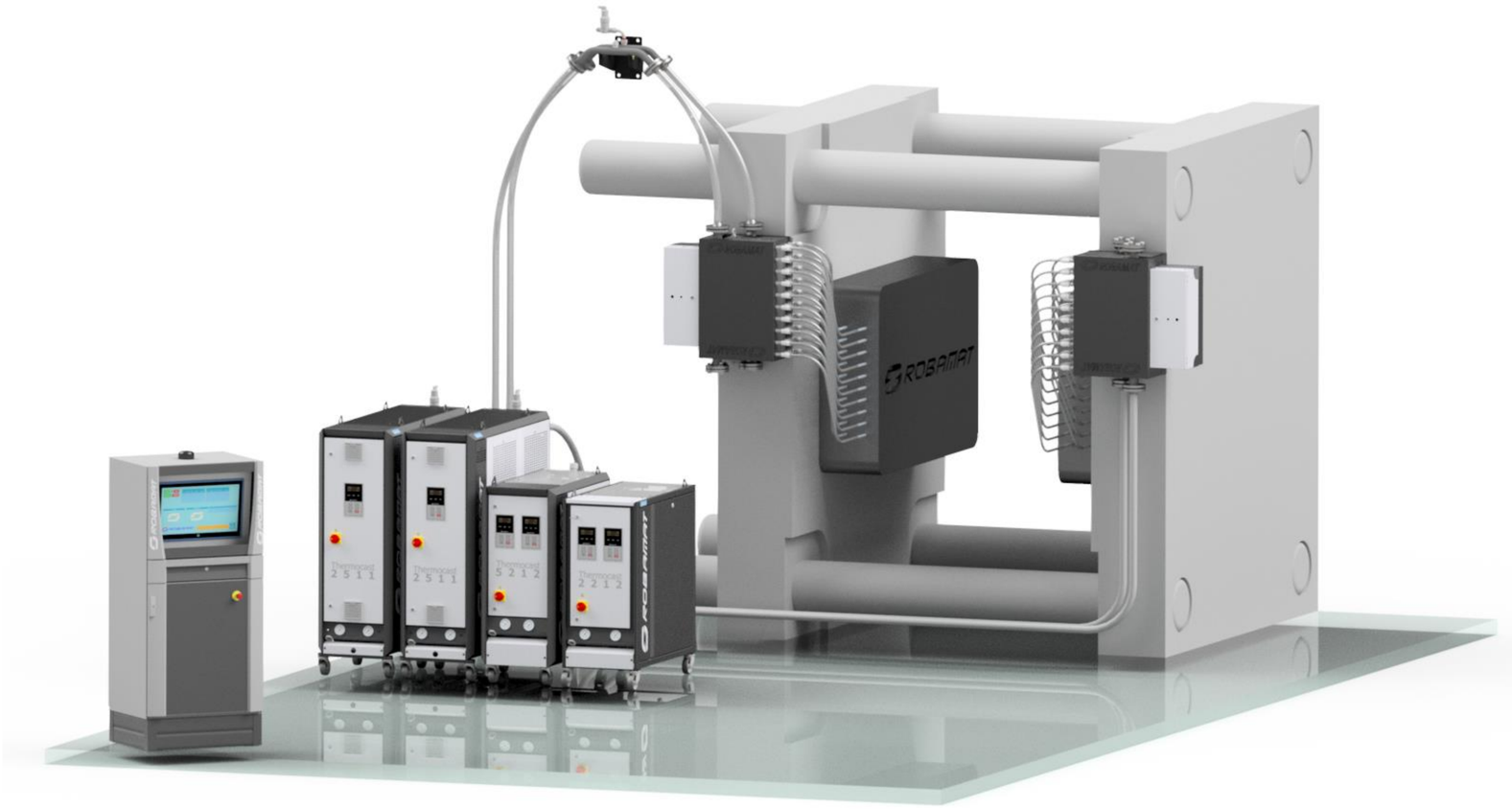
Hightech. Highspirit.

Highquality.

Presentation content: MZT

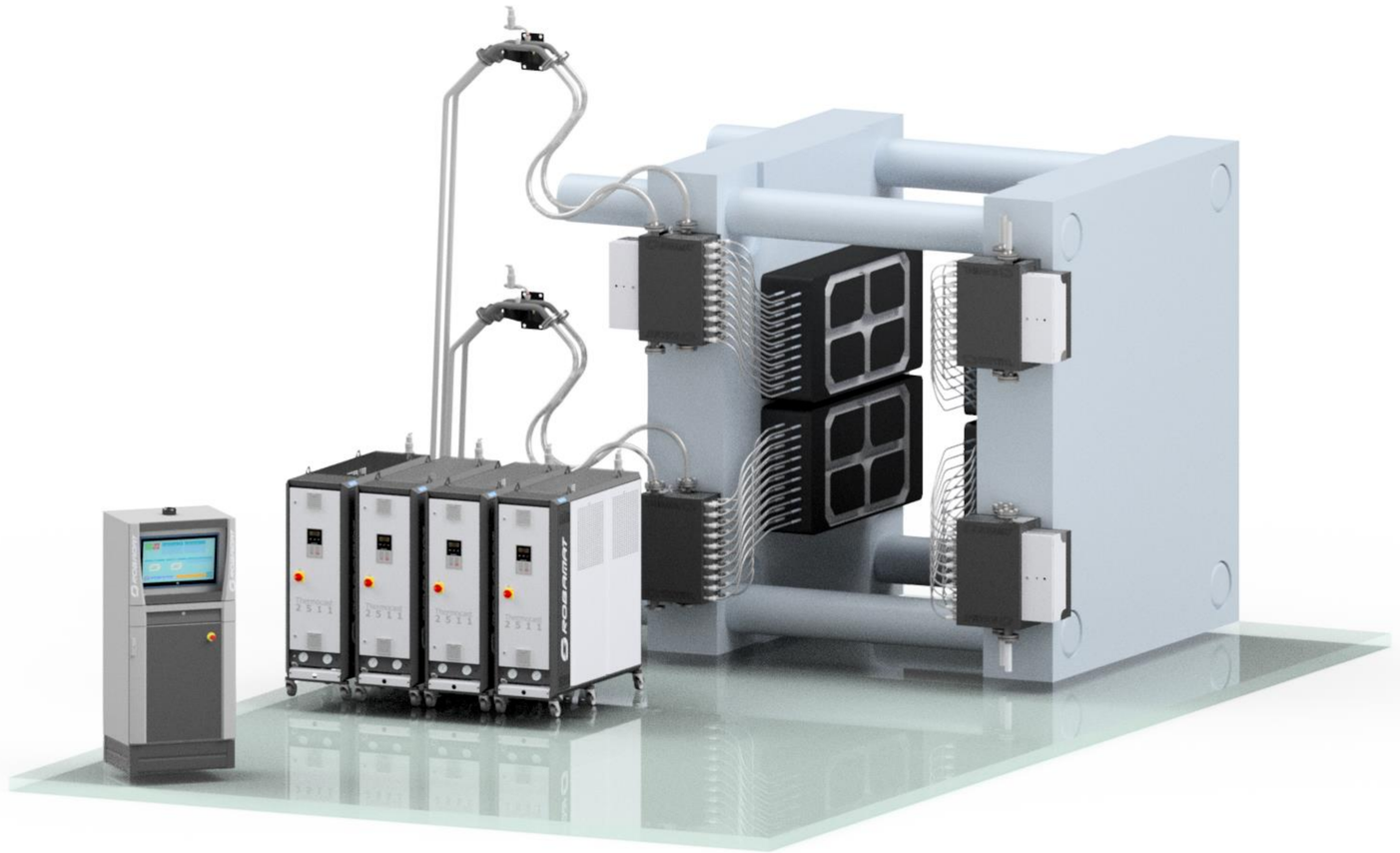


Solution for the new requirements in the die casting process

- Robamat **multiple zone temperature control 2511**
  - Thermal transfer medium: water
  - Max. temperature: 150°C (anyways cooling will be more important)
  - Possible number of circuits: up to 80 independent water circuits
  - **Integrated leakage control**

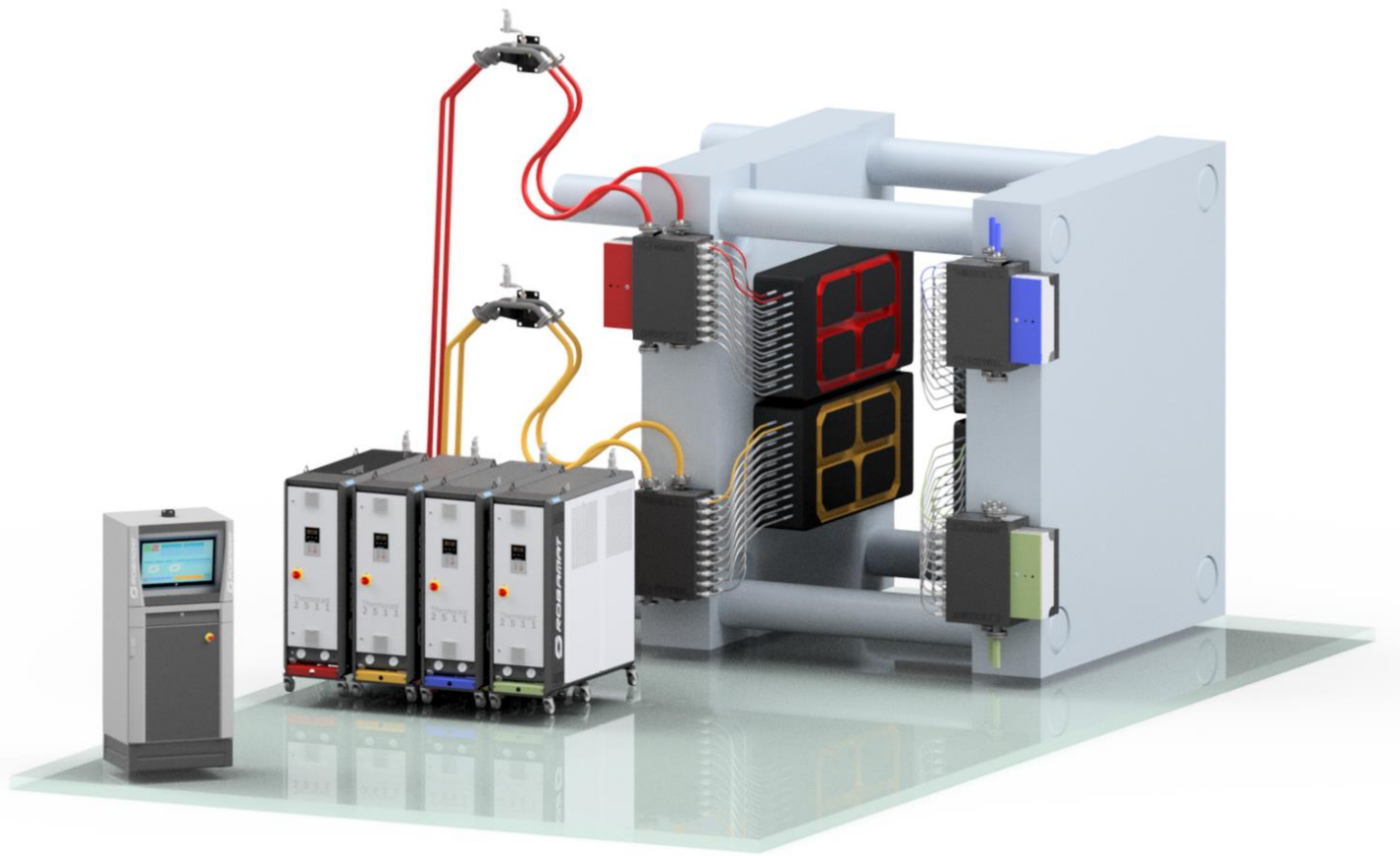
Example for a die with 40 circuits

- In the past 20 double circuit units
- Now only 4 units controlled by
- 1 visualization cabinet (complete cell)



Temperature control of **each zone**

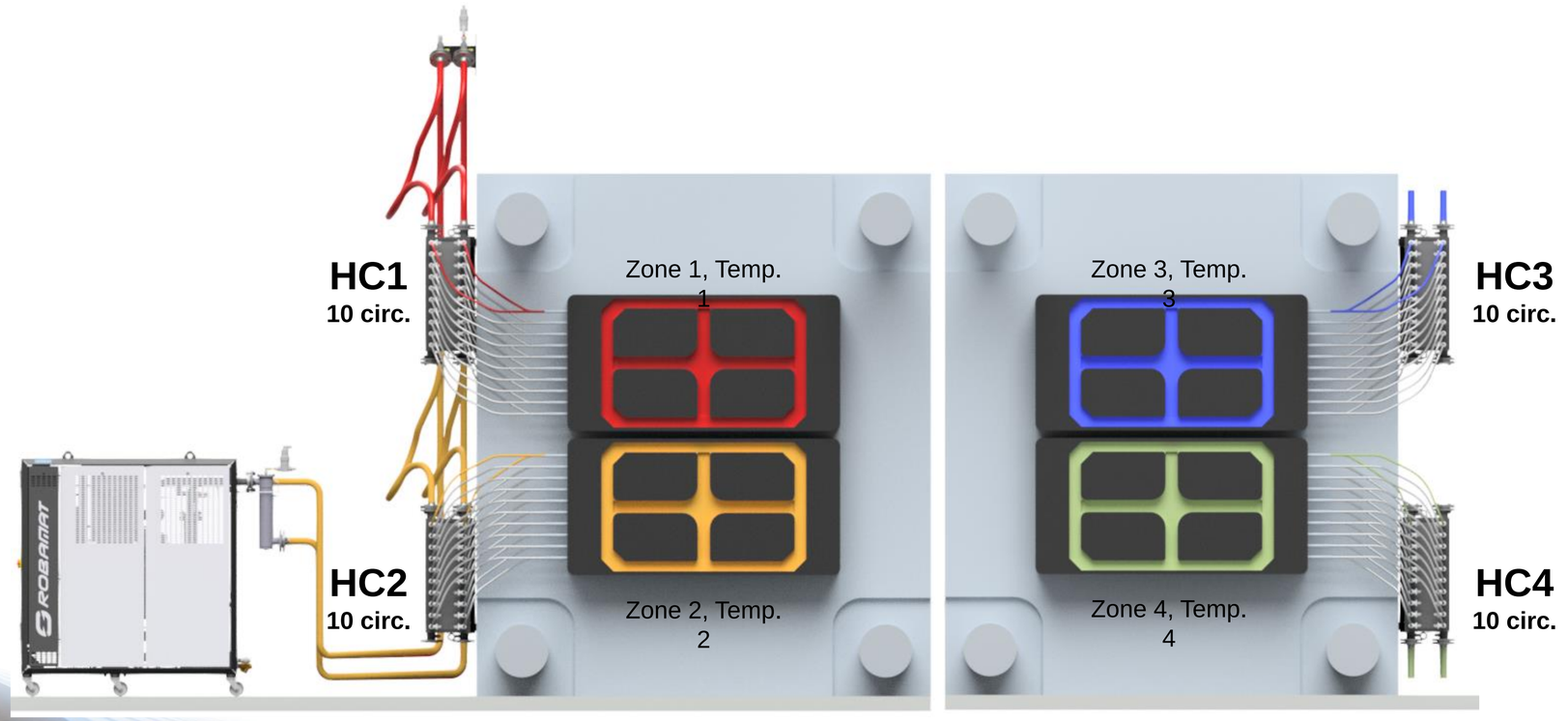
- We divide the die in 4 zones.
- Each zone has 10 circuits available



Temperature control of **each zone**

- For each zone or unit we can adjust different zone target temperatures
- Everything is controlled with

  1 visualization unit

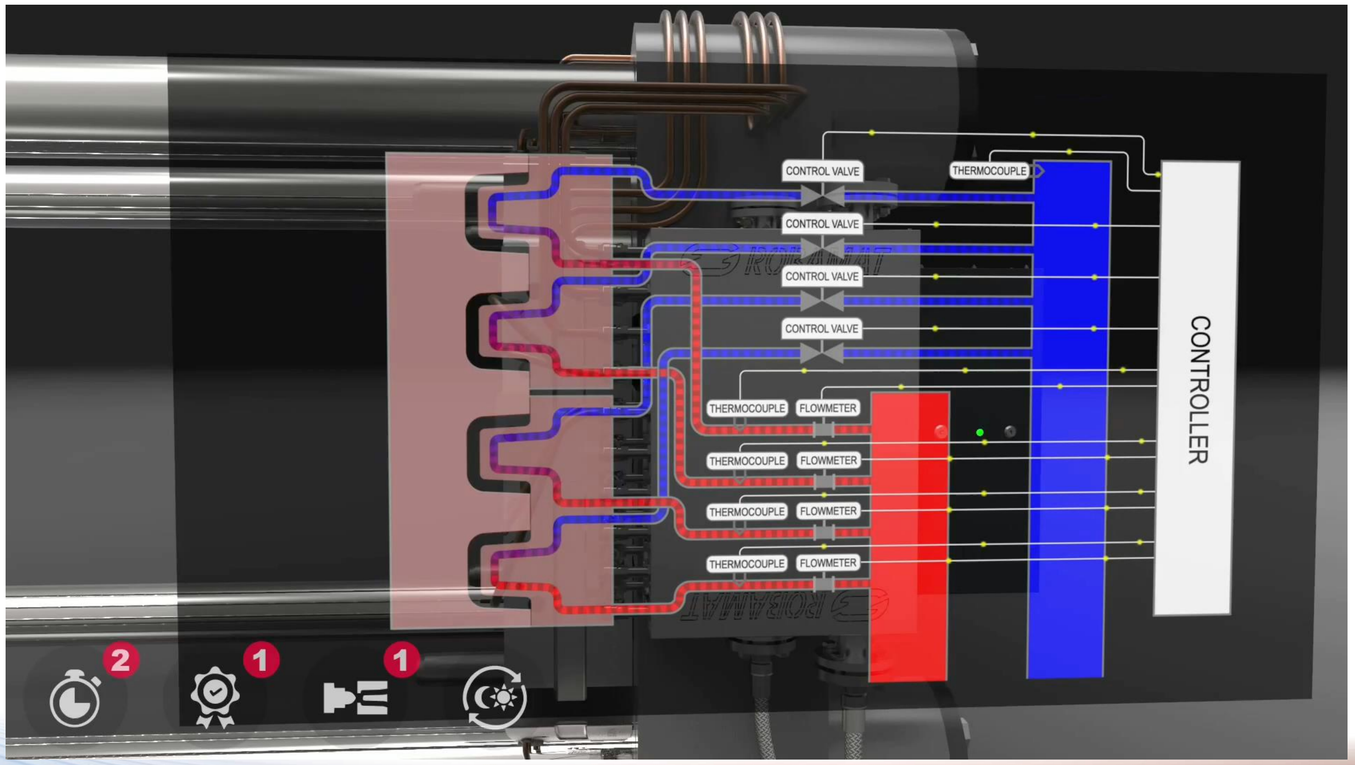


Temperature control of **each circuit – PERMANENT FLOW**

- For **each circuit** we are able to adjust a different heat transfer due to the **adjustment of the flow amount**.
  - The cooling adjustment is done via flow rate control: **More volume flow means more thermal transfer**

$$P = m_{WT} \times c \times (T_A - T_E)$$

- **Advantage:**
  - **Permanent circulation of the medium**
  - No thermal shock from the inside of the die
  - Crack formation is avoided

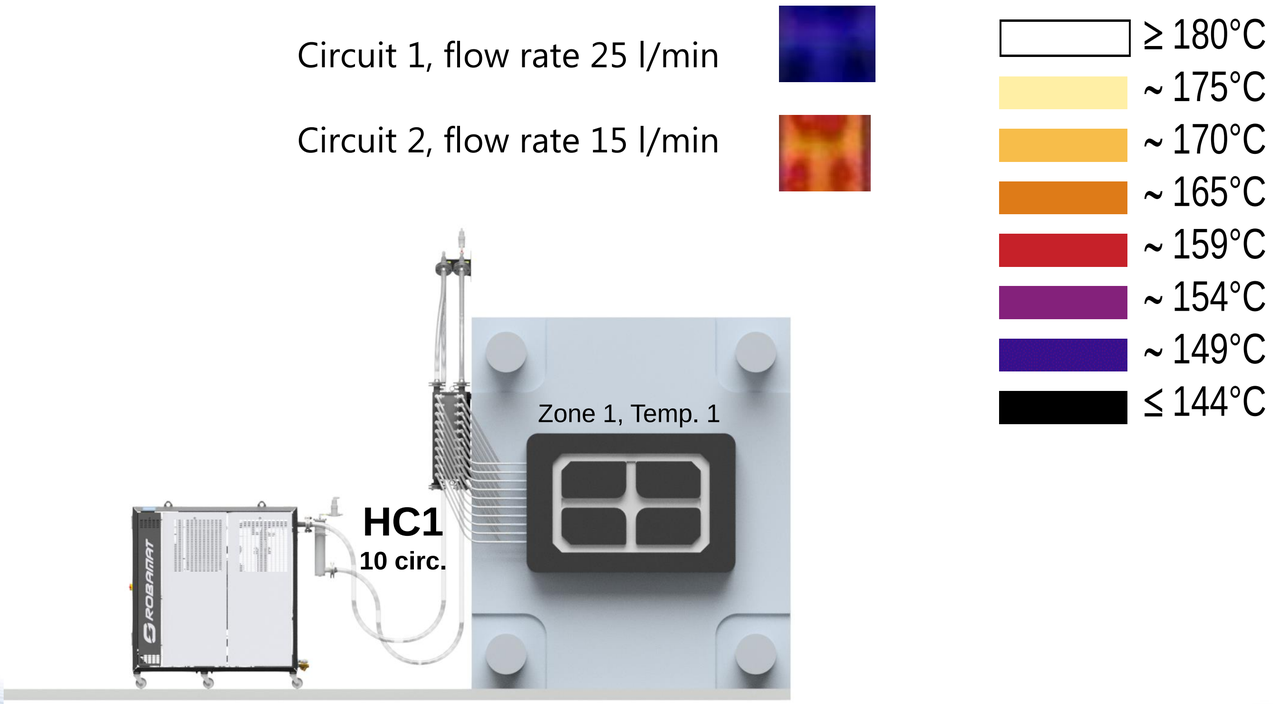


Temperature control of **each circuit – PERMANENT FLOW**

- For **each circuit** we are able to adjust a different heat transfer due to the **adjustment of the flow amount**.
  - The cooling adjustment is done via flow rate control: **More volume flow means more thermal transfer**

$$P = m_{WT} \times c \times (T_A - T_E)$$

- **Advantage:**
  - **Permanent circulation of the medium**
  - No thermal shock from the inside of the die
  - Crack formation is avoided



Visualisation software

- All circuits can be named
- Tool templates can be added
- Pictures can be added
- Channels can be marked on the display

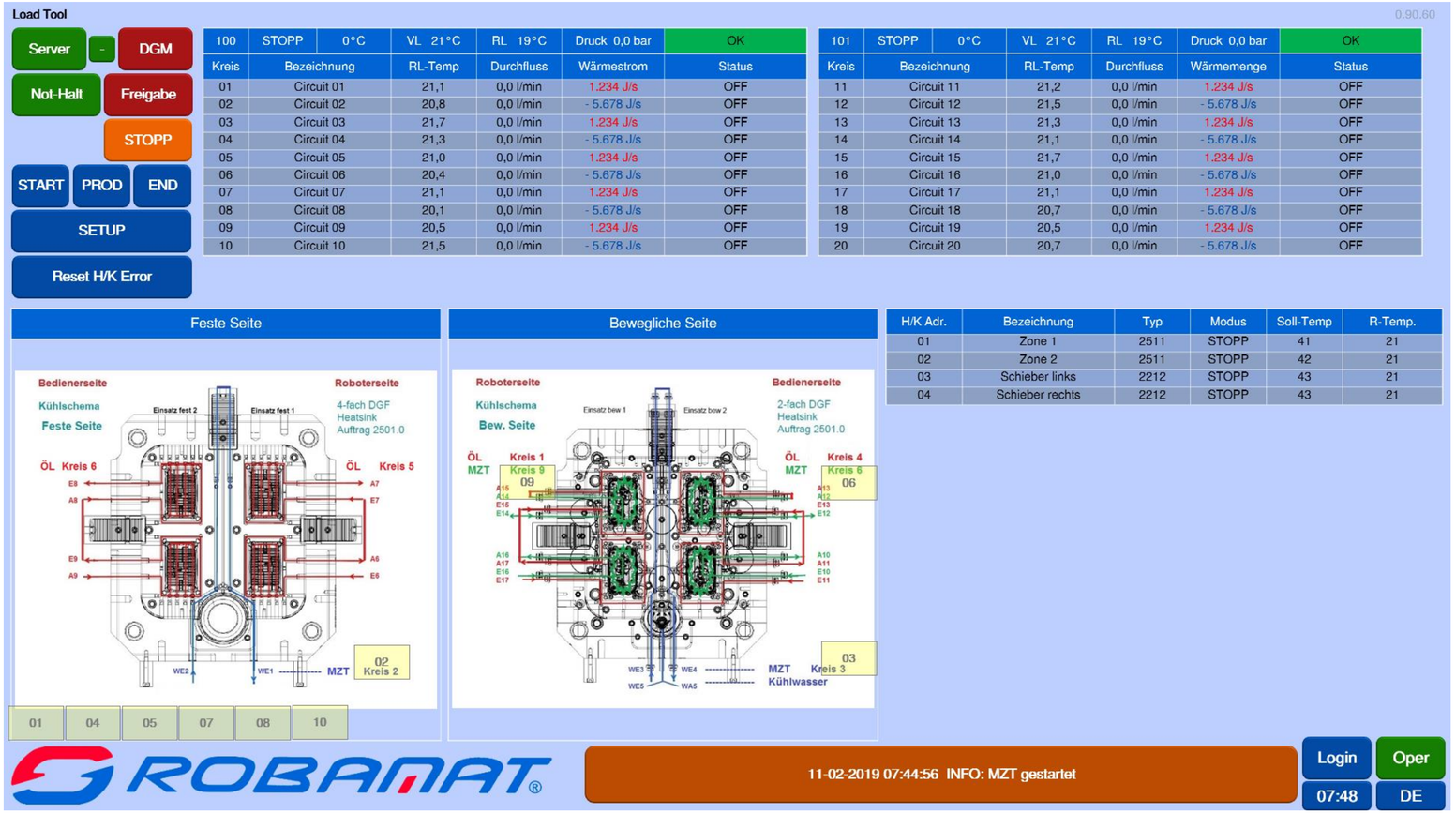
  the operator sees immediately the

  location of the channel in the die

- You can **add more devices**

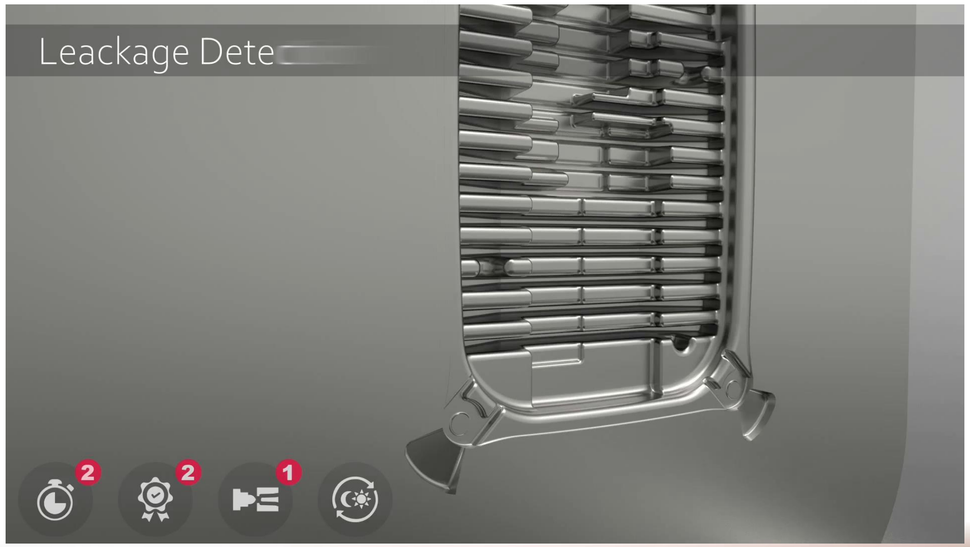
  to the control unit for example

  2511 + 5212 unit for pre-heating



Leakage control – **Real test**

- Time until reaction: 2 – 6 seconds
- Amount of real leakage / zone maximum: 20 ml (low temp.) – max. 80 ml (high temp.) —> ROBAMAT guarantee: <100 ml leakage
- Temperatures: 40°C, 50°C, 60°C, 80°C, 100°C, 120°C, 140°C, 150°C
- Pump flow rate: 200 l / min
- Leak size: 0,6 mm (realistic crack size on a die surface)



ROBAMAT®

Hightech. Highspirit.

Highquality.

Competence in

Heating,

Cooling and

Cleaning.

THANK YOU