

1.10.12. AUTOMATED ULTRASONIC SYSTEM FOR RAIL WELDS INSPECTION FOR ALL METAL VOLUME USING ONLY ROLLING RAILHEAD SURFACE

Vopilkin A.Kh., Kononov D.A., Tikhonov D.S.,
SPC NDT “ECHO+”, Moscow, Russia;
Odynec S.A., Tarabrin V.F.,
Ltd. TVEMA Group, Moscow, Russia

This report describes new ultrasonic inspection technology of rail welds, performing electrocontact or aluminothermy methods. This technology detects defect throughout all-section of weld by scanning only railhead surface.

New technology effect generating factors are shown. They are conditioned:

- Exclusion of the scanning surface for inspection preparation operation. It includes dismantling rail fastening elements (for electrocontact welding) or six-bolt two-headed protective joint (for aluminothermic welding);
- Necessary absence of cleaning railhead side borders, web surface and rail base points;
- Contact liquid volume decrease required to control one welded joint. It caused ultrasound introduction only by rolling railhead surface;
- Automatization of inspection process.

Data processing algorithms were described. These algorithms provide processing automation and high inspection verification.

Also inspection data presented.