

# **EXECUTIVE SUMMARY**

## **1 ELECTRONIC WATCHES**

### **1.1 GENERAL**

Electronic Watches were introduced in the world market in the early seventies. They came to India in 1979 but had to be withdrawn due to problems with the product. HMT Ltd (HMT) introduced its electronic watches in 1981 and was followed by Hyderabad Allwyn Limited (Allwyn).

Organisations such as Electronics Corporation of Tamil Nadu (ELCOT), Semi Conductor Complex Ltd. (SCL), etc. introduced watches but were not successful. By mid eighties many smaller companies, originally manufacturing mechanical watches, diversified into electronic watches.

In 1987 Titan Watches Ltd. (Titan) a joint venture of Tata Sons and Tamil Nadu Industrial Development Corporation entered the market and shortly established itself as a major manufacturer.

### **1.2 INDUSTRY STRUCTURE**

The electronic watch industry is dominated by HMT, Allwyn and Titan. They command about 80% share of the organised sector. Therefore, the study concentrates on these manufacturers, though issues pertaining to smaller companies are addressed.

The installed capacity of the industry is 10.8 million pieces. A large unit, Indo French Times, with a capacity of nearly 2.0 million pieces is lying idle due to some internal problems among the promoters.

The production at present from the industry is around 6 million watches. While HMT and Titan operate at 70% - 80% capacity, others work at very low capacity. In the case of Allwyn, the company is facing various problems. Titan - Timex has just completed one year and is still in its gestation phase. The other small companies work at low capacities as their market reach is limited and are not able to compete with the big companies.

In terms of importance in the market, Titan has a share of about 58%, HMT 29%, Allwyn 5.5% and 7.5% with others. However, including mechanical watches the market shares are : HMT 63%, Titan 18%, Allwyn 8% and others 11%.

## **Industry Performance**

As mentioned earlier, while HMT and Titan work at high capacity utilisation, other companies utilise their capacity poorly. Consequently, except for these companies, the smaller ones are not healthy financially. They are however propped by their mechanical watch or clock business.

The industry is growing at a rate of about 10%. The growth of individual product types are discussed later in this report.

## **Major Problems Faced by the Industry**

The major problems facing the Industry are the following :

- \* Non availability of raw material from domestic source.
- \* Spurious watches
- \* Restriction on manufacture of straps.
- \* High duties and taxes.

## **1.3 INTERNATIONAL SCENARIO**

The total world production of watches (in 1991-92) is 828 million pieces. Switzerland, Japan and Hong Kong are the important watch manufacturing countries. While Japan leads the world in terms of volumes, Switzerland has the largest share in value terms.

The important markets for watches are Hong Kong, Western Europe, USA and middle east countries.

## **Salient Features of Contemporary Technology**

The salient features of contemporary technology are the following :

### **Analogue watches**

- \* Superior appearance parts.
- \* Thin cases.
- \* Multi-dial, skeleton watches.
- \* Jewellery watches.

### **Digital**

- \* Multi function watches.

### **Others**

- \* High level of process automation.
- \* Increased use of plastics.
- \* Development of different calibre of ECBs.
- \* Development of long life battery cells.

### **Product Development**

The following would be the advancement in the product features :

- \* Multi function watches including message receivers.
- \* High accuracy watches.
- \* Contour watches.
- \* Long life captive power source for watches.

## **1.4 RESEARCH AND DEVELOPMENT**

There is hardly any research and development activity in national laboratories or educational institutions in this area. Individual companies sometimes sponsor development in specific areas.

The big three companies have active R & D departments. Till recently they were concentrating on indigenisation of components and developing jigs and fixtures. Now some of them have started process improvement and product development projects.

In the countries manufacturing watches, significant developments in watches are spin-offs of elaborate and fundamental research. Added to this the scale of operation is very high. These factors facilitate on going development. In contrast, in India there is not much research that goes on in areas connected with watches to offer any spin-off benefit. Therefore, the industry is required to bear the cost of research. This has not happened due to the relatively small size and infancy of the industry.

The technology gaps are in the following areas :

- \* Raw materials.
- \* Electronic components.
- \* Finishing/electroplating

Another area that potentially has immense benefit to the industry is development of plastics for movement parts. This would not only lead to reduction in costs, in terms of not having to import metals, but also prevent material wastage. This will be possible as plastic components are moulded while metal parts undergo machining, stamping, drilling, etc leading to wastage.

### **Testing Facility**

The testing facilities with large companies are said to be adequate, though more sophisticated equipment are reportedly available abroad. The smaller companies may not possess the standard testing equipment that is desirable.

A central facility with Horological Inspection Institute is not used by all the companies, it was co-promoted by HMT with UNIDO, and has strong links with HMT.

### **Standards**

The Bureau of Indian Standard (BIS) is developing horological standards. Already 37 of them have been approved. Currently the BIS committee is reported to be working on standards for raw materials.

### **Thrust Areas of Indigenous Technology**

The thrust areas should be as given below :

- \* Indigenisation of components.
- \* Development of appearance parts and new styles.
- \* Indigenisation of ICs.
- \* Development of plastics and, other raw materials.

## 1.5

## CONCLUSIONS

The Indian electronic watch industry has tremendous potential to grow. For this however efforts would have to be focussed and penetrative.

### Capacity

To be competitive, Indian watch manufacturers have to expand capacities at a rate much higher than current levels. This would enable them to take advantage of economies of scale. Current manufacturers should be allowed to utilise the 'latent' capacity available in their plants, by automating the manufacturing process completely. With regard to digital watches, since Indian manufacturers have not acquired levels of technology that exist abroad, it is not perceived as an area for active development. Current capacities can be allowed to expand at current levels to cater to domestic demand.

Such efforts are likely to result in a shakeout in the market which would have a direct bearing on the small and medium manufacturers, who would be forced to improve their product quality, undertake product innovations and R&D efforts, increase production levels failing which their participation in the market would become insignificant. Such manufacturers should identify niches and cater to them.

With regard to components, the potential and feasibility of exporting movements may be examined in detail. EOUs for this purpose can be set up by a consortium of existing manufacturers or new entrepreneurs. Some aspects which would have to be addressed are the following :

- \* Source of technology.
- \* Extent of standardisation of movement parts.
- \* Marketability of Indian movements abroad.
- \* Capability to develop new movements in the future.

### Testing & Infrastructural Facilities

While most manufacturers do have their own testing facilities, such facilities available with smaller manufacturers are not sophisticated. There is thus case for a central testing facility especially for smaller units in the areas of new product development. The facility at the Horological Inspection Institute (HII) is underutilised today. One of the reasons stated to be the involvement of HMT and competitors hesitate to utilise the available facility.

There is need to improve the availability of infrastructural facility in research and development. This would also help avoid duplication of effort which might be happening at present.

This can be done by the following way :

- \* Promoting interaction between industry and research organisations.
- \* Formation of a nodal agency either by the industry or the government to co-ordinate with various research institutions,.
- \* Encourage commercial design firms by offering them concessions in the import of equipment, hardware and software which can cater to the entire industry.

### **Technology Status & Thrust Areas**

While process technology in India, are similar to those abroad, the level of automation is much lower in India. The thrust areas thus would be the following :

- \* Increase process automation by the introduction of fixtures in the production line.
- \* Indigenisation and commercialisation of all components namely :
  - Iccs
  - Stepper Motors
  - Quartz Crystals
  - Trimmer Capacitor etc.
- \* Introduction of plastic in movement parts which is likely to result in reduction of wastage and import of raw material.
- \* Standardisation of components should be attempted albeit over a five year time frame to help manufacturers achieve economies of scale.

To achieve these, creation of infrastructural facilities would be imperative. In addition, fiscal incentives in terms of depreciation on indigenously developed machinery, excise/taxes based on import content could be examined.

## **Development of Standards**

Horological standards covering raw materials (including plastics) should be developed soon to enable their indigenisation and development both within and outside the country. A time frame may be defined for implementing comprehensive standards developed using established ISO, NIHS to DIN standards.

## **International Market**

Market factors that are likely to have a direct bearing on Indian made products are the following :

- \* Obsolescence is high in digital watches where India does not possess any strength.
- \* The international market is very sensitive to brand names particularly in the premium segment.
- \* Consumer acceptability of Indian made products is low abroad.

The export strategy may be guided by these factors and salient features of such a policy could be as follows :

- \* Export of digital watches may not be attempted.
- \* Low price watches can be exported to countries with a significant Indian population.
- \* Identify mature markets abroad where domestic industry is not very strong (like England, Spain, Italy) and enter into marketing arrangements with organisations there.
- \* Large scale export of movements can be attempted.

## **Import/Export Assistance**

Raw material costs are said to be high because of high import duties. Reduction in duties would provide immediate relief. As indigenisation of raw materials may take some time yet, those components which can be indigenised may be placed in high duty bracket and vice-versa. This would also encourage value addition thereby utilising low cost labour.

## **2 ELECTRONIC CLOCKS**

### **2.1 GENERAL**

Unlike watches, clocks are not considered to be a medium for expressing oneself. It is more a utility product. In India, clocks are very popular gift articles.

The first electronic clock was made in India in the early seventies by Super Scientific. From then a number of manufacturers have entered the industry.

### **2.2 STRUCTURE OF INDIAN INDUSTRY**

The manufacture of movements and watches is not a hi-tech operation. In addition, the investment required is relatively low (Rs. 3 - 5 crores). Therefore, a number of small companies have entered the market. In addition, assembly of clocks, using components bought from movement and other parts manufacturers, is virtually a cottage industry. In addition to about 20 manufacturers of movement and clocks, there are between 1000 and 2000 assemblers. Many of them produce less than 5000 pieces a year.

Almost all the companies are concentrated in the traditional Horological centers such as Morvi, Delhi and Bombay. Other important centres are in Gujarat at Ahmedabad, Surendra Nagar, Valsad, Surat, Baroda and Junagadh.

While the installed capacity with the manufacturing units are not available, estimates of production of the important companies suggest a range of 0.05 to 4.0 million pieces a year. The top five companies produce between 1.2 to 3.75 million pieces.

#### **Performance of the Industry**

The electronic clock industry has been performing rather badly. It has been opened by the industry that due to smuggling and price cutting by unorganised sector, the units carrying out legitimate business are hard hit.



### **Major Problems Facing Industry**

The major problems that inhibit good performance by the industry are the following :

- \* Smuggling of clocks and ICs.
- \* Price cutting by unorganised sector by using low cost, smuggled components and resorting to unaccounted sale.
- \* Non-availability of good quality plastics, brought out by small manufacturers who use recycled plastics to keep cost down.

### **Demand/Supply**

The present demand for electronic clocks is estimated at 18 million pieces a year. This is expected to grow at a rate of 10% a year.

The demand of 18 million nos. is estimated to be met through supply from the following sources :

Production by domestic manufacturers/assemblers	10.8 million
Smuggled clocks	1.2 million
Spurious clocks manufactured using smuggled Ics	6 million
<b>Total</b>	<b>18 million</b>

### **Imports**

Clocks are not import intensive. At present most components are indigenised and are in different stages of commercial production. Therefore the imports are restricted to certain types of musical ICs and square trimmer capacitors.

### **Exports**

Exports are in very small quantities. It is a widely held view that considering the quality of an average Indian clock, exports will be extremely difficult.

### **Economic Size**

Scale of operations is another factor that would retard export growth. The largest Indian companies manufacture about 2-3 million clocks. In contrast some of the German companies produce 45-50 million pieces.

In India, the minimum economic size is said to be 15,000 - 20,000 clocks a month.

## **2.3 INTERNATIONAL SCENARIO**

Germany, Taiwan, Japan, Korea and Hong Kong are leaders in electronic clocks. The important export markets are USA, Hong Kong and Western Europe.

The salient features of contemporary technology are the following :

- \* Highly automated production facilities.
- \* Solar powered clocks.
- \* High priced clocks using different material for cases.

The developments in products are likely to be in the following :

- \* Slimmer/compact movements.
- \* Battery-less clocks in the popular range.
- \* Better appearance parts.

## **2.4 R & D EFFORTS**

Being in small and medium sectors, the individual companies do not apparently undertake R & D projects, other than those concerning appearance parts. The developments in components have come about due to efforts of the basic electronic industry, particularly organisations such as SCL and Keltron.

The technology gaps are in the following areas :

- \* Musical ICs.
- \* Trimmer capacitors.
- \* Process efficiency.

## **2.5 CONCLUSIONS**

### **Capacity**

Considering the unused capacity available, it may not be required in the short term to promote new capacities in the organised sector. The cost being unfavourable to this segment, due to competition from smuggled components, investment in capacity may not bring attractive returns. Therefore any capacity addition could come after complete indigenisation of the components and their production at economic scales.

### **Testing Facilities**

Sophisticated testing equipment for testing accuracy, sound level of alarm/chimes and appearance parts should be used by manufacturers, particularly when some of them are entering the export market. These may replace, what is reported to be out dated equipment available.

The benefits of these equipment may not be relevant to a significant portion of the industry as the assemblers are in the cottage industry/ unorganised sector.

### **Technology Status and Upgrading**

Indian manufacturers lag far behind those in Germany, Taiwan, Japan, etc. The industry has just managed to indigenise the IC in its simplest form. ICs for new generation products like digital, multi function clocks and other value added products such as radio clocks have not been indigenised.

Indian manufacturers may make attempts to improve the product finish/appearance through better workmanship and design. This will enable entry into the low price segments of the international markets.

### **Development of Standards**

It is imperative that stringent performance standards are developed to improve the quality of the average Indian clock and also weed out spurious manufacturers. Standards also need to be developed for raw materials, particularly plastics.

### **International Target Markets**

Indian companies can only target at low price segments in South Asian, Middle East and African countries. Companies that have had collaboration arrangements with leading international manufacturers can examine the possibility of selling their products under the collaborator's brand name. This would mean that these Indian companies act as subcontractors to their collaborators.

## **3 RECOMMENDATIONS**

### **Electronic Watches**

- \* Encourage doubling of capacity as this would help reduce the burden of fixed costs and lower existing levels of cost of production. A related fact is that only capacities above 2.5-3 million pieces may be encouraged to enable manufacturers to take advantage of economies of scale.
- \* There should be a nodal agency to coordinate research activities being undertaken in the industry. This would enable all players to take advantage of the developmental activities being undertaken and would also result in better utilisation of resources as duplication of effort would be avoided.
- \* Industry may be encouraged to collaborate with organisations such as the National Institute of Design to develop new styles and improve the aesthetic value of the products.
- \* R & D efforts and indigenisation may be encouraged by fiscal concessions to manufacturers in the form of depreciation benefits, lower duties and tax incentives.
- \* Dereservation of strap manufacture for the SSI may be considered. The small scale sector is constrained by their limited financial and other resources and may not be in a position to make the investment needed to undertake product quality and finish improvements .

### **Electronic Clocks**

- \* Additional capacities may not be promoted till the existing capacities are utilised at reasonable levels and component costs can be brought down to lower levels.

- \* Exports can be identified as a thrust area for which certain preconditions should be as follows :
  - Stringent performance and material standards should be formulated and implemented.
  - Focus attention on the development of distinct type, appearance parts for exports.
  - Efforts should be made to concentrate on the lower end of the product range in developing countries to carve a niche for exports.
- \* Stringent rules may be formulated and implemented to prevent the manufacture of spurious clocks.