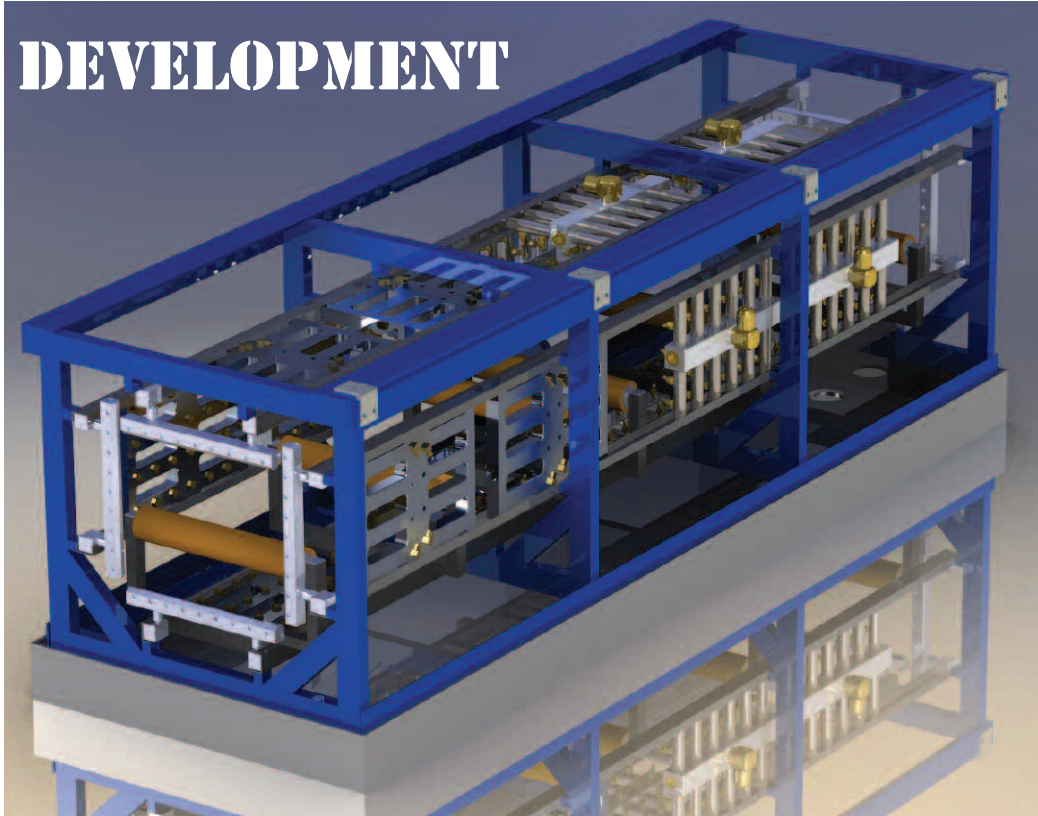


TOTAL CONTROL (TC) QUENCH

IN DEVELOPMENT



EXTRUSION

Most of the components of the extrusion production process have evolved and improved over time. However, one essential but often taken for granted part of the extrusion process appears to be lagging. It is the quench.

Most quenches in use today are still basically unchanged from those used by the average extruder 25 years ago. Fans simply blow ambient air, or a shower of water floods the extrusion, or both.

There is a better way.

In accordance with Castool's commitment to raise the bar, and bring extrusion to a new level, a new PLC controlled, shape dependant, Total Control Quench for hard alloys is now in the final stages of development and field trials.

It will soon be on the market.

The quench is an important operation that must be carried out to precise limits if optimum results are to be obtained. The objective of the quench is to ensure that the dissolved

constituents in the alloy remain in solution down to room temperature. The quench must therefore safely and precisely cool the profile within a fixed period of time, without limiting ram speed in any way, and without causing any shape, dimension, or surface problems in the profile.

The new Castool Total Control Quench will have several cooling zones, depending on the work load, and the ability of each to extract the heat at a sufficient rate to achieve the required results from the most convoluted profile. It features atomized water mist as one of its 3 coolants, and rings of manifolds delivering coolant from every side.

Atomization refers to the process of breaking up bulk liquids into minute droplets. Castool has chosen Air as its means of atomizing water.

The energy source for air atomization is air-pressure. Castool regulates the rate of water flow independently of the air pressure in the manifold. The water leaves each

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atomizing nozzle at a comparatively low speed, and is surrounded by a high speed stream of air. Friction between the air and the water accelerates and disperses the fluid stream. This causes atomization of the water.

The Castool TC Quench controls and balances the rate of flow of the water and the air pressure, producing a unique coolant that effectively penetrates the invisible thermal barrier of superheated air which cloaks the profile after it leaves the die.

Each ring of atomizing nozzles consists of 4 manifolds, top, bottom, left and right. Each manifold has 3 rows of nozzles each controlled by a solenoid. Each bank of manifolds therefore has 12 rows of nozzles that can be individually controlled, depending on the shape being cooled. In most cases, there will be 2 to 4 rings of atomizing manifolds.

When flooding is required, separate rings of flooding manifolds will be positioned after the atomization manifolds. Each flooding manifold will be controlled by a solenoid.

The work load is determined by shape of the profile, weight per foot, surface area, type of alloy, extrusion speed, and product function.

The extruder will be able to control the air pressure and the water flow, and thus the precise rate of cooling that will maximize the strength of the section. The quench will be custom designed and fabricated to suit the press.



In accordance with standard Castool policy, every effort has been made to make it easy for the extruder to install and to effectively use the new quench.

The Castool Total Control Quench cools from up to 12 individually controllable rows of nozzles surrounding the profile to ensure that optimum results are obtained from the particular alloy being used for a specific profile.

It brings the light metal extrusion quench into the 21st century.

Yes, there really is a better way.

