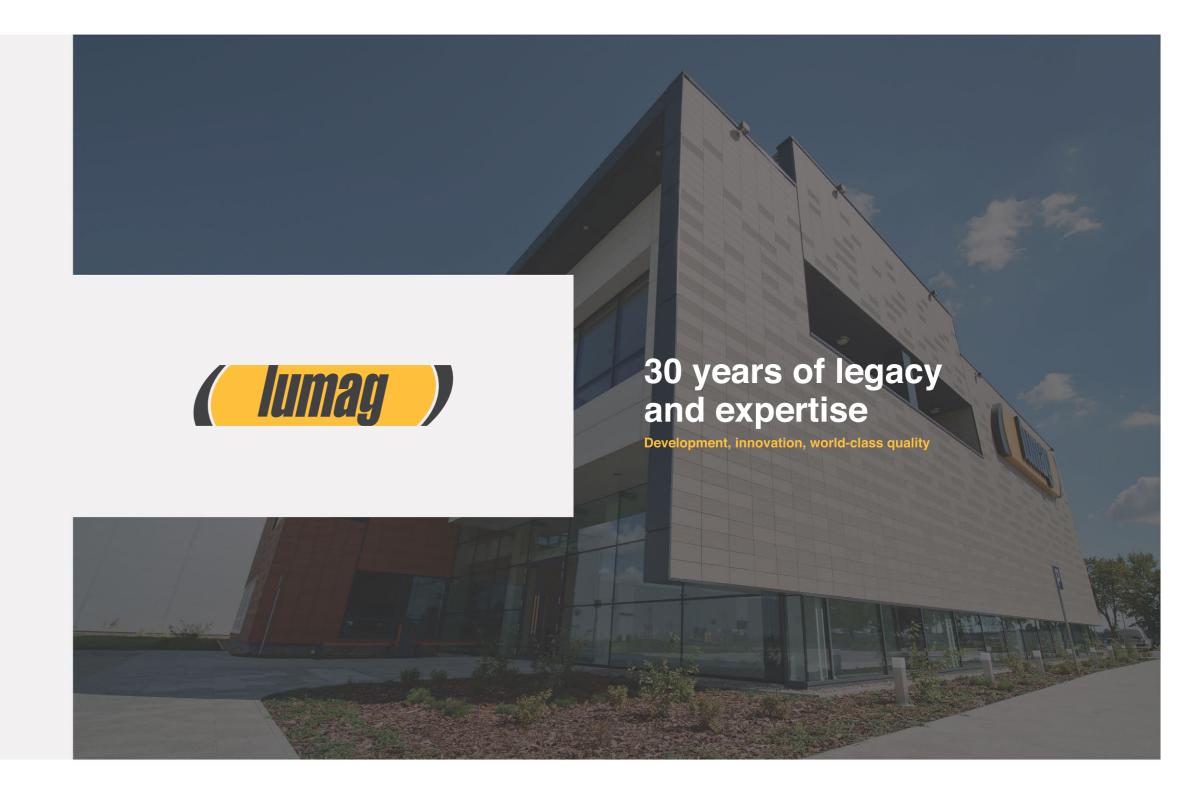


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"I am proud of where Lumag is today and of the strong position it has achieved in the automotive industry. I have devoted most of my professional life to its development. Today I am confident that is has been worth it. We are the leader in Poland and we have achieved so much, but we are not going to be content with this. We want to grow further and set the tone for the Polish market."

Marek Żak
- founder of Lumag

Lumag, founded in 1988, boasts over 30 years of experience in manufacturing friction materials. Over the years the company has achieved impressive technological progress, which is clearly demonstrated by its machinery stock, which has been permanently modernised, the design solutions it has implemented, and by continuous improvement of quality and safety standards.

The company manufactures world-class brake pads and brake discs under the well-known Breck brand (passenger cars and delivery trucks) as well as brake linings and brake pads under the Lumag brand (commercial vehicles).

Lumag operates the most modern material factory in Central and Eastern Europe. Such an innovative and state-of-the-art facility allows us to satisfy growing customer needs and meet the most stringent market requirements.

Lumag's offering has been recently expanded by Lumag IPS (Individial Production Services). IPS is an innovative and independent system consisting of a number of technologies enabling mass manufacture of shims, piston clips, springs, back plates, brackets and other metal components used in the automotive industry.



Lumag IPS (Individual Production Services)

Lumag IPS ensures top quality of parts made with the highest manufacturing precision. Owing to cutting-edge technology and constant monitoring of all manufacturing stages, we supply foolproof products to our business partners.



World-class quality



Innovation



Technology



Expertise



The shim is one of the key components of the brake pad. It is responsible not only for suppressing vibration and preventing noise, but also functions as a thermal insulator, forming an additional barrier against calliper and brake fluid overheating.

The piston clip functions as a spring clip connecting the brake pad with the calliper piston and its main role is to retain the brake pad in the proper position and maintain play during braking.

The mounting spring keeps the brake calliper in the right position, preventing unwanted movement of the calliper relative to its bracket. Its function is to neutralize brake pad vibration.

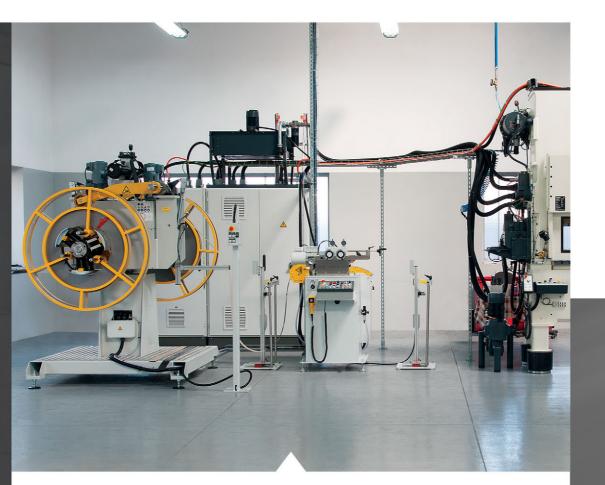
Overview of services

- Anti-noise shims
- Metal accessories
- 185 pcs/min capacity
- One stroke one part
- Progressive dies for shims 98 sets
- Lead time for dies 3 months
- Tool makers Italy, Germany, Poland









INNOVATIVE TECHNOLOGY

On the basis of solutions provided by Bruderer - a Swiss manufacturer of industrial machines, the undisputed world leader in high-speed stamping press manufacturing - Lumag developed a novel method of manufacturing shims, piston clips and mounting springs. Complex logistics requiring coordination of multiple semi-manufactured products made on a number of stand-alone stations has been replaced by simple supervision over a single device. This innovative solution enables enhanced monitoring of the manufacturing quality, which translates into improved reliability of final components.

REPEATABILITY AND QUALITY

It is the first anti-noise shim manufacturing line of this type in the world. This machinery attests to Lumag's constant striving for excellence. In many technical aspects, the latest products feature better parameters than OE components. That is why Lumag products can fully meet the expectations of even the most demanding business partners.

END-TO-END SOLUTIONS

The new manufacturing line consists of the BSTA 510 press and a number of peripheral assemblies: one unfolds and straightens the roll of the material at the feeding side, another performs automatic pick-up, yet another deals with packaging and labelling. Such a broad range of functions offered by the machinery greatly improves the quality of the products we offer.

Owing to the end-to-end manufacturing system, our business partners receive top-quality and fully functional products.

SWISS PRECISION

The BSTA 510 eccentric press features incredible capacity of over 1000 punches per minute. The speed can be adjusted depending on the size of the manufactured workpiece and capabilities of the tool.

Constant monitoring ensures full control over the manufacturing process and allows us to maintain its stable quality. As a result, the final products feature high stamping precision and excellent quality.







TOP QUALITY

State-of-the-art technology permits us to meet the necessary criteria for maintaining excellent brake pad and bracket manufacturing quality meeting stringent OE requirements. Additionally, a workpiece made using the fine blanking technology boasts excellent flatness and can be formed into complex shapes in a single tool. The Feintool technology allows us to make top-quality parts ready for installation.

CUSTOMISATION

Lumag is ready to satisfy the needs of the ever-growing automotive market. Latest braking systems, advances in transmission design, the growing number of transmission ratios and hybrid drives require non-standard parts. Using its Swiss manufacturing line, Lumag is capable of manufacturing even the smallest components with astonishing precision. Lumag supports the development of the automotive industry by providing tailor-made components.

LEADER ON THE **EUROPEAN MARKET**

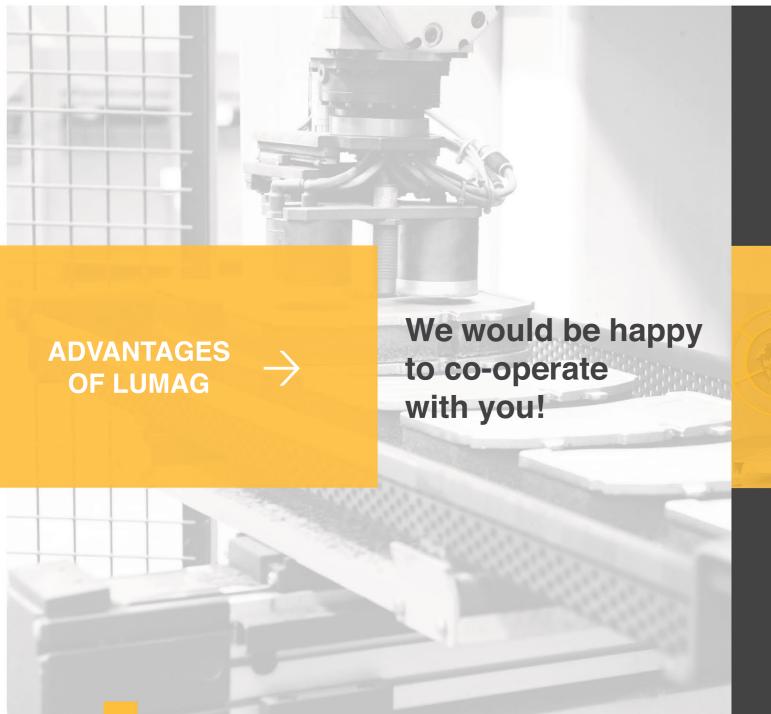
Lumag has been the first European friction material supplier to manufacture back plates using the fine blanking technology. The company has its own blanking and stamping line for back plates and brackets made by the Swiss manufacturer Feintool. This grants us full independence from external suppliers and allows us to expand our offering by expertly made final products.

Fine blanking technology

- EUR 5 m. total investment
- 880t hydraulic press + inline processing
- 2018 5 back plates production
- Total capacity 6 m. pcs /year* • Fine blanked edge = max. guidance
- Flatness = fewer quality issues
- 3-D forming = retention system
- 20 pcs/hr

MANUFACTURING PRECISION

In contrast to conventional methods, fine blanking with Feintool machinery utilizes two additional forces: the counterforce and the veering force. As a result, the edges of the workpiece are blanked with extreme precision. Such cutting-edge technology enables us to manufacture large batches of products with repeatable quality.



KNOW-HOW

IN-HOUSE R&D



ISO 9001, ECE R-90, IATF 16949

ULTRA-MODERN MACHINERY PARK

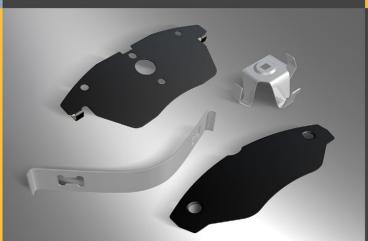


FULL RESPONSIBILITY FOR THE PRODUCT

GUARANTEE OF HEALTHY
ORGANIC GROWTH

FOCUS ON LONG-LASTING PARTNERSHIP

HIGH MARGIN ON LUMAG'S PRODUCTS



FLEXIBLE REACTION TO SPECIAL INQUIRIES