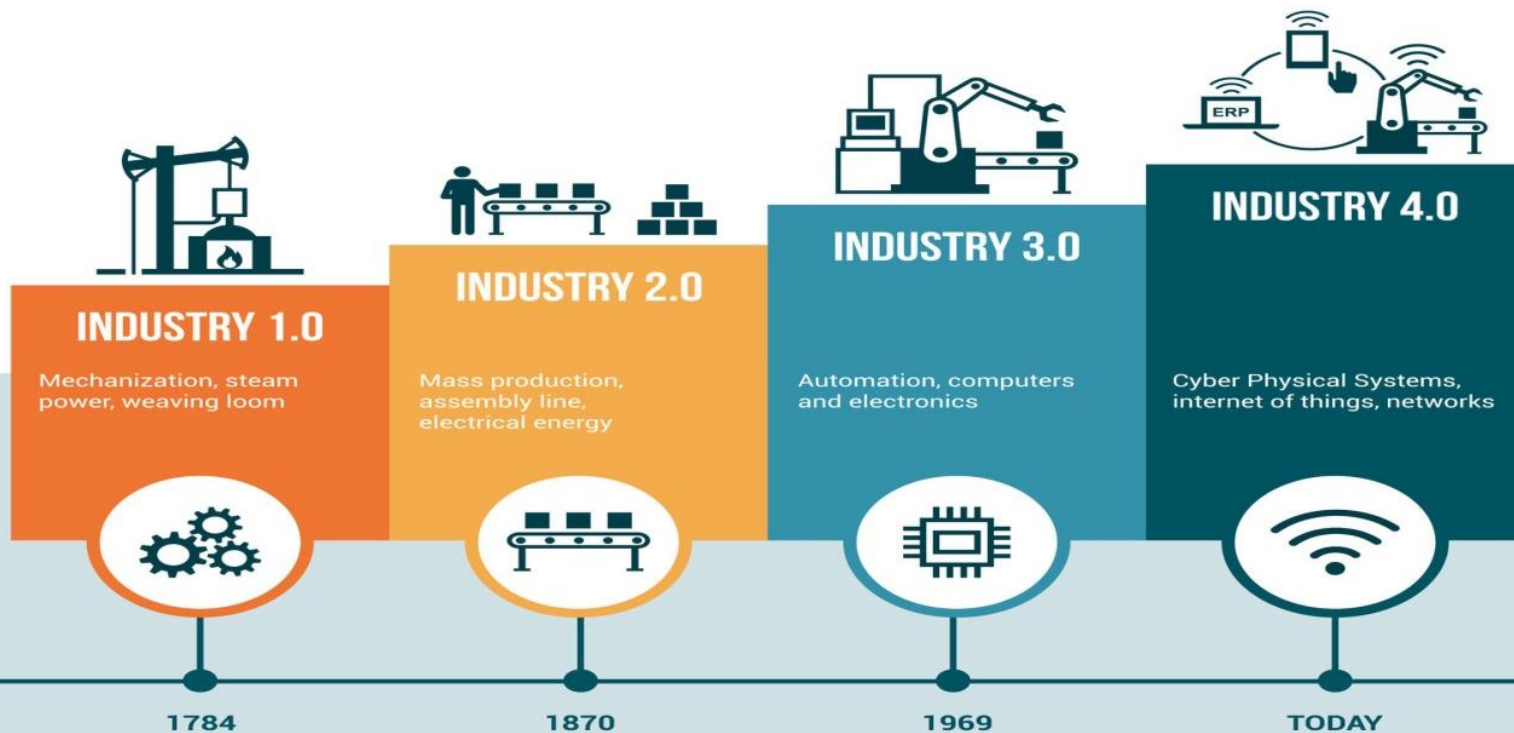


INDUSTRIAL REVOLUTION

TRANSFORMING INDUSTRIES AND INNOVATION



‘We must deal quickly with the fusion of the online world and the world of industrial production. In Germany, we call it Industrie 4.0’



Angela Merkel, Chancellor of Germany

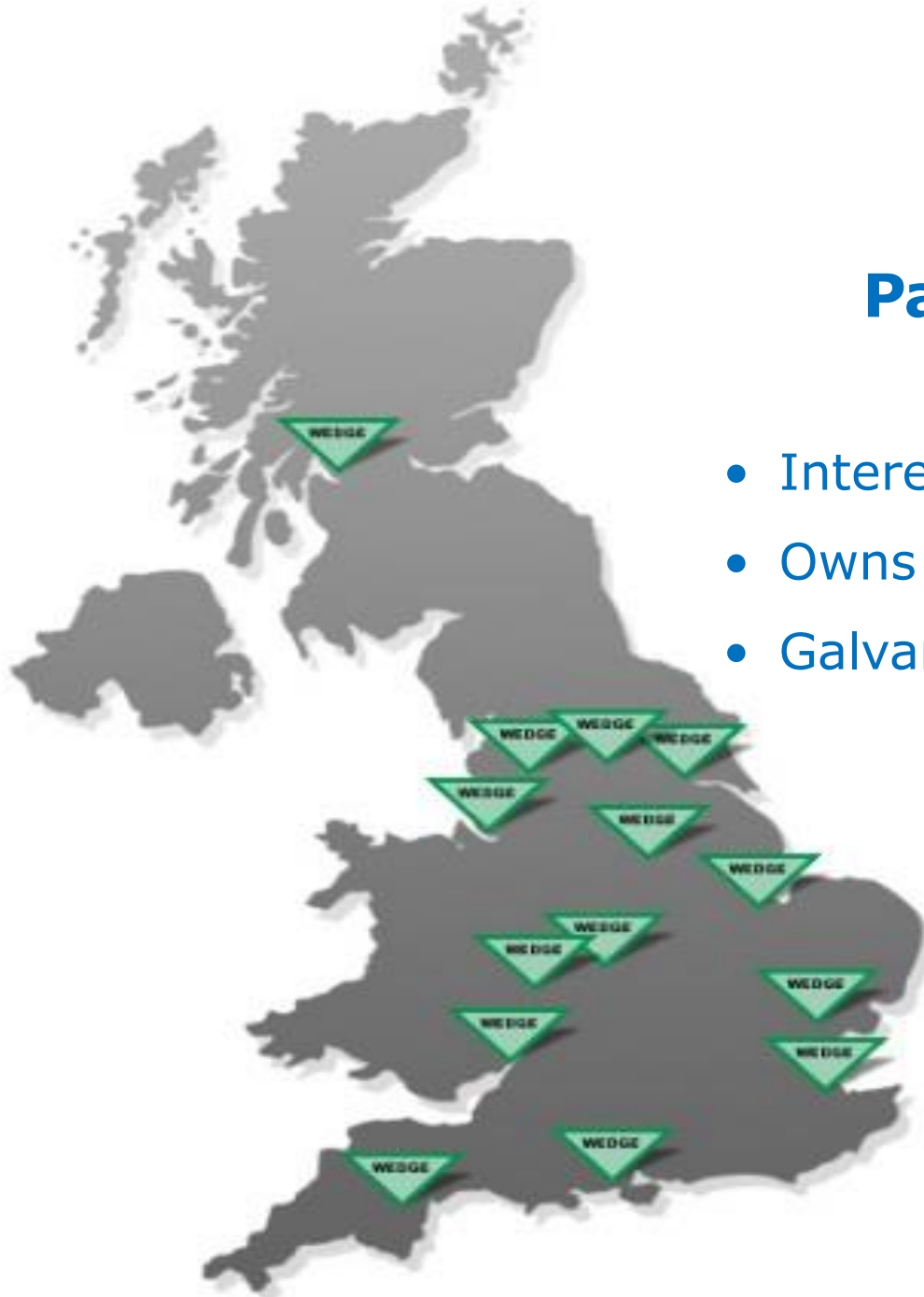


**Philip Hammond, Chancellor of
the Exchequer, UK**

***Crack Industry 4.0 = unlock £455bn + create
thousands
of jobs***

Part of BE Wedge Holdings

- Interests in over 45 plants Worldwide
- Owns Largest Galvanizing Group in UK
- Galvanizing since 1869



Hasco-Thermic Ltd



Issues Affecting Galvanizers

- Downtime

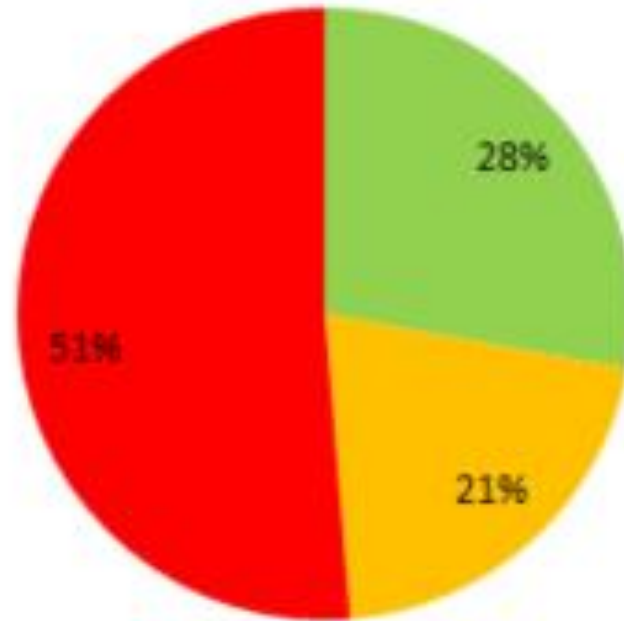


Issues Affecting Galvanizers

- Downtime
- Inconsistent Quality

Cost Of Quality YTD

■ Total Prevention Cost ■ Total Appraisal Cost ■ Total Failure Cost



Cost of Quality

- **Failure**

- Re-galvanizing
- Lost opportunity

- **Prevention**

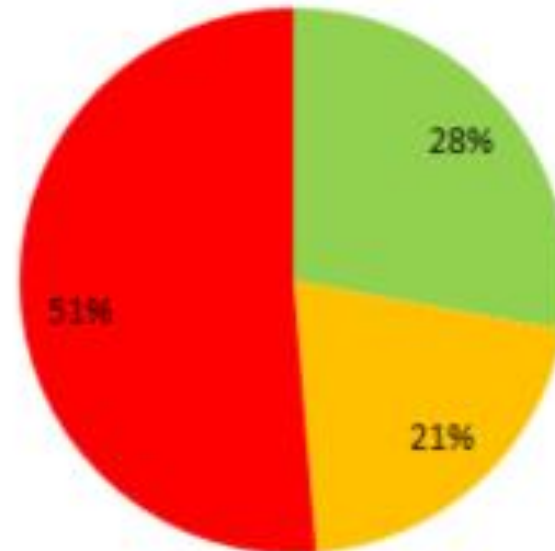
- Quality Manager
- Training

- **Appraisal**

- Sampling
- Auditing
- Inspecting

Cost Of Quality YTD

■ Total Prevention Cost ■ Total Appraisal Cost ■ Total Failure Cost



Cost of Quality

- **Failure**

- Re-galvanizing
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- **Prevention**

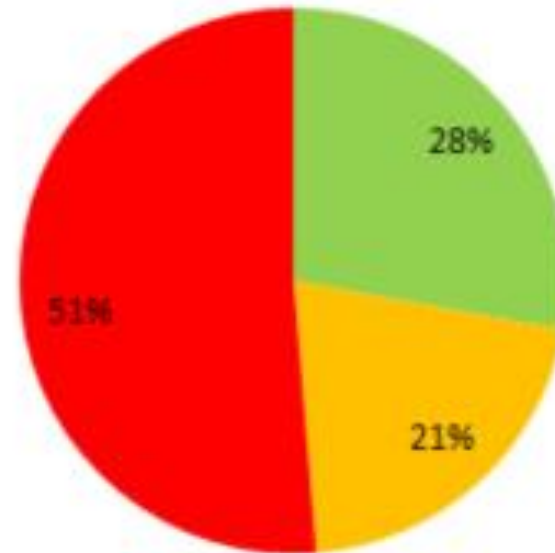
- Quality Manager
- Training

- **Appraisal**

- Sampling
- Auditing
- Inspecting

Cost Of Quality YTD

■ Total Prevention Cost ■ Total Appraisal Cost ■ Total Failure Cost



= EUR 11,000 per month

Issues Affecting Galvanizers

- Downtime
- Inconsistent Quality
- Increasing Focus on Energy



Hasco-Thermic Ltd



Longest in the World – 21m



Highest Capacity Galvanizing Furnace in the World – 528 tons in one day!

‘If you are looking for scientific data, real results and most importantly high capacity, you can trust HASCO 100%.’

Ozgun Keles, Project Manager
MITAS ASO2 Galva 12.5



Three Furnaces in 5 years



Showcase Plant

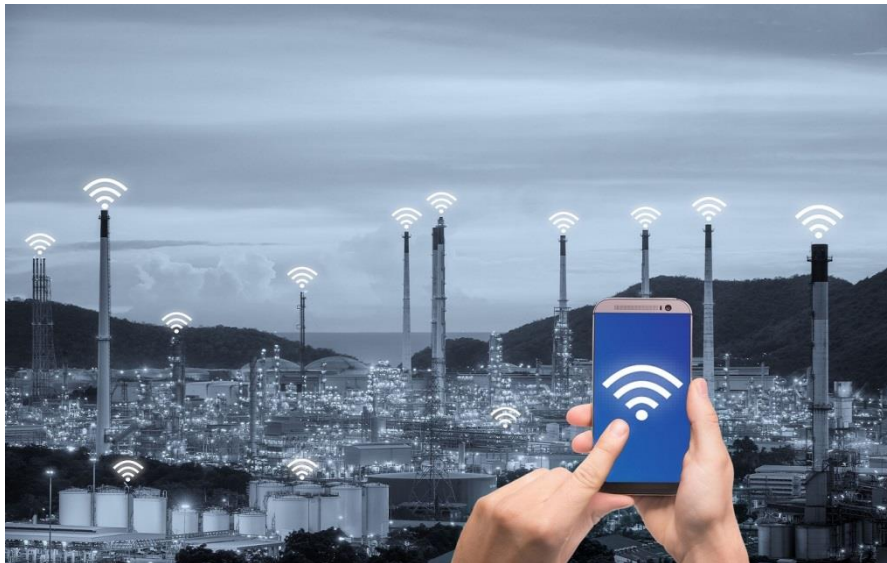


Industry 4.0



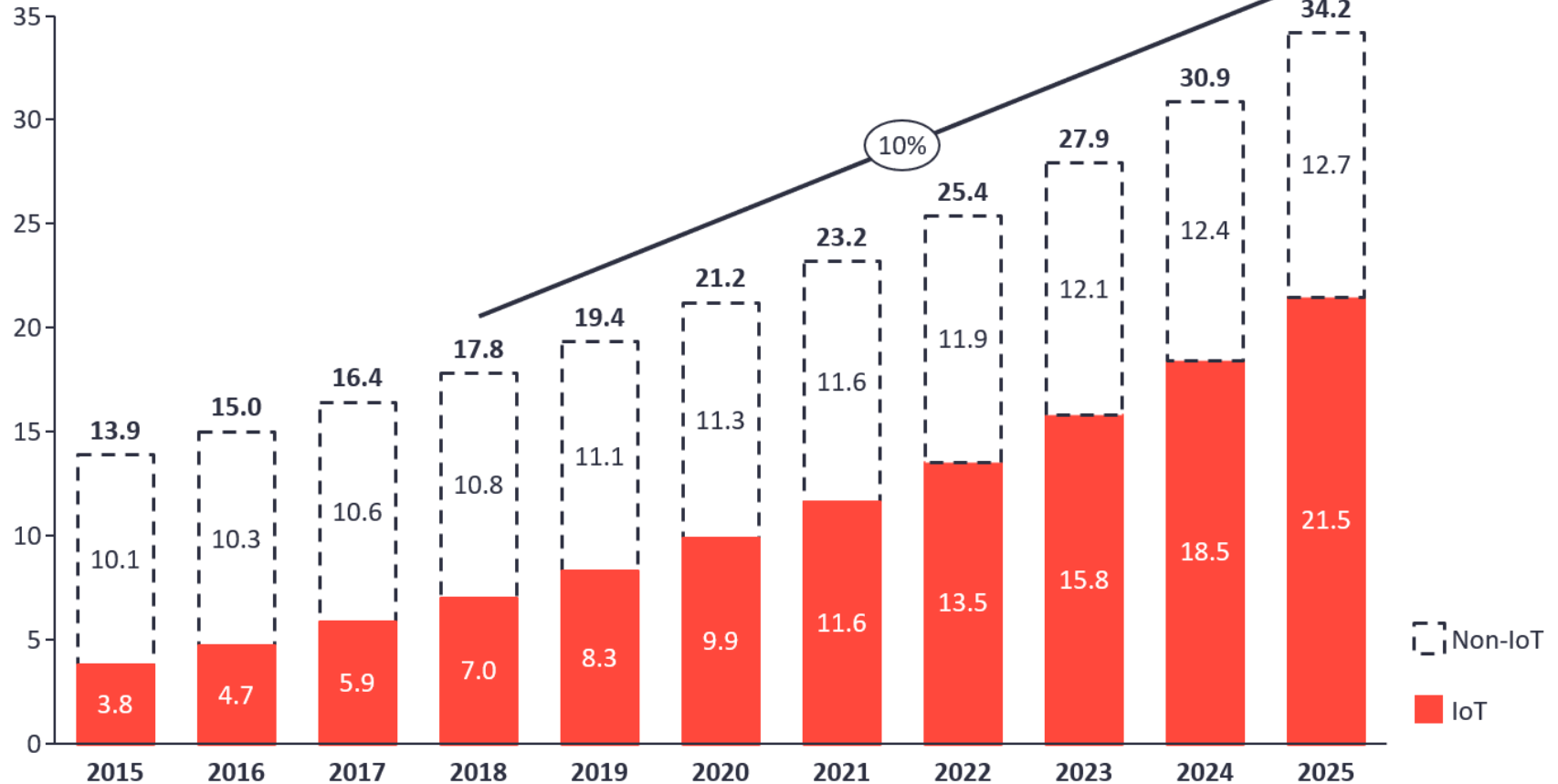
Digitalisation

Big Data



Total number of active device connections worldwide

Number of global active Connections (installed base) in Bn



Note: Non-IoT includes all mobile phones, tablets, PCs, laptops, and fixed line phones. IoT includes all consumer and B2B devices connected – see IoT break-down for further details

Source: IoT Analytics Research 2018



Light control

STB / TV control

Air conditioner

Window control

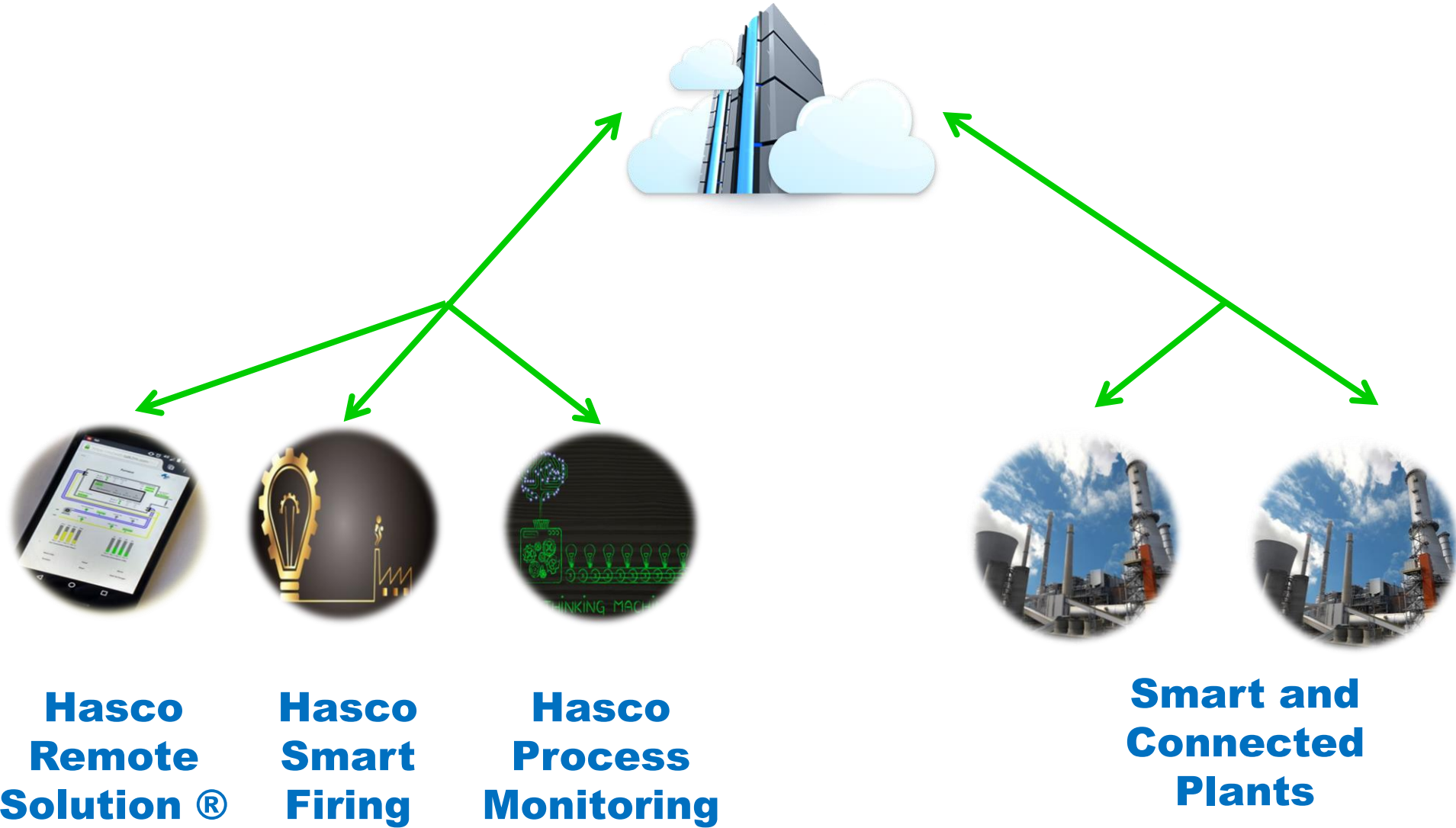
Light LED control

Thermostat control





Digitalisation



Hasco Remote Solution®



The image displays the Hasco Remote Solution interface for a Furnace. The main screen shows a detailed schematic of the furnace system with various components and their status indicators. The interface is divided into several sections:

- Navigation Bar:** Back, Burners, FGD, Ramp, Energy Consumption, I/Os, Setup, and Reset.
- System Status:** Rank Compressed (ON), SYSTEM READY, NORMAL RUNNING.
- Operational Data:** Air & Gas flow rates, Zinc Temperature (THC 01-06), and Setpoint (842.0 °F).
- Alerts:** Pump Status (COMPLETE), Burner Status (LOW FUEL), Damper (Closed), Interlock (Exceeded), Kettle Lock (Ready).

A hand is shown holding a tablet that displays a similar interface, demonstrating the remote access capability of the solution.

THC 01	THC 02	THC 03	THC 04	Setpoint
846.1 °F	846.1 °F	844.9 °F	844.0 °F	842.0 °F

THC 05	THC 06
858.7 °F	865.6 °F

“An estimated 90% of the world’s data has been created in the past two years, and the amount of information created by businesses is doubling every 1.2 years.”


Klaus Schwab, [The Fourth Industrial Revolution](#), 2016

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Klaus Schwab, [The Fourth Industrial Revolution](#), 2016

“The cost of storing information is approaching zero (storing 1GB costs an average of less than \$0.03 a year today, compared to more than \$10,000 20 years ago).”

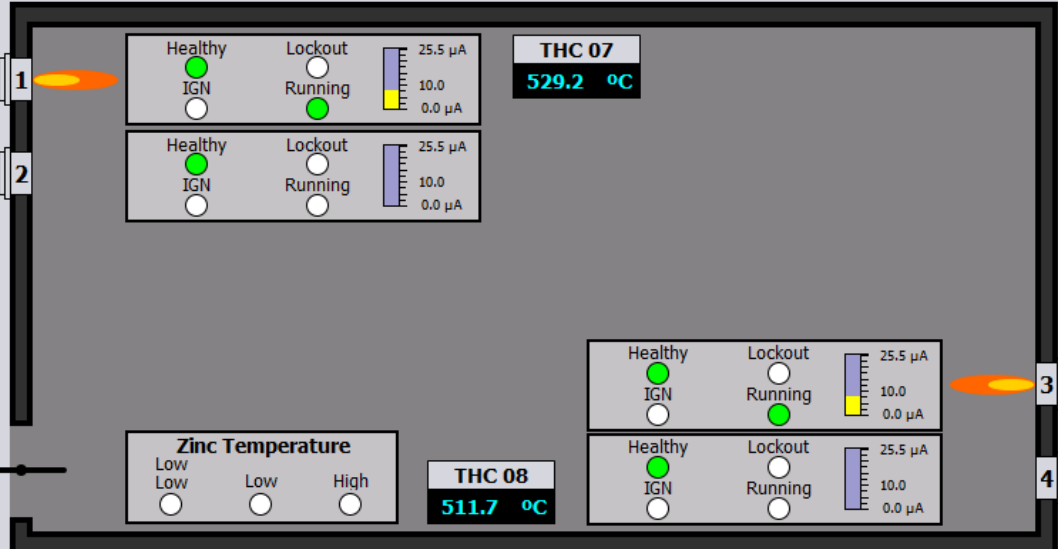
Hasco Smart Firing™



Furnace

31/03/2016
09:21:52

Back
Burners
Ramp
Energy Consumption
I/Os
PID
Setup
Reset



AIR & GAS

Damper Pos: **100.0 %**

Flue Pressure: ●

Flue Pressure	THC 01	THC 02	THC 03	Setpoint
+2.0 mBar	445.4 °C	444.8 °C	445.2 °C	445.0 °C
Galery Pressure	THC 04	THC 05		
+5.8 mBar	445.0 °C	519.7 °C		

Selected Fuel

Natural Gas Selected
LPG Selected

System

Run Command **ON**

Start Stop

SYSTEM HEALTHY

NORMAL RUNNING

Ramp Status

COMPLETE

Burner Status

LOW FIRE

Damper Interlock

Healthy

Air Pressure Control

Automatic

Interlock

Energised

Kettle Leak

Healthy

Safety Reset 1 Safety Reset 2

Lockout Reset

Sounder Mute

Safety

Burner Safety Contactor

Healthy

Flue Damper Safety Contactor

Healthy

Home
Furnace
Dryer
Heat Exchanger

Trend
Network
Alarms
Engineer

Hasco Smart Firing™

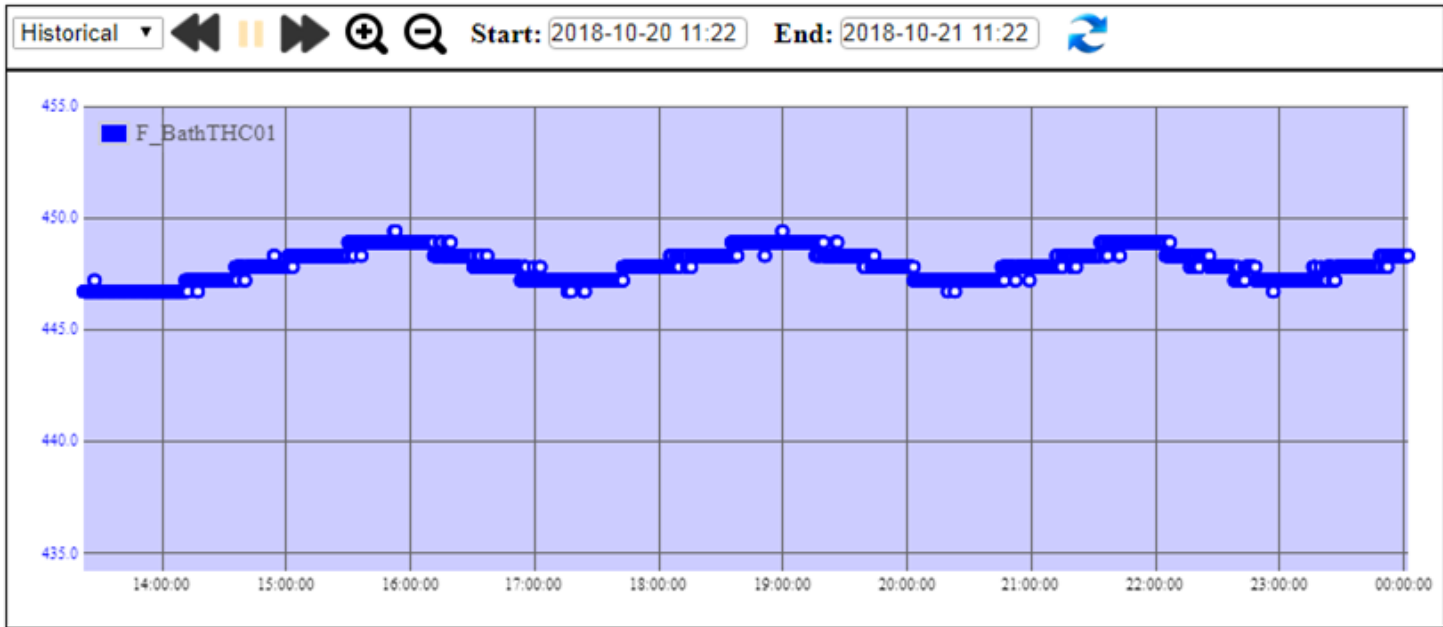


Before (Traditional Pulse Firing)

Log Out

Trend

Furnace Bath Temperature (°C)



Hasco Smart Firing™



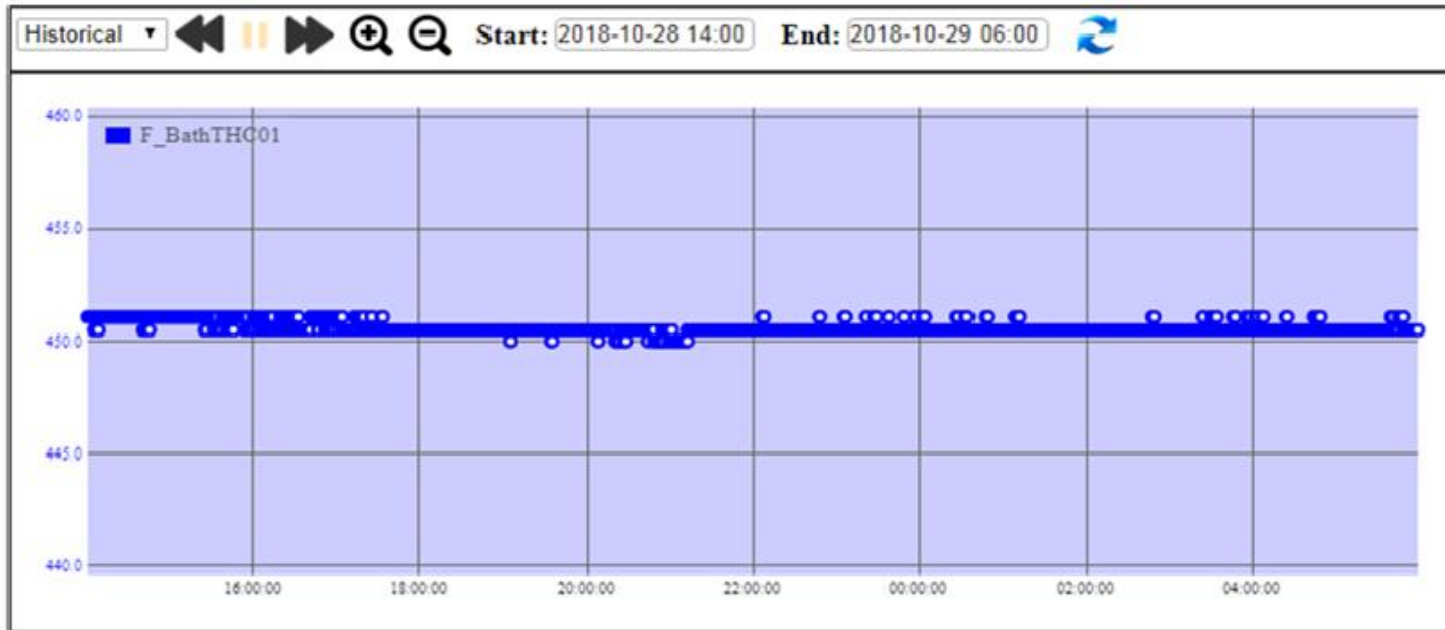
After (Hasco Smart Firing™)

Log Out



Trend

Furnace Bath Temperature (°C)



Hasco Process Monitoring

Plant Healthy key

- Ok
- Caution
- Attention
- Disconnected
- Acknowledged

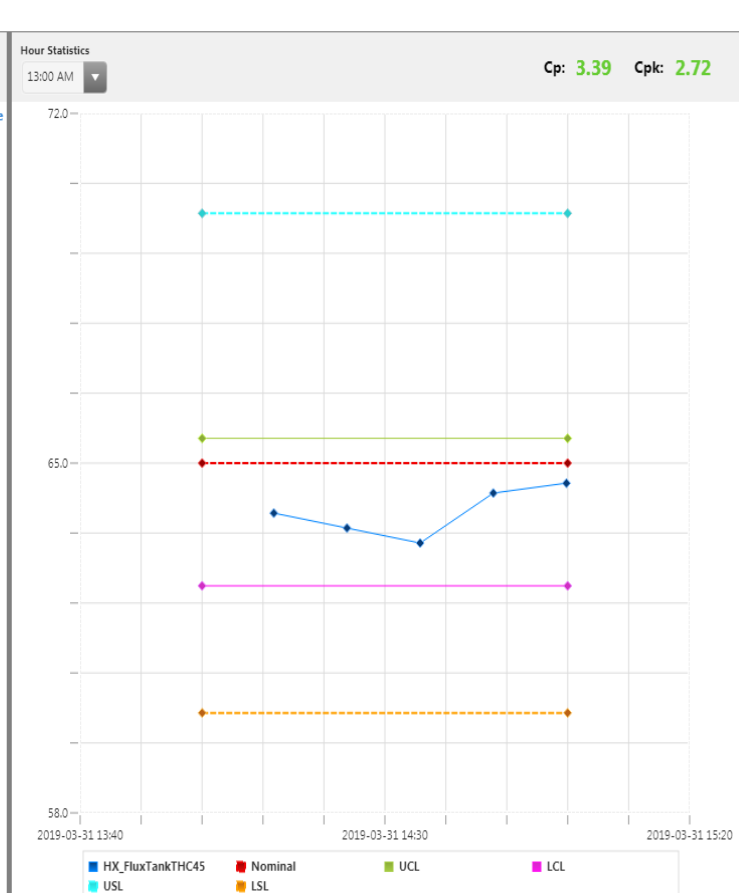
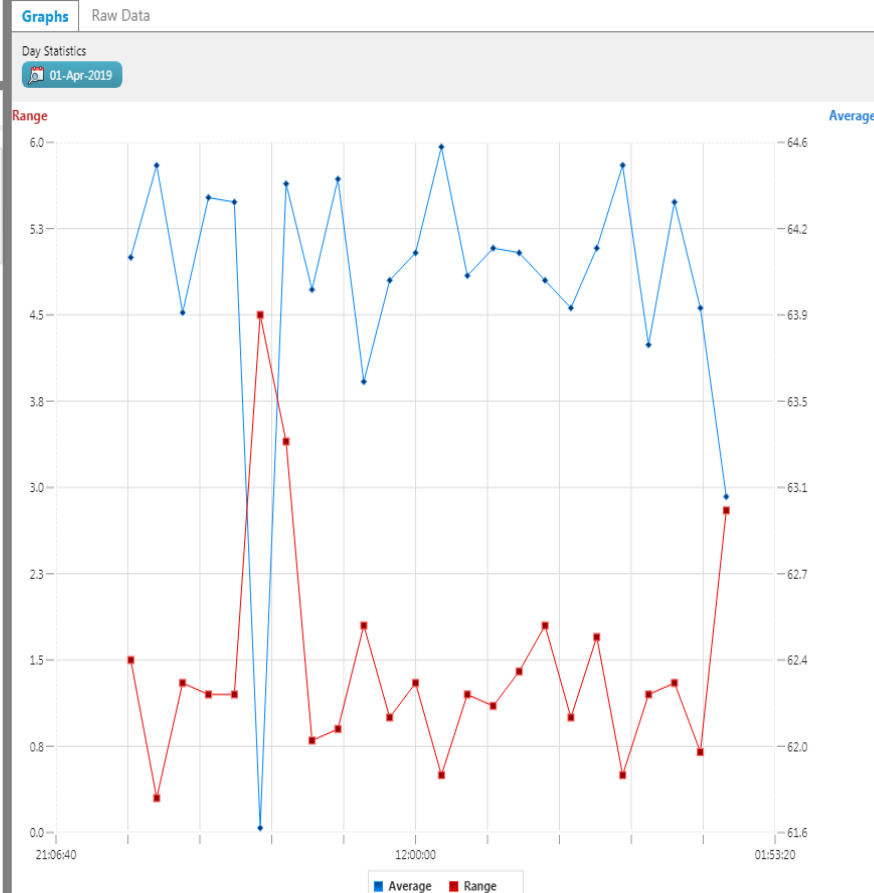
Process Parameter: Flux Tank Temperature

Specification		
Min(LSL)	Nominal	Max(USL)
60.0	65.0	70.0

Save

Search

- Hasco Thermic
 - WedgeAC
 - WedgeEAG



Hasco Remote Solution®



‘HASCO’s new online monitoring system is a real breath of fresh air in a site engineers routine. Since we started using this system I have never had to attend site to remedy a fault on the furnace. Information that was immediately available allowed me to find a solution and talk the operative through it on the phone.’

Aleksandr Papiz, Works Maintenance Engineer, Wedge Group Galvanizing Ltd, UK

Hasco Remote Solution® - Benefits

- Reduced Downtime

Hasco Remote Solution® - Benefits

- Reduced Downtime
- Improved employee wellbeing

Hasco Remote Solution® - Benefits

- Reduced Downtime
- Improved employee wellbeing
- Access critical data – from anywhere

Hasco Remote Solution® - Benefits

- Reduced Downtime
- Improved employee wellbeing
- Access critical data – from anywhere
- View historical data

Hasco Smart Firing



‘We have the Hasco Smart Firing System installed at two of our 14 sites; Edward Howells and Acrow Galvanizers and early indications show savings of 10% and 20% respectively. If we rolled the system out across our other 12 sites, this would mean a significant reduction in energy costs for the Group overall.’

Mark Hammond, Energy and Environmental Manager, Wedge Group Galvanizing Ltd

Hasco Smart Firing - Benefits

- Reduce your energy consumption

Hasco Smart Firing - Benefits

- Reduce your energy consumption
- Increase Kettle Life

Hasco Smart Firing - Benefits

- Reduce your energy consumption
- Increase Kettle Life
- Reduce Zinc Consumption

Hasco Smart Firing - Benefits

- Reduce your energy consumption
- Increase Kettle Life
- Reduce Zinc Consumption
- Improve Quality

Hasco Process Monitoring



“The benefits of continuous, statistically sound data on our ‘critical to quality’ process parameters will be a huge benefit to our business. We will be able to predict when the process requires adjustment well before it falls out of tolerance and be able to focus on our areas of greatest variability. This is a significant step forward in the modernisation of our industry and its quality assurance practises”

David Nobes, Technical Services Director at
Wedge Group Galvanizing Ltd

Hasco Process Monitoring - Benefits

- Take control of your production cycle

Hasco Process Monitoring - Benefits

- Take control of your production cycle
- Improved Quality

Hasco Process Monitoring - Benefits

- Take control of your production cycle
- Improved Quality
- One place for all plant data

Hasco Process Monitoring - Benefits

- Take control of your production cycle
- Improved Quality
- One place for all plant data
- Accurate trends and events to be tracked, understood and analysed



Angela Curtis

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E-mail: angelac@hasco.co.uk