



ASPECTS REGARDING REPETITIVE MAINTENANCE CONCEPT IN PUSH BLADES FOR LOADING EQUIPMENT

T. D. Tihanov¹, C. Florea¹, D. M. Iovanas², E. F. Binchiciu³

¹ University of Petrosani, Department of Mining, Topography and Constructions, 20 Universitatii Str., 332006, Romania

² Transilvania University of Brasov, Materials Engineering and Welding Department, 29 Eroilor Blvd., 500036, Brasov, Romania

³ SC SUDOTIM AS SRL, 30 Mihai Viteazul Blvd., 300222, Timisoara, Romania

Repeated preventive maintenance of the active surface subjected to wear through abrasion and fatigue, generated by loading through welding. Wear addition are determined experimental, their thickness is determined function to their predetermined life span, with no flaws, and the deposits characteristics. The possible no flaw loading number is established function to base support material (BM) and, especially, to the behaviour of the heat affected zone (HAZ) when welding repeatedly. Theoretical maximum hardness in the heat affected zone (HAZ) is determined by the following equations:

$$HM = 559 \cdot CE + 100 ;$$

$$HM = 1274 \cdot P_{CM} + 45 \quad (3)$$

Predominant wear, areas to be protected, in the case of the pushing blades, manifest on their tip and base.

The self-protection to wear system assures an identified work period, identic with a work cycle.

Remaining distorts were avoided by prepositioning parts and by step welding, symmetric from the center towards the ends.

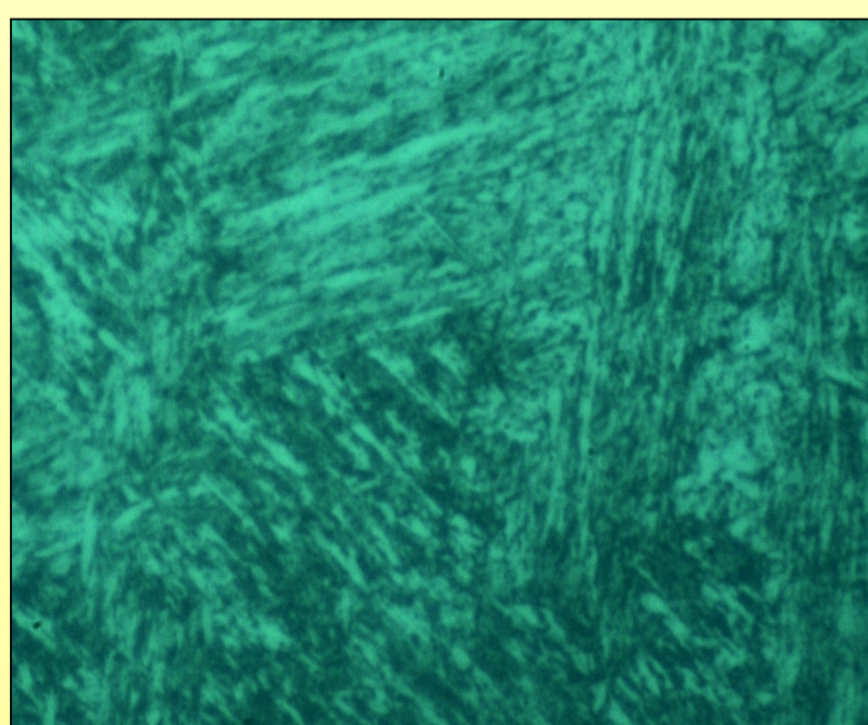


Pushing blade with wear and self-protection system

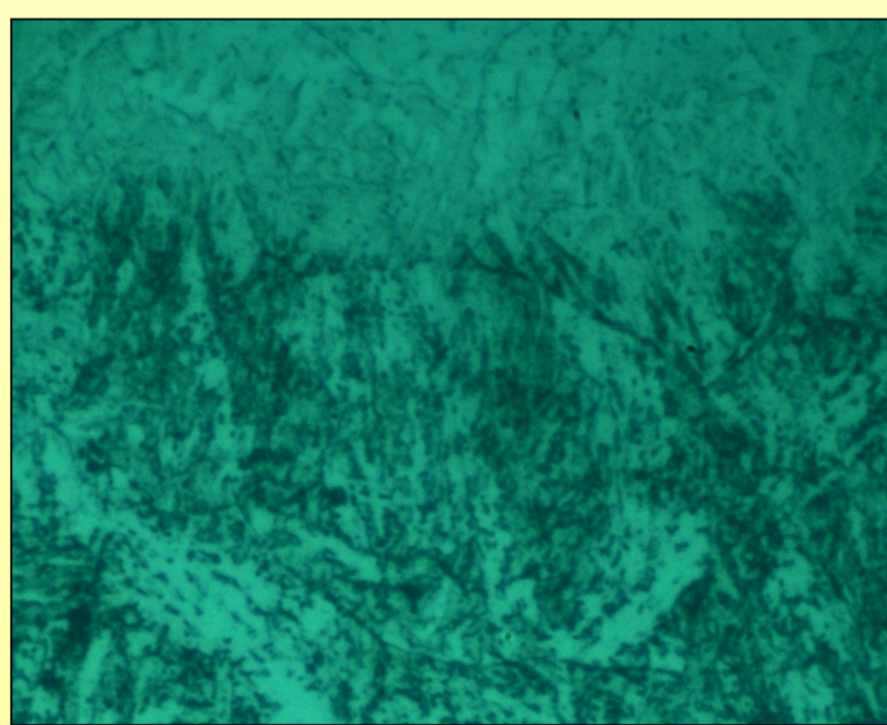
Technological welding parameters.

Electrode mark	Welding current [A]	Current type	Preheating temperatures [°C]	Between layers temperatures [°C]
BATA2-SUDOTIM	135-145	CC ⁺	150+5	150±10

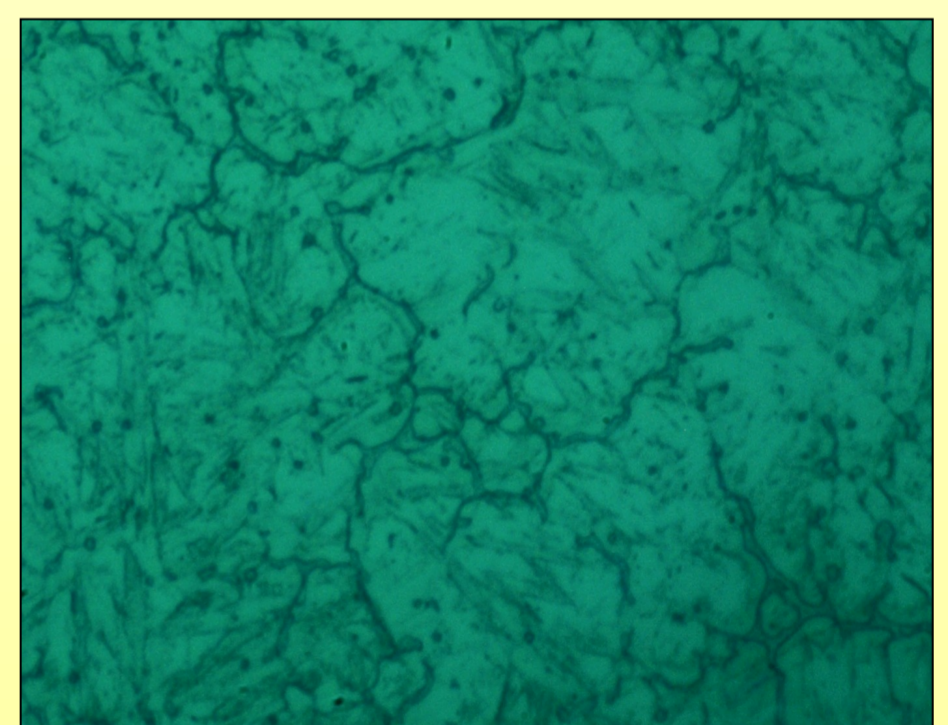
Structural characteristics



BM [500X]



HAZ [500X]



DM [500X]

Characteristic zones	MB BM	ZIT HAZ	MD DM
Detected structure	Martensitic with residual austenite	Martensitic with residual austenite	Martensitic with complex carbides
Determined hardness [HRC]	45; 44 ; 46	40; 39; 41	55; 58; 56

The presented situation represents the 3rd cycle of loading by welding, in high efficient economic terms and by reducing costs by aprox.72%.

References

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