



Sheet Processing and Finishing Lines

A Practical Training Seminar

17–21 September 2017
Ypsilanti, Mich., USA
Ann Arbor Marriott Ypsilanti at Eagle Crest





About the Program

This seminar will provide a comprehensive overview of process lines, including types of process lines — pickling, annealing, galvanizing, cleaning, plating, painting, skinpass rolling, leveling, slitting and special processes. This seminar will also focus on terminal equipment for the entry and exit sections, strip quality assessment, industrial hygiene, safety, environmental concerns, overview of modeling for design and line control, operations, maintenance, and factors to consider in configuring a new process line. There will be many opportunities to discuss issues and problem solving during the question-and-answer periods.

Who Should Attend

Those who would like to expand their knowledge and understanding of process lines: new and transferred employees of steel producers; mechanical, electrical, process and metallurgical engineers; software and process control personnel; maintenance personnel; operators; and quality assurance specialists. Equipment manufacturers, employees from steel processors and steel service centers, suppliers, and customers of steel producers will also benefit from this seminar.



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Organized By

AIST's Rolling and Processing Technology Division.

Schedule of Events

Sunday, 17 September

4 p.m.

Registration

5 p.m.

Welcome Reception

Monday, 18 September

7 a.m.

Registration and Continental Breakfast

8 a.m.

Introduction and Opening Remarks

Chad Donovan, SMS Technical Services LLC

8:15 a.m.

Overview

Terry Charters, Stelco Inc.

8:45 a.m.

Pickling

Bob Garness, SMS USA LLC

Pickling theory for carbon and stainless steel, variables to be considered when sizing a process section, description of equipment required and consideration of the terminal equipment.

10:45 a.m.

Annealing

Bill Lucas, Ebner Furnaces Inc.

This session will cover various aspects of steel annealing as it pertains to strip, starting with the reasons for

annealing and the various levels of annealing. A discussion of the thermal cycles that are utilized to allow control of the material properties follows. The equipment employed to process the strip will be covered. Methods of heating, cooling and strip conditioning will be reviewed in greater detail. Advantages and disadvantages of these methods will be included. Also needed is consideration of proper atmosphere for the desired surface conditioning of the strip. Some discussion on the materials utilized in the equipment is of interest for suitable performance. The influence on strip shape and uniformity of material properties is an important aspect to the selection and utilization of components. Control methods for the equipment and process are included, as well as considerations for maintenance of the components utilized.

Noon

Lunch

1 p.m.

Galvanizing

Ned Kohler, Danieli Corp.

2:45 p.m.

The Chemical and Mechanical Process of Steel Strip Cleaning and How to Enhance Performance

Stephanie Williamson, Quaker Chemical Corp. Steel strip undergoes cleaning for the removal of process fluids, metal fines, and surface residue prior to various downstream processing and finishing applications. A clean metal surface is necessary for these applications, including annealing, metallic coating and painting. Before enhancing cleaning performance, it's important for operating personnel to understand the general framework for chemical and mechanical strip cleaning. There are three basic mechanisms of cleaning: physical interaction, chemical reaction and physical energy. Physical interaction and chemical reaction are related to the functionality of the individual components in the cleaner formulation. Conversely, physical energy is imparted by the mechanical equipment of the cleaner line. Once this general framework is learned, ways to optimize cleaner performance through solution chemistry control and equipment design will be discussed.

3:45 p.m.

Plating

Christopher Duque, ArcelorMittal Dofasco Inc. This presentation will provide an overview of the tin and tin-free steel (TFS) plating process. This will include an overview of the processes involved in: pre-plating, plating, and finishing of tin and TFS steel.

5 p.m.

Question and Answer Session

Tuesday, 19 September

7 a.m.

Breakfast

8 a.m.

Painting and Paint Lines

Chuck Parks, Precoat Metals

This brief overview of the coil coating market will discuss: market size, market segments, applications, features and benefits. The presentation will also feature an overview of the coil coating process, present a typical coil coating line in detail, discuss coating technologies utilized and why, and review representative testing and test methods.

9 a.m.

Skinpass/Temper Rolling

Michael Peretic, SMS USA LLC

This presentation will discuss objectives for skinpass/temper rolling. It will also give an overview of typical mill equipment and recent developments to enhance sheet quality and productivity.

10 a.m.

The Latest Roller, Stretcher and Tension Leveling Technology

Dave Withrow, Allor Manufacturing Inc.

The three primary types of levelers now in common use will be described, including their theory, performance, benefits and shortcomings. Also discussed will be the impact the new high-strength metals impose on the existing machines, and what new machine parameters will be required to effectively process these new materials.

10:45 a.m.

Slitting and Sidetrimming

Cesar Martin, SES-Salico

This presentation will feature a description of the slitting/sidetrimming process, typical layout and operation considerations. Challenges of market trends (materials, legislation) on designs and new solutions derived from these will also be discussed.

Noon

Lunch

1 p.m.

Entry Equipment — Accumulators and Tension Reels

Bob Garness, SMS USA LLC

Function, location and different designs for entry-end terminal equipment in a process line depend on the application and the material to be processed. Types of welders and their use in the various types of lines including other equipment associated with the welder.

1:45 p.m.

Entry Equipment — Coil Joining

Matt Keller, Taylor-Winfield Technologies Inc.

Overview of processes and equipment utilized in the coil joining process in sheet processing and finishing lines. To include resistance seam and spot, plasma, mig, and laser welding.

2:15 p.m.

Welding Inspection for Coil Joining

Frank Weinmeister, Innerspec Technologies Inc.

This presentation will discuss electromagnetic acoustic transducer UT inspection and the advantages it provides for automated weld inspection in industrial environments.

3 p.m.

Exit Equipment Oiling

Bob Garness, SMS USA LLC

3:45 p.m.

Automated Coil Marking and Tagging

Ron Workman, Infosight

Steel producers identify coils in order to have the information about the steel's characteristics when it is later used to make specific products and to validate product metallurgy in case of liability issues. Automated coil identification is a common practice in today's steel mills as it improves operator safety and quality control by removing the risk of human error. The reduction in hidden costs associated with misidentified steel coils can justify the implementation of automated coil identification technology.

4:15 p.m.

SmartView Surface and Slit Edge Inspection

Ametek

This technical presentation will feature real-world results of automotive finishing production lines utilizing both surface inspection and slit edge inspection technology.

4:45 p.m.

Question and Answer Session

5 p.m.

Reception

Wednesday, 20 September

7 a.m.

Breakfast

8 a.m.

Strip Quality Panel Discussion

Moderator: Peter Urcheck, Big River Steel

Panelists: Ron Radzilowski, AK Steel Corp.; Amy Woods, Steel Dynamics Inc. – Flat Roll Group Butler; Stavros Fountoulakis, ArcelorMittal Global R&D – East Chicago

Different perspectives of current and future customer quality requirements, subtle defects, and inspection needs.

10:15 a.m.

Health, Safety and Environment

Bob Carter, Big River Steel

Noon

Lunch

1 p.m.

Process Lines Design Fundamentals

Dave Withrow, Withrow Industries Inc.

To ensure the success of a process line, its performance requirements must be integrated fully with its setting, and the strip driving power must be ample.

2:45 p.m.

Modeling for Control

John Ingram, Primetals Technologies USA LLC

Introduction to control concepts used on process lines with practical examples to illustrate control design.

4:15 p.m.

Question and Answer Session

Thursday, 21 September

7 a.m.

Breakfast

8 a.m.

Controlling Risk by Reducing Human Error

Doug Robey, GP Strategies

Human error has been shown to be a significant contribution in most accidents and asset defects. Risks can be managed through a structured operator training program along with a strong M&R process.

10:45 a.m.

Modifications of the Dearborn Galvanizing Line to Produce Next-Generation Steel

Robert Comstock, AK Steel Corp.

In 2011, a new galvanizing line was constructed in Dearborn, Mich., USA. AK Steel purchased this line with the Dearborn Works in September 2014. In September 2015, this line was modified to produce AK Steel's NEXMET™ advanced high-strength steels. A description of the modification will be given.

11:45 a.m.

Box Lunch and Plant Tour of AK Steel – Dearborn Works

4 p.m.

Conference Adjourn

Registration

AIST Members

US\$995

by 7 August 2017

US\$1,095

after 7 August 2017

Non-Members

US\$1,210

by 7 August 2017

US\$1,310

after 7 August 2017

Registration Includes

Welcome reception Sunday, continental breakfasts Monday through Thursday, lunches Monday through Wednesday, reception Tuesday, plant tour with bus transportation, and a course workbook or flash drive including presentations.

Hotel Accommodations

A block of rooms has been reserved at the Ann Arbor Marriott Ypsilanti at Eagle Crest. Please call the hotel at +1.800.228.9290 by 24 August 2017 to secure the AIST discount rate of US\$142 per night for single/double occupancy.

Featured Plant Tour

AK Steel – Dearborn Works



Upcoming Events

- > Steel Mill Combustion and Thermal Systems
21–23 March 2017
The Holiday Inn Nashville-Vanderbilt Downtown > Nashville, Tenn., USA
- > International Symposium on New Developments in
Advanced High-Strength Sheet Steels
30 May–2 June 2017
Keystone Resort and Conference Center > Keystone, Colo., USA
- > 24th Annual Crane Symposium
11–13 June 2017
The Omni William Penn > Pittsburgh, Pa., USA
- > Managing Technology — Big River Steel
12–14 September 2017
Sheraton Memphis Downtown Hotel > Memphis, Tenn., USA



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