

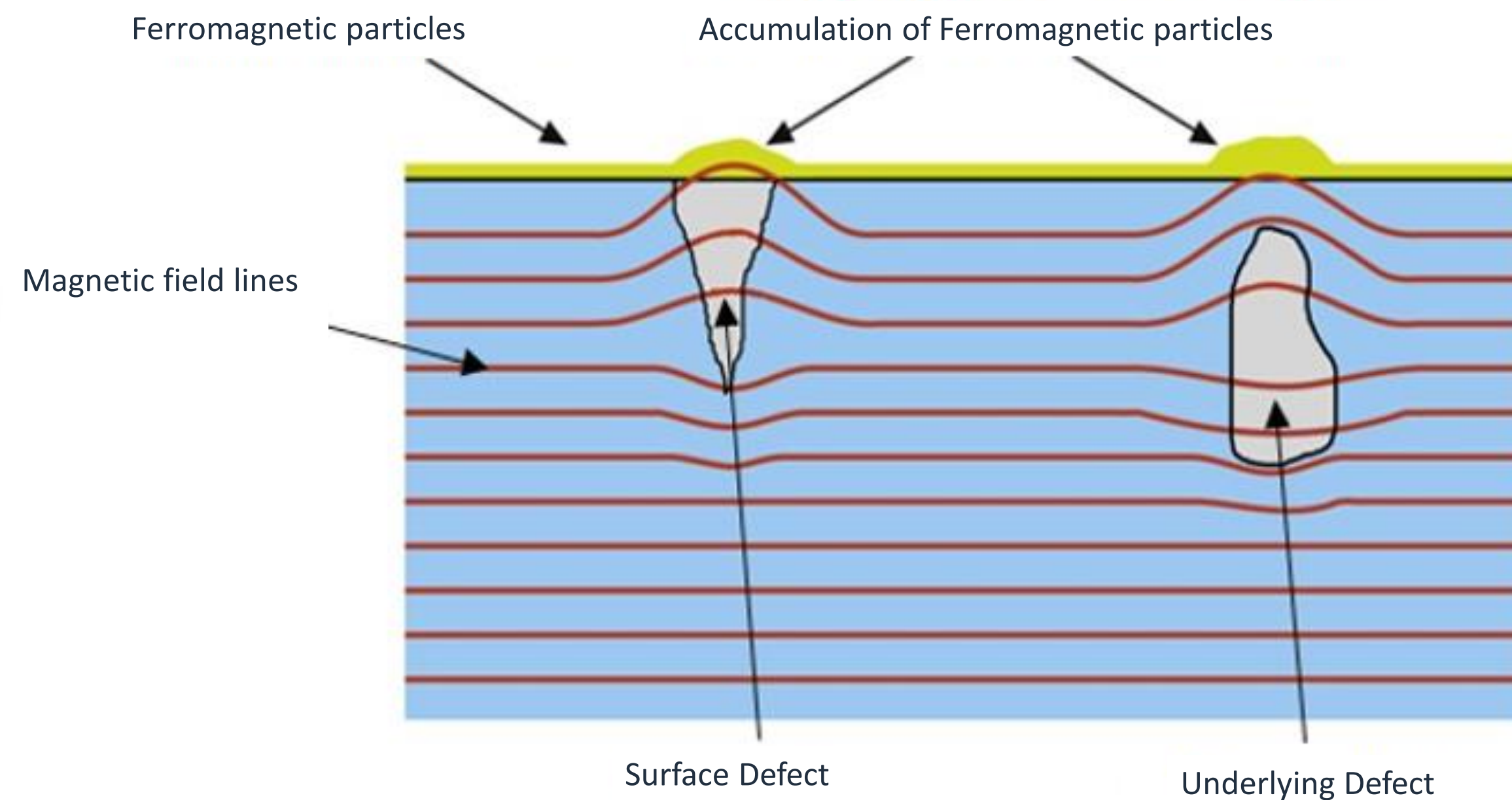


Inspection par Magnétoscopie

Magnetic Particle Inspection

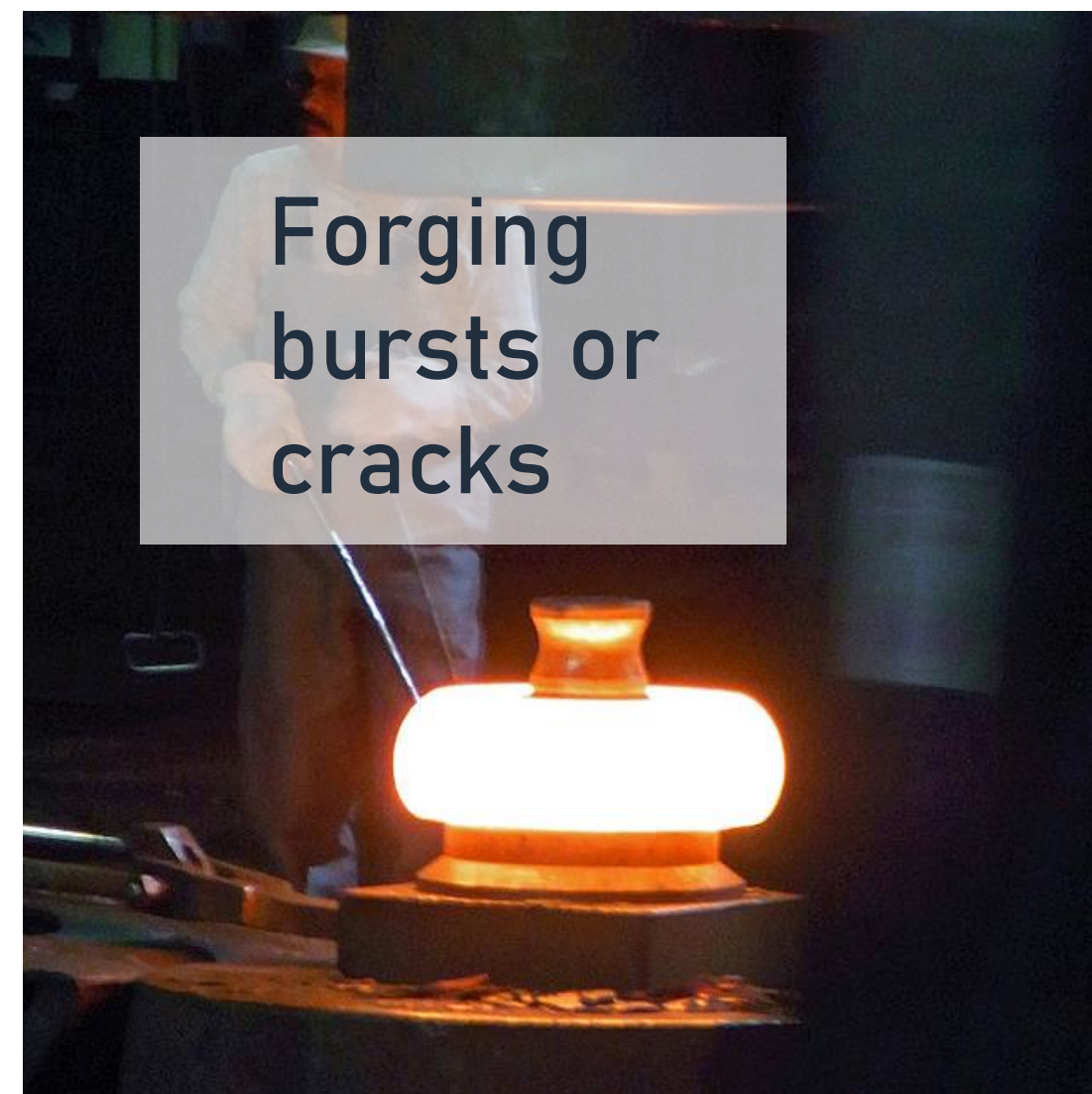


Principle : Magnetic Testing is the application of a magnetic field to a steel part in order to saturate it. Any present surface defects will produce field leakages which are highlighted by magnetic powders attracted by the dipoles created by these leaks.





Defect Types



**Only ferromagnetic steels
can be inspected :**

Ferritic steel

Martensitic steel

Carbon Steel

PH Steels: 17-4, 15-5, 17-7

See ASTM E1444 for details

**Austenitic steels will be tested by PT
and Xray or Ultrasonics**

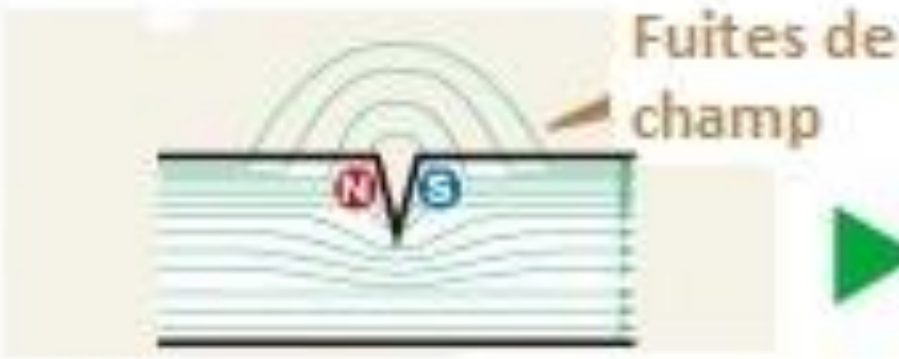
Steps

1 Surface Preparation



For good adhesion of developer and remove all traces on the surface

2 Magnetisation

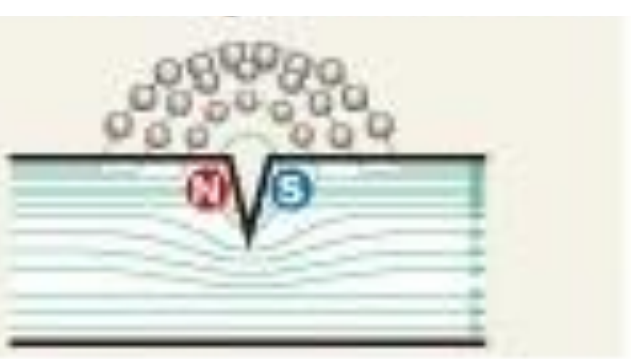


We saturate the room magnetically

3 Application of product



Agglomeration of particles



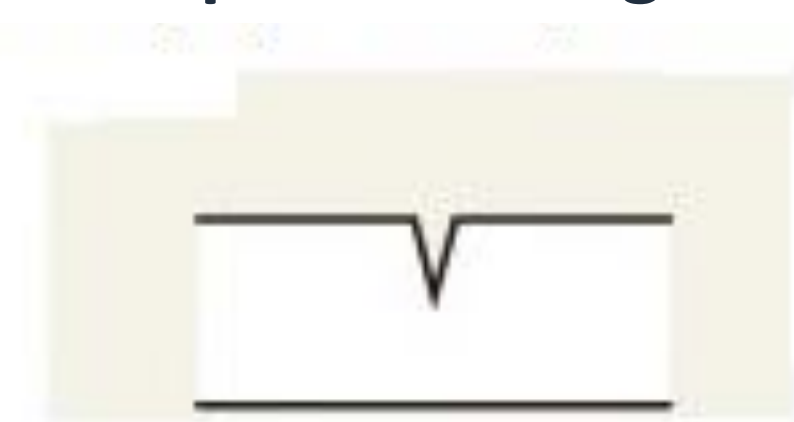
The magnetizable particles of the developer will be attracted by the magnet formed by the 2 poles

4 Observation



Concentrations of fluorescent particles will appear under UV lighting

5 Final demagnetization and part cleaning



And the inspection report will be written by certified level 2 Magnetic Testing

Magnetic Testing - portable fluorescent technique outside MPP (external inspection)

Solvent degreaser and
Magnetic ink spray



Portable U.V / A LED lamp
3000 $\mu\text{W} / \text{cm}^2$ to 38 cm



Digital magnetic Field
strength meter



Digital radiophotometer



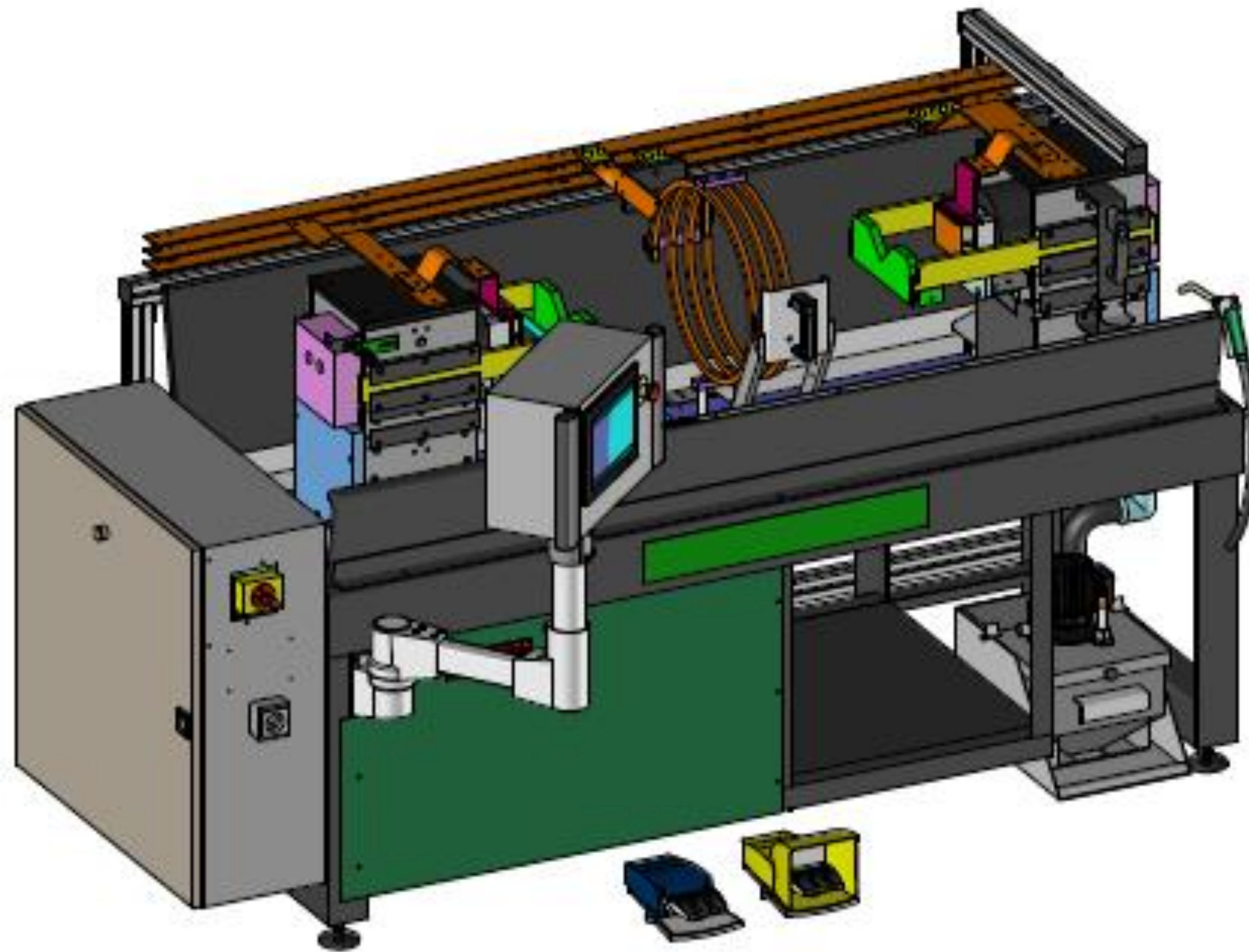
Indicator
residual field



Powerful electromagnetic
Yoke Testing ASTM E1444

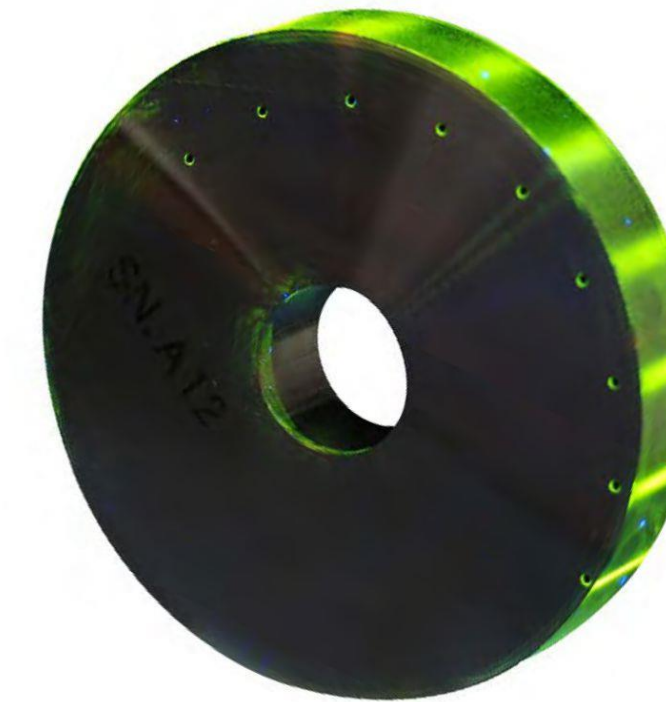


Magnetic testing - Horizontal Bench technique at MPP (internal inspection)



Large horizontal testbench from Srem with parameters memorization of validated techniques

Ketos calibration
Ring ASTM E1444



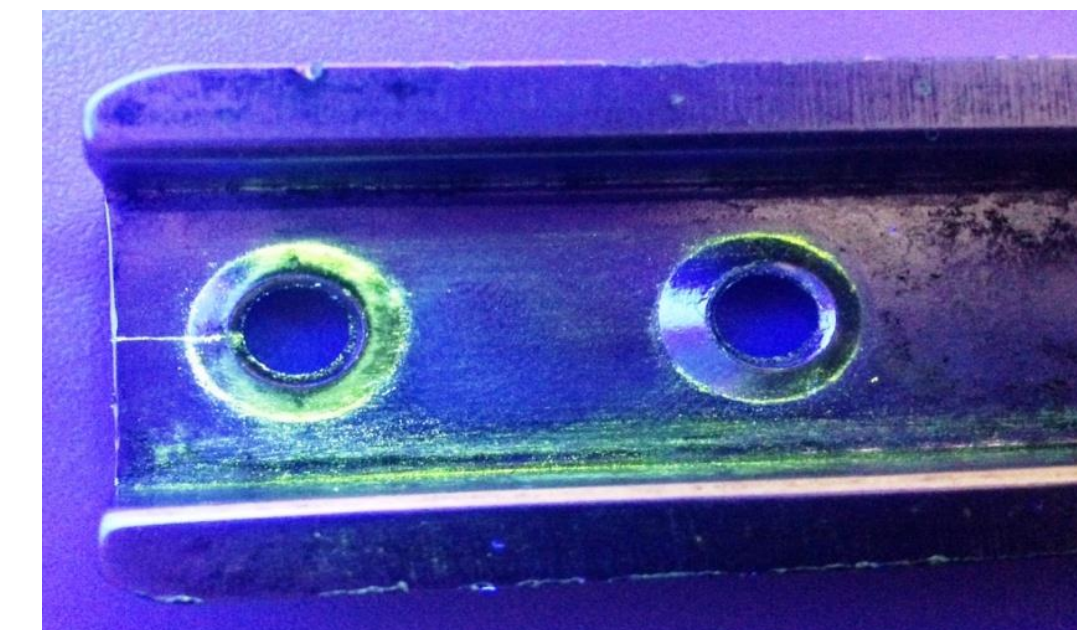
Magnetization using
central conductor



Welding crack



Fatigue crack




Method	Equipment / Techniques	STAFF
RT Radiographic Testing	<ul style="list-style-type: none"> Digital radiography (from 50KV – 320KV) Resolution from 50 µm – 200 µm 	2 RT Level 1 2 RT level 2 and 1 RT3
UT Ultrasonic Testing	<ul style="list-style-type: none"> Immersion Testing Thickness measurement Phased Array Pulse Echo 	1 UT level 1 2 UT level 2 1 UT level 3
PT Penetrant Testing	<ul style="list-style-type: none"> Red Dye or Fluorescent penetrant Alkaline or Solvent Degreasing 	4 PT level 2 1 PT level 3
MT Magnetic Particle Inspection	<ul style="list-style-type: none"> Hand yokes Stationary MT bench 	3 MT level 2 1 MT level 3
IRT Infrared Thermography Testing	<ul style="list-style-type: none"> Hot air heater or 4 x 1000 W Halogen heaters IR Camera Flir T450sc 	2 IRT level 2 1 IRT level 3
ST Shearographic Testing	<ul style="list-style-type: none"> Hot air heater or 4 x 1000 W Halogen heaters Optrion Digital Shearographic Camera 	1 ST level 1 1 ST level 3
ET Eddy Current Testing	<ul style="list-style-type: none"> High and low Frequency Eddy Current Testing Rotating Probe ET 	2 ET level 2 1 ET level 3
VT Visual Testing	<ul style="list-style-type: none"> Direct VT of welds, castings and composite parts Indirect VT (endoscopy and digital microscope 220x) 	1 VT level 2 1 VT level 3

Contact



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