



## Company Profile

**SIGMA ELECTRIC MANUFACTURING CORPORATION PVT. LTD,  
UNIT III, PUNE**

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## **1. Sigma Group**

### **1.1 Company Profile**

#### **Brief History**

Sigma Electric is a global leader in manufacture of ferrous and non-ferrous castings, precision machined components and sub-assemblies. Sigma has established long-term partnerships with its global customers, working closely to help them meet the challenges of a highly competitive business environment.



Sigma Electric is a 100 % Export Oriented Organization. Set up 30 years ago. HQ at Garner, NC, US. There are over 5000 team members worldwide. Sigma has a majority shareholding from Argand Partners, USA.

#### **Product Range**

Sigma supplies to global leaders in market segments such as electrical, lighting, industrial, power tools, process instrumentation, appliances, telecom, aerospace, defence, marine, power, agricultural, food and Medical, Military, LED lightings.

#### **Locations**

Twelve world class manufacturing facilities at Pune, Jaipur, Mexico, USA for aluminum, zinc, bronze, copper, wide range alloys, iron & steel products.

#### **Plants**

Manufacturing capacity is 50,000 MT/annum with world-class manufacturing equipment tool room and design /engineering capabilities. Plants operate on Lean manufacturing system, certified for ISO 9001, ISO 14001, ISO 45001, AS9100, ITAR certifications.

#### **Global Supply Chain**

Warehouse, sales, customer service and tech teams are at Garner, NC, USA.

## 1.2 Outline of the Group



Sigma Electric is a global leader in the manufacture of machined cast metal parts and assemblies for the electrical, utility, home appliances, telecom, industrial and instrumentation markets.

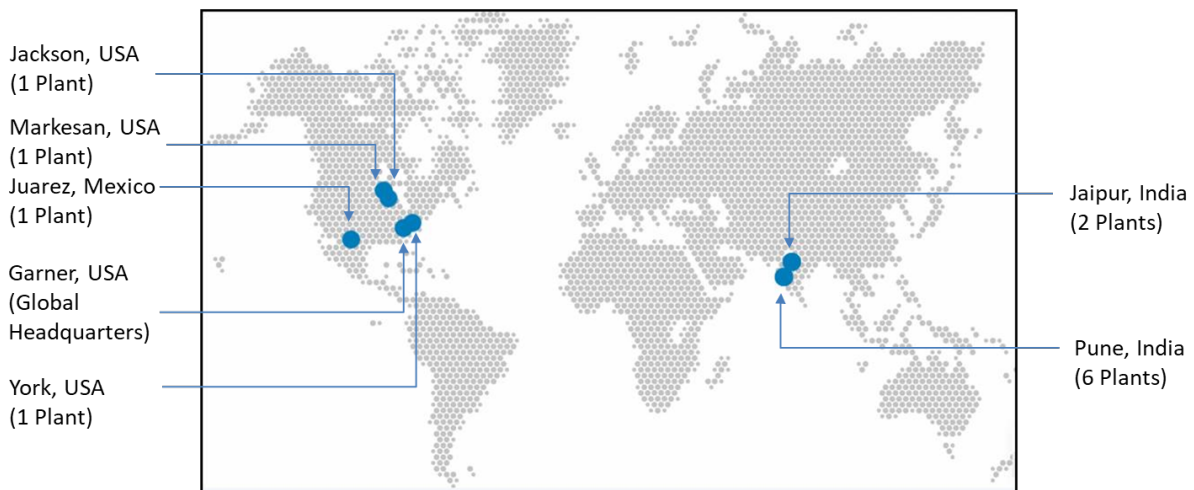


**Plants Compliant to ISO 9001, 14001 & 45001 Standards**

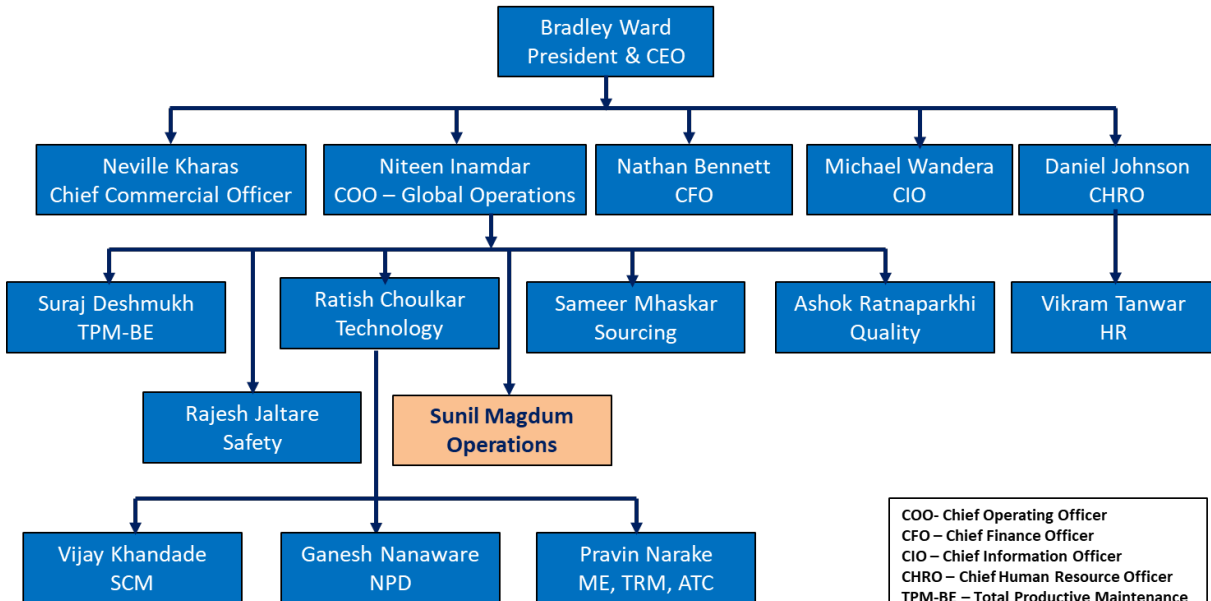
**Production Capacity = 50,000 MT / Annum**

## 1.3 Global Footprint

Sigma group is having total 12 manufacturing facilities throughout the world. Out of which 6 manufacturing plants are in Pune, 2 plants in Jaipur and 4 plants are in US and Mexico.



### 1.4 Organization Chart - Group

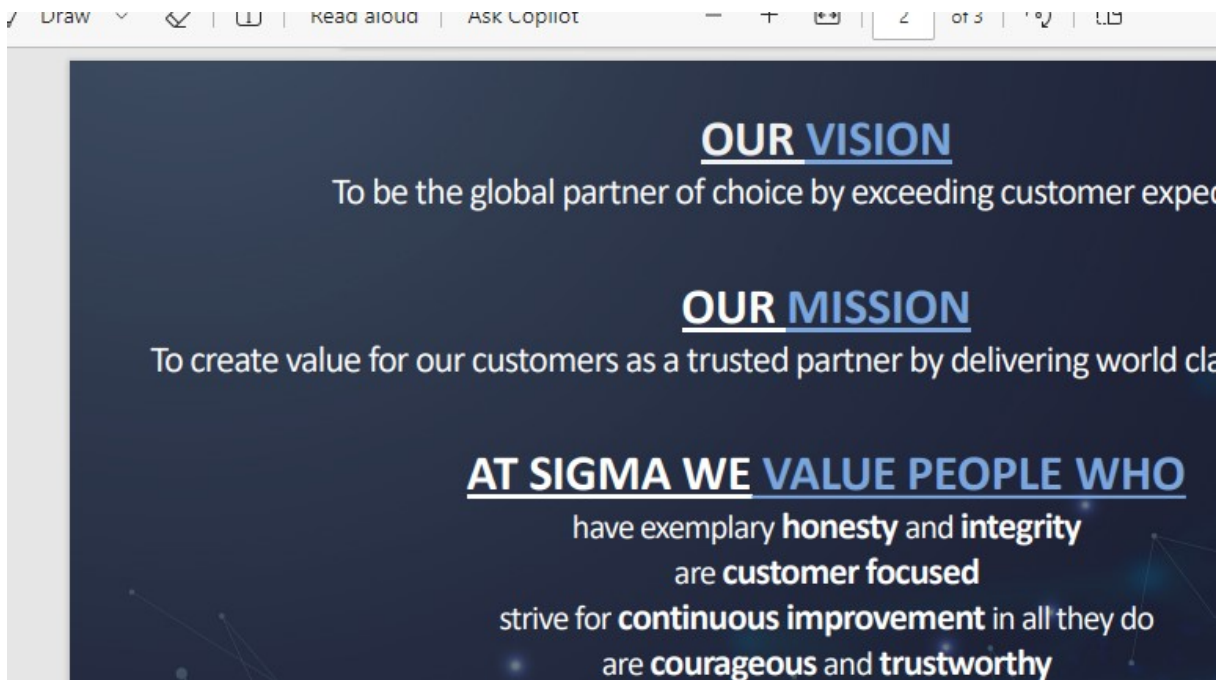


COO- Chief Operating Officer  
 CFO – Chief Finance Officer  
 CIO – Chief Information Officer  
 CHRO – Chief Human Resource Officer  
 TPM-BE – Total Productive Maintenance - Business Excellence  
 HR – Human Resource  
 SCM - Supply Chain Management  
 NPD – New Product Development  
 ME – Manufacturing Engineering  
 TRM – Tool Room  
 ATC – Advanced Technology Centre

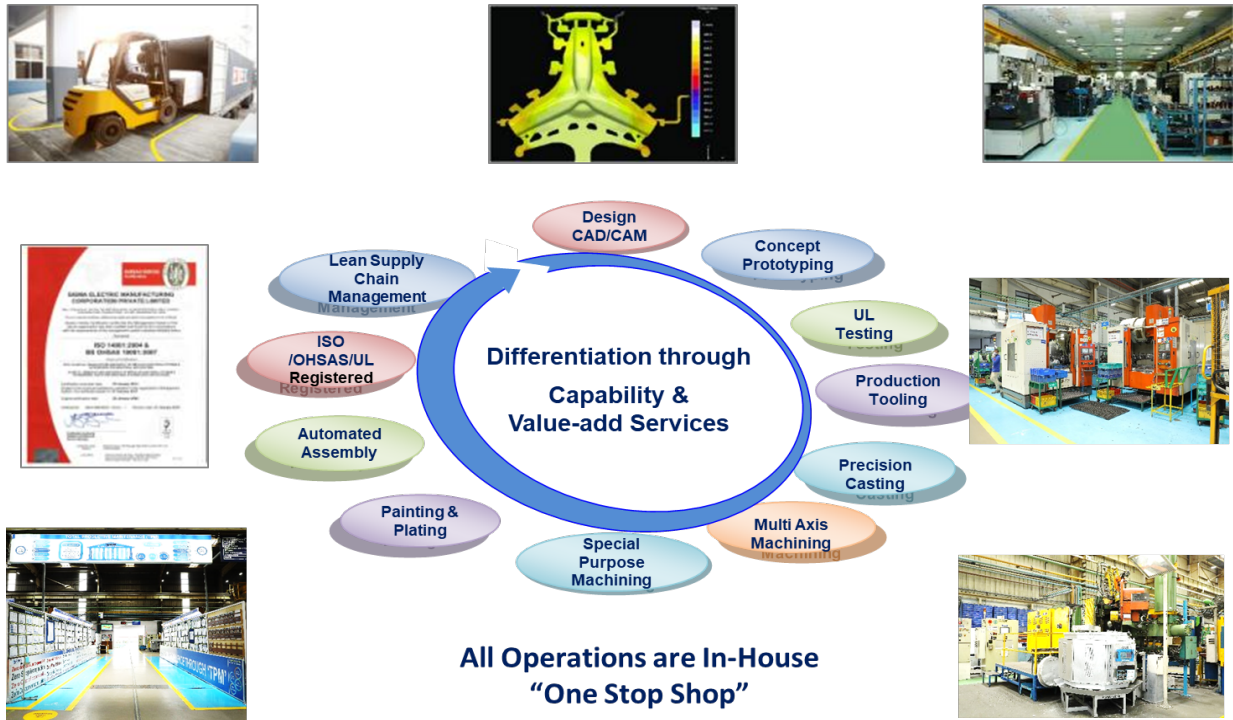
Assessment Plant

### 1.5 Vision, Mission and Values

Company’s Vision, Mission and Core values are mentioned below.



**1.6 Manufacturing and Engineering Capabilities**



**1.7 Global Partners**

These are our key customers.



Added 5000+ New products with 20+ New Customers over last 4 years

## 2. About Sigma Unit – III

### 2.1 Outline of the Unit

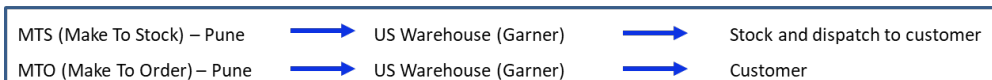


Plant	Aluminum High Pressure Die-Casting Plant
Product Range	Metallic Electrical Fittings and accessories parts for industrial, house hold applications and process equipment's
Plant Area	100,000 Sq. Ft.
Installed Capacity (FY22)	4000 MT / Annum
Alloys	Aluminum Alloys
Total Employees	580 Nos
Equipment	17 Cold Chamber HPDC Machines (Automatic) ranging from 180 Tons to 900 Tons, 5 Central Melting Furnace, In-house Spectro, Precision Machining – CNC and VMC, SPMs, Liquid and Powder Coating plant.



## 2.2 Business Model

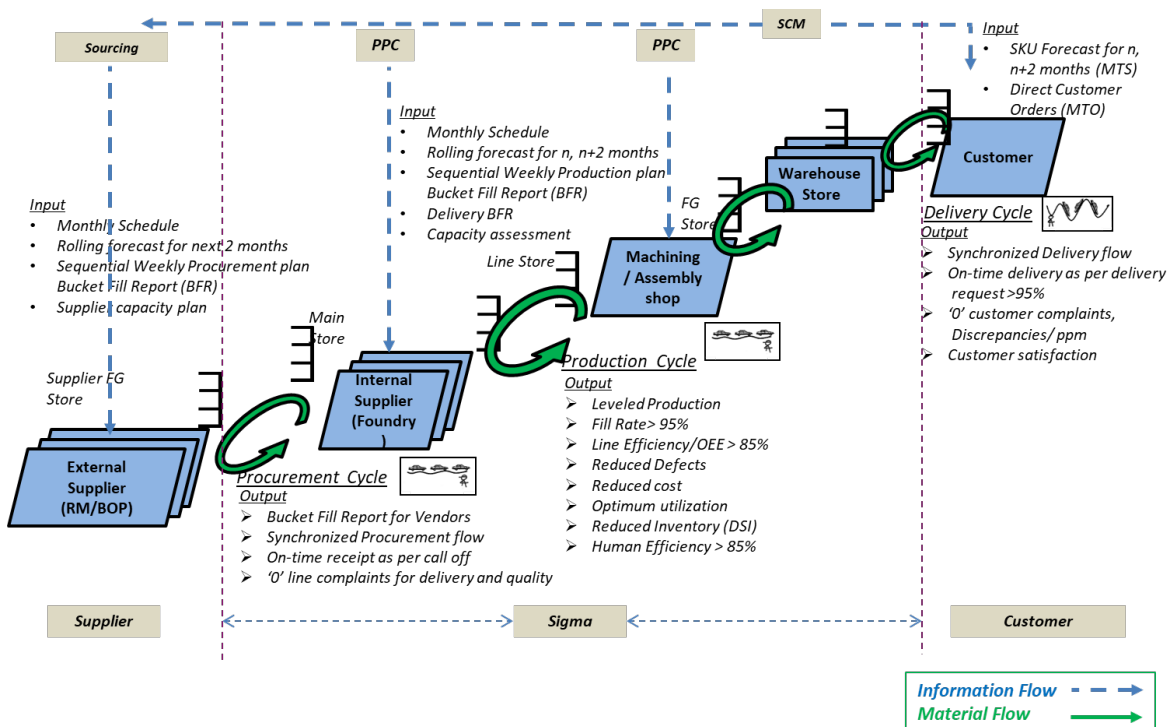
Business model shown below



## Supply Chain Model

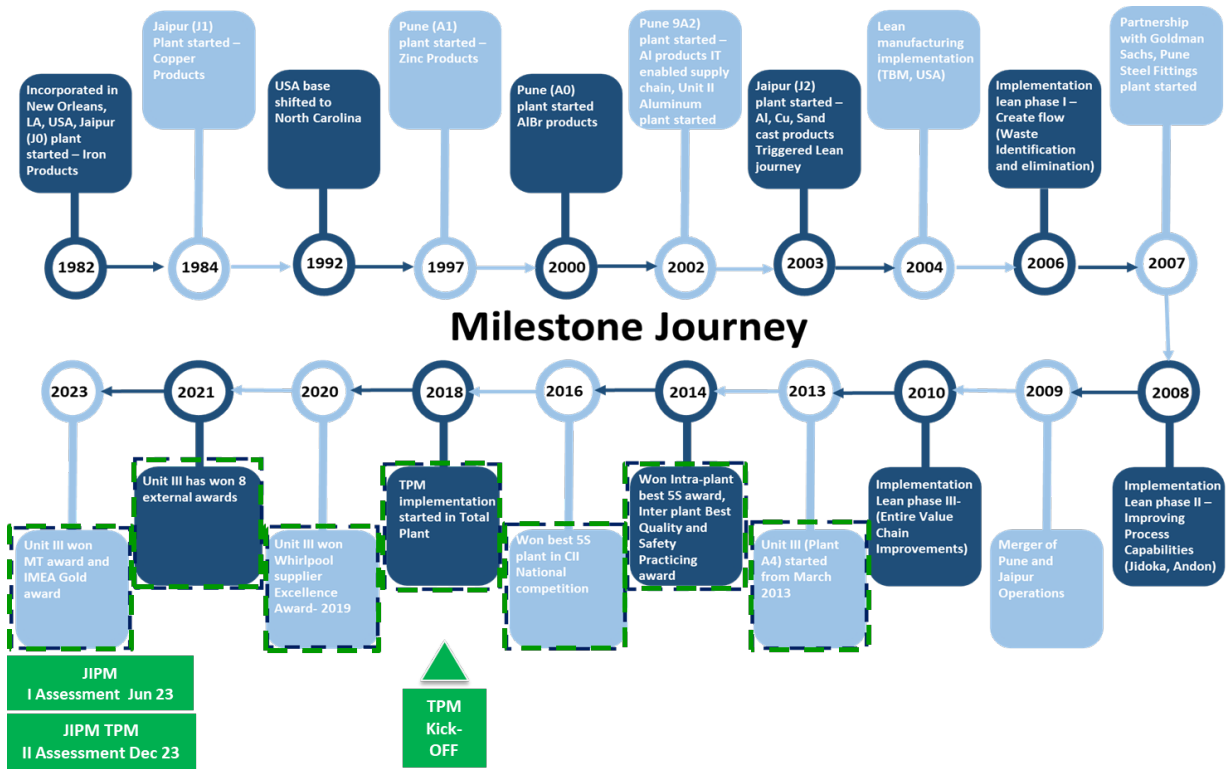
We have >95% customers in USA, manufacturing done in Pune plants material shift to our own warehouse and some customer it is dispatched as per customer schedule

In few cases we are directly supplying to customer from plants

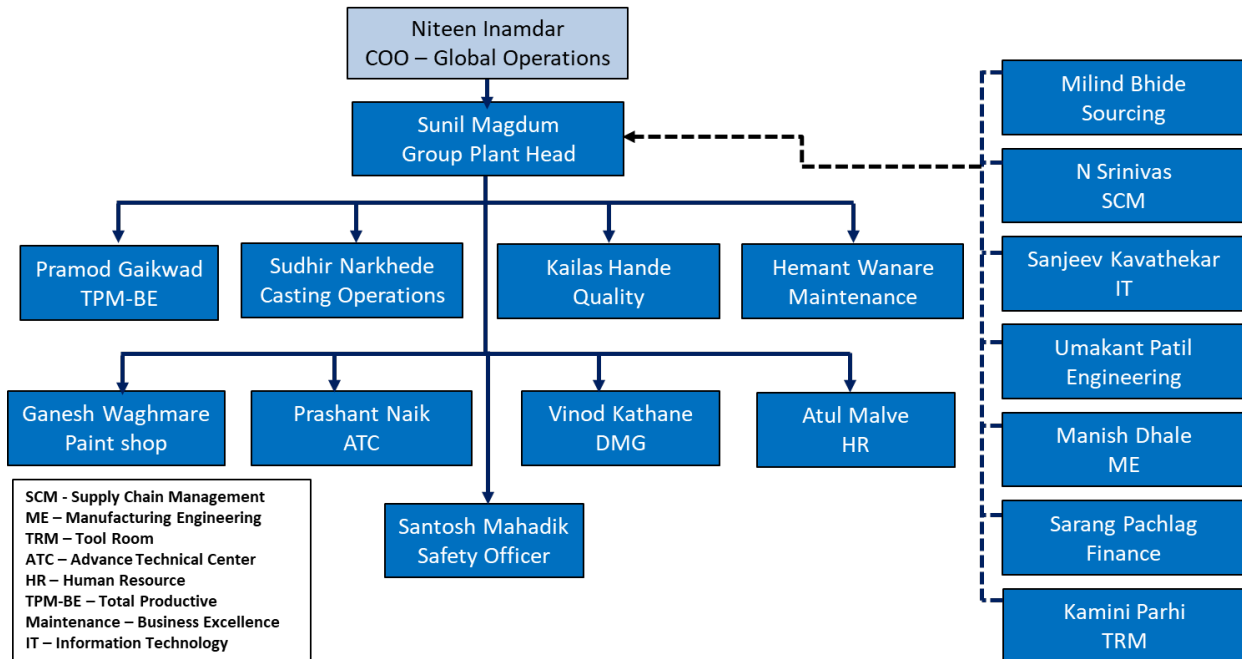


### 2.3 Milestones

These are milestones of our organization.



### 2.4 Organization Chart - Unit - III



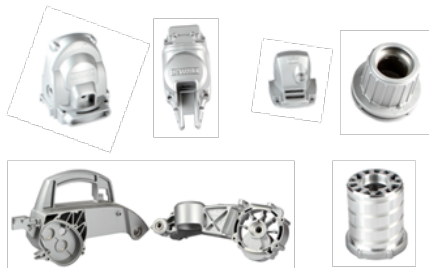
### 2.5 Product Portfolio

Product Range - Electrical, Lighting and House Hold Appliances



Custom Product

Instrumentation Product



Power Tools



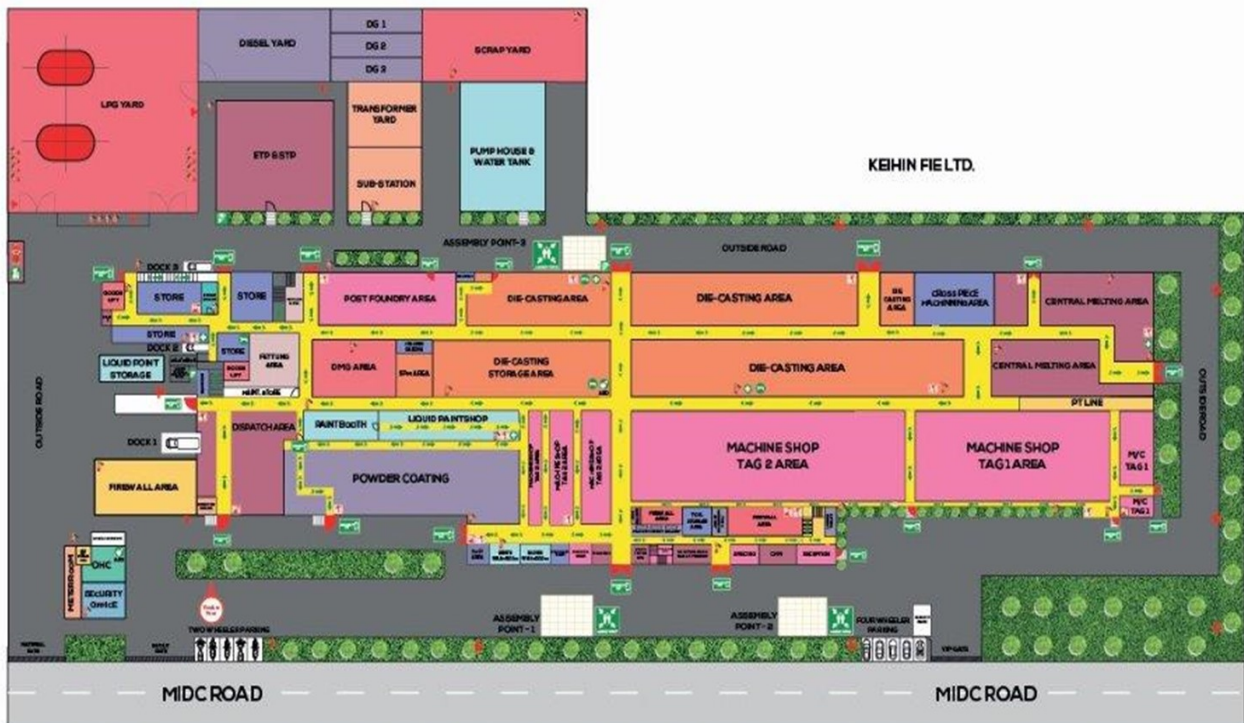
Home Appliances

**2.6 Key Customers**

These are our key customers.



**2.7 Unit Layout**



## 2.8 Staffing Structure

Category wise manpower distribution as follows

Category	Unit	Employee Count
Staff	Nos	61
Associates	Nos	18
Assistant Engineer - Line	Nos	81
Technician	Nos	14
DET	Nos	239
Contract Operator	Nos	167
<b>Total No. of Employees</b>	<b>Nos</b>	<b>580</b>

## 2.9 Major Equipment

Following is equipment classification

Equipment Categorization Criteria			
Ranking	Overall Rating	Category	Machines
S-Class	22 to 25	Super Critical	18
A-Class	16 to 21	Critical	65
B-Class	10 to 15	Semi Critical	121
C-Class	0 to 9	Non-Critical	3
<b>Total Equipment</b>			<b>207</b>

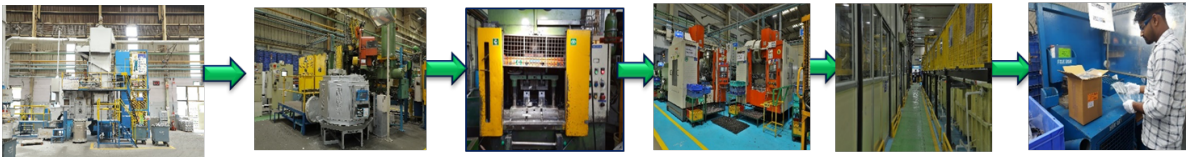
## 2.10 Manufacturing Process Flow

Following is plant process flow

- Process Flow**



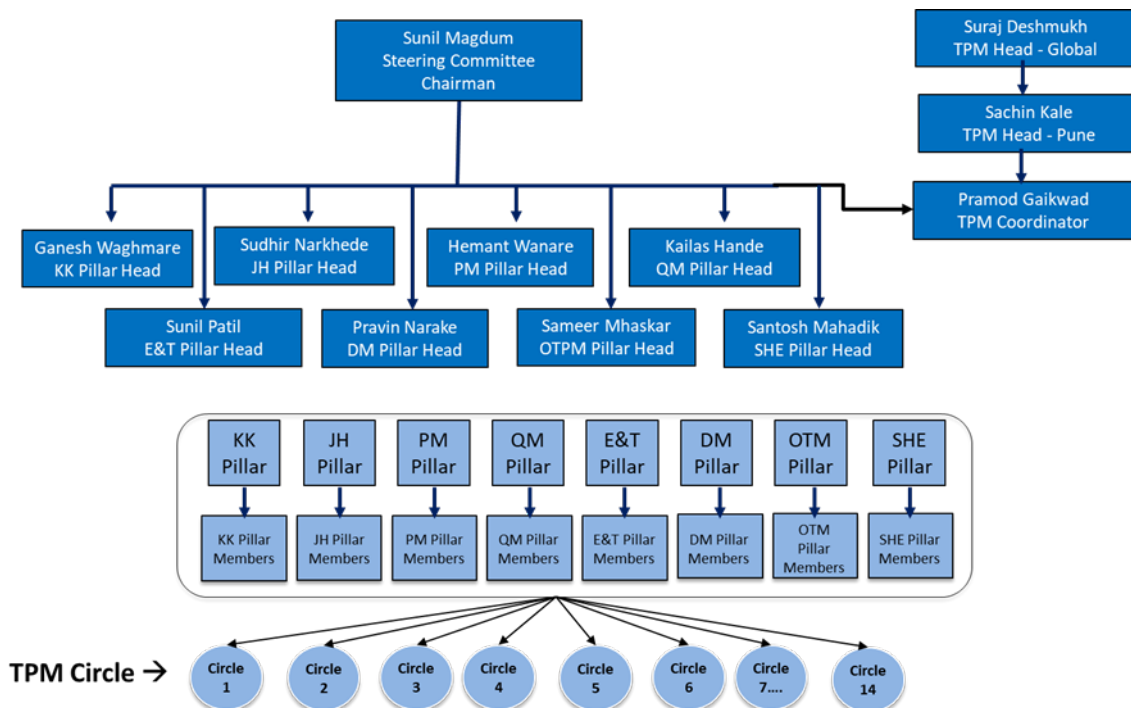
- Machines**



- Product Flow**



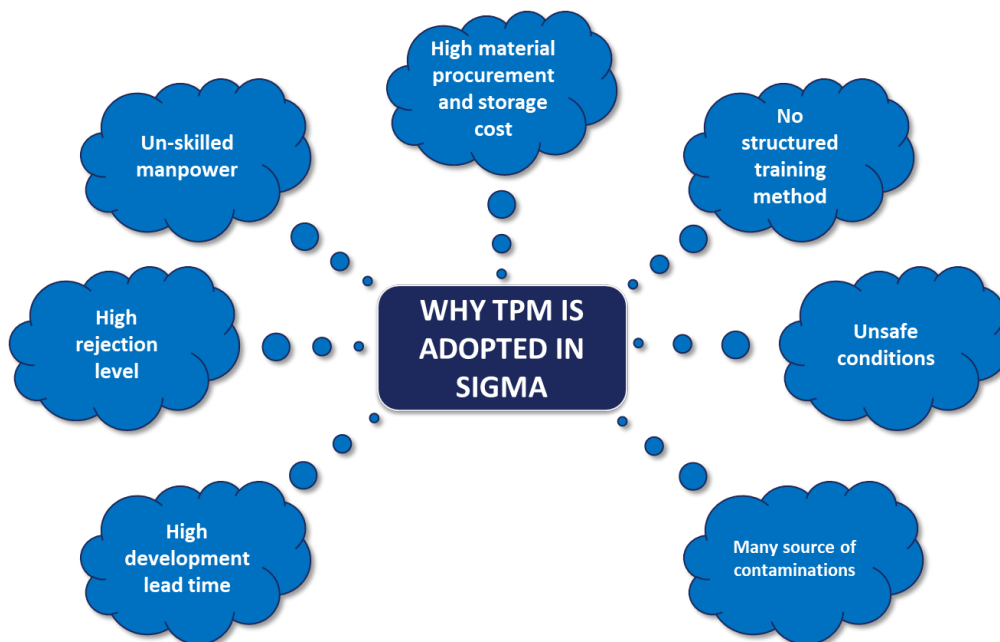
## 2.11 TPM Organization Structure



### 3. Milestone on the Journey of Manufacturing Excellence

#### 3.1 Need of TPM

Implementation of TPM is for changing the mind-set of the organization. Organizational change is needed in order to align the company with changing business environment. There are **external** and **internal** factors, which necessitate the change to achieve Operational Excellence. Sigma found TPM as an Effective tool to address its needs and hence decided to adopt TPM as a Business Tool to improve the efficiency of Plant Operation.



#### 3.2 Embracing TPM for Manufacturing Excellence


Our company Vision is to ‘To be the global partner of choice by exceeding customer expectations’.

In line with our vision, we have felt the strong need of TPM as it will help us to achieve zero BAD. Develop employee capability, this will result in increased productivity, improved customer satisfaction and make profitable organization.

The below details represent the reason we embraced TPM to achieve operational excellence.

### 3.3 TPM Policy

To implement TPM management established TPM Policy.



#### TPM Policy

We, at Sigma Electric Manufacturing Corporation Private Limited, aim preferred global supplier of machined casting components to our cust

We will achieve this by designing, manufacturing and supplying innovat

highest quality standards by implementing Operational Excellence "**T**  
**M**" (TPM) in our supply chain and adopting 0/100 philosop

We are committed for the highest level of Operational Excellence and th customer delight by targeting at,

- Zero Accident
- Zero Breakdown
- Zero Customer Complaint
- Zero Defects

This will be achieved by-

- Creating a culture through strong commitment at all levels
- Enhance capabilities of employee at all levels across organization
- Total employee involvement
- Achieving Product, People and Process excellence
- Integrating other improvement initiatives like ISO, Lean, 6 Sigma others initiative into the TPM

Sigma adopts TPM as a main prime driver to achieve Operational Excel

### 3.4 Integration of all Tools and Methodologies in TPM

Linkage of KMI KPI and KAI established for all parameters. Sample mentioned below

KMI	KPI	KAI	Pillar
EBITA improvement	<ul style="list-style-type: none"> <li>• Reduce Material Costs</li> </ul>	<ul style="list-style-type: none"> <li>• Alternate material. Alternate source , negotiations</li> <li>• VA –VE projects – Zero based working</li> <li>• Kaizen on losses / wastes</li> <li>• Labor productivity/ Automation/ Ind. 4.0 Projects</li> </ul>	KK, DM
	<ul style="list-style-type: none"> <li>• Reduce Conversion Cost</li> </ul>	<ul style="list-style-type: none"> <li>• CIP Projects</li> <li>• R&amp;M reduction Projects</li> <li>• Energy cost reduction projects</li> </ul>	KK, PM, OTPM



### 3.5 Evolution of Operator

We have achieved a major leap in the mindset of our machine operators and maintenance staff. This table represents the status of their mindset before and after introduction of TPM.

#	Before introduction of TPM	After introduction of TPM
<b>A</b>	<b>Machine Operators</b>	
1	Machine operators are mainly responsible for production	Machine operators are assigned responsibility of minor maintenance of machines
2	“I produce and You Maintain” attitude of operators	“I do, I check and I Maintain” attitude of operators—My Machine Concept
3	No formal checklist for machine maintenance basic parameters	Use of Checklist covering C-L-I-T-A
4	Only escalating when machine is dysfunctional	knowledge of machine functioning
5	Reporting of Breakdowns	- Identification and understanding of abnormalities. Participation in repair work during Maintenance Mindset change for zero breakdown
<b>B</b>	<b>Maintenance Staff</b>	
1	Focus on immediate repair for fixing the problems	Focus on preventive actions
2	Frequency and coverage of advanced maintenance techniques was less	More use and coverage of advance maintenance techniques – Vibration and Current Monitoring (CBM)
3	Tendency to get replacement of old machines	Focus on increasing life of old machines
4	Limited use of root cause analysis approach	Insistence on using Why- Why analysis  Initiated use of Phenomena Mechanism analysis for chronic problems

#### **4. Results and Benefits Achieved**

##### **4.1 Key Performance Indices – Results**

<b>Category</b>	<b>Index</b>	<b>Unit</b>	<b>BM (TPM Started) FY18</b>	<b>Actual Status YTD FY24</b>
S	Number of work-related accidents requiring days off work	Cases/ Year	1	0
S	Number of work-related accidents not requiring days off work	Cases/ Year	166	0
P	Productivity for main products (Manpower Productivity)	Kgs / Man / Month	263	502
P	OEE (or Overall Plant Efficiency)	%	71	86.16
P	Availability	%	84	92.91
P	Performance Rate	%	92.84	94.97
P	Quality Products Rate	%	91	97.65
P	Number of breakdowns	Breakdowns / Month	283	39
P	MTBF	Hour	317	1596
P	MTTR	Mins	137	73
Q	Number of customer complaints	Number / Year	31	0
Q	In-line defect rate (scrap)	%	8.99	4.90

Q	In-line defect rate (rework)	%	11	2.07
C	Cost index (Conversion Cost)	\$ / Kg	1.59	1.15
D	Production Lead time	Days	10	4.5
D	Delivery Performance	%	94	98
S	Frequency rate	Number of occupational accidents with leave for 1 000 000 worked hours	0.52	0
M	Number of Employee Suggestions Implemented	Numbers / Employee / Month	848	8733

## **4.2 Intangible Benefits**

Understanding TPM in right spirit & practicing it day-to-day over five years has brought significant changes in work culture, system orientation, analytical approach & flexibility.

### **Work Culture:**

- Sense of ownership of equipment / process i.e. “I Operate , I maintain, I Control”
- People started believing the possibility of Zero Customer Complaints, Zero In process Defects , Zero breakdowns and Accident
- People have started thinking Deeply and Widely in their areas / section to improve from existing condition to next level
- People now work as per the Flexibility of requirement and does not resist to any changes
- Sustenance of Improvements done by the operators

### **System Orientation:**

- TPM is integrated with IMS
- Management objective are well linked to plant objective, department Objective and then to Cell objectives so focusing cell working in more meaning full and system way
- Neat and Clean working environment can be seen  
Well defined system for maintenance spare management, Quality monitoring and Production monitoring

### **Analytical Approach:**

- Continuous Improvement / Focus on prevention of losses by searching the abnormalities, root cause analysis and Kaizen Implementation

### **Flexibility:**

- Flexibility in manufacturing due to Multi-skilled operator
- Production Output as per the Customer Pull

### 4.3 Recognitions in External Competitions

We won 40 external awards in last 4 years. Sample National level awards mentioned below.



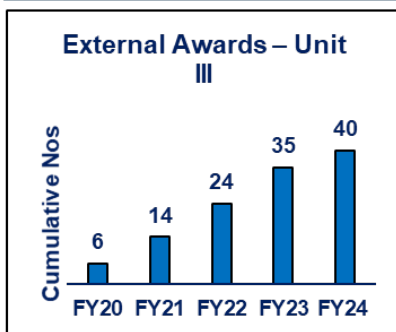
POKAYOKE competition organized by CII held in Pune is concluded on 29thAug2019



CII (Western Region) 5S Excellence Award 2019 was held on 20th Jan2020.



Operation in Excellence Award won in Manufacturing Today Award 2022



CEO of The Year FY 23 Award Manufacturing Today Award



**5. Way Ahead**

#	Particulars	Action Plan	Responsibility	Target Date
1	Challenging JIPM excellence award for Unit I Pune	Horizontal Deployment of TPM methodology from Unit-III	Plant Head – Unit I	FY24
2	Challenging JIPM consistent TPM commitment award for Unit-II	Continue practicing TPM practices	Plant Head – Unit II	FY26
3	Initiate TPM practices in North America Plant	Horizontal Deployment of TPM methodology from Unit-III	TPM-BE Head	FY24 (Initiated)
4	Sustainability Award	Assessment by M/s Frost and Sullivan	TPM-BE Head	FY26