

FLAW HUNTER UBT 109

Automatic Ultrasonic Flaw Detector for steel Billets



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The production process of different steel profiles such as slabs, blooms, and billets, are usually done in two steps. In the first step, these profiles are casted and in the second one they are rolled to reach the desired dimensions and properties.



In these kind of profiles, various internal and surface flaws like cracks, gas hole, shrinkage cavities, interrupted slags and inclusions could be found.

Some of these defects, due to their dimensions and locations, depending on their usage in industries are classified as flaws, that significantly decreases the quality of the steel and if these products are used in sensitive and critical industries, they could be very dangerous.

Therefore, detection of these flaws in production process of these products, and knowing the distribution pattern in the steel structure could be very important and effective for manufacturer since existence of such flaws can cause catastrophe in sensitive industries and because of that they have to deal with customer complaints.

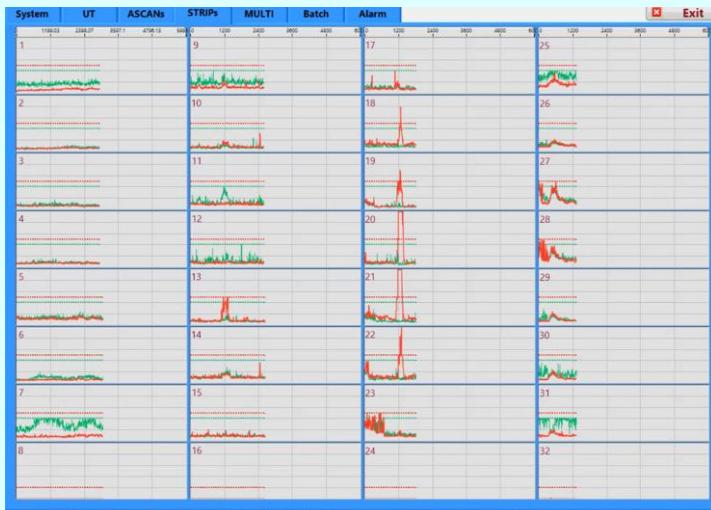
By using the new techniques and modern technology of ultrasonic testing, various types of internal flaws are detectable and they can be located and analyzed.

Pejvak Rayan automatic ultrasonic system with model (Flaw hunter UBT109) is designed to test steel billets in square and circular shape with the dimensions 50×50 mm up to 150×150 mm and with diameter up to 250 mm.

In this system for the maximum dimensions which is 150×150 mm, there are 8 probes to test each side of the billet that totally, there are 32 probes for testing four sides of the billet at the same time.

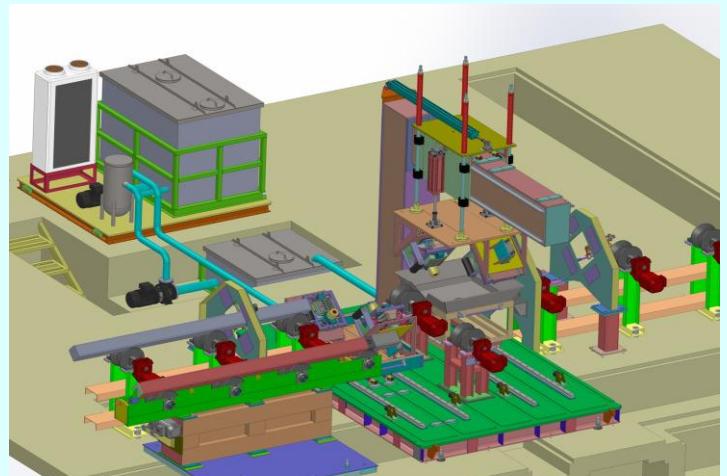
In this system, 4separate probe holders that are using water column technique and especial suspension mechanism could be floating on the billet surface in the testing process. The probes are fixes with the specific distance from each other.

The probes, send the sound wave with normal angle to the Billet and is able to detect all different flaws equal to **FBH Ø 2mm** in **4 mm depth** from each surface to the end of thickness in the entire Billet length. **Offline calibration system** is the especial feature of the system because for calibration and maintenance, we do not need to stop the production line and it provides the operators' safety.



This system could record the test results from 32 channels in separate strip charts and could analyze the exact location of the flaw and by using two encoders and four sprays in each side is able to mark the flaws alongside the Billet.

This system is capable of testing the Billets with out of straightness up to 20 mm from both one-meter ends and has an **especial safety system** to identify and prevent the bendy Billets with more than 20 mm to go for the test that could damage the device and this is exactly a feature that differentiate this system from others, since producing Billets without bend is approximately impossible.

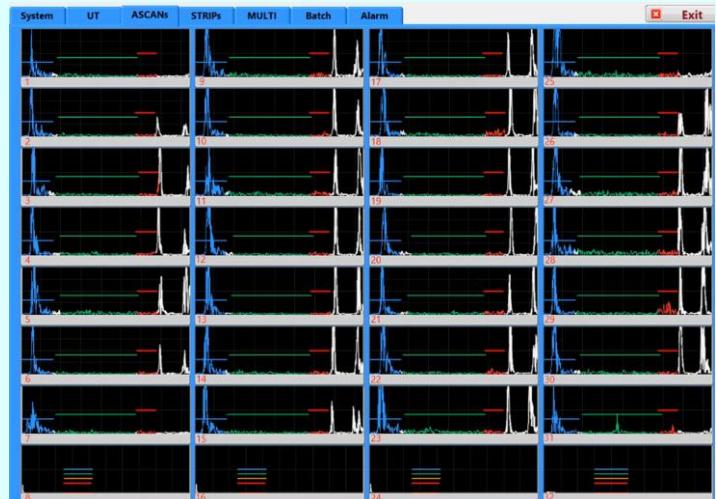
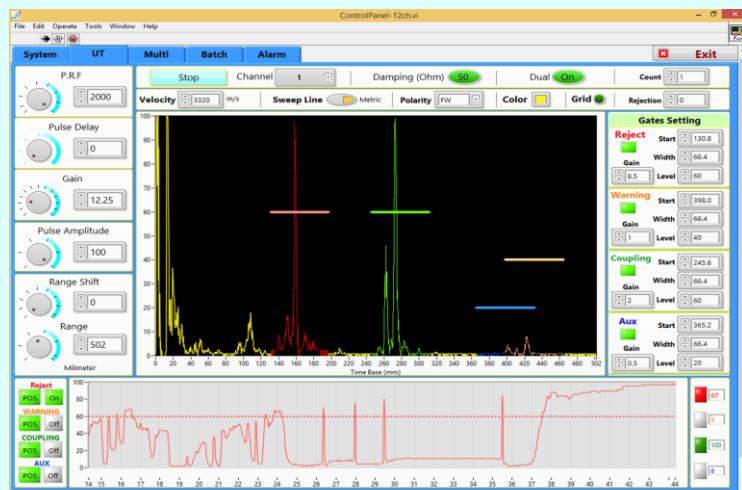


Billet Characteristics that Flaw Hunter UBT109 is capable of testing

<i>Billet Size</i>	Round billets up to Ø250mm and square billets up to 150×150
<i>Billet Length</i>	4 to 12m
<i>Material</i>	Carbon Steel and Alloy steel (High, medium, low, stainless)
<i>Speed of the test</i>	Up to 25 m per minutes
<i>Temperature of the billet</i>	Up to 60° C
<i>Detectable flaws</i>	Different flaws equal to 2mm Ø FBH or bigger(Depend on Billet's Microstructure)
<i>Out of straightness</i>	20mm from the first one meter and 35mm in each 6 meters
<i>Test area</i>	4 sides of the billet in the entire length except 100 mm from each end

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