

FORMING THE FUTURE



## LASER BLANKING LINES

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# LASER BLANKING WITH DYNAMICFLOW TECHNOLOGY. DIE-FREE BLANKING IN THE PRESS SHOP.

DynamicFlow Technology (DFT) is the highly productive, die-free blanking by lasers, directly from a continuously running steel or aluminum coil.

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## BLANKING WITHOUT ANY DIES.

Schuler has succeeded in using extremely powerful fiber lasers for the CNC-based, continuous blanking of the coiled material. Thanks to the high production rate, blanking quality and contour precision, this new technology has made a name for itself as a real alternative to conventional, die-based blanking systems in the press shop. This process has already proved a success in terms of processing a wide range of materials.

Armed with many years of experience in automotive industry requirements, a highly flexible and productive manufacturing system could be created, which posed a milestone in the manufacturing chain of state-of-the-art automobiles.

# BLANK MANUFACTURING TODAY. DIES FORM THE PROCESS.

Around 20 to 30 % of the dies used in press shops in today's industry are used for cutting blanks for subsequent forming.

**The shape defines the process.** As such, single blank shapes such as rectangular, rhomboidal and trapezoidal blanks tend to be manufactured on fast-running blanking systems with shears or on systems with a press equipped with an oscillating die. Owing to the low requirements placed on manufacturing, a great deal of OEMs purchase such blanks from external supply companies.

Contoured blanks, on the other hand, call for individually manufactured blanking dies. Both the manufacture and maintenance of such dies involve a great deal of time and money. In particular, contour changes can only be implemented following time-consuming adjustments to the die. Die costs (manufacture, adjustment, warehousing) as well as the degree of material utilization currently make up a considerable proportion of the subsequent unit costs of the blanks.

### **Quality and flexibility as central requirements.**

A perfect external panel quality is of paramount importance in the automotive sector. Blanks for manufacturing automobiles are subject to the high requirements placed on surface and cutting quality. This in turn results in high requirements being placed on the system technology.

Even the processing of various materials such as steel, aluminum or high-strength steels at one manufacturing system is regarded as a standard requirement in terms of system flexibility. New material combinations such as AlSi alloys pose further challenges to this flexibility.



The requirement: perfect blank quality for the widest range of materials.

# THE FUTURE IN THE PRESS SHOP. LASER BLANKING.

**Maximum flexibility in the contour design.** The blank contours are programmed during laser blanking to a programming station belonging to the system. These contours can be downloaded, as well as modified and saved at any time. The resulting flexibility significantly accelerates the development process of the blanks and enables fast, needs-based manufacturing. This simplifies production planning, reduces bearing surfaces and logistics expenses. Simple contour adjustment also fulfills optimization demands in the forming process and offers new options in terms of blanking the widest range of contours from coil widths utilized to the greatest extent.

**Optimum material utilization on running coil.** Cut directly from the coil in running process: As such, material savings of up to 10% can be achieved, in comparison to previously standard laser blanking procedure, which uses rectangular panels.

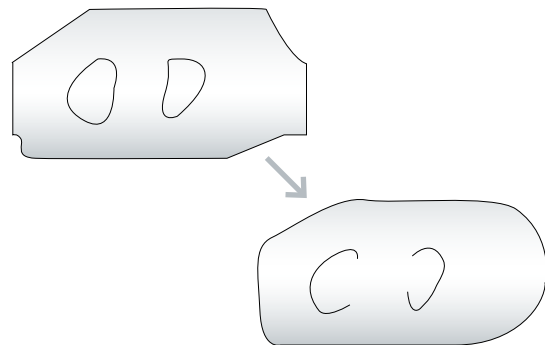
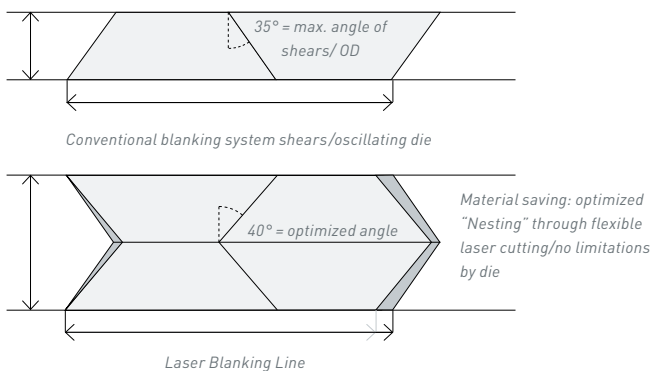
In today's industry, the shape and degree of material utilization of a blank are also subject to the limitations of the die design. Numerous workpieces are manufactured simply from rectangles or trapezoids, as they involve straightforward manufacturing processes.

The flexibility in the contour design provided by CNC programming enables new potential for easy to implement, optimum material utilization due to:

- Optimum nesting of blanks on the material belt
- Combination of several workpieces on a material belt
- Arrangement of blanks at different angles
- Separating bars not needed between workpieces
- Reduced variety of coils, as blanks can be freely arranged

Free programmability will change the future forming of blanks.

Laser-optimized blank contour.



Up to 90% of blank costs are determined by the material price. If you wish to reduce such costs, the most significant leverage is played by reducing scrap. Even a reduced scrap proportion of 1% can lead to savings of up to 1 million euros per year on a blanking line.

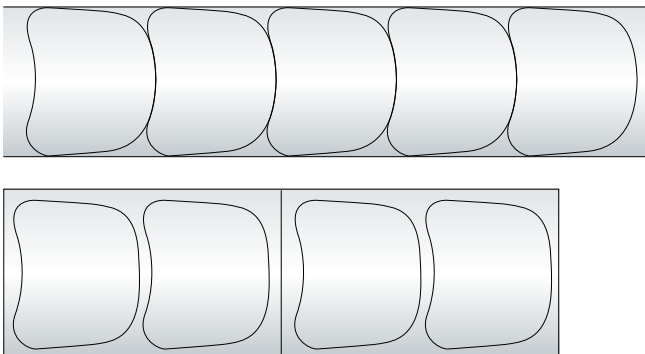
**Reduced building and logistics costs.** The laser blanking line from Schuler can be installed without lower floors, depressions in the ground or costly foundations. The costs inherent to the transport, storage and maintenance of the up to 40 ton blanking dies are a thing of the past. Thanks to the ease of installation of the system, blank production can also be implemented in narrow halls and confined press shops, which can make in-house or next door production even more interesting, since costly shipping of blank stacks is no longer an issue.

**Increased profit in the press shop.** Profitability is paramount to each and every manufacturing process. Blank costs are not only defined by blanking costs but also particularly by the material, quality, die maintenance, production time, personnel and logistics. If one considers the overall effect of a die-free production system on the manufacturing process, this results in high levels of savings in comparison to conventional, die-based manufacturing procedures.

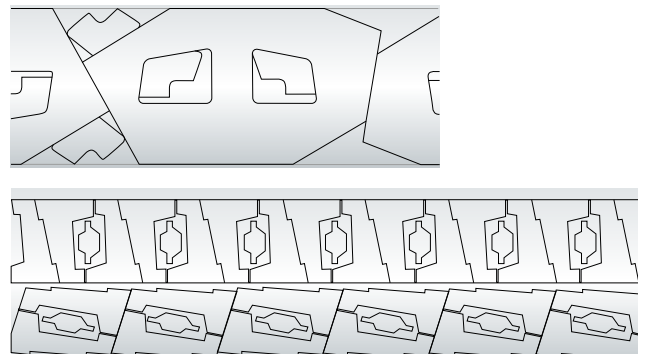
#### Advantages of laser blanking with DynamicFlow Technology:

- Reasonable blank pricing
- Swift product development
- High level of flexibility
- Reduced investment volumes for the press shop

Material savings for blank manufacturing from the coil / from the panel.



Yield-optimized blanking contour and improved utilization of the coil material by means of nesting options.



# THE LINE.

## LASER BLANKING WITH DYNAMICFLOW TECHNOLOGY.

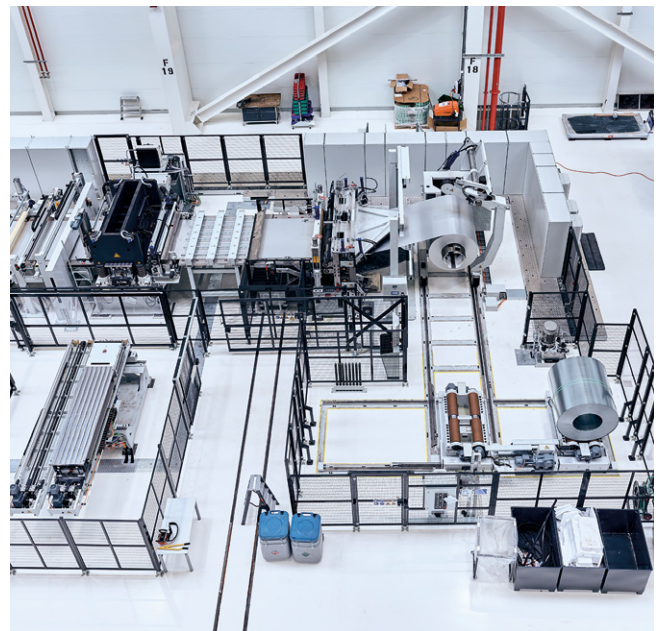
**Material feed from the coil.** The setup time-optimized feed line for coils up to 35 tons and coil widths of up to 2,150 mm ensures smooth material transport, a high level of flatness and optimum material feed in the laser cell.

The CNC programs for blank contours are created offline using user-friendly system software. All product-specific parameters can be easily downloaded and changed in no time at all.

**Laser cell.** In the laser cell, several highly dynamic and simultaneously moving laser blanking heads cut the programmed blank contour from the continuously running coiled material. In this case, the cutting speeds can be above 100 m/min. The material is protected by the transport system and the dynamic blade clearance against process contamination.

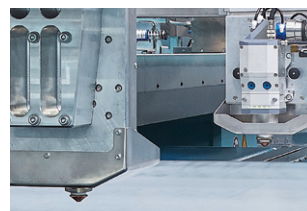
**Blank transfer.** Following blanking, the finished blank is automatically guided from the remaining materials (scrap) and fed to various stacking systems in an application-specific manner. High-quality cleaning options for coils and blanks guarantee a high surface quality of external panel blanks.

**Blank stacker.** Material and product-specific stacker versions are available for stacking blanks.

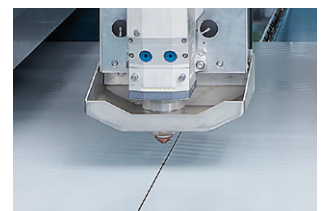


Flexible production from coiled material.

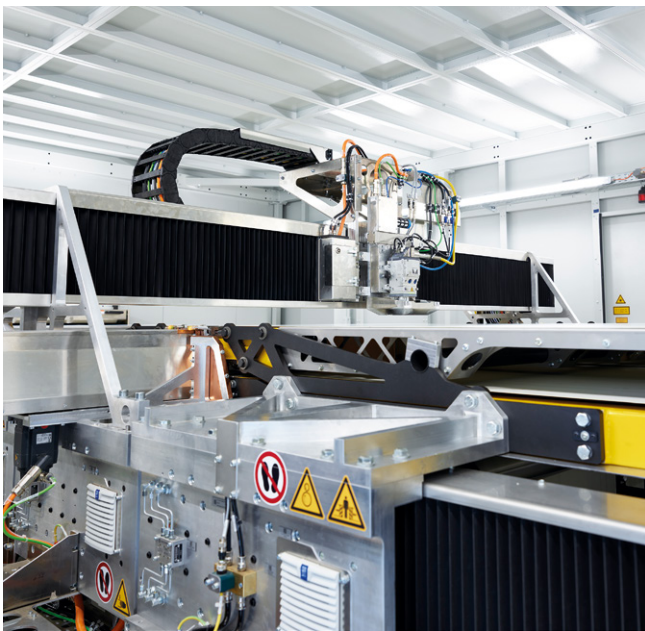
### LASER CELL



Laser 1 and 3.



Laser 2.



Laser cell.



Stop2Drop stacker for protective edge destacking.

## WHEN BUSINESS AS USUAL BECOMES TOTAL SATISFACTION.

**DISCOVER NOW HOW THE NEW SCHULER SERVICE CAN BENEFIT YOU**

**Service – Made for you** stands for service that is precisely tailored to your needs. Regardless of what type of press or system you work with.

**Fast. Competent. Reliable.**



**SERVICE  
MADE  
FOR YOU**



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Schuler offers customized cutting-edge technology in all areas of forming – from the networked press to press shop planning. In addition to presses, our products include automation, dies, process know-how and service for the entire metalworking industry. Within the Metris platform by ANDRITZ, Schuler brings together digital solutions for networking forming technology and develops them continuously to further improve line productivity and availability. For battery production in gigafactories, Schuler provides equipment and services in the process steps of cell assembly and formation. Our customers include automotive manufacturers and suppliers, as well as companies in the forging, household appliance and electrical industries. Presses from the Schuler Group mint coins for more than 180 countries. Founded in 1839 at our headquarters in Göppingen, Germany, Schuler has approx. 5,000 employees at production sites in Europe, China and the Americas, as well as service companies in more than 40 countries. The company is part of the international technology group ANDRITZ.

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