ASM INTERNATIONAL Pune Chapter

NEWS LETTER

ISSUE NO. 45. JUNE 2024

The American society of materials (ASM) plays a pivotal role in advancing the field of materials science and engineering. From promoting research and innovation to fostering collaboration and knowledge sharing, the society has been instrumental in shaping the landscape of materials science.

The history of the ASM society, its impact on technological advancements, and its contributions to various industries. Additionally, we can delve into the key initiatives, publications, and events organized by the society, shedding light on its role in driving progress and excellence in the field of materials.

ACADEMIC PARTNERS

ASM CHAPTER OFFICE BEARERS

Rahul Gupta
Chairman

Ruta Barve
Secretary

D. G. Chivate
Vice Chairman

Hemant Zaveri
Treasurer

Kruttika Apshankar-Kher
Chairperson-Newsletter

EDITOR

Mahesh. A. Kori
ASM Faculty Advisor, KLS GIT, Belagavi

MESSAGE

SIGNIFICANCE OF MATERIALS IN 21ST CENTURY

Dr. M. S. Patil
Principal
KLS Gogte Institute of Technology
Belagavi, Karnataka

In the landscape of the 21st century, the significance of materials cannot be overstated. From the gleaming skyscrapers that punctuate urban skylines to the microchips powering our smartphones, materials are the building blocks of modern civilization, shaping our world in ways both seen, and unseen.

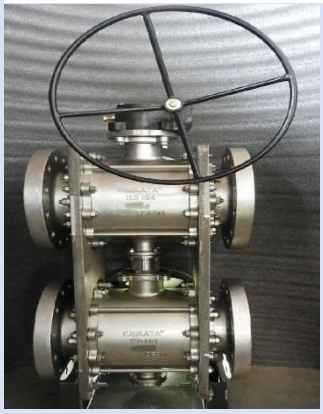
At the heart of this significance lies innovation. The relentless quest for novel materials with enhanced properties drives progress across diverse fields, from healthcare to aerospace. Consider, for instance, the emergence of advanced composites that are revolutionizing aircraft design, making planes lighter, more fuel-efficient, and environmentally sustainable. These materials, engineered at the molecular level, exemplify the fusion of science and engineering prowess, paving the way for a new era of transportation.

Moreover, materials play a pivotal role in addressing pressing global challenges. With sustainability at the forefront of societal concerns, the development of eco-friendly materials has become paramount. Biodegradable polymers, for instance, offer a promising alternative to traditional plastics, mitigating the environmental impact of waste accumulation. Similarly, advancements in renewable energy technologies hinge upon the discovery of materials capable of harnessing sunlight or converting waste heat into electricity, thereby propelling the transition towards a greener future.

Furthermore, the convergence of materials science with other disciplines catalyzes transformative breakthroughs. In the realm of medicine, for instance, biomaterials hold the promise of personalized therapies and regenerative medicine, enabling the repair and replacement of damaged tissues with precision and efficacy. Meanwhile, in the realm of information technology, the pursuit of materials with exotic quantum properties underpins the development of quantum computing, offering unprecedented computational power and unlocking new frontiers in data processing and encryption.

In the midst of these advancements, it is imperative to acknowledge the ethical considerations inherent in the pursuit and application of novel materials. As we harness the potential of materials to propel progress, we must remain vigilant against unintended consequences, ensuring equitable access, minimizing environmental footprint, and upholding ethical standards throughout the materials lifecycle.

In conclusion, the significance of materials in the 21st century is multifaceted and profound. As humanity navigates the complexities of a rapidly evolving world, materials serve as both enablers and arbiters of progress. Through relentless innovation, interdisciplinary collaboration, and ethical stewardship, we can harness the transformative power of materials to forge a brighter, more sustainable future for generations to come.



TECHNICAL ARTICLE

Materials Used in Valve Manufacturing

Shri. Rajeev Rao,
Managing Director
Kavataa Valves, Belagavi

Valves are important mechanical devices that regulate, isolate, or divert the flow of fluids in process industries. There are many different kinds of valves used to perform the different functions mentioned above. Gate valves, Globe valves, check valves, Ball valves, Butterfly valves, and Needle valves are some of the types of valves commonly used in industry. Gate valves and Ball valves are used for flow isolation whereas Globe valves, butterfly valves, and needle valves are used for flow regulation. Multiport ball valves such as three way, four way and six way ball valves are used for flow diversion.

Material selection forms an important part of valve design and manufacturing. The main consideration while selecting the right material for the valve body and trims (internal components) is the compatibility of the material with the flow media. The temperature and pressure of the flow media also play an important role in material selection. Valves are manufactured using PVC and plastics also though it is out of the scope of this article. Carbon steel is, by far, the most common material used in the manufacture of valves. The general rule for valve design is that the trim material should be equal to or more resistant to corrosion by the flow media; compared to the valve body. Thus, if the body of a valve is made from carbon steel, then the trims should be made from carbon steel or some grade of stainless steel. It follows that if the body of a valve is made from stainless steel, the trims should be manufactured using the same grade of stainless steel or a more corrosion resistant grade of stainless steel.

Valves and their components are made from bar stock, forgings or castings. Valves manufactured using bar stock are normally smaller in size and symmetrical in shape as the wastage of material during machining is very high for larger sizes. Castings are preferred for larger sizes and odd shaped valves to reduce the material wastage and to minimize machining cost. Forgings are used for valves which have to work at very high pressures. Forgings are economical to produce only in large numbers- usually in hundreds or thousands. Castings, on the other hand, can be produced in smaller quantities and hence is very suitable process for the valves industry.

CARBON STEEL

Carbon steels, as the name suggests, are alloys of Carbon and Iron where the percentage of carbon can go up to 1% with other alloying elements in predetermined quantities. This is the most common material for use in manufacturing valve bodies. There are various specifications for steels based on the country of manufacture and the standards adopted by the country. The principal specification standards are ASTM (USA), JIS (Japan), EN (Europe), DIN (Germany), BS (UK) and IS (India). Though the standards have different nomenclatures for a particular type of steel, usually there are equivalents which can be used interchangeably. ASTM standards will be used in this article as it is very widely used.

ASTM A516 Gr 70: This is a grade of medium carbon steel specified for rolled plates with good notch toughness, suitable for pressure vessels. It also contains phosphorus, manganese, sulfur and silicon.

ASTM A516 Gr 60: This is a grade of carbon steel which is ideal for boilers and pressure vessels due to its suitability for moderate and lower temperature service. This grade also has good notch toughness, good weldability and contains the same alloying elements as above with slightly varying quantities.

ASTM A106 B: This is a grade of carbon steel which is used for the manufacture of pipes. There are three sub grades, namely, ASTM A106 A, B and C. Specifically, ASTM A106B grade is very suitable for manufacture of valves, pressure vessels and for application in other oil and gas industries because of its high temperature properties and good tensile strength.

ASTM A105: This is a very important grade of carbon steel which is used for forging valve bodies. This grade is also available in bar stock form and is used for manufacture of valve bodies by machining. This grade is suitable for use in valves for ambient and high temperature service.

ASTM A350 LF2: This grade of carbon steel is readily weldable and is similar to mild steels as far as machinability is concerned. However, its importance for valve manufacturing stems from the fact that it has high impact strength and is suitable for low temperature service. This grade is available as bar stock and can be forged too.

ASTM A216 Gr WCB: This grade is the cast equivalent of medium carbon steels. It is most commonly used for valve body casting. This grade can be repaired by welding. Sand castings can be made for bigger size valve body castings and could weigh a few tons. Smaller castings can be made by investment casting process and by shell molding.

STAINLESS STEEL

Stainless steel is a household term, be it due to use in utensils, washbasins or even as razor blades. However, most people think of stainless steel as being just one grade. The truth is that stainless steel is a generic name for a wide variety of grades which resist corrosion far better than carbon steels. There are various grades such as SS201, SS202, SS205, SS302, SS304, SS316, SS321, SS410, SS441, 17-4 PH SS to name a few. There are many more grades developed for specific purposes but the sample list above is given only to clear the popular misconception that stainless steel is only one grade.

ASTM A240 Gr 202: Stainless steels of 200 series contain chromium, manganese along with nitrogen as alloying elements. These are austenitic stainless steels which resist corrosion in normal atmospheric conditions. They have very less nickel and hence are cheaper than the stainless steels in the 300 series. They are used in the manufacture of cutlery, washing machines, automotive components etc. as they can withstand corrosion in milder environments only. Some manufacturers of valves do use SS202 trims in very cheap valves.

ASTM A240 Gr 304/ 304L: This is the most commonly used Austenitic stainless steel grade in the industry as it is very versatile and economical. This grade is also called 18-8 stainless steels as it has 18% Chromium and 8% Nickel along with 0.08% max Carbon. This grade is expensive due to the addition of Nickel. It withstands pitting corrosion better than the 200 series stainless

steels. This grade is extensively used in the manufacturing of valve bodies and trims. SS304L contains lower carbon (up to 0.03 % max) which makes it more suitable for welding applications. SS304 cannot be heat treated to increase its strength or hardness.

ASTM A240 Gr 316/ 316L: This is a superior austenitic stainless steel grade when compared to SS304. It contains 16% Chromium, 10% Nickel, and 2% Molybdenum as the main alloying elements. It has higher corrosion resistance when compared to SS304 due to higher Nickel and Molybdenum apart from having similar strength and toughness. It is suitable for environments having salts, chlorides, sulphuric acid, high temperatures, petrochemicals, and other chemicals. It is expensive when compared to SS304 and is used for the manufacture of valve bodies and trims. Similar to SS304L, the SS316L grade has lower carbon than SS316 (0.03% max against 0.08% max). Both SS304 and SS316 can be forged to produce forgings for valves required to work in high-pressure applications.

ASTM A351 Gr CF8/ CF3: These grades are the cast equivalents of SS304 (CF8) and SS304L (CF3). These grades can be produced by sand casting, shell molding or investment casting methods. Casting greatly reduces the material wastage and machining cost as compared to fabricating from bar stock. Stainless steels being tough and strong are comparatively difficult to machine as compared to carbon steels. The consumption of tools is almost three times more and hence any reduction in machining reduces the ultimate cost of the valve.

ASTM A351 Gr CF8M/ CF3M: These grades are the cast equivalent of SS316 (CF8M)/SS316L (CF3M). The digit 8 denotes the 0.08% max Carbon in the case of CF8M and the digit 3 denotes the 0.03% max Carbon in CF3M grade. The same logic applies to CF8/ CF3 grades above. These grades are extensively used to produce valve body and trim castings for highly corrosive applications as well as applications in high temperatures. There are some grades of stainless steel which are used in valve components manufacturing like SS410 and 17-4 PH stainless steel. These grades are used because they can be hardened, unlike pure Austenitic grades. SS410 is a martensitic grade whereas 17-4 PH stainless steel is a combination of austenitic and martensitic structure. Both these grades can be cast but more casting defects like blow holes usually occur.

However, bar stock forms of both the grades are easily machinable. Both SS410 and 174 PH stainless steels are cheaper than SS316 and have lower corrosion resistance when compared to SS304 or SS316.

For flow media which are highly corrosive, special grades of stainless steels like Duplex Stainless steels, Super Duplex stainless steels, Monel, Inconel and Hastelloy are used. These grades have very high nickel content and are very expensive. Each grade has its own special usage. While some grades are good for sea water exposure, others have high corrosion resistance or resistance to scaling at high temperatures.

Mankind has faced several challenges, over time, in its quest for constant improvement in human living standards. Today, there is a solution for many known problems and situations, yet in an evolving world, newer challenges are to be expected. Valve technology is an evolving field which involves the combination of knowledge from the mechanical engineering, chemical engineering, metallurgical engineering and now from electronics also, to solve real life problems. Processes are becoming more and more complex with temperatures encountered by valves, going higher and higher. Engineers cannot rest on past laurels but must be prepared to go where no one has gone before.

Advancements in Valve Design: Exploring the Versatility of Duplex Stainless Steels

In the realm of industrial engineering, the choice of materials for critical components like valves holds paramount importance. Valves are ubiquitous in various applications, ranging from petrochemical plants to desalination facilities, where they control the flow of liquids or gases. Among the array of materials available, duplex stainless steels have emerged as a preferred choice due to their exceptional combination of mechanical properties and corrosion resistance. This article delves into the utilization of duplex steels in valve manufacturing, highlighting their benefits, applications, and evolving trends in the industry.

Understanding Duplex Stainless Steels: Duplex stainless steels represent a family of stainless steels characterized by a two-phase microstructure consisting of roughly equal proportions of austenite and ferrite phases. This unique structure imparts duplex steels with a blend of desirable properties, including high strength, excellent corrosion resistance, good weldability, and enhanced resistance to stress corrosion cracking and pitting corrosion. These attributes make duplex stainless steels particularly suitable for applications in aggressive environments where conventional austenitic or ferritic stainless steels may fall short.

Applications in Valve Manufacturing: The versatility of duplex stainless steels finds extensive utilization in valve manufacturing across diverse industries:

1. Oil and Gas: Valves employed in offshore drilling platforms, refineries, and pipelines are often subjected to harsh operating conditions, including exposure to corrosive environments and high pressures. Duplex stainless steels offer superior resistance to chloride-induced stress corrosion cracking (SCC) and erosion-corrosion, making them an ideal choice for valves in oil and gas installations.
2. Chemical Processing: Valves used in chemical plants and petrochemical facilities encounter aggressive media containing acids, chlorides, and other corrosive substances. Duplex stainless steels provide excellent resistance to a wide range of chemicals, ensuring prolonged service life and minimal maintenance requirements.
3. Desalination: In desalination plants where seawater is processed to obtain fresh water, valves play a critical role in controlling the flow of corrosive seawater and brine solutions. Duplex steels exhibit exceptional resistance to pitting and crevice corrosion in chloride-rich environments, making them well-suited for desalination applications.
4. Pulp and Paper: Valves utilized in pulp and paper mills are exposed to corrosive chemicals and high temperatures during the paper manufacturing process. Duplex stainless steels offer superior resistance to sulfide stress corrosion cracking (SSC) and acidic solutions, thereby extending the operational lifespan of valves in such environments.

Innovations and Emerging Trends: The ongoing research and development efforts in the field of metallurgy and materials science continue to drive innovations in duplex stainless steels for valve applications. Some notable trends include:

1. Alloy Optimization: Manufacturers are constantly refining the composition of duplex stainless steels to enhance specific properties such as corrosion resistance, strength, and toughness, thereby expanding their applicability in demanding operating conditions.
2. Additive Manufacturing: The advent of additive manufacturing techniques, such as selective laser melting (SLM) and electron beam melting (EBM), enables the production of complex valve geometries with improved performance characteristics using duplex stainless steels.
3. Surface Treatments: Surface modification techniques, including nitriding, passivation, and ion implantation, are being employed to further enhance the corrosion resistance and wear properties of duplex steel valve components, thereby extending their service life in aggressive environments.

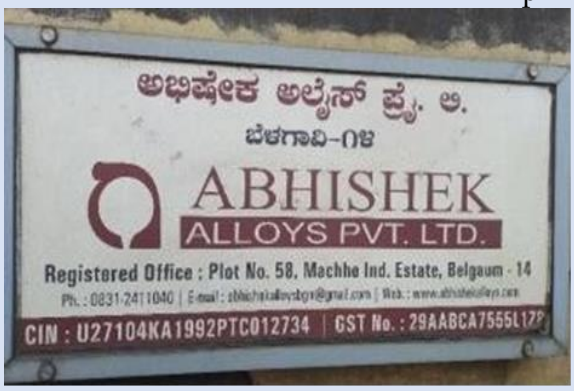
Duplex stainless steels have revolutionized the landscape of valve manufacturing, offering a compelling combination of mechanical strength, corrosion resistance, and durability. As industries continue to prioritize performance and reliability, the adoption of duplex steels in valve applications is expected to proliferate further. By leveraging advancements in material science and manufacturing technologies, engineers and designers can unlock new possibilities for optimizing valve performance and mitigating operational challenges in diverse industrial settings.

INDUSTRY PARTNERS

STUDENT OUTREACH PROGRAM

INDUSTRY VISIT TO ABHISHEK ALLOYS PVT. LTD.

April 18, 2024,



Abhishek Alloys' state-of-the-art facilities, are meticulously designed to harness cutting-edge technologies for alloy synthesis. Participants were acquainted with the sophisticated machinery and innovative processes driving efficiency and quality within the production line. The journey delved deeper into the metallurgical alchemy, as experts elucidated the composition and properties of various alloys tailored to meet stringent industry demands. Engaging discussions ensued on the nuanced techniques employed in alloy formulation, highlighting the fusion of science and craftsmanship underpinning every alloy batch.

Moreover, the visit provided invaluable insights into the sustainable practices embraced by Abhishek Alloys, exemplifying their commitment to environmental stewardship amidst industrial progress. From resource optimization to waste management, attendees gained a holistic understanding of the company's eco-conscious initiatives shaping the future of metallurgy. The industry visit to Abhishek Alloys demonstrated a strong connection between theoretical knowledge and practical application in metallurgy. Participants gained enriched perspectives that they can apply in both academic and professional settings.

INDUSTRY VISIT TO BALAJI ERROCAST BELGAUM:

April 18, 2024,

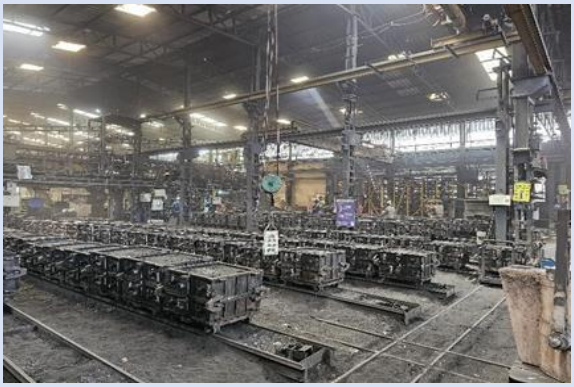
Balaji Ferrocast Belgaum, stands as a testament to the efficacy of match plate and shell molding techniques in the casting industry. With a commitment to quality, efficiency, and innovation, the company is well-positioned to capitalize on emerging opportunities and further expand its market presence. Continued investments in technology, process optimization, and workforce development will be instrumental in sustaining its growth trajectory in the competitive casting market.

Shell Molding:

- Description: Shell molding, also known as shell casting, is a casting process that involves the use of a mold made from a resin-coated sand shell.
- Process: In shell molding, a heated metal pattern is pressed into a box of sand mixed with a resin binder. The resin-coated sand shell is then removed, and molten metal is poured into the resulting shell mold.
- Advantages: Provides high-quality surface finish, good dimensional accuracy, and high production rates.
- Applications: Widely utilized in industries requiring smooth surface finishes and complex shapes.

INDUSTRY VISIT TO AKP FERROCAST, BELAGAVI.

April 22, 2024,



AKP Ferrocast operates in the **iron casting industry**, a vital sector that manufactures SGI components by shaping molten iron into desired forms. They specialize in two main types of castings:

- Ductile Iron Castings**:** Known for their strength and ductility, these castings are used in demanding applications like gears, crankshafts, and machine parts.
- Gray Iron Castings**:** Offering a balance of affordability, machinability, and vibration dampening, gray iron castings are employed in engine blocks, pumps, and housings.

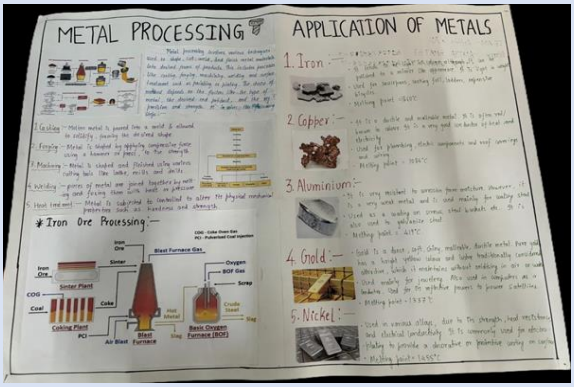
AKP Ferrocast caters to a wide range of customers by providing finished products through their in-house CNC machining capabilities. This one-stop-shop approach streamlines the process for clients seeking high-quality iron castings.

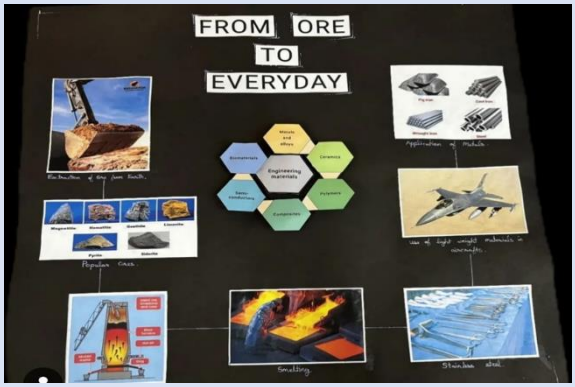
The visit to AKP Ferro cast Industry in Udyambag, Belgaum has provided invaluable insights into the dynamic landscape of the ferro cast industry.

Through the tour, it became evident that AKP Ferro cast's success is not only attributed to its advanced technologies but also to its unwavering commitment to quality, sustainability, and continuous improvement. The visit to AKP Ferro cast Industry has been enlightening, showcasing innovation within the Ferrocast sector, also the resilience and determination of industry.

INDUSTRY PARTNERS

POSTER MAKING EVENT





CELEBRATING THE ACHIEVEMENTS OF OUR ESTEEMED MEMBERS

ARUN ADIVEREKAR: "Crafting Success: Navigating Management Systems with Precision and Excellence"

Arun Adiverekar, a prominent person in the realm of management systems and business excellence, has dedicated over 40 years to the industry, making substantial contributions to various sectors including cutting tools, automotive engines, auto ancillary, and capital goods manufacturing. With a robust educational background in Mechanical Engineering and an MBA in Materials Management, Adiverekar has harnessed his expertise to drive significant advancements in Quality Management and Business Excellence.

linkedin.com/in/arunadiverekar
arunadiverekar@gmail.com

Professional Journey

Adiverekar's career trajectory includes notable roles that have capitalized on his profound understanding of quality and management systems. His last tenure was with Kirloskar Pneumatic Co Ltd in Pune, where he held the position of Associate Vice President and Head of Corporate Quality Assurance. In this role, he was instrumental in managing the Integrated Management System (IMS), which encompasses ISO 9001, ISO 14001, and ISO 45001 standards, along with NABL accreditation and laboratory management systems. His contributions extended to Business Excellence initiatives, demonstrating his comprehensive approach to fostering a culture of continuous improvement.

Throughout his career, Adiverekar has been a driving force in implementing a wide array of Management System standards. His expertise includes ISO 9001, QS 9000, ISO/TS 16949, ISO 14001, ISO 45001, and ISO 17025. Additionally, he has spearheaded human resource excellence initiatives and deployed the EFQM (European Foundation for Quality Management) model for Business Excellence, reflecting his commitment to holistic Organizational development.

Contributions to Quality and Excellence

Adiverekar's impact is marked by his role as a Senior Assessor/Assessor for various prestigious awards, including the CII Business Excellence Award, CII-HR Excellence Award, FICCI Quality Award and ZED Assessments for the Quality Council of India (QCI). His assessments and insights have been pivotal in guiding organizations towards achieving higher standards of Quality and Operational efficiency.

Professional Society Memberships

He is an Associate member of the Institution of Engineers (Calcutta), a life member of the Quality Circle Forum of India, and a member of the Indian Institute of Materials Management in Pune. He demonstrates leadership through his roles on the Executive Council of ASM International's Pune chapter and the Council of QCFI's Pune chapter.

Academic Connections

Arun Adiverekar actively bridges the gap between industry and academia through his extensive contributions to educational institutions. His involvement includes participating in academic syllabus revisions, ensuring that course content remains current and industry-relevant. He offers project guidance and evaluation, mentoring students to excel in their academic projects and providing critical feedback to enhance their learning experience, supports project execution, helping students implement their ideas effectively. His role as a subject expert allows him to deliver insightful talks, sharing his industry knowledge and expertise with aspiring professionals. Additionally, he provides career guidance, helping students navigate their career paths and make informed decisions about their futures.

Through these varied contributions, Arun Adiverekar demonstrates a strong commitment to education, enriching the academic experience and fostering a productive relationship between industry and academia.

Recognitions and Awards

Adiverekar's contributions have been recognized with several prestigious awards:

- The "3rd QCI Quality Champion Award 2021" presented by the Quality Council of India during its Silver Jubilee Celebration in 2022.
- The "GHR Award" from the Raisoni Group of Institutes in 2019 for outstanding contributions to industrial-academia partnerships.
- Inclusion in the "50 Most Impactful Quality Professionals" list by the World Quality Congress & Awards in 2016.

Personal Attributes

Arun Adiverekar is not only a highly skilled professional but also a dynamic and passionate individual. He is known for his process-oriented mindset, excellent teamwork capabilities, and inspiring leadership. His balanced approach to mental, emotional, and spiritual intelligence has made him a respected figure in both his professional and personal circles. His legacy in the field of Management Systems and Business Excellence is a testament to his unwavering commitment to Quality and Continuous Improvement. His extensive experience and proactive approach have significantly shaped the organizations he has worked with, setting high standards in Quality Management and Business Excellence. As a Principal Advisor, Adiverekar continues to influence and inspire, ensuring his impact is felt for generations to come.

ASM Family Wishes Arun Adiverekar's Continued Success and achieve many more contributions to society

TECHNICAL ACTIVITIES

CELEBRATION OF WOMEN'S DAY IN MARCH 2024

TECHNICAL TALK

Metallurgy, Materials Science Engineering & Innovation Empowering Through Tech Talks: Inspiring Inclusion

ASM (I) Pune Chapter marked Women's Day 2024 with a unique celebration, organizing a series of Tech Talks throughout March under the theme #Inspire Inclusion. These talks aimed to honor the brilliance and contributions of women in the fields of metallurgy, materials science engineering, and innovation, fostering a culture of diversity and inclusion.

Inaugural Session with Dr. Navin Manjooran

The series commenced with an inaugural session graced by Dr. Navin Manjooran, Senior Vice President of ASM International. Dr. Manjooran, a distinguished member and future President of ASM International, shared his insights on the importance of diversity and inclusion in the field.

Tech Talk Highlights

1. "Effect of Ratcheting on Piping and Tubing Materials"


Dr. Prerna Mishra

Dr. Prerna Mishra is working as an Assistant Professor in the Department of Mechanical Engineering in MKSSS Cummins College of Engineering for Women, Pune India. She has completed her doctorate from the Indian Institute of Technology Varanasi, India in the Department of Metallurgical Engineering. She has worked as Material Scientist in Infinita Lab Gurgaon, from 15/08/2022 to 31/08/2022, Research Scholar in the Department of Metallurgical Engineering in Mechanical Metallurgical Division at IIT BHU Varanasi from 27/07/2016 to 18/07/2022. Assistant Professor in SRMCEM Lucknow, UP from 13/08/2014 to 25/07/2016. She has published 11 journals and 2 are under publication. Participated in more than 5 conferences., many work-shops and short-term courses. Her achievements and activities are GATE-qualified. Best Paper presentation in International Conference on "Recent Advances in Design, Materials, and Manufacturing (ICRADMM 2020)" Gwalior, MP. Delivered Welcome Speech and Anchoring in National Conference CHFIC 2018 organized jointly by IIT Bombay and IIT BHU held in IIT BHU Varanasi. Secured (3rd Position) in the Mechanical Engineering Department during B. Tech. Outstanding performance in the field of Folk Dance in SPANDAN 2007

2. "Materials in Additive Manufacturing"

Dr. Divya Padmanabhan

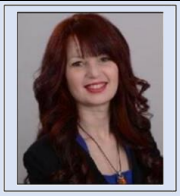
Dr. Divya Padmanabhan completed B.E. from VNIT, Nagpur, M. Tech, and Ph. D from IIT Bombay. She has about 26 years' of experience in Research and Academics. She is a Member of the Syllabus Revision Committee (2012, 2016, and 2019) for Mechanical and Automobile Engineering under Mumbai University She has handled and assisted 5 funded projects (PI and Co-PI) (MU, RPS, CRG). She has 32 Publications in International/National Conferences and Journals. She published 4 patents. Her Areas of research/interest are Powder Injection Molding, Ceramic Synthesis and Processing, Composites, Polymer membranes, and coatings. She guided 17 master students and 50 + undergraduate graduates, 5 PhDs are under supervision currently. She is Life Member of ISTE, SFA, IIRS, and SAE She is Also an Innovation Ambassador by MHRD Currently, she is Head of Mechanical Engineering at Mahatma Education Society's Pillai College of Engineering (Autonomous), Navi Mumbai

3. "Innovation in Materials Engineering"

Dr. Raju Kadam

Dr. Raju Kadam completed his B.E. and M.E. from Govt. College of Engineering Pune, PhD from IIT Bombay, and International Executive Master's in Business from SDA Bocconi, School of Management, Milan, Italy. He is having total of about 15+ years of industrial R&D experience with high-tech materials to composites, metal matrix composites, ceramic to ferrous and non-ferrous materials with high volume R&D, QA & QC, Metallurgical and Materials Science and Mechanical Industry. He is currently working as Manager-Research & Development at Kalyani Centre for Technology and Innovation (Global R&D Center, Bharat Forge Ltd. Pune, India). His previous experience includes Post-Doctoral Research Fellow at Dow Chemical International Pvt. Ltd, R & D Centre, Pune and Senior Research Associate at Advanced Materials and Process Technology Center (AMPTC) Crompton Greaves- Global R&D Center, Mumbai, India. He is Member of American Society of Metal (ASM) Pune, Executive council Member, ASM India Chapter; Indian Institute of Metals (IIM) Pune, Joint Secretary, Life Member; Powder Metallurgy Association of India, Executive Member, Life Member; Society for Failure Analysis, India, Life Membership; Electron Microscopy Society of India (EMSI), Member. He is a Board Member of IGSTC-Indo German Science and Technology Center, Govt. of India & Germany. His Publications and patents include; 1 Patent, 15 International conference and 4 International Journals paper, 1 in house symposium at IIT Bombay, 4 peer reviewer for International Journals, 1-time convener and 2 times Co-convener for National workshop in India, 2 times Session chairs, 2 Times ASM award evaluation committee member at ASM International India Chapter. He is Project Guide and coordinator for M. Tech program at Dept. MEMS and Mechanical Engineering at IIT Bombay and Dept. MEMS, COEP, Pune and External Examiner for B. Tech and M. Tech examination at IIT Bombay and Govt. College of Engineering, Pune.

4. "TRIZ Innovation Methodology"



Tiziana Bertoncelli

Tiziana Bertoncelli joined Ansys EMEA LF Team as Lead Application Engineer in February 2020 in, mostly for EM Low Frequency applications. Prior to that she collected over 15 years experience in Industry (Danfoss Silicon Power, GE Global Research, IPP) as a Simulation Engineer for MV applications, power electronics and electric generators. She is also a TRIZ Level 4 certified practitioner and currently tries to explore ways to apply such innovation method to software applications.

https://www.linkedin.com/in/tizianabertoncelli/

Closing Thoughts

The Tech Talks series exemplified ASM (I) Pune Chapter's commitment to empowering women in materials engineering and fostering an inclusive environment for innovation and collaboration. By showcasing the expertise and achievements of women in the field, the chapter aims to inspire future generations to pursue careers in metallurgy and materials science engineering.

Our chapter appreciates the efforts of our organization team of EC Members-

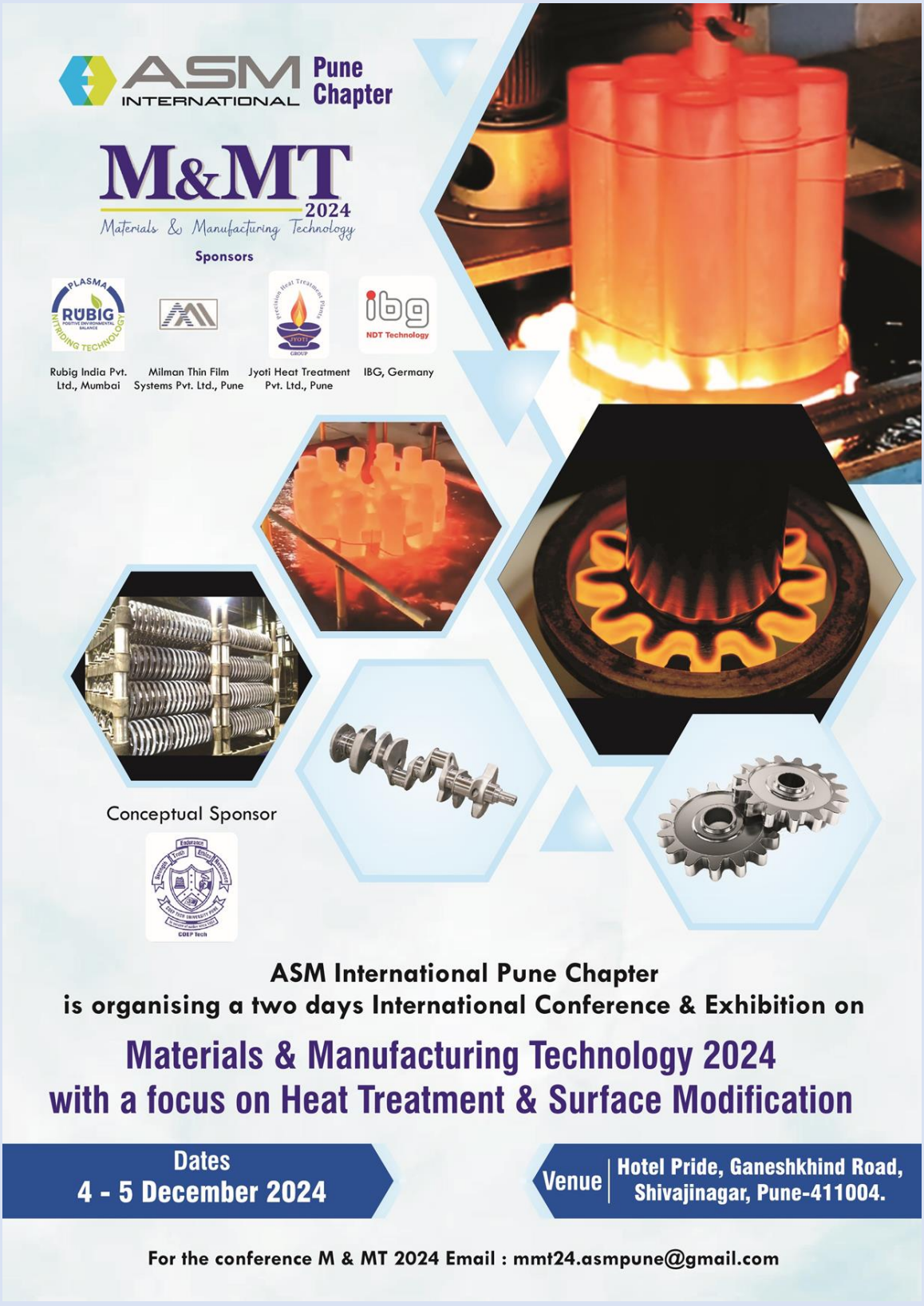
Fasm Udayan Pathak
Ruta Barve
Kruttika Apshankar
Jaswandi Gotmare

MA Chapter Members -
Surabhi Nagar
Tejaswini Verma
Laxmi Mulik

Volunteer yourself for your Chapter!	ASM INTERNATIONAL Pune Chapter
For more efficient working & expanding network of your ASM International Chapter, please support your chapter by offering your time. Lot of avenues to choose areas of your liking. Options are - Membership Development, Education Programs, Students Outreach, Member Service, Website, News Letter, Technical Program and Social Events. Contact ASM International Pune Chapter asm.pune@gmail.com	**ASM International Pune Chapter** Guruprasad, 37/4/A, 6th cross Lane, Prabhat Road, Pune 411004, Maharashtra, India. **Phone #:** 91 - 020-25674455 / 0808. **Email:** asm.pune@gmail.com www.asmpunechapter.org

INDUSTRY PARTNERS

Announcement of Activities



ASM International Pune Chapter is organising a two days international conference **"Materials & Manufacturing Technology"** with focus on Heat Treatment & Surface Modification

This is the fifth international conference in our series of M&MT. The speakers are of global repute both from Industry and Academia. We have also planned a concurrent Exhibition. This would be a great opportunity for all who are in the materials field; **industry, research, academia, and professionals**

- To gain the latest updates in the field,
- Witness demonstrations of advanced products,
- Meet who's who in the field,
- Meet stakeholders, OEMs, and equipment/services providers. and network with them

Call for Papers

This is a call for the contributory papers. Prospective authors are invited to submit their abstracts of papers pertaining to but not restricted to any of the several themes mentioned below.
Abstracts of up to 500 words, in English to be submitted. Extended abstracts shall be requested from authors of accepted papers.
Abstract submission latest by 31/07/2024
Full paper submission latest by 30/09/2024

Topics of the conference

- **Advances in Heat Treatment**
- **Vacuum Technology**
- **Laser Heat Treatment**
- **Plasma-based processing**
- **Physical vapour-based processing**
- **CQI 9, Industry 4.0, 5.0**
- **Nitriding**
- **Latest H.T Equipment Characterisation**
- **Hard coatings & Metallising DLC**

We solicit your presence, contribution and whole hearted support to make the event successful.

M & MT 2024

Exhibition:

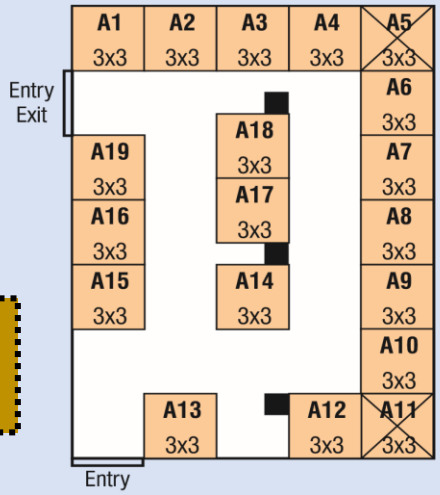
1.The concurrent exhibition provides an opportunity to showcase your products and services. Kindly refer to the Layout below for selecting the stalls.

2. Stall Charges : **Rs. 9,500/- per Sq. Mtr. + GST 18%**

3. Taxes : Additional as applicable at the time of invoicing.

4. Reach us at : asm.pune@gmail.com, meta@metatechind.com, mmt24.asmpune@gmail.com

Exhibition Layout :



Stall Size : 3 Mtr x 3 Mtr

Avail 25% Discount against booking of the stall before 15th June 2024

Facilities provided :

Table – 1Nos. Chairs – 2 Nos.
Electrical Connection (230V 5A)
1 Tube Light, 1 Focus Light.
Higher rating connection charges extra.
One Delegate, One set of Meal Coupons.

Sponsorship Opportunities:

Various Sponsorship opportunities are available, as per table shown below.

Platinum	Gold	Silver	
10 Lakhs	5 Lakhs	2.5 Lakhs	Avail other branding opportunities through sponsorships of Lunch, Dinner, Conference CD, Delegate Kit, Hi - tea.
Logo on the Conference backdrop	Logo on the Conference backdrop	Logo on the Conference backdrop	For details please contact : asm.pune@gmail.com mmt24.asmpune@gmail.com
5 Complimentary Delegates	3 Complimentary Delegates	2 Complimentary Delegates	
One Stall (9 sq. mts.)	One Stall (9 sq. mts.)	One Stall (9 sq. mts.)	
Back Cover Advertisement	Inside Cover Front Advertisement	Full Page Colour Advertisement	

ADVERTISEMENTS

Coloured Full Page	10,000/-	
Coloured Half Page	7,500/-	

DELEGATES

Delegates	Fees (ASM Members)	Fees (Non – ASM Members)
Single Delegate	7,500	10,000/-
Corporate Delegate (5Nos.)	30,000	40,000/-
Students		3500/-

GST @ 18% applicable on all above. All above Prices in INR.

Avail 25% Discount for delegate registration before 31st May 2024 by paying Rs. 1000/-

Name of Account	Account No.	Bank	Bank Address	IFSC Code
ASM INTERNATIONAL PUNE CHAPTER	09411010000430 (Current Ac.)	Punjab National Bank	Prabhat Road, Deccan Gymkhana, Pune 411004	PUNB0094110

GST No. 27AABTA1218R1ZL **PAN No. AABTA1218R**

CHIEF PATRON

Padma Vibhushan
Shri. B. N. Kalyani
Chairman & Managing Director,
Bharat Forge Limited
Founder Chairman,
ASM International Pune Chapter

Shri. Pradeep Goyal,
FASM
President, ASM International
Founder, Chairman & Managing Director, Pradeep Metals Private Limited, Mumbai

MENTORS

Dr. P. G. Renavikar, FASM
Past Chairman, India National Council, ASM International
Mr. R. T. Kulkarni, Director, Arkey Conference & Engg. Services
Dr. T. S. Sudarshan, FASM
President and CEO of Materials Modification Inc. USA

ORGANISING COMMITTEE

Dr. Rajkumar Singh
Chairman, M&MT 2024
Senior Director KCTI, Bharat Forge

Mr. Udayan Pathak, FASM
Convenor (Conference)
M&MT 2024

Mr. Y. S. Gowaikar
Convenor (Exhibition & Souvenir)

Mr. Rahul Gupta
Chairman, ASM International
Pune Chapter

Mr. D. G. Chivate
Vice-Chairman, ASM International
Pune Chapter

Mr. B. R. Galgali
Vice-Chairman, ASM International India National Council

Ms. Ruta Barve
Secretary, ASM International, Pune

TECHNICAL COMMITTEE

Mr. D. G. Chivate
Dr. Nirav Jamanapara, FASM, *Institute of Plasma Research*
Dr. Raju Kadam, *KCTI* Dr. Ritwik Basu, *KCTI*
Dr. Dheepa Srinivasan, *Pratt & Whitney*
Dr. Jyotsna Majumdar, *IIT Kharagpur*
Dr. Pradeep Kulkarni, *Kirloskar Oil Engines*

FINANCE

Mr. Hemant Zaveri
Mr. L. D. Deshpande

PROMOTION & SOUVENIR

Prof. Mahesh Kori
Prof. Yogesh Dandekar
Dr. Kruttika Apshankar
Mr. Sanjeev Inamdar
Mr. Deepak Bansode

ADVISORY COMMITTEE

Dr. Antenello Astarita
Dr. Atul Kulkarni, *Ion Bond*
Dr. Chris Berndt, FASM
Past President ASM International
Dr. D. A. Karandikar, *Spraymet*
John Tirpak, FASM
Past President ASM International
Mr. P. S. Subramaniam
Past Chairman ASM Int. Pune Chapter
Dr. M. Kamraj, FASM
Dr. Milind Acharya, *Milman*
Mr. N. Kalyan, *ELCA*
Dr. Navin Manjooran, FASM
Mr. Rajesh Bhide (Balzers)
Dr. Satyam Sahay, FASM, *John Deere*
Dr. Shrikant Joshi, FASM
Mr. Steve Ferdon, *Cummins*
Dr. U Kamachi Mudali, FASM
Trustee ASM International
Dr. Zoltan Kolozsvary Ms. Manisha Kulthe, *Head of Metallurgy and Materials Engineering*
Dr. Manoj Rathod

GOLD SPONSOR:
Jyoti Heat treatment industries

SILVER SPONSOR:
Aban Technologies, Pune
Millman thin films systems Pvt. Ltd., Pune

EXHIBITION STALL SPONSORS:
Universal Heat Treaters
MetDerm Treat
Unitherm Engineers Limited
Patwardhan
AIMIL Ltd.