

Subject: Cleveland Process Audit

Date: April 17, 2015

Completed By: Steve Busicnki

On April 27, 2015, work order CLV 55570 was ran on the CR2 for Liebert. Tag NI64664 was verified prior to loading and use of the coil. The Rockwell was taken for the material prior to the job beginning on the line. One of the first finished sheets produced was measured for length, width, square, and flatness. A micrometer was used to measure the thickness of the material at the edge, crown, and opposite edge. The readings were duplicated onto the line that reads "Last piece of 1st bundle". The operator stated that the initial readings are duplicated onto this line if there are no visual signs of changes in the material while running. The line was then down for repair at this point. The job was finished later without a quality representative present.

Camber was listed to be checked on this job. This should not be checked on sheets and should be removed. Wave was also listed on this job but is not shown as being recorded on the Quality Checklist.

I will speak to operations about the duplicated information and where the wave measurement should be recorded. I will speak to sales about removing the camber requirement.

Part Spec/PO Audit Form

Cust #	6886	Customer	Liebert	Grp/Sz/Grd/Width	GV5 / 0.0360 / CB90CD / 55.0000
Equip/Plant	PWC CR2	Work Order #	CLV 55570	Part No.	RS-3300
		Date	4/17/2015		
Work Order Information		Material to be Used		Actual	
		Tag #1	N164664	Gauge #1	.035, .036, .035 (All)
		PO#	CLV 021063-001	% Gauge In Spec	98.8%, 99.8%-99.3%
Gauge Range	0.0340 - 0.0380	Gauge Min	.0336 Min	Low/High Gauge	0.0333/0.0365
Width Range	55.0000 - 55.2500	Width	55.0000"	Average	0.0351, 0.0354=0.03525
Length Range	120.0000 - 120.7500			Width	55.25 (All)
Rockwell		Rockwell		Length	120.062 (All)
Tensile				Rockwell	58
Yield		A 653 Galvanized		Camb 0.00-.31	N/A
% Elongation		Coil CS-B		Wave 0.00-3.00	
Chem Rqmts		90 CT Dry		Square 0.00-.12	0.031
Other Rqmts		.0336 Min X		Flatness 0.00-.12	<.120
		55.0000"		Other	
		1 pc 22,860 lbs			
Summary					
Actions					
Final Status					

Quality Checklist

Date: 4-17-15 Customer: Liebert Work Order # 55570 Machine # 2
 Master Tag # WIE 64664 Tag Weight: 22,860 Type: PVC-9000 Ordered RB: 0-60

A-CR-58

Gauge Tolerance			Width Tol:	Length Tol:	Square Tol:	Flatness Tol:	Inspected By	Date
Skid Tag#	Edge	Crown	Edge	Width	Square	Flatness		
34101	035	036	038	55	031	<120	Jm mc	4-17
Last piece of 1st bundle	035	036	038	55.25	031	<120	Jm mc	4-17

Skid Tag#	Edge	Crown	Edge	Width	Length	Square	Flatness	Inspected By	Date
34103	035	036	038	55.25	120-060	1/1	<120	Jm mc	4-17

Skid Tag#	Edge	Crown	Edge	Width	Length	Square	Flatness	Inspected By	Date

AGT400 Coil Summary Report

Jemison Metals -- 75 Inch Red Bud CTL Line

Work Order: 55570 Coil Number: N164664

Customer Name: LIEBERT Heat Number: M F85036 Vendor: METALONEAMERICA

Product: G90 Galvanized Apr-17-15 9:24 AM to 10:49 AM (clock 84.8 min/ run 16.4 min) Shift: 1

Average Thickness and Tolerance Data

Target	0.0360 in	Average*	0.0351 in	Average - Target	-0.0009 in (-2.50%)
				Standard Deviation*	0.0006 in (1.64%)
Length	2573 ft	Above High Limit	0.0380 in	0 ft (0.0%)	
Width	55.250 in	In Tolerance		2542 ft (98.8%)	
Weight	17008 lbs	Below Low Limit	0.0340 in	33 ft (1.2%)	
Max Thickness	0.0365 in at	239 ft	Min Thickness	0.0333 in at	646 ft
Head Scrap	17 ft		Tail Scrap	0 ft	

Statistical Process Control Data

Upper Control Limit	0.0369 in	Upper Tolerance Limit	0.0380 in
X Double Bar	0.0351 in	R Bar	0.0018 in
Lower Control Limit	0.0333 in	Lower Tolerance Limit	0.0340 in
CR	88.5% (Capability Ratio %, 100/CP)		
CP	1.130 (Process Capability, HiLim-LowLim/6*Sigma)		
CPK	0.622 (Capability vs Limits)	TMW Ratio	0.969 (Low Limit/Avg)

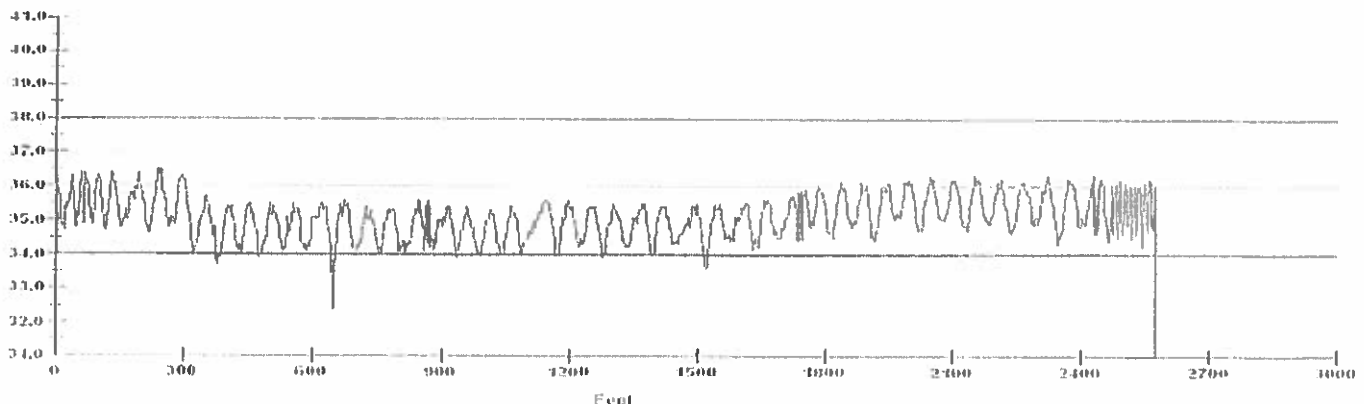
Thickness Distribution Relative to the Target

+4+	0.0%
+0.0050	0.0%
+0.0045	0.0%
+0.0040	0.0%
+0.0035	0.0%
+0.0030	0.0%
+0.0025	0.0%
+0.0020	0.0%
+0.0015	0.0%
+0.0010	0.0%
+0.0005	0.2%
+0.0000	10.1%
-0.0005	16.1%
-0.0010	33.0%
-0.0015	23.2%
-0.0020	15.2%
-0.0025	1.2%
-0.0030	0.0%
-0.0035	0.0%
-0.0040	0.0%
-0.0045	0.0%
-0.0050	0.0%
---	0.0%

0 3 6 9 12 15 18 21 24 27 30 33 %

60.3% is within ± 0.0010 in of the target 100.0% is within ± 0.0025 in of the target
100.0% is within ± 0.0050 in of the target 100.0% is within ± 0.0100 in of the target

Thickness vs Length (Coil Number N164664)



Gauge readings provided by Advanced Gauging Technologies, L.L.C. Plain City, OH 43064 USA Tel:(614) 873-6691

AGT400 Coil Summary Report

Jemison Metals -- 75 Inch Red Bud CTL Line

Work Order: 55570 Coil Number: NI64664

Customer Name: LIEBERT Heat Number: M F85036 Vendor: METALONEAMERICA

Product: G90 Galvanized Apr-17-15 1:24 PM to 1:43 PM (clock 18.6 min/ run 8.5 min) Shift: 1

Average Thickness and Tolerance Data

Target	0.0360 in	Average*	0.0354 in	Average - Target	-0.0006 in (-1.61%)
				Standard Deviation*	0.0006 in (1.53%)
Length	1009 ft	Above High Limit	0.0380 in	0 ft (0.0%)	
Width	55.250 in	In Tolerance		1007 ft (99.8%)	
Weight	6729 lbs	Below Low Limit	0.0340 in	3 ft (0.2%)	
Max Thickness	0.0363 in at	261 ft	Min Thickness	0.0337 in at	940 ft
Head Scrap	0 ft		Tail Scrap	45 ft	

Statistical Process Control Data

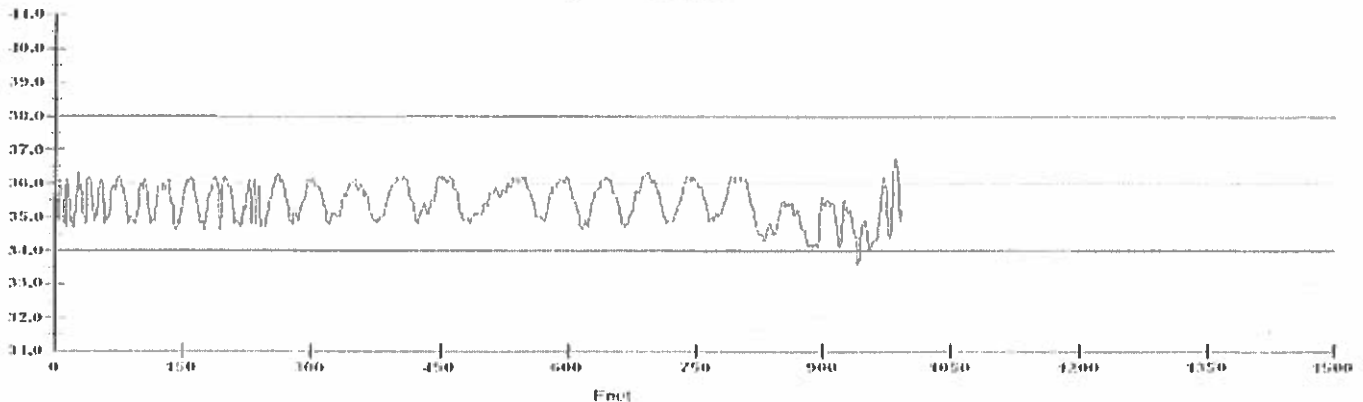
Upper Control Limit	0.0371 in	Upper Tolerance Limit	0.0380 in
X Double Bar	0.0354 in	R Bar	0.0017 in
Lower Control Limit	0.0338 in	Lower Tolerance Limit	0.0340 in
CR	82.5% (Capability Ratio %, 100/CP)		
CP	1.212 (Process Capability, HiLim-LoLim/6*Sigma)		
CPK	0.861 (Capability vs Limits)	TMW Ratio	0.960 (Low Limit/Avg)

Thickness Distribution Relative to the Target

+++	0.0%
+0.0000	0.0%
+0.0005	0.0%
+0.0010	0.0%
+0.0015	0.0%
+0.0020	0.0%
+0.0025	0.0%
+0.0030	0.0%
+0.0035	0.0%
+0.0040	0.0%
+0.0045	0.0%
+0.0050	0.0%
+0.0055	0.0%
+0.0060	0.0%
+0.0065	0.0%
+0.0070	0.0%
+0.0075	0.0%
+0.0080	0.0%
+0.0085	0.0%
+0.0090	0.0%
+0.0095	0.0%
+0.0100	0.0%
+0.0105	0.0%
+0.0110	0.0%
+0.0115	0.0%
+0.0120	0.0%
+0.0125	0.0%
+0.0130	0.0%
+0.0135	0.0%
+0.0140	0.0%
+0.0145	0.0%
+0.0150	0.0%
---	0.0%

78.0% is within ± 0.0010 in of the target 100.0% is within ± 0.0025 in of the target
100.0% is within ± 0.0050 in of the target 100.0% is within ± 0.0100 in of the target

Thickness vs Length (Coil Number NI64664)



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