ACTION PLAN FOR DOMESTIC MANUFACTURING OF ITEMS WHICH ARE HAVING HIGHER IMPORT

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NAME OF THE ITEM : HAND PRESSES

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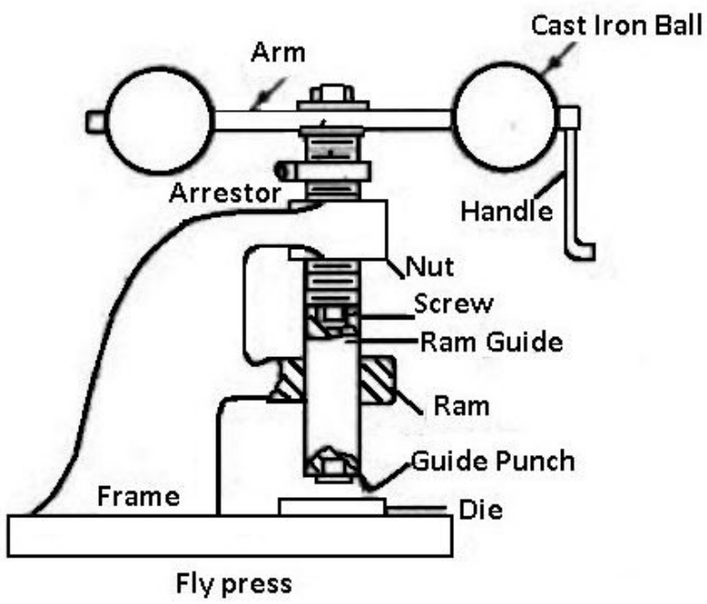
Chapter I NOMENCLATURE OF THE HAND PRESS

Metal forming can be described as the deformation of the metal to any required shape without any loss of raw materials. Metal forming machine tools are the necessary tools used in the manufacturing. Press primarily represents a specified form of Metal forming machine tool that use force, usually applied by pressure to create, form or deform a work piece or assemble a product, exclusively intended for mass production work to feed a specific type of industry or manufacturing.

Presses are classified based on their power source, purpose of use, type and design of frame, method of power transmission, etc. According to the Source of Power, presses may be classified as manual driven, mechanical type or hydraulic and pneumatic type. As the name implies, the manual driven presses are powered by a human operator i.e. operated by hand. The manual driven hand-presses are simple, basic tools, low capacity and low cost presses used for producing small components requiring light operations such as simple piercing, blanking, bending, forming, assembly, etc. Hand presses utilize a lever arm or large wheel with a mechanical linkage, which is typically either a rack and pinion or toggle mechanism or screws or gears or cam, to move the press ram up and down.

The Fig. of the Screw type Hand Press is shown below. This press also known as fly press or ball press. In this press, the energy is supplied through human efforts at the Ram through a screw. The main parts of the Screw type hand press machines are a frame, ram, nut and screw, iron ball, handle, guide way, punch, and die. The frame of the machine is rigid “C” shaped casting. Frame constitute main body of the press. It houses support for ram, driving mechanism(Screw) and control mechanisms(Handle). The typical shape of the frame leaves the front open which facilitates the feeding of the sheet metal below the ram from the side of the machine.



Fly press

The two heavy cast iron balls are mounted at the two ends of the arm which is bolted to screw, so that when the handle is turned it causes the screw to rotate within the nut. The Ram is main operating part of the press which reciprocates to and fro within its guide ways with prescribed stroke length and power. The stroke length and power transferred can be adjusted as per the requirements. Ram at its bottom end carries punch to process the work piece. The punch and the die constitute the press tool.

Chapter II COMMERCIAL DETAILS

1. HSN code of the product

Harmonised System of Nomenclature (HSN Codes) 84621030 are used for the Stamping Machines, Metal Working products under Goods and Service Tax classification.

In the HSN Code 84621030, First two digits (84) represent the chapter number which is Chapter 84 - Nuclear reactors, boilers, machinery and mechanical appliances; parts thereof. Next two digits (62) represent the heading number which is Machine Tools (including Presses) for working metal by forging, hammering or die-stamping; machine-tools (including presses) for working metal by bending, folding, straightening, flattening, shearing, punching or notching; presses for working metal or metal carbides, not specified above. Next two digits (10) represent the product code which is Hammers. Last two digits (30) are for final or deeper classification which is Stamping Machines, Metal Working. All 8 digits of HSN code is mandatory for export & imports for tax invoice of GST.

2. NIC code of the product

National Industrial Classification 2008 (NIC-2008) Code 28229 is used for Manufacture of metal-forming machinery and machine tools not elsewhere classified. Hand Presses are falls under the code 28229. NIC-2008 seeks to provide a basis for the standardized collection, analysis and dissemination of industry (economic activity) wise economic data for India.

The structure for NIC Code 28229 is illustrated below.

Level	Description
Section C	Manufacturing
Division 28	Manufacture of machinery and equipment n. e. c
Group 282	Manufacture of special-purpose machinery
Class 2822	Manufacture of metal-forming machinery and machine tools
Sub-Class 28229	Manufacture of metal-forming machinery and machine tools not elsewhere classified, which means other than machine tools classified for turning, drilling, milling, shaping, planning, boring, grinding, electroplating, etc. and parts and accessories for the machine tools listed above.

3. Clusters already existing on the product, if any.

Machine tools industry in India is scattered all over India. The hubs of machine tools manufacturing activities are concentrated in Maharashtra, Gujarat, Karnataka, Andhra Pradesh, Tamil Nadu, Haryana and Punjab. These states have attracted sizable investments and are the key industrial hubs.

In 1996, United Nations Industrial Development Organization (UNIDO) initiated the Cluster Development Programme (CDP) in India. In 1999, UNIDO-CDP with support from Indian Machine Tool Manufacturers' Association (IMTMA) initiated the cluster development programme for Bengaluru Machine Tool Industry. The objective was to promote collaborative approach among the Machine Tool Manufacturers' and their Vendors, and various technical institutions, financial institutions, R & D institutions apart from other support institutions to increase the competitiveness of Machine Tool industry in Bengaluru. Bangalore Machine Tools Manufacturers Network (BMTMN) is an Association connected with manufacture of machine tools & accessories from Bengaluru,

Karnataka. Established in the year 2003 with 7 members, BMTMN is today a very vibrant machine tool cluster of 12 members reaping the benefits of collective strength. The association is mainly formed to initiate activities & achieve synergy among members like provide competitive manufacturing technologies, common marketing, Service Centres, common legal help & the like.

Bangalore Machine Tools Manufactures Network (BMTMN), C/o. M/s. ETA Technology Pvt. Ltd, 484-D,13th Cross, IV Phase, Peenya Industrial Area, BANGALORE-560 058. Email : info@bmtmn.org Contact No. : +91 98867 13604

Bangalore Machine Tool Cluster's Members

No.	Members & Addresses
1.	ACUMAC MACHINE TOOLS PVT. LTD., 472-A, 12th Cross, IV Phase, Peenya Industrial Area, Bangalore -560058. Contact No.: +91 80 42111046 / +91 98450 86690 / +91 98450 86691 Email : info@acumacmachines.com
2	ASKAR MICRONS PVT. LTD., Plot No. 293-C, Hebbal Industrial Area, MYSORE - 570 016. Contact No.: +91 80 28361487 / +91 80 41171481 / +91 97414 90014 Email:ksraju@askarmicron.co.in / ksrajuraju@rediffmail.com
3	CIMTRIX Systems Pvt. Ltd., No.320, 8th Cross, 4th Phase, Peenya Industrial Area, BANGALORE - 560 058. Contact No.: +91 80 28360141 / +91 80 41179301 / +91 98450 18047 Email : ksnam@cimtrix.com
4.	Ducom Instruments Pvt. Ltd., No. 477/A, 4th Phase, Peenya Indl. Area, Bangalore - 560 058. Contact No.: +91 80 40805555 / +91 93438 06661 Email: nmdube@ducom.com / info@ducom.com
5	ETA Technology Pvt. Ltd., No. 484-D, 13th Cross, 4th Phase, Peenya Industrial Area, BANGALORE - 560 058. Contact No.: +91 80 28361487 / +91 80 41171481 / +91 97414 90014 Email : info@etatechnology.in / psnair@etatechnology.in
6.	FAR - Fenwick & Ravi, No.10/3, Lakshmipura Main Road, Abbigere,Chikkabanavara Post, BANGALORE - 560 090. Contact No.:+91 80 23253901 / +91 80 23453835 / +91 998800 19665 Email: fenwickthomas@gmail.com / ravifar@gmail.com
7	Lex Technoaid International Pvt. Ltd., Shed No.1, Bhadrappa Industrial Estate, Kamakshipalya 2nd Stage, BANGALORE - 560 079. Contact No.: +91 80 23489362 / +91 94482 90651 Email :custsupport@lextechnoaid.com
8	Mechelonic Welders Pvt.Ltd.,No. A-24, HMT Industrial Estate, Jalahalli, BANGALORE - 560 031. Contact No.: +91 80 23459026 / +91 80 23459027 / +91 98454 70392 Email: joshua@mechelonic.com / biz-suprt@mechelonic.com
9	Precitec Precision Machineries Pvt. Ltd.,No.A-353 (b), 8th Main road, 2nd Stage, Peenya Industrial Estate, BANGALORE - 560 058. Contact No.: +91 98450 17805 / +91 94481 37058 Email : info@precitec.co.in
10	Premac Tools Pvt. Ltd., #5, Laxmi Venkateshwara Industrial Estate, 2nd stage, Peenya Industrial Area, BANGALORE-560 058. Contact No.:+91 80 23103021 / +91 99805 71718 / +91 98806 68893 Email: vasudev.mani@gmail.com / admin@premactools.com
11	Trishul Machine Tools Pvt. Ltd., Unit II, 155A KIADB Industrial area Jigani Link Road, Bommasandra, BANGALORE - 560 099. Contact No.: +91 80 27836100 / +91 80 27836166 / +91 87920 07892 Email: info@trishulmachine.com
12	U C A M Pvt. Ltd., No. A 11 / 12, 1st Cross, 1st Stage, Peenya Industrial Area, BANGALORE - 560 058. Contact No.: +91 80 40744777 / +91 93422 53901 Email: indradev@ucamind.com

4. Possibility to establish clusters on the product

The machine tool sector is of strategic importance to the Indian economy and forms the backbone of the manufacturing activity. The sector has a multiplier effect on the overall economic growth and facilitates development of a wide range of user industries by providing critical inputs necessary for manufacturing. The Indian machine tools sector offers several opportunities for investment and setting up of clusters.

1. The National initiative “Make in India program” launched in 2014 to make India a manufacturing hub with the aim to increase the share of manufacturing sector in GDP from 16 % in 2014 to 25 % in 2025. India is considered a preferred destination by global manufacturing companies for setting up production facilities.

2. Given the current gap between demand from key user segments and supply, there is a clear need for adding capacities in the Machine Tool sector.

3. Growing stature of India in the global market as a sourcing hub for auto components and increase in export of cars from India to the rest of the world which will fuel Machine Tool Industry’s growth in the coming years.

4. India enjoys several advantages for the growth of machine tool industry such as Design Skills, Lower cost of manufacture, Availability of raw materials, Availability of skilled manpower, Presence of support industries (like foundry), Growth in end user industries, Proximity to Key Global Markets, Political Stability, Supportive Government policies, etc.

5. The growing Indian Economy, Increasing demand for telecom infrastructure equipment, push to the infrastructure of the country by the government, rising defence expenditure and opening up of the defence equipment manufacturing to the private sector are result in demand for Machine Tools.

6. Growing per-capita income and disposable income which is resulting in strong and growing domestic demand for automobiles, mobile phones, personal computers, electrical / electronic home appliances and other consumer durables.

7. The National Policy on Capital Goods has been envisaged to unlock the potential of the machinery sector and establish India as a global manufacturing powerhouse. The policy aims at increasing the production of capital goods from Rs. 230,000 Cr in 2014-15 to Rs. 750,000 Cr in 2025.

5. Probable areas or districts where the products manufacturing or project can be established

Potential locations for investment in the Machine Tool sector in India.

1. Mumbai and Pune in Maharashtra
2. Batala, Jalandhar and Ludhiana in Punjab
3. Ahmedabad, Baroda, Rajkot Jamnagar, Bhavnagar and Surendranagar in Gujarat
4. Coimbatore and Chennai in Tamil Nadu
5. Bangalore in Karnataka
6. Andhra
7. Hyderabad in Telangana
8. Buddi and Solan in Himachal Pradesh

A brief profile of each of the above states based on the key parameters is furnished below.

Maharashtra : Engineering, automobiles and textiles are among the key industries in the state. Pune houses the world’s leading automobile, engineering and electronics companies. The Chakan industrial belt includes Germany-based Volkswagen and Daimler and Indian auto majors, such as Mahindra & Mahindra and Bajaj Auto. Business-friendly industrial policies, infrastructure facilities,

proximity to the coast and the availability of large talent pool have made Pune as one of the country's automobile manufacturing hubs. The state has been focusing on development of Special Economic Zones and Special Industrial Areas, to attract investment. The state has a diversified and productive industrial workforce, with a positive work culture Maharashtra has abundant power to support industrial growth. Mumbai, the state's capital, is also India's financial capital- nearly 70 per cent of India's stock transactions happen in Mumbai.

Punjab : Important machine tools manufacturing clusters within Punjab are Ludhiana (specialising in forging) and Batala (specialising in foundries). The state is a strong base for textile, light engineering goods, including bicycles and their parts, tractors, auto components and hand tool industries. The exports from the state largely include yarn and textiles, engineering goods, bicycles and their parts. The manufacturing sector in Punjab is receiving significant investments.

Gujarat : Gujarat is a leading industrial state in India with Rajkot as an important cluster in conventional machine tools manufacturing. Other clusters are located in Ahmedabad (foundry, forging, auto components, sheet metal, packaging and food machinery), Jamnagar (brass parts). Vadodara and Surendranagar are other leading industrial cities in Gujarat.

Tamil Nadu : Coimbatore in Tamilnadu is a major hub for auto components, motor and pumps, wet grinders, tool and dies and has large textile and foundry clusters. The state has modern agricultural facilities and supports the agricultural industry with the production of pumps, motors and other important components. Multinationals like Ford, Hyundai, BMW , Visteon, etc. have located their Indian operations in Chennai, Tamil Nadu. The state has good quality manpower, high literacy rates, presence of good education and vocational training institutions. The State Government is focused on attracting FDI to support the state economy to grow at 8 per cent. To achieve this aim, it is focusing on infrastructure development, power generation, etc.

Karnataka : Karnataka is the leader among machine tools manufacturing clusters in India, with Bangalore alone producing about 60% of the machine tools of India, in terms of value. The machine tools manufacturing units are located in Bangalore (Peenya Industrial Estate, Abbigere Industrial Estate and Bommasandra Industrial Estate). The state has a congenial ecosystem for manufacturing including public sector units (PSUs), multinational corporations (MNCs) and MSMEs. The government announced the setting up of Tumakuru Machine Tool Park cluster in 2018 to cater to machine tool builders, makers of accessories, components and sub-systems.

Andhra Pradesh : The automobile and auto components industries have a strong presence in Andhra Pradesh, owing to the presence of large number of automotive component manufacturers. Global car makers are also eyeing Andhra Pradesh for establishing their manufacturing bases. For instance, Kia Motors, the South Korean automobile manufacturer, has invested €1.8 Bn ($2 Bn)11 for setting up its manufacturing facility in Andhra Pradesh. The state has a major port (Visakhapatnam) and about 14 minor ports, that provide enough opportunities of exports to the established industries. Andhra Pradesh also has high-quality manpower and high literacy rates.

Telangana : Hyderabad in Telangana is one of the major manufacturing hub for Pharmaceuticals and packaging industries in India.

Himachal Pradesh : Baddi and Solan are considered as prime locations for manufacturing of Pharmaceuticals, Health care products, food products and packaging materials in India.

6. Number of industries registered as MSME is available in the manufacturing of the product

Total number of applications with 5 digits NIC code (28229 – Manufacture of metal forming machinery and machine tools n. e. c., the NIC code to which Hand Presses belong)

	Micro	Small	Medium	Total
Under UAM Till 30/06/2020	5134	2086	56	7276
Under Udyam Registration	2196	317	28	2541
Total Number of industries registered as MSME	**7330**	**2403**	**84**	**9817**

7. Number of industries available in large scale industries

No large scale units exclusively, manufacturing Hand Press are traced. However, some units manufacturing Metal Forming Machine Tools (Hand Presses falls under the sector) in India, which are electric power driven with sophisticated technologies and have higher production capacities, used for same / similar application of hand presses are given below.

No.	Names and Addresses of Enterprises	Product Activities
1.	Amada (India) Pvt. Ltd., 412/C, Floral Deck Plaza, MIDC, Andheri(E), Mumbai - 400093. Tel : 91-22 – 28395592/28235406 Fax: 91-22-28235405 Web : www.amadaindia.co.in.	Suppliers of CNC Punching Machines, Laser Machines, Bending Machines, FMS (Flexible Manufacturing Systems), Software - Integrated Network Solution.
2.	Ashok Manufacturing Co.Pvt. Ltd., 12, SC India House, 2nd Floor, Connaught Circus, New Delhi - 110 001. Tel : 011- 23312331 / 5168 Fax : 011- 3712924 Email : abiho@adel2.vsnl.net.in	Manufacturers of CNC Turret punch presses, Automation, Robotics.
3.	Autotech Machine Tools Sales & Services Centre, Shatataraka Apartments, No. 5 A Wing, 47, Aundh Road, Near Ganapati Temple, Kirkee, Pune - 411020. Tel : 91-20 - 25690044 / 25690045 Fax : 91-20 - 5690046 E-mail : autocnc@vsnl.com.	Supplier of CNC Machining Centre, CNC Press Brakes, CNC Rotary Tables.
4.	Dealership Engineering Pvt. Ltd., Dhebarbhai Road, Rajkot - 360002, Gujarat. Tel : 91-281 - 2360242 / 43/44 Fax : 91-281- 2360466.	Deals in CNC hydraulic turret punch press.
5.	Electronica Machine Tools Ltd., Elektra Chambers, Pune Satara Road, Business Growth Division, 44, Mukund Nagar, Pune - 411037. Tel : 91-20 - 24211639 / 70891 / 72013 Fax : 91-20 - 24270891 E-mail : elektra@vsnl.com Web : www.electronicagroup.com.	Manufacturer of Turret Punch Press/Laser Cutting Machines/ Water Jet Cutting Machines Systems.
6.	Electropneumatics & Hydraulics Pvt. Ltd., 72, MIDC, Marol Industrial Area, Cross Road C, Andheri (E), Mumbai - 400093. Tel : 91- 22 - 28203490 Fax : 91- 22 - 28363825.	Manufacturer of CNC wire/ tube bending machine, CNC Punching Machine.
7.	Hindustan Hydraulics Pvt. Ltd., G.T. Road, Suranussi, Jalandhar - 144027, Punjab. Tel : 91-181- 2670054 / 55 / 56 Fax : 91-181- 2670053 E-mail : hhpl_sales@vsnl.net Web : www.hindustanhydraulics.com .	Manufacturer of CNC Hydraulic Press brakes / punch press, NC/CNC hydraulic vertical shearing machines, CNC Plasma Cutting Machine.
8.	ISGEC Haco Metal Forming Pvt. Ltd., SCO-34-35, Sector-10A, Above Canara Bank, Jalandhar, Punjab-144 001.	Manufacturers of CNC turret punch press and CNC press brake.
9.	Jekson Machinery Pvt. Ltd., Plot No.168, Road No. 4 ,GIDC Kathwada, .Ahmedabad - 382430. Tel : 91-79- 65259895/ 22901850 / 22970760 / 9426510343 / 9327008618 Fax : 91-79-22901851 / 22970764 E-mail : intro@jeksonmachinery.com	Manufacturer of CNC punching machine, CNC Hydraulic press brake, CNC water jet machine.
10.	Nebashi CNC Automation Pvt. Ltd., 201 & 202, 2nd Floor, Manbhum Jade Towers, Rajbhav A. N. Road, Somajiguda, Hyderabad - 500 082. Phone : 91-40 - 30621200 Fax : 91-40 -30621205 Web :	Manufacturers of CNC turret punch presses, CNC press brakes.

	www.indiamart.com/company/559153.	
11.	Nugen Machineries Ltd., 16-18, Changodar Industrial Estate, Sarkhej-Bawla Highway, Changodar, Ahmedabad - 382 210. Tel : 02717- 250380 / 963 / 964 Fax : 02717- 250310 E-mail : info@nugenindia.com Web : www.negenindia.com.	Manufacturer of CNC Turret Punch Press, NC/CNC Press Brake and Shears.
12.	Rishi Laser Cutting Ltd., 209, Aaj Ka Anand Complex, 356/6, Shivajinagar, Pune - 411 005. Tel : .91-20 - 25536845 Fax : 91-20 - 5536846	Exporters of CNC laser cutting machines, CNC Turret Punch Presses.
13.	Systems Integrators & Engineers, B - 504, Remi, Veera Desai Road, Andheri(W), Mumbai - 400053. Tel : 91-22 - 32518986 Fax : 022 - 32518986.	Manufacturer of CNC Laser marking machine, CNC number punching machines.
14.	Techno Crafts, Flat No. 11, Pakhar Apartment, Karve Road, Nul Stop, Pune - 411004. Tel : 91-20- 25425551 /46496/ 9422319755 Fax : 91-20-25446496 E-mail : technocrafts@vsnl.com	Manufacturer of CNC punching machine, CNC shearing machine, CNC press brake.
15.	Weldor Engineering Pvt. Ltd., Dhebarbhai Road (South), Rajkot, Gujarat - 360 002. Tel : 91-281- 2360242 / 43/44 Fax : 91-281-2360456 E-mail : welder@welder.com	Manufacturers of CNC turret punch press, CNC hydraulic press brake, CNC Press brake.

8. Data about the imports of Hand Presses for the past three years

Year	**2017 - 18**	**2018 - 19**	**2019 - 20**
Value in Rs. Crores	191.860869	205.929103	211.799873

9. Data available for the exports well against Hand Presses for the past two years

Year	**2017 - 18**	**2018 - 19**
Value in Rs. Crores	17.687294	15.076445

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

Indian machinery sector has significant opportunities both in domestic and export markets, so the Hand Presses manufacturers need to develop capabilities to cater to this demand.

1. Given the current gap between demand and supply and to reduce dependence on imports, there is a clear need for adding capacities for manufacturing of hand presses.

2. India is among the top ten producers for machinery in the world, and exports from the sector have registered a consistent increase over the past few years.

3. The Metal forming Machine Tool industry is driven by demand from key user industries such as, automotive and auto components, construction, Railways, electronics, consumer durables and engineering which are growing strongly.

4. In the Asia-Pacific region countries such as India, China, Indonesia and Japan are rapidly increasing their infrastructure projects which also acts as a major key factor for increasing requirement of metal forming machine tools.

Taking account of the above factors, additional capacity required in India for manufacturing Hand Presses is estimated to Rs. 450 Crs. which includes import substitution. As per the Project Profile a single unit will have capacity to manufacture worth of Rs. 3 Crs. So, there is scope for the setting up of 150 units, further.

11. The demand in the domestic market

The domestic market for Metal forming presses for sheet metal working provides significant opportunities to grow and achieve economies of scale. Demand for the presses accrues from manufacturers of primary and intermediate goods. The primary user industries include the automotive, capital goods, electronics, aviation, consumer durables, etc. Prominent users of Press machines in the intermediate goods sector, include auto components, ball and roller bearings and electronic components segments. All these industries are currently growing at a healthy rate and the trend is expected to continue in the coming years.

India is among the top destinations for global green field investments in some segments of the machinery sector, such as power transmission equipment (share of 23.9 percent in global foreign capital expenditure), textile machinery (23.8 percent), plastics and rubber industry machinery (22.4 percent), etc.

Auto & Auto Component industry and Capital Goods industry form the major market for the machines tools in India. The approximate user segmentation of the Indian machine tool industry is given below:

a. Auto and auto component.....40%
b. Die and mould 10%
c. Textile, food processing, durables, electrical, furniture, office equipment.....10%
d. Industrial machinery 20%
e. Defence.....5%
f. Others 15%

Shri V Anbu, Director General and CEO, IMTMA in an interview with OEM Update said that the market size of India's metal forming sector during 2016-2017 was Rs. 2,450 Crores. Indian metal forming industry has a market share of around 25 per cent. Around 75 per cent of metal forming machines consumed in India are imported. The long-term prospects look good with demand picking up in consumer durables, electronics and automobile industries. Metal forming industry was expected to grow at a CAGR (Compound Annual Growth Rate) of around 15 per cent during the period from 2017-18 to 2022 - 23..

12. Demand of the export market

The global market is geographically divided into i) Europe (Germany, U.K., France, Italy, Spain, Russia & Commonwealth of Independent States (CIS), Rest of Europe), ii) The Middle East and Africa (Gulf Cooperation Council (GCC), South Africa, Rest of Middle East & Africa), iii) Asia Pacific (China, India, Japan, ASEAN, Rest of Asia Pacific), iv) South America (Brazil, Mexico, Rest of South America) and v) North America (U.S.A., Canada, Rest of North America).

Amongst these regions, Asia Pacific metal forming machines market size was USD 18.71 billion in 2018. In the region, countries, such as India, Malaysia, China, and Indonesia, are the most significant emerging construction markets. As per a few sources, the construction industry in Indonesia is anticipated to grow more than 9 percent annually. It is likely to result in the rising number of non-residential and residential construction activities in the country. Rise in the production of automobiles in countries, including China, Japan, India has led to high demand for metal forming machine tools. North America is expected to showcase a considerable growth owing

to the huge demand for metal fabrication used in electronics and automotive applications in the U.S. Metal forming machine tools are increasing being adopted for the manufacturing of metal components in the automotive industry. In Europe, the presence of industry giants, namely, Daimler AG, Volvo Group, Volkswagen Group, and BMW, would also accelerate growth. In the Middle East and Africa, rising expenditure in the oil and gas sector is projected to cause a high metal forming tools market growth.

India is among the top ten producers for machinery in the world, and exports from the sector have registered a consistent increase over the past few years. As per the data presented by the Indian Machine Tool Manufacturers' Association on their website, machine tool exports from India have reached Rs. 355 crore during 2017 - 18, while the metal forming machine exports from India at Rs. 63 crore during 2017 - 18. India was the 18th largest global exporter of machine tools, accounting for 1.7% share in the calendar year 2018. China has been the largest importer of machine tools products from India since 2016, comprising 10.5% of India's export share in the calendar year 2018. Italy ranked 13th among the importers of machine tools products from India in the calendar year 2018, comprising 2.2% share of India's total machine tools exports. There is a good potential in the manufacturing industry for metal forming, as now OEMs are shifting to the high strength and lightweight material, Dual-phase (DP) grade. There is lot of demand for that from domestic as well foreign OEMs.

Partner Country importing Indian Machine tools (HS Code: 8456, 8457, 8458, 8459, 8460, 8461, 8462,8463) are given in the order of rank : 1. China 2. USA 3. Germany 4. Bangladesh 5. Nepal 6. Spain 7. Thailand 8. UAE 9. Malaysia 10. France 13. Italy.

Globally, Top Importers in Machine Tools are : 1. China 2. USA 3. Taiwan 4. South Korea 5. Germany

Top Destinations for India's Machine Tool Exports : 1. USA 2. Germany 3. Bhutan 4. China 5. Belgium

Identified Products for Export Promotion: Top Import Markets and Major Competitors for India (Values in US$ Mn.) based on imports in the year 2014

HS Code	HS Description	Global Imports	Top Importers	Value of Imports	Top Suppliers (figures in parenthesis represent respective country shares in world exports)
846299	Presses, not hydraulic, for working metal (excluding forging, bending, folding, straightening and flattening presses)	1175	Thailand	144	Japan (49.3), South Korea (11.1), Taiwan (Poc) (10.4), China (9.0), The USA (5.6)
			China	114	Germany (33.3), South Korea (16.7), Japan (12.3), Taiwan (Poc) (11.4), Italy (6.1)
			USA	101	Japan (28.7), Germany (18.8), Canada (18.8), Taiwan (Poc) (11.9), Italy (7.9)

Chapter III TECHNICAL DETAILS

1. Sector in which product is falling

The Machine Tool industry can be classified into metal cutting machine and metal forming machine tool sectors. Machines in each category is given below.

1.	Metal Cutting Machines	Lathe, Drilling Machine, Milling Machine, Boring Machine, Shaper, Planer, Grinding Machine, Machining Centre, etc.
2.	Metal Forming Machines	Stamping machines, Punching Machine, Shearing machines. Pressure machine, Bending machine, Casting Machine, etc.

From the above classification of Machine Tool industry, Hand Press comes under Metal Forming Machine Tool Sector. The metal forming, metal cutting and tooling sectors are integral to the industry, as their applications in other sectors and industries spread far and wide. They form an important step in the manufacturing processes of various products.

2. End users of the products / sectors

Machine tools are indispensable and its impact on the engineering industry is very profound indeed, provides the actual manufacturing muscle to all industries and determines the manufacturing competitiveness. Without machine tools, it would be impossible to produce many of the articles in every-day use in our homes. The automobile industry could not exist without machine tools. The production of the aero plane is very much dependent on the machine tools. Without machine tools and standardization, there wouldn't have been any Boeing 747 Jet made up of its 6 Million Components that too out sourced from 33 separate countries.

The user sectors of Hand press machine tools are manufacturing industries of automobiles & auto ancillaries, electrical equipments, electronics, telecommunication, textile machinery, earth moving machinery, railways, ship building, energy, infrastructure, defence, aerospace, nuclear power, agriculture, steel, fertilisers, multiproduct engineering companies, ball & roller bearings, industrial valves, power-driven pumps, compressors, Packaging, Medical, Toys, office furniture, instrumentation, consumer goods like washing machines, refrigerators, television sets, watches, dish washers, vacuum cleaners, air conditioners, etc., for manufacturing the components and systems required. Out of these, the automotive segment held 43.8% Metal Forming Machine Tools Market share in 2018. This growth is attributable to the rising technological advancements that consist of light-weight design solutions, smooth connectivity, and automated driving.

3. Governing Indian specification

IS 8064: 2002 standard by Bureau of Indian Standards describes the method of designation for both mechanical presses and hydraulic presses.

4. Governing International specification

ISO 16092-1:2017 specifies technical safety requirements and measures to be adopted for the design, manufacture and supply of presses which are intended to work cold metal or material partly of cold metal, but which can be used in the same way to work other sheet materials.

5. Flow process chart of the manufacturing

Steps involved in Manufacturing a Hand Press

Step 1 : Conceptual development and design of Machine.

Step 2 : Preparing part drawing for the machine elements.

Step 3 : Identify vendor for supply of Materials.

Step 4 : Procurement of semi-finished items such as castings, forgings and bar stock/other materials to drawings from vendors and standard elements like nut, bearings, couplings, scales, hardware items, etc. to be procured to specifications.

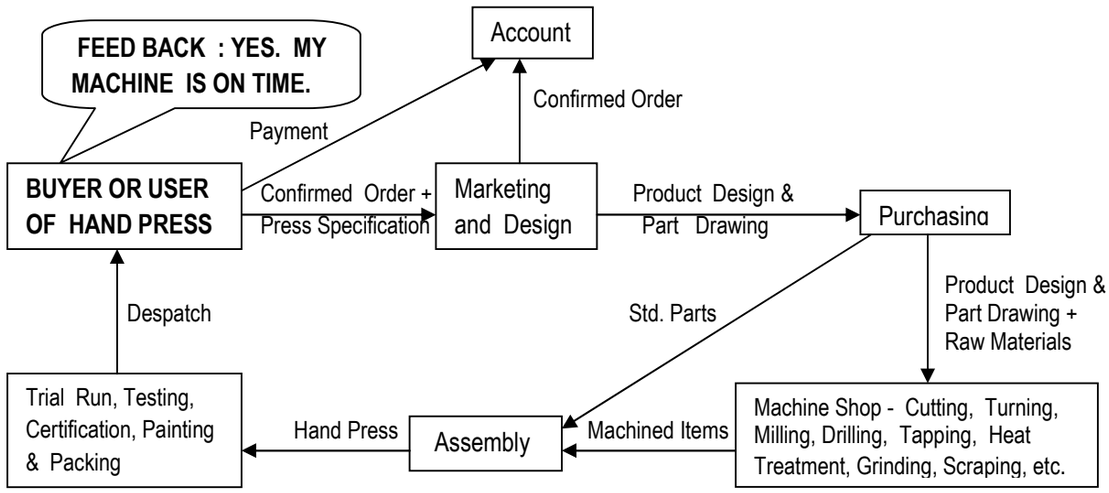
Step 5 : Machining all machine parts as per drawing. Scraping of sliding surfaces.

Step 6 : Assemble of all parts.

Step 7 : Trial run, Testing and Certification.

Step 8 : Painting, Packing and despatch to customers.

The flow chart for Overall Process of Hand Press is given for clarity.



6. Qualitative parameters of the product

The following parameters are expressed as specifications of a press.

a) Machine Capacity : Maximum force that its ram can exert on the work piece, this is expressed in tonnage.

b) Maximum Stroke Length : Maximum distance travelled by the ram from its top most position to extreme down position. It is expressed in mm.

c) Size of Table / Die Space : Total (maximum) surface area, in which die can be maintained.

d) Shut Height : Total opening between the ram and base when ram is at its extreme down position. This is the minimum height of the processed work piece.

e) Press Adjustments : Different stroke lengths that can be set as per the requirement.

f) Ram Speed : It is expressed as number of strokes per minute.

g) Flywheel Diameter in mm. : Flywheel is for storing the energy reserve and maintaining constant speed of ram.

h) Total Weight the Press : Approximately in kg.

Features

a) Flexibility : i) Rapid changeover due to the easy and secure adjustment of the working height ii) Ground platen with precision T- slot and precise alignment between the ram and table bores allow for accurate and repeatable set ups which reduces set-up times iii) Wide range of line up for various applications**.**

b) Ergonomic design : i) The original position of the hand lever can be varied by 360° ii) Available for left-handed and right-handed use iii) Clamp bearings and serrations provide a secure fit of the hand lever iv) The return stroke force of the ram can be adapted to different tool weights**.**

c) Precision : Need to produce high precision products. Alignment < 0.05 mm between upper and lower tool

d) Maintenance free : No lubrication necessary.

e) Excellent structure for easy and safe operability : Safe and user-friendly operation will lead to improve production efficiency.

f) Long service life : High durable structure leads to quite less deterioration even long hours of operation.

7. Details of the product Licenses to be obtained

The Government of India is constantly supporting the manufacturing sector in the country and that is benefitting the machine tools industry as well. Among them one of the key highlights is : Machine tools manufacturers are exempt from obtaining an industrial licence for developing tools and manufacturing. Since Hand Presses are category of Machine Tools, so, exempted from obtaining the industrial licence.

8. Equipment required for the manufacture of the product

As furnished in the Chapter III (THE DETAILED BANKABLE PROJECT REPORT OF HAND PRESS) at Sl. No. 13 (Financial Aspects) I. (Fixed Capital) b. (Machinery and Equipments required) Page : 26 & 27.

9. Test facilities required for the product

Machine tool testing laboratory requires facilities for :

1. Metrology : Dimensional, Form and Surface Finish Measurements of Components. 2. Noise and Vibration : Noise and Vibration Laboratory, caters to the measurement of parameters like Force, Displacement, stress and strain in machine tools and components. 3. Condition Monitoring : Machine condition is monitored by periodic vibration energy trending and spectral evaluation. 4.

Laser Calibration : complete check on a machine can be made for positional and geometrical accuracy checks like linear positional errors, repeatability, reversal errors, pitch, yaw and straightness errors in slide motion and square-ness among axes. 5. Fluid Power : The fluid power lab provides testing services in the field of Hydraulics. 6. Chemical Analysis : Spectrometer is equipped with facility to carry out chemical analysis of Ferrous & Non Ferrous base alloys for all the elements that are found in these alloys. 7. Tensile testing (UTS, YS, % Elongation) using Universal Testing Machine. 8. Hardness measurement for all scales (HRC, Vickers, Brinell, Micro Vickers). 9. Microstructure analysis (Case depth, grain size, inclusion rating) 10. Failure analysis. 11. A well laid out test floor to provide a rigid foundation for clamping and levelling machines under test. 12. Autocollimator and polygon mirror for measurement of indexing accuracy. 13. Interpolator tester to verify accuracy of circular interpolation.

The accuracy of Hand Presses is tested by means of geometrical checks, alignment tests and practical tests.

1. Geometrical checks include checking of dimensions of forms and positions of components as well as checking of their displacement relative to one another. The geometrical checks made on machine tools are : i) Straightness and flatness of guide ways and slide ways of Hand Press. ii) Flatness of machine tables iii) Parallelism, equidistance and alignment of the slide ways. Iv) True running and alignment of ram and guide. v) Lead of screw or error in pitch.

2. The alignment test on a machine tool is carried out to check the grade of manufacturing accuracy of the Hand Press. Under static conditions, the alignment accuracy of the machine tools checked by some geometric tests are called static tests. Some alignment tests are performed under dynamic loading of various members for Stiffness and rigidity, vibration and deflection of the machine tool and its components and these are referred as dynamic tests.

3. Practical test consists of preparing the actual test jobs on the Press, for which it has been designed and checking the accuracy of the jobs produced having predetermined limits and tolerances.

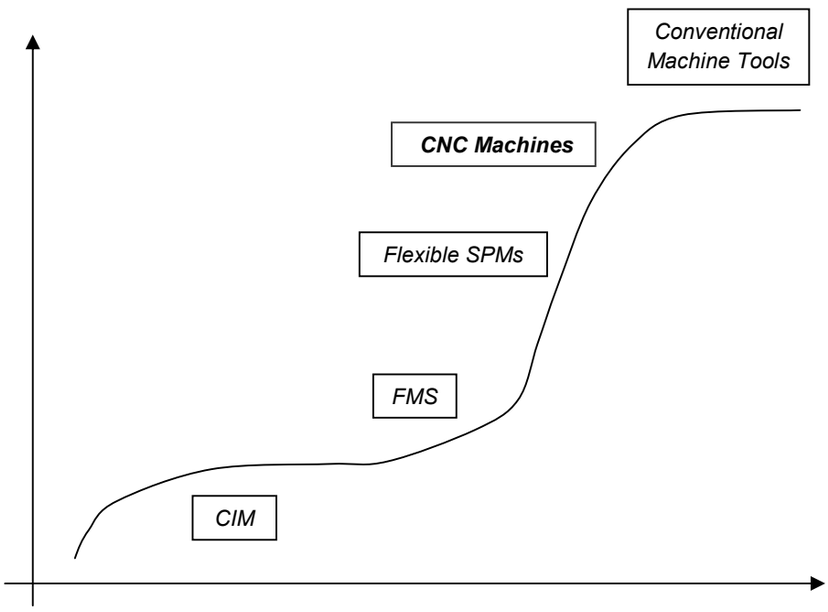
10. Technology existing in the manufacturing of the product

Prior to the invention of the machine press, workers were required to manually hammer metal by hand to change its shape. Not only was this physically taxing, but it was also ineffective when performed on hard and strong metals. Around the mid-1800s, however, the steam hammer was developed, also known as a drop hammer, which was essentially an early version of the modern-day machine press.

In the modern-day machine presses, Hand press or Ball press or Fly press is the most simple of all presses and is operated by hand. All presses consist of a machine frame supporting a bed, a ram, a source of power and a prime mechanism. Depending on size, type and force requirement for materials to be formed, these presses can be designed and manufactured. A basic structure is developed using strength of materials, beam bending theory, applied/allowable stress analysis, and material deflection. Additional features are developed based on a more specific investigation of customer requirements. The various processes used in the fabrication of this press machine include: Measurement, Marking out, Cutting, Machining, Drilling, Welding, Fastening, Grinding and Painting.

The manufacturing process of cast iron frame Hand Press consists of

1. The frames are large cast iron elements that are procured from foundry as per design.
2. Castings are inspected for porosity and other defects. If required these defects are repaired.
3. Castings are annealed / heat treated to relieve stresses and then seasoned for rigidity and stability.
4. The main frame is machined where moving parts are mounted
5. Moving parts like ram, guide, screw, flywheel, handle, arrestor, etc. are machined, heat treated and ground for accurate tolerances desired,
6. Sliding surfaces are lapped for accuracy and surface finish. Some components may be hard chrome plated.
7. The components of machines are assembled and the trial run is carried out for smooth operation and inspected for all alignment accuracy..
8. After the final inspection and final adjustments are completed, machine is spray painted and labelled.
9. The finished machine is tested as per specifications and acceptance test is carried out for customer before packing and despatch.



CIM : Computer Integrated Manufacturing
FMS : Flexible Manufacturing Systems
Flexible SPMs : Flexible Special Purpose Machines.
CNC Machines : Computer Numerical Controlled Machines.

Despite technology gaps in overall Machine Tool Sector in India, Manufacturing of Conventional machine tools in India are attained technology maturity.

11. Suggested modern technology for implementation or available in the market

Technology development is crucial for improving productivity, efficiency and competitiveness. The Indian machine tool industry was lagging behind major international machine tool builders from Japan, Germany and the U.S. Technology up gradation is a continuous process,

which helps the companies to attain international levels of competitiveness and to be able to offer contemporary levels of technology recognized in the market. Indian machine tool industry has expertise to meet technological gap, it lacks the requisite resources. A sound industry and need based R & D infrastructure with adequate financial support would help in reducing this technological gap. At a country level the initiatives are to be carried forward by machine tool manufacturers, users, academia, professional associations and Government.

The sector needs to upgrade its manufacturing technology and business processes to improve its productivity and also educate itself on the planning process to tackle the delays in delivery either by subcontractors, or by the companies themselves. In order to meet these objectives, suggestions are given below.

1. Use of CAD / CAM in product design and development, manufacture
2. Training in best manufacturing practices and processes
3. Implementation of IT as a measure to improve internal control and management effectiveness.
4. Implement lean manufacturing concepts
5. Effective vendor development and supply chain management
6. Cost control measures; bulk purchasing by cluster etc
7. Resource sharing between units
8. Energy efficiency management
9. Electronic commerce including technical document exchange etc.
10. Customize press and choose the accessories to the customer requirement such as Micrometer Fine Adjustment, Mechanical counter, Throat extension block, Ergonomic handle, Special fixture mounting plates, Ergonomic left-handed design, return stroke lock guarantees, Nickel plated design, etc.
11. Increasing usage of AHSS (Advanced High Strength Steel), is leading to usage of Presses, for better quality and productivity.

12. Raw materials required and availability

The following raw materials are required for manufacturing Hand Press.

Generally press frames material used are cast iron, cast steel frame and mild steel or structural steel plates welded frames.

1. Main raw materials are grey Cast Iron (castings) for frames, machine bed, columns, etc. as per design of machine.
2. Steel sections, rods/bars, channels, angles, flats, forgings, etc.
3. Springs, Fasteners, Hardware, Bearings and accessories in standard.
4. Welding consumables, Chemicals, Primers , Paints, Packaging Materials, etc.

All these components and materials are available easily and can be procured as per standard / design specifications.

13. Covering Raw material standards : Indian / International

Indian Standards : Steels as per BIS (e.g. Indian standards specification IS: 1570 have standardised the plain carbon and alloy steels)

International Standards : AISI-SAE The coding system is classification of steels standards from the American Iron and Steel Institute (A.I.S.I.) and the Society of Automotive Engineers (S.A.E.).

e.g. 1. The EN19 Steel equivalent grades is AISI 4140 an engineering alloy steel containing chromium and molybdenum. EN-19 Steel comes under the class of low alloy steel. EN-19 material has high fatigue strength, abrasion and impact resistance, toughness, and tensile strength.

2. ISO 5597:2018 : Standard for Hydraulic fluid power Cylinders - Dimensions and tolerances of housings for single-acting piston and rod seals in reciprocating applications

Chapter IV THE DETAILED BANKABLE PROJECT REPORT OF HAND PRESS

1. Introduction

Presses are pressure exerting machine tools. They are used in wide range of industries for processing a variety of materials (generally metal) into a variety of shapes with help of press tools/fixtures for mass production work. These are considered fastest and most efficient way to form a metal into finished products for consistent in quality and cheap production of large quantities of components such as automobile parts, electric motor parts, domestic electrical/electronic appliances parts, etc.

Hand press machines are powered by a human operator. They are simple, basic tools, low cost, low capacity presses ranging from half ton to about 10 tons. Hand presses utilize different methods to produce force and linear motion of the ram. The Fly or Screw or Arbor type of Hand press utilize a lever arm or large wheel with a mechanical linkage to move the press ram up and down. In this Hand press a second member is used to reciprocate the punch. The screw is turned by means of a handle which is secured to an arm carrying the screw. Generally a heavy weight is attached to the arm to produce the flywheel effect. In the fly-screw type press the effort is applied at the rim of the flywheel. The angle of the helix in this press is more than the angle of friction so that the potential energy of the shaft and flywheel is changed into kinetic energy as the ram is coming down. The presses of this type are generally mounted on benches and are, therefore, also called bench model presses.

Press design calls for special knowledge of the production process to be used. Depending on the intended application, the press is designed either to execute a specific process or for mainly universal use. The machine is ergonomically sound, functionally safe and user friendly, easy to manufacture and mass-produce and convenient to repair and maintain and has been developed to a marketable level with a remarkable in productivity.

This profile is prepared based on the market demand growing every year for Hand Presses. Domestic manufacturers unable to meet the domestic demand, so, Hand presses are imported into the our country and this is done at high cost. Hence, it is expedient that more of such important machine be developed locally. This work therefore presents the development of Hand press, can compete favourably with imported press machines of the same designed capacity. The development of various types in different capacity for various applications will help to minimize high cost of purchasing and importation of this machine thereby neutralizing trade deficit and strengthen our local manufacturing industries.

2. Product & its Application:

A variety of functions may be performed by any press, depending upon the tooling. Typical press operations are punching, shearing, embossing, blanking, piercing, forming, bending, drawing, fitting, assembling, Coining, Crimping, Curling, Embossing, Extrusion, Ironing, Lancing, Necking, Staking, Swaging, Trimming, etc. in the field of 1. Mechanical Engineering 2. Sheet Metal Products, Components, Assemblies 3. Automotive Industry and Its Suppliers 4. Heating, Ventilation, Air Conditioning 5. Steel and Aluminium Construction 6. Precision Engineering 7. Aero Space 8. Ship Building 9. Electrical / Electronic Home Appliances 10. Energy, including solar, wind, etc.

There are numerous characteristics by which presses can be designed, manufactured and categorized. These characteristics include function, structure and design, types of actuating mechanisms, application, size, force, and speed requirement for materials to be formed, etc. Each type creates force to execute the fabrication process in a different way that impacts the application, purchase price, operational cost, precision and safety.

Hydraulic Press : When machines are designed to apply force through hydraulic cylinders, these are called hydraulic presses. Hydraulic fluid Pumped via a lever, a hydraulic cylinder slowly extends with high force to press self-guided assemblies together. For certain operations such as assembly work or forming process which require low-volume, very high force, hydraulic presses are more advantageous.

Mechanical Presses : Employ different types of mechanical components to exert force, includes lever, cranks, cams, ball screws, lead or power screws, gears and rack and pinion drives. In all mechanical presses, the radial motion of the mechanical components is translated into linear motion which is, in turn, exhibited as a pressing force on the work piece. The following hand presses are typically used in an industrial setting.

a) Screw Press : A screw press is a type of press utilize a lever arm or large wheel with a mechanical linkage (screw) to move the press ram up and down. A screw press also known as fly press or ball press. In this press the power is transmitted through a screw. Screw press are low capacity press machines. The energy is supplied through human efforts at the Ram through power screw. This type of Mechanical presses are very widely used for blanking, forming and drawing operations required to be done on sheet metal.

b) Rack-and-Pinion Press : In this press, the force is amplified by the linkage, which is typically a rack and pinion. Rack and pinion presses amplify the applied force equally throughout the entire ram stroke. Applications : i) Insertion of bushes, axles and bearings into housings or deep bores ii) Assembly of components with large installation heights iii) Constant force over entire stroke iv) Sensitive "fingertip" work

c) Toggle Press : Toggle mechanisms start out with a lower force and increase the amplification toward the end of the stroke. Toggle joint mechanism is best solution for powerful and high precise operation. Appropriate for application which is required high force at end of stroke. Applications : i) Assembling, riveting, staking, swaging, crimping, marking, numbering, deforming, stamping, cutting ii) High force over a short press stroke

d) Crank Press : It consists of crankshaft driven by a flywheel. Rotary motion of the crankshaft is converted into reciprocating motion with the help of a connecting rod connected to ram.

e) Cam Driven Press : In this press, a cam is used to press the ram down words and suitably located springs restore the original position of ram when pressure applied is removed.

f) Eccentric Press : In this press, the driving shaft carries an eccentric integral with it. One end of the connecting rod carried an attachment of revolving eccentric and its other end is connected to ram. As the eccentric shaft revolves, the offset between the eccentric centre and the centre of rotation of the shaft provides the required movement.

Furthermore, a modular product design gives the opportunity to choose the appropriate press depending on the application.

3. Desired Qualifications for Promoter

Passed ITI, Diploma or Graduate in Engineering, preferably, Mechanical or Production or Metallurgy trade with some background in machine design, machining, assembly and marketing will have good scope to establish a project. Innovation, robust design and good accuracy of machines will surely build a good reputation for the entrepreneurs.

4. Market Potential and Marketing issues, if any

Machine tool industry is the mother of all industries. Machine tool industry is incomplete without metal forming segment which makes up 20% of machine tool industry. Press machines are critical components of many manufacturing industries that make up many of the end products in today's markets. Hand Presses are used extensively by companies across several applications such as die moulding, parts manufacturing, aerospace, shipbuilding, electrical and electronics, healthcare and consumer durables. Growing per-capita income and disposable income and rising population of middle class in India, the demand for automobiles, mobile phones, personal computers, automotive electronics and other consumer durables and increasing awareness of the technologically efficient products and the adaptation of same by the manufacturers are expected to increase the market for Hand Presses. Increasing demand for telecom infrastructure equipment, push to the infrastructure of the country by the government, rising defence expenditure and opening up of the defence equipment manufacturing to the private sector are resulting in demand for capital goods such as hand press. The growth of various manufacturing activities has given rise to demand for Hand Press

The auto component market, which is one of the prominent users of machine tools, accounts for about 40 percent of machine tools consumption in India. India is emerging as a major automotive export hub in the South Asian market for some of the major automotive OEMs such as TATA, Hyundai, Ford, Isuzu, Suzuki, Honda, BMW, Mercedes-Benz, KIA Corporation, Fiat, etc. Growing stature of India in the global market as a sourcing hub for auto components and other manufacturing industry products from India to the rest of the world are expected to foster the growth of the market for Machine tools.

Develop Domestic Market by making good rapport with user industries association and their members. Few of the prominent associations are given below.

1. Automotive Component Manufacturers Association of India (ACMA), The Capital Court, 6th Floor, Olof Palme Marg, Munirka, New Delhi : 110 067 Phone : +91-11-26160315 Fax : +91-11-26160317 E-mail : acma@acma.in

2. Society of Indian Automobile Manufacturers (SIAM), Core 4-B, 5th Floor, India Habitat Centre Lodhi Road, New Delhi – 110003 Phone: 91 – 11 – 24647810 -12, 91-11-47103010 Fax : 91-11-24648222 Email : siam@siam.in

3. Tool And Gauge Manufacturers Association(TAGMA), A-33, Nand Joyt Industrial Eastate, Andheri - Kurla Road, Safed Pool, Mumbai, Maharashtra - 400072 Phone : 022 2852 6876

Steps involved in an export business.

i) Decide where and what to sell : Start with understanding global markets and what kind of products sell more in which market. This would help decide what geographies to focus as per product's demand.

ii) Find buyers : Participate in Trade fairs in various countries, interact in various buyer seller meets and go to B2B portal.

iii) Register & list your products : Once decided on where and what to export then register as a seller in the respective international marketplace and list products want to Export.

iv) Ship your products : The key drivers which need to take care while shipping are: having quality control, proper packaging, labelling, custom clearances, etc. Delivery time is one of the critical factors that makes a customer order apart from product quality, price, availability of variants etc. Customers might not place their order, if the product's delivery time is longer or might cancel the order, if the committed date is not met. Hence, it is important to be competitive in delivering product to customer.

v) Get paid : Either collect your payments in a bank account in India or opt to open a new bank account in the country where export is done.

vi) Improve business through Customer satisfaction : Monitor customer feedback on product and improve product quality or add more features/ utility to increase sales.

vii) Can Manage Export business through Amazon : Promoting products through Amazon advertising solutions. With Amazon Global Selling would have an opportunity to sell in 200+ countries & territories across 15 Amazon marketplaces. Amazon supports end to end in shipping, packaging & delivery of products and hassle-free payment.

In order to generate better business relationships with leading end-users in any particular country, establishing a branch office in that country or strategic alliances, such as joint ventures or licensing agreements, with leading local manufacturers is recommended. Hiring a well-qualified local agent is also one of the most effective ways to sell their products in International market. Companies with less brand recognition among local end-users will need to spend much time and effort in marketing their products.

5. Basis and Presumptions

The following are the presumptions made while preparing this project report .

1. Project Cost comprising building rent, Machineries, Accessories, Electrification & plumbing works, salary & wages, raw materials, etc. are assumed and are approximate rate prevailing in the present scenario.

2. Working hours per shift : 8 Hrs

3. No. of shift per day : 1

4. No. of working days per year : 300

5. Average man and machine utilization : 75 %

6. Rate of interest on Loan : 14 %

7. Depreciation on machineries, accessories, equipments and furniture is taken as 10 %.

8. Pre-operative expenses include cost of project preparation, Technology, advertisement, staffs recruitment, etc.

9. Price of the product is depending on the type /size/precision/applications/other features as desired by customer. Average price is fixed Rs. 30,000/-. The material requirements are C I castings, forged steel, MS sections, bars, sheets, alloy steel, etc. they cost in range Rs. 60 per Kg. to Rs. 100 per Kg. Average cost Rs. 80 is taken. Other standard bought out items as per design. Consumables costs are considered based on prevailing market rate.

6. Implementation Schedule

The implementation of the project includes exercises such as procurement of technical know-how, market surveys, project report preparation, site/ rental building selection, finance arrangement, Registration and Clearance from local authority, procurement of machinery, recruitment of staff, erection / commissioning of machines, trial run and commercial production. In order to efficiently and successfully implement the project, some exercises are carried out concurrently. Project implementation will take a take period of 6 months from the date of initiation. Commercial production starts from 7th month. Breakup of activities with relative time for each activity is shown below:

Activity	Period in Months
1. Technical know-how, Market survey, Project preparation & Site Selection	1
2. Arrangement of Finance	1
3. Completion of Registration, Clearance from local authority, etc.	1
4. Placement of order for machinery and procurement	1
5. Installation, Erection, Power connection & Trial run machines	1
6. Recruitment of staffs, Commencement and Trial of Production	1
7. Commercial production and marketing	1

7. Technology & Manufacturing Process

The Machines may be designed either as per the design available in the market or developed by own or with guidance of technology resource centre such as Central Manufacturing Technology Institute (CMTI) or Design Institute and Technology Centre owned by Indian Machine Tool Manufacturers Association (IMTMA) and also, involving user of the machines in the machine and manufacturing to meet their requirements and satisfaction.

The manufacturing process of machine tools is very critical as the machines require precision. The process steps consists of :

1. The frames are large cast iron elements that are procured from foundry as per design.
2. These are to be cast with care and inspected for porosity and other defects. If required these defects are repaired.

3. Castings are annealed/ heat treated to relieve stresses and then seasoned for rigidity and stability.
4. The frames and moving parts like ram, guides, screw, shafts, flywheel, coupling, pins, etc. are machined by process such as turning, milling, drilling, grinding, slotting, etc. Some Components may be heat treated and ground for accurate tolerances desired,
5. Sliding surfaces are lapped for accuracy and surface finish. Some components may be hard chrome plated.
6. The components of machines are assembled with frame and the hydraulic cylinders and springs etc. if any.
7. Final alignment of machine bed with other elements is ensured.. After the final inspection and final adjustments are completed, machine is spray painted and labelled.
8. The machine is tested for smooth operation and inspected for all alignment accuracy through various dial gauges. The press is then mounted with trial die halves and trial run is carried out to finish the machine build.
9. The finished machine is tested as per specifications and acceptance test is carried out for customer before packing and dispatch.

8. Quality Control and Standards

There is no exclusive standards for Design & Manufacturing of Hand Press. However. may refer 1. IS 8064: 2002 standard by Bureau of Indian Standards describes the method of designation for both mechanical presses and hydraulic presses and 2. ISO 16092-1:2017 specifies technical safety requirements and measures to be adopted in the design, manufacture and supply of presses which are intended to work cold metal or material partly of cold metal, but which can be used in the same way to work other sheet materials.

9. Production Capacity

Taking account of market demand and various other factors in process, the plant can be utilized on 3/4th of full capacity to manufacture about 1200 Hand Presses of various types in different size per annum.

10. Utilities

Power requirement is approximately 30 KW .

11. Statutory / Government approvals

Udyam Registration as per MSME Act 2006 shall be done For export, IEC Code to be obtained. Approval for factory plan, safety, etc. is required as per factory inspectorate and ESI, PF, etc. as per labour laws. Before starting the unit will need GST registration for procurement of materials as also for sale of goods. The unit will have to ensure safe environment such as minimum height of shed will be maintained with exhausts fans installed for removing decongestion, proper ventilation, removal of cokes, fumes, etc. as per rules. Solid waste disposal shall have to meet the required norms. The unit may contact the respective State Pollution Control Board and the Central Pollution Control Board for guidance on pollution control measures. Awareness among the staff members of the industrial undertaking should also be created for abatement of pollution.

12. Energy Conservation

The following steps may help in conservation of electrical energy:

i) Efficient management of process / manufacturing machineries and systems, QC and testing equipments for yielding maximum energy conservation.

ii) Periodical maintenance of motors, compressors and other power driven equipments, lubrication of motors and motor drives regularly, use of power factor correction capacitors and tightening of the belt and pulley at regular intervals should be done to improve the efficiency of the system. Also, the motors should have good quality insulation to minimize the leakage currents and sparks.

iii) Lay-out of the unit should be in such a way that no back tracking of material is there.

iv) Proper selection and layout of lighting system. Timely switching on-off of the lights. Use of fluorescent tubes with electronic ballasts instead of incandescent lamps. Maintenance of the lighting systems with periodical cleaning of tubes and fixtures.

v) Energy Auditing at Regular Intervals.

13. Financial aspects

I. Fixed Capital

a. Land and Building

The unit is proposed to start in a rented building. Covered area of the building is 300 Sq. mts, which includes Machine shop for Cutting, Machining, Welding, Painting, Quality Control, Packaging and Office for Marketing, Accounts & Administration. Rent for building per month Rs. 20,000/-.

b. Machinery and Equipments required

Sl. No.	Description of Item	Qty. in Nos.	Value in Rs.
1.	Centre lathe 250 mm x 800 mm and accessories	1	4,00,000/-
2.	Universal Milling Machine 300mm x 800mmx400mm with 5 Kw Motor and accessories	1	6,00,000/-
3.	Radial Drilling Machine Drilling Size Dia : 50mm Motor 3 Kw	1	2,50,000/-
4.	Vertical Slotting Machine	1	60,000/-
5.	Power Hacksaw Metal Cutting Machine 1 HP motor	1	40,000/-
6.	Bench drilling machine cap. 200 mm 1 HP motor	1	30,000/-
7.	Double Ended Bench grinding machine 200 mm wheel dia. with 1 HP motor	1	30,000/-
8.	Flexible shaft grinder 1 HP motor.	1	10,000/-
9.	Arc welding machine cap. 300 amps.	1	60,000/-
10.	Hand Press 2 Ton	1	15,000/-
11	Chain Manual Hoist Crane Capacity 2 Ton	1	40,000/-

10.	Portable drilling machine	1	10,000/-
11.	Air compressor with spray gun 1 HP	1	30,000/-
12.	Weighing Machine 1 Ton capacity	1	40,000/-
13.	Machinery Erection and electrification		60,000/-
14.	Surface plates, Tool Holders, Angle plate, Clamps, Hand Tools, Vices, Chucks, Collets, Sleeves, Files, Hacksaw frames and blades, Tools & Dies, Hand tools, Jigs & Fixtures, Inspection & measuring instruments, Gauges, etc.	1 Lot	4,00,000/-
15.	Work Tables, Storage Racks, Trolleys Office furniture, Office equipments, Electrical fittings like fan, tubes, etc.	1 Lot	2,00,000/-
16.	Computer, Printer and Software	1 Set	1,50,000/-
	Total Fixed Capital		**24,25,000/-**

II. Working Capital Per Month

a. Manpower Requirement and Salary/month:

Sl. No.	**Designation**	**Nos.**	**Salary per month in Rs.**	**Total in Rs.**
1.	Proprietor cum Manager	1	60,000/-	60,000/-
2.	Supervisor	1	40,000/-	40,000/-
3.	Accountant-cum-store-keeper	1	18,000/-	18,000/-
4.	Skilled workers (Machinist, Welder and Fitter)	3	20,000/-	60,000/-
5.	Unskilled workers/Helper	3	12,000/-	36,000/-
6.	Office Assistant	1	12,000/-	12,000/-
7.	Security	2	12,000/-	24,000/-
8.	Part Time Sweeper	1	6,000/-	6,000/-
	Total	**12**		**2,56,000/-**
Add 15% perquisites of salary				**38,400/-**
Total expenses on salary and wages per month				**2,94,400/-**

b. Raw Material Requirements per month

The following raw materials are required for manufacturing Hand Press. All these components and materials are available easily and can be procured as per design specifications.

Sl. No.	**Description**	**Rate in Rs**	**Value in Rs.**
1.	CI castings, forged steel as per design of machine. Mild Steel sections, rods/bars, channels, angles, flats, etc. weighing 15,000 Kg for production of 100 Hand Presses / month.	80/- per Kg. (Average Cost)	12,00,000/-
2.	Bought out items Screws, Gears, Springs, Fasteners, Bearings, accessories, etc. in standard for 100 Hand Presses / month.	5,000/- per machine	5,00,000/-

3.	Welding consumables, Primers, Paints, Packaging Materials, etc for 100 Hand Presses / month	2,000/- per machine	2,00,000/-
Total			**19,00,000/-**

c. Utilities per month

Sl. No.	Description	Value in Rs.
1.	Electric Power 1500 KWH @ Rs.8.00/ unit	24,000/-
2	Water	1,000/-
Total		**25,000/-**

d. Other Contingent Expenses per month

Sl. No.	Description	Value in Rs.
1.	Building Rent	20,000/-
2.	Consumables & Stationeries	5,000/-
3.	Telephone, Internet and Postal	3,000/-
4.	Transport and conveyance	20,000/-
5.	Insurance	10,000/-
6.	Miscellaneous	10,000/-
Total		**68,000/-**

III. Total working capital for three months

Sl. No.	Description	Value in Rs.
1.	Salary & Wages per month	2,94,400/-
2.	Raw Materials per month	19,00,000/-
3.	Utilities per month	25,000/-
4.	Other Contingent expenditure per month	68,000/-
	Total working capital or Recurring Expenditure per month	**22,87,400/-**
	Total working capital for three months (22,87,400/- x 3)	**68,62,200/-**

IV. Total Capital Investment

Sl. No.	Description	Value in Rs.
1.	Machinery & Equipments	**24,25,000/-**
2.	Working capital based on 3 months recurring expenses	**68,62,200/-**
	Total Capital Investment	**90,87,200/-**

V. Means of Finance

Sl. No.	Description	Value in Rs.
1.	Promoters Contribution	27,26,160/-
2.	Bank Loan Finance based on 70% on capital investment	63,61,040/-
	Total	**90,87,200/-**

14. Financial Analysis

a. Cost of Production per annum

Sl. No.	Description	Value in Rs.
1.	Working capital per month x 12	2,74,48,800/-
2.	Depreciation on Machinery @ 10%	2,42,500/-
4.	Interest on total investment @14%	12,72,208/-
	Total	**2,89,63,508/-**

b. Turnover per Annum

By manufacturing of 1200 Hand Presses in a year & selling them @ average price Rs. 30,000/- per Press	**Rs. 3,60,00,000/-**

c. Profit per Annum, before taxes (Turnover per Annum – Cost of Production per annum)

i.e. Rs. 3,60,00,000/- – Rs. 2,89,63,508/- = 70,36,492/-

d. Profit Ratio on Sales i.e. $\frac{\text{Profit per Annum x 100}}{\text{Turnover per Annum}}$

i.e. $\frac{70,36,492/- \times 100}{3,60,00,000/-}$ **= 19.55 %**

e. Return of Return i.e. $\frac{\text{Profit per Annum x 100}}{\text{Total capital investment}}$

i. e $\frac{70,36,492/- \times 100}{90,87,200/-}$ **= 77.43 %**

f. Break-Even Analysis

Sl. No.	Fixed Cost per annum	Value in Rs.
1.	Depreciation on machinery	2,42,500/-
3.	Interest on total investment @14%	12,72,208/-
4.	40% of salary and wages	14,13,120/-
5.	40% of other contingent expenses & utilities (excluding rent and insurance)	3,02,400/-
	Total Fixed Cost per annum	**32,30,228/-**

Break Even Point (B. E. P)

$$\textbf{B. E. P} = \frac{\textbf{Fixed Cost x 100}}{\textbf{Fixed Cost + Profit}} = \frac{\textbf{32,30,228/- x 100}}{\textbf{32,30,228/- + 70,36,492/-}} = \textbf{31.59 \%}$$

15. Details of Test facilities available in India

Refer : Chapter No. V (Schemes and Consultancy services) at Part 3. (Details of agencies who can provide guidance) Page Nos. : 35, 36 & 37.

16. Details of Raw Materials Suppliers

1. M/s. VR Foundries, 83, 2nd St, Peelamedu, PKD Nagar, Coimbatore, Tamil Nadu - 641004 Phone : 0422 - 257 1614

2. M/s. Sri Karpagam Traders, 77, Chellapa Gounder Street, Kattor,Coimbatore - 640009 Phone: 0422-2234307/4377207

3. M/s. Sri Vari Traders, 771/4, Kalapatti Road, SITRA, Aerodrome Post, Coimbatore - 641014 Phone: 0422-2628729/2627881

4. M/s. Raunaq Steels Trading Pvt. Ltd., Rungta House, 65/A, Halls Road, Kilpauk, Chennai, Tamil Nadu - 600010 Phone: 044 - 42971234

17. Details of Machineries & Equipments Supplier

All the machines and equipment are available from local manufacturers / suppliers. Some of them are listed below:

1. M/s. Be Em Machine Tools, 9A / 4, Vishwanathapuram Main Road, Lakshmipuram, Ganapathy, Coimbatore - 641006 Phone : 0422-6460559 / 4373113

2. M/s. C.K.P Industries , SF No. 373/2 Thadagam Road, K.N.G. Pudur Privu, Coimbatore - 641008 Te l. : 0422 - 2400685 / 2402191

3. M/s. Quality Machinery Suppliers, 213, Rangakonar St., Kattor, Coimbatore - 640009 Tel. : 0422 - 2233771

4. M/s. Prompt Machine Tools Co., 253, 1st Floor, Dr. Nanjappa Road, Coimbatore - 641018 Phone : 0422 - 2231870

5. M/s. Pioneer Welding Equipments, 31/32, Thottarayan Kovil Street, Kattor, Coimbatore - 640009 Phone : 0422-43768688/231187

6. M/s. Elite Welding Equipments, No. 95-B, Park Street, Kattor, Coimbatore - 640009 Phone : 0422-4512361

7. M/s. S & T Engineers Pvt. Ltd., 22, Trichy Road, Vasanth Nagar, Singanallur, Coimbatore Tamil Nadu - 641005 Tel. +(91) 422 2590810 Mail : info@stengineers.com

18. Additional Information

a. The project profile may be modified / tailored to suit the individual entrepreneurship qualities / capacity, production programme and also to suit the location characteristics, wherever applicable.

b. Unit can utilize the spare capacities for diversification into producing several industrial parts/components and auto components.

c. The business needs building up reputation, ensuring reliability and quality of services rendered. Also, personal rapport of key persons can generate good business volumes. The location with good catchment area ensures good market potential to new business units.

Chapter V SCHEMES AND CONSULTANCY SERVICES

1. Existing schemes available and their details

a. Udyam Registration

1. Any person who intends to establish a micro, small or medium enterprise may file Udyam Registration online in the Udyam Registration portal (https://udyamregistration.gov.in), based on self-declaration with no requirement to upload documents, papers, certificates or proof.

2. On registration, an enterprise (referred to as - Udyam in the Udyam Registration portal) will be assigned a permanent identity number to be known as - Udyam Registration Number.

3. An e-certificate, namely, - Udyam Registration Certificate shall be issued on completion of the registration process.

4. Registration is free of cost and paperless.

b. Credit Related Schemes

i. Prime Ministers Employment Generation Programme (PMEGP)

To encourage new entrepreneurs to set up micro-enterprises through credit-linked subsidy support. Margin Money subsidy on Bank Loan ranges from 15% to 35% for projects up to Rs. 25 lakhs in manufacturing and Rs. 10 lakhs in service sector. The maximum cost of projects is Rs.25.00 lakh in the manufacturing sector and Rs.10.00 lakh in the service sector. Scheme applicable for any individual above 18 years of age, SHGs, Charitable trusts, Registered Societies etc.

ii. Credit Guarantee Fund Trust for Micro and Small Enterprises (CGTMSE)

The objective of this scheme is to provide Collateral free loan upto a limit of Rs. 200 lakhs to new as well as existing Micro & Small Enterprises. The corpus of CGTMSE is contributed by Government of India and SIDBI.

iii. Credit Linked Capital Subsidy-Technology Up-gradation Scheme (CLCS -TUS)

The objective of this scheme is to facilitate MSMEs through institutional finance for induction of well-established and proven technologies in the specific sub-sector/products approved under the scheme. Upfront subsidy of 15% on institutional Credit up to Rs.1.0 crore (i.e. subsidy cap of Rs.15.00 lakhs) for identified sectors/ sub sectors/ technologies is provided in the scheme.

c. Infrastructure Support to Develop Clusters - Micro & Small Enterprises Cluster Development Programme (MSE - CDP)

The scheme provides financial assistance for establishment of Common Facility Centres (CFCs)/ establishment / up gradation of Industrial area / Estate/Flatted/Factory Complex; [Infrastructure Development (ID) projects] Marketing Hubs / Exhibition Centres by Associations; Thematic Interventions and Support to State Innovative Cluster Development Programme for enhancing the productivity and competitiveness of Micro and Small Enterprises. For establishment of Common Facility Centers, the GoI grant will be restricted to 70% of the cost of Project of maximum Rs.20.00 crore. GoI grant will be 90% for CFCs in NE & Hill States, Islands territories, Aspirational Districts / LWE affected Districts, Clusters with more than 50% (a) micro / village, (b) women owned, (c)

SC/ST units. For Infrastructure Development, the GoI grant will be restricted to 60% of the cost of Project (Rs.10.00 crore for Industrial Estate & Rs.15.00 crore for Flatted Factory Complex). GoI grant will be 80% for Projects in NE & Hilly States, Island territories, Aspirational Districts / LWE affected Districts, industrial areas / estates / Flatted Factory Complex with more than 50% (a) micro / village, (b) women owned (c) SC/ST units.

d. Technology Up-gradation and Competitiveness Enhancing Schemes for MSMEs

i. Design Clinic Scheme: The objective of Design Clinic Scheme is to promote innovations in designing of the product and enhance the value addition of local products and services. There is a provision of financial assistance of Rs.15 lakhs (GoI: Units::75:25) for individual or up to 3 Micro units and Rs.25 lakhs (GoI: Units::75:25) for more than 3 Micro units. For Small & Medium units, it is Rs..25 lakhs (GoI: Units:: 60:40) for individual or up to 3 Units and Rs.40 lakhs (GoI:Units::60:40) for more than 3 Units.

ii. Lean Manufacturing Competitiveness Scheme (LMCS): The Lean Manufacturing Competitiveness Scheme (LMCS) is an initiative to enhance the Competitiveness of the manufacturing sector by imbibing a culture of continuous improvement in order to increase the overall productivity of MSMEs through application of various Lean Techniques to reduce waste and increase productivity. Financial Assistance for Lean Intervention in MSMEs through Lean Consultants up to Rs.36 lakhs (maximum) per mini cluster of 10 units for a period of 18 months or till completion (GoI:Units::80:20; Rs. 28.8 lakhs: Rs. 7.2 lakhs).

iii. Financial Support to MSMEs in ZED Certification Scheme: The objectives of the scheme include promotion of Zero Defect and Zero Effect (ZED) manufacturing amongst MSMEs so as to promote adaptation of Quality tools/systems and Energy Efficient manufacturing, encourage to constantly up-grade their quality standards in products and processes without impacting the environment.

iv. Building Awareness on Intellectual Property Rights (IPRs): The objective is to enhance awareness of MSMEs about Intellectual Property Rights (IPRs) and to take measure for the protecting their ideas and business strategies through Awareness Programmes/Seminars, Workshops, Reimbursement for registration of IP, International Co-operation & setting-up IP facilitation centre across the country.

v. Entrepreneurial & Management development of MSEs through Incubators: The main objective of the scheme is to promote & support untapped creativity of individual and to promote adoption of latest technologies in manufacturing as well as Knowledge based innovative MSMEs (ventures) that seek the validation of their ideas at the proof of concept level. The scheme also supports engagement with Enablers who will advise such MSMEs in expanding the business by supporting them in design, strategy and execution. The Enablers will play a pivotal role and would be integral part of the business development. Host Institutes (HIs) shall be provided grant of up to Rs. 1.00 Cr. for procurement and installation of relevant plant and machines including hardware and software etc. in BI in order to strengthen the technology related R&D activities and common facilities for incubates of BI. Grant in Aid to HI for developing and nurturing the ideas up to max. Rs. 15.00 lakh per idea. For students, the contribution will be Nil and for MSMEs/others, contribution will be 15 % of total project cost.

e. Procurement and Marketing Support (PMS) to MSMEs

i. The objective is to create awareness and educate the MSMEs about various marketing strategies and enhancing marketability of their products/services. Assistance is available for a) Participation of Individual MSEs in domestic trade fairs/exhibition across the country b) Organizing/Participation in trade fairs/exhibitions (Regional/ National/International) by the Ministry/ Office of DC (MSME)/Government organizations c) Capacity building of MSMEs in modern packaging technique d) Development of Marketing Haats e) International/National Workshops/ Seminars f) Vendor Development Programmes g) Awareness Programme.

ii. Public Procurement Policy : To provide marketing support to Micro and Small Enterprises (MSEs), Ministry of MSME has notified the Public Procurement Policy for Micro and Small Enterprises (MSEs) : 2012 under the MSMED Act, 2006 which is effective from 1st April 2012 and has become mandatory w. e. f. April 2015.. Amendment to this policy mandates 25% annual procurement from MSEs by Central Ministries /Departments/Central Public Sector Enterprises (CPSEs) including 4% from MSEs owned by SC/ST and 3% from MSEs owned by Women entrepreneurs.

More details about the schemes available at the website :www.dcmsme.gov.in

2. Proposed schemes

a) Focus on MSME Development

1. Promote modernization of MSMEs through interest subvention scheme like Technology Up gradation Fund Scheme, and concessional rates of interest at 6-8%.
2. Incorporate all capital goods sub-sectors under Credit Linked Capital Subsidy Scheme and expand its geographical reach to all regions.
3. Develop and promote supplier clusters, common manufacturing clusters for MSMEs around large manufacturers. Incentivize large industries and corporate for hand holding MSMEs, and help in bringing them up to global standards.
4. Provide MSME tax allowance to corporate and public sector companies to purchase a certain percentage from MSMEs and function as 'Anchor Industry' for them.
5. Include employment generation as a criterion for MSMEs to get qualified for various initiatives under National Capital Goods Policy, apart from the definition given in MSMED Act 2006.

b) Key Factors of Success for making machine tool industry technically competitive

The Indian machine tools industry need to address issues relating to their working environment, production technologies, managerial capabilities and concentrate seriously on technology and R & D to lead in global markets in the future.

i) Manufacturing Infrastructure : Encourage public private partnerships in establishing Machine Tool Parks where machine tool manufacturing clusters are active. e.g. Bangalore Machine Tool Cluster meets 60% requirement of the country.

ii) Promote Technology and Research & Development : Today in India, R & D work done by the industry is in isolation. R & D is not generally done in consultation with user sector. This needs to be changed and more interaction is necessary with the users to bring about innovative changes and add value to the products. Government of India established Central Machine Tool Institute in 1960. The machine tool industry is starved of technology development in the country and it requires

priority attention of the government. a) Revitalize activities of CMTI for development of Machine Tool Technologies for the benefit of Indian industries b) CMTI should have satellite centers at key locations where machine tool manufacturing MSEs are located to render service to them to improve their quality and technologies e.g. Ludhiana, Faridabad, Rajkot, Pune, Hyderabad, Coimbatore, etc. c) Encourage joint R & D projects resulting from Industry Institute interaction d) Government Laboratories to focus on developing technologies that have impact on manufacturing and machine tool technologies

iii) Availability of Qualified People : The industry requires knowledge workers in the field and there is acute shortage of these people. School / ITI / Diploma / Engg. colleges curriculum to be modified to suit industrial requirements. One of the key steps to revamp the ITIs is to strengthen industry-academia linkage include a) Industrial visits of at least three weeks for the final year trainees should be made mandatory for all trades. b) Industries should be associated to design need based short term courses in the ITIs. c) Industry should come forward to solve the shortage of raw material problem in ITIs by giving job work to the ITIs.

iv) Management Attitude

a. Continuously upgrade skills through training
b. Pay on par with service sector
c. Incentives, bonus, family welfare schemes
d. Ensuring security in career
f. Avoid discrimination

3. Details of agencies who can provide guidance

i. Office of Development Commissioner(MSME), Ministry of Micro, Small and Medium Enterprises (MSME), Govt. of India, Maulana Azad Road, Nirman Bhawan, New Delhi - 110108 Tel: 011 -23022220/22221/22211/ 22209 / 22202 Fax : 011 -23062315 /61726 / 61068 Web : www.dcmsme.gov.in

The Office of Development Commissioner (MSME) functions as an apex body for formulating polices for the development of the sector MSME and is playing a very constructive role for strengthening this vital sector through a network of 32 MSMEDIs, 27 Br. MSMEDIs, 4 MSME Testing Centre, 7 MSME Testing Stations, 18 MSME-Technology Development Centre. To improve the productivity, competitiveness and capacity building of MSMEs, the GOI has formulated /adopted polices and schemes such as MSMED Act, 2006, CPPP for MSEs. MSE-CDP scheme, PMS, CLCSS, Promotion of New Technology Centres under TCSP Scheme , etc.

ii. Central Manufacturing Technology Institute(CMTI), Tumkur Road, Yeshwanthpur Industrial Area, Phase 1, Yeswanthpur, Bengaluru, Karnataka -560022 Phone : 91- 80- 3372048 Web: www.cmti-india.net.

CMTI is a Research & Development organisation focusing on providing 'Technology Solutions' to the manufacturing sector and assisting technological growth in the country. The Institute renders technical assistance to machine tool and other engineering industries in the areas of Design, Development and Standardization of Machine Tools, Attachments, Accessories and Control Systems, Research and Investigation in Manufacturing Technology, Prototype Testing and Evaluation, TQM Services, Testing and Evaluation, CNC/CAD/CAM/FMS/CIM, Computer Software,

Robotics, Precision Engineering, Measurement and Calibration, Technical Information Services and Training.

iii. Institute for Machine Tools Technology, A-4, Focal Point, Batala - 143505, Punjab Tel.:1871-220009, 246472, 285047 Mail : imttbatala@gmail.com , imtt@rediffmail.com Web. :imttbatala.com

The Institute has well equipped Tool Room, Testing & calibration Laboratories, Design & Training wing, Technical Information Centre, Heat Treatment section. The machinery and equipment installed are of National/International credibility. The Institute is helping industry in their technological & quality requirements. The Institute is an autonomous society governed by governing council consisting of Punjab government officials, representatives of industry & associations etc.

iv. Indian Machine Tool Manufacturers Association (IMTMA)

Head Office : Plot 249 F, Phase IV, Udyog Vihar, Sector 18 , Gurgaon-122 015, Haryana Tel : 91-124-4014101/02/03/04Fax : 91-124-4014108 Email : imtma@imtma.in Website : www.imtma.in

Bangalore Office : Bangalore International Exhibition Centre,10th Mile, Tumkur Road, Madavara Post, Dasanapura Hobli, Bengalurue - 562 123 Tel : 91-80-23717791/92.

Pune Office : 2nd Floor, 43 B.G. Corner, Nigdi PUNE - 411 044 Tel : 91-20- 27662136 Email : imtma@vsnl.net

IMTMA plays a key role in the growth and development of the Machine Tool industry and it is the reference point for the industry. The apex body of machine tool industry in the country, IMTMA, has a membership of over 300 companies from both, the public and private sectors, manufacturing a wide range of metal-cutting and metal-forming machines, cutting tools, accessories and other ancillary equipments. The Association has over the years transformed itself to looking beyond, to focus on issues of productivity, quality, technology, new product development, design, customer satisfaction, etc. for enhancing competitiveness of the industry in both domestic and overseas markets.

The Association facilitates the machine tool industry through: a) Improvement of industry's image and technology standards. b) Promote productivity & competitiveness in manufacturing. c) Induct quality management. d) Interact with customers and users. e) Support development of company strategies for the future. f) Disseminate information required by the industry and about its achievements through several publications. g) Foster international linkages. h) Update the industry about developments within and the programmes of the user sectors. i) Enhance industry's capabilities through exhibitions, seminars and workshops on a wide variety of issues. j) IMTMA co-ordinates with the following Government bodies and helps the machine tool industry to avail development funds / grants based on the project/s submitted by the industry.

1. The Department of Scientific and Industrial Research (DSIR)
2. Department of Science & Technology (DST)
3. Technology Information, forecasting and Assessment Council (TIFAC)
4. Technology Development Board (TDB)

IMTMA through its Technology Centre a) provide state of art technical inputs and strengthen the design capability to machine tool builders and the CNC users b) provide effective training to the CNC users on optimum usage, productivity improvement and maintenance of the machinery c) develop skilled manufacturing engineers by providing hands on training in the CNC machinery and CAD/CAM systems.

v. Advanced Machine Tool Testing Facility (AMTTF), CMTI Campus, Tumkur Road,Bangalore-560022, Karnataka, India. Phone : 080-22731625 / 080-66246831. E-mail : director@amttf.in. Website : www.amttf.in

AMTTF is a Joint project of DIPP, Ministry of Commerce & Industry, Govt. of India, CMTI & IMTMA offering services. a) Performance Evaluation of Machine Tools, Accessories and Sub-systems b) Testing and Calibration of Machine Tools c) Static, Dynamic and Thermal Testing d) Reliability Tests, Trouble shooting and remedial measures e) Sub-assembly Testing (Spindles, axes etc.,) f) CE Certification of machine tools g) CAD/CAE Services h) Testing Electronic Controls and systems

vi. Department of Heavy Industries (DHI), Room No. 126-C, Udyog Bhawan, Rafi Marg, New Delhi-110011. Phone Number: 011-23062365

The DHI in the Ministry of Heavy Industries and Public Enterprises is responsible for the growth and development of the machine tool industry in India. The DHI has a formal mechanism for planning and enabling the development of the machine tool industry. This is done through committees such as the Development Council for Machine Tools (DCMT), Short term committees formed for specific assignments, Committee on Capital goods industries, etc. The DHI involves concerned government departments, machine tool industry, major users sectors and other policy making bodies on such committees so that wide segment of views is obtained. The machine tool industry through the IMTMA has major representation and plays an important role with the DHI.

vii. Advanced Manufacturing Technology Development Centre (AMTDC), Ground Floor, Block B, IIT- Madras Research Park, Kanagam Road, Taramani, Chennai – 600 113 Phone : 044 - 6646 9825 & 044 - 4202 2629 Email : info@amtdc.org

AMTDC is a one-of-its-kind “Centre of Excellence in India” supported by the Department of Heavy Industry, Govt. of India under the scheme “Enhancement of Competitiveness in the Indian Capital Goods Sector”. Established in 2016, the Centre focuses on Machine Tools and Production Technology. AMTDC brings to reality the collaboration of Industry and Academia by offering solutions for developing advanced technologies in the capital goods manufacturing sector with the collaboration of industrial partners.

viii. Centre of Excellence in Advanced Manufacturing Technology, Indian Institute of Technology, Kharagpur - 721302 Phone: +91-3222-255221 Fax : +91-3222-255303.

This Centre has been established through the support of the Department of Heavy Industry of Ministry of Heavy Industries and Public Enterprises, Government of India, along with a consortium of top six (6) industry members in the country such as Tata Motor, Tata Consultancy Services, Tata Steel, Tata Sons, BHEL, and HEC**.** The centre aims to stimulate the innovation to manufacture smart machines in the capital goods sector.

ix. India Trade Promotion Organisation (ITPO), Pragathi Bhawan, Pragati Maidan, New Delhi - 110002. Tel : 011-23371390/822 Fax : 011-23371874/18142.

ITPO is the nodal agency of the Indian Government, which promotes India's external trade. It provides impetus to trade, investment and technology transfer processes, through promotional tools such as organisation of fairs and exhibitions, buyer-seller meets, contact promotion programmes, product promotion programmes, in India and abroad. It does promotion through overseas department stores, market surveys and information dissemination work too.

x. The Federation of Indian Export Organisations (FIEO) , Opposite Asian Games Village, New Delhi 110002. Tel : 011-26851310/12/14/15 Fax : 011- 26863087 Email : fieo@nda.vsnl.net.in Web : www.fieo.com.

FIEO, an apex body of Indian export promotion organizations, represents the Indian entrepreneurs' spirit of enterprise in the global market. It is a partner of the Government of India in promoting India's exports.

Chapter VI CONCLUSION

The Machine Tool industry sector is of strategic importance to the Indian economy and forms the backbone of the manufacturing activity by providing critical inputs necessary. It is the mother industry of Capital Goods Sector which in turn determines the share of manufacturing in GDP of any country. The Indian machine tool industry is growing at a steady pace and with the continuous support of the government aims to grow even further ahead. The Indian machine tool industry has slowly but steadily positioned itself in the global market. The market size of machine tools in India for 2016–2017 is estimated to be around 1.78 billion dollars of which the domestic production accounts for about 47 % of the total consumption. In terms of global rank, India is 12th in production and 8th in consumption as per the latest Gardner Research Survey 2017. Fortune Business Insights says that the global Metal Forming Machine Tools Market size is projected to reach USD 48.67 billion by 2026, exhibiting a CAGR of 5.2% from the market was valued at USD 32.29 billion in 2018.

Indian machinery sector has significant opportunities both in domestic and export markets. Metal forming presses for sheet metal working form one of the most important classes of machines required by the industry. Metal forming market contributed about 15% of the total machine tools demand in India during 2016-17 and has grown at a CAGR of 15.5%, during 2015-16 to 2017-18. The production of metal forming machines was estimated at €92.3 Mn (INR 731 Cr) during 2017-18 as compared with €76.9 Mn (INR 609 Cr) during 2016-17, registering a Y-o-Y growth of 20%. India is expected to emerge as the largest manufacturing base for variety of mass produced components, industrial machines and auto industry supplier requiring precision for the world. Many manufacturing firms are coming up with innovations for the development of the metal forming segment. Considering the growing demand in user industries, Changes in industrial production, capacity utilization, capacity expansions and the level of business confidence strongly influence demand.

In 2014, the Indian Government began a nationwide initiative ‘Make in India’ to boost the manufacturing industry. The Honourable Prime Minister of India, invited many companies from across the globe to ‘Make in India’ by granting them with certain concessions. The government now embarking upon the ‘Atmanirbhar Bharat’ in addition to ‘Make in India’ programme on account of which local manufacturing will get a lot of encouragement and impetus.” In Budget 2021-22, announcements have been made on setting - up of seven Mega Investment Textile Parks. Also, the National Infrastructure pipeline is expected to boost infrastructure. Similarly, measures involving industrial corridors, National Master Plan on multi- model connectivity infrastructure, Fund of Funds and Seed Fund, Industrial development schemes for industrially backward regions, etc. are good decisions. In this year’s budget, about Rs. 2 Lakh Crore was earmarked for the next five years for the Production Linked Incentive (PLI) Scheme, which is aimed at boosting domestic manufacturing and exports, is expected to increase the country’s production by USD 520 Billion in the next five years. 13 sectors, including Auto, Pharma, auto parts, medical equipments, energy sector, food processing sector, etc. are brought under the ambit of the PLI scheme. The government is working at every level to promote the industry through measures like ease of doing business, reducing the compliance burden, creating multi-model infrastructure to reduce logistics cost and constructing district – level export hubs. The future outlook for the machine tool industry is optimistic and that the metal forming machine tool sector can expect a continued growth in demand.

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