



SFSA CASTEEL REPORTER

Steel Founders' Society of America

a monthly publication
serving SFSA steel casting industry Members

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August — 2007

Casteel Commentary Highlights:

This month's Casteel Commentary recommends a master facility plan with a provision for ramping up production significantly. Systemic disinvestment for two decades through 2003 creates a unique market opportunity for recapitalization. While it is too early to make the investment because our current returns are inadequate, it will be an advantage to have a vetted plan ready if the market continues to improve and prices justify new investment.

High Alloy Meeting

The High Alloy Product Group meeting is scheduled for October 3-4 at Shell Global Solutions' Westhollow Technology Center. This meeting is a unique opportunity for SFSA members to interact with a significant user of castings. Information is available on the SFSA website at <http://www.sfsa.org/meetings/hapg.html> Attendees must register with Malcolm Blair – if you do not register you will not be admitted to the site.

Energy Efficiency

IEEE is holding an industrial energy efficiency workshop October 22 and 23, in Baltimore, MD. The workshop will bring together industry to discuss manufacturing and processing best practices including electricity, gas, steam and compressed air. The goal is to make the companies involved more energy efficient, produce less greenhouse gasses, reduce downtime and be more productive, resulting in increased profits. Information is available on the

Casteel Reporter web page at <http://www.sfsa.org/sfsa/news>

Safety and Human Resource Meeting

SFSA's Safety Committee is holding an HR and Safety meeting September 18-19 in Atchison, KS. Information has been sent to all SFSA members; if you would like additional information, or to register for the meeting, contact Malcolm Blair.

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Steelmaking Video

The National Association of Manufacturers has a collection of videos that illustrate how products are made, available online at <http://www.coolstuffbeingmade.org>

Of particular interest is a video contributed by US Steel on how steel is made, which covers the process beginning with mining of iron ore. The video is available online at http://blog.nam.org/archives/2006/11/cool_stuff_bein_39.php

Safety

SFSA surveyed our member companies for their efforts to reduce eye injuries particularly foreign particles in the eyes. Participants received a compilation of all the results from the survey. In general, requiring and enforcing the wearing of well fit safety glasses is key. This must be done

not only through enforcement but also by example. Goggles are common in grinding, finishing and other jobs where exposure is greater. Face shields are also common in high exposure areas. Air supply helmets are an aid in preventing injury. Frequent replacement of glasses and goggles helps improve use and safety. No antifogging practices seem to work but this is an area of great interest.

It is important to make sure that other work practices are appropriate. For example, it is necessary to make sure that fans or other air movement does not stir up particles or direct them at employees. Special care is necessary when working inside a large casting. Consideration of fellow workers in welding, arc airing, or grinding operations is helpful. It is important to train employees in removing the equipment so that particles are not dislodged or deposited in the eye. Good personal hygiene, cleanliness, is important.

If injury is suspected, an examination should be made. Workers should be trained to report eye problems and be alert for symptoms of damage.

Innovation

Steel is a remarkable material that continues to be improved. We are still seeing the benefits of modern steel processing that has lowered residual elements like sulfur and phosphorus. Improved heat treatment, better controls on chemistry, and other quality programs are increasing the capability of our material. One of our current research programs is to develop newer higher strength grades of steel that have good ductility and toughness with higher strength levels. A number of developments in alloying, hiping, cryogenic heat treatments, and multiple heat treatments suggest significant improvements can be made. One opportunity for members is to look at their current alloy formulations and heat treatment for updating and modernization. We will doubtless improve our alloys in the research program but we know enough now

to get better performance and deliver more value to the customer.

Specification Note

Many customers have concerns about casting performance. They insist on quality controls and NDE inspections to try and mitigate the risk of casting failure. NDE tests are not predictive of performance and are subjective and non-repeatable. Often a customer selects the most stringent levels for NDE out of ignorance and the perception that any indication found in NDE is a "crack" that will grow. This is naïve in a plastic performing material like most of the steel alloys. Even linear indications are not normally cracks but aligned inclusions or porosity. In fact cracks are forbidden by the general technical delivery conditions of ASTM A781 and A703. Because of this concern the customer will specify the highest quality, the foundry will produce their best castings and these will be tested to qualify the component. Unfortunately this often results in unnecessary inspection and requirements since the tested castings are the basis of design performance. It is often more useful to test a casting that does not quite meet the requirements to demonstrate that any casting that meets the quality specifications will perform adequately.

Market News

The extreme activity of last year during the midyear makes the year over year comparisons of the SFSA Trend Cards seem negative. In reality, the markets have softened relative to last year but only moderately. Shipments have continued to grow while orders are not keeping pace with activity last year. At the same time however, our results for backlog are increasing showing underlying strong market conditions.

The activity for iron and steel castings reported by the DOC Census shows an improvement in orders and shipments for the month of May. This is also the trend in steel products reported by AISI. These are more closely tied to the consumer economy

and are likely the result of improving conditions in the general economy. Weakness in the housing market may take a significant toll on these market segments in the balance of the year. Non-defense capital goods activity also shows this improvement.

High prices for oil and copper suggest that the bulk of our industry should remain active for the balance of the year. More market information is available in the SteelGuru document on the Casteel Reporter web page.

Casteel Commentary

Planning for the coming year in the steel foundry business requires an informed view of the likely future business conditions. Conventional wisdom is that the high price of energy and other materials will significantly moderate as the higher prices dampen demand and increase supply. This view would argue for an approach of modest incremental investment with a strategy of harvesting the maximum returns from this untypical period. This would suggest that the current capacity will be supplemented by global supply and that a North American strategy is to continue to minimize cost and investment.

Contrary to this view is the significant systemic shortfall in total investment in energy and materials production exacerbated by limited infrastructure investment. While price stability on competitive pressures are characteristic of overcapacity evident for over 20 year from 1981 to 2003, liquidation of obsolete capacity coupled with global growth in demand makes it likely that the shortfall in supply will remain. The lack of capacity in capital equipment dependent industries will not quickly be resolved. Poor returns and weak financial results will limit expansion of capacity until more favorable returns are realized. So while the current conditions are profitable for existing producers, they are not financially attractive enough to justify new major investments. So it is likely that we will either incrementally add enough capacity to moderate prices or more likely prices will remain high and volatile.

If the higher prices persist and even go higher through the next couple economic slowdowns, then returns may become attractive enough to justify new investments. We are seeing a slower market and some price moderation in some commodities that experienced extreme price volatility like nickel. The slower market is not however seeing a moderation in many of the most widely used commodities like oil or copper. The high prices of these commodities suggest that the imbalance of supply and demand is more systemic than atypical and that global investment in infrastructure and commodity production will be needed.

All of this suggests that prudent planning should acknowledge the conventional wisdom by temperate investment during these unsettled times. However, if there is a systemic shortfall of supply and improving prices show the need for added investment, it is imperative to plan now for the future investment needed. We need an investment strategy for significant increases in production and a financial plan to support that investment. It is likely too early to make the investment but not to plan it.

One thing all plant need is a master investment plan for the future. As financial means become available and production requirements increase, what is the master plan for the facility development? Incremental investment may be inappropriate since the long term facility development may require new layouts, more utilities, different staffing, or other capabilities. If the plant has a future then it need a plan for investment. Surviving for the past couple decades has reduced the planning horizon of most of us and now is the time to create a plan for the profitable and capable plant of the future. When market prices rise on unmet demand and profitability dictates we will be ready to capitalize on the market's need for more investment.

Raymond