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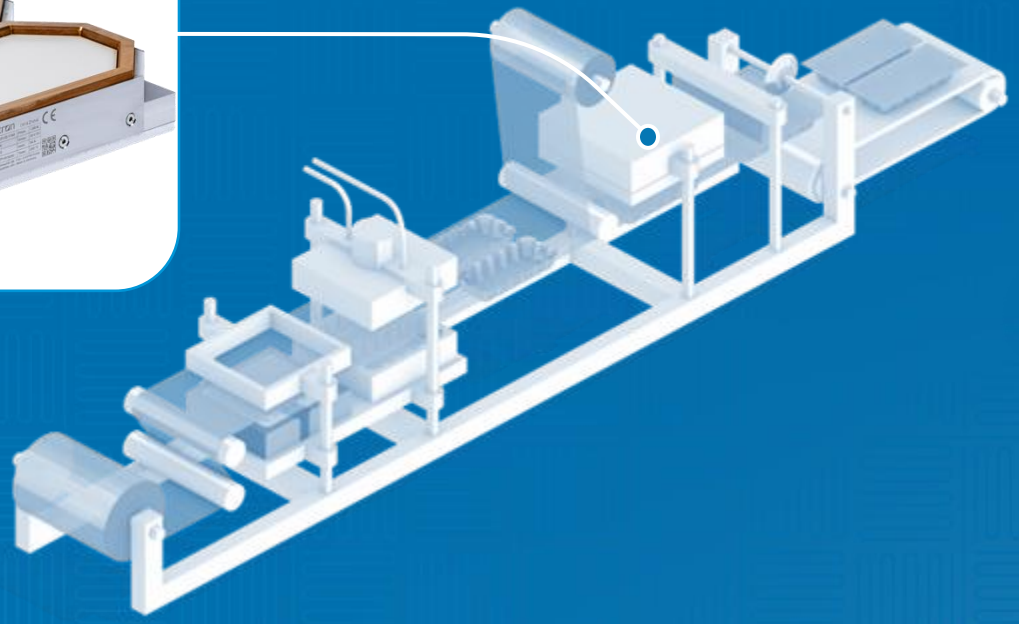
FS Contour Sealing Head Solution - CSHC



cera2seal

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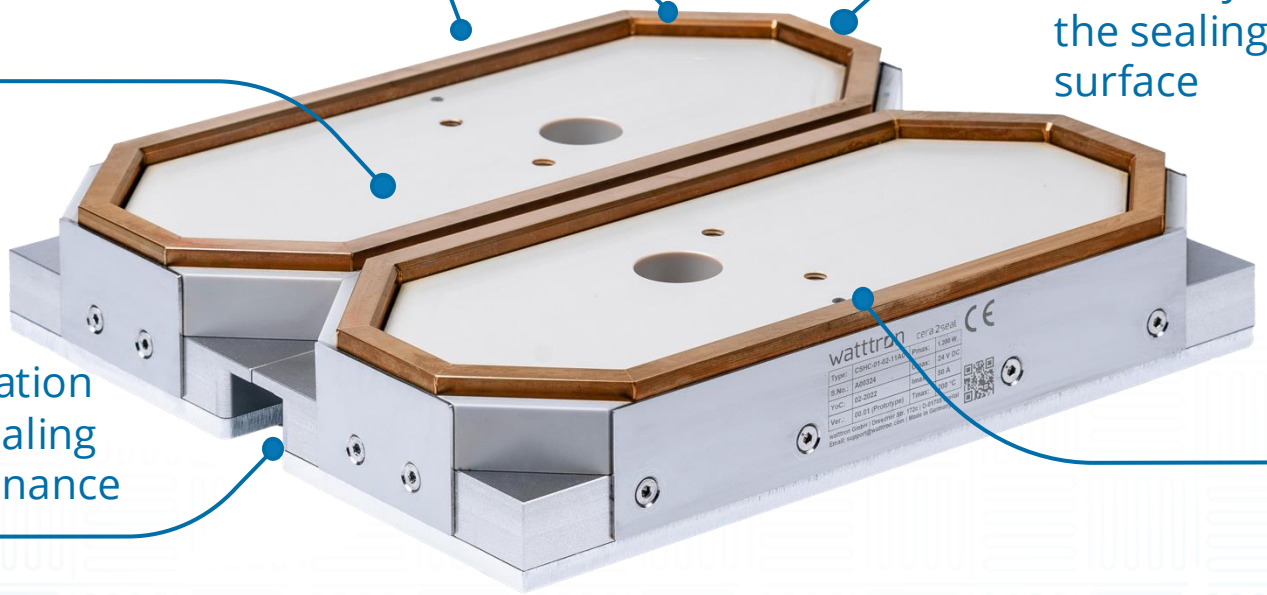
How it works

Fully reproducible sealing results – no temperature deviation from stroke to stroke

Pixel-wise heating with fully temperature control
(each pixel has it´s own sensor and closed loop-control!)

Heat only at the sealing surface

Integrated fast and precise temperature control electronics



Rapid readiness for operation and fast cooling of the sealing surface in case of maintenance

ΔT* < 2 °C All over the sealing surface

*guaranteed by documented calibration for every product!

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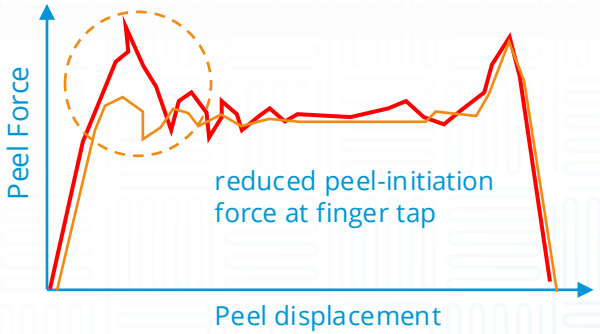
Full Temperature Control

- **Pixel-wise heating**
- The set temperature is kept very precisely (+/- 1°C)
- Temperature profiling may may assist easier to open the packaging by lowering seal temperature at the finger tab

Peel force peak reduced by lower temperature at finger tab



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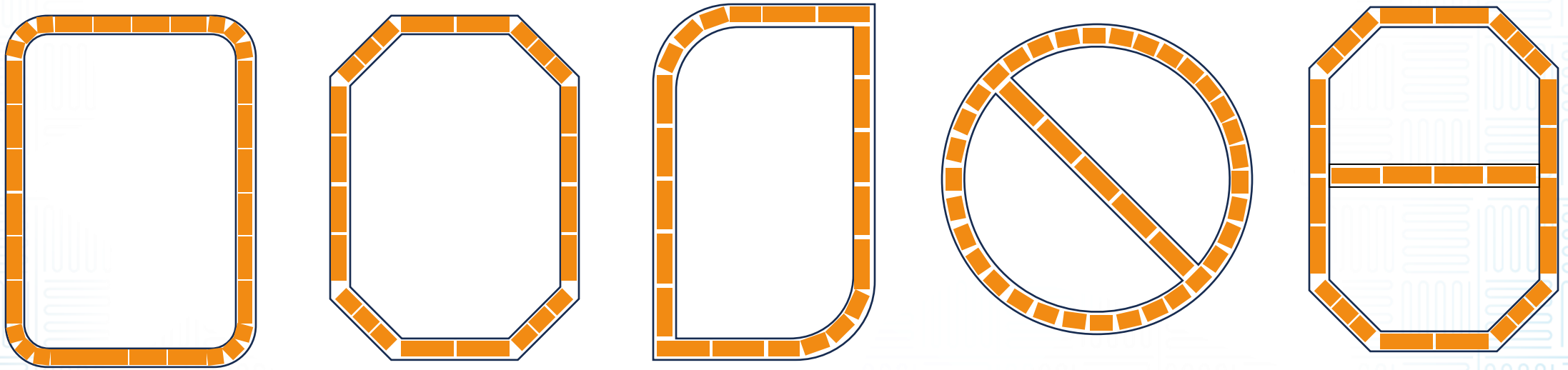
Format Flexibility

Adaptive design based on heat-pixel approach -

Single chamber

Multi-chamber



modular heat pixel arrangement:

different heat pixel sizes available

- allows smart and efficient adaption to individual packaging formats!

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General USPs

Best temeprature control and precission

The accurate sealing temperatures provides very consitent seal quality. Temperature profiling enables full control on peel-behaviour

Inline-Quality-Control & Monitoring

Recording and analysis of power usage of each heat pixel enables identification of seal anomalies that may lead to quality issues, such as:

- Product residues
- Wrong positioned lids
- Doubled lids

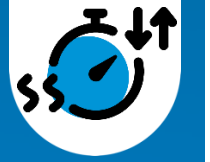
Energy Saving

Up to -50 %

watttron technology saves up to 50% energy during continious operation and up to 90% during ramp-up. Additional energy can be saved by powering off during stopps and maintainance.

Fast Ramp-Up and Cool-Down

Typ. 10 to 20 °C/s



Due to the low thermal mass and the high power densitiy watttron sealing tools can quickly heat up and cool down. The system is ready for operation within seconds and can be turned-off in production stops for energy saving or safety reasons.

Easy Machine Integration

The fully-integrated design and the small components makes it possible to design sealing tools for every kind of machine and application to perfectly fit into the existing space.

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Fast temperature change

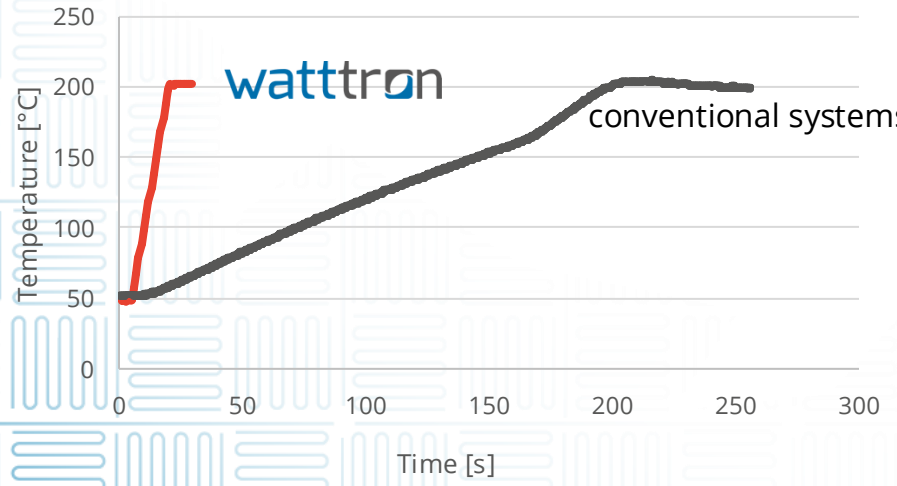
Fast ramp-up:

- Heat-up-rate 10 °C/s (higher on request)
- 20 °C to target 200 °C within 18s “ready to seal” (instead of >10 minutes)

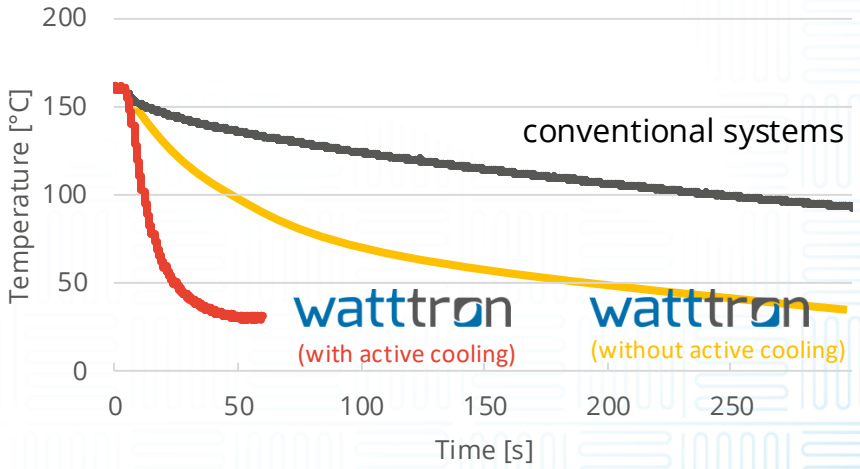
Rapid cooling: internal active cooling system

- cool-down-rate up to 8 °C/s
- 160 °C down to 100 °C within 7s (instead of >15 minutes)

Heat up process - target 200°C



cool down process from 160°C



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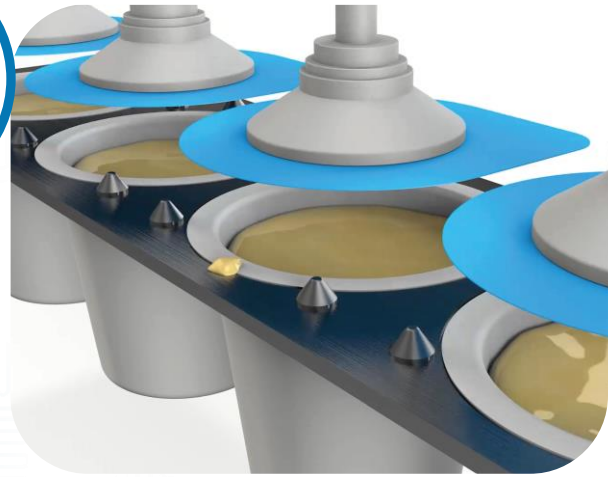
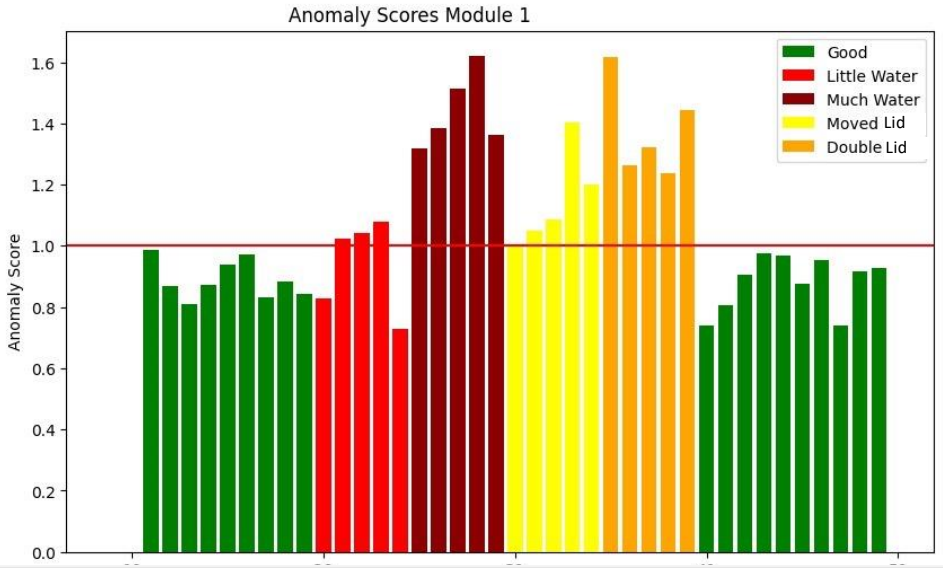
Temperature and Power Monitoring

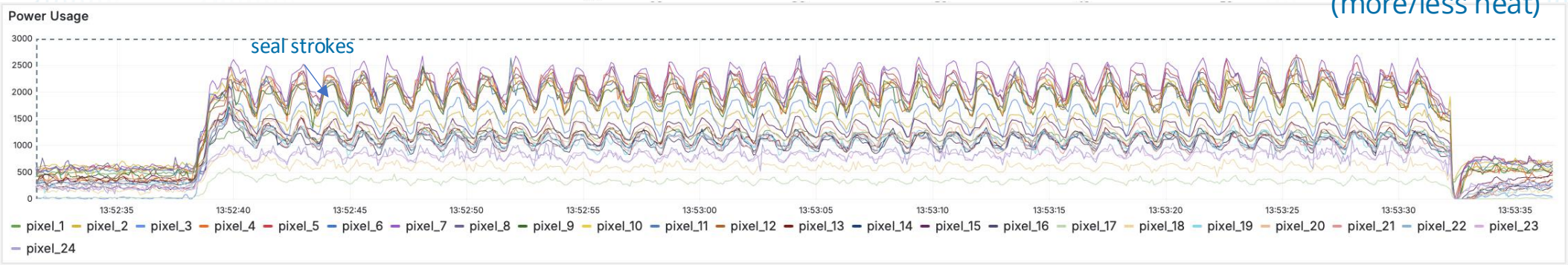
- Lots of temperature data and power-usage (seal power) recorded as base for **Inline-Quality-Control**





Principle:

- Measuring power/heat flow for every single heat pixel – approx. every 100ms
- Contamination (fluid) means more heat needed to hold temperature (enthalpy of vaporization)
- Displaced or doubled lids also affect the heat flow (more/less heat)



Contact

See you soon!

watttron GmbH (Headquarter)

Dresdner Str. 172c

01705 Freital

Germany

watttron Inc.

150 North Michigan Avenue

Chicago, Illinois 60601

USA

www.watttron.com

info@watttron.com

+49 351 271808 00