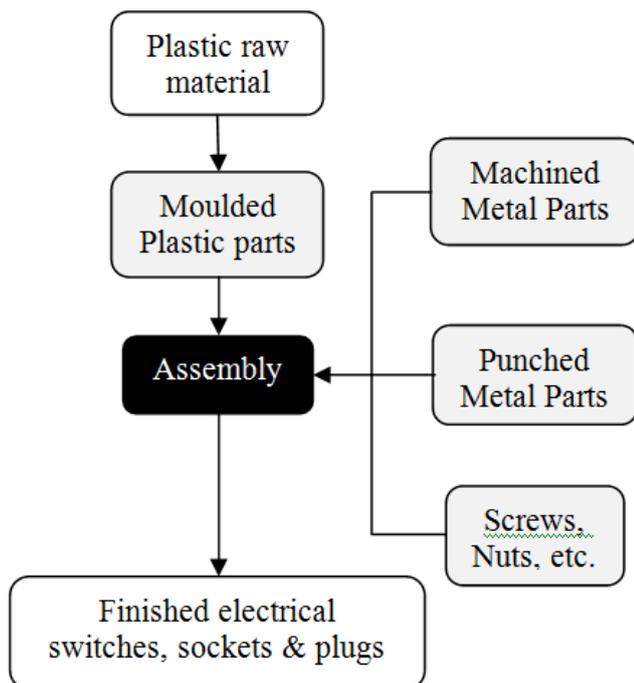


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## Electrical Fittings - Switches & Sockets

In the world of today, the concept of life without electricity is scary. Be it a house, office or an industry, it cannot be fully functional without electricity. Every building constructed today must have an electrical connection and a building wiring system thus making electrical switches, sockets, circuit breakers and other fittings an integral part of a building.

With the commercialization of electricity in 1880s, came its first introduction into the households where it was primarily used for lighting. The buildings had to be wired and made ready for use of electricity. This was the time when need for development and industrial production of electrical fittings was felt and thus the industrial production of electrical fittings started. The first light-switch employing quick-break technology was invented by John Henry Holmes in 1884 and later the toggle light switch was developed in 1916 by William J. Newton and Morris Goldberg. After electricity became a common method of lighting houses, it was used for operating labour-saving appliances and this required a safe connection to the electrical system. Thus the original two pin electrical plug and socket were developed by Harvey Hubbell and patented in 1904. In the second decade of 20th century, grounded consumer plug system was introduced and a decade later the Schuko-system plug was developed by Albert Büttner, who patented it in 1926. With the passage of time new designs of plugs and sockets were introduced, standardized and adopted in different regions of the world.



*Fig. 1: Typical Manufacturing Process of Electrical Switches, Sockets & Plugs*

### Manufacturing Process & Technology Status:

The manufacturing process of electrical switches and sockets is similar in nature. The main processes involved require moulding of plastic components, punching and machining of metallic parts and their assembly. The distinct quality of this manufacturing process is that the

plastic and metallic parts involved can be processed in parallel thus reducing the manufacturing time. A typical manufacturing process flow is shown in figure 1.

With the passage of time and the developments in the manufacturing technologies, the global electrical fittings industry has evolved itself accordingly. A high end market segment has been created through innovations in electrical switches in particular.

### Global Trade of Electrical Switches, Sockets & Plugs:

According to ITC statistics, the world trade of electrical switches for a voltage not exceeding 1000V (HS code 853650) and electrical plugs and sockets for a voltage not exceeding 1000V (HS Code 853669) totalled US\$ 22.947 million for the year 2009. The detailed statistics are shown in Table 1. In the electrical switches category USA, Germany, China, Mexico and Hong Kong were the top importers and Germany, USA, Japan, China and Hong Kong were the top exporters for the year 2009. For the electrical plugs and sockets, the leading exporters were Germany, USA, China, Hong Kong and South Korea whereas USA, China, Germany, South

*Amount in US\$ Bil*

<i>S. No.</i>	<i>Description</i>	<i>Imports</i>	<i>Exports</i>
1.	Electrical switches for a voltage < 1000V	12.425	12.266
2.	Electrical plugs & sockets for a voltage < 1000V	10.522	8.755
Total		22.947	21.021

*Table 1: Global Trade of Electrical Fittings for year 2009*

Korea and Hong Kong were the top 5 importers.

### Electric Fittings Industry of Pakistan:

The electrical fittings industry of Pakistan is one of the growing sectors and is concentrated in three cities, namely Sargodha (70%), Lahore (20%) and Karachi (10%). The industry mainly comprises of small units (1200+) and is predominantly unorganized. However there are about 20 large units located in the three afore mentioned cities.

The product mix of this industry is not limited to electrical switches and sockets but also includes bulb holders, bell push buttons, ceiling rose, power plugs, indicators, fuses, buzzers, fan dimmers, tube chokes & pattis, main switches and wire extensions etc. The estimated monthly production of Electrical Fittings is approximately 10 million pieces of various electrical products which, according to the claims of the industry, reflects under utilization of production capacity.

The manufacturing practices and equipment being employed by the small manufacturers of this industry are quite outdated and inefficient thus adversely affecting the quality and competitiveness. Obsolete plastic moulding, metal machining and forming techniques and machines are common feature with most of the manufacturers in this industry. Furthermore the

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industry also lacks the use as well as the knowledge of the new materials developed for such applications. The electrical switches, sockets and plugs being manufactured in Pakistan generally are not certified to conform to the relevant international quality and safety standards and therefore cannot be exported to regions where such certifications are mandatory. The industry is also stuck with production of conventional products and lack innovative products. The ITC trade data shows the exports of electrical switches, sockets and plugs (HS codes 85365010 & 85366990) to be almost nil for the year 2009 whereas the afore mentioned goods imported into Pakistan valued for US\$ 2.877 million for the same period. The analysis of the import data indicates the presence of a market segment which is not catered for by the local industry.

**Recommendation:**

Although the industry claims that their production capacities are in surplus, there remains a market segment which is still not catered for. This fact is supported by the analysis of import data. Additionally, in every market there always is a segment for high end, custom made and innovative products and likewise there is such a segment present in the Pakistani market for electrical switches and sockets. Currently this segment is also not being catered for by the local industry.

Furthermore there is no manufacturing unit in the country which is producing electrical switches, sockets and plugs that conform to relevant international safety and quality standards. Owing to the multiple factors discussed above, setting up of an electrical switch and socket manufacturing unit capable of addressing the needs of local high end market and fulfilling the requirements of export markets would really make a lot of business sense.