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RHI MAGNESITA

Alpamayo

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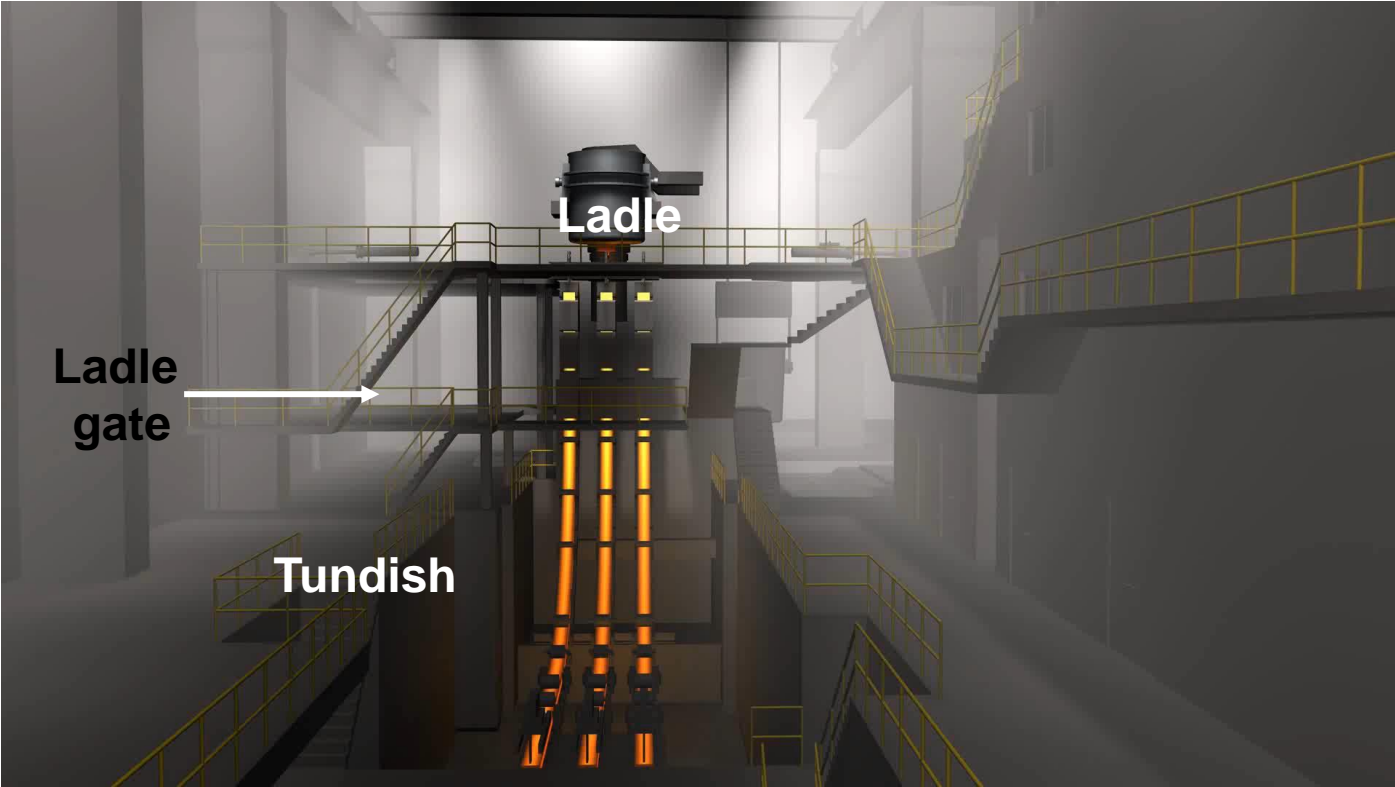
# HEALTH STATUS MONITORING OF LADLE GATES IN STEEL PLANTS

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# THE PROBLEM

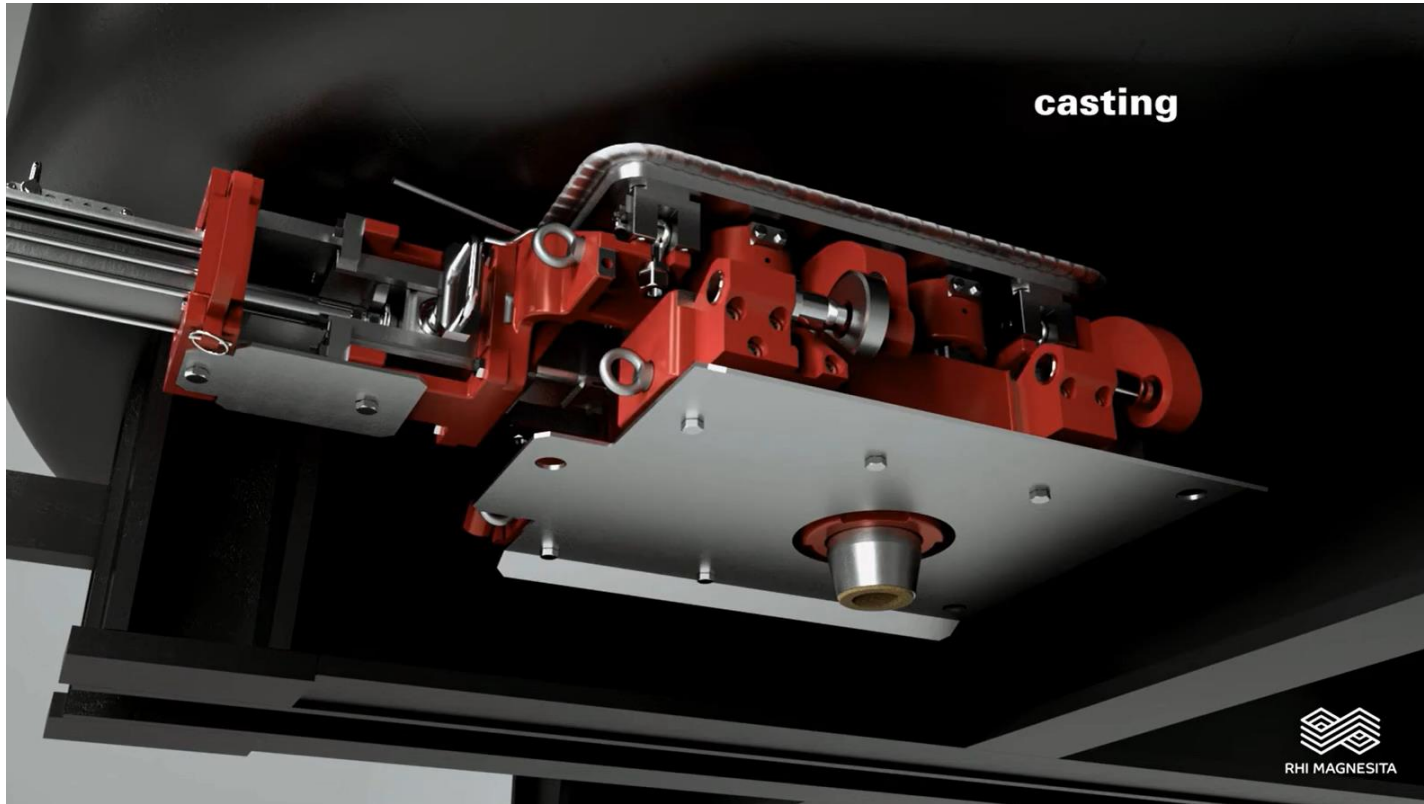
## Steel casting



Steel breakout

# THE CURRENT STATE OF THE AERT

## Ladle gate



Functioning



Worn out ladle gate plate

# OUR OBJECTIVE

Automated health monitoring system for continuous assessment of the quality of the slide gate plates and for prediction of their degradation.

## Benefits:

- Improve safety
- Reduce costs
- Improve process robustness and reliability

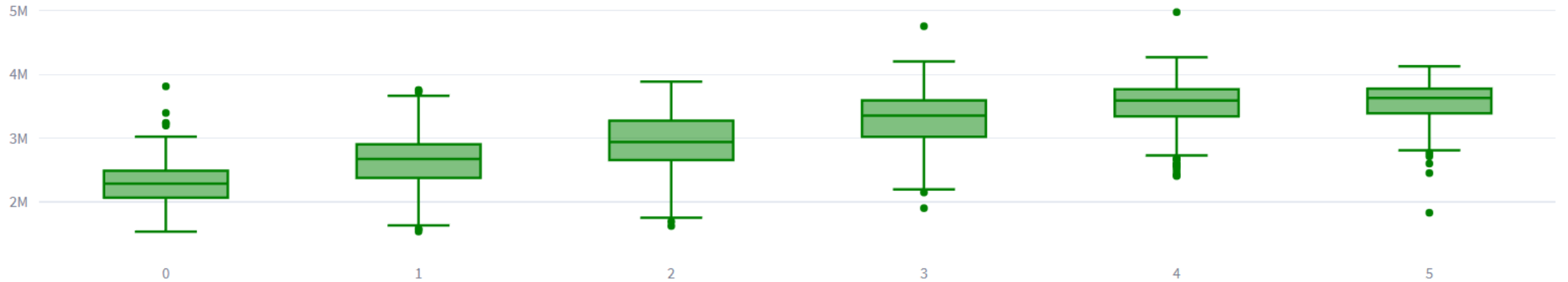
# METHODS

Elongation, pressure and work of hydraulic cylinder over time

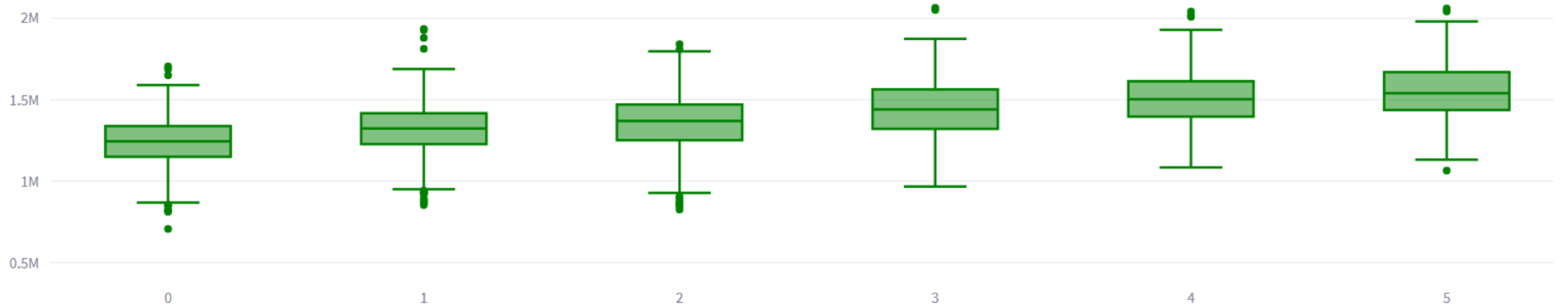


# METHODS

## Total opening work vs Plate life cycle

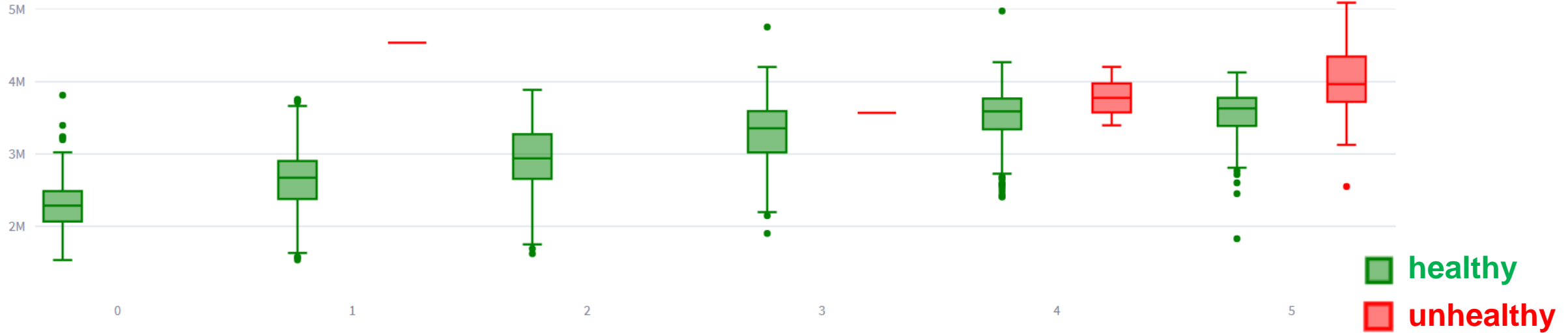


## Total closing work vs Plate life cycle

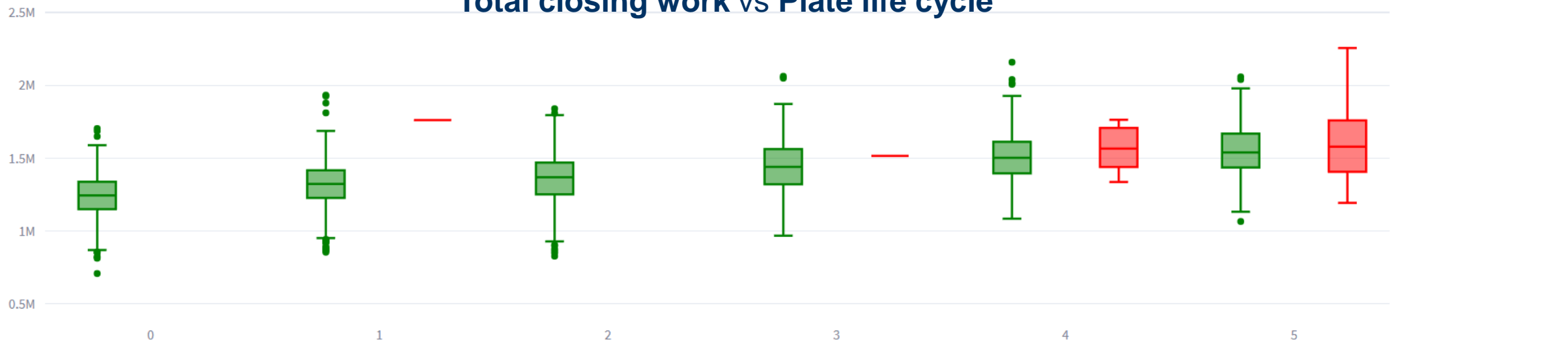


# METHODS

## Total opening work vs Plate life cycle



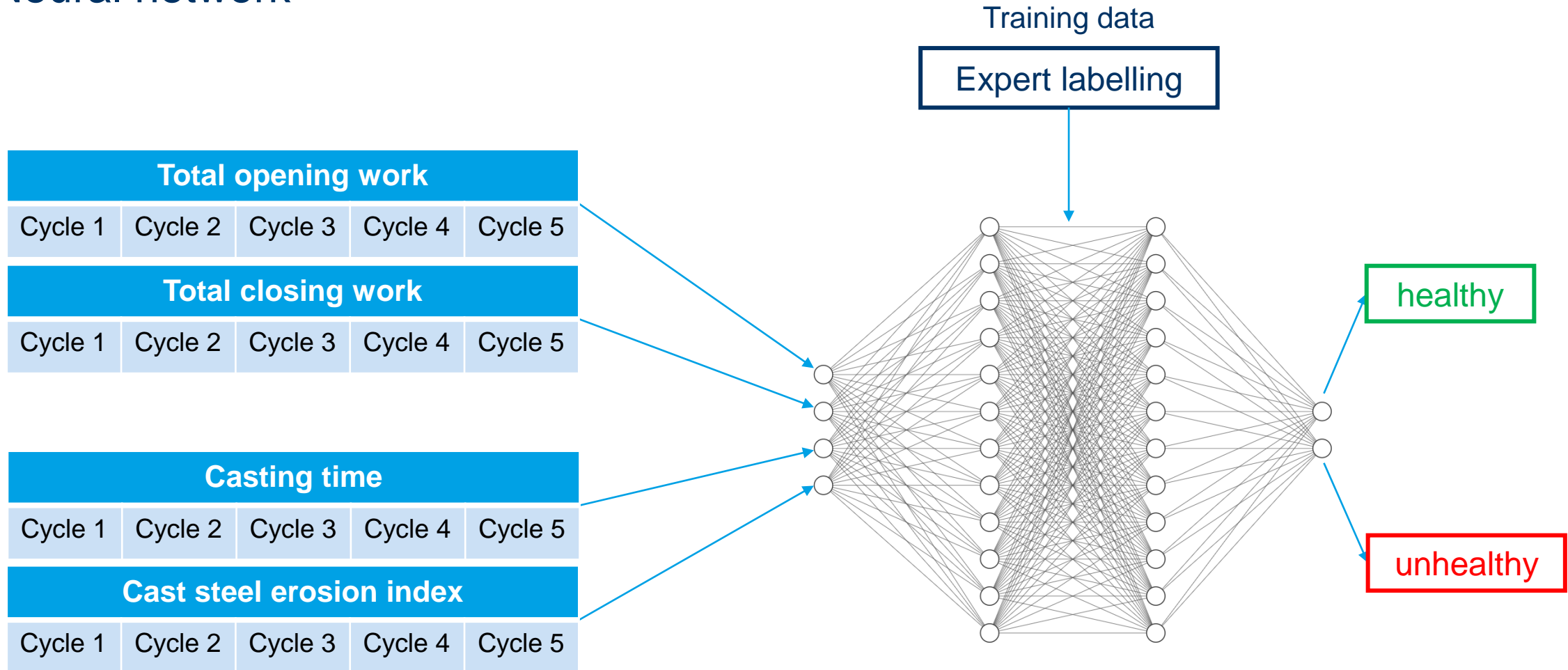
## Total closing work vs Plate life cycle





# METHODS

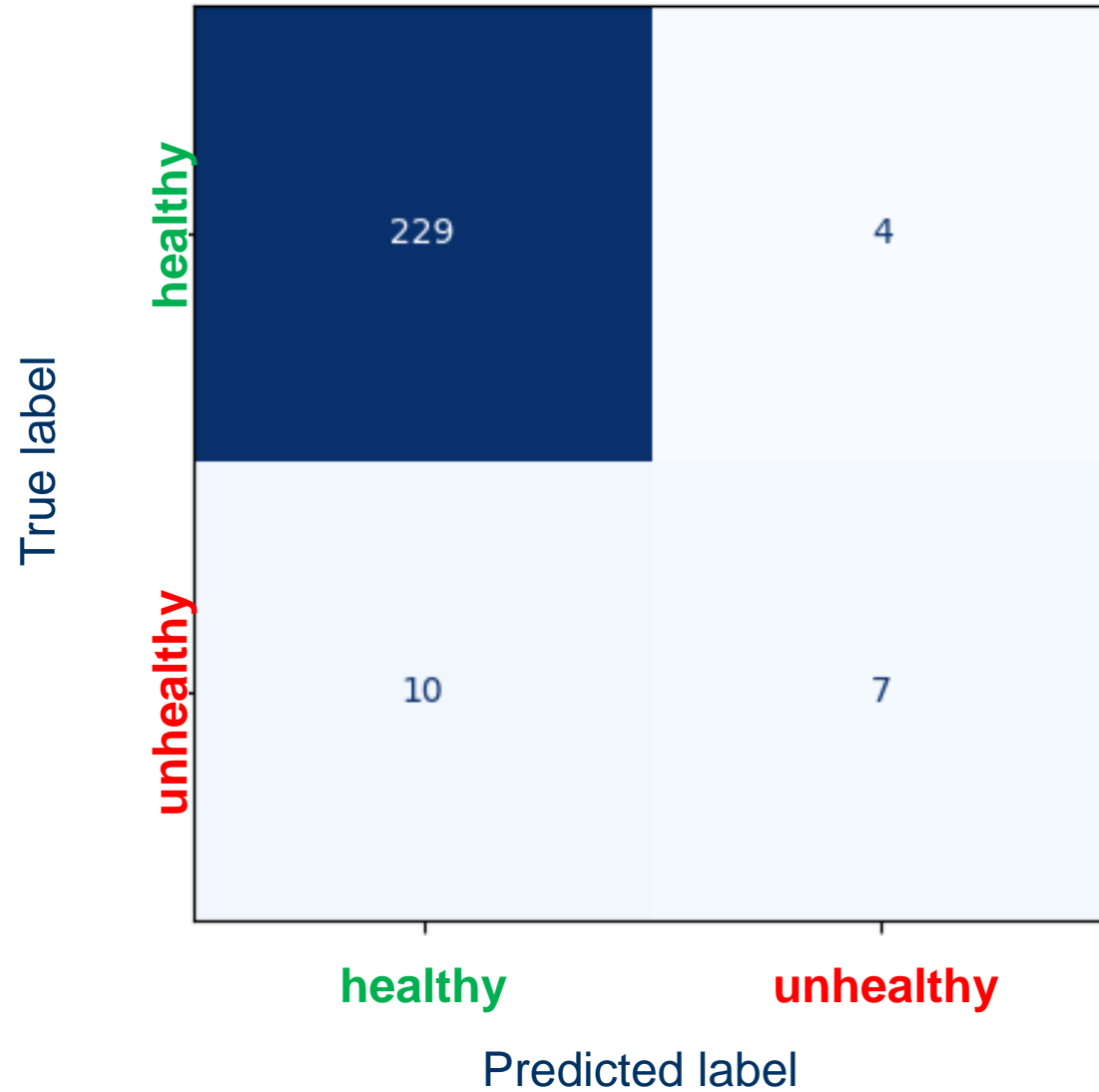
## Neural network





# RESULTS

Confusion matrix on validation set





FACING THE CHALLENGES OF OUR TIME