

**Subject:** Cleveland Process Audit

**Date:** June 19, 2015

**Completed By:** Steve Busienki

On June 19, 2015, work order CLV 56370 was ran on the CR2 for Quaker. Tag 64887 was verified prior to loading and use of the coil. When production began, widths of the cuts were checked with calipers when fed through. One of the first pieces was checked on the table for length, width, square, and flatness. The length was rechecked at the end of the first bundle. All bundles were produced simultaneously as the widths allowed for this to be possible. Measurements were recorded on the Quality Checklist. Based on the gauge reports, 99.8% of the material was within specification with an average thickness of 0.0349. This average is within the customers specification of 0.0340 – 0.0380.

# Part Spec/PO Audit Form

Cust #	8091	Customer	Quaker	Grp/Sz/Grd/Width	CRS / 0.0370 / EDDS / 12.2500
Equip/Plant	PWC CR2	Work Order #	CLV 56370	Part No.	3166RM
		Date	6/19/2015		
Work Order Information		Material to be Used		Actual	
		Tag #1	64887	Gauge #1	.034,.035,.035
		PO#	21161-001	% Gauge in Spec	99.80%
Gauge Range	0.0340 - 0.0380	Gauge Min	.0335 Min	Low/High Gauge	0.0339/0.0356
Width Range	12.22 - 12.28	Width	61.7500"	Average	0.0349
Length Range	102.595 - 102.655			Width	12.272,12.272
Rockwell		Rockwell		Length	102.625,102.625
Tensile				Rockwell	Rockwell
Yield		A1008 Cold Rolled			
% Elongation		Coil Extra Deep			
Chem Rqmts		Drawing			
Other Rqmts		.0335 Min X		Other	
		61.7500"			
		1pcs 21900lbs			
Summary					
Actions					
Final Status					

## Quality Checklist

Work Order # 576370 Machine # 027

Type: CR      Ordered RB: \_\_\_\_\_

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Skid Tag#	Gauge Tolerance			Width Tol:	Length Tol:	Square Tol:	Flatness Tol:	Inspected By	Date
	Edge	Crown	Edge						
465735	034	035	035	12' 11.5" ± .31	12.635	4/0	< .02	MC gm	6/19/05
Last piece of 1st bundle	034	035	035	12' 11.5" ± .31	10.7625	4/0	< .02	MC gm	6/1/05

[illegible]

Skid Tag#	Edge	Crown	Edge	Width	Length	Square	Flatness	Inspected By	Date
45165	C34	C35	C34	102.54	102.65	960	<.12	MC 117	4/6/85
Last piece of last bundle	C34	C35	C34	102.54	102.65	060	<.12	MC 117	4/6/85

# **AGT400 Coil Summary Report**

## **Jemison Metals -- 75 Inch Red Bud CTL Line**

Work Order: 56370    Coil Number: 64887

Customer Name: **QUAKER**    Heat Number: **AKS244499**    Vendor: **AK STEEL**

Product: Cold-Rolled Steel    Jun-19-15    9:19 AM to 10:44 AM (clock 85.2 min/ run 18.0 min)    Shift: 1

### **Average Thickness and Tolerance Data**

Target	0.0350 in	Average*	0.0349 in	Average - Target	-0.0011 in (-2.97%)
				Standard Deviation*	0.0002 in (0.67%)
Length	1187 ft	Above High Limit	0.0080 in	0 ft (0.0%)	
Width	61.750 in	In Tolerance		1187 ft (100.0%)	
Weight	8728 lbs	Below Low Limit	0.0340 in	7 ft (0.2%)	
Max Thickness	0.0356 in at	926 ft	Min Thickness	0.0339 in at	253 ft
Head Scrap	22 ft		Tail Scrap	3 ft	

### **Statistical Process Control Data**

Upper Control Limit	0.0357 in	Upper Tolerance Limit	0.0350 in
X Double Bar	0.0349 in	R Bar	0.0007 in
Lower Control Limit	0.0342 in	Lower Tolerance Limit	0.0340 in
CR	36.0% (Capability Ratio %, 100/CP)		
CP	2.778 (Process Capability, HiLim-LoLim/6*Sigma)		
CPK	1.292 (Capability vs Limits)	TMW Ratio	0.973 (Low Limit/Avg)

### **Thickness Distribution Relative to the Target**

0.0000	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	0.0%
+0.0000	0.0%
-0.0005	0.0%
-0.0010	52.8%
-0.0015	13.7%
-0.0020	3.4%
-0.0025	0.2%
-0.0030	0.0%
-0.0035	0.0%
-0.0040	0.0%
-0.0045	0.0%
-0.0050	0.0%
---	0.0%

52.8% is within  $\pm 0.0010$  in of the target    100.0% is within  $\pm 0.0025$  in of the target  
 100.0% is within  $\pm 0.0050$  in of the target    100.0% is within  $\pm 0.0100$  in of the target

Thickness vs Length (Coil Number 64887)

