

## EXECUTIVE SUMMARY

- 0.1. In India the foundry industry is age old. Majority of the foundries in the country are labour intensive and hardly 20 per cent of the foundries have moulding machines and associated equipment installed in their units. The level of technology and modernisation in majority of the foundries has generally remained static due to availability of cheap labour, easy salability of inferior castings and non-innovative attitude of the foundrymen and entrepreneur alike.
- 0.2. The methodology adopted for the study comprised of data analysis as well as field visits. During field visits discussions were held with all the moulding machine manufacturers in the organised sector, leading mechanised foundries in the country, professional bodies and institutes of repute in the field.
- 0.3. In India there are about 4500 foundries out of which only about 1000 have foundry moulding machines installed in their works. The approximate number of foundry moulding machines installed in the country is 5000. The mix of moulding machines installed in the country include hand operated level type moulding machines, jolt squeeze machines, sand slingers and shell moulding machines. Besides these, a few high pressure moulding machines and flaskless moulding machines are also in operation. An air impulse machine and a Vacupress have been recently installed in two of the leading foundries.
- 0.4. The first collaboration agreement for manufacture of foundry moulding machine was entered into in 1962 by Westerwork Engineers with British Moulding Machines, U.K. Subsequently three other collaboration agreements were also entered into. Soon after, M/s Pioneer Equipment Co signed agreement with M/s Kunkel Wagner of West Germany in 1964. Thereafter two more collaboration agreements were signed by New Standard Engineering Co. and BMD Foundry Machines in 1973 and 1986 respectively. All the agreements except that of BMD Foundry Machinery Co. with BMD of West Germany have since expired. Collaboration profile of moulding machine manufacturers is given in the following table.

**TABLE**  
**COLLABORATION PROFILE OF MOULDING MACHINE MANUFACTURING UNITS**

S. No.	Designation	New Standard Engineering Co.	Westerwork Engineers	Pioneer Equipment Co.	BMD Foundry Machines
1	2	3	4	5	6
1.	Company Status	Private Sector, established in 1963	Private Sector, established in 1961	Private Sec. established in 1957	Private Sec. established in 1985
2.	Factory Location	Bombay	Bombay	Baroda	Tumkur (Karnataka)
3.	Foreign Collaborator	Sintokogio Japan	British Moulding Machine Co. (BMM), UK	Kunkel Wagner (W. Germany)	MBD (W. Germany)
4.	Year of collaboration	1973	1960	1964	1986
5.	Nature of collaboration	Design/Drawings and know-how	Design/Drawings and know-how	Design/Drawings and know-how	Equity participation & design/drawings
6.	Types of products covered	Pin Lift, Turnover, Jolt squeeze, High Pressure, Medium Pressure, Horizontal, Flaskless	Pin Lift, Turnover, Jolt squeeze	Pin Lift, Turnover, Pneumatic jolt, Jolt squeeze, Vibrators, Snap flask	Simultaneous Jolt squeeze machines & sand slinger
7.	Products Manufactured	Pin Lift, Turnover, Jolt squeeze	All as above	All as above	All as above
8.	Installed Capacity (Nos.)	250	300	50	62
9.	a) Total Fixed Assets (Rs. Lakhs) in 1985- 86	2191.0	96.8	98.4	206.0
	b) Fixed Assets Apportioned for Moulding Machines (Rs. Lakhs) in 1985-86	N.A.	34.0	25.0	37.0
10.	Imported Equipment	Nil	Nil	Nil	Nil
*11.	Payment Terms	Royalty 5% Initial Lumpsum payment : Rs. 19 lakhs	Not available	Initial payment Royalty (Details not available)	Royalty 5% Initial lumpsum payment DM 3.75 lakhs Equity 40% (Rs. 40 lakhs)
12.	Training	Provided	Provided	Provided	Provided
13.	Expatriate Assistance	Provided	N.A.	Not mentioned in the Agreement	N.A.
14.	Validity	Expired	Expired	Expired	Still Tied
15.	Buy-back	No	No	No	No

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S. No. Designation	New Standard Engineering Co.	Westerwork Engineers	Pioneer Equipment Co.	BMD Foundry Machines
16. Export	Was through collaborators during the tenancy of agreement, now free to export	Information not available	Was through collaborators during the tenancy of agreement, now free to export	Through collaborators

\*Source : Department of Scientific & Industrial Research

- 0.5. There are five major manufacturers of moulding machines in the country, having an installed capacity of around 950 units per annum. This capacity includes 300 machines per annum with M/s Susha Founders and Engineers, who also manufacture core shooters and blowers. The production of moulding machines during the year 1985-86 was of the order of 160 Nos. valued at Rs. 151.0 lakh. The total exports of foundry moulding machine during the year 1985-86 was of Rs. 6.34 lakh.
- 0.6. The range of foundry moulding machines manufactured in the country include hand operated lever type moulding machines in the small scale sector and jolt squeeze type moulding machines in the organised sector. Of late the manufacturers have developed simultaneous jolt squeeze automatic moulding machines, which have been well accepted in the market. Besides these types of machines, sand slingers and shell moulding machines are also being manufactured in the country.
- 0.7. Since all the manufacturers of moulding machines in the organised sector have other products in their product-mix, they were not in a position to furnish information regarding order of investment on account of moulding machines manufacturing activity. However, based on discussions with them and field visits, rough estimates of the same been made and presented in Chapter IV of this Report.
- 0.8. The main processes of manufacture involved in the production of moulding machines include casting and machining. All the manufacturers except M/s New Standard Engineering Co. procure their castings from outside agencies. Machining facilities installed at all the units are more or less similar and comprise of general purpose machine tools. In few cases the units have NC/CNC machines and computer to facilitate data processing and adoption of computer aided designs.

0.9. The technology with respect to foundry moulding machines around the world is changing very fast and new technologies/processes/machines have been developed. These include, Flaskless Moulding Machine, Vacupress, Shoot Squeeze Machines, Explosive Moulding Machines etc.

0.10. The technology for the manufacture of foundry moulding machine imported over 20 years ago has been fully absorbed and adopted. Indian collaborators have been in a position to improve upon the design imported and have incorporated certain new features in their original designs. They have also started manufacturing automatic/semi-automatic simultaneous jolt squeeze moulding machines based on their own development and/or based on their collaborators' design.

0.11. Based on the study, the following recommendations are made :

- Mechanization culture need to be inculcated in Indian foundry industry.
- Existing manufacturers may continue making jolt squeeze machines with special features but at the same time they should develop medium pressure moulding machines to satisfy the needs of majority of the foundries in the country.
- New generation machines, whose application and usage is limited to a few in the country, may continue to be imported till sufficient market is developed and production of these machines on economical scale can be sustained.
- There is an urgent need for upgradation of moulding machine technology in the country and necessary steps should be taken to carry out development activities at a Central Research Institute like NIFFT. Steps are also necessary to be taken for laying down appropriate standards for the benefit of the manufacturers as well as the users of the moulding machines.