



BHARAT HEAVY ELECTRICALS LIMITED

RAMACHANDRAPURAM, HYDERABAD-500 032.

PD - 268

QW-482 WELDING PROCEDURE SPECIFICATION (WPS)

Welding Procedure Specification No. WE 013 Date 2.4.84 Supporting PQR No. 153 + 85

Revision No. 2 Date 15.09.1993

Welding Process (es) SMAW Type (s) MANUAL

JOINTS (QW 402)

Details

Joint Design As per manufacturer's Drawing

Backing (Yes) For double sided & For single sided Jts. (No) Backing strip

Backing Material (Type) Weld metal / Base metal

Metal Yes Non fusing metal -

BASE METALS (QW-403)

P. No. 3 Group No. 1 & 2 to P. No. 3 Group No. 1 & 2

OR

Specification type and grade -

to Specification type and grade -

OR

Chem. Analysis and Mech Prop -

to Chem Analysis and Mech Prop -

Thickness Range :

Base Metal - Groove 4.75 to 50.0mm Fillet All sizes

Pipe Dia Range : Groove All Fillet All

Other Root spacing for backing strip jts: 8-10mm

For others : 2 ± 1mm

FILLER METAL (QW-404)

F. No. 4 Other -

A. No. 2 Other -

Spec. No. (SFA) 5.5 (1)

DEPOSITED WELD METAL

AWS No. (Class) E 7018 A1 Thickness Range :

Size of filler metals 2.5, 3.15, 4.0, 5.0mm Groove 50mm Max.

Electrode-Flux. (Class) Basic Fillet All

Flux Trade Name - Bead thickness not to exceed 5mm

Consumable Insert No; Retainers : No.

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POSITIONS (QW-405)

Position [s] Groove All

Welding Progression : Up For 'Down' -

Position [s] Fillet All

[POSTWELD HEAT TREATMENT QW-407]

Temperature Range 600-650°C

Time Range As per UCS-56

GAS [QW-408]

Percent Composition

PREHEAT [QW 406]

Preheat Temp Min 10°C upto 15mm, 100°C for Gas [es] [Mixture] Flow Rate thk above 15mm upto 24mm

Interpass Temp. Max 350°C & 150°C above 24mm

Preheat Maintenance -

Shielding -

Trailing -

Backing -

ELECTRICAL CHARACTERISTICS [QW-409]

Current AC or DC DC Polarity +Ve

Amps [Range] 60-240 Volts Range 22-26

Tungsten Electrode size and type -

Mode of Metal Transfer for GMAW -

Electrode wire feed speed range -

TECHNIQUE [QW-410]

String or Weave Bead String & Weave Orifice or Gas Cup Size -

Initial and Interpass Cleaning Chipping, Brushing, Grinding

Method or Back Gouging By Grinding oscillation -

Contact Tube to Work Distance - Multiple or Single Pass Multi

Multiple or single Electrodes Single Travel Speed [Range] -

Peening No Electrode Spacing -

Other Clean 20mm width on either side of weld area to remove, Oil, Rust, Grease etc.

Weld Layer [s]	Process	Filler Metal		Current		Volt Range	Travel Speed Range mm/min	Other
		Class	Dia. mm	Type Polar	Amp. Range			
	SMAW	E7018 A1	2.5	DC+	60-90	-	-	Weave Max.3D String for root run & horizontal position.
	"	"	3.15	"	90-140	-	-	
	"	"	4.0	"	140-180	-	-	
	"	"	5.0	"	180-240	-	-	

Prepared By AL MANAGER Ramchand
WELDING ENGG.