

45.900.450-010/-020/-030

VENTURI MEDIUM SIZED (VMS)

INSTRUCTION SHEET



APPLICATION

The venturi manifold combined with the VR46..V(B)/VR86..V(B) or VR4..V/VR8..V gas controls and a specific DC-fan has been specially developed for modulating fully premix appliances.

DESCRIPTION

The venturi manifold is a gas/air mixing unit that allows modulation of a premix burner with constant gas/air ratio down to 20% of maximum load. It is to be used in combination with a fan and a Honeywell 1:1 regulating gas valve. (application capacity range : 85...165kW)

The modulation is accomplished by changing the fan speed.

The outlet pressure of the gas valve is regulated to ambient pressure by the gas valve. The venturi generates a negative pressure against ambient by which the gas is drawn through the gas valve outlet.

The venturi manifold system is designed to be fitted in up to 6 - 9 positions on a standard DC fan, using the supplied screws.

The gas valve can be fitted directly on the manifold assembly in horizontal and vertical position with the outlet.

Note: version other than -010, -020 and -030 are customer special versions. The instructions are valid for the same series. So version -01x requires the same instructions as -010, -02x as -020 and -03x as -030

Note: for more information see the Honeywell Product Handbook EN2R9069

SPECIFICATIONS

Table 1. Venturi Model:

code	use with gas valve	use with fan
010	VR46..V(B)/VR86..V(B)	G1G144 or RG148 or equivalent
020	VR46..V(B)/VR86..V(B) or VR4..V/VR8..V	G1G144 or RG148 or equivalent
030	VR46..V(B)/VR86..V(B) or VR4..V/VR8..V	G1G170 or RG175 or equivalent

Ambient temperature

0 ... 70°C

Table 2. Connection (supplied parts)

venturi model	for mounting on gas valve	for mounting on fan
010	O-Ring 4 x M5 screws	3 x M6 screws included. O-Ring delivered with fan!
020	for VR46..V(B)/VR86..V(B): O-Ring + 4x M5 screws	3 x M6 screws included.
	for VR4..V/VR8..V : Special gasket + 4 x M5 screws	O-Ring delivered with fan!
030	for VR46..V(B)/VR86..V(B): O-Ring + 4x M5 screws	6 x M8 screws included.
	for VR4..V/VR8..V : Special gasket + 4 x M5 screws	O-Ring delivered with fan!

Minimum load

The minimum load for which the unit can be used is 20% of the reference load, which equals a minimum pressure differential of 50 Pa of the 1:1 gas control.

Material

Housing: ZnAl4Cu1 (Z410, Zamac Z5)
Venturi: statically dissipative POM
Seals: rubber (NBR)
Insert*: polypropylene (PP)
*) optional, see accessories for details

Pressure drop

200 Pa (ΔP) maximum at 85kW (gross) load.
800 Pa (ΔP) maximum at 165kW (gross) load.
(Overall pressure drop of the venturi)

Venturi pressure

1250 Pa minimum at reference load. (The venturi pressure is the determination of the effective gas pressure)

Tracking inaccuracy

The tracking inaccuracy is the deviation from a constant gas/air ratio over the modulation band 20 ... 100%

Typical: 10% without internal injection orifice.
5% with internal injection orifice.

INSTALLATION

IMPORTANT

Take care that installer is a trained and experienced service person.

Turn off gas supply before starting installation.

Mounting

- Turn the gas valve throttle open 50% (if applicable)
- Place gas valve on manifold, using the right connection set. (see Table 2)
- Place O-ring on fan plate
- Mount the manifold with gas valve on the fan plate, using the screws included.
- **Check if all parts are fixed well**
- Mount the fan according to the fan manufacturer's instructions.
- Apply gas and electrical connections to the gas valve according to the relevant gas valve Instruction sheet.

ADJUSTMENTS AND CHECKOUT

Adjustment

- Check gas input to the appliance using a pressure gauge (resolution of 1 Pa (0.01 mbar) or better) connected to the outlet pressure tap.
- Put CO₂ meter probe (inaccuracy < 0.1%) into exhaust gas outlet.
 - ➊ Start appliance and run appliance at maximum load.
 - ➋ Observe CO₂ meter.

➌ In case of throttle application :

Turn the throttle until the CO₂ percentage reached the nominal value.

If appliance does not start, turn the throttle a few turns either way, and repeat start procedure.

In case of fixed orifice application :

If the CO₂ percentage is too low, apply an injector with larger diameter.

If the CO₂ percentage is too high, apply an injector with smaller diameter

If appliance does not start, apply an injector with significant larger diameter and repeat starting procedure.

- ➍ Keep appliance running until completely stabilized, then check the CO₂ percentage.
- ➎ Set appliance to minimum load.
- ➏ Check offset pressure according to the manufacturer's instructions and adjust (if necessary) the CO₂ percentage using the offset screw on the gas valve.
- ➐ Check again the CO₂ percentages at maximum and minimum load, and adjust if necessary.

After adjustments are made, stop appliance, disconnect pressure gauge and CO₂ meter and tighten outlet pressure tap.

Final checkout of the installation

After any adjustment, set appliance in operation. Observe several complete cycles to ensure that all burner components function correctly.

ACCESSORIES

Orifices for venturi on request.

To be ordered separately

Insert for LPG appliances on request

Insert can not be ordered separately

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