

Laser Vision for Tube & Pipe Mills

Welding with Vision

Laser Vision is now well established for tube & pipe mill applications. Ranging from super-accurate positioning of a laser welding head on a tube mill to control of multipass welding in thick wall pipe production, Oxford Sensors systems provide the best solution at a fair price.



Quality Improvements

- Accurate weld placement every time, all of the time
- Reduced defect rates
- More consistent penetration with better ID/OD interpenetration
- Better bead appearance
- Less reliance on individual operators
- Generation of 3D part data



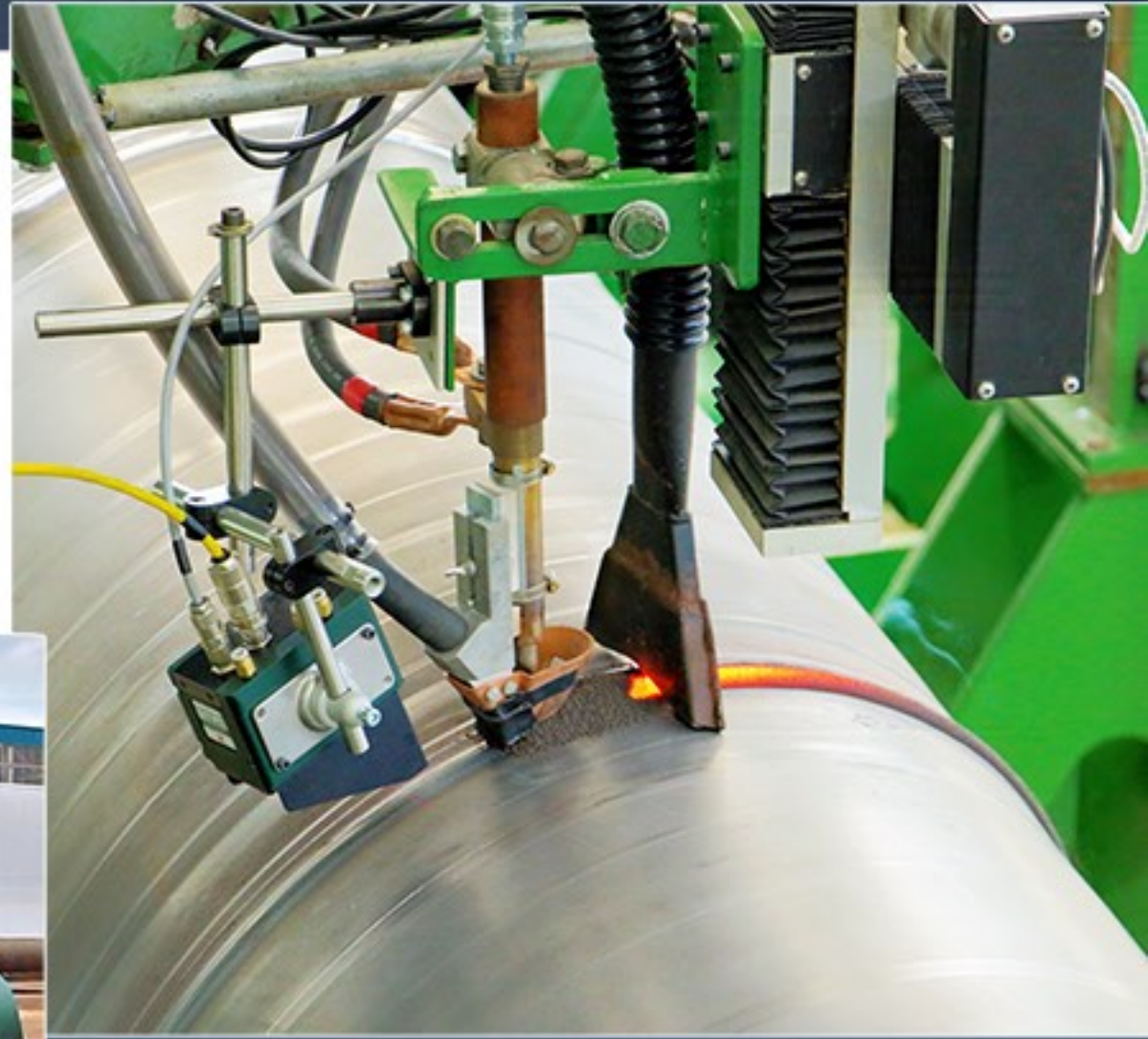
Productivity Improvements

- Higher efficiencies from reduced manpower
- Less repair and rework
- Enables higher welding speeds
- Enables more advanced weld profiles and smaller welds
- Frees operator for other tasks

Laser Vision for Spiral Pipe Mills

Oxford Sensors staff have been working on spiral pipe mills for over twenty years. In that time, we have provided everything from simple cameras to complete spiral mill electrical control systems.

With extensive experience of spiral mills from many different manufacturers, and having completed spiral mill installations in over fifty countries, OSL staff are able to undertake projects almost anywhere in the world.



Applications on One-Step Spiral Pipe Mills

- Single tracking systems for ID or OD welding
- Dual tracking systems for ID and OD welding
- Automatic single and tandem SAW control
- Complete integrated mill control and electrical systems

Applications on Two-Step Spiral Mills

- Tracking systems for tack welding on the mill itself
- Welding systems for tack welding on the mill itself
- Complete dual systems for offline ID & OD welding and control



Simultaneous ID/OD offline welding



Applications on One and Two Step Mills

- Automatic hilo control systems
- Automatic gap control systems
- Combined tracking and bead inspection for online UT control
- Complete skelp welder welding and control systems
- Multihead laser vision systems for offline UT guidance
- General pipe handling controls
- Inline pipe length measurement



Laser Vision for Longitudinal Pipe

OSL staff first installed a laser tracking system on a UOE mill in 1996. Since then we have continued to work on many aspects of tracking and weld control for longitudinal pipe.

Our latest systems have unique features which have been developed out of our experience in solving real world problems.



LSAW Pipe ID Tracking

For example, our OD tracking systems use true lookahead tracking to counter the problems of OD height control arising from the thermal distortion of the ID weld.



LSAW Pipe OD Tracking

We have particular experience in fully automatic position control of multipass welding for thick wall pipes.

OSL staff designed the original multipass welding systems and were first to implement a reliable control package.



Longitudinal Pipe Tack Welder

Applications in Longitudinal Pipe Welding

- Tack welder seam tracking
- Tack welder hilo and gap measurement and control
- ID welder seam tracking
- OD welder seam tracking
- Multipass welding control for thick wall pipes, ID, OD, Circ
- Automatic adaptive fill control
- Combined bead tracking and inspection systems for UT systems
- Pipe Coating Control

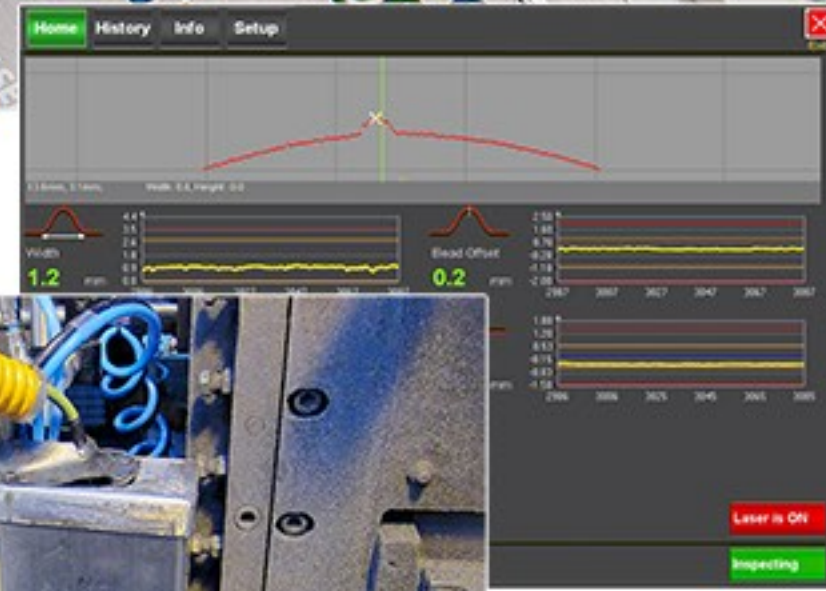
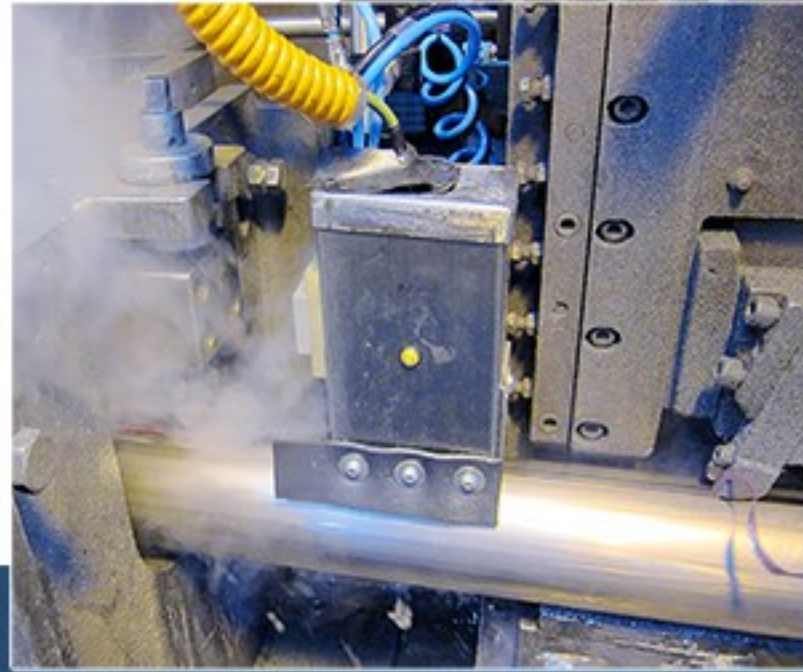
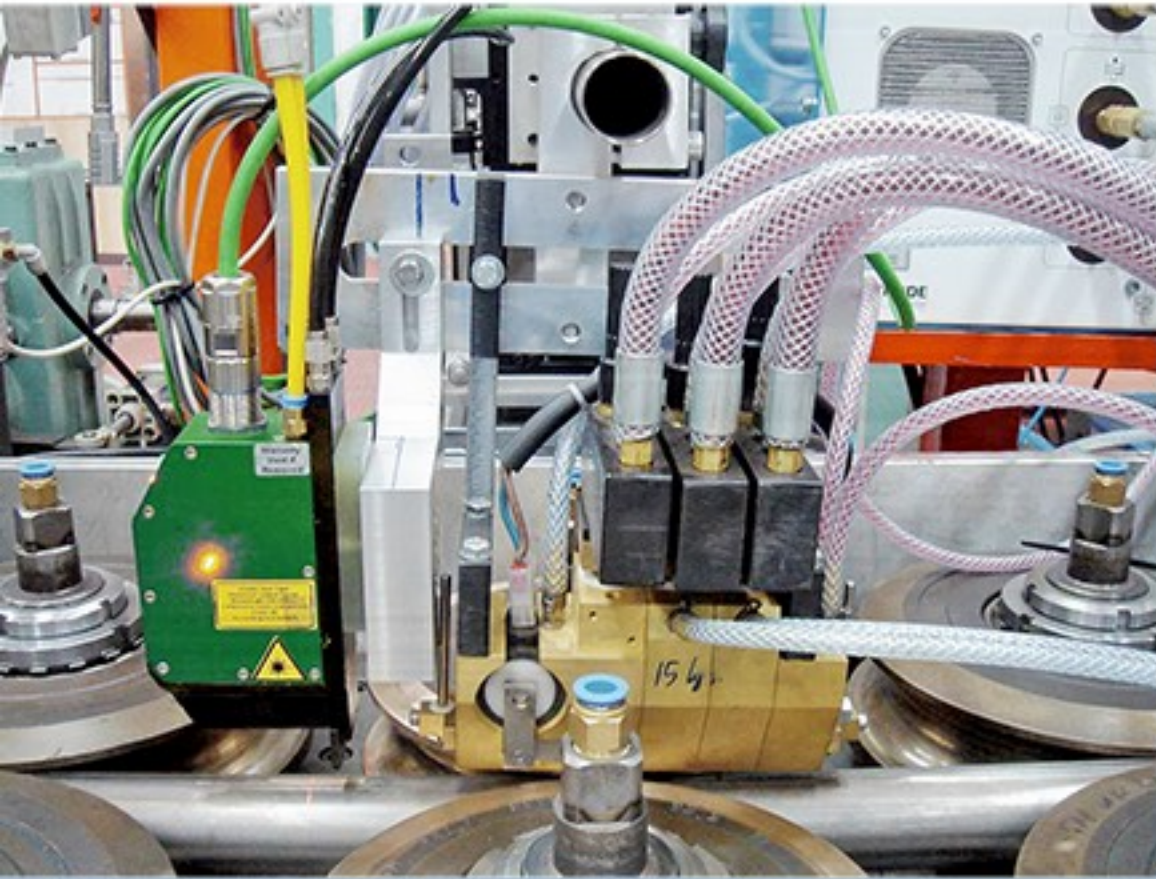


Pipe Coating Control

Tube Mill Applications

Over the years, OSL staff have been involved in many tube mill applications, including:

- Tracking systems for Laser and TIG welded tube
- OD bead inspection
- ID scarf inspection
- Line tracking systems for UT and annealing applications



With so much relevant experience, OSL staff know vision and control applications in tube & pipe as well as anyone in the industry.

We are able to understand special requirements and develop vision and control solutions which are reliable and cost effective.



Robot Pipe End Measurement



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