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OVERALL CASTING MARKET

The year 2015 is definitely mixed. Some segments are doing well and some are in the doldrums. Strong automotive production combined with imports being shifted to the U.S. have definitely been a big benefit to metal casting. Overall, all metals are doing reasonably well. The loss of capacity in the recession is being corrected with significant capital investment.

Our view continues to be that the industry is in the best shape it has ever been. A slow-down, and especially one deep enough to be considered a recession, serves to weed out the weak companies. Unprofitable companies were not able to survive and multi-plant companies took the opportunity to consolidate work in more profitable locations.

Forecasts for the coming year are very conservative ranging from slow growth to risk of another downturn. The slowdown in growth in China has everyone worried and watching.

Foundries serving the oil (and fracking) patch, agriculture and mining equipment are slow. Automotive is strong. Other foundries are just O.K.

The Bureau of Labor Statistics reported under NAICS code 331 – Primary Metal Manufacturing – that both import and export prices were steady or declining. We keep hearing more about re-shoring of castings and products manufactured using castings. A significant portion of the work leaving China is not returning to the U.S. Mexico is the country of choice followed by India, now a lower cost source of supply but a less reliable one. Pricing demands from customers are easing as lead times stretch out and buyers are more concerned with viability and availability.

Foundry backlogs seem to be stable but this needs to be taken with a grain of salt. When buyers hear that lead times are being pushed out they tend to order early adding an artificial level to backlogs.

IRON

Major markets for iron castings include automobiles, cast iron pipe, municipal castings, agriculture, gas engines, pumps and compressors, construction machinery and heavy trucks.

Iron lost over 1 million tons of U.S. capacity during the recession. However, there are numerous expansion projects that have started. We're not sure how much capacity will be added, but it is significant. Brembo announced an 80,000 ton per year green field foundry near their machining plant in Homer, Michigan. Other automotive iron suppliers are implementing major capital expansions.

Iron is showing mixed strength. Automotive is driving high volume Disa foundries to capacity but is expected to level off. At least one of the largest automotive suppliers is out of Disa capacity but look for that to end as additional capacity is brought on-line.. Even though iron has not fully recovered, those foundries that survived the recession are in better shape than they have been in the last three years. Buyers are less concerned about pricing. There is a trend of some castings coming back from China but there are also indications that work in China for the U.S. is moving to India and Mexico. Light vehicle sales have broken the 17.2 million annual rate. Keep in mind that light vehicle is a mature market in the United States. Look for peak sales in the 17 – 17.5 million unit level.

Mid-size iron castings are stable and may even be down slightly. Heavy trucks, pumps and valves are up. Heavy trucks started strong and then backtracked. No one seems to have an explanation. Crop prices have dropped, especially for corn. When crop prices drop, farmers make do with existing equipment and only make necessary replacements. Construction equipment declined in the second half of the year primarily due to cut backs in mining severely impacting mid-size foundries. Any iron (or steel) castings related to natural gas (production, fracking, processing, electric generation or transportation) are off dramatically. Now that it appears that exporting LNG to Mexico will be approved, look for this to continue for a while.

Very large castings are down and there is substantial capacity available. Major new iron foundries for the wind energy market that were planned are either on hold or scrapped. The wind energy market is almost non-existent.

Municipal and infrastructure related foundries (cast iron pipe, man-hole covers, etc.) are starting to see pockets of the country where new housing is trending upward. More houses means more municipal and infrastructure to support them. The market is a long way from recovering and no one expects it to hit the over-heated years of 2006 – 2007. The expected life of in-group piping is 100 years so about 1% needs replacing annually. However, plastic pipe is gaining market share for in-ground installations.

As capacity is being added and markets are softening we are hearing of more foundries with open capacity. Most segments of iron are up but there is capacity available. Capacity is definitely on the increase.

The industry has typically turned to price cutting when there is excess capacity in an effort to “pour tons.” Watch for signs of this happening as a precursor to further plant closings.

ALUMINUM

Major markets for aluminum castings include engine components, instruments, automobiles and aerospace.

Aluminum is dominated by the automotive sector more than any of the other metals. The recovery of automotive manufacturing is driving this metal, especially die casting. The North American Die Casting Association estimates that the die casting industry went from 7,500 die casting machines in service in 2006 to 5,000 machines in 2010, a loss of one third of capacity.

Die casting capacity now exceeds demand with more capacity coming on-line. Automotive dominates die casting more than any other segment of metal casting providing about 65% of die cast production. Automotive production is returning to pre-recession levels and Japanese and European based auto companies are moving more production to the U.S. European die-casters are moving work to the U.S. due to lower costs. Die casters are still adding capacity. Automotive OEM's have major expansions in progress and several Tier 1 suppliers are building new plants. All good used machines have pretty much been put in service and

The major conversion of iron castings to aluminum has substantially occurred. Growth in aluminum castings taking place are in structural components that require very large die casting machines and sophisticated process controls.

Non-automotive areas are recovering at a slower rate but are definitely up. The only area that remains down with a slight upturn in sight are housing related (appliances, electrical components, etc.).

There are capacity shortages in certain segments of aluminum.

The 2014 AFS Forecasts and Trends projects aluminum growing at a rate of 3.2% per year through 2022. These seem like reasonable numbers considering the growth projected in light vehicles.

Aluminum will continue to grow faster than other metals but not at the pace of the 1990-2010 period. Given the much higher alloy costs of aluminum, the momentum to switch to aluminum is primarily required weight savings. If you don't need to save weight, iron is much less expensive. Aluminum is one-third the weight of iron with a material cost five times iron.

STEEL

Major markets for steel castings include rail, heavy truck, valves, construction equipment, mining equipment, oil and gas production, fans and blowers and railroad equipment.

Steel is very strong with long lead times creating problems for OEMs. Rail, the largest single market is good, except for coal cars. Locomotives are back ordered for the next two years. The second largest market, heavy truck, has shown an unexpected slide. A lot of steel castings are used in natural gas related products – fracking, processing, handling, etc. Those markets are down and not expected to recover in the near term.

A number of steel foundries were liquidated during the recession and a shortage of capacity exists at this time. Foundries are scrambling to add capacity but it is a

North American Light Vehicle Sales									
	2014	2015	2016	2017	2018	2019	2020	2021	2022
United States	16.49	16.98	17.11	17.16	17.2	17.35	17.51	17.73	17.89
Canada	1.85	1.88	1.88	1.88	1.88	1.9	1.91	1.91	1.94
Mexico	1.13	1.21	1.26	1.32	1.38	1.43	1.47	1.51	1.54
North America	19.47	20.07	20.25	20.36	20.46	20.68	20.89	21.15	21.37

Source: LMC Automotive

there is a long lead time for new machines. It is relatively easy to add die casting capacity so look for capacity to exceed supply in one to two years, even with the return of light vehicle production.

slower process than in aluminum. However, there is some caution due to disruptions in the world economy.

Columbus Castings, Columbus Ohio is the single site largest steel foundry in the world with 500 employees has announced plans to double in size over the next three years. Their major markets are castings used in rail cars. Oil companies are looking more to rail transportation to move crude oil than expensive and controversial pipe lines.

ZINC & LEAD

Major markets for zinc and lead castings include electrical (non-current carrying), automobiles and sporting goods.

Zinc is recovering somewhat with the slowly increasing light vehicle production. It is still not a strong market. Lead also tracks automotive and parallels light vehicle production.

BRASS/BRONZE

Major markets for copper based alloys include automobile, valves, plumbing components and gears and drives.

The brass and bronze foundries have been suffering for the last ten years. The conversion to plastic in the housing market caused a lot of consolidation and left substantial excess capacity. Further consolidation does not appear to be happening but these foundries have learned to operate in a depressed market for some time now.

INVESTMENT CASTING

Investment casting appears to be holding its own. The markets they serve, including light vehicle, are steady. Investment casting suffered greatly from exports due to the higher labor content in making castings. The dynamics of the market have changed such that work is coming back to the U.S. from China and India and work is being moved to the U.S. from Europe.

ABOUT THE FOLK GROUP

The Folk Group is the leading merger and acquisition firm serving the metal casting industry. The Group has sold over 30 foundries, performed going business valuations for more than 40 companies and assisted in several turn-around efforts. Contact us at 1.215.340.9072 or www.folkgroup.com.