

Forehearth training for productivity

Forehearth Services has now delivered forehearth operation and optimisation courses to approximately 700 glass professionals in 20 countries across three continents - and one subcontinent. According to John McMinn, the course has been refined over a period of seven years to provide the most comprehensive guide to forehearth technology and operation.

Many major companies have provided the course to all glass plants within their groups. The reason for this, in the context of the current global financial environment, is simple economics – professionally trained personnel applying the correct operational techniques result in energy savings, increased pack rates and productivity.

One of the biggest problems for operators and glass plant management is to determine how efficiently the forehearth is operating. The dubious usefulness of the much used thermal efficiency value, derived from a summation of the temperature differences between tri-level thermocouples at the spout entrance, is the topic for a separate paper but it can be said that, as a marker for forehearth performance and efficiency, it is extremely limited.

Forehearth Services has devised a series of tests that are used in forehearth performance audits and provide data, which when analysed, provide an accurate measure of operational efficiency and identify all areas that are negatively affecting the performance of the forehearth/distributor and their combustion, cooling and control subsystems.

The training course is five days in duration, comprising three days of theoretical training and two days' practical training. A sub-set of the audit performance tests and data analysis techniques used are now taught as an integral part of the practical training element of the course, teaching students how to maximise performance using their own forehearths and equipment.

MANAGING PRODUCTION DISRUPTION

Many changes made to an operating forehearth system result in disruption to the thermal stability of both the

glass and refractory. This in turn results in disruption to production stability. While some changes are a necessary component of forehearth operation, unnecessary changes produce two disruptions – a result of the initial change and the disruption made by reversing the unnecessary change.

Modern forehearth systems have a plethora of data available to the operator. The Forehearth Services training course teaches operators how to use this data to analyse what changes, if any, are necessary, the implications for disruption of any change they may make and the timescale over which the implications of the change will stabilise.

Training should provide the operator with the ability to understand the processes taking place within the forehearth system and the knowledge to allow him intuitively to predict the implications and reactions of each adjustment made. A forehearth system comprises several complex and interacting boundaries, eg cooling, control and combustion systems, as well as the glass itself.

There are few adjustments on a forehearth that produce a single reaction. The operator should be able to predict the net effect on the process of any changes made to any part of the system.

OPPORTUNITIES TO EXPAND KNOWLEDGE

It is not only forehearth operators who benefit from training. The task of selecting a particular forehearth technology can have huge implications for the productivity and financial success of a company. For this reason, many companies play safe and remain with the same technology, even though

they know there is probably better, technically superior technology available. This 'better the devil you know' philosophy can tie a company into an inappropriate technology.

In many cases, the choice of technology is due to the relative persuasive talents of individual forehearth salesmen. This cannot be the best way to evaluate a system critically or assess how appropriate it is to particular production requirements.

A key requirement for plant personnel charged with technology selection should be a wide knowledge of alternative forehearth technologies and the ability to match the most appropriate technology to best suit their needs.

The choice of technology should not be based on replicating existing equipment simply because it is seen as the simplest option or avoiding new technology because technical personnel do not understand the latest forehearth developments. This knowledge can be obtained from in-depth forehearth technology training.

For forehearth operators, Forehearth Services Ltd provides the fundamentals of forehearth engineering and operation, equipping operators with the skills required to optimise and maintain forehearth performance.

In a challenging financial environment, the first budget casualties are often sales, marketing and training. Yet it is precisely these activities that can propel a company beyond its competitors. Training pays real financial dividends – a leading European glass producer with multiple production plants explained that Forehearth Services was approached for training at four of its plants simply because of the financial return obtained at the first plant. A well-trained technician or operator is an asset and Forehearth Services can equip them with the skills needed to operate forehearths and distributors at optimum efficiency. ■

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