

Quick Start Tutorial for Weldspec[™], Welderqual[™] & NDTspec[™]

Contains:

- How to create a PQR (plus printout samples) ASME IX Procedure Qualification Record (Weldspec[™])
- How to create a WPS (plus printout samples) ASME IX Welding Procedure Specification (Weldspec[™])
- How to create a pWPS (plus printout samples) AWS D1.1 Prequalified WPS (Weldspec[™])
- How to create a WPQ (plus printout samples) ASME IX Welder Performance Qualification (Welderqual[™])
- How to create an NDE Report (plus printout samples) Radiographic Report used as example (NDTspec[™])



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How to create a PQR (page 1)

Start Weldspec by clicking on the Weldspec icon on your desktop. The system displays a form giving you various options. Click "close" to remove the form.

1

Click on the small drop-down arrow as shown. Select **ASME IX PQR.**

2

For the fastest possible data entry, always select the desired data from the drop-down menus or databases arather than typing the information manually. Notice how this form grows dynamically based on the information that you select.

3

Weldspec is equipped with an extensive database of pre-drawn typical joint details. For more information on these sketches refer to the help system by clicking on Help/Contents. Then select topic 2.2.3.

4

As you select a welding process, the form will grow, supplying you with the required fields specific to the process selected. Notice that Weldspec allows the use of up to three processes on a single PQR.

5

When specifying the filler metal, select it from the Filler Material Database instead of manually typing the information. To do this, place the cursor in the "SFA spec" field and click on the database icon Locate the same material listed in this example and double-click on it. Notice that Weldspec enters the proper SFA, AWS, F and A numbers automatically.

NOTE: Only a few filler metals and base metals are visible in the materials database while in demonstration mode.

6

In addition to three welding processes, Weldspec also allows you to specify up to five different filler metal sizes for each process. To do this, click inside the filler metal size field and then locate the Add Column

icon Ton the Tool Bar at the top of the screen	. Click
this icon and watch how this field splits with eac	h
click. This will also split any other applicable fiel	ds/
such as the electrical parameters.	

7

Notice the missing "Gas" fields for SMAW. This is another feature of the dynamic forms. Weldspec prevents entry of non-relevant information and minimises potential introduction errors. Helpful features like this are included in many places.

POR - Page one 1	EN288 WPS	11	PGR - Test results (F	wHT] Additional	ntomation	
TWI	EN298 PORD	-	XYZ Fai	brications Lt	d	
	ASME DOWP	i i i i i i i i i i i i i i i i i i i	IX - Procedure	ngton, Cantonige, Qualification I	CB1 6AL, UK Record (PQR)	
	ASME OK POP	0		Weldspec		
PGR record number	AlwS D1.1 PC	8 =	Revision 0	WPS record r	amber	Revis
Date	AWS D1.1 pla	/PS		Company rise	e PO/Z Fabric	ations Ltd
AST METALS YOW	40.3			Weiking stand	and ASME Sect	tion DC
Product 5	200	Specif	ication (type or grav	se) P-no.	Orp-na. Size (mm)	Sch. Thick (mm) D
Vessel Pice		5A-10	x; (0) x; (0)	1	1 152.40	PG 10.97
advated T With	A PWHT	WA	ih mpacta	E WR	hardness	C Supplementary tests of
Notes	-with	10.00	in read test.	P 08	e teors	
POST WELD HEAT T	EATMENT (OW	407)				
Temperature (C) 4	50		Time (NV) 3	•	Type Stress rel	iet .
Cooling rate (CAr)	00	_	Method Still A	1	6	
Notes [(Frank)			
CONTE CONTACT.	Phehoat mainter	ance after c	onpletion of welding	prior to PWHT (QW	406 ZI Temperati	46 [C]
Joint design Tingle	V-groove	_	Joint design		Welding	sequence
Ducking			-	-		-
Retainers	14		Im	1		HOW Y
Root opening (sea)	3	_		16-		Jaca 1
Root face (non)	3	-		1		
MELOING PROCESSE	5					
PARKEND PROCESS	1	SMAW		FEAW		
Type		Manual		Senirautonal	e	1
ILLER METALS (OV				-		
SFA specification AIAS classification		p.1 £7018		E711-12M		-1
The new I -turker		4		6		-1
Viela metal A-rumbe		1		11		
Filler metal nominal o	orpostion					
Filler metal trade nam Filler metal size	· _	3.25	4	1.0	1.2	-
Deposited thickness		4		7		-
Maximum pass thickr	ess (***)	3		3		_
Weld deposit chemis Susciemental filer m	Z			None		-
Supplemental filler	ital vol. (mm)					-
POSITION (OW-45)						
Position of genove		1G Rotated		10 Rotated		
Weld progression						
1011 1011 1011		120		120		_
Micinum interpass t	emperature (C)	250		250		-
AS (QW-408)						
Shielding gas: Type				75% Augon, 2	5% C02	
Flow r	de (Anie)	1	1	15	12	
trailing gas: Type Flow r	ate (genin)	/		None	-	-
Backing gas: Type	1			None		-
Flow r	ste (mai)			P	ŀ	-
ELECTRICAL (QW-4)	/					
Filer metal stor	(mm)	1.25	1	1.0	1.2	
Vol		24-20	26-30	26-31	28-32	-
Travel speed	(membrain)	125	150	200	175	-
Maximum heat input	(Lutime)	1.4	1.3	1.1	1.3	
Currentipolarity		DC-ve	DC ~ve	DC +ve	DC +ve	-
Arc transfer mode	(www.in)			Spray	1 ²⁷	-
TECHNIQUE (QW-410	•					
String or weave		Stringer		Stringer and	Weave	-
Orificeiges cup size				19mm		
C.T.W.D	(100)	M diala c 11		10		-
and the second second second	90.00	-unple pai	~	Profitie pass	**	-
Peening		Not used		TVOL USED		
Peening Indial/Interpass clear	ng	Not used Brushing		Erushing and	Ginding	-

PQR (page 2)

To enter data into the second page of the PQR, click on the tab at the top of the page entitled "**PQR** – **Test Results (PWHT)**".

			YY7 5	abrica	tione I to					
	ASI	Gr MEIX - Proc	arta Park, Great A edure Qualifica	abington, ation R	Cambridge,	:81 GAL R) - Te	., UK st resul	ts (PV	инт)	
				weidop	ec.				\checkmark	
QR record num	ber PGR101 25/07/2003	4	Revision 0		APS record rx	mber		/		Residen
NSILE TESTS	QW-158)					/				/
Reduced sec	tion C Turned	Full section	77		-				_	
Specimen num	vida	n	Thickness	Are	a Ut	inate to	tel load	Utina	te unit stress	Type of failure and location
001	(mn 19	1	(mm) 11	209.	00	(N 9300	00		(MPa) 445	Ductile-Base Meta
002	19		11	209.	00	920	00		440	Ductile-Base Mete
	Durt and	and the baseline	hade and Obs(1E1 2) and (0):	(853 3(4)			~	\sim	<u>.</u>
UNDED (PAID TR)	STS (OW 160)	avecuori tensión	reads per d/W-151.2	and un	402 1[0]	\sim				
CALIF DEMU TE		me of test	-		Acceptances	storie	Recei	.	~	anacte
2 transv	13 erse face bends	per QW-161.2	and GNV-462 3(a)		QM-163	reena	Accepte	s bié	tee - ASM	E IX - QAV-451.1
2 trans	erse root bends	per QW-161.3	ind QW-462.3(a)		QMV-163	0	Accepte	stile	see - ASM	E IX - QVV-451.1
Comments				-		_		_		_
OUGHNESS TES	TS (QW-170)						~	_		
Specimen	Notch location	Notch type	Specimen size	Test to	enp.	L/I	Impac	t value Shearl	t (mm)	Drop weight break
BM001	Base Metal	V.notek	10 x 10	-30	2	45	1	18	2	
BM002 BM003	Base Metal	V-notch V-notch	10 x 10	-30		40		15	2	+
BM004	Base Metal	V-notch	10 x 10	-3	,	39	1	16	2	-
BM005	Base Metal	V-notch	10 x 10	-30)	42		14	2	+
HZ001	HAZ	V-notch	10 x 10	-30)	35	1 2	11	3	
H2002	HAZ	V-notch	10×10	-3	2	30		10	1.5	
HZ003	HAZ	V-notch	10 × 10	-3		40	-	14	2	
HZ005	HAZ	V-notch	10 x 10	-3)	31	1 5	14	2	
VMM001	Weld Metal	V-notch	10 x 10	-30)	35		16	1.5	-
VM002	Weld Metal	V-notch	10×10	-30)	37	1	17	3	•
VVM003	Weld Metal	V-notch	10×10	-30		39		16	25	
VVM005	Weki Metal	V-notch	10 x 10	-30	5	44		13	3	
Comments	Γ									
INCK ICOTS	Т	pe of test		I	Acceptance	rteria	Ret	. [ments
Radio	Visual exami prapříc examinat	nation per QNA: Ion per QNA-191	102.4 and QVV-302.2		QW-194 QW-191	2	Accepts	sbie	see - ASME I see - ASME	X - GW-4521(a) IX - GW-142/3,
	-									
Comments ERTIFICATION										
Welders na	ne D	number	Stamp numbe	, '	Mechanical tes	ting by		ABC	Testing Servic	ies.
John Smit	h	142	1002532-82		Laboratory tes Test file numbe	t numbe tr	r	03/0	001432-01	
le certify that th	e statements i	n this record a	re correct and th	at the te	st welds we	re prep	ared, we	Ided a	nd tested in	accordance with
Welding Engin	is of aection DC Heer	un the ASME C	vu#.		QA Manage	e	2		WD	
SYS	S(C C	1/	1	Name	-	_	signatu	re	

8

As you enter data in the Tensile Test section, notice how Weldspec automatically calculates "Area" and "Ultimate Unit Stress". Note: If the calculated Ultimate stress is below the specified requirements for the base metals on page one, Weldspec will prompt you with a Code Checking warning after selecting "Type of failure and location".

9

Bend test information is already entered for you. Based on the information entered on page one, Weldspec's Code Checking automatically specifies the required testing.

10

When entering Toughness Test information, enter ONLY the top line of data. When the first line is completed, click the cursor in the "Specimen Number" field on the second line. Weldspec automatically replicates the test information from the previous line.

11

Printing this PQR: To print this record, go to the top of the screen and click on File. Select

the second print option which should say Print Unassigned ASME PQR000x.

12

Instantly create a WPS from this PQR:

Now that you are finished creating this PQR, Weldspec can automatically create a WPS using the data on this record. To do this, go to the top of the screen and click on **File/Save As New**. Then select **WPS**. Weldspec will then take all applicable data from this PQR and place it on the WPS. Additionally, notice how the Code Checking supplies you with even more data straight out of the code such as the Thickness and Diameter ranges qualified.

PQR printout sample (page 1)

TWI		Granta ASME I	XYZ F Park, Great A X - Procedu	abrications L bington, Cambridge ure Qualification Weldspec	.td e, CB1 6AL, Record (P	ик QR)			
				Holdopee					
PQR record number Date	PQR101 25/07/2003		Revision 0	WPS record number Company name Welding standard	XYZ Fabrica ASME Section	tions Ltd on IX		R	tevision
BASE METALS (QW-403)									
	Product form	Specificatio	n (type or grade)	P no.	Grp-no.	Size	Sch.	Thick.	(mm) Dia. (mm)
	Pipe	SA-106 (B)		1	1	152.40	XS	10.97	168.28
Welded to:	Pipe	SA-106 (B)		1	1	152.40	XS	10.97	168.28
and tested: Notes	With PWHT, With im	pacts							
POST WELD HEAT TREA	ATMENT (QW-407)								
Temperature (°C) 450	Time	(hrs) 8		Туре		Stress relief		
Heating rate ("Ohr	1) 200	Method	Furnace						
Cooling rate ("C/h	r) 200	Method	Still air						
Notes									
JOINTS (QW-402)		-							
Joint design Backinc:	Single-V-g	Incove	·						
Retainers	1	-	Ń	60° /			$\sqrt{\sqrt{2}}$	\sim	
Groove angle (deg	.) 60	11mm		/		FCAW	55	1	
Root opening (mm) 3						- ~	/	
ROOLTade (mm	0 3	_	-			SMAW			
			\rightarrow	k← 3mm			_		
WELDING PROCESSES									
Welding process			SMAW				FCAW		
Туре			Manuai			8	Semi-automatic		
FILLER METALS (QW-40	4)								
SFA specification			5.1				5.20		
AWS classification			E7018				E71T-12M		
Weld metal A-number			4				11		
Filler metal nominal compo	osition								
Filler metal trade name									
Filler metal size	(mm) (mm)	3.25	4	4		1.0	7	1.2	
Maximum pass thickness	(mm)		3				3		
Weld deposit chemistry									
Supplemental filler metal	ol (mm3)		•				None		
DOSITION (OW 405)	(iiiii)		-						
Position of groups			1C Potatod				1C Potatod		
Weld progression			-				-		
PREHEAT (QW-406)									
Preheat temperature	(°C)		120				120		
Maximum interpass tempe	rature (°C)		250				250		
GAS (QW-408)									
Shielding gas: Type			-			75%	Argon, 25% C	02	
Flow rat	le (l/min)		-			15	None	12	
Flow rat	le (l/min)		-			-	none	-	
Backing gas: Type			-				None		
Flow rat	le (l/min)		•			-		-	
ELECTRICAL (QW-409)									
Filler metal size	(mm)	3.25		4	40	1.0		1.2	30
Volts		24-28		26-30	10	6-31		28-3	2
Travel speed	(mm/min)	125		150		200		175	
Maximum heat input	(kJ/mm)	1.4		1.3		1.1		1.3	
Gurrent/potarity Wire feed speed	(m/min)	DC -ve	-	DC -ve	D	, +ve 2.4		DC + 2 7	ve
Arc transfer mode	(occurry)						Spray	e.1	
TECHNIQUE (QW-410)									
String or weave			Stringer			Str	inger and Weav	э	
Orifice/gas cup size			•				19mm		
C.T.W.D Multi/Single page par side	(mm)		- Multiple poeses				18 Juittinia nasses		
Peening Peening			Not used			h	Notused		
Initial/interpass cleaning			Brushing			Brus	shing and Grindi	ng	
Back gouging method			Not applicable				Not applicable		

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POR printout sample (page 2)

TWI		ASME IX -	Granta Park, Procedure Q	XYZ Fab Great Abin Qualificatio V	orications L gton, Cambridge on Record (PC Veldspec	td , CB1 6AL, I R() - Test r	JK esults ((PWHT)	
PQR record number Date	PQR101 25/07/2003		Revis	ion 0 W Cc W	PS record number ompany name jelding standard	XYZ Fabricat ASME Section	ions Ltd n IX		Revision
TENSILE TESTS (Q)	N-150)								Reduced section
Spedmen numb	ar Widt	h	Thickness	Area	Ultima	te total load	Ultimate	e unit stress	Type of failure and
001 002	19		11 11	209.00 209.00		33000 32000		445 440	Ductile-Base Metal Ductile-Base Metal
Comments	2 reduced	section tension tests p	er QW-151.2 and QV	V-462.1(c)					
	Type of te	st		Acceptance crit	eria	Result		Corr	nments
2 transve 2 transve	rse face bends per QW- se root bends per QW-	161.2 and QW-462.3(161.3 and QW-462.3(a) I)	QW-163 QW-163		Acceptable Acceptable		see - ASME see - ASME	IX - QW-451.1 IX - QW-451.1
Comments	E (OW/ 170)								
Specimen	5 (QW-170)		Specimen size	Test temper	rature	Impa	ct values		Drop weight
number	Notch location	Notch type	(mm) x (mm)	("C)	(J)	(%)	Shear)	(mm)	break
BM001	Base Metal	V-notch	10 x 10	-30	45		18	2	
BM002	Base Metal	V-notch	10 x 10	-30	40		15	2	-
BM003	Base Metal	V-notch	10 x 10	-30	38		12	3	
BM004	Base Metal	V-notch	10 x 10	-30	39		16	2	-
BM005	Base Metal	V-notch	10 x 10	-30	42		14	2	-
HZ001	HAZ	V-notch	10 x 10	-30	35		11	3	-
HZ002	HAZ	V-notch	10 x 10	-30	38		18	1.5	-
HZ003	HAZ	V-notch	10 x 10	-30	33		12	2	-
HZ004	HAZ	V-notch	10 x 10	-30	40		14	2	-
HZ005	HAZ	V-notch	10 x 10	-30	31		14	2	
VM001	Weld Metal	V-notch	10 x 10	-30	35		16	1.5	-
VM002	Weld Metal	V-notch	10 x 10	-30	37		17	3	-
VM/003	Weld Metal	V-notch	10 x 10	-30	39		16	2.5	-
VM004	Weld Metal	V-notch	10 x 10	-30	41		20	2.5	
WM005	Weld Metal	V-notch	10 x 10	-30	44		13	3	
Comments									
OTHER TESTS									
	Type of te	it		Acceptance crit	eria	Result		Corr	nments
	i jpo di ita	0111.000.1						101	0111 150 1 ()
Radiogra	visuai examination per C aphic examination per C	er QW-302.4 W-191 and QW-302.2		QW-194 QW-191.2	1	Acceptable Acceptable	5	see - ASME IX see - ASME IX - C	QW-452.1 (a) XW-142/3, QW-304/5
Comments									
CERTIFICATION	nanana) 8181819								
Welder's na	ne	ID Number	Stamp numi	ber	achanical tasting by		AP/	* Tasting Services	
John Smith	1	142	1002532-6	32 La Te Te	aboratory test number est file number ests conducted by		711 03/0 Norr	009-1 001432-01 man Smith	

Welding Engineer		QA Manager	
Name	Signature	Name	Signature
SYS			
Date	. Imon Ward	Date	
25/07/2003			
Welderer 4 40 994	-		(a) Campinel 2002 Campa TMR Cathorne All rights account worldwide
Weldspec 4. 10.231			(c) Copyright 2003 C-specif Wil Sonware. All rights reserved wondwide.
Catalog n° PQR00011			Page 2 of 2

How to create a WPS (page 1)

For automatic creation of a WPS, refer to item 9 on the next page.

1

From Weldspec's main menu bar, click on the small drop-down arrow as shown. / Select **ASME IX WPS**.

2

Fill out your WPS with the same data that appears in this example. For fast data entry, always select the desired data from the drop-down menus or databases rather than typing the information manually. See how this form grows dynamically based on the data entered.

3

When specifying the filler metal, remember to select it from the Filler Material Database instead of manually typing the information. To do this, place the cursor in the "SFA" field and click on the database icon . Locate and select the same filler metals listed in this example and then press the Accept button. Notice that the proper SFA, Classification, F and A numbers are entered automatically. **Note**: Multiple filler metal classifications may be specified. However, in this example we will only use one for demonstration purposes.

NOTE: Only a few filler metals and base metals are visible in the materials database while in demo mode.

4

In addition to three welding processes, Weldspec also allows you to specify up to five different filler metal sizes for each process. To do this, click inside the filler metal size field and then locate the Add Column icon on the Tool Bar at the top of

the screen . Click this icon and watch how this field splits with each click. This will also split any other applicable fields such as the electrical parameters.

5

Notice the missing "Gas" fields for SMAW. This is another feature of the dynamic forms. Weldspec prevents entry of nonrelevant information and minimises potential introduction of errors. Helpful features like this are included throughout the software.

	EN200 PQR EN200 PQRI	, –	amonon I				
	ASME DOWN ASME DO PO ASME DO PO	R R RD	XYZ Fa Into Pork, Great A ASME I	abrications Lti bington, Cambridge, IX - WPS - Page 1 Weldspec	d CB1 6AL, UK 1		
MPS record numbe	AWS D1.1 W AWS D1.1 P AWS D1.1 P	VPS QR QRD WPS	Revision 0	Gunified to Company nam	ASME Se by Z Fabr	ection IX	
Supporting PQR(s)	PQR101 - Rev General Welds	0 ng Statndard	GWS 1				
Scope	F Groove		Consisten		With PwHT No PwHT (brand	E Si	d welding
/	Joint details for IDENTS to	this working ction of this V	VPS Pho	cation in: Suction drawings	Engineering a	specifications	Reference documer
Veiding process	ES Sh	64\W		FCAW		-	
Type	M	anual		Semi-automatic		-i	
ASE METALS (QW	-003)				1	FHICKNESS RANG	E QUALIFIED (mm)
Туре	Carbon steel #	21)	P-no. 1	Orp-no. 1		Min Man	Min. Max.
Welded to	Carbon steel (7)	P-no. 1	Grpino. 1	Complete pen.		4.763 21.94
Retainers			P-00.	orp-no.]	Partial pen.		4.763 21.94
Notes	i				Fillet welds		no min. no mas
					0	NAMETER RANGE	QUALIFIED (11/1)
						As-welded Mn. Mail	Min. Max
Pipe/Tube diameter r	ange qualified			Nominal pipe size			no min. no mao
ILLER METALS (ON	N-404)		8	52,000 0.0	190	At-weided	Vith PVHT
SFA SMANY 51	Classification	1	F-no. A-no.	Chemical shalysis	or Trade name	Mrt. Max.	Min. Max.
FCAW 5.20	E71T-12M		8 11	i —	—-i		no min. 14
i -	-i		i—i—	i —	i —	<u> </u>	
Sup. mer mei		_					
						C Required C	Optional @ None
ELDING PROCEDU	RE		1 1			C Required C	Optional 🤻 None
ALDING PROCEDU	RE	SMAW	1 1	FCAW		C Required C	Uptonal 🥐 None
ALDING PROCEDU Welding process Type	<u>н</u>	SMAW Manual	1]	FCAW Seni-autonali	¢	C Required C	Optional 🧖 None
ELDING PROCEDU Welding process Type Minimum preheat/inte	RE orpass temp. (C	SMAW Manual 64	1 1	FCAW Seni-sutonali [64	¢	C Required C	Opsonal (* None
ALDING PROCEDU Welding process Type Minimum proheat/Inte Miximum interpass t	erpassitemp. (C	SMAW Manual 64 306		FCAW Semi-autonati 64 306	0	C Required C	Optional (* None
ALDING PROCEDU Welding process Type Minimum prohestUnts Maximum interpass t Filter metal size	RE orpass temp. (C temperature (C	SMAW Manual 64 306 3.25	 4	FCAW Semi-automatic [64 [306 [1.0	0	C Required C	Optional P None
ALDING PROCEDU Welding process Type Minimum prohest/Inte Miximum interpass f Filter metal size Layer number	erpass temp. (C temperature (C	SMAW Manual 64 306 3.25 All	[4 [4] [64]	FCAW Sees-automatic [64 [306 [1.0 [Al] [48	0 1.2 All As	C Required C	Opsonal (* None
ELDING PROCEDUI Welding process Type Minimum preheat/inte Maximum interpass t Filter metal size Layer number Postion of groove Weld progression	RE erpass temp. (C temperature (C	SMAW Manual 64 306 3.25 All All Uphil	4 (Al (Al (UDAN)	FCAW Semi-sutomstr 64 306 1.0 [Al] [Al] [Uchil]	c [1.2 [All [All [Uzhil]	C Required C	Optional (* None
ALDING PROCEDU Welding process Type Minimum preheat/into Maximum interpass to Falser methal size Layer number Position of groove Weld progression Current/position	erpass temp. (C temperature (C	SMAW Manual 64 306 325 All Uphil DC rve	4 Al Al DC-ve	FCAW Sees-autoristi 64 306 1.0 64 06 1.0 64 06 06 00 00 00 00 00 00 00	All DC +ve		Upponal (* None
ALDING PROCEDU Welding process Type Minimum preheat/into Minimum interpast 1 Hiller methalisze Layer number Postion of groove Weld progression Current/polarity Ampores	RE orposs temp. (C temperature (C	SMAW Manual 64 306 325 Al Al Uphil DC rve 104:116	4 Al [0] [0] [0] [0] [0] [1] [1] [1] [2] [2] [3] [4] [4] [4] [4] [4] [4] [4] [4] [4] [4	FCAW Sees-autoratio 64 306 1.0 64 06 1.0 64 06 06 00 100 100 120	0 1.2 Al Al Uphil DC +ve 105-130		Upponal (* None
ALLONG PROCEDU Welding process Type Minimum prohostints Maximum interpass to Hiller methil size Layer number Position of groove Position of groove Weld progression Current/polarity Ampores Vote	erpasstomp. (C temperature (C	SMAW Manual 64 325 All DC rve 104-116 24-20	4 Al (Al (Uphil DC-ve (110-125) 26-30	FCAW Semi-automati 64 306 1.0 /Al 02hill 02+ve 100-120 26-31	0 1.2 All Qphil DC+ve 105-130 20-32		Opecnal (* None
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AL David Child or process Type Minking process Type Minking in the theory is fair metal size Lower make Control of grooten the metal size Lower make Control of grooten the theory is control of grooten theory is control	RE anpessitemp, (C lemperature (C (Limperature (C (Limperature (C))) (Limperature (C)) (Limperature (C	SMAAV Manual 64 325 325 325 44 00hil 02hil 02hil 02hil 02hil 02hil 125 14 15 14 5 5 5 5 5 5 5 5 5 5	4 A A Uphil DC-ve 10-120 150-120 150 130 130 130 130 130 130 130 13	PCAW Stess automatic 64 26 10 Au Dir Au Dir Dir 25-31 200 11 24 Strager or Work None None Strager or Work	0 12 A4 A4 [00-94] [0C +ve 105-130 29-32 175 173 173 27 55 173 27 55 173 173 27 55 173 175 173 27 55 173 175 173 27 175 173 27 175 173 27 175 173 27 175 173 27 175 173 27 175 173 27 175 173 27 175 173 27 175 173 27 175 173 27 175 173 27 175 173 27 175 173 27 175 173 27 175 175 175 173 27 175 175 175 175 175 175 175 17		Opporal (* Nore
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WPS (page Z)

To continue entering data into the second page of the WPS, click on the tab at the top of the page entitled "WPS - Page Two". _ 8 ×

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17/02 RDT 1822 * L * 🛥 🏕	
TWI	XYZ Fabrications Ltd Granta Park, Great Abindron, Cambridge, CB1 6AL, UK
	ASME IX - WPS - Page 2
	weaspec
MPS record purpher MPS101	Revision 0 Qualified to ASME Section IV
Date 28/07/2003	Administration of the
JOINTS (OW-402) Typical joint(s)	See actual production drawings and engineering specifications for details
6.20m	0-12mm - 1-3mm - 13mm
	── └───└─┘◢ └─୶┶─└─┘⋠
	_
00-20100 X 430mm	
╽╺┶──────	
PRENEAT TABLE	
Applicable standard	Dir (CD) for thickness over 25 (rm) and specified maximum pattern content over 0.20%
Mome Bol. I	10 (°C) for all other materials.
ASME B31.3	10 (°C) for thickness less than 25.4 (mm) and specified minimum tensile strength not over 490 (MPa). 80 (°C) for 25.4 (mm) and greater thickness, or if specified minimum tensile strength is over 490 (MPa).
ASME Section VIII Div. 1	79 (°C) for thickness over 25 (mm) and specified maximum carbon content over 0.30%.
,	10 (°C) for all other materials.
1	
POST WELD HEAT TREATMENT (Q	W-407)
Temperature (C) 450	Time (hrs) Thr/(25 mm) Type Stress relief
Heating rate (CHv) 200	Method Furnace
Cooling rate (CHv) 200	Method Still air
Notes	
Preheat main	tenance after completion of welding prior to PWH1 (UW-406.2); Temperature (C)
TECHNIQUE (QW-410)	Natural
Peening	
Surface preparation	Provision
Reals neuroise method	
Back gouging method	Luor athingania
10163	
Propared by	Poviewed by
Name Sign	ature Signature
SYS 7	
Date)mon Warg Dee
13070772003	
Approved by	
Name Sign	ature
Date	
Valdance 4 10 221	(a) Par-10 4990
Catalogue n' VPS00011	(o) Copyright 2003 C-speor I MT Software. All rights reserved worldwide.

6 Weldspec is equipped with a comprehensive database of typical joint details already drawn for you. For more information on these sketches refer to the help system by clicking on Help/Contents. Then select topic 2.2.3.

To specify the applicable preheat for the materials entered on page one, simply select up to four standards from Weldspec's drop-down lists and the Code Checking will supply the appropriate data.

8

Printing this WPS: When you are ready to print this record, go to the top of the screen and click on File. Then select the second print option which should say Print Unassigned ASME WPS000x.

9

Automatically create a WPS from a PQR:

another way to create a WPS is to have Weldspec automatically generate the WPS from a PQR. To do this you will need to open a completed PQR. If you have not yet made a PQR, please follow the instructions on the page entitled "How to create a PQR". With a PQR opened, go to the top of the screen and click on File/Save As New. Then select WPS. Weldspec will begin to take all applicable data from the PQR and place it on the WPS. Additionally, notice how the Code Checking supplies you with even more data straight out of the code such as the Thickness and Diameter ranges qualified.

WPS printout sample (page 1)



XYZ Fabrications Ltd Granta Park, Great Abington, Cambridge, CB1 6AL, UK ASME IX - WPS - Page 1 Weldspec

WPS record number	WPS101			Revisic	on 0	Qualified to		ASME Secti	on IX			
Date	28/07/20	03				Company name		XYZ Fabrica	ations Ltd			
Supporting PQR(s) Reference docs.	PQR101 General	- Rev 0 Welding f	Statndard GWS 1									
Scope	Groove,	fillet, imp	pact testing, with PWHT					-				
Joint	Joint det	ails for th	is welding procedure specif	ication in:								
BASE METALS (QW-403)		00000	Tuno en co						THICKNESS	RANGE QU	ALIFIED	(mm
Tuna	Carbon	eteel (P1)	1	P-no 1		Gm-no 1			As-w	elded	With F	PWHT
Welded to	Carbon	steel (P1)	5	P-no. 1		Grp-no. 1			Min.	Max.	Min.	Max.
Backing:	None	10001 (1.1.)		P-no.		Grp-no.	Complet	te pen.	-	-	4.763	21.94
Deteinara	<u>ä</u>						Impact t	ested	-	-	10.97	21.94
Retainers	8						Partial p	en.	-	-	4.763	21.94
Notes	Å						Fillet we	aldis	-	-	no min.	no max.
						·•			DIAMETER P	RANGE QUA	LIFIED	(mm
									As-we	elded	With F	PWHT
									Min.	Max.	Min.	Max.
							Nominal	i pipe size	-	-	no min.	no max.
FILLER METALS (QW-404)									THICKNESS	RANGE QU	ALIFIED	(mm
	SFA		Classification	F-no.	A-no.	Chemical ana	vsis or Trade	e name	As-we	elded	With F	PWHT
									Min.	Max.	Min.	Max.
SMAW	5.1	E7018		4	1. 1				-	-	no min.	8
FCAW	5.20	E711-12	2M	6	11				-	-	no min.	14
Sup. filler	<u> </u>				1	I				No	one	
WELDING PROCEDURE												
Welding process				SMA	W		1		F	CAW		
Туре				Manu	Jal				Semi	-automatic		
Preheat temperature		(°C)		64						64		
Maximum interpass temperatur	Ð	(-0)	2.25	300	ŝ					306	12	
Hiller metai size		(mm)	3.40			4		10			. 4	
Position of groove			All			4		1.0 All			All	
			All			4 All All		1.0 All All			All All	
Weld progression			All All Uphill			4 All All Uphill		1.0 All All Uphil	1		All All Uphill	
Weld progression Current/polarity			All All Uphill DC -ve			4 All All Uphill DC -ve		1.0 All Uphil DC +v	l e		All All Uphill DC +ve	
Weld progression Current/polarity Amperes			All All Uphill DC -ve 104-116			4 All All Uphill DC -ve 110-125		1.0 All Uphil DC +v 100-12	l e 0		All All Uphill DC +ve 105-130	
Weld progression Current/polarity Amperes Volts			All All DC -ve 104-116 24-28			4 All Uphill DC-ve 110-125 26-30		1.0 All Uphil DC +v 100-12 26-31	l e O		All All Uphill DC +ve 105-130 28-32	
Weld progression Current/polarity Amperes Volts Travel speed	(m	m/min)	All All Uphill DC -ve 104-116 24-28 125			4 All Uphill DC -ve 110-125 26-30 150		1.0 All DC +v 100-12 26-31 200	I e :0		All All Uphill DC +ve 105-130 28-32 175	
Weld progression Current/potarity Amperes Volts Travel speed Maximum heat input	(m ()	m/min) J/mm)	All All Uphill DC -ve 104-116 24-28 125 1.4			4 All Uphili DC -ve 110-125 26-30 150 1.3		1.0 All Uphil DC +v 100-12 26-31 200 1.1	I e 0		All All Uphill DC +ve 105-130 28-32 175 1.3 0.7	
Weld progression Current/polarity Amperes Volts Travel speed Maximum heat input Wire feed speed	(m () (m/min) ຝ/mm) m/min)	All All DC -ve 104-116 24-28 125 1.4			4 All Uphill DC -ve 110-125 26-30 150 1.3		1.0 All Uphill DC +v 100-12 26-31 200 1.1 2.4	l e 0		All All Uphill DC +ve 105-130 28-32 175 1.3 2.7	
Weld progression Current/polarity Amperes Volts Travel speed Maximum heat input Wire feed speed Arc transfer mode Polariting: Gas type	(m () (m/min) ⇔/mm) m/min)	All All DC -ve 104-116 24-28 125 1.4			4 All Uphill DC -ve 110-125 26-30 150 1.3		1.0 All Uphill DC +v 100-12 26-31 200 1.1 2.4 Spray	1 e :0 / 75% Arg	~ 25% CO2	All All Uphill DC +ve 105-130 28-32 175 1.3 2.7 Spray	
Weld progression Current/polarity Amperes Volts Travel speed Maximum heat input Wire feed speed Arc transfer mode Shielding: Gas type Flow rate	(m () (mimin) Lilmm) mimin)	All All DC -ve 104-116 24-28 125 1.4			4 All Uphili DC-ve 110-125 26-30 150 1.3		1.0 All Uphill DC +v 100-12 26-31 200 1.1 2.4 Spray	l e :0 ' 75% Argi	on, 25% CO2	All All Uphill DC +ve 105-130 28-32 175 1.3 2.7 Spray 2 12	
Weld progression Current/polarity Amperes Volts Travel speed Maximum heat input Wire feed speed Arc transfer mode Shielding: Gas type Flow rate Trailing: Gas type	(m () (mimin) sJimm) mimin) Qimin)	Ali Ali Uphil DC -ve 104-116 24-28 125 1.4			4 All Uphill DC-ve 110-125 26-30 150 1.3		1.0 All Uphill DC +v 100-12 28-31 200 1.1 2.4 Spray	l e :0 75% Arg	on, 25% CO2 None	All All Uphill DC +ve 105-130 28-32 175 1.3 2.7 Spray 2 12	
Weld progression Current/polarity Amperes Volts Travel speed Maximum heat input Wire fead speed Arc transfer mode Shielding: Gas type Trailing: Gas type Flow rate Flow rate	(m 0 1	minin) (Jimm) minin) (Iimin)	All All Uphill DC-ve 104-116 24-28 125 1.4			4 All Uphil DC-ve 110-125 26-30 150 1.3		1.0 All All DC +v 100-12 26-31 200 1.1 2.4 Spray 15	I e :0 / 75% Arg	on, 25% CO2 None	All All Uphill DC +ve 105-130 28-32 175 1.3 2.7 Spray 2 12	
Weld progression Current/polarity Amperes Volts Travel speed Maximum heat input Wire feed speed Arc transfer mode Shielding: Gas type Trailing: Gas type Blow rate Blow rate	(m 0 1	mimin) «Jimm) (Iimin) (Iimin)	All All Uphil DC -ve 104-116 24-28 125 1.4			4 All Uphill DC-ve 110-125 26-30 150 1.3		1.0 All Uphili DC +v 100-12 26-31 200 1.1 1 2.4 Spray 15	l e 0 75% Argi 1	on, 25% CO2 None None	All All Uphill DC +ve 105-130 28-32 175 1.3 2.7 Spray 2 12 -	
Weld progression Current/polarity Amperes Volts Travel speed Maximum heat input Wire feed speed Arc transfer mode Shielding: Gas type Flow rate Backing: Gas type Flow rate Backing: Flow rate	(m 0 1	m/min) sJ/mm) m/min) (/min) (/min)	All All Uphill DC -ve 104-116 24-28 125 1.4			4 All Uphill DC-ve 110-125 26-30 150 1.3		1.0 All Uphil DC +w 100-12 26-31 200 1.1 2.4 Spray 15	I e 0 75% Arg	on, 25% CO2 None None	All All Uphill DC +ve 105-130 28-32 175 1.3 2.7 Spray 2 12 -	
Weld progression Current/polarity Amperes Volts Travel speed Maximum heat input Wire feed speed Arc transfer mode Flow rate Trailing: Gas type Flow rate Backing: Gas type Flow rate String or weave String or weave	(m 0 1	vm/min) sJ/mm) m/min) (/min) (/min)	All All Uphill DC -ve 104-116 24-28 125 1.4	String	jer	4 All Uphill DC-ve 110-125 26-30 150 1.3		1.0 All Uphili DC +v 100-12 226-31 200 1.1 2.4 Spray 15	I e e	on, 25% CO2 None Yone r or Weave	All Uphil DC +ve 105-130 28-32 175 1.3 2.7 Spray 2 12 - -	
Weld progression Current/polarity Amperes Volts Travel speed Maximum heat Input Wire feed speed Arc transfer mode Fishielding: Gas type Trailing: Gas type Fiow rate Backing: Gas type Fiow rate String or weave Ortifice/gas cup size	(m 0 1	umimin) sJimm) mimin) Qimin) (Vimin)	All Juphil DC-ve 104-116 24-28 125 1.4	- - - - - - - - - - - - - - - - - - -	jer	4 All Uphili DC-ve 110-125 26-30 150 1.3		1.0 All Uphil DC +v 100-12 26-31 200 1.1 2.4 Spray 15 -	l e .0 75% Argu I Stringe 1	on, 25% CO2 None Yone fror Weave 19mm	All All Uphil DC +ve 105-130 28-32 175 13 2.7 Spray 2 12 -	
Weld progression Current/polarity Volts Volts Travel speed Maximum heat input Wire feed speed Arc transfer mode Shielding: Gas type Flow rate Backing: Gas type Flow rate Backing: Gas type Criffice/gas cup size C.T.W.D	(m 0 1	m/min) cJ/mm) m/min) (/min) (/min) (/min)	All All Uphill DC -ve 104-116 24-28 125 1.4	String	jer	4 All Uphill DC-ve 110-125 26-30 150 1.3		1.0 All Uphil DC +v 100-12 2633 200 1.1 2.4 Spray 15 -	1 e	on, 25% CO2 None Yone Ir or Weave I9mm 18	All All Uphill DC+ve 105-130 28-32 175 1.3 2.7 5 9 2 12 -	
Weld progression Current/polarity Amperes Volts Travel speed Maximum heat input Write feed speed Arc transfer mode Shielding: Gas type Flow rate Trailling: Gas type Backling: Gas type String or weave Crt.WLD Multi/Single pass per side Hovimum nass thidagess	(m () (m/min) KJ/mm) m/min) (/min) (/min) (/min)	All All Uphill DC -ve 104-116 24-28 125 1.4	- - - - - - - - - - - - - - - - - - -	jer iasses	4 All Uphill DC-ve 110-125 26-30 150 1.3		1.0 All Uphil DC +v 100-12 26-31 2000 1.1 2.4 Spray 15 -	r e 20 75% Argi 1 Stringe 1 Multip	on, 25% CO2 None For Weave I9mm 18 He passes 3	All All Uphill DC +ve 105-130 28-32 175 1.3 2.7 Spray 2 12 -	
Weld tprogression Current/polarity Amperes Volts Travel speed Maximum heat input Wire feed speed Arc transfer mode Shielding: Gas type Flow rate Backing: Gas type Flow rate Backing: Gas type Flow rate String or weave Crifice/gas cup size Crifice/gas cup size Crifice/gas pass per side Maximum pass thickness	(m 0 1	im/min) kJ/mm) m/min) (/min) (/min) (rmn)	All All Uphill DC -ve 104-116 24-28 125 1.4	- - - - - - - - - - - - - - - - - - -	jer lasses	4 All Uphill DC-ve 110-125 26-30 150 1.3		1.0 All Uphil DC+v+ 100-12 26-31 2000 1.1 1 2.4 Spray 15 -	l e 20 / 75% Arg I Stringe 1 Multip	on, 25% CO2 None r or Weave J9mm 18 He passes 3	All All DC +ve 105-130 28-32 175 1.3 27 2 7 2 7 2 7 2 7 2 7 2 7 2 7 2 7 2 7	

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WPS printout sample (page 2)

TWI) Granta Park.	YZ Fabricat Great Abington, C ASME IX - WPS Weldspe	ions Ltd Cambridge, CB 5 - Page 2	1 6AL, UK		
WPS record number Date JOINTS (OW-402) Typical Id	WPS101 28/07/2003	production dra	Revisk	n 0 Qualified to Company na	me Iotails.	ASME Section IX XYZ Fabrications Ltd		
6-20ms	50' Jmn Jmn	_	8	12mm	n 0-12mm	6	-20mm - 50' -20mm - 50' - 13mm	6-21mm
SE-2lmm	50°	_						
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ASME B31.3	10 ("C) for thick 10 ("C) for thick 80 ("C) for 25.4	ness loss than 23 (min) ness loss than 29 (min) and greate	5.4 (mm) and specified in thickness, or if speci	minimum tensile strengt fied minimum tensile stre	h not over 490 (MPa ingth is over 490 (M). Pa).		
ASME Section VIII Div. 1	79 (°C) for thick 10 (°C) for all c	ness over 25 (mn ther moterials.	 and specified maxim 	um carbon content over	0.30%.			
OST WELD HEAT TREAT	MENT (QW-407)							
Temperature (*C) 4 Heating rate (*Chr) 2 Cooling rate (*Chr) 2	50 00 00		Time (hrs) Method Method	1hr/(25 mm) Fumace Still air		Type	Stress relief	
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ECHNIQUE (QW-410)								
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surtace preparation nitial/interpass cleaning		Brushing						
Back gouging method		Not applicable						
IOTES								

Prepared by		Reviewed by	
Name	Signature	Name	Signature
SYS	0 1/1	_	
Date	Jonan Ward	Date	
30/07/2003	One -		
Approved by			
Name	Signature		
Date			
Weldspec 4.10.231			(c) Copyright 2003 C-spec/TWI Software. All rights reserved worldwide.
Catalog nº WPS00011			Page 2 of 2

How to create a prequalified WPS

From Weldspec's main menu, click on the small drop-down arrow as shown. Select **AWS D1.1 pWPS**.

Z

In one step most of the prequalified WPS will be filled out automatically. Place the cursor in the "Joint Type" field and click on the database button. Locate the joint entitled **B-U2a-GF** from the database of prequalified joints and double-click on it. **3**

For the fields that were not automatically filled in, duplicate the **SAME** data that appears in this example. Whenever possible, select the desired data from the drop-down menus s or databases arather than typing the information manually.

4

When specifying the filler metal, select it from the Filler Material Database instead of manually typing the information. To do this, place the cursor in the "AWS spec" field and click on the database icon . Locate the same material listed in this example and double-click on it. Weldspec will enter the proper AWS Specification and Classification automatically.

NOTE: Only a few filler metals and base metals are visible in the materials database while in demo mode.

5

Based on the information entered, the Code Checking in Weldspec automatically supplies the proper Preheat/Interpass data. With code intelligent features like this, Weldspec will greatly reduce (or eliminate) the need to waste time looking for information in the code.

6

Printing this WPS:

When you are ready to print this record, go to the top of the screen and click on File. Select the second print option which will say: Print **Unassigned ASME PWP000x.**

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pWPS printout sample

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XYZ Fabrications Ltd Granta Park, Great AbIngton, Cambridge, CB1 6AL, UK AWS - D1.1 Prequalified Welding Procedure Specification (pWPS) Weldspec

						Identifica	tion #		pWPS101	Rev. 0		
Company	y name		XYZ Fabrications Ltd			Originate	d by		Simon Ward	i		
velding	process		GMAW			Date			30/07/2003	2003		
rocess	type		Semi-automatic			Authorized by Andyt Brightmore						
						Date 30/07/2003						
oint d	lesign ι	ised				Positio	n					
oint type	e		B - Butt joint			Welding	position:	Groove	F,V,OH			
oint des	sign		Single V groove (2)					Fille	n/a			
Backing			Yes			Vertical p	rogression					
Backing	material		AWS D1.1 Table 3.1 Grou	ip I		Electrical characteristics						
loot ope	ning (R)*	(m	n) 6, +2, -0 (+6, -2)			Transfer	mode (GMAW)		Globular			
Root face	∋ (f)*	(m (do	n) n/a			Current ty	pe		DCEP			
Dodiue (ingle (a)	eb) (do	1) 45, +10, -0 (+10, -5)			Other						
Radius (a	dius (J - U)" (deg.) nva											
Back gou	uging meth	hod	n/a			Technik	que		Stringer or V	Noava		
lase m	tals			* Datum, As Deta	iled (As Fit-Up)	Stringer of Multi/sinc	r weave bead	(a)	Single or M	itinio		
Roop to	no or and	lo.	AWS D1 1 Table 2.1 Cros	un l		Number	of electrodes	<i>i</i> o)	Single of M	rode		
Thicknes	be or grad	Groove (m	T1:unlimited	, p 1		Spacing:	Lon	gitudinal (mm)				
		Fillet (m	n/a					Lateral (mm)	ŀ			
Diameter	r (Pipe)	(m	n) Unlimited					Angle (deg.	-			
illor n	notals					Contact t	ube to work	(mm)	12 - 25			
the o	ietars		5.40			Peening			Not permitte	id		
AWS SP	ecification	1	5.18			Interpase	cleaning		Brushing or	grinaing		
AWSUR	assincatio	n	EK/05-5H16			Preheat						
Shieldi	ing					Preheat t	emp.:	Min. (°C	See notes			
Flux			-			Interpass	temp.:	Min. (°C	See notes			
Electrod	e-flux (cla	ss)	-					Max. (°C	See notes			
Gas com	position		75% Argon, 25% CO2			Post w	eld heat trea	atment				
Gas flow	rate	(l/m	n) 15-19			Tempera	ure	CC.	None			
ous cup	012.0		10			Time		(hrs)	-			
Veldin	g proc	edure										
				Filler	Current		Wire feed		Travel			
Lavor	Daee	Process	Fillor motal class	metal	type /	Amne	speed	Volte	speed	loipt details		
Layer	Pass	Process	Filler metal class	metal diameter	type / polarity	Amps	speed	Volts	speed	Joint details		
Layer	Pass	Process	Filler metal class	metal diameter (mm)	type / polarity	Amps	speed (m/min)	Volts	speed (m/min)	Joint details		
Layer 1	Pass	Process	Filler metal class ER70S-5H16	metal diameter (mm)	type / polarity DCEP	Amps 100-135	speed (m/min) 850-1000	Volts 25-35	speed (m/min) 250-350	Joint details		
Layer 1	Pass All	Process	Filler metal class ER70S-5H16	metal diameter (mm)	type / polarity DCEP	Amps 100-135	speed (m/min) 850-1000	Volts 25-35	speed (m/min) 250-350	Joint details		
Layer 1	Pass	Process	Filler metal class ER70S-5H16	metal diameter (mm)	bolarity	Amps 100-135	speed (m/min) 850-1000	Volts 25-35	speed (m/min) 250-350	Joint details		
Layer 1	Pass	Process	Filler metal class ER70S-5H16	metal diameter (mm)	type/ polarity DCEP	Amps 100-135	speed (m/min) 850-1000	Volts 25-35	speed (m/min) 250-350	Joint details		
Layer 1	Pass	Process GMAW	Filler metal class	metal diameter (mm)	type / polarity DCEP	Amps 100-135	speed (m/min) 850-1000	Volts 25-35	speed (m/min) 250-350			
Layer 1	Pass	GMAW	Filler metal class ER70S-5H16	metal diameter (mm)	type / polarity DCEP	Amps 100-135	speed (m/min) 850-1000	Volts 25-35	speed (m/min) 250-350			
Layer 1	Pass	GMAW	Filler metal class	metal diameter (mm)	bypa / polarity	Amps 100-135	speed (m/min) 850-1000	Volts 25-35	speed (m/min) 250-350	Joint details		
Layer 1	Pass	Process GMAW	Filler metal class	metal diamotor (mm)	bolarity	Amps 100-135	speed (m/min) 850-1000	Volts 25-35	speed (m/min) 250-350			
Layer 1	Pass	Process GMAW	Filler metal class	metal diamotor (mm)	bolanity	Amps 100-135	speed (m/min) 850-1000	Volts 25-35	speed (m/min) 250-350			
Layer	Pass	Process GMAW	Filler metal class ER70S-5H16	metal diamotor (mm)	bype / polarity DCEP	Amps 100-135	speed (m/min) 850-1000	Volts 25-35	speed (m/min) 250-350	Joint details		
Layer	All	GMAW	Filler metal class	metal diamoter (mm)	bype / polarity	Amps 100-135	speed (m/min) 850-1000	25-35	speed (m/min) 250-350	Joint details		
Layer	All	GMAW	Filler metal class	metat diamotor (mm)	bype / polarity DCEP	Amps	speed (m/min) 850-1000	Volts 25-35 Dosignation	speed (minin) 250-350	Joint details		
Layer 1	All	GMAW	Filler metal class	metal diameter (mm)	bypo / polarity	Amps 100-135	speed (m/min) 850-1000	Volts 25-35 Designation	speed (minin) 250-350	Joint details		
Layer 1 Notes PREHEA	All	Process GMAW PASS	Filler metal class	metal diameter (mm)	bype / polarity	Amps	speed (m/min) 850-1000	Volts 25-35 Dosignation	speed (mmin) 250-350	Joint details		
1 1 Notes PREHEA For thick	Pass All All All	Process GMAW PASS 19(mm): 0.1°C). Pref	Filler metal class ER70S-5H16	metal diameter (mm)	bype / polanity DCEP bow O(°C).	Amps 100-135	speed (m/min) 850-1000	Vots 25-35 Designation	speed (minin) 250-350	Joint details		
Layer 1 1 Iotes PREHEA For thick Dver 19 19	Pass All All AT/INTER necis 3 to thru 38.1(n	Process GMAW GMAW PASS 19(mm): 0(°G). Preh	Filler metal class ER70S-5H16 eat to 20(°C) if the base meta	diamotor (mm)	type / polanty	Amps 100-135	speed (m/min) 850-1000	Vots 25-35 Designation	speed (m/min) 250-350	Joint details		
Layer 1 1 Iotes PREHEA Soft hick Dver 19 I	Pass All All All AT/INTER nees 3 to thru 38.1(n 1 thru 63.5	Process GMAW GMAW PASS 19(rm): 0(°C). Pref mm: 60(°C).	Filler metal class ER70S-5H16 eat to 20("C) if the base meta	metal diameter (mm)	how O(°G).	Amps 100-135	speed (m/min) 850-1000	Volts 25-35 Designation	speed (m/min) 250-350	Joint details		
Layer 1 1 Iotes 2RE HEA Over 19 Dver 38Dver 63.8.	Pass All All At/INTER ness 3 to thru 38.1(n) thru 63.55(nm): 150	Process GMAW GMAW PASS 19(mm): 0(°C). Pret mm): 66°C). (mm): 107°C). 0(°C).	Filler metal class ER70S-5H16 eat to 20(°C) if the base meta	metal diameter (mm)	by pointy DCEP	Amps 100-135	speed (m/min) 850-1000	Volts 25-35 Dosignation	speed (m/min) 250-350	Joint details		
Layer 1 1 Notes PREHE/FAC For thick Over 19 Over 38. Over 63.52	Pass All All Art/INTER ness 3 to thru 83.(1) 5(mm): 1515 5(mm): 1515	Process Image: Constraint of the second	Filler metal class ER70S-5H16 eat to 20(°C) if the base meta ther limitations	metal diameter (mm)	Hype / polanity DCEP	Amps 100-135	speed (m/min) 850-1000	Volts 25-35 Designation	speed (m/min) 2:50-3:50	Joint details		

Welding Engineer		Senior Welding Engineer				
Name	Signature	Name	Signature			
SYS	0 1 1					
Date	Jimon Ward	Date				
30/07/2003	00 -					
		-				
Weldspec 4.10.231		(c) Copyrigh	t 2003 C-spec/TWI Software. All rights reserved worldwide.			
Catalog n° PWP00003			Page 1 of 1			

How to create a WPQ

Start Welderqual by clicking on the Welderqual icon on your desktop. The system displays a form giving you various options. Click "close" to remove the form.

1

Click on the small drop-down arrow as shown.

2

For the fastest possible data entry, always select the desired data from the drop-down menus so or databases arather than typing the information manually.

3

Do not enter "Range Qualified" data manually.

All you need to enter are the "**Actual Values**" of the welder qualification test and the Code Checking will fill in the Qualified Ranges based on the Actual Values that you enter.

4

As you select a welding process, the form will grow supplying you with the required fields specific for the process selected. Notice that Welderqual allows the use of up to three processes on one WPQ.

5

When specifying the filler metal, select it from the Filler Material Database instead of manually typing the information. To do this, place the cursor in the "Filler metal spec" field and click on the database icon . Locate the same material listed in this example and double-click on it. Welderqual enters the proper Specification, Classification and F numbers automatically.

NOTE: Only a few filler metals and base metals are visible in the materials database while in demonstration mode.

6

Printing this WPQ:

To print this record, go to the top of the screen and click on File. Select the second print option which will say: **Print Unassigned ASME WPQ000x.**

7

Instantly clone a WPQ:

One of the best time saving features in Welderqual is the ability to create duplicates of a completed WPQ. To do this, go to the top of the screen and click on **File/Save As New**, then select WPQ. Iderqual will create a duplicate of this current record.

	AMOULI	ASME Sectio	nts Park, Great Abing in IX - Welder Pe	ton, Cambridge, Cl rformance Qua	H GAL	n (WPC))		
			n accordance with Do	IC. NO. CSIVIP-PED-1	-99				
rveider's name	Stephen Jen	lins	Welder's picture	Test date	1	31/07/20	03	8	-
D Number	113			WPQ record n	umber [WPQ-101			
Date of birth	7-10-1971		-	Standard test	no.				Rev.
Company name	DO/2 Enhanced	ions Ltd	- 22	Qualification of	ode [ASME Se	chon IX		- 10897. [
Division	Welding shop	>	_		~~ [I				
ASE METALS									
Product 6	em .	Specific	ation (type or grade)	P-no. 0	rp-no.	Size	Sch.	Thick. In	ung Dia. (P
Ville Pipe		54-10	5(B)	-	-	152.40	m.	21.50	168.28
aur an	@ Groove	C Filet	COVERY C SA	ud welding		1	1	1	1
ARIABLES			ACTUAL VALUE	s			RANGE	MALIFIED	3
Type of weld joint		Pipe - Groove	£		Gioove	and Fillet	weld:		
Base metal		P1 to P1			P-no./S	-no. 1 the	a 11, 34, 4	11 thru 47	
ASE METAL THICK	less	Groove	Filet	Overlay	. Gr	DOVE	1	ilet	Overlay
Plate thickness	100	n) ·	ŀ	•	no limit		no limit	F	
Pipe/fube thickness	(me	21.95	_	<u>-</u>	no imit		no limit		
ripe dianeter	(~	n][168.28	ľ	ľ.	1 es min		luo juni	1	
ROCESS VARIABLE	`>	FEMALIT	fermin		Change -		In and		
Type		Manual	Semi-automatic		Manual		Series	tonatic	
Backing	1	None	With	1	With a	eo.	With		
Filer metal specificat	.n /	5.1	5.20		5.88		5.xx	_	
Filler metal classificat	ion /	E7018	E711-12M		Any		Any		
Filler metal F-cumber		4	6		4(14)	v/backing	6		
Number of layers dep	osted	2	3 min						
Neld deposit thicknes	15 Jaw	n) 6	16		12.0 m	24	no imit		
ried proton (Acr	ual position teste	aleo	lon Union	Dista & Disa - 010 mm	Las.		for		
/			Groove -I	Pipe 73 mm to 610 mm	A8		Al		
				Geoove - Pipe 73 mm	M	_	M		
			Filet	Plate & Pipe > 610 mm	A8		Al		
			Filet-	Pipe 73 mm to 610 mm	48		AI.		
			-	Filet-Pipe 73 mm	4.8		AI		
Progression		he	Up hutters		lob		Duceto un	the d	
CMANN tracetor more	10464090		Seco				Stream of	whe do	
ISIS	(an intervention)		Lind				Totate	ione, po	
	Turne	of heat		Acceptance cute		ture #	1	Comme	unter.
4 transverse side	bends per GM	-161.1. QW/-453	2(e) and QW-462.2	QV/4163	Ac	ceptable	Ice - A	SME IX - QV	V-452.1 (a) No
	visual examina	tion per GM-302	.4	QW-194	Ac	ceptable	566 -	ASME (X -	QVV-452.1 (a)
					-				
Notes				1					
ERTIFICATION									
Tests conducted by	P	ohn Black		Laboratory test n	mber	0	01-2213-0	3	
Mechanical testing by	F	BC Testing Ltd		Test file number		Ē			
Ve certify that the st	atements in t	his record are	correct and that the	test welds were p	prepared	l, welder	d and tes	ted in acc	ordance with
re requirements of	oversion is of	IND NOME GOD							
Welding Engineer	-	dure.		QA Manager		-			
SYS	sign		1/1			son	-0.6	_	
Date	_	Jimon	Warg	Date		_			
J1/07/2003		1	-						

WPQ printout sample

TWI		G	XYZ F	Abricat	Cambrid	.td Ide. CB16AL				
		ASME Sec	tion IX - Welde	er Perfon	mance	Qualificatio	on (WPC	Q)		
			In accordance w	vith Doc. N	o. CSWIP	-PED-1-99				
Welder's name	Stephen Jenkins				Test date		31/07/2003			
ID Number	113				WPQ reco	ord number	WPQ-101			
Date of birth	7-10-1971			n and l	Standard t	est number				Rev.
Stamp number	1003215-81			-	WPS reco	rd number				Rev.
Company name	XYZ Fabrications Lt	d		-	Qualificati	on code	ASME Sed	tion IX		
Division	Welding shop									
BASE METALS (QW-403)	Product form	Specific	ation (type or grade)		P no.	Grp-np.	Size	Sch	Thick	(mm) Dia (mm
	Pine	SA-106	(B)		1	1	152.40	XX	2195	168.28
Welded to:	Pipe	SA-106	(B)		1	1	152.40	XX	21.95	168.28
loint type	Googe		(-7							
ARIABLES	cicilie		Actual values				RAI	NGE QUALIFI	ED	
Type of weld joint			Pipe - Groows				Gree	we and Fillet w	alde	
Base metal			P1 to P1				P-no/S-no	1 thru 11, 34,	41 thru 47	
BASE METAL THICKNESS		Groove	Fillet	Over	lay	Groove		Fillet		Overlay
Plate thickness	(mm)	-	-	-		no limit		no limit		-
Pipe/tube thickness	(min)	21.95				no limit		no limit		-
Pipe diameter	(min)	168.28	-			73 min		no limit		-
PROCESS VARIABLES		1	Actual values				RAI	NGE QUALIFI	ED	
Welding process		SMAW		FCAW		SN	IAW		FC	AW
Туре		Manual	Manual S		Semi-automatic		nual	Semi-automatic		utomatic
Backing		None	None			With,	without		W	ith
Filler metal specification		5.1	5.1			5	ίσος		5.	200
Filler metal classification		E7018	E7018			A	ny		A	ny
Filler metal F-number		4		6		4(14 w/backing)				5
Number of layers deposited		2		3 min						
Weld deposit thickness	(min)	6		16		12.0) max		no	limit
Weld position (/	Actual position tested)	6G		6G						
Groove -	Plate & Pipe > 610mm					A	All		A	ll.
Groove -	Pipe 73mm to 610mm					A	All		A	AII.
	Groove - Pipe 73mm					A	All		A	ll.
Fillet - F	Plate & Pipe > 610mm					A	All		A	- II
Fillet -	Pipe 73mm to 610mm					A	All		A	ul .
	Fillet - Pipe < 73mm					A	All		A	JI
Progression		Up	Up		Up		Jp	Up		P
Backing gas	100	-		Without		-		With, without		without
Give w transier mode (QW-	409)	-		apiay			•		Spray, pue	se, giocolai
2010	Type of test		Acceptance	criteria		Result		C	omments	
4 transverse side bend	s per QW-161.1, QW-	463.2(e) and QW-462.2	QW-1	QW-163 Accept		Acceptable	cceptable see - ASN		MEIX - QW-452.1 (a) Note (1)	
Visua	al examination per QW	-302.4	QW-1	94		Acceptable		see - ASM	EIX-QW-	152.1 (a)
Notes										
ERTIFICATION										
Tests conducted by		John Black		Laboratory te	st number		001-	2213-03		
Mechanical tests by		ABC Testing Ltd		Test file num	iber					
			test wilds were served	I and a supplicit of a supplicit of the	diameter d'in sur	endenes with the	requirements	of Section IX o	the ASHE	Code

Welding Engineer		QA Manager				
Name	Signature	Name	Signature			
SYS	11					
Date	Smon Ward	Date				
31/07/2003						
Welderqual 4.10.281		(c) Cop	yright 2003 C-spec/TWI Software. All rights reserved worldwide.			
Catalog n° WPQ00027			Page 1 of 1			

How to create an NDE Report (RT shown)

Start NDTspec by clicking on the NDTspec icon on your desktop. The system displays a form giving you various options. Click "close" to remove the form.

1

Click on the small drop-down arrow as shown. Select **Radiographic Report**.

Z

3

When entering the **Examination** results, specify the welder that performed the welding, the length of the examined area, length of rejectable welding and the process used. Tracking this data may enable the use of Performance Reports, which determine reject rates and helps to monitor production.

4

You can enter as many lines of data into the Examination Results section as you wish. NDTspec will automatically print your report over multiple pages if necessary.

5

Based on the number of techniques specified in the Examination results section (A,B,C,D), NDTspec provides the proper number of **Equipment and Technique** details sections.

6

When filling out the Equipment and Techniques details, Source and Film data can be entered straight out of the Source and Film Profile databases, preventing the need to ever enter the same information twice. Additionally, Curies will be automatically calculated based on the report date above.

7

Instead of drawing an NDE sketch, the Sketch Selection Manager includes a database of typical pre-drawn images.



RT Report printout sample



The Power Generation Company Granta Park, Great Abington, Cambridge, CB1 6AL, UK Radiographic Examination Report (RT) NDTspec

						NDE procedure nu	mber		RT 001			
Client Project Location Project specification Acceptance standards			The Po ABC Po Powert ABC P ASME	wer Generation Cor ower Plant own P001 B31.3	Exam date 31/00 Project ID number 3-14- Job/serial number 1102 Drawing number Draw NDE reference number RT 0			31/07/200 3-14-001- 110221 Drawing 0 RT 03/173	7/2003 -001-03 221 ving 001 33/1771			
Examination	results	5										
Weld piece ID	Area	Result	[Discontinuity	Comm	ents	Tech.	We	elder ID	Weld Area	Defect length(s)	Process
Weld 001	0-1 1-2 2-3	ACC ACC ACC					A	101		250 250 250	-	SMAW
Weld 002	0-1	ACC ACC					A	113		275 275 275	-	SMAW
Weld 003	0-1	ACC ACC					В	151		250 250 250	-	SMAW
Weld 004	0-1 1-2	ACC					А	101		250 250 250	-	SMAW
Weld 005	2-5 0-1 1-2	ACC REJ ACC	Cracl	k			В	102		300 300 300	- 25	FCAW
Equipment ar	nd Tecl	hnique deta	ails - Te	chnique "A"						500	-	
Source/Equip Type/kV Curies/mA	oment	lridium 192 91010 62		Source to film Object to film Material	295 19 C-Fe	Screen size Film type Film make	.005 / 1 Kodak	.010			Source	- 1 -1
Size/Focal si IQI type IQI size	Size/Focal size 2.5 IQI type Hole IQI size 15-2T			Pipe dia./Plate Thickness Shim.	250 10 3	Film speed Film size Film per cassette	T 75 x 2 1	T 75 x 200 1				A
IQI side Film Dev. time/temp 5 min / 20°0 Density range 2.8 - 3.2		С	Screen type	Lead Total film Unsharpness Ug Exposure time		16 1 45 sec			Film Film Double Wall Exposure/Single Wall View			
Equipment and Technique details - Technique "B"												
Source/Equipment Iridium 192 Type/kV 91010 Curies/mA 62 Size/Focal size 2.5 IQI type Hole IQI size 20-2T			Source to film Object to film Material Pipe dia./Plate Thickness Shim.	295 12.5 C-Fe 275 10 3	Screen size Film type Film make Film speed Film size Film per cassette	.005 / .010 1 Kodak T 3.5 x 17 1			Source			
IQI side Dev. time/te Density rang	mp Ie	Source 5 min / 20° 2.4 - 2.9	С	Screen type	Lead	Total film Unsharpness Ug Exposure time	12 1.5 32 sec	12 1.5 32 sec		Film Single Wall Exposure/Single Wall View		

We, the undersigned, certify that the statements in this record are correct and that the welds and/or pieces were examined in accordance with the requirements of the above specified project specification and acceptance standard.

NDE Technician Name Date Level	SYS 31/07/2003 II	Signature	Simon Ward
Client Name Date		Signature	
ASNT Level 3 Name Date		Signature	

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