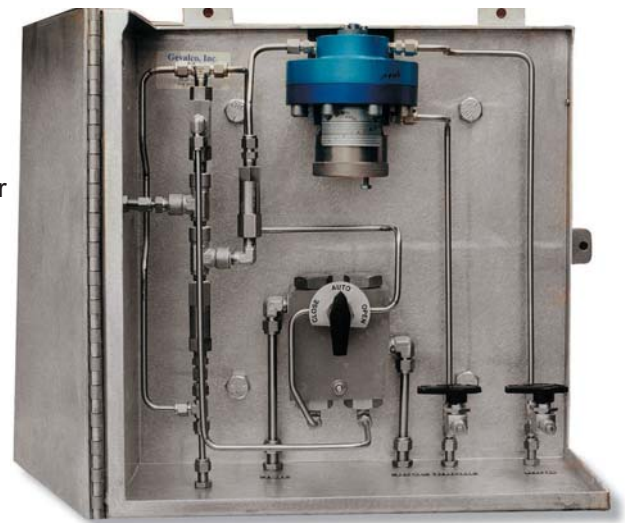




Automatic Station Bypass Control

The Gevalco "Automatic Station Bypass Control" module is designed to keep gas flowing in the event there are major compressor problems. This control solution was developed with reliability as the primary objective to ensure the bypass valve opens when, and only when it is necessary. To achieve this objective, the proven Gevalco "Poppet Valve" is combined with a reliable, differential pilot valve to form a stand-alone control module. The differential pilot valve monitors the suction and discharge pressures of the compressor station. When the differential drops below the adjustable setpoint, pilot gas is passed to the pilot of the "poppet" valve and control action is initiated. Utilizing the pipeline gas itself, for both the pilot gas and power media, makes the "Automatic Station Bypass Control" system independent of regulator and other power media failure.



The simplicity of design, utilizing minimal components, ensures ultimate reliability of the control system. The Gevalco "Rate-of-Drop" (R.O.D.) calibration kit provides for accurate calibration of the trip point, as well as, simulation of various operational failure scenarios for testing control action.

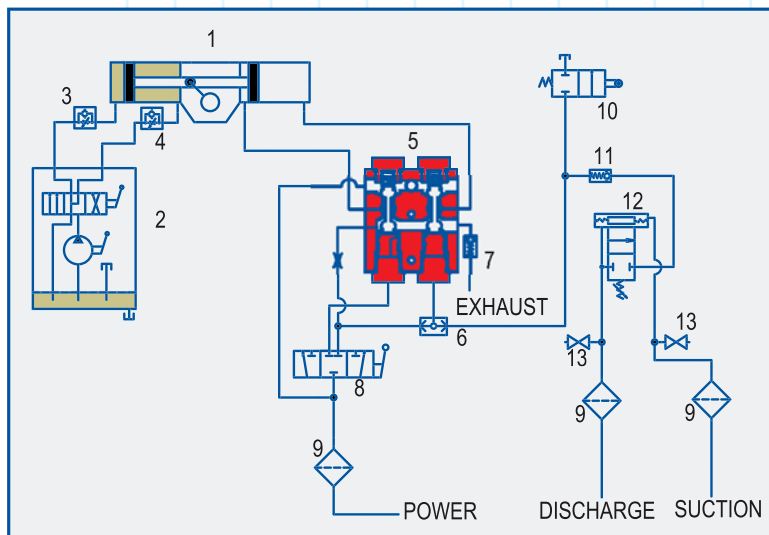
The Gevalco Advantage

- Hi-pressure construction - no regulator, relief valve, or mechanical switching valve.
- Differential pilot valve utilizes a stainless steel diaphragm for accuracy and repeatability.
- Marine-grade, hard-anodized aluminum body for both poppet and differential pilot valves.
- Easily adjustable differential trip setpoint (1.0 psi to 14.5 psi).
- No mechanical linkages, which are subject to environmental failure.
- Limit valve ensures complete opening of bypass valve.

Sequence of Operation



This control solution was developed with reliability as the primary objective to ensure the bypass valve opens when, and only when it is necessary.



- 1 The Station Bypass Control module is interfaced to the normal local "Auto/Manual" control circuit (Reference: Auto/Manual Sequence description) by connection to the "open" pilot port of the poppet control valve (5) thru a shuttle valve (6). The shuttle valve acts as a signal selector between the Station Bypass signal and the local manual "open" signal.
- 2 With the manual selector valve (8) in the "auto" position, the system is ready to react to a shut-down signal. Pipeline pressure from the suction and discharge of the compressor station are routed thru filters (9) to either side of the differential switching valve (12). Under normal conditions, there is a positive differential across the diaphragm, (i.e., the discharge pressure is higher than the suction pressure). Under these normal conditions, the valve (12) remains closed. When trouble within the station causes the discharge pressure to decrease, the differential across the diaphragm decreases. When the differential gets below the adjustable setpoint, the valve (12) opens. Pilot gas then flows thru a check valve (11) to the "open" pilot port of the poppet valve (5). The check valve (11) locks in the shutdown sign to ensure full opening of the bypass valve. The poppet valve then opens, allowing power gas to flow to the cylinder to open the bypass valve. The differential switching valve setpoint is adjustable from 1.5 psi to 14.5 psi.
- 3 When the valve reaches the fully open position, the limit valve (10) opens to vent the shutdown pilot signal, which resets the poppet valve and vents the actuator cylinder. The valve will remain open until normal conditions are restored. The valve can then be closed manually with either the local manual selector valve (8) or the hydraulic hand pump (2).

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