

# Capital Goods Sector Skills Council National Occupational Standards Development Project



## OCCUPATIONAL MAP

### Consultants



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## Background

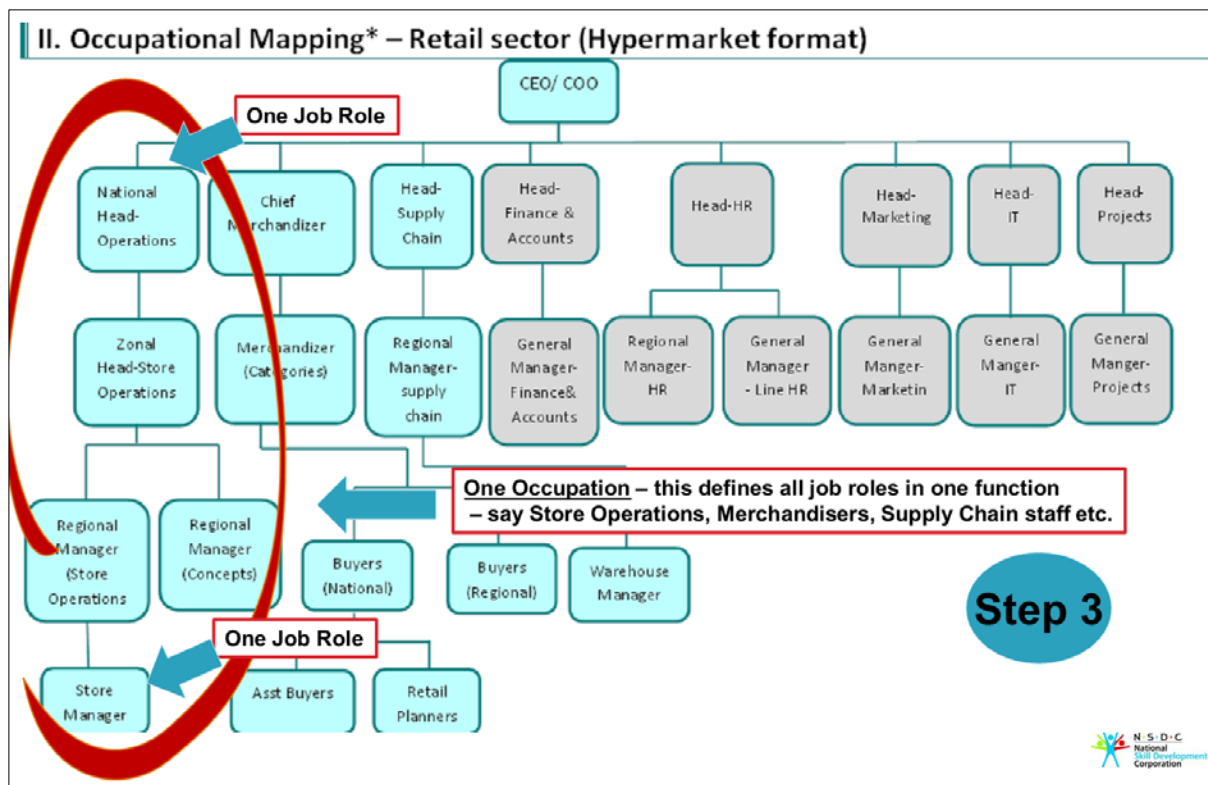
The Capital Goods Sector Skill Council has commissioned the development of Occupational and Functional Mapping and development of Qualification Pack and National Occupational Standards (NOS) for selected job roles/occupations in the Capital Goods Industry.

PROGILENCE and GlobaPeers as a consortium in response to the Reference # CGSC/NOS/RFP/01/2013, were selected by CGSSC to undertake this exercise. A work order for the same was issued by CGSSC for the same in the latter half of November 2013. The contract was signed in the latter half of November 2013. Following issuance of the work order a planning meeting was held with the CGSSC.

As per the planning meet the first milestone that was agreed upon was the presentation of a draft version of the Occupational Map which shall be the basis for discussion within the Industry members to identify the Final Occupations and Job Roles to be included in the final version of the Occupational map as well as to do an initial discussion for identification of critical job roles for the industry.

## Occupational Map

Occupational mapping is done in order to identify the various Occupations within the Industry and distinct job roles that exist within each occupation. Given below is an Illustration provided by NSDC to explain this.



Deciding on these job roles is often not easy because different organisations use a range of different names for these roles or a single person could be performing multiple job roles. However, by listing down the distinct job roles and then bringing representatives of the industry together to brainstorm on the matter, it is usually possible to develop a list of commonly agreed job roles and functional titles for them.

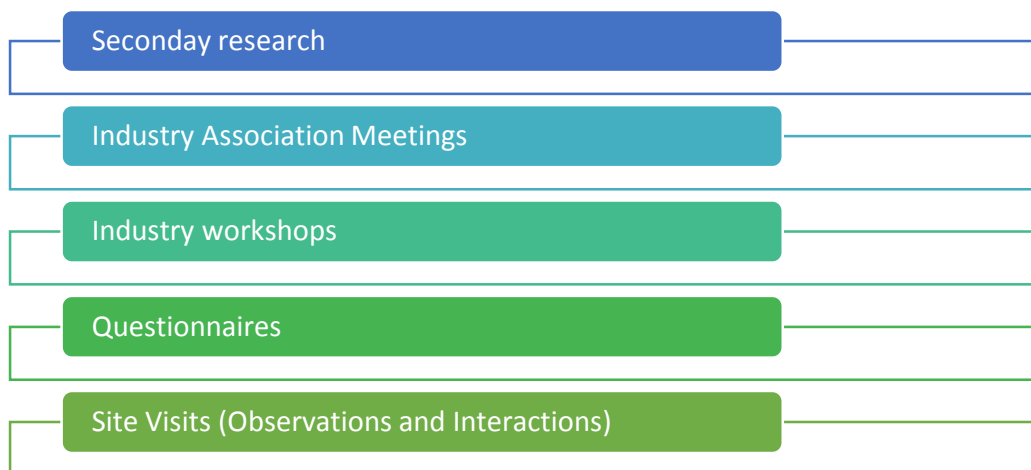
Once these roles and titles are clear and agreed, a range of illustrative job descriptions will be collected for them which will provide further background information for the Functional Analysis and NOS development.

## Project Methodology

The sub-sectors covered during this exercise include the following

- o Machine Tools
- o Process Plant Equipment
- o Dies, Moulds and Press Tools
- o Plastic Machinery
- o Textile Machinery
- o Power and Electrical Machinery
- o Light Engineering Goods Industry

Activities undertaken so far to uncover the job roles within the sector and encompassing sub-sector include the following



The project to produce the Occupational maps and Functional analysis was conducted with the support of various stakeholders. The Industry Associations were contacted and were met with to explain the objective of the project and their support was sought for a) getting information about the sector b) for getting in touch with the Industry. Introductory mails

were sent by the Industry Associations along with an invitation to attend the workshop to launch the project.

1. Initial meetings were held with Process Plant Manufacturers Association of India (PPMAI), Tool and Gauges Manufacturing Association (TAGMA), Plastics Machine Manufacturing Association of India (PMMAI), Indian Machine Tools Manufacturers Association (IMTMA), Engineering Export Promotion Council (EEPC) and Textile Machinery Manufacturers Association of India (TMMAI)
2. With the help of Industry Associations, Workshops were conducted at 4 locations to disseminate information on the Project Objective, its importance to the industry and the support required from the Industry

S. No.	Location	Workshop Date
1	Bangalore	26 <sup>th</sup> November '13
2	Mumbai	27 <sup>th</sup> November '13
3	Delhi	28 <sup>th</sup> November '13
4	Chennai	30 <sup>th</sup> November '13

A Questionnaire was given during the workshop for gathering primary information about the attendee and the company (for Format of Questionnaire I – Ref. Appendix). Following the Workshop, introductory mail was sent to representatives of the industry by the Associations and follow up mails were sent by PROGILENCE and GlobalPeers Team for fixing up face to face meetings for data collection. Questionnaire II was sent to the Industries who had agreed for sharing information (for Format of Questionnaire II – Ref. Appendix)

The process for collecting data consisted of Primary Research and desk research.

The Primary Research was conducted by way of meetings and interviews, questionnaires with a representative sample of companies and 70 Companies were covered. The list of representative organizations contacted along with the sub-sector is given in the Appendix along with the sample questionnaire which was used for collecting data.

As required in the RFP, the data available in the NSDC Report titled “Human Resource and Skill Requirements in the Capital Goods Sector (2012-17, 2017-22)” for the Capital Goods Industry has also been used as reference besides others for secondary research.

In-person company visits were organised by the service providers’ teams across India from 02<sup>nd</sup> December 2013.

## Companies covered

Information collected from 71 Units belonging to 64 companies. 63 of the 71 units were visited in person, some of them more than once.

Sub-sector wise list of units visited in person (Total 63 Units)

Sub-Sector	Company Name	Location	Size
Machine Tools (9)	Micromatic Grinding Tools Pvt. Ltd.	Ghaziabad	Large
	GW Precision Tools	Bangalore	Medium
	Trishul Machine Tools	Bangalore	Medium
	BNR Exports	Bangalore	Large
	Micromatic Machine Tools	Bangalore	Medium
	ACE Manufacturing Ltd	Bangalore	Large
	Auto CNC Machining Ltd.	Bangalore	Medium
	Perfect Engineering	Jalandhar	Small
	Marshall Machines	Ludhiana	Medium
Process Plant Equipment (8)	Larsen and Toubro	Powai	Large
	Godrej and Boyce	Mumbai	Large
	ISGEC	Yamunanagar	Large
	Thermax	Pune	Large
	Praj Industries	Pune	Large
	Chemtrols India	Goa	Large
	Precision Equipments	Chennai	Medium
	Chemtrols India	Mumbai	Medium
Moulds, Dies and Press Tools (13)	Bharat Forge	Pune	Large
	Kraftsman Tooling	Pune	Medium
	Naroto	Ahmedabad	Medium
	ACE Manufacturing	Bangalore	Large
	Acme Dies Systems Pvt. Ltd.	Delhi	Medium
	Classic Die tools	Pune	Medium
	Renata Precision Components Pvt. Ltd.	Pune	Medium
	Godrej Toolroom	Mumbai	Large
	Chamtools	Mumbai	Small
	L&T Toolrooms	Mumbai	Large
	Sridevi Tools	Mumbai	Large
	Precision Moulds	Delhi	Small
	Supremo Profiles Pvt. Ltd.	Pune	Small
Plastic Machinery (7)	Rajoo Engineering	Rajkot	Medium
	Vihan Engineering	Ahmedabad	Small
	Neoplast	Ahmedabad	Medium
	Windsor	Ahmedabad	Large
	Ferromatik Milacron	Ahmedabad	Large
	Prasad Group	Ahmedabad	Medium
	Naroto	Rajkot	Medium

Sub-Sector	Company Name	Location	Size
Textile Machinery (8)	Microspin Machine Works Pvt Ltd	Chennai	Small
	Truetzschler	Ahmedabad	Large
	Lakshmi Machine Works	Coimbatore	Large
	Lakshmi Cards Manufacturers	Coimbatore	Large
	Dalal Engineering	Mumbai	Medium
	Texfab Engineers	Mumbai	Small
	Lifebond	Surat	Medium
	Inspiron	Ahmedabad	Large
Power and Electrical Machinery (5)	Bhopal Switch Gears Pvt Ltd	Bhopal	Small
	BHEL -TCB Division (Transformer Capacitor & Bushing)	Bhopal	Large
	L&T Switch Gears	Powai	Small
	Siemens	Mumbai	Large
	Thermodyne Engineering	Chennai	Small
Light Engineering Goods (13)	Nipha Exports Pvt. Ltd.	Faridabad	Small
	Weldkraft Pvt. Ltd.	Bangalore	Small
	Accurate Steel Forgings P Ltd	Chennai	Medium
	Southern Alloy Foundries PLtd	Chennai	Small
	Newcast Diecasting	Bangalore	Small
	Ishmeet Forgings	Ludhiana	Medium
	SK Steel	Ludhiana	Small
	Munish Forging	Ludhiana	Medium
	Alamgir Ind	Ludhiana	Small
	GDPA Fasteners	Jalandhar	Small
	Perfect Agro	Jalandhar	Small
	Bharat Forge	Pune	Large
	Victor Forging	Jalandhar	Small

## Other Institutions visited

1. Indian Institute of Welding
2. M TAB
3. IMTMA Training Lab

## Questionnaires received from (not listed above)

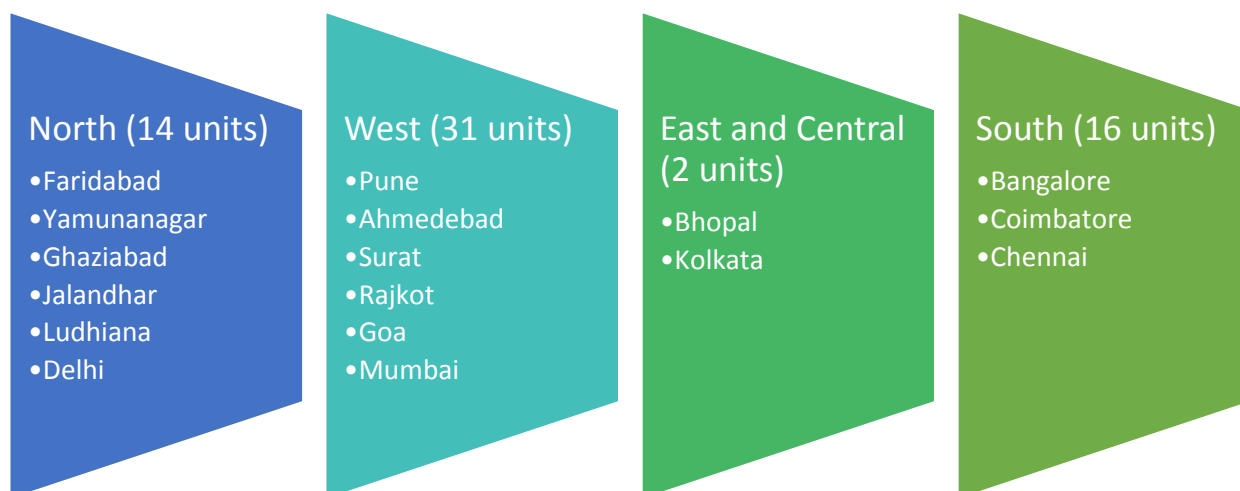
1. Neeraj Industries – Light Engineering Goods (Medium), Ballabgarh
2. Alco Electrostrips – Power (Small), Bhopal
3. Hindustan Syringe – LEG (Medium), Faridabad
4. L&T Hazira – Process Plant (Large), Hazira
5. Alstom – Power & Electrical (Large)
6. Bakubhai Group, Process Plant (Large), Mumbai

7. Multimax Engineering, Process Plant (Medium), Meerut
8. Oriental India, Process Plant (Medium), Pune

### Industry Associations Engaged with

1. TAGMA
2. PMMAI
3. IMTMA
4. EPCC
5. PPMAI
6. TMMAI

### Cities covered by in-person visits so far



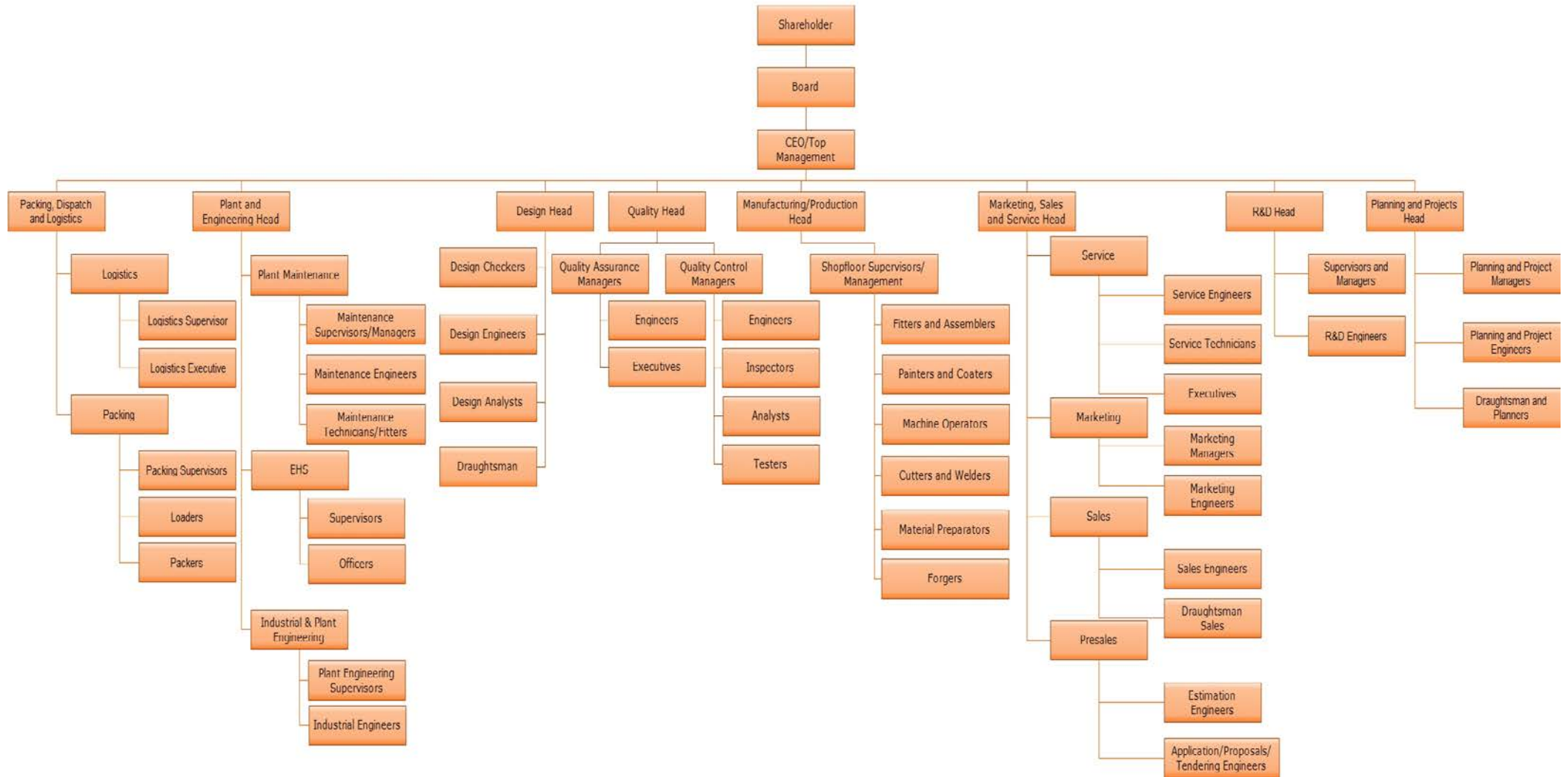
### Scale (Large, Medium and Small) covered so far

The units have been categorised into Large, Medium or Small based on feedback received from them. For those companies where we did not have the companies' feedback, we have taken companies with a turnover of greater than 100 crores as large, and less than 5 crores as small. This data shall be revalidated with the respective Industry Associations subsequently.





## Capital Goods (Core Sector) Broad Occupational Chart



# JOB ROLES AS PART OF THE OCCUPATIONAL MAP

<b>DESIGN ROLES (55)</b>		
<b>CAD Operators (Draughtsman)</b>	<b>Design Engineers</b>	<b>Design Engineers</b>
1. Draughtsman - Mechanical	1. Design Engineers - Components (mechanical)	1. Design Engineers - Transformers, Capacitors and Bushings (Mechanical)
2. Draughtsman - Injection Moulding	2. Design Engineers - Assembly (mechanical)	2. Design Engineers - Transformers, Capacitors and Bushings (Electrical)
3. Draughtsman - Blow Moulding	3. Design Engineers - Assembly (hydraulic)	3. Design Engineers Field Design Engineers (TCB)
4. Draughtsman - Pressure Die Casting	4. Design Engineers - Assembly (pneumatic)	4. Design Engineers - Boiler and Pressure Vessels (Mechanical)
5. Draughtsman - Press Tools	5. Design Engineers - Assembly (electronic and electrical)	5. Design Engineers - Boiler and Pressure Vessels (Thermal)
6. Draughtsman - Electrical	6. Design Engineers - Machine Tool	6. Design Engineers - Boiler and Pressure Vessels (Electrical)
7. Draughtsman - Boilers	7. Design Engineers - Plastic Injection Mould	7. Design Engineers - Gassifiers
8. Draughtsman - Instrumentation	8. Design Engineers - Blow Moulding	8. Design Engineers - Instrumentation
<b>1. Design Analysts</b>	9. Design Engineers – Dies and Press Tools	9. Design Engineers - Finite Element Analysis
2. Analysts - Finite Element Analysis	10. Design Engineers - Pressure Die Casting	10. Design Engineers – Bearing
3. Analysts - Thermal Design (Boiler and PV)	11. Electrode Designer	11. Design Engineers – Valves
4. Analysts - Mechanical Design (Boiler and PV)	12. Design Engineers - Turbine	12. Design Engineers - Governing system
5. Analysts - Mould Flow	13. Design Engineers - Generator	13. Design Engineers – Layout
Engineer - Chemical and Metallurgist	<b>Managerial Roles</b>	14. Pattern Designer – Moulds
<b>Other Design Roles</b>	1. Manager Design - Pressure vessels, boiler and gassifiers	15. Design Engineer - Switchgears
1. Proposal Engineer	2. Manager Design -Instrumentation	
2. Jigs and Fixture Designer	3. Supervisor Design - Machine Tool	
3. Feed Screw Designer (plastic machinery)	4. Supervisor Design - Forging	
4. Software Designer (CNC Machines)		
5. Design Checker		
6. CAM Programmer		
7. Process Automation Engineer		
8. CAM Operator		
9. Programming Engineer		

## PRODUCTION (167)

Machine Operators - CNC	Machine Operators - Conventional	Sheet Metal Cutting Machine Operator
1. CNC Operator - Vertical Machining Centre	1. Machinist - Conventional Turning/Lathe Machines	1. Cylindrical Grinding Machine Operator
2. CNC Operator - Horizontal Machining Centre	2. Machinist - Conventional Milling Machines	2. Internal Grinding Machine Operator
3. CNC Operator - Grinding Machine Centre	3. Machinist - Conventional Surface Grinding Machines	3. Grinding Machine Operator(Light and Heavy Duty)
4. CNC Operator(CNC Grinding Machine and Programming)	4. Machinist - Drilling Machine (Bench, Multi Spindle and Radial)	4. Boring Machine Operator(Light and Heavy Duty)
5. CNC Operator - 5 Axis Machine	5. Machinist - Conventional Cutting Machines	5. Rolling Machine Operator
6. CNC Operator - 3 Axis Machine	6. Conventional Gas Cutting Machinist	6. Shearing Machine Operator
7. CNC Operator - Milling	7. Conventional Milling Machinist(Insulation Material)	7. Drawing Machine Operator
8. CNC Operator - Horizontal Lathe	8. Conventional Cutting Machinist(Insulation Material)	8. Chamfering Machine Operator
9. CNC Operator - Vertical Honing	9. Conventional Linishing Machinist(Insulation Material)	9. Trimming Press Operator
10. CNC Electric Discharge (Spark Erosion) Machine Operator	10. Conventional Grinding Machinist(Insulation Material)	10. Reducing Machine Operator
11. CNC Coating Machine Operator	11. Conventional Drilling Machinist(Insulation Material)	11. Threading Machine Operator
12. CNC Operator - Measuring Machine	12. Conventional Marking Machinist(Insulation Material)	12. Straightening Machine Operator
13. CNC Bending Operator	13. Conventional Milling Operator(Heavy Duty)	13. Gauging Machine Operator
14. CNC Operator - Gas Cutting	14. Conventional Turning Operator(Heavy Duty)	14. Broach Machine Operator
15. CNC Laser/Plasma cutting Operator	15. Conventional Turning Operator(Heavy Duty)	15. Hydraulic Press Operator
16. CNC Turret Punching Machine	16. Injection Mould Machine Operator	16. Polisher - Lapping Machine
17. CNC Stamping Machine	17. Gear Hobbing machine operator	17. Wire-cut Machine Operator
18. CNC EDM operator	18. Extruding Machine operator	18. Black Burnishing Machine Operator
19. CNC Wire Cut operator		19. Brazing Machine Operator
20. CNC Jig Boring operator		20. Electric Discharge (Spark Erosion) Machine Operator (Manual)
21. CNC Jig Grinding operator		21. Tool Grip Technician
		22. Blanking Machine Operator
		23. Stone belt Grinding Operator
		24. Punch and Notching Machine Operator
		25. Chimming Press Operator
		26. Drilling Operator
		27. Machine operator - Electrode Making
		28. Machine operator - Pressure Die Casting

<b>PRODUCTION</b>		
<b>Component Fabricator and Material treatment</b>	<b>Fitter Assembly/Sub Assembly</b>	<b>Other Production Roles</b>
1. Surface Preparator - Shot Blasting and Sand Blasting	1. Sub Assembly Fitter – Mechanical	1. Soldering Technician
2. Surface Preparator - Pickling and Passivation	2. Sub Assembly Fitter – Hydraulic	2. Testing Engineer - Plastic Machinery
3. Carpenter Insulation Assembly	3. Sub Assembly Fitter – Pneumatic	3. Moulding Operator - Trial and Testing
4. Forger	4. Sub Assembly Fitter (Injection)	4. Testing and Trail Engineer - Machine Tools
5. Forging Foreman	5. Fitter Die Assembly	5. Hydro Tester
6. Hammer Operator - Forging	6. Fitter Machine Assembly	6. Mistri - Cementing and Refractory Filling
7. Forging Furnace Operator	7. Fitter Assembly - Moulds	7. Project Lead for Tools and Dies making
8. Tinsmith	8. Sub Assembly Fitter – Electrical	8. Production Engineer - Boiler and Heat Exchangers
9. Grinder - Hand and Power Tool	9. Fitter Assembly - Dies	9. Production Engineer - Pressure Vessels
10. Buffing Operator- Hand and Power Tool	10. Fitter Assembly - Tools	10. EOT Crane Operator
11. Small Hand Tool Operator	<b>Painting &amp; Polishing</b>	11. Hydra Crane Operator
12. Fitter – Fabrication	1. Component Painter (hard painting)	12. Fork Lift Operator
13. Sheet Metal Worker	2. Painting Technician (Spray painting)	14. Scaffolding Operator
14. Fitter Deburring	3. Paint Booth Operator	15. Engineer – Subcontracting
15. Fitter Drawing and Marking	4. Painting Inspector	16. Calibration Technician
16. Drawing Machine Foreman	5. Paint Technologist	17. Technician Instrumentation
17. Heat Treatment Operator	6. Painting Supervisor	18. Engineer - Methods Engineering
18. Heat Treatment Engineer	7. Powder Coating Technician	19. Engineer - Theory of Constraints
19. Sand Plant Operator	8. Electroplating Operator	20. Store Keeper
20. Doriman	9. Mould Polisher	21. Die Technician
21. Accessory Fitter	10. Polisher - Hand Tool	22. Engineer – LEAN
22. Fitter Setup		23. Engineer - Quality Initiatives
23. Fitter Boiler Insulator		24. Engineer - Total Productive maintenance
24. Fitter Mechanical Flow Measurement		25. Engineer - Boiler Header and Element
25. Fitter Electronic Assembly		26. Production Engineer - Machine Tools
26. Winder		27. Machine Setting - CNC, VMC
27. Sand Mould Maker		28. Vendor development Engineer
28. Core Maker		

## PRODUCTION

### Managerial & Supervisory Roles

1. Manager Production	2. Manager - Order Execution	3. Supervisor - Tool assembly	4. Supervisor - Moulding
5. Manager - Metering and Measurement Products	6. Manager - Subcontracting	7. Supervisor - Tool and Raw Material Purchase	8. Supervisor - Fettleing
9. Manager - Process Analytics	10. Supervisor - Assembly	11. Supervisor - Pressure Vessels	12. Supervisor - Forging Furnace
13. Manager Stores	14. Supervisor -Fabrication	15. Supervisor Production - Process Analytics	16. Supervisor - Forging
17. Manager Manufacturing	18. Special Machine Shop Supervisor	19. Supervisor Production - Metering and Measurement Products	20. Supervisor - Production Improvement
21. Manager - Jigs and Tools	22. General Machine Shop Supervisor	23. Supervisor -Tubing (Heat Exchangers & Boilers)	24. Supervisor - Total productive Maintenance

## QUALITY (70)

### Quality Inspectors

1. Quality Inspector - Fabricated machine components	2. Quality Inspector - Insulation
3. Quality Inspector - Machine sub-assemblies	4. Quality Inspector - Assembly
5. Quality Inspector - Machine Assembly	6. Quality Inspector - Processing
7. Quality Inspector - Precision Tools	8. Quality Inspector - Tanking
9. Quality Inspector/Chemist - Welding Consumables	10. Quality Inspector - Bushing
11. Quality Inspector/Chemist - Metallurgy	12. Quality Inspector - Capacitor
13. Quality Inspector - Transformer Assembly	14. Quality Inspector - Current Transformer
15. Quality Inspector - Transformer Winding	16. Quality Inspector - Current Voltage Transformer
17. Quality Inspector - Core Fitting	18. Quality Inspector Assembly and Bending(Switchgear & Control panel)
19. Quality Inspector –Testing	20. Quality Inspector - Fixture Development
21. Quality Inspector – Dispatch	22. Quality Inspector - Production (Various stages)
23. Quality Inspector – Flanging	24. Quality Inspector - Dies, Moulds and Press tools
25. Quality Inspector - Core Building	26. Quality Inspector - Forging
27. Quality Inspector - QC Lamination	28. Quality Inspector - Casting
29. Quality Inspector - Spares	30. Visual Inspectors - Components
31. Quality Inspector - Incoming	

## QUALITY

### Quality Technicians and Analysts

1. Lab Technician - Raw material (Metal) Testing	2. NDT Technician Level 1 - Magnetic Particle Testing (MPT) (Tester)	3. NDT Technician Level 3 - Die Penetrating test (DPT) (Analyst and Trainer)
4. Destructive Testing Technician – Mechanical	5. NDT Technician Level 2 - Magnetic Particle Testing (MPT) (Supervisor)	6. NDT Technician Level 1 - Phase Array (Tester)
7. Destructive Testing Technician - Chemical	8. NDT Technician Level 3 - Magnetic Particle Testing (MPT) (Analyst and Trainer)	9. NDT Technician Level 2 - Phase Array (Supervisor)
10. Radiologist Level 1 (Tester)	11. NDT Technician Level 1 - Time of Flight Diffraction (TOFD) - Automated UT Test (Tester)	12. NDT Technician Level 3 - Phase Array (Analyst and Trainer)
13. Radiologist Level 2 (Analyst and Radiation safety officer)	14. NDT Technician Level 2 - Time of Flight Diffraction (TOFD) - Automated UT Test (Supervisor)	15. NDT Technician Level 1 - QC Visual Examiner (Tester)
16. NDT Technician Level 1 - Ultrasonic testing (Tester)	17. NDT Technician Level 3 - Time of Flight Diffraction (TOFD) - Automated UT test (Analyst and Trainer)	18. NDT Technician Level 2 - QC Visual Examiner (Supervisor)
19. NDT Technician Level 2 - Ultrasonic Testing (Supervisor)	20. NDT Technician Level 1 - Die Penetrating Test (DPT) (Tester)	21. QC engineer - Mechanical Instrumentation
22. NDT Technician Level 3 - Ultrasonic Testing (Analyst and Trainer)	23. NDT Technician Level 2 - Die Penetrating test (DPT) (Supervisor)	24. QC engineer - Instrumentation

#### Managerial Roles

#### Other Quality Roles

1. Manager Quality Control	1. Quality Assurance - Executive
2. Manager Quality Assurance	2. Quality Assurance Engineer
3. Quality Supervisor - Transformer Assembly/winding	3. Quality Engineer - Transformer block (NTB)
4. Quality Supervisor - core fitting/testing/dispatch	4. Quality Assistant - Fixture Development
5. Quality Supervisor -flanging/Core Building	
6. Quality Supervisor - QC Lamination	
7. Quality Supervisor - Spares/incoming	
8. Quality Supervisor – insulation	
9. Quality Supervisor - assembly/processing/tanking	
10. Quality Supervisor - Bushing/Capacitor/Current transformer/current voltage transformer	
11. Quality Supervisor - Dies, Moulds and Press tools	

## OTHER ROLES (65)

Marketing and Sales	Service Roles	Maintenance
1. Manager - Marketing	1. Service Engineer Installation and Commissioning - Machines Tools	1. Maintenance Engineer - Electrical
2. Engineer - Marketing	2. Service Engineer Breakdown Servicing - Machine Tools	2. Maintenance Engineer - Mechanical
3. Draftsman - Sales	3. Service Technician - Textile Machinery	3. Maintenance Fitter - Mechanical
4. Engineer - Tendering	4. Installation Technician - Textile Machinery	4. Maintenance Fitter - Electrical
5. Engineer Sales and Estimation	5. Service Engineer - Plastic Machinery	5. Supervisor Maintenance - Mechanical
6. Application Engineer	6. Installation and Commissioning - Plastic machinery	6. Supervisor Maintenance - Electrical
7. Engineer - Proposals	7. Service Electrician	7. Maintenance Engineer - Mechatronics
<b>Research</b>	8. After-Sales Machine Servicing Technicians	8. Supervisor - Utilities and AMCs
1. R&D Engineering - Metallurgy	<b>Planning</b>	9. Engineer - Transportation
2. R&D Engineer - Cooling Systems	1. Engineer - Production Planning	<b>Dispatch and Logistics</b>
3. R&D Engineer - Heating systems	2. Engineer - Estimation and Costing	1. Supervisor Logistics
4. R&D Engineer - Waste water treatment	3. Materials Engineer	2. Packing and dispatch executive
5. Project Coordinator -Prototype Manufacturing	4. Materials Planner	3. Finished Goods Packer
6. R&D Engineer - Design	5. Machine shop planning engineer	4. Packing Supervisor
7. Industrial Engineering - Engineer	6. Fabrication planner	<b>Industrial &amp; Plant Engineering</b>
8. Industrial Engineering - Assistant	7. General Manager - Technical	1. Industrial Engineer
9. R&D Supervisor - Instrumentation (Mechanical)	8. Engineer - Electrical Shop Planning	2. Industrial Engineer - Painting
10. R&D Supervisor - Instrumentation (Electronics)	9. Machine shop planning Head	3. Industrial Engineer - Process
11. R&D Engineer - Instrumentation (Mechanical)	<b>Projects</b>	4. Industrial Engineer - Bearing
12. R&D Engineer - Instrumentation (Electronics)	1. Project Manager	5. Industrial Engineer - Fabrication
13. Engineer - Manufacturing Technology (Mechanical)	2. Projects Engineer	6. Industrial Engineer - Machining and Assembly
14. Engineer - Manufacturing Technology (Electronics)	3. Draftsman - Projects	7. Plant Engineering Supervisor
15. R& D Engineer - Control Systems	<b>EHS</b>	
16. Design Engineer - Scale Model	1. Supervisor EHS	
	2. EHS Officer	



## WELDING (12)

Welder - Code Certified (Manual)	Micro welder
Welder -Non-Code Certified (Manual)	Stud Welder
Welder - Code Certified (Semi-automatic)	Spot Welder
Welder -Non-Code Certified (Semi-automatic)	Welding Support - Heat Treatment Technician
Welder - Code Certified (Automated)	Welding Planner
Welder -Non-Code Certified (Automated)	Welding Engineer

Welding Processes	Welders Classification			
	Coded Jobs		Non-coded	
	Manual/semi-automatic	Automated	Manual/semi-automatic	Automated
	1G - 6G/1F-5F		1G - 6G/1F-5F	
<b>SMAW</b>	√		√	
<b>GTAW</b>	√	√	√	√
<b>FCAW</b>	√		√	
<b>ESSC</b>		√		√
<b>PAW</b>	√	√		√
<b>Laser</b>		√		√
<b>GMAW</b>	√	May be	√	May be
<b>SAW</b>	√ (semi-automatic)	√	√ (semi-automatic)	√
<b>Gas welding</b>	Oxy acetylene		Oxy acetylene	
<b>Stud Welder</b>	√		√	
<b>Spot Welding</b>			√	√
<b>Oxy-fuel gas cutting</b>	√	CNC	√	CNC
<b>Plasma cutting</b>	√	CNC	√	CNC
<b>Laser cutting</b>		CNC		CNC

## 80% workforce - Roles

Based on industry feedback and extrapolating from the limited data received from various visits and questionnaires we have arrived at roles which comprise of approximately 80% of the workforce in the Capital Goods sector across the respective sub-sectors undertaken in this study.

The list comprises 111 roles across various categories of occupations within the overall sector. These are listed in the following pages.

<b>DESIGN ROLES (18)</b>		
<b>CAD Operators (Draughtsman)</b>	<b>Design Engineers</b>	<b>Other Design Roles</b>
1. Draughtsman - Mechanical	1. Design Engineers - Components (mechanical)	1. Jigs and Fixture Designer
2. Draughtsman - Injection Moulding	2. Design Engineers - Assembly (mechanical)	2. CAM Programmer
3. Draughtsman - Blow Moulding	3. Design Engineers - Assembly (hydraulic)	3. Proposal Engineer
4. Draughtsman - Electrical	4. Design Engineers - Assembly (pneumatic)	
5. Draughtsman - Boilers	5. Design Engineers - Assembly (electronic and electrical)	
	6. Design Engineers - Machine Tool	
	7. Design Engineers - Plastic Injection Mould	
	8. Design Engineers - Blow Moulding	
	9. Design Engineer - Switchgears	
	10. Design Engineers – Dies and Press Tools	

**PRODUCTION - MACHINIST (30)**

<b>Machine Operators - CNC</b>	<b>Machine Operators - Conventional</b>	<b>Sheet Metal Cutting Machine Operator</b>
1. CNC Operator - Vertical Machining Centre	1. Machinist - Conventional Turning/Lathe Machines	1. Cylindrical Grinding Machine Operator
2. CNC Operator - Horizontal Machining Centre	2. Machinist - Conventional Milling Machines	2. Internal Grinding Machine Operator
3. CNC Operator - Grinding Machine Centre	3. Machinist - Conventional Surface Grinding Machines	3. Grinding Machine Operator(Light and Heavy Duty)
4. CNC Operator - Milling	4. Machinist - Drilling Machine (Bench, Multi Spindle and Radial)	4. Boring Machine Operator(Light and Heavy Duty)
5. CNC Operator - Horizontal Lathe	5. Machinist - Conventional Cutting Machines	5. Trimming Press Operator
6. CNC Bending Operator	6. Conventional Milling Operator(Heavy Duty)	6. Threading Machine Operator
7. CNC Stamping Machine	7. Conventional Turning Operator(Heavy Duty)	7. Gauging Machine Operator
	8. Conventional Turning Operator(Heavy Duty)	8. Broach Machine Operator
		9. Hydraulic Press Operator
		10. Polisher - Lapping Machine
		11. Electric Discharge (Spark Erosion) Machine Operator (Manual)
		12. Blanking Machine Operator
		13. Stone belt Grinding Operator
		14. Punch and Notching Machine Operator
		15. Drilling Operator

<b>PRODUCTION (37)</b>		
<b>Component Fabricator and Material treatment</b>	<b>Fitter Assembly/Sub Assembly</b>	<b>Other Production Roles</b>
1. Surface Preparator - Shot Blasting and Sand Blasting	1. Sub Assembly Fitter – Mechanical	1. Testing Engineer - Plastic Machinery
2. Forger	2. Sub Assembly Fitter – Hydraulic	2. Moulding Operator - Trial and Testing
3. Hammer Operator - Forging	3. Sub Assembly Fitter – Pneumatic	3. Testing and Trail Engineer - Machine Tools
4. Forging Furnace Operator	4. Sub Assembly Fitter (Injection)	4. Production Engineer - Boiler and Heat Exchangers
5. Grinder - Hand and Power Tool	5. Fitter Die Assembly	5. Production Engineer - Pressure Vessels
6. Buffing Operator- Hand and Power Tool	6. Fitter Machine Assembly	6. EOT Crane Operator
7. Fitter – Fabrication	7. Fitter Assembly – Moulds	7. Engineer – Subcontracting
8. Sheet Metal Worker	8. Sub Assembly Fitter – Electrical	8. Die Technician
9. Fitter Deburring	9. Fitter Assembly – Tools	9. Production Engineer - Machine Tools
10. Heat Treatment Operator	<b>Painting, Polishing, Packing</b>	10. Machine Setting - CNC, VMC
11. Fitter Electronic Assembly	1. Electroplating Operator	11. Vendor development Engineer
12. Welder – Fitter	2. Mould Polisher	12. Engineer - Total Productive maintenance
	3. Polisher - Hand Tool	
	4. Finished Goods Packer	

<b>QUALITY (12)</b>	
<b>Quality Inspectors</b>	
32. Quality Inspector - Fabricated machine components	33. Quality Inspector – Dispatch
34. Quality Inspector - Machine sub-assemblies	35. Quality Inspector - Dies, Moulds and Press tools
36. Quality Inspector – Assembly	37. Quality Inspector - Forging
38. Quality Inspector - Precision Tools	39. Quality Inspector - Casting
40. Quality Inspector –Testing	41. Visual Inspectors - Components
42. Quality Inspector - Incoming	43. Quality Assurance Engineer

## OTHER ROLES (16)

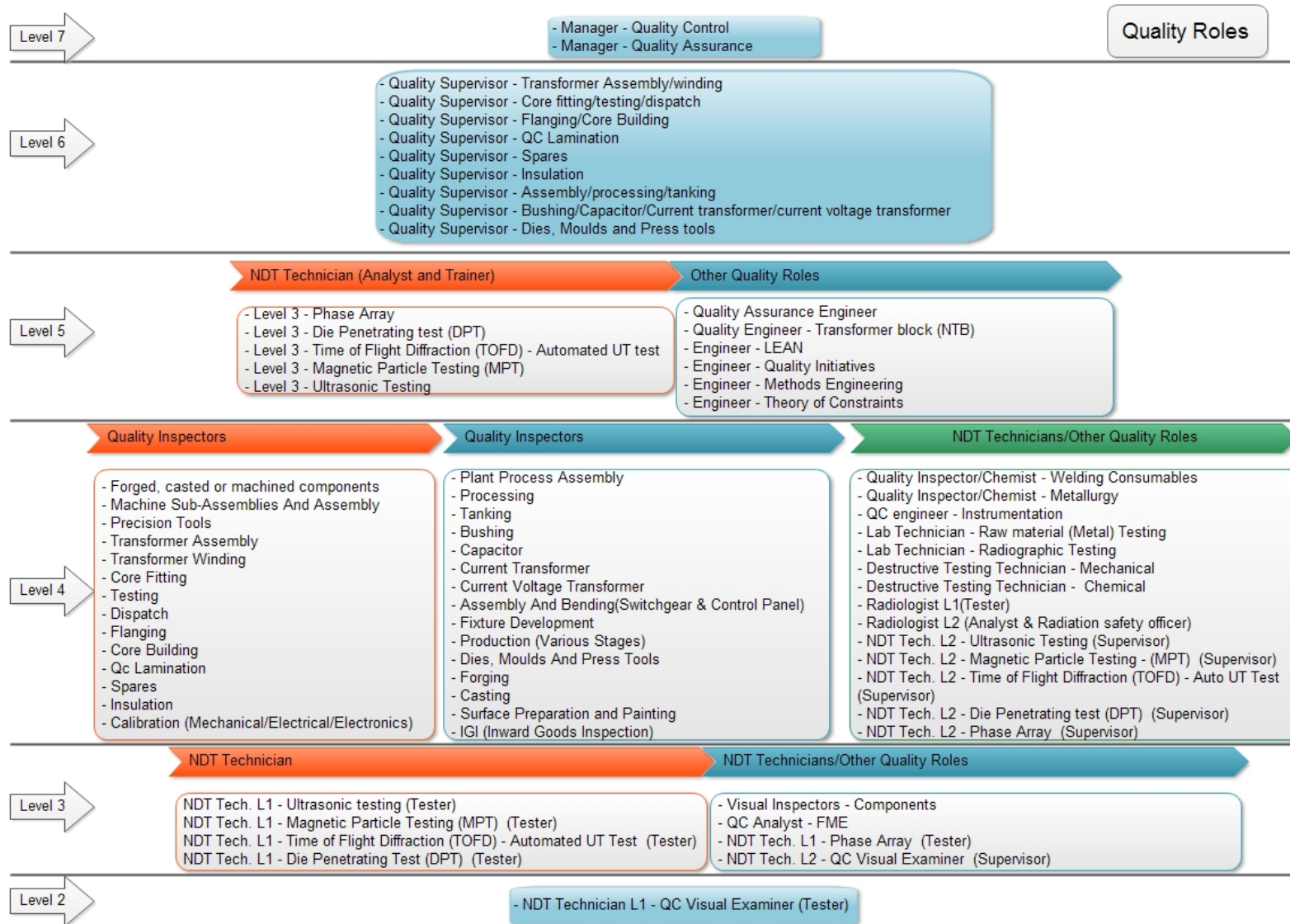
Marketing and Sales	Service Roles	Maintenance
8. Application Engineer	9. Service Engineer Installation and Commissioning - Machines Tools	10. Maintenance Fitter - Mechanical
9. Engineer - Marketing	10. Service Technician - Textile Machinery	11. Maintenance Fitter - Electrical
10. Engineer - Proposals	11. Installation Technician - Textile Machinery	12. Supervisor Maintenance - Mechanical
Industrial & Plant Engineering	12. Service Engineer - Plastic Machinery	Dispatch and Logistics
8. Industrial Engineer - Fabrication	13. Installation and Commissioning - Plastic machinery	1. Packing and dispatch executive
9. Industrial Engineer - Machining and Assembly	Planning	
	1. Engineer - Production Planning	
	2. Machine shop planning engineer	

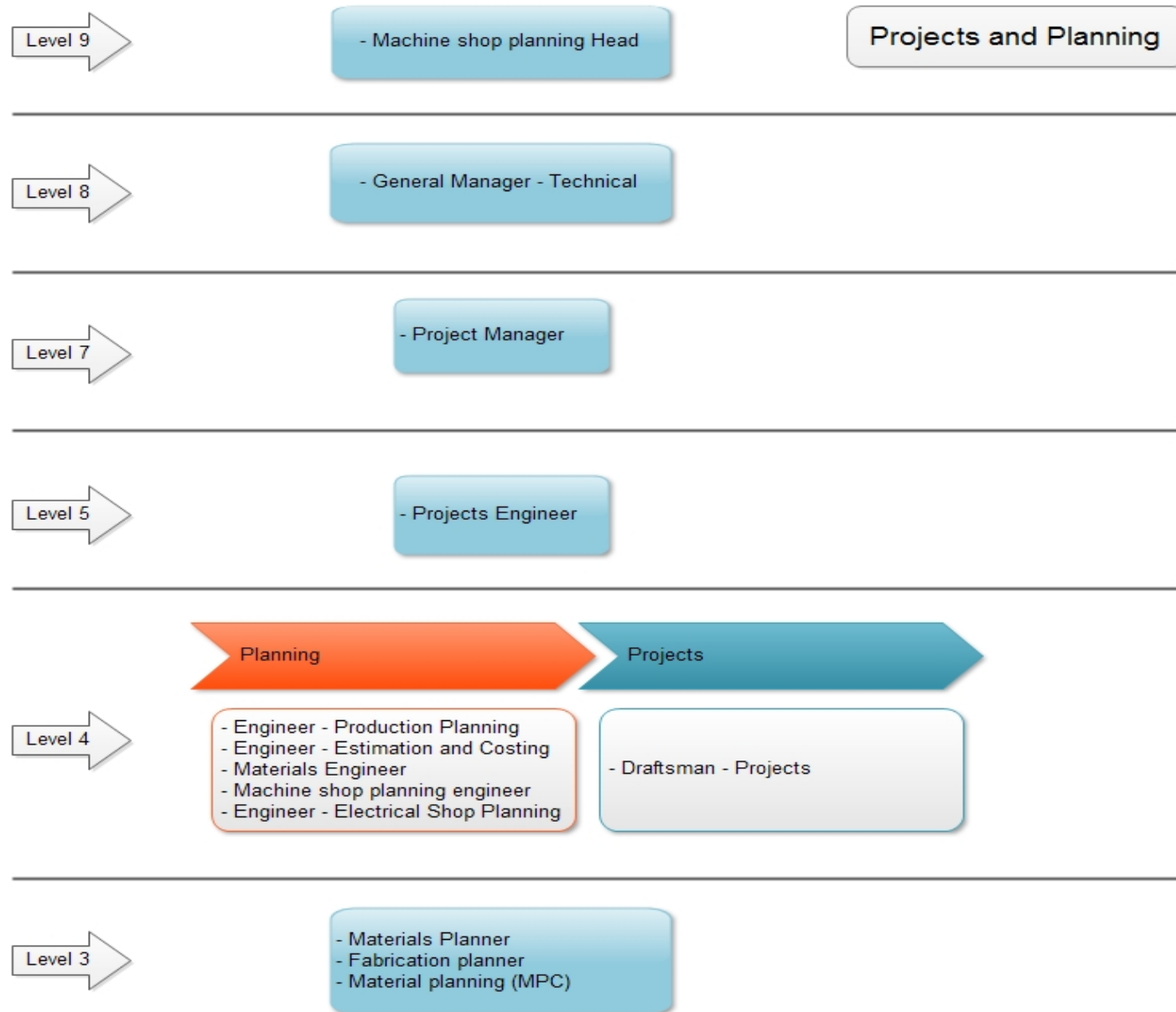
## WELDING (12)

Welder - Code Certified (Manual)	Micro welder
Welder -Non-Code Certified (Manual)	Stud Welder
Welder - Code Certified (Semi-automatic)	Spot Welder
Welder -Non-Code Certified (Semi-automatic)	Welding Support - Heat Treatment Technician
Welder - Code Certified (Automated)	Welding Planner
Welder -Non-Code Certified (Automated)	Welding Engineer

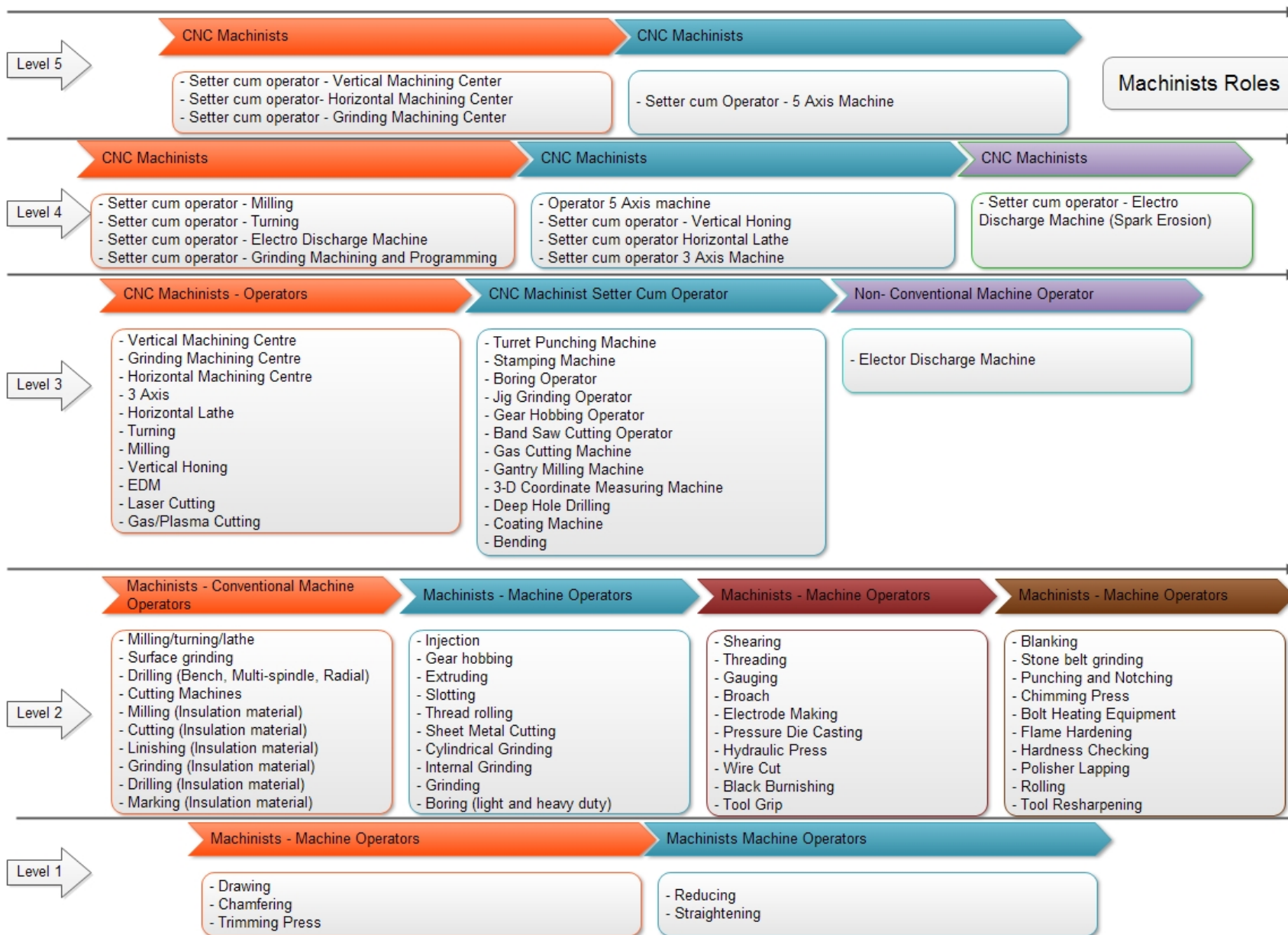
Welding Processes	Welders Classification			
	Coded Jobs		Non-coded	
	Manual/semi-automatic	Automated	Manual/semi-automatic	Automated
	1G - 6G/1F-5F		1G - 6G/1F-5F	
<b>SMAW</b>	√		√	
<b>GTAW</b>	√	√	√	√
<b>FCAW</b>	√		√	
<b>ESSC</b>		√		√
<b>PAW</b>	√	√		√
<b>Laser</b>		√		√
<b>GMAW</b>	√	May be	√	May be
<b>SAW</b>	√ (semi-automatic)	√	√ (semi-automatic)	√
<b>Gas welding</b>	Oxy acetylene		Oxy acetylene	
<b>Stud Welder</b>	√		√	
<b>Spot Welding</b>			√	√
<b>Oxy-fuel gas cutting</b>	√	CNC	√	CNC
<b>Plasma cutting</b>	√	CNC	√	CNC
<b>Laser cutting</b>		CNC		CNC

**Broad Job role categorization and career progression paths and tentative level equivalences (to be confirmed and validated on detailed study undertaken at the time of development of final NOS/QPs)**

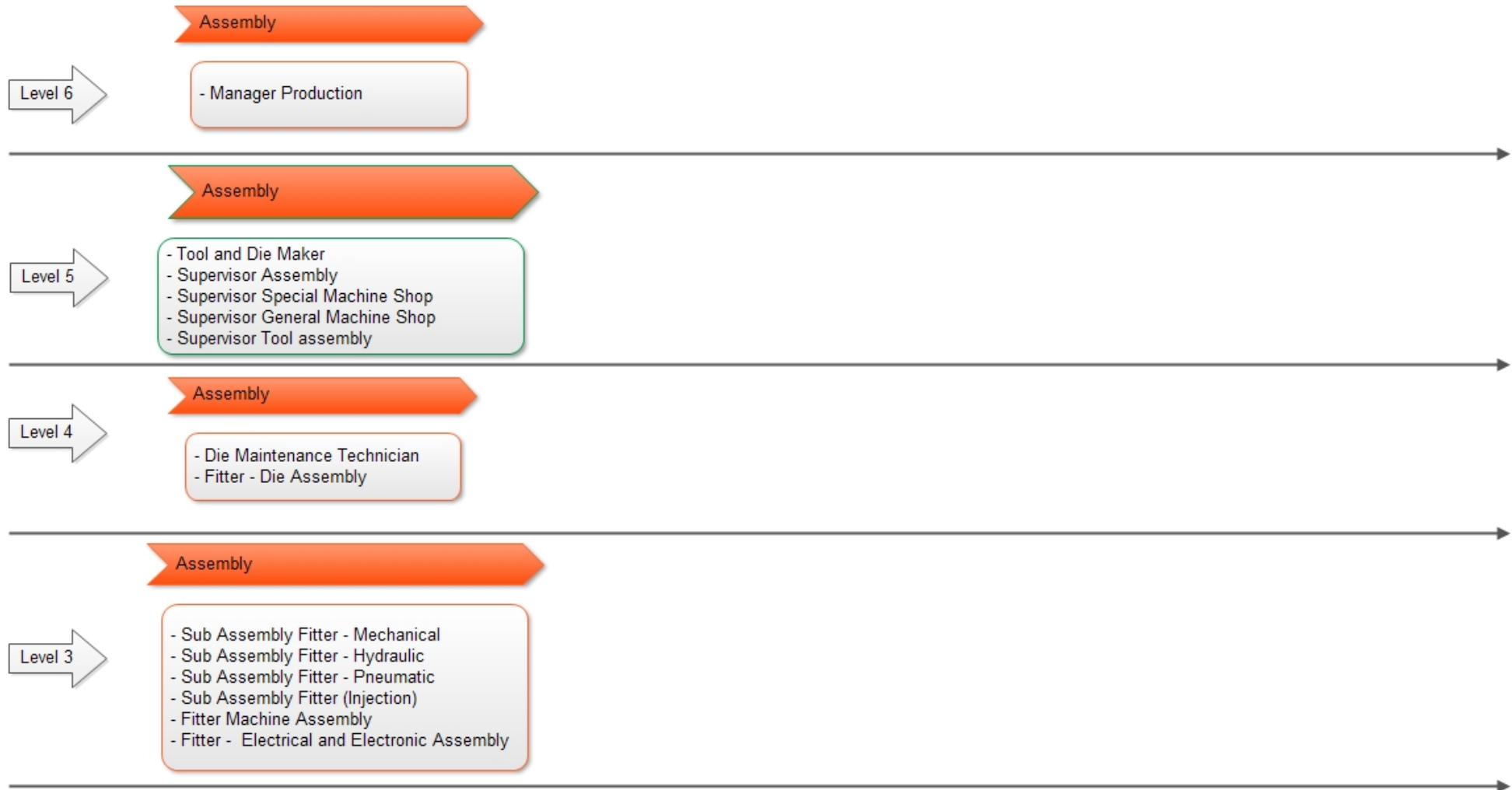


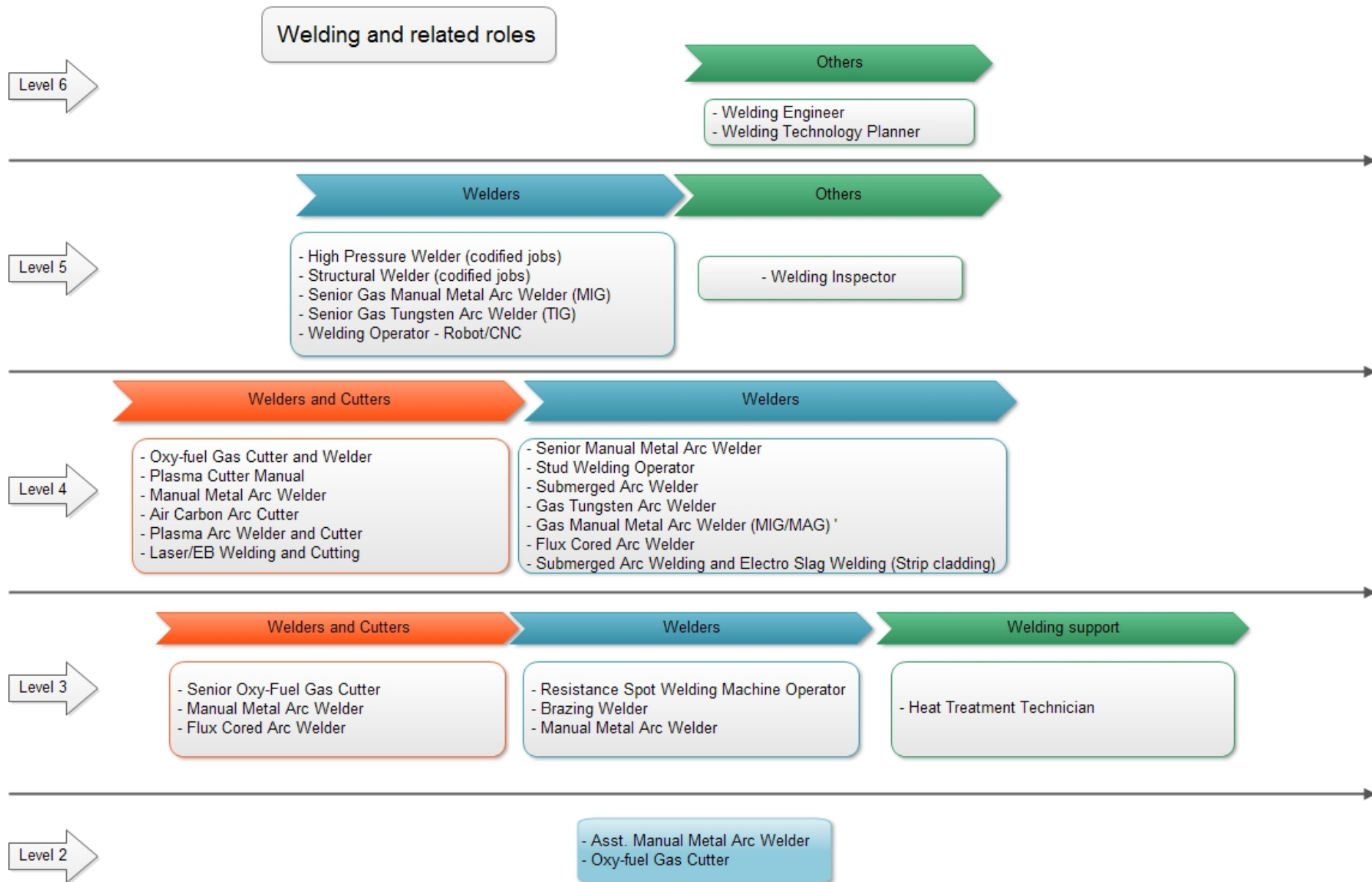






## Production Roles - Assembly





Production - Quality, Managerial and Supervisory Roles

Level 6

- Manager Production
- Manager - Metering and Measurement Products
- Manager - Process Analytics
- Manager Stores
- Manager Manufacturing
- Manager - Jigs and Tools
- Manager - Order Execution
- Manager - Subcontracting

Level 5

Supervisors

- Assembly
- Fabrication
- Special Machine Shop
- General Machine Shop
- Tool assembly
- Tool and Raw Material Purchase
- Pressure Vessels
- Process Analytics

Supervisors

- Production - Metering and Measurement Products
- Tubing (Heat Exchangers & Boilers)
- Moulding
- Fetting
- Forging Furnace
- Forging
- Production Improvement
- Total Productive Maintenance

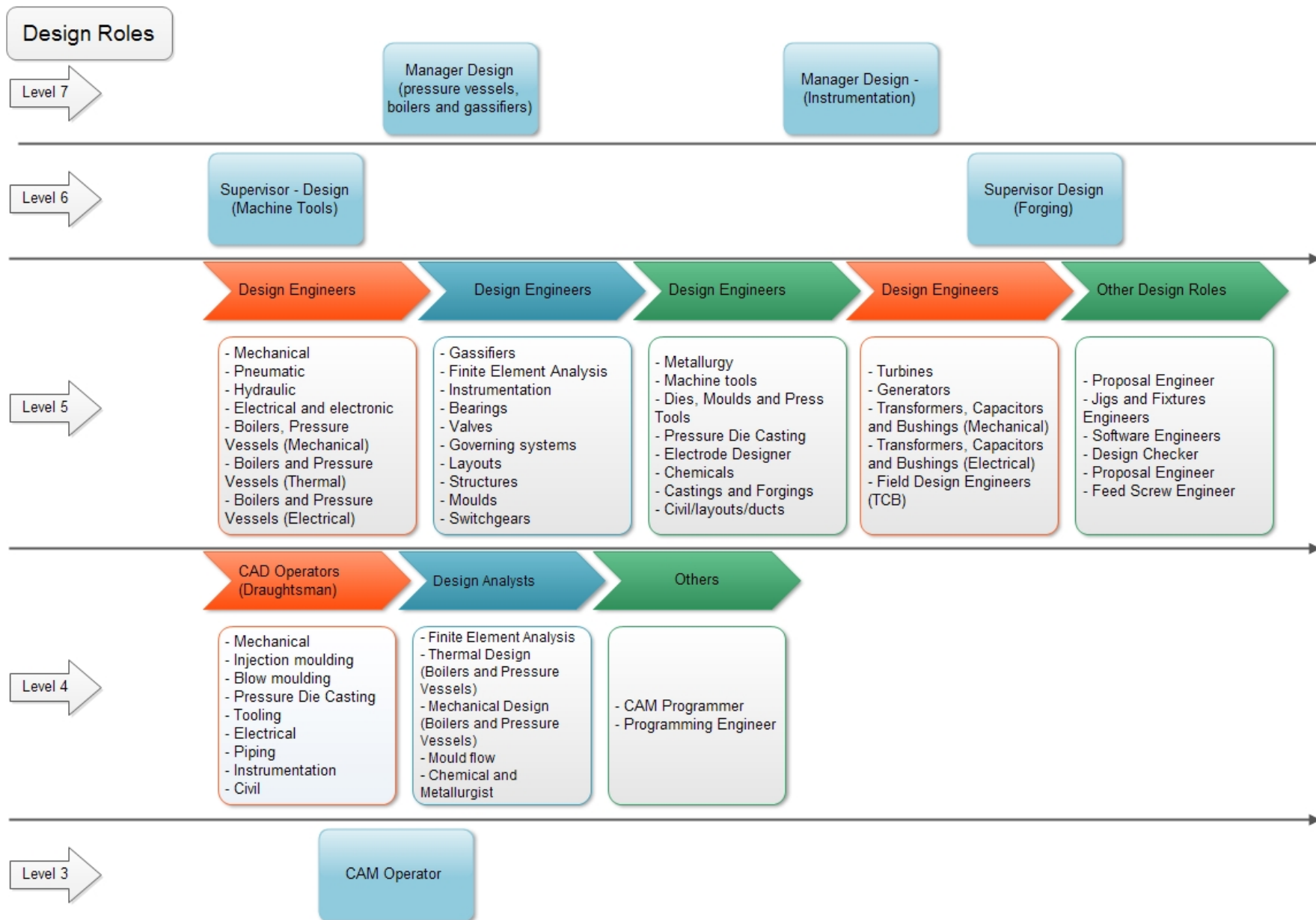
Supervisor Engineers

- Production Engineer - Boiler and Heat Exchangers
- Production Engineer - Pressure Vessels
- Engineer - Boiler Header and Element
- Production Engineer - Machine Tools
- Vendor development Engineer
- Engineer - Subcontracting
- Technological Process Engineer

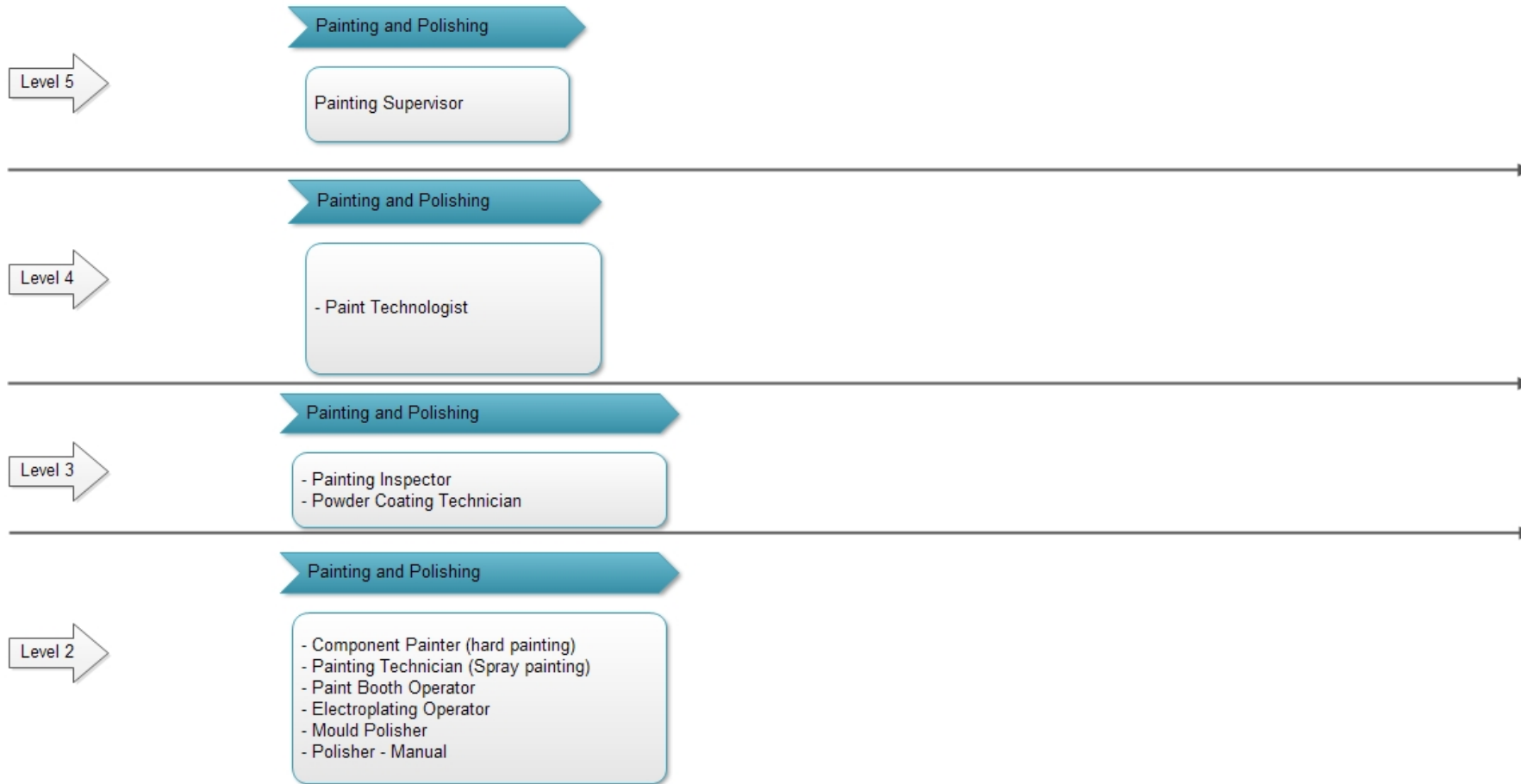
Level 4

Trial and Testing

- Testing Engineer - Rotating Equipment
- Testing Engineer - Plastic Machinery
- Moulder - Trial and Testing
- Testing and Trial Engineer - Machine Tools
- Testing and Trial Engineer - Electrical and Electronic Assembly
- Hydro Tester



## Painting and Coating Roles



Production Roles - Component Fabrication and Preparation

Level 4

- Heat Treatment Engineer
- Drawing Machine Foreman
- Forging Foreman

Level 3

- Forger
- Fitter - Mechanical Flow Measurement
- Winder
- Sand Mould Maker
- Core Maker

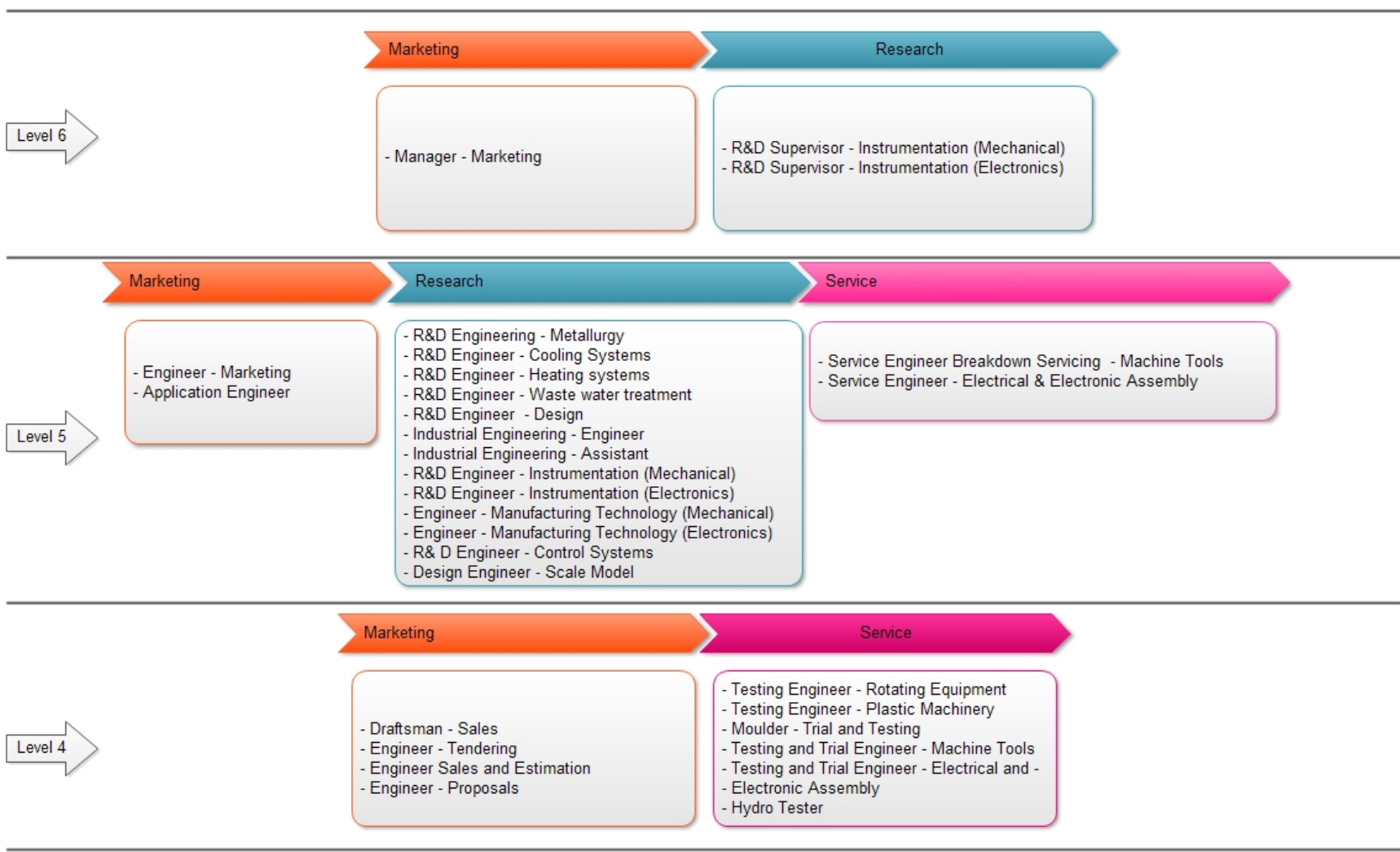
Level 2



Level 1

Doriman

Marketing, Research and Service





# APPENDICES

The following Companies were also approached, however we did not receive any response from them in terms of sharing data that can help us create the occupational maps.

Sr. No	Company Name	Location	Attended Workshop	Emails Written	Calls made
1	Harish Enterprises	Mumbai	√	√	√
2	Precision Machines & Auto components LTd	Chennai	√	√	
3	MTAB Pvt. Ltd.	Chennai	√	√	
4	Positive Materials Pumps Pvt. Ltd.	Chennai	√	√	
5	L&T Shipbuilding Ltd.	Chennai	√	√	
6	KRR Engineering Pvt. Ltd.	Chennai	√	√	
7	Design Desk (India) Pvt. Ltd.	Chennai	√	√	
8	Foster Wheeler	Chennai	√	√	
9	L&T Valves	Chennai	√	√	
10	Outolampu	Chennai	√	√	
11	ARUDRA	Chennai	√	√	
12	BGR Energy	Chennai	√	√	
13	BWE Energy	Chennai	√	√	
14	Design Desk India P Ltd	Chennai	√	√	
15	Miven Machine Tools Ltd	Hubli	√	√	
16	Kenn Metal India Ltd	Bangalore	√	√	
17	ETA Technology P Ltd	Bangalore	√	√	
18	Precitec Precision Machines Pvt. Ltd	Bangalore	√	√	
19	Gears and Geardrives India Pvt. Ltd	Bangalore	√	√	
20	HMT Machine Tools Ltd	Hyderabad	√	√	
21	Fenwick & Ravi (FAR)	Bangalore	√	√	
22	Daxter Tools, Vasai, Mumbai	Mumbai	√	√	√
23	Laxmi Shuttleles Looms Pvt. LTd	Mumbai	√	√	
24	Horizon Industrial Products Pvt Ltd.	Delhi	√	√	
25	Crane-Bel International Pvt Ltd	Ghaziabad		√	√
26	Ashok Manufacturing Co. Pvt Ltd	Delhi		√	√
27	Parishudh Machines Pvt Ltd	Delhi		√	√
28	Matharoo & Matharoo Inc	Ludhiana		√	√
29	Bhagwansons	Ludhiana		√	√
30	Srb Machines Pvt Ltd	Jalandhar		√	√
31	Rattan Hammers	Jalandhar		√	√
32	Hindustan Hydraulics Ltd	Jalandhar		√	√
33	Hind Hydraulics & Engineers Ltd	Faridabad		√	√
34	Incite Cam Centre	Bangalore		√	√
35	K Ar Moulds	Chennai		√	
36	Lakshmi Designers	Bangalore		√	
37	Om Enterprise	Mumbai		√	√
38	Raut Engineering Pvt.Ltd.	Mumbai		√	
39	Abhijeet Dies & Tools Pvt Ltd.	Mumbai		√	
40	Awanti Polymoulds (P) Ltd	Pune		√	

41	Central Tool Room & Training Centre	Kolkata		√	
42	Chitram Engineering Pvt Ltd	Chennai		√	√
43	Devu Tools Pvt.Ltd.	Mumbai		√	√
44	Horizon Industrial Products Pvt Ltd.	New Delhi		√	
45	Jyoti Toolings & Press Components	Pune		√	
46	Laxmi Electronics	Bangalore		√	
47	Marcopolo Products P Ltd	Kolkata		√	
48	Prabha Industries	Bangalore		√	√
49	Recon Dies & Tools Pvt Ltd	Mumbai		√	√
50	Shri Gajanana Industries (I) Pvt.Ltd	Mumbai		√	
51	Stitch Overseas Pvt.Ltd.	Gurgaon		√	√
52	Tidc India Ltd	Chennai		√	
53	Ashok Leyland Ltd.	Chennai		√	
54	Brakes India Ltd	Chennai		√	
55	Force Motors Limited	Pune		√	
56	Godrej & Boyce Mfg. Co. Ltd - Tooling Division	Mumbai		√	√
57	Jbm Auto Ltd.	Gurgaon		√	
58	Himson Engineering	Surat			√
					√
	PHASE II				√
	PPMAI LIST				√
59	Alfa Laval (India) Limited	Pune		√	√
60	Aarvi Encon Pvt. Ltd.	Mumbai		√	
61	Aero Engineers	Ahmedabad		√	
62	Abeinsa Business Development Private Ltd	Mumbai		√	
63	Ashland India Private Limited	Navi Mumbai		√	
64	Aspick Engineering Private Limited	Chennai		√	
65	Auma (India) Pvt. Ltd	BANGALORE		√	
66	Andritz Separation (I) P.Ltd	Chennai		√	
67	Adeka India Private Ltd	Mumbai		√	
68	Arjun Technologies (India) Ltd	Chennai		√	
69	Arudra Engineers Private Ltd	Chennai		√	
70	Alankar Fabricators & Engineers	Badlapur		√	
71	Advanced Fitings Pvt.Ltd	Mumbai		√	√
72	Allegheny Technologies Asia, Inc.	Pune		√	
73	Amar Equipments Private Ltd	Mumbai		√	
74	BGR Energy Systems Limited	Chennai		√	√
75	Bureau Veritas I Pvt. Ltd	Mumbai		√	
76	Batliboi Limited	Mumbai		√	√
77	Centec RRR Systems & Sensors P. Ltd	Navi Mumbai		√	
78	Callidus Technologies India Pvt.Ltd	Mumbai		√	
79	Consite Engineering Co. Ltd	Mumbai		√	
80	Cadmatic Software Solutions Pvt. Ltd.	Mumbai		√	
81	Dipesh Engineering Works	Mumbai		√	√
82	Dalco Engineering Pvt. Ltd.	Pune		√	

83	Dynamic Valves Pvt. Ltd.	Navi Mumbai		√	
84	D.M.Engineering Co	Mumbai		√	
85	D&H Secheron Industries Pvt. Ltd	Vasai East		√	
86	D.K. Corporation	Mumbai		√	
87	Dorr Group	Chennai		√	
88	Dresser-Rand India Private Limited	Mumbai		√	
89	De Dietrich Process Systems India Private Limited	Mumbai		√	
90	Endress + Hauser (INDIA) Pvt. Ltd	Mumbai		√	
91	EIMCO KCP Ltd.	Chennai		√	
92	Enginemates Heat Transfer Pvt. Ltd.	Mumbai		√	√
93	Edac Engineering Ltd	Chennai		√	
94	Eclipse Combustion Priviate Ltd	Pune		√	
95	Evergreen Technology Pvt. Ltd	Mumbai		√	
96	Evio Private Limited	Mumbai		√	
97	Filtron Engineers Ltd.	Pune		√	
98	FPC ENGINEERING WORKS PVT LTD	Thane		√	
99	Fenix Process Technologies Pvt. Ltd.	Pune		√	
100	Fertiplant Engg. Co. P. Ltd	Mumbai		√	
101	Forbes Marshall Pvt. Ltd	Pune		√	
102	Furnace Fabrica (I) Ltd	Navi Mumbai		√	
103	Fabtech Projects & Engineers Ltd	Pune		√	
104	Flash Forge Private Ltd	Mumbai		√	
105	Fivebros Forgings P.Ltd	Mumbai		√	
106	GEI Industrial Systems Ltd.	Bhopal		√	
107	G R Engineering Works Ltd.	Mumbai		√	
108	Gansons Limited	Thane		√	
109	Gee Limited	Thane		√	
110	Gei Industrial Systems Ltd	Bhopal		√	
111	Gemini Engifab Ltd	Mumbai		√	
112	GMM Pfaudler Limited	Mumbai		√	
113	Goodrich Gasket (P) Ltd	Chennai		√	
114	Galiakotwala Engineering Company Private Ltd	Mumbai		√	
115	Hindustan Dorr Oliver Ltd	Mumbai		√	
116	Honavar Electrodes Limited	Mumbai		√	
117	Hilton Metal forging Limited	Mumbai		√	
118	Hempel Paints India Pvt. Ltd	Mumbai		√	
119	HRS Process Systems Ltd	Pune		√	
120	Hindustan Inox Limited	Mumbai		√	√
121	Hofincons Infotech & Industrial Services Private Limited	Chennai		√	√
122	Icem Engineering Company Ltd	Thane		√	
123	IGP Engineers Private Limited	Chennai		√	
124	India Tube Mills & Metal Inds. Ltd	Mumbai		√	
125	Indus Project Limited	Mumbai		√	
126	Ingenero Technologies Pvt.Ltd	Mumbai		√	
127	Industrial Manufacturers	Navi Mumbai		√	

128	Industrial Valves	Mumbai		√	
129	Intercontinental Development & Engg. Ae & E Pvt. Ltd (Idea)	Mumbai		√	
130	Inventive Engineering & Technology Private Limited	Pune		√	
131	ION EXCHANGE WATERLEAU LTD	Navi Mumbai		√	
132	Jacobs Engineering India Pvt. Ltd	Navi Mumbai		√	
133	Kaustabh Udyog	Pune		√	
134	Kevin Enterprises	Mumbai		√	
135	Kilburn Engineering Pvt. Ltd	Mumbai		√	
136	KRR Engineering	Chennai		√	
137	KSB Pumps Limited	Mumbai		√	
138	Lloyd Insulations (India) Ltd.	Dhar		√	
139	Libra Techcon Limited	Navi Mumbai		√	
140	Lonestar Industries	Chennai		√	
141	Lummus Technology Heat Transfer B.V.	Gurgaon		√	
142	Lurgi India Limited	New Delhi		√	
143	Mojj Engineering Systems Ltd	Pune		√	
144	Mahendra Dished Ends Pvt.Ltd	Thane		√	
145	Nuberg Engineering Limited	NOIDA		√	√
146	Noble Engineering Private Limited	Chennai		√	
147	Navkar Fittings & Forgings	Mumbai		√	
148	New Multifab Engineers Private Limited	Mumbai		√	
149	Neilsoft	Bangalore		√	
150	Omega Kemix Pvt. Ltd.	Navi Mumbai		√	
151	Oswal Industries Limited	Mumbai		√	
152	Phils Heavy Engineering P.Ltd	Mumbai		√	
153	Punj Lloyd Limited	Gurgaon		√	
154	Remi Process Plant and Machinery	Mumbai		√	
155	RAJ PROCESS EQUIPMENTS AND SYSTEMS PVT. LTD	Pune		√	
156	Sandvik Asia Limited	Pune		√	
157	Sulzer India Limited	Pune		√	
158	Sukhras Machines Private Ltd	Mumbai		√	
159	Shekasa Engineering Co. P. Ltd	Mumbai		√	
160	SKF INDIA LIMITED	Mumbai		√	
161	SKS Technologies	Mumbai		√	
162	TECHNIP KT	NOIDA		√	√
163	Titanium Tantalum Products Ltd.	Chennai		√	
164	Thermotech Engineering	Pune		√	
165	Techno Products Development Pvt. Ltd	Chennai		√	
166	TUV India Private Limited	Mumbai		√	
167	Techno Process Equipment Pvt. Ltd	Mumbai		√	
168	Uhde India Private Ltd.	Mumbai		√	
169	V Max Plate Fabrication Machines P.Ltd	Mumbai		√	
170	Walchandnagar Industries Ltd	Pune		√	

171	Voestalpine Bohler Welding India Pvt. Ltd	Mumbai		√	
	IEEMA MEMBER LIST				
172	Chhabi Electricals Pvt. Ltd.	Jalgaon		√	
173	EL-TRA Equipment Co. (I) Pvt. Ltd.	Bangalore		√	
174	Electroteknica Switchgears Pvt. Ltd.	Kolkata		√	
175	Fatehpuria Transformers & Switchgears (P) Ltd.	Jaipur		√	
176	Finolex Cables Limited	Pune		√	
177	FCG Flameproof Control Gears Pvt. Ltd.	Mumbai		√	
178	Jyoti Ltd.	Baroda		√	
179	Modern Malleables Limited	Kolkata		√	
180	Kapsons Industries Ltd.	Jalandhar		√	
181	BCH Electric Limited	New Delhi		√	
182	Jyoti Structures Ltd.	Mumbai		√	
183	High-Volt Electricals Pvt. Ltd.	Mumbai		√	
184	KEC International Ltd.	Mumbai		√	
185	Indo Tech Transformers Limited (PROLEC GE)	Chennai		√	
186	CTR Manufacturing Industries Limited	Pune		√	
187	Kalpataru Power Transmission Ltd.	Gandhinagar		√	
188	Kanohar Electricals Ltd.	Meerut		√	
189	Modison Metals Ltd.	Mumbai		√	
190	Ador Powertron Ltd.	Pune		√	
191	Minilec (India) Pvt. Ltd.	Pirangoot		√	
192	Power & Control Transformers Ind Pvt Ltd	Mumbai		√	
193	Precimeasure Controls Pvt. Ltd.	Bangalore		√	
194	Oblum Electrical Industries Pvt. Ltd.	Hyderabad		√	
195	Prayog Electricals Private Limited	Mumbai		√	
196	Precision Stampings	Faridabad		√	
197	Prag Electricals (P) Limited	Guwahati		√	
198	Delhi Control Devices Pvt. Ltd.	Noida		√	
199	Sangam Structurals Limited	Allahabad		√	
200	Sangrur Industrial Corporation Ltd.	Sangrur		√	
201	Switch Build Engineers (India) Pvt. Ltd.	Pune		√	
202	Uttam (Bharat) Electricals (P) Ltd.	Jaipur		√	
203	Venson Electric Company	Bangalore		√	
204	Voltamp Transformers Ltd.	Vadodara		√	
205	S & S Power Switchgear Limited	Chennai		√	
206	Schneider Electric India Pvt. Ltd.	Gurgaon		√	
207	Venu Gopal Electricals Pvt. Ltd.	Hyderabad		√	
208	Radiant-RSCC Speciality Cable Pvt. Ltd.	Hyderabad		√	
209	Teknic Controls	Bangalore		√	
210	Hi-Tech Radiators Pvt. Ltd.	Navi Mumbai		√	
211	Kalpana Industries	Jhunjhunu		√	
212	Bharat Insulation Company (India) Ltd.	Thane		√	

213	Elgi Electric and Industries Ltd.	Coimbatore		√	
214	Areva T&D India Limited	Noida		√	
215	Gujarat Cables & Enamelled Products Pvt. Ltd.	Dadra		√	
216	Andritz Hydro India Pvt. Ltd.	Mandideep		√	
217	Gloster Cables Ltd.	Secunderabad		√	
218	Transdelta Transformers Pvt. Ltd.	Aurangabad		√	
219	Mohini Electricals Limited	New Delhi		√	
220	Neel Controls	Mumbai		√	
221	Elmex Controls Pvt. Ltd.	Vadodara		√	
222	Vishal Transformers & Switchgears (P) Ltd.	Meerut		√	
223	Axis Electrical Components (I) Pvt. Ltd.	Mumbai		√	
224	Daulat Ram Industries	Bhopal		√	
225	Switchgears & Structural (India) Pvt. Ltd.	Hyderabad		√	
226	Unitech Power Transmission Limited	Nagpur		√	
227	Neptune (India) Limited	Noida		√	
228	GR Power Switchgear Ltd.	Hyderabad		√	
229	Kirloskar Brothers Ltd.	Dewas		√	
230	Best Engineers Pumps Pvt. Ltd.	Coimbatore		√	
231	Kaycee Industries Ltd.	Mumbai		√	
232	Vinayak Transmission Products Pvt. Ltd.	Mumbai		√	
233	Elecmech Switchgears & Instrumentation	Ahmedabad		√	
234	Namoletric Controls	Pune		√	
235	Shri Ashutosh Engineering Industries	Raipur		√	
236	Transcon Industries	Hyderabad		√	
237	Skipper Engineers	Akola		√	
238	Power Control Equipments	Bangalore		√	
239	Kalpa Elektrikal Pvt. Ltd.	Bangalore		√	
240	Alba Power Pvt. Ltd.	Srinagar		√	
241	Switch Control (India)	New Delhi		√	
242	Mine Line Pvt. Ltd.	Kolkata		√	
243	CJI Porcelain (P) Limited	New Delhi		√	
244	ICOMM Tele Limited	Hyderabad		√	
245	Shri Krsna Urja Project Ltd.	Jaipur		√	
246	Maharashtra Power Transmission Structures P. Ltd.	Mumbai		√	
247	Mayur Electro Ceramics Pvt. Ltd.	Bhubaneswar		√	
248	Stanelec Pvt. Ltd.	Kolkata		√	
249	Technocrafts Switchgear (I) Pvt. Ltd.	Mumbai		√	
250	Jyoti Udyog Limited	Ghaziabad		√	
251	Precision Electricals	Mumbai		√	
252	Hint Transformer Pvt. Ltd.	Hyderabad		√	
253	Kamath Transformers Pvt. Ltd.	Bangalore		√	

254	Bilpower Limited	Mumbai		√	
255	Skipper Ltd.	Kolkata		√	
256	P.P. Industries Pvt. Ltd.	Bathinda		√	
257	Jai Balaji Control Gears Pvt. Ltd.	Chennai		√	
258	Set On Site Electricals Pvt. Ltd.	Aurangabad		√	
259	Rectifiers & Electronics	New Delhi		√	
260	Mass-Tech Controls Pvt. Ltd.	Mumbai		√	
261	Jasper Engineers Pvt. Ltd.	Noida		√	
262	Protech Engineering & Controls Pvt. Ltd.	Mumbai		√	
263	Asiatic Electrical & Switchgear Pvt. Ltd.	New Delhi		√	
264	Rajdeep Automation Pvt. Ltd.	Mumbai		√	
265	Vashi Electricals Pvt. Ltd.	Bhiwandi		√	
266	Aplab Limited	Thane		√	
267	Vijay Transmission Pvt. Ltd.	Mumbai		√	
268	Heptacare Power Industries Pvt. Ltd.	Meerut		√	
269	Shrihans Electricals Pvt. Ltd.	Mumbai		√	
270	C & C Construction Ltd.	Gurgaon		√	
271	H.B. Engineers Pvt. Ltd.	Vadodara		√	
272	Ravikiran Ceramics Pvt. Ltd.	Kanjari		√	
273	Capital Transformers Pvt. Ltd.	New Delhi		√	
274	Linkwell Telesystems Pvt. Ltd.	Hyderabad		√	
275	Alfanar Engineering Services India Pvt. Ltd.	Chennai		√	
276	Spark Engineers	Nashik		√	
277	INDUSREE	Kolkata		√	
278	OHM Energy Management Systems Pvt. Ltd.	Sriperumbudur		√	
279	Kalki Communication Technologies Ltd.	Bangalore		√	
280	L&S Equipment Pvt. Ltd.	Kolkata		√	
281	Baldor Electric India Pvt. Ltd.	Pune		√	
282	Electro Teknica	Kolkata		√	
283	JHT Power Engineering Pvt. Ltd.	Gondal		√	
284	Spun Communication Infrastructure Pvt. Ltd.	Mumbai		√	
285	KGS Engineering Limited.	Chennai		√	
286	Adani Power Limited	Ahmedabad		√	
287	Newtek Electricals	Aurangabad		√	
288	Bharat Electrical Contractors & Mfrs. Pvt. Ltd.	Kupwad		√	
289	R. B. Commercial Corporation	Mumbai		√	
290	Optiflex Industries	Changodar		√	
291	RSI Switchgear (P) Ltd.	Kehrani		√	
292	A. Eberle Systems Pvt. Ltd.	Thane (West)		√	
293	Sterling and Wilson Ltd.	Mumbai		√	
294	Rational Engineers Ltd.	Thane (West)		√	



295	General Industrial Controls Pvt. Ltd.	Pune		√	
296	Super Impex	Mumbai		√	
297	Alliance Panels & Switchgears Pvt. Ltd.	Mumbai		√	
298	Himachal Energy Pvt. Ltd.	New Delhi		√	
299	Invotech Engineers	Kolkata		√	
300	Sujana Towers Limited	Hyderabad		√	
301	Global Towers Limited	Navi Mumbai		√	
302	B.S. Transcomm Ltd.	Hyderabad		√	
303	Rajasthan Metal Smelting Company	Jaipur		√	
304	Sarunda Polymers	Nokha		√	
305	Telawne Power Equipment Pvt. Ltd.	Navi Mumbai		√	
306	Poggen-Amp Nagarsheth Powertronics Pvt. Ltd.	Ahmedabad		√	
307	Revathi Enterprises	Mumbai		√	
308	Accord Communication Pvt. Ltd.	Vadodara		√	
309	Electrotherm (India) Limited	Ahmedabad		√	
310	Transfix (India) Private Limited	Pune		√	
311	Arco Industries	Mumbai		√	
312	Darshana Industries Pvt. Ltd.	Pune		√	
313	Jakson Engineers Limited	Greater Noida		√	
314	Parikh Energy Systems Pvt. Ltd.	Mumbai		√	
315	Ambetronics Engineers Pvt. Ltd.	Mumbai		√	
316	WEG Industries (India) Pvt. Ltd.	Bangalore		√	
317	Enege Capacitors Pvt. Ltd.	Rajapalayam		√	
318	Nanda Transformers (I) Pvt. Ltd.	Navi Mumbai		√	
319	SPI Containers Pvt. Ltd.	Village Matoda		√	
320	Yogi Cab Insulations Pvt. Ltd.	Ahmedabad		√	
321	OBO Bettermann India Pvt. Ltd.	Chennai		√	
322	Ames Impex Electricals Pvt. Ltd.	Ahmedabad		√	
323	Makpower Transformers Pvt. Ltd.	Kolkata		√	
324	EMT Megatherm Pvt. Ltd.	Kolkata		√	
325	New Aquaria Electech Pvt. Ltd.	Pune		√	
326	Shilpa Re-Rollers Pvt. Ltd.	Nagpur		√	
327	A. K. Power Industries (P) Ltd.	Howrah		√	
328	Brahampuri Steels Ltd.	Jaipur		√	
329	Trident Structures Pvt. Ltd.	New Delhi		√	
330	Sawaria Pipes Pvt. Ltd.	Secunderabad		√	
331	HSB Power Engineering Company	Mohali		√	
332	Novelty Power & Infratec Ltd.	Mumbai		√	
333	R.K. Electricals	Bulandshahr		√	
334	BMW Industries Limited	Kolkata		√	
335	Trinity Energy Systems Pvt. Ltd.	Vadodara		√	
336	Aster Private Limited	Secunderabad		√	
337	Manisha Engineers Pvt. Ltd.	Kasar Amboli		√	
338	Indo Asian Electric Pvt. Ltd.	Noida		√	
339	Axis Structural P Ltd	Hyderabad		√	
340	Thermocool Engineering Pvt. Ltd.	Kolkata		√	

341	Vilas Transcore Limited	Vadodara		√	
342	Arani Power Systems Limited	Medak District		√	
343	Triveni Turbines	Bangalore		√	
344	Kessels Steam Turbines	New Delhi		√	
345	Flovel Energy Private Limited	Faridabad		√	
346	BOOM Systems Private Limited	Faridabad		√	

