

## ROTARY VALVE TRAIN (RVT)

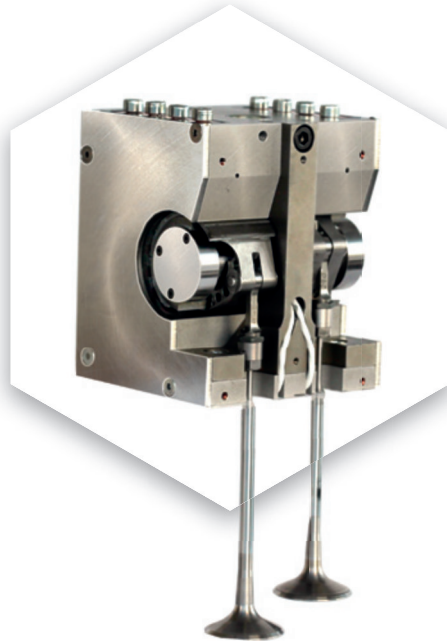
RVT is a rotary valve train that enables fully variable valve control in combustion motors. It is primarily used for thermodynamics research. Its innovative rotary axis concept allows use with diesel and petrol engines. The patented actuator design convinces with its high torque at high dynamics.

### ABOUT LSP

LSP Innovative Automotive Systems GmbH is an engineering office, development company and think tank with headquarters near Munich (Unterföhring). Our core competence and technology leadership is based on the conception and design of compact and highly dynamic electromechanical drives, primarily for use in chassis and powertrain applications.

Are you interested in our product?  
Are you looking for an idea or do you need a solution?  
We can help!

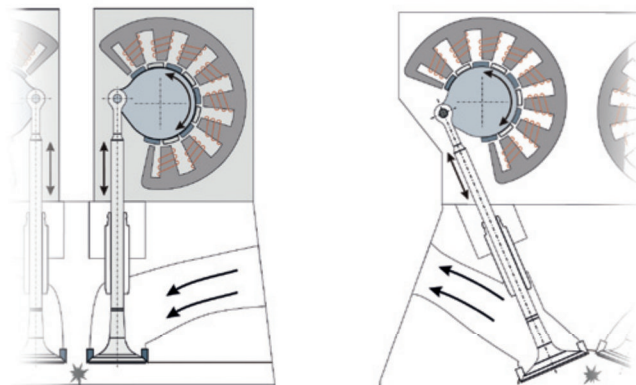
We look forward to hearing from you!



### ADVANTAGES

- » Can be used to control gas exchange valves in all types of combustion engines, or for
- » controlling auxiliary valves
- » Maximum power density due to innovative two-phase synchronous drive
- » Highly precise and repeatable valve lift control thanks to integrated valve lift sensors
- » Unlimited possibilities: Determination of individual valve lift profiles, cylinder shut-off, multiple strokes (EGR), phase shift etc.
- » Reliable continuous load operation through integrated cooling

### FUNCTIONALITY AND STRUCTURE



Each valve is controlled by one actuator respectively. The valve lift, valve lift profile and timing can be varied with high repeat accuracy and precision. Several actuators are combined in a single housing. The actuator itself is implemented as a two-phase synchronous motor. The rotor can be moved within a predefined angle. By rapidly controlling the current in the actuator coils, the rotor can be precisely positioned. Crankshaft speeds of up to 6000

rpm are no problem for the system. A patented transfer element translates the rotor's rotational motion into the longitudinal movement of the valve. The actuator can lift a load of 80 kg to 10 mm within 2.5 ms. Special effort has been made to ensure that the valve moves precisely, particularly when it closes, so that impact speeds of less than 0.05 m/s are reached. In the case of small valve lift movements of up to 3 mm, the actuator is barely audible.