

WELDING PROCEDURE APPROVAL TEST CERTIFICATE

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Manufacturer's Welding Procedure
Reference No WP5
Manufacturer: VARLOWE INDUSTRIAL SERVICES LTD
Address: UNIT 16 REFLEX BUSINESS PARK
 WEDNESFIELD ROAD
 WILLENHALL
 WV131AH
Code / Testing Standard: BS EN ISO 15614-1:2004 A1 2008
Date of Welding: 05/01/2011
RANGE OF QUALIFICATION
Welding Process: MANUAL TIG (141)
Joint Type: FILLET WELD
Parent Metal Groups / Sub Groups: 8.1
Parent Metal Thickness (mm): PIPE:- 2.01mm - 5.74mm FLANGE:- 12.7mm - 30.48mm
Weld Metal Thickness (mm): NOT APPLICABLE
Throat Thickness (mm): INSIDE:- 1.45mm - 2.90mm OUTSIDE:- NO RESTRICTION
Single run / Multi run: INSIDE:- SINGLE RUN OUTSIDE:- MULTI RUN
Pipe Outside Diameter (mm): 10.65mm - 42.6mm
Filler Metal Type / Designation: EN ISO 14343-A W19 12 3L
Filler Material Make: NO RESTRICTION
Filler Material Size: NO RESTRICTION
Designation of Gas / Flux: ARGON 99.99% EN ISO 14175 I1
Designation of Backing Gas: NOT APPLICABLE
Type of Welding Current / Polarity: DC-VE
Mode of Metal Transfer: NOT APPLICABLE
Heat Input: NO RESTRICTION
Welding Position(s): ALL EXCEPT VERTICAL DOWN
Preheat Temperature: 5°C MIN
Post-Heating: NONE
Post Weld Heat Treatment: NONE
OTHER INFORMATION SEE BS EN ISO 15614-1:2004 A1 2008

Inspecting Authority ZC/WP/110057
Reference No. SS42526723/6

22 Certified that test welds were prepared, welded and tested satisfactorily in accordance with the requirements of the code / testing standard indicated above.

23 *Location:* BIRMINGHAM *Date of Issue:* 17/01/2011

Name and Signature: 
 C DUFFELL
Inspecting Authority: SAFed/CEOC Member Company
 (CEOC Member Organization) Laboratory Services
 ZURICH ENGINEERING
 24 Great Bridge Street
 West Bromwich B70 0DE
 Telephone: 0121 712 1168
 Fax: 0121 712 1168

Übersetzung des vorgedruckten Formblatt-Textes auf der Rückseite Translation of printed test on the reverse side

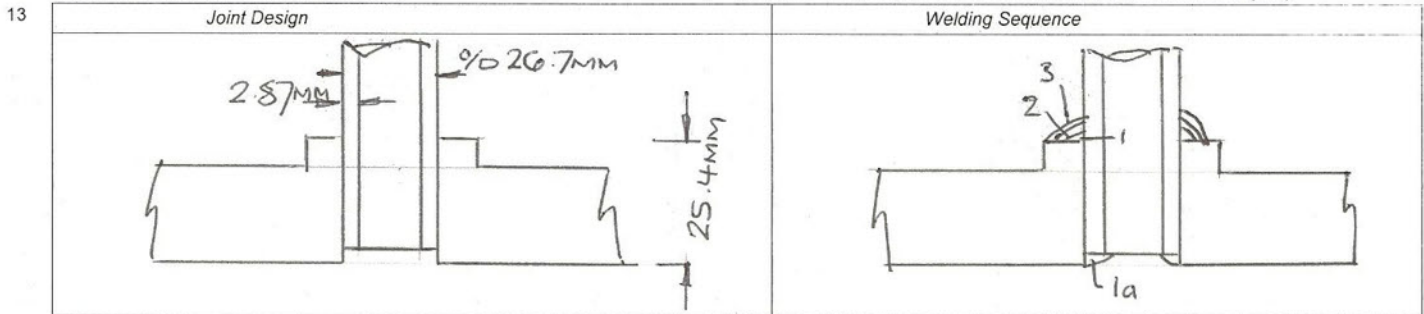
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Note: This is a Welding Procedure Qualification Record and is applicable to the named manufacturer alone. This qualification is not a Standard Welding Procedure and may not be reproduced in whole or part and used as such.

DETAILS OF WELD TEST

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3 *Manufacturer's Welding Procedure*
4 *Reference No.* WP5 *Inspecting Authority Reference No.* ZC/WP/110057
5 *Manufacturer:* VARLOWE INDUSTRIAL SERVICES LTD *Date of Welding:* 05/01/2011
6 *Address:* UNIT 16 REFLEX BUSINESS PARK *Location:* WORKSHOP
WEDNESFIELD ROAD

7 *Welder's Name:* P HAWKINS *Method of Preparation and Cleaning:* GRIND
8 *Parent Metal Specification:* ASTM A240 TP316L
9 *Parent Metal Specification:* ASTM A182 TP316L
10 *Welding Process:* MANUAL TIG (141) *Parent Metal Thickness(mm):* PIPE:- 2.87mm FLANGE:- 25.4mm
11 *Joint Type:* FILLET WELD PIPE TO FLANGE *Pipe Outside Diameter(mm):* 26.7mm
12 *WELD PREPARATION DETAILS (Sketch)* *Test Piece / Welding Position:* HORIZONTAL VERTICAL (PB)



14 **WELDING DETAILS**

Run	Process	Size of Filler Metal	Current A	Voltage V	Type of Current and Polarity	Wire Feed / Travel Speed *	Heat Input *
1	TIG (141)	NONE	100	10-11	DC-VE	-	
2-3	TIG (141)	1.6mm	100	10-11	DC+VE	-	
1a	TIG (141)	1.6mm	90	8-9	DC-VE	-	

16 *Filler Metal:*
17 *Type, Designation, Trade Name:* ESAB OK TIGROD 316L EN ISO 14343-A W19 12 3L
18 *Any Special Baking or Drying:* DRY STORAGE
19 *Gas / Flux:* ARGON 99.99% EN ISO 14175 I1
20 *Gas Flow Rate - Shield:* 10 LPM
21 *Backing:* N/A
22 *Tungsten Electrode Type / Size:* 2% THORIATED 2.4mm DIA
23 *Details of Back Gouging / Backing:* N/A
24 *Preheat Temperature:* 5°C MIN
25 *Interpass Temperature:* 250°C MAX

26 **POST WELD HEAT TREATMENT**

27 *Time, Temperature, Method:* N/A
28 *Heating and Cooling Rates *:* N/A

29 *The above test piece was welded in the presence of:* C DUFFELL
ZURICH ENGINEERING

OTHER INFORMATION

Name and Signature: ZURICH LAB 7
SAFed/CEOC Member Company

ZURICH
SAFed/CEOC Member Company
Inspecting Authority
(CEOC Member Organization)
ZURICH ENGINEERING
Zurich Laboratory Services
714, Great Bridge Street
West Bromwich B70 0DE
Tel: 0121 520 5868
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TEST RESULTS

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3 *Manufacturer's Welding Procedure:* Inspecting Authority ZC/WP/110057
4 *Reference No.* WP5 Reference No. SS42526723/6
5 *Visual Examination:* ACCEPTABLE Radiography * : NOT APPLICABLE
6 *Penetrant Test ** ACCEPTABLE Ultrasonic Examination* : NOT APPLICABLE
7 *Tensile Tests :* Temperature:

Type / No.	Re N/mm ²	Rm N/mm ²	A %on	Z%	Fracture Location	Remarks
Requirement						
NOT APPLICABLE						

10 *Bend Tests:* Former Diameter:
11 Type No. Bend Angle Elongation Result Fillet Fracture Test * : NOT APPLICABLE
12 NOT APPLICABLE Macro Examination : (X2) ACC EN 1321

13 *IMPACT TESTS *:* Type : Size : Requirement :
14 Notch Location / Direction Temp. °C Values Average Remarks
NOT APPLICABLE

15 *HARDNESS TESTS *:*
16 Type / Load NOT APPLICABLE
17 Values - Parent Metal
18 - H.A.Z.
19 - Weld Metal
20 *OTHER TESTS* NONE
21 *REMARKS* FOR MACRO PHOTOGRAPH SEE ADDENDUM 1

22 Tests carried out in accordance with the requirements of : BS EN ISO 15614-1:2004 A1 2008
23 Laboratory Report Reference No SS42526723/6
24 Test Results Were ACCEPTABLE
25 Test carried out in the presence of: A D EDWARDS
ZURICH ENGINEERING

ZURICH
Name and Signature C DUFFELL
SAFed/CEOC Member Company
Zurich Laboratory Services
204, Great Bridge Street
(CEOC Member Organization) Norwich B70 0DE
Tel: 0121 520 5868
ZURICH ENGINEERING

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LABORATORY SERVICES REPORT

Date of Receipt: 05/01/2011

Our Ref. SS42526723/5 ADD 1

Client Ref.

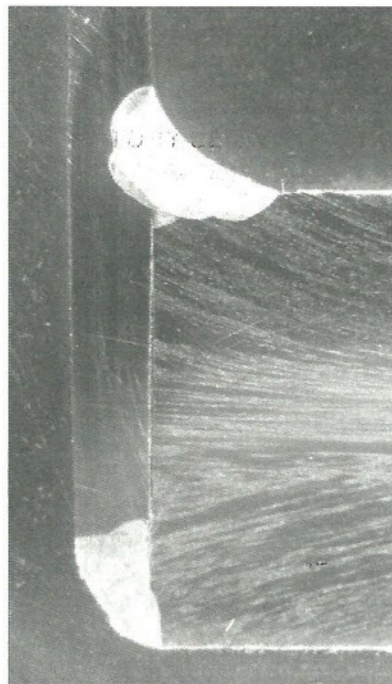
Report No. LSR110179

Manufacturers Name VARLOWE INDUSTRIAL SERVICES LTD
and Address UNIT 16 REFLEX BUSINESS PARK
WEDNESFIELD ROAD

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WILLENHALL
WV131AH

WELD PROCEDURE REF:- WP5
MACRO PHOTOGRAPH



Tested By J BROOMHALL Date 06/01/2011

Signature  Position WELDING ENGINEER Date 24/01/2011

Signatory C DUFFELL For Zurich Laboratory Services.
Certified that the tests have been carried out in accordance with client instructions and the quality requirements of Zurich Laboratory Services.

Laboratory services, 204 Great Bridge Street, West Bromwich B70 0DE.

Telephone: 0121-520-5868 Fax: 0121-520-5863

Zurich Management Services Limited, Registered in England no. 2741053.

Registered Office: The Zurich Centre, 3000 Parkway, Whiteley, Fareham, Portsmouth, Hampshire PO15 7JZ.