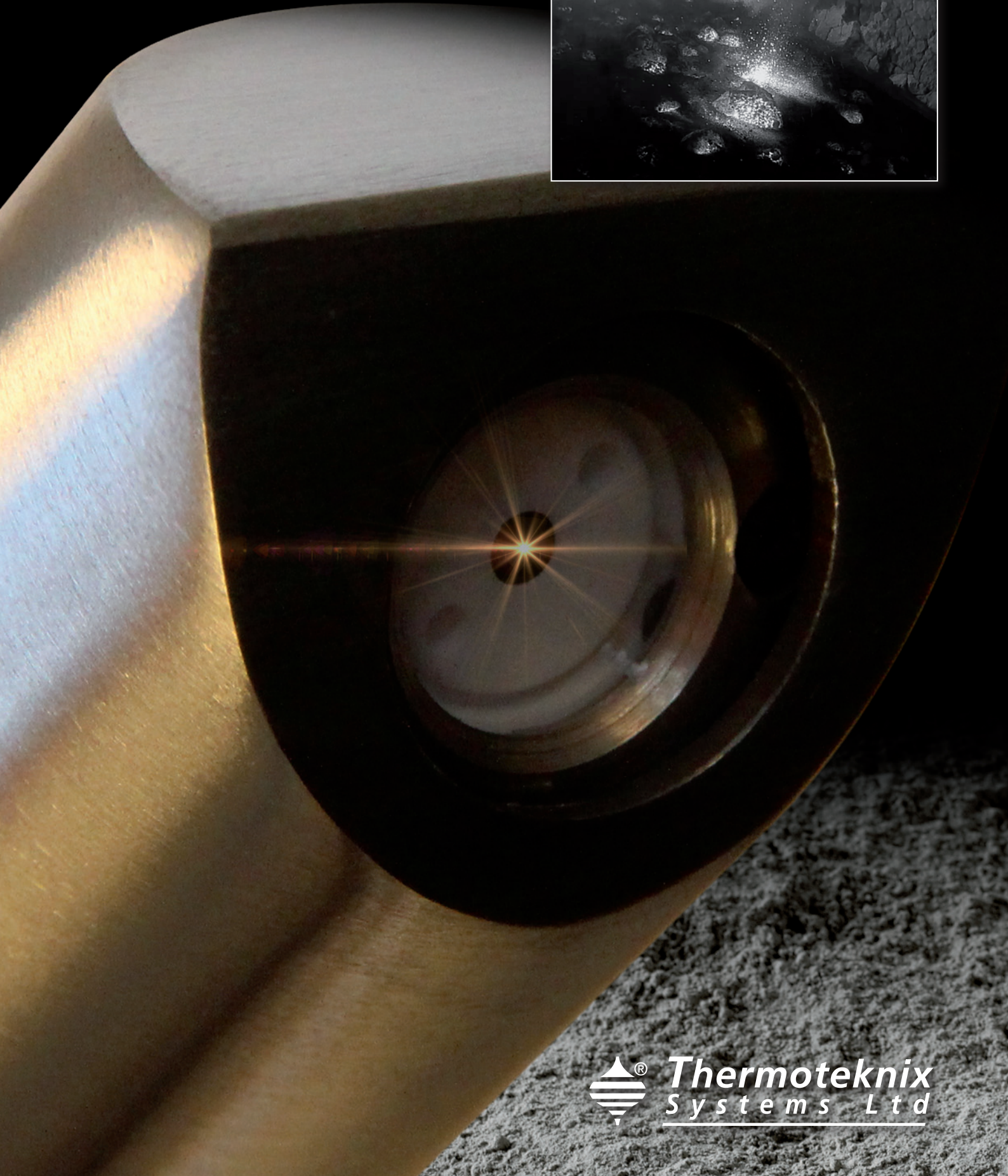
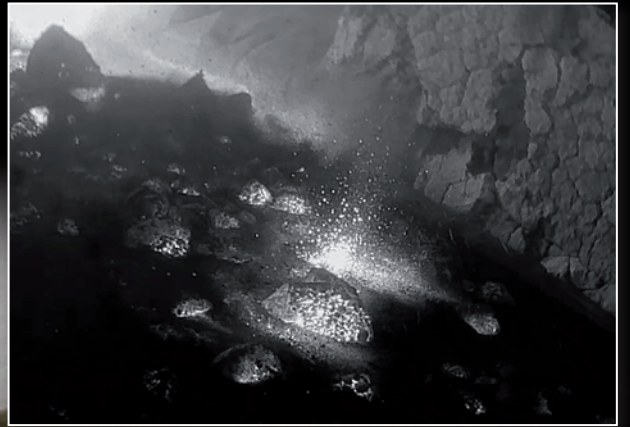


ThermaScope® HDC

HD Camera for Kilns & Coolers



Thermoteknix
Systems Ltd

ThermaScope® HDC Colour Kiln & Cooler Cameras

High definition, high speed ThermaScope HDC cameras provide high quality imaging from inside the kiln or cooler.

Based on Thermoteknix' proprietary miniature CCD with high resolution progressive scan technology, the camera provides real time display inside the kiln/cooler for combustion and clinker detailed monitoring.

Minimal maintenance, the all-digital system transmits digital image and data from the heart of the clinker-making process to the control room. Greater confidence throughout the combustion and manufacturing process.



Straight Head



90° Head

- Thermoteknix High Definition 1280 x 960 CCD colour camera micro-module
- High speed 60 frames per second progressive scan HD imaging
- 14 bit wide dynamic range covering flame, clinker and internal walls
- Solid-state micro-electronics with multiple inbuilt sensors
- All digital imaging and signal transmission up to 2 Km
- 40mm small diameter tube containing direct view camera
- Super efficient combined air cooling and window air purge
- Choice of direct and side viewing heads
- Fail-safe operation

ThermaScope® HDC Kiln & Cooler Camera Functions

ThermaScope HDC can be installed with direct view or side view optics to view the flame and outlet from the kiln or to monitor clinker flow through the cooler. Detect combustion changes, waste fuel imbalance, red river and snowman formation in an instant. Operators see real time high definition video as fuel flow, operating conditions or clinker quality change.

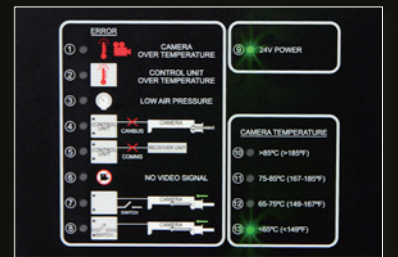
ThermaScope® HDC Unique Design

The Thermoteknix miniature colour camera is specifically designed to fit inside the 40mm stainless steel camera tube for direct digital viewing, removing the need for complex and delicate transfer optics. ThermaScope HDC eliminates the expensive maintenance, alignment and reliability problems of lens tube systems. Requiring just 200 litres of instrument quality air per minute ThermaScope HDC uses a fraction of air consumption of competitors' kiln cameras. This is typically an \$8,000/year saving and up to \$40,000 savings in just 5 years.

Thermoteknix Customer Commitment

The ThermaScope HDC is a result of 30 years Thermoteknix' experience supplying and servicing the world's Cement and Manufacturing Industries. Thermoteknix pursue a rigorous process of R & D to maintain its products at the forefront of their field for quality, performance, reliability and value for money.

Thermoteknix is an ISO 9001 : 2008 certified company.



ThermaScope HDC - Kiln

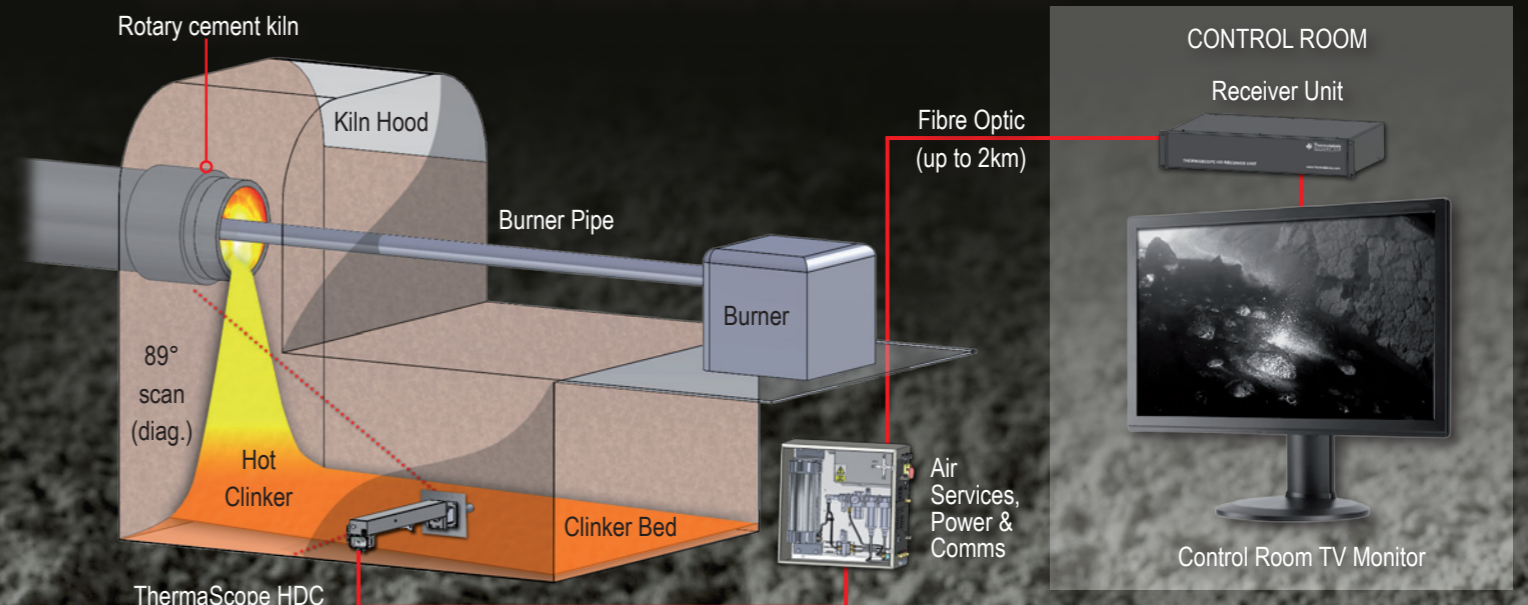


ThermaScope HDC Camera - Cooler Zone

ThermaScope® HDC Colour Camera

- Low volume air consumption for year on year cost savings
- Flicker-free imaging with onscreen status indicators
- Wide depth of field for maximum kiln and cooler detail
- Fail-safe camera retraction in case of power or services disruption
- Linear rail insertion mechanism for trouble-free long term use
- Stainless steel protective cover for Health and Safety
- Direct view system with no alignment error
- Solid state long term reliability
- Unmatched ease-of-use and on-site serviceability

Typical ThermaScope HDC Camera setup on a cement cooler:



ThermaScope® HDC

ThermaScope HDC Video Kiln & Cooler Cameras

PERFORMANCE – CAMERA

CCD Format	1280 x 960
Display	1280 x 720p (HD) Progressive Scan
Dynamic range	>115db
Colour	12 bit
Response	5.48 V/lux-sec
Frame Rate	60Hz
Aperture Control	Automatic

PERFORMANCE – LENS

Fixed focus	0.2m - infinity
Aperture	f/2.4

FIELD OF VIEW (FOV)

Diagonal: 89° Horizontal: 81° Vertical: 51.5°

OPTIONAL ACCESSORIES

Fallback carriage arrester mechanism
Straight camera head option

ENVIRONMENTAL DETAILS

Operating Temperature Range	Standard -20°C to +70°C BS EN 60068-2-1/2
Camera Tube	40mm x 520mm (other lengths available)
Weight	16.5kg (including protective cover)

STANDARD SYSTEM

Full colour 1280p 60fps camera
Air cooled 316 stainless steel housing
Auto fail-safe pneumatic camera mechanism
Wall sleeve with auto-closure mechanism
Single Control Unit for comms and services
Full LED and on screen alarm/status indication
Air hoses, communication cables

SIGNAL PROCESSING

Thermoteknix Image Optimisation

AIR SYSTEM

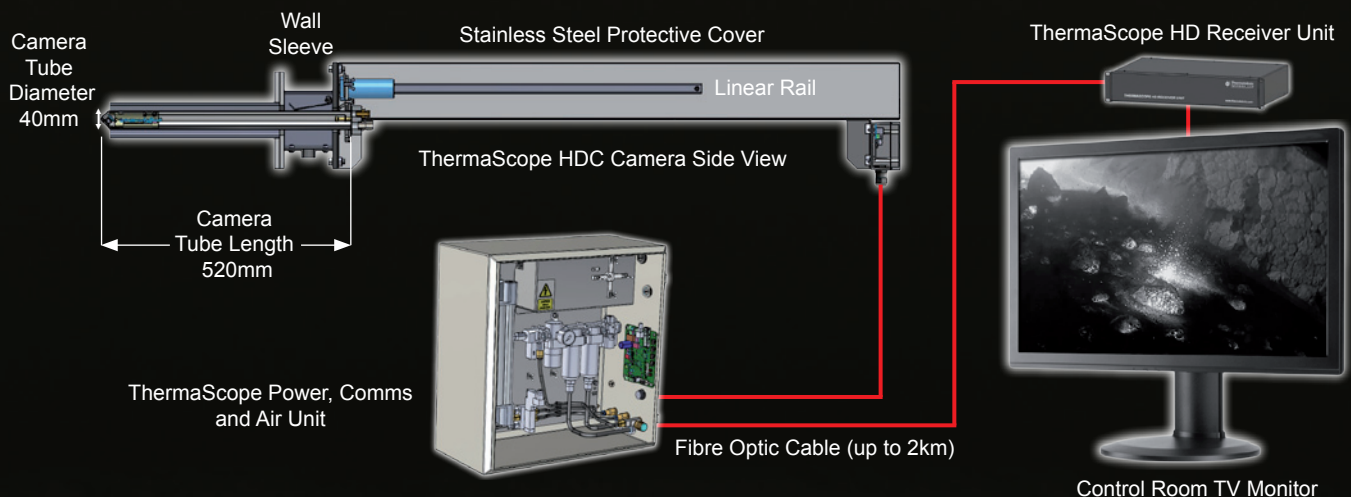
Air Flow	200l/min instrument quality, clean dry air
Air Pressure	3 bar minimum (regulator provided)
Air Monitoring	Pressure switch and reservoir supplied (for retraction)

COMMUNICATIONS

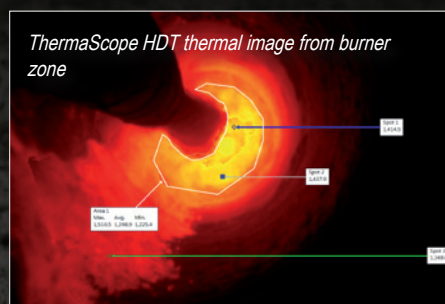
Single mode fibre optic cable kit 9/125um with LC terminations to 2km

INTERFACING

22" LCD TV Monitor (other sizes optional)



Also available: ThermaScope® HDT Temperature Imaging Camera with Temperature Measurement



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