

Dr. Die Cast



Die Casting Machinery: Putting it all together (Are we ready yet?)

Servo and proportional controls were introduced on die casting machines as long ago as the 1970s. The skepticism of the owners said a lot about the lack of confidence they held for the technology, the skills of their staff and the availability of support from the manufacturers. The back-up plan for a “high tech” machine of that vintage was not an inventory of spare parts but a “redundant, mechanically adjustable” system. Servo controlled flow control valve blocks could be swapped out and replaced with a manually operated stroke adjuster to control the fast shot velocity. Linear encoder back-ups consisted of a set of limit switches mounted in parallel with the encoder/tail rod. The complexity (and sensitivity) of the systems was summed up by one of the


field service engineers who stated; “when one of our machines goes down, you need two people (to troubleshoot), an electrical technician and a hydraulics expert. When (machine X) goes down you only need a mechanic.”

By the way, if the thought of servo controls intimidate you, don’t activate the cruise control on your automobile. Cruise control consists of a servo operated system. Many other areas in the modern automobile are controlled by servo feedback systems including climate control, “fly by wire” throttle bodies, transmission shifter controls, ABS, etc.

Today there are machines that are entirely proportional/servo controlled. There are machinery companies that retrofit older machines with newer controls. In a lot of ways, it’s a matter of

preference. So how do you manage emerging technology in your die casting company?

How much automation is enough? What is your idea of a “Machine cell”? Will an HMI (Human-Machine Interface) improve my productivity and up time? Would your machine cell be fully integrated with an HMI interface computer or PLC to manage and monitor the reliability and safety of the cell? When is it time to replace rather than rebuild? Have I trained my support staff or do I have people in place who will embrace the technology?

I would like to suggest that maybe it is time to take a second look at the advancements in reliability in machine controls and peripheral automation systems. They just might be cost effective after all. 

Who’s Dr. Die Cast?

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Extending Die Life: Maintenance & Welding Strategies

By: David Schwam

Pages: 56 Item # 505 List Price: \$40.00

NADCA has released a new publication based on its popular 2012 webinar series on die care and maintenance. The series, presented by Professor David Schwam from Case Western Reserve University, focused methods of die care and maintenance from the perspective of best approaches to preserve and extend die life.

Understanding the failure mechanisms is important not only in the design and fabrication but also in the maintenance and care of the dies. Following a brief review of failure mechanisms, this book describes methods to make dies last longer; like preheating temperatures and temperature control during the die casting process, spraying and internal cooling & creating a good balance between these two. The last section of this book will cover die care and maintenance of the dies such as inspection, handling, cleaning, polishing, welding, and storage.

For more information visit www.diecasting.org/publications or email publications@diecasting.org.

