

Fundamental Differences Between Mistake Proofing and Error Proofing

If we look back to the requirements of QS-9000 we find two distinct references to mistake proofing. They may be found under the headings of Quality Planning and Corrective and Preventive Action. QS-9000 defines *mistake proofing* as “the use of process or design features to prevent manufacture of nonconforming product.”

The new automotive requirements put forth in ISO/TS 16949:2002 specifically requires error proofing rather than mistake proofing in three places: Product Design Outputs – Supplemental, Manufacturing Process Design Output, and Corrective Action. ISO/TS 16949 defines *error proofing* as “product and manufacturing process design and development to prevent manufacturing of nonconforming products.” Is this change in terminology important? The definition given for error proofing does not differ substantially from QS-9000.

John Lindland identified three distinct levels of mistake proofing in his three-part series on the subject (Automotive Excellence, 2001), as follows:

- Cannot Make
- Cannot Cycle
- Cannot Accept or Pass

At the *Cannot Make* level, the probability of producing a defect is reduced to zero. The possibility of a faulty action is designed out of the product or process. Error proofing is consistent with this level of mistake proofing.

The second level of mistake proofing, *Cannot Cycle*, stops the process when a faulty action has occurred, but prior to manufacturing defective product. This is not consistent with error proofing, because a faulty action has been allowed

The third level of mistake proofing, *Cannot Accept or Pass*, is needed when a defect has been produced to prevent it from further processing, or worse yet, delivery to the customer. This is also inconsistent with error proofing, as it assumes the production of defective product.

So in summary, here is the key difference between mistake proofing and error proofing. Mistake proofing focuses on both the prevention and detection of defects, while error proofing focuses solely on prevention. Error proofing breaks the chain of causality so that neither the faulty action nor the resulting defect can occur. Think about it. If our error proofing efforts are effective, do we really need to be able to detect defects? On the other hand, if we have not designed out all of the possible sources of nonconformity from our product and process designs, then perhaps we still need all three levels of mistake proofing.