

Marcheluzzo Ceramics: New Slip Heating Concept

Marcheluzzo Ceramics S.r.l. develops for the production of sanitaryware, insulators, refractories and bricks automatic plants as well as thermal systems for drying and environmental control for over 45 years already. Due to research and development activities, Marcheluzzo Ceramics has developed an innovative system for slip heating in metal tanks for the sanitaryware production.

It is essential to achieve the fixed slip temperature between 35–38 °C because only in this way the best stability of the casting process of sanitaryware products is guaranteed, for both technologies: traditional and modern like spargless or high-pressure. It is important that the slip temperature reaches the fixed drop point for the established period of time and remains in that way for the whole time of slip storing before sending it to the casting hall. This regulation must

be done independently of the slip temperature. These metal tanks are already in use in a factory, that means the use of this new system is less invasive and expensive, moreover as it uses hot water as energy source.

The system completed by Marcheluzzo Ceramics in laboratories is based on energetic transfer which involves the hot water circuit and the stainless steel tanks with slip. This transfer takes place by means of a half-permanent regime where the following phenomena appear at the same time: transmission – conduction – convection – radiation.

The system is based on winding around the stainless steel tank of a series of PE-XA tubular spires. The challenge regarding the development of the system is to calculate the number and the characteristics of spires needed by taking into



Fig. 1 Sample of tank using the system developed by Marcheluzzo Ceramics



MARCHELUZZO CERAMICS

PROJECT AND MACHINERY FOR CERAMIC INDUSTRY
SINCE 1985

When theory turns into practice.

Marcheluzzo Ceramics is a byword for top quality and multi-year experience in the field of turnkey plants for ceramic materials. A technical staff with long standing experience makes Marcheluzzo Ceramics Division a reliable partner in the international market for the Ceramic Industry. Thanks to the acquired know-how, Marcheluzzo Ceramics Division is today capable to offer solutions in various industrial fields.

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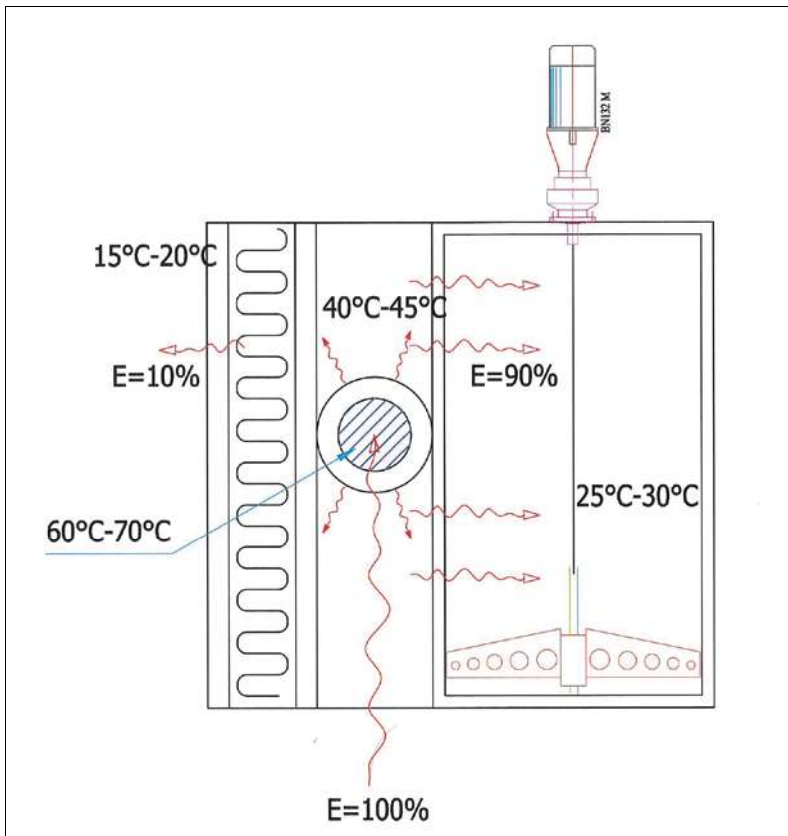


Fig. 2 Slip heating working schema

consideration the amount of slip to be heated and the surface/volume ratio of the tank.

The energy transfer to the slip is done through the following steps:

- hot water circulating in the PE-XA tube;

- air chamber around the PE-XA tube covered with an insulating layer;
- heating the stainless steel wall of the tank;
- ceramic slip by its continuous movement in the tank by means of mechanical agitators.

Once the coil is placed, the tanks are isolated with Rockwool and finished with foil sheet. The water entry temperature is adjusted with a valve in order to reach the temperature inside the PE-XA tube independently of the primary water circuit temperature.

Flexibility, efficiency and possibility to control many tanks at the same time, makes the new system an alternative to different water/slip heat exchangers that force the slip to continuous transfer through pipes which may result in changes regarding the slip rheological characteristics.

Marcheluzzo Ceramics delivers the system together with a patented Visco Smart device for the automatic check of the correct slip temperature, viscosity and tixotropy.

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