

# BLACKFIVE ENGINEERING LIMITED

## PRODUCT DATA SHEET

### SERIES 3 - 1

#### MODEL 3S1A POWDER SAMPLE VALVE

##### INTRODUCTION

The 3S1A Powder Sample Valve has been designed to sample free flowing powders, granules and flakes from vessels, hoppers and trunking in a safe manner and avoiding contamination problems.

The valve is normally mounted in a vertical position to accept materials travelling down, however, it can be used in a tilted position to sample inclined or horizontal pipes.

##### OPERATION

Operation of the valve is very simple. The normal rest position is with the plunger retracted and the sample discharges over the receiving container. To take a sample the plunger extends to the end of the tube which dispenses any material lodged in the tube and opens up the sample collection port. Residing in this position for 10-15 seconds will collect a sample in the collection cup. The plunger then moves back to the rest position to discharge the sample, in doing so the knife edge of the tube cuts through and displaces excess sample built up over the sample collection cup. The above cycle can be repeated several times to collect a larger sample.

One design feature of the valve is the hard stop at the end of the cylinder retraction, which has the effect of a shock vibration to assist discharge of the sample into the collection container.

Data sheets for larger valves are also available, please consult the company.

##### CONTROL SYSTEMS

For samples taken manually a simple air control valve to apply air to each end of the cylinder in turn can be fitted with either an air switch or a palm button.

For samples taken on a frequent basis automatically over a period of time a standard control box is available see data sheet CB1.

##### TECHNICAL DETAILS

Sample size 5 ml

Material of construction 316 Stainless steel and PTFE

Normal working pressure range +/- 10 inches W.G.

Sample collection container standard 200 ml glass laboratory bottles with R3 thread.

Air pressure to operate min 30 psig, max 100 psig.

Recommended pressure 80 psig.

Air cylinder connections 1/8" NTP

Maximum working temperature of valve 200°C

Recommended working temperature range of cylinder -20°C to +70°C

Flange details - Standard 1" ASA 150 flange suitable for bolting directly onto pad welded directly onto the vessel, hopper pipeline or trunking

D43



## Blackfive Engineering Limited

16 Beeston Court, Manor Park,  
Runcorn, Cheshire, WA7 1SS,

Tel + 44 (0)1928 579140  
Fax + 44 (0)1928 579514

# BLACKFIVE ENGINEERING LIMITED

## PRODUCT DATA SHEET SERIES 3 - CB1

### MODEL PSV-CB1 CONTROL BOX FOR SERIES 3 POWDER SAMPLE VALVES

#### INTRODUCTION

The CB1 Control Box has been designed to control 3S1A Sample Valves in either manual or automatic modes for taking small samples on a timed basis over extended periods of time, such as whole shifts, to enable composite samples to be taken representative of the production during a shift etc.

#### OPERATING SEQUENCE

##### 1. Manual Mode

Push button to take sample

Release button to discharge sample

##### 2. Automatic Mode

(i) Piston moves forward to take sample

(ii) Delay for variable preset time between 5 & 40 seconds to collect sample

(iii) Piston moves back to discharge sample

(iv) Delay or variable preset time between 1-10 minutes

(v) Cycle repeats

#### TECHNICAL DATA

Minimum Air Pressure to operate 45 psig (3.1 Bar)

Maximum Air Pressure 100 psig

Cabinet - High quality epoxy coated steel

Air Service unit mounted on outside of cabinet

D44



## Blackfive Engineering Limited

16 Beeston Court, Manor Park,  
Runcorn, Cheshire, WA7 1SS,

Tel + 44 (0)1928 579140  
Fax + 44 (0)1928 579514