


REFRACTORY SPECIALIST

Becoming a specialist in any sector takes many years of experience, and this is what Fusiontec has in its sector of furnace and forehearth design, but also in refractories. In this article, we take a look at how this experience, combined with a flexible approach to take in account different variables and parameters, has led the company to be chosen by Vetri Speciali to supply some of its most recent projects.

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Flexible engineering approach and quality refractory products pave the way for the inroad of **Fusiontec** at Vetri Speciali



Fusiontec is a fairly new company that belongs to Revimac, a member of the Bottero group; it was established at the beginning of 2016 as a refractory materials manufacturer, designer and supplier of furnaces, working-end and forehearth systems. Despite its brief history, Fusiontec can count

not only on the strong reputation of its parent companies, but also on more than 20 years' experience of the specialists of its staff, mostly coming from the field of refractory production and furnace and forehearth design.

CHOSEN SUPPLIER FOR VETRI SPECIALI

In recognition of this solid experience, Fusiontec was selected in 2017 by the renown Italian glassmaker group Vetri Speciali as the supplier of some of its most recent projects, concerning in particular the replacement of one forehearth in one of its plants and the supply of a significant part of refractory materials for a new melting furnace under construction in another plant.

The choice in favour of Fusiontec was made not only for its proven capability and experience. The high quality of the refractories, the attitude to iden-

tify the problems encountered by the customer and develop tailor-made solutions, combined with the capability to provide all the necessary technical support for the project management indeed played a major role in directing the choice towards the company.

In fact, the forehearth replacement was not to be simply intended as a mere supply of one set of refractory blocks. It consisted in developing the modification of an existing working end and in the designing of a new forehearth.

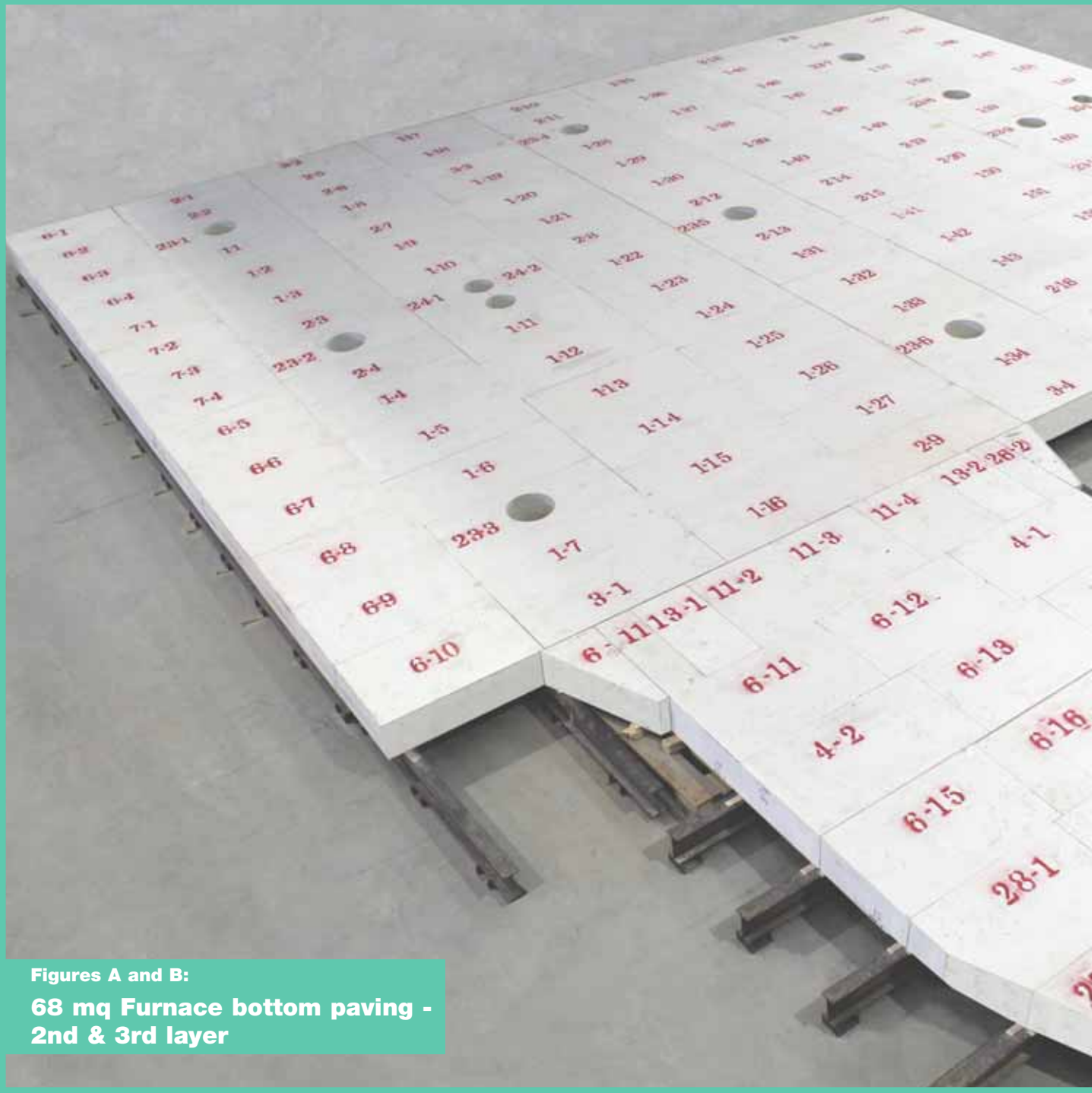
FLEXIBLE APPROACH

Fusiontec specialists adopted a flexible approach to take in



Fig. A

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Figures A and B:
68 mq Furnace bottom paving -
2nd & 3rd layer

account several different variables and parameters, always keeping in mind that the plant produces an extremely wide range of glass bottles with particular shape and in a wide range of glass colours.

The new design has taken into account as well that the refractory blocks of the working end and forehearth replacement had to be carried out in “hot”

condition, i.e. with the furnace in operation.

To complete the supply, Fusiontec has provided Vetri Speciali with several professional services, including full assistance during all the project stages, in terms of planning of the engineering steps, supervision and technical assistance during the complete installation of the new cover blocks of

the working end and new forehearth, in other words, a true “glass to glass” support service.

SECOND PROJECT

The second project is related to a new furnace under construction in another factory of the same glass group located in the north-eastern part of Italy and it is related to the supply of materials for the furnace bottom



Fig. B

selected among the best and certified European producers, being the high purity and stability of the chemical composition of the raw materials a basic requirements for the quality of refractory blocks.

Special care in design and construction

For this project, special attention and care was dedicated to the patterns design and construction, which is developed in-house by Fusiontec specialists. The design was focused in forming a final piece, which has the best features and characteristics (density, porosity, etc.) depending on its working conditions during operation. The selection of the materials for the patterns is made in order to use those materials that transmit the vibration in the most efficient way.

Process automation has played the most important role in achieving high levels of quality of Fusiontec production, mainly during the mixing and casting stages.

In order to assure a full process traceability, after the casting phase, every piece was associated to a code number which follows the block during all the process through a bar code.

Consequently, it is possible to associate the complete history to the relevant refractory block (batches of raw materials which have been used, mixing and cast process parameters, firing process temperatures, etc.) and store it as computer data; by input of the code number all the block history can be recalled at any time, if needed.

The automation is extended to the firing process, and it is assisted by the continuous monitoring of the furnace parameters, which is achieved thanks to the remote control so that Fusiontec operators are able to check at any time the status of the firing process.

Dimensional accuracy

Dimensional accuracy is one of the most important aspects of quality supply.

For this reason, the supply of a furnace bottom paving, forehearth glass contact channel blocks and super-structures, like those supplied to Vetri Speciali, have been scrupulously pre-assembled and machined in order to obtain very strict tolerances.

In fact, the automatic grinding machines with numerical control permit to achieve a high dimensional precision so as to give the joints a narrow tolerance up to $\pm 0,5$ millimetres.

The quality control department is focused on the dimensional check, density and porosity control; for the certification of materials and non-routine checks Fusiontec is assisted by SSV (Stazione Sperimentale del Vetro) on the basis of a regular cooperation agreement.

Thanks to the accurate control of the whole process Fusiontec is able to produce very large blocks (up to 2.3 tons, with overall main dimensions of 1,800 x 1,800 millimetres), including glass contact channels, with the advantage to reduce the number of joints, that will greatly help to speed up the installation process. ■

insulation layers and melting tank insulation.

All these parts are manufactured through the vibro-cast technology that is one of the key processes mastered by Fusiontec.

The high quality level of the refractories was achieved through an accurate control of every step of the process, starting from the raw materials, all



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