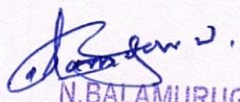
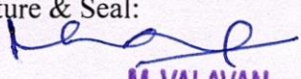


 R-10-153	BHEL: BAP : RANIPET WELDING TECHNOLOGY CENTRE		PAGE 1 OF 2
QW – 482 ASME SECTION IX. WELDING PROCEDURE SPECIFICATION (WPS)			
WPS NO: 235 DATE: 22.03.2022 Supporting PQR NO: 196 REV NO: 00 DATE: Welding process (es): Gas Tungsten Arc Welding TYPE: (Manual / Semi Auto / Auto): Manual Application(s): Components of Titanium Cladded plate with Titanium Sheet			
QW – 402 JOINTS Joint design: Fillet Backing : No Backing Material Type : --		JOINT DETAILS Refer Production Drawing	
BASE METALS (QW-403) P.NO. -- Group No -- to P.NO. 51 Group No -- (OR) Specification type and grade: Clad Steel ASTM B898 ((ASTM B265 Gr.2 (UNS R50400) with (Carbon steel A36/IS2062)) Specification type and grade: ASTM B265 Gr. 2 (UNS R50400) Thickness Range: Base Metal: NA Fillet: Unlimited Pipe Dia Range: -- Fillet :			
FILLER METALS (QW-404)		GTAW	
Spec.No (SFA)		5.16	
AWS No (Class)		ER Ti-2	
F. Number		51	
A . Number		-	
Size of Filler Metals		See Table	
Weld Metal Thickness Range: Groove: Fillet:		NA. All	
Electrode – Flux (Class)		-- --	
Flux Trade Name		-- --	
POSITIONS (QW – 405) Position(s) of Groove : NA Welding Progression : Vertical up Position(s) of Fillet : All		PRE HEAT (QW– 406) Preheat Temp Min °C: Nil & Moisture on surface to be removed Interpass Temp Max °C : 100 Preheat Maintenance: --- Special heating applicable: ---	

 R-10-153	QW – 482	WPS NO: 235	Date : 22.03.2022	PAGE 2 OF 2				
		REV NO : 00						
POSTWELD HEAT TREATMENT (QW- 407) Temperature Range °C : NA Time Range : NA		GAS (QW – 408) Percentage Composition Gas(es) Mixture Flow Rate Shielding: Gr I Argon 100% 10-15 LPM Trailing: Gr I Argon 100% 10 LPM Backing : NA						
ELECTRICAL CHARACTERISTICS (QW – 409) Current AC or DC : Refer Table Polarity : Refer Table Amps (Range) : Refer Table Volts (Range) : Refer Table Tungsten Electrode Size and Type : 2.4 Dia & 2% Ceriated Tungsten (EWCe-2) Mode of Metal Transfer for GMAW: -- Electrode Wire feed speed Range: --								
TECHNIQUE (QW-410) String or Weave Bead : Weave Bead Orifice or Gas Cup Size : 4 to 9 Initial and Interpass Cleaning : (SS Wire Brush cleaning and Chipping) Method of Back Gouging : NA Oscillation: : -- Contact Tube to work Distance : -- Multiple or Single Pass (Per side) : Single Multiple or Single Electrode : Single Travel Speed (Range) : -- Peening : -- Others : --								
Weld Layers	Process	Filler Metal Class	Dia in mm	Current Type Polarity	Amp. Range	Volt Range	Travel Speed Range mm/Min.	Others (e.g. Remarks, Comments, Hot Wire Addition, Technique Torch Angle, Etc.)
1	GTAW	ER Ti - 2	2.4	DC-EN	90-120	10-15	--	--
** Prior to welding, adjacent area within 40mm from edge preparation shall be free of dirt, grease, oil & any other harmful materials to weld FOR BHEL : BAP : RANIPET								
Prepared By					Reviewed and Approved By			
Signature & Seal:  N. BALAMURUGAN Dy. Manager / Production / WTC/H1 BHEL / BAP / RANIPET - 632 406					Signature & Seal:  M. VALAVAN Sr.Dy.General Manager / Production BHEL / BAP / RANIPET - 632 406			
Date: 22/03/2022					Date: 22 03 2022			