00	1.00	1.00	SE121-001P / A

(F) VERIFY PROFILE TO INSPECTION GAGE #_____. GAP TOLERANCE: .08" MAX. PERIMETER SHOULD FALL WITHIN .03" OF GAGE PERIMETER.
INSPECT AND RECORD INTERIOR SIDE SURFACE FINISH.
INSPECT AND RECORD MAGNETIC PERMEABILY.
Test Certification: DIMENSIONAL INSPECTION MAP Rev:
Part Number: SE121-001P-2 PANEL 1
Part Description: DIE FORMED PANEL

IDC Count : 3 Dwg Count: 1 Pgm Count: 0 QAP Count: 3 NDT Count: 0 WPS Count: 0

Sub ID	Part ID	Qty	Drawing ID / Rev
15	SE121-001P-2 PANEL # 2	1	/
			Parent Sub:1 Op:10

Operation	Resource	QtyPer	StartQty	EndQt	Drawing ID / Rev
Sub: 15 / Seq: 10	410-BURNOUT TABLE	1.00	1.00	1.00	SE121-001P / A

(F) 1. PRIOR TO BEGINNING WORK, CONTACT Q/A TO PERFORM A SERIES OF MATERIAL THICKNESS AND MAGNETIC PERMEABILITY TESTS ON THE RAW MATEIRAL (PRIOR TO MATERIAL PROCESSING AND HANDLING BY MTM).
2. NEST AND PROGRAM PER PROVIDED GEOMETRY.
3. BURNOUT AND CLEANUP PANEL PER NESTING / PROGRAM.
4. CLEANUP EDGES / RADIUS CORNERS (.03" MIN. RAD). ENSURE ALL DROSS AND RE-CAST LAYER IS REMOVED. ENSURE THE CUT SURFACE IS BLENDED SMOOTH.
5. NOTIFY Q/A FOR VERIFICATION PRIOR TO MOVING TO THE NEXT WORK CENTER.
Specification: ASTM A800 Rev: 91
Part Number: SE121-001P-2 PANEL 2
Part Description: DIE FORMED PANEL
Customer: PPPL
Specification: ASTM B443 Rev: 93

IDC Count : 1 Dwg Count: 1 Pgm Count: 0 QAP Count: 0 NDT Count: 0 WPS Count: 0

Piece #	Part ID	Qty	Drawing ID / Rev	Vendor	Dimensions
10	INCONEL 625_5-PLATE,NICKEL ALLOY .375" THK	1.0		1810	
	Vendor Part ID: INCONEL 625_5				

(F) INCONEL 625 (UNS N06625) PER ASTM B 443-00
ANNEALED
MAGNETIC PERMEABILITY SHALL NOT EXCEED 1.00 (REF. ASTM A800).
SURFACE MUST BE PROTECTED FROM CONTACT WITH IRON AND IRON ALLOY MATERIALS
CERTS & MILL TEST REPORTS REQ'D WITH SHIPMENT.

Material Certification:
Part Number: SE121-2B

Workorder	Part ID	Qty	Drawing ID / Rev	Engineer
64880/1		1	SE121 / A	BLUE/DOUG MCCORKLE

Part Description: DIE FORMED PANEL # 2

Operation	Resource	QtyPer	StartQty	EndQt	Drawing ID / Rev
Sub: 15 / Seq: 15	805-INPROCESS INSPECTION - PLA	1.00	1.00	1.00	SE121-001P / A

(F)
INSPECT BLANK SIZE PER DRAWING
VERIFY EDGES ARE SMOOTH AND CORNERS HAVE RADII APPLIED PER PREVIOUS SEQUENCE.
INSPECT MATERIAL THICKNESS PER ASTM B443
VISUAL INSPECT SURFACE FINISH PER ASTM B443
INSPECT MAGNETIC PERMEABILITY PER ASTM A800
RECORD IDC DATA
APPLY PROTECTIVE PLASTIC TO BOTH SIDES OF PANEL
(AVAILABLE IN WIP STORAGE)
Specification: ASTM A800 Rev: 91
Part Number: SE121-001P-2 PANEL 2
Part Description: DIE FORMED PANEL
Customer: PPPL
Specification: ASTM B443 Rev: 93

IDC Count : 1 Dwg Count: 1 Pgm Count: 0 QAP Count: 5 NDT Count: 0 WPS Count: 0

Operation	Resource	QtyPer	StartQty	EndQt	Drawing ID / Rev
Sub: 15 / Seq: 18	415-ROLLING/SHEAR/BRAKE PRESS	1.00	1.00	1.00	SE121-001P / A

(F)
ROLL PANEL BLANK INTO A CONE PER PROCESS DRAWING.
ENSURE PLATE ROLLS ARE COMPLETELY CLEAN AND FREE OF DIRT, GRIME, FOREIGN MATTER, AND RAISED METAL PRIOR TO ROLLING.
ENSURE THE PANEL BLANKS ARE PROTECTED WITH PLASTIC SHEET DURING THE ENTIRE PROCESS.
NOTIFY ENGINEERING (DOUG McCORKLE) PRIOR TO PROCEEDING.

IDC Count : 0 Dwg Count: 1 Pgm Count: 0 QAP Count: 0 NDT Count: 0 WPS Count: 0

Operation	Resource	QtyPer	StartQty	EndQt	Drawing ID / Rev
Sub: 15 / Seq: 20	341-PACIFIC 750	1.00	1.00	1.00	SE121-001P / A

(F)
LOAD, ALIGN, AND BOLT DIE SET # _____ INTO THE 750 TON HYDRAULIC PRESS.
ENSURE THE DIE SET FACES ARE CLEAN AND FREE OF DIRT, OIL, GRIME, FOREIGN MATTER, RAISED OR EMBEDDED MATERIAL, ETC....
LOAD THE PANEL BLANK (OR CONE) INTO THE DIE SET.
HYDRAULIC FORM THE PANEL TO ACHIEVE THE GEOMETRICAL SHAPE CONFORMING TO INSPECTION GAGE #_____.
PANEL TO GAGE GAP TOLERANCE: .08" MAX.
NOTIFY Q/A FOR PROFILE IDC VERIFICATION
ENSURE THE PANEL MATERIAL EXTENDS BEYOND THE PERIMETER OF THE TRIM-LINES OF THE GAGE BY AT LEAST 1" (TO PROVIDE ADEQUATE STOCK ALLOWANCE FOR RE-POSITIONING, RE-STRIKING, AND ACCURATE TRIMMING).
Part Number: SE121-001P-2 PANEL 2
Part Description: DIE FORMED PANEL

IDC Count : 1 Dwg Count: 1 Pgm Count: 0 QAP Count: 2 NDT Count: 0 WPS Count: 0

Operation	Resource	QtyPer	StartQty	EndQt	Drawing ID / Rev

Workorder	Part ID	Qty	Drawing ID / Rev	Engineer
64880/1		1	SE121 / A	BLUE/DOUG MCCORKLE

Sub: 15 / Seq: 25 — 260-SANDBLAST — 1.00 / 1.00 / 1.00 — SE121-001P / A

(F) SHOT BLAST THE ENTIRE PANEL 100% USING 180-220 GRIT VIRGIN ALUMINUM OXIDE MEDIA TO REMOVE ANY RESIDUE FROM THE FORMING PROCESS.

IDC Count : 0 Dwg Count: 1 Pgm Count: 0 QAP Count: 0 NDT Count: 0 WPS Count: 0

Operation	Resource	QtyPer	StartQty	EndQt	Drawing ID / Rev
Sub: 15 / Seq: 27	230-FABRICATION - WEIDNER	1.00	1.00	1.00	SE121-001P / A

(F) INSTALL AND WELD ANNEAL BRACING IN PLACE PER ENGINEERING SKETCH
ENSURE PART IS CLEAN AND READY FOR SOLUTION ANNEAL CYCLE

IDC Count : 0 Dwg Count: 1 Pgm Count: 0 QAP Count: 0 NDT Count: 0 WPS Count: 1

Operation	Resource	QtyPer	StartQty	EndQt	Drawing ID / Rev	Service ID
Sub: 15 / Seq: 30	520-SUBLET, EXOTIC HEAT TREAT	1.00	1.00	1.00	SE121-001P / A	THRML TR/NA SA

(F) SOLUTION ANNEAL FORMED PANEL PER THE FOLLOWING:
HOLD AT 1900 DEGREES F. (+/- 15 DEGREES) HOLD FOR 45 MINUTES (+/ 5 MINUTES)
Specification: AMS2774 Rev: JUL95
Certification: H/T CERTIFICATE
Part Number: SE121-001P-2 PANEL 2
Part Description: DIE FORMED PANEL
Customer: PPPL
Furnace charts: FURNACE CHART

IDC Count : 0 Dwg Count: 1 Pgm Count: 0 QAP Count: 6 NDT Count: 0 WPS Count: 0

Operation	Resource	QtyPer	StartQty	EndQt	Drawing ID / Rev
Sub: 15 / Seq: 32	230-FABRICATION - WEIDNER	1.00	1.00	1.00	SE121-001P / A

(U) REMOVE ANNEAL BRACING AND PREPARE PANEL FOR RE-STRIKE / FINAL FORMIMG. ENSURE ALL WELDS ARE COMLPETELY REMOVED AND BLENDED FLUSH AND SMOOTH TO THE BASE MATERIAL. USE CAUTION TO AVOID GOUGES and/or HEAVY SCRATCHES ON THE PANEL SURFACES.

IDC Count : 0 Dwg Count: 1 Pgm Count: 0 QAP Count: 0 NDT Count: 0 WPS Count: 0

Operation	Resource	QtyPer	StartQty	EndQt	Drawing ID / Rev
Sub: 15 / Seq: 35	805-INPROCESS INSPECTION - PLA	1.00	1.00	1.00	SE121-001P / A

(F) VISUAL INSPECT SURFACE FOR DAMAGE, PITTING, GOUGES, SCRAPES ETC.....
NOTIFY ENGINEERING (DOUG McCORKLE) FOR CONCURRENCE
VERIFY MAGNETIC PERMEABILITY AND RECORD I.D.C. DATA
Part Number: SE121-001P-2 PANEL 2
Part Description: DIE FORMED PANEL

IDC Count : 1 Dwg Count: 1 Pgm Count: 0 QAP Count: 2 NDT Count: 0 WPS Count: 0

Operation	Resource	QtyPer	StartQty	EndQt	Drawing ID / Rev
Sub: 15 / Seq: 40	341-PACIFIC 750	1.00	1.00	1.00	SE121-001P / A

(F) LOAD, ALIGN, AND BOLT DIE SET # _____ INTO THE 750 TON HYDRAULIC PRESS.
ENSURE THE DIE SET FACES ARE CLEAN AND FREE OF DIRT, OIL, GRIME, FOREIGN MATTER, RAISED OR EMBEDDED MATERIAL, ETC....
LOAD THE PREFORMED PANEL INTO THE DIE SET.
"RE-STRIKE" HYDRAULIC FORM THE PANEL TO ACHIEVE THE GEOMETRICAL SHAPE CONFORMING TO INSPECTION GAGE #_____.
PANEL TO GAGE GAP TOLERANCE: .08" MAX.

Workorder	Part ID	Qty	Drawing ID / Rev	Engineer
64880/1		1	SE121 / A	BLUE/DOUG MCCORKLE

VERIFY PROFILE TO INSPECTION GAGE #_____. GAP TOLERANCE: .08" MAX.
NOTIFY INSPECTOR FOR Q/A IDC VERIFICATION
LAYOUT AND PRICK-PUNCH TRIM-LINES ON THE PANEL ESTABLISHED FROM THE MACHINED PERIMETER OF THE INSPECTION GAGE.

Part Number: SE121-001P-2 PANEL 2
Part Description: DIE FORMED PANEL

IDC Count : 1 Dwg Count: 1 Pgm Count: 0 QAP Count: 2 NDT Count: 0 WPS Count: 0

Operation	Resource	QtyPer	StartQty	EndQt	Drawing ID / Rev
Sub: 15 / Seq: 50	260-SANDBLAST	1.00	1.00	1.00	SE121-001P / A

(F) SHOT BLAST THE ENTIRE PANEL 100% USING 180-220 GRIT VIRGIN ALUMINUM OXIDE MEDIA TO REMOVE ANY RESIDUE FROM THE FORMING PROCESS.

IDC Count : 0 Dwg Count: 1 Pgm Count: 0 QAP Count: 0 NDT Count: 0 WPS Count: 0

Operation	Resource	QtyPer	StartQty	EndQt	Drawing ID / Rev
Sub: 15 / Seq: 60	230-FABRICATION - WEIDNER	1.00	1.00	1.00	SE121-001P / A

(F) TRIM PERIMETER TO PROVIDED TRIM-LINES. NOTE THAT INSTALLING THE WELD PREP IS NOT REQUIRED AT THIS STAGE (ADDITIONAL FITTING / TRIMMING MAY BE REQUIRED AT INSTALLATION)
SAND AND POLISH THE INSIDE SURFACE 100% TO ACHIEVE A 32 MICRO SURFACE FINISH (WITH THE EXCEPTION OF THE WELDING / TRIMMING ZONES).
CLEAN PANEL PER CLEANING PROCDURE 64880NSCX-CSPEC-120-01-00-3.3.2.4. (PRE-PRODUCTION NOTE: DOCUMENT IS PRELIMINARY AND WILL BE REVISED / RE-NAMED PRIOR TO USE)

IDC Count : 0 Dwg Count: 1 Pgm Count: 0 QAP Count: 0 NDT Count: 0 WPS Count: 0

Operation	Resource	QtyPer	StartQty	EndQt	Drawing ID / Rev
Sub: 15 / Seq: 70	805-INPROCESS INSPECTION - PLA	1.00	1.00	1.00	SE121-001P / A

(F) VERIFY PROFILE TO INSPECTION GAGE #_____. GAP TOLERANCE: .08" MAX. PERIMETER SHOULD FALL WITHIN .03" OF GAGE PERIMETER.
INSPECT AND RECORD INTERIOR SIDE SURFACE FINISH.
INSPECT AND RECORD MAGNETIC PERMEABILY.
Test Certification: DIMENSIONAL INSPECTION MAP Rev:
Part Number: SE121-001P-2 PANEL 2
Part Description: DIE FORMED PANEL

IDC Count : 3 Dwg Count: 1 Pgm Count: 0 QAP Count: 3 NDT Count: 0 WPS Count: 0

Sub ID	Part ID	Qty	Drawing ID / Rev
16	SE121-001P-2 PANEL # 3	1	/
			Parent Sub:1 Op:10

Operation	Resource	QtyPer	StartQty	EndQt	Drawing ID / Rev
Sub: 16 / Seq: 10	410-BURNOUT TABLE	1.00	1.00	1.00	SE121-001P / A

(F) 1. PRIOR TO BEGINNING WORK, CONTACT Q/A TO PERFORM A SERIES OF MATERIAL THICKNESS AND MAGNETIC PERMEABILITY TESTS ON THE RAW MATEIRAL (PRIOR TO MATERIAL PROCESSING AND HANDLING BY MTM).
2. NEST AND PROGRAM PER PROVIDED GEOMETRY.
3. BURNOUT AND CLEANUP PANEL PER NESTING / PROGRAM.
4. CLEANUP EDGES / RADIUS CORNERS (.03" MIN. RAD). ENSURE ALL DROSS AND RE-CAST LAYER IS REMOVED. ENSURE THE CUT SURFACE IS BLENDED SMOOTH.
5. NOTIFY Q/A FOR VERIFICATION PRIOR TO MOVING TO THE NEXT WORK CENTER.

Workorder	Part ID	Qty	Drawing ID / Rev	Engineer
64880/1		1	SE121 / A	BLUE/DOUG MCCORKLE

Specification: ASTM A800 Rev: 91
Part Number: SE121-001P-2 PANEL 3
Part Description: DIE FORMED PANEL
Customer: PPPL
Specification: ASTM B443 Rev: 93

IDC Count : 1 Dwg Count: 1 Pgm Count: 0 QAP Count: 0 NDT Count: 0 WPS Count: 0

Piece #	Part ID	Qty	Drawing ID / Rev	Vendor	Dimensions
10	INCONEL 625_5-PLATE,NICKEL ALLOY .375" THK	1.0		1810	
	Vendor Part ID: INCONEL 625_5				
(F)	INCONEL 625 (UNS N06625) PER ASTM B 443-00				
	ANNEALED				
	MAGNETIC PERMEABILITY SHALL NOT EXCEED 1.00 (REF. ASTM A800).				
	SURFACE MUST BE PROTECTED FROM CONTACT WITH IRON AND IRON ALLOY MATERIALS				
	CERTS & MILL TEST REPORTS REQ'D WITH SHIPMENT.				

Material Certification:
Part Number: SE121-2C
Part Description: DIE FORMED PANEL # 3

Operation	Resource	QtyPer	StartQty	EndQt	Drawing ID / Rev
Sub: 16 / Seq: 15	805-INPROCESS INSPECTION - PLA	1.00	1.00	1.00	SE121-001P / A
(F)	INSPECT BLANK SIZE PER DRAWING				
	VERIFY EDGES ARE SMOOTH AND CORNERS HAVE RADII APPLIED PER PREVIOUS SEQUENCE.				
	INSPECT MATERIAL THICKNESS PER ASTM B443				
	VISUAL INSPECT SURFACE FINISH PER ASTM B443				
	INSPECT MAGNETIC PERMEABILITY PER ASTM A800				
	RECORD IDC DATA				
	APPLY PROTECTIVE PLASTIC TO BOTH SIDES OF PANEL				
	(AVAILABLE IN WIP STORAGE)				
	Specification: ASTM A800 Rev: 91				
	Part Number: SE121-001P-2 PANEL 3				
	Part Description: DIE FORMED PANEL				
	Customer: PPPL				
	Specification: ASTM B443 Rev: 93				

IDC Count : 1 Dwg Count: 1 Pgm Count: 0 QAP Count: 5 NDT Count: 0 WPS Count: 0

Operation	Resource	QtyPer	StartQty	EndQt	Drawing ID / Rev
Sub: 16 / Seq: 18	415-ROLLING/SHEAR/BRAKE PRESS	1.00	1.00	1.00	SE121-001P / A
(F)	ROLL PANEL BLANK INTO A CONE PER PROCESS DRAWING.				
	ENSURE PLATE ROLLS ARE COMPLETELY CLEAN AND FREE OF DIRT, GRIME, FOREIGN MATTER, AND RAISED METAL PRIOR TO ROLLING.				
	ENSURE THE PANEL BLANKS ARE PROTECTED WITH PLASTIC SHEET DURING THE ENTIRE PROCESS.				
	NOTIFY ENGINEERING (DOUG McCORKLE) PRIOR TO PROCEEDING.				

Workorder	Part ID	Qty	Drawing ID / Rev	Engineer
64880/1		1	SE121 / A	BLUE/DOUG MCCORKLE

IDC Count : 0 Dwg Count: 1 Pgm Count: 0 QAP Count: 0 NDT Count: 0 WPS Count: 0

Operation	Resource	QtyPer	StartQty	EndQt	Drawing ID / Rev
Sub: 16 / Seq: 20	341-PACIFIC 750	1.00	1.00	1.00	SE121-001P / A

(F) LOAD, ALIGN, AND BOLT DIE SET # _____ INTO THE 750 TON HYDRAULIC PRESS.
ENSURE THE DIE SET FACES ARE CLEAN AND FREE OF DIRT, OIL, GRIME, FOREIGN MATTER, RAISED OR EMBEDDED MATERIAL, ETC....
LOAD THE PANEL BLANK (OR CONE) INTO THE DIE SET.
HYDRAULIC FORM THE PANEL TO ACHIEVE THE GEOMETRICAL SHAPE CONFORMING TO INSPECTION GAGE #_____.
PANEL TO GAGE GAP TOLERANCE: .08" MAX.
NOTIFY Q/A FOR PROFILE IDC VERIFICATION
ENSURE THE PANEL MATERIAL EXTENDS BEYOND THE PERIMETER OF THE TRIM-LINES OF THE GAGE BY AT LEAST 1" (TO PROVIDE ADEQUATE STOCK ALLOWANCE FOR RE-POSITIONING, RE-STRIKING, AND ACCURATE TRIMMING).
Part Number: SE121-001P-2 PANEL 3
Part Description: DIE FORMED PANEL

IDC Count : 1 Dwg Count: 1 Pgm Count: 0 QAP Count: 2 NDT Count: 0 WPS Count: 0

Operation	Resource	QtyPer	StartQty	EndQt	Drawing ID / Rev
Sub: 16 / Seq: 25	260-SANDBLAST	1.00	1.00	1.00	SE121-001P / A

(F) SHOT BLAST THE ENTIRE PANEL 100% USING 180-220 GRIT VIRGIN ALUMINUM OXIDE MEDIA TO REMOVE ANY RESIDUE FROM THE FORMING PROCESS.

IDC Count : 0 Dwg Count: 1 Pgm Count: 0 QAP Count: 0 NDT Count: 0 WPS Count: 0

Operation	Resource	QtyPer	StartQty	EndQt	Drawing ID / Rev
Sub: 16 / Seq: 27	230-FABRICATION - WEIDNER	1.00	1.00	1.00	SE121-001P / A

(F) INSTALL AND WELD ANNEAL BRACING IN PLACE PER ENGINEERING SKETCH
ENSURE PART IS CLEAN AND READY FOR SOLUTION ANNEAL CYCLE

IDC Count : 0 Dwg Count: 1 Pgm Count: 0 QAP Count: 0 NDT Count: 0 WPS Count: 1

Operation	Resource	QtyPer	StartQty	EndQt	Drawing ID / Rev	Service ID
Sub: 16 / Seq: 30	520-SUBLET, EXOTIC HEAT TREAT	1.00	1.00	1.00	SE121-001P / A	THRML TR/NA SA

(F) SOLUTION ANNEAL FORMED PANEL PER THE FOLLOWING:
HOLD AT 1900 DEGREES F. (+/- 15 DEGREES) HOLD FOR 45 MINUTES (+/ 5 MINUTES)
Specification: AMS2774 Rev: JUL95
Certification: H/T CERTIFICATE
Part Number: SE121-001P-2 PANEL 3
Part Description: DIE FORMED PANEL
Customer: PPPL
Furnace charts: FURNACE CHART

IDC Count : 0 Dwg Count: 1 Pgm Count: 0 QAP Count: 6 NDT Count: 0 WPS Count: 0

Operation	Resource	QtyPer	StartQty	EndQt	Drawing ID / Rev
Sub: 16 / Seq: 32	230-FABRICATION - WEIDNER	1.00	1.00	1.00	SE121-001P / A

(U) REMOVE ANNEAL BRACING AND PREPARE PANEL FOR RE-STRIKE / FINAL FORMIMG. ENSURE ALL WELDS ARE COMLPETELY REMOVED AND BLENDED FLUSH AND SMOOTH TO THE BASE MATERIAL. USE CAUTION TO AVOID GOUGES and/or HEAVY SCRATCHES ON THE PANEL SURFACES.

IDC Count : 0 Dwg Count: 1 Pgm Count: 0 QAP Count: 0 NDT Count: 0 WPS Count: 0

Workorder	Part ID	Qty	Drawing ID / Rev	Engineer
64880/1		1	SE121 / A	BLUE/DOUG MCCORKLE

Operation	Resource	QtyPer	StartQty	EndQt	Drawing ID / Rev
Sub: 16 / Seq: 35	805-INPROCESS INSPECTION - PLA	1.00	1.00	1.00	SE121-001P / A

(F)
VISUAL INSPECT SURFACE FOR DAMAGE, PITTING, GOUGES, SCRAPES ETC.....
NOTIFY ENGINEERING (DOUG McCORKLE) FOR CONCURRENCE
VERIFY MAGNETIC PERMEABILITY AND RECORD I.D.C. DATA
Part Number: SE121-001P-2 PANEL 3
Part Description: DIE FORMED PANEL

IDC Count : 1 Dwg Count: 1 Pgm Count: 0 QAP Count: 2 NDT Count: 0 WPS Count: 0

Operation	Resource	QtyPer	StartQty	EndQt	Drawing ID / Rev
Sub: 16 / Seq: 40	341-PACIFIC 750	1.00	1.00	1.00	SE121-001P / A

(F)
LOAD, ALIGN, AND BOLT DIE SET # _____ INTO THE 750 TON HYDRAULIC PRESS.
ENSURE THE DIE SET FACES ARE CLEAN AND FREE OF DIRT, OIL, GRIME, FOREIGN MATTER, RAISED OR EMBEDDED MATERIAL, ETC....
LOAD THE PREFORMED PANEL INTO THE DIE SET.
"RE-STRIKE" HYDRAULIC FORM THE PANEL TO ACHIEVE THE GEOMETRICAL SHAPE CONFORMING TO INSPECTION GAGE #_____.
PANEL TO GAGE GAP TOLERANCE: .08" MAX.
VERIFY PROFILE TO INSPECTION GAGE #_____. GAP TOLERANCE: .08" MAX.
NOTIFY INSPECTOR FOR Q/A IDC VERIFICATION
LAYOUT AND PRICK-PUNCH TRIM-LINES ON THE PANEL ESTABLISHED FROM THE MACHINED PERIMETER OF THE INSPECTION GAGE.

Part Number: SE121-001P-2 PANEL 3
Part Description: DIE FORMED PANEL

IDC Count : 1 Dwg Count: 1 Pgm Count: 0 QAP Count: 2 NDT Count: 0 WPS Count: 0

Operation	Resource	QtyPer	StartQty	EndQt	Drawing ID / Rev
Sub: 16 / Seq: 50	260-SANDBLAST	1.00	1.00	1.00	SE121-001P / A

(F)
SHOT BLAST THE ENTIRE PANEL 100% USING 180-220 GRIT VIRGIN ALUMINUM OXIDE MEDIA TO REMOVE ANY RESIDUE FROM THE FORMING PROCESS.

IDC Count : 0 Dwg Count: 1 Pgm Count: 0 QAP Count: 0 NDT Count: 0 WPS Count: 0

Operation	Resource	QtyPer	StartQty	EndQt	Drawing ID / Rev
Sub: 16 / Seq: 60	230-FABRICATION - WEIDNER	1.00	1.00	1.00	SE121-001P / A

(F)
TRIM PERIMETER TO PROVIDED TRIM-LINES. NOTE THAT INSTALLING THE WELD PREP IS NOT REQUIRED AT THIS STAGE (ADDITIONAL FITTING / TRIMMING MAY BE REQUIRED AT INSTALLATION)
SAND AND POLISH THE INSIDE SURFACE 100% TO ACHIEVE A 32 MICRO SURFACE FINISH (WITH THE EXCEPTION OF THE WELDING / TRIMMING ZONES).
CLEAN PANEL PER CLEANING PROCDURE 64880NSCX-CSPEC-120-01-00-3.3.2.4. (PRE-PRODUCTION NOTE: DOCUMENT IS PRELIMINARY AND WILL BE REVISED / RE-NAMED PRIOR TO USE)

IDC Count : 0 Dwg Count: 1 Pgm Count: 0 QAP Count: 0 NDT Count: 0 WPS Count: 0

Operation	Resource	QtyPer	StartQty	EndQt	Drawing ID / Rev
Sub: 16 / Seq: 70	805-INPROCESS INSPECTION - PLA	1.00	1.00	1.00	SE121-001P / A

(F)
VERIFY PROFILE TO INSPECTION GAGE #_____. GAP TOLERANCE: .08" MAX. PERIMETER SHOULD FALL WITHIN .03" OF GAGE PERIMETER.
INSPECT AND RECORD INTERIOR SIDE SURFACE FINISH.
INSPECT AND RECORD MAGNETIC PERMEABILY.

Workorder	Part ID	Qty	Drawing ID / Rev	Engineer
64880/1		1	SE121 / A	BLUE/DOUG MCCORKLE

Test Certification: DIMENSIONAL INSPECTION MAP Rev:
Part Number: SE121-001P-2 PANEL 3
Part Description: DIE FORMED PANEL

IDC Count : 3 Dwg Count: 1 Pgm Count: 0 QAP Count: 3 NDT Count: 0 WPS Count: 0

Sub ID	Part ID	Qty	Drawing ID / Rev
17	SE121-001P-2 PANEL # 4	1	/
			Parent Sub:1 Op:10

Operation	Resource	QtyPer	StartQty	EndQt	Drawing ID / Rev
Sub: 17 / Seq: 10	410-BURNOUT TABLE	1.00	1.00	1.00	SE121-001P / A

(F)
1. PRIOR TO BEGINNING WORK, CONTACT Q/A TO PERFORM A SERIES OF MATERIAL THICKNESS AND MAGNETIC PERMEABILITY TESTS ON THE RAW MATEIRAL (PRIOR TO MATERIAL PROCESSING AND HANDLING BY MTM).
2. NEST AND PROGRAM PER PROVIDED GEOMETRY.
3. BURNOUT AND CLEANUP PANEL PER NESTING / PROGRAM.
4. CLEANUP EDGES / RADIUS CORNERS (.03" MIN. RAD). ENSURE ALL DROSS AND RE-CAST LAYER IS REMOVED. ENSURE THE CUT SURFACE IS BLENDED SMOOTH.
5. NOTIFY Q/A FOR VERIFICATION PRIOR TO MOVING TO THE NEXT WORK CENTER.
Specification: ASTM A800 Rev: 91
Part Number: SE121-001P-2 PANEL 4
Part Description: DIE FORMED PANEL
Customer: PPPL
Specification: ASTM B443 Rev: 93

IDC Count : 1 Dwg Count: 1 Pgm Count: 0 QAP Count: 0 NDT Count: 0 WPS Count: 0

Piece #	Part ID	Qty	Drawing ID / Rev	Vendor	Dimensions
10	INCONEL 625_5-PLATE,NICKEL ALLOY .375" THK	1.0		1810	
	Vendor Part ID: INCONEL 625_5				

(F)
INCONEL 625 (UNS N06625) PER ASTM B 443-00
ANNEALED
MAGNETIC PERMEABILITY SHALL NOT EXCEED 1.00 (REF. ASTM A800).
SURFACE MUST BE PROTECTED FROM CONTACT WITH IRON AND IRON ALLOY MATERIALS
CERTS & MILL TEST REPORTS REQ'D WITH SHIPMENT.

Material Certification:
Part Number: SE121-2D
Part Description: DIE FORMED PANEL # 4

Operation	Resource	QtyPer	StartQty	EndQt	Drawing ID / Rev
Sub: 17 / Seq: 15	805-INPROCESS INSPECTION - PLA	1.00	1.00	1.00	SE121-001P / A

(F)
INSPECT BLANK SIZE PER DRAWING
VERIFY EDGES ARE SMOOTH AND CORNERS HAVE RADII APPLIED PER PREVIOUS SEQUENCE.
INSPECT MATERIAL THICKNESS PER ASTM B443
VISUAL INSPECT SURFACE FINISH PER ASTM B443
INSPECT MAGNETIC PERMEABILITY PER ASTM A800

Workorder	Part ID	Qty	Drawing ID / Rev	Engineer
64880/1		1	SE121 / A	BLUE/DOUG MCCORKLE

RECORD IDC DATA
APPLY PROTECTIVE PLASTIC TO BOTH SIDES OF PANEL
(AVAILABLE IN WIP STORAGE)
Specification: ASTM A800 Rev: 91
Part Number: SE121-001P-2 PANEL 4
Part Description: DIE FORMED PANEL
Customer: PPPL
Specification: ASTM B443 Rev: 93

IDC Count : 1 Dwg Count: 1 Pgm Count: 0 QAP Count: 5 NDT Count: 0 WPS Count: 0

Operation	Resource	QtyPer	StartQty	EndQt	Drawing ID / Rev
Sub: 17 / Seq: 18	415-ROLLING/SHEAR/BRAKE PRESS	1.00	1.00	1.00	SE121-001P / A

(F)
ROLL PANEL BLANK INTO A CONE PER PROCESS DRAWING.
ENSURE PLATE ROLLS ARE COMPLETELY CLEAN AND FREE OF DIRT, GRIME, FOREIGN MATTER, AND RAISED METAL PRIOR TO ROLLING.
ENSURE THE PANEL BLANKS ARE PROTECTED WITH PLASTIC SHEET DURING THE ENTIRE PROCESS.
NOTIFY ENGINEERING (DOUG McCORKLE) PRIOR TO PROCEEDING.

IDC Count : 0 Dwg Count: 1 Pgm Count: 0 QAP Count: 0 NDT Count: 0 WPS Count: 0

Operation	Resource	QtyPer	StartQty	EndQt	Drawing ID / Rev
Sub: 17 / Seq: 20	341-PACIFIC 750	1.00	1.00	1.00	SE121-001P / A

(F)
LOAD, ALIGN, AND BOLT DIE SET # _____ INTO THE 750 TON HYDRAULIC PRESS.
ENSURE THE DIE SET FACES ARE CLEAN AND FREE OF DIRT, OIL, GRIME, FOREIGN MATTER, RAISED OR EMBEDDED MATERIAL, ETC....
LOAD THE PANEL BLANK (OR CONE) INTO THE DIE SET.
HYDRAULIC FORM THE PANEL TO ACHIEVE THE GEOMETRICAL SHAPE CONFORMING TO INSPECTION GAGE #_____.
PANEL TO GAGE GAP TOLERANCE: .08" MAX.
NOTIFY Q/A FOR PROFILE IDC VERIFICATION
ENSURE THE PANEL MATERIAL EXTENDS BEYOND THE PERIMETER OF THE TRIM-LINES OF THE GAGE BY AT LEAST 1" (TO PROVIDE ADEQUATE STOCK ALLOWANCE FOR RE-POSITIONING, RE-STRIKING, AND ACCURATE TRIMMING).
Part Number: SE121-001P-2 PANEL 4
Part Description: DIE FORMED PANEL

IDC Count : 1 Dwg Count: 1 Pgm Count: 0 QAP Count: 2 NDT Count: 0 WPS Count: 0

Operation	Resource	QtyPer	StartQty	EndQt	Drawing ID / Rev
Sub: 17 / Seq: 25	260-SANDBLAST	1.00	1.00	1.00	SE121-001P / A

(F)
SHOT BLAST THE ENTIRE PANEL 100% USING 180-220 GRIT VIRGIN ALUMINUM OXIDE MEDIA TO REMOVE ANY RESIDUE FROM THE FORMING PROCESS.

IDC Count : 0 Dwg Count: 1 Pgm Count: 0 QAP Count: 0 NDT Count: 0 WPS Count: 0

Operation	Resource	QtyPer	StartQty	EndQt	Drawing ID / Rev
Sub: 17 / Seq: 27	230-FABRICATION - WEIDNER	1.00	1.00	1.00	SE121-001P / A

(F)
INSTALL AND WELD ANNEAL BRACING IN PLACE PER ENGINEERING SKETCH
ENSURE PART IS CLEAN AND READY FOR SOLUTION ANNEAL CYCLE

IDC Count : 0 Dwg Count: 1 Pgm Count: 0 QAP Count: 0 NDT Count: 0 WPS Count: 1

Workorder	Part ID	Qty	Drawing ID / Rev	Engineer
64880/1		1	SE121 / A	BLUE/DOUG MCCORKLE

Operation	Resource	QtyPer	StartQty	EndQt	Drawing ID / Rev	Service ID
Sub: 17 / Seq: 30	520-SUBLET, EXOTIC HEAT TREAT	1.00	1.00	1.00	SE121-001P / A	THRML TR/NA SA

(F)
SOLUTION ANNEAL FORMED PANEL PER THE FOLLOWING:
HOLD AT 1900 DEGREES F. (+/- 15 DEGREES) HOLD FOR 45 MINUTES (+/ 5 MINUTES)
Specification: AMS2774 Rev: JUL95
Certification: H/T CERTIFICATE
Part Number: SE121-001P-2 PANEL 4
Part Description: DIE FORMED PANEL
Customer: PPPL
Furnace charts: FURNACE CHART

IDC Count : 0 Dwg Count: 1 Pgm Count: 0 QAP Count: 6 NDT Count: 0 WPS Count: 0

Operation	Resource	QtyPer	StartQty	EndQt	Drawing ID / Rev
Sub: 17 / Seq: 32	230-FABRICATION - WEIDNER	1.00	1.00	1.00	SE121-001P / A

(U)
REMOVE ANNEAL BRACING AND PREPARE PANEL FOR RE-STRIKE / FINAL FORMIMG. ENSURE ALL WELDS ARE COMLPETELY REMOVED AND BLENDED FLUSH AND SMOOTH TO THE BASE MATERIAL. USE CAUTION TO AVOID GOUGES and/or HEAVY SCRATCHES ON THE PANEL SURFACES.

IDC Count : 0 Dwg Count: 1 Pgm Count: 0 QAP Count: 0 NDT Count: 0 WPS Count: 0

Operation	Resource	QtyPer	StartQty	EndQt	Drawing ID / Rev
Sub: 17 / Seq: 35	805-INPROCESS INSPECTION - PLA	1.00	1.00	1.00	SE121-001P / A

(F)
VISUAL INSPECT SURFACE FOR DAMAGE, PITTING, GOUGES, SCRAPES ETC.....
NOTIFY ENGINEERING (DOUG McCORKLE) FOR CONCURRENCE
VERIFY MAGNETIC PERMEABILITY AND RECORD I.D.C. DATA
Part Number: SE121-001P-2 PANEL 4
Part Description: DIE FORMED PANEL

IDC Count : 1 Dwg Count: 1 Pgm Count: 0 QAP Count: 2 NDT Count: 0 WPS Count: 0

Operation	Resource	QtyPer	StartQty	EndQt	Drawing ID / Rev
Sub: 17 / Seq: 40	341-PACIFIC 750	1.00	1.00	1.00	SE121-001P / A

(F)
LOAD, ALIGN, AND BOLT DIE SET # _____ INTO THE 750 TON HYDRAULIC PRESS.
ENSURE THE DIE SET FACES ARE CLEAN AND FREE OF DIRT, OIL, GRIME, FOREIGN MATTER, RAISED OR EMBEDDED MATERIAL, ETC....
LOAD THE PREFORMED PANEL INTO THE DIE SET.
"RE-STRIKE" HYDRAULIC FORM THE PANEL TO ACHIEVE THE GEOMETRICAL SHAPE CONFORMING TO INSPECTION GAGE #_____.
PANEL TO GAGE GAP TOLERANCE: .08" MAX.
VERIFY PROFILE TO INSPECTION GAGE #_____. GAP TOLERANCE: .08" MAX.
NOTIFY INSPECTOR FOR Q/A IDC VERIFICATION
LAYOUT AND PRICK-PUNCH TRIM-LINES ON THE PANEL ESTABLISHED FROM THE MACHINED PERIMETER OF THE INSPECTION GAGE.

Part Number: SE121-001P-2 PANEL 4
Part Description: DIE FORMED PANEL

IDC Count : 1 Dwg Count: 1 Pgm Count: 0 QAP Count: 2 NDT Count: 0 WPS Count: 0

Operation	Resource	QtyPer	StartQty	EndQt	Drawing ID / Rev
Sub: 17 / Seq: 50	260-SANDBLAST	1.00	1.00	1.00	SE121-001P / A

Workorder	Part ID	Qty	Drawing ID / Rev	Engineer
64880/1		1	SE121 / A	BLUE/DOUG MCCORKLE

(F) SHOT BLAST THE ENTIRE PANEL 100% USING 180-220 GRIT VIRGIN ALUMINUM OXIDE MEDIA TO REMOVE ANY RESIDUE FROM THE FORMING PROCESS.

IDC Count : 0 Dwg Count: 1 Pgm Count: 0 QAP Count: 0 NDT Count: 0 WPS Count: 0

Operation	Resource	QtyPer	StartQty	EndQt	Drawing ID / Rev
Sub: 17 / Seq: 60	230-FABRICATION - WEIDNER	1.00	1.00	1.00	SE121-001P / A

(F) TRIM PERIMETER TO PROVIDED TRIM-LINES. NOTE THAT INSTALLING THE WELD PREP IS NOT REQUIRED AT THIS STAGE (ADDITIONAL FITTING / TRIMMING MAY BE REQUIRED AT INSTALLATION)
SAND AND POLISH THE INSIDE SURFACE 100% TO ACHIEVE A 32 MICRO SURFACE FINISH (WITH THE EXCEPTION OF THE WELDING / TRIMMING ZONES).
CLEAN PANEL PER CLEANING PROCDURE 64880NSCX-CSPEC-120-01-00-3.3.2.4. (PRE-PRODUCTION NOTE: DOCUMENT IS PRELIMINARY AND WILL BE REVISED / RE-NAMED PRIOR TO USE)

IDC Count : 0 Dwg Count: 1 Pgm Count: 0 QAP Count: 0 NDT Count: 0 WPS Count: 0

Operation	Resource	QtyPer	StartQty	EndQt	Drawing ID / Rev
Sub: 17 / Seq: 70	805-INPROCESS INSPECTION - PLA	1.00	1.00	1.00	SE121-001P / A

(F) VERIFY PROFILE TO INSPECTION GAGE #_____. GAP TOLERANCE: .08" MAX. PERIMETER SHOULD FALL WITHIN .03" OF GAGE PERIMETER.
INSPECT AND RECORD INTERIOR SIDE SURFACE FINISH.
INSPECT AND RECORD MAGNETIC PERMEABILY.
Test Certification: DIMENSIONAL INSPECTION MAP Rev:
Part Number: SE121-001P-2 PANEL 4
Part Description: DIE FORMED PANEL

IDC Count : 3 Dwg Count: 1 Pgm Count: 0 QAP Count: 3 NDT Count: 0 WPS Count: 0

Sub ID	Part ID	Qty	Drawing ID / Rev
18	SE121-001P-2 PANEL # 5	1	/
			Parent Sub:1 Op:10

Operation	Resource	QtyPer	StartQty	EndQt	Drawing ID / Rev
Sub: 18 / Seq: 10	410-BURNOUT TABLE	1.00	1.00	1.00	SE121-001P / A

(F) 1. PRIOR TO BEGINNING WORK, CONTACT Q/A TO PERFORM A SERIES OF MATERIAL THICKNESS AND MAGNETIC PERMEABILITY TESTS ON THE RAW MATEIRAL (PRIOR TO MATERIAL PROCESSING AND HANDLING BY MTM).
2. NEST AND PROGRAM PER PROVIDED GEOMETRY.
3. BURNOUT AND CLEANUP PANEL PER NESTING / PROGRAM.
4. CLEANUP EDGES / RADIUS CORNERS (.03" MIN. RAD). ENSURE ALL DROSS AND RE-CAST LAYER IS REMOVED. ENSURE THE CUT SURFACE IS BLENDED SMOOTH.
5. NOTIFY Q/A FOR VERIFICATION PRIOR TO MOVING TO THE NEXT WORK CENTER.
Specification: ASTM A800 Rev: 91
Part Number: SE121-001P-2 PANEL 5
Part Description: DIE FORMED PANEL
Customer: PPPL
Specification: ASTM B443 Rev: 93

IDC Count : 1 Dwg Count: 1 Pgm Count: 0 QAP Count: 0 NDT Count: 0 WPS Count: 0

Piece #	Part ID	Qty	Drawing ID / Rev	Vendor	Dimensions
10	INCONEL 625_5-PLATE,NICKEL ALLOY .375" THK	1.0		1810	
	Vendor Part ID: INCONEL 625_5				

(F) INCONEL 625 (UNS N06625) PER ASTM B 443-00

Workorder	Part ID	Qty	Drawing ID / Rev	Engineer
64880/1		1	SE121 / A	BLUE/DOUG MCCORKLE

ANNEALED
MAGNETIC PERMEABILITY SHALL NOT EXCEED 1.00 (REF. ASTM A800).
SURFACE MUST BE PROTECTED FROM CONTACT WITH IRON AND IRON ALLOY MATERIALS
CERTS & MILL TEST REPORTS REQ'D WITH SHIPMENT.

Material Certification:
Part Number: SE121-2E
Part Description: DIE FORMED PANEL # 5

Operation	Resource	QtyPer	StartQty	EndQt	Drawing ID / Rev
Sub: 18 / Seq: 15	805-INPROCESS INSPECTION - PLA	1.00	1.00	1.00	SE121-001P / A

(F)
INSPECT BLANK SIZE PER DRAWING
VERIFY EDGES ARE SMOOTH AND CORNERS HAVE RADII APPLIED PER PREVIOUS SEQUENCE.
INSPECT MATERIAL THICKNESS PER ASTM B443
VISUAL INSPECT SURFACE FINISH PER ASTM B443
INSPECT MAGNETIC PERMEABILITY PER ASTM A800
RECORD IDC DATA
APPLY PROTECTIVE PLASTIC TO BOTH SIDES OF PANEL
(AVAILABLE IN WIP STORAGE)
Specification: ASTM A800 Rev: 91
Part Number: SE121-001P-2 PANEL 5
Part Description: DIE FORMED PANEL
Customer: PPPL
Specification: ASTM B443 Rev: 93

IDC Count : 1 Dwg Count: 1 Pgm Count: 0 QAP Count: 5 NDT Count: 0 WPS Count: 0

Operation	Resource	QtyPer	StartQty	EndQt	Drawing ID / Rev
Sub: 18 / Seq: 18	415-ROLLING/SHEAR/BRAKE PRESS	1.00	1.00	1.00	SE121-001P / A

(F)
ROLL PANEL BLANK INTO A CONE PER PROCESS DRAWING.
ENSURE PLATE ROLLS ARE COMPLETELY CLEAN AND FREE OF DIRT, GRIME, FOREIGN MATTER, AND RAISED METAL PRIOR TO ROLLING.
ENSURE THE PANEL BLANKS ARE PROTECTED WITH PLASTIC SHEET DURING THE ENTIRE PROCESS.
NOTIFY ENGINEERING (DOUG McCORKLE) PRIOR TO PROCEEDING.

IDC Count : 0 Dwg Count: 1 Pgm Count: 0 QAP Count: 0 NDT Count: 0 WPS Count: 0

Operation	Resource	QtyPer	StartQty	EndQt	Drawing ID / Rev
Sub: 18 / Seq: 20	341-PACIFIC 750	1.00	1.00	1.00	SE121-001P / A

(F)
LOAD, ALIGN, AND BOLT DIE SET # _____ INTO THE 750 TON HYDRAULIC PRESS.
ENSURE THE DIE SET FACES ARE CLEAN AND FREE OF DIRT, OIL, GRIME, FOREIGN MATTER, RAISED OR EMBEDDED MATERIAL, ETC....
LOAD THE PANEL BLANK (OR CONE) INTO THE DIE SET.
HYDRAULIC FORM THE PANEL TO ACHIEVE THE GEOMETRICAL SHAPE CONFORMING TO INSPECTION GAGE #_____.
PANEL TO GAGE GAP TOLERANCE: .08" MAX.
NOTIFY Q/A FOR PROFILE IDC VERIFICATION

Workorder	Part ID	Qty	Drawing ID / Rev	Engineer
64880/1		1	SE121 / A	BLUE/DOUG MCCORKLE

ENSURE THE PANEL MATERIAL EXTENDS BEYOND THE PERIMETER OF THE TRIM-LINES OF THE GAGE BY AT LEAST 1" (TO PROVIDE ADEQUATE STOCK ALLOWANCE FOR RE-POSITIONING, RE-STRIKING, AND ACCURATE TRIMMING).
Part Number: SE121-001P-2 PANEL 5
Part Description: DIE FORMED PANEL

IDC Count : 1 Dwg Count: 1 Pgm Count: 0 QAP Count: 2 NDT Count: 0 WPS Count: 0

Operation	Resource	QtyPer	StartQty	EndQt	Drawing ID / Rev
Sub: 18 / Seq: 25	260-SANDBLAST	1.00	1.00	1.00	SE121-001P / A

(F) SHOT BLAST THE ENTIRE PANEL 100% USING 180-220 GRIT VIRGIN ALUMINUM OXIDE MEDIA TO REMOVE ANY RESIDUE FROM THE FORMING PROCESS.

IDC Count : 0 Dwg Count: 1 Pgm Count: 0 QAP Count: 0 NDT Count: 0 WPS Count: 0

Operation	Resource	QtyPer	StartQty	EndQt	Drawing ID / Rev
Sub: 18 / Seq: 27	230-FABRICATION - WEIDNER	1.00	1.00	1.00	SE121-001P / A

(F) INSTALL AND WELD ANNEAL BRACING IN PLACE PER ENGINEERING SKETCH
ENSURE PART IS CLEAN AND READY FOR SOLUTION ANNEAL CYCLE

IDC Count : 0 Dwg Count: 1 Pgm Count: 0 QAP Count: 0 NDT Count: 0 WPS Count: 1

Operation	Resource	QtyPer	StartQty	EndQt	Drawing ID / Rev	Service ID
Sub: 18 / Seq: 30	520-SUBLET, EXOTIC HEAT TREAT	1.00	1.00	1.00	SE121-001P / A	THRML TR/NA SA

(F) SOLUTION ANNEAL FORMED PANEL PER THE FOLLOWING:
HOLD AT 1900 DEGREES F. (+/- 15 DEGREES) HOLD FOR 45 MINUTES (+/ 5 MINUTES)
Specification: AMS2774 Rev: JUL95
Certification: H/T CERTIFICATE
Part Number: SE121-001P-2 PANEL 5
Part Description: DIE FORMED PANEL
Customer: PPPL
Furnace charts: FURNACE CHART

IDC Count : 0 Dwg Count: 1 Pgm Count: 0 QAP Count: 6 NDT Count: 0 WPS Count: 0

Operation	Resource	QtyPer	StartQty	EndQt	Drawing ID / Rev
Sub: 18 / Seq: 32	230-FABRICATION - WEIDNER	1.00	1.00	1.00	SE121-001P / A

(U) REMOVE ANNEAL BRACING AND PREPARE PANEL FOR RE-STRIKE / FINAL FORMIMG. ENSURE ALL WELDS ARE COMLPETELY REMOVED AND BLENDED FLUSH AND SMOOTH TO THE BASE MATERIAL. USE CAUTION TO AVOID GOUGES and/or HEAVY SCRATCHES ON THE PANEL SURFACES.

IDC Count : 0 Dwg Count: 1 Pgm Count: 0 QAP Count: 0 NDT Count: 0 WPS Count: 0

Operation	Resource	QtyPer	StartQty	EndQt	Drawing ID / Rev
Sub: 18 / Seq: 35	805-INPROCESS INSPECTION - PLA	1.00	1.00	1.00	SE121-001P / A

(F) VISUAL INSPECT SURFACE FOR DAMAGE, PITTING, GOUGES, SCRAPES ETC.....
NOTIFY ENGINEERING (DOUG McCORKLE) FOR CONCURRENCE
VERIFY MAGNETIC PERMEABILITY AND RECORD I.D.C. DATA
Part Number: SE121-001P-2 PANEL 5
Part Description: DIE FORMED PANEL

IDC Count : 1 Dwg Count: 1 Pgm Count: 0 QAP Count: 2 NDT Count: 0 WPS Count: 0

Workorder	Part ID	Qty	Drawing ID / Rev	Engineer
64880/1		1	SE121 / A	BLUE/DOUG MCCORKLE

Operation	Resource	QtyPer	StartQty	EndQt	Drawing ID / Rev
Sub: 18 / Seq: 40	341-PACIFIC 750	1.00	1.00	1.00	SE121-001P / A

(F) LOAD, ALIGN, AND BOLT DIE SET # _____ INTO THE 750 TON HYDRAULIC PRESS.
ENSURE THE DIE SET FACES ARE CLEAN AND FREE OF DIRT, OIL, GRIME, FOREIGN MATTER, RAISED OR EMBEDDED MATERIAL, ETC....
LOAD THE PREFORMED PANEL INTO THE DIE SET.
"RE-STRIKE" HYDRAULIC FORM THE PANEL TO ACHIEVE THE GEOMETRICAL SHAPE CONFORMING TO INSPECTION GAGE #_____.
PANEL TO GAGE GAP TOLERANCE: .08" MAX.
VERIFY PROFILE TO INSPECTION GAGE #_____. GAP TOLERANCE: .08" MAX.
NOTIFY INSPECTOR FOR Q/A IDC VERIFICATION
LAYOUT AND PRICK-PUNCH TRIM-LINES ON THE PANEL ESTABLISHED FROM THE MACHINED PERIMETER OF THE INSPECTION GAGE.

Part Number: SE121-001P-2 PANEL 5
Part Description: DIE FORMED PANEL

IDC Count : 1 Dwg Count: 1 Pgm Count: 0 QAP Count: 2 NDT Count: 0 WPS Count: 0

Operation	Resource	QtyPer	StartQty	EndQt	Drawing ID / Rev
Sub: 18 / Seq: 50	260-SANDBLAST	1.00	1.00	1.00	SE121-001P / A

(F) SHOT BLAST THE ENTIRE PANEL 100% USING 180-220 GRIT VIRGIN ALUMINUM OXIDE MEDIA TO REMOVE ANY RESIDUE FROM THE FORMING PROCESS.

IDC Count : 0 Dwg Count: 1 Pgm Count: 0 QAP Count: 0 NDT Count: 0 WPS Count: 0

Operation	Resource	QtyPer	StartQty	EndQt	Drawing ID / Rev
Sub: 18 / Seq: 60	230-FABRICATION - WEIDNER	1.00	1.00	1.00	SE121-001P / A

(F) TRIM PERIMETER TO PROVIDED TRIM-LINES. NOTE THAT INSTALLING THE WELD PREP IS NOT REQUIRED AT THIS STAGE (ADDITIONAL FITTING / TRIMMING MAY BE REQUIRED AT INSTALLATION)
SAND AND POLISH THE INSIDE SURFACE 100% TO ACHIEVE A 32 MICRO SURFACE FINISH (WITH THE EXCEPTION OF THE WELDING / TRIMMING ZONES).
CLEAN PANEL PER CLEANING PROCDURE 64880NSCX-CSPEC-120-01-00-3.3.2.4. (PRE-PRODUCTION NOTE: DOCUMENT IS PRELIMINARY AND WILL BE REVISED / RE-NAMED PRIOR TO USE)

IDC Count : 0 Dwg Count: 1 Pgm Count: 0 QAP Count: 0 NDT Count: 0 WPS Count: 0

Operation	Resource	QtyPer	StartQty	EndQt	Drawing ID / Rev
Sub: 18 / Seq: 70	805-INPROCESS INSPECTION - PLA	1.00	1.00	1.00	SE121-001P / A

(F) VERIFY PROFILE TO INSPECTION GAGE #_____. GAP TOLERANCE: .08" MAX. PERIMETER SHOULD FALL WITHIN .03" OF GAGE PERIMETER.
INSPECT AND RECORD INTERIOR SIDE SURFACE FINISH.
INSPECT AND RECORD MAGNETIC PERMEABILY.
Test Certification: DIMENSIONAL INSPECTION MAP Rev:
Part Number: SE121-001P-2 PANEL 5
Part Description: DIE FORMED PANEL

IDC Count : 3 Dwg Count: 1 Pgm Count: 0 QAP Count: 3 NDT Count: 0 WPS Count: 0

Sub ID	Part ID	Qty	Drawing ID / Rev
24	SURFACE FINISH TESTING TEST P	1	/ Parent Sub:1 Op:10

Operation	Resource	QtyPer	StartQty	EndQt	Drawing ID / Rev

Workorder	Part ID	Qty	Drawing ID / Rev	Engineer
64880/1		1	SE121 / A	BLUE/DOUG MCCORKLE

Sub: 24 / Seq: 10 410-BURNOUT TABLE 1.00 1.00 1.00 SE121 / A

(C) BURNOUT TEST PLATES PER MATERIAL CARD.
DEBURR AND SAND EDGES SMOOTH (WITH UNCONTAMINATED GRINDING WHEEL ONLY).
FORWARD ONE PLATE TO ENGINEERING (DOUG McCORKLE) AND PROCESS THE OTHER PER THE FOLLOWING ROUTING STEPS.

IDC Count : 0 Dwg Count: 0 Pgm Count: 0 QAP Count: 1 NDT Count: 0 WPS Count: 0

Piece #	Part ID	Qty	Drawing ID / Rev	Vendor	Dimensions
10	INCONEL 625_670-SHEET,NICKEL ALLOY .25" THK	480.0			480

(C) INCONEL 625 SHEET, .25" THICK PER
AMS 5599.
CERT AND MILL TEST REPORT REQ'D WITH SHIPMENT.

Material Certification: NONE REQ'D TEST SAMPLE

Operation	Resource	QtyPer	StartQty	EndQt	Drawing ID / Rev
Sub: 24 / Seq: 20	230-FABRICATION - WEIDNER	1.00	1.00	1.00	SE121 / A

(F) SAND AND POLISH THE TEST PIECE (ONE SIDE) TO A 32 RA MICRO SURFACE FINISH

IDC Count : 0 Dwg Count: 0 Pgm Count: 0 QAP Count: 0 NDT Count: 0 WPS Count: 0

Operation	Resource	QtyPer	StartQty	EndQt	Drawing ID / Rev
Sub: 24 / Seq: 25	260-SANDBLAST	1.00	1.00	1.00	SE121 / A

(F) MASK THE POLISHED SIDE AND BLAST THE OTHER SIDE WITH 180-220 GRIT VIRGIN ALUMINUM OXIDE.

Drw N/A IDC Count : 0 Dwg Count: 0 Pgm Count: 0 QAP Count: 0 NDT Count: 0 WPS Count: 0

Operation	Resource	QtyPer	StartQty	EndQt	Drawing ID / Rev
Sub: 24 / Seq: 28	230-FABRICATION - WEIDNER	1.00	1.00	1.00	SE121 / A

(F) CLEAN SAMPLE MATERIAL SURFACES PER THE FOLLOWING.....(cleaning specification being developed)
WRAP THE PART IN PLASTIC FOAM.

Drw N/A IDC Count : 0 Dwg Count: 0 Pgm Count: 0 QAP Count: 0 NDT Count: 0 WPS Count: 0

Operation	Resource	QtyPer	StartQty	EndQt	Drawing ID / Rev
Sub: 24 / Seq: 30	805-INPROCESS INSPECTION - PLA	1.00	1.00	1.00	SE121 / A

(F) VERIFY THE FOLLOWING TEST SAMPLE ATTIBUTES: SURFACE FINISH (PER ASME B46.1-1995)
CLEANLINESS (PER PROCEDURE ???? BEING DEVELOPED)
MAGNETIC PERMEABILITY (1.01 MAX)
REPORT RESULTS TO ENGINEERING (DOUG McCORKLE).

IDC Count : 0 Dwg Count: 0 Pgm Count: 0 QAP Count: 0 NDT Count: 0 WPS Count: 0

Sub ID	Part ID	Qty	Drawing ID / Rev
26	SE121-001P-2 PANEL # 1	1	/
			Parent Sub:1 Op:10

Operation	Resource	QtyPer	StartQty	EndQt	Drawing ID / Rev
Sub: 26 / Seq: 10	410-BURNOUT TABLE	1.00	1.00	1.00	SE121-001P / A

Workorder	Part ID	Qty	Drawing ID / Rev	Engineer
64880/1		1	SE121 / A	BLUE/DOUG MCCORKLE

(U) 1. PRIOR TO BEGINNING WORK, CONTACT Q/A TO PERFORM A SERIES OF MATERIAL THICKNESS AND MAGNETIC PERMEABILITY TESTS ON THE RAW MATEIRAL (PRIOR TO MATERIAL PROCESSING AND HANDLING BY MTM).
2. NEST AND PROGRAM PER PROVIDED GEOMETRY.
3. BURNOUT AND CLEANUP PANEL PER NESTING / PROGRAM.
4. CLEANUP EDGES / RADIUS CORNERS (.03" MIN. RAD). ENSURE ALL DROSS AND RE-CAST LAYER IS REMOVED. ENSURE THE CUT SURFACE IS BLENDED SMOOTH.
5. NOTIFY Q/A FOR VERIFICATION PRIOR TO MOVING TO THE NEXT WORK CENTER.
Specification: ASTM A800 Rev: 91
Part Number: SE121-001P-2 TEST PANEL
Part Description: DIE FORMED PANEL
Customer: PPPL
Specification: ASTM B443 Rev: 93

IDC Count : 1 Dwg Count: 1 Pgm Count: 0 QAP Count: 0 NDT Count: 0 WPS Count: 0

Piece #	Part ID	Qty	Drawing ID / Rev	Vendor	Dimensions
10	INCONEL 625_5-PLATE,NICKEL ALLOY .375" THK	1.0		1810	
	Vendor Part ID: INCONEL 625_5				

(U) INCONEL 625 (UNS N06625) PER ASTM B 443-00
ANNEALED
MAGNETIC PERMEABILITY SHALL NOT EXCEED 1.00 (REF. ASTM A800).
SURFACE MUST BE PROTECTED FROM CONTACT WITH IRON AND IRON ALLOY MATERIALS
CERTS & MILL TEST REPORTS REQ'D WITH SHIPMENT.

Material Certification:
Part Number: SE121-2A
Part Description: DIE FORMED PANEL # 1

Operation	Resource	QtyPer	StartQty	EndQt	Drawing ID / Rev
Sub: 26 / Seq: 15	805-INPROCESS INSPECTION - PLA	1.00	1.00	1.00	SE121-001P / A

(U) INSPECT BLANK SIZE PER DRAWING
VERIFY EDGES ARE SMOOTH AND CORNERS HAVE RADII APPLIED PER PREVIOUS SEQUENCE.
INSPECT MATERIAL THICKNESS PER ASTM B443
VISUAL INSPECT SURFACE FINISH PER ASTM B443
INSPECT MAGNETIC PERMEABILITY PER ASTM A800
RECORD IDC DATA
APPLY PROTECTIVE PLASTIC TO BOTH SIDES OF PANEL
(AVAILABLE IN WIP STORAGE)
Specification: ASTM A800 Rev: 91
Part Number: SE121-001P-2 TEST PANEL
Part Description: DIE FORMED PANEL
Customer: PPPL
Specification: ASTM B443 Rev: 93

IDC Count : 1 Dwg Count: 1 Pgm Count: 0 QAP Count: 5 NDT Count: 0 WPS Count: 0

Operation	Resource	QtyPer	StartQty	EndQt	Drawing ID / Rev

Workorder	Part ID			Qty	Drawing ID / Rev	Engineer
64880/1				1	SE121 / A	BLUE/DOUG MCCORKLE

Sub: 26 / Seq: 18 — 415-ROLLING/SHEAR/BRAKE PRESS — 1.00 — 1.00 — 1.00 — SE121-001P / A

(U)
ROLL PANEL BLANK INTO A CONE PER PROCESS DRAWING.
ENSURE PLATE ROLLS ARE COMPLETELY CLEAN AND FREE OF DIRT, GRIME, FOREIGN MATTER, AND RAISED METAL PRIOR TO ROLLING.
ENSURE THE PANEL BLANKS ARE PROTECTED WITH PLASTIC SHEET DURING THE ENTIRE PROCESS.
NOTIFY ENGINEERING (DOUG McCORKLE) PRIOR TO PROCEEDING.

IDC Count : 0 Dwg Count: 1 Pgm Count: 0 QAP Count: 0 NDT Count: 0 WPS Count: 0

Operation	Resource	QtyPer	StartQty	EndQt	Drawing ID / Rev
Sub: 26 / Seq: 20	341-PACIFIC 750	1.00	1.00	1.00	SE121-001P / A

(U)
LOAD, ALIGN, AND BOLT DIE SET # _____ INTO THE 750 TON HYDRAULIC PRESS.
ENSURE THE DIE SET FACES ARE CLEAN AND FREE OF DIRT, OIL, GRIME, FOREIGN MATTER, RAISED OR EMBEDDED MATERIAL, ETC....
LOAD THE PANEL BLANK (OR CONE) INTO THE DIE SET.
HYDRAULIC FORM THE PANEL TO ACHIEVE THE GEOMETRICAL SHAPE CONFORMING TO INSPECTION GAGE #_____.
PANEL TO GAGE GAP TOLERANCE: .08" MAX.
NOTIFY Q/A FOR PROFILE IDC VERIFICATION
ENSURE THE PANEL MATERIAL EXTENDS BEYOND THE PERIMETER OF THE TRIM-LINES OF THE GAGE BY AT LEAST 1" (TO PROVIDE ADEQUATE STOCK ALLOWANCE FOR RE-POSITIONING, RE-STRIKING, AND ACCURATE TRIMMING).
Part Number: SE121-001P-2 TEST PANEL
Part Description: DIE FORMED PANEL

IDC Count : 1 Dwg Count: 1 Pgm Count: 0 QAP Count: 2 NDT Count: 0 WPS Count: 0

Operation	Resource	QtyPer	StartQty	EndQt	Drawing ID / Rev
Sub: 26 / Seq: 25	260-SANDBLAST	1.00	1.00	1.00	SE121-001P / A

(U)
SHOT BLAST THE ENTIRE PANEL 100% USING 180-220 GRIT VIRGIN ALUMINUM OXIDE MEDIA TO REMOVE ANY RESIDUE FROM THE FORMING PROCESS.

IDC Count : 0 Dwg Count: 1 Pgm Count: 0 QAP Count: 0 NDT Count: 0 WPS Count: 0

Operation	Resource	QtyPer	StartQty	EndQt	Drawing ID / Rev
Sub: 26 / Seq: 27	230-FABRICATION - WEIDNER	1.00	1.00	1.00	SE121-001P / A

(U)
INSTALL AND WELD ANNEAL BRACING IN PLACE PER ENGINEERING SKETCH
ENSURE PART IS CLEAN AND READY FOR SOLUTION ANNEAL CYCLE

IDC Count : 0 Dwg Count: 1 Pgm Count: 0 QAP Count: 0 NDT Count: 0 WPS Count: 1

Operation	Resource	QtyPer	StartQty	EndQt	Drawing ID / Rev	Service ID
Sub: 26 / Seq: 30	520-SUBLET, EXOTIC HEAT TREAT	1.00	1.00	1.00	SE121-001P / A	THRML TR/NA SA

(U)
SOLUTION ANNEAL FORMED PANEL PER THE FOLLOWING:
HOLD AT 1900 DEGREES F. (+/- 15 DEGREES) HOLD FOR 45 MINUTES (+/ 5 MINUTES)
Specification: AMS2774 Rev: JUL95
Certification: H/T CERTIFICATE
Part Number: SE121-001P-2 TEST PANEL
Part Description: DIE FORMED PANEL
Customer: PPPL
Furnace charts: FURNACE CHART

IDC Count : 0 Dwg Count: 1 Pgm Count: 0 QAP Count: 6 NDT Count: 0 WPS Count: 0

Workorder	Part ID	Qty	Drawing ID / Rev	Engineer
64880/1		1	SE121 / A	BLUE/DOUG MCCORKLE

Operation	Resource	QtyPer	StartQty	EndQt	Drawing ID / Rev
Sub: 26 / Seq: 32	230-FABRICATION - WEIDNER	1.00	1.00	1.00	SE121-001P / A

(U) REMOVE ANNEAL BRACING AND PREPARE PANEL FOR RE-STRIKE / FINAL FORMIMG. ENSURE ALL WELDS ARE COMLPETELY REMOVED AND BLENDED FLUSH AND SMOOTH TO THE BASE MATERIAL. USE CAUTION TO AVOID GOUGES and/or HEAVY SCRATCHES ON THE PANEL SURFACES.

IDC Count : 0 Dwg Count: 1 Pgm Count: 0 QAP Count: 0 NDT Count: 0 WPS Count: 0

Operation	Resource	QtyPer	StartQty	EndQt	Drawing ID / Rev
Sub: 26 / Seq: 35	805-INPROCESS INSPECTION - PLA	1.00	1.00	1.00	SE121-001P / A

(U) VISUAL INSPECT SURFACE FOR DAMAGE, PITTING, GOUGES, SCRAPES ETC.....
NOTIFY ENGINEERING (DOUG McCORKLE) FOR CONCURRENCE
VERIFY MAGNETIC PERMEABILITY AND RECORD I.D.C. DATA
Part Number: SE121-001P-2 TEST PANEL
Part Description: DIE FORMED PANEL

IDC Count : 1 Dwg Count: 1 Pgm Count: 0 QAP Count: 2 NDT Count: 0 WPS Count: 0

Operation	Resource	QtyPer	StartQty	EndQt	Drawing ID / Rev
Sub: 26 / Seq: 40	341-PACIFIC 750	1.00	1.00	1.00	SE121-001P / A

(U) LOAD, ALIGN, AND BOLT DIE SET # _____ INTO THE 750 TON HYDRAULIC PRESS.
ENSURE THE DIE SET FACES ARE CLEAN AND FREE OF DIRT, OIL, GRIME, FOREIGN MATTER, RAISED OR EMBEDDED MATERIAL, ETC....
LOAD THE PREFORMED PANEL INTO THE DIE SET.
"RE-STRIKE" HYDRAULIC FORM THE PANEL TO ACHIEVE THE GEOMETRICAL SHAPE CONFORMING TO INSPECTION GAGE #_____.
PANEL TO GAGE GAP TOLERANCE: .08" MAX.
VERIFY PROFILE TO INSPECTION GAGE #_____. GAP TOLERANCE: .08" MAX.
NOTIFY INSPECTOR FOR Q/A IDC VERIFICATION
LAYOUT AND PRICK-PUNCH TRIM-LINES ON THE PANEL ESTABLISHED FROM THE MACHINED PERIMETER OF THE INSPECTION GAGE.

Part Number: SE121-001P-2 TEST PANEL
Part Description: DIE FORMED PANEL

IDC Count : 1 Dwg Count: 1 Pgm Count: 0 QAP Count: 2 NDT Count: 0 WPS Count: 0

Operation	Resource	QtyPer	StartQty	EndQt	Drawing ID / Rev
Sub: 26 / Seq: 50	260-SANDBLAST	1.00	1.00	1.00	SE121-001P / A

(U) SHOT BLAST THE ENTIRE PANEL 100% USING 180-220 GRIT VIRGIN ALUMINUM OXIDE MEDIA TO REMOVE ANY RESIDUE FROM THE FORMING PROCESS.

IDC Count : 0 Dwg Count: 1 Pgm Count: 0 QAP Count: 0 NDT Count: 0 WPS Count: 0

Operation	Resource	QtyPer	StartQty	EndQt	Drawing ID / Rev
Sub: 26 / Seq: 60	230-FABRICATION - WEIDNER	1.00	1.00	1.00	SE121-001P / A

(U) TRIM PERIMETER TO PROVIDED TRIM-LINES. NOTE THAT INSTALLING THE WELD PREP IS NOT REQUIRED AT THIS STAGE (ADDITIONAL FITTING / TRIMMING MAY BE REQUIRED AT INSTALLATION)
SAND AND POLISH THE INSIDE SURFACE 100% TO ACHIEVE A 32 MICRO SURFACE FINISH (WITH THE EXCEPTION OF THE WELDING / TRIMMING ZONES).
CLEAN PANEL PER CLEANING PROCDURE 64880NSCX-CSPEC-120-01-00-3.3.2.4. (PRE-PRODUCTION NOTE: DOCUMENT IS PRELIMINARY AND WILL BE REVISED / RE-NAMED PRIOR TO USE)
SPLIT THE PANEL TO SIMULATE PRODUCTION WELD JOINT(S).

Workorder	Part ID	Qty	Drawing ID / Rev	Engineer
64880/1		1	SE121 / A	BLUE/DOUG MCCORKLE

PREP, FIT AND WELD JOINTS TO DEVELOP WELDING SEQUENCES AND MINIMIZE WELDING DISTORTION. ENSURE THE PART IS RESTRAINED IN A MANNER SIMULATING PRODUCTION THROUGHOUT THE WELDING PROCESS.
CWI VISUAL INSPECT WELDS 100% UNDER 8X MAGNIFICATION PER ASME CODE ARTICLE 6, SECTION V. ACCEPTANCE PER AWS D1.6, 6.29.1. NO CERTIFICATE REQUIRED. THIS IS A TEST PIECE.
REVIEW RESULTS WITH ENGINEERING (DOUG McCORKLE)

IDC Count : 0 Dwg Count: 1 Pgm Count: 0 QAP Count: 0 NDT Count: 0 WPS Count: 0

Operation	Resource	QtyPer	StartQty	EndQt	Drawing ID / Rev
Sub: 26 / Seq: 70	805-INPROCESS INSPECTION - PLA	1.00	1.00	1.00	SE121-001P / A
(U)	VERIFY PROFILE TO INSPECTION GAGE #_____. GAP TOLERANCE: .08" MAX. PERIMETER SHOULD FALL WITHIN .03" OF GAGE PERIMETER.				
	INSPECT AND RECORD INTERIOR SIDE SURFACE FINISH.				
	INSPECT AND RECORD MAGNETIC PERMEABILY.				
	Test Certification: DIMENSIONAL INSPECTION MAP Rev:				
	Part Number: SE121-001P-2 TEST PANEL				
	Part Description: DIE FORMED PANEL				

IDC Count : 3 Dwg Count: 1 Pgm Count: 0 QAP Count: 3 NDT Count: 0 WPS Count: 0

Sub ID	Part ID	Qty	Drawing ID / Rev
19	SE121 PORT SUB-ASSEMBLY	1	/
			Parent Sub:1 Op:70

Operation	Resource	QtyPer	StartQty	EndQt	Drawing ID / Rev
Sub: 19 / Seq: 10	230-FABRICATION - WEIDNER	1.00	1.00	1.00	SE121 / A
(F)	INSTALL AND WELD CONFLAT FLANGE TO TUBE PER DRAWING AND WPS.....				
	FIT AND TRIM THE LENGTH FOR INSTALLATION (USE REFERENCE SCRIBE LINES ON BUILD FIXTURE). PREP FOR WELDING IN PLACE.				
	GRIND / BLEND THE INTERIOR WELD SMOOTH.				
	POLISH THE ENTIRE INSIDE SURFACE SMOOTH TO ACHIEVE A 32 MICRO SURFACE FINISH. CLEAN THE INTERIOR SURFACES PER.....				

IDC Count : 0 Dwg Count: 0 Pgm Count: 0 QAP Count: 0 NDT Count: 0 WPS Count: 1

Operation	Resource	QtyPer	StartQty	EndQt	Drawing ID / Rev
Sub: 19 / Seq: 20	805-INPROCESS INSPECTION - PLA	1.00	1.00	1.00	SE121 / A
(F)	INSPECT INTERIOR SURFACE FINISH OF THE PORT SUB-ASSEMBLY. RECORD ACTUAL ON MTM IDC.				
	INSPECT THE MAGNETIC PERMEABILITY OF THE FLANGE TO TUBE WELD AND SURROUNDING AREA. RECORD ACTUAL RANGE ON I.D.C.				

IDC Count : 2 Dwg Count: 0 Pgm Count: 0 QAP Count: 0 NDT Count: 0 WPS Count: 0

Sub ID	Part ID	Qty	Drawing ID / Rev
20	CONFLAT FLANGE	1	/
			Parent Sub:19 Op:10

Operation	Resource	QtyPer	StartQty	EndQt	Drawing ID / Rev
Sub: 20 / Seq: 10	820-RECEIVING INSPECTION	1.00	1.00	1.00	SE121 / A
(R)	RECEIVING INSPECTION				
	RECEIVE AND INSPECT THE FOLLOWING PARTS:				

Workorder	Part ID	Qty	Drawing ID / Rev	Engineer
64880/1		1	SE121 / A	BLUE/DOUG MCCORKLE

(THEY SHOULD ALL ARRIVE TOGETHER)
F10000000NC4
FG1000CI
FG1000VU
FB1000C12S
GC0275S
CONTACT ENGINEERING (DOUG McCORKLE) WHEN PARTS ARRIVE.

IDC N/A IDC Count : 0 Dwg Count: 0 Pgm Count: 0 QAP Count: 2 NDT Count: 0 WPS Count: 0

Piece #	Part ID	Qty	Drawing ID / Rev	Vendor	Dimensions
10	F10000000NC4-FLANGE, CONFLAT, NON-ROTATE, 10.00"	1.0			
(R)	FLANGE, CONFLAT, NON-ROTATABLE 10.00 X BLANK X 0.97", CLEAR BOLT HOLES, 304L				

Material Certification:
Part Number: F10000000NC4

Piece #	Part ID	Qty	Drawing ID / Rev	Vendor	Dimensions
20	FG1000CI-GASKET KIT (10/PK), COPPER, FOR 10" CFF	1.0			
(R)	GASKET KIT (10/PACK), COPPER, INDIVIDUAL SEAL, FOR 10" CONFLAT FLANGE VARIAN VACUUM TECHNOLOGIES				

Material Certification:
Part Number: FG1000CI

Piece #	Part ID	Qty	Drawing ID / Rev	Vendor	Dimensions
30	FG1000VU-GASKET, VITON, FOR 10" CFF	1.0			
(R)	GASKET, VITON, FOR 10" CONFLAT FLANGE VARIAN VACUUM TECHNOLOGIES				

Material Certification:
Part Number: FG1000VU

Piece #	Part ID	Qty	Drawing ID / Rev	Vendor	Dimensions
40	FB1000C12S-BOLT AND NUT KIT, 12 PT, SILVER PLATED	1.0			
(R)	BOLT AND NUT KIT (25/PACK), 12 POINT, ASTM A193 GR. B8 SILVER PLATED, FOR 10" CONFLAT FLANGE VARIAN VACUUM TECHNOLOGIES				

Material Certification:
Part Number: FB1000C12S

Piece #	Part ID	Qty	Drawing ID / Rev	Vendor	Dimensions
50	GC0275S-GASKET CLIP KIT (10/PK), FOR 10" CFF	1.0			
(R)	GASKET CLIP KIT (10/PACK) FOR 10" CONFLAT FLANGE VARIAN VACUUM TECHNOLOGIES				

Workorder	Part ID	Qty	Drawing ID / Rev	Engineer
64880/1		1	SE121 / A	BLUE/DOUG MCCORKLE

Material Certification:
Part Number: GC0275S

Operation	Resource	QtyPer	StartQty	EndQt	Drawing ID / Rev
Sub: 20 / Seq: 20	108-TOOL ROOM - PLANT 1	1.00	1.00	1.00	

(R) DRILL / TAP 1/2" NPT THREAD FOR VACUUM TESTING.
SPOTFACE, DRILL / REAM FOR 1/2" TOOLING BALL IN THE CENTER OF THE FLANGE.
(PROCESS DRAWING NEEDED)

IDC Count : 0 Dwg Count: 0 Pgm Count: 0 QAP Count: 0 NDT Count: 0 WPS Count: 0

Sub ID	Part ID	Qty	Drawing ID / Rev
21	PORT EXTENSION TUBE	1	/
			Parent Sub:19 Op:10

Operation	Resource	QtyPer	StartQty	EndQt	Drawing ID / Rev
Sub: 21 / Seq: 10	230-FABRICATION - WEIDNER	1.00	1.00	1.00	SE121 / A

(C) INSPECT DIAMETERS AND LENGTH
RECORD IDC INFORMATION
NOTIFY ENGINEERING (DOUG McCORKLE) OF RESULTS
WELD / BLEND MIS-ALIGNMENT OF MANUFACTURERS WELDS
POLISH THE ENTIRE INSIDE SURFACE TO A 32 MICRO-INCH SURFACE FINISH.
LAYOUT ONE AND CUT ONE END SQUARE FOR FLANGE INSTALLATION (REMOVE MINIMAL MATERIAL FOR LATER INSTALLATION 16" MINIMUM LENGTH)

IDC Count : 0 Dwg Count: 0 Pgm Count: 0 QAP Count: 3 NDT Count: 0 WPS Count: 1

Piece #	Part ID	Qty	Drawing ID / Rev	Vendor	Dimensions
10	SE121-001P-5-INCO 625 TUBE 8.0" OD X .12" WA. X 18.0"	1.0		5647	
	Vendor Part ID: SE121-001P-5				

(C) TUBE, ROUND, INCONEL 625, SEAMLESS OR WELDED. ASTM B444 OR ASTM B705
MTM AUTHORIZATION OF WELDING PROCEDURE REQUIRED PRIOR TO STARTING WORK.
NOTE THAT THE FOLLOWING REQUIREMENTS WILL BE PERFORMED / TESTED BY MAJOR TOOL & MACHINE AFTER DELIVERY. ALL EFFORTS TO ACCOMODATE / ENSURE SUCESS MUST BE MAINTAINED:
MAGNETIC PERMEABILITY REQUIREMENT: 1.01 MAX.
VACUUM INTEGRITY REQUIREMENT: TOTAL HELIUM LEAK RATE FOR THE TUBE SHALL BE LESS THAN OR EQUAL TO 1.7 X 10(-9) TORR-L/S
INTERIOR SURFACE FINISH REQUIREMENT: INTERIOR WELD BEADS WILL BE GROUND FLUSH. THE ENTIRE INTERIOR SURFACE WILL BE POLISHED TO A 32 MICRO SURFACE FINISH AND VERIFIED PER ASME B46.1.
EXTERIOR SURFACE FINISH: MILL SURFACE ACCEPTABLE. NO PITS, SCRAPES OR GOUGES.
MATERIAL CERTIFICATION AND TEST REPORTS REQ'D WITH SHIPMENT.

Sub ID	Part ID	Qty	Drawing ID / Rev
29	PORT EXTENSION TUBE (TAKE 2)	1	/
			Parent Sub:19 Op:10

Workorder	Part ID	Qty	Drawing ID / Rev	Engineer
64880/1		1	SE121 / A	BLUE/DOUG MCCORKLE

Operation	Resource	QtyPer	StartQty	EndQt	Drawing ID / Rev
Sub: 29 / Seq: 10	805-INPROCESS INSPECTION - PLA	1.00	1.00	1.00	SE121 / --

(F) PRIOR TO CUTTING / FORMING, INSPECT AND RECORD THE MAGNETIC PERMEABILITY OF THE SHEET (COORDINATE WITH MATERIALS DEPT. AND INSPECT THE APPROXIMATE PART ENVELOPE WITHIN THE STOCK SHEET)
Part Number: SE121-001P-3
Part Description: PVVS PORT EXTENSION TUBE

IDC Count : 1 Dwg Count: 0 Pgm Count: 0 QAP Count: 2 NDT Count: 0 WPS Count: 0

Operation	Resource	QtyPer	StartQty	EndQt	Drawing ID / Rev
Sub: 29 / Seq: 20	415-ROLLING/SHEAR/BRAKE PRESS	1.00	1.00	1.00	

(F) 1. SHEAR RECTANGLE PER MATERIAL CARD DIMENSIONS
2. ROLL TO 8" O.D. =/-0.03" X 20" LONG. LEAVE TRIM STOCK OVERLAPPED (FABRICATOR WILL TRIM). ENSURE OVERLAP IS ADEQUATE TO TRIM AND FIT THE DIAMETER REMOVING ANY ROLL FLATS RESULTANT FROM STARTING AND FINISHING THE ROLLING SEQUENCE.
3. NOTIFY Q/A FOR DIMENSIONAL / MAGNETIC PERMEABILITY VERIFICATION.

IDC Count : 0 Dwg Count: 0 Pgm Count: 0 QAP Count: 3 NDT Count: 0 WPS Count: 0

Piece #	Part ID	Qty	Drawing ID / Rev	Vendor	Dimensions
10	INCONEL 625_660-SHEET,NICKEL ALLOY .125" THK	760.0			20*38

(F) INCONEL 625 SHEET, .125" THICK PER
AMS 5599 / ASTM B443 (UNS N06625).
CERT AND MILL TEST REPORT REQ'D WITH SHIPMENT.

Material Certification:
Part Number: SE121-001P-3
Part Description: PORT EXTENSION TUBE

Operation	Resource	QtyPer	StartQty	EndQt	Drawing ID / Rev
Sub: 29 / Seq: 30	805-INPROCESS INSPECTION - PLA	1.00	1.00	1.00	SE121 / --

(F) INSPECT AND RECORD MAGNETIC PERMEABILITY (AFTER ROLLING)
Part Number: SE121-001P-3
Part Description: PVVS PORT EXTENSION TUBE

IDC Count : 1 Dwg Count: 0 Pgm Count: 0 QAP Count: 2 NDT Count: 0 WPS Count: 0

Operation	Resource	QtyPer	StartQty	EndQt	Drawing ID / Rev
Sub: 29 / Seq: 40	230-FABRICATION - WEIDNER	1.00	1.00	1.00	SE11 / --

(F) TRIM, FIT, (PURGE WELD JOINT WITH 100% ARGON. PURGE DAM MATERIAL MUST BE MADE FROM EITHER 625 INCONEL OR 300 SERIES STAINLESS STEEL) AND TACK WELD INTO 8" O.D. TUBE.
PREPARE FOR PLASMA ARC WELDING

IDC Count : 0 Dwg Count: 0 Pgm Count: 0 QAP Count: 0 NDT Count: 0 WPS Count: 1

Operation	Resource	QtyPer	StartQty	EndQt	Drawing ID / Rev
Sub: 29 / Seq: 50	205-PLASMA WORKCENTER	1.00	1.00	1.00	SE121 / --

(F) SETUP, PURGE WELD JOINT WITH 100% ARGON. PURGE DAM MATERIAL MUST BE MADE FROM EITHER 625 INCONEL OR 300 SERIES STAINLESS STEEL, AND PLASMA ARC WELD THE JOINT PER DRAWING.

Workorder	Part ID	Qty	Drawing ID / Rev	Engineer
64880/1		1	SE121 / A	BLUE/DOUG MCCORKLE

IDC Count : 0 Dwg Count: 0 Pgm Count: 0 QAP Count: 0 NDT Count: 0 WPS Count: 1

Operation	Resource	QtyPer	StartQty	EndQt	Drawing ID / Rev
Sub: 29 / Seq: 60	230-FABRICATION - WEIDNER	1.00	1.00	1.00	SE121 / --

(F) BLEND THE INTERIOR WELD SURFACE FLUSH TO THE BASE MATERIAL.
POLISH THE ENTIRE INTERIOR OF THE TUBE TO ACHIEVE A 32 MICRO-INCH RA SURFACE FINISH.

IDC Count : 0 Dwg Count: 0 Pgm Count: 0 QAP Count: 0 NDT Count: 0 WPS Count: 1

Operation	Resource	QtyPer	StartQty	EndQt	Drawing ID / Rev
Sub: 29 / Seq: 70	805-INPROCESS INSPECTION - PLA	1.00	1.00	1.00	SE121 / --

(F) INSPECT DIAMETER, ROUNDNESS, WELDING DISTORTION, MAGNETIC PERMEABILITY, AND INTERIOR SURFACE FINISH.
RECORD IDC DATA
Part Number: SE121-001P-3
Part Description: PVVS PORT EXTENSION TUBE

IDC Count : 1 Dwg Count: 0 Pgm Count: 0 QAP Count: 2 NDT Count: 0 WPS Count: 0

Sub ID	Part ID	Qty	Drawing ID / Rev
25	PORT EXTENSION WELD BACKING RI	1	/
			Parent Sub:1 Op:90

Operation	Resource	QtyPer	StartQty	EndQt	Drawing ID / Rev
Sub: 25 / Seq: 10	415-ROLLING/SHEAR/BRAKE PRESS	1.00	1.00	1.00	SE121-003P / 0

(F) 1. SHEAR STRIP PER MATERIAL CARD AND DEBURR.
2. ROLL THE EASY WAY TO A 8.093" I.D. OBJ (0.031" WELD SHRINKAGE ALLOWANCE).

IDC Count : 0 Dwg Count: 1 Pgm Count: 0 QAP Count: 3 NDT Count: 0 WPS Count: 0

Piece #	Part ID	Qty	Drawing ID / Rev	Vendor	Dimensions
10	INCONEL 625_660-SHEET,NICKEL ALLOY .125" THK	162.0			4.5*36

(F) INCONEL 625 SHEET, .125" THICK PER
AMS 5599 / ASTM B443 (UNS N06625).
CERT AND MILL TEST REPORT REQ'D WITH SHIPMENT.

Material Certification:
Part Number: SE121-003P-4
Part Description: WELD BACKING RING

Operation	Resource	QtyPer	StartQty	EndQt	Drawing ID / Rev
Sub: 25 / Seq: 20	230-FABRICATION - WEIDNER	1.00	1.00	1.00	SE121-003P / 0

(F) 1. TRIM AND FIT TO VESSEL CONTOUR, CUT WIDTH, PREP
2. WELD PER DRAWING (SIZE TO EXISTING PORT TUBE)
3. BLEND WELD FLUSH TO BASE METAL

IDC Count : 0 Dwg Count: 1 Pgm Count: 0 QAP Count: 0 NDT Count: 0 WPS Count: 1

Operation	Resource	QtyPer	StartQty	EndQt	Drawing ID / Rev

Workorder	Part ID			Qty	Drawing ID / Rev		Engineer
64880/1				1	SE121 / A		BLUE/DOUG MCCORKLE
Sub: 25 / Seq: 30	415-ROLLING/SHEAR/BRAKE PRESS	1.00	1.00	1.00	SE121 / A		
(F)	RE-ROLL / ROUND UP BAND (IF NECESSARY)						
	IDC Count : 0	Dwg Count: 0	Pgm Count: 0	QAP Count: 0	NDT Count: 0	WPS Count: 0	

Operation	Resource	QtyPer	StartQty	EndQt	Drawing ID / Rev
Sub: 25 / Seq: 40	805-INPROCESS INSPECTION - PLA	1.00	1.00	1.00	SE121 / A
(F)	VERIFY MAGNETIC PERMEABILITY. RECORD I.D.C. DATA				
	Part Number: PVVS PORT EXTENSION TUBE				
	IDC Count : 0	Dwg Count: 0	Pgm Count: 0	QAP Count: 1	NDT Count: 0	WPS Count: 0

Sub ID	Part ID	Qty	Drawing ID / Rev
28	STORAGE / SHIPPING CRATE	1	/
			Parent Sub:1 Op:115

Operation	Resource	QtyPer	StartQty	EndQt	Drawing ID / Rev
Sub: 28 / Seq: 10	425-SHIPPING - PLANTS 1 & 2	1.00	1.00	1.00	SE121 / A
(F)	BUILD STORAGE / SHIPPING CRATE PER ENGINEERING DRAWING				
	IDC Count : 0	Dwg Count: 0	Pgm Count: 0	QAP Count: 0	NDT Count: 0	WPS Count: 0