

Venturi (Pipewarmer and Garage)

Overview



Overview: Venturi systems work by generating negative pressure to entrain air to mix with the gas in the atmospheric injector. The gas coming out of a small orifice pulls air with it (Primary air), and mixes in the venturi and the piping to the burner. Air is pulled in again (Secondary when the flame comes out of the burner heard).

Therefore, there is no need for a combustion air blower. This is a very basic system that is most often controlled manually and used on simple equipment such as pipe warmers and garages. The gas pressure regulator maintains stable pressure over the operating range.

Most WDG venturi systems use a smart valve and ignitor combination. A hot face ignitor will warm up and begin to glow. The smart valve allows a small amount of gas to the pilot burner, which is ignited by the hot surface. A small thermocouple is heated by the pilot flame. As long as this TC is above a certain temperature the system stays on. If the pilot goes out and the TC cools down, the system will shut down and attempt to restart. Once the pilot is lit, the main gas is allowed into the venturi, and then to the burner. The pilot lights the main burner.

Tuning



Step 1 -Make sure the pipe warmer/garage isn't closed off so much that it creates back pressure.

Step 2 -Make sure the burner head is about ¼" outside the wall of the pipe warmer. There should be ¼" around the burner head. This allows secondary air to be drawn in around the head to supplement the primary air drawn in by the injector.

Step 3 -Open the air shutter completely. The air shutter is a metal disc at the very

end of the mixer, near where the gas is adjusted.

Step 4- Make sure the gas valve is shut so no gas is flowing to the burner.

Step 5 -Remove the large green acorn nut that covers the gas adjustment screw, then loosen the brass locknut on the gas needle valve.

Step 6 -Turn the needle valve clockwise until it is closed off completely.

Step 7 -Press the green "Push to Start" button to start the system. (Air needs bled from the system and the first lighting can take up to 10 tries for the air to clear) The button will illuminate, and the pilot will light.

Step 8—Shortly after the pilot lights you will hear the click of the main valves opening. Once this happens, slowly open the needle valve until the burner lights and you achieve the desired flame characteristics.

Step 9 -If the Equipment doesn't get hot enough, add more gas to the mixture. If it gets too hot, reduce the gas in the mixture□

Step 10- Close the air shutter down until you see the flame begin to go yellow, produce smoke, or the flame get fluttery. Open the air until these effects just go away.

Step 11 — Adjust the pressure regulator as necessary to increase or decrease the temperature range.