



Giovanni Motta  
Technical Manager

Ladies and gentlemen good afternoon and thank you for being here. For those of you that do not know me I am Giovanni Motta Newtech Technical Manager. My task today is to inform you about the guidelines of our short and long term programs of investment on research and development and about the first results we achieved . As my predecessor, Ms Accati said, in thinking about our strategy for the company growth we decided that research and development is one of the most important tool we can use to face strong competitions in our field, who is dealing with a mature technology and with the very low margins of the finished product our customers are manufacturing with their equipments.

We are engaged in a battle for reducing more and more the final cost of the wire in order to compete with Countries like China and India, capable to manufacture enjoying much lower production cost.

Two are the programs of our research.

One is a medium-long term project concerning the study of a completely different way to produce insulated wire. Here though we are confronted with the stringent requirements of the finished products which, so far, have proved to be difficult to meet with alternative technologies such as UV, Hot Melt, Powders and so on.

Nevertheless having found suitable partners in the Institutional Research Centers we are determined to have another go, with the feeling though that different technology may not be applicable to the full range of products.

We are about to start a program concerning powder coating, for the moment concentrating on flat wire and big round.

The short term program we have carried out and we continue to work on concerns the present traditional technology, having realized there is still a remarkable space for improvement.

In the past, production speed seemed to be the main way for cost reduction.

Instead, recently, the wire manufacturers have realized that others are the important issues to be addressed for lowering production costs, those being energy consumption, maintenance costs, scraps, control of emission in the atmosphere and in the workshop.

As far as maintenance and reliability are concerned, we already took care of that. We market only units of two fully independent lines in order to have easy ergonomic access for use and easy reach for maintenance. We use only first class components (Siemens, ABB, and so on ) which can be found everywhere. On top of that our machines can be equipped with many automatic controls in order to easily master the production process and consequently reduce the scrap rate.

We have then concentrate our efforts on energy consumption and emission control.

Unfortunately the present system of enamelling requires a high number of passes as a good distribution of the enamel and the quick solvent evaporation can take place only if the layers of varnish applied are very thin. Consequently the energy consumption is the result of the conductor heating multiplied for the number of passes.

Nevertheless there are sources of energy consumption that can be addressed.

We have then analyzed every single part of the equipment to find out where we could act in order to significantly improve the energy consumption without increasing emissions.

Two are the main sources of energy consumption in enamelling equipments :

1 thermal ( enamelling oven, annealer, steam generator )

2 motive power ( motors, pumps, ventilators )

We have addressed both issues

As far as thermal energy is concerned, besides improving the equipment insulation and producing steam with the oven fumes, we have analyzed ,with Politecnico di Torino University, the air flow inside the oven, both in the enamelling chamber and in the fumes combustion area..

We were pleasantly surprised to see how much room for improvement we still had.

In fact especially in the catalytic zone and in the chamber heating zone the flow is far to be uniform.

In every enamelling machine, in ours as well as in those of our competitors, the catalytic plate is exploited only in one side while is very difficult to distribute the flow homogeneously in the all area.

This effect produces a rapid deterioration of the catalytic plate and makes the heating elements to act more on the chamber walls rather than heating the air.

With the help of various models simulated by Turin Politecnico Universit we are now in a position to manufacture oven chambers at least 30% more efficient than the previous one.

We can work at the same speeds but with lower temperatures, consistently reducing the energy consumption and relevant heat dispersion.

At the same time by fully exploiting the catalytic plate surface we manage to burn all the solvents , recover the heat and reduce emissions.

Same approach we have used for the cooling chamber in the counter current, by better distributing the flow the chamber is more efficient, we get a better heat exchange between air and wire

Again with the help of computer simulations we have reduced the wire temperature at the oven outlet, and once more the energy consumption .

At the same time we are studying the possibility to specialize the catalytic plate in order to burn the solvent at lower temperature.

Finally we believe that by better distributing the air in the ducts ( oven and cooling system ) also the fans efficiency can be improved thus reducing the energy consumption once more.

As far as the motive power is concerned , with the same research team we have studied the main sources of energy consumption: the motors.

At the moment the most significant consumption is produced by the high installed power and in any instance of wire traction we are compelled to install power nearly double, compared to real need because the machine has to produce bigger diameter at low speed and small sizes at high speed.

With class A motors and a system of variable transmission, we are now in a position to reduce the installed power and better exploit the motor torque force with at best relevant curve consequently reducing the energy consumption also on the traction side.

For instance, in a drawing machine where presently we use motors of 3 kw and 7,5 kw with variable transmissions we will use motors of 2 kw and 4 kw.

Most of these features have given rise to a new family of machines, The Galileo Lines, where we guarantee an energy saving of 25% compared with previous equipments without reducing the guaranteed speed.

The reason for calling these lines with the name of a famous Italian scientist is a tribute to our new scientific approach in design in cooperation with one of the most reputed University in Europe and in the Academic world.

With the same approach we have designed the machine for fiber glass insulation. As stated before we looked for the possibility to diversify and we have chosen this insulation technology to enter new markets .

We have used our knowledge in enamelling, and applied to this equipment the air recirculating system with catalyst plate, typical of magnet wire machines with the aim to reduce the pollution problem. Ours at the moment is a unique design for this type of technology in this field.

Thank you for listening and I will be happy to answer to any questions you may have to submit.

I will then leave the stage to Professor Masoero of Politecnico di Torino who will tell you something about the tools used to help us in designing our latest machines.