



PRINCETON PLASMA  
PHYSICS LAB

Purchase Order Number:

S005243-F

Part Number:

SE120-002

Part Name:

VVSA 120 DEGREE VESSEL PERIOD

MTM Work Order Number:

65678/1.0



*Major*

**Tool & Machine, Inc.**

**Customer: 8780 - PRINCETON PLASMA PHYSICS LAB**  
**Customer P.O.: S005243-F**  
**Customer Part ID: SE120-002 - VVSA 120 DEGREE VESSEL PERIOD**

Item#				Document Description / Material Description / File Name / Heat Lot
1				CERTIFICATE OF CONFORMANCE

**190045 - BOLT SET, .312-24 X 2.0" 12PT**

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
2	5	250	150	Material Certification: / 190045 - BOLT SET, .312-24 X 2.0" 12PT - mc118213.TIF / CERTIFIED

**A\_SE120-002**

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
3				Segmetation Scheme: - Numbered Panels (original).TIF

**REWORK - REWORK / REPAIR PER N/C**

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
4	219	30		Inspection Data Checklist: 6 steps
5	234	20		Map(s): MAP - mc115733.tif
6	234	20		Certification: X RAY CERT - Same as Item #5
7	242	30		Inspection Data Checklist: 1 steps
8	247	20		Inspection Data Checklist: 1 steps
9	248	10	10	Material Certification: Trace ID: 129238 / INCONEL 625_233 - BAR,ROUND,NICKEL ALLOY .438" DIA - mc111631.tif / 238C
10	251	10		Inspection Data Checklist: 1 steps

**SE120-002 - PPPL NCSX VVSA**

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
11	0	10	40	Material Certification: Trace ID: 119198 / INCONEL625_062_GTAW - WELD WIRE/GTAW, .062 DIA - mc107550.tif / 34932 / AB8051 / AV8128
12	0	10	40	Material Certification: Trace ID: 121606 / INCONEL625_062_GTAW - WELD WIRE/GTAW, .062 DIA - mc108415.tif / 34932 / AB8051 / AV8128
13	0	10	40	Material Certification: Trace ID: 94881 / INCONEL625_062_GTAW - WELD WIRE/GTAW, .062 DIA - mc095279.pdf / 34932 / AB8051 / AV8128
14	0	10	40	Material Certification: Trace ID: 94238 / INCONEL625_062_GTAW - WELD WIRE/GTAW, .062 DIA - mc094944.pdf / 34932 / AB8051 / AV8128
15	0	10	90	Material Certification: Trace ID: 123163 / INCONEL625_035_GMAW - WELD WIRE/GMAW, .035 DIA - mc109152.tif / XB8273
16	1	10		Inspection Data Checklist: 4 steps
17	2	10		Inspection Data Checklist: 1 steps
18	5	195		Map(s): X-RAY MAP - MC111789.TIF
19	5	247		Certification: X-RAY CERT - mc119826.tif
20	5	247		Map(s): X-RAY MAP - MC115733.TIF
21	5	247		Certification: X-RAY CERT - Same as Item #20
22	5	247		Map(s): X-RAY MAP - Same as Item #19

**SE120-002-NB - PORT EXT. SUB-ASSY**

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
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**Customer: 8780 - PRINCETON PLASMA PHYSICS LAB**  
**Customer P.O.: S005243-F**  
**Customer Part ID: SE120-002 - VVSA 120 DEGREE VESSEL PERIOD**

23	119	20	Inspection Data Checklist: 2 steps
24	223	30	Inspection Data Checklist: 2 steps

**SE120-003 10-6 SUB-SET - PANEL 10-6 SUB-SET**

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
25	98	30		Inspection Data Checklist: 1 steps
26	98	130		Inspection Data Checklist: 1 steps
27	98	150		Inspection Data Checklist: 1 steps
28	111	30		Inspection Data Checklist: 1 steps
29	111	130		Inspection Data Checklist: 1 steps
30	111	150		Inspection Data Checklist: 1 steps

**SE120-003 10-6-7 SUB-SET - PANEL 10-6-7 SUB-SET**

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
31	96	30		Inspection Data Checklist: 1 steps
32	96	130		Inspection Data Checklist: 1 steps
33	96	150		Inspection Data Checklist: 1 steps
34	110	30		Inspection Data Checklist: 1 steps
35	110	130		Inspection Data Checklist: 1 steps
36	110	150		Inspection Data Checklist: 1 steps

**SE120-003 120 - 120 DEG VESSEL**

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
37	5	60		Inspection Data Checklist: 1 steps
38	5	160		Inspection Data Checklist: 1 steps
39	5	180		Inspection Data Checklist: 1 steps
40	5	243		Inspection Data Checklist: 6 steps

**SE120-003 30L SUB-ASSY - LOWER 30 DEG SUB-ASSY**

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
41	6	70		Inspection Data Checklist: 2 steps
42	6	170		Inspection Data Checklist: 2 steps
43	6	190		Inspection Data Checklist: 2 steps
44	6	400		Map(s): X-RAY MAP - MC110930.TIF
45	6	400		Certification: X-RAY MAP - MC110932.TIF
46	94	70		Inspection Data Checklist: 2 steps
47	94	170		Inspection Data Checklist: 2 steps
48	94	190		Inspection Data Checklist: 2 steps
49	94	400		Map(s): X-RAY MAP - MC110924.TIF

**SE120-003 30U SUB-ASSY - UPPER 30 DEG SUB-ASSY**

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
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**Customer: 8780 - PRINCETON PLASMA PHYSICS LAB**  
**Customer P.O.: S005243-F**  
**Customer Part ID: SE120-002 - VVSA 120 DEGREE VESSEL PERIOD**

50	95	60	Inspection Data Checklist: 2 steps
51	95	160	Inspection Data Checklist: 2 steps
52	95	180	Inspection Data Checklist: 2 steps
53	109	60	Inspection Data Checklist: 2 steps
54	109	160	Inspection Data Checklist: 2 steps
55	109	180	Inspection Data Checklist: 2 steps

**SE120-003 3-4 SUB-SET - PANEL 3-4 SUB-SET**

<u>Item#</u>	<u>Sub</u>	<u>Op</u>	<u>Pc</u>	<u>Document Description / Material Description / File Name / Heat Lot</u>
56	11	30		Inspection Data Checklist: 1 steps
57	11	130		Inspection Data Checklist: 1 steps
58	11	150		Inspection Data Checklist: 1 steps
59	106	30		Inspection Data Checklist: 1 steps
60	106	130		Inspection Data Checklist: 1 steps
61	106	150		Inspection Data Checklist: 1 steps

**SE120-003 5-1 SUB-SET - PANEL 5-1 SUB-SET**

<u>Item#</u>	<u>Sub</u>	<u>Op</u>	<u>Pc</u>	<u>Document Description / Material Description / File Name / Heat Lot</u>
62	8	30		Inspection Data Checklist: 1 steps
63	8	130		Inspection Data Checklist: 1 steps
64	8	150		Inspection Data Checklist: 1 steps
65	103	30		Inspection Data Checklist: 1 steps
66	103	130		Inspection Data Checklist: 1 steps
67	103	150		Inspection Data Checklist: 1 steps

**SE120-003 5-1-2 SUB-SET - PANEL 5-1-2 SUB-SET**

<u>Item#</u>	<u>Sub</u>	<u>Op</u>	<u>Pc</u>	<u>Document Description / Material Description / File Name / Heat Lot</u>
68	7	30		Inspection Data Checklist: 1 steps
69	7	130		Inspection Data Checklist: 1 steps
70	7	150		Inspection Data Checklist: 1 steps
71	102	30		Inspection Data Checklist: 1 steps
72	102	130		Inspection Data Checklist: 1 steps
73	102	150		Inspection Data Checklist: 1 steps

**SE120-003 60D SUB-ASSY - 60 DEGREE SUB-ASSY**

<u>Item#</u>	<u>Sub</u>	<u>Op</u>	<u>Pc</u>	<u>Document Description / Material Description / File Name / Heat Lot</u>
74	6	250		Inspection Data Checklist: 1 steps
75	6	350		Inspection Data Checklist: 1 steps
76	6	370		Inspection Data Checklist: 1 steps
77	94	250		Inspection Data Checklist: 1 steps
78	94	350		Inspection Data Checklist: 1 steps



**Customer: 8780 - PRINCETON PLASMA PHYSICS LAB**  
**Customer P.O.: S005243-F**  
**Customer Part ID: SE120-002 - VVSA 120 DEGREE VESSEL PERIOD**

79	94	370	Inspection Data Checklist: 1 steps
80	220	30	Map(s): X-RAY MAP - Same as Item #44
81	220	30	Map(s): X-RAY MAP - Same as Item #45

**SE120-003 8-9 SUB-SET - PANEL 8-9 SUB-SET**

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
82	97	30		Inspection Data Checklist: 1 steps
83	97	130		Inspection Data Checklist: 1 steps
84	97	150		Inspection Data Checklist: 1 steps
85	114	30		Inspection Data Checklist: 1 steps
86	114	130		Inspection Data Checklist: 1 steps
87	114	150		Inspection Data Checklist: 1 steps

**SE120-003 - VVSA 120 DEG. VESSEL Qty: 1**

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
88	2	20		Furnace charts: THERMOCOUPLE CHART -
89	2	20		Certification: THERMAL CYCLE CERTIFICATE -

**SE120-003-11 - PORT # 7 EXTENSION**

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
90	131	10		Inspection Data Checklist: 2 steps
91	131	20		Inspection Data Checklist: 2 steps
92	131	30		Inspection Data Checklist: 6 steps

**SE120-003-12A - PORT EXT. SUB-ASSY**

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
93	120	10		Inspection Data Checklist: 4 steps
94	120	20		Inspection Data Checklist: 4 steps

**SE120-003-13 - PORT # 8 EXTENSION**

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
95	132	10		Inspection Data Checklist: 2 steps
96	132	20		Inspection Data Checklist: 2 steps
97	132	30		Inspection Data Checklist: 6 steps

**SE120-003-15 - PORT # 9 EXTENSION**

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
98	133	10		Inspection Data Checklist: 2 steps
99	133	20		Inspection Data Checklist: 2 steps
100	133	30		Inspection Data Checklist: 6 steps

**SE120-003-17 - PORT # 10 EXTENSION**

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
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**Customer: 8780 - PRINCETON PLASMA PHYSICS LAB**  
**Customer P.O.: S005243-F**  
**Customer Part ID: SE120-002 - VVSA 120 DEGREE VESSEL PERIOD**

101	134	10	Inspection Data Checklist: 2 steps
102	134	20	Inspection Data Checklist: 2 steps
103	134	30	Inspection Data Checklist: 6 steps

**SE120-003-19 - PORT # 11 EXTENSION**

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
104	135	10		Inspection Data Checklist: 2 steps
105	135	20		Inspection Data Checklist: 2 steps
106	135	30		Inspection Data Checklist: 6 steps

**SE120-003-21 - PORT # 15 EXTENSION**

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
107	136	10		Inspection Data Checklist: 2 steps
108	136	20		Inspection Data Checklist: 2 steps
109	136	30		Inspection Data Checklist: 6 steps

**SE120-003-23 - PORT DOME EXTENSION**

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
110	137	10		Inspection Data Checklist: 2 steps
111	137	20		Inspection Data Checklist: 2 steps
112	137	30		Inspection Data Checklist: 7 steps

**SE120-003-3 - PORT # 2 EXTENSION**

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
113	127	10		Inspection Data Checklist: 2 steps
114	127	20		Inspection Data Checklist: 2 steps
115	127	30		Inspection Data Checklist: 6 steps

**SE120-003-5 - PORT # 4 EXTENSION**

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
116	128	10		Inspection Data Checklist: 2 steps
117	128	20		Inspection Data Checklist: 2 steps
118	128	20		Non-Conformance: 19667 Customer document: - car05928.pdf
119	128	30		Inspection Data Checklist: 6 steps

**SE120-003-7 - PORT # 5 EXTENSION**

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
120	129	10		Inspection Data Checklist: 2 steps
121	129	20		Inspection Data Checklist: 2 steps
122	129	30		Inspection Data Checklist: 6 steps

**SE120-003-9 - PORT # 6 EXTENSION**

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
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**Customer: 8780 - PRINCETON PLASMA PHYSICS LAB**  
**Customer P.O.: S005243-F**  
**Customer Part ID: SE120-002 - VVSA 120 DEGREE VESSEL PERIOD**

123	130	10	Inspection Data Checklist: 2 steps
124	130	20	Inspection Data Checklist: 2 steps
125	130	30	Inspection Data Checklist: 6 steps

**SE120-003-DOME A - PORT EXT. SUB-ASSY**

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
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126	122	10	Inspection Data Checklist: 4 steps
127	122	20	Inspection Data Checklist: 2 steps

**SE120-003-NB**

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
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128	119	10	Inspection Data Checklist: 2 steps
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**SE120-004 PORT NB - PORT NB SUB-ASSEMBLY**

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
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129	223	10	Inspection Data Checklist: 4 steps
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**SE120-004 - VVSA 120 DEG. VESSEL**

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
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130	1	20	Inspection Data Checklist: 19 steps
131	1	30	Inspection Data Checklist: 3 steps
132	2	60	Inspection Data Checklist: 6 steps

**SE120-004-17A - PORT EXT. SUB-ASSY**

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
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133	125	10	Inspection Data Checklist: 4 steps
134	125	20	Inspection Data Checklist: 2 steps

**SE120-004-18A - PORT EXT. SUB-ASSY**

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
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135	126	10	Inspection Data Checklist: 4 steps
136	126	20	Inspection Data Checklist: 2 steps

**SE120-004-2A - PORT EXT. SUB-ASSY**

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
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137	123	10	Inspection Data Checklist: 36 steps
138	123	20	Inspection Data Checklist: 18 steps

**SE120-004-4A - PORT EXT. SUB-ASSY**

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
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139	121	10	Inspection Data Checklist: 4 steps
140	121	20	Inspection Data Checklist: 2 steps

**SE120-005-38 - LEAK CHECK TUBING**

**Customer: 8780 - PRINCETON PLASMA PHYSICS LAB**  
**Customer P.O.: S005243-F**  
**Customer Part ID: SE120-002 - VVSA 120 DEGREE VESSEL PERIOD**

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
141	143	10	10	Material Certification: / 316L_271 - TUBE,RND,SST, SEAMLESS, .125" OD X .03"W - mc109194.tif / 2D994

**SE120-005-39 - TUBE CLIP**

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
142	142	10	10	Material Certification: / INCONEL 625_654 - FOIL, NICKEL ALLOY .010" THK - mc109089.tif / 265096802

**SE120-005-40 - PORT 2 BACKING STRIP**

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
143	138	10		Inspection Data Checklist: 1 steps
144	138	10	10	Material Certification: / SE120-005-40 - VVSA PORT 2 BACKING STRIP - mc109510.tif / 2650 5 6801

**SE120-005-41 - PORT 5 BACKING STRIP**

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
145	145	10		Inspection Data Checklist: 1 steps
146	145	10	10	Material Certification: / SE120-005-41 - VVSA PORT 5 BACKING STRIP - mc109512.tif / 2650 5 6801

**SE120-005-42 - PORT 6 BACKING STRIP**

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
147	146	10		Inspection Data Checklist: 1 steps
148	146	10	10	Material Certification: / SE120-005-42 - VVSA PORT 6 BACKING STRIP - mc109509.tif / 2650 5 6801

**SE120-005-43 - PORT 7 BACKING STRIP**

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
149	147	10		Inspection Data Checklist: 1 steps
150	147	10	10	Material Certification: / SE120-005-43 - VVSA PORT 7 BACKING STRIP - mc109514.tif / 2650 5 6801

**SE120-005-44 - PORT 8 BACKING STRIP**

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
151	148	10		Inspection Data Checklist: 1 steps
152	243	10	10	Material Certification: / INCONEL 625_660 - SHEET,NICKEL ALLOY .125" THK - mc118158.tif / 2650 3 6874

**SE120-005-45 - PORT 9 BACKING STRIP**

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
153	149	10		Inspection Data Checklist: 1 steps
154	149	10	10	Material Certification: / SE120-005-45 - VVSA PORT 9 BACKING STRIP - mc109562.tif / 2650 5 6801

**SE120-005-46 - PORT 10 BACKING STRIP**

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
155	150	10		Inspection Data Checklist: 1 steps
156	150	10	10	Material Certification: / SE120-005-46 - VVSA PORT 10 BACKING STRIP - mc109515.tif / 2650 5 6801

**SE120-005-47 - PORT 11 BACKING STRIP**

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
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**Customer: 8780 - PRINCETON PLASMA PHYSICS LAB**  
**Customer P.O.: S005243-F**  
**Customer Part ID: SE120-002 - VVSA 120 DEGREE VESSEL PERIOD**

157	151	10		Inspection Data Checklist: 1 steps
158	151	10	20	Material Certification: / INCONEL 625_112 - PIPE, ALLOY 625, 2.5" SCH 10 - mc108425.tif / 26504674

**SE120-005-48 - PORT 15 BACKING STRIP**

<u>Item#</u>	<u>Sub</u>	<u>Op</u>	<u>Pc</u>	<u>Document Description / Material Description / File Name / Heat Lot</u>
159	152	10		Inspection Data Checklist: 1 steps
160	152	10	10	Material Certification: / SE120-005-48 - VVSA PORT 15 BACKING STRIP - mc109516.tif / 2650 5 6801

**SE120-006-6 - PORT 4 BACKING STRIP**

<u>Item#</u>	<u>Sub</u>	<u>Op</u>	<u>Pc</u>	<u>Document Description / Material Description / File Name / Heat Lot</u>
161	144	10		Inspection Data Checklist: 1 steps
162	144	10	10	Material Certification: / SE120-006-6 - VVSA PORT 4 BACKING STRIP - mc109561.tif / 2650 5 6801

**SE120-007-3 - PORT DOME BACKING STRIP**

<u>Item#</u>	<u>Sub</u>	<u>Op</u>	<u>Pc</u>	<u>Document Description / Material Description / File Name / Heat Lot</u>
163	153	10	10	Material Certification: / SE120-007-3 - VVSA PORT DOME BACKING STRIP - mc109677.tif / 2650 5 6801

**SE120-013-1BLANK - VVSA FLANGE BLANK**

<u>Item#</u>	<u>Sub</u>	<u>Op</u>	<u>Pc</u>	<u>Document Description / Material Description / File Name / Heat Lot</u>
164	154	10	10	Material Certification: / INCONEL 625_8 - PLATE,NICKEL ALLOY 1.625" THK - mc110171.tif / 5L211-1A
165	156	10	10	Material Certification: / INCONEL 625_8 - PLATE,NICKEL ALLOY 1.625" THK - Same as Item #164 / 5L211-1A

**SE120-014-FJS - PORT EXT. SUB-ASSY**

<u>Item#</u>	<u>Sub</u>	<u>Op</u>	<u>Pc</u>	<u>Document Description / Material Description / File Name / Heat Lot</u>
166	193	60		Inspection Data Checklist: 5 steps

**SE121-014 PORT - SPACER PORT SUB-ASSY**

<u>Item#</u>	<u>Sub</u>	<u>Op</u>	<u>Pc</u>	<u>Document Description / Material Description / File Name / Heat Lot</u>
167	193	15		Inspection Data Checklist: 2 steps

**SE121-014 S10-S6 SUB-SET - PANEL S10-S6 SUB-SET**

<u>Item#</u>	<u>Sub</u>	<u>Op</u>	<u>Pc</u>	<u>Document Description / Material Description / File Name / Heat Lot</u>
168	206	30		Inspection Data Checklist: 1 steps
169	206	130		Inspection Data Checklist: 1 steps
170	206	150		Inspection Data Checklist: 1 steps

**SE121-014 S10-S6-S7 SUB-SET - PANEL S10-S6-S7 SUB-SET**

<u>Item#</u>	<u>Sub</u>	<u>Op</u>	<u>Pc</u>	<u>Document Description / Material Description / File Name / Heat Lot</u>
171	205	30		Inspection Data Checklist: 1 steps
172	205	150		Inspection Data Checklist: 1 steps
173	205	130		Inspection Data Checklist: 1 steps

**SE121-014 S8-S9 SUB-SET - PANEL S8-S9 SUB-SET**

**Customer: 8780 - PRINCETON PLASMA PHYSICS LAB**  
**Customer P.O.: S005243-F**  
**Customer Part ID: SE120-002 - VVSA 120 DEGREE VESSEL PERIOD**

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
174	209	30		Inspection Data Checklist: 1 steps
175	209	130		Inspection Data Checklist: 1 steps
176	209	150		Inspection Data Checklist: 1 steps

**SE121-014 - VESSEL SPACER**

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
177	193	12		Inspection Data Checklist: 4 steps
178	193	13		Inspection Data Checklist: 1 steps
179	193	14		Inspection Data Checklist: 4 steps
180	193	25		Certification: X-RAY CERT - mc119827.tif
181	193	25		Map(s): X-RAY MAP - Same as Item #180
182	199	10		Inspection Data Checklist: 3 steps
183	199	30		Inspection Data Checklist: 1 steps

**SE121-014-1 - SPACER WELDMENT**

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
184	194	60		Inspection Data Checklist: 2 steps
185	194	160		Inspection Data Checklist: 2 steps
186	194	180		Inspection Data Checklist: 2 steps

**SE121-014-3BLANK - VVSA SPACER BLANK**

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
187	195	10	10	Material Certification: / INCONEL 625_7 - PLATE,NICKEL ALLOY 1.5" THK - mc110167.tif / 2650 4 M6759

**SE121-091 - COVER**

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
188	217	25		Inspection Data Checklist: 3 steps
189	217	30		Inspection Data Checklist: 1 steps
190	218	25		Inspection Data Checklist: 3 steps
191	218	30		Inspection Data Checklist: 1 steps

**SE121-091-1BLANK - VVSA END COVER BLANK**

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
192	217	10	10	Material Certification: / SE121-091-1BLANK - VVSA END COVER BLANK - MC109666.TIF / 818102
193	218	10	10	Material Certification: / SE121-091-1BLANK - VVSA END COVER BLANK - Same as Item #192 / 818102

**SE121-095**

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
194	224	10	10	Material Certification: TRACE ID: 135016 / SE121-095-1 - VVSA FLANGE SEAL - ALLOY 625 - MC114399.TIF / 2650 5 6805
195	224	10	10	Material Certification: / SE121-095-1 - VVSA FLANGE SEAL - ALLOY 625 - MC114888.TIF / 2650 5 6805
196	224	40		Inspection Data Checklist: 2 steps

**Customer: 8780 - PRINCETON PLASMA PHYSICS LAB**  
**Customer P.O.: S005243-F**  
**Customer Part ID: SE120-002 - VVSA 120 DEGREE VESSEL PERIOD**

197	244	10	10	Material Certification: TRACE ID: 135016 / SE121-095-1 - VVSA FLANGE SEAL - ALLOY 625 - MC117251.TIF / 2650 5 6834
198	244	10	10	Material Certification: / SE121-095-1 - VVSA FLANGE SEAL - ALLOY 625 - Same as Item #197 / 2650 5 6834
199	244	40		Inspection Data Checklist: 2 steps

**SE121-099**

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
200	225	10	10	Material Certification: / SE121-099-1 - VVSA END COVER SEAL - 316L - MC114628.TIF / 819882-117581
201	225	40		Inspection Data Checklist: 2 steps
202	229	10	10	Material Certification: / SE121-099-1 - VVSA END COVER SEAL - 316L - Same as Item #200 / 819882-117581
203	229	40		Inspection Data Checklist: 2 steps

**SE121-099-1 - VV END COVER SEAL**

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
204	224	10		Inspection Data Checklist: 1 steps
205	225	10		Inspection Data Checklist: 1 steps
206	229	10		Inspection Data Checklist: 1 steps
207	244	10		Inspection Data Checklist: 1 steps

**SE122-007-3 - PORT DOME BACKING STRIP**

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
208	153	10		Inspection Data Checklist: 1 steps

**SE122-072**

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
209	2	80		Inspection Data Checklist: 1 steps

**SE124-047 - CLEVIS BOSS**

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
210	232	10		Inspection Data Checklist: 16 steps
211	232	20		Inspection Data Checklist: 8 steps

**WELD WIRE**

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
212	0	10	30	Material Certification: Trace ID: 95568 / INCONEL625_093_GTAW - WELD WIRE/GTAW, .093 DIA - mc095629.pdf / CB7996 / CT7519 / CV8061 / K48
213	0	10	30	Material Certification: TRACE ID: 123160 / INCONEL625_093_GTAW - WELD WIRE/GTAW, .093 DIA - mc106871.tif / CB7996 / CT7519 / CV8061 / K48
214	0	10	30	Material Certification: Trace ID: 95372 / INCONEL625_093_GTAW - WELD WIRE/GTAW, .093 DIA - mc095872.tif / CB7996 / CT7519 / CV8061 / K48
215	0	10	30	Material Certification: Trace ID: 94880 / INCONEL625_093_GTAW - WELD WIRE/GTAW, .093 DIA - mc095280.pdf / CB7996 / CT7519 / CV8061 / K48
216	0	10	30	Material Certification: Trace ID: 83645 / INCONEL625_093_GTAW - WELD WIRE/GTAW, .093 DIA - mc075605.tif / CB7996 / CT7519 / CV8061 / K48
217	0	10	30	Material Certification: TRACE ID: 29110 / INCONEL625_093_GTAW - WELD WIRE/GTAW, .093 DIA - Same as Item #213 / CB7996 / CT7519 / CV8061 / K48

**Customer: 8780 - PRINCETON PLASMA PHYSICS LAB**  
**Customer P.O.: S005243-F**  
**Customer Part ID: SE120-002 - VVSA 120 DEGREE VESSEL PERIOD**

218	0	10	30	Material Certification: Trace ID: 94242 / INCONEL625_093_GTAW - WELD WIRE/GTAW, .093 DIA - mc094945.pdf / CB7996 / CT7519 / CV8061 / K48
219	0	10	30	Material Certification: Trace ID: 41171 / INCONEL625_093_GTAW - WELD WIRE/GTAW, .093 DIA - mc075552.tif / CB7996 / CT7519 / CV8061 / K48
220	0	10	30	Material Certification: Trace ID: 119251 / INCONEL625_093_GTAW - WELD WIRE/GTAW, .093 DIA - mc107551.tif / CB7996 / CT7519 / CV8061 / K48
221	0	10	30	Material Certification: Trace ID: 121400 / INCONEL625_093_GTAW - WELD WIRE/GTAW, .093 DIA - mc108429.tif / CB7996 / CT7519 / CV8061 / K48
222	0	10	70	Material Certification: TRACE ID: 94881 / ER316L_062_GTAW - WELD WIRE, GTAW .062" DIA - mc089596.tif / 95316
223	0	10	70	Material Certification: TRACE ID: 94238 / ER316L_062_GTAW - WELD WIRE, GTAW .062" DIA - Same as Item #222 / 95316

**Z\_NCR**

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
224				NCR17953: - NCR17953.pdf
225				NCR17954: - NCR17954.pdf
226				NCR17925: - NCR17925.pdf
227				NCR19391: - NCR19391.pdf
228				NCR19392: - NCR19392.pdf
229				NCR19393: - NCR19393.pdf
230				NCR19081: - NCR19081.pdf
231				NCR19232: - NCR19232.pdf
232				NCR19288: - NCR19288.pdf
233				NCR19293: - NCR19293.pdf
234				NCR19739: - NCR19739.pdf
235				NCR19766: - NCR19766.pdf
236				NCR19767: - NCR19767.pdf
237				NCR19768: - NCR19768.pdf
238				NCR19769: - NCR19769.pdf
239				NCR19770: - NCR19770.pdf
240				NCR19771: - NCR19771.pdf
241				NCR19772: - NCR19772.pdf
242				NCR19773: - NCR19773.pdf
243				NCR19774: - NCR19774.pdf
244				NCR19776: - NCR19776.pdf
245				NCR19394: - NCR19394.pdf
246				NCR19464: - NCR19464.pdf
247				NCR19464A: - NCR19464a.pdf
248				NCR19612: - NCR19612.pdf



CERTIFICATE OF CONFORMANCE

TO: PRINCETON PLASMA PHYSICS LAB

DATE: 08/12/2006

ATTENTION: Receiving Department

Seller certifies that:

Part Number: SE120-002

Purchase Order: S005243-F

Part Name: VVSA 120 DEGREE VESSEL PERIOD

Workorder: 65678/1.0

Part Serial Number: N/A

Quantity: 1

1. These materials and/or parts were produced in conformance with all contractually applicable Government and/or Customer specifications referred in, or furnished with, the above Purchase Order.
2. The materials and/or parts furnished under the above Purchase Order were produced:
  - From materials furnished by Customer for the production of such parts.
  - From materials for which the seller has available for examination chemical and/or physical test reports or other evidence of conformance to applicable specifications.
3. All processes required in the production of these part and/or materials are listed below and were performed by a facility or personnel approved or certified by the Seller and the customer when such approval or certification is required by contract.

Certifications are on file at this plant.

Other Requirements:

MANUFACTURED PER B.P. SE120-002 REV. 1 AND P.O. REQUIREMENTS.  
FABRICATION, INSPECTION AND TESTING PERFORMED IN ACCORDANCE WITH  
NCSX-CSPEC-121-02 AND STATEMENT OF WORK NCSX-SOW-121-03.  
THERMAL CYCLE PER PS486.

Signature: R.K. Upchurch

Title: Inspector

Date: 8-12-06



**MDC VACUUM PRODUCTS, LLC**  
23842 Cabot Blvd., Hayward CA 94545-1651  
Phone: 510.265.3500 - Fax: 510.887.0626 - Toll Free: 800.443.8817  
E-Mail: [sales@mdcvacuum.com](mailto:sales@mdcvacuum.com) - Web: <http://www.mdcvacuum.com>

*HIGH VACUUM COMPONENTS from one source...*

## ***Certification of Conformance Catalog Products***

**COMPANY: MAJOR TOOL AND MACHINE**

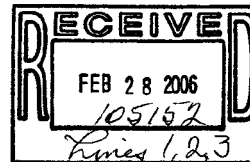
**ATTENTION: K. UPCHURCH**

**DATE: MAY 2, 2006**

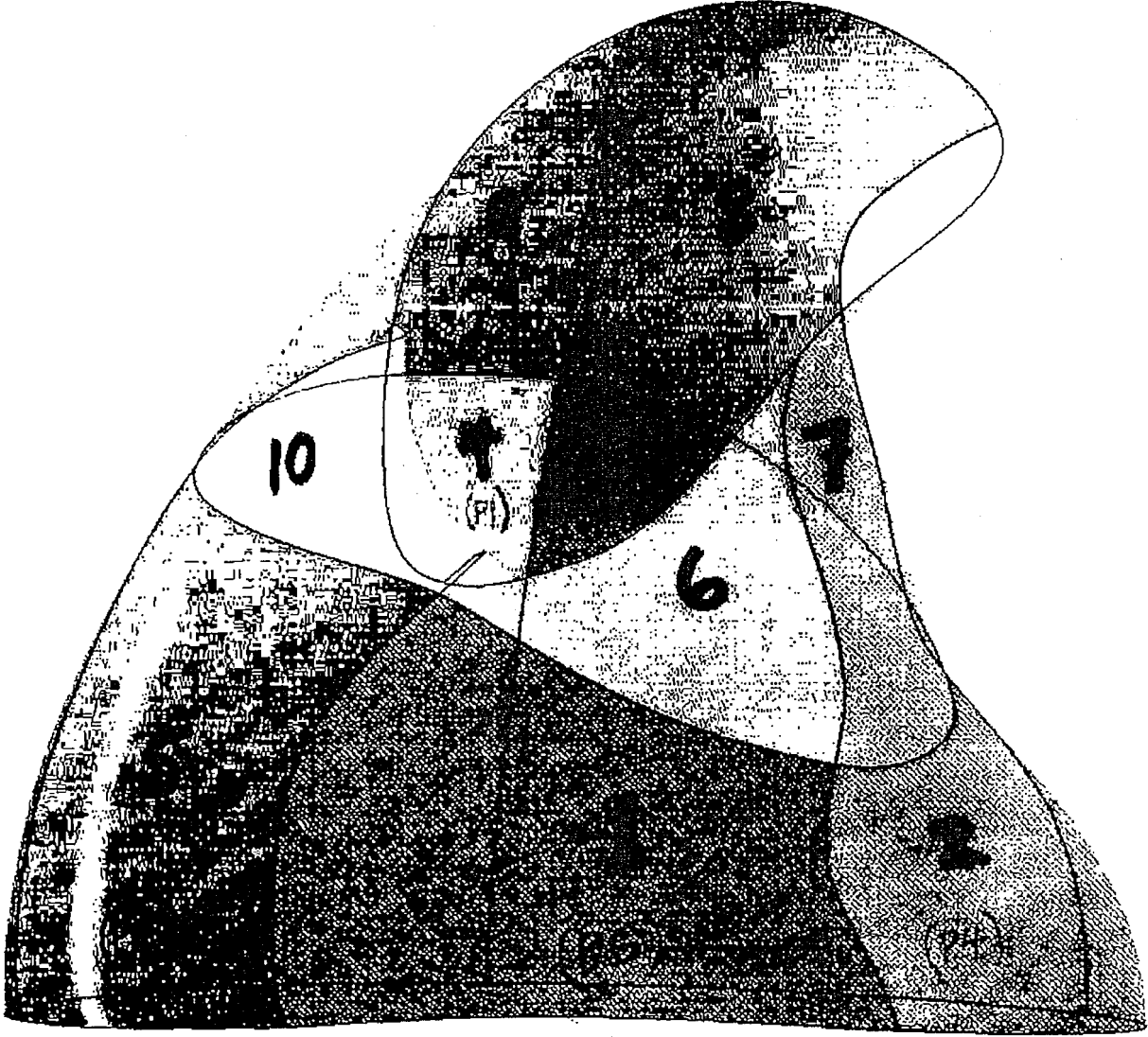
**SUBJECT: CERTIFICATION OF PO# P06-00385  
MDC ORDER CONFIRMATION NUMBER: M408519**

This is to certify that the items shipped on the above referenced purchase order number comply with all standards in our MDC catalog.

**MIKE SCHULTZ**  
Shipping/Receiving Supervisor  
MDC Vacuum Product, LLC  
e-mail: [mschultz@mdcvacuum.com](mailto:mschultz@mdcvacuum.com)  
phone: 510 265 3500



*...Dedicated to Quality and Service*



Quality Assurance Documentation for Part ID: REWORK - Item: 4

Workorder: 65678/1-0 Sub:219 Op:30

Part: REWORK - REWORK / REPAIR PER N/C - N/C # \_\_\_\_\_

Drawing ID: SE120-004 Rev: 2			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT	
*				MFG		VISUAL	WELD ACCEPTABLE P CUSTOMER DRAWIN PECIFICATION REQUI EMENTS.	933-D.L	933-D.L		A
(30)		VWI ROOT PASS WELD 2-7 REWORK		CWI				08-03-05	08-03-05		
*				MFG		VISUAL	WELD ACCEPTABLE P CUSTOMER DRAWIN PECIFICATION REQUI EMENTS.	933-D.L	933-D.L		A
(40)		VWI ROOT PASS WELD 2-3 REWORK		CWI				08-03-05	08-03-05		
*				MFG		VISUAL	WELD ACCEPTABLE P CUSTOMER DRAWIN PECIFICATION REQUI EMENTS.	709-K.A	933-D.L		A
(130)		VWI EXTERIOR COVER PASS WELD 2-7		CWI				08-04-05	08-05-05		
*				MFG		VISUAL	WELD ACCEPTABLE P CUSTOMER DRAWIN PECIFICATION REQUI EMENTS.	709-K.A	933-D.L		A
(140)		VWI EXTERIOR COVER PASS WELD 2-3		CWI				08-04-05	08-05-05		
*				MFG		VISUAL	WELD ACCEPTABLE P CUSTOMER DRAWIN PECIFICATION REQUI EMENTS.	709-K.A	933-D.L		A
(150)		VWI INTERIOR COVER PASS WELD 2-7		CWI				08-05-05	08-05-05		
*				MFG		VISUAL	WELD ACCEPTABLE P CUSTOMER DRAWIN PECIFICATION REQUI EMENTS.	709-K.A	933-D.L		A
(160)		VWI INTERIOR COVER PASS WELD 2-3		CWI				08-05-05	08-05-05		



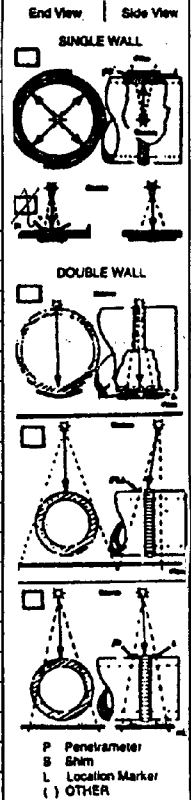
4959  
10520 Chester Road  
Woodlawn, Ohio 45215

CLIENT <i>Major Tool &amp; Machine</i>			INTERPRETER/LEVEL <i>John Ballard II</i>			RADIOGRAPHER <i>John Ballard</i>			JOB NO. <i>13860001</i>			P.O. NO. <i>N/A</i>			DATE <i>11/11/06</i>																						
ISOTOPE/RAY <i>IR-192</i>	DIA. X LEN/KV <i>118" x 079"</i>	CURIES/MA <i>39</i>	FOCAL SPOT SIZE <i>#12"</i>	SFD <i>15"</i>	SOD <i>14.625</i>	TIME <i>2:30</i>	FILM PROCESSING <i>Auto</i>	FILM TYPE <i>KODAK AA</i>	FILM TECHNIQUE <i>Double</i>	PB SCREENS <i>.010"</i>																											
WELD PROCESS <i>GTAW</i>		MATERIAL SPEC. <i>625 Inconel</i>		MATERIAL DIAMETER <i>N/A</i>		MATERIAL THICKNESS <i>.375"</i>		PENETRATOR <i>ASTM 1B</i>	SHIM <i>N/A</i>	ACCEPTANCE STANDARD <i>ASME VIII, Div. 1, UW-51</i>																											
DESCRIPTION <i>65678/1.0/234/20/818</i>						REMARKS <i>Densitometer - 12105</i>																															
<i>SE120-002</i>						<i>Cal due 2/2/06</i>																															
<i>page 1 of 2</i>																																					
FITTING, SEAM OR FITTING	FILM INTERVAL NUMBER	WELDER IDENTIFICATION	PENETRATOR		SLAG	POROSITY	POROSITY WITH TAIL	CRACK	LACK OF PEN	LACK OF FUSION	INTERNAL CONVEXITY	INTERNAL CONCAVITY	TUNGSTEN	MELT-THROUGH	BURN-THROUGH	CRATER-FIT	OXIDATION	INTERNAL UNDERCUT	EXTERNAL UNDERCUT	ALIGNED INDICATORS	WELD CONTOUR	MIS-MATCH	FILM ARTIFACT	VISUAL CONCERNS	FILM DENSITY	SEE REMARKS	ACCEPT	REJECT									
			SIZE	QUALITY LEVEL																																	
<i>40</i>	<i>A-B</i>	<i>N/A</i>	<i>1B</i>	<i>10/10"</i>																																	

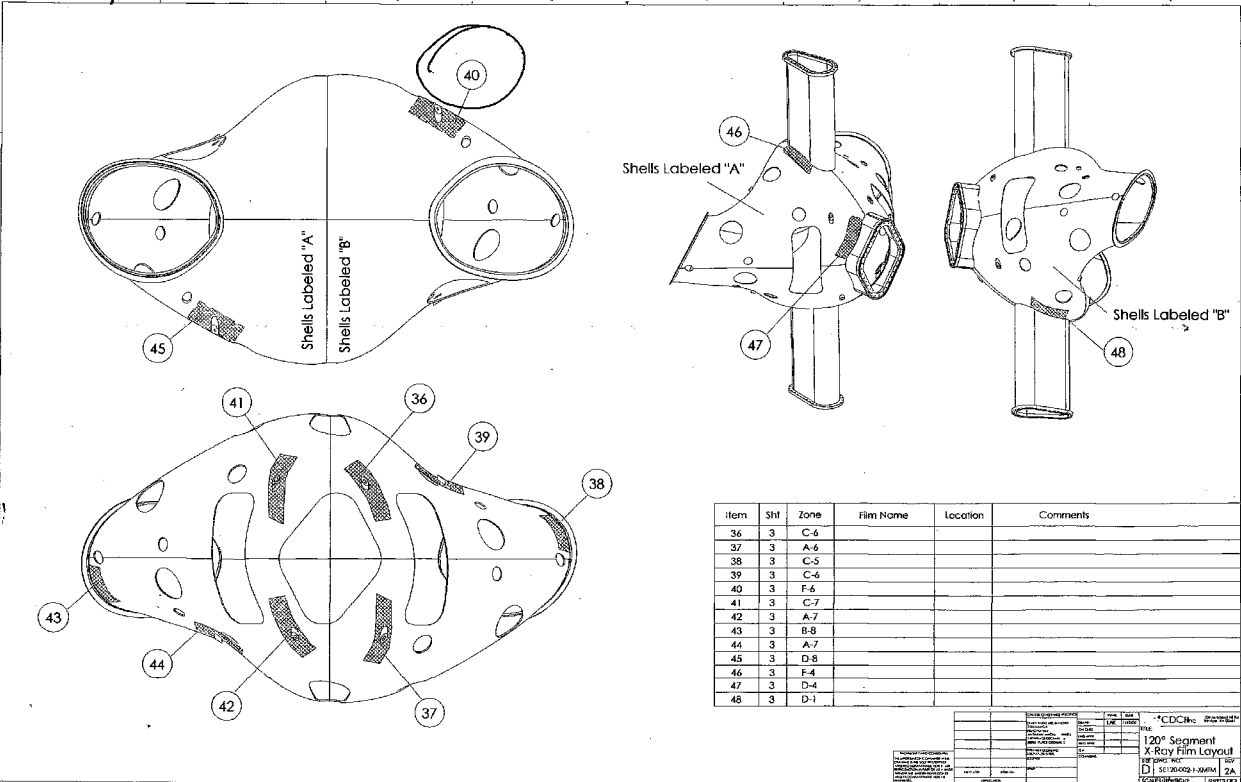
*John Ballard II*  
Cooperheat-MQS Signature

*Stacy*  
Customer Representative Signature

*11/11/06*  
Date



65678/1.0/234/20/818  
 SE 120-002  
 1/11/06  
 page 2 of 2  
 repair



Item	Sht	Zone	Film Name	Location	Comments
36	3	C-6			
37	3	A-6			
38	3	C-5			
39	3	C-6			
40	3	F-6			
41	3	C-7			
42	3	A-7			
43	3	B-8			
44	3	A-7			
45	3	D-8			
46	3	F-4			
47	3	D-4			
48	3	D-1			

\*CDC  
 120° Segment  
 X-Ray Film Layout  
 SE 120-002  
 D | SE 120-002-0000M 2A  
 1/11/06

**INSPECTION DATA CHECKLIST**

Quality Assurance Documentation for Part ID: REWORK - Item: 7

Workorder: 65678/1-0 Sub:242 Op:30

Part: REWORK - REWORK / REPAIR PER N/C - N/C # \_\_\_\_\_

Drawing ID: SE122-072 Rev: 1			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY		
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
1* (10)	G6	32 MICRO-INCH RA SURFACE FINISH	PROFILOMETER	QA		J-825	25 MICRO	854-R.U 04-30-06		

A

**INSPECTION DATA CHECKLIST**

Quality Assurance Documentation for Part ID: REWORK - Item: 8

Workorder: 65678/1-0 Sub:247 Op:20

Part: REWORK - REWORK / REPAIR PER N/C - N/C # \_\_\_\_\_

Drawing ID: SE120-002 Rev: 0			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY		
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
*		CWI VISUAL WELD INSPECT WELD SU UNDER 8X MAGNIFICATION. REPAIR WELDS REF. NCR 19392		CWI		VISUAL	3 PLUG WELDS ACCEP TABLE PER SPECIFICAT ION REQUIREMENTS.	933-D.L		
(10)								04-24-06		

A



004/007

Traveler(s) Heat# Inget#  
08598 A 238C

CERTIFICATE OF TEST

Page 1 of 4

Aerodyne Alloys, LLC  
Duplicate Copy of Original Test Report used to fill your order

ALLVAC  
P.O. Box 5030 Ashcraft Ave  
Newnan, NC 28111-5030  
Phone (704) 289-4511  
Customer Name  
AERODYNE ALLOYS LLC

CUST MADE TO ORDER CHK BY SS  
HEAT 238C DATE 08/25/04  
SIZE 3.75" QUAN 10  
PO# 05-012-INV 1116 # 912105  
SIGNATURE [Signature]

Prof 2 Rev 1

Purchase Order Size Alloy  
ACT-4865 4375" Rd NICKELVAC 625

Pcs 212 Weight 1409

*Vina Coletti*

Date 08/22/2005 Quality Auditor Tina Coletti

CONDITION SHIPPED

SURFACE: Centerless Ground

HEAT TREAT: 1600 F., 30 Mins., WQ

SPECIFICATIONS

AMS 2806	B	AMS 5666	E
ASQR-01	4	ASTM B446	2003 Grade 1
F-14	03/15/03	F-22	10/31/04
F-23	09/30/04	PW-QA 6078	AA
PWA 300	BH	PWA 310	BA
S-1600	01/03/2005	S-400	04/29/2004

04/29/2004  
SEP 15 2005  
RECEIVED  
SEP 14 2005  
100533 JH  
Line 1

AERODYNE

08/09/2005 10 41 FAX 8405283780

MC111631.TIF1

005/007

Traveler(s) Heat # Ingot# ALLVAC P.O. Box 2638 Aircraft Ave Morris, NC 28111-0238 Phone (704) 268-4511 Page 2 of 4

	CHEMISTRY											Cr EQ - Chromium Equiv		Cb - Nb										
	C	S	Mn	Si	Cr	CR EQ	Mo	Co	Ti	Al	B	Zr	Fe	Cu	Ni	P	Cb	Ta	N	V	Cr+Ta	Ti+Al	Ni+Co	Y
HEAT AVG	.057	<.0003	.05	.19	21.53	-	8.63	.06	.23	.19	.002	<.01									3.45	.82	61.27	-
HEAT AVG	4.34	.04	61.21	.009	3.44	<.01	.03	.03																

CHEMISTRY (TRACE)

	Mg
HEAT AVG	-
651	.0033

CHEMISTRY REMARKS

Chemistry tested at ALLVAC unless otherwise noted.

As Shipped Tensile Test

Operation	Ingot	Heat Treat Code	Yield Str	Temp F	UTS		2% Yield		%EL		Gage Length		Tensile Diameter	Tensile At
					ksi	ksi	ksi	ksi	4D	5D	%A	4D		
1689RX		LC	ROOM		134.4	74.1			54.2	57.8	1.0128		0.2525	US INSPECTION SERVICES

Test Dir: L = Longitudinal, T = Transverse, ST = Short Transverse, LT = Long Transverse,  
 TC = Transverse Center At Size, TM = Transverse Mid-Radius At Size,  
 PC = Pancake, EB = Drawbar, FB = Fiddle, TT = Top Transverse At Size,  
 BT = Bottom Transverse At Size, LC = Long Center, TX = Top Transverse Mid-Radius At Size,  
 LM = Longitudinal Mid Radius, LS = Longitudinal Surface, TS = Transverse Surface

Operation: SVPER - Crosshead Spd Rate of 18 inches/minute

SEP 15 2005



AERODYNE

08/08/2005 10 41 FAX 8805283790

MC111631.TIF2

0008/007

Traveler(s) Heat # Ingot#  
08598 A 238C ALLVAC P.O. Box 5636 Ashcraft Ave Menree, NC 28111-5600 Phone (704) 289-4511

Page 3 of 4

AS SHIPPED HARDNESS

Ingot	Heat Treat Code	Hardness Val	Hardness Type	Tested At
	1600BX	25	HRC	US INSPECTION SERVICES

TENSILE/STRESS RUPTURE HEAT TREATMENT

Location	HT Code 1600BX			Furnace Cool Rate Per Hrs (F)	Cool Code
	Temp F	Hours	Min		
PLANT	1600	30			WQ

METALLOGRAPHY

GRAIN SIZE (As shipped cond.): Avg. ASTM 9 Tested at US Inspection Services

REMARKS

Material has been produced, sampled, inspected, and tested in accordance with the customer purchase order and referenced specifications and conforms to the requirements unless otherwise noted in this certificate of test.

Any deviations to specification or customer purchase order requirements relative to testing, test values, hot working fixed practices, have been resolved in writing with customer prior to shipment.

The recording of false, fictitious, or fraudulent statements or entries on this document may violate Federal statutes, including but not limited to Title 18, Chapter 47 of the United States Code, and may be punishable as a felony.

If customer purchase order does not specifically reference a revision to a specification, Allvac will work to the latest revision on file and in effect at time of order placement.

Test methods are per the latest ASTM Standards, currently recognized industry practices; or as agreed upon between Allvac and customer.

Any chemical elements analyzed and found to have values below the actual limits of detection may be reported as < less than or reported at the detection level.

SEP 15 2005



AERODYNE

08/08/2005 10 42 FAX 8605283790

MC111631.TIF3

007/007

Traveler(s)	Heat#	Ingot#	ALLVAC	P.O. Box 5836 Ashcraft Ave	Monroe, NC 28111-5836	Phone (784) 280-4511	Page 4 of 4
08598	A	238C					

When values are reported to the significant places called for in the specifications, rounding will be done in accordance with ASTM E-29.

This is to certify that during manufacturing, handling, testing and inspection, this material did not come in direct contact with mercury or any device employing a single boundary of containment.

This Certificate of Test shall not be reproduced except in full, without the written approval of Allvac Quality.

No weld repair has been performed on this material.

Material Safety Data Sheets (MSDS) - View or print from our site: [www.allvac.com](http://www.allvac.com). Printed copies available on request from the Allvac Sales Department.

**SPECIAL REMARKS**

INGOT MELT SOURCE: Allvac

Melt Method - AOD/ESR

Testing performed to MCL Manual Section F-23.

GEAR S-400 (GT193) supplier codes: Allvac Monroe - 87012, Allvac Lockport - T1226,  
US Inspection Services - T7605, Westmoreland T7869

AERODYNE

09/09/2005 10 42 FAX 8605283780



SEP 15 2005

MC111631.TIF4

**INSPECTION DATA CHECKLIST**

Quality Assurance Documentation for Part ID: REWORK - Item: 10

Workorder: 65678/1-0 Sub:251 Op:10

Part: REWORK - REWORK / REPAIR PER N/C - N/C # \_\_\_\_\_

Drawing ID: SE122-072 Rev: 1			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY		
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
*		RECORD PORT NB HOLE DIAMETERS AFTER REWORK (REF NCR 19115)	PIN GAGE	QA		J-652-3	.625	854-R.U		
(10)								05-19-06		

A

BRANFORD WIRE & MFG.  
 P. D. BOX 677  
 MOUNTAIN HOME, NC  
 PHONE: 828-692-5791  
 FAX#: 828-697-9818

CERTIFICATE OF COMPLIANCE / TEST REPORT

4/04/05

BUYER: HAYNES INTERNATIONAL  
 P. D. BOX 9013  
 1020 WEST PARK AVE.  
 KOKOMO, IN  
 46904-9013

CUSTOMER P. O. NBR: 1429  
 ORD/LN NBR: 025988/01  
 CUSTOMER PART NBR: 326506200170000

27117

PROD. DESC: WELDING / METALLIZING WIRE  
 SIZE: .062X36"

TYPE: INC625  
 QTY LBS: 652

SPECIFICATION  
 AWSA5.14-97/ERNICRMO-3

CHEMICAL ANALYSIS

HEAT NBR.	C	MN	P	S	SI	NI	CR	MO	CU
34932	0.016	0.030	0.004	0.0035	0.040	63.89	22.35	09.00	0.020

NB 3.45 OTHER ELEMENTS\*0.1265

Y	TA	TI	NB	AL	N	CO	FE	W	V	B
03.45	0.230		0.080				0.760			

MECHANICAL PROPERTIES


TENSILE	YIELD	ELONGATION	HARDNESS	BREAK	ROA
LBS/SQ. INCH	LBS/SQ INCH	%		%	%
HARD					

WRAP TEST	UNIFORM TEST	MANDREL TEST	GRAIN SIZE	PERMEABILITY

OTHER TEST(S) AND/OR REQUIREMENTS:

(MATERIAL IS FREE OF MERCURY CONTAMINATION)  
 THIS IS TO CERTIFY THAT MATERIAL SHIPPED COMPLIES WITH SPECIFICATION ON P. D.

COUNTRY OF ORIGIN	G. C. REPRESENTITIVE	DATE SIGNED
USA	<i>Dayle Chang</i>	4/04/05

41865  
 95355  
 W A Lin 6  


IF INITIALED AND DATED HERE \_\_\_\_\_ THIS IS AN AMENDED CERTIFICATION

BRANFORD WIRE & MFG.  
 P. O. BOX 677  
 MOUNTAIN HOME, NC  
 PHONE: 828-692-5791  
 FAX#: 828-697-9818

CERTIFICATE OF COMPLIANCE / TEST REPORT

4/04/05

BUYER: HAYNES INTERNATIONAL  
 P. O. BOX 9013  
 1020 WEST PARK AVE.  
 KOKOMO, IN  
 46904-9013

CUSTOMER P. O. NBR: 1429  
 ORD/LN NBR: 025988/01  
 CUSTOMER PART NBR: 326506200170000

27117

PROD. DESC: WELDING / METALLIZING WIRE  
 SIZE: .062X3/8"

TYPE: INC625  
 QTY LBS: 652

SPECIFICATION  
 AWSA5.14-97/ERNICRMO-3

CHEMICAL ANALYSIS

HEAT NBR.	C	MN	P	S	SI	NI	CR	MO	CU
34932	10.016	0.030	0.004	0.0035	0.040163	89122	35109	0.010	0.020

NB 3.45 OTHER ELEMENTS\*0.1265

Y	TA	TI	NB	AL	N	CO	FE	W	V	B
103.45	0.230		10.080			10.760				

MECHANICAL PROPERTIES

TENSILE	YIELD	ELONGATION	HARDNESS	BREAK (ROA)
LBS/SQ. INCH	LBS/SQ. INCH	%		%
HARD				

WRAP TEST	UNIFORM TEST	MANDREL TEST	GRAIN SIZE	PERMEABILITY

RECEIVED  
 MAY 24 2005  
 96430  
 Line 6 B.1

OTHER TEST(S) AND/OR REQUIREMENTS:

(MATERIAL IS FREE OF MERCURY CONTAMINATION)

THIS IS TO CERTIFY THAT MATERIAL SHIPPED COMPLIES WITH SPECIFICATION ON P. O.

COUNTRY OF ORIGIN USA	G. C. REPRESENTATIVE <i>Rayla Chang</i>	DATE SIGNED 4/04/05
--------------------------	--	------------------------

IF INITIALED AND DATED HERE THIS IS AN AMENDED CERTIFICATION

ARCOS INDUSTRIES, LLC  
 ONE ARCOS DRIVE  
 Mt. Carmel, PA 17851

mc095279



DATE 12/19/03

## CERTIFICATION OF TESTS

SOLD TO:

MAJOR TOOL & MACHINE, INC.  
 1458 EAST 19TH STREET  
 INDIANAPOLIS, IN 46218

SHIP TO:

MAJOR TOOL & MACHINE  
 1452 EAST 19th Street  
 Indianapolis, IN 46218

ARCOS S.O.		CUSTOMER ORDER NO.		CONSIGNEE ORDER NO.		DATE SHIPPED			
79533		P03-05170		N/A		12/19/03			
ITEM	SIZE	GRADE		LOT NO./ALLOY NO.		QUANTITY			
1	1/16 X 36"	ARCOS 625		AV8128		30#			
<b>SPECIFICATION:</b> AWS A5.14/A5.14M-97. CLASS ERNiCrMo-3 ASME SFA 5.14 ASME SECTION II, PART C, 2001 EDITION. AND ALL PARAS AND ADDENDA THRU 2003.									
<b>CHEMICAL ANALYSIS: WIRE</b>									
C	Mn	Si	S	P	Cr	Ni	Mo	Cb	Cb + Ta
0.03	0.05	0.08	0.004	0.00	21.8	64.6	9.1		3.77
Ta	Ti	Al	Co	Cu	Fe	V	Total Others		
	0.24	0.26	0.01	0.02	0.1		<.50		

**ADDITIONAL TEST RESULTS**

Ferrite - NB2433.1-1: \_\_\_\_\_  
 Magna Gage: \_\_\_\_\_  
 X-Ray: \_\_\_\_\_  
 Bends: \_\_\_\_\_  
 Hardness: \_\_\_\_\_

**TENSILE** As Welded                      Heat Treated

Yield \_\_\_\_\_  
 Tensile \_\_\_\_\_  
 Elongation \_\_\_\_\_  
 Red. of Area \_\_\_\_\_

**OTHER INFORMATION:**

LOT CLASSIFICATION - S1  
 INTENSITY OF TESTING - Schedule F

THIS MATERIAL IS FREE FROM MERCURY, RADIUM OR ALPHA PARTICLE CONTAMINATION.

We hereby affirm that the reported results on this certification are correct and accurate. All test and results and operations performed by Arcos or its subcontractors are in compliance with the applicable material/customer specification.

**ARCOS**

12/23/03

81947  
 line 1

Q.A. MANAGER  
 QUALITY ASSURANCE DEPARTMENT



**ARCOS INDUSTRIES, LLC**  
**ONE ARCOS DRIVE**  
**Mt. Carmel, PA 17851**

mc094944.pdf



DATE 11/26/03

## CERTIFICATION OF TESTS

SOLD TO: MAJOR TOOL & MACHINE, INC.  
 1458 EAST 19TH STREET  
 INDIANAPOLIS, IN 46218

SHIP TO: SAME

ARCOS S.O.	CUSTOMER ORDER NO.	CONSIGNEE ORDER NO.	DATE SHIPPED
79388	P03-04749	N/A	11/26/03
ITEM	SIZE	GRADE	LOT NO./ALLOY NO.
1	1/16 X 36"	ARCOS 625	AB8051
QUANTITY			
30#			

**SPECIFICATION:** AWS A5.14/A5.14M-97. CLASS ERNiCrMo-3  
 ASME SFA 5.14 ASME SECTION II, PART C, 2001 EDITION.  
 AND ALL PARAS AND ADDENDA THRU 2002.

CHEMICAL ANALYSIS: WIRE									
C	Mn	Si	S	P	Cr	Ni	Mo	Cb	Cb + Ta
0.02	0.01	0.06	0.001	0.01	22.2	64.3	9.1		3.56
Ta	Ti	Al	Co	Cu	Fe	V	Total Others		
	0.22	0.12	0.03	0.01	0.4		<.50		

**ADDITIONAL TEST RESULTS**

Ferrite - NB2433.1-1: \_\_\_\_\_

Magna Gage: \_\_\_\_\_

X-Ray: \_\_\_\_\_

Bends: \_\_\_\_\_

Hardness: \_\_\_\_\_

TENSILE	As Welded	Heat Treated
Yield	_____	_____
Tensile	_____	_____
Elongation	_____	_____
Red. of Area	_____	_____

**OTHER INFORMATION:**

LOT CLASSIFICATION - S1  
 INTENSITY OF TESTING - Schedule F

THIS MATERIAL IS FREE FROM MERCURY, RADIUM OR ALPHA PARTICLE CONTAMINATION.

We hereby affirm that the reported results on this certification are correct and accurate. All test and results and operations performed by Arcos or its subcontractors are in compliance with the applicable material/customer specification.

**ARCOS**

*Eileen Zerby* Q.A. CLERK  
 QUALITY ASSURANCE DEPARTMENT

81505  
 Line 1  
 R. 7

12/5/03

ARCOS INDUSTRIES, LLC  
 ONE ARCOS DRIVE  
 Mt. Carmel, PA 17851



DATE 06/16/05

**ACTUAL  
 CERTIFICATION OF TESTS**

GRADE 625  
 LOT/ALLOY NO. XB8273  
 HEAT NO. 112155  
 SIZE .035"  
 CLASS ERNiCrMo-3  
 SPECIFICATION AWS A5.14/A5.14M-97  
ASME SFA 5.14, Section II, Part C

**CHEMICAL ANALYSIS: ACTUAL WIRE**

C	Mn	Si	S	P	Cr	Ni	Mo	Ta	Cb+Ta
0.03	0.05	0.06	0.001	0.01	22.3	64.2	9.1	0.01	3.56
	Ti	Al	Co	Cu	Fe		Total Others		
	0.21	0.14	0.05	0.00	0.3		<.50		

OK

Ferrite: N/A

UNS NO. N06625

Lot Classification - S1

Intensity of Testing - Schedule F

MATERIAL MADE IN THE USA.

THIS MATERIAL IS FREE FROM MERCURY, RADIUM OR ALPHA PARTICLE CONTAMINATION.

We hereby affirm that the reported results on this certification are correct and accurate. All test and results and operations performed by Arcos or its subcontractors are in compliance with the applicable material/customer specification.

ARCOS

06.20.05  
 97303  
 in 1

OK

GIB GRATTI, QUALITY ASSURANCE MANAGER  
 QUALITY ASSURANCE DEPARTMENT

**INSPECTION DATA CHECKLIST**

Quality Assurance Documentation for Part ID: SE120-002 - Item: 16

Workorder: 65678/1-0 Sub:1 Op:10

Part: SE120-002 - -

Drawing ID: SE120-002 Rev: 1			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT	
*				MFG		VISUAL	ACCEPT	683-K.M	581-D.E		A
(10)		VWI VESSEL FLANGE A SEAL WELD R		CWI				04-22-06	04-22-06		
*				MFG		VISUAL	ACCEPTED	299-M.G	581-D.E		
(20)		VWI VESSEL FLANGE B SEAL WELD R		CWI				04-22-06	04-22-06		
*				MFG		VISUAL	ACCEPT	299-M.G	581-D.E		A
(30)		VWI VESSEL FLANGE A SEAL WELD C		CWI				04-22-06	04-23-06		
*				MFG		VISUAL	ACCEPT	299-M.G	581-D.E		A
(40)		VWI VESSEL FLANGE B SEAL WELD C		CWI				04-22-06	04-23-06		

Quality Assurance Documentation for Part ID: SE120-002 - Item: 17

Workorder: 65678/1-0 Sub:2 Op:10

Part: SE120-002 - - VACUUM TESTING / PORT REMOVAL / VESSEL FLANGE MACHINING / FINAL INSPECTION ACTIVITIES SE120-003-1 120 DEGREE

Drawing ID: SE120-002 Rev: 1			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY		
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
*		BASE PRESSURE LESS THAN 1 x 10 <sup>(-3)</sup> (PRIOR TO THERMAL CYCLE)		MFG		VISUAL	LESS THAN 1 X 10 (-3)	854-R.U		
(10)				QA				04-30-06		

A



4959  
10520 Chester Road  
Woodlawn, Ohio 45215

CLIENT	MAJOR TOOL & MACHINE		INTERPRETER/LEVEL	James Berg II		RADIOGRAPHER	James Berg		JOB NO	13850291-2		P.O. NO	-		DATE	9-8-05	
ISOFOUR-RAY	DAI X-LENS	CURIESMAN	FOCAL SPOT SIZE	SFD	SOD	TIME	FILM PROCESSING	FILM TYPE	FILM TECHNIQUE	FB SCREENS							
WELD PROCESS	FLAW	MATERIAL SPEC	0.25 IN CONC	MATERIAL DIAMETER	N/A	MATERIAL THICKNESS	3/8"	PENETRANT	ASTM IB	SHIM	N/A	ACCEPTANCE STANDARD	ASME SEC VIII, Div 1, UW-51				

DESCRIPTION: SE 120-002  
65678/1.015/195/818

REMARKS: SEE MAP FOR LOCATIONS.

Page 1 of 3

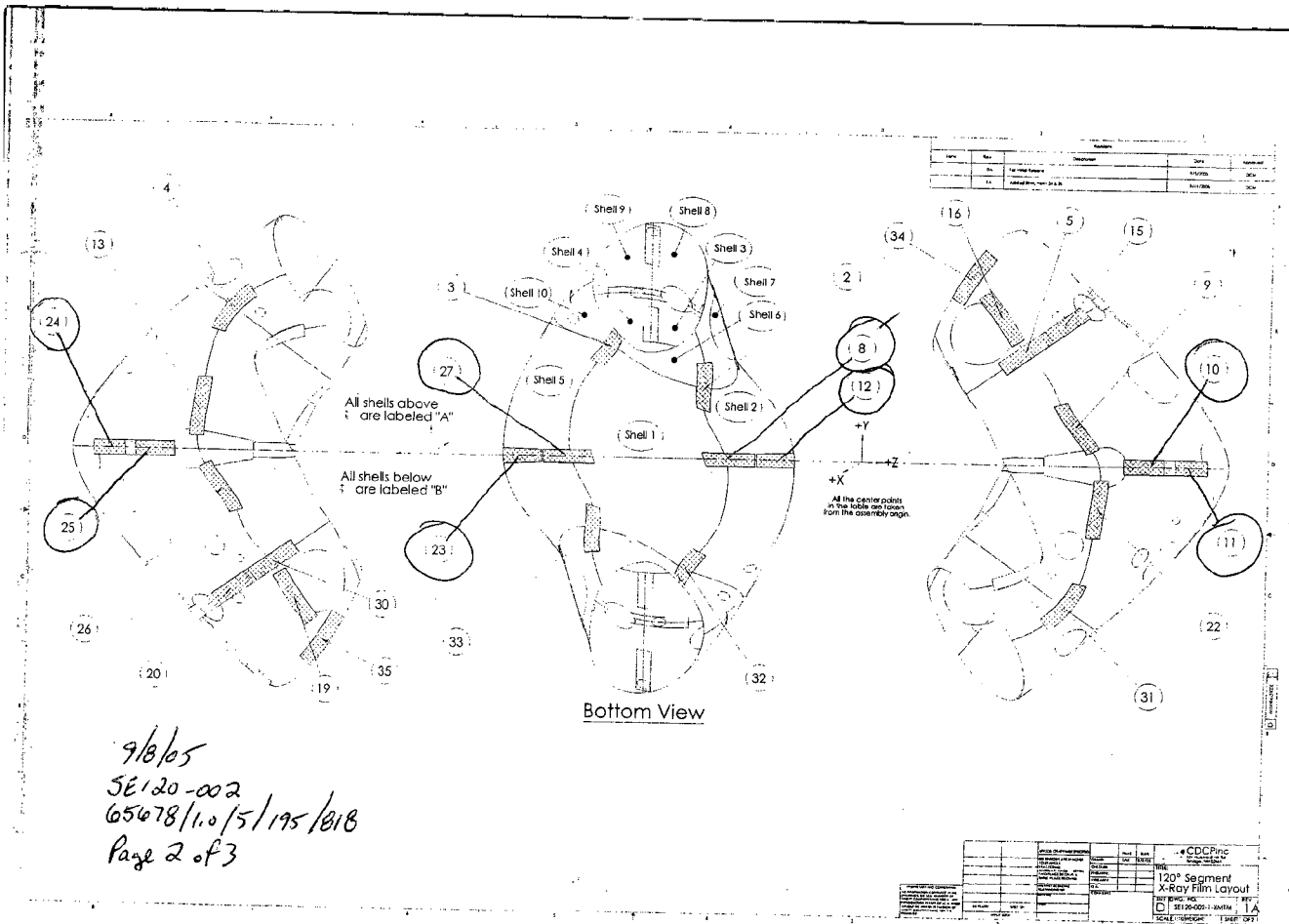
FITTING, SEAM OR FITTING	FILM INTERVAL NUMBER	WELDER IDENTIFICATION	PENETRANT		SLAG	POROSITY	POSSIBLY WITH TAL	CRACK	LACK OF PEN	LACK FUSION	INTERNAL CORROSION	INTERNAL CONCAVITY	TUNGSTEN	MELTTHROUGH	BURNTHROUGH	CENTER FIT	CORROSION	INTERNAL UNDERCUT	EXTERNAL UNDERCUT	ALIGNED INDICATIONS	WELD CONTOUR	MS-MATCH	FILM ARTIFACT	VISUAL CONCERNS	FILM DENSITY	SEE REMARKS	ACCEPT	REJECT	<input type="checkbox"/> End View   Side View <input type="checkbox"/> SINGLE WALL <input type="checkbox"/> DOUBLE WALL <input type="checkbox"/>					
			SIZE	QUALITY LEVEL																														
WB	0-14		IB	010"		✓																												
10						✓																												
11						✓																												
12						✓																												
23						✓																												
24						✓																												
25						✓																												
27	✓																																	

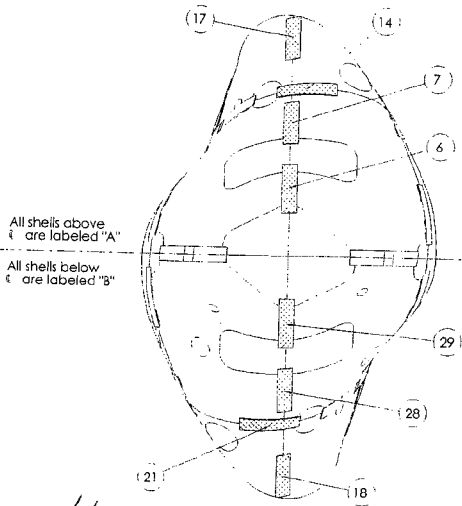
*[Signature]*  
Cooperheat/MQS Signature

*[Signature]*  
Customer Representative Signature

9-8-05  
Date

MC111789.TIF





All shells above  
are labeled "A"

All shells below  
are labeled "B"

9/8/05  
56 100-002  
65678/1.0/5/195/818  
Page 3 of 3

Item	Shl	Zone	Film Name	Center Point	Location	Comments
2	1	E-4	1A-2A-6A-7A	(26.99, 18.90, 14.49)		
3	1	E-3	1A-5A-6A-10A	(42.34, 29.64, 10.46)		
4	1	E-7	4A-5A-9A-10A	(54.03, 37.83, 25.58)		
5	1	E-2	2A-3A-7A-8A	(42.35, 29.64, 21.15)		
6	2	D-7	3A-4A-2	(87.67, 17.72, 0.00)		
7	2	E-7	3A-4A-1	(72.08, 34.99, 0.00)		
8	1	D-4	1A-1B-2A-3B	(40.46, 0.00, 20.75)		
9	1	D-2	2A-3A	(56.68, 10.15, 34.41)		
10	1	D-1	3A-4B-1	(75.85, 0.00, 29.70)		
11	1	D-1	3A-4B-2	(85.55, 0.00, 22.13)		
12	1	D-4	2A-5B	(40.32, 0.00, 35.85)		
13	1	D-7	4A-5A	(62.27, 1.62, 35.85)		
14	2	E-7	3A-4A-8A-9A	(42.32, 43.77, 3.72)		
15	1	E-2	3A-8A	(52.97, 37.09, 14.93)		
16	1	E-2	7A-8A	(35.91, 38.76, 18.38)		
17	2	E-7	8A-9A	(47.91, 57.01, 0.00)		
18	2	B-7	8B-9B	(47.91, 57.01, 0.00)		
19	1	C-7	7B-8B	(35.91, 38.76, 18.38)		
20	1	C-7	3B-8B	(52.97, 37.09, 14.93)		
21	2	B-7	3B-4B-8B-9B	(62.52, 43.77, 3.72)		
22	1	C-2	4B-5B	(62.27, 1.62, 35.85)		
23	1	D-5	5A-7B	(40.32, 0.00, 35.85)		
24	1	D-8	4A-3B-2	(85.55, 0.00, 22.13)		
25	1	D-7	4A-3B-1	(75.85, 0.00, 29.70)		
26	1	D-7	2B-3B	(55.08, 10.15, 34.41)		
27	1	D-5	1A-1B-5A-2B	(40.46, 0.00, 20.75)		
28	2	B-7	3B-4B-1	(72.08, 34.99, 0.00)		
29	2	C-7	3B-4B-2	(87.67, 17.72, 0.00)		
30	1	C-7	2B-3B-7B-8B	(42.35, 29.64, 21.15)		
31	1	C-2	4B-5B-9B-10B	(54.03, 37.83, 25.58)		
32	1	C-4	1B-5B-8B-10B	(42.34, 29.64, 10.46)		
33	1	C-5	1B-2B-6B-7B	(26.99, 18.90, 14.49)		
34	1	E-2	7A-8A	(28.10, 49.91, 14.70)		
35	1	B-7	7B-8B	(28.10, 49.91, 14.70)		

\*CDCR...  
 120° Segment  
 X-Ray Film Layout  
 1A  
 1A



COOPERHEAT



MO. 1147-104

4959  
10520 Chester Road  
Woodlawn, Ohio 45215

CLIENT Major Tool + Machine	INTERPRETER LEVEL Robert Weaver / II	RADIOGRAPHER Robert Weaver	JOB NO. 13860001	P.O. NO. N/A	DATE 1/11/06					
ISOTOPE RAY IR192	DA. X LEN. VV 118' x .079"	CURIES MA 39	FOCAL SPOT SIZE .142"	SFD 15"	ISO 14,605"	TIME 2:30	FILM PROCESSING Auto	FILM TYPE Kodak AA	FILM TECHNIQUE Double	PE SCREENS .010"
WELD PROCESS GTAW	MATERIAL SPEC. 625 Inconel	MATERIAL DIAMETER N/A	MATERIAL THICKNESS .375"	PENETRANT ASTM B	SW N/A	ACCEPTANCE STANDARD ASME VIII, Div. 1, UW-51				

DESCRIPTION  
65678/1.0/5/247/818  
SE/20-002  
page 1 of 2 pgs

REMARKS  
Densitometer - 10105  
cal dur - 2/2/06

FITTING SEAM OR FITTING	FILM INTERNAL NUMBER	WELDER IDENTIFICATION	PENETRANT		SLAG	POROSITY	POROSITY WITH TAIL	CRACK	LACK OF PEN	LACK FUSION	INTERNAL CONVEYITY	INTERNAL CONCAVITY	THICKEN	MELT-THROUGH	BURN-THROUGH	CRATER-FIT	CORROSION	INTERNAL UNDERCUT	EXTERNAL UNDERCUT	ALIGNED INDICATIONS	WELD CONTOUR	NO-MATCH	FILM ARTIFACT	VISUAL CONCERN	FILM DENSITY	SEE REMARKS	ACCEPT	REJECT
			SIZE	QUALITY LEVEL																								
36	A-B	N/A	1B	.010"		✓																						
37	↓					✓																						
38	0-14																											
39	A-B					✓																						
40	↓					✓				✓																		
41	↓					✓																						
42	↓					✓																						
43	0-14					✓																						
44	A-B					✓																						
45	↓					✓																						
46	0-14					✓																						
47	↓					✓																						
48	↓					✓																						
<del>408</del>	<del>A-B</del>																											
Port N8																												
2	0-14																											
4	↓																											

End View | Side View

SINGLE WALL

DOUBLE WALL

P Penetrant  
 S Shim  
 L Location Marker  
 O OTHER

Robert Weaver 655514/II

Cooperheat-MQS Signature

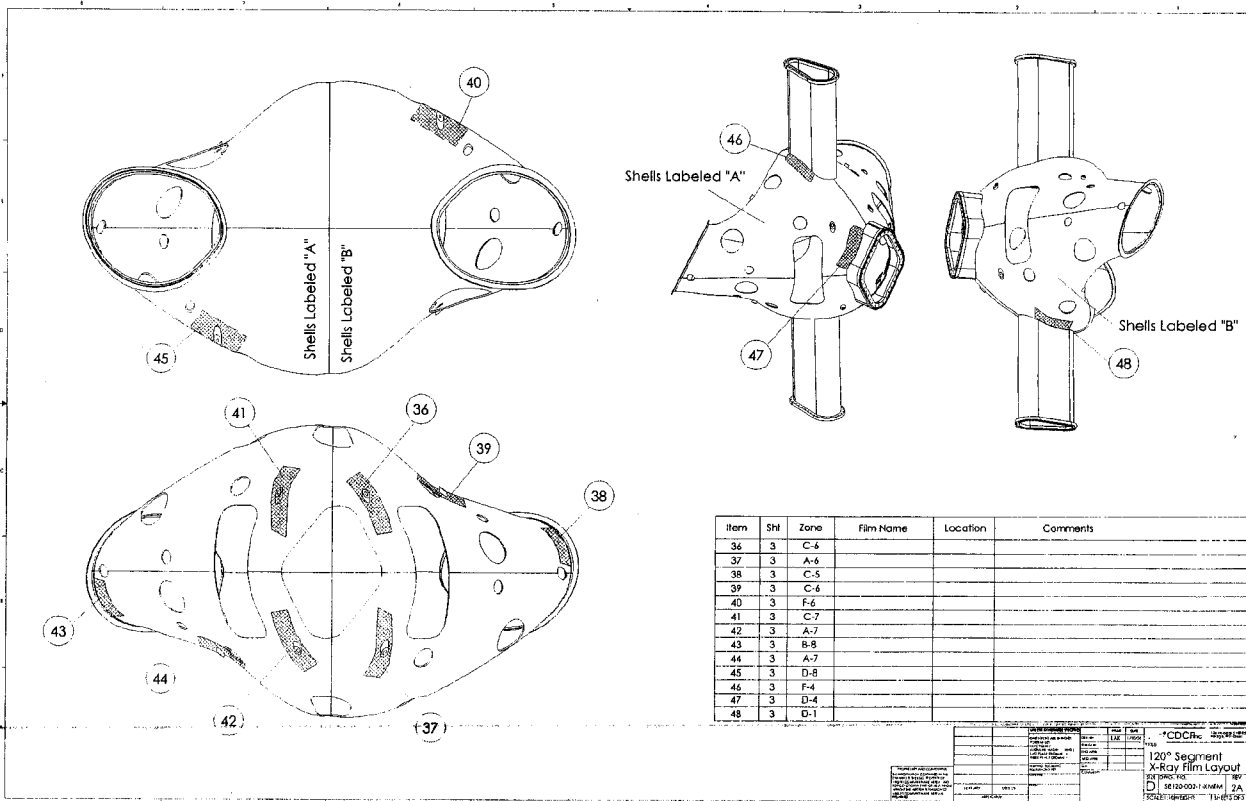
Customer Representative Signature

1/11/06  
Date

MC119826.TIF



65678/1.0/5/247/818  
 SE120-002  
 1/11/06  
 page 2 of 23

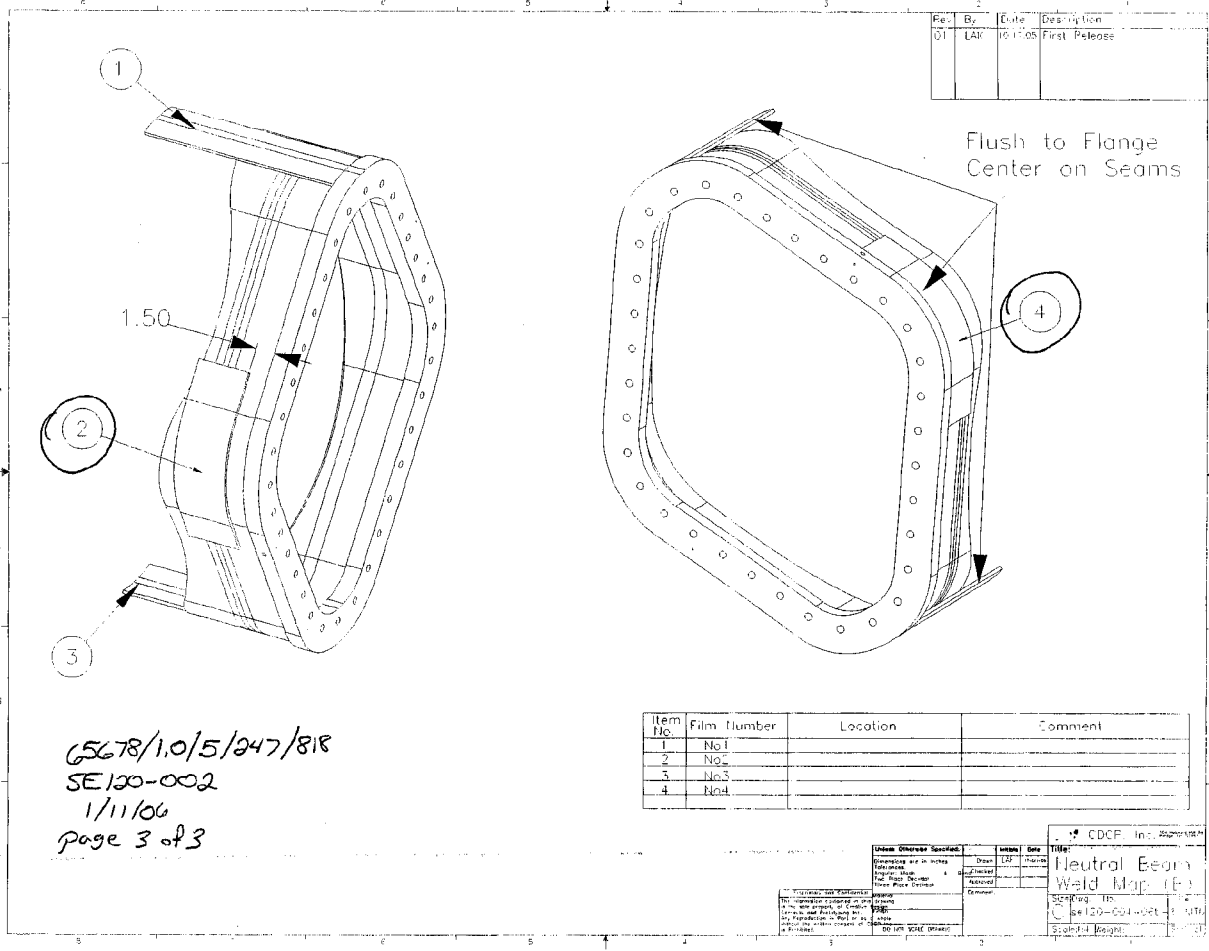


Item	Shl	Zone	Film Name	Location	Comments
36	3	C-4			
37	3	A-6			
38	3	C-5			
39	3	C-6			
40	3	F-6			
41	3	C-7			
42	3	A-7			
43	3	B-8			
44	3	A-7			
45	3	D-8			
46	3	F-4			
47	3	D-4			
48	3	D-1			

\*CDC# 320912  
 120° Segment  
 X-Ray Film Layout  
 12/20/05  
 D SE120-002-1-0000 2A  
 12/20/05 11:51:53

MC119826.TIF2

MC119826.TIF3



Rev.	By	Date	Description
01	LAF	10/1/05	First Release

65678/1.0/5/247/818  
 SE120-002  
 1/11/06  
 page 3 of 3

Item No.	Film Number	Location	Comment
1	No.1		
2	No.2		
3	No.3		
4	No.4		

CDCCP Inc. 2005/01/11

Neutral Beam Weld Map (6)

SE120-002-002

Stainless Steel

DO NOT SCALE printed



COOPERHEAT

MAS

MOS (WPS) 100

10520 Chester Road  
Woodlawn, Ohio 45215

4959

CLIENT: Maylor Tool & Machine INTERPRET/LEVEL: John Ballard II RADIOGRAPHER: John Ballard II ID# NO: 13816001 P.C. NO: N/A DATE: 1/11/06

ISO/DIN/EN: TR-192 DIA. X LENGTH: 1/18" X 0.75" CURIES/MA: 39 FOCAL SPOT SIZE: #12" SPD: 15" ISO: 14, 625 TIME: 2:30 FILM PROCESSING: Auto FILM TYPE: Kodak AA P.B. SCREENS: 1010"

WELD PROCESS: 5TAW MATERIAL SPEC: 625 Inconel MATERIAL DENSITY: N/A MATERIAL THICKNESS: 1.375" PENETRANT: ASTM 1B S/N: N/A APERTURE STANDARD: ASME VIII, Div. 1, UW-51

DESCRIPTION: 5678/1.0/134/20/518 REMARKS: Densitometer - 12.105

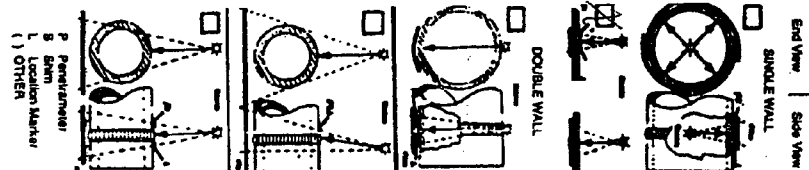
5E120-002 Page 1 of 2

FITTING, SEAM OR FITTING	FILM INTERVAL NUMBER	WELDER IDENTIFICATION	PENETRANT		SLAG	POROSITY	POROSITY WITH TAIL	CRACK	LACK OF PEN	LACK FUSION	INTERNAL CONVEXITY	INTERNAL CONCAVITY	TUNGSTEN	MELT-THROUGH	BURN-THROUGH	CRATER-FIT	OXIDATION	INTERNAL UNDERCUT	EXTERNAL UNDERCUT	ALIGNED INDICATIONS	WELD CONTOUR	MIS-MATCH	FILM ARTIFACT	VISUAL CONCERNS	FILM DENSITY	SEE REMARKS	ACCEPT	REJECT
			SIZE	QUALITY LEVEL																								
H/O	A-B	N/A	1B	1010"																								

John Ballard II  
Cooperheat-MOS Signature

John Ballard II  
Customer Representative Signature

1/11/06  
Date



65678/1.0/234/20/818  
 SE 120-002  
 1/11/06  
 page 2 of 2  
 repair


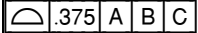
Item	Shit	Zone	Film Name	Location	Comments
36	3	C-6			
37	3	A-6			
38	3	C-5			
39	3	C-6			
40	3	F-6			
41	3	C-7			
42	3	A-7			
43	3	B-8			
44	3	A-7			
45	3	D-8			
46	3	F-4			
47	3	D-4			
48	3	D-1			

\*CDC# 120-002  
 X-Ray Film Layout  
 120° Segment  
 D | 1/11/06 | 2A  
 1/11/06

Quality Assurance Documentation for Part ID: SE120-002-NB - Item: 23

Workorder: 65678/1-0 Sub:119 Op:20


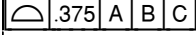
Part: SE120-002-NB - - PORT NB INSTALLATION

Drawing ID: SE120-003 Rev: 0			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT	
2*	F2			QA		FARO ARM	-0.067 / +0.057 OUT SIDE FLANGE ( 0.127 ) TOP +0.001 / +0.0 61 ( N.C. 18415) [N /C:18415]	854-R.U			A
(30)		PORT NB POSITION	LASER			1444		04-30-06			
2*	G2			QA		FARO ARM	NB SKIN -0.060 / +0 .105 VESSEL SKIN - 0.097 / +0.247(NC 1 8415) [N/C:18415]	854-R.U			A
(40)		PORT EXT. SIDEWALL AND ADJACENT VESSEL WALL	LASER			1444		04-30-06			

Quality Assurance Documentation for Part ID: SE120-002-NB - Item: 24

Workorder: 65678/1-0 Sub:223 Op:30

Part: SE120-002-NB - REWORK / REPAIR PER N/C - N/C # \_\_\_\_\_

Drawing ID: SE120-003 Rev: 0			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT	
2* (30)	F2	 PORT NB POSITION	LASER	QA		1444	+0.070 /+0.111 (0.0 41 DIFFERENCE)	295-C.W 11-03-05			A
2* (40)	G2	 PORT EXT. SIDEWALL AND ADJACENT VESSEL WALL	LASER	QA		1444	+0.179 / -0.115 (0. 295 PROFILE)	295-C.W 11-03-05			A

**INSPECTION DATA CHECKLIST**

Quality Assurance Documentation for Part ID: SE120-003 10-6 SUB-SET - Item: 25

Workorder: 65678/1-0 Sub:98 Op:30

Part: SE120-003 10-6 SUB-SET - - 10-6 PANEL SUB-SET

Drawing ID: SE120-004 Rev: 1			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY		
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
*				MFG		VISUAL	OK	093-M.S	581-D.E	
(10)		VWI ROOT PASS WELD 10-6		CWI				07-08-05	07-08-05	

A

**INSPECTION DATA CHECKLIST**

Quality Assurance Documentation for Part ID: SE120-003 10-6 SUB-SET - Item: 26

Workorder: 65678/1-0 Sub:98 Op:130

Part: SE120-003 10-6 SUB-SET - - 10-6 PANEL SUB-SET

Drawing ID: SE120-004 Rev: 2			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY		
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
*				MFG		VISUAL	OK	358-D.M	581-D.E	
(20)		VWI INTERIOR COVER PASS WELD 10-6		CWI				07-08-05	07-11-05	

A



**INSPECTION DATA CHECKLIST**

Quality Assurance Documentation for Part ID: SE120-003 10-6 SUB-SET - Item: 27

Workorder: 65678/1-0 Sub:98 Op:150

Part: SE120-003 10-6 SUB-SET - - 10-6 PANEL SUB-SET

Drawing ID: SE120-004 Rev: 1			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY		
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
*				MFG		VISUAL	ACCEPT	683-K.M	581-D.E	
(20)		VWI EXTERIOR COVER PASS WELD 10-		CWI				07-09-05	07-09-05	A

**INSPECTION DATA CHECKLIST**

Quality Assurance Documentation for Part ID: SE120-003 10-6 SUB-SET - Item: 28

Workorder: 65678/1-0 Sub:111 Op:30

Part: SE120-003 10-6 SUB-SET - - 10-6 PANEL SUB-SET

Drawing ID: SE120-004 Rev: 2			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY		
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
*				MFG			OK	197-T.FI	581-D.E	
(10)		VWI ROOT PASS WELD 10-6		CWI				08-02-05	08-02-05	

A

Quality Assurance Documentation for Part ID: SE120-003 10-6 SUB-SET - Item: 29

Workorder: 65678/1-0 Sub:111 Op:130

Part: SE120-003 10-6 SUB-SET - - 10-6 PANEL SUB-SET

Drawing ID: SE120-004 Rev: 2			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY		
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
*				MFG		VISUAL	OK	358-D.M	933-D.L	
(20)		VWI INTERIOR COVER PASS WELD 10-6		CWI				08-03-05	08-03-05	

A

**INSPECTION DATA CHECKLIST**

Quality Assurance Documentation for Part ID: SE120-003 10-6 SUB-SET - Item: 30

Workorder: 65678/1-0 Sub:111 Op:150

Part: SE120-003 10-6 SUB-SET - - 10-6 PANEL SUB-SET

Drawing ID: SE120-004 Rev: 2			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY		
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
* (20)		VWI EXTERIOR COVER PASS WELD 10-		MFG CWI		VISUAL	OK	358-D.M 08-03-05	933-D.L 08-03-05	

A

**INSPECTION DATA CHECKLIST**

Quality Assurance Documentation for Part ID: SE120-003 10-6-7 SUB-SET - Item: 31

Workorder: 65678/1-0 Sub:96 Op:30

Part: SE120-003 10-6-7 SUB-SET - - 10-6-7 PANEL SUB-SET

Drawing ID: SE120-004 Rev: 1			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY		
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
*				MFG		VISUAL	OK	093-M.S	581-D.E	
(10)		VWI ROOT PASS WELD 6-7		CWI				07-08-05	07-08-05	

A

**INSPECTION DATA CHECKLIST**

Quality Assurance Documentation for Part ID: SE120-003 10-6-7 SUB-SET - Item: 32

Workorder: 65678/1-0 Sub:96 Op:130

Part: SE120-003 10-6-7 SUB-SET - - 10-6-7 PANEL SUB-SET

Drawing ID: SE120-004 Rev: 1			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY		
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
*				MFG			OK	358-D.M	581-D.E	
(20)		VWI INTERIOR COVER PASS WELD 6-7		CWI				07-08-05	07-08-05	A

Quality Assurance Documentation for Part ID: SE120-003 10-6-7 SUB-SET - Item: 33

Workorder: 65678/1-0 Sub:96 Op:150

Part: SE120-003 10-6-7 SUB-SET - - 10-6-7 PANEL SUB-SET

Drawing ID: SE120-004 Rev: 1			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY		
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
*				MFG		VISUAL	ACCEPT	683-K.M	581-D.E	
(20)		VWI EXTERIOR COVER PASS WELD 6-7		CWI				07-09-05	07-09-05	

A

**INSPECTION DATA CHECKLIST**

Quality Assurance Documentation for Part ID: SE120-003 10-6-7 SUB-SET - Item: 34

Workorder: 65678/1-0 Sub:110 Op:30

Part: SE120-003 10-6-7 SUB-SET - - 10-6-7 PANEL SUB-SET

Drawing ID: SE120-004 Rev: 2			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY		
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
*				MFG			OK	197-T.FI	581-D.E	
(10)		VWI ROOT PASS WELD 6-7		CWI				08-02-05	08-02-05	

A



**INSPECTION DATA CHECKLIST**

Quality Assurance Documentation for Part ID: SE120-003 10-6-7 SUB-SET - Item: 35

Workorder: 65678/1-0 Sub:110 Op:130

Part: SE120-003 10-6-7 SUB-SET - - 10-6-7 PANEL SUB-SET

Drawing ID: SE120-004 Rev: 2			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY		
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
*				MFG		VISUAL	OK	358-D.M	933-D.L	
(20)		VWI INTERIOR COVER PASS WELD 6-7		CWI				08-03-05	08-03-05	A

**INSPECTION DATA CHECKLIST**

Quality Assurance Documentation for Part ID: SE120-003 10-6-7 SUB-SET - Item: 36

Workorder: 65678/1-0 Sub:110 Op:150

Part: SE120-003 10-6-7 SUB-SET - - 10-6-7 PANEL SUB-SET

Drawing ID: SE120-004 Rev: 2			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY		
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
*				MFG		VISUAL	OK	358-D.M	933-D.L	
(20)		VWI EXTERIOR COVER PASS WELD 6-7		CWI				08-03-05	08-03-05	

A

**INSPECTION DATA CHECKLIST**

Quality Assurance Documentation for Part ID: SE120-003 120 - Item: 37

Workorder: 65678/1-0 Sub:5 Op:60

Part: SE120-003 120 - - 120 DEGREE PRIMARY VESSEL WELDMENT SE120-003-1

Drawing ID: SE120-004 Rev: 2			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY		
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
*				MFG		VISUAL	ACCEPT PER CUSTOM DRAWINGS AND SPE FICATIONS	709-K.A	933-D.L	
(10)		VWI ROOT PASS WELD 0		CWI				09-02-05	09-02-05	

A

**INSPECTION DATA CHECKLIST**

Quality Assurance Documentation for Part ID: SE120-003 120 - Item: 38

Workorder: 65678/1-0 Sub:5 Op:160

Part: SE120-003 120 - - 120 DEGREE PRIMARY VESSEL WELDMENT SE120-003-1

Drawing ID: SE120-004 Rev: 2			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY		
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
*				MFG		VISUAL	ACCEPT	093-M.S	933-D.L	
(20)		VWI EXTERIOR COVER PASS WELD 0		CWI				09-07-05	09-07-05	

A

**INSPECTION DATA CHECKLIST**

Quality Assurance Documentation for Part ID: SE120-003 120 - Item: 39

Workorder: 65678/1-0 Sub:5 Op:180

Part: SE120-003 120 - - 120 DEGREE PRIMARY VESSEL WELDMENT SE120-003-1

Drawing ID: SE120-004 Rev: 2			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY		
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
*				MFG		VISUAL	ACCEPT PER CUSTOM DRAWINGS AND SPE FICATIONS	709-K.A	933-D.L	
(20)		VWI INTERIOR COVER PASS WELD 0		CWI				09-08-05	09-08-05	

A

Quality Assurance Documentation for Part ID: SE120-003 120 - Item: 40

Workorder: 65678/1-0 Sub:5 Op:243

Part: SE120-003 120 - - 120 DEGREE PRIMARY VESSEL WELDMENT SE120-003-1

Drawing ID: SE120-004 Rev: 2			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY		
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
*				MFG		VISUAL	ACCEPT PER CUSTOM	709-K.A	933-D.L	
(10)		VWI ROOT PASS WELD VFA		CWI			DRAWINGS AND SPE	01-09-06	01-09-06	A
*				MFG		VISUAL	OK PER SPEC.	093-M.S	933-D.L	
(20)		VWI ROOT PASS WELD VFB		CWI				01-09-06	01-09-06	A
*				MFG		VISUAL	ACCEPT	728-R.D	933-D.L	
(110)		VWI EXTERIOR COVER PASS WELD VF		CWI				01-10-06	01-13-06	A
*				MFG		VISUAL	ACCEPT	728-R.D	933-D.L	
(120)		VWI EXTERIOR COVER PASS WELD VF		CWI				01-10-06	01-13-06	A
*				MFG		VISUAL	ACCEPT	837-J.D	933-D.L	
(130)		VWI INTERIOR COVER PASS WELD VF		CWI				01-10-06	01-13-06	A
*				MFG		VISUAL	ACCEPT	837-J.D	933-D.L	
(140)		VWI INTERIOR COVER PASS WELD VFB		CWI				01-10-06	01-13-06	A

**INSPECTION DATA CHECKLIST**

Quality Assurance Documentation for Part ID: SE120-003 30L SUB-ASSY - Item: 41

Workorder: 65678/1-0 Sub:6 Op:70

**Part: SE120-003 30L SUB-ASSY - - SIDE A 60 DEGREE VESSEL SEGMENT**

Drawing ID: SE120-004 Rev: 1			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY		
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
*		VWI ROOT PASS WELD 2-3		MFG		VISUAL	ACCEPT	683-K.M	581-D.E	
(10)				CWI				07-09-05	07-09-05	
*		VWI ROOT PASS WELD 4-5		MFG		VISUAL	ACCEPT	709-K.A	581-D.E	
(20)				CWI				07-09-05	07-09-05	

Quality Assurance Documentation for Part ID: SE120-003 30L SUB-ASSY - Item: 42

Workorder: 65678/1-0 Sub:6 Op:170

**Part: SE120-003 30L SUB-ASSY - - SIDE A 60 DEGREE VESSEL SEGMENT**

Drawing ID: SE120-004 Rev: 1			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT	
*				MFG		VISUAL	ACCEPT PER SPEC.	709-K.A	933-D.L		A
(20)		VWI INTERIOR COVER PASS WELD 4-5		CWI				07-12-05	07-12-05		
*				MFG		VISUAL	ACCEPT PER SPEC.	709-K.A	933-D.L		A
(20)		VWI INTERIOR COVER PASS WELD 2-3		CWI				07-12-05	07-12-05		



**INSPECTION DATA CHECKLIST**

Quality Assurance Documentation for Part ID: SE120-003 30L SUB-ASSY - Item: 43

Workorder: 65678/1-0 Sub:6 Op:190

**Part: SE120-003 30L SUB-ASSY - - SIDE A 60 DEGREE VESSEL SEGMENT**

Drawing ID: SE120-004 Rev: 1		INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
*				MFG		VISUAL	WELD ACCEPTABLE P CUSTOMER DRAWIN SPECIFICATION REQU	933-D.L	933-D.L	
(20)		VWI EXTERIOR COVER PASS WELD 4-5		CWI			IREMENTS.	07-12-05	07-12-05	A
*				MFG		VISUAL	WELD ACCEPTABLE P CUSTOMER DRAWIN SPECIFICATION REQU	933-D.L	933-D.L	
(20)		VWI EXTERIOR COVER PASS WELD 2-3		CWI			IREMENTS.	07-12-05	07-12-05	A



4959  
10520 Chester Road  
Woodlawn, Ohio 45215

CLIENT Major Tool + Machine	INTERPRETER/LEVEL Robert Weaver/II	RADIOGRAPHER Robert Weaver	JOB NO. 13850091	P.O. NO.	DATE 8/16/05
ISOTOPE/RAY IR192	DIA. X LENS 1/18" x .054"	CURIES/HR 42	FOCAL SPOT SIZE J51	SFO 15"	DOE 14.625"
WELD PROCESS GTAW	MATERIAL SPEC. 625 Inconel	MATERIAL DIAMETER NA	MATERIAL THICKNESS 3/16"	PENETRATOR ASTM B	SHR N/A
FILM PROCESSING Auto			FILM TYPE Kodak MX125	FILM TECHNIQUE Double	FB SCORE/SI .010"
ACCEPTANCE STANDARD ASME VIII Div. 1, UW-51					

DESCRIPTION  
65678/1.0/20/30/818  
SE120-003  
page 1 of 3

REMARKS  
O-shots on this reader + operation  
see map  
NCR-17954

FITTING BEAM OR FITTING	FILM SERIAL NUMBER	WELDER IDENTIFICATION	PENETRATOR		SLAG	POROSITY	POROSITY WITH TAL	CRACK	LACK OF PEN	LACK OF FUSION	INTERNAL CORROSION	INTERNAL CONCAVITY	TUNGSTEN	MELT THROUGH	BURN THROUGH	GAS/PT	CORROSION	INTERNAL UNDERCUT	EXTERNAL UNDERCUT	ALIGNED INDICATIONS	WELD CONTOUR	MIG-MATCH	FILM ARTIFACT	VISUAL CONCERN	FILM DENSITY	SEE REMARKS	ACCEPT	REJECT	
			SIZE	QUALITY LEVEL																									
17	0-14	K.M.	1B	.013"		✓																							
17-T	0-1					✓																							
7	0-14					✓																							
9-5	0-1					✓																							
↓	1-2					✓																							
5	0-14					✓				✓																			
13	0-14					✓																							
3	0-14					✓																							
3-2	0-1					✓																							
3-B	0-1					✓																							
↓	1-2					✓																							

End View | Side View

SINGLE WALL

DOUBLE WALL

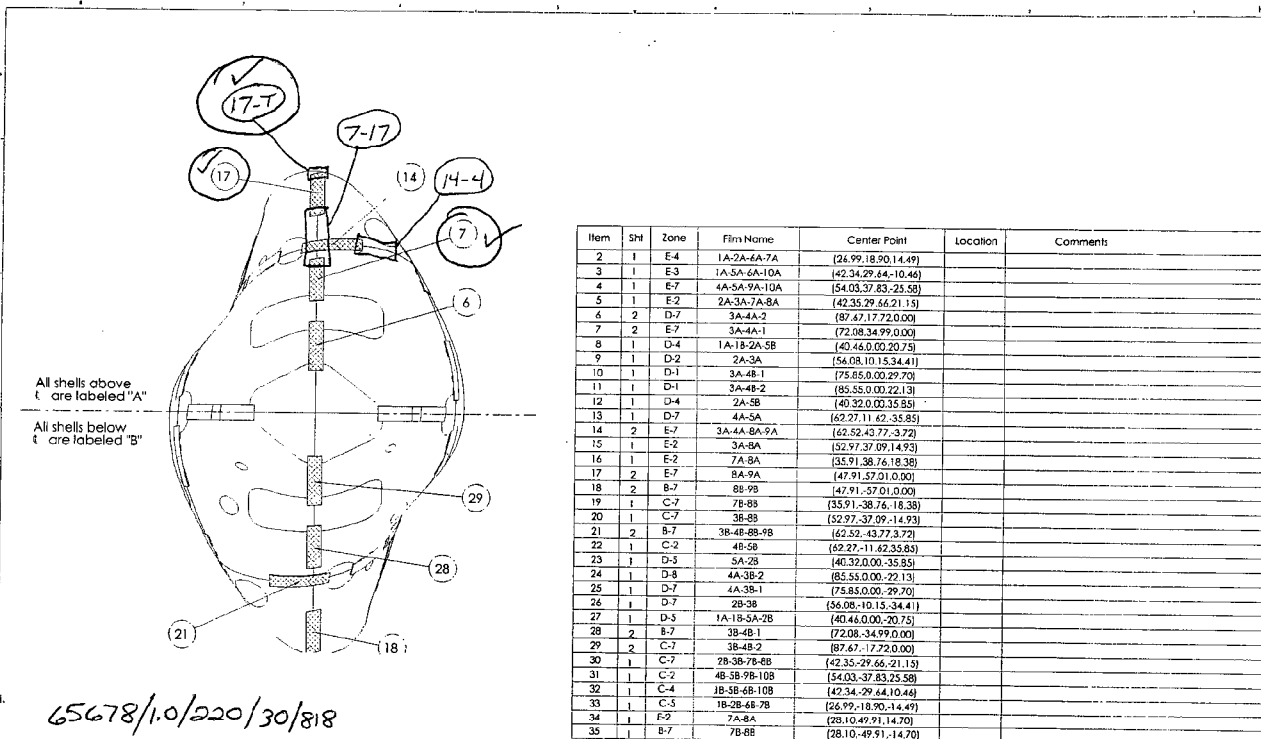
P Penetrator  
 S Shen  
 L Location Marker  
 ( ) OTHER

Robert Weaver 655514/II  
Cooperheat/MQS Signature

Donna D. Edwards  
Customer Representative Signature

8/16/05  
Date

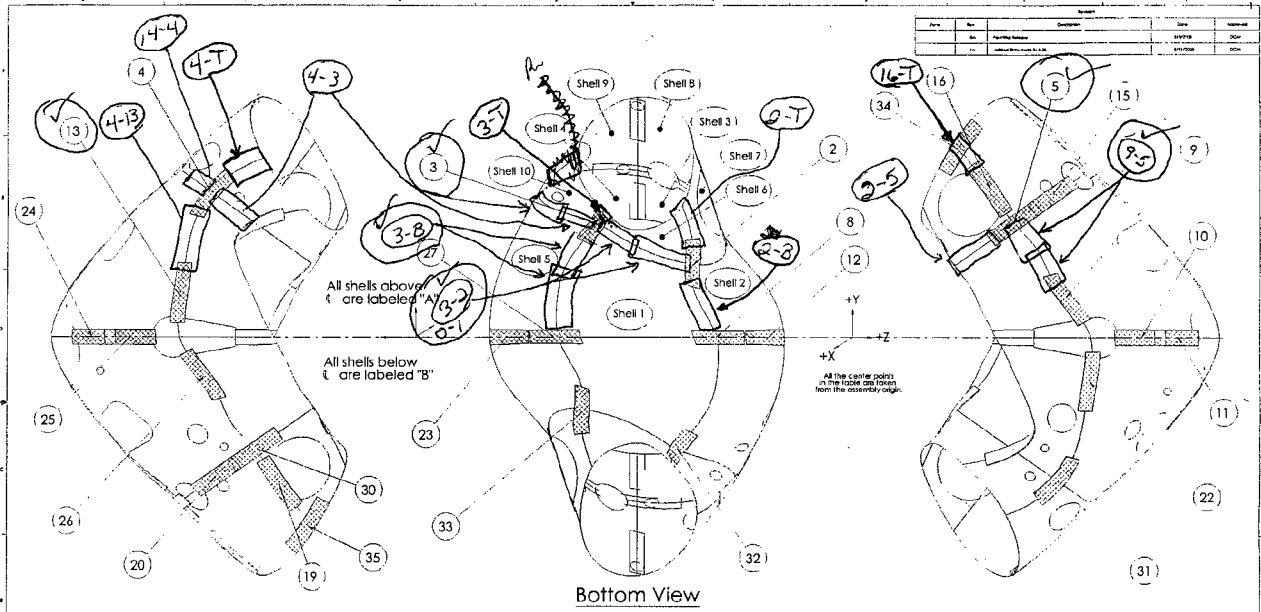
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65678/1.0/220/30/818  
 SE120-003  
 Page 2 of 3  
 8/16/05

Item	SH	Zone	Film Name	Center Point	Location	Comments
2	1	E-4	1A-2A-6A-7A	(26.99,18.90,14.49)		
3	1	E-3	1A-5A-6A-10A	(42.34,29.64,-10.46)		
4	1	E-7	4A-5A-9A-10A	(54.03,37.83,-25.58)		
5	1	E-2	2A-3A-7A-8A	(42.35,29.66,21.15)		
6	2	D-7	3A-4A-2	(87.67,17.72,0.00)		
7	2	E-7	3A-4A-1	(72.08,34.99,0.00)		
8	1	D-4	1A-13-2A-5B	(40.46,0.00,20.75)		
9	1	D-2	2A-3A	(54.08,10.15,34.41)		
10	1	D-1	3A-4B-1	(75.85,0.00,29.70)		
11	1	D-1	3A-4B-2	(85.85,0.00,22.13)		
12	1	D-4	2A-5B	(40.32,0.00,35.85)		
13	1	D-7	4A-5A	(62.27,11.62,-35.85)		
14	2	E-7	3A-4A-8A-9A	(62.52,43.77,-3.72)		
15	1	E-2	3A-8A	(52.97,37.09,14.93)		
16	1	E-2	7A-9A	(35.91,38.76,18.38)		
17	2	E-7	8A-9A	(47.91,-57.31,0.00)		
18	2	B-7	8B-9B	(47.91,-57.01,0.00)		
19	1	C-7	7B-8B	(35.91,-38.76,-18.38)		
20	1	C-7	3B-8B	(52.97,-37.09,-14.93)		
21	2	B-7	3B-4B-8B-9B	(62.52,-43.77,3.72)		
22	1	C-2	4B-5B	(62.27,-11.62,35.85)		
23	1	D-5	5A-2B	(40.32,0.00,-35.85)		
24	1	D-8	4A-3B-2	(85.85,0.00,-22.13)		
25	1	D-7	4A-3B-1	(75.85,0.00,-29.70)		
26	1	D-7	2B-3B	(56.08,-10.15,-34.41)		
27	1	D-5	1A-1B-5A-7B	(40.44,0.00,-20.75)		
28	2	B-7	3B-4B-1	(72.08,-34.99,0.00)		
29	2	C-7	3B-4B-2	(87.67,-17.72,0.00)		
30	1	C-7	2B-3B-7B-8B	(42.35,-29.66,-21.15)		
31	1	C-2	4B-5B-9B-10B	(54.03,-37.83,25.58)		
32	1	C-4	1B-5B-6B-10B	(42.34,-29.64,10.46)		
33	1	C-5	1B-2B-6B-7B	(26.99,-18.90,-14.49)		
34	1	F-2	7A-8A	(28.10,49.91,14.70)		
35	1	B-7	7B-8B	(28.10,-49.91,-14.70)		

CDCC/Rc  
 120° Segment  
 X-Ray Film Layout  
 8/16/05  
 D 8/16/05 1-AMT-1A  
 1 SHEET OF 1



Rev	By	Checked	Date	Approved
1				
2				
3				

65678/1.0/220/30/818  
 SE120-003  
 Page 3 of 3  
 8/16/05

Part Name	Quantity	Material	Notes
Shell 1	1	Aluminum	
Shell 2	1	Aluminum	
Shell 3	1	Aluminum	
Shell 4	1	Aluminum	
Shell 5	1	Aluminum	
Shell 6	1	Aluminum	
Shell 7	1	Aluminum	
Shell 8	1	Aluminum	
Shell 9	1	Aluminum	
Shell 10	1	Aluminum	

• CDC Pinc  
 120° Segment  
 X-Ray Film Layout  
 ID: 31120002-1-AM7K  
 1A



4959  
10520 Chester Road  
Woodlawn, Ohio 45215

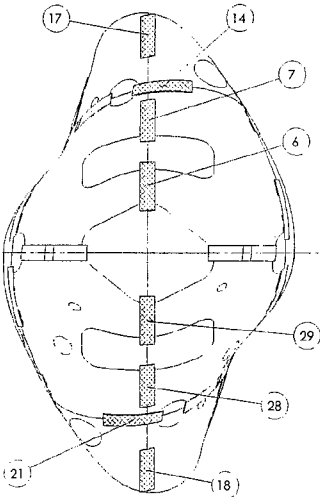
CLIENT Major Tool & Machine		INTERPRETER/LEVEL James Berg II		RADIOGRAPHER James Berg		JOB NO. 12850291-3	P.O. NO.	DATE 8/17/05																				
ISO SPEED IR 172	DIA. X LENGTH 1.113" x .094"	CURIES/MA 4/4	FOCAL SPOT SIZE .151"	SFD 15"	FOV 14.625"	TIME 4:30	FILM PROCESSING Auto	FILM TYPE KODAK MXL15	FILM TECHNIQUE Double	PS SCREENS .010"																		
WELD PROCESS GTAW		MATERIAL SPEC. 6025 WCONEL		MATERIAL DIAMETER N/A	MATERIAL THICKNESS .375"	PENETRATOR ASTM 1B	SHIM N/A	ACCEPTANCE STANDARD ASME VIII Div 1, UW-51																				
DESCRIPTION 65678/1.0/220/30/B18 SE 120-003 page 1 of 3 HAIF A' REPAIR SHOTS.					REMARKS ☉ Shots on this reader sheet & operation SEE MAP.					<input type="checkbox"/> End View <input type="checkbox"/> Side View <input type="checkbox"/> SINGLE WALL <input type="checkbox"/> DOUBLE WALL <input type="checkbox"/> P Penetrometer <input type="checkbox"/> S Shim <input type="checkbox"/> L Location Marker <input type="checkbox"/> OTHER																		
FITTING SEAM IDENTIFICATION	FILM INTERNAL NUMBER	WELDER IDENTIFICATION	PENETRATOR		SLAG	POROSITY	CRACKS	LACK OF FILL	LACK OF FUSION	INTERNAL CONTAMINANT	INTERNAL DISCONTINUITIES	TOUGHNESS	WELD THROUGH	BURN THROUGH	CRACKS	DISLOCATION	INTERNAL UNDERCUT	EXTERNAL UNDERCUT	ALIGNMENT INDICATORS	WELD CONTOUR	WELD MATCH	FILM DEFECTS	VISUAL CONCERNS	FILM CLARITY	SEE REMARKS	ACCEPT	REJECT	
			SIZE	QUALITY LEVEL																								
9-5	02	Km	1B	.013"		✓																						
5	0-14	↓	6	↓		✓																						

*James Berg II*  
Cooperheat-MQS Signature

*Douglas P. Edwards*  
Customer Representative Signature

8/17/05  
Date

MC110932.TIF1



All shells above  
are labeled "A"

All shells below  
are labeled "B"

65678/1.0/220/30/818

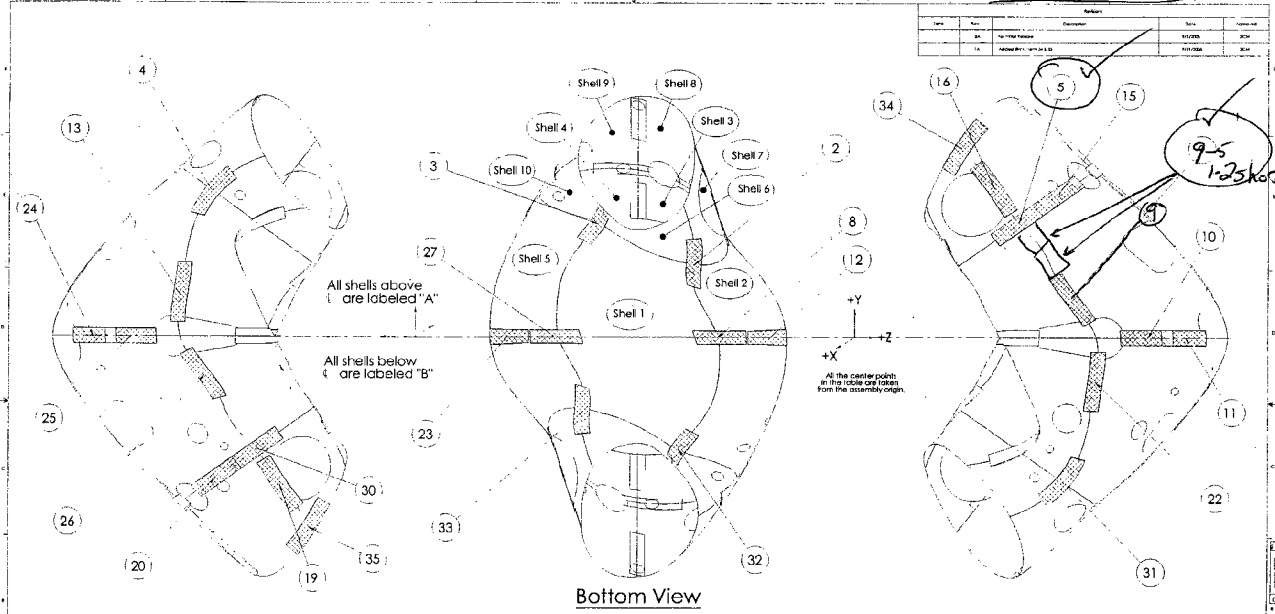
SC 120-003  
Page 2 of 3

8/17/05

Item	Sht	Zone	Film Name	Center Point	Location	Comments
2	1	E-4	1A-2A-6A-7A	(26.99,18.90,14.49)		
3	1	E-3	1A-5A-6A-10A	(42.34,29.64,-10.46)		
4	1	E-7	4A-5A-9A-10A	(54.03,37.83,-25.58)		
5	1	E-2	2A-3A-7A-8A	(42.33,29.66,21.15)		
6	2	D-7	3A-4A-2	(87.67,17.72,0.00)		
7	2	E-7	3A-4A-1	(72.08,-34.99,0.00)		
8	1	D-4	1A-1B-2A-5B	(40.46,0.00,20.75)		
9	1	D-2	2A-3A	(56.08,10.15,-34.41)		
10	1	D-1	3A-4B-1	(75.85,0.00,29.70)		
11	1	D-1	3A-4B-2	(85.55,0.00,22.13)		
12	1	D-4	2A-5B	(40.32,0.00,35.85)		
13	1	D-7	4A-5A	(62.27,11.62,-35.85)		
14	2	E-7	3A-4A-8A-9A	(62.52,43.77,-3.72)		
15	1	E-2	3A-8A	(52.97,37.09,-14.93)		
16	1	E-2	7A-8A	(35.91,-38.76,-18.38)		
17	2	E-7	8A-9A	(47.91,57.01,0.00)		
18	2	B-7	8B-9B	(47.91,-57.01,0.00)		
19	1	C-7	7B-8B	(35.91,-38.76,-18.38)		
20	1	C-7	8B-8B	(52.97,-37.09,-14.93)		
21	2	B-7	3B-4B-8B-9B	(62.52,-43.77,3.72)		
22	1	C-2	4B-5B	(62.27,-11.62,35.85)		
23	1	D-5	5A-2B	(40.32,0.00,-35.85)		
24	1	D-8	4A-3B-2	(85.55,0.00,-22.13)		
25	1	D-7	4A-3B-1	(75.85,0.00,-29.70)		
26	1	D-7	2B-3B	(56.08,-10.15,-34.41)		
27	1	D-5	1A-1B-5A-2B	(40.46,0.00,-20.75)		
28	2	B-7	3B-4B-1	(72.08,-34.99,0.00)		
29	2	C-7	3B-4B-2	(87.67,-17.72,0.00)		
30	1	C-7	2B-3B-7B-8B	(42.33,-29.66,-21.15)		
31	1	C-2	4B-5B-8B-10B	(54.03,-37.83,25.58)		
32	1	C-4	1B-5B-6B-10B	(42.34,-29.64,10.46)		
33	1	C-5	1B-2B-6B-7B	(26.99,-18.90,-14.49)		
34	1	E-2	7A-8A	(28.10,49.91,-14.70)		
35	1	B-7	7B-8B	(28.10,-49.91,-14.70)		

Project Name	120° Segment
Client	X-Ray Film Layout
File Name	120° Segment
Sheet No.	1
Total Sheets	1
Scale	1:1
Author	
Check	
Date	

REPAIRS



Item	Qty	Description	Rev	Notes
1	1	Segment	1	
2	1	Segment	1	
3	1	Segment	1	
4	1	Segment	1	
5	1	Segment	1	
6	1	Segment	1	
7	1	Segment	1	
8	1	Segment	1	
9	1	Segment	1	
10	1	Segment	1	
11	1	Segment	1	
12	1	Segment	1	
13	1	Segment	1	
14	1	Segment	1	
15	1	Segment	1	
16	1	Segment	1	
17	1	Segment	1	
18	1	Segment	1	
19	1	Segment	1	
20	1	Segment	1	
21	1	Segment	1	
22	1	Segment	1	
23	1	Segment	1	
24	1	Segment	1	
25	1	Segment	1	
26	1	Segment	1	
27	1	Segment	1	
28	1	Segment	1	
29	1	Segment	1	
30	1	Segment	1	
31	1	Segment	1	
32	1	Segment	1	
33	1	Segment	1	
34	1	Segment	1	
35	1	Segment	1	

Bottom View

65678/1.0/228/30/818  
 SF 120-003  
 Page 3 of 3  
 8/17/05

Item	Qty	Description	Rev	Notes
1	1	Segment	1	
2	1	Segment	1	
3	1	Segment	1	
4	1	Segment	1	
5	1	Segment	1	
6	1	Segment	1	
7	1	Segment	1	
8	1	Segment	1	
9	1	Segment	1	
10	1	Segment	1	
11	1	Segment	1	
12	1	Segment	1	
13	1	Segment	1	
14	1	Segment	1	
15	1	Segment	1	
16	1	Segment	1	
17	1	Segment	1	
18	1	Segment	1	
19	1	Segment	1	
20	1	Segment	1	
21	1	Segment	1	
22	1	Segment	1	
23	1	Segment	1	
24	1	Segment	1	
25	1	Segment	1	
26	1	Segment	1	
27	1	Segment	1	
28	1	Segment	1	
29	1	Segment	1	
30	1	Segment	1	
31	1	Segment	1	
32	1	Segment	1	
33	1	Segment	1	
34	1	Segment	1	
35	1	Segment	1	

MC110932.TIF3

Quality Assurance Documentation for Part ID: SE120-003 30L SUB-ASSY - Item: 46

Workorder: 65678/1-0 Sub:94 Op:70

Part: SE120-003 30L SUB-ASSY - - SIDE B 60 DEGREE VESSEL SEGMENT

Drawing ID: SE120-004 Rev: 1			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT	
*				MFG		VISUAL	OK	683-K.M	933-D.L		A
(10)		VWI ROOT PASS WELD 2-3		CWI				07-29-05	07-29-05		
*				MFG		VISUAL	OK	358-D.M	933-D.L		A
(20)		VWI ROOT PASS WELD 4-5		CWI				07-29-05	07-29-05		



Quality Assurance Documentation for Part ID: SE120-003 30L SUB-ASSY - Item: 47

Workorder: 65678/1-0 Sub:94 Op:170

**Part: SE120-003 30L SUB-ASSY - - SIDE B 60 DEGREE VESSEL SEGMENT**

Drawing ID: SE120-004 Rev: 1			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT	
*				MFG		VISUAL	ACCEPT	683-K.M	933-D.L		A
(20)		VWI INTERIOR COVER PASS WELD 2-3		CWI				08-01-05	08-01-05		
*				MFG		VISUAL	ACCEPT	358-D.M	933-D.L		A
(20)		VWI INTERIOR COVER PASS WELD 4-5		CWI				08-01-05	08-01-05		

Quality Assurance Documentation for Part ID: SE120-003 30L SUB-ASSY - Item: 48

Workorder: 65678/1-0 Sub:94 Op:190

**Part: SE120-003 30L SUB-ASSY - - SIDE B 60 DEGREE VESSEL SEGMENT**

Drawing ID: SE120-004 Rev: 2			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT	
*				MFG		VISUAL	ACCEPT	683-K.M	933-D.L		A
(20)		VWI EXTERIOR COVER PASS WELD 2-3		CWI				08-01-05	08-01-05		
*				MFG		VISUAL	ACCEPT	358-D.M	933-D.L		A
(20)		VWI EXTERIOR COVER PASS WELD 4-5		CWI				08-01-05	08-01-05		



4959  
10520 Chester Road  
Woodlawn, Ohio 45215

CLIENT Major Tool + Machine	INTERPRETER LEVEL Robert Weaver	RADIOGRAPHER Robert Weaver	JOB NO. 13850291-3	P.O. NO.	DATE 8/14/05
ISO/EXPOSURE IR192	DIAG. X LENS .118" x .094"	CURIES/MA 43	FOCAL SPOT SIZE .151"	SPD 15"	SOD 14.625"
WELD PROCESS GTAW	MATERIAL SPEC. 625 Inconel	MATERIAL DIAMETER N/A	MATERIAL THICKNESS .375"	PENETRATOR ASTM IB	SHIN N/A
DESCRIPTION 65678/1.0/94/400/818 SE120-003 30L Half B		REMARKS			

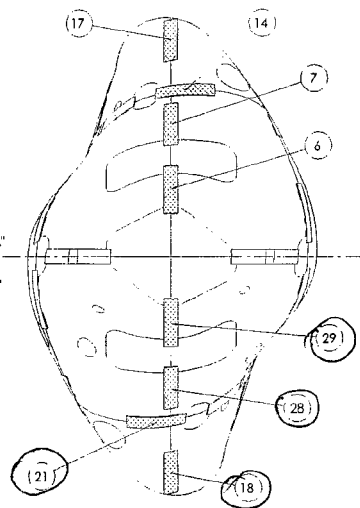
FITTING SEAM OR FITTING	FILM INTERVAL NUMBER	WELDER IDENTIFICATION	PENETRATOR		SLUG	POROSITY	POROSITY WITH TAIL	CRACK	LACK OF FEN	LACK FUSION	INTERNAL CONVEXITY	INTERNAL CONCAVITY	TURBIDITY	MELT THROUGH	BURN THROUGH	CRATER PIT	CORROSION	INTERNAL UNDERCUT	EXTERNAL UNDERCUT	ALIGNED INDICATORS	WELD CONTOUR	MISMATCH	FILM IMPACT	VISUAL CONCERNS	FILM DENSITY	SEE REMARKS	ACCEPT	REJECT	End View   Side View
			SIZE	QUALITY LEVEL																									
18	0-14	K.M.	18	.010"		✓																							
19						✓																							
20						✓																							
21						✓																							
22						✓																							
26						✓																							
28						✓																							
29						✓																							
30						✓																							
31						✓																							
32						✓																							
33						✓																							

Robert Weaver 655514/II  
Cooperheat-MQS Signature

Douglas D. Edwards  
Customer Representative Signature

8/14/05  
Date

MC110924.TIF1



All shells above  
t are labeled "A"

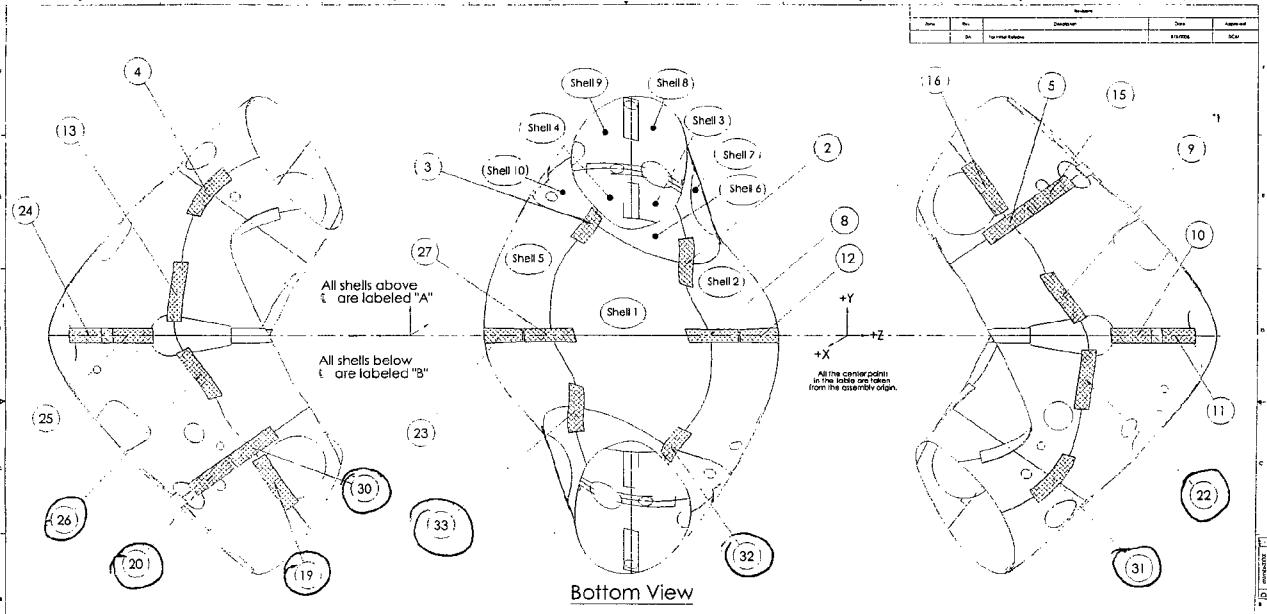
All shells below  
t are labeled "B"

65678/1.0/94/400/818  
SE120-003 30L  
page 2 of 3  
8/14/05

Item	Shf	Zone	Film Name	Center Point	Location	Comments
2	1	E-4	1A-2A-6A-7A	(26.99, 18.90, 14.49)		
3	1	E-3	1A-5A-6A-10A	(42.34, 29.64, 10.46)		
4	1	E-7	4A-5A-9A-10A	(54.03, 37.83, 23.38)		
5	1	E-2	2A-3A-7A-8A	(42.35, 29.64, 21.15)		
6	2	D-7	3A-4A-2	(87.67, 17.72, 0.00)		
7	2	E-7	3A-4A-1	(72.08, 34.99, 0.00)		
8	1	D-4	1A-1B-2A-5B	(40.46, 0.00, 20.75)		
9	1	D-2	2A-3A	(56.08, 10.15, 34.41)		
10	1	D-1	3A-4B-1	(75.85, 0.00, 29.70)		
11	1	D-1	3A-4B-2	(85.55, 0.00, 22.13)		
12	1	D-4	2A-5B	(40.32, 0.00, 35.85)		
13	1	D-7	4A-5A	(62.27, 11.62, 33.85)		
14	2	E-7	3A-4A-6A-9A	(62.52, 43.77, 3.72)		
15	1	E-2	3A-8A	(52.97, 37.09, 14.93)		
16	1	E-2	7A-8A	(35.91, 38.76, 18.38)		
17	2	E-7	8A-9A	(47.91, 37.01, 0.00)		
18	2	B-7	8B-9B	(47.91, 37.01, 0.00)		
19	1	C-7	7B-8B	(35.91, 38.76, 18.38)		
20	1	C-7	3B-8B	(52.97, 37.09, 14.93)		
21	2	B-7	3B-4B-8B-9B	(62.52, 43.77, 3.72)		
22	1	C-2	4B-5B	(62.27, 11.62, 33.85)		
23	1	D-5	5A-2B	(40.32, 0.00, 35.85)		
24	1	D-8	4A-3B-2	(85.55, 0.00, 22.13)		
25	1	D-7	4A-3B-1	(75.85, 0.00, 29.70)		
26	1	D-7	2B-3B	(56.08, 10.15, 34.41)		
27	1	D-5	1A-1B-5A-2B	(40.46, 0.00, 20.75)		
28	2	B-7	3B-4B-1	(72.08, 34.99, 0.00)		
29	2	C-7	3B-4B-2	(87.67, 17.72, 0.00)		
30	1	C-7	2B-3B-7B-8B	(42.35, 29.64, 21.15)		
31	1	C-2	4B-5B-9B-10B	(54.03, 37.83, 23.38)		
32	1	C-4	1B-5B-6B-10B	(42.34, 29.64, 10.46)		
33	1	C-5	1B-2B-6B-7B	(26.99, 18.90, 14.49)		

DATE	TIME	SCALE	120° Segment X-Ray Film Layout
PROJECT	NO.	DATE	SCALE
DESIGNER	DATE	SCALE	SCALE
CHECKED	DATE	SCALE	SCALE
APPROVED	DATE	SCALE	SCALE

MC110924.TIF2



All shells above  
are labeled "A"

All shells below  
are labeled "B"

All the center points  
in the table are taken  
from the assembly origin.

Bottom View

65678/1.0/94/400/818  
SE120-003 30L  
Page 3 of 3  
8/14/65

Part Name	Part No.	Rev.	Qty.	Unit	Loc.	Notes
120° Segment	SE120-003	003	30L			

CDC/Finc  
 120° Segment  
 X-Ray Film Layout  
 BY: [Signature]  
 DATE: 8/14/65

Quality Assurance Documentation for Part ID: SE120-003 30U SUB-ASSY - Item: 50

Workorder: 65678/1-0 Sub:95 Op:60

**Part: SE120-003 30U SUB-ASSY - - UPPER HALF OF 60 DEGREE**

Drawing ID: SE120-004 Rev: 1			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT	
*		VWI ROOT PASS WELD 7-8		MFG		VISUAL	OK	358-D.M	933-D.L		A
(10)				CWI				07-12-05	07-12-05		
*		VWI ROOT PASS WELD 9-10		MFG		VISUAL	OK	358-D.M	933-D.L		A
(20)				CWI				07-12-05	07-12-05		

Quality Assurance Documentation for Part ID: SE120-003 30U SUB-ASSY - Item: 51

Workorder: 65678/1-0 Sub:95 Op:160

**Part: SE120-003 30U SUB-ASSY - - UPPER HALF OF 60 DEGREE**

Drawing ID: SE120-004 Rev: 1			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY		
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
*				MFG		VISUAL	OK	358-D.M	933-D.L	
(20)		VWI INTERIOR COVER PASS WELD 7-8		CWI				07-13-05	07-13-05	A
*				MFG		VISUAL	OK	358-D.M	933-D.L	
(20)		VWI INTERIOR COVER PASS WELD 9-10		CWI				07-13-05	07-13-05	A

Quality Assurance Documentation for Part ID: SE120-003 30U SUB-ASSY - Item: 52

Workorder: 65678/1-0 Sub:95 Op:180

**Part: SE120-003 30U SUB-ASSY - - UPPER HALF OF 60 DEGREE**

Drawing ID: SE120-004 Rev: 1			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT	
*				MFG		VISUAL	OK	358-D.M	933-D.L		A
(20)		VWI EXTERIOR COVER PASS WELD 7-8		CWI				07-14-05	07-14-05		
*				MFG		VISUAL	OK	358-D.M	933-D.L		A
(20)		VWI EXTERIOR COVER PASS WELD 9-1		CWI				07-14-05	07-14-05		



Quality Assurance Documentation for Part ID: SE120-003 30U SUB-ASSY - Item: 53

Workorder: 65678/1-0 Sub:109 Op:60

Part: SE120-003 30U SUB-ASSY - - UPPER HALF OF 60 DEGREE

Drawing ID: SE120-004 Rev: 2			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT	
*		VWI ROOT PASS WELD 7-8		MFG		VISUAL	ACCEPT	683-K.M	933-D.L		A
(10)				CWI				08-05-05	08-05-05		
*		VWI ROOT PASS WELD 9-10		MFG		VISUAL	ACCEPT	358-D.M	933-D.L		A
(20)				CWI				08-05-05	08-05-05		

Quality Assurance Documentation for Part ID: SE120-003 30U SUB-ASSY - Item: 54

Workorder: 65678/1-0 Sub:109 Op:160

**Part: SE120-003 30U SUB-ASSY - - UPPER HALF OF 60 DEGREE**

Drawing ID: SE120-004 Rev: 2			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT	
*				MFG		VISUAL	ACCEPT	683-K.M	933-D.L		A
(20)		VWI INTERIOR COVER PASS WELD 7-8		CWI				08-05-05	08-05-05		
*				MFG		VISUAL	ACCEPT	358-D.M	933-D.L		A
(20)		VWI INTERIOR COVER PASS WELD 9-10		CWI				08-05-05	08-05-05		

Quality Assurance Documentation for Part ID: SE120-003 30U SUB-ASSY - Item: 55

Workorder: 65678/1-0 Sub:109 Op:180

**Part: SE120-003 30U SUB-ASSY - - UPPER HALF OF 60 DEGREE**

Drawing ID: SE120-004 Rev: 2			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT	
*				MFG		VISUAL	ACCEPT	683-K.M	933-D.L		A
(20)		VWI EXTERIOR COVER PASS WELD 7-8		CWI				08-08-05	08-08-05		
*				MFG		VISUAL	ACCEPT	358-D.M	933-D.L		A
(20)		VWI EXTERIOR COVER PASS WELD 9-1		CWI				08-08-05	08-08-05		

**INSPECTION DATA CHECKLIST**

Quality Assurance Documentation for Part ID: SE120-003 3-4 SUB-SET - Item: 56

Workorder: 65678/1-0 Sub:11 Op:30

Part: SE120-003 3-4 SUB-SET - - 3-4 PANEL SUB-SET

Drawing ID: SE120-004 Rev: 1			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY		
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
*				MFG		VISUAL	WELD ACCEPTABLE P CUSTOMER DRAWIN PECIFICATION REQUI EMENTS.	933-D.L	933-D.L	
(10)		VWI ROOT PASS WELD 3-4		CWI				07-01-05	07-01-05	

A

Quality Assurance Documentation for Part ID: SE120-003 3-4 SUB-SET - Item: 57

Workorder: 65678/1-0 Sub:11 Op:130

Part: SE120-003 3-4 SUB-SET - - 3-4 PANEL SUB-SET

Drawing ID: SE120-004 Rev: 1			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY		
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
*				MFG			OK (ACCEPTABLE)	358-D.M	581-D.E	581-D.E
(20)		VWI INTERIOR COVER PASS WELD 3-4		CWI				07-06-05	07-06-05	07-06-05

**INSPECTION DATA CHECKLIST**

Quality Assurance Documentation for Part ID: SE120-003 3-4 SUB-SET - Item: 58

Workorder: 65678/1-0 Sub:11 Op:150

Part: SE120-003 3-4 SUB-SET - - 3-4 PANEL SUB-SET

Drawing ID: SE120-004 Rev: 1			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY		
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
*				MFG			OK	358-D.M	581-D.E	
(20)		VWI EXTERIOR COVER PASS WELD 3-4		CWI				07-07-05	07-08-05	

A

**INSPECTION DATA CHECKLIST**

Quality Assurance Documentation for Part ID: SE120-003 3-4 SUB-SET - Item: 59

Workorder: 65678/1-0 Sub:106 Op:30

Part: SE120-003 3-4 SUB-SET - - 3-4 PANEL SUB-SET

Drawing ID: SE120-004 Rev: 1			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY		
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
*				MFG		VISUAL	WELD ACCEPTABLE P CUSTOMER DRAWIN PECIFICATION REQUI EMENTS.	933-D.L	933-D.L	
(10)		VWI ROOT PASS WELD 3-4		CWI				07-18-05	07-18-05	

A

**INSPECTION DATA CHECKLIST**

Quality Assurance Documentation for Part ID: SE120-003 3-4 SUB-SET - Item: 60

Workorder: 65678/1-0 Sub:106 Op:130

Part: SE120-003 3-4 SUB-SET - - 3-4 PANEL SUB-SET

Drawing ID: SE120-004 Rev: 1			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY		
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
*				MFG		VISUAL	ACCEPT	683-K.M	933-D.L	
(20)		VWI INTERIOR COVER PASS WELD 3-4		CWI				07-18-05	07-19-05	A



**INSPECTION DATA CHECKLIST**

Quality Assurance Documentation for Part ID: SE120-003 3-4 SUB-SET - Item: 61

Workorder: 65678/1-0 Sub:106 Op:150

Part: SE120-003 3-4 SUB-SET - - 3-4 PANEL SUB-SET

Drawing ID: SE120-004 Rev: 1			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY		
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
*				MFG		VISUAL	WELD ACCEPTABLE P CUSTOMER DRAWIN PECIFICATION REQUI EMENTS.	933-D.L	933-D.L	
(20)		VWI EXTERIOR COVER PASS WELD 3-4		CWI				07-20-05	07-20-05	

**INSPECTION DATA CHECKLIST**

Quality Assurance Documentation for Part ID: SE120-003 5-1 SUB-SET - Item: 62

Workorder: 65678/1-0 Sub:8 Op:30

Part: SE120-003 5-1 SUB-SET - - 5-1 PANEL SUB-SET

Drawing ID: SE120-004 Rev: 1			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY		
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
*				MFG		VISUAL	ACCEPT	683-K.M	933-D.L	
(10)		VWI ROOT PASS WELD 5-1		CWI				06-28-05	06-28-05	

A

**INSPECTION DATA CHECKLIST**

Quality Assurance Documentation for Part ID: SE120-003 5-1 SUB-SET - Item: 63

Workorder: 65678/1-0 Sub:8 Op:130

Part: SE120-003 5-1 SUB-SET - - 5-1 PANEL SUB-SET

Drawing ID: SE120-004 Rev: 1			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY		
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
*				MFG		VISUAL	WELD ACCEPTABLE P CUSTOMER DRAWIN PECIFICATION REQUI EMENTS.	709-K.A	933-D.L	
(20)		VWI INTERIOR COVER PASS WELD 5-1		CWI				06-30-05	06-30-05	

A

**INSPECTION DATA CHECKLIST**

Quality Assurance Documentation for Part ID: SE120-003 5-1 SUB-SET - Item: 64

Workorder: 65678/1-0 Sub:8 Op:150

Part: SE120-003 5-1 SUB-SET - - 5-1 PANEL SUB-SET

Drawing ID: SE120-004 Rev: 1			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY		
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
*				MFG		VISUAL	ACCEPTED PER SPEC.	933-D.L	933-D.L	
(20)		VWI EXTERIOR COVER PASS WELD 5-1		CWI				07-01-05	07-01-05	

A

**INSPECTION DATA CHECKLIST**

Quality Assurance Documentation for Part ID: SE120-003 5-1 SUB-SET - Item: 65

Workorder: 65678/1-0 Sub:103 Op:30

Part: SE120-003 5-1 SUB-SET - - 5-1 PANEL SUB-SET

Drawing ID: SE120-004 Rev: 1			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY		
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
*				MFG		VISUAL	ACCEPT	358-D.M	933-D.L	
(10)		VWI ROOT PASS WELD 5-1		CWI				07-25-05	07-25-05	A

**INSPECTION DATA CHECKLIST**

Quality Assurance Documentation for Part ID: SE120-003 5-1 SUB-SET - Item: 66

Workorder: 65678/1-0 Sub:103 Op:130

Part: SE120-003 5-1 SUB-SET - - 5-1 PANEL SUB-SET

Drawing ID: SE120-004 Rev: 1			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY		
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
*				MFG		VISUAL	ACCEPT	683-K.M	933-D.L	
(20)		VWI INTERIOR COVER PASS WELD 5-1		CWI				07-25-05	07-25-05	

A

**INSPECTION DATA CHECKLIST**

Quality Assurance Documentation for Part ID: SE120-003 5-1 SUB-SET - Item: 67

Workorder: 65678/1-0 Sub:103 Op:150

Part: SE120-003 5-1 SUB-SET - - 5-1 PANEL SUB-SET

Drawing ID: SE120-004 Rev: 1			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY		
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
*				MFG		VISUAL	WELD ACCEPTABLE P CUSTOMER DRAWIN PECIFICATION REQUI EMENTS.	933-D.L	933-D.L	
(20)		VWI EXTERIOR COVER PASS WELD 5-1		CWI				07-26-05	07-26-05	

A

**INSPECTION DATA CHECKLIST**

Quality Assurance Documentation for Part ID: SE120-003 5-1-2 SUB-SET - Item: 68

Workorder: 65678/1-0 Sub:7 Op:30

Part: SE120-003 5-1-2 SUB-SET - - 5-1-2 PANEL SUB-SET

Drawing ID: SE120-004 Rev: 1			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY		
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
*				MFG		VISUAL	ACCEPT	709-K.A	933-D.L	
(10)		VWI ROOT PASS WELD 1-2		CWI				06-28-05	06-28-05	

A



Quality Assurance Documentation for Part ID: SE120-003 5-1-2 SUB-SET - Item: 69

Workorder: 65678/1-0 Sub:7 Op:130

Part: SE120-003 5-1-2 SUB-SET - - 5-1-2 PANEL SUB-SET

Drawing ID: SE120-004 Rev: 1			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY		
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
*				MFG		VISUAL	WELD ACCEPTABLE P CUSTOMER DRAWIN PECIFICATION REQUI EMENTS.	709-K.A	933-D.L	
(20)		VWI INTERIOR COVER PASS WELD 1-2		CWI				06-30-05	06-30-05	

A

**INSPECTION DATA CHECKLIST**

Quality Assurance Documentation for Part ID: SE120-003 5-1-2 SUB-SET - Item: 70

Workorder: 65678/1-0 Sub:7 Op:150

Part: SE120-003 5-1-2 SUB-SET - - 5-1-2 PANEL SUB-SET

Drawing ID: SE120-004 Rev: 1			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY		
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
*				MFG		VISUAL	ACCEPTED PER SPEC.	709-K.A	933-D.L	
(20)		VWI EXTERIOR COVER PASS WELD 1-2		CWI				07-01-05	07-01-05	

A

**INSPECTION DATA CHECKLIST**

Quality Assurance Documentation for Part ID: SE120-003 5-1-2 SUB-SET - Item: 71

Workorder: 65678/1-0 Sub:102 Op:30

Part: SE120-003 5-1-2 SUB-SET - - 5-1-2 PANEL SUB-SET

Drawing ID: SE120-004 Rev: 1			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY		
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
*				MFG		VISUAL	ACCEPT	683-K.M	933-D.L	
(10)		VWI ROOT PASS WELD 1-2		CWI				07-25-05	07-25-05	

A

Quality Assurance Documentation for Part ID: SE120-003 5-1-2 SUB-SET - Item: 72

Workorder: 65678/1-0 Sub:102 Op:130

Part: SE120-003 5-1-2 SUB-SET - - 5-1-2 PANEL SUB-SET

Drawing ID: SE120-004 Rev: 1			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY		
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
*				MFG		VISUAL	ACCEPT	683-K.M	933-D.L	
(20)		VWI INTERIOR COVER PASS WELD 1-2		CWI				07-25-05	07-25-05	

A

**INSPECTION DATA CHECKLIST**

Quality Assurance Documentation for Part ID: SE120-003 5-1-2 SUB-SET - Item: 73

Workorder: 65678/1-0 Sub:102 Op:150

Part: SE120-003 5-1-2 SUB-SET - - 5-1-2 PANEL SUB-SET

Drawing ID: SE120-004 Rev: 1			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY		
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
*				MFG		VISUAL	WELD ACCEPTABLE P CUSTOMER DRAWIN PECIFICATION REQUI EMENTS.	933-D.L	933-D.L	
(20)		VWI EXTERIOR COVER PASS WELD 1-2		CWI				07-26-05	07-26-05	

**INSPECTION DATA CHECKLIST**

Quality Assurance Documentation for Part ID: SE120-003 60D SUB-ASSY - Item: 74

Workorder: 65678/1-0 Sub:6 Op:250

**Part: SE120-003 60D SUB-ASSY - - SIDE A 60 DEGREE VESSEL SEGMENT**

Drawing ID: SE120-004 Rev: 1			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY		
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
*				MFG		VISUAL	ACCEPT	709-K.A	581-D.E	
(10)		VWI ROOT PASS WELD 30D		CWI				07-16-05	07-16-05	

A

**INSPECTION DATA CHECKLIST**

Quality Assurance Documentation for Part ID: SE120-003 60D SUB-ASSY - Item: 75

Workorder: 65678/1-0 Sub:6 Op:350

Part: SE120-003 60D SUB-ASSY - - SIDE A 60 DEGREE VESSEL SEGMENT

Drawing ID: SE120-004 Rev: 1			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY		
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
*				MFG		VISUAL	ACCEPT	763-R.M	581-D.E	
(20)		VWI EXTERIOR COVER PASS WELD 30		CWI				07-20-05	07-20-05	

A

**INSPECTION DATA CHECKLIST**

Quality Assurance Documentation for Part ID: SE120-003 60D SUB-ASSY - Item: 76

Workorder: 65678/1-0 Sub:6 Op:370

Part: SE120-003 60D SUB-ASSY - - SIDE A 60 DEGREE VESSEL SEGMENT

Drawing ID: SE120-004 Rev: 2		INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
*				MFG		VISUAL	WELD ACCEPTABLE P CUSTOMER DRAWIN PECIFICATION REQUI EMENTS.	709-K.A	933-D.L	
(20)		VWI INTERIOR COVER PASS WELD 30D		CWI				08-05-05	08-05-05	

A



**INSPECTION DATA CHECKLIST**

Quality Assurance Documentation for Part ID: SE120-003 60D SUB-ASSY - Item: 77

Workorder: 65678/1-0 Sub:94 Op:250

**Part: SE120-003 60D SUB-ASSY - - SIDE B 60 DEGREE VESSEL SEGMENT**

Drawing ID: SE120-004 Rev: 2			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY		
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
*				MFG		VISUAL	ACCEPT PER CUSTOM DRAWINGS AND SPECIFICATIONS.	709-K.A	933-D.L	
(10)		VWI ROOT PASS WELD 30D		CWI				08-09-05	08-09-05	

A

**INSPECTION DATA CHECKLIST**

Quality Assurance Documentation for Part ID: SE120-003 60D SUB-ASSY - Item: 78

Workorder: 65678/1-0 Sub:94 Op:350

Part: SE120-003 60D SUB-ASSY - - SIDE B 60 DEGREE VESSEL SEGMENT

Drawing ID: SE120-004 Rev: 2			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY		
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
*				MFG		VISUAL	WELD ACCEPTABLE P CUSTOMER DRAWIN PECIFICATION REQUI EMENTS.	933-D.L	933-D.L	
(20)		VWI EXTERIOR COVER PASS WELD 30		CWI				08-11-05	08-11-05	

A

**INSPECTION DATA CHECKLIST**

Quality Assurance Documentation for Part ID: SE120-003 60D SUB-ASSY - Item: 79

Workorder: 65678/1-0 Sub:94 Op:370

Part: SE120-003 60D SUB-ASSY - - SIDE B 60 DEGREE VESSEL SEGMENT

Drawing ID: SE120-004 Rev: 2			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY		
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
*				MFG		VISUAL	OK	358-D.M	933-D.L	
(20)		VWI INTERIOR COVER PASS WELD 30D		CWI				08-12-05	08-12-05	

A

**INSPECTION DATA CHECKLIST**

Quality Assurance Documentation for Part ID: SE120-003 8-9 SUB-SET - Item: 82

Workorder: 65678/1-0 Sub:97 Op:30

Part: SE120-003 8-9 SUB-SET - - 8-9 PANEL SUB-SET

Drawing ID: SE120-004 Rev: 1			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY		
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
*				MFG		VISUAL	ACCEPT	791-D.W	840-G.M	
(10)		VWI ROOT PASS WELD 8-9		CWI				07-06-05	07-06-05	A

**INSPECTION DATA CHECKLIST**

Quality Assurance Documentation for Part ID: SE120-003 8-9 SUB-SET - Item: 83

Workorder: 65678/1-0 Sub:97 Op:130

Part: SE120-003 8-9 SUB-SET - - 8-9 PANEL SUB-SET

Drawing ID: SE120-004 Rev: 1			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY		
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
*				MFG		VISUAL	ACCEPT	683-K.M	581-D.E	
(20)		VWI INTERIOR COVER PASS WELD 8-9		CWI				07-07-05	07-07-05	

A

**INSPECTION DATA CHECKLIST**

Quality Assurance Documentation for Part ID: SE120-003 8-9 SUB-SET - Item: 84

Workorder: 65678/1-0 Sub:97 Op:150

Part: SE120-003 8-9 SUB-SET - - 8-9 PANEL SUB-SET

Drawing ID: SE120-004 Rev: 1			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY		
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
*				MFG		VISUAL	ACCEPT	683-K.M	933-D.L	
(20)		VWI EXTERIOR COVER PASS WELD 8-9		CWI				07-07-05	07-11-05	

A

Quality Assurance Documentation for Part ID: SE120-003 8-9 SUB-SET - Item: 85

Workorder: 65678/1-0 Sub:114 Op:30

Part: SE120-003 8-9 SUB-SET - - 8-9 PANEL SUB-SET

Drawing ID: SE120-004 Rev: 1			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY		
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
*				MFG		VISUAL	WELD ACCEPTABLE P CUSTOMER DRAWIN PECIFICATION REQUI EMENTS.	933-D.L	933-D.L	
(10)		VWI ROOT PASS WELD 8-9		CWI				07-26-05	07-26-05	

A

**INSPECTION DATA CHECKLIST**

Quality Assurance Documentation for Part ID: SE120-003 8-9 SUB-SET - Item: 86

Workorder: 65678/1-0 Sub:114 Op:130

Part: SE120-003 8-9 SUB-SET - - 8-9 PANEL SUB-SET

Drawing ID: SE120-004 Rev: 1			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY		
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
*				MFG		VISUAL	INTERIOR COVER OK	763-R.M	933-D.L	
(20)		VWI INTERIOR COVER PASS WELD 8-9		CWI				07-28-05	07-28-05	

A



**INSPECTION DATA CHECKLIST**

Quality Assurance Documentation for Part ID: SE120-003 8-9 SUB-SET - Item: 87

Workorder: 65678/1-0 Sub:114 Op:150

Part: SE120-003 8-9 SUB-SET - - 8-9 PANEL SUB-SET

Drawing ID: SE120-004 Rev: 1			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY		
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
*				MFG		VISUAL	OK	197-T.FI	933-D.L	
(20)		VWI EXTERIOR COVER PASS WELD 8-9		CWI				07-28-05	07-28-05	A

Quality Assurance Documentation for Part ID: SE120-003-11 - Item: 90

Workorder: 65678/1-0 Sub:131 Op:10

Part: SE120-003-11 - - PORT 7 REMOVAL, DETAIL ASSEMBLY, TEMPORARY RE-ATTACHMENT AND INSPECTION

Drawing ID: SE120-005 Rev: 0			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT	
*		VISUAL INSPECT PORT 7A WELDS BACK STRIP TO PORT TUBE BLOCK TO BACK STRIP 1/8" TUBE TO BLOCK		MFG		VISUAL	ACCEPT	837-J.D	933-D.L		A
(10)		TIE STRAP SPOT WELDS		CWI				04-17-06	04-18-06		
*		VISUAL INSPECT PORT 7B WELDS BACK STRIP TO PORT TUBE BLOCK TO BACK STRIP 1/8" TUBE TO BLOCK		MFG		VISUAL	BACK STRIP TO PORT TUBE, BLOCK TO BA K STRIP, 1/8" TUBE TO BLOCK	509-S.R	933-D.L		A
(20)		TIE STRAP SPOT WELDS		CWI				04-17-06	04-18-06		

Quality Assurance Documentation for Part ID: SE120-003-11 - Item: 91

Workorder: 65678/1-0 Sub:131 Op:20

Part: SE120-003-11 - - PORT 7 REMOVAL, DETAIL ASSEMBLY, TEMPORARY RE-ATTACHMENT AND INSPECTION

Drawing ID: SE120-004 Rev: 2			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT	
*		$\varnothing$ 0.25 (M) A B C	LASER	QA		J-1280	POS 1.149 FACE -0.251 / -0.092 (ACCEPT PER N.C. # 19771 AND CUST. DOC. [N/C: 19771-Doc:19771])	854-R.U			A
(10)		PORT 7A POSITION (REINSTALLED)						05-18-06			
*		$\varnothing$ 0.25 (M) A B C	LASER	QA		J-1280	POS 0.510 FACE -0.157 / -0.040 (ACCEPT PER N.C. # 19771 AND CUST. DOC. [N/C: 19771-Doc:19771])	854-R.U			A
(20)		PORT 7B POSITION (REINSTALLED)						05-18-06			

Quality Assurance Documentation for Part ID: SE120-003-11 - Item: 92

Workorder: 65678/1-0 Sub:131 Op:30

Part: SE120-003-11 - - PORT 7 REMOVAL, DETAIL ASSEMBLY, TEMPORARY RE-ATTACHMENT AND INSPECTION

Drawing ID: SE120-004 Rev: 2D			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT	
*		MAGNETIC PERMEABILITY 1.02 MAX (ENTIRE PORT LESS FLANGE WELD ZO	MASTER GAGE	QA		J-1271	LESS THAN 1.02	261-T.D			A
(10)								04-19-06			
*		MAGNETIC PERMEABILITY 1.2 MAX (PORT WALL TO FLANGE WELD ZONE)	MASTER GAGE	QA		J-1271	LESS THAN 1.2	261-T.D			A
(20)								04-19-06			
*		INTERIOR SURFACE FINISH: 32 MICRO-INCH RA	PROFILOMETER	QA		J-1308	8 TO 23 MICRO-INCH	261-T.D			A
(30)								04-19-06			
*		PORT EXTENSION WALL THICKNESS 0.188 +0.045/-0.010"	UT THICKNESS GA	QA		J-1009-NDT	.200 TO .220	261-T.D			A
(40)								04-19-06			
*		CLEANLINESS COMPLIES WITH PS483		QA		VISUAL	COMPLIES WITH PS48	261-T.D			A
(50)								04-19-06			
*		Q/A MANAGER / CFT VERIFY SUB-ASSY COMPLETION		QA			VERIFIED FINAL CON ITION W/ENGINEER	840-G.M			A
(60)								04-25-06			

Quality Assurance Documentation for Part ID: SE120-003-12A - Item: 93

Workorder: 65678/1-0 Sub:120 Op:10


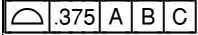

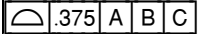
Part: SE120-003-12A - - PORT 12A AND 12B INSTALLATION

Drawing ID: SE120-004 Rev: 2			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT	
*				MFG		VISUAL	ACCEPT PER CUSTOM	709-K.A	933-D.L		A
(20)		VWI - ROOT PASS WELD P12AV		CWI			DRAWINGS AND SPE FICATIONS	11-08-05	11-08-05		
*				MFG		VISUAL	ACCEPT	683-K.M	933-D.L		A
(60)		VWI - COVER PASS WELD P12AV		CWI				11-10-05	11-10-05		
*				MFG		VISUAL	ACCEPT PER CUSTOM	709-K.A	933-D.L		A
(80)		VWI - ROOT PASS WELD P12BV		CWI			DRAWINGS AND SPE FICATIONS	11-08-05	11-08-05		
*				MFG		VISUAL	ACCEPT	683-K.M	933-D.L		A
(120)		VWI - COVER PASS WELD P12BV		CWI				11-10-05	11-10-05		

Quality Assurance Documentation for Part ID: SE120-003-12A - Item: 94

Workorder: 65678/1-0 Sub:120 Op:20

Part: SE120-003-12A - - PORT 12A AND 12B INSTALLATION

Drawing ID: SE120-004 Rev: 2			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT	
2* (50)	F2	 PORT 12A FLANGE FACE	LASER	QA		1444	0.023	522-R.D 11-10-05			A
2* (60)	G2	 PORT 12A SIDEWALL AND ADJACENT VESSEL WALL	LASER	QA		1444	-0.061 / +0.247 (AC CEPT PER N.C. 18594 ) [N/C:18594]	854-R.U  04-30-06			A
2* (70)	F2	 PORT 12B FLANGE FACE	LASER	QA		1444	0.044	522-R.D 11-10-05			A
2* (80)	G2	 PORT 12B SIDEWALL AND ADJACENT VESSEL WALL	LASER	QA		1444	-0.091 / +0.329 (AC CEPT PER N.C. 18594 ) [N/C:18594]	854-R.U  04-30-06			A

Quality Assurance Documentation for Part ID: SE120-003-13 - Item: 95

Workorder: 65678/1-0 Sub:132 Op:10

**Part: SE120-003-13 - - PORT 8 REMOVAL, DETAIL ASSEMBLY, TEMPORARY RE-ATTACHMENT AND INSPECTION**

Drawing ID: SE120-005 Rev: 0			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT	
*		VISUAL INSPECT PORT 8A WELDS BACK STRIP TO PORT TUBE BLOCK TO BACK STRIP 1/8" TUBE TO BLOCK		MFG		VISUAL	PORT 8A WELDS ARE OOD	763-R.M	053-M.D		A
(10)		TIE STRAP SPOT WELDS		CWI				04-18-06	04-18-06		
*		VISUAL INSPECT PORT 8B WELDS BACK STRIP TO PORT TUBE BLOCK TO BACK STRIP 1/8" TUBE TO BLOCK		MFG		VISUAL	PORT 8B WELDS ARE OOD	763-R.M	933-D.L		A
(20)		TIE STRAP SPOT WELDS		CWI				04-18-06	04-18-06		

Quality Assurance Documentation for Part ID: SE120-003-13 - Item: 96

Workorder: 65678/1-0 Sub:132 Op:20

Part: SE120-003-13 - - PORT 8 REMOVAL, DETAIL ASSEMBLY, TEMPORARY RE-ATTACHMENT AND INSPECTION

Drawing ID: SE120-004 Rev: 2			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT	
*		$\varnothing$ 0.25 (M) A B C	LASER	QA		J-1280	POS 1.394 FACE -0.320 / -0.208 (ACCEPT PER N.C. # 19766 A ND CUST. DOC.) [N/C:19766-Doc:19766]	854-R.U			A
(10)		PORT 8A POSITION (REINSTALLED)						05-18-06			
*		$\varnothing$ 0.25 (M) A B C	LASER	QA		J-1280	POS 0.926 FACE -0.001 / -0.064 (ACCEPT PER N.C. # 19766 A ND CUST. DOC.) [N/C:19766-Doc:19766]	854-R.U			A
(20)		PORT 8B POSITION (REINSTALLED)						05-18-06			



Quality Assurance Documentation for Part ID: SE120-003-13 - Item: 97

Workorder: 65678/1-0 Sub:132 Op:30

Part: SE120-003-13 - - PORT 8 REMOVAL, DETAIL ASSEMBLY, TEMPORARY RE-ATTACHMENT AND INSPECTION

Drawing ID: SE120-004 Rev: 2D			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT	
*		MAGNETIC PERMEABILITY 1.02 MAX (ENTIRE PORT LESS FLANGE WELD ZO	MASTER GAGE	QA		J-1271	LESS THAN 1.02	261-T.D			A
(10)								04-19-06			
*		MAGNETIC PERMEABILITY 1.2 MAX (PORT WALL TO FLANGE WELD ZONE)	MASTER GAGE	QA		J-1271	LESS THAN 1.2	261-T.D			A
(20)								04-19-06			
*		INTERIOR SURFACE FINISH: 32 MICRO-INCH RA	PROFILOMETER	QA		J-1308	7 TO 13 MICRO-INCH	261-T.D			A
(30)								04-19-06			
*		PORT EXTENSION WALL THICKNESS 0.226 +0.045/0.010"	UT THICKNESS GA	QA		J-1009-NDT	.252 TO .263	261-T.D			A
(40)								04-19-06			
*		CLEANLINESS COMPLIES WITH PS483		QA		VISUAL	COMPLIES WITH PS48	261-T.D			A
(50)								04-19-06			
*		Q/A MANAGER / CFT VERIFY SUB-ASSY COMPLETION		QA			VERIFIED FINAL CON TION W/ENGINEER	840-G.M			A
(60)								04-25-06			

Quality Assurance Documentation for Part ID: SE120-003-15 - Item: 98

Workorder: 65678/1-0 Sub:133 Op:10

Part: SE120-003-15 - - PORT 9 REMOVAL, DETAIL ASSEMBLY, TEMPORARY RE-ATTACHMENT AND INSPECTION

Drawing ID: SE120-005 Rev: 0		INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
*		VISUAL INSPECT PORT 9A WELDS BACK STRIP TO PORT TUBE BLOCK TO BACK STRIP 1/8" TUBE TO BLOCK TIE STRAP SPOT WELDS		MFG		VISUAL	BACK STRIP TO PORT GOOD BLOCK TO BAC STRIP GOOD 1/8" TU BE TO BLOCK GOOD	763-R.M	933-D.L	
(10)				CWI				04-13-06	04-13-06	A
*		VISUAL INSPECT PORT 9B WELDS BACK STRIP TO PORT TUBE BLOCK TO BACK STRIP 1/8" TUBE TO BLOCK TIE STRAP SPOT WELDS		MFG		VISUAL	BACK STRIP TO PORT WELD GOOD BLOCK T BACK STRIP WELD GO D TIE STRAP SPOT WE LDS	763-R.M	933-D.L	
(20)					CWI				04-12-06	04-12-06

Quality Assurance Documentation for Part ID: SE120-003-15 - Item: 99

Workorder: 65678/1-0 Sub:133 Op:20

**Part: SE120-003-15 - - PORT 9 REMOVAL, DETAIL ASSEMBLY, TEMPORARY RE-ATTACHMENT AND INSPECTION**

Drawing ID: SE120-004 Rev: 2			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT	
*		⊕ ∅.25 (M) A B C	LASER	QA		J-1280	POS 0.772 FACE +0.065 / +0.097 (ACCEPT PER N.C. # 19770 AND CUST. DOC. [N/C: 19770-Doc:19770])	854-R.U			A
(10)		PORT 9A POSITION (REINSTALLED)						05-18-06			
*		⊕ ∅.25 (M) A B C	LASER	QA		J-1280	POS 1.097 FACE +0.050 / +0.127 (ACCEPT PER N.C. # 19770 AND CUST. DOC. [N/C: 19770-Doc:19770])	854-R.U			A
(20)		PORT 9B POSITION (REINSTALLED)						05-18-06			

Quality Assurance Documentation for Part ID: SE120-003-15 - Item: 100

Workorder: 65678/1-0 Sub:133 Op:30

Part: SE120-003-15 - - PORT 9 REMOVAL, DETAIL ASSEMBLY, TEMPORARY RE-ATTACHMENT AND INSPECTION

Drawing ID: SE120-004 Rev: 2			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT	
*		MAGNETIC PERMEABILITY 1.02 MAX (ENTIRE PORT LESS FLANGE WELD ZO	MASTER GAGE	QA		J-1271	LESS THAN 1.02 MAX	261-T.D			A
(10)								04-18-06			
*		MAGNETIC PERMEABILITY 1.2 MAX (PORT WALL TO FLANGE WELD ZONE)	MASTER GAGE	QA		J-1271	LESS THAN 1.2 MAX	261-T.D			A
(20)								04-18-06			
*		INTERIOR SURFACE FINISH: 32 MICRO-INCH RA	PROFILOMETER	QA		J-1308	7 TO 31 MICRO-INCH RA	261-T.D			A
(30)								04-18-06			
*		PORT EXTENSION WALL THICKNESS 0.188 +0.045/-0.010"	UT THICKNESS GA	QA		J-770-NDT	.180 TO .205	261-T.D			A
(40)								04-18-06			
*		CLEANLINESS COMPLIES WITH PS483		QA		VISUAL	COMPLIES WITH PS48	261-T.D			A
(50)			04-18-06								
*		Q/A MANAGER / CFT VERIFY SUB-ASSY COMPLETION		QA			REVIWED W/ENG.	840-G.M			A
(60)			04-19-06								

Quality Assurance Documentation for Part ID: SE120-003-17 - Item: 101

Workorder: 65678/1-0 Sub:134 Op:10

Part: SE120-003-17 - - PORT 10 REMOVAL, DETAIL ASSEMBLY, TEMPORARY RE-ATTACHMENT AND INSPECTION

Drawing ID: SE120-005 Rev: 0		INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY				
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT	
*		VISUAL INSPECT PORT 10A WELDS BACK STRIP TO PORT TUBE BLOCK TO BACK STRIP 1/8" TUBE TO BLOCK TIE STRAP SPOT WELDS		MFG		VISUAL	ACCEPT PER CUSTOM DRAWING AND SPECI ICATION.	709-K.A	933-D.L		A
(10)				CWI				04-13-06	04-13-06		
*		VISUAL INSPECT PORT 10B WELDS BACK STRIP TO PORT TUBE BLOCK TO BACK STRIP 1/8" TUBE TO BLOCK TIE STRAP SPOT WELDS		MFG		VISUAL	ACCEPT PER CUSTOM DRAWING AND SPECI ICATION.	709-K.A	933-D.L		A
(20)				CWI				04-13-06	04-13-06		

Quality Assurance Documentation for Part ID: SE120-003-17 - Item: 102

Workorder: 65678/1-0 Sub:134 Op:20

Part: SE120-003-17 - - PORT 10 REMOVAL, DETAIL ASSEMBLY, TEMPORARY RE-ATTACHMENT AND INSPECTION

Drawing ID: SE120-004 Rev: 2			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT	
*		⊕ ∅.25 (M) A B C	LASER	QA		J-1280	POS 0.928 FACE -0.279 / -0.086 (ACCEPT PER N.C. # 19769 AND CUST. DOC.) [N/C :19769-Doc:19769]	854-R.U			A
(10)		PORT 10A POSITION (REINSTALLED)						05-18-06			
*		⊕ ∅.25 (M) A B C	LASER	QA		J-1280	POS 1.379 FACE -0.118 / -0.023 (ACCEPT PER N.C. # 19768 AND CUST. DOC.) [N/C :19769-Doc:19769]	854-R.U			A
(20)		PORT 10B POSITION (REINSTALLED)						05-18-06			

Quality Assurance Documentation for Part ID: SE120-003-17 - Item: 103

Workorder: 65678/1-0 Sub:134 Op:30

Part: SE120-003-17 - - PORT 10 REMOVAL, DETAIL ASSEMBLY, TEMPORARY RE-ATTACHMENT AND INSPECTION

Drawing ID: SE120-004 Rev: 2			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT	
*		MAGNETIC PERMEABILITY 1.02 MAX (ENTIRE PORT LESS FLANGE WELD ZO	MASTER GAGE	QA		J-1271	LESS THAN 1.02	261-T.D			A
(10)								04-18-06			
*		MAGNETIC PERMEABILITY 1.2 MAX (PORT WALL TO FLANGE WELD ZONE)	MASTER GAGE	QA		J-1271	LESS THAN 1.2	261-T.D			A
(20)								04-18-06			
*		INTERIOR SURFACE FINISH: 32 MICRO-INCH RA	PROFILOMETER	QA		J-1308	5 TO 9 MICRO-INCH R A	261-T.D			A
(30)								04-18-06			
*		PORT EXTENSION WALL THICKNESS 0.250 +0.045/-0.010"	UT THICKNESS GA	QA		J-770-NDT	.261 TO .270	261-T.D			A
(40)								04-18-06			
*		CLEANLINESS COMPLIES WITH PS483		QA		VISUAL	COMPLIES WITH PS48	261-T.D			A
(50)			04-18-06								
*		Q/A MANAGER / CFT VERIFY SUB-ASSY COMPLETION		QA			VERIFIED FINAL CON TION W/ENGINEER	840-G.M			A
(60)			04-25-06								

Quality Assurance Documentation for Part ID: SE120-003-19 - Item: 104

Workorder: 65678/1-0 Sub:135 Op:10

Part: SE120-003-19 - - PORT 11 REMOVAL, DETAIL ASSEMBLY, TEMPORARY RE-ATTACHMENT AND INSPECTION

Drawing ID: SE120-005 Rev: 0			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT	
*		VISUAL INSPECT PORT 11A WELDS BACK STRIP TO PORT TUBE BLOCK TO BACK STRIP 1/8" TUBE TO BLOCK TIE STRAP SPOT WELDS		MFG		VISUAL	BACK STRIP TO PORT TUBE, BLOCK TO BACK STRIP, 1/8" TUBE TO BLOCK	509-S.R	053-M.D		A
(10)				CWI				04-18-06	04-18-06		
*		VISUAL INSPECT PORT 11B WELDS BACK STRIP TO PORT TUBE BLOCK TO BACK STRIP 1/8" TUBE TO BLOCK TIE STRAP SPOT WELDS		MFG		VISUAL	BACK STRIP TO PORT TUBE, BLOCK TO BACK STRIP, 1/8" TUBE TO BLOCK	509-S.R	053-M.D		A
(20)					CWI				04-18-06	04-19-06	



Quality Assurance Documentation for Part ID: SE120-003-19 - Item: 105

Workorder: 65678/1-0 Sub:135 Op:20

Part: SE120-003-19 - - PORT 11 REMOVAL, DETAIL ASSEMBLY, TEMPORARY RE-ATTACHMENT AND INSPECTION

Drawing ID: SE120-004 Rev: 2			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT	
*		⊕ ∅.25 (M) A B C	LASER	QA		J-1280	POS 1.251 FACE -0.400 / -0.314 (ACCEPT PER N.C. # 19768 AND CUST. DOC.) [N/C :19768-Doc:19768]	854-R.U			A
(10)		PORT 11A POSITION (REINSTALLED)						05-18-06			
*		⊕ ∅.25 (M) A B C	LASER	QA		J-1280	POS 0.458 FACE -0.232 / -0.195 (ACCEPT PER N.C. # 19768 AND CUST. DOC.) [N/C :19768-Doc:19768]	854-R.U			A
(20)		PORT 11B POSITION (REINSTALLED)						05-18-06			

Quality Assurance Documentation for Part ID: SE120-003-19 - Item: 106

Workorder: 65678/1-0 Sub:135 Op:30

Part: SE120-003-19 - - PORT 11 REMOVAL, DETAIL ASSEMBLY, TEMPORARY RE-ATTACHMENT AND INSPECTION

Drawing ID: SE120-004 Rev: 2D			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT	
*		MAGNETIC PERMEABILITY 1.02 MAX (ENTIRE PORT LESS FLANGE WELD ZO	MASTER GAGE	QA		J-1271	LESS THAN 1.02	533-B.C			A
(10)										04-21-06	
*		MAGNETIC PERMEABILITY 1.2 MAX (PORT WALL TO FLANGE WELD ZONE)	MASTER GAGE	QA		J-1271	LESS THAN 1.2	533-B.C			A
(20)										04-21-06	
*		INTERIOR SURFACE FINISH: 32 MICRO-INCH RA	PROFILOMETER	QA		J-1308	21 TO 26	533-B.C			A
(30)										04-21-06	
*		PORT EXTENSION WALL THICKNESS: 0.120 +/- .015	UT THICKNESS GA	QA		J-1009-NDT	.113 TO .116	840-G.M			A
(40)										04-26-06	
*		CLEANLINESS COMPLIES WITH PS483		QA		VISUAL	MEETS PS483	533-B.C			A
(50)							04-21-06				
*		Q/A MANAGER / CFT VERIFY SUB-ASSY COMPLETION		QA			VERIFIED FINAL CON TION W/ENGINEER	840-G.M			A
(60)							04-25-06				

Quality Assurance Documentation for Part ID: SE120-003-21 - Item: 107

Workorder: 65678/1-0 Sub:136 Op:10

Part: SE120-003-21 - - PORT 15 REMOVAL, DETAIL ASSEMBLY, TEMPORARY RE-ATTACHMENT AND INSPECTION

Drawing ID: SE120-005 Rev: 0C			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY		
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
*		VISUAL INSPECT PORT 15A WELDS BACK STRIP TO PORT TUBE BLOCK TO BACK STRIP 1/8" TUBE TO BLOCK		MFG		VISUAL	ACCEPT	837-J.D	933-D.L	
(10)		TIE STRAP SPOT WELDS		CWI				04-18-06	04-18-06	A
*		VISUAL INSPECT PORT 15B WELDS BACK STRIP TO PORT TUBE BLOCK TO BACK STRIP 1/8" TUBE TO BLOCK		MFG			PORT 15B WELDS GOO	763-R.M	053-M.D	
(20)		TIE STRAP SPOT WELDS		CWI				04-18-06	04-18-06	A

Quality Assurance Documentation for Part ID: SE120-003-21 - Item: 108

Workorder: 65678/1-0 Sub:136 Op:20

Part: SE120-003-21 - - PORT 15 REMOVAL, DETAIL ASSEMBLY, TEMPORARY RE-ATTACHMENT AND INSPECTION

Drawing ID: SE120-004 Rev: 2			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT	
*		⊕ ∅.25 (M) A B C	LASER	QA		J-1280	POS 1.148 FACE -0.413 / -0.327 (ACCEPT PER N.C. # 19767 A ND CUST. DOC.) [N/C :19767-Doc:19767]	854-R.U			A
(10)		PORT 15A POSITION (REINSTALLED)						05-18-06			
*		⊕ ∅.25 (M) A B C	LASER	QA		J-1280	POS 0.747 FACE -0.172 / -0.108 (ACCEPT PER N.C. # 19766 A ND CUST. DOC.) [N/C :19767-Doc:19767]	854-R.U			A
(20)		PORT 15B POSITION (REINSTALLED)						05-18-06			

Quality Assurance Documentation for Part ID: SE120-003-21 - Item: 109

Workorder: 65678/1-0 Sub:136 Op:30

**Part: SE120-003-21 - - PORT 15 REMOVAL, DETAIL ASSEMBLY, TEMPORARY RE-ATTACHMENT AND INSPECTION**

Drawing ID: SE120-004 Rev: 2D			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT	
*		MAGNETIC PERMEABILITY 1.02 MAX (ENTIRE PORT LESS FLANGE WELD ZO	MASTER GAGE	QA		J-1271	LESS THAN 1.02	261-T.D			A
(10)								04-19-06			
*		MAGNETIC PERMEABILITY 1.2 MAX (PORT WALL TO FLANGE WELD ZONE)	MASTER GAGE	QA		J-1271	LESS THAN 1.2	261-T.D			A
(20)								04-19-06			
*		INTERIOR SURFACE FINISH: 32 MICRO-INCH RA	PROFILOMETER	QA		J-1308	7 TO 24 MICRO-INCH RA	261-T.D			A
(30)								04-19-06			
*		PORT EXTENSION WALL THICKNESS 0.226 +0.045/-0.010"	UT THICKNESS GA	QA		J-1009-NDT	.258 TO .262 I-15A	503-B.H			A
(40)								04-25-06			
*		CLEANLINESS COMPLIES WITH PS483		QA		VISUAL	COMPLIES WITH PS48	261-T.D			A
(50)								04-19-06			
*		Q/A MANAGER / CFT VERIFY SUB-ASSY COMPLETION		QA			VERIFIED FINAL CON ITION W/ENGINEER	840-G.M			A
(60)								04-25-06			

Quality Assurance Documentation for Part ID: SE120-003-23 - Item: 110

Workorder: 65678/1-0 Sub:137 Op:10

Part: SE120-003-23 - - PORT DOME REMOVAL, DETAIL ASSEMBLY, TEMPORARY RE-ATTACHMENT AND INSPECTION

Drawing ID: SE122-007 Rev: 0			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY		
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
*		VISUAL INSPECT PORT DOME A WELD BACK STRIP TO PORT TUBE BLOCK TO BACK STRIP 1/8" TUBE TO BLOCK TIE STRAP SPOT WELDS		MFG		VISUAL	BACK STRIP TO PORT WELD GOOD BLOCK T BACK STRIP GOOD 1/8 " TUBE TO BLOCK G OOD	709-K.A	053-M.D	
(10)				CWI				04-14-06	04-14-06	
*		VISUAL INSPECT PORT DOME B WELD BACK STRIP TO PORT TUBE BLOCK TO BACK STRIP 1/8" TUBE TO BLOCK TIE STRAP SPOT WELDS		MFG		VISUAL	BACK STRIP TO PORT WELD GOOD BLOCK T BACK STRIP GOOD 1/8 " TUBE TO BLOCK G OOD	763-R.M	933-D.L	
(20)				CWI				04-13-06	04-13-06	

Quality Assurance Documentation for Part ID: SE120-003-23 - Item: 111

Workorder: 65678/1-0 Sub:137 Op:20

Part: SE120-003-23 - - PORT DOME REMOVAL, DETAIL ASSEMBLY, TEMPORARY RE-ATTACHMENT AND INSPECTION

Drawing ID: SE120-004 Rev: 2			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT	
*		$\varnothing$ 0.25 (M) A B C	LASER	QA		J-1280	POS 1.351 FACE -0.238 / -0.172 [N/C:19612-Doc:19612]	522-R.D			R
(10)		PORT 17A POSITION (REINSTALLED)						05-04-06			
*		$\varnothing$ 0.25 (M) A B C	LASER	QA		J-1280	POS 1.163 FACE -0.293 / -0.255 [N/C:19612-Doc:19612]	522-R.D			R
(20)		PORT 17B POSITION (REINSTALLED)						05-04-06			

Quality Assurance Documentation for Part ID: SE120-003-23 - Item: 112

Workorder: 65678/1-0 Sub:137 Op:30

**Part: SE120-003-23 - - PORT DOME REMOVAL, DETAIL ASSEMBLY, TEMPORARY RE-ATTACHMENT AND INSPECTION**

Drawing ID: SE120-004 Rev: 2D			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT	
*		MAGNETIC PERMEABILITY 1.02 MAX (ENTIRE PORT LESS FLANGE WELD ZONE)	MASTER GAGE	QA		J-1271	LESS THAN 1.02	261-T.D			A
(10)								04-19-06			
*		MAGNETIC PERMEABILITY 1.2 MAX (PORT WALL TO FLANGE WELD ZONE)	MASTER GAGE	QA		J-1271	LESS THAN 1.2	261-T.D			A
(20)								04-19-06			
*		INTERIOR SURFACE FINISH: 32 MICRO-INCH RA	PROFILOMETER	QA		J-1308	10 TO 29 MICRO-INCH RA	261-T.D			A
(30)								04-19-06			
*		DOME WALL THICKNESS 0.375 +0.045/-0.010"	UT THICKNESS GA	QA		J-1009-NDT	.357 TO .393 (LOW O N DOME REF. I-17A/I -18A ONLY-ACCEPT T N.C.19663)	854-R.U			A
(40)								04-29-06			
*		PORT EXTENSION WALL THICKNESS 0.226 +0.045/-0.010" (17 & 18)	UT THICKNESS GA	QA		J-1009-NDT	.252 TO .265	261-T.D			A
(50)								04-19-06			
Drawing ID: SE122-007 Rev: 2			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT	
*		CLEANLINESS COMPLIES WITH PS483		QA		VISUAL	COMPLIES WITH PS48	261-T.D			A
(60)								04-19-06			
*		Q/A MANAGER / CFT VERIFY SUB-ASSY COMPLETION		QA			VERIFIED FINAL CON TION W/ENGINEER	840-G.M			A
(70)								04-25-06			



Quality Assurance Documentation for Part ID: SE120-003-3 - Item: 113

Workorder: 65678/1-0 Sub:127 Op:10

Part: SE120-003-3 - - PORT 2 REMOVAL, DETAIL ASSEMBLY, TEMPORARY RE-ATTACHMENT AND INSPECTION

Drawing ID: SE120-005 Rev: 0		INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY				
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT	
*		VISUAL INSPECT PORT 2A WELDS BACK STRIP TO PORT TUBE BLOCK TO BACK STRIP 1/8" TUBE TO BLOCK TIE STRAP SPOT WELDS		MFG		VISUAL	BACK STRIP TO PORT TUBE, BLOCK TO BACK STRIP, 1/8" TUBE TO BLOCK	509-S.R	933-D.L		A
(10)				CWI				04-17-06	04-17-06		
*		VISUAL INSPECT PORT 2B WELDS BACK STRIP TO PORT TUBE BLOCK TO BACK STRIP 1/8" TUBE TO BLOCK TIE STRAP SPOT WELDS		MFG		VISUAL	BACK STRIP TO PORT TUBE, BLOCK TO BACK STRIP, 1/8" TUBE TO BLOCK	509-S.R	933-D.L		A
(20)					CWI				04-17-06	04-17-06	

Quality Assurance Documentation for Part ID: SE120-003-3 - Item: 114

Workorder: 65678/1-0 Sub:127 Op:20

Part: SE120-003-3 - - PORT 2 REMOVAL, DETAIL ASSEMBLY, TEMPORARY RE-ATTACHMENT AND INSPECTION

Drawing ID: SE120-004 Rev: 2			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT	
*		⊕ ∅.25 (M) A B C	LASER	QA		J-1280	POS 1.016 FACE -0.013 / +0.034 (ACCEPT PER N.C. # 19774 AND CUST. DOC.) [N/C:19774-Doc:19774]	854-R.U			A
(10)		PORT 2A POSITION (REINSTALLED)						05-18-06			
*		⊕ ∅.25 (M) A B C	LASER	QA		J-1280	POS 0.990 FACE +0.001 / +0.045 (ACCEPT PER N.C. # 19774 AND CUST. DOC.) [N/C:19774-Doc:19774]	854-R.U			A
(20)		PORT 2B POSITION (REINSTALLED)						05-18-06			

Quality Assurance Documentation for Part ID: SE120-003-3 - Item: 115

Workorder: 65678/1-0 Sub:127 Op:30

Part: SE120-003-3 - - PORT 2 REMOVAL, DETAIL ASSEMBLY, TEMPORARY RE-ATTACHMENT AND INSPECTION

Drawing ID: SE120-004 Rev: 2			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT	
*		MAGNETIC PERMEABILITY 1.02 MAX (ENTIRE PORT LESS FLANGE WELD ZO	MASTER GAGE	QA		J-1271	LESS THAN 1.02 MAX	261-T.D			A
(10)								04-18-06			
*		MAGNETIC PERMEABILITY 1.2 MAX (PORT WALL TO FLANGE WELD ZONE)	MASTER GAGE	QA		J-1271	LESS THAN 1.2 MAX	261-T.D			A
(20)								04-18-06			
*		INTERIOR SURFACE FINISH: 32 MICRO-INCH RA	PROFILOMETER	QA		J-1308	13 TO 24 MICRO-INCH RA	261-T.D			A
(30)								04-18-06			
*		PORT EXTENSION WALL THICKNESS 0.226 +0.045/0.010"	UT THICKNESS GA	QA		J-770-NDT	.241 TO .261	261-T.D			A
(40)								04-18-06			
*		CLEANLINESS COMPLIES WITH PS483		QA		VISUAL	COMPLIES WITH PS48	261-T.D			A
(50)								04-18-06			
*		Q/A MANAGER / CFT VERIFY SUB-ASSY COMPLETION		QA			VERIFIED FINAL CON TION W/ENGINEER	840-G.M			A
(60)								04-25-06			

Quality Assurance Documentation for Part ID: SE120-003-5 - Item: 116

Workorder: 65678/1-0 Sub:128 Op:10

**Part: SE120-003-5 - - PORT 4 REMOVAL, DETAIL ASSEMBLY, TEMPORARY RE-ATTACHMENT AND INSPECTION**

Drawing ID: SE120-005 Rev: 0C			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT	
*		VISUAL INSPECT PORT 4A WELDS BACK STRIP TO PORT TUBE BLOCK TO BACK STRIP 1/8" TUBE TO BLOCK		MFG		VISUAL	ACCEPTED	299-M.G	053-M.D		A
(10)		TIE STRAP SPOT WELDS		CWI				04-14-06			
*		VISUAL INSPECT PORT 4B WELDS BACK STRIP TO PORT TUBE BLOCK TO BACK STRIP 1/8" TUBE TO BLOCK		MFG		VISUAL	ACCEPTED	299-M.G	933-D.L		A
(20)		TIE STRAP SPOT WELDS		CWI				04-14-06	04-17-06		

Quality Assurance Documentation for Part ID: SE120-003-5 - Item: 117

Workorder: 65678/1-0 Sub:128 Op:20

**Part: SE120-003-5 - - PORT 4 REMOVAL, DETAIL ASSEMBLY, TEMPORARY RE-ATTACHMENT AND INSPECTION**

Drawing ID: SE120-004 Rev: 2			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT	
*		⊕ ∅.25 (M) A B C	LASER	QA		J-1280	POS 0.844 FACE -0.450 / -0.131 (ACCEPT PER N.C. 19667 & C UST. DOC.) [N/C:19667-Doc:19667]	854-R.U			A
(10)		PORT 4A POSITION (REINSTALLED)						05-17-06			
*		⊕ ∅.25 (M) A B C	LASER	QA		J-1280	POS 0.891 FACE -0.257 / -0.066 (ACCEPT PER N.C. 19667 & C UST. DOC.) [N/C:19667-Doc:19667]	854-R.U			A
(20)		PORT 4B POSITION (REINSTALLED)						05-17-06			

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**Customer: PRINCETON PLASMA PHYSICS LAB**

Contact: LARRY SUTTON  
E-Mail: S-04286-F

Telephone: 609-243-2441  
Fax: 609-243-2021

**Part: /**  
Drawing ID: SE120-004                      Revision: 2

Customer P.O.: S005243-F/Ln:1  
Serial No./Qty:

Reported By: DOUG MCCORKLE  
E-Mail: dMcCorkle@MajorTool.com

Telephone: 317-636-6433  
Fax: 317-634-9420

Problem: The position of port 4a checks 0.844 and the face checks -0.450 / -0.131.

The position of port 4b checks 0.891 and the face checks -0.257 / -0.066.

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**Proposed Disposition:**

Corresponding point cloud inspection data uploaded to PPPL ftp site 04May2006.

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Number of additional pages: \_\_\_\_\_

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**Customer Disposition:**     Use As Is     Rework     Repair     Scrap     Replace

**Technical Contact Approval:** \_\_\_\_\_

**Title:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**Buyer Approval:** \_\_\_\_\_

**Title:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**Major Tool Implemented By:** \_\_\_\_\_

**Title:** \_\_\_\_\_ **Date:** \_\_\_\_\_

Quality Assurance Documentation for Part ID: SE120-003-5 - Item: 119

Workorder: 65678/1-0 Sub:128 Op:30

Part: SE120-003-5 - - PORT 4 REMOVAL, DETAIL ASSEMBLY, TEMPORARY RE-ATTACHMENT AND INSPECTION

Drawing ID: SE120-004 Rev: 2D			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT	
*		MAGNETIC PERMEABILITY 1.02 MAX (ENTIRE PORT LESS FLANGE WELD ZO	MASTER GAGE	QA		J-1271	LESS THAN 1.02	261-T.D			A
(10)								04-19-06			
*		MAGNETIC PERMEABILITY 1.2 MAX (PORT WALL TO FLANGE WELD ZONE)	MASTER GAGE	QA		J-1271	LESS THAN 1.2	261-T.D			A
(20)								04-19-06			
*		INTERIOR SURFACE FINISH: 32 MICRO-INCH RA	PROFILOMETER	QA		J-1307	12-28	522-R.D			A
(30)								04-20-06			
*		PORT EXTENSION WALL THICKNESS 0.500 +0.055/-0.010"	UT THICKNESS GA	QA		J-1009-NDT	.495 TO .535	533-B.C			A
(40)								04-21-06			
*		CLEANLINESS COMPLIES WITH PS483		QA		VISUAL	COMPLIES WITH PS48	261-T.D			A
(50)			04-19-06								
*		Q/A MANAGER / CFT VERIFY SUB-ASSY COMPLETION		QA			VERIFIED FINAL CON TION W/ENGINEER	840-G.M			A
(60)			04-25-06								

Quality Assurance Documentation for Part ID: SE120-003-7 - Item: 120

Workorder: 65678/1-0 Sub:129 Op:10

**Part: SE120-003-7 - - PORT 5 REMOVAL, DETAIL ASSEMBLY, TEMPORARY RE-ATTACHMENT AND INSPECTION**

Drawing ID: SE120-005 Rev: 0		INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
*		VISUAL INSPECT PORT 5A WELDS BACK STRIP TO PORT TUBE BLOCK TO BACK STRIP 1/8" TUBE TO BLOCK		MFG		VISUAL	ACCEPT	837-J.D	053-M.D	
(10)		TIE STRAP SPOT WELDS		CWI				04-18-06	04-18-06	A
*		VISUAL INSPECT PORT 5B WELDS BACK STRIP TO PORT TUBE BLOCK TO BACK STRIP 1/8" TUBE TO BLOCK		MFG		VISUAL	BACK STRIP TO PORT TUBE, BLOCK TO BA K STRIP, 1/8" TUBE TO BLOCK	509-S.R	053-M.D	
(20)		TIE STRAP SPOT WELDS		CWI				04-18-06	04-18-06	A



Quality Assurance Documentation for Part ID: SE120-003-7 - Item: 121

Workorder: 65678/1-0 Sub:129 Op:20

Part: SE120-003-7 - - PORT 5 REMOVAL, DETAIL ASSEMBLY, TEMPORARY RE-ATTACHMENT AND INSPECTION

Drawing ID: SE120-004 Rev: 2			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT	
*		⊕ ∅.25 (M) A B C	LASER	QA		J-1280	POS 1.190 FACE -0.284 / -0.175 (ACCEPT PER N.C. # 19773 AND CUST. DOC.) [N/C:19773-Doc:19773]	854-R.U			A
(10)		PORT 5A POSITION (REINSTALLED)						05-18-06			
*		⊕ ∅.25 (M) A B C	LASER	QA		J-1280	POS 0.408 FACE -0.207 / -0.171 (ACCEPT PER N.C. # 19773 AND CUST. DOC.) [N/C:19773-Doc:19773]	854-R.U			A
(20)		PORT 5B POSITION (REINSTALLED)						05-18-06			

Quality Assurance Documentation for Part ID: SE120-003-7 - Item: 122

Workorder: 65678/1-0 Sub:129 Op:30

Part: SE120-003-7 - - PORT 5 REMOVAL, DETAIL ASSEMBLY, TEMPORARY RE-ATTACHMENT AND INSPECTION

Drawing ID: SE120-004 Rev: 2D			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT	
*		MAGNETIC PERMEABILITY 1.02 MAX (ENTIRE PORT LESS FLANGE WELD ZO	MASTER GAGE	QA		J-1271	LESS THAN 1.02	261-T.D			A
(10)								04-19-06			
*		MAGNETIC PERMEABILITY 1.2 MAX (PORT WALL TO FLANGE WELD ZONE)	MASTER GAGE	QA		J-1271	LESS THAN 1.2	261-T.D			A
(20)								04-19-06			
*		INTERIOR SURFACE FINISH: 32 MICRO-INCH RA	PROFILOMETER	QA		J-1308	8 TO 32 MICRO-INCH (HIGH ON I-5B ONLY)	261-T.D			A
(30)								04-19-06			
*		PORT EXTENSION WALL THICKNESS 0.188 +0.045/-0.010"	UT THICKNESS GA	QA		J-1009-NDT	.193 TO .226	533-B.C			A
(40)								04-21-06			
*		CLEANLINESS COMPLIES WITH PS483		QA		VISUAL	COMPLIES WITH PS48	261-T.D			A
(50)			04-19-06								
*		Q/A MANAGER / CFT VERIFY SUB-ASSY COMPLETION		QA			VERIFIED FINAL CON TION W/ENGINEER	840-G.M			A
(60)			04-25-06								

Quality Assurance Documentation for Part ID: SE120-003-9 - Item: 123

Workorder: 65678/1-0 Sub:130 Op:10

Part: SE120-003-9 - - PORT 6 REMOVAL, DETAIL ASSEMBLY, TEMPORARY RE-ATTACHMENT AND INSPECTION

Drawing ID: SE120-005 Rev: 0		INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
*		VISUAL INSPECT PORT 6A WELDS BACK STRIP TO PORT TUBE BLOCK TO BACK STRIP 1/8" TUBE TO BLOCK		MFG		VISUAL	PORT 6A WELDS ARE OOD	763-R.M	933-D.L	
(10)		TIE STRAP SPOT WELDS		CWI				04-17-06	04-17-06	A
*		VISUAL INSPECT PORT 6B WELDS BACK STRIP TO PORT TUBE BLOCK TO BACK STRIP 1/8" TUBE TO BLOCK		MFG		VISUAL	BACK STRIP TO PORT TUBE GOOD BLOCK T BACK STRIP GOOD 1/8 " TUBE TO BLOCK GO OD T	763-R.M	933-D.L	
(20)		TIE STRAP SPOT WELDS		CWI				04-17-06	04-17-06	A

Quality Assurance Documentation for Part ID: SE120-003-9 - Item: 124

Workorder: 65678/1-0 Sub:130 Op:20

Part: SE120-003-9 - - PORT 6 REMOVAL, DETAIL ASSEMBLY, TEMPORARY RE-ATTACHMENT AND INSPECTION

Drawing ID: SE120-004 Rev: 2			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT	
*		$\varnothing .25 \text{ (M)}$ A B C	LASER	QA		J-1280	POS 1.131 FACE -0.530 / -0.290 (ACCEPT PER N.C. # 19772 AND CUST. DOC.) [N/C:19772-Doc:19772]	854-R.U			A
(10)		PORT 6A POSITION (REINSTALLED)						05-18-06			
*		$\varnothing .25 \text{ (M)}$ A B C	LASER	QA		J-1280	POS 0.612 FACE -0.223 / -0.135 (ACCEPT PER N.C. # 19772 AND CUST. DOC.) [N/C:19772-Doc:19772]	854-R.U			A
(20)		PORT 6B POSITION (REINSTALLED)						05-18-06			

Quality Assurance Documentation for Part ID: SE120-003-9 - Item: 125

Workorder: 65678/1-0 Sub:130 Op:30

Part: SE120-003-9 - - PORT 6 REMOVAL, DETAIL ASSEMBLY, TEMPORARY RE-ATTACHMENT AND INSPECTION

Drawing ID: SE120-004 Rev: 2			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT	
*		MAGNETIC PERMEABILITY 1.02 MAX (ENTIRE PORT LESS FLANGE WELD ZO	MASTER GAGE	QA		J-1271	ACCEPT	261-T.D			A
(10)								04-18-06			
*		MAGNETIC PERMEABILITY 1.2 MAX (PORT WALL TO FLANGE WELD ZONE)	MASTER GAGE	QA		J-1271	ACCEPT	261-T.D			A
(20)								04-18-06			
*		INTERIOR SURFACE FINISH: 32 MICRO-INCH RA	PROFILOMETER	QA		J-1308	7 TO 12 MICRO-INCH RA	261-T.D			A
(30)								04-18-06			
*		PORT EXTENSION WALL THICKNESS 0.250 +0.045/-0.010"	UT THICKNESS GA	QA		J-770-NDT	0.262 TO 0.272	261-T.D			A
(40)								04-18-06			
*		CLEANLINESS COMPLIES WITH PS483		QA		VISUAL	COMPLIES WITH PS48	261-T.D			A
(50)			04-18-06								
*		Q/A MANAGER / CFT VERIFY SUB-ASSY COMPLETION		QA			VERIFIED FINAL CON TION W/ENGINEER	840-G.M			A
(60)			04-25-06								

Quality Assurance Documentation for Part ID: SE120-003-DOME A - Item: 126

Workorder: 65678/1-0 Sub:122 Op:10

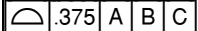
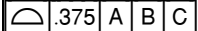
**Part: SE120-003-DOME A - - PORT DOME A AND DOME B INSTALLATION**

Drawing ID: SE120-004 Rev: 2			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT	
*				MFG		VISUAL	ACCEPT	683-K.M	581-D.E		A
(20)		VWI - ROOT PASS WELD PDAV		CWI		MAGLIGHT &10		10-20-05	10-20-05		
*				MFG		VISUAL	ACCEPT PER CUSTOM	709-K.A	933-D.L		A
(60)		VWI - COVER PASS WELD PDAV		CWI			DRAWINGS AND SPE FICATIONS	11-01-05	11-04-05		
*				MFG		VISUAL	ROOT PASS GOOD	763-R.M	933-D.L		A
(80)		VWI - ROOT PASS WELD PDBV		CWI				11-02-05	11-02-05		
*				MFG		VISUAL	ACCEPT PER CUSTOM	709-K.A	933-D.L		A
(120)		VWI - COVER PASS WELD PDBV		CWI			DRAWINGS AND SPE FICATIONS	11-03-05	11-04-05		

Quality Assurance Documentation for Part ID: SE120-003-DOME A - Item: 127

Workorder: 65678/1-0 Sub:122 Op:20

Part: SE120-003-DOME A - - PORT DOME A AND DOME B INSTALLATION

Drawing ID: SE120-004 Rev: 2			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT	
2* (30)	G2	 PORT DOME A SIDEWALL AND ADJACENT VESSEL WALL	LASER	QA		1444	+0.249 / -0.450 (+ & - CONDITIONS ARE ON ADJACENT SKIN)( ACCEPT TO NC 18553) [N/C:18553]	854-R.U  04-30-06			A
2* (40)	G2	 PORT DOME B SIDEWALL AND ADJACENT VESSEL WALL	LASER	QA		1444	+0.080 / -0.270 (- CONDITION ON ADJA NT SKIN)(ACCEPT TO NC 18553)	854-R.U  04-30-06			A

Quality Assurance Documentation for Part ID: SE120-003-NB - Item: 128

Workorder: 65678/1-0 Sub:119 Op:10

Part: SE120-003-NB - - PORT NB INSTALLATION

Drawing ID: SE120-004 Rev: 2			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT	
*				MFG		VISUAL	ACCEPT PER CUSTOM DRAWINGS AND SPECIFICATIONS	709-K.A	933-D.L		A
(20)		VWI - ROOT PASS WELD PNBV		CWI				10-12-05	10-12-05		
*				MFG		VISUAL	ACCEPT PER CUSTOM DRAWINGS AND SPECIFICATIONS	709-K.A	933-D.L		A
(60)		VWI - COVER PASS WELD PNBV		CWI				10-13-05	10-13-05		



**INSPECTION DATA CHECKLIST**

Quality Assurance Documentation for Part ID: SE120-004 PORT NB - Item: 129

Workorder: 65678/1-0 Sub:223 Op:10












Part: SE120-004 PORT NB - REWORK / REPAIR PER N/C - N/C # \_\_\_\_\_

Drawing ID: SE120-004 Rev: 2			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT	
*		VWI ROOT PASS		MFG		VISUAL	ACCEPTABLE	728-R.D	581-D.E		A
(30)		INNER PATCH WELD		CWI				10-18-05	10-18-05		
*		VWI COVER PASS		MFG		VISUAL	ACCEPT	837-J.D	581-D.E		A
(70)		INNER PATCH WELD		CWI				10-18-05	10-19-05		
*		VWI ROOT PASS		MFG		VISUAL	ACCEPET	683-K.M	581-D.E		A
(80)		OUTER PATCH WELD		CWI				10-19-05	10-31-05		
*		VWI COVER PASS		MFG		VISUAL	ACCEPT	709-K.A	933-D.L		A
(120)		OUTER PATCH WELD		CWI				11-02-05	11-02-05		

Quality Assurance Documentation for Part ID: SE120-004 - Item: 130

Workorder: 65678/1-0 Sub:1 Op:20

Part: SE120-004 - -

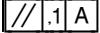
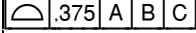
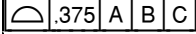
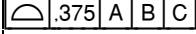
Drawing ID: SE120-004 Rev: 2D				INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY		
SHEET	ZONE	CHARACTERISTIC		GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
*		 0.375 A B C		LASER	QA		J-1280	-0.404 / +0.543 (AC CEPT PER N.C. # 197 76 AND CUST. DOC.) [N/C:19776-Doc:19 776]	854-R.U		A
(10)		FINAL VESSEL PROFILE							05-18-06		
3*	D3	 0.05  0.25 A B C		LASER	QA		J-1280	FLAT 0.037 PROFILE +0.063 / +0.230 (AC CEPT PER N.C. # 197 76 AND CUST. DOC.) [N/C:19776-Doc:19 776]	854-R.U		A
(20)		HALF A RFD 12-016							05-18-06		
3*	D3	 0.05  0.25 A B C		LASER	QA		J-1280	FLAT 0.041 PROFILE -0.231 / +0.069 (AC CEPT PER N.C. # 197 76 AND CUST. DOC.) [N/C:19776-Doc:19 776]	854-R.U		A
(30)		HALF B RFD 12-016							05-18-06		
*		 .25 A B C  17"		LASER	QA		J-1280	2.133 (ACCEPT PER N .C. # 19776 AND CUS T. DOC.) [N/C:197 76-Doc:19776]	854-R.U		A
(40)		HALF -A- BOSS A FINAL							05-18-06		
*		 .25 A B C  17"		LASER	QA		J-1280	1.228 (ACCEPT PER N .C. # 19776 AND CUS T. DOC.) [N/C:197 76-Doc:19776]	854-R.U		A
(50)		HALF -A- BOSS B FINAL							05-18-06		
*		 .25 A B C  17"		LASER	QA		J-1280	1.089 (ACCEPT PER N .C. # 19776 AND CUS	854-R.U		A



**INSPECTION DATA CHECKLIST**

(60)		HALF -A- BOSS C FINAL				T. DOC.) [N/C:197 76-Doc:19776]	05-18-06		
*		$\varnothing .25$ A B C $\text{\textcircled{P}} 17''$	LASER	QA	J-1280	0.480 (ACCEPT PER N .C. # 19776 AND CUS T. DOC.) [N/C:197 76-Doc:19776]	854-R.U		A
(70)		HALF -A- BOSS D FINAL					05-18-06		
*		$\varnothing .25$ A B C $\text{\textcircled{P}} 17''$	LASER	QA	J-1280	0.627 (ACCEPT PER N .C. # 19776 AND CUS T. DOC.) [N/C:197 76-Doc:19776]	854-R.U		A
(80)		HALF -B- BOSS A FINAL					05-18-06		
*		$\varnothing .25$ A B C $\text{\textcircled{P}} 17''$	LASER	QA	J-1280	1.460 (ACCEPT PER N .C. # 19776 AND CUS T. DOC.) [N/C:197 76-Doc:19776]	854-R.U		A
(90)		HALF -B- BOSS B FINAL					05-18-06		
*		$\varnothing .25$ A B C $\text{\textcircled{P}} 17''$	LASER	QA	J-1280	0.832 (ACCEPT PER N .C. # 19776 AND CUS T. DOC.) [N/C:197 76-Doc:19776]	854-R.U		A
(100)		HALF -B- BOSS C FINAL					05-18-06		
*		$\varnothing .25$ A B C $\text{\textcircled{P}} 17''$	LASER	QA	J-1280	3.091 (ACCEPT PER N .C. # 19776 AND CUS T. DOC.) [N/C:197 76-Doc:19776]	854-R.U		A
(110)		HALF -B- BOSS D FINAL					05-18-06		
15*			LASER	QA	J-1280	98.463 / 98.540 (AC CEPT PER N.C. # 197 76 AND CUST. DOC.) [N/C:19776-Doc:19 776]	854-R.U		A
(120)		98.641 +/-0.125"					05-18-06		
13*	F3	$\text{\textcircled{P}} .1$ A	LASER	QA	J-1280	0.119 (ACCEPT PER N .C. # 19776 AND CUS T. DOC.) [N/C:197 76-Doc:19776]	854-R.U		A
(130)							05-18-06		

**INSPECTION DATA CHECKLIST**

13*	A3		LASER	QA		J-1280	0.110 (ACCEPT PER N .C. # 19776 AND CUS T. DOC.) [N/C:197 76-Doc:19776]	854-R.U			A
(140)								05-18-06			
<b>Drawing ID: SE120-002 Rev: 1</b>			<b>INSPECTION INSTRUCTIONS</b>			<b>RESULTS</b>			<b>INSPECTED BY</b>		
<b>SHEET</b>	<b>ZONE</b>	<b>CHARACTERISTIC</b>	<b>GAGE/EQUIP</b>	<b>BY</b>	<b>SAMPLE</b>	<b>SER#</b>	<b>DATA/REMARKS</b>	<b>INSP</b>	<b>VERFD</b>	<b>AUDIT</b>	
*			LASER	QA		J-1280	-0.460 / +0.577 (AC CEPT PER N.C. # 197 76 AND CUST. DOC.) [N/C:19776-Doc:19 776]	854-R.U			A
(150)		Port 12A profile						05-18-06			
<b>Drawing ID: SE120-004 Rev: 2D</b>			<b>INSPECTION INSTRUCTIONS</b>			<b>RESULTS</b>			<b>INSPECTED BY</b>		
<b>SHEET</b>	<b>ZONE</b>	<b>CHARACTERISTIC</b>	<b>GAGE/EQUIP</b>	<b>BY</b>	<b>SAMPLE</b>	<b>SER#</b>	<b>DATA/REMARKS</b>	<b>INSP</b>	<b>VERFD</b>	<b>AUDIT</b>	
13*	E2		LASER	QA		J-1280	81.076 / 81.195 (AC CEPT PER N.C. # 197 76 AND CUST. DOC.) [N/C:19776-Doc:19 776]	854-R.U			A
(160)		81.370 +/-0.125"						05-18-06			
13*	B2		LASER	QA		J-1280	81.373 / 81.483	522-R.D			A
(170)		81.370 +/-0.125"						05-04-06			
<b>Drawing ID: SE120-002 Rev: 1</b>			<b>INSPECTION INSTRUCTIONS</b>			<b>RESULTS</b>			<b>INSPECTED BY</b>		
<b>SHEET</b>	<b>ZONE</b>	<b>CHARACTERISTIC</b>	<b>GAGE/EQUIP</b>	<b>BY</b>	<b>SAMPLE</b>	<b>SER#</b>	<b>DATA/REMARKS</b>	<b>INSP</b>	<b>VERFD</b>	<b>AUDIT</b>	
*			LASER	QA		J-1280	-0.731 / +0.911 (AC CEPT PER N.C. # 197 76 AND CUST. DOC.) [N/C:19776-Doc:19 776]	854-R.U			A
(180)		Port 12B profile						05-18-06			
<b>Drawing ID: SE120-004 Rev: 2D</b>			<b>INSPECTION INSTRUCTIONS</b>			<b>RESULTS</b>			<b>INSPECTED BY</b>		
<b>SHEET</b>	<b>ZONE</b>	<b>CHARACTERISTIC</b>	<b>GAGE/EQUIP</b>	<b>BY</b>	<b>SAMPLE</b>	<b>SER#</b>	<b>DATA/REMARKS</b>	<b>INSP</b>	<b>VERFD</b>	<b>AUDIT</b>	
15*			LASER	QA		J-1280	-0.314 / +0.265 (AC CEPT PER N.C. # 197 76 AND CUST. DOC.) [N/C:19776-Doc:19 776]	854-R.U			A
(190)		Port NB profile						05-18-06			

Quality Assurance Documentation for Part ID: SE120-004 - Item: 131

Workorder: 65678/1-0 Sub:1 Op:30

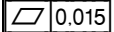
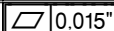
Part: SE120-004 - -

Drawing ID: SE120-002 Rev: 1			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT	
*		VESSEL WALL MATERIAL THICKNESS 10% MAX POLOIDAL THINNING BELO STK (0.375 +.040"/-.010") .338 MINIMUM WALL THICKNESS	UT THICKNESS GA	QA		J-1009-NDT	.365 TO .414	261-T.D			A
(10)											
*		MAGNETIC PERMEABILITY 1.02 MAX	MASTER GAGE	QA		J-1271	LESS THAN 1.02	261-T.D			A
(20)											
*		INTERIOR SURFACE FINISH: 32 MICRO-INCH RA	PROFILOMETER	QA		J-1308	6 TO 30 MICRO-INCH	261-T.D			A
(30)											

Quality Assurance Documentation for Part ID: SE120-004 - Item: 132

Workorder: 65678/1-0 Sub:2 Op:60

**Part: SE120-004 - - VACUUM TESTING / PORT REMOVAL / VESSEL FLANGE MACHINING / FINAL INSPECTION ACTIVITIES SE120-003-1 120 DEGREE**

Drawing ID: SE120-004 Rev: 2			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY		
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
3* (10)	D3	 0.015	CALIPER	MFG QA		P-4834	WITH/IN.015	492-R.E 03-08-06	576-J.G 03-07-06	A
Drawing ID: SE121-013 Rev: 0			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY		
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
* (30)		0.188 +/-0.005"	CALIPER	MFG QA		P-4834	.185/.191	492-R.E 03-07-06	576-J.G 03-07-06	A
* (40)		0.637 +/-0.005" NOTE: DIMENSION WILL LIKELY BE S OUT OF TOLERANCE, I.D. CUT AS DET	CALIPER	MFG QA		P-4834	.480 TO .900 (HOLES REPAIRED PER N.C. 19739 AND CUSTOMER DOC.)	854-R.U 05-17-06	576-J.G 03-07-06	A
* (50)		0.469 +/-0.005" NOTE: DIMENSION WILL LIKELY BE S OUT OF TOLERANCE, HOLES CUT AS D	CALIPER	MFG QA		P-4834	.432 TO .240 (HOL ES REPAIRED PER N.C . 19739 AND CUSTOME R DOC.)	854-R.U 05-17-06	576-J.G 03-07-06	A
Drawing ID: SE122-072 Rev: 1			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY		
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
* (60)	G6	1.25 +/-0.010" PORT NB FLANGE THICKNESS AFTER REWORK	CALIPER	MFG QA		P-4834	1.140/1.190 (ACCEP T PER N.C.19393 AND CUST. DOC.)	854-R.U 05-17-06	854-R.U 03-08-06	A
* (80)		 0.015" PORT NB FACE FLATNESS AFTER REWORK NOTE 1.5" LIMIT OF TOLERANCE	INDICATOR	MFG QA		P-4927	WITH/IN.007	492-R.E 03-08-06	854-R.U 03-08-06	A

Quality Assurance Documentation for Part ID: SE120-004-17A - Item: 133

Workorder: 65678/1-0 Sub:125 Op:10

**Part: SE120-004-17A - - PORT 17A AND 17B INSTALLATION**

Drawing ID: SE120-004 Rev: 2			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY		
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
*				MFG		VISUAL	ACCEPT	683-K.M	933-D.L	
(20)		VWI - ROOT PASS WELD P17AV		CWI				12-08-05	12-08-05	A
*				MFG		VISUAL	ACCEPT	837-J.D	933-D.L	
(40)		VWI - COVER PASS WELD P17AV		CWI				12-09-05	12-14-05	A
*				MFG		VISUAL	ACCEPT	683-K.M	581-D.E	
(60)		VWI - ROOT PASS WELD P17BV		CWI				12-09-05	12-09-05	A
*				MFG		VISUAL	ACCEPT	683-K.M	933-D.L	
(80)		VWI - COVER PASS WELD P17BV		CWI				12-14-05	12-14-05	A

Quality Assurance Documentation for Part ID: SE120-004-17A - Item: 134

Workorder: 65678/1-0 Sub:125 Op:20

Part: SE120-004-17A - - PORT 17A AND 17B INSTALLATION

Drawing ID: SE120-004 Rev: 2			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT	
16*	D8	$\Phi$ $\varnothing$ .25 $\text{\textcircled{M}}$ A B C	LASER	QA		1444	0.252 TOP +0.010 / -0.033 (ACCEPT TO N C 18833) [N/C:18833 ]	854-R.U			A
(30)		PORT 17A POSITION						04-30-06			
16*	D8	$\Phi$ $\varnothing$ .25 $\text{\textcircled{M}}$ A B C	LASER	QA		1444	0.057 TOP -0.058 / -0.018	522-R.D			A
(40)		PORT 17B POSITION						12-10-05			



Quality Assurance Documentation for Part ID: SE120-004-18A - Item: 135

Workorder: 65678/1-0 Sub:126 Op:10

**Part: SE120-004-18A - - PORT 18A AND 18B INSTALLATION**

Drawing ID: SE120-004 Rev: 2			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT	
*				MFG		VISUAL	ACCEPT	683-K.M	933-D.L		A
(20)		VWI - ROOT PASS WELD P18AV		CWI				12-08-05	12-08-05		
*				MFG		VISUAL	ACCEPT	837-J.D	933-D.L		
(40)		VWI - COVER PASS WELD P18AV		CWI				12-09-05	12-14-05		
*				MFG		VISUAL	ACCEPT	683-K.M	581-D.E		A
(60)		VWI - ROOT PASS WELD P18BV		CWI				12-09-05	12-09-05		
*				MFG		VISUAL	ACCEPT	683-K.M	933-D.L		A
(80)		VWI - COVER PASS WELD P18BV		CWI				12-14-05	12-14-05		

Quality Assurance Documentation for Part ID: SE120-004-18A - Item: 136

Workorder: 65678/1-0 Sub:126 Op:20

Part: SE120-004-18A - - PORT 18A AND 18B INSTALLATION

Drawing ID: SE120-004 Rev: 2			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT	
17* (30)	B5	⊕ ∅.25 (M) A B C PORT 18A POSITION	LASER	QA		1444	0.203 TOP +0.006 / +0.031	522-R.D 12-10-05			A
17* (40)	B5	⊕ ∅.25 (M) A B C PORT 18B POSITION	LASER	QA		1444	0.179 TOP +0.011 / +0.037	522-R.D 12-10-05			A

Quality Assurance Documentation for Part ID: SE120-004-2A - Item: 137

Workorder: 65678/1-0 Sub:123 Op:10

Part: SE120-004-2A - - ALL ROUND PORT EXTENSION INSTALLATION

Drawing ID: SE120-004 Rev: 2		INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
*				MFG		VISUAL	O.K. PER CUSTOMER	771-B.S	581-D.E	
(20)		VWI - ROOT PASS WELD P2AV		CWI			EQUIREMENTS	12-05-05	12-05-05	A
*				MFG		VISUAL	ACCEPT	837-J.D	933-D.L	
(40)		VWI - COVER PASS WELD P2AV		CWI				12-09-05	12-12-05	A
*				MFG		VISUAL	ACCEPT	683-K.M	933-D.L	
(60)		VWI - ROOT PASS WELD P2BV		CWI				12-06-05	12-06-05	A
*				MFG		VISUAL	ACCEPTABLE	728-R.D	933-D.L	
(80)		VWI - COVER PASS WELD P2BV		CWI				12-12-05	12-12-05	A
*				MFG		VISUAL	ACCEPT	683-K.M	933-D.L	
(100)		VWI - ROOT PASS WELD P5AV		CWI				12-01-05	12-01-05	A
*				MFG		VISUAL	ACCEPT	837-J.D	933-D.L	
(120)		VWI - COVER PASS WELD P5AV		CWI				12-01-05	12-12-05	A
*				MFG		VISUAL	ACCEPT	709-K.A	933-D.L	
(140)		VWI - ROOT PASS WELD P5BV		CWI				12-02-05	12-02-05	A
*				MFG		VISUAL	ACCEPT	837-J.D	933-D.L	
(160)		VWI - COVER PASS WELD P5BV		CWI				12-03-05	12-05-05	A
*				MFG		VISUAL	ACCEPT	683-K.M	933-D.L	
(180)		VWI - ROOT PASS WELD P6AV		CWI				12-01-05	12-01-05	A
*				MFG		VISUAL	ACCEPT	837-J.D	933-D.L	
(200)		VWI - COVER PASS WELD P6AV		CWI				12-01-05	12-12-05	A
*				MFG		VISUAL	ACCEPT	709-K.A	933-D.L	
(220)		VWI - ROOT PASS WELD P6BV		CWI				11-30-05	11-30-05	A
*				MFG		VISUAL	ACCEPT	709-K.A	933-D.L	
(240)		VWI - COVER PASS WELD P6BV		CWI				12-02-05	12-05-05	A
*				MFG		VISUAL	O.K. PER CUSTOMER	771-B.S	581-D.E	
(260)		VWI - ROOT PASS WELD P7AV		CWI			EQUIREMENST	12-05-05	12-05-05	A
*				MFG		VISUAL	ACCEPT	837-J.D	933-D.L	
(280)		VWI - COVER PASS WELD P7AV		CWI				12-09-05	12-12-05	A
*				MFG		VISUAL	O.K. PER CUSTOMER	771-B.S	581-D.E	
(300)		VWI - ROOT PASS WELD P7BV		CWI			EQUIREMENTS	12-05-05	12-05-05	A

INSPECTION DATA CHECKLIST

*	(320)	VWI - COVER PASS WELD P7BV	MFG CWI	VISUAL	ACCEPT	837-J.D 12-09-05	933-D.L 12-12-05		A
*	(340)	VWI - ROOT PASS WELD P8AV	MFG CWI	VISUAL	ACCEPT	709-K.A 12-07-05	933-D.L 12-07-05		A
*	(360)	VWI - COVER PASS WELD P8AV	MFG CWI	VISUAL	ACCEPT	728-R.D 12-12-05	933-D.L 12-12-05		A
*	(380)	VWI - ROOT PASS WELD P8BV	MFG CWI	VISUAL	ACCEPT	683-K.M 12-06-05	933-D.L 12-06-05		A
*	(400)	VWI - COVER PASS WELD P8BV	MFG CWI	VISUAL	ACCEPT	728-R.D 12-12-05	933-D.L 12-12-05		A
*	(420)	VWI - ROOT PASS WELD P9AV	MFG CWI	VISUAL	ACCEPT	709-K.A 12-02-05	933-D.L 12-02-05		A
*	(440)	VWI - COVER PASS WELD P9AV	MFG CWI	VISUAL	ACCEPT	837-J.D 12-03-05	933-D.L 12-05-05		A
*	(460)	VWI - ROOT PASS WELD P9BV	MFG CWI	VISUAL	ACCEPT	683-K.M 12-06-05	933-D.L 12-06-05		A
*	(480)	VWI - COVER PASS WELD P9BV	MFG CWI	VISUAL	ACCEPT	728-R.D 12-12-05	933-D.L 12-12-05		A
*	(500)	VWI - ROOT PASS WELD P10AV	MFG CWI	VISUAL	ACCEPT	791-D.W 11-25-05	933-D.L 11-30-05		A
*	(520)	VWI - COVER PASS WELD P10AV	MFG CWI	VISUAL	VISUAL ACCEPT	791-D.W 11-27-05	933-D.L 11-30-05		A
*	(540)	VWI - ROOT PASS WELD P10BV	MFG CWI	VISUAL	ACCEPT	728-R.D 12-12-05	933-D.L 11-30-05		A
*	(560)	VWI - COVER PASS WELD P10BV	MFG CWI	VISUAL	VISUAL ACCEPT	791-D.W 11-27-05	933-D.L 11-30-05		A
*	(580)	VWI - ROOT PASS WELD P11AV	MFG CWI	VISUAL	O.K. PER CUSTOMER EQUIREMENTS	771-B.S 12-05-05	581-D.E 12-05-05		A
*	(600)	VWI - COVER PASS WELD P11AV	MFG CWI	VISUAL	ACCEPT	837-J.D 12-09-05	933-D.L 12-12-05		A
*	(620)	VWI - ROOT PASS WELD P11BV	MFG CWI	VISUAL	O.K. PER CUSTOMER EQUIREMENTS	771-B.S 12-05-05	581-D.E 12-05-05		A
*	(640)	VWI - COVER PASS WELD P11BV	MFG CWI	VISUAL	ACCEPT	837-J.D 12-09-05	933-D.L 12-12-05		A
*	(660)	VWI - ROOT PASS WELD P15AV	MFG CWI	VISUAL	ACCEPT	683-K.M 12-01-05	933-D.L 12-01-05		A

**INSPECTION DATA CHECKLIST**

*				MFG		VISUAL	ACCEPT	837-J.D	933-D.L		A
(680)		VWI - COVER PASS WELD P15AV		CWI				12-01-05	12-05-05		
*				MFG		VISUAL	ACCEPT	709-K.A	933-D.L		A
(700)		VWI - ROOT PASS WELD P15BV		CWI				11-30-05	11-30-05		
*				MFG		VISUAL	ACCEPT	709-K.A	933-D.L		A
(720)		VWI - COVER PASS WELD P15BV		CWI				12-02-05	12-05-05		

Quality Assurance Documentation for Part ID: SE120-004-2A - Item: 138

Workorder: 65678/1-0 Sub:123 Op:20

Part: SE120-004-2A - - ALL ROUND PORT EXTENSION INSTALLATION

Drawing ID: SE120-004 Rev: 2			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY		
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
4* (30)	D5	$\varnothing .25$ (M) A B C PORT 2A POSITION	LASER	QA		1444	0.241 TOP +0.027 / +0.043	522-R.D 12-10-05		A
4* (40)	D5	$\varnothing .25$ (M) A B C PORT 2B POSITION	LASER	QA		1444	0.175 TOP -0.293 / -0.270	522-R.D 12-10-05		A
6* (70)	A5	$\varnothing .25$ (M) A B C PORT 5A POSITION	LASER	QA		1444	0.196 TOP -0.125 / -0.168	522-R.D 12-05-05		A
6* (80)	A5	$\varnothing .25$ (M) A B C PORT 5B POSITION	LASER	QA		1444	0.226 TOP -0.046 / -0.063	522-R.D 12-04-05		A
7* (110)	A5	$\varnothing .25$ (M) A B C PORT 6A POSITION	LASER	QA		1444	0.178 TOP +0.141 / +0.196	522-R.D 12-05-05		A
7* (120)	A5	$\varnothing .25$ (M) A B C PORT 6B POSITION	LASER	QA		1444	0.194 TOP -0.056 / +0.028	522-R.D 12-04-05		A
8* (150)	A5	$\varnothing .25$ (M) A B C PORT 7A POSITION	LASER	QA		1444	0.096 TOP +0.057 / +0.136	522-R.D 12-10-05		A
8* (160)	A5	$\varnothing .25$ (M) A B C PORT 7B POSITION	LASER	QA		1444	0.111 TOP +0.036 / -0.004	522-R.D 12-10-05		A
9* (190)	B5	$\varnothing .25$ (M) A B C PORT 8A POSITION	LASER	QA		1444	0.248 TOP +0.024 / +0.048	522-R.D 12-10-05		A
9* (200)	B5	$\varnothing .25$ (M) A B C PORT 8B POSITION	LASER	QA		1444	0.184 TOP -0.035 / -0.019	522-R.D 12-10-05		A
10* (230)	B5	$\varnothing .25$ (M) A B C PORT 9A POSITION	LASER	QA		1444	0.252 TOP +0.021 / +0.061 (ACCEPT TO NC 18834) [N/C:18834]	854-R.U 04-30-06		A
10* (240)	B5	$\varnothing .25$ (M) A B C PORT 9B POSITION	LASER	QA		1444	0.208 TOP +0.097 / +0.126	522-R.D 12-10-05		A
11* (270)	C5	$\varnothing .25$ (M) A B C PORT 10A POSITION	LASER	QA		1444	POSITION 0.332 TOP SURFACE -0.134 / -0 .155 (ACCEPT TO NC 18748) [N/C:18748]	854-R.U 04-30-06		A
11*	C5	$\varnothing .25$ (M) A B C	LASER	QA		1444	POSITION 0.148 TOP	522-R.D		A

**INSPECTION DATA CHECKLIST**

(280)		PORT 10B POSITION					SURFACE -0.194 / -0.201	12-01-05		
12* (310)	A7	⊕ ∅.25 (M) A B C PORT 11A POSITION	LASER	QA	1444		0.098 / TOP -0.167 / -0.155	522-R.D 12-10-05		A
12* (320)	A7	⊕ ∅.25 (M) A B C PORT 11B POSITION	LASER	QA	1444		0.231 TOP -0.209 / -0.229	522-R.D 12-10-05		A
14* (350)	B5	⊕ ∅.25 (M) A B C PORT 15A POSITION	LASER	QA	1444		0.130 TOP -0.087 / -0.071	522-R.D 12-05-05		A
14* (360)	B5	⊕ ∅.25 (M) A B C PORT 15B POSITION	LASER	QA	1444		0.228 TOP +0.078 / +0.090	522-R.D 12-04-05		A

Quality Assurance Documentation for Part ID: SE120-004-4A - Item: 139

Workorder: 65678/1-0 Sub:121 Op:10

Part: SE120-004-4A - - PORT 4A AND 4B INSTALLATION

Drawing ID: SE120-004 Rev: 2			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT	
*				MFG		VISUAL	ACCEPT PER CUSTOM	709-K.A	581-D.E		A
(20)		VWI - ROOT PASS WELD P4AV		CWI			DRAWINGS AND SPE FICATIONS	11-20-05	11-20-05		
*				MFG		VISUAL	ACCEPT PER CUSTOM	709-K.A	933-D.L		A
(60)		VWI - COVER PASS WELD P4AV		CWI			DRAWINGS AND SPE FICATIONS	12-20-05	11-30-05		
*				MFG		VISUAL	ACCEPT PER CUSTOM	709-K.A	933-D.L		A
(80)		VWI - ROOT PASS WELD P4BV		CWI			DRAWINGS AND SPE FICATIONS	11-20-05	11-30-05		
*				MFG		VISUAL	ACCEPT	709-K.A	933-D.L		A
(120)		VWI - COVER PASS WELD P4BV		CWI				11-28-05	11-30-05		



Quality Assurance Documentation for Part ID: SE120-004-4A - Item: 140

Workorder: 65678/1-0 Sub:121 Op:20

Part: SE120-004-4A - - PORT 4A AND 4B INSTALLATION

Drawing ID: SE120-004 Rev: 2			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT	
5*	B5	$\Phi$ $\varnothing$ .25 $\text{\textcircled{M}}$ A B C	LASER	QA		1444	POSITION 0.341 TOP SURFACE +0.081 / +0 .152 (ACCEPT PER NC 18748) [N/C:18748]	854-R.U			A
(30)		PORT 4A POSITION						04-30-06			
5*	B5	$\Phi$ $\varnothing$ .25 $\text{\textcircled{M}}$ A B C	LASER	QA		1444	POSITION 0.284 TOP SURFACE +0.051 / +0 .073 (ACCEPT PER NC 18748) [N/C:18748]	854-R.U			A
(40)		PORT 4B POSITION						04-30-06			

JUN-21-2005 TUE 08:21 AM TEK MIDWEST

FAX NO. 708 430 0147

P. 01



**GREENVILLE TUBE**  
P.O. Box 30 Greenville, PA 16125  
**REPORT OF TESTS**

Phone (724)-588-6300  
Fax (724)-588-1492

Customer

City Our Order GM-4987 Date May 26, 2005  
C.P.O. M49128631

Material: Type 316/316 L (X) Seamless ( ) Welded and Drawn ( ) As Welded  
Condition Bright Annealed Finish Cold Drawn, Bright Annealed and Passivated  
Spec. ASTM-A-269-C4/A-213-04b/SA-213-04(EAW)

MAJOR TOOL & MACHINE CO.  
P.O. PO5-03220

REF # 1010873

Each Tube on this order has been spectrographically Checked for MO

Heat Number	Size			Length
	O.D.	I.D.	Wall	
2D994	125"		.035" Avg	17'24"

	Chemical Analysis											
	%C	%Mn	%P	%S	%SI	%Ni	%Cr	%Mo	%Ti	%Cb+TA	%Fe	%N
Ladle	0.19	1.43	0.022	.001	37	12.01	17.15	2.13				0.04
Prod	0.19	1.45	.028	0.003	37	12.24	17.36	2.181				0.04
	%Cu	%Co	%Al	%Nb+TA	%Nb	%TA	%Al+Ti	%Cb+Nb	%Cb			
	Ladle	.22	.15									
Prod	.18	.15										

Mechanical and Non-Destructive Tests					
Tensile Strength	Yield Strength	% Elongation in 2"	Eddy Current	Hydro Test	Air Test
104,721	57,904	55	Passed		
103,488	54,208	55			

Mechanical Destructive and Other Tests								
Hardness	Bend	Reverse Bend	Flange	Reverse Flange	Flare	Flat	Grain Size	Other Tests
RB 73/76				PASSED	PASSED			JUN 22 2005

ASTM-A-262, Practice Corrosion Test

A B C D E 97361 AM  
WE HEREBY CERTIFY THAT THE HEAT NUMBERS, ANALYSIS AND TESTS DETAILED HEREON, ARE CORRECT AS CONTAINED IN THE RECORDS OF THIS CORPORATION

Important Notice: Any discrepancy in the amount of tubing must be reported within 24 hours after receipt by the customer. Greenville Tube certifies that the material used for the P.O. No. stated above is free from mercury and low melting alloy contamination.

Signed: *Robert Ryan*  
Robert Ryan  
Quality Control Manager / Metallurgical Engineer

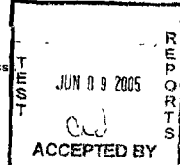
Gaby Rocole  
Quality Control Ass

ness test performed on O.D. corrected for curvature per ASTM-E-18  
inverted from 15-T Scale

ry of origin of raw material producer, China  
y of origin of melt Taiwan



JUN 24 2005





1565 FLEETWOOD DRIVE  
 ELGIN, IL 60123  
 CERTIFICATE OF ANALYSIS

CUSTOMER:

METALMEN SALES, INC.  
 P.O. BOX 54  
 NEW YORK, NY 10044

ORDER(S) : T3672b  
 SALES ORDER 78524-1  
 QUANTITY : 2,310 00

SPEC. 4749 AMS 5599 F I625 ANNEALED 3891 ASTM B443 93 I525 GRADE 1  
 APPR. GE S400, S1000 D,  
 DESC. ALLOY 625 2B ANNEALED COIL  
 Gauge: .010+/- .001 (.009/- .011)  
 Width: 36.000+/- .01

Cust. Part #138020136008-01  
 PAPER INTERLEAVE #3 EDGE  
 MARK WEIGHT OF PAPER INTERLEAVE

HEAT NO 265096802 MATON Tool Po Pos-03219 (pc) 12" x 12" CHEMICAL PROPERTIES

ALUMINUM (Al)	0.2000 ✓	BERYLLIUM (Be)	
BORON (B)	0.0030	CALCIUM (Ca)	
CARBON (C)	0.0200 ✓	CHROMIUM (Cr)	✓ 1 5500 ✓
COBALT (Co)	0.1300 ✓	COLUM.+TANTALUM (Cb+Ta)	3.5100 ✓
COLUMBIUM (Cb)	3.4600	COPPER (Cu)	0 0800
HYDROGEN (H)		IRON (Fe)	4.4700 ✓
LANTHANUM (La)		MAGNESIUM (Mg)	0.0050 ✓
MANGANESE (Mn)	0.3200	MOLYBDENUM (Mo)	8.4300 ✓
NICKEL (Ni)	60.3100 ✓	NITROGEN (N)	
OXYGEN (O)		PHOSPHORUS (P)	0.0050 ✓
SILICON (Si)	0.2000 ✓	SULFUR (S)	0.0020 ✓
TANTALUM (Ta)	<.05	TITANIUM (Ti)	0 2500 ✓
TUNGSTEN (W)	0.1100	VANADIUM (V)	
ZIRCONIUM (Zr)		NICKEL+COBALT (Ni+Co)	60.4400

AS SHIPPED PROPERTIES:

DIR TENSILE	YIELD ✓	%ELG (2"/4D)	% R/A	GRAIN HARDNESS	WRAP	BEND ✓
138000	72500	46.0		9.0		PASS

AS SHIPPED PROPERTIES:

DIR TENSILE	YIELD	%ELG (2"/4D)	% R/A	GRAIN HARDNESS	WRAP	BEND
-------------	-------	--------------	-------	----------------	------	------

AFTER H/T @ ROOM TEMPERATURE; H/T AT F+/- F HRS+/- HRS COOL

DIR TENSILE	YIELD	%ELG (2"/4D)	% R/A	GRAIN HARDNESS	WRAP	BEND
-------------	-------	--------------	-------	----------------	------	------

AFTER H/T @ ROOM TEMPERATURE; H/T AT F+/- F HRS+/- HRS COOL

DIR TENSILE	YIELD	%ELG (2"/4D)	% R/A	GRAIN HARDNESS	WRAP	BEND
-------------	-------	--------------	-------	----------------	------	------

TESTED @ R; H/T AT F+/- F HRS+/- HRS COOL

DIR TENSILE	YIELD	%ELG (2"/4D)	% R/A	GRAIN HARDNESS	WRAP	BEND
-------------	-------	--------------	-------	----------------	------	------

DIR STRESS RUPTURE F  
 HOURS %ELG (2"/4D) PSI IGO IGA MICRO

LOT CODE-100421 . \*1.0TX180 ;ELEC.ETCH/10%OXALIC/100XMPG

JUN 16 2005  
 97132 D#

WE HEREBY CERTIFY THE MATERIAL SHIPPED ON THE ABOVE ORDER CONFORMS TO THE  
 STATED CHEMICAL AND PHYSICAL REQUIREMENTS AND PROCESSED FREE OF MERCURY  
 UNLESS OTHERWISE STATED )

AUTHORIZED SIGNATURE:

DATE: 01-08-21



JUN 18 2005

QUALITY MANAGER - RICHARD OMICTEK

**INSPECTION DATA CHECKLIST**

Quality Assurance Documentation for Part ID: SE120-005-40 - Item: 143

Workorder: 65678/1-0 Sub:138 Op:10

Part: SE120-005-40 - - PORT 2 BACKING STRIP

Drawing ID: Rev:		INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
*		MAGNETIC PERMEABILITY 1.02 MAX	MASTER GAGE	QA		J-1165	LESS THAN 1.02	854-R.U 08-21-05		
(20)										

A

CERTIFICATION OF TESTS • RAPPORT D'ESSAIS CERTIFIE • WERKSZEUGNIS			
Invoice No No. De Facture Rechnungs Nr 442551001-0	Date Entered Date De Commande Bestelldatum 06/03/05	Customer Reference Reference Client Kundenbestelldaten P05-03064	Report No. Rapport No. Zugsis Nr 20050628085
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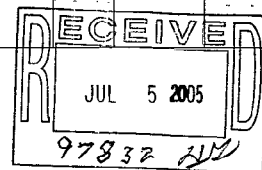
Sold To • Client • Bestellerschrift <b>MAJOR TOOL AND MACHINE INC</b> 1458 E 19TH ST INDIANAPOLIS IN 46218 USA	Ship To • Destinataire • Bestellmenge <b>MAJOR TOOL AND MACHINE INC</b> 1458 E 19TH ST INDIANAPOLIS IN 46218 USA	Product Description • Description Produit • Material Beschreibung <b>0.125 (0.120/0.130) x 0/0 x 0/0</b> <b>SE120-004-66MTM REV:1A</b> <b>HAYNES(R) 625 ALLOY SHEET</b> <b>Nadcap CERTIFICATE NUMBER 0089</b> <b>S400E,S1000E, EN 10204 3.1.B, AS9100</b>
--	--	--

Specification • Specification • Spezifikation ASTM-B-443, 00e1, UNS# N06625, Gr. 1; PS-489, E	Quantity Ordered Quantite Commandee Bestellmenge 6 PC	Quantity Shipped Quantite Expediee Liefermenge 6 PC
--	--	--

HEAT Number Numero De Chaudiere Charge Nr	Chemical Analysis • Analyse Chimique • Chemische Analyse																	
	Al	B	C	CH+TA (DB+TA)	Co	Cr	Cu	Fe	Mn	Mo	Ni	P	S	Si	Ti	V	W	
2650 5 6801	0.28		0.025	3.51	0.2101	21.89	0.0587	4.0106	0.2503	8.66	60.59	0.006	0.004	0.24	0.3585			BUTT END *03
2650 5 6801	3.5026	<0.05																BUTT END *03

Certified By • Certifie Par • Bescheinigt Durch: Amanda Aguirre  
Certification Technician  
6/28/2005

*Amanda Aguirre*



*Linea 1.3*

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MC109510.TIF1

CERTIFICATION OF TESTS • RAPPORT D'ESSAIS CERTIFIE • WERKSZEUGNIS				
Invoice No. No. De Facture Rechnungs Nr 442351001-0	Date Entered Date De Commande Bestelldatum 06/03/05	Customer Reference Reference Client Kundenbestellungen P05-03064	Report No. Rapport No Zugsatz Nr 20050628086	Pages of Pages Page(s) de Pages Anzahl der Seiten 2 OF 4

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--	--	--

Specification • Specification • Spezifikation ASTM-B-443, 00e1, UNS# N06625, Gr. 1; PS-489, E	Quantity Ordered Quantite Commandee Bestellmenge 6 PC	Quantity Shipped Quantite Expediee Liefermenge 6 PC
--	--	--

Tensile Test at Room Temperature • Essai De Traction A Temp. Ambiante • Zugversuch Bei Raum Temp.						Tensile Test at Elevated Temperature • Essai De Traction A Hte. Temp. Warm Zugversuch						Stress Rupture Temperature • Essai A Charge De Rupture Zerkstaudversuch					
Ultimate Zugfestigkeit	1% Yield Lim. Elong. A 1% 1% Streckgrenze	0.2% Yield Lim. Elong. A 0.2% 0.2% Streckgrenze	% Elong In % Dehnung	%RA		Test Etest Versuch Temp.	Ultimate Zugfestigkeit	1% Yield Lim. Elong. A 1% 1% Streckgrenze	0.2% Yield Lim. Elong. A 0.2% 0.2% Streckgrenze	% Elong In % Dehnung	%RA		Test Etest Versuch Temp.	Stress Contrainte Spannung	Hours Heure Stunden	% Elong In % Dehnung	% RA
137000 PSI		74000 PSI	44 %		(1)(A)												

Certified By • Certifie Par • Bescheinigt Durch: Amanda Aguirre  
Certification Technician  
6/28/2005 (1) 3942629401

*Amanda Aguirre*



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MC109510.TIF2

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Invoice No. No. De Facture Rechnungs Nr 442551001-0	Date Entered Date De Commence Bestelldatum 06/03/05	Customer Reference Reference Client Kundenbestelldaten P05-03064	Report No. Rapport No Zeugnis Nr 20050628086	Pages of Pages Page de Pages Anzahl der Seiten 3 Of 4

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--	---	---

Specification • Specification • Spezifikation ASTM-B-443, 00e1, UNS# N06625, Gr. 1; PS-489, E	Quantity Ordered Quantite Commandee Bestelldmenge 6 PC	Quantity Shipped Quantite Expediee Liefermenge 6 PC
--	---	--

Annealed Hardness Durete Recuit Geputzte Haerte		Aged Hardness Durete Vieilli Gealterte Haerte		Grain Size Grossueur De Grain Korngroesse							IGA	Uniformity	Corrosion Rate		Oxidation Rate	Charpy Impact Test					Creep Rupture			
Grain Size	Preferential Grain Size	Recr. Grain	Unrecr. Grain %	ALA	PAW Figure Number	Attack Depth	Corrosion	Test Method		Toughness Avg	Toughness 1	Toughness 2	Toughness 3	Test Energ Vermoch	Stress Constraint Spannung	Hours Heures Stunden	% Elong In % Allong EN	% Elong @ 15 Hrs						
98 HRB	(1)(A)	7.5				0.0011 IN		MPY		Fl. Lbs.	Fl. Lbs.	Fl. Lbs.	Fl. Lbs.	Temp	PSI									

Certified By • Certifie Par • Bescheinigt Durch: Amanda Aguirre  
Certification Technicien  
6/28/2005 (1) 3942629401

*Amanda Aguirre*



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MC109510.TIF3

CERTIFICATION OF TESTS • RAPPORT D'ESSAIS CERTIFIÉ • WERKSZEUGNIS				
Invoice No No. De Facture Rechnungs Nr 442551001-0	Date Signed Date De Commande Bestelldatum 06/03/05	Customer Reference Reference Client Kundenbestelldaten P05-03064	Report No. Rapport No Zeugnis Nr 20050628086	Pages of Pages Page de Pages Anzahl der Seiten 4 Of 4

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Specification • Specification • Spezifikation ASTM-B-443, 00e1, UNS# N06625, Gr. 1, PS-489, E	Quantity Ordered Quantite Commandee Bestellmenge 6 PC	Quantity Shipped Quantite Expediee Liefermenge 6 PC

All tests and inspections have been performed and results meet specification requirements.  
THIS MATERIAL IS FREE FROM MERCURY, CADMIUM, RADIUM, AND ALPHA SOURCE CONTAMINATION.  
Material conforms to PS-483 Revision H as applicable.  
Mill Orders Used: 3942629401 (6 PC)  
(A) 1750 °F to 1950 °F

Certified By • Certifié Par • Bescheinigt Durch: Amanda Aguirre  
Certification Technician 6/28/2005

*Amanda Aguirre*



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MC109510.TTF4



Magnetic Permeability Test Witness

Haynes observed Mr. Edwards of Major Tool test the orders listed below for Magnetic Permeability on June 10, 2005, using a Severn Engineering Permeability Indicator #6763, identified as gauge J-1165 in Major Tool's calibration system. The gauge was in calibration and was due for recalibration on December 27, 2005. All items tested below were <1.01 magnetic permeability.


Heats Tested

2650-5-6801

Purchase Order Numbers

P05-03064

Best Regards,

 6/29/2005  
Marlin C. Losch III



Quality Assurance Documentation for Part ID: SE120-005-41 - Item: 145

Workorder: 65678/1-0 Sub:145 Op:10

Part: SE120-005-41 - - PORT 5 BACKING STRIP

Drawing ID: Rev:		INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
*		MAGNETIC PERMEABILITY 1.02 MAX	MASTER GAGE	QA		J-1165	LESS THAN 1.02	854-R.U 08-21-05		
(20)										

A

CERTIFICATION OF TESTS • RAPPORT D'ESSAIS CERTIFIE • WERKSZEUGNIS			
Invoice No No. de Facture Rechnungs Nr 442557001-0	Date Entered Date de Commande Bestelldatum 06/03/05	Customer Reference Reference Client Kundenbestelldaten P05-03064	Report No. Rapport No Zeugnis Nr 20050628088
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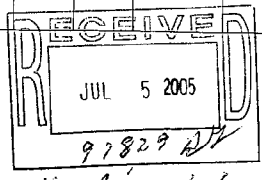
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---	--	---

Specification • Specification • Spezifikation ASME SB-443, 04, UNS# N06625, Gr. 1; PS-489, E	Quantity Ordered Quantite Commandee Bestellmenge 6 PC	Quantity Shipped Quantite Expediee Liefermenge 6 PC
---	--	--

Heat Number Numero de Cuire Charge No	Chemical Analysis • Analyse Chimique • Chemische Analyse														Si	Ti	V	W	BUTT END *03	
	Al	B	C	Ca (Nb+Ta)	Co	Cr	Cu	Fe	Mn	Mo	Ni	P	S							
2650 5 6801	0.28		0.025	3.51	0.2101	21.89	0.0587	4.0106	0.2503	8.66	60.59	0.006	0.004	0.24	0.3585					
	UNS#	Ta	Zr	Bi	Se	La	ONCW	Pb	Mg	Y	Ag	N	Ca	Al+Ti	Ni+Co	Ni+Mo				BUTT END *03
2650 5 6801	3.5026	<0.05																		

Certified By • Certifie Par • Bescheinigt Durch: Amanda Aguirre  
Certification Technician  
*Amanda Aguirre*

6/28/2005



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MC109512.TIF1

CERTIFICATION OF TESTS • RAPPORT D'ESSAIS CERTIFIE • WERKSZEUGNIS				
Invoice No No. De Facture Rechnungs Nr 442557001-0	Date Entered Date De Commande Bestelldatum 06/03/05	Customer Reference Reference Client Kundenbestelldaten P05-03064	Report No. Rapport No Zeugnis Nr 20050628088	Pages of Pages Page de Pages Anzahl der Seiten 2 Of 4

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**MAJOR TOOL AND MACHINE INC**  
**1458 E 19TH ST**  
**INDIANAPOLIS**  
**IN 46218 USA**

Ship To • Destinataire • Bestellmenge  
**MAJOR TOOL AND MACHINE INC**  
**1458 E 19TH ST**  
**INDIANAPOLIS**  
**IN 46218 USA**

Product Description • Description Produit • Material Beschreibung  
**0.125 (0.120/0.130) x 0/0 x 0/0**  
**SE120-004-68MTM REV: 1A**  
**HAYNES(R) 625 ALLOY SHEET**  
**Nadcap CERTIFICATE NUMBER 0089**  
**S400E,S1000E, EN 10204 3.1.B, AS9100**

Specification • Specification • Spezifikation  
**ASME-SB-443, 04, UNS# N06625, Gr. 1; PS-489, E**

Quantity Ordered  
Quantite Commandee  
Bestellmenge  
**6 PC**

Quantity Shipped  
Quantite Expediee  
Liefermenge  
**6 PC**

Tensile Test at Room Temperature • Essai De Traction A Temp. Ambiante • Zugversuch Bei Room Temp.					
Ultimate Zugfestigkeit	1% Yield Lim. Elast. A 1% 1% Streckgrenze	0.2% Yield Lim. Elast. A 0.2% 0.2% Streckgrenze	% Elong In % Along EN % Dehnung	% RA	
137000 PSI		74000 PSI	44 %		(I)(A)

Tensile Test at Elevated Temperature • Essai De Traction A Hte. Temp. Warm Zugversuch					
Test Essai Versuch Temp.	Ultimate Zugfestigkeit	1% Yield Lim. Elast. A 1% 1% Streckgrenze	0.2% Yield Lim. Elast. A 0.2% 0.2% Streckgrenze	% Elong In % Along EN % Dehnung	% RA

Stress Rupture Temperature • Essai A Charge De Rupture Zeitstandversuch					
Test Essai Versuch Temp.	Stress Contrainte Spannung	Hours Heures Stunden	% Elong In % Along EN % Dehnung	% RA	

Certified By • Certifie Par • Bescheinigt Durch: Amanda Aguirre  
Certification Technician

6/28/2005 (1) 3942629401

*Amanda Aguirre*



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MC109512.TIF2

CERTIFICATION OF TESTS • RAPPORT D'ESSAIS CERTIFIÉ • WERKSZEUGNIS				
Invoice No. No. De Facture Rechnungs Nr. 44253700 1-0	Date Entered Date De Commande BestelDatum 06/03/05	Customer Reference Reference Client Kundenspezifidaten P05-03064	Report No. Rapport No. Zeugnis Nr. 20050628088	Pages of Paper Page de Pages Anzahl der Seiten 3 Of 4

**HAYNES**  
**International**

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Haynes International  
1020 West Park Avenue  
PO Box 9013  
Kokomo, Indiana, 46902

Sold To • Client • Bestellaufschrift <b>MAJOR TOOL AND MACHINE INC</b> 1458 E 19TH ST INDIANAPOLIS IN 46218 USA		Ship To • Destinataire • Bestellmenge <b>MAJOR TOOL AND MACHINE INC</b> 1458 E 19TH ST INDIANAPOLIS IN 46218 USA		Product Description • Description Produit • Material Beschreibung <b>0.125 (0.120/0.130) x 0/0 x 0/0</b> <b>SE120-004-68MTM REV: 1A</b> <b>HAYNES (R) 625 ALLOY SHEET</b> <b>Nadcap CERTIFICATE NUMBER 0089</b> <b>S400E,S1000E, EN 10204 3.1.B, AS9100</b>																		
Specification • Spécification • Spezifikation ASME-SB-443, 04, UNS# N06625, Gr. 1; PS-489, E				Quantity Ordered Quantité Commandée Bestellmenge 6 PC	Quantity Shipped Quantité Expédiée Liefermenge 6 PC																	
Annealed Hardness Dureté Recuit Cocklight Härte		Aged Hardness Dureté Vieilli Gealtert Härte		Grain Size Grossueur De Grain Korngrösse				IGA	Uniformity	Corrosion Rate		Oxidation Rate		Charpy Impact Test				Creep Rapture				
				Grain Size	Proforma Grain Size	Regr. Grain	Unconv. Grain %	ALA	FAW Figure Number	Attack Depth	Corrosion	Test Method	Toughness Avg.	Toughness 1	Toughness 2	Toughness 3	Test Result	Stress	Hours	% Elong In	% Elong EN	% Elong G
98 HRB		(1)(A)		7.5						0.0001 IN		MPY						PSI	Studen	% Elong In	% Elong EN	% Elong G

Certified By • Certifié Par • Bescheinigt Durch: Amanda Aguirre  
Certification Technitian

6/28/2005 (1) 3942629401

*Amanda Aguirre*



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MC109512.TIF3

CERTIFICATION OF TESTS • RAPPORT D'ESSAIS CERTIFIE • WERKSZEUGNIS				
Invoice No No. De Facture Rechnungs Nr	Date Entered Date De Commande Bestelldatum	Customer Reference Reference Client Kundenbestelldaten	Report No. Rapport No Zeugnis Nr	Pages of Pages Page de Pages Anzahl der Seiten
44257001-0	06/03/05	P05-03064	20050628088	4 Of 4
Sold To • Client • Bestelranschrift <b>MAJOR TOOL AND MACHINE INC 1458 E 19TH ST INDIANAPOLIS IN 46218 USA</b>		Ship To • Destinataire • Bestelmenge <b>MAJOR TOOL AND MACHINE INC 1458 E 19TH ST INDIANAPOLIS IN 46218 USA</b>		
Specification • Specification • Spezifikation ASME-SB-443, 04, UNS# N06625, Gr. 1; PS-489, E		Quantity Ordered Quantite Commandee Bestellmenge 6 PC	Quantity Shipped Quantite Expediee Liefermenge 6 PC	

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Kokomo, Indiana, 46902

Product Description • Description Produit • Material Beschreibung
0.125 (0.120/0.130) x 0/0 x 0/0 SE120-004-68MTM REV: 1A HAYNES(R) 625 ALLOY SHEET Nadcap CERTIFICATE NUMBER 0089 S400E,S1000E, EN 10204 3.1.B, AS9100

All tests and inspections have been performed and results meet specification requirements.  
THIS MATERIAL IS FREE FROM MERCURY, CADMIUM, RADIUM, AND ALPHA SOURCE CONTAMINATION.  
Material conforms to PS-483 Revision H as applicable.  
Mill Orders Used: 3942629401 (6 PC)  
(A) 1750 °F to 1950 °F

Certified By • Certifie Par • Bescheinigt Durch: Amanda Aguirre  
Certification Technician

6/28/2005

*Amanda Aguirre*



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MC109512.TIF4

**Magnetic Permeability Test Witness**

Haynes observed Mr. Edwards of Major Tool test the orders listed below for Magnetic Permeability on June 10, 2005, using a Severn Engineering Permeability Indicator #6763, identified as gauge J-1165 in Major Tool's calibration system. The gauge was in calibration and was due for recalibration on December 27, 2005. All items tested below were <1.01 magnetic permeability.


Heats Tested

2650-5-6801

Purchase Order Numbers

P05-03064

Best Regards,

 6/21/2005

Marlin C. Losch III



**INSPECTION DATA CHECKLIST**

Quality Assurance Documentation for Part ID: SE120-005-42 - Item: 147

Workorder: 65678/1-0 Sub:146 Op:10

Part: SE120-005-42 - - PORT 6 BACKING STRIP

Drawing ID: Rev:		INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
*			MASTER GAGE	QA		J-1165	LESS THAN 1.02	854-R.U		
(20)		MAGNETIC PERMEABILITY 1.02 MAX						08-21-05		

A



CERTIFICATION OF TESTS • RAPPORT D'ESSAIS CERTIFIE • WERKSZEUGNIS				
Invoice No No. De Facture Rechnungs Nr 442680001-0	Date Entered Date De Commande Bestelldatum 06/06/05	Customer Reference Reference Client Kundenbestelldaten P03-03064	Report No. Rapport No Zeugnis Nr 20050628081	Pages of Pages Page de Pages Anzahl der Seiten 1 Of 4

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Kokomo, Indiana, 46902

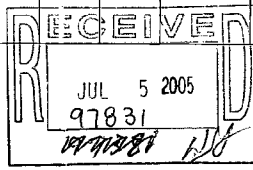
Sold To • Client • Bestandschrift <b>MAJOR TOOL AND MACHINE INC</b> 1458 E 19TH ST INDIANAPOLIS IN 46218 USA	Ship To • Destinataire • Bestellmenge <b>MAJOR TOOL AND MACHINE INC</b> 1458 E 19TH ST INDIANAPOLIS IN 46218 USA	Product Description • Description Produit • Material Beschreibung 0.125 (0.120/0.130) x 0/0 x 0/0 SE120-004-69MTM REV:1A HAYNES(R) 625 ALLOY SHEET Nadcap CERTIFICATE NUMBER 0089 S400E,S1000E, EN 10204 3.1.B, AS9100
--	--	---

Specification • Specification • Spezifikation ASME-SB-443, 04, UNS# N06625, Gr. 1; PS-489, E	Quantity Ordered Quantite Commandee Bestellmenge 6 PC	Quantity Shipped Quantite Expediee Liefermenge 6 PC
---	--	--

Heat Number Numero de Corder Charge Nr	Chemical Analysis • Analyse Chimique • Chemische Analyse																	
	Al	B	C	Cb+Ta (Nb+Ta)	Co	Cr	Cu	Fe	Mn	Mo	Ni	P	S	Si	Ti	V	W	
2650 5 6801	0.28		0.025	3.51	0.2101	21.89	0.0587	4.0106	0.2503	8.66	60.59	0.006	0.004	0.24	0.3585			BUTT END *03
2650 5 6801	3.5026	-0.05																BUTT END *03

Certified By • Certifie Par • Bescheinigt Durch: Amanda Aguirre  
Certification Technician

*Amanda Aguirre*



*linea 7-9*

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MC109509.TIF1

CERTIFICATION OF TESTS • RAPPORT D'ESSAIS CERTIFIÉ • WERKSZEUGNIS				
Invoice No. No. De Facture Rechnungs Nr. 442680001-0	Date Entered Date De Commande Bestelldatum 06/06/05	Customer Reference Référence Client Kundenbestelldaten P05-03064	Report No. Rapport No. Zeugnis Nr. 20050628081	Pages of Pages Page de Pages Anzahl der Seiten 2 Of 4

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PO Box 9013  
Kokomo, Indiana, 46902

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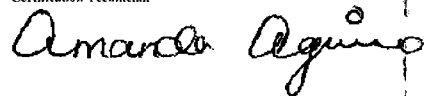

Specification • Specification • Spezifikation ASME-SB-443, 04, UNS# N06625, Gr. 1; PS-489, E	Quantity Ordered Quantité Commandée Bestellmenge 6 PC	Quantity Shipped Quantité Expédiée Liefermenge 6 PC
---	--	--

Tensile Test at Room Temperature • Essai De Traction A Temp. Ambiante • Zugversuch Bei Raum Temp.					Tensile Test at Elevated Temperature • Essai De Traction A Hte.Temp. Warm Zugversuch					Stress Rupture Temperature • Essai A Charge De Rupture Zeitversuch					
Ultimate Zugfestigkeit	1% Yield Lim. Elong. A 1% 1% Streckgrenze	0.2% Yield Lim. Elong. A 0.2% 0.2% Streckgrenze	% Elong In % Dehnung	%RA	Test Essai Versuch	Ultimate Zugfestigkeit	1% Yield Lim. Elong. A 1% 1% Streckgrenze	0.2% Yield Lim. Elong. A 0.2% 0.2% Streckgrenze	% Elong In % Dehnung	%RA	Test Essai Versuch	Stress Contrainte Spannung	Hours Heures Stunden	% Elong In % Dehnung	% RA
137000 PSI		74000 PSI	44 %	(1)(A)											

Certified By • Certifié Par • Bescheinigt Durch: Amanda Aguirre  
Certification Technician

6/28/2005 (1) 3942629401

*Amanda Aguirre*

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MC109509.TIF2

CERTIFICATION OF TESTS • RAPPORT D'ESSAIS CERTIFIE • WERKSZEUGNIS

Invoice No. No. De Facture Rechnungs Nr 442680001-0	Date Entered Date De Commande Bestelldatum 06/06/05	Customer Reference Reference Client Kundenbestelldaten P05-03064	Report No. Rapport No Zeignis Nr 20050628081	Pages of Pages Page de Pages Anzahl der Seiten 3 Of 4
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**MAJOR TOOL AND MACHINE INC**  
1458 E 19TH ST  
INDIANAPOLIS  
IN 46218 USA

Ship To • Destinataire • Bestellmenge  
**MAJOR TOOL AND MACHINE INC**  
1458 E 19TH ST  
INDIANAPOLIS  
IN 46218 USA

Product Description • Description Produit • Material Beschreibung  
**0.125 (0.120/0.130) x 0/0 x 0/0**  
**SE120-004-69MTM REV:1A**  
**HAYNES(R) 625 ALLOY SHEET**  
**Nadcap CERTIFICATE NUMBER 0089**  
**S400E,S1000E, EN 10204 3.1.B, AS9100**

Specification • Specification • Spezifikation  
ASME-SB-443, 04, UNS# N06625, Gr. 1; PS-489, E

Quantity Ordered  
Quantite Commandee  
Bestellmenge  
6 PC

Quantity Shipped  
Quantite Expeditee  
Liefermenge  
6 PC

Annealed Hardness Durete Revik Gehtzeit Haerte	Aged Hardness Durete Vieilli Gealtert Haerte	Grain Size Grosser De Grain Korngroesse	IGA	Uniformity	Corrosion Rate	Oxidation Rate	Charpy Impact Test				Creep Rapture							
							Toughness Avg	Toughness 1	Toughness 2	Toughness 3	Test Etest Versuch	Stress Contrainte Spannung	Hours Heure Stunden	% Elong In % Along EN % Dehnung	% Elong @ 15 Hrs			
		Grain Size Prodominant Grain Size	Recry. Grain	Unrecry. Grain %	ALA	FAW Figure Number	Attack Depth	Corrosion	Test Method	R. Lbs.	R. Lbs.	Ft. Lbs.	Ft. Lbs.	Temp.	PSI	Hours Stunden	% Elong In % Along EN % Dehnung	% Elong @ 15 Hrs
98 HRB	(1)(A)	7.5						MPY										

Certified By • Certifie Par • Bescheinigt Durch: Amanda Aguirre  
Certification Technician  
6/28/2005 (1) 3942629401

*Amanda Aguirre*



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MC109509.TIF3

CERTIFICATION OF TESTS • RAPPORT D'ESSAIS CERTIFIE • WERKSZEUGNIS				
Invoice No No. De Facture Rechnungs Nr 442680001-0	Date Entered Date De Commande Bestelldatum 06/06/05	Customer Reference Reference Client Kundenbestelldaten P05-03064	Report No. Rapport No Zeugnis Nr 20050628081	Pages of Pages Page de Pages Anzahl der Seiten 4 Of 4

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Sold To • Client • Bestelleranschrift <b>MAJOR TOOL AND MACHINE INC</b> 1458 E 19TH ST INDIANAPOLIS IN 46218 USA		Ship To • Destinataire • Bestellmenge <b>MAJOR TOOL AND MACHINE INC</b> 1458 E 19TH ST INDIANAPOLIS IN 46218 USA		Product Description • Description Produit • Material Beschreibung 0.125 (0.120/0.130) x 0/0 x 0/0 SE120-004-69MTM REV:1A HAYNES(R) 625 ALLOY SHEET - Nadcap CERTIFICATE NUMBER 0089 S400E,S1000E, EN 10204 3.1.B, AS9100
Specification • Specification • Spezifikation ASME-SB-443, 04, UNS# N06625, Gr. 1; PS-489, E		Quantity Ordered Quantite Commandee Bestellmenge 6 PC	Quantity Shipped Quantite Expediee Liefermenge 6 PC	

All tests and inspections have been performed and results meet specification requirements.  
THIS MATERIAL IS FREE FROM MERCURY, CADMIUM, RADIUM, AND ALPHA SOURCE CONTAMINATION.  
Material conforms to PS-483 Revision H as applicable.  
Mill Orders Used: 3942629401 (6 PC)  
(A) 1750 °F to 1950 °F

Certified By • Certifie Par • Bescheinigt Durch: Amanda Aguirre  
Certification Technician 6/28/2005

*Amanda Aguirre*



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MC109509.TIF4

Magnetic Permeability Test Witness

Haynes observed Mr. Edwards of Major Tool test the orders listed below for Magnetic Permeability on June 10, 2005, using a Severn Engineering Permeability Indicator #6763, identified as gauge J-1165 in Major Tool's calibration system. The gauge was in calibration and was due for recalibration on December 27, 2005. All items tested below were <1.01 magnetic permeability.


Heats Tested

2650-5-6801

Purchase Order Numbers

PO5-03064

Best Regards,

 6/21/2005  
Marlin C. Losch III



Quality Assurance Documentation for Part ID: SE120-005-43 - Item: 149

Workorder: 65678/1-0 Sub:147 Op:10

Part: SE120-005-43 - - PORT 7 BACKING STRIP

Drawing ID: Rev:		INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
*		MAGNETIC PERMEABILITY 1.02 MAX	MASTER GAGE	QA		J-1165	LESS THAN 1.02	854-R.U 08-21-05		
(20)										

A

CERTIFICATION OF TESTS • RAPPORT D'ESSAIS CERTIFIÉ • WERKSZEUGNIS				
Invoice No No. De Facture Rechnungs Nr 442681001-0	Date Entered Date De Commande Bestelldatum 06/06/05	Customer Reference Reference Client Kundenbestelldaten P03-03064	Report No. Rapport No Zeugnis Nr 20050628092	Pages of Pages Page de Pages Anzahl der Seiten 1 Of 4

**HAYNES**  
**International**

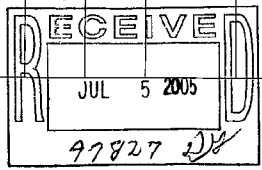
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Kokomo, Indiana, 46902

Sold To • Client • Bestellausschrift <b>MAJOR TOOL AND MACHINE INC</b> 1458 E 19TH ST INDIANAPOLIS IN 46218 USA	Ship To • Destinataire • Bestimmung <b>MAJOR TOOL AND MACHINE INC</b> 1458 E 19TH ST INDIANAPOLIS IN 46218 USA	Product Description • Description Produit • Material Beschreibung 0.120/0.130 x 0/0 x 0/0 SE120-004-70MTM REV: 1A HAYNES(R) 625 ALLOY SHEET Nadcap CERTIFICATE NUMBER 0089 S400E,S1000E, EN 10204 3.1.B, AS9100
Specification • Specification • Spezifikation ASME-SB-443, 04, UNS# N06625, Gr. 1; PS-489, E	Quantity Ordered Quantité Commandée Bestellmenge 6 PC	Quantity Shipped Quantité Expédiée Liefermenge 6 PC

Heat Number Numéro De Caudre Charge No	Chemical Analysis • Analyse Chimique • Chemische Analyse																	
	Al	B	C	Co-Ti (Sb-Ta)	Co	Cr	Cu	Fe	Mn	Mo	Ni	P	S	Si	Ti	V	W	
2650 5 6801	0.28		0.025	3.51	0.2101	21.89	0.0587	4.0106	0.2503	8.66	60.59	0.006	0.004	0.24	0.3585			BUTT END *03
2650 5 6801	3.5026	<0.05																BUTT END *03

Certified By • Certifié Par • Bescheinigt Durch: Amanda Aguirre  
Certification Technician  
*Amanda Aguirre*

6/28/2005



*Line 10.12*

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MC109514.TIF1

CERTIFICATION OF TESTS • RAPPORT D'ESSAIS CERTIFIÉ • WERKSZEUGNIS				
Invoice No No. De Facture Rechnungs Nr 442681001-0	Date Entered Date De Commande Bestelldatum 06/06/05	Customer Reference Reference Client Kundenbestellnr P05-03064	Report No. Rapport No Zeugnis Nr 20050628092	Pages of Pages Page de Pages Anzahl der Seiten 2 Of 4

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Kokomo, Indiana, 46902

Sold To • Client • Bestellnummer <b>MAJOR TOOL AND MACHINE INC 1458 E 19TH ST INDIANAPOLIS IN 46218 USA</b>	Ship To • Destinataire • Bestellmenge <b>MAJOR TOOL AND MACHINE INC 1458 E 19TH ST INDIANAPOLIS IN 46218 USA</b>	Product Description • Description Produit • Material Beschreibung <b>0.120/0.130 x 0/0 x 0/0 SE120-004-70 MTM REV: 1A HAYNES(R) 625 ALLOY SHEET - Nadcap CERTIFICATE NUMBER 0089 S400E,S1000E, EN 10204 3.1.B, AS9100</b>
--	---	--

Specification • Specification • Spezifikation ASME-SB-443, 04, UNS# N06625, Gr. 1; PS-489, E	Quantity Ordered Quantité Commandée Bestellmenge 6 PC	Quantity Shipped Quantité Expédiée Liefermenge 6 PC
---	--	--

Tensile Test at Room Temperature • Essai De Traction A Temp. Ambiante • Zugversuch Bei Room Temp.						Tensile Test at Elevated Temperature • Essai De Traction A Hic.Temp. Warm Zugversuch						Stress Rupture Temperature • Essai A Charge De Rupture Zeitstandversuch					
Ulimite	1% Yield Lim. Elast. A 1%	0.2% Yield Lim. Elast. A 0.2%	% Elong in % Allong EN	% RA		Test Essai Versuch	Ulimite	1% Yield Lim. Elast. A 1%	0.2% Yield Lim. Elast. A 0.2%	% Elong in % Allong EN	% RA	Test Essai Versuch	Stress Contrainte Spannung	Hours Heures Stunden	% Elong in % Allong EN	% RA	
137000 PSI		74000 PSI	44 %		(1)(A)												

Certified By • Certifié Par • Bescheinigt Durch: Amanda Aguirre  
Certification Technician

6/28/2005 (1) 3942629401

*Amanda Aguirre*

MTM 016

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MC109514.TTF2



CERTIFICATION OF TESTS • RAPPORT D'ESSAIS CERTIFIÉ • WERKSZEUGNIS				
Invoice No. No. De Facture Rechnungs Nr 442681001-0	Date Entered Date De Commande Bestelldatum 06/06/05	Customer Reference Reference Client Kundenbestelldaten P05-03064	Report No. Rapport No. Zeugnis Nr 20050628092	Pages of Pages Page de Pages Anzahl der Seiten 3 Of 4

**HAYNES**  
**International**

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Haynes International  
1020 West Park Avenue  
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Kokomo, Indiana, 46902

Sold To • Client • Bestellanrschrift <b>MAJOR TOOL AND MACHINE INC</b> 1458 E 19TH ST INDIANAPOLIS IN 46218 USA	Ship To • Destinaire • Bestelmenge <b>MAJOR TOOL AND MACHINE INC</b> 1458 E 19TH ST INDIANAPOLIS IN 46218 USA	Product Description • Description Produit • Material Beschreibung 0.120/0.130 x 0/0 x 0/0 SE120-004-70MTM REV: 1A HAYNES(R) 625 ALLOY SHEET - Nadcap CERTIFICATE NUMBER 0089 S400E,S1000E, EN 10204 3.1.B, AS9100
---	---	--

Specification • Specification • Spezifikation ASME-SB-443, 04, UNS# N06625, Gr. 1, PS-489, E	Quantity Ordered Quantite Commandee Bestellmenge 5 PC	Quantity Shipped Quantite Expediee Liefermenge 6 PC
---	--	--

Anneal Hardness Durete Recuit Gebueht Haerte	Aged Hardness Durete Vieilli Gealtert Haerte	Grain Size Grosseur De Grain Korngroesse	IGA	Uniformity	Corrosion Rate	Oxidation Rate	Charpy Impact Test				Creep Rupture							
							Toughness Avg	Toughness 1	Toughness 2	Toughness 3	Test Result Valeur	Stress Contrainte Spannung	Hours Heures Stunden	% Elong In % Allong EN % Dehnung	% Elong @ 15 Hrs			
		Grain Size Profound Grain Size			Attack Depth													
98 HRB	(1)(A)	7.5			0.0001 IN													

Certified By • Certifie Par • Bescheinigt Durch: Amanda Aguirre  
Certification Technician

6/28/2005 (1) 3942629401

*Amanda Aguirre*



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MC109514.TIF3

CERTIFICATION OF TESTS • RAPPORT D'ESSAIS CERTIFIE • WERKSZEUGNIS				
Invoice No No. De Facture Rechnungs Nr 442681001-0	Date Entered Date De Commande Bestelldatum 06/06/05	Customer Reference Reference Client Kundenbestelldaten P05-03064	Report No. Rapport No Zeugnis Nr 20050628092	Pages of Pages Page de Pages Anzahl der Seiten 4 Of 4

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Sold To • Client • Bestellrauschrift <b>MAJOR TOOL AND MACHINE INC</b> 1458 E 19TH ST INDIANAPOLIS IN 46218 USA		Ship To • Destinataire • Bestelleunge <b>MAJOR TOOL AND MACHINE INC</b> 1458 E 19TH ST INDIANAPOLIS IN 46218 USA		Product Description • Description Produit • Material Beschreibung 0.120/0.130 x 0/0 x 0/0 SE120-004-70MTM REV: 1A HAYNES(R) 625 ALLOY SHEET - Nadcap CERTIFICATE NUMBER 0089 S400E,S1000E, EN 10204 3.1.B, AS9100
Specification • Specification • Spezifikation ASME-SB-443, 04, UNS# N06625, Gr. 1; PS-489, E		Quantity Ordered Quantite Commandee Bestellmenge 6 PC	Quantity Shipped Quantite Expediee Liefermenge 6 PC	

All tests and inspections have been performed and results meet specification requirements.  
THIS MATERIAL IS FREE FROM MERCURY, CADMIUM, RADIUM, AND ALPHA SOURCE CONTAMINATION.  
Material conforms to PS-483 Revision H as applicable.  
Mill Orders Used: 3942629401 (6 PC)  
(A) 1750 °F to 1950 °F

Certified By • Certifie Par • Bescheinigt Durch: Amanda Aguirre  
Certification Technician

6/28/2005

*Amanda Aguirre*



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SPECIFIC COPY SAMPLES REQUIREMENTS MAY BE VARYED BY ORDER REQUIREMENTS MULTIPLE MATERIAL SPECIFICATIONS.

MC109514.TTF4

**Magnetic Permeability Test Witness**

Haynes observed Mr. Edwards of Major Tool test the orders listed below for Magnetic Permeability on June 10, 2005, using a Severn Engineering Permeability Indicator #6763, identified as gauge J-1165 in Major Tool's calibration system. The gauge was in calibration and was due for recalibration on December 27, 2005. All items tested below were <1.01 magnetic permeability.


Heats Tested

2650-5-6801

Purchase Order Numbers

P05-03064

Best Regards,

 6/29/2005  
Marlin C. Losch III



**INSPECTION DATA CHECKLIST**

Quality Assurance Documentation for Part ID: SE120-005-44 - Item: 151

Workorder: 65678/1-0 Sub:148 Op:10

Part: SE120-005-44 - - PORT 8 BACKING STRIP

Drawing ID: Rev:		INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
*			MASTER GAGE	QA		J-1165	LESS THAN 1.02	854-R.U		
(20)		MAGNETIC PERMEABILITY 1.02 MAX						08-21-05		

A

1mc093762.TIF

CERTIFICATION OF TESTS • RAPPORT D'ESSAIS CERTIFIÉ • WERKSZEUGNIS				
Invoiced No No. De Facture Rechnungs Nr 391282001-0	Date Entered Date De Commande Bestelldatum 08/14/03	Customer Reference Référence Client Kundenbest/Matern P03-03302	Report No. Rapport No Zuzugs Nr 20030822079	Pages of Report Page de Page Anzahl der Seiten 1 Of 4

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**HAYNES**  
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Sold To • Client • Destinatarauschrift <b>MAJOR TOOL AND MACHINE INC</b> 1458 E 19TH ST INDIANAPOLIS IN 46218 USA	Ship To • Destinataire • Bestelldunge <b>MAJOR TOOL AND MACHINE INC</b> 1458 E 19TH ST INDIANAPOLIS IN 46218 USA	Product Description • Description Produit • Material Beschreibung 0.125 (0.12/0.13) x 36 x 120 <b>HAYNES(R) 625 ALLOY SHEET</b> NADCAP CERTIFICATE NUMBER 0089 S400E,S1000E, EN 10204 3.1.B
Specification • Spécification • Spezifikation AMS 5599 Rev F ASTM-B-443 Rev 99 N06625 1	Quantity Ordered Quantité Commandée Bestellmenge 1 PC	Quantity Shipped Quantité Expédiée Liefermenge 1 PC

Heat Number Numero De Cales Charge Nr	Chemical Analysis • Analyse Chimique • Chemische Analyse																	
	Al	B	C	Cu+Ta (Max)	Co	Cr	Cu	Fe	Mn	Mo	Ni	P	S	Si	Ti	V	W	
2650 3 6874	0.16		0.030	3.63	0.23	21.79		4.71	0.28	0.86	58.96	0.008	0.002	0.11	0.26			
2650 3 6874	GENI	Ta	Zr	Bi	Sc	La	ORGP	Pb	Mg	Y	Ag	N	Ca	Al+Ti	Ni+Co			
	3.580	<0.050																

Certified By • Certifié Par • Bescheinigt Durch: Paul Guest  
Certification Supervisor/Technician

08/22/03

*Paul O. Guest*

NTM  
018  
8-28-03

RECEIVED  
AUG 27 2003  
79491 Incl 87

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MC118158.TIF

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CERTIFICATION OF TESTS • RAPPORT D'ESSAIS CERTIFIÉ • WERKSZEUGNIS				
Invoice No No. De Facture Rechnung Nr 391282001-0	Date Entered Date de Commande Bestelldatum 08/14/03	Customer Reference Reference Client Kundenbestellhafen P03-03302	Report No. Rapport No. Zugschein Nr 20030822079	Page of Pages Page de Pages Anzahl der Seiten 2 Of 4

**HAYNES**  
International

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Kokomo, Indiana, 46902

Sold To • Client • Bestellername <b>MAJOR TOOL AND MACHINE INC</b> 1458 E 19TH ST INDIANAPOLIS IN 46218 USA	Ship To • Destination • Bestimmung <b>MAJOR TOOL AND MACHINE INC</b> 1458 E 19TH ST INDIANAPOLIS IN 46218 USA	Product Description • Description Produit • Material Bezeichnung 0.125 (0.12/0.13) x 36 x 120 <b>HAYNES(R) 625 ALLOY SHEET</b> - NADCAP CERTIFICATE NUMBER 0089 S400E,S1000E, EN 10204 3.1.B
Specifications • Specification • Spezifikation AMS 5599 Rev F ASTM-B-443 Rev 99 N06625 1		Quantity Ordered Quantité Commandée Bestellmenge 1 PC

Tensile Test at Room Temperature • Essai De Traction A Temp. Ambiante • Zugversuch Bei Raum Temp.						Tensile Test at Elevated Temperature • Essai De Traction A Ho.Temp. • Warme Zugversuch						Stress Rupture Temperature • Essai A Charge De Rupture Zoltemperatur					
Ultimate Zugfestigkeit	1% Yield Lim. Elast. A 1% 1% Streckgrenze	0.2% Yield Lim. Elast. A 0.2% 0.2% Streckgrenze	% Elong In EI	%RA		Ten Elast Veruch Temp.	Ultimate Zugfestigkeit	1% Yield Lim. Elast. A 1% 1% Streckgrenze	0.2% Yield Lim. Elast. A 0.2% 0.2% Streckgrenze	% Elong In % Dehnung	%RA		Ten Elast Veruch Temp.	Stress Contraint Summing	Hours Heures Stunden	% Elong In % Allong EI	% RA
134000 PSI		73000 PSI	46 %	(1) (A)													

Certified By • Certifié Par • Bescheinigt Durch: Paul Guest  
Certification Supervisor/Technician  
08/22/03 (1) 3438301501

*Paul O. Guest*

MIN 016  
9-23-03

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CERTIFICATION OF TESTS • RAPPORT D'ESSAIS CERTIFIE • WERKSZEUGNIS				
Invoice No No. De Facture Rechnungs Nr 391282001-0	Date Entered Date De Commande Bestelldatum 08/14/03	Customer Reference Reference Client Kundenbestellnum P03-03302	Report No. Rapport No Zeugnis Nr 20030822079	Page of Pages Page de Pages Anzahl der Seiten 3 Of 4

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PO Box 9013  
Kokomo, Indiana, 46902

Sold To • Client • Bestellantrag <b>MAJOR TOOL AND MACHINE INC</b> 1458 E 19TH ST INDIANAPOLIS IN 46218 USA	Ship To • Destataire • Bestellaenge <b>MAJOR TOOL AND MACHINE INC</b> 1458 E 19TH ST INDIANAPOLIS IN 46218 USA	Product Description • Description Produit • Material Beschreibung 0.125 (0.12/0.13) x 36 x 120 <b>HAYNES(R) 625 ALLOY SHEET -</b> <b>NADCAP CERTIFICATE NUMBER 0089</b> <b>S400E,S1000E, EN 10204 3.1.B</b>
Specification • Specification • Spezifikation AMS 5599 Rev F ASTM-D-443 Rev 99 N06625 1	Quantity Ordered Quantite Commandee Bestellmenge 1 PC	Quantity Shipped Quantite Expediee Liefermenge 1 PC

Anneal Hardness Durete Recuit Gezogene Haerte	Aged Hardness Durete Vieilli Gealterte Haerte	Grain Size Grosser De Grain Korngraeue					IGA	Uniformity	Corrosion Rate		Oxidation Rate	Charpy Impact Test				Creep Rupture					
		Grain Size Grain Size	Irony Grain Irony Grain	UNIQUO Grain %	ALA	Aspect Depth			Corrosion	Test Method		Toughness Avg	Toughness 1	Toughness 2	Toughness 3	Test Time Temps	Time Temps	Hours Heures	% Elong in % Allong EM	% Elong @ 15 15h	
98 HRB		8					0.0001 in		NOY												(1)

Certified By • Certifie Par • Bescheinigt Durch: Paul Guest  
Certification Supervisor/Technician  
08/22/03 (1) 3438301501

*Paul O. Guest*

MTM 016  
8-28-03

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LES DONNEES CONTENUES ICI ONT ETE OBTENUES A PARTIR D'ECHANTILLONS REPRESENTATIFS DES PRODUITS FOURNIS PAR LE FOURNISSEUR. CE CERTIFICAT NE PEUT PAS ETRE CONSIDERE COMME ETANT UN GARANTIE. NOUS NE SOMES PAS RESPONSABLES DE LA LIABILITE LEGALE EN RESULTAT D'UNE UTILISATION DE CE CERTIFICAT.  
DIE DATEN ENHALTEN ANGEHEND BASESIEN AUF PROBEEN DIE ALS REPRESENTATIVITÄT GELIEFERT WURDEN UND ALS SOLCHE SIND NICHT ZU VERTRAGLICH ANZUSEHEN. WIR LEHNEN JEDE RECHTLICHE VERANTWORTUNG FÜR DIE VERWENDUNG DIESER DATEN AB.  
THIS MATERIAL LISTS THE REQUIREMENTS OF THE LATEST SPECIFICATIONS, WHICH MAY BE APPLIED TO THIS MATERIAL AT THE DISCRETION OF THE PURCHASER OR USER.  
SPECIFICATION FROM HAYNES INTERNATIONAL MAY BE WRAPPED ON CUSTOMER REQUEST. MULTIPLE MATERIAL SPECIFICATIONS.

MC118158.TIF3

4mc093762.TIF

CERTIFICATION OF TESTS • RAPPORT D'ESSAIS CERTIFIÉ • WERKSZEUGS				
Order No. No. de Passer Rechnung Nr. 391282001-0	Date Entered Date de Commande Bestelldatum 08/14/03	Customer Reference Référence Client Kundenbestellnummer P03-03302	Report No. Rapport No. Zugabe Nr. 20030822079	Pages of Pages Pages de Pages Anzahl der Seiten 4 Of 4

**HAYNES**  
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Kokomo, Indiana, 46902

Ship To - Client • Destinataire	Ship To - Destinataire • Bestimmung	Product Description • Description Produit • Material Bezeichnung
MAJOR TOOL AND MACHINE INC 1458 E 19TH ST INDIANAPOLIS IN 46218 USA	MAJOR TOOL AND MACHINE INC 1458 E 19TH ST INDIANAPOLIS IN 46218 USA	0.125 (0.12/0.13) x 36 x 120  HAYNES(R) 625 ALLOY SHEET NADCAP CERTIFICATE NUMBER 0089 S400E,S1000E, EN 10204 3.1.B
Specification • Spécification • Spezifikation	Quantity Ordered Quantité Commandée Bestellmenge	Quantity Shipped Quantité Expédiée Liefermenge
AMS 5599 Rev P ASTM-B-443 Rev 99 N06625 1	1 PC	1 PC

This material is free of mercury contamination.  
This material has passed the bend test as specified in 'AMS 5599'  
This material has been annealed and cooled in a protective atmosphere.  
Mill Orders Used: 3438301501 (1 PC)  
(A) 1750 °F to 1950 °F

Certified By • Certifié Par • Bescheinigt Durch: Paul Guest  
Certification Supervisor/Technician

08/22/03

*Paul O. Guest*

8.28.03

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VERIFICATION DES ÉCHANTILLONS FOURNIS ET POUVONS ÊTRE RESPONSABLES EN CE QUI CONCERNE LES DONNÉES OBTENUES À PARTIR D'ÉCHANTILLONS FOURNIS PAR LA SOCIÉTÉ CERTIFIÉE. NOUS DÉCLARONS NOTRE RESPONSABILITÉ JURIDIQUE EN CE QUI CONCERNE  
LES DONNÉES OBTENUES À PARTIR D'ÉCHANTILLONS FOURNIS PAR LA SOCIÉTÉ CERTIFIÉE. NOUS DÉCLARONS NOTRE RESPONSABILITÉ JURIDIQUE EN CE QUI CONCERNE LA  
CERTIFICATION DES ÉCHANTILLONS FOURNIS ET POUVONS ÊTRE RESPONSABLES EN CE QUI CONCERNE LES DONNÉES OBTENUES À PARTIR D'ÉCHANTILLONS FOURNIS PAR LA SOCIÉTÉ CERTIFIÉE.

MC118158.TIF4



**INSPECTION DATA CHECKLIST**

Quality Assurance Documentation for Part ID: SE120-005-45 - Item: 153

Workorder: 65678/1-0 Sub:149 Op:10

Part: SE120-005-45 - - PORT 9 BACKING STRIP

Drawing ID: Rev:		INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
*		MAGNETIC PERMEABILITY 1.02 MAX	MASTER GAGE	QA		J-1165	LESS THAN 1.02	854-R.U 08-21-05		
(20)										

A

CERTIFICATION OF TESTS • RAPPORT D'ESSAIS CERTIFIE • WERKSZEUGNIS				
Invoice No No. De Facture Rechnungs Nr 442687001-0	Date Entered Date De Commande Bestelldatum 06/06/05	Customer Reference Reference Client Kundenbestelldaten P05-03064	Report No. Rapport No Zeugnis Nr 20050628091	Pages of Pages Page de Pages Anzahl der Seiten 1 Of 4

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Sold To • Client • Beschriftung <b>MAJOR TOOL AND MACHINE INC</b> 1458 E 19TH ST INDIANAPOLIS IN 46218 USA	Ship To • Destinataire • Bestimmung <b>MAJOR TOOL AND MACHINE INC</b> 1458 E 19TH ST INDIANAPOLIS IN 46218 USA	Product Description • Description Produit • Material Beschreibung <b>0.125 (0.120/0.130) x 0/0 x 0/0</b> <b>SE120-004-72MTM REV:1A</b> <b>HAYNES(R) 625 ALLOY SHEET</b> <b>Nadcap CERTIFICATE NUMBER 0089</b> <b>S400E,S1000E, EN 10204 3.1.B, AS9100</b>
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Specification • Spécification • Spezifikation ASME-SB-443, 04, UNS# N06625, Gr. 1; PS-489, E	Quantity Ordered Quantité Commandée Bestelmenge 6 PC	Quantity Shipped Quantité Expédiée Liefermenge 6 PC
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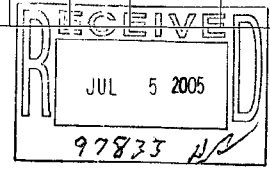
Heat Number N° de Charge Charge No	Chemical Analysis • Analyse Chimique • Chemische Analyse																	
	Al	B	C	Ch (a)	Co	Cr	Cu	Fe	Mn	Mo	Ni	P	S	Si	Ti	V	W	
2650 5 6801	0.28		0.025	3.51	0.2101	21.89	0.0587	4.0106	0.2503	8.66	60.59	0.006	0.004	0.24	0.3585			BUTT END *03

Heat Number N° de Charge Charge No	Chemical Analysis • Analyse Chimique • Chemische Analyse															
	Cb	Ta	Zr	Bi	Se	La	Pb	Mg	Y	Ag	N	Ca	Al+Ti	Ni+Co	Ni+Mo	W
2650 5 6801	3.5026	<0.05														BUTT END *03

Certified By • Certifié Par • Bescheinigt Durch: Amanda Aguirre  
Certification Technician

6/28/2005

*Amanda Aguirre*



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*AKK 7-5-05*

MC109562.TIF1

Invoice No No. De Facture Rechnungs Nr 442687001-0	Date Entered Date De Commande Bestelldatum 06/06/05	Customer Reference Reference Client KundenbestNr/Iden P05-03064	Report No. Rapport No Zeugnis Nr 20050028091	Pages of Pages Page de Pages Anzahl der Seiten 2 Of 4
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PO Box 9013  
Kokomo, Indiana, 46902

Sold To • Client • Bestellaufschrift <b>MAJOR TOOL AND MACHINE INC</b> 1458 E 19TH ST INDIANAPOLIS IN 46218 USA	Ship To • Destinataire • Bestelldmenge <b>MAJOR TOOL AND MACHINE INC</b> 1458 E 19TH ST INDIANAPOLIS IN 46218 USA	Product Description • Description Produit • Material Beschreibung <b>0.125 (0.120/0.130) x 0/0 x 0/0</b> <b>SE120-004-72MTM REV:1A</b> <b>HAYNES(R) 625 ALLOY SHEET</b> <b>Nadcap CERTIFICATE NUMBER 0089</b> <b>S400E,S1000E, EN 10204 3.1.B, AS9100</b>
Specification • Specification • Spezifikation ASME-SB-443, 04, UNS# N06625, Gr. 1; PS-489, E	Quantity Ordered Quantite Commandee Bestellmenge 6 PC	Quantity Shipped Quantite Expediee Liefermenge 6 PC

Tensile Test at Room Temperature • Essai De Traction A Temp. Ambiante • Zugversuch Bei Raum Temp.						Tensile Test at Elevated Temperature • Essai De Traction A Hte Temp. Warm Zugversuch						Stress Rupture Temperature • Essai A Charge De Rupture Zeitstandversuch					
Ultimate Zugfestigkeit	1% Yield Lim. Elong. A 1% 1% Streckgrenze	0.2% Yield Lim. Elong. A 0.2% 0.2% Streckgrenze	% Elong in % Abzug EN	%RA		Test Essai Versuch Temp:	Ultimate Zugfestigkeit	1% Yield Lim. Elong. A 1% 1% Streckgrenze	0.2% Yield Lim. Elong. A 0.2% 0.2% Streckgrenze	% Elong in % Abzug EN	%RA		Test Essai Versuch Temp:	Stress Contrainte Spannung	Hours Heures Stunden	% Elong in % Abzug EN	% RA
137000 PSI		74000 PSI	44 %		(I)(A)												

Certified By • Certifie Par • Bescheinigt Durch: Amanda Aguirre  
Certification Technician

6/28/2005 (1) 3942629401

*Amanda Aguirre*

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REU  
7-5-05

MC109562.TIF2

CERTIFICATION OF TESTS • RAPPORT D'ESSAIS CERTIFIE • WERKSZEUGNIS				
Invoice No. No. de Facture Rechnungs Nr 442687001-0	Date Entered Date de Commande Bestelldatum 06/06/05	Customer Reference Reference Client Kundenbestelldaten POS-03064	Report No. Rapport No Zeugnis Nr 20050628091	Pages of Pages Page de Pages Anzahl der Seiten 3 Of 4



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---	--	--

Specification • Specification • Spezifikation ASME-SB-443, 04, UNS# N06625, Gr. 1, PS-489, E	Quantity Ordered Quantite Commandee Bestelldmenge 6 PC	Quantity Shipped Quantite Expeditee Liefermenge 6 PC
---	---	---

Annealed Hardness Durete Result Gezocht Haerte	Aged Hardness Durete Vieilli Gealtert Haerte	Grain Size Grosneur De Grain Korngrösse						IGA	Uniformity	Corrosion Rate	Oxidation Rate	Charpy Impact Test				Creep Rupture				
		Grain Size	Prokernan Grain Size	Recr. Grain	Unconv. Grain %	ALA	PRW Figure Number					Atack Depth	Corrosion	Test Method	Toughness Avg	Toughness 1	Toughness 2	Toughness 3	Test Exact Vorsch	Stress Contrainte Spannung
98 HRB	(1)(A)	7.5																		

Certified By • Certifie Par • Bescheinigt Durch: Amanda Aguirre  
Certification Technician  
*Amanda Aguirre*  
6/28/2005 (1) 3942629401

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*Allen*  
*7-5-05*

MC109562.TIF3

CERTIFICATION OF TESTS • RAPPORT D'ESSAIS CERTIFIE • WERKSZEUGNIS				
Invoice No. No. de Facture Rechnungs Nr 442687001-0	Date Entered Date de Commande Bestelldatum 06/06/05	Customer Reference References Client Kundenbestellnr P03-03064	Report No. Rapport No Zeugnis Nr 20050628091	Pages of Pages Page de Pages Anzahl der Seiten 4 Of 4

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Sold To • Client • Bestelkmanschrift <b>MAJOR TOOL AND MACHINE INC</b> <b>1458 E 19TH ST</b> <b>INDIANAPOLIS</b> <b>IN 46218 USA</b>		Ship To • Destinaire • Bestellmenge <b>MAJOR TOOL AND MACHINE INC</b> <b>1458 E 19TH ST</b> <b>INDIANAPOLIS</b> <b>IN 46218 USA</b>		Product Description • Description Produit • Material Beschreibung <b>0.125 (0.120/0.130) x 0/0 x 0/0</b> <b>SE120-004-72MTM REV:1A</b> <b>HAYNES(R) 625 ALLOY SHEET</b> <b>Nadcap CERTIFICATE NUMBER 0089</b> <b>S400E,S1000E, EN 10204 3.1.B, AS9100</b>
Specification • Specification • Spezifikation ASME-SB-443, 04, UNS# N06625, Gr. 1; PS-489, E		Quantity Ordered Quantite Commandee Bestellmenge 6 PC	Quantity Shipped Quantite Expediee Liefermenge 6 PC	

All tests and inspections have been performed and results meet specification requirements.  
THIS MATERIAL IS FREE FROM MERCURY, CADMIUM, RADIUM, AND ALPHA SOURCE CONTAMINATION.  
Material conforms to PS-483 Revision H as applicable.  
Mill Orders Used: 3942629401 (6 PC)  
(A) 1750 °F to 1950 °F

Certified By • Certifie Par • Bescheinigt Durch: Amanda Aguirre 6/28/2005  
Certification Technician

*Amanda Aguirre*

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*AKK*  
*7-5-05*

MC109562.TIF4

**Magnetic Permeability Test Witness**

Haynes observed Mr. Edwards of Major Tool test the orders listed below for Magnetic Permeability on June 10, 2005, using a Severn Engineering Permeability Indicator #6763, identified as gauge J-1165 in Major Tool's calibration system. The gauge was in calibration and was due for recalibration on December 27, 2005. All items tested below were <1.01 magnetic permeability.


Heats Tested

2650-5-6801

Purchase Order Numbers

P05-03064

Best Regards,

 6/21/2005  
Marlin C. Losch III

AKU  
7-5-05

**INSPECTION DATA CHECKLIST**

Quality Assurance Documentation for Part ID: SE120-005-46 - Item: 155

Workorder: 65678/1-0 Sub:150 Op:10

Part: SE120-005-46 - - PORT 10 BACKING STRIP

Drawing ID: Rev:		INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
*			MASTER GAGE	QA		J-1165	LESS THAN 1.02	854-R.U		
(20)		MAGNETIC PERMEABILITY 1.02 MAX						08-21-05		

A

CERTIFICATION OF TESTS • RAPPORT D'ESSAIS CERTIFIÉ • WERKSZEUGNIS			
Invoice No. No. de Facture Rechnungs-Nr 442690001-0	Date Entered Date de Commande Bestelldatum 06/06/05	Customer Reference Référence Client Kundenbestelldaten P05-03064	Report No. Rapport No Zertifikat-Nr 20050628080
		Pages of Pages Page de Pages Anzahl der Seiten 1 Of 4	

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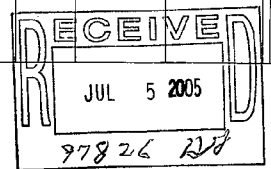
Sold To • Client • Bestellanschrift <b>MAJOR TOOL AND MACHINE INC</b> 1458 E 19TH ST INDIANAPOLIS IN 46218 USA	Ship To • Destinataire • Bestellemege <b>MAJOR TOOL AND MACHINE INC</b> 1458 E 19TH ST INDIANAPOLIS IN 46218 USA	Product Description • Description Produit • Material Beschreibung 0.125 (0.120/0.130) x 0/0 x 0/0 SE120-004-73MTM REV:1A HAYNES(R) 625 ALLOY SHEET Nadcap CERTIFICATE NUMBER 0089 S400E,S1000E, EN 10204 3.1.B, AS9100
--	--	---

Specification • Specification • Spezifikation ASME-SB-443, 04, UNS# N06625, Gr. 1; PS-489, E	Quantity Ordered Quantité Commandée Bestellmenge 6 PC	Quantity Shipped Quantité Expédiée Liefermenge 6 PC
---	--	--

Heat Number Numero de Cuite Charge-Nr	Chemical Analysis • Analyse Chimique • Chemische Analyse																	
	Al	B	C	Cr+Ni (0.01%)	Co	Cr	Cu	Fe	Mn	Mo	Ni	P	S	Si	Ti	V	W	
2650 5 6801	0.28		0.025	3.51	0.2101	21.89	0.0587	4.0106	0.2503	8.66	60.59	0.006	0.004	0.24	0.3585			BUTT END *03
2650 5 6801	0.0040	Ta	Zr	Bi	Sc	La	UNS#	Pb	Mg	Y	Ag	N	Ca	Al+Ti	Ni+Co	Ni+Mo		BUTT END *03
	3.5026	<0.05																

Certified By • Certifié Par • Bescheinigt Durch: Amanda Aguirre  
Certification Technician  
6/28/2005

*Amanda Aguirre*



*lines 19-21*

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MC109515.T1F1



CERTIFICATION OF TESTS • RAPPORT D'ESSAIS CERTIFIÉ • WERKSZEUGNIS				
Invoice No. No. De Facture Rechnungs Nr 442690001-0	Date Entered Date De Commande Bestelldatum 06/06/05	Customer Reference Reference Client Kundenbestelldaten P05-03064	Report No. Rapport No Zeugnis Nr 20050628080	Pages of Pages Page de Pages Anzahl der Seiten 2 Of 4

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---	---	--

Specification • Specification • Spezifikation ASME-SB-443, 04, UNS# N06625, Gr. 1; PS-489, E	Quantity Ordered Quantité Commandée Bestellmenge 6 PC	Quantity Shipped Quantité Expédiée Liefermenge 6 PC
---	--	--

Tensile Test at Room Temperature • Essai De Traction A Temp. Ambiante • Zugversuch						Tensile Test at Elevated Temperature • Essai De Traction A Hte.Temp.						Stress Rupture Temperature • Essai A Charge De Rupture Zeistandversuch					
Bei Room Temp.						Warm Zugversuch											
Ultimate Zugfestigkeit	1% Yield Lim. Elast. A 1% 1% Streckgrenze	0.2% Yield Lim. Elast. A 0.2% 0.2% Streckgrenze	% Elong in % Allong EN	%RA		Test Essai Versuch	Ultimate Zugfestigkeit	1% Yield Lim. Elast. A 1% 1% Streckgrenze	0.2% Yield Lim. Elast. A 0.2% 0.2% Streckgrenze	% Elong in % Allong EN	%RA	Test Essai Versuch	Stress Contrainte Spannung	Hours Heures Stunden	% Elong in % Allong EN	%RA	
137000 PSI		74000 PSI	44 %		(1)(A)												

Certified By • Certifié Par • Bescheinigt Durch: Amanda Aguirre  
Certification Technician

6/28/2005 (1) 3942629401

*Amanda Aguirre*

MTM 016

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Invoice No. No. de Facture Rechnungs Nr 442690001-0	Date Entered Date de Commande Bestelldatum 05/06/05	Customer Reference Reference Client Kundenbestelldaten P05-03064	Report No. Rapport No ZeugNR Nr 20050628080
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MAJOR TOOL AND MACHINE INC 1458 E 19TH ST INDIANAPOLIS IN 46218 USA	MAJOR TOOL AND MACHINE INC 1458 E 19TH ST INDIANAPOLIS IN 46218 USA	0.125 (0.120/0.130) x 0/0 x 0/0 SE120-004-73MTM REV:1A HAYNES(R) 625 ALLOY SHEET - Nadcap CERTIFICATE NUMBER 0089 S400E,S1000E, EN 10204 3.1.B, AS9100

Specification • Specification • Spezifikation	Quantity Ordered Quantite Commandee Bestelmenge	Quantity Shipped Quantite Expediee Liefermenge
ASME-SB-443, 04, UNS# N06625, Gr. 1; PS-489, E	6 PC	6 PC

Annealed Hardness Durete Recuit Gelegtheit Haerte	Aged Hardness Durete Vieilli Gealtert Haerte	Grain Size Grossier de Grain Korngrosse					IGA	Uniformity	Corrosion Rate		Oxidation Rate	Charpy Impact Test				Creep Rupture				
		Grain Size	Fine/Normal Grain Size	Coarse Grain	Uniformity Grain %	ALA			P/W Figure Number	Attack Depth		Corrosion	Test Method	Toughness Avg	Toughness 1	Toughness 2	Toughness 3	Tens. Basis Versuch	Stress Creep/Time Spannung	Hours Heures Stunden
98 HRB	(1)(A)	7.5						0.0091 IN	MPY											

Certified By • Certifie Par • Bescheinigt Durch: Amanda Aguirre  
Certification Technician

6/28/2005 (1) 3942629401

*Amanda Aguirre*



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Invoice No. No. De Facture Rechnungs Nr 44269001-0	Date Entered Date De Commande Bestelldatum 06/06/05	Customer Reference Reference Client Kundenbestelldaten P05-03064	Report No. Rapport No Zeugnis Nr 20050628080	Pages of Pages Page de Pages Anzahl der Seiten 4 Of 4

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Sold To • Client • Bestelltranschrift <b>MAJOR TOOL AND MACHINE INC 1458 E 19TH ST INDIANAPOLIS IN 46218 USA</b>	Ship To • Destinaaire • Bestellmenge <b>MAJOR TOOL AND MACHINE INC 1458 E 19TH ST INDIANAPOLIS IN 46218 USA</b>	Product Description • Description Produit • Material Beschreibung <b>0.125 (0.120/0.130) x 0/0 x 0/0 SE120-004-73MTM REV:1A HAYNES(R) 625 ALLOY SHEET - Nadcap CERTIFICATE NUMBER 0089 S400E,S1000E, EN 10204 3.1.B, AS9100</b>
Specification • Specification • Spezifikation ASME-SB-443, 04, UNS# N06625, Gr. 1; PS-489, E	Quantity Ordered Quantite Commandee Bestellmenge 6 PC	Quantity Shipped Quantite Expeditee Liefermenge 6 PC

All tests and inspections have been performed and results meet specification requirements.  
THIS MATERIAL IS FREE FROM MERCURY, CADMIUM, RADIUM, AND ALPHA SOURCE CONTAMINATION.  
Material conforms to PS-483 Revision H as applicable.  
Mill Orders Used: 3942629401 (6 PC)  
(A) 1750 °F to 1950 °F

Certified By • Certifié Par • Bescheinigt Durch: Amanda Aguirre 6/28/2005  
Certification Technician

*Amanda Aguirre*



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MC109515.TIF4

**Magnetic Permeability Test Witness**

Haynes observed Mr. Edwards of Major Tool test the orders listed below for Magnetic Permeability on June 10, 2005, using a Severn Engineering Permeability Indicator #6763, identified as gauge J-1165 in Major Tool's calibration system. The gauge was in calibration and was due for recalibration on December 27, 2005. All items tested below were <1.01 magnetic permeability.


Heats Tested

2650-5-6801

Purchase Order Numbers

P05-03064

Best Regards,

 6/21/2005  
Marlin C. Losch III



**INSPECTION DATA CHECKLIST**

Quality Assurance Documentation for Part ID: SE120-005-47 - Item: 157

Workorder: 65678/1-0 Sub:151 Op:10

Part: SE120-005-47 - - PORT 11 BACKING STRIP

Drawing ID: Rev:		INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
*		MAGNETIC PERMEABILITY 1.02 MAX	MASTER GAGE	QA		J-1165	LESS THAN 1.02	854-R.U 08-21-05		
(20)										

A



**Eagle Alloys Corporation**

117 West Park Ct. Talbott, TN 37877  
Ph: (423) 586-8738 Fx: (423) 586-7456  
E-Mail: eaglealloys@aol.com

**CERTIFICATE OF COMPLIANCE**

**CUSTOMER**  
Major Tool & Machine, Inc.

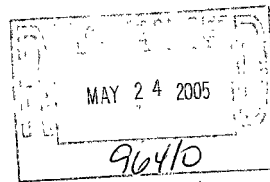
**DATE**  
5-23-05

**PURCHASE ORDER NUMBER**  
P05-02476

**OUR ORDER NUMBER**  
5-1337

<b>MATERIAL</b>	<b>SIZE</b>	<b>QTY</b>	<b>CONFORMS TO:</b>
Alloy 625 welded pipe	2-1/2" sch 10	20 ft	ASTM-B-705, PS483, PS 489

**RM ID: A8519**



*Line 1  
B-1*

**Certified By:**

*Randy Bawlin*

*5/24/05*

BRISTOL METALS L.P.  
BRISTOL TN. U.S.A.  
MILL TEST REPORTTO: EAGLE ALLOYS CORPORATION  
117 WEST PARK CT  
TALBOTT, TN 37877CUST NO: 567512  
ORDER NO: 14762  
PO NO: 8294  
DATE: 01/21/2005HEAT NO.: 26504674 2.5" WELDED PIPE SCH. 10S ALLOY 1615 UNS#N06625 ASTM  
RM ID: A513 3705-03 / ASME SB705-01, 03 MOD. CLASS 2, FULL FINISHED.

ALUMINUM	.2	CARBON	.033
CHROMIUM	22.0024	COBALT	.1849
IRON	4.5278	MANGANESE	.2605
MOLYBDENUM	0.8153	NI+TA	3.5003
NICKEL	59.3567	PHOSPHORUS	.007
SILICON	.19	SULFUR	.002
TITANIUM	.2644	HARD RB	93
ELONG %	47		
TENSILE	131000	YIELD	64000
ANNEALED	YES	EDDY CURRENT	OK
FLATTENING	OK	TENSION	OK
HYDRO PRESSURE	1000 PSI		

Annealed at 1925 Deg. F. and water quenched to  
below 800 Deg. F. in less than 3 minutesBristol Metals has a Quality Management System that is in  
compliance with ISO 9001:2000Hardness in accordance with NACE MR0175  
Bristol Metals does not add Mercury during any manufacturing process.  
Chemical content is % by weight.  
Mechanical test results are in English units (inches and pounds).  
Certification is in accordance with EN10204 (DIN 50049) 3.1.B.  
We certify this report to be true and accurate, according to our records on file  
No weld repairs have been performed on the base material.

Bristol Metals L.P.

*Daniel Singleton*  
Representative

MIBR

5/24/05  
MTM  
09

**INSPECTION DATA CHECKLIST**

Quality Assurance Documentation for Part ID: SE120-005-48 - Item: 159

Workorder: 65678/1-0 Sub:152 Op:10

Part: SE120-005-48 - - PORT 15 BACKING STRIP

Drawing ID: Rev:		INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
* (20)		MAGNETIC PERMEABILITY 1.02 MAX	MASTER GAGE	QA		J-1165	LESS THAN 1.02	854-R.U 08-21-05		

A



CERTIFICATION OF TESTS • RAPPORT D'ESSAIS CERTIFIÉ • WERKSZEUGNIS			
Invoice No No. De Facture Rechnungs Nr 442713001-0	Date Entered Date De Commande Bestelldatum 06/06/05	Customer Reference Reference Client Kundenbestelldaten P05-03064	Report No. Rapport No Zeugnis Nr 20050628078
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**International**

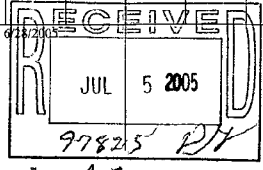
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PO Box 9013  
Kokomo, Indiana, 46902

Sold To • Client • Bestelltramschrift <b>MAJOR TOOL AND MACHINE INC</b> 1458 E 19TH ST INDIANAPOLIS IN 46218 USA	Ship To • Destinataire • Bestellmenge <b>MAJOR TOOL AND MACHINE INC</b> 1458 E 19TH ST INDIANAPOLIS IN 46218 USA	Product Description • Description Produit • Material Beschreibung 0.125 (0.120/0.130) x 0/0 x 0/0 SE120-004-75MTM REV:1A HAYNES(R) 625 ALLOY SHEET - Nadcap CERTIFICATE NUMBER 0089 S400E,S1000E, EN 10204 3.1.B, AS9100
Specification • Specification • Spezifikation ASME-SB-443, 04, UNS# N06625, Gr. 1, PS-489, E	Quantity Ordered Quantité Commandée Bestellmenge 6 PC	Quantity Shipped Quantité Expédiée Liefermenge 6 PC

Heat Number Numero De Coque Charge Nr	Chemical Analysis • Analyse Chimique • Chemische Analyse																		
	Al	B	C	Ca+Fe (28+7a)	Co	Cr	Cu	Fe	Mn	Mo	Ni	P	S	Si	Ti	V	W		
2650 5 6801	0.28		0.025	3.51	0.2101	21.89	0.0587	4.0106	0.2503	8.66	60.59	0.006	0.004	0.24	0.3585				BUTT END *03
2650 5 6801	3.5026	<0.05																	BUTT END *03

Certified By • Certifié Par • Bescheinigt Durch: Amanda Aguirre  
Certification Technician

*Amanda Aguirre*



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MC109516.T1F1

CERTIFICATION OF TESTS • RAPPORT D'ESSAIS CERTIFIÉ • WERKSZEUGNIS				
Invoice No. No. De Facture Rechnungs Nr 442713001-0	Date Entered Date De Commande Bestelldatum 06/06/05	Customer Reference Reference Client Kundenbestelldata P05-03064	Report No. Rapport No Zeugnis Nr 20050928078	Pages of Pages Page de Pages Anzahl der Seiten 2 Of 4

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---	---	--

Specification • Specification • Spezifikation ASME-SB-443, 04, UNS# N06625, Gr. 1; PS-489, E	Quantity Ordered Quantite Commandee Bestelmenge 6 PC	Quantity Shipped Quantite Expeditee Liefermenge 6 PC
---	---	---

Tensile Test at Room Temperature • Essai De Traction A Temp. Ambiante • Zugversuch Bei Raum Temp.						Tensile Test at Elevated Temperature • Essai De Traction A Ho. Temp. Warm Zugversuch						Stress Rupture Temperature • Essai A Charge De Rupture Zeltstandversuch					
Ultimate Zugfestigkeit	0.2% Yield Lim. Elast. A 1% 0.2% Streckgrenze	0.2% Yield Lim. Elast. A 0.2% 0.2% Streckgrenze	% Elong In % Dehnung	%RA		Test Essai Versuch	Ultimate Zugfestigkeit	0.2% Yield Lim. Elast. A 1% 0.2% Streckgrenze	0.2% Yield Lim. Elast. A 0.2% 0.2% Streckgrenze	% Elong In % Dehnung	%RA	Test Essai Versuch	Stress Contrainte Spannung	Hours Heures Stunden	% Elong In % Dehnung	%RA	
137000 PSI		74000 PSI	44 %		(1)(A)												

Certified By • Certifié Par • Bescheinigt Durch: Amanda Aguirre  
Certification Technicia

6/28/2005 (1) 3942629401

*Amanda Aguirre*



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Invoice No No. De Facture Rechnungs Nr 442713001-0	Date Entered Date De Commande Bestelldatum 06/06/05	Customer Reference Reference Client Kundenbestellnr P05-03064	Report No. Rapport No Zeugnis Nr 20050628078	Pages of Pages Page de Pages Anzahl der Seiten 4 Of 4

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Specification • Specification • Spezifikation ASME-SB-443, 04, UNS# N06625, Gr. 1, PS-489, E	Quantity Ordered Quantite Commandee Bestellmenge 6 PC	Quantity Shipped Quantite Expeditee Liefermenge 6 PC

All tests and inspections have been performed and results meet specification requirements.  
THIS MATERIAL IS FREE FROM MERCURY, CADMIUM, RADIUM, AND ALPHA SOURCE CONTAMINATION.  
Material conforms to PS-483 Revision H as applicable.  
Mill Orders Used: 3942629401 (6 PC)  
(A) 1750 °F to 1950 °F

Certified By • Certifie Par • Bescheinigt Durch: Amanda Aguirre  
Certification Technician

6/28/2005

*Amanda Aguirre*



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MC109516.TIF4

**Magnetic Permeability Test Witness**

Haynes observed Mr. Edwards of Major Tool test the orders listed below for Magnetic Permeability on June 10, 2005, using a Severn Engineering Permeability Indicator #6763, identified as gauge J-1165 in Major Tool's calibration system. The gauge was in calibration and was due for recalibration on December 27, 2005. All items tested below were <1.01 magnetic permeability.


Heats Tested

2650-5-6801

Purchase Order Numbers

P05-03064

Best Regards,

 6/21/2005

Martin C. Losch III



Quality Assurance Documentation for Part ID: SE120-006-6 - Item: 161

Workorder: 65678/1-0 Sub:144 Op:10

Part: SE120-006-6 - - PORT 4 BACKING STRIP

Drawing ID: Rev:		INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
*			MASTER GAGE	QA		J-1165	LESS THAN 1.02	854-R.U		
(20)		MAGNETIC PERMEABILITY 1.02 MAX						08-21-05		

A

CERTIFICATION OF TESTS • RAPPORT D'ESSAIS CERTIFIÉ • WERKSZEUGNIS			
Invoice No. No. De Facture Rechnungs Nr 442715001-0	Date Entered Date De Commande Bestelldatum 06/06/05	Customer Reference Reference Client Kundenbestelldaten P05-03064	Report No. Rapport No. Zeugnis Nr 20050628084
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Specification • Spécification • Spezifikation ASME-SB-443, 04, UNS# N06625, Gr. 1, PS-489, E	Quantity Ordered Quantité Commandée Bestellmenge 6 PC	Quantity Shipped Quantité Expédiée Liefermenge 6 PC

Heat Number Numero De Cuite Charge Nr.	Chemical Analysis • Analyse Chimique • Chemische Analyse																	
	Al	B	C	Cr (10+7%)	Co	Cr	Cu	Fe	Mn	Mo	Ni	P	S	Si	Ti	V	W	
2650 5 6801	0.28		0.025	3.51	0.2101	21.89	0.0587	4.0106	0.2503	8.66	60.59	0.006	0.004	0.24	0.3585			BUTT END *03
	UNS#	Ta	Zr	Bi	Se	La	CS-09	Pb	Mg	Y	Ag	N	Ca	Al+Ti	Ni+Co	Ni+Mo		BUTT END *03
2650 5 6801	3.5026	<0.05																BUTT END *03

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*Amanda Aguirre*

6/28/2005

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2805

MC109561.TIF1

CERTIFICATION OF TESTS • RAPPORT D'ESSAIS CERTIFIE • WERKSZEUGNIS			
Invoice No No. De Facture Rechnungs Nr 442715001-0	Date Entered Date De Commande Bestelldatum 06/06/05	Customer Reference Reference Client Kundenbestelldaten P05-03064	Report No. Rapport No Zeugnis Nr 20050628084
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Specification • Specification • Spezifikation ASME-SB-443, 04, UNS# N06625, Gr. 1; PS-489, E	Quantity Ordered Quantite Commandee Bestellmenge 6 PC	Quantity Shipped Quantite Expediee Liefermenge 6 PC
---	--	--

Tensile Test at Room Temperature • Essai De Traction A Temp. Ambiante • Zugversuch Bei Room Temp.						Tensile Test at Elevated Temperature • Essai De Traction A Hie. Temp. Warm Zugversuch						Stress Rupture Temperature • Essai A Charge De Rupture Zeistandversuch					
Ultimate Zugfestigkeit	1% Yield Lim. Elong. A 1% 1% Streckgrenze	0.2% Yield Lim. Elong. A 0.2% 0.2% Streckgrenze	% Elong In % Allong EN % Dehnung	%RA		Test Essai Versuch	Ultimate Zugfestigkeit	1% Yield Lim. Elong. A 1% 1% Streckgrenze	0.2% Yield Lim. Elong. A 0.2% 0.2% Streckgrenze	% Elong In % Allong EN % Dehnung	%RA	Test Essai Versuch	Stress Contrainte Spannung	Hours Heures Stunden	% Elong In % Allong EN % Dehnung	%RA	
137000 PSI		74000 PSI	44 %		(1)(A)												

Certified By • Certifie Par • Bescheinigt Durch: Amanda Aguirre Certification Technician  <i>Amanda Aguirre</i>	6/28/2005	(1) 3942629401
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CERTIFICATION OF TESTS • RAPPORT D'ESSAIS CERTIFIE • WERKSZEUGNIS				
Invoice No. No. De Facture Rechnungs Nr 442715001-0	Date Entered Date De Commande Bestelldatum 06/06/05	Customer Reference Reference Client Kundenbest/Maten P05-03064	Report No. Rapport No Zeugnis Nr 20950628084	Pages of Pages Page(s) Pages Anzahl der Seiten 3 Of 4

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Specification • Specification • Spezifikation ASME-SB-443, 04, UNS# N06625, Gr. 1; PS-489, E	Quantity Ordered Quantite Commandee Bestellmenge 6 PC	Quantity Shipped Quantite Expediee Liefermenge 6 PC
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Amended Hardness Durete Recoil Geboht Herte	Aged Hardness Durete Vieilli Gealtert Herte	Grain Size Grossesur De Grain Korngrösse						IGA	Uniformity	Corrosion Rate		Oxidation Rate	Charpy Impact Test					Creep Rupture																								
		Grain Size	Preferential Grain Size	Acety. Grain	Univ. Grain %	ALA	P/W Figure Number			Attack Depth	Corrosion		Test Method	Toughness Avg	Toughness 1	Toughness 2	Toughness 3	Test Temp F/°C	Stress Constraine Spruing PSI	Hours Heures Stunden	% Elong % Along EN % Deform	% Elong 15 Hrs																				
98 HRB	(1)(A)	7.5																																								

Certified By • Certifie Par • Bescheinigt Durch: Amanda Aguirre  
Certification Technician

6/28/2005 (1) 3942629401

*Amanda Aguirre*

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*RTU  
2-5-05*

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CERTIFICATION OF TESTS • RAPPORT D'ESSAIS CERTIFIE • WERKSZEUGNIS			
Invoice No No. De Facture Rechnungs Nr 442715001-0	Date Entered Date De Commande Bestelldatum 06/06/05	Customer Reference Reference Client Kundenbestelldaten P05-03064	Report No. Rapport No Zusatz Nr 20050628084
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Specification • Specification • Spezifikation ASME-SB-443, 04, UNS# N06625, Gr. 1, PS-489, E		Quantity Ordered Quantite Commandee Bestellmenge 6 PC	Quantity Shipped Quantite Expediee Liefermenge 6 PC		

All tests and inspections have been performed and results meet specification requirements.  
THIS MATERIAL IS FREE FROM MERCURY, CADMIUM, RADIUM, AND ALPHA SOURCE CONTAMINATION.  
Material conforms to PS-483 Revision H as applicable.  
Mill Orders Used: 3942629401 (6 PC)  
(A) 1750 °F to 1950 °F

Certified By • Certifie Par • Bescheinigt Durch: Amanda Aguirre  
Certification Technician 6/28/2005

*Amanda Aguirre*

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SPECIFICATION MARKING REQUIREMENTS MAY BE WAIVED ON ORDERS ACKNOWLEDGING MULTIPLE MATERIAL SPECIFICATIONS.

AKU  
2-5-05

**Magnetic Permeability Test Witness**

Haynes observed Mr. Edwards of Major Tool test the orders listed below for Magnetic Permeability on June 10, 2005, using a Severn Engineering Permeability Indicator #6763, identified as gauge J-1165 in Major Tool's calibration system. The gauge was in calibration and was due for recalibration on December 27, 2005. All items tested below were <1.01 magnetic permeability.


Heats Tested

2650-5-6801

Purchase Order Numbers

P05-03064

Best Regards,

 6/21/2005  
Marlin C. Losch III

AKU  
7-5-05

CERTIFICATION OF TESTS • RAPPORT D'ESSAIS CERTIFIÉ • WERKSZEUGNIS				
Invoice No No. De Facture Rechnungs Nr 442718001-0	Date Entered Date de Commande Bestelldatum 06/06/05	Customer Reference Reference Client Kundenbestelldaten P05-03064	Report No. Rapport No Zeugnis Nr 20050628079	Pages of Pages Page de Pages Anzahl der Seiten 1 Of 4

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Specification • Specification • Spezifikation ASME-SB-443, 04, UNS# N06625, Gr. 1; PS-489, E	Quantity Ordered Quantité Commandée Bestelmenge 6 PC	Quantity Shipped Quantité Especies Liefermenge 6 PC

Heat Number Numero de Coque Charge Nr	Chemical Analysis • Analyse Chimique • Chemische Analyse																	
	Al	B	C	Cr-Ti (Nb-Ti)	Co	Cr	Cu	Fe	Mn	Mo	Ni	P	S	Si	Ti	V	W	
2650 5 6801	0.28		0.025	3.51	0.2101	21.89	0.0587	4.0106	0.2503	8.66	60.59	0.006	0.004	0.24	0.3585			BUTT END *03
	ONM	Ta	Zr	Bi	Se	La	ONM	Pb	Mg	Y	Ag	N	Ca	Al+Ti	Ni+Co	Ni+Mo		BUTT END *03
2650 5 6801	3.5026	<0.05																

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MC109677.TIF1

**CERTIFICATION OF TESTS • RAPPORT D'ESSAIS CERTIFIÉ • WERKSZEUGNIS**

Invoice No. No. de Facture Rechnungs Nr 442718001-0	Date Entered Date De Commande Bestelldatum 06/06/05	Customer Reference References Client Kundenbestelldaten P05-03064	Report No. Rapport No Zeugnis Nr 20050628079	Pages of Pages Page de Pages Anzahl der Seiten 2 Of 4
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Specification • Specification • Spezifikation ASME-SB-443, 04, UNS# N06625, Gr. 1; PS-489, E	Quantity Ordered Quantité Commandée Bestellmenge 6 PC	Quantity Shipped Quantité Expédiée Liefermenge 6 PC

Tensile Test at Room Temperature • Essai De Traction A Temp. Ambiante • Zugversuch Bei Raum Temp.						Tensile Test at Elevated Temperature • Essai De Traction A Hte.Temp. Warm Zugversuch						Stress Rupture Temperature • Essai A Charge De Rupture Zeitstandversuch					
Ultimate	1% Yield	0.2% Yield	% Elong In	%RA		Test Temp	Ultimate	1% Yield	0.2% Yield	% Elong In	%RA	Test Temp	Stress	Hours	% Elong In	%RA	
Zugfestigkeit	Lim. Elast. A 1%	Lim. Elast. A 0.2%	% Dehnung	%RA		Temp	Zugfestigkeit	Lim. Elast. A 1%	Lim. Elast. A 0.2%	% Dehnung	%RA	Temp	Coeficiente Spannung	Stunden	% Dehnung	%RA	
137000 PSI		74000 PSI	44 %		(I)(A)												

Certified By • Certifié Par • Bescheinigt Durch: Amanda Aguirre  
Certification Technician

*Amanda Aguirre*  
MIM DIS JUL 07 2005

6/28/2005 (1) 3942629401

THE MATERIAL AND DESIGN WAS OBTAINED FROM SAMPLES THAT ARE REPRESENTATIVE OF THE PRODUCTS IN THE SUBJECT EQUIPMENT. THIS MATERIAL MEETS THE REQUIREMENTS OF THE LISTED SPECIFICATIONS, MODIFIED BY ANY EXCEPTIONS OR PURCHASE ORDER BRUORDER IN THE BODY OF THIS DOCUMENT OR FRAUDULENT STATEMENTS OR INTENTIONS ON THIS DOCUMENT MAY BE PROSECUTED AS A FELONY UNDER FEDERAL LAWS INCLUDING FEDERAL LAW, TITLE 18, CHAPTER 49. THIS DOCUMENT SHALL NOT BE REPRODUCED EXCEPT IN FULL, WITHOUT THE WRITTEN CONSENT OF HAYNES INTERNATIONAL, INC. SPECIFIC TESTING REQUIREMENTS MAY BE VARYING ON SPECIFIC REQUIREMENTS DELIVERED IN THE MATERIAL SPECIFICATIONS.

MC109677.TIF2

CERTIFICATION OF TESTS • RAPPORT D'ESSAIS CERTIFIÉ • WERKSZEUGNIS				
Invoice No. No. De Facture Rechnungs Nr. 442718001-0	Date Entered Date De Commande Bestelldatum 06/06/05	Customer Reference Reference Client Kundenbestelldaten P05-03064	Report No. Rapport No. Zeugnis Nr. 20030628079	Pages of Pages Page de Pages Anzahl der Seiten 3 Of 4

FILE COPY 2

**HAYNES**  
**International**

Haynes International  
1020 West Park Avenue  
PO Box 9013  
Kokomo, Indiana, 46902

Sold To • Client • Bestellaranschrift <b>MAJOR TOOL AND MACHINE INC</b> <b>1458 E 19TH ST</b> <b>INDIANAPOLIS</b> <b>IN 46218 USA</b>	Ship To • Destinaire • Bestellmenge <b>MAJOR TOOL AND MACHINE INC</b> <b>1458 E 19TH ST</b> <b>INDIANAPOLIS</b> <b>IN 46218 USA</b>
---	---

Product Description • Description Produit • Material Beschreibung  
**0.125 (0.120/0.130) x 0/0 x 0/0**  
**SEI20-004#76MTM-REV:1A**  
**HAYNES(R) 625 ALLOY SHEET**  
**Nadcap CERTIFICATE NUMBER 0089**  
**S400E,S1000E, EN 10204 3.1.B, AS9100**

Specification • Specification • Spezifikation ASME-SB-443, 04, UNS# N06625, Gr. 1, PS-489, E	Quantity Ordered Quantite Commandee Bestellmenge 6 PC	Quantity Shipped Quantite Expeditee Liefermenge 6 PC
---	--	---

Annealed Hardness Dureté Recuit Gegbüchtheit	Aged Hardness Dureté Vieilli Gealtert Härte	Grain Size Grossueur De Grain Korngrösse	IGA				Uniformity	Corrosion Rate		Oxidation Rate	Charpy Impact Test				Creep Rupture					
			Grain Size	Prokassman Grain Size	Ruby Grain	Ultravio Grain %		ALA	F&W Figure Number		Attack Depth	Corrosion	Test Method	Toughness Avg	Toughness 1	Toughness 2	Toughness 3	Test Essl Versuch	Stress Contrainte Spannung	Hours Heures Stunden
98 HRB	(1)(A)	7.5						0.0001 IN	MPY											

Certified By • Certifié Par • Bescheinigt Durch: Amanda Aguirre  
Certification Technician

*Amanda Aguirre*  
JUL 07 2005  
MIL OIL

6/28/2005 (1) 3942629401

THE DATA CONTAINED HEREIN WAS OBTAINED FROM SAMPLES THAT ARE REPRESENTATIVE OF THE PRODUCTS OF THE SUBJECT SHIPMENT. THIS MATERIAL MEETS THE REQUIREMENTS OF THE LISTED SPECIFICATIONS, MARKEED BY ANY EXCEPTIONS OR PURCHASE ORDER REQUIREMENTS. THE REWARDING OF FALSE PICTURES OR FRAUDULENT STATEMENTS OR ENTRIES ON THIS DOCUMENT MAY BE PUNISHED AS A FELONY UNDER FEDERAL STATUTES INCLUDING FEDERAL LAW, TITLE 18, CHAPTER 47. THIS DOCUMENT SHALL NOT BE REPRODUCED, EXCEPT IN FULL, WITHOUT THE WRITTEN CONSENT OF HAYNES INTERNATIONAL, INC. NO LIABILITY ASSUMES RESPONSIBILITIES MAY BE INVOLVED ON PROGRAMS INVOLVING MULTIPLE MATERIALS, SPECIFICATIONS.

MC109677.TIF3

CERTIFICATION OF TESTS • RAPPORT D'ESSAIS CERTIFIE • WERKSZEUGNIS				
Invoice No No. De Facture Rechnungs Nr 442718001-0	Date Entered Date de Commande Bestelldatum 06/06/05	Customer Reference Reference Client Kundenbestellidaten P05-03064	Report No. Rapport No Zeugnis Nr 20050628079	Pages of Pages Page de Pages Anzahl der Seiten 4 Of 4

**HAYNES**  
**International**

FILE COPY 2

Haynes International  
1020 West Park Avenue  
PO Box 9013  
Kokomo, Indiana, 46902

Sold To • Client • Bestelanschrift		Ship To • Destinataire • Bestellmenge		Product Description • Description Produit • Material Beschreibung
MAJOR TOOL AND MACHINE INC 1458 E 19TH ST INDIANAPOLIS IN 46218 USA		MAJOR TOOL AND MACHINE INC 1458 E 19TH ST INDIANAPOLIS IN 46218 USA		0.125 (0.120/0.130) x 0/0 x 0/0 SE120-004#76MTM-REV:1A HAYNES(R) 625 ALLOY SHEET - Nadcap CERTIFICATE NUMBER 0089 S400E,S1000E, EN 10204 3.1.B, AS9100
Specification • Specification • Spezifikation ASME-SB-443, 04, UNS# N06625, Gr 1; PS-489, E		Quantity Ordered Quantite Commandee Bestellmenge 6 PC	Quantity Shipped Quantite Expeditee Liefermenge 6 PC	

All tests and inspections have been performed and results meet specification requirements.  
THIS MATERIAL IS FREE FROM MERCURY, CADMIUM, RADIUM, AND ALPHA SOURCE CONTAMINATION.  
Material conforms to PS-483 Revision H as applicable.  
MHI Orders Used: 3942629401 (6 PC)  
(A) 1750 °F to 1950 °F

Certified By • Certifie Par • Bescheinigt Durch: Amanda Aguirre  
Certification Technician

6/28/2005

*Amanda Aguirre*

MHI  
JUL 07 2005

THE DATA CONTAINED HEREIN WAS OBTAINED FROM SAMPLES THAT ARE REPRESENTATIVE OF THE PRODUCTS IN THE SUBJECT EQUIPMENT. THIS MATERIAL MEETS THE REQUIREMENTS OF THE LISTED SPECIFICATIONS, UNLESS BY ANY EXCEPTION OR PURCHASE ORDER ADDENDUMS. THE RECORDING OF FALSY, FICTITIOUS OR FRAUDULENT STATEMENTS FOR EITHER OF THIS DOCUMENT MAY BE PUNISHED AS A FELONY UNDER FEDERAL STATUTES INCLUDING FEDERAL LAW, TITLE 18, CHAPTER 49. THE DOCUMENT SHALL NOT BE REPRODUCED, COPIED OR IN FULL, WITHOUT THE WRITTEN CONSENT OF HAYNES INTERNATIONAL, INC. SPECIFICATION MARKING REQUIREMENTS MAY BE VARY ON ORDERS REQUIRING MULTIPLE MATERIAL SPECIFICATIONS.

MC109677.TIF4

JUL 07 2005



Magnetic Permeability Test Witness

Haynes observed Mr. Edwards of Major Tool test the orders listed below for Magnetic Permeability on June 10, 2005, using a Severn Engineering Permeability Indicator #6763, identified as gauge J-1165 in Major Tool's calibration system. The gauge was in calibration and was due for recalibration on December 27, 2005. All items tested below were <1.01 magnetic permeability.


Heats Tested

2650-5-6801

Purchase Order Numbers

P05-03064

Best Regards,

 6/21/2005  
Marlin C. Losch III



6327



DATE: 07-Dec-95

GOC: 88022

TEST CERTIFICATE

\*\*\*\* SOLD TO: \*\*\*\*

\*\*\*\* SHIP TO: \*\*\*\*

JOSEPH T RYERSON & SON  
P O BOX 16445  
DENVER CO 80216

EATON METAL PRODUCTS  
844 S CHESTNUT  
SALT LAKE CITY UT 84104

CUSTOMER ORDER #  
25WX903593

CUSTOMER MARK #  
25WX9035930101/2016633

\*\*\*\*\*  
C 625 BB HOT ROLLED, ANNEALED, DESCALED  
UNS N06625, PLATE  
ASME SB443, GRADE 1, ASME B&PV CODE SECTION II, 1992 EDITION, 1994 ADDENDA,  
\*\*\*\*\*

ITEM DESCRIPTION MARK: 25WX9035930101/2016633  
1 1.625 x .38 x 157

Qty	Heat/Slab	Test Dir	Yield-Tensile PSI	0.2% Elongation %
795	1 5L211-1A	TT	76970 141310	42.45

Materials produced under this order have not come into contact with Mercury or its compounds within G.O. Carlson, Inc. facilities.

No welding performed

100% Melted, Rolled, and Manufactured in the U.S.A.

\*\*\*\*\* LADLE ANALYSIS \*\*\*\*\*

HEAT:	C	MN	P	S	SI	CR	NI	MO
5L211	0.036	0.035	0.007	0.000	0.100	22.325	61.160	8.985
	CBTA	FE	AL	TI	CO			
5L211	3.300	3.580	0.100	0.120	0.025			

Heat Treat Practice: 1850°F ± 25°F for 1 hour per inch of material thickness or 30 minutes, whichever is greater. Air cool.

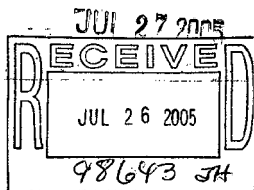
*Susan S. Haldeman*

Susan S. Haldeman  
Certification Administrator  
G.O. Carlson, Inc.

I HEREBY CERTIFY THE ABOVE FIGURES ARE CORRECT AS CONTAINED IN RECORDS OF THIS CORPORATION.

SWORN TO AND SUBSCRIBED BEFORE ME THIS \_\_\_\_\_ DAY OF \_\_\_\_\_

PAGE #



Line 3

#3637

05/28/04 FRI 14:45 FAX 8188824490

HIGH TEMP

001

METALS TECHNOLOGY, INC.  
 19801 Nordhoff Street  
 Northridge, California 91324  
 (818) 882-6414 (323) 873-7144 FAX: (818) 882-4490

6327

CERTIFIED TEST REPORT NO. 329663 (Page 1 of 1)

5/28/2004

CUSTOMER: HIGH TEMP METALS HEAT NO.: 5L211  
 P.O.: 1335 PART NO.: 1.625 X 58 X 157 (1 PLATE)  
 MATERIAL: 625  
 SPECS: SEE REMARKS

*** TENSILE TEST RESULTS ***							
TEMP	DIA.	AREA	YIELD	YIELD	ULT	ELONG	R.A.
	(in.)	(in. <sup>2</sup> )	(lbs)	(ksi)	(lbs)	%	%
RT	.252	.0499	3800	76.0	6495	130	49
REQUIREMENTS							
RT				60.0	120.0	30.0	---
YIELD @ 0.2% OFFSET			STRAIN RATE: .005 in./in./min		GAGE: 1.0		

*** CHEMISTRY ***		
ELEMENT	VALUE	
C	0.02	
Mn	0.04	
Si	0.10	
P	0.006	
S	0.001	
Cr	21.97	
Ni	61.03	
Mo	9.50	
Co	0.06	
Cb	3.54	
Ta	0.01	
Cb+Ta	3.55	
Ti	0.18	
Al	0.16	
Fe	3.36	

NOTES: SPECTROGRAPHIC

\*\*\* REMARKS \*\*\*  
 SPECS: AMS 5599F, AMS 5666E, S400E, S1000E, EMS 95377A, ASTM-B-443-00,  
 ASTM-B-446-00, NADCAP 0002, ASME-SB-443, ASME-SB-446

CERTIFICATE SHALL NOT BE REPRODUCED EXCEPT IN FULL, WITHOUT THE WRITTEN APPROVAL OF THE LABORATORY.

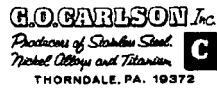
TESTS LISTED ABOVE  
 MEET SPECIFICATION REQUIREMENTS

MTI VENDOR CODE T5001

RESPECTFULLY SUBMITTED,

*J.A. Baxter* 5-28-04  
 J.A. BAXTER, V.P. OF OPERATIONS  
 METALS TECHNOLOGY, INC.

6327



DATE: 07-Dec-95

GOC: 88022

TEST CERTIFICATE

\*\*\*\* SOLD TO: \*\*\*\*

\*\*\*\* SHIP TO: \*\*\*\*

JOSEPH T RYERSON & SON  
P O BOX 16445  
DENVER CO 80216

EATON METAL PRODUCTS  
844 S CHESTNUT  
SALT LAKE CITY UT 84104

CUSTOMER ORDER #  
25WX903593

CUSTOMER MARK #  
25WX9035930101/2016633

\*\*\*\*\*  
C 625 BB HOT ROLLED, ANNEALED, DESCALED  
UNS N06625; PLATE  
ASME SB443, GRADE 1, ASME B&PV CODE SECTION II, 1992 EDITION, 1994 ADDENDA.  
\*\*\*\*\*

ITEM DESCRIPTION MARK: 25WX9035930101/2016633  
1 1.625 x 58 x 157

Qty	Heat/Slab	Test Dir	Yield-.2% Tensile PSI	Elong-2in %
795	1 SL211-1A	TT	76970 141310	42.45

Materials produced under this order have not come into contact with Mercury or its compounds within G.D. Carlson, Inc. facilities.

No Welding Performed

100% Melted, Rolled, and Manufactured in the U.S.A.

\*\*\*\*\* LADLE ANALYSIS \*\*\*\*\*

HEAT:	C	MN	P	S	SI	CR	NI	MO
SL211	0.036	0.035	0.007	0.000	0.100	22.325	61.160	8.985
SL211	CBTA	FE	AL	TI	CO			
	3.300	3.580	0.100	0.120	0.025			

Heat Treat Practice: 1850°F ± 25°F for 1 hour per inch of material thickness or 30 minutes, whichever is greater. Air cool.

*Susan S. Haldeman*

Susan S. Haldeman  
Certification Administrator  
G. D. Carlson, Inc.

I HEREBY CERTIFY THE ABOVE FIGURES ARE CORRECT AS CONTAINED IN RECORDS OF THIS CORPORATION.

SWORN TO AND SUBSCRIBED BEFORE ME THIS \_\_\_\_\_ DAY OF \_\_\_\_\_

PAGE #

#3637

05/28/04 FRI 14:45 FAX 8188824490

HIGH TEMP

001

METALS TECHNOLOGY, INC.  
 19801 Nordhoff Street  
 Northridge, California 91324  
 (818) 882-6414 (323) 873-7144 FAX: (818) 882-4490

6327

CERTIFIED TEST REPORT NO. 329663 (Page 1 of 1)

5/28/2004

CUSTOMER: HIGH TEMP METALS HEAT NO.: 5L211  
 P.O.: 1335 PART NO.: 1.625 X 58 X 157 (1 PLATE)  
 MATERIAL: 625  
 SPECS: SEE REMARKS

*** TENSILE TEST RESULTS ***							
TEMP.	DIA.	AREA	YIELD	YIELD	ULT	ELONG	R.A.
	(in.)	(in. <sup>2</sup> )	(lbs)	(ksi)	(lbs)	%	%
RT	.252	.0499	3800	76.0	6495	130	45
REQUIREMENTS							
RT				60.0		120.0	30.0
YIELD @ 0.2% OFFSET				STRAIN RATE: .005 in./in./min		GAGE: 1.0	

*** CHEMISTRY ***	
ELEMENT	VALUE
C	0.02
Mn	0.04
Si	0.10
P	0.006
S	0.001
Cr	21.97
Ni	61.03
Mo	9.50
Co	0.06
Cb	3.54
Ta	0.01
Cb+Ta	3.55
Ti	0.18
Al	0.16
Fe	3.36

NOTES: SPECTROGRAPHIC

\*\*\* REMARKS \*\*\*  
 SPECS: AMS 5599F, AMS 5666E, S400E, S1000E, EMS 95377A, ASTM-B-443-00,  
 ASIM-B-446-00, NADCAP 0002, ASME-SB-443, ASME-SB-446

CERTIFICATE SHALL NOT BE REPRODUCED EXCEPT IN FULL, WITHOUT THE WRITTEN APPROVAL OF THE LABORATORY.

TESTS LISTED ABOVE  
 MEET SPECIFICATION REQUIREMENTS

MTI VENDOR CODE T5001


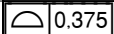
RESPECTFULLY SUBMITTED,

*J.A. Baxter* 5-28-04  
 J.A. BAXTER, V.P. OF OPERATIONS  
 METALS TECHNOLOGY, INC.

Quality Assurance Documentation for Part ID: SE120-014-FJS - Item: 166

Workorder: 65678/1-0 Sub:193 Op:60

Part: SE120-014-FJS - - SPACER SUB-ASSEMBLY

Drawing ID: SE120-004 Rev: 2D			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT	
4* (10)	D5	 PORT FJS POSITION	LASER	QA		1444	0.060	522-R.D 04-27-06			A
Drawing ID: SE121-014 Rev: 1C			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT	
* (20)		 0.375 FINAL SPACER PROFILE	LASER	QA		1444	-0.140 / +0.143	522-R.D 04-27-06			A
* (30)		SPACER MAGNETIC PERMEABILITY 1.02 Mu MAX	MASTER GAGE	QA		J-1271	ACCEPT	533-B.C 04-25-06			A
* (40)		SPACER INTERIOR SURFACE FINISH 32 MICRO-INCH RA	PROFILOMETER	QA		J-1308	.012 TO .031	533-B.C 04-25-06			A
* (50)		SPACER WALL THICKNESS 0.375 +0.04/-0	UT THICKNESS GA	QA		J-1009-NDT	.385 - .415	321-C.L 04-26-06			A

Quality Assurance Documentation for Part ID: SE121-014 PORT - Item: 167

Workorder: 65678/1-0 Sub:193 Op:15

Part: SE121-014 PORT - - SPACER SUB-ASSEMBLY

Drawing ID: SE120-004 Rev: 2			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY		
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
*		VWI - ROOT PASS WELD PSV		MFG			GOOD	358-D.M	840-G.M	A
(100)				CWI				12-29-05	12-29-05	
*		VWI - COVER PASS WELD PSV		MFG		VISUAL	GOOD	358-D.M	933-D.L	A
(120)				CWI				12-29-05	01-03-06	

**INSPECTION DATA CHECKLIST**

Quality Assurance Documentation for Part ID: SE121-014 S10-S6 SUB-SET - Item: 168

Workorder: 65678/1-0 Sub:206 Op:30

Part: SE121-014 S10-S6 SUB-SET - - S10-S6 PANEL SUB-SET

Drawing ID: SE120-004 Rev: 2			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY		
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
*				MFG		VISUAL	O.K. PER CUSTOMER	771-B.S	933-D.L	
(10)		VWI ROOT PASS WELD S10-S6		CWI			EQUIREMENTS	11-11-05	11-11-05	

A

**INSPECTION DATA CHECKLIST**

Quality Assurance Documentation for Part ID: SE121-014 S10-S6 SUB-SET - Item: 169

Workorder: 65678/1-0 Sub:206 Op:130

Part: SE121-014 S10-S6 SUB-SET - - S10-S6 PANEL SUB-SET

Drawing ID: SE120-004 Rev: 2D			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY		
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
*				MFG			VISUALLY INSPECTED	840-G.M		
(20)		VWI EXTERIOR COVER PASS WELD S10		CWI				05-02-06		

A



**INSPECTION DATA CHECKLIST**

Quality Assurance Documentation for Part ID: SE121-014 S10-S6 SUB-SET - Item: 170

Workorder: 65678/1-0 Sub:206 Op:150

Part: SE121-014 S10-S6 SUB-SET - - S10-S6 PANEL SUB-SET

Drawing ID: SE120-004 Rev: 2			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY		
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
*				MFG		VISUAL	O.K. PER CUSTOMER	771-B.S	933-D.L	
(20)		VWI INTERIOR COVER PASS WELD S10-		CWI			EQUIREMENTS	11-11-05	11-11-05	

A

**INSPECTION DATA CHECKLIST**

Quality Assurance Documentation for Part ID: SE121-014 S10-S6-S7 SUB-SET - Item: 171

Workorder: 65678/1-0 Sub:205 Op:30

Part: SE121-014 S10-S6-S7 SUB-SET - - S10-S6-S7 PANEL SUB-SET

Drawing ID: SE120-004 Rev: 2			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY		
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
*				MFG		VISUAL	O.K. PER CUSTOMER	771-B.S	933-D.L	
(10)		VWI ROOT PASS WELD S6-S7		CWI			EQUIREMENTS	11-11-05	11-11-05	

A

**INSPECTION DATA CHECKLIST**

Quality Assurance Documentation for Part ID: SE121-014 S10-S6-S7 SUB-SET - Item: 172

Workorder: 65678/1-0 Sub:205 Op:150

Part: SE121-014 S10-S6-S7 SUB-SET - - S10-S6-S7 PANEL SUB-SET

Drawing ID: SE120-004 Rev: 2			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY		
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
*				MFG		VISUAL	O.K. PER CUSTOMER	771-B.S	933-D.L	
(20)		VWI INTERIOR COVER PASS WELD S6-		CWI			EQUIREMENTS	11-11-05	11-11-05	

A

**INSPECTION DATA CHECKLIST**

Quality Assurance Documentation for Part ID: SE121-014 S10-S6-S7 SUB-SET - Item: 173

Workorder: 65678/1-0 Sub:205 Op:130

Part: SE121-014 S10-S6-S7 SUB-SET - - S10-S6-S7 PANEL SUB-SET

Drawing ID: SE120-004 Rev: 2D			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY		
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
* (20)		VWI EXTERIOR COVER PASS WELD S6-		MFG CWI			VISUALLY INSPECTED	840-G.M 05-02-06	840-G.M 05-02-06	

A

**INSPECTION DATA CHECKLIST**

Quality Assurance Documentation for Part ID: SE121-014 S8-S9 SUB-SET - Item: 174

Workorder: 65678/1-0 Sub:209 Op:30

Part: SE121-014 S8-S9 SUB-SET - - S8-S9 PANEL SUB-SET

Drawing ID: SE120-004 Rev: 2			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY		
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
*				MFG		VISUAL	OK PER SPEC.	093-M.S	581-D.E	
(10)		VWI ROOT PASS WELD S8-S9		CWI				11-19-05	11-19-05	

A

**INSPECTION DATA CHECKLIST**

Quality Assurance Documentation for Part ID: SE121-014 S8-S9 SUB-SET - Item: 175

Workorder: 65678/1-0 Sub:209 Op:130

Part: SE121-014 S8-S9 SUB-SET - - S8-S9 PANEL SUB-SET

Drawing ID: SE120-004 Rev: 2D			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY		
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
*				MFG			VISUALLY INSPECTED	840-G.M	840-G.M	
(20)		VWI EXTERIOR COVER PASS WELD S8-		CWI				05-02-06	05-02-06	

A

**INSPECTION DATA CHECKLIST**

Quality Assurance Documentation for Part ID: SE121-014 S8-S9 SUB-SET - Item: 176

Workorder: 65678/1-0 Sub:209 Op:150

Part: SE121-014 S8-S9 SUB-SET - - S8-S9 PANEL SUB-SET

Drawing ID: SE120-004 Rev: 2			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY		
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
*				MFG		VISUAL	ACCEPT	709-K.A	933-D.L	
(20)		VWI INTERIOR COVER PASS WELD S8-		CWI				11-21-05	11-21-05	

A

Quality Assurance Documentation for Part ID: SE121-014 - Item: 177

Workorder: 65678/1-0 Sub:193 Op:12

Part: SE121-014 - - SPACER SUB-ASSEMBLY

Drawing ID: SE120-004 Rev: 2			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY		
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
*				MFG		VISUAL	ACCEPTABLE	933-D.L	933-D.L	A
(10)		VWI ROOT PASS WELD SFA		CWI				12-21-05	12-21-05	
*				MFG		VISUAL	ACCEPTABLE	933-D.L	933-D.L	A
(20)		VWI ROOT PASS WELD SFB		CWI				12-21-05	12-21-05	
*				MFG		VISUAL	GOOD	933-D.L	933-D.L	A
(110)		VWI EXTERIOR COVER PASS WELD SF		CWI				12-22-05	12-22-05	
*				MFG		VISUAL	GOOD	358-D.M	933-D.L	A
(120)		VWI EXTERIOR COVER PASS WELD SF		CWI				12-22-05	12-22-05	

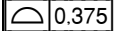


**INSPECTION DATA CHECKLIST**

Quality Assurance Documentation for Part ID: SE121-014 - Item: 178

Workorder: 65678/1-0 Sub:193 Op:13

Part: SE121-014 - - SPACER SUB-ASSEMBLY

Drawing ID: SE121-014 Rev: 0			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY		
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
*		 0.375 SPACER PROFILE (INCL. FLANGES, PARTIALLY WELDED)	LASER	QA		1444	0.1487 TO -0.0882	137-G.F		
(10)								12-27-05		

A

Quality Assurance Documentation for Part ID: SE121-014 - Item: 179

Workorder: 65678/1-0 Sub:193 Op:14

Part: SE121-014 - - SPACER SUB-ASSEMBLY

Drawing ID: SE120-004 Rev: 2			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY		
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
*				MFG			ACCEPTABLE PER CU	771-B.S	581-D.E	
(10)		VWI INTERIOR COVER PASS WELD SFA		CWI			OER REQUIREMENTS	12-28-05	12-28-05	A
*				MFG			GOOD	358-D.M	581-D.E	
(20)		VWI INTERIOR COVER PASS WELD SFB		CWI				12-28-05	12-28-05	A
*				MFG			GOOD	358-D.M	581-D.E	
(30)		VWI INTERIOR COVER PASS WELD S7-		CWI				12-28-05	12-28-05	A
*				MFG			GOOD	358-D.M	581-D.E	
(40)		VWI INTERIOR COVER PASS WELD S9-		CWI				12-28-05	12-28-05	A



COOPERHEAT

MOS  
MO Inspection

4959

10620 Chester Road  
Woodlawn, Ohio 45215

CLIENT Major Tool & Machine	INTERPRETER/LEVEL Robert Weaver/II	RADIOGRAPHER Robert Weaver	JOB NO 13860001	P.O. NO N/A	DATE 1/5/06
ISOTOPE/X-RAY IR192	DIA. X LENS .118" x .079"	CURIES/Hr 41	FOCAL SPOT SIZE .140"	SFD 15"	SOD 14.625"
WELD PROCESS GTAW	MATERIAL SPEC. V25 INCONEL	MATERIAL DIAMETER N/A	MATERIAL THICKNESS .375"	PENETRATOR ASTM 1B	FILM PROCESSING Auto
					FILM TYPE Kodak AA
					FILM TECHNIQUE Double
					ACCEPTANCE STANDARD ASME VIII, Div. 1, UW-51

DESCRIPTION  
65678/1.0/193/05/818  
SE 121-014  
page 1 of 2

REMARKS  
Densitometer - 12105  
cal due - 2/3/06

FITTING SEAL OR FITTING	FILM INTERNAL NUMBER	WELDER IDENTIFICATION	PENETRATOR		SLAG	POROSITY	POROSITY WITH T.M.	CRACK	LACK OF PEN	LACK FUSION	INTERNAL CORROSION	INTERNAL CAVITY	TUNGSTEN	MELT THROUGH	BURST THROUGH	CRATER/FIT	ORIENTATION	INTERNAL UNDERCUT	EXTERNAL UNDERCUT	ALIGNED INDICATIONS	WELD CONTOUR	IRIS MATCH	FILM ARTIFACT	VISUAL CONCERNS	FILM DENSITY	SEE REMARKS	ACCEPT	REJECT
			SIZE	QUALITY LEVEL																								
1	A-B	N/A	1B	010'		✓																				✓		
2						✓																				✓		
3						✓																				✓		
4						✓							✓													✓		
5						✓																				✓		
6						✓																				✓		

End View | Side View

**SINGLE WALL**

**DOUBLE WALL**

P Penetrator  
 S Film  
 L Location Marker  
 I OTHER

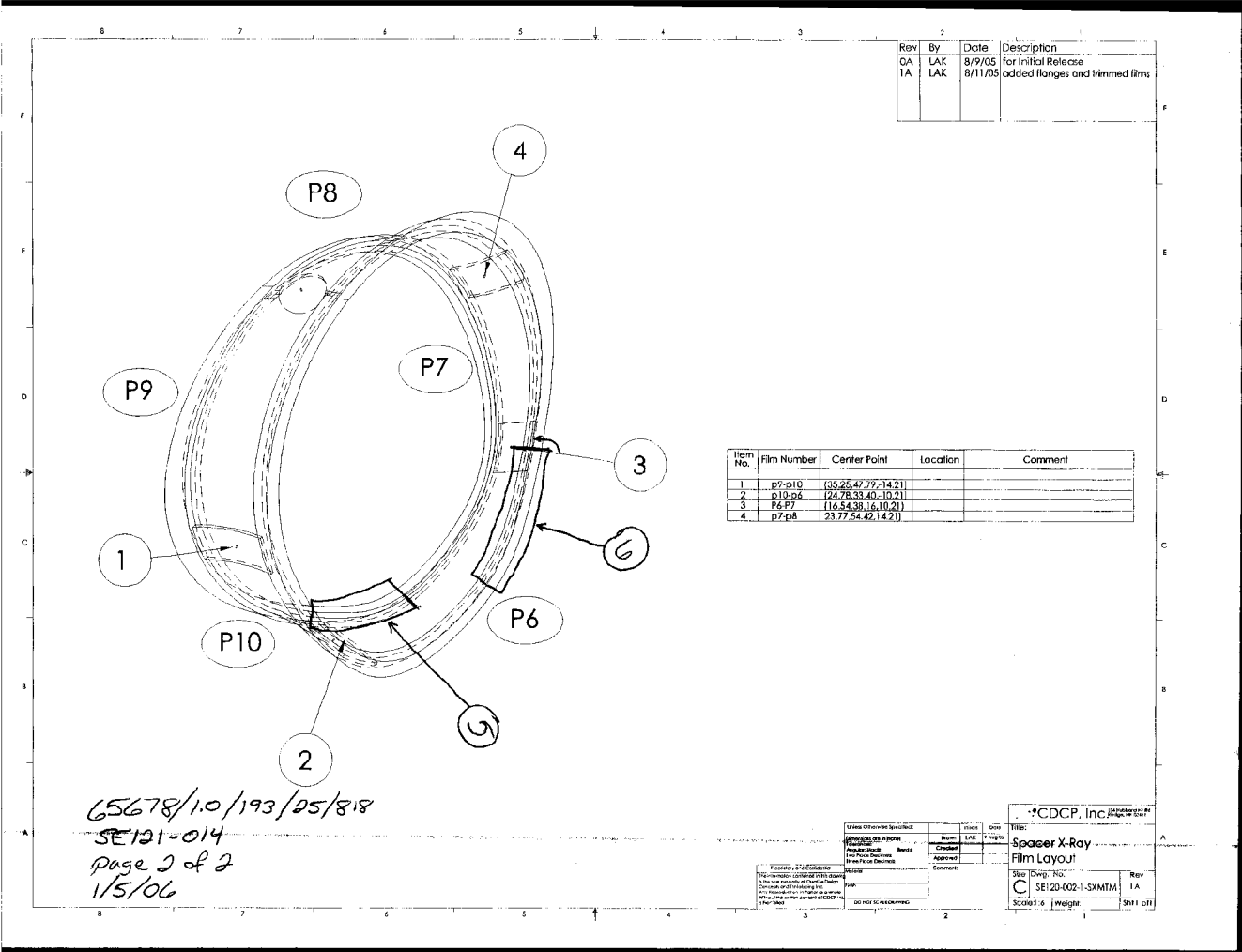
Robert Weaver 655514/II  
Cooperheat-MOS Signature

*[Signature]*  
Customer Representative Signature

1/5/06  
Date

MC119827.TIF

MC119827.TIF2



65678/1.0/193/05/818  
 SE121-014  
 Page 2 of 2  
 1/5/06

Rev	By	Date	Description
0A	LAK	8/9/05	For Initial Release
1A	LAK	8/11/05	Added Flanges and Winmed films

Item No.	Film Number	Center Point	Location	Comment
1	p7-p10	[35.25, 47.79, -14.21]		
2	p10-p6	[24.78, 33.40, -10.21]		
3	p6-p7	[16.54, 38.16, 10.21]		
4	p7-p8	[23.77, 54.42, 14.21]		

\*CDCP, Inc. PHOTOGRAPHY

DATE: 1/5/06

PROJECT: SE121-014

FILE: 65678/1.0/193/05/818

SCALE: 1:6



WEIGHT: 1A

SHEET: 1 of 1

Quality Assurance Documentation for Part ID: SE121-014 - Item: 182

Workorder: 65678/1-0 Sub:199 Op:10


Part: SE121-014 - - SPACER MACHINING

Drawing ID: SE121-014 Rev: 0			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT	
1* (10)	D6	 0.010	INDICATOR	MFG		P-4482	.007	315-C.L 03-17-06			A
1* (20)	D8	 0.010	INDICATOR	MFG		P-4482	.004	315-C.L 03-17-06			A
1* (30)	D7	(6.50) INTERPRET AS MINIMUM	CALIPER	MFG		P-4483	6.95	591-C.P 03-17-06			A

Quality Assurance Documentation for Part ID: SE121-014 - Item: 183

Workorder: 65678/1-0 Sub:199 Op:30

Part: SE121-014 - - SPACER MACHINING

Drawing ID: SE120-002 Rev: 0			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY		
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
*		 0.375 A B C FINAL SPACER PROFILE (WALL AND FLANGE PROFILES)	LASER	QA		J-1280	-0.163 / +0.174	522-R.D		
(10)								03-30-06		

A

Quality Assurance Documentation for Part ID: SE121-014-1 - Item: 184

Workorder: 65678/1-0 Sub:194 Op:60

Part: SE121-014-1 - - SPACER WALL

Drawing ID: SE120-004 Rev: 2			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT	
*		VWI ROOT PASS WELD S7-S8		MFG		VISUAL	GOOD	358-D.M	933-D.L		A
(10)				CWI				12-13-05	12-13-05		
*		VWI ROOT PASS WELD S9-S10		MFG		VISUAL	GOOD	358-D.M	933-D.L		A
(20)				CWI				12-13-05	12-13-05		

**INSPECTION DATA CHECKLIST**

Quality Assurance Documentation for Part ID: SE121-014-1 - Item: 185

Workorder: 65678/1-0 Sub:194 Op:160

Part: SE121-014-1 - - SPACER WALL

Drawing ID: SE120-004 Rev: 2			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT	
*				MFG		VISUAL	GOOD	358-D.M	933-D.L		A
(20)		VWI EXTERIOR COVER PASS WELD S7-		CWI				12-13-05	12-13-05		
*				MFG		VISUAL	GOOD	358-D.M	933-D.L		A
(20)		VWI EXTERIOR COVER PASS WELD S9-		CWI				12-13-05	12-13-05		



Quality Assurance Documentation for Part ID: SE121-014-1 - Item: 186

Workorder: 65678/1-0 Sub:194 Op:180

Part: SE121-014-1 - - SPACER WALL

Drawing ID: SE120-004 Rev: 2D			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT	
*				MFG			VISUALLY INSPECTED	840-G.M	840-G.M		A
(20)		VWI INTERIOR COVER PASS WELD S7-		CWI				05-02-06	05-02-06		
*				MFG			VISUALLY INSPECTED	854-R.U			A
(20)		VWI INTERIOR COVER PASS WELD S9-		CWI				05-02-06			

6291

CERTIFICATION OF TESTS • RAPPORT D'ESSAIS CERTIFIE • WERKZEUIGNIS			
Form No. No. du Formulaire Rechnung-Nr. 411633001-0	Date Entered Date de Commande Date d'Entree 05/11/04	Customer Reference Reference Client N° d'ordre fournisseur 1297	Report No. Rapport No. Zertifikat-Nr. 20050104062
Page of Pages Page de Pages Anzahl der Seiten 1 Of 4		ORIGINAL	

**HAYNES International**  
Haynes International  
1020 West Park Avenue  
PO Box 9013  
Kokomo, Indiana, 45902

Sold To • Client • Bestimmung  
**HIGH TEMP METALS INC**  
12910 SAN FERNANDO RD  
SYLMAR  
CA 91342 USA

Ship To • Destinataire • Bestimmung  
**HIGH TEMP METALS INC**  
14101 ROSECRANS AVE UNIT A  
LA MIRADA  
CA 906383551 USA

Product Description • Description Produit • Material Beschreibung  
1.520 x 60 x 120/144  
NSP 5252  
**HAYNES(R) 625 ALLOY PLATE**  
Nadcap CERTIFICATE NUMBER 0089  
S400E,S1000E, EN 10204 3.1.B

Specifications • Specifications • Spezifikationen  
AMS 5398, F; AMS 5666, E; ASME SB-443, 01; UNS# N06625, Gr. 1; ASME SB-446, 98; UNS# N06625, Gr. 1; ASTM-B-443, 03A1; UNS# N06615, Gr. 1; ASTM-B-446, 03; UNS# N06625, Gr. 1; 1 PC

REVISED REPORT 3-31-05 JKW

Item Number Numero de Cose Conte No.	Chemical Analysis • Analyse • Chimique • Chemische Analyse																	
	Al	B	C	Cr	Co	Cr	Cu	Fe	Mn	Mo	Ni	P	S	Si	Ti	V	W	
2650 4 6759	0.25		0.018	3.77	0.2841	21.76		4.3089	0.2624	8.69	59.21	0.0055	0.005	0.37	0.3547			BUTT END *01
2650 4 6759	3.7646	<0.05																BUTT END *01

Certified By • Certifié Par • Bescheinigt Durch: **Paul J. Feneil**  
Certification Technician

*Paul J. Feneil*

RECEIVED  
JUL 23 2005  
98640  
JUL 27 2005

MITM 017

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*Line 1*

44-31-2005 09:27am F-200-HAYNES INTERNATIONAL +562487314 T-501 P.002 F-441

MC110167.TIF1

CERTIFICATION OF TESTS • RAPPORT D'ESSAIS CERTIFIE • WERKSZEUGNIS			
Lot/No. of Factor 411635001-0	Date Entered 03/11/04	Customer Address Reference Client Kendallwood/Chilam 1297	Report No. Report No. 20050104062
Page of Pages Page de Pages 2 Of 4			

**HAYNES**  
International

ORIGINAL  
Haynes International  
1020 West Park Avenue  
PO Box 9013  
Kokomo, Indiana, 46902

Ship To • Destinataire • Bestemmings  
**HIGH TEMP METALS INC**  
12910 SAN FERNANDO RD  
SYLMAR  
CA 91342 USA

Ship To • Destinataire • Bestemmings  
**HIGH TEMP METALS INC**  
14101 ROSECRANS AVE UNIT A  
LA MIRADA  
CA 906383551 USA

Product Description • Description Produit • Material Beschreibung  
1.520 x 60 x 120/144  
NSP 5252  
**HAYNES(R) 625 ALLOY PLATE**  
Nadcap CERTIFICATE NUMBER 0089  
S400E,S1000E, EN 10204 3.1.B

Specification • Spécifications • Spezifikationen  
AMS 5599, F; AMS 5666, E; ASME-SB-443, 01, UNS# N06625, Gr. 1; ASME-SB-446,  
98, UNS# N06625, Gr. 1; ASTM-B-441, 00e1, UNS# N06625, Gr. 1; ASTM-B-446, 03,  
UNS# N06625, Gr. 1;

Quantity Ordered  
Quantité Commandée  
Bestellmenge  
1 PC

Quantity Shipped  
Quantité Expédiée  
Liefermenge  
1 PC

REVISED REPORT J-11-05 JKW

Tensile Test at Room Temperature • Essai De Traction A Temp. Ambiante • Zugversuch Bei Raumtemp.				Tensile Test at Elevated Temperature • Essai De Traction A Ha Temp. Warm Zugversuch						Stress Relaxation Temperature • Essai A Charge De Relaxation Zoltemperatur				
Units	% Yield	Tens. at 0.2% Elong.	% Elong.	% Yield	% Yield	Tens. at 0.2% Elong.	% Elong.	% Yield	% Yield	Time	% Elong.	% Yield	% Elong.	% Yield
Designation	at 0.2% Elong.	at 0.2% Elong.	at 0.2% Elong.	at 0.2% Elong.	at 0.2% Elong.	at 0.2% Elong.	at 0.2% Elong.	at 0.2% Elong.	at 0.2% Elong.	Temp.	Temp.	Temp.	Temp.	Temp.
135000 PSI 135000 PSI	(L) (1)	72500 PSI 65500 PSI	38 % 41 %	35 % 45 %	(1)(A) (1)(A)									

Certified By • Certifié Par • Bescheinigt Durch: Penny Powell  
Certification Technician

*Penny Powell*

1/4/2005 (1) 2741163592

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Mar-31-2005 09:25am Form HAYNES INTERNATIONAL +562407314 T-501 P. 003/005 F-411

MC110167.TIF2

CERTIFICATION OF TESTS • RAPPORT D'ESSAIS CERTIFIÉ • WERKSZEUGNIS				
Invoice No. No. Du Facture Rechnung Nr. 411635001-0	Date Entered Date de Remise Belegdatum 03/11/04	Customer Reference Reference Client Kundenbestellnr. 1297	Report No. Rapport No. Zeugnis Nr. 20050104062	Page of Pages Page de Page Anzahl der Seiten 4 Of 4
Sold To • Client • Destinatär <b>HIGH TEMP METALS INC 12910 SAN FERNANDO RD SYLMAR CA 91342 USA</b>		Ship To • Destinataire • Bestimmung <b>HIGH TEMP METALS INC 14101 ROSECRANS AVE UNIT A LA MIRADA CA 906383551 USA</b>		Product Description • Description Produit • Material Beschreibung <b>1.520 x 60 x 120/144 NSP 5252 HAYNES(R) 625 ALLOY PLATE Nadcap CERTIFICATE NUMBER 0089 S400E,S1000E, EN 10204 3.1.B</b>
Specifications • Spécification • Spezifikation <b>AMS 5599, F, AMS 5666, E; ASME-SB-443, 01, UNS# N06625, Gr. 1; ASME-SB-446, 98, UNS# N06625, Gr. 1; ASTM-B-443, 00a1, UNS# N06625, Gr. 1; ASTM-B-446, 03, UNS# N06625, Gr. 1;</b>		Quantity Ordered Quantité Commandée Bestellmenge 1 PC	Quantity Shipped Quantité Expédiée Liefermenge 1 PC	<b>REVISED REPORT 3-31-05 JKW</b>

**HAYNES**  
**International**

ORIGINAL  
Haynes International  
1020 West Park Avenue  
PO Box 9013  
Kokomo, Indiana, 46902

All tests and inspections have been performed and results meet specification requirements.  
THIS MATERIAL IS FREE FROM MERCURY, CADMIUM, RADIUM, AND ALPHA SOURCE CONTAMINATION.  
This material was melted and manufactured in the United States.  
MII Order Used: 2741163592 (1 PC) REVISED REPORT 3-31-05 JKW  
(A) 1750 °F to 1900 °F

Certified By • Certifié Par • Bescheinigt Durch: Penny Powell  
Certification Technician 1/4/2005

*Penny Powell*

HA-31-2005 03:31am FOR-HAYNES INTERNATIONAL

45624071514

T-501 P 005/005 F-441



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Quality Assurance Documentation for Part ID: SE121-091 - Item: 188

Workorder: 65678/1-0 Sub:217 Op:25

Part: SE121-091 - - END COVER ASSEMBLY

Drawing ID: SE121-091 Rev: 0			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT	
1* (10)	E6	1.00 +/- 0.01"	CALIPER	QA		P-4943	1.004	137-G.F 03-03-06			A
* (50)		 0.03" A B C	CMM	QA		00064	-0.0033 TO 0.0100	137-G.F 03-03-06			A
* (60)		 0.03" A B C	CMM	QA		00064	-0.0034 TO 0.0105	137-G.F 03-03-06			A

**INSPECTION DATA CHECKLIST**

Quality Assurance Documentation for Part ID: SE121-091 - Item: 189

Workorder: 65678/1-0 Sub:217 Op:30

Part: SE121-091 - - END COVER ASSEMBLY



Drawing ID: SE121-102 Rev: 0			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY		
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
*			SCALE	CWI		P-4279	GOODWELDS ACCEPT E PER CUSTOMER DR ING / SPECIFICATION REQUIREMENTS.	933-D.L		
(10)		VWI VESSEL BLANK OFF COVER WELD						03-31-06		

A

Quality Assurance Documentation for Part ID: SE121-091 - Item: 190

Workorder: 65678/1-0 Sub:218 Op:25

Part: SE121-091 - - END COVER ASSEMBLY

Drawing ID: SE121-091 Rev: 0			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT	
1* (10)	E6	1.00 +/- 0.01"	CALIPER	QA		P-4943	1.004	137-G.F 03-03-06			A
* (50)		 0.03" A B C	CMM	QA		00064	-0.0065 TO 0.0122	137-G.F 03-03-06			A
* (60)		 0.03" A B C	CMM	QA		00064	-0.0060 TO 0.0127	137-G.F 03-03-06			A

Quality Assurance Documentation for Part ID: SE121-091 - Item: 191

Workorder: 65678/1-0 Sub:218 Op:30

Part: SE121-091 - - END COVER ASSEMBLY

Drawing ID: SE121-102 Rev: 0			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY		
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
*			SCALE	CWI		P-4279	WELDS ACCEPTABLE R CUSTOMER DRAWING / SPECIFICATION REQUIREMENTS.	933-D.L		
(10)		VWI VESSEL BLANK OFF COVER WELD						03-31-06		

A



10516-1108



**Allegheny Ludlum**  
An Allegheny Technologies Company

Jessop Plate Products Division

Page

500 Green Street  
Washington, Pennsylvania 15301

CERTIFIED MATERIAL TEST REPORT

Bill to:  
PLATE PROD DIV / A-L  
1201 VALLEY ROAD  
COATESVILLE PA

Shipto:  
PLATE PROD DIV / A-L  
1201 VALLEY ROAD  
COATESVILLE PA

PHIL CLADITIS  
Quality Assurance Representa

19320

19320

Memo No: 260311-00

Our Order no: RU4910400  
Your Order No: M E H 0  
Date: 09/03/2004  
DUAL CERT

ALC 316/316L STAINLESS HRAP  
ASTM A240-04a ASME SA-240-01 ASTM A480-02 ASME SA-480-01  
AMS 5507F (316L) AMS 5524K (316) ASTM A666-03 COND A CHEM/PHYS TO  
ASTM A312-02 ASME SA-312-01 ASTM A479-02 ASME SA-479-01 ASTM A262-02  
PRACTICE E SCREEN PRAC A

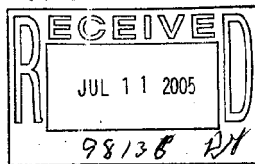
Heat	Slip	Lot No	Size	Pcs	Weight
818102	34967 A	143182	1.5000 x 83.0000 x 260.0000	1	9488 GV-STOCK

Heat	C	MN	P	S	SI	NI	CR	MO	CO	CU	N
818102	.018	1.57	.027	.0004	.31	10.14	16.38	2.10	.25	.37	.069

Lot No	Gauge	Yield Strength	Tensile Strength	Elong	Red. of Area	Hardness	Bend	Corrosion	Grain Siz
143182	1.5000	33.9 KSI	81.5 KSI	61.0	81.0	BHN146		OK	

MATERIAL WAS NOT WELD REPAIRED  
MATERIAL WAS PRODUCED WITHOUT KNOWN CONTACT WITH MERCURY  
MATERIAL WAS SOLUTION ANNEALED (HEAT TREATED) ABOVE 1900F AND WATER QUENCHED  
DIN 50049 3.1.B AND EN 10204 3.1.B CERTIFICATE  
MATERIAL IS OF USA MELT AND MANUFACTURE

JUL 11 2005



*lines 13-18*



TRACER# 109293

*98142*

*lines 25-26*  
ROLLED AND QUANTITY ASSURANCE  
APPROVED *M. B...*  
DATE 9/23/04

PAGE 1 FINAL PAGE

EXCEPT AS OTHERWISE NOTED, THIS MATERIAL HAS BEEN MANUFACTURED AND TESTED IN ACCORDANCE WITH THE LISTED SPECIFICATIONS AND RESULTS CONFORM TO THE SPECIFICATION AND ORDER REQUIREMENTS. THE ABOVE INFORMATION HAS BEEN REPRODUCED FROM THE ORIGINAL CERTIFIED MATERIAL TEST REPORT.

ORIGINAL

0516-1 198



**Allegheny Ludlum** Jeasop Plate Products Division  
An Allegheny Technologies Company

1201 Valley Road  
Coatesville, Pennsylvania 19320

CERTIFICATE OF CONFORMANCE

Page 1

Our Order no: GV-098284  
Your Order No: J06587  
Memo No: 4261130-00  
Date: 09/15/2004  
516

Bill to:  
ROLLED ALLOYS INC  
125 W STERNS RD  
P O BOX 310  
TEMPERANCE MI

48182

Ship to:  
ROLLED ALLOYS INC  
9818 EAST HARDY ROAD  
HOUSTON TX

77093

*Robert Campagna*  
Quality Assurance Representat:

ALC T-316/316L DUAL CERT HRAP STAINLESS  
ASTM A240-02 ASME SA240-01  
79" WIDE ROUGHING MILL EDGE PLATE

Item	Grade	Heat No	Slip	Size	Weight	Mill Cert	Ord
					LBS		
001	316L			1.5000 79.0000 WID 235.0000 LEN	1		
				PN:530034299001			
		818102	34967 A	1.5000 79.0000	1	8166 260311-00 Shi	
				ITEM TOTAL:	1	8166	
				TOTAL ORDER:	1	8166	



JUL 11 2005



TRACER# 109293

CHTR (MANUFACTURER)  
 ULTRASONIC REPORT  
 OTHER

THE MATERIAL LISTED ABOVE IS SUPPLIED IN ACCORDANCE WITH THE ABOVE LISTED SPECIFICATIONS BASED ON THE REVIEW OF THE MATERIAL MANUFACTURER'S CERTIFIED MATERIAL TEST REPORT (ELECTRONICALLY EXCERPTED COPY ATTACHED) AND THE REQUIREMENTS OF THE PURCHASE ORDER.

ORIGINAL

FILE COPY 2

**HAYNES**  
**International**

Haynes International  
1020 West Park Avenue  
PO Box 9013  
Kokomo, Indiana, 46902

CERTIFICATION OF TESTS • RAPPORT D'ESSAIS CERTIFIÉ • WERKSZEUGNIS				
Sales Order No. Reference Commande Bestellungs Nr	Date Entered Date De Commande Bestelldatum	Customer Reference Reference Client Kundenbestelldaten	Report No. Rapport No Zeugnis Nr	Pages of Pages Page de Pages Anzahl der Seiten
455676001-0	12/01/05	P05-06722	20051205027	1 Of 4

Sold To • Client • Bestellanschrift <b>MAJOR TOOL AND MACHINE INC</b> 1458 E 19TH ST INDIANAPOLIS IN 46218 USA	Ship To • Destinaire • Bestelmenge <b>MAJOR TOOL AND MACHINE INC</b> 1458 E 19TH ST INDIANAPOLIS IN 46218 USA
--	---

Product Description • Description Produit • Material Beschreibung  
**0.188 x 0/0 x 0/0**  
**SE121-095-1MTM**  
**HAYNES(R) 625 ALLOY PLATE**  
**Nadcap CERTIFICATE NUMBER 0089**  
**S400 4/29/2004, S1000 1/3/2005, EN 10204 3.1, AS9100**

Specification • Specification • Spezifikation ASTM-B-443, 00e1, UNS# N06625, Gr. 1; ASTM-B-443, 00e1, UNS# N06625, Gr. 1	Quantity Ordered Quantite Commandee Bestellmenge 6 PC	Quantity Shipped Quantite Expeditee Liefermenge 6 PC
---	--	---

Heat Number Numero De Calce Charge Nr	Chemical Analysis • Analyse Chimique • Chemische Analyse																	
	Al	B	C	Ch+Ta (0.01%Ta)	Co	Cr	Cu	Fe	Mn	Mo	Ni	P	S	Si	Ti	V	W	
2650 5 6805	0.2		0.031	3.29	0.2063	21.92		4.7049	0.2688	8.65	59.41	0.007	0.005	0.2	0.3161			BUTT END *01
2650 5 6805		Ta	Zr	Bi	Se	La		Pb	Mg	Y	Ag	N	Ca	Al+Ti	Ni+Co	Ni+Mo		BUTT END *01

Certified By • Certifie Par • Bescheinigt Durch: Amanda Aguirre  
Certification Technician  
12/5/2005

*Amanda Aguirre*  
DEC 08 2005



12.7.05  
103249 wx  
line 1-3

THE DATA CONTAINED HEREIN WAS OBTAINED FROM SAMPLES THAT ARE REPRESENTATIVE OF THE PRODUCTS IN THE SUBJECT SHIPMENT. THIS MATERIAL MEETS THE REQUIREMENTS OF THE LISTED SPECIFICATIONS, MODIFIED BY ANY EXCEPTIONS OR PURCHASE ORDER REQUIREMENTS. THE RECORDING OF FALSE, FICTITIOUS OR FRAUDULENT STATEMENTS OR ENTRIES ON THIS DOCUMENT MAY BE PUNISHED AS A FELONY UNDER FEDERAL STATUTES INCLUDING FEDERAL LAW, TITLE 18, CHAPTER 49. THIS DOCUMENT SHALL NOT BE REPRODUCED, EXCEPT IN FULL, WITHOUT THE WRITTEN CONSENT OF HAYNES INTERNATIONAL, INC. SPECIFICATION MARKING REQUIREMENTS MAY BE WAIVED ON ORDERS REQUIRING MULTIPLE MATERIAL SPECIFICATIONS.

MC114399.TIF

CERTIFICATION OF TESTS • RAPPORT D'ESSAIS CERTIFIÉ • WERKSZEUGNIS			
Order No. Reference Commande Bestellungs Nr 435676001-0	Date Entered Date De Commande Bestelldatum 12/01/05	Customer Reference Reference Client Kundenberichtsdaten P05-06722	Report No. Rapport No Zeugnis Nr 20051205027
		Pages of Pages Page de Pages Anzahl der Seiten 2 Of 4	

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Sold To • Client • Bestellanrschrift <b>MAJOR TOOL AND MACHINE INC</b> 1458 E 19TH ST INDIANAPOLIS IN 46218 USA	Ship To • Destinaaire • Bestellmenge <b>MAJOR TOOL AND MACHINE INC</b> 1458 E 19TH ST INDIANAPOLIS IN 46218 USA	Product Description • Description Produit • Material Bezeichnung <b>0.188 x 0/0 x 0/0</b> <b>SE121-095-1MTM</b> <b>HAYNES(R) 625 ALLOY PLATE</b> <b>Nadcap CERTIFICATE NUMBER 0089</b> <b>S400 4/29/2004, S1000 1/3/2005, EN 10204 3.1, AS9100</b>
---	---	---

Specification • Specification • Spezifikation ASTM-B-443, 00e1, UNS# N06625, Gr. 1; ASTM-B-443, 00e1, UNS# N06625, Gr. 1	Quantity Ordered Quantite Commandee Bestellmenge 6 PC	Quantity Shipped Quantite Expeditee Liefermenge 6 PC
---	--	---

Tensile Test at Room Temperature • Essai De Traction A Temp. Ambiante • Zugversuch Bei Raum Temp.					Tensile Test at Elevated Temperature • Essai De Traction A Hu.Temp. Warm Zugversuch					Stress Rupture Temperature • Essai A Charge De Rupture Zeitstandversuch							
Ultimate Zugfestigkeit	1% Yield Lim. Elast. A 1% 1% Streckgrenze	0.2% Yield Lim. Elast. A 0.2% 0.2% Streckgrenze	% Elong In % Allong EN % Dehnung	%RA	Temp.	Test Elast. Versuch	Ultimate Zugfestigkeit	1% Yield Lim. Elast. A 1% 1% Streckgrenze	0.2% Yield Lim. Elast. A 0.2% 0.2% Streckgrenze	% Elong In % Allong EN % Dehnung	%RA	Temp.	Test Essai Versuch	Stress Coordonate Spannung	Hours Heures Stunden	% Elong In % Allong EN % Dehnung	% RA
126000 PSI		63000 PSI	49.5 %		(1)(A)												

Certified By • Certifie Par • Bescheinigt Durch: Amanda Aguirre  
Certification Technician  
12/5/2005  
(1) 2944652551

*Amanda Aguirre*  
DEC 08 2005  
MTH 016

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MCI14399.TIF2



CERTIFICATION OF TESTS • RAPPORT D'ESSAIS CERTIFIÉ • WERKSZEUGNIS				
Sales Order No Reference Commande Bestellungs Nr 455676001-0	Date Entered Date De Commande Bestelldatum 12/01/05	Customer Reference Reference Client Kundenbestelldaten P05-06722	Report No. Rapport No Zeugnis Nr 20051205027	Page of Pages Page de Pages Anzahl der Seiten 4 Of 4
Sold To • Client • Bestellanachrift <b>MAJOR TOOL AND MACHINE INC 1458 E 19TH ST INDIANAPOLIS IN 46218 USA</b>		Ship To • Destinataire • Bestellmenge <b>MAJOR TOOL AND MACHINE INC 1458 E 19TH ST INDIANAPOLIS IN 46218 USA</b>		Product Description • Description Produit • Material Beschreibung <b>0.188 x 0/0 x 0/0 SE121-095-1MTM HAYNES(R) 625 ALLOY PLATE - Nadcap CERTIFICATE NUMBER 0089 S400 4/29/2004; S1000 1/3/2005, EN 10204 3.1, AS9100</b>
Specification • Specification • Spezifikation ASTM-B-443, 00e1, UNS# N06625, Gr. 1; ASTM-B-443, 00e1, UNS# N06625, Gr. 1		Quantity Ordered Quantite Commandee Bestellmenge 6 PC	Quantity Shipped Quantite Expediee Liefermenge 6 PC	

**HAYNES**  
International

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PO Box 9013  
Kokomo, Indiana, 46902

All tests and inspections have been performed and results meet specification requirements.  
THIS MATERIAL IS FREE FROM MERCURY, CADMIUM, RADIUM, AND ALPHA SOURCE CONTAMINATION.  
THIS MATERIAL WAS MELTED AND MANUFACTURED IN THE UNITED STATES.  
Mill Orders Used: 2944652551 (6 PC)  
(A) 1750 °F to 1950 °F

Certified By • Certifie Par • Bescheinigt Durch: Amanda Aguirre  
Certification Technician 12/5/2005

*Amanda Aguirre*

MTM  
016  
DEC 08 2005

THE DATA CONTAINED HEREIN WAS OBTAINED FROM SAMPLES THAT ARE REPRESENTATIVE OF THE PRODUCTS IN THE SUBJECT SHIPMENT. THIS MATERIAL MEETS THE REQUIREMENTS OF THE LISTED SPECIFICATION(S), MODIFIED BY ANY EXCEPTION OR PURCHASE ORDER REQUIREMENTS. THE REPRODUCING OF FALSE, FICTITIOUS OR FRAUDULENT STATEMENTS OR DETAILS ON THIS DOCUMENT MAY BE PENALIZED AS A VIOLATION UNDER FEDERAL STATUTES INCLUDING FEDERAL LAW, TITLE 18, CHAPTER 49. THIS DOCUMENT SHALL NOT BE REPRODUCED, EXCEPT IN FULL, WITHOUT THE WRITTEN CONSENT OF HAYNES INTERNATIONAL, INC. SPECIFICATION MARKING REQUESTS MAY BE WAIVED ON ORDERS REQUIRING MULTIPLE MATERIAL SPECIFICATIONS.

MC114399.TIF4

Handwritten mark

CERTIFICATION OF TESTS • RAPPORT D'ESSAIS CERTIFIÉ • WERKSZEUGNIS																		
Sales Order No Reference Commande Bestellungs Nr 456788001-0	Date Entered Date De Commande Bestelldatum 12/19/05	Customer Reference Reference Client Kundendienstlisten P05-06722	Report No. Rapport No Zengois Nr 20051221016	Pages of Pages Page de Pages Anzahl der Seiten 1 Of 4														
Sold To • Client • Besteltrauschrift <b>MAJOR TOOL AND MACHINE INC 1458 E 19TH ST INDIANAPOLIS IN 46218 USA</b>					Ship To • Destinataire • Bestellmenge <b>MAJOR TOOL AND MACHINE INC 1458 E 19TH ST INDIANAPOLIS IN 46218 USA</b>					Product Description • Description Produit • Material Beschreibung <b>0.188 x 0/0 x 0/0 SE121-095-1MTM HAYNES(R) 625 ALLOY PLATE - Nadcap CERTIFICATE NUMBER 0089 S400 4/29/2004, S1000 1/3/2005, EN 10204 3.1, AS9100</b>								
Specification • Specification • Spezifikation ASTM-B-443, 00e1, UNS# N06625, Gr. 1; ASTM-B-443, 00e1, UNS# N06625, Gr. 1					Quantity Ordered Quantité Commandée Bestellmenge 6 PC					Quantity Shipped Quantité Espécies Liefermenge 6 PC								
Item Number Numéro de Centre Charge Nr	Al	B	C	Li (b-Ta)	Co	Cr	Cu	Fe	Mn	Mo	Ni	P	S	Si	Ti	V	W	
2650 5 6834 2650 5 6805	0.18 0.2		0.031 0.031	3.5 3.29	0.2154 0.2063	22.29 21.92		4.2836 4.7049	0.2766 0.2688	8.59 8.65	59.94 59.41	0.007 0.007	0.003 0.005	0.18 0.2	0.285 0.3161			
2650 5 6834 2650 5 6805																		BUTT END *02 BUTT END *01

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1020 West Park Avenue  
PO Box 9013  
Kokomo, Indiana, 46902



Certified By • Certifié Par • Bescheinigt Durch: Amanda Aguirre  
Certification Technicien  
*Amanda Aguirre*  
MTH 016  
DEC 30 2005

12/21/2005

REC  
DEC 28 2005  
103801 JH  
Lines 1-3

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MC114888.TIF1

CERTIFICATION OF TESTS • RAPPORT D'ESSAIS CERTIFIE • WERKSZEUGNIS				
Sales Order No. Reference Commande Bestellungs Nr. 456788001-0	Date Entered Date De Commande Bestelldatum 12/19/05	Customer Reference Reference Client Kundenbestellnummer P05-06722	Report No. Rapport No. Zeugnis Nr. 20051221016	Pages of Pages Page de Pages Anzahl der Seiten 2 Of 4

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**International**

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PO Box 9013  
Kokomo, Indiana, 46902

Sold To • Client • Bestelbraucher <b>MAJOR TOOL AND MACHINE INC</b> <b>1458 E 19TH ST</b> <b>INDIANAPOLIS</b> <b>IN 46218 USA</b>	Ship To • Destinataire • Bestellmenge <b>MAJOR TOOL AND MACHINE INC</b> <b>1458 E 19TH ST</b> <b>INDIANAPOLIS</b> <b>IN 46218 USA</b>	Product Description • Description Produit • Material Beschreibung <b>0.188 x 0/0 x 0/0</b> <b>SE121-095-1MTM</b> <b>HAYNES(R) 625 ALLOY PLATE</b> <b>Nadcap CERTIFICATE NUMBER 0089</b> <b>S400 4/29/2004, S1000 1/3/2005, EN 10204 3.1, AS9100</b>
---	---	--

Specification • Specification • Spezifikation ASTM-B-443, 00e1, UNS# N06625, Gr. 1; ASTM-B-443, 00e1, UNS# N06625, Gr. 1	Quantity Ordered Quantite Commandee Bestellmenge 6 PC	Quantity Shipped Quantite Expediee Liefermenge 6 PC
---	--	--

Tensile Test at Room Temperature • Essai De Traction A Temp. Ambiante • Zugversuch Bei Raum Temp.					Tensile Test at Elevated Temperature • Essai De Traction A Hie. Temp. Warm • Zugversuch					Stress Rupture Temperature • Essai A Charge De Rupture Zolstandversuch					
Ultimate Zugfestigkeit	1% Yield Lim. Flow, 0.1% 1% Streckgrenze	0.2% Yield Lim. Flow, 0.02% 0.2% Streckgrenze	% Elong In % Dehnung	%RA	TSI Prest Versuch	Ultimate Zugfestigkeit	1% Yield Lim. Flow, 0.1% 1% Streckgrenze	0.2% Yield Lim. Flow, 0.02% 0.2% Streckgrenze	% Elong In % Dehnung	%RA	Test Essai Versuch	Stress Constatine Spannung	Hours Heures Stunden	% Elong In % Dehnung	%RA
132000 PSI 126000 PSI		61500 PSI 63000 PSI	51 % 49.5 %	(1)(A) (2)(A)											

Certified By • Certifie Par • Bescheinigt Durch: Amanda Aguirre  
 Certification Technician  
 12/21/2005 (1) 2942995301 (2) 2944652551

*Amanda Aguirre*

MTM 019 DEC 30 2005

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CERTIFICATION OF TESTS • RAPPORT D'ESSAIS CERTIFIÉ • WERKSZEUGNIS				
Sales Order No Reference Commande Bestellungs Nr 456788001-0	Date Entered Date De Commande Bestelldatum 12/19/05	Customer Reference Reference Client Kundenbestellnr P05-06722	Report No. Rapport No Zeugnis Nr 20051221016	Pages of Pages Page de Pages Anzahl der Seiten 3 Of 4

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**International**

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Kokomo, Indiana, 46902

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---	--

Product Description • Description Produit • Material Beschreibung  
**0.188 x 0/0 x 0/0**  
**SE121-095-1MTM**  
**HAYNES(R) 625 ALLOY PLATE** -  
**Nadcap CERTIFICATE NUMBER 0089**  
**S400 4/29/2004, S1000 1/3/2005, EN 10204 3.1, AS9100**

Specification • Specification • Spezifikation	Quantity Ordered Quantite Commandee Bestellmenge	Quantity Shipped Quantite Expeditee Liefermenge
ASTM-B-443, 00el, UNS# N06625, Gr. 1; ASTM-B-443, 00el, UNS# N06625, Gr. 1	6 PC	6 PC

Amenel Hardness Durete Recuit Gezucht Haerte	Aged Hardness Durete Vieilli Gealtert Haerte	Grain Size Grosesse De Grain Korngrösse							IGA	Uniformity	Corrosion Rate	Oxidation Rate	Charpy Impact Test				Creep Rupture																			
		Grain Size	Prehnimal Grain Size	Recy. Grain	Distoxy. Grain %	ALA	P/W Figure Number	Attack Depth					Corrosion	Test Method	Toughness Avg	Toughness 1	Toughness 2	Toughness 3	Test Temp Verwech	Stress Constatitute Spannung	Hours Heures Stunden	% Elong In % Allong EN % Dehnung	% Elong at 15Hrs													
94 HRB 93 HRB	(1)(A) (2)(A)	5.5 6								MPY																										

Certified By • Certifié Par • Bescheinigt Durch: Amanda Aguirre  
Certification Technician  
12/21/2005 (1) 2942995301 (2) 2944652551

*Amanda Aguirre*  
DEC 30 2005



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2

CERTIFICATION OF TESTS • RAPPORT D'ESSAIS CERTIFIÉ • WERKSZEUGNIS				
Sales Order No. Reference Commande Bestellungs Nr 456788001-0	Date Entered Date De Commande Bestelldatum 12/19/05	Customer Reference Reference Client Kundenbestellnr P05-06722	Report No. Rapport No Zeugnis Nr 20051221016	Page of Pages Page de Pages Anzahl der Seiten 4 Of 4
Sold To • Client • Bestellanrschrift <b>MAJOR TOOL AND MACHINE INC 1458 E 19TH ST INDIANAPOLIS IN 46218 USA</b>		Ship To • Destinataire • Bestelleunge <b>MAJOR TOOL AND MACHINE INC 1458 E 19TH ST INDIANAPOLIS IN 46218 USA</b>		
Specification • Spécification • Spezifikation ASTM-B-443, 00e1, UNS# N06625, Gr. 1; ASTM-B-443, 00e1, UNS# N06625, Gr. 1		Quantity Ordered Quantité Commandée Bestellemenge 6 PC	Quantity Shipped Quantité Expédiée Liefermenge 6 PC	

**HAYNES  
International**

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1020 West Park Avenue  
PO Box 9013  
Kokomo, Indiana, 46902

Product Description • Description Produit • Material Beschreibung  
0.188 x 0/0 x 0/0  
SE121-095-1MTM  
HAYNES(R) 625 ALLOY PLATE  
Nadcap CERTIFICATE NUMBER 0089  
S400 4/29/2004, S1000 1/3/2005, EN 10204 3.1, AS9100

All tests and inspections have been performed and results meet specification requirements.  
THIS MATERIAL IS FREE FROM MERCURY, CADMIUM, RADIUM, AND ALPHA SOURCE CONTAMINATION.  
THIS MATERIAL WAS MELTED AND MANUFACTURED IN THE UNITED STATES.  
Mill Orders Used: 2942995301 (3 PC), 2944652551 (3 PC)  
(A) 1750 °F to 1950 °F

Certified By • Certifié Par • Bescheinigt Durch: Amanda Aguirre 12/21/2005  
Certification Technicien

*Amanda Aguirre*

MTM 018 DEC 30 2005

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MC114888.TIF4

**INSPECTION DATA CHECKLIST**

Quality Assurance Documentation for Part ID: SE121-095 - Item: 196

Workorder: 65678/1-0 Sub:224 Op:40

Part: SE121-095 - - VF SEALS

Drawing ID: SE121-095 Rev: 0			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT	
*		 0.03" A B C		QA		142	W/IN .030	854-R.U			A
(10)								05-02-06			
*		 0.03" A B C		QA		142	W/IN .030	854-R.U			A
(20)								05-02-06			

CERTIFICATION OF TESTS • RAPPORT D'ESSAIS CERTIFIÉ • WERKSZEUGNIS				
Sales Order No Reference Commande Bestellungs Nr 463912001-0	Date Entered Date De Commande Bestelldatum 03/20/06	Customer Reference Reference Client Kundenbestelldaten P06-01320	Report No. Rapport No Zeugnis Nr 20060321014	Pages of Pages Page de Pages Anzahl der Seiten 1 Of 4

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--	--

Product Description • Description Produit • Material Bezeichnung 0.188 x 0/0 x 0/0 SE121-095-1MTM <b>HAYNES(R) 625 ALLOY PLATE</b> Nadcap CERTIFICATE NUMBER 0089 S400 4/29/2004, S1000 1/3/2005, EN 10204 3.1, AS9100
---

Specification • Specification • Spezifikation ASTM-B-443, 00e1, UNS# N06625, Gr. 1	Quantity Ordered Quantité Commandée Bestellmenge 6 PC	Quantity Shipped Expédiée Liefermenge 6 PC
---	--	---

Heat Number Numéro De Coche Charge Nr	Chemical Analysis • Analyse Chimique • Chemische Analyse																		
	Al	B	C	Cr+Ti (20+Ti)	Co	Cr	Cu	Fe	Mn	Mo	Ni	P	S	Si	Ti	V	W		
2650 5 6834	0.18		0.031	3.5	0.2154	22.29		4.2836	0.2766	8.59	59.94	0.007	0.003	0.18	0.285				BUTT END *02
2650 5 6834	(CON)	Ta	Zr	Bi	Se	La	(CON)	Pb	Mg	Y	Ag	N	Ca	Al+Ti	Ni+Co	Ni+Mo			BUTT END *02

Certified By • Certifié Par • Bescheinigt Durch: Amanda Aguirre  
Certification Technician

3/21/2006

*Amanda Aguirre*  
MAR 27 2006

**RECEIVED**  
MAR 27 2006  
106260A  
Lines 1-3

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MC117251.TIF

CERTIFICATION OF TESTS • RAPPORT D'ESSAIS CERTIFIÉ • WERKSZEUGNIS				
Sales Order No Reference Commande Bestellungs Nr 463912001-0	Date Issued Date De Commande Bestelldatum 03/20/06	Customer Reference Reference Client Kundenbestelldaten P06-01320	Report No. Rapport No Zeugnis Nr 20060321014	Pages of Pages Page de Pages Anzahl der Seiten 2 Of 4

**HAYNES**  
**International**

FILE COPY 2

Haynes International  
1020 West Park Avenue  
PO Box 9013  
Kokomo, Indiana, 46902

Sold To • Client • Bestellschreiber <b>MAJOR TOOL AND MACHINE INC</b> 1458 E 19TH ST INDIANAPOLIS IN 46218 USA		Ship To • Destinataire • Bestellaenge <b>MAJOR TOOL AND MACHINE INC</b> 1458 E 19TH ST INDIANAPOLIS IN 46218 USA		Product Description • Description Produit • Material Beschreibung 0.188 x 0/0 x 0/0 SE121-095-1MTM HAYNES(R) 625 ALLOY PLATE - Nadcap CERTIFICATE NUMBER 0089 S400 4/29/2004, S1000 1/3/2005, EN 10204 3.1, AS9100
Specification • Spécification • Spezifikation ASTM-B-443, 00e1, UNS# N06625, Gr. 1		Quantity Ordered Quantite Commandee Bestellmenge 6 PC	Quantity Shipped Quantite Expeditee Liefermenge 6 PC	

Tensile Test at Room Temperature • Essai De Traction A Temp. Ambiante • Zugversuch Bei Raum Temp.					Tensile Test at Elevated Temperature • Essai De Traction A Hte. Temp. Warm Zugversuch						Stress Rupture Temperature • Essai A Charge De Rupture Zeitstandversuch					
Ultimate Lim. Elong. A 1% Zugfestigkeit	% Yield Lim. Elong. A 0.2% Streckgrenze	% Elong In % Along EN % Dehnung	%RA		Temp	Ultimate Zugfestigkeit	1% Yield Lim. Elong. A 1% 1% Streckgrenze	0.2% Yield Lim. Elong. A 0.2% 0.2% Streckgrenze	% Elong In % Along EN % Dehnung	%RA		Temp	Stress Constatant Spannung	Hours Heures Stunden	% Elong In % Along EN % Dehnung	% RA
131000 PSI		66500 PSI	46 %	(1)(A)												

Certified By • Certifié Par • Bescheinigt Durch: Amanda Aguirre  
Certification Technician

3/21/2006

(1) 2942812701

*Amanda Aguirre*  
MAR 27 2006

THE DATA CONTAINED HEREIN WAS OBTAINED FROM SAMPLES THAT ARE REPRESENTATIVE OF THE PRODUCTS IN THE SUBJECT SHIPMENT. THIS MATERIAL MEETS THE REQUIREMENTS OF THE LISTED SPECIFICATION(S), MODIFIED BY ANY EXCEPTIONS OR PURCHASE ORDER REQUIREMENTS. THE REPRODUCTION OF FALSE, FICTITIOUS OR FRAUDULENT STATEMENTS OR ENTRIES ON THIS DOCUMENT MAY BE PUNISHED AS A FELONY UNDER FEDERAL STATUTES INCLUDING FEDERAL LAW TITLE 18, CHAPTER 49. THIS DOCUMENT SHALL NOT BE REPRODUCED, EXCEPT IN FULL, WITHOUT THE WRITTEN CONSENT OF HAYNES INTERNATIONAL, INC. SPECIFICATION MARKING REQUIREMENTS MAY BE WAIVED ON ORDERS REQUIRING MULTIPLE MATERIAL SPECIFICATIONS.

MC117251.TIF2

CERTIFICATION OF TESTS • RAPPORT D'ESSAIS CERTIFIÉ • WERKSZEUGNIS				
Sales Order No Référence Commande Bestellungs Nr 463912001-0	Date Entered Date De Commande Bestelldatum 03/20/06	Customer Reference Référence Client Kundenbestelldaten P06-01320	Report No. Rapport No. Zertifikat Nr 20060321014	Pages of Pages Page de Pages Anzahl der Seiten 3 Of 4

**HAYNES  
International**

FILE COPY 2

Haynes International  
1020 West Park Avenue  
PO Box 9013  
Kokomo, Indiana, 46902

Sold To • Client • Bestellanschrift <b>MAJOR TOOL AND MACHINE INC</b> 1458 E 19TH ST INDIANAPOLIS IN 46218 USA	Ship To • Destinataire • Bestellmenge <b>MAJOR TOOL AND MACHINE INC</b> 1458 E 19TH ST INDIANAPOLIS IN 46218 USA
--	--

Product Description • Description Produit • Material Bezeichnung <b>0.188 x 0/0 x 0/0 SE121-095-1MTM HAYNES(R) 625 ALLOY PLATE Nadcap CERTIFICATE NUMBER 0089 S400 4/29/2004, S1000 1/3/2005, EN 10204 3.1, AS9100</b>
---

Specification • Specification • Spezifikation ASTM-B-443, 00e1, UNS# N06625, Gr. 1	Quantity Ordered Quantité Commandée Bestellmenge 6 PC	Quantity Shipped Quantité Expédiée Liefermenge 6 PC
---	--	--

Annealed Hardness Dureté Recuit Gezeichnete Härte	Aged Hardness Dureté Vieille Gealterte Härte	Grain Size Grossueur De Grain Korngrösse						IGA	Uniformity	Corrosion Rate	Oxidation Rate	Charpy Impact Test				Creep Rupture			
		Grain Size	Preferential Grain Size	Empty Grain	Library Grain %	ALA Figure Number	Attack Depth					Corrosion Test Method	Toughness Avg	Toughness 1	Toughness 2	Toughness 3	Test Event Versuch	Stress Constrainte Spannung	Hours Heures
96 HRB	(1)(A)	6							MPY										

Certified By • Certifié Par • Bescheinigt Durch: Amanda Aguirre  
Certification Technician 3/21/2006 (1) 2942812701

*Amanda Aguirre*  
MAR 27 2006  
HTM 016

THE DATA CONTAINED HEREIN WAS OBTAINED FROM SAMPLES THAT ARE REPRESENTATIVE OF THE PRODUCTS IN THE SUBJECT PURCHASE. THIS MATERIAL MEETS THE REQUIREMENTS OF THE LISTED SPECIFICATIONS, MODIFIED BY ANY EXCEPTIONS OR PURCHASE ORDER REQUIREMENTS. THE RECORDING OF FALSE, FICTITIOUS OR FRAUDULENT STATEMENTS OR OMISSIONS BY THE DOCUMENT MAY BE PUNISHED AS A FELONY UNDER FEDERAL STATUTES INCLUDING FEDERAL LAW TITLE 18, CHAPTER 49. THIS DOCUMENT SHALL NOT BE REPRODUCED, IN WHOLE OR IN PART, WITHOUT THE WRITTEN CONSENT OF HAYNES INTERNATIONAL, INC. SPECIFICATION MARKING REQUIREMENTS MAY BE WAIVED ON ORDERS REQUIRING MULTIPLE MATERIAL SPECIFICATIONS.

MC117251.TIF3

CERTIFICATION OF TESTS • RAPPORT D'ESSAIS CERTIFIE • WERKSZEUGNIS				
Sales Order No Reference Commande Bestellungs Nr 463912001-0	Date Entered Date De Commande Bestelldatum 03/20/06	Customer Reference Reference Client Kundenbezeichnung P06-01320	Report No. Rapport No Zeugnis Nr 20060321014	Pages of Pages Page de Pages Anzahl der Seiten 4 Of 4
Sold To • Client • Bestellaarschrift <b>MAJOR TOOL AND MACHINE INC 1458 E 19TH ST INDIANAPOLIS IN 46218 USA</b>		Ship To • Destinaire • Bestimmung <b>MAJOR TOOL AND MACHINE INC 1458 E 19TH ST INDIANAPOLIS IN 46218 USA</b>		Product Description • Description Produit • Material Beschreibung <b>0.188 x 0/0 x 0/0 SE121-095-1MTM HAYNES(R) 625 ALLOY PLATE - Nadcap CERTIFICATE NUMBER 0089 S400 4/29/2004, S1000 1/3/2005, EN 10204 3.1, AS9100</b>
Specification • Spécification • Spezifikation ASTM-B-443, 00e1, UNS# N06625, Gr. 1			Quantity Ordered Quantité Commandée Bestellmenge 6 PC	Quantity Shipped Quantité Expédiée Liefermenge 6 PC

**HAYNES**  
**International**

FILE COPY 2

Haynes International  
1020 West Park Avenue  
PO Box 9013  
Kokomo, Indiana, 46902

All tests and inspections have been performed and results meet specification requirements.  
THIS MATERIAL IS FREE FROM MERCURY, CADMIUM, RADIUM, AND ALPHA SOURCE CONTAMINATION.  
THIS MATERIAL WAS MELTED AND MANUFACTURED IN THE UNITED STATES.  
Mill Orders Used: 2942812701 (6 PC)  
(A) 1750 °F to 1950 °F

Certified By • Certifié Par • Bescheinigt Durch: Amanda Aguirre  
Certification Technician 3/21/2006

*Amanda Aguirre*



MAR 27 2006

THE DATA CONTAINED HEREIN WAS OBTAINED FROM SAMPLES THAT ARE REPRESENTATIVE OF THE PRODUCTS IN THE SUBJECT SHIPMENT. THIS MATERIAL MEETS THE REQUIREMENTS OF THE LISTED SPECIFICATIONS, MODIFIED BY ANY EXCEPTIONS OR PURCHASE ORDER REQUIREMENTS. THE EXCEEDING OFFICIAL POTENTIAL OR PAUCITY OF ELEMENTS OR PHASES ON THIS DOCUMENT MAY BE DISCREPANT. HAYNES INTERNATIONAL STATES INCLUDING FEDERAL, STATE, LOCAL, COUNTY, AND TERRITORY SHALL NOT BE REPRESENTED, COVERED OR IN ANY MANNER WITHOUT THE WRITTEN CONSENT OF HAYNES INTERNATIONAL, INC. SPECIFICATION MARKING REQUIREMENTS MAY BE WAIVED ON ORDERS REQUESTING MULTIPLE MATERIAL SPECIFICATIONS.



MC117251.TIF4

**INSPECTION DATA CHECKLIST**

Quality Assurance Documentation for Part ID: SE121-095 - Item: 199

Workorder: 65678/1-0 Sub:244 Op:40

Part: SE121-095 - - LOOSE SEALS SE120-002-25

Drawing ID: SE121-095 Rev: 0				INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY						
SHEET	ZONE	CHARACTERISTIC			GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT			
*			0.03"	A	B	C		QA		142	W/IN .030	854-R.U			A
(10)												05-02-06			
*			0.03"	A	B	C		QA		142	W/IN .030	854-R.U			A
(20)												05-02-06			



JS0006A-1 200



Jessop Specialty Products  
500 Green Street  
Washington, PA 15301

CERTIFIED MATERIAL  
TEST REPORT

OUR ORDER NO. LP5090610  
YOUR ORDER NO. T52162  
MEMO NO. 272971-00 DUAL CERT  
DATE 04/27/2005  
SALESMAN NO. 584

Ship ROLLED ALLOYS  
To 125 W STERNS RD  
TEMPERANCE MI

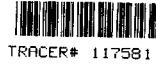
ROLLED ALLOYS INC  
125 W STERNS RD  
P O BOX 310  
TEMPERANCE MI

48182 48182

*P. M. Cladits*  
P. M. Cladits - Product Quality Engineer

ALC 316/316L STAINLESS HRAP  
ASTM A240-04a ASME SA-240-04 AMS 5507F UNS S31603  
AMS 5524K (316) UNS S31600

Heat	Slip	Lot No	Size	Pcs	Weight						
B19882	16122 A	153423	.1875 x 96.0000 x 240.0000	1	1372						
Heat	C	MN	P	S	SI	NI	CR	MO	CO	CU	N
B19882	.018	1.42	.024	.0004	.42	10.05	16.27	2.08	.31	.36	.065



TRACER# 117581

Lot No	Gauge	Yield Strength	Tensile Strength	Elong	Red. of Area	Hardness	Bend	Corrosion	Grain Size
153423	.1875	45.7 KSI	84.0 KSI	59.0	72.0	BHN149	OK	OK	

MATERIAL WAS SOLUTION ANNEALED (HEAT TREATED) ABOVE 1900F AND WATER QUENCHED  
MATERIAL WAS PRODUCED WITHOUT KNOWN CONTACT WITH MERCURY  
MATERIAL IS OF USA MELT AND MANUFACTURE  
MATERIAL WAS NOT WELD REPAIRED  
DIN 50049 3.1.B AND EN 10204 3.1.B CERTIFICATE

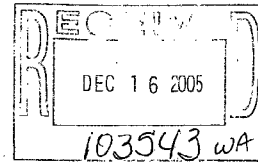


Certification of Conformance: We certify that the above material meets all requirements of the purchase order and material specifications.  
125 W. Sterns Rd Temperance, MI 48182

Customer: MAJOR TOOL & MACHINE  
P.O. Box 06721 TN  
3/16" PLATE 316L  
Tracer No. [117581]

Shpr-W55002 Date 12/14/2005  
47-39/64 X 106-55/64 2 PC  
Heat No. [019002]

DEC 19 2005



ROLLED ALLOYS QUALITY ASSURANCE  
APPROVED *[Signature]*  
DATE 5-4-05

PAGE 1 FINAL PAGE



EXCEPT AS OTHERWISE NOTED, THIS MATERIAL HAS BEEN MANUFACTURED AND TESTED IN ACCORDANCE WITH THE LISTED SPECIFICATIONS AND RESULTS CONFORM TO THE SPECIFICATION AND ORDER REQUIREMENTS.

MC114628.TIF1

Quality Assurance Documentation for Part ID: SE121-099 - Item: 201

Workorder: 65678/1-0 Sub:225 Op:40



Part: SE121-099 - - END COVER SEALS

Drawing ID: SE121-095 Rev: 0				INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY								
SHEET	ZONE	CHARACTERISTIC			GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT					
*			0.03"	A	B	C		CMM	QA		00064	OD-0.007-0.034 (ACC EPT PER NC 19372)	854-R.U 04-30-06			A	
(10)																	
*			0.03"	A	B	C		CMM	QA		00064	ID-0.003-0.032 (ACC EPT PER NC 19372)	854-R.U 04-30-06				A
(20)																	

Quality Assurance Documentation for Part ID: SE121-099 - Item: 203

Workorder: 65678/1-0 Sub:229 Op:40

Part: SE121-099 - - END COVER SEALS

Drawing ID: SE121-095 Rev: 0				INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY				
SHEET	ZONE	CHARACTERISTIC			GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT	
*			0.03"	A   B   C	CMM	QA		00064	ID -0.004-0.027 (AC CEPT PER NC 19374)	854-R.U 04-30-06			A
(10)													
*			0.03"	A   B   C	CMM	QA		00064	-0.008-0.034 (ACCEP T PER NC 19374)	854-R.U 04-30-06			A
(20)													

**INSPECTION DATA CHECKLIST**

Quality Assurance Documentation for Part ID: SE121-099-1 - Item: 204

Workorder: 65678/1-0 Sub:224 Op:10

Part: SE121-099-1 - - VF SEALS

Drawing ID: SE121-095 Rev: 0			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY		
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
*			OD MICROMETER	QA		P-4808	.188/.189	503-B.H		
(20)		0.188 +0.045 / - 0.010" MATERIAL THICK						12-28-05		A

**INSPECTION DATA CHECKLIST**

Quality Assurance Documentation for Part ID: SE121-099-1 - Item: 205

Workorder: 65678/1-0 Sub:225 Op:10

**Part: SE121-099-1 - - END COVER SEALS**

Drawing ID: SE121-099 Rev: 0			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY		
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
*			OD MICROMETER	QA		P-4808	.198/.203	503-B.H		
(20)		0.188 +0.045 / - 0.010" MATERIAL THICK						12-19-05		

A

Quality Assurance Documentation for Part ID: SE121-099-1 - Item: 206

Workorder: 65678/1-0 Sub:229 Op:10

Part: SE121-099-1 - - END COVER SEALS

Drawing ID: SE121-099 Rev: 0			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY		
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
*			OD MICROMETER	QA		P-4808	.198/.203	503-B.H		
(20)		0.188 +0.045 / - 0.010" MATERIAL THICK						12-19-05		

A

**INSPECTION DATA CHECKLIST**

Quality Assurance Documentation for Part ID: SE121-099-1 - Item: 207

Workorder: 65678/1-0 Sub:244 Op:10

Part: SE121-099-1 - - LOOSE SEALS SE120-002-25

Drawing ID: SE121-095 Rev: 0			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY		
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
*			OD MICROMETER	QA		P-4808	.186/.187	503-B.H		
(20)		0.188 +0.045 / - 0.010" MATERIAL THICK						04-03-06		

A

Quality Assurance Documentation for Part ID: SE122-007-3 - Item: 208

Workorder: 65678/1-0 Sub:153 Op:10

Part: SE122-007-3 - - PORT DOME BACKING STRIP

Drawing ID: Rev:		INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
*			MASTER GAGE	QA		J-1165	LESS THAN 1.02	854-R.U		
(20)		MAGNETIC PERMEABILITY 1.02 MAX						08-21-05		

A



**INSPECTION DATA CHECKLIST**

Quality Assurance Documentation for Part ID: SE122-072 - Item: 209

Workorder: 65678/1-0 Sub:2 Op:80

Part: SE122-072 - - VACUUM TESTING / PORT REMOVAL / VESSEL FLANGE MACHINING / FINAL INSPECTION ACTIVITIES SE120-003-1 120 DEGREE

Drawing ID: SE122-072 Rev: 1			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY		
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
1*	G6	32 MICRO-INCH RA PORT NB FLANGE FACE SURFACE FINISH AFTER REWORK (NCR 19115)	PROFILOMETER	MFG		J-1308	ACCEPTED	299-M.G	219-T.L	
(10)		NOTE 1.5" LIMIT OF TOLERANCE		QA				03-11-06	05-05-06	A

Quality Assurance Documentation for Part ID: SE124-047 - Item: 210

Workorder: 65678/1-0 Sub:232 Op:10

Part: SE124-047 - - WELD BOSSES

Drawing ID: SE120-004 Rev: 2			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY		
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
*		VWI - ROOT PASS WELD HALF -A- BOSS A		MFG		VISUAL	ACCEPT	709-K.A	933-D.L	A
(20)				CWI				12-12-05	12-13-05	
*		VWI - COVER PASS WELD HALF -A- BOSS A		MFG		VISUAL	ACCEPT	709-K.A	933-D.L	A
(40)				CWI				12-14-05	12-14-05	
*		VWI - ROOT PASS WELD HALF -A- BOSS B		MFG		VISUAL	ACCEPT	709-K.A	933-D.L	A
(60)				CWI				12-12-05	12-13-05	
*		VWI - COVER PASS WELD HALF -A- BOSS B		MFG		VISUAL	ACCEPT	709-K.A	933-D.L	A
(80)				CWI				12-14-05	12-14-05	
*		VWI - ROOT PASS WELD HALF -A- BOSS C		MFG		VISUAL	ACCEPT	683-K.M	933-D.L	A
(100)				CWI				12-15-05	12-15-05	
*		VWI - COVER PASS WELD HALF -A- BOSS C		MFG		VISUAL	O.K. PER CUSTOMER EQUIREMENTS	771-B.S	053-M.D	A
(120)				CWI				12-17-05	02-23-06	
*		VWI - ROOT PASS WELD HALF -A- BOSS D		MFG		VISUAL	ACCEPT	933-D.L	933-D.L	A
(140)				CWI				12-16-05	12-16-05	
*		VWI - COVER PASS WELD HALF -A- BOSS D		MFG		VISUAL	O.K. PER CUSTOMER EQUIREMENTS	771-B.S	053-M.D	A
(160)				CWI				12-17-05	02-23-06	
*		VWI - ROOT PASS WELD HALF -B- BOSS A		MFG		VISUAL	ACCEPT	709-K.A	933-D.L	A
(180)				CWI				12-12-05	12-13-05	
*		VWI - COVER PASS WELD HALF -B- BOSS A		MFG		VISUAL	ACCEPT	709-K.A	933-D.L	A
(200)				CWI				12-14-05	12-14-05	
*				MFG		VISUAL	ACCEPT	709-K.A	933-D.L	A

**INSPECTION DATA CHECKLIST**

(220)	VWI - ROOT PASS WELD HALF -B- BOSS B		CWI				12-12-05	12-13-05	
*			MFG		VISUAL	ACCEPT	709-K.A	933-D.L	A
(240)	VWI - COVER PASS WELD HALF -B- BOSS B		CWI				12-14-05	12-14-05	
*			MFG		VISUAL	ACCEPT	933-D.L	933-D.L	A
(260)	VWI - ROOT PASS WELD HALF -B- BOSS C		CWI				12-16-05	12-16-05	
*			MFG		VISUAL	O.K. PER CUSTOMER EQUIREMENTS	771-B.S	933-D.L	A
(280)	VWI - COVER PASS WELD HALF -B- BOSS C		CWI				12-17-05	03-03-06	
*			MFG		VISUAL	ACCEPT	683-K.M	933-D.L	A
(300)	VWI - ROOT PASS WELD HALF -B- BOSS D		CWI				12-15-05	12-15-05	
*			MFG		VISUAL	ACCEPT	837-J.D	933-D.L	A
(320)	VWI - COVER PASS WELD HALF -B- BOSS D		CWI				12-16-05	12-15-05	

Quality Assurance Documentation for Part ID: SE124-047 - Item: 211

Workorder: 65678/1-0 Sub:232 Op:20

Part: SE124-047 - - WELD BOSSES

Drawing ID: SE120-004 Rev: 2			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY		
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
*		⊕ .25 A B C HALF -A- BOSS A FINAL	LASER	QA		1444	0.275 (ACCEPT PER N C 18888) [N/C:18888 -Doc:18888]	854-R.U  04-30-06		A
(20)										
*		⊕ .25 A B C HALF -A- BOSS B FINAL	LASER	QA		1444	0.135	522-R.D  12-17-05		A
(40)										
*		⊕ .25 A B C HALF -A- BOSS C FINAL	LASER	QA		1444	0.451 (ACCEPT PER N C 18888) [N/C:18888 -Doc:18888]	854-R.U  04-30-06		A
(60)										
*		⊕ .25 A B C HALF -A- BOSS D FINAL	LASER	QA		1444	0.177	522-R.D  12-19-05		A
(80)										
*		⊕ .25 A B C HALF -B- BOSS A FINAL	LASER	QA		1444	0.245	522-R.D  12-17-05		A
(100)										
*		⊕ .25 A B C HALF -B- BOSS B FINAL	LASER	QA		1444	0.067	522-R.D  12-17-05		A
(120)										
*		⊕ .25 A B C HALF -B- BOSS C FINAL	LASER	QA		1444	0.361 (ACCEPT PER N C 18888) [N/C:18888 -Doc:18888]	854-R.U  04-30-06		A
(140)										
*		⊕ .25 A B C HALF -B- BOSS D FINAL	LASER	QA		1444	0.238	522-R.D  12-17-05		A
(160)										

Employees: 053-M.Dunn / 093-M.Stewart / 137-G.Ford / 197-T.Fischer / 219-T.Laird / 261-T.Dunn / 295-C.Weaver / 299-M.Gregory / 315-C.Land / 321-C.Lonaker / 358-D.Menew / 492-R.Elkins / 503-B.Houk / 509-S.Roberts / 522-R.Durham / 533-B.Clevenger / 576-J.Geisinger / 581-D.Edwards / 591-C.Pritchett / 683-K.Mcnew / 709-K.Appleby / 728-R.Dalton / 763-R.Miethe / 771-B.Schultz / 791-D.Weidner / 837-J.Deverter / 840-G.Masood / 854-R.Upchurch / 933-D.Leapley

ARCOS INDUSTRIES, LLC  
 ONE ARCOS DRIVE  
 Mt. Carmel, PA 17851

mc095629.pdf



DATE 01/13/04

## CERTIFICATION OF TESTS

SOLD TO: MAJOR TOOL & MACHINE, INC.  
 1458 EAST 19TH STREET  
 INDIANAPOLIS, IN 46218

SHIP TO: SAME

ARCOS S.O.		CUSTOMER ORDER NO.		CONSIGNEE ORDER NO.		DATE SHIPPED			
79698		P04-00127		N/A		1/13/04			
ITEM	SIZE	GRADE		LOT NO./ALLOY NO.		QUANTITY			
1	3/32 X 36"	ARCOS 625		CB7996		20#			
<b>SPECIFICATION:</b> AWS A5.14/A5.14M-97. CLASS ERNiCrMo-3 ASME SFA 5.14 ASME SECTION II, PART C, 2001 EDITION, AND ALL PARAS AND ADDENDA THRU 2003.									
<b>CHEMICAL ANALYSIS:</b>									
WIRE									
C	Mn	Si	S	P	Cr	Ni	Mo	Cb	Cb + Ta
0.04	0.03	0.08	0.004	0.01	21.9	64.9	8.7		3.64
Ta	Ti	Al	Co	Cu	Fe	V	Total Others		
	0.21	0.16	0.02	0.12	0.2		<.50		

**ADDITIONAL TEST RESULTS**

Ferrite - NB2433.1-1: \_\_\_\_\_

Magna Gage: \_\_\_\_\_

X-Ray: \_\_\_\_\_

Bends: \_\_\_\_\_

Hardness: \_\_\_\_\_

**TENSILE** As Welded                      Heat Treated

Yield \_\_\_\_\_

Tensile \_\_\_\_\_

Elongation \_\_\_\_\_

Red. of Area \_\_\_\_\_

**OTHER INFORMATION:**

LOT CLASSIFICATION - S1  
 INTENSITY OF TESTING - Schedule F

01 13 2004

82372 Line 1  
 B.J.

THIS MATERIAL IS FREE FROM MERCURY, RADIUM OR ALPHA PARTICLE CONTAMINATION.

We hereby affirm that the reported results on this certification are correct and accurate. All test and results and operations performed by Arcos or its subcontractors are in compliance with the applicable material/customer specification.

**ARCOS**

1/29/04

Q.A. MANAGER  
 QUALITY ASSURANCE DEPARTMENT

BRANFORD WIRE & MFG.  
 P. O. BOX 677  
 MOUNTAIN HOME, NC  
 PHONE: 828-692-5791  
 FAX#: 828-697-9818

CERTIFICATE OF COMPLIANCE / TEST REPORT

3/21/05

BUYER: HAYNES INTERNATIONAL  
 P. O. BOX 9013  
 1020 WEST PARK AVE.  
 KOKOMO, IN  
 46904-9013

CUSTOMER P. O. NBR: 1423  
 ORD/LN NBR: 025982/02  
 CUSTOMER PART NBR: 326506200240000

27038

PROD. DESC: WELDING / METALLIZING WIRE  
 SIZE: .093X36"

TYPE: INC625  
 QTY LBS: 550

SPECIFICATION  
 AWSA5.14-97/ERNICRMO-3

CHEMICAL ANALYSIS

HEAT NBR.	C	MN	P	S	SI	NI	CR	MO	CU
K48859	0.019	0.030	<.005	.0006	<0.05	165.00	20.82	08.36	0.020

Y	TA	TI	NB	AL	N	CO	FE	W	V	B
	0.020	0.019	03.43	0.220		0.130	01.91			

MECHANICAL PROPERTIES

TENSILE	YIELD	ELONGATION	HARDNESS	BREAK	RTDA
LBS/SG. INCH	LBS/SG. INCH	%			%
	1/4HRD				

WRAP TEST	UNIFORM TEST	MANDREL TEST	GRAIN SIZE	PERMEABILITY

OTHER TEST(S) AND/OR REQUIREMENTS:

(MATERIAL IS FREE OF MERCURY CONTAMINATION)  
 THIS IS TO CERTIFY THAT MATERIAL SHIPPED COMPLIES WITH SPECIFICATION ON P. O.

COUNTRY OF ORIGIN GERMANY	IQ. REPRESENTATIVE <i>Dayle Chang</i>	DATE SIGNED 3/21/05
------------------------------	--	------------------------

*04.01.2005*  
*94843*  
*Line 1 50 tubes*

MTM  
 OP  
*4/4/05*

IF INITIALED AND DATED HERE \_\_\_\_\_ THIS IS AN AMENDED CERTIFICATION

ARCOS INDUSTRIES, LLC  
 ONE ARCOS DRIVE  
 Mt. Carmel, PA 17851



DATE 01/08/04

**CERTIFICATION OF TESTS**

SOLD TO: MAJOR TOOL & MACHINE, INC.  
 1458 EAST 19TH STREET  
 INDIANAPOLIS, IN 46218

SHIP TO: SAME

ARCOS S.O.		CUSTOMER ORDER NO.		CONSIGNEE ORDER NO.		DATE SHIPPED			
79533		P03-05170		N/A		1/8/04			
ITEM	SIZE	GRADE		LOT NO./ALLOY NO.		QUANTITY			
1	3/32 X 36"	ARCOS 625		CB7996		20#			
SPECIFICATION: AWS A5.14/A5.14M-97. CLASS ERNiCrMo-3 ASME SFA 5.14 ASME SECTION II, PART C, 2001 EDITION, AND ALL PARAS AND ADDENDA THRU 2003.									
CHEMICAL ANALYSIS: WIRE									
C	Mn	Si	S	P	Cr	Ni	Mo	Cb	Cb + Ta
0.04	0.03	0.08	0.004	0.01	21.9	64.9	8.7		3.64
Ta	Ti	Al	Co	Cu	Fe	V	Total Others		
	0.21	0.16	0.02	0.12	0.2		<.50		

<b>ADDITIONAL TEST RESULTS</b>	<b>TENSILE</b>	<b>As Welded</b>	<b>Heat Treated</b>
Ferite - NB2433.1-1: _____	Yield	_____	_____
Magna Gage: _____	Tensile	_____	_____
X-Ray: _____	Elongation	_____	_____
Bends: _____	Red. of Area	_____	_____
Hardness: _____			

**OTHER INFORMATION:**

LOT CLASSIFICATION - S1  
 INTENSITY OF TESTING - Schedule F

THIS MATERIAL IS FREE FROM MERCURY, RADIUM OR ALPHA PARTICLE CONTAMINATION.

We hereby affirm that the reported results on this certification are correct and accurate. All test results and operations performed by Arcos or its subcontractors are in compliance with the applicable material/customer specification.

**ARCOS**

1-23-04  
 MTA  
 086

JAN 14 2004  
 88255  
 line 2

*Eileen Zerby*  
 Q.A. CLERK  
 QUALITY ASSURANCE DEPARTMENT

ARCOS INDUSTRIES, LLC  
 ONE ARCOS DRIVE  
 Mt. Carmel, PA 17851

MC095280



DATE 12/19/03

### CERTIFICATION OF TESTS

SOLD TO: MAJOR TOOL & MACHINE, INC.  
 1458 EAST 19TH STREET  
 INDIANAPOLIS, IN 46218

SHIP TO: SAME

ARCOS S.O.		CUSTOMER ORDER NO.		CONSIGNEE ORDER NO.		DATE SHIPPED	
79533		P03-05170		N/A		12/19/03	
ITEM	SIZE	GRADE		LOT NO./ALLOY NO.		QUANTITY	
2	3/32 X 36"	ALLOY 625		CV8061		10#	

**SPECIFICATION:** AWS A5.14/A5.14M-97. CLASS ERNiCrMo-3  
 ASME SFA 5.14 ASME SECTION II, PART C, 2001 EDITION,  
 AND ALL PARAS AND ADDENDA THRU 2003.

<b>CHEMICAL ANALYSIS:</b>									
WIRE									
C	Mn	Si	S	P	Cr	Ni	Mo	Cb	Cb + Ta
0.03	0.02	0.13	0.004	0.00	21.5	64.6	9.0		3.75
Ta	Ti	Al	Co	Cu	Fe	V	Total Others		
	0.29	0.24	0.02	0.11	0.2		<.50		

**ADDITIONAL TEST RESULTS**

Ferrite - NB2433.1-1: \_\_\_\_\_  
 Magna Gage: \_\_\_\_\_  
 X-Ray: \_\_\_\_\_  
 Bends: \_\_\_\_\_  
 Hardness: \_\_\_\_\_

<b>TENSILE</b>	<b>As Welded</b>	<b>Heat Treated</b>
Yield	_____	_____
Tensile	_____	_____
Elongation	_____	_____
Red.of Area	_____	_____

**OTHER INFORMATION:**

LOT CLASSIFICATION - S1  
 INTENSITY OF TESTING - Schedule F

THIS MATERIAL IS FREE FROM MERCURY, RADIUM OR ALPHA PARTICLE CONTAMINATION.

We hereby affirm that the reported results on this certification are correct and accurate. All test and results and operations performed by Arcos or its subcontractors are in compliance with the applicable material/customer specification.

**ARCOS**



DEC 23 2003

81946  
 line 2 B.T.

12/23/03

*[Signature]*

Q.A. MANAGER

QUALITY ASSURANCE DEPARTMENT



**ARCOS ALLOYS**  
 A Division of Hoskins Mfg.  
 Mt. Carmel, PA 17851



DATE 01/10/00

**CERTIFICATION OF TESTS**

SOLD TO: MAJOR TOOL & MACHINE  
 1458 EAST 19TH STREET  
 INDIANAPOLIS, IN 46216

SHIP TO: SAME

ARCOS S.O.		CUSTOMER ORDER NO.		CONSIGNEE ORDER NO.		DATE SHIPPED			
69824		P0000110		N/A		1/10/00			
ITEM	SIZE	GRADE		LOT NO./ALLOY NO.		QUANTITY			
1	3/32 X 36"	ARCOS 625		CT7519		20#			
<b>SPECIFICATION:</b> AWS A5.14/A5.14M-97. CLASS ERNiCrMo-3 ASME SFA 5.14 ASME SECTION II, PART C, 1998 EDITION, AND ALL PARAS AND ADDENDA THRU 1999.									
<b>CHEMICAL ANALYSIS: WIRE</b>									
C	Mn	Si	S	P	Cr	Ni	Mo	Cb	Cb + Ta
0.0	0.01	0.01	0.002	0.00	22.4	63.9	8.8		3.68
Ta	Ti	Al	Co	Cu	Fe	V	Total Others		
	0.35	0.28	0.04	0.05	0.4		<.50		

<b>ADDITIONAL TEST RESULTS</b>	<b>TENSILE</b>	<b>As Welded</b>	<b>Heat Treated</b>
Ferrite - NB2433.1-1: _____	Yield	_____	_____
Magna Gage: _____	Tensile	_____	_____
X-Ray: _____	Elongation	_____	_____
Bends: _____	Red. of Area	_____	_____
Hardness: _____			

**OTHER INFORMATION:**

LOT CLASSIFICATION - S1  
 INTENSITY OF TESTING - Schedule F

JAN 14 2000  
 39771  
 1-18-00  
 BP

**THIS MATERIAL IS FREE FROM MERCURY, RADIUM OR ALPHA PARTICLE CONTAMINATION.**

We hereby affirm that the reported results on this certification are correct and accurate. All test and results and operations performed by Arcos Alloys or its subcontractors are in compliance with the applicable material/customer specification.

**ARCOS**

*Eileen Zerby* Q.A. CLERK  
 QUALITY ASSURANCE DEPARTMENT

**ARCOS INDUSTRIES, LLC**  
**ONE ARCOS DRIVE**  
**Mt. Carmel, PA 17851**

MC094945



DATE 11/26/03

## CERTIFICATION OF TESTS

SOLD TO: MAJOR TOOL & MACHINE, INC.  
 1458 EAST 19TH STREET  
 INDIANAPOLIS, IN 46218

SHIP TO: SAME

ARCOS S.O.	CUSTOMER ORDER NO.	CONSIGNEE ORDER NO.	DATE SHIPPED
79388	P03-04749	N/A	11/26/03
ITEM	SIZE	GRADE	LOT NO./ALLOY NO.
2	3/32 X 36"	ALLOY 625	CV8061
			QUANTITY
			30#

**SPECIFICATION:** AWS A5.14/A5.14M-97. CLASS ERNiCrMo-3  
 ASME SFA 5.14 ASME SECTION II, PART C, 2001 EDITION,  
 AND ALL PARAS AND ADDENDA THRU 2002.

**CHEMICAL ANALYSIS: WIRE**

C	Mn	Si	S	P	Cr	Ni	Mo	Cb	Cb + Ta
0.03	0.02	0.13	0.004	0.00	21.5	64.6	9.0		3.75
Ta	Ti	Al	Co	Cu	Fe	V	Total Others		
	0.29	0.24	0.02	0.11	0.2		<.50		

**ADDITIONAL TEST RESULTS**

Ferrite - NB2433.1-1: \_\_\_\_\_

Magna Gage: \_\_\_\_\_

X-Ray: \_\_\_\_\_

Bends: \_\_\_\_\_

Hardness: \_\_\_\_\_

**TENSILE** As Welded Heat Treated

Yield \_\_\_\_\_

Tensile \_\_\_\_\_

Elongation \_\_\_\_\_

Red. of Area \_\_\_\_\_

**OTHER INFORMATION:**

LOT CLASSIFICATION - S1  
 INTENSITY OF TESTING - Schedule F

**THIS MATERIAL IS FREE FROM MERCURY, RADIUM OR ALPHA PARTICLE CONTAMINATION.**

We hereby affirm that the reported results on this certification are correct and accurate. All test and results and operations performed by Arcos or its subcontractors are in compliance with the applicable material/customer specification.

**ARCOS**



12/5/03

*Eileen Zerby*

Q.A. CLERK

**QUALITY ASSURANCE DEPARTMENT**

81506  
 Line 2 R.I.

**ARCOS ALLOYS**  
 A Division of Hoskins Mfg.  
 Mt. Carmel, PA 17851



DATE 01/10/00

**CERTIFICATION OF TESTS**

SOLD TO: MAJOR TOOL & MACHINE  
 1458 EAST 19TH STREET  
 INDIANAPOLIS, IN 46216

SHIP TO: SAME

ARCOS S.O.		CUSTOMER ORDER NO.		CONSIGNEE ORDER NO.		DATE SHIPPED			
69824		P0000110		N/A		1/10/00			
ITEM	SIZE	GRADE		LOT NO./ALLOY NO.		QUANTITY			
1	3/32 X 36"	ARCOS 625		CT7510		20#			
<b>SPECIFICATION:</b> AWS A5.14/A5.14M-97. CLASS ERNiCrMo-3 ASME SFA 5.14 ASME SECTION II, PART C, 1998 EDITION, AND ALL PARAS AND ADDENDA THRU 1999.									
<b>CHEMICAL ANALYSIS: WIRE</b>									
C	Mn	Si	S	P	Cr	Ni	Mo	Cb	Cb + Ta
0.0	0.01	0.01	0.002	0.00	22.4	63.9	8.8		3.68
Ta	Ti	Al	Co	Cu	Fe	V	Total Others		
	0.35	0.28	0.04	0.05	0.4		<.50		

**ADDITIONAL TEST RESULTS**

Ferrite - NB2433.1-1: \_\_\_\_\_

Magna Gage: \_\_\_\_\_

X-Ray: \_\_\_\_\_

Bends: \_\_\_\_\_

Hardness: \_\_\_\_\_

**TENSILE** As Welded Heat Treated

Yield \_\_\_\_\_

Tensile \_\_\_\_\_

Elongation \_\_\_\_\_

Red. of Area \_\_\_\_\_

**OTHER INFORMATION:**

LOT CLASSIFICATION - S1  
 INTENSITY OF TESTING - Schedule F

THIS MATERIAL IS FREE FROM MERCURY, RADIUM OR ALPHA PARTICLE CONTAMINATION.

We hereby affirm that the reported results on this certification are correct and accurate. All test and results and operations performed by Arcos Alloys or its subcontractors are in compliance with the applicable material/customer specification.

**ARCOS**



1-24-00

*Eileen Zerby* Q.A. CLERK  
 QUALITY ASSURANCE DEPARTMENT

BRANFORD WIRE & MFG  
 P O BOX 677  
 MOUNTAIN HOME, NC  
 PHONE 828-692-3791  
 FAX# 828-697-9818

NO 188 P 3

CERTIFICATE OF COMPLIANCE / TEST REPORT

4/06/05

BUYER HAYNES INTERNATIONAL  
 P O BOX 9013  
 1020 WEST PARK AVE  
 WOKOMO, IN  
 46904-9013

CUSTOMER P O NBR 1429  
 ORD/LN NBR: 028988/02  
 CUSTOMER PART NBR 326504200240000

27133

PROD DESC WELDING / METALLIZING WIRE  
 SIZE 093X36"

TYPE INC625  
 QTY LBS 772

SPECIFICATION  
 AWS A5.14-97/ERNICRMO-3

CHEMICAL ANALYSIS

HEAT NBR	C	MN	P	S	SI	NI	CR	MO	CU
K48859	10 019	0 030	< 005	0006	< 0 051	0 0120	22.10	3.6	0 020

Y	TA	TI	NB	AL	N	CO	FE	W	V	B
10 020	0 019	0 03	43	0 220	10 130	0 1	91			

MECHANICAL PROPERTIES


TENSILE (LBS/SQ INCH)	YIELD (LBS/SQ INCH)	ELONGATION (%)	HARDNESS	BREAKING (%)
	HARD			

WRAP TEST	UNIFORM TEST	MANDREL TEST	GRAIN SIZE	PERMEABILITY


OTHER TEST(S) AND/OR REQUIREMENTS

(MATERIAL IS FREE OF MERCURY CONTAMINATION)  
 THIS IS TO CERTIFY THAT MATERIAL SHIPPED COMPLIES WITH SPECIFICATION ON P 8

COUNTRY OF ORIGIN  
 GERMANY

BY REPRESENTATIVE  


DATE SIGNED  
 4/06/05

4/8/05  
 95358 Line 2 WA 

IF INITIALED AND DATED HERE THIS IS AN AMENDED CERTIFICATION

BRANFORD WIRE & MFG.  
 P. O. BOX 677  
 MOUNTAIN HOME, NC  
 PHONE: 828-692-5791  
 FAX#: 828-697-9818

CERTIFICATE OF COMPLIANCE / TEST REPORT

3/21/05

BUYER: HAYNES INTERNATIONAL  
 P. O. BOX 9013  
 1020 WEST PARK AVE.  
 KOKOMO, IN  
 46904-9013

CUSTOMER P. O. NBR: 1423  
 ORD/LN NBR: 025982/02  
 CUSTOMER PART NBR: 326506200240000

27038

PROD. DESC: WELDING / METALLIZING WIRE  
 SIZE: .093X36"

TYPE: INC625  
 QTY LBS: 550

SPECIFICATION  
 AWSA5.14-97/ERNICRMO-3

CHEMICAL ANALYSIS

HEAT NBR.	C	MN	P	S	SI	NI	CR	MO	CU
K48859	10.019	10.030	0.0051	0.00061	0.05165	0.00120	0.82108	0.3610	0.0201

Y	TA	TI	NB	AL	N	CO	FE	W	V	B
10.020	0.019	0.03	0.43	0.2201		10.130	0.91			

MECHANICAL PROPERTIES

TENSILE LBS/SQ. INCH	YIELD LBS/SQ. INCH	ELONGATION %	HARDNESS	BREAK %
	1/4HRD			

WRAP TEST	UNIFORM TEST	MANDREL TEST	GRAIN SIZE	PERMEABILITY

MAY 24 2005  
 96405 Line 3 B1

OTHER TEST(S) AND/OR REQUIREMENTS:

(MATERIAL IS FREE OF MERCURY CONTAMINATION)  
 THIS IS TO CERTIFY THAT MATERIAL SHIPPED COMPLIES WITH SPECIFICATION ON P. O.

COUNTRY OF ORIGIN GERMANY	Q. REPRESENTATIVE <i>Dayle Chang</i>	DATE SIGNED 3/21/05
------------------------------	---	------------------------

IF INITIALED AND DATED HERE



## CERTIFICATION ACCORDING TO ASME SECT II PART C

COP ORDER #: 076432                      Bohler Thyssen Welding USA Inc  
 10401 Greenbough Drive  
 FAX CERTS TO #                              Stafford, TX 77477

PRODUCTION DESCRIPTION : ER316LT                      DIAMETER : 1/16X36  
 AWS/ASME SPECIFICATION : A/SFA5.9                      WEIGHT : 300 LBS  
 AWS/ASME CLASSIFICATION: ER316L                      HEAT/LOT 95316

## \*ACTUAL CHEMICAL ANALYSIS\*

C 0.018	Si 0.36	Mn 1.61	P 0.008
S 0.009	Cr 18.35	Mo 2.52	Ni 12.08
Cu 0.10			

## \*\* MECHANICAL PROPERTIES

YIELD STRENGTH :                              ELONGATION : 35  
 0.2 %  
 PSI (N/mm<sup>2</sup>)    %

TENSILE STRENGTH : 81,000                              HARDNESS :

PSI (N/mm<sup>2</sup>)

IMPACT-VALUE : 35  
 (ISO-V) TEST TEMPERATURE : 68 F (20 C)  
 FT-LBS (J)

## REMARKS

FERRITE CONTENT :                              ACCORDING TO :

\* SFA 5.01 SCHEDULE H  
 \*\* SFA 5.01 SCHEDULE G

*hand fresh*

Q & A Department

Jul 30, 2002

Bohler Thyssen Welding USA, Inc.  
 PO Box 721478, Houston, Texas 77272-1478  
 10401 Greenbough Drive Stafford Texas 77477

Tel (281) 499-1212 • Internet www.bowusa.com  
 Fax (281) 499-4347 • e-mail custserv@bowusa.com  
 (800) 527-0791



*8-13-02*

*AUG 02 2002*

*70715 w*



**Non-conformance: 17953**

Occurred: 08/15/05 Identified By: 581-D.EDWARDS  
Reported: 08/18/05 By: 581-D.EDWARDS  
Part: SE120-003 /  
Drawing ID: SE120-004 Rev 2  
Vendor:

Customer: PRINCETON PLASMA PHYSICS LAB  
Serial Number:  
Links: 1-Type:W: 65678/1.0 Sub: 220 Op: 10  
Problem: X RAY FAILURE ON WELDS; (HALF A)  
3-2, VIEW 0-1, POROSITY & LACK OF FUSION  
9-5, VIEW 0-1, POROSITY & LACK OF FUSION  
9-5, VIEW 1-2, POROSITY & LACK OF FUSION  
17-T, VIEW 0-1, LACK OF FUSION

**Where Detecte 716-X-RAY**

N/C Type: 3-NDT FAILURE

**Defect: 151-WELD DEFECT**

Target Dim: Max Dev:  
Reference:  
Document:

Last Edited: 08/29/05 By: 991-S.MACEY

**Disposition: 901-COMPLETE/REWORK**

Due: 08/19/05 By: 775-D.MCCORKLE  
Completed: 08/24/05 By: 775-D.MCCORKLE  
Approval Due: 08/25/05 By: 927-M.MANUEL  
Approved: 08/25/05 By: 927-M.MANUEL / Cft Leader  
Inspected: 08/19/05 By: 522-R.DURHAM

Submitted Doc:  
Act OK Due: 08/29/05 By: 775-D.MCCORKLE  
  
Rework: 1-Type:W Base:65678 Lot:1 Split:0 Sub: 220 Op: 40  
  
Instructions: REWORK LEG PROVIDED  
Last Edited: 08/25/05 By: 927-M.MANUEL

**Documents:**

Last Edited: By:

**Closure:**

Completed: 08/31/05 By: 596-D.KNAUB

Comments:  
Last Edited: 08/31/05 By: 596-D.KNAUB

<b>Workorder</b> 65678/1.0	<b>Part ID</b> SE120-002-PPPL NCSX VVSA	<b>Qty</b> 1	<b>Drawing ID / Rev</b> /	<b>Engineer</b> SILVER/DOUG MCCORKLE
VVSA 120 DEGREE VESSEL				

<b>Sub ID</b> 220	<b>Part ID</b> REWORK-REWORK / REPAIR PER N/C	<b>Qty</b> 1	<b>Drawing ID / Rev</b> /	Parent Sub:6 Op:400
----------------------	--	-----------------	------------------------------	---------------------

Operation	Resource	QtyPer	StartQty	EndQty	Drawing ID / Rev
Sub: 220 / Seq: 10 (Closed)	818-MQS CONTRACTOR X-RAY RADIOGRAPHIC INSPECT (X-RAY REMAING WELDS) (DOUBLE LOAD FILM) PER THE FOLLOWING: PORT AREAS ARE NOT REQUIRED TO BE X-RAYED. Part Number: SE120-003 60D SUB-ASSY Part Description: 60 DEGREE SUB-ASSY Specification: PS481 Rev: D Specification: PS483 Rev: H Material Type: INCONEL 625 Material Thickness: 3/8" Specification: 20.A.100 Rev: 2 Specification: ASME SECT V, ARTICLE 2 Specification: ASME SECT VIII,DIV 1,UW-51 Map(s): X-RAY MAP Rev:	1.00	1.00	1.00	SE120-004 / 2

Operation	Resource	QtyPer	StartQty	EndQty	Drawing ID / Rev
Sub: 220 / Seq: 20 (Closed)	230-FAB MEDIUM SOUTH 60D FABRICATION OPERATION  REPAIR WELDS AND VISUAL INSPECT. RE-ATTACH (FREE STATE) FOR INSPECTION NOTIFY Q/A FOR PROFILE, MAGNETIC PERMEABILITY, AND MATERIAL THICKNESS VERIFICATION. ASSIST Q/A WITH PROFILE VERIFICATION AS REQUIRED.  Part Number: SE120-003 60D SUB-ASSY Part Description: 60 DEGREE SUB-ASSY Specification: PS480 Rev: D Specification: PS482 Rev: C Specification: PS483 Rev: H Specification: PS484 Rev: D Specification: PS485 Rev: E Specification: PS491 Rev: D	1.00	1.00	1.00	SE120-004 / 2

Operation	Resource	QtyPer	StartQty	EndQty	Drawing ID / Rev
Sub: 220 / Seq: 30 (Closed)	818-MQS CONTRACTOR X-RAY RADIOGRAPHIC INSPECT (REPAIRED AREAS) (DOUBLE LOAD FILM) PER THE FOLLOWING:  Part Number: SE120-003 60D SUB-ASSY Part Description: 60 DEGREE SUB-ASSY Specification: PS481 Rev: D Specification: PS483 Rev: H	1.00	1.00	1.00	SE120-004 / 2





Manufacturing Routing Report

<b>Workorder</b> 65678/1.0	<b>Part ID</b> SE120-002-PPPL NCSX VVSA	<b>Qty</b> 1	<b>Drawing ID / Rev</b> /	<b>Engineer</b> SILVER/DOUG MCCORKLE
-------------------------------	--	-----------------	------------------------------	---

Material Type: INCONEL 625  
 Material Thickness: 3/8"  
 Specification: 20.A.100 Rev: 2  
 Specification: ASME SECT V, ARTICLE 2  
 Specification: ASME SECT VIII, DIV 1, UW-51  
 Map(s): X-RAY MAP Rev:  
 Map(s): X-RAY MAP Rev:

Operation	Resource	QtyPer	StartQty	EndQty	Drawing ID / Rev
Sub: 220 / Seq: 40 (Closed)	817-LASER FINAL 60 D PROFILE VERIFICATION SCAN THE ENTIRE PROFILE ON APPROXIMATE 1" RESOLUTION RECORD ACTUAL (HIGH/LOW RANGE) ON MTM IDC VERIFY PLANNED TRIM LINES ARE ACCURATE ACCORDING TO BEST FIT GEOMETRY ALIGNMENT. VERIFY AND RECORD ALL FIDUCIAL COORDINATES (IDCS WILL BE PROVIDED TO RECORD COORDINATES ONCE THE QUANTITY AND NUMBERING SCHEME ARE DEVELOPED (CO-DEVELOPED BETWEEN ENGINEERING / FAB AND QUALITY ASSURANCE). AUDIT INSPECT AND RECORD THE MAGNETIC PERMEABILITY AND MATERIAL THICKNESS (APPROXIMATELY 25% NEAR WELDS, AND APPROXIMATELY 10% WITHIN THE REMAINDER OF THE PANEL SURFACE AREA). RECORD IDC DATA	1.00	1.00	1.00	SE120-004 / 2
	Part Number: SE120-003 60D SUB-ASSY Part Description: 60 DEGREE SUB-ASSY Specification: PS482 Rev: C Specification: PS483 Rev: H Specification: PS484 Rev: D Specification: PS485 Rev: E				

**Non-conformance: 17954**

Occurred: 08/18/05 Identified By: 581-D.EDWARDS  
Reported: 08/18/05 By: 581-D.EDWARDS  
Part: SE120-003 /  
Drawing ID: SE120-004 Rev 2  
Vendor:

Customer: PRINCETON PLASMA PHYSICS LAB  
Serial Number:  
Links: 1-Type:W: 65678/1.0 Sub: 220 Op: 30  
Problem: X RAY FAILURE ON WELDS; (HALF A)  
9-5, VIEW 1-2, POROSITY & LACK OF FUSION  
5, VIEW 0-14, POROSITY & LACK OF FUSION

**Where Detecte 716-X-RAY**

N/C Type: 1-STANDARD

**Defect: 151-WELD DEFECT**

Target Dim: Max Dev:  
Reference:  
Document:

Last Edited: 09/22/05 By: 596-D.KNAUB

**Disposition: 901-COMPLETE/REWORK**

Submitted Doc:  
Act OK Due: 08/29/05 By: 775-D.MCCORKLE

Due: 08/19/05 By: 775-D.MCCORKLE  
Completed: 08/24/05 By: 775-D.MCCORKLE  
Approval Due: 08/25/05 By: 927-M.MANUEL  
Approved: 08/25/05 By: 927-M.MANUEL / Cft Leader  
Inspected: 08/19/05 By: 522-R.DURHAM

Rework: 1-Type:W Base:65678 Lot:1 Split:0 Sub: 220 Op: 40

Instructions: REWORK LEG PROVIDED  
Last Edited: 09/22/05 By: 927-M.MANUEL

**Root Cause / Corrective Action**

Due: 09/29/05 By: 890-M.VISLAY  
Completed: 10/18/05 By: 791-D.WEIDNER

**Root Cause 1: 819-PROCESS DEVELOPMENT**

Resource: 230-FAB MEDIUM SOUTH  
Equipment: MILLER DYNASTY DX (TIG WELDER)  
Employee: 791-D.WEIDNER

Approval Due: 10/19/05 By: 771-B.SCHULTZ  
Approved: 10/18/05 By: 791-D.WEIDNER

Description: THE PROCESS WAS UNDER DEVELOPMENT TO REDUCE DISTORTION AND CONTROL DIMENSIONS WITH NARROW WELD PREPS AND MINIMUM NUMBER OF WELD PASSES.

WITH THE ABOVE IN CONJUNCTION WITH HARD TO REACH AREAS AROUND FIXTURING LED TO THE SMALL AREAS OF LACK OF FUSION.

POROSITY SEEM TO BE A RESULT OF PARTICULANTS IN THE AIR CONTAMINATING THE WELDS.

**Corr Actn: 1:**

Correction Due 10/25/05 By: 791-D.WEIDNER  
Action: 10/18/05 By: 791-D.WEIDNER  
Completed: 10/18/05

Description: CORRECTION HAS BEEN MADE AFTER THE FIRST PART HAD BEEN X-RAYED. SINCE THEN WE HAVE HAD NO MORE WELD FAILURES IN THE OTHER PCS OF THE 3 X 60 DEGREE VESSELS IN MED FAB SOUTH

ALL FAB EMPLOYEES IN AREA JOINED TOGETHER IN DISCUSSION, INFORMED THEM OF OUR X-RAY ISSUES AND WHAT WE CAN DO TO REDUCE THIS PROBLEM. ALL WERE INFORMED AS TO WHEN TO OR NOT TO RUN ADDITIONAL PASSES IN AREAS WHERE ACCESS IS RESTRICTED. PRIOR TO WELDING, PRE-CLEANING THE PREVIOUS PASS DUE TO PARTICULANTS IN THE AIR FROM PANEL POLISHING. MTM HAS INCREASED THE MAINTENANCE CYCLE OF THE AIR HANDLERS FILTERS WHICH HAS LED TO A SIGNIFICANT REDUCTION IN POROSITY.

Verify Due: 10/25/05 By: 890-M.VISLAY  
Completed: 10/18/05 By: 890-M.VISLAY

Verify Notes: The above actions have taken place.



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RC Last Edited 10/18/05 By: 791-D.WEIDNER  
CA Last Edited By:

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**Documents:**

Last Edited: By:

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**Closure:**

Completed: 10/23/05 By: 596-D.KNAUB

Comments:

Last Edited: 10/23/05 By: 596-D.KNAUB

<b>Workorder</b> 65678/1.0	<b>Part ID</b> SE120-002-PPPL NCSX VVSA	<b>Qty</b> 1	<b>Drawing ID / Rev</b> /	<b>Engineer</b> SILVER/DOUG MCCORKLE
VVSA 120 DEGREE VESSEL				

<b>Sub ID</b> 220	<b>Part ID</b> REWORK-REWORK / REPAIR PER N/C	<b>Qty</b> 1	<b>Drawing ID / Rev</b> /	Parent Sub:6 Op:400
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Operation	Resource	QtyPer	StartQty	EndQty	Drawing ID / Rev
Sub: 220 / Seq: 10 (Closed)	818-MQS CONTRACTOR X-RAY RADIOGRAPHIC INSPECT (X-RAY REMAING WELDS) (DOUBLE LOAD FILM) PER THE FOLLOWING: PORT AREAS ARE NOT REQUIRED TO BE X-RAYED. Part Number: SE120-003 60D SUB-ASSY Part Description: 60 DEGREE SUB-ASSY Specification: PS481 Rev: D Specification: PS483 Rev: H Material Type: INCONEL 625 Material Thickness: 3/8" Specification: 20.A.100 Rev: 2 Specification: ASME SECT V, ARTICLE 2 Specification: ASME SECT VIII,DIV 1,UW-51 Map(s): X-RAY MAP Rev:	1.00	1.00	1.00	SE120-004 / 2

Operation	Resource	QtyPer	StartQty	EndQty	Drawing ID / Rev
Sub: 220 / Seq: 20 (Closed)	230-FAB MEDIUM SOUTH 60D FABRICATION OPERATION  REPAIR WELDS AND VISUAL INSPECT. RE-ATTACH (FREE STATE) FOR INSPECTION NOTIFY Q/A FOR PROFILE, MAGNETIC PERMEABILITY, AND MATERIAL THICKNESS VERIFICATION. ASSIST Q/A WITH PROFILE VERIFICATION AS REQUIRED.  Part Number: SE120-003 60D SUB-ASSY Part Description: 60 DEGREE SUB-ASSY Specification: PS480 Rev: D Specification: PS482 Rev: C Specification: PS483 Rev: H Specification: PS484 Rev: D Specification: PS485 Rev: E Specification: PS491 Rev: D	1.00	1.00	1.00	SE120-004 / 2

Operation	Resource	QtyPer	StartQty	EndQty	Drawing ID / Rev
Sub: 220 / Seq: 30 (Closed)	818-MQS CONTRACTOR X-RAY RADIOGRAPHIC INSPECT (REPAIRED AREAS) (DOUBLE LOAD FILM) PER THE FOLLOWING:  Part Number: SE120-003 60D SUB-ASSY Part Description: 60 DEGREE SUB-ASSY Specification: PS481 Rev: D Specification: PS483 Rev: H	1.00	1.00	1.00	SE120-004 / 2

<b>Workorder</b> 65678/1.0	<b>Part ID</b> SE120-002-PPPL NCSX VVSA	<b>Qty</b> 1	<b>Drawing ID / Rev</b> /	<b>Engineer</b> SILVER/DOUG MCCORKLE
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Material Type: INCONEL 625  
 Material Thickness: 3/8"  
 Specification: 20.A.100 Rev: 2  
 Specification: ASME SECT V, ARTICLE 2  
 Specification: ASME SECT VIII, DIV 1, UW-51  
 Map(s): X-RAY MAP Rev:  
 Map(s): X-RAY MAP Rev:

Operation	Resource	QtyPer	StartQty	EndQty	Drawing ID / Rev
Sub: 220 / Seq: 40 (Closed)	817-LASER FINAL 60 D PROFILE VERIFICATION SCAN THE ENTIRE PROFILE ON APPROXIMATE 1" RESOLUTION RECORD ACTUAL (HIGH/LOW RANGE) ON MTM IDC VERIFY PLANNED TRIM LINES ARE ACCURATE ACCORDING TO BEST FIT GEOMETRY ALIGNMENT. VERIFY AND RECORD ALL FIDUCIAL COORDINATES (IDCS WILL BE PROVIDED TO RECORD COORDINATES ONCE THE QUANTITY AND NUMBERING SCHEME ARE DEVELOPED (CO-DEVELOPED BETWEEN ENGINEERING / FAB AND QUALITY ASSURANCE). AUDIT INSPECT AND RECORD THE MAGNETIC PERMEABILITY AND MATERIAL THICKNESS (APPROXIMATELY 25% NEAR WELDS, AND APPROXIMATELY 10% WITHIN THE REMAINDER OF THE PANEL SURFACE AREA). RECORD IDC DATA	1.00	1.00	1.00	SE120-004 / 2
	Part Number: SE120-003 60D SUB-ASSY Part Description: 60 DEGREE SUB-ASSY Specification: PS482 Rev: C Specification: PS483 Rev: H Specification: PS484 Rev: D Specification: PS485 Rev: E				

**Non-conformance: 17925**

Occurred: 08/14/05 Identified By: 581-D.EDWARDS

Reported: 08/14/05 By: 581-D.EDWARDS

Part: SE120-003 30L HALF A /

Drawing ID: SE120-004

Rev 2

Vendor:

Customer: PRINCETON PLASMA PHYSICS LAB

Serial Number:

Links: 1-Type:W: 65678/1.0 Sub: 6 Op: 400

Problem: X RAY FAILURE ON WELDS;

W-3, VIEW 0-14, POROSITY &amp; LACK OF FUSION

W-5, VIEW 0-14, POROSITY, CRACK &amp; LACK OF FUSION

W-7, VIEW 0-14, POROSITY &amp; LACK OF FUSION

W-13, VIEW 0-14, POROSITY &amp; LACK OF FUSION

W-17, VIEW 0-14, POROSITY &amp; LACK OF FUSION

**Where Detected 716-X-RAY**

N/C Type: 3-NDT FAILURE

**Defect: 151-WELD DEFECT**

Target Dim:

Max Dev:

Reference:

Document:

Last Edited: 08/29/05 By: 991-S.MACEY

**Disposition: 901-COMPLETE/REWORK**

Due: 08/15/05 By: 775-D.MCCORKLE

Submitted Doc:

Completed: 08/24/05 By: 775-D.MCCORKLE

Act OK Due: 08/29/05 By: 775-D.MCCORKLE

Approval Due: 08/25/05 By: 927-M.MANUEL

Approved: 08/25/05 By: 927-M.MANUEL / Cft Leader

Rework: 1-Type:W Base:65678 Lot:1 Split:0 Sub: 220 Op: 40

Inspected: 08/19/05 By: 522-R.DURHAM

Instructions: REWORK LEG PROVIDED

Last Edited: 08/25/05 By: 927-M.MANUEL

**Documents:**

Last Edited: By:

**Closure:**

Completed: 08/31/05 By: 596-D.KNAUB

Comments:

Last Edited: 08/31/05 By: 596-D.KNAUB

<b>Workorder</b> 65678/1.0	<b>Part ID</b> SE120-002-PPPL NCSX VVSA	<b>Qty</b> 1	<b>Drawing ID / Rev</b> /	<b>Engineer</b> SILVER/DOUG MCCORKLE
VVSA 120 DEGREE VESSEL				

<b>Sub ID</b> 220	<b>Part ID</b> REWORK-REWORK / REPAIR PER N/C	<b>Qty</b> 1	<b>Drawing ID / Rev</b> /	
Parent Sub:6 Op:400				

Operation	Resource	QtyPer	StartQty	EndQty	Drawing ID / Rev
Sub: 220 / Seq: 10 (Closed)	818-MQS CONTRACTOR X-RAY RADIOGRAPHIC INSPECT (X-RAY REMAING WELDS) (DOUBLE LOAD FILM) PER THE FOLLOWING: PORT AREAS ARE NOT REQUIRED TO BE X-RAYED. Part Number: SE120-003 60D SUB-ASSY Part Description: 60 DEGREE SUB-ASSY Specification: PS481 Rev: D Specification: PS483 Rev: H Material Type: INCONEL 625 Material Thickness: 3/8" Specification: 20.A.100 Rev: 2 Specification: ASME SECT V, ARTICLE 2 Specification: ASME SECT VIII,DIV 1,UW-51 Map(s): X-RAY MAP Rev:	1.00	1.00	1.00	SE120-004 / 2

Operation	Resource	QtyPer	StartQty	EndQty	Drawing ID / Rev
Sub: 220 / Seq: 20 (Closed)	230-FAB MEDIUM SOUTH 60D FABRICATION OPERATION  REPAIR WELDS AND VISUAL INSPECT. RE-ATTACH (FREE STATE) FOR INSPECTION NOTIFY Q/A FOR PROFILE, MAGNETIC PERMEABILITY, AND MATERIAL THICKNESS VERIFICATION. ASSIST Q/A WITH PROFILE VERIFICATION AS REQUIRED.  Part Number: SE120-003 60D SUB-ASSY Part Description: 60 DEGREE SUB-ASSY Specification: PS480 Rev: D Specification: PS482 Rev: C Specification: PS483 Rev: H Specification: PS484 Rev: D Specification: PS485 Rev: E Specification: PS491 Rev: D	1.00	1.00	1.00	SE120-004 / 2

Operation	Resource	QtyPer	StartQty	EndQty	Drawing ID / Rev
Sub: 220 / Seq: 30 (Closed)	818-MQS CONTRACTOR X-RAY RADIOGRAPHIC INSPECT (REPAIRED AREAS) (DOUBLE LOAD FILM) PER THE FOLLOWING:  Part Number: SE120-003 60D SUB-ASSY Part Description: 60 DEGREE SUB-ASSY Specification: PS481 Rev: D Specification: PS483 Rev: H	1.00	1.00	1.00	SE120-004 / 2

<b>Workorder</b> 65678/1.0	<b>Part ID</b> SE120-002-PPPL NCSX VVSA	<b>Qty</b> 1	<b>Drawing ID / Rev</b> /	<b>Engineer</b> SILVER/DOUG MCCORKLE
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Material Type: INCONEL 625  
 Material Thickness: 3/8"  
 Specification: 20.A.100 Rev: 2  
 Specification: ASME SECT V, ARTICLE 2  
 Specification: ASME SECT VIII, DIV 1, UW-51  
 Map(s): X-RAY MAP Rev:  
 Map(s): X-RAY MAP Rev:

Operation	Resource	QtyPer	StartQty	EndQty	Drawing ID / Rev
Sub: 220 / Seq: 40 (Closed)	817-LASER FINAL 60 D PROFILE VERIFICATION SCAN THE ENTIRE PROFILE ON APPROXIMATE 1" RESOLUTION RECORD ACTUAL (HIGH/LOW RANGE) ON MTM IDC VERIFY PLANNED TRIM LINES ARE ACCURATE ACCORDING TO BEST FIT GEOMETRY ALIGNMENT. VERIFY AND RECORD ALL FIDUCIAL COORDINATES (IDCS WILL BE PROVIDED TO RECORD COORDINATES ONCE THE QUANTITY AND NUMBERING SCHEME ARE DEVELOPED (CO-DEVELOPED BETWEEN ENGINEERING / FAB AND QUALITY ASSURANCE). AUDIT INSPECT AND RECORD THE MAGNETIC PERMEABILITY AND MATERIAL THICKNESS (APPROXIMATELY 25% NEAR WELDS, AND APPROXIMATELY 10% WITHIN THE REMAINDER OF THE PANEL SURFACE AREA). RECORD IDC DATA  Part Number: SE120-003 60D SUB-ASSY Part Description: 60 DEGREE SUB-ASSY Specification: PS482 Rev: C Specification: PS483 Rev: H Specification: PS484 Rev: D Specification: PS485 Rev: E	1.00	1.00	1.00	SE120-004 / 2



**Non-conformance: 19391**

Customer: PRINCETON PLASMA PHYSICS LAB  
Serial Number:  
Links: 1-Type:W: 65678/1.0 Sub: 2 Op: 60  
Problem: The .637 +/- .005 dimension varies around part over and undersized, .480-.9

Occurred: 03/09/06 Identified By: 168-R.BACK  
Reported: 03/10/06 By: 168-R.BACK  
Part: /  
Drawing ID: SE120-004 Rev 2  
Vendor:

**Where Detected** 711-DURING MANUFACTURING PROCES  
N/C Type: 1-STANDARD

**Defect:** 127-LINEAR DIMENSION  
Target Dim: 0.6370 Max Dev:0.0050  
Reference:  
Document:

Last Edited: 03/10/06 By: 168-R.BACK

**Disposition:** 913-CUSTOMER - REPAIR  
Submitted Doc: 19391  
Act OK Due: 04/10/06 By: 709-K.APPLEBY

Due: 04/06/06 By: 775-D.MCCORKLE  
Completed: 04/21/06 By: 775-D.MCCORKLE  
Approval Due: 03/13/06 By: 927-M.MANUEL  
Approved: 04/24/06 By: 927-M.MANUEL / Cft Leader

Rework:

Inspected: 05/01/06 By: 709-K.APPLEBY

Instructions: REFERENCE DRAWING SE121-013 ZONE G4.  
REPAIR PER PPPL DISPOSITION (ATTACHED)  
ALTER SEAL TO FIT AGAINST THE VESSEL WALL AND GRIND THE SEAL BACK TO ENSURE THE  
.637 FACE HAS SOLID MATERIAL AT LEAST 0.620".

Last Edited: 05/01/06 By: 709-K.APPLEBY

**Root Cause / Corrective Action**

Due: 03/17/06 By: 775-D.MCCORKLE  
Completed: 04/06/06 By: 927-M.MANUEL

**Root Cause 1: 802-MANAGEMENT DECISION**

Resource: 715-SILVER TEAM, ENGINEERING  
Equipment:  
Employee: 775-D.MCCORKLE

Approval Due: 04/07/06 By: 927-M.MANUEL  
Approved: 04/06/06 By: 927-M.MANUEL

Description: MTM misinterpreted the importance of this dimension. When the vessel was on the machine with dimensional concerns regarding the profile of the flange, it was decided to continue to cut the groove (which establishes the .637 dimension) on location allowing the .637 dimension to vary larger and smaller. This decision was based on previous knowledge gained by other unolancered three place decimals not really requiring the small tolerance provided in the drawing block, and knowing the 3D model geometry varied more than the drawing tolerance. MTM did not know about the weld penetration requirement that PPPL would be faced with during field installation.

**Corr Actn: 1:**

Correction Due 04/13/06 By: 775-D.MCCORKLE  
Action: 04/06/06 By: 775-D.MCCORKLE  
Completed: 04/06/06

Description: The condition will be corrected by grinding and welding the adjoining seal weld to ensure sound material at least 0.62" deep where the face is smaller. Where the face is larger, the seal will be modified to fit accordingly to provide the required weld. PPPL (Mike Viola) is visiting MTM to personally review the vessel flange / wall condition on the second VVSA.

Verify Due: 04/13/06 By: 927-M.MANUEL  
Completed: 04/06/06 By: 927-M.MANUEL

Verify Notes: Mike V will be here 4/6/06

RC Last Edited 04/06/06 By: 927-M.MANUEL  
CA Last Edited By:

**Documents:** 1)

Last Edited: 05/03/06 By: 775-D.MCCORKLE



**Closure:**

Completed: 05/07/06 By: 596-D.KNAUB

Comments:

Last Edited: 05/07/06 By: 596-D.KNAUB

Customer: PRINCETON PLASMA PHYSICS LAB

Contact: LARRY SUTTON

E-Mail: S-04286-F

Telephone: 609-243-2441

Fax: 609-243-2021

Part: /

Drawing ID: SE120-004

Revision: 2

Links: 1-Type:W: 65678/1.0 Sub: 2 Op: 60

Customer P.O.: S005243-F/Ln:1

Serial No./Qty:

Reported By: DOUG MCCORKLE

E-Mail: dMcCorkle@MajorTool.com

Telephone: 317-636-6433

Fax: 317-634-9420

Problem: The .637 +/- .005 dimension varies around part over and undersized, .480-.9

Proposed Disposition:

REFERENCE DRAWING SE121-013 ZONE G4.

REPAIR PER PPPL DISPOSITION (ATTACHED)

Number of additional pages: \_\_\_\_\_

Customer Disposition:   | | Use As Is   | | Rework   [x] Repair   | | Scrap   | | Replace

Repair per corrective action #1 listed below.  
On completion of corrective action notify PPPL by signing below and return

PPPL PTR Approval:

Mike Viola

Digitally signed by Mike Viola  
DN: cn=Mike Viola, c=US  
Reason: I am approving this document  
Date: 2006.04.11 09:47:47 -04'00'

Title: \_\_\_\_\_

Date: \_\_\_\_\_

RLM Approval:

Brad Nelson

Digitally signed by Brad Nelson  
DN: cn=Brad Nelson, c=US, o=ORNL, c=FEED,  
email=brn@ornl.gov,  
Date: 2006.04.11 09:47:47 -04'00'

Title: \_\_\_\_\_

Date: \_\_\_\_\_

Major Tool Implemented By: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_

Root Cause 1: 802-MANAGEMENT DECISION

Resource: SILVER TEAM, ENGINEERING

Equipment:

Description: MTM misinterpreted the importance of this dimension. When the vessel was on the machine with dimensional concerns regarding the profile of the flange, it was decided to continue to cut the groove (which establishes the .637 dimension) on location allowing the .637 dimension to vary larger and smaller. This decision was based on previous knowledge gained by other untoleranced three place decimals not really requiring the small tolerance provided in the drawing block, and knowing the 3D model geometry varied more than the drawing tolerance. MTM did not know about the weld penetration requirement that PPPL would be faced with during field installation.

Corr Actn: 1:

Action: 04/06/06 By: 775-D.MCCORKLE

Description: The condition will be corrected by grinding and welding the adjoining seal weld to ensure sound material at least 0.62" deep where the face is smaller. Where the face is larger, the seal will be modified to fit accordingly to provide the required weld. PPPL (Mike Viola) is visiting MTM to personally review the vessel flange / wall condition on the second VVSA.

Verify Notes: Mike V will be here 4/6/06

Nonconformance Report: Major Tool NC19391

This is for REFERENCE DRAWING SE121-013 ZONE G4.

Problem:

The .637 +/-0.005 dimension varies around part over and undersized, .480-.9

Doug McCorkle

Project Disposition:

Undersize condition rejected – Flange seal groove cannot be less than .62 -.005" per model. For the undersize condition, ID of seal must be ground back and seal groove filled or additional material added to flange ID to restore the .62" dimension. Oversize condition (0.9") may be tolerated if acceptable corrective action allows seal to be welded to flange." Please propose corrective actions for both conditions for approval.

Approvals:

Mike Viola

Digitally signed by Mike Viola  
DN: cn=Mike Viola, c=US  
Reason: I am approving this document  
Date: 2006.04.05 14:38:57 -04'00'

---

Procurement Technical Representative

Brad Nelson

Digitally signed by Brad Nelson  
DN: cn=Brad Nelson, c=US,  
o=ORNL, ou=FED,  
email=nelsonbe@ornl.gov  
Date: 2006.04.05 17:48:33 -04'00'

---

Responsible Line Manager:

F. Malinowski

Digitally signed by F. Malinowski  
DN: CN = F. Malinowski, C = US, O  
= PPPL, OU = OA  
Reason: I have reviewed this document  
Date: 2006.04.05 22:13:29 -04'00'

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Project Quality Assurance:

Major Tool & Machine, Inc.  
1458 East 19th Street  
Indianapolis, IN 46218-4289

MTM N/C: 19391

Page: 1  
Date: 03/10/06  
User ID: MCCORKLE

Customer: PRINCETON PLASMA PHYSICS LAB  
Contact: LARRY SUTTON  
E-Mail: S-04286-F

Telephone: 609-243-2441  
Fax: 609-243-2021

Part: /  
Drawing ID: SE120-004                      Revision: 2

Customer P.O.: S005243-F/Ln:1  
Serial No./Qty:

Reported By: DOUG MCCORKLE  
E-Mail: dMcCorkle@MajorTool.com

Telephone: 317-636-6433  
Fax: 317-634-9420

Problem: The .637 +/- .005 dimension varies around part over and undersized, .480-.9

**Proposed Disposition:**

SUBMITTING TO PPPL.  
REFERENCE DRAWING SE121-013 ZONE G4.

Number of additional pages: \_\_\_\_\_

Customer Disposition:     Use As Is     Rework     Repair     Scrap     Replace

Technical Contact Approval: \_\_\_\_\_

Title: \_\_\_\_\_ Date: \_\_\_\_\_

Buyer Approval: \_\_\_\_\_

Title: \_\_\_\_\_ Date: \_\_\_\_\_

Major Tool Implemented By: DOUG MCCORKLE

Title: PROJECT ENG. Date: 03 May 2006



**Non-conformance: 19392**

Customer: PRINCETON PLASMA PHYSICS LAB  
Serial Number:  
Links: 1-Type:W: 65678/1.0 Sub: 2 Op: 60  
Problem: The .469 +/- .005 dimension varies around part over and undersized, .240-.432

**Where Detected 711-DURING MANUFACTURING PROCES**  
N/C Type: 1-STANDARD

Last Edited: 03/10/06 By: 168-R.BACK

Occurred: 03/10/06 Identified By: 168-R.BACK  
Reported: 03/10/06 By: 168-R.BACK  
Part: /

Drawing ID: SE120-004 Rev 2  
Vendor:

**Defect: 127-LINEAR DIMENSION**  
Target Dim: 0.6370 Max Dev:0.0050  
Reference:  
Document:

**Disposition: 911-CUSTOMER - COMPLETE/REWORK**

Submitted Doc: 19392  
Act OK Due: 04/13/06 By: 709-K.APPLEBY

Rework: 1-Type:W Base:65678 Lot:1 Split:0 Sub: 247 Op: 20

Instructions: REFERENCE DRAWING SE121-013, ZONE B5  
REWORK LEG PROVIDED  
Last Edited: 04/11/06 By: 927-M.MANUEL

Due: 04/11/06 By: 775-D.MCCORKLE  
Completed: 04/11/06 By: 775-D.MCCORKLE  
Approval Due: 03/13/06 By: 927-M.MANUEL  
Approved: 04/11/06 By: 927-M.MANUEL / Cft Leader  
Inspected: 04/24/06 By: 933-D.LEAPLEY

**Root Cause / Corrective Action**

Due: 03/17/06 By: 775-D.MCCORKLE  
Completed: 03/10/06 By: 775-D.MCCORKLE

**Root Cause 1: 800-CUSTOMER**

Resource: CUS-CUSTOMER (ROOT CAUSE)  
Equipment:  
Employee:

Approval Due: 03/13/06 By: 596-D.KNAUB  
Approved: 03/12/06 By: 596-D.KNAUB

Description: THE HOLE WAS INSTALLED AT THE DETAIL STATE AND THE FACE WAS FINISHED AFTER WELDING THE FLANGE TO THE VESSEL END. NORMAL WELDING DISTORTION AND PART ALIGNMENT CAUSED THE RELATIONSHIP TO GO OUT OF THE CUSTOMER APPLIED TOLERANCE ZONE. IF THE FACE WAS MACHINED TO FINISH IN THE DETAIL STATE AS SPECIFIED ON THE DESIGN DRAWING, THE PART WOULD NOT MEET LATER REQUIREMENTS AND WOULD LIKELY NOT FUNCTION. THROUGH EARLIER CORRESPONDENCE WITH PPPL, MTM REALIZED THE HOLES ARE MERELY FOR AN ALIGNMENT JACKING DEVISE THAT IS ADJUSTABLE.

**Corr Actn: 1:**

Correction Due 03/17/06 By: 775-D.MCCORKLE  
Action: 03/16/06 By: 775-D.MCCORKLE  
Completed: 03/10/06

Description: NONE REQUIRED

Verify Due: 03/17/06 By: 927-M.MANUEL  
Completed: 03/16/06 By: 927-M.MANUEL

Verify Notes: NONE REQUIRED

RC Last Edited 03/12/06 By: 596-D.KNAUB  
CA Last Edited By:

**Documents: 1)**

Last Edited: 05/05/06 By: 775-D.MCCORKLE

**Closure:**

Completed: 05/05/06 By: 596-D.KNAUB

Comments:  
Last Edited: 05/05/06 By: 596-D.KNAUB

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**Customer: PRINCETON PLASMA PHYSICS LAB**

Contact: LARRY SUTTON  
E-Mail: S-04286-F

Telephone: 609-243-2441  
Fax: 609-243-2021

**Part: /**

Drawing ID: SE120-004

Revision: 2

Customer P.O.: S005243-F/Ln:1  
Serial No./Qty:

Reported By: DOUG MCCORKLE  
E-Mail: dMcCorkle@MajorTool.com

Telephone: 317-636-6433  
Fax: 317-634-9420

Problem: The .469 +/--.005 dimension varies around part over and undersized, .240-.432

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**Proposed Disposition:**

SUBMITTING TO PPPL.  
REFERENCE DRAWING SE121-013, ZONE B5

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Number of additional pages: \_\_\_\_\_

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**Customer Disposition:**     Use As Is     Rework     Repair     Scrap     Replace

**Technical Contact Approval:** \_\_\_\_\_

**Title:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**Buyer Approval:** \_\_\_\_\_

**Title:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**Major Tool Implemented By:** \_\_\_\_\_

**Title:** \_\_\_\_\_ **Date:** \_\_\_\_\_

Nonconformance Report: Major Tool NC19392

This is for REFERENCE DRAWING SE121-013, ZONE B5

**Problem:**

The .469 +/- .005 dimension varies around part over and undersized, .240-.432

Doug McCorkle

**Project Disposition:**

It appears from these dimensions that the tapped holes would break through the seal groove. Fill all holes to provide a minimum 1/8" cap weld and grind flush for all flanges. Advise PPPL method of filling holes for approval prior to work. Solution must avoid virtual leaks. Inspect with 8x magnification to verify complete seal.

**Approvals:**

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Procurement Technical Representative

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Responsible Line Manager:

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Project Quality Assurance:



<b>Workorder</b> 65678/1.0	<b>Part ID</b> SE120-002-PPPL NCSX VVSA	<b>Qty</b> 1	<b>Drawing ID / Rev</b> /	<b>Engineer</b> SILVER/DOUG MCCORKLE
VVSA 120 DEGREE VESSEL				

<b>Sub ID</b> 247	<b>Part ID</b> REWORK-REWORK / REPAIR PER N/C	<b>Qty</b> 1	<b>Drawing ID / Rev</b> /
Parent Sub:2 Op:90			

Operation	Resource	QtyPer	StartQty	EndQty	Drawing ID / Rev
Sub: 247 / Seq: 10 (Closed)	230-FAB MEDIUM SOUTH	1.00	1.00	1.00	
INSTALL THE SPECIAL SET SCREWS INTO THE THREE HOLES THAT MEASURE BELOW NOMINAL. THESE THREE HOLES ARE LOCATED ON HALF B (CURRENTLY FACING EAST). THEY CAN BE IDENTIFIED BY MEASURING THE DISTANCE FROM THE FACE OF THE FLANGE TO A BOLT THREADED INTO THE HOLES. THE NON-CONFORMING HOLES MEASURE 0.230, 0.182, AND 0.219. CONTACT DOUG McCORKLE FOR CONFIRMATION PRIOR TO WELDING.					
WELD THE CUSTOM SET SCREWS IN PLACE WITH A MINIMUM 1/8" CAP WELD PER WPS. BLEND / POLISH THE SURFACE. CWI VISUAL INSPECTION REQUIRED.					

Operation	Resource	QtyPer	StartQty	EndQty	Drawing ID / Rev
Sub: 247 / Seq: 20 (Closed)	805-INPROCESS INSPECTION - PLANT	1.00	1.00	1.00	SE120-002 / 0
VERIFY REWORK AND COMPLETE NCR 19392					
CWI VISUAL WELD INSPECT WELD SURFACE UNDER 8X MAGNIFICATION.					

**Non-conformance: 19393**

Customer: PRINCETON PLASMA PHYSICS LAB  
Serial Number:  
Links: 1-Type:W: 65678/1.0 Sub: 2 Op: 60  
Problem: The 1.25 +/- .010 dimension is undersized after rework to achieve flatness, checks 1.14-1.19

**Where Detected 711-DURING MANUFACTURING PROCES**  
N/C Type: 1-STANDARD

Last Edited: 03/10/06 By: 168-R.BACK

Occurred: 03/10/06 Identified By: 168-R.BACK  
Reported: 03/10/06 By: 168-R.BACK  
Part: /

Drawing ID: SE120-004 Rev 2  
Vendor:

**Defect: 127-LINEAR DIMENSION**  
Target Dim: 0.6370 Max Dev:0.0050  
Reference:  
Document:

**Disposition: 914-CUSTOMER - USE AS IS**

Submitted Doc: 19393  
Act OK Due: By:

Rework:

Instructions: USE AS IS PER CUSTOMER DISPOSITION  
PROVIDED 06APR2006.

Last Edited: 04/07/06 By: 927-M.MANUEL

Due: 04/06/06 By: 775-D.MCCORKLE  
Completed: 04/06/06 By: 775-D.MCCORKLE  
Approval Due: 03/13/06 By: 927-M.MANUEL  
Approved: 04/07/06 By: 927-M.MANUEL / Cft Leader

Inspected: By:

**Root Cause / Corrective Action**

Due: 03/17/06 By: 775-D.MCCORKLE  
Completed: 04/07/06 By: 775-D.MCCORKLE

**Root Cause 1: 802-MANAGEMENT DECISION**

Resource: 715-SILVER TEAM, ENGINEERING  
Equipment:  
Employee: 775-D.MCCORKLE

Approval Due: 04/07/06 By: 927-M.MANUEL  
Approved: 04/07/06 By: 927-M.MANUEL

Description: DURING EARLY JOB PLANNING MEETING ACTIVITY, MTM DETERMINED THAT THE PORT NB FLANGE SHOULD BE MACHINED TO FINISH DIMENSIONS AFTER WELDING THE PORT SUB-ASSEMBLY. IT WAS DECIDED THAT THE FLATNESS COULD NOT BE MAINTAINED IF THE FLANGE WAS MACHINED AS A DETAIL AND THEN WELDED TO THE SIDEWALLS. THE CONSENSUS WAS THAT THE WELDING OF THE PORT SUB-ASSEMBLY TO THE VESSEL WOULD NOT ADVERSELY AFFECT THE FINISH FLANGE FLATNESS. IN PROCESS INSPECTION AFTER WELDING THE PORT NB SUB-ASSEMBLY TO THE VESSEL CONFIRMED THIS PLAN WAS ACCURATE AND CORRECT. IT IS NOW KNOWN THAT INWARD WELDING DISTORTION FROM WELDING THE PORT 4 SUB-ASSEMBLIES TO THE VESSEL ACTUALLY CAUSED THE PORT NB FLANGE TO FLEX CAUSING THE OUT OF FLATNESS.

**Corr Actn: 1:**

Correction Due 04/13/06 By: 775-D.MCCORKLE  
Action: 04/07/06 By: 775-D.MCCORKLE  
Completed: 04/07/06

Description: FABRICATIONS THIS COMPLEX REQUIRE SUBSTANTIALLY MORE RESOURCES APPLIED EARLY IN THE PROGRAM (RELATIVE TO TYPICAL CONTRACT PROJECTS). ESTIMATING THE EXTENT AND DIRECTION OF WELDING DISTORTION BECOMES A MUCH LARGER TASK AS THE COMPLEXITY OF THE GEOMETRY INCREASES. EXTENSIVE RESEARCH AND EVALUATION WERE PERFORMED ON THIS VESSEL. A LARGER PLANNING STAFF MAY HAVE PROVIDED EVEN MORE OPPORTUNITY FOR FURHTER WELDING DISTORTION RISK MITIGATION.

Verify Due: 04/14/06 By: 927-M.MANUEL  
Completed: 04/07/06 By: 927-M.MANUEL

Verify Notes: done

RC Last Edited 04/07/06 By: 927-M.MANUEL  
CA Last Edited By:



**Documents:**

Last Edited: By:

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**Closure:**

Completed: 04/10/06 By: 596-D.KNAUB

Comments:

Last Edited: 04/10/06 By: 596-D.KNAUB

**Non-conformance: 19081**

Occurred: 01/18/06 Identified By: 775-D.MCCORKLE

Reported: 01/18/06 By: 775-D.MCCORKLE

Part: SE120-002 / PPPL NCSX VVSA

Customer: PRINCETON PLASMA PHYSICS LAB

Drawing ID: SE120-005

Rev 0

Serial Number: QTY - 3

Links: 1-Type:W: 65678/1.0 Sub: 0 Op: 10

Vendor:

Problem: REFERENCE DRAWING SE121-014, SHEET 1, ZONE F-6.

WELD SYMBOL REQUIRES THE ARROW SIDE (OUTSIDE OF THE PART) TO BE SKIP WELDED (1/8" FILLET, 1/2" X 90 DEGREES).

THE ENTIRE OUTSIDE SURFACE WAS WELDED CONTINUOUSLY.

**Where Detected 704-IN-PROCESS INSPECTION**

**Defect: 154-WELD FEATURES**

N/C Type: 1-STANDARD

Target Dim: 2.0000

Max Dev:10.6000

Reference:

Last Edited: 01/20/06 By: 775-D.MCCORKLE

Document:

**Disposition: 924-CUSTOMER - USE AS IS - NON-RECO**

Due: 02/27/06 By: 775-D.MCCORKLE

Submitted Doc: 19081

Completed: 02/27/06 By: 775-D.MCCORKLE

Act OK Due: By:

Approval Due: 01/19/06 By: 927-M.MANUEL

Approved: 04/28/06 By: 927-M.MANUEL / Cft Leader

Rework:

Inspected: By:

Instructions: customer use as is

Last Edited: 04/28/06 By: 927-M.MANUEL

**Root Cause / Corrective Action**

Due: 01/25/06 By: 775-D.MCCORKLE

Completed: 01/19/06 By: 775-D.MCCORKLE

**Root Cause 1: 802-MANAGEMENT DECISION**

Resource: 715-SILVER TEAM, ENGINEERING

Approval Due: 01/19/06 By: 927-M.MANUEL

Equipment:

Approved: 01/20/06 By: 927-M.MANUEL

Employee: 775-D.MCCORKLE

Description: AS REQUESTED BY MTM, BASED ON EARLY WELD DISTORTION RISK MITIGATION EVALUATIONS, THE WELD JOINT CONFIGURATION FOR ALL PRIMARY VESSEL PORT ATTACHMENT WELDS WAS CHANGED FROM WELDING THE ENTIRE JOINT FROM THE OUTSIDE, TO BORING THE HOLE IN THE VESSEL LARGE ENOUGH TO SLIDE THE TUBE THROUGH TO THE INTERIOR SIDE OF THE VESSEL AND WELD THE JOINT FROM THE INSIDE OF THE VESSEL. THE ORIGINAL CONFIGURATION WAS A FULL PENETRATION WELD WITH A CONTINUOUS FILLET. THE SPACER SUB-ASSY WAS APPARENTLY OMITTED FROM THE DESIGN CHANGE AND IS UNIQUE.

WELDING A FULL PENETRATION GROOVE TO ENSURE FULL DEPTH EFFECTIVE THROAT, IT IS NECESSARY TO BACK-GRIND THE OUTSIDE TO SOUND MATERIAL AND FILL THE REMAINDER OF THE JOINT FROM THE OUTSIDE. WHEN ONE MEMBER EXTENDS BEYOND THE FACE (THE TUBE PROTRUDES OUTWARD), THE OUTSIDE OF THE FULL PENETRATION WELD IS IN THE CONFIGURATION OF A FILLET (PERPENDICULAR), THE BACK GRINDING PROCESS INHERENTLY REMOVES SOME MATERIAL FROM BOTH MATING DETAILS (IN THIS CASE, THE VESSEL WALL AND PORT TUBE). MERELY FILLING THE GROOVE TO OBTAIN 3/8" EFFECTIVE THROAT WOULD LEAVE THE SIDEWALL OF THE TUBE UNDER CUT. NOT BACK GRINDING THE OUTSIDE WOULD LIKELY RESULT IN A PARTIAL PENETRATION GROOVE WELD (OR AT LEAST INTERMITTENTLY PARTIAL PENETRATION. THIS CONDITION INCREASES WHEN THE WELD POSITION CHANGES (E.G. HIGHLY SHAPED PROFILE). BY NECESSITY ADDITIONAL WELDING WAS PERFORMED TO FILL THE GROUND AREA ON THE OUTSIDE OF THE TUBE. THIS CREATED A CONTINUOUS FILLET AROUND THE ENTIRE TUBE. THIS WELD COULD HAVE BEEN GROUND OUT LEAVING THE FOUR 1/2" LONG AREAS WHICH WOULD CONFORM TO THE DRAWING, BUT MTM CHOSE TO LEAVE THE ENTIRE CIRCUMFERENTIAL WELD. THE ORIGINAL WELD SYMBOL WAS THE BASIS FOR THIS DECISION.



**Corr Actn: 1:**

Correction Due 01/25/06 By: 775-D.MCCORKLE

Action: 04/28/06 By: 775-D.MCCORKLE

Completed: 01/18/06

Description: EARLIER CUSTOMER NOTIFICATION / CLARIFICATION WOULD BE BENEFICIAL IN FUTURE CERCUMSTANCES.

UPDATE 28Apr2006: ALL FUTURE DEVIATIONS FROM DRAWING REQUIREMENTS WILL BE SUBMITTED IN WRITING TO PPPL (VIA RFD) PRIOR TO IMPLEMENTATION. MANUFACTURING WILL NOT CONTINUE UNTIL WRITTEN AUTHORIZATION IS RECEIVED.

Verify Due: 01/25/06 By: 927-M.MANUEL

Completed: 04/28/06 By: 927-M.MANUEL

Verify Notes: COMPLETE

RC Last Edited 01/20/06 By: 927-M.MANUEL

CA Last Edited By:

**Documents:** 1)

Last Edited: 02/27/06 By: 775-D.MCCORKLE

**Closure:**

Completed: 04/29/06 By: 596-D.KNAUB

Comments:

Last Edited: 04/29/06 By: 596-D.KNAUB

**Customer: PRINCETON PLASMA PHYSICS LAB**

Contact: LARRY SUTTON  
E-Mail: S-04286-F

Telephone: 609-243-2441  
Fax: 609-243-2021

**Part: SE120-002 / PPPL NCSX VVSA**

Drawing ID: SE120-005                      Revision: 0  
Links: 1-Type:W: 65678/1.0 Sub: 0 Op: 10

Customer P.O.: S005243-F/Ln:1  
Serial No./Qty: QTY - 3

Reported By: DOUG MCCORKLE  
E-Mail: dMcCorkle@MajorTool.com

Telephone: 317-636-6433  
Fax: 317-634-9420

Problem: REFERENCE DRAWING SE121-014, SHEET 1, ZONE F-6.  
WELD SYMBOL REQUIRES THE ARROW SIDE (OUTSIDE OF THE PART) TO BE SKIP WELDED (1/8" FILLET, 1/2" X 90 DEGREES).  
THE ENTIRE OUTSIDE SURFACE WAS WELDED CONTINUOUSLY.

**Proposed Disposition:**

CUSTOMER DISPOSITION REQUIRED.

Number of additional pages: \_\_\_\_\_

Customer Disposition:     Use As Is     Rework     Repair     Scrap     Replace

**Technical Contact Approval:** \_\_\_\_\_

**Title:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**Buyer Approval:** \_\_\_\_\_

**Title:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**Major Tool Implemented By:** \_\_\_\_\_

**Title:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**Root Cause 1: 802-MANAGEMENT DECISION**

Resource: SILVER TEAM, ENGINEERING                      Equipment:

Description: AS REQUESTED BY MTM, BASED ON EARLY WELD DISTORTION RISK MITIGATION EVALUATIONS, THE WELD JOINT CONFIGURATION FOR ALL PRIMARY VESSEL PORT ATTACHMENT WELDS WAS CHANGED FROM WELDING THE ENTIRE JOINT FROM THE OUTSIDE, TO BORING THE HOLE IN THE VESSEL LARGE ENOUGH TO SLIDE THE TUBE THROUGH TO THE INTERIOR SIDE OF THE VESSEL AND WELD THE JOINT FROM THE INSIDE OF THE VESSEL. THE ORIGINAL CONFIGURATION WAS A FULL PENETRATION WELD WITH A CONTINUOUS FILLET. THE SPACER SUB-ASSY WAS APPARENTLY OMITTED FROM THE DESIGN CHANGE AND IS UNIQUE.

WELDING A FULL PENETRATION GROOVE TO ENSURE FULL DEPTH EFFECTIVE THROAT, IT IS NECESSARY TO BACK-GRIND THE OUTSIDE TO SOUND MATERIAL AND FILL THE REMAINDER OF THE JOINT FROM THE OUTSIDE. WHEN ONE MEMBER EXTENDS BEYOND THE FACE (THE TUBE PROTRUDES OUTWARD), THE OUTSIDE OF THE FULL PENETRATION WELD IS IN THE CONFIGURATION OF A FILLET (PERPENDICULAR), THE BACK GRINDING PROCESS INHERENTLY REMOVES SOME MATERIAL FROM BOTH MATING DETAILS (IN THIS CASE, THE VESSEL WALL AND

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PORT TUBE). MERELY FILLING THE GROOVE TO OBTAIN 3/8" EFFECTIVE THROAT WOULD LEAVE THE SIDEWALL OF THE TUBE UNDER CUT. NOT BACK GRINDING THE OUTSIDE WOULD LIKELY RESULT IN A PARTIAL PENETRATION GROOVE WELD (OR AT LEAST INTERMITTENTLY PARTIAL PENETRATION. THIS CONDITION INCREASES WHEN THE WELD POSITION CHANGES (E.G. HIGHLY SHAPED PROFILE). BY NECESSITY ADDITIONAL WELDING WAS PERFORMED TO FILL THE GROUND AREA ON THE OUTSIDE OF THE TUBE. THIS CREATED A CONTINUOUS FILLET AROUND THE ENTIRE TUBE. THIS WELD COULD HAVE BEEN GROUND OUT LEAVING THE FOUR 1/2" LONG AREAS WHICH WOULD CONFORM TO THE DRAWING, BUT MTM CHOSE TO LEAVE THE ENTIRE CIRCUMFERENTIAL WELD. THE ORIGINAL WELD SYMBOL WAS THE BASIS FOR THIS DECISION.

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**Corr Actn: 1:**

Action: 01/18/06 By: 775-D.MCCORKLE

Description: NONE REQUIRED. EARLIER CUSTOMER NOTIFICATION / CLARIFICATION WOULD BE BENEFICIAL IN FUTURE CIRCUMSTANCES.

## Nonconformance Report: Major Tool NC19081

This is for SE121-014 Spacer

### Problem:

Reference drawing se121-014, sheet 1, zone f-6. Weld symbol requires the arrow side (outside of the part) to be skip welded (1/8" fillet, 1/2" x 90 degrees). The entire outside surface was welded continuously.

### Description:

**MTM determined that:** "Welding a full penetration groove to ensure full depth effective throat, it is necessary to back-grind the outside to sound material and fill the remainder of the joint from the outside. When one member extends beyond the face (the tube protrudes outward), the outside of the full penetration weld is in the configuration of a fillet (perpendicular), the back grinding process inherently removes some material from both mating details (in this case, the vessel wall and port tube). Merely filling the groove to obtain 3/8" effective throat would leave the sidewall of the tube under cut. Not back grinding the outside would likely result in a partial penetration groove weld (or at least intermittently partial penetration. This condition increases when the weld position changes (e.g. highly shaped profile). By necessity additional welding was performed to fill the ground area on the outside of the tube. This created a continuous fillet around the entire tube. This weld could have been ground out leaving the four 1/2" long areas which would conform to the drawing, but MTM chose to leave the entire circumferential weld. The original weld symbol was the basis for this decision."

### Project Disposition:

For this spacer weld, Use as is.

For the corrective action, consistent with MTM's stated, "IN FUTURE CIRCUMSTANCES, EARLIER CUSTOMER NOTIFICATION / CLARIFICATION WOULD BE BENEFICIAL", PPPL asks MTM to acknowledge that any proposed deviation from PPPL requirements must be formally requested in writing and approved by PPPL prior to implementation.

### Approvals:

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Procurement Technical Representative

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Responsible Line Manager:

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Project Quality Assurance:



**Non-conformance: 19232**

Occurred: 02/08/06 Identified By: 775-D.MCCORKLE  
Reported: 02/08/06 By: 775-D.MCCORKLE  
Part: SE120-002 / PPPL NCSX VVSA  
Drawing ID: SE120-002 Rev 0  
Vendor: D L RICCI CORPORATION

Customer: PRINCETON PLASMA PHYSICS LAB  
Serial Number: 1  
Links: 1-Type:W: 65678/1.0 Sub: 2 Op: 20  
Problem: Thermal cycle

1. During vessel ramp up: One zone (approximately 12 x 29") reached 524F while the rest of the shell was at about 314F. This exceeds the 90 Deg. F maximum temperature gradient (by 130F) allowed during the cycle. Located from the tangent of the large radius of port 12 towards the center region between ports 5 and 7.
2. During port ramp up Port 7W reached 320F (9F above high limit)
3. During port ramp up, Port 11W reached 333F (22F above high limit)
4. During port soak, Port 10E temperature increased to 555F (244F above high limit). The port was above the high limit of tolerance approximately 45 minutes.

**Where Detected 704-IN-PROCESS INSPECTION**

**Defect: 150-TESTING FAILURE**

N/C Type: 1-STANDARD

Target Dim: Max Dev:

Reference:

Last Edited: 02/14/06 By: 775-D.MCCORKLE

Document:

**Disposition: 924-CUSTOMER - USE AS IS - NON-RECO**

Due: 02/27/06 By: 775-D.MCCORKLE

Submitted Doc: 19232

Completed: 02/27/06 By: 775-D.MCCORKLE

Act OK Due: By:

Approval Due: 02/15/06 By: 927-M.MANUEL

Approved: 02/27/06 By: 927-M.MANUEL / Cft Leader

Rework:

Inspected: By:

Instructions: SUBMITTED TO CUSTOMER

Last Edited: 02/27/06 By: 927-M.MANUEL

**Root Cause / Corrective Action**

Due: 02/21/06 By: 775-D.MCCORKLE

Completed: 03/03/06 By: 775-D.MCCORKLE

**Root Cause 1: 800-CUSTOMER**

Resource: CUS-CUSTOMER (ROOT CAUSE)

Approval Due: 03/06/06 By: 596-D.KNAUB

Equipment:

Approved: 03/03/06 By: 596-D.KNAUB

Employee:

Description: ONCE THE OPERATION BEGAN, IT WAS QUICKLY REALIZED THAT THE THERMAL CYCLE PROCESS WAS INTERPRETED VERY DIFFERENTLY BY MTM AND OUR SUPPLIER THAN BY PPPL. EXTREME PROCESS AND EQUIPMENT ADJUSTMENT BEGAN RESULTING FROM PPPL OVERSIGHT AND DIFFERENCES OF OPINION REGARDING THE REQUIREMENTS. THE END RESULT WAS TWICE THE NUMBER OF HEATING MACHINES, ELEMENTS AND RECORDERS. WITH THE CHANGES TO THE REQUIREMENTS EVOLVING AS THE PROCESS CONTINUED, IT BECAME OBVIOUS THAT THERE WERE MORE CONTROLS AND CHARTS THAN THE EXPERIENCED THREE MAN CREW COULD MAINTAIN. THE EQUIPMENT WAS INADEQUATE TO ENSURE SEPARATE ELEMENTS WOULD STAY WITHIN THE SPECIFIED CRITERIA WITHOUT CONSTANT HUMAN INTERVENTION. OVERSIGHTS WERE MADE.

**Corr Actn: 1:**

Correction Due 03/10/06 By: 775-D.MCCORKLE

Action: 03/03/06 By: 775-D.MCCORKLE

Completed: 03/03/06

Description: EVEN THOUGH PS486 WAS CREATED, REVIEWED, AND APPROVED, THERE WERE LARGE DIFFERENCES OF INTERPRETATION AND OPINION. BASED ON THIS LEARNING EXPERIENCE, FUTURE SPECIAL PROCESS CIRCUMSTANCES WILL BE REVIEW WITH PPPL PRIOR TO STARTING (OR CONTRACTING A SUPPLIER). IF DISCREPANCIES EXIST, THE PROJECT, OR OPERATION WILL BE PUT ON HOLD UNTIL RESOLVED.

Verify Due: 03/10/06 By: 927-M.MANUEL



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Completed: 03/03/06 By: 927-M.MANUEL

Verify Notes: COMPLETE

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RC Last Edited 03/03/06 By: 596-D.KNAUB

CA Last Edited By:

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**Documents:** 1)

Last Edited: 02/27/06 By: 775-D.MCCORKLE

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**Closure:**

Completed: 03/03/06 By: 596-D.KNAUB

Comments:

Last Edited: 03/03/06 By: 596-D.KNAUB

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**Customer: PRINCETON PLASMA PHYSICS LAB**

Contact: Mike Viola  
E-Mail: [mviola@pppl.gov](mailto:mviola@pppl.gov)

Telephone: 609-243-3655  
Fax: 609-243-3248

**Part: SE120-002 / PPPL NCSX VVSA**

Drawing ID: SE120-002                      Revision: 0

Customer P.O.: S005243-F/Ln:1  
Qty: 1

Reported By: DOUG MCCORKLE  
E-Mail: [dMcCorkle@MajorTool.com](mailto:dMcCorkle@MajorTool.com)

Telephone: 317-636-6433  
Fax: 317-634-9420

**Problem: Thermal cycle**

1. During vessel ramp up: One zone (approximately 12 x 29") reached 524F while the rest of the shell was at about 314F. This exceeds the 90 Deg. F maximum temperature gradient (by 130F) allowed during the cycle. Located from the tangent of the large radius of port 12 towards the center region between ports 5 and 7.
2. During port ramp up Port 7W reached 320F (9F above high limit)
3. During port ramp up, Port 11W reached 333F (22F above high limit)
4. During port soak, Port 10E temperature increased to 555F (244F above high limit). The port was above the high limit of tolerance approximately 45 minutes.

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**Proposed Disposition:**

Customer disposition required.

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Number of additional pages: \_\_\_\_\_

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**Customer Disposition:**     Use As Is     Rework     Repair     Scrap     Replace

**Technical Contact Approval:** \_\_\_\_\_

**Title:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**Buyer Approval:** \_\_\_\_\_

**Title:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**Major Tool Implemented By:** \_\_\_\_\_

**Title:** \_\_\_\_\_ **Date:** \_\_\_\_\_

## Nonconformance Report: Major Tool NC19232

This is for SE120-002 / PPPL NCSX VVSA

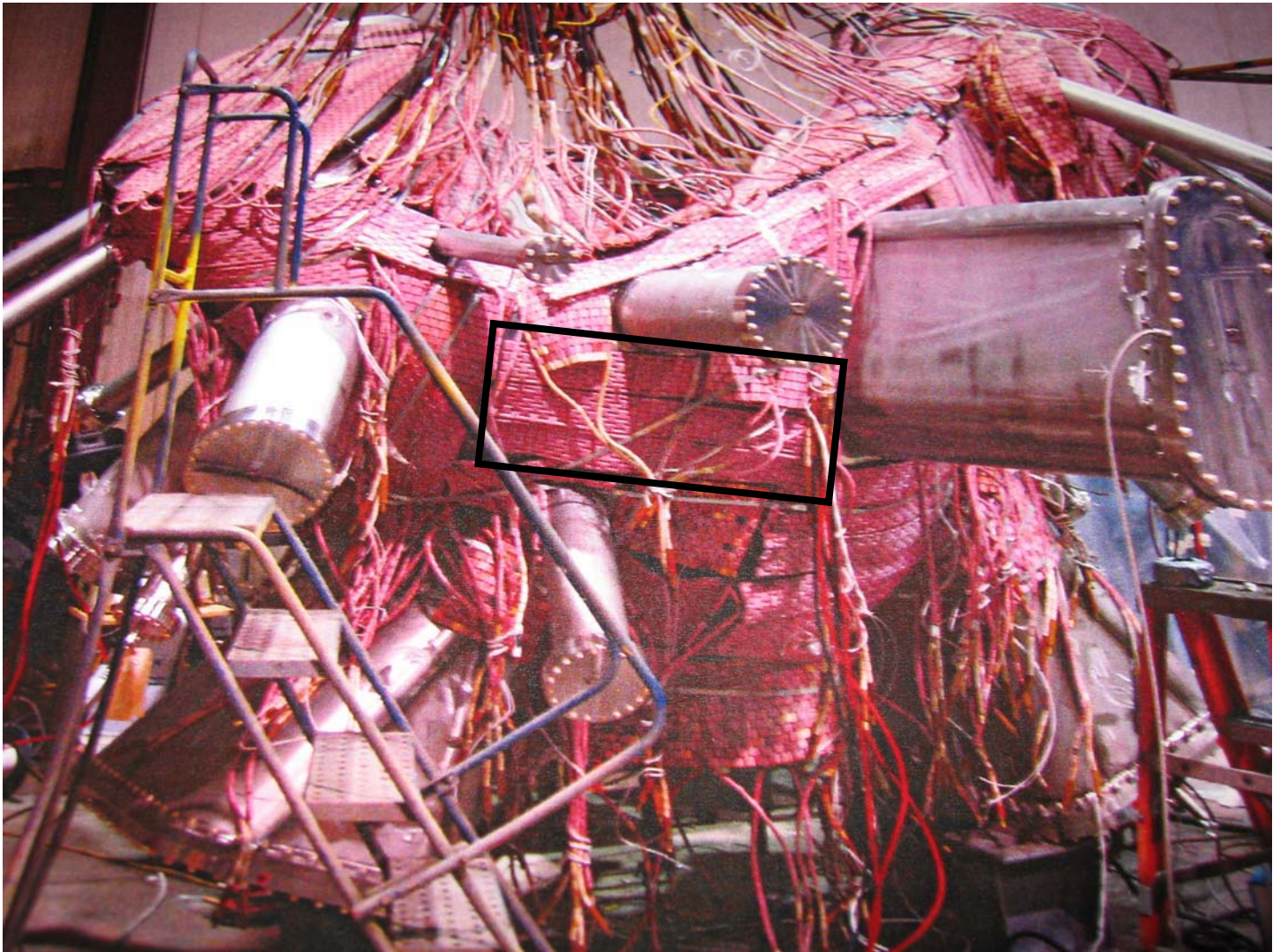
### Problem:

#### Thermal cycle:

1. During vessel ramp up: One zone (approximately 12 x 29") reached 524F while the rest of the shell was at about 314F. This exceeds the 90 Deg. F maximum temperature gradient (by 130F) allowed during the cycle. Located from the tangent of the large radius of port 12 towards the center region between ports 5 and 7.
2. During port ramp up Port 7W reached 320F (9F above high limit)
3. During port ramp up, Port 11W reached 333F (22F above high limit)
4. During port soak, Port 10E temperature increased to 555F (244F above high limit). The port was above the high limit of tolerance approximately 45 minutes.

Doug McCorkle

Photo added by M. Viola for clarification (Note boxed region of 3 pads):



**Project Disposition:**

We acknowledge the thermal cycle deviations and based on the information received so far, project disposition is use-as-is. However, this disposition will need to be revisited if damage from the heat excursions is detected.

**Approvals:**

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Procurement Technical Representative

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Responsible Line Manager:

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Project Quality Assurance:



**Non-conformance: 19288**

Occurred: 02/20/06 Identified By: 791-D.WEIDNER

Reported: 02/20/06 By: 791-D.WEIDNER

Part: SE120-004-42 / O-RING, VITON

Drawing ID: SE120-004

Rev 1

Vendor:

Customer: PRINCETON PLASMA PHYSICS LAB

Serial Number:

Links: 1-Type:W: 65678/7.0 Sub: 108 Op: 10 Pc:10

2-Type:W: 65678/7.0 Sub: 122 Op: 10 Pc:10

3-Type:W: 65678/7.0 Sub: 133 Op: 10 Pc:10

4-Type:W: 65678/7.0 Sub: 152 Op: 10 Pc:10

5-Type:W: 65678/1.0 Sub: 5 Op: 248 Pc:110

6-Type:W: 65678/1.0 Sub: 5 Op: 248 Pc:120

Problem: viton o-rings are damaged upon removal from port flanges after vacuum testing. o-rings recieved numerous cuts from the edges of retainer strips during the installation and torque of retaining strips and flanges. their are currently no extra in system,drawing shows this as a shippable item.

**Where Detecte 708-RANDOM FINDING - ANY EMPLOYE**

**Defect: 142-PRODUCT DAMAGE**

N/C Type: 2-NOTIFICATION ONLY

Target Dim:

Max Dev:

Reference:

Document:

Last Edited: 03/06/06 By: 927-M.MANUEL

**Disposition: 924-CUSTOMER - USE AS IS - NON-RECO**

Due: 02/27/06 By: 775-D.MCCORKLE

Submitted Doc: 19288

Completed: 02/27/06 By: 775-D.MCCORKLE

Act OK Due: By:

Approval Due: 02/21/06 By: 927-M.MANUEL

Approved: 02/27/06 By: 927-M.MANUEL / Cft Leader

Rework:

Inspected: By:

Instructions: THE DAMAGED O-RINGS MAY BE DISCARDED PER ATTACHED DISPOSITION

NO ROOT CAUSE / CORRECTIVE ACTION REQUIRED

Last Edited: 03/03/06 By: 775-D.MCCORKLE

**Documents:** 1)

Last Edited: 02/27/06 By: 775-D.MCCORKLE

**Closure:**

Completed: 03/07/06 By: 596-D.KNAUB

Comments:

Last Edited: 03/07/06 By: 596-D.KNAUB

---

**Customer: PRINCETON PLASMA PHYSICS LAB**

Contact: Mike Viola  
E-Mail: mviola@pppl.gov

Telephone: 609-243-3655  
Fax: 609-243-3248

**Part: SE120-004-42 / O-RING, VITON**

Drawing ID: SE120-004                      Revision: 1

Customer P.O.: S005243-F/Ln:1  
Qty: 12

Reported By: DOUG MCCORKLE  
E-Mail: dMcCorkle@MajorTool.com

Telephone: 317-636-6433  
Fax: 317-634-9420

Problem: viton o-rings are damaged upon removal from port flanges after vacuum testing. o-rings recieved numerous cuts from the edges of retainer strips during the installation and torque of retaining strips and flanges. their are currently no extra in system,drawing shows this as a shippable item.

---

**Proposed Disposition:**

CUSTOMER DISPOSITION REQUIRED (applies to Ports 4 and 12)

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Number of additional pages: 0

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**Customer Disposition:**     Use As Is     Rework     Repair     Scrap     Replace

**Technical Contact Approval:** \_\_\_\_\_

**Title:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**Buyer Approval:** \_\_\_\_\_

**Title:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**Major Tool Implemented By:** \_\_\_\_\_

**Title:** \_\_\_\_\_ **Date:** \_\_\_\_\_

Nonconformance Report: Major Tool NC19288

This is for SE120-004-42 / O-RING, VITON

**Problem:**

viton o-rings are damaged upon removal from port flanges after vacuum testing. O-rings received numerous cuts from the edges of retainer strips during the installation and torque of retaining strips and flanges. Their are currently no extra in system, drawing shows this as a shippable item.

Doug McCorkle

**Project Disposition:**

Scrap and Do not replace.

**Approvals:**

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Procurement Technical Representative

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Responsible Line Manager:

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Project Quality Assurance:





**Non-conformance: 19293**

Occurred: 02/20/06 Identified By: 522-R.DURHAM

Reported: 02/20/06 By: 522-R.DURHAM

Part: /

Customer: PRINCETON PLASMA PHYSICS LAB

Drawing ID: SE120-004

Rev 2

Serial Number:

Vendor:

Links: 1-Type:W: 65678/1.0 Sub: 2 Op: 45 /IDC:10

Problem: The profile exceeds the tolerance. The profile checks from -0.604 / +0.408. Refer to attached graphical report.

**Where Detected 704-IN-PROCESS INSPECTION**

**Defect: 111-PROFILE OF A SURFACE**

N/C Type: 2-NOTIFICATION ONLY

Target Dim: 0.3750

Max Dev:0.4170

Reference:

Last Edited: 02/23/06 By: 927-M.MANUEL

Document:

**Disposition: 914-CUSTOMER - USE AS IS**

Due: 04/12/06 By: 775-D.MCCORKLE

Submitted Doc: 19293

Completed: 04/12/06 By: 775-D.MCCORKLE

Act OK Due: By:

Approval Due: 02/24/06 By: 927-M.MANUEL

Approved: 04/12/06 By: 927-M.MANUEL / Cft Leader

Rework:

Inspected: By:

Instructions:

Last Edited: 04/12/06 By: 927-M.MANUEL

**Documents: 1)**

Last Edited: 04/12/06 By: 775-D.MCCORKLE

**Closure:**

Completed: 04/18/06 By: 596-D.KNAUB

Comments:

Last Edited: 04/18/06 By: 596-D.KNAUB

---

**Customer: PRINCETON PLASMA PHYSICS LAB**

Contact: Mike Viola  
E-Mail: Mviola@pppl.gov

Telephone: 609-243-2441  
Fax: 609-243-2021

**Part:** /  
Drawing ID: SE120-004                      Revision: 2

Customer P.O.: S005243-F/Ln:1  
Serial No./Qty:

Reported By: DOUG MCCORKLE  
E-Mail: dMcCorkle@MajorTool.com

Telephone: 317-636-6433  
Fax: 317-634-9420

Problem: The profile exceeds the tolerance. The profile checks from -0.604 / +0.408. Refer to attached graphical report.

---

**Proposed Disposition:**

INFORMATION PROVIDED TO PPPL FOR ASSEMBLY EVALUATION  
IN PROCESS DATA  
FINAL PROFILE SUBMITTAL TO FOLLOW LATER (after final best fit)

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Number of additional pages: 0

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**Customer Disposition:**     Use As Is     Rework     Repair     Scrap     Replace

**Technical Contact Approval:** \_\_\_\_\_

**Title:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**Buyer Approval:** \_\_\_\_\_

**Title:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**Major Tool Implemented By:** \_\_\_\_\_

**Title:** \_\_\_\_\_ **Date:** \_\_\_\_\_

## Nonconformance Report: Major Tool NC19293

This is for SE120-004

### Problem:

The profile exceeds the tolerance. The profile checks from -0.604 / +0.408. Refer to attached graphical report.  
INFORMATION PROVIDED TO PPPL FOR ASSEMBLY EVALUATION IN PROCESS DATA  
FINAL PROFILE SUBMITTAL TO FOLLOW LATER (after final best fit)

Doug McCorkle

### Project Disposition:

For the shell geometry provided - Accept as is. If final metrology is different then another NCR shall be submitted. This acceptance does not apply to nonconforming conditions in the end flanges or port extensions which will need to be addressed on a separate NCR. Additional data is needed to address port flange nonconformances.

### Approvals:

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Procurement Technical Representative

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Responsible Line Manager:

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Project Quality Assurance:

**Non-conformance: 19739**

Occurred: 04/30/06 Identified By: 854-R.UPCHURCH

Reported: 04/30/06 By: 854-R.UPCHURCH

Part: /

Customer: PRINCETON PLASMA PHYSICS LAB

Drawing ID: SE120-004

Rev 2

Serial Number:

Vendor:

Links: 1-Type:W: 65678/1.0 Sub: 2 Op: 60

Problem: .637 +/- .005 DIM. CHECKS .480-.900 (NOTE: CUT AS DETAIL)

.469 +/- .005 DIM. CHECKS .432-.240 (NOTE: CUT AS DETAIL)

1.25 +/- .010 NB FLANGE THICKNESS AFTER REWORK CHECKS 1.140 TO 1.190

**Where Detected 702-FINAL INSPECTION****Defect: 125-THICKNESS**

N/C Type: 1-STANDARD

Target Dim: 1.2500

Max Dev:0.1100

Reference:

Last Edited: 04/30/06 By: 854-R.UPCHURCH

Document:

**Disposition: 913-CUSTOMER - REPAIR**

Due: 05/18/06 By: 775-D.MCCORKLE

Submitted Doc: 19667

Completed: 05/18/06 By: 775-D.MCCORKLE

Act OK Due: 05/22/06 By: 709-K.APPLEBY

Approval Due: 04/25/06 By: 927-M.MANUEL

Approved: 05/18/06 By: 775-D.MCCORKLE / Mfg Engine

Rework:

Inspected: 05/23/06 By: 709-K.APPLEBY

Instructions:

Last Edited: 05/23/06 By: 709-K.APPLEBY

**Root Cause / Corrective Action**

Due: 05/11/06 By: 775-D.MCCORKLE

Completed: 05/22/06 By: 775-D.MCCORKLE

**Root Cause 1: 800-CUSTOMER**

Resource: CUS-CUSTOMER (ROOT CAUSE)

Approval Due: 05/23/06 By: 596-D.KNAUB

Equipment:

Approved: 05/22/06 By: 596-D.KNAUB

Employee:

Description: THE FEATURES OUT OF TOLERANCE ARE DEMENSIONED ON THE DETAIL DRAWING. IT WAS KNOWN THAT THE VESSEL FLANGES WOULD HAVE TO BE MACHINED AFTER WELDING IN ORDER TO MAINTAIN THE FLANGE FACE PROFILE / POSITION REQUIREMENTS. THE LISTED DIMENSIONS WERE LOST WHEN DOING THIS.

**Corr Actn: 1:**

Correction Due 05/29/06 By: 775-D.MCCORKLE

Action: 05/25/06 By: 775-D.MCCORKLE

Completed: 05/22/06

Description: NONE REQUIRED

Verify Due: 05/29/06 By: 927-M.MANUEL

Completed: 05/25/06 By: 927-M.MANUEL

Verify Notes: DONE

RC Last Edited 05/22/06 By: 596-D.KNAUB

CA Last Edited By:

**Documents: 1)**

Last Edited: 05/17/06 By: 775-D.MCCORKLE

**Closure:**

Completed: 05/26/06 By: 596-D.KNAUB

Comments:

Last Edited: 05/26/06 By: 596-D.KNAUB

**Non-conformance: 19766**

Occurred: 05/04/06 Identified By: 522-R.DURHAM  
Reported: 05/04/06 By: 522-R.DURHAM  
Part: /  
Drawing ID: SE120-004 Rev 2  
Vendor:

Customer: PRINCETON PLASMA PHYSICS LAB  
Serial Number:  
Links: 1-Type:W: 65678/1.0 Sub: 132 Op: 20 /IDC:10  
2-Type:W: 65678/1.0 Sub: 132 Op: 20 /IDC:20  
Problem: The port 8 a and b is out of positional tolerance.

The port 8a checks 1.394 position and the face runs out from -0.320 / -0.208.

The port 8b checks 0.926 position and the face runs out from -0.001 / -0.064.

**Where Detected 704-IN-PROCESS INSPECTION**

**Defect: 113-POSITION - OTHER**

N/C Type: 1-STANDARD  
Y Trend List:  
Last Edited: 05/22/06 By: 596-D.KNAUB

Target Dim: 0.2500 Max Dev:1.1440  
Reference:  
Document:

**Disposition: 924-CUSTOMER - USE AS IS - NON-RECO**

Submitted Doc: 19766  
Act OK Due: By:

Due: 05/18/06 By: 775-D.MCCORKLE  
Completed: 05/18/06 By: 775-D.MCCORKLE  
Approval Due: 05/05/06 By: 927-M.MANUEL  
Approved: 05/18/06 By: 775-D.MCCORKLE / Mfg Engine

Rework:

Inspected: By:

Instructions: Corresponding point cloud inspection data uploaded to PPPL ftp site 04May2006.

Last Edited: 05/18/06 By: 775-D.MCCORKLE

**Root Cause / Corrective Action**

Due: 05/11/06 By: 775-D.MCCORKLE  
Completed: 05/22/06 By: 775-D.MCCORKLE

**Root Cause 1: 800-CUSTOMER**

Resource: CUS-CUSTOMER (ROOT CAUSE)  
Equipment:  
Employee:

Approval Due: 05/23/06 By: 596-D.KNAUB  
Approved: 05/22/06 By: 596-D.KNAUB

Description: THE VESSEL PROFILE WAS SCANNED AND BEST FIT PRIOR TO INSTALLATION OF THE 120 DEGREE SUPPORT STRUCTER. FIDUCIAL MONUMENTS WERE INSTALLED. AFTER INSTALLING THE VESSEL ONTO THE SUPPORT STRUCTURE THE PROFILE WAS RE-SCANNED TO PROVIDE COORDINATES FOR THE MACHINE. APPROXIMATELY 70% OF THE SURFACE WAS VISIBLE TO THE LASER TRACKER. THE INNER PROFILE (BELLY) WAS BLOCKED FROM THE LASER LINE OF SITE BY THE FIXTURE. THE RESULT IS TWO SLIGHTLY DIFFERENT BEST FIT SCENARIOS. ONE WHICH SUITED THE OUTER VESSEL PROFILE, PORT EXTENSIONS, AND VESSEL FLANGES, AND ONE WHICH SUITED THE ENTIRE VESSEL SKIN. CUSTOMER CHOSE THE BEST FIT THAT BEST SUITED THE VESSEL WALL PROFILE. THIS CAUSED THE PREVIOUSLY CORRECT PORT EXTENSION FLANGE LOCATIONS TO BE MEASURED OUT OF TOLERANCE RELATIVE TO THE NEW BEST FIT.

**Corr Actn: 1:**

Correction Due 05/29/06 By: 775-D.MCCORKLE  
Action: 05/25/06 By: 775-D.MCCORKLE  
Completed: 05/22/06

Description: BASED ON THE EXPERIENCE OF LOT 1, THE FOLLOWING SEGMENTS WILL BE RE-SCANNED PRIOR TO REMOVAL OF THE PORTS. THE PORTS WILL BE ADJUSTED IN EFFORT TO BETTER SUIT THE VESSEL WALL BEST FIT (OFF FIXTURE) VS. THE BEST FIT DONE WITH THE PART ON THE FIXTURE.

Verify Due: 05/29/06 By: 927-M.MANUEL  
Completed: 05/25/06 By: 927-M.MANUEL

Verify Notes: DONE

RC Last Edited 05/22/06 By: 596-D.KNAUB



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CA Last Edited By:

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**Documents:** 1)

Last Edited: 05/18/06 By: 775-D.MCCORKLE

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**Closure:**

Completed: 05/26/06 By: 596-D.KNAUB

Comments:

Last Edited: 05/26/06 By: 596-D.KNAUB

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**Customer: PRINCETON PLASMA PHYSICS LAB**

Contact: Mike Viola  
E-Mail: mviola@pppl.gov

Telephone: 609-243-3655  
Fax: 609-243-2021

**Part: /**  
Drawing ID: SE120-004                      Revision: 2

Customer P.O.: S005243-F/Ln:1  
Serial No./Qty: VVSA # 1

Reported By: DOUG MCCORKLE  
E-Mail: dMcCorkle@MajorTool.com

Telephone: 317-636-6433  
Fax: 317-634-9420

Problem: The port 8 a and b is out of positional tolerance.

The port 8a checks 1.394 position and the face runs out from -0.320 / -0.208.

The port 8b checks 0.926 position and the face runs out from -0.001 / -0.064.

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**Proposed Disposition:**

Corresponding point cloud inspection data uploaded to PPPL ftp site 04May2006.

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Number of additional pages: 0

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**Customer Disposition:**     Use As Is     Rework     Repair     Scrap     Replace

**Technical Contact Approval:** \_\_\_\_\_

**Title:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**Buyer Approval:** \_\_\_\_\_

**Title:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**Major Tool Implemented By:** \_\_\_\_\_

**Title:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**Nonconformance Report: NC19766**

The port 8 a and b is out of positional tolerance.

The port 8a checks 1.394 position and the face runs out from -0.320 / -0.208.

The port 8b checks 0.926 position and the face runs out from -0.001 / -0.064.

**Project Disposition:**

Accept as is.

**Approvals:**

---

Procurement Technical Representative

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Responsible Line Manager:



**Non-conformance: 19767**

Occurred: 05/04/06 Identified By: 522-R.DURHAM  
Reported: 05/04/06 By: 522-R.DURHAM  
Part: /  
Drawing ID: SE120-004 Rev 2  
Vendor:

Customer: PRINCETON PLASMA PHYSICS LAB  
Serial Number:  
Links: 1-Type:W: 65678/1.0 Sub: 136 Op: 20 /IDC:10  
2-Type:W: 65678/1.0 Sub: 136 Op: 20 /IDC:20  
Problem: The port 15 a and b is out of positional tolerance.

The port 15a checks 1.148 position and the face runs out from -0.413 / -0.327.

The port 15b checks 0.747 position and the face runs out from -0.172 / -0.108.

**Where Detected 704-IN-PROCESS INSPECTION**

**Defect: 113-POSITION - OTHER**

N/C Type: 1-STANDARD  
Trend N/C: 19766  
Last Edited: 05/22/06 By: 775-D.MCCORKLE

Target Dim: 0.2500 Max Dev:0.8980  
Reference:  
Document:

**Disposition: 924-CUSTOMER - USE AS IS - NON-RECO**

Submitted Doc: 19767  
Act OK Due: By:

Due: 05/18/06 By: 775-D.MCCORKLE  
Completed: 05/18/06 By: 775-D.MCCORKLE  
Approval Due: 05/05/06 By: 927-M.MANUEL  
Approved: 05/18/06 By: 775-D.MCCORKLE / Mfg Engine

Rework:

Inspected: By:

Instructions: Corresponding point cloud inspection data uploaded to PPPL ftp site 04May2006.  
Last Edited: 05/18/06 By: 775-D.MCCORKLE

**Root Cause / Corrective Action**

Due: 05/11/06 By: 775-D.MCCORKLE  
Completed: 05/22/06 By: 775-D.MCCORKLE

**Root Cause 1: 800-CUSTOMER**

Resource: CUS-CUSTOMER (ROOT CAUSE)  
Equipment:  
Employee:

Approval Due: 05/23/06 By: 596-D.KNAUB  
Approved: 05/22/06 By: 596-D.KNAUB

Description: THE VESSEL PROFILE WAS SCANNED AND BEST FIT PRIOR TO INSTALLATION OF THE 120 DEGREE SUPPORT STRUCTER. FIDUCIAL MONUMENTS WERE INSTALLED. AFTER INSTALLING THE VESSEL ONTO THE SUPPORT STRUCTURE THE PROFILE WAS RE-SCANNED TO PROVIDE COORDINATES FOR THE MACHINE. APPROXIMATELY 70% OF THE SURFACE WAS VISIBLE TO THE LASER TRACKER. THE INNER PROFILE (BELLY) WAS BLOCKED FROM THE LASER LINE OF SITE BY THE FIXTURE. THE RESULT IS TWO SLIGHTLY DIFFERENT BEST FIT SCENARIOS. ONE WHICH SUITED THE OUTER VESSEL PROFILE, PORT EXTENSIONS, AND VESSEL FLANGES, AND ONE WHICH SUITED THE ENTIRE VESSEL SKIN. CUSTOMER CHOSE THE BEST FIT THAT BEST SUITED THE VESSEL WALL PROFILE. THIS CAUSED THE PREVIOUSLY CORRECT PORT EXTENSION FLANGE LOCATIONS TO BE MEASURED OUT OF TOLERANCE RELATIVE TO THE NEW BEST FIT.

**Corr Actn: 1:**

Correction Due 05/29/06 By: 775-D.MCCORKLE  
Action: 05/25/06 By: 775-D.MCCORKLE  
Completed: 05/22/06

Description: BASED ON THE EXPERIENCE OF LOT 1, THE FOLLOWING SEGMENTS WILL BE RE-SCANNED PRIOR TO REMOVAL OF THE PORTS. THE PORTS WILL BE ADJUSTED IN EFFORT TO BETTER SUIT THE VESSEL WALL BEST FIT (OFF FIXTURE) VS. THE BEST FIT DONE WITH THE PART ON THE FIXTURE.

Verify Due: 05/29/06 By: 927-M.MANUEL  
Completed: 05/25/06 By: 927-M.MANUEL

Verify Notes: DONE

RC Last Edited 05/22/06 By: 596-D.KNAUB



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CA Last Edited By:

---

**Documents:** 1)

Last Edited: 05/18/06 By: 775-D.MCCORKLE

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**Closure:**

Completed: 05/26/06 By: 596-D.KNAUB

Comments:

Last Edited: 05/26/06 By: 596-D.KNAUB

---

**Customer: PRINCETON PLASMA PHYSICS LAB**

Contact: Mike Viola  
E-Mail: mviola@pppl.gov

Telephone: 609-243-3655  
Fax: 609-243-2021

**Part: /**

Drawing ID: SE120-004

Revision: 2

Customer P.O.: S005243-F/Ln:1  
Serial No./Qty: VVSA # 1

Reported By: DOUG MCCORKLE  
E-Mail: dMcCorkle@MajorTool.com

Telephone: 317-636-6433  
Fax: 317-634-9420

Problem: The port 15 a and b is out of positional tolerance.

The port 15a checks 1.148 position and the face runs out from -0.413 / -0.327.

The port 15b checks 0.747 position and the face runs out from -0.172 / -0.108.

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**Proposed Disposition:**

Corresponding point cloud inspection data uploaded to PPPL ftp site 04May2006.

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Number of additional pages: \_\_\_\_\_

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**Customer Disposition:**     Use As Is     Rework     Repair     Scrap     Replace

**Technical Contact Approval:** \_\_\_\_\_

**Title:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**Buyer Approval:** \_\_\_\_\_

**Title:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**Major Tool Implemented By:** \_\_\_\_\_

**Title:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**Nonconformance Report: NC 19767**

The port 15 a and b is out of positional tolerance.

The port 15a checks 1.148 position and the face runs out from -0.413 / -0.327.

The port 15b checks 0.747 position and the face runs out from -0.172 / -0.108.

**Project Disposition:**

Accept as is.

**Approvals:**

---

Procurement Technical Representative

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Responsible Line Manager:

**Non-conformance: 19768**

Occurred: 05/04/06 Identified By: 522-R.DURHAM  
Reported: 05/04/06 By: 522-R.DURHAM  
Part: /  
Drawing ID: SE120-004 Rev 2  
Vendor:

Customer: PRINCETON PLASMA PHYSICS LAB  
Serial Number:  
Links: 1-Type:W: 65678/1.0 Sub: 135 Op: 20 /IDC:10  
2-Type:W: 65678/1.0 Sub: 135 Op: 20 /IDC:20  
Problem: The port 11 a and b is out of positional tolerance.

The port 11a checks 1.251 position and the face runs out from -0.400 / -0.314.

The port 11b checks 0.458 position and the face runs out from -0.232 / -0.195.

**Where Detected 704-IN-PROCESS INSPECTION**

**Defect: 113-POSITION - OTHER**

N/C Type: 1-STANDARD  
Trend N/C: 19766  
Last Edited: 05/22/06 By: 775-D.MCCORKLE

Target Dim: 0.2500 Max Dev:1.0010  
Reference:  
Document:

**Disposition: 924-CUSTOMER - USE AS IS - NON-RECO**

Submitted Doc: 19768  
Act OK Due: By:

Due: 05/18/06 By: 775-D.MCCORKLE  
Completed: 05/18/06 By: 775-D.MCCORKLE  
Approval Due: 05/05/06 By: 927-M.MANUEL  
Approved: 05/18/06 By: 775-D.MCCORKLE / Mfg Engine

Rework:

Inspected: By:

Instructions: Corresponding point cloud inspection data uploaded to PPPL ftp site 04May2006.  
Last Edited: 05/18/06 By: 775-D.MCCORKLE

**Root Cause / Corrective Action**

Due: 05/11/06 By: 775-D.MCCORKLE  
Completed: 05/22/06 By: 775-D.MCCORKLE

**Root Cause 1: 800-CUSTOMER**

Resource: CUS-CUSTOMER (ROOT CAUSE)  
Equipment:  
Employee:

Approval Due: 05/23/06 By: 596-D.KNAUB  
Approved: 05/22/06 By: 596-D.KNAUB

Description: THE VESSEL PROFILE WAS SCANNED AND BEST FIT PRIOR TO INSTALLATION OF THE 120 DEGREE SUPPORT STRUCTER. FIDUCIAL MONUMENTS WERE INSTALLED. AFTER INSTALLING THE VESSEL ONTO THE SUPPORT STRUCTURE THE PROFILE WAS RE-SCANNED TO PROVIDE COORDINATES FOR THE MACHINE. APPROXIMATELY 70% OF THE SURFACE WAS VISIBLE TO THE LASER TRACKER. THE INNER PROFILE (BELLY) WAS BLOCKED FROM THE LASER LINE OF SITE BY THE FIXTURE. THE RESULT IS TWO SLIGHTLY DIFFERENT BEST FIT SCENARIOS. ONE WHICH SUITED THE OUTER VESSEL PROFILE, PORT EXTENSIONS, AND VESSEL FLANGES, AND ONE WHICH SUITED THE ENTIRE VESSEL SKIN. CUSTOMER CHOSE THE BEST FIT THAT BEST SUITED THE VESSEL WALL PROFILE. THIS CAUSED THE PREVIOUSLY CORRECT PORT EXTENSION FLANGE LOCATIONS TO BE MEASURED OUT OF TOLERANCE RELATIVE TO THE NEW BEST FIT.

**Corr Actn: 1:**

Correction Due 05/29/06 By: 775-D.MCCORKLE  
Action: 05/25/06 By: 775-D.MCCORKLE  
Completed: 05/22/06

Description: BASED ON THE EXPERIENCE OF LOT 1, THE FOLLOWING SEGMENTS WILL BE RE-SCANNED PRIOR TO REMOVAL OF THE PORTS. THE PORTS WILL BE ADJUSTED IN EFFORT TO BETTER SUIT THE VESSEL WALL BEST FIT (OFF FIXTURE) VS. THE BEST FIT DONE WITH THE PART ON THE FIXTURE.

Verify Due: 05/29/06 By: 927-M.MANUEL  
Completed: 05/25/06 By: 927-M.MANUEL

Verify Notes: DONE

RC Last Edited 05/22/06 By: 596-D.KNAUB



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CA Last Edited By:

---

**Documents:** 1)

Last Edited: 05/18/06 By: 775-D.MCCORKLE

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**Closure:**

Completed: 05/26/06 By: 596-D.KNAUB

Comments:

Last Edited: 05/26/06 By: 596-D.KNAUB

---

**Customer: PRINCETON PLASMA PHYSICS LAB**

Contact: Mike Viola  
E-Mail: mviola@pppl.gov

Telephone: 609-243-3655  
Fax: 609-243-2021

**Part: /**

Drawing ID: SE120-004

Revision: 2

Customer P.O.: S005243-F/Ln:1  
Serial No./Qty: VVSA # 1

Reported By: DOUG MCCORKLE  
E-Mail: dMcCorkle@MajorTool.com

Telephone: 317-636-6433  
Fax: 317-634-9420

Problem: The port 11 a and b is out of positional tolerance.

The port 11a checks 1.251 position and the face runs out from -0.400 / -0.314.

The port 11b checks 0.458 position and the face runs out from -0.232 / -0.195.

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**Proposed Disposition:**

Corresponding point cloud inspection data uploaded to PPPL ftp site 04May2006.

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Number of additional pages: 0

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**Customer Disposition:**     Use As Is     Rework     Repair     Scrap     Replace

**Technical Contact Approval:** \_\_\_\_\_

**Title:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**Buyer Approval:** \_\_\_\_\_

**Title:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**Major Tool Implemented By:** \_\_\_\_\_

**Title:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**Nonconformance Report: NC 19768**

The port 11 a and b is out of positional tolerance.

The port 11a checks 1.251 position and the face runs out from -0.400 / -0.314.

The port 11b checks 0.458 position and the face runs out from -0.232 / -0.195.

**Project Disposition:**

Accept as is.

**Approvals:**

---

Procurement Technical Representative

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Responsible Line Manager:



**Non-conformance: 19769**

Occurred: 05/04/06 Identified By: 522-R.DURHAM  
Reported: 05/04/06 By: 522-R.DURHAM  
Part: /  
Drawing ID: SE120-004 Rev 2  
Vendor:

Customer: PRINCETON PLASMA PHYSICS LAB  
Serial Number:  
Links: 1-Type:W: 65678/1.0 Sub: 134 Op: 20 /IDC:10  
2-Type:W: 65678/1.0 Sub: 134 Op: 20 /IDC:20  
Problem: The port 10 a and b is out of positional tolerance.

The port 10a checks 0.928 position and the face runs out from -0.279 / -0.086.

The port 10b checks 1.379 position and the face runs out from -0.118 / -0.023.

**Where Detected 704-IN-PROCESS INSPECTION**

**Defect: 113-POSITION - OTHER**

N/C Type: 1-STANDARD  
Trend N/C: 19766  
Last Edited: 05/22/06 By: 775-D.MCCORKLE

Target Dim: 0.2500 Max Dev:1.1290  
Reference:  
Document:

**Disposition: 924-CUSTOMER - USE AS IS - NON-RECO**

Due: 05/18/06 By: 775-D.MCCORKLE  
Completed: 05/18/06 By: 775-D.MCCORKLE  
Approval Due: 05/05/06 By: 927-M.MANUEL  
Approved: 05/18/06 By: 775-D.MCCORKLE / Mfg Engine

Submitted Doc: 19769  
Act OK Due: By:

Rework:

Inspected: By:

Instructions: Corresponding point cloud inspection data uploaded to PPPL ftp site 04May2006.  
Last Edited: 05/18/06 By: 775-D.MCCORKLE

**Root Cause / Corrective Action**

Due: 05/11/06 By: 775-D.MCCORKLE  
Completed: 05/22/06 By: 775-D.MCCORKLE

**Root Cause 1: 800-CUSTOMER**

Resource: CUS-CUSTOMER (ROOT CAUSE)  
Equipment:  
Employee:

Approval Due: 05/23/06 By: 596-D.KNAUB  
Approved: 05/22/06 By: 596-D.KNAUB

Description: THE VESSEL PROFILE WAS SCANNED AND BEST FIT PRIOR TO INSTALLATION OF THE 120 DEGREE SUPPORT STRUCTER. FIDUCIAL MONUMENTS WERE INSTALLED. AFTER INSTALLING THE VESSEL ONTO THE SUPPORT STRUCTURE THE PROFILE WAS RE-SCANNED TO PROVIDE COORDINATES FOR THE MACHINE. APPROXIMATELY 70% OF THE SURFACE WAS VISIBLE TO THE LASER TRACKER. THE INNER PROFILE (BELLY) WAS BLOCKED FROM THE LASER LINE OF SITE BY THE FIXTURE. THE RESULT IS TWO SLIGHTLY DIFFERENT BEST FIT SCENARIOS. ONE WHICH SUITED THE OUTER VESSEL PROFILE, PORT EXTENSIONS, AND VESSEL FLANGES, AND ONE WHICH SUITED THE ENTIRE VESSEL SKIN. CUSTOMER CHOSE THE BEST FIT THAT BEST SUITED THE VESSEL WALL PROFILE. THIS CAUSED THE PREVIOUSLY CORRECT PORT EXTENSION FLANGE LOCATIONS TO BE MEASURED OUT OF TOLERANCE RELATIVE TO THE NEW BEST FIT.

**Corr Actn: 1:**

Correction Due 05/29/06 By: 775-D.MCCORKLE  
Action: 05/25/06 By: 775-D.MCCORKLE  
Completed: 05/22/06

Description: BASED ON THE EXPERIENCE OF LOT 1, THE FOLLOWING SEGMENTS WILL BE RE-SCANNED PRIOR TO REMOVAL OF THE PORTS. THE PORTS WILL BE ADJUSTED IN EFFORT TO BETTER SUIT THE VESSEL WALL BEST FIT (OFF FIXTURE) VS. THE BEST FIT DONE WITH THE PART ON THE FIXTURE.

Verify Due: 05/29/06 By: 927-M.MANUEL  
Completed: 05/25/06 By: 927-M.MANUEL

Verify Notes: DONE

RC Last Edited 05/22/06 By: 596-D.KNAUB



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CA Last Edited By:

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**Documents:** 1)  
Last Edited: 05/18/06 By: 775-D.MCCORKLE

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**Closure:** Completed: 05/26/06 By: 596-D.KNAUB  
Comments:  
Last Edited: 05/26/06 By: 596-D.KNAUB

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**Customer: PRINCETON PLASMA PHYSICS LAB**

Contact: Mike Viola  
E-Mail: mviola@pppl.gov

Telephone: 609-243-3655  
Fax: 609-243-2021

**Part: /**

Drawing ID: SE120-004

Revision: 2

Customer P.O.: S005243-F/Ln:1  
Serial No./Qty: VVSA # 1

Reported By: DOUG MCCORKLE  
E-Mail: dMcCorkle@MajorTool.com

Telephone: 317-636-6433  
Fax: 317-634-9420

Problem: The port 10 a and b is out of positional tolerance.

The port 10a checks 0.928 position and the face runs out from -0.279 / -0.086.

The port 10b checks 1.379 position and the face runs out from -0.118 / -0.023.

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**Proposed Disposition:**

Corresponding point cloud inspection data uploaded to PPPL ftp site 04May2006.

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Number of additional pages: \_\_\_\_\_

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**Customer Disposition:**     Use As Is     Rework     Repair     Scrap     Replace

**Technical Contact Approval:** \_\_\_\_\_

**Title:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**Buyer Approval:** \_\_\_\_\_

**Title:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**Major Tool Implemented By:** \_\_\_\_\_

**Title:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**Nonconformance Report: NC 19769**

The port 10 a and b is out of positional tolerance.

The port 10a checks 0.928 position and the face runs out from -0.297 / -0.086.

The port 10b checks 1.379 position and the face runs out from -0.118 / -0.023.

**Project Disposition:**

Accept as is.

**Approvals:**

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Procurement Technical Representative

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Responsible Line Manager:

**Non-conformance: 19770**

Occurred: 05/04/06 Identified By: 522-R.DURHAM  
Reported: 05/04/06 By: 522-R.DURHAM  
Part: /  
Drawing ID: SE120-004 Rev 2  
Vendor:

Customer: PRINCETON PLASMA PHYSICS LAB  
Serial Number:  
Links: 1-Type:W: 65678/1.0 Sub: 133 Op: 20 /IDC:10  
2-Type:W: 65678/1.0 Sub: 133 Op: 20 /IDC:20  
Problem: The port 9 a and b is out of positional tolerance.

The port 9a checks 0.772 position and the face runs out from +0.065 / +0.097.

The port 9b checks 1.097 position and the face runs out from +0.050 / +0.127.

**Where Detected 704-IN-PROCESS INSPECTION**

**Defect: 113-POSITION - OTHER**

N/C Type: 1-STANDARD  
Trend N/C: 19766  
Last Edited: 05/22/06 By: 775-D.MCCORKLE

Target Dim: 0.2500 Max Dev:0.8470  
Reference:  
Document:

**Disposition: 924-CUSTOMER - USE AS IS - NON-RECO**

Submitted Doc: 19770  
Act OK Due: By:

Due: 05/18/06 By: 775-D.MCCORKLE  
Completed: 05/18/06 By: 775-D.MCCORKLE  
Approval Due: 05/05/06 By: 927-M.MANUEL  
Approved: 05/18/06 By: 775-D.MCCORKLE / Mfg Engine

Rework:

Inspected: By:

Instructions: Corresponding point cloud inspection data uploaded to PPPL ftp site 04May2006.  
Last Edited: 05/18/06 By: 775-D.MCCORKLE

**Root Cause / Corrective Action**

Due: 05/11/06 By: 775-D.MCCORKLE  
Completed: 05/22/06 By: 775-D.MCCORKLE

**Root Cause 1: 800-CUSTOMER**

Resource: CUS-CUSTOMER (ROOT CAUSE)  
Equipment:  
Employee:

Approval Due: 05/23/06 By: 596-D.KNAUB  
Approved: 05/22/06 By: 596-D.KNAUB

Description: THE VESSEL PROFILE WAS SCANNED AND BEST FIT PRIOR TO INSTALLATION OF THE 120 DEGREE SUPPORT STRUCTER. FIDUCIAL MONUMENTS WERE INSTALLED. AFTER INSTALLING THE VESSEL ONTO THE SUPPORT STRUCTURE THE PROFILE WAS RE-SCANNED TO PROVIDE COORDINATES FOR THE MACHINE. APPROXIMATELY 70% OF THE SURFACE WAS VISIBLE TO THE LASER TRACKER. THE INNER PROFILE (BELLY) WAS BLOCKED FROM THE LASER LINE OF SITE BY THE FIXTURE. THE RESULT IS TWO SLIGHTLY DIFFERENT BEST FIT SCENARIOS. ONE WHICH SUITED THE OUTER VESSEL PROFILE, PORT EXTENSIONS, AND VESSEL FLANGES, AND ONE WHICH SUITED THE ENTIRE VESSEL SKIN. CUSTOMER CHOSE THE BEST FIT THAT BEST SUITED THE VESSEL WALL PROFILE. THIS CAUSED THE PREVIOUSLY CORRECT PORT EXTENSION FLANGE LOCATIONS TO BE MEASURED OUT OF TOLERANCE RELATIVE TO THE NEW BEST FIT.

**Corr Actn: 1:**

Correction Due 05/29/06 By: 775-D.MCCORKLE  
Action: 05/25/06 By: 775-D.MCCORKLE  
Completed: 05/22/06

Description: BASED ON THE EXPERIENCE OF LOT 1, THE FOLLOWING SEGMENTS WILL BE RE-SCANNED PRIOR TO REMOVAL OF THE PORTS. THE PORTS WILL BE ADJUSTED IN EFFORT TO BETTER SUIT THE VESSEL WALL BEST FIT (OFF FIXTURE) VS. THE BEST FIT DONE WITH THE PART ON THE FIXTURE.

Verify Due: 05/29/06 By: 927-M.MANUEL  
Completed: 05/25/06 By: 927-M.MANUEL

Verify Notes: DONE

RC Last Edited 05/22/06 By: 596-D.KNAUB



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CA Last Edited By:

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**Documents:** 1)

Last Edited: 05/18/06 By: 775-D.MCCORKLE

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**Closure:**

Completed: 05/26/06 By: 596-D.KNAUB

Comments:

Last Edited: 05/26/06 By: 596-D.KNAUB

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**Customer: PRINCETON PLASMA PHYSICS LAB**

Contact: Mike Viola  
E-Mail: mviola@pppl.gov

Telephone: 609-243-3655  
Fax: 609-243-2021

**Part:** /  
Drawing ID: SE120-004                      Revision: 2

Customer P.O.: S005243-F/Ln:1  
Serial No./Qty: VVSA # 1

Reported By: DOUG MCCORKLE  
E-Mail: dMcCorkle@MajorTool.com

Telephone: 317-636-6433  
Fax: 317-634-9420

Problem: The port 9 a and b is out of positional tolerance.

The port 9a checks 0.772 position and the face runs out from +0.065 / +0.097.

The port 9b checks 1.097 position and the face runs out from +0.050 / +0.127.

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**Proposed Disposition:**

Corresponding point cloud inspection data uploaded to PPPL ftp site 04May2006.

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Number of additional pages: 0

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**Customer Disposition:**     Use As Is     Rework     Repair     Scrap     Replace

**Technical Contact Approval:** \_\_\_\_\_

**Title:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**Buyer Approval:** \_\_\_\_\_

**Title:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**Major Tool Implemented By:** \_\_\_\_\_

**Title:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**Nonconformance Report: NC 19770**

The port 9 a and b is out of positional tolerance.

The port 9a checks 0.772 position and the face runs out from +0.065 / +0.097.

The port 9b checks 1.097 position and the face runs out from +0.050 / +0.127.

**Project Disposition:**

Accept as is.

**Approvals:**

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Procurement Technical Representative

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Responsible Line Manager:



**Non-conformance: 19771**

Occurred: 05/04/06 Identified By: 522-R.DURHAM  
Reported: 05/04/06 By: 522-R.DURHAM  
Part: /  
Drawing ID: SE120-004 Rev 2  
Vendor:

Customer: PRINCETON PLASMA PHYSICS LAB  
Serial Number:  
Links: 1-Type:W: 65678/1.0 Sub: 131 Op: 20 /IDC:10  
2-Type:W: 65678/1.0 Sub: 131 Op: 20 /IDC:20  
Problem: The port 7 a and b is out of positional tolerance.

The port 7a checks 1.149 position and the face runs out from -0.251 / -0.092.

The port 7b checks 0.510 position and the face runs out from -0.157 / -0.040.

**Where Detected 704-IN-PROCESS INSPECTION**

**Defect: 113-POSITION - OTHER**

N/C Type: 1-STANDARD

Target Dim: 0.2500 Max Dev:0.8990

Reference:

Last Edited: 05/04/06 By: 522-R.DURHAM

Document:

**Disposition: 924-CUSTOMER - USE AS IS - NON-RECO**

Due: 05/18/06 By: 775-D.MCCORKLE

Submitted Doc: 19771

Completed: 05/18/06 By: 775-D.MCCORKLE

Act OK Due: By:

Approval Due: 05/05/06 By: 927-M.MANUEL

Rework:

Approved: 05/18/06 By: 775-D.MCCORKLE / Mfg Engine

Inspected: By:

Instructions: Corresponding point cloud inspection data uploaded to PPPL ftp site 04May2006.

Last Edited: 05/18/06 By: 775-D.MCCORKLE

**Root Cause / Corrective Action**

Due: 05/11/06 By: 775-D.MCCORKLE

Completed: By:

**Root Cause :**

Resource: -  
Equipment:  
Employee:  
Description:

Approval Due: By:

Approved: By:

**Corr Actn: :**

Description:

Correction Due By:

Action: By:

Completed:

Verify Due: By:

Completed: By:

RC Last Edited By:

CA Last Edited By:

**Documents: 1)**

Last Edited: 05/18/06 By: 775-D.MCCORKLE

**Closure:**

Completed: By:

Comments:

Last Edited: By:

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**Customer: PRINCETON PLASMA PHYSICS LAB**

Contact: Mike Viola  
E-Mail: mviola@pppl.gov

Telephone: 609-243-3655  
Fax: 609-243-2021

**Part:** /  
Drawing ID: SE120-004                      Revision: 2

Customer P.O.: S005243-F/Ln:1  
Serial No./Qty: VVSA # 1

Reported By: DOUG MCCORKLE  
E-Mail: dMcCorkle@MajorTool.com

Telephone: 317-636-6433  
Fax: 317-634-9420

Problem: The port 7 a and b is out of positional tolerance.

The port 7a checks 1.149 position and the face runs out from -0.251 / -0.092.

The port 7b checks 0.510 position and the face runs out from -0.157 / -0.040.

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**Proposed Disposition:**

Corresponding point cloud inspection data uploaded to PPPL ftp site 04May2006.

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Number of additional pages: 0

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**Customer Disposition:**     Use As Is     Rework     Repair     Scrap     Replace

**Technical Contact Approval:** \_\_\_\_\_

**Title:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**Buyer Approval:** \_\_\_\_\_

**Title:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**Major Tool Implemented By:** \_\_\_\_\_

**Title:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**Nonconformance Report: NC 19771**

The port 7 a and b is out of positional tolerance.

The port 7a checks 1.149 position and the face runs out from -0.251 / -0.092.

The port 7b checks 0.510 position and the face runs out from -0.157 / 0.040.

**Project Disposition:**

Accept as is

**Approvals:**

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Procurement Technical Representative

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Responsible Line Manager:

**Non-conformance: 19772**

Occurred: 05/04/06 Identified By: 522-R.DURHAM  
Reported: 05/04/06 By: 522-R.DURHAM  
Part: /  
Drawing ID: SE120-004 Rev 2  
Vendor:

Customer: PRINCETON PLASMA PHYSICS LAB  
Serial Number:  
Links: 1-Type:W: 65678/1.0 Sub: 130 Op: 20 /IDC:10  
2-Type:W: 65678/1.0 Sub: 130 Op: 20 /IDC:20  
Problem: The port 6 a and b is out of positional tolerance.

The port 6a checks 1.131 position and the face runs out from -0.530 / -0.290.

The port 6b checks 0.612 position and the face runs out from -0.223 / -0.135.

**Where Detected 704-IN-PROCESS INSPECTION**

**Defect: 113-POSITION - OTHER**

N/C Type: 1-STANDARD

Target Dim: 0.2500 Max Dev:0.8810

Reference:

Last Edited: 05/04/06 By: 522-R.DURHAM

Document:

**Disposition: 924-CUSTOMER - USE AS IS - NON-RECO**

Due: 05/18/06 By: 775-D.MCCORKLE

Submitted Doc: 19772

Completed: 05/18/06 By: 775-D.MCCORKLE

Act OK Due: By:

Approval Due: 05/05/06 By: 927-M.MANUEL

Approved: 05/18/06 By: 775-D.MCCORKLE / Mfg Engine

Rework:

Inspected: By:

Instructions: Corresponding point cloud inspection data uploaded to PPPL ftp site 04May2006.

Last Edited: 05/18/06 By: 775-D.MCCORKLE

**Root Cause / Corrective Action**

Due: 05/11/06 By: 775-D.MCCORKLE

Completed: By:

**Root Cause :**

Resource: -  
Equipment:  
Employee:  
Description:

Approval Due: By:

Approved: By:

**Corr Actn: :**

Description:

Correction Due By:

Action: By:

Completed:

Verify Due: By:

Completed: By:

RC Last Edited By:

CA Last Edited By:

**Documents: 1)**

Last Edited: 05/18/06 By: 775-D.MCCORKLE

**Closure:**

Completed: By:

Comments:

Last Edited: By:

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**Customer: PRINCETON PLASMA PHYSICS LAB**

Contact: Mike Viola  
E-Mail: mviola@pppl.gov

Telephone: 609-243-3655  
Fax: 609-243-2021

**Part:** /  
Drawing ID: SE120-004                      Revision: 2

Customer P.O.: S005243-F/Ln:1  
Serial No./Qty: VVSA # 1

Reported By: DOUG MCCORKLE  
E-Mail: dMcCorkle@MajorTool.com

Telephone: 317-636-6433  
Fax: 317-634-9420

Problem: The port 6 a and b is out of positional tolerance.

The port 6a checks 1.131 position and the face runs out from -0.530 / -0.290.

The port 6b checks 0.612 position and the face runs out from -0.223 / -0.135.

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**Proposed Disposition:**

Corresponding point cloud inspection data uploaded to PPPL ftp site 04May2006.

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Number of additional pages: 0

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**Customer Disposition:**     Use As Is     Rework     Repair     Scrap     Replace

**Technical Contact Approval:** \_\_\_\_\_

**Title:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**Buyer Approval:** \_\_\_\_\_

**Title:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**Major Tool Implemented By:** \_\_\_\_\_

**Title:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**Nonconformance Report: NC 19772**

The port 6 a and b is out of positional tolerance.

The port 6a checks 1.131 position and the face runs out from -0.530 / -0.290.

The port 6b checks 0.612 position and the face runs out from -0.223 / -0.135.

**Project Disposition:**

Accept as is

**Approvals:**

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Procurement Technical Representative

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Responsible Line Manager:

**Non-conformance: 19773**

Occurred: 05/04/06 Identified By: 522-R.DURHAM  
Reported: 05/04/06 By: 522-R.DURHAM  
Part: /  
Drawing ID: SE120-004 Rev 2  
Vendor:

Customer: PRINCETON PLASMA PHYSICS LAB  
Serial Number:  
Links: 1-Type:W: 65678/1.0 Sub: 129 Op: 20 /IDC:10  
2-Type:W: 65678/1.0 Sub: 129 Op: 20 /IDC:20  
Problem: The port 5 a and b is out of positional tolerance.

The port 5a checks 1.190 position and the face runs out from -0.284 / -0.175.

The port 5b checks 0.408 position and the face runs out from -0.207 / -0.171.

**Where Detected 704-IN-PROCESS INSPECTION**

**Defect: 113-POSITION - OTHER**

N/C Type: 1-STANDARD

Target Dim: 0.2500 Max Dev:0.9400

Reference:

Last Edited: 05/04/06 By: 522-R.DURHAM

Document:

**Disposition: 924-CUSTOMER - USE AS IS - NON-RECO**

Due: 05/18/06 By: 775-D.MCCORKLE

Submitted Doc: 19773

Completed: 05/18/06 By: 775-D.MCCORKLE

Act OK Due: By:

Approval Due: 05/05/06 By: 927-M.MANUEL

Rework:

Approved: 05/18/06 By: 775-D.MCCORKLE / Mfg Engine

Inspected: By:

Instructions: Corresponding point cloud inspection data uploaded to PPPL ftp site 04May2006.

Last Edited: 05/18/06 By: 775-D.MCCORKLE

**Root Cause / Corrective Action**

Due: 05/11/06 By: 775-D.MCCORKLE

Completed: By:

**Root Cause :**

Resource: -  
Equipment:  
Employee:  
Description:

Approval Due: By:

Approved: By:

**Corr Actn: :**

Description:

Correction Due By:

Action: By:

Completed:

Verify Due: By:

Completed: By:

RC Last Edited By:

CA Last Edited By:

**Documents: 1)**

Last Edited: 05/18/06 By: 775-D.MCCORKLE

**Closure:**

Completed: By:

Comments:

Last Edited: By:

---

**Customer: PRINCETON PLASMA PHYSICS LAB**

Contact: Mike Viola  
E-Mail: mviola@pppl.gov

Telephone: 609-243-3655  
Fax: 609-243-2021

**Part:** /  
Drawing ID: SE120-004                      Revision: 2

Customer P.O.: S005243-F/Ln:1  
Serial No./Qty: VVSA # 1

Reported By: DOUG MCCORKLE  
E-Mail: dMcCorkle@MajorTool.com

Telephone: 317-636-6433  
Fax: 317-634-9420

Problem: The port 5 a and b is out of positional tolerance.

The port 5a checks 1.190 position and the face runs out from -0.284 / -0.175.

The port 5b checks 0.408 position and the face runs out from -0.207 / -0.171.

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**Proposed Disposition:**

Corresponding point cloud inspection data uploaded to PPPL ftp site 04May2006.

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Number of additional pages: 0

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**Customer Disposition:**     Use As Is     Rework     Repair     Scrap     Replace

**Technical Contact Approval:** \_\_\_\_\_

**Title:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**Buyer Approval:** \_\_\_\_\_

**Title:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**Major Tool Implemented By:** \_\_\_\_\_

**Title:** \_\_\_\_\_ **Date:** \_\_\_\_\_



**Nonconformance Report: NC 19773**

The port 5 a and b is out of positional tolerance.

The port 5a checks 1.190 position and the face runs out from -0.284 / -0.175.

The port 5b checks 0.408 position and the face runs out from -0.207 / -0.171.

**Project Disposition:**

Accept as is

**Approvals:**

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Procurement Technical Representative

---

Responsible Line Manager:

**Non-conformance: 19774**

Occurred: 05/04/06 Identified By: 522-R.DURHAM  
Reported: 05/04/06 By: 522-R.DURHAM  
Part: /  
Drawing ID: SE120-004 Rev 2  
Vendor:

Customer: PRINCETON PLASMA PHYSICS LAB  
Serial Number:  
Links: 1-Type:W: 65678/1.0 Sub: 127 Op: 20 /IDC:10  
2-Type:W: 65678/1.0 Sub: 127 Op: 20 /IDC:20  
Problem: The port 2 a and b is out of positional tolerance.

The port 2a checks 1.016 position and the face runs out from -0.013 / +0.034.

The port 2b checks 0.990 position and the face runs out from +0.001 / +0.045.

**Where Detected 704-IN-PROCESS INSPECTION**

**Defect: 113-POSITION - OTHER**

N/C Type: 1-STANDARD

Target Dim: 0.2500 Max Dev:0.7660

Reference:

Last Edited: 05/04/06 By: 522-R.DURHAM

Document:

**Disposition: 924-CUSTOMER - USE AS IS - NON-RECO**

Due: 05/18/06 By: 775-D.MCCORKLE

Submitted Doc: 19774

Completed: 05/18/06 By: 775-D.MCCORKLE

Act OK Due: By:

Approval Due: 05/05/06 By: 927-M.MANUEL

Approved: 05/18/06 By: 775-D.MCCORKLE / Mfg Engine

Rework:

Inspected: By:

Instructions: Corresponding point cloud inspection data uploaded to PPPL ftp site 04May2006.

Last Edited: 05/18/06 By: 775-D.MCCORKLE

**Root Cause / Corrective Action**

Due: 05/11/06 By: 775-D.MCCORKLE

Completed: By:

**Root Cause :**

Resource: -  
Equipment:  
Employee:  
Description:

Approval Due: By:

Approved: By:

**Corr Actn: :**

Description:

Correction Due By:

Action: By:

Completed:

Verify Due: By:

Completed: By:

RC Last Edited By:

CA Last Edited By:

**Documents: 1)**

Last Edited: 05/18/06 By: 775-D.MCCORKLE

**Closure:**

Completed: By:

Comments:

Last Edited: By:

---

**Customer: PRINCETON PLASMA PHYSICS LAB**

Contact: Mike Viola  
E-Mail: mviola@pppl.gov

Telephone: 609-243-3655  
Fax: 609-243-2021

**Part:** /  
Drawing ID: SE120-004                      Revision: 2

Customer P.O.: S005243-F/Ln:1  
Serial No./Qty: VVSA # 1

Reported By: DOUG MCCORKLE  
E-Mail: dMcCorkle@MajorTool.com

Telephone: 317-636-6433  
Fax: 317-634-9420

Problem: The port 2 a and b is out of positional tolerance.

The port 2a checks 1.016 position and the face runs out from -0.013 / +0.034.

The port 2b checks 0.990 position and the face runs out from +0.001 / +0.045.

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**Proposed Disposition:**

Corresponding point cloud inspection data uploaded to PPPL ftp site 04May2006.

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Number of additional pages: 0

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**Customer Disposition:**     Use As Is     Rework     Repair     Scrap     Replace

**Technical Contact Approval:** \_\_\_\_\_

**Title:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**Buyer Approval:** \_\_\_\_\_

**Title:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**Major Tool Implemented By:** \_\_\_\_\_

**Title:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**Nonconformance Report: NC 19774**

The port 2 a and b is out of positional tolerance.

The port 2a checks 1.016 position and the face runs out from -0.013 / +0.034.

The port 2b checks 0.990 position and the face runs out from +0.001 / +0.045.

**Project Disposition:**

Accept as is

**Approvals:**

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Procurement Technical Representative

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Responsible Line Manager:

Non-conformance: 19776

Occurred: 05/04/06 Identified By: 522-R.DURHAM

Reported: 05/04/06 By: 522-R.DURHAM

Part: /

Drawing ID: SE120-002

Rev 1

Vendor:

Customer: PRINCETON PLASMA PHYSICS LAB

Serial Number:

- Links: 1-Type:W: 65678/1.0 Sub: 1 Op: 20 /IDC:10
- 2-Type:W: 65678/1.0 Sub: 1 Op: 20 /IDC:20
- 3-Type:W: 65678/1.0 Sub: 1 Op: 20 /IDC:30
- 4-Type:W: 65678/1.0 Sub: 1 Op: 20 /IDC:40
- 5-Type:W: 65678/1.0 Sub: 1 Op: 20 /IDC:50
- 6-Type:W: 65678/1.0 Sub: 1 Op: 20 /IDC:60
- 7-Type:W: 65678/1.0 Sub: 1 Op: 20 /IDC:70
- 8-Type:W: 65678/1.0 Sub: 1 Op: 20 /IDC:80
- 9-Type:W: 65678/1.0 Sub: 1 Op: 20 /IDC:90
- 10-Type:W: 65678/1.0 Sub: 1 Op: 20 /IDC:100
- 11-Type:W: 65678/1.0 Sub: 1 Op: 20 /IDC:110
- 12-Type:W: 65678/1.0 Sub: 1 Op: 20 /IDC:120
- 13-Type:W: 65678/1.0 Sub: 1 Op: 20 /IDC:130
- 14-Type:W: 65678/1.0 Sub: 1 Op: 20 /IDC:140
- 15-Type:W: 65678/1.0 Sub: 1 Op: 20 /IDC:150
- 16-Type:W: 65678/1.0 Sub: 1 Op: 20 /IDC:160
- 17-Type:W: 65678/1.0 Sub: 1 Op: 20 /IDC:180
- 18-Type:W: 65678/1.0 Sub: 1 Op: 20 /IDC:190

Problem: The profile of the vessel wall checks -0.404 / +0.543.

The profile of the flange seal on half a checks +0.063 / +0.230.

The profile of the flange seal on half b checks -0.231 / +0.069.

Half a lifting boss a checks 2.133 true position.

Half a lifting boss b checks 1.228 true position.

Half a lifting boss c checks 1.089 true position.

Half a lifting boss d checks 0.480 true position.

Half b lifting boss a checks 0.627 true position.

Half b lifting boss b checks 1.460 true position.

Half b lifting boss c checks 0.832 true position.

Half b lifting boss d checks 3.091 true position.

The 98.641 +/-0.125 dimension for height of nb port checks 98.463-98.540.

The parallelism of port 12a face checks 0.119.

The parallelism of port 12b face checks 0.110.

The profile of port 12a checks -0.460 / +0.577.

The 81.370 +/-0.125 dimension on port 12a checks from 81.076-81.195.

The profile of port 12b checks -0.731 / +0.911.

The profile of the nb port checks -0.314 / +0.265.

**Where Detecte** 704-IN-PROCESS INSPECTION

N/C Type: 1-STANDARD  
Trend N/C: 19766  
Last Edited: 05/22/06 By: 775-D.MCCORKLE

**Defect: 111-PROFILE OF A SURFACE**

Target Dim: 0.3750                      Max Dev:0.7235  
Reference:  
Document:

**Disposition: 924-CUSTOMER - USE AS IS - NON-RECO**

Submitted Doc: 19776  
Act OK Due: By:

Due: 05/18/06 By: 775-D.MCCORKLE  
Completed: 05/18/06 By: 775-D.MCCORKLE  
Approval Due: 05/05/06 By: 927-M.MANUEL  
Approved: 05/18/06 By: 775-D.MCCORKLE / Mfg Engine

Rework:

Inspected: By:

Instructions: Corresponding point cloud inspection data uploaded to PPPL ftp site 04May2006.

Last Edited: 05/18/06 By: 775-D.MCCORKLE

**Root Cause / Corrective Action**

Due: 05/11/06 By: 775-D.MCCORKLE  
Completed: 05/22/06 By: 775-D.MCCORKLE

**Root Cause 1: 800-CUSTOMER**

Resource: CUS-CUSTOMER (ROOT CAUSE)  
Equipment:  
Employee:

Approval Due: 05/23/06 By: 596-D.KNAUB  
Approved: 05/22/06 By: 596-D.KNAUB

Description: THE VESSEL PROFILE WAS SCANNED AND BEST FIT PRIOR TO INSTALLATION OF THE 120 DEGREE SUPPORT STRUCTER. FIDUCIAL MONUMENTS WERE INSTALLED. AFTER INSTALLING THE VESSEL ONTO THE SUPPORT STRUCTURE THE PROFILE WAS RE-SCANNED TO PROVIDE COORDINATES FOR THE MACHINE. APPROXIMATELY 70% OF THE SURFACE WAS VISIBLE TO THE LASER TRACKER. THE INNER PROFILE (BELLY) WAS BLOCKED FROM THE LASER LINE OF SITE BY THE FIXTURE. THE RESULT IS TWO SLIGHTLY DIFFERENT BEST FIT SCENARIOS. ONE WHICH SUITED THE OUTER VESSEL PROFILE, PORT EXTENSIONS, AND VESSEL FLANGES, AND ONE WHICH SUITED THE ENTIRE VESSEL SKIN. CUSTOMER CHOSE THE BEST FIT THAT BEST SUITED THE VESSEL WALL PROFILE. THIS CAUSED THE PREVIOUSLY CORRECT PORT EXTENSION FLANGE LOCATIONS TO BE MEASURED OUT OF TOLERANCE RELATIVE TO THE NEW BEST FIT.

**Corr Actn: 1:**

Correction Due 05/29/06 By: 775-D.MCCORKLE  
Action: 05/25/06 By: 775-D.MCCORKLE  
Completed: 05/22/06

Description: BASED ON THE EXPERIENCE OF LOT 1, THE FOLLOWING SEGMENTS WILL BE RE-SCANNED PRIOR TO REMOVAL OF THE PORTS. THE PORTS WILL BE ADJUSTED IN EFFORT TO BETTER SUIT THE VESSEL WALL BEST FIT (OFF FIXTURE) VS. THE BEST FIT DONE WITH THE PART ON THE FIXTURE.

Verify Due: 05/29/06 By: 927-M.MANUEL  
Completed: 05/25/06 By: 927-M.MANUEL

Verify Notes: DONE

RC Last Edited 05/22/06 By: 596-D.KNAUB

CA Last Edited By:

**Documents:** 1)

Last Edited: 05/18/06 By: 775-D.MCCORKLE

**Closure:**

Completed: 05/26/06 By: 596-D.KNAUB

Comments:

Last Edited: 05/26/06 By: 596-D.KNAUB

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**Customer: PRINCETON PLASMA PHYSICS LAB**

Contact: Mike Viola  
E-Mail: mviola@pppl.gov

Telephone: 609-243-3655  
Fax: 609-243-2021

**Part: /**  
Drawing ID: SE120-002                      Revision: 1

Customer P.O.: S005243-F/Ln:1  
Serial No./Qty: VVSA # 1

Reported By: DOUG MCCORKLE  
E-Mail: dMcCorkle@MajorTool.com

Telephone: 317-636-6433  
Fax: 317-634-9420

Problem: The profile of the vessel wall checks -0.404 / +0.543.

The profile of the flange seal on half a checks +0.063 / +0.230.

The profile of the flange seal on half b checks -0.231 / +0.069.

Half a lifting boss a checks 2.133 true position.

Half a lifting boss b checks 1.228 true position.

Half a lifting boss c checks 1.089 true position.

Half a lifting boss d checks 0.480 true position.

Half b lifting boss a checks 0.627 true position.

Half b lifting boss b checks 1.460 true position.

Half b lifting boss c checks 0.832 true position.

Half b lifting boss d checks 3.091 true position.

The 98.641 +/-0.125 dimension for height of nb port checks 98.463-98.540.

The parallelism of port 12a face checks 0.119.

The parallelism of port 12b face checks 0.110.

The profile of port 12a checks -0.460 / +0.577.

The 81.370 +/-0.125 dimension on port 12a checks from 81.076-81.195.

The profile of port 12b checks -0.731 / +0.911.

The profile of the nb port checks -0.314 / +0.265.

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**Proposed Disposition:**

Corresponding point cloud inspection data uploaded to PPPL ftp site 04May2006.

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Number of additional pages: \_\_\_\_\_

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**Customer Disposition:**     Use As Is     Rework     Repair     Scrap     Replace

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Technical Contact Approval: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_

Buyer Approval: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_

Major Tool Implemented By: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_



**Nonconformance Report: NC 19776**

The profile of the vessel wall checks  $-0.404 / +0.543$ .

The profile of the flange seal on half a checks  $+0.063 / +0.230$ .

The profile of the flange seal on half b checks  $-0.231 / +0.069$ .

Half a lifting boss a checks 2.133 true position.

Half a lifting boss b checks 1.228 true position.

Half a lifting boss c checks 1.089 true position.

Half a lifting boss d checks 0.480 true position.

Half b lifting boss a checks 0.627 true position.

Half b lifting boss b checks 1.460 true position.

Half b lifting boss c checks 0.832 true position.

Half b lifting boss d checks 3.091 true position.

The  $98.641 \pm 0.125$  dimension for height of nb port checks 98.463-98.540.

The parallelism of port 12a face checks 0.119.

The parallelism of port 12b face checks 0.110.

The profile of port 12a checks  $-0.460 / +0.577$ .

The  $81.370 \pm 0.125$  dimension on port 12a checks from 81.076-81.195.

The profile of port 12b checks  $-0.731 / +0.911$ .

The profile of the nb port checks  $-0.314 / +0.265$ .

**Project Disposition:**

Accept as is. PPPL rework or work-around(s) will be needed.

**Approvals:**

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Procurement Technical Representative

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Responsible Line Manager:

**Non-conformance: 19394**

Occurred: 03/10/06 Identified By: 168-R.BACK  
Reported: 03/10/06 By: 168-R.BACK

Customer: PRINCETON PLASMA PHYSICS LAB  
Serial Number:

Part: /  
Drawing ID: SE120-004 Rev 2

Links: 1-Type:W: 65678/1.0 Sub: 2 Op: 60

Vendor:

Problem: The O.D. of flanges did not cleanup completely on either flange, have approximately 24" on one and 10" on other, 30 degrees and 10 degrees respectively.

**Where Detected 711-DURING MANUFACTURING PROCES**

**Defect: 127-LINEAR DIMENSION**

N/C Type: 1-STANDARD

Target Dim: 0.6370 Max Dev:0.0050

Reference:

Last Edited: 03/10/06 By: 168-R.BACK

Document:

**Disposition: 911-CUSTOMER - COMPLETE/REWORK**

Due: 04/12/06 By: 775-D.MCCORKLE

Submitted Doc: 19394

Completed: 04/12/06 By: 775-D.MCCORKLE

Act OK Due: 04/14/06 By: 709-K.APPLEBY

Approval Due: 03/15/06 By: 927-M.MANUEL

Approved: 04/12/06 By: 927-M.MANUEL / Cft Leader

Rework: 1-Type:W Base:65678 Lot:1 Split:0 Sub: 250 Op: 20

Inspected: 05/02/06 By: 522-R.DURHAM

Instructions: REWORK LEG PROVIDED

Last Edited: 04/12/06 By: 927-M.MANUEL

**Root Cause / Corrective Action**

Due: 03/21/06 By: 775-D.MCCORKLE

Completed: 04/07/06 By: 775-D.MCCORKLE

**Root Cause 1: 800-CUSTOMER**

Resource: CUS-CUSTOMER (ROOT CAUSE)

Approval Due: 04/07/06 By: 596-D.KNAUB

Equipment:

Approved: 04/10/06 By: 596-D.KNAUB

Employee:

Description: AT THE TIME OF FITTING AND WELDING THE FLANGES IN PLACE, THE VESSEL ENDS HAD MORE THAN DESIREABLE PROFILE DEVIATION (REFER TO NCR 19522). ADDITIONAL EFFORTS TO REGAIN THE PROFILE AND PRIOR TO INSTALLING AND WELDING THE FLANGES IN PLACE APPEARED TO BE SUCCESSFUL AT THE TIME OF WELDING, BUT MOVED AFTERWARD (THE VESSEL WALLS ACTUALLY MOVED THE FLANGES AFTER SUPPORT BRACING WAS REMOVED. THE DIRECTION GIVEN TO THE MACHINIST WAS TO FACE THE FLANGES OFF TO A MINIMUM CLEANUP AND SCRIBE A WITNESS LINE THAT WOULD DEMONSTRATE WHERE THE SHOULDER OF THE SEAL STEP WOULD BE CUT. WITH SO MUCH EXCESS STOCK ON THE FACE, AND THE EXTREME PROFILE, THE SCRIBE LINE APPEARED O.K. ALL AROUND THE PART. IT WAS NOTICED LATER THAT THIS WAS NOT THE CASE. THE PART WAS RE-SCRIBED AT +0.03" AND THIS SHOWED THE STEP ACTUALLY RAN OFF OF THE FLANGE FACE. WHEN THE IN-PROCESS CHECK OF THE FLANGES WAS PRESENTED, IT WAS EVALUATED WITH THE ASSUMED PROFILE OF 0.375". IT WAS OUT OF THIS TOLERANCE, BUT CLOSE (WITHIN <1/6"). ENGINEERING DID NOT DO A CLOSE ENOUGH EVALUATION OF THE POINT CLOUD INSPECTION PROVIDED BY QA AFTER THE FLANGES WERE WELDED IN PLACE (RELATIVE TO THE UPCOMING MACHINING OF THE SEAL GROOVE). THIS WOULD NOT HAVE PRESENTED A CLEAR PICTURE, BUT WOULD HAVE RAISED THE AWARENESS OF THE POTENTIAL NON-CLEANUP CONDITION. THE PRIMARY ROOT CAUSE IS THE FACT THAT THE DESIGN DOES NOT ALLOW FOR ANY PROFILE VARIATION ALLOWANCE ON THE CUSTOMER DESIGN. MTM APPLIED THE VESSEL WALL PROFILE TOLERANCE.

**Corr Actn: 1:**

Correction Due 04/13/06 By: 775-D.MCCORKLE

Action: 04/10/06 By: 775-D.MCCORKLE

Completed: 04/10/06

Description: ON FABRICATIONS THIS COMPLEX, WORK WILL NOT BEGIN UNTIL UNTOLERANCED SURFACE PROFILES (E.G. DEFINED BY ELECTRONIC MODEL, AND NOT TOLERANCED ON A SPECIFIC



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DRAWING) ARE CLEARLY DEFINED AND AGREED UPON.

Verify Due: 04/17/06 By: 927-M.MANUEL

Completed: 04/10/06 By: 927-M.MANUEL

Verify Notes: DONE

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RC Last Edited 04/10/06 By: 596-D.KNAUB

CA Last Edited By:

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**Documents:** 1)

Last Edited: 04/12/06 By: 775-D.MCCORKLE

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**Closure:**

Completed: 05/07/06 By: 596-D.KNAUB

Comments:

Last Edited: 05/07/06 By: 596-D.KNAUB

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**Customer: PRINCETON PLASMA PHYSICS LAB**

Contact: Mike Viola  
E-Mail: mviola@pppl.gov

Telephone: 609-243-3655  
Fax: 609-243-3248

**Part: /**

Drawing ID: SE120-004

Revision: 2

Customer P.O.: S005243-F/Ln:1  
Serial #: VVSA # 1

Reported By: DOUG MCCORKLE  
E-Mail: dMcCorkle@MajorTool.com

Telephone: 317-636-6433  
Fax: 317-634-9420

Problem: The O.D. of flanges did not cleanup completely on either flange, have approximately 24" on one and 10" on other, 30 degrees and 10 degrees respectively.

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**Proposed Disposition:**

Customer disposition required. Photographs and point inspection data being provided via email.

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Number of additional pages: 0

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**Customer Disposition:**     Use As Is     Rework     Repair     Scrap     Replace

**Technical Contact Approval:** \_\_\_\_\_

**Title:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**Buyer Approval:** \_\_\_\_\_

**Title:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**Major Tool Implemented By:** \_\_\_\_\_

**Title:** \_\_\_\_\_ **Date:** \_\_\_\_\_

Nonconformance Report: Major Tool NC19394

This is for SE120-004

**Problem:**

The O.D. of flanges did not cleanup completely on either flange, have approximately 24" on one and 10" on other, 30 degrees and 10 degrees respectively.

Doug McCorkle

**Project Disposition:**

[See NCR NC19391](#)

**Approvals:**

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Procurement Technical Representative

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Responsible Line Manager:

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Project Quality Assurance:

<b>Workorder</b> 65678/1.0	<b>Part ID</b> SE120-002-PPPL NCSX VVSA	<b>Qty</b> 1	<b>Drawing ID / Rev</b> /	<b>Engineer</b> SILVER/DOUG MCCORKLE
VVSA 120 DEGREE VESSEL				

<b>Sub ID</b> 250	<b>Part ID</b> REWORK-REWORK / REPAIR PER N/C	<b>Qty</b> 1	<b>Drawing ID / Rev</b> /
Parent Sub:2 Op:90			

<b>Operation</b>	<b>Resource</b>	<b>QtyPer</b>	<b>StartQty</b>	<b>EndQty</b>	<b>Drawing ID / Rev</b>
Sub: 250 / Seq: 10 (Closed)	230-FAB MEDIUM SOUTH	1.00	1.00	1.00	
MODIFY THE EXISTING SEAL BY WELD BUILD UP THE INSIDE PROFILE TO PROPERLY MATE UP WITH THE OUTSIDE PROFILE OF THE VESSEL FLANGE. GRIND THE STEP BACK WHERE THE .637 DIMENSIONED SURFACE IS LESS THAN 0.615 AND APPLY WELD TO ENSURE SOLID MATERIAL FOR FIELD WELDING (JOINING THE VESSEL TO THE SPACER ON SITE).					

<b>Operation</b>	<b>Resource</b>	<b>QtyPer</b>	<b>StartQty</b>	<b>EndQty</b>	<b>Drawing ID / Rev</b>
Sub: 250 / Seq: 20 (Closed)	805-INPROCESS INSPECTION - PLANT	1.00	1.00	1.00	SE121-013 / 0
VERIFY REWORK AND COMPLETE NCR 19394 SCALE THE FACE DEFINED BY THE 0.637 DIMENSION ON DRAWING ZONE G4. PER PPPL DISPOSITION THE FACE CAN BE AS NARROW AS 0.615". TREAT THIS AS A MINIMUM DIMENSION TO ENSURE SOLID MATERIAL EXISTS FOR FIELD WELDING. NOTE THAT SOME AREAS HAVE BEEN WELDED TO PROVIDE THIS MATERIAL.					

**Non-conformance: 19464**

Occurred: 03/21/06 Identified By: 775-D.MCCORKLE  
Reported: 03/21/06 By: 775-D.MCCORKLE

Customer: PRINCETON PLASMA PHYSICS LAB  
Serial Number: 2 PARTS (SN 1&2)  
Links: 1-Type:W: 65678/1.0 Sub: 0 Op: 10  
2-Type:W: 65678/2.0 Sub: 0 Op: 10

Part: /  
Drawing ID: Rev  
Vendor:

Problem: Ref: Drawing SE120-004, Sht 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, & 19. The drawing weld symbol for joining the port extension to the vessel.

All round ports: Current design requires the tube to be butted to the exterior surface of the vessel wall, prepped to the outside of the tube, and welded 100% with no backing weld or interior weld, with a continuous fillet around the exterior. The following was actually done: The hole was cut to the o.d. size of the tube and welding full penetration from the vessel interior (ground flush) with a continuous fillet weld around the tube exterior. The majority of the joint is filled from the interior, and the exterior is back ground and filled in for 100% penetration. A 3/16" continuous fillet is applied to the exterior of the joint for strength and to properly blend the two surfaces together.

Ports 4, 12, NB: Current design offers two welding options. MTM chose the optional method. The exterior fillet was welded as a continuous fillet opposed to the specified intermittent weld.

Clevis bosses: Added a 3/16 fillet to the exterior side of the joint.

**Where Detected 704-IN-PROCESS INSPECTION**

N/C Type: 1-STANDARD

Last Edited: 03/30/06 By: 927-M.MANUEL

**Defect: 154-WELD FEATURES**

Target Dim: 4646.0000 Max Dev:545.0000

Reference:

Document:

**Disposition: 914-CUSTOMER - USE AS IS**

Submitted Doc: 19464

Act OK Due: By:

Rework:

Instructions: "CUSTOMER USE AS IS"

Last Edited: 04/14/06 By: 927-M.MANUEL

Due: 04/13/06 By: 775-D.MCCORKLE

Completed: 04/13/06 By: 775-D.MCCORKLE

Approval Due: 03/22/06 By: 927-M.MANUEL

Approved: 04/14/06 By: 927-M.MANUEL / Cft Leader

Inspected: By:

**Root Cause / Corrective Action**

Due: 04/21/06 By: 596-D.KNAUB

Completed: 03/30/06 By: 596-D.KNAUB

**Root Cause 1: 806-PROCEDURE NONCOMPLIANCE**

Resource: 230-FAB MEDIUM SOUTH

Equipment:

Employee: 791-D.WEIDNER

Approval Due: 03/31/06 By: 771-B.SCHULTZ

Approved: 04/04/06 By: 890-M.VISLAY

Description: Manufacturing personnel welded ports to the vessels with a continuous full penetration weld in opposition to the drawing which called for an interrupted weld. Manufacturing personnel did this in concert with Engineering personnel under the misguided perception that Engineering was working with the customer to change the drawing to the weld seam design that they were welding the vessel to. Manufacturing personnel failed to initiate an N/C in compliance with QA-SOP-01.

**Corr Actn: 1:**

Correction Due 04/06/06 By: 890-M.VISLAY

Action: 04/06/06 By: 890-M.VISLAY

Completed: 04/04/06

Description: I have communicated to all weld shop T.L.'s via an e-mail sent on 4-4-06 to follow QA-SOP-01. We can not work to verbal instructions when deviating from a customer drawing. If the drawing hasn't been changed upon request, an NC must be generated and dispositioned "continue" prior to working on the part.

Verify Due: 04/11/06 By: 596-D.KNAUB  
Completed: 04/06/06 By: 596-D.KNAUB

Verify Notes: Participated in the discussion. And received a copy of the e-mail.

**Root Cause 2: 806-PROCEDURE NONCOMPLIANCE**

Resource: 715-SILVER TEAM, ENGINEERING  
Equipment:  
Employee: 775-D.MCCORKLE

Approval Due: 03/31/06 By: 927-M.MANUEL  
Approved: 04/26/06 By: 596-D.KNAUB

Description: Manufacturing personnel welded ports to the vessels with a continuous full penetration weld in opposition to the drawing which called for an interrupted weld. Manufacturing personnel did this in concert with Engineering personnel under the misguided perception that Engineering was working with the customer to change the drawing to the weld seam design that they were welding the vessel to. Engineering personnel failed to ensure that an N/C was initiated in compliance with QA-SOP-01.

**Corr Actn: 2:**

Correction Due 04/06/06 By: 927-M.MANUEL  
Action: 04/06/06 By: 596-D.KNAUB  
Completed: 03/30/06

Description: The engineer on the PPPL vessel project will be instructed on the right action to follow per the MTM QA-SOP-01. The fact that the customer knew of the deviation and engineering was planning to document the change doesn't change the fact that our processes did not follow the customer requirements and engineering did not follow the MTM requirements.

Verify Due: 04/11/06 By: 933-D.LEAPLEY  
Completed: 04/04/06 By: 596-D.KNAUB

Verify Notes: Quality system requirements thoroughly reviewed and understood.

**Root Cause 3: 806-PROCEDURE NONCOMPLIANCE**

Resource: 806-CWI  
Equipment:  
Employee: 933-D.LEAPLEY

Approval Due: 03/31/06 By: 933-D.LEAPLEY  
Approved: 03/30/06 By: 596-D.KNAUB

Description: Manufacturing personnel welded ports to the vessels with a continuous full penetration weld in opposition to the drawing which called for an interrupted weld. Manufacturing personnel did this in concert with Engineering personnel under the misguided perception that Engineering was working with the customer to change the drawing to the weld seam design that they were welding the vessel to. The CWI inspector noted the variance to the drawing but did not initiate an N/C under the misguided perception that Engineering had an imminent drawing change coming through the customer.

**Corr Actn: 3:**

Correction Due 04/06/06 By: 596-D.KNAUB  
Action: By: 596-D.KNAUB  
Completed: 03/30/06

Description: CWI personnel have been instructed on their failure to follow correct procedure and have been re-instructed in the tenets of QA-SOP-01.

Verify Due: By: 933-D.LEAPLEY  
Completed: 04/04/06 By: 933-D.LEAPLEY

Verify Notes: Issue was discussed with V.P. of Quality.

RC Last Edited 04/26/06 By: 596-D.KNAUB  
CA Last Edited 04/06/06 By: 596-D.KNAUB

**Documents:** 1)

Last Edited: 04/13/06 By: 775-D.MCCORKLE

**Closure:**

Completed: 05/26/06 By: 596-D.KNAUB

Comments:

Last Edited: 05/26/06 By: 596-D.KNAUB



**Non-conformance: 19612**

Occurred: 04/14/06 Identified By: 522-R.DURHAM  
Reported: 04/14/06 By: 522-R.DURHAM

Customer: PRINCETON PLASMA PHYSICS LAB  
Serial Number:

Part: /  
Drawing ID: SE122-007 Rev 2  
Vendor:

- Links: 1-Type:W: 65678/1.0 Sub: 137 Op: 20 /IDC:10
- 2-Type:W: 65678/1.0 Sub: 137 Op: 20 /IDC:20
- 3-Type:W: 65678/1.0 Sub: 137 Op: 20 /IDC:30
- 4-Type:W: 65678/1.0 Sub: 137 Op: 20 /IDC:40

Problem: The positions of ports 17 a and b and 18 a and b are out of tolerance.

Port 17a checks 1.351 position and the face checks -0.238 / -0.172..

Port 17b checks 1.163 position and the face checks -0.293 / -0.255.

Port 18a checks 1.083 position and the face checks +0.068 / +0.134.

Port 18b checks 1.077 position and the face checks -0.095 / -0.030.

**Where Detected 704-IN-PROCESS INSPECTION**

**Defect: 113-POSITION - OTHER**

N/C Type: 1-STANDARD

Target Dim: 0.2500 Max Dev:1.1010

Reference:

Last Edited: 05/04/06 By: 522-R.DURHAM

Document:

**Disposition: 924-CUSTOMER - USE AS IS - NON-RECO**

Due: 05/18/06 By: 775-D.MCCORKLE

Submitted Doc: 19612

Completed: 05/18/06 By: 775-D.MCCORKLE

Act OK Due: By:

Approval Due: 04/17/06 By: 927-M.MANUEL

Rework:

Approved: 05/18/06 By: 775-D.MCCORKLE / Mfg Engine

Inspected: By:

Instructions: Corresponding point cloud inspection data uploaded to PPPL ftp site 04May2006.

Last Edited: 05/18/06 By: 775-D.MCCORKLE

**Root Cause / Corrective Action**

Due: 05/11/06 By: 775-D.MCCORKLE

Completed: 05/22/06 By: 775-D.MCCORKLE

**Root Cause 1: 800-CUSTOMER**

Resource: CUS-CUSTOMER (ROOT CAUSE)

Approval Due: 05/23/06 By: 596-D.KNAUB

Equipment:

Approved: 05/22/06 By: 596-D.KNAUB

Employee:

Description: BOTH PORT 17 AND 18 PROTRUDE OFF OF THE DOME SUB-ASSEMBLY IN A MANNER THAT IS NEARLY IMPOSSIBLE TO ACHIEVE WITHIN THE GIVEN TOLERANCE. BEST EFFORT RESULTS ARE PROVIDED.

**Corr Actn: 1:**

Correction Due 05/29/06 By: 775-D.MCCORKLE

Action: 05/25/06 By: 775-D.MCCORKLE

Completed: 05/22/06

Description: NONE REQUIRED

Verify Due: 05/29/06 By: 927-M.MANUEL

Completed: 05/25/06 By: 927-M.MANUEL

Verify Notes: DONE

RC Last Edited 05/22/06 By: 596-D.KNAUB

CA Last Edited By:

**Documents:** 1)



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Last Edited: 05/18/06 By: 775-D.MCCORKLE

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**Closure:**

Completed: 05/26/06 By: 596-D.KNAUB

Comments:

Last Edited: 05/26/06 By: 596-D.KNAUB

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**Customer: PRINCETON PLASMA PHYSICS LAB**

Contact: Mike Viola  
E-Mail: [mviola@pppl.gov](mailto:mviola@pppl.gov)

Telephone: 609-243-3655  
Fax: 609-243-2021

**Part: / VVSA # 1 Port Dome B installation**

Drawing ID: SE122-007                      Revision: 2

Customer P.O.: S005243-F/Ln:1  
Serial No.: VVSA 1

Reported By: DOUG MCCORKLE  
E-Mail: [dMcCorkle@MajorTool.com](mailto:dMcCorkle@MajorTool.com)

Telephone: 317-636-6433  
Fax: 317-634-9420

Problem: The face of port 18B is under the low limit. The face checks from -0.128 / -0.175.

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**Proposed Disposition:**

CONTINUE WITH FINAL CLEANUP OPERATIONS OF THE PORT EXTENSION SUB-ASSEMBLY  
SUBMITTING TO PPPL FOR APPROVAL WITH A RECOMMENDATION OF USE AS IS.  
NOTE THE ANGULAR LOCATION IS WITHIN TOLERANCE, THE PORT IS MERELY SHORTER THAN  
ALLOWABLE BY DRAWING GD&T.

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Number of additional pages: 0

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**Customer Disposition:**     Use As Is     Rework     Repair     Scrap     Replace

**Technical Contact Approval:** \_\_\_\_\_

**Title:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**Buyer Approval:** \_\_\_\_\_

**Title:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**Major Tool Implemented By:** \_\_\_\_\_

**Title:** \_\_\_\_\_ **Date:** \_\_\_\_\_

Nonconformance Report: Major Tool NC19612

This is for: **VVSA # 1 Port Dome B installation** SE122-007

**Problem:**

The face of port 18B is under the low limit. The face checks from -0.128 / -0.175.

**MTM Recommended Disposition:**

CONTINUE WITH FINAL CLEANUP OPERATIONS OF THE PORT EXTENSION SUB-ASSEMBLY  
SUBMITTING TO PPPL FOR APPROVAL WITH A RECOMMENDATION OF USE AS IS.  
NOTE THE ANGULAR LOCATION IS WITHIN TOLERANCE, THE PORT IS MERELY SHORTER THAN  
ALLOWABLE BY DRAWING GD&T.

**Project Disposition:**

Accept as is.

**Approvals:**

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Procurement Technical Representative

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Responsible Line Manager:

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**Customer: PRINCETON PLASMA PHYSICS LAB**

Contact: LARRY SUTTON  
E-Mail: S-04286-F

Telephone: 609-243-2441  
Fax: 609-243-2021

**Part: /**

Drawing ID: SE122-007

Revision: 2

Customer P.O.: S005243-F/Ln:1  
Serial No./Qty:

Reported By: DOUG MCCORKLE  
E-Mail: dMcCorkle@MajorTool.com

Telephone: 317-636-6433  
Fax: 317-634-9420

Problem: The positions of ports 17 a and b and 18 a and b are out of tolerance.

Port 17a checks 1.351 position and the face checks -0.238 / -0.172..

Port 17b checks 1.163 position and the face checks -0.293 / -0.255.

Port 18a checks 1.083 position and the face checks +0.068 / +0.134.

Port 18b checks 1.077 position and the face checks -0.095 / -0.030.

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**Proposed Disposition:**

Corresponding point cloud inspection data uploaded to PPPL ftp site 04May2006.

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Number of additional pages: \_\_\_\_\_

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**Customer Disposition:**     Use As Is     Rework     Repair     Scrap     Replace

**Technical Contact Approval:** \_\_\_\_\_

**Title:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**Buyer Approval:** \_\_\_\_\_

**Title:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**Major Tool Implemented By:** \_\_\_\_\_

**Title:** \_\_\_\_\_ **Date:** \_\_\_\_\_

## **Nonconformance Report: 19612 Rev.A**

Problem: The positions of ports 17 a and b and 18 a and b are out of tolerance.

Port 17a checks 1.351 position and the face checks -0.238 / -0.172..

Port 17b checks 1.163 position and the face checks -0.293 / -0.255.

Port 18a checks 1.083 position and the face checks +0.068 / +0.134.

Port 18b checks 1.077 position and the face checks -0.095 / -0.030

### **Project Disposition:**

Use As-is

### **Approvals:**

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Procurement Technical Representative

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Responsible Line Manager: