

# Extrusion review since ET at Orlando in 2008

Paul Robbins reviews the past four years and touches upon some topics for discussion at this year's Extrusion Technology (ET) event, including the markets in China and India.

## A changing industry

The past four years, since the ET of 2008, began with much of the business world reeling from the impact of the disastrous monetary crisis. The extrusion industry, like any other, was certainly not left untouched. This particular period, however, marked a time of significant change in the industry we serve that is unmatched in its history.

If, four years ago, you had asked someone, "Do you think it possible that by the time of the next ET in 2012 any single nation could expand its extrusion industry to such an extent that it will be operating more than twice as many presses as any other two countries in the world combined?", they would, I'm sure, have thought this possibility to be extremely unlikely.

Extrusion in China has been growing at an exponential rate for more than four years, completely overshadowing the growth in any other country.

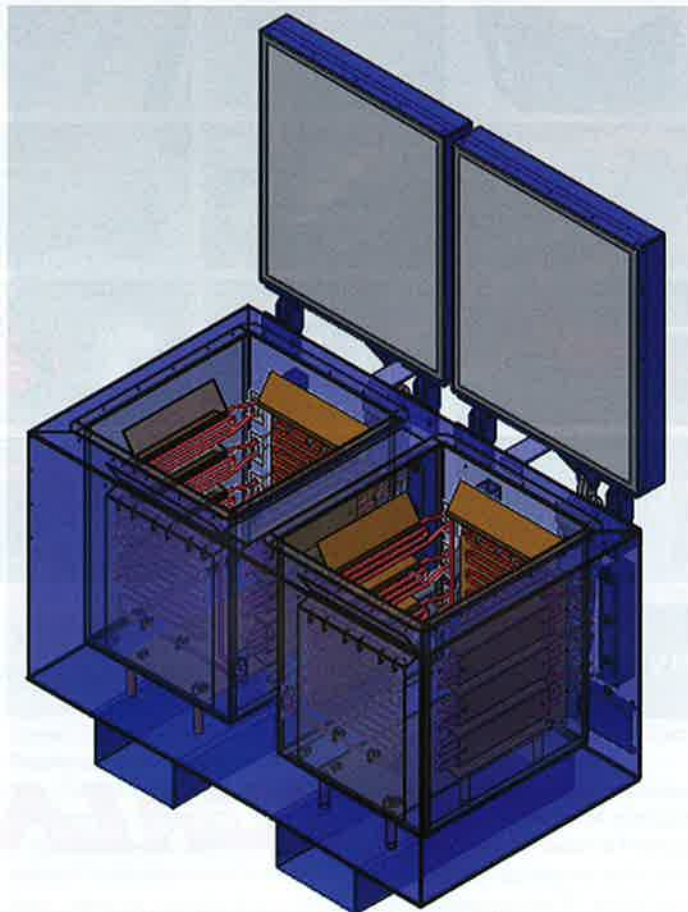
To put this in perspective, in the U.S. there are just now about 200 locations where extrusion is done. In China there are more than 400. One extruder has 68 presses in a single location, and 2 others have more than 40. That's a lot of presses. And these are not all small presses, far from it. In addition to the sheer volume of extruded product being made, the Chinese now lead the world in the extrusion of extra large high strength aluminium shapes. Their principal application is in the production of ultra high-speed trains.

## Big dies big problems

A Chinese extruder recently added a 150 MN press that uses 800 mm (31 inch) billets. If you are unfamiliar with meganewtons, one MN is a unit of force representing a million times the force required to accelerate one kg of mass at a rate of one metre/sec/sec, so that is one really big extrusion press. Another Chinese extruder is just now



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in the process of building a new plant in Indiana, USA, likely with a view to serving the much anticipated U.S. high speed rail industry when it finally, but I think inevitably, materialises. This is a highly specialised market for which a number of Chinese extruders have had considerable experience.

The huge press I just mentioned is of course exceptional, but in the past four years, larger presses are being installed almost everywhere extrusion is being done. Most presses used to be 7"-9". Today, presses for 12"-18" billets have become quite commonplace. At the same time, shapes are becoming more complex, higher section strengths specified and closer tolerances demanded. We know, of course, that bigger extrusion results in bigger problems, and the need for closer temperature control is directly proportional to the diameter of the die.

We don't want to hold a large die in an oven for longer than 10-12 hours or the oxidation of the bearings will be excessive. This is, however, sometimes an insufficient time to properly heat a large die in a conventional single-cell oven. My own company, Castool, has responded to this dilemma by developing a line of ovens which, by enhanced utilisation of radiation-

minimum time to temperature for a big die by 30-40%, and get the die ready to go on the press usually in 4-5 hours.

## The future

Some people think that just now India is the sleeping tiger, since the population of India is estimated to be 1.2 billion, close to China's 1.3 billion. India, however, doesn't yet have the industrial base to support a large number of extruders. Today their extrusion capacity is about equal to Italy or Spain, and I see no reason to anticipate any major change. I expect that the global demand for larger shapes will grow, that the extrusion industry in China will continue to expand, and that this outstanding growth will continue to impact on our extrusion industry as a whole, as it drives the development of new and enhanced tooling that helps all extruders increase their productivity. The huge and well established Far Eastern market is definitely attainable by Western suppliers. I have made several trips there, and just now 20 per cent of the total sales of my company are to Asia.

## Reader Reply No.88

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