The CHRocodile MPS96 offers 96 independent measuring channels (with the possibility of extension to 144), each equipped with very small 10mm measuring range optical probes (8mm diameter) and a measuring speed of up to 2000 measurements/second per channel. Hence, the shape and thickness of a single piece of automotive glass can be measured in just 0.5 milliseconds.

The additional contact-free interferometric sensor from the CHRocodile IT series offers the possibility to resolve the multi-layer structures found, for example, in windscreens. Due to the high measuring speed of 70 kHz for the IT sensor, larger areas of interest eg in the projection region of HUD, can be scanned quickly as well.

Significant boost to output

A CAD file is produced for each measured glass and then immediately compared with a reference or 'golden piece'. If the deviation between the measured shape and/or thickness and the reference piece is too big, the glass is sorted out or reprocessed directly.

Thus, faulty parts can be sorted out at an early stage in the production process, which reduces production costs per piece and increases the yield and quality of the final product.

Turnkey solutions

The all-in solution comprising the Xac AIIM, the CHRocodile MPS96 and the interferometric sensor CHRocodile IT delivers precise measurements of thickness, topography and shape for all kinds of automotive glass.

With data acquisition rates of 2 kHz per channel for the CHRocodile MPS 96 and 70 kHz for CHRocodile IT, the desired measuring parameters can be acquired very quickly.

Furthermore, the machine can be easily adapted and integrated into any production line as a turnkey solution for automotive glass quality controls. After all, Precitec Optical Measuring enables automotive glass manufacturers to measure more precisely with light.

All in all, the combination of the Xac AIIM and Precitec's sensor technology takes automotive glass quality control to the next level, increasing output, reducing downtimes and improving the overall quality of the final product. ●

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Optimised use of moulds for higher productivity

In the competitive environment of manufacturing, glassmakers need to have great production outputs, while managing costs. Mould sets definitely correspond to high expenses, along with machinery and raw materials. In this context, moulds are worth investing in a system to improve their management and cost-effectiveness, says Anne-Sophie Lelièvre.

Vertech' provides glassmakers with a Manufacturing Execution System (MES) called SIL, supervising production everywhere in the glass plant, starting from the batch. In most cases, moulds and mould sets management are not included in glass supervision systems. However, a good mastering of moulds is essential from both a financial and technical point-of-view. Indeed, moulds represent high costs and their impact on articles produced is extremely strong, of course. What if one of the mounted moulds has a defect? What if there is no more available mould? Moulds cannot be forgotten in production supervision. They are a central element in the success of a glass manufacturing group.
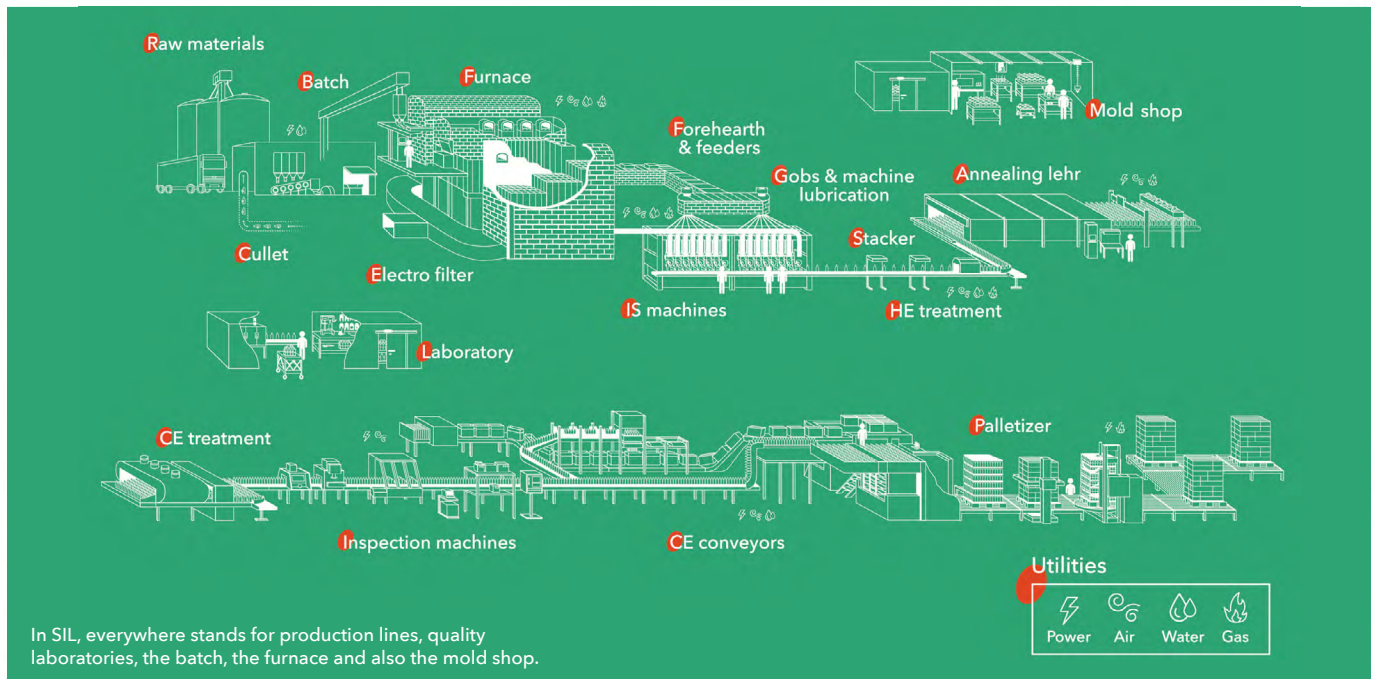
Vertech' has already equipped many mould shops for a number of years and experience shows that tracking and analysing KPIs on moulds is very profitable in the short- and long-term.

Purchasing moulds

Obviously, choosing moulds is the starting point for good mould management. But this is not an easy task! Cost, potential, and quality: The perfect balance between these three parameters must be found. To make the best decision, analyses based on precise KPIs must be carried out. The

Productions in progress (3)	Finished productions (0)	Coming productions (2)	Available mold sets (77)

	BLANK		BLOW	
Line **12**	45/80	Line **12**	84/121	Line **12**
Production order 20140702001		Production order 20140702001		Production order 20140702001
Article reference B1205025028A25		Article reference B1205025028A25		Article reference B1205025028A25
Article 250 ml. Schweppes NRB		Article 250 ml. Schweppes NRB		Article 250 ml. Schweppes NRB
Mold reference 584250/D		Mold reference 594275/A, 594250/A, 574250/C		Mold reference 123456
Mold sets A7847		Mold sets EO5388 , A7987 , B785 , 20160920		Mold sets 123456A
45✔ 22 7🗑 6🔧		84✔ 22 11🗑 4🔧		36✔ 1🗑 2🔧 1
● Show Molds		● Show Molds		● Show Molds

By consulting SIL, the operator will see at a glance how many moulds are available, how many are in repair or how many are scrapped.

Raw materials
Batch
Furnace
Forehearth & feeders
Mold shop
Gobs & machine lubrication
Annealing lehr
Cullet
Electro filter
Stacker
IS machines
HE treatment
Laboratory
CE treatment
Palletizer
Inspection machines
CE conveyors
Utilities
Power Air Water Gas

In SIL, everywhere stands for production lines, quality laboratories, the batch, the furnace and also the mold shop.

good news is that with SIL, all these KPIs are available!

With SIL, every single mould possesses its own ID card with the

Mold
2
Duration
4279h
Nb of mountings
3
2,521,668 / 200,000,000   1%
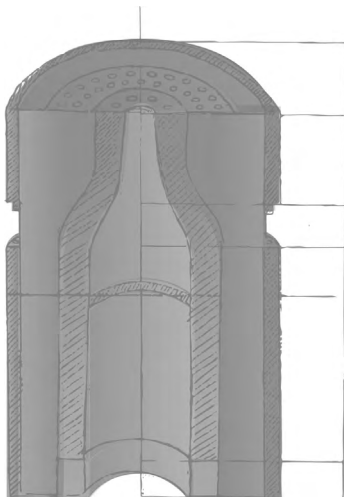Cause
Section Stopped
Repair
History

Each mould is tracked and possesses its own ID card with status and technical characteristics.

Thanks to dimensional controls on moulds, defects are anticipated.

mould's detailed lifespan. The theoretical potential, the number of rotations, the number of gob cuts and the history of repairs are interesting elements to analyse before selecting a mould provider. SIL shows the theoretical potential versus the number of gob cuts and rotations for each mould. And sometimes, the difference between these figures is huge. Having this data available makes the choice much easier.

Optimising mould sets
Good mould management does not come down to the choice while purchasing them. It is essential to make optimised use of them. SIL is not only able to track a mould set but also every single mould, thus granting full traceability.

It would be regrettable to have high quality moulds and not to make the best use of them. With SIL, the number of gob cuts and rotations for each mould is recorded in the system, thus enabling the consistent use of moulds within a set. Thanks to this system, the moulds of a specific set wear out at the same speed and the set can be scrapped whenever all moulds are out of use, not just a part of it.

Ensuring production
What is worse for glassmakers than having sections stopped because of a lack of moulds? Good choice by purchasing moulds and the optimised use of mould sets must be enhanced by a good management process for them. The full traceability made possible by SIL avoids such situations

when no moulds are available to be mounted.

On top of traceability, SIL improves the work organisation of mould shop operators by means of dashboards and alarms. The tasks to be achieved are prioritised by the system, so that the operator directly knows on which moulds he needs to work first. He can also see if several moulds have been unmounted for the same reason.

Carrying out effective repairs
Traceability plays a major role when starting the repair. The lifespan of the mould, in particular the history of repairs, made available by SIL is of great help to undertake quick and appropriate actions. Communication between operators at different places in the plant is made easier, as an operator in the mould shop and an HE operator are able to communicate through the system. Thanks to all this, moulds are made available after repair within a shorter period.

Ensuring maintenance
With SIL, dimensional quality controls on moulds can also be managed. The mould shop manager configures a control by selecting moulds and threshold values, before the operator carries out the control. As the system directly communicates with measuring device in the mould shop, some time is saved and the number of errors is reduced.

Traceability and prioritisation are at the heart of mould management. Available and high quality moulds have a big impact on production and should not be neglected. In 2020, supervising production in the whole plant, including the mould shop, is an important necessity for glassmakers.●

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