Seam weld inspection for coil joining
Weld inspection you can count on

A short laser pulse generates an ultrasonic shock wave on one side of the weld and a continuous laser beam catches the ultrasound wave on the other. If the weld is not properly fused, the ultrasonic pulse bounces back towards the source. The result: very little or no waves are transmitted to the other side.

The inspection method uses longitudinal volume waves that travel throughout the entire weld section. The result: inspection you can count on. Moreover, when you know the thickness and density of strips, you can evaluate the average Young Modulus (E) by calculating the speed of sound in the strips in reverse. This then makes it possible to evaluate the change in the elastic modulus of the strip.

Ultrasonic signal transmitted through a good weld:
Inspection is part of the process

With this leading-edge technology, inspection is part of the welding process. That’s because the probe head is tiny and the two laser beams are just 15 mm apart.

The operator interface is a simple diagram of the strength of the bond as a function of the position along the weld.

Technical specifications

Inspection rate
100 Hz (laser shots per second)

Spatial resolution @ 0.25 m/s
2.5 mm /0.1 in.

Dimensions

Probe size
80 mm X 80 mm X 15 cm
3 in. x 3 in. x 6 in.

Umbilical length
3 to 15 meters
10 ft. to 49 ft.

Electrical cabinet
600 mm x 600 mm x 16000 mm
24 in. x 24 in. x 63 in.
earlier insight changes everything

“Tecnar now proudly offers non-contact laser-ultrasonic systems for the on-line characterization of overlapped seam and butt welds. Tecnar’s Laser-UT technology ensures state-of-the-art inspection of hot wall thickness for seamless pipes mills.”

Alexandre Nadeau, CEO, Tecnar