

**TRUSTARC™**

# **DW-91B3**

**Flux-cored wire for 2.25Cr-1.0%Mo steel compatible with Ar-15~25%CO<sub>2</sub>**

**KOBE STEEL, LTD.**

WELDING BUSINESS

**TRUSTARC™**

**DW-91B3**

Flux-cored wire for 2.25Cr-1.0%Mo steel compatible with Ar-15~25%CO2

Welding Process Dept.  
 Technical Center  
 Welding Business  
 KOBE STEEL, LTD.  
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**TRUSTARC™**

DW-91B3: Flux-cored wire for 2.25Cr-1.0%Mo steel compatible with Ar-15~25%CO2 shielding gas.

1. Welding material

Table 1 Welding material

Steel Grade	Name	Classification	Shielding gas	ASME F-No.	ASME A-No.
Gr.22 (2.25Cr-1.0%Mo)	<b>TRUSTARC™</b> DW-91B3	AWS A5.29 E91T1-B3M	75~85%Ar- 15~25%CO2	6	4

2. Typical welding condition range

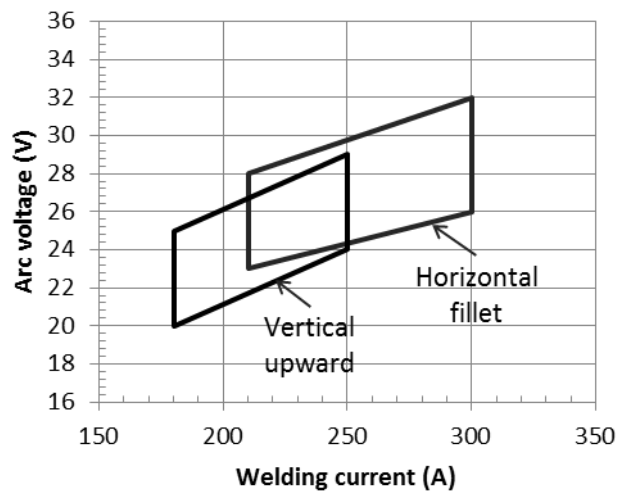


Fig.1 Typical welding condition range of Each position (Dia. 1.2mm)

## 3. Welding condition for deposited metal

Table 2 Welding condition for deposited metal

Wire diameter	Polarity	Welding current	Arc voltage	Preheat and Inter-pass temp.	Pass sequence
1.2mm	DCEP	240-260A	28-30V	161-190°C	6layer 12passes
1.6mm	DCEP	310-330A	28-30V	161-190°C	6layer 12passes

\*) Welding condition=1G(Flat),

\*) Shielding gas=80%Ar-20%CO<sub>2</sub>, Gas flow rate=25l/min.

\*) Wire extension from contact tip to work= Approximately 20mm

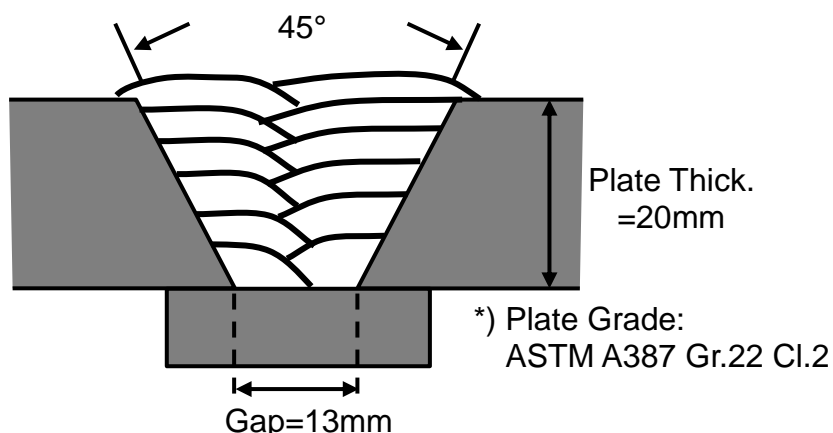


Fig.2 Groove shape and Pass sequence

## 4. Typical chemical composition of deposited metal

Table 3 Typical chemical composition of deposited metal (mass%)

	C	Si	Mn	P	S	Cr	Mo
1.2mm	0.06	0.29	1.12	0.008	0.004	2.38	1.01
1.6mm	0.06	0.28	1.10	0.006	0.004	2.35	0.99
Spec.	0.05-0.12	-0.80	-1.25	-0.030	-0.030	2.00-2.50	0.90-1.20
	Sb	Sn	As	X bar			
1.2mm	<0.002	<0.002	0.004	<10.2			
1.6mm	<0.002	<0.002	0.005	<8.3			
Spec.	-	-	-	-			

\*1) Spec. AWS A5.29:2010 E91T1-B3M

\*2) X bar = (10P+5Sb+5Sn+As) [P, Sb, Sn, As: ppm]

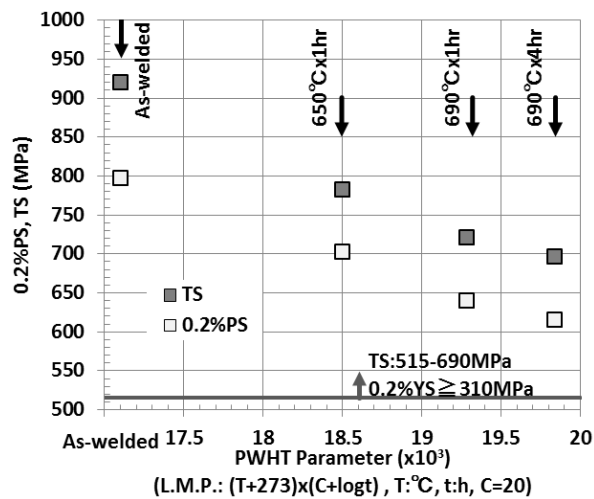
5. Typical mechanical properties of deposited metal

Table 4 Typical mechanical properties of deposited metal

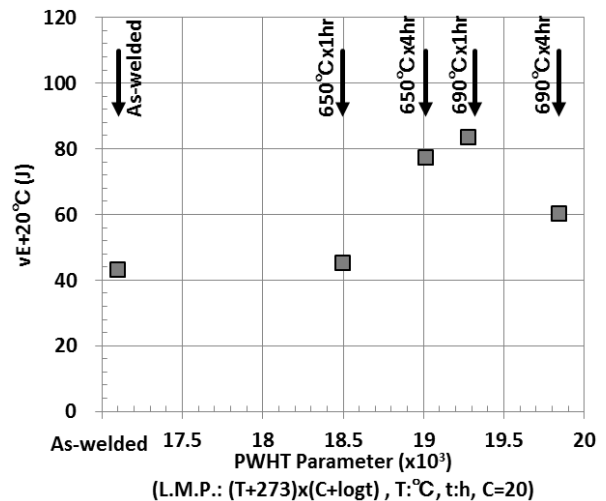
	PWHT Condition	0.2%PS (MPa)	TS (MPa)	EI. (%)	vE+20°C (J)
1.2mm	690°Cx1hr	640	721	21	94, 82, 75 Avg.84
1.6mm	690°Cx1hr	611	698	22	103, 106, 106 Avg.105
Spec.	677-704°C x1-1.25hr	-540	621-758	17-	-

\*1) Spec. AWS A5.29:2010 E81T1-B2M

6. Typical Mechanical properties of weld metal for each PWHT condition



(a) Tensile properties



(b) Impact properties

Fig.3 Typical Mechanical properties of weld metal for each PWHT condition

(Concluded)