

9500 SERIES PILOTS

PILOT OPERATED SAFETY RELIEF VALVES

Mercer Valve 9500 Series Safety Relief Valves are the "State of the Art" in soft seat, high flow rate, pressure relief devices. This unique design concept provides the user with the following advantages:

- HIGH FLOW RATES
- PREMIUM QUALITY
- LOW COST
- EXTENDED SEAT LIFE
- REPEATABLE SET PRESSURE
- OPEN, CLOSE, SEAT AND SEAL™

All 9500 Series Valves are built in accordance with the requirements of the ASME Boiler and Pressure Vessel Code Section VIII, Division 1. Capacity ratings were established by testing performed at the National Board of Boiler and Pressure Vessel Inspectors in Columbus, Ohio.

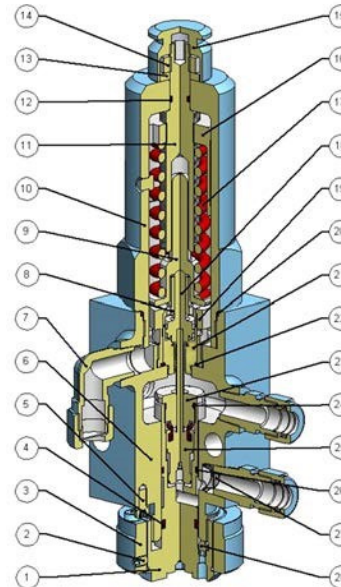
SPECIFICATIONS

Orifice Size:	Snap Pilot	Modulating Pilot
Max. Pressure, psig (kPag):	4500 (31026)	1480 (10204)
ASME Gas Flow Coefficient:	0.870	0.870
ASME Liquid Flow Coefficient:	---	0.731
Gas Set Pressure Definition	POP	1 st Audible Sound from Main Valve
Liquid Set Pressure Definition	---	1 st Steady Stream from Main Valve

PARTS AND MATERIALS

SNAP PILOT

NO.	PART NAME	STANDARD MATERIALS
1	CAGE SUBASSEMBLY	STAINLESS STEEL
2	SET SCREW	STAINLESS STEEL
3	BLOWDOWN ADJUSTMENT SLEEVE	CARBON STEEL
4	O-RING	FLUOROCARBON
5	BLOWDOWN STOP	CARBON STEEL
6	SNAP PILOT BODY	STAINLESS STEEL
7	PILOT VENT	BRASS WITH STNLS STL FILTER
8	DISK GUIDE	STAINLESS STEEL
9	SPRING GUIDE	STAINLESS STEEL
10	BONNET SUBASSEMBLY	CARBON STEEL
11	ADJUSTMENT SCREW	STAINLESS STEEL
12	O-RING	FLUOROCARBON
13	WASHER	CARBON STEEL
14	LOCKNUT	CARBON STEEL
15	CLOSED CAP	ALUMINUM ALLOY
16	ADJUSTMENT BUSHING	STAINLESS STEEL
17	SET SPRING	STAINLESS STEEL
18	UPPER DISK	STAINLESS STEEL
19	RETENTION NUT	STAINLESS STEEL
20	O-RING	FLUOROCARBON
21	UPPER NOZZLE SUBASSEMBLY	STAINLESS STEEL WITH SOFT SEAT
22	O-RING	FLUOROCARBON
23	STATIONARY SEAT	STAINLESS STEEL
24	O-RING	FLUOROCARBON
25	SHUTTLE SUBASSEMBLY	STAINLESS STEEL WITH SOFT SEAT
26	O-RING	FLUOROCARBON
27	PILOT BODY FILTER	STAINLESS STEEL
28	SET SCREW	STAINLESS STEEL



Snap Pilot Blowdown Adjustment:

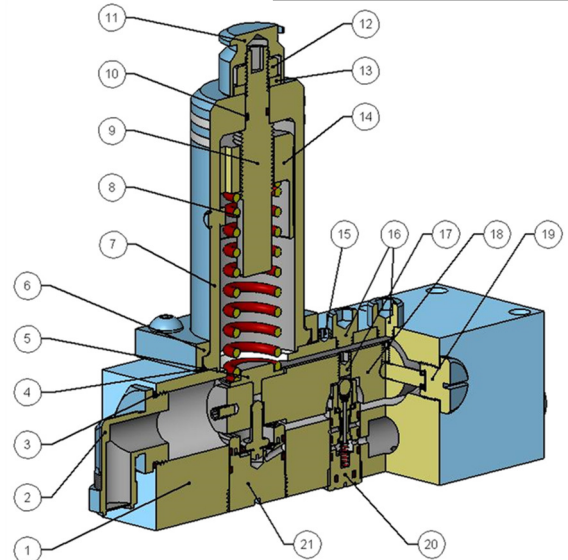
All 9500 Series Snap Pilots have an adjustable blowdown. Mercer Valve will set the blowdown to the customer's request before shipping. Certain safety precautions must be followed if the blowdown is to be adjusted in the field.

The Blowdown can be adjusted shorter by turning the adjustment sleeve to the right (turning assembly into the pilot body). **The snap pilot is shipped with the Minimum Blowdown set no lower than 5% of the set pressure.** Blowdown can only be adjusted between the two blowdown stops. **THE BLOWDOWN STOPS MUST NEVER BE REMOVED.**

To adjust blowdown, first loosen the set screw in the bottom of the pilot (**DO NOT REMOVE**). The blowdown can then be adjusted between the two stops. **CAUTION: A VERY SLIGHT TURN OF THE SLEEVE COULD MAKE A LARGE DIFFERENCE IN BLOWDOWN PERCENTAGE.** Always make sure the bottom set screw is tightened when adjustment is complete.

MODULATING PILOT

NO.	PART NAME	STANDARD MATERIALS
1	PILOT BODY	CARBON STEEL
2	PILOT VENT	BRASS WITH STNLS STL FILTER
3	O-RING	FLUOROCARBON
4	O-RING	FLUOROCARBON
5	SPRING GUIDE	STAINLESS STEEL
6	BONNET RETAINING RING	CARBON STEEL
7	BONNET SUBASSEMBLY	CARBON STEEL
8	SET SPRING	STAINLESS STEEL
9	ADJUSTMENT SCREW	STAINLESS STEEL
10	O-RING	FLUOROCARBON
11	CLOSED CAP	ALUMINUM ALLOY
12	LOCKNUT	CARBON STEEL
13	WASHER	CARBON STEEL
14	ADJUSTMENT BUSHING	STAINLESS STEEL
15	BEAM LIMITING SET SCREW	STAINLESS STEEL
16	CAP HEAD SEAL SCREWS	CARBON STEEL
17	CONTROL MODULE SET SCREW	STAINLESS STEEL
18	BEAM	ALUMINUM ALLOY
19	BEARING SCREWS	STAINLESS STEEL
20	CONTROL MODULE	STAINLESS STEEL WITH SOFT SEALS
21	INPUT MODULE	STAINLESS STEEL WITH SOFT SEALS



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MERCER VALVE CO. INC.

9500 SERIES SAFETY RELIEF VALVE INSTALLATION AND OPERATION INSTRUCTIONS

INSTALLATION - A safety relief valve should always be installed in a vertical position with its outlet pointing in a horizontal direction on a tank or piping system. Use appropriate sealing element (gasket type, size or etc.) on the inlet/outlet of the valve.

One of the most common causes of early failure of a relief valves is seat leakage caused by dirt/debris trapped on the valve seat. Welding slag and piping PTFE tape are among the more common items that cause difficulty. It is recommended that all piping and tank systems be cleaned prior to installation of the relief valve.

A relief valve mounted on a tank should be connected with the minimum length of piping between the tank and the valve. Further, all piping used must be equal or larger than the inlet pipe diameter size of the relief valve, **never smaller**. Any restriction of the inlet to a relief valve may cause unusual valve chatter or relief capacities below the design rating of the valve, which could result in **serious damage**. Similarly, outlet piping from the relief valve should be less than four (4) feet (1.2 m) in length and never of a pipe size diameter smaller than the outlet size of the relief valve. Long runs of small diameter pipe on the outlet of a relief valve will create a serious hazard to life and property. Larger piping is recommended to reduce the built-up back pressure.

Extreme caution is required in the outlet piping if installed outdoors where liquids, if present, could form an ice block in the outlet piping or in the valve's body. In below freezing weather, this will block/restrict flow. Discharge lines must be "weather capped" and provided with a drain hole to prevent any liquid collection in the relief valve body or outlet piping to prevent this.

Safety pressure relief valves must be braced and supported for reaction forces, vibrations, and other external forces applied to the valve in operation. Additionally, important installation factors are contained in paragraph UG-135 and Appendix M of Section VIII of the ASME Boiler and Pressure Vessel Code. If any of these precautions are not taken, serious damage and injury will result.

OPERATION - The valve's set pressure must not exceed the maximum working pressure of the vessel/system. Best performance is usually obtained by installing a valve on a system where the operating pressure is at least **7% less** than the valve's set pressure. A **greater margin is desirable**.

It is also important to check that back pressure and temperature limitations of the process are consistent with valve's ratings. Built-up back pressure should not exceed the allowable overpressure for spring operated valves. Note that each seat and o-ring material has temperature/pressure limitations. Using these materials outside their limitations will cause the valve to fail. Contact Mercer Valve to find different material limitations.

Additionally, corrosion effects from the system's media need to be accounted for in the material selections/ compatibilities of the valve's components. Proper material selection and designation is the responsibility of the user/ purchaser of the valve. Extra care in material selection must be taken in applications that affect the materials of the valve like Hydrogen service. Standard materials are not acceptable in these types of applications. Contact Mercer Valve Engineering for potential alternative materials.

Carefully check the maximum process fluid input capacities to insure that the valve's relieving capacity is **greater than** the process's capability. It is important that the intended service (gas/ liquid) of the valve is installed on a system with same service.

MAINTENANCE & INSPECTION - Mercer Valve Co. recommends all of its pressure relief valves to be **tested annually** for set point and function. During these intervals, a visual inspection, set pressure test, and leak check should be done on the valve. All Mercer Safety Relief Valves are leak checked to at least 90% of set pressure. All inspections and repairs should be done by an authorized and trained professional who has a VR certification.

DO NOT BREAK THE SEAL WIRE. To do so invalidates the manufacturer's warranty to repair or replace the valve. Should resetting be required in a field emergency situation, it should be performed by qualified personnel with calibrated instrumentation. Note that Section VIII of the ASME Boiler and Pressure Vessel Code specifies that valves should only be reset within the installed spring's set pressure range, which is specified by the manufacturer. Consult factory for additional resetting information.

WARRANTY - Mercer Valve warrants the goods delivered hereunder to be free from defects in material and workmanship, under normal use and service, for a period of one (1) year after date of shipment. Mercer's obligation under this warranty is limited to repair or replacement, at Mercer's sole option, of any defective item. Mercer's liability under this warranty is conditioned upon Purchaser giving Mercer immediate written notice of any such defect. Mercer shall have the option of requiring the return of the defective item, transportation prepaid, to establish the claim. Any repair or replacement of defective goods or parts will occur at Mercer's plant in Oklahoma City, Oklahoma. Purchaser shall bear all freight costs incurred in transporting defective goods or parts to and from Mercer's plant. Mercer shall not be held liable for damages caused by delays in repair or replacement of any defective items. The provisions in the Mercer literature and specifications are descriptive only, unless expressly stated as warranties. EXCEPT FOR THE FOREGOING, MERCER EXPRESSLY DISCLAIMS ALL WARRANTIES, EXPRESS AND IMPLIED INCLUDING, WITHOUT LIMITATION, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. Mercer's liability to the Purchaser, arising out of the supplying of said goods or their use, whether based upon warranty, contract, or negligence, shall not in any case exceed the cost of correcting defects in, or replacing, the equipment as herein provided. Upon the expiration of said one (1) year, all such liability shall terminate. Mercer shall not in any event be held liable for any special, indirect, or consequential damages. SUITABILITY OF THE MATERIAL AND PRODUCT FOR THE USE CONTEMPLATED BY THE BUYER IS THE SOLE RESPONSIBILITY OF THE BUYER.

Consult the Installation, Operation, and Maintenance Manual for additional information.

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