



Check Valves as Pressure Regulators

Flow Control for the Trucking Industry



ENGINEERING YOUR SUCCESS.

Cost-Effective Fuel Regulator Solution

Parker check valves are now engineered to play a new, unique role as fuel pressure regulators in Classes 6-8 trucks to help manufacturers meet the stringent emissions requirements associated with Tier 4 compliance. That includes many big rigs weighing over 33,001 pounds and heavy-duty construction vehicles like cement and dump trucks.

Working with truck OEMs, Parker engineers can customize check valves as a cost-effective solution to meet the required specifications of engines to regulate the amount of fuel delivered to the engine.

Acting as fuel pressure regulators, check valves can ensure that the pump in the fuel system is not injecting too much or too little fuel into the engine. In trucks and mobile equipment, a check valve's primary functions are protecting the fuel pump from backflow damage, controlling actuator flow to improve safety, and keeping prime for quick startup.

Manufacturers also specify Parker check valves in other areas of the trucks including surge tanks, fuel tanks, air brake systems, coolant tanks, and anti-drain back features.

Application Considerations

Parker's check valves are available in various sizes, pressure ratings, flow capacities, and crack pressures to meet the requirements of most fuel system applications. To customize our check valves to meet your specific system requirements and application, it's pivotal that we know your particular installation point's characteristics.

Shapes

The shape of a check valve plays a crucial role in its functionality and performance. By considering the shape of check valves and their components, engineers can optimize their performance based on factors like flow requirements, pressure conditions, fluid properties, and installation constraints. The shape contributes to the check valve's overall functionality, reliability, and effectiveness.



Body Material

Check valves are manufactured using various materials, each chosen based on suitability for specific applications and operating conditions. The selection of materials depends on factors such as fluid compatibility, pressure and temperature requirements, corrosion resistance, and durability.

The choice of materials in check valves depends on the application's specific requirements, including the type of fluid, pressure rating, temperature range, and environmental conditions.

Seal Material

Most hydraulic check valves are available in two sealing options – hard seat or soft seat. Hard seat check valves are manufactured with metal-on-metal sealing. These valves offer better wear resistance for higher-pressure, heavy-duty applications. Metal sealing is also more resilient where fluid contamination is a concern.

Soft seat check valves have an elastomeric (rubber-like) seal. These valves can achieve a higher level of sealing, thus minimizing leakage across a wide range of applications. Soft seat valves are also an excellent option for systems that require a high level of cleanliness.

Crack Pressure

Crack pressure is fluid pressure in the free flow direction required to move the poppet off the seat. The typical crack pressure setting is 5 PSI; however, other crack pressures are available to allow the check valve to perform special circuit functions or operate under unique conditions. Parker offers a variety of crack pressures to allow the check valve to perform special circuit functions or operate under unique conditions.



End1/End2 Port Configurations

When selecting check valves, considering the port configuration is important to ensure proper alignment with the system requirements and facilitate efficient flow control. The choice of port configuration will depend on factors such as the desired flow direction, space limitations, installation requirements, and the overall design of the piping system.

Here are some standard port configurations to consider:

Inline Port



Angle Port



T-Port or Multi-Port



Cartridge/Press Fit

Both cartridge-style and press-fit check valves offer advantages in terms of ease of installation, maintenance, and potential cost savings. They provide efficient and reliable fuel regulation while simplifying the assembly or replacement process. The choice between cartridge and press fit check valves depends on the requirements of the fuel system design and installation preferences.



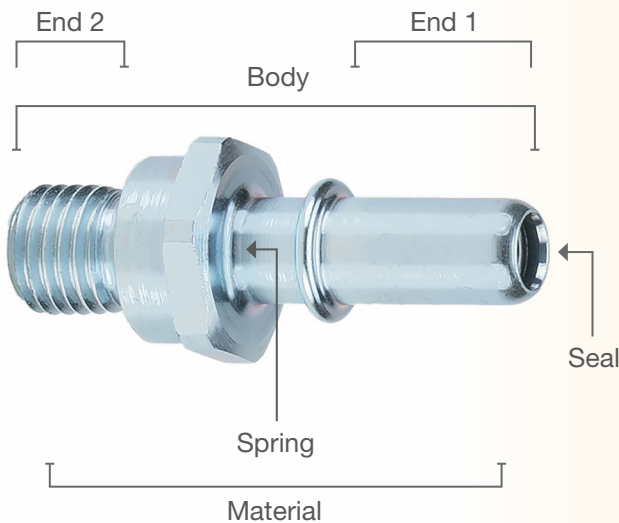
Screened Products

Screened check valves have a built-in screen or filter element specifically designed for use in fuel systems to regulate the flow of fuel and prevent the entry of debris or particles that could potentially cause clogging or damage to the fuel system components.

This helps to optimize fuel system performance, prevent malfunction, and protect critical components from damage, ultimately contributing to the overall efficiency and reliability of the fuel system. The screen used in fuel regulator check valves is typically designed to be compatible with the type of fuel being used, considering factors such as fuel composition, viscosity, and temperature.



ANATOMY OF A CHECK VALVE





Parker Check Valve Offerings

Parker's check valves are available in various sizes, pressure ratings, flow capacities, and crack pressures to meet the requirements of most hydraulic system applications. Below are some popular Parker valves that may align with your application needs.

DT Series Check Valves: Covering the widest variety of applications, these hard seat check valves are offered in sizes from 1/4" to 1-1/4" with the added benefit and convenience of compact design. The DT Series is an excellent place to start if you are unsure where to look for the proper check valve. Pressure rated from 2500 to 5000 PSI.



CV Series Check Valves: The CV Series is another hard seat option for your application. This option was built using a rugged, two-piece modular design, resulting in less pressure drop for increased performance in critical applications. Pressure rated up to 3000 PSI.



2600 Series Check Valves: With the valve body constructed out of aluminum, these are designed especially for diesel and gasoline engine fuel lines. They are also used for externally mounted oil filters, coolers, and transmission fluid lubrication lines. With a maximum of 1/2 psi cracking pressure, these Swing Check Valves are useful in most low-pressure air, liquid, or gas systems. Pressure rated up to 250 PSI.



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