

BF SERIES

Key Features

- Tight structure and well-sealed probe
- Automatic operation of pneumatic ball valve after probe withdrawal
- Visual and Thermal view option
- Temperature data saving and simulation temperature field analysis
- Air purge device for cleaning the probe head.
- Auto protection device for water cut off, air cut off, and power cut off

System Components

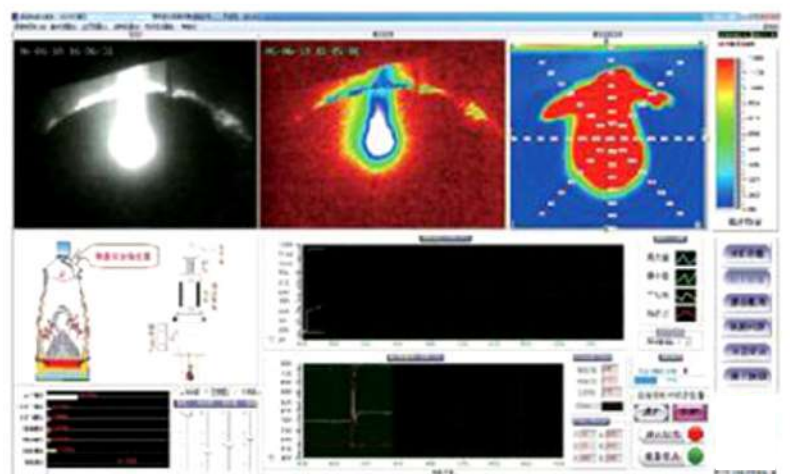
- Camera and Pinhole Lens
- Camera/Lens Probe with N₂/Water Cooling facility
- Video Cable
- Control Cable
- Power Cable

BLAST FURNACE CAMERA SYSTEM



BF Series blast furnace camera system is designed for iron works. It features a ball valve sealing and cooled by water and air. The system utilizes a water-cooling device outside the probe and forced cooling with compressed nitrogen to cool the camera and lens. It creates an air curtain in front of the puncture effectively preventing lens erosion from high temperatures and furnace powder. The camera lens is securely fixed to the kiln wall allowing direct observation of charging, surface conditions, burning and material temperature. This technology enhances safety, improves the working environment, reduces workload, and enables centralized direction and automation in the manufacturing process.

The two-cylinder high-temperature camera system is designed for blast furnaces. Unlike traditional systems, it eliminates manual probe handling, reducing labor and safety risks. It automatically withdraws when over-temperature or over-pressure conditions are detected, enhancing safety and efficiency.



Camera View Inside Blast Furnace

Specifications

Technical	
Environment	up to 2000°C
Cooling system	Vortex AIR & Water cooling
Power	AC 220V/110V
Hole Diameter	100mm
Requirement of Compressed Air	
Pressure	7 ~ 10 kg/cm ²
Volume Flow	50m ³ /h
Temperature	<35°C
Quality	Dust, Oil& Moisture free clean air

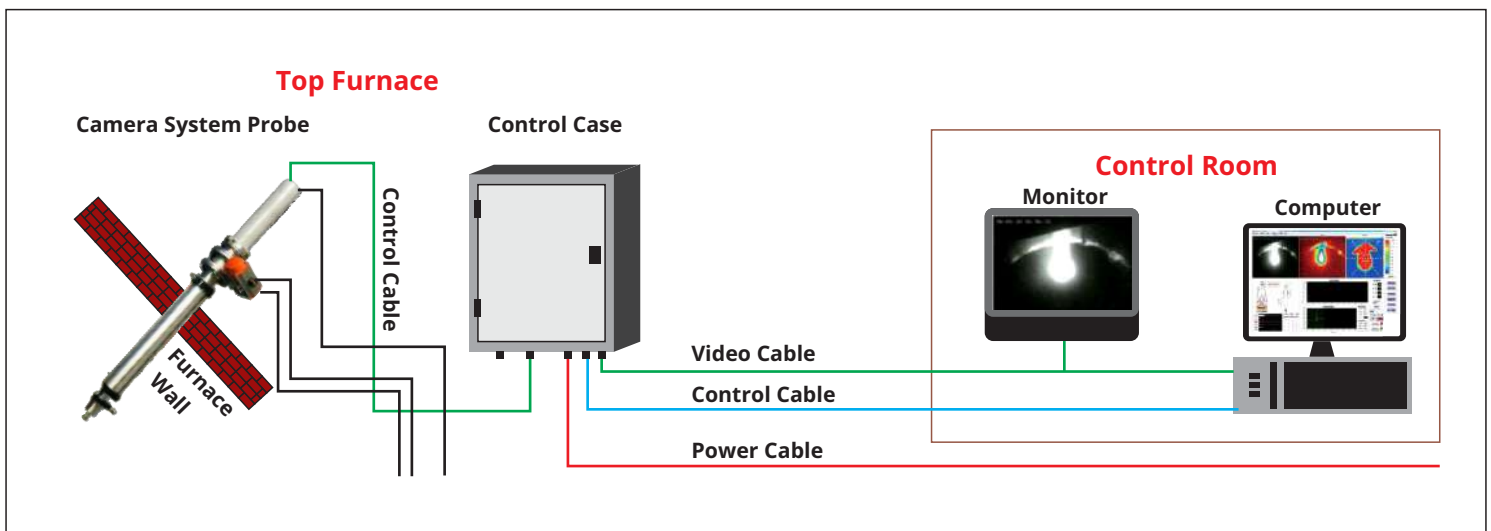
Requirement of Cooling Water	
Inlet Pressure	2 ~ 5 kg/cm ²
Volume Flow	0.2-1m ³ /h
Quality	DM Water

High Resolution Camera Specification	
Image Sensor	1/2.7" progressive scan CMOS
Resolution	5 Megapixel
Pixels	2592 (H) × 1944 (V)
Minimum Illumination	0.005 Lux@F1.4
Lens	C/CS Mount
Shutter Speed	Auto/Manual, 1/3 s-1/100000 s
Streaming Capability	Three streams
WDR	120db

Gain Control (AGC)	Auto/Manual
Video Compression	H.265+/H.265/H.264+/H.264/MJPEG
Video Out	Ethernet RJ-45 (10/100Base-T)
Power	DC 12V (±25%), AC 24V (±25%), PoE
Power Consumption	<9.2W
Casing	Metal

Thermal Camera Specification	
Temperature Range	700°C to 1800°C / 1000°C to 2500°C
Resolution	640 X 480 Pixels / 1280 x 1024 Pixels
Frame Rate	25 Hz / 50 Hz
Spectral Range	0.85µm to 1.1µm
Thermal Sensitivity	<1K (700°C [$<1292^{\circ}\text{F}$], <2k (1000°C)
Interface	Ethernet/ USB
Accuracy	±0.3% of measure value ±1°C
Power	12 to 24 V DC
Power Consumption	<4 Watt

Pinhole lens	
Lens length	820 mm/ 1080 mm
Focal Length	Verifocal Lens: 3.6 mm- 8 mm
Angle of view	Straight view: 0°/ Elbow view: 60°
Field of view	Horizontal 65°, vertical 56°, Diagonal
Focus and IRIS	Manual
Mount	CS Mount



Block Diagram of camera system

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