SFSA CASTEEL REPORTER

Steel Founders' Society of America

a publication serving
SFSA steel casting industry Members

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March — 2017

Casteel Commentary

Steel casting producers need to be seen as valued members of their community, contributors to our standard of living and advanced in technology. One approach is to make our companies exemplars of clean, friendly and smart manufacturing. The Casteel Commentary this month introduces the possibility of transforming our image through ordinary improvements that will better our financial results as well as our value to our community.

SFSA Luncheon at Metalcasting Congress

SFSA is hosting a lunch for members and invited guests at the AFS Metal Casting Congress on Wednesday, April 26 in Milwaukee. Lunch will be at the Wisconsin Center, Room 101B, starting at 11:30AM. This will be an opportunity to network with other SFSA members and participate in a steel foundry roundtable discussion after lunch. Registration is required: SFSA Luncheon. For more information, please contact Diana David, ddavid@sfsa.org.

Steel Casting Technology Course

SFSA, in partnership with Tom Stevens (long-time steel foundryman and co-editor of the Steel Casting Handbook 6th edition), is offering a new opportunity with a four-session course on technical and operating aspects of steel foundries. The course covers the casting processes of design engineering, molding, melting, heat treatment, finishing, inspection and all processes necessary to produce a cost effective, high quality product. It is designed to introduce new technical foundry personnel (which may include engineers, metallurgists, sales personnel, quality technicians, operation managers, etc.) to manufacturing steel castings. Attendees will need to be participate in 4 two-day classes for the course on April 19-20, May 24-25, June 21-22 and July 26-27. Class size is limited to the first 18 registrants with early bird pricing ending March 31st (register online at sfsa.memberclicks.net). For additional information, please contact David Poweleit at poweleit@sfsa.org.

Spring Leadership Meeting

Please plan to attend the SFSA Spring Leadership Meeting scheduled for May 17 in Pittsburg, PA at the Hotel Indigo. There is no cost to attend this meeting but registration is required. Please register here: 2017 Spring Leadership Meeting. For additional information, please contact Ryan Moore: rmoore@sfsa.org.

This year's program will begin with a tour of McConway & Torley the morning of the 17th followed by presentations of interest to foundry senior management and marketing personnel. In addition to an industry roundtable session and economic update, presentations topics also include:

- Dan Salak, ASK Chemicals – Global Perspective of the Casting Markets
- Rob Gorham, America Makes – Current and Future Trends of Additive Manufacturing
- Martha Guimond, Guimond & Associates – Industry Standard of Care for Silica Compliance
- Jack Harris, PDES Inc. – Industry 4.0 for SME's

The SFSA Executive Committee and Board of Directors will meet the day prior on May 16th and the Marketing Committee will meet in the morning on Thursday, May 18th. We invite everyone to stay after the program to participate in the marketing committee meeting.

AGENDA	HOTEL
Tuesday May 16 10am-12pm - Executive Committee Meeting 12pm-5pm - Board of Directors lunch and meeting 6pm - dinner TBD Wednesday May 17 8am-11am – McConway & Torley tour 11am - 5pm - Spring Leadership Lunch & Meeting 6pm - dinner TBD Thursday May 5 8-11:00am- Marketing Committee Meeting	Steel Founders' Society of America Room Block Hotel Indigo 123 North Highland Avenue Pittsburgh, PA 15206 (412) 665-0555 Group Room Rate: $129 May 15-19 **Reservation Cutoff Date: April 24, 2017**

Finishing Operations for Steel Castings Meeting

Finishing is instrumental to manufacturing steel castings. Cutting off gates and risers, or grinding of parting line or removal of other surface features to shape castings can all be done in the finishing department. Methods range from oxy-acetylene torches, to arc-air gouging, to plasma cutting, to grinding methods, to cut-off wheels, and bandsaws. This meeting will be focused on best practices and opportunities for improvement. Similar to the EAF meeting in 2016, floor supervisors would be encouraged to attend and participate in the collaboration during the roundtable discussion. This subject-focused meeting will be held in Pittsburgh on May 18th-19th. Contact David Poweleit, poweleit@sfsa.org, with any questions.

Technical & Operating Conference Best Papers

SFSA would like to congratulate the best paper winners from the 2016 T&O Conference. The recipients are:

- Mauricio Torres, McConway & Torley - Robert G. Shepherd Best Paper Runner-up for his paper on “A New Approach to EAF Melted Steels”
- Levi Knowlton, Harrison Steel Castings - Robert G. Shepherd Best Paper for his paper on “Heat Treat Furnace Rebuild with Programmable Logic Controller Driven Preventative Maintenance and Total Production Maintenance Tasks on the Human Machine Interface”

The T&O Committee is honored to showcase these papers by making them available at https://www.sfsa.org/to. We appreciate the support provided to the steel casting industry through papers such as these. To receive the full conference proceedings and hear the authors firsthand present their material, please make plans to attend the 2017 National T&O Conference on December 6th – 9th.

Clean Steel Webinars

What are inclusions, why have they always been a problem for all steel production, and what can be done to resolve problems with them? These are the questions SFSA has investigated over the past few decades under its Clean Steel programs. This new webinar series focuses understanding the history of clean steel along with the practical application of technology to address inclusions in a steel castings. The third webinar in the series will be on Tuesday, March 28th. If you missed the first two Clean Steel webinars, you are not too late as you can view a recording of them at http://wiki.sfsa.org/index.php/SFSA_Webinars. To be added to the list for notifications of future webinars or for additional information, please contact Ryan Moore at rmoore@sfsa.org.

Silica Standard

Industry groups opposing the new silica regulation filed a joint motion in February to extend the comment period by 60 days to give the Trump Administration additional time to review the regulation. It is unclear what impact the legal challenge will have on the final rule, but SFSA is working proactively as waiting for the dust to settle (pun intended) may be too late to achieve compliance. With that, SFSA formed a silica subcommittee to establish an industry standard of care for best practice engineering controls, work procedures, and feasibility for controlling and mitigating silica exposures. Regardless of the outcome of the final regulation, this data to support an industry best practices enables SFSA members to demonstrate to OSHA what is feasible or infeasible rather than OSHA making that determination for our members. While we are hoping for a revised rule that is much more technologically and economically reasonable, the goal of the Society is to develop the resources to make it easier for our members to be compliant to the final regulation.

International Foundry Forum

SFSA participated in the 2016 International Foundry Forum (IFF). The following topics were discussed at the meeting:

- The Iranian Market – Potential macroeconomic changes such as additional oil on the market but also additional market demand for products.
- Global Economy and the Situation of the Foundry Industry – Forecasted $50-60/bbl oil in 2017. Cost for fracking has come down. Increase growth in Spain and Turkey (iron & steel). Iron & steel in China has quadrupled in last 15 years (seeing a shift in gray to ductile iron). OEM's acquiring foundries (automotive shift from iron to aluminum).
- Opportunities and Chances of Additive Manufacturing, a General Overview – Noted ability for freedom of design (same benefit as casting).
- The Digital Transformation: Chances and Challenges for the Foundry Industry – Cyber Physical Systems (CPS) is the digital transformation or Industry 4.0, which also includes Lean. Same as our Smart Manufacturing, Digital Thread, or Internet of Things.
- Non-Ferrous Castings in the Electrical Industry – Drive to automation (robots) including foundry-specific robots. Development of third party software for communication.
- Casting Development in Machine Tool Industry – Castings are the foundation of machine tools. Proposed AM is a concern for the foundry industry.
- Key Note: The Future of Mobility – Electromobility or the electronic drive system. Potential for data centers and autonomous driving.
- World Foundry Industry: General Overview – China is 12% steel castings. China exports only 10% of production. Growth seen in "MINT" countries (e.g. Nigeria).
- World Foundry Industry Roundtable – Energy cost in Europe is 2X. Concerns worldwide with image of industry and attracting employees.
- Smart Foundry – One foundry's experience with investing to make their foundry an Industry 4.0, which required a substantial financial investment. Decision was enabled as the foundry was captive and a long-time family-owned company; thus, it was a decision more about the future and drive for advancement versus a specific ROI.

Contact David Poweleit, poweleit@sfsa.org, for more information.

Market News

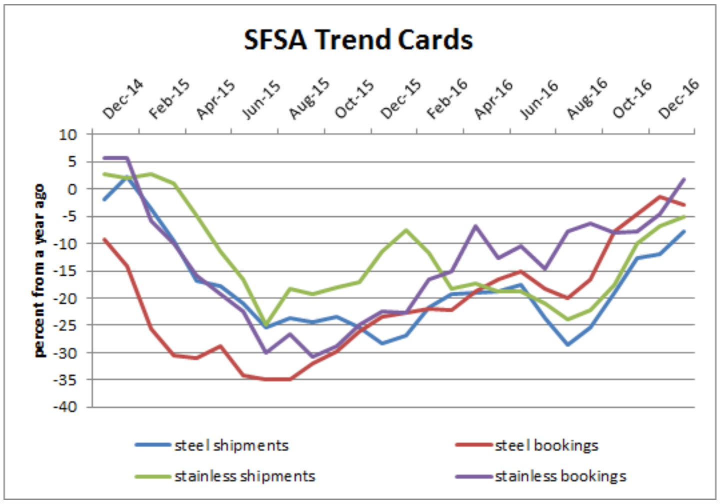

Figure 2

Following the trend already evident in the steel mill trends for this year, steel casting orders and production shows improving conditions in our industry. Bookings shipments and backlog are all better than January a year ago. Backlog rose from 6 weeks to 8 weeks indicating improved demand for steel castings. Bookings of steel and stainless steel castings trend are more positive than shipment trends. The continued higher prices of copper and oil combined with improving steel production suggests that demand for steel castings is continuing to improve.

The orders and shipments of non-defense capital goods new orders that are highly correlated with annual steel casting sales has shown improvement since the beginning of the year.

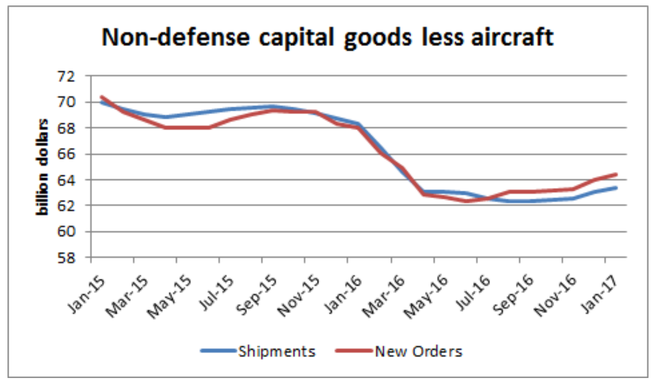

Figure 1

Steel production reported by AISI and sales of iron and steel castings are improving as seen in Figure 3. This improvement in steel production levels is seen even more strongly in the weekly numbers posted each week on the SFSA website.

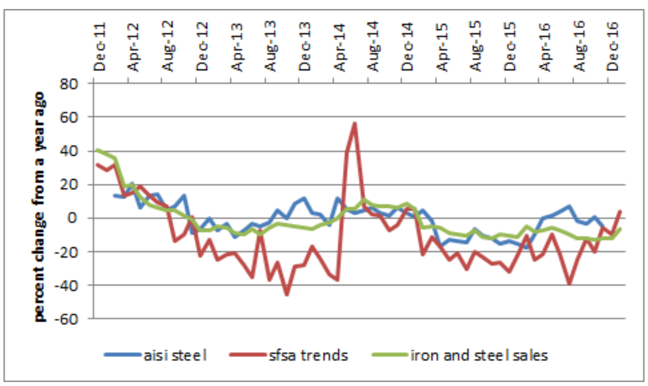

Figure 3

The new administration has indicated their support for policies like reregulation, support for manufacturing, helpful trade policies and increased infrastructure investment that should benefit our industry. This plus a renewed optimism in the marketplace could lead to a stronger market that we have anticipated for 2017.

Casteel Commentary

I am reminded with all the buzz about smart manufacturing and Industry 4.0 about an earlier effort I was involved with at the Department of Energy. As the energy-intensive industries were trying to position our sectors as being critical for the nation, we developed the idea that traditional industries such as steel foundries needed to work to change our industry's reputation. Traditional industries were seen as the three "D's"; dirty, dark and dangerous. We finally agreed that we needed to be seen as being clean, friendly and smart.

Our industry has made huge progress in cleanliness but we still are often not communicating that improvement in understandable ways. 5S programs institutionalize the need to be clean, "shine". We need consistent 5S behaviors but also an obsessive focus on housekeeping and landscaping. The appearance of our foundry from the street is key to managing our reputation.

Housekeeping and landscaping helps make our business friendly. We need the support of our neighbors and community. Our plant should be looked at as an asset to our region, a place of pride and value. Our recruiting, internal culture and external relationships should reflect our values. These should demonstrate us as a friendly place.

Smart includes but is not limited to information technology. Smart includes a thoughtful approach to everything we do as an organization. We need to look broadly across the organization to see where we can be smarter in what we do. The development of cheaper sensors and networks allows us to begin to know what our costs and productivity are in even custom manual operations. We need to develop the smart finishing area that allows us to understand our production, and improve quality and profitability.

Clean, friendly and smart should be our motto as an industry.

Raymond

STEEL FOUNDERS' SOCIETY OF AMERICA
BUSINESS REPORT

SFSA Trend Cards (%-12 mos. Ago)	12 Mo Avg	3 Mo Avg	January	December	November
Carbon & Low Alloy					
Shipments	-16.3	-3.8	4.0	-10.0	-5.5
Bookings	-10.4	3.2	15.0	0.0	-5.5
Backlog (wks)	6.6	6.7	8.0	6.0	6.0
High Alloy					
Shipments	-14.7	-3.0	1.0	-10.0	0.0
Bookings	-6.6	2.9	5.0	0.0	3.7
Backlog (wks)	6.5	6.7	8.0	6.0	6.0
Department of Commerce Census Data					
Iron & Steel Foundries (million $)					
Shipments	1,461.9	1,430.7	1,441	1,434	1,417
New Orders	1,505.7	1,478.0	1,416	1,480	1,538
Inventories	2,063.8	2,023.0	2,022	2,023	2,024
Nondefense Capital Goods (billion $)					
Shipments	71.5	71.6	72.1	72.2	70.5
New Orders	69.7	66.6	69.1	66.5	64.3
Inventories	170.6	170.5	170.4	170.7	170.5
Nondefense Capital Goods less Aircraft (billion $)					
Shipments	62.9	63.4	63.6	63.9	62.8
New Orders	63.2	64.5	64.6	64.7	64.1
Inventories	118.7	119.2	119.5	119.4	118.8
Inventory/Orders	1.9	1.8	1.85	1.85	1.85
Inventory/Shipments	0.5	1.9	1.88	1.87	1.89
Orders/Shipments	0.3	1.0	1.02	1.01	1.02
American Iron and Steel Institute					
Raw Steel Shipments (million net tons)	7.3	7.2	7.7	7.2	6.7