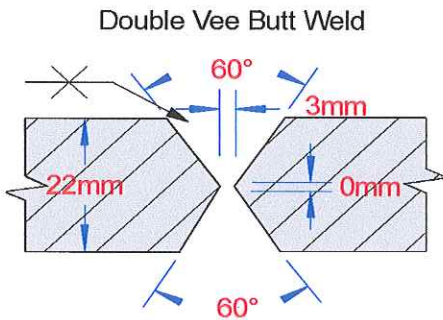


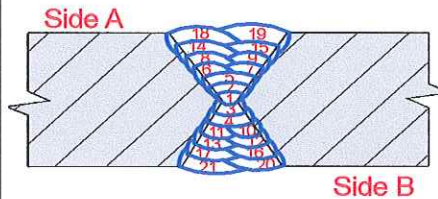
WELDING PROCEDURE SPECIFICATION (WPS)



WPS No: TWE-WPS-010	DATE: 25th August 2007	PAGE: 1	REV:No: 1
WELDING CODE: AS1210-1997 / AS/NZS 3992-1998 & ASME IX	MATERIAL GROUP: Ti 51 (P51)		
WELDING PROCESS: Gas Tungsten Arc Welding (GTAW)	EDGE PREPARATION: Machined		
JOINT TYPE: Double Vee Butt Weld	HEAT TREATMENT: Yes (Furance)		
JOINT POSITION: Flat (1G)	WPS No: TWE-WPQR-010		



Joint Preparation



Run Sequence

JOINT TOLERANCES	
ROOT GAP:	3mm
ROOT FACE:	0mm
GROOVE ANGLE:	60
MATERIAL SPECIFICATION	
MTL:GR 1:	ASTM B265 Grade:7
MTL:GR 2:	ASTM B265 Grade:7
THICKNESS & DIA:	22mm
THICK RANGE QUAL:	5mm-44mm
DIA RANGE QUAL:	n/a
THERMAL TREATMENT	
PREHEAT METHOD:	Not Required
MAX INTERPASS:	150 degrees C
PWHT TEMP:	566-594
HEATING RATE:	50 per/hr to 580
HEATING DURATION:	1.5 hours
COOLING RATE:	50 per/hr to 300

JOINT DETAIL					WELD SEQUENCE							
WELD PASS DETAILS		ELECTRODE DESCRIPTION			WELDING PARAMETERS				BACK GOUGE	INTER PASS	HEAT INPUT	
No	SIDE	POS	DIA	TYPE	AMPS	VOLTS	POL	SPD-mm/min	TECH	TEMP Oc	KJ/mm	
1	A	1G	2.5mm	ER Ti-7	*140-160	*10-12	DC-	*60-80mm	n/a	150max	0.7-2.3	
2	A	1G	2.5mm	ER Ti-7	*160-180	*11-12	DC-	*105-120mm	n/a	150max	0.5-1.6	
3	B	1G	2.5mm	ER Ti-7	*160-180	*11-12	DC-	*105-120mm	n/a	150max	0.6-2.0	
4	B	1G	2.5mm	ER Ti-7	*160-180	*11-12	DC-	*105-120mm	n/a	150max	0.7-2.3	
5	A	1G	2.5mm	ER Ti-7	*160-180	*11-12	DC-	*105-120mm	n/a	150max	0.8-2.7	
6,7	A	1G	2.5mm	ER Ti-7	*160-180	*11-12	DC-	*105-120mm	n/a	150max	0.4-1.4	
8,9	A	1G	2.5mm	ER Ti-7	*160-180	*11-12	DC-	*105-120mm	n/a	150max	0.5-1.8	
10,11	B	1G	2.5mm	ER Ti-7	*160-180	*11-12	DC-	*105-120mm	n/a	150max	0.3-0.8	
12,13	B	1G	2.5mm	ER Ti-7	*160-180	*11-12	DC-	*105-120mm	n/a	150max	0.5-1.8	
14,15	A	1G	2.5mm	ER Ti-7	*160-180	*11-12	DC-	*105-120mm	n/a	150max	0.6-2.0	
16,17	B	1G	2.5mm	ER Ti-7	*160-180	*11-12	DC-	*105-120mm	n/a	150max	0.6-2.0	
18,19	A	1G	2.5mm	ER Ti-7	*160-180	*11-12	DC-	*105-120mm	n/a	150max	0.6-2.0	
20,21	B	1G	2.4mm	ER Ti-7	*160-180	*11-12	DC-	*105-120mm	n/a	150max	0.6-2.0	

TEST PLATE IDENTIFICATION		CONSUMABLE DETAILS		TEST REQUIREMENTS AUSTRALIAN STANDARDS	
WELDER:	Jimmy Kim	WIRE DIAMETER:	2.5mm	VISUAL:	100%
WELDER ID:	JK	CLASSIFICATION:	AWS A5.16 ERTi-7	MAG PARTICLE:	n/a
WELDERS:	AS1796 No:7 or Radiography to qualify welders	TUNGSTEN TYPE:	Thoriated	LIQUID PENETRANT:	100%
		SIZE:	2.4mm	ULTRA-SONIC:	n/a
		SHIELDING GAS:	Argon (99.99%)Pure	RADIOGRAPHY:	100%
		FLOW RATE:	25 litres/min	CHEMICAL ANALYSIS:	100%
CCI POPE:	NEWC-86764	PURGE FLOW:	12 litres/min	CCI POPE CERT No:	NEWC-85763
CCI POPE:	MTU13292/RT/002	WIRE BATCH:	509-W10671	CCI POPE CERT No:	MTU13292/RT/001
CCI POPE:	MTU13292/PT/002	SHROUD SIZE:	18mm Diameter	CCI POPE CERT No:	MTU13292/PT/001

GENERAL NOTES:		
<i>All runs to be stringer beads, with a maximum width of 8-10mm.</i>		
<i>Stricking of the Arc shall only be performed within the confines of the joint design only</i>		
<i>Interrun cleaning shall be done by Buff / Carbide Burrs</i>		
<i>*These Amps, Volts, and Travel speeds are guides only, and can be changed provided they are within the Heat Input Values -50%>+80% listed in column 12 of the PQR.</i>		

PREPARED BY: Alan Pohl	APPROVED BY: Alan Pohl	SIGNATURE:
-------------------------------	-------------------------------	------------