UNEEK

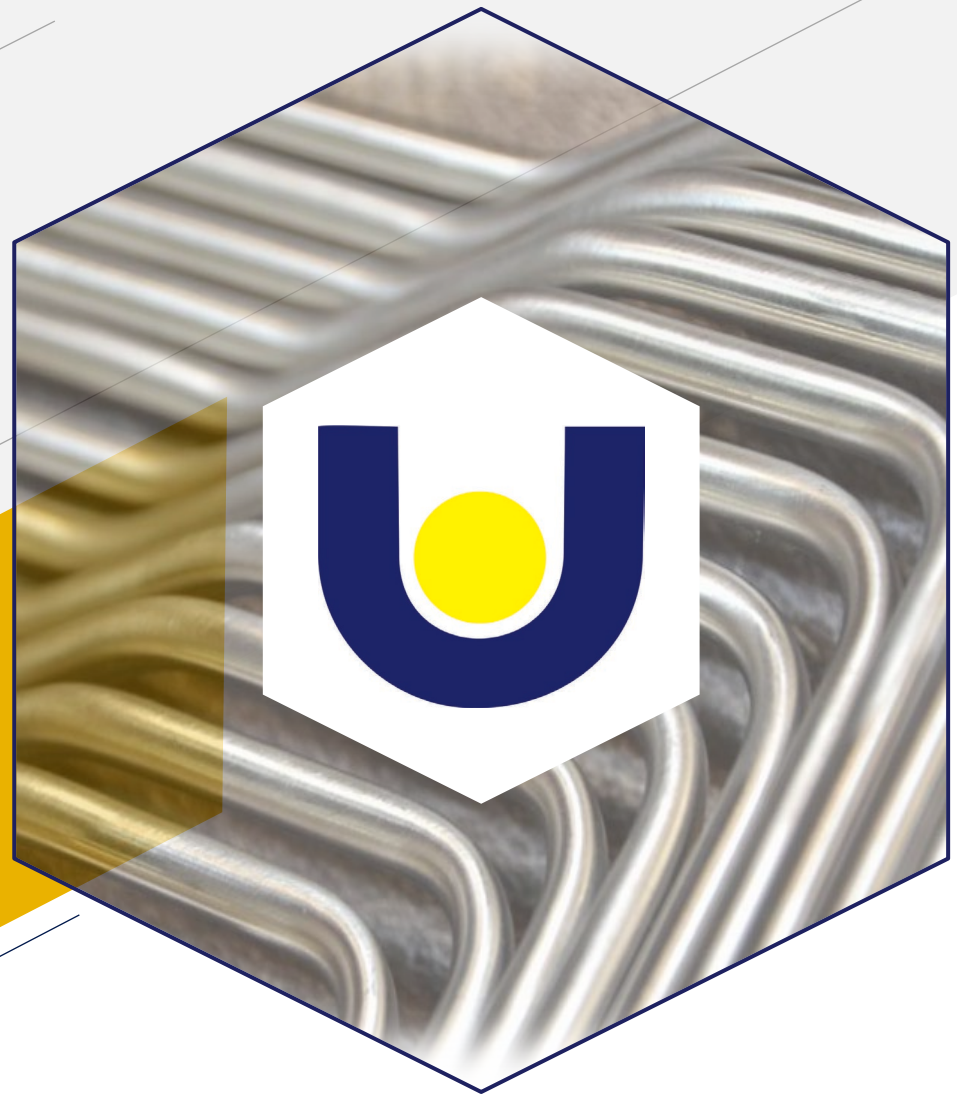
Shaping Australian Industry

Power Industry Capable

About Us

Uneek Bending Co. Pty Ltd

- 60+ years experience, since 1964
- Australia's leading bending, rolling & welding company
- Custom complex metal bending, rolling & welding
- Experienced engineers & design department
- Large scale engineering projects
- Small batch production and prototyping



Our Mission

"To be the most innovative manufacturer and preferred supplier in Bending, Rolling and Welding"

Power Industry Experience

KEY CUSTOMERS

BlueScope

VIVA EnergyAustralia

agl

EnergyAustralia

Hydro Tasmania

Opal.

International Power

CS energy

wilmar

RioTinto

CSR

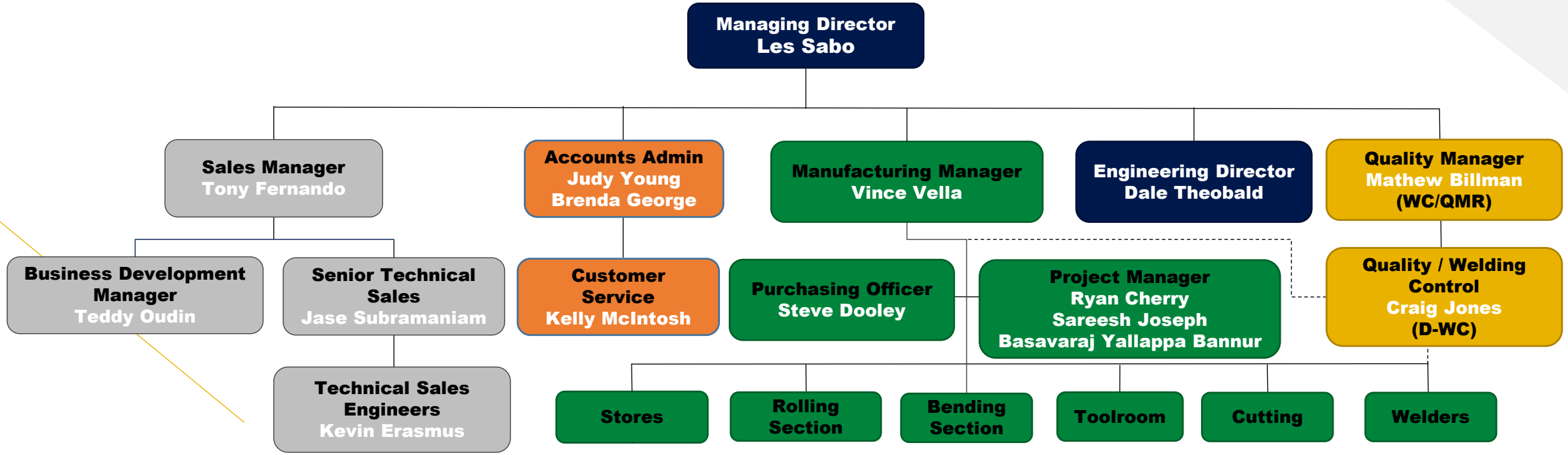
BHP

TULLY SUGAR

中粮 COFCO

The UNEEK Team

Organisation Chart



Management System Certification

- Quality Management System - ISO 9001:2015
- Occupational Health & Safety - ISO 45001:2018
- Environmental Management System - ISO 14001: 2015
- Aircraft, Space & Defence - AS9100D
- Welding Management System – ISO 3834.2 – Comprehensive Requirements
- Welding of Rail Vehicles - EN 15085 – CL1
- Production Welding of Military Products - DIN 2303 – Q2/BK2

IIS CERT
EN15085 - CL1/P
Certificato numero: 322 R

Modern Manufacturing Facility

- 4500m² workshop + 1000m² workshop dedicated to Stainless Steel Fabrication
- 9 meters under hook with 32T crane capacity
- Bay 1 has 2 x 16 Ton overhead cranes
- Bay 2 has 2 x 10 Ton overhead cranes
- CCTV Security monitoring

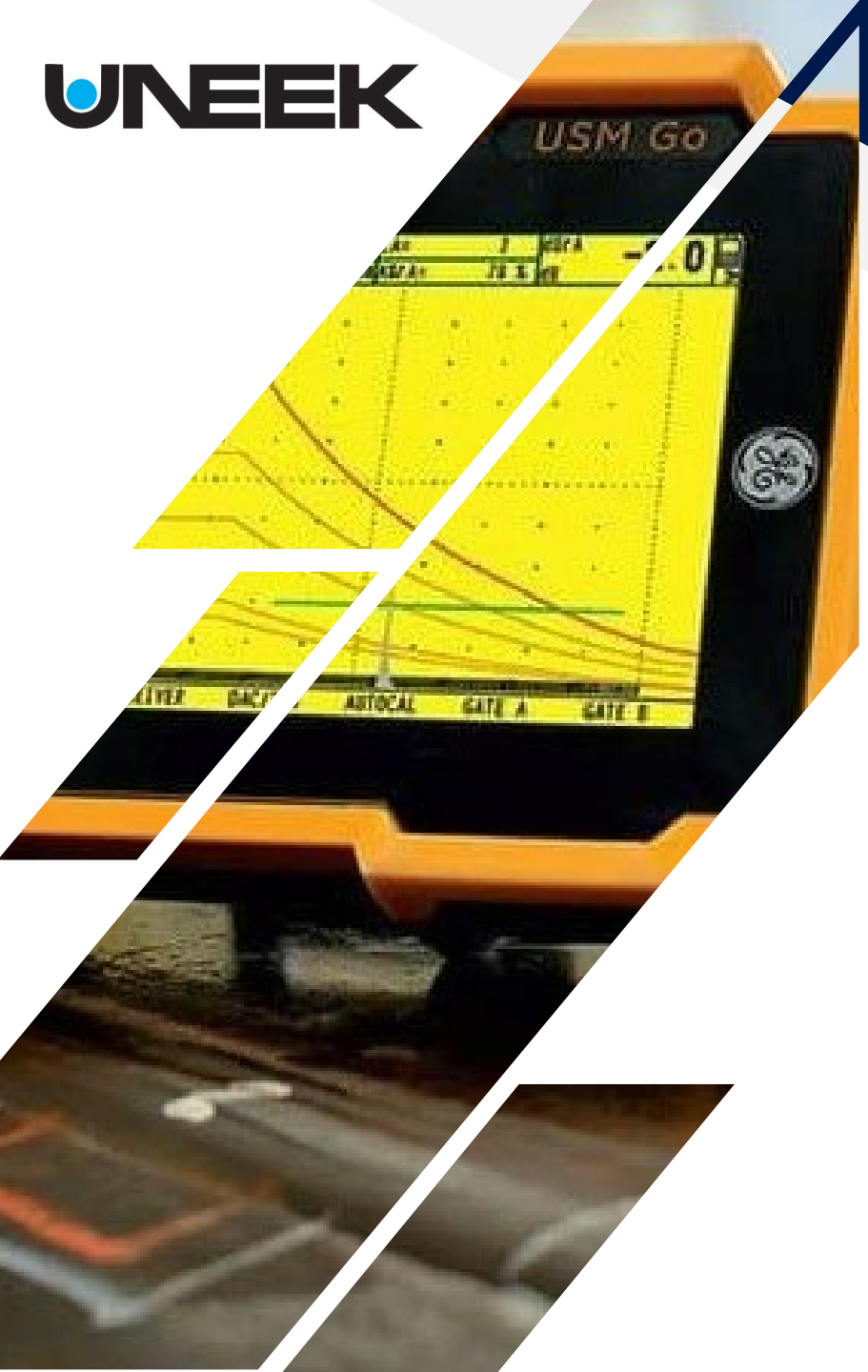
Manufacturing Capabilities

EQUIPMENT

- CNC Metal Bending Machines
- CNC Metal Rolling Machines
- Boost Bending Machine
- TIG, MIG, STT, Orbital TIG Welding
- Onsite Non-destructive Testing
- Heat Treatment
- CMM Measurement
- Design – SolidWorks, AutoCAD
- Pipe/Tube Swaging & Flaring
- Pipe/Tube Beveling & Scalloping

MATERIALS

- Carbon Steels
- Stainless Steels
- Cr-Mo
- Nickel Alloys
- Aluminium Alloys
- Quench & Tempered
- Titanium
- Inconel
- Copper Alloys
- Clad and Weld Overlay



Inspection Capabilities

INHOUSE

- Visual Inspection
- Liquid Penetrant Testing
- Magnetic Particle Testing
- Ultrasonic Thickness Testing
- Hydrostatic Pressure Testing
- Air Leak Testing
- CMM Measurement
- PMI Analysis
- Macroscopic Testing
- Tensile Testing

THIRD PARTY – NATA CERTIFIED

- Liquid Penetrant Testing
- Magnetic Particle Testing
- Ultrasonic Thickness Testing
- Ultrasonic Weld Testing
- Radiographic Testing
- Eddy Current
- Phased Array
- Mechanical Testing

Welding Capabilities

- Orbital Welding
- GTAW (TIG)
- Resistance Spot Welding
- GMAW (Synergic)
- STT/WiseRoot+
- GMAW (MIG)
- Stick (MMAW)
- Robotic Laser Welding

State of the art welding technology

Uneek Bending are your welding solution for Orbital GTAW,
GMAW, WiseRoot+ (STT), Synergic GMAW, Manual GTAW and Stick (MMAW) processes.
Robotic Laser Welding is an exciting recent addition to our welding capabilities.

Our qualified welders are experienced in welding a large array of materials including Carbon Steels, Stainless Steels, Chromoly, Duplex and Inconel.

Our welding management systems are certified to ISO3834.2 - Comprehensive Level, which is the worldwide benchmark for welding quality.

This certification helps demonstrate our ability to deliver a compliant, quality fusion welded product on time and to budget.

AS/NZS ISO 3834 Part 2 Certificate No. 025

Welding Capabilities

Weld Australia Welding Integrity Assured
AS/NZS ISO 3834 Part 2 Certificate No. 025

Our Team

Our **Welding Coordination Team** consists of IIW qualified,

International Welding Technologist
International Welding Specialist / AS1796 Certificate 10 / AS2214 Welding Supervisors
International Welding Inspectors / AS1796 Certificate 11 / WTIA Senior Welding Inspector

2x VT Level 2 Inspection Personnel
2x PT Level 2 Inspection Personnel

10x Qualified & Certified Welders – AS1796 / ISO9606 / AWS D17.1

Welding Capabilities

Weld Australia Welding Integrity Assured
AS/NZS ISO 3834 Part 2 Certificate No. 025

Procedure Qualification

Our extensive library of **Welding Procedures**

Almost 200 welding procedures qualified to a range of Australian and International Standards

Australian Standards

- AS 3992
- AS 1554.1
- AS 1554.4
- AS 1554.5
- AS 1554.6
- AS 1665

International Standards

- ASME XI
- AWS C1.1
- ISO 15614.1
- ISO 15614.2
- ISO 15613
- ISO 15614.11

Aerospace Standards

- AWS D17.1

Materials Qualified

- Carbon Steels
- Stainless Steels
- Cr-Mo
- Nickel Alloys
- Aluminium Alloys
- Quench & Tempered
- Titanium
- Inconel
- Hastelloy - C276
- Duplex / Super Duplex
- Copper Alloys
- Clad and Weld Overlay

Welding Capabilities

AS/NZS ISO 3834 Part 2 Certificate No. 025

Welding Procedure Specification
EN ISO 15614-11 – Level B

WPS No.	WPS 101 (U11)	Revision No.	0	Date	01/11/2024
Supporting Procedure Qualification Record			WPQR 101 (U11)		
Welding Process			52 - Laser Beam Welding		

Material Grade Qualified	301LN HT / UNS S30153 / 1.4318	Prequalified Joint No.	-
Steel Type/Weldability Group	-	Table No.	-
Pipe or Plate Thickness range	1.2 – 1.8	Root Gap	0 – 0.1
Pipe Diameter Range Qualified	-	Root Face	Full
Joint Type	Closed Square Butt	Included Angle	-
Weld positions qualified	2G / PC	Backing	-
Weld Direction	Forward		

Equipment Details

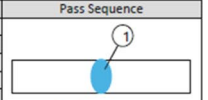
Laser Equipment	Trumpf TruLaser Weld 5000	Technology Set	U11

Welding Parameters

Processing

Spot Dia.	Laser End Ramp	Max. Laser Power	Robot Speed	Processing Angle
0.62 mm	12 ms	2000 W	0.075 m/s	0/8
Offset	Laser Start Ramp	Min. Laser Power	Laser Technology	Wire
0 mm	12 ms	500 W	Deep Pen. w BLS	None

Gas

Crossjet	Gas Type	Pre Flow Time	Fixture Gas Type	Pass Sequence
80 l/min	Ar	0.5 s	None	
Nozzle Flow	Nozzle Type	Post Flow Time	Fixture Flow	
30 l/min	Linear	0.5s	0 l/min	

Optics

Collimation	Focal Length	Laser	Operating Mode
100 mm	200 mm	TruFibre	Continuous

Full Penetration

Shielding type	Composition	Flow Rate (Litre/Min)
Argon 4.7	≥ 99.997%	30 l/min
Backing Type	Composition	Flow Rate (Litre/min)
-	-	-

Thermal Treatment (Welding):

Weld pre-heat temp Min	10°C	Time maintained for	-
Inter-run temp Max	-	Inter-run temp Min	-

This document aligns with the essential variable requirements outlined in ISO 15609-4 (CL4.1)

Approved by U-Neek Bending Co:

Written By	Qualification	Signature	UNEEK Welding Coordinator
Mathew Billman	AU/IWT/0053	Mathew J Billman	MyB
Reviewed By	Qualification	Signature	Approval
Craig Jones	CIWT/AU/5014/0	Craig Jones	

Procedure Qualification Record

Number	PQR095
Date	1st December 2023
Process	GTAW

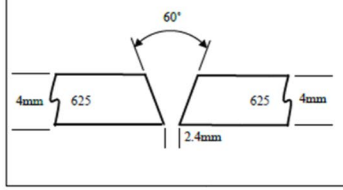
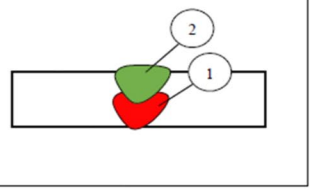
Material to be Welded:

Inconel 625 – Additive Manufactured

Pipe diameter	190 OD	Prequalified Joint No.	Item 1
Pipe or Plate Thickness	4.0mm	Table No.	2.3
Steel Type/Group	43	Root Gap	2.4
Weld position qualified	6G/H-LO45	Root Face	0
Weld Direction	Up	Included Angle	60°
Joint Type	Single Vee	Backing	NA

Welding codes or standards for which this procedure has been approved:
AS3992:2020

Technical Data:

Joint Detail	Weld Sequence
	

Gas Shielding type	Gas Composition	Gas Flow Rate (Litre/Min)
Coregas Argon 4.7	Ar 99.99%	13
Gas Backing Type	Gas Composition	Gas Flow Rate (Litre/Min)
Coregas Argon 4.7	Ar 99.99%	16

Thermal Treatment:

Weld pre-heat temp Min	18.5°C (Ambient)	Time maintained for	N/A - Hours
Inter-run temp Max	70°C	Method of measurement	Heat Gun - Infrared

Post Weld Heat Treatment	NA		
Initial Furnace Temp	NA		
Heating Rate	NA		
Holding Temp	NA		
Still air Cooling	NA		
Company Name	NA	Report No.	N/A
In Accordance to:	NA		

Procedure Qualification Record

U-NEEK BENDING CO. PTY. LTD. www.uneek.com.au

Number	PQR 031 Rev 1
Date	10th December 2015
Process	

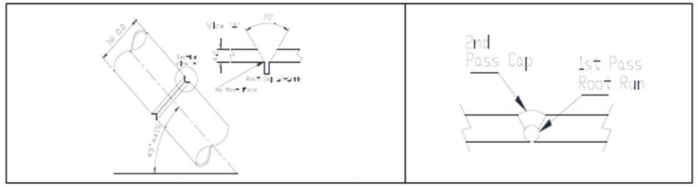
Material to be Welded:

ASTM A335 – P11

Pipe diameter	38	Prequalified Joint No.	1
Pipe or Plate Thickness	4	Table No.	2.3
Steel Type/Group	C	Root Gap	1-1.6
Weld position qualified	6g	Root Face	0
Weld Direction	Down	Included Angle	70°
Joint Type	Single Vee	Backing	None

Welding codes or standards for which this procedure has been approved:
ASME IX AS/NZS 3992:1998

Technical Data:



Gases:

Shielding type	Composition	Flow Rate (Litre/Min)
Air Liquid M1	Argon- 82% Co2- 18%	12
Backing Type	Composition	Flow Rate (Litre/Min)
NA	NA	NA

Thermal Treatment:

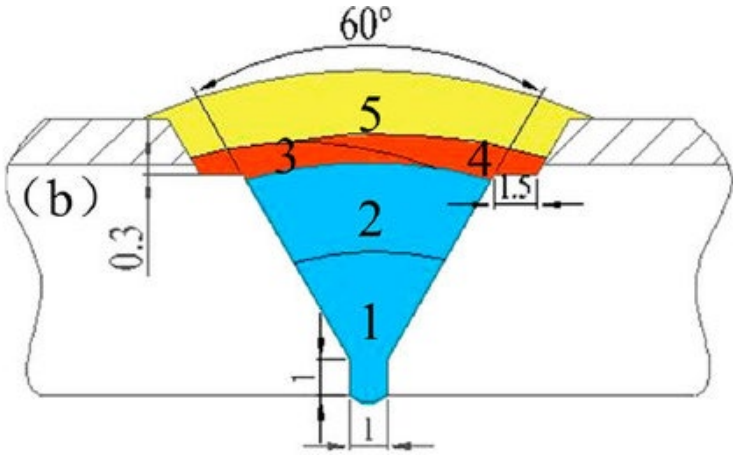
Weld pre-heat temp Min	50°C	Time maintained for	N/A Hours
Inter-run temp Max	150°C	Method of measurement	Infrared gun
Inter-run temp Min	50°C		

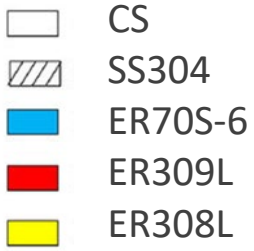
Post Weld Heat Treatment	NA		
Initial Furnace Temp	NA		
Heating Rate	NA		
Holding Temp	NA		
Still air Cooling	NA		

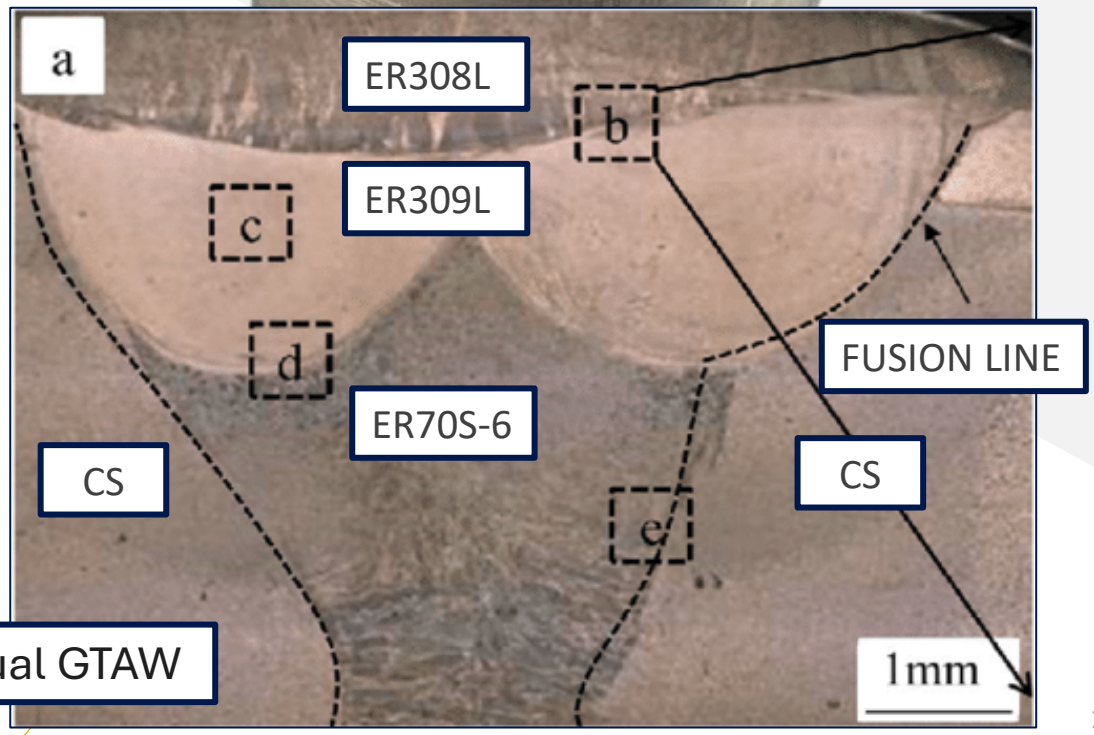
Welding Capabilities

Butt Welding of Bimetallic Pipe

Precise welding procedures are critical for the successful welding for **Bimetallic Pipe.**



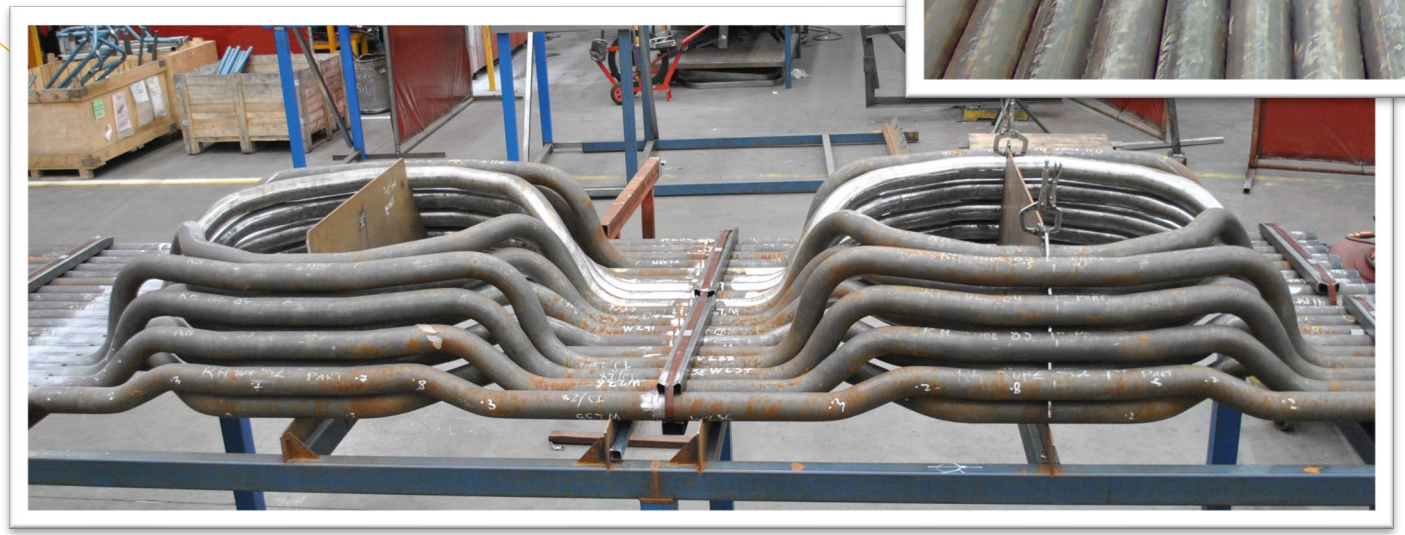




Microstructure of Manual GTAW

Power Industry
Manufacturing Examples

- Burner Openings



Power Industry
Manufacturing Examples

- Superheater and Economiser Elements

Power Industry

Manufacturing Examples

- Boiler Elements

Power Industry

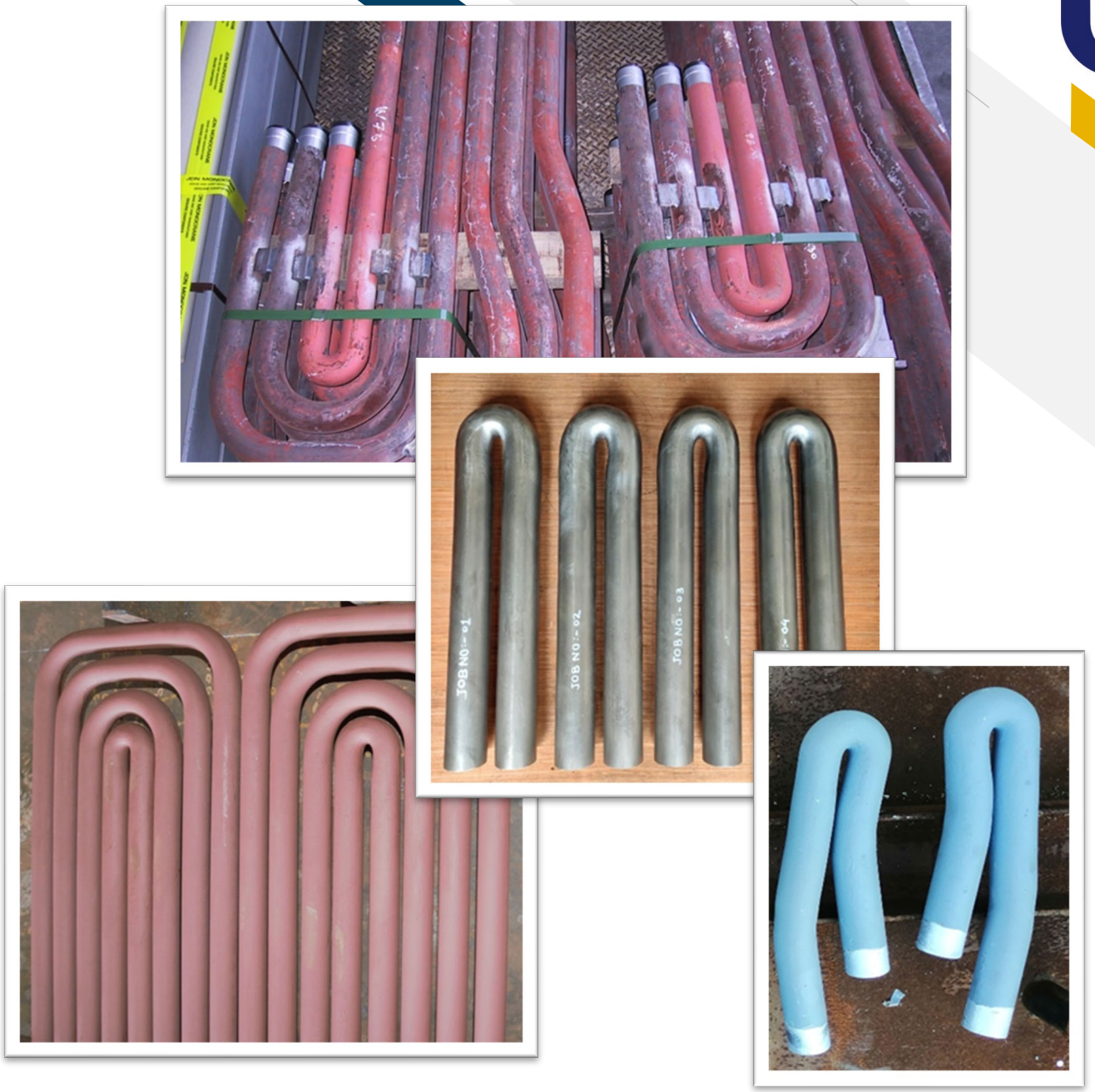
Manufacturing Examples

- Squeezed Bends

Squeezed bends or Hot closed bends are bend with an R/D ration of 1 or less. These bends are typically in superheaters of boilers.

These bends require the utmost care during manufacture to maintain the fabrication code requirements of ovality and wall thinning.

UNEEK manufacture these bends with our in-house manufacturing facilities.



Power Industry

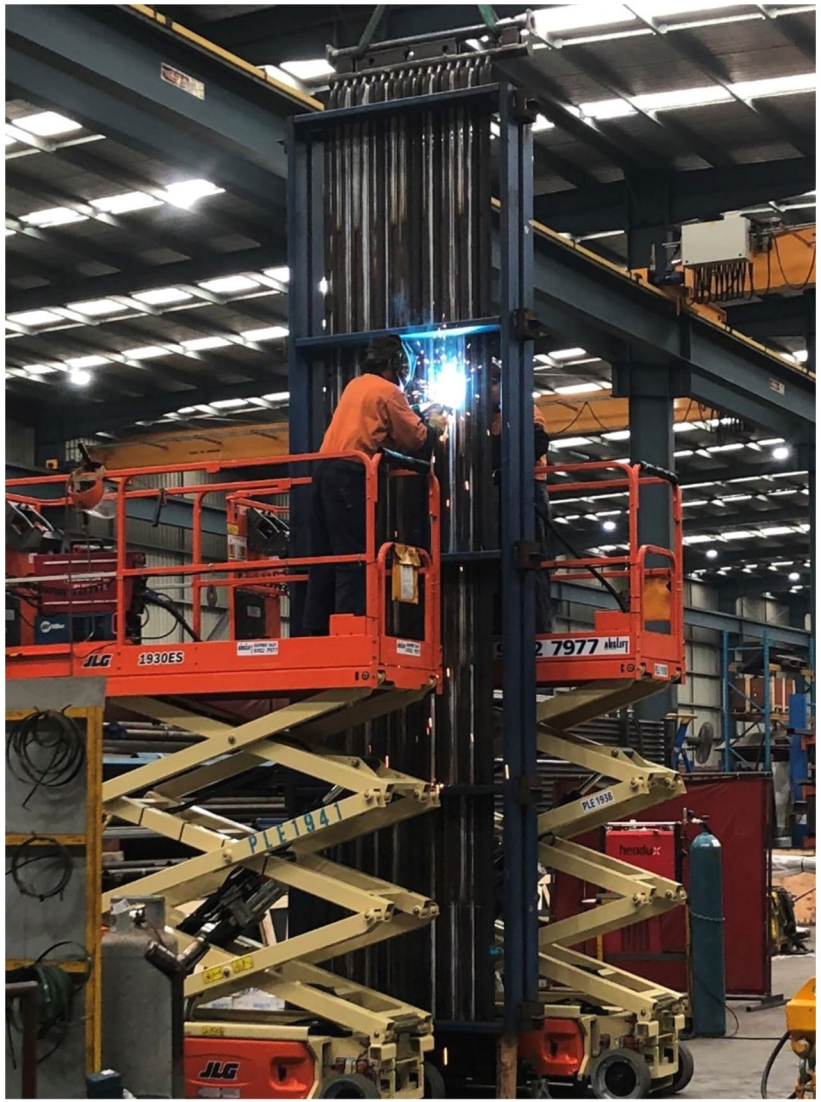
Manufacturing Examples

- Erosion Shields and Tube Swagging
- Weld Overlay Tube

Boiler components - Waterwall Panels

Power boiler furnaces are made up of water wall panels.

UNEEK manufacture these panels and other components and can pressure test if required with our in-house hydrotest facilities.



Fabrication -Offshore oil rig

Thermic Fluid Heater

Helical heating coil for offshore oil rig. Consists of 150NB twin start, twin coil assembly, weighing 25 tonnes.

Customer: Chevron offshore.

Materials:

- ASTM A106 Gr B, ASTM A 105, ASTM A234 WPB, AS 1548-7-460R, (carbon steel).
- ASTM A312 S30815 (253MA) high temp stainless seamless pipe
- ASTM A240 UNS 30815 (253MA) high temp stainless plate

Welding Processes / Procedures:

- STT II – Surface Tension Transfer (STT)
- TIG welding
- MIG welding

Fabrication Standards / National Codes:

- ASME VIII Div1 – Unfired pressure vessels
- ASME IX – Welding qualification
- AS4041 – Pressure Piping
- AS4037 – Pressure Equipment – examination & testing

Quality Assurance Requirements:

- Material certification for all materials
- Inspection and Test Plan (ITP)
- 100% radiography on butt weld joints
- 10% MPI on attachment welding

Fabrication – Chemical Process Plant

$TiCl_4$ Radient Heater Coil

This project involved manufacture of a critical process component for TiO_2 production. The 150NB radiant helical coil was manufactured to exacting tolerances. Of notable mention: Inconel material welding, hydro testing & drying coil assembly to -12 degrees C dew point and nitrogen padding for delivery.

Customer: Millenium Inorganic Chemicals

Materials:

- Inconel Alloy 600 (UNS No:6600) seamless pipe
- ASTM B564/B166 Alloy 600 flange
- ASTM B/SB167-05a B/SB 366-04 WPNCI-S Elbow
- ASTM B168-08 Inconel certified plate
- ASTM A240 UNS S30815 (253MA) – high temp stainless

Welding Processes / Procedures:

- Manual TIG Process
- STT II – Surface Tension Transfer Process

Fabrication Standards / National Codes:

- ASME Section I and Section VIII Div 1
- ASME IX – Welding
- API RP 530

Quality Assurance Requirements:

- Material certification for all materials
- Inspection and Test Plan (ITP)
- 100% radiography on butt weld joints
- LPI on attachment welding
- Hydrotest of assembly
- Drain & dry assembly to – 12deg C dew point
- Nitrogen padding of coil assembly for transport

Industry Supply Chain

Supplying all industries

Transport

Defence

Power

Oil & Gas

Mining

Thank You.

Uneek Bending Co.

(03) 9771 4900

sales@uneek.com.au

www.uneek.com.au

UNEEK®
ENERGY SOLUTIONS

UNEEK