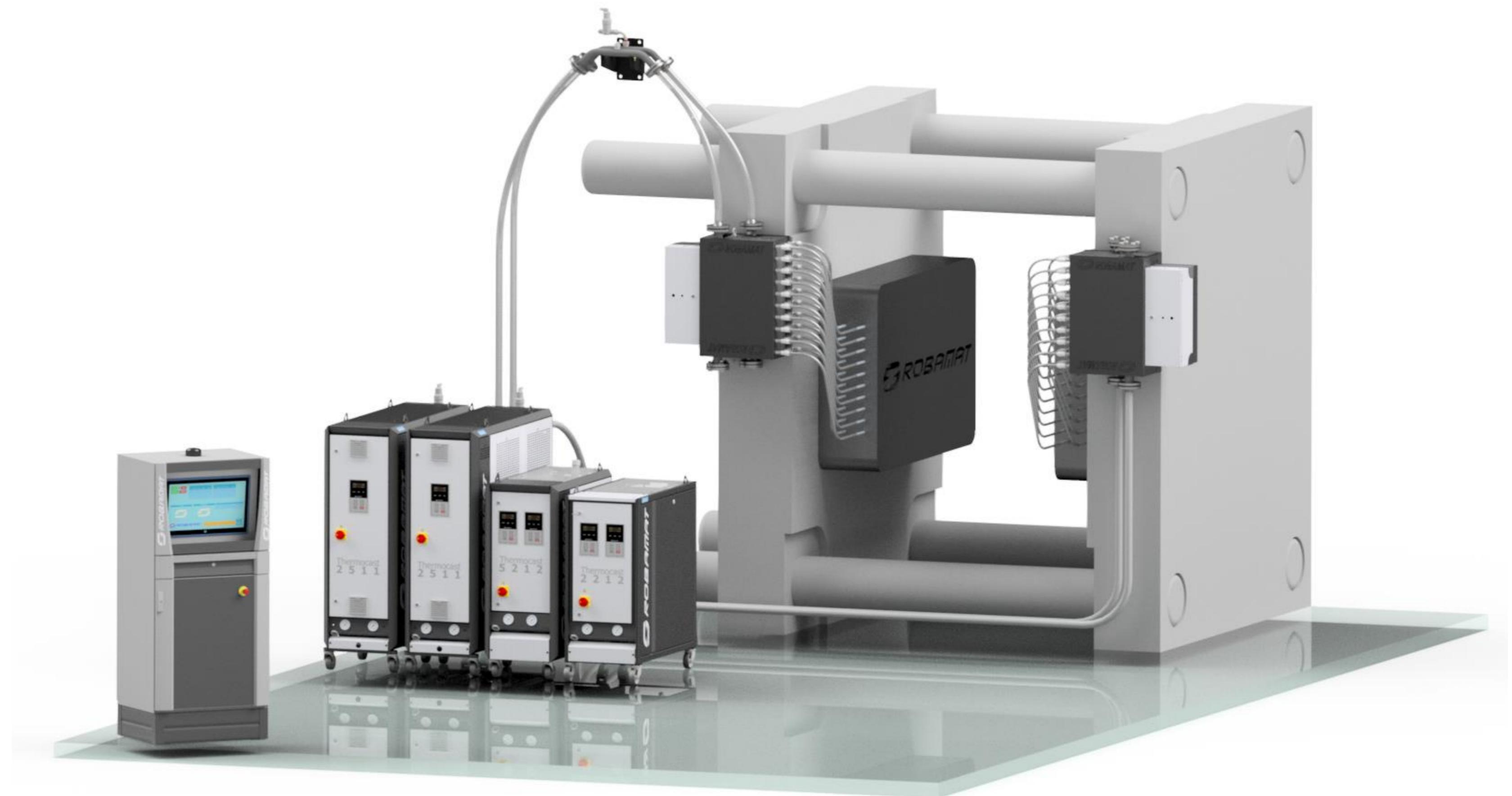


Presentation content: MZT

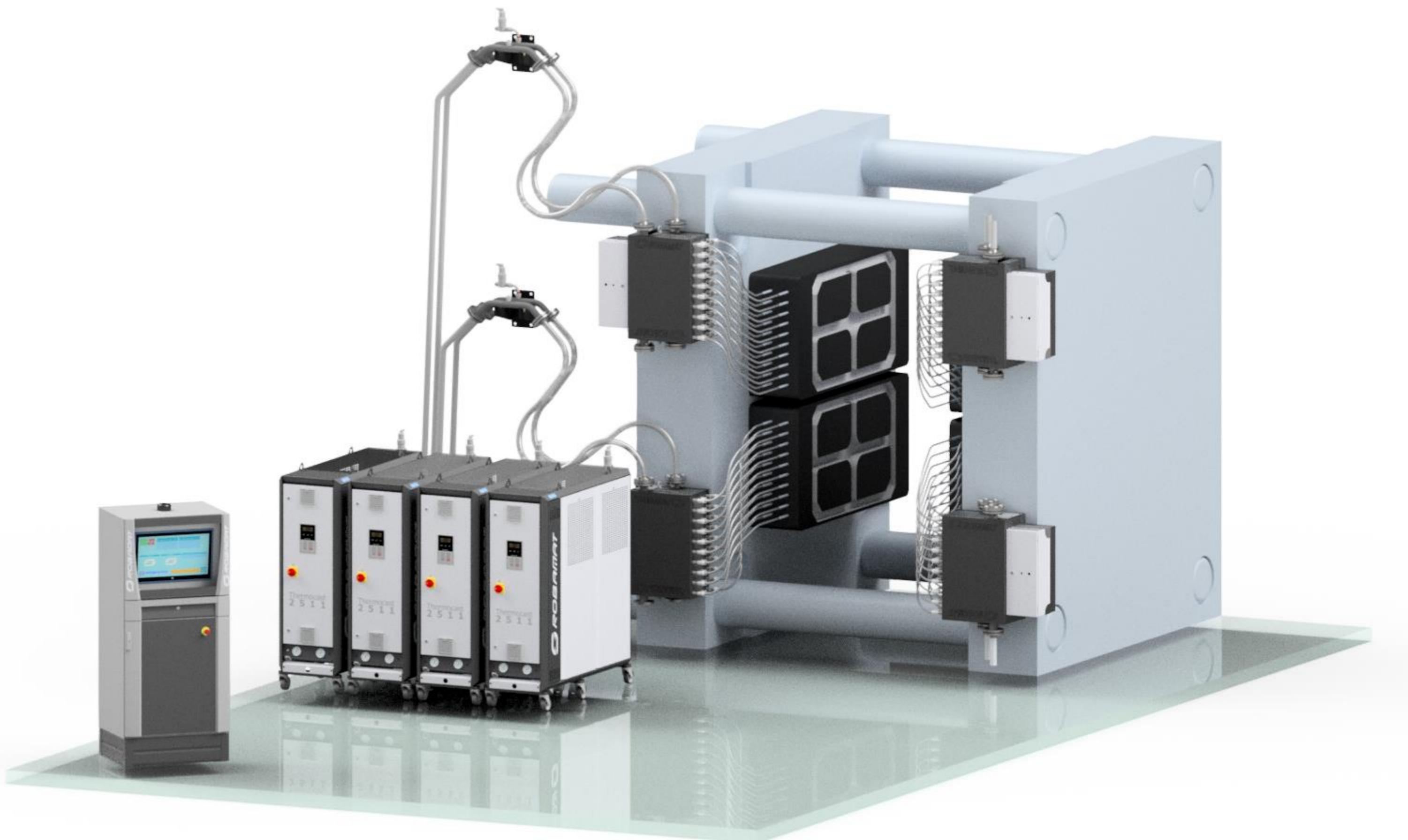


Solution for the new requirements in the die casting process

- 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**

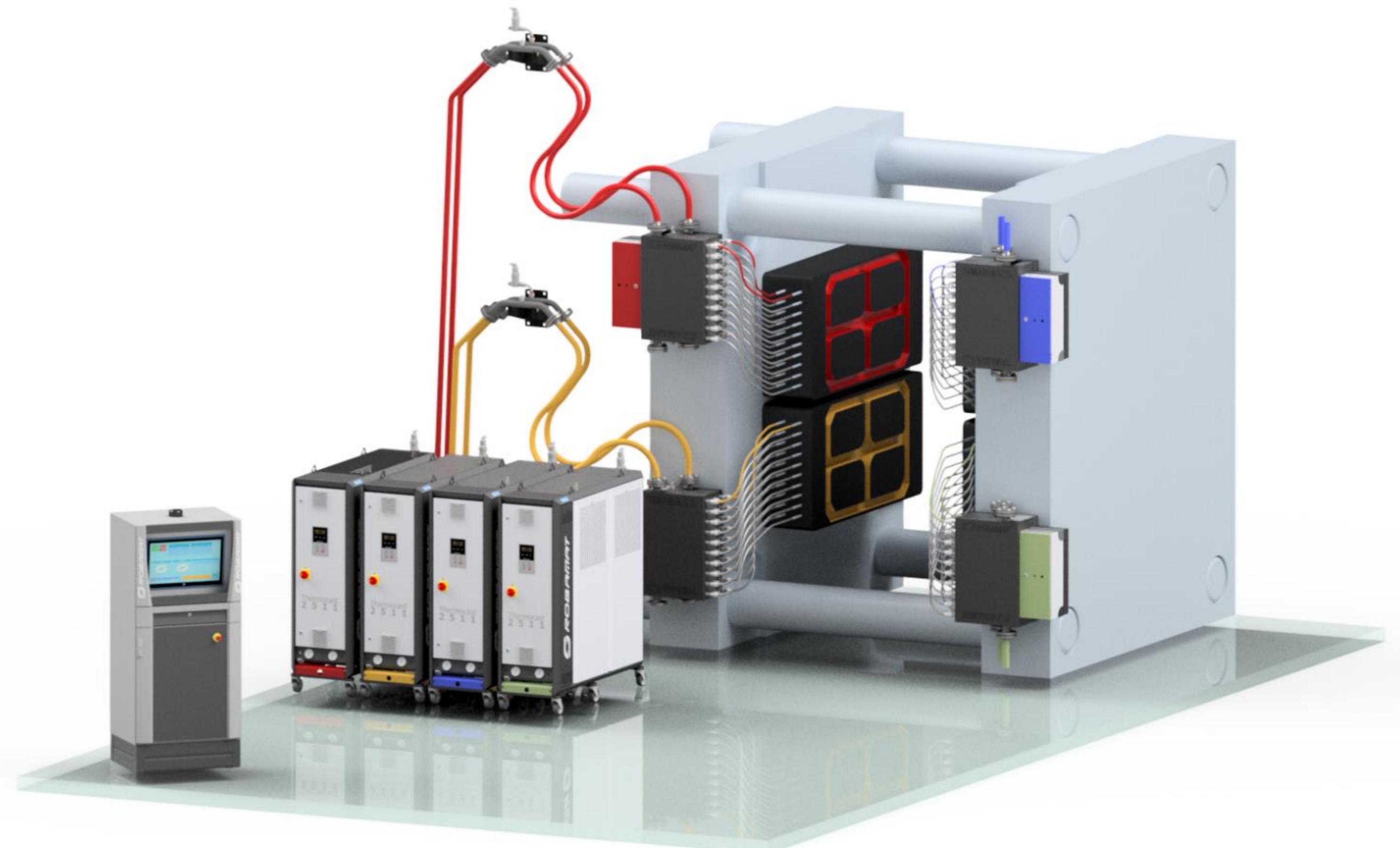
Example for a die with 40 circuits

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



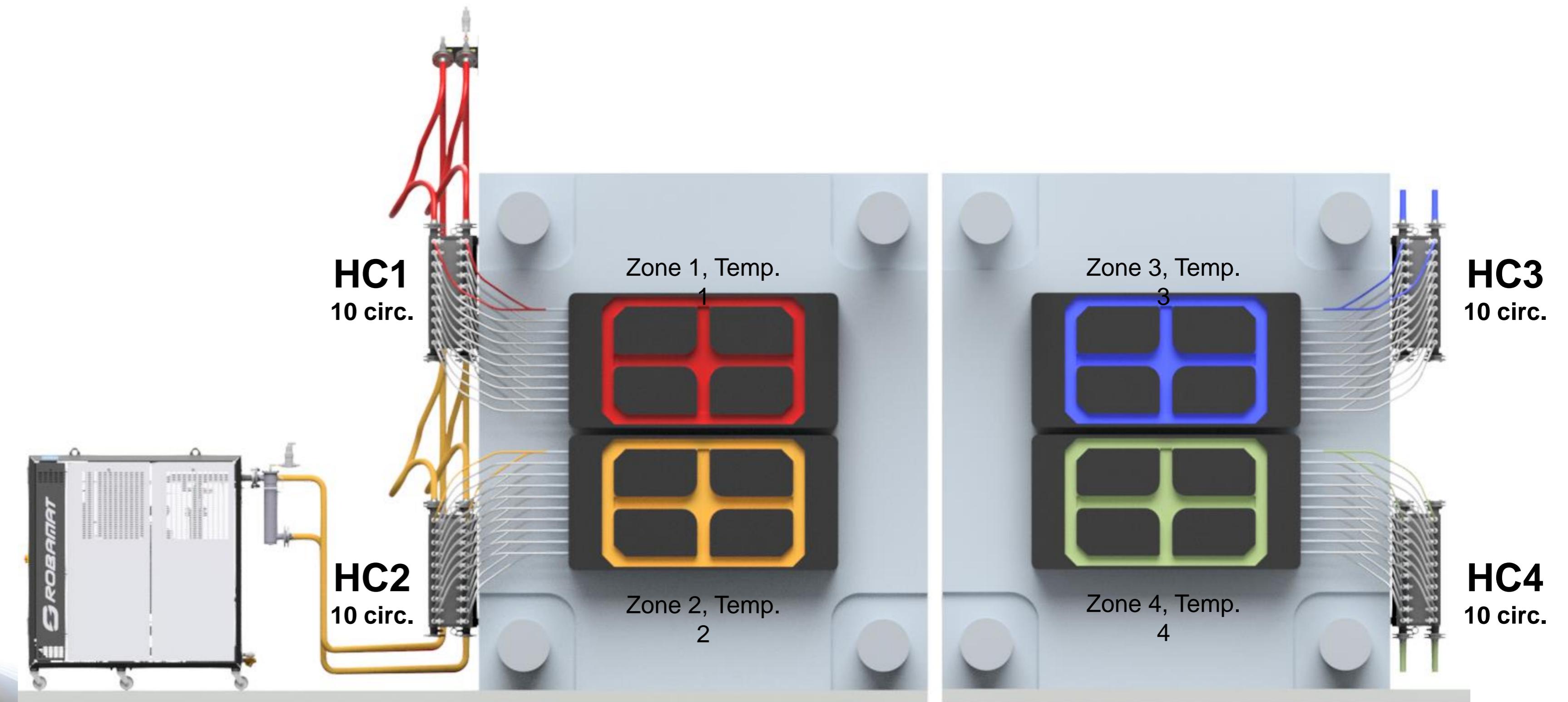
Temperature control of each zone

- 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

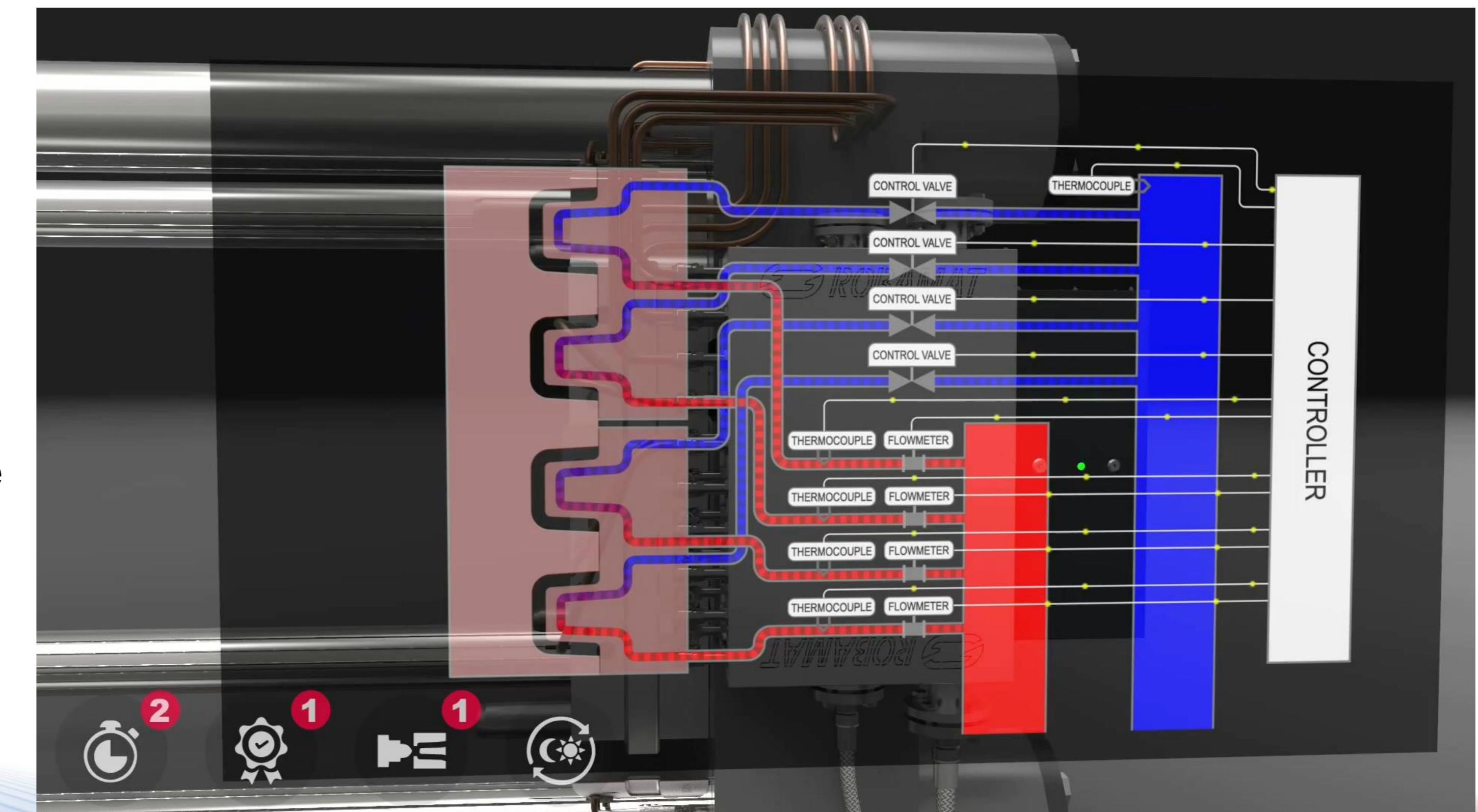


Temperature control of each circuit – **PERMANENT FLOW**

- 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



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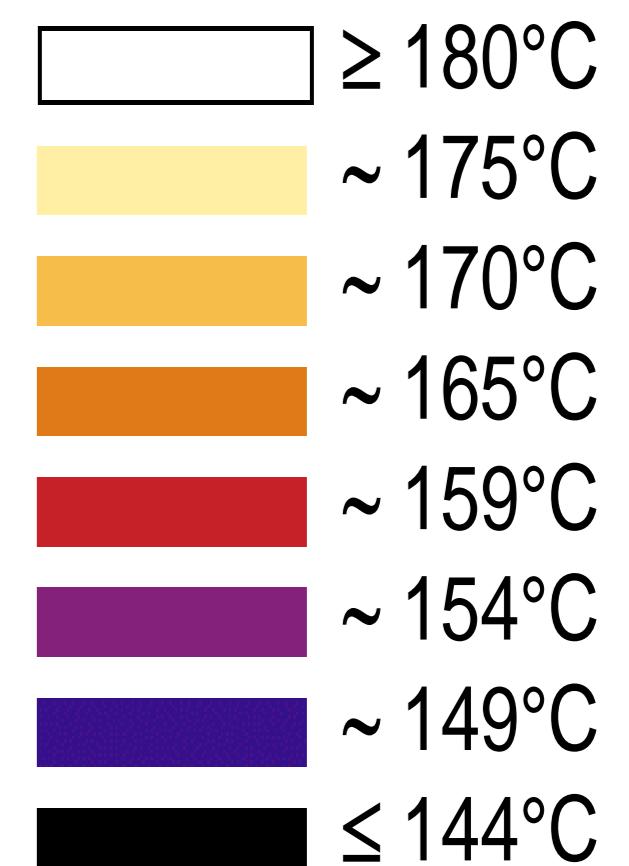
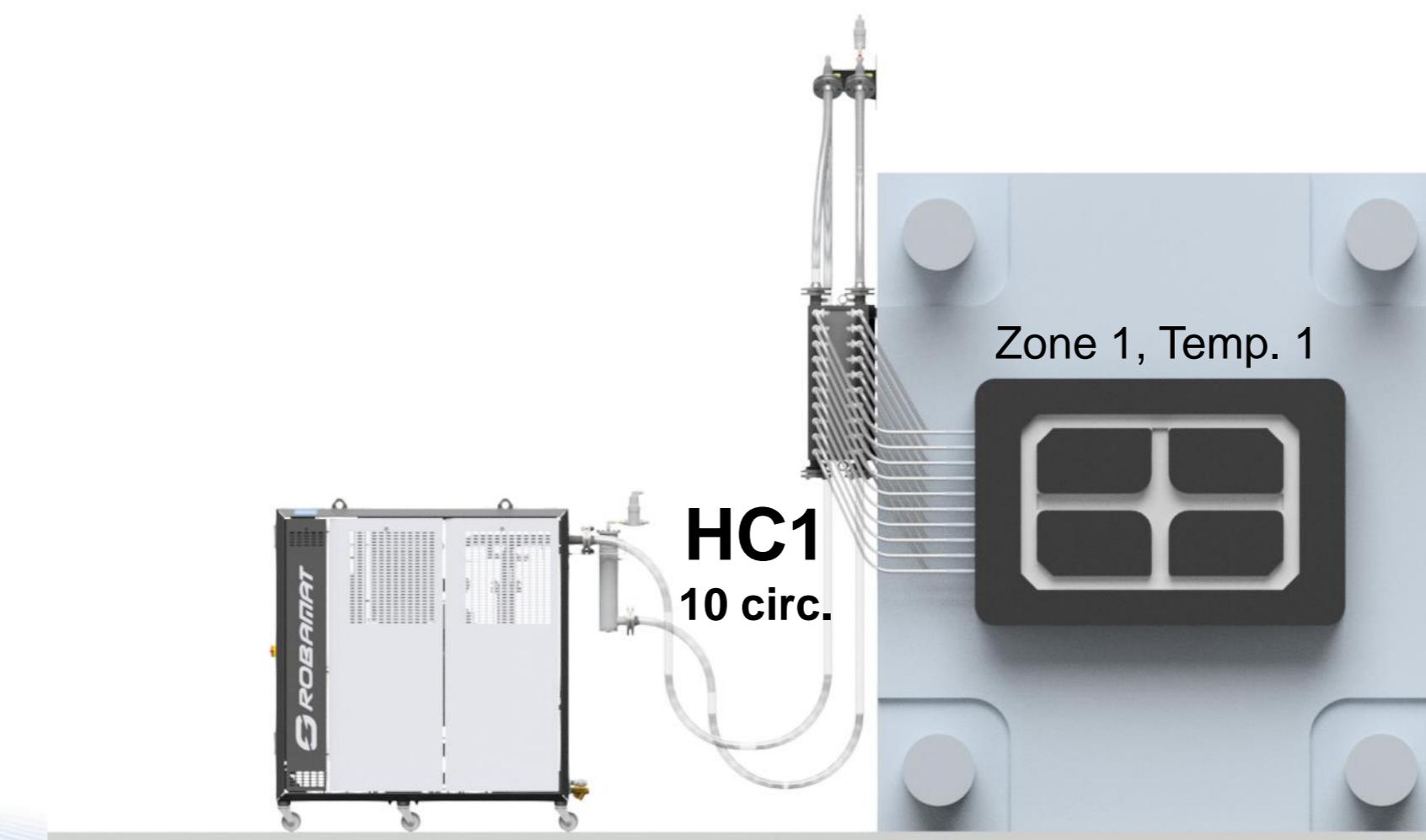
Circuit 1, flow rate 25 l/min



Circuit 2, flow rate 15 l/min



- **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

Load Tool						
100	STOPP	0°C	VL 21°C	RL 19°C	Druck 0,0 bar	OK
Kreis	Bezeichnung		RL-Temp	Durchfluss	Wärmestrom	Status
01	Circuit 01		21,1	0,0 l/min	1.234 J/s	OFF
02	Circuit 02		20,8	0,0 l/min	- 5.678 J/s	OFF
03	Circuit 03		21,7	0,0 l/min	1.234 J/s	OFF
04	Circuit 04		21,3	0,0 l/min	- 5.678 J/s	OFF
05	Circuit 05		21,0	0,0 l/min	1.234 J/s	OFF
06	Circuit 06		20,4	0,0 l/min	- 5.678 J/s	OFF
07	Circuit 07		21,1	0,0 l/min	1.234 J/s	OFF
08	Circuit 08		20,1	0,0 l/min	- 5.678 J/s	OFF
09	Circuit 09		20,5	0,0 l/min	1.234 J/s	OFF
10	Circuit 10		21,5	0,0 l/min	- 5.678 J/s	OFF

0.90.60						
101	STOPP	0°C	VL 21°C	RL 19°C	Druck 0,0 bar	OK
Kreis	Bezeichnung		RL-Temp	Durchfluss	Wärmemenge	Status
11	Circuit 11		21,2	0,0 l/min	1.234 J/s	OFF
12	Circuit 12		21,5	0,0 l/min	- 5.678 J/s	OFF
13	Circuit 13		21,3	0,0 l/min	1.234 J/s	OFF
14	Circuit 14		21,1	0,0 l/min	- 5.678 J/s	OFF
15	Circuit 15		21,7	0,0 l/min	1.234 J/s	OFF
16	Circuit 16		21,0	0,0 l/min	- 5.678 J/s	OFF
17	Circuit 17		21,1	0,0 l/min	1.234 J/s	OFF
18	Circuit 18		20,7	0,0 l/min	- 5.678 J/s	OFF
19	Circuit 19		20,5	0,0 l/min	1.234 J/s	OFF
20	Circuit 20		20,7	0,0 l/min	- 5.678 J/s	OFF

Feste Seite						
Bedienerseite						
Kühlschema						
Feste Seite						
ÖL	Kreis 6	Einsatz fest 2	Einsatz fest 1	4-fach DGF Heatsink Auftrag 2501.0	ÖL	Kreis 5
A8					A7	
E8					E7	
A9					E6	
E9						
WE1					WE2	
WE3					WE4	
WE5					WE6	
WE7					WE8	
WE9					WE10	
WE11					WE12	
WE13					WE14	
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WE17					WE18	
WE19					WE20	
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Leakage control – Real test

- Time until reaction: 2 – 6 seconds
- Amount of real leakage / zone: 20 ml (low temp.) – max. 80 ml (high temp.) —> ROBAMAT guarantee: <100 ml leakage maximum
- 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)





*Hightech. Highspirit.
Highquality.*

Competence in
Heating,
Cooling and
Cleaning.

THANK YOU