



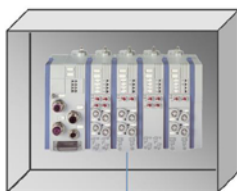
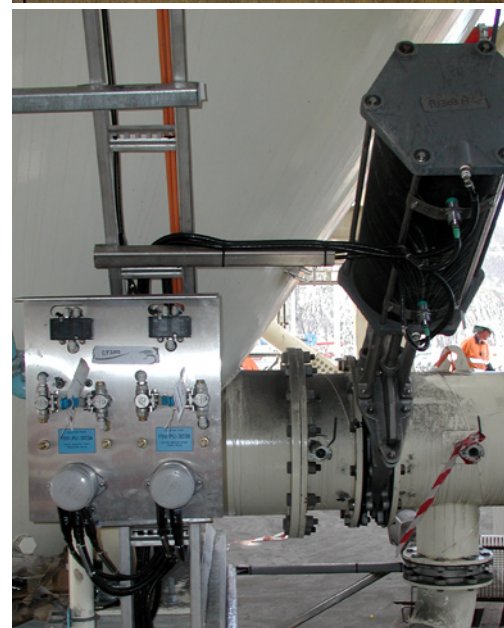
Fact Sheet: Powerful Dirty Environment Pneumatic Actuation

FROM BEHIND CLOSED DOORS, BÜRKERT CLEANS UP THE PNEUMATIC ACTUATION MESS AT MINES

Bürkert Fluid Control Systems has developed an ingenious solution for faster and more effective pneumatic actuation in dirty and wet mining and mineral processing environments.

Integra Coal Preparation Plant, serving Camberwell Coal and Glennies Creek mines in the Hunter Valley, uses an array of pneumatically actuated knife gate valves to control coal flow to the prep area. Using the Bürkert pneumatic actuation innovation, Integra has improved valve switching speeds and operation, as well as saved time and money in maintenance operations.

Integra Coal Preparation Plant found that the two traditional methods of pneumatic actuation previously used in the Plant were ineffective and inefficient. While direct-mounted pilot valves offered fast switching times, the high conductivity water environment aggressively degraded pilot valve electronics. However, when pilot valves were encased within protective remote cabinets, air drop-off (loss of air flow rate over distance) caused a significant reduction in switching speeds and process effectiveness.



Pneumatic Pilot Valve
 Orifice Diam: 4mm
 Valve width: 11mm
 Flow Rate (QNn) 300L_N/min
 Protection Class: IP65/ IP67

Slave Valve
 Orifice Diam: 8mm
 Valve width: 33mm
 Flow Rate (QNn): 1300L_N/min

Tube Diam	Flow Rate at Tube Length :			
	0m	10m	20m	50m
6/4 mm	1300L _N /min	1300L _N /min	1300L _N /min	1300L _N /min
8/6 mm	1300L _N /min	1300L _N /min	1300L _N /min	1300L _N /min
Compared to		231 l _N /min	171 l _N /min	110 l _N /min
10/8 mm	1300L _N /min	1300L _N /min	1300L _N /min	1300L _N /min
Compared to		423 l _N /min	326 l _N /min	214 l _N /min



The Bürkert Pneumatic Actuation in Dirty & Wet Environment Solution



Contact Bürkert Australia now:

Tel 1300 888 868

sales.au@burkert.com

www.burkert.com.au

Keith Dumbrill, Bürkert Newcastle and Hunter Valley, worked with Integra Coal Preparation Plant to develop a new solution for pneumatic switching that addressed the dual concerns of protecting the pilot valves from the extreme environment and also ensuring a high flow rate of pneumatic air delivered at the point of use. Bürkert's innovative solution is simple, highly effective, cost-efficient and suitable for all dirty area pneumatic actuation applications (including hazardous areas).

This ideal solution comprised a cost-effective method for protecting pilot valve electronics without suffering air flow drop-off.

To achieve this, the pilot valves were divided into two components, pilot and slave modules, with a separate air supply to each. The pilot valves comprised electronics and pneumatic valve components and were located behind closed doors in a cabinet; slave valves were pneumatic only and mounted directly to the knifegate valve actuator.

The pilot valves operate with low air flow and at low current, and are utilised only to switch the slave valve – not to actuate the knifegate valve. Positioned within a cabinet, the pilot valves are well protected from dirty and wet conditions as found in mining and mineral processing operations. By relocating the electrical valve component to the pilot valve cabinet, the primary reason for valve failure is removed.

Although a standard 8640 valve bank is suitable to pilot this solution, it is recommended by Bürkert that the IP67 FreeLINE pneumatic valve bank be used within a cabinet for double-redundant pilot valve protection (schematic pg 1).

To maintain the high switching speeds required for efficient operation, it is necessary that a strong air flow be delivered to the slave valve on the knifegate valve. To achieve this result, Integra Coal applied a separate air supply directly to the slave valve to actuate the knifegate valve. By applying air directly at the site of actuation, high switching speeds and efficient operation are maintained with no air drop-off over the tubing length.

The slave valve utilised by Integra Coal was a 0475 pneumatic valve without electronics. This valve is unaffected by dirty, wet and grimy conditions.

The Integra Coal knifegate valve pneumatic actuation solution has operated for 4 months without a single failure, and the system since been utilised at other mining facilities, said Mr Dumbrill.

"Equipment for mining needs to be hard working and able to continue working no matter the conditions. Our solution for pneumatic actuation in dirty and wet aggressive environments is perfect for the job," he said.

"We have adapted this pneumatic actuation solution to a variety of coal processing applications, and other metallic mineral processing sites.

"This type of innovative solution takes the best from tested and new technologies to deliver a better solution to a broad section of the industry," said Mr Dumbrill.

Type 0475 Slave (below)

- Minimal internal movement
- High quality materials throughout
- Stands up to wet, dirty, gritty environment
- Inexpensive
- Available ex-stock

