

Olmsted Overload Valves SV-43 and SV-53

Description of Operation

The Olmsted Model SV-43 and SV-53 overload valves have a four stage poppet design to limit and protect the tonnage setting of a mechanical press. This type of construction, regardless of the number of support cylinders, provides for an almost 'instantaneous' response at a very high rate of flow for the entire overload system. Improved system response is achieved by eliminating control devices such as pressure switches and solenoid valves. Also, the timing problem inherent with multiple valve and cylinder arrangements is eliminated.

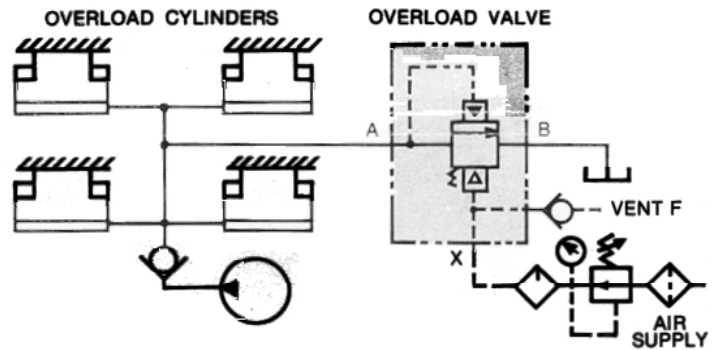
The tonnage setting of the overload system is determined by the air pressure applied to the first stage of the Olmsted overload valve. With the support cylinders pressurized to a predetermined level, the air supply is regulated to maintain the valve in a closed position until an excess tonnage condition occurs. This relationship of air pressure to the precharged system pressure is sensed within the first stage and operated on a ratio of 81.5/1 to set the maximum tonnage of the system.

In the event of an overload condition, the pressure rise within the support cylinder system exceeds the setting of the air signal and vents the first stage poppet. Sequentially, the second, third, and fourth stage poppets are vented, allowing the support cylinder system to collapse. Normally, the second, third and fourth stages are spring offset and internally piloted to a closed position.

The adjustment of the overload system for proper operation at the desired tonnage is accomplished by an air regulator. To prohibit an excessive tonnage setting, a check valve can be incorporated in the air pilot of the Olmsted overload valve. This provision will limit the maximum air pressure applied to the valve.

For proper operation of the Olmsted overload valve, the air and hydraulic control circuits must be designed to operate with the other control devices of the press. To accomplish this interlock function, limit switches are required to sense motion at each support cylinder. When an overload occurs, the Olmsted valve must be isolated from both the air and hydraulic systems until the press can be reset and resume normal operation.

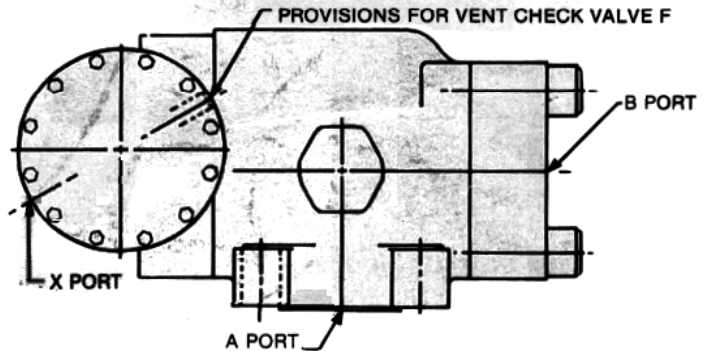
Typical Circuit:



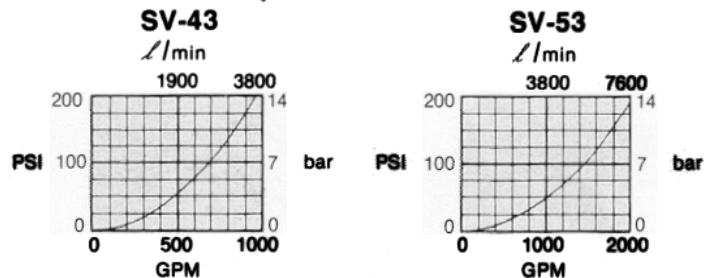
Application Data:

Assembly Weight:	SV-43	125 lbs.
	SV-53	280 lbs.
Seal Material	VITON	
Maximum Pressure Port A:	5000 PSI	
Port B:	Vent to Atmosphere/Reservoir	
Maximum Air Pressure Port X:	60 PSI	
Typical Opening Time*	.005 - .010 Sec.	
Valve	SV-43	SV-53
A Port Size	2" ID	3" ID
B Port Size	3"	4"
X Port Size	1/2 NPTF	1/2 NPTF

*Dependent on system variables.



Valve Selection Graph:



PRESSURE DROP A TO B MAIN STAGE FULL OPEN (150 SUS - .86 S.G.)

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