

Technical Newsletter from
ADOR WELDING LIMITED
Formerly **Advani - Oerlikon Ltd.**

WELDING PROCESS FOR IMPROVING PRODUCTIVITY IN WELDING CROSS COUNTRY PIPELINE

INTRODUCTION

Cross country pipelines, particularly those with higher thickness and having to operate at higher pressures require longer welding time when only manual welding process is used. Therefore, major clients like GAIL, IOCL, GSPL, RELIANCE etc are now specifying the MMAW process for root /hot passes with 6010/8010 electrodes respectively and semi automatic FCAW welding process for subsequent filling /capping passes for welding cross country pipelines. The introduction of semi-automatic FCAW process (with self shielded wires) increases welding productivity and thus reduces overall project completion time.

STOVE PIPE WELDING TECHNIQUE

Following steps are adapted sequentially for carrying out this pipe line welding.

1. Root pass
2. Hot pass
3. Heating of Welding joint
4. Filler passes
5. Capping passes

Root pass and hot pass are carried out by traditional MMA welding with cellulosic electrodes. Heating of welding joint is carried out by induction heating or by stove heating. Finally, filling and capping of V joint is carried out by semiautomatic welding

Product Update

SILENT CHALLENGER MULTI 2 x 301
Diesel Engine Driven Silent Welding Sets
with Multi-process Capability



FEATURES:

- It is the only double operator silent ED set which complies CPCB Emission and Noise norms vide GSR 371(E) dated 17th May'2002 with noise level upto 75 decibels measured at 1 mtr from the set.

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with self shielded flux cored wires. The number of filler passes depends on the thickness of the pipe. Following is the typical example of such pipe welding jobs

PASS	THICKNESS OF WELDING PIPE	
	25MM	15.9MM
FIRST	ROOT PASS	ROOT PASS
SECOND	HOT PASS	HOT PASS
THIRD	SINGLE RUN FILLER PASS	SINGLE RUN FILLER PASS
FOURTH	DOUBLE RUN FILLER PASS	DOUBLE RUN FILLER PASS
FIFTH	DOUBLE RUN FILLER PASS	DOUBLE RUN FILLER PASS
SIXTH	DOUBLE RUN FILLER PASS	DOUBLE RUN FILLER PASS
SEVENTH	DOUBLE RUN FILLER PASS	TRIPLE RUN FILLER PASS
EIGHTH	TRIPLE RUN FILLER PASS	TRIPLE RUN FILLER PASS(CAPING)
NINETH	TRIPLE RUN FILLER PASS	
TENTH	TRIPLE RUN FILLER PASS	
ELEVENTH	FOUR RUN FILLER PASS	
TWELTH	FOUR RUN FILLER PASS (CAPING)	

CELWEL
Cellulosic Electrodes



- Excellent arc stability, arc smoothness and very easy slag removal.
- Ideal for root pass and capping runs.
- The welds are of radiographic quality

[more](#)



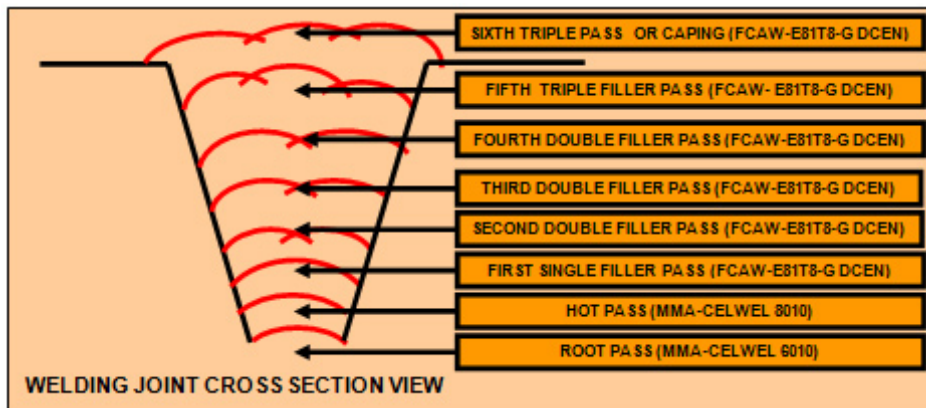
FREE SERVICE CLINIC

can be arranged on request if you have 25 or more numbers of AWL make welding and cutting equipment at single site/ nearby site. For Further Details Please E-Mail to cmo@adorians.com

ADOR Institute of Welding Technology



Quality Assurance & Control of



Welding (QA-1)
16th to 19th April 2012

Skill Courses

Our Toll Free
No.1-800-233-1071

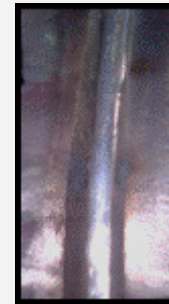
For Welding &
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Following are the normal parameters for Root pass

METHOD	MMA
WELDING ROD USED	CELWEL 60
WELDING ROD DIA.	3.2MM
WELDING CURRENT	80A-110A
WELDING VOLTAGE	25V ~ 28V
POLARITY	POSITIVE



BEFORE GRINDING



AFTER GRINDING

Following are the normal parameters for HOT pass


METHOD	MMA
WELDING ROD USED	CELWEL 80
WELDING ROD DIA.	4.0MM
WELDING CURRENT	135A - 180A
WELDING VOLTAGE	27V ~ 30V
POLARITY	POSITIVE




AFTER GRINDING

Following are the normal parameters Filler Passes :

METHOD	FCAW
WELDING WIRE USED	E81T8-G DC (DCEN)
WELDING CURRENT	210A - 250A
WELDING VOLTAGE	21V-23V
POLARITY	NEGATIVE




**BEFORE
GRINDING**



**AFTER
GRINDING**

Following are the normal parameters for Capping

METHOD	FCAW
WELDING WIRE USED	E81T8-G DC (DCEN)
WELDING WIRE DIA.	2.00MM
WELDING CURRENT	200A - 230A
WELDING VOLTAGE	20V- 22V
POLARITY	NEGATIVE



**AFTER
GRINDING**

Welding electrodes

Stove pipe technique is not possible with rutile type (E 6013) electrodes, because the relatively large volume and high fluidity of slag render vertical down welding difficult. Welding is done with cellulosic electrodes (E6010, E7010 etc class) since the volume of stiff, thin slag coating deposited on the weld bead, together with a forceful arc, facilitates rapid changes of electrode angle during vertical down welding. To compensate for the thin slag coverage, extra protection from the atmosphere is provided by a gaseous shield of carbon monoxide and hydrogen evolved from the cellulosic coating during welding.

Self shielded flux cored consumables.

Because welding is done at site, no external shielding gas is used during this process; a 2 mm consumable is generally used. The slag system has characteristics that make it possible to use in all position welding. The slag system also produces good, low temperature impact properties in the weld metal and desulfurizes the weld metal, thereby increasing weld cracking resistance.

Welding equipment for cross country pipeline welding

In cross country pipe line welding, normally one joint is welded by two welders simultaneously from opposite sides of pipe. Each welder is welding from top to bottom (12 o'clock to 6 o'clock). Hence two operator trolley mounted engine driven welding set or pay load of two power sources along with generator set are used. This pay load along with suitable capacity diesel generator set is mounted on a truck and is moved along the pipe while joints are welded.

For this application, power source should be suitable for both SMAW and self shielded FCAW welding process. For self shielded FCAW process, the wire feeder and its torch are specially made suitable for self shielded wires.

For this application Ador Welding Ltd. offers following equipments which can be used for MMA and Semiautomatic (with self shielded flux core wire) welding processes simultaneously. The same power source is capable of delivering both MMA and FCAW processes, the feature which makes them more versatile particularly for cross country pipeline welding.

Products offered by ADOR WELDING LIMITED for this application are:

Welding Equipment :

1. [SILENT CHALLENGER MULTI 2 x 301](#)
2. [CHAMP MULTI 400 \(SSPW\)](#)

Welding Consumables :

1. [CELWEL Series](#)



PAY LOAD OF 2 NO OF CHAMP MULTI 400 ON SITE



TWO OPERATOR ENGINE DRIVEN MULTI PROCESS WELDER FOR PIPE LINE WELDING APPLICATION



TWO WELDERS WELDING FROM OPPOSITE SIDES OF PIPE SIMULTANEOUSLY

For more information, Please write to us cmo@adorians.com or visit www.adorwelding.com



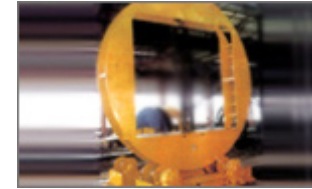
Welding Consumables



Welding & Cutting Equipment



Welding Automation



Project Engineering



WELDERS TO THE NATION SINCE 1951
ADOR WELDING LIMITED
(Formerly known as Advani-Oerlikon Limited)



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