

# SOLENOID VALVE PLUNGERS



Solenoid plungers from Freudenberg are available in numerous designs and have been tested to meet rigorous performance requirements for solenoid valves. These solenoid plungers can be utilized in various applications including, air and fluid power applications, heating and cooling system regulation units, industrial, and automotive applications.

A solenoid valve is an electromechanical device used for regulating liquid or gas flow. When a coil in the solenoid valve is energized by electrical current, a magnetic field is created, causing movement of a plunger inside the coil and regulating the media stream.

Freudenberg solenoid plungers are precision molded and can be precisely adapted and customized for critical applications with our intelligent solution packages.



## VALUES FOR THE CUSTOMER

- Procurement and logistics are simplified—springs can be integrated in the metal part (e.g., meander spring design) and the rubber-bonded plunger can be delivered as one unit, instead of a metal part, an elastomer part, and a spring
- Cost of metal plunger bodies is reduced because cross holes and undercuts are superfluous
- The plunger assembly process is eliminated
- Smaller solenoid valves are possible with elastomers vulcanized into the smallest cavities and bonded to the metal part
- Optimum switching precision with rubber-bonded parts—vulcanization of parts ensures a secure, clearly defined attachment; the highest standards for tolerances and flatness can be achieved even without grinding

## FEATURES AND BENEFITS

### Advantages of solenoid plungers

With the **sealing and damping function combined** in one component, Freudenberg solenoid plungers provide lasting cost savings along with these additional advantages:

- **Chemical resistance**—Highly stable sealing and damping materials for use in aggressive media such as oils, natural gas, liquefied petroleum, blow-by gases, chemicals, water, and more
- **Temperature resistance**—Standard materials are available for a temperature range from  $-40^{\circ}\text{C}$  to  $+250^{\circ}\text{C}$  depending on the application. Other temperature ranges (e. g., to  $-60^{\circ}\text{C}$ ) can be achieved as well with special materials
- **Reduction of the sticking effect**—RFN<sup>®</sup>-treated surfaces reduce the sticking effect and improve chemical resistance for a longer service life
- **Superior design**—Complex designs and miniaturization allow implementation of demanding solutions for our customers
- **Releases**—Various material releases for elastomer materials such as FDA conformity, KTW, or USP Class VI for critical applications
- **Coatings**—PTFE or other coatings and treatments (e. g., plasma etching) for friction reduction at the contact surface are available for elastomers as well as for the metal surface of the solenoid plunger

### Individual solution packages

#### Lifting plungers

In the guiding mechanism, flexible lifting plungers combine the sealing and damping function in a single component. In addition, weight is reduced by individualizing the carrier material.



#### Tilting plungers

Axially fixed tilting plungers with different carrier materials allow frequent switching and a lasting process optimization.



#### Solenoid plungers with meander springs

Solenoid plungers with vulcanized sealing and damping hubs on meander springs allow minimal strokes with high frequencies, reducing space required at the same time.



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