

# PRINCETON PLASMA PHYSICS LAB

Purchase Order Number:

S005243-F

Part Number:

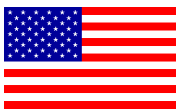
SE120-002

Part Name:

VVSA 120 DEGREE VESSEL PERIOD

MTM Work Order Number:

65678/2.0



*Major*

Tool & Machine, Inc.

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

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

**SE120-002 - PPPL NCSX VVSA**

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
2				NCR: - NCR19289 Signed.pdf
3				NCR: - NCR19464 Signed.pdf
4				NCR: - ncr19562 signed.pdf
5				NCR: - ncr19697 signed.pdf
6				NCR: - NCR19832 Signed.pdf
7				NCR: - ncr19868 signed.pdf
8				NCR: - MTM NC20069 Disposition.pdf
9				NCR: - MTM NC20120 Disposition.pdf
10				NCR: - MTM NC20175 Disposition.pdf
11				Segmentation Scheme: - Numbered Panels (original).TIF
12	1	10		Inspection Data Checklist: 4 steps
13	2	10		Inspection Data Checklist: 1 steps
14	5	195		Map(s): X-RAY MAP - mc113895.tif
15	5	195		Certification: X-RAY CERT - Same as Item #14
16	5	247		Map(s): X-RAY MAP - mc118511.tif
17	5	247		Certification: X-RAY CERT - Same as Item #16

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

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
18	98	30		Inspection Data Checklist: 1 steps
19	98	130		Inspection Data Checklist: 1 steps
20	98	150		Inspection Data Checklist: 1 steps
21	111	30		Inspection Data Checklist: 1 steps
22	111	130		Inspection Data Checklist: 1 steps
23	111	150		Inspection Data Checklist: 1 steps

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

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
24	96	30		Inspection Data Checklist: 1 steps
25	96	130		Inspection Data Checklist: 1 steps
26	96	150		Inspection Data Checklist: 1 steps
27	110	30		Inspection Data Checklist: 1 steps
28	110	130		Inspection Data Checklist: 1 steps
29	110	150		Inspection Data Checklist: 1 steps

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

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

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
30	5	60		Inspection Data Checklist: 1 steps
31	5	160		Inspection Data Checklist: 1 steps
32	5	180		Inspection Data Checklist: 1 steps
33	5	243		Inspection Data Checklist: 6 steps

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

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
34	6	70		Inspection Data Checklist: 2 steps
35	6	170		Inspection Data Checklist: 2 steps
36	6	190		Inspection Data Checklist: 2 steps
37	6	400		Map(s): X-RAY MAP - MC111823.TIF
38	6	400		Certification: X-RAY CERT - Same as Item #37
39	94	70		Inspection Data Checklist: 2 steps
40	94	170		Inspection Data Checklist: 2 steps
41	94	190		Inspection Data Checklist: 2 steps
42	94	400		Certification: X-RAY CERT - mc120586.tif
43	94	400		Map(s): X-RAY MAP - Same as Item #42

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

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
44	95	60		Inspection Data Checklist: 2 steps
45	95	160		Inspection Data Checklist: 2 steps
46	95	180		Inspection Data Checklist: 2 steps
47	109	60		Inspection Data Checklist: 2 steps
48	109	160		Inspection Data Checklist: 2 steps
49	109	180		Inspection Data Checklist: 2 steps

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

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
50	11	30		Inspection Data Checklist: 1 steps
51	11	130		Inspection Data Checklist: 1 steps
52	11	150		Inspection Data Checklist: 1 steps
53	106	30		Inspection Data Checklist: 1 steps
54	106	130		Inspection Data Checklist: 1 steps
55	106	150		Inspection Data Checklist: 1 steps

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

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
56	8	30		Inspection Data Checklist: 1 steps
57	8	130		Inspection Data Checklist: 1 steps
58	8	150		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**

59	103	30	Inspection Data Checklist: 1 steps
60	103	130	Inspection Data Checklist: 1 steps
61	103	150	Inspection Data Checklist: 1 steps

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

<b>Item#</b>	<b>Sub</b>	<b>Op</b>	<b>Pc</b>	<b>Document Description / Material Description / File Name / Heat Lot</b>
62	7	30		Inspection Data Checklist: 1 steps
63	7	130		Inspection Data Checklist: 1 steps
64	7	150		Inspection Data Checklist: 1 steps
65	102	30		Inspection Data Checklist: 1 steps
66	102	130		Inspection Data Checklist: 1 steps
67	102	150		Inspection Data Checklist: 1 steps

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

<b>Item#</b>	<b>Sub</b>	<b>Op</b>	<b>Pc</b>	<b>Document Description / Material Description / File Name / Heat Lot</b>
68	6	250		Inspection Data Checklist: 1 steps
69	6	350		Inspection Data Checklist: 1 steps
70	6	370		Inspection Data Checklist: 1 steps
71	94	250		Inspection Data Checklist: 1 steps
72	94	350		Inspection Data Checklist: 1 steps
73	94	370		Inspection Data Checklist: 1 steps

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

<b>Item#</b>	<b>Sub</b>	<b>Op</b>	<b>Pc</b>	<b>Document Description / Material Description / File Name / Heat Lot</b>
74	97	30		Inspection Data Checklist: 1 steps
75	97	130		Inspection Data Checklist: 1 steps
76	97	150		Inspection Data Checklist: 1 steps
77	114	30		Inspection Data Checklist: 1 steps
78	114	130		Inspection Data Checklist: 1 steps
79	114	150		Inspection Data Checklist: 1 steps

**SE120-003 - VVSA 120 DEG. VESSEL**

<b>Item#</b>	<b>Sub</b>	<b>Op</b>	<b>Pc</b>	<b>Document Description / Material Description / File Name / Heat Lot</b>
80	2	20		Certification: THERMAL CYCLE CERTIFICATE -
81	2	20		Furnace charts: THERMOCOUPLE CHART -

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

<b>Item#</b>	<b>Sub</b>	<b>Op</b>	<b>Pc</b>	<b>Document Description / Material Description / File Name / Heat Lot</b>
82	131	10		Inspection Data Checklist: 2 steps
83	131	20		Inspection Data Checklist: 2 steps
84	131	30		Inspection Data Checklist: 6 steps

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



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

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
85	120	10		Inspection Data Checklist: 4 steps
86	120	20		Inspection Data Checklist: 4 steps

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

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
87	132	10		Inspection Data Checklist: 2 steps
88	132	20		Inspection Data Checklist: 2 steps
89	132	30		Inspection Data Checklist: 6 steps

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

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
90	133	10		Inspection Data Checklist: 2 steps
91	133	20		Inspection Data Checklist: 2 steps
92	133	30		Inspection Data Checklist: 6 steps

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

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
93	134	10		Inspection Data Checklist: 2 steps
94	134	20		Inspection Data Checklist: 2 steps
95	134	30		Inspection Data Checklist: 6 steps

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

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
96	135	10		Inspection Data Checklist: 2 steps
97	135	20		Inspection Data Checklist: 2 steps
98	135	30		Inspection Data Checklist: 6 steps

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

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
99	136	10		Inspection Data Checklist: 2 steps
100	136	20		Inspection Data Checklist: 2 steps
101	136	30		Inspection Data Checklist: 6 steps

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

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
102	137	10		Inspection Data Checklist: 2 steps
103	137	20		Inspection Data Checklist: 2 steps
104	137	30		Inspection Data Checklist: 7 steps

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

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
105	127	10		Inspection Data Checklist: 2 steps
106	127	20		Inspection Data Checklist: 2 steps

**Customer: 8780 - PRINCETON PLASMA PHYSICS LAB**  
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**Customer Part ID: SE120-002 - VVSA 120 DEGREE VESSEL PERIOD**

107 127 30 Inspection Data Checklist: 6 steps

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

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
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108	128	10		Inspection Data Checklist: 2 steps
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109	128	20		Inspection Data Checklist: 2 steps
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110	128	30		Inspection Data Checklist: 6 steps
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**SE120-003-7 - PORT # 5 EXTENSION**

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
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111	129	10		Inspection Data Checklist: 2 steps
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112	129	20		Inspection Data Checklist: 2 steps
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113	129	30		Inspection Data Checklist: 6 steps
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**SE120-003-9 - PORT # 6 EXTENSION**

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
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114	130	10		Inspection Data Checklist: 2 steps
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115	130	20		Inspection Data Checklist: 2 steps
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116	130	30		Inspection Data Checklist: 6 steps
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**SE120-003-DOME A - PORT EXT. SUB-ASSY**

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
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117	122	10		Inspection Data Checklist: 4 steps
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118	122	20		Inspection Data Checklist: 2 steps
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**SE120-005-41 - PORT 5 BACKING STRIP**

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
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119	145	10		Inspection Data Checklist: 1 steps
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120	145	10	10	Material Certification: / SE120-005-41 - VVSA PORT 5 BACKING STRIP - mc109512.tif / 2650 5 6801
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**SE120-003-NB**

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
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121	119	10		Inspection Data Checklist: 2 steps
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**SE120-004 - VVSA 120 DEG. VESSEL**

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
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122	1	20		Inspection Data Checklist: 19 steps
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123	1	30		Inspection Data Checklist: 3 steps
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124	2	60		Inspection Data Checklist: 6 steps
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**SE120-004-17A - PORT EXT. SUB-ASSY**

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
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125	125	10		Inspection Data Checklist: 4 steps
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126	125	20		Inspection Data Checklist: 2 steps
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**Customer: 8780 - PRINCETON PLASMA PHYSICS LAB**  
**Customer P.O.: S005243-F**  
**Customer Part ID: SE120-002 - VVSA 120 DEGREE VESSEL PERIOD**

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

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
127	126	10		Inspection Data Checklist: 4 steps
128	126	20		Inspection Data Checklist: 2 steps

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

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
129	123	10		Inspection Data Checklist: 36 steps
130	123	20		Inspection Data Checklist: 18 steps

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

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
131	121	10		Inspection Data Checklist: 4 steps
132	121	20		Inspection Data Checklist: 2 steps

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

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
133	143	10	10	Material Certification: / 316L_271 - TUBE,RND,SST, SEAMLESS, .125" OD X .03"W - mc109194.tif / 2D994

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

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
134	142	10	10	Material Certification: / INCONEL 625_654 - FOIL, NICKEL ALLOY .010" THK - mc109089.tif / 265096802

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

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
135	138	10		Inspection Data Checklist: 1 steps
136	138	10	10	Material Certification: / SE120-005-40 - VVSA PORT 2 BACKING STRIP - mc109510.tif / 2650 5 6801

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

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
137	146	10		Inspection Data Checklist: 1 steps
138	146	10	10	Material Certification: / SE120-005-42 - VVSA PORT 6 BACKING STRIP - mc109509.tif / 2650 5 6801

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

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
139	147	10		Inspection Data Checklist: 1 steps
140	147	10	10	Material Certification: / SE120-005-43 - VVSA PORT 7 BACKING STRIP - mc109514.tif / 2650 5 6801

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

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
141	148	10		Inspection Data Checklist: 1 steps
142	148	10	10	Material Certification: / SE120-005-44 - VVSA PORT 8 BACKING STRIP - mc109513.tif / 2650 5 6801

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

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

143	149	10		Inspection Data Checklist: 1 steps
144	149	10	10	Material Certification: / SE120-005-45 - VVSA PORT 9 BACKING STRIP - mc109562.tif / 2650 5 6801

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

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
145	150	10		Inspection Data Checklist: 1 steps
146	150	10	10	Material Certification: / SE120-005-46 - VVSA PORT 10 BACKING STRIP - mc109515.tif / 2650 5 6801

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

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
147	151	10		Inspection Data Checklist: 1 steps
148	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 Description / Material Description / File Name / Heat Lot
149	152	10		Inspection Data Checklist: 1 steps
150	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 Description / Material Description / File Name / Heat Lot
151	144	10		Inspection Data Checklist: 1 steps
152	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 Description / Material Description / File Name / Heat Lot
153	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 Description / Material Description / File Name / Heat Lot
154	154	10	10	Material Certification: / INCONEL 625_8 - PLATE,NICKEL ALLOY 1.625" THK - mc110171.tif / 5L211-1A
155	156	10	10	Material Certification: / INCONEL 625_8 - PLATE,NICKEL ALLOY 1.625" THK - Same as Item #154 / 5L211-1A

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

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
156	193	60		Inspection Data Checklist: 5 steps

**SE121-013-1 - VVSA FLANGE Qty: 1**

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
157	219	30		Certification: X-RAY CERT - mc113900.tif

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

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
158	193	15		Inspection Data Checklist: 2 steps

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

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

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
159	206	30		Inspection Data Checklist: 1 steps
160	206	130		Inspection Data Checklist: 1 steps
161	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 Description / Material Description / File Name / Heat Lot
162	205	30		Inspection Data Checklist: 1 steps
163	205	150		Inspection Data Checklist: 1 steps
164	205	130		Inspection Data Checklist: 1 steps

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

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
165	209	30		Inspection Data Checklist: 1 steps
166	209	130		Inspection Data Checklist: 1 steps
167	209	150		Inspection Data Checklist: 1 steps

SE121-014 - VESSEL SPACER

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
168	193	12		Inspection Data Checklist: 4 steps
169	193	13		Inspection Data Checklist: 1 steps
170	193	14		Inspection Data Checklist: 4 steps
171	193	25		Certification: X-RAY CERT - mc118510.tif
172	193	25		Map(s): X-RAY MAP - Same as Item #171
173	199	10		Inspection Data Checklist: 3 steps
174	199	30		Inspection Data Checklist: 1 steps

SE121-014-1 - SPACER WELDMENT

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
175	194	60		Inspection Data Checklist: 2 steps
176	194	160		Inspection Data Checklist: 2 steps
177	194	180		Inspection Data Checklist: 2 steps

SE121-014-3BLANK - VVSA SPACER BLANK

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
178	195	10	10	Material Certification: / INCONEL 625_7 - PLATE,NICKEL ALLOY 1.5" THK - mc112435.tif / 2650-5-6861
179	203	10	10	Material Certification: / INCONEL 625_7 - PLATE,NICKEL ALLOY 1.5" THK - Same as Item #178 / 2650-5-6861

SE121-091 - END COVER - 316L

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
180	217	30		Inspection Data Checklist: 1 steps
181	218	30		Inspection Data Checklist: 1 steps

SE121-091-1B

**Customer: 8780 - PRINCETON PLASMA PHYSICS LAB**  
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Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
182	218	10	10	Material Certification: / SE121-091-1BLANK - VVSA END COVER BLANK - MC109666.TIF / 818102

**SE121-091-1P**

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
183	217	10	10	Material Certification: / SE121-091-1BLANK - VVSA END COVER BLANK - Same as Item #182 / 818102

**SE121-095 - VESSEL FLANGE SEAL**

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
184	220	40		Inspection Data Checklist: 2 steps
185	232	40		Inspection Data Checklist: 2 steps

**SE121-095-1 - VVSA FLANGE SEAL - ALLOY 625**

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
186	220	10	10	Material Certification: / SE121-095-1 - VVSA FLANGE SEAL - ALLOY 625 - MC114888.TIF / 2650 5 6805 & 2650 5 6834
187	220	10	10	Material Certification: TRACE ID: 135017 / SE121-095-1 - VVSA FLANGE SEAL - ALLOY 625 - MC114399.TIF / 2650 5 6805
188	232	10	10	Material Certification: TRACE ID: 135016 / SE121-095-1 - VVSA FLANGE SEAL - ALLOY 625 - MC117251.TIF / 2650 5 6834
189	232	10	10	Material Certification: / SE121-095-1 - VVSA FLANGE SEAL - ALLOY 625 - Same as Item #188 / 2650 5 6834

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

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
190	220	10		Inspection Data Checklist: 1 steps
191	224	10		Inspection Data Checklist: 1 steps
192	224	10	10	Material Certification: / SE121-099-1 - VVSA END COVER SEAL - 316L - MC114628.TIF / 819882-117581
193	226	10		Inspection Data Checklist: 1 steps
194	226	10	10	Material Certification: / SE121-099-1 - VVSA END COVER SEAL - 316L - Same as Item #192 / 819882-117581
195	232	10		Inspection Data Checklist: 1 steps

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

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
196	153	10		Inspection Data Checklist: 1 steps

**SE124-047 - CLEVIS BOSS**

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
197	230	10		Inspection Data Checklist: 16 steps

**190063 - BOLT SET, .312-24 X 2.0" 12PT SILVER PLT**

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
198	5	250	150	Material Certification: / 190045 - BOLT SET, .312-24 X 2.0" 12PT - MC118213.TIF / CERTIFIED

**WELD WIRE**

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
199	0	10	30	Material Certification: TRACE ID: 41171 / INCONEL625_093_GTAW - WELD WIRE/GTAW, .093 DIA - MC075552.TIF / CB7996 / CT7519 / CV8061 / K48
200	0	10	30	Material Certification: TRACE ID: 83645 / INCONEL625_093_GTAW - WELD WIRE/GTAW, .093 DIA - MC075605.TIF / CB7996 /

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

				CT7519 / CV8061 / K48
201	0	10	30	Material Certification: TRACE ID: 95569 / INCONEL625_093_GTAW - WELD WIRE/GTAW, .093 DIA - MC095629.PDF / CB7996 / CT7519 / CV8061 / K48
202	0	10	30	Material Certification: TRACE ID: 95373 / INCONEL625_093_GTAW - WELD WIRE/GTAW, .093 DIA - MC095872.TIF / CB7996 / CT7519 / CV8061 / K48
203	0	10	30	Material Certification: TRACE ID: 94880 / INCONEL625_093_GTAW - WELD WIRE/GTAW, .093 DIA - MC095280.PDF / CB7996 / CT7519 / CV8061 / K48
204	0	10	30	Material Certification: TRACE ID: 117505 / INCONEL625_093_GTAW - WELD WIRE/GTAW, .093 DIA - MC106871.TIF / CB7996 / CT7519 / CV8061 / K48
205	0	10	30	Material Certification: TRACE ID: 119262 / INCONEL625_093_GTAW - WELD WIRE/GTAW, .093 DIA - MC107551.TIF / CB7996 / CT7519 / CV8061 / K48
206	0	10	30	Material Certification: TRACE ID: 121403 / INCONEL625_093_GTAW - WELD WIRE/GTAW, .093 DIA - MC108429.TIF / CB7996 / CT7519 / CV8061 / K48
207	0	10	30	Material Certification: TRACE ID: 94241 / INCONEL625_093_GTAW - WELD WIRE/GTAW, .093 DIA - MC094945.PDF / CB7996 / CT7519 / CV8061 / K48
208	0	10	40	Material Certification: TRACE ID: 94238 / INCONEL625_062_GTAW - WELD WIRE/GTAW, .062 DIA - MC094944.PDF / 34932 / AB8051 / AV8128
209	0	10	40	Material Certification: TRACE ID: 119208 / INCONEL625_062_GTAW - WELD WIRE/GTAW, .062 DIA - MC107550.TIF / 34932 / AB8051 / AV8128
210	0	10	40	Material Certification: TRACE ID: 121606 / INCONEL625_062_GTAW - WELD WIRE/GTAW, .062 DIA - MC108415.TIF / 34932 / AB8051 / AV8128
211	0	10	40	Material Certification: TRACE ID: 94881 / INCONEL625_062_GTAW - WELD WIRE/GTAW, .062 DIA - MC095279.PDF / 34932 / AB8051 / AV8128
212	0	10	50	Material Certification: TRACE ID: 128464 / ER70S-2_093_GTAW - WELD WIRE,GTAW .093 DIA - MC111269.TIF / X01823
213	0	10	60	Material Certification: TRACE ID: 89286 / ER309L_093_GTAW - WELD WIRE,GTAW .093 DIA - MC092279.TIF / 21010424
214	0	10	70	Material Certification: / ER316L_062_GTAW - WELD WIRE, GTAW .062" DIA - MC089458.TIF / 95316
215	0	10	80	Material Certification: / ER316L_093_GTAW - WELD WIRE,GTAW .093 DIA - MC097557.TIF / 95762
216	0	10	90	Material Certification: / INCONEL625_035_GMAW - WELD WIRE/GMAW, .035 DIA - MC109152.TIF / XB8273



TO: PRINCETON PLASMA PHYSICS LAB

DATE: 07/31/2006

ATTENTION: Receiving Department

**Seller certifies that:**

Part Number: SE120-002

Purchase Order: S005243-F

Part Name: VVSA 120 DEGREE VESSEL PERIOD

Workorder: 65678/2.0

Part Serial Number: N/A

Quantity: 1

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

**Certifications are on file at this plant.**

**Other Requirements:**

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

Signature: Corky Jenaki

Title: QUALITY INSPECTOR

Date: 7-31-06



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**Customer: PRINCETON PLASMA PHYSICS LAB**

Contact: Mike Viola  
E-Mail: mviola@pppl.gov

Telephone: 609-243-3655  
Fax: 609-243-3248

**Part: /**

Drawing ID: SE120-003

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.

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**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).

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Number of additional pages: 0

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

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

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

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

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

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

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

Nonconformance Report: Major Tool 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:**

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Procurement Technical Representative

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Responsible Line Manager:

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Project Quality Assurance:

**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 was welded as a continuous fillet opposed to the specified intermittent weld.

Clevis bosses: Added a 3/16 fillet to the exterior side of the joint.

**Proposed Disposition:**

SUBMITTING TO PPPL FOR APPROVAL

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

**Customer Disposition:**     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 -0400    **Title:** \_\_\_\_\_    **Date:** \_\_\_\_\_

**Buyer Approval:** Brad Nelson Digitally signed by Brad Nelson  
DN: cn=Brad Nelson, c=US, o=ORNL, ou=FED,  
email=nelsonbe@ornl.gov  
Date: 2006.04.10 11:27:27 -0400    **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 through the 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.

**Customer: PRINCETON PLASMA PHYSICS LAB**

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

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

**Part: /**

Drawing ID: SE120-004                      Revision: 2  
Links: 1-Type:W: 65678/2.0 Sub: 5 Op: 243

Customer P.O.: S005243-F/Ln:2  
Serial No./Qty:

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

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

Problem: THE RESULT OF PROFILE DEVIATION ON THE VESSEL ENDS CAUSES A MIS-ALIGNMENT TO THE VESSEL FLANGES. REFER TO PHOTOS FOR ADDITIONAL DESCRIPTION.

**Proposed Disposition:**

Summary of repair procedure is attached and will be performed during normal manufacturing routing execution. TL will confirm when completed.

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: CONTROL OF VESSEL END PROFILE HAS PROVEN TO BE MORE DIFFICULT THAN ORIGINALLY ANTICIPATED. MODIFICATIONS TO THE FABRICATION PROCESS AND DISTORTION CONTROL TECHNIQUES BASED ON LOT 1 EXPERIENCE HAVE IMPROVED THE PROFILE BUT OUT OF TOLERANCE CONDITIONS STILL EXIST.

**Corr Actn: 1:**

Action: 04/13/06 By: 775-D.MCCORKLE

Description: THE CONDITION WILL BE CORRECTED ACCORING TO THE ATTACHED DOCUMENTATION DURING FOLLOWING MANUFACTURING SEQUENCES. TL WILL CONFIRM WHEN COMPLETED



For VVSA2.doc



For VVSA2 telecon notes.doc

**Approvals:**

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Procurement Technical Representative

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Responsible Line Manager:

Nonconformance Report: Major Tool NC19562

This is for SE120-004 VVSA #2 end flange fit up and weld.

Problem:

THE RESULT OF PROFILE DEVIATION ON THE VESSEL ENDS CAUSES A MIS-ALIGNMENT TO THE VESSEL FLANGES. REFER TO PHOTOS FOR ADDITIONAL DESCRIPTION.

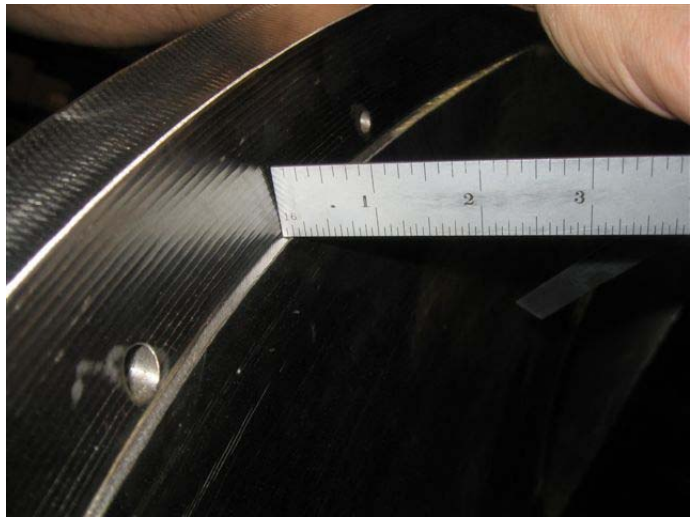
MTM Recommended Disposition:

RECOMMEND LEAVING THE VESSEL WALL IN ITS CURRENT POSITION AND ALTERING THE WELD SCHEME TO BLEND THE TWO SURFACES TOGETHER IF NO ASSEMBLY OR PLASMA INTERFERENCE EXIST

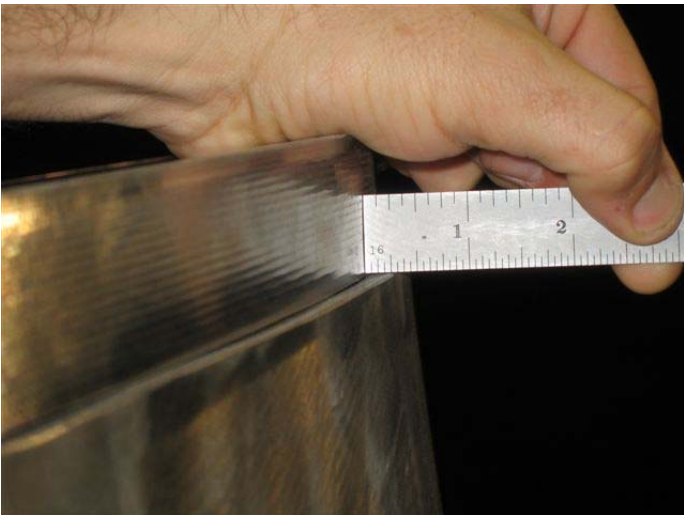
See pictures below:



8 O'clock Inside of Flange B



8 O'clock Inside of Flange B

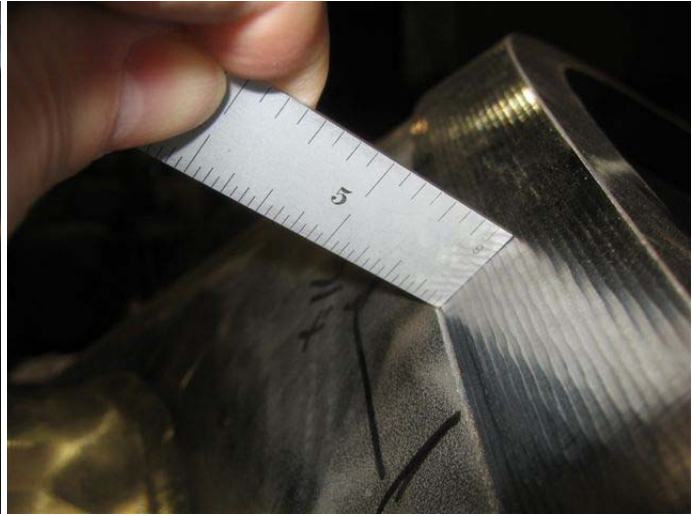


2 O'clock Outside of Flange B





8 O'Clock Inside of Flange A (nearly flush)



10 O'clock outside of Flange A

**Project Disposition:**

Rework as Recommended by MTM.  
Ensure weld size is equal or greater to original.

**Major Tool Response:**

**Root Cause 1: 802-MANAGEMENT DECISION**

Resource: SILVER TEAM, ENGINEERING

Description: CONTROL OF VESSEL END PROFILE HAS PROVEN TO BE MORE DIFFICULT THAN ORIGINALLY ANTICIPATED. MODIFICATIONS TO THE FABRICATION PROCESS AND DISTORTION CONTROL TECHNIQUES BASED ON LOT 1 EXPERIENCE HAVE IMPROVED THE PROFILE BUT OUT OF TOLERANCE CONDITIONS STILL EXIST.

**Corr Actn: 1: Action:** 04/13/06 By: 775-D.MCCORKLE

Description: THE CONDITION WILL BE CORRECTED ACCORDING TO THE ATTACHED DOCUMENTATION DURING FOLLOWING MANUFACTURING SEQUENCES. TL WILL CONFIRM WHEN COMPLETED

**For VVSA2, End A:**

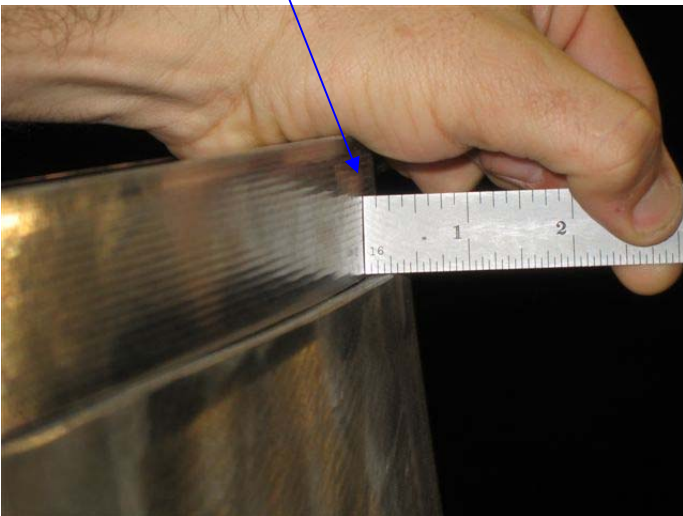
- The inside end of the vessel with the tolerances achieved is ACCEPTABLE as is.
- The vessel wall tolerance is +/- 0.188".
- NCSX assumed a tolerance of +/-0.188". this means that the flange can be in as much as 0.188" from an IDEAL wall position.
- Criteria for MTM:
  - MTM has completed the vessel shell forming and measured them. It is generally within the specified +/- 0.188" with a few local regions slightly deviating from this.
  - MTM machined the flanges to an assumed tolerance of +/-0.188". Any deviations beyond this +/-0.188 requires a NCR for either the pre-welded or post-welded condition.
  - Where the flange deviation combined with the shell deviation creates a poor match-up for welding an NCR shall be submitted with proposed corrective action.
- The current flange fits up to the vessel within the profile of the vessel shell everywhere but a few locations (need to add pict.)



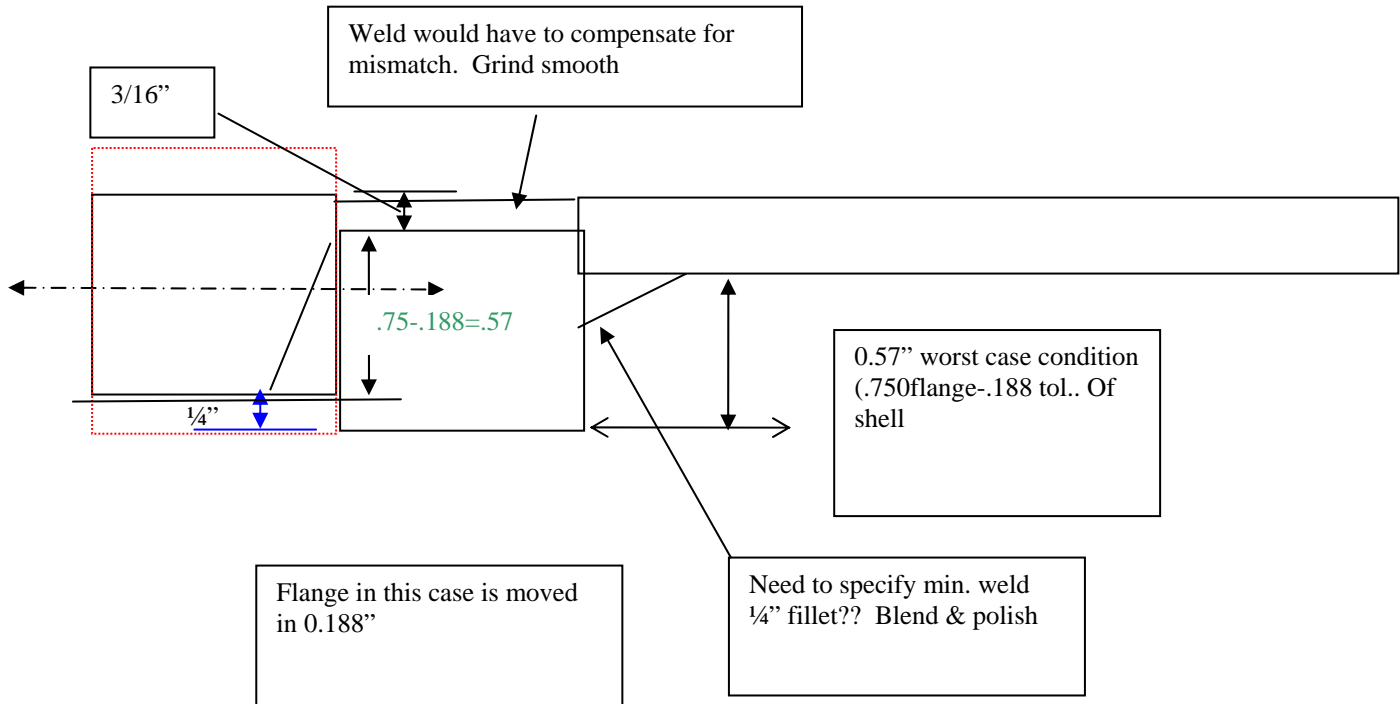


Will probably lose fiducial holes and clamp holes to “buttering” weld. These welds would have to be made without heavy cover plate welded on to heat sink & hold flange. Consider doing “buttering” as part of field weld process

Flange to the outside of the vessel by ~0.125-0.188 “ over a length of ~ 12 “



If the vessel max. outwards tolerance coincided with the flange maximum inwards tolerance, this would be the condition



For VVSA2, end A, this maximum encroachment was evaluated by Art and is acceptable in the pre-welded condition.

Assuming that field weld shrinkage might move the wall and flange inwards by another 0.010'', this would still be acceptable.

#### Proposed fix for VVSA #2 and #3 end flanges

There are two conditions of concern from a VV assy viewpoint:

- A. shell outer surface is outside flange od, or
- B. shell inner surface is inside of shell id

A. shell outer surface is outside flange od: MTM to do the following

- Make inside weld between flange and shell and clean up
- Weld leak check cover plate on
- Finish shell to flange weld on outside and butter up od of flange to match or exceed outside surface of shell
- Perform leak check
- Remove leak check cover plate
- Clean up face surface of flanges
- $3/8$  minimum weld throat, smoothed out and blended for vacuum service on inside

B. Shell inner surface is inside of shell id:

- PPPL will butter up id of flange by carrying assembly weld over to shell

## Lonaker, Corky

---

**From:** Michael E. Viola [mviola@pppl.gov]  
**Sent:** Tuesday, May 23, 2006 1:07 PM  
**To:** Manuel, Mike; McCorkle, Doug  
**Cc:** Thomas G. Brown; Arthur W. Brooks; Cole, Michael; Bradley E. Nelson; Goranson, Paul L.; Steve Raftopoulos; Bob Simmons; Bradley E. Nelson; Frank A. Malinowski; Jim Lyon; Larry L. Sutton; Lawrence E. Dudek; Marianne Tyrrell; Paul Goranson; Phil Heitzenroeder; Wayne T. Reiersen  
**Subject:** RE: VVSA 2 after vacuum test scans

Mike and Doug,  
The best fit of the skin results in:

Total Points:	9320
Number of OOT:	757
Average Deviation:	-0.00378
Maximum Deviation:	0.43864
Minimum Deviation:	-0.36430
Deviation Range:	0.80294

The best fit including the port12s and NB:

Total Points:	12457
Number of OOT:	1115
Average Deviation:	0.00458
Maximum Deviation:	0.44905
Minimum Deviation:	-0.40803
Deviation Range:	0.85707

And the position of the port 12s after only a best fit of the skin:

Total Points:	2883
Number of OOT:	1130
Average Deviation:	0.06689
Maximum Deviation:	0.58223
Minimum Deviation:	-0.58354
Deviation Range:	1.16577

The best fit of the vessel with the ports is nearly the same as the best fit of the shell alone AND the position of the port 12s included after the best fit of the skin only is significantly worse (+/- .58"). Therefore, please use the file "65678-2AFTER VACCUM VESSEL PORT 12 AND NB PORT BEST FIT"

Thanks,

Mike Viola, PPPL, (609) 243 3655

-----Original Message-----

**From:** Thomas G. Brown  
**Sent:** Monday, May 22, 2006 5:20 PM  
**To:** Arthur W. Brooks; Michael E. Viola; 'Cole, Michael'; Bradley E. Nelson; 'Goranson, Paul L.'  
**Cc:** Steve Raftopoulos; Bob Simmons; Bradley E. Nelson; Frank A. Malinowski; 'Jim Lyon'; Larry L. Sutton; Lawrence E. Dudek; Marianne Tyrrell; 'Paul Goranson'; Phil Heitzenroeder; Wayne T. Reiersen  
**Subject:** RE: VVSA 2 after vacuum test scans

Mike,

I looked at only the file "65678-2AFTER VACCUM VESSEL PORT 12 AND NB PORT BEST FIT". I looked at 97 points in the plus direction ranging from +0.1" to 0.26" which were all on the vessel surface. There was no violation in the stay out boundary for rotating the MC over the vessel. I also look at 46 points that were out of tolerance in the negative direction in the range of -.1" to -0.22". All the negative out-of-tolerance points were on the shell (Art checked) except for two points on the vertical port (port 12). I don't

know if it's too late but this case would be my choice to select since I believe it is the best fit of the ports and the VV surface looks good; much better than VVSA1.

Tom

-----Original Message-----

From: Arthur W. Brooks  
Sent: Friday, May 19, 2006 4:01 PM  
To: Michael E. Viola; 'Cole, Michael'; Thomas G. Brown; Bradley E. Nelson; 'Goranson, Paul L.'  
Cc: Steve Raftopoulos; Bob Simmons; Bradley E. Nelson; Frank A. Malinowski; Jim Lyon; Larry L. Sutton; Lawrence E. Dudek; Marianne Tyrrell; 'Paul Goranson'; Phil Heitzenroeder; Wayne T. Reiersen  
Subject: RE: VVSA 2 after vacuum test scans

Mike,

None of the VVSA2 data show encroachment on the First Wall Geometry.

The attached plots shows that both the fit to the skin and the fit to skin with ports (labeled just ports) are a slight improvement (increased clearances to the FW) over the no fit data. Recall that the design envelope allows the VV shell outer surface to get within 1.005" of the FW face over a limited range of the vessel and grow to the preferred build of 3.555" +/- 0.188". We are trying not to either further encroach on the FW at it's tightest location nor reduce the region of full build. The data shows that both fits accomplish this. The no fit data shows a slight reduction in the region of full build, but not a reduction/encroachment at the tightest location.

The decision as to which fit to use should be driven by other external considerations (ie assembly, etc) since either fit is satisfactory with respect to the FW issue.

Art

-----Original Message-----

From: Michael E. Viola  
Sent: Friday, May 19, 2006 2:06 PM  
To: Arthur W. Brooks; 'Cole, Michael'; Thomas G. Brown; Bradley E. Nelson; 'Goranson, Paul L.'  
Cc: Steve Raftopoulos; Bob Simmons; Brad Nelson; Frank A. Malinowski; Jim Lyon; Larry L. Sutton; Lawrence E. Dudek; Marianne Tyrrell; Paul Goranson; Phil Heitzenroeder; Wayne T. Reiersen  
Subject: VVSA 2 after vacuum test scans

Please look at the VVSA 2 folder in the public folder on the FTP site.

They have scans after the vacuum test.

Some are raw without a best fit.

Some are with the best fit of the shell

Some are of the best fit of the shell with the ports included.

They are asking which file to use as their basis for the port cutting off and reattachment?

they are looking for an answer this afternoon.

Thanks,

Mike Viola, PPPL, (609) 243 3655

---

**Customer: PRINCETON PLASMA PHYSICS LAB**

Contact: Mike Viola  
E-Mail: mviola@pppl.gov

Telephone: 609-243-3655  
Fax: 609-243-2021

**Part: SE120-002 / PPPL NCSX VVSA**

Drawing ID: SE120-002                      Revision: 1

Customer P.O.: S005243-F/Ln:2  
Serial No.: VVSA # 2

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

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

Problem: During vacuum testing operation, the high vacuum gauge display would not illuminate (PPPL MKS Type 290 SP54-83 ION gauge controller).  
A replacement gauge was not readily available. After discussion with Mike Viola, it was decided to continue with the test if we could verify the leak detector could accurately read the standard leak positioned at the opposite end of the vessel.  
All three low pressure gauges were pegged at zero for at least 14 hours prior to the test. The turbo-molecular pump had been running for approximately 8 hours prior to the test. The MTM leak detector (Varian 979) was valved in, and the PPPL roughing skid valved out and shut off. Once the leak detector was ready, the test port pressure was (0.0 x 10<sup>-4</sup>). The MTM leak detector instantly recognized the standard leak located at the opposite end of the vessel when activated. After the standard leak helium was evacuated (waited approximately 1/2 hour), the leak test was performed and revealed no leaks. All welds and seals were sprayed, then the entire vessel was saturated. No response from the leak detector.

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**Proposed Disposition:**

HOLD FOR CUSTOMER DISPOSITION

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Number of additional pages: 0

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

**Technical Contact Approval:** \_\_\_\_\_ **Title:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**Buyer Approval:** \_\_\_\_\_ **Title:** \_\_\_\_\_ **Date:** \_\_\_\_\_

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

Nonconformance Report: Major Tool NC19832

This is for: **VVSA # 2 Leak Check**

**Problem:**

During vacuum testing operation, the high vacuum gauge display would not illuminate (PPPL MKS Type 290 SP54-83 ION gauge controller).

See further detail above regarding steps taken to verify validity of Vacuum leak check parameters.

The Major Tool Standard leak is 7.21E-8

**Project Disposition:**

Accept As Is

**Approvals:**

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Procurement Technical Representative

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Responsible Line Manager:

**Customer: PRINCETON PLASMA PHYSICS LAB**

Contact: Mike Viola  
E-Mail: mviola@pppl.gov

Telephone: 609-243-3655  
Fax: 609-243-2021

Part: /  
Drawing ID: SE120-003                      Revision: 0

Customer P.O.: S005243-F/Ln:2  
Qty: 1

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. ALSO, THE FACE OF PORT NB HAS GONE OUT OF FLAT BY APPROXIMATELY 1/16".

**Proposed Disposition:**

This issue was originally grouped (all three lots) within NCR 19289.  
The creation of 19868 and 19869 separates each lot for individual attention.  
Recommend facing the port flange face flat and boring the holes to 5/8" diameter to provide necessary clearance.

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: DOUG MCCORKLE

Title: PROJECT ENGINING Date: 27 JUL 2006



**Nonconformance Report: Major Tool NC19868**

**This is for: SE120-003 VVSA # 2 NB port and flange**

**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.  
ALSO, THE FACE OF PORT NB HAS GONE OUT OF FLAT BY APPROXIMATELY 1/16".

**Major Tool recommended Disposition:**

This issue was originally grouped (all three lots) within NCR 19289.  
The creation of 19868 and 19869 separates each lot for individual attention.  
Recommend facing the port flange face flat (not to exceed 1/16") and boring the holes to 5/8" diameter to provide necessary clearance.

**Project Disposition:**

Proceed as recommended:  
"Recommend facing the port flange face flat (not to exceed 1/16") and boring the holes to 5/8" diameter to provide necessary clearance."

**Approvals:**

**Mike Viola**  
Digitally signed by Mike Viola  
DN: cn=Mike Viola, c=US  
Reason: I am approving this document  
Date: 2006.06.16 16:04:02 -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: 2006.06.16 16:22:31 -04'00'

---

Responsible Line Manager:

---

**Customer: PRINCETON PLASMA PHYSICS LAB**

Contact: Mike Viola  
E-Mail: mviola@pppl.gov

Telephone: 609-243-3655  
Fax: 609-243-2021

**Part: / VVSA # 2**

Drawing ID: SE120-004

Revision: 2

Customer P.O.: S005243-F/Ln:2  
Qty: 1

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

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

Problem: The length of port 17a checks from -0.208 / 0.234.

The length of port 4a checks from -0.091 / +0.112.

The length of port 4b checks from -0.090 / +0.121.

Port Dome is slightly misaligned after trimmiming and re-installing (reference photos sent to PPPL via email 07Jun2006)

---

**Proposed Disposition:**

Propose: USE AS IS

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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 NC20069

This is for: **VVSA # 2 Profile** SE120-004

### Problem:

The length of port 17a checks from -0.208 / 0.234.

The length of port 4a checks from -0.091 / +0.112.

The length of port 4b checks from -0.090 / +0.121.

Port Dome is slightly misaligned after trimming and re-installing (reference photos sent to PPPL via email 07Jun2006)

### MTM Recommended Disposition:

Use as is

### Project Disposition:

Use as is

**From:** Thomas G. Brown

**Sent:** Thursday, July 27, 2006 12:12 PM

**To:** Michael E. Viola; Phil Heitzenroeder; Cole, Michael J.; Paul Goranson (goransonpl@ornl.gov); Bradley E. Nelson

**Subject:** VVSA2 NCR review

Mike Cole, Paul Goranson and I have reviewed the three MTM NCR's listed below and provide the following disposition and/or comments.

**NCR 20069:** We agree with the MTM disposition. Use as is.

### Approvals:

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Procurement Technical Representative

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Responsible Line Manager:

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**Customer: PRINCETON PLASMA PHYSICS LAB**

Contact:  
E-Mail: mviola@pppl.gov

Telephone: 609-243-3655  
Fax: 609-243-2021

**Part: / VVSA # 2**

Drawing ID: SE120-004                      Revision: 2

Customer P.O.: S005243-F/Ln:2  
Qty: 1

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

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

Problem: 1.25 +.01 / -.0725 Port NB flange thickness checks 1.220 to 1.280. (after 19868)  
Drawing SE121-013: 0.469 +/- .005 checks .645 - .810.  
Drawing SE121-013: 0.637 +/- .005 checks .600 - .750.

---

**Proposed Disposition:**

Propose: USE AS IS

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Number of additional pages: 0

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

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

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

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

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

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

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

## Nonconformance Report: Major Tool NC20120

This is for: **VVSA # 2 Profile** SE120-004

### Problem:

1.25 +.01 / -.0725 Port NB flange thickness checks 1.220 to 1.280. (after 19868)

Drawing SE121-013: 0.469 +/- .005 checks .645 - .810.

Drawing SE121-013: 0.637 +/- .005 checks .600 - .750.

MTM Proposed Disposition: Use as is.

### Project Disposition:

Use as is.

**From:** Thomas G. Brown

**Sent:** Thursday, July 27, 2006 12:12 PM

**To:** Michael E. Viola; Phil Heitzenroeder; Cole, Michael J.; Paul Goranson (goransonpl@ornl.gov); Bradley E. Nelson

**Subject:** VVSA2 NCR review

### NCR 20120:

1. 1.25 +.01 / -.0725 Port NB flange thickness checks 1.220 to 1.280. (after 19868)

2. Drawing SE121-013: 0.469 +/- .005 checks .645 - .810. (Located at B5 on drawing)

3. Drawing SE121-013: 0.637 +/- .005 checks .600 - .750. (Located at G5 on drawing)

### Comment:

We agree with item 1 (change in NB flange thickness). Use as is. There is some confusion on items 2 and 3 covering se121-013. A PDF drawing is attached. Item 2 covers the locating holes which we thought were to be welded closed or omit, but maybe we're wrong. It appears that the .645 -.810 dimension inspected would make the whole break through the .75" thick part. We agree with the "Use as is" on item 3. This inspection must have been made on the individual part before the flange was welded on the vessel as the seal plate would be welded to the flange; Right?

**Further comment from Mike Viola below explaining Item 2 and 3.**

**This was accepted by Tom Brown and Mike Cole.**

**From:** Michael E. Viola

**Sent:** Friday, July 28, 2006 10:10 AM

**To:** Thomas G. Brown; 'Cole, Michael J.'

**Cc:** 'McCorkle, Doug'; Bob Simmons; Brad Nelson; Frank A. Malinowski; Larry L. Sutton; Lawrence E. Dudek; Marianne Tyrrell; Paul Goranson; Phil Heitzenroeder; Wayne T. Reiersen

**Subject:** Pictures showing end flange thickness and features

Here are some pictures of the end flange which show why the dimension to the hole features in the end flanges are further from the face. The flanges are an inch thick in places.

The flanges were 1.5" original stock. The flange features were put on by translating the measurement to the back side (shell side) of the flange and then machined. The additional material remained on the front side (flange face) for final machining. Evidently the shell was trimmed back a bit too far. When the flange faces were machined to final dimensions extra flange thickness was present therefore the flange features are deeper – further from the face than expected.

**Approvals:**

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Procurement Technical Representative

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Responsible Line Manager:

---

**Customer: PRINCETON PLASMA PHYSICS LAB**

Contact: Mike Viola  
E-Mail: mviola@pppl.gov

Telephone: 609-243-3655  
Fax: 609-243-2021

**Part: / VVSA 2**

Drawing ID: SE120-002

Revision: 1

Customer P.O.: S005243-F/Ln:2  
Qty: 1

Reported By: DOUG MCCORKLE

E-Mail: dMcCorkle@MajorTool.com

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

Problem: The profile of the vessel checks from -0.421 / +0.451 or up to 0.233 under low limit and up to 0.263 over the high limit.

The position of the half a boss a checks 0.320 or up to 0.070 out of tolerance.

The position of the half a boss b checks 0.906 or up to 0.656 out of tolerance.

The position of the half a boss c checks 0.686 or up to 0.436 out of tolerance.

The position of the half a boss d checks 0.344 or up to 0.094 out of tolerance.

The position of the half b boss b checks 0.382 or up to 0.132 out of tolerance.

The position of the half b boss c checks 0.789 or up to 0.539 out of tolerance.

The position of the half b boss d checks 0.593 or up to 0.343 out of tolerance.

The height of the nb port checks 98.388 / 98.482 or up to 0.253 under low limit.

The profile of port 12a checks -0.254 / +0.359 or up to 0.066 under low limit and up to 0.171 over high limit.

The length of port 12b checks from 81.220 / 81.320 or up to 0.150 under the low limit.

The profile of port 12b checks from -0.248 / +0.306 or up to 0.060 under the low limit and up to 0.118 over high limit.

The profile of the nb port checks from -0.329 / +0.145 or up to 0.141 under the low limit.

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**Proposed Disposition:**

Propose: USE AS IS

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Number of additional pages: 0

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

## Nonconformance Report: Major Tool NC20175

This is for: **VVSA # 2 Profile** SE120-002

### Problem:

The profile of the vessel checks from -0.421 / +0.451 or up to 0.233 under low limit and up to 0.263 over the high limit.  
The position of the half a boss a checks 0.320 or up to 0.070 out of tolerance.  
The position of the half a boss b checks 0.906 or up to 0.656 out of tolerance.  
The position of the half a boss c checks 0.686 or up to 0.436 out of tolerance.  
The position of the half a boss d checks 0.344 or up to 0.094 out of tolerance.  
The position of the half b boss b checks 0.382 or up to 0.132 out of tolerance.  
The position of the half b boss c checks 0.789 or up to 0.539 out of tolerance.  
The position of the half b boss d checks 0.593 or up to 0.343 out of tolerance.  
The height of the nb port checks 98.388 / 98.482 or up to 0.253 under low limit.  
The profile of port 12a checks -0.254 / +0.359 or up to 0.066 under low limit and up to 0.171 over high limit.  
The length of port 12b checks from 81.220 / 81.320 or up to 0.150 under the low limit.  
The profile of port 12b checks from -0.248 / +0.306 or up to 0.060 under the low limit and up to 0.118 over high limit  
The profile of the nb port checks from -0.329 / +0.145 or up to 0.141 under the low limit.

### MTM Recommended Disposition:

Use as is.

### Project Disposition:

Use as is.

**From:** Cole, Michael [mailto:colemj@ornl.gov]

**Sent:** Thursday, July 27, 2006 2:56 PM

**To:** Bradley E. Nelson; Paul Goranson; Thomas G. Brown; Phil Heitzenroeder; Frank A. Malinowski

**Subject:** NCR 20175

The following is a review of the information contained in NCR 20175.

Final approval is awaiting on information from MTM regarding the method used to calculate the out of tolerance dimension for the vacuum vessel boss data.

The profile of the vessel checks from -0.421 / +0.451 or up to 0.233 under low limit and up to 0.263 over the high limit.

**This data has been reviewed by Tom Brown and is acceptable (see VVSA2 65678-2 review - Rev1.ppt).**

The position of the half a boss a checks 0.320 or up to 0.070 out of tolerance.

The position of the half a boss b checks 0.906 or up to 0.656 out of tolerance.

The position of the half a boss c checks 0.686 or up to 0.436 out of tolerance.

The position of the half a boss d checks 0.344 or up to 0.094 out of tolerance.

The position of the half b boss b checks 0.382 or up to 0.132 out of tolerance.

The position of the half b boss c checks 0.789 or up to 0.539 out of tolerance.

The position of the half b boss d checks 0.593 or up to 0.343 out of tolerance.

**MTM indicated this information was taken from the latest veri surf data (65678-2-2-70 BOSS FIXT 7-20-06.xls). Requested information on how out of tolerance number was generated from the veri surf data. A review of the veri surf data using Pro E found the boss locations to be acceptable.**

The height of the nb port checks 98.388 / 98.482 or up to 0.253 under low limit.

**The number on drawing se121-004 sht 15 zoneA3 is 98.641inches +/- .125. The number 98.388 was determined by using  $98.641 - .253 = 98.388$ . I understand how this number was obtained and Paul Goranson and I agree that this is acceptable.**



The profile of port 12a checks  $-0.254 / +0.359$  or up to 0.066 under low limit and up to 0.171 over high limit.  
Tom Brown has checked and is acceptable (see VVSA2 65678-2 review - Rev1.ppt).

The length of port 12b checks from 81.220 / 81.320 or up to 0.150 under the low limit.  
Paul Goranson and I reviewed the out of tolerance dimension on the length of port 12b and find this acceptable.

The profile of port 12b checks from  $-0.248 / +0.306$  or up to 0.060 under the low limit and up to 0.118 over highlimit.  
Tom Brown has checked and has found this to be acceptable (see VVSA2 65678-2 review - Rev1.ppt).

The profile of the nb port checks from  $-0.329 / +0.145$  or up to 0.141 under the low limit.  
Paul Goranson and I reviewed the .141 lower limit relative to the profile tolerance of .375 ( $.375/2 +.141 =.329$ ) and agree this is acceptable.

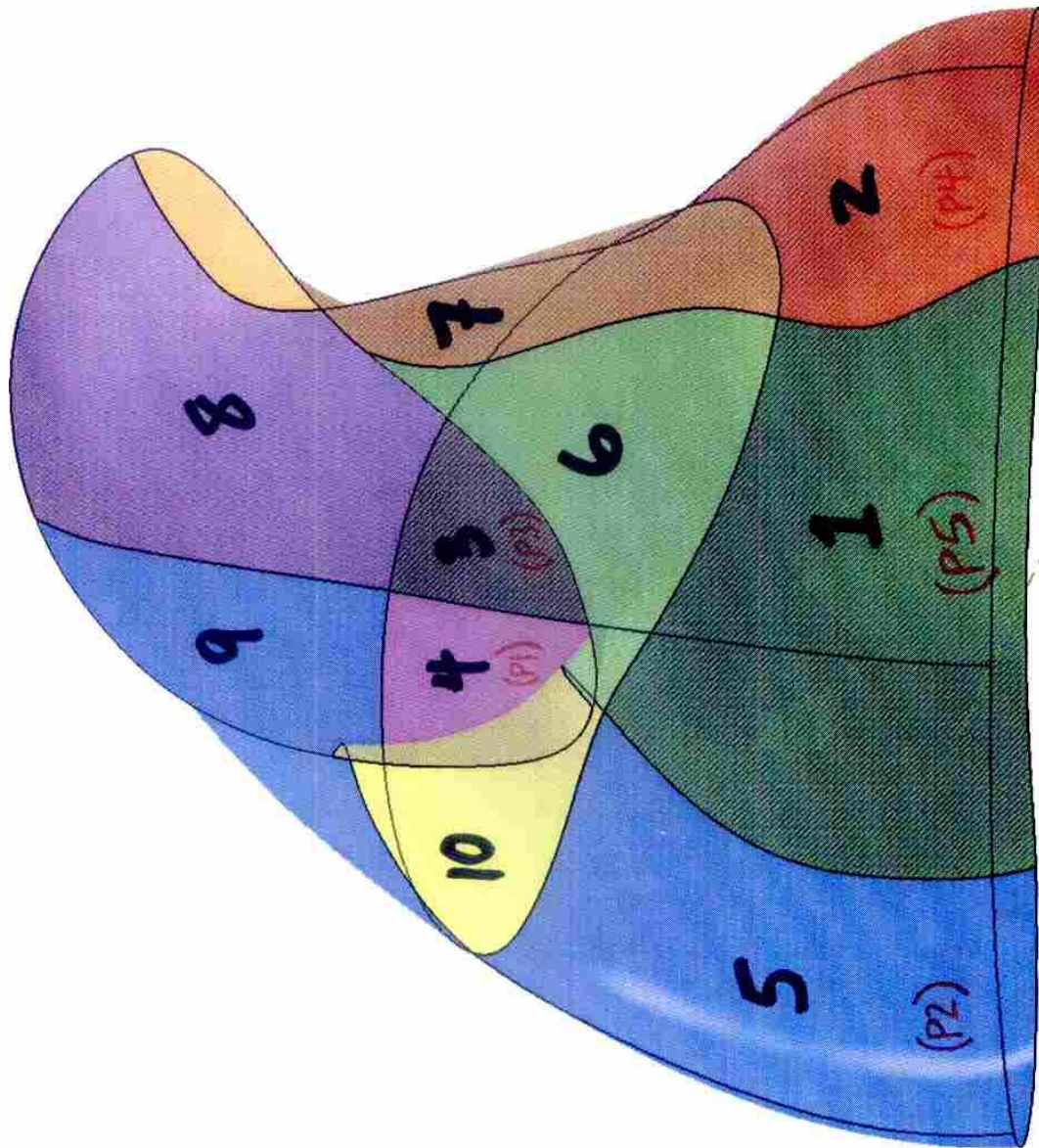
**Approvals:**

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Procurement Technical Representative

---

Responsible Line Manager:



Quality Assurance Documentation for Part ID: SE120-002 - Item: 12

<b>Workorder: 65678/2-0 Sub:1 Op:10</b>
---

Part: SE120-002 - - VVSA 120 DEGREE VESSEL

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	ACCEPTABLE	299-M.G	053-M.D	
(10)		VWI VESSEL FLANGE A SEAL WELD R		CWI				07-12-06	07-12-06	A
*				MFG		VISUAL	OK PER SPEC.	093-M.S	581-D.E	
(20)		VWI VESSEL FLANGE B SEAL WELD R		CWI				07-13-06	07-13-06	A
*				MFG		VISUAL	ACCEPTABLE	299-M.G	053-M.D	
(30)		VWI VESSEL FLANGE A SEAL WELD C		CWI				07-12-06	07-12-06	A
*				MFG		VISUAL	OK PER SPEC.	093-M.S	581-D.E	
(40)		VWI VESSEL FLANGE B SEAL WELD C		CWI				07-13-06	07-13-06	A

Quality Assurance Documentation for Part ID: SE120-002 - Item: 13

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

Part: SE120-002 - - VVSA 120 DEGREE VESSEL

Drawing ID: SE120-002 Rev: 1			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY		
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
*		BASE PRESSURE LESS THAN 1 x 10 <sup>(-3)</sup> (PRIOR TO THERMAL CYCLE)		MFG		VISUAL	VERIFIED WITH PPPL SUPPLIED GAUGES A MTM'S VARIAN 979	581-D.E	840-G.M	
(10)				QA				05-20-06	05-22-06	

A



COOPERHEAT

MQS

MQS Inspection

4959

10520 Chester Road  
Woodlawn, Ohio 45215

CLIENT Major Tool & Machine		INTERPRETER/LEVEL Robert Weaver/II		RADIOGRAPHER Robert Weaver		JOB NO 13850291	P.O. NO N/A	DATE 11/14/05		
ISOTOPE/X-RAY IR192	DIA. X LEN/V .118"x.079"	CURIES/MA 67	FOCAL SPOT SIZE .142"	SFD 35"/12"	SOD 34.625"/11.65"	TIME 14:00/1:45	FILM PROCESSING Auto	FILM TYPE Kodak MX25	FILM TECHNIQUE Double	PB SCREENS .010"
WELD PROCESS GTAW		MATERIAL SPEC. 625 Inconel		MATERIAL DIAMETER N/A	MATERIAL THICKNESS .375"	PENETRATOR ASTM IB	SHIM N/A	ACCEPTANCE STANDARD ASME VIII, Div. 1, UW-51		

DESCRIPTION  
65678/2.0/5/195/88  
SE120-002  
Page 1 of 2

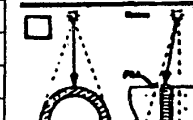
REMARKS

End View | Side View

SINGLE WALL



DOUBLE WALL



P Penetrator  
S Shim  
L Location Marker  
( ) OTHER

FITTING, SEAM OR FITTING	FILM INTERVAL NUMBER	WELDER IDENTIFICATION	PENETRATOR		SLAG	POROSITY	POROSITY WITH TAIL	CRACK	LACK OF PEN	LACK FUSION	INTERNAL CONVEXITY	INTERNAL CONCAVITY	TUNGSTEN	MELT-THROUGH	BURN-THROUGH	CRATER-FIT	OXIDATION	INTERNAL UNDERCUT	EXTERNAL UNDERCUT	ALIGNED INDICATIONS	WELD CONTOUR	MIS-MATCH	FILM ARTIFACT	VISUAL CONCERNS	FILM DENSITY	SEE REMARKS	ACCEPT	REJECT	
			SIZE	QUALITY LEVEL																									
8	0-14	M.S.	IB	.010"		✓																							
10						✓																				✓			
11						✓																				✓			
12						✓																				✓			
23						✓																				✓			
24						✓																				✓			
25						✓																				✓			
27						✓																				✓			

Robert Weaver 655514/II

Cooperheat-MQS Signature

[Signature]

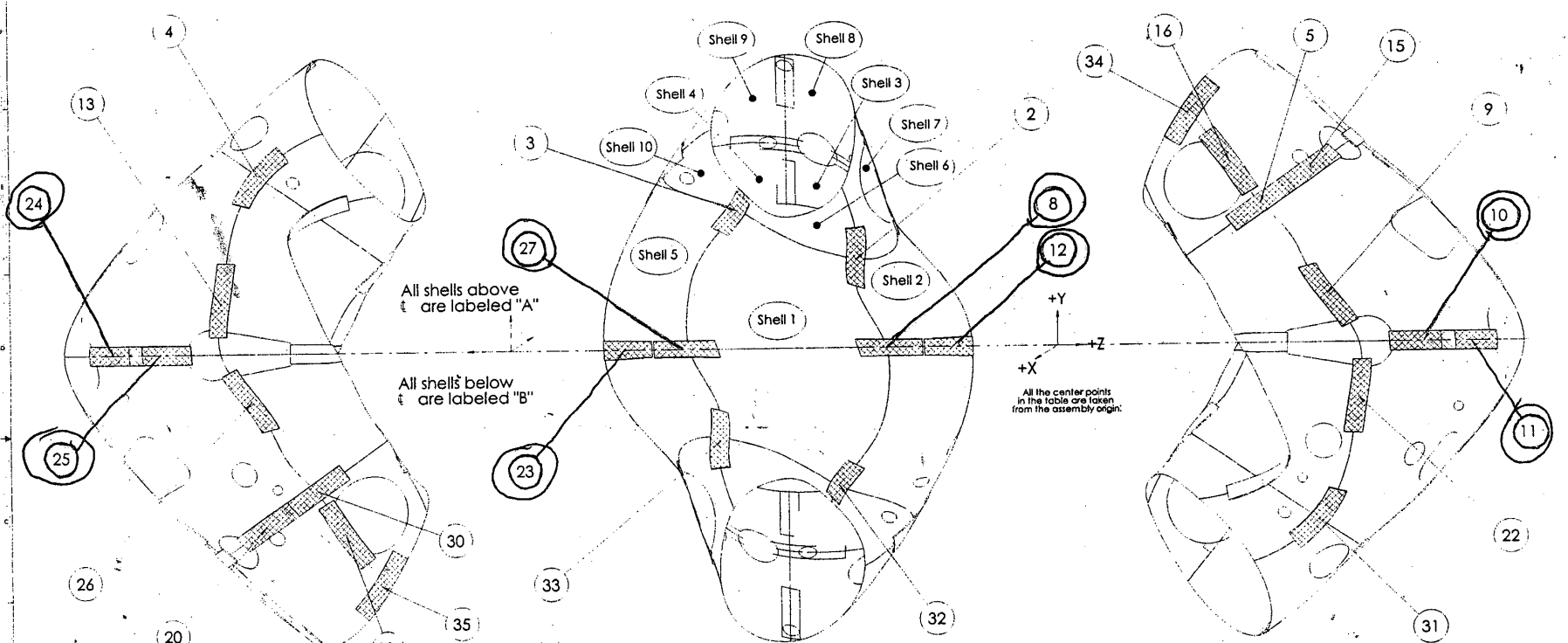
Customer Representative Signature

11/14/05

Date

mci13895.tif (2545x3327x2.tif)

Form	Rev	Description	Date	Appr'd
SA	1	For Model Release	8/1/2005	DCM
SA	1A	Added B/W, Item 3a & 3b	8/1/2005	DCM



Bottom View

All shells above  
are labeled "A"

All shells below  
are labeled "B"

+Y  
+X  
+Z  
All the center points  
in the table are taken  
from the assembly origin.

65678/2.0/5/195/818  
SE120-002  
page 2 of 2  
11/14/05

DATE	DESCRIPTION	BY	CHKD	APP'D

<small>THIS DRAWING IS THE PROPERTY OF CDC/DPH. IT IS TO BE USED FOR THE PURPOSES SPECIFIED IN THE CONTRACT. IT IS NOT TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM, WITHOUT PERMISSION IN WRITING FROM CDC/DPH.</small>	<b>CDC/DPH</b> TITLE: 120° Segment X-Ray Film Layout DATE: 11/14/05 SCALE: 1:1 SHEET: 1A
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mci13895.tif (2542x3334x2.tif) [2]

4959

10520 Chester Road  
Woodlawn, Ohio 45215

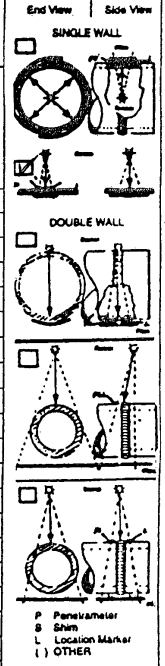


CLIENT Major Tool & Machine		INTERPRETER/LEVEL Robert Weaver / II		RADIOGRAPHER Robert Weaver		JOB NO. 13860001	P.O. NO. N/A	DATE 4/26/06		
ISOTOPE/RAY IR 192	DIA. X LENGTH .118" x .089"	CURIES/MA 40	FOCAL SPOT SIZE .148"	SFD 15"	SOD 14.625"	TIME 2:00	FILM PROCESSING Auto	FILM TYPE Kodak AA	FILM TECHNIQUE Double	PS SCREENS .010"
WELD PROCESS GTAW	MATERIAL SPEC. 625 Inconel	MATERIAL DIAMETER N/A	MATERIAL THICKNESS .375"	PENETRATOR ASTM 1B	SHIM N/A	ACCEPTANCE STANDARD ASME VIII, Div. 1, UW-51				

DESCRIPTION  
65678/20/5/247/818  
SE 120-002 rev. 1  
Page 1 of 2

REMARKS  
Densitometer - 12105  
cal due - 5/2/06

FITTING SEAM OR FITTING	FILM INTERVAL NUMBER	WELDER IDENTIFICATION	PENETRATOR		SLAG	POROSITY	POROSITY WITH TAL	CRACK	LACK OF PEN	LACK OF FUSION	INTERNAL CONVECTY	INTERNAL CONCAVITY	TUNGSTEN	MELT THROUGH	BURN THROUGH	CRATER/FIT	OXIDATION	INTERNAL UNDERCUT	EXTERNAL UNDERCUT	ALIGNED INDICATIONS	WELD CONTOUR	MIS-MATCH	FILM ARTIFACT	VISUAL CONCERNIS	FILM DENSITY	SEE REMARKS	ACCEPT	REJECT
			SIZE	QUALITY LEVEL																								
36	0-1	N/A	1B	.010"		✓																				✓		
37	0-1					✓																				✓		
38	0-10												✓													✓		
39	0-1					✓																				✓		
40	0-1					✓																				✓		
41	0-1					✓																				✓		
42	0-1					✓																				✓		
43	0-10					✓							✓													✓		
44	0-1					✓																				✓		
45	0-0					✓																				✓		
46	0-10					✓																				✓		
47	0-10					✓																				✓		
48	0-10	✓	✓	✓		✓																				✓		

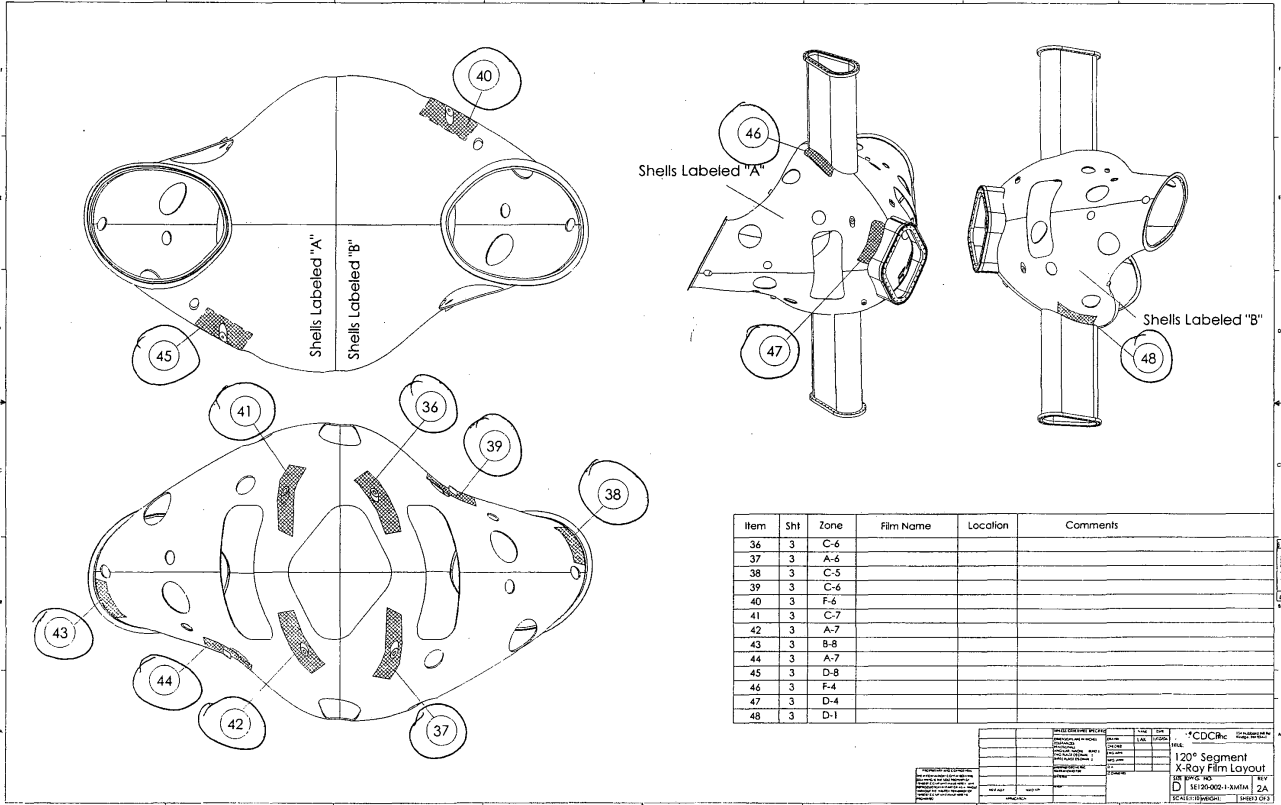


*Robert Weaver 655514/II*  
Cooperheat-MQS Signature

*Douglas D. Edwards*  
Customer Representative Signature

*4/26/06*  
Date

65678/2.0/5/247/818  
 SE 120-000 rev. 1  
 4/27/06  
 Page 2 of 2



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  
 D:\MICROSOFT\AUTUMN 2005\118511\SEGMENT\118511.DWG  
 11/27/05 10:00 AM  
 11/27/05 10:00 AM



Quality Assurance Documentation for Part ID: SE120-003 10-6 SUB-SET - Item: 18

Workorder: 65678/2-0 Sub:98 Op:30

Part: SE120-003 10-6 SUB-SET - - VVSA 120 DEGREE VESSEL

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	ROOT PASS WELD OK	763-R.M	933-D.L	
(10)		VWI ROOT PASS WELD 10-6		CWI				08-09-05	08-09-05	A

**INSPECTION DATA CHECKLIST**

Quality Assurance Documentation for Part ID: SE120-003 10-6 SUB-SET - Item: 19

Workorder: 65678/2-0 Sub:98 Op:130

Part: SE120-003 10-6 SUB-SET - - VVSA 120 DEGREE VESSEL

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

A

**INSPECTION DATA CHECKLIST**

Quality Assurance Documentation for Part ID: SE120-003 10-6 SUB-SET - Item: 20

Workorder: 65678/2-0 Sub:98 Op:150

Part: SE120-003 10-6 SUB-SET - - VVSA 120 DEGREE VESSEL

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

A

Quality Assurance Documentation for Part ID: SE120-003 10-6 SUB-SET - Item: 21

Workorder: 65678/2-0 Sub:111 Op:30

Part: SE120-003 10-6 SUB-SET - - VVSA 120 DEGREE VESSEL

Drawing ID: SE120-004 Rev: 2			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY		
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
*				MFG		VISUAL	ACCEPT PER CUSTOM	709-K.A	933-D.L	
(10)		VWI ROOT PASS WELD 10-6		CWI			DRAWINGS AND SPE FICATIONS.	09-02-05	09-02-05	

A

Quality Assurance Documentation for Part ID: SE120-003 10-6 SUB-SET - Item: 22

Workorder: 65678/2-0 Sub:111 Op:130

Part: SE120-003 10-6 SUB-SET - - VVSA 120 DEGREE VESSEL

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	197-T.FI	933-D.L	
(20)		VWI INTERIOR COVER PASS WELD 10-6		CWI				09-07-05	09-07-05	A

**INSPECTION DATA CHECKLIST**

Quality Assurance Documentation for Part ID: SE120-003 10-6 SUB-SET - Item: 23

Workorder: 65678/2-0 Sub:111 Op:150

Part: SE120-003 10-6 SUB-SET - - VVSA 120 DEGREE VESSEL

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. PERT CUSTOMER	771-B.S	933-D.L	
(20)		VWI EXTERIOR COVER PASS WELD 10-		CWI			REQUIREMENTS	09-09-05	09-09-05	

A

**INSPECTION DATA CHECKLIST**

Quality Assurance Documentation for Part ID: SE120-003 10-6-7 SUB-SET - Item: 24

Workorder: 65678/2-0 Sub:96 Op:30

Part: SE120-003 10-6-7 SUB-SET - - VVSA 120 DEGREE VESSEL

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	ROOT PASS WELD OK	763-R.M	933-D.L	
(10)		VWI ROOT PASS WELD 6-7		CWI				08-09-05	08-09-05	A

Quality Assurance Documentation for Part ID: SE120-003 10-6-7 SUB-SET - Item: 25

Workorder: 65678/2-0 Sub:96 Op:130

Part: SE120-003 10-6-7 SUB-SET - - VVSA 120 DEGREE VESSEL

Drawing ID: SE120-004 Rev: 2		INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
*				MFG		VISUAL	OK	358-D.M	933-D.L	
(20)		VWI INTERIOR COVER PASS WELD 6-7		CWI				08-10-05	08-10-05	

A



Quality Assurance Documentation for Part ID: SE120-003 10-6-7 SUB-SET - Item: 26

Workorder: 65678/2-0 Sub:96 Op:150

Part: SE120-003 10-6-7 SUB-SET - - VVSA 120 DEGREE VESSEL

Drawing ID: SE120-004 Rev: 2		INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
*				MFG		VISUAL	OK	358-D.M	933-D.L	
(20)		VWI EXTERIOR COVER PASS WELD 6-7		CWI				08-10-05	08-10-05	A

Quality Assurance Documentation for Part ID: SE120-003 10-6-7 SUB-SET - Item: 27

Workorder: 65678/2-0 Sub:110 Op:30

Part: SE120-003 10-6-7 SUB-SET - - VVSA 120 DEGREE VESSEL

Drawing ID: SE120-004 Rev: 2			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY		
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
*				MFG		VISUAL	ACCEPT PER CUSTOM	709-K.A	933-D.L	
(10)		VWI ROOT PASS WELD 6-7		CWI			DRAWINGS AND SPE FICATIONS.	09-02-05	09-02-05	

A

**INSPECTION DATA CHECKLIST**

Quality Assurance Documentation for Part ID: SE120-003 10-6-7 SUB-SET - Item: 28

Workorder: 65678/2-0 Sub:110 Op:130

Part: SE120-003 10-6-7 SUB-SET - - VVSA 120 DEGREE VESSEL

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	197-T.FI	933-D.L	
(20)		VWI INTERIOR COVER PASS WELD 6-7		CWI				09-07-05	09-07-05	A

Quality Assurance Documentation for Part ID: SE120-003 10-6-7 SUB-SET - Item: 29

Workorder: 65678/2-0 Sub:110 Op:150

Part: SE120-003 10-6-7 SUB-SET - - VVSA 120 DEGREE VESSEL

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 R	771-B.S	933-D.L	
(20)		VWI EXTERIOR COVER PASS WELD 6-7		CWI			EQUIREMENTS	09-09-05	09-09-05	A

Quality Assurance Documentation for Part ID: SE120-003 120 - Item: 30

Workorder: 65678/2-0 Sub:5 Op:60

Part: SE120-003 120 - - VVSA 120 DEGREE VESSEL

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	933-D.L	933-D.L	
(10)		VWI ROOT PASS WELD 0		CWI				11-01-05	11-01-05	

A

Quality Assurance Documentation for Part ID: SE120-003 120 - Item: 31

Workorder: 65678/2-0 Sub:5 Op:160

Part: SE120-003 120 - - VVSA 120 DEGREE VESSEL

Drawing ID: SE120-004 Rev: 2		INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
* (20)		VWI EXTERIOR COVER PASS WELD 0		MFG CWI		VISUAL	O.K. PER CUSTOMER R EQUIREMENTS	771-B.S 11-14-05	581-D.E 11-14-05	A

Quality Assurance Documentation for Part ID: SE120-003 120 - Item: 32

Workorder: 65678/2-0 Sub:5 Op:180

Part: SE120-003 120 - - VVSA 120 DEGREE VESSEL

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 R	771-B.S	581-D.E	
(20)		VWI INTERIOR COVER PASS WELD 0		CWI			EQUIREMENTS	11-14-05	11-14-05	A

Quality Assurance Documentation for Part ID: SE120-003 120 - Item: 33

Workorder: 65678/2-0 Sub:5 Op:243

Part: SE120-003 120 - - VVSA 120 DEGREE VESSEL

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		VISUAL	VISUALLY ACCEPTAB	791-D.W	933-D.L	
(10)		VWI ROOT PASS WELD VFA		CWI				04-20-06	04-20-06	A
*				MFG		VISUAL	VISUALY ACCEPTABL	837-J.D	053-M.D	
(20)		VWI ROOT PASS WELD VFB		CWI				04-20-06	04-20-06	A
*				MFG		VISUAL	ACCEPTED	299-M.G	933-D.L	
(110)		VWI EXTERIOR COVER PASS WELD VF		CWI				04-21-06	04-24-06	A
*				MFG			ACCEPTED	358-D.M	933-D.L	
(120)		VWI EXTERIOR COVER PASS WELD VF		CWI				04-24-06	04-24-06	A
*				MFG		VISUAL	ACCEPTED	299-M.G	053-M.D	
(130)		VWI INTERIOR COVER PASS WELD VF		CWI				04-21-06	04-21-06	A
*				MFG		VISUAL	GOOD	358-D.M	053-M.D	
(140)		VWI INTERIOR COVER PASS WELD VF		CWI				04-21-06	04-21-06	A



Quality Assurance Documentation for Part ID: SE120-003 30L SUB-ASSY - Item: 34

Workorder: 65678/2-0 Sub:6 Op:70

Part: SE120-003 30L SUB-ASSY - - VVSA 120 DEGREE VESSEL

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
(10)		VWI ROOT PASS WELD 2-3		CWI				08-30-05	08-30-05		
*				MFG		VISUAL	OK	093-M.S	933-D.L		A
(20)		VWI ROOT PASS WELD 4-5		CWI				08-30-05	08-30-05		

Quality Assurance Documentation for Part ID: SE120-003 30L SUB-ASSY - Item: 35

Workorder: 65678/2-0 Sub:6 Op:170

Part: SE120-003 30L SUB-ASSY - - VVSA 120 DEGREE VESSEL

Drawing ID: SE120-004 Rev: 2			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT	
*		VWI INTERIOR COVER PASS WELD 2-3		MFG		VISUAL	OK	358-D.M 08-31-05	933-D.L 08-31-05		A
(20)				CWI							
*		VWI INTERIOR COVER PASS WELD 4-5		MFG		VISUAL	OK	358-D.M 08-31-05	933-D.L 08-31-05		A
(20)				CWI							

Quality Assurance Documentation for Part ID: SE120-003 30L SUB-ASSY - Item: 36

Workorder: 65678/2-0 Sub:6 Op:190

Part: SE120-003 30L SUB-ASSY - - VVSA 120 DEGREE VESSEL

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 2-3		CWI				09-01-05	09-01-05		
*				MFG		VISUAL	OK	358-D.M	933-D.L		A
(20)		VWI EXTERIOR COVER PASS WELD 4-5		CWI				09-01-05	09-01-05		

4959

10520 Chester Road  
Woodlawn, Ohio 45215



CLIENT <i>Major Tool &amp; Machine</i>			INTERPRETER/LEVEL <i>John Ballard</i>			RADIOGRAPHER <i>John Ballard</i>		JOB NO. <i>13850291</i>	P.O. NO.	DATE <i>9/12/05</i>
ISOTOPE X-RAY <i>IR-192</i>	DIA. X LENNY <i>.118x.094</i>	CURIES/MA <i>32.5</i>	FOCAL SPOT SIZE <i>.151"</i>	SFD <i>15 3/8"</i>	SOD <i>15"</i>	TIME <i>3.45</i>	FILM PROCESSING <i>AUTO</i>	FILM TYPE <i>Kodak M</i>	FILM TECHNIQUE <i>Double</i>	PB SCREENS <i>1010</i>
WELD PROCESS		MATERIAL SPEC. <i>Inconel 625</i>	MATERIAL DIAMETER <i>N/A</i>	MATERIAL THICKNESS <i>3/8"</i>	PENETRATOR <i>ASTM 1B</i>	SHIM <i>N/A</i>	ACCEPTANCE STANDARD <i>ASME VIII, DIV 1, UW-51</i>			

DESCRIPTION  
*65678/2.0/6/400/818*  
*SE 120-003 30L*

REMARKS  
*PS 1 of 3*

FITTING, SEAM OR FITTING	FILM INTERVAL NUMBER	WELDER IDENTIFICATION	PENETRATOR		SLAG	POROSITY	POROSITY WITH TAIL	CRACK	LACK OF PEN	LACK FUSION	INTERNAL CONVEXITY	INTERNAL CONCAVITY	TUNGSTEN	MELT-THROUGH	BURN-THROUGH	CRATER/FIT	OXIDATION	INTERNAL UNDERCUT	EXTERNAL UNDERCUT	ALIGNMENT INDICATIONS	WELD CONTOUR	MIS-MATCH	FILM ARTIFACT	VISUAL CONCERNS	FILM DENSITY	SEE REMARKS	ACCEPT	REJECT			
			SIZE	QUALITY LEVEL																											
<i>Sheet 4</i>	<i>0-14</i>		<i>1B</i>	<i>.010</i>																											
<i>3</i>	<i>0-14</i>																														
<i>14</i>	<i>0-14</i>																														
<i>15</i>	<i>0-14</i>																														
<i>5</i>	<i>0-14</i>																														
<i>2</i>	<i>0-14</i>																														
<i>16</i>	<i>0-14</i>																														
<i>17</i>	<i>0-14</i>																														
<i>7</i>	<i>0-14</i>																														
<i>6</i>	<i>0-14</i>																														
<i>13</i>	<i>0-14</i>																														
<i>9</i>	<i>0-14</i>																														

End View | Side View

SINGLE WALL

DOUBLE WALL

P Penetrator  
 S Shim  
 L Location Marker  
 ( ) OTHER

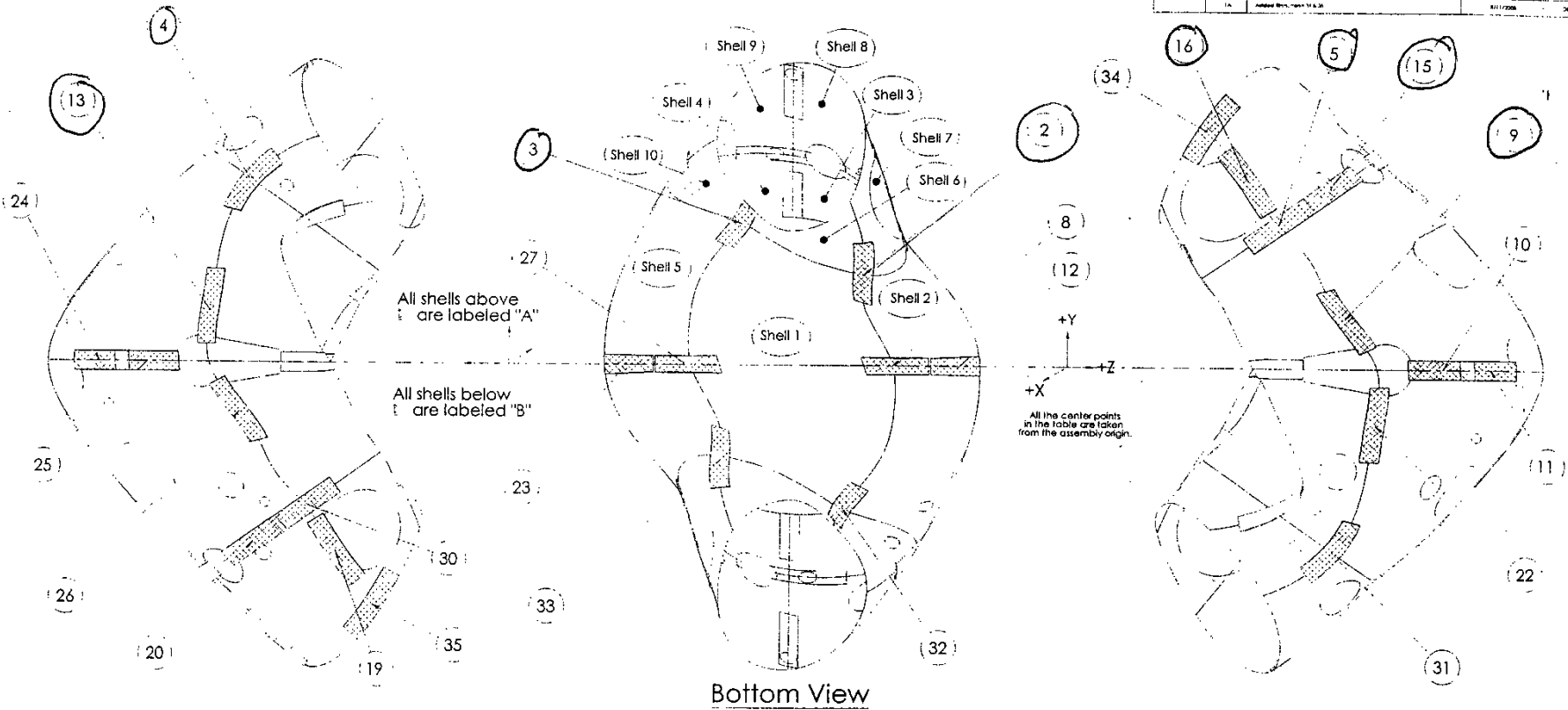
*John Ballard II*  
Cooperheat-MQS Signature

*Daughter D. Edwards*  
Customer Representative Signature

*9/12/05*  
Date

mcl11823.tif (1636x2172x2.tif)

Form	Rev	Description	Date	Author
SA	1A	For X-Ray Layout	5/1/05	SCW
IA	1A	Added Shell 10, 11 & 12	5/1/05	SCW



Bottom View

65678/20/6/400/818

SE120-003 30L

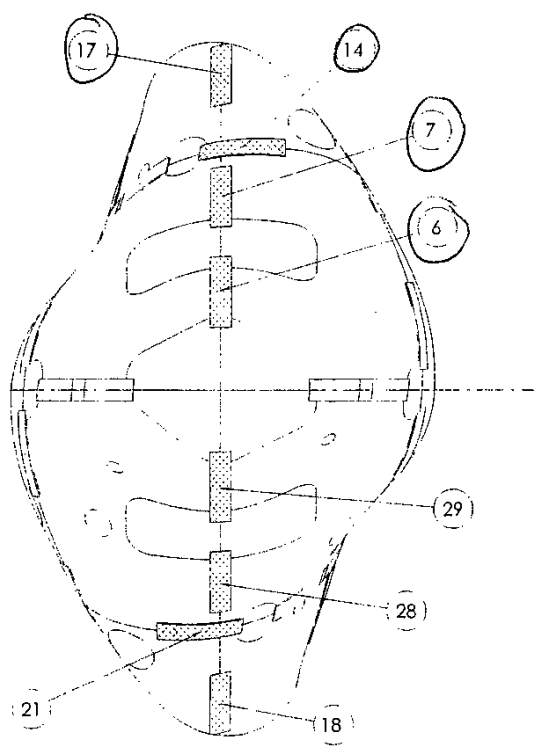
*John Della* 9/12/05

REV	DESCRIPTION	DATE	BY
1	Initial Release	5/1/05	SCW
2	Added Shell 10, 11 & 12	5/1/05	SCW

TITLE: 120° Segment X-Ray Film Layout  
 SHEET NO.: D  
 SCALE: 1:1  
 SHEET 1 OF 1

All shells above  
are labeled "A"

All shells below  
are labeled "B"



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)		

mcl11823.tif (1540x2148x2.tif) [3]

ALL FILM SHOTS PROCESSED ALL FILM SHOTS CHECKED ALL FILM SHOTS RECORDED ALL FILM SHOTS INDEXED ALL FILM SHOTS FILED ALL FILM SHOTS ARCHIVED		DATE: _____ TIME: _____ OPERATOR: _____ CHECKER: _____ RECHECKER: _____ APPROVER: _____	*CDCR FILE: 120° Segment X-Ray Film Layout SHEET 002 OF 02
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Quality Assurance Documentation for Part ID: SE120-003 30L SUB-ASSY - Item: 39

Workorder: 65678/2-0 Sub:94 Op:70

Part: SE120-003 30L SUB-ASSY - - VVSA 120 DEGREE VESSEL

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 2-3		CWI				09-19-05	09-19-05		
*				MFG		VISUAL	ACCEPT	683-K.M	933-D.L		A
(20)		VWI ROOT PASS WELD 4-5		CWI				09-19-05	09-19-05		

Quality Assurance Documentation for Part ID: SE120-003 30L SUB-ASSY - Item: 40

Workorder: 65678/2-0 Sub:94 Op:170

Part: SE120-003 30L SUB-ASSY - - VVSA 120 DEGREE VESSEL

Drawing ID: SE120-004 Rev: 2			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT	
*		VWI INTERIOR COVER PASS WELD 2-3		MFG		VISUAL	ACCEPT	358-D.M	933-D.L		A
(20)				CWI				09-21-05	09-21-05		
*		VWI INTERIOR COVER PASS WELD 4-5		MFG		VISUAL	ACCEPT	358-D.M	933-D.L		A
(20)					CWI				09-21-05	09-21-05	



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

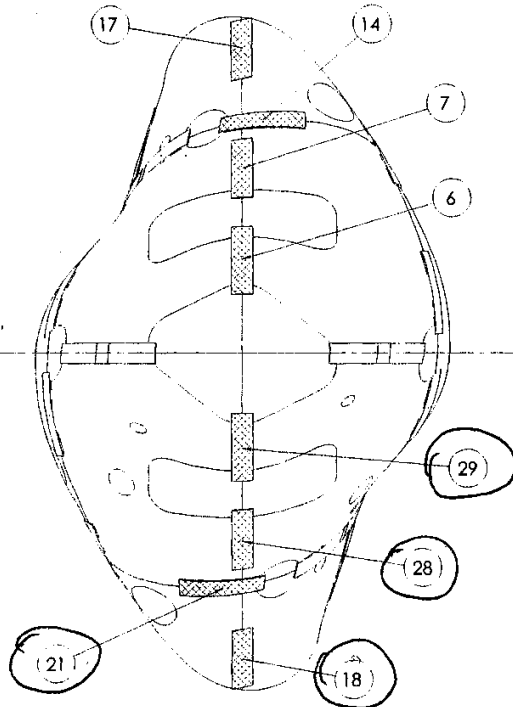
Workorder: 65678/2-0 Sub:94 Op:190

Part: SE120-003 30L SUB-ASSY - - VVSA 120 DEGREE VESSEL

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	358-D.M	933-D.L		A
(20)		VWI EXTERIOR COVER PASS WELD 2-3		CWI				09-22-05	09-22-05		
*				MFG		VISUAL	ACCEPT	358-D.M	933-D.L		A
(20)		VWI EXTERIOR COVER PASS WELD 4-5		CWI				09-22-05	09-22-05		

All shells above  
are labeled "A"

All shells below  
are labeled "B"



65678/2.0/94/400/818  
SE 100-003 30L  
Page 2 of 3  
10/1/05

Item	Shr	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)		

PROJECT NO.	DATE	SCALE	WEIGHT
100-003	10/1/05	1:1	30L
*CDC Ric			
120° Segment X-Ray Film Layout			
FILE	NO.	REV.	DATE
SEI 20-002-1-XMFM	1A		
SCALE: 1:1		WEIGHT: 30L	
SHEET 2 OF 2			





COOPERHEAT

**MQS**<sup>SM</sup>

MOI Inspection

4959

10520 Chester Road  
Woodlawn, Ohio 45215

CLIENT Major Tool & Machine			INTERPRETER/LEVEL Robert Weaver/II			RADIOGRAPHER Robert Weaver		JOB NO 13850291	P.O. NO NA	DATE 10/1/05
ISOTOPE/RAY IR-192	DIA. X LEN/KV .18" x .108"	CURIES/MA 56	FOCAL SPOT SIZE .160"	SFD 15"	SOD 14.625"	TIME 3:15	FILM PROCESSING AUTO	FILM TYPE Kodak MX125	FILM TECHNIQUE Double	P8 SCREENS .010"
WELD PROCESS GTAW		MATERIAL SPEC. 625 Inconel	MATERIAL DIAMETER NA	MATERIAL THICKNESS .375"	PENETRATOR ASTM IB	SHIM NA	ACCEPTANCE STANDARD ASME VIII, Div. 1, UW-51			

DESCRIPTION  
65678/20/94/400/818  
SE120-003 30L  
page 1 of 3

REMARKS

End View | Side View

**SINGLE WALL**

**DOUBLE WALL**

P Penetrator  
 S Shim  
 L Location Marker  
 ( ) OTHER

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

mcl20586.tif (1696x2200x2.tif) [3]

*Robert Weaver 655514/II*  
Cooperheat-MQS Signature

*[Signature]* 10/1/05  
Customer Representative Signature

10/1/05  
Date

Quality Assurance Documentation for Part ID: SE120-003 30U SUB-ASSY - Item: 44

Workorder: 65678/2-0 Sub:95 Op:60

Part: SE120-003 30U SUB-ASSY - - VVSA 120 DEGREE VESSEL

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			ROOT PASS WELD OK	763-R.M	840-G.M		A
(10)		VWI ROOT PASS WELD 7-8		CWI				08-16-05			
*				MFG			VISUALLY INSPECTE	840-G.M	840-G.M		A
(20)		VWI ROOT PASS WELD 9-10		CWI			NO DEFECTS NOTED	08-16-05			

Quality Assurance Documentation for Part ID: SE120-003 30U SUB-ASSY - Item: 45

Workorder: 65678/2-0 Sub:95 Op:160

Part: SE120-003 30U SUB-ASSY - - VVSA 120 DEGREE VESSEL

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	NO DEFECTS	197-T.FI	581-D.E		A
(20)		VWI INTERIOR COVER PASS WELD 7-8		CWI				08-17-05	08-18-05		
*				MFG		VISUAL	NO DEFECTS	197-T.FI	581-D.E		A
(20)		VWI INTERIOR COVER PASS WELD 9-10		CWI				08-17-05	08-18-05		

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

Workorder: 65678/2-0 Sub:95 Op:180

Part: SE120-003 30U SUB-ASSY - - VVSA 120 DEGREE VESSEL

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	NO DEFECTS	197-T.FI	581-D.E		A
(20)		VWI EXTERIOR COVER PASS WELD 7-8		CWI				08-17-05	08-18-05		
*				MFG		VISUAL	NO DEFECTS	197-T.FI	581-D.E		A
(20)		VWI EXTERIOR COVER PASS WELD 9-1		CWI				08-17-05	08-18-05		

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

Workorder: 65678/2-0 Sub:109 Op:60

Part: SE120-003 30U SUB-ASSY - - VVSA 120 DEGREE VESSEL

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	197-T.FI	933-D.L		A
(10)		VWI ROOT PASS WELD 7-8		CWI				09-14-05	09-14-05		
*				MFG		VISUAL	OK	197-T.FI	933-D.L		A
(20)		VWI ROOT PASS WELD 9-10		CWI				09-14-05	09-14-05		



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

Workorder: 65678/2-0 Sub:109 Op:160

Part: SE120-003 30U SUB-ASSY - - VVSA 120 DEGREE VESSEL

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	197-T.FI	933-D.L		A
(20)		VWI INTERIOR COVER PASS WELD 7-8		CWI				09-15-05	09-15-05		
*				MFG		VISUAL	GOOD	197-T.FI	933-D.L		A
(20)		VWI INTERIOR COVER PASS WELD 9-10		CWI				09-15-05	09-15-05		

Quality Assurance Documentation for Part ID: SE120-003 30U SUB-ASSY - Item: 49

Workorder: 65678/2-0 Sub:109 Op:180

Part: SE120-003 30U SUB-ASSY - - VVSA 120 DEGREE VESSEL

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	197-T.FI	933-D.L		A
(20)		VWI EXTERIOR COVER PASS WELD 7-8		CWI				09-15-05	09-15-05		
*				MFG		VISUAL	GOOD	197-T.FI	933-D.L		A
(20)		VWI EXTERIOR COVER PASS WELD 9-1		CWI				09-15-05	09-15-05		

Quality Assurance Documentation for Part ID: SE120-003 3-4 SUB-SET - Item: 50

Workorder: 65678/2-0 Sub:11 Op:30

Part: SE120-003 3-4 SUB-SET - - VVSA 120 DEGREE VESSEL

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	840-G.M	
(10)		VWI ROOT PASS WELD 3-4		CWI				08-17-05	08-17-05	A

**INSPECTION DATA CHECKLIST**

Quality Assurance Documentation for Part ID: SE120-003 3-4 SUB-SET - Item: 51

Workorder: 65678/2-0 Sub:11 Op:130

Part: SE120-003 3-4 SUB-SET - - VVSA 120 DEGREE VESSEL

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	
(20)		VWI INTERIOR COVER PASS WELD 3-4		CWI				08-18-05	08-18-05	

A

Quality Assurance Documentation for Part ID: SE120-003 3-4 SUB-SET - Item: 52

Workorder: 65678/2-0 Sub:11 Op:150

Part: SE120-003 3-4 SUB-SET - - VVSA 120 DEGREE VESSEL

Drawing ID: SE120-004 Rev: 2			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY		
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
*				MFG		VISUAL	OK	358-D.M	581-D.E	
(20)		VWI EXTERIOR COVER PASS WELD 3-4		CWI				08-19-05	08-19-05	

A

**INSPECTION DATA CHECKLIST**

Quality Assurance Documentation for Part ID: SE120-003 3-4 SUB-SET - Item: 53

Workorder: 65678/2-0 Sub:106 Op:30

Part: SE120-003 3-4 SUB-SET - - VVSA 120 DEGREE VESSEL

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	933-D.L	933-D.L	
(10)		VWI ROOT PASS WELD 3-4		CWI				09-15-05	09-15-05	

A

**INSPECTION DATA CHECKLIST**

Quality Assurance Documentation for Part ID: SE120-003 3-4 SUB-SET - Item: 54

Workorder: 65678/2-0 Sub:106 Op:130

Part: SE120-003 3-4 SUB-SET - - VVSA 120 DEGREE VESSEL

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	358-D.M	933-D.L	
(20)		VWI INTERIOR COVER PASS WELD 3-4		CWI				09-16-05	09-16-05	

A

Quality Assurance Documentation for Part ID: SE120-003 3-4 SUB-SET - Item: 55

Workorder: 65678/2-0 Sub:106 Op:150

Part: SE120-003 3-4 SUB-SET - - VVSA 120 DEGREE VESSEL

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	358-D.M	933-D.L	
(20)		VWI EXTERIOR COVER PASS WELD 3-4		CWI				09-19-05	09-19-05	A



Quality Assurance Documentation for Part ID: SE120-003 5-1 SUB-SET - Item: 56

Workorder: 65678/2-0 Sub:8 Op:30

Part: SE120-003 5-1 SUB-SET - - VVSA 120 DEGREE VESSEL

Drawing ID: SE120-004 Rev: 2		INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
*				MFG		VISUAL	ACCEPT PER CUSTOM	709-K.A	933-D.L	
(10)		VWI ROOT PASS WELD 5-1		CWI			DRAWING AND SPECI ICATIONS	08-23-05	08-23-05	

A

**INSPECTION DATA CHECKLIST**

Quality Assurance Documentation for Part ID: SE120-003 5-1 SUB-SET - Item: 57

Workorder: 65678/2-0 Sub:8 Op:130

Part: SE120-003 5-1 SUB-SET - - VVSA 120 DEGREE VESSEL

Drawing ID: SE120-004 Rev: 2			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY		
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
*				MFG		VISUAL	OK	358-D.M	933-D.L	
(20)		VWI INTERIOR COVER PASS WELD 5-1		CWI				08-24-05	08-24-05	

A

Quality Assurance Documentation for Part ID: SE120-003 5-1 SUB-SET - Item: 58

Workorder: 65678/2-0 Sub:8 Op:150

Part: SE120-003 5-1 SUB-SET - - VVSA 120 DEGREE VESSEL

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	358-D.M	840-G.M	
(20)		VWI EXTERIOR COVER PASS WELD 5-1		CWI				08-25-05	08-25-05	

A

**INSPECTION DATA CHECKLIST**

Quality Assurance Documentation for Part ID: SE120-003 5-1 SUB-SET - Item: 59

Workorder: 65678/2-0 Sub:103 Op:30

Part: SE120-003 5-1 SUB-SET - - VVSA 120 DEGREE VESSEL

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	ROOT PASS WELD OK	763-R.M	933-D.L	
(10)		VWI ROOT PASS WELD 5-1		CWI				08-31-05	08-31-05	

A

**INSPECTION DATA CHECKLIST**

Quality Assurance Documentation for Part ID: SE120-003 5-1 SUB-SET - Item: 60

Workorder: 65678/2-0 Sub:103 Op:130

Part: SE120-003 5-1 SUB-SET - - VVSA 120 DEGREE VESSEL

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 TO SPE	197-T.FI	933-D.L	
(20)		VWI INTERIOR COVER PASS WELD 5-1		CWI			FACATOINS	09-01-05	09-01-05	

A

Quality Assurance Documentation for Part ID: SE120-003 5-1 SUB-SET - Item: 61

Workorder: 65678/2-0 Sub:103 Op:150

Part: SE120-003 5-1 SUB-SET - - VVSA 120 DEGREE VESSEL

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	MEETS THE REQUIRE	197-T.FI	933-D.L	
(20)		VWI EXTERIOR COVER PASS WELD 5-1		CWI			ENTS	09-01-05	09-01-05	A

**INSPECTION DATA CHECKLIST**

Quality Assurance Documentation for Part ID: SE120-003 5-1-2 SUB-SET - Item: 62

Workorder: 65678/2-0 Sub:7 Op:30

Part: SE120-003 5-1-2 SUB-SET - - VVSA 120 DEGREE VESSEL

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	
(10)		VWI ROOT PASS WELD 1-2		CWI				08-23-05	08-23-05	A

Quality Assurance Documentation for Part ID: SE120-003 5-1-2 SUB-SET - Item: 63

Workorder: 65678/2-0 Sub:7 Op:130

Part: SE120-003 5-1-2 SUB-SET - - VVSA 120 DEGREE VESSEL

Drawing ID: SE120-004 Rev: 2			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY		
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
*				MFG		VISUAL	OK	358-D.M	933-D.L	
(20)		VWI INTERIOR COVER PASS WELD 1-2		CWI				08-24-05	08-24-05	A



**INSPECTION DATA CHECKLIST**

Quality Assurance Documentation for Part ID: SE120-003 5-1-2 SUB-SET - Item: 64

Workorder: 65678/2-0 Sub:7 Op:150

Part: SE120-003 5-1-2 SUB-SET - - VVSA 120 DEGREE VESSEL

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	358-D.M	840-G.M	
(20)		VWI EXTERIOR COVER PASS WELD 1-2		CWI				08-25-05		A

Quality Assurance Documentation for Part ID: SE120-003 5-1-2 SUB-SET - Item: 65

Workorder: 65678/2-0 Sub:102 Op:30

Part: SE120-003 5-1-2 SUB-SET - - VVSA 120 DEGREE VESSEL

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	ROOT PASS WELD OK	763-R.M	933-D.L	
(10)		VWI ROOT PASS WELD 1-2		CWI				08-31-05	08-31-05	A

**INSPECTION DATA CHECKLIST**

Quality Assurance Documentation for Part ID: SE120-003 5-1-2 SUB-SET - Item: 66

Workorder: 65678/2-0 Sub:102 Op:130

Part: SE120-003 5-1-2 SUB-SET - - VVSA 120 DEGREE VESSEL

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 TO SPE	197-T.FI	933-D.L	
(20)		VWI INTERIOR COVER PASS WELD 1-2		CWI			FACTIONS	09-01-05	09-01-05	

A

Quality Assurance Documentation for Part ID: SE120-003 5-1-2 SUB-SET - Item: 67

Workorder: 65678/2-0 Sub:102 Op:150

Part: SE120-003 5-1-2 SUB-SET - - VVSA 120 DEGREE VESSEL

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	MEETS THE REQUIRE	197-T.FI	933-D.L	
(20)		VWI EXTERIOR COVER PASS WELD 1-2		CWI			ENTS	09-01-05	09-01-05	A

**INSPECTION DATA CHECKLIST**

Quality Assurance Documentation for Part ID: SE120-003 60D SUB-ASSY - Item: 68

Workorder: 65678/2-0 Sub:6 Op:250

Part: SE120-003 60D SUB-ASSY - - VVSA 120 DEGREE VESSEL

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	
(10)		VWI ROOT PASS WELD 30D		CWI				09-06-05	09-06-05	

A

Quality Assurance Documentation for Part ID: SE120-003 60D SUB-ASSY - Item: 69

Workorder: 65678/2-0 Sub:6 Op:350

Part: SE120-003 60D SUB-ASSY - - VVSA 120 DEGREE VESSEL

Drawing ID: SE120-004 Rev: 2			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY		
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
*				MFG		VISUAL	OK	358-D.M	933-D.L	
(20)		VWI EXTERIOR COVER PASS WELD 30		CWI				09-07-05	09-07-05	A

**INSPECTION DATA CHECKLIST**

Quality Assurance Documentation for Part ID: SE120-003 60D SUB-ASSY - Item: 70

Workorder: 65678/2-0 Sub:6 Op:370

Part: SE120-003 60D SUB-ASSY - - VVSA 120 DEGREE VESSEL

Drawing ID: SE120-004 Rev: 2			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY		
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
*				MFG		VISUAL	OK	358-D.M	933-D.L	
(20)		VWI INTERIOR COVER PASS WELD 30D		CWI				09-12-05	09-12-05	A

**INSPECTION DATA CHECKLIST**

Quality Assurance Documentation for Part ID: SE120-003 60D SUB-ASSY - Item: 71

Workorder: 65678/2-0 Sub:94 Op:250

Part: SE120-003 60D SUB-ASSY - - VVSA 120 DEGREE VESSEL

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	
(10)		VWI ROOT PASS WELD 30D		CWI				09-27-05	09-27-05	A



**INSPECTION DATA CHECKLIST**

Quality Assurance Documentation for Part ID: SE120-003 60D SUB-ASSY - Item: 72

Workorder: 65678/2-0 Sub:94 Op:350

Part: SE120-003 60D SUB-ASSY - - VVSA 120 DEGREE VESSEL

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	358-D.M	933-D.L	
(20)		VWI EXTERIOR COVER PASS WELD 30		CWI				09-28-05	09-28-05	

A

Quality Assurance Documentation for Part ID: SE120-003 60D SUB-ASSY - Item: 73

Workorder: 65678/2-0 Sub:94 Op:370

Part: SE120-003 60D SUB-ASSY - - VVSA 120 DEGREE VESSEL

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	358-D.M	933-D.L	
(20)		VWI INTERIOR COVER PASS WELD 30D		CWI				09-30-05	09-30-05	A

Quality Assurance Documentation for Part ID: SE120-003 8-9 SUB-SET - Item: 74

Workorder: 65678/2-0 Sub:97 Op:30

Part: SE120-003 8-9 SUB-SET - - VVSA 120 DEGREE VESSEL

Drawing ID: SE120-004 Rev: 2			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY		
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
*				MFG		VISUAL	ACCEPT PER CUSTOM	709-K.A	933-D.L	
(10)		VWI ROOT PASS WELD 8-9		CWI			DRAWING AND SPECI ICATIONS.	08-12-05	08-12-05	

A

Quality Assurance Documentation for Part ID: SE120-003 8-9 SUB-SET - Item: 75

Workorder: 65678/2-0 Sub:97 Op:130

Part: SE120-003 8-9 SUB-SET - - VVSA 120 DEGREE VESSEL

Drawing ID: SE120-004 Rev: 2		INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
*				MFG		VISUAL	ACCEPT	683-K.M	933-D.L	
(20)		VWI INTERIOR COVER PASS WELD 8-9		CWI				08-12-05	08-12-05	A

**INSPECTION DATA CHECKLIST**

Quality Assurance Documentation for Part ID: SE120-003 8-9 SUB-SET - Item: 76

Workorder: 65678/2-0 Sub:97 Op:150

Part: SE120-003 8-9 SUB-SET - - VVSA 120 DEGREE VESSEL

Drawing ID: SE120-004 Rev: 2		INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
*				MFG		VISUAL	ACCEPT	709-K.A	933-D.L	
(20)		VWI EXTERIOR COVER PASS WELD 8-9		CWI				08-16-05	08-12-05	

A

**INSPECTION DATA CHECKLIST**

Quality Assurance Documentation for Part ID: SE120-003 8-9 SUB-SET - Item: 77

Workorder: 65678/2-0 Sub:114 Op:30

Part: SE120-003 8-9 SUB-SET - - VVSA 120 DEGREE VESSEL

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	
(10)		VWI ROOT PASS WELD 8-9		CWI				09-09-05	09-09-05	A

Quality Assurance Documentation for Part ID: SE120-003 8-9 SUB-SET - Item: 78

Workorder: 65678/2-0 Sub:114 Op:130

Part: SE120-003 8-9 SUB-SET - - VVSA 120 DEGREE VESSEL

Drawing ID: SE120-004 Rev: 2			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY		
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
*				MFG		VISUAL	ACCEPT PER CUSTOM	709-K.A	933-D.L	
(20)		VWI INTERIOR COVER PASS WELD 8-9		CWI			DRAWINGS AND SPE FICATIONS	09-12-05	09-12-05	

A

Quality Assurance Documentation for Part ID: SE120-003 8-9 SUB-SET - Item: 79

Workorder: 65678/2-0 Sub:114 Op:150

Part: SE120-003 8-9 SUB-SET - - VVSA 120 DEGREE VESSEL

Drawing ID: SE120-004 Rev: 2		INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
*				MFG		VISUAL	ACCEPT PER CUSTOM	709-K.A	933-D.L	
(20)		VWI EXTERIOR COVER PASS WELD 8-9		CWI			DRAWINGS AND SPE FICATIONS	09-12-05	09-12-05	

A



Quality Assurance Documentation for Part ID: SE120-003-11 - Item: 82

Workorder: 65678/2-0 Sub:131 Op:10

Part: SE120-003-11 - - VVSA 120 DEGREE VESSEL

Drawing ID: SE120-005 Rev: 0C			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT	
*		VISUAL INSPECT PORT 7A WELDS BACK STRIP TO PORT TUBE BLOCK TO BACK STRIP 1/8" TUBE TO BLOCK		MFG		VISUAL	ACCEPTABLE TO CUSTOMER REQUIREMENTS	197-T.FI	053-M.D		A
(10)		TIE STRAP SPOT WELDS		CWI				06-06-06	06-13-06		
*		VISUAL INSPECT PORT 7B WELDS BACK STRIP TO PORT TUBE BLOCK TO BACK STRIP 1/8" TUBE TO BLOCK		MFG		VISUAL	ACCEPT	837-J.D	053-M.D		A
(20)		TIE STRAP SPOT WELDS		CWI				06-06-06	06-06-06		

Quality Assurance Documentation for Part ID: SE120-003-11 - Item: 83

Workorder: 65678/2-0 Sub:131 Op:20

Part: SE120-003-11 - - VVSA 120 DEGREE VESSEL

Drawing ID: SE120-004 Rev: 2D			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT	
*		PORT 7A POSITION (REINSTALLED)	LASER	QA		J-1280	POS 0.063 FACE -0.0	522-R.D			A
(10)							38 / +0.021	06-26-06			
*		PORT 7B POSITION (REINSTALLED)	LASER	QA		J-1280	POS 0.036 FACE -0.0	522-R.D			A
(20)							57 / 0.055	04-18-06			

Quality Assurance Documentation for Part ID: SE120-003-11 - Item: 84

Workorder: 65678/2-0 Sub:131 Op:30

Part: SE120-003-11 - - VVSA 120 DEGREE VESSEL

Drawing ID: SE120-004 Rev: 2D			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT	
*		MAGNETIC PERMEABILITY 1.02 MAX (ENTIRE PORT LESS FLANGE WELD ZONE)	MASTER GAGE	QA		J-1165	LESS THAN 1.02	261-T.D			A
(10)								06-26-06			
*		MAGNETIC PERMEABILITY 1.2 MAX (PORT WALL TO FLANGE WELD ZONE)	MASTER GAGE	QA		J-1165	LESS THAN 1.2	261-T.D			A
(20)								06-26-06			
*		INTERIOR SURFACE FINISH: 32 MICRO-INCH RA	PROFILOMETER	QA		J-1308	6 TO 28 MICRO-INCH	261-T.D			A
(30)								06-26-06			
*		PORT EXTENSION WALL THICKNESS 0.188 +0.045/-0.010"	UT THICKNESS GA	QA		J-1009-NDT	.179 TO .222	261-T.D			A
(40)								06-26-06			
*		CLEANLINESS COMPLIES WITH PS483		QA		VISUAL INSPEC	CLEANLINESS COMPL S WITH PS483	840-G.M			A
(50)								06-29-06			
*		Q/A MANAGER / CFT VERIFY SUB-ASSY COMPLETION		QA		VISUAL	VERIFIED COMPONENT COMPLETION	840-G.M			A
(60)								06-29-06			

Quality Assurance Documentation for Part ID: SE120-003-12A - Item: 85

Workorder: 65678/2-0 Sub:120 Op:10

Part: SE120-003-12A - - VVSA 120 DEGREE VESSEL

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	683-K.M	933-D.L		A
(20)		VWI - ROOT PASS WELD P12AV		CWI			DRAWINGS SPECIFIC TIONS	02-02-06			
*				MFG		VISUAL	ACCEPT PER CUSTOM	709-K.A	933-D.L		A
(60)		VWI - COVER PASS WELD P12AV	RADIUS GAGE	CWI		P-5153	DRAWINGS AND SPE FICATIONS	02-04-06	02-06-06		
*				MFG		VISUAL	ACCEPT PER CUSTOM	683-K.M	933-D.L		A
(80)		VWI - ROOT PASS WELD P12BV		CWI			DRAWINGS SPECIFIC TIONS	02-02-06	02-02-06		
*				MFG		VISUAL	ACCEPT PER CUSTOM	709-K.A	933-D.L		A
(120)		VWI - COVER PASS WELD P12BV	RADIUS GAGE	CWI		P-5153	DRAWINGS AND SPE FICATIONS	02-04-06	02-06-06		

Quality Assurance Documentation for Part ID: SE120-003-12A - Item: 86

Workorder: 65678/2-0 Sub:120 Op:20

Part: SE120-003-12A - - VVSA 120 DEGREE VESSEL

Drawing ID: SE120-004 Rev: 2			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT	
2* (50)	F2	PORT 12A FLANGE FACE	LASER	QA		1444	0.042	522-R.D 02-07-06			A
2* (60)	G2	PORT 12A SIDEWALL AND ADJACENT VESSEL WALL	LASER	QA		1444	FLA -0.132 / +0.147 PS -0.096 / +0.255 VS -0.171 / +0.098 (U.A.I. PER NC 1921 8) [N/C:19218]	854-R.U 07-31-06			A
2* (70)	F2	PORT 12B FLANGE FACE	LASER	QA		1444	0.026	522-R.D 02-07-06			A
2* (80)	G2	PORT 12B SIDEWALL AND ADJACENT VESSEL WALL	LASER	QA		1444	FLA -0.147 / +0.142 PS -0.123 / +0.259 VS -0.150 / +0.179 (U.A.I. PER NC 1921 8) [N/C:19218]	854-R.U 07-31-06			A

Quality Assurance Documentation for Part ID: SE120-003-13 - Item: 87

Workorder: 65678/2-0 Sub:132 Op:10

Part: SE120-003-13 - - VVSA 120 DEGREE VESSEL

Drawing ID: SE120-005 Rev: 0C			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT	
*		VISUAL INSPECT PORT 8A WELDS BACK STRIP TO PORT TUBE BLOCK TO BACK STRIP 1/8" TUBE TO BLOCK		MFG		VISUAL	ACCEPTABLE	197-T.FI	053-M.D		A
(10)		TIE STRAP SPOT WELDS		CWI				06-06-06	06-06-06		
*		VISUAL INSPECT PORT 8B WELDS BACK STRIP TO PORT TUBE BLOCK TO BACK STRIP 1/8" TUBE TO BLOCK		MFG		VISUAL	ACCEPTABLE	728-R.D	053-M.D		A
(20)		TIE STRAP SPOT WELDS		CWI				06-09-06	06-13-06		

Quality Assurance Documentation for Part ID: SE120-003-13 - Item: 88

Workorder: 65678/2-0 Sub:132 Op:20

Part: SE120-003-13 - - VVSA 120 DEGREE VESSEL

Drawing ID: SE120-004 Rev: 2D			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY		
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
*		PORT 8A POSITION (REINSTALLED)	LASER	QA		J-1280	POS 0.035 FACE -0.0	522-R.D		
(10)	25 / +0.032						06-26-06			
*		PORT 8B POSITION (REINSTALLED)	LASER	QA		J-1280	POS 0.052 FACE -0.0	522-R.D		
(20)	42 / +0.018						06-26-06			

Quality Assurance Documentation for Part ID: SE120-003-13 - Item: 89

Workorder: 65678/2-0 Sub:132 Op:30

Part: SE120-003-13 - - VVSA 120 DEGREE VESSEL

Drawing ID: SE120-004 Rev: 2D			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT	
*		MAGNETIC PERMEABILITY 1.02 MAX (ENTIRE PORT LESS FLANGE WELD ZONE)	MASTER GAGE	QA		J-1165	LESS THAN 1.02	503-B.H			A
(10)								06-27-06			
*		MAGNETIC PERMEABILITY 1.2 MAX (PORT WALL TO FLANGE WELD ZONE)	MASTER GAGE	QA		J-1165	LESS THAN 1.2	503-B.H			A
(20)								06-27-06			
*		INTERIOR SURFACE FINISH: 32 MICRO-INCH RA	PROFILOMETER	QA		J-1152	ACCEPT	503-B.H			A
(30)								06-27-06			
*		PORT EXTENSION WALL THICKNESS 0.226 +0.045/0.010"	UT THICKNESS GA	QA		J-770-NDT	.260	503-B.H			A
(40)								06-27-06			
*		CLEANLINESS COMPLIES WITH PS483		QA		VISUAL	VERIFIED COMPONEN CLEANLINESS WITH P 483	840-G.M			A
(50)			06-29-06								
*		Q/A MANAGER / CFT VERIFY SUB-ASSY COMPLETION		QA		VISUAL	VERIFIED COMPLETIO	840-G.M			A
(60)			06-29-06								



Quality Assurance Documentation for Part ID: SE120-003-15 - Item: 90

Workorder: 65678/2-0 Sub:133 Op:10

Part: SE120-003-15 - - VVSA 120 DEGREE VESSEL

Drawing ID: SE120-005 Rev: 0C			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT	
*		VISUAL INSPECT PORT 9A WELDS BACK STRIP TO PORT TUBE BLOCK TO BACK STRIP 1/8" TUBE TO BLOCK		MFG		VISUAL	ACCEPTABLE	197-T.FI	053-M.D		A
(10)		TIE STRAP SPOT WELDS		CWI				06-08-06	06-13-06		
*		VISUAL INSPECT PORT 9B WELDS BACK STRIP TO PORT TUBE BLOCK TO BACK STRIP 1/8" TUBE TO BLOCK		MFG		VISUAL	MEETS REQUIREMEN	197-T.FI	053-M.D		A
(20)		TIE STRAP SPOT WELDS		CWI				06-07-06	06-07-06		

Quality Assurance Documentation for Part ID: SE120-003-15 - Item: 91

Workorder: 65678/2-0 Sub:133 Op:20

Part: SE120-003-15 - - VVSA 120 DEGREE VESSEL

Drawing ID: SE120-004 Rev: 2D			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY		
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
*		PORT 9A POSITION (REINSTALLED)	LASER	QA		J-1280	POS 0.179 FACE -0.0	522-R.D		
(10)							36 / +0.014			
*		PORT 9B POSITION (REINSTALLED)	LASER	QA		J-1280	POS 0.084 FACE -0.0	522-R.D		
(20)							81 / +0.010			

Quality Assurance Documentation for Part ID: SE120-003-15 - Item: 92

Workorder: 65678/2-0 Sub:133 Op:30

Part: SE120-003-15 - - VVSA 120 DEGREE VESSEL

Drawing ID: SE120-004 Rev: 2D			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT	
*		MAGNETIC PERMEABILITY 1.02 MAX (ENTIRE PORT LESS FLANGE WELD ZONE)	MASTER GAGE	QA		J-1165	LESS THAN 1.02	261-T.D			A
(10)								06-26-06			
*		MAGNETIC PERMEABILITY 1.2 MAX (PORT WALL TO FLANGE WELD ZONE)	MASTER GAGE	QA		J-1165	LESS THAN 1.2	261-T.D			A
(20)								06-26-06			
*		INTERIOR SURFACE FINISH: 32 MICRO-INCH RA	PROFILOMETER	QA		J-1308	13 TO 30 MICRO-INCH	261-T.D			A
(30)								06-26-06			
*		PORT EXTENSION WALL THICKNESS 0.188 +0.045/-0.010"	UT THICKNESS GA	QA		J-1009-NDT	.181 TO .213"	261-T.D			A
(40)								06-26-06			
*		CLEANLINESS COMPLIES WITH PS483		QA		VISUAL INSPEC	COMPLIES WITH PS48	261-T.D			A
(50)			06-26-06								
*		Q/A MANAGER / CFT VERIFY SUB-ASSY COMPLETION		QA		VISUAL	VERIFIED COMPLETIO	840-G.M			A
(60)			06-29-06								

Quality Assurance Documentation for Part ID: SE120-003-17 - Item: 93

Workorder: 65678/2-0 Sub:134 Op:10

Part: SE120-003-17 - - VVSA 120 DEGREE VESSEL

Drawing ID: SE120-005 Rev: 0C			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT	
*		VISUAL INSPECT PORT 10A WELDS BACK STRIP TO PORT TUBE BLOCK TO BACK STRIP 1/8" TUBE TO BLOCK		MFG		VISUAL	ACCEPTABLE	299-M.G	053-M.D		A
(10)		TIE STRAP SPOT WELDS		CWI				06-07-06	06-07-06		
*		VISUAL INSPECT PORT 10B WELDS BACK STRIP TO PORT TUBE BLOCK TO BACK STRIP 1/8" TUBE TO BLOCK		MFG		VISUAL	ACCEPTABLE	728-R.D	053-M.D		A
(20)		TIE STRAP SPOT WELDS		CWI				06-07-06	06-07-06		

Quality Assurance Documentation for Part ID: SE120-003-17 - Item: 94

Workorder: 65678/2-0 Sub:134 Op:20

Part: SE120-003-17 - - VVSA 120 DEGREE VESSEL

Drawing ID: SE120-004 Rev: 2D			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY		
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
*		PORT 10A POSITION (REINSTALLED)	LASER	QA		J-1280	POS 0.124 FACE -0.0	522-R.D		
(10)	70 / +0.027						06-26-06			
*		PORT 10B POSITION (REINSTALLED)	LASER	QA		J-1280	POS 0.091 FACE -0.0	522-R.D		
(20)	63 / +0.049						06-26-06			

Quality Assurance Documentation for Part ID: SE120-003-17 - Item: 95

Workorder: 65678/2-0 Sub:134 Op:30

Part: SE120-003-17 - - VVSA 120 DEGREE VESSEL

Drawing ID: SE120-004 Rev: 2D			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT	
*		MAGNETIC PERMEABILITY 1.02 MAX (ENTIRE PORT LESS FLANGE WELD ZONE)	MASTER GAGE	QA		J-1165	LESS THAN 1.02	261-T.D			A
(10)	06-26-06										
*		MAGNETIC PERMEABILITY 1.2 MAX (PORT WALL TO FLANGE WELD ZONE)	MASTER GAGE	QA		J-1165	LESS THAN 1.2	261-T.D			A
(20)	06-26-06										
*		INTERIOR SURFACE FINISH: 32 MICRO-INCH RA	PROFILOMETER	QA		J-1308	6 TO 30 MICRO-INCH RA	261-T.D			A
(30)	06-26-06										
*		PORT EXTENSION WALL THICKNESS 0.250 +0.045/-0.010"	UT THICKNESS GA	QA		J-1009-NDT	.256 TO .276"	261-T.D			A
(40)	06-26-06										
*		CLEANLINESS COMPLIES WITH PS483		QA		VISUAL	VERIFIED COMPONENT CLEANLINESS	840-G.M			A
(50)	06-29-06										
*		Q/A MANAGER / CFT VERIFY SUB-ASSY COMPLETION		QA		VISUAL	VERIFIED COMPONENT COMPLETION	840-G.M			A
(60)	06-29-06										

Quality Assurance Documentation for Part ID: SE120-003-19 - Item: 96

Workorder: 65678/2-0 Sub:135 Op:10

Part: SE120-003-19 - - VVSA 120 DEGREE VESSEL

Drawing ID: SE120-005 Rev: 0C			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT	
*		VISUAL INSPECT PORT 11A WELDS BACK STRIP TO PORT TUBE BLOCK TO BACK STRIP 1/8" TUBE TO BLOCK		MFG		VISUAL	ACCEPT	837-J.D	053-M.D		A
(10)		TIE STRAP SPOT WELDS		CWI				06-21-06	06-21-06		
*		VISUAL INSPECT PORT 11B WELDS BACK STRIP TO PORT TUBE BLOCK TO BACK STRIP 1/8" TUBE TO BLOCK		MFG		VISUAL	ACCEPT	709-K.A	933-D.L		A
(20)		TIE STRAP SPOT WELDS		CWI				06-20-06	06-21-06		

Quality Assurance Documentation for Part ID: SE120-003-19 - Item: 97

Workorder: 65678/2-0 Sub:135 Op:20

Part: SE120-003-19 - - VVSA 120 DEGREE VESSEL

Drawing ID: SE120-004 Rev: 2D			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY		
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
*		PORT 11A POSITION (REINSTALLED)	LASER	QA		J-1280	POS 0.049 FACE -0.0	522-R.D		
(10)	54 / -0.124						06-26-06			
*		PORT 11B POSITION (REINSTALLED)	LASER	QA		J-1280	POS 0.044 FACE -0.1	522-R.D		
(20)	05 / -0.059						06-26-06			



Quality Assurance Documentation for Part ID: SE120-003-19 - Item: 98

Workorder: 65678/2-0 Sub:135 Op:30

Part: SE120-003-19 - - VVSA 120 DEGREE VESSEL

Drawing ID: SE120-004 Rev: 2D			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT	
*		MAGNETIC PERMEABILITY 1.02 MAX (ENTIRE PORT LESS FLANGE WELD ZONE)	MASTER GAGE	QA		J-1165	LESS THAN 1.02	503-B.H			A
(10)	06-27-06										
*		MAGNETIC PERMEABILITY 1.2 MAX (PORT WALL TO FLANGE WELD ZONE)	MASTER GAGE	QA		J-1165	LESS THAN 1.2	503-B.H			A
(20)	06-27-06										
*		INTERIOR SURFACE FINISH: 32 MICRO-INCH RA	PROFILOMETER	QA		J-1152	ACCEPT	503-B.H			A
(30)	06-27-06										
*		PORT EXTENSION WALL THICKNESS: 0.120 +/- .015	UT THICKNESS GA	QA		J-770-NDT	.110	503-B.H			A
(40)	06-27-06										
*		CLEANLINESS COMPLIES WITH PS483		QA		VISUAL	VERIFIED COMPONENT CLEANLINESS	840-G.M			A
(50)	06-28-06										
*		Q/A MANAGER / CFT VERIFY SUB-ASSY COMPLETION		QA		VISUAL	VERIFIED COMPONENT COMPLETION	840-G.M			A
(60)	06-28-06										

Quality Assurance Documentation for Part ID: SE120-003-21 - Item: 99

Workorder: 65678/2-0 Sub:136 Op:10

Part: SE120-003-21 - - VVSA 120 DEGREE VESSEL

Drawing ID: SE120-005 Rev: 0C			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT	
*		VISUAL INSPECT PORT 15A WELDS BACK STRIP TO PORT TUBE BLOCK TO BACK STRIP 1/8" TUBE TO BLOCK		MFG		VISUAL	ACCEPTABLE	728-R.D	053-M.D		A
(10)		TIE STRAP SPOT WELDS		CWI				06-08-06	06-13-06		
*		VISUAL INSPECT PORT 15B WELDS BACK STRIP TO PORT TUBE BLOCK TO BACK STRIP 1/8" TUBE TO BLOCK		MFG		VISUAL	ACCEPTABLE	299-M.G	053-M.D		A
(20)		TIE STRAP SPOT WELDS		CWI				06-06-06	06-07-06		

Quality Assurance Documentation for Part ID: SE120-003-21 - Item: 100

Workorder: 65678/2-0 Sub:136 Op:20

Part: SE120-003-21 - - VVSA 120 DEGREE VESSEL

Drawing ID: SE120-004 Rev: 2D			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY		
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
*		PORT 15A POSITION (REINSTALLED)	LASER	QA		J-1280	POS 0.052 FACE -0.0	522-R.D		
(10)							.17 / +0.028			
*		PORT 15B POSITION (REINSTALLED)	LASER	QA		J-1280	POS 0.047 FACE -0.0	522-R.D		
(20)							21 / +0.013			

Quality Assurance Documentation for Part ID: SE120-003-21 - Item: 101

Workorder: 65678/2-0 Sub:136 Op:30

Part: SE120-003-21 - - VVSA 120 DEGREE VESSEL

Drawing ID: SE120-004 Rev: 2D			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT	
*		MAGNETIC PERMEABILITY 1.02 MAX (ENTIRE PORT LESS FLANGE WELD ZONE)	MASTER GAGE	QA		J-1165	LESS THAN 1.02	503-B.H			A
(10)	06-27-06										
*		MAGNETIC PERMEABILITY 1.2 MAX (PORT WALL TO FLANGE WELD ZONE)	MASTER GAGE	QA		J-1165	LESS THAN 1.2	503-B.H			A
(20)	06-27-06										
*		INTERIOR SURFACE FINISH: 32 MICRO-INCH RA	PROFILOMETER	QA		J-1152	ACCEPT	503-B.H			A
(30)	06-27-06										
*		PORT EXTENSION WALL THICKNESS 0.226 +0.045/-0.010"	UT THICKNESS GA	QA		J-770-NDT	.260	503-B.H			A
(40)	06-27-06										
*		CLEANLINESS COMPLIES WITH PS483		QA		VISUAL	VERIFIED COMPONENT CLEANLINESS	840-G.M			A
(50)	06-28-06										
*		Q/A MANAGER / CFT VERIFY SUB-ASSY COMPLETION		QA		VISUAL	VERIFIED COMPONENT COMPLETED	840-G.M			A
(60)	06-28-06										

Quality Assurance Documentation for Part ID: SE120-003-23 - Item: 102

Workorder: 65678/2-0 Sub:137 Op:10

Part: SE120-003-23 - - VVSA 120 DEGREE VESSEL

Drawing ID: SE120-005 Rev: 0C			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT	
*		VISUAL INSPECT PORT DOME A WELD BACK STRIP TO PORT TUBE BLOCK TO BACK STRIP 1/8" TUBE TO BLOCK		MFG		VISUAL	ACCEPT	197-T.FI	053-M.D		A
(10)		TIE STRAP SPOT WELDS		CWI				06-22-06	06-23-06		
*		VISUAL INSPECT PORT DOME B WELD BACK STRIP TO PORT TUBE BLOCK TO BACK STRIP 1/8" TUBE TO BLOCK		MFG		VISUAL	OK PER SPEC.	093-M.S	933-D.L		A
(20)		TIE STRAP SPOT WELDS		CWI				06-21-06	06-21-06		

Quality Assurance Documentation for Part ID: SE120-003-23 - Item: 103

Workorder: 65678/2-0 Sub:137 Op:20

Part: SE120-003-23 - - VVSA 120 DEGREE VESSEL

Drawing ID: SE120-004 Rev: 2D			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT	
*			LASER	QA		J-1280	POS 0.017 FACE -0.208 / -0.234 (N.C. # 20069-SUBMIT WITH DATA PACKAGE) [N/C: 20069-Doc:N/C 20069]	854-R.U			R
(10)		PORT 17A POSITION (REINSTALLED)						07-31-06			
*			LASER	QA		J-1280	POS 0.247 FACE +0.028 / +0.071	522-R.D			A
(20)		PORT 17B POSITION (REINSTALLED)						06-26-06			

Quality Assurance Documentation for Part ID: SE120-003-23 - Item: 104

Workorder: 65678/2-0 Sub:137 Op:30

Part: SE120-003-23 - - VVSA 120 DEGREE VESSEL

Drawing ID: SE120-004 Rev: 2D			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT	
*		MAGNETIC PERMEABILITY 1.02 MAX (ENTIRE PORT LESS FLANGE WELD ZONE)	MASTER GAGE	QA		J-1165	LESS THAN 1.02	261-T.D			A
(10)	06-28-06										
*		MAGNETIC PERMEABILITY 1.2 MAX (PORT WALL TO FLANGE WELD ZONE)	MASTER GAGE	QA		J-1165	LESS THAN 1.2	261-T.D			A
(20)	06-28-06										
*		INTERIOR SURFACE FINISH: 32 MICRO-INCH RA	PROFILOMETER	QA		J-1308	10 TO 17 MICRO-INCH	261-T.D			A
(30)	06-28-06										
*		DOME WALL THICKNESS 0.375 +0.045/-0.010"	UT THICKNESS GA	QA		J-1009-NDT	.366 TO .402	261-T.D			A
(40)	06-28-06										
*		PORT EXTENSION WALL THICKNESS 0.226 +0.045/-0.010" (17 & 18)	UT THICKNESS GA	QA		J-1009-NDT	.245 TO .267	261-T.D			A
(50)	06-28-06										
Drawing ID: SE122-007 Rev: 2			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT	
*		CLEANLINESS COMPLIES WITH PS483		QA		VISUAL INSPEC	VERIFIED CLEANLINESS COMPLIES WITH PS483	840-G.M			A
(60)	06-30-06										
*		Q/A MANAGER / CFT VERIFY SUB-ASSY COMPLETION		QA			VERIFIED COMPONENT COMPLETION	840-G.M			A
(70)	06-30-06										

Quality Assurance Documentation for Part ID: SE120-003-3 - Item: 105

Workorder: 65678/2-0 Sub:127 Op:10

Part: SE120-003-3 - - VVSA 120 DEGREE VESSEL

Drawing ID: SE120-005 Rev: 0C			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT	
*		VISUAL INSPECT PORT 2A WELDS BACK STRIP TO PORT TUBE BLOCK TO BACK STRIP 1/8" TUBE TO BLOCK		MFG		VISUAL	ACCEPTABLE	728-R.D	053-M.D		A
(10)		TIE STRAP SPOT WELDS		CWI				06-12-06	06-13-06		
*		VISUAL INSPECT PORT 2B WELDS BACK STRIP TO PORT TUBE BLOCK TO BACK STRIP 1/8" TUBE TO BLOCK		MFG		VISUAL	ACCEPTABLE	728-R.D	053-M.D		A
(20)		TIE STRAP SPOT WELDS		CWI				06-06-06	06-07-06		



Quality Assurance Documentation for Part ID: SE120-003-3 - Item: 106

Workorder: 65678/2-0 Sub:127 Op:20

Part: SE120-003-3 - - VVSA 120 DEGREE VESSEL

Drawing ID: SE120-004 Rev: 2D			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY		
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
*		PORT 2A POSITION (REINSTALLED)	LASER	QA		J-1280	POS 0.098 FACE +0.0	522-R.D		
(10)	21 / -0.018						06-26-06			
*		PORT 2B POSITION (REINSTALLED)	LASER	QA		J-1280	POS 0.171 FACE -0.0	522-R.D		
(20)	02 / +0.056						06-26-06			

Quality Assurance Documentation for Part ID: SE120-003-3 - Item: 107

Workorder: 65678/2-0 Sub:127 Op:30

Part: SE120-003-3 - - VVSA 120 DEGREE VESSEL

Drawing ID: SE120-004 Rev: 2D			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT	
*		MAGNETIC PERMEABILITY 1.02 MAX (ENTIRE PORT LESS FLANGE WELD ZO	MASTER GAGE	QA		J-1165	LESS THAN 1.02	503-B.H			A
(10)											
*		MAGNETIC PERMEABILITY 1.2 MAX (PORT WALL TO FLANGE WELD ZONE)	MASTER GAGE	QA		J-1165	LESS THAN 1.2	503-B.H			A
(20)											
*		INTERIOR SURFACE FINISH: 32 MICRO-INCH RA	PROFILOMETER	QA		J-1152	ACCEPT	503-B.H			A
(30)											
*		PORT EXTENSION WALL THICKNESS 0.226 +0.045/0.010"	UT THICKNESS GA	QA		J-770-NDT	.260	503-B.H			A
(40)											
*		CLEANLINESS COMPLIES WITH PS483		QA		VISUAL	CLEANLINESS COMPL S WITH PS483	840-G.M			A
(50)											
*		Q/A MANAGER / CFT VERIFY SUB-ASSY COMPLETION		QA		VISUAL	VERIFIED COMPLETIO	840-G.M			A
(60)											

Quality Assurance Documentation for Part ID: SE120-003-5 - Item: 108

Workorder: 65678/2-0 Sub:128 Op:10

Part: SE120-003-5 - - VVSA 120 DEGREE VESSEL

Drawing ID: SE120-005 Rev: 0C			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT	
*		VISUAL INSPECT PORT 4A WELDS BACK STRIP TO PORT TUBE BLOCK TO BACK STRIP 1/8" TUBE TO BLOCK		MFG		VISUAL	OK PER SPEC.	093-M.S	933-D.L		A
(10)		TIE STRAP SPOT WELDS		CWI				06-21-06	06-21-06		
*		VISUAL INSPECT PORT 4B WELDS BACK STRIP TO PORT TUBE BLOCK TO BACK STRIP 1/8" TUBE TO BLOCK		MFG		VISUAL	OK PER SPEC.	093-M.S	933-D.L		A
(20)		TIE STRAP SPOT WELDS		CWI				06-21-06	06-21-06		

Quality Assurance Documentation for Part ID: SE120-003-5 - Item: 109

Workorder: 65678/2-0 Sub:128 Op:20

Part: SE120-003-5 - - VVSA 120 DEGREE VESSEL

Drawing ID: SE120-004 Rev: 2D			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT	
*			LASER	QA		J-1280	POS 0.122 FACE -0.0 91 / +0.112 (SUBMIT N.C. 20069 WITH DA TA PACKAGE) [N/C:20 069-Doc:N/C 20069]	854-R.U			R
(10)		PORT 4A POSITION (REINSTALLED)						07-31-06			
*			LASER	QA		J-1280	POS 0.139 FACE -0.0 90 / +0.121 (SUBMIT N.C. 20069 WITH DA TA PACKAGE) [N/C:20 069-Doc:N/C 20069]	854-R.U			R
(20)		PORT 4B POSITION (REINSTALLED)						07-31-06			

Quality Assurance Documentation for Part ID: SE120-003-5 - Item: 110

Workorder: 65678/2-0 Sub:128 Op:30

Part: SE120-003-5 - - VVSA 120 DEGREE VESSEL

Drawing ID: SE120-004 Rev: 2D			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT	
*		MAGNETIC PERMEABILITY 1.02 MAX (ENTIRE PORT LESS FLANGE WELD ZONE)	MASTER GAGE	QA		J-1165	LESS THAN 1.02	261-T.D			A
(10)	06-28-06										
*		MAGNETIC PERMEABILITY 1.2 MAX (PORT WALL TO FLANGE WELD ZONE)	MASTER GAGE	QA		J-1165	LESS THAN 1.2	261-T.D			A
(20)	06-28-06										
*		INTERIOR SURFACE FINISH: 32 MICRO-INCH RA	PROFILOMETER	QA		J-1308	6 TO 29 MICRO INCH	261-T.D			A
(30)	06-28-06										
*		PORT EXTENSION WALL THICKNESS 0.500 +0.055/-0.010"	UT THICKNESS GA	QA		J-1009-NDT	.510 TO .535	261-T.D			A
(40)	06-28-06										
*		CLEANLINESS COMPLIES WITH PS483		QA		VISUAL INSPEC	CLEANLINESS COMPL S WITH PS483	840-G.M			A
(50)	06-29-06										
*		Q/A MANAGER / CFT VERIFY SUB-ASSY COMPLETION		QA		VISUAL	VERIFIED COMPONEN COMPLETION	840-G.M			A
(60)	06-29-06										

Quality Assurance Documentation for Part ID: SE120-003-7 - Item: 111

Workorder: 65678/2-0 Sub:129 Op:10

Part: SE120-003-7 - - VVSA 120 DEGREE VESSEL

Drawing ID: SE120-005 Rev: 0C			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT	
*		VISUAL INSPECT PORT 5A WELDS BACK STRIP TO PORT TUBE BLOCK TO BACK STRIP 1/8" TUBE TO BLOCK		MFG		VISUAL	ACCEPTABLE	728-R.D	053-M.D		A
(10)		TIE STRAP SPOT WELDS		CWI				06-14-06	06-15-06		
*		VISUAL INSPECT PORT 5B WELDS BACK STRIP TO PORT TUBE BLOCK TO BACK STRIP 1/8" TUBE TO BLOCK		MFG		VISUAL	ACCEPTABLE	197-T.FI	053-M.D		A
(20)		TIE STRAP SPOT WELDS		CWI				06-06-06	06-06-06		

Quality Assurance Documentation for Part ID: SE120-003-7 - Item: 112

Workorder: 65678/2-0 Sub:129 Op:20

Part: SE120-003-7 - - VVSA 120 DEGREE VESSEL

Drawing ID: SE120-004 Rev: 2D			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT	
*		PORT 5A POSITION (REINSTALLED)	LASER	QA		J-1280	POS 0.156 FACE -0.0	522-R.D			A
(10)							28 / +0.017	06-26-06			
*		PORT 5B POSITION (REINSTALLED)	LASER	QA		J-1280	POS 0.031 FACE -0.0	522-R.D			A
(20)							41 / -0.019	06-26-06			

Quality Assurance Documentation for Part ID: SE120-003-7 - Item: 113

Workorder: 65678/2-0 Sub:129 Op:30

Part: SE120-003-7 - - VVSA 120 DEGREE VESSEL

Drawing ID: SE120-004 Rev: 2D			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT	
*		MAGNETIC PERMEABILITY 1.02 MAX (ENTIRE PORT LESS FLANGE WELD ZONE)	MASTER GAGE	QA		J-1165	LESS THAN 1.02	503-B.H			A
(10)								06-27-06			
*		MAGNETIC PERMEABILITY 1.2 MAX (PORT WALL TO FLANGE WELD ZONE)	MASTER GAGE	QA		J-1165	LESS THAN 1.2	503-B.H			A
(20)								06-27-06			
*		INTERIOR SURFACE FINISH: 32 MICRO-INCH RA	PROFILOMETER	QA		J-1152	ACCEPT	503-B.H			A
(30)								06-27-06			
*		PORT EXTENSION WALL THICKNESS 0.188 +0.045/-0.010"	UT THICKNESS GA	QA		J-770-NDT	.200	503-B.H			A
(40)								06-27-06			
*		CLEANLINESS COMPLIES WITH PS483		QA		VISUAL	CLEANLINESS COMPL S WITH PS483	840-G.M			A
(50)			06-29-06								
*		Q/A MANAGER / CFT VERIFY SUB-ASSY COMPLETION		QA			VERIFIED COMPLETIO	840-G.M			A
(60)			06-29-06								



Quality Assurance Documentation for Part ID: SE120-003-9 - Item: 114

Workorder: 65678/2-0 Sub:130 Op:10

Part: SE120-003-9 - - VVSA 120 DEGREE VESSEL

Drawing ID: SE120-005 Rev: 0C			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT	
*		VISUAL INSPECT PORT 6A WELDS BACK STRIP TO PORT TUBE BLOCK TO BACK STRIP 1/8" TUBE TO BLOCK		MFG		VISUAL	ACCEPTABLE	728-R.D	053-M.D		A
(10)		TIE STRAP SPOT WELDS		CWI				06-13-06	06-14-06		
*		VISUAL INSPECT PORT 6B WELDS BACK STRIP TO PORT TUBE BLOCK TO BACK STRIP 1/8" TUBE TO BLOCK		MFG		VISUAL	ACCEPTABLE	728-R.D	053-M.D		A
(20)		TIE STRAP SPOT WELDS		CWI				06-13-06	06-14-06		

**INSPECTION DATA CHECKLIST**

Quality Assurance Documentation for Part ID: SE120-003-9 - Item: 115

Workorder: 65678/2-0 Sub:130 Op:20

Part: SE120-003-9 - - VVSA 120 DEGREE VESSEL

Drawing ID: SE120-004 Rev: 2D			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT	
*		PORT 6A POSITION (REINSTALLED)	LASER	QA		J-1280	POS 0.113 FACE -0.0	522-R.D			A
(10)							22 / +0.035	06-26-06			
*		PORT 6B POSITION (REINSTALLED)	LASER	QA		J-1280	POS 0.048 FACE -0.0	522-R.D			A
(20)							66 / +0.047	06-26-06			

Quality Assurance Documentation for Part ID: SE120-003-9 - Item: 116

Workorder: 65678/2-0 Sub:130 Op:30

Part: SE120-003-9 - - VVSA 120 DEGREE VESSEL

Drawing ID: SE120-004 Rev: 2D			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT	
*		MAGNETIC PERMEABILITY 1.02 MAX (ENTIRE PORT LESS FLANGE WELD ZO	MASTER GAGE	QA		J-1165	LESS THAN 1.02	503-B.H			A
(10)								06-27-06			
*		MAGNETIC PERMEABILITY 1.2 MAX (PORT WALL TO FLANGE WELD ZONE)	MASTER GAGE	QA		J-1165	LESS THAN 1.2	503-B.H			A
(20)								06-27-06			
*		INTERIOR SURFACE FINISH: 32 MICRO-INCH RA	PROFILOMETER	QA		J-1152	ACCEPT	503-B.H			A
(30)								06-27-06			
*		PORT EXTENSION WALL THICKNESS 0.250 +0.045/-0.010"	UT THICKNESS GA	QA		J-770-NDT	.260/.270	503-B.H			A
(40)								06-27-06			
*		CLEANLINESS COMPLIES WITH PS483		QA		VISUAL	CLEANLINESS COMPL S WITH PS483	840-G.M			A
(50)			06-29-06								
*		Q/A MANAGER / CFT VERIFY SUB-ASSY COMPLETION		QA		VISUAL	VERIFIED COMPLETIO	840-G.M			A
(60)			06-29-06								

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

Workorder: 65678/2-0 Sub:122 Op:10

Part: SE120-003-DOME A - - VVSA 120 DEGREE VESSEL

Drawing ID: SE120-004 Rev: 2		INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
*				MFG		VISUAL	ACCEPT PER CUSTOM	709-K.A	933-D.L	
(20)		VWI - ROOT PASS WELD PDAV		CWI			DRAWINGS AND SPE FICATIONS	02-07-06	02-08-06	A
*				MFG		VISUAL	ACCEPT PER CUSTOM	709-K.A	933-D.L	
(60)		VWI - COVER PASS WELD PDAV		CWI			DRAWINGS AND SPE FICATIONS	02-08-06	02-08-06	A
*				MFG		VISUAL	ACCEPT PER CUSTOM	709-K.A	933-D.L	
(80)		VWI - ROOT PASS WELD PDBV		CWI			DRAWINGS AND SPE FICATIONS	02-07-06	02-08-06	A
*				MFG		VISUAL	ACCEPT PER CUSTOM	709-K.A	933-D.L	
(120)		VWI - COVER PASS WELD PDBV		CWI			DRAWINGS AND SPE FICATIONS	02-08-06	02-08-06	A

Quality Assurance Documentation for Part ID: SE120-003-DOME A - Item: 118

Workorder: 65678/2-0 Sub:122 Op:20

Part: SE120-003-DOME A - - VVSA 120 DEGREE VESSEL

Drawing ID: SE120-004 Rev: 2			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT	
2* (30)	G2	PORT DOME A SIDEWALL AND ADJACENT VESSEL WALL	LASER	QA		1444	DOME -0.107 / -0.03 0 VESSEL -0.033 / + 0.337 (ACCEPT PER N .C. 19231) [N/C:192 31]	854-R.U  07-31-06			A
2* (40)	G2	PORT DOME B SIDEWALL AND ADJACENT VESSEL WALL	LASER	QA		1444	DOME -0.130 / +0.05 6 VESSEL -0.168 / + 0.179	522-R.D  02-08-06			A

**INSPECTION DATA CHECKLIST**

Quality Assurance Documentation for Part ID: SE120-005-41 - Item: 119

Workorder: 65678/2-0 Sub:145 Op:10

Part: SE120-005-41 - - VVSA 120 DEGREE VESSEL

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

A

CERTIFICATION OF TESTS • RAPPORT D'ESSAIS CERTIFIE • WERKSZEUGNIS

FILE COPY 2

Invoice No No. De Facture Rechnungs Nr 442557001-0	Date Entered Date De Commande Bestelldatum 06/03/05	Customer Reference Reference Client Kundenbestelldaten P05-03064	Report No. Rapport No Zeugnis Nr 20050628088	Pages of Pages Page de Pages Anzahl der Seiten 1 Of 4
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**HAYNES**  
**International**

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

Sold To • Client • Bestellaranschrift <b>MAJOR TOOL AND MACHINE INC</b> 1458 E 19TH ST INDIANAPOLIS IN 46218 USA	Ship To • Destinataire • Bestellmenge <b>MAJOR TOOL AND MACHINE INC</b> 1458 E 19TH ST INDIANAPOLIS IN 46218 USA	Product Description • Description Produit • Material Beschreibung <b>0.125 (0.120/0.130) x 0/0 x 0/0</b> <b>SE120-004-68MTM REV: 1A</b> <b>HAYNES(R) 625 ALLOY SHEET</b> <b>Nadcap CERTIFICATE NUMBER 0089</b> <b>S400E,S1000E, EN 10204 3.1.B, AS9100</b>
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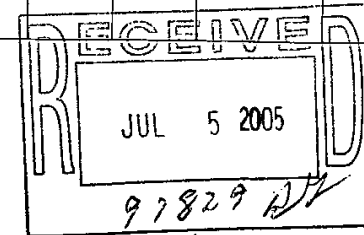
Specification • Specification • Spezifikation ASME-SB-443, 04, UNS# N06625, Gr. 1; PS-489, E	Quantity Ordered Quantite Commandee Bestellmenge 6 PC	Quantity Shipped Quantite Expeditee Liefermenge 6 PC
---	--	---

Heat Number Numero De Coulee Charge Nr	Chemical Analysis • Analyse Chimique • Chemische Analyse																		
	Al	B	C	Ch+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
	(CNb)	Ta	Zr	Bi	Se	La	C+N+P	Pb	Mg	Y	Ag	N	Ca	Al+Ti	Ni+Co	Ni+Mo			BUTT END *03
2650 5 6801	3.5026	<0.05																	BUTT END *03

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

6/28/2005

*Amanda Aguirre*



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**CERTIFICATION OF TESTS • RAPPORT D'ESSAIS CERTIFIE • WERKSZEUGNIS**

FILE COPY 2

Invoice No No. De Facture Rechnungs Nr 442557001-0	Date Entered Date De Commande Bestelldatum 06/03/05	Customer Reference Reference Client Kundenbestelldaten P05-03064	Report No. Rapport No Zeugnis Nr 20050628088	Pages of Pages Page de Pages Anzahl der Seiten 2 Of 4
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**HAYNES**  
**International**

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

Sold To • Client • Bestellaranschrift <b>MAJOR TOOL AND MACHINE INC</b> 1458 E 19TH ST INDIANAPOLIS IN 46218 USA	Ship To • Destinataire • Bestellmenge <b>MAJOR TOOL AND MACHINE INC</b> 1458 E 19TH ST INDIANAPOLIS IN 46218 USA	Product Description • Description Produit • Material Beschreibung <b>0.125 (0.120/0.130) x 0/0 x 0/0</b> <b>SE120-004-68MTM REV: 1A</b> <b>HAYNES(R) 625 ALLOY SHEET -</b> <b>Nadcap CERTIFICATE NUMBER 0089</b> <b>S400E,S1000E, EN 10204 3.1.B, AS9100</b>
--	--	---

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

Tensile Test at Room Temperature • Essai De Traction A Temp. Ambiante • Zugversuch Bei Raum Temp.					Tensile Test at Elevated Temperature • Essai De Traction A Hte.Temp. Warm Zugversuch					Stress Rupture Temperature • Essai A Charge De Rupture Zeitstandversuch					
Ultimate Zugfestigkeit	1% Yield Lim. Elast. A 1% 1% Strieckgrenze	0.2% Yield Lim. Elast. A 0.2% 0.2% Strieckgrenze	% Elong In % Allong EN % Dehnung	%RA	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	Test Essai Versuch Temp:	Stress Constrained Spannung	Hours Heures Stunden	% Elong In % Allong EN % Dehnung	% RA
137000 PSI		74000 PSI	44 %	(1)(A)											

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

6/28/2005 (1) 3942629401

*Amanda Aguirre*



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**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

<b>Invoice No</b> No. De Facture Rechnungs Nr 442557001-0		<b>Date Entered</b> Date De Commande Bestelldatum 06/03/05		<b>Customer Reference</b> Reference Client Kundenbestelldaten P05-03064		<b>Report No.</b> Rapport No Zeugnis Nr 20050628088		<b>Pages of Pages</b> Page de Pages Anzahl der Seiten 3 Of 4											
<b>Sold To • Client • Bestellaranschrift</b> <b>MAJOR TOOL AND MACHINE INC</b> <b>1458 E 19TH ST</b> <b>INDIANAPOLIS</b> <b>IN 46218 USA</b>				<b>Ship To • Destinataire • Bestellmenge</b> <b>MAJOR TOOL AND MACHINE INC</b> <b>1458 E 19TH ST</b> <b>INDIANAPOLIS</b> <b>IN 46218 USA</b>				<b>Product Description • Description Produit • Material Beschreibung</b> <b>0.125 (0.120/0.130) x 0/0 x 0/0</b> <b>SE120-004-68MTM REV: 1A</b> <b>HAYNES(R) 625 ALLOY SHEET -</b> <b>Nadcap CERTIFICATE NUMBER 0089</b> <b>S400E,S1000E, EN 10204 3.1.B, AS9100</b>											
<b>Specification • Specification • Spezifikation</b> ASME-SB-443, 04, UNS# N06625, Gr. 1; PS-489, E						<b>Quantity Ordered</b> Quantite Commandee Bestellemenge 6 PC		<b>Quantity Shipped</b> Quantite Expeditee Liefermenge 6 PC											
<b>Annealed Hardness</b> Durete Recuit Gegluicht Haerte	<b>Aged Hardness</b> Durete Vieilli Gealtert Haerte	<b>Grain Size</b> Grosseur De Grain Korngroesse					<b>IGA</b>	<b>Uniformity</b>	<b>Corrosion Rate</b>	<b>Oxidation Rate</b>	<b>Charpy Impact Test</b>				<b>Creep Rupture</b>				
		<b>Grain Size</b>	<b>Predomnant Grain Size</b>	<b>Recry. Grain</b>	<b>Unrecry. Grain %</b>	<b>ALA</b>	<b>P&amp;W Figure Number</b>	<b>Attack Depth</b>	<b>Corrosion</b>	<b>Test Method</b>	<b>Toughness Avg</b>	<b>Toughness 1</b>	<b>Toughness 2</b>	<b>Toughness 3</b>	<b>Test Essai Versuch</b>	<b>Stress Constraint Spannung</b>	<b>Hours Heures Stunden</b>	<b>% Elong In % Allong EN</b>	<b>% Elong @ 15 Hrs</b>
98 HRB	(I)(A)	7.5						0.0001 IN	MPY		Fl. Lbs.	Fl. Lbs.	Fl. Lbs.	Fl. Lbs.	Temp:	PSI			

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

6/28/2005 (1) 3942629401

*Amanda Aguirre*



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mct109512.tif (1705x2203x2.tif) [3]

**CERTIFICATION OF TESTS • RAPPORT D'ESSAIS CERTIFIE • WERKSZEUGNIS**

FILE COPY 2

Invoice No No. De Facture Rechnungs Nr 442557001-0	Date Entered Date De Commande Bestelldatum 06/03/05	Customer Reference Reference Client Kundenbestelldaten P05-03064	Report No. Rapport No Zeugnis Nr 20050628088	Pages of Pages Page de Pages Anzahl der Seiten 4 Of 4	<b>HAYNES</b> <b>International</b>	Haynes International 1020 West Park Avenue PO Box 9013 Kokomo, Indiana, 46902
Sold To • Client • Bestellanschrift <b>MAJOR TOOL AND MACHINE INC</b> <b>1458 E 19TH ST</b> <b>INDIANAPOLIS</b> <b>IN 46218 USA</b>		Ship To • Destinataire • Bestellmenge <b>MAJOR TOOL AND MACHINE INC</b> <b>1458 E 19TH ST</b> <b>INDIANAPOLIS</b> <b>IN 46218 USA</b>		Product Description • Description Produit • Material Beschreibung <b>0.125 (0.120/0.130) x 0/0 x 0/0</b> <b>SE120-004-68MTM REV: 1A</b> <b>HAYNES(R) 625 ALLOY SHEET</b> <b>Nadcap CERTIFICATE NUMBER 0089</b> <b>S400E,S1000E, EN 10204 3.1.B, AS9100</b>		
Specification • Specification • Spezifikation ASME-SB-443, 04, UNS# N06625, Gr. 1; PS-489, E			Quantity Ordered Quantite Commandee Bestellmenge 6 PC	Quantity Shipped Quantite Expediee Liefermenge 6 PC		

All tests and inspections have been performed and results meet specification requirements.  
 THIS MATERIAL IS FREE FROM MERCURY, CADMIUM, RADIUM, AND ALPHA SOURCE CONTAMINATION.  
 Material conforms to PS-483 Revision H as applicable.  
 Mill Orders Used: 3942629401 (6 PC)  
 (A) 1750 °F to 1950 °F

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

*Amanda Aguirre*



**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: SE120-003-NB - Item: 121

Workorder: 65678/2-0 Sub:119 Op:10

Part: SE120-003-NB - - VVSA 120 DEGREE VESSEL

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 PNBV		CWI				01-18-06	01-18-06		
*				MFG		VISUAL	ACCEPT PER CUSTOM	683-K.M	933-D.L		A
(60)		VWI - COVER PASS WELD PNBV		CWI			DRAWINGS AND SPE FICATIONS	01-20-06	01-20-06		

Quality Assurance Documentation for Part ID: SE120-004 - Item: 122

Workorder: 65678/2-0 Sub:1 Op:20

Part: SE120-004 - - VVSA 120 DEGREE VESSEL

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)		FINAL VESSEL PROFILE	LASER	QA		J-1280	-0.421 / +0.451 [N/C:20175-Doc:20175]	522-R.D 07-21-06		R
3* (20)	D3	HALF A RFD 12-016	LASER	QA		J-1280	0.048 +0.080 / +0.  001	522-R.D  07-21-06		A
3* (30)	D3	HALF B RFD 12-016	LASER	QA		J-1280	0.035 +0.015 / +0.  104	522-R.D  07-21-06		A
* (40)		HALF -A- BOSS A FINAL	LASER	QA		J-1280	0.320 [N/C:20175-Do c:20175]	522-R.D  07-21-06		R
* (50)		HALF -A- BOSS B FINAL	LASER	QA		J-1280	0.906 [N/C:20175-Do c:20175]	522-R.D  07-21-06		R
* (60)		HALF -A- BOSS C FINAL	LASER	QA		J-1280	0.686 [N/C:20175-Do c:20175]	522-R.D  07-21-06		R
* (70)		HALF -A- BOSS D FINAL	LASER	QA		J-1280	0.344 [N/C:20175-Do c:20175]	522-R.D  07-21-06		R
* (80)		HALF -B- BOSS A FINAL	LASER	QA		J-1280	0.200	522-R.D  07-21-06		A

**INSPECTION DATA CHECKLIST**

*			LASER	QA		J-1280	0.382 [N/C:20175-Do c:20175]	522-R.D 07-21-06			R
(90)		HALF -B- BOSS B FINAL									
*			LASER	QA		J-1280	0.789 [N/C:20175-Do c:20175]	522-R.D 07-21-06			R
(100)		HALF -B- BOSS C FINAL									
*			LASER	QA		J-1280	0.593 [N/C:20175-Do c:20175]	522-R.D 07-21-06			R
(110)		HALF -B- BOSS D FINAL									
15*			LASER	QA		J-1280	98.388 / 98.482 [N/ C:20175-Doc:20175]	522-R.D 07-21-06			R
(120)		98.641 +/-0.125"									
13*	F3		LASER	QA		J-1280	0.084	522-R.D 07-21-06			A
(130)											
13*	A3		LASER	QA		J-1280	0.100	522-R.D 07-21-06			A
(140)											
<b>Drawing ID: SE120-002 Rev: 1</b>			<b>INSPECTION INSTRUCTIONS</b>			<b>RESULTS</b>		<b>INSPECTED BY</b>			
<b>SHEET</b>	<b>ZONE</b>	<b>CHARACTERISTIC</b>	<b>GAGE/EQUIP</b>	<b>BY</b>	<b>SAMPLE</b>	<b>SER#</b>	<b>DATA/REMARKS</b>	<b>INSP</b>	<b>VERFD</b>	<b>AUDIT</b>	
*			LASER	QA		J-1280	-0.254 / +0.359 [N/ C:20175-Doc:20175]	522-R.D 07-21-06			R
(150)		Port 12A profile									
<b>Drawing ID: SE120-004 Rev: 2D</b>			<b>INSPECTION INSTRUCTIONS</b>			<b>RESULTS</b>		<b>INSPECTED BY</b>			
<b>SHEET</b>	<b>ZONE</b>	<b>CHARACTERISTIC</b>	<b>GAGE/EQUIP</b>	<b>BY</b>	<b>SAMPLE</b>	<b>SER#</b>	<b>DATA/REMARKS</b>	<b>INSP</b>	<b>VERFD</b>	<b>AUDIT</b>	
13*	E2		LASER	QA		J-1280	81.290 / 81.374	522-R.D 07-21-06			A
(160)		81.370 +/-0.125"									
13*	B2		LASER	QA		J-1280	81.220 / 81.320 [N/ C:20175-Doc:20175]	522-R.D 07-21-06			R
(170)		81.370 +/-0.125"									
<b>Drawing ID: SE120-002 Rev: 1</b>			<b>INSPECTION INSTRUCTIONS</b>			<b>RESULTS</b>		<b>INSPECTED BY</b>			
<b>SHEET</b>	<b>ZONE</b>	<b>CHARACTERISTIC</b>	<b>GAGE/EQUIP</b>	<b>BY</b>	<b>SAMPLE</b>	<b>SER#</b>	<b>DATA/REMARKS</b>	<b>INSP</b>	<b>VERFD</b>	<b>AUDIT</b>	
*			LASER	QA		J-1280	-0.248 / +0.306 [N/ C:20175-Doc:20175]	522-R.D 07-21-06			R
(180)		Port 12B profile									
<b>Drawing ID: SE120-004 Rev: 2D</b>			<b>INSPECTION INSTRUCTIONS</b>			<b>RESULTS</b>		<b>INSPECTED BY</b>			
<b>SHEET</b>	<b>ZONE</b>	<b>CHARACTERISTIC</b>	<b>GAGE/EQUIP</b>	<b>BY</b>	<b>SAMPLE</b>	<b>SER#</b>	<b>DATA/REMARKS</b>	<b>INSP</b>	<b>VERFD</b>	<b>AUDIT</b>	
15*			LASER	QA		J-1280	-0.329 / +0.145 [N/	522-R.D			R

INSPECTION DATA CHECKLIST

(190)	Port NB profile					C:20175-Doc:20175]	07-21-06		
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Quality Assurance Documentation for Part ID: SE120-004 - Item: 123

Workorder: 65678/2-0 Sub:1 Op:30

Part: SE120-004 - - VVSA 120 DEGREE VESSEL

Drawing ID: SE120-002 Rev: 1			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT	
*		VESSEL WALL MATERIAL THICKNESS 10% MAX POLOIDAL THINNING BELO STK (0.375 +.040"/-.010")	UT THICKNESS GA	QA		J-770-NDT	.385/.406	503-B.H			A
(10)		.338 MINIMUM WALL THICKNESS	UT CAL BLOCK			J-1158		07-28-06			
*		MAGNETIC PERMEABILITY 1.02 MAX	MASTER GAGE	QA		J-1165	LESS THAN 1.02	503-B.H			A
(20)								07-28-06			
*		INTERIOR SURFACE FINISH: 32 MICRO-INCH RA	PROFILOMETER	QA		J-1152	25/32	503-B.H			A
(30)								07-28-06			



Quality Assurance Documentation for Part ID: SE120-004 - Item: 124

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

Part: SE120-004 - - VVSA 120 DEGREE VESSEL

Drawing ID: SE120-004 Rev: 2D			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY		
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
3* (10)	D3		INDICATOR	MFG QA		P-3363	.005	216-J.SA 07-07-06	576-J.G 07-07-06	A
3* (20)	D3		INDICATOR	MFG QA		P-2126	.056	216-J.SA 07-07-06	576-J.G 07-07-06	A
Drawing ID: SE121-013 Rev: 0			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY		
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
* (30)		0.188 +/-0.005"	CALIPER	MFG QA		P-1834	.186 - .187	216-J.SA 07-07-06	576-J.G 07-07-06	A
* (40)		0.637 +/-0.005" NOTE: DIMENSION WILL LIKELY BE S OUT OF TOLERANCE, I.D. CUT AS DET	CALIPER	MFG QA		P-1834	.600 - .750 [N/C:20 120-Doc:20120]	216-J.SA 07-07-06	576-J.G 07-07-06	R
* (50)		0.469 +/-0.005" NOTE: DIMENSION WILL LIKELY BE S OUT OF TOLERANCE, HOLES CUT AS D	CALIPER	MFG QA		P-1834	.645 - .810 [N/C:20 120-Doc:20120]	216-J.SA 07-07-06	576-J.G 07-07-06	R
Drawing ID: SE120-004 Rev: 2D			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY		
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
* (60)		RECORD PORT NB FLANGE THICKNESS AFTER REWORK. (TARGET 1.1875) TOLERANCE: 1.25 +0.01/-0.0725" NCR 19868	CALIPER	MFG QA		P-4076	TOOK FACE TO CLEA UP . THICKNESS 1.2 20-1.240INSIDE 1.28 5OUTSIDE [N/C:20120 -Doc:20120]	557-P.W 07-08-06	313-R.B 07-10-06	R

Quality Assurance Documentation for Part ID: SE120-004-17A - Item: 125

Workorder: 65678/2-0 Sub:125 Op:10

Part: SE120-004-17A - - VVSA 120 DEGREE VESSEL

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	683-K.M	933-D.L		A
(20)		VWI - ROOT PASS WELD P17AV		CWI			DRAWINGS AND SPE FICATIONS	02-16-06	02-16-06		
*				MFG		VISUAL	ACCEPT	053-M.D	053-M.D		A
(40)		VWI - COVER PASS WELD P17AV		CWI				02-17-06	02-17-06		
*				MFG		VISUAL	ACCEPTABLE	728-R.D	053-M.D		A
(60)		VWI - ROOT PASS WELD P17BV		CWI				02-15-06	02-15-06		
*				MFG		VISUAL	ACCEPTABLE	728-R.D	933-D.L		A
(80)		VWI - COVER PASS WELD P17BV		CWI				02-16-06	02-16-06		

**INSPECTION DATA CHECKLIST**

Quality Assurance Documentation for Part ID: SE120-004-17A - Item: 126

Workorder: 65678/2-0 Sub:125 Op:20

Part: SE120-004-17A - - VVSA 120 DEGREE VESSEL

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* (30)	D8	PORT 17A POSITION	LASER	QA		1444	POS 0.214 / TOP -0.084 / -0.075	522-R.D 02-20-06			A
16* (40)	D8	PORT 17B POSITION	LASER	QA		1444	POS 0.189 / TOP +0.018 / +0.052	522-R.D 02-20-06			A

Quality Assurance Documentation for Part ID: SE120-004-18A - Item: 127

Workorder: 65678/2-0 Sub:126 Op:10

Part: SE120-004-18A - - VVSA 120 DEGREE VESSEL

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	683-K.M	933-D.L	
(20)		VWI - ROOT PASS WELD P18AV		CWI			DRAWINGS AND SPE FICATIONS	02-16-06	02-16-06	A
*				MFG		VISUAL	ACCEPT	299-M.G	053-M.D	
(40)		VWI - COVER PASS WELD P18AV		CWI				02-17-06	02-17-06	A
*				MFG		VISUAL	ACCEPTABLE	728-R.D	053-M.D	
(60)		VWI - ROOT PASS WELD P18BV		CWI				02-15-06	02-15-06	A
*				MFG		VISUAL	ACCEPTABLE	728-R.D	933-D.L	
(80)		VWI - COVER PASS WELD P18BV		CWI				02-16-06	02-16-06	A

Quality Assurance Documentation for Part ID: SE120-004-18A - Item: 128

Workorder: 65678/2-0 Sub:126 Op:20

Part: SE120-004-18A - - VVSA 120 DEGREE VESSEL

Drawing ID: SE120-004 Rev: 2			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT	
17* (30)	B5	PORT 18A POSITION	LASER	QA		1444	POS 0.219 / TOP -0.028 / -0.018	522-R.D 02-20-06			A
17* (40)	B5	PORT 18B POSITION	LASER	QA		1444	POS 0.156 / TOP +0.018 / +0.034	522-R.D 02-18-06			A

Quality Assurance Documentation for Part ID: SE120-004-2A - Item: 129

Workorder: 65678/2-0 Sub:123 Op:10

Part: SE120-004-2A - - VVSA 120 DEGREE VESSEL

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	053-M.D	
(20)		VWI - ROOT PASS WELD P2AV		CWI				02-13-06	02-13-06	A
*				MFG		VISUAL	ACCEPT	837-J.D	053-M.D	
(40)		VWI - COVER PASS WELD P2AV		CWI				02-15-06	02-15-06	A
*				MFG		VISUAL	ACCEPTABLE PER CU	728-R.D	053-M.D	
(60)		VWI - ROOT PASS WELD P2BV		CWI			OMER DRAWINGS AN PECIFICATIONS	02-14-06	02-14-06	A
*				MFG		VISUAL	ACCEPT	299-M.G	053-M.D	
(80)		VWI - COVER PASS WELD P2BV		CWI				02-15-06	02-15-06	A
*				MFG		VISUAL	ACCEPT PER CUSTOM	709-K.A	053-M.D	
(100)		VWI - ROOT PASS WELD P5AV		CWI			DRAWINGS AND SPE FICATIONS	02-10-06	02-10-06	A
*				MFG		VISUAL	ACCEPT	299-M.G	933-D.L	
(120)		VWI - COVER PASS WELD P5AV		CWI				02-13-06	02-13-06	A
*				MFG		VISUAL	ACCEPTABLE	728-R.D	053-M.D	
(140)		VWI - ROOT PASS WELD P5BV		CWI				02-13-06	02-13-06	A
*				MFG		VISUAL	ACCEPT	299-M.G	053-M.D	
(160)		VWI - COVER PASS WELD P5BV		CWI				02-15-06	02-15-06	A
*				MFG		VISUAL	ACCEPTABLE	728-R.D	053-M.D	
(180)		VWI - ROOT PASS WELD P6AV		CWI				02-09-06	02-09-06	A
*				MFG		VISUAL	ACCEPTED	299-M.G	053-M.D	
(200)		VWI - COVER PASS WELD P6AV		CWI				02-10-06	02-10-06	A
*				MFG		VISUAL	ACCEPTABLE	728-R.D	053-M.D	
(220)		VWI - ROOT PASS WELD P6BV		CWI				02-13-06	02-13-06	A
*				MFG		VISUAL	ACCEPT	299-M.G	053-M.D	
(240)		VWI - COVER PASS WELD P6BV		CWI				02-14-06	02-15-06	A
*				MFG		VISUAL	ACCEPT	728-R.D	053-M.D	
(260)		VWI - ROOT PASS WELD P7AV		CWI				02-09-06	02-09-06	A
*				MFG		VISUAL	ACCEPTED	299-M.G	053-M.D	
										A

INSPECTION DATA CHECKLIST

(280)	VWI - COVER PASS WELD P7AV		CWI				02-10-06	02-10-06	
*			MFG		VISUAL	ACCEPT PER CUSTOM DRAWINGS AND SPECIFICATIONS	709-K.A	053-M.D	A
(300)	VWI - ROOT PASS WELD P7BV		CWI				02-10-06	02-10-06	
*			MFG		VISUAL	ACCEPT PER CUSTOM DRAWINGS AND SPECIFICATIONS	299-M.G	933-D.L	A
(320)	VWI - COVER PASS WELD P7BV		CWI				02-13-06	02-13-06	
*			MFG		VISUAL	ACCEPTABLE	728-R.D	053-M.D	A
(340)	VWI - ROOT PASS WELD P8AV		CWI				02-13-06	02-13-06	
*			MFG		VISUAL	ACCEPT	837-J.D	053-M.D	A
(360)	VWI - COVER PASS WELD P8AV		CWI				02-15-06	02-15-06	
*			MFG		VISUAL	ACCEPTABLE	728-R.D	053-M.D	A
(380)	VWI - ROOT PASS WELD P8BV		CWI				02-14-06	02-14-06	
*			MFG		VISUAL	ACCEPT	299-M.G	053-M.D	A
(400)	VWI - COVER PASS WELD P8BV		CWI				02-15-06	02-15-06	
*			MFG		VISUAL	ACCEPT PER CUSTOM DRAWINGS AND SPECIFICATIONS	709-K.A	053-M.D	A
(420)	VWI - ROOT PASS WELD P9AV		CWI				02-10-06	02-10-06	
*			MFG		VISUAL	ACCEPT	299-M.G	933-D.L	A
(440)	VWI - COVER PASS WELD P9AV		CWI				02-13-06	02-13-06	
*			MFG		VISUAL	ACCEPTABLE	728-R.D	053-M.D	A
(460)	VWI - ROOT PASS WELD P9BV		CWI				02-14-06	02-14-06	
*			MFG		VISUAL	ACCEPT	299-M.G	933-D.L	A
(480)	VWI - COVER PASS WELD P9BV		CWI				02-15-06	02-16-06	
*			MFG		VISUAL	ACCEPTABLE	933-D.L	933-D.L	A
(500)	VWI - ROOT PASS WELD P10AV		CWI				02-08-06	02-08-06	
*			MFG		VISUAL	ACCEPT PER CUSTOM DRAWINGS AND SPECIFICATIONS	299-M.G	053-M.D	A
(520)	VWI - COVER PASS WELD P10AV	RADIUS GAGE	CWI		P-5153		02-09-06	02-09-06	
*			MFG		VISUAL	ACCEPT PER CUSTOM DRAWINGS AND SPECIFICATIONS	728-R.D	933-D.L	A
(540)	VWI - ROOT PASS WELD P10BV		CWI				02-09-06	02-08-06	
*			MFG		VISUAL	ACCEPT PER CUSTOM DRAWINGS AND SPE	299-M.G	053-M.D	A

**INSPECTION DATA CHECKLIST**

(560)	VWI - COVER PASS WELD P10BV	RADIUS GAGE	CWI	P-5153	FICATIONS	02-09-06	02-09-06	
*			MFG	VISUAL	ACCEPTABLE	728-R.D	053-M.D	A
(580)	VWI - ROOT PASS WELD P11AV		CWI			02-13-06	02-13-06	
*			MFG	VISUAL	ACCEPT	837-J.D	053-M.D	A
(600)	VWI - COVER PASS WELD P11AV		CWI			02-15-06	02-15-06	
*			MFG	VISUAL	ACCEPTABLE	728-R.D	053-M.D	A
(620)	VWI - ROOT PASS WELD P11BV		CWI			02-13-06	02-13-06	
*			MFG	VISUAL	ACCEPT	299-M.G	053-M.D	A
(640)	VWI - COVER PASS WELD P11BV		CWI			02-15-06	02-15-06	
*			MFG	VISUAL	ACCEPT PER CUSTOM	709-K.A	053-M.D	A
(660)	VWI - ROOT PASS WELD P15AV		CWI		DRAWINGS AND SPE FICATIONS	02-10-06	02-10-06	
*			MFG	VISUAL	ACCEPT	299-M.G	933-D.L	A
(680)	VWI - COVER PASS WELD P15AV		CWI			02-13-06	02-13-06	
*			MFG	VISUAL	ACCEPTABLE	728-R.D	053-M.D	A
(700)	VWI - ROOT PASS WELD P15BV		CWI			02-13-06	02-13-06	
*			MFG	VISUAL	ACCEPT	299-M.G	053-M.D	A
(720)	VWI - COVER PASS WELD P15BV		CWI			02-14-06	02-15-06	



Quality Assurance Documentation for Part ID: SE120-004-2A - Item: 130

Workorder: 65678/2-0 Sub:123 Op:20

Part: SE120-004-2A - - VVSA 120 DEGREE VESSEL

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	PORT 2A POSITION	LASER	QA		1444	POS 0.198 / TOP 0.0 50 / -0.020	522-R.D 02-20-06		A
4* (40)	D5	PORT 2B POSITION	LASER	QA		1444	POS 0.215 / TOP -0. 239 / -0.268	522-R.D 02-18-06		A
6* (70)	A5	PORT 5A POSITION	LASER	QA		1444	POS 0.141 / TOP -0. 400 / -0.371	522-R.D 02-18-06		A
6* (80)	A5	PORT 5B POSITION	LASER	QA		1444	POS 0.089 / TOP -0. 221 / -0.169	522-R.D 02-20-06		A
7* (110)	A5	PORT 6A POSITION	LASER	QA		1444	POS 0.210 / TOP -0. 103 / +0.005	522-R.D 02-18-06		A
7* (120)	A5	PORT 6B POSITION	LASER	QA		1444	POS 0.095 / TOP -0. 283 / -0.262	522-R.D 02-20-06		A
8* (150)	A5	PORT 7A POSITION	LASER	QA		1444	POS 0.216 / TOP -0. 343 / -0.277	522-R.D 02-18-06		A
8* (160)	A5	PORT 7B POSITION	LASER	QA		1444	POS 0.117 / TOP -0. 236 / -0.215	522-R.D 02-20-06		A
9* (190)	B5	PORT 8A POSITION	LASER	QA		1444	POS 0.063 / TOP -0. 338 / -0.330	522-R.D 02-18-06		A
9* (200)	B5	PORT 8B POSITION	LASER	QA		1444	POS 0.247 / TOP -0. 178 / -0.158	522-R.D 02-18-06		A
10* (230)	B5	PORT 9A POSITION	LASER	QA		1444	POS 0.205 / TOP -0. 315 / -0.274	522-R.D 02-20-06		A
10* (240)	B5	PORT 9B POSITION	LASER	QA		1444	POS 0.211 / TOP -0. 064 / -0.023	522-R.D 02-18-06		A
11* (270)	C5	PORT 10A POSITION	LASER	QA		1444	POS 0.171 / TOP -0. 128 / -0.091	522-R.D 02-20-06		A
11*	C5		LASER	QA		1444	POS 0.257 / TOP -0. 331 / -0.272 (ACCEP T PER N.C. 19284) [	854-R.U		A

**INSPECTION DATA CHECKLIST**

(280)		PORT 10B POSITION					N/C:19284]	07-31-06		
12* (310)	A7	PORT 11A POSITION	LASER	QA		1444	POS 0.234 / TOP 0.0 49 / -0.024	522-R.D 02-18-06		A
12* (320)	A7	PORT 11B POSITION	LASER	QA		1444	POS 0.156 / TOP -0. 359 / -0.334	522-R.D 02-20-06		A
14* (350)	B5	PORT 15A POSITION	LASER	QA		1444	POS 0.119 / TOP -0. 158 / -0.129	522-R.D 02-18-06		A
14* (360)	B5	PORT 15B POSITION	LASER	QA		1444	POS 0.152 / TOP -0. 546 / -0.532	522-R.D 02-20-06		A

Quality Assurance Documentation for Part ID: SE120-004-4A - Item: 131

Workorder: 65678/2-0 Sub:121 Op:10

Part: SE120-004-4A - - VVSA 120 DEGREE VESSEL

Drawing ID: SE120-004 Rev: 2		INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
*				MFG		VISUAL	ACCEPT PER CUSTOM	709-K.A	933-D.L	
(20)		VWI - ROOT PASS WELD P4AV		CWI			DRAWINGS AND SPE FICATIONS	01-27-06	01-27-06	A
*				MFG		VISUAL	ACCEPT PER CUSTOM	709-K.A	933-D.L	
(60)		VWI - COVER PASS WELD P4AV		CWI			DRAWINGS AND SPE FICATIONS	01-31-06	02-01-06	A
*				MFG		VISUAL	ACCEPT PER CUSTOM	709-K.A	933-D.L	
(80)		VWI - ROOT PASS WELD P4BV		CWI			DRAWINGS AND SPE FICATIONS	01-27-06	01-27-06	A
*				MFG		VISUAL	ACCEPT PER CUSTOM	709-K.A	933-D.L	
(120)		VWI - COVER PASS WELD P4BV		CWI			DRAWINGS AND SPE FICATIONS	01-31-06	02-01-06	A

Quality Assurance Documentation for Part ID: SE120-004-4A - Item: 132

Workorder: 65678/2-0 Sub:121 Op:20

Part: SE120-004-4A - - VVSA 120 DEGREE VESSEL

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	PORT 4A POSITION	LASER	QA		1444	0.594 TOP -0.269 / -0.027 (ACCEPT PER N.C. 19178) [N/C:19 178]	854-R.U			A
(30)								07-31-06			
5*	B5	PORT 4B POSITION	LASER	QA		1444	0.361 TOP -0.206 / +0.020 (ACCEPT PER N.C. 19178) [N/C:19 178]	854-R.U			A
(40)								07-31-06			

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

FAX NO. 708 430 0147

P. 01



# GREENVILLE TUBE

P.O. Box 30 Greenville, PA 16125

## REPORT OF TESTS

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

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

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

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

Chemical Analysis												
	%C	%Mn	%P	%S	%Si	%Ni	%Gr	%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
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
RB 73/76					PASSED	PASSED	

ASTM-A-262, Practice Corrosion Test

A \_\_\_\_\_ B \_\_\_\_\_ C \_\_\_\_\_ D \_\_\_\_\_ E 97361 AT

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

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

Signed:   
Robert Ryan  
Quality Control Manager / Metallurgical Engineer

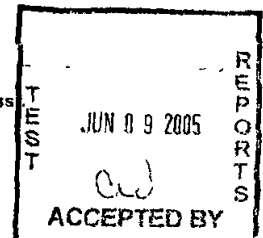
Cathy Rocole  
Quality Control Ass

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

Country of origin of raw material producer, China  
Country of origin of melt, Taiwan



JUN 24 2005





1565 FLEETWOOD DRIVE  
 ELGIN, IL 60123  
 CERTIFICATE OF ANALYSIS

CUSTOMER:

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

ORDER(S) : J36726  
 SALES ORDER 78524-1  
 QUANTITY : 2,310 00

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

3891 ASTM B443 93 I525 GRADE 1

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

HEAT NO 265096802 *MATON Tool Po POS-03219* *1pc* 12"x12" CHEMICAL PROPERTIES

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)	0.4300 ✓
NICKEL (Ni)	60.3100 ✓	NITROGEN (N)	
OXYGEN (O)		PHOSPHORUS (P)	0.0050 ✓
SILICON (Si)	0.2000 ✓	SULFUR (S)	0.0020 ✓
TANTALUM (Ta)	<.05	TITANIUM (Ti)	0.2500 ✓
TUNGSTEN (W)	0.1100	VANADIUM (V)	
ZIRCONIUM (Zr)		NICKEL+COBALT (Ni+Co)	60.4400

AS SHIPPED PROPERTIES:

DIR TENSILE	YIELD	%ELG (2"/4D)	% R/A	GRAIN HARDNESS	WRAP	BEND
F 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 STRESS RUPTURE	F	IGC	IGA	MICRO
HOURS	%ELG (2"/4D) PSI			

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

JUN 16 2005

97132 *PH*

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

AUTHORIZED SIGNATURE:

DATE: 01-08-01

*Line 1*



JUN 18 2005

QUALITY MANAGER - RICHARD OMITTEK

**INSPECTION DATA CHECKLIST**

Quality Assurance Documentation for Part ID: SE120-005-40 - Item: 135

Workorder: 65678/2-0 Sub:138 Op:10

Part: SE120-005-40 - - VVSA 120 DEGREE VESSEL

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

A

**CERTIFICATION OF TESTS • RAPPORT D'ESSAIS CERTIFIE • WERKSZEUGNIS**

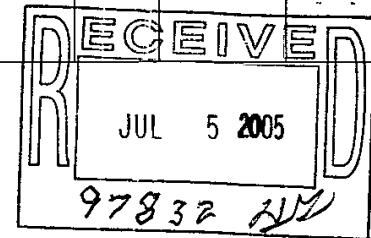
CUSTOMER COPY

Invoice No No. De Facture Rechnungs Nr 442551001-0	Date Entered Date De Commande Bestelldatum 06/03/05	Customer Reference Reference Client Kundenbestelldaten P05-03064	Report No. Rapport No Zeugnis Nr 20050628086	Pages of Pages Page de Pages Anzahl der Seiten 1 Of 4	<h2 style="margin:0;">HAYNES</h2> <h3 style="margin:0;">International</h3>	Haynes International 1020 West Park Avenue PO Box 9013 Kokomo, Indiana, 46902													
Sold To • Client • Bestellaranschrift <b>MAJOR TOOL AND MACHINE INC</b> 1458 E 19TH ST INDIANAPOLIS IN 46218 USA			Ship To • Destinataire • Bestellmenge <b>MAJOR TOOL AND MACHINE INC</b> 1458 E 19TH ST INDIANAPOLIS IN 46218 USA		Product Description • Description Produit • Material Beschreibung 0.125 (0.120/0.130) x 0/0 x 0/0 SE120-004-66MTM REV:1A HAYNES(R) 625 ALLOY SHEET - Nadcap CERTIFICATE NUMBER 0089 S400E,S1000E, EN 10204 3.1.B, AS9100														
Specification • Specification • Spezifikation  ASTM-B-443, 00e1, UNS# N06625, Gr. 1; PS-489, E			Quantity Ordered Quantite Commandee Bestelmenge  6 PC	Quantity Shipped Quantite Expediee Liefermenge  6 PC															
Heat Number Numero De Coalee Charge Nr 2650 5 6801	Chemical Analysis • Analyse Chimique • Chemische Analyse																		
	Al	B	C	Cb+Ta (Nb+Ta)	Co	Cr	Cu	Fe	Mn	Mo	Ni	P	S	Si	Ti	V	W	BUTT END *03	
	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				
	(Nb)	Ta	Zr	Bi	Se	La	(N+Cu)	Pb	Mg	Y	Ag	N	Ca	Al+Ti	Ni+Co	Ni+Mo	BUTT END *03		
	3.5026	<0.05																	

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

6/28/2005

Amanda Aguirre



Lina 1-3

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mc109510.tif (1705x2193x2.tif)



**CERTIFICATION OF TESTS • RAPPORT D'ESSAIS CERTIFIE • WERKSZEUGNIS**

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Invoice No No. De Facture Rechnungs Nr 442551001-0	Date Entered Date De Commande Bestelldatum 06/03/05	Customer Reference Reference Client Kundenbestelldaten P05-03064	Report No. Rapport No Zeugnis Nr 20050628086	Pages of Pages Page de Pages Anzahl der Seiten 2 Of 4
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**HAYNES**  
**International**

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

Sold To • Client • Bestellaranschrift <b>MAJOR TOOL AND MACHINE INC 1458 E 19TH ST INDIANAPOLIS IN 46218 USA</b>	Ship To • Destinataire • Bestellmenge <b>MAJOR TOOL AND MACHINE INC 1458 E 19TH ST INDIANAPOLIS IN 46218 USA</b>	Product Description • Description Produit • Material Beschreibung <b>0.125 (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</b>
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Specification • Specification • Spezifikation ASTM-B-443, 00e1, UNS# N06625, Gr. 1; PS-489, E	Quantity Ordered Quantite Commandee Bestellemenge 6 PC	Quantity Shipped Quantite Expediee Liefermenge 6 PC
--	---	--

Tensile Test at Room Temperature • Essai De Traction A Temp. Ambiante • Zugversuch Bei Raum Temp.					Tensile Test at Elevated Temperature • Essai De Traction A Hie. Temp. Warm Zugversuch						Stress Rupture Temperature • Essai A Charge De Rupture Zeitstandversuch					
Ultimate Zugfestigkeit	1% Yield Lim. Elast. A 1% 1% Strieckgruize	0.2% Yield Lim. Elast. A 0.2% 0.2% Strieckgruize	% Elong In % Allong EN % Dehnung	%RA	Test Essai Versuch	Ultimate Zugfestigkeit	1% Yield Lim. Elast. A 1% 1% Strieckgruize	0.2% Yield Lim. Elast. A 0.2% 0.2% Strieckgruize	% Elong In % Allong EN % Dehnung	%RA	Temp.	Test Essai Versuch	Stress Constrained Spannung	Hours Heures Stunden	% Elong In % Allong EN % Dehnung	% RA
137000 PSI		74000 PSI	44 %	(1)(A)												

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

6/28/2005 (1) 3942629401

*Amanda Aguirre*



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mct109510.tif (1708x2199x2.tif) [2]

**CERTIFICATION OF TESTS • RAPPORT D'ESSAIS CERTIFIE • WERKSZEUGNIS**

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Invoice No No. De Facture Rechnungs Nr 442551001-0	Date Entered Date De Commande Bestelldatum 06/03/05	Customer Reference Reference Client Kundenbestelldaten P05-03064	Report No. Rapport No Zeugnis Nr 20050628086	Pages of Pages Page de Pages Anzahl der Seiten 3 Of 4	<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p><b>MAJOR TOOL AND MACHINE INC</b> 1458 E 19TH ST INDIANAPOLIS IN 46218 USA</p> </div> <div style="width: 45%;"> <p><b>MAJOR TOOL AND MACHINE INC</b> 1458 E 19TH ST INDIANAPOLIS IN 46218 USA</p> </div> </div>														
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				
Specification • Specification • Spezifikation ASTM-B-443, 00e1, UNS# N06625, Gr. 1; PS-489, E					Quantity Ordered Quantite Commandee Bestellmenge 6 PC					Quantity Shipped Quantite Expediee Liefermenge 6 PC									
Annealed Hardness Durette Recuit Gegleht Haerte	Aged Hardness Durette Vieilli Gealtert Haerte	Grain Size Grosseur De Grain Korngrösse					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 Contrainte Spannung	Hours Heures Stunden	% Elong In % Allong EN % Dehnung	% Elong @ 15 Hrs
98 HRB	(1)(A)	7.5						0.0001 IN	MPY		Fl. Lbs.	Fl. Lbs.	Fl. Lbs.	Fl. Lbs.	Temp.	PSI			

**HAYNES**  
**International**

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

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Certification Technician

6/28/2005 (1) 3942629401

*Amanda Aguirre*



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mct109510.tif (1706x2199x2.tif) [3]

**CERTIFICATION OF TESTS • RAPPORT D'ESSAIS CERTIFIE • WERKSZEUGNIS**

Invoice No No. De Facture Rechnungs Nr 442551001-0	Date Entered Date De Commande Bestelldatum 06/03/05	Customer Reference Reference Client Kundenbestelldaten P05-03064	Report No. Rapport No Zeugnis Nr 20050628086	Pages of Pages Page de Pages Anzahl der Seiten 4 Of 4	<p align="center"><b>HAYNES</b> <u>International</u></p> <p align="right">CUSTOMER COPY Haynes International 1020 West Park Avenue PO Box 9013 Kokomo, Indiana, 46902</p>
Sold To • Client • Bestellanschrift <b>MAJOR TOOL AND MACHINE INC 1458 E 19TH ST INDIANAPOLIS IN 46218 USA</b>		Ship To • Destinataire • Bestellmenge <b>MAJOR TOOL AND MACHINE INC 1458 E 19TH ST INDIANAPOLIS IN 46218 USA</b>		Product Description • Description Produit • Material Beschreibung <b>0.125 (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</b>	
Specification • Specification • Spezifikation ASTM-B-443, 00e1, UNS# N06625, Gr. 1; PS-489, E			Quantity Ordered Quantie Commandee Bestelmenge 6 PC	Quantity Shipped Quantite Expediee Liefermenge 6 PC	

All tests and inspections have been performed and results meet specification requirements.  
 THIS MATERIAL IS FREE FROM MERCURY, CADMIUM, RADIUM, AND ALPHA SOURCE CONTAMINATION.  
 Material conforms to PS-483 Revision H as applicable.  
 Mill Orders Used: 3942629401 (6 PC)  
 (A) 1750 °F to 1950 °F

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

*Amanda Aguirre*



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mct109510.tif (1706x2200x2.tif) [4]

**Magnetic Permeability Test Witness**

Haynes observed Mr. Edwards of Major Tool test the orders listed below for Magnetic Permeability on June 10, 2005, using a Severn Engineering Permeability Indicator #6763, identified as gauge J-1165 in Major Tool's calibration system. The gauge was in calibration and was due for recalibration on December 27, 2005. All items tested below were <1.01 magnetic permeability.


Heats Tested

2650-5-6801

Purchase Order Numbers

P05-03064

Best Regards,

 6/29/2005  
Marlin C. Losch III



**INSPECTION DATA CHECKLIST**

Quality Assurance Documentation for Part ID: SE120-005-42 - Item: 137

Workorder: 65678/2-0 Sub:146 Op:10

Part: SE120-005-42 - - VVSA 120 DEGREE VESSEL

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

A

CERTIFICATION OF TESTS • RAPPORT D'ESSAIS CERTIFIÉ • WERKSZEUGNIS

FILE COPY 2

Invoice No No. De Facture Rechnungs Nr 442680001-0	Date Entered Date De Commande Bestelldatum 06/06/05	Customer Reference Reference Client Kundenbestelldaten P05-03064	Report No. Rapport No Zeugnis Nr 20050628081	Pages of Pages Page de Pages Anzahl der Seiten 1 Of 4
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**HAYNES**  
**International**

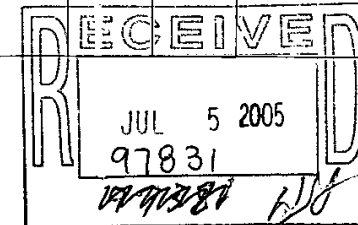
Haynes International  
1020 West Park Avenue  
PO Box 9013  
Kokomo, Indiana, 46902

Sold To • Client • Bestellaranschrift <b>MAJOR TOOL AND MACHINE INC 1458 E 19TH ST INDIANAPOLIS IN 46218 USA</b>	Ship To • Destinataire • Bestellmenge <b>MAJOR TOOL AND MACHINE INC 1458 E 19TH ST INDIANAPOLIS IN 46218 USA</b>	Product Description • Description Produit • Material Beschreibung <b>0.125 (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</b>
---	---	--

Specification • Specification • Spezifikation <b>ASME-SB-443, 04, UNS# N06625, Gr. 1; PS-489, E</b>	Quantity Ordered Quantité Commandée Bestellemenge <b>6 PC</b>	Quantity Shipped Quantité Expédiée Liefermenge <b>6 PC</b>
--	--	---

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

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



*lines 7-9*

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FILE COPY 2

**HAYNES**  
**International**

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PO Box 9013  
Kokomo, Indiana, 46902

Invoice No No. De Facture Rechnungs Nr 442680001-0	Date Entered Date De Commande Bestelldatum 06/06/05	Customer Reference Reference Client Kundenbestelldaten P05-03064	Report No. Rapport No Zeugnis Nr 20050628081	Pages of Pages Page de Pages Anzahl der Seiten 2 Of 4
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Sold To • Client • Bestellaranschrift <b>MAJOR TOOL AND MACHINE INC</b> <b>1458 E 19TH ST</b> <b>INDIANAPOLIS</b> <b>IN 46218 USA</b>	Ship To • Destinataire • Bestellmenge <b>MAJOR TOOL AND MACHINE INC</b> <b>1458 E 19TH ST</b> <b>INDIANAPOLIS</b> <b>IN 46218 USA</b>	Product Description • Description Produit • Material Beschreibung <b>0.125 (0.120/0.130) x 0/0 x 0/0</b> <b>SE120-004-69MTM REV:1A</b> <b>HAYNES(R) 625 ALLOY SHEET</b> <b>Nadcap CERTIFICATE NUMBER 0089</b> <b>S400E,S1000E, EN 10204 3.1.B, AS9100</b>
---	---	--


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

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

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

6/28/2005 (1) 3942629401

*Amanda Aguirre*



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mct109509.tif (1703x2199x2.tif) [2]

**CERTIFICATION OF TESTS • RAPPORT D'ESSAIS CERTIFIE • WERKSZEUGNIS**

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Kokomo, Indiana, 46902

Invoice No No. De Facture Rechnungs Nr 442680001-0		Date Entered Date De Commande Bestelldatum 06/06/05		Customer Reference Reference Client Kundenbestelldaten P05-03064			Report No. Rapport No Zengnis Nr 20050628081		Pages of Pages Page de Pages Anzahl der Seiten 3 Of 4										
Sold To • Client • Bestellanschrift <b>MAJOR TOOL AND MACHINE INC 1458 E 19TH ST INDIANAPOLIS IN 46218 USA</b>				Ship To • Destinataire • Bestellmenge <b>MAJOR TOOL AND MACHINE INC 1458 E 19TH ST INDIANAPOLIS IN 46218 USA</b>				Product Description • Description Produit • Material Beschreibung <b>0.125 (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</b>											
Specification • Specification • Spezifikation ASME-SB-443, 04, UNS# N06625, Gr. 1; PS-489, E						Quantity Ordered Quantite Commandee Bestelmenge 6 PC		Quantity Shipped Quantite Expeditee Liefermenge 6 PC											
Annealed Hardness Durete Recuit Geglueht Haerte		Aged Hardness Durete 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 Eval Versuch	Stress Constraint Spannung	Hours Heures	% Elong In % Allong EN	% Elong @ 15 Hrs
98 HRB		(1)(A)	7.5					0.0001 IN	MPY		Fl. Lbs.	Fl. Lbs.	Fl. Lbs.	Fl. Lbs.	Temp:	PSI			

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

6/28/2005

(1) 3942629401

*Amanda Aguirre*



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mct109509.tif (1704x2203x2.tif) [3]



**CERTIFICATION OF TESTS • RAPPORT D'ESSAIS CERTIFIE • WERKSZEUGNIS**

FILE COPY 2

Invoice No No. De Facture Rechnungs Nr 442680001-0	Date Entered Date De Commande Bestelldatum 06/06/05	Customer Reference Reference Client Kundenbestelldaten P05-03064	Report No. Rapport No Zeugnis Nr 20050628081	Pages of Pages Page de Pages Anzahl der Seiten 4 Of 4	<b>HAYNES</b> <b>International</b>	Haynes International 1020 West Park Avenue PO Box 9013 Kokomo, Indiana, 46902
Sold To • Client • Bestellanrschrift <b>MAJOR TOOL AND MACHINE INC</b> <b>1458 E 19TH ST</b> <b>INDIANAPOLIS</b> <b>IN 46218 USA</b>		Ship To • Destinataire • Bestellmenge <b>MAJOR TOOL AND MACHINE INC</b> <b>1458 E 19TH ST</b> <b>INDIANAPOLIS</b> <b>IN 46218 USA</b>		Product Description • Description Produit • Material Beschreibung <b>0.125 (0.120/0.130) x 0/0 x 0/0</b> <b>SE120-004-69MTM REV:1A</b> <b>HAYNES(R) 625 ALLOY SHEET -</b> <b>Nadcap CERTIFICATE NUMBER 0089</b> <b>S400E,S1000E, EN 10204 3.1.B, AS9100</b>		
Specification • Specification • Spezifikation ASME-SB-443, 04, UNS# N06625, Gr. 1; PS-489, E			Quantity Ordered Quantite Commandee Bestellmenge 6 PC	Quantity Shipped Quantitie Expeditee Liefermenge 6 PC		
All tests and inspections have been performed and results meet specification requirements. THIS MATERIAL IS FREE FROM MERCURY, CADMIUM, RADIUM, AND ALPHA SOURCE CONTAMINATION. Material conforms to PS-483 Revision H as applicable. Mill Orders Used: 3942629401 (6 PC) (A) 1750 °F to 1950 °F						

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

6/28/2005

*Amanda Aguirre*



**Magnetic Permeability Test Witness**

Haynes observed Mr. Edwards of Major Tool test the orders listed below for Magnetic Permeability on June 10, 2005, using a Severn Engineering Permeability Indicator #6763, identified as gauge J-1165 in Major Tool's calibration system. The gauge was in calibration and was due for recalibration on December 27, 2005. All items tested below were <1.01 magnetic permeability.


Heats Tested

2650-5-6801

Purchase Order Numbers

P05-03064

Best Regards,

 6/21/2005  
Marlin C. Losch III



**INSPECTION DATA CHECKLIST**

Quality Assurance Documentation for Part ID: SE120-005-43 - Item: 139

Workorder: 65678/2-0 Sub:147 Op:10

Part: SE120-005-43 - - VVSA 120 DEGREE VESSEL

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

A

CERTIFICATION OF TESTS • RAPPORT D'ESSAIS CERTIFIE • WERKSZEUGNIS

FILE COPY 2


Invoice No No. De Facture Rechnungs Nr 442681001-0	Date Entered Date De Commande Bestelldatum 06/06/05	Customer Reference Reference Client Kundenbestelldaten P05-03064	Report No. Rapport No Zeugnis Nr 20050628092	Pages of Pages Page de Pages Anzahl der Seiten 1 Of 4
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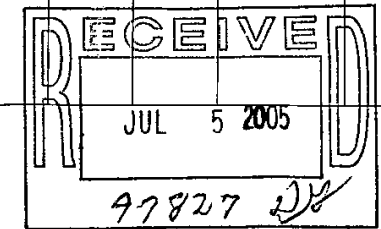
**HAYNES**  
**International**

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

Sold To • Client • Bestellaranschrift <b>MAJOR TOOL AND MACHINE INC</b> 1458 E 19TH ST INDIANAPOLIS IN 46218 USA	Ship To • Destinataire • Bestelmenge <b>MAJOR TOOL AND MACHINE INC</b> 1458 E 19TH ST INDIANAPOLIS IN 46218 USA	Product Description • Description Produit • Material Beschreibung 0.120/0.130 x 0/0 x 0/0 SE120-004-70MTM REV: 1A HAYNES(R) 625 ALLOY SHEET - Nadcap CERTIFICATE NUMBER 0089 S400E,S1000E, EN 10204 3.1.B, AS9100
Specification • Specification • Spezifikation ASME-SB-443, 04, UNS# N06625, Gr. 1; PS-489, E	Quantity Ordered Quantite Commandee Bestelmenge 6 PC	Quantity Shipped Quantite Expediee Liefermenge 6 PC

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

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




*lines 10.12*

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**CERTIFICATION OF TESTS • RAPPORT D'ESSAIS CERTIFIE • WERKSZEUGNIS**

FILE COPY 2

Invoice No No. De Facture Rechnungs Nr 442681001-0	Date Entered Date De Commande Bestelldatum 06/06/05	Customer Reference Reference Client Kundenbestelldaten P05-03064	Report No. Rapport No Zeugnis Nr 20050628092	Pages of Pages Page de Pages Anzahl der Seiten 2 Of 4
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**HAYNES**  
**International**

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

Sold To • Client • Bestellanschrift <b>MAJOR TOOL AND MACHINE INC 1458 E 19TH ST INDIANAPOLIS IN 46218 USA</b>	Ship To • Destinataire • Bestellmenge <b>MAJOR TOOL AND MACHINE INC 1458 E 19TH ST INDIANAPOLIS IN 46218 USA</b>	Product Description • Description Produit • Material Beschreibung <b>0.120/0.130 x 0/0 x 0/0 SE120-004-70MTM REV: 1A HAYNES(R) 625 ALLOY SHEET - Nadcap CERTIFICATE NUMBER 0089 S400E,S1000E, EN 10204 3.1.B, AS9100</b>
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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
---	---	--

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

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

6/28/2005 (1) 3942629401

*Amanda Aguirre*

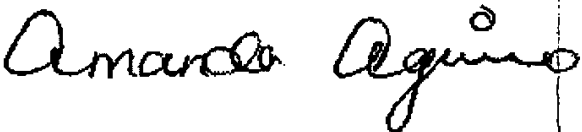



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mct109514.tif (1705x2199x2.tif) [2]

**CERTIFICATION OF TESTS • RAPPORT D'ESSAIS CERTIFIE • WERKSZEUGNIS**

FILE COPY 2

Invoice No No. De Facture Rechnungs Nr 442681001-0	Date Entered Date De Commande Bestelldatum 06/06/05	Customer Reference Reference Client Kundenbestelldaten P05-03064	Report No. Rapport No Zeugnis Nr 20050628092	Pages of Pages Page de Pages Anzahl der Seiten 3 Of 4	<p><b>HAYNES</b> <b>International</b></p> <p>Haynes International 1020 West Park Avenue PO Box 9013 Kokomo, Indiana, 46902</p>																	
Sold To • Client • Bestellanschrift <b>MAJOR TOOL AND MACHINE INC 1458 E 19TH ST INDIANAPOLIS IN 46218 USA</b>			Ship To • Destinataire • Bestelldenge <b>MAJOR TOOL AND MACHINE INC 1458 E 19TH ST INDIANAPOLIS IN 46218 USA</b>			Product Description • Description Produit • Material Beschreibung <b>0.120/0.130 x 0/0 x 0/0 SE120-004-70MTM REV: 1A HAYNES(R) 625 ALLOY SHEET - Nadcap CERTIFICATE NUMBER 0089 S400E,S1000E, EN 10204 3.1.B, AS9100</b>																
Specification • Specification • Spezifikation ASME-SB-443, 04, UNS# N06625, Gr. 1; PS-489, E				Quantity Ordered Quantite Commandee Bestellmenge 6 PC		Quantity Shipped Quantite Expediee Liefermenge 6 PC																
Annealed Hardness Durette Recuit Gegleht Haerte	Aged Hardness Durette Vieilli Gealtert Haerte	Grain Size Grossein De Grain Korngroesse						IGA	Uniformity	Corrosion Rate		Oxidation Rate		Charpy Impact Test				Creep Rupture				
		Grain Size	Preliminary 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	
98 HRB	(1)(A)	7.5						0.0001 IN		MPY			Fl. Lbs.	Fl. Lbs.	Fl. Lbs.	Fl. Lbs.	Temp:	PSI				
Certified By • Certifie Par • Bescheinigt Durch: Amanda Aguirre Certification Technician								6/28/2005	(1) 3942629401													
																						

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**CERTIFICATION OF TESTS • RAPPORT D'ESSAIS CERTIFIE • WERKSZEUGNIS**

FILE COPY 2

Invoice No No. De Facture Rechnungs Nr 442681001-0	Date Entered Date De Commande Bestelldatum 06/06/05	Customer Reference Reference Client Kundenbestelldaten P05-03064	Report No. Rapport No Zeugnis Nr 20050628092	Pages of Pages Page de Pages Anzahl der Seiten 4 Of 4
Sold To • Client • Bestellanschrift <b>MAJOR TOOL AND MACHINE INC 1458 E 19TH ST INDIANAPOLIS IN 46218 USA</b>		Ship To • Destinataire • Bestellmenge <b>MAJOR TOOL AND MACHINE INC 1458 E 19TH ST INDIANAPOLIS IN 46218 USA</b>		Product Description • Description Produit • Material Beschreibung <b>0.120/0.130 x 0/0 x 0/0 SE120-004-70MTM REV: 1A HAYNES(R) 625 ALLOY SHEET - Nadcap CERTIFICATE NUMBER 0089 S400E,S1000E, EN 10204 3.1.B, AS9100</b>
Specification • Specification • Spezifikation ASME-SB-443, 04, UNS# N06625, Gr. 1; PS-489, E			Quantity Ordered Quantite Commandee Bestellmenge 6 PC	Quantity Shipped Quantite Expediee Liefermenge 6 PC
<p>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</p>				

**HAYNES**  
**International**

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

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

6/28/2005

*Amanda Aguirre*



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mct109514.tif (1705x2199x2.tif) [4]

**Magnetic Permeability Test Witness**

Haynes observed Mr. Edwards of Major Tool test the orders listed below for Magnetic Permeability on June 10, 2005, using a Severn Engineering Permeability Indicator #6763, identified as gauge J-1165 in Major Tool's calibration system. The gauge was in calibration and was due for recalibration on December 27, 2005. All items tested below were <1.01 magnetic permeability.


Heats Tested

2650-5-6801

Purchase Order Numbers

P05-03064

Best Regards,

 6/21/2005  
Marlin C. Losch III





**INSPECTION DATA CHECKLIST**

Quality Assurance Documentation for Part ID: SE120-005-44 - Item: 141

Workorder: 65678/2-0 Sub:148 Op:10

Part: SE120-005-44 - - VVSA 120 DEGREE VESSEL

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

A

**CERTIFICATION OF TESTS • RAPPORT D'ESSAIS CERTIFIE • WERKSZEUGNIS**

Invoice No No. De Facture Rechnungs Nr 442683001-0	Date Entered Date De Commande Bestelldatum 06/06/05	Customer Reference Reference Client Kundenbestelldaten P05-03064	Report No. Rapport No Zeugnis Nr 20050628090	Pages of Pages Page de Pages Anzahl der Seiten 1 Of 4															
Sold To • Client • Bestellaranschrift <b>MAJOR TOOL AND MACHINE INC 1458 E 19TH ST INDIANAPOLIS IN 46218 USA</b>			Ship To • Destinaire • Bestellmenge <b>MAJOR TOOL AND MACHINE INC 1458 E 19TH ST INDIANAPOLIS IN 46218 USA</b>			Product Description • Description Produit • Material Beschreibung <b>0.125 (0.120/0.130) x 0/0 x 0/0 SE120-004 71MTM REV:1A HAYNES(R) 625 ALLOY SHEET - Nadcap CERTIFICATE NUMBER 0089 S400E,S1000E, EN 10204 3.1.B, AS9100</b>													
Specification • Specification • Spezifikation  ASME-SB-443, 04, UNS# N06625, Gr. 1; PS-489, E					Quantity Ordered Quantite Commandee Bestellmenge  6 PC					Quantity Shipped Quantite Expediee Liefermenge  6 PC									
Heat Number Numero De Coulee Charge Nr	Chemical Analysis • Analyse Chimique • Chemische Analyse																		
	Al	B	C	Cb+Ta (Nb+Ta)	Co	Cr	Cu	Fe	Mn	Mo	Ni	P	S	Si	Ti	V	W		
2650 5 6801	0.28		0.025	3.51	0.2101	21.89	0.0587	4.0106	0.2503	8.66	60.59	0.006	0.004	0.24	0.3585				BUTT END *03
	Cb(Nb)	Ta	Zr	Bi	Se	La	Cb+Cu	Pb	Mg	Y	Ag	N	Ca	Al+Ti	Ni+Co	Ni+Mo			BUTT END *03
2650 5 6801	3.5026	<0.05																	

FILE COPY 2

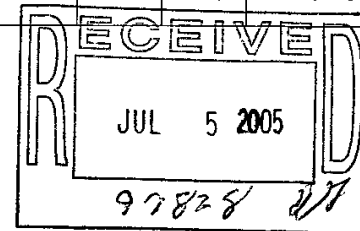
**HAYNES  
International**

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

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

6/28/2005

*Amanda Aguirre*



*June 13-15*

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**CERTIFICATION OF TESTS • RAPPORT D'ESSAIS CERTIFIÉ • WERKSZEUGNIS**

Invoice No No. De Facture Rechnungs Nr 442683001-0	Date Entered Date De Commande Bestelldatum 06/06/05	Customer Reference Reference Client Kundenbestelldaten P05-03064	Report No. Rapport No Zeugnis Nr 20050628090	Pages of Pages Page de Pages Anzahl der Seiten 2 Of 4
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Sold To • Client • Bestellaranschrift <b>MAJOR TOOL AND MACHINE INC</b> <b>1458 E 19TH ST</b> <b>INDIANAPOLIS</b> <b>IN 46218 USA</b>	Ship To • Destinataire • Bestelmenge <b>MAJOR TOOL AND MACHINE INC</b> <b>1458 E 19TH ST</b> <b>INDIANAPOLIS</b> <b>IN 46218 USA</b>	Product Description • Description Produit • Material Beschreibung <b>0.125 (0.120/0.130) x 0/0 x 0/0</b> <b>SE120-004-71MTM REV:1A</b> <b>HAYNES(R) 625 ALLOY SHEET -</b> <b>Nadcap CERTIFICATE NUMBER 0089</b> <b>S400E,S1000E, EN 10204 3.1.B, AS9100</b>
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Specification • Specification • Spezifikation ASME-SB-443, 04, UNS# N06625, Gr. 1; PS-489, E	Quantity Ordered Quantité Commandée Bestelmenge 6 PC	Quantity Shipped Quantité Expédiée Liefermenge 6 PC
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Tensile Test at Room Temperature • Essai De Traction A Temp. Ambiante • Zugversuch Bei Raum Temp.					Tensile Test at Elevated Temperature • Essai De Traction A Hte. Temp. Warm Zugversuch					Stress Rupture Temperature • Essai A Charge De Rupture Zeitstandversuch							
Ultimate Zugfestigkeit	1% Yield Lim. Elast. A 1% 1% Strieckgrenze	0.2% Yield Lim. Elast. A 0.2% 0.2% Strieckgrenze	% Elong In % Allong EN % Dehnung	%RA	Temp:	Test Essai Versuch	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	Temp:	Test Essai Versuch	Stress Constrained Spannung	Hours Heures Stunden	% Elong In % Allong EN % Dehnung	% RA
137000 PSI		74000 PSI	44 %		(1)(A)												

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

6/28/2005 (1) 3942629401

*Amanda Aguirre*



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mct109513.tif (1707x2174x2.tif) [2]

**CERTIFICATION OF TESTS • RAPPORT D'ESSAIS CERTIFIE • WERKSZEUGNIS**

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**HAYNES**  
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Invoice No No. De Facture Rechnungs Nr 442683001-0		Date Entered Date De Commande Bestelldatum 06/06/05		Customer Reference Reference Client Kundenbestelldaten P05-03064		Report No. Rapport No Zeugnis Nr 20050628090		Pages of Pages Page de Pages Anzahl der Seiten 3 Of 4															
Sold To • Client • Bestellaranschrift <b>MAJOR TOOL AND MACHINE INC</b> 1458 E 19TH ST INDIANAPOLIS IN 46218 USA				Ship To • Destinataire • Bestellmenge <b>MAJOR TOOL AND MACHINE INC</b> 1458 E 19TH ST INDIANAPOLIS IN 46218 USA				Product Description • Description Produit • Material Beschreibung <b>0.125 (0.120/0.130) x 0/0 x 0/0</b> <b>SE120-004-71MTM REV:1A</b> <b>HAYNES(R) 625 ALLOY SHEET</b> <b>Nadcap CERTIFICATE NUMBER 0089</b> <b>S400E,S1000E, EN 10204 3.1.B, AS9100</b>															
Specification • Specification • Spezifikation ASME-SB-443, 04, UNS# N06625, Gr. 1; PS-489, E						Quantity Ordered Quantite Commandee Bestellemenge 6 PC		Quantity Shipped Quantite Expediee Liefermenge 6 PC															
Annealed Hardness Durete Recuit Gegluht Haerte		Aged Hardness Durete Vieilli Gealtert Haerte		Grain Size Grosseur De Grain Korngroesse				IGA		Uniformity		Corrosion Rate		Oxidation Rate		Charpy Impact Test			Creep Rupture				
				Grain Size		P&W Figure Number		Attack Depth		Corrosion		Test Method		Toughness Avg		Toughness 1	Toughness 2	Toughness 3	Test Essai Versuch	Stress Contrainte Spannung	Hours Heures Stunden	% Elong In % Allong EN % Dehnung	% Elong @ 15 Hrs
98 HRB		(1)(A)		7.5				0.0001 IN		MPY				Ft. Lbs.	Ft. Lbs.	Ft. Lbs.	Ft. Lbs.	Temp:	PSI				

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

6/28/2005 (1) 3942629401

*Amanda Aguirre*



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mct109513.tif (1704x2205x2.tif) [3]

**CERTIFICATION OF TESTS • RAPPORT D'ESSAIS CERTIFIE • WERKSZEUGNIS**

FILE COPY 2

Invoice No No. De Facture Rechnungs Nr 442683001-0	Date Entered Date De Commande Bestelldatum 06/06/05	Customer Reference Reference Client Kundenbestelldaten P05-03064	Report No. Rapport No Zeugnis Nr 20050628090	Pages of Pages Page de Pages Anzahl der Seiten 4 Of 4	<b>HAYNES</b> <b>International</b>	Haynes International 1020 West Park Avenue PO Box 9013 Kokomo, Indiana, 46902
Sold To • Client • Bestellaranschrift <b>MAJOR TOOL AND MACHINE INC</b> <b>1458 E 19TH ST</b> <b>INDIANAPOLIS</b> <b>IN 46218 USA</b>		Ship To • Destinataire • Bestellmenge <b>MAJOR TOOL AND MACHINE INC</b> <b>1458 E 19TH ST</b> <b>INDIANAPOLIS</b> <b>IN 46218 USA</b>		Product Description • Description Produit • Material Beschreibung <b>0.125 (0.120/0.130) x 0/0 x 0/0</b> <b>SE120-004-71MTM REV:1A</b> <b>HAYNES(R) 625 ALLOY SHEET -</b> <b>Nadcap CERTIFICATE NUMBER 0089</b> <b>S400E,S1000E, EN 10204 3.1.B, AS9100</b>		
Specification • Specification • Spezifikation ASME-SB-443, 04, UNS# N06625, Gr. 1; PS-489, E			Quantity Ordered Quantite Commandee Bestellmenge 6 PC	Quantity Shipped Quantite Expeditee Liefermenge 6 PC		

All tests and inspections have been performed and results meet specification requirements.  
 THIS MATERIAL IS FREE FROM MERCURY, CADMIUM, RADIUM, AND ALPHA SOURCE CONTAMINATION.  
 Material conforms to PS-483 Revision H as applicable.  
 Mill Orders Used: 3942629401 (6 PC)  
 (A) 1750 °F to 1950 °F

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

*Amanda Aguirre*



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 SPECIFICATION MARKING REQUIREMENTS MAY BE WAIVED ON ORDERS REQUIRING MULTIPLE MATERIAL SPECIFICATIONS.

mct109513.tif (1704x2205x2.tif) [4]

**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: SE120-005-45 - Item: 143

<b>Workorder: 65678/2-0 Sub:149 Op:10</b>
---

Part: SE120-005-45 - - VVSA 120 DEGREE VESSEL

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

A

FILE COPY 2

**HAYNES**  
**International**

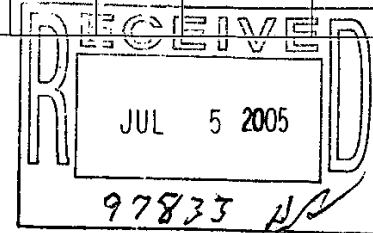
Haynes International  
1020 West Park Avenue  
PO Box 9013  
Kokomo, Indiana, 46902

CERTIFICATION OF TESTS • RAPPORT D'ESSAIS CERTIFIE • WERKSZEUGNIS																		
Invoice No No. De Facture Rechnungs Nr 442687001-0		Date Entered Date De Commande Bestelldatum 06/06/05		Customer Reference Reference Client Kundenbestelldaten P05-03064			Report No. Rapport No Zeugnis Nr 20050628091			Pages of Pages Page de Pages Anzahl der Seiten 1 Of 4								
Sold To • Client • Bestellaranschrift <b>MAJOR TOOL AND MACHINE INC 1458 E 19TH ST INDIANAPOLIS IN 46218 USA</b>						Ship To • Destinataire • Bestellmenge <b>MAJOR TOOL AND MACHINE INC 1458 E 19TH ST INDIANAPOLIS IN 46218 USA</b>						Product Description • Description Produit • Material Beschreibung <b>0.125 (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</b>						
Specification • Specification • Spezifikation  ASME-SB-443, 04, UNS# N06625, Gr. 1; PS-489, E						Quantity Ordered Quantite Commandee Bestelmenge  6 PC			Quantity Shipped Quantite Expediee Liefermenge  6 PC									
Heat Number Numero De Coilee Charge Nr	Chemical Analysis • Analyse Chimique • Chemische Analyse																	
	Al	B	C	Cb+Ta (Nb+Ta)	Co	Cr	Cu	Fe	Mn	Mo	Ni	P	S	Si	Ti	V	W	
2650 5 6801	0.28		0.025	3.51	0.2101	21.89	0.0587	4.0106	0.2503	8.66	60.59	0.006	0.004	0.24	0.3585			BUTT END *03
	Cb+Ni	Ta	Zr	Bi	Se	La	Cb+Ni	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*



*Linco 16-18*

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SPECIFICATION MARKING REQUIREMENTS MAY BE WAIVED ON ORDERS REQUIRING MULTIPLE MATERIAL SPECIFICATIONS.

*RK*  
*7-5-05*

mc109562.tif (1609x2195x2.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 442687001-0		Date Entered Date De Commande Bestelldatum 06/06/05		Customer Reference Reference Client Kundenbestelldaten P05-03064		Report No. Rapport No Zeignis Nr 20050628091		Pages of Pages Page de Pages Anzahl der Seiten 2 Of 4											
Sold To • Client • Bestellanschrift <b>MAJOR TOOL AND MACHINE INC 1458 E 19TH ST INDIANAPOLIS IN 46218 USA</b>				Ship To • Destinataire • Bestellmenge <b>MAJOR TOOL AND MACHINE INC 1458 E 19TH ST INDIANAPOLIS IN 46218 USA</b>				Product Description • Description Produit • Material Beschreibung <b>0.125 (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</b>											
Specification • Specification • Spezifikation ASME-SB-443, 04, UNS# N06625, Gr. 1; PS-489, E						Quantity Ordered Quantite Commandee Bestellemenge 6 PC		Quantity Shipped Quantite Expeditee Liefermenge 6 PC											
Tensile Test at Room Temperature • Essai De Traction A Temp. Ambiante • Zugversuch Bei Raum Temp.						Tensile Test at Elevated Temperature • Essai De Traction A Hte.Temp. Warm Zugversuch						Stress Rupture Temperature • Essai A Charge De Rupture Zeitstandversuch							
Ultimate 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		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		Test Essai Versuch Temp:	Stress Contrainte Spannung	Hours Heures Stunden	% Elong In % Allong EN % Dehnung	% RA		
137000 PSI		74000 PSI	44 %		(1)(A)														

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

6/28/2005

(1) 3942629401

*Amanda Aguirre*

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REU  
7-5-05

mcl09562.tif (1706x2196x2.tif) [2]

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  
442687001-0

Date Entered  
Date De Commande  
Bestelldatum  
06/06/05

Customer Reference  
Reference Client  
Kundenbestelldaten  
P05-03064

Report No.  
Rapport No  
Zeugnis Nr  
20050628091

Pages of Pages  
Page de Pages  
Anzahl der Seiten  
3 Of 4

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

Ship To • Destinataire • Bestelmenge  
**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**  
**SE120-004-72MTM 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  
Bestelmenge  
6 PC

Quantity Shipped  
Quantite Expeditee  
Liefermenge  
6 PC

Annealed Hardness Durete Recuit Geglueht Haerte	Aged Hardness Durete 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 Constraint Spansung	Hours Heures
98 HRB	(1)(A)	7.5								MPY										

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

6/28/2005 (1) 3942629401

*Amanda Aguirre*

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*AKC*  
*7-5-05*

mcl09562.tif (1562x2190x2.tif) [3]

**CERTIFICATION OF TESTS • RAPPORT D'ESSAIS CERTIFIE • WERKSZEUGNIS**

FILE COPY 2

Invoice No No. De Facture Rechnungs Nr 442687001-0	Date Entered Date De Commande Bestelldatum 06/06/05	Customer Reference Reference Client Kundenbestelldaten P05-03064	Report No. Rapport No Zeugnis Nr 20050628091	Pages of Pages Page de Pages Anzahl der Seiten 4 Of 4	<b><u>HAYNES</u></b> <b><u>International</u></b>  Haynes International 1020 West Park Avenue PO Box 9013 Kokomo, Indiana, 46902
Sold To • Client • Bestellanschrift <b>MAJOR TOOL AND MACHINE INC</b> <b>1458 E 19TH ST</b> <b>INDIANAPOLIS</b> <b>IN 46218 USA</b>		Ship To • Destinataire • Bestellmenge <b>MAJOR TOOL AND MACHINE INC</b> <b>1458 E 19TH ST</b> <b>INDIANAPOLIS</b> <b>IN 46218 USA</b>		Product Description • Description Produit • Material Beschreibung <b>0.125 (0.120/0.130) x 0/0 x 0/0</b> <b>SE120-004-72MTM REV:1A</b> <b>HAYNES(R) 625 ALLOY SHEET -</b> <b>Nadcap CERTIFICATE NUMBER 0089</b> <b>S400E,S1000E, EN 10204 3.1.B, AS9100</b>	
Specification • Specification • Spezifikation ASME-SB-443, 04, UNS# N06625, Gr. 1; PS-489, E			Quantity Ordered Quantite Commandee Bestellemenge 6 PC	Quantity Shipped Quantite Expediee Liefermenge 6 PC	
All tests and inspections have been performed and results meet specification requirements. THIS MATERIAL IS FREE FROM MERCURY, CADMIUM, RADIUM, AND ALPHA SOURCE CONTAMINATION. Material conforms to PS-483 Revision H as applicable. Mill Orders Used: 3942629401 (6 PC) (A) 1750 °F to 1950 °F					

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

6/28/2005

*Amanda Aguirre*

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*AKK  
2-5-05*

mcl09562.tif (1709x2207x2.tif) [4]

**Magnetic Permeability Test Witness**

Haynes observed Mr. Edwards of Major Tool test the orders listed below for Magnetic Permeability on June 10, 2005, using a Severn Engineering Permeability Indicator #6763, identified as gauge J-1165 in Major Tool's calibration system. The gauge was in calibration and was due for recalibration on December 27, 2005. All items tested below were <1.01 magnetic permeability.


Heats Tested

2650-5-6801

Purchase Order Numbers

P05-03064

Best Regards,

 6/29/2005  
Marlin C. Losch III

AKU  
7-5-05

**INSPECTION DATA CHECKLIST**

Quality Assurance Documentation for Part ID: SE120-005-46 - Item: 145

Workorder: 65678/2-0 Sub:150 Op:10

Part: SE120-005-46 - - VVSA 120 DEGREE VESSEL

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

A

CERTIFICATION OF TESTS • RAPPORT D'ESSAIS CERTIFIE • WERKSZEUGNIS

FILE COPY 2

Invoice No No. De Facture Rechnungs Nr 442690001-0	Date Entered Date De Commande Bestelldatum 06/06/05	Customer Reference Reference Client Kundenbestelldaten P05-03064	Report No. Rapport No Zeugnis Nr 20050628080	Pages of Pages Page de Pages Anzahl der Seiten 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 <b>MAJOR TOOL AND MACHINE INC 1458 E 19TH ST INDIANAPOLIS IN 46218 USA</b>	Ship To • Destinaire • Bestellmenge <b>MAJOR TOOL AND MACHINE INC 1458 E 19TH ST INDIANAPOLIS IN 46218 USA</b>	Product Description • Description Produit • Material Beschreibung <b>0.125 (0.120/0.130) x 0/0 x 0/0 SE120-004-73MTM REV:1A HAYNES(R) 625 ALLOY SHEET - Nadcap CERTIFICATE NUMBER 0089 S400E,S1000E, EN 10204 3.1.B, AS9100</b>
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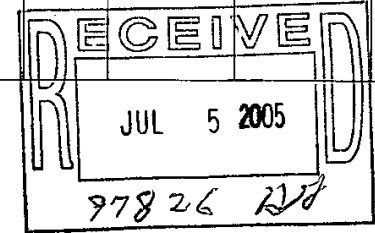
Specification • Specification • Spezifikation ASME-SB-443, 04, UNS# N06625, Gr. 1; PS-489, E	Quantity Ordered Quantite Commandee Bestelmenge 6 PC	Quantity Shipped Quantite Expediee Liefermenge 6 PC
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Heat Number Numero De Coulee Charge Nr	Chemical Analysis • Analyse Chimique • Chemische Analyse																BUTT END *03	
	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			
	(CNSD)	Ta	Zr	Bi	Sc	La	(CNCW)	Pb	Mg	Y	Ag	N	Ca	Al+Ti	Ni+Co	Ni+Mo		BUTT END *03
2650 5 6801	3.5026	<0.05																

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

6/28/2005

*Amanda Aguirre*



*lines 19-21*

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mc109515.tif (1704x2203x2.tif)

**CERTIFICATION OF TESTS • RAPPORT D'ESSAIS CERTIFIÉ • 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 442690001-0	Date Entered Date De Commande Bestelldatum 06/06/05	Customer Reference Reference Client Kundenbestelldaten P05-03064	Report No. Rapport No Zeugnis Nr 20050628080	Pages of Pages Page de Pages Anzahl der Seiten 2 Of 4
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Sold To • Client • Bestellanrschrift <b>MAJOR TOOL AND MACHINE INC</b> 1458 E 19TH ST INDIANAPOLIS IN 46218 USA	Ship To • Destinaire • Bestellmenge <b>MAJOR TOOL AND MACHINE INC</b> 1458 E 19TH ST INDIANAPOLIS IN 46218 USA	Product Description • Description Produit • Material Beschreibung <b>0.125 (0.120/0.130) x 0/0 x 0/0</b> <b>SE120-004-73MTM REV:1A</b> <b>HAYNES(R) 625 ALLOY SHEET</b> <b>Nadcap CERTIFICATE NUMBER 0089</b> <b>S400E,S1000E, EN 10204 3.1.B, AS9100</b>
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Specification • Specification • Spezifikation ASME-SB-443, 04, UNS# N06625, Gr. 1; PS-489, E	Quantity Ordered Quantite Commandee Bestellemenge 6 PC	Quantity Shipped Quantite Expeditee Liefermenge 6 PC
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Tensile Test at Room Temperature • Essai De Traction A Temp. Ambiante • Zugversuch Bei Raum Temp.					Tensile Test at Elevated Temperature • Essai De Traction A Hte. Temp. Warm Zugversuch					Stress Rupture Temperature • Essai A Charge De Rupture Zeitstandversuch						
Ultimate Zugfestigkeit	1% Yield Lim. Elast. A 1% 1% Streckgrenze	0.2% Yield Lim. Elast. A 0.2% 0.2% Streckgrenze	% Elong In % Allong EN % Dehnung	%RA	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	Temp:	Test Essai Versuch	Stress Contrainte Spannung	Hours Heures Stunden	% Elong In % Allong EN % Dehnung	% RA
137000 PSI		74000 PSI	44 %		(1)(A)											

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

6/28/2005 (1) 3942629401

*Amanda Aguirre*



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mcl09515.tif (1707x2201x2.tif) [2]

**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 442690001-0		Date Entered Date De Commande Bestelldatum 06/06/05		Customer Reference Reference Client Kundenbestelldaten P05-03064			Report No. Rapport No Zeugnis Nr 20050628080		Pages of Pages Page de Pages Anzahl der Seiten 3 Of 4																														
Sold To • Client • Bestellaranschrift <b>MAJOR TOOL AND MACHINE INC 1458 E 19TH ST INDIANAPOLIS IN 46218 USA</b>				Ship To • Destinataire • Bestimmung <b>MAJOR TOOL AND MACHINE INC 1458 E 19TH ST INDIANAPOLIS IN 46218 USA</b>				Product Description • Description Produit • Material Beschreibung <b>0.125 (0.120/0.130) x 0/0 x 0/0 SE120-004-73MTM REV:1A HAYNES(R) 625 ALLOY SHEET - Nadcap CERTIFICATE NUMBER 0089 S400E,S1000E, EN 10204 3.1.B, AS9100</b>																															
Specification • Specification • Spezifikation ASME-SB-443, 04, UNS# N06625, Gr. 1; PS-489, E						Quantity Ordered Quantite Commandee Bestelmenge 6 PC		Quantity Shipped Quantite Expediee Liefermenge 6 PC																															
Annealed Hardness Durete Recuit Gepluht Haerte		Aged Hardness Durete Vieilli Gealtert Haerte		Grain Size Grosseur De Grain Korngrösse				IGA		Uniformity		Corrosion Rate		Oxidation Rate		Charpy Impact Test			Creep Rupture																				
				Grain Size		Predominant Grain Size		Recry. Grain		Unrecry. Grain %		ALA		PRW Figure Number		Attack Depth		Corrosion		Test Method		Toughness Avg		Toughness 1		Toughness 2		Toughness 3		Test Essai Versuch		Stress Contrainte Spannung		Hours Heures Stunden		% Elong In % Along EN % Dehnung		% Elong @ 15 Hrs	
98 HRB		(1)(A)		7.5										0.0001 IN				MPY				Fl. Lbs.		Fl. Lbs.		Fl. Lbs.		Fl. Lbs.		Temp.		PSI							

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

6/28/2005

(1) 3942629401

*Amanda Aguirre*

LM  
016

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mct109515.tif (1704x2202x2.tif) [3]



**CERTIFICATION OF TESTS • RAPPORT D'ESSAIS CERTIFIE • WERKSZEUGNIS**

FILE COPY 2

Invoice No No. De Faecture Rechnungs Nr 442690001-0	Date Entered Date De Commande Bestelldatum 06/06/05	Customer Reference Reference Client Kundenbestelldaten P05-03064	Report No. Rapport No Zeugnis Nr 20050628080	Pages of Pages Page de Pages Anzahl der Seiten 4 Of 4
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**HAYNES**  
**International**

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

Sold To • Client • Bestellaranschrift <b>MAJOR TOOL AND MACHINE INC 1458 E 19TH ST INDIANAPOLIS IN 46218 USA</b>		Ship To • Destinataire • Bestelmenge <b>MAJOR TOOL AND MACHINE INC 1458 E 19TH ST INDIANAPOLIS IN 46218 USA</b>		Product Description • Description Produit • Material Beschreibung <b>0.125 (0.120/0.130) x 0/0 x 0/0 SE120-004-73MTM REV:1A HAYNES(R) 625 ALLOY SHEET - Nadcap CERTIFICATE NUMBER 0089 S400E,S1000E, EN 10204 3.1.B, AS9100</b>
Specification • Specification • Spezifikation ASME-SB-443, 04, UNS# N06625, Gr. 1; PS-489, E		Quantity Ordered Quantite Commandee Bestelmenge 6 PC	Quantity Shipped Quantite Expediee Liefermenge 6 PC	

All tests and inspections have been performed and results meet specification requirements.  
THIS MATERIAL IS FREE FROM MERCURY, CADMIUM, RADIUM, AND ALPHA SOURCE CONTAMINATION.  
Material conforms to PS-483 Revision H as applicable.  
Mill Orders Used: 3942629401 (6 PC)  
(A) 1750 °F to 1950 °F

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

6/28/2005

*Amanda Aguirre*



**Magnetic Permeability Test Witness**

Haynes observed Mr. Edwards of Major Tool test the orders listed below for Magnetic Permeability on June 10, 2005, using a Severn Engineering Permeability Indicator #6763, identified as gauge J-1165 in Major Tool's calibration system. The gauge was in calibration and was due for recalibration on December 27, 2005. All items tested below were <1.01 magnetic permeability.


Heats Tested

2650-5-6801

Purchase Order Numbers

P05-03064

Best Regards,

 6/29/2005

Marlin C. Losch III



**INSPECTION DATA CHECKLIST**

Quality Assurance Documentation for Part ID: SE120-005-47 - Item: 147

Workorder: 65678/2-0 Sub:151 Op:10

Part: SE120-005-47 - - VVSA 120 DEGREE VESSEL

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

A



**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

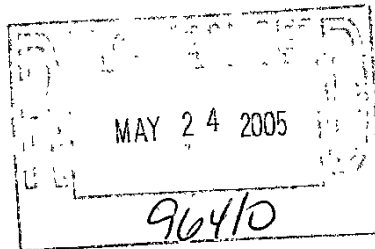
**OUR ORDER NUMBER**  
5-1337

**MATERIAL**                      **SIZE**  
Alloy 625 welded pipe 2-1/2" sch 10

**QTY**  
20 ft

**CONFORMS TO:**  
ASTM-B-705, PS483, PS 489

**RM ID: A8519**



*Line 1  
B-7*

**Certified By:**

*Rodney Bowlin*

*5/24/05*



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 1625 UNS#N06625 ASTM  
RM ID: A8519 B705-G3 / ASME SB705-01, 03 ADD. CLASS 2, FULL FINISHED.

ALUMINUM	.2	CARBON	.033
CHROMIUM	22.0024	COBALT	.1849
IRON	4.5278	MANGANESE	.2605
MOLYBDENUM	0.8153	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 PRSSURE	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.

*Daniel Singleton*  
Representative

MIBR



**INSPECTION DATA CHECKLIST**

Quality Assurance Documentation for Part ID: SE120-005-48 - Item: 149

Workorder: 65678/2-0 Sub:152 Op:10

Part: SE120-005-48 - - VVSA 120 DEGREE VESSEL

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

A

**CERTIFICATION OF TESTS • RAPPORT D'ESSAIS CERTIFIE • WERKSZEUGNIS**

FILE COPY 2

Invoice No No. De Facture Rechnungs Nr 442713001-0	Date Entered Date De Commande Bestelldatum 06/06/05	Customer Reference Reference Client Kundenbestelldaten P05-03064	Report No. Rapport No Zengnis Nr 20050628078	Pages of Pages Page de Pages Anzahl der Seiten 1 Of 4
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**International**

Haynes International  
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PO Box 9013  
Kokomo, Indiana, 46902

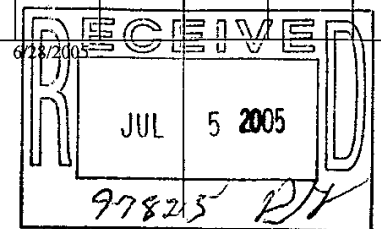
Sold To • Client • Bestellaranschrift <b>MAJOR TOOL AND MACHINE INC 1458 E 19TH ST INDIANAPOLIS IN 46218 USA</b>	Ship To • Destinataire • Bestellmenge <b>MAJOR TOOL AND MACHINE INC 1458 E 19TH ST INDIANAPOLIS IN 46218 USA</b>	Product Description • Description Produit • Material Beschreibung <b>0.125 (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</b>
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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
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Heat Number Numero De Coatee Charge Nr	Chemical Analysis • Analyse Chimique • Chemische Analyse																	
	Al	B	C	Cb+Ta (Nb+Ta)	Co	Cr	Cu	Fe	Mn	Mo	Ni	P	S	Si	Ti	V	W	
2650 5 6801	0.28		0.025	3.51	0.2101	21.89	0.0587	4.0106	0.2503	8.66	60.59	0.006	0.004	0.24	0.3585			BUTT END *03
	C+Nb	Ta	Zr	Bi	Se	La	C+Nb+V	Pb	Mg	Y	Ag	N	Ca	Al+Ti	Ni+Co	Ni+Mo		BUTT END *03
2650 5 6801	3.5026	<0.05																

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

*Amanda Aguirre*



*linex 25-27*

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**CERTIFICATION OF TESTS • RAPPORT D'ESSAIS CERTIFIE • WERKSZEUGNIS**

FILE COPY 2

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PO Box 9013  
Kokomo, Indiana, 46902

Invoice No No. De Facture Rechnungs Nr 442713001-0	Date Entered Date De Commande Bestelldatum 06/06/05	Customer Reference Reference Client Kundenbestelldaten P05-03064	Report No. Rapport No Zeugnis Nr 20050628078	Pages of Pages Page de Pages Anzahl der Seiten 2 Of 4
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Sold To • Client • Bestellaranschrift <b>MAJOR TOOL AND MACHINE INC 1458 E 19TH ST INDIANAPOLIS IN 46218 USA</b>	Ship To • Destinaire • Bestellmenge <b>MAJOR TOOL AND MACHINE INC 1458 E 19TH ST INDIANAPOLIS IN 46218 USA</b>	Product Description • Description Produit • Material Beschreibung <b>0.125 (0.120/0.130) x 0/0 x 0/0 SE120-004-75MTM REV:1A HAYNES(R) 625 ALLOY SHEET - Nadcap CERTIFICATE NUMBER 0089 S400E,S1000E, EN 10204 3.1.B, AS9100</b>
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Specification • Specification • Spezifikation ASME-SB-443, 04, UNS# N06625, Gr. 1; PS-489, E	Quantity Ordered Quantite Commandee Bestellmenge 6 PC	Quantity Shipped Quantite Expediee Liefermenge 6 PC
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Tensile Test at Room Temperature • Essai De Traction A Temp. Ambiante • Zugversuch Bei Raum Temp.					Tensile Test at Elevated Temperature • Essai De Traction A Hte. Temp. Warm Zugversuch						Stress Rupture Temperature • Essai A Charge De Rupture Zeitstandversuch				
Ultimate Zugfestigkeit	1% Yield Lim. Elast. A 1% 1% Streckgrenze	0.2% Yield Lim. Elast. A 0.2% 0.2% Streckgrenze	% Elong In % Along EN % Dehnung	%RA	Test Essai Versuch	Ultimate Zugfestigkeit	1% Yield Lim. Elast. A 1% 1% Streckgrenze	0.2% Yield Lim. Elast. A 0.2% 0.2% Streckgrenze	% Elong In % Along EN % Dehnung	%RA	Test Essai Versuch	Stress Constrained Spannung	Hours Heures Stunden	% Elong In % Along EN % Dehnung	% RA
137000 PSI		74000 PSI	44 %	(1)(A)	Temp:						Temp:				

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



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**CERTIFICATION OF TESTS • RAPPORT D'ESSAIS CERTIFIE • WERKSZEUGNIS**

FILE COPY 2

Invoice No No. De Facture Rechnungs Nr 442713001-0		Date Entered Date De Commande Bestelldatum 06/06/05		Customer Reference Reference Client Kundenbestelldaten P05-03064			Report No. Rapport No Zeugnis Nr 20050628078		Pages of Pages Page de Pages Anzahl der Seiten 3 Of 4										
Sold To • Client • Bestellaranschrift <b>MAJOR TOOL AND MACHINE INC 1458 E 19TH ST INDIANAPOLIS IN 46218 USA</b>				Ship To • Destinataire • Bestelmenge <b>MAJOR TOOL AND MACHINE INC 1458 E 19TH ST INDIANAPOLIS IN 46218 USA</b>				Product Description • Description Produit • Material Beschreibung <b>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</b>											
Specification • Specification • Spezifikation ASME-SB-443, 04, UNS# N06625, Gr. 1; PS-489, E						Quantity Ordered Quantite Commandee Bestelmenge 6 PC		Quantity Shipped Quantite Expediee Liefermenge 6 PC											
Annealed Hardness Durete Recuit Geglueht Haerte	Aged Hardness Durete Vieilli Gealtert Haerte	Grain Size Grosneur De Grain Korngrösse					IGA	Uniformity	Corrosion Rate	Oxidation Rate	Charpy Impact Test			Creep Rupture					
		Grain Size	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 Eval Versuch	Stress Constraite Spannung	Hours Heures Stunden	% Elong In % Allong EN % Dehnung	% Elong @ 15 Hrs
98 HRB	(1)(A)	7.5						0.0001 IN	MPY		Ft. Lbs.	Ft. Lbs.	Ft. Lbs.	Ft. Lbs.	Temp:	PSI			

**HAYNES**  
**International**

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PO Box 9013  
Kokomo, Indiana, 46902

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Certification Technician

6/28/2005

(1) 3942629401

*Amanda Aguirre*



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**CERTIFICATION OF TESTS • RAPPORT D'ESSAIS CERTIFIE • WERKSZEUGNIS**

FILE COPY 2

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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	

All tests and inspections have been performed and results meet specification requirements.  
THIS MATERIAL IS FREE FROM MERCURY, CADMIUM, RADIUM, AND ALPHA SOURCE CONTAMINATION.  
Material conforms to PS-483 Revision H as applicable.  
Mill Orders Used: 3942629401 (6 PC)  
(A) 1750 °F to 1950 °F

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

*Amanda Aguirre*



mct109516.tif (1704x2180x2.tif) [4]

**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: 151

Workorder: 65678/2-0 Sub:144 Op:10

Part: SE120-006-6 - - VVSA 120 DEGREE VESSEL

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

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**CERTIFICATION OF TESTS • RAPPORT D'ESSAIS CERTIFIE • WERKSZEUGNIS**

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Specification • Specification • Spezifikation  ASME-SB-443, 04, UNS# N06625, Gr. 1; PS-489, E	Quantity Ordered Quantite Commandee Bestelmenge  6 PC	Quantity Shipped Quantite Expeditee Liefermenge  6 PC
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Heat Number Numero De Coolee Charge Nr	Chemical Analysis • Analyse Chimique • Chemische Analyse																		
	Al	B	C	Ch+Ta (Nb+Ta)	Co	Cr	Cu	Fe	Mn	Mo	Ni	P	S	Si	Ti	V	W		
2650 5 6801	0.28		0.025	3.51	0.2101	21.89	0.0587	4.0106	0.2503	8.66	60.59	0.006	0.004	0.24	0.3585				BUTT END *03
2650 5 6801	<sup>(Nb)</sup> 3.5026	Ta <0.05	Zr	Bi	Se	La	<sup>(Sb)</sup> C+N	Pb	Mg	Y	Ag	N	Ca	Al+Ti	Ni+Co	Ni+Mo			BUTT END *03

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

**RECEIVED**  
JUL 5 2005  
97834 #1

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RKL  
28-05

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**CERTIFICATION OF TESTS • RAPPORT D'ESSAIS CERTIFIE • WERKSZEUGNIS**

Invoice No No. De Facture Rechnungs Nr 442715001-0	Date Entered Date De Commande Bestelldatum 06/06/05	Customer Reference Reference Client Kundenbestelldaten P05-03064	Report No. Rapport No Zeugnis Nr 20050628084	Pages of Pages Page de Pages Anzahl der Seiten 2 Of 4
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PO Box 9013  
Kokomo, Indiana, 46902

Sold To • Client • Bestellanschrift <b>MAJOR TOOL AND MACHINE INC 1458 E 19TH ST INDIANAPOLIS IN 46218 USA</b>	Ship To • Destinataire • Bestellmenge <b>MAJOR TOOL AND MACHINE INC 1458 E 19TH ST INDIANAPOLIS IN 46218 USA</b>	Product Description • Description Produit • Material Beschreibung <b>0.125 (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</b>
---	---	--

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

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

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

*Amanda Aguirre*

6/28/2005 (1) 3942629401

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.

7-5-05  
RCU

mcl09561.tif (1707x2200x2.tif) [2]



**CERTIFICATION OF TESTS • RAPPORT D'ESSAIS CERTIFIE • WERKSZEUGNIS**

Invoice No No. De Facture Rechnungs Nr 442715001-0	Date Entered Date De Commande Bestelldatum 06/06/05	Customer Reference Reference Client Kundenbestelldaten P05-03064	Report No. Rapport No Zeugnis Nr 20050628084	Pages of Pages Page de Pages Anzahl der Seiten 4 Of 4
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**HAYNES**  
**International**

CUSTOMER COPY

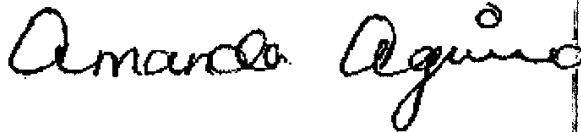
Haynes International  
 1020 West Park Avenue  
 PO Box 9013  
 Kokomo, Indiana, 46902

Sold To • Client • Bestellanschrift <b>MAJOR TOOL AND MACHINE INC</b> <b>1458 E 19TH ST</b> <b>INDIANAPOLIS</b> <b>IN 46218 USA</b>	Ship To • Destinataire • Bestellmenge <b>MAJOR TOOL AND MACHINE INC</b> <b>1458 E 19TH ST</b> <b>INDIANAPOLIS</b> <b>IN 46218 USA</b>	Product Description • Description Produit • Material Beschreibung <b>0.125 (0.120/0.130) x 0/0 x 0/0</b> <b>SE120-004-67MTM REV:1A</b> <b>HAYNES(R) 625 ALLOY SHEET -</b> <b>Nadcap CERTIFICATE NUMBER 0089</b> <b>S400E,S1000E, EN 10204 3.1.B, AS9100</b>
Specification • Specification • Spezifikation ASME-SB-443, 04, UNS# N06625, Gr. 1; PS-489, E	Quantity Ordered Quantite Commandee Bestellemenge 6 PC	Quantity Shipped Quantite Expediee Liefermenge 6 PC

All tests and inspections have been performed and results meet specification requirements.  
 THIS MATERIAL IS FREE FROM MERCURY, CADMIUM, RADIUM, AND ALPHA SOURCE CONTAMINATION.  
 Material conforms to PS-483 Revision H as applicable.  
 Mill Orders Used: 3942629401 (6 PC)  
 (A) 1750 °F to 1950 °F

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

6/28/2005



THE DATA CONTAINED HEREIN WAS OBTAINED FROM SAMPLES THAT ARE REPRESENTATIVE OF THE PRODUCTS IN THE SUBJECT SHIPMENT. THIS MATERIAL MEETS THE REQUIREMENTS OF THE LISTED SPECIFICATIONS, MODIFIED BY ANY EXCEPTIONS OR PURCHASE ORDER REQUIREMENTS. THE RECORDING OF FALSE, FICTITIOUS OR FRAUDULENT STATEMENTS OR ENTRIES ON THIS DOCUMENT MAY BE PUNISHED AS A FELONY UNDER FEDERAL STATUTES INCLUDING FEDERAL LAW, TITLE 18, CHAPTER 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 REGARDING MULTIPLE MATERIAL SPECIFICATIONS.

*AKU*  
*2-5-05*

mct109561.tif (1705x2195x2.tif) [4]



**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  
7-505

CERTIFICATION OF TESTS • RAPPORT D'ESSAIS CERTIFIE • WERKSZEUGNIS

Invoice No No. De Facture Rechnungs Nr 442718001-0	Date Entered Date De Commande Bestelldatum 06/06/05	Customer Reference Reference Client Kundenbestelldaten P05-03064	Report No. Rapport No Zeugnis Nr 20050628079	Pages of Pages Page de Pages Anzahl der Seiten 1 Of 4
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**HAYNES**  
**International**

FILE COPY 2

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

Sold To • Client • Bestellanschrift <b>MAJOR TOOL AND MACHINE INC</b> 1458-E-19TH ST INDIANAPOLIS IN 46218 USA	Ship To • Destinataire • Bestellmenge <b>MAJOR TOOL AND MACHINE INC</b> 1458-E-19TH ST INDIANAPOLIS IN 46218 USA	Product Description • Description Produit • Material Beschreibung <b>0.125 (0.120/0.130) x 0/0 x 0/0</b> <b>SEI20=004=76MTM REV:1A</b> <b>HAYNES(R) 625 ALLOY SHEET</b> <b>Nadcap CERTIFICATE NUMBER 0089</b> <b>S400E,S1000E, EN 10204 3.1.B, AS9100</b>
--	--	--

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

Heat Number Numero De Codee Charge Nr	Chemical Analysis • Analyse Chimique • Chemische Analyse																	
	Al	B	C	Cb+Ta (Nb+Ta)	Co	Cr	Cu	Fe	Mn	Mo	Ni	P	S	Si	Ti	V	W	
2650 5 6801	0.28		0.025	3.51	0.2101	21.89	0.0587	4.0106	0.2503	8.66	60.59	0.006	0.004	0.24	0.3585			BUTT END *03
	(UNS)	Ta	Zr	Bi	Sc	La	C+N+O	Pb	Mg	Y	Ag	N	Ca	Al+Ti	Ni+Co	Ni+Mo		BUTT END *03
2650 5 6801	3.5026	<0.05																

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

6/28/2005

*Amanda Aguirre*  
JUL 07 2005  
MTM 016

RECEIVED  
JUL 6 2005  
97943

*lines 31-33*

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, AS MODIFIED BY ANY EXCEPTIONS OR PURCHASE ORDER REQUIREMENTS. THE RECORDING OF FALSE, FICTITIOUS OR FRAUDULENT STATEMENTS OR ENTRIES ON THIS DOCUMENT MAY BE PUNISHED AS A FELONY UNDER FEDERAL STATUTES INCLUDING FEDERAL LAW, TITLE 18, CHAPTER 49. THIS DOCUMENT SHALL NOT BE REPRODUCED, EXCEPT IN FULL, WITHOUT THE WRITTEN CONSENT OF HAYNES INTERNATIONAL, INC. SPECIFICATION MARKING REQUIREMENTS MAY BE WAIVED ON ORDERS REQUIRING MULTIPLE MATERIAL SPECIFICATIONS.

mc109677.tif (1703x2198x2.tif)

**INSPECTION DATA CHECKLIST**

Workorder: 65678/2-0 Sub:153 Op:10

Revision:

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

A\*

\* To Far Right Indicates Data Package Requirement

NOTE: 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.

**CERTIFICATION OF TESTS • RAPPORT D'ESSAIS CERTIFIE • WERKSZEUGNIS**

FILE COPY 2

Invoice No No. De Facture Rechnungs Nr 442718001-0	Date Entered Date De Commande Bestelldatum 06/06/05	Customer Reference Reference Client Kundenbestelldaten P05-03064	Report No. Rapport No Zeugnis Nr 20050628079	Pages of Pages Page de Pages Anzahl der Seiten 2 Of 4
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**HAYNES**  
**International**

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

Sold To • Client • Bestellaranschrift <b>MAJOR TOOL AND MACHINE INC</b> <b>1458 E 19TH ST</b> <b>INDIANAPOLIS</b> <b>IN 46218 USA</b>	Ship To • Destinataire • Bestellmenge <b>MAJOR TOOL AND MACHINE INC</b> <b>1458 E 19TH ST</b> <b>INDIANAPOLIS</b> <b>IN 46218 USA</b>	Product Description • Description Produit • Material Beschreibung <b>0.125 (0.120/0.130) x 0/0 x 0/0</b> <b>SE120-004-76MTM REV:1A</b> <b>HAYNES(R) 625 ALLOY SHEET</b> <b>Nadcap CERTIFICATE NUMBER 0089</b> <b>S400E,S1000E, EN 10204 3.1.B, AS9100</b>
---	---	--

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

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

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

6/28/2005

(1) 3942629401

*Amanda Aguirre*  
MTM 016 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, FICTITIOUS OR FRAUDULENT STATEMENTS OR ENTRIES ON THIS DOCUMENT MAY BE PUNISHED AS A FELONY UNDER FEDERAL STATUTES INCLUDING FEDERAL LAW, TITLE 18, CHAPTER 49. THIS DOCUMENT SHALL NOT BE REPRODUCED, EXCEPT IN FULL, WITHOUT THE WRITTEN CONSENT OF HAYNES INTERNATIONAL, INC. SPECIFICATION MARKING REQUIREMENTS MAY BE WAIVED ON ORDERS REQUIRING MULTIPLE MATERIAL SPECIFICATIONS.

mct109677.tif (1593x2199x2.tif) [2]



**CERTIFICATION OF TESTS • RAPPORT D'ESSAIS CERTIFIE • WERKSZEUGNIS**

FILE COPY 2

Invoice No No. De Facture Rechnungs Nr 442718001-0	Date Entered Date De Commande Bestelldatum 06/06/05	Customer Reference Reference Client Kundenbestelldaten P05-03064	Report No. Rapport No Zeugnis Nr 20050628079	Pages of Pages Page de Pages Anzahl der Seiten 4 Of 4
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**HAYNES**  
**International**

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

Sold To • Client • Bestellanschrift <b>MAJOR TOOL AND MACHINE INC</b> <b>1458 E 19TH ST</b> <b>INDIANAPOLIS</b> <b>IN 46218 USA</b>		Ship To • Destinaire • Bestelmenge <b>MAJOR TOOL AND MACHINE INC</b> <b>1458 E 19TH ST</b> <b>INDIANAPOLIS</b> <b>IN 46218 USA</b>		Product Description • Description Produit • Material Beschreibung <b>0.125 (0.120/0.130) x 0/0 x 0/0</b> <b>SE120=004=76MTM-REV:1A</b> <b>HAYNES(R) 625 ALLOY SHEET -</b> <b>Nadcap CERTIFICATE NUMBER 0089</b> <b>S400E,S1000E, EN 10204 3.1.B, AS9100</b>
Specification • Specification • Spezifikation ASME-SB-443, 04, UNS# N06625, Gr. 1; PS-489, E		Quantity Ordered Quantite Commandee Bestelmenge 6 PC	Quantity Shipped Quantite Expediee Liefermenge 6 PC	

All tests and inspections have been performed and results meet specification requirements.  
THIS MATERIAL IS FREE FROM MERCURY, CADMIUM, RADIUM, AND ALPHA SOURCE CONTAMINATION.  
Material conforms to PS-483 Revision H as applicable.  
Mill Orders Used: 3942629401 (6 PC)  
(A) 1750 °F to 1950 °F

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

*Amanda Aguirre*

MTM  
016  
JUL 07 2005

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mcl09677.tif (1703x2202x2.tif) [4]

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,

6/29/2005

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: \*\*\*\*

\*\*\*\* SHIP TO: \*\*\*\*

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

EATON METAL PRODUCTS  
844 S CHESTNUT  
SALT LAKE CITY UT 84104

CUSTOMER ORDER #  
25WX903593

CUSTOMER MARK #  
25WX9035930101/2016633

\*\*\*\*\*  
C 625 BB HOT ROLLED, ANNEALED, DESCALED  
UNS N06625; PLATE  
ASME SB443, GRADE 1, ASME B&PV CODE SECTION II, 1992 EDITION, 1994 ADDENDA.  
\*\*\*\*\*

ITEM DESCRIPTION MARK: 25WX9035930101/2016633  
1 1.625 x 58 x 157

Qty	Heat/Slab	Test Dir	Yield-.2% PSI	Tensile PSI	Elons-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
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 #

JUL 27 2005  
RECEIVED  
JUL 26 2005  
98643 JH  
Line 3

MTM 017

#3637



05/28/04 FRI 14:45 FAX 8188824490

→→→ HIGH TEMP

001

6327

**METALS TECHNOLOGY, INC.**  
 19801 Nordhoff Street  
 Northridge, California 91324  
 (818) 882-6414 (323) 873-7144 FAX: (818) 882-4490

**CERTIFIED TEST REPORT NO. 329663 (Page 1 of 1)**

**5/28/2004**

CUSTOMER: HIGH TEMP METALS HEAT NO.: 5L211  
 P.O.: 1335 PART NO.: 1.625 X 58 X 157 (1 PLATE)  
 MATERIAL: 625  
 SPECS: SEE REMARKS

*** TENSILE TEST RESULTS ***								
TEMP	DIA. (in.)	AREA (in. <sup>2</sup> )	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

CERTIFICATE SHALL NOT BE REPRODUCED EXCEPT IN FULL, WITHOUT THE WRITTEN APPROVAL OF THE LABORATORY.

TESTS LISTED ABOVE  
 MEET SPECIFICATION REQUIREMENTS

MTI VENDOR CODE T5001

RESPECTFULLY SUBMITTED,

*J.A. Baxter* 5-28-04  
 J.A. BAXTER, V.P. OF OPERATIONS  
 METALS TECHNOLOGY, INC.

6327



DATE: 07-Dec-95

GOC: 88022

TEST CERTIFICATE

\*\*\* SOLD TO: \*\*\*

\*\*\* SHIP TO: \*\*\*

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

EATON METAL PRODUCTS  
844 S CHESTNUT  
SALT LAKE CITY UT 84104

CUSTOMER ORDER #  
25WX903593

CUSTOMER MARK #  
25WX9035930101/2016633

\*\*\*\*\*  
C 625 BB HOT ROLLED, ANNEALED, DESCALED  
UNS N06625; PLATE  
ASME SB443, GRADE 1, ASME B&PV CODE SECTION II, 1992 EDITION, 1994 ADDENDA.  
\*\*\*\*\*

ITEM DESCRIPTION MARK: 25WX9035930101/2016633  
1 1.625 x 58 x 157

Qty Heat/Slab

	Test Dir	Yield-.2% PSI	Tensile PSI	Elong-2in %
795 1 SL211-1A	TT	76970	141310	42.45

Materials produced under this order have not come into contact with Mercury or its compounds within G.O. Carlson, Inc. facilities.

No Welding Performed

100% Melted, Rolled, and Manufactured in the U.S.A.

\*\*\*\*\* LADLE ANALYSIS \*\*\*\*\*

HEAT:	C	MN	P	S	SI	CR	NI	MO
SL211	0.036	0.035	0.007	0.000	0.100	22.325	61.160	8.985
SL211	CBTA	FE	AL	TI	CO			
	3.300	3.580	0.100	0.120	0.025			

Heat Treat Practice: 1850°F ± 25°F for 1 hour per inch of material thickness or 30 minutes, whichever is greater. Air cool.

*Susan S. 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 #

#3637

05/28/04 FRI 14:45 FAX 8188824490

--- HIGH TEMP

001

**METALS TECHNOLOGY, INC.**

19801 Nordhoff Street  
Northridge, California 91324

(818) 882-6414 (323) 873-7144 FAX: (818) 882-4490

6327

**CERTIFIED TEST REPORT NO. 329663 (Page 1 of 1)**

5/28/2004

CUSTOMER: HIGH TEMP METALS  
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. <sup>2</sup> )	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

CERTIFICATE SHALL NOT BE REPRODUCED EXCEPT IN FULL, WITHOUT THE WRITTEN APPROVAL OF THE LABORATORY.

TESTS LISTED ABOVE  
MEET SPECIFICATION REQUIREMENTS

RESPECTFULLY SUBMITTED,

MTI VENDOR CODE T5001

*J.A. Baxter* 5-28-04  
J.A. BAXTER, V.P. OF OPERATIONS  
METALS TECHNOLOGY, INC.

Quality Assurance Documentation for Part ID: SE120-014-FJS - Item: 156

Workorder: 65678/2-0 Sub:193 Op:60

Part: SE120-014-FJS - - VVSA 120 DEGREE VESSEL

Drawing ID: SE120-004 Rev: 2D			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT	
4* (10)	D5	PORT FJS POSITION	LASER	QA		J-1280	0.230	522-R.D 07-05-06			A
Drawing ID: SE121-014 Rev: 1C			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT	
* (20)		FINAL SPACER PROFILE	LASER	QA		J-1280	-0.076 / +0.177	522-R.D 07-05-06			A
* (30)		SPACER MAGNETIC PERMEABILITY 1.02 Mu MAX	MASTER GAGE	QA		J-1270	LESS THAN 1.02	522-R.D 07-05-06			A
* (40)		SPACER INTERIOR SURFACE FINISH 32 MICRO-INCH RA	PROFILOMETER	QA		J-1308	8-26	522-R.D 07-05-06			A
* (50)		SPACER WALL THICKNESS 0.375 +0.04/-0	UT THICKNESS GA UT CAL BLOCK	QA		J-1009-NDT J-1157	0.376 / 0.402	522-R.D 07-05-06			A



Quality Assurance Documentation for Part ID: SE121-014 PORT - Item: 158

Workorder: 65678/2-0 Sub:193 Op:15

Part: SE121-014 PORT - - VVSA 120 DEGREE VESSEL

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
(100)		VWI - ROOT PASS WELD PSV		CWI				04-04-06	04-04-06		
*				MFG		VISUAL	GOOD	358-D.M	933-D.L		A
(120)		VWI - COVER PASS WELD PSV		CWI				04-06-06	04-06-06		

Quality Assurance Documentation for Part ID: SE121-014 S10-S6 SUB-SET - Item: 159

Workorder: 65678/2-0 Sub:206 Op:30

Part: SE121-014 S10-S6 SUB-SET - - VVSA 120 DEGREE VESSEL

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	933-D.L	
(10)		VWI ROOT PASS WELD S10-S6		CWI				01-26-06	01-26-06	A

Quality Assurance Documentation for Part ID: SE121-014 S10-S6 SUB-SET - Item: 160

Workorder: 65678/2-0 Sub:206 Op:130

Part: SE121-014 S10-S6 SUB-SET - - VVSA 120 DEGREE VESSEL

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	933-D.L	
(20)		VWI EXTERIOR COVER PASS WELD S10		CWI				01-30-06	01-30-06	A



Quality Assurance Documentation for Part ID: SE121-014 S10-S6 SUB-SET - Item: 161

Workorder: 65678/2-0 Sub:206 Op:150

Part: SE121-014 S10-S6 SUB-SET - - VVSA 120 DEGREE VESSEL

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	933-D.L	
(20)		VWI INTERIOR COVER PASS WELD S10-		CWI				01-30-06	01-30-06	A

Quality Assurance Documentation for Part ID: SE121-014 S10-S6-S7 SUB-SET - Item: 162

Workorder: 65678/2-0 Sub:205 Op:30

Part: SE121-014 S10-S6-S7 SUB-SET - - VVSA 120 DEGREE VESSEL

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	933-D.L	
(10)		VWI ROOT PASS WELD S6-S7		CWI				01-26-06	01-26-06	A

**INSPECTION DATA CHECKLIST**

Quality Assurance Documentation for Part ID: SE121-014 S10-S6-S7 SUB-SET - Item: 163

Workorder: 65678/2-0 Sub:205 Op:150

Part: SE121-014 S10-S6-S7 SUB-SET - - VVSA 120 DEGREE VESSEL

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 PEWR SPEC.	093-M.S	933-D.L	
(20)		VWI INTERIOR COVER PASS WELD S6-		CWI				01-30-06	01-30-06	

A

Quality Assurance Documentation for Part ID: SE121-014 S10-S6-S7 SUB-SET - Item: 164

Workorder: 65678/2-0 Sub:205 Op:130

Part: SE121-014 S10-S6-S7 SUB-SET - - VVSA 120 DEGREE VESSEL

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	933-D.L	
(20)		VWI EXTERIOR COVER PASS WELD S6-		CWI				01-30-06	01-30-06	A

Quality Assurance Documentation for Part ID: SE121-014 S8-S9 SUB-SET - Item: 165

Workorder: 65678/2-0 Sub:209 Op:30

Part: SE121-014 S8-S9 SUB-SET - - VVSA 120 DEGREE VESSEL

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	683-K.M	933-D.L	
(10)		VWI ROOT PASS WELD S8-S9		CWI			DRAWING & REQUIE ENTS	02-02-06	02-02-06	A

Quality Assurance Documentation for Part ID: SE121-014 S8-S9 SUB-SET - Item: 166

Workorder: 65678/2-0 Sub:209 Op:130

Part: SE121-014 S8-S9 SUB-SET - - VVSA 120 DEGREE VESSEL

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	837-J.D	933-D.L	
(20)		VWI EXTERIOR COVER PASS WELD S8-		CWI				02-02-06	02-03-06	A

**INSPECTION DATA CHECKLIST**

Quality Assurance Documentation for Part ID: SE121-014 S8-S9 SUB-SET - Item: 167

Workorder: 65678/2-0 Sub:209 Op:150

Part: SE121-014 S8-S9 SUB-SET - - VVSA 120 DEGREE VESSEL

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	933-D.L	
(20)		VWI INTERIOR COVER PASS WELD S8-		CWI				02-02-06	02-03-06	A

Quality Assurance Documentation for Part ID: SE121-014 - Item: 168

Workorder: 65678/2-0 Sub:193 Op:12

Part: SE121-014 - - VVSA 120 DEGREE VESSEL

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	053-M.D	
(10)		VWI ROOT PASS WELD SFA		CWI				03-14-06	03-14-06	A
*				MFG		VISUAL	ACCEPTABLE	728-R.D	053-M.D	
(20)		VWI ROOT PASS WELD SFB		CWI				03-14-06	03-15-06	A
*				MFG		VISUAL	GOOD	358-D.M	933-D.L	
(110)		VWI EXTERIOR COVER PASS WELD SF		CWI				03-15-06	03-15-06	A
*				MFG		VISUAL	GOOD	358-D.M	933-D.L	
(120)		VWI EXTERIOR COVER PASS WELD SF		CWI				03-15-06	03-15-06	A



**INSPECTION DATA CHECKLIST**

Quality Assurance Documentation for Part ID: SE121-014 - Item: 169

Workorder: 65678/2-0 Sub:193 Op:13

Part: SE121-014 - - VVSA 120 DEGREE VESSEL

Drawing ID: SE121-014 Rev: 1C			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY		
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
*		SPACER PROFILE (INCL. FLANGES, PARTIALLY WELDED)	LASER	QA		J-1280	.291	854-R.U		
(10)								07-31-06		

A

Quality Assurance Documentation for Part ID: SE121-014 - Item: 170

Workorder: 65678/2-0 Sub:193 Op:14

Part: SE121-014 - - VVSA 120 DEGREE VESSEL

Drawing ID: SE120-004 Rev: 2			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY		
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
*		VWI INTERIOR COVER PASS WELD SFA		MFG		VISUAL	GOOD	358-D.M	933-D.L	A
(10)				CWI				03-20-06	03-20-06	
*		VWI INTERIOR COVER PASS WELD SFB		MFG		VISUAL	GOOD	358-D.M	933-D.L	A
(20)				CWI				03-20-06	03-20-06	
*		VWI INTERIOR COVER PASS WELD S7-		MFG		VISUAL	GOOD	358-D.M	933-D.L	A
(30)				CWI				03-20-06	03-20-06	
*		VWI INTERIOR COVER PASS WELD S9-		MFG		VISUAL	GOOD	358-D.M	933-D.L	A
(40)				CWI				03-20-06	03-20-06	



4959  
10520 Cheater Road  
Woodlawn, Ohio 45215

CLIENT Major Tool & Machine			INTERMEDIATE LEVEL Robert Weaver/II			RADIOGRAPHER Robert Weaver			JOB NO 13860001	P.O. NO N/A	DATE 4/27/06
ISOTOPE/RAY IR 192	DIA. X LENS .118" x .089"	CURIES/MA 40	FOCAL SPOT SIZE .148"	SFD 15"	SOD 14.625"	TIME 2:00	FILM PROCESSING Auto	FILM TYPE Kodak AA	FILM TECHNIQUE Double	PB SCREENS 200, .010"	
WELD PROCESS GTAW		MATERIAL SPEC. 625 Inconel	MATERIAL DIAMETER N/A	MATERIAL THICKNESS .375"	PENETRANT ASTM IB	SHIM N/A	ACCEPTANCE STANDARD ASME VIII, Div. 1, UW-51				
DESCRIPTION 65678/2.0/193/25/818 SE/21-014 rev. 1C					REMARKS Densitometer-12105 cal due- 5/2/06						

FITTING, SEAM OR FITTING	FILM INTERVAL NUMBER	WELDER IDENTIFICATION	PENETRANT		SLAG	POROSITY	POROSITY WITH TAIL	CRACK	LACK OF PEN	LACK FUSION	INTERNAL CORROSION	INTERNAL CONTAMINITY	TUNGSTEN	MELT THROUGH	BURN THROUGH	CRATER/PT	OXIDATION	INTERNAL UNDERCUT	EXTERNAL UNDERCUT	ALIGNED INDICATIONS	WELD CONTOUR	MIS-MATCH	FILM ARTIFACT	VISUAL CONCERNS	FILM DENSITY	SEE REMARKS	ACCEPT	REJECT	End View   Side View
			SIZE	QUALITY LEVEL																									
1	0-1	N/A	IB	.010"		✓																							
2						✓																							
3																													
4						✓																							

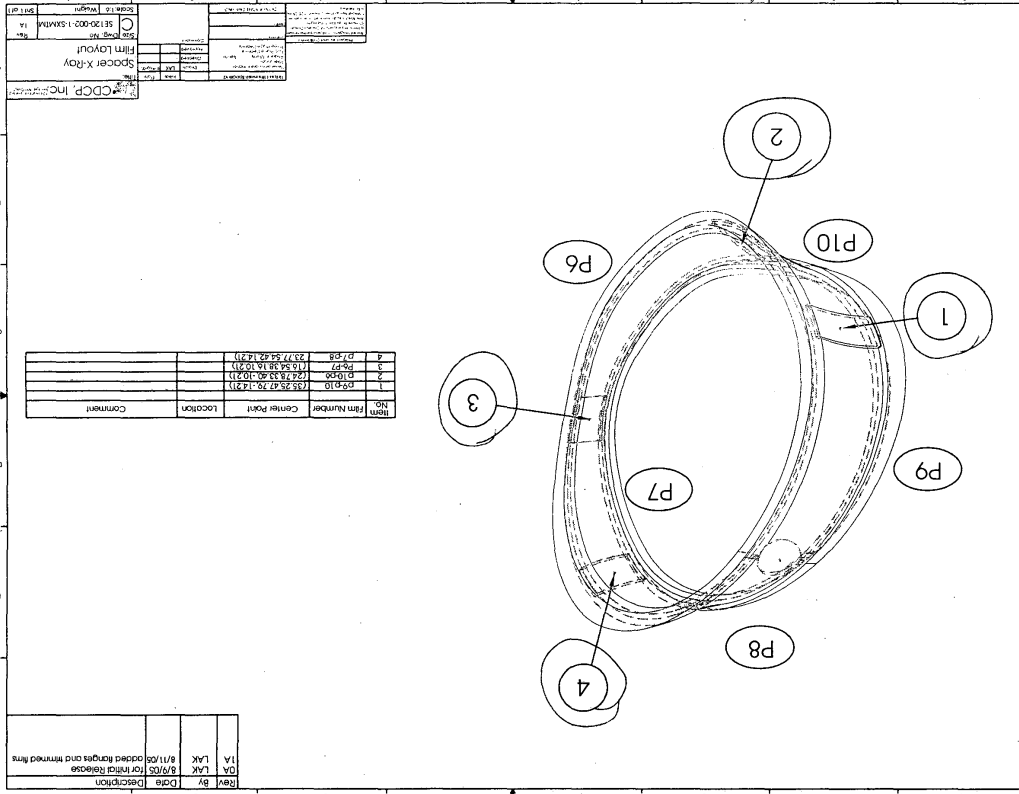
Robert Weaver 655514/II  
Cooperheat-MQS Signature

Raymond D. Edwards  
Customer Representative Signature

4/27/06  
Date

P Penetrant  
S Shim  
L Location Marker  
( ) OTHER

65678/20/193/25/8/8  
 SE121-014 rev. 1C  
 4/27/06  
 Page 2 of 2



Scale: 1/2" = 1"	Scale: 1/2" = 1"
Sheet: 1A	Sheet: 1A
Project: 65678/20/193/25/8/8	Project: 65678/20/193/25/8/8
Client: GDCP, Inc.	Client: GDCP, Inc.
Designer: Spencer K. Roy	Designer: Spencer K. Roy
Checker:	Checker:
Approver:	Approver:

Quality Assurance Documentation for Part ID: SE121-014 - Item: 173

Workorder: 65678/2-0 Sub:199 Op:10

Part: SE121-014 - - VVSA 120 DEGREE VESSEL

Drawing ID: SE121-014 Rev: 1C			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT	
1* (10)	D6		INDICATOR	MFG		P-4482	.009	231-B.B 05-24-06			A
1* (20)	D8		INDICATOR	MFG		P-4482	.0025	231-B.B 05-24-06			A
1* (30)	D7	(6.50) INTERPRET AS MINIMUM	CALIPER	MFG		P-5202	7.035	231-B.B 05-24-06			A

Quality Assurance Documentation for Part ID: SE121-014 - Item: 174

Workorder: 65678/2-0 Sub:199 Op:30

Part: SE121-014 - - VVSA 120 DEGREE VESSEL

Drawing ID: SE120-002 Rev: 1		INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
*		FINAL SPACER PROFILE (WALL AND FLANGE PROFILES)	LASER	QA		J-1280	-0.076 / +0.177	789-D.W		
(10)								06-15-06		

A

Quality Assurance Documentation for Part ID: SE121-014-1 - Item: 175

Workorder: 65678/2-0 Sub:194 Op:60

Part: SE121-014-1 - - VVSA 120 DEGREE VESSEL

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	933-D.L		A
(10)		VWI ROOT PASS WELD S7-S8		CWI				02-07-06	02-08-06		
*				MFG		VISUAL	OK PER SPEC.	093-M.S	933-D.L		A
(20)		VWI ROOT PASS WELD S9-S10		CWI				02-07-06	02-08-06		

Quality Assurance Documentation for Part ID: SE121-014-1 - Item: 176

Workorder: 65678/2-0 Sub:194 Op:160

Part: SE121-014-1 - - VVSA 120 DEGREE VESSEL

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	933-D.L		A
(20)		VWI EXTERIOR COVER PASS WELD S7-		CWI				02-07-06	02-07-06		
*				MFG		VISUAL	OK PER SPEC.	093-M.S	933-D.L		A
(20)		VWI EXTERIOR COVER PASS WELD S9-		CWI				02-07-06	02-07-06		



Quality Assurance Documentation for Part ID: SE121-014-1 - Item: 177

Workorder: 65678/2-0 Sub:194 Op:180

Part: SE121-014-1 - - VVSA 120 DEGREE VESSEL

Drawing ID: SE120-004 Rev: 2D			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT	
*		VWI INTERIOR COVER PASS WELD S9-		MFG		VISUAL	NO DISCERNIBLE INDICATIONS NOTED	840-G.M 07-31-06			A
(20)											
*		VWI INTERIOR COVER PASS WELD S7-		CWI		VISUAL	NO DISCERNIBLE INDICATIONS NOTED	840-G.M 07-31-06			A
(20)											

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				
Sales Order No Reference Commande Bestellungs-Nr 438174001-0	Date Entered Date De Commande Bestelldatum 04/06/05	Customer Reference Reference Client Kundenbestelldaten 1525 REMAKE	Report No. Rapport No Zeugnis Nr 20050921020	Pages of Pages Page de Pages Anzahl der Seiten 1 Of 4

Sold To • Client • Bestellaranschrift	Ship To • Destinataire • Bestellmenge
<b>HIGH TEMP METALS INC</b> 12910 SAN FERNANDO RD SYLMAR CA 91342 USA	<b>MAJOR TOOL AND MACHINE</b> 1458 E 19TH ST INDIANAPOLIS IN 46218 USA

Product Description • Description Produit • Material Beschreibung
1.520 x 60 x 160 NSP 5822 HAYNES(R) 625 ALLOY PLATE - Nadcap CERTIFICATE NUMBER 0089 S400E, S1000 1/3/2005, EN 10204 3.1, AS9100

Specification • Specification • Spezifikation	Quantity Ordered Quantite Commandee Bestellmenge	Quantity Shipped Quantite Expediee Liefermenge
AMS 5599, F; AMS 5666, E; ASME-SB-443, 04, UNS# N06625, Gr. 1; ASME-SB-446, 04, 1 PC UNS# N06625, Gr. 1; ASTM-B-443, 00e1, UNS# N06625, Gr. 1; RR9000:SABRe; MR0175-2002, ORG		1 PC

Heat Number Numero De Coulee Charge Nr	Chemical Analysis • Analyse Chimique • Chemische Analyse																	
	Al	B	C	Cb+Ta (Nb+Ti)	Co	Cr	Cu	Fe	Mn	Mo	Ni	P	S	Si	Ti	V	W	
2650 5 6861	0.18		0.026	3.49	0.2484	21.98		4.1913	0.2984	8.67	59.93	0.006	0.003	0.13	0.276			BUTT END *01
2650 5 6861	3.4866	<0.05																BUTT END *01

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

*Penny E. Powell*



OCT 06 2005

9/21/2005

Rec'd 100957  
mB cables  
Line 2

THE DATA CONTAINED HEREIN WAS OBTAINED FROM SAMPLES THAT ARE REPRESENTATIVE OF THE PRODUCTS IN THE SUBJECT SHIPMENT. THIS MATERIAL MEETS THE REQUIREMENTS OF THE LISTED SPECIFICATIONS, MODIFIED BY ANY EXCEPTIONS OR PURCHASE ORDER REQUIREMENTS. THE RECORDING OF FALSE, FICTITIOUS OR FRAUDULENT STATEMENTS OR ENTRIES ON THIS DOCUMENT MAY BE PUNISHED AS A FELONY UNDER FEDERAL STATUTES INCLUDING FEDERAL LAW, TITLE 18, CHAPTER 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.

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**CERTIFICATION OF TESTS • RAPPORT D'ESSAIS CERTIFIE • WERKSZEUGNIS**

FILE COPY 2

Sales Order No Reference Commande Bestellungs Nr 438174001-0	Date Entered Date De Commande Bestelldatum 04/06/05	Customer Reference Reference Client Kundenbestelldaten 1525 REMAKE	Report No. Rapport No Zeugnis Nr 20050921020	Pages of Pages Page de Pages Anzahl der Seiten 2 Of 4
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**HAYNES**  
**International**

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

Sold To • Client • Bestellaanschrift <b>HIGH TEMP METALS INC 12910 SAN FERNANDO RD SYLMAR CA 91342 USA</b>	Ship To • Destinataire • Bestellemege <b>MAJOR TOOL AND MACHINE 1458 E 19TH ST INDIANAPOLIS IN 46218 USA</b>	Product Description • Description Produit • Material Beschreibung <b>1.520 x 60 x 160 NSP 5822 HAYNES(R) 625 ALLOY PLATE - Nadcap CERTIFICATE NUMBER 0089 S400E, S1000 1/3/2005, EN 10204 3.1, AS9100</b>
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Specification • Specification • Spezifikation AMS 5599, F; AMS 5666, E; ASME-SB-443, 04, UNS# N06625, Gr. 1; ASME-SB-446, 04, UNS# N06625, Gr. 1; ASTM-B-443, 00e1, UNS# N06625, Gr. 1; RR9000:SABRe; MR0175-2002, ORG	Quantity Ordered Quantite Commandee Bestellemenge 1 PC	Quantity Shipped Quantite Expediee Liefermenge 1 PC
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Tensile Test at Room Temperature • Essai De Traction A Temp. Ambiante • Zugversuch Bei Raum Temp.						Tensile Test at Elevated Temperature • Essai De Traction A Hte.Temp. Warm Zugversuch						Stress Rupture Temperature • Essai A Charge De Rupture Zelstandversuch						
Ultimate	1% Yield	0.2% Yield	% Elong in	%RA		Test	Ultimate	1% Yield	0.2% Yield	% Elong in	%RA		Test	Stress	Hours	% Elong in	% RA	
Zugfestigkeit	Lim. Elast. A 1%	Lim. Elast. A 0.2%	% Allong EN	%RA		Essai	Zugfestigkeit	Lim. Elast. A 1%	Lim. Elast. A 0.2%	% Allong EN	%RA		Essai	Constraime	Heures	% Allong EN	% RA	
	1% Strieckgrenze	0.2% Strieckgrenze	% Dehnung	%RA		Temp.		1% Strieckgrenze	0.2% Strieckgrenze	% Dehnung	%RA		Temp.	Spannung	Stunden	% Dehnung	% RA	
128000 PSI	(L)	75000 PSI	45 %	57 %	(1)(A)													
126000 PSI	(T)	76000 PSI	44 %	52 %	(1)(A)													

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

*Penny E. Powell*



**OCT 06 2005**

9/21/2005 (1) 2743817491

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.

mo112435.tif (1725x2192x2.tif) [2]

**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 438174001-0	Date Entered Date De Commande Bestelldatum 04/06/05	Customer Reference Reference Client Kundenbestelldaten 1525 REMAKE	Report No. Rapport No Zeugnis Nr 20050921020	Pages of Pages Page de Pages Anzahl der Seiten 3 Of 4
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Sold To • Client • Bestellaranschrift <b>HIGH TEMP METALS INC 12910 SAN FERNANDO RD SYLMAR CA 91342 USA</b>	Ship To • Destinaire • Bestellmenge <b>MAJOR TOOL AND MACHINE 1458 E 19TH ST INDIANAPOLIS IN 46218 USA</b>	Product Description • Description Product • Material Beschreibung <b>1.520 x 60 x 160 NSP 5822 HAYNES(R) 625 ALLOY PLATE - Nadcap CERTIFICATE NUMBER 0089 S400E, S1000 1/3/2005, EN 10204 3.1, AS9100</b>
--	---	--

Specification • Specification • Spezifikation AMS 5599, F; AMS 5666, E; ASME-SB-443, 04, UNS# N06625, Gr. 1; ASME-SB-446, 04, UNS# N06625, Gr. 1; ASTM-B-443, 00e1, UNS# N06625, Gr. 1; RR9000:SABRe; MR0175-2002, ORG	Quantity Ordered Quantite Commandee Bestellmenge 1 PC	Quantity Shipped Quantite Expediee Liefermenge 1 PC
---	--	--

Annealed Hardness Durete Recuit Geglueht Haerte	Aged Hardness Durete Vieilli Gealtert Haerte	Grain Size Grosseur De Grain Korngrösse						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 Contrainte Spannung	Hours Heures Stunden
98 HRB	(1)(A)	5.5								MPY										

Certified By • Certifie Par • Bescheinigt Durch: Penny Powell 9/21/2005 (1) 2743817491  
Certification Technician

*Penny E. Powell*



**OCT 06 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, 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.

m0112435.tif (1663x2190x2 tiff) [3]

**CERTIFICATION OF TESTS • RAPPORT D'ESSAIS CERTIFIE • WERKSZEUGNIS**

FILE COPY 2

Sales Order No Reference Commande Bestellungs Nr 438174001-0	Date Entered Date De Commande Bestelldatum 04/06/05	Customer Reference Reference Client Kundenbestelldaten 1525 REMAKE	Report No. Rapport No Zeugnis Nr 20050921020	Pages of Pages Page de Pages Anzahl der Seiten 4 Of 4	<p align="center"><b><u>HAYNES</u></b> <b><u>International</u></b></p> <p align="right">Haynes International 1020 West Park Avenue PO Box 9013 Kokomo, Indiana, 46902</p>
Sold To • Client • Bestellaranschrift <b>HIGH TEMP METALS INC 12910 SAN FERNANDO RD SYLMAR CA 91342 USA</b>		Ship To • Destinataire • Bestelmenge <b>MAJOR TOOL AND MACHINE 1458 E 19TH ST INDIANAPOLIS IN 46218 USA</b>		Product Description • Description Produit • Material Beschreibung <b>1.520 x 60 x 160 NSP 5822 HAYNES(R) 625 ALLOY PLATE - Nadcap CERTIFICATE NUMBER 0089 S400E, S1000 1/3/2005, EN 10204 3.1, AS9100</b>	
Specification • Specification • Spezifikation AMS 5599, F; AMS 5666, E; ASME-SB-443, 04, UNS# N06625, Gr. 1; ASME-SB-446, 04, UNS# N06625, Gr. 1; ASTM-B-443, 00e1, UNS# N06625, Gr. 1; RR9000:SABRe; MR0175-2002, ORG			Quantity Ordered Quantite Commandee Bestelmenge 1 PC	Quantity Shipped Quantite Expeditee Liefermenge 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.  
 This material was melted and manufactured in the United States.  
 No welding performed on this material.  
 Mill Orders Used: 2743817491 (1 PC)  
 (A) 1750 °F to 1900 °F

Certified By • Certifie Par • Bescheinigt Durch: Penny Powell 9/21/2005  
 Certification Technician

*Penny E. Powell*



**OCT 06 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, 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.

mt112435.tif (1730x2198x2 tiff) [4]

Quality Assurance Documentation for Part ID: SE121-091 - Item: 180

Workorder: 65678/2-0 Sub:217 Op:30

Part: SE121-091 - - VVSA 120 DEGREE VESSEL

Drawing ID: SE121-102 Rev: 0			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY		
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
*				CWI		VISUAL	BUTT AND FILLET WELDS ACCEPTABLE PER DRAWING AND ROUTE REQUIREMENTS.	933-D.L		
(10)		VWI VESSEL BLANK OFF COVER WELD						06-27-06		

A

Quality Assurance Documentation for Part ID: SE121-091 - Item: 181

Workorder: 65678/2-0 Sub:218 Op:30

Part: SE121-091 - - VVSA 120 DEGREE VESSEL

Drawing ID: SE121-102 Rev: 0			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY		
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
*				CWI		VISUAL	BUTT AND FILLET WELDS ACCEPTABLE PER DRAWING AND ROUTING REQUIREMENTS.	933-D.L		
(10)		VWI VESSEL BLANK OFF COVER WELD						06-26-06		A

30518-1 198



**Allegheny Ludlum** Jessop Plate Products Division  
An Allegheny Technologies Company

Page

500 Green Street CERTIFIED MATERIAL TEST REPORT  
Washington, Pennsylvania 15301

Bill to:  
PLATE PROD DIV / A-L  
1201 VALLEY ROAD  
COATESVILLE PA

19320

Ship to:  
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

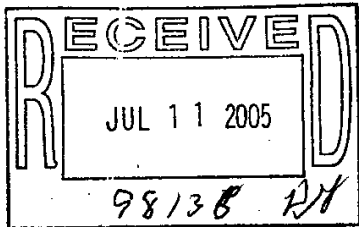
Heat	Slip	Lot No	Size	Pcs	Weight
818102	34967 A	143182	1.5000 x 83.0000 x 260.0000	1	9488 GV-STOCK

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	Grain Siz
143182	1.5000	33.9 KSI	81.5 KSI	61.0	81.0	BHN146		OK	

MATERIAL WAS NOT WELD REPAIRED  
MATERIAL WAS PRODUCED WITHOUT KNOWN CONTACT WITH MERCURY  
MATERIAL WAS SOLUTION ANNEALED (HEAT TREATED) ABOVE 1900F AND WATER QUENCHED  
DIN 50049 3.1.B AND EN 10204 3.1.B CERTIFICATE  
MATERIAL IS OF USA MELT AND MANUFACTURE

JUL 11 2005



TRACER# 109293

lines ~~13-18~~  
13-18

98,42  
lines 25-30

ROLLED AND LOYS QUALITY ASSURANCE

APPROVED *M. Rain*

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



0616-1 188



**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

Bill to:  
ROLLED ALLOYS INC  
125 W STERNS RD  
P O BOX 310  
TEMPERANCE MI

48182

Ship to:  
ROLLED ALLOYS INC  
9818 EAST HARDY ROAD  
HOUSTON TX

77093

*Robert Campagna*  
Quality Assurance Representat:

ALC T-316/316L DUAL CERT HRAP STAINLESS  
ASTM A240-02 ASME SA240-01  
79" WIDE ROUGHING MILL EDGE PLATE

Item	Grade	Heat No	Slip	Size	Weight	Mill Cert	Ord
001	316L			1.5000 79.0000 WID 235.0000 LEN	1	LBS	
				PN:530034299001			
		818102	34967 A	1.5000 79.0000	1	8166 260311-00	Shi
				ITEM TOTAL:	1	8166	
				TOTAL ORDER:	1	8166	



JUL 11 2005



TRACER# 109293

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

Quality Assurance Documentation for Part ID: SE121-095 - Item: 184

Workorder: 65678/2-0 Sub:220 Op:40

Part: SE121-095 - - VVSA 120 DEGREE VESSEL

Drawing ID: SE121-095 Rev: 0			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT	
*			CMM	QA		194	ACCEPT	667-J.B			A
(10)								05-30-06			
*			CMM	QA		194	ACCEPT	667-J.B			A
(20)								05-30-06			

Quality Assurance Documentation for Part ID: SE121-095 - Item: 185

Workorder: 65678/2-0 Sub:232 Op:40

Part: SE121-095 - - VVSA 120 DEGREE VESSEL

Drawing ID: SE121-095 Rev: 0			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT	
*			CMM	QA		194	+ 0.01500 / -0.0039 0 TOTAL RANGE 0.018 90	667-J.B 05-15-06			A
(10)											
*			CMM	QA		194	+ 0.01500 / -0.0039 0 TOTAL RANGE 0.018 90	667-J.B 05-15-06			A
(20)											

**CERTIFICATION OF TESTS • RAPPORT D'ESSAIS CERTIFIE • WERKSZEUGNIS**

Sales Order No Reference Commande Bestellungs Nr 456788001-0	Date Entered Date De Commande Bestelldatum 12/19/05	Customer Reference Reference Client Kundenbestelldaten P05-06722	Report No. Rapport No Zeugnis Nr 20051221016	Pages of Pages Page de Pages Anzahl der Seiten 1 Of 4
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FILE COPY 2

**HAYNES**  
**International**

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

Sold To • Client • Bestellanrschrift <b>MAJOR TOOL AND MACHINE INC 1458 E 19TH ST INDIANAPOLIS IN 46218 USA</b>	Ship To • Destinataire • Bestellmenge <b>MAJOR TOOL AND MACHINE INC 1458 E 19TH ST INDIANAPOLIS IN 46218 USA</b>
--	---

Product Description • Description Produit • Material Beschreibung <b>0.188 x 0/0 x 0/0 SE121-095-1MTM HAYNES(R) 625 ALLOY PLATE - Nadcap CERTIFICATE NUMBER 0089 S400 4/29/2004, S1000 1/3/2005, EN 10204 3.1, AS9100</b>
--

Specification • Spécification • Spezifikation <b>ASTM-B-443, 00e1, UNS# N06625, Gr. 1; ASTM-B-443, 00e1, UNS# N06625, Gr. 1</b>	Quantity Ordered Quantité Commandée Bestellmenge <b>6 PC</b>	Quantity Shipped Quantité Expédiée Liefermenge <b>6 PC</b>
--	---	---

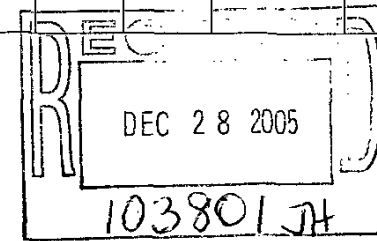
Heat Number Numero De Cauce Charge Nr	Chemical Analysis • Analyse Chimique • Chemische Analyse																BUTT END *02 BUTT END *01	
	Al	B	C	Cb+Ta (Nb+Ta)	Co	Cr	Cu	Fe	Mn	Mo	Ni	P	S	Si	Ti	V		W
2650 5 6834 2650 5 6805	0.18 0.2		0.031 0.031	3.5 3.29	0.2154 0.2063	22.29 21.92		4.2836 4.7049	0.2766 0.2688	8.59 8.65	59.94 59.41	0.007 0.007	0.0033 0.005	0.18 0.2	0.285 0.3161			
2650 5 6834 2650 5 6805	(0.05b)	Ta	Zr	Bi	Se	La	(0.04w)	Pb	Mg	Y	Ag	N	Ca	Al+Ti	Ni+Co	Ni+Mo		BUTT END *02 BUTT END *01

Certified By • Certifié Par • Bescheinigt Durch: Amanda Aguirre  
Certification Technicien 12/21/2005

*Amanda Aguirre*



**DEC 30 2005**



lines 1-3

mc114888.tif (1636x2139x2.tif)

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 EXPRESS OR PURCHASE ORDER REQUIREMENTS. THE BUYER'S SOLE RESPONSIBILITY FOR FRAUDULENT RELIANCE OR ENTRIES ON THIS DOCUMENT MAY BE PENALIZED AS A VIOLATION OF 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				
Sales Order No Reference Commande Bestellungs Nr 456788001-0	Date Entered Date De Commande Besteldatum 12/19/05	Customer Reference Reference Client Kundenbestelldaten P05-06722	Report No. Rapport No Zeugnis Nr 20051221016	Pages of Pages Page de Pages Anzahl der Seiten 2 Of 4

FILE COPY 2

**HAYNES**  
**International**

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

Sold To • Client • Besteltranschrift	Ship To • Destinaire • Bestellmenge	Product Description • Description Produit • Material Beschreibung
<b>MAJOR TOOL AND MACHINE INC</b> 1458 E 19TH ST INDIANAPOLIS IN 46218 USA	<b>MAJOR TOOL AND MACHINE INC</b> 1458 E 19TH ST INDIANAPOLIS IN 46218 USA	<b>0.188 x 0/0 x 0/0</b> <b>SE121-095-1MTM</b> <b>HAYNES(R) 625 ALLOY PLATE</b> - <b>Nadcap CERTIFICATE NUMBER 0089</b> <b>S400 4/29/2004, S1000 1/3/2005, EN 10204 3.1, AS9100</b>

Specification • Spécification • Spezifikation	Quantity Ordered Quantité Commandée Bestellmenge	Quantity Shipped Quantité Expédiée 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.					Tensile Test at Elevated Temperature • Essai De Traction A Hte. Temp. Warm Zugversuch					Stress Rupture Temperature • Essai A Charge De Rupture Zeltandversuch							
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	Temp	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	Temp	Test Essai Versuch Temp	Stress Constrainte Spannung	Hours Heures Stunden	% Elong In % Allong EN % Dehnung	% RA
132000 PSI 126000 PSI		61500 PSI 63000 PSI	51 % 49.5 %		(1)(A) (2)(A)												

Certified By • Certifié Par • Bescheinigt Durch: Amanda Aguirre  
Certification Technicien  
12/21/2005

(1) 2942995301 (2) 2944652551

*Amanda Aguirre*

MTM  
016

DEC 30 2005

mo114888.tif (1626x2112x2 tiff) [2]



PK

CERTIFICATION OF TESTS • RAPPORT D'ESSAIS CERTIFIE • WERKSZEUGNIS				
Sales Order No Reference Commande Bestellungs Nr 456788001-0	Date Entered Date De Commande Bestelldatum 12/19/05	Customer Reference Reference Client Kundenbestelldaten P05-06722	Report No. Rapport No Zeugnis Nr 20051221016	Pages of Pages Page de Pages Anzahl der Seiten 4 Of 4
Sold To • Client • Bestellanrschrift <b>MAJOR TOOL AND MACHINE INC 1458 E 19TH ST INDIANAPOLIS IN 46218 USA</b>		Ship To • Destinataire • Bestellmenge <b>MAJOR TOOL AND MACHINE INC 1458 E 19TH ST INDIANAPOLIS IN 46218 USA</b>		
Specification • Specification • Spezifikation ASTM-B-443, 00e1, UNS# N06625, Gr. 1; ASTM-B-443, 00e1, UNS# N06625, Gr. 1			Quantity Ordered Quantite Commandee Bestellmenge 6 PC	Quantity Shipped Quantite Expeditee Liefermenge 6 PC

FILE COPY 2

**HAYNES**  
**International**

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

Product Description • Description Produit • Material Beschreibung
<b>0.188 x 0/0 x 0/0</b> <b>SE121-095-1MTM</b> <b>HAYNES(R) 625 ALLOY PLATE -</b> <b>Nadcap CERTIFICATE NUMBER 0089</b> <b>S400 4/29/2004, S1000 1/3/2005, EN 10204 3.1, AS9100</b>

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 • Certifie Par • Bescheinigt Durch: Amanda Aguirre 12/21/2005  
 Certification Technician

*Amanda Aguirre*

MTM 016 DEC 30 2005

CERTIFICATION OF TESTS • RAPPORT D'ESSAIS CERTIFIE • WERKSZEUGNIS

Sales Order No Reference Commande Bestellungs Nr 455676001-0	Date Entered Date De Commande Bestelldatum 12/01/05	Customer Reference Reference Client Kundenbestelldaten P05-06722	Report No. Rapport No Zeugnis Nr 20051205027	Pages of Pages Page de Pages Anzahl der Seiten 1 Of 4
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**HAYNES**  
**International**

FILE COPY 2

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

Sold To • Client • Bestellaranschrift <b>MAJOR TOOL AND MACHINE INC</b> 1458 E 19TH ST INDIANAPOLIS IN 46218 USA		Ship To • Destinataire • Bestellmenge <b>MAJOR TOOL AND MACHINE INC</b> 1458 E 19TH ST INDIANAPOLIS IN 46218 USA		Product Description • Description Produit • Material Beschreibung <b>0.188 x 0/0 x 0/0</b> <b>SE121-095-1MTM</b> <b>HAYNES(R) 625 ALLOY PLATE</b> <b>Nadcap CERTIFICATE NUMBER 0089</b> <b>S400 4/29/2004, S1000 1/3/2005, EN 10204 3.1, AS9100</b>	
Specification • Specification • Spezifikation ASTM-B-443, 00e1, UNS# N06625, Gr. 1; ASTM-B-443, 00e1, UNS# N06625, Gr. 1			Quantity Ordered Quantite Commandee Bestelmenge 6 PC	Quantity Shipped Quantite Expediee Liefermenge 6 PC	

Heat Number Numero De Coulce Charge Nr	Chemical Analysis • Analyse Chimique • Chemische Analyse																BUTT END *01		
	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
2650 5 6805		Ta	Zr	Bi	Se	La		Pb	Mg	Y	Ag	N	Ca	(Al+Ti)	Ni+Co	Ni+Mo			BUTT END *01

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

12/5/2005

*Amanda Aguirre*

DEC 08 2005



12.7.05  
103249 wx  
line 1-3

mcl 14399.tif (1628x2148x2.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																				
Sales Order No Reference Commande Bestellungs Nr 455676001-0			Date Entered Date De Commande Bestelldatum 12/01/05			Customer Reference Reference Client Kundenbestelldaten P05-06722			Report No. Rapport No Zeugnis Nr 20051205027			Pages of Pages Page de Pages Anzahl der Seiten 2 Of 4								
Sold To • Client • Bestellaranschrift <b>MAJOR TOOL AND MACHINE INC 1458 E 19TH ST INDIANAPOLIS IN 46218 USA</b>						Ship To • Destinaire • Bestellmenge <b>MAJOR TOOL AND MACHINE INC 1458 E 19TH ST INDIANAPOLIS IN 46218 USA</b>						Product Description • Description Produit • Material Beschreibung <b>0.188 x 0/0 x 0/0 SE121-095-1MTM HAYNES(R) 625 ALLOY PLATE - Nadcap CERTIFICATE NUMBER 0089 S400 4/29/2004; S1000 1/3/2005, EN 10204 3.1, AS9100</b>								
Specification • Specification • Spezifikation ASTM-B-443, 00e1, UNS# N06625, Gr. 1; ASTM-B-443, 00e1, UNS# N06625, Gr. 1									Quantity Ordered Quantite Commandee Bestellemenge 6 PC			Quantity Shipped Quantite Expediee Liefermenge 6 PC								
Tensile Test at Room Temperature • Essai De Traction A Temp. Ambiante • Zugversuch Bei Raum Temp.						Tensile Test at Elevated Temperature • Essai De Traction A Hte.Temp. Warm Zugversuch						Stress Rupture Temperature • Essai A Charge De Rupture Zeitstandversuch								
Ultimate Zugfestigkeit	1% Yield Lim. Elast. A 1% 1% Strieckgrenze	0.2% Yield Lim. Elast. A 0.2% 0.2% Strieckgrenze	% Elong In % Allong EN % Dehnung	%RA		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		Test Essai Versuch Temp:	Stress Constraite Spannung	Hours Heurs Stunden	% Elong In % Allong EN % Dehnung	% RA			
126000 PSI		63000 PSI	49.5 %		(1)(A)															

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

12/5/2005

(1) 2944652551

*Amanda Aguirre*  
DEC 08 2005  
MTM 016

mct14399.tif (1628x2145x2.tif) [2]



**CERTIFICATION OF TESTS • RAPPORT D'ESSAIS CERTIFIÉ • WERKSZEUGNIS**

<b>Sales Order No</b> Reference Commande Bestellungs Nr 455676001-0	<b>Date Entered</b> Date De Commande Bestelldatum 12/01/05	<b>Customer Reference</b> Reference Client Kundenbestelldaten P05-06722	<b>Report No.</b> Rapport No Zeugnis Nr 20051205027	<b>Pages of Pages</b> Page de Pages Anzahl der Seiten 4 Of 4
<b>Sold To • Client • Bestellaranschrift</b> MAJOR TOOL AND MACHINE INC 1458 E 19TH ST INDIANAPOLIS IN 46218 USA		<b>Ship To • Destinataire • Bestellmenge</b> MAJOR TOOL AND MACHINE INC 1458 E 19TH ST INDIANAPOLIS IN 46218 USA		<b>Product Description • Description Produit • Material Beschreibung</b> 0.188 x 0/0 x 0/0 SE121-095-1MTM HAYNES(R) 625 ALLOY PLATE - Nadcap CERTIFICATE NUMBER 0089 S400 4/29/2004, S1000 1/3/2005, EN 10204 3.1, AS9100
<b>Specification • Specification • Spezifikation</b> ASTM-B-443, 00e1, UNS# N06625, Gr. 1; ASTM-B-443, 00e1, UNS# N06625, Gr. 1			<b>Quantity Ordered</b> Quantie Commandee Bestelmenge 6 PC	<b>Quantity Shipped</b> Quantite Expediee Liefermenge 6 PC

**HAYNES**  
**International**

FILE COPY 2

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

All tests and inspections have been performed and results meet specification requirements.  
THIS MATERIAL IS FREE FROM MERCURY, CADMIUM, RADIUM, AND ALPHA SOURCE CONTAMINATION.  
THIS MATERIAL WAS MELTED AND MANUFACTURED IN THE UNITED STATES.  
Mill Orders Used: 2944652551 (6 PC)  
(A) 1750 °F to 1950 °F

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

12/5/2005

*Amanda Aguirre*



DEC 08 2005

mcl14399.tif (1660x2183x2.tif) [4]

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				
Sales Order No Reference Commande Bestellungs Nr 463912001-0	Date Entered Date De Commande Bestelldatum 03/20/06	Customer Reference Reference Client Kundenbestelldaten P06-01320	Report No. Rapport No Zeugnis Nr 20060321014	Pages of Pages Page de Pages Anzahl der Seiten 1 Of 4

Sold To • Client • Bestellaranschrift <b>MAJOR TOOL AND MACHINE INC</b> 1458 E 19TH ST INDIANAPOLIS IN 46218 USA	Ship To • Destinataire • Bestimmung <b>MAJOR TOOL AND MACHINE INC</b> 1458 E 19TH ST INDIANAPOLIS IN 46218 USA
--	--

Product Description • Description Produit • Material Beschreibung <b>0.188 x 0/0 x 0/0</b> <b>SE121-095-1MTM</b> <b>HAYNES(R) 625 ALLOY PLATE</b> <b>Nadcap CERTIFICATE NUMBER 0089</b> <b>S400 4/29/2004, S1000 1/3/2005, EN 10204 3.1, AS9100</b>
--

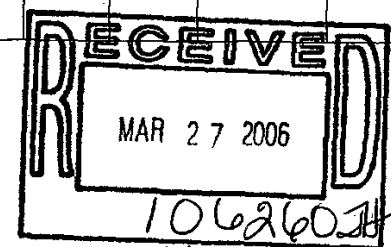
Specification • Specification • Spezifikation ASTM-B-443, 00e1, UNS# N06625, Gr. 1	Quantity Ordered Quantite Commandee Bestelmenge 6 PC	Quantity Shipped Quantite Expediee Liefermenge 6 PC
---	---	--

Heat Number Numero De Coilee Charge Nr	Chemical Analysis • Analyse Chimique • Chemische Analyse																		
	Al	B	C	Cb+Ta (Nb+Ta)	Co	Cr	Cu	Fe	Mn	Mo	Ni	P	S	Si	Ti	V	W		
2650 5 6834	0.18		0.031	3.5	0.2154	22.29		4.2836	0.2766	8.59	59.94	0.007	0.003	0.18	0.285				BUTT END *02
2650 5 6834		Ta	Zr	Bi	Se	La	C+N+O <sub>2</sub>	Pb	Mg	Y	Ag	N	Ca	Al+Ti	Ni+Co	Ni+Mo			BUTT END *02

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

3/21/2006

*Amanda Aguirre*  
MAR 27 2006



Lines 1-3

THE DATA CONTAINED HEREIN WAS OBTAINED FROM SAMPLES THAT ARE REPRESENTATIVE OF THE PRODUCTS IN THE SUBJECT SHIPMENT. THIS MATERIAL MEETS THE REQUIREMENTS OF THE LISTED SPECIFICATIONS, MODIFIED BY ANY EXCEPTIONS OR PURCHASE ORDER REQUIREMENTS. THE RECORDING OF FALSE, FICTITIOUS OR FRAUDULENT STATEMENTS OR ENTRIES ON THIS DOCUMENT MAY BE PUNISHED AS A FELONY UNDER FEDERAL STATUTES INCLUDING FEDERAL LAW, TITLE 18, CHAPTER 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.

mt117251.tif (1671x2158x2.tif)

CERTIFICATION OF TESTS • RAPPORT D'ESSAIS CERTIFIE • WERKSZEUGNIS				
Sales Order No Reference Commande Bestellungs Nr 463912001-0	Date Entered Date De Commande Bestelldatum 03/20/06	Customer Reference Reference Client Kundenbestelldaten P06-01320	Report No. Rapport No Zeugnis Nr 20060321014	Pages of Pages Page de Pages Anzahl der Seiten 2 Of 4

FILE COPY 2

**HAYNES**  
**International**

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

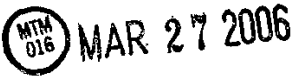
Sold To • Client • Bestellanschrift <b>MAJOR TOOL AND MACHINE INC</b> 1458 E 19TH ST INDIANAPOLIS IN 46218 USA		Ship To • Destinataire • Bestellmenge <b>MAJOR TOOL AND MACHINE INC</b> 1458 E 19TH ST INDIANAPOLIS IN 46218 USA		Product Description • Description Produit • Material Beschreibung 0.188 x 0/0 x 0/0 SE121-095-1MTM HAYNES(R) 625 ALLOY PLATE Nadcap CERTIFICATE NUMBER 0089 S400 4/29/2004, S1000 1/3/2005, EN 10204 3.1, AS9100	
Specification • Specification • Spezifikation ASTM-B-443, 00e1, UNS# N06625, Gr. 1			Quantity Ordered Quantite Commandee Bestellemenge 6 PC	Quantity Shipped Quantite Expediee Liefermenge 6 PC	

Tensile Test at Room Temperature • Essai De Traction A Temp. Ambiante • Zugversuch Bel Raum Temp.					Tensile Test at Elevated Temperature • Essai De Traction A Hte.Temp. Warm Zugversuch					Stress Rupture Temperature • Essai A Charge De Rupture Zeitstandversuch							
Ultimate Zugfestigkeit	1% Yield Lim. Elast. A 1% 1% Strieckgrenze	0.2% Yield Lim. Elast. A 0.2% 0.2% Strieckgrenze	% Elong In % Allong EN % Dehnung	%RA %RA	Temp:	Test Essai Versuch	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	Temp:	Test Essai Versuch	Stress Constrained Spannung	Hours Heures Stunden	% Elong In % Allong EN % Dehnung	% RA % RA
131000 PSI		66500 PSI	46 %		(1)(A)												

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

3/21/2006

(1) 2942812701

*Amanda Aguirre*  




CERTIFICATION OF TESTS • RAPPORT D'ESSAIS CERTIFIE • WERKSZEUGNIS				
Sales Order No Reference Commande Bestellungs-Nr 463912001-0	Date Entered Date De Commande Bestelldatum 03/20/06	Customer Reference Reference Client Kundenbestelldaten P06-01320	Report No. Rapport No Zeugnis Nr 20060321014	Pages of Pages Page de Pages Anzahl der Seiten 4 Of 4
Sold To • Client • Bestellaranschrift <b>MAJOR TOOL AND MACHINE INC 1458 E 19TH ST INDIANAPOLIS IN 46218 USA</b>		Ship To • Destinataire • Bestellmenge <b>MAJOR TOOL AND MACHINE INC 1458 E 19TH ST INDIANAPOLIS IN 46218 USA</b>		
Specification • Spécification • Spezifikation  ASTM-B-443, 00e1, UNS# N06625, Gr. 1		Quantity Ordered Quantité Commandée Bestelmenge 6 PC	Quantity Shipped Quantité Expédiée Liefermenge 6 PC	

**HAYNES**  
**International**

FILE COPY 2

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

Product Description • Description Produit • Material Beschreibung  
0.188 x 0/0 x 0/0  
SE121-095-1MTM  
HAYNES(R) 625 ALLOY PLATE -  
Nadcap CERTIFICATE NUMBER 0089  
S400 4/29/2004, S1000 1/3/2005, EN 10204 3.1, AS9100

All tests and inspections have been performed and results meet specification requirements.  
THIS MATERIAL IS FREE FROM MERCURY, CADMIUM, RADIUM, AND ALPHA SOURCE CONTAMINATION.  
THIS MATERIAL WAS MELTED AND MANUFACTURED IN THE UNITED STATES.  
Mill Orders Used: 2942812701 (6 PC)  
(A) 1750 °F to 1950 °F

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

3/21/2006

*Amanda Aguirre*

MTM  
016  
MAR 27 2006

Quality Assurance Documentation for Part ID: SE121-099-1 - Item: 190

Workorder: 65678/2-0 Sub:220 Op:10

Part: SE121-099-1 - - VVSA 120 DEGREE VESSEL

Drawing ID: SE121-095 Rev: 0		INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
*			OD MICROMETER	QA		P-4808	.188/.189	503-B.H		
(20)		0.188 +0.045 / - 0.010" MATERIAL THICK						12-28-05		

A



Quality Assurance Documentation for Part ID: SE121-099-1 - Item: 191

Workorder: 65678/2-0 Sub:224 Op:10

Part: SE121-099-1 - - VVSA 120 DEGREE VESSEL

Drawing ID: SE121-099 Rev: 0		INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
*			OD MICROMETER	QA		P-4808	.198/.203	503-B.H		
(20)		0.188 +0.045 / - 0.010" MATERIAL THICK						12-19-05		

A



**Jessop Specialty Products**  
 500 Green Street  
 Washington, PA 15301

**CERTIFIED MATERIAL  
 TEST REPORT**

OUR ORDER NO. LP5090610  
 YOUR ORDER NO. T52162  
 MEMO NO. 272971-00 DUAL CERT  
 DATE 04/27/2005  
 SALESMAN NO. 584

Ship **ROLLED ALLOYS**  
 To 125 W STERNS RD  
 TEMPERANCE MI

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

48182 48182

*P. M. Claditta*  
 P. M. Claditta - Product Quality Engineer

ALC 316/316L STAINLESS HRAP  
 ASTM A240-04a ASME SA-240-04 AMS 5507F UNS S31603  
 AMS 5524K (316) UNS S31600

Heat	Slip	Lot No	Size	Pcs	Weight
819882	16122 A	153423	.1875 x 96.0000 x 240.0000	1	1372



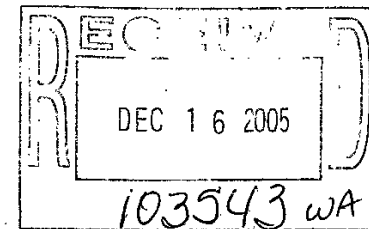
TRACER# 117581

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



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 TH  
 3/16" PLATE 316L  
 Tracer No. [117581]

Shpr-W55002 Date 12/14/2005  
 47-39/64 X 106-55/64 2 PC  
 Heat No. [819882]

*[Signature]*

ROLLED ALLOYS QUALITY ASSURANCE  
 APPROVED *[Signature]*  
 DATE 5-4-05

Quality Assurance Documentation for Part ID: SE121-099-1 - Item: 193

Workorder: 65678/2-0 Sub:226 Op:10

Part: SE121-099-1 - - VVSA 120 DEGREE VESSEL

Drawing ID: SE121-099 Rev: 0		INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
*			OD MICROMETER	QA		P-4808	.198/.203	503-B.H		
(20)		0.188 +0.045 / - 0.010" MATERIAL THICK						12-19-05		

A

Quality Assurance Documentation for Part ID: SE121-099-1 - Item: 195

Workorder: 65678/2-0 Sub:232 Op:10

Part: SE121-099-1 - - VVSA 120 DEGREE VESSEL

Drawing ID: SE121-095 Rev: 0		INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
*			OD MICROMETER	QA		P-4808	.186/.187	503-B.H		
(20)		0.188 +0.045 / - 0.010" MATERIAL THICK						04-03-06		

A

Quality Assurance Documentation for Part ID: SE122-007-3 - Item: 196

Workorder: 65678/2-0 Sub:153 Op:10

Part: SE122-007-3 - - VVSA 120 DEGREE VESSEL

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

A

Quality Assurance Documentation for Part ID: SE124-047 - Item: 197

Workorder: 65678/2-0 Sub:230 Op:10

Part: SE124-047 - - VVSA 120 DEGREE VESSEL

Drawing ID: SE120-004 Rev: 2			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY		
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
*		VWI - ROOT PASS WELD HALF -A- BOSS A		MFG		VISUAL	ACCEPT PER CUSTOM DRAWINGS AND SPE FICATIONS	683-K.M	053-M.D	A
(20)				CWI				03-07-06	03-07-06	
*		VWI - COVER PASS WELD HALF -A- BOSS A		MFG		VISUAL	ACCEPT PER CUSTOM DRAWINGS & SPECIFI CATIONS	683-K.M	053-M.D	A
(40)				CWI				03-14-06	03-14-06	
*		VWI - ROOT PASS WELD HALF -A- BOSS B		MFG		VISUAL	ACCEPT PER CUSTOM DRAWINGS AND SPE FICATIONS	683-K.M	053-M.D	A
(60)				CWI				03-07-06	03-07-06	
*		VWI - COVER PASS WELD HALF -A- BOSS B		MFG		VISUAL	ACCEPT PER CUSTOM DRAWINGS & SPECIFI CATIONS	683-K.M	053-M.D	A
(80)				CWI				03-14-06	03-14-06	
*		VWI - ROOT PASS WELD HALF -A- BOSS C		MFG		VISUAL	ACCEPT PER CUSTOM DRAWINGS AND SPE FICATIONS	683-K.M	053-M.D	A
(100)				CWI				03-07-06	03-07-06	
*		VWI - COVER PASS WELD HALF -A- BOSS C		MFG		VISUAL	ACCEPT PER CUSTOM DRAWINGS & SPECIFI CATIONS	683-K.M	053-M.D	A
(120)				CWI				03-14-06	03-14-06	
*		VWI - ROOT PASS WELD HALF -A- BOSS D		MFG		VISUAL	ACCEPT PER CUSTOM DRAWINGS AND SPE FICATIONS	683-K.M	053-M.D	A
(140)				CWI				03-07-06	03-07-06	
*				MFG		VISUAL	ACCEPT PER CUSTOM DRAWINGS & SPECIFI	683-K.M	053-M.D	A

INSPECTION DATA CHECKLIST

(160)		VWI - COVER PASS WELD HALF -A- BOSS D		CWI			CATIONS	03-14-06	03-14-06	
*				MFG		VISUAL	ACCEPT PER CUSTOM DRAWINGS AND SPE FICATIONS	683-K.M	053-M.D	A
(180)		VWI - ROOT PASS WELD HALF -B- BOSS A		CWI				03-07-06	03-07-06	
*				MFG		VISUAL	ACCEPT PER CUSTOM DRAWINGS & SPECIFI CATIONS	683-K.M	053-M.D	A
(200)		VWI - COVER PASS WELD HALF -B- BOSS A		CWI				03-14-06	03-14-06	
*				MFG		VISUAL	ACCEPT PER CUSTOM DRAWINGS AND SPE FICATIONS	683-K.M	053-M.D	A
(220)		VWI - ROOT PASS WELD HALF -B- BOSS B		CWI				03-07-06	03-07-06	
*				MFG		VISUAL	ACCEPT PER CUSTOM DRAWINGS & SPECIFI CATIONS	683-K.M	053-M.D	A
(240)		VWI - COVER PASS WELD HALF -B- BOSS B		CWI				03-14-06	03-14-06	
*				MFG		VISUAL	ACCEPT PER CUSTOM DRAWINGS AND SPE FICATIONS	683-K.M	053-M.D	A
(260)		VWI - ROOT PASS WELD HALF -B- BOSS C		CWI				03-07-06	03-07-06	
*				MFG		VISUAL	ACCEPT PER CUSTOM DRAWINGS & SPECIFI CATIONS	683-K.M	053-M.D	A
(280)		VWI - COVER PASS WELD HALF -B- BOSS C		CWI				03-14-06	03-14-06	
*				MFG		VISUAL	ACCEPT PER CUSTOM DRAWINGS AND SPE FICATIONS	683-K.M	053-M.D	A
(300)		VWI - ROOT PASS WELD HALF -B- BOSS D		CWI				03-07-06	03-07-06	
*				MFG		VISUAL	ACCEPT PER CUSTOM DRAWINGS & SPECIFI CATIONS	683-K.M	053-M.D	A
(320)		VWI - COVER PASS WELD HALF -B- BOSS D		CWI				03-14-06	03-14-06	



## INSPECTION DATA CHECKLIST

Page: 155

Date: 08/01/06

User ID: LONAKER#

---

Employees: 053-M.Dunn / 093-M.Stewart / 197-T.Fischer / 216-J.Sandoval / 231-B.Blankenberger / 261-T.Dunn / 299-M.Gregory / 313-R.Bachek / 358-D.Mcnew / 503-B.Houk / 522-R.Durham / 557-P.Wilson / 576-J.Geisinger / 581-D.Edwards / 667-J.Bannister / 683-K.Mcnew / 709-K.Appleby / 728-R.Dalton / 763-R.Miethe / 771-B.Schultz / 789-D.Williams / 791-D.Weidner / 837-J.Deverter / 840-G.Masood / 854-R.Upchurch / 933-D.Leapley





**MDC VACUUM PRODUCTS, LLC**

23842 Cabot Blvd., Hayward CA 94545-1651

Phone: 510.265.3500 - Fax: 510.887.0626 - Toll Free: 800.443.8817

E-Mail: [sales@mdcvacuum.com](mailto:sales@mdcvacuum.com) - Web: <http://www.mdcvacuum.com>

*HIGH VACUUM COMPONENTS from one source...*

# **Certification of Conformance Catalog Products**

**COMPANY: MAJOR TOOL AND MACHINE**

**ATTENTION: K. UPCHURCH**

**DATE: MAY 2, 2006**

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

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

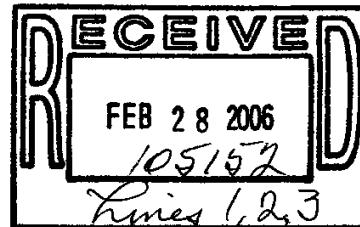
***MIKE SCHULTZ***

Shipping/Receiving Supervisor

MDC Vacuum Product, LLC

e-mail: [mschultz@mdcvacuum.com](mailto:mschultz@mdcvacuum.com)

phone: 510 265 3500



*...Dedicated to Quality and Service*

**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.

<b>CHEMICAL ANALYSIS:</b>									
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**



1-24-00

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

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



DATE 01/10/00

**CERTIFICATION OF TESTS**

SOLD TO: MAJOR TOOL & MACHINE  
 1458 EAST 19TH STREET  
 INDIANAPOLIS, IN 46216

SHIP TO: SAME

ARCOS S.O.		CUSTOMER ORDER NO.		CONSIGNEE ORDER NO.		DATE SHIPPED	
69824		P0000110		N/A		1/10/00	
ITEM	SIZE	GRADE		LOT NO./ALLOY NO.		QUANTITY	
1	3/32 X 36"	ARCOS	625	CT7519		20#	
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 2000  
 39771  
 1-18-00  
 BF

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

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

**ARCOS**

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

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

mc095629.pdf



DATE 01/13/04

## CERTIFICATION OF TESTS

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

SHIP TO: SAME

ARCOS S.O.		CUSTOMER ORDER NO.		CONSIGNEE ORDER NO.		DATE SHIPPED			
79698		P04-00127		N/A		1/13/04			
ITEM	SIZE	GRADE		LOT NO./ALLOY NO.		QUANTITY			
1	3/32 X 36"	ARCOS 625		CB7996		20#			
<b>SPECIFICATION:</b> AWS A5.14/A5.14M-97. CLASS ERNiCrMo-3 ASME SFA 5.14 ASME SECTION II, PART C, 2001 EDITION, AND ALL PARAS AND ADDENDA THRU 2003.									
<b>CHEMICAL ANALYSIS:</b>									
				WIRE					
C	Mn	Si	S	P	Cr	Ni	Mo	Cb	Cb + Ta
0.04	0.03	0.08	0.004	0.01	21.9	64.9	8.7		3.64
Ta	Ti	Al	Co	Cu	Fe	V	Total Others		
	0.21	0.16	0.02	0.12	0.2		<.50		

**ADDITIONAL TEST RESULTS**

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

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

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

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

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

**TENSILE** As Welded                      Heat Treated

Yield \_\_\_\_\_

Tensile \_\_\_\_\_

Elongation \_\_\_\_\_

Red. of Area \_\_\_\_\_

**OTHER INFORMATION:**

LOT CLASSIFICATION - S1  
 INTENSITY OF TESTING - Schedule F

1/13/2004

82372 Line 1  
 B.J.

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

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

**ARCOS**

1/29/04

Q.A. MANAGER  
 QUALITY ASSURANCE DEPARTMENT

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



DATE 01/08/04

**CERTIFICATION OF TESTS**

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

SHIP TO: SAME

ARCOS S.O.		CUSTOMER ORDER NO.		CONSIGNEE ORDER NO.		DATE SHIPPED			
79533		P03-05170		N/A		1/8/04			
ITEM	SIZE	GRADE		LOT NO./ALLOY NO.		QUANTITY			
1	3/32 X 36"	ARCOS 625		CB7996		20#			
SPECIFICATION: AWS A5.14/A5.14M-97. CLASS ERNiCrMo-3 ASME SFA 5.14 ASME SECTION II, PART C, 2001 EDITION, AND ALL PARAS AND ADDENDA THRU 2003.									
CHEMICAL ANALYSIS:				WIRE					
C	Mn	Si	S	P	Cr	Ni	Mo	Cb	Cb + Ta
0.04	0.03	0.08	0.004	0.01	21.9	64.9	8.7		3.64
Ta	Ti	Al	Co	Cu	Fe	V	Total Others		
	0.21	0.16	0.02	0.12	0.2		<.50		

<b>ADDITIONAL TEST RESULTS</b>	<b>TENSILE</b>	<b>As Welded</b>	<b>Heat Treated</b>
Ferrite - NB2433.1-1: _____	Yield	_____	_____
Magna Gage: _____	Tensile	_____	_____
X-Ray: _____	Elongation	_____	_____
Bends: _____	Red. of Area	_____	_____
Hardness: _____			

**OTHER INFORMATION:**

LOT CLASSIFICATION - S1  
 INTENSITY OF TESTING - Schedule F

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

82255  
 line 2

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**

	<b>TENSILE</b>	<b>As Welded</b>	<b>Heat Treated</b>
Ferrite - NB2433.1-1: _____	Yield	_____	_____
Magna Gage: _____	Tensile	_____	_____
X-Ray: _____	Elongation	_____	_____
Bends: _____	Red.of Area	_____	_____
Hardness: _____			

**OTHER INFORMATION:**

LOT CLASSIFICATION - S1  
 INTENSITY OF TESTING - Schedule F

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

*MLH*

Q.A. MANAGER

QUALITY ASSURANCE DEPARTMENT

81946  
 line 2 B.T.

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

CERTIFICATE OF COMPLIANCE / TEST REPORT

3/21/05

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

CUSTOMER P. O. NBR: 1423  
 ORD/LN NBR: 025982/02  
 CUSTOMER PART NBR: 326506200240000

27038

PROD. DESC: WELDING / METALLIZING WIRE  
 SIZE: .093X36"

TYPE: INC625  
 QTY LBS: 550

SPECIFICATION  
 AWSA5. 14-97/ERNICRMO-3

CHEMICAL ANALYSIS

HEAT NBR.	C	MN	P	S	SI	NI	CR	MO	CU
K48859	10.019	10.030	<.005	1.0006	<0.05	165.00	20.82	108.36	10.020

Y	TA	TI	NB	AL	N	CO	FE	W	V	B
	10.020	10.019	103.43	10.220		10.130	101.91			

MECHANICAL PROPERTIES

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

WRAP TEST	UNIFORM TEST	MANDREL TEST	GRAIN SIZE	PERMEABILITY

OTHER TEST(S) AND/OR REQUIREMENTS:

04.01.2005  
 94843  
 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  
 GERMANY

IG. P. REPRESENTATIVE

*Dayle Chang*



DATE SIGNED  
 3/21/05

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

BRANFORD WIRE & MFG

NO 188 P 3

P O BOX 677  
MOUNTAIN HOME, NC  
PHONE 828-692-5791  
FAX# 828-697-9818

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: 026988/02  
CUSTOMER PART NBR 326504200240000

PROD DESC WELDING / METALLIZING WIRE  
SIZE 093X36"

TYPE INC625  
QTY LBS 772

SPECIFICATION  
AWS A5.14-97/ERNICRMO-3

CHEMICAL ANALYSIS

HEAT NBR	C	MN	P	S	SI	NI	CR	MO	CU
K48859	10 019	0 030	< 005	0 006	< 0 05	14 00120	21 08	3 10	0 020

Y	TA	TI	NE	AL	N	CO	FE	W	V	B
10 020	0 019	0 03 43	0 220		10 130	01 91				

MECHANICAL PROPERTIES

TENSILE (LBS/SQ INCH)	YIELD (LBS/SQ INCH)	ELONGATION (%)	HARDNESS	BREAKTROP (%)

WRAP TEST	UNIFORM TEST	MANDREL TEST	GRAIN SIZE	PERMEABILITY

OTHER TEST(S) AND/OR REQUIREMENTS

(MATERIAL IS FREE OF MERCURY CONTAMINATION)  
THIS IS TO CERTIFY THAT MATERIAL SHIPPED COMPLIES WITH SPECIFICATION ON P 8

4/18/05  
95358 Line 2 WA



COUNTRY OF ORIGIN  
GERMANY

REPRESENTATIVE  
*[Signature]*

DATE SIGNED  
4/06/05

IF INITIALED AND DATED HERE THIS IS AN AMENDED CERTIFICATION



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

CERTIFICATE OF COMPLIANCE / TEST REPORT

3/21/05

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

CUSTOMER P.O. NBR: 1423  
 ORD/LN NBR: 025982/02  
 CUSTOMER PART NBR: 326506200240000

27038

PROD. DESC: WELDING / METALLIZING WIRE  
 SIZE: .093X36"

TYPE: INC625  
 QTY LBS: 550

SPECIFICATION  
 AWSA5.14-97/ERNICRMO-3

CHEMICAL ANALYSIS

HEAT NBR.	C	MN	P	S	SI	NI	CR	MO	CU	
K48859	0.019	0.030	<.005	0.006	<.05	65.00	20.82	08.36	0.020	
Y	TA	TI	NB	AL	N	CO	FE	W	V	B
	0.020	0.019	0.03	0.43	0.220	10.130	01.91			

MECHANICAL PROPERTIES

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

WRAP TEST	UNIFORM TEST	MANDREL TEST	GRAIN SIZE	PERMEABILITY

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 GERMANY	Q. REPRESENTATIVE <i>Doyle Chang</i>	DATE SIGNED 3/21/05
------------------------------	---	------------------------



IF INITIALED AND DATED HERE

**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**



12/5/03

*Eileen Zerby*  
 Q.A. CLERK

QUALITY ASSURANCE DEPARTMENT

81506  
 Line 2 RZ

**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	TENSILE	
	As Welded	Heat Treated
Ferrite - NB2433.1-1: _____	Yield _____	_____
Magna Gage: _____	Tensile _____	_____
X-Ray: _____	Elongation _____	_____
Bends: _____	Red.of Area _____	_____
Hardness: _____		

OTHER INFORMATION:  
 LOT CLASSIFICATION - S1  
 INTENSITY OF TESTING - Schedule F

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**ARCOS**

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

8/505  
 Line 1  
 B. 7

12/5/03

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

CERTIFICATE OF COMPLIANCE / TEST REPORT

4/04/05

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

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

27117

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

TYPE: INC625  
 QTY LBS: 652

SPECIFICATION  
 AWSA5. 14-97/ERNICRMQ-3

CHEMICAL ANALYSIS

HEAT NBR.	C	MN	P	S	SI	NI	CR	MO	CU
34932	10.016	0.030	0.004	0.0035	0.040	63.89	22.35	09.00	0.020

NB 3.45 OTHER ELEMENTS 0.1265

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

MECHANICAL PROPERTIES

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

WRAP TEST	UNIFORM. TEST	MANDREL TEST	GRAIN SIZE	PERMEABILITY

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	G. C. REPRESENTATIVE	DATE SIGNED
USA	<i>Doyle Craig</i>	4/04/05

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

418605  
 95355  
 W A Line 6



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

CERTIFICATE OF COMPLIANCE / TEST REPORT

4/04/05

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

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

27117

PROD. DESC: WELDING / METALLIZING WIRE  
 SIZE: .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	10.016	0.030	0.004	0.0035	0.040	163.89	22.35	109.00	0.020

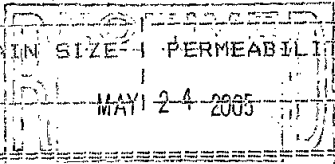
NB 3.45 OTHER ELEMENTS\* 0.1265

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

MECHANICAL PROPERTIES

TENSILE	YIELD	ELONGATION	HARDNESS	BREAK	ROA
LBS/50 INCH	LBS/50 INCH	%			%
	HARD				

WRAP TEST	UNIFORM TEST	MANDREL TEST	GRAIN SIZE	PERMEABILITY



OTHER TEST(S) AND/OR REQUIREMENTS:

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

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

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

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

mc095279



DATE 12/19/03

## CERTIFICATION OF TESTS

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

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

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

**ADDITIONAL TEST RESULTS**

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

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

**OTHER INFORMATION:**

LOT CLASSIFICATION - S1  
 INTENSITY OF TESTING - Schedule F

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

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

**ARCOS**

12/23/03

81947  
 line 1

  
 Q.A. MANAGER  
 QUALITY ASSURANCE DEPARTMENT

08/24/05 10:55 FAX 915137548778

JW HARRIS

002/002



**J. W. Harris Co., Inc.**  
4501 Quality Pl., Mason OH 45040  
**Certificate of Compliance**

Attn: SCOTT  
Ship to: MITTLER SUPPLY  
6810 GUION ROAD  
INDIANAPOLIS, IN. 46268-1733

Date: 8/24/2005  
P.O #:  
Fax No: 1-317-290-0412

Heat #: X01823  
Item Number: E70S250

Description: ER70S-2 3/32 X 36 MS 10# PKG

Weight

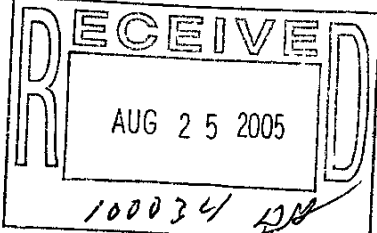
Specifications:

AWS 5.18 ER70S-2  
ASME SFA 5.18 ER70S-2

**CHEMICAL COMPOSITION LIMITS**

ARSENIC		HYDROGEN		TANTALUM	
ANTIMONY		IRON		TITANIUM	0.05-0.15
ALUMINUM	0.05-0.15	LEAD		TIN	
BISMUTH		LITHIUM		THORIA	
BERYLLIUM		MAGNESIUM		TUNGSTEN	
BORON		MOLYBDENUM	0.00-0.15	VANADIUM	0.00-0.03
CARBON	0.00-0.07	MANGANESE	0.9-1.4	YTTRIUM	
CHROMIUM	0.00-0.15	SILICON	0.4-0.7	ZINC	
COPPER	0.0-0.5	PHOSPHORUS	0.000-0.025	ZIRCONIUM	0.02-0.12
COBALT		SULFUR	0.000-0.035	REMAINDER IRON	
CADMIUM		NICKEL	0.00-0.15	OTHER	5 TOTAL
NIObIUM(Cb)		NITROGEN		WRC FN	
		SILVER			
		OXYGEN			

AUG 30 2005



Single values are maximum unless otherwise specified.

We certify that the items and/or materials listed above are in accordance with all applicable purchase specifications having passed our inspections as noted. *line 4*

SAFETY SILV, STAY SILV, STAY CLEAN, STAY BRITE & BRIDGIT ARE REGISTERED TRADEMARKS OF J.W. HARRIS CO., INC.

*Jeanette Buschbach*  
Signature

California	800-423-4486	fax 626-912-4272	Ohio	800-733-4043	fax 800-754-8778
Massachusetts	800-343-0543	fax 617-268-2742	Texas	800-852-8029	fax 713-644-1807
Michigan	800-826-2484	fax 248-634-1910			

04/16/03 14:04 FAX 015137548778

JW HARRIS

001/001



...better ways to join metals  
www.jwharris.com

**J. W. Harris Co., Inc.**  
4501 Quality Pl., Mason OH 45040  
**Certificate of Compliance**

Attn: WADE  
Sold to: MAJOR TOOL

Date: 4/16/2003  
P.O.#:  
Fax No: 317 290 0412

Heat #: 21010424  
Item Number: 309LT50

Description: 309L 3/32 X 36 S/S

Weight:

Specifications:

AWS A6.9 ER309L	ASME SFA 5.9
-----------------	--------------

**CHEMICAL COMPOSITION LIMITS**

ARSENIC	HYDROGEN	TANTALUM
ANTIMONY	IRON	TITANIUM
ALUMINUM	LEAD	TIN
BISMUTH	LITHIUM	THORIA
BERYLLIUM	MAGNESIUM	TUNGSTEN
BORON	MOLYBDENUM 0.75	VANADIUM
CARBON 0.03	MANGANESE 1.0-2.5	YTTRIUM
CHROMIUM 23.0-25.0	SILICON 0.30-0.65	ZINC
COPPER 0.75	PHOSPHORUS 0.03	ZIRCONIUM
COBALT	SULFUR 0.03	REMAINDER IRON
CADMIUM	NICKEL 12.0-14.0	OTHER
NOBIUM	NITROGEN	WRC FN
	SILVER	
	OXYGEN	

RECEIVED

APR 18 2003

26396  
AN (in #)



4-21-03

Single values are maximum unless otherwise specified.

We certify that the items and/or materials listed above are in accordance with all applicable purchase specifications having passed our inspections as noted.

SAFETY SILV, STAY SILV, STAY CLEAN, STAY BRITE & BRIDGIT ARE REGISTERED TRADEMARKS OF J.W. HARRIS CO., INC.

*[Signature]*  
Certification Clerk

Alabama	800-852-7485	fax 205-497-6465
California	800-423-4486	fax 626-912-4272
Massachusetts	800-343-0643	fax 617-268-2742
Michigan	800-826-2484	fax 248-634-1910

North Carolina	800-468-6476	fax 704-739-2801
Ohio	800-733-4043	fax 800-754-8778
Texas	800-852-8029	fax 713-644-1807





CERTIFICATION ACCORDING TO ASME SECT II PART C

COP ORDER #: 076432	Böhler Thyssen Welding USA Inc
FAX CERTS TO #	10401 Greenbough Drive
	Stafford, TX 77477
PRODUCTION DESCRIPTION : ER316LT	DIAMETER : 1/16X36
AWS/ASME SPECIFICATION : A/SFA5.9	WEIGHT : 300 LBS
AWS/ASME CLASSIFICATION: ER316L	HEAT/LOT : 95316

\*ACTUAL CHEMICAL ANALYSIS †

C 0.018	Si 0.36	Mn 1.61	P 0.008
S 0.009	Cr 18.35	Mo 2.52	Ni 12.08
Cu 0.10			

\*\* MECHANICAL PROPERTIES

YIELD STRENGTH : 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 :

\* SFA 5.01 SCHEDULE H  
\*\* SFA 5.01 SCHEDULE G

Jul 30, 2002

Q & A Department

Böhler Thyssen Welding USA, Inc.  
P.O. Box 721678, Houston, Texas 77272-1678  
10401 Greenbough Drive, Stafford, Texas 77477

Tel: (281) 499-1212 • Internet: www.bowusa.com  
Fax: (281) 499-4347 • e-mail: cwc@bwt.com  
(800) 527-0791

**TEST REPORT**

Boehler Thyssen Welding USA Inc.

SCHEDULE F  
nach / as per: AWS/ASME SFA5.01

10401 Greenbough Drive  
77477 Stafford, Texas  
USA

Nr./No.: 1-2003-04-612870  
Rev. 0 Seite / page : 1 von/of 1

Bestell-Nr.	Order No.	P.O. 4250001072	vom / of 15.10.2003	300017
Auftrags-Nr.	Works order	1001126382		
Lieferschein/Position	Dispatch note/position	2001193284 / 0010	vom / of 15.10.2003	
Prüfgegenstand	Test object	Schweißstab / welding rod		35489 X609EW
Handelsname	Trade designation	UTP ER316L		
Normbezeichnung	Standard classification	EN 12072: W 19 12 3 L		AWS A5.9-93: ER316L
Produktkennzeichnung	Marking of product			
Abmessung	Dimension	2,40 x 914 mm		
Serien-/Chargen-Nr.	Lot-/Heat No.	95762		
Liefermenge	Quantity delivered	914.5 KG		
Anforderungen	Requirements			



APR 16 2004

4/16/04

84560  
Line 3  
B1

Chemische Zusammensetzung in %										Stab / rod	
Chemical composition in %											
Serie/Charge	C	Si	Mn	P	S	Cr	Mo	Ni	Cu		Bemerkung
Heat No.											Remarks
95762	0.014	0.46	1.76	0.019	0.009	18.21	2.61	12.25	0.11		

Zugversuch nach ASTM E8				Probenvorbereitung			
Tensile test according to				Specimen preparation			
	Prüftemp. T Test temp. °C	Streckgrenze R <sub>eh</sub> Yield point N/mm <sup>2</sup>	Dehngrenze R <sub>p</sub> Yield strength 0.2% N/mm <sup>2</sup> 1.0%	Zugfestigkeit R <sub>m</sub> Tensile strength N/mm <sup>2</sup>	Dehnung A Elongation % Lo=4d	Einschnürung Z Reduction %	Bemerkung Remarks
Minimum	20			560	35		
Maximum							

Kerbschlagbiegeversuch nach ASTM E23			Probenvorbereitung			
Impact test according to			Specimen preparation			
	Prüftemp. T Test temp. °C	Kerbschlagarbeit (Mindestwerte) KV Absorbed energy minimum values J	Mittelwert Average J	Lat. Breitung Lateral expansion mm	Kristalliner Bruchanteil Shear fracture %	Bemerkung Remarks
	20	47				

Bemerkung / Remarks: The product UTP ER316L meets the requirements of the filler metal specification ASME, sec.II, part C, latest ed., AWS A5.9-93, classification ER316L when tested in accordance with that specification.

Ort / Town: Hamm Datum / Date: 15.12.2003

Böhler Thyssen Schweisstechnik  
Deutschland GmbH  
Unionsstraße 1, D-59067 Hamm  
Postfach 25 51, D-59015 Hamm  
Telefon: +49 (0) 23 81-2 71-02  
Telefax: +49 (0) 23 81-2 71-4 02

Geschäftsführer  
Dr. Elmar Stracke  
Udo Wischer

Währg. Bankkonten  
EUR Commerzbank AG, Hamm  
Deutsche Bank AG, Hamm  
Sal. Oppenheim jr. & Cie., Köln  
andere Sal. Oppenheim jr. & Cie., Düsseldorf

BIC (SWIFT Code) IBAN BLZ  
COBADEFF410 DE18 4104 0018  
DEUTDEDE410 DE96 4107 0049  
SOPPDE3KXXX DE46 3703 0200  
SOPPDEDDXXX DE46 3703 0200

Werkssachverständiger  
Authorized representative

Gründer-Nr. Sitz der Gesellschaft  
0501 3149 01 Hamm HRB 2136  
0066 0993 00  
0000 0210 32  
0000 0210 32

TOTAL P.01



Scott Roe

CERTIFICATION ACCORDING TO ASME SECT II PART C

COP ORDER #: 076432

Bohler Thyssen Welding USA Inc  
10401 Greenbough Drive

FAX CERTS TO # 317-290-0412

Stafford, TX 77477

PRODUCTION DESCRIPTION : ER316LT

DIAMETER : 3/32 X 36

AWS/ASME SPECIFICATION : A/SFA5.9

WEIGHT :

AWS/ASME CLASSIFICATION: ER316L

HEAT/LOT : 95762

\*ACTUAL CHEMICAL ANALYSIS %

C 0.014	Si 0.46	Mn 1.76	P 0.019
S 0.009	Cr 18.21	Mo 2.61	Ni 12.25
Cu 0.11			

MECHANICAL PROPERTIES

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

ELONGATION :  
%

TENSILE STRENGTH :  
PSI (N/mm 2)

HARDNESS :

IMPACT-VALUE :  
(ISO-V) TEST TEMPERATURE :  
FT-LBS (J)

REMARKS

FERRITE CONTENT : 6.2%

ACCORDING TO : SCHAEFFLER

\* SFA 5.01 SCHEDULE F

*Handwritten signature*



*4/16/04*

Apr 16, 2004

Q & A Department

Bohler Thyssen Welding USA, Inc.  
P.O. Box 721678, Houston, Texas 77272-1678

Tel: (281) 499-1212 • www.btwusa.com  
Fax: (281) 499-4347 • e-mail: custsvc@btwusa.com

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



DATE 06/16/05

**ACTUAL  
 CERTIFICATION OF TESTS**

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

**CHEMICAL ANALYSIS: ACTUAL WIRE**

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

*OK*

Ferrite: N/A  
 UNS NO. N06625

Lot Classification - S1  
 Intensity of Testing - Schedule F

MATERIAL MADE IN THE USA.

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

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

**ARCOS**

*06.20.05*  
*97308*  
*we 1*



GIB GRATTI, QUALITY ASSURANCE MANAGER  
 QUALITY ASSURANCE DEPARTMENT