

The centerless grinding has its first digital twin

Hall 11
Booth F09

by Claudio Tacchella

Ghiringhelli introduces at the EMO the first centerless grinding machine conceived with the CNC Siemens Sinumerik ONE that allows a digital twin to be accomplished.

At the worldwide EMO2019 in Hannover, Hall 11, Booth F09, the company Rettificatrici Ghiringhelli S.p.A. - headquartered in Luino (VA) - will introduce as a first preview an outstanding technological innovation. It is a centerless grinding machine, APG-S type, designed, accomplished and fully controlled by using and integrating the brand new Siemens control called Sinumerik ONE. This is the first CNC "digital native" which allows the creation of a digital twin (DT) of the product, process and of the automation used. All this is carried out on a sole interaction system which merges the real and the virtual world, by implementing the concept of digitalization that features the Industry 4.0 paradigm.

"For the development of this new system - says Mrs. Patrizia Ghiringhelli CEO of the same-named company, a limited number of trendsetter companies have been worldwide selected and involved. These latter come from heterogeneous manufacturing backgrounds and had the chance to experience this new control for more than a year in advance by closely working with the Siemens giant, each of them as "pilot" manufacturing companies and leaders in their application field. Among these

Ghiringhelli is the only one for the Italian sector of centerless grinding and we are proud of that! Many definitions of the digital twin can be given, but from our point of view the virtual support is a combina-

The new APG-S centerless grinding machine will represent a practical example of the digital innovative implementation accomplished by the Ghiringhelli engineers.



The brand new Siemens Sinumerik ONE control is the first CNC "digital native" which allows the creation of a digital twin (DT).



tion of computer models which allow supply of very useful information to plan and to globally optimize our products and solutions, as well as to validate and to manage the production process. The digital

twin allows this to take place seamlessly in a very short time, precisely and safely and with the highest accuracy in comparison with the truly ultimate physical counterpart. Moreover, once the product is accomplished, the digital twins exploit the data from the sensors installed on physical objects to represent their status, their operating conditions or the position in real time. We immediately realized the huge innovative potential of this new Siemens project because it met with our willingness to implement not so much the virtual digitalization on the technical issue to be worked, often called "geometric simulation", that is typically limited to the piece / work area, but rather to a global digitalization of the whole machine / system; therefore a digital twin more typically defined as "functional-productive" and more in line with our Smart Factory and Smart Production concepts and strategies on which we are involved and we have developed solutions for years".

Thanks to this innovation, the production processes with digital twins will allow the companies, who use the Ghiringhelli centerless grinding machines, to become more flexible with the reduction of the time-to-market, the expenditure and the maintenance services, by improving the quality and by increasing the productivity at all levels of the organization.