

1 **WELDING PROCEDURE APPROVAL TEST CERTIFICATE**

Page 1 of 3

3 *Manufacturer's Welding Procedure*

Inspecting Authority ZC/NWP/110054

4 *Reference No* WP2

Reference No. SS42526723/2

5 *Manufacturer:* VARLOWE INDUSTRIAL SERVICES LTD

6 *Address:* UNIT 16 REFLEX BUSINESS PARK
WEDNESFIELD ROAD

WILLENHALL
WV131AH

7 *Code / Testing Standard:* BS EN ISO 15614-1:2004 A1 2008

8 *Date of Welding:* 05/01/2011

9 **RANGE OF QUALIFICATION**

10 *Welding Process:* MANUAL TIG (141)

11 *Joint Type:* BUTT WELD(1) FILLET WELD (2)

12 *Parent Metal Groups /Sub Groups:* 1.1, 11.1 Re<=240 N/mm²

13 *Parent Metal Thickness (mm):* 3mm - 7.82mm

Weld Metal Thickness (mm): 3mm - 7.82mm

Throat Thickness (mm): NO RESTRICTION (3mm - 4.7mm MATERIAL THICKNESS)

Single run / Multi run: MULTI RUN

14 *Pipe Outside Diameter (mm):* >=30.15mm

15 *Filler Metal Type / Designation:* EN 1668 W3 Si1

Filler Material Make: NO RESTRICTION

Filler Material Size: SEE 8.4.6

16 *Designation of Gas / Flux:* ARGON 99.99% EN ISO 14175 I1

Designation of Backing Gas: NOT APPLICABLE

17 *Type of Welding Current / Polarity:* DC-VE

Mode of Metal Transfer: NOT APPLICABLE

Heat Input: ± 25% RECORDED VALUES

18 *Welding Position(s):* ALL EXCEPT VERTICAL DOWN

19 *Preheat Temperature:* 5°C MINIMUM

Post-Heating: NONE

20 *Post Weld Heat Treatment:* NONE

21 **OTHER INFORMATION** SEE BS EN ISO 15614-1:2004 A1 2008

(1) ss,nb,mb,bs,gg,ng

(2) SEE CLAUSE 8.4.3a

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

24

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Übersetzung des vorgedruckten
Formblatt-Textes auf der Rückseite

Translation of printed test
on the reverse side

ZURICH
Name and Signature
C DUFFELL 
Inspecting Authority SAFed/CEOC Member Company
Organization Zurich Laboratory Services
201 Great Bridge Street
West Bromwich B70 0DE
ZURICH ENGINEERING LABS
Tel: 0121 520 5868
*Traduction des rubriques imprimées
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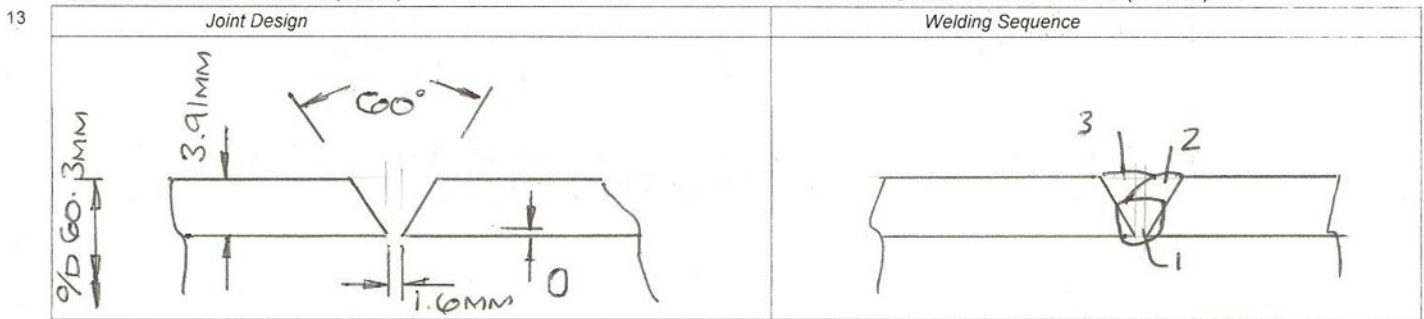
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This qualification is not a Standard Welding Procedure and may not be reproduced in whole or part and used as such.*

DETAILS OF WELD TEST

1
2
3 *Manufacturer's Welding Procedure*
4 *Reference No.* WP2 *Inspecting Authority Reference No.* ZC/WP/110054
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:* PAUL HAWKINS *Method of Preparation and Cleaning:* MACHINE, DEGREASE
8
9 *Parent Metal Specification:* ASTM A333 GD6

10 *Welding Process:* MANUAL TIG (141) *Parent Metal Thickness(mm):* 3.91mm
11 *Joint Type:* BUTT WELD IN PIPE *Pipe Outside Diameter(mm):* 60.3mm
12 *WELD PREPARATION DETAILS (Sketch)* *Test Piece / Welding Position:* INC 45° V-UP(H-L045)



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)	1.6mm	100-115	10-11	DC-VE	MANUAL/ 1.1mm/S	0.54 KJ/mm
2	TIG (141)	1.6mm	95-100	9.5-10	DC-VE	MANUAL/ 1.3mm/S	0.42 KJ/mm EN1011

15
16 *Filler Metal:*
17 *Type, Designation, Trade Name:* FILARC PZ6500 EN 1668 W3 Si1
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:* NONE/ss,NB
24 *Preheat Temperature:* 5°C MIN
25 *Interpass Temperature:* 250°C MAX

26 **POST WELD HEAT TREATMENT** NONE
27 *Time, Temperature, Method:*
28 *Heating and Cooling Rates *:*

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

OTHER INFORMATION

ZURICH
Name and Signature A D EDWARDS
SAFed/CEOC Member Company

Inspecting Authority Zurich Laboratory Services
(CEOC Member Organization) 304 Great Bridge Street
West Bromwich B70 0DE
ZURICH ENGINEERING
Tel: 0121 520 5868

Übersetzung des vorgedruckten
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TEST RESULTS

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1
2
3 *Manufacturer's Welding Procedure:*
4 *Reference No.* WP2
5 *Visual Examination:* ACCEPTABLE
6 *Penetrant Test ** ACCEPTABLE
7 *Tensile Tests :* EN ISO 6892-22009

Inspecting Authority ZC/WP/110054
Reference No. SS42526723/2
*Radiography * :* ACCEPTABLE
Ultrasonic Examination :* NOT APPLICABLE
Temperature: 20°C

Type / No.	Re N/mm ²	Rm N/mm ²	A %on	Z%	Fracture Location	Remarks
Requirement		415				
TRANSVERSE 1	-	582	-	-	THROUGH WELD	ACCEPTABLE
TRANSVERSE 2	-	562	-	-	11mm Clear of Weld	ACCEPTABLE

10 *Bend Tests:* EN 910:1996 *Former Diameter:* 4t

Type No.	Bend Angle	Elongation	Result
ROOT (X2)	180°	-	ACCEPTABLE
FACE (X2)	180°	-	ACCEPTABLE

*Fillet Fracture Test * :* NOT APPLICABLE

Macro Examination : (X1) ACCEPT:EN1321

13 *IMPACT TESTS *:* *Type :* *Size :* *Requirement :*

Notch Location / Direction	Temp. °C	Values	Average	Remarks
NOT APPLICABLE				

15 *HARDNESS TESTS * :* EN ISO 148-1/ISO 6507

16 *Type / Load* VICKERS 10 KG
17 *Values - Parent Metal* 178 - 189
18 *- H.A.Z.* 202 - 238
19 *- Weld Metal* 171 - 188

20 *OTHER TESTS* NONE

21 *REMARKS* FOR MACROPHOTOGRAPH 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* SS42526723/2

24 *Test Results Were* ACCEPTABLE

25 *Test carried out in the presence of:* A D EDWARDS
ZURICH ENGINEERING

27

ZURICH

SAFed/CEOC Member Company

Name and Signature C DUFFELL
Zurich Laboratory Services
204, Great Bridge Street
West Bromwich B70 0DE

Inspecting Authority Tel: 0121 520 5868
(CEOC Member Organization)

ZURICH ENGINEERING

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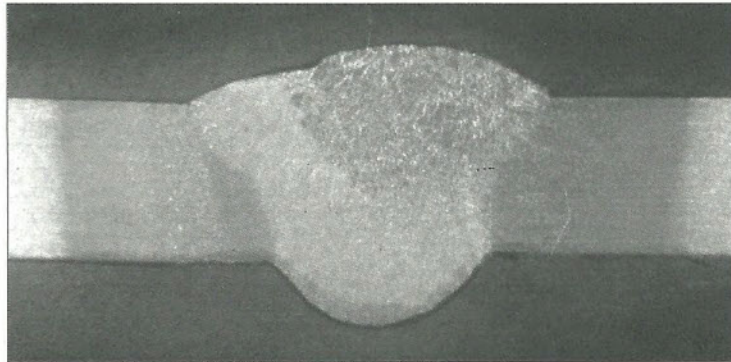
LABORATORY SERVICES REPORT

Date of Receipt: 21/12/2010
Client Ref.
Manufacturers Name VARLOWE INDUSTRIAL SERVICES LTD
and Address UNIT 16 REFLEX BUSINESS PARK
WEDNESFIELD ROAD

WILLENHALL
WV131AH

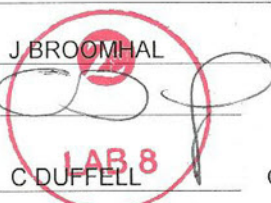
Our Ref. SS42526723/2 ADD 1
Report No. LSR110176
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WELD PROCEDURE REF:- WP2
MACRO PHOTOGRAPH



Tested By J. BROOMHAL Date 05/01/2011

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.