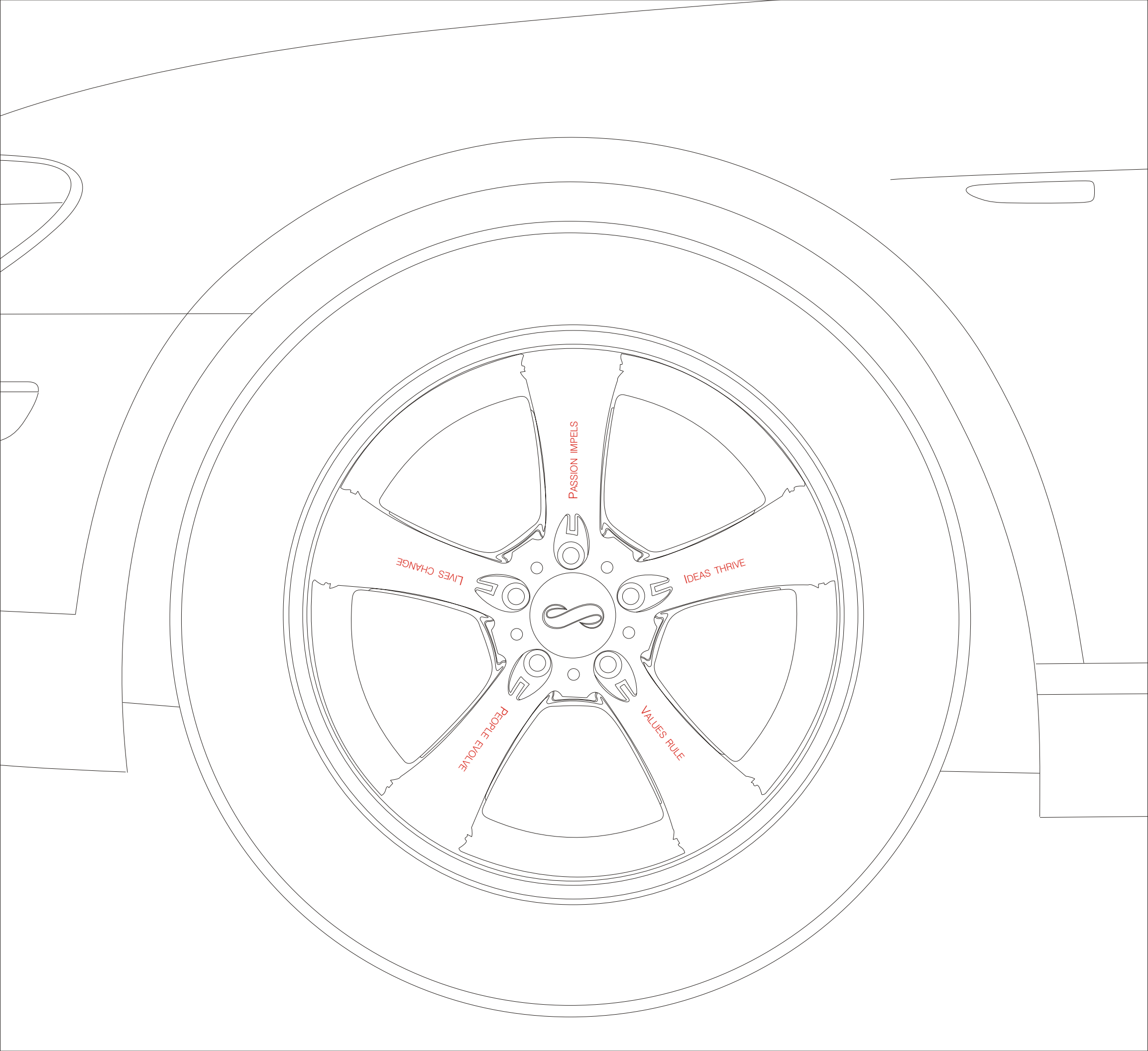




Behind the Rim



PASSION IMPELS

IDEAS THRIVE

VALUES RULE

PEOPLE EVOLVE

LIVES CHANGE



“We will

leverage our state-of-the-art technology, world-class manufacturing facilities, contemporary manufacturing and management systems; and our talented, innovative and committed workforce to manufacture and deliver world-class automotive components at globally competitive prices.

By doing so effectively, we will make a positive difference to all our stakeholders - our customers, employees, investors and the community we live in.”

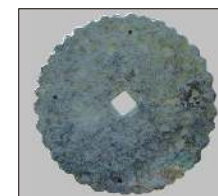
# Behind the rim, there's life unseen...

Of passionate people thinking ahead of their times; of conviction that impels one to sacrifice everything for what one believes is possible.

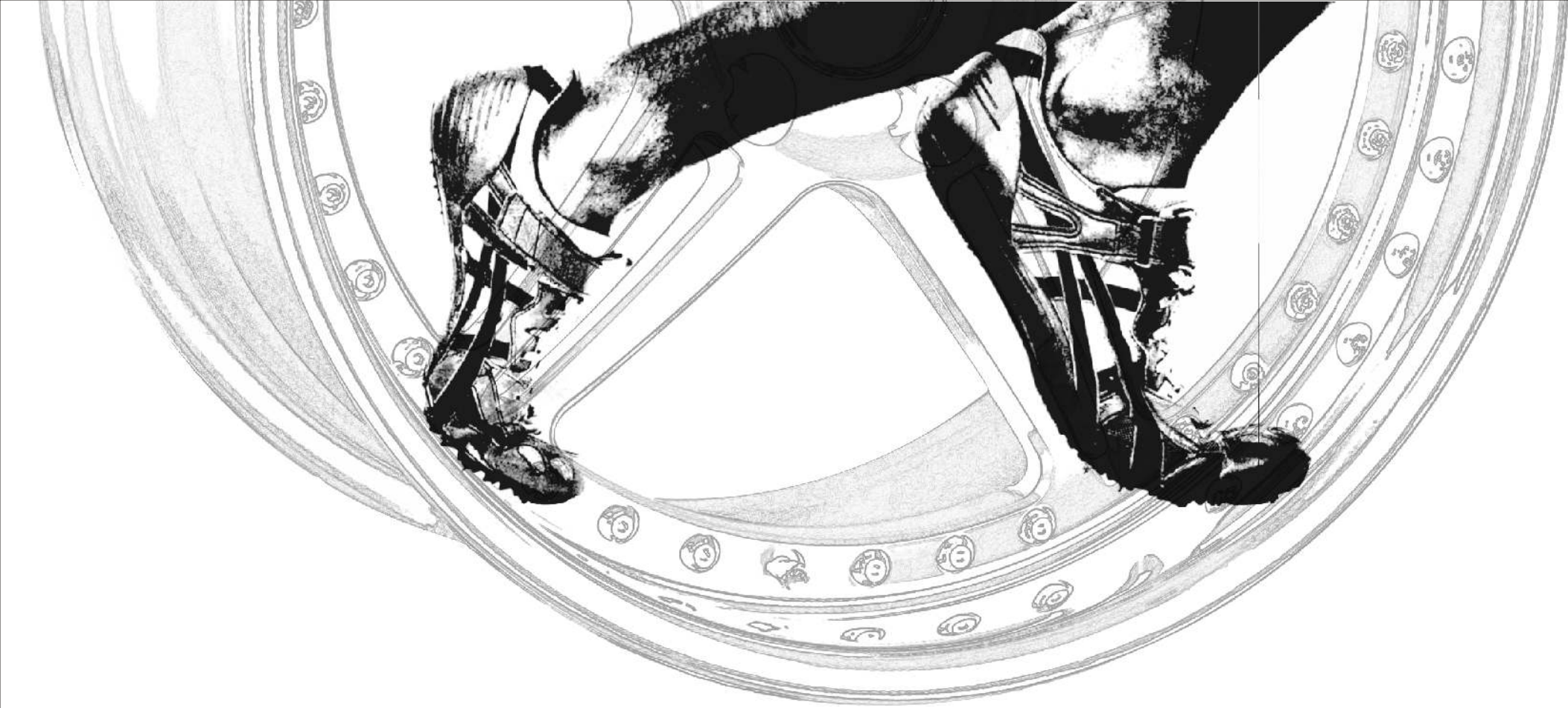
When we commenced operations a few years ago, we were not only pitted against the world majors in alloy wheel manufacturing; but also against severe mindsets. Manufacturing sleek and superior technology products like alloy wheels in India, for the global automobile market, was just not conceivable! Such stonewalls fueled our determination and we persevered viewing each obstacle as a challenge.

Today, we have the world riding on our precision cast alloy wheels and other components. A journey made possible by the people behind the rim. People who make Synergies an institution, where values rule, passion impels and ideas thrive.

When we look back now, it is with pride; for our vision has been validated by an enviable client list that includes the world's best automobile companies. And when we look forward, it is with our heads held high; for we know our wheels are turning faster and taking us farther, leaving new milestones behind.







# SYNERGIES\*

is India's first global scale export-oriented Aluminum alloy wheel manufacturing company.

Today, we have a network of design, engineering, sourcing, warehousing, logistics, sales and service offices spanning three continents. This vast footprint enables us to deliver the benefits of global sourcing and next-door service to our customers.

We began production in 1999, in Visakhapatnam, one of the fastest growing port cities in South India. Our facilities encompass more than 21,000 sq meters of built-up space and a capacity to manufacture 520K big size alloy wheels and chrome plate 240K wheels per annum. Harnessing the power of cutting-edge Low Pressure Die Casting (LPDC)

and customized Copper-Nickel-Chrome electroplating technology, we manufacture and finish Aluminium alloy wheels and other Aluminium cast components.

We are amongst the few companies in the world that can manufacture and chrome plate large wheels of up to 24" to OEM standards.

Today, our wheels adorn vehicles from Ford and GM globally to Ford India, General Motors India, Mahindra & Mahindra, Maruti, TATA Motors and Toyota amongst others.

## Milestones

November 2005	Ford Q1 certification
August 2005	ISO/TS 16949 certification
September 2004	General Motors, USA Cadillac Escalade 22" wheel
July 2004	First global chrome wheel contract with General Motors, USA for Hummer H2 project
November 2003	24" LPDC wheel successfully cast and plated
April 2003	First tyre-wheel franchise pilot outlet "TRAXXZONE" opened
December 2002	ISO 14001 environmental certification from RW-TUV, Germany
June 2002	First full service supplier global contract from Ford Werke AG
December 2001	QS 9000 certification
November 2001	22" LPDC wheel successfully cast and plated
March 2001	First global OEM contract with Ford Werke AG
October 2000	Chrome plant commissioned
March 2000	VIA - Japan Certification
December 1999	Amongst world's first 20" wheel using LPDC
April - May 1999	Domestic OEM supply commences
March 1999	ISO 9002 from RW-TUV, Germany
February 1999	SFI / TUV certification
January 1999	Production commences

## Honors

Honors inspire us to do more, whether it is the award for the 'Best Performance' from VSEZ, 'Best Foundry' from Alucast or the most 'Innovative' from Toyota and others.

## Quality Certifications

- TS 16949
- ISO 9002
- QS 9000
- ISO14001
- Ford Q1
- German TUV
- Japanese JWL VIA



\*SYNERGIES CASTINGS has taken over these facilities from SYNERGIES - DOORAY AUTOMOTIVE LIMITED from May 01, 2005 through an agreement with its lenders and secured creditors. SYNERGIES CASTINGS is a subsidiary of a UK based financial services firm - Thinc Commercial Solutions.





# Cool Products...

We, at Synergies are constantly evolving to meet and surpass customers' varying requirements. From base alloy wheels to polished and chrome plated wheels, we are an integrated supplier who can deliver all finishes and associated accessories. Our innovative design and engineering team develops and launches more than 10 - 15 new designs every year for a wide range of vehicles, from cars and jeeps to SUVs and light trucks.

We manufacture wheels of various diameters 12" to 24", widths, offsets, designs and finishes to suit all vehicles. We are amongst the select few who can manufacture special OEM grade chrome wheels up to 24".

Building on our current manufacturing skills and engineering strengths, we have recently forayed into precision castings for other automotive and engineering companies. We offer high-end Chrome plating on Aluminium and Plastics. We also provide engineering services such as design, engineering analysis, development, prototyping and testing.



## Alloy wheels

Sizes: 12" - 24"

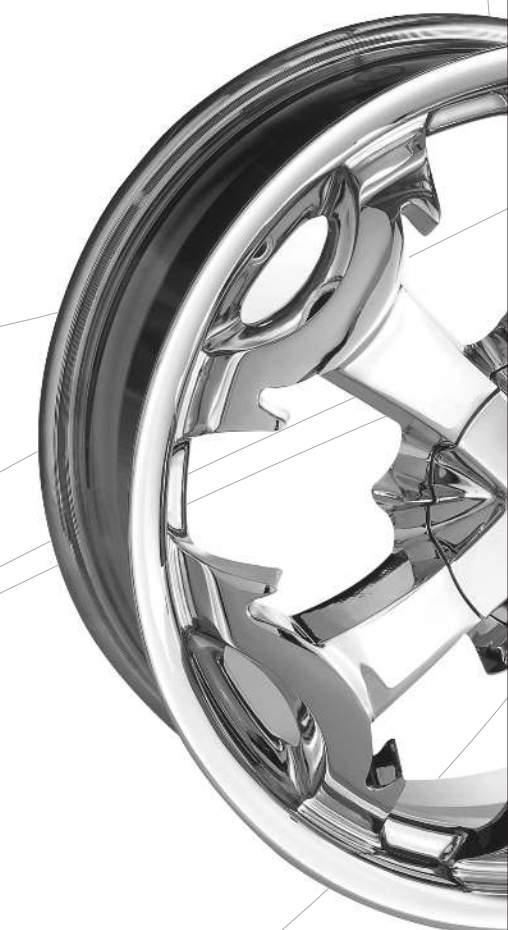
Diameters: 4" - 10"

Finishes: Polished, Painted and Chrome

**Castings:** Automotive and Engineering Industries

**Plastic Molding:** ABS, ABS-PC

**Plating:** Cu-Ni-Cr - Chrome Plating on Plastics and Aluminium







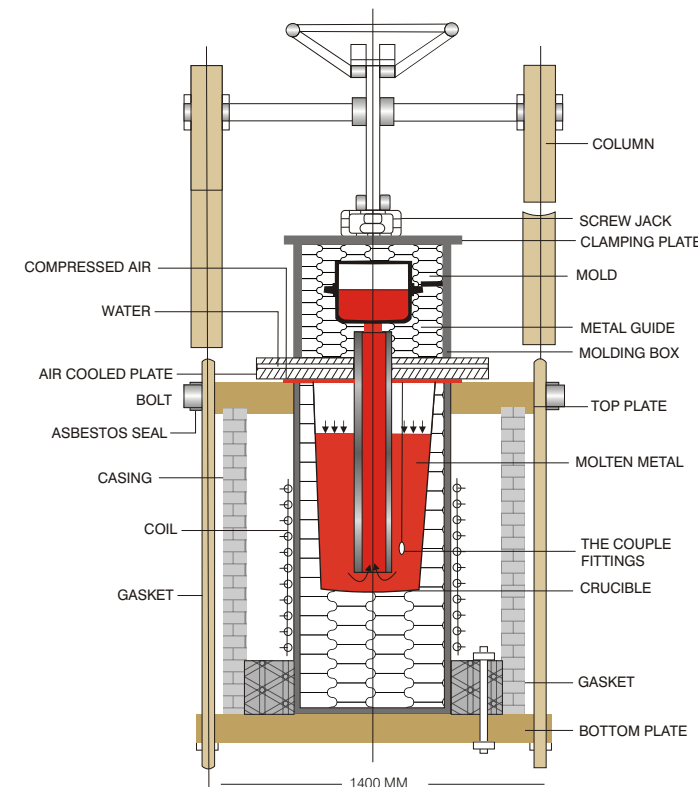
Hot

Technology...

We deploy state-of-the-art technology in our manufacturing process and constantly strive to attain new levels of excellence. We use Low Pressure Die Casting (LPDC) technology for casting, and custom Copper-Nickel-Chrome electroplating technology for 'Chrome' finishing the alloy wheels.

In LPDC, the mold is filled by the upward displacement of molten metal from a sealed holding furnace by applying a relatively low pressure of 15 psi or less on the surface of the molten bath. This causes the metal to rise through a central gate at the bottom of the mold into the casting cavity. The process ensures smooth and non-turbulent flow of the molten metal, after which the mold is cooled by a proprietary custom designed cooling system, through a servo-controlled combination of air, water and mist jets.

The resulting wheel castings have no porosity or blowholes. They are structurally sound; true to shape, lighter; have better strength and excellent surface finish.



Low Pressure  
Die Casting  
Process Illustration

## Workflow

### Casting line

INDUCTION  
MELTING



LOW PRESSURE  
DIE CASTING



100% RADIOGRAPH



GATE CUTTING



3-STAGE  
CONTINUOUS  
HEAT TREATMENT



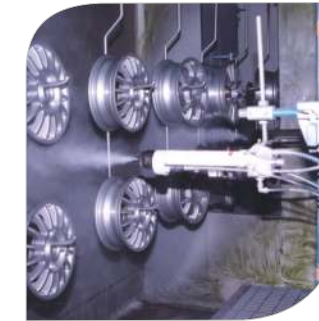
SHOT BLASTING



CNC MACHINING



AIR LEAK TESTING



COLOUR PAINTING



INSERT-BUSH PRESSING



TESTING



PACKING & SHIPPING



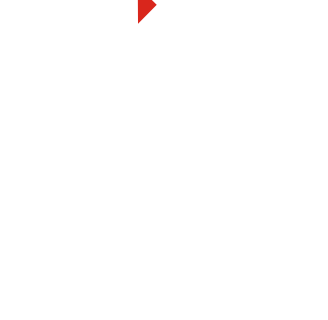
MMI



COPPER



NICKEL



CHROME

### Plating lines



CHROME



PLASTICS

Our chrome plant is a fully automatic, MMI controlled, sophisticated Copper-Nickel-Chrome unit capable of plating wheels of all sizes and designs. It has built-in, fully automatic mechanisms to ensure current control, automatic dosing of chemicals, automatic movement through different plating stages, and complete forward and backward traceability of plating history. Auxiliary anodes are custom designed and manufactured in-house for each new product to ensure precision and consistency in the plating thickness, chemistry and composition. This exacting process results in a wheel that embodies both aesthetic and engineering perfection.

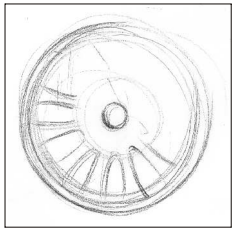


# Engineering Services

Synergies doesn't just manufacture products, it delivers complete product solutions.

We customize and optimize designs for strength, aesthetics and road conditions to suit the customers' needs. This effort is spearheaded by our specialized DEA team that comprises sketchers, draftsmen, designers and engineers located worldwide. The team develops concepts in tandem with the vehicle's positioning in the market. These concepts are developed into full-scale designs, which are further engineered and optimized to meet customer-specific technical requirements. We have more than 120 designs in our collection and 10-15 new designs are added, annually.

Our engineering services division provides end-to-end solutions that cater to the automotive and engineering industries. Our product design services include concept design, engineering analysis, tooling, prototyping, product manufacturing, testing and supply. We understand the entire APQP process and deploy cutting edge concepts such as DFMEA, DFM, PPAP, FEA and VE to ensure stability and reliability in our development processes, ensuring an optimal design for manufacturability.



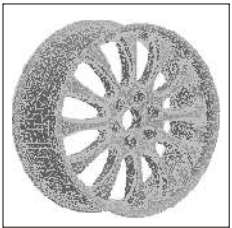
SKETCH



CONCEPT



3D SOLID MODELLING



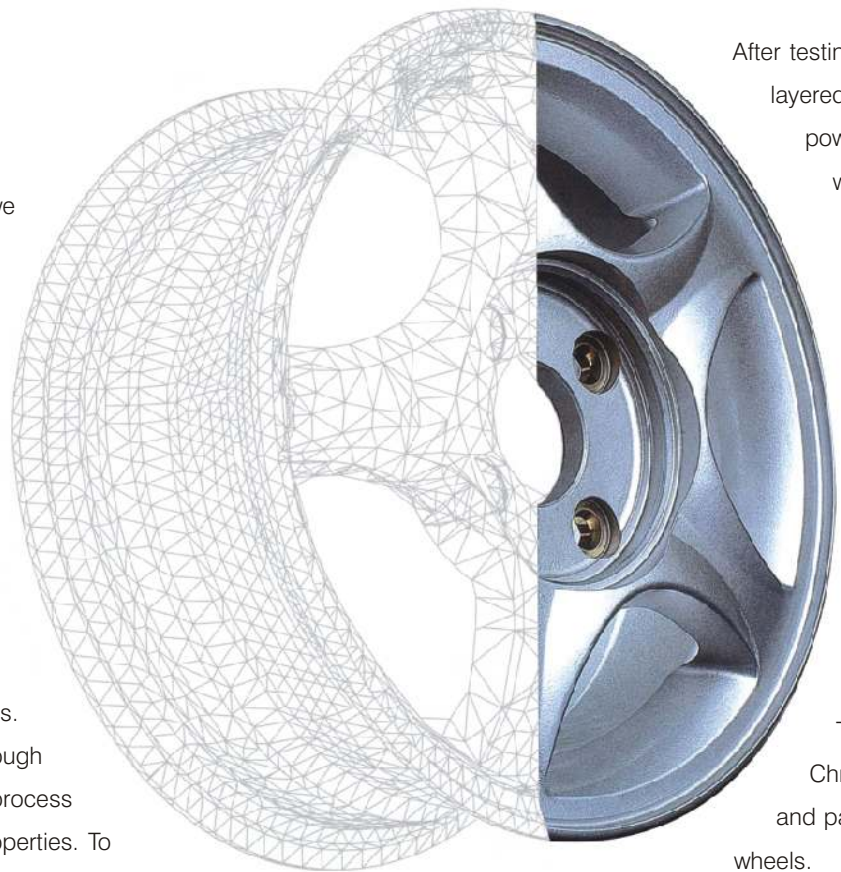
FINITE ELEMENT MESH MODEL

## Manufacturing

We know a lot is riding on our wheels. Therefore, we ensure that each wheel is manufactured precisely and tested rigorously, at every stage of its creation.

The life cycle of a world class wheel begins with the raw material. Pre-tested virgin A356.2 alloy is melted in sophisticated induction melting furnaces to ensure absolute consistency of the molten metal and minimal gas content. This molten metal is then converted into raw castings in LPDC machines.

Each wheel is rigorously tested using X-ray machines to detect even the minutest of cracks and pinholes. The wheels are then placed in baskets, which go through a 3-stage fully automated continuous heat treatment process that accentuates their mechanical and structural properties. To ensure dimensional precision and finish, the wheels are then machined on fully computerized CNC machines.

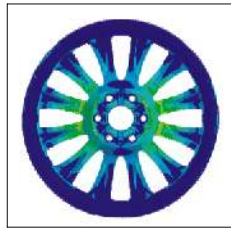


After testing for air-leak, the wheels go through a multi-layered electrostatic painting process that includes powder, color and clear coating lines. Finally, the wheels pass through a series of mechanical, chemical, functional and metallurgical tests. The good wheels are then packed and shipped to the customers.

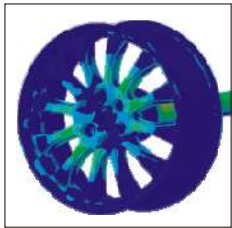
The wheels requiring a Chrome finish are sent to a polishing unit, where they are pre-polished before being Chrome plated. The wheels then go through Copper plating lines for Copper buffing and pass through a 3 - stage Nickel plating process before being Chrome plated.

The facility also has a fully automatic Plastic Chrome-plating unit to ensure that the Plastic caps and parts meet the same exacting standards as the wheels.

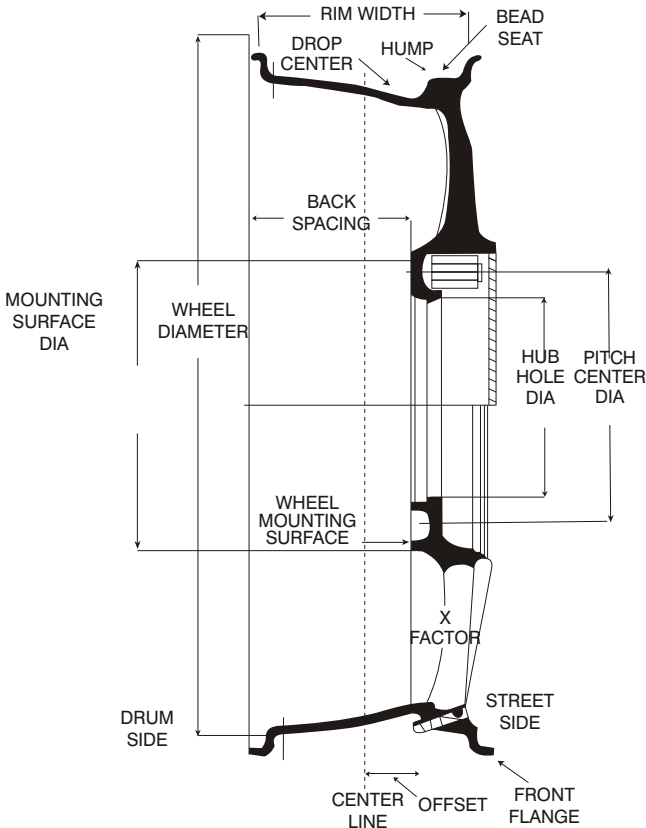
## Wheel Specifications



MAXIMUM STRESS CORNERING FATIGUE



RADIAL FATIGUE





# People behind the wheels

Good ideas are not everything, People are. People, who innovate, adapt and convert ideas into reality. People who have the passion for excellence.

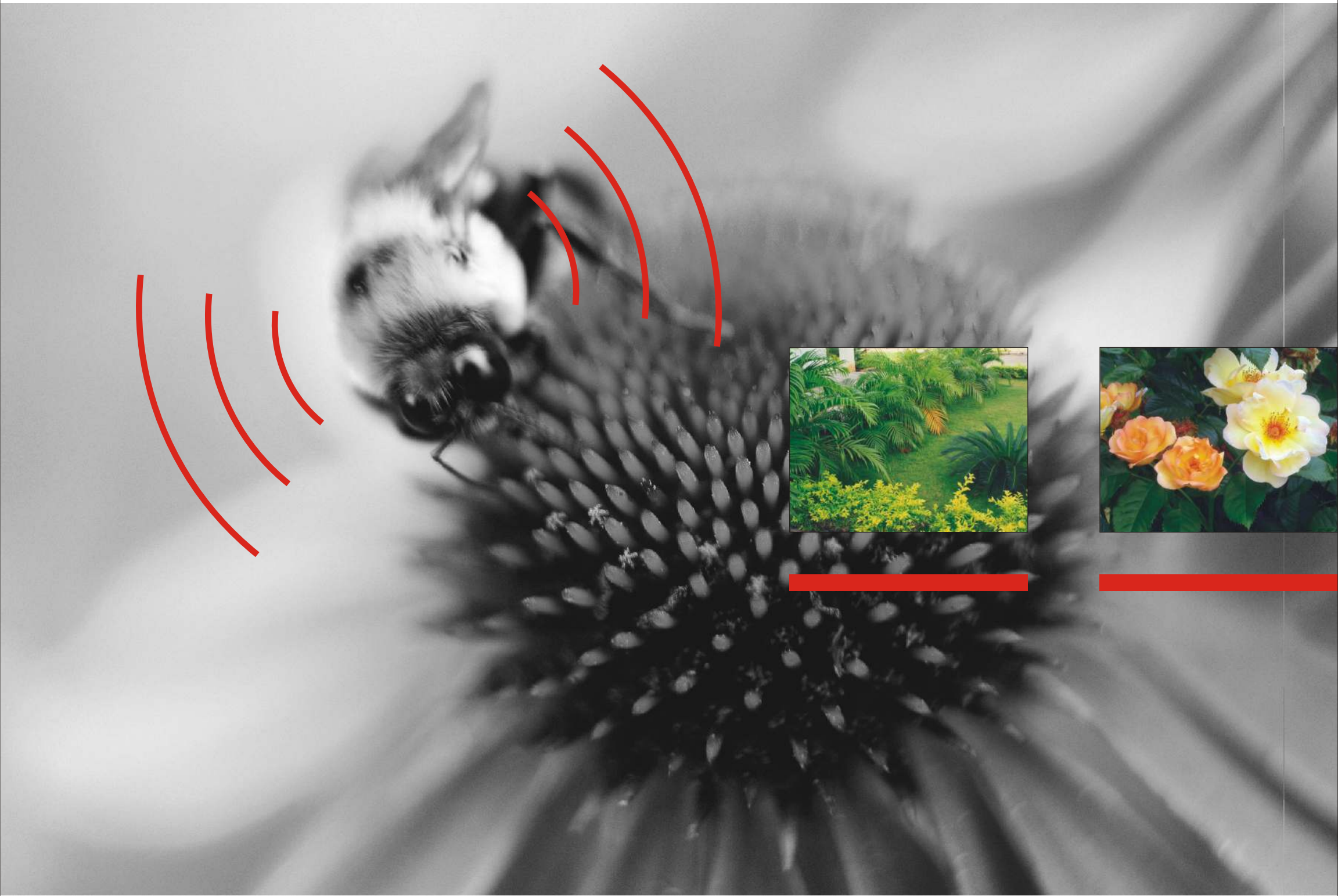
Synergies is proud to have an environment that nurtures such people. Here, everyone has an opportunity to excel. Individual accomplishments are synchronized with organizational objectives to allow common people achieve uncommon results.

We constantly upgrade the skills of our workforce through intense training, various educational programs, technical seminars, conferences and trade fairs. This increases our productivity; and our ability to react quickly to our customers' needs.

At Synergies, individual development and growth is fostered through employee-driven programs such as Sadhana, Sampada, Saanketa and Seva - initiatives that are geared towards improving workforce productivity, leadership skills and community outreach.







# The art of taking less and giving more

At Synergies, we take our commitment to the environment very seriously. We believe our obligation to the environment goes beyond cost concerns.

We use environment-friendly technologies, processes and material at every stage of manufacturing. We endeavor to conserve natural resources and follow stringent standards in recycling, waste reduction and effluent treatment. Our products made of Aluminium alloy are much lighter than steel wheels and are completely recyclable. This feature contributes in improving fuel efficiency, reducing emissions and eventually in conserving scarce natural resources.

A few of our environment-friendly initiatives are:

- Using electricity to melt aluminum thereby reducing harmful Sulphur dioxide emissions by over 60%
- Recycling chips in-house
- Ensuring lead-free discharge by using non-chromate pre-treatment process in our paint lines
- Rain harvesting pits

We have custom designed 2-layered poly vinyl chloride secured landfills for disposing hazardous waste from the plant. Using recycled water, we have developed more than 10 acres of green belt. And to harness precious rain water we have rain harvesting pits.

Today, we are studying new means to further reduce our consumption of electricity, oil and fresh water.

Validating all our efforts, Synergies was one of the first Indian auto component manufacturer to be awarded an ISO 14001 certification, the Environmental Management System Certification.

We, at Synergies, are proud to be a non-polluting company.



ALLOY WHEEL PLANT



IN-HOUSE SOLID WASTE LANDFILL



EFFLUENT TREATMENT PLANT



NON CHROMATE PRE-TREATMENT



[www.synergies-castings.com](http://www.synergies-castings.com)



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