

HANDLING OF PRECAST CONCRETE ELEMENTS

The construction industry is booming. Manufacturers and dealers of precast concrete elements are also confronted with a large number of enquiries every day in the gardening and outdoor facilities sector.

This is initially positive, but at the same time poses a challenge in terms of the handling and logistics of the popular concrete components. Due to their shape, L-shaped blocks place particular demands on the handling technology used.

The challenge of a manufacturer of concrete products to remove its L-shaped blocks easily and safely from the formwork systems and also to rotate them was the origin of a new product development by the vacuum specialists at AERO-LIFT.

"Our customer casts several tonnes of concrete angle blocks every day in batteries, each containing moulds for 2-6 blocks. These are cast on a rail system as part of the curing process. The individual components, some of which weigh several tonnes, are cast upside down. During demoulding, the finished elements have to be turned and then placed on wooden pallets," says Sebastian Scherer, Sales Manager at AERO-LIFT.

"During this process, electrical centre of gravity adjustment is essential due to the varying sizes of the L-bricks. In countless tests in our application technology department, we have developed a solution that is ideally suited to this customer process and enables the concrete blocks to be sucked in from both the outside and the inside."

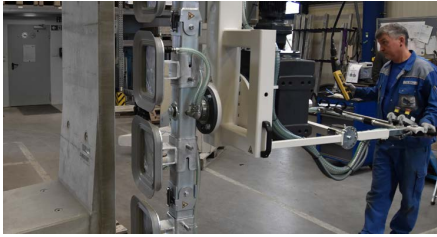


The vacuum lifting device, which was specially developed for the customer, can be operated ergonomically and safely by just one person thanks to its angled, two-legged manipulation handle. The handle can be flexibly adjusted and locked in place using a lifting magnet and thus covers an operating angle of 67.5° downwards and 90° upwards.

The solid rubber seals used for the suction plates are quick and easy to replace. They guarantee robustness ideally matched to the concrete material and therefore a long service life.

The centre suction plates can be moved and locked onto the main crossbeam by 70 mm to suit the immersion depth and the distance of the pallet or block width. The outer suction plates can be moved by 140 mm on the main spreader beam and can be pushed off. All suction plates can be switched on and off individually via manual slide valves, so that maximum flexibility is achieved when handling different L-brick formats.

The transported goods can be picked up vertically as well as endlessly rotated through 360°. Three of the four suction plates used the maximum required load capacity of 1,080 kg is achieved. An electric centre of gravity compensation enables the centre of gravity to be adjusted at the touch of a button, even under load.



The AERO-LIFT device is equipped with the usual features: The "suction-release" function is performed by means of a manual slide valve with safety lock, and vacuum monitoring guarantees the safety of the entire system. The intelligent electronic warning device reacts to a vacuum drop below 60 / 80 % or power failure by means of an acoustic warning signal, so that the load can be switched off in good time if necessary. All AERO-LIFT vacuum lifting devices are designed and manufactured in accordance with the current safety standards EN 13155 and ASME B30, and are tested and documented in accordance with the applicable accident prevention regulations BGR 500 and Machinery Directive 2006/42/EC, Annex II A.



The final acceptance test is carried out in accordance with VDE 0113 and EN 60204. An electronic swivelling gear enables stepless rotation from 0° to 360°. A complete rotation process takes around 46 seconds and is controlled via ergonomic pushbuttons.

The working vacuum (60% or 80%) can be determined by the operator via a vacuum level selection. This allows the working vacuum to be limited in individual cases (pump switches off) and the pores of these concrete blocks may be less stressed. In order to achieve the necessary load-bearing capacity, the correct working vacuum must be set by the operator using the selector switch before suctioning. "We are delighted to be able to offer an ideal solution for handling L-shaped blocks with this customised development," says Sebastian Scherer. "In addition to the ergonomic and safety aspects, our customer was able to make their production processes significantly more efficient and flexible by using our vacuum lifting technology."

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