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: 2 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)	Material Certification: TRACE ID: 38561 Part Number: SE121				

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)	Material Certification: Part Number: SE121				

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				

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

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

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: ENGSOP01 - Mfg. Quality Plans; ENGSOP02 - Specification-Standard Control; ENGSOP03 - Internal Drawing Generation; ENGSOP04 - Drawing Control.
CAD / CAM OPERATIONS WILL BE PERFORMED PER THE FOLLOWING STANDARD OPERATING PROCEDURE: CADSOP01 - CNC Program Control;
MANUFACTURING OPERATIONS WILL BE PERFORMED PER THE FOLLOWING STANDARD OPERATING PROCEDURES: MFGSOP01 - Project Manufacturing; MFGSOP02 - Material Handling and Storage; MTLSOP01 - Material Storage; PCSOP01 - Production Control; QASOP01 - Nonconformance Control; QASOP03 - Traceability-Identification
QUALITY ASSURANCE AND INSPECTION OPERATIONS WILL BE PERFORMED PER THE FOLLOWING STANDARD OPERATING PROCEDURES: QASOP01 - Nonconformance Control; QASOP05 - Calibration
RECEIVING INSPECTION OPERATIONS WILL BE PERFORMED PER THE FOLLOWING STANDARD OPERATING PROCEDURE: QASOP04 - Receiving Inspection
IN-PROCESS INSPECTION OPERATIONS WILL BE PERFORMED PER THE FOLLOWING STANDARD OPERATING PROCEDURE: QASOP02 - In Process Inspection
SHIPPING OPERATIONS WILL BE PERFORMED PER THE FOLLOWING STANDARD OPERATING PROCEDURE: SHSOP01 - Shipping-Packaging
MACHINING OPERATIONS WILL BE PERFORMED PER THE FOLLOWING STANDARD OPERATING PROCEDURE: TLGSOP01 - Cutting Tool Control
WELDING OPERATIONS WILL BE PERFORMED PER THE FOLLOWING STANDARD OPERATING PROCEDURES: WLDSOP02 - Qualification of Welders and WPS; WLDSOP03 - Welding Process Development; WLDSOP04 - Stores Control of Weld Wire; WLDSOP05 - Weld Mapping; WLDSOP06 - Welding Filler Metal and Flux Procurement
ENGINEERING OPERATIONS WILL BE PERFORMED PER THE FOLLOWING WORK INSTRUCTIONS: ENGWI001 - Material Card; ENGWI002 - Drawing Control; ENGWI003 - Bill of Manufacturing; ENGWI005 - Engineering Contract Review; ENGWI007 - Work Order Review Release; ENGWI008 - Operation Cards; ENGWI009 - Quality Planning; ENGWI010 - Service Cards; ENGWI013 - Work Order Header Card Maintenance; ENGWI014 - Inspection Fields; ENGWI019 - Nonconformance to Customers.
CAD / CAM OPERATIONS WILL BE PERFORMED PER THE FOLLOWING WORK INSTRUCTIONS: CADWI004 - Developing a CADCAM program; CADWI005 - Updating CADCAM Program or File
MANUFACTURING OPERATIONS WILL BE PERFORMED PER THE FOLLOWING WORK INSTRUCTIONS: MFGWI018 - Workmanship; PCWI001 - Use of MTM Routing; PCWI004 - Scheduling System Procedures
CLEANING / WASHING OPERATIONS WILL BE PERFORMED PER THE FOLLOWING WORK INSTRUCTION: MFGWI005 - High Pressure-High Temperature Water Cleaning of Parts
SUBCONTRACT OPERATIONS WILL BE PERFORMED PER THE FOLLOWING WORK INSTRUCTION: PCWI005 - Subcontract Procedure; PURWI002 - Vendor Setup and Assessment
NON-DESTRUCTIVE TESTING OPERATIONS WILL BE PERFORMED PER THE FOLLOWING WORK INSTRUCTIONS: NDTWI001 - NDT Exam Personnel Qualification; NDTWI011 - Visual Weld Inspection
QUALITY ASSURANCE, IN-PROCESS INSPECTION OPERATIONS AND/OR RECEIVING INSPECTION OPERATIONS WILL BE PERFORMED PER THE FOLLOWING WORK INSTRUCTIONS: QAWI001 - MTM Inspection Method Guidelines; QAWI006 - Sampling Inspection Criteria; QAWI008 - Receiving Ordered Material; QAWI010 - Calibration; QAWI015 - Checking Out and Returning Gauges; QAWI017 - Recording Inspection Results; QAWI018 - Quality Sign Off Control; QAWI020 - Organization and Control of Quality Records; QAWI021 - Quality Record Storage and Retention; QAWI023 - Nonconformance System Navigation; QAWI026 - Part Relocation with SMX; QAWI027 - SMX Part Inspection Checklist; QAWI028 - QAP Data Package Generation; QAWI029 - Scanning Certifications; QAWI031 - Material Certification Program.
SHIPPING OPERATIONS WILL BE PERFORMED PER THE FOLLOWING WORK INSTRUCTIONS: SHWI002 - Guidelines for Shipping Documentation; SHWI003 - General

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

Guidelines for Building Containers; SHWI004 - Guidelines for Loading Parts for Shipment; SHWI005 - General Guidelines for Packaging Parts; SHWI007 - Guidelines for Coordinating Transport.
WELDING OPERATIONS WILL BE PERFORMED PER THE FOLLOWING WORK INSTRUCTIONS: WLDWI003 - Welding Personnel Training; WLDWI004 - Welder Performance Qualification; WLDWI005 - Storage and Maintenance of Welding Documents; WLDWI006 - Welding Engineering Work Order Review Process; WLDWI007 - Weld Wire and Stub Control; WLDWI008 - Assessment of Welder's Ability
BLAST BOOTH OPERATIONS WILL BE PERFORMED PER THE FOLLOWING WORK INSTRUCTIONS: SBWI001 - General Sandblast Guidelines;
MATERIAL PROCUREMENT OPERATIONS WILL BE PERFORMED PER THE FOLLOWING WORK INSTRUCTIONS: PURWI001 - Purchasing Data; PURWI002 - Vendor Setup and Assessment

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				
	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

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

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 / BLENDING / POLISHING THE WELDS. INSPECT 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.
GRIND PREPS ON EACH PANEL WELD JOINT (60 DEGREE INCLUDED). THE WELD JOINT ROOT MUST BE ORIENTATED TO THE INSIDE OF THE VESSEL (VACUUM SIDE). NOTE BURNTHROUGH, AND BACKWELD FACES SHOULD BE KEPT AS NARROW AS POSSIBLE.
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: SE121-001P
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.
INSPECTION POINT GRID: 6" CENTERS THROUGHOUT WITH 1" CENTERS AT AND NEAR WELD JOINTS.
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: SE121-001P
Part Description: NCSX PVVS

IDC Count : 2 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: 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.
NOTE BURNTHROUGH, AND BACKWELD FACES SHOULD BE KEPT AS NARROW AS POSSIBLE.
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: SE121-001P
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
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.
INSPECTION POINT GRID: 6" CENTERS THROUGHOUT WITH 1" CENTERS AT AND NEAR WELD JOINTS.
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: SE121-001P
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.

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

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: SE121-001P
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
Sub: 1 / Seq: 71	265-PAINT BOOTH	1.00	1.00	1.00	SE121 / A
(F)	BAKE OUT AT 150 DEGREES C (302F) FOR 6 HOURS TO REMOVE MOISTURE IN PREPARATION FOR THE LEAK CHECK.				

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: 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:					

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: SE121-001P
Part Description: NCSX PVVS
Customer: PPPL
Test Certification: VACUUM TEST CERTIFICATE Rev:
Specification: ASTM E 498 Rev: 95

IDC Count : 0 Dwg Count: 1 Pgm Count: 0 QAP Count: 5 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: SE121-001P
Part Description: NCSX PVVS
Material Type: 625 INCONEL

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

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.
INSPECTION POINT GRID: 6" CENTERS THROUGHOUT WITH 1" CENTERS AT AND NEAR WELD JOINTS.
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: SE121-001P
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)	LAYOUT AND CUT THE PORT EXTENSION TUBE OFF THE VESSEL WALL (NORMAL TO VESSEL SURFACE) PER DRAWING.				

PLASMA CUT THE PORT OPENING INTO THE VESSEL WALL PER DRAWING (CUT UNDERSIZE ALLOWING FOR GRINDING REMOVAL OF RECAST / HEAT AFFECTED ZONE AND PROPER SIZING. USE A CIRCLE CUTTING DEVICE TO ENSURE PROPER SIZE AND ROUNDNESS.
GRIND / BLEND THE OPENING SMOOTH MAINTAINING PROPER SIZE AND RELATIONSHIP TO THE I.D. OF THE PORT EXTENSION TUBE.
PREP THE EDGES OF THE PORT STUB AND PORT EXTENSION TUBE FOR RE-INSTALLATION.
POSITION AND WELD THE BACKING RING (SE121-003P-4) IN PLACE (TO THE END OF THE DETACHED PORT EXTENSION TUBE) PER DRAWING SE121-003P
RE-INSTALL THE PORT EXTENSION ASSEMBLY TO THE PORT STUB AND WELD IN PLACE PER DRAWING SE121-003P.
GRIND AND BLEND THE PORT EXTENSION INTERIOR WELD SMOOTH.
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.
ENSURE ALL COSMETIC WELDING AND BLENDING IS COMPETE AND PREPARE PART FOR FINAL BLAST AND FINAL INSPECTION.
Test Certification: VISUAL INSPECTION CERT Rev:
Part Number: SE121-003P
Part Description: PVVS

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

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

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 /
			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: 3 NDT Count: 0 WPS Count: 0

Piece #	Part ID	Qty	Drawing ID / Rev	Vendor	Dimensions
10	INCONEL 625_5-PLATE,NICKEL ALLOY .375" THK	4,198.1		1810	54.97*76.37

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

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

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
VISUAL INSPECT SURFACE FINISH
INSPECT MAGNETIC PERMEABILITY
RECORD IDC DATA
Specification: ASTM A800 Rev: 91
Part Number: SE121-001P-2 PANEL 1
Part Description: DIE FORMED PANEL
Customer: PPPL
Specification: ASTM B443 Rev: 93
Specification: ASTM B46.1 Rev: 95

IDC Count : 3 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: 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.

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

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
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

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: 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)
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

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: 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
Customer: PPPL
Part Description: DIE FORMED PANEL
Specification: ASTM B443 Rev: 93

IDC Count : 1 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_5-PLATE,NICKEL ALLOY .375" THK	1,544.2		1810	35.07*44.03

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

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 : 3 Dwg Count: 1 Pgm Count: 0 QAP Count: 5 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: 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
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

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

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.
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 /

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

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.
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: 3 NDT Count: 0 WPS Count: 0

Piece #	Part ID	Qty	Drawing ID / Rev	Vendor	Dimensions
10	INCONEL 625_5-PLATE,NICKEL ALLOY .375" THK	3,865.9		1810	49.85*77.55
	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: SE121-001P-2 PANEL 3
Part Description: DIE FORMED PANEL

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: 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 : 3 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.

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.

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: 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

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

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

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.				
	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				

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

Part Description: DIE FORMED PANEL
Customer: PPPL
Specification: ASTM B443 Rev: 93

IDC Count : 1 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_5-PLATE,NICKEL ALLOY .375" THK	1,645.4		1810	26.75*61.51
	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: SE121-001P-2 PANEL 4
Part Description: DIE FORMED PANEL

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				
	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 : 3 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

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: 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

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

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

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

(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

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

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: 3 NDT Count: 0 WPS Count: 0

Piece #	Part ID	Qty	Drawing ID / Rev	Vendor	Dimensions
10	INCONEL 625_5-PLATE,NICKEL ALLOY .375" THK	2,856.9		1810	39.90*71.60
	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: SE121-001P-2 PANEL 5
Part Description: DIE FORMED PANEL

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

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

(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 : 3 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
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

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

(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

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

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: 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
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

(R)
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

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: 24 / Seq: 25	260-SANDBLAST	1.00	1.00	1.00	SE121 / A

(R) 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

(R) 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

(R) 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 TEST PANEL	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

(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 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	4,198.1		1810	54.97*76.37
	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

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

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

(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 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
Sub: 26 / 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: 26 / 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 TEST PANEL

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

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

(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: 26 / 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: 26 / 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 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

Operation	Resource	QtyPer	StartQty	EndQt	Drawing ID / Rev
Sub: 26 / 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: 26 / 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 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

(F) LOAD, ALIGN, AND BOLT DIE SET # _____ INTO THE 750 TON HYDRAULIC PRESS.

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

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

(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: 26 / 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)
SPLIT THE PANEL TO SIMULATE PRODUCTION WELD JOINT(S).
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

(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 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

Workorder	Part ID	Qty	Drawing ID / Rev	Engineer
64880/1		1	SE121 / A	BLUE/DOUG MCCORKLE
30	PQR PROCESS	1	/	
			Parent Sub:26 Op:60	

Operation	Resource	QtyPer	StartQty	EndQt	Drawing ID / Rev
Sub: 30 / Seq: 10	410-BURNOUT TABLE	1.00	1.00	1.00	
(R)	BURN OUT TWO TEST PLATES 6 X 15 AND CLEANUP.				
	NOTIFY WELDING ENGINEERING WHEN PARTS ARE AVALIABLE				

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	INCONEL 625_5-PLATE,NICKEL ALLOY .375" THK	338.3		1810	15.375*22
	Vendor Part ID: INCONEL 625_5				
(C)	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.				

Operation	Resource	QtyPer	StartQty	EndQt	Drawing ID / Rev
Sub: 30 / Seq: 20	230-FABRICATION - WEIDNER	1.00	1.00	1.00	
(R)	WELD PQR PLATE PER WELDING ENGINEERING DIRECTION.				

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
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.				
	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

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: 20 / Seq: 10	820-RECEIVING INSPECTION	1.00	1.00	1.00	SE121 / A

(R) RECEIVING INSPECTION
RECEIVE AND INSPECT THE FOLLOWING PARTS:
(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

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

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				
	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" Vendor Part ID: SE121-001P-5	1.0		5647	
(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.				

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

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

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

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: 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.

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

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

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
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 : 1 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