



## BLEEDER VALVES

# SAFETY RELIEF VALVE FOR HOT AND DUSTY ENVIRONMENTS

### YOUR CHALLENGE

Above all else, you must protect the furnace from an overpressure situation! Do this in the harshest environment and do it repeatedly for years with little maintenance.

### OUR SOLUTION

A proven blast furnace safety relief valve designed to give a true, full-pressure relief by mechanical means within 10% over pressure of its mechanical set point.

Designed in accordance with the current Pressure Equipment Directive requirements, the Primetals Technologies bleeder valve is a proven design having achieved over 20 years of operation with over 90 operating references. These include some of the harshest environments (eg. Corex Melter/Gasifier - constant 1000°C & 5.5 barg).

### THE TECHNOLOGY PRINCIPLES

Typically, 3 or 4 valves in total are mounted at the top of the dirty gas system (the highest point of the blast furnace downcomer) and protect the furnace from accidental overpressurization.

Operation of the bleeder valve is performed by an in-built hydraulic cylinder, opened on overpressure as sensed by the blast furnace control system. The valve will then only return to its closed position upon receipt of a "close" signal from the furnace operations control room. In the event of hydraulic or electrical failure, the bleeder valve will open when the furnace pressure exceeds the mechanical pre-set value of the spring nest.

**TRUE MECHANICAL RELIEF**  
WITHIN 10% OF SET POINT



Bleeder valve



Bleeder valve

### PRODUCT FEATURES

- Hydraulic nip - 5 second load applied for good valve seating
- Nitrogen purge on the lid when the valve is closing to clean the seat
- External deflector plate for personnel safety
- Rotary joints are built into the cylinder to allow a fixed pipework connection to ensure reliability
- Outward opening valve lid, seats and operating mechanism quickly moves beyond the gas flow, providing reliable relief and resealing
- Triple opening operation
  - The hydraulic cylinder actuation is based upon pressure measurement
  - Manual operation back-up
  - Ultimate safety net of over centre spring system forces automatic emergency relief via mechanical blow-off
- A dual, self-aligning seat arrangement provides a primary metal to metal seal with secondary metal to rubber seal. All seats are designed to be replaced in-situ

### PRODUCT MODEL RANGE

Hydraulic disc spring type valve

- Pressure up to 5.5bar (g)
- Seal diameters of 650mm / 550mm / 450mm / bespoke

### TECHNICAL DATA

Opening time	6 sec
Closing time	8 sec
Design pressure	0-5.5 bar
Valve operation	Hydraulic cylinder

### PRODUCT BENEFITS

- Full flow area available for furnace venting in relief situation
- Surety for safety actuation on over-pressure due to mechanical design
- Low maintenance design



**Primetals Technologies Ltd**  
A joint venture of Mitsubishi Heavy Industries and partners

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