RCN revolutionizes the lamination process

GLASS TECHNOLOGY INTERNATIONAL: Tell us a little about yourself, your professional growth and role in the company, and we will then move on to your new and important project...

Davide Ricchi, RCN: I can say that I truly grew up in our family glassworks. My mother and my grandfather always took me with them to the company, and my grandfather actually taught me how to cut glass.

When we went on to create the company manufacturing machines for glass, I was always there in the company, without being involved at the beginning, but even before finishing my studies, I started to really take part in company activities. I started with machines that were quite 'high-tech', which used software for the elaboration of laser cutting and engraving.

From then on my future was clear but, just like any newcomer to a company, I had to start 'from the bottom', learning the work, which, in my case, involved all aspects and departments regarding machinery construction. This included welding, assembly, a little part of electronics, up to my present role – which is the management of office activities such as Customer Service and Assistance, R&D, especially with regards to this new technology we are presenting in this article.

My main role, of course, is to assist and work alongside my mother Elena Calvi, owner of the company.

All this learning phase, combined with my studies – Scientific and Technological Lyceum – and my interest in physics and chemical aspects of products, has allowed me to develop this new product, which guarantees a type of lamination with 100 per cent excellent results on glass with clean edges,

GTI: What is the name of this new product?

Davide Ricchi: The name that we have given to this product is RD Clean

During a recent visit to RCN, we spoke to Davide Ricchi, one of the owners of the company, to find out about the most recent development in terms of glass lamination, which has already started to shake up the sector.

Davide Ricchi
RCN Solutions

Clean Concept

Concept System, where, much to my embarrassment, the first two letters are my initials, as an acknowledgement of my work and efforts.

GTI: Let's take a look at the reasons and problems that led to the development of this product and how this new product solves these problems,

Davide Ricchi: First of all I would like to say that RCN has changed its way of working over the past few years, also with regards to advertising, customer service and assistance. This has become even more evident during this past year of lockdown.

A fundamental question that we asked ourselves was: "How can I help and assist my customers when I cannot be there with them physically?"

The development of technologies that could make our customers' work the easiest possible without difficulties that we would not be able to solve without being present physically at the customers' premises became a priority.

We therefore developed this technology during the lockdown period to solve what we could define as a 'taboo' in the laminated glass sector: the cleaning of glass edges after lamination.

As we all know, the plastic materials that are used when laminating two sheets of glass, must guarantee a certain level of solidity and adhesion after undergoing the laminating phase in the furnace. The excess EVA film that leaks out from between the two glass sheets also creates the same type of adhesion externally. This external adhesion leads to a great waste of time to clean the glass edges to ensure the quality that the end customer requires from laminated glass.

We calculated how much time was needed to clean all the edges of laminated glass sheets in glassworks to make them acceptable as far as quality is concerned, and the results were that four hours of work were required for each single-level furnace load. It's clear to see that our technology has reduced production and labour costs, while guaranteeing perfect results.

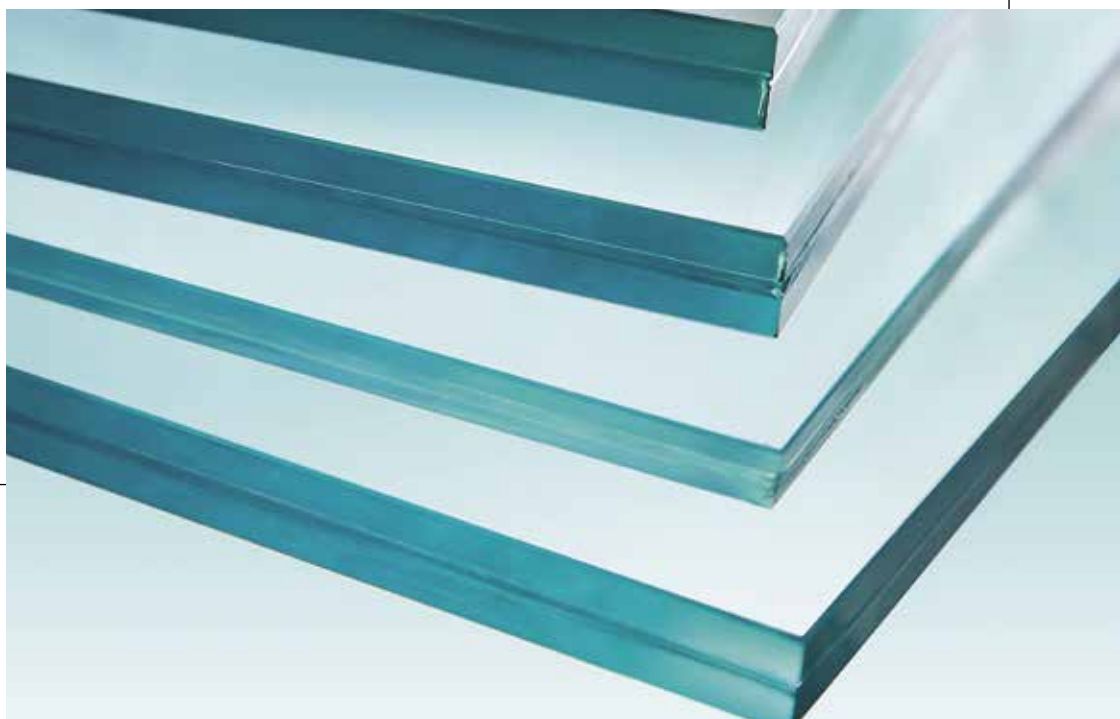
GTI: Are we speaking about chemical action?

Davide Ricchi: Part of the process is chemical and part physical. Here at RCN we maintain our procedure – which is part of our company philosophy – and is that of maintaining the vacuum level inside the bags at the highest level. This is because we believe that reducing the vacuum pressure means that we are allowing air to enter the bag, which reduces the vacuum pressure. This is extremely damaging for glass that has already been processed.

The process that this product carries out is also physical, blocking the leakage of EVA. The composition of this material has undergone physical and chemical changes. Some components are rigid while others have been chemically modified and are extremely flexible. This guarantees the specific composition of the product and, in turn, guarantees a certain type of phenomena that RCN has patented.

GTI: Does this involve a change in the bags, furnaces, and components inside the bags that are used?

Davide Ricchi: We would like to highlight a fundamental aspect. For RCN, changing the structure of EVA film once the highest adhesion has been found, would create considerable damage. This is because continuing to modify the chemical composition of EVA means not taking into consideration or not being able to foresee the possible damage that could occur over a period of 20-30 years with regards to delamination, bubbles, and the ageing of the material. EVA, in fact, must withstand all types of weather conditions. This means that the composition of EVA film must be that of the highest adherence possible. This is clear to see on the edges of the laminated glass: if the edges are easy to clean it could mean that adherence is not so good, also inside the glass sheets. What we have actually modified is the blocking of the leakage of this EVA film



with extremely high adherence from the glass edges.
Following our philosophy here at RCN of working to satisfy the needs of our clients, we have created a system that does not involve changing the furnace, but involves only adapting existing systems with an additional optional device.

GTI: So we are not speaking about an evolution of new furnaces, but also about installation on existing ones?
Davide Ricchi: Yes, and this is an important advantage for our customers, and involves interventions on the vacuum systems. This is because the vacuum pumps must have a certain level of power and torque, while the bags are substituted by our new 'product'.
An important fact to bear in mind is that any application of our system in the glass industry regarding testing and duplication of products is covered by an RCN patent.

GTI: So this means that if I have bags that are not supplied by RCN I cannot use them?
Davide Ricchi: If they work in the same way and for the same scope they cannot be commercialized.

GTI: Can your system be installed on furnaces and components from a competitor?
Davide Ricchi: Yes, RCN can install the system on competitor furnaces. This is what we are carrying out right now on the orders that we have received.
This technology has a number of advantages, starting from savings in labour costs, up to aspects regards standards to be respected with regards to quality. An example is UNI 12543, which concerns the quality standards of laminated glass.
Our new system also allows to laminate very particular materials such as polycarbonate materials which undergo deforming during lamination, guaranteeing flatness.
Another advantage is that even when adding a number of EVA layers – we have carried out tests on six layers – there is no leakage of EVA from the edges of the glass, and, therefore, there is no need to clean the glass edges at the end of the lamination process. In fact, the comment from most of our clients is that the glass processed in this way can be installed directly without needing any other work.

GTI: So this is not affected by the thickness of the glass being laminated?
Davide Ricchi: Absolutely not. Multi-layers – so not just two sheets of glass – but also 10+10+10 – up to 100mm, with guaranteed results.

GTI: Tell us about the orders you have received regarding this new development.
Davide Ricchi: We started with a 'pilot' client' glassworks here in Italy, who tested the first bag for us with regards to durability. This same pilot client has now bought a new machine with four levels – all with this new RD Clean Concept System.
We then started to advertise the product which resulted in a great deal of curiosity from the glass market – from the US first and foremost – and this is where our very first client is based. In fact, glassmakers there want to use our product for lamination in autoclaves with our silicon bags.
Of course, we also promoted our product on the Italian market with our clients here, and 50 per cent of the orders are, in fact, from Italian clients. The remaining 50 per cent are from Europe: Spain, Portugal, France, countries with a high level of laminated glass production.
And even if we started to advertise this product only a couple of months ago, we have already received about 15 orders in just one week! These 15 orders are for the modifications to furnaces and the supply of bags.
It's important to say that the production of our furnaces and bags are carried out simultaneously and do not interfere with each other. This important growth and development is really satisfying – especially in this difficult period.
And we know that this new type of laminating bag will, in the future become a part of the standard equipment of glassworks all over the world.