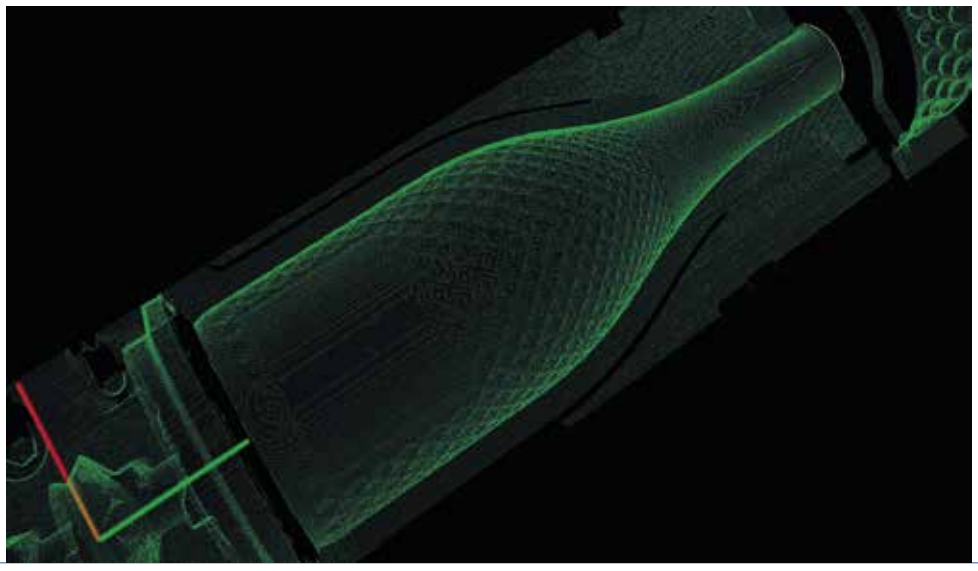
MOULDS

Measuring the volume of moulds has never been so simple as with LMS V1 from LUBEN GLASS

LMS V1 project, a certified laser system for measuring the volume of the mould, was started up some years ago by Luben Glass and its partner Hypertec Solution, looking for a solution to overcome the limits of mould volume measurement. The resulting system provides almost total daily control of entire mould series, with measurement accuracy and repeatability, as well as ease of use.



LIMITS OF CURRENTLY USED CONVENTIONAL SYSTEMS

For many years, the measurement of the volume of moulds has been linked to laborious and imprecise systems such as measurement with water.

This procedure has always required specific surrounding conditions, such as the use of distilled water at a controlled temperature, skilled operators, the removal of excess grease, etc., all parameters that make it very difficult to obtain fast and accurate results.

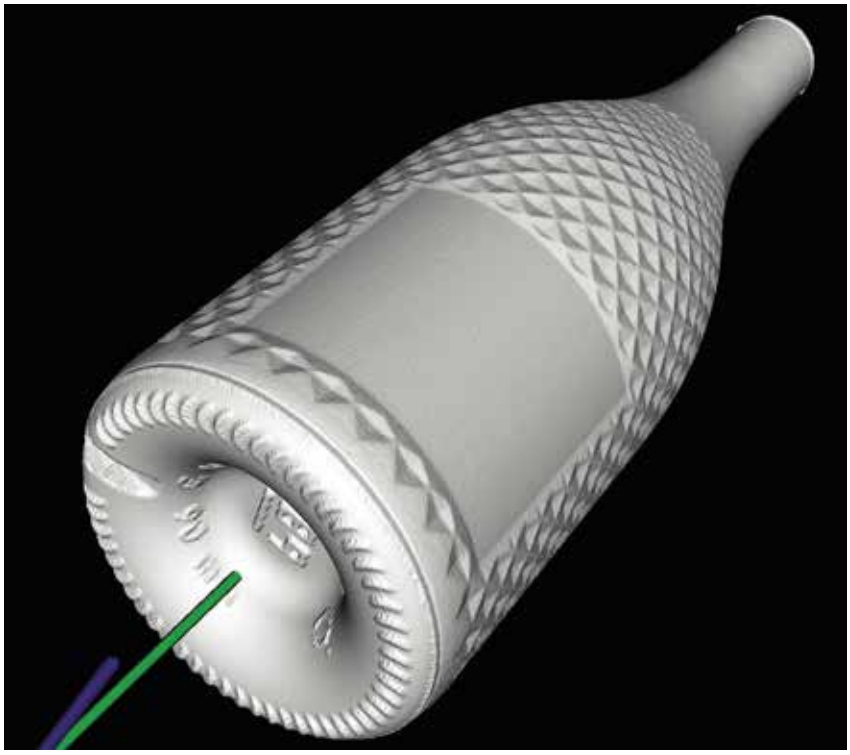
The difficulty of repeating the measurement with the same conditions on each mould, and the imprecision of the final result have accompanied glassworks' staff over the past years.

Not even the advent of machines with water membranes has been able to solve the problem connected with checking mould volumes: in fact, this type of machine provides a volume control through the comparison of the measurement carried out on a sample mould (and only on some types of mould) and then reproduced on all moulds, measuring the deviation of the data with respect to the sample volume. A comparative system, therefore, and not absolute, which involves many limits (inaccurate readings, rupture of the membrane with water spillage, etc.).

THE LASER REVOLUTION

It is precisely from the analysis of these limits that the LMS V1 project, a certified laser system for measuring the volume of the mould, was started up some years ago.

Luben Glass and its solid and reliable partner Hypertec Solution, have pursued the ambitious project of creating and marketing a new mould volume measurement system based on two concepts that are as simple as they are fundamental:



1. measurement accuracy and repeatability; and
2. ease of use.

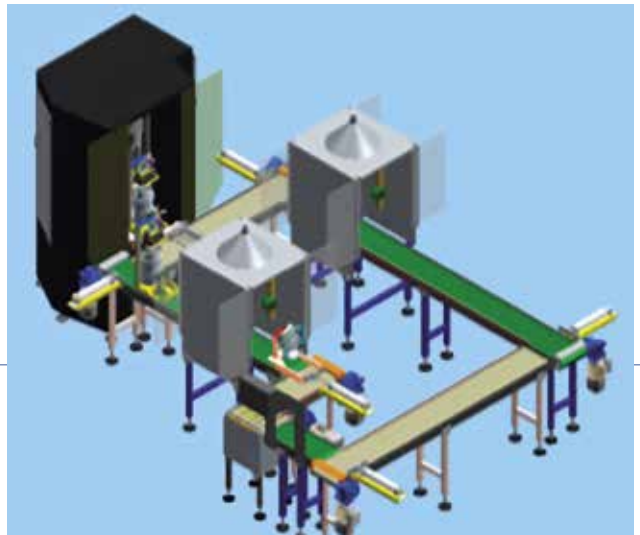
Today LMS V1 is the only patented volume measurement system that can certify its measurements guaranteeing the repeatability of the measurement with absolute accuracy of the data.

CERTIFICATION OF MEASUREMENTS

As is known, the main international measuring units have reference masters (for example the meter kept in the Paris' Bureau International des Poids et Mesures) while this is not the case for volume which does not have a prototype. Thus, some questions arise: how to certify a volume? How to validate its measurement? To give an answer, a master mould was created with a volume certified by INRIM, the Italian National Institute of Metrological Research. This allowed to demonstrate that the volume measurements performed by the LMS V1 system are within the tolerance range of volumes certified by INRIM. LMS V1 represents a unique system of its kind, characterized by the total reliability of the read measurement.

SIMPLE AND INTUITIVE USE

Consisting of a measuring heart with a very high precision laser head (currently with accuracies of at least 20 times higher than any other scanning technology), the machine scans the volume and the dimensions of the mould in less than 3 minutes, regardless of its shape: the system has no limits of autonomous recognition of the internal shape of the mould. The extraordinary operating speed of the LMS V1 allows for an almost total daily control of entire mould series and, in addition to the dimensional data, the system provides a 3D version of the bottle as well as the internal shape of the mould in real time.



NO SPECIALIZED STAFF REQUIRED FOR OPERATIONS

After having fixed the components of the mould on the machine table (both blank or blow mould and, respectively, baffle or bottom plate) in a simple and safe way, in fact, the operator only has to close the door and to press 'start': the cycle starts automatically without any other additional operation being required.

The output is an STL file that can easily be exported to be used, for example, in the reconstruction of solids. The machine and its patented technology do not require any specific skills for their use: the software does not need a 3D file of the mould to be measured and is able to reconstruct the volume of the cavity in total autonomy and in just 2 minutes, while taking into consideration the manufacturing techniques of moulds (deepening, coupling tolerances between bottom plate and bottom of the mould, etc.). ■