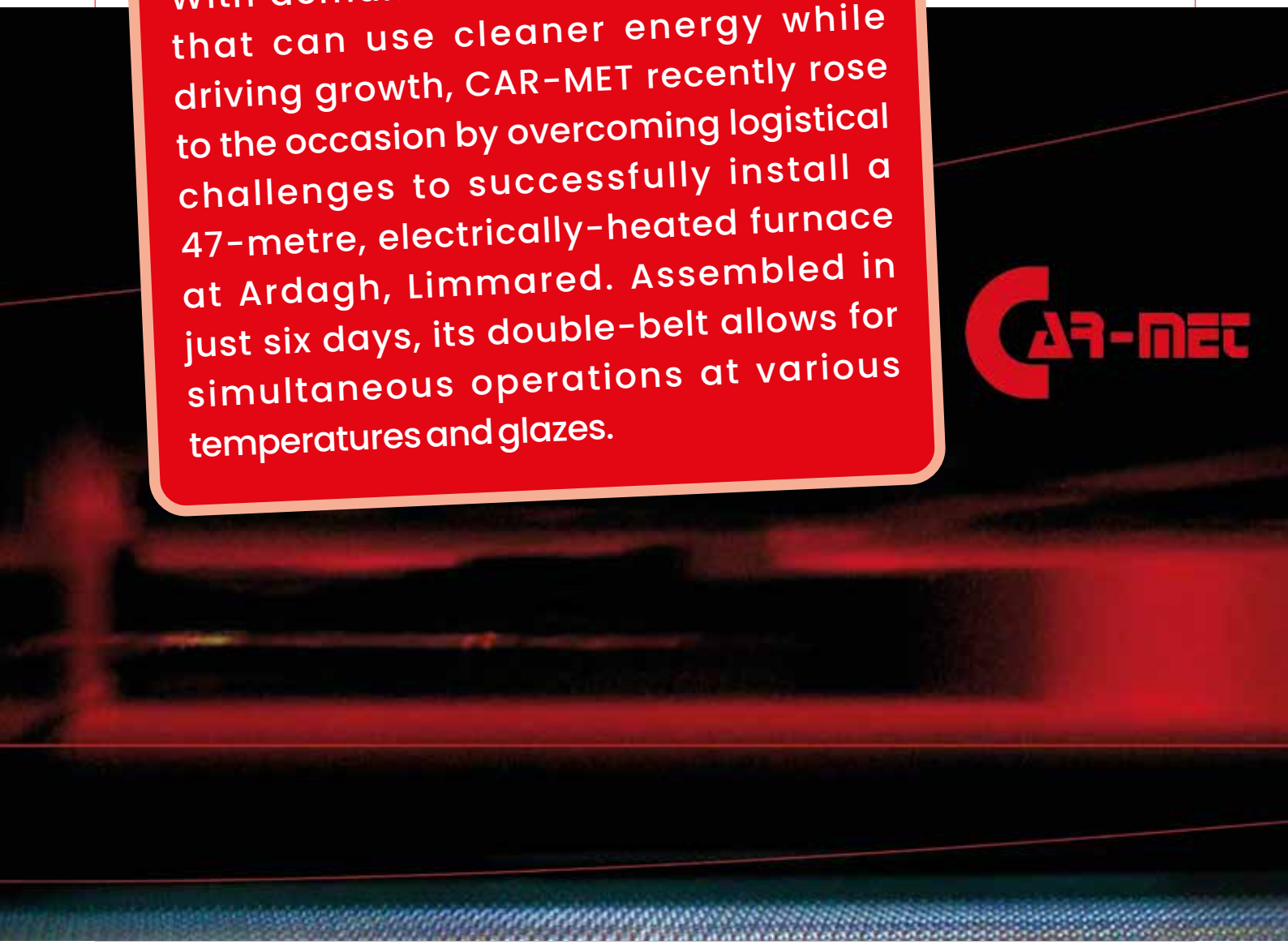
Celebrating the installation of CAR-MET's latest furnace in Sweden

With demand now soaring for plants that can use cleaner energy while driving growth, CAR-MET recently rose to the occasion by overcoming logistical challenges to successfully install a 47-metre, electrically-heated furnace at Ardagh, Limmared. Assembled in just six days, its double-belt allows for simultaneous operations at various temperatures and glazes.



After the years of Covid, during which many in the industry had the collective sensation that everything had to come to a halt, the leadership team immediately noted a high demand from the market for new plants such that, as of today, the company has orders in-house spanning the entire 2024. The hope here is that the trend continues, that the innovative push persists - and, above all, that current need to reduce energy consumption and drive production with clean energy leads more companies to consider the opportunity of modernising existing plants to become more efficient and less energy-consuming. Here Car-Met can already report a recent success story, which had it installing a new plant at Ardagh in Limmared, Sweden. Electrically-heated, and at 47 metres, it is perhaps the largest in the world. The plant itself consumes approximately 2350 kW of electrical energy for heating and a further 140 kW circa for motor management and other purposes. Renewable energy sources are used to power the furnace, which will primarily be used for decorating Absolut Vodka bottles as well as other products.

DESIGN CHALLENGES

Being a large-size plant, one of the first challenges to overcome was that of finding the right delivery method to make everything fit. Each module of this plant filled a truck. Indeed it took a total of 19 trucks for transportation. This treats a double-belt furnace measuring 2.40m x 2.40m when divided precisely in two. A single structure that contains two furnaces, its design allows for greater flexibility for the glassmaker - who is essentially the producer. Within the left furnace, a product requiring a certain temperature can be placed while simultaneously using the right furnace for a different product that requires a different temperature. This way the two furnaces can operate simultaneously with two different cooking temperatures and different glazes. As such, it comprises two furnaces in one, with a length of 47 metres and two parallel belts of 47 metres. An enormous, extended

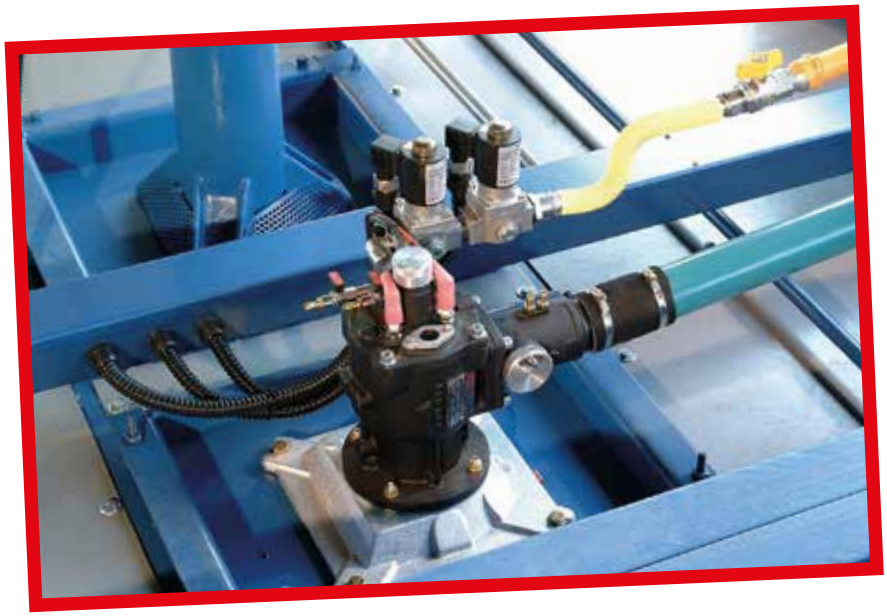
furnace which was assembled in just six days by a team of eight people, the plant itself now consumes about 1000 kW instantaneously.

PREHEATING TIMES

While preheating times are the same as other furnaces, for Car-Met the decoration temperature is always important as a reference. Once the first part of the furnace reaches the temperature of 680°C, the furnace is ready. By the time the glass reaches the end of the tunnel, the furnace has widely stabilised in temperature terms. Time varies depending upon on-site conditions but it typically ranges from one hour to about one and a half hours. The company always offers pre-testing to its customers at its facility. The furnace is fully constructed and preassembled. Car-Met conducts all the tests to ensure that everything conforms to technical specifications.

THE DECORATION PROCESS

The decoration process is more sophisticated as it involves higher working temperatures that range from the 550 degrees required for annealing to the 675 degrees needed for decoration - which reaches



the limit of grading beyond which there is risk of material deformation, which would necessitate technical expertise and the application of more precise and sophisticated technologies. Over the years the company has specialised in tunnel furnaces for glass tempering. It also introduced to the market a system that performs both tempering and decoration functions - resulting in significant energy saving, given that tempering involves a substantial energy consumption. The company's founder, Antonio Zanin, sadly passed away in March of this year - prior to installation of the new 47-metre-long furnace. As today's leadership team reports, his popular admonition to 'never stop' is now remembered especially today - which includes the willingness to accept challenges untiringly, to strive for continuous improvement and, above all, to always keep promises. To quote Zanin himself: 'A promise made is worth more than a signature.'

CONTINUATION OF A PRIZED LEGACY

Following in the footsteps of Zanin's proud legacy, all Car-Met products are now attentively followed and checked throughout production from design to realisation to the final step of on site start-up. The company is also committed to researching and developing cutting edge technical solutions that are aimed at simplifying product use, reducing energy expenditure and increasing life span over time. With a view to guaranteeing quality, all this has it looking after even the smallest detail.

IMPROVING GLASS QUALITY

For a global market in which quality is necessarily a strategic element, Car-Met deems it to mark the point of convergence between productive and commercial challenges, which are faced continuously - driven by the company's seasoned experience and state-of-the-art technologies. By this approach, Car-Met meets the future with confidence thanks also to its extremely flexible industrial track-record as well as the advantage of its continuing innovation - all within a framework that affords Car-Met the possibility to provide clients with the key ingredients of its signature quality whilst providing the plants they need and guaranteeing that delivery times are met.

ANNEALING LEHRS

Annealing lehrs are fed by gas, electricity or liquid fuels where the exchange may be direct, indirect or mixed. Not only. Plants are suited to working with the most precious of crystals and the most elaborate bottles - spanning all table glassware types. Here Car-

Met satisfies the needs of modem glass companies, putting both its experience and its technology fully at their service. Indeed, with a belt width ranging from 60 cm to over five metres, the company can satisfy every kind of production requirement.

DECORATING LEHRS

The delicate world of decoration requires great attention to detail. Nothing is left to chance, with everything carefully planned and researched with a view to reaching the best results. Here Car-Met has been offering its service for the decoration of hollow glass since the earliest days of the market. The company's uniform temperature has grown jointly with its developing relationships with clients as they excel at decorating -both together as well as individually- in applying new tactics to reduce expenditure while facing the modern needs of new applications - an exceptionally successful triptych to which Car-Met is now proud to lay claim.

TOUGHENING

Whereas annealing process removes tensions from the glass after forming, a toughening line restores the tension of the glass itself. By means of this toughening process, the plant -both on belt and spindle- facilitates an increase in mechanical and thermal resistance of hollow glass articles - making each safer for use as well as application in our modern day lives. Thanks to this process the article becomes two to three times more resistant to mechanical shock than any other annealed product with fragmentation after a fall being also controlled - the glass pieces being extremely small and therefore not as dangerous. Of course, this process will select the products of the highest quality. Either way, scrap tempered glass or recovered glass would be recycled countless times and can be mixed at the time of composition. This signifies important advantages for the everyday use of glass articles to which glass industries necessarily will have to pay attention. Here's why Car-Met believes that this process, especially if applied to tableware and to technical glass, offers great possibilities for the future. Indeed the company provides careful development and accurate planning, having even created a suitable division that's dedicated exclusively to the toughening market and its applications.

INSTALLATION

Car-met's dedicated techni-

cal team is dedicated to both machinery operation and site direction - ensuring careful spare part management, professional customer care, helpfulness and collaboration at all maintenance interventions as well as change and reconditioning of plants related to its production range - even when produced by other companies.

Stackers

- 2 axes mechanical driven
- 3 axes servo driven

With a water or air-cooled bar, and upon request, with a counter-bar.

IN FOND MEMORY OF ANTONIO ZANIN

Born in 1931, Antonio Zanin is remembered in the glass world today as a true pioneer. After migrating over his work life from metalwork to glass, Zanin applied his great dedication to glassworkers worldwide - overseeing production at the company's premises while constantly visiting clients worldwide. Always proud of his creations and the results he achieved, Zanin passed away in March 2023. His extraordinary know-how lives on now in the hands of his heirs to continue along his path based upon the signature principles that characterized his exemplary professionalism. Zanin established Car-Met in 1972 together with two partners. Initially operating as a metal carpentry company, it was the company's proximity to a glassworks that soon led to its involvement in supplying the glass industry. With Zanin's oversight, Car-Met evolved over the years from providing metal structures for warehouses and buildings to meeting the demands for metal structures in melting furnaces. As time passed, the company expanded its operations to include proper annealing furnaces, with the transition from annealing furnaces to decoration furnaces and tempering lines occurring swiftly.

Cross-conveyor

With water-cooled supporting beam - guaranteeing linearity and performance.

Mould preheating ovens

- Gas or electricity-powered heating with electronic temperature control;
- Provided with a cart to download and load moulds into the chamber.

(internal dimensions cm 100x130xh. 50, variations on request)

Scrapers

- With wear-proof steel bottom
- Without the use of basalt
- Provided with special blades, activated by a high resistance concrete chain, built exclusively from our own design.
- Complete with rotation control device, torque limiting device and emergency stop.

Brush

- Special brush for belt cleaning

Control cabinets

Upon request of the client, all company plants may be provided with different control systems:

- Only thermal regulators
- With thermo regulators and plc
- With pc onboard the machine
- With pc supervision from a distance

Both brands and component models can be agreed upon with the client. ■

CAR-MET

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