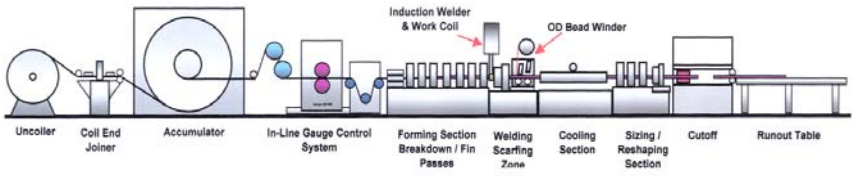
Welded Tube Pros
Doylestown, Ohio USA

Single source for Welded Tube Process and Technology



WTP solutions for quality Welded Tube production

Exclusive Distribution

- **In-Line Gauge Control for Welded Tube / Rollform or Stamping lines**
- **I2S Gamma / X-Ray thickness gauges**
- **ZEISS QuickView**
- **Pi-Tape**
- **Hamar Laser**

Regional Distribution

- **SWEED recycle systems**
- **LAP Laser systems**
- **Harris Optical Gauges**
- **MYCLEX hydrocarbon abatement systems**

WTP SERVICES

- **Consulting Engineering**
- **Laser Mill Alignment**
- **Process Audits**
- **Operator / Management Training**
- **Weld Tube / Rollform Mill Rebuilds**
- **Roll Tooling Analysis**
- **Job place safety training**
- **Onsite environmental services; 24 hr. spill response**
- **Electrical substation maintenance**

WTP Products

- **In-Line Gauge Control**
- **Laser / Optical: width thickness, camber, velocity gauges**
- **QuickView process inspection systems**
- **SWEED scrap process systems**
- **Pi-Tape products**
- **MYCELX Hydrocarbon filtration systems**
- **Resonic NDT inspection systems**
- **Hamar Laser inspection systems**

Consulting Engineering

- Process development for special products.
- Scrap Reduction analysis and equipment thru RECYCLE CONSULTANTS Your Single Source for Recycling Equipment and Consulting
- Machine design review.
- Project management

Training Goals & Objectives

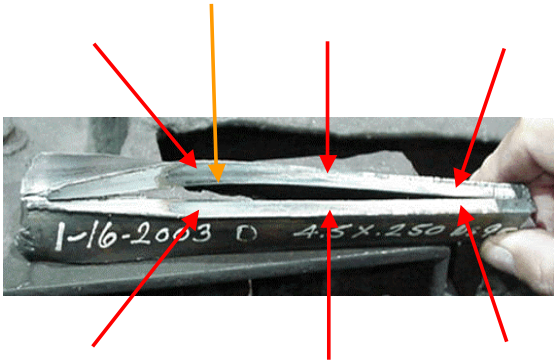
- Increase productivity.
- Decrease downtime.
- Ensure continuity of mill set up and operation.
- Reinforce on the job safety practices.
- Bring operators and managers closer together.
- Process audits to maximize use of your available equipment and facilities.

Process Audits

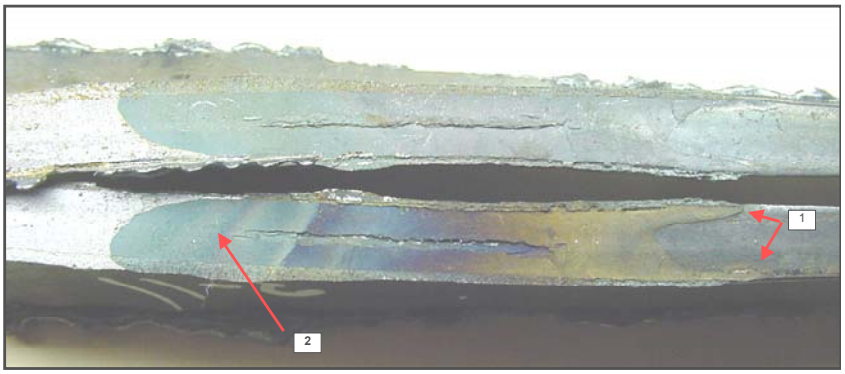
- In depth review of current practices.
- Process analysis to determine root cause for failure / scrap generation.
- Personnel evaluation.
- Documentation review for maximum return on investment.

Field Service Welded Tube and Cold Rollform lines

WTP Consulting for Weld Quality

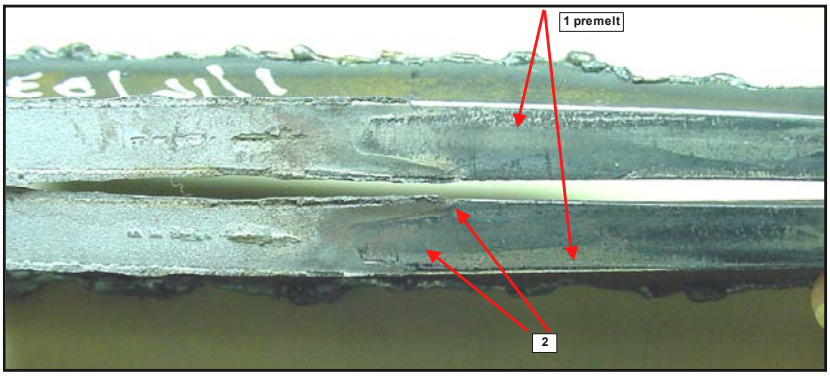


WTP inspection for weld quality



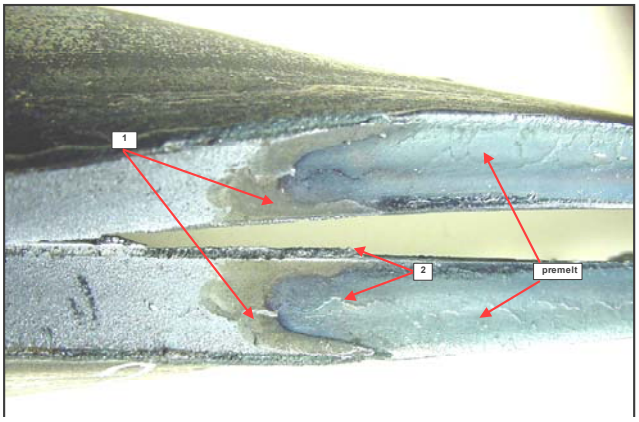
Great example of mill coolant contamination of the forge point. Even though the right hand melt zone (1) would seem to indicate even heat the break zone (2) shows that the weld heat was concentrated on the inside edge. This also indicates the affect of finishing forming in the weld box VS presenting the proper form from the Fin passes.

WTP inspection for weld quality



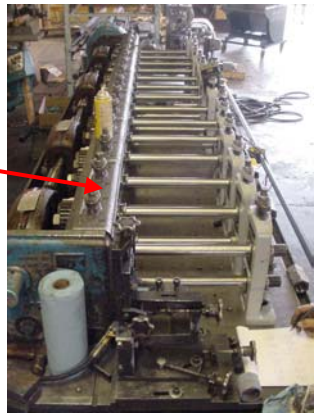
Example of mill coolant contamination. Weld heat concentrated on outer edge prior to forge point (1 premelt) but shifts toward more even heat from the change in shape at the weld box. (2).

Premelt, oil contamination and weld break inspection WTP



In-plant Mill Rebuilding

Rollform machine rebuild



New shafts, bearings, seals and Laser assisted mill alignment.

All performed on site!

WTP 3 Plane Laser Alignment

How its done:

1. **Mount the laser emitter on the machine base.**
2. **Level and buckin to two reference point.**
3. **Place laser target so it can see the emitter and be held rigidly to the surface to be measured.**
4. **Record the digital reading**

Tools:

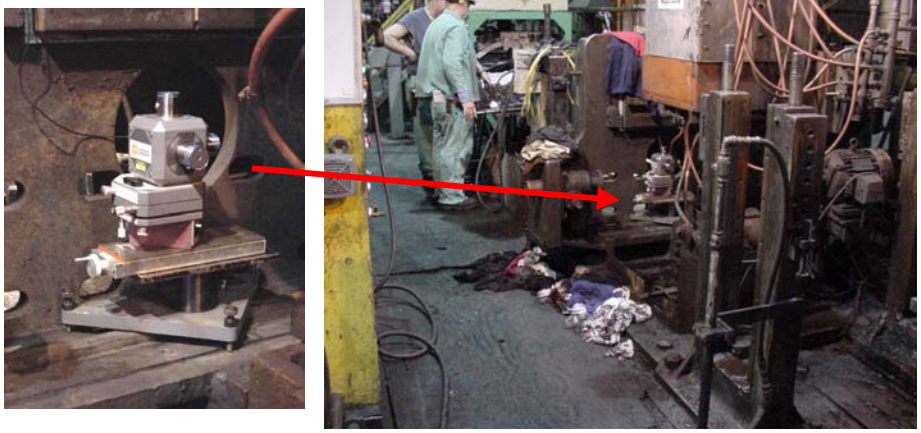
1. **15+ years of Laser alignment experience.**
2. **Hamar 3 plane emitter. ISO certified 0.001" in 100'**
3. **Precision level to insure that shafts are level**
4. **Laser targets, readout and mounting hardware**

Laser Assisted Mill Alignment

Laser Target set on shaft shoulder

Three plane Laser, ISO certified to be accurate to 0.001" in 100 feet

3 Plane Laser alignment on a 8” mill Projected plane, Breakdown to Sizing



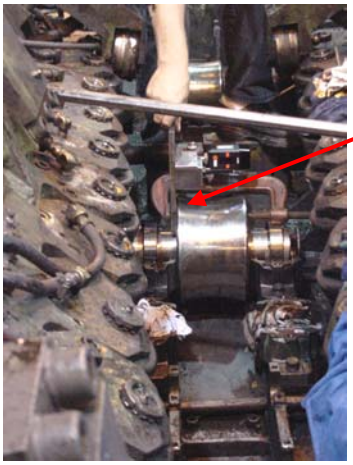
Locating positions for internal mill components the easy way!

Modern Pipe mills have many reference surfaces that must be in proper alignment. The radial path projected by a forming cage is such an example.

Every roll from the entry guide to the sizing zone must be in the proper location or all the money you spent on tooling is wasted!

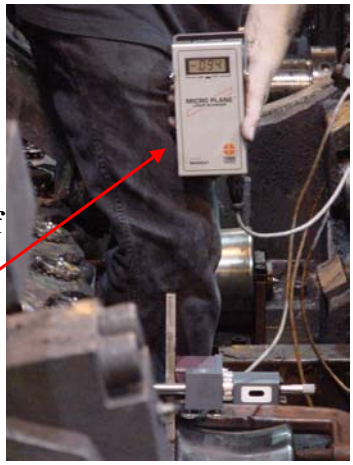
How much time do your changeovers take? How much scrap do you make?

Where is my cage roll face?



The bottom forming cage roll face is 0.094” toward the drive side of the line.

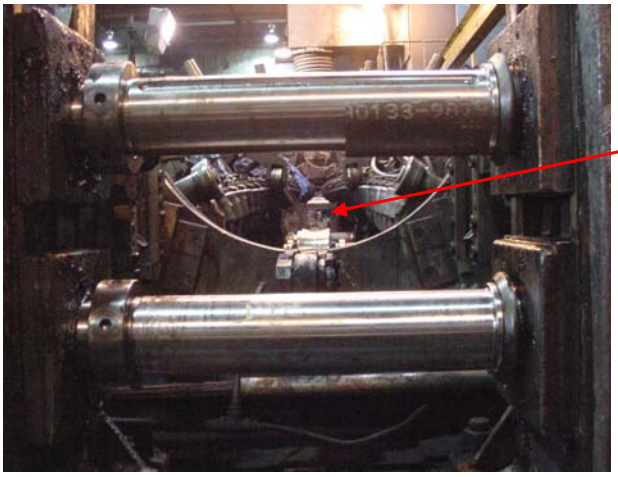
Measurement accurate to 0.001” in 100’



Every roll shaft shoulder must be in the same plane!

The laser emitter is located at the weld forge point. The projected laser light plane travels the same path that the pipe will follow in production.

Laser emitter as seen from the breakdown passes, 8” mill



The visible laser beam can be seen in the center of the photo. Two wave lengths are produced. The visible beam aids setup. The tightly focused invisible beam is used to collect position measurements.

Checking shoulder alignment 8” mill

The laser target is mounted against the machined reference surface by a machinist magnet.

The digital readout then provides a easy to read answer to the question.

Digital readout

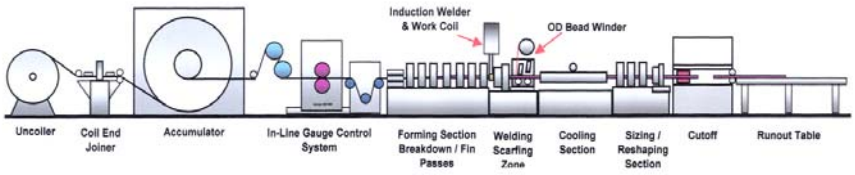
The shoulder is .006” toward the drive side

In-Line Gauge Control Mills
WTP exclusive representative for I2S

You BUY by the TON and SELL by the FOOT

<u>Produce MORE Tube with the SAME material Cost and Labor!</u>

The In-Line Gauge control system mounts BETWEEN the accumulator and the Tube Mill



In-Line Gauge Correction

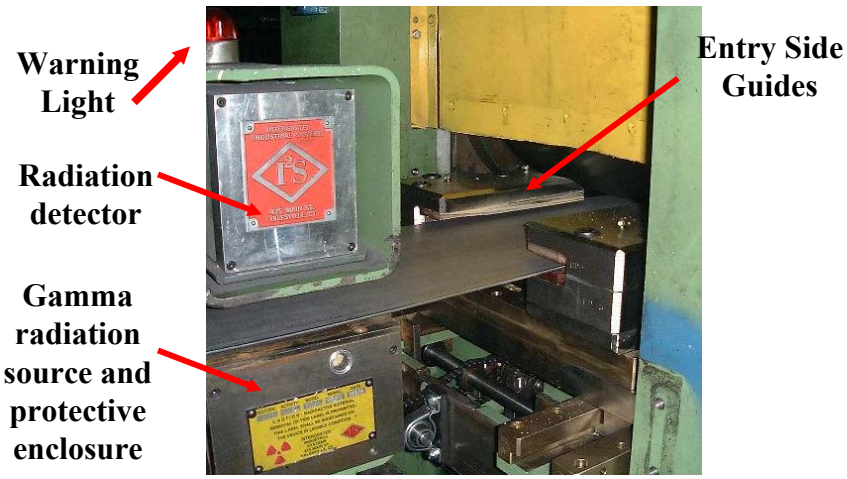
Gauge corrected strip out to tube mill

Strip in from Accumulator

Right to Left Hand operation

Optical Camber detector and Gamma thickness gauge

Gamma Thickness Gauge



WTP Authorized distributor
Pi-Tape

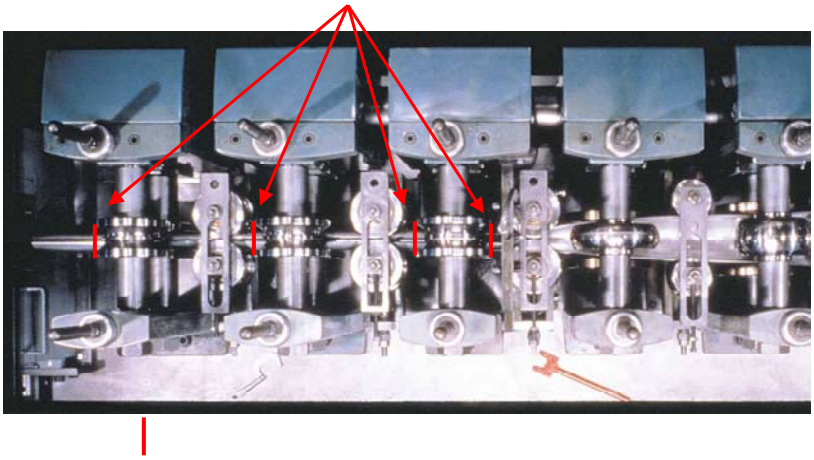
US and Metric Pi-Tapes

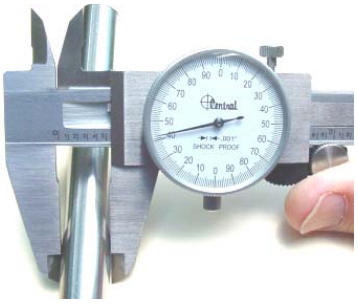
For Welded, Seamless or Extruded Tube / open shape inspection.

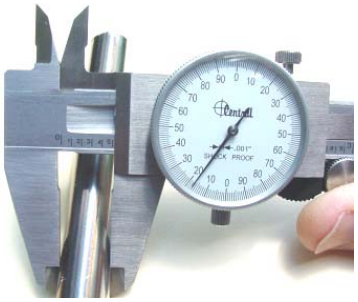
Tube / Pipe size from

¼" to 144" OD

Typical Pi-Tape measurement locations on Welded Tube mill







SWEED Recycling Systems

WTP is the SWEED distributor for all products in the following states:

Illinois
Indiana
Michigan
Ohio
Western New York
Western Pennsylvania
Canada

RECYCLE CONSULTANTS
Your Single Source for Recycling Equipment and Consulting

Chopped Scrap is worth MORE $$$

Benefits of Chopping

- **Reduce Dumping Fees**
  Chopped banding compacts easily and a reduction of 20:1 can be expected.
- **Free up Valuable Space**
  Regardless of property value, nobody can afford to waste space storing scrap.
- **Improve Productivity**
  A clean uncluttered business in generally a successful business.
- **Safety**
  With strategically placed Sweed choppers, employees handle scrap only once—greatly reducing the risk of an accident.
- **Convert Scrap for Profit**
  Scrap dealers typically charge to pick-up loose banding. But if it is chopped, it can be worth .15 to .20 cents a pound!

SWEED products and Recycling Systems Distributed by

Recycle Consultants, Div. Of Welded Tube Pros

Territory: Illinois, Indiana, Michigan, Ohio, W. NY W. PA and Canada

RECYCLE CONSULTANTS
Your Single Source for Recycling Equipment and Consulting

Recycle Consultants / Sweed Machinery, Inc. Point of Origin Scrap Choppers.

Model 400
1/2 HP, 115/230-1-60
3/4" X .040" W Clip
265 pounds
36"L X 26"W X 13"H

Model 450
3/4 HP, 115/230V-1-60
7/8" X 0.60" W Clip
315 Pounds
36"L X 26"W X 13"H

Model 510
1 1/2 HP, 115/230V-1-60 (230/460V-3-60)
1" X 0.090" W Clip
530 Pounds
24"L X 28"W X 24"L

Model 512
2 HP, 115/230V-1-60 (230/460-3-60)
1" X 0.130 W Clips
1,035 Pounds
48"L X 29"W X 23 1/2"H

Is this what happens at your plant?

All that banding ends up here! Tying up valuable space!

Model 515
3 HP, 115/230V-1-60 (230/460-3-60)
1 3/4" X 0.130" W Clips
1,310 Pounds
53"L X 34"W X 30"H

Model 5400
5 HP to 10HP, 230/460-3-60
2" X 0.150 W Clips
3,000+ pounds
48"L X 56"W X 33 1/2"L

A dump bin fills fast and cost a bundle to dump each time. Chopped banding easily compacts; a reduction ration of 20 to 1 is not uncommon. All of the banding in the above dump fits into two 55 gallon barrels after chopping. Typical barrel weight is about 1,300 pounds for 3/4 inch X 0.060" banding.

For questions and quotations please contact:
Authorized distributor, Sweed Machinery, Inc.
Recycle Consultants Div. Welded Tube Pros
www.recycleconsultants.com Tel 1-330-658-7070
Doylestown, Ohio 44230 Email: budg@bright.net

Sweed Scrap Choppers provide the following benefits:
Reduce Dump Fees AND Free up space in the plant!
Cut workman compensation claims!
Improve productivity through better housekeeping!

SWEED TS450 OD Weld Bead Chopper

Distributed by Recycle Consultants, Div. Of Welded Tube Pros

Territory: Illinois, Indiana, Michigan, Ohio, W. NY, W. PA and Canada

RECYCLE CONSULTANTS
Your Single Source for Recycling Equipment and Consulting

Chop OD Weld Scarf

Chopping is safer! No more scarf ball unloading!

One lost time accident pays for the investment in OD Bead Chopping!

RECYCLE CONSULTANTS
Your Single Source for Recycling Equipment and Consulting

SWEED Recycling Systems

- **Scrap chopping systems**
- **Scrap handling conveyor systems**
- **Material separation systems, magnetic, density or color.**
- **Scrap crushing systems to densify prior to chopping.**
- **Scrap handling containers**

SWEED Scrap chopper and conveyor systems

Distributed by Recycle Consultants, Div. Of Welded Tube Pros

Territory: Illinois, Indiana, Michigan, Ohio, W. NY, W. PA and Canada

Scrap from 1 week production filled a 30 cubic foot box

Chopping scrap

1. **reduces the size of the scrap container.**
2. **Reduces the frequency of pickup.**
3. **Increases the scrap value by 3 fold. The scrap may not be directly brokered to the steel mill!**

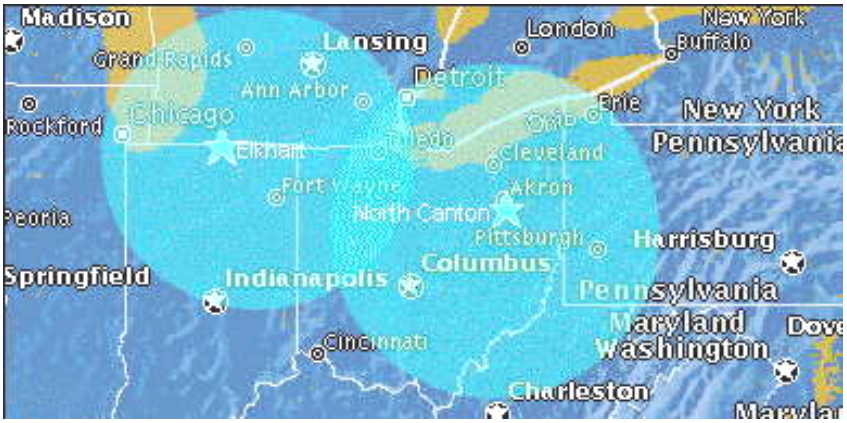
RECYCLE CONSULTANTS
Your Single Source for Recycling Equipment and Consulting

SUNPRO Services

- **Site and building decontamination**
- **PCB cleanup**
- **Radiation decontamination**
- **Wastewater treatment**
- **DOT-permitted Hazardous Waste Transporter**
- **Upgrade of Electrical Substations**
- **Energized Substation Cleaning and Painting**
- **PCB equipment recertification / replacement**
- **24 hour emergency response to spills**

WTP is an agent for SUNPRO

SUNPRO 24 Hr. Service area



New office in Chicago for even greater service

Laser and Optical Noncontact Gauges

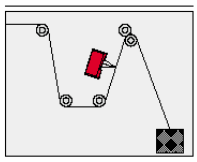
LAP Laser Gauges:

- **Laser Length and Speed gauges**
- **Laser thickness gauges**
- **Tube OD gauges**
- **Multiplane Tube OD Gauges**

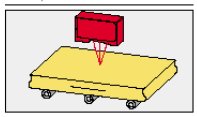
Harris Optical Gauges:

- **Optical camber detectors**
- **Optical strip width gauges**
- **Optical passline independent width or edge detector gauges**

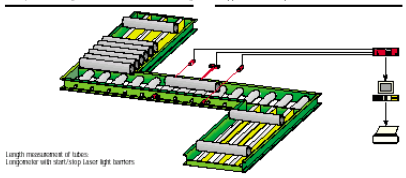
LAP Length and Speed Laser Gauge



Thread, textile: Continuous length and speed measurement, process control and optimization



Sheet, plate, board: Length measurement, final control and recording



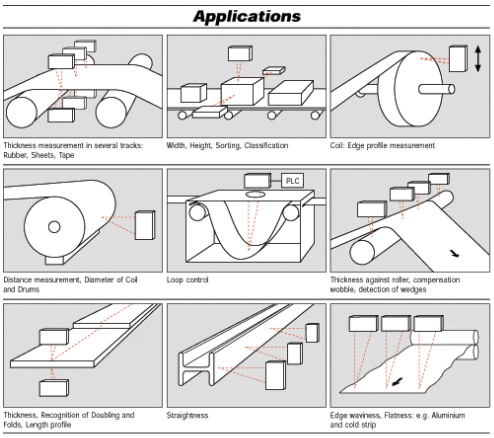
Length measurement of tubes: Longimeter with start/stop Laser light barriers

Special Features

The non-contact measurement of speed and length solves many problems by the reliable recording of production parameters. This also contributes to productivity and increased quality.

The application of a Longimeter will help you reduce costs.

- The exact non-contact and slip free measuring minimizes the waste margins of material designated to be cut into lengths.
- Complaints will be avoided. You will only be producing as much as is required and as little as possible without waste. A production program can be included as an option.
- The surface of the material stays untouched, making smears and scratches and other measurement traces a thing of the past.
- Through a robust and long lasting technology you will have a reliable measuring tool at hand that will help you to avoid break downs and stoppages.
- Service free operation and ease of use will guarantee that the Longimeter is at hand for any application and quick, trouble free installation.



certified ISO 9001 manufacturer

We are constantly available with advice, service and expertise, based on over a decade of innovation.

Welded Tube Pros Authorized Distributor LAP Germany

Laser Measurement systems: Velocity, Thickness, Width, End Weld sensing: For Welded Tube & Rollform sections.

Phone:(330) 658-7070, eFax:(312) 896-5696

e-mail: budg@bright.net, Internet: www.weldedtubepros.com

LASER APPLIKATIONEN LAP

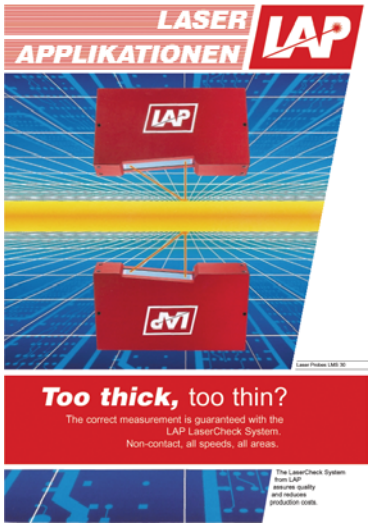
Measures all dimensions!

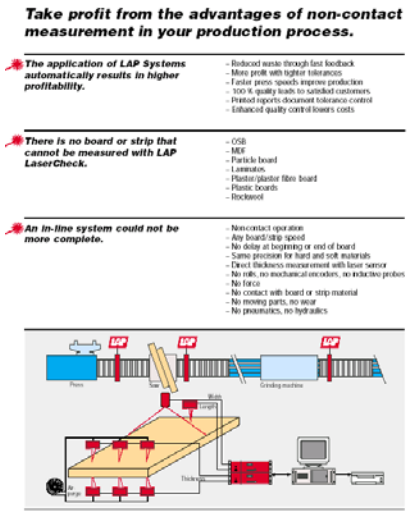
LAP Laser applications

Noncontact measurement

1. **Thickness**
2. **Position**
3. **Diameter**
4. **Straightness**
5. **Speed**

LAP Thickness Gauges



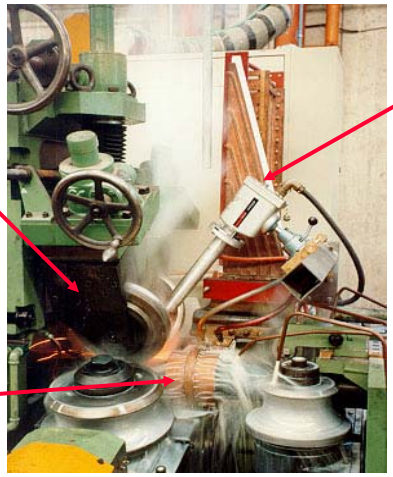


Replace Optical Pyrometer with LAP Thickness Gauge

5 Roll weld box.

Solid state weld power supply.

Single turn plate type induction coil



Pyrometer

Courtesy of

EFD Induction

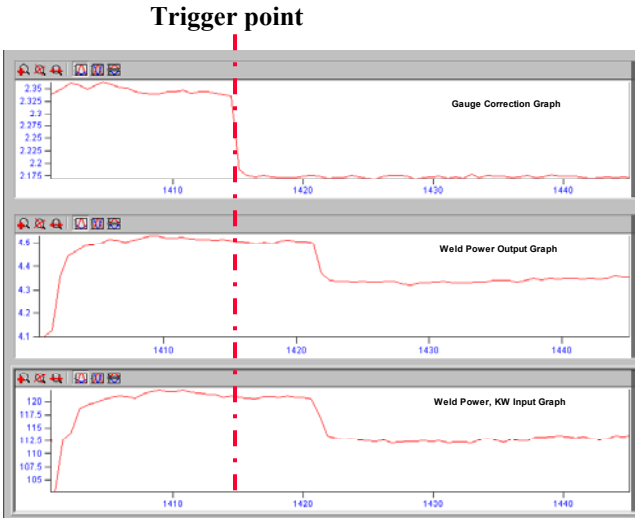
Weld Heat control based on Thickness

- **Current operation is based on the worst case; capable of handling the heaviest wall, so heat input is normally MORE than required.**
- **Optical pyrometers trim is reactive, after the fact and easily obscured. Works great when aimed and not obscured by smoke or water.**
- **Thickness readout from the LAP Laser thickness gauge is anticipatory so weld heat may be ramped up or down to suit the requirement.**

Weld Heat Chart example of heat input following thickness change

- **Three graphs are shown: Gauge readout, Weld power setting (a pot setting) and Weld Power KW input.**
- **The welder is following the speed reference signal as trimmed by the thickness gauge readout (+ / - 10%).**
- **Weld Heat matches the need not some imaginary load required to weld heavy coil ends!**

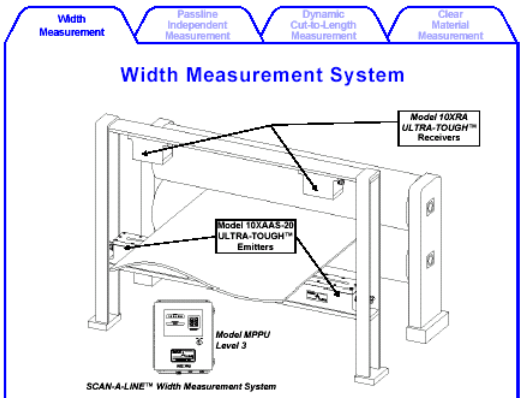
Weld Heat trim based on thickness



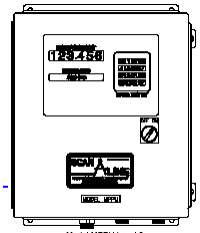
Results of thickness following Weld Heat Control

- **Weld heat is automatically set to the minimum required. The operator can still adjust the process as normal. Change is invisible.**
- **Weld heat regulation to the minimum required increases impeder life, reduces weld roll wear and increases up time.**
- **The example shows a +10% reduction in welded input KW for an additional operational savings!**

Harris Optical Width Gauge

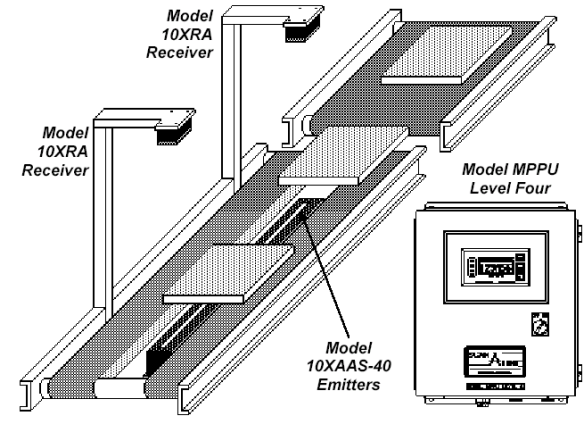


- Linearity of 0.024 inch [0.61mm] 2-sigma
- Patented Scanned LED Technology
- NO MOVING PARTS
- Solid State Reliability
- No Light Sources to Replace
- High, Low and Target Limit Relays



Model MPPU Level 3

Harris Optical Length / Width Gauge

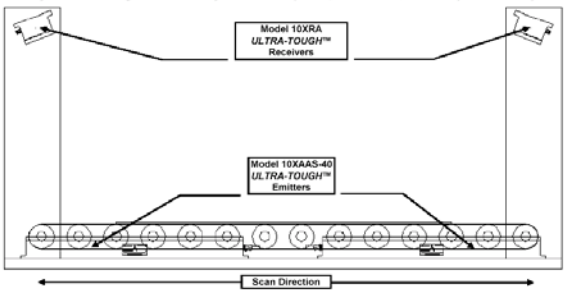


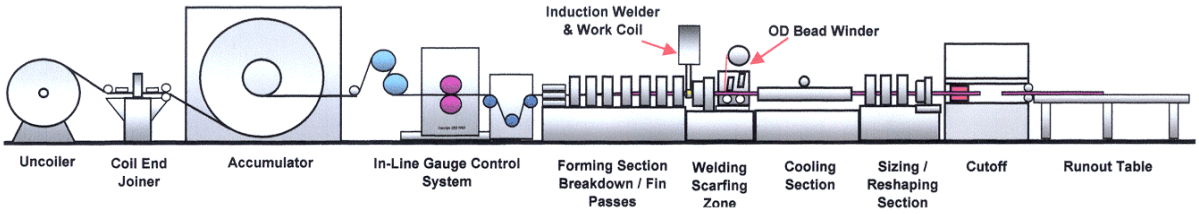
Dynamic Cut-to-Length Measurement System

Harris Optical Length Gauge

- Linearity of 0.050 inch [1.27mm] at 2-sigma
- Line Speeds Vary with Sensor Selection
- Patented Scanned LED Technology with NO MOVING PARTS

Dynamic Cut-to-Length Measurement System Side View (Rollers, Belt & Frame Shown Transparent for Effect)





WELDED TUBE PROS

Tel: 330-658-7070 Fax 312-896-5696 Web: www.weldedtubepros.com

Mill Alignment and Operator Training Field Services: Laser System assisted

Our people offer over twenty years experience in the alignment of industrial equipment and fifteen years experience in the use of laser alignment equipment in both the tube / pipe, and roll forming industries. Our alignments employ an ISO 9001 three plain laser system that is certified to be accurate within 0.001 inch over 100 foot. The precision and quality of our alignments will ease threading, improve weld seam stability, reduce scrap creation, produce better welds at lower weld heat input settings and improve tooling life by up to 30%. This combination minimizes down time and maximizes line speed. Frequent alignments optimize production levels and maximize profitability.

The initial mill alignment service typically requires 1 to 2 days. Subsequent alignments generally require less time because the equipment is in better condition. We suggest quarterly alignments for mills operating three shifts with frequent changeovers. Contracts are available for biannual and quarterly service plans at discount rates. Considering the obvious payback this service should be part of your annual maintenance program.

References

Tube / Rollform Mill service, Process Audits, Training & Laser Alignments

Pullman Industries – Cold Rollform mill Laser Alignment & Rebuilds, South Haven, MI

National Metalwares - Laser Alignment

Bull Moose – Tube mill installation

Springfield Wire – Laser Alignment

Faurecia – Process training

Sharon Tube - Laser Alignment

Easy Heat Inc.- Laser Alignment & Consulting

IPSCO Tubulars Inc. – Process Audit, Operator Training & Laser Alignment

Newport Steel – Process Audit, Laser alignment.

Markin Tubing – Consulting services

See the attached reference letter for details about our complete service.

Are you really happy with your current changeover times? Does down time drive your maintenance people up the wall? Want to increase profits?

Call us for quotes on installations, line setup, training, mill rebuilds, roll tool analysis, process audits and other services.

We will align your mill and train your people for maximum profits!

Consulting Services	Tube Mill Alignment	Scrap Handling
In-Line Gauge Control Mills	Rollform Mill Alignment	OD Bead Scrap Choppers
Laser Thickness Gauges	Mill Rebuilds	NDT Systems
Camber Detection Systems	Operator Training	SPC Systems
Gamma Thickness Gauges	Process Audits	Vacuum Paint Systems

ipsco

7 August 2002

Re: Reference

At the time we hired Dale Knapp of D&M Industrial Services, now of Welded Tube Pros, to consult with us on change over procedures for our 8" mill our change over times from prime to prime were in the range of 16-20 hours. Our objectives were to maximize the repeatability and quality of our tooling set-ups in order to reduce the amount of down time from prime-to-prime.

Dale inspected all of our tooling; reviewed tooling set ups, change over procedures, and provided operator training for our three shift operation. The net results were that within ten weeks of starting this and other programs we had achieved a prime-to-prime change over time of ten hours. By following the initial training and tooling review program we have consistently maintained change over times between eight to twelve hours. The additional up time of nearly ten hours per change over was well worth the cost of this program.

Dale Knapp of Welded Tube Pros has helped the Ipsco Camanche Works step up to the next production level.

Sincerely,

Dave Shmigelsky
IPSCO Tubulars Inc
Camanche, Iowa

ipsco tubulars inc.

P.O. Box 18, Camanche, Iowa 52730
Phone (563) 242-0000 Fax (563) 242-9408