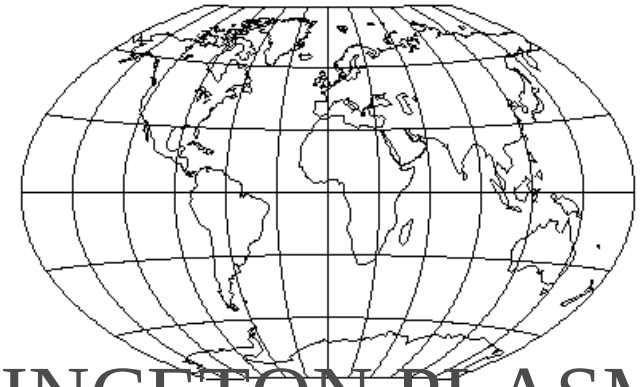


PRINCETON PLASMA PHYSICS LAB

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

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 Type: Document Description / Material - 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 Type: Document Description / Material - 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 Type: Document Description / Material - 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 Type: Document Description / Material - 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 Type: Document Description / Material - Material Description [File Name] (Heat Lot)

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

Item#	Sub	Op	Pc	Document Type: Document Description / Material - Material Description [File Name] (Heat Lot)
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

Item#	Sub	Op	Pc	Document Type: Document Description / Material - Material Description [File Name] (Heat Lot)
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

Item#	Sub	Op	Pc	Document Type: Document Description / Material - Material Description [File Name] (Heat Lot)
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

Item#	Sub	Op	Pc	Document Type: Document Description / Material - Material Description [File Name] (Heat Lot)
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 [See Item #44]
81	220	30		Map(s): X-RAY MAP [See Item #45]

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

Item#	Sub	Op	Pc	Document Type: Document Description / Material - 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 Type: Document Description / Material - 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 Type: Document Description / Material - 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 Type: Document Description / Material - 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 Type: Document Description / Material - 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 Type: Document Description / Material - 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 Type: Document Description / Material - Material Description [File Name] (Heat Lot)

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 Type: Document Description / Material - 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 Type: Document Description / Material - 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 Type: Document Description / Material - 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 Type: Document Description / Material - 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 Type: Document Description / Material - 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 Type: Document Description / Material - 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 Type: Document Description / Material - Material Description [File Name] (Heat Lot)

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 Type: Document Description / Material - Material Description [File Name] (Heat Lot)
126	122	10		Inspection Data Checklist: 4 steps
127	122	20		Inspection Data Checklist: 2 steps

SE120-003-NB

Item#	Sub	Op	Pc	Document Type: Document Description / Material - Material Description [File Name] (Heat Lot)
128	119	10		Inspection Data Checklist: 2 steps

SE120-004 PORT NB - PORT NB SUB-ASSEMBLY

Item#	Sub	Op	Pc	Document Type: Document Description / Material - Material Description [File Name] (Heat Lot)
129	223	10		Inspection Data Checklist: 4 steps

SE120-004 - VVSA 120 DEG. VESSEL

Item#	Sub	Op	Pc	Document Type: Document Description / Material - Material Description [File Name] (Heat Lot)
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 Type: Document Description / Material - Material Description [File Name] (Heat Lot)
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 Type: Document Description / Material - Material Description [File Name] (Heat Lot)
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 Type: Document Description / Material - Material Description [File Name] (Heat Lot)
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 Type: Document Description / Material - Material Description [File Name] (Heat Lot)
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 Type: Document Description / Material - 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 Type: Document Description / Material - 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 Type: Document Description / Material - 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 Type: Document Description / Material - 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 Type: Document Description / Material - 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 Type: Document Description / Material - 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 Type: Document Description / Material - 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 Type: Document Description / Material - 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 Type: Document Description / Material - 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 Type: Document Description / Material - Material Description [File Name] (Heat Lot)

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

Item#	Sub	Op	Pc	Document Type: Document Description / Material - Material Description [File Name] (Heat Lot)
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

Item#	Sub	Op	Pc	Document Type: Document Description / Material - Material Description [File Name] (Heat Lot)
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

Item#	Sub	Op	Pc	Document Type: Document Description / Material - Material Description [File Name] (Heat Lot)
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

Item#	Sub	Op	Pc	Document Type: Document Description / Material - Material Description [File Name] (Heat Lot)
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 [See Item #164] (5L211-1A)

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

Item#	Sub	Op	Pc	Document Type: Document Description / Material - Material Description [File Name] (Heat Lot)
166	193	60		Inspection Data Checklist: 5 steps

SE121-014 PORT - SPACER PORT SUB-ASSY

Item#	Sub	Op	Pc	Document Type: Document Description / Material - Material Description [File Name] (Heat Lot)
167	193	15		Inspection Data Checklist: 2 steps

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

Item#	Sub	Op	Pc	Document Type: Document Description / Material - Material Description [File Name] (Heat Lot)
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

Item#	Sub	Op	Pc	Document Type: Document Description / Material - Material Description [File Name] (Heat Lot)
171	205	30		Inspection Data Checklist: 1 steps
172	205	130		Inspection Data Checklist: 1 steps
173	205	150		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 Type: Document Description / Material - 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 Type: Document Description / Material - 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 [See 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 Type: Document Description / Material - 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 Type: Document Description / Material - 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 Type: Document Description / Material - 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 Type: Document Description / Material - 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 [See Item #192] (818102)

SE121-095

Item#	Sub	Op	Pc	Document Type: Document Description / Material - Material Description [File Name] (Heat Lot)
194	224	10	10	Material Certification: / SE121-095-1 - VVSA FLANGE SEAL - ALLOY 625 [mc114888.tif] (2650 5 6805)
195	224	10	10	Material Certification: TRACE ID: 135016 / SE121-095-1 - VVSA FLANGE SEAL - ALLOY 625 [mc114399.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: / SE121-095-1 - VVSA FLANGE SEAL - ALLOY 625 [mc117251.tif] (2650 5 6834)
198	244	10	10	Material Certification: TRACE ID: 135016 / SE121-095-1 - VVSA FLANGE SEAL - ALLOY 625 [See Item #197] (2650 5 6834)
199	244	40		Inspection Data Checklist: 2 steps

SE121-099

Item#	Sub	Op	Pc	Document Type: Document Description / Material - 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 [See Item #200] (819882-117581)
203	229	40		Inspection Data Checklist: 2 steps

SE121-099-1 - VV END COVER SEAL

Item#	Sub	Op	Pc	Document Type: Document Description / Material - 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 Type: Document Description / Material - Material Description [File Name] (Heat Lot)
208	153	10		Inspection Data Checklist: 1 steps

SE122-072

Item#	Sub	Op	Pc	Document Type: Document Description / Material - Material Description [File Name] (Heat Lot)
209	2	80		Inspection Data Checklist: 1 steps

SE124-047 - CLEVIS BOSS

Item#	Sub	Op	Pc	Document Type: Document Description / Material - 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 Type: Document Description / Material - 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: 94880 / INCONEL625_093_GTAW - WELD WIRE/GTAW, .093 DIA [mc095280.pdf] (CB7996 / CT7519 / CV8061 / K48)
215	0	10	30	Material Certification: Trace ID: 95372 / INCONEL625_093_GTAW - WELD WIRE/GTAW, .093 DIA [mc095872.tif] (CB7996 / CT7519 / CV8061 / K48)
216	0	10	30	Material Certification: Trace ID: 94242 / INCONEL625_093_GTAW - WELD WIRE/GTAW, .093 DIA [mc094945.pdf] (CB7996 / CT7519 / CV8061 / K48)
217	0	10	30	Material Certification: Trace ID: 83645 / INCONEL625_093_GTAW - WELD WIRE/GTAW, .093 DIA [mc075605.tif] (CB7996 / CT7519 / CV8061 / K48)

CERTIFICATE OF CONFORMANCE

Date: 09/17/06
User ID: UPCHURC#

TO: PRINCETON PLASMA PHYSICS LAB **DATE: 09/17/2006**

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:

   [X] From materials furnished by Customer for the production of such parts.

   [X] 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.F. Upchurch Title: Inspector Date: 9-17-06

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 - **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

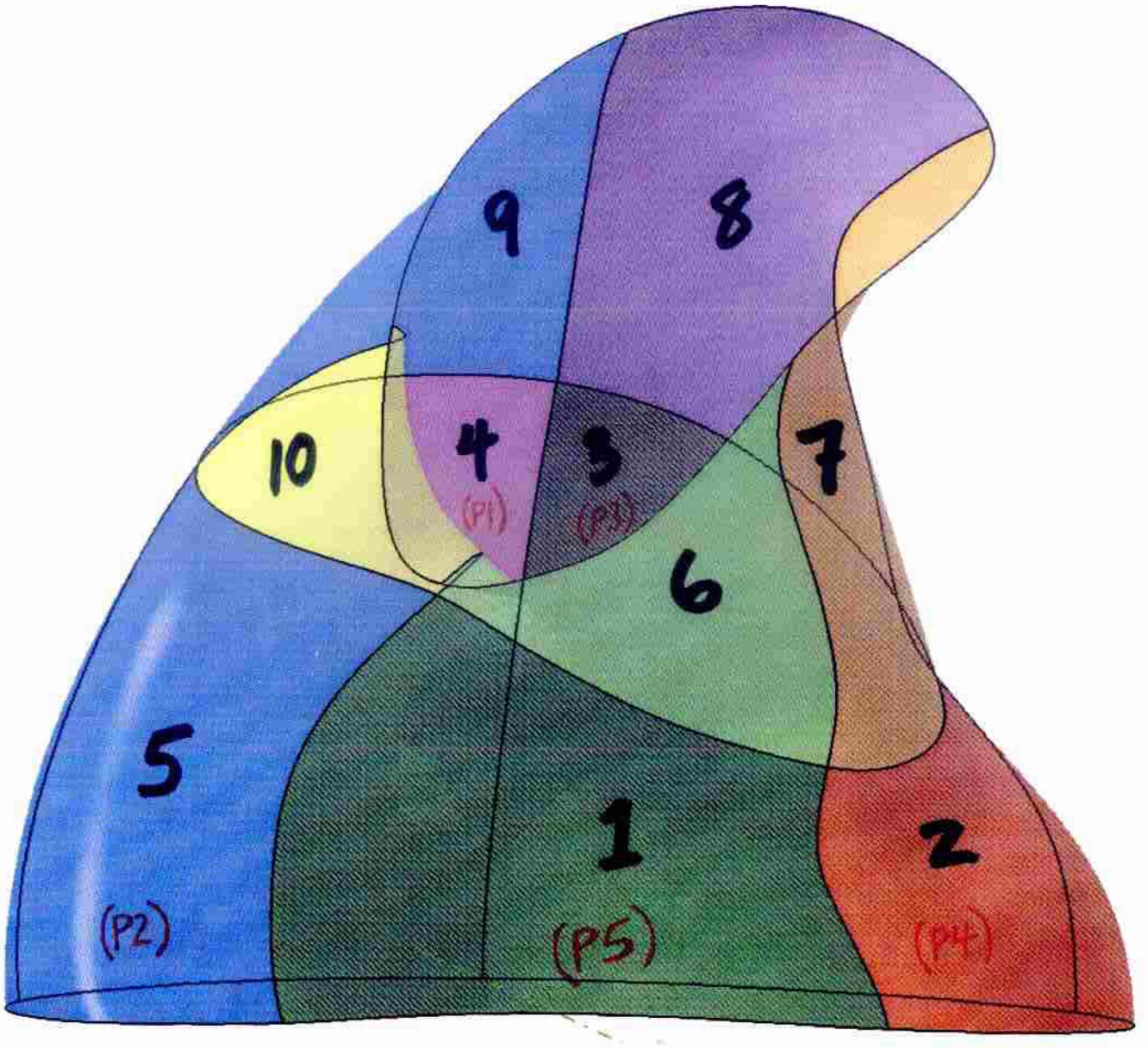
This is to certify that the items shipped on the above referenced purchase order number comply with all standards in our MDC catalog.

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

RECEIVED
FEB 28 2006
105152
Lines 1,2,3
RKU

...Dedicated to Quality and Service

Form 10-13, Rev B


9
8
10
4
(P1)
3
(P3)
7
6
5
(P2)
1
(P5)
2
(P4)

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	
* (30)		VWI ROOT PASS WELD 2-7 REWORK		MFG CWI		VISUAL	WELD ACCEPTABLE P CUSTOMER DRAWIN PECIFICATION REQUI EMENTS.	933-D.L 08-03-05	933-D.L 08-03-05		A
* (40)		VWI ROOT PASS WELD 2-3 REWORK		MFG CWI		VISUAL	WELD ACCEPTABLE P CUSTOMER DRAWIN PECIFICATION REQUI EMENTS.	933-D.L 08-03-05	933-D.L 08-03-05		A
* (130)		VWI EXTERIOR COVER PASS WELD 2-7		MFG CWI		VISUAL	WELD ACCEPTABLE P CUSTOMER DRAWIN PECIFICATION REQUI EMENTS.	709-K.A 08-04-05	933-D.L 08-05-05		A
* (140)		VWI EXTERIOR COVER PASS WELD 2-3		MFG CWI		VISUAL	WELD ACCEPTABLE P CUSTOMER DRAWIN PECIFICATION REQUI EMENTS.	709-K.A 08-04-05	933-D.L 08-05-05		A
* (150)		VWI INTERIOR COVER PASS WELD 2-7		MFG CWI		VISUAL	WELD ACCEPTABLE P CUSTOMER DRAWIN PECIFICATION REQUI EMENTS.	709-K.A 08-05-05	933-D.L 08-05-05		A
* (160)		VWI INTERIOR COVER PASS WELD 2-3		MFG CWI		VISUAL	WELD ACCEPTABLE P CUSTOMER DRAWIN PECIFICATION REQUI EMENTS.	709-K.A 08-05-05	933-D.L 08-05-05		A

4959

10520 Chester Road
Woodlawn, Ohio 45215

COOPERHEAT MQS MQS Inspection

CLIENT	INTERPRETER/LEVEL	RADIOGRAPHER	JOB NO	P.O. NO	DATE
Major Tool & Machine	John Ballard II	John Ballard	13860001	N/A	1/11/06

ISOTOPE/X-RAY	DIA. X LEN/KV	CURIES/MA	FOCAL SPOT SIZE	SFD	SOD	TIME	FILM PROCESSING	FILM TYPE	FILM TECHNIQUE	PB SCREENS
IR-192	.118"x.07A"	39	.142"	15"	14.625	2:30	Auto	Kodak AA	Double	.010"

WELD PROCESS	MATERIAL SPEC.	MATERIAL DIAMETER	MATERIAL THICKNESS	PENETRAMETER	SHIM	ACCEPTANCE STANDARD
GTAW	625 Inconel	N/A	.375"	ASTM 1B	N/A	ASME VIII, Div.1, UW-51

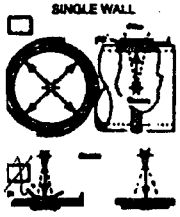
DESCRIPTION: 65678/1.0/1234/20/1818
SE120-002
Page 1 of 2

REMARKS: Densitometer - 12105
Cal due 2/2/06

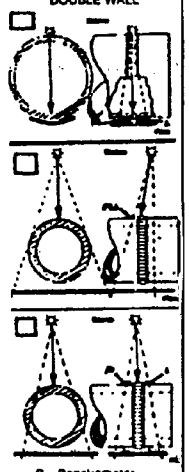
FITTING, SEAM OR FITTING	FILM INTERVAL NUMBER	WELDER IDENTIFICATION	PENETRAMETER SIZE	PENETRAMETER QUALITY LEVEL	SLAG	POROSITY	POROSITY WITH TAIL	CRACK	LACK OF PEN	LACK FUSION	INTERNAL CONVEXITY	INTERNAL CONCAVITY	TUNGSTEN	MELT-THROUGH	BURN-THROUGH	CRATER-PIT	OXIDATION	INTERNAL UNDERCUT	EXTERNAL UNDERCUT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

End View | Side View

SINGLE WALL



DOUBLE WALL



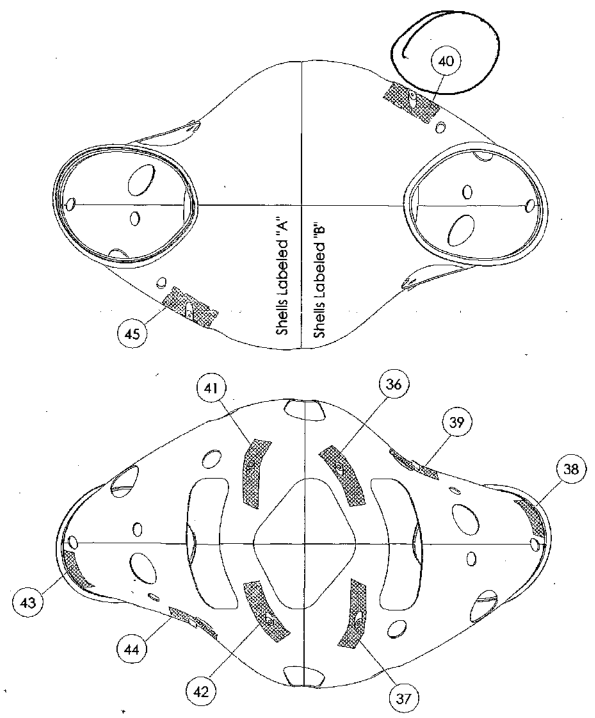
P Penetrameter
S Shim
L Location Marker
( ) OTHER

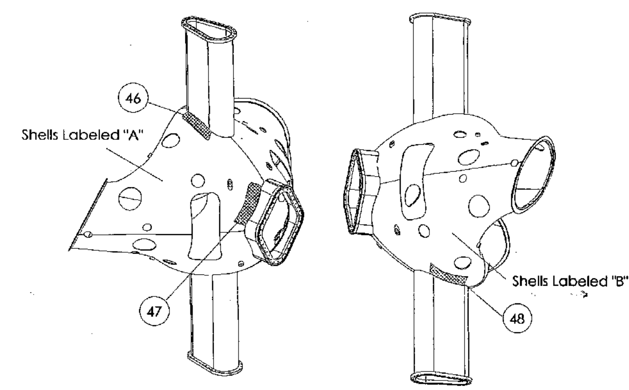
John Ballard II
Cooperheat-MQS Signature

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	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 Inc
DRAWN LAK
TITLE: 120° Segment X-Ray Film Layout
SIZE D DWG. NO. SE120-002-1-XMTM REV 2A
SCALE 1:10 WEIGHT SHEET 3 OF 3

MC115733.TIF2

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*	G6		PROFILOMETER	QA		J-825	25 MICRO	854-R.U			A
(10)		32 MICRO-INCH RA SURFACE FINISH						04-30-06			

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	3 PLUG WELDS ACCEP	933-D.L			**A**
							ABLE PER SPECIFICAT				
		CWI VISUAL WELD INSPECT WELD SU					ION REQUIREMENTS.				
		UNDER 8X MAGNIFICATION.									
(10)		REPAIR WELDS REF. NCR 19392						04-24-06			

09/09/2005 10 41 FAX 8805283790 AERODYNE 004/007

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

CERTIFICATE OF TEST

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

CUST MAKDLE ... CHK BY SS
HEAT 238C DATE 8.25.05
SIZE .4375" QUAN ...
PO# PO5-042 INV 111161 918105
SIGNATURE

Prof 2 Rev 1

ALLVAC
P.O. Box 5030 Ashcraft Ave
Monroe, NC 28111-5030
Phone (704) 289-4511

Customer Name	Purchase Order	Size	Alloy
AERODYNE ALLOYS LLC	ACT-4865	4375' Rd	NICKELVAC 625

Pcs 212 Weight 1409

Tina 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	AB
PWA 300	BM	PWA 310	BA
S-1000	01/03/2005	S-400	04/29/2004

SEP 15 2005

MTM 017 RECEIVED SEP 14 2005 100533 JH Line 1

MC111631.TIF1

Traveler(s)	Heat #	Ingot#
88598 A	238C	

ALLVAC P.O. Box 5030 Ashcraft Ave Monroe, NC 28111-5030 Phone (704) 289-4511

CHEMISTRY

CR EQ = Chromium Equiv Cb = Nb

	C	S	Mn	Si	Cr	CR EQ	Mo	Co	Ti	Al	B	Zr
HEAT AVG	.057	<.0003	.05	.19	21.53	-	8.63	.06	.23	.19	.002	<.01

	Fe	Cu	Ni	P	Cb	Ta	W	V	Cb+Ta	Ti+Al	Ni+Co	Y
HEAT AVG	4.34	.04	61.21	.009	3.44	<.01	.03	.03	3.45	.42	61.27	-

CHEMISTRY (TRACE)

	Mg
HEAT AVG	-
6F1	.0033

CHEMISTRY REMARKS

Chemistry tested at ALLVAC unless otherwise noted.

As Shipped Tensile Test

Operation	Ingot	Heat Treat Code	Test Dir	Temp F	UTS ksi	.2% Yield ksi	.02% Yield ksi	%EL 4D	%EL 5D	%RA	Gage Length 4D	Gage Length 5D	Tensile Diameter	Tested At
		1600EX	LC	ROOM	132.4	74.1		58.2		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, RB = Drawbar, PB = Paddle, 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: SUPER = Crosshead Sep Rate of 10 inches/minute

SEP 15 2005

MTM 013

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

ALLVAC P O Box 5628 Ashcraft Ave Monroe, NC 28111-5628 Phone (704) 289-4511

AS SHIPPED HARDNESS

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

TENSILE/STRESS RUPTURE HEAT TREATMENT

HT Code 1600BX

Location	Temp F	Hours	Mins	Furnace Cool Rate Per Hrs (F)	Cool Code
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 MTM 017

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. 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.

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

MTM 017
SEP 15 2005

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	
*			PIN GAGE	QA		J-652-3	.625	854-R.U			A
		RECORD PORT NB HOLE DIAMETERS									
(10)		AFTER REWORK (REF NCR 19115)						05-19-06			

MC108415.TIF1

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

27117

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

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	.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 ~~LBS/SQ. INCH~~	YIELD LBS/SQ INCH	ELONGATION %	HARDNESS	BREAK	ROA %
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

Q. C. REPRESENTITIVE

MTM 09

DATE SIGNED
4/04/05

5/24/05

IF INITIALED AND DATED HERE_____THIS IS AN AMENDED CERTIFICATION

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.** / **QUANTITY**
1	1/16 X 36"	ARCOS 625	AB8051 / 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 Derby Q.A. CLERK
QUALITY ASSURANCE DEPARTMENT

8/505
Line 1, 7

12/5/03

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#

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
0.03	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 81

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 4/04/05

27117

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

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	.0035	0.040	63.89	22.35	09.00	0.020

NB 3.45 OTHER ELEMENTS 0.1265

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

MECHANICAL PROPERTIES

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

WRAP TEST	UNIFORM. TEST	MANDREL TEST	GRAIN SIZE	PERMEABILITY

OTHER TEST(S) AND/OR REQUIREMENTS:

411865
95355
USA Line 6

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

COUNTRY OF ORIGIN	Q. C. REPRESENTITIVE	DATE SIGNED
USA	Doyle Craig	4/04/05

IF INITIALED AND DATED HERE_____THIS IS AN AMENDED CERTIFICATION

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.

06.20.05
97303
Inv 1

ARCOS

GIB GRATTI, QUALITY ASSURANCE MANAGER
QUALITY ASSURANCE DEPARTMENT

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		A
(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	
*				MFG		VISUAL	LESS THAN 1 X 10 (-3)	854-R.U			A
		BASE PRESSURE LESS THAN 1 x 10(-3)									
(10)		(PRIOR TO THERMAL CYCLE)		QA				04-30-06			

COOPERHEAT MQS

4959
10520 Chester Road
Woodlawn, Ohio 45215

CLIENT	INTERPRETER/LEVEL	RADIOGRAPHER	JOB NO	P.O. NO	DATE
MAJOR TOOL & MACHINE	JAMES BERG II	JAMES BERG	13850291-2	—	9-8-05

ISOTOPE/X-RAY	DIA. X LENGTH	CURIES/MA	FOCAL SPOT SIZE	SFD	SOD	TIME	FILM PROCESSING	FILM TYPE	FILM TECHNIQUE	PB SCREENS
Ir 192	.118"x.094"	33.7	.151"	15"	14.625"	5:15min	AUTO	Kodak MA	Double	.010"

WELD PROCESS	MATERIAL SPEC.	MATERIAL DIAMETER	MATERIAL THICKNESS	PENETRAMETER	SHIM	ACCEPTANCE STANDARD
FCAW	625 INCONEL	N/A	3/8"	ASTM 1B	N/A	ASME SEC VIII, DIV 1, UW-51

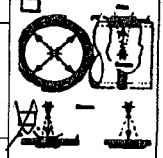
DESCRIPTION: SE 120-002 65678/1.015/195/818 Page 1 of 3

REMARKS: SEE MAP FOR LOCATIONS.

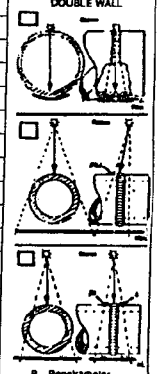
FITTING SEAM OR FITTING	FILM INTERVAL NUMBER	WELDER IDENTIFICATION	PENETRAMETER SIZE	PENETRAMETER QUALITY LEVEL	SLAG	POROSITY	POROSITY WITH TAIL	CRACK	LACK OF PEN	LACK FUSION	INTERNAL CONVEXITY	INTERNAL CONCAVITY	TUNGSTEN	MELT-THROUGH	BURN-THROUGH	CRATER-PIT	OXIDATION	INTERNAL UNDERCUT	EXTERNAL UNDERCUT	ALIGNED INDICATIONS	WELD CONTOUR	MIS-MATCH	FILM ARTIFACT	VISUAL CONCERNS	FILM DENSITY	SEE REMARKS	ACCEPT	REJECT
W8	0-14		1B	.010"		✓																					✓	
10	↓		↓	↓		✓																					✓	
11						✓																					✓	
12						✓																					✓	
23																											✓	
24						✓																					✓	
25																											✓	
27	↓		↓	↓																							✓	

End View | Side View

SINGLE WALL



DOUBLE WALL



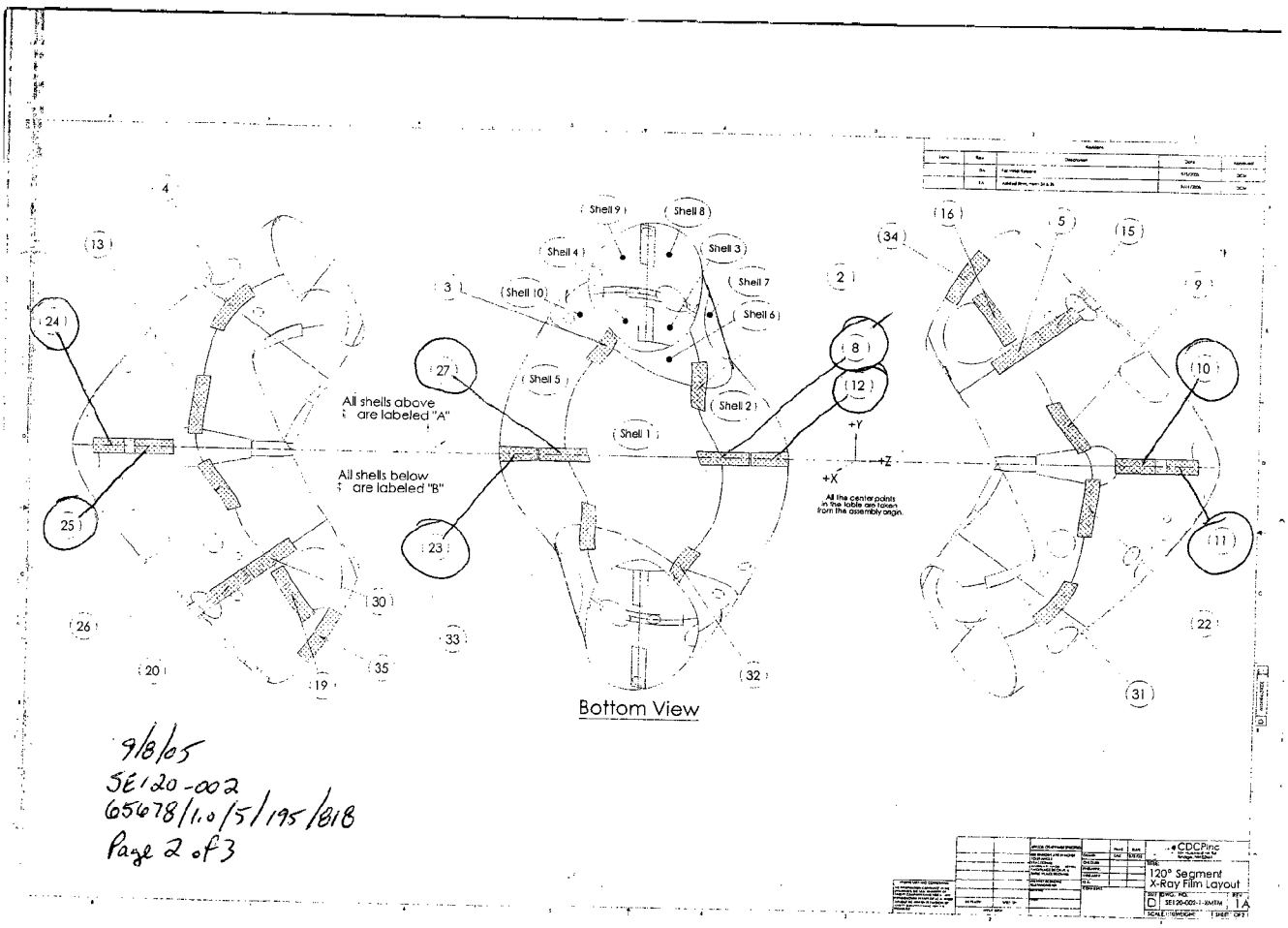
P Penetrameter
S Shim
L Location Marker
( ) OTHER

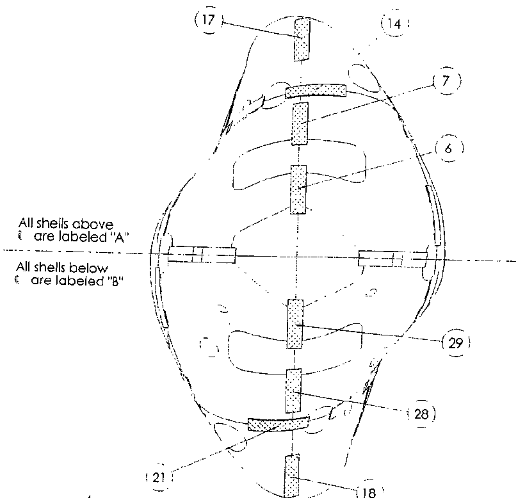
655506 II
Cooperheat-MQS Signature

Douglas R. Edwards
Customer Representative Signature

9-8-05
Date

MC111789.TIF1





9/8/05
SE 120-002
65678/1.0/5/195/818
Page 3 of 3

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	(42.35,29.66,21.15)		
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-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	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	(85.55,0.00,-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,-29.66,-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	E-2	7A-8A	(28.10,49.91,14.70)		
35	1	B-7	7B-8B	(28.10,-49.91,-14.70)		

CDCR
TITLE: 120° Segment X-Ray Film Layout
SIZE D DWG. NO SE120-002-1-XMTM REV 1A
SCALE: 1:10 WEIGHT: SHEET 2 OF 2

MC111789.TIF3

COOPERHEAT MQS

4959

10520 Chester Road
Woodlawn, Ohio 45215

CLIENT	INTERPRETER/LEVEL	RADIOGRAPHER	JOB NO	P.O. NO	DATE
Major Tool + Machine	Robert Weaver / II	Robert Weaver	13860001	N/A	1/11/06

ISOTOPE/X-RAY	DIA. X LEN/KV	CURIES/MA	FOCAL SPOT SIZE	SFD	SOD	TIME	FILM PROCESSING	FILM TYPE	FILM TECHNIQUE	PB SCREENS
IR192	.118"X.079"	39	.142"	15"	14.625"	2:30	Auto	Kodak AA	Double	.010"

WELD PROCESS	MATERIAL SPEC.	MATERIAL DIAMETER	MATERIAL THICKNESS	PENETRAMETER	SHIM	ACCEPTANCE STANDARD
GTAW	625 INconel	N/A	.375"	ASTM 1B	N/A	ASME VIII, Div. 1, UW-51

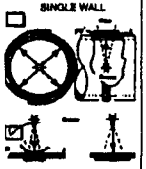
DESCRIPTION
65678/1.0/5/247/818
SE120-002
Page 1 of 2 & 3

REMARKS
Densitometer-10105
Cal due-2/2/06

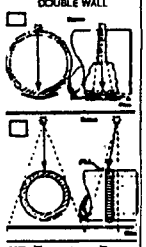
FITTING SEAM OR FITTING	FILM INTERVAL NUMBER	WELDER IDENTIFICATION	PENETRAMETER SIZE	PENETRAMETER QUALITY LEVEL	SLAG	POROSITY	POROSITY WITH TAIL	CRACK	LACK OF PEN	LACK FUSION	INTERNAL CONVEXITY	INTERNAL CONCAVITY	TUNGSTEN	MELT-THROUGH	BURN-THROUGH	CRATER-PIT	OXIDATION	INTERNAL UNDERCUT	EXTERNAL UNDERCUT	ALIGNED INDICATIONS	WELD CONTOUR	MIS-MATCH	FILM ARTIFACT	VISUAL CONCERNS	FILM DENSITY	SEE REMARKS	ACCEPT	REJECT
36	A-B	N/A	1B	.010"		✓							✓														✓	
37	↓					✓																					✓	
38	0-14												✓														✓	
39	A-B					✓							✓														✓	
40						✓				✓																		X
41						✓																					✓	
42	↓					✓																					✓	
43	0-14					✓																					✓	
44	A-B					✓																					✓	
45	↓					✓																					✓	
46	0-14					✓																					✓	
47	↓																										✓	
48	↓	↓	↓	↓		✓																					✓	
~~40B~~	~~A-B~~																											
Port NB																												
2	0-14																										✓	
4	↓	↓	↓	↓																							✓	

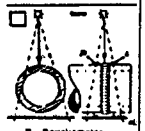
End View | Side View

SINGLE WALL



DOUBLE WALL





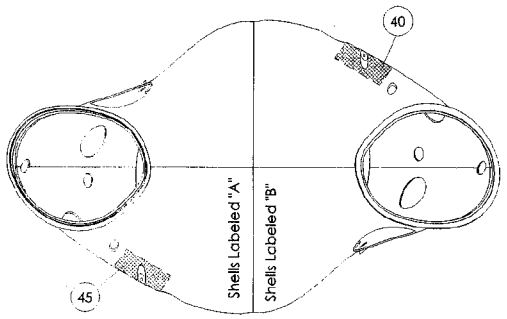
P Penetrameter
S Shim
L Location Marker
( ) OTHER

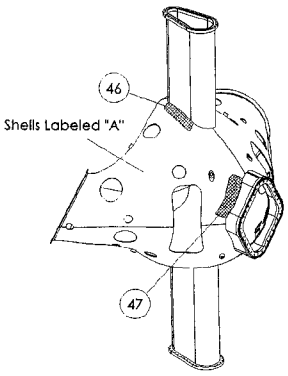
Robert Weaver 655514/II
Cooperheat-MQS Signature

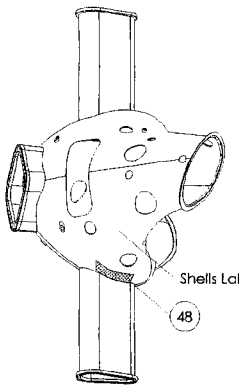
Customer Representative Signature

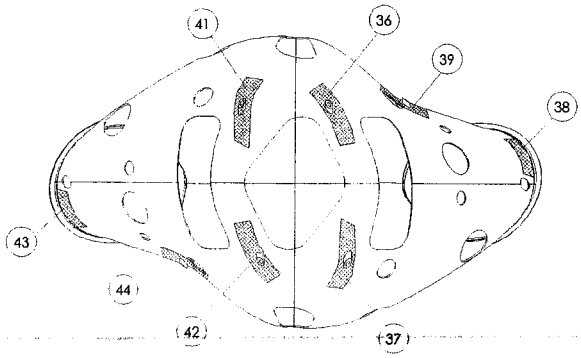
1/11/06
Date

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









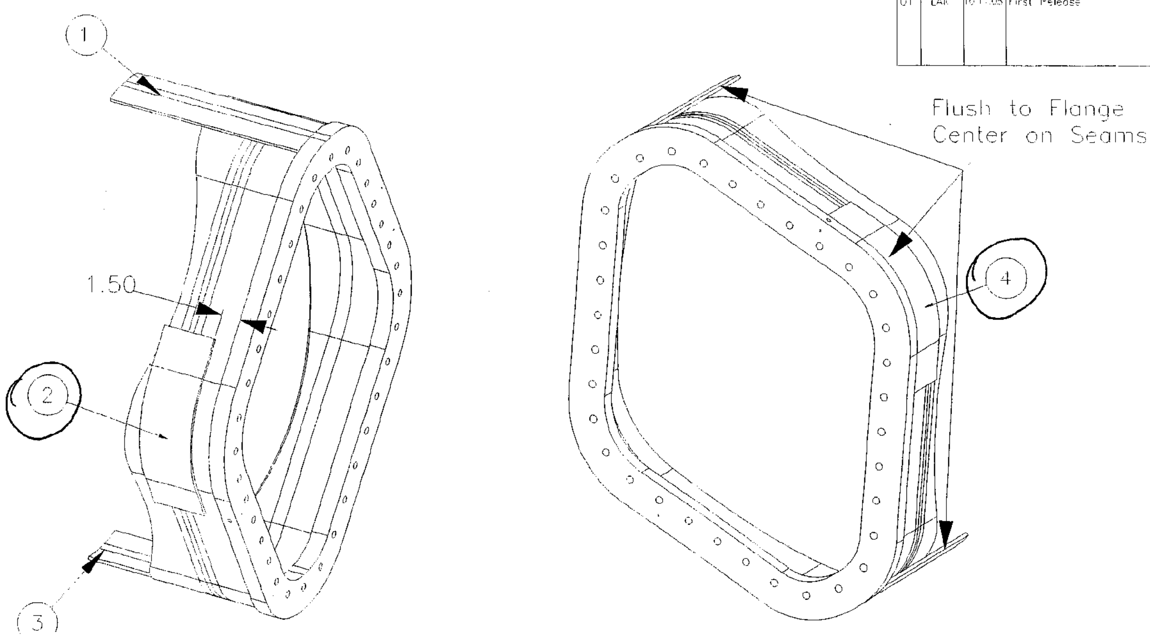
Item	Sht	Zone	Film Name	Location	Comments
36	3	C-6			
37	3	A-6			
38	3	C-5			
39	3	C-6			
40	3	F-6			
41	3	C-7			
42	3	A-7			
43	3	B-8			
44	3	A-7			
45	3	D-8			
46	3	F-4			
47	3	D-4			
48	3	D-1			

CDCR
120° Segment
X-Ray Film Layout
SE120-002-1-NMM
2A

MC119826.TIF2

MC119826.TIF3

Rev.	By	Date	Description
01	LAK	10.17.05	First Release



Item No.	Film Number	Location	Comment
1	No1		
2	No2		
3	No3		
4	No4		

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

Unless Otherwise Specified:
Dimensions are in Inches
Tolerances
Angular: Mach ± Bend
Two Place Decimal
Three Place Decimal
Material
Finish
DO NOT SCALE DRAWING

	Initials	Date
Drawn	LAF	[illegible]
Checked		
Approved		

Comment:

CDCP, Inc.

Title: Neutral Beam Weld Map (E)

Size: C
Dwg. No.: se120-004-061-[illegible]
Scale: 1:4
Weight:

4959

10520 Chester Road
Woodlawn, Ohio 45215

COOPERHEAT MQS MQS Inspection

CLIENT	INTERPRETER/LEVEL	RADIOGRAPHER	JOB NO	P.O. NO	DATE
Major Tool & Machine	John Ballard II	John Ballard	13860001	N/A	1/11/06

ISOTOPE/X-RAY	DIA. X LEN/KV	CURIES/MA	FOCAL SPOT SIZE	SFD	SOD	TIME	FILM PROCESSING	FILM TYPE	FILM TECHNIQUE	PB SCREENS
IR-192	.118"x.07A"	39	.142"	15"	14.625	2:30	Auto	Kodak AA	Double	.010"

WELD PROCESS	MATERIAL SPEC.	MATERIAL DIAMETER	MATERIAL THICKNESS	PENETRAMETER	SHIM	ACCEPTANCE STANDARD
GTAW	625 Inconel	N/A	.375"	ASTM 1B	N/A	ASME VIII, Div.1, UW-51

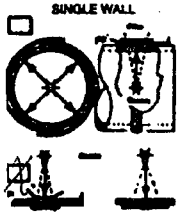
DESCRIPTION: 65678/1.0/1234/20/1818
SE120-002
Page 1 of 2

REMARKS: Densitometer - 12105
Cal due 2/2/06

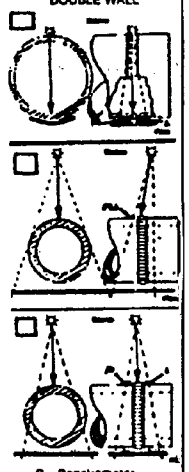
FITTING, SEAM OR FITTING	FILM INTERVAL NUMBER	WELDER IDENTIFICATION	PENETRAMETER SIZE	PENETRAMETER QUALITY LEVEL	SLAG	POROSITY	POROSITY WITH TAIL	CRACK	LACK OF PEN	LACK FUSION	INTERNAL CONVEXITY	INTERNAL CONCAVITY	TUNGSTEN	MELT-THROUGH	BURN-THROUGH	CRATER-PIT	OXIDATION	INTERNAL UNDERCUT	EXTERNAL UNDERCUT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

End View | Side View

SINGLE WALL



DOUBLE WALL



P Penetrameter
S Shim
L Location Marker
( ) OTHER

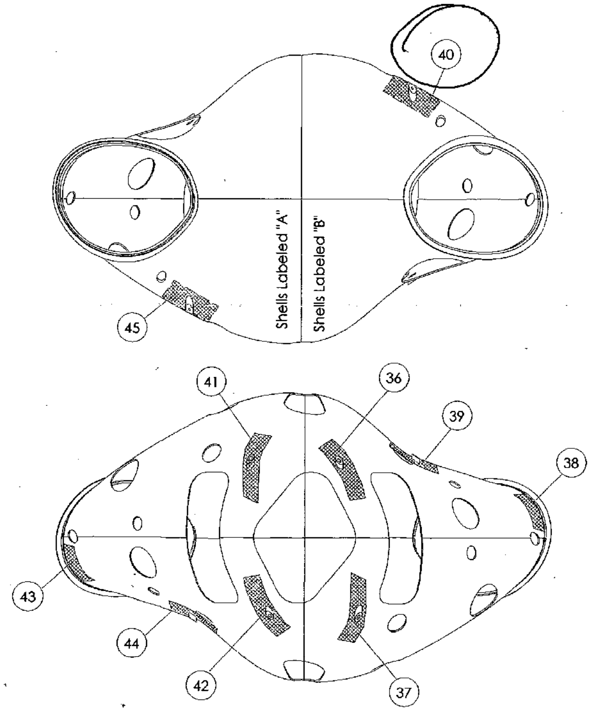
John Ballard II
Cooperheat-MQS Signature

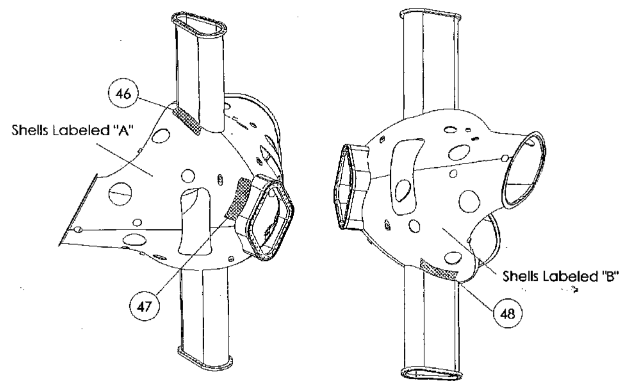
Customer Representative Signature

1/11/06
Date

MC115733.TIF2

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 Inc

DRAWN LAK

TITLE: 120° Segment X-Ray Film Layout

SIZE D | DWG. NO. SE120-002-1-XMTM | REV 2A

SCALE 1:10 WEIGHT: | SHEET 3 OF 3

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	⌖ .1 A B C		QA		FARO ARM	-0.067 / +0.057 OUT SIDE FLANGE (0.127) TOP +0.001 / +0.0 61 (N.C. 18415) [N	854-R.U			A
(30)		PORT NB POSITION	LASER			1444	/C:18415]	04-30-06			
2*	G2	⌓ .375 A B C		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*	F2	⌖ .1 A B C	LASER	QA		1444	+0.070 /+0.111 (0.0	295-C.W			A
(30)		PORT NB POSITION					41 DIFFERENCE)	11-03-05			
2*	G2	⌓ .375 A B C	LASER	QA		1444	+0.179 / -0.115 (0.	295-C.W			A
		PORT EXT. SIDEWALL					295 PROFILE)				
(40)		AND ADJACENT VESSEL WALL						11-03-05			

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		A
(10)		VWI ROOT PASS WELD 10-6		CWI				07-08-05	07-08-05		

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		A
(20)		VWI INTERIOR COVER PASS WELD 10-6		CWI				07-08-05	07-11-05		

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		A
(20)		VWI EXTERIOR COVER PASS WELD 10-		CWI				07-09-05	07-09-05		

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		A
(10)		VWI ROOT PASS WELD 10-6		CWI				08-02-05	08-02-05		

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		A
(20)		VWI INTERIOR COVER PASS WELD 10-6		CWI				08-03-05	08-03-05		

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	
*				MFG		VISUAL	OK	358-D.M	933-D.L		A
(20)		VWI EXTERIOR COVER PASS WELD 10-		CWI				08-03-05	08-03-05		

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		A
(10)		VWI ROOT PASS WELD 6-7		CWI				07-08-05	07-08-05		

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		A
(20)		VWI INTERIOR COVER PASS WELD 6-7		CWI				07-08-05	07-08-05		

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		A
(20)		VWI EXTERIOR COVER PASS WELD 6-7		CWI				07-09-05	07-09-05		

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		A
(10)		VWI ROOT PASS WELD 6-7		CWI				08-02-05	08-02-05		

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		A
(20)		VWI INTERIOR COVER PASS WELD 6-7		CWI				08-03-05	08-03-05		

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		A
(20)		VWI EXTERIOR COVER PASS WELD 6-7		CWI				08-03-05	08-03-05		

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	709-K.A	933-D.L		A
(10)		VWI ROOT PASS WELD 0		CWI			FICATIONS	09-02-05	09-02-05		

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		A
(20)		VWI EXTERIOR COVER PASS WELD 0		CWI				09-07-05	09-07-05		

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	709-K.A	933-D.L		A
(20)		VWI INTERIOR COVER PASS WELD 0		CWI			FICATIONS	09-08-05	09-08-05		

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 DRAWINGS AND SPE	709-K.A	933-D.L		A
(10)		VWI ROOT PASS WELD VFA		CWI			FICATIONS	01-09-06	01-09-06		
*				MFG		VISUAL	OK PER SPEC.	093-M.S	933-D.L		A
(20)		VWI ROOT PASS WELD VFB		CWI				01-09-06	01-09-06		
*				MFG		VISUAL	ACCEPT	728-R.D	933-D.L		A
(110)		VWI EXTERIOR COVER PASS WELD VF		CWI				01-10-06	01-13-06		
*				MFG		VISUAL	ACCEPT	728-R.D	933-D.L		A
(120)		VWI EXTERIOR COVER PASS WELD VF		CWI				01-10-06	01-13-06		
*				MFG		VISUAL	ACCEPT	837-J.D	933-D.L		A
(130)		VWI INTERIOR COVER PASS WELD VF		CWI				01-10-06	01-13-06		
*				MFG		VISUAL	ACCEPT	837-J.D	933-D.L		A
(140)		VWI INTERIOR COVER PASS WELD VFB		CWI				01-10-06	01-13-06		

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	
*				MFG		VISUAL	ACCEPT	683-K.M	581-D.E		A
(10)		VWI ROOT PASS WELD 2-3		CWI				07-09-05	07-09-05		
*				MFG		VISUAL	ACCEPT	709-K.A	581-D.E		A
(20)		VWI ROOT PASS WELD 4-5		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		

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		A
(20)		VWI EXTERIOR COVER PASS WELD 4-5		CWI			IREMENTS.	07-12-05	07-12-05		
*				MFG		VISUAL	WELD ACCEPTABLE P CUSTOMER DRAWIN SPECIFICATION REQU	933-D.L	933-D.L		A
(20)		VWI EXTERIOR COVER PASS WELD 2-3		CWI			IREMENTS.	07-12-05	07-12-05		

4959

COOPERHEAT MQS

10520 Chester Road
Woodlawn, Ohio 45215

CLIENT	INTERPRETER/LEVEL	RADIOGRAPHER	JOB NO	P.O. NO	DATE
Major Tool + Machine	Robert Weaver / II	Robert Weaver	13850291		8/16/05

ISOTOPE/X-RAY	DIA. X LENGTH	CURIES/MA	FOCAL SPOT SIZE	SFD	SOD	TIME	FILM PROCESSING	FILM TYPE	FILM TECHNIQUE	PB SCREENS
IR192	.118" x .074"	42	.151"	15"	14.625"	4:30	Auto	Kodak MX125	Double	.010"

WELD PROCESS	MATERIAL SPEC.	MATERIAL DIAMETER	MATERIAL THICKNESS	PENETRAMETER	SHIM	ACCEPTANCE STANDARD
GTAW	625 INconel	NA	.375"	ASTM 1B	NA	ASME VIII Div.1 UW-51

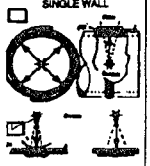
DESCRIPTION
65678/1.0/200/30/818
SE120-003
Page 1 of 3

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

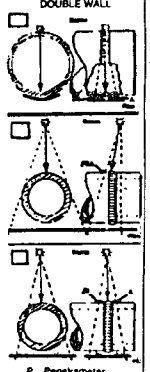
FITTING SEAM OR FITTING	FILM INTERVAL NUMBER	WELDER IDENTIFICATION	PENETRAMETER SIZE	PENETRAMETER QUALITY LEVEL	SLAG	POROSITY	POROSITY WITH TAIL	CRACK	LACK OF PEN	LACK FUSION	INTERNAL CONVEXITY	INTERNAL CONCAVITY	TUNGSTEN	MELT-THROUGH	BURN-THROUGH	CRATER-PIT	OXIDATION	INTERNAL UNDERCUT	EXTERNAL UNDERCUT	ALIGNED INDICATIONS	WELD CONTOUR	MIS-MATCH	FILM ARTIFACT	VISUAL CONCERNS	FILM DENSITY	SEE REMARKS	ACCEPT	REJECT
17	0-14	K.M.	1B	.013"		✓																					✓	
17-T	0-1					✓																					✓	
7	0-14					✓																					✓	
9-5	0-1					✓																					✓	
↓	1-2					✓				✓																		X
5	0-14					✓				✓																		X
13	0-14					✓																					✓	
3	0-14					✓	✓																				✓	
3-2	0-1					✓																					✓	
3-B	0-1					✓																					✓	
↓	1-2	↓	↓	↓		✓																					✓	

End View | Side View

SINGLE WALL



DOUBLE WALL



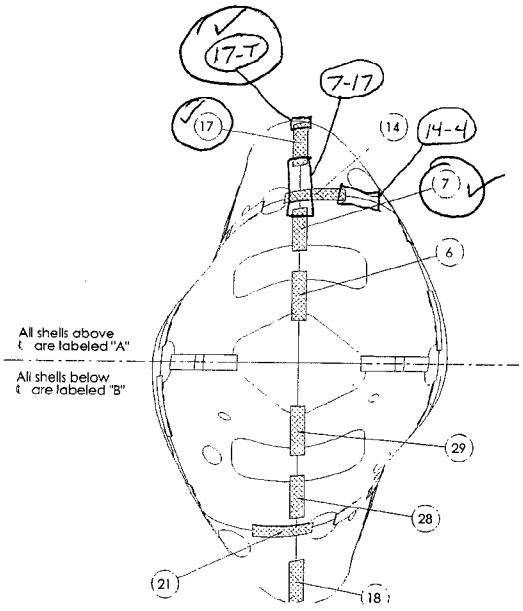
P Penetrameter
S Shim
L Location Marker
( ) OTHER

Robert Weaver 655514/II
Cooperheat-MQS Signature

Douglas D. Edwards
Customer Representative Signature

8/16/05
Date

MC110930.TIF1



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	(42.35,29.66,21.15)		
6	2	D-7	3A-4A-2	(87.47,17.72,0.00)		
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	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	(85.55,0.00,-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	(87.47,-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	3B-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-9	7A-8A	(29.10,49.91,14.70)		
35	1	B-7	7B-8B	(28.10,-49.91,-14.70)		

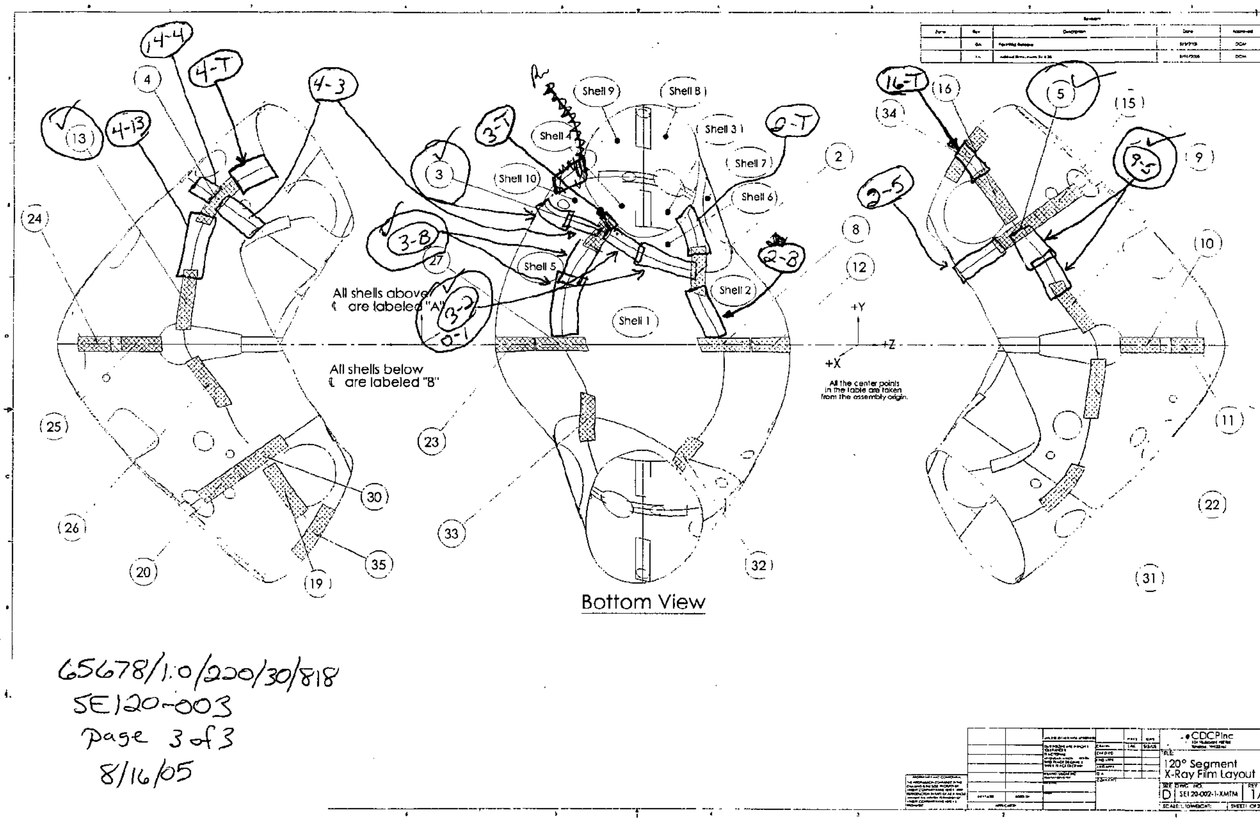
CDCAtc

120° Segment
X-Ray Film Layout

D | SE120-002.1-XMTM | 1A

SCALE: REVISED: | SHEET 1 OF 1

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



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

MC110930.TIF3

4959

10520 Chester Road
Woodlawn, Ohio 45215

COOPERHEAT MQS

CLIENT	INTERPRETER/LEVEL	RADIOGRAPHER	JOB NO	P.O. NO	DATE
Major Tool & Machine	JAMES Berg II	JAMES Berg	18850291-3		8/17/05

ISOTOPE/KV	DIA. X LENGTH	CURIES/MA	FOCAL SPOT SIZE	SFD	SOD	TIME	FILM PROCESSING	FILM TYPE	FILM TECHNIQUE	PB SCREENS
IR 192	.118" x .094"	4/4	.151"	15"	14.625"	4:30	AUTO	KODAK MX 125	Double	.010"

WELD PROCESS	MATERIAL SPEC.	MATERIAL DIAMETER	MATERIAL THICKNESS	PENETRAMETER	SHIM	ACCEPTANCE STANDARD
GTAW	625 INCONEL	N/A	.375"	ASTM 1B	N/A	ASME VIII Div 1, UW-51

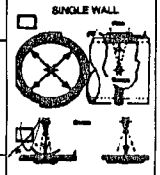
DESCRIPTION: 65678/1.0/220/30/818
SE 120-003
Page 1 of 3 HALF A 'REPAIR SHOTS.

REMARKS: 6 shots on this reader sheet & operation SEE MAP.

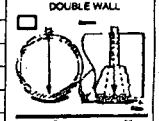
FITTING, SEAM OR FITTING	FILM INTERVAL NUMBER	WELDER IDENTIFICATION	PENETRAMETER SIZE	PENETRAMETER QUALITY LEVEL	SLAG	POROSITY	POROSITY WITH TAIL	CRACK	LACK OF PEN	LACK FUSION	INTERNAL CONVEXITY	INTERNAL CONCAVITY	TUNGSTEN	MELT-THROUGH	BURN-THROUGH	CRATER-PIT	OXIDATION	INTERNAL UNDERCUT	EXTERNAL UNDERCUT	ALIGNED INDICATIONS	WELD CONTOUR	MIS-MATCH	FILM ARTIFACT	VISUAL CONCERNS	FILM DENSITY	SEE REMARKS	ACCEPT	REJECT
4-5	02	Km	1B	.015"		✓																					✓	
5	0-14	↓	↓	↓		✓																					✓	

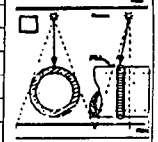
End View | Side View

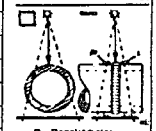
SINGLE WALL



DOUBLE WALL





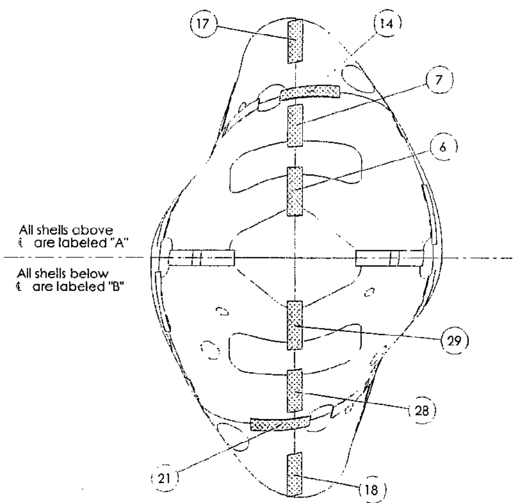


P Penetrameter
S Shim
L Location Marker
( ) OTHER

Cooperheat-MQS Signature

Customer Representative Signature

8/17/05
Date



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	(42.35,29.66,21.15)		
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-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	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	(85.55,0.00,-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,-29.66,-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	E-2	7A-8A	(28.10,49.91,14.70)		
35	1	B-7	7B-8B	(28.10,-49.91,-14.70)		

CDC Inc

TITLE: 120° Segment X-Ray Film Layout

SIZE D | DWG. NO. SE120-002-1-XMTM | REV 1A

SCALE: 1:1 | WEIGHT: | SHEET 2 OF 2

DRAWN LAR 8/3/05

6567 8/1.0/220/30/818

SE 120-003
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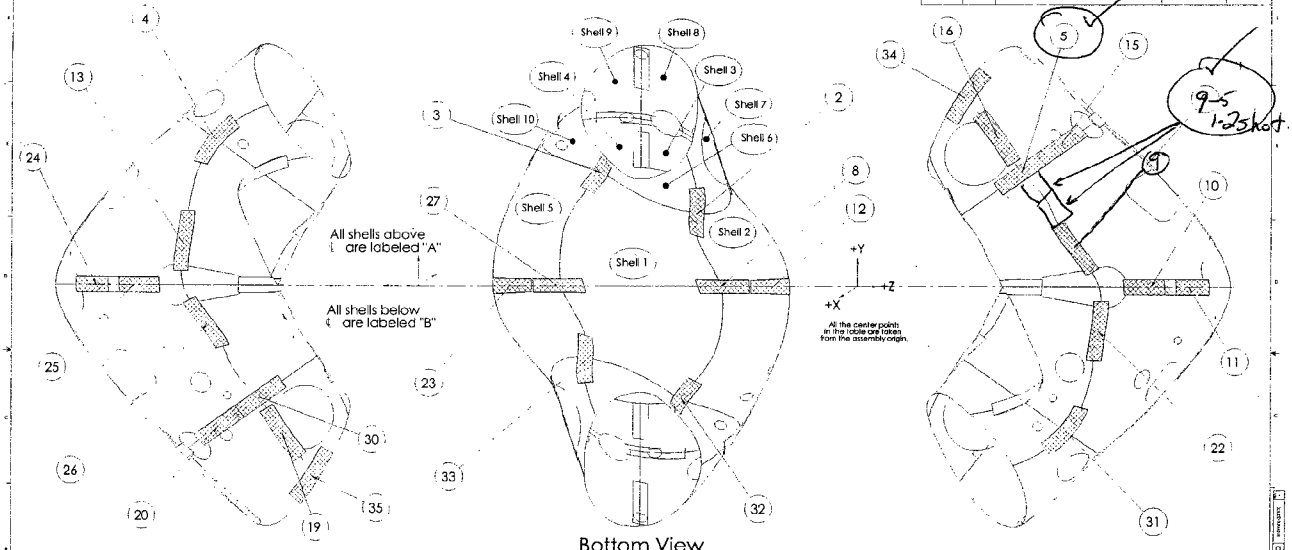
8/17/05

REPAIRS



Bottom View

656 78/1.0/228/30/818
SF 120-003
page 3 of 3
8/17/05

CDCPInc
120° Segment
X-Ray Film Layout
D
1A

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		

COOPERHEAT MQS

4959

10520 Chester Road
Woodlawn, Ohio 45215

CLIENT	INTERPRETER/LEVEL	RADIOGRAPHER	JOB NO	P.O. NO	DATE
Major Tool + Machine	Robert Weaver	Robert Weaver	1385029I-3		8/14/05

ISOTOPE/KVP	DIA. X LENGTH	CURIES/MA	FOCAL SPOT SIZE	SFD	SOD	TIME	FILM PROCESSING	FILM TYPE	FILM TECHNIQUE	PB SCREENS
IR192	.118"x.094"	43	.151"	15"	14.625"	~~3+30~~ 4:00	Auto	Kodak MX125	Double	.010"

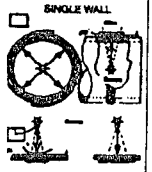
WELD PROCESS	MATERIAL SPEC.	MATERIAL DIAMETER	MATERIAL THICKNESS	PENETRAMETER	SHIM	ACCEPTANCE STANDARD
GTAW	625 INconel	N/A	.375"	ASTM 1B	N/A	☒ ASME VIII Div. 1 UW-51

DESCRIPTION
65678/1.0/94/400/818
SE120-003 30L Half B
page 1 of 3

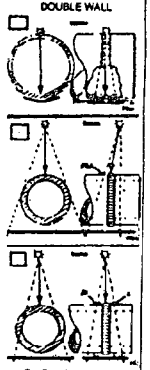
REMARKS

End View | Side View

SINGLE WALL



DOUBLE WALL



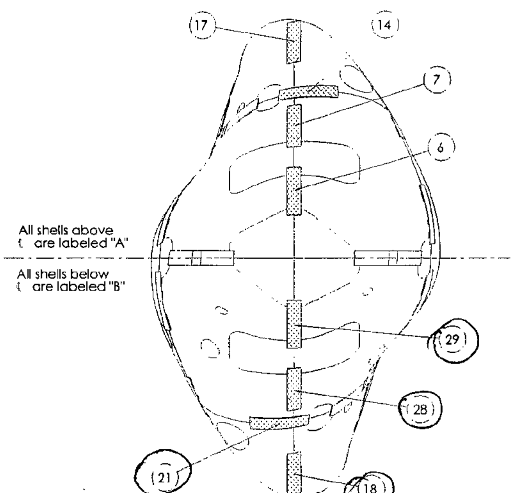
P Penetrameter
S Shim
L Location Marker
( ) OTHER

FITTING, SEAM OR FITTING	FILM INTERVAL NUMBER	WELDER IDENTIFICATION	PENETRAMETER SIZE	PENETRAMETER QUALITY LEVEL	SLAG	POROSITY	POROSITY WITH TAIL	CRACK	LACK OF PEN	LACK FUSION	INTERNAL CONVEXITY	INTERNAL CONCAVITY	TUNGSTEN	MELT-THROUGH	BURN-THROUGH	CRATER-PIT	OXIDATION	INTERNAL UNDERCUT	EXTERNAL UNDERCUT	ALIGNED INDICATIONS	WELD CONTOUR	MIS-MATCH	FILM ARTIFACT	VISUAL CONDEMS	FILM DENSITY	SEE REMARKS	ACCEPT	REJECT
18	0-14	K.M.	1B	.010"		✓																					✓	
19																											✓	
20						✓																					✓	
21						✓																					✓	
22						✓																					✓	
26						✓																					✓	
28						✓																					✓	
29						✓																					✓	
30						✓																					✓	
31						✓																					✓	
32						✓																					✓	
33	↓	↓	↓	↓		✓																					✓	

Robert Weaver 655514/III
Cooperheat-MQS Signature

Douglas D. Edwards
Customer Representative Signature

8/14/05
Date



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	(42.35,29.66,21.15)		
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-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	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	(85.55,0.00,-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,-29.66,-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)		

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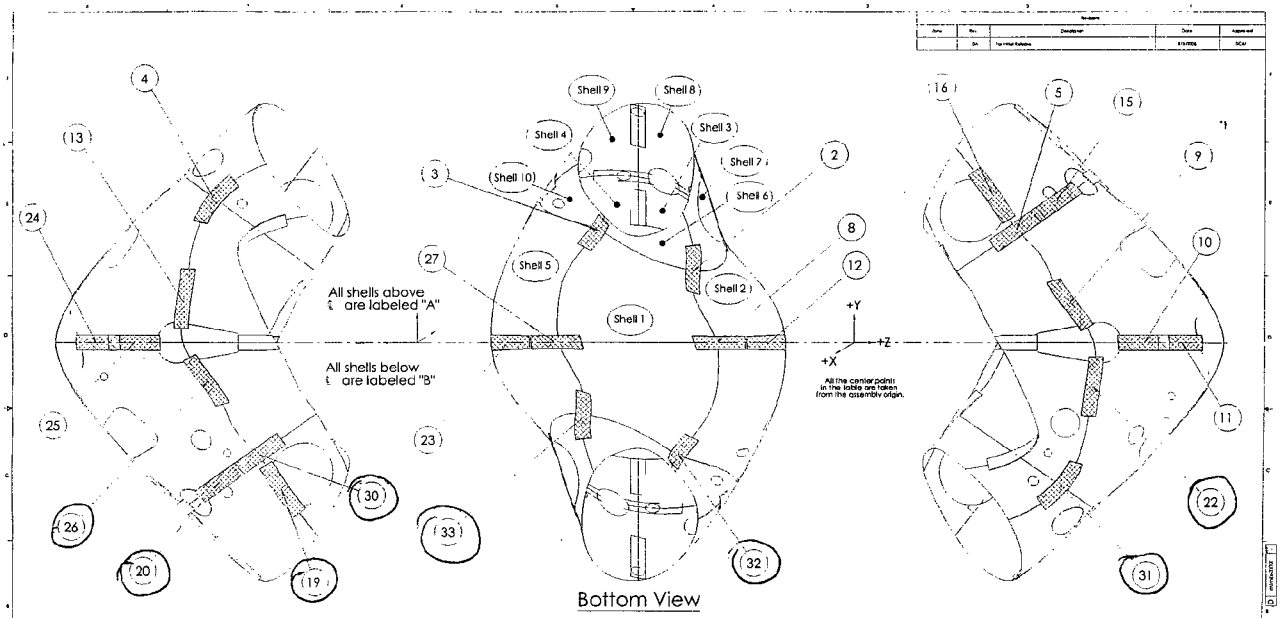
SE120-003 30L
Page 2 of 3
8/14/05

CDCR
TITLE:
120° Segment
X-Ray Film Layout
SIZE D DWG. NO. SE120-002-1-XMTM REV 0A
SCALE 1:10 WEIGHT: SHEET 2 OF 2

MC110924.TIF2



65678/1.0/94/400/818
SE120-003 30L
Page 3 of 3
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MC110924.TIF3

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	
*				MFG		VISUAL	OK	358-D.M	933-D.L		A
(10)		VWI ROOT PASS WELD 7-8		CWI				07-12-05	07-12-05		
*				MFG		VISUAL	OK	358-D.M	933-D.L		A
(20)		VWI ROOT PASS WELD 9-10		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		A
(20)		VWI INTERIOR COVER PASS WELD 7-8		CWI				07-13-05	07-13-05		
*				MFG		VISUAL	OK	358-D.M	933-D.L		A
(20)		VWI INTERIOR COVER PASS WELD 9-10		CWI				07-13-05	07-13-05		

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	
*				MFG		VISUAL	ACCEPT	683-K.M	933-D.L		A
(10)		VWI ROOT PASS WELD 7-8		CWI				08-05-05	08-05-05		
*				MFG		VISUAL	ACCEPT	358-D.M	933-D.L		A
(20)		VWI ROOT PASS WELD 9-10		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		

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	933-D.L	933-D.L		A
(10)		VWI ROOT PASS WELD 3-4		CWI			EMENTS.	07-01-05	07-01-05		

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	**A**
(20)		VWI INTERIOR COVER PASS WELD 3-4		CWI				07-06-05	07-06-05	07-06-05	

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		A
(20)		VWI EXTERIOR COVER PASS WELD 3-4		CWI				07-07-05	07-08-05		

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	933-D.L	933-D.L		A
(10)		VWI ROOT PASS WELD 3-4		CWI			EMENTS.	07-18-05	07-18-05		

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		A
(20)		VWI INTERIOR COVER PASS WELD 3-4		CWI				07-18-05	07-19-05		

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	933-D.L	933-D.L		A
(20)		VWI EXTERIOR COVER PASS WELD 3-4		CWI			EMENTS.	07-20-05	07-20-05		

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		A
(10)		VWI ROOT PASS WELD 5-1		CWI				06-28-05	06-28-05		

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	709-K.A	933-D.L		A
(20)		VWI INTERIOR COVER PASS WELD 5-1		CWI			EMENTS.	06-30-05	06-30-05		

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		A
(20)		VWI EXTERIOR COVER PASS WELD 5-1		CWI				07-01-05	07-01-05		

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		A
(10)		VWI ROOT PASS WELD 5-1		CWI				07-25-05	07-25-05		

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		A
(20)		VWI INTERIOR COVER PASS WELD 5-1		CWI				07-25-05	07-25-05		

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	933-D.L	933-D.L		A
(20)		VWI EXTERIOR COVER PASS WELD 5-1		CWI			EMENTS.	07-26-05	07-26-05		

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		A
(10)		VWI ROOT PASS WELD 1-2		CWI				06-28-05	06-28-05		

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	709-K.A	933-D.L		A
(20)		VWI INTERIOR COVER PASS WELD 1-2		CWI			EMENTS.	06-30-05	06-30-05		

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		A
(20)		VWI EXTERIOR COVER PASS WELD 1-2		CWI				07-01-05	07-01-05		

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		A
(10)		VWI ROOT PASS WELD 1-2		CWI				07-25-05	07-25-05		

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		A
(20)		VWI INTERIOR COVER PASS WELD 1-2		CWI				07-25-05	07-25-05		

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	933-D.L	933-D.L		A
(20)		VWI EXTERIOR COVER PASS WELD 1-2		CWI			EMENTS.	07-26-05	07-26-05		

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		A
(10)		VWI ROOT PASS WELD 30D		CWI				07-16-05	07-16-05		

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		A
(20)		VWI EXTERIOR COVER PASS WELD 30		CWI				07-20-05	07-20-05		

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	709-K.A	933-D.L		A
(20)		VWI INTERIOR COVER PASS WELD 30D		CWI			EMENTS.	08-05-05	08-05-05		

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 SPE	709-K.A	933-D.L		A
(10)		VWI ROOT PASS WELD 30D		CWI			FICATIONS.	08-09-05	08-09-05		

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	933-D.L	933-D.L		A
							CUSTOMER DRAWIN				
							PECIFICATION REQUI				
(20)		VWI EXTERIOR COVER PASS WELD 30		CWI			EMENTS.	08-11-05	08-11-05		

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	933-D.L	933-D.L		A
							CUSTOMER DRAWIN				
							PECIFICATION REQUI				
(20)		VWI EXTERIOR COVER PASS WELD 30		CWI			EMENTS.	08-11-05	08-11-05		

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		A
(10)		VWI ROOT PASS WELD 8-9		CWI				07-06-05	07-06-05		

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		A
(20)		VWI INTERIOR COVER PASS WELD 8-9		CWI				07-07-05	07-07-05		

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		A
(20)		VWI EXTERIOR COVER PASS WELD 8-9		CWI				07-07-05	07-11-05		

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	933-D.L	933-D.L		A
(10)		VWI ROOT PASS WELD 8-9		CWI			EMENTS.	07-26-05	07-26-05		

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		A
(20)		VWI INTERIOR COVER PASS WELD 8-9		CWI				07-28-05	07-28-05		

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		A
(20)		VWI EXTERIOR COVER PASS WELD 8-9		CWI				07-28-05	07-28-05		

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	
*				MFG		VISUAL	ACCEPT	837-J.D	933-D.L		A
		VISUAL INSPECT PORT 7A WELDS									
		BACK STRIP TO PORT TUBE									
		BLOCK TO BACK STRIP									
		1/8" TUBE TO BLOCK									
(10)		TIE STRAP SPOT WELDS		CWI				04-17-06	04-18-06		
*				MFG		VISUAL	BACK STRIP TO PORT TUBE, BLOCK TO BA K STRIP, 1/8" TUBE TO BLOCK	509-S.R	933-D.L		A
		VISUAL INSPECT PORT 7B WELDS									
		BACK STRIP TO PORT TUBE									
		BLOCK TO BACK STRIP									
		1/8" TUBE TO BLOCK									
(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	
*		⌖ Ø.25Ⓜ 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:	854-R.U			A
(10)		PORT 7A POSITION (REINSTALLED)					19771-Doc:19771]	05-18-06			
*		⌖ Ø.25Ⓜ 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:	854-R.U			A
(20)		PORT 7B POSITION (REINSTALLED)					19771-Doc:19771]	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	
* (10)		MAGNETIC PERMEABILITY 1.02 MAX (ENTIRE PORT LESS FLANGE WELD ZO	MASTER GAGE	QA		J-1271	LESS THAN 1.02	261-T.D 04-19-06			A
* (20)		MAGNETIC PERMEABILITY 1.2 MAX (PORT WALL TO FLANGE WELD ZONE)	MASTER GAGE	QA		J-1271	LESS THAN 1.2	261-T.D 04-19-06			A
* (30)		INTERIOR SURFACE FINISH: 32 MICRO-INCH RA	PROFILOMETER	QA		J-1308	8 TO 23 MICRO-INCH	261-T.D 04-19-06			A
* (40)		PORT EXTENSION WALL THICKNESS 0.188 +0.045/-0.010"	UT THICKNESS GA	QA		J-1009-NDT	.200 TO .220	261-T.D 04-19-06			A
* (50)		CLEANLINESS COMPLIES WITH PS483		QA		VISUAL	COMPLIES WITH PS48	261-T.D 04-19-06			A
* (60)		Q/A MANAGER / CFT VERIFY SUB-ASSY COMPLETION		QA			VERIFIED FINAL CON ITION W/ENGINEER	840-G.M 04-25-06			A

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 DRAWINGS AND SPE	709-K.A	933-D.L		A
(20)		VWI - ROOT PASS WELD P12AV		CWI			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 DRAWINGS AND SPE	709-K.A	933-D.L		A
(80)		VWI - ROOT PASS WELD P12BV		CWI			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	// .1 A PORT 12A FLANGE FACE	LASER	QA		1444	0.023	522-R.D 11-10-05			A
2* (60)	G2	⌓ .375 A B C PORT 12A SIDEWALL AND ADJACENT VESSEL WALL	LASER	QA		1444	-0.061 / +0.247 (ACCEPT PER N.C. 18594) [N/C:18594]	854-R.U 04-30-06			A
2* (70)	F2	// .1 A PORT 12B FLANGE FACE	LASER	QA		1444	0.044	522-R.D 11-10-05			A
2* (80)	G2	⌓ .375 A B C PORT 12B SIDEWALL AND ADJACENT VESSEL WALL	LASER	QA		1444	-0.091 / +0.329 (ACCEPT 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	
*				MFG		VISUAL	PORT 8A WELDS ARE	763-R.M	053-M.D		A
		VISUAL INSPECT PORT 8A WELDS					OOD				
		BACK STRIP TO PORT TUBE									
		BLOCK TO BACK STRIP									
		1/8" TUBE TO BLOCK									
(10)		TIE STRAP SPOT WELDS		CWI				04-18-06	04-18-06		
*				MFG		VISUAL	PORT 8B WELDS ARE	763-R.M	933-D.L		A
		VISUAL INSPECT PORT 8B WELDS					OOD				
		BACK STRIP TO PORT TUBE									
		BLOCK TO BACK STRIP									
		1/8" TUBE TO BLOCK									
(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	
*		⌖ Ø.25Ⓜ A B C	LASER	QA		J-1280	POS 1.394 FACE -0.320 / -0.208 (ACCEPT PER N.C. # 19766 AND CUST. DOC.) [N/C:19766-Doc:19766]	854-R.U			A
(10)		PORT 8A POSITION (REINSTALLED)						05-18-06			
*		⌖ Ø.25Ⓜ A B C	LASER	QA		J-1280	POS 0.926 FACE -0.001 / -0.064 (ACCEPT PER N.C. # 19766 AND 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	
*			MASTER GAGE	QA		J-1271	LESS THAN 1.02	261-T.D			A
		MAGNETIC PERMEABILITY 1.02 MAX									
(10)		(ENTIRE PORT LESS FLANGE WELD ZO						04-19-06			
*			MASTER GAGE	QA		J-1271	LESS THAN 1.2	261-T.D			A
		MAGNETIC PERMEABILITY 1.2 MAX									
(20)		(PORT WALL TO FLANGE WELD ZONE)						04-19-06			
*			PROFILOMETER	QA		J-1308	7 TO 13 MICRO-INCH	261-T.D			A
		INTERIOR SURFACE FINISH:									
(30)		32 MICRO-INCH RA						04-19-06			
*			UT THICKNESS GA	QA		J-1009-NDT	.252 TO .263	261-T.D			A
		PORT EXTENSION WALL									
(40)		THICKNESS 0.226 +0.045/0.010"						04-19-06			
*				QA		VISUAL	COMPLIES WITH PS48	261-T.D			A
(50)		CLEANLINESS COMPLIES WITH PS483						04-19-06			
*				QA			VERIFIED FINAL CON	840-G.M			A
		Q/A MANAGER / CFT					TION W/ENGINEER				
(60)		VERIFY SUB-ASSY COMPLETION						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	
*				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		A
		VISUAL INSPECT PORT 9A WELDS BACK STRIP TO PORT TUBE BLOCK TO BACK STRIP 1/8" TUBE TO BLOCK									
(10)		TIE STRAP SPOT WELDS		CWI				04-13-06	04-13-06		
*				MFG		VISUAL	BACK STRIP TO PORT WELD GOOD BLOCK T BACK STRIP WELD GO D TIE STRAP SPOT WE	763-R.M	933-D.L		A
		VISUAL INSPECT PORT 9B WELDS BACK STRIP TO PORT TUBE BLOCK TO BACK STRIP 1/8" TUBE TO BLOCK					LDS				
(20)		TIE STRAP SPOT WELDS		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	
*		⌖ Ø.25Ⓜ 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 05-18-06			**A**
(10)		PORT 9A POSITION (REINSTALLED)									
*		⌖ Ø.25Ⓜ 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 05-18-06			**A**
(20)		PORT 9B POSITION (REINSTALLED)									

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	
* (10)		MAGNETIC PERMEABILITY 1.02 MAX (ENTIRE PORT LESS FLANGE WELD ZO	MASTER GAGE	QA		J-1271	LESS THAN 1.02 MAX	261-T.D 04-18-06			A
* (20)		MAGNETIC PERMEABILITY 1.2 MAX (PORT WALL TO FLANGE WELD ZONE)	MASTER GAGE	QA		J-1271	LESS THAN 1.2 MAX	261-T.D 04-18-06			A
* (30)		INTERIOR SURFACE FINISH: 32 MICRO-INCH RA	PROFILOMETER	QA		J-1308	7 TO 31 MICRO-INCH RA	261-T.D 04-18-06			A
* (40)		PORT EXTENSION WALL THICKNESS 0.188 +0.045/-0.010"	UT THICKNESS GA	QA		J-770-NDT	.180 TO .205	261-T.D 04-18-06			A
* (50)		CLEANLINESS COMPLIES WITH PS483		QA		VISUAL	COMPLIES WITH PS48	261-T.D 04-18-06			A
* (60)		Q/A MANAGER / CFT VERIFY SUB-ASSY COMPLETION		QA			REVIWED W/ENG.	840-G.M 04-19-06			A

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		MFG		VISUAL	ACCEPT PER CUSTOM DRAWING AND SPECIFICATION.	709-K.A	933-D.L		A
(10)		TIE STRAP SPOT WELDS		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		MFG		VISUAL	ACCEPT PER CUSTOM DRAWING AND SPECIFICATION.	709-K.A	933-D.L		A
(20)		TIE STRAP SPOT WELDS		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	
*		⌖ Ø.25Ⓜ A B C	LASER	QA		J-1280	POS 0.928 FACE -0.2 79 / -0.086 (ACCEPT PER N.C. # 19769 A ND CUST. DOC.) [N/C	854-R.U			A
(10)		PORT 10A POSITION (REINSTALLED)					:19769-Doc:19769]	05-18-06			
*		⌖ Ø.25Ⓜ A B C	LASER	QA		J-1280	)POS 1.379 FACE -0. 118 / -0.023 (ACCEP T PER N.C. # 19768 AND CUST. DOC. [N/C	854-R.U			A
(20)		PORT 10B POSITION (REINSTALLED)					:19769-Doc:19769]	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	
* (10)		MAGNETIC PERMEABILITY 1.02 MAX (ENTIRE PORT LESS FLANGE WELD ZO	MASTER GAGE	QA		J-1271	LESS THAN 1.02	261-T.D 04-18-06			A
* (20)		MAGNETIC PERMEABILITY 1.2 MAX (PORT WALL TO FLANGE WELD ZONE)	MASTER GAGE	QA		J-1271	LESS THAN 1.2	261-T.D 04-18-06			A
* (30)		INTERIOR SURFACE FINISH: 32 MICRO-INCH RA	PROFILOMETER	QA		J-1308	5 TO 9 MICRO-INCH R A	261-T.D 04-18-06			A
* (40)		PORT EXTENSION WALL THICKNESS 0.250 +0.045/-0.010"	UT THICKNESS GA	QA		J-770-NDT	.261 TO .270	261-T.D 04-18-06			A
* (50)		CLEANLINESS COMPLIES WITH PS483		QA		VISUAL	COMPLIES WITH PS48	261-T.D 04-18-06			A
* (60)		Q/A MANAGER / CFT VERIFY SUB-ASSY COMPLETION		QA			VERIFIED FINAL CON TION W/ENGINEER	840-G.M 04-25-06			A

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	
*				MFG		VISUAL	BACK STRIP TO PORT TUBE, BLOCK TO BAC STRIP, 1/8" TUBE T O BLOCK	509-S.R	053-M.D		A
		VISUAL INSPECT PORT 11A WELDS BACK STRIP TO PORT TUBE BLOCK TO BACK STRIP 1/8" TUBE TO BLOCK									
(10)		TIE STRAP SPOT WELDS		CWI				04-18-06	04-18-06		
*				MFG		VISUAL	BACK STRIP TO PORT TUBE, BLOCK TO BAC STRIP, 1/8" TUBE T O BLOCK	509-S.R	053-M.D		A
		VISUAL INSPECT PORT 11B WELDS BACK STRIP TO PORT TUBE BLOCK TO BACK STRIP 1/8" TUBE TO BLOCK									
(20)		TIE STRAP SPOT WELDS		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	
*		⌖ Ø.25Ⓜ 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			
*		⌖ Ø.25Ⓜ 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	
*			MASTER GAGE	QA		J-1271	LESS THAN 1.02	533-B.C			A
		MAGNETIC PERMEABILITY 1.02 MAX									
(10)		(ENTIRE PORT LESS FLANGE WELD ZO						04-21-06			
*			MASTER GAGE	QA		J-1271	LESS THAN 1.2	533-B.C			A
		MAGNETIC PERMEABILITY 1.2 MAX									
(20)		(PORT WALL TO FLANGE WELD ZONE)						04-21-06			
*			PROFILOMETER	QA		J-1308	21 TO 26	533-B.C			A
		INTERIOR SURFACE FINISH:									
(30)		32 MICRO-INCH RA						04-21-06			
*			UT THICKNESS GA	QA		J-1009-NDT	.113 TO .116	840-G.M			A
		PORT EXTENSION WALL									
(40)		THICKNESS: 0.120 +/-.015						04-26-06			
*				QA		VISUAL	MEETS PS483	533-B.C			A
(50)		CLEANLINESS COMPLIES WITH PS483						04-21-06			
*				QA			VERIFIED FINAL CON	840-G.M			A
		Q/A MANAGER / CFT					TION W/ENGINEER				
(60)		VERIFY SUB-ASSY COMPLETION						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	
*				MFG		VISUAL	ACCEPT	837-J.D	933-D.L		A
		VISUAL INSPECT PORT 15A WELDS									
		BACK STRIP TO PORT TUBE									
		BLOCK TO BACK STRIP									
		1/8" TUBE TO BLOCK									
(10)		TIE STRAP SPOT WELDS		CWI				04-18-06	04-18-06		
*				MFG			PORT 15B WELDS GOO	763-R.M	053-M.D		A
		VISUAL INSPECT PORT 15B WELDS									
		BACK STRIP TO PORT TUBE									
		BLOCK TO BACK STRIP									
		1/8" TUBE TO BLOCK									
(20)		TIE STRAP SPOT WELDS		CWI				04-18-06	04-18-06		

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	
*		⌖ Ø.25Ⓜ A B C	LASER	QA		J-1280	POS 1.148 FACE -0.413 / -0.327 (ACCEPT PER N.C. # 19767 AND CUST. DOC.) [N/C:19767-Doc:19767]	854-R.U			A
(10)		PORT 15A POSITION (REINSTALLED)						05-18-06			
*		⌖ Ø.25Ⓜ A B C	LASER	QA		J-1280	POS 0.747 FACE -0.172 / -0.108 (ACCEPT PER N.C. # 19766 AND 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	
* (10)		MAGNETIC PERMEABILITY 1.02 MAX (ENTIRE PORT LESS FLANGE WELD ZO	MASTER GAGE	QA		J-1271	LESS THAN 1.02	261-T.D 04-19-06			A
* (20)		MAGNETIC PERMEABILITY 1.2 MAX (PORT WALL TO FLANGE WELD ZONE)	MASTER GAGE	QA		J-1271	LESS THAN 1.2	261-T.D 04-19-06			A
* (30)		INTERIOR SURFACE FINISH: 32 MICRO-INCH RA	PROFILOMETER	QA		J-1308	7 TO 24 MICRO-INCH RA	261-T.D 04-19-06			A
* (40)		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 04-25-06			A
* (50)		CLEANLINESS COMPLIES WITH PS483		QA		VISUAL	COMPLIES WITH PS48	261-T.D 04-19-06			A
* (60)		Q/A MANAGER / CFT VERIFY SUB-ASSY COMPLETION		QA			VERIFIED FINAL CON ITION W/ENGINEER	840-G.M 04-25-06			A

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	
*				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		A
		VISUAL INSPECT PORT DOME A WELD BACK STRIP TO PORT TUBE BLOCK TO BACK STRIP 1/8" TUBE TO BLOCK									
(10)		TIE STRAP SPOT WELDS		CWI				04-14-06	04-14-06		
*				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		A
		VISUAL INSPECT PORT DOME B WELD BACK STRIP TO PORT TUBE BLOCK TO BACK STRIP 1/8" TUBE TO BLOCK									
(20)		TIE STRAP SPOT WELDS		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	
*		⌖ Ø.25Ⓜ A B C	LASER	QA		J-1280	POS 1.351 FACE -0.2 38 / -0.172 (ACCEPT PER NC 19612) [N/C	854-R.U			A
(10)		PORT 17A POSITION (REINSTALLED)					:19612-Doc:19612]	09-09-06			
*		⌖ Ø.25Ⓜ A B C	LASER	QA		J-1280	POS 1.163 FACE -0.2 93 / -0.255 (ACCEPT PER NC 19612) [N/C	854-R.U			A
(20)		PORT 17B POSITION (REINSTALLED)					:19612-Doc:19612]	09-09-06			

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

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	
*				MFG		VISUAL	BACK STRIP TO PORT TUBE, BLOCK TO BAC STRIP, 1/8" TUBE T O BLOCK	509-S.R	933-D.L		A
		VISUAL INSPECT PORT 2A WELDS BACK STRIP TO PORT TUBE BLOCK TO BACK STRIP 1/8" TUBE TO BLOCK									
(10)		TIE STRAP SPOT WELDS		CWI				04-17-06	04-17-06		
*				MFG		VISUAL	BACK STRIP TO PORT TUBE, BLOCK TO BAC STRIP, 1/8" TUBE T O BLOCK	509-S.R	933-D.L		A
		VISUAL INSPECT PORT 2B WELDS BACK STRIP TO PORT TUBE BLOCK TO BACK STRIP 1/8" TUBE TO BLOCK									
(20)		TIE STRAP SPOT WELDS		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	
*		⌖ Ø.25Ⓜ 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 05-18-06			A
(10)		PORT 2A POSITION (REINSTALLED)									
*		⌖ Ø.25Ⓜ 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 05-18-06			A
(20)		PORT 2B POSITION (REINSTALLED)									

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	
*			MASTER GAGE	QA		J-1271	LESS THAN 1.02 MAX	261-T.D			A
		MAGNETIC PERMEABILITY 1.02 MAX									
(10)		(ENTIRE PORT LESS FLANGE WELD ZO						04-18-06			
*			MASTER GAGE	QA		J-1271	LESS THAN 1.2 MAX	261-T.D			A
		MAGNETIC PERMEABILITY 1.2 MAX									
(20)		(PORT WALL TO FLANGE WELD ZONE)						04-18-06			
*			PROFILOMETER	QA		J-1308	13 TO 24 MICRO-INCH	261-T.D			A
		INTERIOR SURFACE FINISH:					RA				
(30)		32 MICRO-INCH RA						04-18-06			
*			UT THICKNESS GA	QA		J-770-NDT	.241 TO .261	261-T.D			A
		PORT EXTENSION WALL									
(40)		THICKNESS 0.226 +0.045/0.010"						04-18-06			
*				QA		VISUAL	COMPLIES WITH PS48	261-T.D			A
(50)		CLEANLINESS COMPLIES WITH PS483						04-18-06			
*				QA			VERIFIED FINAL CON	840-G.M			A
		Q/A MANAGER / CFT					TION W/ENGINEER				
(60)		VERIFY SUB-ASSY COMPLETION						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	
*				MFG		VISUAL	ACCEPTED	299-M.G	053-M.D		A
		VISUAL INSPECT PORT 4A WELDS									
		BACK STRIP TO PORT TUBE									
		BLOCK TO BACK STRIP									
		1/8" TUBE TO BLOCK									
(10)		TIE STRAP SPOT WELDS		CWI				04-14-06			
*				MFG		VISUAL	ACCEPTED	299-M.G	933-D.L		A
		VISUAL INSPECT PORT 4B WELDS									
		BACK STRIP TO PORT TUBE									
		BLOCK TO BACK STRIP									
		1/8" TUBE TO BLOCK									
(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	
*		⌖ Ø.25Ⓜ A B C	LASER	QA		J-1280	POS 0.844 FACE -0.450 / -0.131 (ACCEPT PER N.C. 19667 & CUST. DOC.) [N/C:19667-Doc:19667]	854-R.U 05-17-06			A
(10)		PORT 4A POSITION (REINSTALLED)									
*		⌖ Ø.25Ⓜ A B C	LASER	QA		J-1280	POS 0.891 FACE -0.257 / -0.066 (ACCEPT PER N.C. 19667 & CUST. DOC.) [N/C:19667-Doc:19667]	854-R.U 05-17-06			A
(20)		PORT 4B POSITION (REINSTALLED)									

Major Tool & Machine, Inc.
1458 East 19th Street
Indianapolis, IN 46218-4289

MTM N/C: 19667 Rev. A

Date: 05/05/06
User ID: MCCORKLE

Customer: PRINCETON PLASMA PHYSICS LAB
Contact: LARRY SUTTON
Telephone: 609-243-2441
E-Mail: S-04286-F
Fax: 609-243-2021

Part: /
Customer P.O.: S005243-F/Ln:1
Drawing ID: SE120-004
Revision: 2
Serial No./Qty:

Reported By: DOUG MCCORKLE
Telephone: 317-636-6433
E-Mail: dMcCorkle@MajorTool.com
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.

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

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:**_____

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	
*			MASTER GAGE	QA		J-1271	LESS THAN 1.02	261-T.D			A
		MAGNETIC PERMEABILITY 1.02 MAX									
(10)		(ENTIRE PORT LESS FLANGE WELD ZO						04-19-06			
*			MASTER GAGE	QA		J-1271	LESS THAN 1.2	261-T.D			A
		MAGNETIC PERMEABILITY 1.2 MAX									
(20)		(PORT WALL TO FLANGE WELD ZONE)						04-19-06			
*			PROFILOMETER	QA		J-1307	12-28	522-R.D			A
		INTERIOR SURFACE FINISH:									
(30)		32 MICRO-INCH RA						04-20-06			
*			UT THICKNESS GA	QA		J-1009-NDT	.495 TO .535	533-B.C			A
		PORT EXTENSION WALL									
(40)		THICKNESS 0.500 +0.055/-0.010"						04-21-06			
*				QA		VISUAL	COMPLIES WITH PS48	261-T.D			A
(50)		CLEANLINESS COMPLIES WITH PS483						04-19-06			
*				QA			VERIFIED FINAL CON	840-G.M			A
		Q/A MANAGER / CFT					TION W/ENGINEER				
(60)		VERIFY SUB-ASSY COMPLETION						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	
*				MFG		VISUAL	ACCEPT	837-J.D	053-M.D		A
		VISUAL INSPECT PORT 5A WELDS									
		BACK STRIP TO PORT TUBE									
		BLOCK TO BACK STRIP									
		1/8" TUBE TO BLOCK									
(10)		TIE STRAP SPOT WELDS		CWI				04-18-06	04-18-06		
*				MFG		VISUAL	BACK STRIP TO PORT TUBE, BLOCK TO BA K STRIP, 1/8" TUBE TO BLOCK	509-S.R	053-M.D		A
		VISUAL INSPECT PORT 5B WELDS									
		BACK STRIP TO PORT TUBE									
		BLOCK TO BACK STRIP									
		1/8" TUBE TO BLOCK									
(20)		TIE STRAP SPOT WELDS		CWI				04-18-06	04-18-06		

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	
*		⌖ Ø.25Ⓜ 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 05-18-06			A
(10)		PORT 5A POSITION (REINSTALLED)									
*		⌖ Ø.25Ⓜ 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 05-18-06			A
(20)		PORT 5B POSITION (REINSTALLED)									

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	
*			MASTER GAGE	QA		J-1271	LESS THAN 1.02	261-T.D			A
		MAGNETIC PERMEABILITY 1.02 MAX									
(10)		(ENTIRE PORT LESS FLANGE WELD ZO						04-19-06			
*			MASTER GAGE	QA		J-1271	LESS THAN 1.2	261-T.D			A
		MAGNETIC PERMEABILITY 1.2 MAX									
(20)		(PORT WALL TO FLANGE WELD ZONE)						04-19-06			
*			PROFILOMETER	QA		J-1308	8 TO 32 MICRO-INCH	261-T.D			A
		INTERIOR SURFACE FINISH:					(HIGH ON I-5B ONLY)				
(30)		32 MICRO-INCH RA						04-19-06			
*			UT THICKNESS GA	QA		J-1009-NDT	.193 TO .226	533-B.C			A
		PORT EXTENSION WALL									
(40)		THICKNESS 0.188 +0.045/-0.010"						04-21-06			
*				QA		VISUAL	COMPLIES WITH PS48	261-T.D			A
(50)		CLEANLINESS COMPLIES WITH PS483						04-19-06			
*				QA			VERIFIED FINAL CON	840-G.M			A
		Q/A MANAGER / CFT					TION W/ENGINEER				
(60)		VERIFY SUB-ASSY COMPLETION						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	
*				MFG		VISUAL	PORT 6A WELDS ARE	763-R.M	933-D.L		A
		VISUAL INSPECT PORT 6A WELDS					OOD				
		BACK STRIP TO PORT TUBE									
		BLOCK TO BACK STRIP									
		1/8" TUBE TO BLOCK									
(10)		TIE STRAP SPOT WELDS		CWI				04-17-06	04-17-06		
*				MFG		VISUAL	BACK STRIP TO PORT	763-R.M	933-D.L		A
							TUBE GOOD BLOCK T				
							BACK STRIP GOOD 1/8				
							" TUBE TO BLOCK GO				
		VISUAL INSPECT PORT 6B WELDS					OD T				
		BACK STRIP TO PORT TUBE									
		BLOCK TO BACK STRIP									
		1/8" TUBE TO BLOCK									
(20)		TIE STRAP SPOT WELDS		CWI				04-17-06	04-17-06		

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	
*		⌖ Ø.25Ⓜ 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 05-18-06			A
(10)		PORT 6A POSITION (REINSTALLED)									
*		⌖ Ø.25Ⓜ 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 05-18-06			A
(20)		PORT 6B POSITION (REINSTALLED)									

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	
* (10)		MAGNETIC PERMEABILITY 1.02 MAX (ENTIRE PORT LESS FLANGE WELD ZO	MASTER GAGE	QA		J-1271	ACCEPT	261-T.D 04-18-06			A
* (20)		MAGNETIC PERMEABILITY 1.2 MAX (PORT WALL TO FLANGE WELD ZONE)	MASTER GAGE	QA		J-1271	ACCEPT	261-T.D 04-18-06			A
* (30)		INTERIOR SURFACE FINISH: 32 MICRO-INCH RA	PROFILOMETER	QA		J-1308	7 TO 12 MICRO-INCH RA	261-T.D 04-18-06			A
* (40)		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 04-18-06			A
* (50)		CLEANLINESS COMPLIES WITH PS483		QA		VISUAL	COMPLIES WITH PS48	261-T.D 04-18-06			A
* (60)		Q/A MANAGER / CFT VERIFY SUB-ASSY COMPLETION		QA			VERIFIED FINAL CON TION W/ENGINEER	840-G.M 04-25-06			A

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 DRAWINGS AND SPE	709-K.A	933-D.L		A
(60)		VWI - COVER PASS WELD PDAV		CWI			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 DRAWINGS AND SPE	709-K.A	933-D.L		A
(120)		VWI - COVER PASS WELD PDBV		CWI			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*	G2	⌓ .375 A B C	LASER	QA		1444	+0.249 / -0.450 (+ & - CONDITIONS ARE ON ADJACENT SKIN)(ACCEPT TO NC 18553)	854-R.U			**A**
(30)		PORT DOME A SIDEWALL AND ADJACENT VESSEL WALL					[N/C:18553]	04-30-06			
2*	G2	⌓ .375 A B C	LASER	QA		1444	+0.080 / -0.270 (- CONDITION ON ADJA NT SKIN)(ACCEPT TO NC 18553)	854-R.U			**A**
(40)		PORT DOME B SIDEWALL AND ADJACENT VESSEL WALL						04-30-06			

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 SPE	709-K.A	933-D.L		A
(20)		VWI - ROOT PASS WELD PNBV		CWI			FICATIONS	10-12-05	10-12-05		
*				MFG		VISUAL	ACCEPT PER CUSTOM DRAWINGS AND SPE	709-K.A	933-D.L		A
(60)		VWI - COVER PASS WELD PNBV		CWI			FICATIONS	10-13-05	10-13-05		

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	
*				MFG		VISUAL	ACCEPTABLE	728-R.D	581-D.E		A
		VWI ROOT PASS									
(30)		INNER PATCH WELD		CWI				10-18-05	10-18-05		
*				MFG		VISUAL	ACCEPT	837-J.D	581-D.E		A
		VWI COVER PASS									
(70)		INNER PATCH WELD		CWI				10-18-05	10-19-05		
*				MFG		VISUAL	ACCEPET	683-K.M	581-D.E		A
		VWI ROOT PASS									
(80)		OUTER PATCH WELD		CWI				10-19-05	10-31-05		
*				MFG		VISUAL	ACCEPT	709-K.A	933-D.L		A
		VWI COVER PASS									
(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	854-R.U			A
(10)		FINAL VESSEL PROFILE					776]	05-18-06			
3*	D3	▱ 0.05	LASER	QA		J-1280	FLAT 0.037 PROFILE	854-R.U			A
		⌓ 0.25 A B C					+0.063 / +0.230 (AC CEPT PER N.C. # 197 76 AND CUST. DOC.) [N/C:19776-Doc:19				
		HALF A					776]				
(20)		RFD 12-016						05-18-06			
3*	D3	▱ 0.05	LASER	QA		J-1280	FLAT 0.041 PROFILE	854-R.U			A
		⌓ 0.25 A B C					-0.231 / +0.069 (AC CEPT PER N.C. # 197 76 AND CUST. DOC.) [N/C:19776-Doc:19				
		HALF B					776]				
(30)		RFD 12-016						05-18-06			
*		⌖ .25 A B C	LASER	QA		J-1280	2.133 (ACCEPT PER N	854-R.U			A
		Ⓟ 17"					.C. # 19776 AND CUS T. DOC.) [N/C:197				
		HALF -A- BOSS A					76-Doc:19776]				
(40)		FINAL						05-18-06			
*		⌖ .25 A B C	LASER	QA		J-1280	1.228 (ACCEPT PER N	854-R.U			A
		Ⓟ 17"					.C. # 19776 AND CUS T. DOC.) [N/C:197				
		HALF -A- BOSS B					76-Doc:19776]				
(50)		FINAL						05-18-06			
*		⌖ .25 A B C	LASER	QA		J-1280	1.089 (ACCEPT PER N	854-R.U			A
		Ⓟ 17"					.C. # 19776 AND CUS				

							T. DOC.) [N/C:197				
		HALF -A- BOSS C					76-Doc:19776]				
(60)		FINAL						05-18-06			
*		⌖ .25 A B C Ⓟ 17"	LASER	QA		J-1280	0.480 (ACCEPT PER N	854-R.U			**A**
							.C. # 19776 AND CUS				
							T. DOC.) [N/C:197				
		HALF -A- BOSS D					76-Doc:19776]				
(70)		FINAL						05-18-06			
*		⌖ .25 A B C Ⓟ 17"	LASER	QA		J-1280	0.627 (ACCEPT PER N	854-R.U			**A**
							.C. # 19776 AND CUS				
							T. DOC.) [N/C:197				
		HALF -B- BOSS A					76-Doc:19776]				
(80)		FINAL						05-18-06			
*		⌖ .25 A B C Ⓟ 17"	LASER	QA		J-1280	1.460 (ACCEPT PER N	854-R.U			**A**
							.C. # 19776 AND CUS				
							T. DOC.) [N/C:197				
		HALF -B- BOSS B					76-Doc:19776]				
(90)		FINAL						05-18-06			
*		⌖ .25 A B C Ⓟ 17"	LASER	QA		J-1280	0.832 (ACCEPT PER N	854-R.U			**A**
							.C. # 19776 AND CUS				
							T. DOC.) [N/C:197				
		HALF -B- BOSS C					76-Doc:19776]				
(100)		FINAL						05-18-06			
*		⌖ .25 A B C Ⓟ 17"	LASER	QA		J-1280	3.091 (ACCEPT PER N	854-R.U			**A**
							.C. # 19776 AND CUS				
							T. DOC.) [N/C:197				
		HALF -B- BOSS D					76-Doc:19776]				
(110)		FINAL						05-18-06			
15*			LASER	QA		J-1280	98.463 / 98.540 (AC	854-R.U			**A**
							CEPT PER N.C. # 197				
							76 AND CUST. DOC.)				
							[N/C:19776-Doc:19				
(120)		98.641 +/-0.125"					776]	05-18-06			
13*	F3	// .1 A	LASER	QA		J-1280	0.119 (ACCEPT PER N	854-R.U			**A**
							.C. # 19776 AND CUS				
							T. DOC.) [N/C:197				
(130)							76-Doc:19776]	05-18-06			

13* (140)	A3	// .1 A	LASER	QA		J-1280	0.110 (ACCEPT PER N.C. # 19776 AND CUST. DOC.) [N/C:19776-Doc:19776]	854-R.U 05-18-06			**A**
Drawing ID: SE120-002 Rev: 1			**INSPECTION INSTRUCTIONS**			**RESULTS**		**INSPECTED BY**			
SHEET	**ZONE**	**CHARACTERISTIC**	**GAGE/EQUIP**	**BY**	**SAMPLE**	**SER#**	**DATA/REMARKS**	**INSP**	**VERFD**	**AUDIT**	
* (150)		⌓ .375 A B C Port 12A profile	LASER	QA		J-1280	-0.460 / +0.577 (ACCEPT PER N.C. # 19776 AND CUST. DOC.) [N/C:19776-Doc:19776]	854-R.U 05-18-06			**A**
Drawing ID: SE120-004 Rev: 2D			**INSPECTION INSTRUCTIONS**			**RESULTS**		**INSPECTED BY**			
SHEET	**ZONE**	**CHARACTERISTIC**	**GAGE/EQUIP**	**BY**	**SAMPLE**	**SER#**	**DATA/REMARKS**	**INSP**	**VERFD**	**AUDIT**	
13* (160)	E2	81.370 +/-0.125"	LASER	QA		J-1280	81.076 / 81.195 (ACCEPT PER N.C. # 19776 AND CUST. DOC.) [N/C:19776-Doc:19776]	854-R.U 05-18-06			**A**
13* (170)	B2	81.370 +/-0.125"	LASER	QA		J-1280	81.373 / 81.483	522-R.D 05-04-06			**A**
Drawing ID: SE120-002 Rev: 1			**INSPECTION INSTRUCTIONS**			**RESULTS**		**INSPECTED BY**			
SHEET	**ZONE**	**CHARACTERISTIC**	**GAGE/EQUIP**	**BY**	**SAMPLE**	**SER#**	**DATA/REMARKS**	**INSP**	**VERFD**	**AUDIT**	
* (180)		⌓ .375 A B C Port 12B profile	LASER	QA		J-1280	-0.731 / +0.911 (ACCEPT PER N.C. # 19776 AND CUST. DOC.) [N/C:19776-Doc:19776]	854-R.U 05-18-06			**A**
Drawing ID: SE120-004 Rev: 2D			**INSPECTION INSTRUCTIONS**			**RESULTS**		**INSPECTED BY**			
SHEET	**ZONE**	**CHARACTERISTIC**	**GAGE/EQUIP**	**BY**	**SAMPLE**	**SER#**	**DATA/REMARKS**	**INSP**	**VERFD**	**AUDIT**	
15* (190)		⌓ .375 A B C Port NB profile	LASER	QA		J-1280	-0.314 / +0.265 (ACCEPT PER N.C. # 19776 AND CUST. DOC.) [N/C:19776-Doc:19776]	854-R.U 05-18-06			**A**

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	
*			UT THICKNESS GA	QA		J-1009-NDT	.365 TO .414	261-T.D			A
		VESSEL WALL MATERIAL THICKNESS									
		10% MAX POLOIDAL THINNING BELO									
		STK (0.375 +.040"/-.010")									
(10)		.338 MINIMUM WALL THICKNESS						04-28-06			
*			MASTER GAGE	QA		J-1271	LESS THAN 1.02	261-T.D			A
(20)		MAGNETIC PERMEABILITY 1.02 MAX						04-28-06			
*			PROFILOMETER	QA		J-1308	6 TO 30 MICRO-INCH	261-T.D			A
		INTERIOR SURFACE FINISH:									
(30)		32 MICRO-INCH RA						04-28-06			

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

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		A
(20)		VWI - ROOT PASS WELD P17AV		CWI				12-08-05	12-08-05		
*				MFG		VISUAL	ACCEPT	837-J.D	933-D.L		A
(40)		VWI - COVER PASS WELD P17AV		CWI				12-09-05	12-14-05		
*				MFG		VISUAL	ACCEPT	683-K.M	581-D.E		A
(60)		VWI - ROOT PASS WELD P17BV		CWI				12-09-05	12-09-05		
*				MFG		VISUAL	ACCEPT	683-K.M	933-D.L		A
(80)		VWI - COVER PASS WELD P17BV		CWI				12-14-05	12-14-05		

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	⌖ Ø.25Ⓜ A B C	LASER	QA		1444	0.252 TOP +0.010 / -0.033 (ACCEPT TO N C 18833) [N/C:18833]	854-R.U 04-30-06			A
(30)		PORT 17A POSITION									
16*	D8	⌖ Ø.25Ⓜ A B C	LASER	QA		1444	0.057 TOP -0.058 / -0.018	522-R.D 12-10-05			A
(40)		PORT 17B POSITION									

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		A
(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*	B5	⌖ Ø.25Ⓜ A B C	LASER	QA		1444	0.203 TOP +0.006 /	522-R.D			A
(30)		PORT 18A POSITION					+0.031	12-10-05			
17*	B5	⌖ Ø.25Ⓜ A B C	LASER	QA		1444	0.179 TOP +0.011 /	522-R.D			A
(40)		PORT 18B POSITION					+0.037	12-10-05			

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	
* (20)		VWI - ROOT PASS WELD P2AV		MFG CWI		VISUAL	O.K. PER CUSTOMER EQUIREMENTS	771-B.S 12-05-05	581-D.E 12-05-05		A
* (40)		VWI - COVER PASS WELD P2AV		MFG CWI		VISUAL	ACCEPT	837-J.D 12-09-05	933-D.L 12-12-05		A
* (60)		VWI - ROOT PASS WELD P2BV		MFG CWI		VISUAL	ACCEPT	683-K.M 12-06-05	933-D.L 12-06-05		A
* (80)		VWI - COVER PASS WELD P2BV		MFG CWI		VISUAL	ACCEPTABLE	728-R.D 12-12-05	933-D.L 12-12-05		A
* (100)		VWI - ROOT PASS WELD P5AV		MFG CWI		VISUAL	ACCEPT	683-K.M 12-01-05	933-D.L 12-01-05		A
* (120)		VWI - COVER PASS WELD P5AV		MFG CWI		VISUAL	ACCEPT	837-J.D 12-01-05	933-D.L 12-12-05		A
* (140)		VWI - ROOT PASS WELD P5BV		MFG CWI		VISUAL	ACCEPT	709-K.A 12-02-05	933-D.L 12-02-05		A
* (160)		VWI - COVER PASS WELD P5BV		MFG CWI		VISUAL	ACCEPT	837-J.D 12-03-05	933-D.L 12-05-05		A
* (180)		VWI - ROOT PASS WELD P6AV		MFG CWI		VISUAL	ACCEPT	683-K.M 12-01-05	933-D.L 12-01-05		A
* (200)		VWI - COVER PASS WELD P6AV		MFG CWI		VISUAL	ACCEPT	837-J.D 12-01-05	933-D.L 12-12-05		A
* (220)		VWI - ROOT PASS WELD P6BV		MFG CWI		VISUAL	ACCEPT	709-K.A 11-30-05	933-D.L 11-30-05		A
* (240)		VWI - COVER PASS WELD P6BV		MFG CWI		VISUAL	ACCEPT	709-K.A 12-02-05	933-D.L 12-05-05		A
* (260)		VWI - ROOT PASS WELD P7AV		MFG CWI		VISUAL	O.K. PER CUSTOMER EQUIREMENST	771-B.S 12-05-05	581-D.E 12-05-05		A
* (280)		VWI - COVER PASS WELD P7AV		MFG CWI		VISUAL	ACCEPT	837-J.D 12-09-05	933-D.L 12-12-05		A
* (300)		VWI - ROOT PASS WELD P7BV		MFG CWI		VISUAL	O.K. PER CUSTOMER EQUIREMENTS	771-B.S 12-05-05	581-D.E 12-05-05		A

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

*				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	⌖ Ø.25Ⓜ 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	⌖ Ø.25Ⓜ 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	⌖ Ø.25Ⓜ 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	⌖ Ø.25Ⓜ 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	⌖ Ø.25Ⓜ 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	⌖ Ø.25Ⓜ 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	⌖ Ø.25Ⓜ 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	⌖ Ø.25Ⓜ 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	⌖ Ø.25Ⓜ 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	⌖ Ø.25Ⓜ 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	⌖ Ø.25Ⓜ 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	⌖ Ø.25Ⓜ 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	⌖ Ø.25Ⓜ 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	⌖ Ø.25Ⓜ A B C	LASER	QA		1444	POSITION 0.148 TOP	522-R.D			A

(280)		PORT 10B POSITION					SURFACE -0.194 / -0 .201	12-01-05			
12* (310)	A7	⌖ Ø.25Ⓜ 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	⌖ Ø.25Ⓜ 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	⌖ Ø.25Ⓜ 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	⌖ Ø.25Ⓜ 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	
* (20)		VWI - ROOT PASS WELD P4AV		MFG CWI		VISUAL	ACCEPT PER CUSTOM DRAWINGS AND SPE FICATIONS	709-K.A 11-20-05	581-D.E 11-20-05		A
* (60)		VWI - COVER PASS WELD P4AV		MFG CWI		VISUAL	ACCEPT PER CUSTOM DRAWINGS AND SPE FICATIONS	709-K.A 12-20-05	933-D.L 11-30-05		A
* (80)		VWI - ROOT PASS WELD P4BV		MFG CWI		VISUAL	ACCEPT PER CUSTOM DRAWINGS AND SPE FICATIONS	709-K.A 11-20-05	933-D.L 11-30-05		A
* (120)		VWI - COVER PASS WELD P4BV		MFG CWI		VISUAL	ACCEPT	709-K.A 11-28-05	933-D.L 11-30-05		A

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	⌖ Ø.25Ⓜ A B C	LASER	QA		1444	POSITION 0.341 TOP SURFACE +0.081 / +0 .152 (ACCEPT PER NC	854-R.U			A
(30)		PORT 4A POSITION					18748) [N/C:18748]	04-30-06			
5*	B5	⌖ Ø.25Ⓜ A B C	LASER	QA		1444	POSITION 0.284 TOP SURFACE +0.051 / +0 .073 (ACCEPT PER NC	854-R.U			A
(40)		PORT 4B POSITION					18748) [N/C:18748]	04-30-06			

JUN-21-2005 TUE 08:21 AM TEK MIDWEST FAX NO. 708 430 0147 P. 01

GTC GREENVILLE TUBE™

GREENVILLE TUBE

P.O. Box 30 Greenville, PA 16125
Phone (724)-588-6300
Fax (724)-588-1492

REPORT OF TESTS

Customer

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

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-269-04/A-213-04b/SA-213-04(EAW)

MAJOR TOOL & MACHINE Co.
P.O. P05-03220
REF # 1010873

Each Tube on this order has been spectrographically Checked for Mo

Manufactured and shipped from	Size O.D.	I.D.	Wall	Length
Heat Number 2D994	125"		.035" Avg	17'/24'

Chemical Analysis

	%C	%Mn	%P	%S	%Si	%Ni	%Cr	%Mo	%Ti	%Cb+TA	%Fe	%N
Ladle	019	1.43	022	.001	37	12 01	17 15	2.13				04
Prod	019	1.45	028	003	37	12 24	17 36	2.181				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 Flat	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 A1

EREBY CERTIFY THAT THE HEAT NUMBERS, ANALYSIS AND TESTS DETAILED HEREON, ARE CORRECT AS CONTAINED IN THE RECORDS THIS CORPORATION"

ortant 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

Cathy Rocole
Quality Control Ass

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

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

MTM 016 JUN 24 2005

TEST REPORTS JUN 09 2005 ACCEPTED BY

1565 FLEETWOOD DRIVE
ELGIN, IL 60123

CERTIFICATE OF ANALYSIS

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

ORDER(S) : T36725
SALES ORDER 78524-1
QUANTITY : 2,310 00

SPEC. 4749 AMS 5599 F I625 ANNEALED 3891 ASTM B443 93 I625 GRADE 1
APPR. GE S400, S1000 D,
DESC. ALLOY 625 2B ANNEALED COIL Cust.Part #138020136009-01
Gauge: .010+/-.001(.009/.011) PAPER INTERLEAVE #3 EDGE
Width: 36.000+/-.01 MARK WEIGHT OF PAPER INTERLEAVE

HEAT NO 265096802 Major Tool PO P05-03219 1pc) 12"x12" CHEMICAL PROPERTIE

ALUMINUM (Al)	0.2000 ✓	BERYLLIUM (Be)	
BORON (B)	0.0030	CALCIUM (Ca)	
CARBON (C)	0.0200 ✓	CHROMIUM (Cr)	21.5500 ✓
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)	0.2560 ✓
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 ✓
T	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 @ F; H/T AT F+/- F HRS+/- HRS COOL

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

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

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

JUN 16 2005
97132 DH

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: 01-06-21

MTM 016 JUN 18 2005

QUALITY MANAGER - RICHARD OMIOTEK

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	
*			MASTER GAGE	QA		J-1165	LESS THAN 1.02	854-R.U			A
(20)		MAGNETIC PERMEABILITY 1.02 MAX						08-21-05			

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
442551001-0	06/03/05	P05-03064	20050628086	1 Of 4

HAYNES International

CUSTOMER COPY

Haynes International
1020 West Park Avenue
PO Box 9013
Kokomo, Indiana, 46902

Sold To • Client • Bestellanschrift	Ship To • Destinataire • Bestellempfänger	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 SE120-004-66MTM 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 Bestellemenge	Quantity Shipped Quantitie Expediee Liefermenge
ASTM-B-443, 00e1, UNS# N06625, Gr. 1; PS-489, E	6 PC	6 PC

Chemical Analysis • Analyse Chimique • Chemische Analyse

Heat Number Numero De Coulee Charge Nr	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
	Cb(Nb)	Ta	Zr	Bi	Se	La	Ce+Other	Pb	Mg	Y	Ag	N	Ca	Al+Ti	Ni+Co	Ni+Mo		
2650 5 6801	3.5026	<0.05															BUTT END *03	

Certified By • Certifie Par • Bescheinigt Durch: Amanda Aguirre
Certification Technician

Amanda Aguirre

6/28/2005

RECEIVED
JUL 5 2005
97832

Lines 1-3

MC109510.TIF1

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
442551001-0	06/03/05	P05-03064	20050628086	2 OF 4

HAYNES International

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Haynes International
1020 West Park Avenue
PO Box 9013
Kokomo, Indiana, 46902

Sold To • Client • Bestellkunanschrift
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 Beshreibung
0.125 (0.120/0.130) x 0/0 x 0/0
SE120-004-66MTM 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 Bestellmenge	Quantity Shipped Quantite Expediee Liefermenge
ASTM-B-443, 00e1, UNS# N06625, Gr. 1; PS-489, E	6 PC	6 PC

Tensile Test at Room Temperature • Essai De Traction A Temp. Ambiante • Zugversuch Bei Raum Temp.

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 %RA	
137000 PSI		74000 PSI	44 %		(1)(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 % Allong EN % Dehnung	%RA %RA	

Stress Rupture Temperature • Essai A Charge De Rupture Zeitstandversuch

Test Essai Versuch Temp:	Stress Constrainte Spannung	Hours Heures Stunden	% Elong In % Allong EN % Dehnung	% RA % RA	

Certified By • Certifie Par • Bescheinigt Durch: Amanda Aguirre
Certification Technician

6/28/2005

(1) 3942629401

Amanda Aguirre

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 STATUES INCLUDING FEDERAL LAW, TITLE 18, CHAPTER 47. 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.

MC109510.TIF2

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
442551001-0	06/03/05	P05-03064	20050628086	3 Of 4

HAYNES International

CUSTOMER COPY
Haynes International
1020 West Park Avenue
PO Box 9013
Kokomo, Indiana, 46902

Sold To • Client • Bestellanschrift
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 Beshreibung
0.125 (0.120/0.130) x 0/0 x 0/0
SE120-004-66MTM REV:1A
HAYNES(R) 625 ALLOY SHEET -
Nadcap CERTIFICATE NUMBER 0089
S400E,S1000E, EN 10204 3.1.B, AS9100

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

Annealed Hardness Durette Recuit Geglueht Haerte	Aged Hardness Durette Vieilli Gealtert Haerte		Grain Size Grosseur De Grain Korngroesse						IGA	Uniformity	Corrosion Rate		Oxidation Rate	Charpy Impact Test				Creep Rupture				
			Grain Size	Predominant Grain Size	Recry. Grain	Unrecry. Grain %	ALA	P&W Figure Number	Attack Depth		Corrosion	Test Method		Toughness Avg	Toughness 1	Toughness 2	Toughness 3	Test Essai Versuch	Stress Constrainte Spannung	Hours Heures Stunden	% Elong In % Allong EN % Dehnung	% Elong @ 15 Hrs
											MPY			Ft. Lbs.	Ft. Lbs.	Ft. Lbs.	Ft. Lbs.	Temp:	PSI			
98 HRB		(1)(A)	7.5						0.0001 IN													

Certified By • Certifie Par • Bescheinigt Durch: Amanda Aguirre
Certification Technician

Amanda Aguirre

6/28/2005

(1) 3942629401

MTM 016

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
442551001-0	06/03/05	P05-03064	20050628086	4 Of 4

HAYNES
International

CUSTOMER COPY
Haynes International
1020 West Park Avenue
PO Box 9013
Kokomo, Indiana, 46902

Sold To • Client • Bestellaranschrift	Ship To • Destinataire • Bestellmenge	Product Description • Description Produit • Material Beshreibung
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** **SE120-004-66MTM REV:1A** **HAYNES(R) 625 ALLOY SHEET -** **Nadcap CERTIFICATE NUMBER 0089** **S400E,S1000E, EN 10204 3.1.B, AS9100**

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

MTM 016

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

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	
*			MASTER GAGE	QA		J-1165	LESS THAN 1.02	854-R.U			A
(20)		MAGNETIC PERMEABILITY 1.02 MAX						08-21-05			

CERTIFICATION OF TESTS • RAPPORT D'ESSAIS CERTIFIE • WERKSZEUGNIS

FILE COPY 2

HAYNES International

Haynes International
1020 West Park Avenue
PO Box 9013
Kokomo, Indiana, 46902

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
442557001-0	06/03/05	P05-03064	20050628088	1 Of 4

Sold To • Client • Bestellaranschrift
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 Bezeichnung
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	Quantity Ordered Quantite Commandee Bestellmenge	Quantity Shipped Quantite Expediee Liefermenge
ASME SB-443, 04, UNS# N06625, Gr. 1; PS-489, E	6 PC	6 PC

Chemical Analysis • Analyse Chimique • Chemische Analyse

Heat Number Numero De Coulee Charge Nr	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
	Cb(Nb)	Ta	Zr	Bi	Se	La	Ce+Ce99	Pb	Mg	Y	Ag	N	Ca	Al+Ti	Ni+Co	Ni+Mo		
2650 5 6801	3.5026	<0.05															BUTT END *03	

Certified By • Certifie Par • Bescheinigt Durch: Amanda Aguirre
Certification Technician

Amanda Aguirre

6/28/2005

MTM 016

RECEIVED
JUL 5 2005
97829

CERTIFICATION OF TESTS • RAPPORT D'ESSAIS CERTIFIE • WERKSZEUGNIS

FILE COPY 2

HAYNES International

Haynes International
1020 West Park Avenue
PO Box 9013
Kokomo, Indiana, 46902

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
442557001-0	06/03/05	P05-03064	20050628088	2 Of 4

Sold To • Client • Bestellaranschrift
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 Beshreibung
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 Quantie Commandee Bestellemenge	Quantity Shipped Quantitie Expediee Liefermenge
6 PC	6 PC

Tensile Test at Room Temperature • Essai De Traction A Temp. Ambiante • Zugversuch Bei Raum Temp.

Ultimate Zugfestigkeit	1% Yield Lim. Elast. A 1% 1% Strieckgrenze	0.2% Yield Lim. Elast. A 0.2% 0.2% Strieckgrenze	% Elong In % Allong EN % Dehnung	%RA %RA	
137000 PSI		74000 PSI	44 %		(1)(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% Strieckgrenze	0.2% Yield Lim. Elast. A 0.2% 0.2% Strieckgrenze	% Elong In % Allong EN % Dehnung	%RA %RA	

Stress Rupture Temperature • Essai A Charge De Rupture Zeitstandversuch

Test Essai Versuch Temp:	Stress Contrainte Spannung	Hours Heures Stunden	% Elong In % Allong EN % Dehnung	% RA % RA	

Certified By • Certifie Par • Bescheinigt Durch: Amanda Aguirre
Certification Technician

6/28/2005

(1) 3942629401

Amanda Aguirre

MTM 016

CERTIFICATION OF TESTS • RAPPORT D'ESSAIS CERTIFIE • WERKSZEUGNIS

HAYNES International

FILE COPY 2

Haynes International
1020 West Park Avenue
PO Box 9013
Kokomo, Indiana, 46902

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
442557001-0	06/03/05	P05-03064	20050628088	3 Of 4

Sold To • Client • Bestellanschrift
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	Quantity Ordered Quantite Commandee Bestellmenge	Quantity Shipped Quantite Expediee Liefermenge
ASME-SB-443, 04, UNS# N06625, Gr. 1; PS-489, E	6 PC	6 PC

Annealed Hardness Durette Recuit Geglueht Haerte	Aged Hardness Durette Vieilli Gealtert Haerte		Grain Size Grosseur De Grain Korngroesse				IGA		Uniformity	Corrosion Rate		Oxidation Rate
			Grain Size	Predominant Grain Size	Recry. Grain	Uncrcry. Grain %	ALA	FAW Figure Number	Attack Depth		Corrosion MPY	Test Method	
98 HRB		(1)(A)	7.5						0.0001 IN				

Charpy Impact Test				Creep Rupture				
Toughness Avg Ft. Lbs.	Toughness 1 Ft. Lbs.	Toughness 2 Ft. Lbs.	Toughness 3 Ft. Lbs.	Test Envt Versuch Temp:	Stress Constraints Spannung PSI	Hours Heures Stunden	% Elong In % Allong EN % Dehnung	% Elong @ 15 Hrs

Certified By • Certifie Par • Bescheinigt Durch: Amanda Aguirre
Certification Technician

6/28/2005

(1) 3942629401

Amanda Aguirre

MTM 016

CERTIFICATION OF TESTS • RAPPORT D'ESSAIS CERTIFIE • WERKSZEUGNIS

FILE COPY 2

HAYNES International

Haynes International
1020 West Park Avenue
PO Box 9013
Kokomo, Indiana, 46902

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
442557001-0	06/03/05	P05-03064	20050628088	4 Of 4

Sold To • Client • Bestelladranschrift

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 Beshreibung

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	Quantity Ordered Quantie Commandee Bestellemenge	Quantity Shipped Quantite Expediee Liefermenge
ASME-SB-443, 04, UNS# N06625, Gr. 1; PS-489, E	6 PC	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

MTM 016

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

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			A
(20)		MAGNETIC PERMEABILITY 1.02 MAX						08-21-05			

FILE COPY 2

HAYNES International

Haynes International
1020 West Park Avenue
PO Box 9013
Kokomo, Indiana, 46902

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
442680001-0	06/06/05	P05-03064	20050628081	1 Of 4

Sold To • Client • Bestellaranschrift
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 Beshreibung
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	Quantity Ordered / Quantie Commandee / Bestellemenge	Quantity Shipped / Quantitie Expediee / Liefermenge
ASME-SB-443, 04, UNS# N06625, Gr. 1; PS-489, E	6 PC	6 PC

Chemical Analysis • Analyse Chimique • Chemische Analyse

Heat Number / Numero De Coulee / Charge Nr	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**

Heat Number	Cb(Nb)	Ta	Zr	Bi	Se	La	C+N+Cb	Pb	Mg	Y	Ag	N	Ca	Al+Ti	Ni+Co	Ni+Mo		
2650 5 6801	**3.5026**	**<0.05**															**BUTT END *03**	

Certified By • Certifie Par • Bescheinigt Durch: Amanda Aguirre
Certification Technician

Amanda Aguirre

6/28/2005

MTM 016

RECEIVED
JUL 5 2005
97831

7-7

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 RECORDING OF FALSE, FICTICIOUS OR FRAUDULENT STATEMENTS OR ENTRIES ON THIS DOCUMENT MAY BE PUNISHED AS A FELONY UNDER FEDERAL STATUES INCLUDING FEDERAL LAW, TITLE 18, CHAPTER 47. 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.

MC109509.TIF1

CERTIFICATION OF TESTS • RAPPORT D'ESSAIS CERTIFIE • WERKSZEUGNIS

FILE COPY 2

HAYNES International

Haynes International
1020 West Park Avenue
PO Box 9013
Kokomo, Indiana, 46902

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
442680001-0	06/06/05	P05-03064	20050628081	2 OF 4

Sold To • Client • Bestellaranschrift
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 Beshreibung
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	Quantity Ordered Quantie Commandee Bestellmenge	Quantity Shipped Quantitie Expediee Liefermenge
ASME-SB-443, 04, UNS# N06625, Gr. 1; PS-489, E	6 PC	6 PC

Tensile Test at Room Temperature • Essai De Traction A Temp. Ambiante • Zugversuch Bei Raum Temp.

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 %RA	
137000 PSI		74000 PSI	44 %		(1)(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 % Allong EN % Dehnung	%RA %RA	

Stress Rupture Temperature • Essai A Charge De Rupture Zeitstandversuch

Test Essai Versuch Temp.	Stress Contrainte Spannung	Hours Heures Stunden	% Elong In % Allong EN % Dehnung	% RA % RA	

Certified By • Certifie Par • Bescheinigt Durch: Amanda Aguirre
Certification Technician

Amanda Aguirre

6/28/2005

(1) 3942629401

MC109509.TIF2

CERTIFICATION OF TESTS • RAPPORT D'ESSAIS CERTIFIE • WERKSZEUGNIS

FILE COPY 2

HAYNES International

Haynes International
1020 West Park Avenue
PO Box 9013
Kokomo, Indiana, 46902

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
442680001-0	06/06/05	P05-03064	20050628081	3 Of 4

Sold To • Client • Bestellanschrift
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 Beshreibung
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	Quantity Shipped Quantite Expediee Liefermenge
6 PC	6 PC

Annealed Hardness Durette Recuit Geglueht Haerte	Aged Hardness Durette Vieilli Gealtert Haerte		Grain Size Grosseur De Grain Korngroesse				IGA		Uniformity	Corrosion Rate		Oxidation Rate	Charpy Impact Test				Creep Rupture				
			Grain Size	Predominant Grain Size	Recry. Grain	Unrecry. Grain %	ALA	ASTM Figure Number	Attack Depth		Corrosion MPY	Test Method		Toughness Avg Ft. Lbs.	Toughness 1 Ft. Lbs.	Toughness 2 Ft. Lbs.	Toughness 3 Ft. Lbs.	Test Essai Versuch Temp:	Stress Contrainte Spannung PSI	Hours Heures Stunden	% Elong In % Allong EN % Dehnung	% Elong @ 15 Hrs
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

MTM 015

CERTIFICATION OF TESTS • RAPPORT D'ESSAIS CERTIFIE • WERKSZEUGNIS

FILE COPY 2

HAYNES International

Haynes International
1020 West Park Avenue
PO Box 9013
Kokomo, Indiana, 46902

Invoice No No. De Facture Rechnungs Nr	Date Entered Date De Commande Bestelldatum	Customer Reference Reference Client Kundenbestdlksten	Report No. Rapport No Zeugnis Nr	Pages of Pages Page de Pages Anzahl der Seiten
442680001-0	06/06/05	P05-03064	20050628081	4 Of 4

Sold To • Client • Bestellaraeschrift
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 Beshreibung
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	Quantity Ordered Quantie Commandee Bestellmenge	Quantity Shipped Quantitie Expediee Liefermenge
ASME-SB-443, 04, UNS# N06625, Gr. 1; PS-489, E	6 PC	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

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

P05-03064

Best Regards,

6/21/2005

Marlin C. Losch III

HAYNES 016

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	
*			MASTER GAGE	QA		J-1165	LESS THAN 1.02	854-R.U			A
(20)		MAGNETIC PERMEABILITY 1.02 MAX						08-21-05			

CERTIFICATION OF TESTS • RAPPORT D'ESSAIS CERTIFIÉ • 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
442681001-0	06/06/05	P05-03064	20050628092	1 Of 4

HAYNES International

FILE COPY 2

Haynes International
1020 West Park Avenue
PO Box 9013
Kokomo, Indiana, 46902

Sold To • Client • Bestellanschrift
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 Beshreibung
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	Quantity Ordered Quantie Commandee Bestellemenge	Quantity Shipped Quantite Expediee Liefermenge
ASME-SB-443, 04, UNS# N06625, Gr. 1; PS-489, E	6 PC	6 PC

Chemical Analysis • Analyse Chimique • Chemische Analyse

Heat Number Numero De Coulee Charge Nr	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

	(Nb+Ta)	Ta	Zr	Bi	Se	La	Cb+Ta	Pb	Mg	Y	Ag	N	Ca	Al+Ti	Ni+Co	Ni+Mo		
2650 5 6801	3.5026	<0.05															BUTT END *03	

Certified By • Certifie Par • Bescheinigt Durch: Amanda Aguirre
Certification Technician

Amanda Aguirre

6/28/2005

MTM 016

RECEIVED
JUL 5 2005
97827

MC109514.TIF1

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 Kundenbestdilldaten	Report No. Rapport No Zeugnis Nr	Pages of Pages Page de Pages Anzahl der Seiten
442681001-0	06/06/05	P05-03064	20050628092	2 Of 4

HAYNES International

FILE COPY 2

Haynes International
1020 West Park Avenue
PO Box 9013
Kokomo, Indiana, 46902

Sold To • Client • Bestellanschrift
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 Beshreibung
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	Quantity Ordered Quantie Commandee Bestellemenge	Quantity Shipped Quantitie Expediee Liefermenge
ASME-SB-443, 04, UNS# N06625, Gr. 1; PS-489, E	6 PC	6 PC

Tensile Test at Room Temperature • Essai De Traction A Temp. Ambiante • Zugversuch Bei Raum Temp.

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 %RA	
137000 PSI		74000 PSI	44 %		(1)(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 % Allong EN % Dehnung	%RA %RA	

Stress Rupture Temperature • Essai A Charge De Rupture Zeitstandversuch

Test Essai Versuch Temp:	Stress Contrainte Spannung	Hours Heures Stunden	% Elong In % Allong EN % Dehnung	% RA % RA	

Certified By • Certifie Par • Bescheinigt Durch: Amanda Aguirre
Certification Technician

6/28/2005

(1) 3942629401

Amanda Aguirre

MTM 016

CERTIFICATION OF TESTS • RAPPORT D'ESSAIS CERTIFIE • WERKSZEUGNIS

FILE COPY 2

HAYNES International

Haynes International
1020 West Park Avenue
PO Box 9013
Kokomo, Indiana, 46902

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
44268 1001-0	06/06/05	P05-03064	20050628092	3 Of 4

Sold To • Client • Bestellanschrift
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 Beshreibung
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	Quantity Ordered Quantite Commandee Bestellmenge	Quantity Shipped Quantite Expediee Lieformenge
ASME-SB-443, 04, UNS# N06625, Gr. 1; PS-489, E	6 PC	6 PC

Annealed Hardness Durette Recuit Geglueht Haerte	Aged Hardness Durette Vieilli Gealtert Haerte		Grain Size Grosseur De Grain Korngroesse						IGA	Uniformity	Corrosion Rate		Oxidation Rate	Charpy Impact Test				Creep Rupture				
			Grain Size	Predominant Grain Size	Recry. Grain	Unrecry. Grain %	ALA	P&W Figure Number	Attack Depth		Corrosion	Test Method		Toughness Avg	Toughness 1	Toughness 2	Toughness 3	Test Temp/ Versuch	Stress Constrainte Spannung	Hours Heures Stunden	% Elong in % Allong EN % Dehnung	% Elong @ 15 Hrs
											MPY			Ft. Lbs.	Ft. Lbs.	Ft. Lbs.	Ft. Lbs.	Temp:	PSI			
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

MTM 016

MC109514.TIF3

CERTIFICATION OF TESTS • RAPPORT D'ESSAIS CERTIFIE • WERKSZEUGNIS

FILE COPY 2

HAYNES International

Haynes International
1020 West Park Avenue
PO Box 9013
Kokomo, Indiana, 46902

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
442681001-0	06/06/05	P05-03064	20050628092	4 Of 4

Sold To • Client • Bestelltranscbrift
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 Beshreibung
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	Quantity Ordered Quantite Commandee Bestellmenge	Quantity Shipped Quantite Expediee Liefermenge
ASME-SB-443, 04, UNS# N06625, Gr. 1; PS-489, E	6 PC	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

MTM P.S.

MC109514.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

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			A
(20)		MAGNETIC PERMEABILITY 1.02 MAX						08-21-05			

1mc093762.TIF

FILE COPY 2

HAYNES International

Haynes International
1020 West Park Avenue
PO Box 9013
Kokomo, Indiana, 46902

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
391282001-0	08/14/03	P03-03302	20030822079	1 Of 4

Sold To • Client • Bestelleranschrift
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 (0.12/0.13) x 36 x 120
.
HAYNES(R) 625 ALLOY SHEET -
NADCAP CERTIFICATE NUMBER 0089
S400E,S1000E, EN 10204 3.1.B

Specification • Specification • Spezifikation	Quantity Ordered / Quantie Commandee / Bestellmenge	Quantity Shipped / Quantitie Expediee / Liefermenge
AMS 5599 Rev F ASTM-B-443 Rev 99 N06625 1	1 PC	1 PC

Chemical Analysis • Analyse Chimique • Chemische Analyse

Heat Number / Numero De Coulee / Charge Nr	Al	B	C	Cb+Ta (Nb+Ta)	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	8.86	58.96	0.008	0.002	0.11	0.26		

Heat Number	Cb(Nb)	Ta	Zr	Bi	Sc	La	[illegible]	Pb	Mg	Y	Ag	N	Ca	Al+Ti	Ni+Co
2650 3 6874	3.580	<0.050													

Certified By • Certifie Par • Bescheinigt Durch: Paul Guest
Certification Supervisor/Technician 08/22/03

Paul O. Guest

MTM 016

8-28-03

RECEIVED
AUG 2 7 2003

79491 line1 B.7.

THE DATA CONTAINED HEREIN WERE OBTAINED FROM SAMPLES CONSIDERED TO BE REPRESENTATIVE OF THE PRODUCTS IN THE SUBJECT SHIPMENT AND ARE BELIEVED TO BE RELIABLE. WE DISCLAIM ANY LEGAL LIABILITY FROM USE OF THIS CERTIFICATE.
LES RENSEIGNEMENTS DONNES CI DESSUS ONT ETE OBTENUS A PARTIR D'ECHANTILLONS REPRESENTATIVES DES PRODUITS EXPEDIES ET SONT DOC FIABLES NOUS RECUSONS TOUTE RESPONSIBILITE LEGALE QUANT A L'UTILISATION DE CE CERTIFICAT.
DIE VORGENANNTEN ANGABEN BASIEREN AUF PROBEN DIE ALS REPRESENTATIV GELTEN FUER DIE PRODUKTE DIE DIESER LIEFERUNG ZUGRUNDE LIEGEN UND ALS GLAUBWUERDIG UND ZUVERLAESSIG ANGESEHEN WERDEN. WIR LEHNEN JEDE RECHTLICHE VERANTWORTLICHKEIT FUER DIE VERWENDUNG DIESES ZEUGNISSES AB
THIS MATERIAL MEETS THE REQUIREMENTS OF THE LISTED SPECIFICATION(S), MODIFIED BY ANY EXCEPTIONS OR PURCHASE ORDER REQUIREMENTS.
SPECIFICATION MARKING REQUIREMENTS MAY BE WAIVED ON ORDERS REQUIRING MULTIPLE MATERIAL SPECIFICATIONS.

MC118158.TIF1

2mc093762.TIF

CERTIFICATION OF TESTS • RAPPORT D'ESSAIS CERTIFIE • WERKSZEUGNIS

FILE COPY 2

HAYNES International

Haynes International
1020 West Park Avenue
PO Box 9013
Kokomo, Indiana, 46902

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
391282001-0	08/14/03	P03-03302	20030822079	2 Of 4

Sold To • Client • Bestelleranschrift
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 Bezeichnung
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 • Specification • Spezifikation
AMS 5599 Rev F ASTM-B-443 Rev 99 N06625 1

Quantity Ordered / Quantite Commandee / Bestellmenge	Quantity Shipped / Quantite Expediee / Liefermenge
1 PC	1 PC

Tensile Test at Room Temperature • Essai De Traction A Temp. Ambiante • Zugversuch Bei Raume Temp.

Ultimate / Zugfestigkeit	1% Yield / Lim. Elast. A 1% / 1% Streckgrenze	0.2% Yield / Lim. Elast. A 0.2% / 0.2% Streckgrenz	% Elong In / % Allong EN / % Dehnung 2"	%RA / %RA	
134000 PSI		72000 PSI	46 %		(1) (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% Streckgrenz	% Elong In / % Allong EN / % Dehnung	%RA / %RA

Stress Rupture Temperature • Essai A Charge De Rupture Zeitstandversuch

Test Essai Versuch Temp	Stress / Contrainte / Spannung	Hours / Heures / Stunden	% Elong In / % Allong EN / % Dehnung	% RA / % RA

Certified By • Certifie Par • Bescheinigt Durch: Paul Guest
Certification Supervisor/Technician

08/22/03

(1) 3438301501

Paul O. Guest

MTM 016
9-28-03

MC118158.TIF2

3mc093762.TIF

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 / Kundenbestelldatum	Report No. / Rapport No / Zeugnis Nr	Pages of Pages / Page de Pages / Anzahl der Seiten
391282001-0	08/14/03	P03-03302	20030822079	3 Of 4

FILE COPY 2

HAYNES International

Haynes International
1020 West Park Avenue
PO Box 9013
Kokomo, Indiana, 46902

Sold To • Client • Bestellaranschrift
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 (0.12/0.13) x 36 x 120
.
HAYNES(R) 625 ALLOY SHEET -
NADCAP CERTIFICATE NUMBER 0089
S400E,S1000E, EN 10204 3.1.B

Specification • Specification • Spezifikation	Quantity Ordered / Quantite Commandee / Bestellmenge	Quantity Shipped / Quantite Expediee / Liefermenge
AMS 5599 Rev F ASTM-B-443 Rev 99 N06625 1	1 PC	1 PC

Annealed Hardness / Durette Recuit / Gegluehte Haerte	Aged Hardness / Durette Vieilli / Gealtert Haerte		Grain Size / Grosseur De Grain / Korngroesse					IGA	Uniformity	Corrosion Rate		Oxidation Rate	Charpy Impact Test				Creep Rupture					
			Grain Size	Predominant Grain Size	Recry. Grain	Unrecry. Grain %	ALA	Attack Depth		Corrosion MPY	Test Method		Toughness Avg	Toughness 1	Toughness 2	Toughness 3	Test Essai Versuch Temp.	Stress Contrainte Spannung	Hours Heures Stunden	% Elong In % Allong EN % Dehnung	% Elong @ 15 Hrs	
98 HRB			8					0.0001 In														(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

THE DATA CONTAINED HEREIN WERE OBTAINED FROM SAMPLES CONSIDERED TO BE REPRESENTATIVE OF THE PRODUCTS IN THE SUBJECT SHIPMENT AND ARE BELIEVED TO BE RELIABLE. WE DISCLAIM ANY LEGAL LIABILITY FROM USE OF THIS CERTIFICATE.
LES RENSEIGNEMENTS DONNES CI DESSUS ONT ETE OBTENUS A PARTIR D'ECHANTILLONS REPRESENTATIVES DES PRODUITS EXPEDIES ET SONT DOC FIABLES. NOUS RECUSONS TOUTE RESPONSIBILITE LEGALE QUANT A L'UTILISATION DE CE CERTIFICAT.
DIE VORGENANNTEN ANGABEN BASIEREN AUF PROBEN DIE ALS REPRESENTATIV GELTEN FUER DIE PRODUKTE DIE DIESER LIEFERUNG ZUGRUNDE LIEGEN UND ALS GLAUBWUERDIG UND ZUVERLAESSIG ANGESEHEN WERDEN. WIR LEHNEN JEDE RECHTLICHE VERANTWORTLICHKEIT FUER DIE VERWENDUNG DIESES ZEUGNISSES AB.
THIS MATERIAL MEETS THE REQUIREMENTS OF THE LISTED SPECIFICATION(S), MODIFIED BY ANY EXCEPTIONS OR PURCHASE ORDER REQUIREMENTS.
SPECIFICATION MARKING REQUIREMENTS MAY BE WAIVED ON ORDERS REQUIRING MULTIPLE MATERIAL SPECIFICATIONS.

MC118158.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 / Kundenbestellnummer	Report No. / Rapport No / Zeugnis Nr	Pages of Pages / Page de Pages / Anzahl der Seiten
391282001-0	08/14/03	P03-03302	20030822079	4 Of 4

FILE COPY 2

HAYNES International

Haynes International
1020 West Park Avenue
PO Box 9013
Kokomo, Indiana, 46902

Sold To • Client • Bestelleranschrift	Ship To • Destinataire • Bestellanzeige	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 (0.12/0.13) x 36 x 120 . HAYNES(R) 625 ALLOY SHEET - NADCAP CERTIFICATE NUMBER 0089 S400E,S1000E, EN 10204 3.1.B

Specification • Specification • Spezifikation	Quantity Ordered / Quantité Commandée / Bestellmenge	Quantity Shipped / Quantité Expédiée / Liefermenge
AMS 5599 Rev F 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 • Certifie Par • Bescheinigt Durch: Paul Guest 08/22/03
Certification Supervisor/Technician

Paul O. Guest

MTM 016
8.28.03

MC118158.TIF4

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	
*			MASTER GAGE	QA		J-1165	LESS THAN 1.02	854-R.U			A
(20)		MAGNETIC PERMEABILITY 1.02 MAX						08-21-05			

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
442687001-0	06/06/05	P05-03064	20050628091	1 Of 4

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HAYNES International

Haynes International
1020 West Park Avenue
PO Box 9013
Kokomo, Indiana, 46902

Sold To • Client • Bestellanschrift
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 Beshreibung
0.125 (0.120/0.130) x 0/0 x 0/0
SE120-004-72MTM REV:1A
HAYNES(R) 625 ALLOY SHEET -
Nadcap CERTIFICATE NUMBER 0089
S400E,S1000E, EN 10204 3.1.B, AS9100

Specification • Specification • Spezifikation	Quantity Ordered / Quantie Commandee / Bestellemenge	Quantity Shipped / Quantite Expediee / Liefermenge
ASME-SB-443, 04, UNS# N06625, Gr. 1; PS-489, E	6 PC	6 PC

Chemical Analysis • Analyse Chimique • Chemische Analyse

Heat Number / Numero De Coulee / Charge Nr	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
	Cb(Nb)	Ta	Zr	Bi	Se	La	C+N-Cb/9	Pb	Mg	Y	Ag	N	Ca	Al+Ti	Ni+Co	Ni+Mo		
2650 5 6801	3.5026	<0.05															BUTT END *03	

Certified By • Certific Par • Bescheinigt Durch: Amanda Aguirre
Certification Technician

Amanda Aguirre

6/28/2005

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JUL 5 2005
97833

Linea 16-18

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 RECORDING OF FALSE, FICTICIOUS OR FRAUDULENT STATEMENTS OR ENTRIES ON THIS DOCUMENT MAY BE PUNISHED AS A FELONY UNDER FEDERAL STATUES INCLUDING FEDERAL LAW, TITLE 18, CHAPTER 47. 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.

RKW 7-5-05

MC109562.TIF1

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
442687001-0	06/06/05	P05-03064	20050628091	2 Of 4

HAYNES International

FILE COPY 2

Haynes International
1020 West Park Avenue
PO Box 9013
Kokomo, Indiana, 46902

Sold To • Client • Bestellanschrift
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 Beshreibung
0.125 (0.120/0.130) x 0/0 x 0/0
SE120-004-72MTM 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 Bestellemenge	Quantity Shipped Quantitie Expediee Liefermenge
ASME-SB-443, 04, UNS# N06625, Gr. 1; PS-489, E	6 PC	6 PC

Tensile Test at Room Temperature • Essai De Traction A Temp. Ambiante • Zugversuch Bei Raum Temp.

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 %RA	
137000 PSI		74000 PSI	44 %		(1)(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 % Allong EN % Dehnung	%RA %RA	

Stress Rupture Temperature • Essai A Charge De Rupture Zeitstandversuch

Test Essai Versuch Temp:	Stress Contrainte Spannung	Hours Heures Stunden	% Elong In % Allong EN % Dehnung	% RA % RA	

Certified By • Certifie Par • Bescheinigt Durch: Amanda Aguirre
Certification Technician

Amanda Aguirre

6/28/2005

(1) 3942629401

RAU
7-5-05

MC109562.TIF2

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
442687001-0	06/06/05	P05-03064	20050628091	3 Of 4

HAYNES International

FILE COPY 2

Haynes International
1020 West Park Avenue
PO Box 9013
Kokomo, Indiana, 46902

Sold To • Client • Bestelltranschrift
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 Bestreibung
0.125 (0.120/0.130) x 0/0 x 0/0
SE120-004-72MTM 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

Annealed Hardness Durette Recuit Geglueht Haerte	Aged Hardness Durette Vieilli Gealtert Haerte		Grain Size Grosseur De Grain Korngroesse						IGA	Uniformity	Corrosion Rate		Oxidation Rate	Charpy Impact Test				Creep Rupture					
			Grain Size	Predominant Grain Size	Recry. Grain	Unrecry. Grain %	ALA	PREW Figure Number	Attack Depth		Corrosion MPY	Test Method		Toughness Avg Ft. Lbs.	Toughness 1 Ft. Lbs.	Toughness 2 Ft. Lbs.	Toughness 3 Ft. Lbs.	Test Essai Versuch Temp.	Stress Constraint Spannung PSI	Hours Heures Stunden	% Elong in % Allong EN % Dehnung	% Elong @ 15 Hrs	
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

RLH 7-5-05

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 Kundenbestdfdaten	Report No. Rapport No Zeugnis Nr	Pages of Pages Page de Pages Anzahl der Seiten
442687001-0	06/06/05	P05-03064	20050628091	4 Of 4

HAYNES International

FILE COPY 2

Haynes International
1020 West Park Avenue
PO Box 9013
Kokomo, Indiana, 46902

Sold To • Client • Bestellkundschrift
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 Bestreibung
0.125 (0.120/0.130) x 0/0 x 0/0
SE120-004-72MTM REV:1A
HAYNES(R) 625 ALLOY SHEET -
Nadcap CERTIFICATE NUMBER 0089
S400E,S1000E, EN 10204 3.1.B, AS9100

Specification • Specification • Spezifikation	Quantity Ordered Quantie Commandee Bestellemenge	Quantity Shipped Quantite Expediee Liefermenge
ASME-SB-443, 04, UNS# N06625, Gr. 1; PS-489, E	6 PC	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

AKU 7-5-05

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

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			A
(20)		MAGNETIC PERMEABILITY 1.02 MAX						08-21-05			

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
442690001-0	06/06/05	P05-03064	20050628080	1 Of 4

HAYNES International

FILE COPY 2

Haynes International
1020 West Park Avenue
PO Box 9013
Kokomo, Indiana, 46902

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MAJOR TOOL AND MACHINE INC
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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 Bestreibung
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 Bestellemenge	Quantity Shipped Quantite Expediee Liefermenge
ASME-SB-443, 04, UNS# N06625, Gr. 1; PS-489, E	6 PC	6 PC

Chemical Analysis • Analyse Chimique • Chemische Analyse

Heat Number Numero De Coulee Charge Nr	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

	Cb(Nb)	Ta	Zr	Bi	Se	La	Cb+Ce	Pb	Mg	Y	Ag	N	Ca	Al+Ti	Ni+Co	Ni+Mo	
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

RECEIVED
JUL 5 2005
97826 228

MTM 016

Lines 19-21

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
442690001-0	06/06/05	P05-03064	20050628080	2 Of 4

HAYNES International

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Ship To • Destinatsire • Bestellmenge
MAJOR TOOL AND MACHINE INC
1458 E 19TH ST
INDIANAPOLIS
IN 46218 USA

Product Description • Description Produit • Material Beshreibung
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 Bestellemenge	Quantity Shipped Quantite Expediee Liefermenge
ASME-SB-443, 04, UNS# N06625, Gr. 1; PS-489, E	6 PC	6 PC

Tensile Test at Room Temperature • Essai De Traction A Temp. Ambiante • Zugversuch Bei Raum Temp.

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 %RA	
137000 PSI		74000 PSI	44 %		(1)(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 % Allong EN % Dehnung	%RA %RA	

Stress Rupture Temperature • Essai A Charge De Rupture Zeitstandversuch

Test Essai Versuch Temp:	Stress Contrainte Spannung	Hours Heures Stunden	% Elong In % Allong EN % Dehnung	% RA % RA	

Certified By • Certifie Par • Bescheinigt Durch: Amanda Aguirre
Certification Technician

6/28/2005

(1) 3942629401

Amanda Aguirre

MTM 016

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
442690001-0	06/06/05	P05-03064	20050628080	3 Of 4

HAYNES International

FILE COPY 2

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Ship To • Destinataire • Bestellmenge
MAJOR TOOL AND MACHINE INC
1458 E 19TH ST
INDIANAPOLIS
IN 46218 USA

Product Description • Description Produit • Material Beshreibung
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 / Quantite Commandee / Bestellmenge: 6 PC
Quantity Shipped / Quantite Expediee / Liefermenge: 6 PC

Annealed Hardness Durete Recuit Geglueht Haerte	Aged Hardness Durete Vieilli Gealtert Haerte		Grain Size Grossear De Grain Korngroesse						IGA	Uniformity	Corrosion Rate		Oxidation Rate	Charpy Impact Test				Creep Rupture				
			Grain Size	Predominant Grain Size	Recry. Grain	Unrecry. Grain %	ALA	P&W Figure Number	Attack Depth		Corrosion MPY	Test Method		Toughness Avg Ft. Lbs.	Toughness 1 Ft. Lbs.	Toughness 2 Ft. Lbs.	Toughness 3 Ft. Lbs.	Test Essai Versuch Temp.	Stress Contrainte Spannung PSI	Hours Heures Stunden	% Elong In % Allong En % Dehnung	% Elong @ 15 Hrs
98 HRB		(I)(A)	7.5						0.0001 IN													

Certified By • Certifie Par • Bescheinigt Durch: Amanda Aguirre
Certification Technician

6/28/2005

(1) 394262940 1

Amanda Aguirre

016

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
442690001-0	06/06/05	P05-03064	20050628080	4 Of 4

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PO Box 9013
Kokomo, Indiana, 46902

Sold To • Client • Bestellanschrift	Ship To • Destinataire • Bestellmenge	Product Description • Description Produit • Material Beshreibung
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 Bestellemenge	Quantity Shipped Quantitie Expediee Liefermenge
ASME-SB-443, 04, UNS# N06625, Gr. 1; PS-489, E	6 PC	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 • Certific Par • Bescheinigt Durch: Amanda Aguirre 6/28/2005
Certification Technician

Amanda Aguirre

MTM 016

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

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	
*			MASTER GAGE	QA		J-1165	LESS THAN 1.02	854-R.U			A
(20)		MAGNETIC PERMEABILITY 1.02 MAX						08-21-05			

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

MATERIAL	SIZE	QTY	CONFORMS TO:
Alloy 625 welded pipe	2-1/2" sch 10	20 ft	ASTM-B-705, PS483, PS 489

RM ID: A8519

MAY 24 2005

9640

Line 1

B-1

Certified By:

Rodney Bowlin

5/24/05

MTM 09

BRISTOL METALS L.P.
BRISTOL TN. U.S.A.
MILL TEST REPORT

TO: EAGLE ALLOYS CORPORATION
117 WEST PARK CT
TALBOTT, TN 37877

CUST NO: 557512
ORDER NO: 14762
PO NO: 8294
DATE: 01/21/2005

HEAT NO.: 26504674 2.5" WELDED PIPE SCH. 10S ALLOY I625 UNS#N06625 ASTM
RM ID: AB519 B705-03 / ASME SB705-01, 03 ADD. CLASS 2, FULL FINISHED.

ALUMINUM	.2	CARBON	.033
CHROMIUM	22.0024	COBALT	.1849
IRON	4.5278	MANGANESE	.2605
MOLYBDENUM	8.8153	NB+TA	3.5003
NICKEL	59.3567	PHOSPHORUS	.007
SILICON	.19	SULFUR	.002
TITANIUM	.2644		
ELONG %	47	HARD RB	93
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 minutes

Bristol Metals has a Quality Management System that is in
compliance with ISO 9001:2000

Hardness 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.

David Singleton
Representative

MIBR

5/24/05
MTM 09

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	
*			MASTER GAGE	QA		J-1165	LESS THAN 1.02	854-R.U			A
(20)		MAGNETIC PERMEABILITY 1.02 MAX						08-21-05			

CERTIFICATION OF TESTS • RAPPORT D'ESSAIS CERTIFIE • WERKSZEUGNIS

HAYNES International

FILE COPY 2

Haynes International
1020 West Park Avenue
PO Box 9013
Kokomo, Indiana, 46902

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
442713001-0	06/06/05	P05-03064	20050628078	1 Of 4

Sold To • Client • Bestellkundschrift
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 Beshreibung
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	Quantity Ordered Quantite Commandee Bestellmenge	Quantity Shipped Quantitie Expediee Liefermenge
ASME-SB-443, 04, UNS# N06625, Gr. 1, PS-489, E	6 PC	6 PC

Chemical Analysis • Analyse Chimique • Chemische Analyse

Heat Number Numero De Coulee Charge Nr	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
	Cb(Nb)	Ta	Zr	Bi	Se	La	C+N+O+S	Pb	Mg	Y	Ag	N	Ca	Al+Ti	Ni+Co	Ni+Mo		
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

Lines 25-27

MC109516.TIF1

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
442713001-0	06/06/05	P05-03064	20050628078	2 Of 4

HAYNES International

FILE COPY 2

Haynes International
1020 West Park Avenue
PO Box 9013
Kokomo, Indiana, 46902

Sold To • Client • Bestellanschrift
MAJOR TOOL AND MACHINE INC
1458 E 19TH ST
INDIANAPOLIS
IN 46218 USA

ShipTo • Destinataire • Bestellmenge
MAJOR TOOL AND MACHINE INC
1458 E 19TH ST
INDIANAPOLIS
IN 46218 USA

Product Description • Description Produit • Material Beshreibung
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	Quantity Ordered Quantite Commandee Bestellemenge	Quantity Shipped Quantite Expediee Liefermenge
ASME-SB-443, 04, UNS# N06625, Gr. 1; PS-489, E	6 PC	6 PC

Tensile Test at Room Temperature • Essai De Traction A Temp. Ambiante • Zugversuch Bei Raum Temp.

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 %RA	
137000 PSI		74000 PSI	44 %		(1)(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 % Allong EN % Dehnung	%RA %RA	

Stress Rupture Temperature • Essai A Charge De Rupture Zeitstandversuch

Test Essai Versuch Temp:	Stress Contrainte Spannung	Hours Heures Stunden	% Elong In % Allong EN % Dehnung	% RA % RA	

Certified By • Certifie Par • Bescheinigt Durch: Amanda Aguirre
Certification Technician

Amanda Aguirre

6/28/2005

(1) 3942629401

MC109516.TIF2

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
442713001-0	06/06/05	P05-03064	20050628078	3 Of 4

HAYNES International

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Haynes International
1020 West Park Avenue
PO Box 9013
Kokomo, Indiana, 46902

Sold To • Client • Bestellanschrift
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 Beshreibung
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
Quantite Commandee
Bestellemenge
6 PC

Quantity Shipped
Quantite Expediee
Liefermenge
6 PC

Annealed Hardness Durette Recuit Geglueht Haerte	Aged Hardness Durette Vieilli Gealtert Haerte		Grain Size Grossear De Grain Korngroesse				IGA			Uniformity	Corrosion Rate		Oxidation Rate	Charpy Impact Test				Creep Rupture				
			Grain Size	Predominant Grain Size	Recry. Grain	Unrecry. Grain %	ALA	P&W Figure Number	Attack Depth		Corrosion MPY	Test Method		Toughness Avg Ft. Lbs.	Toughness 1 Ft. Lbs.	Toughness 2 Ft. Lbs.	Toughness 3 Ft. Lbs.	Test Essai Versuch Temp:	Stress Constraint Spannung PSI	Hours Heures Stunden	% Elong In % Allong EN % Dehnung	% Elong @ 15 Hrs
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

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 Kundenbestdldaten	Report No. Rapport No Zeugnis Nr	Pages of Pages Page de Pages Anzahl der Seiten
442713001-0	06/06/05	P05-03064	20050628078	4 OF 4

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1020 West Park Avenue
PO Box 9013
Kokomo, Indiana, 46902

Sold To • Client • Bestellanschrift	Ship To • Destinatnire • Bestellmenge	Product Description • Description Produit • Material Beshreibung
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** **SE120-004-75MTM REV:1A** **HAYNES(R) 625 ALLOY SHEET** **Nadcap CERTIFICATE NUMBER 0089** **S400E,S1000E, EN 10204 3.1.B, AS9100**

Specification • Specification • Spezifikation	Quantity Ordered Quantie Commandee Bestellemenge	Quantity Shipped Quantitie Expediee Liefermenge
ASME-SB-443, 04, UNS# N06625, Gr. 1; PS-489, E	6 PC	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

MTM 016

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

Marlin 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			A
(20)		MAGNETIC PERMEABILITY 1.02 MAX						08-21-05			

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
442715001-0	06/06/05	P05-03064	20050628084	1 Of 4

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Haynes International
1020 West Park Avenue
PO Box 9013
Kokomo, Indiana, 46902

Sold To • Client • Bestellaranschrift
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 Beshreibung
0.125 (0.120/0.130) x 0/0 x 0/0
SE120-004-67MTM 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 Bestellmenge	Quantity Shipped Quantite Expediee Liefermenge
ASME-SB-443, 04, UNS# N06625, Gr. 1; PS-489, E	6 PC	6 PC

Chemical Analysis • Analyse Chimique • Chemische Analyse

Heat Number Numero De Coulee Charge Nr	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

	(Nb)	Ta	Zr	Bi	Se	La	(Cb)+Ta	Pb	Mg	Y	Ag	N	Ca	Al+Ti	Ni+Co	Ni+Mo		
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

RECEIVED
JUL 5 2005
97834

28-30

RKU
7-8-05

MC109561.TIF1

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
4427150001-0	06/06/05	P05-03064	20050628084	2 Of 4

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PO Box 9013
Kokomo, Indiana, 46902

Sold To • Client • Bestellkundenschrift
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 Bestreibung
0.125 (0.120/0.130) x 0/0 x 0/0
SE120-004-67MTM REV:1A
HAYNES(R) 625 ALLOY SHEET -
Nadcap CERTIFICATE NUMBER 0089
S400E,S1000E, EN 10204 3.1.B, AS9100

Specification • Specification • Spezifikation	Quantity Ordered Quantie Commandee Bestellemenge	Quantity Shipped Quantite Expediee Liefermenge
ASME-SB-443, 04, UNS# N06625, Gr. 1; PS-489, E	6 PC	6 PC

Tensile Test at Room Temperature • Essai De Traction A Temp. Ambiante • Zugversuch Bei Raum Temp.

Ultimate Zugfestigkeit	1% Yield Lim. Elast. A 1% 1% Strieckgrenze	0.2% Yield Lim. Elast. A 0.2% 0.2% Strieckgrenze	% Elong In % Allong EN % Dehnung	%RA %RA	
137000 PSI		74000 PSI	44 %		(1)(A)

Teasile 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% Strieckgrenze	0.2% Yield Lim. Elast. A 0.2% 0.2% Strieckgrenze	% Elong In % Allong EN % Dehnung	%RA %RA	

Stress Rupture Temperature • Essai A Charge De Rupture Zeitstandversuch

Test Essai Versuch Temp:	Stress Constrainte Spannung	Hours Heures Stunden	% Elong In % Allong EN % Dehnung	% RA % RA	

Certified By • Certifie Par • Bescheinigt Durch: Amanda Aguirre
Certification Technician

6/28/2005

(1) 3942629401

Amanda Aguirre

7-5-05
RA

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 Kundenbestellbiaten	Report No. Rapport No Zeugnis Nr	Pages of Pages Page de Pages Anzahl der Seiten
442715001-0	06/06/05	P05-03064	20050628084	3 Of 4

HAYNES
International

CUSTOMER COPY
Haynes International
1020 West Park Avenue
PO Box 9013
Kokomo, Indiana, 46902

Sold To • Client • Bestellanschrift
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 Beshreibung
0.125 (0.120/0.130) x 0/0 x 0/0
SE120-004-67MTM REV:1A
HAYNES(R) 625 ALLOY SHEET -
Nadcap CERTIFICATE NUMBER 0089
S400E,S1000E, EN 10204 3.1.B, AS9100

Specification • Specificaiion • Spezifikation
ASME-SB-443, 04, UNS# N06625, Gr. 1; PS-489, E

Quantity Ordered
Quantie Commandee
Bestellemenge
6 PC

Quantity Shipped
Quantitie Expediee
Liefermenge
6 PC

Annealed Hardness Durette Recuit Geglueht Haerte	Aged Hardness Durette Vieilli Gealtert Haerte		Grain Size Grosseur De Grain Korngroesse					IGA	Uniformity	Corrosion Rate		Oxidation Rate	Charpy Impact Test				Creep Rupture					
			Grain Size	Predominant Grain Size	Reory. Grain	Uniformity Grain %	ALA	P&W Figure Number	Attack Depth		Corrosion MPY	Test Method		Toughness Avg Ft. Lbs.	Toughness 1 Ft. Lbs.	Toughness 2 Ft. Lbs.	Toughness 3 Ft. Lbs.	Test Essai Versuch Temp:	Stress Contrainte Spannung PSI	Hours Heures Stunden	% Elong in 4x Allong EN 4x Dehnung	% Elong @ 15 Hrs
98 HRB		**(1)(A)**	**7.5**						**0.0001 IN**													

Certified By • Certifie Par • Bescheinigt Durch: Amanda Aguirre
Certification Technician

Amanda Aguirre

6/28/2005

(1) 3942629401

RTU 7-5-05

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
442715001-0	06/06/05	P05-03064	20050628084	4 Of 4

HAYNES
International

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Haynes International
1020 West Park Avenue
PO Box 9013
Kokomo, Indiana, 46902

Sold To • Client • Bestellanschrift	Ship To • Destinataire • Bestellmenge	Product Description • Description Produit • Material Bestreibung
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** **SE120-004-67MTM REV:1A** **HAYNES(R) 625 ALLOY SHEET -** **Nadcap CERTIFICATE NUMBER 0089** **S400E,S1000E, EN 10204 3.1.B, AS9100**

Specification • Specification • Spezifikation	Quantity Ordered Quantie Commandee Bestellemenge	Quantity Shipped Quantitie Expediee Liefermenge
ASME-SB-443, 04, UNS# N06625, Gr. 1; PS-489, E	6 PC	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

REV 2-5-05

MC109561.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

7-5-05

CERTIFICATION OF TESTS • RAPPORT D'ESSAIS CERTIFIE • WERKSZEUGNIS

FILE COPY 2

HAYNES International

Haynes International
1020 West Park Avenue
PO Box 9013
Kokomo, Indiana, 46902

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
442718001-0	06/06/05	P05-03064	20050628079	1 Of 4

Sold To • Client • Bestellaranschrift	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	Quantity Ordered / Quantie Commandee / Bestellemenge	Quantity Shipped / Quantitie Expediee / Liefermenge
ASME-SB-443, 04, UNS# N06625, Gr. 1; PS-489, E	6 PC	6 PC

Chemical Analysis • Analyse Chimique • Chemische Analyse

Heat Number / Numero De Coulee / Charge Nr	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
	Cb(Nb)	Ta	Zr	Bi	Se	La	C+N+Cb	Pb	Mg	Y	Ag	N	Ca	Al+Ti	Ni+Co	Ni+Mo		
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

MTM 016 JUL 07 2005

RECEIVED JUL 6 2005
97943

lines 31-33

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 Kundenbestdldaten	Report No. Rapport No Zeugnis Nr	Pages of Pages Page de Pages Anzahl der Seiten
4427 18001-0	06/06/05	P05-03064	20050628079	2 Of 4

HAYNES International

FILE COPY 2

Haynes International
1020 West Park Avenue
PO Box 9013
Kokomo, Indiana, 46902

Sold To • Client • Bestelltranschrift
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 Beshreibung
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	Quantity Ordered Quantie Commandee Bestellemenge	Quantity Shipped Quantite Expediee Liefermenge
ASME-SB-443, 04, UNS# N06625, Gr. 1; PS-489, E	6 PC	6 PC

Tensile Test at Room Temperature • Essai De Traction A Temp. Ambiante • Zugversuch Bei Raum Temp.

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 %RA	
137000 PSI		74000 PSI	44 %		(1)(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 % Allong EN % Dehnung	%RA %RA	

Stress Rupture Temperature • Essai A Charge De Rupture Zeitstandversuch

Test Essai Versuch Temp:	Stress Contrainte Spannung	Hours Heures Stunden	% Elong in % Allong EN % Dehnung	% RA % RA	

Certified By • Certifie Par • Bescheinigt Durch: Amanda Aguirre
Certification Technician

6/28/2005

(1) 3942629401

Amanda Aguirre

MTM QIG JUL 07 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 SPECIFICATIONS, MODIFIED BY ANY EXCEPTIONS OR PURCHASE ORDER REQUIREMENTS.
THE RECORDING OF FALSE, FICTICIOUS OR FRAUDULENT STATEMENTS OR ENTRIES ON THIS DOCUMENT MAY BE PUNISHED AS A FELONY UNDER FEDERAL STATUES INCLUDING FEDERAL LAW, TITLE 18, CHAPTER 47. 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.

MC109677.TIF2

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
442718001-0	06/06/05	P05-03064	20050628079	3 Of 4

HAYNES International

FILE COPY 2

Haynes International
1020 West Park Avenue
PO Box 9013
Kokomo, Indiana, 46902

Sold To • Client • Bestellanschrift
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 Beshreibung
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	Quantity Ordered Quantie Commandee Bestellemenge	Quantity Shipped Quantite Expediee Liefermenge
ASME-SB-443, 04, UNS# N06625, Gr. 1; PS-489, E	6 PC	6 PC

Annealed Hardness Durette Recuit Geglueht Haerte	Aged Hardness Durette Vieilli Gealtert Haerte		Grain Size Grossenr De Grain Korngroesse				ALA	P&W Figure Number	IGA Attack Depth	Uniformity	Corrosion Rate Corrosion MPY	Test Method	Oxidation Rate	Charpy Impact Test Toughness Avg Ft. Lbs.	Toughness 1 Ft. Lbs.	Toughness 2 Ft. Lbs.	Toughness 3 Ft. Lbs.	Creep Rupture Test Essai Versuch Temp:	Stress Contrainte Spannung PSI	Hours Heures Stunden	% Elong In % Along EN % Dehnung	% Elong @ 15 Hrs
			Grain Size	Predominant Grain Size	Recry. Grain	Unrecry. Grain %																
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

JUL 07 2005

MTR OK

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 du Pages Anzahl der Seiten
442718001-0	06/06/05	P05-03064	20050628079	4 Of 4

HAYNES International

FILE COPY 2

Haynes International
1020 West Park Avenue
PO Box 9013
Kokomo, Indiana, 46902

Sold To • Client • Bestellbranschrift
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 Beshreibung
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	Quantity Ordered Quantite Commandee Bestellemenge	Quantity Shipped Quantite Expediee Liefermenge
ASME-SB-443, 04, UNS# N06625, Gr 1; PS-489, E	6 PC	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

MTR. DTE
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

G.O.CARLSON Inc
Producers of Stainless Steel, Nickel Alloys and Titanium
THORNDALE, PA. 19372

DATE: 07-Dec-95 GOC: 88022

TEST CERTIFICATE

**** SOLD TO: ****

JOSEPH T RYERSON & SON
P O BOX 16445
DENVER CO 80216

CUSTOMER ORDER #
25WX903593

**** SHIP TO: ****

EATON METAL PRODUCTS
844 S CHESTNUT
SALT LAKE CITY UT 84104

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% PSI	Tensile PSI	Elong-2in %
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.

****

CABLE 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
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 #

#2637

JUL 27 2005
RECEIVED
JUL 26 2005
98643 JH
Line 3

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
P.O.: 1335
MATERIAL: 625
SPECS: SEE REMARKS

HEAT NO.: 5L211
PART NO.: 1.625 X 58 X 157 (1 PLATE)

***** TENSILE TEST RESULTS *****

TEMP	DIA. (in.)	AREA (in.²)	YIELD (lbs)	YIELD (ksi)	ULT (lbs)	ULT (ksi)	ELONG %	R.A. %
RT	.252	.0499	3800	76.0	6495	130	45	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

TESTS LISTED ABOVE
MEET SPECIFICATION REQUIREMENTS

MTI VENDOR CODE T5001

RESPECTFULLY SUBMITTED,

5-28-04

J.A. BAXTER, V.P. OF OPERATIONS
METALS TECHNOLOGY, INC.

6327

G.O.CARLSON Inc.
Producers of Stainless Steel, Nickel Alloys and Titanium
C
THORNDALE, PA. 19372

DATE: 07-Dec-95 GOC: 88022

T E S T C E R T I F I C A T E

**** SOLD TO: ****

JOSEPH T RYERSON & SON
P O BOX 16445
DENVER CO 80216

**** SHIP TO: ****

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% PSI	Tensile PSI	Elong-2in %
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.

********** L A D L E A N A L Y S I S **********

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. Waldeman
Susan S. Waldeman
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 #

#2537

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
P.O.: 1335
MATERIAL: 625
SPECS: SEE REMARKS

HEAT NO.: 5L211
PART NO.: 1.625 X 58 X 157 (1 PLATE)

***** TENSILE TEST RESULTS *****

TEMP	DIA. (in.)	AREA (in.²)	YIELD (lbs)	YIELD (ksi)	ULT (lbs)	ULT (ksi)	ELONG %	R.A. %
RT	.252	.0499	3800	76.0	6495	130	45	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

TESTS LISTED ABOVE
MEET SPECIFICATION REQUIREMENTS

MTI VENDOR CODE T5001

RESPECTFULLY SUBMITTED,

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*	D5	⌖ | Ø.25Ⓜ | A | B | C	LASER	QA		1444	0.060	522-R.D			A
(10)		PORT FJS POSITION						04-27-06			
Drawing ID: SE121-014 Rev: 1C			**INSPECTION INSTRUCTIONS**			**RESULTS**		**INSPECTED BY**			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT	
*		⌓ | 0.375	LASER	QA		1444	-0.140 / +0.143	522-R.D			A
(20)		FINAL SPACER PROFILE						04-27-06			
*			MASTER GAGE	QA		J-1271	ACCEPT	533-B.C			A
		SPACER MAGNETIC PERMEABILITY									
(30)		1.02 Mu MAX						04-25-06			
*			PROFILOMETER	QA		J-1308	.012 TO .031	533-B.C			A
		SPACER INTERIOR SURFACE FINISH									
(40)		32 MICRO-INCH RA						04-25-06			
*			UT THICKNESS GA	QA		J-1009-NDT	.385 - .415	321-C.L			A
		SPACER WALL THICKNESS									
(50)		0.375 +0.04/-0						04-26-06			

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	
*				MFG			GOOD	358-D.M	840-G.M		A
(100)		VWI - ROOT PASS WELD PSV		CWI				12-29-05	12-29-05		
*				MFG		VISUAL	GOOD	358-D.M	933-D.L		A
(120)		VWI - COVER PASS WELD PSV		CWI				12-29-05	01-03-06		

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		A
(10)		VWI ROOT PASS WELD S10-S6		CWI			EQUIREMENTS	11-11-05	11-11-05		

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			A
(20)		VWI EXTERIOR COVER PASS WELD S10		CWI				05-02-06			

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		A
(20)		VWI INTERIOR COVER PASS WELD S10-		CWI			EQUIREMENTS	11-11-05	11-11-05		

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		A
(10)		VWI ROOT PASS WELD S6-S7		CWI			EQUIREMENTS	11-11-05	11-11-05		

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		A
(20)		VWI INTERIOR COVER PASS WELD S6-		CWI			EQUIREMENTS	11-11-05	11-11-05		

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	
*				MFG			VISUALLY INSPECTED	840-G.M	840-G.M		A
(20)		VWI EXTERIOR COVER PASS WELD S6-		CWI				05-02-06	05-02-06		

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		A
(10)		VWI ROOT PASS WELD S8-S9		CWI				11-19-05	11-19-05		

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		A
(20)		VWI EXTERIOR COVER PASS WELD S8-		CWI				05-02-06	05-02-06		

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		A
(20)		VWI INTERIOR COVER PASS WELD S8-		CWI				11-21-05	11-21-05		

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		

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	LASER	QA		1444	0.1487 TO -0.0882	137-G.F			A
		SPACER PROFILE									
(10)		(INCL. FLANGES, PARTIALLY WELDED)						12-27-05			

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		A
(10)		VWI INTERIOR COVER PASS WELD SFA		CWI			OER REQUIREMENTS	12-28-05	12-28-05		
*				MFG			GOOD	358-D.M	581-D.E		A
(20)		VWI INTERIOR COVER PASS WELD SFB		CWI				12-28-05	12-28-05		
*				MFG			GOOD	358-D.M	581-D.E		A
(30)		VWI INTERIOR COVER PASS WELD S7-		CWI				12-28-05	12-28-05		
*				MFG			GOOD	358-D.M	581-D.E		A
(40)		VWI INTERIOR COVER PASS WELD S9-		CWI				12-28-05	12-28-05		

4959

COOPERHEAT MQS MQS Inspection

10620 Chester Road
Woodlawn, Ohio 45215

CLIENT		INTERPRETER/LEVEL	RADIOGRAPHER	JOB NO	P.O. NO	DATE
Major Tool & Machine		Robert Weaver II	Robert Weaver	13860001	N/A	1/5/06

ISOTOPE/X-RAY	DIA. X LEN/KV	CURIES/MA	FOCAL SPOT SIZE	SFD	SOD	TIME	FILM PROCESSING	FILM TYPE	FILM TECHNIQUE	PB SCREENS
IR192	.118"x.079"	41	.140"	15"	14.625"	1:45	Auto	Kodak AA	Double	.010"

WELD PROCESS	MATERIAL SPEC.	MATERIAL DIAMETER	MATERIAL THICKNESS	PENETRAMETER	SHIM	ACCEPTANCE STANDARD
GTAW	625 INConel	N/A	.375"	ASTM 1B	N/A	ASME VIII, Div 1, UW-51

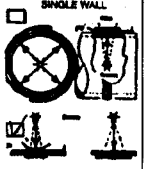
DESCRIPTION
65678/1.0/193/05/818
SE121-014
Page 1 of 2

REMARKS
Densitometer-12105
cal due-2/3/06

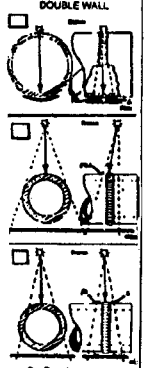
FITTING, SEAM OR FITTING	FILM INTERVAL NUMBER	WELDER IDENTIFICATION	PENETRAMETER SIZE	PENETRAMETER QUALITY LEVEL	SLAG	POROSITY	POROSITY WITH TAIL	CRACK	LACK OF FISH	LACK FUSION	INTERNAL CONVEXITY	INTERNAL CONCAVITY	TUNGSTEN	MELT-THROUGH	BURN-THROUGH	CRATER-PIT	OXIDATION	INTERNAL UNDERCUT	EXTERNAL UNDERCUT	ALIGNED INDICATIONS	WELD CONTOUR	MIS-MATCH	FILM ARTIFACT	VISUAL CONCERNS	FILM DENSITY	SEE REMARKS	ACCEPT	REJECT
1	A-B	NA	1B	.010"		✓																					✓	
2						✓																					✓	
3						✓																					✓	
4						✓							✓														✓	
5						✓																					✓	
6						✓																					✓	

End View | Side View

SINGLE WALL



DOUBLE WALL



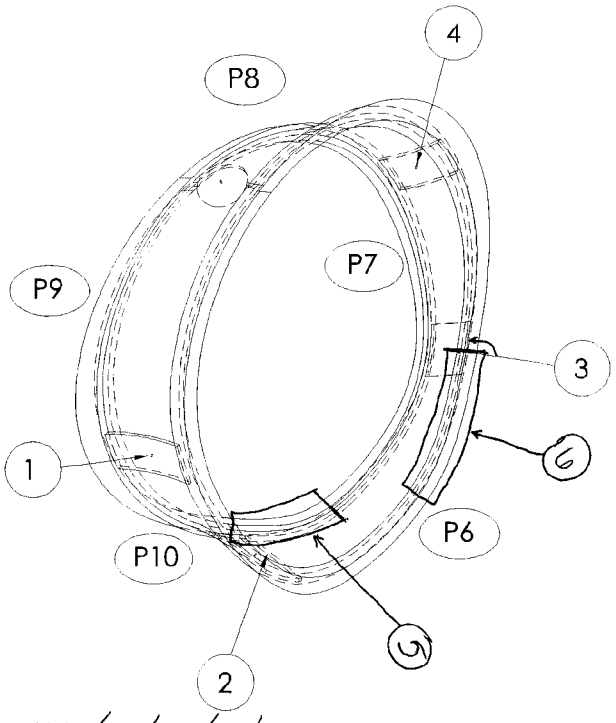
P Penetrameter
S Shim
L Location Marker
( ) OTHER

Robert Weaver 655514/II
Cooperheat-MQS Signature

Customer Representative Signature

1/5/06
Date

Rev	By	Date	Description
0A	LAK	8/9/05	for Initial Release
1A	LAK	8/11/05	added flanges and trimmed films



Item No.	Film Number	Center Point	Location	Comment
1	p9-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)		

65678/1.0/193/25/818
SE121-014
Page 2 of 2
1/5/06

CDCP, Inc.

Title: Spacer X-Ray Film Layout

Size: C | Dwg. No.: SE120-002-1-SXMTM | Rev: 1A

Scale: 1:6 | Weight: | Sht 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*	D6	▱ 0.010	INDICATOR	MFG		P-4482	.007	315-C.L			A
(10)								03-17-06			
1*	D8	▱ 0.010	INDICATOR	MFG		P-4482	.004	315-C.L			A
(20)								03-17-06			
1*	D7		CALIPER	MFG		P-4483	6.95	591-C.P			A
(30)		(6.50) INTERPRET AS MINIMUM						03-17-06			

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	LASER	QA		J-1280	-0.163 / +0.174	522-R.D			A
		FINAL SPACER PROFILE									
(10)		(WALL AND FLANGE PROFILES)						03-30-06			

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	
*				MFG		VISUAL	GOOD	358-D.M	933-D.L		A
(10)		VWI ROOT PASS WELD S7-S8		CWI				12-13-05	12-13-05		
*				MFG		VISUAL	GOOD	358-D.M	933-D.L		A
(20)		VWI ROOT PASS WELD S9-S10		CWI				12-13-05	12-13-05		

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 • WERKSZEUGNIS

Invoice No / No. De Facture / Rechnungs-Nr	Date Entered / Date De Commande / Datum	Customer's Reference / Référence Client / Kunden-Bestätigung	Report No. / Rapport No / Zeugnis Nr	Pages of Pages / Page de Pages / Anzahl der Seiten
411635001-0	05/11/04	1297	20050104062	1 Of 4

HAYNES International

ORIGINAL

Haynes International
1020 West Park Avenue
PO Box 9013
Kokomo, Indiana, 46902

Sold To • Client • Rechnungsempfänger
HIGH TEMP METALS INC
12910 SAN FERNANDO RD
SYLMAR
CA 91342 USA

Ship To • Destination • Bestellmenge
HIGH TEMP METALS INC
14101 ROSECRANS AVE UNIT A
LA MIRADA
CA 906383551 USA

Product Description • Description Produit • Material Bezeichnung
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 • Spécification • Spezifikation	Quantity Ordered / Quantité Commandée / Bestellmenge	Quantity Shipped / Quantité Expédiée / Lieferumfang
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, 0101, UNS# N06625, Gr. 1; ASTM-B-446, 03, UNS# N06625, Gr. 1;	1 PC	1 PC

REVISED REPORT 3-31-05 JKW

Heat Number / Numéro De Coulée / Chargen Nr	Chemical Analysis • Analyse Chimique • Chemische Analyse																	
	Al	B	C	Co+Ta	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
	Nbm	Ta	Zr	Bi	Sc	La	Sn+Sb	Pb	Mg	V	Ag	N	Cu	Al+Ti	Ni+Co	Ni+Mo		
2650 4 6759	3.7646	<0.05															BUTT END *01	

Certified By • Certifié Par • Bescheinigt Durch: Penny Powell
Certification Technician

Penny E. Powell

1/4/2005

RECEIVED
JUL 23 2005
98640 RP
JUL 27 2005
MTM 017

Lisa 1

CERTIFICATION OF TESTS • RAPPORT D'ESSAIS CERTIFIE • WERKSZEUGNIS

ORIGINAL

HAYNES International

Haynes International
1020 West Park Avenue
PO Box 9013
Kokomo, Indiana, 46902

Invoice No / No. De Facture / Rechnungs Nr	Date Entered / Date De Commande / Bestelldatum	Customer Reference / Reference Client / Kundenbestellnummer	Report No. / Rapport No / Zeugnis Nr	Pages of Pages / Page de Pages / Anzahl der Seiten
411635001-0	05/11/04	1297	20050104062	2 Of 4

Sold To • Client • Bestellanschrift
HIGH TEMP METALS INC
12910 SAN FERNANDO RD
SYLMAR
CA 91342 USA

Ship To • Destinataire • Bestellmenge
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

REVISED REPORT 3-31-05 JKW

Specification • Specification • Spezifikation	Quantity Ordered / Quantite Commandee / Bestellmenge	Quantity Shipped / Quantite Expediee / Liefermenge
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, 00e1, UNS# N06625, Gr. 1; ASTM-B-446, 03, UNS# N06625, Gr. 1;	1 PC	1 PC

Tensile Test at Room Temperature • Essai De Traction A Temp. Ambiante • Zugversuch Bei Raum Temp.

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 / %RA	
135000 PSI	(L)	72500 PSI	38 %	35 %	(1)(A)
135000 PSI	(T)	65500 PSI	41 %	45 %	(1)(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 / % Allong EN / % Dehnung	%RA / %RA	

Stress Rupture Temperature • Essai A Charge De Rupture Zeitstandversuch

Test Essai Versuch Temp:	Stress / Contrainte / Spannung	Hours / Heures / Stunden	% Elong in / % Allong EN / % Dehnung	% RA / % RA	

Certified By • Certifie Par • Bescheinigt Durch: Penny Powell 1/4/2005 (1) 2741163592
Certification Technician

Penny E. Powell

THE DATA CONTAINED HEREIN WAS OBTAINED FROM SAMPLES THAT ARE REPRESENTATIVE OF THE PRODUCTS IN THIS SHIPMENT. THE MATERIAL MEETS THE REQUIREMENTS OF THE LISTED SPECIFICATIONS, MODIFIED BY ANY EXCEPTIONS OR PURCHASE ORDER REQUIREMENTS. [illegible] THIS DOCUMENT SHALL NOT BE REPRODUCED, EXCEPT IN FULL, WITHOUT THE WRITTEN CONSENT OF HAYNES INTERNATIONAL, INC.

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
411635001-0	05/11/04	1297	20050104062	4 Of 4

HAYNES International

ORIGINAL

Haynes International
1020 West Park Avenue
PO Box 9013
Kokomo, Indiana, 46902

Sold To • Client • Bestelleranschrift

HIGH TEMP METALS INC
12910 SAN FERNANDO RD
SYLMAR
CA 91342 USA

Ship To • Destinataire • Bestellmenge

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

REVISED REPORT 3-31-05 JKW

Specification • Specification • Spezifikation	Quantity Ordered / Quantite Commandee / Bestellmenge	Quantity Shipped / Quantite Expediee / Liefermenge
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, 00e1, UNS# N06625, Gr. 1; ASTM-B-446, 03, UNS# N06625, Gr. 1;	1 PC	1 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.
This material was melted and manufactured in the United States.
Mill Orders Used: 2741163592 (1 PC) *REVISED REPORT 3-31-05 JKW*
(A) 1750 °F to 1900 °F

Certified By • Certifie Par • Bescheinigt Durch: Penny Powell 1/4/2005
Certification Technician

Penny E. Powell

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*	E6		CALIPER	QA		P-4943	1.004	137-G.F			A
(10)		1.00 +/- 0.01"						03-03-06			
*		⌓ 0.03" A B C	CMM	QA		00064	-0.0033 TO 0.0100	137-G.F			A
(50)								03-03-06			
*		⌓ 0.03" A B C	CMM	QA		00064	-0.0034 TO 0.0105	137-G.F			A
(60)								03-03-06			

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	933-D.L			A
							E PER CUSTOMER DR				
							ING / SPECIFICATION				
(10)		VWI VESSEL BLANK OFF COVER WELD					REQUIREMENTS.	03-31-06			

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*	E6		CALIPER	QA		P-4943	1.004	137-G.F			A
(10)		1.00 +/- 0.01"						03-03-06			
*		⌓ 0.03" A B C	CMM	QA		00064	-0.0065 TO 0.0122	137-G.F			A
(50)								03-03-06			
*		⌓ 0.03" A B C	CMM	QA		00064	-0.0060 TO 0.0127	137-G.F			A
(60)								03-03-06			

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 DRAWI / SPECIFICATION REQ	933-D.L			A
(10)		VWI VESSEL BLANK OFF COVER WELD					UIREMENTS.	03-31-06			

3 0516-1 196

Allegheny Ludlum Jessop Plate Products Division
An Allegheny Technologies Company

Page

500 Green Street CERTIFIED MATERIAL TEST REPORT
Washington, Pennsylvania 15301

Billto:
PLATE PROD DIV / A-L
1201 VALLEY ROAD
COATESVILLE PA 19320

Shipto:
PLATE PROD DIV / A-L
1201 VALLEY ROAD
COATESVILLE PA 19320

PHIL CLADITIS
Quality Assurance Representa

Memo No:260311-00

Our Order no: RU4910400
Your Order No:M E M O
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	Grai 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

RECEIVED
JUL 11 2005
98138 DH

MTM 016

TRACER# 109293

98,42
lines 25-26
lines ~~14-24~~ 13-18

ROLLED ALLOYS QUALITY ASSURANCE
APPROVED M. Bain
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 Jessop Plate Products Division
An Allegheny Technologies Company

1201 Valley Road
Coatesville, Pennsylvania 19320

CERTIFICATE OF CONFORMANCE

Our Order no: GV-098284
Your Order No: J06587
Memo No: 4261130-00
Date: 09/15/2004
516

Robert Campagna
Quality Assurance Representat:

Billto:
ROLLED ALLOYS INC
125 W STERNS RD
P O BOX 310
TEMPERANCE MI 481B2

Shipto:
ROLLED ALLOYS INC
9818 EAST HARDY ROAD
HOUSTON TX 77093

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 LBS	Mill Cert	Ord
001	316L				1.5000	79.0000	WID 235.0000 LEN	1			
					PN:530034299001						
		818102	34967	A	1.5000	79.0000	235.0000	1	8166	260311-00	Shi
							ITEM TOTAL:	1	8166		
							TOTAL ORDER:	1	8166		

MTM 016

JUL 11 2005

TRACER# 109293

___X___CMTR (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

CERTIFICATION OF TESTS • RAPPORT D'ESSAIS CERTIFIE • WERKSZEUGNIS

Sales Order No Reference Commande Bestellungs Nr	Date Entered Date De Commande Bestelldatum	Customer Reference Reference Client Kundenbestdldaten	Report No. Rapport No Zeugnis Nr	Pages of Pages Page de Pages Anzahl der Seiten
456788001-0	12/19/05	P05-06722	20051221016	1 Of 4

HAYNES International

FILE COPY 2

Haynes International
1020 West Park Avenue
PO Box 9013
Kokomo, Indiana, 46902

Sold To • Client • Bestellkundschrift
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 Bezeichnung
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 Bestellemenge	Quantity Shipped Quantite Expediee Lieferumenge
ASTM-B-443, 00e1, UNS# N06625, Gr. 1; ASTM-B-443, 00e1, UNS# N06625, Gr. 1	6 PC	6 PC

Chemical Analysis • Analyse Chimique • Chemische Analyse

Heat Number Numero De Coulee Charge Nr	Al	B	C	Cb+Ta (Nb+Ta)	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	0.0038	0.18	0.285			BUTT END *02
2650 5 6805	0.2		0.031	3.29	0.2063	21.92		4.7049	0.2688	8.65	59.41	0.007	0.0051	0.2	0.3161			BUTT END *01

Heat Number	Nb(Nb)	Ta	Zr	Bi	Se	La	Ce(Ce+La)	Pb	Mg	Y	Ag	N	Ca	Al+Ti	Ni+Co	Ni+Mo		
2650 5 6834																	BUTT END *02	
2650 5 6805																	BUTT END *01	

Certified By • Certifie Par • Bescheinigt Durch: Amanda Aguirre
Certification Technician

12/21/2005

Amanda Aguirre

MTM 016 DEC 30 2005

RECEIVED
DEC 28 2005
10380 JH
Lines 1-3

MC114888.TIF1

CERTIFICATION OF TESTS • RAPPORT D'ESSAIS CERTIFIE • WERKSZEUGNIS

FILE COPY 2

HAYNES International

Haynes International
1020 West Park Avenue
PO Box 9013
Kokomo, Indiana, 46902

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
456788001-0	12/19/05	P05-06722	20051221016	2 Of 4

Sold To • Client • Bestelladresschrift
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 Bestreibung
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 • Spezifikation • Spezifikation	Quantity Ordered Quantite Commandee Bestellmenge	Quantity Shipped Quantitie Expediee Liefermenge
ASTM-B-443, 00e1, UNS# N06625, Gr. 1; ASTM-B-443, 00e1, UNS# N06625, Gr. 1	6 PC	6 PC

Tensile Test at Room Temperature • Essai De Traction A Temp. Ambiante • Zugversuch Bei Raum Temp.

Ultimate Zugfestigkeit	1% Yield Lim. Elast. A 1% 1% Strieckgrenze	0.2% Yield Lim. Elast. A 0.2% 0.2% Strieckgrenze	% Elong In % Allong EN % Dehnung	%RA %RA	
132000 PSI		61500 PSI	51 %		(1)(A)
126000 PSI		63000 PSI	49.5 %		(2)(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% Strieckgrenze	0.2% Yield Lim. Elast. A 0.2% 0.2% Strieckgrenze	% Elong In % Allong EN % Dehnung	%RA %RA	

Stress Rupture Temperature • Essai A Charge De Rupture Zeitstandversuch

Test Essai Versuch Temp.	Stress Contrainte Spannung	Hours Heures Stunden	% Elong In % Allong EN % Dehnung	% RA % RA	

Certified By • Certifie Par • Bescheinigt Durch: Amanda Aguirre
Certification Technician

12/21/2005

(1) 2942995301 (2) 2944652551

Amanda Aguirre

MTM 016 DEC 30 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 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 47. 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.

CERTIFICATION OF TESTS • RAPPORT D'ESSAIS CERTIFIE • WERKSZEUGNIS

FILE COPY 2

HAYNES International

Haynes International
1020 West Park Avenue
PO Box 9013
Kokomo, Indiana, 46902

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
456788001-0	12/19/05	P05-06722	20051221016	3 Of 4

Sold To • Client • Bestellanschrift
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 Beshreibung
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 Bestellemenge: 6 PC

Quantity Shipped Quantite Expediee Liefermenge: 6 PC

Annealed Hardness Durette Recuit Geglueht Haerte	Aged Hardness Durette Vieilli Gealtert Haerte		Grain Size Grosseur De Grain Korngroesse						IGA	Uniformity	Corrosion Rate		Oxidation Rate	Charpy Impact Test				Creep Rupture				
			Grain Size	Predominant Grain Size	Recry. Grain	Duplex. Grain %	ALA	P&W Figure Number	Attack Depth		Corrosion MPY	Test Method		Toughness Avg Ft. Lbs.	Toughness 1 Ft. Lbs.	Toughness 2 Ft. Lbs.	Toughness 3 Ft. Lbs.	Test Event Versuch Temp.	Stress Constraint Spannung PSI	Hours Heaters Standen	% Elong In % Allong EN % Dehnung	% Elong @ 15 Hrs
94 HRB 93 HRB		(1)(A) (2)(A)	5.5 6																			

Certified By • Certifie Par • Bescheinigt Durch: Amanda Aguirre
Certification Technician

12/21/2005

(1) 2942995301 (2) 2944652551

Amanda Aguirre

MTM 016

DEC 30 2005

MC114888.TIF3

CERTIFICATION OF TESTS • RAPPORT D'ESSAIS CERTIFIE • WERKSZEUGNIS

Sales Order No Reference Commande Bestellungs Nr	Date Entered Date De Commande Bestelldatum	Customer Reference Reference Client Kundenbestellkiaten	Report No. Rapport No Zeugnis Nr	Pages of Pages Page de Pages Anzahl der Seiten
456788001-0	12/19/05	P05-06722	20051221016	4 Of 4

HAYNES International

FILE COPY 2

Haynes International
1020 West Park Avenue
PO Box 9013
Kokomo, Indiana, 46902

Sold To • Client • Bestellaranschrift	Ship To • Destinataire • Bestellmenge	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	0.188 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 Bestellemenge	Quantity Shipped Quantite Expediee Lieferemenge
ASTM-B-443, 00e1, UNS# N06625, Gr. 1; ASTM-B-443, 00e1, UNS# N06625, Gr. 1	6 PC	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.
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 • Certific Par • Bescheinigt Durch: Amanda Aguirre 12/21/2005
Certification Technician

Amanda Aguirre

MTM 016 DEC 30 2005

MC114888.TIF4

CERTIFICATION OF TESTS • RAPPORT D'ESSAIS CERTIFIE • WERKSZEUGNIS

FILE COPY 2

HAYNES International

Haynes International
1020 West Park Avenue
PO Box 9013
Kokomo, Indiana, 46902

Sales Order No / Reference Commande / Bestellungs Nr	Date Entered / Date De Commande / Bestelldatum	Customer Reference / Reference Client / Kundenbestdldaten	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 • Bestellaranschrift
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 Beshreibung
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 / Quantie Commandee / Bestellemenge	Quantity Shipped / Quantitie Expediee / Liefermenge
ASTM-B-443, 00e1, UNS# N06625, Gr. 1; ASTM-B-443, 00e1, UNS# N06625, Gr. 1	6 PC	6 PC

Chemical Analysis • Analyse Chimique • Chemische Analyse

Heat Number / Numero De Coulee / Charge Nr	Al	B	C	Cb*Ta (Nb*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

	Cu(Nb)	Ta	Zr	Bi	Se	La	Co+Cu+Ni	Pb	Mg	Y	Ag	N	Ca	(Al+Ti	Ni+Co	Ni+Mo		
2650 5 6805																	BUTT END *01	

Certified By • Certifie Par • Bescheinigt Durch: Amanda Aguirre
Certification Technician

12/5/2005

Amanda Aguirre

DEC 08 2005

MTEA 016

12.7.05
103249 wx
Line (1-3)

CERTIFICATION OF TESTS • RAPPORT D'ESSAIS CERTIFIE • WERKSZEUGNIS

Sales Order No Reference Commande Bestellungs Nr	Date Entered Date De Commande Bestelldatum	Customer Reference Reference Client Kundenbestdldaten	Report No. Rapport No Zeugnis Nr	Pages of Pages Page de Pages Anzahl der Seiten
455676001-0	12/01/05	P05-06722	20051205027	2 Of 4

HAYNES International

FILE COPY 2

Haynes International
1020 West Park Avenue
PO Box 9013
Kokomo, Indiana, 46902

Sold To • Client • Bestellaranschrift
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 Beshreibung
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 Quantie Commandee Bestellemenge	Quantity Shipped Quantitie Expediee Liefermenge
ASTM-B-443, 00e1, UNS# N06625, Gr. 1; ASTM-B-443, 00e1, UNS# N06625, Gr. 1	6 PC	6 PC

Tensile Test at Room Temperature • Essai De Traction A Temp. Ambiante • Zugversuch Bei Raum Temp.

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 %RA	
126000 PSI		63000 PSI	49.5 %		(1)(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 % Allong EN % Dehnung	%RA %RA	

Stress Rupture Temperature • Essai A Charge De Rupture Zeitstandversuch

Test Essai Versuch Temp:	Stress Contrainte Spannung	Hours Heures Stunden	% Elong In % Allong EN % Dehnung	% RA % RA	

Certified By • Certifie Par • Bescheinigt Durch: Amanda Aguirre
Certification Technician

12/5/2005

(1) 2944652551

Amanda Aguirre

MTM 016

DEC 08 2005

CERTIFICATION OF TESTS • RAPPORT D'ESSAIS CERTIFIE • WERKSZEUGNIS

Sales Order No Reference Commande Bestellungs Nr	Date Entered Date De Commande Bestelldatum	Customer Reference Reference Client Kundenbestdldaten	Report No. Rapport No Zeugnis Nr	Pages of Pages Page de Pages Anzahl der Seiten
455676001-0	12/01/05	P05-06722	20051205027	3 Of 4

HAYNES International

FILE COPY 2

Haynes International
1020 West Park Avenue
PO Box 9013
Kokomo, Indiana, 46902

Sold To • Client • Bestelladresanschrift
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 Beshreibung
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 Quantie Commandee Bestellemenge	Quantity Shipped Quantitie Expediee Liefermenge
ASTM-B-443, 00e1, UNS# N06625, Gr. 1; ASTM-B-443, 00e1, UNS# N06625, Gr. 1	6 PC	6 PC

Annealed Hardness Durette Recuit Geglueht Haerte	Aged Hardness Durette Vieilli Gealtert Haerte		Grain Size Grosseur De Grain Korngroesse						IGA	Uniformity	Corrosion Rate		Oxidation Rate	Charpy Impact Test ft				Creep Rupture				
			Grain Size	Predominant Grain Size	Recry. Grain	Unrecry. Grain %	ALA	P&W Figure Number	Attack Depth		Corrosion MPY	Test Method		Toughness Avg Ft. Lbs.	Toughness 1 Ft. Lbs.	Toughness 2 Ft. Lbs.	Toughness 3 Ft. Lbs.	Test Essai Versuch Temp:	Stress Constrainte Spannung PSI	Hours Heures Standen	% Elong In % Allong EN % Dehnung	% Elong@ 15 Hrs
93 HRB		(1)(A)	6																			

Certified By • Certifie Par • Bescheinigt Durch: Amanda Aguirre
Certification Technician

12/5/2005

(1) 2944652551

Amanda Aguirre

MTM 016 DEC 08 2005

CERTIFICATION OF TESTS • RAPPORT D'ESSAIS CERTIFIE • 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	4 Of4

FILE COPY 2

HAYNES International

Haynes International
1020 West Park Avenue
PO Box 9013
Kokomo, Indiana, 46902

Sold To • Client • Bestellanschrift	Ship To • Destinataire • Bestellmenge	Product Description • Description Produit • Material Beshreibung
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**	**0.188 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 Expediee Liefermenge
ASTM-B-443, 00e1, UNS# N06625, Gr. 1; ASTM-B-443, 00e1, UNS# N06625, Gr. 1	6 PC	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.
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 12/5/2005
Certification Technician

Amanda Aguirre

MTM 016
DEC 0 8 2005

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 CERTIFIE • 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
463912001-0	03/20/06	P06-01320	20060321014	1 Of 4

HAYNES International

FILE COPY 2

Haynes International
1020 West Park Avenue
PO Box 9013
Kokomo, Indiana, 46902

Sold To • Client • Bestelleranschrift
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 Beshreibung
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 Bestellemenge	Quantity Shipped Quantitie Expediee Liefermenge
ASTM-B-443, 00e1, UNS# N06625, Gr. 1	6 PC	6 PC

Chemical Analysis • Analyse Chimique • Chemische Analyse

Heat Number Numero De Coulee Charge Nr	Al	B	C	Cb+Ta (Nb+Ta)	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

	Co(Ni)	Ta	Zr	Bi	Se	La	Cb+Ta	Pb	Mg	Y	Ag	N	Ca	Al+Ti	Ni+Co	Ni+Mo		
2650 5 6834																	BUTT END *02	

Certified By • Certifie Par • Bescheinigt Durch: Amanda Aguirre 3/21/2006
Certification Technician

Amanda Aguirre

MTM 016 MAR 27 2006

RECEIVED
MAR 27 2006
1062603
Lines 1-3

MC117251.TIF1

CERTIFICATION OF TESTS • RAPPORT D'ESSAIS CERTIFIE • WERKSZEUGNIS

Sales Order No Reference Commande Bestellungs Nr	Date Entered Date De Commande Bestelldatum	Customer Reference Reference Client Kundenbestdldaten	Report No. Rapport No Zeugnis Nr	Pages of Pages Page de Pages Anzahl der Seiten
463912001-0	03/20/06	P06-01320	20060321014	2 Of 4

HAYNES International

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MAJOR TOOL AND MACHINE INC
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Product Description • Description Produit • Material Beshreibung
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 Bestellemenge	Quantity Shipped Quantite Expediee Liefermenge
ASTM-B-443, 00e1, UNS# N06625, Gr. 1	6 PC	6 PC

Tensile Test at Room Temperature • *Essai De Traction A Temp. Ambiante* • Zugversuch Bei Raum Temp.

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 %RA	
131000 PSI		66500 PSI	46 %		(1)(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 % Allong EN % Dehnung	%RA %RA	

Stress Rupture Temperature • Essai A Charge De Rupture Zeitstandversuch

Test Essai Versuch Temp:	Stress Contrainte Spannung	Hours Heures Stunden	% Elong In % Allong EN % Dehnung	% RA % RA	

Certified By • Certifie Par • Bescheinigt Durch: Amanda Aguirre
Certification Technician

3/21/2006

(1) 2942812701

Amanda Aguirre

MTM 016 MAR 27 2006

CERTIFICATION OF TESTS • RAPPORT D'ESSAIS CERTIFIE • WERKSZEUGNIS

FILE COPY 2

HAYNES International

Haynes International
1020 West Park Avenue
PO Box 9013
Kokomo, Indiana, 46902

Sales Order No Reference Commande Bestellungs Nr	Date Entered Date De Commande Bestelldatum	Customer Reference *Reference Client* Kundenbestdlldaten	Report No. Rapport No Zeugnis Nr	Pages of Pages Page de Pages Anzahl der Seiten
463912001-0	03/20/06	P06-01320	20060321014	3 Of 4

Sold To • Client • Bestelluranschrift
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 Beshreibung
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 Bestellemenge	Quantity Shipped Quantite Expediee Liefermenge
ASTM-B-443, 00e1, UNS# N06625, Gr. 1	6 PC	6 PC

Annealed Hardness Durette Recuit Geglueht Haerte	Aged Hardness Durette Vieillt Gealtert Haerte		Grain Size *Grosseur De Grain* Korngroesse						IGA	Uniformity	Corrosion Rate		Oxidation Rate	Charpy Impact Test				Creep Rupture				
			Grain Size	Predominant Grain Size	Recrys. Grain	Duplex. Grain %	ALA	P&W Figure Number	Attack Depth		Corrosion	Test Method		Toughness Avg	Toughness 1	Toughness 2	Toughness 3	Test Essai Versuch	Stress Constraint Spannung	Hours Heures Stunden	% Elong in % Allong EN % Dehnung	% Elong @ 15 Hrs
											MPY			Ft. Lbs.	Ft. Lbs.	Ft. Lbs.	Ft. Lbs.	Temp:	PSI			
96 HRB		(1)(A)	6																			

Certified By • Certifie Par • Bescheinigt Durch: Amanda Aguirre
Certification Technician

3/21/2006

(1) 2942812701

Amanda Aguirre

MTM 016 MAR 27 2006

CERTIFICATION OF TESTS • RAPPORT D'ESSAIS CERTIFIE • 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
463912001-0	03/20/06	P06-01320	20060321014	4 Of 4

HAYNES International

FILE COPY 2

Haynes International
1020 West Park Avenue
PO Box 9013
Kokomo, Indiana, 46902

Sold To • Client • Bestellanschrift	Ship To • Destinataire • Bestellmenge	Product Description • Description Produit • Material Beshreibung
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**	**0.188 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 Expediee Liefermenge
ASTM-B-443, 00e1, UNS# N06625, Gr. 1	6 PC	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.
THIS MATERIAL WAS MELTED AND MANUFACTURED IN THE UNITED STATES.
Mill Orders Used: 2942812701 (6 PC)
(A) 1750 °F to 1950 °F

Certified By • Certifie Par • Bescheinigt Durch: Amanda Aguirre 3/21/2006
Certification Technician

Amanda Aguirre

MTM 016 MAR 27 2006

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			

JS0206A-1 200

ATI Allegheny Ludlum
Allegheny Technologies

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

P.M. Claditi - Product Quality Engineer

Ship ROLLED ALLOYS
To 125 W STERNS RD
TEMPERANCE MI 48182

ROLLED ALLOYS INC
125 W STERNS RD
P O BOX 310
TEMPERANCE MI 48182

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
819882	16122 A	153423	.1875 x 96.0000 x 240.0000	1	1372

TRACER# 117581

Heat	C	MN	P	S	SI	NI	CR	MO	CO	CU	N
819882	.018	1.42	.024	.0004	.42	10.05	16.27	2.08	.31	.36	.065

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

DEC 19 2005
MTM 017
DEC 16 2005
103543 WA
Line 1-6

ROLLED ALLOYS
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.# P05-06721 TM
3/16" PLATE 316L
Tracer No. [117581]

Shpr-W55002
47-39/64 X 186-55/64 2 PC
Heat No. [819882]

Date 12/14/2005

ROLLED ALLOYS QUALITY ASSURANCE
APPROVED
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	854-R.U			A
(10)							EPT PER NC 19372)	04-30-06			
*		⌓ 0.03" A B C	CMM	QA		00064	ID-0.003-0.032 (ACC	854-R.U			A
(20)							EPT PER NC 19372)	04-30-06			

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	854-R.U			A
(10)							CEPT PER NC 19374)	04-30-06			
*		⌓ 0.03" A B C	CMM	QA		00064	-0.008-0.034 (ACCEP	854-R.U			A
(20)							T PER NC 19374)	04-30-06			

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			A
(20)		0.188 +0.045 / - 0.010" MATERIAL THICK						12-28-05			

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			A
(20)		0.188 +0.045 / - 0.010" MATERIAL THICK						12-19-05			

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			A
(20)		0.188 +0.045 / - 0.010" MATERIAL THICK						12-19-05			

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			A
(20)		0.188 +0.045 / - 0.010" MATERIAL THICK						04-03-06			

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			A
(20)		MAGNETIC PERMEABILITY 1.02 MAX						08-21-05			

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		PROFILOMETER	MFG		J-1308	ACCEPTED	299-M.G	219-T.L		A
		32 MICRO-INCH RA									
		PORT NB FLANGE FACE SURFACE									
		FINISH AFTER REWORK (NCR 19115)									
(10)		NOTE 1.5" LIMIT OF TOLERANCE		QA				03-11-06	05-05-06		

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	
*				MFG		VISUAL	ACCEPT	709-K.A	933-D.L		A
		VWI - ROOT PASS WELD									
(20)		HALF -A- BOSS A		CWI				12-12-05	12-13-05		
*				MFG		VISUAL	ACCEPT	709-K.A	933-D.L		A
		VWI - COVER PASS WELD									
(40)		HALF -A- BOSS A		CWI				12-14-05	12-14-05		
*				MFG		VISUAL	ACCEPT	709-K.A	933-D.L		A
		VWI - ROOT PASS WELD									
(60)		HALF -A- BOSS B		CWI				12-12-05	12-13-05		
*				MFG		VISUAL	ACCEPT	709-K.A	933-D.L		A
		VWI - COVER PASS WELD									
(80)		HALF -A- BOSS B		CWI				12-14-05	12-14-05		
*				MFG		VISUAL	ACCEPT	683-K.M	933-D.L		A
		VWI - ROOT PASS WELD									
(100)		HALF -A- BOSS C		CWI				12-15-05	12-15-05		
*				MFG		VISUAL	O.K. PER CUSTOMER	771-B.S	053-M.D		A
		VWI - COVER PASS WELD					EQUIREMENTS				
(120)		HALF -A- BOSS C		CWI				12-17-05	02-23-06		
*				MFG		VISUAL	ACCEPT	933-D.L	933-D.L		A
		VWI - ROOT PASS WELD									
(140)		HALF -A- BOSS D		CWI				12-16-05	12-16-05		
*				MFG		VISUAL	O.K. PER CUSTOMER	771-B.S	053-M.D		A
		VWI - COVER PASS WELD					EQUIREMENTS				
(160)		HALF -A- BOSS D		CWI				12-17-05	02-23-06		
*				MFG		VISUAL	ACCEPT	709-K.A	933-D.L		A
		VWI - ROOT PASS WELD									
(180)		HALF -B- BOSS A		CWI				12-12-05	12-13-05		
*				MFG		VISUAL	ACCEPT	709-K.A	933-D.L		A
		VWI - COVER PASS WELD									
(200)		HALF -B- BOSS A		CWI				12-14-05	12-14-05		
*				MFG		VISUAL	ACCEPT	709-K.A	933-D.L		A

(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	LASER	QA		1444	0.275 (ACCEPT PER N C 18888) [N/C:18888 -Doc:18888]	854-R.U			A
		HALF -A- BOSS A									
(20)		FINAL						04-30-06			
*		⌖ .25 A B C	LASER	QA		1444	0.135	522-R.D			A
		HALF -A- BOSS B									
(40)		FINAL						12-17-05			
*		⌖ .25 A B C	LASER	QA		1444	0.451 (ACCEPT PER N C 18888) [N/C:18888 -Doc:18888]	854-R.U			A
		HALF -A- BOSS C									
(60)		FINAL						04-30-06			
*		⌖ .25 A B C	LASER	QA		1444	0.177	522-R.D			A
		HALF -A- BOSS D									
(80)		FINAL						12-19-05			
*		⌖ .25 A B C	LASER	QA		1444	0.245	522-R.D			A
		HALF -B- BOSS A									
(100)		FINAL						12-17-05			
*		⌖ .25 A B C	LASER	QA		1444	0.067	522-R.D			A
		HALF -B- BOSS B									
(120)		FINAL						12-17-05			
*		⌖ .25 A B C	LASER	QA		1444	0.361 (ACCEPT PER N C 18888) [N/C:18888 -Doc:18888]	854-R.U			A
		HALF -B- BOSS C									
(140)		FINAL						04-30-06			
*		⌖ .25 A B C	LASER	QA		1444	0.238	522-R.D			A
		HALF -B- BOSS D									
(160)		FINAL						12-17-05			

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.Mcnew / 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#

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		

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

JAN 19 2004

82372 Line 1

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

27038

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

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	65.00	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 LBS/SQ. INCH	YIELD LBS/SQ. INCH	ELONGATION %	HARDNESS		BREAK	ROA %
1/4HRD						

WRAP TEST	UNIFORM. TEST	MANDREL TEST	GRAIN SIZE	PERMEABILITY

04.01.2005

OTHER TEST(S) AND/OR REQUIREMENTS:

94843 ns
Line 1 50 tubes

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

COUNTRY OF ORIGIN	Q.C. REPRESENTITIVE	DATE SIGNED
GERMANY	Doyle Craig MTM 09 4/4/05	3/21/05

IF INITIALED AND DATED HERE_____THIS IS AN AMENDED CERTIFICATION

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.

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

DEC 23 2003

12/23/03

Q.A. MANAGER

QUALITY ASSURANCE DEPARTMENT

8194/6
line 2 B.J.

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		

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

MTM 016
1-23-04

JAN 14 2004

82755
line 2

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.**	**QUANTITY**
2	3/32 X 36"	ALLOY 625	CV8061	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

MTM 023

12/5/03 Eileen Zerby Q.A. CLERK

QUALITY ASSURANCE DEPARTMENT

81506
Line 2 RJ

ARCOS ALLOYS
A Division of Hoskins Mfg.
Mt. Carmel, PA 17851

Arcos

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#

SPECIFICATION: 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.

CHEMICAL ANALYSIS: WIRE

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

JAN 14 [illegible]
MTM 014
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

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

27038

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

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	65.00	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 LBS/SQ. INCH	YIELD LBS/SQ INCH	ELONGATION %	HARDNESS		BREAK	ROA %
1/4HRD						

WRAP TEST	UNIFORM. TEST	MANDREL TEST	GRAIN SIZE	PERMEABILITY

RECEIVED
MAY 24 2005
96405 Line 3 BJ

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	Q.C. REPRESENTITIVE		DATE SIGNED
GERMANY	Doyle Craig	MTM 09	3/21/05

IF INITIALED AND DATED HERE

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#

SPECIFICATION: 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.

CHEMICAL ANALYSIS: WIRE

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

MTM 014

1-24-00

Eileen Derby Q.A. CLERK

QUALITY ASSURANCE DEPARTMENT

BRANFORD WIRE & MFG
P O BOX 677
MOUNTAIN HOME, NC
PHONE 828-692-5791
FAX# 828-697-9518

CERTIFICATE OF COMPLIANCE / TEST REPORT 4/06/05

27133

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

CUSTOMER P O NBR 1429
ORD/LN NBR: 028988/02
CUSTOMER PART NBR 32650&200240000

PROD DESC WELDING / METALLIZING WIRE TYPE INC625
SIZE .093X36" QTY LBS 772

SPECIFICATION
AWSA5 14-97/ERNICRMO-3

CHEMICAL ANALYSIS

HEAT NBR	C	MN	P	S	SI	NI	CR	MO	CU
K48859	.019	.030	< .005	.0006	<.05	65.00	20.82	8.36	.020

Y	TA	TI	NB	AL	N	CO	FE	W	V	B
.020	.019	3.43	.220		.130	.91				

MECHANICAL PROPERTIES

TENSILE LBS/SQ INCH	YIELD LBS/SQ INCH	ELONGATION %	HARDNESS	BREAK/RDA %
HARD				

WRAP TEST	UNIFORM TEST	MANDREL TEST	GRAIN SIZE	PERMEABILITY

OTHER TEST(S) AND/OR REQUIREMENTS

4/18/05
95358 Line 2 WA

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

COUNTRY OF ORIGIN	REPRESENTATIVE	DATE SIGNED
GERMANY		4/06/05

IF INITIALED AND DATED HERE_____THIS IS AN AMENDED CERTIFICATION

Böhler Thyssen
WELDING

CERTIFICATION ACCORDING TO ASME SECT II PART C

COP ORDER #: 076432

FAX CERTS TO #

Bohler Thyssen Welding USA Inc
10401 Greenbough Drive

Stafford, TX 77477

PRODUCTION DESCRIPTION : ER316LT

AWS/ASME SPECIFICATION : A/SFA5.9

AWS/ASME CLASSIFICATION: ER316L

DIAMETER : 1/16X36

WEIGHT : 300 LBS

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 :
0,2 %
PSI (N/mm 2)

ELONGATION : 35
%

TENSILE STRENGTH : 81,000
PSI (N/mm 2)

HARDNESS :

IMPACT-VALUE : 35
(ISO-V) TEST TEMPERATURE : 68 F (20 C)
FT-LBS (J)

REMARKS

FERRITE CONTENT :

ACCORDING TO :

AUG 0 2 2002

* SFA 5.01 SCHEDULE H
** SFA 5.01 SCHEDULE G

Q & A Department

Jul 30, 2002

Bohler Thyssen Welding USA, Inc.
PO Box 721678, Houston, Texas 77272-1678
10401 Greenbough Drive Stafford Texas 77477

Tel (281) 499-1212 • Internet www.btwusa.com
Fax (281) 499 4347 • e-mail custsvc@btwusa.com
(800) 527-0791

TOTAL P.04

MTM 827

8-13-02

Non-conformance: 17953

Occurred: 08/15/05 Identified By: 581-D.EDWARDS
Reported: 08/18/05 By: 581-D.EDWARDS

Customer: PRINCETON PLASMA PHYSICS LAB
Part: SE120-003 /
Serial Number:
Drawing ID: SE120-004 Rev 2
Links: 1-Type:W: 65678/1.0 Sub: 220 Op: 10
Vendor:
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
Defect: 151-WELD DEFECT

N/C Type: 3-NDT FAILURE
Target Dim:
Max Dev:
Reference:
Last Edited: 08/29/05 By: 991-S.MACEY
Document:

Disposition: 901-COMPLETE/REWORK
Due: 08/19/05 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

Workorder	Part ID	Qty	Drawing ID / Rev	Engineer
65678/1.0	SE120-002-PPPL NCSX VVSA	1	/	SILVER/DOUG MCCORKLE
	VVSA 120 DEGREE VESSEL			

Sub ID	Part ID	Qty	Drawing ID / Rev
220	REWORK-REWORK / REPAIR PER N/C	1	/ 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

Workorder	Part ID	Qty	Drawing ID / Rev	Engineer
65678/1.0	SE120-002-PPPL NCSX VVSA	1	/	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	1.00	1.00	1.00	SE120-004 / 2

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

Major Tool & Machine, Inc.
1458 East 19th Street
Indianapolis, IN 46218-4289

MTM N/C: 19108

Date: 01/20/06
User ID: MCCORKLE

Customer: PRINCETON PLASMA PHYSICS LAB
Contact: LARRY SUTTON
Telephone: 609-243-2441
E-Mail: S-04286-F
Fax: 609-243-2021

Part: /
Customer P.O.: S005243-F/Ln:1
Drawing ID: SE121-014 Revision: 2
Serial No./Qty:
Links: 1-Type:W: 65678/1.0 Sub: 0 Op: 10

Reported By: DOUG MCCORKLE
Telephone: 317-636-6433
E-Mail: dMcCorkle@MajorTool.com
Fax: 317-634-9420

Problem: THE OUTSIDE PROFILE OF THE SPACER FLANGES WERE CHAMFERED NEAR THE LOCATION OF THE SPACER PORT EXTENSION. CHAMFERS ARE APPROXIMATELY 1/4" DEEP X UP TO 45 DEG. NO CHAMFER ON DRAWING.
REFER TO ATTACHED PICTURE

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: THE AMOUNT OF EXCESS MACHINING STOCK LEFT ON THE OUTSIDE PROFILE OF EACH FLANGE CREATED ACCESS LIMITATIONS TO COMPLETE THE WELD AROUND THE PORT EXTENSION. THE DECISION WAS MADE BY MTM TO GRIND CLEARANCE CHAMFERS ON THE OUTSIDE OF THE FLANGES KNOWING IT COULD BE EASILY REPAIRED LATER IF CUSTOMER CONCERNS EXISTED.

Corr Actn: 1: Action: 01/20/06 By: 775-D.MCCORKLE
Description: CURRENTLY MTM CONSIDERS THE ISSUE COSMETICAL AND NO FURTHER CORRECTIVE ACTION REQUIRED.
Verify Notes: COMPLETE

Nonconformance Report: Major Tool NC19108

This is for SE121-014

Problem:

THE OUTSIDE PROFILE OF THE SPACER FLANGES WERE CHAMFERED NEAR THE LOCATION OF THE SPACER PORT EXTENSION. CHAMFERS ARE APPROXIMATELY 1/4" DEEP X UP TO 45 DEG. NO CHAMFER ON DRAWING.
REFER TO ATTACHED PICTURE

THE AMOUNT OF EXCESS MACHINING STOCK LEFT ON THE OUTSIDE PROFILE OF EACH FLANGE CREATED ACCESS LIMITATIONS TO COMPLETE THE WELD AROUND THE PORT EXTENSION. THE DECISION WAS MADE BY MTM TO GRIND CLEARANCE CHAMFERS ON THE OUTSIDE OF THE FLANGES KNOWING IT COULD BE EASILY REPAIRED LATER IF CUSTOMER CONCERNS EXISTED.

CURRENTLY MTM CONSIDERS THE ISSUE COSMETICAL AND NO FURTHER CORRECTIVE ACTION

Doug McCorkle

Project Disposition:

Rework to bring into compliance with drawing – The project cannot determine a priori that the scallops cut from the back side of the flanges will leave sufficient stock in all cases for subsequent machining of the flanges prior to assembly of the three field periods. MTM is requested to fill in the scallops on the back side of the flanges via approved welding procedure.

Approvals:

Mike Viola
Digitally signed by Mike Viola
DN: cn=Mike Viola, c=US
Reason: I am approving this document
Date: 2006.02.24 11:29:20 -05'00'

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: 2006.02.24 11:52:38 -05'00'

Responsible Line Manager:

F. Malinowski
Digitally signed by F. Malinowski
DN: CN = F. Malinowski, C = US, O = PPPL, OU = QA
Reason: I have reviewed this document
Date: 2006.02.24 12:02:19 -05'00'

Project Quality Assurance:

Major Tool & Machine, Inc.
1458 East 19th Street
Indianapolis, IN 46218-4289

MTM N/C: 18888

Date: 09/13/06
User ID: MCCORKLE

Customer: PRINCETON PLASMA PHYSICS LAB
Contact: LARRY SUTTON
Telephone: 609-243-2441
E-Mail: S-04286-F
Fax: 609-243-2021

Part: /
Customer P.O.: S005243-F/Ln:1
Drawing ID: SE120-004
Revision: 2
Serial No./Qty:

Reported By: DOUG MCCORKLE
Telephone: 317-636-6433
E-Mail: dMcCorkle@MajorTool.com
Fax: 317-634-9420

Problem: UPDATE 05May2006: THIS NCR IS SUPERSEDED BY NCR 19776
AND SHOULD BE CONSIDERED NOTIFICATION ONLY.

The true position of lifting boss "a" on half "a" of the vessel checks 0.275 or 0.025 out of tolerance.

The true position of lifting boss "c" on half "a" of the vessel checks 0.451 of 0.201 out of tolerance.

The true position of lifting boss "c" on half "b" of the vessel checks 0.361 or 0.111 out of tolerance.

Proposed Disposition:
N/A Updated condition submitted on NCR 19776

Number of additional pages: 0

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

No longer Required

Technical Contact Approval: N/A **Title:** **Date:**

Buyer Approval: N/A **Title:** **Date:**

Major Tool Implemented By: N/A **Title:** **Date:**

Non-conformance: 19081

Occurred: 01/18/06 Identified By: 775-D.MCCORKLE
Reported: 01/18/06 By: 775-D.MCCORKLE

Customer: PRINCETON PLASMA PHYSICS LAB
Part: SE120-002 / PPPL NCSX VVSA
Serial Number: QTY - 3
Drawing ID: SE120-005 Rev 0
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 Detecte 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 — Telephone: 609-243-2441
E-Mail: S-04286-F — Fax: 609-243-2021

Part: SE120-002 / PPPL NCSX VVSA — Customer P.O.: S005243-F/Ln:1
Drawing ID: SE120-005 Revision: 0 — Serial No./Qty: QTY - 3
Links: 1-Type:W: 65678/1.0 Sub: 0 Op: 10

Reported By: DOUG MCCORKLE — Telephone: 317-636-6433
E-Mail: dMcCorkle@MajorTool.com — 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

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: Action: 01/18/06 By: 775-D.MCCORKLE

Description: NONE REQUIRED. EARLIER CUSTOMER NOTIFICATION / CLARIFICATION WOULD BE BENEFICIAL IN FUTURE CERCUMSTANCES.

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 CERCUMSTANCES, 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:

_____

Procurement Technical Representative

_____

Responsible Line Manager:

_____

Project Quality Assurance:

Major Tool & Machine, Inc.
1458 East 19th Street
Indianapolis, IN 46218-4289

MTM N/C: 19289

Date: 02/20/06
User ID: MCCORKLE

Customer: PRINCETON PLASMA PHYSICS LAB
Contact: Mike Viola
E-Mail: mviola@pppl.gov
Telephone: 609-243-3655
Fax: 609-243-3248

Part: /
Drawing ID: SE120-003 Revision: 0
Customer P.O.: S005243-F/Ln:2
Qty: 3

Reported By: DOUG MCCORKLE
E-Mail: dMcCorkle@MajorTool.com
Telephone: 317-636-6433
Fax: 317-634-9420

Problem: PORT NB HAS DEFORMATION TO HOLE PATTERN AFTER WELDING HAS BEEN COMPLETED ON PORT 4 A/B AND 12 A/B
HOLES DO NOT ALIGN TO MATING THREADED HOLE IN NB COVER. HOLES DID ALIGN AFTER NB WAS WELDED IN,BUT DO NOT NOW THAT PORT 4 AND 12 IS COMPLETED.

Proposed Disposition:

CUSTOMER DISPOSITION REQUIRED.
THE FLANGE IS ALSO OUT OF FLAT UP TO 1/16".
UNIT # 1 HOLES WERE OPENED UP TO 5/8" DIAMETER TO PROVIDE THE NECESSARY CLEARANCE FOR ASSEMBLY PRIOR TO VACUUM TESTING. THE EXTRA WELDING ON UNIT # 1 WAS SUSPECTED TO BE THE CAUSE OF THE EXCESS DISTORTION. THIS PROVED INCORRECT AFTER UNIT # 2 FLANGE ALSO DISTORTED. UNIT # 3 HAS NOT BEEN INSTALLED YET, BUT IS EXPECTED TO REACT THE SAME. MTM RECOMMENDS OPENING ALL NB FLANGE HOLES UP TO 5/8" AND RE-FACING THE FLANGE FLAT AFTER ALL PORTS ARE WELDED IN PLACE (A MINIMUM THICKNESS WILL BE NEEDED).

Number of additional pages: 0

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 NC19289

This is for SE120-003

Problem:
PORT NB HAS DEFORMATION TO HOLE PATTERN AFTER WELDING HAS BEEN COMPLETED ON PORT 4 A/B AND 12 A/B
HOLES DO NOT ALIGN TO MATING THREADED HOLE IN NB COVER. HOLES DID ALIGN AFTER NB WAS WELDED IN,BUT DO NOT NOW THAT PORT 4 AND 12 IS COMPLETED.

THE FLANGE IS ALSO OUT OF FLAT UP TO 1/16".
UNIT # 1 HOLES WERE OPENED UP TO 5/8" DIAMETER TO PROVIDE THE NECESSARY CLEARANCE FOR ASSEMBLY PRIOR TO VACUUM TESTING. THE EXTRA WELDING ON UNIT # 1 WAS SUSPECTED TO BE THE CAUSE OF THE EXCESS DISTORTION. THIS PROVED INCORRECT AFTER UNIT # 2 FLANGE ALSO DISTORTED. UNIT # 3 HAS NOT BEEN INSTALLED YET, BUT IS EXPECTED TO REACT THE SAME. MTM RECOMMENDS OPENING ALL NB FLANGE HOLES UP TO 5/8" AND RE-FACING THE FLANGE FLAT AFTER ALL PORTS ARE WELDED IN PLACE (A MINIMUM THICKNESS WILL BE NEEDED).

Doug McCorkle

Project Disposition:

Rework as proposed – Out of flat flanges are not acceptable. The project agrees that the flanges should be faced off after welding. Since hole pattern errors would require custom mating parts in the future, the project accepts the proposal to open up the holes to 5/8 diameter.

Approvals:

Mike Viola
Digitally signed by Mike Viola
DN: cn=Mike Viola, c=US
Reason: I am approving this document
Date: 2006.02.24 11:27:53 -05'00'

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: 2006.02.24 11:52:54 -05'00'

Responsible Line Manager:

F. Malinowski
Digitally signed by F. Malinowski
DN: CN = F. Malinowski, C = US, O = PPPL, OU = QA
Reason: I have reviewed this document
Date: 2006.02.24 11:59:02 -05'00'

Project Quality Assurance:

Non-conformance: 19293

Occurred: 02/20/06 Identified By: 522-R.DURHAM
Reported: 02/20/06 By: 522-R.DURHAM

Customer: PRINCETON PLASMA PHYSICS LAB
Part: /
Serial Number:
Drawing ID: SE120-004 Rev 2
Links: 1-Type:W: 65678/1.0 Sub: 2 Op: 45 /IDC:10
Vendor:
Problem: The profile exceeds the tolerance. The profile checks from -0.604 / +0.408. Refer to attached graphical report.
Where Detecte 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

Major Tool & Machine, Inc.
1458 East 19th Street
Indianapolis, IN 46218-4289

MTM N/C: 19293

Date: 03/10/06
User ID: MCCORKLE

Customer: PRINCETON PLASMA PHYSICS LAB
Contact: Mike Viola — Telephone: 609-243-2441
E-Mail: Mviola@pppl.gov — Fax: 609-243-2021

Part: / — Customer P.O.: S005243-F/Ln:1
Drawing ID: SE120-004 — Revision: 2 — Serial No./Qty:

Reported By: DOUG MCCORKLE — Telephone: 317-636-6433
E-Mail: dMcCorkle@MajorTool.com — 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 EVAUATION
IN PROCESS DATA
FINAL PROFILE SUBMITTAL TO FOLLOW LATER (after final best fit)

Number of additional pages: 0

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 EVAUATION 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:

_____
Procurement Technical Representative

_____
Responsible Line Manager:

_____
Project Quality Assurance:

Non-conformance: 19391

Occurred: 03/09/06 Identified By: 168-R.BACK
Reported: 03/10/06 By: 168-R.BACK

Customer: PRINCETON PLASMA PHYSICS LAB
Part: /
Serial Number:
Drawing ID: SE120-004 Rev 2
Links: 1-Type:W: 65678/1.0 Sub: 2 Op: 60
Vendor:
Problem: The .637 +/-.005 dimension varies around part over and undersized, .480-.9
Where Detecte 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: 913-CUSTOMER - REPAIR
Due: 04/06/06 By: 775-D.MCCORKLE
Submitted Doc: 19391
Completed: 04/21/06 By: 775-D.MCCORKLE
Act OK Due: 04/10/06 By: 709-K.APPLEBY
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
Approval Due: 04/07/06 By: 927-M.MANUEL
Equipment:
Approved: 04/06/06 By: 927-M.MANUEL
Employee: 775-D.MCCORKLE
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 unoleranced 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

Major Tool & Machine, Inc.
1458 East 19th Street
Indianapolis, IN 46218-4289

MTM N/C: 19391

Date: 04/06/06
User ID: MCCORKLE

Customer: PRINCETON PLASMA PHYSICS LAB
Contact: LARRY SUTTON — Telephone: 609-243-2441
E-Mail: S-04286-F — Fax: 609-243-2021

Part: / — Customer P.O.: S005243-F/Ln:1
Drawing ID: SE120-004 Revision: 2 — Serial No./Qty:
Links: 1-Type:W: 65678/1.0 Sub: 2 Op: 60

Reported By: DOUG MCCORKLE — Telephone: 317-636-6433
E-Mail: dMcCorkle@MajorTool.com — 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 09:41:47 -04'00' **Title:**_____ **Date:**_____

RLM **Approval:** Brad Nelson Digitally signed by Brad Nelson DN: cn=Brad Nelson, c=US, o=ORNL, ou=FED, email=nelsonbe@ornl.gov Date: 2006.04.11 08:06:37 -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 unoleranced 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 +/-.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 = QA
Reason: I have reviewed this document
Date: 2006.04.05 22:13:29 -04'00'

Project Quality Assurance:

Major Tool & Machine, Inc.
1458 East 19th Street
Indianapolis, IN 46218-4289

MTM N/C: 19391

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

n:\rituuappis\Mmoncl4.qrp
.Closed WO 65678-1

Non-conformance: 19392

Occurred: 03/10/06 Identified By: 168-R.BACK
Reported: 03/10/06 By: 168-R.BACK

Customer: PRINCETON PLASMA PHYSICS LAB
Part: /
Serial Number:
Drawing ID: SE120-004 Rev 2
Links: 1-Type:W: 65678/1.0 Sub: 2 Op: 60
Vendor:
Problem: The .469 +/-.005 dimension varies around part over and undersized, .240-.432
Where Detecte 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: 04/11/06 By: 775-D.MCCORKLE
Submitted Doc: 19392
Completed: 04/11/06 By: 775-D.MCCORKLE
Act OK Due: 04/13/06 By: 709-K.APPLEBY
Approval Due: 03/13/06 By: 927-M.MANUEL
Approved: 04/11/06 By: 927-M.MANUEL / Cft Leader
Rework: 1-Type:W Base:65678 Lot:1 Split:0 Sub: 247 Op: 20
Inspected: 04/24/06 By: 933-D.LEAPLEY
Instructions: REFERENCE DRAWING SE121-013, ZONE B5
REWORK LEG PROVIDED
Last Edited: 04/11/06 By: 927-M.MANUEL

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)
Approval Due: 03/13/06 By: 596-D.KNAUB
Equipment:
Approved: 03/12/06 By: 596-D.KNAUB
Employee:
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 APPLED 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

Major Tool & Machine, Inc.
1458 East 19th Street
Indianapolis, IN 46218-4289

MTM N/C: 19392

Date: 03/10/06
User ID: MCCORKLE

Customer: PRINCETON PLASMA PHYSICS LAB
Contact: LARRY SUTTON — Telephone: 609-243-2441
E-Mail: S-04286-F — Fax: 609-243-2021

Part: / — Customer P.O.: S005243-F/Ln:1
Drawing ID: SE120-004 — Revision: 2 — Serial No./Qty:

Reported By: DOUG MCCORKLE — Telephone: 317-636-6433
E-Mail: dMcCorkle@MajorTool.com — Fax: 317-634-9420

Problem: The .469 +/-.005 dimension varies around part over and undersized, .240-.432

Proposed Disposition:
SUBMITTING TO PPPL.
REFERENCE DRAWING SE121-013, ZONE B5

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:**_____

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:

_____

Procurement Technical Representative

_____

Responsible Line Manager:

_____

Project Quality Assurance:

Workorder	Part ID	Qty	Drawing ID / Rev	Engineer
65678/1.0	SE120-002-PPPL NCSX VVSA	1	/	SILVER/DOUG MCCORKLE
	VVSA 120 DEGREE VESSEL			

Sub ID	Part ID	Qty	Drawing ID / Rev
247	REWORK-REWORK / REPAIR PER N/C	1	/
			Parent Sub:2 Op:90

Operation	Resource	QtyPer	StartQty	EndQty	Drawing ID / Rev
Sub: 247 / Seq: 10	230-FAB MEDIUM SOUTH	1.00	1.00	1.00	
(Closed)	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	805-INPROCESS INSPECTION - PLANT	1.00	1.00	1.00	SE120-002 / 0
(Closed)	VERIFY REWORK AND COMPLETE NCR 19392 CWI VISUAL WELD INSPECT WELD SURFACE UNDER 8X MAGNIFICATION.				

Non-conformance: 19393

Occurred: 03/10/06 Identified By: 168-R.BACK
Reported: 03/10/06 By: 168-R.BACK

Customer: PRINCETON PLASMA PHYSICS LAB
Part: /
Serial Number:
Drawing ID: SE120-004 Rev 2
Links: 1-Type:W: 65678/1.0 Sub: 2 Op: 60
Vendor:
Problem: The 1.25 +/-.010 dimension is undersized after rework to achieve flatness, checks 1.14-1.19
Where Detecte 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: 914-CUSTOMER - USE AS IS
Due: 04/06/06 By: 775-D.MCCORKLE
Submitted Doc: 19393
Completed: 04/06/06 By: 775-D.MCCORKLE
Act OK Due: By:
Approval Due: 03/13/06 By: 927-M.MANUEL
Approved: 04/07/06 By: 927-M.MANUEL / Cft Leader
Rework:
Inspected: By:
Instructions: USE AS IS PER CUSTOMER DISPOSITION PROVIDED 06APR2006.
Last Edited: 04/07/06 By: 927-M.MANUEL

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
Approval Due: 04/07/06 By: 927-M.MANUEL
Equipment:
Approved: 04/07/06 By: 927-M.MANUEL
Employee: 775-D.MCCORKLE
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:

Closure: Completed: 04/10/06 By: 596-D.KNAUB
Comments:
Last Edited: 04/10/06 By: 596-D.KNAUB

Non-conformance: 19232

Occurred: 02/08/06 Identified By: 775-D.MCCORKLE
Reported: 02/08/06 By: 775-D.MCCORKLE

Customer: PRINCETON PLASMA PHYSICS LAB
Part: SE120-002 / PPPL NCSX VVSA
Serial Number: 1
Drawing ID: SE120-002 Rev 0
Links: 1-Type:W: 65678/1.0 Sub: 2 Op: 20
Vendor: D L RICCI CORPORATION
Problem: Thermal cycle
1. During vessel ramp up: One zone (approximatly 12 x 29") reached 524F while the rest of the shell was at about 314F. This exceeds the 90 Deg. F maximum temperature gradiant (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 Detecte 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 REQUIREMNTS 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 CERCUMSANCES WILL BE REVIEW WITH PPPL PRIOR TO STARTING (OR CONTRACTING A SUPPLIER). IF DESCREPANCIES EXIST, THE PROJECT, OR OPERATION WILL BE PUT ON HOLD UNTIL RESOLVED.
Verify Due: 03/10/06 By: 927-M.MANUEL

Completed: 03/03/06 By: 927-M.MANUEL

Verify Notes: COMPLETE

RC Last Edited 03/03/06 By: 596-D.KNAUB
CA Last Edited By:

Documents: 1)
Last Edited: 02/27/06 By: 775-D.MCCORKLE

Closure: Completed: 03/03/06 By: 596-D.KNAUB
Comments:
Last Edited: 03/03/06 By: 596-D.KNAUB

Major Tool & Machine, Inc.
1458 East 19th Street
Indianapolis, IN 46218-4289

MTM N/C: 19232

Date: 02/14/06
User ID: MCCORKLE

Customer: PRINCETON PLASMA PHYSICS LAB
Contact: Mike Viola
E-Mail: 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
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.

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:**_____

Nonconformance Report: Major Tool NC19232

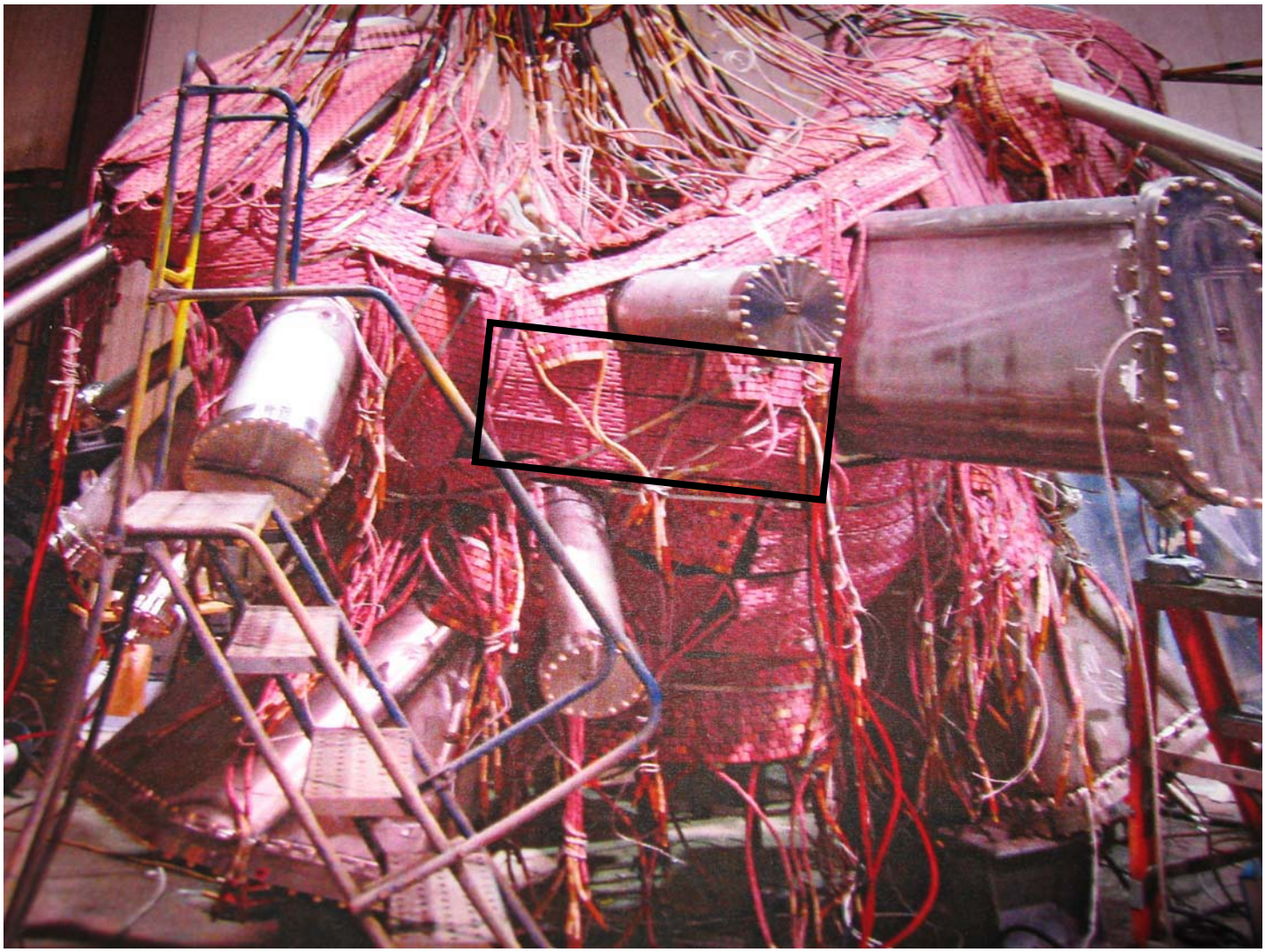
This is for **SE120-002 / PPPL NCSX VVSA**

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:

_____

Procurement Technical Representative

_____

Responsible Line Manager:

_____

Project Quality Assurance:

Non-conformance: 19288

Occurred: 02/20/06 Identified By: 791-D.WEIDNER
Reported: 02/20/06 By: 791-D.WEIDNER

Customer: PRINCETON PLASMA PHYSICS LAB
Part: SE120-004-42 / O-RING, VITON
Serial Number:
Drawing ID: SE120-004 Rev 1
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
Vendor:

Problem: viton o-rings are damaged upon removal from port flanges after vacum 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:
Last Edited: 03/06/06 By: 927-M.MANUEL
Document:

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

Major Tool & Machine, Inc.
1458 East 19th Street
Indianapolis, IN 46218-4289

MTM N/C: 19288

Date: 02/20/06
User ID: MCCORKLE

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 vacum 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)

Number of additional pages: 0

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:

_____
Procurement Technical Representative

_____
Responsible Line Manager:

_____
Project Quality Assurance:

Non-conformance: 17925

Occurred: 08/14/05 Identified By: 581-D.EDWARDS
Reported: 08/14/05 By: 581-D.EDWARDS

Customer: PRINCETON PLASMA PHYSICS LAB
Part: SE120-003 30L HALF A /
Serial Number:
Drawing ID: SE120-004 Rev 2
Links: 1-Type:W: 65678/1.0 Sub: 6 Op: 400
Vendor:
Problem: X RAY FAILURE ON WELDS;
W-3, VIEW 0-14, POROSITY & LACK OF FUSION
W-5, VIEW 0-14, POROSITY, CRACK & LACK OF FUSION
W-7, VIEW 0-14, POROSITY & LACK OF FUSION
W-13, VIEW 0-14, POROSITY & LACK OF FUSION
W-17, VIEW 0-14, POROSITY & LACK OF FUSION

Where Detecte 716-X-RAY
Defect: 151-WELD DEFECT
N/C Type: 3-NDT FAILURE
Target Dim:
Max Dev:
Reference:
Last Edited: 08/29/05 By: 991-S.MACEY
Document:

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

Workorder	Part ID	Qty	Drawing ID / Rev	Engineer
65678/1.0	SE120-002-PPPL NCSX VVSA	1	/	SILVER/DOUG MCCORKLE
	VVSA 120 DEGREE VESSEL			

Sub ID	Part ID	Qty	Drawing ID / Rev
220	REWORK-REWORK / REPAIR PER N/C	1	/ 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

Workorder	Part ID	Qty	Drawing ID / Rev	Engineer
65678/1.0	SE120-002-PPPL NCSX VVSA	1	/	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	1.00	1.00	1.00	SE120-004 / 2

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

Major Tool & Machine, Inc.
1458 East 19th Street
Indianapolis, IN 46218-4289

MTM N/C: 19667 Rev. A

Date: 05/05/06
User ID: MCCORKLE

Customer: PRINCETON PLASMA PHYSICS LAB
Contact: LARRY SUTTON
Telephone: 609-243-2441
E-Mail: S-04286-F
Fax: 609-243-2021

Part: /
Customer P.O.: S005243-F/Ln:1
Drawing ID: SE120-004
Revision: 2
Serial No./Qty:

Reported By: DOUG MCCORKLE
Telephone: 317-636-6433
E-Mail: dMcCorkle@MajorTool.com
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.

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

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:**_____

Nonconformance Report: 19667 Rev.A

Problem: The position of port 4a checks 0.844 and the face check s -0.450 / -0.131.
The position of port 4b checks 0.891 and the face checks -0.257 / -0.066.

Project Disposition:

Use As-is

Approvals:

Phil Heitzenroeder

Digitally signed by Phil Heitzenroeder
DN: CN = Phil Heitzenroeder, C = US, O = PPPL, OU = Mech. Eng. Division
Reason: I agree to 'specified' portions of this document
Date: 2006.05.05 17:15:46 -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: 2006.05.05 17:02:19 -04'00'

_____

Responsible Line Manager:

Major Tool & Machine, Inc.
1458 East 19th Street
Indianapolis, IN 46218-4289

MTM N/C: 19754

Date: 09/13/06
User ID: MCCORKLE

Customer: PRINCETON PLASMA PHYSICS LAB
Contact: LARRY SUTTON
Telephone: 609-243-2441
E-Mail: S-04286-F
Fax: 609-243-2021

Part: /
Customer P.O.: S005243-F/Ln:1
Drawing ID: SE120-002
Revision: 1
Serial No./Qty:

Reported By: DOUG MCCORKLE
Telephone: 317-636-6433
E-Mail: dMcCorkle@MajorTool.com
Fax: 317-634-9420

Problem: ALL THE FOLLOWING DIMENSIONS REFER TO A TRUE POSITION CALL OUT OF .25 TO A/B/C AT FEATURES SPECIFIED
HALF A, BOSS A CHECKS 1.663
HALF A, BOSS B CHECKS .940
HALF A, BOSS D CHECKS .365
HALF B, BOSS A CHECKS .667
HALF B, BOSS B CHECKS 1.144
HALF B, BOSS C CHECKS .520
HALF B, BOSS D CHECKS 3.432
(REF. IDC'S)

Proposed Disposition:
Corresponding point cloud inspection data uploaded to PPPL ftp site 04May2006.
UPDATE: This NCR is superceded by NCR 19776.

Number of additional pages: 0

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

No longer required. Superseded by NCR 19776.

Technical Contact Approval: N/A **Title:** **Date:**

Buyer Approval: N/A **Title:** **Date:**

Major Tool Implemented By: N/A **Title:** **Date:**

Non-conformance: 19766

Occurred: 05/04/06 Identified By: 522-R.DURHAM
Reported: 05/04/06 By: 522-R.DURHAM

Customer: PRINCETON PLASMA PHYSICS LAB
Part: /
Serial Number:
Drawing ID: SE120-004 Rev 2
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
Vendor:
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 Detecte 704-IN-PROCESS INSPECTION **Defect: 113-POSITION - OTHER**
N/C Type: 1-STANDARD
Target Dim: 0.2500 Max Dev:1.1440
Y Trend List:
Reference:
Last Edited: 05/22/06 By: 596-D.KNAUB
Document:

Disposition: 924-CUSTOMER - USE AS IS - NON-RECO
Due: 05/18/06 By: 775-D.MCCORKLE
Submitted Doc: 19766
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: 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 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

Major Tool & Machine, Inc.
1458 East 19th Street
Indianapolis, IN 46218-4289

MTM N/C: 19766

Date: 05/04/06
User ID: MCCORKLE

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.

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

Number of additional pages: 0

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

_____

Responsible Line Manager:

Non-conformance: 19767

Occurred: 05/04/06 Identified By: 522-R.DURHAM
Reported: 05/04/06 By: 522-R.DURHAM

Customer: PRINCETON PLASMA PHYSICS LAB
Part: /
Serial Number:
Drawing ID: SE120-004 Rev 2
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
Vendor:
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 Detecte 704-IN-PROCESS INSPECTION **Defect: 113-POSITION - OTHER**
N/C Type: 1-STANDARD Target Dim: 0.2500 Max Dev:0.8980
Trend N/C: 19766 Reference:
Last Edited: 05/22/06 By: 775-D.MCCORKLE Document:

Disposition: 924-CUSTOMER - USE AS IS - NON-RECO Due: 05/18/06 By: 775-D.MCCORKLE
Submitted Doc: 19767 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: 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 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

Major Tool & Machine, Inc.
1458 East 19th Street
Indianapolis, IN 46218-4289

MTM N/C: 19767

Date: 05/04/06
User ID: MCCORKLE

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.

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

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:**_____

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

_____

Responsible Line Manager:

Non-conformance: 19768

Occurred: 05/04/06 Identified By: 522-R.DURHAM
Reported: 05/04/06 By: 522-R.DURHAM

Customer: PRINCETON PLASMA PHYSICS LAB
Part: /
Serial Number:
Drawing ID: SE120-004 Rev 2
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
Vendor:
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 Detecte 704-IN-PROCESS INSPECTION **Defect: 113-POSITION - OTHER**
N/C Type: 1-STANDARD Target Dim: 0.2500 Max Dev:1.0010
Trend N/C: 19766 Reference:
Last Edited: 05/22/06 By: 775-D.MCCORKLE Document:

Disposition: 924-CUSTOMER - USE AS IS - NON-RECO Due: 05/18/06 By: 775-D.MCCORKLE
Submitted Doc: 19768 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: 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 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

Major Tool & Machine, Inc.
1458 East 19th Street
Indianapolis, IN 46218-4289

MTM N/C: 19768

Date: 05/04/06
User ID: MCCORKLE

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.

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

Number of additional pages: 0

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

_____

Responsible Line Manager:

Non-conformance: 19769

Occurred: 05/04/06 Identified By: 522-R.DURHAM
Reported: 05/04/06 By: 522-R.DURHAM

Customer: PRINCETON PLASMA PHYSICS LAB
Part: /
Serial Number:
Drawing ID: SE120-004 Rev 2
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
Vendor:
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 Detecte 704-IN-PROCESS INSPECTION **Defect: 113-POSITION - OTHER**
N/C Type: 1-STANDARD Target Dim: 0.2500 Max Dev:1.1290
Trend N/C: 19766 Reference:
Last Edited: 05/22/06 By: 775-D.MCCORKLE Document:

Disposition: 924-CUSTOMER - USE AS IS - NON-RECO Due: 05/18/06 By: 775-D.MCCORKLE
Submitted Doc: 19769 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: 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 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

Major Tool & Machine, Inc.
1458 East 19th Street
Indianapolis, IN 46218-4289

MTM N/C: 19769

Date: 05/04/06
User ID: MCCORKLE

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.

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

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:**_____

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:

_____

Procurement Technical Representative

_____

Responsible Line Manager:

Non-conformance: 19770

Occurred: 05/04/06 Identified By: 522-R.DURHAM
Reported: 05/04/06 By: 522-R.DURHAM

Customer: PRINCETON PLASMA PHYSICS LAB
Part: /
Serial Number:
Drawing ID: SE120-004 Rev 2
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
Vendor:
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 Detecte 704-IN-PROCESS INSPECTION **Defect: 113-POSITION - OTHER**
N/C Type: 1-STANDARD Target Dim: 0.2500 Max Dev:0.8470
Trend N/C: 19766 Reference:
Last Edited: 05/22/06 By: 775-D.MCCORKLE Document:

Disposition: 924-CUSTOMER - USE AS IS - NON-RECO Due: 05/18/06 By: 775-D.MCCORKLE
Submitted Doc: 19770 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: 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 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

Major Tool & Machine, Inc.
1458 East 19th Street
Indianapolis, IN 46218-4289

MTM N/C: 19770

Date: 05/04/06
User ID: MCCORKLE

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.

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

Number of additional pages: 0

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:

_____
Procurement Technical Representative

_____
Responsible Line Manager:

Non-conformance: 19771

Occurred: 05/04/06 Identified By: 522-R.DURHAM
Reported: 05/04/06 By: 522-R.DURHAM

Customer: PRINCETON PLASMA PHYSICS LAB
Part: /
Serial Number:
Drawing ID: SE120-004 Rev 2
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
Vendor:
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 Detecte 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
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: -
Approval Due: By:
Equipment:
Approved: By:
Employee:
Description:

Corr Actn: :
Correction Due By:
Action: By:
Completed:
Description:
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:

Major Tool & Machine, Inc.
1458 East 19th Street
Indianapolis, IN 46218-4289

MTM N/C: 19771

Date: 05/04/06
User ID: MCCORKLE

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.

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

Number of additional pages: 0

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:

_____

Procurement Technical Representative

_____

Responsible Line Manager:

Non-conformance: 19772

Occurred: 05/04/06 Identified By: 522-R.DURHAM
Reported: 05/04/06 By: 522-R.DURHAM

Customer: PRINCETON PLASMA PHYSICS LAB
Part: /
Serial Number:
Drawing ID: SE120-004 Rev 2
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
Vendor:
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 Detecte 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: -
Approval Due: By:
Equipment:
Approved: By:
Employee:
Description:

Corr Actn: :
Correction Due By:
Action: By:
Completed:
Description:
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:

Major Tool & Machine, Inc.
1458 East 19th Street
Indianapolis, IN 46218-4289

MTM N/C: 19772

Date: 05/04/06
User ID: MCCORKLE

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.

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

Number of additional pages: 0

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:

_____

Procurement Technical Representative

_____

Responsible Line Manager:

Non-conformance: 19773

Occurred: 05/04/06 Identified By: 522-R.DURHAM
Reported: 05/04/06 By: 522-R.DURHAM

Customer: PRINCETON PLASMA PHYSICS LAB
Part: /
Serial Number:
Drawing ID: SE120-004 Rev 2
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
Vendor:
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 Detecte 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
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: -
Approval Due: By:
Equipment:
Approved: By:
Employee:
Description:

Corr Actn: :
Correction Due By:
Action: By:
Completed:
Description:
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:

Major Tool & Machine, Inc.
1458 East 19th Street
Indianapolis, IN 46218-4289

MTM N/C: 19773

Date: 05/04/06
User ID: MCCORKLE

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.

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

Number of additional pages: 0

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:

_____

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

Customer: PRINCETON PLASMA PHYSICS LAB
Part: /
Serial Number:
Drawing ID: SE120-004 Rev 2
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
Vendor:
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 Detecte 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: -
Approval Due: By:
Equipment:
Approved: By:
Employee:
Description:

Corr Actn: :
Correction Due By:
Action: By:
Completed:
Description:
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:

Major Tool & Machine, Inc.
1458 East 19th Street
Indianapolis, IN 46218-4289

MTM N/C: 19774

Date: 05/04/06
User ID: MCCORKLE

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.

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

Number of additional pages: 0

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:

_____

Procurement Technical Representative

_____

Responsible Line Manager:

Non-conformance: 19776

Occurred: 05/04/06 Identified By: 522-R.DURHAM
Reported: 05/04/06 By: 522-R.DURHAM

Customer: PRINCETON PLASMA PHYSICS LAB
Part: /
Serial Number:
Drawing ID: SE120-002 Rev 1
Vendor:

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 **Defect: 111-PROFILE OF A SURFACE**
N/C Type: 1-STANDARD Target Dim: 0.3750 Max Dev:0.7235
Trend N/C: 19766 Reference:
Last Edited: 05/22/06 By: 775-D.MCCORKLE Document:

Disposition: 924-CUSTOMER - USE AS IS - NON-RECO Due: 05/18/06 By: 775-D.MCCORKLE
Submitted Doc: 19776 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: 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 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

Major Tool & Machine, Inc.
1458 East 19th Street
Indianapolis, IN 46218-4289

MTM N/C: 19776

Date: 05/04/06
User ID: MCCORKLE

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.

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

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:** _____

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+/-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.

Project Disposition:

Accept as is. PPPL rework or work-around(s) will be needed.

Approvals:

_____

Procurement Technical Representative

_____

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
Part: /
Serial Number:
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 Detecte 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 COMLPEX, WORK WILL NOT BEGIN UNTIL UNTOLERANCED SURFACE PROFILES (E.G. DEFINED BY ELECTRONIC MODEL, AND NOT TOLERANCED ON A SPECIFIC

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

RC Last Edited 04/10/06 By: 596-D.KNAUB
CA Last Edited By:

Documents: 1)
Last Edited: 04/12/06 By: 775-D.MCCORKLE

Closure: Completed: 05/07/06 By: 596-D.KNAUB
Comments:
Last Edited: 05/07/06 By: 596-D.KNAUB

Major Tool & Machine, Inc.
1458 East 19th Street
Indianapolis, IN 46218-4289

MTM N/C: 19394

Date: 03/15/06
User ID: MCCORKLE

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.

Proposed Disposition:
Customer disposition required. Photographs and point inspection data being provided via email.

Number of additional pages: 0

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:

_____

Procurement Technical Representative

_____

Responsible Line Manager:

_____

Project Quality Assurance:

Workorder	Part ID	Qty	Drawing ID / Rev	Engineer
65678/1.0	SE120-002-PPPL NCSX VVSA	1	/	SILVER/DOUG MCCORKLE
	VVSA 120 DEGREE VESSEL			

Sub ID	Part ID	Qty	Drawing ID / Rev
250	REWORK-REWORK / REPAIR PER N/C	1	/
			Parent Sub:2 Op:90

Operation	Resource	QtyPer	StartQty	EndQty	Drawing ID / Rev
Sub: 250 / Seq: 10	230-FAB MEDIUM SOUTH	1.00	1.00	1.00	
(Closed)	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).				

Operation	Resource	QtyPer	StartQty	EndQty	Drawing ID / Rev
Sub: 250 / Seq: 20	805-INPROCESS INSPECTION - PLANT	1.00	1.00	1.00	SE121-013 / 0
(Closed)	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.				

Major Tool & Machine, Inc.
1458 East 19th Street
Indianapolis, IN 46218-4289

MTM N/C: 19464

Date: 04/06/06
User ID: MANUEL

Customer: PRINCETON PLASMA PHYSICS LAB
Contact: LARRY SUTTON
E-Mail: S-04286-F

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

Part: /
Drawing ID: Revision:
Links: 1-Type:W: 65678/1.0 Sub: 0 Op: 10
2-Type:W: 65678/2.0 Sub: 0 Op: 10

Customer P.O.: S005243-F/Ln:1
Serial No./Qty: 2 PARTS (SN 1&2)

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

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

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 wasd 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.

Proposed Disposition:
SUBMITTING TO PPPL FOR APPROVAL

Number of additional pages: _____

Customer Disposition: [x] **Use As Is** [ ] **Rework** [ ] **Repair** [ ] **Scrap** [ ] **Replace**

Technical Contact Approval: Mike Viola Digitally signed by Mike Viola DN: cn=Mike Viola, c=US Reason: I am approving this document Date: 2006.04.10 11:13:07 -04'00' **Title:** _____ **Date:** _____

Buyer Approval: Brad Nelson Digitally signed by Brad Nelson DN: cn=Brad Nelson, o=US, o=ORNL, ou=FED, email=nelsonbe@ornl.gov Date: 2006.04.10 11:27:27 -04'00' **Title:** _____ **Date:** _____

Major Tool Implemented By: _____ **Title:** _____ **Date:** _____

Root Cause 1: 806-PROCEDURE NONCOMPLIANCE
Resource: FAB MEDIUM SOUTH Equipment:
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: Action: 04/06/06 By: 890-M.VISLAY

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 Notes: Participated in the discussion. And received a copy of the e-mail.

Root Cause 2: 806-PROCEDURE NONCOMPLIANCE

Resource: SILVER TEAM, ENGINEERING Equipment:

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: Action: 04/06/06 By: 927-M.MANUEL

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.

Root Cause 3: 806-PROCEDURE NONCOMPLIANCE

Resource: CWI Equipment:

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 throught he customer.

Corr Actn: 3: Action: By: 596-D.KNAUB

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 Notes: Issue was discussed with V.P. of Quality.

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
Part: /
Serial Number:
Drawing ID: SE122-007 Rev 2
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
Vendor:

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 Detecte 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
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) 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)

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

Major Tool & Machine, Inc.
1458 East 19th Street
Indianapolis, IN 46218-4289

MTM N/C: 19612

Date: 04/14/06
User ID: MCCORKLE

Customer: PRINCETON PLASMA PHYSICS LAB
Contact: Mike Viola
E-Mail: 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
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.

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.

Number of additional pages: 0

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:

_____
Procurement Technical Representative

_____
Responsible Line Manager:

Major Tool & Machine, Inc.
1458 East 19th Street
Indianapolis, IN 46218-4289

MTM N/C: 19612 Rev. A

Date: 05/05/06
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: 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.

Proposed Disposition:

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

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:**_____

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:

_____
Procurement Technical Representative

_____
Responsible Line Manager: