



Specification

AWS A5.18 ER70S-3
JIS Z3312 YGW16

Applications

- Capable of producing weld deposits with tensile strength exceeding 490 N/mm²
- Suitable for pipeline, pressure vessel, and structural steel.

Characteristics

- Supports short-circuiting, globular, axial spray and pulsed spray transfer
- Moderate levels of manganese and silicon for deoxidization of clean to light mill scale surfaces

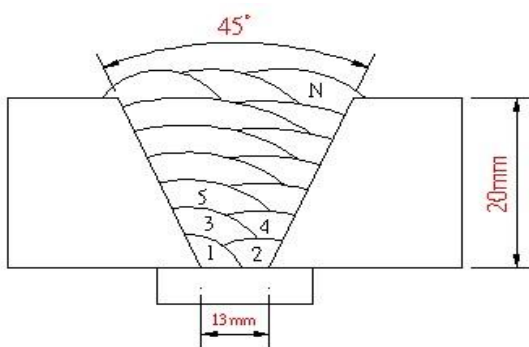
Note on Usage

- Use with 100%CO₂ or Ar+15~20%CO₂
- Flow quantity of shielding gas should be 20~25 l/min.

Mechanical Properties & Chemical Composition of All Weld Metal

Welding Conditions

Method by AWS Rules



Diameter(mm)	1.2mm
Shielding Gas	100% CO ₂
Flow Rate (l/min)	20
Amp / Volt	260 / 28
Stick-Out (mm)	15-20
Interpass Temp (°C)	150±15
Polarity	DC(+)

[Joint Preparation & Layer Details]

● **Chemical Analysis of the Wire**

Brand Name	C	Si	Mn	P	S	Cu
KM-53	0.07	0.94	1.71	0.016	0.012	0.15
AWS A5.18 ER70S-3	0.06-0.15	0.8-1.15	1.4-1.85	<0.025	<0.035	<0.50

● **Mechanical Properties of the Weld Metal**

Brand Name	Tensile Test Results			Charpy V-Notch Impact Value (Joules)		
	Y.S. (MPa)	T.S. (MPa)	EL. (%)	-29°C	-40°C	-50°C
KM-53	453	536	29	75	51	-
AWS A5.18 ER70S-3	400 min	480 min	22 min	27	-	-

● **Chemical Analysis of the Weld Metal**

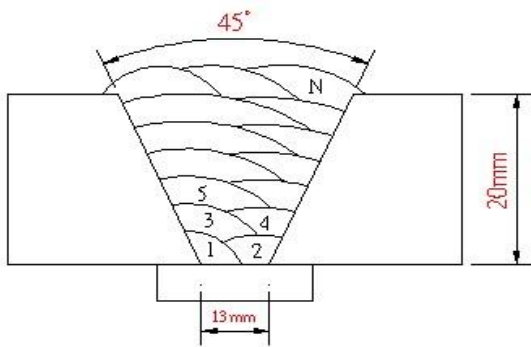
Unit: wt%

Brand Name	C	Si	Mn	P	S	Ni	Cr	Mo	V
KM-53	0.08	0.45	1.02	0.015	0.011	0.02	0.03	0.03	<0.005

Mechanical Properties & Chemical Composition of All Weld Metal

Welding Conditions

Method by AWS Rules



Diameter(mm)	1.2mm
Shielding Gas	80% Ar+20% CO ₂
Flow Rate (l/min)	20
Amp / Volt	250 / 26
Stick-Out (mm)	15-20
Interpass Temp (°C)	150±15
Polarity	DC(+)

[Joint Preparation & Layer Details]

● Mechanical Properties of the Weld Metal

Brand Name	Tensile Test Results			Charpy V-Notch Impact Value (Joules)		
	Y.S. (MPa)	T.S. (MPa)	EL. (%)	-29°C	-40°C	-50°C
KM-53	467	558	29	81	62	-
AWS A5.18 ER70S-3	400 min	480 min	22 min	27	-	-

● Chemical Analysis of the Weld Metal

Unit: wt%

Brand Name	C	Si	Mn	P	S	Ni	Cr	Mo	V
KM-53	0.07	0.49	1.10	0.016	0.012	0.02	0.03	0.03	<0.005

● Diffusible Hydrogen Content of Weld Metal

Unit: ml/100g weld metal

Specimen no.	1	2	3
	1.1	1.3	1.2

* Test method: carrier gas hot extraction with infrared furnace; conforms to EN/ISO 3690 and AWS A4.3.

Available Sizes and Suggested Operating Range

Welding Position	Wire Diameter (mm)		
	0.9mm	1.0mm	1.2mm
F&HF	100~200A	100~200A	120~330A
Vertical Up	80~160A	80~160A	100~180A

This information is provided solely for the purpose of confirming product conformance with applicable standards. The serviceability of a product or structure utilizing this type of information is and must be the sole responsibility of the builder/user. Many variables beyond the control of Kuang Tai Metal IND CO., LTD. affect the results obtained in applying this type of information. These variables include, but are not limited to, welding procedure, shielding gas, plate chemistry and temperature, weldment design, fabrication methods and service requirements.