

Dr. Die Cast



Training Our Customers?

Anyone serving the current group of customers will experience numerous “Title Block Standards” that are a mismatch for the die casting drawing. The standards will have been copied word for word from a die casting drawing somewhere within the customer’s company. Sometimes this is due to company mergers when two or more companies engineering standards are somehow morphed together instead of doing a thorough review and consolidation of the standards. How can we as suppliers address this condition? In a phrase, by “training our customers”. Experienced senior engineers that are slightly “younger than dirt” must train our emerging customer base. Now before you start dusting off your books and courses on persuasion, you might want to ask the customer why they chose that procedure in the first place.

What are some of the misconceptions that would lead a designer to copy title blocks?

1. Die castings are similar to plastic parts and therefore have similar dimensional capabilities.
2. All alloy casting processes are similar.
3. All die casting products can produce the same tolerances regardless of the alloy.
4. Didn’t ask.
5. Previous experience with a die casting.

6. Tighter tolerances will insure I get better quality.
7. Tolerances are free.
8. Die/tooling life is not related to tolerances.
9. The size of the casting has nothing to do with the tolerances.
10. The annual volumes have nothing to do with development costs.
11. Didn’t have time to review the options.
12. Didn’t have the authority to change (top down).
13. Add your own...

What are some of the problems associated with copying standards?

1. Surface finish requirements are inappropriate for a mechanical die casting product especially die castings. (Chrome polished surface or “Class A call out” on an otherwise functional casting.)
2. As-cast tolerances require frequent core replacement and/or tool repair and/or replacement
3. Die castings with dimensional tolerances similar to plastic injection molding. Increased tool maintenance costs to both the die caster and customer.
4. Aluminum die casting dimensional tolerances that are the same as zinc or magnesium increasing the tool maintenance costs.
5. Low volume products that involve lots of close tolerance as-cast cores that could be more cost effective as machined features.
6. Non-standard, tighter tolerances cost extra. Either in additional tool maintenance, higher scrap, lower productivity.
7. Accelerated tool replacement due to lack of allowances for normal tool heat checking.
8. X-ray standards that create extra processing and inspection costs with little improvement in functionality.
9. Notes that refer to “External Customer Standards Documents” that are either obsolete or not readily available to the supplier.
10. Material standards that are “non-standard” materials (such as specifying an extrusion or sand cast alloy for die castings.)
11. Thread and tap sizes that are “British Standard” confused with “English Standard” i.e. U.S. or S.A.E.
12. Designer needs to specify whether the die casting “drawing” or the “3D casting model” takes precedent.
13. CPK on non-critical features that add costs, especially when variable gaging is required to validate.
14. Low draft conditions that increase the difficulty to cast/eject and decrease tool life.



15. Incorrect revision level. Features added after the quote that increase tooling and castings costs.
16. Packaging or dunnage that may be defined on the drawing that is assumed as “free”.
17. Etc.

When is the appropriate time to address the notes? It is not as one die caster commented, “After they receive the purchase order.” In the life cycle of the design this is nearly too late to reopen the conversation. Most designers are already working on the next project by the time the tooling order is placed and are reluctant to revisit the design. What if the design was by an outside design source? They may not even be present by the time the tooling P.O. is placed.

The time to address design and tolerance concerns is “sooner rather than later”. The time to initially critique the drawing is during the quoting process. For many companies, the design still has some flexibility during the quoting process.

What is a good reference template when critiquing drawing notes? In Section 8 of the 2009 E-606 “NADCA Product Specifications Standards for Die Castings” there is a Checklist that outlines the “cost effect” of various specifications and tolerances. Every sales engineer should be intimately familiar with these pages. Be prepared to discuss the real costs associated with each level. Don’t be afraid to challenge the standards with something like, “Do you really need that for your customer or the functionality of the casting?”

What about existing castings, sometimes referred to as “legacy castings”? Most customers today are looking for ways to reduce costs. By the time you have worn out a die cast die you and your staff are the resident experts on the strengths and weaknesses of their castings. Why not be proactive and suggest changes that could not only increase reliability but reduce costs? Rather than just doing a form letter stating that the cavities are reaching the end of their life, how about reopening the conversation on the current operating standards? They might just be grateful, and wouldn’t that be a welcome improvement to the business relationship.



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