DURAG GROUP

D-FS2
Furnace Camera

For extreme ambient conditions with air or water cooling

- Digital real-time images – much higher resolution than PAL/NTSC
- Expandable with the software D-VTA 200 to a thermography and analysis system
- Wide and flexible angle of view – elbowed versions available
- Up to 2 000 °C in the combustion chamber

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Features

- **Digital colour camera**
  High resolution with 1 400 x 1 050 pixels
- **Use up to 2 000 °C**
  Air and water-cooled variants for use in the combustion chamber
- **Different fields of view (FOV)**
  - Angles of view 30 … 120° diagonal
  - Elbowed versions
- **40 mm endoscope**
  - High speed and better resolution than the camera used
  - Scratch-resistant sapphire window to the combustion chamber
- **Special purge air nozzle for a permanently clear view**

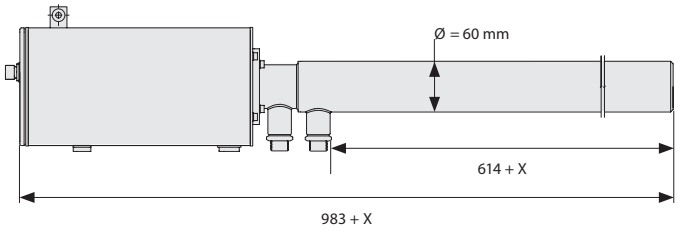
Benefits

- **Cost savings through combustion + process optimization**
  - 24/7 live images of the flames and the process
  - Help with optimization and allow changes recognize early
- **Flexible system**
  - Optionally expandable with thermography and analysis modules
  - Multi-camera systems and fields of view adapted to the application
- **Safe and reliable**
  - Intelligent cooling and purge air concept
  - Specially developed endoscope
  - Automatic retraction of the furnace camera by optional retraction unit

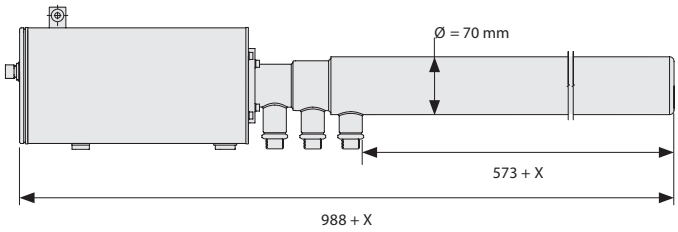
Technial data

Spectral range	In the optically visible range of light (400 … 700 nm)	
Field of view	120: 120°, 92°, 66° (diag., horiz., vert.) 90: 90°, 72°, 54° 60: 60°, 48°, 36° 30: 35°, 28°, 21° 6060: 60°, 48°, 36° (angled)	
Video signal	GigE Vision	
Resolution	(IP04): 1280 x 960 px (IP08): 1400 x 1050 px	
Cooling	W70: Water (Ø cooling jacket = 70 mm) A60: Air (Ø cooling jacket = 60 mm)	
Max. penetration depth (see drawing)	D-FS2 … –700: X=0 D-FS2 … –1100: X=422	
Special version	Mobile	
Measurement range with D-VTA 200 Software	800 … 2000 °C	
Weight	D-FS2 VIS … W70 – 700 D-FS2 VIS … A60 – 700	app. 12 kg app. 10 kg
Max. temperature in combustion chamber	D-FS2 VIS … W70 – xxxx D-FS2 VIS … A60 – xxxx	2000 °C 1600 °C
Temperature monitoring at endoscope tip	PT100	
Max. ambient temperature	–30 … +60 °C (optionally expandable)	
Max. pressure in combustion chamber	–100 … +100 mbar	
Cooling media (water cooled)	Amount of cooling water Amount of purge air	>500 l/h >10 Nm³/h
Cooling media (air cooled)	Amount of cooling air Amount of purge air	>30 Nm³/h >10 Nm³/h

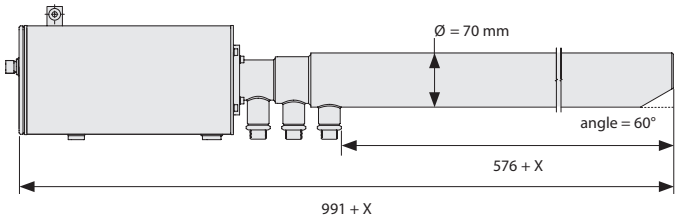
D-FS2 furnace sensor VIS | air cooled

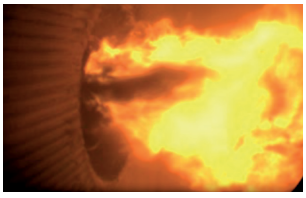


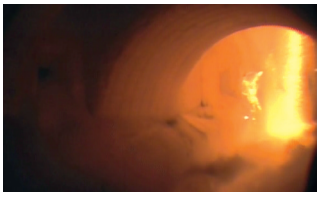
D-FS2 furnace sensor VIS | water cooled



D-FS2 furnace sensor VIS | water cooled, angled







Pictures: hard coal burner (left) cement clinker cooler (right)

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