



**GOVERNMENT OF INDIA**  
**Revised Guidelines on**  
**Credit Linked Capital Subsidy Scheme (CLCSS)**  
**for**  
**Technology Upgradation**  
**of**  
**Small Scale Industries (SSI)**  
**(As on April 20, 2006)**

**Office of the Development Commissioner (MSME)**  
**Ministry of MSME**  
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## **Credit Linked Capital Subsidy Scheme (CLCSS) for Technology Upgradation of the Small Scale Industries**

### **1. Background**

- 1.1 The Ministry of Small Scale Industries (SSI) is operating a scheme for technology upgradation of Small Scale Industries (SSI) called the Credit Linked Capital Subsidy Scheme (CLCSS). The Scheme aims at facilitating technology upgradation by providing upfront capital subsidy to SSI units, including tiny, khadi, village and coir industrial units, on institutional finance (credit) availed of by them for modernisation of their production equipment (plant and machinery) and techniques. The Scheme (pre-revised) provided for 12 per cent capital subsidy to SSI units, including tiny units, on institutional finance availed of by them for induction of well established and improved technology in selected sub-sectors/products approved under the Scheme. The eligible amount of subsidy calculated under the pre-revised scheme was based on the actual loan amount not exceeding Rs.40 lakh.
- 1.2 Due to insufficient investment and lack of awareness of both the quality standards and access to modern technologies, a large percentage of SSI units continue with outdated technology and plant & machinery. With increasing competition due to liberalisation of the economy, the survival and growth of the SSI units are critically dependent on their modernisation and technological upgradation. Upgradation of both the

process of manufacture and corresponding plant and machinery is necessary for the small enterprises to reduce the cost of production and remain price competitive at a time when cheaper products are easily available in the global market.

1.3 It is in this background that the Finance Minister made an announcement in the Budget Speech of 2004-05 to raise the ceiling for loans under the Scheme from Rs. 40 lakh to Rs. 1 crore and rate of subsidy from 12 per cent to 15 per cent. Further, in the light of the experience gathered in implementing the Scheme, certain other modifications were also required to make it more useful to the SSI units, including tiny, khadi, village and coir industrial units, in taking up technology upgradation on a larger scale.

1.4 After considering these issues, the CLCSS has been amended as follows :

- (a). the ceiling on loans under the Scheme has been raised from Rs. 40 lakh to Rs. 1 crore;
- (b). the rate of subsidy has been enhanced from 12 per cent to 15 per cent;
- (c). the admissible capital subsidy is to be calculated with reference to the purchase price of plant and machinery, instead of the term loan disbursed to the beneficiary unit;
- (d). the practice of categorisation of SSI units in different slabs on the basis of their present investment for determining the eligible subsidy has been done away with ; and
- (e). the operation of the Scheme has been extended upto 31 st March, 2007.

The above amendments are effective from September 29, 2005.

## 2. Objective

2.1 The revised scheme aims at facilitating technology upgradation by providing 15 per cent upfront capital subsidy with effect from the 29 th September, 2005 (12 per cent prior to 29.09.2005) to SSI units, including tiny, khadi, village and coir industrial units (hereinafter referred to as SSI units), on institutional finance availed of by them for induction of well established and improved technologies in the specified sub-sectors / products approved under the scheme.

## 3. Scope of the Scheme

3.1 The scheme would cover the following technology needs / products/sub - sectors:

- i) Bio-tech Industry
- ii) Common Effluent Treatment Plant
- iii) Corrugated Boxes
- iv) Drugs and Pharmaceuticals
- v) Dyes and Intermediates
- vi) Industry based on Medicinal and Aromatic plants
- vii) Plastic Moulded/ Extruded Products and Parts/ Components
- viii) Rubber Processing including Cycle/ Rickshaw Tyres
- ix) Food Processing (including Ice Cream manufacturing)
- x) Poultry Hatchery & Cattle Feed Industry
- xi) Dimensional Stone Industry (excluding Quarrying and Mining)
- xii) Glass and Ceramic Items including Tiles
- xiii) Leather and Leather Products including Footwear and Garments
- xiv) Electronic equipment viz test, measuring and assembly/ manufacturing, Industrial process control; Analytical, Medical, Electronic Consumer & Communication equipment etc.
- xv) Fans & Motors Industry
- xvi) General Light Service (GLS) lamps
- xvii) Information Technology (Hardware)
- xviii) Mineral Filled Sheathed Heating Elements
- xix) Transformer/ Electrical Stampings/ Laminations /Coils/Chokes including Solenoid coils
- xx) Wires & Cable Industry
- xxi) Auto Parts and Components
- xxii) Bicycle Parts
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- xxviii) Locks
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- xxx) Toys
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- xxxiv) Readymade Garments
- xxxv) Wooden Furniture
- xxxvi) Mineral Water Bottle
- xxxvii) Paints, Varnishes, Alkyds and Alkyd products
- xxxviii) Agricultural Implements and Post Harvest Equipment
- xxxix) Beneficiation of Graphite and Phosphate
- xxxx) Khadi and Village Industries
- xxxxi) Coir and Coir Products
- xxxxii) Steel Re-rolling and /or Pencil Ingot making Industries
- xxxxiii) Zinc Sulphate
- xxxxiv) Welding Electrodes
- xxxxv) Sewing Machine Industry
- xxxxvi) Industrial Gases
- xxxxvii) Printing Industry
- xxxxviii) Machine Tools

A list of Well Established and Improved Technologies is enclosed at Appendix-I. The cost of plant and machinery mentioned in Appendix – I is only indicative. Actual cost may be taken for the purpose of calculation of subsidy

3.2As the Scheme progresses, the list of products / sub-sectors may be expanded by inducting new technologies / products / sub-sectors with the approval of the Competent Authority, i.e. the Governing and Technology Approval Board (GTAB) / Technical Sub-Committee(TSC) of the CLCSS.

#### 4. Nodal Agencies

4.1 The Small Industries Development Bank of India (SIDBI) and the National Bank for Agriculture and Rural Development (NABARD) will continue to act as the Nodal Agencies for the implementation of this scheme.

4.2 As decided in the 5 th meeting of the Governing and Technology Approval Board (GTAB) of the Credit Linked Capital Subsidy Scheme (CLCSS) held on February 17, 2006 the following nine Public Sector Banks/ Government Agencies have also been inducted as nodal banks/agencies for implementation and release of capital subsidy under the CLCSS:

S. No.	Name of Bank/Agencies
1.	State Bank of India
2.	Canara Bank
3.	Bank of Baroda
4.	Punjab National Bank
5.	Bank of India
6.	Andhra Bank
7.	State Bank of Bikaner & Jaipur
8.	Tamil Nadu Industrial Investment Corporation
9.	The National Small Industries Corporation Ltd.

4.3 The inclusion of above-mentioned nodal banks/agencies will be in addition to the existing nodal agencies, namely, the Small Industries Development Bank of India (SIDBI) and the National Bank for Agriculture and Rural Development (NABARD) under the CLCSS. These nodal banks/ agencies would consider proposals only in respect of credit approved by their respective branches, whereas, for other Primary Lending Institutions (PLI), the SIDBI and the NABARD would continue to be the nodal agencies for release of subsidy under this scheme.

4.4 The cut-off date for implementing the above decision is **April 04, 2006** . No proposals after this cut off date will be sent to the SIDBI or the NABARD, as the case may be, by these banks/agencies and the new nodal banks/agencies would start processing proposals directly after this cut-off date for release of subsidy under the CLCSS.

4.5 Other modalities for implementing the above decision will remain the same as are currently in practice in the case of the SIDBI and the NABARD.

## 5. Eligible Primary Lending Institutions (PLI)

5.1 All Scheduled Commercial Banks , Scheduled Cooperative Banks [including the urban cooperative banks co-opted by the SIDBI under the Technological Upgradation Fund Scheme(TUFS) of the Ministry of Textiles], Regional Rural Banks (RRBs), State Financial Corporations (SFCs) and North Eastern Development Financial Institution (NEDFi) are eligible as PLI under this scheme after they execute a General Agreement (GA) with any of the nodal agencies, i.e., the Small Industries Development Bank of India (SIDBI) and National Bank for Agriculture and Rural Development (NABARD).

5.2 Details of eligible Scheduled Commercial Banks, SFC, Cooperative Banks [including urban cooperative banks co-opted by the SIDBI under the Technological Upgradation Fund Scheme(TUFS) of the Ministry of Textiles]/ and RRBs under this scheme are provided at **Appendix II**.

## 6. Eligible Beneficiaries

6.1 The eligible beneficiaries include sole Proprietorships, Partnerships, Co-operative societies, Private and Public limited companies in the SSI sector. Priority shall be given to Women entrepreneurs.

## 7. Types of units to be covered under the Scheme

- i). Existing SSI units registered with the State Directorate of Industries, which upgrade their existing plant and machinery with the state- of -the -art technology, with or without expansion.
- ii). New SSI units which are registered with the State Directorate of Industries and which have set up their facilities only with the appropriate eligible and proven technology duly approved by the GTAB/TSC.

## 8. Eligibility Criteria

- i). Capital subsidy at the revised rate of 15 per cent of the eligible investment in plant and machinery under the Scheme shall be available only for such projects, where terms loans have been sanctioned by the eligible PLI **on or after September 29, 2005** . Machinery purchased under Hire Purchase Scheme of the NSIC are also eligible for subsidy under this Scheme .
- ii). Industry graduating from small scale to medium scale on account of sanction of additional loan under CLCSS shall be eligible for assistance.
- iii). Eligibility for capital subsidy under the Scheme is not linked to any refinance Scheme of the Nodal Agency (ies). Hence, it is not necessary that the PLI will have to seek refinance in respect of the term loans sanctioned by them from any of the refinancing Nodal Agencies.
- iv). Labour intensive and/or export oriented new sectors/ activities will be considered for inclusion under the scheme.

## 9. Definition of Technology Upgradation

9.1 Technology upgradation would ordinarily mean induction of state-of-the-art or near state-of-the-art technology. In the varying mosaic of technology obtaining in more than 7500 products in the Indian small scale sector, technology upgradation would mean a significant step up from the present technology level to a substantially higher one involving improved productivity, and/or improvement in the quality of products and/or improved environmental conditions including work environment for the unit. It would also include installation of improved packaging techniques as well as anti-pollution measures and energy conservation machinery. Further, the units in need of introducing facilities for in-house testing and on-line quality control would qualify for assistance, as the same is a case of technology upgradation.

9.2 Replacement of existing equipment/technology with the same equipment/technology will not qualify for

subsidy under this scheme, nor would the scheme be applicable to units upgrading with second hand machinery.

## 10. Duration of the Scheme

Presently, the scheme is in operation up to March 31, 2007 or till the time sanctions of aggregate capital subsidy disbursed by the Nodal Agencies reaches Rs.600 crore, whichever is earlier.

## 11. Ceiling on eligible loan amount and capital subsidy

11.1 The maximum limit of eligible loan under the revised scheme is Rs. 100 lakh. Accordingly, the ceiling on subsidy would be Rs.15 lakh or 15 per cent of the investment in eligible plant and machinery, whichever is lower.

i). In calculating the value of plant & machinery, the following shall be excluded, namely :

- the cost of equipments such as tools, jigs, dies, moulds and spare parts for maintenance and the cost of consumable stores;
- the cost of installation of plant & machinery;
- the cost of research & development equipment and pollution control equipment ( except where these have been approved for specific product/sub sector by the GTAB ;
- the cost of generation sets and extra transformer installed by the undertaking as per the regulations of the State Electricity Board; (except where gas based generation sets have been approved for specific product/sub- sector by the GTAB).
- the bank charges and service charges paid to the National Small Industries Corporation Ltd or the State Small Industries Corporation;
- the cost involved in procurement or installation of cables, wiring, bus bars, electrical control panels (not those mounted on individual machines), oil circuit breakers or miniature circuit breakers which are necessarily to be used for providing electrical power to the plant & machinery or for safety measures;
- the cost of gas producer plants ( except where these have been approved for specific product/sub sector by the GTAB) ;
- transportation charges (excluding of sales-tax and excise) for indigenous machinery from the place of manufacturing to the site of the factory;
- charges paid for technical know-how for erection of plant & machinery;
- cost of such storage tanks which store raw materials, finished products only and are not linked with the manufacturing process; and
- cost of fire fighting equipment.

ii). The amendments to the existing CLCSS are applicable with effect from 29.9.2005. The revised rates are applicable only in cases where the loans have been sanctioned/ approved **on or after September 29, 2005** . Cases where the loans were sanctioned/ approved prior to September 29, 2005 will be governed by the pre-revised guidelines regarding ceiling on subsidy (Rs.4.80 lakh), method of calculation of subsidy, etc.

iii). Units which have already availed subsidy under the pre-revised CLCSS scheme (before 29.9.2005), cannot claim additional subsidy on account of difference in the rate of subsidy which is now permissible under the revised guidelines.

## 12. Working Capital Requirements

12.1 Since success of the technology upgradation scheme, to a large extent, depends upon the availability of adequate working capital, lending institutions would like to be assured that the borrowing units have made

adequate arrangements for meeting the working capital requirements. Commercial banks should also accord priority in providing adequate working capital support to the assisted units.

### 13. Other conditions for loans

- i). Promoters' contribution, security, debt-equity ratio, up-front fee, etc. will be determined by the lending agency as per its existing norms.
- ii). Units availing subsidy under the CLCSS shall not avail any other subsidy for technology upgradation from the Central/State/UT Government. However, cases covered under National Equity Fund (NEF) Scheme, which are otherwise eligible under the CLCSS can also be covered under this scheme.
- iii). **Units in the North-Eastern Region which are availing financial incentives/subsidy under any other scheme from the Government in the Region would, however, be eligible for subsidy under the CLCSS.**
- iv). One of the main requirements for sanction of assistance under the technology upgradation scheme will be availability of competent management in the unit concerned to carry out the upgradation programme and to manage the operation of the unit efficiently. Towards this end, the lending agencies may stipulate conditions as may be considered necessary.

### 14. Procedural Aspects

- i). All the eligible PLI (excluding the new nodal banks / agencies) will have to execute a General Agreement (GA) for availing capital subsidy under the scheme, irrespective of the fact whether refinance is availed by them or not.
- ii). The PLI may have the flexibility to execute the GA with either of the nodal agencies or with both the nodal agencies for providing subsidy to the eligible beneficiaries under the scheme. However, in the latter case, while claiming the subsidy from one nodal agency, the PLIs will have to give the undertaking to the nodal agency that they have not claimed subsidy under CLCSS in respect of the beneficiary unit from the other nodal agency (as the case may be).
- iii). After sanction of the assistance, the eligible PLI will get an agreement executed with the concerned SSI unit on behalf of Government of India (GoI). Format of the agreement to be executed by the eligible PLI with the SSI unit is provided in **Appendix III**.
- iv). The eligible PLI would obtain application for assistance under the CLCSS in the prescribed form provided in **Appendix – IV**.
- v). The eligible PLI shall furnish subsidy forecast on quarterly basis, through their Head Office (HO), which will act as a nodal office, to the Regional Office (RO)/Branch Office (BO) of the SIDBI or the NABARD (as the case may be) located in the region. The subsidy forecast information for every quarter on or before 1 st March for April-June quarter, on or before 1 st June for July-September quarter, on or before 1 st September for October-December quarter and on or before 1 st December for January-March quarter, may be furnished as per prescribed format.
- vi). The eligible PLI would release the subsidy amount with each installment of loan in a manner proportionate to the amount of term loan disbursed (on pro- rata basis), subject to the ceiling of the term loan/ subsidy amount as per applicable guidelines of the CLCSS.
- vii). The eligible PLI shall furnish details of release of subsidy to the beneficiary units, together with the request for replenishing advance money placed with PLI for release of subsidy, on quarterly basis on March 1, June 1, September 1 and December 1. The requests of PLI for replenishment of advance money for subsidy, however, would be entertained by the nodal agencies only on receipt of complete details of subsidy released to the beneficiary units.
- viii). The eligible PLI shall be responsible for ensuring eligibility for sanction of subsidy to the SSI units in terms of Government of India guidelines under this scheme and also for disbursement and monitoring of the assisted units.

### 15. Other Parameters

- i). The Governmental assistance cannot be utilised for the purposes other than for which it has been

sanctioned. The eligible PLI shall have to strictly follow this norm and no deviation would be permitted.

- ii). In case, it is found that capital subsidy from the Government has been availed of on the basis of any false information, the industrial unit shall be liable to refund the Government the capital subsidy availed, along with interest to be charged from the date of disbursal to the date of refund. The rate of interest shall be the prime lending rate of the PLIs concerned at the time of invoking this penal clause.
- iii). The eligible PLI shall, therefore, incorporate suitable conditions in respect of point at (ii) above in their security documents entered into with the unit, which would give necessary authorisation to proceed legally in such eventualities.
- iv). The credit risk under the Scheme will be borne by the eligible PLI and as such, they will have to make their own commercial judgement while appraising the project. The credit decision of the eligible PLI will be final.
- v). There shall not be any binding obligation on the part of the nodal banks/ agencies to obtain sanction from Gol for the government assistance in respect of the proposals which are covered under the CLCSS.
- vi). Both the SIDBI and the NABARD shall have the right to inspect the books of eligible PLI and the loan accounts irrespective of whether refinance is availed or not from the Nodal Agency (ies) under this Scheme and/ or call for any other information as may be required by Gol from time to time.
- vii). Both the SIDBI and the NABARD shall have the right to recall from eligible PLI the entire amount of the capital subsidy in respect of their assisted units irrespective of whether or not the eligible PLI have recovered the said subsidy from their units, if they come to the conclusion that any of the accounts do not conform to the policies, procedures and guidelines laid down under the CLCSS guidelines and as stipulated by the GoI/the Nodal Agencies from time to time.
- viii). The beneficiary unit shall remain in commercial production for a period of at least three years after installation of eligible plant and machinery on which subsidy under CLCSS has been availed.

## 16. Monitoring of the scheme

16.1 The scheme is monitored by the Governing and Technology Approval Board (GTAB of the CLCSS. The Secretary (SSI) is the Chairperson of the Board and the Additional Secretary & Development Commissioner (SSI) is its Member-Secretary. The GTAB would also periodically review the functioning of the scheme. There is a Technical Sub-Committee under the GTAB to consider inclusion of new sub-sectors/products and Well Established and Improved Technologies under the Scheme

## APPENDIX-I

### i. Bio-tech Industry.

(Cost mentioned is only indicative)

Sl. No.	Activity	Technology Need	Cost (Rs. in lakh)	Advantages
1	Manufacturing & Processing.	Fermentation or Bioreactor.	50	Technology for new emerging area.
		Lyophilizer.	15	
		Refrigerated centrifuge.	5	
		Thermocycler..	20	
		DNA/Micro organism synthesizers/sequencer.	50 -80	
		Sterilisation and autoclave equipment.		
		Incubators.	Variable as per actuals.	
		High Pressure Liquid Chromatography/(HPLC).	-do-	
		Spectrophotometers(UV Spectrometer).	-do-	

### ii. Common Effluent Treatment Plant.



iii. Corrugated Boxes.

Sl. No.	Activity	Technology Need	Cost (Rs. in lakh)	Advantages
1	Manufacturing & Processing.	Automatic corrugated making plant	35 for 3 ply and 60 for 5 ply	3 - 5 ply can be made without any manual pasting on automatic machine, automatic drying facilities, improves productivity and quality of board.
		Thermic fluid boiler or steam boiler using agri residue.	7 - 10	Heats up entire length of the roll uniformly, more thermal efficient
		Web based coating machine for water based coating	75 (Imported)	Larger size of printing and faster drying of the printed material.
		Folder gluer - semi-automatic/-automatic.	4 - 10	Rust free pasting suitable for packaging of food
2.	Printing.	Multi colour flexo printer slotter for flexographic printing	7	processed products. Web based coating is eco-friendly, food grade, recyclable and being water based, free from fire hazard.
3.	Testing Quality Control.	& Micro processor based bursting strength tester	2	Equipment for testing strength of the box.
		Micro processor based compression strength tester.	3	Equipment for testing compression strength of the box.
		Micro processor based crust tester.	1.75	Equipment for testing edge crush, flat crush and pin adhesion strength of the box.

iv) Drugs and Pharmaceuticals.

Sl. No.	Activity	Technology Need	Cost (Rs. in lakh)	Advantages
<b>Tablet and capsule section .</b>				
1.	Dispensing.	Reverse laminar flow equipment.	1.50	Safety of personnel.
2.	Weighing.	Automatic electronic balance 300 kg.; 150 kg. and 1 kg.	0.50-2. depending on the model.	Accurate weighing of raw materials; Increased productivity.
3.	Mixing and granulation .	Rapid mixer granulator 200 L capacity.	3 to 4	Increased productivity; better quality product.
4.	Dry granulation.	Roller compactor.	1.50 to 3	Increased productivity.
5.	Drying.	Fluidized bed dryer 200 L capacity.	3 -50	Increased productivity.
6.	Size reduction.	Clitzmill or Cadmill.	0.40	Increased productivity.
		Oscillating granulator.	0.15	Increased productivity.
7.	Sifter.	Vibrating sifter 24 inches diameter		Increased productivity.
8.	Coating suspension.	Colloid mill	0.80	Increased productivity.
10.	Compression.	16 station rotary tablet machine.	2	Increased productivity.
		27 station rotary tablet machine.	3.25	Increased productivity.
11.	De-dusting of tablets.	On-line de-duster.	0.25	Improved product quality.

12	Capsule filling.	Semi-automatic capsule filling machine.	6	Increased productivity.
13.	Capsule polishing.	Automatic polishing machine.	2	Increased productivity.
14.	Printing of packaging cartons.	Semi-automatic.	2	Increased productivity.
<b>Liquid oral section</b>				
15.	Water generation.	RO water plant.	6	
16.	Mixing vessel.	Variable speed stirrer.	0.50	Increased productivity.
17.	Homogenization..	Colloid mill.	0.75	Increased productivity; Better product quality.
18.	Bottle washing.	Automatic rotary line.	4	Increased productivity, better product quality.
19.	Liquid transfer.	Transfer pump.	0.20	Increased productivity.
20.	Filling machine.	4- head automatic filling machine.	2	Accurate fill volumes.
<b>Injectable Section</b>				
21.	Filtration.	Filter cartridges.	0.50 to 1	Increased productivity.
22.	Integrity of the membrane filter.	Bubble point apparatus.	0.75	Better product quality.
23.	Vial filling machine.	Automated filling machine with sealing facility.	5	Increased productivity; better control on product sterility.
24	Equipment for Sterilisation by Moist Heat.	S.S. Horizontal Autoclaves (Steam, Sterilizers), Double Door with automated control and monitoring systems as electronic timer with Digital indicator, automatic Low Water cut off device, temperature recorder (Thermograph) and pressure gauges.	1.70	Increased productivity better control on the product quality and sterility.
25	Equipment for Sterilisation by dry Heat.	S.S. Dry Heat Sterilizer (Class 100 with HEPA filter, Fully automatic S.S. Control Panel with Printer memory circuit, fixed probes and Thermo-graph for recording each sterilization cycle S.S. Cooling system, sealed Dampers, motorized internal Baffles, S.S. Loading trolley, S.S. Carriage.	10 -11	Increased productivity better control on the product quality and sterility.
<b>Dry Syrup Section</b>				
26.	Filling machine.	Automated auger filling machine.	2	Increased productivity.
27.	Labeling.	Automated labeling machine.	2	Increased productivity.
<b>Lactum Tab/Cap Machine .</b>				
28.	Acetum Tab/Cap Machine.	1)Blister Pack Machine. 2) Strip Packing Machine.	3.80 2	These machines are required to avoid contamination with other non-B-Lactum group products.
<b>Quality Control Department</b>				
29.	Drug assay.	High performance liquid chromatograph.	12	Accurate drug analysis.
30	Pollution control.	Effluent Treatment Pollution Control machinery.	10 – 15	Biochemical treatment of effluent removes 90

				to 95% of soluble organic matter in the waste.
31.	Microbiological Lab in Quality Control Department.	1) B.O.D. Incubators. 2) Incubators. 3) Laminar Air Flow.	1 0.45 0.75	These machines are required to improve the quality of the finished products by way of testing.
<b>Environment Control Devices.</b>				
32	Air conditioning and humidity control of all types of areas.	Air conditioning. Humidity control equipment (Dehumidifier).	0.20 -0.30 per ton 0.10 -0.25 per ton for Desiccant based; 0.06 to 0.10 per ton for Chiller based.	Improve product stability, enhance personal comfort.
	Air handling for parenteral (Sterile)area.	Air handling unit with HEPA filters, (Ducting with insulation; Chilled water piping; electrical cabling and panels; chilled water pump; chilled water control.	0.20 per ton 0.30 - 0.35 per ton.	Improves product quality, enhanced personal safety.
	Air handling other for parenteral area.	Air handling unit with 5 micron filters.	0.15 per ton	Improves product quality, enhanced personal safety.
	Miscellaneous fittings.	Ducting with insulation; chilled water piping electrical cabling and panels; chilled water pump; chilled water control.	0.20 - 0.25 per ton.	
.	General	1) Reverse Laminar Air Flow. 2) Dust Extractors. 3) Non A.C.-A.H.U. in Terms of C.F.M.	0.60 1 0.50 per unit.	To avoid contamination during dispensing of raw materials.  To control environment at manufacturing section where dust is generated.  To control environment at manufacturing section where dust is generated and Air conditioning is not required, only filtered air is required.
<b>N 2 O Gas for Hospital use.</b>				
33.	Testing and quality control.	Gas Chromatograph and Moisture Meter for On-line Quality Control for Purity of N 2 O Gas used for anesthetic purpose.	Variable as per actual.	For controlling the purity of N 2 O gas.

**b).Antacid Bulk Drugs like Aluminum Hydroxide Gel, Magnesium Hydroxide, Magnesium Trisilicate etc .**

Sl. No.	Activity	Technology Need	Cost (Rs. in lakh)	Advantages
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1	Reaction.	S.S. Reactor.	4 for capacity of 15000 litre.	1.Tremendous improvement in the quality. 2. Teak wood trees are saved resulting in better environment & atmosphere.
2	Reaction.	Glass lined Reactor.	40 for capacity of 10000 litre.	1.Tremendous improvement in the quality. 2. Teak wood trees are saved resulting in better environment.
3	Filtration.	P.P. Filter Press.	8 for 60 pairs.	1. Quality improvement. 2. Time saving Device. 3.Saving of water consumption. 4.Quantitative improvement.
4.	Drying.	S.S. Dryer with modern facilities Spray/Flash.	40	1. Anti Air pollution device. 2. Improves the quality of the product. 3.Free from foreign contamination.
5.	Centrifugation.	Centrifuge (S.S. or Rubber Lined).	10	1. Quality of the product improves. 2. No corrosion. 3. Saving of time. 4. Saving of labour.
6.	Raw material and finished product weighing.	Electronic Weighing Machine.	0.15	1. Saving of time. 2. Saving of labour. 3. No loss of material. 4.Increase in the profitability.
7.	Quality control.	Laboratory Equipment of latest technology, spectrophotometer, Gas Chromatograph & others.	10	1. To get the best possible precise results. 2. Less time consuming & immediate results display.
8.	Pulverisation.	Latest technology pulverisers Impact Type.	4	1.Quality of products improves due to finest particles. 2.Physical loss of material is very less.

**v). Dyes & Intermediates.**

Sl. No.	Activity	Technology Need	Cost (Rs.in lakh)	Advantages
1.	Filtration System.	Membrane Filtration System.	10.-12	Improved filtration system prevents formation of hard cake and improves filtration by reducing total dissolved solids (TDS) .
2.	Ice Flaker.	Flaker with Silo and Screw conveyer.	8 -10	-Ice could be made from soft water so that less insoluble in products has better solubility. -Ease in charging ice since it is automatic. -No spillage and loss of energy. -No water losses and latent heat loss as compared to present practice.

				-Better process control.
3.	Reactors.	Closer vessels with planetary gears and high speed turbine stirrers.	Depends on the batch size.	-Better mixing of reactants, -Low power consumption, -Better yields.
4.	Product Drying System.	Flash dryers or Rotary Vacuum Dryers-RVD.	10 -12	-Low cost drying with minimum or no handling. -Instant drying with no pulverizing. -RVD effective for heat sensitive products. Low initial investment as compared to the Spray Dryer.
5.	Incinerator.	Use of Gasifier with slurry economizer.	5 -7	-Alternate fuel like rice husk, saw mill waste etc. could be used so cheaper. -Heat recovery leads to low temperature emissions and less cost and no corrossions to the chimney .
6.	Blenders.	Nauta Mixers.	12 -13	-Energy Efficient, No breaking of Grains. Less dusting and no manual charging and discharging.

**vi). Industry based on medicinal and Aromatic Plants.**

Sl. No.	Activity	Technology Need	Cost (Rs. in lakh)	Advantages
1.	Extraction of resinoid from refused material .	Solvent extraction unit attached with stripping unit Extractor capacity – 500 kg. Stripping unit Capacity – 100 kg.	40	Proper utilization of refuse waste material for improving, economy of the process.
2.	Menthol Bold Crystal.	Deep freezers and extraction unit deep freezer cap. 250 kg. Extraction unit cap 180 kg.	25	Used bulk drugs, pan massala, Tobacco & Flavour products.
3.	Manufacturing of Aroma chemicals.  • Hydroxycit-Ronellal.  2.Ionones.  3.Rose crystals .  4.Orange crystals.	1.Glass lined reactor cap 60 liters.  2. Chilling plant cap 2.5 tones.  3. Fractionation unit cap 180 kg.	30	Used in Fragrance & Flavour industries.
4.	Extraction of Good Quality Neem oil using cold press expeller.	Cold press expeller for extraction of Neem oil with higher Azadirachtin content. (Capacity of expeller – 9 Bolts).	2.50	To obtain Neem oil of improved quality for preparation of pesticide and other pharmaceutical preparation.
5.	Quality assessment of	Establishment of modern (accredited) equipped with	10	Proper quality assessment of essential oils.

essential oils.	sophisticated equipment lab.		
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vii). **Plastic Moulded/ Extruded Products and Parts/ Components including reinforced plastic/composite material.**

**(a) Plastic Moulded/ Extruded Products and Parts/ Components.**

Sl. No.	Activity	Technology Need	Cost (Rs. in lakh)	Advantages
1.	Moulding.	a) fully automatic Micro processor controlled Plastic Injection Moulding machines.	10 - 20	Very high rate of production , cost effective, no wastage, better and consistent quality.
2.	Tool making.	b) CNC Milling Machine for In- house Tool room.	33	For production of quality dies and moulds.

b). **Plastic Moulded /Extruded products and Parts/components ( products based on reinforced plastic/composite material).**

Sl. No.	Activity	Technology Need	Cost (Rs. in lakh)	Advantages
1	Manufacturing.	Hydraulic Press.	45	PLC controlled-for constant and fast cycle time. Unit can get 8 batches instead of 6 batches per day.
2		Filament winding machine.	0.50	This is advanced technology for making FRP pipes by using low cost material. Rovings are used instead of woven fabrics to save cost.
3		Pultrosen machine.	1. 50	Latest technology machine with reverse of extrusion-Pultrosen moulding for continuous moulding of section for structural application provided with 3 production stations.  3 times product can be made with 3 different dies at a time.
4		Impregnating machine.	3. 50	To make 'B' stage – prepeg impregnated material for constant quality of industrial plastic laminates.
5		Boiler.	13. 50	High pressure 250 psi-3.0 ton integral furnace boiler with fuel efficiency

				condensate recovery system.
6		Oven.	1	Infra red heaters to save electrical energy 30%-40%.
7		Resin Kettle.	0.50	Normal good plant for making resins.
8		Guillotine Jointer.	2	Hydraulic clamping and hydraulic cutting to avoid rejection while cutting.
9		Plastic extruder machine with cutter.	1.64	Increased production capacity, efficiency, less rejection rate and less cost of production.
10		Plastic pulveriser with screen.	1.65	

**c). Fibre glass Reinforced Products.**

Sl. No.	Activity	Technology Need	Cost (Rs. in lakh)	Advantages
1.	Trimming of formed plastic components.	Pneumatic hand tools.  Receiver, Pneumatic piping & Dehumidifier.	0.05  6.20	Less maintenance and breakdown cost. Uninterrupted warming less rejection since operating at higher speed than electrical tools. Energy conservation.
2	Plastic components bonding.	Electronic vibration welding & pressing machine.	2.25	Friendly environment, less cycle time, cost saving.
3	Slots for components.	Power press with interchangeable dies Press.	0.85	Cost saving due to less rejection.
4	Painting on plastic & FRP product.	Air handling equipment. Dehumidifier.	0.90  0.20	Superior finish with glass.

**d). Thermocol packaging.**

Sl. No.	Activity	Technology Need	Cost (Rs. in lakh)	Advantages
1	Manufacturing.	Fully automatic PLC hydraulically operated Moulding machine.	As per prevalent market rate.	Increased productivity and efficiency.

**viii). Rubber Processing including Cycle/ Rickshaw Tyres.**

Sl. No.	Activity	Technology Need	Cost (Rs. in lakh)	Advantages
1	Small Rubber Mouldings, such as, oil seals, washers etc.	Injection moulding Machine.	25	Very high rate of production, minimum wastage, better and consistent quality.

2	Continuous vulcanisation system.	Rotocure machine.	75 -100	Continuous production of high quality rubber mats. Wastage is minimum, output high.
3	Rubber mixing.	Kneader/ Banbury internal mixer.	10- 15	Suggested for the units where soft compounds are used for the manufacture of products like hawai sheets, mats etc. Relatively high output, less pollution due to avoidance flying chemicals.
4	Extruded products.	Clod feed extruder.	20 - 25	By using this machinery, the additional operation of warming of rubber compound prior to extrusion can be avoided. This increases out put of the unit as this eliminates one intermediate operation.
5	Rubber bands.	Multi channel extruder.	8-10	Presently the rubber bands are being manufactured from latex by dipping technology. By using multi channel extruder, rubber bands can be manufactured from dry rubber. Advantages are high out put, no pollution, minimum cost of production.
6	Items such as hawai sheet/rubber mats. etc.	Sheeting line.	20-30	High out put, minimum wastage, uniform quality.
7	Rubber mouldings.	De flashing system.	15-20	High output, minimum rejection.
8	Heating system.	Thermic fluid .	5 - 10	Uniform heating and more thermal efficiency.
9	Hydraulic press.	Vacuum chamber type hydraulic moulding machine.	30 - 40	Eliminate bumbing operation for the removal of entrapped air in the product. Minimum rejection high output.
10	Testing equipment.	1.Rheometer. 2.Tensile testing machine. 3.Mooney viscometer. 4.DIN/Abrader. 5.De-Mattia Flexing	20- 25 15.- 20 15 - 20 5	Introducing state-of-the art testing facility for in-house testing and online quality control.



		Machine.	4	
		6.Goodrich Flexometer.	10	
		7.Ross Flexing Machine.	5	
		8.MST Apparatus for latex.	4	
		9.Viscometer for latex.	3	

**b). Latex Based Male Condoms.**

SI. No.	Activity	Technology Need	Cost (Rs. in lakh)	Advantages
1.	Sealing & packaging.	Sealing Machine with facility for sealing both square and rectangular type formats with on line printing and v notch cutting facility.	5.50	Saving in laminate consumption, higher yield, on line printing of individual stripes by means of hot foil stamping as per statutory requirement for exports.
2.	Testing.	Burst Volume Burst Pressure Equipment fully automatic with electronic sensors software and computer – with 2 testing stations.	5	Increase of efficiency in testing, accurate results , batch results are generated by the system automatically.
3	Testing.	Conductivity Tester with software.	5.50	Products are tested electronically and test results are recorded in the computer with accuracy.
4	Pollution Control.	Pressurized Ventilation System with filtered air, temperature and humidity control.	12	Reduction in pollution by reducing dust in manufacturing area, better working conditions. To obtain required humidity for improvement in quality of product.

**c) Rubber Processing – Crumb Rubber.**

SI. No.	Activity	Technology	Cost (Rs. in lakh)	Advantages
1	Rubber processing-crumb rubber units.	Bio-mass Gasifier based furnace.	8 to 10	<p>1 Saving of conventional fuel (diesel/electricity).</p> <p>2 Reduction of wood consumption up to 50%.</p> <p>3. Environment friendly technology.</p> <p>4 Easy to operate and maintain.</p>

**ix). Food Processing (including Ice cream Manufacturing).**

a). Food Processing.

Sl. No.	Activity	Technology Need	Cost (Rs. in lakh)	Advantages
1.	Pickles, Sauces and Chutney manufacturing.	Automatic fruits and bottles washing machine with conveyor, blower, pump and agitator, fruit and vegetable cutting machine, stainless steel double walled steam jacketed kettles (tilting type), boiler, pulper/crusher, sterilizing tank/retort, mixer-cum-blender, spice roaster-cum-grinder, filling and sealing machine (crown and corking machine), shrink wrapping,, strapping machine,, laboratory equipment, effluent treatment system.	20	Improvement in sanitary and hygienic conditions, micro contamination, quality and productivity.
2.	Spice grinding.	Cryogenic grinding, automatic FFS packaging.	20	Improves sensory qualities, productivity as well as shelf life of the product.
3.	Bakery products Manufacturing.	Shifting from semi-mechanisation to mechanisation, replacement of coal/wood fired oven to oil fired/electric oven, Bio mass fired multipurpose drier, energy efficient low cost bakery oven (wood fired) installation of quality testing instruments.	40	Improves quality and shelf life of the product, reduces smoke nuisance.
4.	Cashew Processing .	Boiler, heat exchanger with complete accessories, packaging machine, electronic weighing machine, etc.	20	Recovery of cashew nut shell liquid, enhancement of shelf life of cashew nuts, less pollution.
5.	Rice Milling with rubber roller cum sheller (without parboiling) and modern rice milling with parboiling system.	Paddy cleaner, destoner, rubber roller cum Sheller, paddy separator, boiler, par boiling system, dryer, colour sorter, cone polisher, quality control lab and pollution control.	90 to 100	Better polished, less breakage and high yield of rice, bran suitable for oil recovery, good export opportunity for scented/Basmati rice.
<b>Wheat Flour Mill</b>				
1.	a) Cleaning Section.	1) All Metal Aspirator Vibro Separator. 2) Scourer with Aspiration Channel. 3) D'Stoner with Fan & Cyclone. 4) Water Wheel Damper.	0.70 0.55 1.20 0.08 0.30	Modern mill producing atta, maida, suji and bran.

		5) Low Pressure Fan.	0.11	
		6) Air Lock with Glass & Stand.	0.15	
		7) Cyclone.	0.70	
		8) Warm Conveyor.	1.80	
		9) Elevator-Bucket size.	0.42	
		10) Air Ducting.	0.80	
		11) Gravity Spouting Cleaning System.		
	b) Milling Section.	12) Roller Mills including Grooving & Grinding.	6.80	
			1.70	
		13) Wooden Plan Sifter & Feed 16 Sieves.	0.50	
		14) All Metal Purifiers.	0.22	
		15) Bran Finisher.	0.15	
		16) Low Pressure Fan.	0.15	
		17) Low Pressure Cyclone.	0.04	
		18) Air Lock with Stand.	0.40	
		19) Air Conducting for Pnumatic & Purifier.	0.70	
		20) Warm Conveyor 8'size for Milling Section Pneumatic System including Cyclone, Feeder, Rubber, Glasses, H.P. Fan, Lifet.	1.95	
			1.40	
		21) Pipe Bend etc.	0.16	
		22) Gravity Spouting of Milling Section with Hoopers, Packing , Stand etc.	0.24	
			0.70	
		23) Magnets.	0.40	
		24) Reduction Gear Box.	0.30	
		25) Swiss Bolting Cloth, Sifter, Purofier, Pad, Nam.	0.15	
		26) V'Belt for complete Mill(Fenner/Dunlop).	1.50	
		27) V'Belt Motor, Pully for all		

		machines.  28) Motor Rail Fabricated Fabrication Material-Plan Sifter, Cyclone, Air Ducting, Warms, H.P. Fan, Stand, Pneumatic.  29) System Fitting etc.		
7.	Ice cream Manufacturing.	1. Homogeniser.  2. Continuous freezers.  3. Automatic ice cream bar freezer.  4. Automatic rotary fillers.  5. Hardening Chamber.  6. Automatic wrapping machine.  Quality control lab.	Variable as per actual.	Improved quality and productivity of ice cream and maintenance of sanitary and hygienic conditions.

**b). Namkeen.**

Sl. No.	Activity	Technology Need	Cost (Rs.in lakh)	Advantages
1	Namkeen making.	Bio-mass Gasifier based furnace.	3 -4	1. Replacement of 10-15 litre/hour diesel with local biomass. 2. Eco-friendly. 3. Cost effective.

**c). Sweet meat .**

Sl. No.	Activity	Technology Need	Cost (Rs. in lakh)	Advantages
1	Sweet meat making.	Bio-mass Gasifier based Furnace.	1	1. Replacement of 5-6 litre/hour diesel with local biomass. 2. Eco-friendly. 3. Cost effective.

**x). Poultry Hatchery & Cattle Feed Industry.**

Sl. No.	Activity	Technology Need	Cost (Rs.in lakh)	Advantages
1	Poultry Hatching.	1. Fully controlled sanitation and hygienic conditions of employees and premises.  2. Vaccination to new hatched	Variable as per actuals.	<ul style="list-style-type: none"> <li>• Quality hatched with more disease resistance capacity.</li> <li>• Better value addition through export of day old chicks.</li> </ul>

		chicks (automation).  3. Fully automatic and controlled incubation system with quality control labs .  4. Pollution control equipment.		
2	Cattle feed manufacturing.	1. Cleaning operation of raw material by using machine.  2. Automatic control grinding of raw material.  3. Fully automatic controlled blender for mixing of vitamins and minerals.  4. Complete Palletising unit.  5. Automatic packaging system.  6. Quality control testing lab.  7. Pollution control equipment.  8. Energy conservation/energy saving system based on energy audit report.	Variable as per actuals.	More demand of cattle/poultry and fish feed in palletized form.  High value addition and export opportunities.

**xi). Dimensional Stone Industry ( excluding quarrying and mining)**

Sl. No.	Activity	Technology Need	Cost (Rs. lakh )	Advantages
1.	Stone Processing.	Blocks Cutting Technology: (Block squaring machine, block cutters).	20	Capacity Enhancement, Uniform quality.
		Slab Cutting Technology: (Gang saws, Granite cutters, Sandstone cutters).	85	Capacity Enhancement, Uniform quality.
		Tile cutting Technology: (Tiling Plant, Splitting Machines).	95	Better quality Capacity Enhancement.
		Surface Finish Technology (Automatic Polishing Lines, Continuous Polishing Lines, Bush Hammers, Flame Jets, Ageing machines, Edge Polishing Machines, Grinding and Lapping Machines.	95	Better quality, Capacity Enhancement.
		Resin Impregnation Technology for stone strength enhancement (resin coating plants, ovens, compressors, resin guns etc.).	65	Higher recovery percentage capability to process newer varieties to international norms.
		Technology for Integrated manufacturing : (CNC operated Work Centres, sculpting machines).	90	Capability to mass-produce intricate product patterns, high precision.

2.	Products Design.	Laser Technology Duplicating Machines, Pantographs, etc. for sculpting and duplicating artwork and monuments.	90	Capability to mass-produce intricate product patterns, maintain high precision and introduce new product lines.
3.	Edge Profiling.	Chamfering machines, profiling machines, contouring machines.	75	Capability to mass-produce intricate profiles and introduce new product lines.
4.	Packaging.	Tile Packaging Machines Segregation & Sorting Machines, Foam Packaging machines.	20	Packaging for export market so as to enhance value and reduce breakage in transit.
5.	Environment Conservation & Management.	Water Recovery & Waste Disposal Technologies (including filter press, sedimentation tank, overhead/underground tank, piping and channeling etc.).	20	Recovery of water, reduction in waste volume, improvement in ambient air, soil and water quality.
6.	Waste Utilization.	Machines using slurry as a raw material.	50	Reduction in environmental degradation.
7.	Testing and Standardization	In house Testing Technology ( <i>sizing &amp; calibration equipment.</i>	10	Quality control.

**xii). Glass and Ceramic Items (Insulator ceramic, electrical ceramics, porcelain, Bone china ware, Stone ware, earthen ware, Terra-cotta ceramic ) including Tiles**

**a). Glass Products**

Sl. No.	Activity	Technology Need	Cost (Rs. in lakh)	Advantages
1.	Melting.	Improved Gas Fired 12-Pot Furnace.	30	The improved version will have better fuel efficiency and longer life as compared to the conventional one.
		Day Tank Furnace.	15	Operation of Day Tank Furnace is intermittent like that of a Pot Furnace without the hassles of Pot breakage. It may be employed in case of demand of a particular kind of glass is 500 kg. to 5 T/day.
2.	Pot-Preheating.	Improved Single Pot Arch.	1.50	In the conventional Pot Arch, pots can be preheated properly and also the maximum achievable temperature is 950°C as against the required temperature (1200°C) chances of developing cracks in pot are higher. The improved version of Pot Arch overcomes these difficulties.
3.	Pot making.	Set up of different machines.	10	The improved Pot making facility will have the machines like Jaw Crusher, Blender, Pug – Mill, Edge Runner etc. for processing of raw materials and also temperature and

				humidity controlled room for molding and drying of Pot. Conventional Pot making facilities lack these things and do not yield good quality Pots.
4.	Glass Forming.	IS-Machine (10-12 Tons/day).	50	IS-Machines have much higher productivity than Press Machines and Mouth Blowing. Product. Quality will be much better.
5.	Testing & Quality Contro	Small Scale Laboratory.	15	A small in house laboratory to meet the need for simple and routine tests will prove very helpful in quality control and improve productivity.
6.	Energy Conservation and Improvement in working condition.	Insulation, heat Recovery System, Modification of Furnace.	15	Its implementation will improve thermal efficiency of the furnace along with the working environment by reducing heat losses through furnace structure, recycling waste heat and improving furnace life and ease of furnace operation.
7.	Heat Treatment.	Improved Muffle Furnace.	1	Gas fired muffle furnace will improve productivity, the working condition and the working environment.
8.	Raw material handling.	Improved Batch House and Batch handling system.	10	Conventional system of Firozabad Glass Industry creates lot of dusting and health hazards to the workers. A properly designed system will be free from dusting and will reduce health hazards by providing improved working conditions.
9.	Combustion Control for gas fired furnaces.	Automatic Controllers & Recorders for Furnace Temperature. On-Line Oxygen Analyzer.	50	Automatic Control will improve energy/efficiency and productivity by optimizing the Combustion process and minimizing the energy and production losses.
10.	Glass Forming Techniques.	Spinning Machine 1-Head, 2-Head, 4-Head.	1.50 2 3	Flat and round items like Bowls, Plates etc. can be produced in this machine with better surface finish than the same products of Press Machines. Presently, in Firozabad, these are produced mostly by Press machine.
11.	Glass Forming Techniques.	Injection Molding Machine.	2	Solid items like stem wares, which are produced manually, can be produced in this machine with much better accuracy & control.
12.	Glass Beads making.	LPG fired Bead making Furnace.	0.50	Multi coloured Glass Beads have very good export value. These are mostly produced

				domestically in rural areas using Coal fired ovens which create very dirty and unhygienic atmosphere. LPG fired Bead making furnace developed by CGCRI, Khurja is clean, simple and easy to operate. It consumes 250 to 300 grams of LPG/hr.
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**b). Ceramic Items (Insulator ceramic, electrical ceramics, porcelain, Bone china ware, Stone ware, earthen ware, Terra-cotta ceramic ) including Tiles.**

Sl. No.	Activity	Technology Need	Cost (Rs. in lakh)	Advantages
1.	Raw material processing.	Ball mill with high alumina tile lining, high alumina balls of different size.	2 -10	• Improve grinding.
2.	Fabrication.		0.50-3	• Reduce time of grinding.
3.	Drying.	Ball Mill with silex stone / porcelain lining of different size.	0.50-1.50	• Lower contamination in the batch.
4.	Glazing.	Blunger/Agitator of different size.	0.25-2	
5.	Firing Section.	Magnet of different size.	0.80-1.50	• High abrasion resistance of tiles & balls.
		Filter press different size.	0.70-1.80	
		Pug Mill different Size.	0.75-2.50	• Longer life.
		Vibro energy mill for colour grinding. (different size).	2-5	• Suitable for very fine grinding below 10 micron.
		Vibro finishing mill.	3-5	
		Vibro finishing mill.	60-80.	• Saving of colour.
		De-airing pug mill, capacity, 250-350 Kg/hr.	7-18	• Uniform contrast.
		Isostatic Press, Fettling machine, Stacking equipment.	8-15	• Easy in application.
		Fully automatic vertical copying m/c for Insulator.	45-60	• Lower wastage.
		Roller Head machine for cup & saucer.	0.50-1.0	• Lower pollution due to washing as all the washing may be easily collected where as in the ball mill the washing is left in the drainage.
		Pressure casting plant..	0.50-1	
		Piller Jolley	0.40-1	
		Semi automatic Jigger Jolly.	31	• To remove air pockets inside the body.
		Universal jigger jolly.	16-25	
			0.50-1	• Helpful to improve strength.
			3-10	• Reduce Breakage & Cracking.



		<p>Humidity Driver Chamber.</p> <p>Glazing plant.</p> <p>Spray gun &amp; compressor.</p> <p>Spray dryer plant</p> <p>Gas/Oil fired roller hearth kiln.</p>	<p>80-100</p> <p>35-40</p>	<ul style="list-style-type: none"> <li>• Improve quality.</li> <li>• Reduce rejection &amp; wastage.</li> <li>• Homogeneous pressing.</li> <li>• Defect free product.</li> <li>• Complicated shapes can be made.</li> <li>• No requirement of Plaster of Paris mould.</li> <li>• Higher strength and quality product.</li> <li>• Higher handling strength.</li> <li>• Low rejection and wastage.</li> <li>• Easy operation.</li> <li>• Suitable for long size Insulator.</li> <li>• Low wastage of material and time.</li> <li>• Higher strength.</li> <li>• Easy operation.</li> <li>• Quality product.</li> <li>• Low wastage.</li> <li>• Large Production.</li> <li>• Time saving.</li> <li>• Uniformity.</li> <li>• Thin &amp; Thick Section.</li> </ul> <p>Tested technology, Indigenously developed, quality of tiles much better, less drying time, less warpage and breakage of tiles.</p> <ul style="list-style-type: none"> <li>• Homogeneous</li> </ul>
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				<p>glazing.</p> <ul style="list-style-type: none"> <li>• Time saving.</li> <li>• Uniformity.</li> <li>• Thin &amp; thick section.</li> <li>• Easy Operation.</li> <li>• Quality product.</li> <li>• Low Wastage.</li> <li>• Large Production.</li> <li>• Quality Product.</li> <li>• Lower breakage.</li> <li>• Easy handling.</li> <li>• Low wastage.</li> <li>• Time saving.</li> <li>• Uniform temperature distribution.</li> <li>• Fast production.</li> <li>• Low fuel consumption.</li> </ul>
6.	Firing Section.	<p>Gas/oil fired tunnel kiln.</p> <p>Gas/oil fired shuttle kiln.</p> <p>“Queen” Coal/ Wood fired pottery kiln.</p> <p>Temperature indicator (radiation type).</p> <p>Temperature Thermo couple &amp; indicator.</p> <p>a. Refractory decker plat/kiln furniture etc for Tunnel Kiln.</p> <p>b. Shuttle Kiln.</p> <p>Auto On/ Off burner.</p> <p>Electric furnace, 1400°C, size 1 cft.</p>	<p>20-25</p> <p>0.1 –0.25</p> <p>2-4</p> <p>0.10-0.30</p> <p>8-20</p> <p>3-8</p> <p>3-5</p> <p>2-4</p> <p>17-25</p> <p>5 -8</p> <p>3 -5</p>	<ul style="list-style-type: none"> <li>• Low rejection.</li> <li>• Easy operation.</li> <li>• Lower maintenance required.</li> <li>• Continuous type furnace.</li> <li>• Low pollution.</li> <li>• Energy efficient kiln.</li> <li>• Large production.</li> <li>• Batch type furnace.</li> <li>• Medium fuel consumption.</li> <li>• Easy operation.</li> </ul> <p>Queen pottery kiln</p>

		<p>Electric furnace /1600°C</p> <p>Gas fired 1600°C, 1 Cu. ft.</p> <p>Granulating machine</p> <p>Automatic Tile pressing unit</p> <p>Hydraulic / friction Press</p> <p>Generator Set of diff. capacity.</p> <p>Distill water plant.</p> <p>Control instruments for firing system.</p> <p>Instrument for routine test (Balance, B.D. Balance, hot plate sieves, viscometer etc.).</p> <p>Sanitary / drainage system in industry</p>	<p>20-25</p> <p>2-4</p> <p>1.50 -7</p> <p>2</p> <p>2-3</p> <p>1.50</p> <p>0.50-2.50</p>	<p>sinters all kinds of pottery and terracotta at uniform temperature of 800 to 900 celsius using low grade coal or wood. It is low cost permanent structure kiln made of red brick and clay.</p> <ul style="list-style-type: none"> <li>• Accurate measurement.</li> <li>• Lead/wire less.</li> <li>• Can be used like torch for measurement of temperature.</li> <li>• No requirement for fixing the indicator.</li> <li>• Easy operation &amp; maintenance.</li> <li>• Suitable for inside Temperature measurement.</li> <li>• Easy judgment.</li> <li>• Productivity increased.</li> <li>• Fuel consumption decreased</li> <li>• Long life.</li> <li>• Easy for loading of ware.</li> <li>• Easy in replacement of setting homogeneous heat flow.</li> <li>• Lower wastage of refractory material.</li> <li>• Lower fuel consumption.</li> <li>• Easy operation.</li> <li>• Reduction in pollution.</li> <li>• Suitable for testing of sample.</li> <li>• Quality control for</li> </ul>
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				<p>body &amp; glaze.</p> <ul style="list-style-type: none"><li>• Measurement of firing range.</li><li>• Testing of raw material &amp; product.</li><li>• Easy operation.</li><li>• Lower pollution.</li><li>• Easy operation for making of granules.</li><li>• Higher production.</li><li>• Homogeneous granules size.</li><li>• Lower wastage.</li><li>• Fast production.</li><li>• Easy making of granules.</li><li>• Quality granules product.</li><li>• Easy operation.</li><li>• Low wastage.</li><li>• Time saving.</li><li>• Lower wastage due to pre-checking.</li><li>• Homogenous pressing.</li><li>• Higher green strength.</li><li>• Lower rejection.</li><li>• Drying not required.</li><li>• Back up power supply.</li><li>• Quality product.</li><li>• Lower wastage.</li><li>• High production.</li></ul>
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				<ul style="list-style-type: none"> <li>• Time saving.</li> <li>• Better control over furnace performance.</li> <li>• Better quality control.</li> <li>• Better working environment.</li> </ul>
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**Note :** Price of the machines depend upon the quality, capacity, company, model etc. and also variable from time to time.

**c). Interlocking pavement blocks and cement concrete blocks**

S. No.	Activity	Technology Need	Cost (Rs. in lakh)	Advantages
1	Interlocking pavement blocks	HDM-1000 DLX machine high density stationery type interlocking block making machine with 4 nos. vibrators (5 hp each) hydraulic pump (5 hp) along with conveyor belt, penal board etc.	6.60	
2	Cement concrete blocks	a) 10/7 CFT capacity cement concrete mixture b) 75 kg capacity face mixture c) Earth compactor (2 Nos.) d) Block cutting machine (2 nos.) e) Pallet truck f) Laboratory equipment for in-house testing like measuring equipments, verniner, caliper, micrometer, screw gauges, compression testing machine	0.42 0.42 0.84 0.28 0.25 1.25	

**d). Building Bricks – Clay & Flyash.**

S. No.	Activity	Technology Need	Cost (Rs. in lakh)	Advantages
1	Building bricks – Clay and Fly ash manufacture.	1. Vertical Shaft Brick Kiln (VSBK) 2 Shafts. 2. Jaw Crusher. 3. Auger Mill. 4. Pug Mill/Extruder.	9 0.40 3 4.50 0.80	The building brick industry in the small scale is using traditional bull trench kiln and clamp kiln which are highly energy intensive and polluting, poor in providing uniform temperature and occupy lot of space. The Vertical Shaft Brick Kiln is highly energy efficient and consumes less than 50%

		5. Wire cutting table. 6. Shaping press	0.20	<p>fuel. Dried bricks can be fired and taken out in 24 hours. The land requirement for one kiln is only 2000 sq. meters.</p> <p>Jaw crusher is used for crushing coal to size 0-15 mm and also used for crushing large size clay bolder. It is essential for crushing the clay and also reducing the size of the coal for charging in the kiln.</p> <p>Mixing clay and other raw materials (waste material like fly ash etc.) intimately with clay to produce a homogeneous mass.</p> <p>The mixer from auger mill is passed on to pug mill for pugging and for mixing and extruding the material in required size.</p> <p>The equipment is used for cutting the extruded mass in to required length for thickness.</p> <p>The machine is used for repressing the wire cut clots in to required final size and shape.</p>
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**xiii). Leather and Leather Products including Footwear and Garments.**

**a). Leather Products including Footwear and Garments.**

Sl. No.	Activity	Technology Need	Cost (Rs. in lakh)	Advantages
<b>Designing Department.</b>				
1.	Pattern Grading machine.	Mechanical pantograph/grading machine.	10 - 12	Faster and more accurate grading.
<b>Cutting Department.</b>				
1.	Clicking press of all types including traveling head/ sewing arm/ fixed head.	Hydraulic press of all types.	1 -7 depending on model and origin.	Accuracy and higher productivity will offset the cost.
2.	Cutting machine for textile.	Multi layer reciprocating knife textile cutting machine.	1	Very high production & productivity.
3.	Skiving.	Electronically/computerised controlled automatic skiving machine.	1	No need to adjust manually the types of skiving again and

				again. Very fast production with tremendous accuracy.
4.	Stamping.	All types of Automatic stamping & printing machine.	1-3	Clean, accurate & fast.
5.	Textile attaching.	a. Textile fusing press.	1-2	Gives control over the temperature and pressure at which the clothes are attached resulting in strong bonding and better quality.
		b. Latex spray booth.	1	Same as above but applicable to clothes which does not have self adhesion.
6.	Stitch Marking.	Automatic marking machine.	1	Faster production.
7.	Splitting,	Automatic band knife splitting machine.	2-5	Accurate and bulk production.
8.	Clicking board leveling.	Electronically controlled board leveling machine.	10-15	Accurate thickness increases the life of clicking dies and clicking machine head.
9.	Strap cutting.	Electrical machine for cutting and slanting straps.	1-2	Better utilisation of raw materials and faster production.
10.	Leather Weaving.	Electro-pneumatic weaving machine for leather.	3-6	For mass production of leather weaving.
11.	Embossing.	Automatic embossing machine.	3-4	For mass production.
12.	Strap folding .	Automatic strap folder.	1-3	Accurate mass production.
13.	Box stamping.	Box stamping machine.	0.50-1	For mass production.
<b>Closing Department.</b>				
1.	Conveyor.	F.O.F/F.O.O.	1-3	For better supervision / bulk production.
2.	All types of post, flat and cylindrical bed, single/double needle sewing machine for upper stitching.	Automatic/Computer controlled sewing machine.	0.05-3. depending upon origin and advancement.	Faster, uniform, accurate and easy operation.
3.	Hand stitching.	Automatic hand stitching/ apachi/ san-crispino and moccasin stitching machine.	10-12	High productive, less labour intensive and accurate production.
4.	Strobling.	Strobling machine.	2.50-4	Can eliminate lasting operation and gives very flexible shoe.
5.	Toe forming.	Automatic/Hydraulic/ pneumatic toe moulding machine.	1-4.50	Quality improvement and productivity enhancement is apparent.
6.	Toe-puff attaching.	Hydraulic/pneumatic automatic machine.	2-3	Faster production and less messy.
7.	Counter moulding	Hydraulic/pneumatic automatic	5-10	Faster production and

	machine with or without flanging.	machine.		less messy.
8.	Eyeleting.	Automatic eyeleting machine.	1-3	Faster and secured eyeleting.
9.	Folding machine with or without hammering attachment.	Automatic folding machine.	3-4	Very quick production. Less messy. Gives clean look.
10.	Upper / topline Hammering.	Automatic hammering machine.	2-3	Effective and uniform hammering improves the look of upper.
11.	Crimping.	Automatic crimping machine.	5-6	Quality improvement and faster production.
12.	Boot-leg ironing.	Automatic boot leg ironing machine.	4-5	Essential for bootie shoe. Improves the quality.
13.	Bar tacking.	Automatic bar tacking machine.	1.50-2	Clean and accurate operation. Faster and less messy.

Lasting & Finishing Department.

1.	Forepart lasting machine.	Automatic toe lasting machine with or without micro-processor.	10-25	Most important machine for shoe making. Accurate, faster, and less spacey. Requires less people and also environment friendly.
2.	Combined Seat and side lasting .	Automatic seat & side lasting machine with or without microprocessor.	10-25	Most important machine for shoe making. Accurate, faster, and less spacey. Requires less people and also environment friendly.
3.	Side lasting machine of various types.	Automatic seat lasting machine both tack and combodian types.	3-7	Accurate, faster and less spacey. Requires less people and also environment friendly.
4.	Heal seat lasting.	Automatic seat lasting machine.	4-8	Accurate, faster, and less spacey. Requires less people and also environment friendly.
5.	Pounding.	Automatic pounding machine.	3-5	Improves quality of the final products.
6.	Heel-Seat crowning.	Automatic crowning machine.	4-6	Improves quality of the final products.
7.	Forepart humidifier.	Automatic humidifier.	1-2	Far superior method, faster and restore the quality of leather.
8.	Backpart humidifier.	Automatic backpart humidifier.	1-2	Far superior method, faster and restore the quality of leather.
9.	Lasting conveyor.	Automatic running conveyor.	1-2	for faster production, better control
10.	Buffing.	Automatic Buffing & roughing	5-10	Precision buffing and



		machine with microprocessor control mechanism.		faster production.
11.	Heat setter.	Heat setter with steam equipped with conveyor belt.	2-3	Correct heat setting, reduces the production time dramatically.
12.	Buffing and adhesive application.	Automatic combined rougher and cementer.	10-12	Both the operations are done by one machine, results in less messy and faster production. Also reduce the adhesive wastage.
13.	Last pulling machine.	Automatic last puller.	3-4	Reduces the damage during de-lasting of shoe. Increases the speed of production.
14.	Drying and reactivation.	Cement dryer & flash activator machine.	7-8	Reduce the space required of the workshop. Increases the production by several fold.
15.	Cementing machine for upper & sole.	Thermo cementing machine with or without brush.	7-8	Reduce the wastage of adhesive, accurate application.
16.	Chiller.	Chiller.	4-5	Increase the sole bonding. Reduce the sole delasting time.
17.	Side wall roughing.	Side wall roughing machine.	1-2	Accurately bond the sole with high side wall.
18.	Heel nailing .	Heel nailing machine.	7-8	Accurately nail the heel. Increases the quality of bonding.
19.	Mackey sole stitching.	Mackey sole stitcher	10-11	Faster production.
20.	Top line forming.	Top-line forming machine.	4-5	Correctly set the top-line. Increase the value of the final product.
21.	Adhesive re-activators.	Adhesive re-activators with time and temperature controller.	2-3	Precisely reactivates both the upper and sole. Sole bonding increases.
22.	Entire upper humidifier.	Steaming machine of the upper.	2-3	Humidifies entire upper. Enhance the speed of production.
23.	Performing.	Moccasin performing machine.	1-2	Humidifies and gives the shape of moccasin types of shoe. Enhance the quality and productivity of moccasin.
24.	Air blast dust removing.	Air blast removing machine.	1-1.50	Clean technology.

25.	Insole attaching.	Insole attaching machine.	1-1.50	Faster and accurate production.
26.	Insole covering.	Insole covering machine.	1-1.50	Faster and accurate production.
27.	Upper roughing.	Upper roughing machine.	1-20	Faster and accurate production.
<b>Last &amp; Other Components.</b>				
1.	Chain slotting .	Chain slotting machine.	2-3	Add to the speed of production of last
2.	Rough turning machine for last.	Rough turning machine.	10-15	Increase the production of last
3.	Fine turning machine for last.	Fine turning machine.	10-15	Increase the production of last
4.	Roughing machine for plastic blocks.	Roughing machine for plastic blocks.	3-5	Increase the production of last
5.	Computerised last turning machine including software.	Last making CAD/CAM CNC controlled turning machine including designing and interface software.	30-40	Essential for last development, accurately copy of any last sampling. A major boon to new product development.
6.	CNC sole mould development.	Sole mould making software, CNC MILLING MACHINE with 3/5 Axis & EDM.	120-150	Essential for right quality sole mould.
7.	Insole moulding.	Automatic/hydraulic insole moulding machine.	2-3	Without this machine the moulding of insole can never be correct. Increase the rate of production.
8.	Edge beveling.	Automatic edge beveling machine.	3-4	Gives Accurate edge beveling. Also increase the pace of production.
9.	Shank attachment.	Automatic shank attacher.	10-15	Increases the accuracy and production tremendously.
10.	Automatic insole & shank pasting.	Conveyor assembly and automatic combined insole & shank attaching machine.	5-8	Clean production not to be mentioned that it increases the production by almost ten folds.
11.	Shank grooving.	Shank grooving machine	1-2	Increase the production and accurate grooving.
12.	Injection moulding for sole.	8/12/16/20/24/32 workstation injection moulding machine for PU/TPU/PVC/TPR/EVA.	15 - 300	Essential machine for huge production. Latest demand of the market. New breed of technology.
13.	Finishing.	Multi finisher.	2-4	Enhance the appeal of the shoe and in turn the salability.
14.	Spray booth.	Spray booth with spray gun	2-4	Enhance the appeal of the shoe and in

				turn the salability.
15.	Last finishing	Last finishing machine.	8-10	Accurately finish and polish the last. Production rate improves.
16.	Channel closing	Channel closing machine.	2-3	Automatically closer the sole channel. Improves the look and also enhance the production.
17.	Channeling and grooving.	Channeling machine.	2-3	Faster and accurate production. Uniform channeling.
18.	Coupling and edge pre-trimming.	Edge pre-trimming machine.	2-3	Accurate and clean production. Less time consuming
19.	Edge buffing .	Edge buffing machine.	1-2	Accurate and faster buffing.
20.	Edge inking.	Edge inking machine.	1-2	Clean and accurate production. Improves quality dramatically.
21.	Edge setting.	Edge setting machine.	1-2	Faster production. Also accurately sets the edge and thus improves the look.
22.	Edge trimming..	Edge trimming machine.	2-3	Accurate final trimming. Gives even and uniform look. Improves the quality.
23.	Heel attaching .	Heel attaching machine.	3-5	Faster production.
24.	Heel breast roughing.	Heel breast roughing machine.	3-5	Faster and accurate production.
25.	Heel breasting.	Heel breasting machine.	4-6	Faster production.
26.	Heel building.	Heel building machine.	3-5	Faster and accurate production.
27.	Heel covering .	Heel covering machine.	5-6	Faster and accurate production.
28.	Recessing and roughing of soles.	Recessing and roughing soles machine.	3-4	Faster production.
29.	Recessing welt.	Recessing welt machine.	3-4	Faster production.
30.	Sole stamping and embossing .	Sole stamping and embossing machine.	3-4	Faster production.
<b>Standardisation Machine.</b>				
1.	Testing standardization.	& Soling Abrasion Machine Complete.	3-10	Standardise the process/ product and materials used.
2.	Testing standardization.	& Drum Abrasion/Snag Tester.	3 -10	Standardise the process/ product and materials used.
3.	Testing standardization.	& Martindale Abrasion Machine.	3-10	Standardise the Process/ product and materials used.
4.	Testing	& Shoe Lace Abrasion Machine	3-10	Standardise the

	standardization.		Lace to Eyelet.		process/ product and materials used.
5.	Testing standardization.	&	Shoe lace Abrasion Machine.	3-10	Standardise the process/ product and materials used.
6.	Testing standardization.	&	Leather Soling Materials Abrasion Machine.	3-10	Standardise the process/ product and materials used.
7.	Testing standardization.	&	Creep Cabinet/Adhesive Test.	3-10	Standardise the process/ product and materials used.
8.	Testing standardization.	&	Dome Heat Reactivator.	3-10	Standardise the process/ product and materials used.
9.	Testing standardization.	&	Compression Apparatus-Stress.	3-10	Standardise the process/ product and materials used.
10.	Testing standardisation .	&	Dynamic compression Tester.	3-10	Standardise the process/ product and materials used.
11.	Testing standardization.	&	Conductivity Tester.	3-10	Standardise the process/ product and materials used
12.	Testing standardization.	&	Thermal Conductivity-Less Disc.	3-10	Standardise the process/ product and materials used
13.	Testing standardization.	&	State of Cure Apparatus.	3-10	Standardise the process/ product and materials used
14.	Testing standardization.	&	Repeat Extension Set Apparatus.	3-10	Standardise the process/ product and materials used
15.	Testing standardization.	&	Eyelet Security Test-PM 150.	3-10	Standardise the process/ product and materials used.
16.	Testing standardization.	&	Slide Fastener Testing Machine.	3-10	Standardise the process/ product and materials used.
17.	Testing standardization.	&	Velcro Closing Machine.	3-10	Standardise the process/ product and materials used.
18.	Testing standardization.	&	Crockometer.	3-10	Standardise the process/ product and materials used.
19.	Testing standardization.	&	Rub Fastness Tester (Veslic).	3-10	Standardise the process/ product and materials used.
20.	Testing standardization.	&	Rub Fastness Tester-Circular.	3-10	Standardise the process/ product and materials used.
21.	Testing standardization.	&	Backpart Fatigue-M/S Type.	3-10	Standardise the process/ product and materials used.
22.	Testing standardization.	&	Velcro Fatigue Tester.	3-10	Standardise the process/ product and

				materials used.
23.	Testing standardization.	& Shank Fatigue Tester.	3-10	Standardise the process/ product and materials used.
24.	Testing standardization.	& Universal Fatigue Flexing Machine.	3-10	Standardise the process/ product and materials used.
25.	Testing standardization.	& Finish Heat Resistance Tester.	3-10	Standardise the process/ product and materials used.
26.	Testing standardization.	& Bally Style Flexometer-NStn.	3-10	Standardise the process/ product and materials used.
27.	Testing standardisation .	& BATA Belt Flexing Machine.	3-10	Standardise the process/ product and materials used.
28.	Testing standardization.	& Fibreboard Flexing M/C-6 Stn	3-10	Standardise the process/ product and materials used.
29.	Testing standardization.	& Midsole Flexing Machine.	3-10	Standardise the process/ product and materials used.
30.	Testing standardization.	& Ross Flexing Machine.	3-10	Standardise the process/ product and materials used.
31.	Testing standardization.	& Rubber Material Flexing Machine.	3-10	Standardise the process/ product and materials used.
32.	Testing standardization.	& Upper Material Flexing M/C N stn	3-10	Standardise the process/ product and materials used.
33.	Testing standardisation .	& Whole Shoe Flexing Machine.	3-10	Standardise the process/ product and materials used.
34.	Testing standardization.	& Whole Sole Flexing Machine (PFI).	3-10	Standardise the process/ product and materials used.
35.	Testing standardization.	& Bally Style Flexometer-N stn.	3-10	Standardise the process/ product and materials used.
36.	Testing standardization.	& Ross Flex Machine in freezer.	3-10	Standardise the process/ product and materials used.
37.	Testing standardization.	& Bata Belt Flexing Machine.	3-10	Standardise the process/ product and materials used.
38.	Testing standardization.	& Sole Leather Grain Crack Test.	3-10	Standardise the process/ product and materials used.
39.	Testing standardization.	& Plastimeter Without Micrometer.	3-10	Standardise the process/ product and materials used.
40.	Testing standardization.	& Heel Impact Tester.	3-10	Standardise the process/ product and materials used.

41.	Testing standardization.	& Heel Fatigue Tester.	3-10	Standardise the process/ product and materials used.
42.	Testing standardization.	& Heel Pin Pull Out-PM96.	3-10	Standardise the process/ product and materials used.
43.	Testing standardization.	& Heel Pull-Off machine.	3-10	Standardise the process/ product and materials used.
44.	Testing standardization.	& Impact machine for Rigid Sole Unit.	3-10	Standardise the process/ product and materials used.
45.	Testing standardization.	& Digital lastomotor.	3-10	Standardise the process/ product and materials used.
46.	Testing standardization.	& Instant lastometer.	3-10	Standardise the process/ product and materials used.
47.	Testing standardization.	& Absorption of surface water.	3-10	Standardise the process/ product and materials used.
48.	Testing standardization.	& Permeability/absorption machine.	3-10	Standardise the process/ product and materials used.
49.	Testing standardization.	& Water vapour absorption tester.	3-10	Standardise the process/ product and materials used.
50.	Testing standardization.	& Water vapour permeability.	3-10	Standardise the process/ product and materials used.
51.	Testing standardization.	& Break/pipiness scale & mandrel.	3-10	Standardise the process/ product and materials used.
52.	Testing standardization.	& Pressure measurement of presses.	3-10	Standardise the process/ product and materials used.
53.	Testing standardization.	& Cold conductivity of footwear.	3-10	Standardise the process/ product and materials used.
54.	Testing standardization.	& Heat conductivity of footwear.	3-10	Standardise the process/ product and materials used.
55.	Testing standardization	& Lacquer resistance test c/w Meter.	3-10	Standardise the process/ product and materials used.
56.	Testing standardization.	& Nail penetration apparatus.	3-10	Standardise the process/ product and materials used.
57.	Testing standardization.	& Safety footwear impact tester.	3-10	Standardise the process/ product and materials used.
58.	Testing standardization.	& Chisel scuff tester.	3-10	Standardise the process/ product and materials used.
59.	Testing	& Impact scuff tester.	3-10	Standardise the

	standardization.			process/ product and materials used.
60.	Testing standardization.	& Seam durability testing machine.	3-10	Standardise the process/ product and materials used.
61.	Testing standardization.	& Shock absorption tester.	3-10	Standardise the process/ product and materials used.
62.	Testing standardization.	& Leather shrinkage apparatus.	3-10	Standardise the process/ product and materials used
63.	Testing standardization.	& Satra slip resistance tester.	3-10	Standardise the process/ product and materials used
64.	Testing standardization.	& Sole adhesion tester.	3-10	Standardise the process/ product and materials used
65.	Testing standardization.	& Heat resistance tester for sole.	3-10	Standardise the process/ product and materials used
66.	Testing standardization.	& Tensile tester.	3-10	Standardise the process/ product and materials used
67.	Testing standardization.	& Density determination balance.	3-10	Standardise the process/ product and materials used
68.	Testing standardization.	& Grey scale colour.	3-10	Standardise the process/ product and materials used
69.	Testing standardization.	& Grey scale staining.	3-10	Standardise the process/ product and materials used
70.	Testing standardization.	& Toe puff compression tester.	3-10	Standardise the process/ product and materials used
71.	Testing standardization.	& Toe puff dome formers.	3-10	Standardise the process/ product and materials used
72.	Testing standardization.	& Toe puff-toggle press.	3-10	Standardise the process/ product and materials used
73.	Testing standardization.	& Bally penetrometer.	3-10	Standardise the process/ product and materials used
74.	Testing standardization.	& Bally stiffness meter.	3-10	Standardise the process/ product and materials used
75.	Testing standardization.	& Maser with water detection.	3-10	Standardise the process/ product and materials used
76.	Testing standardization.	& Sole leather water penetration.	3-10	Standardise the process/ product and materials used
77.	Testing standardization .	& Wrinklometer.	3-10	Standardise the process/ product and

				materials used
78	Testing standardization.	& Laboratory Press for Adhesives.	3-10	Standardise the process/ product and materials used
79.	Testing standardization.	& Upper leather waterproofness test.	3-10	Standardise the process/ product and materials used

**b). Items for Leather Industry:**

S. No.	Activity	Technology Need	Cost (Rs in lakh)	Advantages
<b>Pre-Tanning Section</b>				
1.	Aluminum Drum.	Aluminum Drum of Different shapes and Dimensions.	1.50-10	Wood is becoming scarce and also chemicals leak.
2.	Fleshing machine.	Single/Double width fleshing machine.	10 – 15	Accuracy and higher productivity will offset the cost.
3.	Unhairing machine.	Single/double width unhairing machine.	10 - 15	Accuracy and higher productivity will offset the cost.
<b>Tanning Section (Wet Blue &amp; E.I.)</b>				
1.	Splitting.	Double width through feed splitting machine.	15-35	Split the leather uniformly.
2.	Shaving.	Through feed double width machine.	20 – 25	Speed of production and final quality of leather improves.
3.	Setting.	Through feed double width machine.	20 – 25	Speed of production and final quality of leather improves.
<b>Finishing Section</b>				
1.	Vacuum Dryer.	Vacuum Dryer.	20 – 35	Uniform and quick drying. Improves the quality of leather.
2.	Toggling machine.	Toggling chamber with or without automation.	5 – 10	Quick production and also helps achieving uniform quality.
3.	Molissa type staking machine.	Molissa staking machine.	10 – 15	For milder and uniform action. Also enhance the safety of workers.
4.	Buffing machine.	Combined Through feed single/double width buffing machine with dusting operation.	10 – 15	Accurate buffing action.
5.	Contilux.	Contilux.	15 – 20	Uniform and faster glazing
6.	Roto-Press.	Roto press and Roto Print.	25 – 30	Uniform pressing
7.	Hydraulic press.	Hydraulic Press with Automatic time and temperature controller..	15 – 20	
8.	Polishing.	Polishing machine	3 – 5	Uniform polishing
9.	Spray booth .	Auto Spray with Dryer	3 – 5	Uniform spraying & drying.
10.	Finiflex.	Finiflex.	10 – 25	Uniform effect.
11.	Curtain Coater.	Curtain Coater.	10 – 25	For patent & brush off leather



12	Roller coater.	Roller coater.	10 – 25	For patent & brush off leather.
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**xiv). Electronic equipment viz test, measuring and assembly/ manufacturing, Industrial process control; Analytical, Medical, Electronic Consumer & Communication equipment etc.**

Sl. No.	Activity	Technology Need	Cost (Rs in lakh )	Advantages
1.	Testing & measurement.	Test & Measuring equipments, Oscilloscope/Digital Storage Oscilloscope, Spectrum analysers, Digital Multimeter High frequency counters & dedicated microprocessor based equipment/ software etc. Test Jigs & fixtures	Up to 15	Long term reliability, accuracy ensures product quality, consistency and improved productivity, product as per the national and international standards.

**xv). Fans & Motors.**

Sl. No.	Activity	Technology Need	Cost (Rs. in lakh )	Advantages
1	Manufacturing & Testing.	<ul style="list-style-type: none"> <li>• Automatic coil winding machine.</li> <li>• Vacuum Impregnation plant.</li> <li>• Hydraulic press for stacking and shaft fixing</li> <li>• Surface grinder for finishing the rotor</li> <li>• Dynamic balancing machine</li> <li>• Testing equipment as per BIS</li> </ul>	Up to 15	Material saving, Improved insulation, Improved performance and increased energy efficiency.

**xvi). General Light Service (GLS) Lamps.**

Sl. No.	Activity	Technology Need	Cost(Rs. in lakh)	Advantage
1.	Manufacturing & Testing.	<ul style="list-style-type: none"> <li>i) Exhaust tube (lead glass cutting machine).</li> <li>ii) Flare Machine (Score cut/hot cut).</li> <li>iii) Automatic stem making machine with annealing facilities.</li> <li>iv) Filament mounting machine.</li> <li>v) Sealing machine.</li> <li>vi) Vacuum and gas filling</li> </ul>	20 - 25	Improves productivity quality and better output.

		<p>machine.</p> <p>vii) Capping machine and soldering machine.</p> <p>viii) Base Filling Machine (Fully automatic).</p> <p>ix) Cement Mixture machine with motor.</p> <p>x) Sleeve making Machine with motor.</p> <p>xi) Packing Machine Automatic with one motor.</p> <p>(xii) Testing equipment as per BIS.</p>		
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**xvii). Information Technology (Hardware).**

Sl. No.	Activity	Technology Need	Cost (Rs in lakh)	Advantages
1.	IT Hardware.	<p>Digital Storage Oscilloscope, Spectrum analyzers,</p> <p>Digital multi meters , Dedicated microprocessor based equipment/software, Test Jigs &amp; Fixtures, Soldering Equipment.</p>	25- 30	Long term reliability, accuracy ensures product quality, Consistency and improved productivity, product as per the national and international standards.

**xviii). Mineral Filled Sheathed heating Element.**

Sl. No.	Activity	Technology Need	Cost (Rs. in lakh )	Advantages
1.	Manufacturing.	<p>i) Automatic filling machine for MgO powder .</p> <p>ii) Swaging machine.</p> <p>iii)Thermostatically temperature controlled oven for annealing.</p>	Up to 15.0	<p>i)Increase in Insulation and dielectric properties.</p> <p>ii)Increase in life of the element.</p> <p>iii)Reduced rejection.</p>

**xix). Transformer/ Electrical Stampings/ Laminations/Coils/Chokes including Solenoid Coils, Assemblies.**

Sl. No.	Activity	Technology Need	Cost (Rs. in lakh )	Advantages
1.	Manufacturing & Testing.	<p>i) Use of vacuum impregnated plant, automatic/CNC coil winding machine, temperature control</p>	Up to 10	Improvement in quality and reliability. Improvement in productivity. Product as per

		drying oven, CNC Winding machine, Cylindrical Grinding machine, Pulse welding machine, Digital Storage Oscilloscope & Solenoid Characteristic analyzer (PLC based) etc.		National/International Standards. Reduced rejection.
		(ii) Amorphous Metal Core Transformers  (a) CNC Core Cutting Machine of high efficiency to cut brittle glassy metal of thickness less than 50 microns.  (b) Annealing furnace having nitrogen atmosphere.  (c) Testing equipments for testing electrical and magnetic losses, power supply etc.	34 28 5	Reduction in transmission loss of electrical energy.  Reduction in electricity expenses, man-power reduction and accurate.  To soften metals during working.  Improvement in quality and reliability.
		iii) Electrical Stampings/ Laminations.  Natural Gas based oven.  or  Microprocessor based Electric Furnace	10	Reduction in no load losses, Increased efficiency of the end product material saving in rejection .

**xx). Wires and Cable.**

Sl. No.	Activity	Technology Need	Cost (Rs. in lakh )	Advantages
1.	Manufacturing and Testing.	(i) Extruder with proper temperature control, pre-heating etc., speed control , spark tester for dielectric strength control, accurate dies and proper back up system.  (ii) Testing and quality control equipments as per BIS mark.	25 10	Improved coating resulting in better insulation properties and meeting other quality parameters.

**xxi). Auto parts and components including re-refining of Lubricating oils**

Sl. No.	Activity	Technology Need	Cost (Rs. in lakh )	Advantages
1	Testing.	Laboratory Testing equipment.:  a) Metallurgical Microscope with image analyzer, photographic attachment. sample preparation	1.50 – 3.50	Quality assurance & quality control, Defects analysis, process control, Greater

		<p>machines.</p> <p>b) Stroh lien apparatus, Muffle furnace, hot plate, Glassware etc.</p> <p>c) U.T.S. Hardness Tester .</p> <p>d) Izod &amp; Charpy Impact testing machine.</p> <p>e) Ultrasonic testing m/c .</p> <p>f) Manaflux testing m/c</p> <p>g) Spectrometer .</p> <p>h) Dimensional control equipments, surface plate for marking, Height gauge, Micrometer, Verniers &amp; Profile Projector.</p> <p>i) CNC operated Brake Shoe Dynamometer.</p> <p>j) Brake shoe Dynamometer.</p>	<p>1</p> <p>5</p> <p>up to 0.75</p> <p>up to 3</p> <p>up to 1.50</p> <p>12-20</p> <p>0.50-2.50</p> <p>7</p> <p>As per prevalent market rates</p>	<p>market acceptability, quality check, meeting ISO certification requirement.</p> <p>A testing equipment to test the friction behaviour of disc brake pads/brake linings, while stimulating normal to extreme conditions on a braking system.</p> <p>Testing equipment for testing the friction behaviour of Disc brake pads/brake linings.</p>
2.	Design & development.	Computers & CAD Software, Simulation software with Printers/Plotter.	1.50 - 15	Computerization of design & dev. to gain efficient & fast working, greater market acceptability, cost saving, quality assurance, process simulation.
3.	Manufacturing.	Productive Equipment : Gas fired/oil crucible melting furnace, Drop hammers, Stamping/Forging Presses, Electric furnace/Gas based reheating furnace, Band saw, Billet shear, CNC wire cut EDM, CNC Milling, CNC Lathe, Cylindrical grinding & Hobing machine, Tool grinder, Surface Grinder, Radial drill, Shaper/planner, Vertical turret boring machine, Special purpose component machining machine for high rate of production (SPM), Polishing & Coating machine, Heat treatment equipment, Gas fired/Electric furnace for annealing, normalizing, hardening, Tempering, Gas based Gen set.	2.-50	Upgrading facility & Modernization on result and diversification towards forward & backward integration to gain efficiency & higher profit margin, Greater market acceptability, skill improvement and better working environment.
4.	In mould Label for Automobile industry technology.	1) High pressure forming machine,	18.50	- To form foil of required shape in imd technique of decorating 3d surfaces.

		2) High pressure compressor.	8	- To give 3d shape to the plain foil which requires 90vars to 300 vars.
		3) Injection moulding machine.	20	Quality products, avoid the use of adhesive tape for sticking the component, recycle level.
5.	Surface treatment.	a) Autophoretic Painting Plant.	46	Better paint durability, cost saving, consistency in quality, better productivity and eco-friendly process.
<b>Re-refining of lubricating oil.</b>				
6	Re-refining of lubricating oil.	a) Falling film evaporation system.	As per prevalent market rate.	Eco-friendly technology.
	Testing and Quality control.	b) Wiped film evaporation system.	-do-	For enhanced quality control.
		Equipment for testing and quality control.		

**\* Cross references of technologies approved for Forging, Foundry and General Engineering Industry under the guidelines can be taken which are also applicable for Auto parts and components.**

**xxii). Bicycles Parts.**

Sl. No.	Activity	Technology Need	Cost (Rs. in lakhs)	Advantages
1.	B.B. Axle, B.B. Cup, Pedal Axle, Pedal Cone, Hub Cups, Pedal Cups, Hub Cone, Nuts, Freewheel, Centre-Body, Head Ball Race, Fittings.	a) Production Machines & Equipments  Cold Forging Plants and Forging/Forming Tools for B.B. Axle, Pedal Axle, Hub Cone, Head Ball Race Fittings, Pedal Cone, Five-Station Nut Formers, Knuckle Joint Presses, , Computerized Automatic Electroplating/Zinc Plants, Effluent Water Treatment Plant, Air Pollution Control Equipments etc.  b) Tool Room Machines :  CNC Wire Cut Machine, CNC Milling Machine, Hydraulic Surface Grinder, CNC/Precision Tool Room Lathe	5-55	Quality Improvement, Increased durability of the product, Higher productivity, Better working environment, Minimized air/Water pollution, Better Market acceptability.
2.	Front Fork, Frame, Handle.	a) Production Machines :  Tube Swaging (Tapering Machine), Tube Butting Machine,	5-55	Quality Improvement, Increased durability of the product, Higher productivity, Better working environment, Minimized air

		<p>Electric Resistance Brazing Machine, Cam Operated Profile MIG Welding Machine, Hydraulic Pipe Bending Machine, Hydraulic Fork Blade Bending Machine, Dip Brazing/ De-brassing Plant, Computerized Automatic Electroplating Plant, Powder Coating Plants, Electrostatic Disc or Bell Type Paint Plants for mass production, Gas/Electrically heated paint baking ovens including continuous line production ovens, Fork Truing &amp; Straightening Machine, Impact Test (Frame and Fork Assembly falling Mass), Impact Test (Frame &amp; Fork Assembly of Falling Assembly), Static Load Test on Frame with Pneumatic Cylinder, Front Fork Fatigue test with Computer Interface, Handle fatigue and Vibration testing equipment, Frame Dynamic Testing Machine.</p> <p>b) Tool Room machines:</p> <p>CNC Milling Machine, CNC/Precision Tool Room Lathe, CNC Wire Cut Machine, EDM (Spark Erosion machine), CAD/ CAM facilities.</p>		pollution, Better market acceptability.
3.	Rims, Mudguards.	<ul style="list-style-type: none"> <li>• Production Machines &amp; Equipment : Simultaneous Rim hole punching Machine (Mechanical), Simultaneous Rim Hole Punching Machine (Hydraulic), Projection Computerized Electroplating Plant, Power Coating Plant, Electrostatic Disc or Bell Type Painting Plant for mass production, Gas/Electrically Operated Paint baking Ovens, Automatic rim making machine, profiling machine, Multi head Seam welding machine and Semi automatic flash welding machine.</li> <li>• Tool Room Machines :</li> </ul> <p>CNC Wire Cutting Machine, CNC Milling Machine, CNC/ Pneumatic Tool Room Lathe, Spark Erosion Machine (EDM), CAD/CAM facilities etc.</p>	5-55	Quality Improvement, Increased durability of the product, Higher productivity, Better working environment, Minimized air pollution, better market acceptability.
4.	Bicycle life Test,	All types of testing equipment for	1 -10	Quality Improvement,

Fatigue Test, Gadgets/ Equipment.	fatigue test, accelerated life testing as per IS/ISO/JIS/DIN/BS/FR Standards.		Increased durability of the product, Better market acceptability.
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**xxiii). Combustion Devices/Appliances.**

**xxiv). Forging & Hand Tools.**

S. No.	Activity	Technology Need	Cost (Rs.in lakh)	Advantages
1.	Stock Cutting.	Automatic Band saw machine with indexing & circular sawing.	3-5 each.	Higher cutting accuracy,  Preferred for Alloy steel cutting,  Technologically recommended for upset forging
		Mechanical pneumatic clutch operated Crank type Billet shearing press	40-70 each	High productivity  Low cutting loss.
2.	Material handling.	Fork lift.	2-10 each	Quick & safe material & tools movement inside shop.  Facilitate better house keeping.  Clean work environment.
		Overhead crane/swing frame crane.		
		Automatic conveyor systems.		
3.	Heating.	Oil/Gas fired energy efficient furnaces with recuperator & temperature controls.	2.50-5	Energy efficient.  Consistent Quality.  Eco-friendly.
		Continuous Electrical billet heaters with temperature control .		
4.	Forge shop.	Pneumatic double acting hammer.	30-80	High production rate, reduced maintenance cost
		High energy forging presses.	20-80	High production rate, Production of close tolerance forging, less skill requirement.
		Micro processor based, Energy controlled, pneumatic clutch operated, Screw friction presses.	10-30	High production rate, controlled blow pattern, low investment, less skill requirement.
		Knuckle joint presses.	10-25	Improved press stiffness, less space requirement, good off ualit loading capabilities.
		Cold and warm forging mechanical presses with eccentric drive.	25-80	Precision forging, complete automation, less tool changeover time, high

				productivity.
		Fully automatic electrical upsetter.	20-35	Suitable for high value items such as rear axle shaft, dead axle shaft, etc., high productivity, less skill requirement.
		Hydraulic double acting hammer.	50-100	Precision forging with high production rate & reduced maintenance cost.
		Modified Knuckle joint presses for cold/warm forging.	40-100	Precision forging with post forging operations minimized less raw material wastage, high production rate, automation feasible.
		Multi station horizontal formers.	40-100	Cold forging of socket wrenches, driving, accessories, screw driver blades with bolsters.  Precision forging with post forging operations minimized, less raw material wastage, high production rate, automation feasible.
		Material gathering machines with electrical heaters.	5-20	To reduce the raw material wastage during manufacture of items such as wheel wrenches, extension bars, handles etc.
		Hot Shearing automats forging presses.	30-60	Microprocessor control, high productivity.
		Wide Ram Trimming, Presses.	10-20	Allows large ram area sustain high degree of off center loading, precision working.
		Reduce rolling machine.	5-15	Higher production rate, less skill requirement. Capable of making performs of various cross sectional areas and lengths, high productivity.
5.	Heat Treatment section.	Gas fired/High temperature furnace with automatic temperature controller & recorder.	2.50-5	Eco-friendly, reduced scale losses, facilitate automation, quality improvement.
		Fludised bed heat treatment line with controlled atmospheres and recuperators for preheating.	20-80	Eco friendly, highly energy efficient, requiring minimum time/energy to come on line. Flexible operations with adaptability to handle small batches, controlled atmosphere minimizing decarburisation as well provides flexibility to carry out process such as carburizing, carbonitriding and cyaniding without use



				of polluting salts. No pre-cleaning/drying required, post treatment cleaning minimised.
		Medium Frequency Induction Heaters.	10-20	For controlled depth surface hardening of tools such as pipe wrenches jaws, hammers, pliers teeth etc. improved quality.
		Electrical resistance furnace.	2-5	Eco-friendly uniform heating, precise control.
		Forced air circulation furnace.	1-3	Uniform heating.
		Forced air low temperature furnace.	1-3	Requirement for tempering.
6.	Electroplating.	Electrostatic powder coating plant.	50	Automatic heating spray and coating chamber.
		Electro less plating equipment.	5-10	For improved flake less, hard and wear resistance coating.
		Manganese phosphating plant.	2-10	A hydrogen embrittlement free process for providing a corrosion resistant black finish suitable for impact tools.
		Automatic Electroplating Plant.	90-200	
		Vibrator/Barrels along with media.	10-15	
7.	Finishing & Cleaning.	Shot blasting machine.	3-5	Faster scale removal, Improve surface finish.
		Aluminium Oxide Grit Blasting Machine.	1-5	Hydrogen embrittlement free pre-cleaning process required before Mn. Phosphating of Impact Tools.
		Tumb blast machine.	As per the prevailing market rate.	Low cost, suitable for small forging, Improved surface finish.
8.	Quality Control & Testing.	Metallurgical Testing :		Quality assurance, Defect analysis, Diversification e.g. S.G. Iron production equipment essential to meet process control requirements.
		Metallurgical Microscope with image analyzer, photographic attachment, sample preparation machines.	1.50-3.50	Quality control, Defect investigation, Quality assurance, Consistency in quality, Reduced defective casting, Cost control.
		a)Strohlien Apparatus, Muffle furnace, Hot plate, Glass ware etc.	1	
		b) Universal Testing Machine.	upto 3	
		c) Spectrometer.	12-20	
		d) Hardness tester.	upto 1	
		e) Izod & Charpy Impact	upto 0.75	

		testing machine. f) Ultrasonic testing machine. g) Magnetic particle testing m/c h) Tongue testing and life cycle testing equipment for hand tools	upto 3.00 upto 1.50 50-100	
9.	Inspection.	Surface plate for marking, Height gauge, Micrometer, Vernier.	0.50	Quality assurance, Defect analysis.
10.	Design & Development.	Computers & CAD Software, simulation software with Printers/Plotter.	1.50-15	Computerization of design & development to gain efficient & fast working.
11.	Utility Section.	Gas fired generating set.	15-40	Eco-friendly, low power cost.
12.	Tool room.	CNC turning center.	10-20	Improved quality, high productivity, Precision machining, eco-friendly.
		CNC milling machine.	15-50	Improved quality, high productivity, Precision machining, eco-friendly.
		Electro Discharge machine (EDM).	3-8	Improved quality, high productivity, Precision machining, eco-friendly.
		CNC Wire cut machine.	10-20	Improved quality, high productivity, Precision machining, eco-friendly.
		Profile projector.	0.50-2	Easy to understand drawing and make modification.
		3 D co-ordinating machine.	2-5	Accurate dimensional inspection.
		Plastic Blow Moulding Machine.	25-75	For manufacturing tool kits.
		Fully Automatic CNC Injection Moulding machine.	15	Modern version , for making handle of screw drivers and sleeves of pliers.
		Special Purpose machines Welding Sets (for making special steel vices).	5-25	Special purpose.
		Special Purpose machines for Machining/ Grinding/Polishing/ finishing Spanner, Wrenches and other tools.	50-100	Special Purpose.
		Packing Machine.	25-50	For packing.

xv). Foundries – Steel and Cast Iron .

a). Foundries – Steel and Cast Iron.

Sl. No.	Activity	Technology Need	Cost (Rs in lakh)	Advantages
1.	Melting Section.	Divided blast cupola.	3-5	15 per cent coke saving, Better melt quality, Higher

				tapping temperature, Lower emissions, Reduced air pollution.
		Gas fired cupola.	12-15	Eco friendly, Higher tapping temperature, Better melt quality.
		Gas fired Pit furnace.	0.75-1.50	Eco friendly, Higher tapping temperature, Better melt quality.
		Oil fired rotary furnace.	37 (imported), 3 (indigenous)	Pollution control, Better quality product, cost effective.
		Induction Furnace with cooling tower & water treatment plant.	10 - 25	Flexibility to produce ferrous castings of all grades, Flexibility for charge mix selection, Best melt quality, Eco friendly.
		Induction ladle refining furnace.	30-40	Value added casting, eco friendly.
		D.C. Arc Furnace.	30-40	Special grade castings, eco friendly.
		Oil fired rotary furnace.	37.40 (imported). 30 indigenous.	It is proven technology, reduced air. pollution, better quality product, cost effective .
		Metal Refining Converter.	40	Value added castings, eco friendly.
		Skip charger for cupola.	Up o 1.50	Ease of charging, reduced labour cost, better control.
		Pouring/treatment ladles as per Indian standard 4475, 4476.	Up to 1	Quality assurance, increased safety for workmen.
2.	Utility Section	Gas based Generating set.	Up to 30	Reduced air pollution, energy saving.
3.	Quality Control Lab.	Metallurgical Testing:  Metallurgical Microscope with image analyzer, photographic attachment, sample preparation machines.	1.50-10	Quality assurance, Defect analysis, Diversification e.g. SG Iron Production equipment essential to meet process control requirements.
		Laboratory Testing / Quality Control equipment.	1 Up to 3	Quality control, defect investigation, Quality assurance, Consistency in quality, Reduced defective casting, Cost control.
		Stroholien Apparatus, Muffle furnace, Hot Plate, Glass ware etc.	15-25	
		U.T.S.	Up to 1	
		Spectrometer / Mass Spectrometer.	Up to 0.75 Up to 3	
		Hardness tester.	Up to 1.50	

		<p>e) Izod &amp; Charpy Impact testing machine.</p> <p>Ultrasonic testing machine.</p> <p>g) Magnaflux testing machine.</p>		
		<p>Sand Testing equipment Moisture Teller, Universal Sand Strength testing machine, Sieve shaking device, Compactability scale, Rapid Moisture Teller, Permeability Meter, Mold Hardness Tester, Muffle furnace, Wash bottles, stirrer/Shaker, Hotplate, Vortex shaker, Centrifuge etc., Shatter index machine, Scratch Hardness Tester, Stick point, hot tensile, peel back</p>	2 to 8	<p>Reduced defective casting, consistency in quality, Reduction in additives cost, Better as cast surface finish.</p>
		<p>Dimensional Inspection instruments:</p> <p>Surface plate for marking, Height gauge, Micrometer, Vernier, Profile projector with Digital Reading system, Dial &amp; Micro snap gauges, Floating careage dia measuring machine, 3-Co-ordinate measuring machines.</p>	Up to 10	<p>Quality assurance, Defect analysis.</p>
		<p>Process Control Equipment:</p> <p>a) Carbon equivalent meter.</p> <p>b) Pyrometer (dip type immersion).</p>	<p>0.75-1.75</p> <p>0.20</p>	<p>Consistency in quality, Reduced defective casting, Cost saving.</p>
4.	Design Development	& Computers & CAD Software's, simulation with Printers/Plotter.	1.50 - 15	<p>Computerisation of design &amp; development to gain efficient &amp; fast working.</p>
5.	Molding/Core.	Intensive mixers.	2.50 - 5	<p>Reduced defective casting, Better as cast surface finish, Reduction in additive cost, Reduced air pollution.</p>
		Simultaneous Jolt/Squeeze moulding machine.	3-10	<p>Higher productivity, dimensional accuracy, less skill requirement.</p>
		Shell Moulding Machine.	3-5	<p>Higher productivity, dimensional accuracy, less skill requirement.</p>

		Centrifugal casting machine.	1.50-3.50	Liner castings exclusive process, eco-friendly.
		Spun pipe casting machine.	up to 40	Export potential, higher productivity, eco friendly.
6	Investment Casting	Wax Injection Machines.	up to 10	Requirement for modern investment casting process.
		Sand Raining Machine.	up to 4	Requirement for modern investment casting process.
		Slurry Mixtures.	Up to 2	Requirement for modern investment casting process.
		Dewaxing Oven.	Up to 2	Requirement for modern investment casting process.
		Burt out furnace.	Up to 2	Requirement for modern investment casting process.
		Belt Polishless.	Up to 1	Requirement for modern investment casting process.
		Sand reclamation system.	Up to 20	Cost saving, pollution control, reduced binders composition.
		Continuous mixer for no bake sand.	Up to 15	Reduced additive cost, Quality improvement, Pollution control, Improved quality.
		Shot blasting machine.	Up to 8	Better surface finish & Quality improvement
		CO 2 Gassing machine.	Up to 0.50	Cost saving, pollution control, Quality improvement.
		Moulding boxes as per Indian Standard 1280 & 10518.	Up to 3	Better dimensional accuracy, higher productivity
		Core shooter-shell or no bake sand.	2 - 5	Higher Productivity, Consistency in quality, Narrower as cast dimensions, Excellent finish.
7.	Heat Treatment Section.	Induction Hardening Equipment	10 - 15	Higher Productivity, Consistency in quality, eco friendly.
		100 KW, 500Hz to 3KHz.	3 - 5	
		Removable Hearth type chamber F/C upto 1200 C moving with computer compatible temp. controller.	1-3	Cost saving, Consistency in quality, Better productivity.
			0.75	
			1.50	Reduced labour cost, Higher Productivity, Consistency in quality.
	Handling equipment-overhead crane- 2 ton	0.30	Process requirement to	

		capacity.  Quenching.  Water quenching tank-with Heat exchanger unit.  ii. Oil Quenching tank-fitted with oil heating & heat exchanger to obtain desired & cooling rates for hardening.  iii. Air quenching fans.		achieve quality.  Process requirement to achieve quality.  Process requirement to achieve quality.
8.	Machine Shop.	CNC Milling machine.  CNC Lathe Machine.  Capstan lathe/Turret lathe.  Radial Drill.  Planner.  Shaper.  Jig Boring Machine.  Hydraulic Hooning machine.	25-30  10-15  up to 3  up to 5  up to 3  up to 3  up to 5  up to 3	Higher productivity, dimensional accuracy, less skill requirement, Consistency in quality.
9.	Pattern Shop.	CNC Milling.  Pentagraph.  Drilling.  Disc and bobino sand grinder.	30-50  Up to 2  Up to 1.00  Up to 3	Higher Productivity, Consistency in quality, Narrower as cast dimensions, Excellent finish, Better productivity.
10.	Fettling Section.	Shot Blasing Machine.  Pedestal Grinder.  Swing Frame Grinder.  Painting Booth.	up to 5  up to 0.50  up to 0.25  up to 0.50	Higher Productivity, Process requirement to achieve quality.

#### Pollution Control.

S. No.	Activity	Technology Need	Cost (Rs. in lakh)	Advantages
1	Pollution Control	Wet Scrubber, Cyclone, Ventury Scrubber, Bag Filter.	Variable up to 15	Reduction of suspended particulate matter (SPM) emissions.

#### b). Foundry chemicals.

S. No.	Activity	Technology Need	Cost	Advantages
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			(Rs. in lakh)	
1	Resin.	Stainless steel kettle or reactor complete plant assembly.	25	By using SS reactor vessel replacing Mildsteel vessel eliminates iron content from resin improving quality of resin eliminating casting defects due to iron content in the resin which results into surface defects, blow holes, pin holes. It will improve productivity, quality of product and work environment in the unit.
		Thermic Oil Heating System, 3000 Kcal/hr.	4	It saves energy considerably and is absolutely environmental friendly and there is no pollution.
2	Exothermic/insulating Sleeves.	Oven for Baking Sleeves, Molding Machines, Vacuum system.	25	It reduces requirement of molten metal for risers thus increasing yield of castings to the level of sometimes more than 20%. Highly energy saving, cost reduction system thus improving productivity.

**xxvi). General Engineering Works.**

S. No.	Activity	Technology Need	Cost (Rs.in lakh)	Advantages
1.	General Engineering for Multiple use:-	General Engineering Works for Multiple Use. CNC wire cut machine, EDM, CNC lathe along with rotary table attachment, CNC milling, CNC drilling machine etc.	5 - 55	Modernisation and results in efficiency gain, greater market acceptability, skill improvement and better, working environment.
	Hand tools, Surgical equipment, Bicycle parts, Auto parts, Machine tools. Precision machined parts.	b) Inverter based Welding Machine.	Prevailing market price.	Better design, faster response time, extremely low ripple, smaller in size & lighter in weight hence portable, more efficient during welding, better weld quality and energy efficient operation.
2.	Heat treatment.	Induction furnaces, Gas Carborizing furnace, QC & Testing equipments such as Vickers hardness testing equipment etc.	up to 30	Enhancement of mechanical properties.
3	Skill upgradation.	Modern software driven equipments such as CNC trainer mill, CAD/CAM	Up to 40	

		software and modern audio visual equipment.		
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**xxvii). Gold Plating Industry and jewellery.**

**a) Gold Plating Industry and jewellery.**

Sl. No.	Activity	Technology Need	Cost (Rs. in lakh)	Advantages
1.	Automatic plating operation.	Automatic Electroplating unit.	2-5	Increased production in conditions safe for handling and better control of quality.
1.	Power supply.	Pulse Rectifier.	1- 2	Better Quality in plating.
3.	Polishing.	Polishing machine.	0.50	Better finish after plating.
4.	Cleaning before plating.	Ultrasonic cleaner.	1	For effective cleaning of intricate surfaces.
5.	Demineralising.	Demineraliser or Deioniser unit.	0.50	For preparation of plating solutions of better standard.
6.	Lacquering Unit.	Electrophoretic Lacquering Unit.	4	For increased life of plated product.
7.	Baking.	Oven with temperature control.	0.50	For increased life of plated product.

**b) Gold melting and refining.**

1.	Gold melting.	a) Induction Melting furnace with Crucible.  b) Gas fired melting furnace with crucible.	5  8	Pollution free, quicker time, Reduced Melting losses, reduced consumption of energy/unit wt. of melting highest quality  Flexibility of handling different sizes of crucibles, less fuel cost/unit wt. of melting & highest quality
2.	Gold refining.	High quality Borosilicate glass reaction Vessel, non-rusting non corrosive fitting and joints double fume condensation columns & scrubber highly efficient for absorbing reaction gases, automatic charging of acid facility.	49	More superior than existing plant with highest possible recovery of gold/totally environmental friendly meeting standards.
3.	Scrubbing & filtration.	High Power water jet vacuum pump specially built for chemical plants with security valves etc.	3.50	High capacity vacuum and water jet pumps for faster and efficient water circulation for heat transfer and acid fume neutralization, reduced pollution free air from scrubber.
4.	Recovery of bye-products.	Electrolytic silver refining plant complete with stabilized power, power current rectifier, anode preparation moulds, Hot air drying and washing	8	Recovery of High Purity Bye Products, environment friendly, pollution & dust free.



		centrifuge and accessories & wheeled filtering unit.  Electrolytic silver refining tank, recycling tank for silver solution with pumps.	12	
5.	Drying.	Thermostatic stove dryer for Gold grains powder crystals.	4	Reduces losses due to evaporation, reduces melting losses and hazards, removes unwanted volatile matters.
6.	Filtration & Demineralisation.	Dual column automatic water demineralisers with holding metallic structure and inlet filters.	2	In house quality control on desired purity necessary to wash refined Gold for maintaining desired purity.
7.	Precipitation / Reduction.	Storage & sedimentation tanks for gold chloride solution coming from Aquaregia gold refining plant after gold Precipitation.	3	Totally Pollution free no evaporation of gold chloride solution, reduces losses of fine gold/particles.
8.	Flue gas outlets.	Plenum Chamber complete with hopper & flanged connection for pipelines	2.50	Sucks heat fumes & fine particles of gold reduces temperature in melting area & improves work environment.
9.	Fume Particles recovery plant for melting.	Steel cyclone for washing & recovery of fume particles coming from melting furnaces.	3.50	Preventing precious metal losses improving profitability.

**xxviii). Locks.**

Sl. No.	Activity	Technology need	Cost (Rs. in lakh)	Advantages
1.	Locks-Lever type & Pin cylinder type.	Three Axis CNC Drilling Machine for Multiple Drilling in Brass Body/ Tumbler.	11.25	Enhance and consistent quality, improves productivity.
		Three Axis-CNC Key Indentor for Dimple Type keys.	12.75	
		Automatic Key Serial number Stamping Machine- Hydro-Pneumatic.	3	
		Pin Making Machine - Automatic Pin Cutting.	6.50	
		Broaching Machine - Semi Automatic plug keyway broaching Machine with Auto loading.	12.50	
		Key Slotting Machine - Auto Key camshaft side milling Machine for Keyway Milling.	6	

		Key Biting Machine - Key Biting Face Milling Machine.	9	
		Automatic Cutting Machine for Lock Body.	5	These automatic machines are designed for assembly of pin-tumblers, constant length drivers and spring into lock cylinders, and then seal the cylinder.
		3-Spindle Automatic Drilling Machine for Lock Body.	21	
		Automatic Drilling & Tapping Machine for Lock Body.	21	
		Automatic Pin-Hole Drilling Machine for Lock Body.	14.50	
		Automatic Pin-Hole Drilling Machine for Plug.	10	
		Automatic Drilling & Milling Machine for Plug-End.	9.50	

**xxix). Steel furniture.**

S. No.	Activity	Technology Need	Cost (Rs. in lakh)	Advantages
1.	Manufacturing.	Electrostatic Powder Coating equipment along with pre treatment tanks and curing chamber.	Up to 20	i)Quality improvement.  ii)Reduction in material wastage (Paint) thus reduced cost.

**xxx). Toys.**

Sl. No.	Activity	Technology Need	Cost (Rs. in lakh)	Advantages
1.	Toys-Soft toys.	Garnetting Machine.	3.50	Avoids bunching of the fiber fill, increases fluffiness and softer feel.
		2) Metal Detector- Tunnel type with conveyor belt Detection-Ferrous 1.5mm, Non-ferrous-2.0mm.	3.50	Assists in detecting ferrous/non-ferrous parts specially broken needles from soft toys.
		3) Hydraulic Gear/Press cutting machine Automatic / Semi automatic type.	5.50	Can cut upto 6 layers of fur fabric and 30-50 layers of velour fabric.
		4) Sewing machines Type – Single needle lockstitch machine, medium to heavy type fabrics.	0.12~ 0.18	
		4) Stuffing machines.	Approx. 0.70 for a single point machine to 1.25 for a double point machine.	To increase speed and consistency of stuffing in a toy, a stuffing machine is used. In this the carded/opened PSF is filled using blowers.

2.	Plastic Moulded / extruded products & parts / components including toys.	1) CNC Milling Machine.	18 –33	Improves productivity, quality and reduces time in manufacture of dies & moulds.
		2) CNC Wirecut Machine.	8	
		3) Electric Discharge Machine.	10	
		4) CAD/CAM Software : Scanner / Digitiser	10	
3	Making of Board Games, puzzles and educational games.	From manual to automatic operation	15- 20 for indigenous machine.	A proven technology ensures product quality, consistency, cost effectiveness and productivity enhancement.

**xxxi). Non-ferrous foundries.**

Sl. No.	Activity	Technology Need	Cost (Rs. in lakh)	Advantages
1	Meeting & Casting section.	i) Oil fired pit furnace/LPG or CNG fired pit furnace.  ii) Mobile de-gassing unit.  iii) Pressure die casting machine(Hot/cold chamber).  v) Dip type temp. indicator.  v) Pouring ladles as Indian Standard 4475- 4476	0.75 to 2  up to 15  15- 80  0.20 to 0.25  up to 0.50	Eco-friendly, higher tapping, temperature better melt quality, lower melting losses.  Faster degassing of molten metal, process requirement.  i) Faster production rate. ii) High dimensional accuracy.  i) Liquid metal temperature can be measured quickly. ii) Better control on pouring temperature.  Quality assurance, increased safety for workmen.
2	Quality control Lab.	i) Thermal analyzer for Aluminum.  ii) Electrolytic analyzer.  iii) Met Microscope with image analyzer, photograph attachment sample preparation machine  iv) Ultrasonic testing machine.  v) Radiography testing machine  vi) Spectrometer	4 - 10  2 - 10  4 - 10  15 - 25	Quality assurance, essential to meet process control requirement.  Quality control, defect investigation,  Quality assurance, Consistency in quality Reduced defective casting, cost control.
3	Utility Section.	i) Gas fired Gen-set.	10 - 20	Reduced air pollution, energy saving.

4	Heat Treatment Section.	<p>i) Forced Air Circulation electric furnace.</p> <p>ii) Low temperature electric furnace.</p> <p>iii) Quenching-water Quenching tank with heat exchanger unit.</p> <p>iv) Material handling equipment.</p> <p>v) Sand testing machine.</p>	<p>3 -10</p> <p>0.50 - 1</p> <p>1.-3</p> <p>3 -5</p>	<p>Eco-friendly, energy saving furnaces.</p> <p>Process requirement to achieve quality safety to workmen</p> <p>Higher productivity, process requirement to achieve quality.</p>
5	Design development Section.	<p>&amp; Dimensional inspection instruments. Surface plate for marking, Height gauge, Micrometer, Vernier, Profile projector with Digital Reading system, Dial &amp; Micro snap gauges,</p> <p>Floating carriage dia measuring machines, 3 coordinate measuring machines.</p> <p>Computers &amp; CAD software's simulation software with Printers/Plotter</p>	up to 10	Quality assurance, Defect analysis. Computerization of design& development to gain efficient & fast working.
6	Machine/Die shop	<p>CNC Milling machine</p> <p>CNC Lathe machine.</p> <p>Capstan lathe/Turret lathe.</p> <p>Radial Drill.</p> <p>Planner.</p> <p>Shaper.</p> <p>Jig Boring machine.</p> <p>Hydraulically Honing machine.</p>	<p>25-3</p> <p>10-14</p> <p>3.</p> <p>up to 5</p> <p>up to 3</p> <p>up to 3</p> <p>up to 5</p> <p>up to 3</p>	Higher productivity, dimensional Accuracy, less skill requirement, consistency in quality.
7	Pattern Shop.	<p>CNC Milling.</p> <p>Pantograph.</p> <p>Drilling machine.</p> <p>Disc and bo bino sand grinder.</p>	<p>30 50</p> <p>up to 2</p> <p>up to 1</p> <p>up to 3</p>	Higher productivity, consistency in quality, narrower as cast dimensions. excellent finish, better productivity.
8	Cleaning & Fettling Section.	<p>i) Grit blasting machine</p> <p>ii) Pedestal Grinder</p> <p>iii) Belt Grinder</p> <p>iv) Painting Booth</p>	<p>up to 5</p> <p>up to 0.50</p> <p>up to 0.50</p> <p>up to 0.50</p>	Higher productivity, Process requirement to achieve quality.

	v) Acid Pickling & cleaning plant	1 -3	
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xxxii). Sports Goods.

a). Sports Goods.

Sl. No.	Activity	Technology Need	Cost (Rs. in lakhs )	Advantages
1	General stitching finishing purpose	Auto drive conveyors in finishing, stitching & packing	1.70 conveyor for finishing.	For uniform material movement without personnel involvement
2	For packaging & wrapping of smaller components.	Auto puch & shrink packaging machines for football, tennis ball, hockey balls.	0.70 conveyor for packaging.	Electronically controlled system for uniform & faster output of packaging.
3	Printing of all sports goods and balls.	1.Conveyors for material traveling and drying at controlled temp and speeds. 2. Automated pad printing on balls and other components. 3. Thermal & foil transfer printing (PLC controlled & automated). 4. Pneumatic embossing machines.	0.70 conveyor basic type. 4.50 per single head with full automation 1.20 per single platform with pneumatic automation. 1.20 per single platform with pneumatic automation .	Man power saving with uniform quality output. Improved technology For printing than conventional manual printing with better productivity. New concept to match the final goods with international style. New technology of printing than conventional manual printing with better productivity.
4	Leg guards, gloves & other sports protective gears	1. Mechanized & specialized single & double needled stitching machines for leg guards & mat 1. Electronic fabric cutting machine for artificial leather. PVC, PU, cotton and polyester fabrics	0.40 per single needle machine 1.60 per double needled machine 0.03 basic handy automatic cutter	Uniform stitch density, Higher production. More Versatility on new machines. Safer than conventional Higher output, lower rejection. No skill required.
		1. Hydraulic checkers for PVC leather, rubber sheets for foot balls etc. instead of hand cutting for mechanical	1.50 to 2 per machine depends on the area size of the head	Material saving, Lower down time, Non skilled labour required .

		power cutters.		
5.	For balls	1. Thermal welding machines as per latest technology of balls. 2. Single needed stitching machines for ball stitching.	New technology, can vary from 1.50 to 3 for PLC type machine 1.50 per machine(heavy durty)	Latest technology in ball Making. Latest technology with more productive method per man in ball stitching.
6	For moulds & dies	1. CNC machines for in house die making & repairing for balls etc. 2. Imported CNC dies & o moulds	10 to 12 for milling type with 3 axis machine for in house working mould cost for balls 25000/set 0.75 to 1 for plastic leg guards moulds.	Accurate moulds & dies as per international trends & wider acceptability.
7	Carton packaging	1. Stitching machines for packaging 2. Automatic strapping machines	2 to 1.50 depends on carton size.	Time saving packaging technique.

**b). Rubber, leather, plastic based sports goods**

Sl. No.	Activity	Technology Need	Cost (Rs. in lakh )	Advantages
1	Rubber, Leather Plastic based Sports goods.	1. Tensile Testing Machine (Indian)	0.50 to 10	Testing of raw material /product. -Better Quality Control. -Quality pgradation/Improvement. -Indirect contribution in boosting exports.
		2. Rheometer(Indian)	0.50	
		3. Din Abrasion Tester (Indian)	0.30	
		4. Ross type Flex Tester (Indian)	0.30	
		5. Hot Air Oven (Indian)	0.15	
		6. Leather Colour	0.90	

		Fastness Tester		
		7. Mini Flexometer	0.75	
		8. Martindale Abrasion Tester (Leather)	1	
		9. Shooting Apparatus Foot Ball Testing (Indian)	2.50 0.75	
		10. Water-Uptake-Tester Foot Ball Testing (Indian)		
2	Rubber based Sports goods.	1. Rubber compounding Kneeder.	2.50 - 4	Higher productivity.
		2. Rubber Injection Moulding machine.	4 - 10	Better quality of product.
		3. PID Temperature controlled Hydraulic compression Press.	1 - 2	
		4. Thermal Fluid/Petroleum fuel boiler	2.50 - 5	To ensure cleaner environment.
3	Cricket Ball	1. Cricket Ball Panel Angle Cutting Machine	1	More production 2 or 3 times; Repeatability; Low cost of production; No trained man power required;
4	Protective equipment for Cricket and Hockey	1. Foam, Leather & Cloth etc. Cutting Clicking Machine	2	-Low cost of production. -High production (10 times). -No damage of dies. -No trained man power required.
5	Wood based Sports goods	1. Crack detector (Ultrasonic)	1 - 1.50	1. Better quality product. 2. Better quality control. 3. Higher productivity. 4. Contribution in boosting export.
		2. Moisture Meter	0.05	
		3. Glass Tester for finish	0.05	

		4. Wood hardness tester	5	
		5. Wood Seasoning Plant (Non Steam)	6.50	
		6. Pressure Sensitive - Hydraulic Cricket Bat Pressing Machine	-	
		7. Semi Auto Lacquering Plant	1.50 - 2	
		8. Wood Boiling Plant		
		9. Wood Engraving Pantograph	1 - 2	
		10. Copying Lathe	1.50 - 3	
6.	Leather based sports goods	1. Auto spray coating machine (Italian)	20 -25	1. Maximum production 5 to 6 times repeatability.
		2. Roller Coaster machine (Italian)	15 - 20	2. Maximum output 5 to 6 times repeatability.
		3. Auto Toggling machine (Italian)	30 - 40	3. Low cost of production.
		4. Vacuum Drying Machine (Incoma Italian)	25 - 35	4. Better quality of production.
				5. Upgradation /Improvement.
				6. Better quality control.
				7. Higher productivity.
				8. Contribution in boosting export.

**xxxiii). Cosmetics**

**xxxiv). Readymade Garments:**

**a). For Knitting**

Sl. No.	Activity	Technology Need	Cost (Rs in lakh)	Advantages
1	Mfg. of Knitted fabric	High speed circular knitting machine with a minimum speed of 23 revolutions per minutes.	20 - 50	Improvement in quality and efficiency.
	Mfg. of knitted Seamless garment	Computerised seamless garment knitting machine and Gloves knitting machine different size and gauge for under & outer garment (New Technology)	20 - 65	-do-
	Mfg. of knitted socks and gloves	High speed socks knitting machine and Gloves knitting machine with or without electronic jacquard.	3 - 7	-do-
	Mfg. of Knitted fabric and garment panel	Computerized flat bed knitting machine with minimum speed of 11 revolutions per minute.	45 - 75	-do-
	Mfg. of Knitted fabric	<ul style="list-style-type: none"> <li>• Warp/Raschel knitting machine</li> <li>• High speed computerized warping M/c</li> </ul>	20 - 35 45 - 75	-do-



		for knitting		
	Manufacture of Label	Computerizes label making machine	10 - 18	-do-
	Mfg. of Knitted fabric	Circular knitting machine of different size and gauge	2 - 4	-do-
2	Controlling relative humidity	Modern industrial humidification system for controlling relative humidity & temperature.	5 - 8	-do-

**b). For stitching of knitted/Woven RMG & Made ups:**

Sl. No.	Activity	Technology Need	Cost (Rs. in lakh)	Advantages
1	Garment Mfg. activity	Single/multi needle power operated industrial lockstitch sewing machine with or without trimmer overedging/seaming and banding operation	0.15 -10	Improvement in quality and efficiency.
2	-do-	Blind stitch machine /Chain stitching machine		Do
3	-do-	Power operated linking/loop making sewing Machine		Do
4	-do-	Power operated flat lock/overlock Machine		do
5	-do-	Zigzag flat bed sewing machine		do
6	-do-	Button stitch sewing machine		do
7	-do-	Label/elastic inserting machine		do
8	-do-	Button hole sewing machine		do
9	-do-	Belt attaching machine		do
10	-do-	Zip attaching machine		do
11	-do-	Bar tacking machine		do
12	-do-	Hemstitch machine		do
13	-do-	Smocking M/c. Automatic multi needle shirring machine		do
14	-do-	Pattern maker/grader/marker machine /laser marker		do
15	-do-	Power driven cloth cutting machine/laser fabric of label cutting machine		do
16	-do-	Band knife-cutting machine		do
17	-do-	Collar and cuff turning and blocking machine and pressing machine		do
18	-do-	Pocket creasing and welding machine/Auto pocket making machine		do
19	-do-	Industrial steam iron with vacuum table and/or buck press		do
20	-do-	Boiler for steam press/vacuum press, Steam cabinet/ vacuum press, Steam cabinet/vacuum table		do
21	-do-	Button and revet/snap fasteners fixing machine		do
22	-do-	Fusing press		do
23	-do-	Collar contour trimmer		do
24	-do-	Automatic spreading & cutting table with vacuum and/or air blowing device		do
25	-do-	Shoulder pad-attaching machine		do
26	-do-	Pocket cutting machine		do
27	-do-	Computerised CAD/CAM/cutting machine		do
28	-do-	Round knife cutting machine		do
29	-do-	End cutter with cloth press track		-do-

30	-do-	Cloth drilling machine	-do-
31	-do-	Collar point trimmer/gear knotcher machine	-do-
32	-do-	High speed fully fashioned knitting machine	-do-
33	-do-	Whole garment making M/c for knitting garment or power operated garment panel forming knitting machine with linking machine	-do-
34	-do-	Power driven socks and gloves knitting machine	-do-
35	-do-	Automatic thread trimming/sucking machine	-do-
36	-do-	Shirt folding machine	-do-
37	-do-	Stain/spot removing machine	-do-
38	-do-	Pear/Beads/Sones/Glassete/Hook and Bar attaching machine	-do-
39	-do-	Quilting machine	-do-
40	-do-	Fabric inspection/checking machine	-do-
41	-do-	Needle/Metal detector machine	-do-
42	-do-	Multi bead computerized embroidery machine	-do-
43	-do-	CAD/CAM pattern maker with plotter and software including software equipment for embroidery machine	-do-
44	-do-	Computerised Label making machine / Computerised Label printing machine	-do-
45	-do-	Button wrapping/shanking machine	-do-
46	-do-	Feed –off-the arm industrial sewing machine	-do-
47	-do-	Automatic dart/pleat making machine	-do-
48	-do-	Automatic label/ply picking machine	-do-
49	-do-	Pin tucking machine	-do-
50	-do-	Mechanised fabric pinning table	-do-
51	-do-	Single needle basting M/c	-do-
52	-do-	Single needle post bed sleeve setting machine	-do-
53	-do-	Hanging production conveyor system	-do-
54	-do-	Crochet machine for laces and bands with electronic bar operation	-do-
55	-do-	Shring thrusting M/c	-do-
56	-do-	Plastic staple attacher	-do-
57	-do-	Sand Blasting/Brushing machine	-do-
58	-do-	Colour matching machine	-do-
59	-do-	Automatic machine for making knit shirt center plaits	-do-
60	-do-	Belt loop attaching machine	-do-
61	-do-	Button Packer	-do-
62	-do-	Collar Heat Notcher	-do-
63	-do-	Spot welding machine	-do-

**c). For knit & Woven Process House (Fabric/Garment/Made Up):**

**Wet processing**

Sl. No.	Activity	Technology Need	Cost (Rs. in lakh )	Advantages
1	Dyeing activity	Wet fabric spreading and squeezing machine	0.25-100	Improvement in quality and efficiency.
2	-do-	Knit tubular mercerizing or bleaching cum mercerizing machine		-do-

3	-do-	Knit fabric continuous bleaching plant		-do-
4	-do-	Soft flow dyeing machine		-do-
5	-do-	Jet dyeing machine		-do-
6	-do-	Cabinet type hank yank dyeing machine		-do-
7	-do-	Printing/curing machine for garments		-do-
8	-do-	Automatic flat bed screen printing machine Rotary screen printing machine		-do-
9	-do-	Ink jet printing machine		-do-
10	-do-	Star Ager/pressure ager/loop ager/steam ager		-do-
11	-do-	Roller steamer/Polymeriser		-do-
12	-do-	Washing range with arrangement of tension free fabric drying and reduced water consumption/water reuse system		-do-
13	-do-	Hydro extractor		-do-
14	-do-	Industrial garment washing/drying machine		-do-
15	-do-	Tumble dryer		-do-
16	-do-	Rope opening Line with open width squeeze mangle for knitted fabric		-do-

#### Wet Finishing Machines:

Sl. No.	Activity	Technology Need	Cost (Rs. in lakh )	Advantages
1	Finishing	Multi chamber stenter (minimum 4 chambers) with arrangement of oil/gas heating	1-50	Improvement in quality and efficiency.
2	-do-	Radio frequency/infrared radiant gas fired/micro wave/loop/relax dryer		-do-
3	-do-	Form finisher		-do-
4	-do-	Sue ding machine		-do-
5	-do-	Precision flock cutting machine		-do-
6	-do-	Sieving machine		-do-

#### Dry processing/Finishing Machines:

Sl. No.	Activity	Technology Need	Cost (Rs. in lakh )	Advantages
1	Processing/Finishing	Fabric reversing machine	0.50 - 20	Improvement in quality and efficiency.
2	-do-	Slit opening machine		-do-
3	-do-	Pile cutting machine		-do-

4	-do-	Singeing machine for tubular fabric		-do-
5	-do-	Dry to dry cleaning machine		-do-
6	-do-	Compacting machine		-do-
7	-do-	Curing/Polymerising machine		-do-
8	-do-	Coating/Laminating/Embossing machine		-do-
9	-do-	Computer controlled fabric inspection machine /Fault analyzer/Report generator		-do-

#### Effluent Treatment plant:

SI. No.	Activity	Technology Need	Cost (Rs. in lakh )	Advantages
1	Effluent water treatment	Effluent Treatment plant with primary secondary and/or tertiary treatment facilities (for unit linked to common effluent treatment plant with primary treatment system	5 - 25	To save the environment.

#### Utilities and Others

SI. No.	Activity	Technology Need	Cost (Rs. in lakh )	Advantages
1	Steam heating system	Oil fired boiler, coal fired boiled with pneumatically controlled filter mechanism electrostatic precipitator and micro dust collector	2-15	Improvement in quality and efficiency.
2	-do-	Thermo Pac/Other high temperature heating system		-do-
3	Goods packing	Automatic packing machine		-do-
4	Weighing and dispensing	Automatic dye weighing and dispensing system		-do-
5	Colour matching	Computer Colour matching		-do-
6	Quality testing	Light fastness tester		-do-
7		Thin hydro carbon vapors recovery plant for textile printing		-do-
8	Power generation	Diesel Gen set (low fuel consumption with pollution control canopy)		-do-

#### Quality Control Equipment

SI. No.	Activity	Technology Need	Cost (Rs. in lakh )	Advantages
1	Quality testing	PH Meter	0.10-0.75	To maintain the quality.
2	-do-	Wash fastness tester		-do-
3	-do-	Perspiration fastness tester		-do-
4	-do-	Rubbing fastness tester		-do-
5	-do-	Grey scales		-do-

6	-do-	Electronic balance		-do-
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### Textile Processing.

S. No.	Activity	Technology Need	Cost (Rs. in lakh)	Advantages
1	Textile Processing	Bio-mass Gasifier based water boiler.	1 machine	Operated by natural fuel, advantageous in comparison to the diesel fired boiler.  Environment friendly and easy to operate. Small investment and economic.

xxxv). **Wooden furniture**

xxxvi). **Mineral Water Bottle**

xxxvii) **Paints, Varnishes, Alkyds and Alkyd products**

#### a) **Paints**

Sl. No.	Activity	Technology Need	Cost (Rs. in lakh )	Advantages
1	Manufacturing	Basket Mill	1.50	Faster production; Fast shades changeover; Less energy consumption; Lower maintenance cost;
		Twin Shaft Dispenser	5	Faster production; Less energy consumption;
		Tinter Dispensing System	7.50	Quick response to orders; Consistent quality; Better shade reproducibility;
		Electronic balances	0.75	Accurate weighment, consistent quality improved yield.
		Automatic/Semi-Automatic Filling machines	2.25	Accurate weighment, faster production. improved yield.
		D.M. Water Plant	0.75	Improved quality; Reproducible Quality; Better shelf-life;
		Transfer Pumps	1.65	Reduce wastages; Reduce cost; Faster production;
2	Technology	Powder Coatings	25.00	Eco-friendly product; Better corrosion resistance; No fire/health hazards;
		Electrode position	15.00	Eco-friendly product; Better corrosion resistance; No fire/health hazards;

3	Quality control	Computerised Colour matching system	6.50	Consistent quality; Faster production; Optimum pigments usage; Cost reduction; Faster shade development; Better customer service;
		Electronic balances	0.75	Accurate and quicker weighment.
		Replacement by more accurate instruments	2.50	Overall improved quality Overall improved quality

**b). Varnishes, Alkyds and Alkyd products**

SI. No.	Activity	Technology	Cost (Rs. in lakh )	Advantages
1	Manufacturing Process	& Reaction kettle (closed) with temperature controller,	2.40	a) Lower Process Losses.
2.	Settling of unreacted particles	pressure controller & agitator  Settling Tank	0.60	b) Lower Energy consumption.  c) Better quality while low heating avoids decomposition of material.  d) Economics will be better & viability increases.  e) Un-reacted material settles down & separated from bottom, quality will be better finally.  f) Product is comparable with international standards  i.e. low cost of production & Better quality of product.

**xxxviii).Agricultural Implements and Post Harvest Equipment.**

Cross-referencing of technology for this sub-sector may be taken from General Engineering Works at Sl. No. XXVI, Forging and Hand Tools at Sl. no. XXIV, Foundry at Sl. no. XXV and Auto parts and components at Sl. no. XXI.

**xxxix). Beneficiation of Graphite and Phosphate.**

**xxxx). Khadi & Village Industries.**

**a) Palm based Industry.**

SI. No.	Activity	Technology Need	Cost (Rs. in lakh )	Advantages
1	Neera Processing	Poly-packing and quality control machines.	14.50	Increase of self-life of Neera and hygienic

				<p>packaging.</p> <p>To avoid spoilage of Neera.</p> <p>To increase the sales</p> <p>Ready to serve natural nutritional product of palm to customers.</p> <p>To continue the sale of Neera during off-season also.</p>
2	Palm sugar	Stainless steel crystallisers	3.50	Increase of productivity and quality/purity of sugar.
3	Palm confectionery	Cutting Dies/auto wrapping machine  with design intervention (cylinder mould)	4.50	Quality improvement, product diversification, consumer attraction.

#### b) Khandsari Industry

Sl. No.	Activity	Technology Need	Cost (Rs. in lakh )	Advantages
1	Jaggery making	Boilers/power operated crushers, temperature sensing Equipment incorporating thermocouple, reader and buzzer.	1.50	<p>Uniform boiling of juice, time saving, avoid wastage, and quality end product.</p> <p>To know the exact striking temperature of the end product and to avoid spoilage of quality of product.</p>
2	Cane sugar	Boilers (diesel fired), purification plant, packing machinery	6	Uniform boiling of juice, time saving, avoid wastage and quality end product .

#### c) Village Oil Industry

Sl. No.	Activity	Technology Need	Cost (Rs. in lakh )	Advantages
1	Edible oil extraction and oil cake manufacturing	(Improved 10 bolt expeller, 20 plates filtration machine, poly pack machine with quality control Laboratory)	10	<p>To increase the oil extraction production.</p> <p>To increase shelf life of oil and sanitary production, moisture and fat protection, re-seal feature and ease of disposal.</p>

#### d) Fruit & Vegetable Processing/Milk Based Products Industry

Sl. No.	Activity	Technology Need	Cost (Rs. in lakh )	Advantages
1	Processing of fruits and Vegetables, canning, juice processing Jam, jelly, tomato products and dehydration.	Juice pasturizers and deaerators/evaporation and Aroma recovery units/exhausting and retorting equipments/aseptic processing and filling units /cabinet or continuous band driers.	18	To improve the productivity and quality to compete in the market.
2	Beverages/preserves	Automatic can closing machines, hydraulic press, reforming unit, volumetric filter and food beverages Machineries and colloid mill and fully automatic packing and sealing (Pouch/tetra pack) machines, etc.	24	To improve the productivity and quality as well as value addition of the product. The packing technique will satisfy the customer needs and increase the self-life of the product.
3.	Milk Based products	Oil fired boilers, centrifuges (power operated), auto packing equipment, pasteurizing unit with cooling cabinet and quality control lab	18	To maintain the quality and purity of the end products as well as increase the productivity and compete the market with updated packing technology.

#### e) Pulses & Cereals Processing Industry.

Sl. No.	Activity	Technology Need	Cost (Rs. in lakh )	Advantages
1	Papad, Masala making, dal processing, spices and flour mill, etc.	Drier (sun or electrical), Peeling machine, screen machine and balancing machine with ab equipment/pulverisers and packing unit.	10	To serve the product with 100% purity as per consumer need and satisfaction.

#### f) Consumer and Chemical based Industry.

Sl. No.	Activity	Technology Need	Cost (Rs. in lakh )	Advantages
1	Toilet soap machinery	Duplex Plodder (125 kg Per hr.-two Worms in senes)	1.45	Better phase conversion of soap with improved finish-air trapping in soap is minimized.

#### g) Mineral- based Industry.

Sl. No.	Activity	Technology Need	Cost (Rs. in lakh )	Advantages
1	Mineral based industry Brick manufacturing Units Pottery/Ceramic	1. Mechanized Brick, making machine 2. Roller, Execution cutter etc. 3. Deairing Pug Mill 4. Ball Mill 5. Filter Press 6. Grinder 7. Blunger 8. Jigger Jolly 9. Kiln, Heavy duty	12	Increased the production, quality strength, durability Socio-economic improvement  -do-





		controlled grinding, dry mixing dispersion, wet material  Deduction, raw material milling, wet granulation sizing, dry granulation sizing tablet and capsules reclaim.		Sturdy construction for long life; Low heat; Low dust-Low Noise; Uniform particular size; Production capacity: 200 to 2000 Kg per hour Power: 5 HP Weight: 160 kg
13	Tablet (pills)	Mini Tablet Press Output: 40 Tablets per minutes Motor: ¼ HP 3 phase Weight: 100 kg. approx	1.70	Operator safely feature; Precise product output; Automatic pressure release; Fine adjustment of pressure And Tablet weight. Easy changeable and maintenance;
14	Paste/Ointment	Single Head  Rotary Tube (Paste filling and closing (crimping) machine	2.25	25 to 30 tubes per minutes with one operator; No tube-No fill device; Clean elegant sturdy compact design for all standard tube size for different volumes; No dropping; Automatic Injection of filled and sealed tube; Attachment for cleaning of tube by vacuum systems for specific requirement; All operations fully automatic;

**i) Rural Engineering and Bio-technology.**

Sl. No.	Activity	Technology Need	Cost (Rs. in lakh )	Advantages
1.	Wooden product	Lacquer Polishing equipment	2	1.Better finishing. 2.Quality improvement. 3.Labour Intensive. 4.Time saving in mfg.
2.	Wooden furnniture designing	C.A.D. equipments	0.50	-do-

**j) Black Smith.**

Sl. No.	Activity	Technology Need	Cost (Rs. in lakh )	Advantages
1	General fabrication	Powder coating	5	Better finishing, quality improvement, labour intensive, time saving in manufacturing.
2	Agriculture	Forging machine	2	-do-

#### k) Copper & Bell Metal.

Sl. No.	Activity	Technology Need	Cost (Rs. in lakh )	Advantages
1	Ethnic products	Polishing arrangement machine	1	Improved get up.

#### • Aluminum

1	Utensil and utilities	Anodizing machine	5	Improved get up.
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#### m) Electronics

1	Crout designing for home accouliance items	Designing software along with accessories	1	1. Better finishing. 2. Quality improvement. 3. Labour intensive. 4. Time saving.
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#### n) Paper & Fibre Industry

1.	Introduction of effluent treatment plant at the existing handmade paper unit	Individual effluent treatment plant (as per the design suggested by NEERI, Nagpur) details of the machinery and equipments required for a 3 Cu. Mt./Day	10.75 Cost estimates given by NEERI	The pollution supposed to be generated by a handmade paper unit is treated.
2	Usage of Agro residues including the natural fibres in Handmade Paper Industry	1. Boiler  2. Digeser  3. Poucher Washer	3  2  1.50	1. New raw materials such as jute, banana fibre, grasses, sun hemp are used in handmade paper industry  2. The new types of papers can be produced which have national and international demand  3. Water utilization (Banana fibre extracted from waste banana trunks) and making the eco-

		4. Hydrapulper	1.50	friendly products 4. Productivity is increased usage of agro wastes likely to bring the cost down.
3.	Hot drying process	A small drying equipment to dry the Paper with the help of electricity/small boiler	8	1. The present major problem of drying the paper sheets during winter and rainy seasons will be solved. 2. The quality (smoothness and stiffness) of the paper will be maintained. 3. The productivity will be increased. The paper is dried and calendared simultaneously so that the cost of the drying and calendaring will come down .
4.	Solar drying	A solar drier	5	1. The present major problem of drying the paper sheet during winter and rainy season will be solved. 2. Effective utilization of freely available solar energy. 3. The quality (Smoothness and stiffness) of the paper will be maintained. 4. The productivity will increase. The paper is dried and calendared simultaneously so that the cost of the drying and calendaring will come down.
5.	Fibre extraction	Fibre extraction machine( can be used for speedy work and in remote areas also due to which productivity could be increased @ Rs.25000/- per	0.50	1. Presently fibre is extracted by hand methods due to which it is probably

		machine).		<p>limited. The machine will increase the production and increase the earnings of the artisans engaged in the fibre extraction.</p> <p>2. For quantity production newly developed fibre extraction machine will increase the productivity.</p>
6	Conversion of Paper products	Due to in- house conversion facility for handmade paper products units could convert the handmade paper in value added products	2.40	<p>1. Presently handmade paper units has to get the work done from outside resources for value added products like photo frame, Dairies, etc.</p> <p>2. Due to in house as per conversion facilities it would be easy for the units to make value added items as per requirements of customers.</p>

**o ) Khadi Industries-Handloom**

1.	Replacement of 8 spindle charkha NMCs		1.25 (1 unit of 25 NMC's)	<p>Increased productivity,</p> <p>Better quality of yarn,</p> <p>Increased earnings.</p>
2.	Jacquard looms	Loom with the Jacquard devices	3 (1 unit of 10 looms)	<p>Better design ,</p> <p>Extensibility,</p> <p>Higher productivity,</p> <p>Reduced workmanship</p> <p>Operational ease.</p>
3.	Cotton processing Dyeing	Semi automatic Jigger machines	2	<p>Higher productivity,</p> <p>Assured quality,</p> <p>Reduces drudgery,</p> <p>Low production cost.</p>
4.	Cotton processing	Screen developing devices	2.50	Inclusion of new

	Printing			design range, enhances acceptance.
5.	Pre-spinning Equipments (Replacement carding machine) of	Improved LMW type mini carding	15	Improved quality of raw material. Reduces cost of raw material. Less overheads
6	Quality Control Equipments	Quality testing Equipments for -Fibre testing for maturity, staple length etc. -Yarn testing for strength, twist, count, hairiness etc -Cloth testing for threads per inch, strength, fastness etc.	3	Quality assurance at production level, low product rejection.

#### xxxxi. Coir Board

Sl. No.	Activity	Technology Need	Cost (Rs. in lakh )	Advantages
1	Semi automatic Loom	<ul style="list-style-type: none"> <li>Semi automatic Loom fitted with a motor</li> <li>Bobbin winding machine</li> <li>cops winding machine</li> </ul>	1.5 for one meter, 5 for four meter wide loom, 1 0.35	Higher production of improved quality with least drudgery.
2	Anugraha Loom	Improved mild steel handloom	0.20 for one meter wide loom	Women can operate with least effort.
3	Quality of the raw material	PH meter, analytical balance, moisture balance, conditioning chamber, UTM and glass wares	33.5	To ensure products with improved and uniform quality.
4	Motorized Traditional Ratts (MTR)	Traditional Ratts fitted with motor	0.25 HP 0.35 each	Uniform twist with reduction in drudgery, enhanced daily income.
5	Manufacture of softened coir products	Mixing units, compressor, moulds, stitching equipment	6.5	Diversified uses like cushioned seats for school children and other new applications.
6	Garden articles from coir & natural rubber	Sheeting machine, compressor, hydraulic press, moulds, mixing units for latex and chemicals with ball mill, drier	22.50	Environment friendly plant growing media.
7	Coir pith products	Coir pith processing machine	4	Large accumulation of coir pith gets value

				addition.
8	Coir yarn spun on automatic spinning machine	Slivering machine, spinning machine	10	Modernisation of the spinning sector.
9	Rubberized Coir Manufacturing	Rubberized Coir Manufacturing Machine	100	Value addition in Rubberized Coir sector.
10	Curled Coir	Hackling machine, curling machine	15	Value addition at raw material stage.

**xxxxii . Steel Re rolling and/or Pencil Ingot making Industries.**

<b>Sl. No.</b>	<b>Activity</b>	<b>Technology Need</b>	<b>Cost (Rs. in lakh )</b>	<b>Advantages</b>
1.	Reheating	Improved design of oil fired pusher hearth re-heating furnace (RHF) with high efficiency recuperator using latest CFD (Computational Fluid Dynamics) based software.	50-125 (Depending on level of revamping)	Saving in fuel for reheating, electrical energy in rolling, reduced burning loss, and better quality of rolled product.
2 (a)	Reheating	Pulverized Coal fired Reheating furnace using recuperator for pre-heating combustion air with improved burner design and coal handling facility.	25-35	Reduction in specific coal consumption, reduced dust/SPM generation and better operating environment.
2(b)	Reheating with the facility for producing 'producer gas'	Producer gas fired reheating furnace with high efficiency recuperator. Gas Producers can be set up at unit level without removal of tar.	50-75	Clean coal combustion will improve environment. Enhanced efficiency of gas combustion in comparison to lump coal combustion on grate.
3	Material handling	Hot charging of Ingot/Billet in RHF for rolling having facility such as <ul style="list-style-type: none"> <li>• Transfer tables/transfer trolley</li> <li>• Overhead crane</li> </ul>	150-160 (total)	More than 50% saving in thermal energy for reheating of steel for rolling.
4	Melting	New design of Induction furnace having two coils with independent control panel, heat exchanger equipment with provision for additional burners and application of harmonic filters.	80-100	Saving in cycle time and power consumption due to preheating of charge, facility to produce clean steels equivalent in quality to electric arc and ladle furnace combination, improved power

				factor up to 1.0 (unity) with saving in specific energy consumption for melting.
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#### xxxxiii. Zinc Sulphate

Sl. No.	Activity	Technology Need	Cost (Rs. in lakh)	Advantages
01.	Zinc Sulphate Mono hydrate	Spray Dryer	50	Energy Saving, Quality improvement & environment friendly
02.	Zinc Sulphate Hepta hydrate	Flash Dryer (With or Without agitator)	30	Energy efficient reduces processing losses, Quality improvement & environment friendly

#### xxxxiv. Welding Electrodes

S.No.	Activity	Technology Need	Cost (Rs. in lakh)	Advantages
1	Manufacturing of Welding Electrodes	Complete copper coating line with annealing spooling & drawing capable to produce continuous welding wires	25	Waste minimization, Energy saving, Quality improvement and environment friendly. There is a global trend to shift to continuous welding wires to reduce wastage (unused end pieces in the case of welding electrodes). Wires also save 'changing time of electrodes.

#### xxxxv. Sewing Machine Industry.

Sl. No.	Activity	Technology Need	Cost (Rs. in lakh)	Advantages
1.	Melting Section	Divided blast copula with pollution control devices and electrical.	Up to 50	15% coke saving, better melt quality, higher tapping temperature, lower emissions, reduced air pollution.
		Induction furnace with cooling tower and water treatment plant with or without computerised control panel	Up to 25	Flexibility to produce ferrous castings of all grades, flexibility for charge mix selection, best melt quality, eco-friendly.
		Induction ladle refining furnace	Up to 40	Value added casting, eco- friendly.
		Skip charger for copula	Up to 1.50	Ease of charging, reduced labour cost, better control.



		Pouring / treatment ladles as per IS: 4475, 4476	Up to 1	Quality assurance, increased safety for workmen.	
		Carbon Manganese, Silicon Apparatus for testing on shop floor	Up to 5	Quality assurance, control on elements.	
		Continuous casting conveyor system	Up to 10	Improved productivity, better quality castings.	
		Gas fired pit furnace	Up to 1.50	Eco- friendly, higher tapping temperature, better melt quality.	
		Hydraulic- Pneumatic devices for knocking out cores.	Up to 5	Quick knocking of cores, cleaning and smoothening of surface.	
		Overhead Crane	Up to 10	Quick and safe material handling.	
		Aluminum Pressure Die casting machine along with tooling.	Up to 30	High production, improved quality, low machining cost.	
		Investment Casting Plant	Up to 60	High Production, improved quality, low machining cost and higher productivity.	
2.	Utility Section	Gas based generating set	Up to 30	Reduced air pollution, energy saving.	
3.	Quality Control Lab, i.e. Metallurgic-al testing / lab testing / quality control equipment.	Metallurgical testing:	1.50 – 10	Quality Assurance, Defect analysis, diversification e.g. SG Iron production equipment essential to meet process control requirements.	
		Metallurgical Microscope with image analyzer, photographic attachment sample preparation machine			
		Strohlien apparatus, Muffle furnace, Hot plate, glass ware etc.	Up to 1		
		UTS	Up to 3		
		Spectrometer /mass spectrometer	Up to 25		
		Profile projector	Up to 20		
		Hardness Tester	Up to 1		
		Izod & charpy Impact testing machine	Up to 0.75		
		Ultrasonic testing machine	Up to 3		
		Magnaflux testing machine	Up to 1.50		
		Sand testing equipment	2- 8		Reduced defective casting, consistency in quality- reduction in additives cost, better cast surface finish.
		Universal Sand Strength testing machine, sieve shaking device, compatibility scale, rapid moisture teller, permeability meter, mold / core hardness tester, muffle furnace, wash bottles, Stirrer / shaker, hotplate, vortex shaker, centrifuge etc. shatter index machine high tensile peel back, scratch hardness tester, stick point .			
		Metal Graphic Laboratory	Up to 10		
	Dimensional inspection instruments, surface Plate for making height gauge, Micrometer, Vernier, Profile projector with Digital reading system, Dial & Telescopic Gauges, Floating care age dia measuring machine, 3 co-ordinate measuring machine	Up to 50	Quality assurance, Defect analysis		

		Gauges and testing equipments i.e. Snap, Plug, Ring, Thread plug gauges, Test Rigs and receiver gauges as per BIS standards	Up to 25	Quality assurance, defect analysis.
		Process control equipment' Carbon equivalent meter B) Pyrometer (Optical)	Up to 2 Up to 0.20	Consistency in quality, reduced defective casting, cost saving.
4.	Design & development Section	Computers and CAD Software, simulation software with printers / plotters / pro-engineering / Catia.	Up to 25	Computerisation of design and development to gain efficient and fast working.
5.	Moulding / Core section	Intensive mixers.	Up to 5	Reduced defective casting, better cast surface finish, reduction in additive cost, reduced air pollution.
		Wax Injection Machines	Up to 10	Requirement for modern investment casting process.
		De-waxing oven	Up to 2	Requirement for modern investment casting process.
		Moulding boxes as per Indian Standard 1280 & 10518.	Up to 3	Better dimensional accuracy, higher productivity.
6.	Heat treatment Section	High Frequency Induction Hardening Machine / Equipment	Up to 10	Higher productivity, consistency in quality, eco- friendly.
		Case Carburising unit	Up to 5	Enhancement in life of parts, upgradation of quality.
		Rotary retort muffle furnace.	Up to 5	Enhancement in life of parts, upgradation of quality.
		Handling equipment overhead crane	1.30-3	Reduced labour cost, higher productivity, consistency in quality.
	6.1 Quenching.	i) Water quenching tank-with Heat exchanger unit	Up to 0.75	Process requirement to achieve quality.
		ii) Oil quenching tank-fitted with oil heating and heat exchanger to obtain desired cooling rates for hardening.	Up to 1.50	Process requirement to achieve quality.
		iii) Air quenching fans.	Up to 0.30	Process requirement to achieve quality.
7.	Machine Shop / Production shop / Tool Room	CNC Milling machine	Up to 30	Higher productivity, dimensional accuracy,
		CNC Lathe Machine	Up to 15	less skill requirement, consistency in quality.
		Capstan lathe / Turret lathe	Up to 3	
		Radial Drill	Up to 5	
		Planner	Up to 3	
		Shaper	Up to 3	
		Jig Boring machine.	Up to 60	
		Hydraulically Honing machine.	Up to	

			20	
		Hydraulic/Pneumatic feed CNC Cylindrical/grinder machine.	Up to 25	Higher productivity, dimensional accuracy, less skill requirement, consistency in quality.
		Hydraulic or pneumatic feed Center less grinding machine.	Up to 30	Higher productivity, dimension accuracy, less skill requirement, consistency in quality.
		Hydraulic or pneumatic feed internal bore grinding machine.	Up to 30	
		Automatic Special purpose machine (SPM) for turning, boring, grinding, multi hole drilling, tapping, thread rolling machine, milling and double stroke heading machine	Up to 20	Higher productivity, dimension accuracy, less skill requirement, consistency in quality.
		CNC machining Centre	Up to 60	
		VMC & HMC Machining Centre	Up to 60	
		Numerical Control Welding machine	Up to 20	
		SPM Impression rolling machine (for decorative purposes)	Up to 15	
		Power press with automatic feeding arrangement	Up to 20	
		Knuckle Joint Press	Up to 25	
		Toggle joint press	Up to 40	
		Hydraulic press	Up to 50	
		CNC wire Cut machine	Up to 50	
		EDM machine	Up to 50	
		Deep hole drilling machine	Up to 40	
		Optical Profile grinder	Up to 30	
		Plastic injection Moulding machine	Up to 25	
		Automatic Mixture machine	Up to 12	
		Universal wood working machine	Up to 0.50	Higher productivity, improved quality
		Chain Mortisers	Up to 2	Higher productivity, improved quality.
		Surface Polishers electrically operated.	Up to 1	Higher productivity, improved quality
		Belt Sander machines.	Up to 5	Better surface finish, high productivity.
8.	Pattern shop	Drilling machine	Up to 1	Higher productivity, consistency in quality, narrower casting dimension, excellent finish, better productivity.
		Pantograph	Up to	

			2	
		Disc and Bobino Sand Grinder	Up to 3	
9.	Fettling Section	Shot, blasting machine.	Up to 5	Better surface finish and quality improvement  Requirement to achieve quality.
		Pedestal grinder.	Up to 0.50	
		Swing frame grinder.	Up to 0.25	
		Painting booth.	Up to 0.50	
10.	Electroplating / painting.	Rotomatic Electroplating Plant.	Up to 25	Higher productivity, better quality.
		Computerised Electroplating plant.	Up to 70	Higher productivity, better quality.
		Centrifugal finishing machine.	Up to 20	Higher productivity, better quality.
	>	Vibrator finishing machine.	Up to 5	Higher productivity, better quality.
		SPM surface finishing machine.	Up to 5	Higher productivity, better quality.
		SPM Surface lapping machine.	Up to 5	Higher productivity, better quality.
		Electro polishing machine.	Up to 10	Higher productivity, better quality.
		Electrostatic powder coating plant with conveyors.	Up to 50	Higher productivity, better quality, and eco-friendly.

## APPENDIX –II

### Small Industries Development Bank of India (SIDBI )

#### List of Primary Lending Institutions (PLI)

##### 1. BANKS

A. State Bank Group

1. State Bank of India\*\*
2. State Bank of Indore
3. State Bank of Mysore
4. State Bank of Bikaner & Jaipur

##### B. Public Sector Banks

1. Andhra Bank
2. Bank of Baroda
3. Bank of India
4. Canara Bank
5. Central Bank of India
6. Corporation Bank
7. Indian Overseas Bank
8. Punjab National Bank
9. Punjab & Sind Bank
10. Union Bank of India
11. UCO Bank
12. Vijaya Bank
13. Bank of Maharashtra
14. United Bank of India
15. Oriental Bank of Commerce
16. Indian Bank

17. Allahabad Bank

**C. Private Sector Banks**

1. City Union Bank Ltd.
2. Karnataka Bank Ltd.
3. Tamil Nadu Mercantile Bank Ltd.
4. Bank of Rajasthan Ltd.
5. Bharat Overseas Bank
6. Karur Vysya Bank Ltd.
7. J & K Bank Ltd.
8. United Western Bank
9. ING Vysya Bank
10. UTI Bank Ltd.
11. Federal Bank Ltd.
12. Catholic Syrian Bank

**D. SFCs**

1. Gujarat State Financial Corporation
2. Haryana Financial Corporation
3. J & K State Financial Corporation
4. Madhya Pradesh Financial Corporation
5. Maharashtra State Financial Corporation
6. Orissa State Financial Corporation
7. Punjab Financial Corporation
8. Tamil Nadu Industrial & Investment Corporation Ltd.
9. Uttar Pradesh Financial Corporation
10. West Bengal Financial Corporation
11. Karnataka State Financial Corporation
12. Andhra Pradesh State Financial Corporation
13. Rajasthan State Industrial Development & Investment Corporation

**E. Other Institutions:**

The Small Industries Development Bank of India(SIDBI)

\*\*SBI has been exempted from executing the GA. However, it furnishes an undertaking in the form of certificate along with each claim.

**• Urban Co-operative Banks co-opted by the SIDBI under the TUFs operated by the Ministry of Textiles**

SI. No.	Name of the Urban Co-operative Banks*	Head Office
1.	Shamrao Vithal Co-operative Bank	Mumbai
2.	Rupee Co-operative Bank	Pune
3.	Sangli Urban Co-operative Bank Ltd.	Sangli
4.	Surat People's Co-operative Bank Ltd.	Surat
5.	Kalupur Commercial Co-operative Bank Ltd.	Ahmedabad
6.	Rajkot Nagarik Sahakari Bank Ltd.	Rajkot
7.	Cosmos Co-operative Bank Ltd.	Pune
8.	Abhyudaya Co-operative Bank Ltd.	Mumbai
9.	Saraswat Co-operative Bank Ltd.	Mumbai
10.	Mumbai Mercantile Co-operative Bank Ltd.	Mumbai.
11.	The A.P. Mahesh Co-operative Urban Bank Ltd.	Hyderabad
12.	The Ahmedabad Mercantile Co-operative Bank Ltd.	Ahmedabad
13.	The Surat Textiles Traders Co-operative Bank Ltd.	Surat
14.	Janata Co-operative Bank Ltd.	Nasik
15.	Textile Co-operative Bank Ltd.	Bangalore
16.	Ichalkaranji Janata Sahakari Bank Ltd.	Kolhapur
17.	The Sarvodaya Sahakari Bank Ltd.	Surat
18.	Surat National Co-operative Bank Ltd.	Surat

19.	Solapur Nagari Audyogik Sahakari Bank Niy.	Solapour
20.	The Bharat Co-operatives Bank (Mumbai) Ltd.	Mumbai
21.	The Gujarat Industrial Co-operative Bank Ltd.	Surat
22.	Prime Co-operative Bank Ltd.	Surat
23.	The Nasik Merchants Co-operative Bank Ltd.	Nashik
24.	Apna Sahakari Bank Ltd.	Mumbai
25.	Dombivili Nagari Sahkari Bank Ltd.	Mumbai
26.	The Surat District Co-operative Bank Ltd.	Surat
27.	The Zoroastrian Co-operative Bank Ltd.	Mumbai
28.	Parasik Janata Sahakari Bank Ltd.	Thane
29.	The Varchha Co-operative Bank Ltd.	Surat
30.	Shree Warana Sahakari Bank Ltd.	Warnanagar
31.	Jalgaon Janata Sahakari Bank	Jalgaon
32.	The Kapol Co-operative Bank Ltd.	Surat
33.	The Shirpur Peoples Co-operative Bank Ltd.	Shirpur((Dhule)
34.	Rajkot Nagarik Sahakari Bank Ltd.	Surat
35.	Shri Veershaiv Co-operative Bank Ltd.	Kolhapur
36.	The Panchsheel Mercantile Co-operative Bank Ltd.	Surat
37.	The Dhule Vikas Sahakari Bank Ltd.	Dhule
38.	The Ichalkaranji Urban Co-operative Bank Ltd.	Ichalkaranji(Kolhapur)
39.	The Udhna Citizen Co-operative Bank Ltd.	Surat
40.	The Vita Merchants Co-operative Bank Ltd.	Vita(Sangli)

**\* The above Urban Co-operative Banks will have to sign a “General Agreement” with either of the nodal agencies i.e. the SIDBI or the NABARD for claiming reimbursement of capital subsidy under the CLCSS.**

• **Other Govt. Agencies**

The National Small Industries Corporation Ltd. (NSIC)

**National Bank for Agriculture & Rural Development( NABARD)**

List of Primary Lending Institutions for the CLCSS

Sl. No	Name of the State	State Serial	Name of the PLI
1	Haryana	1	Haryana State Cooperative Apex Bank Ltd. Chandigarh

7			
8			
9			
10			
11	<b>Punjab</b>  (1 SCB, 6 CCBs, 1 SCARDB, 1 PCARDB, 2 RRBs)	1	The Punjab State Cooperative Bank Ltd, Chandigarh
12		2	The Punjab State Cooperative Agri Development Bank, Ltd, Chandigarh
13		3	The Nawanshahr Central Cooperative Bank Ltd, Nawanshahr
14		4	Patiala Central Cooperative Bank
15		5	Sangrur Dist Central cooperative Bank Ltd
16		6	Jalandhar Dist Central Cooperative Bank Ltd
17		7	Amritsar Dist Central Cooperative Bank, Ltd
18		8	Ludhiana Dist Central Coop Bank Ltd
19		9	The Ghannaur PCARDB, Ltd, Ghannaur
20		10	Malwa Gramin Bank
21		11	Punjab Gramin Bank (merger of Gurdaspur Amritsar Kshetriya Gramin Bank, Shivalik Kshetriya Gramin Bank, Kapurthala-Ferozepur Kshetriya Gramin Bank)
22	<b>Himachal Pradesh</b>  (1CCB, 1 PCARDB, 2 RRBs)	1	The Kangra Central Cooperative Bank, Ltd, Kangra
23		2	The Kangra PCARDB Ltd, Kangra
24		3	Himachal Gramin Bank
25		4	Parvatiya Gramin Bank
26	<b>Jammu &amp; Kashmir</b>  (1 CCB)	1	The Baramulla Central Cooperative Bank Ltd, Baramulla
27	<b>Uttar Pradesh</b>  (1 SCARDB, 1 CCB, 6 RRBs)	1	UP Sahakari Gram Vikash Bank, Ltd
28		2	The Muzaffarnagar Dist Central Cooperative Bank, Ltd,
29		3	Vidur Gramin Bank
30		4	Shahjahanpur Kshetriya Gramin Bank
31		5	Avadh Gramin Bank
32		6	Bareilly Gramin Bank
33		7	Prathama Gramin Bank
34		8	Kashi Gomti Samyut Gramin Bank
35	<b>Uttaranchal</b>	1	Pithoragarh Kshetriya Gramin Bank

		2	Alaknanda Gramin Bank
		3	Nainital Almora Kshetriya Gramin Bank
38	<b>Jharkhand</b> (1 CCB)	1	The Dhanbad Dist Central Cooperative Bank
40	<b>West Bengal</b> (4CCBs, 1 PCARDB, 2 RRBs)	1	The Vidyasagar Central Cooperative Bank Ltd, Vidyasagar
41		2	Bankura Dist Central Coop Bank Ltd, Bankura
42		3	Burdhaman Dist Central Coop Bank Ltd, Burdhaman
43		4	Hoogly DCCB Ltd
44		5	The Ghatal PCARDB, Ltd, Ghatal
45		6	Gaur Gramin Bank
46		7	Sagar Gramin Bank
47	<b>Orissa</b> (1 SCB, 1 CCB)	1	The Orissa State Cooperative Bank, Ltd, Bhubaneswar
48		2	The Koraput Central Cooperative Bank, Ltd, Koraput
49	<b>Andhra Pradesh</b> (1 CCB, 8 RRBs)	1	The Eluru Dist Central cooperative Bank, Eluru
50		2	Shri Venkateshwar Gramin Bank
51		3	Chaitanya Gramin Bank
52		4	Pinakini Gramin Bank
53		5	Rayalseema Gramin Bank
54		6	Sree Anantha Graeen Bank
55		7	Kanakdurga Gramin Bank
56		8	Manjira Gramin Bank
57		9	Godavari Gramin Bank
58	<b>Rajasthan</b> (1 CCB, 1 PCARDB, 2 RRBs)	1	The Sikar Central Cooperative Bank, Ltd, Sikar
59		2	The Chittorgarh PCARDB, Ltd, Chittorgarh
60		3	Jaipur Nagaur Anchalik Gramin Bank
61		4	Baroda Rajasthan Grameena Bank
62	<b>Gujarat</b> (2 CCBs, 2 RRBs)	1	Shri Rajkot Dist Central Cooperative Bank Ltd, Rajkot
63		2	The Amreli Jilla Madhya Sahakari bank, Maryadit, Amreli
64		3	Jamnagar Gramin Bank
65		4	Dena Gujarat Gramina Bank ( new RRB formed by amalgamation of Kutch Gramin Bank, Banaskantha- Mehsana GB, Sabarkantha Gandhinagar GB)



66	<b>Maharashtra</b> ( 1 CCB)	1	The Satara Dist Central Cooperative Bank
67	<b>Madhya Pradesh</b> (1 CCB, 1 PCARDB, 1 RRB)	1	The Khargone Jilla Sahakari Bank, Maryadit, Khargone
68		2	The Indore Jilla Krishi aur Gramin Vikas Bank Maryadit
69		3	Vidisha Bhopal Kshetriya Gramin Bank
70	<b>Karnataka</b> (2 CCBs, 2 PCARDBs, 4 RRBs)	1	The Kodagu Dist Central Cooperative Bank Ltd, Medikeri8
71		2	The Bijapur Dist Central Cooperative Bank
72		3	The Honnavar PCARDB Ltd, Honnavar
73		4	The Channagiri PCARDB Ltd, Channagiri
74		5	Krishna Gramin Bank
75		6	Pragati Gramin Bank(new RRB formed by amalgamation of TungabhadraGrameena Bank, Chitradurga Grameena Bank, Sahyadri Grameena Bank, Kolar Grameena Bank )
76		7	Karnataka Vikas Grameena Bank (new RRB formed by amalgamation of Malaprabha Gramin Bank, Netravati Gramin Bank, Bijapur Gramin Bank, Varada Gramin Bank )
77		8	Visvesvaraya Gramin Bank
78	<b>Tamil Nadu</b> (1 CCB, 1 PCARDB, 2 RRBs)	1	The Dharmapuri Central Cooperative Bank, Ltd, Dharmapuri
79		2	The Perundurai PCARDB, Ltd
80		3	Adhiyaman Gramin Bank
81		4	Pandyan Gramin Bank
82	<b>Pondicherry</b> (1 SCB)	1	The Pondicherry State Cooperative Bank Ltd, Pondicherry
83	<b>Kerala</b>	1	The Kerala State Cooperative Agri & Rural Development Bank Ltd, Thiruvananthapuram

93		17	Chittur PCARDB Ltd
		18	Ottapalam PCARDB Ltd
94		19	Mannarkkad PCARDB Ltd
95		20	Mozhikode PCARDB Ltd
96		21	Badagara PCARDB Ltd
97		22	Quilandy PCARDB Ltd
98		23	Thaliparamba PCARDB Ltd
99		24	North Malabar Gramin Bank
100		25	South Malabar Gramin Bank
101			
102			
103			
104			
105			
106			
107			
108	<b>Chhatishgarh</b> ( 1 RRB)	1	Durg Rajnandgaon Gramin Bank
109	<b>Goa (1 SCB)</b>	1	Goa State Cooperative Bank
110	<b>Commercial Banks</b>	1	Allahabad Bank
111		2	Indian Bank
112		3	Punjab National Bank
113		4	Punjab & Sind Bank
114		5	State Bank of India
115		6	State Bank of Patiala
116		7	The Nainital Bank Ltd
117		8	The South Indian Bank Ltd
118		9	Karnataka Bank Ltd.
119		10	United Bank of India
120		11	Syndicate Bank

(To be stamped as an Agreement)

Agreement for Financial Assistance under Credit Linked Capital Subsidy Scheme for Technology Upgradation of the Small Scale Industries(CLCSS)

This Agreement made at.....on this .....day of..... in the year Two thousand.....between M/s.....a Public/Private Limited Company/Proprietary concern, incorporated under the Companies Act of 1956 and having its Registered Office at.....and being an industrial concern hereinafter called the Beneficiary(which expression shall unless repugnant to the context or meaning thereof include its successors and assigns) of the One Part:

OR

FOR PARTNERSHIP FIRM

(i) Shri.....son of.....aged..... years residing at.....

(ii) Shri.....son of.....aged..... years residing at.....

(iii) (i) Shri.....son of.....aged..... years residing at.....

carrying on business in partnership in the firm name and style of.....and having their office at.....(herinafter referred to as 'Beneficiary' which expression shall, unless it be repugnant to the subject or context thereof, include its/his/her/their legal representatives, heirs, administrators, successors and assigns) of the One part.

AND

.....(hereinafter referred to as the financing institution/bank/which expression shall unless repugnant to the context or meaning thereof include its successors and assigns) of the Other part.

WHEREAS

1. The Government of India appointed \_\_\_\_\_ as Nodal Agency (hereinafter referred to as the Agent) for channelising Credit Linked Capital Subsidy for Technology Upgradation of the Small Scale Industries under Ministry of SSI & ARI, Govt. of India (hereinafter referred to as " the Scheme") and permitting the financial institution/ bank under the scheme for claiming capital subsidy on the term loan sanctioned and disbursed by financing institution/ bank to the beneficiary.

2. The beneficiary has requested the financing institution/bank for providing assistance under the Scheme to the extent of Rs.....(Rupees.....only) for setting up a project under small scale industries, which the financing institution/bank has agreed to lend in proportion to the investment made or to be made in purchase of machineries for technology upgradation programme by the Beneficiary as per terms and conditions provided in the Agreement executed between the financing institution/bank and the Beneficiary.

3. The Agent has agreed to act as nodal agency for Government of India for channelising disbursement of capital subsidy sanctioned to the Beneficiary by the financing institution /bank, and the parties hereto desire to enter into an agreement for the said purpose, being these presents providing for the terms hereinafter appearing.

NOW THESE PRESENTS WITNESS AND IT IS HEREBY AGREED BY AND BETWEEN THE PARTIES HERETO AS FOLLOWS:

1. The Beneficiary, hereby , covenants:

a) That the Beneficiary will comply with and faithfully observe all terms and conditions of the said Scheme and also all the subsequent amendments and modifications and additions thereto together with the conditions of the sanction

of the said financial assistance.

b) That the Beneficiary will allow the officers of the Agent and/or the Government of India or any other person or persons authorized, by the Agent or by Government of India or by the Governing & Technology Approval Board(GTAB) to inspect the work for which the capital subsidy has been granted and also the machines, plant, appliances, tools, equipments, etc. for the procuring of which the subsidy has been granted and will furnish such information concerning the machines, plant implements, etc., for procuring of which the capital subsidy has been granted or concerning the matter connected with the capital subsidy or incidental thereto as the Agent or the GTAB or their nominees may, from time to time require.

c) That the Beneficiary will not change the place or location of the industrial unit entirely or partly, nor enter into partnership with any one, or change its constitution by merger, amalgamation or in any manner nor the Beneficiary effect disposal of fixed capital investment without the express prior permission of the Agent in writing.

d) The Beneficiary unit shall remain in commercial production for a period of at least three years after installation of eligible plant and machinery on which subsidy under CLCSS has been obtained, otherwise, the entire amount of subsidy along with the interest to be charged from the date of disbursal to the date of refund will have to be refunded by the Beneficiary unit. This is except in cases where the unit remains out of production for short periods not exceeding three months due to reasons beyond its control such as shortage of raw material / power, etc. to the satisfaction of the lending institution / concerned PLI.

2. It is further hereby agreed and declared by and between the parties hereto, that in any of the following cases, namely,

a) where the Beneficiary has obtained the capital subsidy by misrepresentation as to an essential fact, or by furnishing of false information; or,

b) where the Beneficiary fails to furnish the prescribed statement or information which it is called upon to furnish,

If the Beneficiary commits breach of any one of the covenants herein contained or of the terms and conditions of the Scheme as amended from time to time, the Beneficiary shall refund the same forthwith to the financing institution/bank together with interest at the then prevailing prime lending rate of financing institution/bank.

3. The interpretation/clarification/decision of agent or GTAB regarding the eligibility, subsidy and any other benefits of a unit/borrower under the Scheme, either before or after release of the loan facility by the financing institution/bank shall be binding on the beneficiary and the beneficiary will not raise any objection either against agent/financing institution/ bank.

4. It is hereby further agreed and declared that the stamp duty chargeable on these presents, shall be paid and borne by the Beneficiary and that the Beneficiary will also be liable to bear the expenses, if any, incurred by enforcing the terms and conditions of these presents.

IN WITNESS WHEREOF the Beneficiary has caused its common seal to be affixed hereto and to duplicate hereof on the day, month and year first hereinabove written and the financing institution/bank has caused these presents and the said duplicate to be executed by the hand of Shri.....(Name & Designation) of bank, as hereinafter appearing.

THE COMMON SEAL OF.....

LIMITED has pursuant to the Resolution of its Board of Directors passed in that behalf on the.....day of ....hereunto been affixed in the presence of Shri .....and Shri.....Shri....., Director who have signed these presents in token thereof and Shri.....Secretary\*/Authorised\* person who has signed/countersigned the same in token thereof.

SIGNED AND DELIVERED BY the within named bank by the hand of Shri.....(Name & Designation), an authorized official of financing institution/bank.

OR

IN WITNESS WHEREOF the partners of the Beneficiary have set their respective hand hereto and to a duplicate

hereof on the day, month and year first hereinabove written and bank has caused these presents and the said duplicate to be executed by the hand of Shri.....(Name & Designation) of financing institution/Bank as hereinafter appearing.

1)\* SIGNED AND DELIVERED BY the within named Shri.....Partner of.....the within named Partnership Firm.

2)\* SIGNED AND DELIVERED BY the within named .....By the hand of Shri.....in pursuance to the Board Resolution dated and common seal has been affixed in presence of Shri.....who has signed in token thereof.

SIGNED AND DELIVERED BY the within named FI/NSIC/Bank/SFC by the hand of Shri.....authorised official.

(\*whichever is applicable).

**Note: Relevant Board Resolution authorizing the person(s) to execute the document on behalf of the Beneficiary has to be submitted with the Agreement.**

#### APPENDIX-IV

Application form for assistance under Credit Linked Capital Subsidy Scheme for Technology Upgradation of the Small Scale Industries(CLCSS)

(To be submitted in triplicate, Photocopies may be used)

1. Name of the firm/company.....
2. Constitution (Proprietary concern, partnership firm, Pvt. Ltd. Co., Public Ltd. Co., Co-op. Societies)
3. Name(s) of sole proprietor/partners/directors.....
4. Category of borrower(women entrepreneur, SC/ST, Physically handicapped, Ex-servicemen, etc.)
5. Registered Office Address .....Pin.....  
Phone No.....Fax.....  
E-mail.....
6. Factory Address.....Pin.....  
Phone..... Fax.....  
E-mail.....
7. Location of factory – Backward or Non-backward area.....
8. Date of incorporation/commencement of production.....
9. Product(s)/Sub-sector.....
10. Installed capacity.....
11. Past Performance (for last three years on the basis of audited balance sheets – in respect of existing units. In respect of new units projections for next three years may be given).

**(a) Financial position**

(Rs. In lakh)

		Financial Year (Y-1)	Financial Year (Y-2)	Financial Year (Y-3)
I	Net block			
II	Current assets			
III	Current liabilities			
IV	Term Loan			
V	Share Capital			
VI	Reserve & Surplus (less accumulated losses)			
VII	Networth-(V+VI)			

**(b) Working results**

(Rs. In Lakh)

		Financial Year (Y-1)	Financial Year (Y-2)	Financial Year (Y-3)
I	Total Sales			
II	Gross profit(Before interest & depreciation)			
III	Depreciation			
IV	Interest			
V	Operating Profit			
VI	Net Profit(after tax)			

12. Total cost of scheme(as approved by Bank/FI)(Rs. in lakh)

13. Total Sources of funding (as approved by Bank/FI) (Rs. in lakh)

Term Loan.....

Add share capital .....

Internal accruals.....

Capital Subsidy .....

14. Time frame for completion of the project.....

15. Incremental benefits from implementation of the project(indicate in terms of capacity utilization, increased sales, exports, reduction in cost of production, increase in productivity, quality upgradation, attainment of pollution standards – give quantitative results).

16. List of eligible plant and machinery along with their detailed specifications, rates, quantities and total value for

which subsidy under CLCSS is claimed.

## DECLARATION

I/We, hereby declare that the information given above and the statement and other papers enclosed are to the best of our knowledge and belief are true and correct.

**Place:** **Signature(s)**  
**Date:** **Name and designation**  
**Seal of the company**

## SMALL INDUSTRIES DEVELOPMENT BANK OF INDIA

### ADDRESSES OF OFFICES

#### HEAD OFFICE

SIDBI TOWER,

15, ASHOK MARG,

LUCKNOW – 226 001

TEL : (0522) 2288547 / 2288550

#### REGIONAL OFFICES

<b>Kolkata</b> 11, Dr. U.N. Brahmachari Street, 8 th Floor, Opp. La Martiniere Girls School, Kolkata – 700 017. Tel. : 2280 1382, 2280, 1228, 2240 4183, 22404228, Fax: (033) 22404093	<b>Guwahati</b> IDBI Building, 2 nd & 3 rd Floor, Opp. Sentinel Press, G.S. Road, Tel. : 252 4020/2457102 Fax: (0361) 2529545
<b>New Delhi</b> Ground Floor, Videocon Tower, E-1, Rani Jhansi Road, Jhandewalan Extension, New Delhi – 110 055 Tel. : 23682473 – 77 Fax: (011) 23682461, 23682464	<b>Chennai</b> 480, Anna Salai, P.B. No. 1312, Nandanam, Chennai – 600 035 Tel. : 24361893, 24330286 24330964, 24342176 Fax : (044) 24340348
<b>Mumbai</b> SME Development Centre C-11, G-Block, Bandra Kurla Complex Bandra(E) Mumbai – 400 051. Tel. : (022) 55531100 } Fax : (022) 55531202	

#### BRANCH OFFICES

<b>Agartala</b> B.K. Chowmuhan, Krishna Nagar, 1 & 11 Floors, Harish Thakur Road, Agartala – 799 001 Tripura Tel: 2323320, 2311632 Fax: (0381) 2323320	<b>Ahmedabad</b> Navjivan Amrit Jayanthi Bhawan Post Bag No. 10, Navjivan PO, Ahmedabad – 380 014 Tel : 27543062-67} Fax : (079) 27541086
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<p>Aizawl Mardin Tuikhuahtiang, Aizwal – 796 001, Mizoram Ist Floor, Tel : 2323424, 2311504 Fax : (0389) 2323424</p>	<p>Aurangabad Jeevan Suman, LIC Building Plot No. 3, N-5, Near CIDCO Office Town Centre, Post Box No. 675, Aurangabad – 431 003 Tel : 2472494 Fax : (0240) 2472266</p>
<p>Andheri Samruddhi venture park, Upper Ground Floor, MIDC Industrial Area, Andheri (East) Mumbai- 400093 Tel. 28353062, Fax(022- 28329602)</p>	<p>Baddi No. 32-36, Basanti Bagh, Sai Road Baddi- Distt. Solan( HP) Tel- (01795) 247385 Fax-(01795) 247385</p>
<p>Ambattur 207 AIEMA Tower, 2 nd Floor, Ist Main Road Ambattur Industrial Estate, Ambattur, Chennai-600 058</p>	
<p>Bangalore Khanija Bhavan, 5 th Floor, East Wing, 49, Race Course, Bangalore – 560 001 TEL : 22207227 – 30 Fax : (080) 22207179</p>	<p>Baroda Ist Floor, Landmark Building, Race Course Circle, Post Box NO. 3711, Baroda – 390 007 Tel : 2338679, 2338611, 2310797 Fax : (0265) 2338680</p>
<p>Bhopal Shikhar Varta Building 3 rd Floor, Press Complex, Maharana Pratap Nagar, Zone – 1, P.B. No. 24, Bhopal – 462 011. Tel : 2760393, 2552491 Fax : (0755) 2555838</p>	<p>Bhubaneswar OCHC Building (4 th Floor), Near Ram Mandir, Janpath, Bhubaneswar – 751 001 Tel : 2404854, 2405278 Fax : (0674) 2404476</p>
<p>Chandigarh SCO 145-146, 1, 11 &amp; 111 Floors, Sector 17C, P.B. No. 92, Chandigarh – 160 017 Tel : 5000654 Fax : (0172) 5000650</p>	<p>Coimbatore Gowtham Centre, 1055/7, Avanashi Road, Post Box No. 4033, Coimbatore – 641 018 Tel : 2213684, 2210279, 2213896 Fax : (0422) 2211926</p>
<p>Dehradun International Trade Centre, 2 nd Floor, 59/4, Rajpur Road, Dehradun – 248 001 Tel : 2743119 Fax : (0135) 2742288</p>	<p>Dimapur IDC House, Kohima Road, Post Box No. 45, Dimapur – 797 112 Tel : 225641 Fax : (03862) 225641</p>
<p>Faridabad NH-5, R/2, Neelam Badshah Khan Road, N.I.T., Faridabad – 121 001 Tel : 2414419</p>	<p>Gangtok Ragasha Building, Nam – Nam Road, Gangtok – 737 101 Sikkim Tel : 203028</p>



Fax : (0129) 2414392	Fax : (03592) 203028
Gurgaon Udyog Minar Ground Floor, Vanijya Nikunj, Udyog Vihar, Phase-V, Gurgaon 122 001 Tel- 2349487 Fax- ( 0124) 2349487	
Hyderabad 101, Saifabad, Building, Post Box No. 130, Hyderabad – 500 004 Tel : 23234454, 23210247,23231344 Fax : (040) 23236870	Imphal Hermitage Office Complex Imphal Urban Co-op. Bank M.G. Avenue, Post Box No. 14, Imphal – 795 001 Manipur Tel : 2221878 Fax : (0385) 2221878
Indore Commerce House, Ist Floor, 7, Race Course Road, New Palasia Indore – 452 001 Tel : 2435337, 435338 Fax : (0731) 2538025	Itanagar Injo's Complex, Ist Floor, VIP Road, Bank Tinali, Itanagar – 791 111 Arunachal Pradesh. Tel : 2211822, 2214749 Fax : (0360) 2211822
Jaipur Ist & 2 nd Floors, Umrao Complex, Sansar Chandra Road, Post Bog No. 46, Jaipur – 302 001 Tel : 2364792, 2363860, 2364614 Fax : (0141) 2363890	Jammu OB-26, "Grid Bhawan". Ground Floor, Post Box No. 21 Rail Head Complex, Jammu – 180 012. Tel : 2474306 Fax : (0191) 2474305
Jamshedpur Kanpur Shantiniketan Building, Ist Floor, Main Road, Bistupur, Jamshedpur – 831 001 Tel:2 426140 Fax : (0657) 2426140	Kanpur Krishna Tower, Ist Floor, 15/63, Civil Lines, Kanpur – 208 001. Tel : 2303069, 2303324, 2303325 Fax : (0152) 2303294
Jalandhar Uppar Ground Floor, Hotel Centre Point, BMC Chowk, Jalandhar Tel 5061241 Fax(0181) 5061241	
Kochi Mercy Estate, 2 nd Floor, Ravipuram, Post Box No. 1672, M.G. Road, Kochi – 682 015 Tel : 2366367, 2366688, 2382493 Fax : (0484) 2374994	Ludhiana SCO 16 & 17, 1 ST Floor , Dholewai Chowk, G.T. Road, Opposite Ludhiana Stock Exchange, Ludhiana – 141 001 Tel : 2775760-61 Fax : (0161) 2535766
Lucknow SIDBI Tower, Ground Floor,	

No. 15, Ashok Marg, Lucknow- 226 001	
Nagpur 6 th Floor, Usha Complex, 345, Kingsway, Nagpur – 440 001 Tel : 2553201 Fax : (0712) 2553202	Panaji EDC House, 6 th Floor, Dr. Atmaram Borkar Road, Panji – 403 001, Goa, Tel : 2462939 Fax : (0832) 2461900
Nashik 1st Floor, Pingle Complex, Opp kulkarni Garden, Sharanpur Road, Nashik 422 002 Tel 5607853	Noida C-60, Sector-2, Noida 201301(UP) Tel 2545790 Fax(0120) 2545790
Patna Hotel Minar Building, Part II, 2 nd Floor, Exhibition Road, Post Bag No. 220, Patna – 800 001. Tel : 2230053, 2230054 Fax : (0612) 2230915	Pondicherry 1st Floor, 99, Ambalathadayar Madam Street, Post Box No. 113, Pondicherry – 605 001 Tel : 2332324, 2221006 Fax : (0413) 2339040
Pune Suryakiran Hotel Building, 1st Floor, C-8, Mumbai Pune Road, Chinchwad, Pune – 411 019. Tel : 7474333, 7476043, 7463230 Fax : (020) 7474555	Raipur 2 nd Floor, Chawla Complex, Devendra Nagar Road, Sai Nagar, Raipur – 492 009 Tel : 2527797, 2523733 Fax : (0771) 2523732
Rajkot 1st Floor, “Nirmal” 17 Ram Krishna Nagar Corner Opp Commissioner Bangalow Off Yagnik Road Rajkot	
Ranchi 1 st Floor, 20, Near Rajender Chowk, Ranchi – 834 002 Tel : 2308686 Fax : (0651) 2308433	Shillong Chabaya Main Road, Doranda M.G. Road, Post Box No. 101, Meghalaya Tel : 222639, 502267 Fax : (0364) 222639
Surat U31-37 Megh Mayur Plaza Surat- Dumas Road Parle Point, Surat 395007	
Shimla Jeevan Jyoti Block No. 1&2, Lala Lajpat Rai Chowk, The Mali, Shimla – 171 001 Tel : 2812582, 2811970 Fax : (0177) 2811392	Tirupur 1 st Floor, Tirupur Regulated MarketComplex P.B. No. 58, Palladam Road, Tirupur – 641 601 Tel : 241894, 208073 Fax : (0421) 241891
Thane	

102, R.M. Pride Building, Ram Murti Road, Thane(West)- 400602 Tel – 25391298 Fax (022) 25391298	
Varanasi 3 rd Floor, Anant Complex, D-64/132 – K. Siga, Varanasi - 221 010 Tel : 223948, 223465 Fax : (0542) 224193	Visakhapatnam Door No. 47-15-5, Gupta Buildings, 2 nd Floor, Daimond Park Road, Visakhapatnam – 530 016 Tel : 2568946 Fax : (0891) 2540303.

**NATIONAL BANK FOR AGRICULTURE AND RURAL DEVELOPMENT**

**HEAD OFFICE**

**Plot No.C-24, 'G' Block, Bandra-Kurla Complex,**

**Post Box No.8121, Bandra (E),**

**MUMBAI - 400 051 .**

**Tel 022-26530004, Fax-022-26530082**

**Addresses of Regional Offices / Sub Office**

<b>Tripura R.O. (Agartala)</b> General Manager Palace Compound (East), Uzirbari Road, Tripura Regional Office, Post Box No. 9,  Agartala – 799 001. <b>Tel:</b> 0381 - 2224125, 2202378 <b>Fax:</b> 0381 – 2224125	<b>Gujarat R.O. (Ahmedabad)</b> Chief General Manager, Gujarat Regional Office, NABARD Tower, Opp. Municipal Garden, P.B. No. 8, Usmanpura, Ahmedabad – 380 013 <b>Tel:</b> 079 - 27551959 <b>Fax:</b> 079 – 27551584
<b>Mizoram R.O. (Aizawal)</b> Officer-in-Charge, Mizoram Regional Office,  Ramhlun Road (North), Bawngkawn,  Aizawal – 796 012, Mizoram. <b>Tel:</b> 0389 – 2340815 <b>Fax:</b> 0389 – 2340815	<b>Karnataka R.O. (Bangalore)</b> Chief General Manager, Karnataka Regional Office,  113/1, Jeevan Prakash Annexe,  J.C. Road, P.B. No. 29,  Bangalore – 560 002. <b>Tel:</b> 080 – 22223125 <b>Fax:</b> 080 – 22222148
<b>Madhya Pradesh R.O. (Bhopal)</b> Chief General Manager, Madhya Pradesh Regional Office,  E-5, Arera Colony, Bittan Market, P.O Ravishankar Nagar, P.B. No. 513, Bhopal – 462 016. <b>Tel:</b> 0755–2464775 <b>Fax:</b> 0755–2466188	<b>Orissa R.O. (Bhubaneswar)</b> Chief General Manager Orissa Regional Office,  Ankur, 2/1, Nayapalli, Civic Centre, P.B. No. 179, Bhubaneswar – 751 015. <b>Tel:</b> 0674–2553884  <b>Fax:</b> 0674–2552019
<b>Punjab and Haryana R.O. (Chandigarh)</b>	<b>Tamil Nadu R.O. (Chennai)</b>

<p>Chief General Manager, Punjab and Haryana Regional Office,</p> <p>Plot. No. 3, Sector 34-A, P.B. No. 7, Chandigarh – 160 022. <b>Tel:</b> 0172–5046700 <b>Fax:</b> 0172–5046702</p>	<p>Dr. Prakash Bakshi Chief General Manager,</p> <p>Tamil Nadu Regional Office,</p> <p>105–106, 48 Mahatma Gandhi Road,</p> <p>P.B. No. 6074, Nungambakkam, Chennai – 600 034. <b>Tel:</b> 044 – 28276088 <b>Fax:</b> 044 – 28275732</p>
<p><b>Uttaranchal R.O. (Dehradun)</b> Chief General Manager, Uttaranchal Regional Office 2nd Floor, Hotel Sunrise Building, 113/2, Rajpur Road, Dehradun - 248001 <b>Tel:</b> 0135-2748611 <b>Fax:</b> 0135-2748610</p>	<p><b>Nagaland R.O. (Dimapur)</b> Deputy General Manager,</p> <p>Nagaland Regional Office Nagaland State Co-op. Bank Bldg., Opp. Fire Station,</p> <p>Dimapur – 797 112, Nagaland. <b>Tel:</b> 03862 – 227040 <b>Fax:</b> 03862 – 227040</p>
<p><b>Sikkim R.O. (Gangtok)</b> Deputy General Manager, Sikkim Regional Office Om Niwas, Church Road, P.B. No. 46, Gangtok - 737 101. <b>Tel:</b> 03592 – 203015 <b>Fax:</b> 03592 – 203015</p>	<p><b>Assam R.O. (Guwahati)</b> Chief General Manager, Assam Regional Office Lakshmi Bhawan, Dr J C Das Road, Panbazar. P.B. No. 81, Guwahati – 781 001. <b>Tel:</b> 0361 – 2540873 <b>Fax:</b> 0361 – 2541131</p>
<p><b>Andhra Pradesh R.O. (Hyderabad)</b> Chief General Manager,</p> <p>Andhra Pradesh Regional Office 1-1-61, R.T.C 'X' Road Musheerabad, P.B. No. 1863 Hyderabad – 500 020. <b>Tel:</b> 040–27612640 <b>Fax:</b> 040–27611829</p>	<p><b>Manipur R.O. (Imphal)</b> Deputy General Manager,</p> <p>Manipur Regional Office 89/686, Lalabung, RIMS Road, Lamphelpat, Imphal – 795 004, Manipur. <b>Tel:</b> 0385 – 2410706 <b>Fax:</b> 0385 – 2416191</p>
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<p><b>Port Blair</b> Officer-in-Charge, Kannada Sangha Building, Ground Floor, 18, Tagore Road, Head Post Office, Port Blair – 744 101. <b>Tel:</b> 03192 – 233308 <b>Fax:</b> 03192 – 237696</p>	<p><b>Srinagar Cell</b> Officer-in-Charge, Main Gate of Amar Singh College, Gogjibagh, Srinagar – 190 008. <b>Tel:</b> 0194 –2310280 <b>Fax:</b> 0194-2310280 / 2310479</p>

विकास आयुक्त (सूक्ष्म लघु एवं मध्यम उद्यम)

सूक्ष्म लघु एवं मध्यम उद्यम मंत्रालय,  
(भारत सरकार),  
निर्माण भवन, सातवीं मंजिल, मौलाना आज़ाद रोड,  
नई दिल्ली-११००११



सूक्ष्म लघु एवं मध्यम उद्यम

OFFICE OF THE DEVELOPMENT COMMISSIONER  
(MICRO, SMALL, & MEDIUM ENTERPRISES)

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No. 22/CLTUC/Scheme/2006

29<sup>th</sup> February, 2008

**OFFICE MEMORANDUM**

**Subject:** Continuation of Credited Linked Capital Subsidy Scheme (CLCSS) for Technology Upgradation of Micro & Small Enterprises during XI Plan.

The Government of India is pleased to convey the continuation of the "Credit Linked Capital Subsidy Scheme" for Technology Upgradation of Micro & Small Enterprises during the XI Plan (2007-2012).

2. Consequent upon the enactment of the MSMED Act, 2006, the name of the "Credit Linked Capital Subsidy Scheme for Technology Upgradation of Small Scale Industries" (CLCSS) will now be "Credit Linked Capital Subsidy Scheme" (CLCSS).

*Sanjeev Kaushal*  
(Sanjeev Kaushal)

**Joint Secretary to the Government of India &  
Additional Development Commissioner (MSME)**

To

1. The Secretary (SSIs), All State Governments / UTs
2. The Commissioner & Director of Industries, All State Governments / UTs
3. The CMD / MD, All nodal agencies / banks under CLCSS
4. The CMD / MD, All Commercial Banks
5. The Directors, MSME-Development Institutes / MSME-Testing Centres

Copy to:

1. Pay & Accounts Officer (SSI), Nirman Bhavan, New Delhi
2. Director of Audit & Civil Services Ministries, AGCR Building, I.P. Estate, New Delhi.
3. All Primary Lending Institutions of SIDBI and NABARD under CLCSS.
4. PS to the Minister of MSME.
5. Senior PPS to Secretary (MSME), Udyog Bhavan, New Delhi.
6. ADC (KSL) / ADC (PKP) / JDC (RP) / JDC(BKS) / Addl.EA/All IAs / AIAs / Directors in the Office of DC(MSME).
7. JS(PK)/JS(SK)/All officers – Deputy Secretary & above in the Ministry of MSME.
8. EA (I.F. Wing).
9. PS to AS&DC(MSME).

*Sanjeev Kaushal*  
(Sanjeev Kaushal)

**Joint Secretary to the Government of India &  
Additional Development Commissioner (MSME)**

**First Supplement of the Revised Guidelines on the Credit Linked Capital Subsidy Scheme (CLCSS) for Technology Upgradation of Small Scale Industries (SSI) approved by the Technical Sub-Committee on the CLCSS (TSC) in its 6<sup>th</sup> meeting held on the 10<sup>th</sup> day of August, 2006 under the chairmanship of the Additional Secretary & Development Commissioner (SSI)**

**Office of the Development Commissioner (Small Scale Industries), Ministry of Small Scale Industries, Government of India, Nirman Bhawan, New Delhi – 110 011**

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**Accessories:**

Essential accessories required for operation of all eligible machines approved under the Credit Linked Capital Subsidy Scheme for all products/ sub-sectors of the Scheme are approved for the purpose of calculating the subsidy under the Scheme.

**(vii) Plastic Moulded/Extruded Products and Parts/ Components including reinforced plastic/composite material**

**(a) Plastic Moulded/ Extruded Products and Parts/Components.**

Sl. No.	Activity	Technology Need	Cost (Rs. in lakh)	Advantages
1.	Moulding/Extrusion	Fully automatic micro processor controlled plastic injection moulding/extrusion machine.	Upto 30.00	1.High rate of production 2. Cost effective 3. Less wastage 4. Better and consistent quality 5.Less power consumption
2.	Tool making (as per CLCSS guidelines as on 20.04.2006)	CNC Milling Machine for in-house Tool room	33	For production of quality dies and moulds.
3.	Manufacture of different type of brushes	CNC Drilling, Filling, Trimming, Tufting, Twin Head Machine, Flagging Machine, Injection Moulding Machine-25 gm to 500 gms. Extrusion and Packing Machine, Plastic Moulding Machine, semi automatic Drilling, Filling, Trimming, Tufting Machine and broom making CNC and semi automatic machine	Upto 90.00	Full automation of the process, high productivity, consistent in quality of the product, hygienic status, cost effectiveness, reduction in labour cost and air pollution, versatile in colour and design etc.

**(vii) Plastic Moulded/Extruded Products and Parts/ Components including reinforced plastic/composite material)**

**(b) Plastic Moulded/ Extruded Products and Parts/Components(products based on reinforced plastic/composite material.**

<b>Sl. No.</b>	<b>Activity</b>	<b>Technology Need</b>	<b>Cost (Rs. in lakh)</b>	<b>Advantages</b>
11.	Extrusion/Injection blow moulding	Micro processor controlled fully automatic extrusion/injection blow moulding machine  Automatic Loader  On-line auto de-flasher  Air handling equipments	Upto 50.00	1.Fully automatic process  2. High productivity.  3.Consistent in quality of the product.  4.Hygienic working conditions  5.Cost effectiveness  6.Reduction in labour cost  7.Reduction in air pollution  8.Reduction in power consumption

(ix) **Food Processing (including Ice Cream manufacturing)**

(d) **Rice flakes/Chiwra (Poha) and Murmura(Puffed Rice):**

Sl. No.	Activity	Technology Need	Cost (Rs. in lakh)	Advantages
1.	Rice Flakes/Chiwra(Poha) and Murmura (Puffed Rice).	Dust collector/dust collecting system	0.20 – 0.75 (depending upon the size of dust collector)	1. Flaking operation becomes dust free. 2. Improvement in hygienic conditions of the unit. 3. Improvement in quality and reduction in breakage of the product. 4. Clean environment.
		Gas fired roaster, including changes of firing system from saw dust to LPG/CNG	1.00 – 5.00	1. Pollution free 2. Better heat recovery 3. Better hygienic condition
		Solar water heating system	3.00 – 10.00	1. Elimination of fuel 2. Reduction in production cost. 3. Free from pollution

(ix) Food Processing (including Ice Cream manufacturing)

(e) Walnut Processing :

Sl. No.	Activity	Technology Need	Cost (Rs. In lakh)	Advantages
	<b>(A) Walnut Processing:</b>			
	(a) Walnut Washing	Washing Tanks with Mechanical Stirrer/agitators	10.00	Better cleaning and acceptability
	(b) Drying	Hot air blowers	10.00	Controlled uniform drying with reduced losses
	(c) Packing Line	Conveyorised automatic sorting, packing and weighing line system	20.00	Efficient packing
	<b>(B) Walnut Kernals Processing:</b>			
	(a) Walnut cracking	Mechanical crackers	20.00	Efficient cracking with minor losses
	(b) Vapour Pressure heat system to control Micro-Biological values	VPH Pressure Vaccumised dryers	25.00	Minimise micro-biological developments
	(c) Size grading	Specific gravity separators	20.00	Efficient grading
	(d) Cleaning and sorting system	High efficiency Laser Sorters/ Colour and foreign matter Segregator	200.00	High efficiency, better product
	(e) Packing	Automatic packing plant for vacuum pouches and OTS cans	40.00	Better packing

	(f) Labeling	Video Jet/non contact printer	5.00	To meet EU/PFA etc. Regulations.
	(g) Storage	Cold Stores	50.00	Better shelf life
	(h) Pallets and Stacking	Fork lifts	0.5 lakh each	Better space utilisation
	(i) Floor cleaning equipment for hygiene	High pressure steam machine to remove oil, seepages of product	20.00	Better quality
	(j) Humidity control	De-humidifiers	10.00	To de-humidify the unit and save product from biological activities for better quality and shelf life
	(k) R&D	Laboratory equipments for checking of quality	0.40	Better product development and statutory compliance
	(C) Value addition to walnut kernels: Caramelisation/ coating/roasting etc.	Roasting and coating machine	25.00	Value addition



(x) Poultry Hatchery & Cattle Feed Industry:

Sl. No.	Activity	Technology Need	Cost (Rs. In lakh)	Advantages	
3	Fish Meal (including fish oil):	(i) Cooking.	Cooker.	5.5	Effective cooking and better quality.
		(ii) Pressing.	Screw press.	6.55	Increase in fish meal and fish oil production.
		(iii) Separation.	Centrifuges and decanters.	60.00	Better recovery.
		(iv)Drying.	Steam Drier.	38.00	Effective Drying and better quality.
			Disc driers.	16.00	- do -
			Double stage waste vapours evaporator.	24.00	- do -
			Steam vacuum evaporator.	17.50	- do -
		(v) Grinding.	Pulveriser.	0.50	Better quality.
		(vi) Sieving.	Shifter.	0.20.	Better output and hygienic production.
		(vii)Mixing.	Blender-cum-mixer.	0.50	- do -
		(viii)Miscellaneous.	(a) Water heating tank.	0.65	Optimum processing.
			(b) Control box and spares.	21.50	Essential to operate automatic plants.
			(c) Laboratory equipments.	5.00	Quality control and monitoring for statutory compliance.



**(xii) Glass and Ceramic Items (Insulator ceramic, electrical ceramics, porcelain, bone china ware, stone ware, earthen ware, terra-cotta ceramic) including Tiles**

**(a) Glass Products**

<b>Sl. No.</b>	<b>Activity</b>	<b>Technology Need</b>	<b>Cost (Rs. in lakh)</b>	<b>Advantages</b>
13	Tempered glass for auto window/refrigerator, glass partition doors.	Horizontal flat and bent glass electric furnace for tempering with automatic controller and recorders.	140.00	Automatic loading and unloading. Automatic control for heating/cooling.  Low electric consumption.  Increase in production upto four fold.  Improvement in quality.
14	CNC Cutting Machine.	General Engineering Works auto parts CNC Cutting machine.	42.00	Better accuracy of the final product.

**(xii) Glass and Ceramic Items (Insulator ceramic, electrical ceramics, porcelain, bone china ware, stone ware, earthen ware, terra-cotta ceramic) including Tiles.**

**(e) Refractory Ceramic Fiber Paper**

<b>Sl. No.</b>	<b>Activity</b>	<b>Technology Need</b>	<b>Cost (Rs. in lakh)</b>	<b>Advantages</b>
1	(i)Fiber Processing Section:	Mixing vessels with agitators.	10.57	Homogeneous dispersion of the fiber resulting in controlled flow rate to achieve more efficient cleaning and better fiber yields.
		Primary Cyclone Feed Pump.	1.62	
		Primary Hydrocyclone.	2.70	
		Constant Level Feed Tank.	0.69	
		Secondary Cyclone Feed Pump.	1.87	
		Secondary Cyclone.	1.95	
	(ii)Sheet Formation Section:	Open type Headbox with twin formation wire.	17.35	Uniform formation of paper with improved finish. Better dewatering is achieved to reduce the moisture contain resulting in lower fuel cost.
		Vacuum Pumps and Drives.	6.95	
		Continuous Roller Press.	15.40	
		Vacuum Pumps and drives.	3.60	
	(iii)Drying Section:	Continuous Tunnel Dryer with Indirect Fired Hot Air Generator.	26.60	More efficient drying of larger quantity with reduction in fuel cost.
	(iv)Cutting and Winding Section	On-line Slitters and Pope Reel Winder.	12.10	Reduces packing cost and wastages.

**(xii) Glass and Ceramic Items (Insulator ceramic, electrical ceramics, porcelain, bone china ware, stone ware, earthen ware, terra-cotta ceramic) including Tiles**

**(f) Reinforced Cement Concrete(RCC) Pipes:**

<b>Sl. No.</b>	<b>Activity</b>	<b>Technology Need</b>	<b>Cost (Rs. in lakh)</b>	<b>Advantages</b>
1.	Cement Concrete Pipe making by vertical vibration casting method.	(i) Vertical vibrating machine.  (ii) Mixing Plant with pan mixture alongwith attachment, computerized weighing setup.  (iii) 20 ton crane with all lifting arrangement.  (iv) Air compressor.  (v) Generator.	119.06	Less energy consumption per pipe. 15-20% material saving. Accurate quality of spigot and socket. More productivity.

(xii) Glass and Ceramic Items (Insulator ceramic, electrical ceramics, porcelain, bone china ware, stone ware, earthen ware, terra-cotta ceramic) including Tiles:

(g) Refractory brick, Insulation brick & Casting products:

Sl. No.	Activity	Technology Need	Cost (Rs. in lakh)	Advantages
1	<b>Refractory brick, Insulation brick &amp; Casting products</b>			
i)	Raw material handling & processing :	i) Pay loader, Fork Lift, Jaw crusher, Bucket elevator, conveyor, magnetic separator, Hooper, Pulverisor, Vibrator screen, Rotary screen, Silos, etc.	20.0 to 40.0	<ul style="list-style-type: none"> <li>• Improve crushing &amp; grinding</li> <li>• Reduce time of grinding</li> <li>• Lower contamination with impurities</li> <li>• Lower wastage</li> <li>• Time saving</li> </ul>
ii)	Batch Mixing:	Batch weighing car, Roller mill, edge runner mill, paddle mixer, cooper mixer, etc.	15.0 to 40.0	<ul style="list-style-type: none"> <li>• Homogeneous mixing</li> <li>• More accuracy and compactness</li> </ul>
iii)	Pressing & Moulding:	Hydraulic/ Friction screw/ Tounge press/pneumatic press, etc.	20.0 to 40.0	<ul style="list-style-type: none"> <li>• Large production</li> <li>• Improve quality</li> <li>• Low wastage</li> <li>• Time saving</li> </ul>
iii)	Drying of green product:	Humidity drying chamber.	5.0 to 10.0	<ul style="list-style-type: none"> <li>• Avoid crack development during firing.</li> </ul>
iv)	Firing of dried product:	Oil fired tunnel kiln with recycling of waste heat through recuperators or otherwise with parallel provision to switch over to gas firing partly or fully (Dual process) to save cost on oil and energy. Kiln furniture, Temperature recorder, Optical pyrometer, etc.	60.0 to 100.0	<ul style="list-style-type: none"> <li>• Uniform temperature distribution</li> <li>• Low fuel consumption</li> <li>• Continuous process</li> <li>• Fast production</li> <li>• Low pollution</li> <li>• Energy efficient</li> <li>• Easy operation</li> <li>• Time saving</li> <li>• Low wastage</li> </ul>

v)	Lab. Testing for Quality Control	Electric muffle furnace, RUL, PLC, PCE, RTE furnaces, CCS machine, MOR machine, Creep testing machine, X-ray spectrometer, Electronic weighing balance, etc.	10.0 to 20.0	<ul style="list-style-type: none"> <li>• More quality assurance</li> <li>• Easy marketing</li> </ul>
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(xii) Glass and Ceramic Items (Insulator ceramic, electrical ceramics, porcelain, bone china ware, stone ware, earthen ware, terra-cotta ceramic) including Tiles:

(h) Chalk Cryons:

Sl. No.	Activity	Technology Need	Cost (Rs. in lakh)	Advantages
1	<b>Chalk Crayons</b>			
i)	Raw material Mixing:	Electrical/ Hand operated Mixer	0.06 to 0.34	<ul style="list-style-type: none"> <li>• Homogeneous mixing</li> <li>• Time saving</li> </ul>
ii)	Moulding:	Hand & Paddle or Electrical operating Compressor Chalk Ejection Machine a). Non-Split Gun metal dies b). Attach to Hand & Paddle or Electrical operated compressor chalk ejection machine	0.4 to 10.00	<ul style="list-style-type: none"> <li>• More accuracy and compactness</li> <li>• Large production</li> <li>• Improve quality</li> <li>• Low wastage</li> <li>• Time saving</li> <li>• Low pollution</li> <li>• Easy operation</li> <li>• Time saving</li> </ul>
iii)	Drying of green product:	Electrical Oven Drier with thermo couple	0.30 to 0.50	<ul style="list-style-type: none"> <li>• Uniform drying</li> </ul>

**(xxxx) Khadi and Village Industries:**

**(p) . Bio-Technology:**

<b>Sl. No.</b>	<b>Activity</b>	<b>Technology Need</b>	<b>Cost (Rs. in lakh)</b>	<b>Advantages</b>
(i)	Vermi-Compost.	1.Shovel (for mixing) 2.Sieving machine 3.Cutter & Blender 4.Sewing machine	1.15	<ul style="list-style-type: none"><li>• Reduce human drudgery</li><li>• Hygienic</li><li>• Reduce the time for packaging of finished product</li></ul>
(ii)	Enriched bio-digested slurry/manure.	1.Shovel (for mixing) 2.Sieving machine 3.Cutter & Blender 4.Sewing machine	1.15	<ul style="list-style-type: none"><li>• Reduce human drudgery</li><li>• Hygienic</li><li>• Reduce the time for packaging of finished product</li></ul>

**(xxxxii) Steel Re-rolling and/or Pencil Ingot making Industries:**

<b>Sl. No.</b>	<b>Activity</b>	<b>Technology Need</b>	<b>Cost (Rs. in lakh)</b>	<b>Advantages</b>
5.	Hot Rolling of Stainless Steel Sheet.	Rolling by 5 Hi or 7 Hi Hot Rolling machine.	30-40	Power saving, increased productivity & better quality.
6.	Heating of Stainless Steel sheet before rolling.	Pusher type heating furnace.	5.0	Increased productivity with less burning loss.
7.	Cold Rolling of Stainless Steel Sheet.	2 Hi Cold Rolling machine.	25-30	Increased productivity with less maintenance cost.
8.	Annealing of rolled stainless steel sheet.	Roller type annealing furnace.	6.0	Increased productivity, fuel saving.



(xxxxvi) Industrial Gases.

Sl. No.	Activity	Technology Need	Cost (Rs. in lakh)	Advantages
1.	Manufacture of Oxygen and Nitrogen Gas by Air Separation Method:			
	(i) Water Cooling System	Cooling Tower & Pumps.	0.60-0.70	Ensures cooling of water upto 5 degree Celsius which results in low section temperature of air at each stage of the multi-stage air compressor which will ultimately increase the efficiency of the compressor and cause reduction in maintenance hours and power consumption.
	(ii) Air Filtration System	Air Suction Filter.	0.30	This would help better filtration of air for higher final air discharge(FAD) from air compressor and lower maintenance hours.
(iii) Air Compression System		(a) Air Compressor.	14 – 25 (Depending upon the capacity of air Compressor)	Saving in power cost with improved final air discharge and higher production due to better thermal efficiency, improved material of construction, design and more compression stages.
		(b) Inter Cooler.	0.75 - 1.5	Saving power on account of low air temperature at all stages would reduce the frequency of choked tubes.

		(c)Electric Motors.	1.5 - 3.6	Energy efficient.
		(d) Electric Motor Starter.	2.0	Save power and reduces electric maintenance and reduces frequent break-downs.
		(e)Electric power capacitor.	0.7	Power conservation by correcting power factor.
(iv)Air chilling	Chilling Unit.		2.0 – 4.0 (Depending upon the chilling capacity)	Save power and high temperature drop of process air which helps in improving the plant performance.
(v)Air separation	(a) Expansion engine.		5.25	Reduce power cost and startup time. Higher efficiency would help in smooth production of nitrogen, simultaneously it will also reduce the operating head pressure.
	(b) Air separation unit.		16.0 - 25.0	Save power cost, higher yield with better quality, replacement of high pressure gas compressor by liquid filling pumps, reduces cost of power and maintenance. Facilities of withdrawal of liquid and ultra pure nitrogen.

**(xxxxvii) Printing Industry:**

S.No	Activity	Technology Need	Cost (Rs. in lakh)	Advantages
01.	Pre-press Section:	Computers- PIV and above(Win/Mac).	0.40	Improvement in Speed efficiency and quality.
02.		Printers:		
2.1		Laser printer with postscript- Size A3, Speed: 45 CPM.	1.00	Enhances Quality and speed output with larger printout for present market needs.
2.2.		Inkjet(Colour)- Size A3, Resolution 2400 DPI.	0.60	Increases print quality, output nearest to desired print quality.
3.1		DTP Software-		
		Corel draw 11 & above,	0.75	Increased Quality, Speed and efficiency. Enable giving better effects in printing .
		Photoshop CS(B) & above,	0.60	
		Freehand,	0.60	
		Acrobat distrilor,	0.70	
3.2		Acrobat illustrator.	0.60	
4	PC Operating system- Window XP and OS 10	0.20	Support all latest software packages.	
5	Scanner-Colour2400 DPI & above.	1	High quality scanning.	
6	Printable image- CTP Computer to plate Size: 4ups(20"X30") & 8 ups(size 30"X40").	65 for 4 ups 85 for 8ups.	Computer to plate, image will be transferred directly from computer to plate. It eliminates one operation as well as it produces high quality.	
7	Plate exposure- Metal Halide lamp exposure unit size 8ups 30"X40" Power 5 KW.	1.75	Advancement in exposing the plate. Quality ,speed and accuracy.	
	Plate Developer- Plate Processor Size 8 ups(30"X42") power 5 KW.	6	Mechanized developing (plates will be processed by chemical with the automation).	

8	Printing Section:	Printing Machines:		
8.1		Small offset Machine A4/A3 size.	4	Advanced printing machine without metal types for speed and quality printing.
8.2		Single colour offset machine size 17"X23"/19"X26'.	8	To undertake Bigger size job work and high speed of printing.
8.3		Two colour Offset Machine size 19"X26".	15	High speed for multi colour printing. At a single operation two colours can be printed, therefore less rejection and high productivity.
8.4		4 color offset machine Size 19" x 26"	90	More productivity being four color printing in single operation.
8.5		Web offset single colour unit cut off size 510mm	15	Fast production therefore greater productivity ie 8000 impressions per hour to 20,000 impressions per hour.
8.6		Single colour mini offset 10"X15"	4	For performing jobs like bill pamphlets letter head vouchers etc.
9	UV Coating	Computerized control panel UV curing size 24"/30"/40" Power 13/14/24 KW respectively	8	To use for liquid coating which can be applied either by screen, rollers, offset or flexo etc. When exposed to Ultra Violet lights it forms a film adhering to the substrate giving a special effect to printed area, and thus provide value addition to printed material..
10	Paper Cutting	Paper Cutting Machines:		
10.1		Semi automatic Paper cutting Machine power operated Size 26"/32"/36"/42".	3	
10.2	Programme Cutting Machine Computerized control panel(Safety accuracy & measurement will be done in a touch button). Size: 26"/28"/30"/32"/36"/42" Power 1/2/3/5 KW.	6 to 15	Better efficiency.	

10.3	Folding:	Semi Automatic folding machine Size:4 ups 20" x 30", 8ups 30" x 40".	5	Increased production & quality.
10.4		Fully automatic folding machine with computer control- Size: 4ups 20" x 30". 8 ups 30" x 40".	15	For increased production and better quality.
10.5	Punching	Punching machine Size 23"x36".	4	Better cost and efficiency.
10.6		Auto control punching machine, Computerized control panel- Size 18"x23", 23"x36" 30"x40".	6	
10.7	Water base Lamination.	Lamination machine- Computerized control panel Size 38"/42".	2 -4	Better Quality and Efficiency.
10.8	Thermal base Lamination.	Thermal Lamination machine-Computerized control panel Size 38"/42".	4 - 8	Better Quality and Efficiency.
10.9	Testing equipment	Testing lab with the following equipment(with one or many) Cobb meter  Tensile meter  GSM Meter (gram age per Sq. meter)  Newton meter  Micro meter  Vibration meter	5	Determines water absorption/penetration (cobb value) of paper and board. Measures the tensile strength of paper and board. Measures directly substance of paper, paper board and other materials in terms of GSM. For measuring the resistant against tearing of paper, paper board, plastic film, foils and other similar materials For rapid and accurate measurement of thickness of paper, paperboard, plastics, foils etc. For laboratory investigations of resistance of packages and products.

		Hand bar  Density meter  Drop tester		For pasting offset ink.  For testing the average smoothness, porosity and softness of paper, film by determining the time necessary for air/light to flow through and colour values. To check the box compression strength.
10.10	Sewing	Semi automatic sewing machine Size 17” to 23” width	4.50	Sections/forms will be sewed together by this machine it stiches 1000 sections per hour, therefore, better speed and quality is obtained. The sections will be fed by auto mode and checked and sewing operation will be done accurately for better quality and enhanced production.
10.11		Auto section sewing machine Size 17” to 23” width	35	
10.12	Binding	Single clamp perfect binder Size 40 pages to 400 pages Feeding will be done 10 books	4.50	This will gluing the back and fixing the wrapper to the back of the book. This will increase quality and production.
10.13		Ten clamp perfect binder Size 40 pages to 400 pages Feeding will be done 10 books	30	
11	Digital printing	Digital Printers - Xerox 6060 or 8000 HP. 1050 OCE 900 platinum	- 80 84 80	For better and increased production.

**(xxxxviii) Machine Tools:**

SI No	Activity	Technology Need	Cost Rs. in Lakh )	Advantages
CASTING DIVISION				
01.	Melting	Divided Blast Cupola.	3-5	15% Coke saving, better melt quality higher tapping temperature, lower emissions & reduced air pollution.
		Gas fired Cupola.	12-15	Eco friendly higher tapping temperature & better melt quality.
		Gas fired Pit Furnace.	0.75-1.50	Eco friendly higher tapping temperature & better melt quality.
		Oil Fired Rotary Furnace.	37 (imported) 3 (indigenous)	Pollution control, better quality product & cost effective.
		Induction furnace with cooling tower & water treatment plant.	10-25	Flexibility to produce ferrous castings of all grades, flexibility for charge mixes selection, best melt quality & eco-friendly.
		Induction ladle refining furnace.	30-40	Value added castings & eco-friendly.
		D.C. Arc Furnace.	30-40	Special grade castings & eco-friendly.
		Oil fired Rotary Furnace.	30 (indigenous) 37-40 (imported)	It is proven technology, reduced air pollution, better quality product & cost effective.
		Metal refiner Converter.	40	Value added castings & eco-friendly.
		Skip Charger for Cupola.	Up to 1.50	Ease of charging, reduced labour cost & better control.
		Pouring/treatment ladles as per IS-4475, 4476.	Up to 1	Quality assurance & increased safety for workmen.

02.	Heat Treatment	Gas fired/High temperature furnace with automatic temperature controller & recorder.	2.50 – 5	Eco friendly, reduced scale loss, facilitate automation & quality improvement.
		Fluidized bed Heat Treatment with controlled atmosphere and recuperates for pre-heating.	20 - 80	Eco friendly, highly energy efficient, requiring minimum time/energy to come on line. Flexible operations with adaptability to handle small batches, control atmosphere minimizing decarbonisation as well provides flexibility to carry out process such as carbonizing, carbonitriding and cyaniding without use of pollution salts. No pre cleaning/drying required & post treatment cleaning minimized.
		Medium frequency Induction heaters.	10 - 20	For controlled depth surface hardening machine tools and parts & improved quality.
		Electrical resistance furnace.	2 - 5	Eco friendly, uniform heating & precise control.
		Forced air circulation furnace.	1 - 3	Uniform heating.
		Forced air low temperature furnace.	1 - 3	Required for tempering operations.
		Induction hardening equipment- 100KW, 500 Hz to 3 KHz.	10 - 15	Higher productivity, consistency in quality & eco-friendly.
		Removable type Hearth type chamber F/C up to 1200 degree Celcius moving with computer compatible temperature controller.	3 - 5	Cost saving, consistency in quality & better productivity.
		Quenching: 1. Water quenching tank-with heat exchanger unit.	0.75	Process requirement to achieve quality.
		2. Oil quenching tank-fitted with oil heating & heat exchanger to obtain desired & cooling rates for hardening.	1.50	Process requirement to achieve quality.
3. Air quenching fans.	0.30	Process requirement to achieve quality.		
Flame Hardening Center.	10-12 Lakhs	Increase in accuracy and durability of the machines.		



03	Quality Control Laboratory	Metallurgical Testing: Metallurgical Microscope with image analyzer, photographic attachment & sample preparation machines.	1.50-10	Quality assurance, Defect analysis, Diversification e.g. SG Iron Production equipment essential to meet process control requirements.
		<p>Laboratory Testing/Quality Control equipment:</p> <p>Stroh lien Apparatus, Muffle furnace, Hot Plate, Glass ware etc.</p> <p>U.T.S.</p> <p>Spectrometer/Mass Spectrometer.</p> <p>Hardness tester.</p> <p>Izod &amp; Charpy Impact testing machine.</p> <p>Ultrasonic testing machine.</p> <p>Magnaflux testing machine.</p> <p>Sand Testing equipment Moisture Teller, Universal Sand Strength teting machine, Sieve shaking device, Compactability scale, Rapid Moisture Teller, Permeability Meter, Mold Hardness Tester, Muffle furnace, Wash bottles, stirrer/Shaker, Hotplate, Vortex shaker, Centrifuge etc. Shatter index machine, Scratch Hardness Tester, Stick point, hot tensile, peel back.</p>	<p>1</p> <p>Up to 3</p> <p>15-25</p> <p>Up to 1</p> <p>Up to 0.75</p> <p>Up to 0.75</p> <p>Up to 3</p> <p>2 to 8</p>	<p>Quality control, defect investigation, Quality assurance, Consistency in quality, Reduced defective casting, Cost control.</p> <p>Reduced defective casting, consistency in quality, Reduction in additives cost &amp; better as cast surface finish.</p>
		<p>Dimensional Inspection instruments: Surface plate for marking, height gauge, micrometer, profile projector with digital reading system, dial &amp; micro snap gauges, floating carriage dia measuring machine, 3-Co-ordinate measuring machine.</p>	Up to 10	Quality assurance & defect analysis.

		Process Control Equipment: (a) Carbon equivalent meter. (b) Pyrometer (dip type immersion)	0.75-1.75 0.20	Consistency in quality, reduced defective casting & cost saving.
	Inspection	Surface plate for marking, height gauge, micrometer, vernier calipers.	0.50	Quality assurance & defect analysis.
04	Design & Development	Computers and CAD Software, stimulation software and printer/plotter.	1.50-15	Computerization of design & Development to gain efficient & fast working.
05	Moulding /Core Section	Intensive mixers.	2.50-5	Reduced defective casting, better as cast surface finish, reduction in additive cost & reduced air pollution.
		Simultaneous Jolt/Squeeze Moulding machine.	3-10	Higher productivity, dimensional accuracy & less skill requirement.
		Shell Moulding Machine.	3-5	Higher productivity, dimensional accuracy & less skill requirement.
		Centrifugal casting machine.	1.50 – 3.50	Liner casting exclusive process & eco-friendly.
		Spun pipe casting machine.	Upto 40	Export potential, higher productivity & eco-friendly.
6	Machine Shop	CNC Milling machine CNC Lathe Machine Capstan lathe/Turret lathe Radial Drill Planner Shaper Jig Boring Machine Hydraulic Honing machine CNC drilling Machine Inverter Based welding machine	25-30 10-15 up to 3 up to 5 up to 3 up to 3 up to 5 up to 3 up to 3 Prevailing market price	Higher productivity, dimensional accuracy, less skill requirement & consistency in quality.  Better design, faster response time, extremely low ripple, smaller in size & lighter in weight hence portable, more efficient during welding, better weld quality and energy efficient operation.
		Gear shaper.	8 - 9	Improvement in tooth profile of the gears.
		Gear Hobbing.	8 - 9	-do-

7	Tool Room	CNC turning centre.	10-20	Improved high productivity, Precision machining, eco-friendly.
		CNC milling machine.	15-50	Improved high productivity, Precision machining, eco-friendly.
		Electro Discharge machine (EDM).	3-8	Improved high productivity, Precision machining, eco-friendly.
		CNC Wire cut machine.	10-20	Improved high productivity, Precision machining, eco-friendly.
		Profile projector.	0.50-2	Easy to understand drawing and make modification.
		3 D Co-coordinating machine.	2-5	Accurate dimensional inspection.
		Plastic Blow Moulding Machine.	25-75	For manufacturing tool kits.
		Fully Automatic CNC Injection Moulding Machine	15	Modern version for making handle of screwdrivers and sleeves of pliers.
		Special purpose machine Welding Sets.	5-25	Special purpose.
Special Purpose machine for Machining/Grinding/Polishing/finishing.	50-100	Special purpose.		
8	Pattern shop	CNC Milling Pantograph Drilling Disc and bobbin sand grinder	30-50 Up to 2 Up to 1.00 Up to 3	Higher Productivity, consistency in quality narrower as cast dimensions, excellent finish & better productivity.
9	Fettling Section	Shot Blasting Machine.	Up to 5	Higher productivity & process requirement to achieve quality.
		Pedestal Grinder.	Up to 0.50	
		Swing Frame Grinder.	Up to 0.25	
		Painting Booth.	Up to 0.50	
10	Utility Section	Gas fired generating set.	15-40	Eco-friendly & low power cost.
11	Skill upgradation & Training Division	Modern software driven equipment such as CNC trainer mill, CAD/CAM software and modern audiovisual equipment.	Up to 40	To impart training in updated technologies/design.
12	Packing	Packing Machine.	25-50	For better packing.

