CONCRETE PRO
LASER PROJECTION SYSTEMS
for the manufacture of prefabricated concrete parts

PLACEMENT ON PALLETS. QUICK AND PRECISE WITH A LASER.
CONCRETE PRO is a laser system for the projection of line segments and outlines on work surfaces and workpieces, e.g. on circulating pallets or objects placed on these. The projected laser lines are based on your technical drawings (CAD data). The outlines are reproduced on the work surface on a one-to-one scale.

With CONCRETE PRO, you can optimise the process sequence and your production quality. In the manufacture of practically all prefabricated concrete parts, you can work faster, more flexibly and more precisely than with mechanical templates, colour plotters or other aids for measuring and positioning. Utilise projection “at the speed of light” instead of time-consuming alignment using straight edges, angles or stops.

In contrast to plotters, with which you must mark all the operations on the pallet at one time, you can call up and then process projection files on a step-by-step basis using a remote-control unit. Thanks to LAP Multicolour, it is possible to project images in different colours for different or important steps in the process. Or you can project the outline of an object onto the pallet in green and, for verification purposes, project the profile of the positioned element on its upper surface in red. After production of the concrete part, it is no longer necessary to clean the colour marks off the pallet, since the lasers do not leave any traces behind.

CONCRETE PRO IS THE DIGITAL LASER TEMPLATE FOR PREFABRICATED PARTS

Utilise the advantages of CONCRETE PRO for your prefabricated parts production.

3 IN 1
CONCRETE PRO is a complete package of elements (projector, software, and service) designed specifically for the prefabricated concrete market.

MORE PRECISE
For fast placement of items on pallets, this is the most accurate technology currently available.

FASTER
Save working time: on average, you will work 25% faster than with conventional template systems or colour plotters.

SIMPLER
Populating pallets is simpler with the laser; no plans need to be read, and the template is controlled by a remote-control.

MORE RELIABLE
Achieve your quality standards by performing a final check of the populated pallets.

MORE COST EFFECTIVE
In comparison with a colour plotter, CONCRETE PRO costs only about a tenth of the price, so the return on investment is just a few months.
A complex projection can be limited to one or more subregions. The sections highlighted in this manner are selected on the PC using the mouse. APPLICATION: better visibility of important locations.

Projection files are not only distributed according to the geometric arrangement of the projectors, but also automatically distribute the projection load capacity wherever projection regions overlap. APPLICATION: to consistently project as fast as possible.

In addition to outlines, letters and numbers can also be projected. It is also possible to use user-defined signs and symbols.

The projection displays the shape or major profile segments on a one-to-one scale in the desired work area. The next item to populate the pallet can be positioned precisely within the projected outline.

Contours can be set up and projected in multiple colours by one or more projectors. Changes in colour are possible between figures or even within figures. APPLICATION: multicolour display of position on the pallet and checking the outline on the object.

Laser projectors are mounted over the working area. They can be attached to ceilings and beams in a fixed position, or to pivot arms or rails so that they can move.

An industrial PC controls one or more laser projectors. The projectors depict the outlines individually or simultaneously.
The production of prefabricated concrete parts is very demanding: architecture requires ever more complex geometries, delivery times are getting shorter, last-minute modifications are more frequent and the price must be right. Nevertheless, the dimensional accuracy and quality of the elements must be guaranteed. At Bürkle, based in Sasbach (Baden-Württemberg, Germany), they have been using LAP laser projection systematically since 2007. The projected laser contours mark cut-outs and mounting parts with millimetre accuracy on the formwork table and replace colour plotters and templates. With LAP laser technology, the company saves the time needed for plotting and removal of the drawings. In contrast to applied drawings, the laser lines can work in several planes; the items populating the pallet can either be marked on the upper surface or at the foot. At Bürkle, an additional installation supplies the precise pattern for a final check of the fully populated pallets before casting. This way, any possible defects are discovered and can quickly be corrected. Bürkle confirms that time is saved using laser projection and that the company’s high quality standards can be assured. Thus, the laser solution is much more cost-effective than using a plotter.

The Bürkle Group in Sasbach produces individually planned basements with one of the most modern and high-performance facilities for prefabricated parts in all of Europe.
LAP has delivered laser-based projection and measuring systems for different applications all over the world since 1984. Thousands of LAP lasers are proving their capabilities every day - sometimes under very difficult working conditions. This experience is put into every LAP product and makes our systems incomparably reliable and precise.

**CONCRETE PRO IS RELIABLE AND EXTREMELY PRECISE**

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**OPERATING UNIT**

We have developed the CONCRETE PRO Software together with engineers from prefabricated parts production. The focus is on ease of operation and avoiding operating errors. The computer screen displays the current working state as an outline drawing. If projection is underway, a changeover between contours or contracts is made with the production-standard remote-control or by using the PC. The software provides compatibility with the most important 2-D and 3-D CAD data (e.g. also for UNITECHNIK). Production data can be archived and assigned to contracts.

**Performance features:**
- Compatible with all CAD data formats commonly used in the field (UNITECHNIK, dxf, c4d, ...)
- Visualisation of projected shapes and process sequences
- Depiction of process operations with status recorder for production times
- Recorder for production sequences
- Documentation and archiving of projects with process operations, status, checking operations, time data, users...
- User administration
- Calibration that is adaptable to the specific situation (fully automatic, semi-automatic or manual)
- Currently the fastest automatic calibration available for fixed-location systems
- Operating elements that correspond to the complexity of the task: a remote control can be used for working on the workpiece while a keyboard and mouse can be used for more complex tasks

**LAP Multicolour** enables three-colour projection. The colours can be used for alerts, information or defining groups of items.

**LAP Speedswitch** enables colours and/or shapes to be changed in real time. There are no disruptive dwell times.
TECHNICAL DATA FOR LASER-PROJECTOR

Laser type
Red: Diode, 635 nm
Green: Diode, 520 nm
Yellow: Superposed projection of red and green

Accuracy */**: ± 0.1 mm/m

Repeatability */**: ± 0.025 mm/m

Beam width **: 0.5 mm FWHM

Max. projection angle: 80° x 80°

Laser power: from 5 mW

Laser Class: 2M (3R, 3B)

Protection Class: IP 54

Conditions for use: 0–40 °C, 35–85 % rel. humidity, non-condensing.

Power Supply: 24 VDC, max. 3 A

Connection: RS 485, Ethernet via Interface

Dimensions (L × W × H): 300 × 110 × 110 mm

Weight: approx. 3 kg

Performance features:
- Projection areas for large surfaces using multiple projectors
- Projection in red, green or three-colour red/green/yellow (LAP Multicolour)
- Switching in colour and shape without disruptive dwell times (LAP Speedswitch)
- Compact and light construction despite separate sections for the projector (hermetically sealed) and cooling unit (access to ambient air)
- Swivel mounting with snap-in fastener for rapid, simple installation

SERVICE PACKAGE

LAP stays right by your side before, during and after the installation of a CONCRETE PRO system. International experience acquired over decades in the installation and maintenance of laser systems across virtually all industries makes us a reliable and competent partner. Before you make your decision, we will give you plenty of advice and explain both the possibilities and also the limitations of the technology. We will support you in the planning and installation of the system onsite. After commissioning, we will stay with you during your first steps using the laser projection system until its use has been optimised. Each customer has different requirements regarding maintenance cycles, reaction times and protection from down times. LAP therefore offers each customer an individually tailored package, which can extend far beyond the guarantee and standard working hours. Do you want to have replacement equipment on site? Emergency service available at all times? A 24-hour hotline? Or is replacement within 24 hours, support during the working day, and regular training of your personnel sufficient for your needs? Just tell us what you want – we will find a suitable solution for you.
For more than 35 years, LAP has been developing, manufacturing and distributing laser measurement systems, line lasers and laser template projectors for industrial and medical applications. LAP products are high-precision devices Made in Germany. Using LAP laser systems, our customers improve performance and increase the quality of their products as well as the effectiveness of their processes.

As a result of continuous product innovation, LAP has become a world leader in lasers for projection and measurement. LAP products are setting the standards in a wide range of markets from manufacturing to heavy industrial environments and medical applications. Environmental protection is important to us. We use solar panels, green electricity and roofs planted with grass. Our production is planned by standards of sustainability.

Quality has always been part of our commitment. We are content if you are. We know your high demands. To meet your requirements, the quality management of LAP is certified by DIN EN ISO 9001:2008 for industrial products and by EN ISO 13485:2007 for medical engineering products.

www.lap-laser.com/CONCRETE