BASO Gas Products LLC

Product Bulletin
Issue Date March 5, 2013

H91 Series BASOTROL® Automatic Gas Valve

The H91 Series BASOTROL Automatic Gas Valves are two-wire, electrically-operated shutoff valves that automatically open and close on a demand signal from a thermostat or other controlling device. These valves can be used for gas-fired appliances with a maximum operating pressure of 0.5 psi (35 mbar [3.5 kPa]).

Valves are available with body connections from 1/8 inch to 1 inch with different operating voltages, as well as numerous magnetic operator cover styles (including an Underwriters Laboratories®, Inc. [UL] Listed steel cover with conduit hub).



Figure 1: H91 Series Automatic Gas Valve

Features and Benefits	
☐ **Valve Sizes from 1/8 inch to 1 inch**	Provide capacities up to 500,000 Btu/hr (148 kW)
☐ **Proven Long-life Magnetic Operator**	Provides demonstrated reliability from many years of use in various demanding applications
☐ **Multiple Operating Voltages**	Provide the flexibility to suit market requirements
☐ **Numerous Magnetic Operator Cover Styles**	Allow for cover construction to suit application and agency requirements

© 2013 BASO Gas Products

Product Overview

Application

The H91 valves can be used with natural gas, Liquefied Petroleum (LP) gas, manufactured gas, mixed gas, or LP gas-air mixtures at pressures up to 0.5 psi (35 mbar [3.5 kPa]). They are suitable for operation over a temperature range of -40 to 175°F (-40 to 79°C) and can be used on all gas-fired appliances. The H91 valves can also be used as replacements for solenoid type valves on gas appliances.

Valve Operation

The H91 series is a normally closed on/off valve. It consists of a cast aluminum body with a spring-loaded seat disc that is operated by a bipolar magnetic operator.

When the valve is energized by a demand signal from a thermostat or other controlling device, the armature is pulled into the magnetic operator, overcoming the force of the closeoff spring and flow medium pressure. The valve seat disc is directly fixed to the armature so the valve fully opens.

Valve Constructions

The H91 series is available with 1/8- , 1/4- , 3/8- , 1/2- , 3/4- , or 1-inch body connections with a 25, 120, or 240 VAC two-wire magnetic operator. Some models are also available with a 12 VDC or 208/240 VAC operator. Refer to the *Ordering Information* section for more information.

Additionally, the H91 series is available with other optional configurations.

Pressure/Pilot Connection

Pressure and pilot connections are available when required. Contact BASO Gas Products for details and ordering.

Magnetic Operator Cover Styles

An aluminum magnetic operator cover with conduit hub and 30 in. (762 mm), 18 AWG stranded lead wires is supplied as standard on all line voltage models. The leads and hub position may be located at the top, over the inlet, on the right side, or on the left side of the valve. Lead wires with 1/4 in. (6.35 mm) quick-connect terminals are also available.

The UL Listed steel operator cover is available with a top conduit hub only.

A plastic magnetic operator cover with 1/4 in. (6.35 mm) quick-connect male terminals is supplied as standard on all low-voltage models. However, an aluminum or steel operator cover with conduit hub is available.

Contact BASO Gas Products for details and ordering of magnetic operator cover style and wiring requirements.

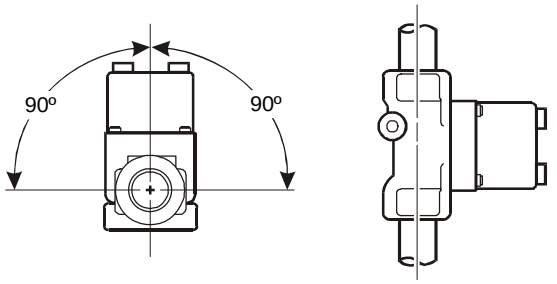
Mounting

The H91_ _ and UL Listed H91A_ _ valves may be mounted as follows:

Table 1: Mounting Positions

Valve Part Number	Mounting Position
H91A_ **H91B_** **H91C_** **H91T_** **H91V_** **H91W_** **H91AA_** **H91AB_** **H91AC_**	May be mounted in any convenient position.
H91D_ **H91E_** **H91J_** **H91R_** **H91S_** **H91AD_** **H91AR_**	May be mounted in any position in a vertical manifold, and in the upright or 90° to upright position in a horizontal manifold.
H91L_ **H91M_** **H91AM_**	May be mounted in a horizontal manifold only. The magnetic operator must be in an upright position.

Note: (See *Ordering Information* section for available UL Listed models).



Horizontal mounting limited to 90º from upright.

Vertical mounting may be 360º around its axis with the gas flow either up or down.

Figure 2: Mounting Positions of H91D_, E_, J_, R_, S_, AD_, and AR_ Valve

Table 2: Electrical Ratings

Valve Part Number	Electrical Rating
H91 (A, B, C, D, E, R, S, or W) G	25 VAC, 60 Hz, 0.3 A, 5 W
H91A (A, B, C, D, or R) G	25 VAC, 60 Hz, 0.3 A, 5 W
H91 (C or D) S	208/240 VAC, 60 Hz, 0.03 A, 5 W
H91 (A, B, C, D, E, R, S, or W) A	120 VAC, 60 Hz, 0.05 A, 5 W
H91A (A, B, C, D, or R) A	120 VAC, 60 Hz, 0.05 A, 5 W
H91 (L or M) G	25 VAC, 60 Hz, 0.4 A, 7.5 W
H91AMG	25 VAC, 60 Hz, 0.4 A, 7.5 W
H91MB	240 VAC, 60 Hz, 0.04 A, 7 W
H91 (L or M) A	120 VAC, 60 Hz, 0.08 A, 7 W
H91AMA	120 VAC, 60 Hz, 0.08 A, 7 W
H91 (D, S, or R) B	240 VAC, 60 Hz, 0.03 A, 5 W
H91 (R or E) S	208/240 VAC, 60 Hz, 0.037 A, 6 W
H91 (J, E, or R) V	12 VDC, 0.5 A
H91TB	240 VAC, 50 Hz, 0.03 A, 7 W
H91VA	120 VAC, 60 Hz, 0.05 A, 5 W
H91WS	208/240 VAC, 60 Hz, 0.03A, 5 W

Dimensions

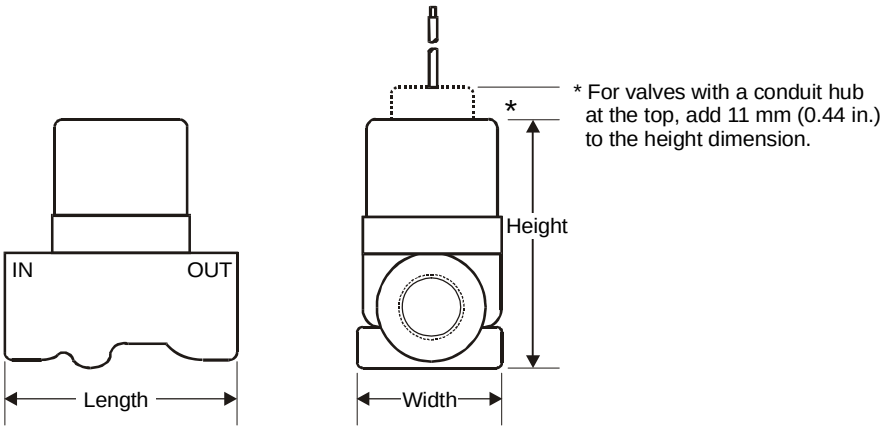
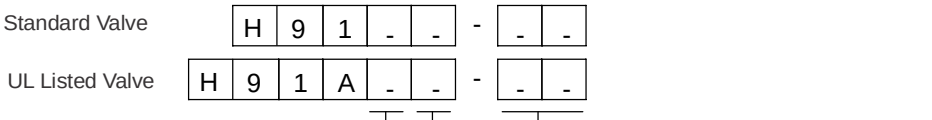


Figure 4: Dimensions

Table 3: Dimensions

Valve Part Number	Height		Width		Length	
	in.	mm	in.	mm	in.	mm
H91A_ and H91AA_	2.88	73	1.75	44	2.53	64
H91B_ and H91AB_	2.88	73	1.75	44	2.53	64
H91C_ and H91AC_	2.88	73	1.75	44	2.53	64
H91D_ and H91AD_	3.00	75	1.84	47	3.00	76
H91E_	3.22	82	1.84	47	3.00	76
H91J_	3.22	82	1.84	47	3.00	76
H91L_	3.72	94	2.63	67	3.50	89
H91M_ and H91AM_	4.06	103	2.63	67	3.50	89
H91R_ and H91AR_	3.22	82	1.84	47	3.00	76
H91S_	3.22	82	1.84	47	3.00	76
H91T_	2.88	73	1.75	44	2.53	64
H91V_	2.88	73	1.75	44	2.53	64
H91W_	2.88	73	1.75	44	2.53	64

Ordering Information



Voltage
*A = 120 VAC, 60 Hz
B = 240 VAC, 60 Hz
*G = 25 VAC, 60 Hz
S = 208/240 VAC, 60 Hz
V = 12 VDC

* Indicates available models for the H91A UL Listed valve with a steel magnetic operator cover.

Letter	Natural Gas Capacity @ 1 in. W.C. (2.5 mbar [0.25 kPa]) Pressure Drop		Inlet/Outlet
	Btu/hr	kW	
*A =	70,000	21	1/8 x 1/8 in. NPT
*B =	100,000	29	1/4 x 1/4 in. Npt
*C =	115,000	34	3/8 x 3/8 in. NPT
*D =	240,000	70	1/2 x 1/2 in. NPT
E =	311,000	91	1/2 x 1/2 in. NPT
J =	240,000	70	1/2 x 1/2 in. NPT
L =	430,000	126	3/4 x 3/4 in. NPT
*M =	505,000	148	1 x 1 in. NPT
*R =	325,000	95	3/4 x 3/4 in NPT
S =	150,000	47	1/2 x1/2 cc
T =	115,000	34	3/8 x 3/8 Rp
V =	55,000	16	3/8 x 3/8 cc
W =	42,000	12	1/4 x 1/4 cc

Note: The presence of a particular construction in this information does not guarantee its availability. Contact BASO Gas Products for available constructions.

For low-voltage valves, transformers must be ordered separately. Use an NEC Class 2 transformer or equivalent.

Figure 5: Ordering Matrix

Technical Specifications

Product	H91 Series BASOTROL Automatic Gas Valves
Rated Inlet Pressure	0.5 psi (35 mbar [3.5 kPa])
Valve Body	Aluminum
Permissible Ambient (Surface) Temperature	CSA -40° to 175°F (-40° to 79°C) UL -40° to 140°F (-40° to 60°C) (except H91E_ and H91L_ -40° to 125°F [-40° to 52°C])
Available Magnetic Operator Cover Styles	Aluminum Side Conduit Hub Aluminum Top Conduit Hub Aluminum Top Outlet without Conduit Hub Aluminum Side Outlet with Eyelet Steel with Top Conduit Hub (UL Listed) Plastic with 1/4 in. (6.35 mm) Male Quick-connect Terminals
Wiring Connections	1/4 in. (6.35 mm) male quick-connect terminals for 30 in. (762 mm) lead wires (other lengths are optional)
Inlet and Outlet Pipe Size	1/8, 1/4, 3/8, 1/2, 3/4, and 1 in. NPT 1/4, 3/8, and 1/2 in cc 3/8 Rp
Packaging	Bulk pack supplied to original equipment manufacturer (individual pack optional)
Bulk Pack Quantity	40 or 80 (depending on the valve size)
Bulk Pack Weight	40 to 52 lb (18 to 24 kg)
Agency Listing	CSA Certificate Number 229521-1656058 except H91TB Australian Gas Association Certificate Number 4235, AGA Class 3 (H91A_, B_, C_, D_, E_, L_, and M_ only) UL Recognized File Number MH5939 (H91A_, B_, C_, D_, E_, J_, L_, R_, and W_ only) (except H91WS and H91RB) UL Listed File Number MH5939 (H91AA_, AB_, AC_, AD_, AM_, and AR_ only)
Specification Standards	ANSI Z21.21, CSA 6.5 AS 4629 UL Standard 429

Performance specifications are nominal and conform to acceptable industry standards. All agency certification of BASO products is performed under dry and controlled indoor environmental conditions. Use of BASO products beyond these conditions is not recommended and may void the warranty. Product must be protected if exposed to water (dripping, spraying, rain, etc.) or other harsh environments. The original equipment manufacturer or end user is responsible for the correct application of BASO products. Consult BASO Gas Products LLC for questionable applications. BASO Gas Products LLC shall not be liable for damages or product malfunctions resulting from misapplication or misuse of its products.

Refer to the *H91 Series BASOTROL Automatic Gas Valve Installation Instructions (BASO-INS-H91)* for necessary information on the installation, use, and servicing of this product.

BASO Gas Products LLC

1007 South 12th Street
PO Box 170
Watertown, WI 53094
1-877-227-6427 (1-877-BASOGAS)

www.baso.com
Printed in U.S.A.