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## New Member Company

We welcome HEBEI BAOFENG CABLE CO., LTD. from China as Full Member.

## ICFC Boston

The venue for this year's congress is classic: The Ritz Carlton, the very first hotel of this group and the place where the history of hospitality on top level started. The invitations for the Boston Congress have been sent, delegates kindly register before 15 July to enable a smooth and solid preparation of your stay.

## Topics

For Thursday, October 12, the focus is on **Industry Response to Change**. Which external change factors and which voluntary initiatives have made the industry move? What new drivers are on the horizon or perhaps already active today? To what extent is scale increase and consolidation a blessing, what opportunities remain or emerge in the process of globalisation that is proceeding? Complicated questions for which the workshop will try to explain the headlines and to give some forecasts. On Friday, a **Regional Analysis for the Americas** in a new format will give the highlights and conclusions of a survey currently being carried out by Metalica Ltd. for North, Central and South America. The full data package and graphics will be collated in a side document, available in Boston.

Also on Friday, **Technology Updates** will be presented. In a session on **Fiber Optics**, new fiber types also in relation to the developments in optic converters and processors will be explained, including why and how the segments for local access and global long distance must be distinguished.

Further you will hear about **High Voltage DC**, an established technology for bulk power, now also finding application in rural distribution with a potential impact for cable.



# NEWSLETTER

## Social Programme

Numerous opportunities for delegates to meet are scheduled like the traditional welcome reception at the hotel, the elegant gala dinner at the prestigious Harvard Club and the excursion on Saturday to Newport. To enhance the meeting platform no events are scheduled for both afternoons on Thursday and Friday as well as the Thursday and Saturday evenings.

The ladies programme on Thursday and Friday offers several options to explore and enjoy Boston and its surrounding areas.

## Cover Picture

The origin of cabling roots in the ropewalk, where spinning, twining and stranding by manual labour yielded a wide variety of cords, lines or ropes and a meagre living for the workers. The picture shows two original tools for ropemakers. The oldest one below is a set of rotating hooks driven by a string, the slightly younger version has more hooks, geared to a handwheel. The length of stranded rope manufactured would depend on the length of the ropewalk and the weight that could be handled by this kind of equipment; visitors to our office in Vienna may test their skills.

## Wire in Automobiles: A One Million Tonne Market

In 2000, the market for wire in passenger cars and light trucks should just exceed one million tonnes copper content. The automotive market includes around 740,000 tonnes of insulated ("harness") wire and 270,000 tonnes of winding wire. The market is not only large, it is also undergoing fundamental change, both in technology and in industry structure. Between 1990 and 1999 we estimate that the automotive market for wire grew by 64%, at an average rate of 5.7% p.a. The rise in volume is remarkable given a sluggish 1.6% p.a. trend rise in vehicle output. Wire content per vehicle has increased enormously, from an average of 11.9 kg in 1990 to 17.0 kg copper in 1999. Insulated wire market growth reflects the need for more complex wiring systems as more comfort, entertainment, communication and safety features are introduced. Many of the new features employ small "micro-motors" as actuators, the growth area for winding

wire. The average number of motors per passenger car has risen from around 40 in 1995 to over 60 today.

The wire harness and motors businesses form largely separate supply strands in the automotive supply chain. Although some assembly companies source wire internally, few are mainstream wire and cable concerns. The dominant two in the harness business – Delphi and Yazaki – are primarily automotive parts suppliers, not cable companies. The reason for this lies in the industry's economics. The value of wire harness sales in 1999 was slightly over \$20 billion. The value of insulated wire was only \$5 billion, connectors and other components taking around \$7 billion, leaving upwards of \$8 billion going to the process of harness assembly. Labour, in this business employing upwards of 400,000 people, accounts for large share of added value.

Even the high-value wire harness business is a fairly minor link in the total automotive supply chain. It is also quite slow growing in relation to the total vehicle electrical and electronics market, of which it forms part. Over the past ten years the share of electrical/electronic architecture in the total value of assembled vehicles has risen from 15% to 25%, giving it a current market value of \$160-190 billion. Delphi Automotive, with annual revenues of \$29 billion, is the auto component market leader. It is also the top supplier of wire harnesses.

The rapid growth in vehicle electrics and electronics has its problems. The electrical loading of new cars is rising at the rate of 4% p.a., now reaching 2 kW. Much above this, the standard belt-drive alternator hits a capacity ceiling due to excessive heating, energy loss and noise. Alternator design is improving, but the solution favoured by vehicle engineers is the electro-magnetic valve train, or "beltless engine", where accessories are driven by electronics. The electro-magnetic valve train, like other advanced electronic systems such as brake-by-wire, throttle-by-wire, steer-by-wire and electric air conditioning, more-or-less pre-suppose a higher electrical rating than the existing 12-volt standard. In 1998, US and European auto manufacturers and suppliers agreed in principle to a 42-volt standard. Once the 42-volt or dual 14/42-volt system becomes commonplace, likely within a two-to-three year time frame, then the doors are wide open for very sophisticated fully integrated electrical and electronic systems.

By "integration", the automotive industry means the acquisition and common processing of diverse sets of data relating to engine management, drive-control, navi-

gational and other systems. The ultimate aim is to achieve much greater passenger comfort and safety, while minimising fuel consumption and emissions. The environmental issues may soon lead to the demise of the internal combustion (IC) engine as we know it. Already, hybrid IC/electric vehicles are produced commercially in Japan and will be available in Europe this year, while volume production of fuel cell vehicles with electric motors should commence in 2004. Both technologies easily incorporate 42-volt electrical systems.

hard at streamlining harness design to save in cost and weight, and reduce complexity. An integrated system, with multiplexing, may contain 30-40% less wire than is used today. With greater functionality required of future systems, the threat of reduced insulated wire volume is probably more theoretical and real, but should not be ignored.

Perhaps more important than wire volume, average unit added value should increase. Delphi and Visteon, amongst others, are looking at the widespread use of flat ribbon

wire, currently applied mainly to cockpit displays. Ribbon wire is used alongside "plug-and-play" computer-like connections for electronic components, offering a cost-effective means of creating tailor-made and easily maintained electrical/electronic systems. In the engine compartment, higher temperatures and the use of more aggressive fluids creates a need for wire with speciality sheathing. On the winding wire front, there is a fast-growing automotive market for self-bonding wire.

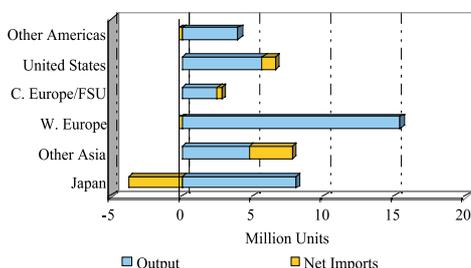
It is clear that technology will create opportunities in the automotive market. The challenge for the wire and cable producer is to claim a fair share of market growth. Here, we should take note of changes in the automotive industry itself. Carmakers increasingly see vehicle assembly as their core competence, outsourcing component supply, and with it much of the responsibility for product

development. Momentum in product design is achieved through carefully chosen strategic alliance rather than by using internal resources. There are signs that the first-level suppliers will follow the same trend, sourcing more of their materials and skill from outside. If the components industry is going to look for partners, the cable industry needs to be ready to negotiate its role as more than just a supplier of commodity products.

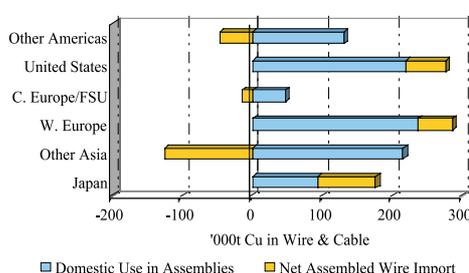
**Wire Consumption in New Light Vehicles in 1999 ('000 tonnes Cu)**

Light Vehicle	Output (mn)	Consumption of Wire in Assemblies			Wire Use by Type		Wire Use per Vehicle (kg)
		Total	NetImports	Domestic	Insulated	Winding	
Japan	9.87	176	83	93	71	22	17.8
Other Asia	6.62	90	-125	215	153	62	13.6
Western Europe	17.45	284	48	236	170	66	16.3
C. Europe/FSU	2.74	31	-15	46	34	12	11.2
United States	12.69	274	55	219	160	59	21.6
Other Americas	5.98	84	-46	130	102	28	14.0
<b>Global Total</b>	<b>55.36</b>	<b>939</b>	<b>n/a</b>	<b>n/a</b>	<b>690</b>	<b>249</b>	<b>17.0</b>

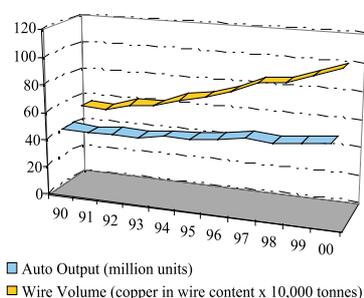
**Output and Trade in Passenger Cars in 1999**



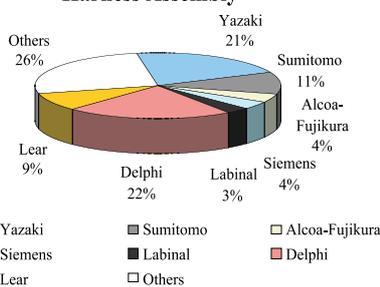
**Domestic Use and Net Imports of Wire in Assemblies in 1999**



**Global Auto Output and Wire Harness Market Growth 1990-2000**



**Market Shares in Wire Harness Assembly**



Source: Metalica Ltd.

The impact of technical change on wire volumes should be positive. Higher voltage ratings and electric propulsion will mean a large volume increase in winding wire in the engine compartment, while the number of micro-motors elsewhere should also rise. More electrical features and much-enhanced data linkage seem also to imply ever-greater quantities of insulated wire. We should be careful about this, however. Automotive suppliers are working



# NEWSLETTER

## News in Brief

(provided by Metalica, UK)

**Alcatel May Exit Metallic Cable Business:** On May 4th **Alcatel** announced that it was to review the disposal of most of its cable business through an Initial Public Offering by end-2000. This would include power cable, metallic telecom cable, data cable and cabling systems, equipment and special cables, and metallurgy. Fibre optics and submarine network equipment will remain within Alcatel.

**Pirelli Refocusses:** In its **e-Pirelli Project**, the **Pirelli Group** plans to spend up to Lire 2,000 billion (US\$950 million) over three years on Internet-linked initiatives and the transfer of all company processes on-line. Core business areas will employ e-manufacturing and e-commerce, focus on hi-tech products will be achieved through two new optical components companies and strategic alliances in micro-components and there will be specific new e-business ventures. In all, the Project is expected to link 90 million people to the company-based e-network. All of this is a long way from the traditional business of cablemaking, but Pirelli still intends to expand its core energy cable business through the purchase of **BICCGeneral** assets. Major delays to this deal, which was to have been completed in June, are probable, as EU authorities are investigating its monopolistic implications.

**Belden Expands Further in Metallic Telecom Cable:** A letter of intent has been signed between **Belden** and **Corning Inc.** covering the transfer of the former **BICC** UK-based metallic telecom cable business. The unit's 300 employees generated revenues in excess of £65 million (US\$100 million) in 1999. A 43% year-on-year increase in Belden's first quarter 2000 revenue (to \$228 million) attests to its rapid expansion path. The purchase of US-based metallic telecom cable company **CSI** in June 1999 accounts for a large proportion of the revenue gain.

**BICC Sells Brand-Rex to Caradon:** **BICC**, finally left the business with the sale of its data cable subsidiary, **Brand-Rex**, to the UK-based building materials group, **Caradon plc** for £145 million (US\$215 million). Brand-Rex reported turnover of £135 million (US\$200 million) in 1999. Centred in Glenroath, Scotland, Brand-Rex also manufactures in England and the Philippines.

**Leoni Continues its Expansion:** German wire, cable and harness group **Leoni** completed the acquisition of **TRW's** UK-based auto wiring harness subsidiary, **Lucas Rists**, adding six production sites with 4,000 staff in

Europe and North Africa to Leoni's existing wiring systems division head count of 9,000. The expanded division subsequently opened a new 6,000 sq.m. wiring harness facility in Arad, Romania, with 470 staff. The additions contribute towards Leoni Wiring Systems first quarter 2000 turnover of DEM 217 million (US\$105 million), up by 37% year-on-year. Total Leoni group turnover was 57% higher, at DEM 440 million (US\$210 million). The addition of former **Siemens'** automotive and specialist cable plants late in 1999 contribute strongly towards the results.

**Lucent Expands in Fibre, Cuts Back in Copper:** **Lucent** has announced its intention to raise optical fibre output this year by more than 60%, adding \$650 million to its existing \$350 million two-year investment programme. New fibre and cabling capacity will be added in the United States, Denmark, Germany, China, Thailand, Russia and Brazil. The Brazilian investment of \$50 million will include a new fibre optic cable plant in Campinas. While expanding in fibre, Lucent intends to spin off PBX, business cabling and LAN-based data business, with its 34,000 employees, to shareholders by end-September. The spin-off reflects a strategic focus on optical networking, Internet infrastructure, wireless, semiconductors and optoelectronics. The new direction was shown in Lucent's recently announced acquisition of **Chromatis Networks** for \$4.5 billion. Chromatis is a leader in the very fast-growing market for metropolitan optical network products.

**Sumitomo Strategy in Asia:** Cablemaker **Sumitomo Electrical Industries** will raise its wirerod capacity in Indonesia from 30,000 tpy to 210,000 tpy by 2002 with the building of a 180,000 tpy unit by subsidiary **P.T.Karya Sumiden Indonesia**. The move reflects a more general Sumitomo group's expansion in Asia. **Sumitomo Metal Mining** intends to step up production of copper cathode in Japan from 230,000 tpy to 400,000 tpy by 2005 and in **Jinlong**, China, from 100,000 tpy to 150,000 tpy by 2003.

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