By David Spiel

Perfect pitch

Meet the next generation in plastic coil binding

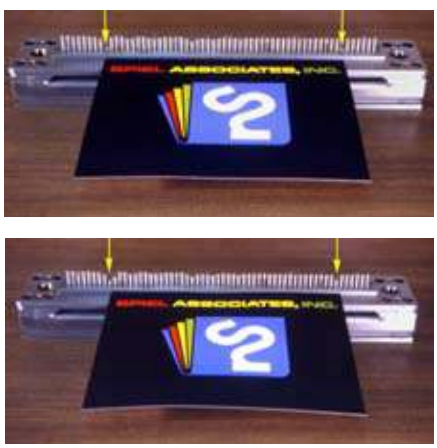
There was a time when figuring out your pitch was easy—it was done for you. This is the "Story of Pitch: The Next Generation."

Double loop wire manufacturers determined the pitch for their product: 2:1 (2 holes per inch) for sizes between ⅝ inch and 1 inch (or now 1¼ inch), 3:1 for sizes between 3/16 inch and 7/16 inch, and 4:1, which had been discontinued some 15 to 20 years ago. 4:1 wire became obsolete when semi-automatic wire binders became capable of binding thin books at a 3:1 pitch in the mid-seventies.

Spiral wire machine manufacturers called the tune within their sphere of influence. For the most part, machines formed the wire as it was being spun into the book. Their forming mandrels determined what pitch you could use. There was no choice: ⅛ to 5/16 inch thicknesses had to be bound at 5:1, 13/32 inch, ⅝ inch required a 4:1 pitch, and 11/16 inch–1⅛ inches called for a 0.312 inch pitch. Spiral wire binding, however, seems to be going the route of 4:1 double loop wire.

Plastic coil binding vendors leave much of the choice up to the bookbinder. Fifteen to 20 years ago there was 5:1 for thinner books and 4:1 for thicker books. There was no automatic machinery, so the choice was up to the user. How did it look? What kind of punching dies did you have? Now, 5:1 is almost a thing of the past. It costs 20 percent more than 4:1, it takes longer to spin in, and cutting and crimping it is difficult. That just leaves 4:1. Or does it?

When the first automatic plastic coil machine came to market, it had to bind 4:1. The problem lay with the margin and the bridge. (The margin is the distance between the head of the book and the top hole, or the foot of the book and the bottom hole. The bridge is the distance between any two holes.)



Pins pulled (above) and unpulled (below).

Double loop wire users are acquainted with the process of pulling pins. If a 3:1, or in the case of coil, a 4:1 pitch is used on an 8 ½ x 11-inch book, or A4, you might punch a partial hole if you don't pull the two outside pins. Spiral binding veterans know what the only alternative was and is: Trim down your book so that the margin is no larger than the bridge. So the choice was clear: Pull your pins or trim down the book.

New developments added more options. Only one automatic plastic coil binder could bind books punched with a 4:1 hole pattern, causing the first loop to jump past the larger margin—the others could not. Europeans mostly dealt with a 5mm center-to-center and 6mm center-to-center pitch, which created a large margin and the same problem as a 4:1 pitch. These machine manufacturers were in a pickle. Unfortunately, rather than inventing an elegant solution for their machines, they decided to change the pitch used by an entire industry.

One manufacturer invented the 0.248 pitch. This pitch allowed you to punch the pattern on an 8½ x 11-inch or A4 sheet without pulling pins. While the holes came quite close to the edge, the margin was acceptable here in the United States. But Europe's A4 size was another story. The margin was too slim to be acceptable. This manufacturer soon folded its tent. The 0.248 pitch, however, lived on and was promoted by a manual equipment specialist.

Another manufacturer came out with a 0.2475 pitch. But the holes still came quite close to the edge. So the manufacturer insisted that their customers use an oval hole. An oval or "double D" hole is, simply stated, a round hole with its sides cut off. So this prevented the curved edge of the round hole from approaching the edge of the sheet, leading to an acceptable margin. This is the only reason machine

David's Spiel

Here's an excerpt from David Spiel's recently launched blog. See www.davidsspiel.blogspot.com.

One bindery owner I know is a very savvy businessman. You walk into his shop and you see fairly new equipment, well maintained and clean. Another bindery owner in the same area has a shop with, let's say, less than optimum equipment.

He has a a very slow [15-year-old] wire binder. It produces about 200 books per hour. Almost every other wire binder on the market can double or triple this output. So if he averages 100,000 books per year, he could have saved over 200 man hours (assuming he uses two people including material handling) per year. He would have saved at least 3,000 man hours in the past fifteen years. If he pays his people $10 per hour, he would have **saved a minimum of $30,000**. This doesn't count insurance, workman's comp, or overhead. So how much did he save by having a less than sterling wire binder in the long run?

I once told a bindery owner in California that if he made his own plastic coil he would save $100,000 per year, and the machine at that time only cost $28,000. His reply to me was; **"I'm not so much interested in saving money as making money."**

Even though times are tough right now, I hear about companies outsourcing hundreds of thousands of dollars in binding services per year when they can bring the machinery in to do it in-house for less than $100,000.

manufacturers insist that their customers punch with oval holes. The notion that coil spins in easier with oval holes is a complete fallacy. In fact, because the sides are cut off, the hole is smaller than a more economical round hole die.

Now customers had to junk their round hole dies and buy oval ones, unless they had a machine that could bind a 4:1 pitch book. The manufacturer that created 0.2475 pitch only created that size tooling for its machine, despite the fact 0.248 would have worked just fine.

Users now have a choice between a true 4:1, a 0.248, or a 0.2475 pitch. There is little advantage to using an oval hole, especially considering that they are so much more expensive. The 0.248 pitch is a good, inexpensive alternative, if the machine you own will accept such a pitch. The 4:1 pitch produces the healthiest and most attractive margin but might not allow for as speedy a binding process as 0.248.

As for thicker books, I recommend a 3:1 pitch with a 7/32 inch (5.5mm) hole for any coil diameter above 22mm. For books above 35mm I recommend a 2.5:1 pitch with a ¼-inch (6mm) hole. A wider pitch means you can punch a bigger hole. The bigger hole is needed for two reasons: It is too difficult to spin coil in though a small hole; and the gauge of larger diameter coil is thicker to accommodate a heavier, thicker book. (Trying to spin 4:1 pitch coil into books this thick is like trying to stuff 10 pounds of stuff into a five-pound bag.)

The trick is to determine is if the machine that you are using will accept the pitch that you want, unless you buy a machine from our company, because if you haven't guessed already, our machine can accept them all.

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Start spreading the news

As recently as 12 years ago, plastic coil could only be inserted manually. But things changed in January 1997 when Spiel Associates installed the first Coilmaster at a bindery in the Tri-State area.

Plastic coil was popular, but nowhere near as prevalent as it is today. Most children's books don't contain wire of any kind, and some states forbid using wire for school textbooks. Also, designers have fallen in love with the range of color plastic coil possibilities.

Spiel Associates soon after introduced improvements to their machine, including a "spreader." This patented device causes the coil to jump into the first and out of the last hole, even if the margin is larger than the pitch. Thanks to the spreader, the margin (distance between the first hole and the head or foot of the book) can exceed the bridge (the distance between the holes). Regardless of book size, the Coilmaster lets the operator center the hole pattern on the sheet.

The Sterling Coilmaster Jr. offers a compact solution for high speed plastic coil binding.

The Sterling Coilmaster III Plastic Coil Binding System creates plastic coil from plastic filament and automatically inserts it into the book from the first hole onwards.

The spreader eliminated the need for users to buy new dies and to hope that the pattern fit within the confines of the book. It provides greater flexibity, too, since binders can use round holes—which are less costly to produce than oval holes—punch close to the edge and typically don't have to trim books to make the margins thinner. All Coilmaster models now incorporate this technology. A plastic coil former subsequently was added to work inline with the binder.

Happily ever after

Automation coupled with cost efficiencies are what prompted Colorful Story Books (South Plainfield, NJ) to add Spiel's Sterling Coilmaker III, plastic coil former inline with the Sterling Coilmaster inserter.

Having sold its publishing division three years ago, Colorful Story Books now specializes in binding books for the trade. Wire and plastic-coil binding represent about 15 perecent of its work. "We do a little bit of everything," says co-owner Don Blewitt. "This includes spiral binding, plastic coil, wire-o, collating, perfect binding and notch binding, saddlestitching, and folding."

As the Coilmaker's name implies, spool-fed plastic filament is formed into plastic. The formed coils are automatically fed into the Coilmaster, which spins the coil into the book from the first hole onwards. The coil is then cut and crimped automatically. Books up to 42 mm in diameter can be bound at speeds of up to 700 per hour.

"A lot of other machines are manual; you have to start the coil by hand," Blewitt explains. "With the Spiel machine, you just put the coil in the slot and it automatically feeds the coil—you don't have to start it in the first hole. Both the Coilmaker and Coilmaster automatically cut the coil. Unlike other machines, everything is done in one operation; you don't have to move to a second unit."

The trade binder now makes virtually all of its own coil. Preformed coil is used only for small-run jobs or those with unusual color requirements. "We can make the exact amount of coil we need and we don't have to wait for shipping," says Blewitt. "A lot of coil manufacturers are spread out around the country in Atlanta, Idaho, California and even in Canada. If you need to have coil shipped overnight, it could cost as much as the coil or even more. Buying coil by the spool and forming it ourselves costs about 50 percent less vs. buying it on the outside. It's a huge cost savings and can make a difference in terms of getting a job."

For shorter stories

Colorful Story Books relies on a third Spiel machine, the Sterling Coilmaster Jr., for shorter runs or jobs with oversized covers. Users can bind books up to 25 mm in diameter at 600 books per hour without any tooling. The Coilmaster Jr. can handle books with margins of up to 3/16 inch with round or oval holes, at any pitch.

Similar to Spiel's larger machine, the tabletop unit automatically inserts coil into the book from the first hole onward. It then cuts and crimps automatically. Blewitt reports that a recent improvement has further boosted the Coilmaster Jr.'s productivity. "After the machine cuts the coil, there's a small piece left over [previously removed by hand]. Now after the book is made and [the scrap] falls down, the spinner comes back and pushes that small piece of coil out so that the machine is ready to go to the next book. We're amazed at how much faster getting the piece of plastic out speeds up the whole operation."

Spiel Associates offered this upgrade to all Coilmaster Jr. owners at no charge through the end of 2009. See www.spielassociates.com.

On Demand: Look for some big binding news in Philadelphia! The On Demand conference & expo will take place April 20-22, 2010. See www.ondemandexpo.com.

Further reading

- "**Mechanical binding options**" (July 2004)
- "**Punching & drilling**" (March 2005)

See www.americanprinter.com.