

The Ceramic Division of Marcheluzzo Impianti

Marcheluzzo Impianti is since over three years active in the ceramic segment with a division dedicated to the sanitaryware sector. The Italian company is proposed in the market as reliable partner with a brand recognized worldwide due to its 45 years of experience and know-how in the field of heavy clay ceramics technology.

Specifically, the main tasks of the Ceramic Division concern all processes that involve thermodynamic aspects as well as aspects concerning energy recovery from kilns and energy production and distribution in ceramics production. To ensure the best heat treatment, thus helping to reduce the rejection rate, the new division designs and manufactures according to products and production flow air conditioning systems for casting rooms: air handling units, channels and speakers, static and tunnel dryers respectively.

Tunnel dryer

A dryer for ceramic products is developed in order to assure best drying results by considering different elements:

- morphology
- product thickness heterogeneity
- raw materials composition
- products humidity after shaping
- shrinkage (Bigot diagram)
- body and rim sticking
- product weight
- tension due to gravity
- model defects
- support types.

Particularly, Marcheluzzo's dryers are developed to dry any product type while the competitors adapt the pieces to be dried to the dryer. So for example, pieces are subject to a pre-drying process before entering the dryer as it is the case with dryers working with rotating fan cones, since they are not able to process drying of pieces with high humidity content. Basically, Marcheluzzo develops dryers based on three processing systems:

1. with static hot air distribution which makes drying suitable immediately after products shaping (distribution through forced sheets)
2. with dynamic hot air distribution which makes drying suitable after a certain storage time of the product after shaping (distribution through high-speed air blowing)



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Fig. 1 Dryer internal view

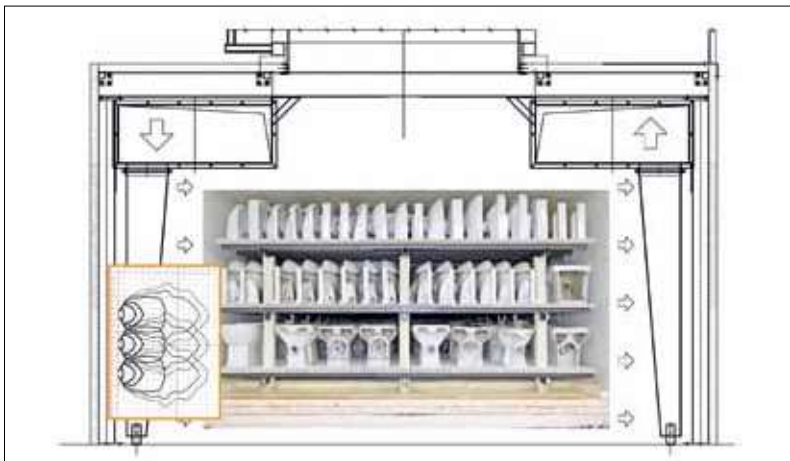


Fig. 2 Dryer for glazed products

(Figs.: Marcheluzzo)

3. mixed hot air distribution consisting of a first static phase and a second dynamic phase coincident with the last product shrinkage (Bigot phase). This solution is exclusively applicable for tunnel dryers.

The dryers belonging to type 1. and 2. can be of the type batch or tunnel

whereas the dryers of type 3. can only be of the tunnel type. Tunnel dryers can be processed with drying cars, with hanging shelves applying mono or twin rails or with rollers.

One of the most important projects regarding the implementation of a new dryer which has been already completely deliv-

ered, is that of a tunnel dryer for one-piece monoblock products for the company Saudi Ceramics in Saudi Arabia.

Dryer for glazed products

The dryer for glazed products is designed to be set up at the entry of the firing kiln with the purposes of drying the ceramic glazed products and of reducing the firing cycle. During glazing, a sheet of humid glaze is applied onto the products resulting in a weight increase of the ceramic products of about 3 %.

This dryer is quite similar to the static-processed dryers (distribution through perforated sheet) but in this case it is processed with a reduced air volume.

Marcheluzzo's dryers for glazed products are developed to be processed for using only air supplied from recycled sources. This approach relies on three main reasons:

- avoidance of ambient environment pollution
- avoidance of iron or fired particles separation on the glazed surfaces
- reduction of energetic consumption.

As a matter of fact, the traditional system based on using air from the kiln chimney creates a high thermal consumption compared with the system based on air recirculation which in most cases it cannot assure any energy recovery (close loop).

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Keywords: drying, ceramic sanitaryware, tunnel dryer, dryer for glazed products