

HYUNDAI
W E L D I N G

Rev. 00

SMT-4043

GAS METAL ARC WELDING CONSUMABLE
FOR WELDING OF 6063 AL-ALLOY

HYUNDAI WELDING CO., LTD.



❖ Specification

<i>AWS A5.10</i>	ER 4043
<i>JIS Z3232</i>	A4043-WY
<i>EN 573.3</i>	EN AW-4043
<i>ISO 18273</i>	S AL 4043

❖ Applications

Automotive, Bicycle, and Motorcycle frames – general repair and maintenance

❖ Characteristics on Usage

4043 is a about 5% Silicon Aluminum filler metal ,it can be recommended for welding, 3003, 3004, 5052, 6061,6063 and the casting metal 355,356,214,and the color is grey after anodizing.

❖ Note on Usage

1. Make sure the consumable has adapted the environment temperature before unpacking the package.
2. Remove dirt such as oil and dust from the groove before welding.
3. The quality of the weld joint will be better if the humidity of the welding room is controlled.

❖ Type of Current

DC+

❖ Packing

D270 Spool	5kg
D300 Spool	6Kg、 7Kg



Chemical Composition & Diameter Tolerance of Consumable

❖ Chemical Analysis of Consumable (wt%)

Consumable	Chemical Composition (wt%)									
	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Be	Al
SMT-4043	5.07	0.12	0.03	0.02	0.01		0.03	0.02		Rem.
AWS A5.10 ER 4043	4.5~6 .0	≤0.80	≤0.3 0	≤0.05	≤0.05		≤0.10	≤0.20		Rem.
ISO 18273 S Al-4043	4.5~6 .0	≤0.80	≤0.3 0	≤0.05	≤0.05		≤0.10	≤0.20		Rem.
EN 573.3 EN AW-4043	4.5~6 .0	≤0.60	≤0.3 0	≤0.15	≤0.20		≤0.10	≤0.15		Rem.
JIS Z3232 A4043-WY	4.5~6 .0	≤0.80	≤0.3 0	≤0.05	≤0.05		≤0.10	≤0.20		Rem.

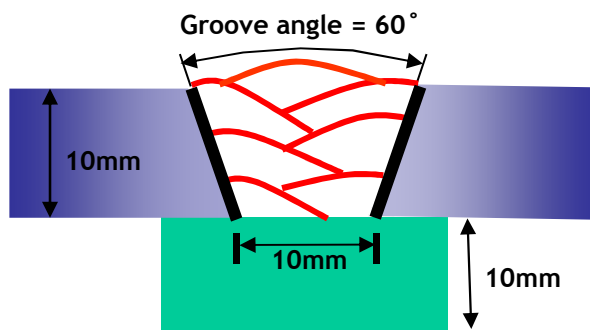
❖ Diameter Tolerance

Nominal Diameter/ mm	Diameter and Tolerance			
	SMT-5356	AWS A5.10	EN 544	JIS Z3232
0.8	0.79	-0.05,+0.03	-0.04,+0.01	±0.02
0.9	0.89	-0.05,+0.03	-0.04,+0.01	Not Specified
1.0	0.99	-0.05,+0.03	-0.04,+0.01	±0.03
1.2	1.19	-0.05,+0.03	-0.04,+0.01	±0.03
1.6	1.58	-0.05,+0.03	-0.04,+0.01	±0.03

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 HYUNDAI WELDING 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.

**RT of weld matel****❖ Welding Conditions**

Method by AWS Spec.

**[Joint Preparation & Layer Details]**

Diameter(mm)	: 1.6mm
Base metal	: 6063-O
Amp./ Volt.	: 240/24
Travel speed(mm/min)	: 300~800
Pre-Heat(℃)	: R.T .
Interpass Temp.(℃)	: 60~110
Position	: Overhead
Polarity	: DCEP

❖ RT of weld matel¹

Consumables	AWS A5.10²		EN 14532 & ISO 10042		JIS Z3232
	Results	Requirements (Rounded indications)	Results ³	Requirement	
SMT-4043	1.5mm: 2 1mm: 3 0.5mm: 12	up to 1.9mm: ≤4 up to 1.3mm: ≤5 up to 0.5mm: ≤17 or 0.5mm: ≤108	Level B	Level B	Not Specified

Note1: In evaluating the radiograph, the center 150 mm of the test specimen shall be considered, and all extra weld shall be disregarded.

Note2: Indications which do not exceed 0.4 mm diameter or length, or both, shall be disregarded, and indications larger than the large indications permitted can be regarded do not meet the requirements.

Note3: The results are obtained based on the experiment of the test specimen welded in flat position which is demanded in EN14532.



Mechanical Properties of welded joint

❖ Mechanical Properties of welded joint

Consumable	Tensile test	Bend test ¹	
	Tensile strength Rm/MPa	Former Diameter	Bending angle (degrees)
SMT-4043	183	40	180
AWS A5.10 ER 4043	Not Specified	Not Specified	
EN 14532 S Al 4043	≥150	≤50	
JIS Z3232 A4043-WY	≥165	≤66	

Note 1: During testing, the test specimen shall not reveal any one single flaw greater than 3 mm in any direction. Flaws appearing at the corners of a test specimen shall be ignored in the evaluation unless there is evidence that they result from lack of fusion.

❖ Appearance of Bead on plate

Flat(PA) , Base : 6063-T5, 6mm	
	SMT-4043
Automatic MIG, DCEP, 210A/23V	

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 HYUNDAI WELDING 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.



Approvals

❖ AUTHORIZED APPROVAL DETAILS

Consumable	DB	CE
SMT-4043	ISO 18273 S AI 4043 0.8~4.0mm	ISO 18273 S AI 4043 0.8~4.0mm

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 HYUNDAI WELDING 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.

SMT-5356

GAS METAL ARC WELDING CONSUMABLE
FOR WELDING OF 5083AL-ALLOY

HYUNDAI WELDING CO., LTD.



❖ Specification

<i>AWSA5.10</i>	ER 5356
<i>JIS Z3232</i>	A5356-WY
<i>EN 573.3</i>	EN AW-5356
<i>ISO 18273</i>	S AL 5356

❖ Applications

It is considered as one of the most popular welding consumables in Al -alloy, used for welding casting Al-Mg alloys with maximum 5% Magnesium and parts of wrought alloy of 5000 series, 6000 series and 7000 series. Mainly applied in sports equipment, compressed container, the construction of ship, railway and in the automotive industry.

❖ Characteristics on Usage

5356 is a about 5% Magnesium Aluminum filler metal which has high strength, high corrosion resistance, and matches the color well with the parent metal after anodizing.

❖ Note on Usage

- 1.Make sure the consumbale has adapted the environment temperature before unpacking the package.
2. Remove dirt such as oil and dust from the groove before welding.
3. The quality of the weld joint will be better if the humidity of the welding room is controled.

❖ Type of Current

DC+

❖ Packing

D100 Spool	0.5kg
D200 Spool	2kg
D270 Spool	5kg ~ 7kg
D300 Spool	6kg、 7kg
TIG WIRE	5kg



Chemical Composition & Diameter Tolerance of Consumable

❖ Chemical Analysis of Consumable (wt%)

Consumable	Chemical Composition (wt%)									
	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Be	Al
SMT-5356	0.07	0.14	0.005	0.11	4.7	0.11	0.01	0.08	0	Rem.
AWSA5.10 ER5356	≤0.25	≤0.40	≤0.10	0.05~ 0.20	4.5~5.5	0.05~ 0.20	≤0.10	0.06~ 0.20	≤0.0003	Rem.
ISO18273 SAI-5356	≤0.25	≤0.40	≤0.10	0.05~ 0.20	4.5~5.5	0.05~ 0.20	≤0.10	0.06~ 0.20	≤0.0008	Rem.
EN573.3 ENAW-5356	≤0.25	≤0.40	≤0.10	0.05~ 0.20	4.5~5.5	0.05~ 0.20	≤0.10	0.06~ 0.20	≤0.0003	Rem.
JISZ3232 A5356-WY	≤0.25	≤0.40	≤0.10	0.05~ 0.20	4.5~5.5	0.05~ 0.20	≤0.10	0.06~ 0.20	≤0.0008	Rem.

❖ Diameter Tolerance

Nominal Diameter/ mm	Diameter and Tolerance			
	SMT-5356	AWS A5.10	EN 544	JIS Z3232
0.8	0.79	-0.05,+0.03	-0.04,+0.01	±0.02
0.9	0.89	-0.05,+0.03	-0.04,+0.01	Not Specified
1.0	0.99	-0.05,+0.03	-0.04,+0.01	±0.03
1.2	1.19	-0.05,+0.03	-0.04,+0.01	±0.03
1.6	1.58	-0.05,+0.03	-0.04,+0.01	±0.03

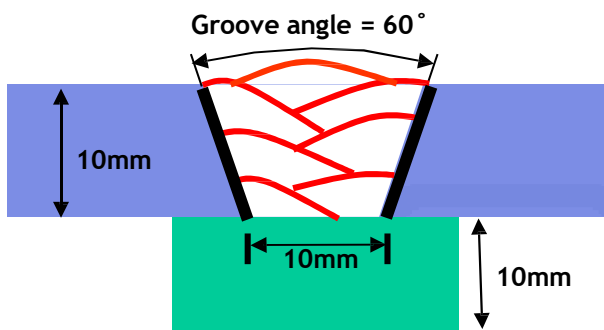
This information is provided solely for the purpose of confirming product conformance with applicable standards. The serviceability of a product or structure utilizing this type of information is and must be the sole responsibility of the builder/user. Many variables beyond the control of HYUNDAI WELDING 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.



RT of weld metal

❖ Welding Conditions

Method by AWS Spec.



[Joint Preparation & Layer Details]

Diameter(mm)	: 1.6mm
Base metal	: 5083- O
Amp./ Volt.	: 220/23
Travel speed(mm/min)	: 300~ 800
Pre-Heat(°C)	: R.T .
Interpass Temp.(°C)	: 60~110
Position	: Overhead
Polarity	: DCEP

❖ RT of weld metal¹

Consumables	AWS A5.10 ²		EN14532 & ISO 10042		JS Z3232
	Results	Requirements (Rounded indications)	Results ³	Requirement	
SMT-5356	1.5mm: 3 1mm: 3 0.5mm: 13	up to1.9mm: ≤4 up to1.3mm: ≤5 up to0.5mm: ≤17 or 0.5mm: ≤108	Level C	Level B	Not Specified

Note1: In evaluating the radiograph, the center 150 mm of the test specimen shall be considered, and all extra weld shall be disregarded.

Note2: Indications which do not exceed 0.4 mm diameter or length, or both, shall be disregarded, and indications larger than the large indications permitted can be regarded do not meet the requirements. Note3: The results are obtained based on the experiment of the test specimen welded in flat position which is demanded in EN14532.

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 HYUNDAI WELDING 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.



Mechanical Properties of welded joint

❖ Mechanical Properties of welded joint

Consumable	Tensile test	Bend test ¹	
	Tensile strength Rm/MPa	Former Diameter	Bending angle (degrees)
SMT-5356	274	60	180
AWSA5.10 ER5356	Not Specified	Not Specified	
EN14532 SAI5356	≥270	≤50	
JSZ3232 A5356-WY	≥265	≤66	

Note 1: During testing, the test specimen shall not reveal any one single flaw greater than 3 mm in any direction. Flaws appearing at the corners of a test specimen shall be ignored in the evaluation unless there is evidence that they result from lack of fusion.

❖ Appearance of Bead on plate

Flat(PA) , Base : 6063-T5, 6mm	
	SMT-5356
Automatic MIG, DCEP, 225A/23V	

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 HYUNDAI WELDING 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.



Approvals

❖ AUTHORIZED APPROVAL DETAILS

Consumable	DB	CE
SMT-5356	ISO 18273 S AI 5356 0.8~4.0mm	ISO 18273 S AI 5356 0.8~4.0mm

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 HYUNDAI WELDING 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.