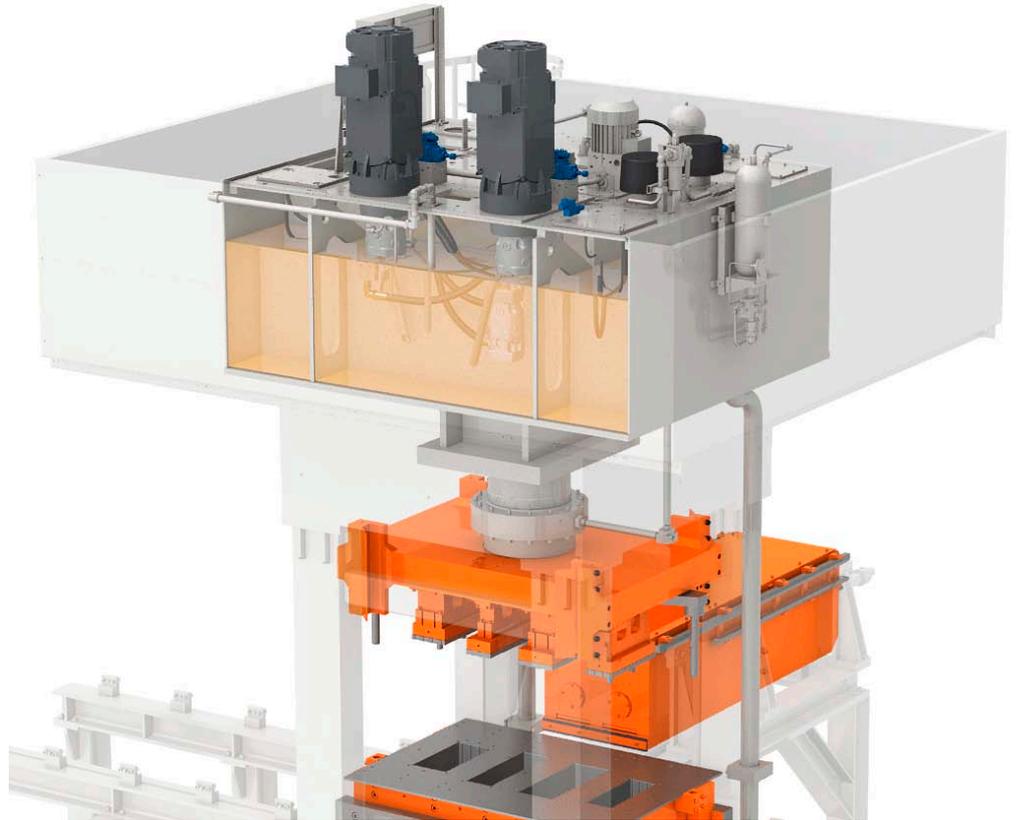


Special info

## Hydraulic servo direct drive for sand-lime block presses



**LASCO UMFORMTECHNIK**  
**WERKZEUGMASCHINENFABRIK**



## Increase in the energy efficiency of sand-lime block presses

### The servo drive technology is capturing the hydraulic presses.

Economic sand-lime block production means efficient production of high-quality building materials with optimised energy use. In the production of sand-lime blocks quite a considerable part of electric energy of 45% average is needed for the compacting and stacking process. Reason enough to search a way of increasing the efficiency of the hydraulic press drive more.

For this purpose LASCO has refined the “hydraulic servo direct drive” as new drive technology and already used it successfully for hydraulic metal forming presses.

In case of the hydraulic servo direct drive the hydraulic pump is directly coupled with the servo motor. The positioning of the

hydraulic pistons, the adjustment of the compacting speed as well as the setting of force values are done without switching valves and/or proportional valves.

In contrast to this concept the conventional press drive is effected via an asynchronous motor, constant speed and coupled with axial piston pumps as well as the use of a mechanical adjustment. It is controlled by switching valves and/or proportional valves.

But still the new technology cannot do completely without valves. Safety function regulations or the filling of large cylinder chambers for quick movements demand valves that can be switched and partly also controlled. In addition the safeguarding of the various pressure circuits against a maximum value must also be maintained.

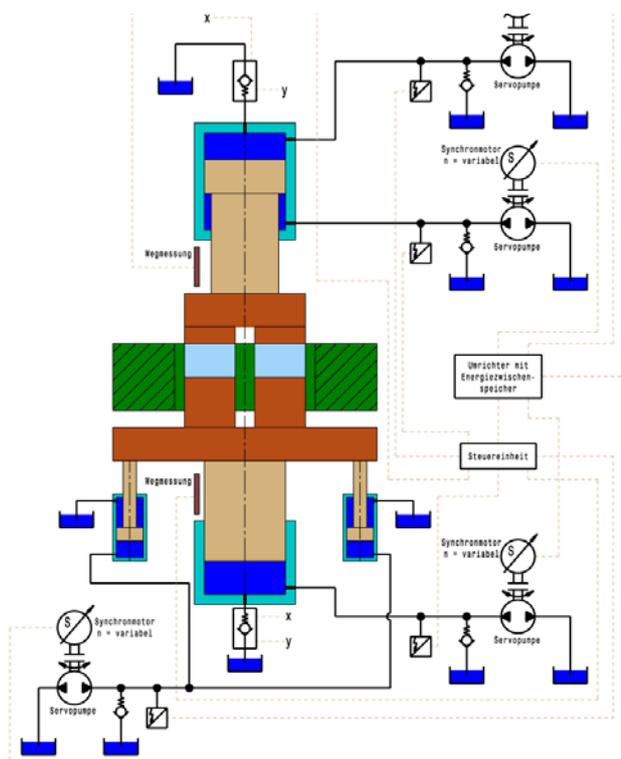
One of the features of the direct drive is the fact that the various effective areas of the hydraulic cylinder are supplied with hydraulic oil by separate pump drives. During the fast down-movement of the upper cylinder the hydraulic oil flows from the draw-back area via a pump into the oil reservoir. The velocity is controlled by the servo motor, electric energy is generated in the generator operation of the servo motor and stored in the DC bus of the servo system. The braking function is also effected by the servo motor. For the subsequent compacting function the motors take braking energy from the DC bus of the servo system that has been fed in before.

The hydraulic drive of the LASCO KSP and PSP presses with double-acting compaction consists of a drive for the upper differential cylinder and the drive for the lower single-acting cylinder as well as the two additional rapid motion cylinders. The drive of the KSE presses with single-acting compaction is designed by analogy with the lower single-acting cylinder drive of the KSP/PSP presses.

The spring energy that is stored in the compressed hydraulic oil at the end of the compaction cycle is used for driving the pumps and servo motors in the relief cycle generatively storing energy in the DC bus.

Such hydraulic systems have an uncomplicated design and allow very quick and simple diagnosis. With the automatic pump check the hydraulic pumps can be checked for wear at regular intervals.

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Hydraulic servo direct drive of a sand-lime block press with double-acting compaction

## Benefits



View of the new servo direct drive of a hydraulic LASCOPress. The new drive concept for sand-lime block presses will be presented at bauma.

## The advantages at a glance

- Efficiency improved by approx. 40%
- Coefficient of efficiency  $\cos \varphi \approx 1$ .
- The operation of the hydraulic system is almost pulsation-free.
- All setting data allow digitized storage and documentation.
- Simplified diagnosis due to clear drive design.

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