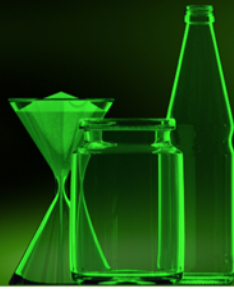


SOLUTIONS



Glass Container Light Weighting

APEGG's Light Weighting Programme

Light weighting is pushing the boundaries of container design and the manufacturing process.

Light weighting enables the glass manufacturer to produce more glass containers per ton of melted glass. Saving glass by producing lighter containers means that less energy and fewer raw materials are being used.

Less weight means less energy
and less raw material usage
= **LOWER COSTS!**

APEGG can assist customers to reduce the weight of glass containers by introducing a light weighting manufacturing process.

In order to change an existing manufacturing process to one which can produce light weighted containers, APEGG offers a comprehensive programme from the container design through to the brand owner acceptance, covering all stages of the process.

Analysis: It must be initially established if the container in question can be produced at the correct design weight. If we are sure that it is being produced at the correct 'right' weight, then we can consider implementing a light weighting programme. In addition to the container analysis, the existing manufacturing process will be audited to understand its limitations and potentials.

Container Redesign: After the analysis, a proposal for the new container design will be provided. During this process, the brand image and functionality of the container will be considered. Once the actual container has been designed and agreed, the most suitable forming process will be proposed.

Plant Enhancement: With the container design and forming process agreed, the actual production line may require upgrading. In some cases, there may be a training requirement especially when a new forming process is being introduced. APEGG will provide the customer with an upgrade plan for machines and equipment and will include any training requirements.

Costs and Benefits: APEGG will provide an analysis of the costs and benefits relating to the implementation of the light weighting process. The analysis will highlight the amount of new investment required, the new manufacturing costs and new sales price for the container. Based on this information, the Return on Investment (ROI) can be calculated.

Implementation: With the cost and benefit analysis complete and the container design concept agreed, APEGG will create a comprehensive project plan for the implementation of all the necessary steps in order to produce the newly designed container. The overall project will be managed by APEGG from the beginning through to the first production run.

Container & Mould Design: All design work will be completed by APEGG's own in-house design department. A full container and mould equipment design drawing set will be submitted. If required, APEGG can assist with the procurement of the mould equipment and can manage the whole process.

Sampling: Sampling of the container is of paramount importance when introducing a new container design or introducing a new production method. The complete process, from the IS machine to the filler, needs to be considered with every step of the production process, including manufacture, inspection, packaging, transportation and filling all being checked and monitored to ensure that everything is ready and suitable for the new container.

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