Quick Mould Testing Guide

For moulds with all types of Cavity Eye pressure sensors.

1. Memory uploading

a) Connect 1 piece of Smart Measuring Plug to the measuring system and connect it to the first mould socket (*MASTER*) which contains the first 8 or 32 sensors.
b) Start the Cavity Eye software and log in with your password (Engineer level necessary).
c) Open the Mould Manager menu (upper left corner)  and click on the *Edit* button.
d) In case of 2 mould sockets click the *Add Plug* button.
e) Add the necessary number of sensors for every plug with the *Add Sensor* button.
f) Fill the sensor data table. The order in the table must match the order of the sensor wires are connected to the socket.
g) If two plugs have been added, switch to the other socket (SLAVE) on the upper left corner to edit the sensor data and enter the corresponding data there as well.
h) Click the *Mould Administration* button and enter the mould and product ID in the window that appears and select whether the tool is standard or it has a changeable insert design (capable of producing different products with different geometries or colours).
i) When all the data has been entered correctly, press the blinking *Write Memory* button, and wait for the writing to finish.
j) After writing the memory, the software reads the data from the memory. In the case of a two-socket mould, the second Smart Measuring Plug (SMP) must be connected to the system and to the mould at this point.

Properties	Description
Maximum load	The total load that the sensor can withstand. Comes from the sensor code automatically. **Not editable.**
Code	The code is provided by Cavity Eye Hungary Kft upon the purchase. Unique identifier of the sensor contains calibration values. **Enter this property first**.
Name	The name of the sensor is used to identify it throughout the software. Free to choose
Cavity index	Index of the cavity that contains the sensor.
In Cavity index	Position within the cavity
Area	Measuring surface of the ejector pin in mm^2. (0.1 mm^2 precision)
HRN index	Hot runner nozzle index
Post cal value	Post calibration value. **Not editable**.

2. Checking of the sensors

If the mould is installed with 2 pieces of Smart Measuring Socket, you will need 2 SMP measuring socket for testing.

a) Press the *START* button to start the measurement. Navigate to the *Process Monitor* and check that you see the real-time sensor signals.
b) It is recommended to scale the vertical pressure axis to a smaller maximum value in the *Scale settings* (bottom right corner) to make the sensor signals more noticeable.
c) Press the installed sensors with hand one by one. Start with the first sensor and proceed in the order in which the sensors are connected.
d) While loading the sensors, check the sensor signal on the software screen. If the appropriate sensor signal moves out from zero to a positive direction, then it is working well.

e) If the mould is equipped with 2 sockets, after testing the sensors of the first socket, you must switch between the active plugs in the drop-down menu in the upper left corner of the *Process Monitor*.

3. Checking of the mould

a) Assemble the moving side of the mould, but do not mount the ejector rod yet.
b) Push the ejector system to the back position. If necessary, lay the tool on its back.
c) Press the ejector pins which are used for pressure measurement one by one with hand or a suitable tool (e.g. copper pin).
d) While loading the ejector pins, check the sensor signal on the software screen. If the appropriate sensor signal moves out from zero to positive direction, then the ejector pin will properly transfer the load to the sensor.

4. Check preload

a) Lay down the moving side of the tool on its back
b) Lift up/forward the ejection system using hand tools.
c) On the *Process Monitor* set sensor signals to zero by clicking on the Offset button.
d) Release the ejection system to its back position and check the sensor signals on the software screen. All signals should stay on zero level, but small differences are allowed (± 5-10 bar).

5. Check mould on machine

If it is possible, tests must be performed on the machine-mounted tool after the sensors have been installed. Production cannot be started with the mould until it has been tested on the injection molding machine.

a) Clamp the mould on the injection moulding machine and set the proper mould temperature.
b) Open the mould and move forward the ejection system.
c) On the *Process Monitor* set sensor signals to zero by clicking on Offset button.
d) Move back the ejection system and check the sensor signals on the software screen. All signals should stay on zero level, but small differences allowed (± 5-10 bar).
e) If there is no preload on any sensor, close the tool with using clamping force and check the sensor signals again.
f) If there is no preload on the sensors (signals remained on 0) then it will work properly.

6. Troubleshooting

In the case of preloading, one of these might be the problem:

- The transfer pin is too long
- The sensor pocket depth is not enough
- The ejector pins are sticking, not moving freely
- The transfer pins are sticking, and not moving freely.

During the tests, if you see that one sensor is not working, one of these might be the problem:

- The sensor cables are not connected correctly
- The sensor cables damaged
- The sensor was overloaded and damaged

During the tests, if you see that none of the sensors are working, one of these might be the problem:

- Excitation cables (black and red) are not connected in the correct way
- Excitation cables (black and red) are damaged
- Other faults attributable to the measuring system
- During the tests, if you see that the pressure curve is inverted (decreasing during the pressure):
- The white and the yellow cables need to be exchanged in the insert.