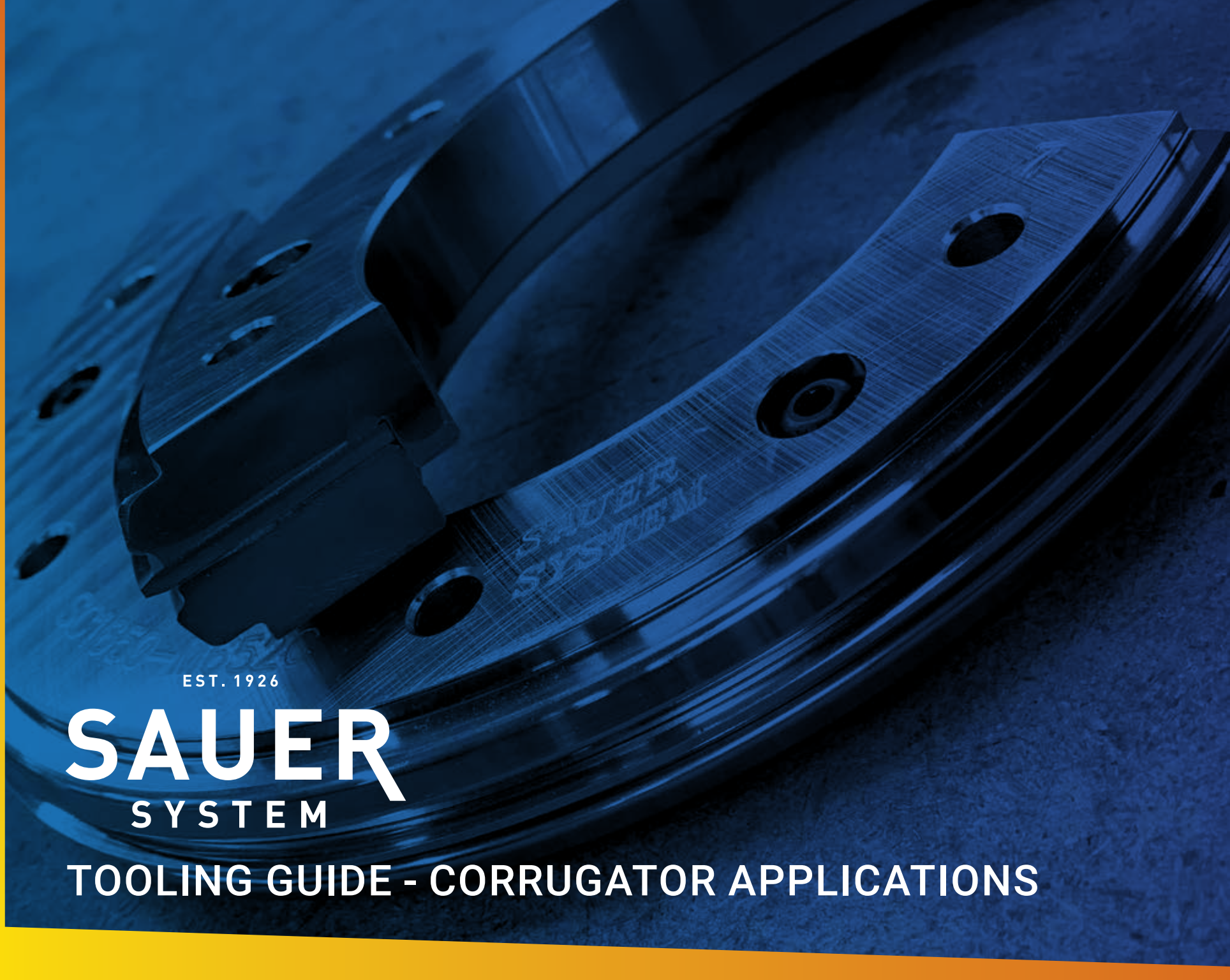


EST. 1926

SAUER SYSTEM

TOOLING GUIDE - CORRUGATOR APPLICATIONS

Our Mission

Our mission is to provide the corrugated box industry with the solutions needed to increase capabilities and make better boxes. Our promise is to continue to set the standards for performance, quality, excellence, and innovation, without compromise.

For over 90 years, Sauer System has worked on the front lines of the corrugated box industry helping to develop the tooling applications that have brought the industry to where it is today. As pioneers and innovators, we maintain a responsibility to uphold and exceed the very standards we developed.

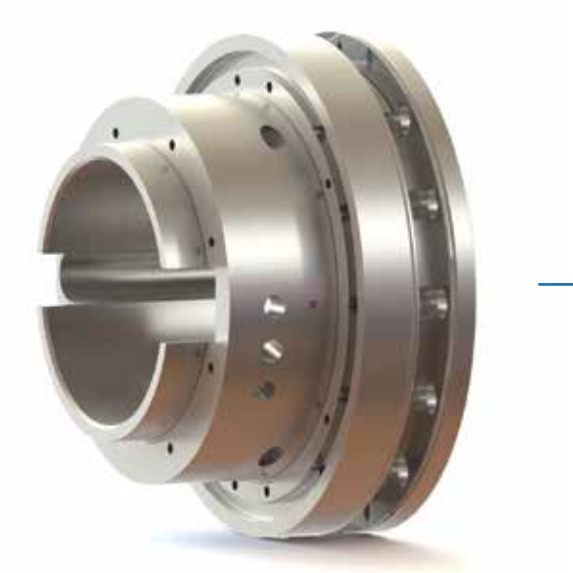
Tooling Characteristics & Advantages

IN-HOUSE PROCESSES

Sauer System tools start out as castings, bars, or plates made from iron, aluminum, steel, or bronze, and we maintain control of all manufacturing processes from start to finish. The ability to manage all manufacturing processes in-house gives us full control over the quality of our finished products.

APPLICATION KNOWLEDGE

Excellent tool design requires a comprehensive understanding of its application. Every tool is designed to perform a specific task, and only by understanding the task can the tool be designed correctly. Basic design decisions, such as choice of material, and more complex decisions, such as tolerances, are driven by knowledge of the application.



SUPERIOR DESIGN

Sauer System tools incorporate features that contribute to ease of operation, performance, longevity, and customization. Our designers and engineers are experienced in assessing which of these features can be incorporated into each tool.

Scoring Tools

Scoring tools are defined as tools that create score lines against the corrugations, typically on a corrugator or floor slitter.

Sauer System manufactures scoring heads and rings for all corrugators and floor slitters with an emphasis on tool design, longevity, material selection, and profile selection.

Scoring Tools

AUTO-SET SCORING RINGS

Bolt-on scoring rings are manufactured from high-grade tool steel and are fully heat-treated for longevity. Auto-set scoring rings are available for all corrugator makes and models.

AUTO-SET SCORING HEADS

Scoring heads designed for robotic setup are manufactured to OEM tolerances or better and include features such as interlocking lugs, brake holes, composite brake strips, and felt wipers.

MANUALLY-SET SCORING HEADS

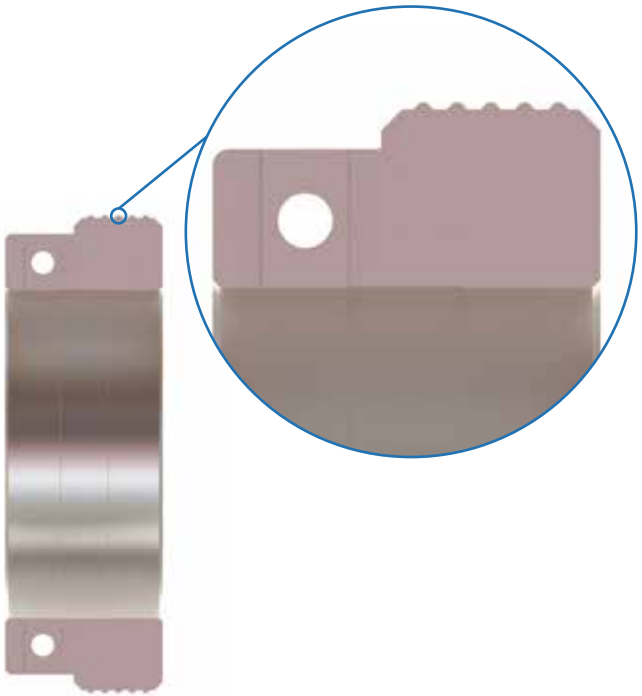
Manually set scoring heads feature single-screw-release style clamping to ensure positive clamping and minimal face runout. Scoring heads are flame-hardened for longevity and plated to prevent corrosion.

EXPANDABLE SHAFT SCORING HEADS

Expandable shaft scoring heads are made with extremely tight bore tolerances and feature flame-hardened profile for longevity. The keyway width and depth are also tightly controlled.

SCORING PROFILE DESIGN

Sauer System has been the market leader in scoring profile design since the early days of the corrugated industry. Scoring profiles can be selected from our extensive library of existing and proven profiles, or they can be designed for specific applications; made to customer specifications; or reverse engineered from existing sheets. There is virtually no limitation to profile design.

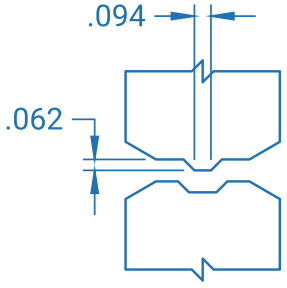


Scoring Profiles

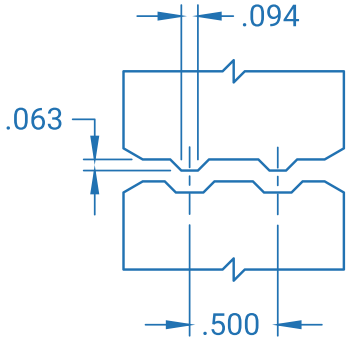
The following is a sample of some of the many hundreds of profiles offered by Sauer System:

SAUER STANDARD PROFILES

The “SAUER STANDARD” profiles are the proven designs that have been available for many years and are time-tested. They are our best sellers, and many of them are known throughout the industry by their Sauer System profile number.



M3/F4



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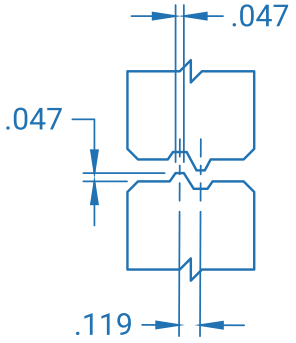
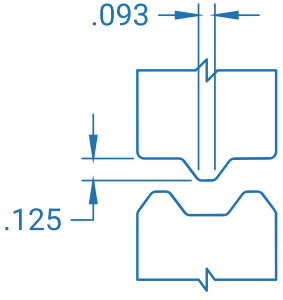


M191/F179

HEAVY DUTY PROFILES

The “HEAVY DUTY” profiles feature taller and wider scoring beads and valleys, and although they were designed with heavy-duty applications in mind, they have also proven to be extremely effective for standard applications.



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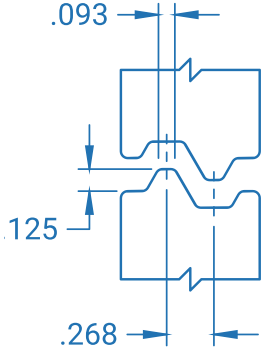

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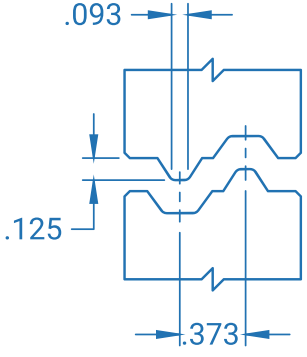

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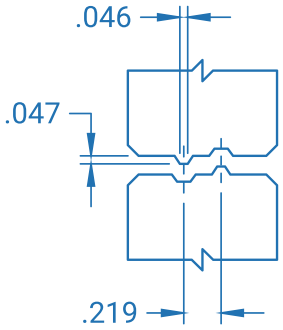
TRAY-MAKING PROFILES

Tray making is a very common application and requires a scoring profile with beads on specific centers.



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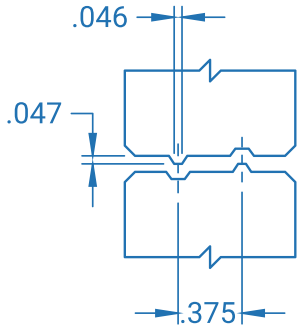
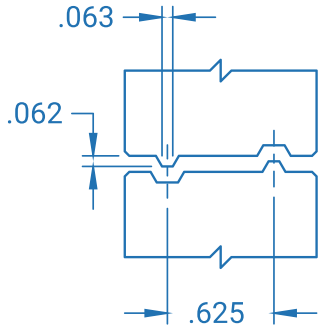


M317/F299



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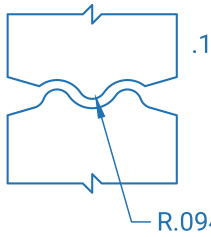
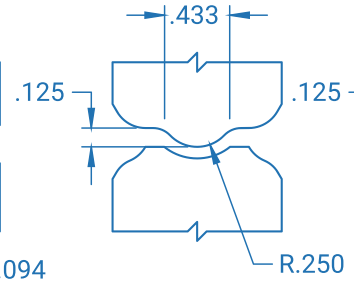
CRACK-GUARD PROFILES

Sauer System's line of "Crack-Guard" profiles is appropriate for applications when preventing liner fracturing is the primary objective.



M171/F162



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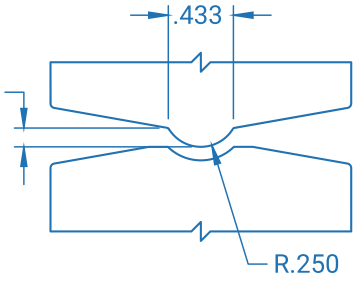

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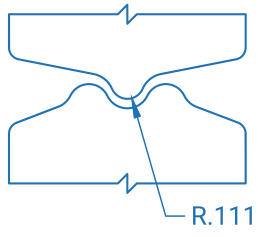

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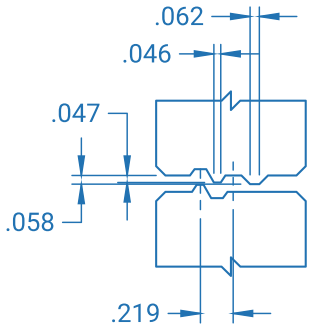
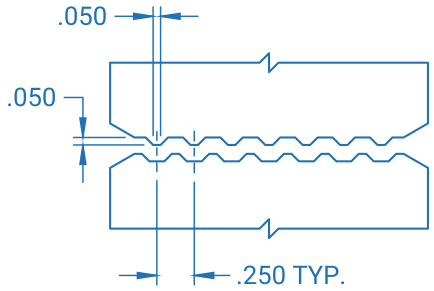
SPECIALTY PROFILES

Sauer System offers an extensive library of specialty profiles, or profiles can be made to customer specifications.



M313 / F293



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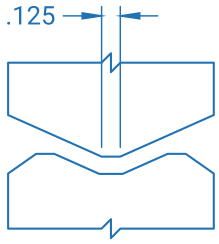

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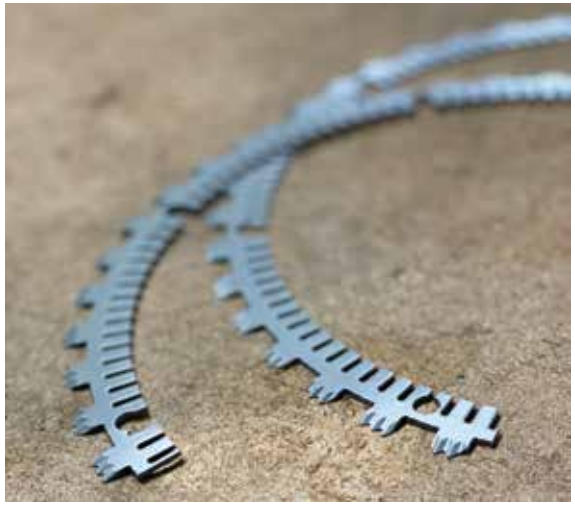
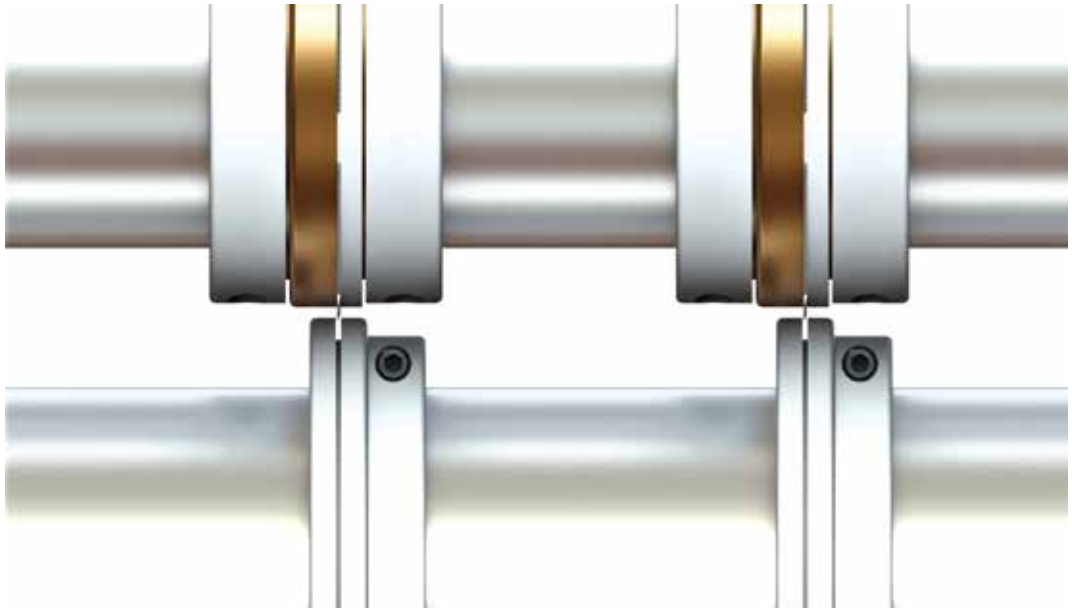
Perforating Tools

Perhaps the most common specialty application that can be achieved on the auxiliary shafts of a corrugator is perforating. A hub holding a perforating knife mounted to a free-wheeling bronze ring is driven at the speed of the web, cutting through the corrugated medium into a grooved anvil. The pattern remains consistent as the web speeds up or slows down. Perforating knives are available in almost any pattern. Perforating tools are also available for floor slitters and converting machines.

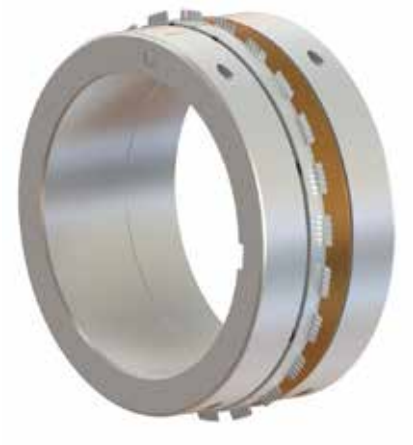


Perforating Knives

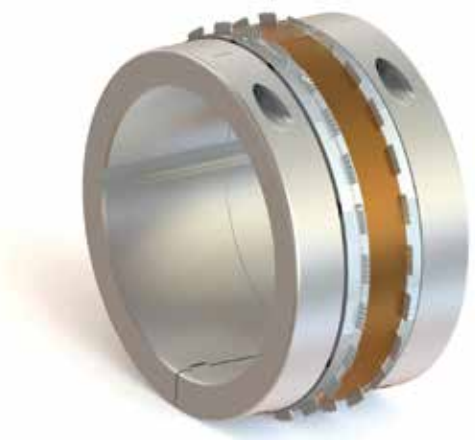


PERFORATING TOOL EXAMPLES

MALE PERFORATING TOOL CROSS SECTION



MALE PERFORATING TOOL



DOUBLE MALE PERFORATING TOOL

QUAD MALE PERFORATING TOOL

FEMALE PERFORATING ANVIL

Slit-Score Tools

Slit-scoring, an alternative to traditional scoring, is particularly useful for manufacturing wraps and certain internal packaging.

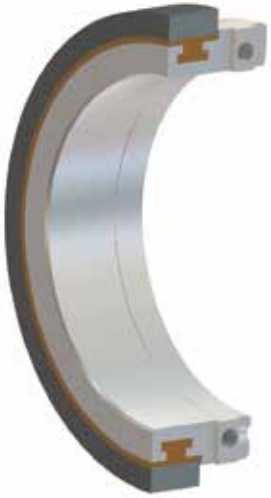
POLYURETHANE COVERED FREE-WHEELING BRONZE INSERTS

On a floor slitter or converting machine, slit-scoring can be achieved with a slit-score knife, installed on a male hub, and a polyurethane female anvil. The polyurethane is typically tapered on the outer diameter to allow for fine adjustment of the knife depth.

Slit-scoring can be achieved on a corrugator with a slit-score knife run, with overspeed, cutting into a free-wheeling bronze-ring-backed polyurethane anvil. The free-wheeling nature of the female anvil prevents tearing caused the speed mismatch between the male and female tools.

SLIT-SCORE MALE

SLIT-SCORE FEMALE



SLIT-SCORE FEMALE CROSS SECTION

Band Print Scoring Systems

Converters may face a problem when boxes have print requirements near a corrugator score line.

Traditional 3-point or offset point-to-point scoring profiles distort the board's outside liner. Ink does not properly adhere to the distortion and results in a blank spot. One common strategy is to revert to a point-to-flat profile arrangement, which minimizes outside liner distortion but leaves a weak score line.

The best of both worlds can be achieved with Sauer System's proprietary "band print" scoring system. The system utilizes a steel ring acting as a flat male score blade that embeds into a free-wheeling, bronze-ring-backed polyurethane-covered score anvil. The flat male score blade embeds into the female, creating sufficient definition for the panels to fold properly, while affecting only the inside liner and medium. The free-wheeling property of the bronze-ring female ensures an anvil surface that helps prevent burnishing of the board or any other issues related to a mismatch between the speed of the web and the speed of the shafts driving the scoring tools.

This proven application has been in use for over 50 years and is the industry-standard solution for high-performing sheet feeders and other sheet-making operations where quality is paramount.

BAND PRINT MALE SCORER

BAND PRINT FEMALE SCORER

ASSEMBLED FEMALE BAND PRINT SCORER

BAND PRINT MALES

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