



PROJECT PROFILE ON  
**PRESSURE DIE CASTING BELOW 0.75 KG**

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## **Commercial Details**

**NOMENCLATURE OF THE PRODUCT:**

**Commercial Details**

**1. HSN Code of the Product:**

| Sl. | Product Description   | HS Code    |
|-----|---|------------|
| 1.  | Aluminium Auto Castings (Isri), Aluminium Auto Castings (Isri) Insulated Aluminium Wire Scrap (Isri) Aluminium Airplane Castings (Isri) Fragmentizer Aluminium Scrap  | 76020010   |
| 2.  | Lamps and Lighting Fittings including searchlights and spotlights and parts thereof not elsewhere Specified or included - Chandeliers and other electric ceiling or wall lighting fittings, excluding those of a kind used for lighting public open spaces or thorough fares: Hanging   | 94051010   |
| 3.  | Wheeled toys designed to be ridden by children (for example, tricycles, scooters, pedal cars); dollr carriages  | 94060099   |
| 4.  | Tricycles, scooters, pedal cars and similar wheeled toys; dolls carriages; dolls; other toys; reduced-size (*scale*) models and similar recreational models, working or not; puzzles of all kinds - tricycles, scooters, pedal cars and similar wheeled toys; dolls carriages; dolls; other toys; reduced-size (*scale*) models and similar recreational models, working or not; puzzles of all kinds - -- of metal | 95030020   |
| 5.. | Manufacture of diverse parts and accessories for motor vehiclessucs as brakes, gearboxes, axles, road wheels, suspension shock absorbers, radiators, silencers, exhaust pipes, catalyzers, clutches, steering wheels, steering columns and steering boxes etc.  | 29301      |
| 6.  | Manufacture of domestic electric appliances such as refrigerators, washing machines, vacuum cleaners, mixers, grinders etc.   | 27501      |
| 7.  | Manufacture of other domestic appliances n.e.c.   | 27509      |
| 8.  | Casting machines  | 8454.30    |
| 9.  | Die-casting machines  | 8454.30.10 |
| 10. | Continuous casting machines   | 8454.30.20 |

**2. NIC Code of the Product :**

**24319 Manufacture of other iron and steel casting and products thereof.**

| SI   | Name of the Part/ Product Description   | NIC Code     |
|------|---|--------------|
| 1.   | <b>Casting of metals</b><br>This group includes the manufacture of semi-finished products and various castings by a casting process. This group excludes: - Manufacture of finished cast products   | Group 243    |
| 2.   | Casting of iron and steel   | 2431         |
| 3    | Manufacture of other iron and steel casting and products thereof  | 24319        |
| 4    | Die-casting of non-ferrous metal castings   | 24320        |
|      | Boilers and radiators,<br>Cast household items  | 2512<br>2599 |
| 5    | Manufacture of domestic electric appliances such as refrigerators, washing machines, vacuum cleaners, mixers, grinders etc.   | 27501        |
| 6    | Manufacture of electric lighting equipment  | 27400        |
| 7    | Fans, Manufacture of domestic appliances  | 2750         |
| 8    | Manufacture of machinery and equipment for handling hot metals (converters, ingot moulds, ladles, casting machines)   | 2823         |
| 9    | Manufacture of other general purpose machinery n.e.c  | 28199        |
| 10.  | Manufacture of diverse parts and accessories for motor vehicles such as brakes, gearboxes, axles, road wheels, suspension shock absorbers, radiators, silencers, exhaust pipes, catalyzers, clutches, steering wheels, steering columns and steering boxes etc. | 29301        |
| 11.  | Manufacture of domestic electric appliances such as refrigerators, washing machines, vacuum cleaners, mixers, grinders etc.   | 27501        |
| 12.. | Manufacture of other domestic appliances n.e.c.   | 27509        |
| 13.  | Manufacture of telephone and facsimile equipment, including telephone answering machines, PBX   | 26302        |
| 14.  | Manufacture of microphones, amplifiers, loudspeakers, headphones and similar components, see 2640   | 3220         |

3. Cluster already existing on the Product : No

4. Possibility to create establish clusters on the product:

MSMEs engaged in manufacturing of parts using Pressure Die Casting and Gravity Die Castings processhaving similar activities can be motivated to avail the benefit of MSE- CDP Scheme.

5. Probable areas or Districts where the products manufacturing or Project can be established.

The pressure Die Casting Units can be established in the surrounding areas of Medium and Large industries where in demand of pressure Die Casing Products is more.

(Maharashtra -Palghar, Pune, Aurangabad, Thane, Nashik)

6. Number of Industries registered as MSME is available in the manufacturing of the Product

State wise total number of applications with 5 digits NIC code ( 24320-Casting of non-ferrous metals ) Under Udyam Registration

|             | Micro | Small | Medium | Total |
|-------------|-------|-------|--------|-------|
| <b>Nos.</b> | 2868  | 679   | 136    | 3683  |

7. Number of Industries available in Large Scale Industries Under compilation.

8. Data about the Imports of this product for the past three years

Data obtained from DC MSME website. Value (Rs in Crores)

| Year   | 2017-18   | 2018-19  | 2019-20    |
|--------|-----------|----------|------------|
| Import | 62.149291 | 95.92478 | 64.8814692 |

9. Data available for the Exports well against this product for the past two years Data obtained from DC MSME website. Value (Rs in Crores)

| Year   | 2017-18  | 2018-19   | 2019-20 |
|--------|----------|-----------|---------|
| Export | 0.304907 | 0.1311062 | ----    |

10. Scope for the number of unit's number of years can be established further

**11.** The demand in the domestic market-

The parts/products produce by Pressure Die Casting process having continues demand in the various sectors such as Automobile, Domestic Appliance, Industrial Products, Toyssector , Electrical and electronics etc.

**12. Demand in the Export Market**

Most of the MSMEs are engaged in supplying the products/parts/Assemblies to the OEMs who are using this parts in their products and exporting to the different countries..



## Technical Details



## Technical Details

1. Sector in which the Product is Falling

2591 : Castings and Forgings (Metallurgy )

### Introduction:CASTINGS AND FORGINGS

#### Definition of Casting &Forgings:

It is the process of producing metal or alloy parts.

The parts or object of desired shape are produced by pouring the molten metal or alloy into a prepared mould which contains a hallow cavity of the desired shape and then allowing the metal or alloy to cool and solidify.

The solidified piece of metal or alloy is called as Casting, which is ejected or broken out of the mould to complete the process.

#### Different types of the Casting process:

- 1) Sand Casting
- 2) Investment Casting,
- 3) Die Castings,
- 4) Low Pressure Castings,
- 5) Centrifugal Castings,
- 6) Gravity Die Castings, etc...

Castings is most often used for making complex shapes that would be otherwise difficult or uneconomical to make by other methods.

Casting process is used to produce the desired cross sectional or three-dimensional shapes and then solidified it.

#### Advantages of Metal Casting :

Casting is one of the most versatile manufacturing processes.

It provides the greatest freedom of design in terms of shape, size and quality of product.

Casting provides uniform directional properties and better vibration damping capacity to the cast components.

Complex and uneconomical shapes which are difficult to produce by other process can be easily produced by casting process.

### **Pressure Die- Casting :**

- In pressure die-casting molten metal is poured by pressure into a metal mold known as die.
- Because the metal solidifies under pressure, the casting conforms to the die cavity in shape and surface finish.
- The Pressure is generally obtained with the help of compressed air or hydraulically.
- The pressure varies from 70 to 5000 kg/cm<sup>2</sup>.
- The main types of die-casting machines are :
  - (a) Hot Chamber die-casting
  - (b) Cold chamber die-casting.
- The principle difference between the two methods is determined by the location of the melting pot.
- In the hot chamber method, a melting pot is included with the machine and the injection cylinder is immersed in the molten metal at all time.
- The injection cylinder is operated by either hydraulic or air pressure, which forces the metal into the dies to form a casting.

Whereas, cold chamber machine consists of separate melting furnace and metal is introduced into injection cylinder by hand or mechanical means.

### **Advantages of Pressure Die Casting :**

- High production rates are possible.
- Economical for large production quantities.
- Close tolerances upto 0.076 mm on small parts is possible.
- Good surface finish can be obtained.
- Thin sections upto 0.5 mm can be cast.

### **Disadvantages of Pressure Die Casting :**

- Only small parts can be made.
- Only non- ferrous alloys and metals can be commercially cast.
- Due to high cost of equipment and dies, the process is economical only for mass production.

**1. End users of the Product/ Sectors:**

- Household equipment's like decorative parts, mechanical parts of mixers, fans, vacuum cleaners, washing machines, can openers, refrigerators, etc can be made.
- Industrial equipment's like motor housing, crane parts, motor, rotor fan, impeller wheel, etc. can be made.
- Automotive parts like windshield frames, window channels, bodies of fuel pump and carburetor, handles, rear view mirror parts, brake shoe (Al), etc. can be made.
- Toys like pistols, electric trains, model aircrafts, automobiles, etc. can be made.
- Other parts like taps, valves, burners, fire alarm system, telephone sets, speakers, staplers, typewriters, etc. can be made.

**2. Governing Indian Specification :**

**Refer Link :**

[https://standardsbis.bsbedge.com/BIS\\_SearchStandard.aspx?keyword=pressure%20die%20casting%20&id=0](https://standardsbis.bsbedge.com/BIS_SearchStandard.aspx?keyword=pressure%20die%20casting%20&id=0)

**IS 1655 : 1991** (Reaffirmed Year : 2018 )

Zinc alloys - Code of practice for manufacture of pressure die castings

| Sl. | Standard No. | Year | Title   |
|-----|--------------|------|---|
| 1   | IS 1655      | 1991 | Zinc alloys - Code of practice for manufacture of pressure die castings   |
| 2   | IS 11804     | 1986 | Code Of Practice For Manufacture Of Aluminium Alloy Pressure Die Castings |

**IS 11804 : 1986** (Reaffirmed Year : 2017 )

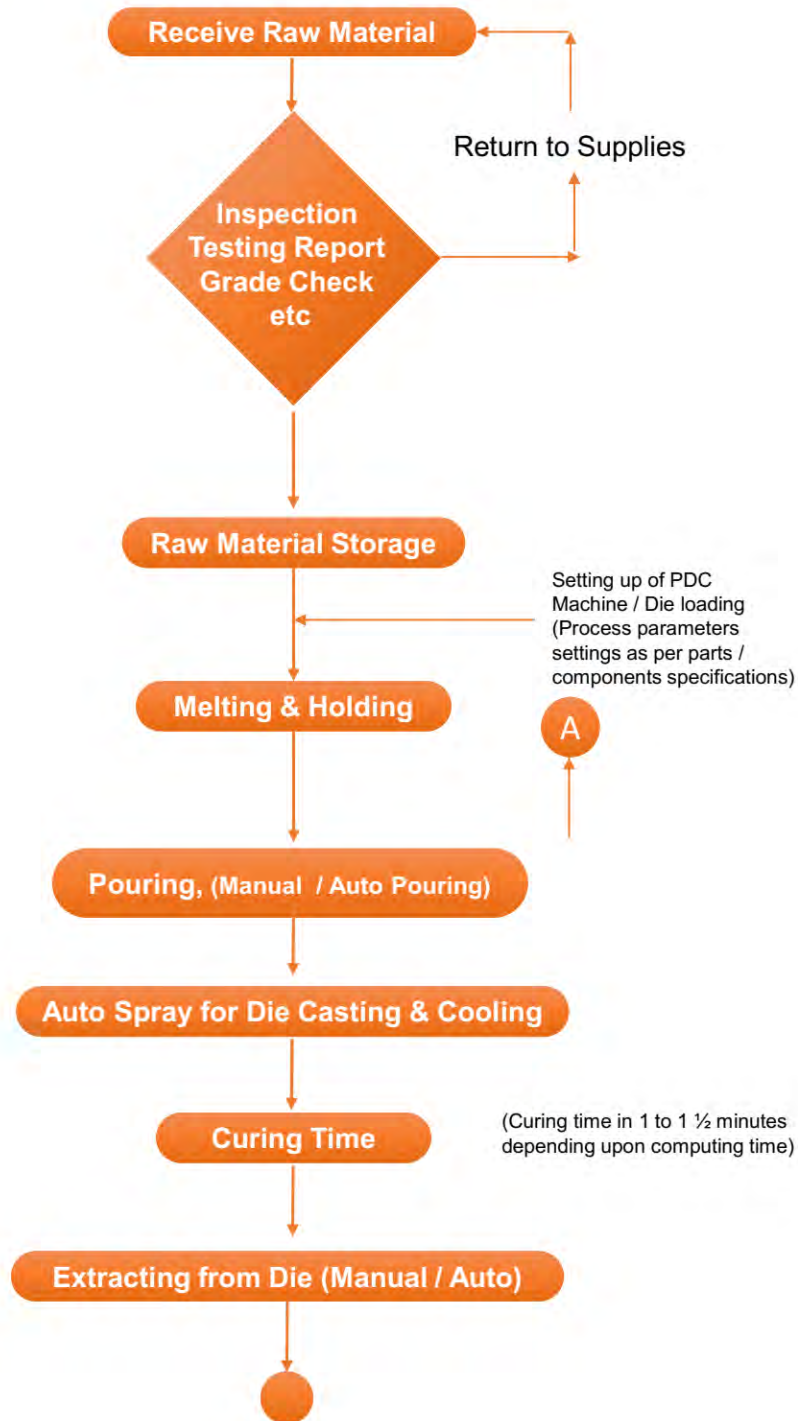
**4. Governing International Specification:**

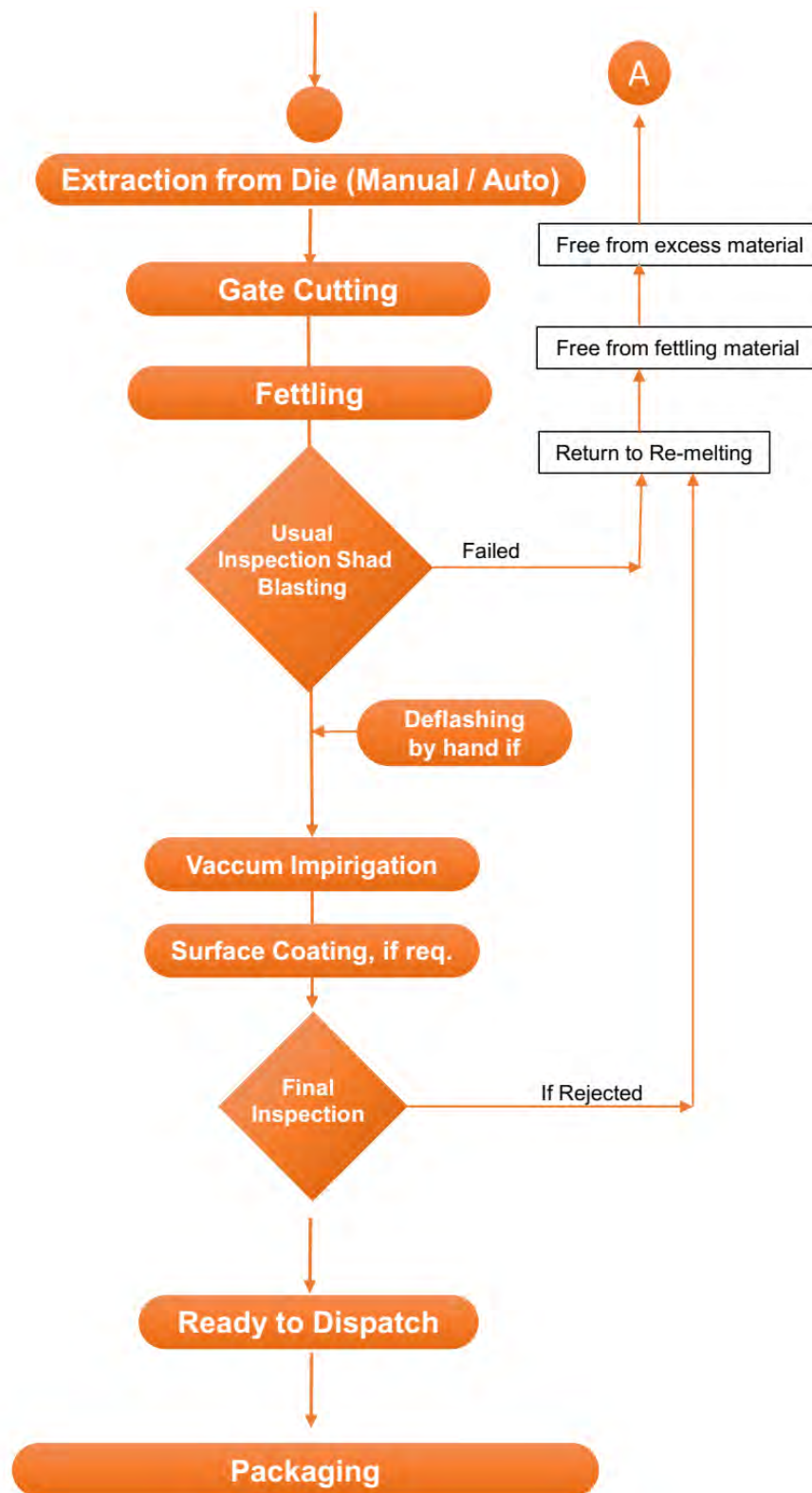
**Refer Link**

[:https://www.engineersedge.com/mechanical,045tolerances/casting\\_tolerances\\_13791.htm](https://www.engineersedge.com/mechanical,045tolerances/casting_tolerances_13791.htm)

5. Flow process chart of the manufacturing :

### Flow Process Charts





**6. Qualitative parameters of the product :**

Depends upon products, applications and requirement of customer.

**7. Equipment required for the manufacturing of the product:**

| Sl | Particulars   |
|----|---|
|    | <b>Main Machines/ Equipment</b>   |
| 1  | 120/180/350 kg Melting Holding Furnace for Alloys   |
| 2  | 120/180/350 T High Pressure Die casting machine @ 3.1 kg/ shot<br>Automatic Ladling manipulator |
| 3  | Cooling Conveyor / Manipulator  |
| 4  | Trimming Press 8T and 12T capacity  |
| 5  | Reciprocating Mold spray unit   |
| 6  | Surface treatment machine, Tumbling unit  |
| 7  | Polishing Belt grinder  |
| 8  | Heat Treatment furnace  |
| 9  | Lathe machine   |
| 10 | Drilling machine  |
| 11 | Milling machine   |
| 12 | Air Compressor unit   |

**8. Test facilities required for the product :**

- CMM
- Digital Linear Height Gauge
- Crack Detection
- Spectrometer
- Density Indexing Meter
- Micrometer
- Gauges

**9. The technology existing the manufacturing of the product :**

Cold Pressure Die Casting and Hot Die Pressure Die Casting

**10. Suggested modern technology for implementation or available in the market**

**11. Raw material required and availability :**

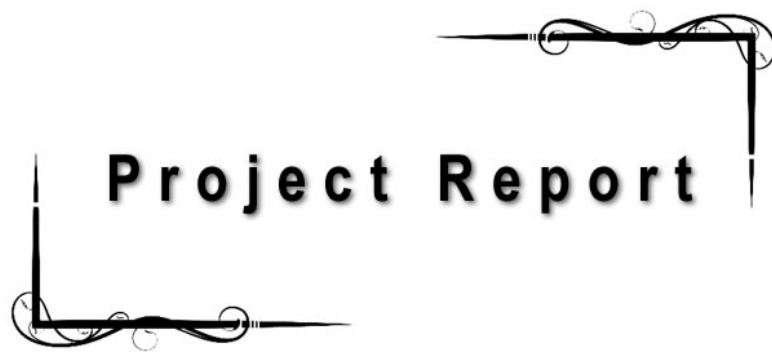
The aluminium alloy groups are suitable for high pressure die casting: aluminium-silicon –alloys, aluminium-silicon-magnesium –alloys, aluminium-silicon-copper – alloys, and aluminium-magnesium –alloys. The high pressure die cast able magnesium alloy groups are: – Magnesium - aluminium-manganese –alloys – Magnesium-aluminium-silicon –alloys – Magnesium - aluminium-zinc –alloys.

LM2, LM5, LM 6, LM 16, LM 24, LM 25, LM 31 etc. grade alloys are required for die casting. These alloys are standardized in the as cast condition, but it has been shown that the tensile properties may be substantially increased by appropriate heat treatment.

Raw materials required IS 1490, LSI 132, ADC-12, LM are available locally.

**12. Covering Raw material Standards Indian/ International Standards.**

As per the specifications



**Project Report**



## Project Report

1. The detailed bankable project report of the product (Financial, Space, Manpower requirement, Technology, Quality Requirements, etc)

### PRESSURE DIE CASTINGS

#### INTRODUCTION:

Pressure die castings has gain popularity, due to several advantages like high productivity, better surface finish and appearance, less machining, close dimensional tolerance, very thin sections can be cast without any casting defects, very low metal wastage etc.

Aluminum zinc magnesium etc. alloys can be easily die cast and it plays a major role because of its intrinsic and versatile properties of lightness, strength to weight ratio, corrosion resistance, electrical and thermal conductivity, non-toxicity etc.

The molten metal is poured into a “cold chamber” through a port or pouring slot by a hand or automatic ladle. A hydraulically operated plunger, advancing forward, seals the port forcing metal into the locked die at high pressures.

#### PRODUCT & ITS APPLICATION:

Automobile components like car and bigger engine pistons, gear box housings, crank cases, clutch shoes, engine housing, hydraulic and pneumatic pump and valve bodies, in automobiles etc. are made by high pressure die casting. Most of the aerospace components are made from high strength aluminium titanium alloys with high pressure die casting process.

Also the kitchen and electrical home appliances, textile machine components, food industry, dairy and brewery machines and equipment, pharma machinery components etc. are mostly made from Aluminium alloy pressure castings.

#### INDUSTRY OUTLOOK/TREND

The automobile industry is highly dependent on the die-casting industry, as the auto industry is forced to seek higher fuel efficiencies and lower emissions by lowering weight of the vehicles. Aluminum and specifically aluminum pressure

die-castings are now being used for power train and engine areas in new advanced vehicles. This is one of the major reasons for the predicted growth of the industry.

The global die casting market is forecasting indicates it will grow from USD 55.47 billion in 2015 to USD 80 billion by 2022. The market is poised to grow at a CAGR of over 6.60%.The end market for die-casting is quite huge dominated by auto and aerospace and other industrial requirements. The market for die-castings in industrial applications is expected to grow at a faster CAGR of 7.83% during the forecast period. Additionally, the die-casting market in the electrical and electronic applications is expected to witness a steady growth. This segment accounted for 11% of the global die-casting market share as of 2016. Pressure die-casting is the most preferred production process. The market for magnesium die-casting is expected to grow at a higher CAGR of 10.0% over the coming 5 years, while that of zinc is expected to grow at a slower pace.

As of today, India boasts of over 400 die casting companies, making it one of the major suppliers of die cast parts in the global market. Of these, over 25 units produce around 12,000 tons of die cast parts per year. While production of aluminum has touched 1.3 million tons of aluminum production, the Indian industry hardly consumes over 0.28 million tons of die-castings. This indicates huge growth potential in coming years.

### **MARKET POTENTIAL AND MARKETING ISSUES. IF ANY:**

Asia-Pacific is the largest market for die-casting and globally accounted for over 70% share. The huge market in this region was mainly due to large-scale domestic production, government initiative and availability of resources. India is considered as an emerging hub for the pressure die cast automobile components, of aluminum, magnesium and zinc die cast parts.

The auto-component industry of India has expanded by 14.3 per cent because of strong growth in the spares or after-market sales to reach at a level of Rs 2.92 lakh crore (US\$ 44.90 billion) in the year 2017. The domestic demand is huge and steadily growing for auto components and it is likely to play very important

role in expansion of pressure die casting industry not only for meeting the domestic demand but also for exports globally. Rockman Industries, Endurance Group, Super Auto India, Devilog Group, Spira Engineers are some of the local players who have successfully entered the global market with their product portfolio. There are global players like Cummins, Ford, General motors; John Deere, Mercedes Benz, Bosch, Toyota and Volkswagen sourcing the aluminum die casting parts from India.

The automobiles component and fittings, telephone industry, electrical appliances, electronic components and builder hardware & fittings etc. are the major markets that will also offer scope for export of Pressure Die Castings products. The requirement of defence, aeronautic and space is also likely to open up demand for domestic pressure die casting industry. Besides sectors like builder hardware, domestic appliances, electronic components, telephone industry etc. is growing demanding die cast parts. Make in India paving way for the global industry coming to our country.

### **RAW MATERIAL REQUIREMENTS:**

The aluminium alloy groups are suitable for high pressure die casting: aluminium-silicon –alloys, aluminium-silicon-magnesium –alloys, aluminium-silicon-copper – alloys, and aluminium-magnesium –alloys. The high pressure die cast able magnesium alloy groups are: – Magnesium-aluminium-manganese –alloys – Magnesium-aluminium-silicon –alloys – Magnesium-aluminium-zinc –alloys.

LM2, LM5, LM 6, LM 16, LM 24, LM 25, LM 31 etc. grade alloys are required for die casting. These alloys are standardized in the as cast condition, but it has been shown that the tensile properties may be substantially increased by appropriate heat treatment.

### **MANUFACTURING PROCESS:**

Pressure die casting also called cold chamber die casting is better suited for metals with high melting points such as aluminium. Metal is liquefied in a furnace

alloyed and then ladled into a cold chamber where a hydraulically operated plunger pushes the metal into the die.

Actuation of the injection piston forces the metal into the die—this is a single shot operation. This procedure minimizes the contact time between the hot metal and the injector components, which helps to extend their operating life. Injection pressures range from 3,000 to over 10,000 psi for both aluminium and magnesium alloys, and from 6,000 to over 15,000 psi for copper-based alloys.

Depending on machine capacity, the process may use Dies with single cavity, multiple cavity, and combination and “unit” die. Multiple cavity die has several cavities which are all identical. Die that has cavities of different shapes, it’s called a combination die. A combination die is used to produce several parts of single product for an assembly. Several parts for an assembly, or for different customers, might be cast at the same time with unit dies. One or more unit dies are assembled in a common holder and connected by runners to a common opening or spruce hole. This permits simultaneous filling of all cavities.

**MANPOWER REQUIREMENT:**

The unit shall require highly skilled service persons. The unit can start from 11 employees initially and increase to 30 or more depending on business volume.

| Sr. No. | Type of Employees     | Monthly Salary | No of Employees |           |           |           |           |
|---------|-----------------------|----------------|-----------------|-----------|-----------|-----------|-----------|
|         |                       |                | Year 1          | Year 2    | Year 3    | Year 4    | Year 5    |
| 1       | Skilled Operators     | 18000          | 3               | 4         | 4         | 6         | 6         |
| 2       | Semi-Skilled/ Helpers | 8000           | 6               | 12        | 12        | 18        | 18        |
| 3       | Supervisor/ Manager   | 30000          | 1               | 1         | 1         | 1         | 1         |
| 4       | Accounts/ Marketing   | 18000          | 0               | 0         | 1         | 2         | 2         |
| 5       | Other Staff           | 8000           | 1               | 1         | 1         | 1         | 1         |
|         |                       | <b>TOTAL</b>   | <b>11</b>       | <b>18</b> | <b>19</b> | <b>28</b> | <b>28</b> |

**IMPLEMENTATION SCHEDULE:**

The unit can be implemented within 8 months from the serious initiation of project work.

| Sr. No. | Activities  | Time Required in Months |
|---------|---|-------------------------|
| 1       | Acquisition of Premises                                       | 1                       |
| 2       | Construction (if Applicable)                                  | 2                       |
| 3       | Procurement and Installation of Plant and Machinery           | 3                       |
| 4       | Arrangement of Finance  | 2                       |
| 5       | Manpower Recruitment and start up                             | 2                       |
|         | <b>Total Time Required (Some Activities run concurrently)</b> | <b>8</b>                |

**COST OF PROJECT:**

The unit will require total project cost of Rs. 183.08 lakhs as shown below:

| Sr. No. | Particulars   | In Lakhs      |
|---------|---|---------------|
| 1       | Land  | 25.00         |
| 2       | Building  | 40.00         |
| 3       | Plant and Machinery                                 | 66.45         |
| 4       | Fixtures and Electrical Installation                | 3.90          |
| 5       | Other Assets/ Preliminary and Preoperative Expenses | 1.80          |
| 6       | Margin for working Capital                          | 45.93         |
|         | <b>TOTAL PROJECT COST</b>                           | <b>183.08</b> |

## PROJECT PROFILE ON PRESSURE DIE CASTING BELOW 0.75 KG

### MEANS OF FINANCE:

The project will require promoter to invest about Rs 80.22 lakhs and seek bank loans of Rs 102.86 lakhs based on 70% loan on fixed assets.

| Sr | Particulars            | In Lakhs      |
|----|------------------------|---------------|
| 1  | Promoters Contribution | 80.22         |
| 2  | Loan Finance           | 102.86        |
|    | <b>TOTAL</b>           | <b>183.08</b> |

### WORKING CAPITAL REQUIREMENTS:

Working capital requirements are calculated as below:

| Sr. No. | Particulars  | Gross Amount  | Margin % | Margin Amount | Bank Finance |
|---------|--------------|---------------|----------|---------------|--------------|
| 1       | Inventories  | 31.22         | 40       | 12.49         | 18.73        |
| 2       | Receivables  | 36.53         | 50       | 18.27         | 18.27        |
| 3       | Overheads    | 2.69          | 100      | 2.69          | 0.00         |
| 4       | Creditors    | 31.22         | 40       | 12.49         | 18.73        |
|         | <b>TOTAL</b> | <b>101.65</b> |          | <b>45.93</b>  | <b>55.72</b> |

### LIST OF MACHINERY REQUIRED:

| Sr. No. | Particulars  | UOM | Qty | Rate    | Total Value |
|---------|--|-----|-----|---------|-------------|
|         | Main Machines/ Equipment                               |     |     |         |             |
| 1       | 350 kg Melting Holding Furnace for Alloys              | Nos | 1   | 650000  | 650000      |
| 2       | 350 T High Pressure Die casting machine @ 3.1 kg/ shot | Nos | 1   | 3500000 | 3500000     |
|         | Automatic Ladling manipulator                          |     | 1   | 300000  | 300000      |
| 3       | Cooling Conveyor / Manipulator                         | Nos | 1   | 235000  | 235000      |
| 4       | Trimming Press 8T and 12T capacity                     | Nos | 2   | 40000   | 80000       |
| 5       | Reciprocating Mold spray unit                          | Nos | 1   | 140000  | 140000      |
| 6       | Surface treatment machine, Tumbling unit               | Nos | 3   | 90000   | 270000      |
| 7       | Polishing Belt grinder                                 | Nos | 5   | 15000   | 75000       |
| 8       | Heat Treatment furnace                                 | Nos | 2   | 180000  | 360000      |
| 9       | Lathe machine  | Nos | 5   | 70000   | 350000      |

## PROJECT PROFILE ON PRESSURE DIE CASTING BELOW 0.75 KG

|    |   |     |   |        |                |
|----|---|-----|---|--------|----------------|
| 10 | Drilling machine                                    | Nos | 2 | 40000  | 80000          |
| 11 | Milling machine                                     | Nos | 1 | 140000 | 140000         |
| 12 | Air Compressor unit                                 | Nos | 1 | 80000  | 80000          |
|    | subtotal :  |     |   |        | 6260000        |
|    | Tools and Ancillaries                               |     |   |        |                |
| 1  | Die Repair tools and Grinders                       | LS  | 1 | 200000 | 200000         |
| 2  | Misc. tools Trolleys etc.                           | LS  | 1 | 140000 | 140000         |
| 3  | Hoist for Mold load/ unload                         | LS  | 1 | 20000  | 20000          |
| 4  | Air Handling unit                                   | LS  | 1 | 25000  | 25000          |
|    | <b>Subtotal :</b>                                   |     |   |        | 385000         |
|    | Fixtures and Elect Installation                     |     |   |        |                |
|    | Storage racks                                       | LS  | 1 | 25000  | 25000          |
|    | Other Furniture                                     | LS  | 1 | 25000  | 25000          |
|    | Telephones/Computer                                 | LS  | 1 | 40000  | 40000          |
|    | Electrical Installation                             | LS  | 1 | 300000 | 300000         |
|    | subtotal :  |     |   |        | 390000         |
|    | Other Assets/ Preliminary and Preoperative Expenses | LS  | 1 | 180000 | 180000         |
|    | <b>TOTAL PLANT MACHINERY COST</b>                   |     |   |        | <b>7215000</b> |

### PROFITABILITY CALCULATIONS:

| Sr. | Particulars                         | UOM<br>Rs. In<br>Lakhs | Year Wise estimates |        |        |        |         |
|-----|-------------------------------------|------------------------|---------------------|--------|--------|--------|---------|
|     |                                     |                        | Year 1              | Year 2 | Year 3 | Year 4 | Year 5  |
| 1   | Sales                               | Rs Lakhs               | 438.38              | 563.63 | 751.50 | 876.75 | 1002.00 |
| 2   | Raw Materials & Other Direct Inputs | Rs Lakhs               | 374.58              | 481.61 | 642.14 | 749.16 | 856.19  |
| 3   | Gross Margin                        | Rs Lakhs               | 63.79               | 82.02  | 109.36 | 127.59 | 145.81  |
| 4   | Overheads Except Interest           | Rs Lakhs               | 17.89               | 17.89  | 17.89  | 17.89  | 17.89   |
| 5   | Interest                            | Rs Lakhs               | 14.40               | 14.40  | 14.40  | 14.40  | 14.40   |
| 6   | Depreciation                        | Rs Lakhs               | 13.46               | 13.46  | 13.46  | 13.46  | 13.46   |
| 7   | Net Profit Before Tax               | Rs Lakhs               | 18.05               | 36.27  | 63.61  | 81.84  | 100.07  |

The basis of profitability calculation:

The Unit will have capacity of 500 MT of gravity castings per year of assorted types/ designs. The sales prices of die cast parts range from Rs 150 to Rs 400 per kg or more depending on type, metal, alloy composition, and volumes. The raw material cost of is ranging from 120 to 350 per kg depending on alloy grades. The material requirements are considered with wastage/ scrap/burnouts etc. of 8 % of finished products as most of generated scrap is reused. The unusable scrap is sold at @ Rs 15 ~ 30 per Kg. and the income of same is added. Energy Costs are considered at Rs 7 per Kwh and fuel cost is considered at Rs. 65 per liter. The depreciation of plant is taken at 10 % and Interest costs are taken at 14 -15 % depending on type of industry.

### **BREAK EVEN ANALYSIS**

The project is can reach breakeven capacity at 25.10 % of the installed capacity as depicted here below:

| Sr. No | Particulars               | UOM                | Value   |
|--------|---------------------------|--------------------|---------|
| 1      | Sales at Full Capacity    | Rs Lakhs           | 1252.50 |
| 2      | Variable Costs            | Rs Lakhs           | 1070.23 |
| 3      | Fixed Cost incl. Interest | Rs Lakhs           | 45.74   |
| 4      | Break Even Capacity       | % of Inst Capacity | 25.10   |



## PROJECT PROFILE ON PRESSURE DIE CASTING BELOW 0.75 KG

### List of Testing facilities of Ministry of MSME, Govt. of India

| <b>TESTING CENTERS</b>        |  |  |   |
|-------------------------------|--|--|---|
| Sl.                           | Name of the Institute  | Phone No.  | Email Address   |
| 1                             | MSME-Testing Centers (NR),<br>Shahid Capt. Gaur Marg,<br>Okhla, New Delhi- 11020.            | Ph.011-26847973,<br>2631461                              | dctc-nr@dcmsme.gov.in<br>www.msme-tc-nr.gov.in                            |
| 2                             | MSME-Testing Centers (WR),<br>Kurla- Andheri Road,<br>Saki-Naka, Mumbai- 400072.             | Ph.022-28570588,<br>6998, 1775, 1771<br>Fax-022-28572238 | dctc-wr@dcmsme.gov.in<br>www.msme-tc-mumbai.gov.in                        |
| 3                             | MSME-Testing Centers (SR),<br>65/1, G.S.T. Road,<br>Guindy, Chennai-600032                   | 044-22500634,<br>22500 284                               | dctc-sr@dcmsme.gov.in<br>www.msme-tc.com                                  |
| 4                             | MSME-Testing Centers (ER),<br>111 and 112, B.T. Road,<br>Kolkata- 700035                     | 033-25771353   | dctc-er@dcmsme.gov.in<br>www.rtcen.nic.in                                 |
| <b>FIELD TESTING STATIONS</b> |  |  |   |
|                               | Name of the Institute  | Phone No.  | Email Address   |
| 1                             | MSME-TS,<br>Opp. State Bank of India,<br>Industrial Estate,<br>Hyderabad-500018 (AP)         | Tel.: 040-23704371                                       | dcts-hyd@dcmsme.gov.in<br>msmetshyd@yahoo.co.in<br>www.msmehyd.ap.nic.in/ |
| 2                             | MSME-TS,<br>Sisi Campus, Rajaji Nagar.<br>Bangaluru-560010,Karnataka                         | Tel: 080-23202540  | dctc-<br>banga@dcmsme.gov.in<br>asstdirblr@bsnl.in                        |
| 3                             | MSME TS<br>(Now in MSME TI, Industrial<br>Estate, Ettumanur-686631)<br>Changacherry (Kerala) | Tel-0481-2532718   | msmeti-<br>ettu@dcmsme.gov.in   |
| 4                             | MSME-TS,<br>Shed No.W.47e, Indl. Area<br>Govindpura,Bhopal-462023,<br>MadhyaPradesh          | Ph: 0755-2586075   | dcts-<br>bhopal@dcmsme.gov.in<br>dctsbhopal@gmail.com                     |
| 5                             | MSME-TS,<br>P-31, MIDC Shirol : Industrial<br>Area, Kolhapur-416122, (Mah)                   | Ph-Fax :0230-<br>2469366                                 | dcts-kolha@dcmsme.gov.in  |
| 6                             | MSME-TS,<br>Laboratory Building 22,Godown,<br>Jaipur-302010 Rajasthan                        | Ph : 0141-2212090  | dcts-jaipur@dcmsme.gov.in<br>fts.jaipur@rediffmail.com                    |
| 7                             | MSME-TS, Tamil Nadu,<br>Indl. State, Thattachavadi.<br>Puducherry-605009                     | Ph: 0413-2248110   | dcts-<br>pondy@dcmsme.gov.in  |

**2. Details of Raw Materials Suppliers**

1. M/S. Hindustan Aluminium Co. United commercial Bank Building, Parliament street, New Delhi-110001
2. M/S. Indian Aluminium Co, Bank building, Parliament street, New Delhi-110001
3. Local market.

**3. Details of the Machinery Suppliers**

1. M/s. Rapid Flow India Private Limited, 6/2, Mathura Rd, opp. Badkal Mor Metro Station, Industrial Area, Sector 20, Faridabad, Haryana 121002. Phone: 080 4803 8571.
2. M/s. B S Jagdev And Sons, 6555, Street Number 5 Back side Gill Market, New Janta Nagar Ludhiana, Punjab 141003, Phone: 098157 21023.
3. M/s. Bharat Machine Tools, Old Mall Mandi, GT Rd, Batala, Punjab 143505
4. M/s. Macpower Industries, 5, Umakant Udyog Nagar, Mavadi Plot, Rajkot, Gujarat 360004, Phone: 0281 236 0520.
5. M/s. Balaji Motors Engineering, Sidhivinayak Ind Area, Gat No 712, Plot No 31-b, Kudalwadi, Chikhali, Chikhali, Pune, Maharashtra 412114, Phone: 098504 70064.
6. M/s. Indinox Solus Building, Shop No.8 Ground Floor, Ghodbunder Road, Hiranandani, Thane West, Thane-400615, Maharashtra, India.
7. M/s. Phoenix Industries Limited, Udyog Bhavan, Sonawala Road, Goregaon East, Mumbai-400063, Maharashtra, India, Phone 0804602971



## Schemes and Consultancy Services

### 1. Existing Schemes available and their details

- Credit Guarantee Trust for Micro & Small Enterprises (CGTMSE) and
- Credit Linked Capital Subsidy Scheme (CLCSS)

### 2. Proposed Scheme (If existing is not suitable)

In addition to the above, clusters under MSE-CDP scheme is proposed.

### 3. Details of agencies who can provide guidance (CSIR, MSME TCs, Sector Councils etc.)List of MSME Technology Centers under Ministry of MSME

| Sl | Name of TC   | Address  | Phone No.  | Email  |
|----|--|--|--|--|
| 1. | MSME-Technology Centre (Indo German Tool Room), Aurangabad.)<br>Shri H.D. Kapse,<br>Managing Director,                       | P-31, MIDC,<br>ChikalhanaIndl.<br>Area, Aurangabad<br>431 006.                               | Ph: 0240- 2486832<br>Fax:0240- 2484028             | gm@igtr-aur.org<br>http://www.igtr-aur.org/  |
| 2. | MSME-Technology Centre (Indo German Tool Room)<br>Ahmedabad,<br>Shri IndrakumarHairamani<br>General Manager                  | Plot-5003, Phase-<br>IV,GIDC Vatva,<br>MehmedabadRoad,A<br>hmedabad 382 445<br>(Gujarat)     | Ph: 079- 25840966<br>Fax: 079-25841962             | gm@igtrahd.com<br>https://www.igtrahd.com/   |
| 3. | MSME-Technology Centre (Indo German Tool Room)<br>Indore.<br>ShriR.PanneerSelvam,<br>General Manager                         | Plot No.291/B,<br>302/A,Sector-E,<br>Sanwer Road,<br>Industrial Area,<br>Indore 452 015 (MP) | Ph: 0731-4210704<br>Fax: 0731-2720353              | patogm@igtr-indore.com<br>igtrindore-mp@nic.in<br>http://www.igtr-<br>indore.com/                        |
| 4. | MSME-Technology<br>Centre (Central Tool<br>Room)Ludhiana<br>Shri A.P. Sharma<br>General Manager,                             | A-5, Focal Point<br>Ludhiana 141 010<br>(Punjab)   | Ph: 0161-2670057<br>Fax:0161-2674746               | info@ctrludhiana.com<br>https://www.ctrludhiana.c<br>om/   |
| 5. | MSME-Technology Centre<br>(Central Institute of Tool<br>Design)Hyderabad<br>Shri Prabhu H.S.<br>Principal Director,          | A-1 to A-8 APIE,<br>Balanagar<br>Hyderabad 500 037<br>(Telangana)                            | Ph: 040- 23772748<br>Fax:040-3772658               | citdpddcmsme@yahoo.c<br>om<br>pd@citdindia.org<br>http://www.citdindia.org/                              |
| 6. | MSME-Technology Centre<br>(Central Tool Room &<br>Training Centre), Kolkata<br>Shri Debdutta Guha<br>General Manager,        | BonhooghlyIndl.<br>Area<br>Kolkata 700 108<br>(W.B.)   | Ph: 033- 25776350<br>Fax: 033-25772494             | cttc-msme@gov.in<br>debdutta.guha@msmeto<br>olroomkolkata.com<br>http://www.msmetoolroo<br>mkolkata.com/ |
| 7. | MSME-Technology Centre<br>(Central Tool Room &<br>Training Centre),<br>Bhubaneswar<br>Shri L Rajashekhar<br>General Manager, | B-36,Chandaka<br>Industrial Area,P.O.<br>Patia<br>Bhubaneswar 751<br>024 (Orissa)            | Ph: 0674-3011701<br>Fax: 0674-3011750              | cttc@cttc.gov.in<br>https://www.cttc.gov.in/   |
| 8. | MSME-Technology Centre<br>(Indo Danish Tool Room)<br>Jamshedpur<br>Shri Anand Dayal<br>General Manager,                      | M-4 (Part) Phase-VI,<br>Tata Kandra Road,<br>Gamharia<br>Jamshedpur 832 108<br>(Jharkhand)   | Ph: 0657-2201261/2<br>Fax: 0657-2202723<br>2201261 | reach@idtrjamshedpur.c<br>om<br>https://www.idtr.gov.in/   |

## PROJECT PROFILE ON PRESSURE DIE CASTING BELOW 0.75 KG

|    |   |   |   |   |
|----|---|---|---|---|
| 9. | MSME-Technology Centre (Tool Room & Training Centre)Guwahati<br>Shri Kajal Kumar Saha,<br>Project Manager,  | Amingaon Industrial Area, North<br>Guwahati Road,<br>Amingaon,<br>Guwahati 781 031    | Ph: 0361- 2680907<br>Fax: 0361-2681030      | trtcggy@hotmail.com<br><a href="https://www.trtcguwahati.org/">https://www.trtcguwahati.org/</a>                                |
| 10 | MSME-Technology Centre (Central Institute of Hand Tools)Jalandhar<br>Shri Sarabjit Singh<br>Principal Director,                                   | G.T. Road, Bye Pass, Opp. Shaheed Bhagat Singh Colony<br>Jalandhar-144008<br>(Punjab) | Ph: 0181-2290225-<br>Fax: 0181-2290457      | info@ciht.in,<br><a href="http://www.ciht.in/">http://www.ciht.in/</a>  |
| 11 | MSME-Technology Centre (Institute for Design of Electrical Measuring Instruments)<br>Mumbai.<br>Shri Pradeep Gujarathi,<br>Principal Director I/c | SwatantryaveerTatya Tope Marg,<br>Chunabhatti, Sion,<br>Mumbai – 400 022              | Ph: 022 -24050301/2<br><br>Fax:022-24050016 | info@idemi.org<br><br><a href="http://www.idemi.org/">http://www.idemi.org/</a>   |
| 12 | MSME-Technology Centre(Electronics Service & Training Centre), Ramnagar<br>Shri Sanjeev Kumar<br>Chetti.Principal Director                        | Dhela Rd, Kaniya,<br>Ramnagar<br>Dist. Nainital-244715<br>Uttarakhand                 | Ph: 05947-252168<br><br>Fax: 05947-251294   | pd_estc@yahoo.com<br><br><a href="http://www.estcindia.com/">http://www.estcindia.com /</a>                                     |
| 13 | MSME-Technology Centre (Process and Product Development Centre),<br>Agra,Shri R. PanneerSelvam,Principal Director                                 | Foundry Nagar,<br>Agra-282006 (U.P.)  | Ph: 0562-2344673<br>Fax: 0562-2344381       | info@ppdcagra.in<br>paselvam@gmail.com<br><a href="http://www.ppdcagra.dcm.sme.gov.in/">http://www.ppdcagra.dcm.sme.gov.in/</a> |
| 14 | MSME-Technology Centre (Process cum Product Development Centre), Meerut<br>Shri Sunil Gupta<br>Principal Director                                 | Sports Goods Complex, Delhi Road, Meerut-250002 (U.P.)                                | Ph: 0121-2511779<br>Fax: 0121-2530444       | info@ppdmeerut.com<br>ppdmeerut@yahoo.co.in<br><a href="http://www.ppdmeerut.com/">http://www.ppdmeerut.com/</a>                |
| 15 | MSME-Technology Centre (Central Footwear Training Institute), Agra.<br>Shri Sanatan Sahoo<br>Director,  | C – 41& 42, Site 'C'<br>Sikandra Road,<br>Industrial Area<br>Agra-282007 (U.P.)       | Ph: 0562-2642005<br><br>Fax 0562-2280882    | info@cftiagra.org.in<br>sanatansahoo27@gmail.com<br><a href="http://www.cftiagra.org.in/">http://www.cftiagra.org.in/</a>       |
| 16 | MSME-Technology Centre (Central Footwear Training Institute ),<br>Chennai.Shri K. Murali<br>Director  | 65/1, G.S.T. Road,<br>Guindy<br>Chennai-600032  | Ph: 044-22501529<br>Fax: 044-22500876       | chennaicfti@gmail.com,<br>cfti@cftichennai.in<br><a href="https://www.cftichennai.in/">https://www.cftichennai.in /</a>         |
| 17 | MSME-Technology Centre (Fragrance &Flavour Development Centre),<br>Kannauj<br>Shri S.V. Shukla<br>Principal Director                              | Industrial Estate<br>GT Road, P.O.<br>Makrand Nagar<br>Kannauj -209726<br>(U.P.)      | Ph:05694-234791<br>Fax: 05694-235242        | ffdcknj@gmail.com,<br>shaktiffdc@gmail.com<br><a href="http://www.fdcindia.org/">http://www.fdcindia.org/</a>                   |
| 18 | MSME-Technology Centre(Centre for the Development of Glass Industry), Firozabad<br>Shri Sanjeev Chinmalli<br>Principal Director                   | A-1/1, Industrial Area, Jalesar Road, P. O. Muiddinpur<br>Firozabad-283203<br>(U.P.)  | Ph: 05612-203238<br>Fax: 05612-233087       | cdgifzbd@gmail.com<br><a href="http://www.cdgiindia.net/">http://www.cdgiindia.net/</a>   |

Services of these technology centers can be utilized for development of tooling, dies, jigs, fixtures and manpower skilling

**GIST OF FEEDBACK RECEIVED FROM MSMSE.**

| SI | Name of the Unit            | Feedback / Suggestions received.  |
|----|-----------------------------|---|
| 1  | Jet Age Engineers           | Can Manufacture Locally as per standards based on Customers requirements if given chance. Need to spread more awareness about the same for local manufacturers & import substitution.   |
| 2  | Sipra Engineers Pvt. Ltd.   | Its' good for Made in India   |
| 3  | Shakti Fixtures Pvt Ltd     | Please stop black marketing and hoarding by the metal lobby who seems to be stronger than the govt.   |
| 4  | Kay Pee Lighting industries | Make technology knowldge and grants available to MSME   |
| 5  | Ritesh Electricals          | Encourage domestic production .. increase tool rooms.. decrease cost .. focus on total supply chain   |
| 6  | Lumens Industries           | Price & RM availability with right specs  |
| 7  | Namaskaar Enterprises       | Availability of raw material  |
| 8  | Pulsar Electronics Pvt Ltd  | <ul style="list-style-type: none"> <li>* Organised seminar for die casting machine and usage</li> <li>* Give knowledge as well as funding at cheaper rate so any company can invest in die Casting moulding as well as die casting machine</li> <li>* Give subsidy or Tax holidays if you want to to reduce the import of die casting.</li> </ul> |
| 9  | Krsnalite                   | Infra availability increase   |
| 10 | Jdianm Lighting P Ltd       | Yes   |
| 11 | Lighting Engineers          | Give financial and technical support to Indian Manufactures   |

## REFERENCES:

### Lists of references:

### Web sites referred :

O/o DC MSME, SIDBI, BIS , CIPET

### Consultation Experts

- Joint Director of Industries , Aurangabad
- Industry Associations: LACMA, Mumbai , CMIA, Aurangabad, MASSIA , Aurangabad
- Professors of Govt. Engineering College, Aurangabad.
- Shri Balkrishana Gundarkar, Ex Senior Training Executive, TELCO, Pune.

### Unit visited:

- M/s.Samarth Industries, Chakan, Pune
- M/s Hari Om Industries, Chikalthana, Aurangabad.
- M/s. Madhura Dia Cast Pvt. Ltd, Aurangabad
- M/s. Gaike Industries, Chikalthana , Aurangabad.

### Telephonic Discussion:

- M/s. Silicon Castech, Goa
- M/s. Dinaquip , Karsawada, Goa

### Books Referred :

- Manufacturing Process -1, By Shri Anup Goel.
- Material Science – By O.P. Khanna
- Production Technology- By O.P. Khanna

### Inputs Obtained through Online Form

- M/s.Jet Age Engineers, Mumbai
- M/s.Sipra Engineers Pvt. Ltd.Mumbai
- M/s.Shakti Fixtures Pvt Ltd, Mumbai
- Kay Pee Lighting industries, Mumbai
- M/s. Lumens Industries, Mumbai
- M/s. Namaskaar Enterprises, Mumbai
- M/s. Pulsar Electronics Pvt Ltd, Mumbai
- M/s.Krsnalite Mumbai
- M/s Jdianm Lighting P Ltd, Mumbai
- M/s. Lighting Engineers, Mumbai

**Photo Gallery**

**Two Wheeler Parts**









## Three Wheeler Parts











