

4K TECHNOLOGY

3621 Ashford Ave.
Ft. Worth, TX 76133

QW-484 WELDER/WELDING OPERATOR PERFORMANCE QUALIFICATIONS (WPQ)

(See QW-301, Section IX, ASME Boiler and Pressure Vessel Code)

Welder's Name Bobby Acker Clock number 0435 Stamp no. N/A
Welding process(es) used FCAW Type(s) Semi-Automatic
(Automatic, Manual, Machine, or Semi-Auto.)
Identification of WPS followed by welder during welding of test coupon TM 004
Base material(s) welded 316L/316L Thickness .109"
Filler metal specification (SFA) Class (QW-404) A5.22

Manual or Semiautomatic Variables for Each Process (QW-350)

Backing (metal, weld metal, welded from both sides, flux, etc.) (QW-402)
ASME P-No. 8 to ASME P-No. 8 (QW-403)
() Plate (X) Pipe (enter diameter, if pipe) (QW-403)
Base metal thickness – OFW (QW-403)
Filler metal F-No. (QW-404)
Filler metal product form (solid/cored/flux-cored) – GTA/PAW (QW-404)
Consumable insert for GTAW and PAW (QW-404)
Weld deposit thickness for each welding process (QW-404)
Welding position (1G, 5G, etc.) (QW-405)
Progression (uphill/downhill) (QW-405)
Backing gas for GTAW, PAW, or GMAW; fuel gas for OFW (QW-408)
GMAW transfer mode (QW-409)
GTAW welding current type/polarity (QW-409)

Actual Values

w/o Backing

P8
1 1/2" o.d.
.109"
6
FCAW
N/A
.109"
1G
N/A
N/A
N/A
N/A

Range Qualified

w/o Backing

P8
1" o.d. - unlimited
.055" - .218"
6
FCAW
N/A
.055" - .218"
1G, 1F
N/A
N/A
N/A
N/A

Automatic/Machine Welding Variables for the Process Used (QW-360)

Direct/remote visual control
Automatic voltage control (GTAW)
Automatic joint tracking
Welding position (1G, 5G, etc.)
Consumable insert
Backing (metal, weld metal, welded from both sides, flux, etc.)
Multiple or single pass per side
Change from automatic to machine
Filler for EBW or LBW
Laser type
Drive type for FRW
Vacuum type for EBW

Actual Values

N/A
N/A
N/A
N/A
N/A
N/A
N/A
N/A
N/A
N/A
N/A
N/A

Range Qualified

N/A
N/A
N/A
N/A
N/A
N/A
N/A
N/A
N/A
N/A
N/A
N/A

Guided Bend Test Results

Guided Bend Test Type	() QW-462.2 (Side)	(X) QW-462.3(a) (Trans. R&F)	() QW-462.3(b) (Long. R&F)
Side		Pass	
Side		Pass	

Visual examination results (QW-302.4) Pass

Radiographic test results (QW-304 and QW-305) N/A

(For alternative qualification of groove welds by radiography)

Fillet Weld – Fracture test N/A Length and percent of defects N/A in.

Macro test fusion N/A Fillet leg size N/A in. x N/A in. Concavity/convexity N/A in.

Welding test conducted by Floyd Kiel 4K Technology

Mechanical tests conducted by Trinity Metals Lab CW 94120491 Laboratory test no. 9010084

We certify that the statements in this record are correct and that the test coupons were prepared, welded, and tested in accordance with the requirements of Section IX of the ASME Code.

Organization Texas Manufacturing Co., Inc.

Date 1-24-09

By _____

4K TECHNOLOGY

3621 Ashford Ave.
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QW-484 WELDER/WELDING OPERATOR PERFORMANCE QUALIFICATIONS (WPQ)

(See QW-301, Section IX, ASME Boiler and Pressure Vessel Code)

Welder's Name Christopher Strunk Clock number 0526 Stamp no. N/A
Welding process(es) used FCAW Type(s) Semi-Automatic
(Automatic, Manual, Machine, or Semi-Auto.)
Identification of WPS followed by welder during welding of test coupon TM 004
Base material(s) welded 316L/316L Thickness .109"
Filler metal specification (SFA) Class (QW-404) A5.22

Manual or Semiautomatic Variables for Each Process (QW-350)

Backing (metal, weld metal, welded from both sides, flux, etc.) (QW-402)
ASME P-No. 8 to ASME P-No. 8 (QW-403)
() Plate (X) Pipe (enter diameter, if pipe) (QW-403)
Base metal thickness – OFW (QW-403)
Filler metal F-No. (QW-404)
Filler metal product form (solid/cored/flux-cored) – GTA/PAW (QW-404)
Consumable insert for GTAW and PAW (QW-404)
Weld deposit thickness for each welding process (QW-404)
Welding position (1G, 5G, etc.) (QW-405)
Progression (uphill/downhill) (QW-405)
Backing gas for GTAW, PAW, or GMAW; fuel gas for OFW (QW-408)
GMAW transfer mode (QW-409)
GTAW welding current type/polarity (QW-409)

Actual Values w/o Backing	Range Qualified w/o Backing
P8	P8
1 1/2" o.d.	1" o.d. - unlimited
.109"	.055" - .218"
6	6
FCAW	FCAW
N/A	N/A
.109"	.055" - .218"
1G	1G, 1F
N/A	N/A
N/A	N/A
N/A	N/A
N/A	N/A

Automatic/Machine Welding Variables for the Process Used (QW-360)

Direct/remote visual control
Automatic voltage control (GTAW)
Automatic joint tracking
Welding position (1G, 5G, etc.)
Consumable insert
Backing (metal, weld metal, welded from both sides, flux, etc.)
Multiple or single pass per side
Change from automatic to machine
Filler for EBW or LBW
Laser type
Drive type for FRW
Vacuum type for EBW

Actual Values	Range Qualified
N/A	N/A
N/A	N/A
N/A	N/A
N/A	N/A
N/A	N/A
N/A	N/A
N/A	N/A
N/A	N/A
N/A	N/A
N/A	N/A
N/A	N/A

Guided Bend Test Results

Guided Bend Test Type	() QW-462.2 (Side)	(X) QW-462.3(a) (Trans. R&F)	() QW-462.3(b) (Long. R&F)
Side		Pass	
Side		Pass	

Visual examination results (QW-302.4) Pass

Radiographic test results (QW-304 and QW-305) N/A

(For alternative qualification of groove welds by radiography)

Fillet Weld – Fracture test N/A Length and percent of defects N/A in.

Macro test fusion N/A Fillet leg size N/A in. Concavity/convexity N/A in.

Welding test conducted by Floyd Kiel 4K Technology

Mechanical tests conducted by Trinity Metals Lab CWI 94120191 Laboratory test no. 9010102

We certify that the statements in this record are correct and that the test coupons were prepared, welded, and tested in accordance with the requirements of Section IX of the ASME Code.

Organization Texas Manufacturing Co., Inc.

Date 1-24-09

By _____

4K TECHNOLOGY

3621 Ashford Ave.
Ft. Worth, TX 76133

QW-484 WELDER/WELDING OPERATOR PERFORMANCE QUALIFICATIONS (WPQ)

(See QW-301, Section IX, ASME Boiler and Pressure Vessel Code)

Welder's Name Dallas Carter Clock number 0398 Stamp no. N/A
Welding process(es) used FCAW Type(s) Semi-Automatic
(Automatic, Manual, Machine, or Semi-Auto.)
Identification of WPS followed by welder during welding of test coupon TM 004
Base material(s) welded 316L/316L Thickness .109"
Filler metal specification (SFA) Class (QW-404) A5.22

Manual or Semiautomatic Variables for Each Process (QW-350)

Backing (metal, weld metal, welded from both sides, flux, etc.) (QW-402)
ASME P-No. 8 to ASME P-No. 8 (QW-403)
() Plate (X) Pipe (enter diameter, if pipe) (QW-403)
Base metal thickness – OFW (QW-403)
Filler metal F-No. (QW-404)
Filler metal product form (solid/cored/flux-cored) – GTA/PAW (QW-404)
Consumable insert for GTAW and PAW (QW-404)
Weld deposit thickness for each welding process (QW-404)
Welding position (1G, 5G, etc.) (QW-405)
Progression (uphill/downhill) (QW-405)
Backing gas for GTAW, PAW, or GMAW; fuel gas for OFW (QW-408)
GMAW transfer mode (QW-409)
GTAW welding current type/polarity (QW-409)

Actual Values w/o Backing	Range Qualified w/o Backing
P8	P8
1 1/2" o.d.	1" o.d. - unlimited
.109"	.055" - .218"
6	6
FCAW	FCAW
N/A	N/A
.109"	.055" - .218"
1G	1G, 1F
N/A	N/A
N/A	N/A
N/A	N/A
N/A	N/A

Automatic/Machine Welding Variables for the Process Used (QW-360)

Direct/remote visual control
Automatic voltage control (GTAW)
Automatic joint tracking
Welding position (1G, 5G, etc.)
Consumable insert
Backing (metal, weld metal, welded from both sides, flux, etc.)
Multiple or single pass per side
Change from automatic to machine
Filler for EBW or LBW
Laser type
Drive type for FRW
Vacuum type for EBW

Actual Values	Range Qualified
N/A	N/A
N/A	N/A
N/A	N/A
N/A	N/A
N/A	N/A
N/A	N/A
N/A	N/A
N/A	N/A
N/A	N/A
N/A	N/A
N/A	N/A

Guided Bend Test Results

Guided Bend Test Type	() QW-462.2 (Side)	(X) QW-462.3(a) (Trans. R&F)	() QW-462.3(b) (Long. R&F)
Side		Pass	
Side		Pass	

Visual examination results (QW-302.4) Pass

Radiographic test results (QW-304 and QW-305) N/A

(For alternative qualification of groove welds by radiography)

Fillet Weld – Fracture test N/A Length and percent of defects N/A in.

Macro test fusion N/A Fillet leg size N/A in. x N/A in. Concavity/convexity N/A in.

Welding test conducted by Floyd Kiel 4K Technology

Mechanical tests conducted by Trinity Metals Lab Laboratory test no. 9010091

We certify that the statements in this record are correct and that the test coupons were prepared, welded, and tested in accordance with the requirements of Section IX of the ASME Code.

Organization Texas Manufacturing Co., Inc.

Date 1-24-09

By _____

4K TECHNOLOGY

3621 Ashford Ave.
Ft. Worth, TX 76133

QW-484 WELDER/WELDING OPERATOR PERFORMANCE QUALIFICATIONS (WPQ)

(See QW-301, Section IX, ASME Boiler and Pressure Vessel Code)

Welder's Name Larry Dellinger Clock number 3274 Stamp no. N/A
Welding process(es) used FCAW Type(s) Semi-Automatic
(Automatic, Manual, Machine, or Semi-Auto.)
Identification of WPS followed by welder during welding of test coupon TM 004
Base material(s) welded 316L/316L Thickness .109"
Filler metal specification (SFA) Class (QW-404) A5.22

Manual or Semiautomatic Variables for Each Process (QW-350)

Backing (metal, weld metal, welded from both sides, flux, etc.) (QW-402)
ASME P-No. 8 to ASME P-No. 8 (QW-403)
() Plate (X) Pipe (enter diameter, if pipe) (QW-403)
Base metal thickness – OFW (QW-403)
Filler metal F-No. (QW-404)
Filler metal product form (solid/cored/flux-cored) – GTA/PAW (QW-404)
Consumable insert for GTAW and PAW (QW-404)
Weld deposit thickness for each welding process (QW-404)
Welding position (1G, 5G, etc.) (QW-405)
Progression (uphill/downhill) (QW-405)
Backing gas for GTAW, PAW, or GMAW; fuel gas for OFW (QW-408)
GMAW transfer mode (QW-409)
GTAW welding current type/polarity (QW-409)

Actual Values	Range Qualified
w/o Backing	w/o Backing
P8	P8
1 1/2" o.d.	1" o.d. - unlimited
.109"	.055" - .218"
6	6
FCAW	FCAW
N/A	N/A
.109"	.055" - .218"
1G	1G, 1F
N/A	N/A
N/A	N/A
N/A	N/A
N/A	N/A

Automatic/Machine Welding Variables for the Process Used (QW-360)

Direct/remote visual control
Automatic voltage control (GTAW)
Automatic joint tracking
Welding position (1G, 5G, etc.)
Consumable insert
Backing (metal, weld metal, welded from both sides, flux, etc.)
Multiple or single pass per side
Change from automatic to machine
Filler for EBW or LBW
Laser type
Drive type for FRW
Vacuum type for EBW

Actual Values	Range Qualified
N/A	N/A
N/A	N/A
N/A	N/A
N/A	N/A
N/A	N/A
N/A	N/A
N/A	N/A
N/A	N/A
N/A	N/A
N/A	N/A
N/A	N/A

Guided Bend Test Results

Guided Bend Test Type	() QW-462.2 (Side)	(X) QW-462.3(a) (Trans. R&F)	() QW-462.3(b) (Long. R&F)
Side		Pass	
Side		Pass	

Visual examination results (QW-302.4) Pass
Radiographic test results (QW-304 and QW-305) N/A
(For alternative qualification of groove welds by radiography)
Fillet Weld – Fracture test N/A Length and percent of defects N/A in.
Macro test fusion N/A Fillet leg size N/A in. x N/A in. Concavity/convexity N/A in.
Welding test conducted by Floyd Kiel 4K Technology
Mechanical tests conducted by Trinity Metals Laboratory test no. 9010089

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Organization Texas Manufacturing Co., Inc.

Date 1-24-09

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3621 Ashford Ave.
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QW-484 WELDER/WELDING OPERATOR PERFORMANCE QUALIFICATIONS (WPQ)

(See QW-301, Section IX, ASME Boiler and Pressure Vessel Code)

Welder's Name Orville Aycox Clock number 0837 Stamp no. N/A
Welding process(es) used FCAW Type(s) Semi-Automatic
(Automatic, Manual, Machine, or Semi-Auto.)
Identification of WPS followed by welder during welding of test coupon TM 004
Base material(s) welded 316L/316L Thickness .109"
Filler metal specification (SFA) Class (QW-404) A5.22

Manual or Semiautomatic Variables for Each Process (QW-350)

Backing (metal, weld metal, welded from both sides, flux, etc.) (QW-402)
ASME P-No. 8 to ASME P-No. 8 (QW-403)
() Plate (X) Pipe (enter diameter, if pipe) (QW-403)
Base metal thickness – OFW (QW-403)
Filler metal F-No. (QW-404)
Filler metal product form (solid/cored/flux-cored) – GTA/PAW (QW-404)
Consumable insert for GTAW and PAW (QW-404)
Weld deposit thickness for each welding process (QW-404)
Welding position (1G, 5G, etc.) (QW-405)
Progression (uphill/downhill) (QW-405)
Backing gas for GTAW, PAW, or GMAW; fuel gas for OFW (QW-408)
GMAW transfer mode (QW-409)
GTAW welding current type/polarity (QW-409)

Actual Values	Range Qualified
w/o Backing	w/o Backing
P8	P8
1 1/2" o.d.	1" o.d. - unlimited
.109"	.055" - .218"
6	6
FCAW	FCAW
N/A	N/A
.109"	.055" - .218"
1G	1G, 1F
N/A	N/A
N/A	N/A
N/A	N/A
N/A	N/A

Automatic/Machine Welding Variables for the Process Used (QW-360)

Direct/remote visual control
Automatic voltage control (GTAW)
Automatic joint tracking
Welding position (1G, 5G, etc.)
Consumable insert
Backing (metal, weld metal, welded from both sides, flux, etc.)
Multiple or single pass per side
Change from automatic to machine
Filler for EBW or LBW
Laser type
Drive type for FRW
Vacuum type for EBW

Actual Values	Range Qualified
N/A	N/A
N/A	N/A
N/A	N/A
N/A	N/A
N/A	N/A
N/A	N/A
N/A	N/A
N/A	N/A
N/A	N/A
N/A	N/A
N/A	N/A

Guided Bend Test Results

Guided Bend Test Type	() QW-462.2 (Side)	(X) QW-462.3(a) (Trans. R&F)	() QW-462.3(b) (Long. R&F)
Side		Pass	
Side		Pass	

Visual examination results (QW-302.4) Pass

Radiographic test results (QW-304 and QW-305) N/A

(For alternative qualification of groove welds by radiography)

Fillet Weld – Fracture test N/A Length and percent of defects N/A in.

Macro test fusion N/A Fillet leg size N/A in. x N/A in. Concavity/convexity N/A in.

Welding test conducted by Floyd Kiel 4K Technology

Mechanical tests conducted by Trinity Metals CWI 94120191 Laboratory test no. 9010085

We certify that the statements in this record are correct and that the test coupons were prepared, welded, and tested in accordance with the requirements of Section IX of the ASME Code.

Organization Texas Manufacturing Co., Inc.

Date 1-24-09

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4K TECHNOLOGY

3621 Ashford Ave.
Ft. Worth, TX 76133

QW-484 WELDER/WELDING OPERATOR PERFORMANCE QUALIFICATIONS (WPQ)

(See QW-301, Section IX, ASME Boiler and Pressure Vessel Code)

Welder's Name Wesley Eldredge Clock number 7526 Stamp no. N/A
Welding process(es) used FCAW Type(s) Semi-Automatic
(Automatic, Manual, Machine, or Semi-Auto.)
Identification of WPS followed by welder during welding of test coupon TM 004
Base material(s) welded 316L/316L Thickness .109"
Filler metal specification (SFA) Class (QW-404) A5.22

Manual or Semiautomatic Variables for Each Process (QW-350)

Backing (metal, weld metal, welded from both sides, flux, etc.) (QW-402)
ASME P-No. 8 to ASME P-No. 8 (QW-403)
() Plate (X) Pipe (enter diameter, if pipe) (QW-403)
Base metal thickness – OFW (QW-403)
Filler metal F-No. (QW-404)
Filler metal product form (solid/cored/flux-cored) – GTA/PAW (QW-404)
Consumable insert for GTAW and PAW (QW-404)
Weld deposit thickness for each welding process (QW-404)
Welding position (1G, 5G, etc.) (QW-405)
Progression (uphill/downhill) (QW-405)
Backing gas for GTAW, PAW, or GMAW; fuel gas for OFW (QW-408)
GMAW transfer mode (QW-409)
GTAW welding current type/polarity (QW-409)

Actual Values

w/o Backing

P8
1 1/2" o.d.
.109"
6
FCAW
N/A
.109"
1G
N/A
N/A
N/A
N/A

Range Qualified

w/o Backing

P8
1" o.d. - unlimited
.055" - .218"
6
FCAW
N/A
.055" - .218"
1G, 1F
N/A
N/A
N/A
N/A

Automatic/Machine Welding Variables for the Process Used (QW-360)

Direct/remote visual control
Automatic voltage control (GTAW)
Automatic joint tracking
Welding position (1G, 5G, etc.)
Consumable insert
Backing (metal, weld metal, welded from both sides, flux, etc.)
Multiple or single pass per side
Change from automatic to machine
Filler for EBW or LBW
Laser type
Drive type for FRW
Vacuum type for EBW

Actual Values

N/A
N/A
N/A
N/A
N/A
N/A
N/A
N/A
N/A
N/A
N/A
N/A

Range Qualified

N/A
N/A
N/A
N/A
N/A
N/A
N/A
N/A
N/A
N/A
N/A
N/A

Guided Bend Test Results

Guided Bend Test Type	() QW-462.2 (Side)	(X) QW-462.3(a) (Trans. R&F)	() QW-462.3(b) (Long. R&F)
Side		Pass	
Side		Pass	

Visual examination results (QW-302.4) Pass

Radiographic test results (QW-304 and QW-305) N/A

(For alternative qualification of groove welds by radiography)

Fillet Weld – Fracture test N/A Length and percent of defects N/A in.

Macro test fusion N/A Fillet leg size N/A in. Concavity/convexity N/A in.

Welding test conducted by Floyd Kiel 4K Technology

Mechanical tests conducted by Trinity Metals Lab Laboratory test no. 9010093

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Organization Texas Manufacturing Co., Inc.

Date 1-24-09

By _____