



**The Shepley Group**

# Manufacturing Capability.

## Welding, fabrication and machining.

Frank Shepley created Shepley Engineers in Manchester in 1948, and since then we've been a nuclear stalwart. In late 1948 we were working on the stainless reactors on the Windscale Piles, and was involved in the commissioning of the world's first commercial nuclear power plant, Calder Hall. Over seventy years on, through natural growth and acquisition of our member companies, we're established as a major contractor within several highly-regulated industries.

# Sellafield's **Longest-Serving** Continuous Contractor.

## About us.

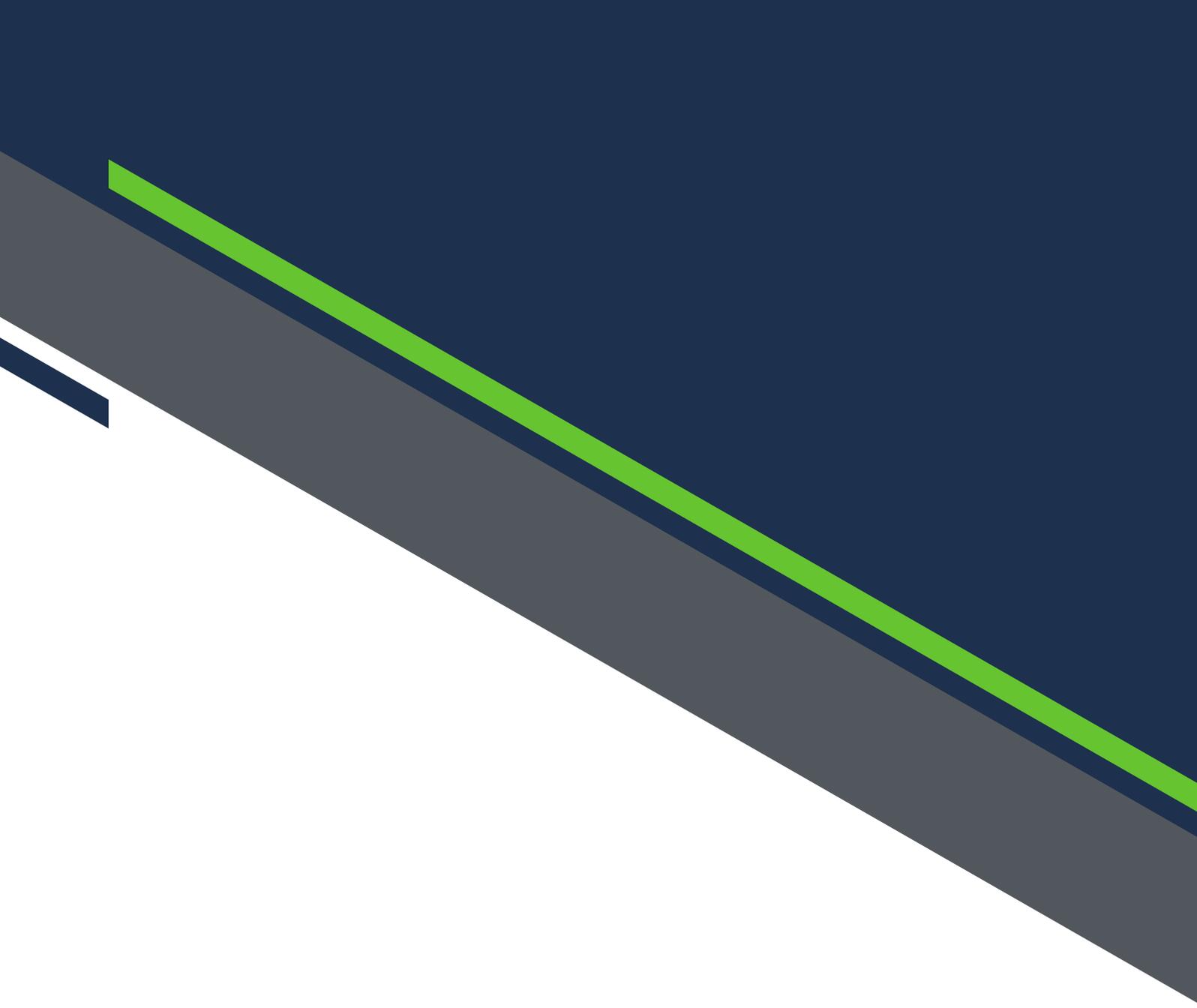


Shepley Engineers (then Frank Shepley Engineers Ltd) was founded in Manchester on 8th January 1948, and has had a permanent presence at Sellafield since that time. In 1948 we were responsible for the installation of stainless ducting systems on the Windscale Reactors, and the early 1950's with the commissioning of the world's first commercial nuclear power station at Calder Hall.

Through both organic growth and acquisition, we have become established as a major contractor. We have two wholly owned subsidiaries, PPS Electrical and West Cumberland Engineering.

Our range of service offering means that we are engaged in a number of capacities from main contractor to sub-contractor and in some instances as advisor and consultant. We work individually or in collaboration with complimentary service providers or partners and a significant proportion of our current workload is delivered via long term framework agreements. It has been necessary to develop our processes, systems and culture to be effective and responsive across the full range of these engagement arrangements.





## **Our vision**

**Continue to develop high performing people & strive to build a legacy of excellence within our sectors.**

# What we do.

## Manufacture and Fabrication

Shepley Group member West Cumberland Engineering are a well-established and experienced fabrication company focusing on the manufacture and installation of high quality welded fabrications such as process pipework, tanks, vessels, modules, waste containers and high integrity ductwork mainly for the nuclear and petrochemical industries.

Our management team and workforce have considerable experience in servicing the high quality demands within these important and challenging sectors. The extensive facilities at our Lillyhall works are also widely utilised for final assembly, mock-ups, testing & familiarisation training prior to the installation of equipment within the live plant environment.

## Specialist Restoration and Renovation

Shepley Engineers are a well-established and experienced restoration company focusing on the removal, restoration and installation of existing components and high-quality welded fabrications. Our management team and workforce have considerable experience in servicing the high-quality demands within this important and challenging sector. The facilities at our Sheffield Workshop are widely utilised for final assembly, mock-ups, testing, blasting and painting prior to the installation of components.

## Panel Manufacture

We have a panel manufacturing facility in Barrow-in-Furness supports nuclear operations, as well as clients within the rail industry and our work involves a comprehensive range of electrical and instrumentation support within these particularly challenging sectors.

### Workspace.

Lillyhall Workshops  
**4,900m<sup>2</sup>**

Workington Workshop  
**4,500m<sup>2</sup>**

Barrow Workshop  
**850m<sup>2</sup>**

Sheffield Workshop  
**4,000m<sup>2</sup>**

### Craneage.

5te Overhead Cranes  
**13**

10te Overhead Cranes  
**2**

15te Overhead Cranes  
**2**

500kg JIB Crane  
**1**

# Welding.

## Processes

The Shepley Group have diverse experience and various qualified welding procedures for the following processes for use on pipework and platework;

- 111 MMA (Manual Metal Arc Welding)
- 121 SAW (Submerged Arc Welding)
- 131 MIG (Metal Inert Gas Welding)
- 135 MAG (Metal Active Gas Welding - Solid Wire)
- 136 MAG (Metal Active Gas Welding - Flux Cored Wire)
- 141 TIG (Tungsten Inert Gas Welding)
- 141 Orbital TIG (Tungsten Inert Gas Welding - Liburdi Diametrics/AMI Arc)
- 141 Semi-automatic TIG (Tungsten Inert Gas Welding - TIP-TIG)
- 783 Drawn Arc Stud Welding with Ceramic Ferrule

## Procedures

Our welding procedures are qualified in accordance with the following standards

- BSEN ISO 15614-1: Qualification of Welding Procedures – Arc Welding: Steels and Nickel Alloys
- BSEN ISO 15614-2: Qualification of Welding Procedures – Arc Welding: Aluminium
- BSEN ISO 14555: Arc Stud Welding of Metallic Materials
- ASME IX: Welding, Brazing & Fusion Qualification

## Welders

Our welders are qualified in accordance with the following standards;

- BSEN 287-1: Qualification of Welders – Fusion Welding: Steels
- BSEN ISO 9606-1: Qualification of Welders – Fusion Welding: Steels
- BSEN ISO 9606-2: Qualification of Welders – Fusion Welding: Aluminium
- ASME IX: Welding, Brazing & Fusion Qualification

## Accreditation.



### ISO 9001

Quality Management



### Sellafield Certificate of Approval

ES\_0\_5391\_2, SLM 4.06.02 Iss3



### BS EN 1090-1

Execution of Steel Structures and Aluminium Structures



### ISO 27001

Information Security Management



### EN 1090-2 & 3

Fabricated Steel Components for use in Building & Construction up to EXC 4



### ISO 3438-2

Quality Requirements for the Fusion Welding of Metallic Materials - Comprehensive Quality Requirements

# Specifications.

The Shepley Group have experience working with various industrial specifications set out below;

## **ASME**

ASME B31.3: Process Piping

ASME VIII: Boiler & Pressure Vessel Code

ASME IX: Welding, Brazing & Fusion Qualification

## **Nuclear Specific**

ES\_0\_5391\_2: Fabrication of Plant & Equipment (Stainless Steels)

ES\_0\_5393\_2: Fabrication of Plant & Equipment (Stainless & Carbon Steels)

ES\_0\_5394\_2: Fabrication of Plant & Equipment (Stainless & Carbon Steels)

ES\_0\_5395\_2: Fabrication of Plant & Equipment (Nickel Alloys)

## **Power Generation**

DNV-OS-C401: Fabrication and Testing of Offshore Structures

## **Pressure Vessels**

PD 5500: Specification for Unfired Fusion Welded Pressure Vessels

# Non-Destructive Testing.

Our NDT capability extends to;

Visual Inspection

Ultrasonic Testing

Radiography

Liquid Penetrant Testing

Magnetic Particle Testing

# Inspection Personnel.

All inspection personnel carrying out visual inspection and non-destructive testing are qualified to one or more of the following recognised certification schemes

PCN Level 2

CSWIP 3.1/3.2

NACE Level 2

ICorr Painting Inspection Level 1

# Materials.

The Shepley Group have varied experience of fabricating and welding the following materials in thicknesses ranging from 0.5mm through to 200mm

Austenitic Stainless Steels (NAG, 304L, 316L, 316Ti, 321, 18-13-1, 235MA, 254SMO, Nitronic 60)

Precipitation Hardened Stainless Steels (17/4 PH, FV520B)

Martensitic Stainless Steels (S416S21)

Duplex Steels (2205, Ferralium 255)

Nickel Alloys (NiCu)

Aluminium (6086 T6, 5083)

Quenched & Tempered Steels (Dillimax 890T)

Carbon Steels (S275/S355J2/S460, API 5L)

Dissimilar: Combinations of the above materials

# Cutting Processes.

Air Plasma 1: up to 12mm

Air Plasma 2: up to 38mm

Oxy-propane/acetylene cutting

Reciprocal Saws

Horizontal Band Saws

Guillotine 1: Width 3m, 12.5mm C/S 8mm S/S

Guillotine 2: Width 2.5m, upto3mm

Pipe Cutter: Square cut, up to 80NB 3D & 4D

# Protective Treatment Processes.

Manual Blast

Automatic Blast

Zinc Spray

Paint including prime and overcoat

# Forming Equipment.

Break Press: Width 3.1m, 150 Ton

Plate Rollers: Width 2.5m, 6-8mm

Pipe Bending: 15NB to 80NB

# Jigs / Fixtures.

Break Press: Width 3.1m, 150 Ton

Plate Rollers: Width 2.5m, 6-8mm



**Machining**  
**capability.**

Lathes						
Manual/CNC	Manufacturer Model	Spindle Bore	Bed Length	Swing Over Bed	Swing Over Cross Slide	Swing Over Gap
CNC Turning Centre	HYUNDAI	Ø63	500	Ø280 max cutting dia	N/A	N/A
CNC Turning Centre	TAKAMAZ EM-3A	Ø51mm	500	Ø280 max cutting dia	N/A	N/A
CNC	XYZ 555 PROTURN	Ø104mm	2000mm	Ø560	Ø350	Ø780 X 227mm BACK
CNC	XYZ 1630 PROTURN	Ø54	760mm	Ø400	Ø218	N/A
CNC	XYZ 410 PROTURN	Ø80	1100mm	Ø480	Ø280	N/A
MANUAL	HARRISON 400	Ø66	1000mm	Ø420	Ø250	Ø600 X 140mm BACK
MANUAL	HARRISON 400	Ø66	1500mm	Ø420	Ø250	Ø600 X 140mm BACK
CAD CAM SOFTWARE	ONE CNC	N/A	N/A	N/A	N/A	N/A
CAD CAM SOFTWARE	DOLPHIN	N/A	N/A	N/A	N/A	N/A

Milling							
Type	Manual/CNC	Manufacturer Model	Maximum Table Load	X-axis	Y-axis	Z-axis	4th Axis
BED MILL	CNC	MTE BF-3200	11,000KG	3000mm	1000mm	1000mm	N/A
HORIZONTAL BORER	CNC	GIDDINGD & LEWIS A110T	10,000KG	1524mm	965mm	1752mm	N/A
VERTICAL MACHINING CENTER	CNC	XYZ 1100 HD + 4th AXIS	1,500KG	1100mm	610mm	610mm	CHUCK Ø190 SWING OVER BED Ø280
VERTICAL MACHINING CENTER	CNC	XYZ1020	800KG	1020mm	520mm	546mm	N/A
VERTICAL MACHINING CENTER	CNC	XYZ1010 VMC	450KG	1010mm	500mm	520mm	N/A
VERTICAL MACHINING CENTER	CNC	XYZ 710 HD + 4TH AXIS	500KG	710mm	450mm	510mm	
VERTICAL MACHINING CENTER	CNC	XYZ 710 HD	500KG	710mm	450mm	510mm	N/A
VERTICAL TURRET MILLING MACHINE	MANUAL	AJAX AJT4	N/A	800mm	345mm	406mm	N/A
VERTICAL TURRET MILLING MACHINE	MANUAL	AJAX AJT4	N/A	800mm	345mm	406mm	N/A
RAM HEAD UNIVERSAL	MANUAL	HURON MU6	N/A	1500mm	700mm	550mm	N/A
3D CAD CAM SOFTWARE	N/A	ONE CNC	N/A	N/A	N/A	N/A	N/A

Electrical Discharge Machining						
Type	Manual/CNC	Manufacturer Model	X-axis	Y-axis	Z-axis	
SINKER SPARK EROSION MACHINE	Manual	Sparcatron SPF 40W	370mm	600mm	400mm	
WIRE SPARK EROSION	CNC	SYKES FANUC W2	350mm	480mm	290mm 200 max cut	
WIRE SPARK EROSION	CNC	SYKES FANUC W2	350mm	480mm	290mm 200 max cut	
WIRE SPARK EROSION	CNC	SYKES FANUC W2	350mm	480mm	290mm 200 max cut	
CAD CAM SOFTWARE	N/A	DOLPHIN	N/A	N/A	N/A	

Manual/CNC	Manufacturer Model	Magnetic Table	X travel	Y travel	Z travel
MANUAL SURFACE GRINDER	JONES AND SHIPMAN	460mm x 150mm	600mm	200mm	210mm

# Specifications.

The Shepley Group are committed to manufacturing within industry specifications and to the standards set by our clients and the industries they represent. We have been recognised for our dedication to adherence, recently being awarded the ROSPA Gold Medal Award and the first in the country to be awarded the Approved Supplier Certificate (Build 1) from Sellafield Ltd.

Detailed below is a comprehensive list of the Standards and Specifications that we work to;

## Welders

BS EN 287-1: Qualification of Welders – Fusion Welding: Steels

BS EN ISO 9606-1: Qualification of Welders – Fusion Welding: Steels

BS EN ISO 9606-2: Qualification of Welders – Fusion Welding: Aluminium

## ASME

ASME B313.3: Process Piping

ASME VIII: Boiler & Vessel Code

## Nuclear Specific

ES\_0\_5391\_2: Fabrication of Plant & Equipment (Stainless Steel) – Builds 1 & 2, Pipework; Build 1, Tanks; Builds 3 & 4, Pressure Vessels and Heat Exchangers

ES\_0\_5393\_2: Fabrication of Plant & Equipment (Stainless and Carbon Steels) – Builds 3 to 6, Pipework

ES\_0\_5394\_2: Fabrication of Plant & Equipment (Stainless and Carbon Steels) – General Duty

ES\_0\_5395\_2: Fabrication of Plant & Equipment (Nickel Alloys)

## Weld Procedures

BS EN ISO 15614-1: Qualification of Welding Procedures – Arc Welding: Steels and Nickel Alloys

BS EN ISO 15614-2: Qualification of Welding Procedures – Arc Welding: Aluminium

BS EN ISO 14555: Arc Stud Welding of Metallic Materials

## Welding Processes

111 MMA (Manual Metal Arc Welding)

121 SAW (Submerged Arc Welding)

131 MIG (Metal Inert Gas Welding)

135 MAG (Metal Active Gas Welding – Solid Wire)

136 MAG (Metal Active Gas Welding – Flux Cored Wire)

141 TIG (Tungsten Inert Gas Welding – Manual)

141 Orbital TIG (Tungsten Inert Gas Welding – Liburdi Diametrics/AMI Arc)

141 Semi-Automatic TIG (Tungsten Inert Gas Welding – TIP-TIG)

783 Drawn Arc Stud Welding with Ceramic Ferrule

## Inspection

All inspection personnel carrying out visual inspection and non-destructive testing are qualified to one or more of the following recognised certification schemes; PCN Level 2, CSWIP 3.1/3.2 and ICorr Painting Inspection Level 1

## **Non-Destructive Testing**

Visual Inspection  
Ultrasonic Testing  
Radiography  
Liquid Penetrant Testing  
Magnetic Particle Testing

## **Cutting Processes**

Air Plasma 1: up to 12mm  
Air Plasma 2: up to 38mm  
Oxy-propane/acetylene cutting  
Reciprocal Saws  
Guillotine 1: Width 3m, 12.5mm C/S 8mm S/S  
Guillotine 2: Width 2.5m, upto3mm  
Pipe Cutter: Square cut, up to 80NB 3D and 4D

## **Forming Equipment**

Break Press: Width 3.1m, 150 Ton  
Plate Rollers: Width 3m, 3-20mm  
Pipe Bending: 15NB to 50NB

## **Jigs / Fixtures**

Rotary Manipulators (various sizes)  
Column and Boom: 4m x 4m,  
Vessel/Tank Rollers: 20 ton, Width 3m

## **Coatings**

ISO 8501 – Visual assessment of surface cleanliness after blasting.  
ISO 8502 – Tests for the assessment of surface cleanliness.  
ISO 8503 – Surface roughness characteristics of blast-cleaned steel.  
ISO 8504 – Surface preparation methods.

## **Materials**

Austenitic Stainless Steels (NAG, 304L, 316L, 316Ti, 321, 18-13-1, 235MA, 254SMO, Nitronic 60)  
Precipitation Hardened Stainless Steels (17/4 PH, FV520B)  
Martensitic Stainless Steels (S416S21)  
Duplex Steels (2205, Ferralium 255)  
Nickel Alloys (NiCu)  
Aluminium (6086 T6, 5083)  
Quenched and Tempered Steels (Dillimax 890T)  
Carbon Steels (S275/S355J2/S460, API 5L)  
Dissimilar: Combinations of the above materials

# Our Capability.

Lathes						
Manual/CNC	Model	Spindle Bore	Bed Length	Swing Over Bed	Swing Over Cross Slide	Swing Over Gap
CNC	XYZ 555 PROTURN	Ø104MM	3000MM	Ø560MM	Ø350MM	Ø780 X 227MM
CNC	XYZ 555 PROTURN	Ø104MM	2000MM	Ø560MM	Ø350MM	Ø780 X 227MM BACK
CNC	XYZ 425 PROTURN	Ø80MM	2000MM	Ø480MM	Ø257MM	Ø700 X 170MM
CNC	XYZ 410 PROTURN	Ø80MM	1100MM	Ø480MM	Ø280MM	N/A
CNC	XYZ 1630 PROTURN	Ø54MM	760MM	Ø400MM	Ø218MM	N/A
CNC TURNING CENTRE	HYUNDAI	Ø63MM	500MM		Ø250	Ø600 X 140mm BACK
Ø280MM MAX CUTTING DIA	N/A	N/A	1500mm	Ø420	Ø250	Ø600 X 140mm BACK
MANUAL	HARRISON 400	Ø66MM	1500MM	Ø420MM	Ø250MM	Ø600 X 140MM BACK
MANUAL	HARRISON 500	Ø80MM	2000MM	Ø540MM	Ø370MM	Ø720MM
CAD CAM SOFTWARE	ONE CNC					
XR9 PRO+4AXIS (3 SEATS)	N/A	N/A	N/A	N/A	N/A	
CAD CAM SOFTWARE	DOLPHIN CAD CAM	N/A	N/A	N/A	N/A	N/A

Milling							
Type	Manual/CNC	Manufacturer Model	Max Table Load	X-axis	Y-axis	Z-axis	4th Axis
TRAVELLING COLUMN	CNC	CORREA FENIX	15000 KG	7500MM	1500MM	3000MM	
BED MILL	CNC	MTE KT4200	11000KG	4000MM	1500MM	2000MM	N/A
BED MILL	CNC	MTE BF-3200	10000KG	3000MM	1000MM	1000MM	N/A
VERTICAL MACHINING CENTER	CNC	XYZ 1100 HD + 4TH AXIS	1500KG	1100MM	610MM	610MM	CHUCK Ø190
SWING OVER BED Ø280MM	CNC	XYZ1010 VMC	450KG	1010mm	500mm	520mm	N/A
VERTICAL MACHINING CENTER	CNC	XYZ1020	800KG	1020MM	520MM	546MM	N/A
VERTICAL MACHINING CENTER	CNC	XYZ 1010 VMC	450KG	1010MM	500MM	520MM	N/A
VERTICAL MACHINING CENTER	CNC	XYZ 710	N/A	800mm	345mm	406mm	N/A
+ 4TH AXIS	500KG	710MM	450MM	510MM	CHUCK Ø190	406mm	N/A
SWING OVER BED Ø380MM	MANUAL	HURON MU6	N/A	1500mm	700mm	550mm	N/A
VERTICAL MACHINING CENTER	CNC	XYZ 710	500KG	710MM	450MM	510MM	N/A
VERTICAL MACHINING CENTER	CNC	XYZ 1110 HD	1000KG	1100MM	610MM	610MM	
VERTICAL MACHINING CENTER	CNC	XYZ 1510 HD	1200KG	1500MM	600MM	600MM	
VERTICAL TURRET MILLING MACHINE	MANUAL	ACRA	N/A	800MM	34MM	406MM	N/A
RAM HEAD UNIVERSAL	MANUAL	HURON MU6	N/A	1500MM	700MM	550MM	N/A
2 AXIS	CNC	PROTRAK	600KG	787MM	508MM	508MM	N/A

Electrical Discharge Machining					
Type	Manual/CNC	Manufacturer Model	X-axis	Y-axis	Z-axis
SINKER SPARK EROSION MACHINE	Manual	Sparcatron SPF 40W	370mm	600mm	400mm
WIRE SPARK EROSION	CNC	SYKES FANUC W2	350mm	480mm	290mm 200 max cut
WIRE SPARK EROSION	CNC	SYKES FANUC W2	350mm	480mm	290mm 200 max cut
WIRE SPARK EROSION	CNC	SYKES FANUC W2	350mm	480mm	290mm 200 max cut
CAD CAM SOFTWARE	N/A	DOLPHIN	N/A	N/A	N/A

Grinders					
Manual/CNC	Manufacturer Model	Magnetic Table	X travel	Y travel	Z travel
MANUAL SURFACE GRINDER	JONES AND SHIPMAN	460mm x 150mm	600mm	200mm	210mm



correa

correa

WILLI  
Werkzeugmaschinen  
Engineering



# Correa 75 FE 3M.

Able to handle 19 tonne items with a maximum reach of 7.5m in the X, 1.5m in the Y and 3m in the Z direction, which came as part of our recent acquisition

A highly versatile traveling column machine with lateral ram. Highly robust system based on a system of L guided ram. A high precision machine appropriate for roughing and finishing operations, complete with a universal orthogonal indexing milling head allowing rotation every 0.02degrees.

The 60 station automatic tool changer, and Heidenhain CNC control delivers exceptional flexibility to take the most demanding applications, with travels in the X of 7.5m, Y of 1.5m and 3 m in the Z axis.

**X Axis**

7.5m

**Y Axis**

1.5m

**Z Axis**

3m

**Capacity**

19te



# MTE KT-4200.

We invested in our new milling machine to significantly increase in-house machining capability to 4m on the X-axis, 1.5m on the Y-axis and 2m on the Z-axis with bed loading capacity of 11 tonne.

A high precision robust Bed Mill, complete with a 3 range gearbox delivering a maximum spindle torque of 2055Nm at a lowly 150 rpm, ideal for cutting exotic materials widely used in the Nuclear and Oil sectors. The Hedenhain TNC 640 control drives the automatic milling head head capable of 0.02 degrees of incremental movement. A fully enclosed machine allowing the use of 20 bar through spindle coolant, providing excellent lubrication/cooling to the tool face and control of swarf evacuation. X axis travel 4M, Y axis 1.5M and a Z axis of 2M.

**X Axis**  
4m

**Y Axis**  
1.5m

**Z Axis**  
2m

**Capacity**  
11te



## Facilities

# Lillyhall Workshops.

Our Lillyhall facility is comprised of four workshops, comprised of two stainless steel workshops, one carbon steel workshop and a machine shop.

These facilities are used for welding, cutting, forming, machining, assembly, pressure testing, loading testing, inspection and non-destructive testing.

## Workspace.

Stainless Steel Workshops

**3,119m<sup>2</sup>**

Carbon Steel Workshop

**1,069m<sup>2</sup>**

Machine Shop

**783m<sup>2</sup>**

## Craneage.

15te Overhead Cranes

**1**

10te Overhead Cranes

**1**

5te Overhead Cranes

**2**



## Facilities

# Workington Workshops.

Following our successful acquisition of T.I.S. Cumbria Ltd, we inherited office space and workshop in Derwent Howe Industrial Estate.

Centrally located in Workington, the space features workshops separated for carbon and stainless works, large and small machining as well as an area currently used as a rig space.

The facility can carry out all aspects of works as per the Lillyhall facility but also features rig space, a Correa 75 FE 3M CNC Milling Machine, a MTE KT-4200 bed type milling machine and the largest radiography bay in Cumbria

## Workspace.

Workshop 4  
**4,056m<sup>2</sup>**

Kerry Park Workshop  
**792m<sup>2</sup>**

## Craneage.

20te Overhead Cranes  
**3**

10te Overhead Cranes  
**1**



# Facilities Sheffield Workshop.

Shepley Engineers follow the principle of lean manufacture with an on site Six sigma Blackbelt. To ensure our workshops are efficient and effective we have a policy of being open and honest with our clients and aim to offer cost efficiency and value.

We have a modern 4200m<sup>2</sup> workshop facility consisting of 7 work bays. Bays 2 to 5 are utilised for fabrication and welding works. Each bay has a 5 ton overhead crane with bay 3 having one 5-ton crane and one 10-ton crane giving capacity and flexibility to undertake a wide range of tasks. Bay 6 has a manual blast booth 16m x 6m again equipped with a 5-ton overhead crane. Bay 7 is equipped with an auto-blast machine capable of processing components up to 1600 x 820 this bay is also equipped with a 5-ton overhead crane.

Bays 8 and 9 are the coating application areas. Bay 9 has four paint booths, each 7.5m x 9m and can deliver a wide range of coating systems simultaneously, we can apply any coating system and are also able to apply intumescent fireproofing systems if required.

## Workspace.

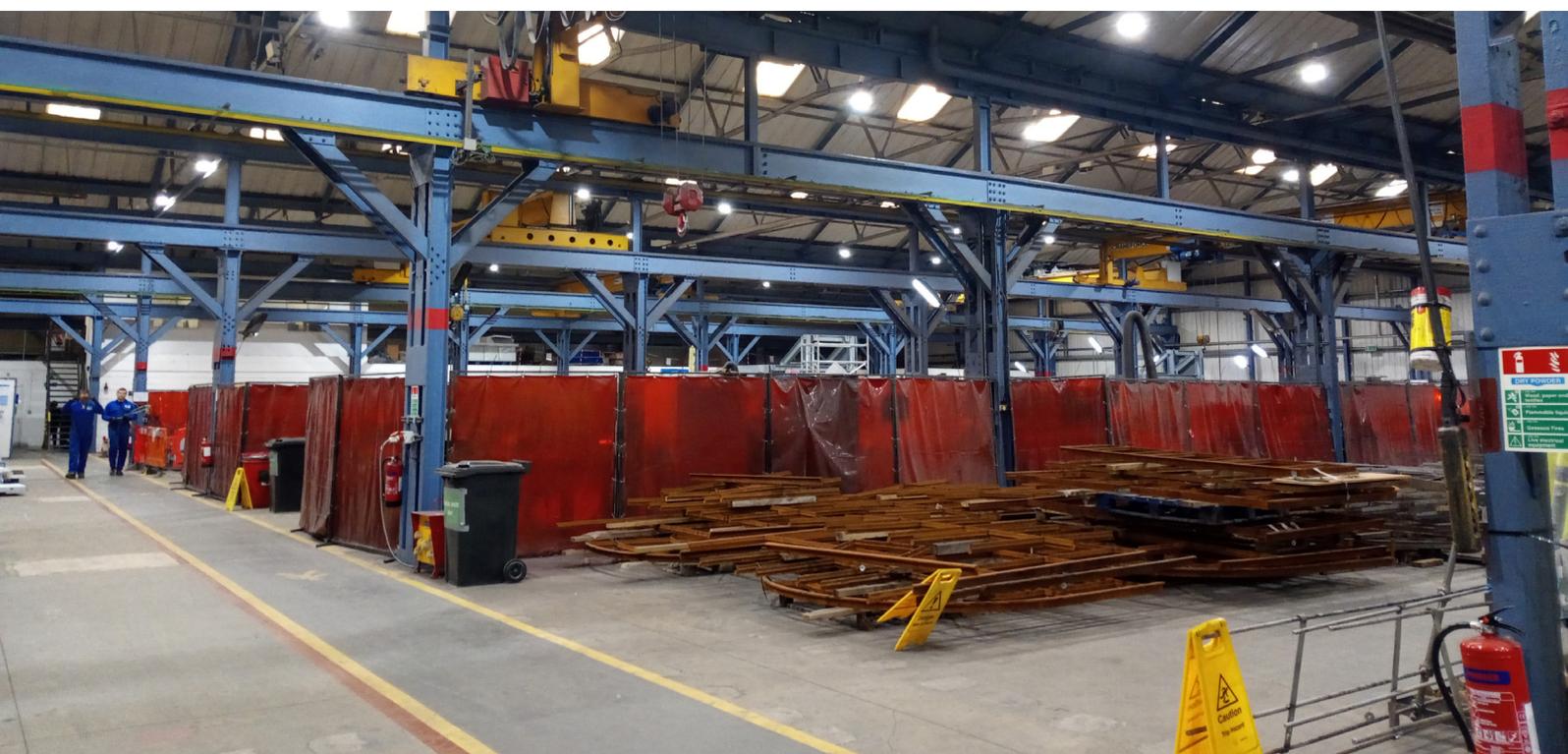
Workshop  
**4,200m<sup>2</sup>**

Blast Booth  
**96m<sup>2</sup>**

## Craneage.

5te Overhead Cranes  
**7**

10te Overhead Cranes  
**1**



## Facilities

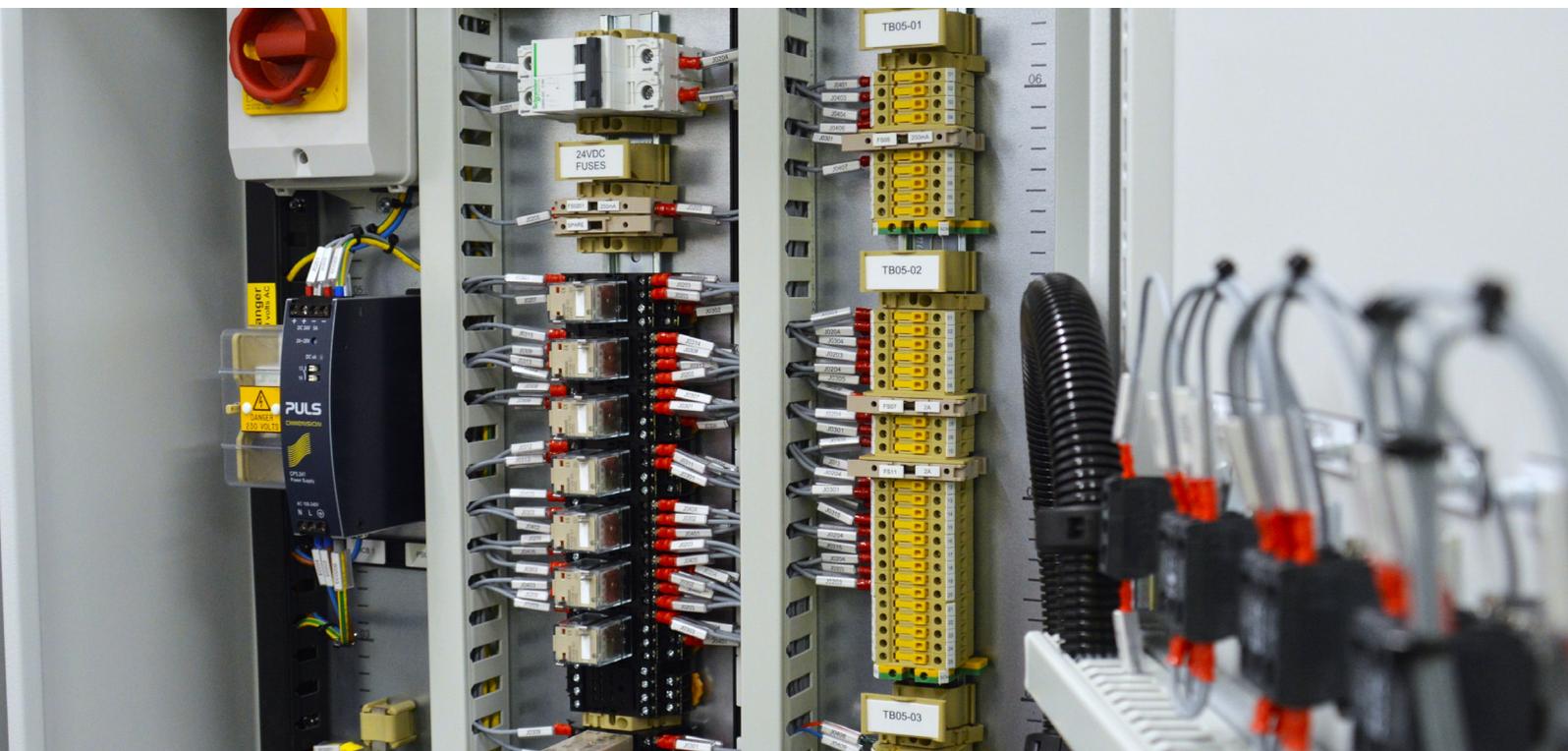
# Barrow Workshop.

We have a panel manufacturing facility in Barrow-in-Furness supports nuclear operations, as well as clients within the rail industry and our work involves a comprehensive range of electrical and instrumentation support within these particularly challenging sectors.

We are a JIB registered organisation and members of the Electrical Contractors Association as well as the ECIA. We have a very healthy training and development agenda with a large domestic apprenticeship scheme to deal with the anticipated future demands within our sector.

## Workspace.

Workshop  
**850m<sup>2</sup>**



The proof is in the pudding.

# Case Studies.

## THORP Steam Line

Shepley Engineers painted approximately 300 meters of 150mm nb & approximately 70 meters of 15nb/20nb steam line pipework to the required Sellafield standard.

There were also around 90 supports which were fully fabricated to BSEN 1090 Exc 2 and painted to the required Sellafield standards.

These were inspected by the client on regular intervals and all items were signed off and passed for forwarding to site for fitting.



### More Case Studies?

Read our full case studies online at  
[www.shepleyengineers.co.uk/case-studies](http://www.shepleyengineers.co.uk/case-studies)  
or scan the QR code



# FLOC Retrievals.

Fabrication drawings were produced following client design and then fabricated in-house.

Items for the FLOC Retrievals project at Sellafield in our Sheffield facility. All separate fabrications including structure, pipework and platform decking were mocked and fitted to the specifications set out by Sellafield.

The structures were fabricated and welded in Sheffield to comply with BS EN 1090 Exc 2, NSSS 5TH Edition CE Marking Version & all relevant Sellafield specifications including Sellafield Technical Performance Specification for Structural Steelwork G11.

All works were signed off and carried out to the approved quality plans.

## **FLOC Batch Vessel Agitator Platform**

The support structure was Approx. 5800mm x 2350mm and made up from 203x102x23 UC & 100x50x10 PFC. These were connected by connection plates which were fully welded and tested to all SL Inspection requirements.

## **FLOC HEPA Filter Support Platform**

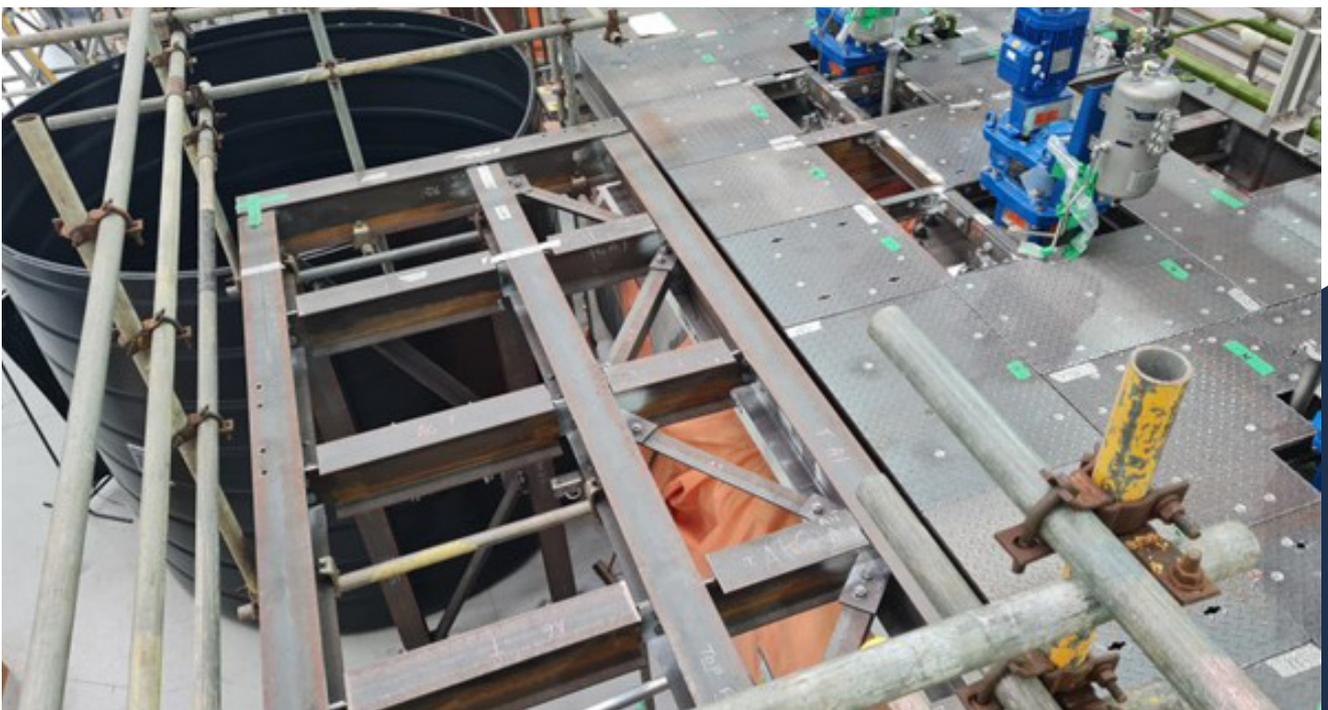
The support platform was Approx. 5800mm x 1565mm and made up from 254x146x31 UC. All fully welded connection plates and fabricated columns.

## **FLOC Transfer Kiosk Support Structure**

The support structure was Approx. 3600mm x 1700mm and made up from 203x102x23 UC frame with 15mm base plates connected to 152x152x30 UC support steel.

## **FLOC Access Stairs**

The access stairs were made up of 2 sets of stringers and a mid-landing which then connected to the above structures. Again all joints and welding were carried out to SL standards.



## Case Study

# Tanks and Vessels

The existing Site Ion Exchange Effluent Plant (SIXEP) at Sellafield has been operational since 1985, and is responsible for removing radioactivity from various streams on the site. A new treatment plant, called SIXEP Continuity Plant (SCP) is currently being built to replace the existing facility.

The tanks and vessels inside of SCP will act like kidneys, removing radioactivity from effluent streams before they can be safely released to the Irish Sea.

The 7 vessels are the final phase two plant items to be delivered for this scope of work and have been **completed 6 months ahead of schedule**. 15 tanks and vessels have been made in total.

This comes after the successful delivery of Phase 1 of the project, 8 tanks and vessels, once again completed on budget and ahead of schedule. Manufacturing for Phase 1 commenced in October 2020 and across both Phase 1 and 2 WCEL have delivered 22 vessels to SCP.

**Vessels**  
15

**Project Value**  
£1,600,000

**Duration**  
2 years



## Case Study

# Evaporator D

Project Value	£6,400,000
Pipework Installed	20,000km
Butt Welds	10,000
Right First Time Weld Rate	98%

**At the time of construction, Evaporator D was the largest nuclear decommissioning project in the UK. It was designed to continue reduction of the volume of highly active legacy waste.**

With Evaporator C having outlived its shelf life, Evaporator D was designed to reduce the volume of Sellafield's most radioactive waste product – highly active liquor. The plant is the only evaporator on the site able to process high-level liquid waste created during the clean-out of the Sellafield's reprocessing plants. It reduces the volume of liquor so it can be turned into gas form and safely stored.

West Cumberland Engineering completed over one hundred contracts directly associated with Evaporator D. The majority of these were associated with pipework in some capacity, ranging from small spools to large vessels.

Approximately 20km of pipe & 860 pipe support were fabricated including a modularised pipebridge. The pipebridge featured 12 modules, weighing a combined 150 tonnes of structural steelwork. These modules were pressure tested, and the largest was over 35 metres in length.



# Pump and Valve Modules

West Cumberland Engineering successfully completed the manufacture of 14 Pump and Valve modules ready for installation on the SIXEP Continuity Plant (SCP) facility. The modules, all manufactured in Lillyhall, will support the new SIXEP plant, allowing operations to continue until 2050.

The project surpassed 80,000 working hours, with each module made up of a fully welded stainless steel outer framework supporting a range of different sized pumps and valves connected together via a network of intricate pipework.

Nearly 2000 build 1 butt welds were carried out with an exceptional right first time pass rate of 96%.

Take a look at our video explaining the manufacturing process and how we are continuing to support the nuclear clean up process.

**Watch our  
video here**



## Case Study

# 63 Can Fuel Racks

**The UK currently has only one storage pond for Advanced Gas-cooled Reactor (AGR) fuel, located at Sellafield's Thorp plant.**

The 7 currently-operating AGR power stations have limited storage space for spent fuel, constraining the speed at which they can be defueled.

The current storage compartments can hold 20 cans of spent fuel, however this new design has the capacity to hold more than triple this, hence the name 63 Can Racks. This will ensure accelerated bulk defueling of the AGR reactors, from 8 years to 3.5 years.

Following the manufacture of the Hybrid 1 fuel racks, an improved Hybrid 2 design was made to further increase efficiency.

Cumbria Manufacturing Alliance - a joint-venture between WCEL and Bendalls Engineering - were successful in winning the manufacture of 80 Hybrid 2 63 Can Fuel Racks.

### Duration

4 years

### Racks

87

### Tax Saving

£2 billion



The first 8 Hybrid 1 Racks have been delivered to site and placed in the THORP Receipt and Storage Pond. The manufacture of the enhanced Hybrid 2 Rack is ongoing with the first one been delivered by CMA in November 2022 achieving a major NDA milestone.



## Case Study

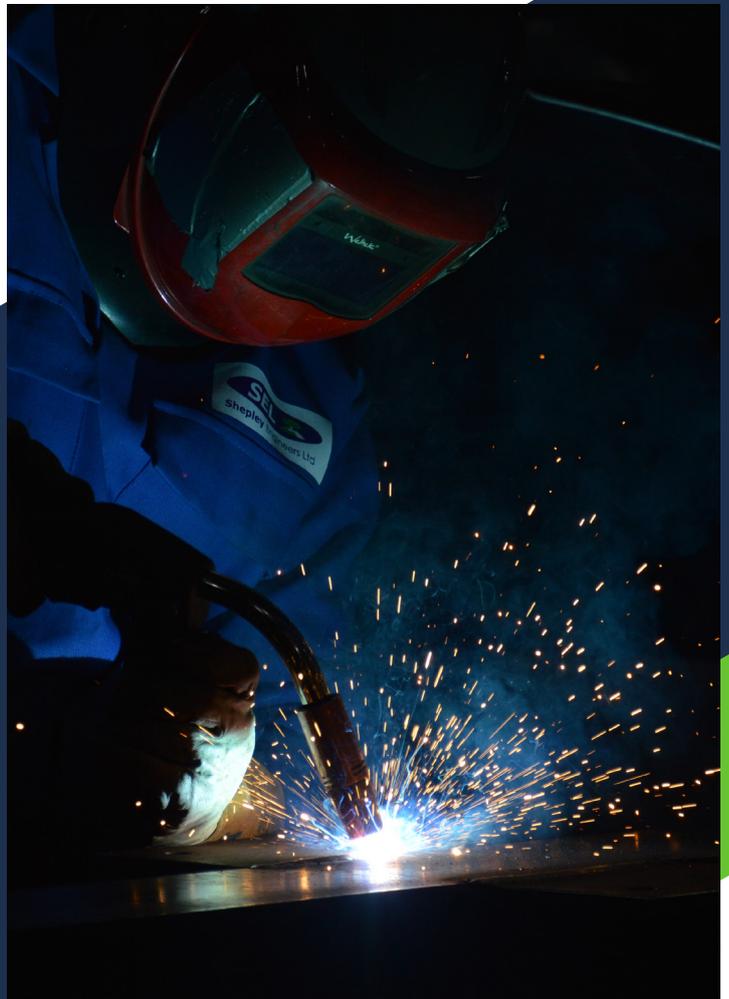
# F19 Pipebridge.

The F-19 project is to provide the “Pipebridge Modules” that are to be installed as elevated structures to provide a means for input and return of effluent from and to the existing SIXEP plant.”

SEL will design and manufacture Pre-assembled piping units (PAU's) that make up the “East” and “West” Pipebridge Modules.” This will consist of a full design package for each module, Penthouse, and infill sections which will house a designed and manufactured coaxial Pipeline. Thick Pleates ll be installed around the Modules and penthouses providing shielding of the effluent as it passes through the pipework.

Once manufactured, a trial build will be carried out, focusing on the constructability and buildability to mitigate any issues for the site installation team.

From the start of the project to the completion of the last module. The client design team and installers are fully engaged in all aspects of the projects from design, manufacture and review of the trial build, in a collaborative ‘Right first time’ approach, which is proving invaluable in the first year of the project.



# Get in touch.

## Shepley Engineers Ltd

Old Town Hall, Duke Street,  
Whitehaven, CA28 7NU

**Tel:** 01946 599022

**Email:** [engineers@shepley.org.uk](mailto:engineers@shepley.org.uk)

[www.shepleyengineers.co.uk](http://www.shepleyengineers.co.uk)

 @ShepleysUK

 Shepley Group

 Shepley Engineers Ltd



A wholly owned subsidiary  
of Renew Holdings Plc