

PRESS RELEASE**Uninterrupted production****Schuler's new Laser Blanking Line cuts aluminum and steel blanks from continuously fed coil stock**

Göppingen, November 5, 2013 – Outer panels and structural parts for cars are produced from specially cut steel or aluminum sheets which are fed into press lines. These so-called blanks already indicate the ultimate shape of the finished door, trunk lid or hood. Schuler's newly developed Laser Blanking Line can now cut such blanks directly from a moving sheet metal coil with the aid of laser beams. The process is called "DynamicFlow Technology" and involves the use of three coordinated cutting heads.

In the past, blanks for sophisticated outer panels and complex structural parts could only be economically produced in larger volumes on presses equipped with cutting dies. However, this not only involves high investment costs, but also further expenses for maintenance and storage. Moreover, the final blank shape could only be determined during the die tryout process. And once the cutting dies were made, any adjustment to the design – e.g. to rectify problems in the later forming process or to reduce material waste – resulted in considerable cost and effort.

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As a consequence, blanks are already produced using lasers when it comes to small batches – e.g. for prototypes or spare parts. However the sheet metal must first be cut into rectangular pieces and clamped onto flatbed devices, thus requiring an additional process stage. Laser blanking was therefore long regarded as uneconomic for mass manufacturing.

Any shape without dedicated dies

Schuler's new Laser Blanking Line now combines the benefits of a conventional press blanking line with those of laser cutting. In a single, continuous process, the sheet metal is decoiled, straightened, cut and stacked as blanks. The flexibility of the laser cutting process means that any shape can be cut, without the need for dedicated dies. Changes to the respective contours or even completely new blanks can be quickly and easily implemented.

In the coil feeding device, the sheet metal is first wound off the coil by the decoiler and fed into the straightener at a constant speed. Coil tension and coil center regulation devices ensure smooth and precise feeding. In order to reduce coil changeover times, double decoilers or fully automatic cassette changing devices can be used for the straightener.

In the laser cutting area (housed in a protective cabin), three fiber lasers with four kilowatts each cut the blanks in parallel from the continuously transported sheet metal coil. Thanks to the highly

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dynamic linear drive technology of the cutting heads, cutting speeds of over 100 meters per minute can be achieved depending on the material. The cutting process itself was developed in cooperation with the Dresden-based Fraunhofer Institut für Werkstoff- und Strahltechnik (IWS) (Institute for Material and Beam Technology). Numerous tests were made to ensure consistently high edge quality for different alloys, material thicknesses and contours.

No retooling needed for product changes

Maximum process reliability is guaranteed: the consistency of the gap between cutting nozzle and material surface is achieved by means of a capacitive distance control device and any contamination is quickly identified by monitoring the protective glass. Three conveyor belts ensure that the coil stock is gently transported through the laser cabin, thus guaranteeing smooth and consistent flow under the cutting heads. Slag and transmitted radiation, as well as coarse dust particles and smaller scrap parts, are collected under the belt, while finer dust and smoke is sucked into a filtration unit.

The line does not need to be retooled in the case of product changes: both the optical components of the cutting heads and the coil transport system are suitable for the entire sheet metal thickness range of 0.5 mm to 3 millimeters. Any necessary adjustments to the focus, cutting gas pressure or laser parameters are made automatically when selecting the stored product.

Coil position constantly monitored

The line's extremely high accuracy is the result of a complex interplay between coil feeding device and laser portal. To compensate for any deviations, the coil's position is constantly monitored by a camera system and the laser cutting program is altered where necessary. This is the only way to ensure that the contour areas of the three laser cutting heads are exactly coordinated.

Robots are used to ensure continuous destacking from the moving coil and protect the material surface. The complete motion sequence of the robots is adapted to the current coil speed. The blanks are placed alternately on one of the two stack carts, thus ensuring uninterrupted operation when a finished stack is removed.

The Laser Blanking Line is not only an attractive alternative to conventional press blanking lines in the case of frequent contour changes or for small to medium batch sizes: thanks to its compact dimensions, the newly developed line can also be used, for example, in restricted spaces and low-height production halls, or where there is no suitable foundation for a press.

More information on the laser blanking line is available at Schuler's stand number 8205 in Hall 8 at the Blechexpo, which takes place from November 5 to 8, 2013, at the Messe Stuttgart in Germany.

Captions

Bild1.jpg: Schuler's new Laser Blanking Line can cut blanks from a moving sheet metal coil with the aid of laser beams.

Bild2.jpg: The process is called "DynamicFlow Technology" and involves the use of three coordinated cutting heads.

Please name Schuler as the photo source.

About the Schuler Group – www.schulergroup.com

As the technological and global market leader in metalforming, Schuler supplies presses, automation solutions, dies, process technology and services for the entire metal-working industry and the lightweight construction of vehicles. Its clients include car manufacturers and their suppliers, as well as companies in the forging, household equipment, packaging, energy and electrical industries. Schuler is the market leader in coin minting technology and supplies systems solutions for the aerospace, railway and large pipe industries. In fiscal year 2011/12 (ending Sep. 30), Schuler posted sales of € 1,226.1 million. The Schuler Group employs around 5,500 people worldwide and is represented in 40 nations. The Austrian ANDRITZ Group holds a majority share in Schuler.

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