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Development of optimized continuous casting process for zero-defect round blooms production in high silicon 54SiCr6 automotive spring steel. Production trials in Acciaierie Bertoli Safau S.p.A.

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Is well established that surface quality plays a significant role on the fatigue life of components. Therefore, the quality of the starting feedstock is mandatory for obtaining a wire rod suitable for the production of highly stressed elements, such as automotive suspension springs.

The paper describes the positive experience made by ABS (Acciaierie Bertoli Safau, Italy) during the development of a dedicated casting process of high silicon grade 54SiCr6 for automotive applications.

The development path is presented, with focus on the implemented aspects. The key factors that allowed a quality change are commented (i.e. materials, process parameters, automated mould flux feeder, Non-Destructive controls). The evolution of the learning process is fully described, showing for each modification effects and results obtained to achieve a zero-defect casted product. A special care to surface defects and to surface Carbon pickup will be described.

The satisfactory quality of the achieved product confirms the effectiveness of the optimization process.

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