Fundusze Europejskie
Inteligentny Rozwój

Unia Europejska
Europejski Fundusz
Rozwoju Regionalnego

Execution of R&D works to develop innovating thermo-mechanical rolling technology for rolling CHQ steels in order to create wire rod featuring unique combination of technological, mechanical and structural parameters which ensures its highest susceptibility to cold heading processing.

Project aim: The objective of the R&D Project is diversification of the mill production programme through development of wire rod in CHQ grades having a unique technological, mechanical and structural features.

Beneficiary: CMC Poland Sp. z o.o.

Description of the project and planned effects

Value of the Project – 9 185 627.78 PLN
European Fund contribution – 3 956 113.33 PLN

The purpose of CMC Poland Project is to conduct B+R works in order to create a prototype of wire rod with unique combination of technological, mechanical and structural parameters that would assure its highest flexibility for cold heading. An innovative technology will be developed for thermomechanical rolling (TMR) of CHQ steel cast in EAF in order to create a new product. In consequence, due to detailed preparation of particular elements and rolling process parameters the technology will ensure the most possible yield strength of wire rod microstructure otherwise not possible to be achieved by conventional technology. Within the scope of B+R works original charging procedures, chemical specifications and billet cooling process parameters will be developed.
The Project will last from January 16, 2017 to October 15, 2019. The B+R works were divided into eight stages. Three of them have been qualified for industrial research and five stages for experimental development. Six stages of the project will be carried out directly by CMC B+R team whereas completion of the other two stages will require hiring subcontractors- Polish qualified scientific institutions.

For years CMC Poland has conducted its business activity supporting and promoting responsibility for natural environment by applying rules concerning reduction of use and reuse of waste, recycling in all processes (production of steel from scrap metal) and conducting business in an environmentally friendly manner. Moreover, CMC observes all regulations on environmental protection, promotes responsibility for environments among its employees and seeks to continuously improve its effectiveness in environmental protection area. By utilizing material from recycling and 58% lower CO_2 emission in comparison to traditional technologies, CMC products play an important role in „Green building" positively contributing to Leadership in Energy and Environmental Design (LEED) rating system.
In connection to CMC care for natural environment protection, the result worked out in the Project will positively influence the implementation of sustainable development principle. The innovative product developed in the Project will have an important advantage for fastening elements manufacturers: thanks to its high flexibility for cold heading the fastening elements manufacturing process will be shortened due to elimination of initial wire rod annealing before drawing process takes place. This phase is necessary in the production process using conventional wire rod. Additionally, the time of spheroidizing annealing will be shortened. Based on the data gathered from one of the customers it is estimated that shortening time of spheroidizing annealing by ca. 3 hours will allow for decreasing energy consumption during fastening elements production by ca. 18 kWh/t of processed wire rod. Furthermore, based on customer data, increasing wire rod yield strength will result in decreasing the amount of material rejected during fastening elements production by ca. 0.3 p.p.