Scanning solutions for the automotive industry
ARGES laser scan systems have been used successfully for many years in a wide variety of industrial applications around the world, for example in laser micromachining, fine machining and high power applications. A key area of application are highly automated machining processes in the automobile sector where ultra-high process reliability is required.

With a wide selection of scan heads and system configurations to choose from, we are able to design solutions that are optimally tailored to your needs. Thanks to our high level of development expertise and our manufacturer-independent laser technology know-how, we can also support you with innovative custom solutions for novel laser machining processes.

A further area of expertise is our Laser Process Development department, which can assist you from the initial start of your application project with extensive samples and test runs under near-production conditions. This guarantees the success of the comprehensive solution we provide, from system design right through to efficient integration of the process into your production environment.

A selected scan heads in our range

**RHINO**
- A compact 2D scan head for a wide range of applications, for example surface processing.

**FIBER ELEPHANT**
- A versatile 3D scan head, for example for robot-assisted welding or cutting applications.

**TIGER**
- An innovative 3D scan head for precision processing in the mid to high kW range.

**PRECESSION ELEPHANT 2**
- A scan head for micro-drilling and cutting applications in the 25-700 µm range.

**Application examples**

**MICRO-DRILLING**
- Drilling of variable hole geometries into injection nozzles with hole diameters of 25-700 µm and aspect ratios of >12:1.

**WELDING**
- Robot-assisted welding of chassis components
- Fine welding of battery housings
- High precision welding of electronic contacts in hybrid or electric vehicle applications

**CUTTING**
- Cutting of unpainted and painted chassis panels

**SURFACE STRUCTURING**
- Surface structuring of camshafts and bearings, e.g. to improve the frictional behavior of lubricants

**MARKING**
- Inscribing of variable data and codes for component identification
- Engraving of interior components made from aluminum, carbon or fine wood

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Our automotive expertise

- Drilling of injection nozzles with variable geometries and conicities
- Laser oxidizing of piston ring grooves
- Aluminum welding of lithium-ion battery housings
- Precise cutting of adhesive layer, so-called “kiss cutting”
- Remote welding of rear lights
- On-the-fly drilling of ventilation holes in rubber door seals
- Structuring of bearing surfaces
- Welding of 3D profiles on front headlights without clamping devices
- Surface modification of engine components to improve their properties
- Drilling of injection nozzles with variable geometries and conicities
- Accurate ablation of clutch linings at rivet points
- Perforation of interior components to integrate light designs
- Perforation of carbon components
- Selective material ablation for intarsia (e.g. aluminum)

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ARGES is a specialist in developing industrial laser materials processing solutions that are tailored to your needs. To optimally implement your requirements, we have at our disposal a comprehensively equipped application laboratory and various demonstration rooms.

Using a variety of laser systems and ARGES scan heads, we prepare samples for you and determine the relevant process parameters for your application. To carry out our tests under near-production conditions, we have access to a variety of handling systems, for example a robot, which enables us to simulate applications such as on-the-fly processing.

After preparing sample workpieces, we examine the laser-machined samples in our in-house material testing laboratory to assess the quality of the processing. The laser machining parameters are then further refined, if necessary, to achieve the best possible results.

Having both an application laboratory and materials laboratory in-house gives us the ability to develop processes efficiently and precisely, in particular novel laser processes where an iterative approach is required.

Consequently, we are able to provide you with a detailed report on the achievable quality and processing times that is directly applicable to the later manufacturing process, and therefore provides greatest possible planning and investment certainty.
Software and Controllers

**SYSTEM CONTROL**

For the control of your laser scan system, we offer a comprehensive range of ARGES SYSTEM CONTROLLERS (ASC) together with the ARGES InScript® software. They manage the connected machines and devices and provide a user-friendly software interface for your laser scanning system.

**ARGES InScript® SOFTWARE**

- Graphical user interface for easy configuration of laser jobs
- Teach-in function for fast and easy positioning of the laser beam
- Visualization of the laser job for editing and optimization
- Import and editing functions for bitmap and vector files
- Specially developed drivers for extended parameterization of many lasers
- Software library for integration of customer-developed software
- Script programming for advanced users

**ARGES SYSTEM CONTROLLER (ASC)**

An ARGES System Controller (ASC) manages scan heads, lasers, sensors, actuators and other peripherals. It is an autonomously functioning device that does not require a host computer to carry out its processing tasks. It can be remotely operated, parameterized and diagnosed via Ethernet TCP/IP.

As an alternative control option, the ARGES ControllerLib provides a high degree of flexibility for precisely configuring the system to your requirements. The ARGES System Controllers in a 19" rack mount enclosure are available in various configurations that control either one or two scan heads. Special versions include an integrated laser.

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Technical and constructional data are subject to change. Dated 06/2016