EMIRATES TECHNO CASTING

TRENDS OF STEEL CASTING INDUSTRY IN VALVES AND PUMP PRODUCT APPLICATIONS

RADHAKRISHNA KESANI
GENERAL MANAGER
EMIRATES TECHNO CASTING
RADHAKRISHNA KESANI

• From Hyderabad, India
• Bachelor of Mechanical Engineering, Osmania University, Hyderabad, India
• MBA – TAPMI, Manipal, India
• 25+ years experience mainly in Industrial sales, business development and operations
• Career path
  – Ingersoll Rand
  – Volvo Construction Machinery
  – Pentair ETC – Currently responsible for Sales & Operations of Emirates Techno Casting business unit of Pentair
TODAY’S DISCUSSION

• What’s driving developments in castings?
• A closer look at the market factors that have influenced steel casting trends
• Understanding customer and application challenges
• Foundry industry in the next five years
DEVELOPMENTS IN STEEL FOUNDRY

A closer look at the major industry changes
UNDERSTANDING THE DRIVERS FOR CHANGE IN THE CASTINGS MARKET

- Aggressive EPC schedules are leading to shorter lead times
- Requirements for thicker walls and impacts on increased NDT
- Move to superior grade material specifications for critical applications
- Valve manufacturers seeking value added services, such as pre-machined castings
- Technology base tapering off, particularly amongst low cost foundry market
- Price sensitive marketplace

Identifying opportunities to add value
CREATING COMPETITIVE ADVANTAGE

3D PRINTING
- Rapid production without pattern and molding process
- Suitable for core supplies
- Rapid prototyping
- Unlimited design freedom
- Complex internal geometry
- No dimension limit

NDT
- Moving to ‘one stop’ NDT services
- Advances in testing equipment – X-ray Linear Accelerator

MODELLING AND DYNAMIC ENGINEERING
- Sophisticated CAD capability
- Magma modelling and solidification software to enhance casting quality

SAND RECLAMATION
- Move towards “Zero Landfill” regulation – Need for reclamation

Maximizing quality
WHERE ARE WE NOW AS AN INDUSTRY?

STRENGTHS

• Steel continues to be a key element in all the industrial applications
• Industry demand for castings continues; No established substitutes are found as yet
• Sophisticated Technology available in all regions/worldwide

WEAKNESSES

• Extensive testing requirements and material upgrades to meet technical requirements vs. other alternatives
• NDT Testing capacity constraints
• Capital-intensive industry to maintain productivity and compliance
• Talent attraction is a challenge

OPPORTUNITIES

• Extensive scope for innovation
• 3D Printing apt for API Pump After-market opportunities for low volume and short lead time production
• OEMs involvement during their product development at the foundry
• Different market segments available for risk mitigation

THREATS

• Cyclical demand in end markets
• Forex stability
• Stringent environment regulations
• Closed die-forging
MARKET FACTORS

Understanding dynamic market trends and their impact on steel foundries
O&G INDUSTRY DYNAMICS

- Major accidents drive superior specifications and increased testing
- Industry dynamics creating a shift towards bigger size / higher pressure designs
- Quality issues have seen a preference for high quality, certified castings
- Material integrity is under high scrutiny with increased testing and inspection
- Increased end-user involvement in casting sourcing

Keeping pace with dynamic market changes
UNDERSTANDING CUSTOMER DRIVERS

MANUFACTURERS WANT PRODUCTS FULLY MACHINED AT THE FOUNDRY

• Particularly in the valve and pump market
• Requires investment for machining value addition

COMPETITIVE MARKETS

• Greater pressure on price
• Foundries to focus on high productivity and automation to meet competitive pricing

Dynamic markets create opportunities for collaboration with customers for value additions leading to further growth avenues

Building collaboration for success
MARKET OPPORTUNITIES

EMERGING AND DEVELOPING MARKETS OFFER AN EXCITING FUTURE

LNG

NEW GLOBAL OIL & GAS PROJECTS

SUPERCRITICAL/ULTRASUPERCRITICAL POWER

INDUSTRIAL APPLICATIONS
MEETING CUSTOMER AND APPLICATION CHALLENGES

Exploring the driving forces behind future industry change in the foundry market
UNDERSTANDING CHANGING NEEDS

- Increasingly stringent quality standards drive changes in component design, engineering, manufacture and testing
- Higher grade material preferences for severe service applications and higher pressures and temperatures
- Move towards higher value exotic material grades
- Drive for more sustainable environmental, health and safety practices
- Industry context reflects slow demand across industrial sectors
- Customers keen on ERP systems providing latest production status through online portals
- Foundries are outsourcing certain processes in order to reduce costs

Global production totals for steel (million tons)

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SOURCE: World Casting Production Census, Modern Casting
A LOOK AHEAD...

The foundry market in the next five years
WHERE ARE WE TODAY?

IDENTIFYING THE FACTORS THAT WILL IMPACT ON FUTURE CHANGE

• Highly competitive and fragmented marketplace
• Exposure to market fluctuations
• Industry accreditations becoming more prevalent
• Sourcing through Global supply frameworks
• Meeting high quality standards to guarantee reliable performance
• Superior materials to resist corrosion and perform in critical applications

Dynamic and demanding market
TRANSFORMATION BEYOND 2015

THE FUTURE OF THE STEEL FOUNDRY INDUSTRY

- Leveraging LEAN manufacturing capabilities
- Widespread customers, diverse industries and product mix
- Focus on value added services
- Continued stringent quality standards and emerging NDT testing technologies
- Rapid developments in prototype castings and material grade refinements
- Expand beyond one industry for steady growth
- Offer lucrative career paths to attract talent
- Industry-institute partnership to address some of the foundry industry challenges
- CSR – Foundry’s contribution to society

Expect **steady growth** as foundries **expand** their product mix and **invest** in new innovations to **add value** to customers’ operations

Grow in a competitive, dynamic industry
THANK YOU

Any questions?