

METHOD STATEMENT

INSTALLATION OF INSULATING FLANGE KITS

Revision	Date	Prepared By	Approved By
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Method Statement IF Kits

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1 INTRODUCTION

This Method Statement covers standard procedures for the installation of insulating flange kits. Recommended methods of the installation of the flange insulation materials are discussed only. Specific details, such as bolt tightening, torque settings etc., are the responsibility of the pipeline contractor and must be verified before commencement of works.

2 REFERENCE DOCUMENTS

2.1 Specifications

British Standard 7361: Part 1: 1991 Code of Practice for Cathodic Protection for Land and Marine Applications

British Standard BS7671 : 1992 Requirements for Electrical Installation

2.2 Drawings

As required.

3 RESPONSIBLE PERSONS

Activities associated with the installation of the insulating flange kits shall be carried out by suitably experienced and trained personnel.

4 TEST EQUIPMENT

4.1 Calibration

Any Test meters used shall be calibrated to National or International measurement standards if applicable.

4.2 Equipment List

Continuity Tester

Hand tools as required, typically:

Ring spanners

Calibrated Torque Wrench, with correctly sized sockets.

Compressed air socket tool

5 INSTALLATION PROCEDURES

- i) Clean flange faces with proprietary cleaning materials and ensure that both faces are parallel. The flatness of the flange face must not deviate by more than 0.7mm (0.35mm per flange).
- ii) Wire brush studs/bolts and nuts to remove any dirt on the threads and ensure that nuts can run freely on the threads before use. Coat the studs/bolts with a thin film of an approved lubricant in line with the following Table, where the lower the factor, the more efficient the bolt.

Lubricant	Typical Nut Factor
No Lubricant, Clean Mild Steel Nuts/Bolts	0.25
No Lubricant, Clean Stainless Steel Nuts/Bolts	0.30
Zinc Plated (Dry)	0.29
Machine Oil	0.20
Molybdenum Disulphide Based Grease	0.15
Copper Based Anti Seize	0.15
Solid PTFE Film (Spray)	0.12

- iii) Carefully fit gasket into position, taking care not to damage the gasket surface.
- iv) Install studs/bolts hand tight in turn into all bolt holes, as per the sequence shown on the drawing in Appendix I. Tighten the bolts to 30% of the final torque.
- v) Following the same sequence as in section iv) above, remove one bolt/stud at a time and cut insulation sleeve to length. The preferable method of cutting is with a Junior Hacksaw with fine tooth blade. Alternatively a very sharp knife can be used. Squareness in the cutting is essential and can be achieved by a mitre block.
- vi) The insulation sleeve length is the distance between the outside face of each fibre washer and should be cut exactly to size on each bolt/stud. A tolerance of plus 0 to minus 1.5mm is permissible.

vii) The theoretical length is:-

$$2 \text{ (FWT)} + 2 \text{ (FFT)} + \text{GT}$$

where FWT = Fibre Washer Thickness
 FFT = Flange Face Thickness
 GT = Gasket Thickness (3mm)

Note :-

Do not use split or damaged sleeving. If splitting occurs during tightening, this is probably because sleeving is too long. Remove, discard and fit new sleeving.

viii) When all sleeves and washers are fitted, torque all bolts/studs to 60% of the final torque value, utilising the same tightening sequence as in 8.5 above.

ix) Repeat torque tightening to the final value, using the same sequence.

Note :-

A typical table of torque values is shown in Appendix III. Actual torque values should be determined by Yorkshire Water.

x) Test for electrical continuity between each bolt and each flange, utilising a 9 volt battery and bulb circuit tester. Enter results on Table in Appendix II.

xi) Where doubt occurs, remove sleeve and replace. Repeat test.

6 HEALTH AND SAFETY

6.1 General

It is the intention of BAC that all test and inspection procedures are carried out in a safe manner in accordance with the Health and Safety At Work Act and any other relevant legislation.

If required by the Client, BAC personnel will attend any Site Safety Induction Courses before carrying out work on site.

6.2 Safety Handbook

It is the responsibility of all BAC personnel to be familiar with the latest revision of the Company's Safety Handbook. The Safety Handbook details the responsibility of the Company and the individual regarding Safety Regulations.

6.3 Risk Assessments

6.3.1 General hazards

i) *Site safety.*

There can be assorted hazards associated with working on any site and site regulations as laid down by the site owner/operator should be observed.

ii) *Manual handling risks.*

Equipment and associated items may be heavy and care should be taken when handling manually. It is generally preferable to reduce any risk by avoiding manual handling altogether. When unavoidable, correct lifting procedures should be used. Heavy items will include, but not be limited to, concrete posts, transformer rectifiers, anodes, bags of backfill, and rolls or drums of cable. Arrangements should be made for items such as these to be delivered as close as possible to the intended point of installation and be moved subsequently as much as possible by machine.

iii) *PPE*

The minimum personal protective equipment is as follows:

- Approved safety helmet
- Approved ear defenders/earplugs
- Safety footwear
- Eye protection
- Gloves
- Overalls

And any other equipment required by the site operator or deemed necessary by the task

iv) *Risk of falling.*

If any equipment or enclosure is installed in a location that requires the use of a ladder, care should be exercised in the use of that ladder. The ladder should be used on firm ground, and secured to prevent slipping.

- v) *Road traffic.*
If any equipment or enclosure is located near a roadway, there is a risk of injury caused by moving vehicles. All personnel should wear suitable high visibility clothing and exercise increased care.

6.3.2 Specific hazards applicable to Installation Procedures

- i) *Mains Voltages*
Care should be exercised when working with mains voltages (240V or 380V AC). AC connections to apparatus should conform to BS 7671 Requirements for Electrical Installations. All connections should be made by a qualified electrician. Where there are exposed conductors the equipment should be isolated before work continues.
- ii) *Cable connections.*
When connecting DC cables and making connections to pipes/structures, compounds may be used to seal the joint which are listed on the CoSHH register. Appropriate steps should be taken according to the relevant CoSHH datasheet. The application instructions and recommendations of the manufacturer should be observed.

6.3.3 Specific hazards applicable to Excavation Procedures

- i) *Buried cables / ducts / pipes*
Before commencing any excavation, the area should be examined using a suitable pipe/cable locator to ensure that any buried services in the vicinity of the excavation are located and marked before the excavation begins.
- ii) *Overhead cables*
If a mechanical excavator is used, ensure that appropriate safety measures are taken to avoid damage to overhead cables. Excavators should be excluded from the area beneath overhead cables or a device used to limit the movement of the excavator arm below the height of the cables.
- iii) *Open excavations.*
Once an excavation is opened, appropriate precautions should be taken to avoid persons or livestock from falling into the excavation.
- iv) *Working in excavations.*
Unless absolutely necessary, personnel should not enter the excavation. Any excavation, regardless of depth can be dangerous and there is no "safe" working depth. If the work cannot be completed without entering the excavation then suitable safe methods of exit and egress must be provided. Any risks should be assessed and steps taken to ensure the safety of the excavation. For example, is the soil stable, is shuttering required, or can the sides of the excavation be graded?
Under no circumstances should a person working alone enter an excavation. There must always be someone outside the excavation to raise the alarm in case of emergency.

- vi) *Excavations and road traffic.*
If excavations are required in a roadway then a separate risk assessment should be carried out. Reference should be made to the Road Traffic Act.
- vii) *Working in confined spaces.*
Personnel should not enter confined spaces without the authority and direct supervision of qualified personnel. Site owners/operators should have their own procedures for entry into confined spaces and these should always be followed. Always ensure the correct permit has been issued and that all correct procedures have been carried out before continuing.
Under no circumstances should a person working alone enter a confined space. There must always be someone outside the confined space to raise the alarm in case of emergency.

6.4 Control of Substances Hazardous to Health (C.o.S.H.H.)

Where applicable, substances hazardous to health shall be listed and itemised in the form of a register.

Health and Safety Data Sheets for all hazardous substances shall be kept in a file for reference.

Site personnel shall be issued with copies of Health and Safety Data Sheets relevant to their work activities.

INSULATION FLANGE TEST SHEET

Project Name:

Flange Location Size Instrument

Flange Face Upstream				Flange Face Downstream			
Bolt No:	O.K.	Bolt No:	O.K.	Bolt No:	O.K.	Bolt No:	O.K.
1.		23.		1.		23.	
2.		24.		2.		24.	
3.		25.		3.		25.	
4.		26.		4.		26.	
5.		27.		5.		27.	
6.		28.		6.		28.	
7.		29.		7.		29.	
8.		30.		8.		30.	
9.		31.		9.		31.	
10.		32.		10.		32.	
11.		33.		11.		33.	
12.		34.		12.		34.	
13.		35.		13.		35.	
14.		36.		14.		36.	
15.		37.		15.		37.	
16.		38.		16.		38.	
17.		39.		17.		39.	
18.		40.		18.		40.	
19.		41.		19.		41.	
20.		42.		20.		42.	
21.		43.		21.		43.	
22.		44.		22.		44.	

INSULATION SATISFACTORY **YES/NO** **DATE**

SIGNED FOR
BAC CORROSION CONTROL

SIGNED FOR
CLIENT