



Basic Installation Of Gas Regulators

Here are some guidelines for the proper installation of gas regulators. These brief guidelines are in no way meant to be a substitution for the Manufacturer's Installation and Maintenance Instructions may have specific details that pertain to each model. With the installation of ALL regulators it is advisable to install a pressure gauge locally at the inlet and outlet of the regulator along with gauge petcocks to manually isolate each gauge. These gauges are necessary to monitor the performance and field set the regulator.

First, we must differentiate between two styles of regulators as it impacts their orientation:

Direct Acting Type

You can tell if you have a Direct Acting regulator if the axis of the spring chamber intersects with the valve body of the regulator. This type of regulator **MUST** be installed in horizontal run with diaphragm horizontal above the pipe run. On extremely low pressure applications, the diaphragm can sometimes be installed below the pipe to eliminate forces due to the weight of the diaphragm, consult BD USA directly in these cases. Make sure the installation is accessible, and the vent line is properly installed.



Lever Operated Type

You can tell a Lever Operated regulator by noting that the spring chamber axis never intersects the valve's body. The axis of the spring chamber and the diaphragm assembly are connected to the valve stem via a "lever". This regulator can be installed in any position, vertical or horizontal, provided the venting is done properly and the regulator is accessible.



Pipe Runs, Inlets & Outlets

In order to provide the regulator with the ability to function properly, install it in a region of developed flow where the flow profile will not be disrupted. On the inlet and outlet, whenever possible provide for 5 to 10 pipe diameters of straight pipe without throttling devices or other components and fittings that will disrupt flow. These disruptions make the regulators job more difficult and sometimes unable to function properly.

External Sensing Lines

A vast majority of "common" regulators, especially the smaller ones, are internally sensed, meaning the under side of the diaphragm is sensing pressure internal to the regulator's body just downstream of the valve & seat arrangement. This would be the pressure at the outlet of the valve after it has been adjusted by the regulator. On the other hand, if you are dealing with a regulator with an external sensing line, locate the remote sensing downstream of the regulator 8 to 10 pipe diameters of straight pipe run in the **largest** diameter piping present. The start of 8 to 10 pipe runs is after the transition to the largest diameter pipe or any other throttling devices, component and/or fittings that will disrupt flow and create turbulence. The sensing line should be taken off the top of the main line so to keep it free of debris and condensate. If possible, it should horizontally slope back to the main so that any condensate that may form will drain back into the main rather than accumulate in the regulator's diaphragm. If a manual valve is installed in the sensing line, it is recommended to lock this valve in the open position so that someone does not mistakenly isolate the sensing tap from the regulator. Minimize the fittings used in running the sensing line. The regulator will response to the pressure changes sensed at the remote tap rather than on the outlet of the valve and seat. It is advisable to install a petcock and pressure gauge at the sensing line tap on the main as this will be the control point of the regulator.

Vent Lines

Venting requirements and codes vary from County to County, State to State. Always follow local code requirements in venting regulators. Vents not only provide a leak path for gas when a diaphragm ruptures but also allows the diaphragm to "breathe" and function properly. If a vent is restricted a regulator's performance will be adversely effected and tend to "hunt" or not properly control the pressure. Do not use excessive long runs or amounts of fittings in plumbing vent lines. If piping becomes excessive due to physical limitations of the jobsite, bush to the next size up of pipe to increase the stack effect and reduce frictional losses. Never reduce the vent piping size from that of the connection on the regulator. Always turn outlet of the vent line downward so as to limit the effects of outdoor weather and debris. Install a bug screen on the vent outlet to prevent insects from nesting in the line. Insure that bug screens are not painted over. In venting to a roof in an area that commonly gets winter snow fall, make sure the vent discharge is sufficiently above the roof line to account for a snow layer on the roof. Always insure venting is done in a safe area, away from any fresh air intakes, windows, and people. When venting propane, take extra care to insure no pockets of gas can collect in low-lying areas, REMEMBER, propane falls to the ground, and natural gas floats away!

Please feel free to contact your Local Bryan Donkin Distributor or call 866-4 MY REGS for additional support.