



04/API/WPS/BTU/01

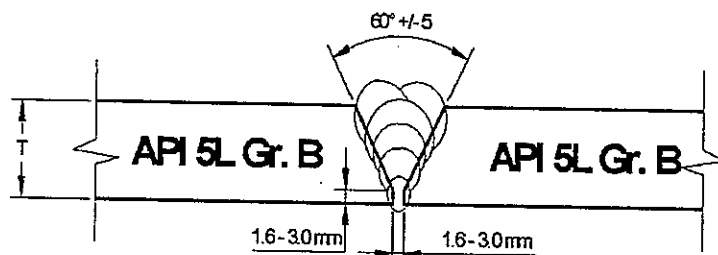
Welding Procedure Specification (WPS)

(API Standard 1104 and Total Indonesia Spec. SP- STR - 542)

Company name : PT. BUKAKA TEKNIK UTAMA
WPS No. : 04/API/WPS/BTU/01 Date : March 12, 2001
Supporting PQR No. (S) : 04/API/PQR/BTU/01
Standard / Code Spec. : API Standard 1104 & Total Indonesia Spec. SP-STR-542
Revision No. : 0
Welding Process (es) : SMAW
Type (s) (Automatic, Manual, Machine or Semi Auto) : Manual

JOINTS

Joints Design : Single "V" Groove
Backing (Yes) of (No) : No
Backing Material (Type): No
Other : --



Sketches Production Drawing, Weld Symbols or Written Description Should be shown the general arrangement of the parts to be welded.

Where applicable, the root spacing and the details of weld groove may be specified.

At the option of Mfg'r, sketches may be attached to illustrate (joint design, weld layers and bead arrangement e.q. for notch toughness procedure, for multiple process procedure, etc.)

BASE METALS

Specification minimum yield strength : less than or equal to 42,000 psi
Specification type and grade : API 5L Gr. B
to specification type and grade : API 5L Gr. B
Type and removal of line up clamp : External / After 50 % Root Pass
Chem. Analysis and Mech. Prop : --
To Chem. Analysis and Mech. Prop : --
Thickness Range :
Base Metal :
Pipe dia. Range : Groove : Greater than 0,5 in (4.78 mm to 19.05 mm)
Groove : 4.5 in to 12.75 in (114.3 mm to 323.8 mm)

FILLER METAL (QW - 404)

AWS Specification	5.1 or 5.5	5.1 or 5.5
Electrode	E 7018	E 7018
Group No.	3	3
Size of Filler Metals (mm)	2.6 ~ 3.2	3.2
Electrode Flux (Class)	--	--
Consumable Insert	--	--

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POSITION

Position(s) of Groove : 2 (two) G
Welding Progression : Up Hill
Position Fillet : --

PREHEAT

Preheat Temp. (Min.) : Ambient
Interpass Temp. (Max.) : N/A
Preheat Maintenance : --
Time Lapse : 15 minute max.

GAS

Shielding Gas (es) : N/A
Percent Composition (mixtures) : --
Flow Rate of Gas for Shielding : --
Flow Rate of Gas for Purge : --
Gas Backing : --

ELECTRICAL CHARECTERSTIC

Current AC or DC : DC
Ampère (range) : 60 ~150
Polarity : Reverse
Volts (range) : 18 ~ 26

Tungsten Electrode Size and Type : N/A
(Pure Tungsten, 2% Thoriated, etc)

Mode of Metal Transfer for GMAW : N/A
(Spray arc, Short Circuiting, Arc, etc)

Electrode Wire Speed Range : --

TECHNIQUE

String or Weave Bead : String and Weave
Orifice or Gas Cup size : --
Initial & Interpass Cleaning : Brushing and grinding
Method of Back Gauging : --
Oscillation : --
Contact Tube to Work Distance : --
Multiple or Single pass (per side) : Multiple
Multiple or single Electrodes : Single
Travel Speed (range) : 70 ~ 150 mm/minutes
Peening : --
Other : --

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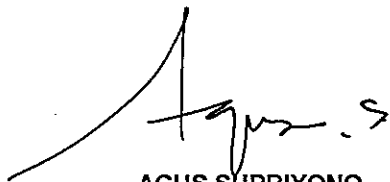


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WELDING PARAMETER

Weld Layer (s)	Process	Filler Metal		Current		Volt Range (Volts)	Travel Speed (in/minutes)
		Class	Diameter (mm)	Type Polar	Amp. Range		
Root	SMAW	E 7016	2.6 ~ 3.2	DCRP	60 ~ 90	18 ~ 22	70 ~ 100
Hot Pass	SMAW	E 7016	2.6 ~ 3.2	DCRP	80 ~ 120	20 ~ 22	80 ~ 110
Filler	SMAW	E 7018	3.2	DCRP	100 ~ 150	22 ~ 26	90 ~ 150
Capping	SMAW	E 7018	3.2	DCRP	100 ~ 150	22 ~ 26	90 ~ 150

Prepared by :


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Approved by :
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