

DETAILED TRAINING PROGRAM

IS PRODUCTION & MAINTENANCE TRAINING

by EmpakGlass

We combine the power of technology with knowledge and experience, so our customers gain a competitive edge in the container Glass Industry.

Choosing the right strategic partners is the key success factor to any business therefore, EMPAKGLASS is the right partner choice for you.

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PERFORMANCE SOLUTIONS

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INTRO

The IS Production Division of Empakglass prepared this training as a result of years of onsite technical assistance services.

It provides a detailed hands on approach to the forming process.

During the training are discussed the main key elements that influence glass forming in the different processes (BB, WMPB, NNPB).

The training incorporates topics as Gob & IS Mechanical Job change , equipment's maintenance, IS Production Start-up, standard operational practices for keeping the efficiency, economical optimization by standardizing the IS equipment and glass quality defects.

This training is suitable for both experienced and/or industry newcomers with IS Production operators & managers / Job change / IS Maintenance operational responsibilities .

The detail level of the training is adjustable for both more experienced and industry newcomers.

The training can be structured either in a 10 days version or in a shorter 5 days version.



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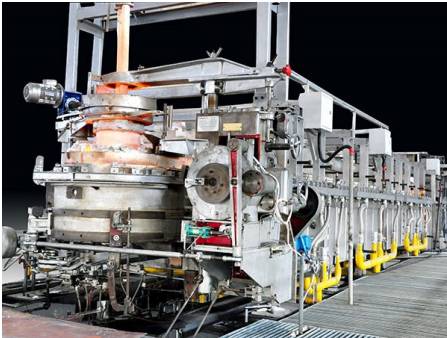
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1. Job change planning the Glass Conditioning setups



- Understanding how the different forehearths designs work and influence the operation and thermal homogeneity of the gob;
- Setting up the proper operation in accordance with the Riser, working end and gob temperatures for the required pull;
- Preparing the forehearths for a job change with different weights and temperatures of operation – forehearth setups;
- Forehearth refractory and burner preventive maintenance;
- When to change orifice rings, revolving tubes, plungers and stirrers – accessories; Standard Wear Rate;
- Troubleshooting – Glass defects generated in forehearths (blisters & stones). Using the Troubleshooting Manual for faster assessment on the defects cause.

2. Job change optimization correlated with a proper IS maintenance



- Understand the influence of a job change and start-up on the overall performance of a glass plant;
- Influence of the production planning on the total monthly job change time. Job Change Index Concept (JCI) and KCR;
- Main objective: reduce the time of non-production (t1) caused by job changes & improve the ram up time (t2), by doing well at the first time;
- Identify the various areas and factors influencing the job change time, and coordinate them into improvement modules with defined TEAM;
- Organize the job on/job off meetings and how to collect and use the necessary data.

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3. Gob & IS Mechanical Job change



- Gob ready before the end of the IS mechanical job change (forehearth, feeder and delivery systems ready);
- The proper gob for each specific job;
- Identification of the factors taking most time in the process of making the right gob for the right job
- Creation and continuous implementation standard procedure for Orifice Ring Changes;
- Creation and use of the " Team Gob " objective control Datasheet;
- Gob & Process Data collection system;
- Job change SMED

4. Job Change Accessories Planning



- Make sure that all components (IS accessories, tools, moulds ...) required for a job change are ready and in proper condition on the IS machine before the Job Change stopping;
- The logistics involved in a Job change.

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5. IS Mechanical Job Change



- Organization of the IS job change team;
- Decrease of the time duration of the IS mechanical job change without process change;
- Decrease of the time duration of the IS mechanical job change with process change;
- Identification of the factors taking most time during the IS mechanical job change;
- Creation and continuous implementation of the standard procedure for mechanical job changes;
- BLANK and BLOW sides adjustments using gages;
- Setup correctly and quickly all the mould equipment onto the IS sections (in cold and hot conditions);
- IS mechanical job change optimization through tools standardization and controlled availability on the IS machines.

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6. IS Production Start-up



- Get as fast as possible all IS sections under glass after the IS mechanical job change;
- Optimization of the procedures for the “cold run” setup (w/o glass);
- Make sure that the change of all components related to transport (pushers...) is done before the start-up under glass;
- Quality of the transport: no bottle falling down on the conveyors to the lehr; Identification of the factors taking most time during the transport setup;
- Time in minutes between first gob in first section and all sections “ 90% PTM” to be decreased step by step – The job change index in action;
- Fast defect identification and correction during start up;
- Troubleshooting – Glass defects generated during start-ups (most common defects for a given plant);
- Identification of the factors taking most time during the start-up of the IS sections => what can I do to reach as soon as possible 90% PTM?;
- Creation and continuous implementation of the standard procedure for the start-up of IS machines;
- Hot End Coating Setup & Control;
- Lehr Setup & Control.

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7. IS Production – After the start-up, keeping the efficiency



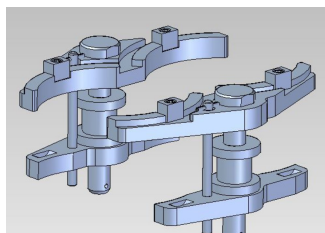
- Standard Timing basic rules for NNPB; WMPB; B&B processes;
- Corkage control SOP's for wine bottles;
- Communication Hot End /Cold End;
- Swabbing: Procedures and methods;
- Changing Mould Components – track and trace of every moulding component;
- Defect analysis & troubleshooting;
- Job ON / Job OFF. Records & Meetings.

8. Accessories Maintenance planning



- Minimize the IS machines interruption due to IS accessories failure;
- Implementation of a preventive IS parts maintenance plan: make sure that all IS accessories on the machine are in good quality;
- Standardization of the IS accessories and various components;
- Implementation of a controlled and scheduled preventive check-up of all IS accessories (neck ring arms, holders...).

9. IS parts & Accessory Specification - IS equipment standardization



- Assessment of the containers and related accessories in use on the current existing IS lines;
- Importance of standardized defined Mould Design setups.

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