# S-100 × F-3[M-4]

# Applications

Single and multi-layer welding of various kinds of high strength structure such as ship buildings, offshore structures, machinery.

### **Characteristics on Usage**

S-100 is a fluoride-basic flux with high basicity and low impurity levels such as P and S. As a result of low oxygen levels in the weld deposits uniform mechanical properties with high toughness values at low temperature are achieved. Because of the almost neutral slag-reactions the chemical analysis of the weld metal can be excellently controlled through the selection of appropriate wire electrodes.

S-100 is suitable for welding on DC and AC using single and tandem wire processes.

#### Notes on Usage

Dry the flux at 300~350℃ (572~662° F) for 60 minutes before use.

- 2) When the flux height is excessive, poor bead appearance may occur.
- ③ Remove rust, scales, oil, paint, water, dirt and slag of tack welds from the groove to obtain sound weld metal.
- ④ Use welding current and speed as low as possible at the first layer of groove to avoid cracking.
- (5) Preheat at 100~200°C(212~392°F) and postheat treatment at 605~635°C(1121~1175°F)

Approval				I Current			I Basicity Index				
						AC, D	C+	3	3.0		
Typical Chemical Composition of All-Weld Metal (%)											
Wire	С	Si	Mn	Р	S	Cr	Ni	Мо	BM	Th.(mm)	
F-3	0.09	0.27	1.71	0.014	0.004	0.05	0.98	0.44	A516 Gr.70	25	
M-4	0.08	0.28	1.55	0.015	0.008	0.48	2.26	0.47	A516 Gr.70	25	

#### Typical Mechanical Properties of All-Weld Metal

Wire	YS MPa(lbs/in²)	TS MPa(lbs/in²)	EL (%)	PWHT condition	Temp.( ℃ (℉)	CVN-Impact Value BN J (ft · lbs)	Λ	Th. (mm)
F-3	660 (95,700)	709 (102,800)	25	As welded	-62 (-80)	46 (34) A516 G	Gr.70	25
	641 (93.000)	698 (101,200)	28	620℃ × 1hr	-62 (-80)	38 (28) A516 G	Gr.70	25
M-4	771 (111,800)	803 (116,500)	24	As welded	-62 (-80)	83 (61) A516 G	Gr.70	25
	706 (102,400)	796 (115,400)	25	620°C×1hr	-62 (-80)	41 (30) A516 G	Gr.70	25

## **Typical Welding Conditions**

Wire	Dia. (mm)	Th. (mm)	Groove Design (mm)	Pass	Amp. (A)	Volt. (V)	Speed (cm/min)	Remarks
F-3 (M-4)	4.0	25	30° 12.5	1~13	570	30	40	AWS A5.23