

A man with grey hair, wearing a light-colored shirt and a dark tie, is holding a complex mechanical part. He is looking down at the part with a focused expression. The background is a blurred industrial setting with various mechanical components and structures. The entire image has a dark blue overlay.

Pandrol Presentation

AG60
15-11-2023

PANDROL



Aluminothermic Welding

Setting the industry standard

With more than 100 years of experience, our technical expertise, innovative solutions and in-track services make us a partner of choice for our customers worldwide.

Meet the team



Chris McKeown

Head of Operations for UK, Ireland & Scandinavia

Over 25 years experience in the ATW industry.

Qualified Trainer in:

Pandrol:

PLA, PLK, SRG, APR, AP

Estimated welds cast 10,000+

Goldschmidt:

SKVE - Standard, Wide Gap and Head Repair

Estimated welds cast 2,000+

10+ years with Pandrol.



John Riley

Technical & Training Manager

Over 25 years experience in the ATW industry.

Qualified Trainer in:

Pandrol:

PLA, SRG, APR, AP

Goldschmidt

SKVE - Standard, Wide Gap and Head Repair.

4.5 years with Pandrol.



Meet the team



Denver Tucker
Trainer & Technical Advisor
Over 25 years experience in the ATW industry.
Qualified Trainer in:
Pandrol:
PLA, SRG, APR, AP
Goldschmidt
SKVE - Standard, Wide Gap and Head Repair.

5 years with Pandrol.



Shane Jennings
Trainer & Technical Advisor
11 years experience in the ATW industry.
Qualified Trainer in:
Pandrol:
PLA
Goldschmidt
SKVE - Standard, Wide Gap and Head Repair.

1 year with Pandrol.



Julia Hughes
Customer Services and Logistics Specialist

5 Years with ATW
20 years with Pandrol.



The future of Aluminothermic Welding

We are designing the equipment of tomorrows normal practices



Compact



Lightweight & Environmentally friendly



Easily transportable



Time-saving



Ergonomic



Safe, Reliable and repeatable



The basics of Welding

- **Mould fitment and Sealing**
- **Preheating**
- **Casting**
- **Shearing**
- **Cooling**
- **Data Capture**

Mould fitment and Sealing

AutoSeal® Mould

Pandrol's AutoSeal Mould seals itself to the rail. No need for the old manual operation of luting.



Saves 5 to 10 minutes per weld



Improves wellbeing of the welder



Less plastic and less material waste – more environmentally friendly



Improves quality of the weld



Preheating



Preheating with the new High-flow Preheater

Pandrol's universal preheating system is fully automated for easier, more reliable operation:



No manual interference or flame adjustment required



Equipment uses propane (no oxygen), reducing costs and weight of equipment



Robust – designed to withstand extreme track conditions



Battery Operated – No need for external power like a generator



Significantly reduces errors caused by Oxy-Propane preheating





Crucible & Ignition

Small Crucible

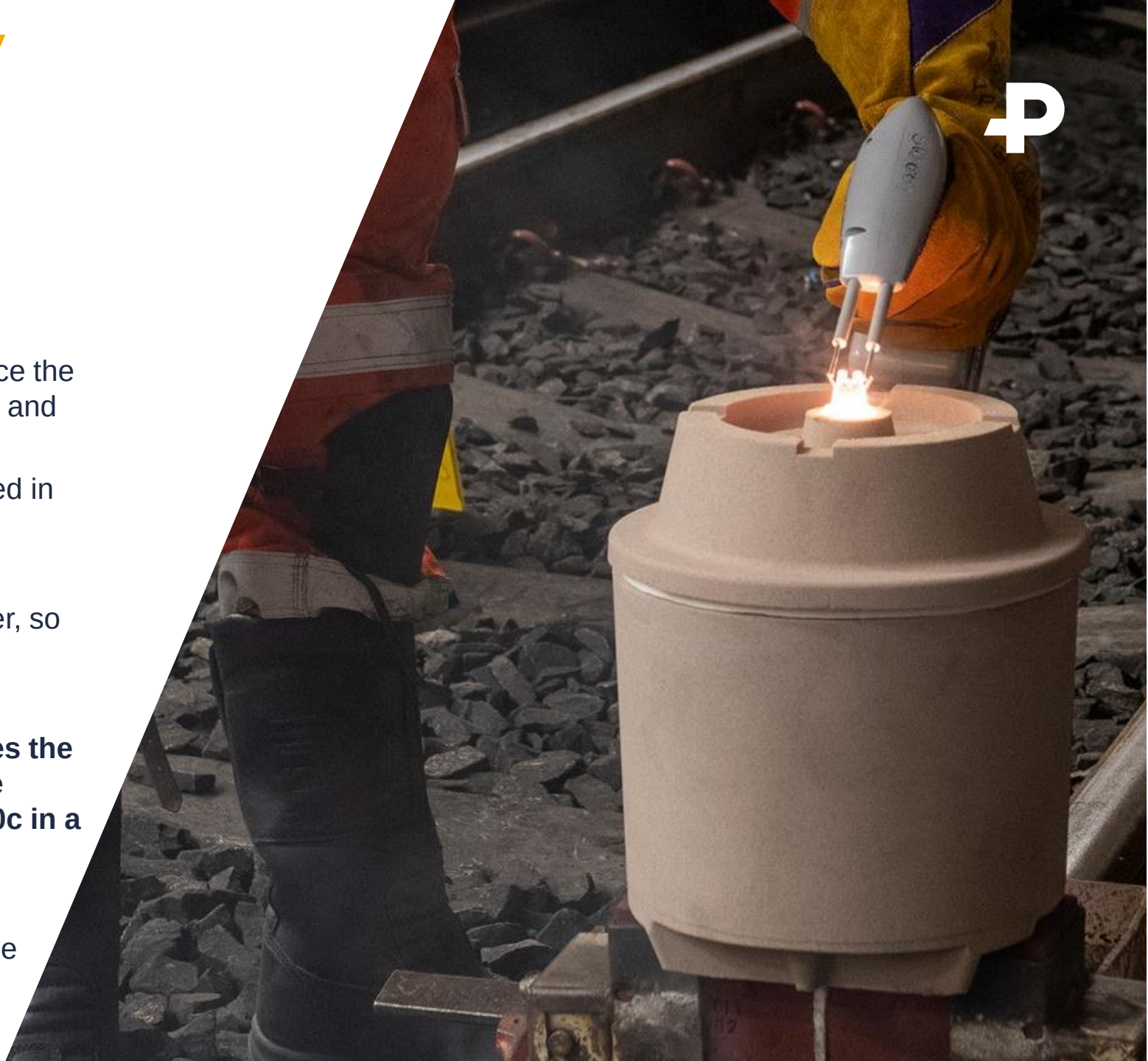
Introduction of a smaller crucible CJ1 (9kg) to replace the CJ2 crucible with the aim of reducing our emissions and waste footprint.

That is **35 Tons** of sand, cardboard and plastic saved in 2022 alone.

We also wanted to make the ignition procedure safer, so we installed an **Electronic Ignition System**.

Our Electronic Ignition System (Startwel) reduces the need for the traditional ignitor method which are classed as 1.4G Explosives and burn up to 1,000c in a welders hand.

The installation of an electronic ignition directly in the crucible makes this procedure **easier** and **safer**.



Weld Shearing

Battery Operated Semi Automatic Weld Shear

The weld shearing procedure is normally a task people shy away from.

- Heavy machine
- manual pump which can take several minutes of hard manual input.

Pandrol have created a **Lightweight Welding Shear** that utilises a **battery** operated drill to shear the weld.

Our Weld Shear is One of the lightest products on the market (if not the lightest) with the significant advantage of being battery operated.



The cool down

Auto Cooling Device

We at Pandrol have proved that there are significant gains in cooling a weld once it has been cast.

We can save the following times on each weld our new Auto Cooling Device is used on.

- **Standard Gap Welds = Saving of 10 min per weld**
- **Head Repair Welds = Saving of 30 min per weld**
- **Wide Gap Welds = Saving of 20 min per weld**

The Pandrol Auto Cooling Device is battery operated, very simple to use and comes with significant time savings on track.



Data Capture

Data capture on a computer has been a long desired product for many welding & site managers.

Currently, most of the industry is using paper TEF's (Track Engineer Forms) which are completed on site by hand.

This paper is then handed in for someone to capture the data and input on a computer system. It is often then sent elsewhere and captured by another person wanting the data of the form.

This is a very time consuming task on many parts and often with information that is incorrect or missing.

897 int 205291

Aluminothermic Welding Installation Form: TEF/3006 Issue 3, June 2008										Sheet of	
Welder's Name (Print)			Welder's Signature			Welding Assistant's					
Simone / Agreen			D. Simone / Agreen			D. Simone / Agreen					
TME / TSM			Work Site Location			Job Cost No.					
			Prestbury								
Defect No. Removed			Start Time			Finish Time					
			23:00			06:00					
		Weld 1		Weld 2		Weld 3		Weld 4			
ELR		MCH		MCH							
Mileage		6 m 1500 y		6 m 1500 y		m y		m y		m y	
Track ID		1100		1100							
Back to low mileage) Rail		Left Right		Left Right		Left Right		Left Right		Left Right	
GPS Co-ordinate (North)											
East / East (delete appropriately)											
Linespeed		110		110							
Tunnel / Platform / Lineside etc		Open		Open							
Sleeper type		SLAB TRACK		SLAB TRACK							
Consolidated		Yes No		Yes No		Yes No		Yes No		Yes No	
Rail		LH Rail RH Rail		LH Rail RH Rail		LH Rail RH Rail		LH Rail RH Rail		LH Rail RH Rail	
Manufacturer		LUCAS LUCAS		LUCAS LUCAS							
109 110A 113A CEN60) Profile		600 600		600 600							
(eg NG, Grade A, HT, 220, 260) Grade		A A		A A							
Wear		0 mm 2 mm		2 mm 0 mm		mm mm		mm mm		mm mm	
Rail cutting method		Flame Disc		Flame Disc		Flame Disc		Flame Disc		Flame Disc	
Welding gap		25 mm		25 mm		mm mm		mm mm		mm mm	
Alignment method		WEDGES		WEDGES							
Rail temperature											
Weld type		PLA		PLA							
Mould type		A		A							
Fuel gas		propane acetylene		propane acetylene		propane acetylene		propane acetylene		propane acetylene	
Gas kit number		WIK 306		WIK 305							
Portion batch number		902350		850840							
Portion number											
Tapping time		20		22							
Kit number											
Pressure at end of preheat		///		///							
Pressure immediately after shearing		///		///							
INSPECTION BY THE WELDER											
Weld conforms to NR/L2/TRK/0032		Yes No		Yes No		Yes No		Yes No		Yes No	
Weld stamp details		KMTSR		KMT1							
Non-conformance report completed		Yes No		Yes No		Yes No		Yes No		Yes No	
Weld clamped		Yes No		Yes No		Yes No		Yes No		Yes No	
Welders comments/Reason for non-conformance report		OK 4712		3011							

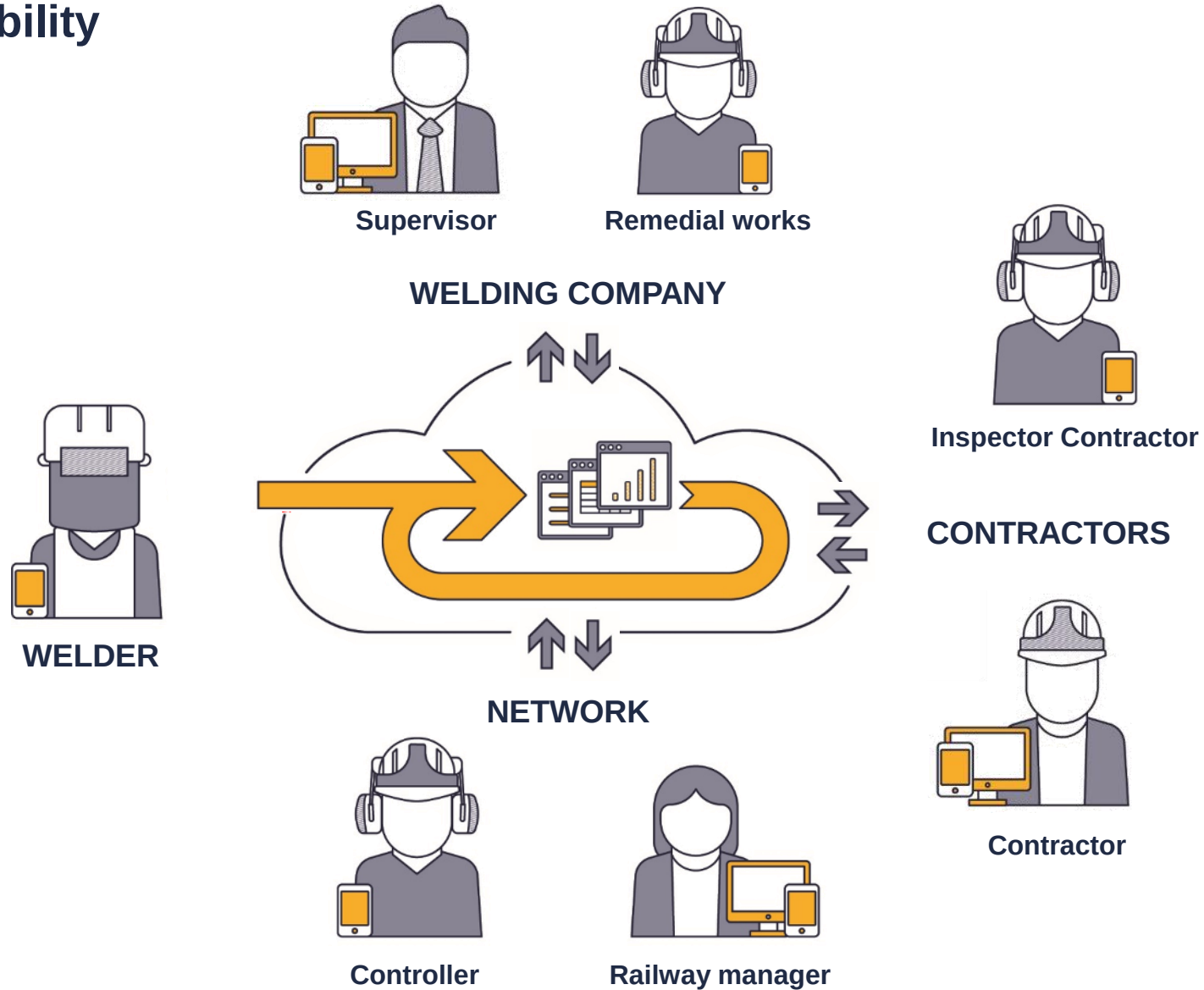
Data Capture

Data Capture with Pandrol Connect:

Pandrol Connect is a welding hub. It can connect to the surrounding equipment download valuable information and the user can log all site details for traceability



Delivering traceability



Quick Recap



Quick Recap

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Lightweight & Environmentally friendly



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What Next?

Technical Elements on going in Sweden

- AutoSeal and HFP are now in the Trafikverket standards. Complete
- All Standard PLA equipment is available today.

Technical Elements on going in Norway

- AutoSeal and HFP are in the Bane Nor standards. Complete.
- All Standard PLA equipment is available today.

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What Next?

Training, Trials & Demonstrations

What can we do to assist you?

- Demonstrations. We come to you.
- Dedicated Pandrol training sessions for your staff.
- Technical Support
- Logistics support
- On Site support for newly trained staff

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Questions?

Thank you.

PANDROL