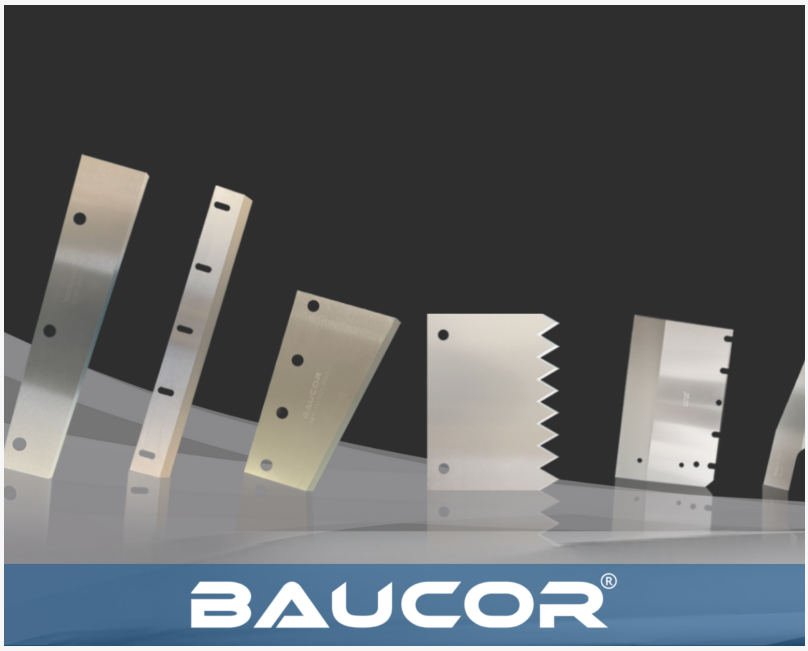
Baucor Custom Industrial Blades Cut Blade Changes by 70% and Production Downtime by 80%

Application-specific blade design, tight tolerances, advanced materials, and coatings extended blade life and accelerated production by 80%.



custom blades by Baucor

IRVINE, CA, UNITED STATES, September 30, 2026 /EINPresswire.com/ -- Baucor, the custom blade manufacturer of industrial blades and machine knives with operations in California, USA and Mannheim, Germany, today announced the results of a custom industrial blade project for a global manufacturer. By engineering the blade around the customer's cutting process rather than supplying a standard, off-the-shelf knife, Baucor reduced blade changes by 70% and cut production downtime by 80%.

When a standard blade becomes a production bottleneck

> We start with the cutting process, not the drawing. That is how a custom industrial blade stops being a bottleneck and starts keeping the line running."
>
> *Ed Braun, Chief Technical Engineer, Baucor*

In high-speed cutting, slitting and converting operations, the blade is often the smallest component on the line and the most frequent cause of stoppages. The customer's existing blades wore out quickly under its operating conditions, forcing operators to stop the line for blade changes [every shift]. Premature edge wear also caused inconsistent cut quality and unplanned interruptions. The customer needed a blade with precise dimensions, tight tolerances and application-specific geometry that would hold its edge over extended production runs.

Engineering the blade around the application

Baucor's engineers started with the cutting process, not the drawing. They reviewed the customer's technical requirements, operating conditions, the material being cut, dimensional and tolerance expectations, and cutting performance goals. From this analysis, the team developed the blade design and technical drawings, defined the edge geometry and bevel angle best suited to the application, and confirmed that the design could be manufactured at the required precision.

This engineering-led approach meant the customer did not have to carry the design burden internally. It also shortened engineering and product development time by 80%, from technical requirement to finished blade.



custom made knives



Precision medical blades

Choosing the right blade material for the cutting process

Blade material is the single biggest factor in edge life. Baucor selects each material according to the cutting function, the material being cut, line speed and operating environment. Its core blade materials, with their German DIN (Werkstoff) and US AISI equivalents, include:

- M2 high-speed steel (HSS): DIN 1.3343 (HS6-5-2), AISI M2, hardened to 62–65 HRC. It combines high wear resistance with toughness and suits perforating blades, packaging blades and high-speed cutting.
- D2 cold-work tool steel: DIN 1.2379 (X153CrMoV12), AISI D2, at 58–62 HRC. This is a proven choice for slitter blades, guillotine blades and paper cutting blades where wear resistance is key.
- A2 tool steel: DIN 1.2363 (X100CrMoV5), AISI A2, at 57–61 HRC. It offers higher shock resistance for heavy-duty and impact cutting.

- Stainless steels: DIN 1.4125 (X105CrMo17) / AISI 440C and DIN 1.4034 (X46Cr13) / AISI 420. Their corrosion resistance makes them the right fit for food processing, poultry processing knives and medical blades.
- Tungsten carbide: ISO K10–K20 grades, around 90–92 HRA. It provides maximum wear resistance for abrasive materials, film, paper and long production runs, often extending edge life several times over steel.

For this project, Baucor's engineers selected [material, e.g., DIN 1.2379 / AISI D2] as the best balance of edge retention and toughness for the customer's process.

Tight tolerances and precision surface finishing

Baucor manufactures precision ground blades to tolerances as tight as ±0.002 mm on critical dimensions. Flatness and parallelism are held within [0.005] mm, and ground surface finishes reach Ra 0.1–0.2 µm. A finer surface finish at the cutting edge reduces friction, slows edge breakdown and delivers cleaner cuts over longer runs. Dimensional checks are carried out throughout production, and tolerance compliance is verified before every delivery.

DLC, TiN and advanced blade coatings

Where wear, friction or adhesion limit blade life, Baucor applies coatings matched to the application:
- DLC (diamond-like carbon): very low friction and high hardness, for film, plastics and adhesive materials
- TiN (titanium nitride): increased surface hardness and wear resistance for general industrial cutting
- TiCN and TiAlN: higher hardness and heat resistance for abrasive materials and high-speed applications
- CrN (chromium nitride): corrosion and wear protection, suited to food and wet environments
- PTFE (non-stick): reduced material buildup on sticky or adhesive products
In this project, the combination of [selected material] and a [TiN] coating extended the blade replacement interval from [every shift] to [roughly every three shifts].

Measurable results

- 70% fewer blade changes, with the replacement interval extended from [every shift] to [roughly every three shifts]
- 80% less production downtime, from fewer blade changes and fewer unplanned stops caused by premature wear
- 80% faster engineering and product development, from technical requirement to finished blade
- Consistent cut quality across extended production runs
- Lighter engineering workload for the customer's own team

Custom industrial blades for every cutting process

The same engineering-first approach applies across Baucor's full range of industrial cutting blades by shape. Converting and film lines rely on Baucor's circular slitter blades and slitter blades for clean, consistent edges, making Baucor a partner for customers looking for circular knife manufacturers with in-house engineering support. Packaging lines use Baucor packaging blades and perforating blades for precise cuts and controlled perforation patterns. Guillotine blades and paper cutting blades serve sheeting and trimming, and thermocutter blades handle heat-assisted cutting of synthetic materials.

Baucor supplies custom machine knives to a wide range of industries. For medical manufacturing, it produces medical blades that meet exacting dimensional requirements. Automotive, tire and rubber manufacturers use its tire cutting blades and rubber cutting blades on tough, elastic materials. Textile manufacturers rely on its textile blades for clean fabric and fiber cuts, and food processors depend on its poultry processing knives for hygiene-sensitive, high-throughput lines. Baucor also makes application-specific blades for plastics, metalworking and general manufacturing.

Executive quote

"Most blade problems show up as downtime, but they start with the wrong geometry, the wrong steel or the wrong coating for the job," said Ed Braun, Chief Technical Engineer at Baucor. "When we match the blade material, edge geometry and coating to how the customer actually cuts, the blade simply lasts longer. Cutting blade changes by 70% gives the customer back hours of production every week."

Frequently asked questions

How can a custom industrial blade reduce production downtime?

A custom blade is designed for the specific material, speed and operating conditions of a production line. The right geometry, blade steel and coating extend edge life, which means fewer blade changes and fewer unplanned stops. In this project, Baucor reduced blade changes by 70% and production downtime by 80%.

Which blade material is best: M2 HSS, D2 or carbide?

It depends on the cutting process. D2 (DIN 1.2379) offers strong wear resistance for slitting and paper cutting. M2 HSS (DIN 1.3343) adds toughness for perforating and high-speed cutting. Tungsten carbide delivers the longest edge life on abrasive materials. Stainless steels such as AISI 440C (DIN 1.4125) are preferred for food and medical applications.

What coatings are available for industrial blades?

Baucor offers DLC, TiN, TiCN, TiAlN, CrN and PTFE coatings, selected for each application's wear,

friction and corrosion requirements.

What types of industrial blades does Baucor manufacture?
Baucor manufactures circular slitter blades, slitter blades, perforating blades, packaging blades, guillotine blades, paper cutting blades, thermocutter blades, medical blades, tire and rubber cutting blades, textile blades and poultry processing knives, as well as fully custom machine knives.

About Baucor

Baucor is an engineering-driven manufacturer of custom industrial blades, machine knives and precision cutting tools, with operations in California, USA and Mannheim, Germany. For about 18 years, Baucor has supported industrial customers from the initial technical requirement through blade design, material selection and coating to precision manufacturing and on-demand production. Baucor is part of the Norck family of brands, alongside Norck Robotics and Bauron. To request a quote for custom industrial blades, visit [Baucor quote page].

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