Utility Innovations Services

Operators Manual

UIS Power Handler Pipe Hander

250mm – 900mm Models

Welcome

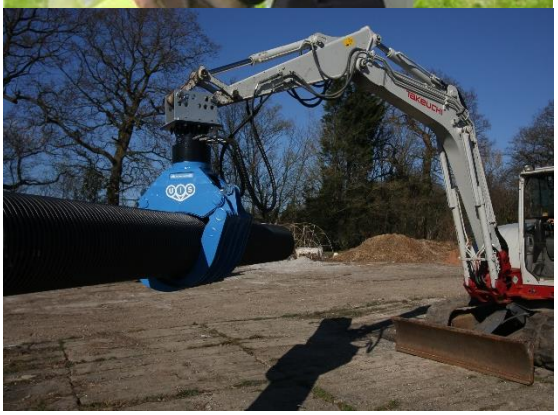
ABOUT US

Utility Innovations Services Limited (UIS Ltd) are specialists in manufacturing new innovations equipment for the utilities sector.

Within the staff employed at UIS Ltd, we have a wealth of experience in gas, water and electricity replacement, rehabilitation and reinforcement projects. Our experience has enabled us to target key areas and functions within utilities we feel we can improve upon with new innovations created and manufactured in house.

The concept of UIS Ltd is to develop and advance innovation products that aid the process of replacing / renewing pipe utility work. A main aim is that all of our products should eradicate the inherent safety and technical faults encountered by existing methods. Aligned to safety, quality and engineering compliances there are also productivity benefits that allows our products to be compliant, versatile and proven speedier than alternative approved methods of works within utilities.

As our products have been developed through extensive trials, a detailed technical assessment has been made in which includes a detailed analysis of its performance against alternatives. The use of this equipment may be adapted to water, gas, cabling and sewage activities or any other use for the process of handling and a / best practice / information is provided.



LEADING THE WAY IN UTILITY INNOVATIONS

UIS Power Handler™ Pipe Handler

SCOPE

The purpose of this operator's manual is to demonstrate the safe working process and procedure of the UIS Power Handler™ Pipe Handler. In this operators manual you will find all of the safe working practices which are required when using the product for its designed purpose.

BENEFITS

- Safety
- Environmental Migration
- No additional shims required for 250mm-900mm Pipes
- Engineering Compliant
- Multi-use Attachment Tool

GENERAL

The UIS Power Handler™ is an attachment which fits onto an excavator and is used for Handling large diameter pipes and ductings on predominantly gas & water sites. The UIS Power Handler™ may also be used for Handling other large diameter spherical objects for example concrete sewer pipes, and can be used for aligning pipes and ductings within excavations.

SYMBOLS & ABBREVIATIONS

UIS – Utility Innovations Services

PH – Power Handler™

PPE – Personal Protective Equipment

5T – 5 Tonne Excavator

13T – 13 Tonne Excavator

25T – 25 Tonne Excavator

SDR Range – Standard Dimension Ratio

PE – Polyethylene

Innovative Utility Technologies

UIS Limited, Unit D9, Commercial Avenue, Stanley Green Business Park, Cheadle Hulme, Cheshire, UK. SK8 6QH

Telephone: +44 (0)161 428 7959

Web: www.uisltd.co.uk | Email: info@uisltd.co.uk

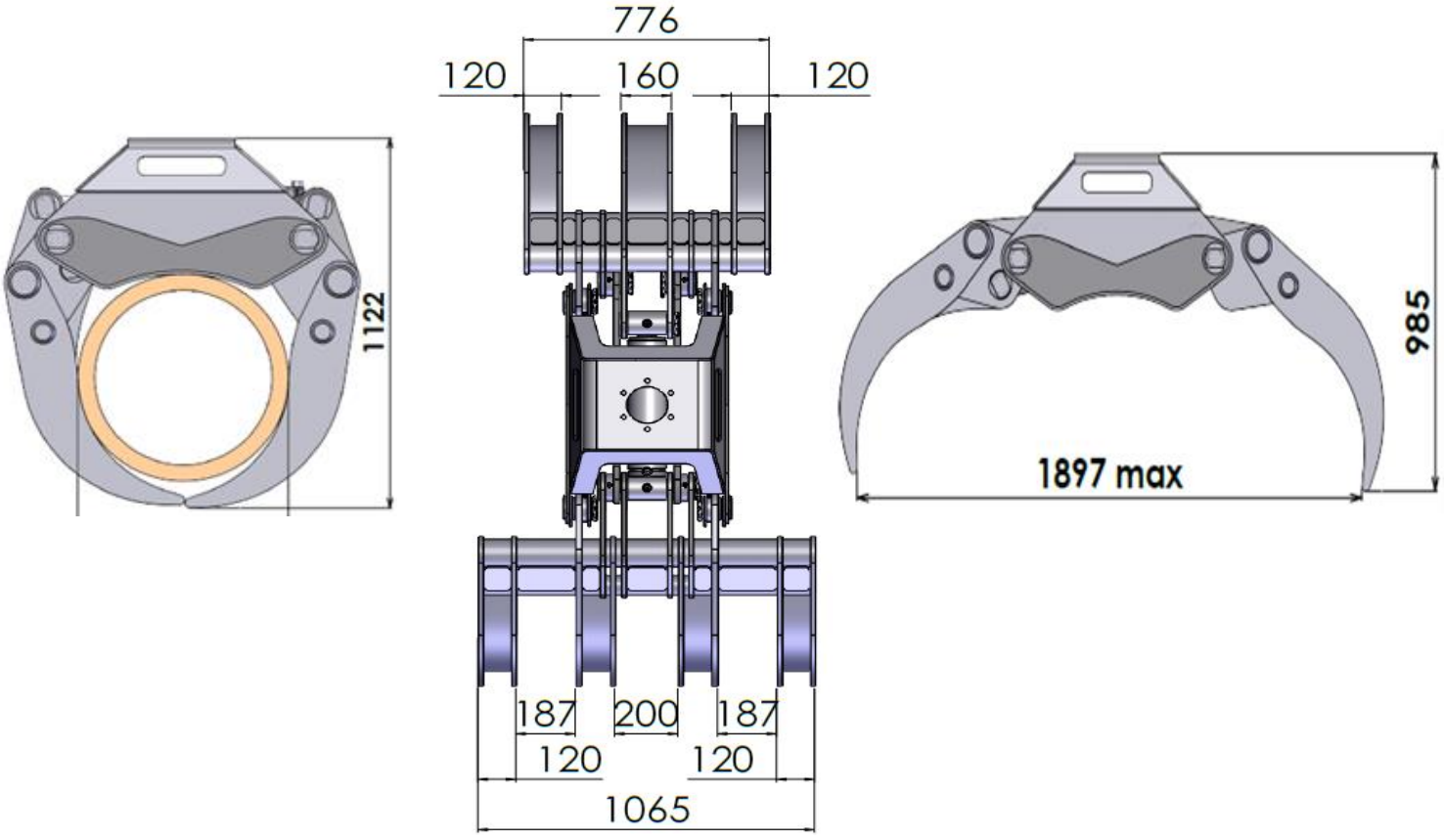
CONTENTS

DESIGN BASIS & SPECIFICATIONS

The UIS Power Handler™ has been designed, tested and implemented to suit the needs of large scale gas / water / electric & sewage replacement schemes.

SPECIFICATIONS & RECOMMENDATIONS

500mm – 900mm Power Handler Pipe Handler	
SPECIFICATIONS	
Height (open-closed)	1200mm – 1800mm
Length	1065mm
Width (max)	2000mm
Weight (should not exceed)	1000kg
Recommended Working pressure	Max 300 Bar
Recommended Excavator Size	13T – 25T
Max Load	8 Tonne
Gripping Area	0.50 m²
Flow Rate	70 l/min
Gripping Force	21.8 kN



Please Note: The height of the product may slightly differ dependant on which head bracket is attached

Innovative Utility Technologies

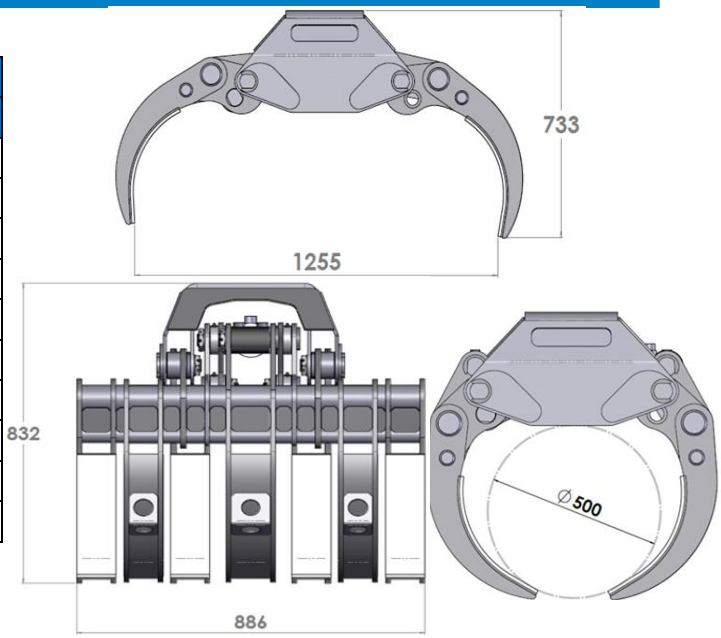
UIS Limited, Unit D9, Commercial Avenue, Stanley Green Business Park, Cheadle Hulme, Cheshire, UK. SK8 6QH

Telephone: +44 (0)161 428 7959

Web: www.uisltd.co.uk | Email: info@uisltd.co.uk

DESIGN BASIS & SPECIFICATIONS Continued

250mm – 500mm Power Handler Pipe Handler	
SPECIFICATIONS	
Height (max)	1500mm
Length	886mm
Width (max)	1600mm
Weight (should not exceed)	720kg
Recommended Working pressure	Max 250 Bar
Recommended Excavator Size	5T – 12T
Max Load	3 Tonne
Gripping Area	0.63 m²
Flow Rate	70 l/min
Gripping Force	23.6 kN



Product Storage

The UIS Power Handler™ should be stored safely and securely at all times when it is not in use. Making sure it is securely stored on an even sturdy surface to avoid risk of the product falling, causing a collision / crushing, serious injury or even death could occur if risks are taken when storing the product.

Please remember that when moving the UIS Power Handler™ lifting procedures / regulations should be adhered to at all times.

During storage the crane/machine shall not be put in such a position that the crane boom is resting on the equipment. Never leave the machine with a hanging load.

Shim System

The UIS Power Handler™ uses a PE Lined shim system which protects the Pipes / Ductings which it is lifting. With the design of the UIS Power Handler™ no additional shims are required and the handler depending on the model can safely lift and move cylindrical objects from 250mm – 900mm.

OPERATING VARIABLES & CONTROLS

The operations of the UIS Power Handler™ are all done through the operations of the excavator which the unit is attached to. These are the same controls that the excavator operator would use to operate the excavator in the same manner as digging an excavation or using an excavator mounted hydraulic breaker. The open/close and 360º function on the UIS Power Handler™ are done through the use of the "dual flow" hydraulics on the excavator, which is either through a foot pedal on the excavator or through the buttons on the operating levers. This is dependent on the make and model of the excavator which the UIS Power Handler™ is attached to and may vary for each manufacturer.

START-UP & SHUT-DOWN PROCEDURE

Before using the UIS Power Handler™ it must be verified that the weight and/or the lifting capacity of the machine does not exceed the capacity of the equipment, recommended by the manufacturer.

Prior to installing the hydraulic connections, hoses and pipes must be controlled with respect to possible leakage. Should the machine not be equiped with necessary feed lines, the manufacturer will advise proper measures to be taken.

Always make sure the hydraulic pressure of the machine is not exceeded, if this is the case then a pressure reduction valve must be installed.

The UIS Power Handler™ fits onto an excavator in the same way an excavator bucket or a hydraulic breaker would, which is via pins or a quick hitch system. UIS Power Handler™ is to be handled with extreme care at all times using correct lifting and handling equipment to do so. When fitting the unit to the excavator make sure the UIS Power Handler™ is placed on a sturdy/stable flat surface.

Innovative Utility Technologies

UIS Limited, Unit D9, Commercial Avenue, Stanley Green Business Park, Cheadle Hulme, Cheshire, UK. SK8 6QH

Telephone: +44 (0)161 428 7959

Web: www.uisltd.co.uk | Email: info@uisltd.co.uk

START-UP & SHUT-DOWN PROCEDURE Continued

Before using the UIS Power Handler™ you must always ensure that the carrier excavator is capable of lifting the PH along with a full capacity load. Failure to do this may result in serious injury or even worse.

Once the UIS Power Handler™ is ready to be fitted to the dual flow hydraulic system of the excavator. The excavator should be turned off for this process, ensuring all pressures on the auxiliary hydraulic circuit have been released. When this process has been completed the UIS Power Handler™ can be safely linked up to the excavator using the quick release couplings attached. This is done by simply pushing together the quick release couplings on the Power Handler™ to the couplings on the excavator, enough pressure should be applied to allow the connections to securely come together and a small ball bearing should be made visible to indicate the correct connection. This operation is completed for all of the quick release couplings. There can be various size and shape quick release couplings to attach and can differ depending on the make and model of the excavator. It is important that the excavator has a dual flow hydraulic system to allow the UIS Power Handler™ to work correctly.

LEADING THE WAY IN UTILITY INNOVATIONS

Equipment Operation (Correct and incorrect use)

Once the excavator is in the correct position with the UIS Power Handler™ securely fitted, the operation of moving pipes / ductings can begin. The excavator operator can control the UIS Power Handler™ safely from the excavator cab using the usual controls the same as would be for excavating a hole or operating a hydraulic type breaker. The dual flow hydraulics on the excavator are used for opening/closing and rotating the UIS Power Handler™ 360°. The operator must always be aware of their surroundings when using the equipment, using a banksman when and if necessary.

- The UIS Power Handler™ is intended for use on cylindrical objects from 250mm – 900mm (Model dependant)
- Avoid excessive swinging during lifting and handling objects
- Do not use the machine to drag or wrench objects on the ground
- Do not use the equipment to hit, push or compact material
- Do not lift more than the lifting capacity of the equipment
- Make sure it is fitted to an excavator capable of lifting the equipment plus its lifting capacity
- Do not push the equipment from above using the weight of the machine
- Do not leave the machine with a hanging load. When the machine is stopped the equipment must stand on the ground
- Do not rotate the equipment when the equipment is standing on the ground or is in the process of gripping. The rotator shall only be used for positioning of equipment, when it is hanging free
- During transport and storage the crane/machine shall be put in such a position that the excavator boom is not resting on the equipment

EMERGENCY SHUT DOWN PROCEDURE

In case of any emergencies whilst using the UIS Power Handler™, the most efficient way of shutting down all operations is to turn off the excavator using the key. This operation will stop all workings of the excavator and also stop the flow of hydraulic oil to the UIS Power Push™.

Innovative Utility Technologies

UIS Limited, Unit D9, Commercial Avenue, Stanley Green Business Park, Cheadle Hulme, Cheshire, UK. SK8 6QH

Telephone: +44 (0)161 428 7959

Web: www.uisltd.co.uk | Email: info@uisltd.co.uk

INSPECTION & MAINTENANCE PROCEDURES

The UIS Power Handler™ should be inspected prior to every use. All works must be carried out with the equipment standing firmly on the ground. The machine must be switched off and the hydraulic oil pressure should be released.

General maintenance does not require special skills and the following should be checked daily before use:

- Tightening of bolts and hydraulic fittings
- Greasing of pins and bushes
- Hydraulic Hoses and Connections should be checked for significant damage / leaks, the hydraulic hoses should be replaced every 2 years, regardless of its perceived condition
- All countersunk bolts in place for shims and tightly secured

Maintenance and Safety Concerning Rotators

The connection to the hydraulic system must be performed in accordance with the symbols on the rotator. The hydraulic oil system must be free from debris and impurities.

Lift the load off the ground before turning. It is not allowed to pull the load on the ground using the rotator. Do not leave the load hanging unattended.

Grease nipples are located on the side of the motor body. Greasing shall take place on a monthly basis. Stop greasing as soon as grease is seen running out from the venting valve on the opposite side. Intervention on the hydraulic rotator shall be carried out by qualified and specially trained personnel. Incorrect dismantling and mounting may lead to permenant damage of the equipment.

Maintenance of the hydraulic rotator shall take place according to the general maintenance time schedule described below.

Time Schedule	Operation	Qualification	Spare parts & Material
After 8 hours	Verify tightening of bolts, nuts and fittings	None	None
Every 24 Hours	Grease pins and bushings	None	Hi-performance lithium grease
Every 100 hours	Verify tightening of bolts, nuts and fittings	None	None
Every 100 Hours	Verify hydraulic hoses and fittings	Medium Trained Personnel	None
Every 1000 Hours	Complete change of hydraulic oil	Medium Trained Personnel	HLP 46 or similar

SAFETY

The UIS Power Handler™ is a lifting device for grabbing and positioning using a double acting hydraulic cylinder. The equipment is activated by the hydraulic system on the machine where the equipment is installed. This manual will help the user adhere to the safe and correct manner of using the UIS Power Handler™, the operator should have completed the following before using the equipment:

- Make sure the person using the carrier excavator has all of the correct qualifications and is competent in the use of an excavator
- Make sure the correct PPE is being worn, items such as Safety Glasses, Hard Hat, Safety Toe Cap Boots, High Visibility Work Wear and Protective Gloves. (Additional PPE may be required dependant on the site specific requirements)
- Ensure it is a safe working environment before attaching the product to the carrier excavator, i.e. inside a clear and safe area away from members of the public etc

Please note that using the attachment outside the parameters of the information contained in this manual may cause harm, disruption, damage or even injury

ADVISORIES & CONTROL MEASURES

- The driver / operator must have correct experience
- Speed of operation dictated by specific site conditions
- The Excavator must be sited on good firm ground
- Driver be aware of permit to work controls and restrictions
- Banksman to control close working
- Underground services to be protected
- Site set out to restrict public access (barriers / herras fencing)
- All works to be contained within the site area, no working over live footpaths or traffic
- Mechanical Excavators to work within demarcated site, no swinging across or into live carriageway
- Any existing utilities to be adequately protected against accidental contact / damage
- Machine to be adequately maintained
- Operator to perform pre-start checks of all connectors
- No excessive pressure to be applied
- Spill kits to be readily available
- Training given in the correct handling and use of hand tools
- Correct maintenance of hand tools. Replace or maintain as necessary
- Use the correct tool for the job and appropriate PPE, e.g. gloves, eye protection etc. as instructed
- Full compliance with NRSWA (New Roads and Streetworks Act)
- Site barriered off, signed and guarded with appropriate signs, care for pedestrians
- This product is to be used in accordance & full compliance with the excavators operators manual
- Nobody to work in close proximity of the product at any time during operation
- Ensure that the product is safely isolated (excavator turned off and hydraulic pressures released) before commencing works in close proximity to the product
- To reduce / eradicate the risk of entrapment in the product, please ensure hands and other body parts are kept away from the product whilst in operation
- Ensure that lifting procedures are adhered to whilst moving the product

Innovative Utility Technologies

UIS Limited, Unit D9, Commercial Avenue, Stanley Green Business Park, Cheadle Hulme, Cheshire, UK. SK8 6QH

Telephone: +44 (0)161 428 7959

Web: www.uisltd.co.uk | Email: info@uisltd.co.uk

Spare & Replacement Parts

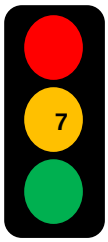
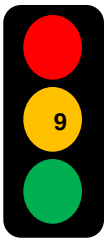
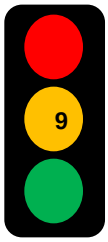
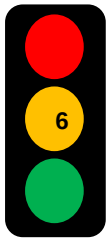
UIS Power Handler™

Order Code	*Item*
UIS/PH/001	Bespoke Head Bracket to suit customer requirements
UIS/PH/002	PE Liner
UIS/PH/003	PE Liner Countersink Screws & Nuts
UIS/PH/004	2.5M Feed Hose
UIS/PH/005	½” Male Quick Release Coupling
UIS/PH/006	½”Female Quick Release Coupling
UIS/PH/007	¾” Male Quick Release Coupling
UIS/PH/008	¾” Female Quick Release Coupling
UIS/PH/009	1” Male Quick Release Coupling
UIS/PH/010	1” Female Quick Release Coupling

GENERAL RISK ASSESSMENT

Note: *All employees are to be informed of control measures prior to work commencing*

ACTIVITY: Use of UIS Power Handler [*Lifting/Handling /Alignment and correction of Pipes*]							**RISK RATING**
Activity affecting (Tick appropriate box)	**EMPLOYEE**	✓	**THIRD PARTY**	✓	**VEHICLE**	✓	**Frequency x Severity**
	PLANT	✓	**PROPERTY**	✓	**OTHER**		

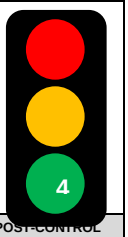
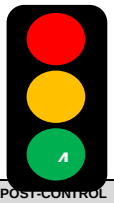
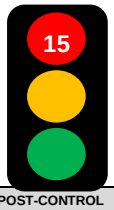
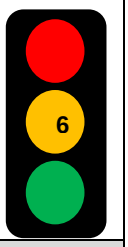
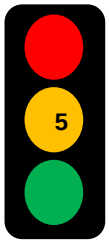
1	**HAZARD**	**POSSIBLE CONSEQUENCES**	**POST-CONTROL**
	Mechanical operations	Impact injury, crushing, damage to property and plant. Collapse/overturning of lifting plant	
	PRE- CONTROL	**CONTROL MEASURES**	
	4 x 3 = 12	All equipment must be inspected as per UIS specifications [normally 6 months] prior to being used so as to comply with site specific regulations / requirements. 1. All equipment is examined before use in accordance with **Doc Ref: UIS/QMS/014**, with defective equipment being removed from site 2. The driver/operator must have an in date CITB/CPCS card. Weekly equipment registers to have been completed. 3. Speed of operations dictated by Specific Site Conditions. 4. Ensure that outriggers are deployed and machine is sited on good firm ground. 5. A competent person must assume the role of a banksman at all times, and take precautions to ensure others are kept away from whilst in operation.	
2	**HAZARD**	**POSSIBLE CONSEQUENCES**	**POST-CONTROL**
	Working environment	Crush injuries caused by moving parts of machinery or local surroundings	
	PRE- CONTROL	**CONTROL MEASURES**	
	5 x 5 = 25	1. Drivers to be aware of Permit to Work controls and restrictions. 2. Banksman to control close working. 3. Underground services to be protected. 4. Site set out to restrict public access (barriers/herras fencing) 5. All works to be contained within the site area, no working over live footpaths, public property or traffic. 6. Ensure that the product is safely isolated before commencing works in close proximity of the product.	
3	**HAZARD**	**POSSIBLE CONSEQUENCES**	**POST-CONTROL**
	Damage to persons and / or property	Personal injury to operatives/users Damage to property and plant.	
	PRE- CONTROL	**CONTROL MEASURES**	
	5 x 5 = 25	1. Drivers to be aware of Permit to Work controls and restrictions. 2. Banksman to control close working. 3. Underground services to be protected. 4. Site set out to restrict public access (barriers/herras fencing) 5. All works to be contained within the site area, no working over live footpaths, public property or traffic. 6. Ensure that the product is safely isolated before commencing works in close proximity of the product. 7. To reduce / eradicate the risk of entrapment in the product, please ensure hands and other body parts are kept away from the product whilst in operation. 8. Ensure guards are correctly positioned when attachment is operational 9. Ensure that lifting procedures are adhered to whilst manually moving the object (both in and out of storage box)	
4	**HAZARD**	**POSSIBLE CONSEQUENCES**	**POST-CONTROL**
	Working in close proximity to live apparatus	Impact Damage To Pipe work causing uncontrolled release of gas.	
	PRE- CONTROL	**CONTROL MEASURES**	
	6 x 5 = 30	1. Mechanical excavators to work within demarcated site, no swinging buckets across or into live carriageway. 2. Any existing gas pipe and other utilities to be adequately protected against accidental contact/damage.	

Innovative Utility Technologies

UIS Limited, Unit D9, Commercial Avenue, Stanley Green Business Park, Cheadle Hulme, Cheshire, UK. SK8 6QH

Telephone: +44 (0)161 428 7959

Web: www.uisltd.co.uk | Email: info@uisltd.co.uk

5	**HAZARD**	**POSSIBLE CONSEQUENCES**	**POST-CONTROL**
	Pressurised system [Hydraulics]	Un controlled release of high pressure hydraulics causing injury and possible damage to the environment.	
	PRE- CONTROL	**CONTROL MEASURES**	
	2 x 3 = 6	1. Machinery to be adequately maintained. 2. Operator to perform pre-start checks of all connectors 3. No excessive pressure to be applied. 4. Spill kits to be readily available.	
6	**HAZARD**	**POSSIBLE CONSEQUENCES**	**POST-CONTROL**
	Use of hand tools	Personal injury to operatives/users	
	PRE- CONTROL	**CONTROL MEASURES**	
	3 x 2 = 6	1. Training given in the correct handling and use of hand tools 2. Correct maintenance of hand tools, , Replace or maintain as necessary 3. Use the correct tool for the job and appropriate PPE, e.g. gloves, eye protection etc. as instructed	
7	**HAZARD**	**POSSIBLE CONSEQUENCES**	**POST-CONTROL**
	Traffic & General Construction Hazard	Collision, crushing, trips & falls	
	PRE- CONTROL	**CONTROL MEASURES**	
	6 x 4 = 24	1. Full compliance with NRSWA 2. Site barriered off, signed and guarded with appropriate signs, care for the pedestrian. 3. Ensure vehicles and trailers are parked in safe area and not obstructing traffic movements or visibility of road users.	
8	**HAZARD**	**POSSIBLE CONSEQUENCES**	**POST-CONTROL**
	Working in and around excavations	Asphyxiation, crushing, falling	
	PRE- CONTROL	**CONTROL MEASURES**	
	6 x 6 = 36	1 Guidance in procedures (Main layers/service layers). 2 Planning for excavations in advance to ensure the supply of adequate trench support systems for the work taking place. 3 Excavation work and support systems installed by a competent person taking into account ground and weather conditions. 4 Spoil stored away from excavation edge. 5 When vehicles are operated next to the excavations, place stop blocks to prevent vehicles falling in. 6 Ensure adequate access and egress for employees.	
9	**HAZARD**	**POSSIBLE CONSEQUENCES**	**POST-CONTROL**
	Handling of PE Coils and Pipe Lengths	Crushing /trapping/impact injuries	
	PRE- CONTROL	**CONTROL MEASURES**	
	5 x 5 = 25	1. When possible all coils of PE Pipe should be loaded into coil trailers by a combination of manual handling and mechanical handling (JCB/Grab). 2. Coils to be loaded on to approved and mechanically sound coil trailers by use of nylon slings appropriated for the weight lifted. 3. Avoid trapping injuries whilst loading the trailer by use of guidelines / tags where possible. 4. When lifting pipe lengths, appropriate banksman / slinger signaller to control lifting operations. 5. Secure all pipes prior to cutting retaining straps on packs of pipes. 6. Towing heads to be used on larger diameter coils and the tail end secured against whiplash. 7. Avoid damage to pipe walls 8. Secure the end of the coil against springing. 9. Ensure that adequate access is in place for operatives to access pipes and lifting points.	

KEY			**SEVERITY OF:INJURY / DAMAGE OR LOSS**		**SCORE**
Improbable	Infrequent	1	**Trivial**	First Aid Only	1
Possible	Annual	2	**Minor**	Medical Treatment	2
Occasional	Quarterly	3	**Major**	Lost Time	3
Frequent	Monthly	4	**Major**	Multiple Injuries	4
Regular	Weekly	5	**Death**	Fatality	5
Common	Daily	6	**Multiple**	Fatalities	6
RISK RATING		**ACTION**	**TIMESCALE**		**MONTHS**
Low		1 - 4	Review Risk & Existing Controls		12 – 14
Medium		5 – 9	Review Risk & Existing Controls		6 – 7
High		10 – 16	Review Risk & Existing Controls		3 – 6
Major		17 – 19	Implement Action Plan for progressive reduction		0 – 3
Unacceptable		20 – 36	Stop activity immediately		Urgently

Compiled By: David G Stevens	**Date:** N/A	**Reviewed by:** J J Iredale	**Date:** N/A
Signature(s): *D G Stevens*		**Signature:** *J J Iredale*	

Name:	
Week Commencing Date:	
Company:	
Plant Number:	
Item Description:	

Note: The below checks MUST be completed prior to and during the use of the product. If any of the inspections result in fail, STOP and report it to your supervisor immediately prior to use.

	Item:	**Check to be performed:**	**Mon**	**Tue**	**Wed**	**Thu**	**Fri**	**Sat**	**Sun**

Generic Inspection Checks

1	Hydraulic Ram	• Pressure test completed and satisfactory? • Visual condition satisfactory?							
2	Hydraulic Hoses	• Pressure test completed and satisfactory? • Visual condition satisfactory? • Free from outer casing damage?							
3	Hydraulic Connectors	• Correct connectors, which are free from dirt/debris?							
4	Head Bracket	• Free from signs of damage/stress? / Nuts tight and secure							
5	Swivel Unit	• Swivel unit free from obstructions and fit for use? • Head bracket locking in place and satisfactory?							
6	Locking Mechanism	• Locking nuts in place and free from wear? • Fixing lugs in place and free from wear?							
7	Pins [Safety Clips]	• Pins fit the head bracket satisfactory? • Safety pins in place?							
8	Site Conditions	• Does the site provide sufficient access to deploy and operate the Excavator [*if applicable*] and UIS product?							
9	PPE	• Operatives wearing the correct PPE as stated within the Operators Manual and site specific requirements set by contract?							
10	Paperwork	• All necessary documentation including UIS product Operators Manual for additional guidance?							
11	Operator Competence	• Excavator operator competent in the use of the Excavator [*if applicable*] and UIS product?							

UIS Power Handler™ Inspection Checks

12	Shim Set	• Shim set gripping and releasing the pipe as required? • Shim set free from signs of damage/stress?							

Corrective Actions Required / Additional Comments

U I S
Innovative Utility Technologies

UIS Limited, Unit D9, Commercial Avenue, Stanley Green Business Park, Cheadle Hulme, Cheshire, UK. SK8 6QH
Telephone: +44 (0)161 428 7959
Web: www.uisltd.co.uk | Email: info@uisltd.co.uk

Utility Innovations Services Limited are proud sponsors and affiliates of the following organisations:

UVDB empowered by Achilles

IGEM Institution of Gas Engineers & Managers

UKSTT

iSTT

Innovative utility technologies

UIS (Utility Innovations Services Limited)

Unit D9, Commercial Avenue, Stanley Green
Business Park, Cheadle Hulme, Cheshire, SK8 6QH
T 0161 428 7959

www.uisltd.co.uk