

# **WELDING PROCEDURE SPECIFICATIONS**

**WPS NO. : RU 11002**

**PROCESS : GMAW**

**COMPONENT FABRICATION PLANT**

**BHEL, RUDRAPUR**

WELDING PROCEDURE SPECIFICATION

WPS NO. RU 11002\_\_\_\_  
REV. NO. \_\_00\_\_\_\_  
REV. DT. \_\_24.02.98\_\_\_\_

Company Name \_\_CFP , BHEL , RUDRAPUR\_\_\_\_

WPS No. \_\_RU 11002\_\_\_\_ Date \_\_24.02.98\_\_\_\_

Rev. No. \_\_00\_\_\_\_ Date \_\_24.02.98\_\_\_\_

Supporting PQR No. \_\_02\_\_ DT 24.02.98\_\_\_\_

Welding Process(es) \_\_GMAW\_\_\_\_ Type(s) \_\_MANUAL\_\_\_\_

JOINTS

DETAILS

Joint Design \_\_AS PER APPROVED PRODUCTION DRAWINGS

Backing \_\_YES\_\_\_\_

Backing Material \_ BASE METAL / WELD METAL

RETAINERS \_\_NONE

BASE METALS

P.No. \_\_21\_\_\_\_ Group No. \_\_----\_\_\_\_

TO

P.No. \_\_21\_\_\_\_ Group No. \_\_----\_\_\_\_

OR

Spec.type/Chemical Analysis \_\_N.R.\_\_\_\_

TO

Spec.type/Chemical Analysis \_\_N.R.\_\_\_\_

THICKNESS RANGE

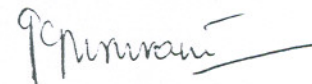
Base Metal : Groove : 5 - 24 mm Fillet : All Sizes

Pipe Dia Range: Groove : All Diameters Fillet : All Sizes

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(V.S. YADAV)  
ENGINEER

APPROVED BY

  
(G.C. GURURANI)  
DGM (PQM)

FILLER METALS

Spec. No. (SFA) : 5.10  
 AWS No.(Class) : ER 4043  
 F.No. : 23  
 A.No. : N.A.  
 Size of filler metal : DIA 1.60 mm

WELD METAL (THICKNESS RANGE)

Groove : 24.00 mm Max  
 Fillet : All Sizes  
 Electrode flux class : N.A.  
 Flux trade name : N.A.  
 Consumable Insert : N.A.  
 Others : NIL

POSITION

Position Groove : 1G  
 Welding Progression: N.A.  
 Position of fillet : 1F

POSTWELD HEAT TREATMENT

Temperature range: NONE  
 Time range : NONE

PREHEAT

Preheat temp. : Min. +150°C  
 Interpass temp : Max. +250°C  
 Preheat Maint : N.R

GAS

	Gas(es)	Flow rate (l/min)
Shielding	ARGON	5 - 20
Gr-I		
Trailing	NIL	NIL
Backing	NIL	NIL

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ELECTRICAL CHARACTERISTIC

Current AC or DC : DC

Polarity : RP

Amps range : 180 - 250 A

Volts Range : 12 - 30 V

Tungsten Electrode type or size : N.A.

Mode of metal transfer for GMAW : Spray

Electrode wire feed speed range : 400 - 500 mm/Min

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TECHNIQUE

String or weave bead : Stringer,  
Max Bead Width 15 mm

Orifice or gas cup size : DIA 10 mm

Initial interpass cleaning : Brushing / Grinding / Chipping  
(Brushing, grinding etc.)

Method of back gouging : Grinding

Oscillation : Nil

Contact tube to work distance : 3 mm Min

Multipass or single pass : Multipass

Multiple or single electrode : Single

Travel Speed (Range) : 200 - 300 mm


Peening : Not Permitted

Electrode spacing : N.A.

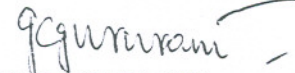
Others : Max. pass thickness  
less than 8 mm

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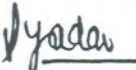
Weld Layers	: :	Process :	: :	Filler metal Class	dia	: :	Current Type	: :	Volt Amp.	: :	Travel Range	: :	Speed
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Root Run		GMAW		ER 4043	1.60		DCRP	150-210	--		200-300 mm/Min		
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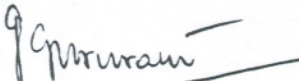
First run Subsequent layers		GMAW		ER 4043	1.60		DCRP	180-250	--		200-300		
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SPECIAL REMARKS : Ensure that approx. 12.5 mm area near the weld joint is thoroughly cleaned prior to welding.

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