Revolutionizing Photo Books through the Custom Album Page

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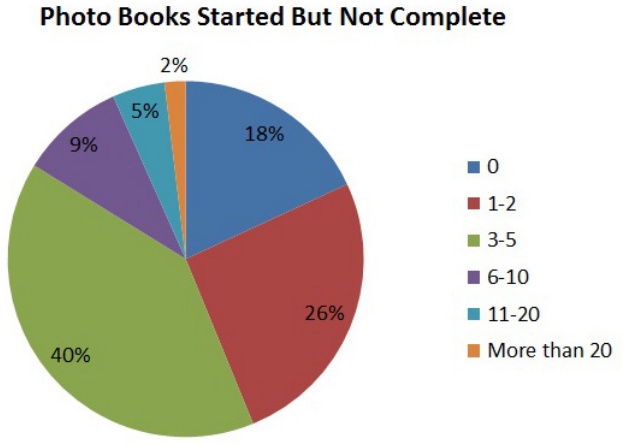
Abstract

Digital printing processes enable the economical production of photo books at a quantity of one. Unfortunately, digital printing does nothing to improve the creation process. The typical photo book project requires customers to complete their photo book prior to ordering. The customer cannot easily add pages, photos, or new information without reordering the entire book. To address these difficulties and to allow customers to complete their photo book as life happens, Creative Memories has adapted traditional strap-hinge binding technology for digital production. With the Custom Album Page, customers receive all the advantages of a high-quality photo books, including a personalized cover and lay-flat pages, in a form that allows individual pages to be added or updated at a later time. In addition, the Custom Album Page meets all customer requirements for photo book durability and longevity.

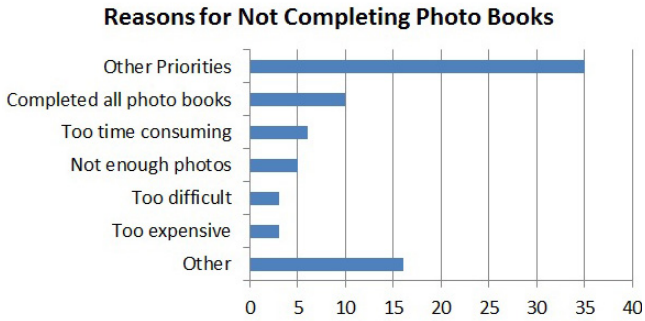
Introduction

Photo books are typically 20-100 pages, with an average length of 30 pages. The typical photo book contains 100 or more photos along with associated journaling, and for the creatively inclined, will require many hours to complete. In some cases, customers may begin but never complete their photo book. The Custom Album Page is an easily managed project leading to a photo book. It ensures that customers see the results of their project throughout the creation process.

In a survey of 71 customers who create photo books, the average customer had 3-5 uncompleted books, with 80% having at least one uncompleted book.



The top reason photo books are not completed is "Other priorities," but responses included many other reasons as well. Other reasons included "forgot about it," "waiting on photos from others," and "need more time." In this survey,"Too difficult" and "Too expensive" had the lowest number of responses, with 4% each.



In addition, some activities or events take place annually or at other infrequent intervals and are consequently not well suited for typical photo books. Imagine trying to create a photo book with a child's school photos, holiday gatherings, or annual vacations. A customer would need a new book each year, or in the case of school photos, they could wait until the child graduates.

For these reasons, the stitched or otherwise permanently bound photo book does not adequately address many customer needs. A photo book that allows pages to be easily added or removed is a much better solution.

The Custom Album Page is available with white or black reinforcement tape to meet a variety of aesthetic requirements.

This paper discusses the applicability of the strap-hinge binding system, as well as the manufacturing of custom covers, to photo books.

Figure 1. *Strap-hinge binding system illustrating lay-flat page construction.*

Experimental

Custom Album Pages were produced with the Kodak Nexpress with a textured clear coat designed to simulate a traditional matte silver halide photographic print.

Image analysis was conducted with the PIAS-II from QEA following the procedures given in ISO 13660. Gloss measurements were carried out with BYK Gardner Micro TRI Gloss 4520 following the procedures given in ISO 19799. Light stability was measured with an Atlas Ci3000 Weather-Ometer with an L37 filter using initial densities of 0.5, 1.0, and 1.5 with failure criteria of 40% dye loss, 20% change in color balance or ΔE of 10 for d_{min}.

Lifetimes were determined assuming 250 lux illumination for 12 h days.

Results and Discussion

Durability

Abrasion resistance is critical to photo book longevity, since nothing can be done to prevent pages from coming into contact with each other as the album is handled and used. For traditional albums, Page Protectors protect pages from adjacent pages. Page Protectors, which are manufactured from polypropylene, slide over the completed pages. The improved abrasion resistance of digital prints reduces the need for Page Protectors with digital prints.

The Nexpress clear coat improves abrasion resistance and is used with a matte texture for Custom Album Pages. Without the clear coat, significant abrasion is apparent in the Sutherland rub test, Figure 2, and in usage tests designed to simulate a heavily used photo book, Figure 3.

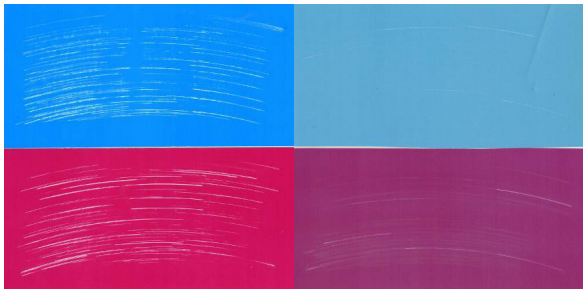


Figure 2. *Sutherland rub results for unprotected (left) and protected (right) Custom Album Pages.*

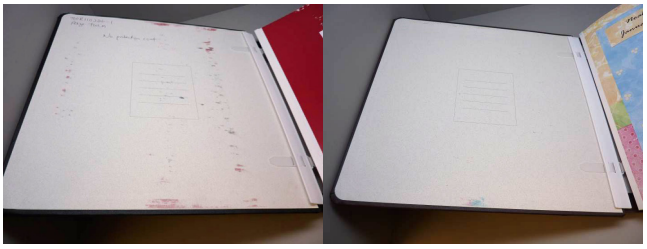


Figure 3. *Actual image transfer after the photo book is opened and closed 10,000 times.*

Photo Safety

Photo-safety is a concern when traditional photographic prints are combined with digital prints in an album. After all, we do not want digital prints to adversely affect the longevity of other material that may be stored with them. Fortunately, ISO 18902 provides specific guidelines for photo safety and through proper materials selection. Consequently, we can assure customers that Custom Album Pages are photo safe.

Specifically, we need to ensure that the paper passes the Photographic Activity Test and pH, buffering, and lignin requirements. In addition, all colored materials must resist bleed so as to not damage prints if accidentally exposed to moisture or high humidity conditions. For the Custom Album Page, the black reinforcement tape must meet bleed requirements to ensure that it will not adversely affect the printed page.

Property	Value
pH	9.24
Buffering (CaCO3)	9.60 %
Lignin	<1 %
Photographic Activity Test	Pass
Bleed – Reinforcement Tape	No Color Transfer

Longevity

Light, dark, humidity, and ozone resistance ensure that photo books will be long-lasting and will withstand environmental factors. Like many digital prints, longevity for the Custom Album Page is superior to traditional silver halide.

Sample Description	Hours	Display Lifetime (Years)	Failure
Custom Album Page	618	50	Cyan-yellow color balance
Kodak Royal	194	16	0.5 yellow
Fuji Crystal Archive	208	17	0.5 red color balance

Image Quality

Image Quality – Gloss differential and image quality are comparable to or better that traditional photographic paper. The matte texture serves to minimize gloss differential that is typically apparent in electrophotographic prints. In addition, image sharpness is better for electrophotographic prints, resulting in improved quality for text and graphics.

Custom Album Cover

Customer demand for photo books with custom covers is increasing each year with the market growing each year at the expense of non-customized covers. Fortunately, Creative Memories manufacturing processes, which emphasize demand flow technology, allow customization of the album cover, giving customers total control of over their project.

Conclusion

The Creative Memories strap-hinge binding system is ideal for photo book construction, providing the advantages of a lay-flat binding system, along with the ability to add and remove pages. This binding system shifts the photo book paradigm from the completed book to the completed page.

With the Custom Album Page and Custom Album, customers no longer need to wait for the completion of their photo book to see and share the results of their photo book project. Instead, they are able to print pages as they are completed. Unfortunately, creating pages, instead of books, does not eliminate competing priorities and does not address all reasons that books are not completed. It is, however, a step in the right direction.

Author Biography

Dr. Mark Mizen is currently Director of Digital Research and New Business Development for Creative Memories. His responsibilities include technical issues related to current digital products, as well as long-term product development. He previously established and was Director of the in-house Technology Center, which rigorously tests and evaluates Creative Memories products. Mark Mizen is the Chair of ISO WG-5 TG-2 Imaging Materials - Storage and Mechanical Properties, which is responsible for standards for digitally produced photo books, as well as the photo safety of traditional products. He is also a member of IS&T, ASQ, and ACS. Mark Mizen has a Ph.D. in Organic Chemistry from M.I.T. and a B.S. in Chemistry from the University of Illinois.