

WPS NUMBER 101 (Rev. 2)

PQR NUMBER 101A

QUALIFIED FOR

MATERIAL (TYPICAL): P1 to P1 (SA 105, SA 106, SA 516, etc.)

PROCESS: GMAW, SMAW JOINT DESIGN: Groove & Fillet

POSITION: A11 DIAMETER: A11

AWS CLASSIFICATION: ER70S-X, E7018, E7018-1

BASE METAL THICKNESS RANGE QUALIFIED:

AS WELDED: 4.8 to 24.5mm (3/16 to 1.0 in.)

**ALBERTA
LABOUR
BOILERS & PRESSURE VESSELS ACT
WELDING PROCEDURE**

Reg. No. WP 1312.2
Spec No. # 101 (REV 2)
Weld Process GMAW / SMAW
Matl. Gr. P No. 1 to P No. 1
Elec. Gr. F No. 6.4 A No. 1
Th. Qual. For 25.4mm Position ALL
..... A.W.

Yr 88 Mo 3 Day 3 Signed *R. Rosererg*
R. ROSERERG, P. ENG.
WELDING SPECIALIST

Boilers Branch Registration

WELDING PROCEDURE SPECIFICATION

R.J.V. Gasfield Service Ltd. 4901 - Bruce Rd., Box 295, Vegreville, Alberta T0B 4L0

WELDING PROCEDURE SPECIFICATION NUMBER 101 (Rev. 2) DATE September 23, 1987

REVISIONS #1 July 31, 1984

#2 Add "t"

SUPPORTING PQR NUMBERS(S) 101A

WELDING PROCESS(ES) GMAW, SMAW TYPES Semi-automatic, Manual

JOINTS (QW-402)

Joint Design See attached sketches, figures 1 to 15

Backing Other

BASE METALS (QW-403)

P-Number 1 to P-Number 1

Thickness Range: Groove 4.8 to 25.4mm (3/16 to 1.0 in.)

Fillet All

Pipe Diameter Ranges: Groove All

Fillet All

Other

FILLER METALS (QW-404)

Specification No. (SFA) 5.18 5.1

AWS No. (Class) ER70S-X E7018, E7018-1

F-No. F6 F4

A-No. 1 1

Size See table next page

Deposited Weld Metal Thickness Range: No single pass with over $\frac{1}{2}$ " (12.7mm) of deposited metal

Groove F6 "t" = 22mm; F4, E7018 "t" = 22mm

Fillet

Electrode - Flux (Class)

Other

POSITION (QW-405)

Position of Groove All Weld Progression Vertical up when applicable

PREHEAT (QW-406)

Preheat Temp. Min. 10°C (50°F) Interpass Temp. Max. Weld build up

Preheat Maintenance

POSTWELD HEAT TREATMENT (QW-407)

Temperature N/A Time Range

uA5 (QW-408)

Shielding Gas(es) Carbon Dioxide

Flow Rate 20 cfm

Other _____

ELECTRICAL CHARACTERISTICS (QW-409)

Current Direct Polarity Reverse

Amps See table below Volts _____

Tungsten Electrode Size and Type _____

Mode of Metal Transfer _____ GMAW: Short circuiting arc _____

Electrode Wire Feed Speed Range _____

Other _____

TECHNIQUE (QW-410)

String or Weave Both Travel Speed (Range) _____

Initial and Interpass Cleaning Brushing, chipping, grinding

Method of Back Gouging	Air carbon arc when required
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Multiple or Single Pass (per side) Multiple

Multiple or Single Electrodes	Single
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Other _____

WELD LAYER	PROCESS	FILLER METAL		CURRENT		VOLTAGE RANGE	T/S RANGE mm/min. (ipm)	OTHER
		CLASS.	DIAMETER mm. (in.)	TYPE POLAR.	AMP RANGE			
1 or 2	GMAW	ER70S-X	.76 (.030)	DCRP	40-80	19-30	30-300 (1.5-12)	Size of electrode, number of passes, amperage, voltage and travel speed will differ with position, thickness and joint configuration.
1 or 2	GMAW	ER70S-X	.9 (.035)	DCRP	60-120	20-32	38-350 (1.5-14)	
1 or 2	GMAW	ER70S-X	1.14 (.045)	DCRP	130-210	21-20	50-350 (2-14)	
Remaining	SMAW	E7018 E7018-1	2.4 (3/32)	DCRP	60-110	19-24	38-300 (1.5-12)	
Remaining	SMAW	E7018 E7018-1	3.2 (1/8)	DCRP	90-160	20-25	38-350 (1.5-14)	
Remaining	SMAW	E7018 E7018-1	4.0 (5/32)	DCRP	125-200	21-26	100-400 (4-16)	
Remaining	SMAW	E7018 E7018-1	5.0 (3/16)	DCRP	200-310	21-27	125-400 (5-16)	
Remaining	SMAW	E7018 E7018-1	6.0 (1/4)	DCRP	280-380	22-30	175-350 (7-14)	

GROOVE DESIGN

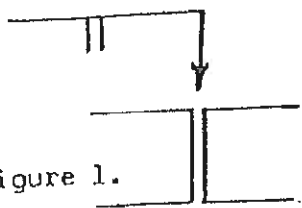


Figure 1.

Single Square Butt

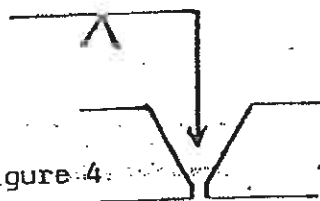


Figure 4.

Single Vee Butt

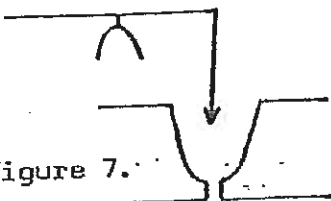


Figure 7.

Single U Butt

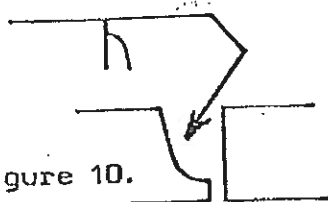


Figure 10.

Single J Butt

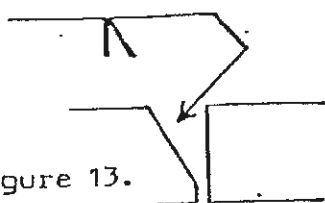


Figure 13.

Single Bevel Butt

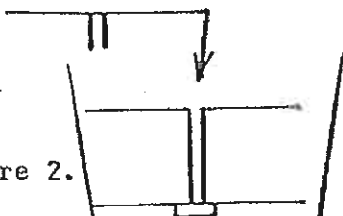


Figure 2.

Single Square Butt with Backing Strip

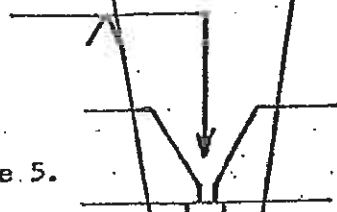


Figure 5.

Single Vee Butt With Backing Strip

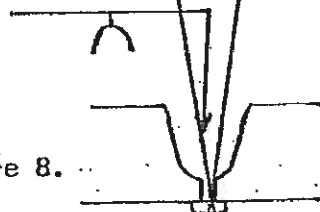


Figure 8.

Single U Butt With Backing Strip

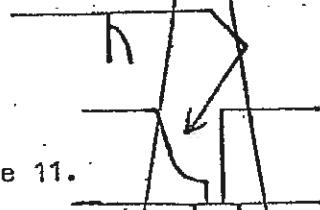


Figure 11.

Single J Butt With Backing Strip

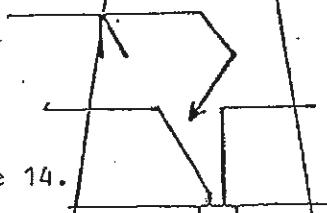


Figure 14.

Single Bevel Butt With Backing Strip

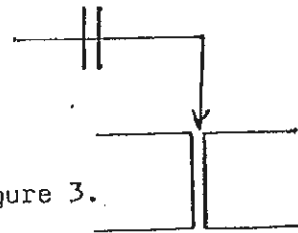


Figure 3.

Double Square Butt

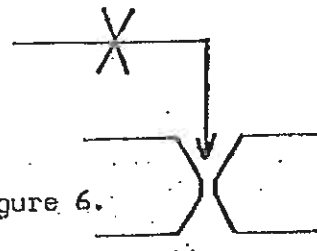


Figure 6.

Double Vee Butt

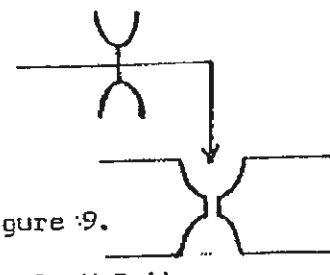


Figure 9.

Double U Butt

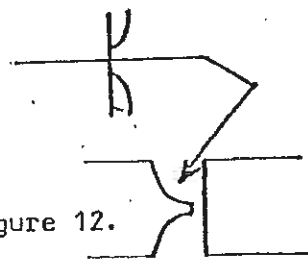


Figure 12.

Double J Butt

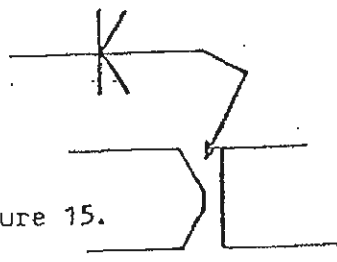


Figure 15.

Double Bevel Butt

PROCEDURE QUALIFICATION RECORD

R.J.V. Gasfield Service Ltd., 4901 - Bruce Rd., Box 295, Vegreville, Alberta T0B 4T0

PROCEDURE QUALIFICATION RECORD NUMBER 101A DATE July 14, 1983

WELDING PROCEDURE SPECIFICATION NUMBER 101 (Rev. 2)

WELDING PROCESS(ES) GMAW, SMAW TYPES Semi-Automatic, Manual

JOINTS (QW-402)

Type: Butt: single vee

BASE METALS (QW-403)

Material Spec. SA 106 Type or Grade Grade B

P-No. 1 to P-No. 1 Thickness 12.7mm (.500 in.)

Diameter 219.1mm (8.625 in.)

Other

FILLER METALS (QW-404)

SFA Specification 5.18 5.1

WFS Classification ER70S-6 E7018

Filler Metal F-No. 6 4

Weld Metal Analysis A-No. 1 1

Size of Filler Metal See sketch next page

Deposited Weld Metal Thickness F6 = 2.0mm; F4 = 11.0mm

Other No single pass with over 1/2" (12.7mm) of deposited metal

POSITION (QW-405)

Position of Groove 6G Weld Progression Vertical up

PREHEAT (QW-406)

Preheat Temp. 15°C (60°F) Interpass Temp. Weld build up

POSTWELD HEAT TREATMENT (QW-407)

Temperature None Time

GAS (QW-408)

Type of Gas(es) Carbon Dioxide Composition of Mixtures 99.985%

Other

ELECTRICAL CHARACTERISTICS (QW-409)

Current Direct Polarity Reverse

Amps 160-390 Volts

Other

TECHNIQUE (QW-410)

Travel Speed

Multipass or Single Pass (per side) Multipass

Single or Multiple Electrodes Single

Stringing or Weave Bead Both

Other

