Model 21510

Compensated Relief Valve

(regulates the bypass of the fluid with a minimum variation of the pressure and suitable to be used as a relief valve)

-Central body and fittings in brass
-Internal components in stainless steel
-Moving parts totally protected

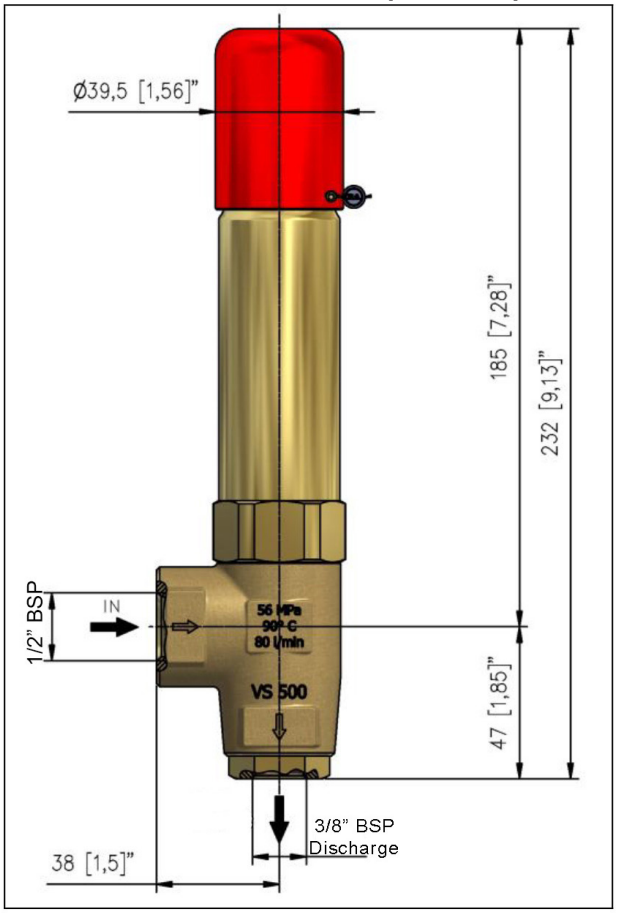
As a Relief Valve
-Secure intervention discharging all the flow.
-Prompt and effective damping against pressure spikes.

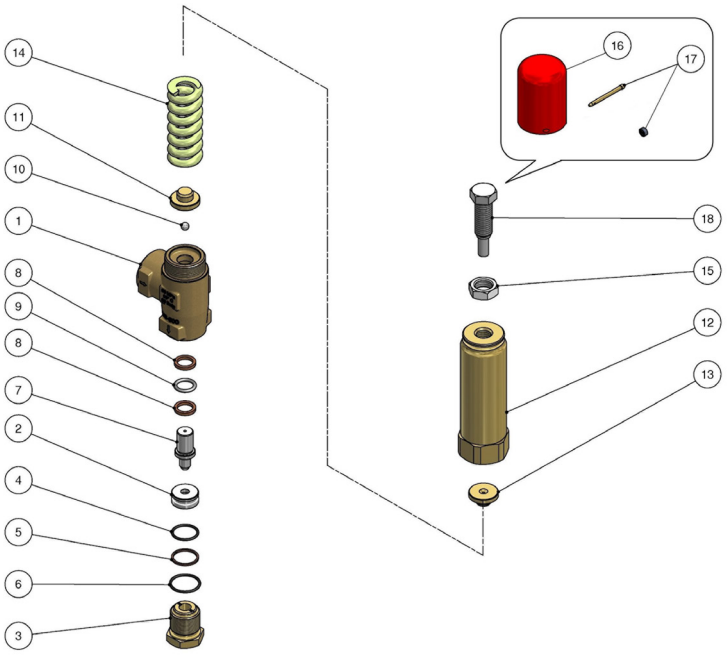
Operating Conditions

	U.S.	Metric
Flow:	21 GPM	80 L/min
Pressure Range:	725 - 7250 PSI	50-500 Bar
Max. Pressure:	8120 PSI	560 Bar
Max. Temperature*:	194° F	90° C
Inlet Port:		1/2" FBSP
Bypass:		3/8" FBSP
Weight:	3.3 lbs.	1518 Grams

* This valve is designed for continuous duty at 140° F (60° C). Higher tempertures, up to 194° F (90°C) are permissible on an intermittent basis.

Dimensions mm (inches)





Item	Part#	Description	Quantity
1	03770	Housing	1
2*	03771	Seat	1
3	03772	Discharge Fitting	1
4*	08564	O-Ring	1
5*	03773	Back-up Ring	1
6*	05909	O-Ring	1
7*	03774	Piston	1
8*	03775	Back-up Ring	2
9*	08773	O-Ring	1
10	04738	Ball, 1/4"	1
11	03776	Spring Rest Pin	1
12	03777	Spring Holder	1
13	03778	Spring Guide Spacer	1
14	03779	Spring	1
15	04112	Hex Nut	1
16	03780	Knob	1
17	03781	Pin	1
17	03782	Lead Seal	1
18	03783	Valve Regulating Screw	1
	*** 09882**	**Repair Kit**	

Performance Under Pressure
900 N. Westwood Ave. Toledo, Ohio 43607
PHONE: 419-531-4600 FAX 419-531-6836
www.giantpumps.com

Selection
This product is to be utilized with clean fresh water or slightly additivated with normal detergents. For use involving different or corrosive liquids, contact Giant. Choose the valve in line with the data of nominal running (system rated pressure, max flow and max temperature). In any case, the pressure of the machine should not exceed the permissible pressure rate imprimed on the valve. When in use as pressure regulator, adopt a nozzle that allows a bypass of at least 5% of the total flow, bearing in mind that a worn out nozzle causes pressure loss. The valve, assembled in line with these indications, avoids pressure spikes while the machine is in operation.

INSTALLATION
This accessory, on a system that produces hot water, must be fitted **upstream of the heat source.**
As a RELIEF VALVE: in the case when frequently combined with unloader valves and low pressure in the pump, it has to be fitted in the section that remains pressurized when the gun is shut off.
As a PRESSURE REGULATOR: steadily maintains the pressure in the system during flow changes. **Always** install in combination with a suitable relief valve. In case of discharge in the tank or directly into the pump, it is necessary to provide devices capable to prevent damaging turbolence to the liquid flow.

OPERATIONS
The valve inlet is on the side, the discharge is opposite the adjustment knob (pos 16).The discharge should be returned to a baffled tank. If, on the contrary, the pump is fed directly from the water mains, it is advisable to install a pressure reducing valve, before the pump, to avoid dangerous pressure spikes which could badly damage manifolds and suction valves. In case of extended conditions of bypass directed to the suction side of the pump, it is recommended to install a thermal valve to avoid dangerous water temperature build-up.

PRESSURE ADJUSTMENT/SETTING
As a RELIEF VALVE: the adjustment has to be made in such a way that the pressure setting is not superior to the system working pressure and its accessories; this prevents the arrival of numerous pressure increases in hot water systems and static pressure (gun shut off).
As a PRESSURE REGULATOR: adjust the valve when the system is pressurized and the gun open. The operation will be easy and smooth if the proper nozzle is chosen. When rotating the adjustment knob, it has to correspond to a corresponding pressure increase; should the pressure stop increasing before reaching the desired value, **do not continue to turn the knob;** instead, check the correct nozzle size in relation to flow and pressure. On reaching the desired pressure, tighten the nut (pos 15) against the knob (pos 12) touching them with a drop of paint in order to emphasize any tampering or slackness.

HOW TO SEAL ADJUSTMENT SETTING
The relief valve is adjusted by client to pressure level requested by end user.
It is then possible to seal adjustment by passing a wire through the hole in the valve knob (#17) and through the hole in screw (#18) positioned on ring nut (#15). Seal then wire with lead.
PLEASE NOTE: wire and lead are not included

MAINTENANCE
In normal working conditions the relief valve should not open (no water discharge); if the valve is fitted on the pump head, it is in any case submitted to pressure cycles which have to be calculated for maintenance.
STANDARD: every 400 working hours (approximately 10000 working cycles of the system), check and lubricate the seals with water resistant grease.
SPECIAL: every 800 working hours (approximately 20000 working cycles of the system), control the wear of the seals and internal parts and, if necessary, replace with original parts taking care, during installation, to lubricate with water resistant grease.
Furthermore verify the absence of scale or dirt on the seat and the shutter.
ATTENTION: reassemble the valve in the correct manner paying special attention how to set the valve as described in the paragraph PRESSURE ADJUSTMENT/SETTING.
Maintenance has to be carried out by qualified technicians.
The manufacturer is not to be considered responsible for damage as a result from incorrect fitting and maintenance
Technical data, descriptions and illustrations are indicative and liable to modification without notice.
REGULATIONS : see norm manual

PROBLEMS AND SOLUTIONS

PROBLEMS	PROBABLE CAUSES	SOLUTIONS
Valve cycles	- Air inside the system - Worn out seals - Clogged circuit	- Flush out - Replace - Clean or widen passages
The valve does not reach pressure	- Unproper nozzle size - Seat/shutter/ball worn out - Damaged nozzle - Impurities	- Modify - Replace - Replace - Clean
Pressure drop	- Worn out nozzle - Pump gaskets worn out - Valve seat worn out - Air inside the system	- Replace - Replace - Replace - Flush out
Pressure spikes	- There is not a min.5% of total flow in by-pass - Clogged nozzle	- Re-adjust - Clean - Repeat adjustment and replace nozzle
Water leakage from bypass Valve pounding	- O-ring seat damaged - Damaged seat - Impurities or worn out valve pumps	- Replace - Replace - Clean - Replace

WARNING: This product might contain a chemical known to the State of California to cause cancer, and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov