

## An Appropriate Material & Cost Saving Technology "Roll Forming"

structures like trusses and columns could also be made further lighter. In the advanced countries they have even gone to the extent of eliminating these secondary supporting systems and directly use load carrying light-weight Roll Formed Roof-Deck Sections of greater depth.

### The Roll Forming Process

Roll Forming is a high speed manufacturing process of forming of flat metal from sheet, strip or coiled stock ranging usually from about 0.3 mm to 6 mm thick by feeding it through roll stands in a continuous mill. The Sections are formed with shapes of essentially uniform cross section by feeding the stock longitudinally through successive pairs of hardened profiled roller dies arranged in tandem. Here, each pair of roller dies progressively form the stock until the ultimate desired shape is produced. In the process it also receives increased structural strength and toughness.

This process is extremely versatile in terms of materials formed, shapes of sections produced and product applications. It can be employed on most metals and alloys in the unfinished, pre-painted and pre-coated condition. Round, oval, square, rectangle and nearly any other conceivable shape can be produced using this process.

### ADVANTAGES

Let us consider the various advantages of Roll Forming:

- High Production capacity-because of the continuous nature of production with an average maximum speed of production of 30Mtr/min it is ideal for mass production.
  - High strength to weight ratio of Sections-Hence a material saving technology.
  - Close dimensional tolerance and accuracy of production-once the Tooling are set and adjusted the dimensional tolerances are maintained without any changes.
  - Repeatable accuracy of production-once the Tooling are set the accuracy is maintained and hence less operator skill is required.
  - Less scarp and rejections-average scrap arising doesn't go beyond 0.5%.
- Production of any transportable length is possible.

### AREAS OF APPLICATION:

- Construction Industries:- Door and Window-Frame Sections, Rolling Shutter Sections, Partition Door & Window panel Sections, Railings, Z, Sigma & C-Purlin Sections, Roofing sheets & Decking, Scaffolding Sections, False-ceiling Sections etc.
- Structural:- Angles, Channels, Lipped Channel of Various sizes.
- Automobile Industries:- Bus-body Sections, Chassis Sections,

Side-panels and flooring panels for LCV's, Window moulding / Sash Sections, Side-trims, Bumper Sections, Rims & Mudguards of Two wheelers and bicycles.

- Electrical Industries:- Control-panel Sections, Fluorescent light patts, cable-tray Sections etc.

- Interior Furnishings:- Curtain-rails Sections, Venetian-bling Sections, False-Ceiling Sections, Partition Sections etc.

- Office Furniture:- Cupboard-Sections, Sliding cabinet Sections, Table and Chair Sections etc.

- Household Appliances:- Refrigerator Sections, Washing machine Sections etc.

General Engineering & others:- Electrostatic precipitator Sections of Pollution Control Field, Storage-rack, and slotted angle Sections, for Textile machinery

like Triangular-creel etc. Transformer-radiator Sections, Crash-barrier sections for Highways, fence-posts, Orthopaedic Sections, Machine-tool wiper Sections, Freight-container Sections etc.

### RECENT TRENDS

There is a misconception that painted, coated or galvanized strips cannot be roll formed. As roll forming is a progressive forming process in several gradual stages and not an abrupt one like in press-braking, the coatings don't get damaged. By proper roll design, roll manufacture and taking the right precautions during roll forming pre-coated strips could be easily roll formed. Use of pre-coated and painted strips completely eliminates the heavy investments on paint shops coupled with large labor force.

### REASONS FOR STUNTED GROWTH

With all these plus factors one wonders why this highly useful technology has not been fully exploited in our country so far. Following are the reasons:

- Lack of Awareness of this technology:- In most of our technical educational institutions the subject of Roll Forming is either briefly touched upon or not taught in depth at all. The technology was being closely guarded by a few industries till a few years back. Only of late some of the Industries have started realizing the tremendous advantages of this technology over the conventional or press-braking.
- Restricted Supply of Input material:- Till a s back the main supplier of steel strips and coils used to be SAIL-Rourkela and Bukaro steel plants used to supply cold rolled or hot rolled coils in wide widths and in the weight range of 10 to 20 Tonnes. Only those industries who could manage to get steel quota, procure coils in large quantities, possess gang-slitting and overhead crane facilities were able to use those coils. Those coils were not always

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• LACK OF STANDARDISATION:- This is the most pronounced in light structural sections. A classic example is that of Bus body building industries. Most of the State Road Transport Organizations build their own bus-bodies for their buses they operate excepting their own luxury coaches. They make the required sections in the age old press braking method with their own standards. The dimensions of the sections differ by only a few millimeters in depths and widths. If these sections could be standardized to a few sizes, all these could be produced in economic quantities by the Roll Forming process.

• Conservative Design Approach:- Most of the structures used in our country are very much over designed with a high factor of safety. By properly redesigning the members and components savings in material to the extent of 50 to 60% could be attained.

• Vague Excise Classification of Roll Formed Sections: At present, producers of roll formed sections have to pay excise duty which is not there in the case of hot rolled sections. Roll Forming which is also called Cold Roll Forming as forming is mostly in the cold is mostly confused with Cold Rolling. Whereas in Cold Rolling, reduction in cross section and thickness of material takes place, in Cold Roll Forming no such thing happens. It is only reshaped without change in thickness or cross section. The Excise Laws should be framed in such a way that the use of Cold Roll Formed Sections get encouragement and preference over the use of hot rolled sections because of the material saving nature of this technology. Wherever possible, we should save the usage of scarce material in order to cater to our large population.

### Future Prospects:

With the liberalization of our industrial licensing policy leading to easier availability of steel strips and sheets now and increasing competition, this Material Saving & Mass production Technology is bound to become more and more popular in our country in the coming years.

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## IETI 2004, Bangalore making an observable notice

Infrastructure, Engineering and Technology India 2004, hosted by expo world was an observable success. Because, it was the first all industry affair in South India. A show of this scale and stature has never happened in the past in South India where in participants from across India and overseas can look forward to showcasing some of their finest products and services. Bangalore is now turning out to be one of the key outsourcing hubs for industries in India as well as abroad, making the event even more strategically important.

The structure of the exhibition was a B2B interfaces between technology and business leaders, representing a wide cross section of local and global enterprises. As a beginner, Expo world deserves a particular appreciation. They had been well-arranged everything for the exhibition more than their level best.

"Our objective was to provide the best. As a private organisation class A/C hangers. We have not taken any shortcuts for this. We spent a lot of money. Also we provided the facilities like wooden platform passages and all", says Mr. Sandeep Bilal, Convener of

international bench marking. Participant organizations could be assured of opportunities to capitalize on. Even though the crowd was less in the first two days of exhibition, the quality of people were good.

Out of six subjects, five subjects high power India, Engineering and Machine Tools India, Infrastructure India, Instrumentation and Control India and Fastness India are never had been an exhibition in Bangalore. It is a significant milestone of Expo world which has been point out.

Almost all top industries in India had been participated in the exhibition, "Even the management is little bit inexperienced, the arrangements are good. They should learn more from other shows. If we consider it as their first time venture it is satisfied and appreciable". Comments an Exhibitor.

For overseas companies also Infrastructure Engineering and Technology India 2004 presented the perfect platform to launch their products. Apart from these, Expo world had organized a Fleet Operators Day on the last day of exhibition which presented a unique opportunity to interact with Fleet Owners, who are the

## EXHIBITIONS & SEMINARS

### 31st Simex 2004

27th to 30th October 2004, Rani Mayammai Hall, Chennai. Organised by: BEXT, Victoria Layout, Bangalore - 560 047 Email: bextsimex@yahoo.com www.simex.xmsites.com

### India Chem 2004

3rd to 5th November 2004, NSE Complex, Mumbai Contact Person: Indira Samal, Tel: 022-26605550 Email: indiachem@winmark.co.in

### AMTEX 2005

26th to 30th January 2005, Palace Grounds, Bangalore Organised by: Triune Exhibitors Pvt Ltd, Vasanth Nagar, Bangalore - 560 052 Tel: 080-22352772 Email: info@triuneehibitors.com, www.triuneehibitors.com

### Minerals, Metals, Metallurgy & Materials

9th to 12th September 2004, Pragati Maidan, New Delhi Organised by: Tafcon Group, Nizamudin East, New Delhi - 13 Tel: 011-2435 2141 Email: tafcon@del2.vsnl.net.in

### The M3 2004

9th to 12th September 2004, NSE Complex, Goregaon, Mumbai. Organised by: Corporate Trade Fairs, Nenu (West), Mumbai - 400 706 Tel: 022-5610 1031 Email: events@cf2004.com

### DAYTON INDUSTRIAL EXHIBITION 2004

26th to 28th October 2004, Dayton Convention Center, Dayton, Ohio, United States of America. Tel: +001-398-820-7467 Email: daytonmex@scanningworldmedia.com