

Technical review on precision engineering and technology cluster

E. Bhaskaran ^{1,*}, Harikumar Pallathadka ² and S. Baskara Sethupathy ³

¹ Mechanical Engineering, Manipur International University, Manipur, India

² Manipur International University, Manipur, India.

³ Automobile Engineering, Velammal Engineering College, Chennai, India.

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Abstract

Chennai Incubation Technology Centre registered under Section 8 of Companies Act, 2013 contains 40 SPV members where Common Facility Centre on design, product development and testing are created for precision manufacturing components at Tirumudivakkam, Chennai. The objective is to review the performance of 10 members who are using the CFC for precision manufacturing. The methodology adopted is collection of secondary data from websites of 10 manufacturers. To conclude, even though the members are having CNC, VMC, grinding machines etc. for getting precision orders they have to depend on Common Facility Centre by using metal and plastic 3 D printing machine, 3D Scanner machine with less cost of design, produce high precision components and testing to compete in Global Market with cost minimization and profit maximization with better precision components.

Keywords: Common Facility Centre; Automotive Components; Design; Production And Testing;

1 Introduction

The Automotive Components Manufacturers in the cluster cater to the domestic market and export. Manufacturing is predominantly done to order and is usually based on the buyer's given drawings & specifications. MSMEs cater to niche orders from mostly Tier-II, replacement market & only few small scales are catering the demand of OEMs and exports. In order to make the cluster more competitive and achieve a quantum leap in expanding the business, the Government of Tamil Nadu has proposed to take up various promotional interventions under Mega Cluster Development Scheme. The chief aim is to provide the necessary push to take advantage of the dormant capabilities, across markets and developing the missing links to make the MSMEs globally competitive. To ensure sustained growth, it is essential to strengthen the cluster with capabilities in product development, high-precision machining, and advanced testing infrastructure.

2 Material and Methods

The Precision Engineering Cluster contains 40 SPV members where Common Facility Centre on design, product development and testing are created for precision manufacturing components at Tirumudivakkam, Chennai. The objective is to review the performance of 10 members/ automotive components manufacturers in the SPV who are using the CFC for precision manufacturing. The methodology adopted is collection of secondary data from websites of 10 automotive components manufacturers at Industrial Estate, SIDCO, Tirumudivakkam, Chennai and also visited in person to common facility centre at Tirumudivakkam and also to individual enterprises at Tirumudivakkam to get real time data. The data and performance are analyzed and each manufacturers review is detailed in results and discussions.

* Corresponding author: E. Bhaskaran

3 Results and discussion

3.1 Ultramax Hydrojet Pvt. Ltd.

It is a renowned manufacturer and exporter of high-quality Component Cleaning Machines, Component Washing Machines, Parts Cleaning Machines, Degreasing Machines, and Parts Washing Machines, among others. Established in 2006, they have been consistently delivering premium-quality equipment to meet the evolving demands of our valued customers. They manufacture products using top-grade raw materials and precision-engineered components, ensuring smooth and reliable operation even in challenging conditions. Their equipment is highly regarded for its flawless finish, robust performance, accuracy, and innovative designs. Moreover, they offer these products at competitive market prices, making them accessible to a wide range of customers.

Their in-house brands, Hydrojet and Ultramax, are recognized for their reliability and efficiency. They proudly export their products to Indonesia, Myanmar, Thailand, Singapore, UAE, and Malaysia.

3.2 Quality Assurance & Infrastructure

Equipped with advanced machinery and sophisticated quality control facilities, they ensure that every piece of equipment they produce meets the highest industry standards. Their state-of-the-art testing tools and modern hardware allow them to conduct rigorous quality checks on both raw materials and finished products. Each product undergoes thorough testing by their expert quality control team before reaching the customer.

Their highly skilled and experienced professionals have played a pivotal role in establishing Ultramax Hydrojet as a trusted name in the industry. Their esteemed clientele includes Reliance, Alembic, ASTRX, Hinduja, Cadbury, and Cipla.

3.3 Leadership & Business Overview

Under the leadership, Ultramax Hydrojet Pvt. Ltd. has achieved remarkable success. Their visionary approach, managerial expertise, and ethical business practices have fostered a dynamic and positive work environment.

- Total Employees: 26 – 50
- Annual Turnover: ₹5 – 25 Crore

Product Specifications

- Automatic Grade: Automatic
- Load Capacity: 1000 kg
- Phase: Single Phase
- Type: Pressure Washer
- Brand: Ultramax
- Application: Laboratory

3.4 Front Loading Component Cleaning Machines

They specialize in offering a comprehensive range of Front-Loading Component Cleaning Machines, designed using the finest-grade components and cutting-edge technology. These machines are ideal for mid-size and heavy component cleaning and come with built-in processes for washing, degreasing, and hot air blowing. They provide these cleaning machines in various customizable specifications to cater to the specific needs of their customers.



Figure 1 Component Cleaning Machine, Industrial Component Cleaning Machine, 210V Component Cleaning , Three Phase AHU Filter Cleaning And Drying Machines, Automotive Parts Washer

With commitment to innovation, quality, and customer satisfaction, Ultramax Hydrojet Pvt. Ltd. continues to be a preferred choice in the industry as per figure 1.[1]

3.5 B.S. Industries – Company Profile

- Established: 06-Oct-1995
- Business Type: Proprietorship Firm
- Enterprise Classification: Micro Enterprise (2023-24)
- Location: Chennai, Tamil Nadu

3.6 About B.S. Industries

B.S. Industries is a well-established manufacturing firm with over 29 years of industry experience. Incorporated on October 6, 1995, the company operates from its registered office at, Industrial Estate, Thirumudivakkam, Chennai, Tamil Nadu.

Their primary activity is manufacturing, specifically classified under Manufacture of Machinery and Equipment (NIC Code). They specialize in producing machine tools for a wide range of industrial applications, including turning, drilling, milling, shaping, planning, boring, and grinding.

Enterprise Classification over the Years

2023-24: Micro Enterprise (09-May-2023)

2022-23: Micro Enterprise (26-Jun-2022)

2021-22: Small Enterprise (20-Sep-2021)

Operations & Infrastructure

Date of Commencement of Production: 02-Jan-2019

Manufacturing Location: Chennai, Tamil Nadu

Branches: B.S. Industries, Thirumudivakkam, Industrial Estate, Chennai – 600044

Industry Classification & Activities

Manufacture of Machinery & Equipment:

Machine tools for turning, drilling, milling, shaping, planning, boring, and grinding.

Manufacture of Rubber & Plastic Products:

Moulded industrial accessories of plastics, including electrical insulating fittings.



Figure 2 BS Industries

With a strong foundation in precision manufacturing and cutting-edge technology as shown in figure 2. B.S. Industries continues to serve the industry with high-quality, durable, and efficient machine tools.[2]

3.7 Karthigeya Moulds & Dies Pvt Ltd

3.7.1 Karthigeya Group – A Total Solution Provider

Karthigeya, an ISO 9001:2015 certified organization, is a leading manufacturer specializing in Plastic Injection Moulds as per figure 3, Overhead Cranes, and Product Assembly. With a strong presence across multiple industries, including Automobile, Electrical & Electronics, Engineering Products, and Home Appliances, Karthigeya has established itself as a trusted partner for high-quality manufacturing solutions. Design input and output is shown in Figure 4.

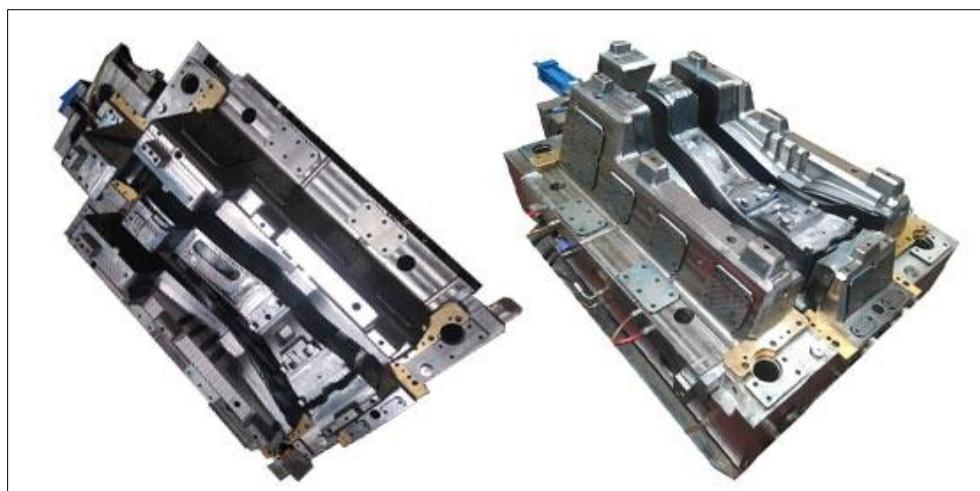


Figure 3 Mould

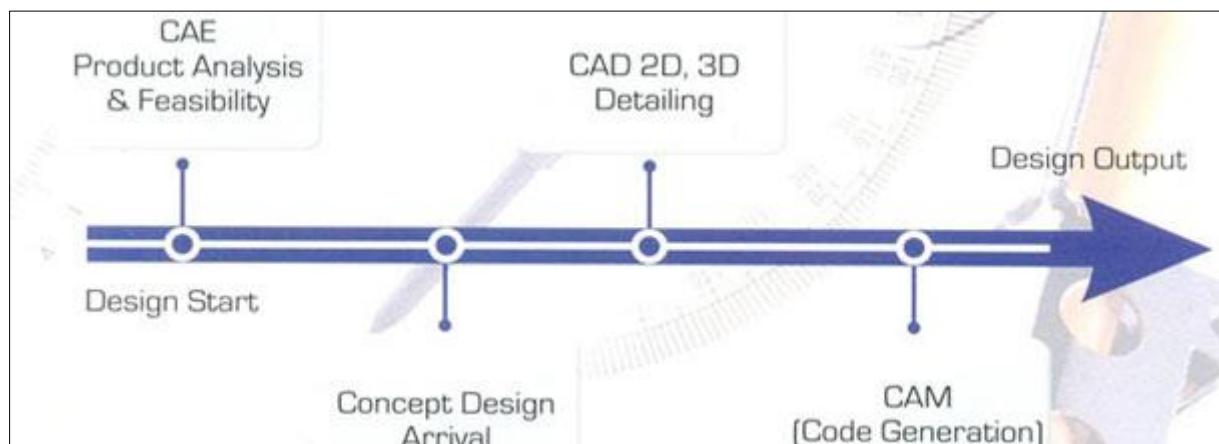


Figure 4 Design input and output

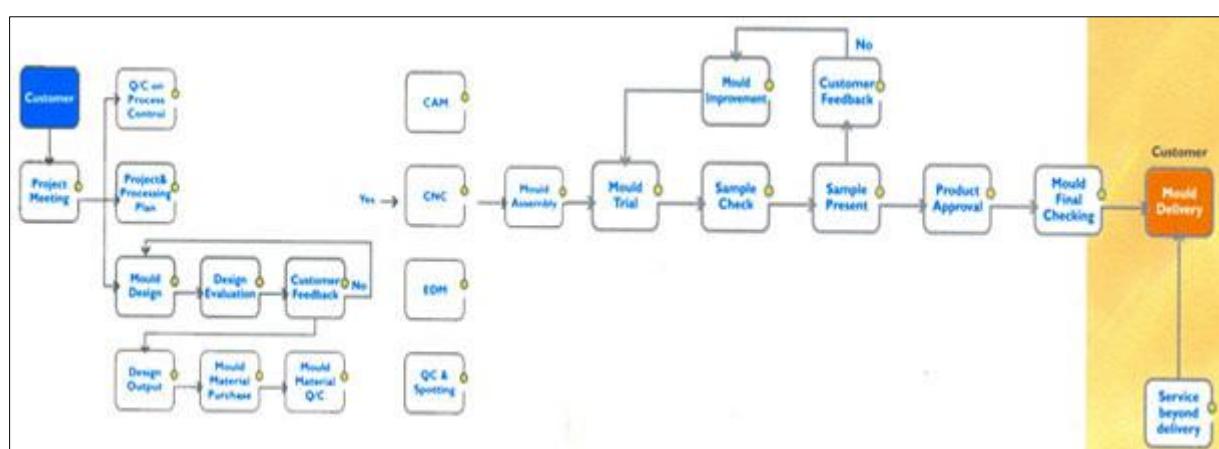


Figure 5 Integrated Manufacturing Excellence

Karthigeya operates independent divisions for mould development and processing, ensuring a streamlined and efficient production system. Over the years, the company has evolved into a dynamic, knowledge-driven organization, focused on delivering comprehensive solutions to meet industry demands.

With a commitment to innovation and technological excellence, Karthigeya has expanded beyond traditional mould manufacturing into a globally recognized production hub. Its robust quality and delivery systems ensure that every product meets the highest standards without compromise as per Figure 5.

3.8 Commitment to Sustainability & Excellence

As an industry leader, Karthigeya is dedicated to fostering economic and environmental sustainability. The company has earned 5S recognition and is actively working towards ISO 14000 certification, reinforcing its commitment to environmental responsibility.

Vision: "To be a leader in providing total solutions to our customers in our selected line of business."

3.8.1 Mission

- ✓ Build India's No.1 facility
- ✓ Achieve 100% process-oriented operations
- ✓ Implement new techniques & advanced machinery
- ✓ Prioritize Quality, Cost, Delivery & Customer Satisfaction
- ✓ Expand into global markets
- ✓ Focus on "First Time Right" approach
- ✓ Drive both Top Line & Bottom Line Growth

With its unwavering focus on innovation, precision, and customer satisfaction, Karthigeya continues to set industry benchmarks while providing end-to-end solutions for its clients.

Corporate Policy: Commitment to Achieve Vision

At Karthigeya, our corporate policy is driven by a commitment to total customer satisfaction, continuous improvement, and a safe and sustainable work environment. They strive to achieve vision through:

- Understanding and fulfilling customer requirements
- Continual improvement across all processes
- Active involvement of all employees in every activity
- Maintaining a safe and green workplace

To realize this, they harness the ENERGY of people, implement leading-edge technologies, and foster a positive culture that rewards innovation, initiative, and intelligent risk-taking.

3.9 Corporate Social Responsibility (CSR)

According to government regulations, Corporate Social Responsibility (CSR) comprises voluntary actions taken by businesses beyond legal compliance to contribute positively to society.

At Karthigeya, they recognize the importance of being an active part of the community in which they operate. They understand their economic, social, and environmental impact and take steps to support and uplift society.

3.9.1 Notable CSR Initiatives:

2018: Assisted Gaja Cyclone-affected communities

Certifications & Recognitions

Karthigeya's commitment to quality and innovation has been recognized through multiple certifications and awards:

- ISO 9001:2015 Certified (TÜV SÜD)
- ISO 14000 Certification (In Progress)
- HYUNDAI Eco-Partner Certificate
- SAMSUNG 5S Runner-Up (2006)
- ABK AOTS 5S Winner (2007)

- ABK AOTS Sustenance Award (2008)
- ABK AOTS 5S Model Company Special Award (2010)

3.9.2 *Milestones & Achievements*

- 2016: KMD Unit I Facility Enhancement
- 2015: First-time development of a 3K Mould in India
- 2014: Successful completion of Air Intake Manifold Mould in India, recognized in Germany
- 2012: Establishment of KMD Unit II for Mould Engineering Services
- 2011: Commencement of Drive Assembly Production at PDM
- 2010: Certified ISO 9001:2008
- 2008: K2 Cranes Components Pvt. Ltd. Established
- 2005: Initiation of Injection Moulding Division
- 2002: Recognized as a Private Limited Company
- 2001: Relocation to SIDCO Industrial Estate, Thirumudivakkam, Chennai - 44
- 1985: Karthigeya Industries Established, focusing on Jigs & Fixtures, Tube Expanders, Product Development & Assembly
- Manufacturing & Quality Excellence

Karthigeya specializes in manufacturing fully automatic and semi-automatic gear assemblies while ensuring industry-leading quality standards. Their key focus areas include:

- Ensuring 100% accuracy with First-Time-Right methodology
- Achieving <500 PPM in-house & <100 PPM at customer end
- Employing Poka-Yoke systems at every production stage
- Developing measuring fixtures per customer requirements
- Benchmarking customer satisfaction through on-time delivery
- Maintaining systematic production processes to fulfil commitments
- K2 Cranes & Components Pvt. Ltd.

As part of the Karthigeya Group, K2 Cranes is a leading manufacturer of industrial material handling equipment, including standard and customized cranes.

Through a strategic partnership with STREET Crane Company Ltd., UK, K2 Cranes offers energy-efficient hoists and cranes, reducing the total cost of ownership while delivering comprehensive solutions.

Key Policy Initiatives:

- Energizing our workforce
- Creating a culture that rewards innovation
- Encouraging intelligent risk-taking
- Providing customized engineering solutions
- Scope of Work – Design & Engineering
- Understanding customer requirements, fit, and function for given parts
- Customer collaboration to improve part and mould quality
- Optimizing moulding machine & cycle time using Tooling Feasibility and Rheology (Flow Analysis)
- Conducting internal CFT design reviews for First-Time-Right implementation
- Manufacturing Excellence

Karthigeya integrates advanced technologies and international-standard materials to develop world-class moulds. Key processes include:

Seamless transition from customer input to manufacturing

- Zero-failure delivery commitments
- CNC programming and precision execution
- Transparency in tracking and customer reporting
- Validation through spotting and trials

- Trials, Approvals & Quality Assurance

Karthigeya follows a rigorous testing and validation process to ensure superior quality:

- In-house injection moulding trial machines for first-time accuracy
- Wall thickness, part gauge, and 2D drawing inspections
- Comprehensive mould record book for process documentation
- Quick corrective actions based on trial reports & customer feedback
- 5S & Continuous Improvement

Karthigeya formally launched 5S practices in 2005 and has since become a benchmark in the industry. Their journey includes:

- Frequent benchmarking visits by industry leaders
- Implementation beyond the workplace – extended to employees' homes, subcontractors, and suppliers
- Significant savings and operational efficiency through 5S principles

3.9.3 *Awards & Recognition in 5S:*

2007-08: ABK AOTS Dosokai – 5S Competition Winner

Karthigeya's commitment to continuous improvement and total quality management has made it a preferred partner for global businesses.[3]

3.10 Craft mould

CRAFT is a well-established organization specializing in prototyping, engineering, product development, and manufacturing services. With development centers in India, China, Korea, the United States, and a headquarters in Japan, CRAFT leverages cutting-edge technology to deliver high-value solutions to customers worldwide.

3.10.1 *Company Milestones*

- 1989: Craft Prototype Shop founded as a private enterprise.
- 1990: Craft Corporation established as a joint-stock company.
- 1993: Akita branch factory established.
- 1994: Korea Craft founded at Shihwa Industrial Complex, Korea.
- 1997: Akita branch relocated to a new facility at 75-1 Aza-Ezotsuka Nankata Omonogawamachi.
- 1998: Headquarters moved to a new building at 3-1-35 Nagaoka Mizuhomachi Nishitamagun, Tokyo.
- 2000: KC Mold Company established in Seoul, Korea.
- 2002: Korea Craft relocated to A-107 SK Twintech Tower, Kasan-dong, Seoul.
- 2002: High-speed tooling facility (CMT) established in Shihung-Shi, Kyunggi-do, Korea.
- 2004: Craft USA Corporation established in Rolling Meadows, Illinois, USA.
- 2007: Ligun Precision Industries Co. Ltd. founded in Guangdong, China.
- 2007: Headquarters relocated to 2-6-2 Nagaoka Mizuhomachi Nishitamagun, Tokyo.
- 2008: CRAFT Mold (India) Private Limited established in Chennai, Tamil Nadu, India.

3.10.2 *Areas of Expertise*

- New Product Development: Design, engineering, prototyping, tooling, molding, post-molding operations, and mass production.
- Industries Served: Electronics, electrical, and automotive sectors.
- Key Capabilities:
 - High-speed precision engineering.
 - Manual floating-type CMM for high-accuracy measurements.
 - High-precision, high-speed (30,000 RPM) machining.
 - EDM-less machining with ultra-fine cutters (down to DIA 0.1 mm).
 - Production of complex, thin-walled housings with micron-level precision.

3.10.3 Product Development Portfolio

- **Engineering & Design:**
 - 3D modeling, assembly, and drafting.
 - Feasibility studies and value engineering.
 - Mold design and detailed component drawings.
 - Standardization, modularization, and simplification of production designs.
- **Prototyping & Mock-ups:**
 - Precision machining of magnesium, aluminum, copper, and stainless steel.
 - Transparent, high-gloss, and mirror-finishing capabilities.
 - Industrial design evaluations and display models.
- **Molding & Post-Molding:**
 - Specialization in precision plastic injection and compression molding.
 - Mass production, secondary operations, assemblies, and subassemblies.
 - Tooling trials, product evaluation, and production support.
- **Tooling:**
 - Global network of tooling factories.
 - Expertise in high-cavitation, thin-wall, high-precision, and micro molds.
 - High-speed precision steel cutting (30,000 RPM, cutters up to Diameter 0.2 mm).

3.10.4 Major Clients

CRAFT collaborates with leading global organizations, including:

- Electronics & Electrical: Nikon, Panasonic, Sony, Motorola, NEC, Toshiba, Samsung, Nokia, Epson, Fuji Film, Xerox, Casio.
- Automotive: Hyundai, Renault-Nissan, Motherson Automotive, Salcomp, Anchor.

3.10.5 Commitment to Excellence

CRAFT is dedicated to innovation, quality, and customer responsiveness. With a strong foundation in high-precision engineering and a focus on continuous improvement, the company delivers world-class solutions for complex product development challenges.

With capabilities that span engineering design, prototyping, manufacturing, and global distribution, CRAFT continues to be a trusted partner in the international market as per figure 6 and 7. [4]

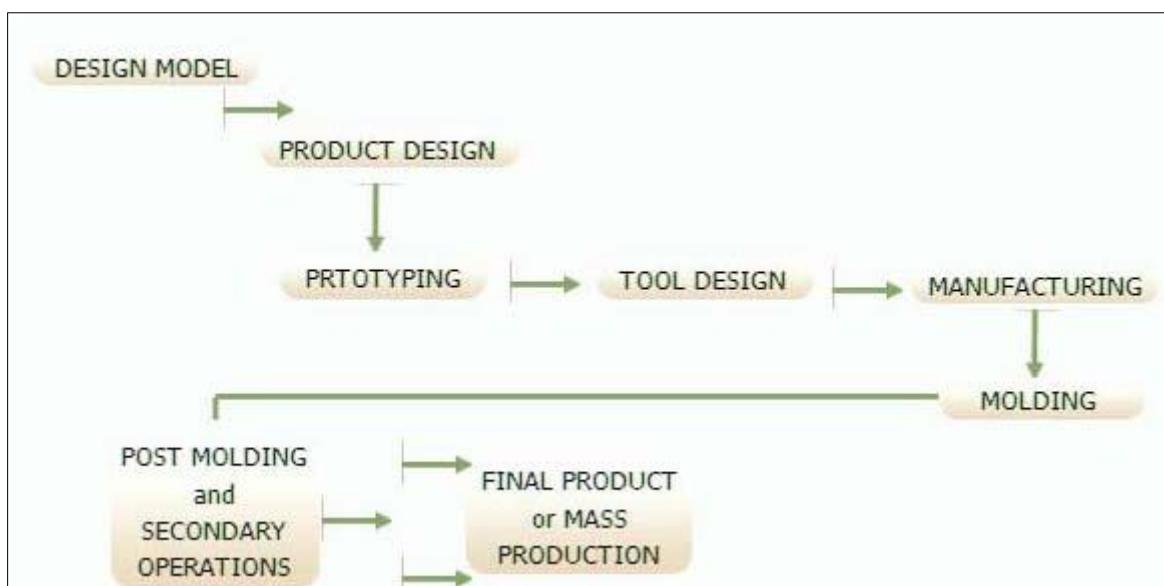


Figure 6 Design Model

**Figure 7** Auto components**Table 1** Details about equipment's

Major Equipment's	Model/Manufacturer
High Speed Machining Centers- VMC Series (30,000RPM with ATC , ATLM & POWER VISE	MAKINO V33i / Japan
CNC EDM Series	MAKINO V33i / Japan
MILLING Series	ESTEEM 4KS / Taiwan
MILLING Series	MILL DRILL MD 30B / Taiwan
Pedestal Grinding Machines	India
ULTRA-PRECISION MULTI-PURPOSE MICRO-GRINDER	E MAX / Japan
CNC WEDM Series	MAKINO DUO43 / Singapore
High Speed Machining Centers- VMC Series (20,000RPM with ATC , ATLM & POWER VISE	MAKINO EDGE 3 – WITH C AXIS & ATC / Singapore

3.10.6 Sairam Industries

Manufacturer & Supplier of Textile Finishing Chemicals, Leather Tanning Chemicals, and Performance Chemicals

Location: Chennai, Tamil Nadu

Company Overview

Sairam Industries is a trusted manufacturer and supplier of high-quality Fixer CCL Textile Finishing Chemicals, Leather Tanning Chemicals, and Performance Chemicals. With a strong presence in the chemical industry, we cater to various sectors, ensuring top-grade solutions for textile and leather applications.

Business Details:

- Nature of Business: Service Provider & Manufacturer
- Legal Status of Firm: Partnership
- Annual Turnover: ₹5 - ₹25 Crore
- GST Registration Date: 01-07-2017
- GST Number: 33ACTFS4421N1ZM

Our Products:

Fixer CCL Textile Finishing Chemicals

leading manufacturer of textile finishing solutions for enhanced durability and quality.

Leather Tanning Chemicals

providing high-performance chemical auxiliaries for superior leather treatment.

Performance Chemicals

Specialized leather chemicals designed for improved finish and longevity.



Figure 8 Leather Chemical

Sairam Industries is committed to delivering high-quality, industry-compliant chemical solutions to meet diverse customer needs as per figure 8.[5]

3.11 Fine Tech Furnace Pvt Ltd

Vision is to be a leader in manufacturing industrial furnaces, accessories, and anchors, becoming the preferred choice for their customers. Fine Tech was founded in 1996 by a team of technocrats with the goal of becoming a market leader in fabricated parts and accessories for industrial heat treatment furnace consumable spares. In 2010, they expanded into manufacturing a wide range of anchors for refractory applications, catering to industries such as steel, cement, refineries, and power plants for both new projects and maintenance needs.

Building on their expertise, they ventured into the production of heat treatment furnaces and ovens in 2017. Over the past two decades, their commitment to quality and teamwork has driven our success and growth in the industry.

3.12 Caliber Tools

The journey of Caliber Tools are given in figure 9 and components manufactured are given in figure 10

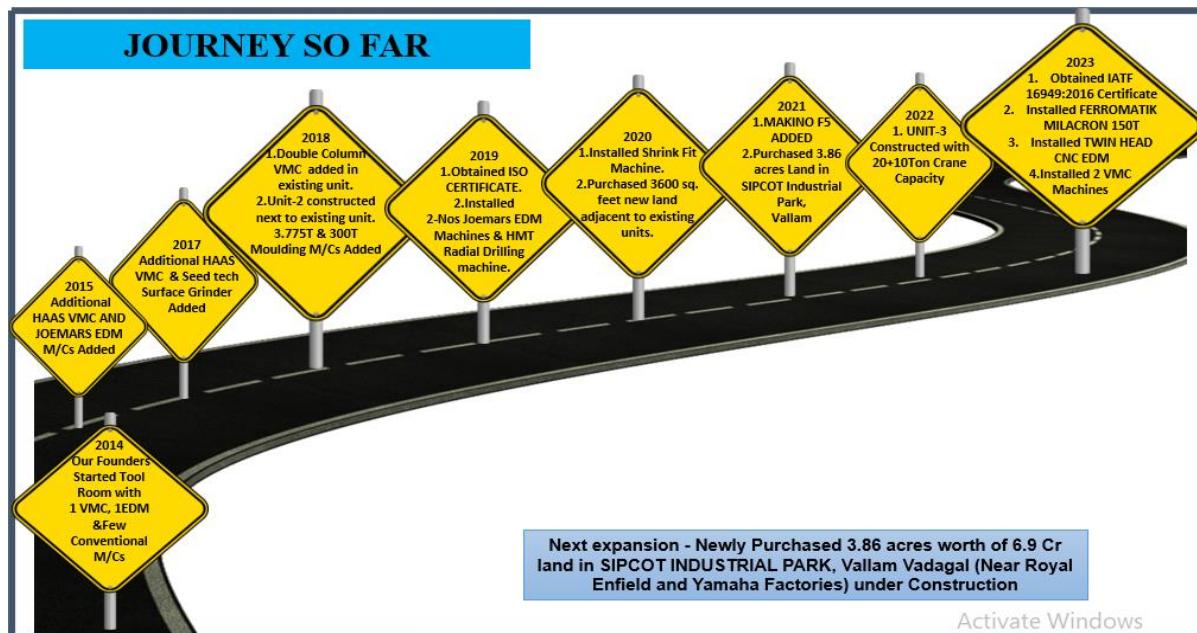


Figure 9 Journey



Figure 10 Components

3.12.1 Caliber Tools: Precision, Quality, and Innovation

Caliber Tools is a first-generation, self-started business in 2014. As a partnership firm, they specialize in injection mold making for engineering, non-engineering, automotive, and non-automotive sectors.

Their commitment to continuous improvement drives us to upgrade our processes and technology regularly. By leveraging their growing database of hands-on experience, they proactively address challenges to minimize machine downtime. They refine their operations through ongoing technological advancements and skill enhancement of their team.

3.12.2 Commitment to Excellence

They prioritize continuous training for their engineers, fostering knowledge-sharing across all aspects of tool design and manufacturing. This structured approach ensures that they provide the best possible solutions to their customers, enhancing their satisfaction through high-quality products and timely delivery.

Expanding their capabilities, Caliber Tools has now ventured into manufacturing plastic components, ensuring superior quality and prompt supply to our clients.

3.12.3 State-of-the-Art Infrastructure

The facility is equipped with advanced technology and high-precision machinery, including:

- Double Column VMC – 1 No
- VMCs – 5 No's
- MAKINO VMCs – 1 No
- EDMs – 4 No's
- Twin Head CNC EDM – 1 No
- Molding Machines – 775T, 300T, & 150T
- Conventional Machines
- Capacity to handle up to 20-ton jobs

3.12.4 Quality Assurance

At Caliber Tools, they guarantee exceptional quality tooling by utilizing advanced measuring instruments and a team of well-trained quality professionals.

3.12.5 Trusted by Industry Leaders

They are proud to serve renowned customers who rely on their expertise, including: IJL, Valeo, Faurecia, Reydel Automotive, Novares, Mahindra, Visteon, Hanon Systems, Hyundai Mobis, Seoyon Automotive, LLS, SACL, MATE, Harita Fehrer, and more as per figure 10.

3.12.6 Core Values

- Ensuring Quality and On-Time Delivery
- Enhancing Manufacturing Capabilities
- Encouraging Active Workforce Involvement
- Commitment to Customer Satisfaction in All Aspects



Figure 10 Components Manufactured

At Caliber Tools, their dedication to precision, innovation, and customer success continues to drive them forward.[7]

3.12.7 Gem Machining Centre Private Limited

Leading Manufacturer of Automobile Components & Allied Products. Location: Tiruvallur, Tamil Nadu

Gem Machining Centre Private Limited is a renowned manufacturer specializing in automobile components, allied components, and allied concrete products. With a strong commitment to quality and precision engineering, they cater to diverse industry needs, delivering high-performance solutions tailored for modern manufacturing.

Business Details

- Nature of Business: Manufacturer
- Legal Status: Private Limited Company
- Annual Turnover: ₹40 Lakhs - ₹1.5 Crores

3.12.7.1 Product Range

They specialize in manufacturing parts and accessories designed exclusively for use with machinery classified under headings 8456 to 8465, including:

- Work & Tool Holders
- Self-Opening Die heads
- Dividing Heads
- Special Attachments for Machine Tools
- Tool Holders for Hand Tools

At Gem Machining Centre Private Limited, they take pride in their expertise, state-of-the-art infrastructure, and commitment to delivering precision-engineered components that meet industry standards.[8]

3.13 Aarthi Industries: Excellence in Electroplating & Surface Treatments

Established in 2003, Aarthi Industries has been a trusted name in the electroplating industry, specializing in silver plating on aluminum, copper plating on aluminum (up to 200 microns), and silver plating on SS316. Over the years, they have expanded their capabilities, now offering auto zinc plating at Kakkalur facility. With a team of 40 skilled professionals, they take pride in their expertise in plating, especially silver plating, and commitment to delivering flawless, high-quality finishes.



Figure 11 Electroplating & Surface Treatments

3.13.1 Core Services

They provide a wide range of plating solutions, including:

- Silver Plating – On copper, aluminum, SS316, and alloy steels
- Tin Plating
- Electro less Plating
- Zinc Plating
- Copper Plating – Up to 200 microns
- Trivalent Zinc Plating – Blue, Yellow, and Black finishes
- Vat Barrel Plating

Commitment to Quality

Their fully equipped laboratory ensures stringent quality control, with advanced digital online pH meters monitoring bath parameters and an ASTM B 117-09 compliant Salt Spray Chamber verifying plating resistance.

They adhere to strict Quality Management Systems (QMS) to consistently deliver high-quality products, meeting and exceeding customer expectations.

Certifications & Compliance

- ISO 9001:2015 Certified – Ensuring excellence in electroplating and anodizing services.
- AS 9100 Certified by America Inc. – Recognized for top-tier anodizing, chemical conversion surface treatment, and electro polishing.
- ZED GOLD Certified – Awarded by the Ministry of MSME for our commitment to sustainable practices.

3.13.1.1 Vision & Mission

- Achieve 100% customer satisfaction through superior service and quality.
- Enhance employee skills through continuous training programs.
- Maintain a customer rejection rate of 0 PPM and in-house rejection under 500 PPM through process improvements.
- Ensure quality at every stage while driving continuous improvement.

Industries they serve: They proudly support leading companies, including:

- Areva T&D India Ltd
- Syrma Technology
- IGP Engineers
- Electromags Automotive

Their long-standing relationships with these prestigious clients reflect our dedication to quality, innovation, and customer satisfaction.

Business Details

- Nature of Business: Manufacturer
- Legal Status: Proprietorship
- Annual Turnover: ₹1.5 - 5 Crores
- Total Employees: 26 - 50

At Aarthi Industries, they continue to push the boundaries of metal finishing with cutting-edge solutions, ensuring durability, reliability, and superior performance.[9]

3.14 GE Process

3.14.1 Expert Solutions in Electro less Nickel Plating & Engineering Consultancy

They are a trusted supplier of electro less nickel plating services for a wide range of industries, including valve manufacturing, automotive, machine parts, and molds & dies. Their expertise covers specialized coatings such as:

- High Phosphorous Electro less Nickel (EN) Coating
- Porous-Free Electro less Nickel (EN) Coating
- Medium Phosphorous Electro less Nickel (EN) Coating

With a commitment to precision, durability, and corrosion resistance, they ensure superior surface finishing solutions tailored to industrial needs.



Figure 12 Coating

Business Details

- Nature of Business: Service Provider & Others
- Legal Status: Partnership Firm
- Annual Turnover: ₹0 - 40 Lakhs
- Total Employees: Up to 10

HSN Code & Product Descriptions

- HSN 7508 – Other articles of nickel
- HSN 7901 – Unwrought zinc
- HSN 7905 – Zinc plates, sheets, strip, and foil
- HSN 8442 – Printing machinery, apparatus & components
- HSN 7506 – Nickel plates, sheets, strip, and foil

Consultancy & Additional Services

They also provide engineering consultancy and pollution control solutions, along with specialized services, including:

- Zinc Iron Plating
- Residential Engineering Consultancy
- Carbon Steel Pipes Supply
- Stainless Steel Pickling - ASTM A 380

As a leading retailer and service provider in Chennai, India, they take pride in delivering high-quality plating, engineering consultation, and industrial solutions with a strong focus on customer satisfaction and industry standards.[10]

4 Conclusion

Precision Engineering Clusters contains 40 SPV members where Common Facility Centre is created for precision manufacturing components. 10 members who are using the CFC for precision manufacturing are studied. To conclude, even though the members are having CNC, VMC, grinding machines etc. for getting precision orders they have to depend on Common Facility Centre CFC by using metal and plastic 3 D printing machine, 3D Scanner machine with less cost of design, produce high precision components and testing to compete in Global Market with cost minimization and profit maximization with better precision components.

Compliance with ethical standards

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Disclosure of Conflict of interest

The author has no conflict of interest in this research.

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

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Author's short biography

Dr. E. Bhaskaran, B.E,M.I.E,M.B.A,PH.D,C.E,F.I.I.P.E,F.I.E, (D.Litt.), (D.Sc.) qualified got more than 1030, Awards and Mementos, 131 ISSN Journals published, 56 ISBN Books Published, 104 Research Papers Presented in National and International Conferences including at Malaysia, Sri Lanka, Nepal and Thailand, 1360 Invited Talks given including at Singapore and Cambodia, 1470 Training / Workshops /Meetings Attended, 1 Design Registration Patent received from IPR, 1 Product Patent on Industrial Robotics Pending at IPR, 66 Scopus Index Citations by Elsevier, h-index is 5, 896 Google Scholar Citations , 12 h-Index, 26 i 10-index, 346 publications with 18 Research Gate Score, 2034 Research Gate Citations, 2,51,123 reads, Empreteco, 160 Violin, Guitar, Piano, and Key Board songs played in Carnatic and western music. They are all uploaded on You Tube. In B.E., got a Best Project Award on Robotics from the Directorate of Technical Education, Government of Tamil Nadu, MBA with Class First Award, Ph.D. with distinction/ highly commended by American University and Calcutta University, Member of Institution of Engineers (MIE), Chartered Engineer (CE), Fellow in Indian Institute of Plant Engineers (FIIPE) and Fellow in Institution of Engineers (FIE). UNIDO an UNCTAD Trained. Got 2 times Distinguished Alumni award from Hindustan University and University of Madras. Got Management Scientist award from Bharathidasan University.

