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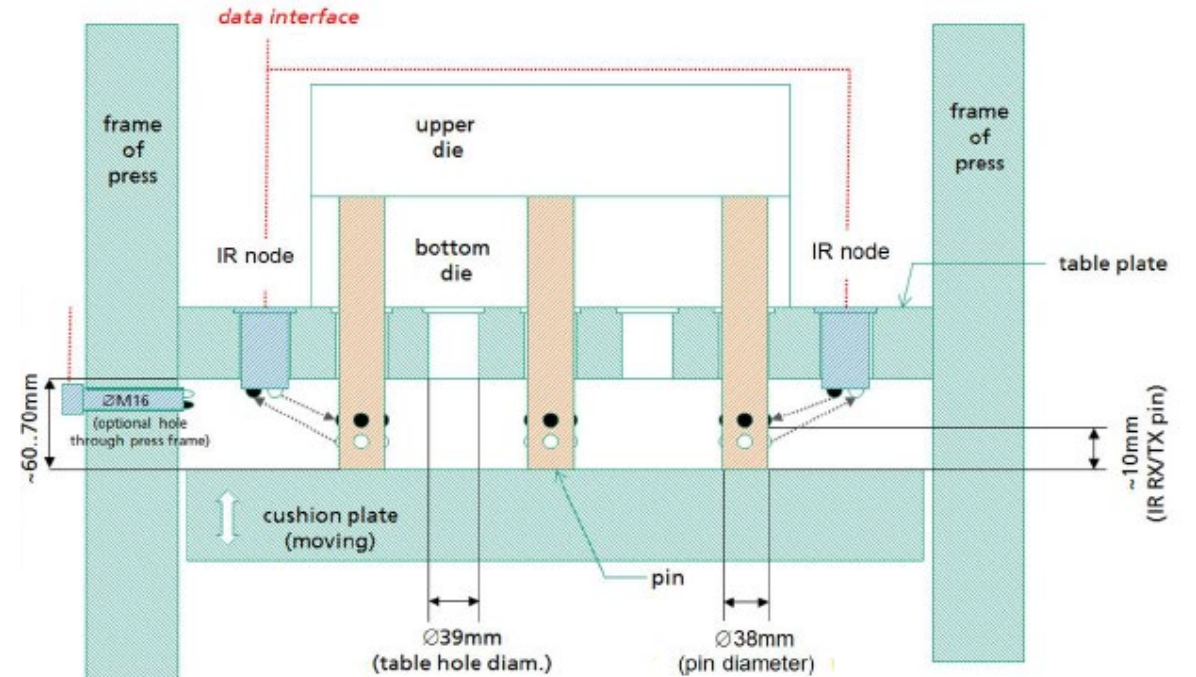
## Successful D-CZ project 1: "SmartCushionPin"

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Ondřej Vitoslavský

# Aim of the project

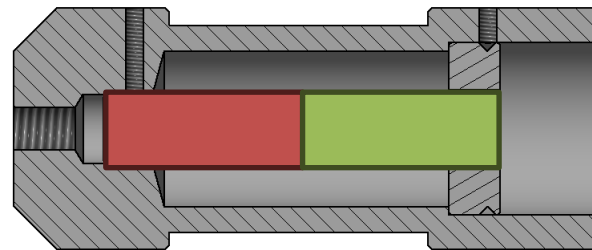
- Replacing standard cushion pin
- Remove wrinkles/cracking



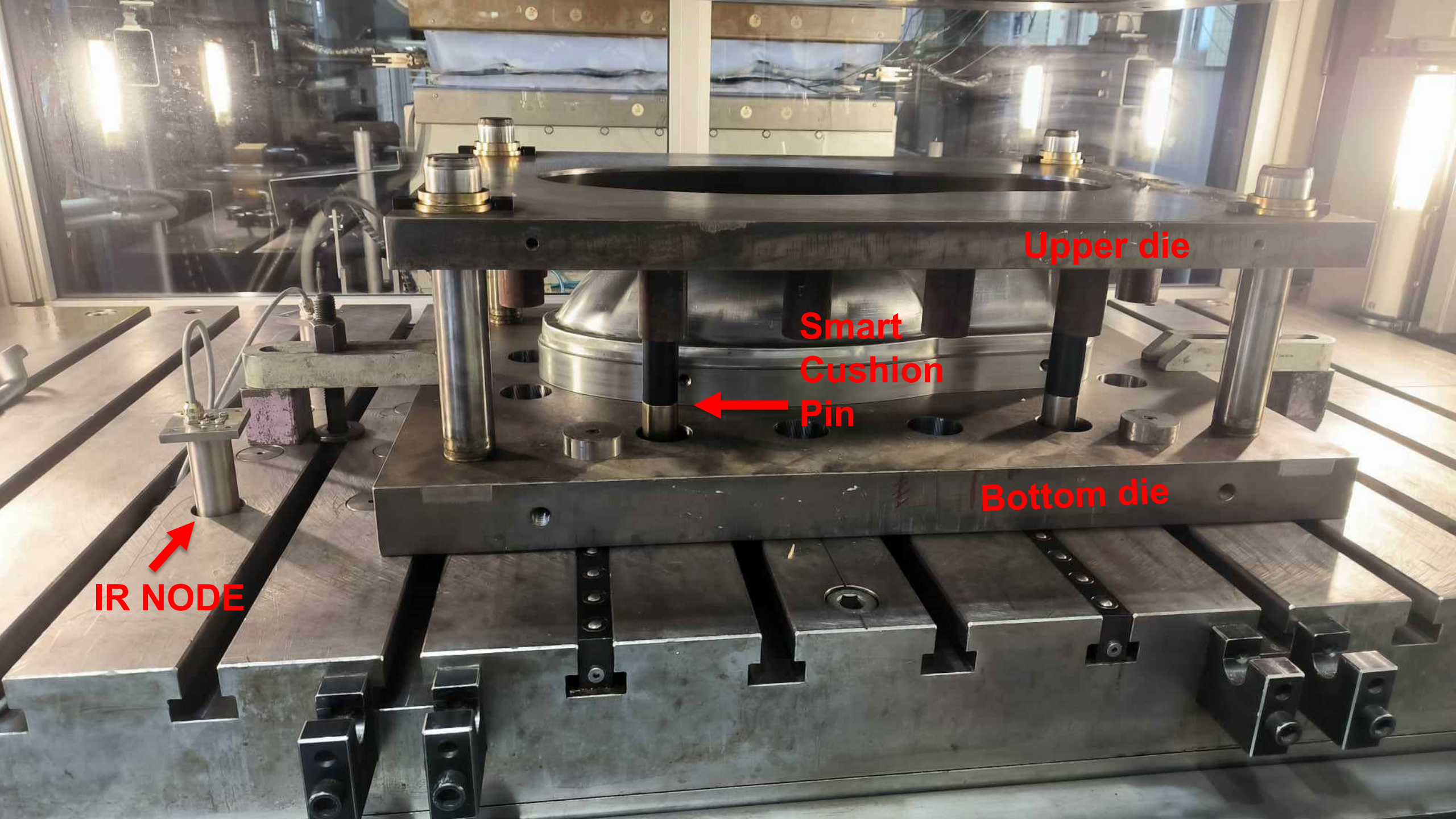
# Mechanical design

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- Outer diameter from 30 mm to 100 mm.
- Prototype: 38 mm diameter for maximum 80 kN (later 100 kN)
- Capacitance principle – two electrodes







Upper die

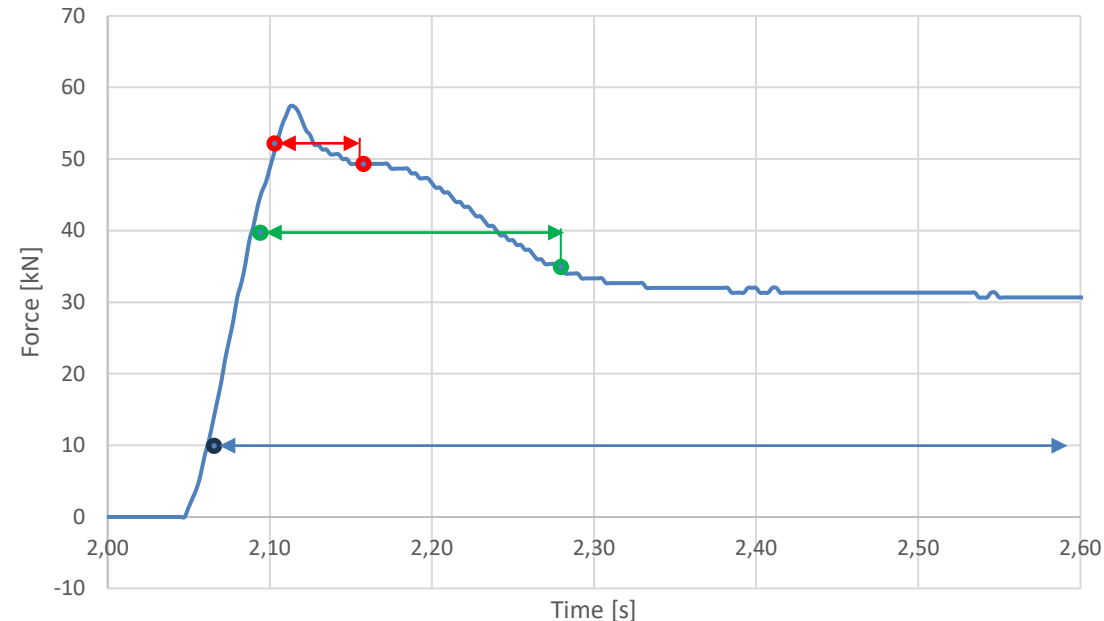
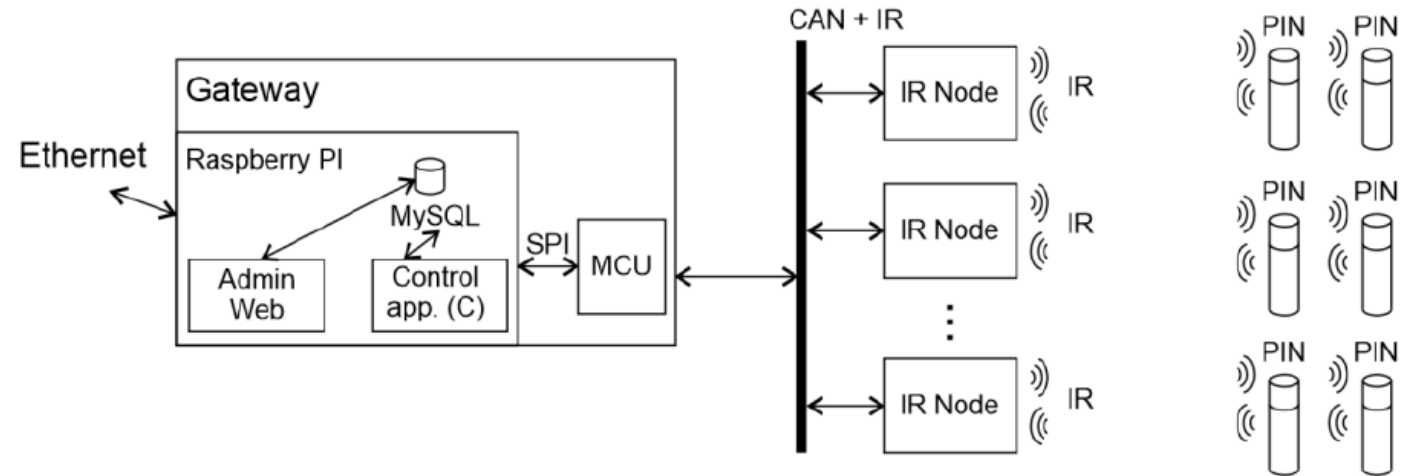
Smart  
Cushion  
Pin

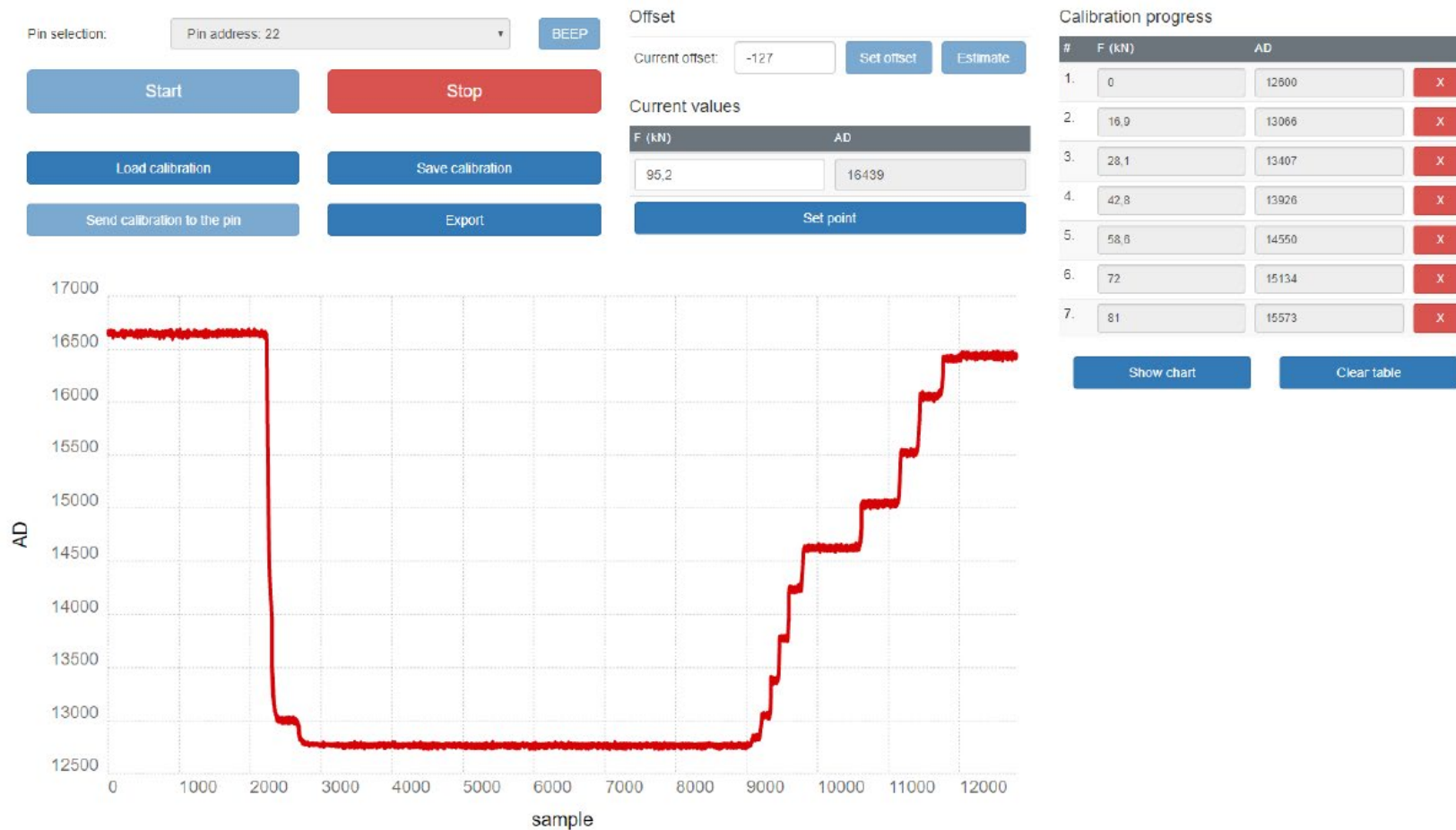
Bottom die

IR NODE

# Data collection

- Up to 120 Smart cushion pins
- Up to 32 IR Nodes
- 400 Samples per second
- Up to 60 measurings per minute



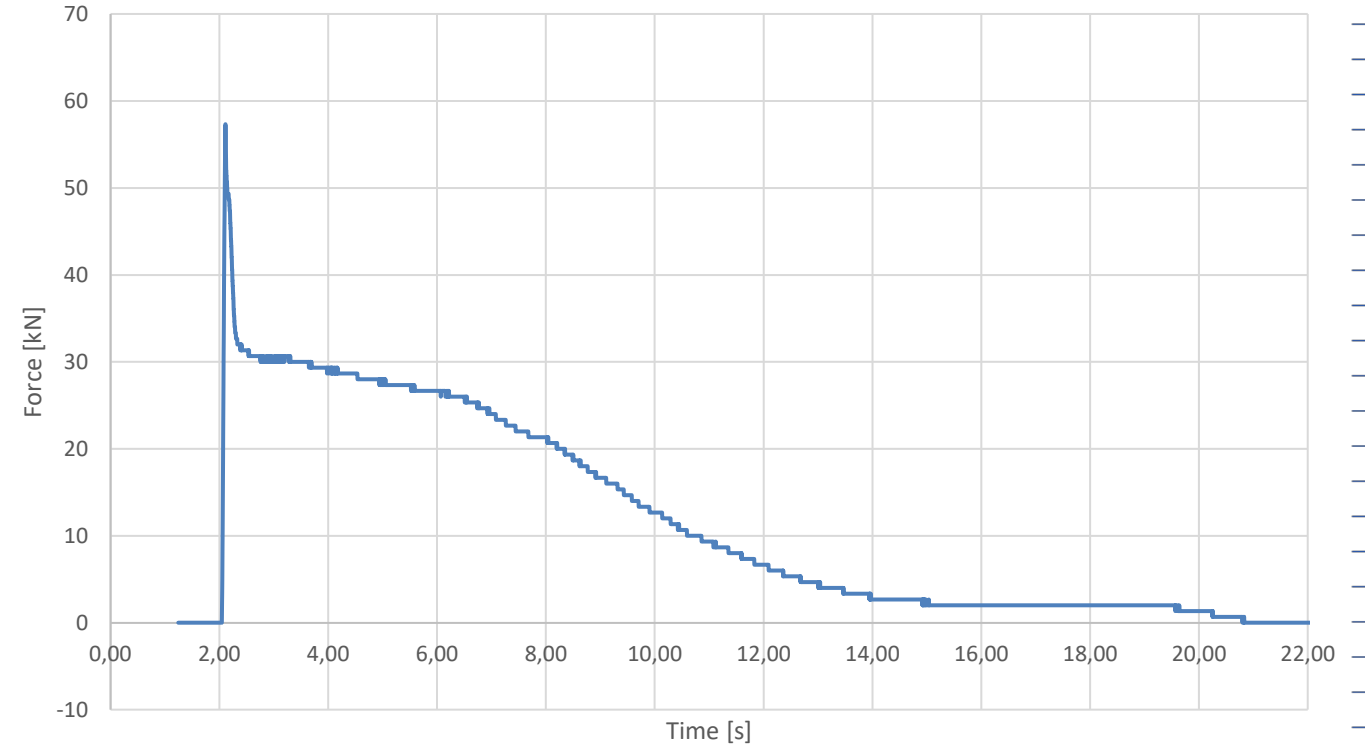




# Measured data in Fraunhofer



Force on "Smart Cusion Pin" during pressing



# About UVB TECHNIK s.r.o.

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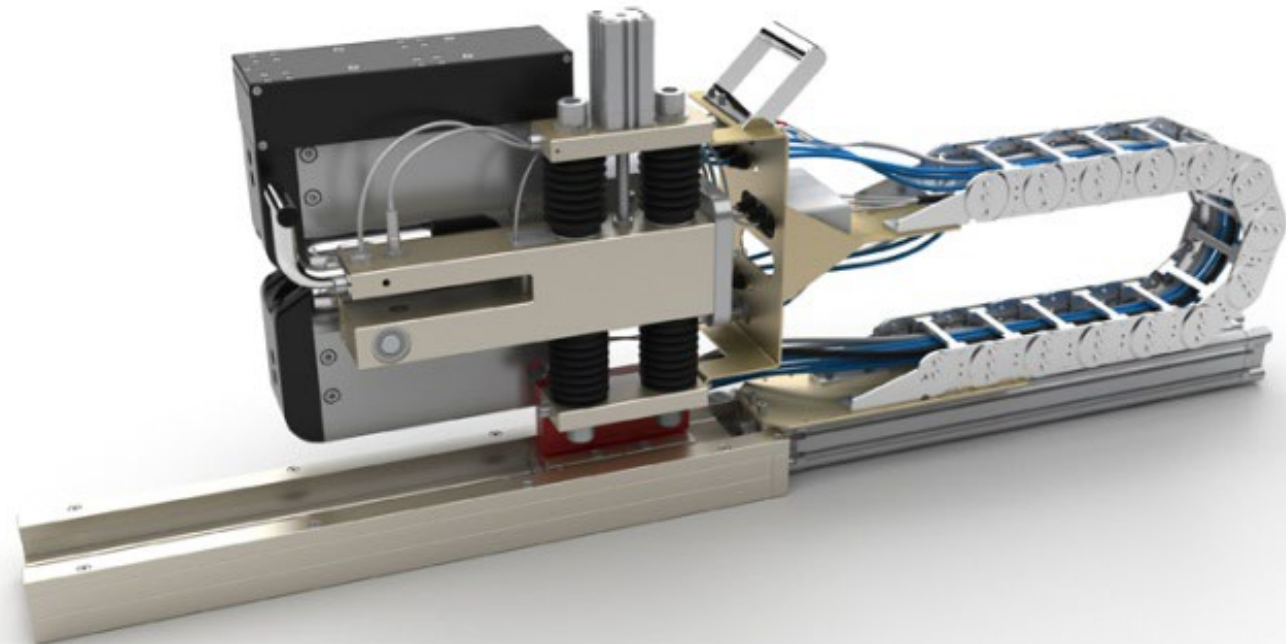
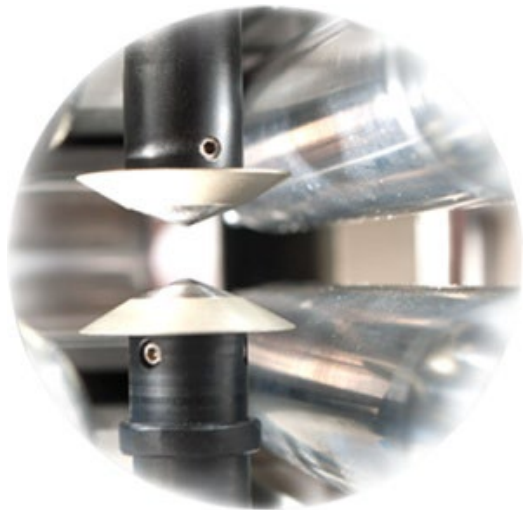
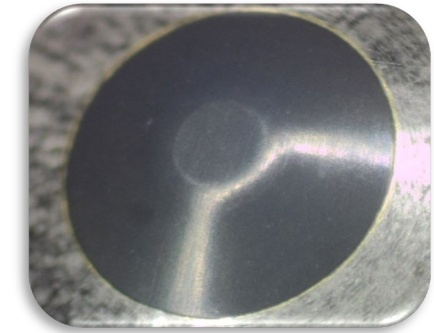
- 1991 The company was founded in Ostrava, Czech Republic
- 1993 **Patent obtained for continuous metal strip thickness gauge**
- 2002 **Wiping equipment** launched
- 2016 Development of **shapemeter roll for flatness measurement**
- 2020 New **laser strip thickness gauge** and **degreasing equipment**





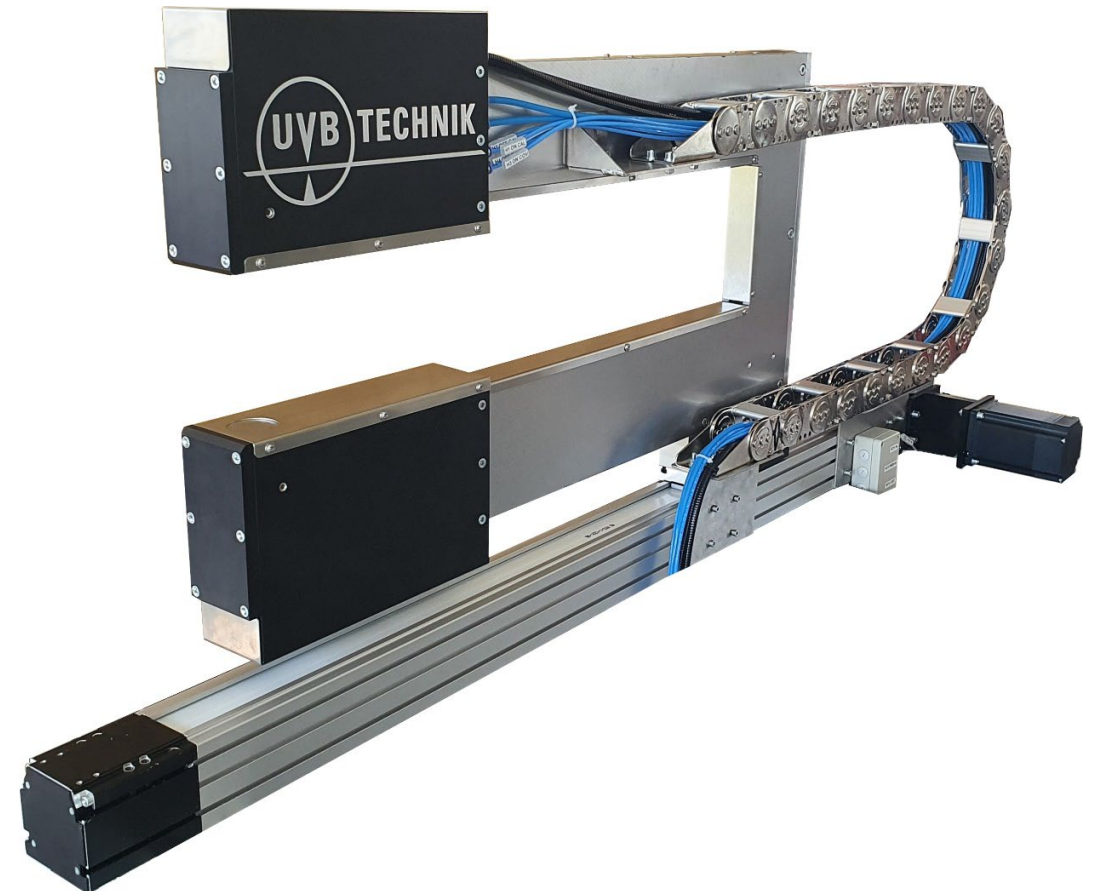
# Continuous strip thickness gauge

- A pair of durable sensors mounted in C-frame in a floating head
- Own sensor technology
- Sintered diamond contacts in touch with the strip



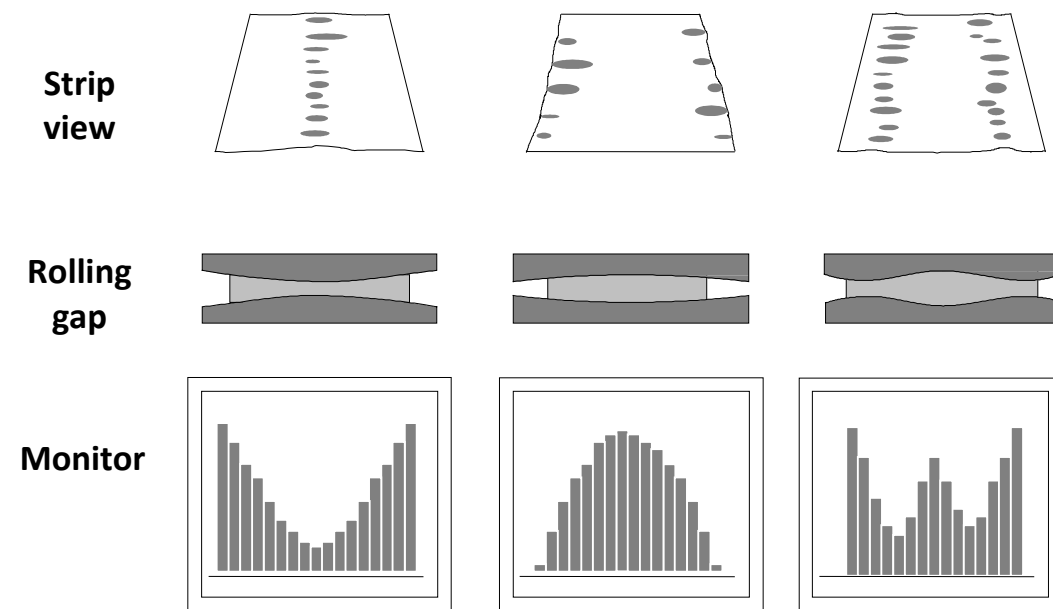
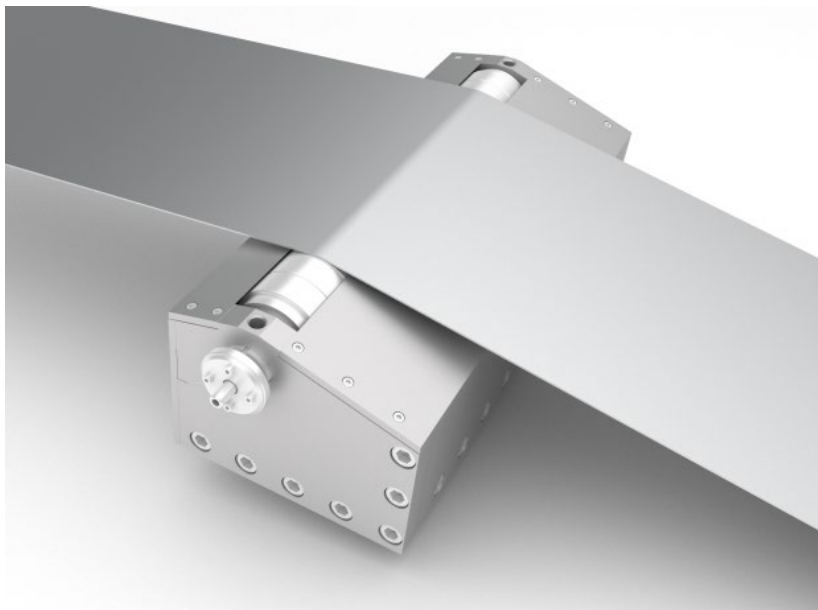
# Continuous strip thickness gauge

- Non-contact measuring by means of two opposite four-point laser sensors located in C-frame.



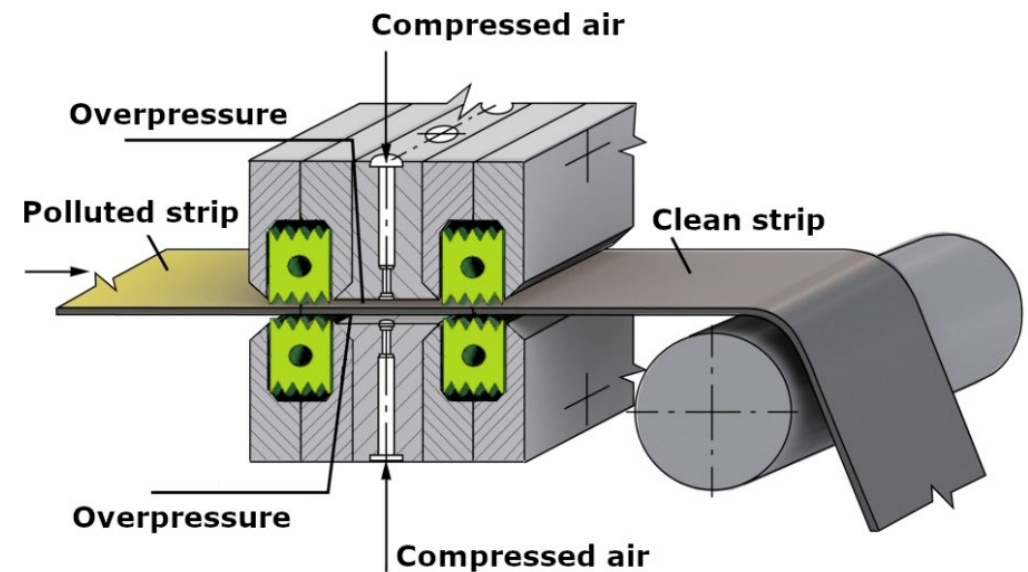
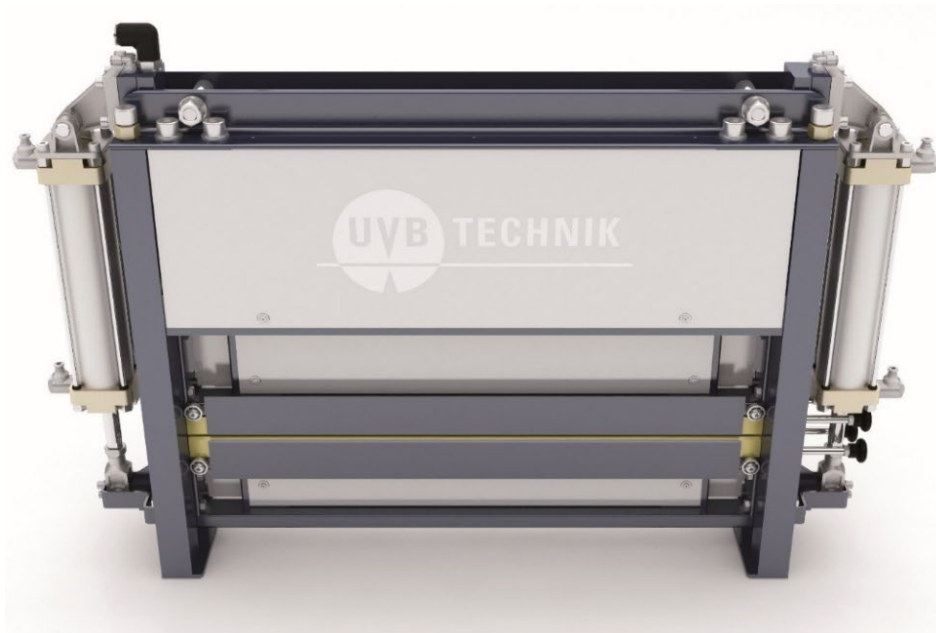
# Shapemeter roll

- Sectional strip tension meter for evaluation of metal strip flatness in cold rolling mills
- Measuring of pressure forces of a metal strip in multiple zones



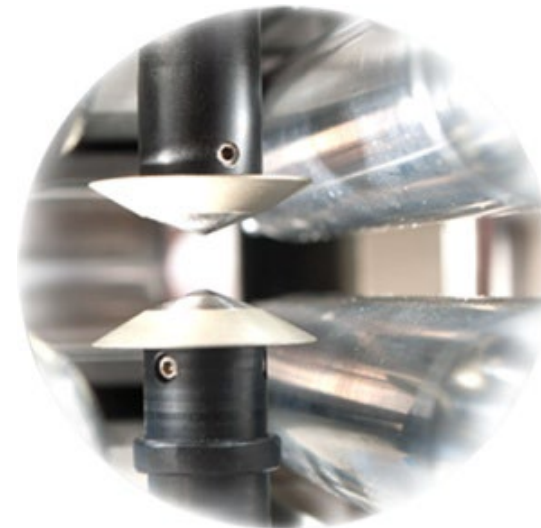
# Wiping equipment

- Equipment for wiping emulsions from the surface of metal strip.
- Surface cleaning is done by wiping by means of two pairs of flexible slats.
- Floating frame





**Thank you for your attention!**



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