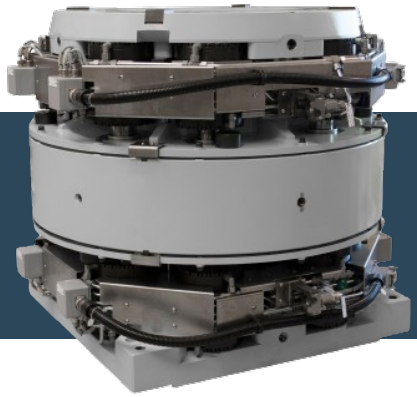
STRECON
Building Strength by Stripwinding



Tool Alignment System (ALS)

Machine design

The tool alignment system (ALS) is a hydraulic equipment solution designed for the horizontal alignment of the die container in a belt-type system. The system consists of special-designed hydraulic cylinders which are assembled on guide plates and take part in the top and bottom anvil systems. The alignment system is designed as a hydromechanical parallel system that practically eliminates any tilt behavior of the belt (or the stripwound container), and even 0.1° maximum tilt of the die container can be obtained.

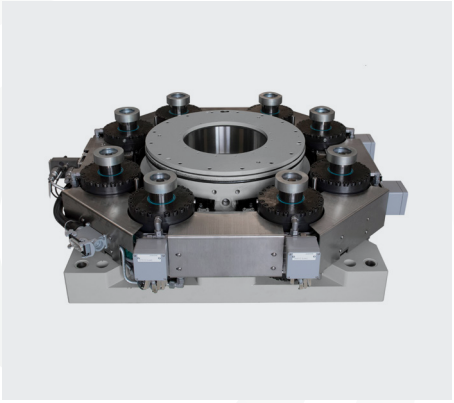
The ALS technology offers a torque capability up to 1.6 mil. Nm and a very limited misalignment in the mechanical system. The exact misalignment depends on the nature, materials, and physical sizing of the specific mechanical system but practically speaking, the misalignment (or lack of perfect parallelism) can be expected to be very small. Specific design considerations and calculations are required in each case.

The technology also consists of a sub-hydraulic system that is designed to ensure a precise height positioning of the upper and lower tools or machine parts. The hydraulic force is up to 500T, which is valued to be sufficient for handling possible mechanical inconsistencies or unintended friction issues in the process of aligning the two said elements. The overall hydromechanical parallel system is set, operated, and monitored with its own control system.

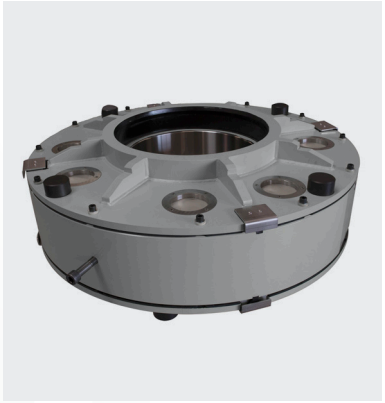
The key merits of the alignment system are improved process stability of the high-pressure cycle, improved product yield, improved carbide life, and improved uptime of the high-pressure press.

Use in Industry

The alignment system can be applied to all belt type systems but is assumed most effective for medium and large system sizes i.e. die containers larger than ø1000 mm. The alignment system is a separate machine system and I/O connected to the master control of the high-pressure press. Due to the complexity and different customer needs, the ALS system would be subject to customization in each customer project.



Alignment mounted on lower tool



Carbide die container with guide plates for ALS

Alignment mounted on upper tool