SFSA CASTEEL REPORTER

Steel Founders' Society of America

a publication serving
SFSA steel casting industry Members

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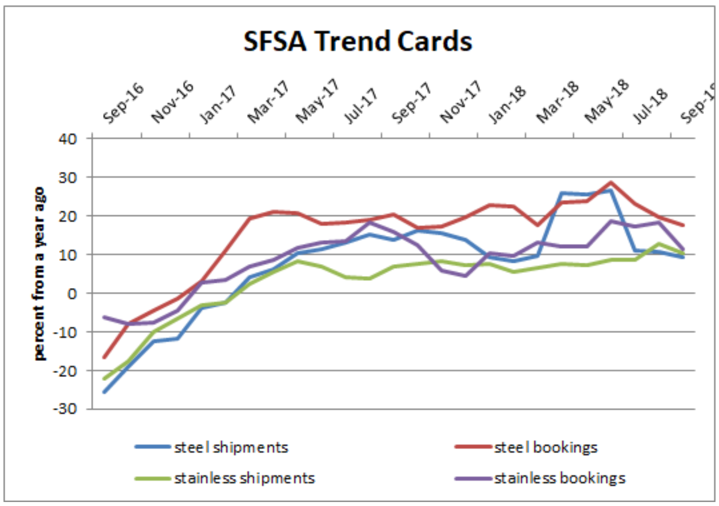
Casteel Commentary

The Casteel Commentary focusses on the challenge of developing the next generation workforce. It argues that we will have a persistent problem finding capable workers and our future will require developing smart automation to replace many of the manual operations common in our current plants.

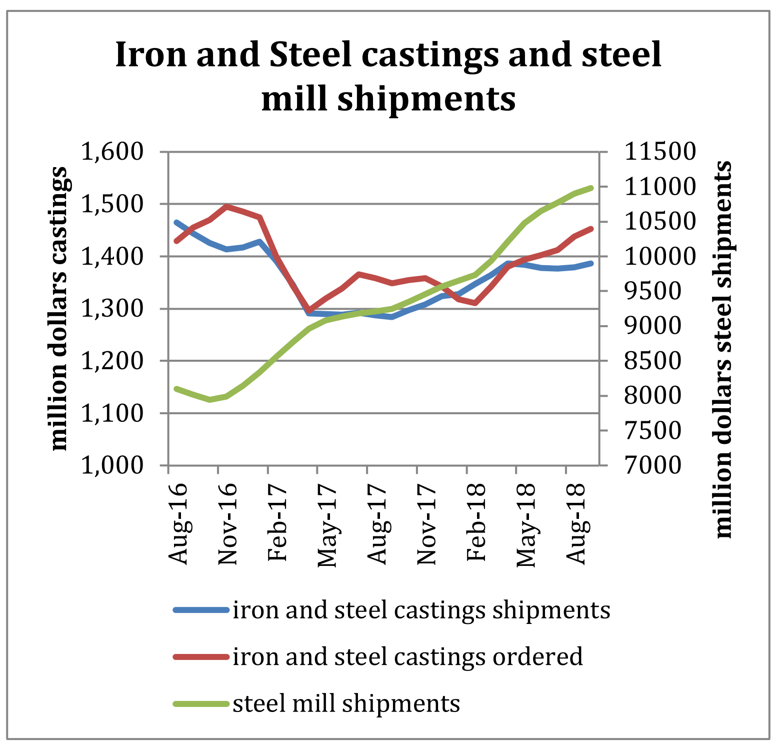
Market Commentary



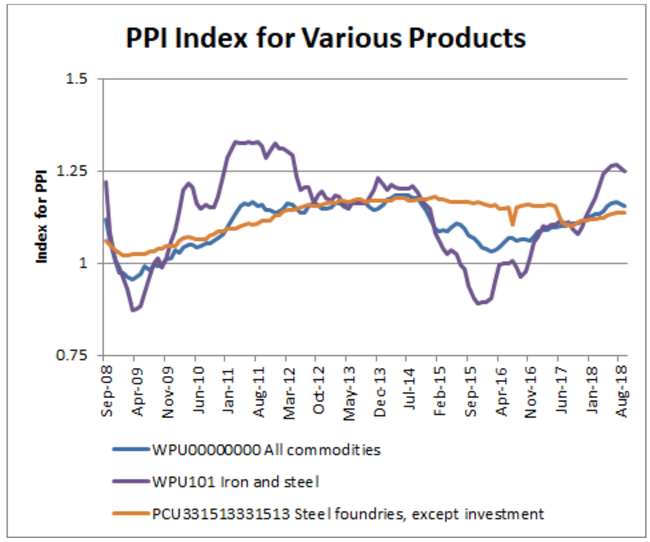
Steel casting production has continued to grow at double digit rates YoY. Bookings still lead shipments for both steel and stainless steel. This suggests continued growth in demand. The challenge as discussed in the Commentary this month is the lack of adequate additional workers to expand production to take full advantage of increased demand.

This inability to meet demand with our labor pool is seen in the increase in backlog, steel at 9 weeks and stainless at almost 10 weeks.

This general improvement in sales and demand is reflected in the Department of Commerce reports on the shipments and orders of iron and steel casting. This is mirrored in the increase of shipments for steel mill products. Non-defense capital goods shipments and new orders also continue to rise. This suggests that the current demand trend of strong markets is likely to continue.



The steel casting industry pricing according to the reported ppi numbers for our industry, is less volatile than the steel mill products. In the 2008-2009 financial crisis, steel foundry price erosion was less than all steel products and less than the ppi drop for all commodities. In the rapid recovery from that crisis, steel castings did not see the sharp increases seen by other steel products. In the slowdown in late 2015 and early 2016, steel casting ppi numbers did not fall like other steel products or like all commodity ppi. Since the recovery in steel products from 2016 on, steel products have seen sharp increases not seen in the ppi of steel casting products. Steel casting ppi changes now are a close match to all commodities.



Overall, pmi numbers and consumer confidence suggest continued expansion. Even beyond the consumer and general economic numbers, the higher prices of copper and oil should support steel casting demand. Those prices have seen some downward adjustment and should give us some concern although they remain at levels adequate for production and investment in energy and mining. They are also good indications of general investment in the capital goods markets that are critical to the steel casting industry.

National T&O Conference

There's still time to register for the SFSA National Technical & Operating Conference, December 5-8, at the Loews Hotel in Chicago. Supported by the steel foundry members that make up the Steel Founders' Society of America, the T&O conference is the premiere steel casting event in the world. 2018 marks the 72nd conference, which will continue the legacy of technical and operating topics of today that will provide value to the industry for many years to come. This year's workshop will be "Learn from the Legends"; discover tricks of the trade from numerous honorary members of the society. These steel casting subject matter experts (SMEs) will share their experience on topics including quenching, foundry management, casting failure analysis, high strength steel, modulus, and Monel. The conference program includes a session focused on silica sand, and many more papers covering everything from melting to foundry engineering to molding to finishing to management to quality to technical & featured research.

Cast In Steel Competition

SFSA is excited to launch a new steel casting competition for university students called *Cast In Steel*. The competition is to challenge students to use the steel casting process to design and cast a high-performance Viking axe head, which will be evaluated and tested by steel industry leaders – similar to the History Channel show, *Forged In Fire*. Additional information may be found on our website: https://www.sfsa.org/castinsteel. One of the requirements is for the student teams to partner with a SFSA member foundry for technical support. If you are interested in supporting a student team, or have any questions regarding the contest, please contact Raymond Monroe, monroe@sfsa.org.

High Alloy Inclusion Class

SFSA's first subject-focused meeting of 2019 will be a class taught by Tom Stevens on High Alloy Inclusions in Guadalajara, Mexico on Tuesday and Wednesday, February 26-27, 2019 with tours of Fimex and POK on Thursday, February 28. The class will cover practical experience, past SFSA research, formation of high alloy inclusions, control from melting through pouring & gating, and problem solving. Please mark your calendar and look for more details to come.

GIFA 2019

Next year marks the return of the world's largest foundry show. GIFA is being held in Dusseldorf, Germany June 25-29, 2019. SFSA is arranging for foundry tours in France the week before (week of 6/17) and will be attending GIFA. Unfortunately, we were unable to secure a block of rooms near Dusseldorf due to the demand for the conference. We have booked at the Crowne Plaza (details below) tentatively from 6/23 to 29, and would recommend you setup a reservation here or nearby to participate as a group and to best take advantage of transportation logistics (tour bus will use this location and it is easy to take public transportation to GIFA and the airport). More details will be coming in the next few months.

Hotel Info:

Crowne Plaza Dusseldorf - Neuss

Rheinallee 1, Neuss | 41460 | Germany | 49-2131-7700
You can book online – click the link above

OR contact Melanie Schlopers, she will be happy to assist with reservations as well. Her contact details are as follows:

Melanie Schlöpers
Reservation Agent
Tel: +49 (0)2131 77 1801 | Fax: +49 (0)2131 77 1356
E-Mail: melanie.schloepers@gchhotelgroup.com

SFSA/AIST Spain Tour 2018

With the help and support of colleagues at CAEF (Committee of Associations of European Foundries) and FEAF (Federación Española Asociación Fundidores), the joint SFSA/AIST Spain Tour held on June 23-29, 2018 was a success. There were 15 participants from the US, Mexico, Canada, France, and the UK. The group visited 7 steel foundries and 1 steel mill in northern Spain. A study tour report was published in the October edition of Iron & Steel Technology

Fall Leadership Meeting

Save the date! The 2019 SFSA Fall Leadership Meeting will be on September 7-9, 2019 at the Kimpton Shorebreak Resort in Huntington Beach, CA.

Casteel Commentary

Containerization of international freight has made our current structure of trade laws and agreements non-functional. Before containerization, trade was dominated by commodity products and special high value personal or trade items since it was difficult to arrange for regular shipments of small volumes of manufactured goods. With containerization and of course information technology like the internet and smart phones, trade in specialty manufactured goods with low annual volumes are virtually unregulated since there is no recourse for violations of current trade laws.

In the same way containerization has changed international trade, the availability of birth control will change the basic nature of the work force. In the past, large families were seen as a positive and a form of retirement security. Now large families are seen as unaffordable and irresponsible. With smaller families and more prosperity globally, there will no longer be a number of manually capable and non-academically oriented people that will fill and enjoy doing the work of making castings. Even the next generation of immigrants who used our positions as a way to support a family and allow their children to prosper will become increasingly less available.

In fact, our current production environment is a hint at this challenge. Many members are producing as much as they can with the available workforce. The plant is capable of higher levels of production but with the low unemployment rate, the quality of the available workforce and the wage structures we have; we are unable to grow the workforce to increase our production.

Fortunately, we will benefit from the explosion of smart automation that has the potential to transform much of the hard, menial work required to make steel castings.

SFSA is planning to establish an advanced manufacturing committee to develop these advanced smart manufacturing cells for our needs. It seems possible to have a robotic cell that accesses the 3D solid model for an individual part, use vision to manipulate it, have in cell non-contact metrology to identify areas that need to be ground or welded and do those operations without special programing for each part. Artificial intelligence should allow the system to become increasingly more capable of meeting the needs. This would allow our use of robots for lot sizes of one without custom programing for each casting.

Unfortunately, our industry size and special requirements are unlikely to have any firm create this cell on their own. It seems we will need to fund the investment in cell development if we are to realize this opportunity. So, if you are interested in this area, let us know so we can include you in the planning and formation of this activity.

Exciting times!

Raymond

STEEL FOUNDERS' SOCIETY OF AMERICA
BUSINESS REPORT

SFSA Trend Cards (%-12 mos. Ago)	12 Mo Avg	3 Mo Avg	September	August	July
Carbon & Low Alloy					
Shipments	14.9	9.4	8.1	10.0	10.0
Bookings	20.7	16.8	15.5	13.0	22.0
Backlog (wks)	9.0	9.0	8.0	11.0	8.0
High Alloy					
Shipments	8.2	10.4	7.0	16.1	8.2
Bookings	12.0	11.3	11.0	12.0	11.0
Backlog (wks)	9.1	9.9	9.9	10.5	9.3
Department of Commerce Census Data					
Iron & Steel Foundries (million $)					
Shipments	1,359.2	1,370.7	1,339	1,380	1,393
New Orders	1,382.7	1,443.7	1,426	1,472	1,433
Inventories	2,003.8	2,032.3	2,060	2,029	2,008
Nondefense Capital Goods (billion $)					
Shipments	75.9	77.3	79.4	77.4	75.1
New Orders	77.4	78.6	79.2	81.1	75.5
Inventories	178.2	178.8	179.7	177.9	178.8
Nondefense Capital Goods less Aircraft (billion $)					
Shipments	67.5	68.7	68.7	68.7	68.8
New Orders	68.0	69.8	69.7	69.7	69.9
Inventories	124.0	124.6	125.4	124.5	123.9
Inventory/Orders	1.8	1.8	1.80	1.79	1.77
Inventory/Shipments	0.0	1.8	1.83	1.81	1.80
Orders/Shipments	0.0	1.0	1.02	1.01	1.02
American Iron and Steel Institute					
Raw Steel Shipments (million net tons)	7.8	8.1	7.8	8.4	7.9