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Ordering steel rule cutting dies

Scope

This TIP provides guidelines for ordering steel rule cutting dies.

Safety precautions

There are no specific safety precautions associated with this TIP.

Establishing specifications

Dies are commonly made from drawings, corrugated samples, or existing dies.

The best specification is an accurately dimensioned drawing. However, several factors should be considered.

Among them are the following:

1. Has a sample been made from the drawing as a final check? This is mandatory on a new design.
2. Have the sample and drawing been approved by the customer and by the sales representative?
3. Do all the dimensions add up?
4. Are all the dimensions shown?
5. Does the drawing specify whether it is a view of the scored side or the printed side?
6. Is the flute direction shown?
7. Are all knives, scores, perforations and Perfatype correctly identified?

Full-scale drawings are another good source. They can be troublesome; however, if the drawing is folded rather than rolled or if the paper shrinks, use of dimensionally stable Mylar minimizes the shrinkage issue. These problems are minimized if the draftsman has shown the basic scoring dimensions.

A corrugated sample is one of the most dangerous ways to establish a specification. There are several inherent risks:

1. A folded sample is shorter after it is laid flat than it was originally, double wall especially.
2. A production sample may have missed a trim knife and may be short.
3. There maybe a register variation in a no-trim or double kick job.
4. A hand cut sample can be inaccurate. The designer should at least show basic scoring dimensions.
5. Machinery problems and combined board moisture can cause a rotary die cut blank to run long or short.
6. Paper shrinks and expands with changes in relative humidity.

To overcome these problems, a corrugated sample should be dimensioned by the person ordering the dies, and the vendor should be obligated to meet these dimensions.

Making a new die from an existing one is another alternative. In some plants the die may be more up to date than an office specification; however, the existing die must be accurate in all respects. Improving documentation

TIP Category: Automatically Periodically Reviewed (Ten-year review)



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control should minimize discrepancies between the die and office specification. Finally, two different sources of the same specification, such as a drawing and a sample, should *not* be used. There is almost no way the sources can be exactly the same; confusion results.

Dimensions for each panel written on the back of the die help to ensure accuracy.

Diemaking sample

In the early days of rotary die cutting, no samples were given when the die was delivered. Thus, there was no way to determine if the die was right until the first sheets had been run off. If the die had been wrong, costly setup time ranging from one to three hours would have been lost. This would cost the company money, and in most cases the die would be sent back to be corrected. With a diemaker's sample, however, loss of time and money on setup can be avoided, since any errors can be corrected immediately. Nevertheless, the sample must be verified in the plant by checking the cut off the rotary die cutter, since wear on the urethane can change the size on the die cut. With more wear on urethane, the impression is increased to facilitate cutting; this can change the size of the sheet up to 0.125 in. (3mm) or more on a large sheet. Therefore, the die cut sheet that comes off a new setup should be checked every time, and sheets should be checked periodically during a long run.

Keywords

Rotary machines, Diecutters

Additional information

Effective date of issue: May 14, 2008

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