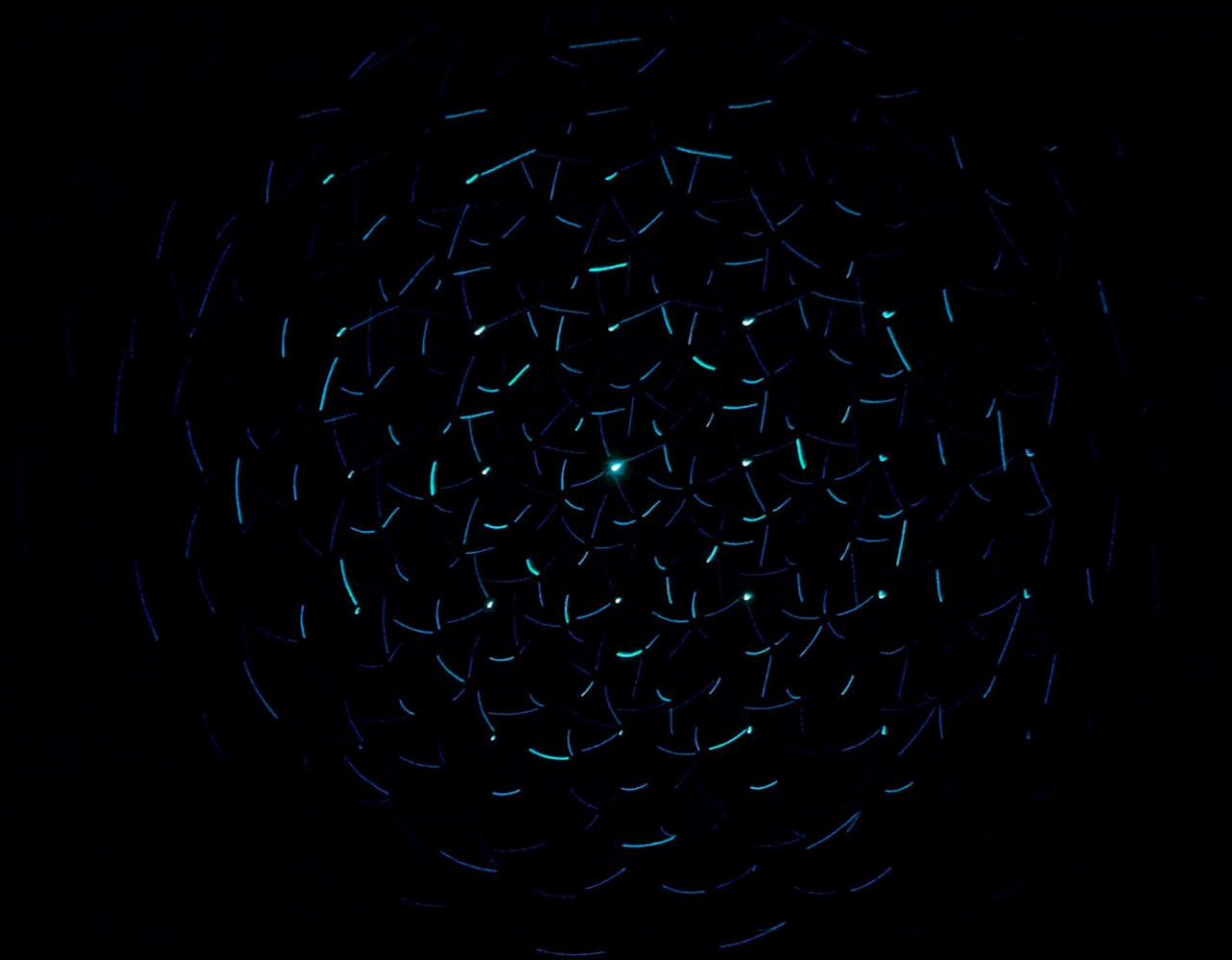
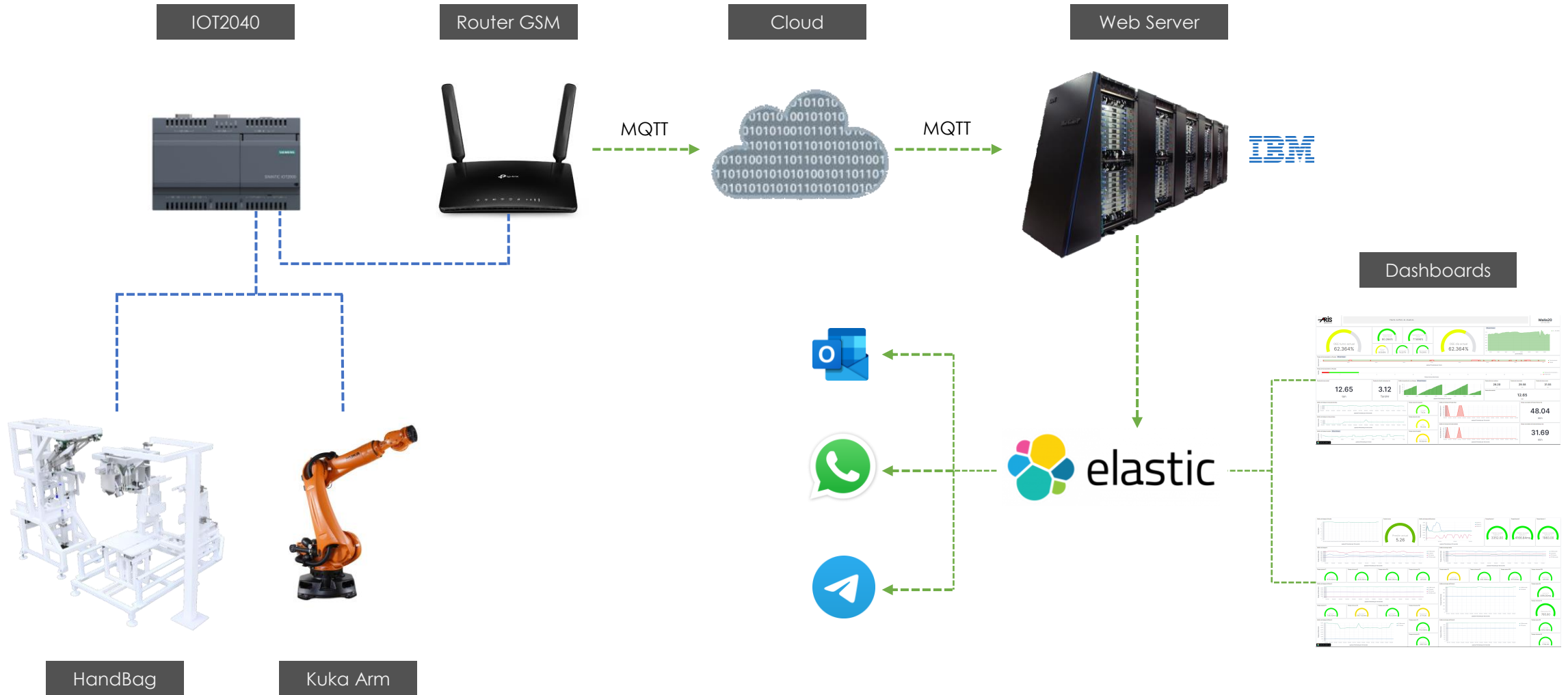


# IIoT – Production and Maintenance Dashboards

Case of study: Handbag –  
Automatic powder filling  
machine in 25kg bags  
Product: Aluminium Sulfate

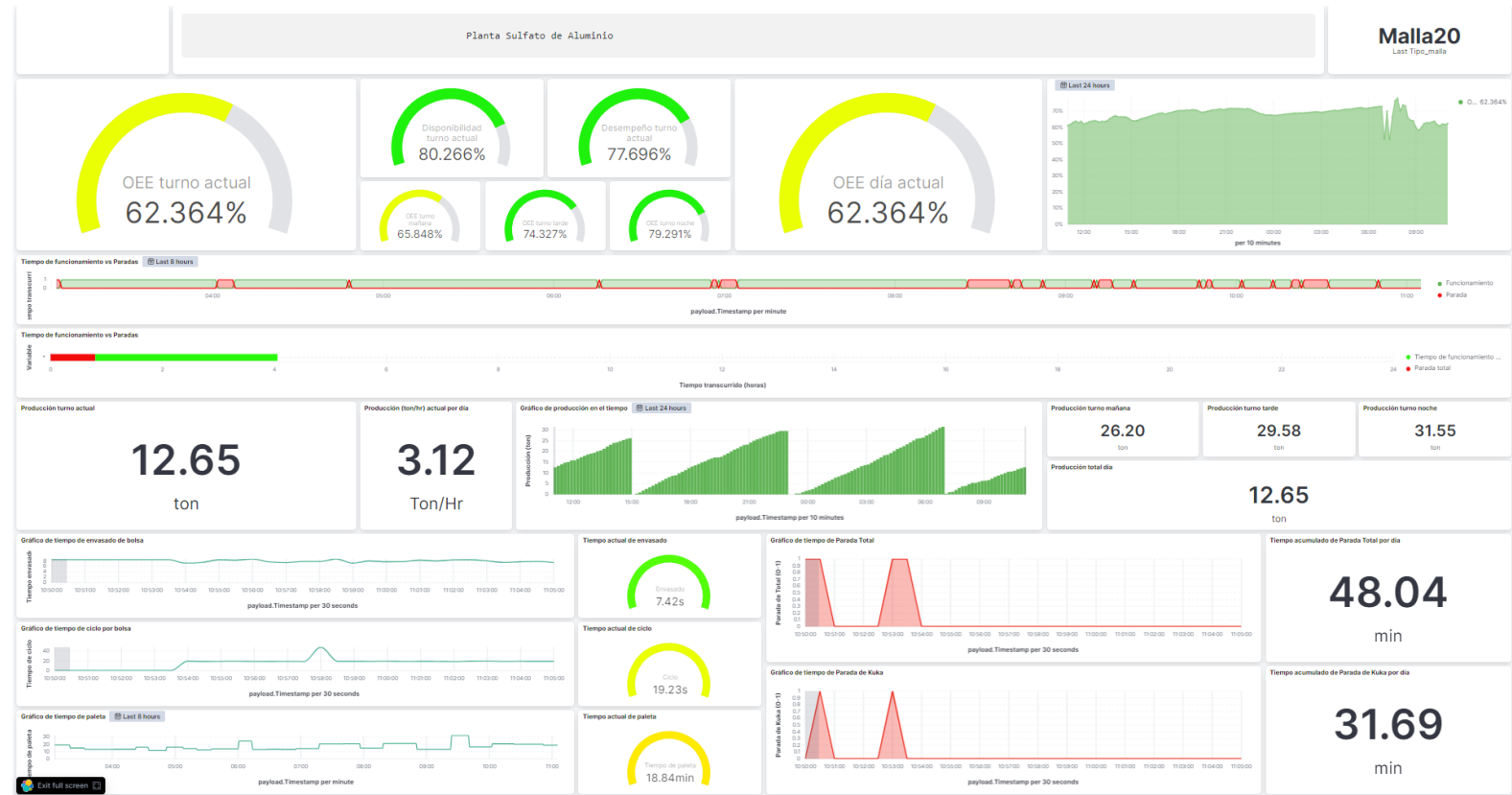


# Set Up





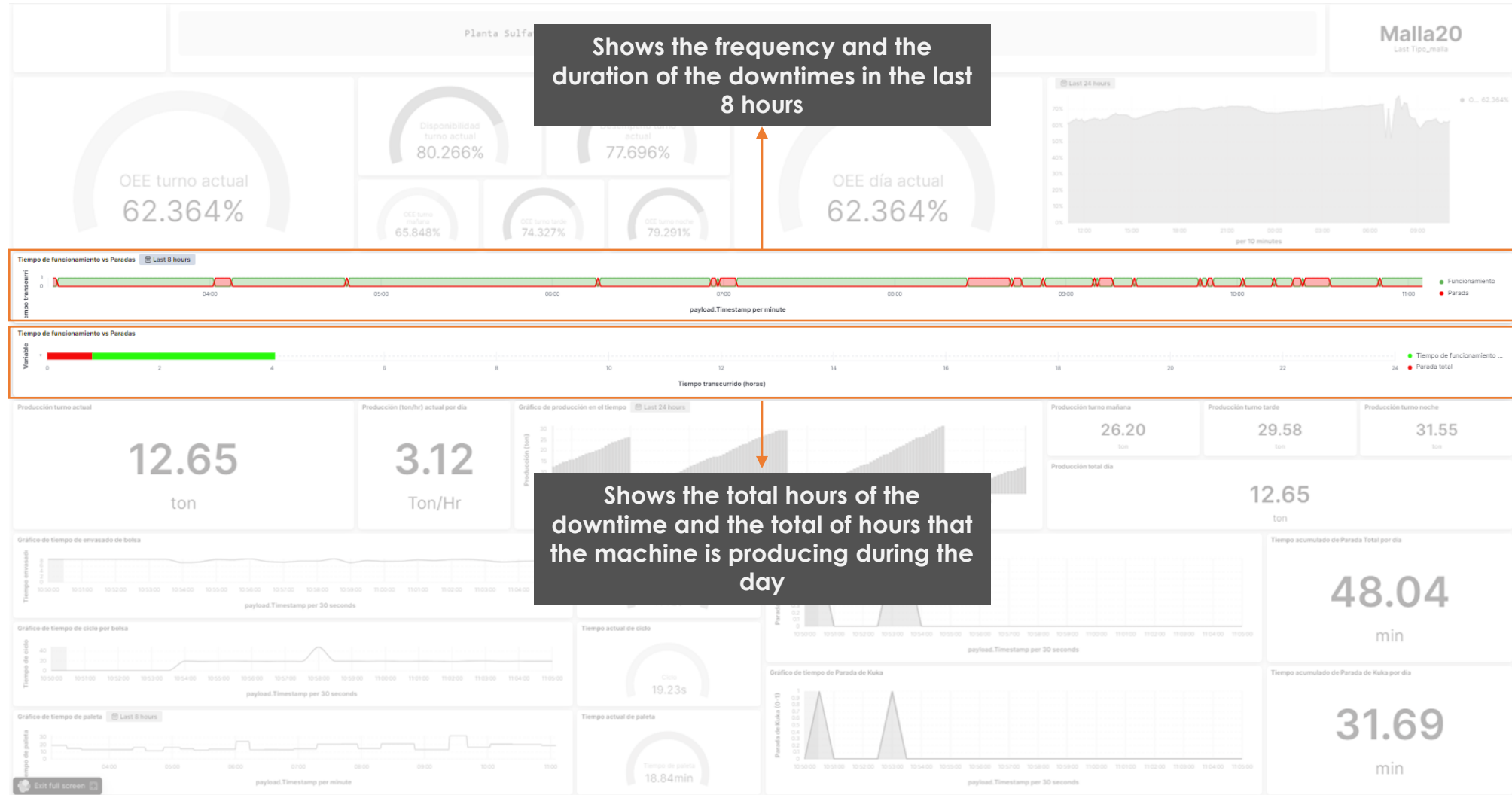
# Production



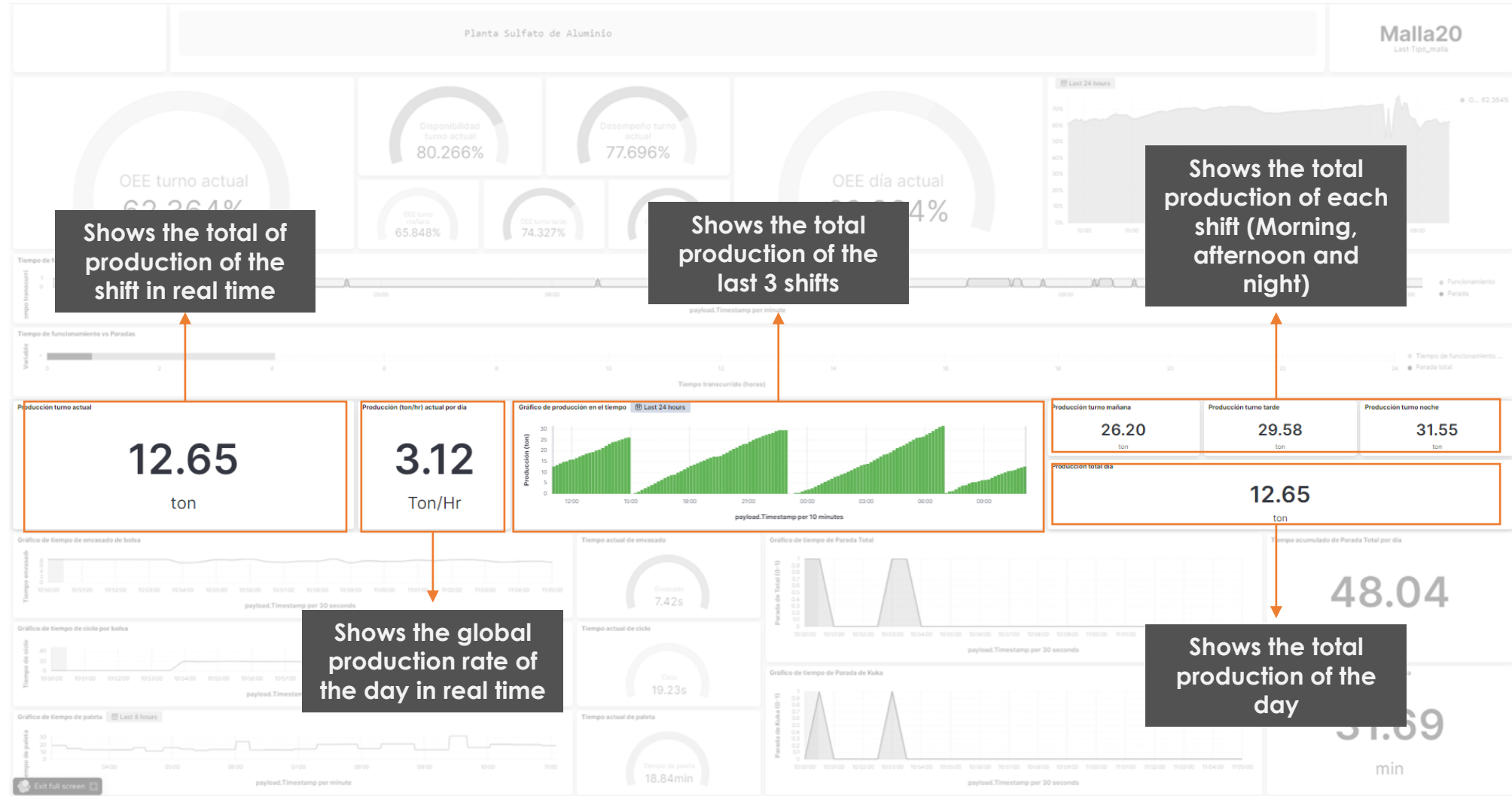
# OEE (Overall Equipment Efficiency)



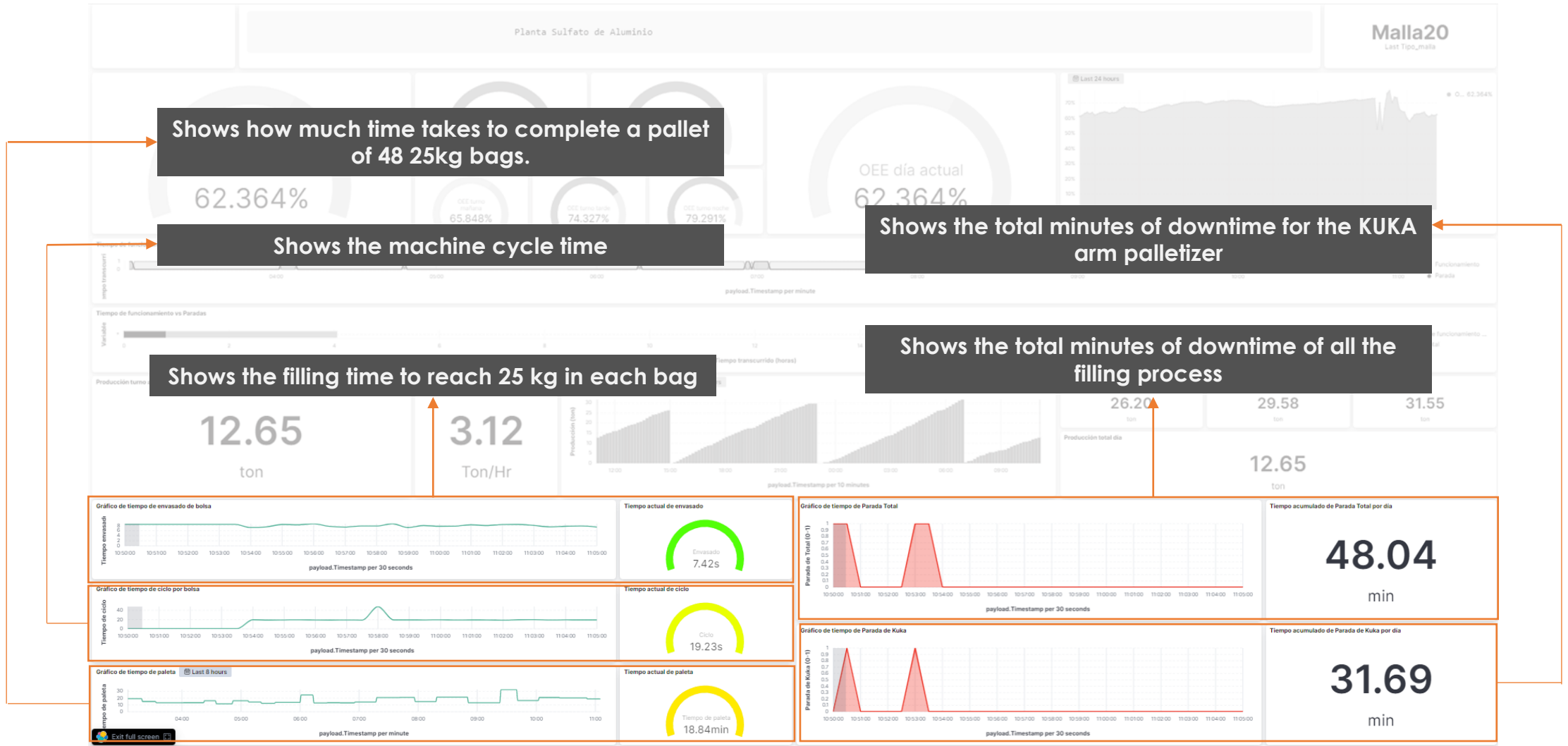
# Downtimes



# Production



# Indicadores de proceso



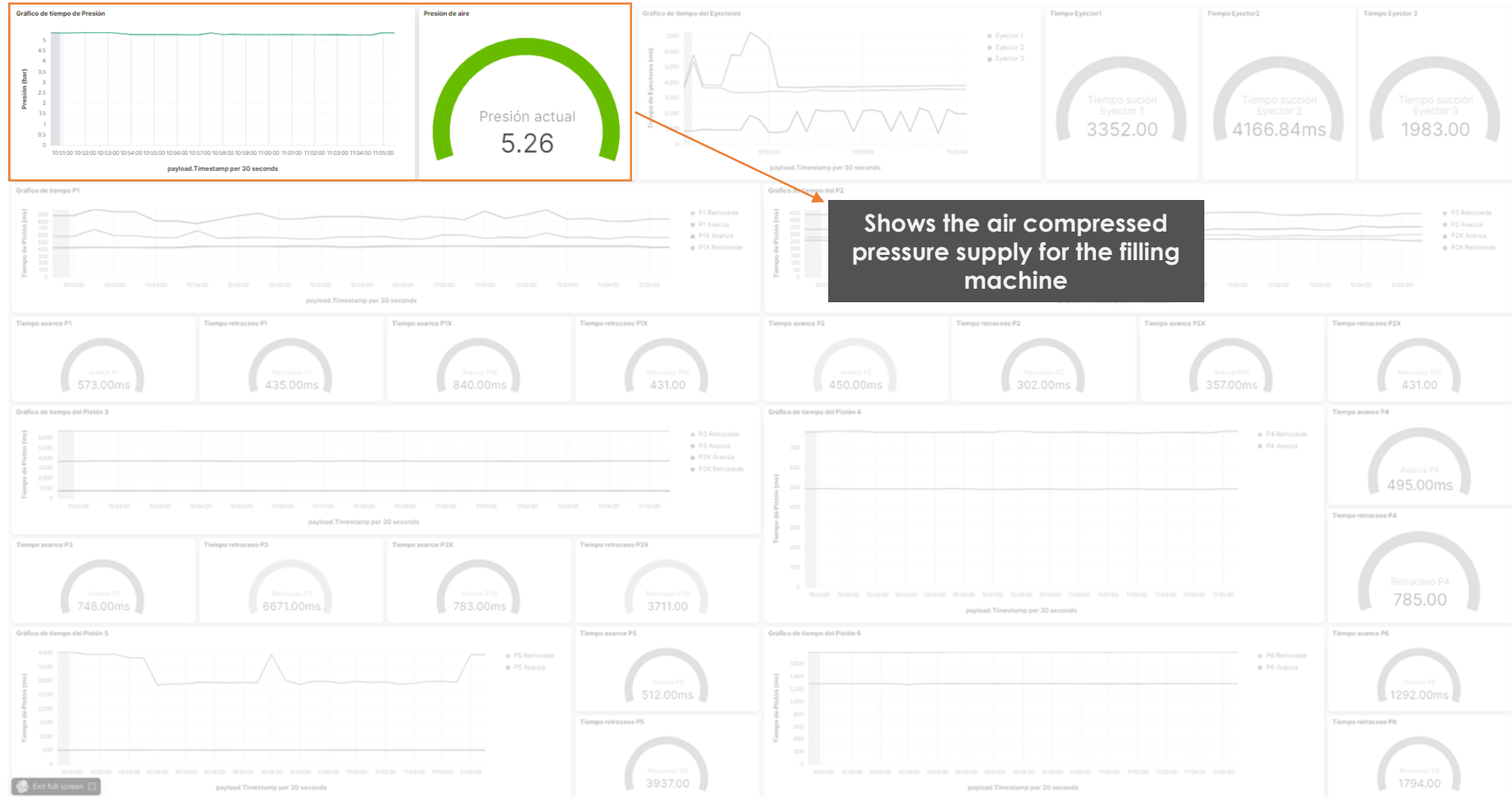


# Maintenance





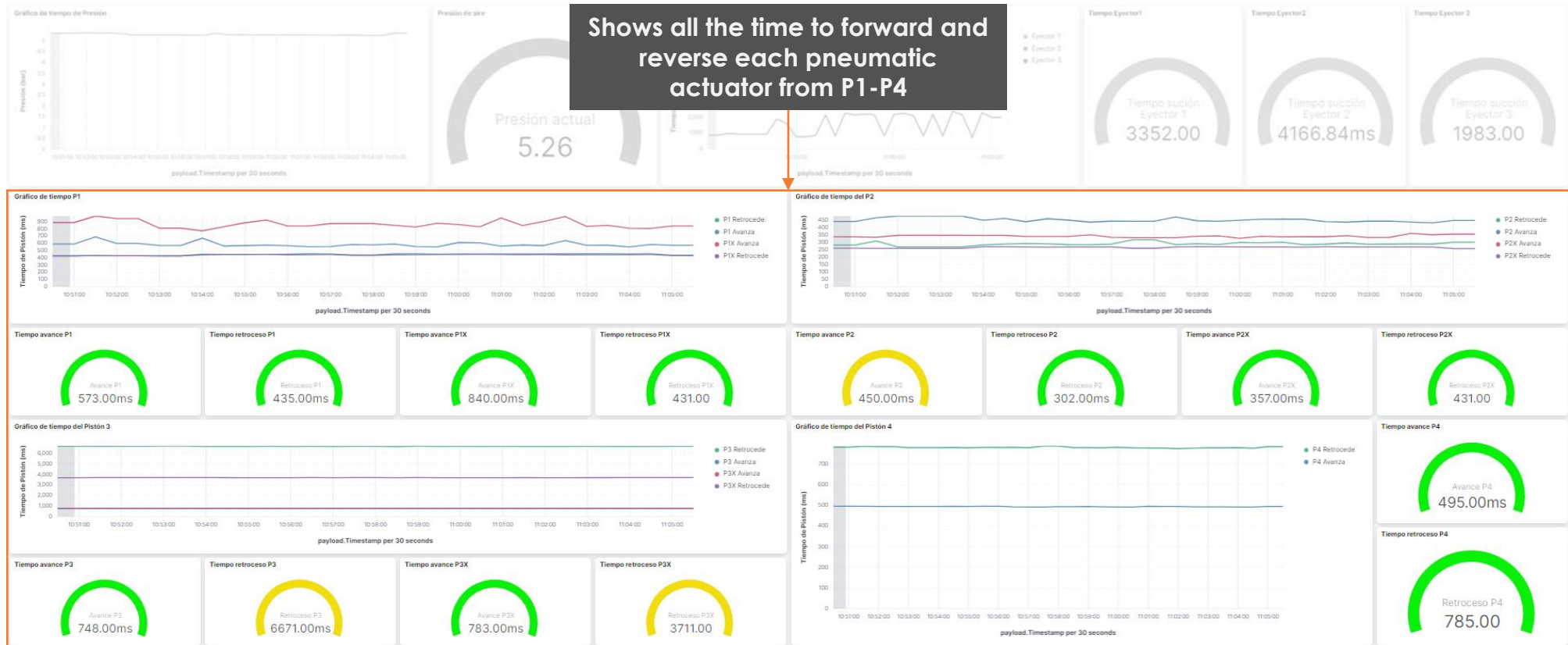
# Air Pressure



# Vacuum generators



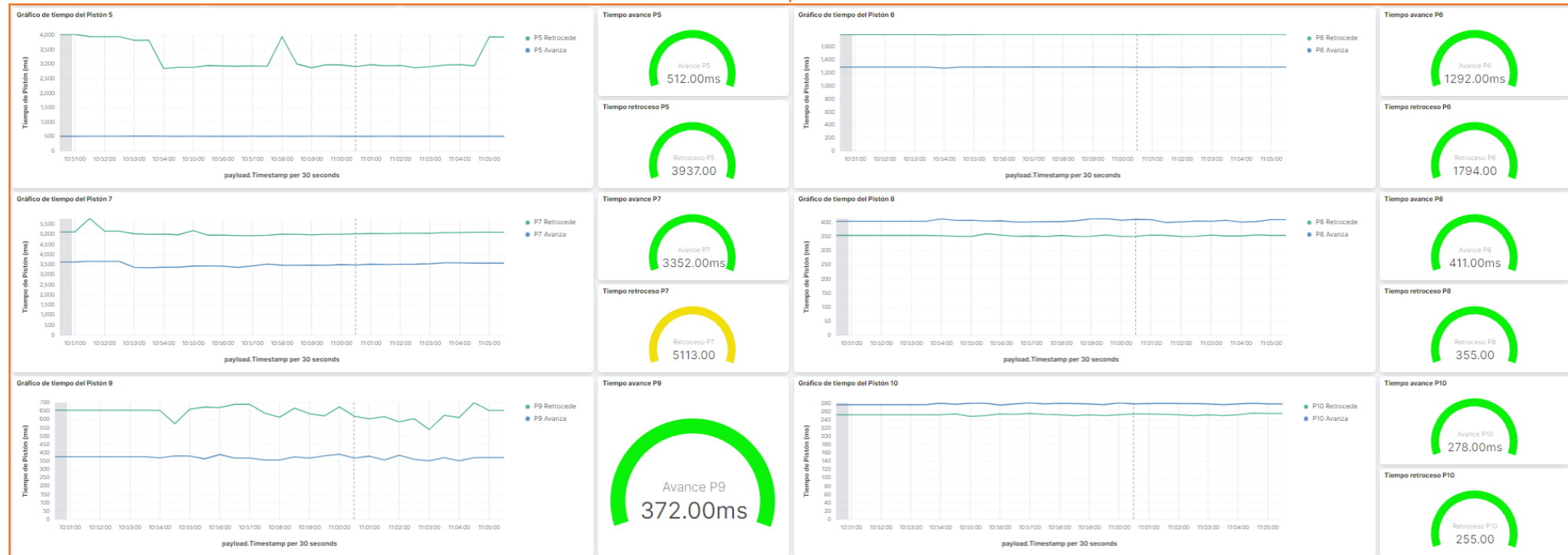
# Pneumatic actuators P1-P4



# Pneumatic actuators P5-P10



Shows all the time to forward and reverse each pneumatic actuator from P5-P10



# Pneumatic actuators P11-P15



Shows all the time to forward and reverse each pneumatic actuator from P11-P15

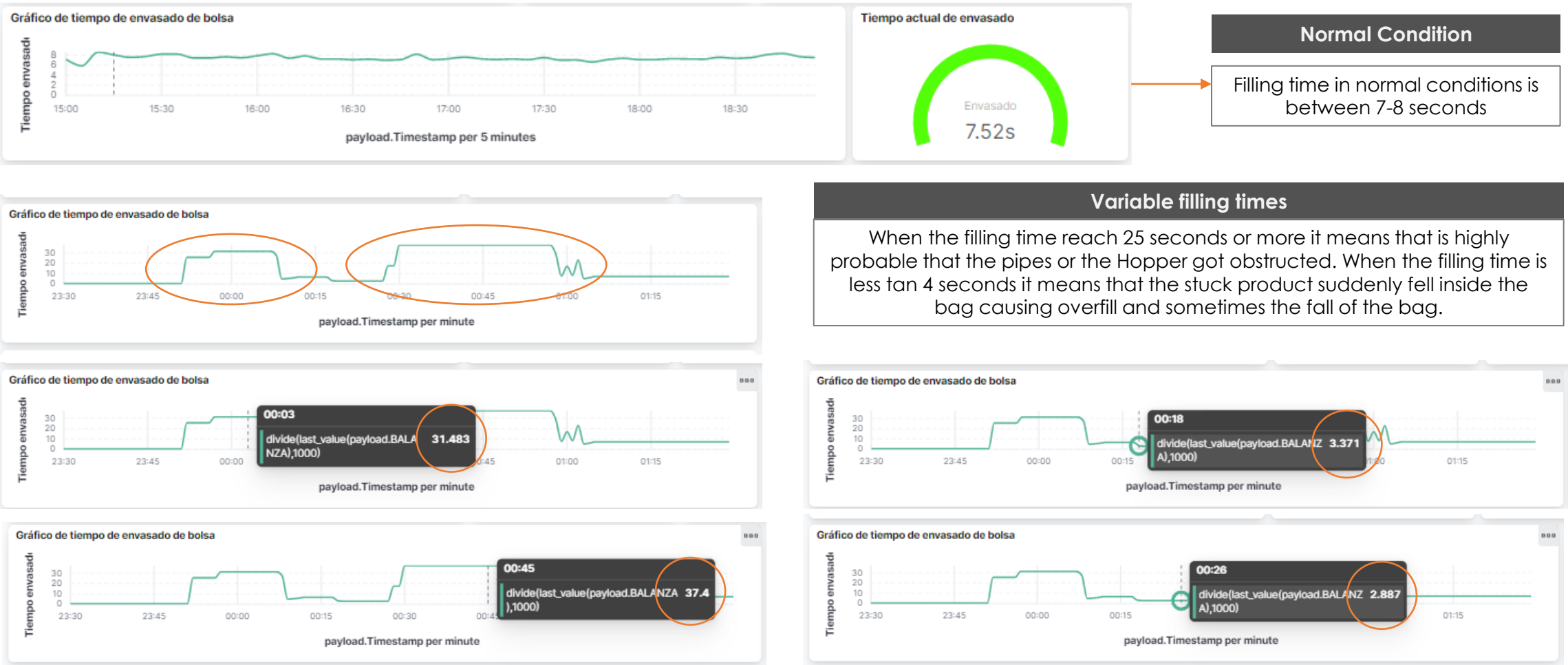


# Data Analytics

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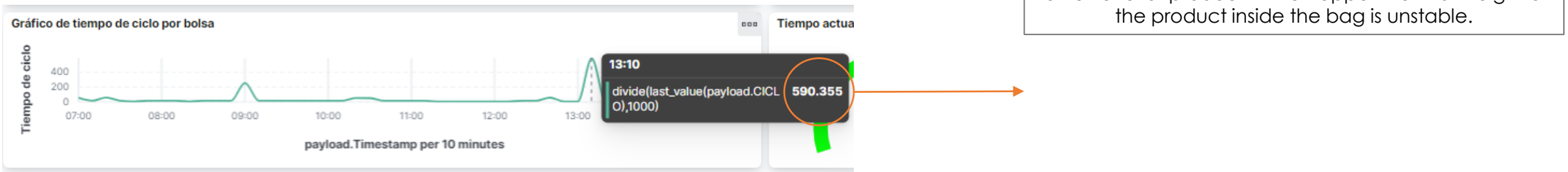
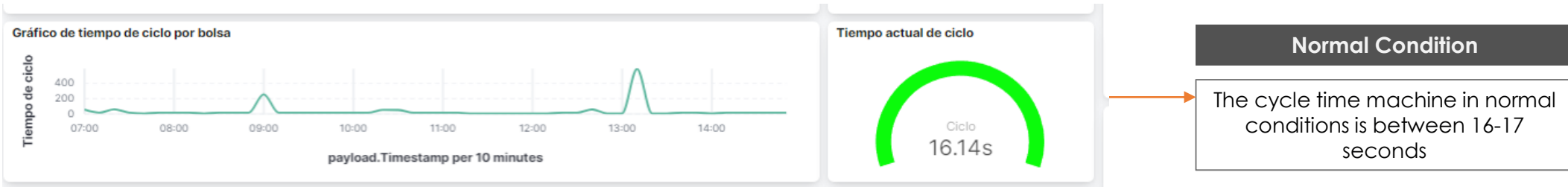


# Pipes and Hopper Obstructions



\* Production Dashboard

# Empty Hopper





# Vacuum generators



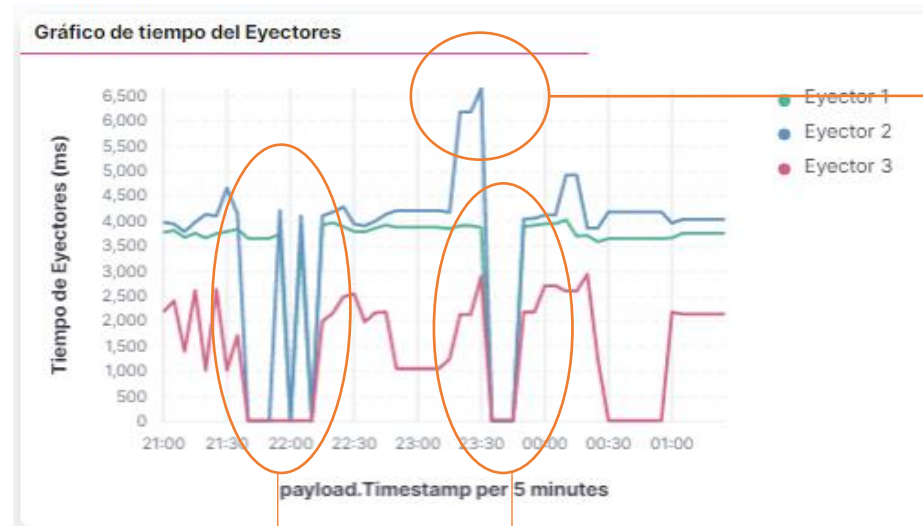
## Normal conditions

The chart on the left shows how is the behaviour of the vacuum in each pad that holds the bag in normal conditions

### Anomalies

When the times is 0 there might be 3 reasons:

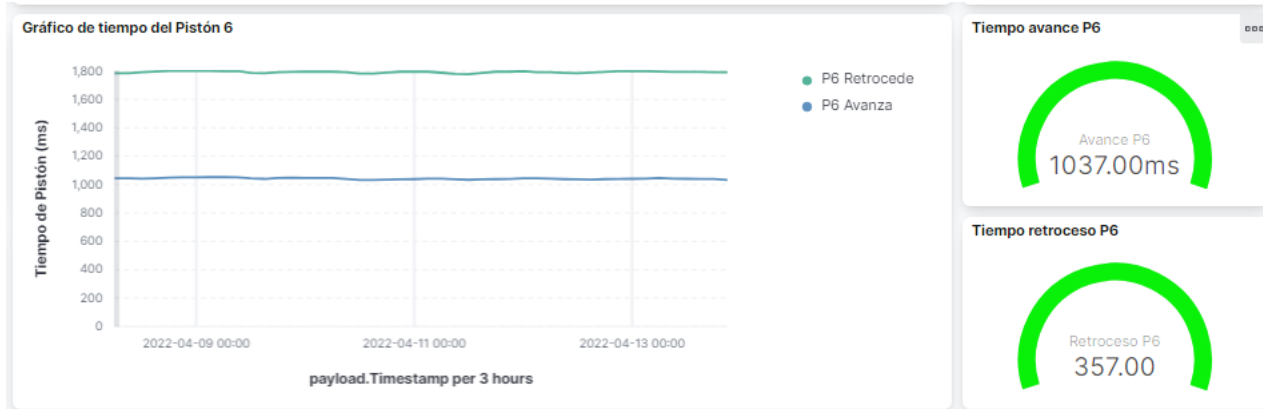
- ✓ The bag has lots of dust in the Surface so one of the vacuum pads cannot reach the enough forcé to hold the bag.
- ✓ Part of the bag is folded in that área where the vacuum pad is going to hold the bag.
- ✓ One or more of the vacuum pads have holes and because of that the vacuum pressure cannot be reached.



## Overpeak time to reach the vacuum in one of the pads

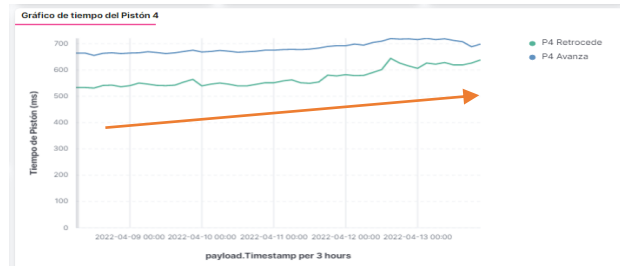
If the time to hold the bag for one of the vacuum pads is more tan 6 seconds is highly probable that this pads is out of its usefull lifetime and is probably that the bag is going to fall in that área.

# Lack of cleaning and lubrication in the machine



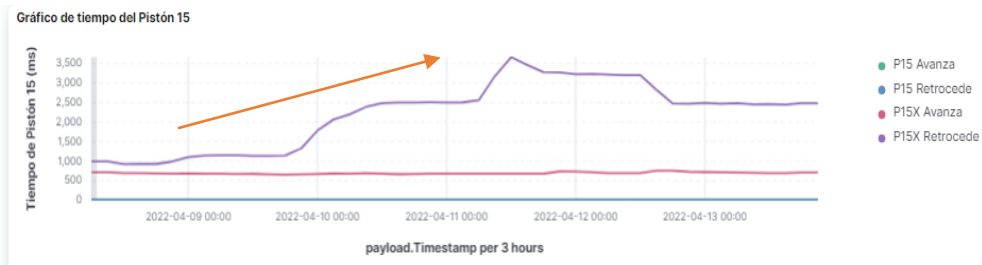
## Normal condition

Each pneumatic piston should show a linear behaviour like the chart on the left. This means that the pneumatic actuator or its linear guides are clean and lubricated. So it is working properly.



## Upward trend

The charts on the left shows an upward trend in one of the pneumatic actuators, this happens because the pneumatic piston or its linear guide are not clean or lubricated and it is getting stuck.

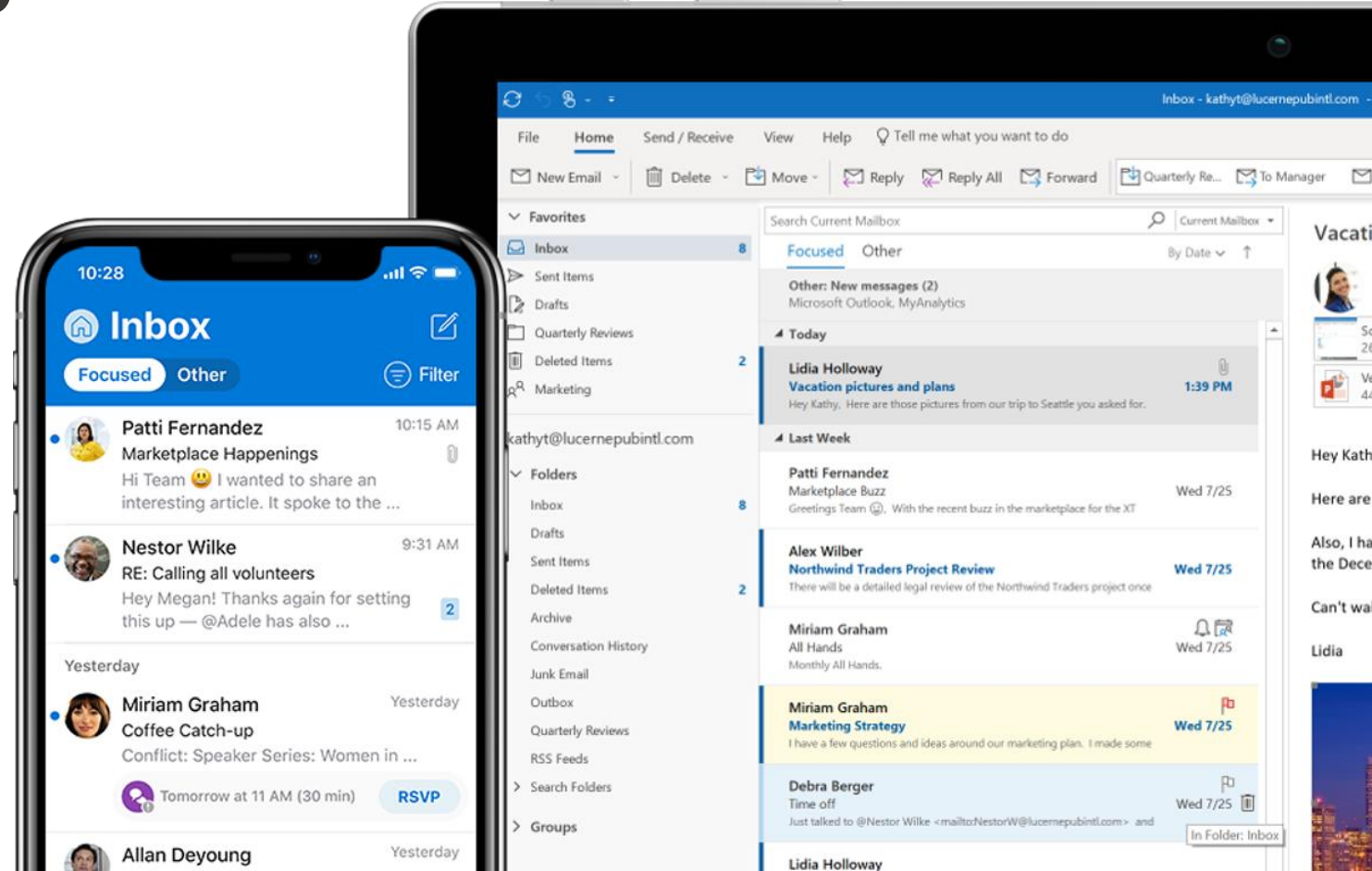


# Upcoming developments





# Sending automatic production and maintenance reports to emails



# Chatbot to send process alarms and to search historical reports

