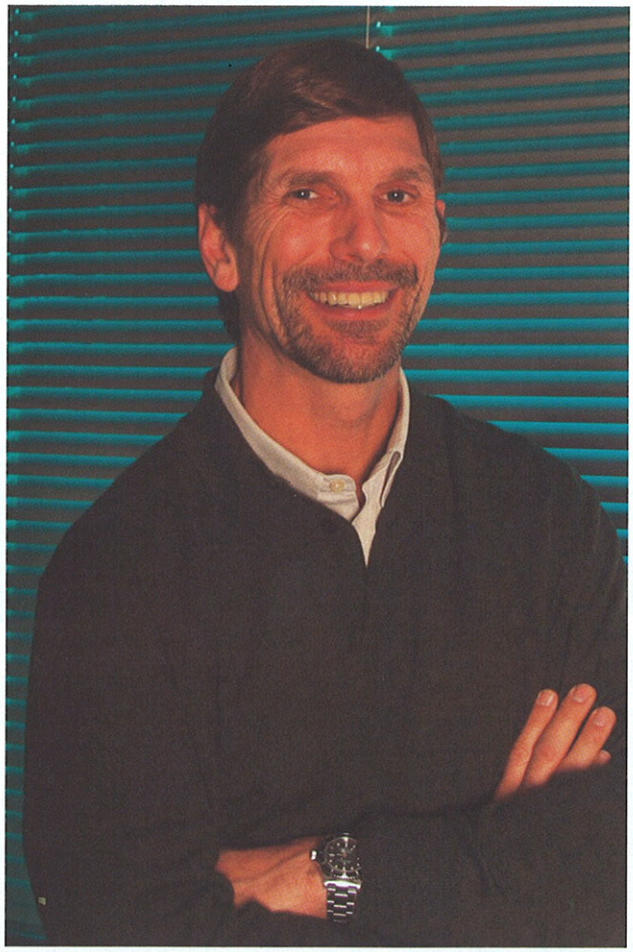
What's happenning to extrusion in North America today?

Paul Robbins, General Manager of North American-based CASTOOL Tooling Systems takes a positive view of the prospects for the extrusion industry.

The performance of the North American extruder has reached levels not seen in the past. There are several reasons for this. Perhaps the first of these is that better levels of extrusion can actually be achieved. The productivity of any aluminium extrusion plant can be improved. There are no exceptions to this basic rule. In fact, virtually every extruder knows how to do it.

Superior extrusion begins with a sincere commitment to ongoing improvement by everyone in the company, beginning with the Chief Executive Officer. In North America, however, a fairly common problem, in the past decade or so, has been that the CEO was not always an extruder. Many companies were being run by so-called Financial Engineers on behalf of the investment bankers who owned the organisations. Often, with almost no knowledge of the extrusion business in upper management, their goal was simply to increase the value of the companies in the short term in order to sell them on. Priorities were more on short-term financial gain than on long-term improvement in productivity. Delegation to middle management of major decisions regarding investments in long-term improvement just doesn't work, because any personal reward for improvement is seldom sufficient to offset the risk involved.



Paul Robbins, General Manager, Castool Tooling Systems, Uxbridge, Canada

A changing situation

This situation, however, appears to be changing. A good example of the positive direction which extrusion is now taking in North America is the fairly recent takeover of Indalex by the Sapa Group. With headquarters in Stockholm, Sweden, Sapa is today the world's leading producer of aluminium profiles. It is also an organisation that is notably run by senior executives who are all very capable and experienced extruders.

Another reason why better quality extrusions are now being produced is that since the recent economic crisis, many extruders have, understandably, become extremely well motivated to improve their productivity in order to remain in business. To paraphrase an old aphorism, nothing so focuses the mind as the possibility of imminent bankruptcy.

Extrusion today

The evolution of the extrusion process, as it stands today, has about reached its logical end. For example, in theory, ram speed should be limited only by the optimal operating temperature of the alloy being run. If all the components of a contemporary extrusion production process are operating at maximum efficiency, and interacting effectively together as a single holistic system, united in a common cause, maximum productivity may already be closely approaching.

Consider the effective operation of an extrusion system having the following components, all of which are currently available:

Billet heater

A billet of the leanest possible alloy will be precisely taper-heated in such a way that the temperature reduction in the billet, when it reaches the die, will exactly match the temperature increase that results from the friction of the alloy passing through the tool. The flow-stress of aluminium is extremely temperature-sensitive.

Die ovens

A single-cell die oven will heat each die accurately, uniformly, safely, and quickly.

Container

As the temperature of the die closely reflects that of the liner, the container thus controls the temperature of the die.

Dummy block

The dummy block will expand quickly under load, and maintain a secure seal with the container wall, leaving only a thin film of alloy on the round and straight liner. -

Extrusion die

The extruded section is not made by the die, it is made in the die. A good die will allow a profile to be made at the optimal operating temperature of the alloy being used.

Quench

No production of any profile can be considered complete until it has passed through an effective quench to properly set the alloy.

Visual optimiser

The visual optimiser is the most useful tool yet devised to help the extruder maximise productivity. A large back-lit monitor is positioned above the press, near the operator's station. On the screen, all critical temperatures and speeds that can be controlled by the operator during production are shown, plus the status of dies waiting to be run. Target temperatures and speeds from a previously prepared formula are also shown. Actual figures within 5% of target are shown in green, all others in red. The operator can tell at a glance what needs adjusting. The most productive formula from a previous run forms the initial formula for a repeat run.

Extrusion tomorrow

As the economy improves once again, the extruders who will be in the best position to succeed are the ones that didn't mortgage their future. Just now, most extruders are diligently looking for every way to cut costs and meet short-term demands. One of most common mistakes an extruder can make, just now, is to slash his maintenance budget, and the financing required to refurbish or replace components within his production system that have, over time, become worn or outdated.

The North American economy has not just been reduced, it has been reset. It is very unlikely to return to its 2007 level in the foreseeable future. Nevertheless, the demand for aluminium products is quite likely to eventually soar. Aluminium remains the metal of tomorrow, strong, light, and very recycleable. The market for extruded aluminium in North America could surpass all previous records. The greatest increase in available market share will go to the companies that are run by extruders who didn't simply survive the present downturn, but who planned for the future, entering into the recovery well equipped both materially and philosophically to take best advantage of an unprecedented opportunity.

Reader Reply No.97