

Can Oversewing Make a Comeback?

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The library binding industry is at a crossroad. One road is marked OS for Oversewing, and the other is DFA for Double-Fan Adhesive binding. Choosing between two well-known and proven methods of leaf attachment is not an easy task.

Before the question is answered, let us look at the backgrounds of OS and DFA.

Oversewing

Oversewing, the cornerstone of the library binding industry, is known to have served binders and their librarian customers well for almost three quarters of a century. However, the ever narrowing of gutter margins by publishers, and the demands placed on bindings for greater flexibility to improve openability for ease of copyability, all point to DFA as being the road of choice. For several years now, some binders have traveled smoothly on the DFA road. Although Oversewing will always have its place in library binding, the marketing success of the DFA product and its demand by many librarians is making other binders take a closer look at the process

Double-Fan Binding.

Although the double-fan adhesive binding process was first imported to the United States and Canada in the late 1950s, it was not until the late

1960s that Mekatronics introduced it to the library binding industry and put it to effective commercial use as an alternative method of leaf attachment other than oversewing, the dominant method since the early 1920s.

In Europe, DFA, better known as the Lumbeck process, has been almost exclusively the method of choice for leaf attachment for over 70 years. In North America today, the process is confined to certain geographical areas. It is quite dominant in Canada and the Northeastern parts of the United States, where binders are reported to be using the process for 70% to 90% of their work. To a lesser

degree, binders in the Midwest and West are also using the process.

However, in many areas of the country, librarians would not accept the Double-Fan Adhesive binding process because of the bad experience they have had with the process. They would specify, almost exclusively, Oversewing for their preferred method for leaf attachment. For someone who has been marketing adhesive binding equipment for over 20 years, this is not hard to understand, as I have seen time and time again, the failure of so-called adhesive bindings. The fault, of course, is with the binder who failed to recognize how fragile this process can be.

At a time when DFA is rapidly becoming the preferred method for leaf attachment, it is important to remember that it is an unforgiving process. With Oversewing, the strongest known method for leaf attachment, a missing needle or broken thread will not significantly affect the integrity of the binding.

Like any machine, or process, double-fan adhesive binding had its limitations until the introduction of the **MEKANOTCH** spine notching machine, which will be described later. Material-related characteristics such as glossy, coated, or heavily calendered paper and adhesives establish the limits which cannot be exceeded without loss of binding quality.

Double-fan adhesive binding is a demanding process that leaves no margin for error. Careful attention must be given to the following:

1. Adhesive

The adhesive plays a major role in the quality of the leaf attachment process. It must be a high quality, specially formulated polyvinyl acetate (PVA). The formulation of PVA adhesives goes beyond the fundamental differences between polymers and plasticizers. An adhesive may contain components such as viscosity

modifiers, tackifiers/extenders, solvents, fillers, humecants, wetting and foam control agents, and biocides which may be compounded in order to tailor the product to facilitate application by machinery and bonding on specific substrates.

The best adhesives for double-fan binding are produced in Germany, where the PVAs were invented in the early 1920s, and have been in successful use since that time. Mekatronics' **ULTRAFLEX**, an internally plasticized copolymer, is such an adhesive.

2. Manner of Application

A variety of equipment is currently being used throughout the industry. This equipment ranges from homemade, hand-operated devices to semi-automatic machines. With the exception of those machines in which spine-milling and double-fan gluing are combined, use of all other types of equipment must take into consideration the following:

When the spine of a volume is milled or trimmed before being clamped for the fanning operation, extreme care must be exercised to ensure that all pages are flush with each other, and will therefore be tipped during the gluing operation. Failure to do so may compromise the binding unless the spine is first "notched" as described below.

When fan gluing by machine, the pages may not be coated to the proper depth. Periodical covers, usually stiffer than the text papers, will dominate while being fanned and will receive more glue than the adjacent text papers. Also, periodicals with inserts will prevent the glue from penetrating between some pages causing a weak leaf attachment.

Spine Notching Bridges the Gap

Spine preparation plays a key role in the technology of adhesive binding, especially when a variety of coated, stiff and cross-grained papers must be processed. Milling cutters with roughers help to expose paper fibers (to some degree) for improved linkage with the adhesive. Also, text blocks with heavy-coated stock are sometimes double-fanned twice rather than once, a practice which may cause excessive penetration of glue at various

places within the text block. These attempts at stretching the limits of the process, in most cases, result in weak bindings and a wide gap between the durability of sewn and adhesive bindings.

The **MEKANOTCH** spine notching machine, introduced in 1980, the recently introduced **MEKABIND**, a Spine Notching and Double-Fan Binder, and Mekatronics' newly developed semi-automatic, in-line **ULTRABIND**, bridge that gap. All three machines feature adjustable spine notching patterns that increase the spine area and expose additional paper fibers to enhance the linkage between paper and adhesive.

Notching improves the quality of the adhesive bound book by increasing the length of the edge of the page to be glued. The notch penetrates into the pages and thus, will catch the edges of the pages that were improperly jogged. For example: A 1" thick by 11" high volume with 1/16" wide by 1/16" deep notches at 5/16" intervals will increase the spine area by 25%.

With the above by way of background, the answer to the question as to whether Oversewing can make a comeback is a qualified 'YES.' Yes, it can make a comeback if binders will take the process seriously.

For those who may choose to embark on the road to DFA, let the recommendations given above and summarized below be your guide:

1. Recognize the limitations of the process.
2. Use high-quality adhesives which have been specially formulated for the process.
3. Employ special spine-preparation techniques, such as notching and double-fan sanding for enhancement of the process.
4. Select notch pattern to optimize strength, openability, and minimize damage. (**OBJECTIVE: Minimum depth at frequent notch intervals (pitch), but not be less than 5/16".**)
5. Remove ALL old binding adhesive because:
 - a. Possible incompatibility between glues.
 - b. Gummed-up milling cutter may lacerate the paper.
6. Volume should receive an additional sealing coat of adhesive over the spine with a stretchable dense backlining material running the full length of the

backbone and overlapping the side of the endpaper by at least 3/4".

7. Backlined volumes should receive an **ADDITIONAL** heavy coating of a less pliable PVA adhesive to seal the backlining material permanently into the backbone. The added adhesive also helps retain the rounded and backed shape of the volume and minimize stress when pages are flexed.
8. Four page or other multiple-leaved endpapers are recommended, provided they hinge from the binding edge.
9. Use the right equipment in which at least the spine milling and notching operations are integral with the double-fan gluing operation. This will ensure that all pages are flush with the spine and will receive glue when being fanned.
10. Use skilled and well-trained operators, especially when operating non-automatic machines.
11. Avoid processing material over 2-1/2" in bulk.
12. Avoid processing material with difficult papers such as calendered and heavily vinyl-coated papers and others.

Author Jack Bendror, president of Mekatronics, Inc./Bendror International, Ltd. and an Associate Member of the Library Binding Institute, holds Bachelor's and Master's degrees in Mechanical Engineering. He has devoted a career of over 35 years to designing and manufacturing machinery for the library binding industry. His efforts at automating, what were formerly hand operations to improve the quality of library bound books and the productivity of library binders, have resulted in pioneering many automation breakthroughs. Among them, the self-adjusting Rounder & Backer, Hydro-Press Building-In Machine, MD-17 (computerized book measuring unit), RB-7 and GEM (computerized cover lettering systems), ABLE (Advanced Bindery Library Exchange), a hardware/software product that provides both the bindery and the library with means of communicating binding! rebinding information more quickly and accurately. His most recent accomplishment is the ULTRABIND, a self-adjusting in-line adhesive binding machine that will automatically spine mill, spine notch, double-fan and, spine clean, double-fan glue, notch-fill with glue, and backline. He and his wife, Gloria, have a daughter Deborah-Joy, and a son, Steven.