ALM

ABSOLUTE LENGTH MEASUREMENT

FOR
CONTINUOUS CASTERS

FROM

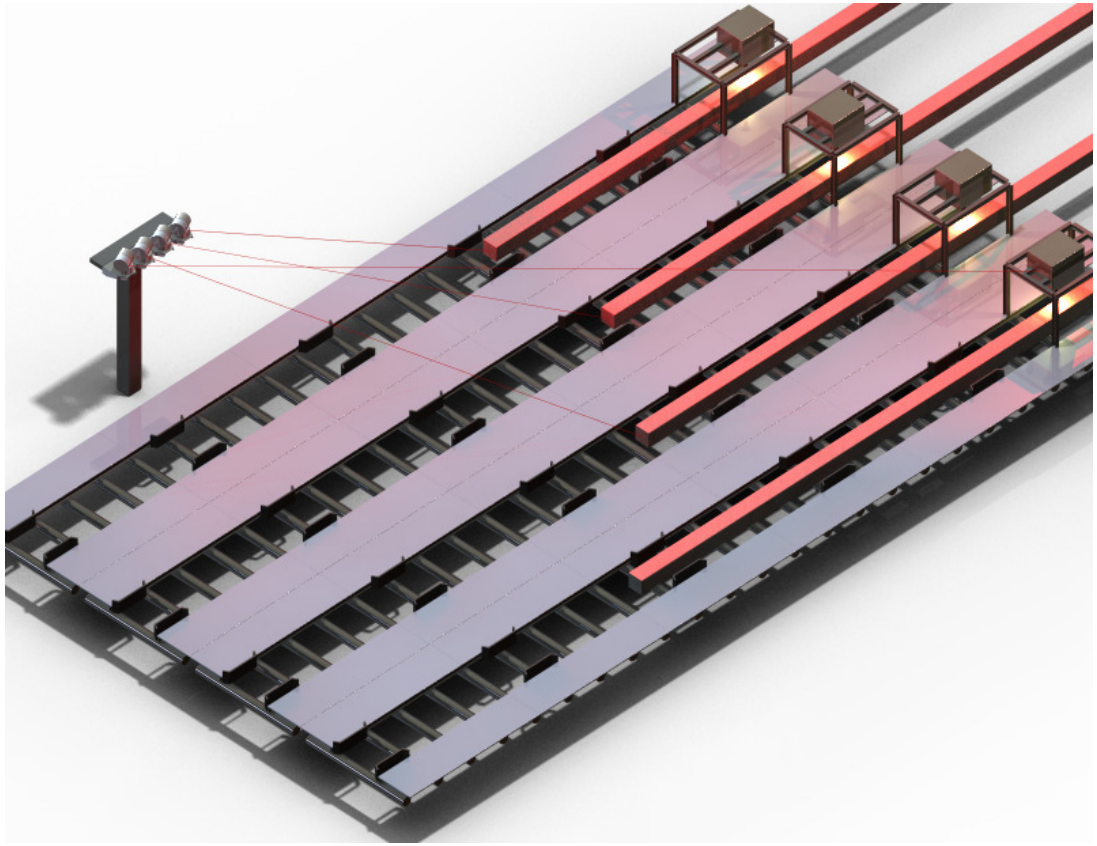
Metallurgical Sensors Inc.

Confidential Presentation Revision: 8/30/2010

ALM
ABSOLUTE LENGTH MEASUREMENT

Metallurgical Sensors Inc.

- Metallurgical Sensors, Inc. is proud to present the **Metsen-ALM Absolute Length Measurement** system for continuous casters.
- The Metsen-ALM provides accurate, **continuous measurement** of emerging product length, making miss-cuts a thing of the past!
- Since the measurements are absolute, **no more cumulative errors** suffered by conventional encoder/totalizer length measurement systems.



ABSOLUTE LENGTH MEASUREMENT

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- Features
  - Accurately **tracks emerging length** of any cast product, be it bloom, slab, billet, round, or beam blank.
  - Measures the exact **position of the torch carriage** during and after each cut, eliminating any mechanical variability.
  - Integrates with plant PLC network, **providing real time lengths** while reading and archiving important data.
  - Stores **synchronized data and video** for historical analysis.
  - Built with **maintenance-free** military- and industrial-grade components for the rigors of a steel mill.
  - Quick & **simple installation**: *"Just find a place on the run-out where you always have an unobstructed view of the billet face as it emerges from the torch cut machine [such as an existing walkway or building column I-beam], weld or bolt the universal bracket into position, then connect the cable and cooling gas hose..."*

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- How it works
  - The Metsen-ALM uses offset-laser measurement to **track the face of the emerging cast product**. Providing the steelmaker with accurate lengths and keeping sensitive electrical components well out of harm's way.

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- How it works (continued)
  - At the start of each product segment, the ALM laser automatically finds the emerging face of the bloom, billet, or slab.

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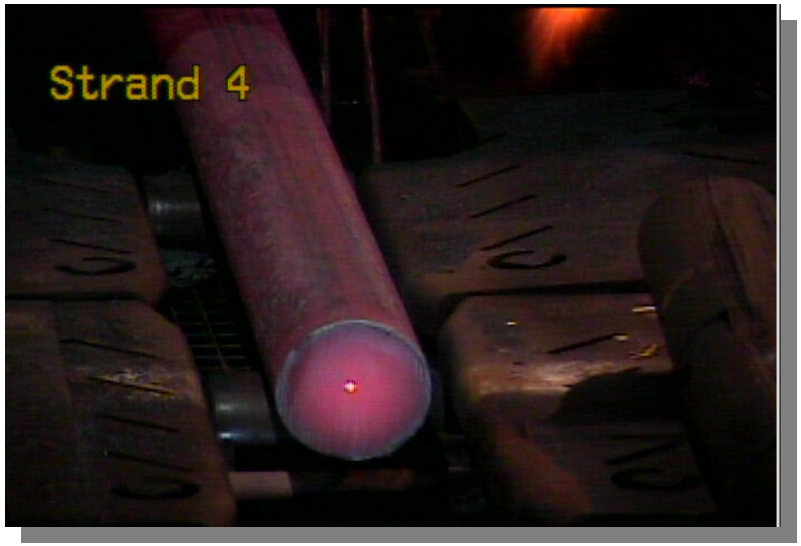
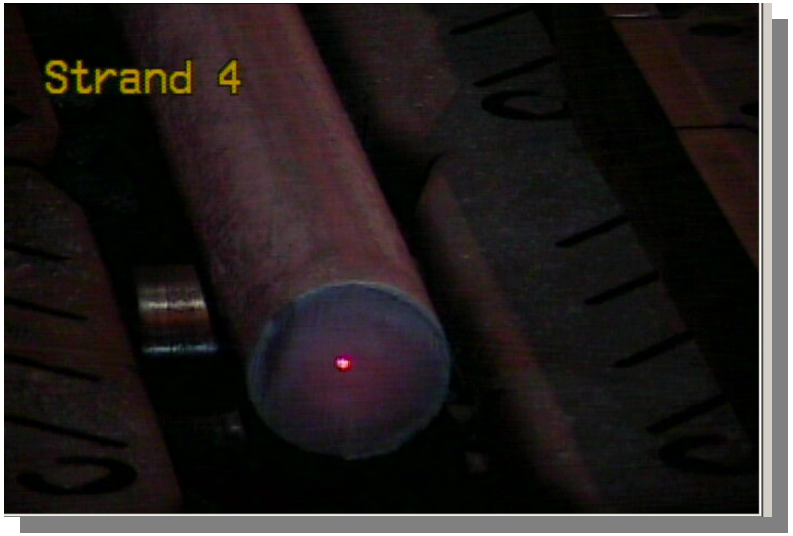
- How it works (continued)
  - As the cast progresses, the ALM Laser will track along with the face of the cast product, providing real-time emerging length.





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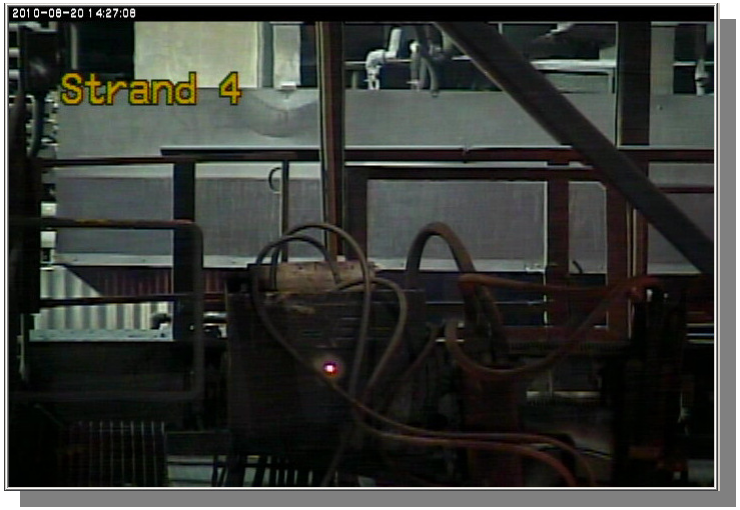
- How it works (continued)
  - After the desired length is reached and the torch clamps have engaged, the ALM Laser will begin tracking the torch carriage, automatically calculating a final length for the cast product.



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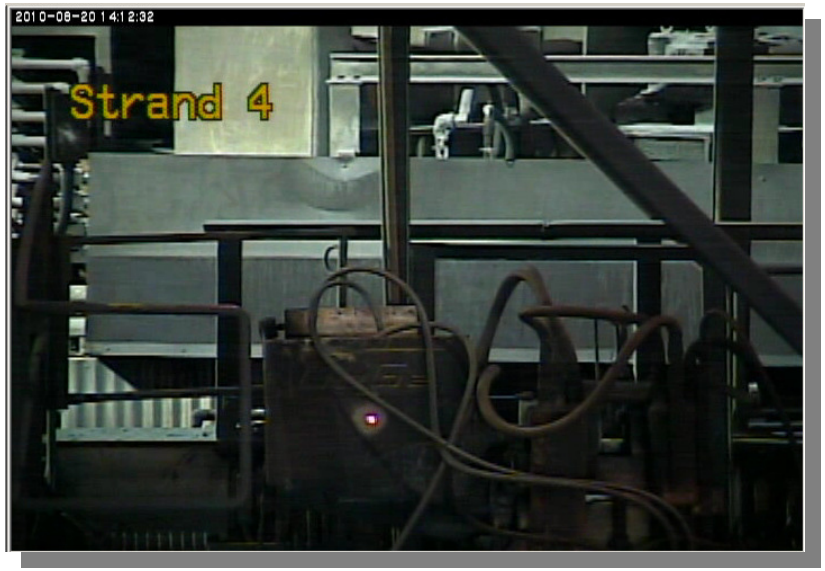
- How it works (continued)
  - When the torch clamps release, the ALM Laser tracks the torch carriage back to its 'home' position. Any deviation from normal 'home' will be applied to the next cast product automatically!
  - Note that the cumulative errors [due to slippage, drifting calibration, etc.] in your existing strand encoders can also be continuously measured for implementing auto-correction functions...



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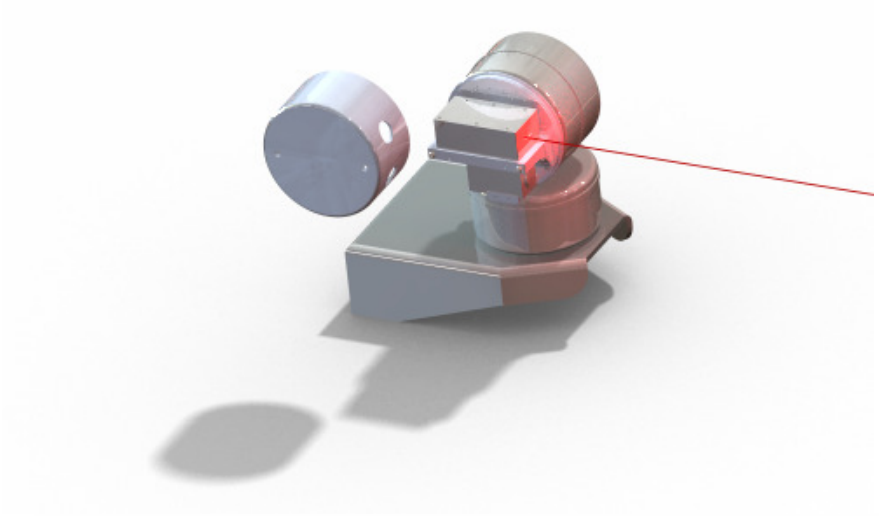
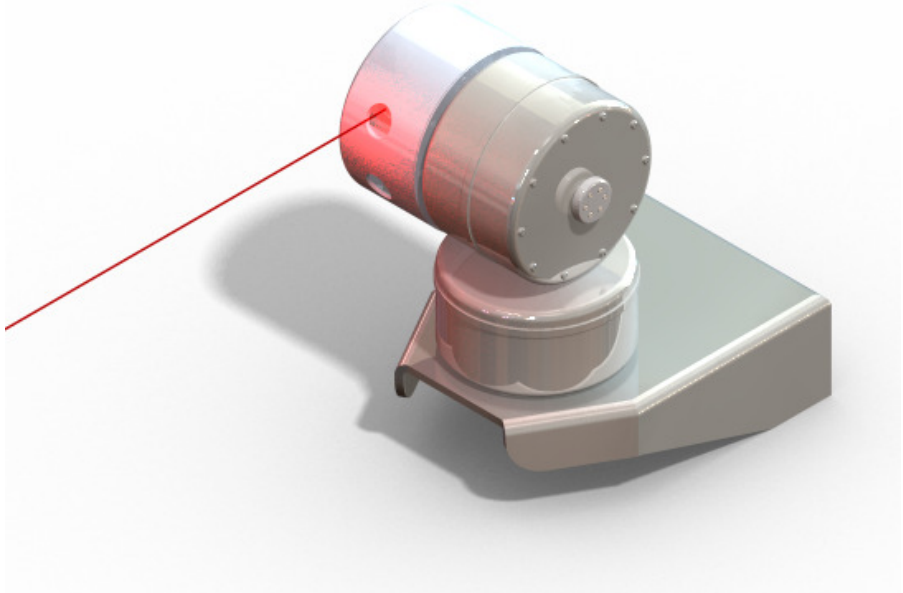
- Hardware
  - With the Metsen-ALM, each strand is equipped with a **miltary-grade** pan-tilt gimbal and high-accuracy distance laser.
  - Built-in **camera** allows the operator to see each strand casting.
  - Heatproof cabling and industrial-grade housings keep electrical components safe.





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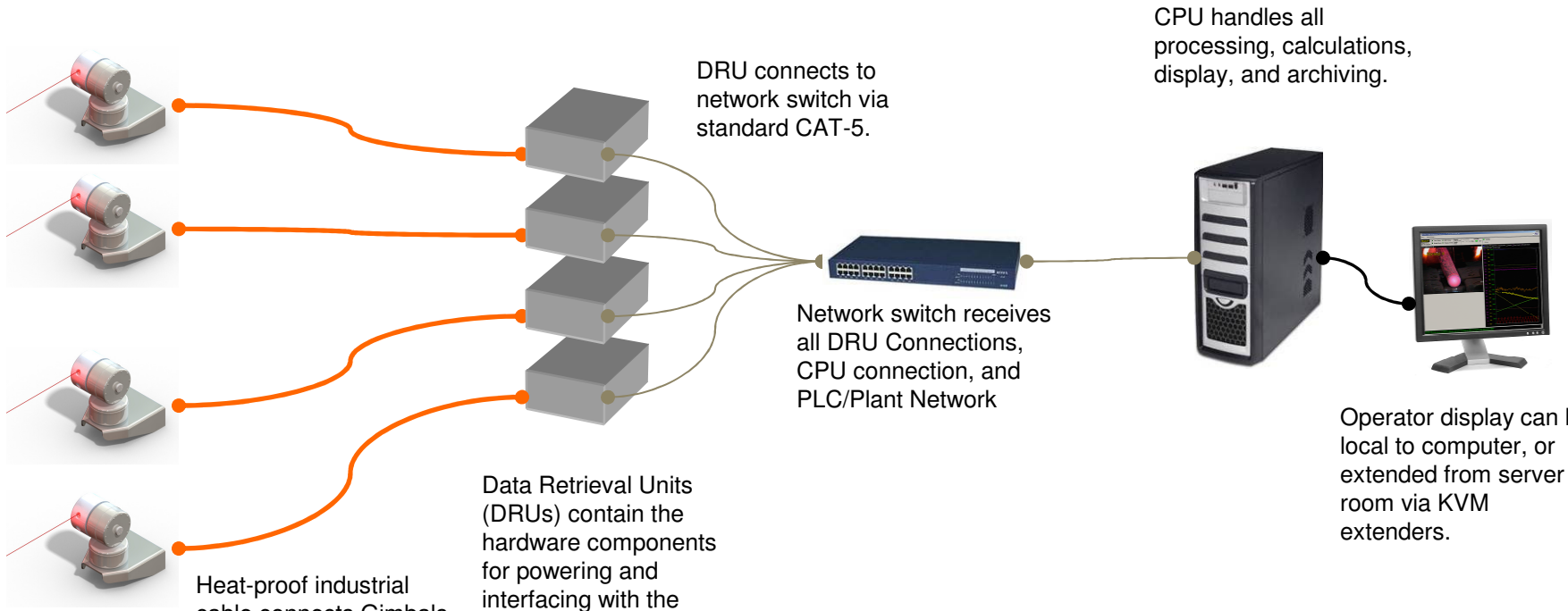
➢ Typical Hardware Layout

(1-6 Strands)



Military-grade gimbal with laser and camera payload. Nitrogen cooled. 1 per strand.

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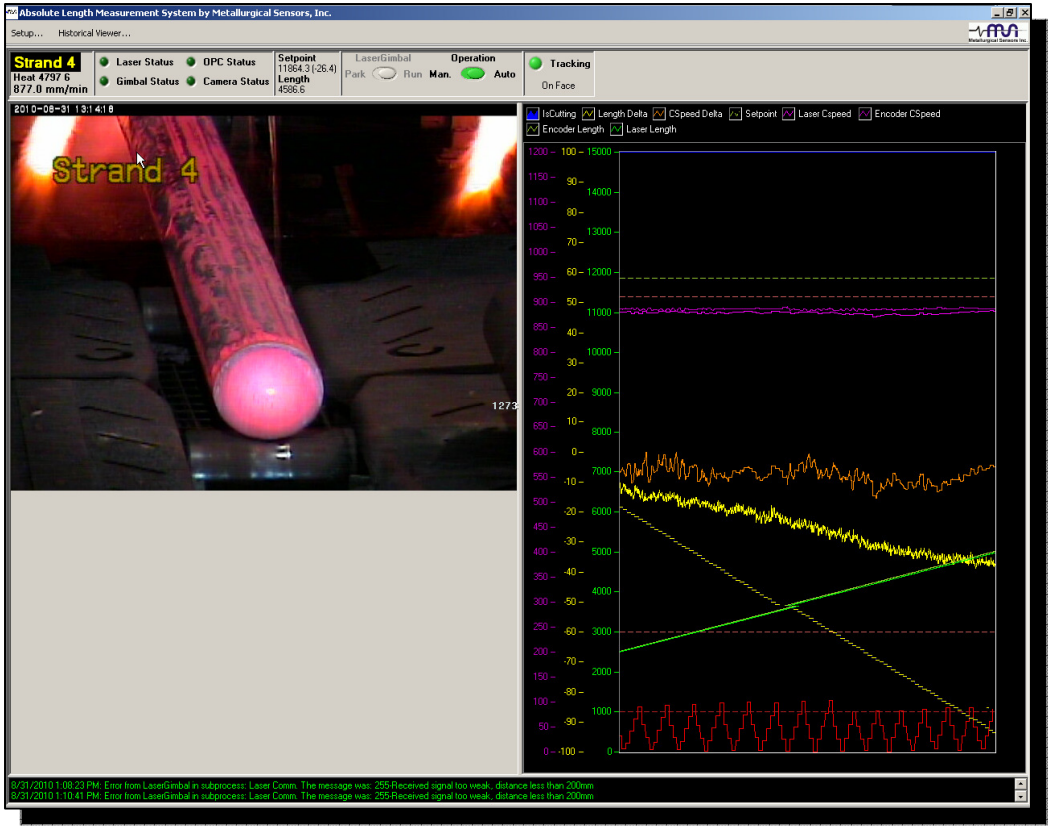
- Software
  - The Metsen-ALM control software is a **state-of-the-art** windows application. Integrating device control, charting, video, operator alarms, OPC communication, and data archiving.
  - One computer can control, display, and archive up to **six strands**.



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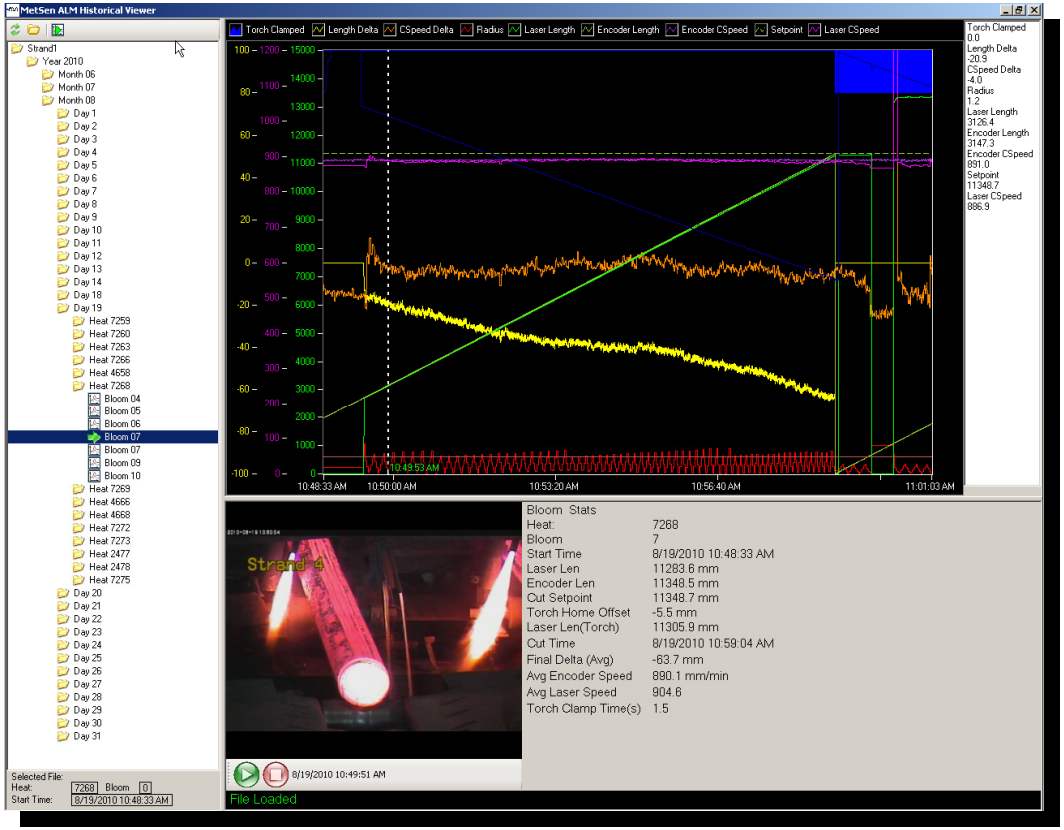
- Software (continued)
  - The Metsen-ALM includes a robust **Historical Viewer** that can be used to view and analyze any individual cast piece with synchronized video!



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Service

- Metallurgical Sensors, Inc. is committed to helping you achieve your productivity, quality, operational, or other managerial goals.
- All Metsen systems are offered with an available **service contract**, ensuring your system is kept in top-notch shape, your operators are well trained, and that our products are helping you to meet your goals.

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➢ For More Information

If you would like to discuss how the **Metsen-ALM** from Metallurgical Sensors can benefit your shop, or have any other inquiries, please don't hesitate to contact us.

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