Honeywell

Automatic Safety Shutoff Valves

(V5055 / V5097 INDUSTRIAL GAS VALVES; V4055, V4062, AND V9055 ACTUATORS)

SPECIFICATION DATA

APPLICATIONS

The Honeywell family of automatic safety shutoff valves consists of several combinations of fluid power actuators with V5055 / V5097 Industrial Gas Valves. While it is possible to combine any V5055 / V5097 Valve with any V4055, V4062, or V9055 Actuator, a limited range of combinations apply to the applications most often used (see Fig. 1 and Table 1). These valve/actuator combinations are used for large gas burners that require tight closeoff and accurate control of large amounts of fuel. The valve opens when the actuator is energized, and closes to seal off against the rated close-off pressure when power is removed. The actuator determines the method of firing. A V4055 is used for On-Off firing, a V4062 for Hi-Lo-Off firing, and a V9055 for Modulating firing. The V4062 and V9055 Actuators are normally used with the V5055 / V5097B Valve with characterized guide for accurate control and repeatability of low-fire positions. Valve/actuator combinations are available that provide proof-of-closure switch with valve seal overtravel interlock. Note that *high pressure* valves and actuators are normally used only for On-Off firing.

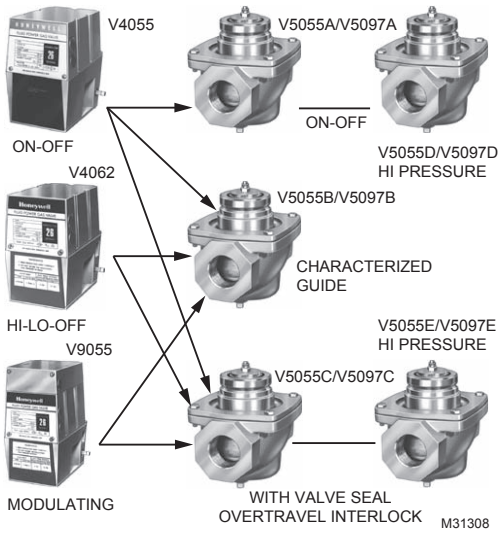

Fig. 1. Safety Shutoff Valve and Actuator combinations (V5055 models shown)

Table 1. Usual Combinations of Fluid Power Actuators and Industrial Gas Valves

Fluid Power Actuators/ Industrial Gas Valves			Standard pressure[a]			High Pressure[a]	
			V5055A, F[b], V5097A	V5055B, V5097B	V5055C, V5097C	V5055D, V5097D	V5055E, V5097E
Type	**Model**	**Pressure Rating[a]**	**On-Off**	**Characterized Guide[c]**	**VSOI[d]**	**On-Off**	**VSOI[d]**
V4055 On-Off	A, G[e]	Standard	•	•		•	
	B	High	•[f]	•[f]		•	
	D[d]F[d e]	Standard			•		•
	E[d]	High			•[f]		•
V4062 Hi-Lo-Off	A	Standard		•	•		
	B	High		•[f]	•[f]		•
	D[d]	Standard			•		
V9055 Modulating	A	Standard		•			
	D[d]	Standard			•		

[a] Refer to Table 2 for actual pressure ratings of the various combinations of valves and actuators.

[b] V5055F models meet EN161 leakage requirements.

[c] Characterized guide provides a more linear relationship between stem travel and gas flow. Check Honeywell form 70-8311 to verify that flow curve characteristics match application requirements.

[d] Valve Seal Overtravel Interlock. Valve has two shutoff seals, actuator has a proof-of-closure switch.

[e] V4055F, G models include switch for manual control.

[f] These combinations have higher pressure ratings; see Table 2.

V5055/V5097 Industrial Gas Valves

• V5055 / V5097 single-seated, normally closed valves are suitable for service requiring tight shutoff.

- Can be used with natural or liquefied petroleum (LP) gases.
- V5055A / V5097A,C,D,E Valves are for On-Off service.
- V5055 / V5097B Valve has a characterized guide to provide slow opening, Hi-Lo-Off, or Modulating service.
- V5055 / V5097C,E Valves have two seals and when used with the V4055D,E Actuators, the combination provides a proof-of-closure switch and valve seal overtravel interlock.
- V5055 / V5097D,E Valves are for high pressure applications.
- V5055 models feature threaded connections for seven pipe sizes from 3/4- to 3-inch NPT (or parallel BSP); V5055A,B,C are also available in a 4-inch size with flange connections.
- Standard with 1/4-inch upstream and downstream tapping with plug.
- V5097 models are available in small-body size covering 3/4" to 2" pipe size and large-body size covering 2" to 3" size.

Fluid Power GasValve Actuators

- Rated for final safety shutoff service when used with V5055 / V5097 Valves.
- V4055 Actuators are for On-Off service, V4062 Actuators are for Hi-Lo-Off service, and V9055 Actuators are for Modulating service.
- V4055D,E, V4062D, and V9055D Actuators have a proof-of-closure switch to provide valve seal overtravel interlock when used on a V5055 / V5097C,E Valve with a double seal.
- V4055B,E Actuators are for high pressure applications.
- Maximum closing time is one second, which meets approval body requirements.
- Red OPEN indicator attached to the actuator stem will show if the valve is even slightly open; yellow SHUT indicator on the valve stem will show only when the gas valve is fully closed .
- Standard enclosure meets NEMA 1 general purpose requirements; optional enclosure meets NEMA 4 weatherproof requirements.
- Optional damper shaft available with or without spring return; shaft extends out both sides and rides in Teflonlike, Delrin bushings.
- Uses standard damper crank arm, which is readily available from wholesalers.
- Optional, field-adjustable, spdt auxiliary switch is available.
- Low-fire adjustment on V4062 and V9055 Actuators is internal to minimize tampering.
- V9055 Actuator has internal, 24 volt transformer for line voltage connections and a field addable kit is available to provide V9055 acceptance of a 4 to 20 mA dc signal.

Table 2. Pressure Ratings of Valve-Actuator Combinations

Model	Pipe Size	STANDARD PRESSURE ACTUATORS V4055A, D, F, G, V4062A, D, V9055A, D				HIGH PRESSURE ACTUATORS V4O55B, E, V4062B			
		M.O.P.D. [a]		Max. Rated Pressure [b]		M.O.P.D. [a]		Max. Rated Pressure [b]	
STANDARD PRESSURE VALVES V5055A, B, C, F, V5097A, B, C	3/4" to 1-1/2" [c]	5 PSI	340 mbar	15 PSI	1.0 Bar	15 PSI	1030 mbar	15 PSI	1.0 Bar
	2" to 3" [d]	5 PSI	340 mbar	15 PSI	1.0 Bar	15 PSI	1030 mbar	15 PSI	1.0 Bar
	4" flanged [e]	3 PSI	207 mbar	15 PSI	1.0 Bar	5 PSI	340 mbar	15 PSI	1.0 Bar
HIGH PRESSURE VALVES V5055D, E, V5097D, E	3/4" to 1-1/2" [c]	5 PSI	340 mbar	75 PSI	5.0 Bar	25 PSI	1720 mbar	75 PSI	5.0 Bar
	2" to 3" [d]	5 PSI	340 mbar	45 PSI	3.0 Bar	15 PSI	1030 mbar	45 PSI	3.0 Bar

[a] Max Operating Pressure Differential (UL) or Max Operating Pressure (CSA); maximum allowable pressure drop from inlet to outlet for proper operation .

[b] Max Rated Pressure (UL) or Max Close-off Pressure (CSA) ; maximum pressure that the valve can be exposed to without leakage or damage to the valve.

[c] Applies for small-body V5097 valves 3/4" up to 2" pipe size.

[d] Applies for large-body V5097 valves 2" up to 3" pipe size.

[e] V5055A, B, C only.

Valve-actuator Approvals

The following combinations of V5055 / V5097 Valves (3/4 through 4 in.) and V4055, V4062, and V9055 Fluid Power Actuators are approved by the agencies listed:

Industrial Risk Insurers Acceptable and Underwriters Laboratories Inc. Listed:
- V4055A,B,D,E/V5055 / V5097A,B,C,D,E
- V4062/V5055 / V5097A,B,C,E
- V9055/V5055 / V5097A,B,C,E

Factory Mutual Approved :
- V4055A/V5055 / V5097A,B
- V4055B/V5055 / V5097D
- V4055D/V5055 / V5097C
- V4055E/V5055 / V5097E
- V4062/V5055 / V5097B,C
- V9055/V5055 / V5097B,C

Canadian Standards Association File 158158-1205788:
- V4055A - V5055A,B / V5097A,B
- V4055B - V5055D / V5097D
- V4055D - V5055C / V5097C
- V4055E - V5055E / V5097E
- V4062 - V5055B,C / V5097B,C
- V9055 -V5055B,C / V5097B,C

British Gas Corporation and Dutch Gas Institute Approved:
- V4055 or V4062 with several V5055 / V5097A and V5055 / V5097B models.
- V4055D or V4062D with V5055 / V5097C models with an internal screen.

Australian Gas Association Approved:
Several V5055 / V5097B models.
DIN-DVGW Approved (Germany):
Several V5055/V5097A and V5055/V5097B models.

V4055, V4062 AND V9055 FLUID POWER GAS VALVE ACTUATORS

Voltage And Frequency: 120v, 60 Hz Standard; separate models available for operation at voltages ranging from 100V to 240V, 50/60 Hz.

Auxiliary Switch And Proof-of-closure Switch Ratings:
1/2 hp[a].

Table 3. Load

LOAD	120V	240V
Full Load	9.8A	4.9A
Locked Rotor	58.8A	29.4A

[a] Maximum total connected power to both switches (if used) is 1800 VA.

Nominal Opening Time:
Standard models: 26 sec at 60 Hz; 32 sec at 50 Hz.
Fast-opening models: 13 sec at 60 Hz; 16 sec at 50 Hz.

Closing Time:
One second maximum
Low-fire Adjustment (with respect to V5055 / V5097B Valve):
V4062: 0.17 to 0.64 in. valve stem travel (approximately 20 to 60 percent maximum gas flow).
V9055: 0.14 to 0.65 in. valve stem travel (approximately 5 to 60 percent depending upon Valve size).
Refer to form 70-8311 for valve flow (capacity) curves.

Damper Shaft (optional):
3/8 in. (9.5 mm); available with or without spring return.

Maximum Damper Shaft Rotation:
52 angular degrees.

Ambient Operating Temperature Rating:
V4055 and V4062 models: -40° F to 150° F (-40° C to 66° C) 60 Hz models; -10° F to 158° F (-23° C to 70° C) for 50 Hz and 50/60 Hz models.
V9055 models: -40° F to 125° F (-40° C to 52° C) for 60 Hz models; -10° F to 125° F (-23° C to 52° C) for 50 Hz and 50/60 Hz models.

Mounting:
Directly to valve bonnet with two setscrews, positioned 90 angular degrees apart; can be mounted in any position (multipoise).

NEMA 4 Enclosure:
Weatherproof model available.

V5055 / V5097 INDUSTRIAL GAS VALVES

Pipe Size:
3/4, 1, 1-1/4, 1-1/2, 2, 2-1/2, 3, and 4 in. (only V5055A,B,C are available in 4-inch size).

Valve Capacities:
Based on gas with heat content of 1000 Btu/cu ft (37.3 MJ/cu m) and specific gravity of 0.64. See Fig 2)

Pipe Threads:
National Pipe Threads (NPT) or parallel British Standard Pipe Threads (BSP): Equivalent to ISO R7 and DIN 2999. Available on inlet and outlet of 3/4- to 3-inch valves; 4-inch valves have flange connections.

Upstream Tapping And Plug:
1/4” NPT (1/4” BSP on BSP models).

Downstream Tapping And Plug:
1/4” NPT (None on BSP models).

Ambient Operating Temperature Rating:
-40° F to 150° F (-40° C to 66° C); (to 125° F (52° C) when used with a V9055).

Material:
Die-cast aluminum.

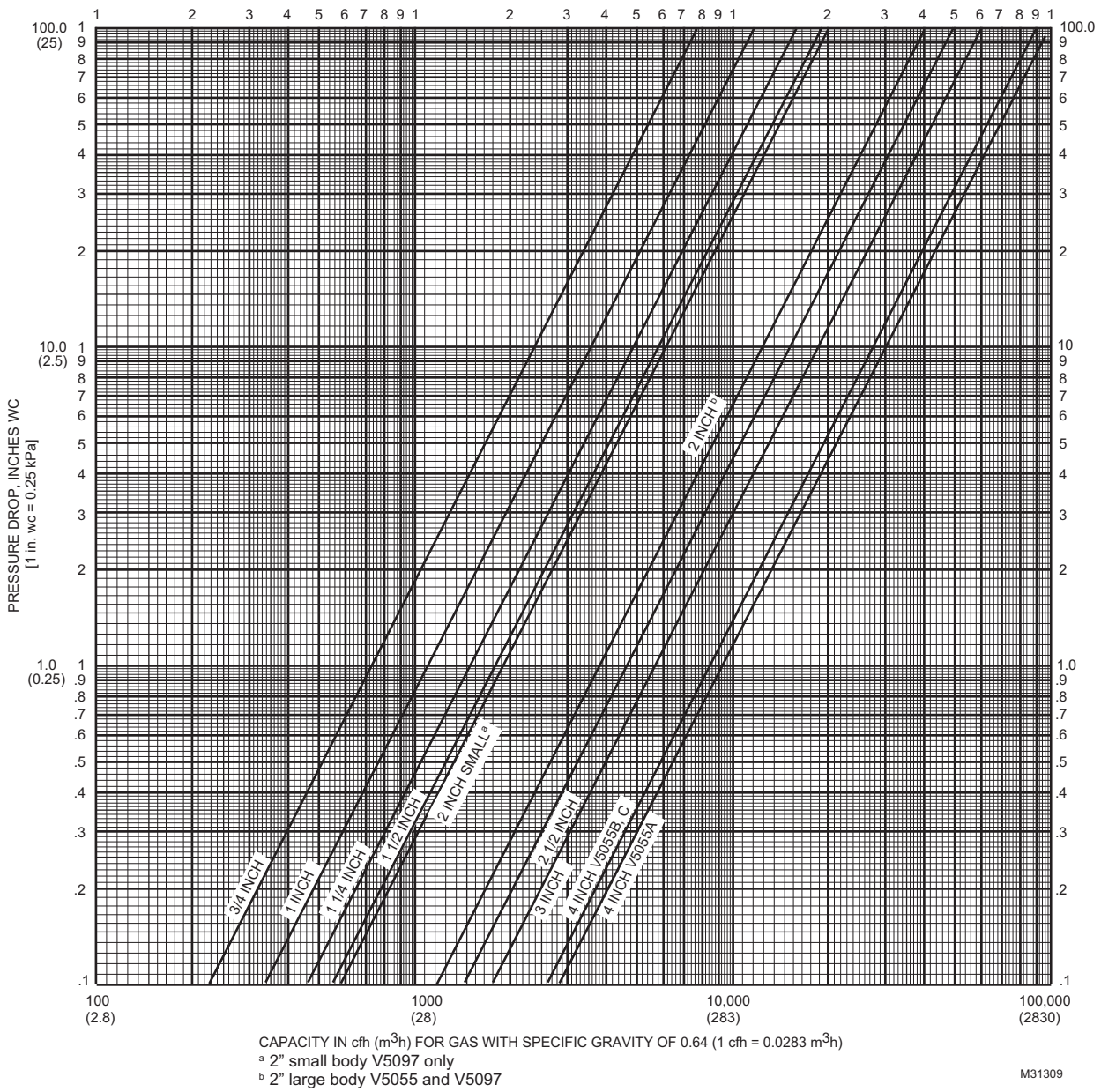

Fig. 2. Flow Curves for V5055 and V5097 Valves