

## THERE IS NO STOPPING, THE PROJECTS ARE RUNNING AT CAVITY EYE

Although Cavity Eye Hungary Ltd. started in Hungary nine years ago, but today they are present in many countries of the world with their process control system which based on cavity pressure measuring. The pandemic made the company's life difficult, and Cavity Eye was no exception since they had to perform several international projects beside the domestic projects during this time.



*1 Cavity Eye sensor installation - Cavity Eye Hungary Kft.*

Szabolcs Horváth, project engineer of Cavity Eye told that they were able to reduce the losses at several Hungarian company in the last period. In most of the time it is a long process to identify and solve the root cause of the manufacturing difficulties. It is essential to shorten this time since it can fundamentally change the effectiveness of the project. At an automotive company there was a complaint caused by short shot problems in a four-cavity mould. The problem appeared randomly, and the cost of each complaint was several thousand euro. In cases like this 100% of the faulty products must be inspected, which is a long and costly process. Moreover because of the small product shortage and the short cycle time the operator of the injection moulding machine was not able to separate the faulty products reliably. To meet the capacity requirements of the product sorting, more operators were needed.

They reached out to Cavity Eye to solve the problem, a study about return of investment was made, which showed that applying the system instead of using manual sorting offers an entirely automatic, 100% reliable alternative with couple months of return of investment. From the early discussions it took a very short time, only a month for the Cavity Eye system to be able to independently separate the good and faulty products. The project entailed the modification of mould designs, mould manufacturing, installation of the Cavity Eye system on the injection moulding machine, the on-site technological tests and the system's integration to the separating system of the injection moulding machine.

The collaboration with Cavity Eye's strategic partner (AGS Engineering) makes the production launch easier, because at several company all the manufactured products and moulds are already prepared for Cavity Eye. Therefore, they can support the process launch, troubleshooting and mould transfer between machines and workshops. The cooperation by using the knowledge of mould manufacturing and injection moulding technology together can shorten the mould's handover to serial production even by weeks.

### NEW DISTRIBUTOR: ITALY

After establishing the German distribution office in 2018 and the Spanish in 2019, in the last period the focus turned to Italy. At the first Italian project the customer contacted the Cavity Eye team

because of the continuous size dispersion and inadequate process capability. The product was manufactured from the material of PESU, with automatic insert placing in a four-cavity mould. Due the technology of metal injection moulding and the raw material, the processing is often intricate. They were not able to stabilize the size from production to production, they could not sell the product to the customer, and they produced with a high scrap rate. When placing the inserts, it is very important to ensure the stability of the process, which could not be achieved by using only the parameters of the injection moulding machine. The changes of the material and between the cavities could be identified only partially by using the parameters of the injection moulding machine, so the customer decided to use pressure measuring sensors. The goal at first was not to achieve the 100% good size but a stable and repeatable process. The first goal was given: to stabilize the process from cycle to cycle, from cavity to cavity, and from production series to production series. After that, the end product size can be set by mould correction.

Considering the pandemic it is now even more important that the problem was successfully solved in only three days with the Cavity Eye system. The adequate mould manufacturing and preparation of the injection moulding machine made it possible to close the projects successfully in time and ensured the success of the on-site support.

The time is valuable and thanks to the flexibility of the Cavity Eye team, the customer was able to use the Cavity Eye technology by themselves after 3 days. The sensors were installed into the mould, tests were performed on the injection moulding machine, the colleagues working there got the training on the use of the instruments and based on the cavity pressure curves the optimized technology was set on the machine. The estimated return of investment is less than six months, due the stabilisation of the process the customer complaints stopped, the mould was corrected and contributed to the approval process of the product.



2. From left to right: Thomas Braun - Cavity Eye Deutschland GmbH; Szabolcs Horváth, Ákos Udvar - Cavity Eye Hungary Kft.

## SUPPORTING K+F

In the last period the Cavity Eye pressure sensors were installed at an industrial research company in Spain. The Spanish company performs mechanical tests on injection moulding specimen from special polymer materials. They test and examine new materials and measure their resistance to mechanical, visual, chemical, physical and other effects. The Cavity Eye system will be used to check and follow two technologies. One is the thermoplastic injection moulding; the other is the processing of the non-thermoplastic low viscosity materials. The special feature is that the mould contains not only pressure sensors but



3. From left to right: Noel Alonso Sellers - Cavity Eye Spain; Szabolcs Horváth - Cavity Eye Hungary Kft.; Jon Haitz Badiola - Leartiker; Ákos Udvar - Cavity Eye Hungary Kft.

thermometer sensors too. The thermometer sensors were needed to be able to monitor from cycle to cycle the contact temperature of the mould surface and the melt. The most important thing at the production, injection moulding of the specimen is to be able to produce all the specimen with the same exact technology. So, in a setup series where ten identical specimens are made, they can validate if all the specimens are made under the same conditions. The Cavity Eye team spent three days in Spain, during that time they installed the sensors, prepared the injection moulding machine, made tests, and after that the technologization, injection moulding tests and trainings took place too. In case of the Spanish project the return of investment is not a priority, since they examine the connection between the cavity pressure and the end product at a scientific level, and the Cavity Eye system gives them a significant help in this. As the result of this cooperation international research articles are expected in the following years.

**Besides the projects, Cavity Eye is also preparing for this year's fairs, they will be present at KUTENO (Germany), Equiplast (Spain), and Fakuma (Germany). Further plans include establishing a distributor office in Italy and expanding into America and Asia with continued support for the European market.**



4. Picture: Cavity Eye Hungary Kft.

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INTELLIGENCE IN MOLDING