



# 2010 Galvanizing Line Market Study

Profile Reports

Project #447

Survey # 

52
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## I. PLANT IDENTITY:

- A. Name of Company: **American Steel Company - Hometown, PA**
- B. Plant Location: **Hometown, PA**
- C. EAF Melt Shop Designation: **Galv Line**
- D. General Phone #: **123-456-7890**
- E. Comments: **This line operates a dual hot dipped coating line for the application of galvanized and galvanized cold rolled substrate. The line began operation in late 2007 and had a good start-up and is performing effectively. The line has the "bells and whistles" required for the end-use product lines. The line definitely is not a candidate for upgrades**

## II. CONTACTS

1. Name: **John Doe** Date: **3 /30/2010**  
Title: **Operations Manager**  
Address: **123 Mill Street**  
City: **Hometown** State: **PA** Zip: **11111**  
Phone: **(123) 456-7890** Ext: Fax:  
eMail:

**IV. CHARACTERIZING THE GALVANIZING PRODUCER**

A. List the Galvanizing lines at this location and selection one\* for this survey:

a. Designation:	b. Indicate type (HDG, EGL, Other)	c. Capacity (000 ton per year)
1. <b>Galv Line</b>	<b>HDG</b>	<b>450</b>
2.		
3.		
4.		

\* Selected line for survey

B. Characterizing the selected Galvanizing line:

- 1. Start-up year: 2007
- 2. Production capacity: 450 K tons / year
- 3. Project production - 2010: Prop K tons / year
- 4. Type of production as percent of total:
  - a. Galvanize: 95 %
  - b. Galvanneal: 5 %
  - c. Zinc Nickel: \_\_\_\_\_ %
  - d. Zinc / Magnesium: \_\_\_\_\_ %
  - e. Galvalume: \_\_\_\_\_ %
  - f. Galfan: \_\_\_\_\_ %
  - g. Other, \_\_\_\_\_ % Specify:

5. Type of steels galvanized (%): 100 Cold rolled \_\_\_\_\_ Hot rolled \_\_\_\_\_

6. Line speed:

Type of Product:	Feet / Minute
Galvanized Exposed	a.
Galvannealed Exposed	b.
Galvanized Unexposed	c. <b>(1)</b>
Galvannealed Unexposed	d. <b>(1)</b>
Galvalume	e.

7. What is the line speed? Typical: (1) fpm Max: \_\_\_\_\_ fpm Min: \_\_\_\_\_ fpm

8. What is the line tension? Typical: (2) Max: \_\_\_\_\_ Min: \_\_\_\_\_

(The respondent will specify the parameter to be used. Each plant may be different.)

9. What mostly limits galvanizing line speed: **This line operates a dual hot dipped coating line for the application of galvanized and galvannealed cold rolled substrate. The line began operation in late 2007 and had a good start-up and is performing effectively. The line has the "bells and whistles" required for the end-use product lines. The line definitely is not a candidate for upgrades**

10. Galvanizing line configuration: \_\_\_\_\_ Horizontal X Vertical

C. Identify major end-use markets for Galvanized product: (distribute %)

- 1. Total automotive: 10 % a. Exposed: \_\_\_\_\_ b, Unexposed: 100 %
- 2. Construction: \_\_\_\_\_ %
- 3. Appliances: \_\_\_\_\_ %
- 4. Other: 90 % Specify: **Variable mix of construction, appliance, industrial and trade**

D. Comment for IV: **(1) The average speed as 450-550, not the specific speeds by product. (2) It was only indicated that there is no typical line tension due to wide variability in the operating parameters.**

V. SUBSTRATE THICKNESS MEASUREMENT

A. What are Galvanized substrate product dimensions?

- 1. Strip thickness: a. Minimum: .014 b. Maximum: .060 c. Typical: .045
- 2. Strip width: a. Minimum: 36 b. Maximum: 72 c. Typical: 60

B. For a given product, what is the substrate thickness tolerance?

- 1. \_\_\_\_\_ % a. On a base thickness of \_\_\_\_\_ inches
- 2. (1) inches a. On a base thickness of \_\_\_\_\_ inches

C. What are the consequences of out-of-tolerance substrate?

**This is not an issue because the substrate is rolled on a 5-stand tandem mill with excellent gauge control.**

D. What type of substrate thickness measurement equipment is used on the entry for your line?

**X-ray gauge**

- 1. How long have you had these instruments? 2 years
- 2. What is their expected lifetime? \_\_\_\_\_ years, or
- 3. How much longer do you expect it to last? 30 years

E. Rate the relevant importance of the following attributes of a substrate thickness measurement equipment for your galvanizing line:

1. Distribute 10 points among the 3-4 most important factors, such as:

<u>2</u>	Non-contact	<u>2</u>	Speed	<u>3</u>	Overall accuracy	<u>3</u>	Reliability
<u>7</u>	Self-diagnostic features			<u>10</u>	Large air gap	<u>13</u>	Price
<u>16</u>	Avoiding licensing/regulatory requirements for sensor						

- 2. If speed is one of the above factors (in Item D above) and is rated 4 or better, what speed of response time is required?  <20 ms  >20 ms but < 100 ms  >100 ms
- 3. If accuracy is one of the above factors (in Item D above) and is rated 4 or better, what speed of response time is required? \_\_\_\_\_ +/-??? \_\_\_\_\_ +/-??? \_\_\_\_\_ +/-???
- 4. If air gap is one of the above factors (in Item E.1 above) and is rated 4 or better, how far away from the substrate does it need to be? \_\_\_\_\_ inches

F. How do you currently verify that your metallic coating weight meets your customer demands?

- Off-line  On-line measurement

1. If on-line measurement, what type of coating weight measurement equipment is used?

**X-ray gauge**

G. What are the consequences of out-of-tolerance coating weights?

- Downgrade  Scrap  Other, specify:

H. Does the accuracy of the gauge of the incoming substrate impact on the production of advanced high strength steels such as Dual Phase, TRIP, etc? **Don't Know**

I. Comment for V: **Off-gauge strip and coating weight non-compliance are very minimal events, and these products are downgraded with customer concurrence.**

**VI. IN-LINE CLEANING**

- A. Do you have any significant concerns regarding your in-line cleaning capability? **No**
1. Does excessive incoming strip surface carbonaceous residue or iron ore fines make cleaning difficult and inconsistent? **No**  
(a). If YES, which is the problem?
  2. Are you seeing more coating problems related to residual oils, greases, and iron ore fines, etc. on the strip than you would like to see? **No**  
(a). If YES, which is the problem?
  3. Does maintenance and reliable operation of the in-line cleaning equipment present real quality and cost problems? **No**
  4. Is the disposal of spent cleaning solutions an environmental headache? **No**
  5. Do you have any other particular concerns regarding your in-line cleaning equipment? **No**  
(a). If YES, describe:
- B. Comment for VI: **This coating line receives substrate from a 5-stand tandem mill coupled to a pickle line, and this material is already very clean. They have an electrolytic section at the entry end and an alkali scrubber section in the furnace section.**

**VII. CHEMICAL COATINGS**

A. Total Linear Feet

1. Total linear feet of galvanized (zinc coated) steel: 46,158 per year
2. Total linear feet of zinc/aluminum coated steel: 0 per year
3. Total linear feet of metallic coated steels: 46,158 per year

B. Passivation:

1. 70 % of total zinc coated (galvanize) steel that is passivated  
(Indicate per cent of this passivated with:)
  - a. Hexavalent chrome: 75 %
  - b. RoHS compliant passivates: 25 %  
(RoHS compliant passivants are for example: Trivalent Chrome and Chrome-free)
2. \_\_\_\_\_ % of total zinc/aluminum coated steel that is passivated  
(Indicate per cent of this passivated with:)
  - a. Hexavalent chrome: \_\_\_\_\_ %
  - b. RoHS compliant passivates: \_\_\_\_\_ %

C. Acrylic Coating:

1. 0 % of total zinc coated (galvanize) steel that is coated with an "Acrylic coating"
2. \_\_\_\_\_ % of total zinc/aluminum coated steel that is coated with an "Acrylic coating"

D. Comment for VII: **The process section includes systems for the application of phosphate and chromate. Customers specify the coating requirements.**

**VIII. MAJOR PROBLEMS / ISSUES**

- A. What is the biggest problem or major issue regarding the present or future of your galvanizing operating in general  
**None for this discussion.**
- B. Do you have any "must do" projects planned for this galvanizing line? **No**
  - 1. Describe:
- C. What changes will be necessary (needed) to address this?
- D. What plans do you have to address these needs?

a. Scope	b. When?	c. Selected or Considered	d. Planned or Considered	e. Is money approved?
1.				
2.				
3.				

a. Comment:

- E. How would you rate the status of the overall drive system of the line (on a scale of 0-10)? 10
- F. Comment for VIII: **This line has no problems or major issues.**

**IX. ASSESSING THE ADEQUACY OF THE GALVANIZING LINE EQUIPMENT**

- A. Is this Galvanizing line or the Galvanizing facilities at this plant adequate for your needs? **Yes**
  - 1. If NO, why not?
- B. When the galvanized market has sufficient demand strength, do you experience any furnace-related bottlenecks for some portion of your product mix? **No**
  - 1. If YES, what portion?  
 >75%     50-75%     25-50%     5-25%     <5%
- C. Comment for IX: **Start-up issues have been settled and the line performs very well. This line has all the bells and whistles required for their product line.**

**X. WELDING:**

- A. Do you weld coil-to-coil on this galvanizing line? **Yes**
- B. What type of seam welder is employed on this CGL?  
 Lap seam     Mash seam     Laser     Other, specify:
  - 1. Do you have an "independent" weld control system? **Yes**
- C. How well is your welder performing on your line? (On a scale of 1-10, with 10 the best.) 10
  - 1. If less than 10, please comment:
- D. Is your welder as reliable and fast as you would like? **Yes**
  - 1. If NO, please comment:
- E. Do you planish the weld? **Yes**
- F. What, if any, is the most common problem with the welder? **None**
- G. Are you considering replacing your welder with a faster, more reliable welder? **No**
- H. Comment for X: **They have the latest version of a Taylor-Winfield welder. This welder is very effective and highly dependable.**

XI. WELD INSPECTION

A. What type of weld inspection do you have?  In-line NDT  Off-line  Visual only  Camera

Pyrometer \_\_\_\_\_ Other, specify:

B. Do you planish the weld? **Yes**

C. Do you use process control? **Yes**

1. What type? IBA? **Don't Know**   **X**   Other, specify: **Prop**

2. Is this integrated with weld inspection? **Yes**

D. How many weld breaks have you had over the last 2 years?                   **None**                  

1. What are reasons for the weld breaks?  Off-seam weld  Poor weld

\_\_\_\_\_ Other, specify:

E. Do you have any concerns that the mix of grades/gauges to be made in the future will impose greater demands on the reliability of the weld? **No**

1. If YES, why?:

F. Does this method of weld inspection inspect volumetrically to detect defects? **Yes**

1. What is your opinion about the effectiveness of this method?

**They have a very detailed inspection system that involves diagnostic capability.**

G. If you are not using an in-line NDT method...

1. Why not?

2. Have you ever considered it?

3. Are you considering or expecting a need to make any product mix changes that may impact on the adequacy of the present method of inspection? **No**

4. Would an in-line weld inspection system help you adapt the welding equipment to a variability of substrate grades/gauge changes?

a. Comment: **This inspection system promotes a good quality product.**

H. Are you processing advanced high strength materials such as DP (Dual Phase), TRIP, CP steels? **No**

1. What percent of your current production involves these steels? \_\_\_\_\_ %

2. Do they cause any difficulty in the welding setup?

3. Do you see a higher percentage of breaks?

I. Comment for XI: **They are satisfied with the strip welding and inspection technologies and the total system involved for the operation for their product mix. At this time for new coating line, there is no interest in another system.**

**XII. CORROSION PROTECTIVE COATINGS AND RELATED REFURBISHING OR REPAIR OF PLANT FACILITIES**

A. Do you occasionally experience corrosion problems in tanks, piping, secondary containment areas? **No**

1. What are typical methods employed to repair leaks, extend life in holding tanks, piping, stacks, fume exhaust duct work, etc.? **It was indicated the standard methods for repairs and line maintenance are employed by the plant personnel.**

2. Have you ever contracted with a firm that can do live-on-line leak repairs? **No** **If YES...**

a. Application?

b. When?

c. Contractor:

d. Satisfied ? **If NO...**

(1) Would it be necessary, desirable, or preferred to be able to do live-on-line leak repairs of piping and duct?

3. Have you ever had fiberglass reinforced corrosion resistant polyester or vinyl ester applied as a repair of equipment? **No**

a. Application?

b. When?

c. Contractor:

d. Were you satisfied with the result/cost?

B. At the present time, do you have planned or anticipated requirements for the application of corrosion, secondary containment and other protective coatings and related refurbishing or repair of plant facilities, such as described above? **No**

1. If YES, indicate what application:

Secondary containment coating systems

Water and waste pollution applications

Tank linings

Concrete applications

Food processing plant coatings

General corrosive conditions

Tank coating

Water lines

Acid Proofing

Repairing gas or liquid leaks on steel or fiberglass piping or vessels which are then primed with a phenolic primer, followed by the application of glass reinforced polyester and also apply phenolic epoxy as a finish coat.

Precipitators  Saturators  Final Coolers  Gas Washers  Ammonia stills

Tanks and piping in benzol plant

The interior and exterior of fiberglass tanks

Replaced vent piping in gas holders which were badly corroded

Acid fume exhaust systems, repair or replaced

Industrial flooring

Epoxy flooring

Other, specify:

2. Specifically describe scope:

3. When will an order be placed?

4. Is money approved or allocated for this work?

5. Have you selected a supplier?

a. If not, would would be considered?

b. Would you consider a new supplier? .

C. Comment for XII: **The respondent said he is responsible for maintaining the line and knows there are no corrosion issues that would required these services.**

*XIII. DECISION MAKERS*

A. Who is (are) the person(s) that would make decisions regarding the galv line inspection system?

1. Contact 1 **John Doe**

Title: **Operations Manager**

Phone:

Fax:

Email:

2. Contact 2:

Title:

Phone:

Fax:

Email:

B. General Comment: **They have an established team concept that is involved in decision making.**



XIV. Galvanizing Line Furnace

A. Furnace Supplier/Manufacturer: **Drever**

B. Type of furnace:  DFF (direct fired with some radiant tube)  Other, specify:  
 ART (all radiant tube)

C. Type of radiant tubes:  U Type  W Type  DP Type  
 Other, specify:

D. Quantity of radiant tubes: **120**

E. Comment for XIV: **Vertical furnaces normally use only radiant tubes for heating the strip and then it goes into the annealing section.**

XV. Opportunities for Providing Outsourced Service & Technical Support

What kinds of outsourced service or technical support are needed or are being considered?

Scope of Service - P-Present, N-Needed, C-Considered	a. Would you expect this to be provided by a local (L) or OEM (O)?	b. Would you expect this to be provided by a time defined service contract (SC) or on a case-by-case (CBC) basis?
A. <b>Roll Coating (P)</b>	<b>L</b>	<b>CBC</b>
B. <b>Roll Grinding (P)</b>	<b>L</b>	<b>CBC</b>
C. <b>Refractories (P)</b>	<b>L</b>	<b>CBC</b>

D. Comment for XV: **They prefer to outsource all services for the galvanizing line. The work required is performed by approved suppliers on an as needed basis. They try to establish a firm price which is then negotiated if a change is requested. They use mainly independent suppliers versus the OEM.**

XVI: Competitive Analysis

A. Who do you consider to be the leading galvanizing furnace/line that would be considered for new equipment?

1. **Drever**
- 2.
- 3.

B. What are the most important factors in selection of a galvanizing / furnace line equipment supplier?

(Distribute 10 points among the most important factors.)

  4   Project Performance        3   Track Record      \_\_\_\_\_ Innovation      \_\_\_\_\_ Price  
  3   Technical Support & Service      \_\_\_\_\_ Financial Stability      \_\_\_\_\_ Equipment Quality  
 \_\_\_\_\_ Other, specify:

C. How would you rate the best 3 of the above suppliers? (On a scale of 1-10)

Supplier Factor	Supplier #1: <b>Drever</b>	Supplier #2:	Supplier #3:
Project Performance			
Track Record			
Innovation			
Price			
Tech Support Service			
Financial Stability			
Equipment Quality			
Other, specify:			

D: Comment for XVI: