

# GAS SHUTOFF VALVES

## FIGURE 1056

The Jamesbury Figure 1056 Automatic Safety Gas Shutoff Valves are approved for providing protection against fire and explosive hazards during light-off and operation of gas-burning equipment. When the electrical signal is interrupted or when there is a loss of air pressure, these gas-line valves close rapidly to give positive shutoff of gas flow. This action may be initiated either by safety trip or normal shutdown sequencing.

The units consist of a valve with Emission-Pak<sup>®</sup>, actuator, limit switch, and solenoid pilot valve, and are approved as an assembly. Valves are available in ANSI Class 150 flanged design in 1/2" through 8" (DN 15-200) standard-port sizes. Valves are offered with either carbon steel or 316 stainless steel bodies. Trim is 316 stainless steel.

1/2" - 8" (DN 15-200) *EMISSION-PAK* ball valves are certified by the American Gas and Canadian Gas Associations for use in gas appliances and for automatic gas safety shutoff under ANSI Z21.21-1995/CGA 6.5-M95.

The Jamesbury gas shut-off valve assemblies are available with a Quadra-Powr II<sup>®</sup> spring-diaphragm actuator rated for 65 psi (4.5 BAR) minimum air supply (100 psi (6.9 BAR) maximum).

Single-pole double-throw (SPDT) and double-pole double-throw (DPDT) limit switches are available with the contact arrangements shown to the right. Solenoid pilot valves are manufactured by Automatic Switch Co. Specific model numbers are given in the table on page 4.

### FEATURES

- **Tight Shutoff** - The flexible-lip PTFE seat design is self-compensating for wear and eliminates the need for lubricant injection.
- **Reliable Closing** - Automatic quarter-turn rotation is provided a spring-diaphragm actuators
- **Corrosion Resistant** - 316 stainless-steel valves are available for highly corrosive atmospheres. *QUADRA-POWR* actuators are constructed of all ferrous materials and are especially well-suited to industrial environments.
- **True Position Indication** - Limit switches are actuated directly from the valve/actuator drive train, reliably communicating a true valve-position.



- **Approved For Watertight And Hazardous Location** - The limit switch housing assemblies are also CSA approved, filling NEMA 4, 4X, 6 and 7 Class 1 Groups C & D, and 9 Class II Groups E, F, and G Div. 1 & 2 specifications for combined watertight and hazardous location design.

### SPECIFICATIONS

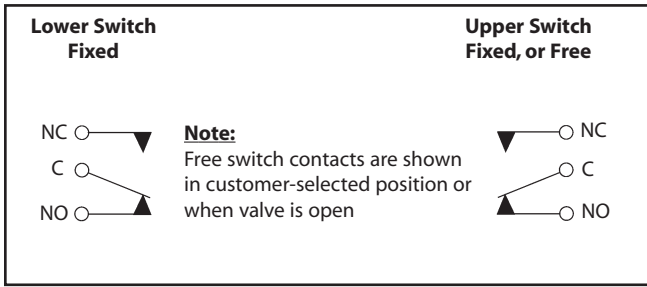
Switch Ratings in Amperes			
Voltage	QZM2VB1DSS (SPDT)	QZM14B1DSS (DPDT)	QZP2HB1DSS (Hermetically Sealed Proximity Switch SPDT)
125V AC	10	10	.30
250V AC	10	10	-
125V DC	.50*	.50*	-

\* Not recommended for electrical circuits operating at less than 20mA @ 24 VDC

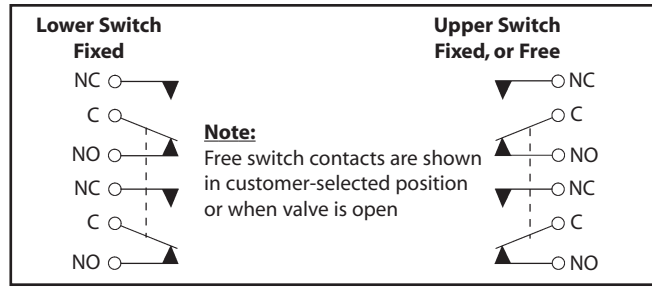
### Switch Arrangements

Contacts of Each Switch are in Position Shown When Valve is Closed

#### SPDT Switch Contact Schematic



#### DPDT Switch Contact Schematic



The available switch arrangements are shown in the "How to Order" table. Switches designated as "fixed" are set so that they are actuated only when the valve is in the fully closed position. They are secured to avoid accidental relocation and marked to show any attempts at tampering. Switches indicated as "free" are for indicator lights or other control purposes. These are normally set to close when the

valve is fully open, but are not secured and may therefore be adjusted to operate in any valve position. (DPDT switches can be adjusted only for end of travel, i.e., valve full open or valve full closed.

A solenoid operated 3-way pilot valve controls valve operation and is of sufficient flow capacity to provide valve closing within 2 seconds. Coils are continuous duty molded Class A.

### Maximum Operating Pressure Ratings

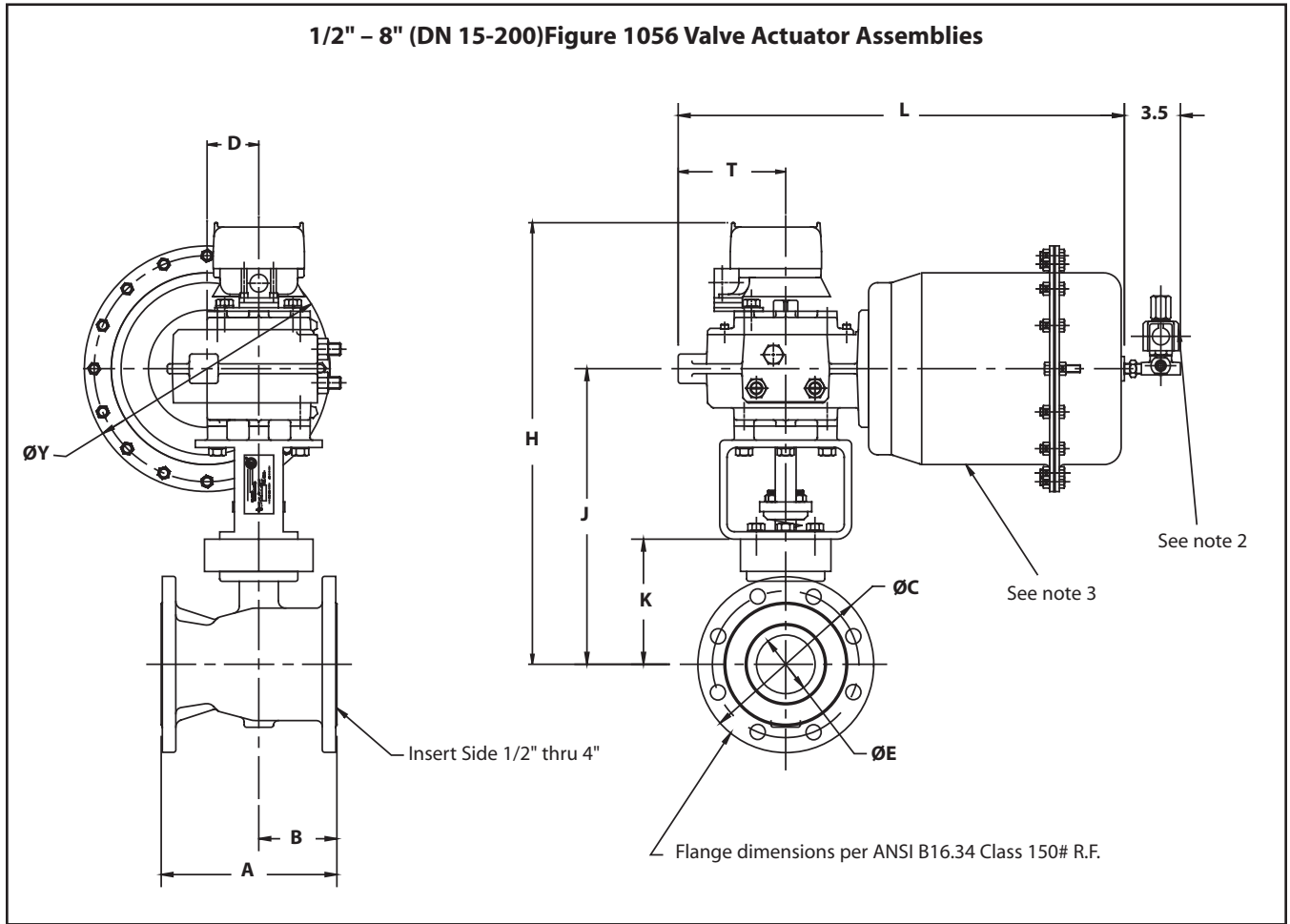
Valve Size		Valve Series	Valve Material	Seats	Maximum Operating Pressure		Maximum Operating Temperature		Minimum Operating Temperature	
Inches	DN				psi	bar	°F	°C	°F	°C
1/2 - 2	15 - 50	5150	Carbon steel, 316 Stainless Steel	PTFE, Filled PTFE	200	14	200	93	70	21
3 - 8	80 - 200	7150								

### Flow Data

The table at right provides flow coefficients of Figure 1056 Gas Safety Shutoff Valves covered in this bulletin. The Cv values represent the flow of water at +60°F through the valve in U.S. gallons per minute at a pressure drop of 1 psi. The metric equivalent, Kv, is the flow of water at 16°C through the valve in cubic meters per hour at a pressure drop of 1 kg/cm<sup>3</sup>. To convert Cv to Kv, multiply by 0.8569.

Valve Size		Cv Standard Port
inches	DN	
1/2	15	9
3/4	20	19
1	25	45
1-1/2	40	125
2	50	165

**DIMENSIONS**



**1/2"-8" (DN15-200) Figure 1056 Valve-Actuator Assemblies**

Valve Size		Approximate Dimensions														Approx. Weight	
Inches	DN	A		B		C		E		H		J		K		lb	kg
		in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm		
1/2	15	4.25	108	2.10	53	3.50	89	0.50	13	13.34	334	7.25	184	1.94	49	38	173
3/4	20	4.62	117	2.13	54	3.88	98	0.75	19	13.46	337	7.37	187	2.06	52	39	17.7
1	25	5.00	127	2.25	57	4.25	108	1.00	25	13.84	346	7.75	197	2.44	62	42	19
1-1/2	40	6.50	165	3.12	79	5.00	127	1.25	32	15.09	378	8.63	219	3.25	83	64	29
2	50	7.00	179	3.00	76	6.00	152	1.50	38	15.28	382	8.82	224	3.44	87	68.5	31
3	80	8.00	203	3.75	95	7.50	191	2.31	59	21.45	537	14.72	374	8.21	209	124	56.4
4	100	9.00	229	4.00	102	9.00	229	3.00	76	21.93	549	15.20	386	8.70	221	148	67.3
6	150	10.50	267	6.85	174	11.00	279	4.00	102	29.04	726	18.16	461	10.97	279	264	120
8	300	11.50	292	6.41	163	13.50	343	6.00	152	34.14	854	22.75	577	14.47	368	510	231.8

Actuator Size	Approximate Dimensions							
	D		L		T		Y	
	in.	mm	in.	mm	in.	mm	in.	mm
QP1C/M	1.37	35	13.08	332	2.05	52	7.75	197
QP2C/M	1.65	42	16.93	430	3.58	91	8.98	228
QP3C/M	2.09	53	20.28	515	4.69	119	10.79	274
QP4C/M	2.65	67	23.03	585	5.51	140	12.60	320
QP5C/M	3.34	85	28.27	718	6.30	160	15.04	382

## HOW TO ORDER GAS SAFETY SHUTOFF VALVES

The Gas Safety Shutoff Valve designation is made up of numbers and letters that describe all features of the available variations of these units. Coding is as follows:

**EXAMPLE:** 3" (DN 80) Gas or Oil Safety Shutoff Valve in Series 7150 ANSI Class 150 flanged design in carbon steel with 316 stainless steel trim and PTFE seats with two supervisory double pole double throw switches and Type QP diaphragm actuator has the designation Figure 1056-61233.

	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>
<b>Figure 1056</b>	6	1	2	3	3	A	1

<b>1</b>	<b>Valve Size</b>	
	<b>inches</b>	<b>DN</b>
<b>1</b>	1/2	15
<b>2</b>	3/4	20
<b>3</b>	1	25
<b>4</b>	1-1/2	40
<b>5</b>	2	50
<b>6</b>	3	80
<b>7</b>	4	100
<b>8</b>	6	150
<b>9</b>	8	200

<b>3</b>	<b>Valve Seat and Seal Materials</b>	
<b>1</b>	Filled PTFE seat	PTFE graphite seals
<b>2</b>	PTFE seat	PTFE graphite seals

<b>4</b>	<b>Switch Description</b>	
<b>0</b>	No switches	
<b>1</b>	2 SPDT switches, both fixed	QZM2VB1DSS Mechanical switches
<b>2</b>	2 SPDT switches, 1 fixed, 1 adjustable	
<b>3</b>	2 DPDT switches, both fixed	QZM14B1DSS Mechanical switches
<b>4</b>	2 DPDT switches, 1 fixed, 1 adjustable	

<b>2</b>	<b>Valve Body, Ball, and Stem Materials</b>
<b>1</b>	A216 WCB carbon steel body, 316 stainless steel ball and stem
<b>2</b>	A351 CF8M stainless steel body, 316 stainless steel ball and stem

<b>7</b>	<b>Solenoid Voltage</b>
<b>Code</b>	<b>Voltage</b>
<b>1</b>	120 V.A.C. 60 HZ
<b>2</b>	240 V.A.C. 60 HZ
<b>3</b>	12 V.D.C.
<b>4</b>	24 V.D.C.

<b>5 Actuators</b>					<b>6 Solenoids</b>			
<b>Code</b>	<b>Valve Series</b>	<b>Valve Size</b>		<b>Actuator Type</b>	<b>Code = A</b>	<b>Code = B</b>	<b>Code = C</b>	<b>Code = D</b>
		<b>Inches</b>	<b>DN</b>		<b>Standard</b>	<b>High Temp.</b>	<b>Manual Reset</b>	<b>Stainless</b>
<b>1</b>	5150	1/2 - 1	15 - 25	QP1C/M	EF8317G35	HT8317G35	EF308B41F	8317G36
<b>2</b>		1-1/2 - 2	40 - 50	QP2C/M				
<b>3</b>	7150	3 - 4	80 - 100	QP3C/M	EF8316G54	HT8316G54	EF308B41F	8317G36
<b>4</b>		6	150	QP4C/M				
<b>5</b>		8	200	QP5C/M				

### Installation Instructions, Maintenance and Operation

IMO's (Installation, Maintenance, and Operating instructions) or AMI's (Assembly, Mounting, and Installation instructions) are shipped with the products. Additional copies of these instructions are available. Call your local Metso Automation Distributor, or visit our web site.

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