



Integrated supplier of Non-Destructive Testing and Marking

Fully Automatic MPT System for Steel Billet (S-LM)

Super Line-Magna (S-LM)

This system performs fully automatic surface flaw inspection of steel billet utilizing fluorescent magnetic particle testing method while the billet being transferred on the V-roller conveyor. The flaw images captured by CCD cameras are identified through the image processing unit and the Map-data of flaw positions is created and transmitted to the upper controller. The positions of the flaw are marked by the paint markers based on the Map-data for removal in the grinding process later.



Super Line-Magna (S-LM)

Features

Fully automatic, in-line continuous inspection using CCD cameras and image processing unit, complete control from operation room thus no worker in the inspection area

Detecting longitudinal, transverse and corner defects simultaneously

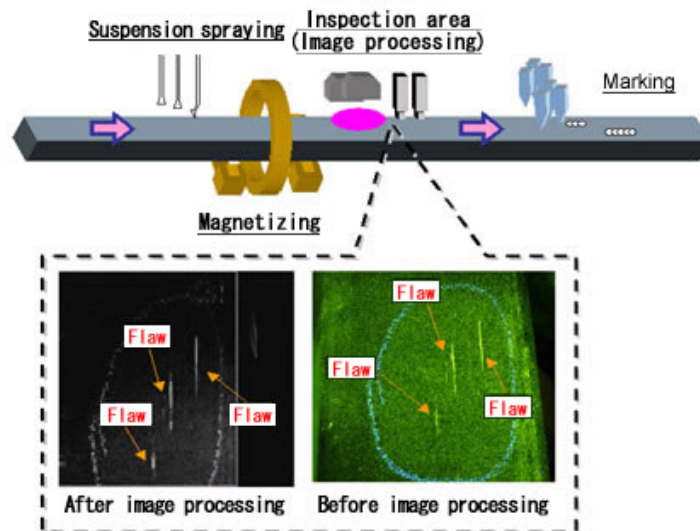
Fast inspection speed, max. 40 m/min.

Outputting Map-data of flaw positions for each divided section of the billet surface, size of which is 100 mm (longitudinal) x 20 mm (circumferential)

Main Specification	
Type of steel to be inspected	Carbon steel, Low alloy steel and Special steel
Dimension	Square billet 100-160 mm sq. (corner R 15-25 mm)
Billet transfer speed	Max. 40 m/min.
Magnetizing method	Combined magnetization with Yoke coils and Ring coil
MPT material	Fluorescent magnetic particle suspension
Defects to be detected	Surface breaking natural flaws (crack, scab etc.)
Detecting accuracy	Longitudinal flaw (crack): more than 0.3 mm (depth) x 5.0 mm (length) Transverse flaw (scab) : more than 0.3 mm (depth) x 5.0 mm (dia.) (Two detecting levels can be set automatically)
Marking color	Surface : White Corner : Red
Marking dimension	Unit dimension approx. 15 W mm x 100 L mm
Electric power	AC 400/440 V \pm 10%, 3-phase, approx. 300 KVA
Air	More than 0.4 MPa, 2.0 Nm ³ /min.
Water	Service water 50 L/min.

Main Equipment	
Billet washing equipment	Water spray nozzles and Air curtain blow Approx. 800 L x 1200 H x 700 W mm
Suspension spraying equipment	Suspension spray nozzles and air blow nozzles to uniform suspension on the bullet surface
Magnetizing equipment	2 sets of Yoke coils and one Ring coil Approx. 1100 L x 1050 H x 860 W mm
CCD camera	High-definition progressive scanning camera 44 W x 44 H x 78 D mm
Image processing unit	Approx. 800 W x 1100 H x 600 D mm
UV light	High intensity Super-Light D-150
Marking machine	Surface : M-20S Corner : M-30S
Suspension supply and collection tank unit	Approx. 2000 L x 1500 H x 1000 W mm 2 sets of 500 L tank
Mixing tank unit	Approx. 1000 L x 1200 H x 1000 W mm 1 set 500 L tank
Blower	3.75 KW, AC 200 V, 3-phase

Inspection Procedure



Movie of Super Line-Magna (S-LM)

※ Click photograph to view movie



