Plasmapour technology set to revolutionise the metal industry

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The "just in time" principle applied to temperature control promises

gains in energy efficiency and product quality.

European industries might be the first to reap the benefits of recent innovation in melting and pouring technologies. The SCM group, operating two large cast iron plants in Rimini, Italy, is now ready to adopt Plasmapour technology developed by ILT, a Spanish venture formed by Insertec, Loramendi and Tecnalia, as one of the measures promoted under REEMAIN.

"The idea behind the tool was to help the foundry sector overcome its difficulty in controlling tap temperature to a high degree of accuracy", says José Ramón Alonso, CEO at ILT Plasma, "Tecnalia started working on plasma technology, known to be able to manage energy generated by a high power thermal plasma arc, allowing maximum performance of processes with high thermal demands".

Expectations are high. "In simple terms, the technology will help us to supply the energy needed to keep the melted iron at the right temperature only when we need it. In addition to a better efficiency in energy transfer, the advantage will be energy saved at the melting and holding phases", explains Stefano Cucchetti, head of R&D at SCM Fonderie.

The innovation intervenes essentially in the pouring phase. Before pouring, the cast iron gets heated but only in much smaller quantities (up to one third) than in processes currently used. Combined with a precision temperature control sub-system, this new process also helps improve quality by reducing scraps and simplifies operations for the technician in charge of supervising the whole process.

Giuseppe Lucisano, head of the Research Project Department at the SCM group, adds: "For us, it's also a matter of quality of the final product. Because in the traditional pouring systems there is no direct

temperature control, the risk of defects on products or their parts is relatively higher. With the new system, we expect to be able to increase our ability to control temperature according to need, which in turn should translate into better quality products. Nice, if that goes hand in hand with lowering our energy bill".

Quantifying precisely how much the company will gain out of reduced energy consumption and improved quality may also depend on specific prerequisites at the plants where the technology will be deployed.

"In principle our settings seem even more favourable than the ones with which the technology had been tested before", observes Cucchetti, "This is because we use a smaller pouring system and can rely on an immersion temperature feedback system that is considered more accurate than an optical system". According to the company's calculations, gains could reach 200MW per year, worth 34,000€ in savings, considering current energy prices for industry in the Italian market.

As for ILT, its plans for the next four years are to develop 10 to 15 plasma torches of different sizes per year, with most of their sales (about 80%) on international markets.

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