

Forel

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TERVETULOA - Добро пожаловать - ZAPRASZAMY
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FOREL

BEYOND THE LIMITS,
WITH 'EXTRA
LARGE' MACHINES
AND GLASS



This year, Forel held two distinct Open Houses: one for clients and agents, and a second for invited members of Italian and international press, who all had the chance to discover the new production line that the company has developed. The new line — No Limits — truly reflects its name, in terms of its dimensions, as well as its ability to process glass sizes never considered previously.

Meeting, comparing and finding out about each other: this is the idea and spirit of Forel's Open House, now at its 11th edition. This year's event was not only an occasion to put products on show, but also an important opportunity for dialogue between operators of the flat glass processing sector. In fact, the three-day event that took place in Treviso (Italy), included

training sessions, machinery demonstrations and social networking for the 250 guests coming from 30 different countries.

Participants at the Open House also had the chance to discover the new IG line developed by Forel: 'No Limits', which really does honour its name, in terms of dimensions and operational capacity, being able to process glass sheets of sizes never considered before.





"No Limits" Coupling Press & Gas Filling Machine

FOREL PRODUCTION

Founded in 1976, Forel now has about 200 employees and another 300 collaborators, covering machinery for all types of glass processing.

The Company actually has five product ranges: stocking/storage, vertical cutting for laminated glass, sorting system, edge processing, laminating line and insulating glass line. Forel made its name in particular in IG machinery, but the company's patented vertical cutting line, aimed at high productivity needs, is also a regular part of the company's production.

Forel's vertical edge processing line is also one of our 'best sellers', with different solutions for seaming, edge processing, drilling, milling and grinding, and now also with a pre-processing area which also includes polishing.

Two years of development in automation

Zuccarello spoke to us about the last two years of development in Forel's cutting solutions for laminated glass. The Company is the only supplier of this patented technology, and the first vertical cutting line was introduced in the 1990s, and now many units are produced every year.

"At the moment we are seeing important commercial results in Central Europe, with regards to the request of big volumes of laminated glass to be processed"

The innovations at this year's event also included a special day dedicated to Italian and international press of the sector.

SOMETHING NEW EVERY DAY

Glass-Technology International was one of the magazines invited to visit Forel's premises the last day of the Open House, and had the chance to meet some of the key people of the company, including Fortunato Vianello, founder of Forel, who is today leading the company with the usual energy that has always distinguished him.

The main theme of the event was the use of extra Jumbo sized insulating glass: observing the market, it's easy to see that the demand for significant-sized glass sheets is constantly grow-

ing. Consequently, the size of the plants to work these formats will be bigger and bigger. Forel, in fact, has created the largest line for the processing of insulating glass ever produced in Italy - panels up to 15 meters in size - a real challenge for the use of insulating glass in architecture.

MACHINERY AND DEVELOPMENTS

The next part of the meeting was dedicated to the most recent developments of Forel machines presented at the Open House, speaking with Carlo Zuccarello, Area Manager, and Giacomo Molucchi, Marketing Manager.

This year's event, Molucchi told us, was as important as trade shows.

The opportunity to meet customers at its produc-



"No Limits" Rotating Conveyor

tion site allows Forel to present its business in the best possible way: not only the product, but also the 'habitat' in which the solutions and innovations are conceived and the people who collaborate in the results. Because the more complex the project is, the more interesting it is to find out about its origin and development.

The 'No Limits' project, in particular, is the result of intense team work between Forel and a number of important glassworks, who were also interested in working with highly-automated large or very large plants, but they could not find a 'standard' solution and they needed a partner who would make something new, following their indications. As for numerous Forel projects, 'No Limits'

plants are developed following custom-designed systems together with clients. And it is together with its clients that Forel has gone beyond the limits.

COMPETING IN QUALITY

And of course, when processing such important dimensions (9 meters or more) there are a number of complexities to consider: and this is where the added value of Forel comes into the game.

One of the strengths of Forel products is quality, explained Carlo Zuccarello, which can be verified in all the machines in the range. In this project Forel has faced the difficulties related to the processing of extra-Jumbo glass and at the same time respecting its quality standards.





Vertical Drilling & Milling Machine

FOREL

Sales are on the rise: Forel currently has regular business relationships with 65 countries worldwide. In the European area there is a particularly positive response from the markets of Spain, Italy, Germany and Poland.

Talking about the company and the future

During the visit to the Forel plant, we had the opportunity to meet some key figures in the organization chart: Fortunato Vianello, Riccardo Vianello and Stefano Salvian, the Sales Manager. "One of the most important values of a company is its ability to follow and, when possible, anticipate the market, to develop new technologies able to meet the needs of customers," said Fortunato Vianello. "In fact, our most important investment is that in Research and Development, because what is new today will be old tomorrow."

Stefano Salvian also spoke to us about Forel's global market coverage, both through its historical and more recent customers, bearing in mind the growing demand for 'large formats' from the façade glass market.

The real challenge, said Salvian, is to be suppliers of increasingly innovative automated solutions, while maintaining the characteristics of flexibility and tailoring that distinguish Forel and its products.

Technological development and evolution

In recent years, Forel has been involved in an important process of implementation of its products, and is currently working on integrated management for all its machines.

The result of this process of 'continuous innovation' can also be seen in the 'No Limits' line, which is a concentration of the best of Forel's solutions for the production of insulating glass, already seeing excellent sales success.

As Carlo Zuccarello explained, the building sector is seeing growing interest with regards to energy sustainability and, as a result, the demand for triple glass is progressively taking hold throughout Europe, especially in the Centre and North. In fact, Zuccarello explained, there is growing demand for large production volumes with high quality standards, also for the residential market.

Continuous expansion

"The next expansion step will take place in two phases," Riccardo Vianello explained. "The first will be the acquisition of a new building, and the second will be the further expansion of the Vallio plant by the end of 2019. Overall, we are speaking about expansion of over 10,000 square meters."

"In the coming months we will grow not only in size but also with





Vertical Seaming Machine



regards to staff, with the hiring of new employees,” continues Salvian “with the final aim of expanding our product range, also involving other glass production sectors. This does not mean that we want to try to do ‘everything’, but that we are going to choose some specific sectors and commit ourselves to be the best in those contexts.” “This project is the consequence of a precise choice regarding the market segment in which we want to work,” explains Fortunato. “Forel products are, in fact, mid- to high-end solutions.”

CONFERENCES

The Open House organized by Forel was not focused only on machines, but also offered guests an opportunity for discussion on topics of interest to them, with the intervention of speakers from really top-notch companies of the glass industry.

On Thursday, Giuseppe Vita, Head of the Technical Department, and Maureen Tsagouria, Product & Market Manager, Façade Business Unit, of Saint-Gobain Italia, spoke about ‘The evolution of glass for architecture’, followed by Giacomo Sangalli, Permasteelisa’s commodity manager, who brought his Group’s experience on the theme ‘Trends in the façade market’.

The picture emerging from their interventions outlined the increasingly important role of façade glass, with regards to aesthetics, structural, energetic virtues, as well as its ability to lend itself to the most diverse architectural trends.

The theme of building applications was also central during the conferences on Friday, opened by Ennio Mognato, director of the Stazione Sperimentale del Vetro, with an intervention entitled ‘Large windows: regulations and problems’, and continued with Sandro Casaccio, Sales & Market Development Manager of Kuraray Italia, who spoke about ‘Interlayers in laminated glass’, presenting the latest R&D developments in this sector.





'NO LIMITS' 9000 INSULATING GLASS LINE

During our day at Forel, we saw the company's range of machines, but the main focus was on the further step of Forel in oversized insulating glass units, following the market trend that favours the use of bigger glasses for façades, as can be seen in some of the most modern architecture in the world – the No Limits 9000 IG line. As its name says, No Limits 9000 can process glass of up to 9 x 3.3 metres, with a load capacity per linear meter that reaches 350 kilos for single panes and 550 kilos for assembled panes. The 'No Limits 9000' IG line represents the further step of Forel in the oversized insulating glass units, following the market trend that favours the use of bigger glasses for façades. A trend that is reflected today in some of the most modern architectures in the world. Despite its innovative features compared to the previous Jumbo lines, the 'No Limits 9000' line is a guaranteed product with higher production capacity obtained thanks to the improved combination of well-established technical solutions. The dynamic support system in the coupling press allows to process multiple chambers and to create vertical offsets of up to 250

millimetres and horizontal offsets of up to 1000 millimetres. A series of applications on every single machine included in the line lets the operator successfully manage significant curvatures of the glasses.

Composition of the line

Line Server Interface (Plus Version), consisting of a PC station at the beginning of the line, is based on a special software which ensures communication between all the machines involved, thereby optimizing the production processes. The VW Washing Machine: for complete and precise washing, through three different processes: pre-washing (spray ramp), washing (8 brushes, diameter 225 millimetres), rinsing (spray ramp). To provide the most suitable washing for each type of glass, the VW washing machine is equipped with an automatic low-emissivity coating detection system. It is made entirely of austenitic stainless steel and is equipped with a water heating system that can reach up to 60°C. The drying area is equipped with two inclined blowers, powered by a high head fan →



Vertical Edging Machine



and sound-absorbing panels.

SQD331 Quality Control Scanner and Inspection Conveyor, providing quality control, especially when working on oversized dimensions, becomes a fundamental element of insulating glass production. As well as identifying any imperfections in the pane, the SQD331 can also archive the results of its scan: in this way it is possible to certify the conformity and the quality of the product, even at a later date.

TT Tilting Table, which performs tilting movement to allow the panes to be unloaded. The Tilting Table is of significant dimensions (max glass size 3,300 millimetres in height x 4,000 in width) and, combined with the air cushion generated by an electric fan, allow easy handling even when processing large sheets.

ARC Turning Conveyor: capable of turning sheets up to 6 metres long.

APG Coupling Flat Press with gas filling, which has been designed considering that often oversized dimensions can correspond to significant planarity unevenness (also in terms of centimetres). In order to guarantee optimal processing with panes up to 9 metres long, Forel has developed and patented an exclusive system of

retractable suction cups, able to straighten any planarity unevenness. The two sheets that make up the panel (whether single or laminated glass) are held in such a way as to ensure they remain perfectly aligned, so that the gas filling slot is uniform. Once the gas filling phase has been completed, the two panes are pressed so as to obtain an airtight closing of the chamber.

The APG can withstand significant vertical offsets, up to 250 millimetres, also when processing double or triple insulating glass. SRHP High Performance Sealing Robot capable of handling up to three sealant products and equipped with a semi-automatic dosing unit change, the sealing robot can operate on panels up to 9 meters long. This has been made possible thanks to an innovative sealing head, which takes into account the probable curvature of oversized sheets. In fact, the nozzle of the extrusion head can follow any deviations and imperfections of the panel thanks to a dynamic detection device, which detects the geometry of the panel and consequently controls the extrusion of the sealant through actuators. The SRHP therefore offers perfect sealing under any circumstances and also in the presence of curvatures, surpassing the performance levels of any previous models.



"No Limits" Sealing Robot High Productivity



OTHER MACHINERY

SS – Sorting System

Another newcomer to Forel's machinery range is the SS – Sorting System, with its modularity and therefore possibility of installation in existing lines.

Other machines on show were, of course, Forel's 'historical' VC02 - Vertical cutting line for laminated glass, alongside the EM-DM – which can perform arricing, rough-edge grinding, polished-edge grinding, drilling and milling, the EG – Double head Arrissing Machine, coating removal from insulating glass with the CRP – Double Head Coating Remover, the PBA632 – Profile Bending Machine with the patented 'Arm' to support spacers during bending, the DFN632 - Desiccant Filling Machine.

EM-DM – arricing, grinding, polishing, drilling, milling

The Art. EM-DM line developed by Forel is the ideal combination for arricing, rough-edge grinding, polished-edge grinding, drilling and milling. The edging machine is equipped with a patented suction cups system for a stable hold of the glass, that guarantees perfect positioning and absence of vibrations, besides allowing the processing of any lowE glass. With square or rectangular pieces, it can operate in self-learning mode, thanks to a special feeler installed in the head. The vertical drilling and milling is equipped with an exclusive combined system of fixed and movable suction cups to hold the glass and comes with a specific dynamic suction cups device for a precise and safe processing of large cut-outs.

EG – Double head Arrissing Machine

Accurate and reliable, the Art. EG arricing machine is equipped with two operating heads capable of working simultaneously: a significant increase in productivity, operating simultaneously on two different pieces or synchronized on a single piece. Processing of square and rectangular pieces is carried out in "self-learning" mode: through the use of a series of measuring photocells, the Art. EG arricing machine automatically acquires the dimensions and the thickness of the glass.

VC02 - Vertical cutting line for laminated glass

A solution for cutting laminated glass capable of guaranteeing high productivity even optimizing the space inside the glass factory. Equipped with two cutting bridges and an impressive turning section, the vertical cutting line Art. VC02 can process Jumbo sized sheets and cut on the three axes, X, Y and Z. Each bridge consists of two opposing incision carriages and two breaking bars to cut and open the glass sheet along its entire height. The split is supported by a special motorized ironing system (patented by Forel). Both bridges can be equipped with low-E coating removal system.

CRP – Double Head Coating Remover

The double-head Art. CRP coating remover allows to uniformly remove the Low-emissivity coating from the glass surface, thanks the





possibility of self-regulate the peripheral wheel operating pressure. The coating removal speed can be set according to the type of coating to be removed, the type of abrasive wheels used and their degree of wear. With square or rectangular pieces, the Art. CRP can work automatically by acquiring the sheet dimensions and thickness through a series of specific sensors.

PBA632 – Profile Bending Machine

The Art. PBA632 is equipped with the special Smart Arm (patented by Forel), which accompanies and supports the spacer during bending operations. In fact, the Smart Arm reduces to the minimum any risk of profile deformation or breakage, even when processing oversized spacers, thus ensuring safe processing and high productivity. Furthermore, the machine has been recently upgraded with a specific device for plastic profile bending. The Art. PBA632 can carry out the classic internal bend or an internal bend at 90°, aesthetically identical to the welding joint or the corner bracket (corner keys), but with production times lower than the former and without the heat loss typical of the latter.

DFN632 – Desiccant Filling Machine

The desiccant filling machine Art. DFN632 allows to automatically fill the profile frames with hygroscopic material in order to prevent the formation of condensation inside the insulating glass panel. This solution consists of a turret on which a frame-pressing vice and two special drilling and filling heads are installed. After drilling the frame, using two drills positioned at 90° from each other, the drying material is inserted by a jet of compressed air. Once the filling is complete, the two holes are sealed using butyl.

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