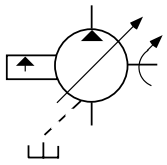
# HPV Series

Axial Piston Pumps, Variable Displacement, Pressure Compensated

## VARIABLE DISPLACEMENT, PRESSURE COMPENSATED



ANSI SYMBOL

### PRESSURE COMPENSATED

Delivers only the flow required by the system, while maintaining the set pressure. This will save horsepower and unnecessary wear on the system. Pressure compensation ranges from 200 to 3500 PSI continuous duty and up to 4000 PSI intermittently.

### SAE FLANGE MOUNTING

Uses standard SAE industrial mounting for easy interchangeability.

### 5 DISPLACEMENTS

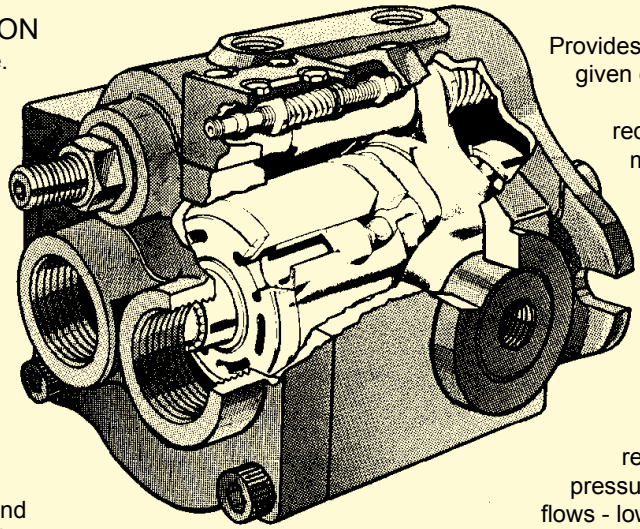
.88, 1.26, 2.09, 2.62, and 3.78 cubic inches per revolution.

### REMOTE PRESSURE CONTROL CODE 7

Includes all the features of the standard pressure compensator with the added feature of remote control. This option allows you to adjust or vent the pump control from a remote location for multiple pressure operations.

### SIMPLE CONSTRUCTION

For a long and productive life.



### LOAD SENSING CONTROL CODE 19

Provides constant flow through a given orifice and pressure that varies with the load requirements. This control maximizes efficiency and minimizes heat generation.

### RUGGED CONSTRUCTION

Cast iron body designed to deliver years of reliable performance.

### COMPACT SIZE

Designed to maximize the use of valuable space.

### HORSEPOWER LIMITING CONTROL CODE 26

This control is highly recommended where high pressures - low flows, and high flows - low pressures are needed. The adjustments allow for exact tailoring to system requirements.

### QUIET OPERATION

Combining new technology and strict engineering disciplines has reduced noise to very low levels.

### MAXIMUM VOLUME ADJUSTMENT

Allows you to set the pump displacement to match the maximum system flow requirements and prevents overloading of the system.

### DESIGNED TO BE REBUILDABLE

Great care was taken in the design of this pump to ensure that when this pump is in need of service, it can be disassembled and brought back into service.

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## GENERAL SPECIFICATIONS

### Recommended Fluids

Fluids for use in the HPV series piston pumps should be petroleum based and designated by the fluid manufacturer for use in hydraulic systems. These fluids should contain rust and oxidation inhibition, anti-wear, anti-foam, and deaerating agents. For other fluid types, please contact your Continental Application Engineer.

### Recommended Operating Viscosities

For petroleum based fluids:

- Optimum -- 140 sus (30 Cst.).
- Continuous Minimum -- 60 sus (10 Cst.).
- Continuous Maximum -- 750 sus (160 Cst.).

### Operating Temperature

The operating temperature should be determined by the viscosity characteristics of the fluid used. Because high temperatures degrade seals, reduce the service life of the fluid, and create hazards, fluid temperatures should not exceed 180° F. (82° C.) at the case drain.

### Fluid Cleanliness

- ISO 16/13.

### Filtration

Return line: To maintain the minimum prescribed cleanliness levels, a high quality return line filter should be used. A filter with a 10 micron rating is normally sufficient to start up a system. Because every system has unique characteristics, this rating may need to be changed. Periodic testing of fluid is highly recommended. The data collected from these tests will tell if the current filter system is maintaining the cleanliness of the fluid to the ISO 16/13 level.

### Maximum Inlet Pressure

The maximum inlet pressure is 50 PSI at all speeds.

### Mounting Position

Unrestricted, however horizontal mounting is preferred.

### Drive Shaft Alignment

Pump and motor must be within .003 inches (0.8 mm) TIR (Total Indicated Runout) for maximum bearing life.

### Drive Coupling

Jaw type with a flexible web is recommended. Tire and Chain type couplings are not recommended.

### Case Drain

All HPV series piston pumps have two case drain ports. It is only necessary to connect a case drain line to one of these ports. The other port is provided to fill the case with fluid on start up. All case drain lines should be as short as possible with no restrictions or reduction in size. The routing of the case drain line back to the reservoir must not allow the fluid in the case to drain back into the reservoir while the pump is not in use. This line should terminate below the surface of the fluid in the reservoir. Please refer to Continental Hydraulics HPV series installation and service literature for further explanation.

### Relief Valves

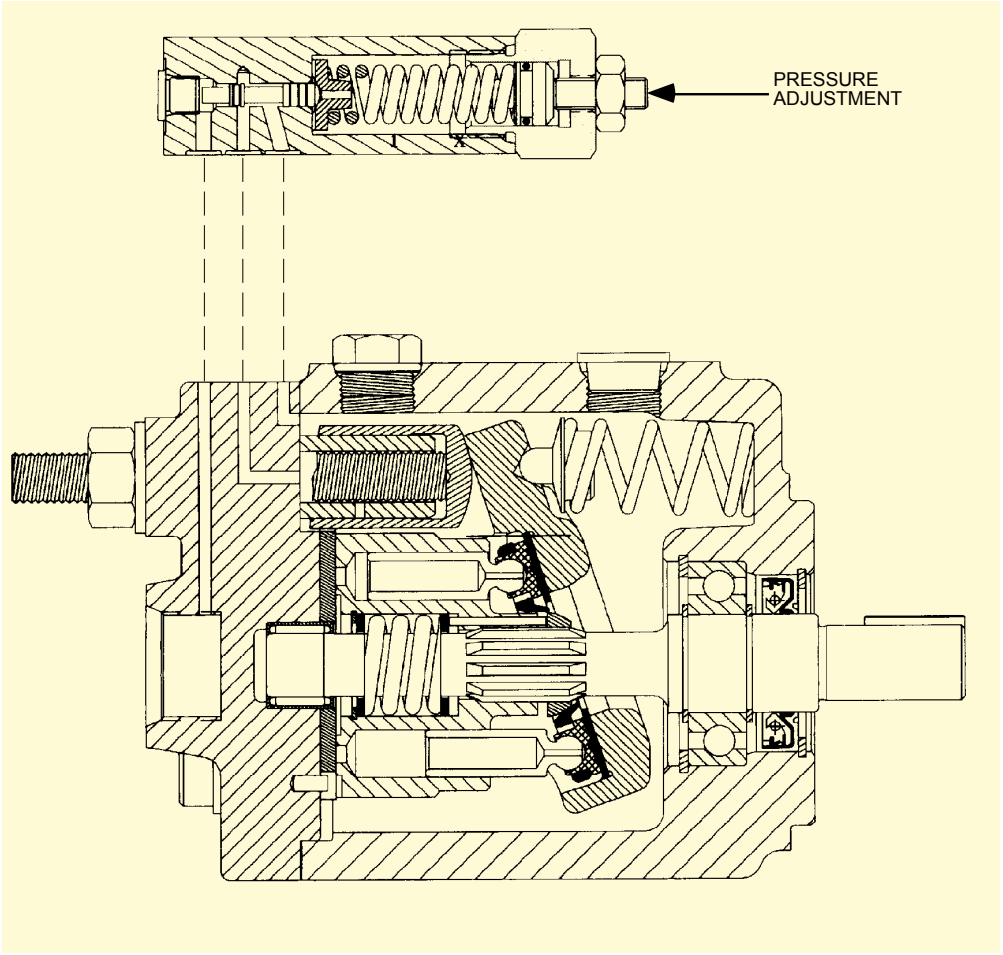
System relief valves are recommended for all applications to protect personnel and the system from potentially damaging overloads. These valves should be sized for the maximum flow of the pump and set approximately 200 psi above the pump compensator setting.

## PRESSURE COMPENSATED CONTROL

The standard pressure compensated control changes the displacement of the pump to match the system flow requirement by controlling the system pressure. Simply stated: a pressure compensated pump will provide variable flow at a constant pressure setting.

The displacement of the pump is mechanically controlled by the angle of the swashplate. The swashplate angle is controlled by the extension of the compensator plunger, which works against the swashplate bias spring. The compensator senses the downstream pressure and adjusts the displacement to maintain the set pressure.

The control would be used on systems where the flow requirements are variable but the pressure requirements are unchanging.

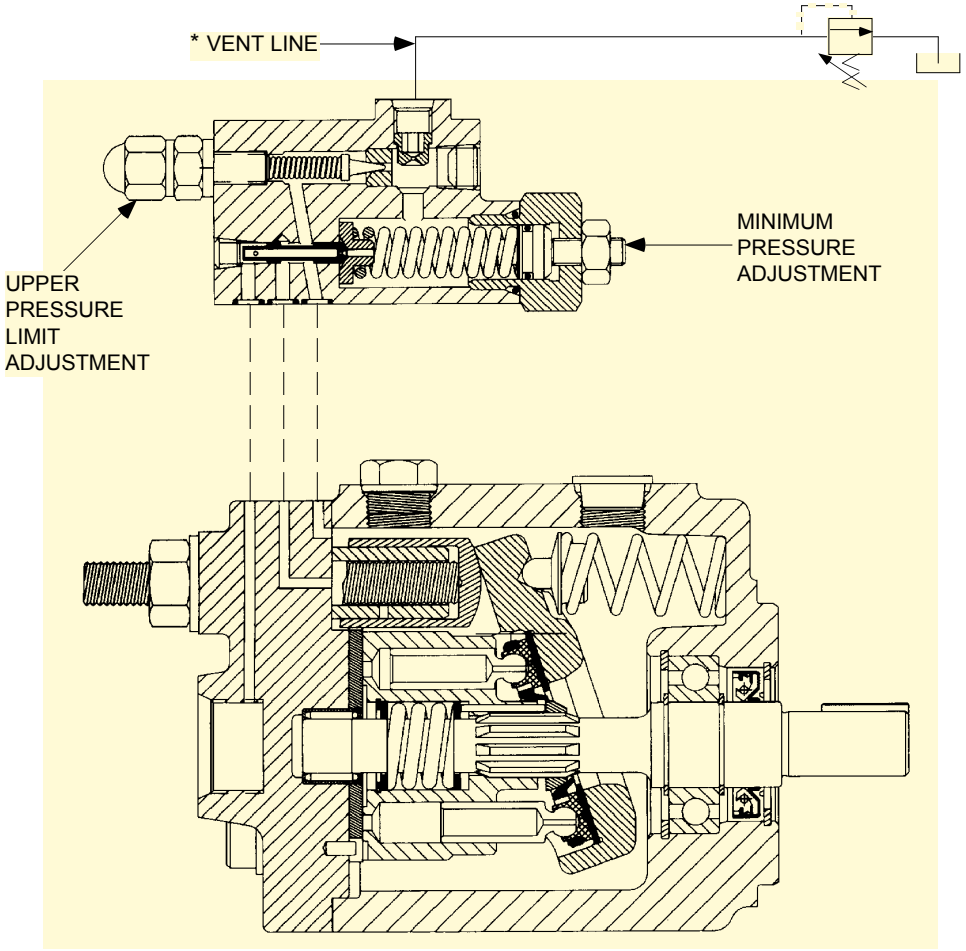


## REMOTE PRESSURE CONTROL (Code 7)

The remote pressure control works similar to the standard pressure compensated control, with some added features. This is a two stage compensator with two pressure adjustments: one for the lower pressure limit and one for the upper pressure limit.

A vent line* is required to run back to the reservoir. When this line is vented, the pump will go to the lower pressure setting. When this line is blocked, the pump will go to the upper pressure setting. The pressure in this line may be controlled by one or more relief valves. These should be direct acting and capable of pressures up to 3500 psi (241 bar). The setting of these relief valves will control the pressure setting of the pump.

This control would be used on systems where the flow requirements are variable and multiple pressures are desirable.



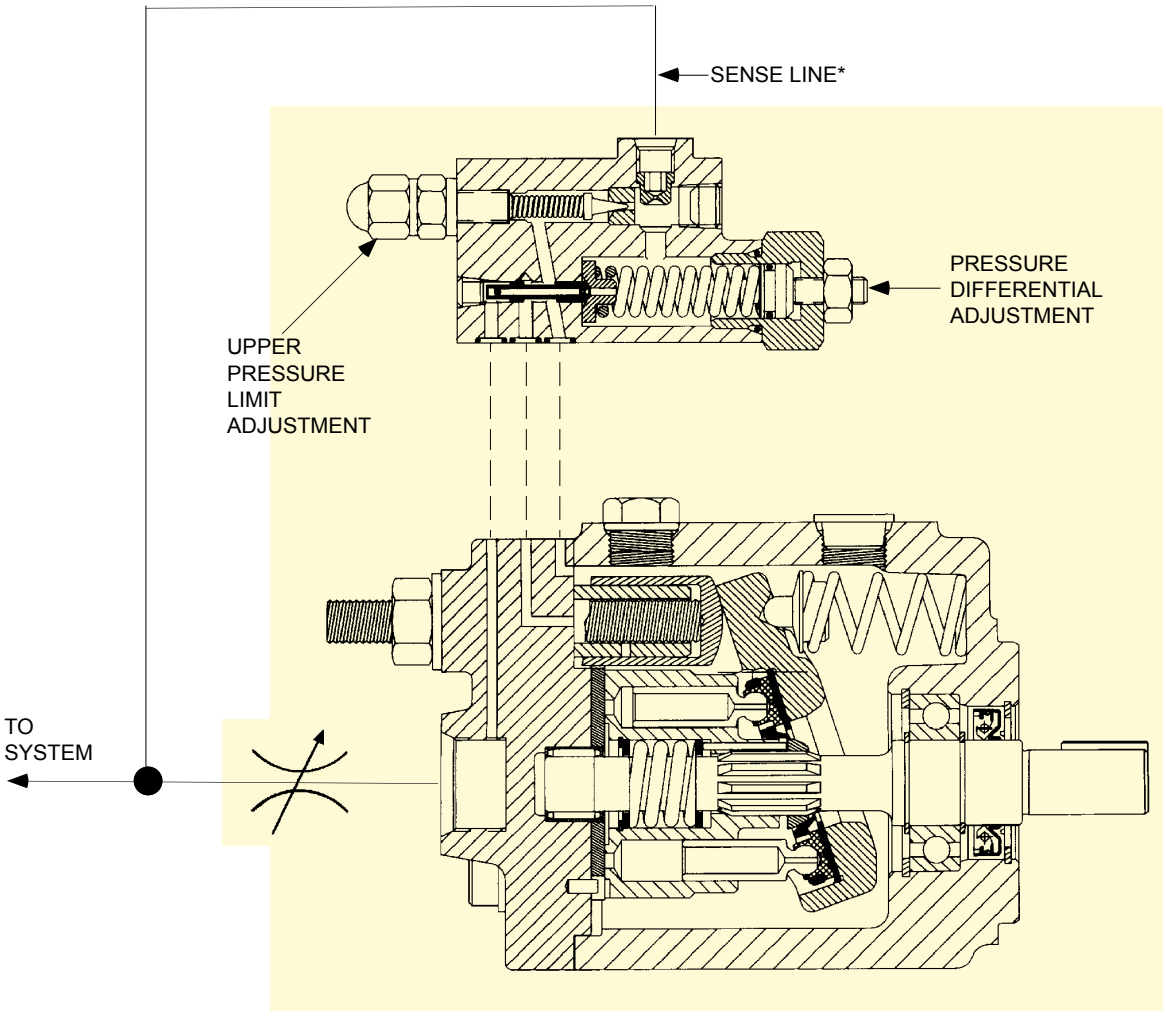

* Maximum length of this line is 50 feet. Hard piping is recommended to maintain system stability.

## LOAD SENSING CONTROL (Code 19)

The load sense control is designed to deliver a constant flow across an orifice and adjust the pressure to meet the system's demands. This type of control is often called flow compensating. This is accomplished by using a flow control valve between the pump outlet and the actuator.

A sense line* must be connected between the downstream side of the flow control and the pump compensator. Through this line, the compensator will sense the fluctuations in the system pressure requirements. There are two adjustments on this compensator. The adjustment on the back side will set the upper pressure limit. The adjustment on the front is used to set the pressure differential of the flow control valve. This setting comes preset to 250 psi (17.2 bar).

This control can be combined with a variable flow control (like a proportional valve) to deliver variable flow and variable pressure.

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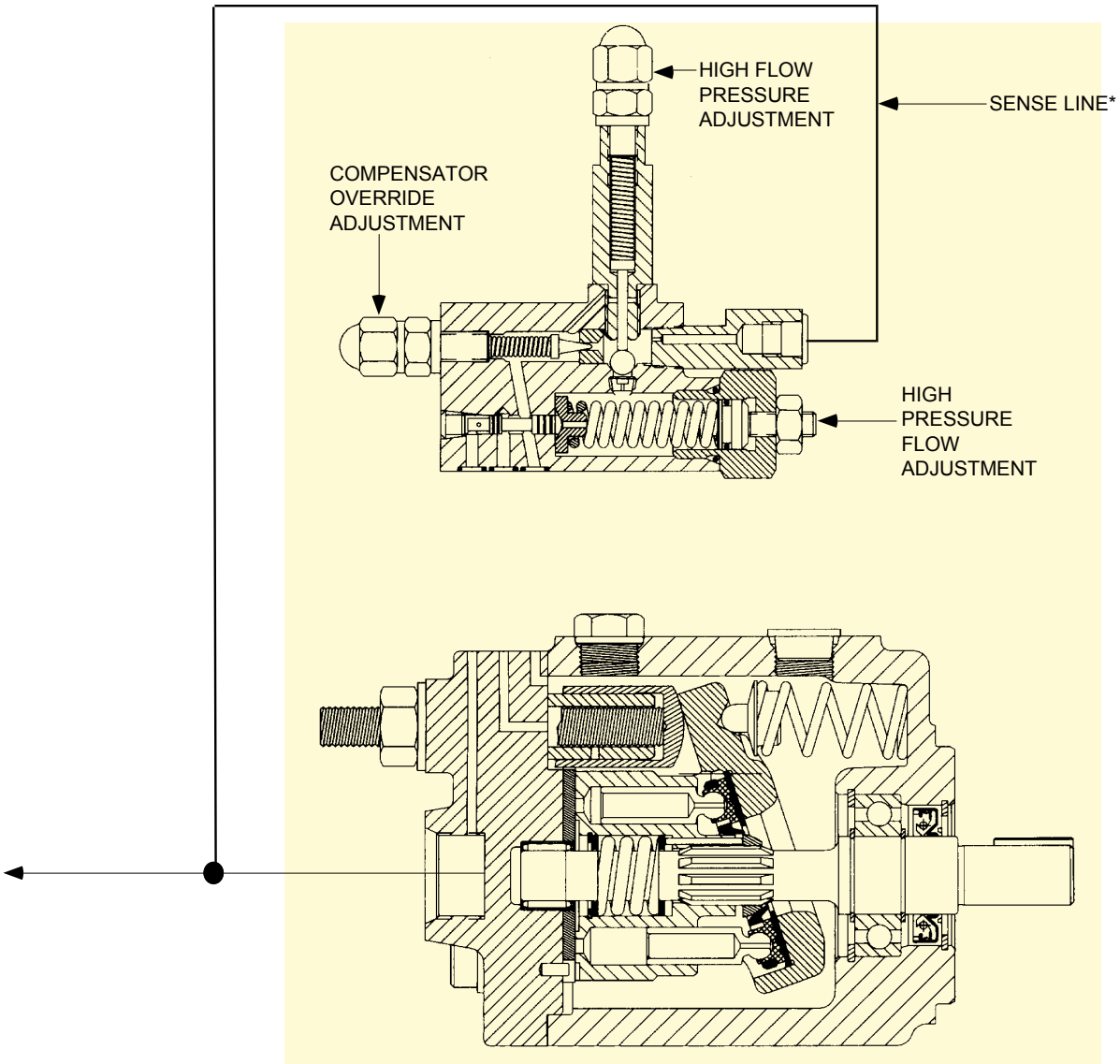
## HORSEPOWER LIMITING CONTROL (Code 26)

The horsepower limiting control is designed to be adjustable down to 35% of the maximum horsepower requirements of a normally pressure compensated pump. This control has three adjustments that can tailor the performance curve to the system requirements.

A sense line* is required to be connected to the line between the pump and the actuator. A calibrated orifice is installed in the outlet of the pump so there is no need to add any additional components to achieve this type of control.

This control would be used in systems that require both high pressure - low flow and high flow - low pressure.

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