



# TMD Newsletter

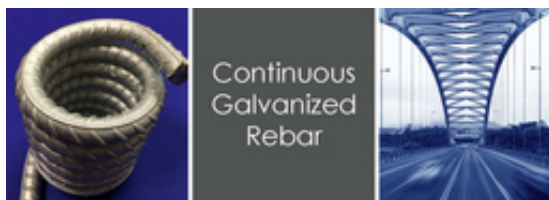
October 26, 2015

## Interest growing for galvanized rebar

Strong interest has been expressed by Department of Transportation specifiers for continuously galvanized rebar (CGR) with a 50 micron almost pure zinc coating. CGR provides superior corrosion protection at significant cost savings compared to other corrosion resistant rebar systems and allows for forming on-site. IZA has presented at and/or attended over 20 bridge conferences during 2015.

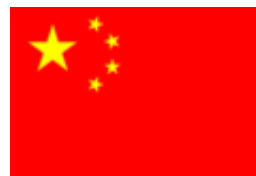
The new ASTM standard A 1094 "Specification for Continuous Hot-Dip Galvanized Steel Bars for Concrete Reinforcement" adopted earlier this year will greatly help promoting CGR to state and federal specifying bodies for bridge and road infrastructure; engineering and contracting firms; and producers of pre-cast concrete products.

To download ASTM A1094 standard, go to:  
<http://www.astm.org/Standards/A1094.htm>



**Outstanding Author Award for IZA's Frank Goodwin**

## Regional Activities



### China: National standard for CGI nears approval

China has brought a national standard

20140122-T-605 on "Zinc alloy coated steel bar for the reinforcement of concrete" to committee for approval. This standard is based on the new ASTM "Specification for continuous hot-dip galvanized steel bars for concrete reinforcement" and specifies coating quality and thickness for continuously galvanized rebar products in China. IZA contributed to the development of this new standard. The potential global market for this product is over 200,000 TPY.

### Promotion of CGR leads to substantial order for two infrastructure projects

At the "2015 China National Rebar Deep Processing and Logistics Recommendation Conference" in Chengde, Hebei Province, in August, IZA's Dr Frank Goodwin and IZA Consultant Wes Miller provided an overview of the galvanized rebar techniques and their benefits in concrete construction with particular emphasis on the new CGR process. IZA member company Xiamen New

At the 107th Galvanizers Association Meeting in Toledo, Ohio, the *Outstanding Author Award* for an Associate Member (a member not producing galvanized sheet) was given to the research team for one of IZA's Galvanized Autobody Partnership (GAP) projects at McMaster University, Hamilton, Ontario, together with co-author Dr. Frank Goodwin, IZA's Director, Technology & Market Development. The paper described new galvanized sheet coating control designs which have the potential to allow higher line speeds and are also less sensitive to coating line variations. These will contribute to improving the quality and productivity of sheet steel galvanizing lines.

GAP research advances are key for enabling the future of zinc-coated steel in autobodies, especially in light of the recent efforts by the aluminium industry.



## Ultra-thin zinc die castings on the rise

In Europe, the IZA developed high-fluidity (HF) alloy has recently been featured at GIFA 2015, the international foundry fair. Frech, a leading die casting machine manufacturer highlighted die casting sections as thin as 0.13 millimeters for electronic connectors. These would replace stamped sheet steel in new electronic applications as the new zinc alloy's precision and lower costs provided competitive advantage. 78,000 visitors

Steel shared their experiences with their two new production lines for continuous galvanizing rebar and duplex Zn-Al + epoxy coating.

As a result, Xiamen New Steel received a 4,000 mt galvanized steel order for supplying continuously galvanized rebar for the Nangang (South Port) bridge project supporting the new Xiang'an International Airport on Dadeng Island in Xiamen, in Southeast China. The bridge, which crosses the sea, will be designed as an eight-lane urban freeway and will be tapered pre-stressed concrete grid frame and pre-stressed concrete box girder cast.

Xiamen New Steel will also supply CGR for sections of the new Shenzhen Metro Line 11, the fastest metro line in this system with speeds up to 120 km/h.

## IZA's 2nd Zinc Smelting and Environment Conference successful

This conference in Chifeng, Inner Mongolia featured more than 20 presentations covering zinc smelting and refining technology, processes and equipment; Chinese and global market trends for zinc; and regulatory requirements to improve environmental performance in China. 180 delegates including 80 representatives from zinc smelting and mining companies from China and abroad were in attendance and had the opportunity of visiting zinc smelter and conference co-organizer Chifeng NFC Zinc Company Ltd. and Hulun Buir Mining company near Hailar. The conference was a success and it has been suggested to organize a similar conference in two years' time together with a conference focusing on mining.

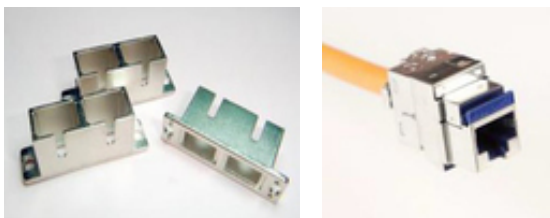


from 120 countries attended the show.

In the USA, DECO Products in Iowa, a leading die casting producer, has launched production trials with several parts for interested customers, using the HF alloy of thicknesses as low as 0.3 millimeters. This will extend capabilities in two very lightweight zinc castings, allowing for improved competitiveness with aluminum and magnesium die casting alloys.

Liberty Hardware in Winston-Salem, North Carolina, a leading manufacturer of bathroom and kitchen hardware supplier to volume retailers, has made production trials with several household applications, including decorative wall receptacles. These are surface finished with attractive, corrosion-resistant finishes. The HF alloy will allow Liberty Hardware to reduce both weight and costs, keeping zinc competitive.

The HF alloy was developed by IZA with funding from the US Department of Energy. Due to its superior fluidity, it provides significant performance improvements compared to conventional alloys allowing for significant cost savings and new innovative market opportunities.



HF electronic connectors

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## 2014-2015 Zinc Challenge Winners

“Zinc Challenge” is an annual student design competition organized by Interzinc, an IZA-sponsored market development and promotion program for zinc die castings. It aims at introducing young designers to the versatility and unique engineering properties of zinc.

The competition is open to all full-time undergraduate students enrolled at design or engineering colleges or universities in Mexico, USA,

## Conference participants

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### Southeast Asia

A successful one-day educational seminar covering the process, benefits and applications of galvanizing for corrosion protection was conducted in Bangkok, Thailand in September at the National Metals and Materials Technology Center (MTEC). The event was jointly conducted by IZA, Padaeng Industry PCL and the Thai Galvanizers Association (TGA). The seminar attracted 200 attendees from both government and private sector organizations and architects involved in infrastructure. Engineering and architectural students at leading educational centers in Bangkok also participated.

A national competition, sponsored by the TGA and the Thai Architects Association, was launched to feature the use of hot-dip galvanizing in building construction and landscape design.



Seminar speakers including Mike Ainsley (center)

IZA also organized three seminars at Chiang Mai University (Thailand) and the Institut Teknologi Bandung and Trisakti Universitas (Indonesia) to build galvanizing awareness amongst future professionals in the engineering and architectural fields. These seminars are part of a South East Asian educational initiative that is strongly supported by regional galvanizing industries and local organizations involved in corrosion prevention. 300 senior and post graduate students attended the events, along with academic staff.



or Canada.

This year students were challenged to design any type of Pet Product such as bedding, cages, accessories, toys, habitats, lighting, aquariums, heaters, pumps, bowls, collars, leads, leashes, harnesses, crates, kennels, grooming tools, tables, stirrups, saddle ornaments, tether weights, memorials and urns. The design had to take advantage of the physical characteristics of zinc.

Selected from over 100 entries, the winners of the Zinc Challenge were:



**ZurryComb** by Kayla Daken, University of Wisconsin - Stout  
[instructor: Benjamin Pratt]



**PawsAboard** by Lucas Morton, Southern Illinois University - Carbondale  
[instructor: Aaron Scott]



Seminar participants



## India: Program to adopt galvanized steel for autobodies drives forward

Many Indian automakers export cars with galvanized sheet but do not offer this to Indian customers.

Recently, IZA sponsored a survey to evaluate the corrosion performance of automotive body panels in India. The survey, conducted by the Indian Institute of Technology (ITT) Bombay, provided baseline corrosion data that allows comparison of the corrosion performance of Indian car body panels that are typically made of cold rolled steel panels versus those made of galvanized sheet which is the norm in Europe, Japan, Korea and North America.

The survey was conducted in three areas of Mumbai close to the sea and focused on the inspection of major exterior car body panels for imperfections. A total of 455 average-sized family cars ranging from 5-9 years were inspected. The survey found a high level of blistering and surface rust which was similar to findings of a corrosion performance study carried out in Michigan, USA in the 1990s - a key element that led to the adoption of galvanized steel sheet in North America at that time.

ITT Bombay, Hindustan Zinc Limited and IZA outlined a joint plan to bring extended corrosion warranties to the Indian automotive market. The IZA-managed Galvanized Autobody Partnership (GAP) will play a key role by working with domestic automotive and steel manufacturers to introduce galvanized steel sheet and new generation advanced high strength steels for car body panels.



**Twist** by Reed Fansler, Purdue University  
[instructor: Steve Visser]

The winners each received an award of US\$2,000, and the faculty sponsor received US\$1,000 for the school.

For information on the 2015-2016 competition, go to [www.interzinc.com](http://www.interzinc.com)



## Upcoming IZA Conferences & Seminars

**GalvInfo Course:** Hot-Dip Galvanized Production, Pittsburgh, PA, USA – December 8-10, 2015

**2016 International Zinc and Zinc Oxide Conferences,** Scottsdale, AZ, USA – February 21-24, 2016

**Zinc College 2016,** Lima, Peru – June 5-9, 2016

**Zinc Die Casting Conference,** Brescia, Italy – September 21-23, 2016

For more information, click [here](#).

## Other Industry Conferences

**Expometalica,** Colombia, October 28-30, 2015: 16,000 delegates from the metal and mining

The efforts will be accompanied by targeted media activities to highlight the benefits of improved corrosion protection and extended vehicle life.

To view the full survey, click [here](#).



## Latin America:

### Focus on Galvanizing

**Colombia:** In July, LATIZA and the Colombian Galvanizers Association organized three galvanizing workshops in Colombia - Bogota, Bucaramanga and Barranquilla. The workshops consisted of a technical session on quality control, chemical treatments and processes to plant operators and supervisors and; a marketing session highlighting the benefits of hot-dip galvanizing to commercial personnel. 200 delegates attended the workshops.

**Peru:** At the PERUMIN, one of the world's largest mining conventions, held every two years in Arequipa, IZA's brochure "[Hot-dip galvanizing in mining](#)" was widely distributed to exhibitors and visitors. The brochure highlights the use of hot-dip galvanizing as a cost-efficient and effective long-term corrosion protection system for the large number of structural steel parts used in mining. The brochure is complemented by case studies.

**Brazil:** A seminar on galvanized rebar was given by Dr. Frank Goodwin, IZA's Director, Technology & Market Development, to fifty members of the Brazil Construction Association in September. Topics included tips for the use of galvanized rebar, including use of mixed bars in form work, recommendations for bending and joining section of galvanized rebar and a description of adjoining property, such as bond strength in various types of concrete. Technical support was given to several continuous galvanizing line operators who are investigating the production of the Zn-Al-Mg alloy.

**Argentina:** In October, LATIZA targeted the

industry across Latin America and other regions are expected to attend this convention. IZA will be present with a booth, in association with the Colombian Galvanizers Association.

hydrocarbon industries at the Argentina Oil & Gas Expo, which attracted 30,000 international professionals. Together with the Argentinian Galvanizers Association, AAGIC, LATIZA shared a booth and presented a paper on "Galvanizing in the oil industry".



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+32 2 776 00 70



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## International Zinc Association

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