ProserviceTech
INNOVATION IN FOUNDRY PROCESS

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ITACA | Vision

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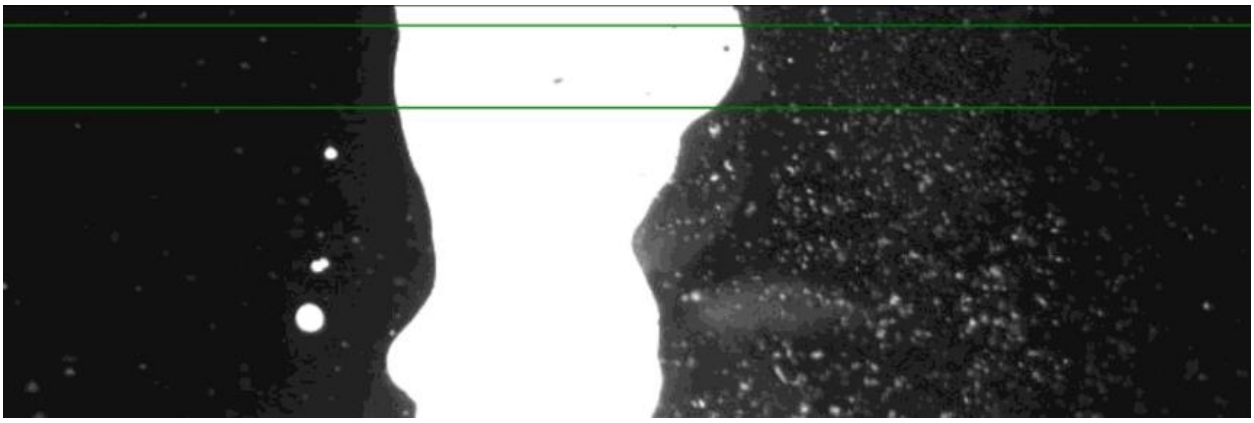
The new ITACA Vision is equipped with a new camera with higher performances that is able to check the inoculant that go outside from the stream of iron

Additionally to the OverlayRatio and Centering (that now has an improved algorithm), it has been added the Inoculant Percentage: Based on the inoculant detected inside and outside of the iron stream, ITACA Vision calculates the actual percentage of the inoculant that actually goes inside of the iron. Based on the second optical setup cyclic ITACA vision is able to detect the inoculant that flows out of the iron stream.



Inoculant Percentage Principle

Based on the two cyclic the software can calculate the centre of the iron flow. Then, using the dispersion curve of the inoculator machine the software is able to give a percentage of inoculant that actually went inside of the iron stream.

The dispersion curve has to be defined by a study of the foundry in case the stream isn't supply by ProserviceTech.

Main interface

Here below find the main page of the ITACA Vision software interface.

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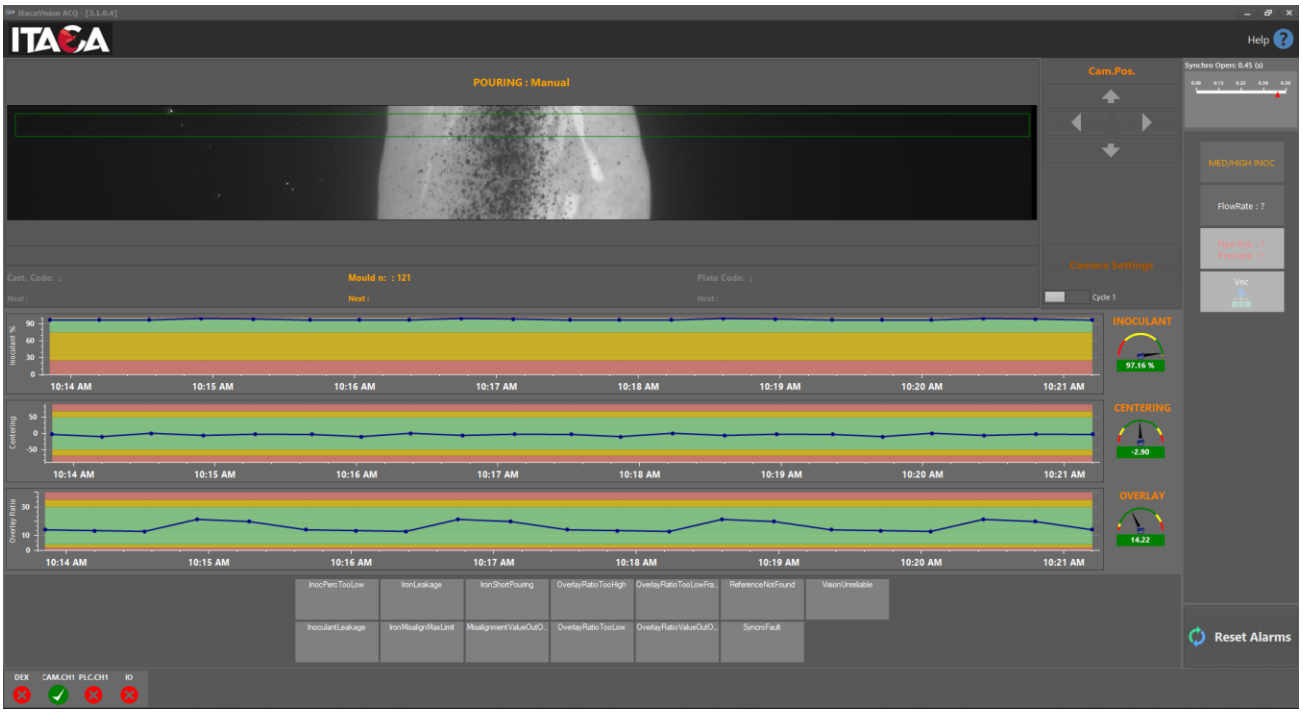

Figure 1: ITACA Vision Main Form

In the Graphs Area together with the trend charts of the historical values of OverlayRatio (OR), and Centering, there is also the Inoculant Percentage with the gauges of the last mould. By double click on a dot it is possible to open the full historic of the pouring directly from the Acquisition interface;

Alarms list

Alarms' area: list of the alarms detected during the production. Here below is just presented a short summary

"InocPercTooLow" → When the percentage of inoculant that goes inside of the iron stream is too low;

"IronLeakage" → ONLY when connected to the stopper signal, if stopper is down but ITACA Vision still detects iron. Based on this alarm can be activated the "ForceInoc". The "ForceInoc" allows ITACA Stream to start the inoculation process when an Iron leakage is detected.

"IronShortPouring" → the pouring is too short;

"OverlayRatioTooHigh" → the casting is over inoculated (OverlayRatio on high red);

"OverlayRatioTooLowFrame" → Too many consecutive frames with a very low (low red) Overlay Ratio are detected during a pouring. (even if the average can be correct)

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“ReferenceNotFound” →The “reference” isn’t found, so the working ranges are not set.

“VisionUnreliable” → there are problems with the quality of the images. It could mean that the pouring has problems like slag on the nozzle or on the stopper. It could also mean that the protection glass of the camera is broken or the optic system is setup improperly resulting in blurry images

“InoculantLeakage” → ONLY when connected to the ITACA Stream inoculator; the inoculator is not running but ITACA Vision detect inoculant with the camera;

“IronMisalignMaxLimit” → Iron stream is too uncentered;

“MisalignmentValueOutOfRange” → Inoculant is outside off the iron stream;

“OverlayRatioTooLow” → the casting is under inoculated (OverlayRatio on low red);

“OverlayRatioValueOutOfRange” → The OverlayRatio value is out of ranges

“SyncroFault” → Synchronization error

“IronNotDetected” –> When the inoculator is running but the camera of ITACA Vision doesn’t see any iron. (It is a safety control to ensure that Vision camera is aimed properly and, as consequence, the application is working well)

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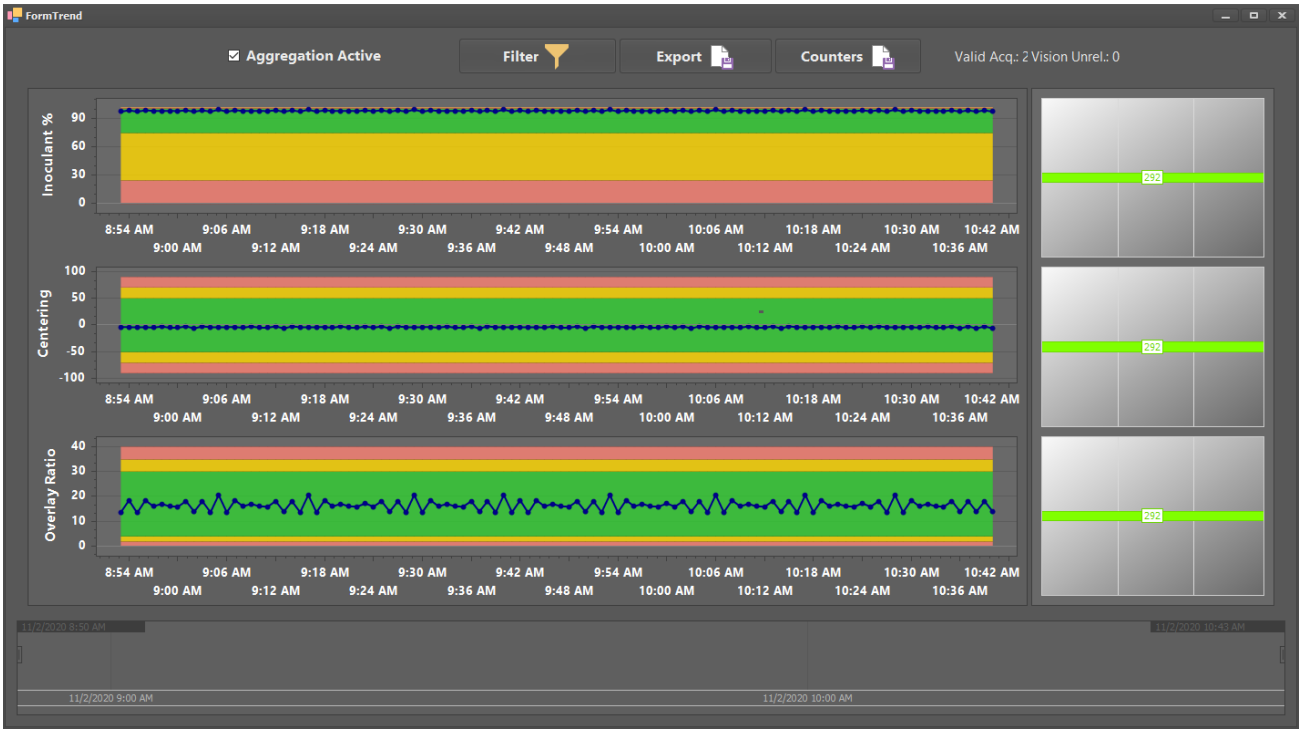
New Analysis Module



Trend Analysis Window

By double clicking on a point in the acquisition charts it is possible to open the single pouring analysis.

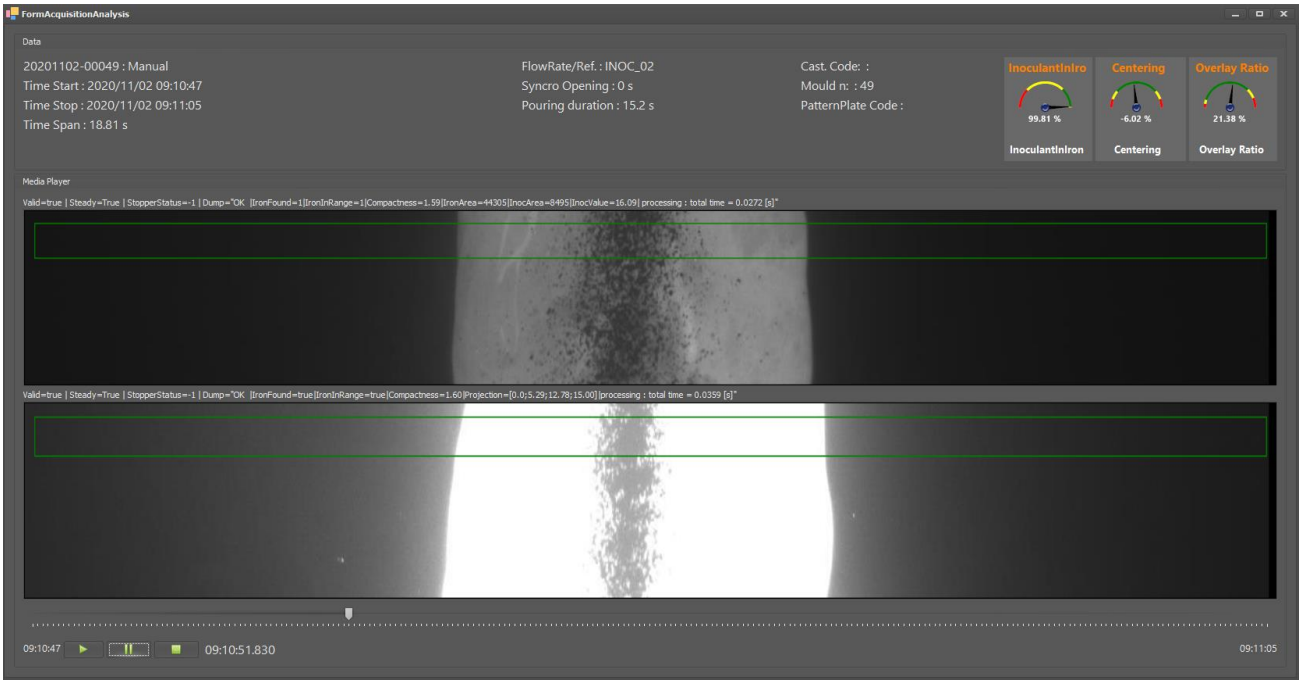


Figure 2: Single Pouring Analysis

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In this window it is possible to:

1. Have information about the pouring
2. The final result obtains for this pouring
3. The video, picture by picture, of the pouring for both optical setup cyclic