INTRODUCTION

The ATEX Quick Sliding Valve (AQS) is used to isolate deflagration propagation from one process area to another through the connecting ductwork. The unit provides isolation of flame and pressure. The valve is used with a detection device and controller to form a protection system.

CONCEPT

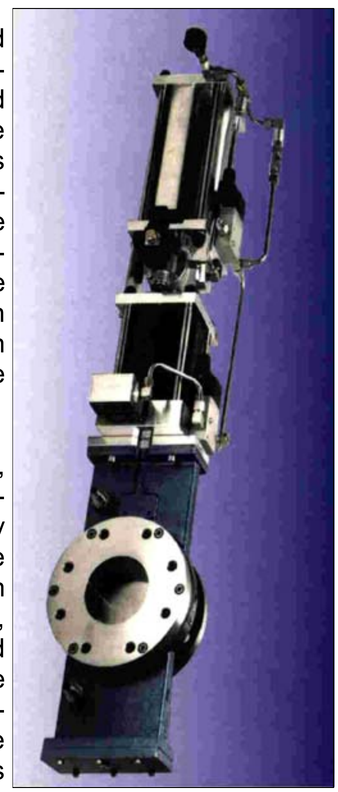
When an explosion detector in a process vessel or associated ductwork detects a deflagration it sends a signal to the systems controller. The controller in turn actuates the ATEX Quick Sliding Valve. To close the valve, pressure is released and /or generated by the activator. The pressure fills a piston cylinder sending the gate to a closed position. The valve geometry and specially designed braking provides for a controlled closure. The valves are available with an optional control panel used to test the valve and control it during non-explosive maintenance situations.

BENEFITS

- √ Isolates flame and pressure.
- √ Does not require clean up.
- √ Optionally does not require reconditioning.
- √ Requires little or no maintenance.
- √ Functions in any product flow.

DESCRIPTION

The detector and controller are discussed in other product information sheets in the suppression data series “Y”. Valves are available in sizes from 2 to 24 inches in standard configurations. The valve body is made of high strength aluminum and the gate is made of CrNiST.
ATEX QS valves use a piston cylinder for driving of the valve gate. The gate has a hole the size of the nominal opening. Closure is accomplished by sliding the hole past the duct opening until a solid piece covers the hole. This eliminates the severe braking and associated damage found in other valves. O-Rings provide a seal around the opening. The pressure in the cylinder is developed by one of three methods.
The first method uses a pressure cylinder with between 500 and 1000 psi of dry nitrogen in storage. On activation a rupture disc is burst with a pyro-technique detonator to release the stored pressure into the drive cylinder.

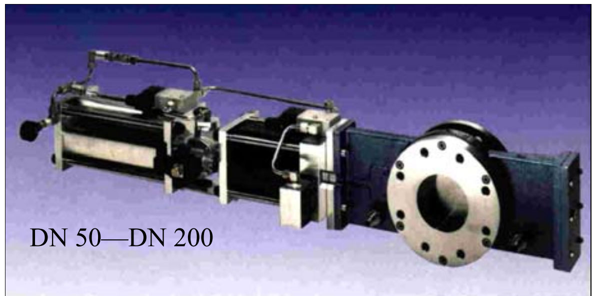


A second method uses a gas generator cartridge to build pressure within the cylinder. Pressure is generated at a controlled ultra fast rate to provide the required force on the piston to accomplish valve closure time in a millisecond time frame.

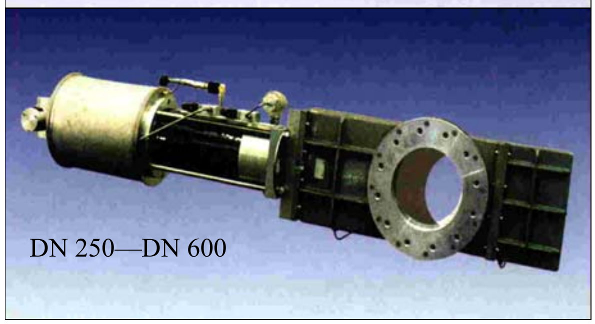
The third method, stores plant air super pressurized by the valve pressure mechanism. When the control activates, an ultra fast solenoid releases pressure into the drive cylinder closing the valve as required. This method does not require the costly maintenance and service of the other two, saving operational and maintenance costs.

The following table compares the advantages and disadvantages of each valve.

Costs	Initiator	Gas Gen.	Plant Air
Initial Cost	Lowest	Mid-Range	Highest
Maintenance Cost	Highest	Mid-Range	Lowest
Reconditioning Cost and Time	High Hours	High Hour	None Minutes
Yearly Parts Replacement Required	Yes	Yes	No
Explosives	Yes	Low Grade	No



DN 50—DN 200



DN 250—DN 600

VALVE SIZING CHART

*L1 = Center of Duct to Valve Bottom **L2 = Center of Duct to Valve Top
DN 200 Valve has Cast Iron Housing GGG 40.3 in place of standard

Valve Number	Nominal Size Dia. Inches	Length Inches	Length One Inches*	Length Two Inches**	Gate Width Inches	Weight Lbs.
DN 50	2.0	28.90	5.79	23.11	4.72	44.09
DN 65	2.5	31.73	6.85	24.88	4.72	48.50
DN 80	3.5	37.20	8.78	28.43	4.72	52.91
DN 100	4.0	44.21	9.06	35.16	4.72	61.73
DN 125	5.0	49.02	11.26	37.76	5.91	74.96
DN 150	6.0	53.74	12.09	41.65	4.72	77.16
DN 200	8.0	64.57	15.12	45.51	5.91	110.23
DN 250	10.0	86.81	18.66	68.15	7.09	282.19
DN 300	12.0	92.91	21.73	71.18	7.09	385.81
DN 400	16.0	116.93	31.50	85.43	7.87	696.65
DN 500	20.0	154.76	40.59	114.17	7.87	1146.39
DN 600	24.0	174.65	47.64	127.01	7.87	1432.99

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