



C-spec
 P.O. Box 27604, Concord, California 94527, +1-877-977-7999
Procedure Qualification Record (PQR) - Details of Welding Test
 C-spec WeldOffice® Software

PQR record number	PQR-100	Revision 0	WPS record number	P1-AT-Lh-CVN	Revision 0
Date	9/14/00		Company name	C-spec	
			Welding standard	ASME Section IX	

BASE METALS (QW -403)

	Product form	Specification (type or grade)	P no.	Grp-no.	Size	Sch.	Thick (in.)	Dia. (in.)
Welded to:	Plate	SA-516 (60)	1	1	-	-	1.5	-
	Plate	SA-516 (60)	1	1	-	-	1.5	-
and tested:	Without PWHT, With PWHT, With impacts							
Notes								

POST WELD HEAT TREATMENT (QW -407)

Temperature (°F)	1150	Time (hrs)	2	Type	Below lower transf. temp.
Heating rate (°F/hr)	300	Method	Furnace		
Cooling rate (°F/hr)	300	Method	Still air		
Notes					

JOINTS (QW -402)

Joint design	Single-V-groove		
Backing:	None		
Retainers	None		
Groove angle (deg.)	60		
Root opening (in.)	0.125		
Root face (in.)	0.125		

WELDING PROCESSES

Welding process	GTAW	SMAW
Type	Manual	Manual

FILLER METALS (QW -404)

SFA specification	5.18	5.1
AWS classification	ER 70S-2	E7018
Filler metal F-number	6	4
Weld metal A-number	1	1
Filler metal nominal composition	-	-
Filler metal trade name	-	-
Filler metal size (in.)	0.125	0.125
Deposited thickness (in.)	0.75	0.75
Maximum pass thickness (in.)	0.125	0.25
Weld deposit chemistry	-	-

POSITION (QW -405)

Position of groove	3G	3G
Weld progression	Uphill	Uphill

PREHEAT (QW -406)

Preheat temperature (°F)	75	140
Maximum interpass temperature (°F)	320	320

GAS (QW -408)

Shielding gas: Type	Argon	-
Flow rate (cfh)	20	-
Trailing gas: Type	None	-
Flow rate (cfh)	-	-
Backing gas: Type	None	-
Flow rate (cfh)	-	-

ELECTRICAL (QW -409)

Filler metal size (in.)	0.125	0.125
Amperes	90	125
Volts	12	24
Travel speed (in./min)	2	5
Maximum heat input (kJ/in.)	32.4	36.0
Tungsten size (in.)	0.125	-
Tungsten type	SFA 5.12 EWTh-2	-
Current/polarity	DCSP	DCRP
DC pulsing current	None	-

TECHNIQUE (QW -410)

String or weave	Stringer and Weave	Stringer and Weave
Orifice/gas cup size	#5	-
Multi/Single pass per side	Multiple passes	Multiple passes
Peening	Not used	Not used
Initial/interpass cleaning	Brushing and Grinding	Brushing and Grinding
Back gouging method	None	None



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Procedure Qualification Record (PQR) - Test Results (As Welded)
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Date	9/14/00		Company name	C-spec	
			Welding standard	ASME Section IX	

TENSILE TESTS (QW -150)

Specimen number	Width (in.)	Thickness (in.)	Area (in ²)	Ultimate total load (lb)	Ultimate unit stress (psi)	Type of failure and location
T11	0.749	0.751	0.5625	35620	63500	Ductile-BM
T12	0.750	0.748	0.5610	34530	61500	Ductile-BM
T13	0.748	0.749	0.5603	33890	60500	Ductile-BM
T14	0.752	0.751	0.5648	35900	63500	Ductile-BM

Comments: 2 reduced section tension tests per QW-151.1 and QW-462.1(a)

GUIDED BEND TESTS (QW -160)

Type of test	Acceptance criteria	Result	Comments
4 transverse side bends per QW-161.1 and QW-462.2	QW-163	Acceptable	see - ASME IX - QW-451.1

Comments:

TOUGHNESS TESTS (QW -170)

Specimen number	Notch location	Notch type	Specimen size (in.) x (in.)	Test temperature (°F)	Impact values			Drop weight break
					(ft lb)	(% Shear)	(Mils)	
B60-1	Base Metal	V-notch	0.394 x 0.394	-40	152	45	40	-
B60-2	Base Metal	V-notch	0.394 x 0.394	-40	152	45	40	-
B60-3	Base Metal	V-notch	0.394 x 0.394	-40	152	45	40	-
B60-4	Base Metal	V-notch	0.394 x 0.394	-40	152	45	40	-
B60-5	Base Metal	V-notch	0.394 x 0.394	-40	152	45	40	-
H60-1	HAZ	V-notch	0.394 x 0.394	-40	152	45	40	-
H60-2	HAZ	V-notch	0.394 x 0.394	-40	152	45	40	-
H60-3	HAZ	V-notch	0.394 x 0.394	-40	152	45	40	-
H60-4	HAZ	V-notch	0.394 x 0.394	-40	152	45	40	-
H60-5	HAZ	V-notch	0.394 x 0.394	-40	152	45	40	-
W-1	Weld Metal	V-notch	0.394 x 0.394	-40	152	45	40	-
W-2	Weld Metal	V-notch	0.394 x 0.394	-40	152	45	40	-
W-3	Weld Metal	V-notch	0.394 x 0.394	-40	152	45	40	-
W-4	Weld Metal	V-notch	0.394 x 0.394	-40	152	45	40	-
W-5	Weld Metal	V-notch	0.394 x 0.394	-40	152	45	40	-
H70-1	Weld Metal	V-notch	0.394 x 0.394	-40	152	45	40	-
H70-2	Weld Metal	V-notch	0.394 x 0.394	-40	152	45	40	-
H70-3	Weld Metal	V-notch	0.394 x 0.394	-40	152	45	40	-
H70-4	Weld Metal	V-notch	0.394 x 0.394	-40	152	45	40	-
H70-5	Weld Metal	V-notch	0.394 x 0.394	-40	152	45	40	-
B70-1	Weld Metal	V-notch	0.394 x 0.394	-40	152	45	40	-
B70-2	Weld Metal	V-notch	0.394 x 0.394	-40	152	45	40	-
B70-3	Weld Metal	V-notch	0.394 x 0.394	-40	152	45	40	-
B70-4	Weld Metal	V-notch	0.394 x 0.394	-40	152	45	40	-
B70-5	Weld Metal	V-notch	0.394 x 0.394	-40	152	45	40	-

Comments: Standard 10 x 10 mm specimens

CERTIFICATION

Welder's name	ID Number	Stamp number	Mechanical testing by	Testing Lab
W.Z. Welder	555-55-5555	WZW-01	Laboratory test number Test file number Tests conducted by	TL-0109 PQR-100 L.Z. Tester

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

Welding Engineer

QA Manager

Name	Signature	Name	Signature
N.G. Neer	<i>N.G. Neer</i>	Q. M. Anager	<i>Q.M. Anager</i>
Date		Date	
10/13/2000		10/13/2000	



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Procedure Qualification Record (PQR) - Test Results (With PWHT)
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TENSILE TESTS (QW -150)

Specimen number	Width (in.)	Thickness (in.)	Area (in ²)	Ultimate total load (lb)	Ultimate unit stress (psi)	Type of failure and location
HT-11	0.749	0.751	0.5625	35000	62000	Ductile-BM
HT-12	0.751	0.749	0.5625	35000	62000	Ductile-BM
HT-13	0.748	0.749	0.5603	35000	62500	Ductile-BM
HT-14	0.751	0.750	0.5633	35000	62000	Ductile-BM

Comments: 2 reduced section tension tests per QW-151.1 and QW-462.1(a)

GUIDED BEND TESTS (QW -160)

Type of test	Acceptance criteria	Result	Comments
4 transverse side bends per QW-161.1 and QW-462.2	QW-163	Acceptable	see - ASME IX - QW-451.1

Comments:

TOUGHNESS TESTS (QW -170)

Specimen number	Notch location	Notch type	Specimen size (in.) x (in.)	Test temperature (°F)	Impact values			Drop weight break
					(ft lb)	(% Shear)	(Mils)	
HB60-1	Base Metal	V-notch	0.394 x 0.394	-40	160	41	42	-
HB60-2	Base Metal	V-notch	0.394 x 0.394	-40	160	41	42	-
HB60-3	Base Metal	V-notch	0.394 x 0.394	-40	160	41	42	-
HB60-4	Base Metal	V-notch	0.394 x 0.394	-40	160	41	42	-
HB60-5	Base Metal	V-notch	0.394 x 0.394	-40	160	41	42	-
HH60-1	Base Metal	V-notch	0.394 x 0.394	-40	160	41	42	-
HH60-2	Base Metal	V-notch	0.394 x 0.394	-40	160	41	42	-
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HH60-4	Base Metal	V-notch	0.394 x 0.394	-40	160	41	42	-
HH60-5	Base Metal	V-notch	0.394 x 0.394	-40	160	41	42	-
HW-1	Base Metal	V-notch	0.394 x 0.394	-40	160	41	42	-
HW-2	Base Metal	V-notch	0.394 x 0.394	-40	160	41	42	-
HW-3	Base Metal	V-notch	0.394 x 0.394	-40	160	41	42	-
HW-4	Base Metal	V-notch	0.394 x 0.394	-40	160	41	42	-
HW-5	Base Metal	V-notch	0.394 x 0.394	-40	160	41	42	-
HH-70-1	Base Metal	V-notch	0.394 x 0.394	-40	160	41	42	-
HH-70-2	Base Metal	V-notch	0.394 x 0.394	-40	160	41	42	-
HH-70-3	Base Metal	V-notch	0.394 x 0.394	-40	160	41	42	-
HH-70-4	Base Metal	V-notch	0.394 x 0.394	-40	160	41	42	-
HH-70-5	Base Metal	V-notch	0.394 x 0.394	-40	160	41	42	-
HB-70-1	Base Metal	V-notch	0.394 x 0.394	-40	160	41	42	-
HB-70-2	Base Metal	V-notch	0.394 x 0.394	-40	160	41	42	-
HB-70-3	Base Metal	V-notch	0.394 x 0.394	-40	160	41	42	-
HB-70-4	Base Metal	V-notch	0.394 x 0.394	-40	160	41	42	-
HB-70-5	Base Metal	V-notch	0.394 x 0.394	-40	160	41	42	-

Comments: Standard 10 x 10 mm specimens

CERTIFICATION

Welder's name	ID Number	Stamp number	Mechanical testing by	Testing Lab
W.Z. Welder	555-55-5555	WZW-01	Laboratory test number Test file number Tests conducted by	TL-0110 PQR-100 L.Z. Tester

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

Welding Engineer

QA Manager

Name	Signature	Name	Signature
N.G. Neer	<i>N.G. Neer</i>	Q. M. Anager	<i>Q.M. Anager</i>
Date		Date	
10/13/2000		10/13/2000	



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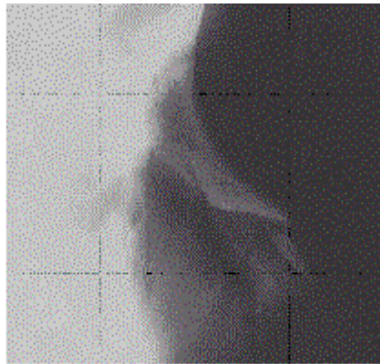
This "Additional information" page can be used to provide additional instructions in the form of **formatted text**,

Tables (Cut and paste from Excel spreadsheets)

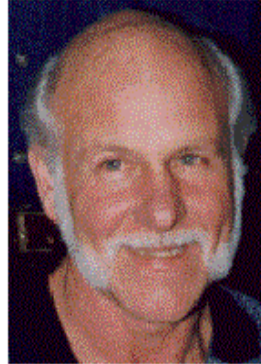
	Sound	Video
instructions	listen	watch
short-circuiting arc transfer	listen	watch
globular transfer	listen	watch
spray transfer	listen	watch

Instructions can include video or sound. Click on any of the above selections.

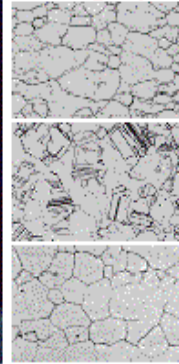
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