

HYUNDAI ALUMINIUM PRODUCT GUIDE

Taking Your Welding Experience
to a Higher Level

Aluminium Armed with **HYUNDAI** Advantage

WHY HYUNDAI WELDING

HYUNDAI WELDING, as a 'Total Welding Solutions' company, provide a complete solution for our customers' welding applications. Our structure and people are fully committed to offer the global market the highest level of service and satisfaction without losing sight of each customer's specific requirements. We work to ensure our product best fits the needs of our clients.



WHY HYUNDAI ALUMINIUM

As the usage of aluminium wire in welding field is increasing; **HYUNDAI WELDING** is geared to offer a rapid response to clients' specific requirements. With constant research and development, our range of aluminium wire will continue to evolve to offer the global market new grades and products that covers a multitude of applications.

We strive to be the **No.1 Global Welding** consumable and equipment manufacturer. **HYUNDAI WELDING** will work endlessly to ensure that our **aluminium line**, remains at the forefront of today's technology.



Index by Products

Aluminium Alloy Filler Metal

Product	AWS	EN	JIS	Mechanical Properties	Approval
SMT-1070	AWS A 5.10 : ~ ER 1070	EN ISO 18273 ~ Al 1070 (Al99.7)	JIS Z3232 : A 1070	Tensile Strength (Rm) : $\geq 65 \text{ N/mm}^2$ Elongation : $\geq 35\%$	
SMT-1080	AWS A 5.10 : ER 1080A	EN ISO 18273 : S Al 1080A (Al99.8(A))	JIS Z3232 : A 1080	Yield Strength (Rp _{1.0}) : $\geq 22 \text{ N/mm}^2$ Tensile Strength (Rm) : $\geq 60 \text{ N/mm}^2$ Elongation : $\geq 40\%$	
SMT-4043	AWS A 5.10 : ER 4043	EN ISO 18273 : S Al 4043 (AlSi ₅)	JIS Z3232 : A 4043	Yield Strength (Rp _{0.2}) : $\geq 40 \text{ N/mm}^2$ Tensile Strength (Rm) : $\geq 120 \text{ N/mm}^2$ Elongation : $\geq 8\%$	CE, DB
SMT-4047	AWS A 5.10 : ER 4047	EN ISO 18273 : S Al 4047 (AlSi ₁₂)	JIS Z3232 : A 4047	Yield Strength (Rp _{0.2}) : $\geq 60 \text{ N/mm}^2$ Tensile (Rm) : $\geq 130 \text{ N/mm}^2$ Elongation : $\geq 5\%$	
SMT-5087	AWS A 5.10 : ER 5087	EN ISO 18273: S Al 5087 (AlMg _{4.5} MnZr(A))		Yield Strength (Rp _{0.2}) : $\geq 140 \text{ N/mm}^2$ Tensile (Rm) : $\geq 285 \text{ N/mm}^2$ Elongation : $\geq 18\%$	CE, DB
SMT-5183	AWS A 5.10 : ER 5183	EN ISO 18273: S Al 5183 (AlMg _{4.5} Mn _{0.7} (A))	JIS Z3232 : A5183	Yield Strength (Rp _{0.2}) : $\geq 130 \text{ N/mm}^2$ Tensile (Rm) : $\geq 275 \text{ N/mm}^2$ Elongation : $\geq 18\%$ Charpy-V Impact (R.T.) : $\geq 16\text{J}$	CE, DB
SMT-5356	AWS A 5.10 : ER 5356	EN ISO 18273: S Al 5356 (AlMg ₅ Cr(A))	JIS Z3232 : A5356	Yield Strength (Rp _{0.2}) : $\geq 126 \text{ N/mm}^2$ Tensile (Rm) : $\geq 275 \text{ N/mm}^2$ Elongation : $\geq 18\%$ Charpy-V Impact (R.T.) : $\geq 16\text{J}$	CE, DB
SMT-5554	AWS A 5.10 : ER 5554	EN ISO 18273: S Al 5554 (AlMg _{2.7} Mn)	JIS Z3232 : A5554	Yield Strength (Rp _{0.2}) : $\geq 100 \text{ N/mm}^2$ Tensile (Rm) : $\geq 215 \text{ N/mm}^2$ Elongation : $\geq 18\%$	
SMT-5556	AWS A 5.10 : ER 5556	EN ISO 18273: S Al 5556 (AlMg ₅ Mn ₁ Ti) / S Al 5556A (AlMg ₅ Mn)	JIS Z3232 : A5556	Yield Strength (Rp _{0.2}) : $\geq 145 \text{ N/mm}^2$ Tensile (Rm) : $\geq 290 \text{ N/mm}^2$ Elongation : $\geq 17\%$ Charpy-V Impact (R.T.) : $\geq 16\text{J}$	
SMT-5754	AWS A 5.10 : ER 5754	EN ISO 18273: S Al 5754 (AlMg ₃)	JIS Z3232 : A5754	Yield Strength (Rp _{0.2}) : $\geq 80 \text{ N/mm}^2$ Tensile (Rm) : $\geq 190 \text{ N/mm}^2$ Elongation : $\geq 20\%$	

SMT-1070

Conformances

AWS A5.10 ~ ER 1070
EN ISO 18273 ~ AI 1070 (AI99.7)
JIS Z3232 A 1070

Weldable Base Materials

Pure aluminium: AI99.5 (3.0255), AI99 (3.0205)
(illustrative, not-exhaustive list)

Key Features

- High purity aluminium alloy
- Highly resistant to weathering and chemical attack
- Good resistance to a wide range of corrosive media (Particularly in alkaline environment)
- High ductility and highly reflective finish

Chemical Composition (%)

Si	Fe	Cu	Mn	Mg	Zn	Ti	Be	Al
Max	Max	Max	Max	Max	Max	Max	Max	99.50
0.25	0.40	0.05	0.05	0.05	0.07	0.05	0.0003	min

Mechanical Properties

Tensile Strength (Rm)	Elongation
≥ 65 N/mm ²	≥ 35%

Shielding Gas

Argon 100%
Mixed (Argon + Helium)

Approvals

Typical Application

- Low strength corrosion resistant vessels and tanks
- Metalizing and thermal spray application
- Food industry
- Electrical, chemical, construction

SMT-1080

Conformances

AWS A5.10 ER 1080A
EN ISO 18273 S AI 1080A (AI99.8(A))
JIS Z3232 A 1080

Weldable Base Materials

AI99.8, AI99.7, AI99.5
(illustrative, not-exhaustive list)

Key Features

- High purity aluminium wires and rods
- Highly resistant to weathering and chemical attack
- Good resistance to atmosphere and a wide range of corrosive media – particularly alkaline environment

Chemical Composition (%)

Si	Fe	Cu	Mn	Mg	Zn	Ga	Ti	Be
Max	Max	Max	Max	Max	Max	Max	Max	Max
0.15	0.15	0.03	0.02	0.02	0.06	0.03	0.02	0.0003

Mechanical Properties

Yield Strength (Rp _{1.0})	Tensile Strength (Rm)	Elongation
≥ 22 N/mm ²	≥ 60 N/mm ²	≥ 40%

Shielding Gas

Argon 100%
Mixed (Argon + Helium)

Approvals

Typical Application

- Metalizing
- Chemical processing plant
- Thermal spray
- Food industry
- Panelling application

SMT-4043

Conformances

AWS A5.10 **ER 4043**
EN ISO 18273 **S Al 4043 (AISI₅)**
JIS Z3232 **A 4043**

Weldable Base Materials

Heat-treatable base alloys, 6XXX series aluminium types:
6052, 6053 (*illustrative, not-exhaustive list*)

Key Features

- Silicon-aluminium filler
- General purpose type filler alloy
- Improved wetting action
- Less crack sensitive bright weld bead
- Excellent when aesthetical outcome is of importance
- Not recommended for the material to be anodized

Chemical Composition (%)

Si	Fe	Cu	Mn	Mg	Zn	Ti	Be
4.50	Max	Max	Max	Max	Max	Max	Max
6.00	0.60	0.30	0.05	0.05	0.10	0.15	0.0003

Mechanical Properties

Yield Strength (Rp _{0.2})	Tensile Strength (Rm)	Elongation
≥ 40 N/mm ²	≥ 120 N/mm ²	≥ 8%

SMT-4047

Conformances

AWS A5.10 **ER 4047**
EN ISO 18273 **S Al 4047 (AISI₁₂)**
JIS Z3232 **A 4047**

Weldable Base Materials

Base 6XXX alloys; aluminium alloys 1060, 1350, 3003, 3004, 3005, 5005, 5053, 6053, 6061, 6951, 7005; cast alloys 710.0, 711.0 (*illustrative, not-exhaustive list*)

Key Features

- Silicon-aluminium alloy for welding and brazing
- Low melting point and narrow freezing range
- Increased fluidity and reduced shrinkage & hot cracking
- Substitute for 4043 (increased silicon for higher fillet weld shear strength)
- Excellent wetting action & corrosion resistance
- Produces bright and almost smut-free welds
- Non-heat treatable

Chemical Composition (%)

Si	Fe	Cu	Mn	Mg	Zn	Ti	Be
11.00	Max	Max	Max	Max	Max	Max	Max
13.00	0.60	0.30	0.15	0.10	0.20	0.15	0.0003

Mechanical Properties

Yield Strength (Rp _{0.2})	Tensile Strength (Rm)	Elongation
≥ 60 N/mm ²	≥ 130 N/mm ²	≥ 5%

Shielding Gas

Argon 100%
Mixed (Argon + Helium)

Approvals

CE, DB

Typical Application

- All industrial manufacturing sectors
- Automotive industry
- Production of mobile equipment
- Shipbuilding sector

Shielding Gas

Argon 100%
Mixed (Argon + Helium)

Approvals

Typical Application

- Application with elevated temperatures
- Thin sections where its higher fluidity and lower shrinkage rate are important for distortion control
- Joint sealing of pressurized fluids and gases
- Radiators and air conditioning components
- General repair and maintenance

SMT-5087

Conformances

AWS A5.10 ER 5087
EN ISO 18273 S AI 5087 (AlMg4.5MnZr(A))

Weldable Base Materials

AlMg_{4.5}Mn, AlMg₅Mn, AlMg₃, AlMg₅, AlMgMn, AlMgSi_{0.5},
AlMgSi_{0.7}, AlMgSi₁, AlMg₁SiCu, AlZnMg₁, etc.
(illustrative, not-exhaustive list)

Key Features

- For welding aluminium alloys with up to 5% Mg
- For alloys which requires a higher tensile strength
- Zr produces improved resistance to hot cracking and produces a fine-grained weld-metal microstructure
- Improved bending and corrosion resistance
- For complicated welding constructions with critical tensions
- Superior wire surface finish improves wire feedability and arc performances

Chemical Composition (%)

Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Zr	Be
Max	Max	Max	0.70	4.50	0.05	Max	Max	0.10	Max
0.25	0.40	0.05	1.10	5.20	0.25	0.25	0.15	0.20	0.0003

Mechanical Properties

Yield Strength (Rp _{0.2})	Tensile Strength (Rm)	Elongation
≥ 140 N/mm ²	≥ 285 N/mm ²	≥ 18%

Shielding Gas

Argon 100%
Mixed (Argon + Helium)

Approvals

CE, DB

Typical Application

- Marine fabrication and repair
- Cryogenic tanks
- Shipbuilding and other high strength structural applications
- Railway industry
- Automotive industry
- Offshore industry

SMT-5183

Conformances

AWS A5.10 ER 5183
EN ISO 18273 S AI 5183 (AlMg4.5Mn0.7(A))
JIS Z3232 A 5183

Weldable Base Materials

5083, 5086, 5654 and other similar high magnesium alloys
(illustrative, not-exhaustive list)

Key Features

- Meets the tensile strength of high magnesium alloys
- High strengths and fracture toughness to impact as well as exposure to corrosive elements
- Non-heat treatable
- Not recommended for elevated temperature service application

Chemical Composition (%)

Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Be
Max	Max	Max	0.50	4.30	0.05	Max	Max	Max
0.40	0.40	0.10	1.00	5.20	0.25	0.25	0.15	0.0003

Mechanical Properties

Yield Strength (Rp _{0.2})	Tensile Strength (Rm)	Elongation	Charpy V Impact (R.T.)
≥ 130 N/mm ²	≥ 275 N/mm ²	≥ 18%	≥ 16J

Shielding Gas

Argon 100%
Mixed (Argon + Helium)

Approvals

CE, DB

Typical Application

- Railroad cars & transportation
- Unfired pressure vessels
- Marine components
- Drilling rigs
- Cryogenics storage tanks

SMT-5356

Conformances

AWS A5.10 ER 5356
EN ISO 18273 S AI 5356 (AlMg₅Cr(A))
JIS Z3232 A 5356

Weldable Base Materials

Series 5xxx aluminium alloys, Al-Mg and Al-Mg-Zn alloys such as Peraluman 3, 5 and 5 type or Anticorodal 11
(illustrative, not-exhaustive list)

Key Features

- For Al-Mg or Al-Mg-Zn aluminium alloy
- For dissimilar aluminium alloys with maximum 5% of magnesium
- Non-heat treatable
- Excellent corrosion resistance and mechanical properties

Chemical Composition (%)

Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Be
Max	Max	Max	0.05	4.50	0.05	Max	0.06	Max
0.25	0.40	0.10	0.20	5.50	0.20	0.10	0.20	0.0003

Mechanical Properties

Yield Strength (Rp _{0.2})	Tensile Strength (Rm)	Elongation	Charpy V Impact (R.T.)
≥ 126 N/mm ²	≥ 275 N/mm ²	≥ 18%	≥ 16J

Shielding Gas

Argon 100%
Mixed (Argon + Helium)

Approvals

CE, DB

Typical Application

- Ship-making
- Storage tank
- Bicycle
- Railways
- Truck
- Automotive industry
- Pressure vessels

SMT-5554

Conformances

AWS A5.10 ER 5554
EN ISO 18273 S AI 5554 (AlMg_{2.7}Mn)
JIS Z3232 A 5554

Weldable Base Materials

Aluminium 5454 (AlMg_{2.7}Mn), AlMgMn, AlMg₁, AlMg₃, AlMgSi_{0.8} *(illustrative, not-exhaustive list)*

Key Features

- For high temperature applications
- Able to provide high resistance to stress corrosion
- Low magnesium content
- Suitable for welding of 5454 or base alloys
- Suitable for welding 5454 with the 6000 series

Chemical Composition (%)

Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Be
Max	Max	Max	0.50	2.40	0.05	Max	0.05	Max
0.25	0.40	0.10	1.00	3.00	0.20	0.25	0.20	0.0003

Mechanical Properties

Yield Strength (Rp _{0.2})	Tensile Strength (Rm)	Elongation
≥ 100 N/mm ²	≥ 215 N/mm ²	≥ 18%

Shielding Gas

Argon 100%
Mixed (Argon + Helium)

Approvals

Typical Application

- Automotive wheels
- Transportation applications
- Over-the-road trailers and rail tank cars
- Chemical storage tanks

SMT-5556

Conformances

AWS A5.10 ER 5556
EN ISO 18273 S AI 5556 (AlMg₅Mn₁Ti) / AI 5556A (AlMg₅Mn)
JIS Z3232 A 5556

Weldable Base Materials

5XXX Alloys; AlMg_{4.5}Mn, AlMg₅, AlMg₅Mn, AlMg_{2.7}Mn, AlMgSi₁ (*illustrative, not-exhaustive list*)

Key Features

- To weld aluminium magnesium base metal alloys (Mg < 5.3%)
- Highest as-welded strengths in fillet welds
- High corrosion resistance & toughness
- Good workability and weldability
- Non-heat treatable

Chemical Composition (%)

Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Be
Max	Max	Max	0.60	5.00	0.05	Max	0.05	Max
0.25	0.40	0.10	1.00	5.50	0.25	0.25	0.20	0.0003

Mechanical Properties

Yield Strength (Rp _{0.2})	Tensile Strength (Rm)	Elongation	Charpy V Impact (R.T.)
≥ 145 N/mm ²	≥ 290 N/mm ²	≥ 17%	≥ 16J

Shielding Gas

Argon 100%
Mixed (Argon + Helium)

Approvals

Typical Application

- Military industry
- Structural industry
- Pressure vessels
- Construction
- Storage tanks

SMT-5754

Conformances

AWS A5.10 ER 5754
EN ISO 18273 S AI 5754 (AlMg₃)
JIS Z3232 A 5754

Weldable Base Materials

AlMg₁, AlMg₂, AlMg₃, AlMg_{3.5}, AlMgMn, AlMg₂Mn_{0.3}, AlMgSi_{0.5}, AlMgSi_{0.8}, AlMg_{2.7}Mn, etc.
(*illustrative, not-exhaustive list*)

Key Features

- To weld aluminium magnesium base metal alloys (Mg < 3.0%)
- High corrosion resistance & Seawater-resistant
- Outstanding color-uniformity after anodizing
- Resistant to intergranular corrosion and stress corrosion cracking after exposure to elevated temperatures (over 65°C)

Chemical Composition (%)

Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Be
Max	Max	Max	Max	2.60	Max	Max	Max	Max
0.40	0.40	0.10	0.50	3.60	0.30	0.20	0.15	0.0003

Mechanical Properties

Yield Strength (Rp _{0.2})	Tensile Strength (Rm)	Elongation
≥ 80 N/mm ²	≥ 190 N/mm ²	≥ 20%

Shielding Gas

Argon 100%
Mixed (Argon + Helium)

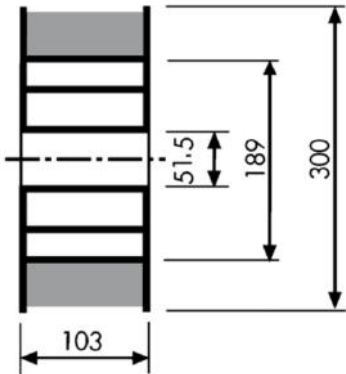
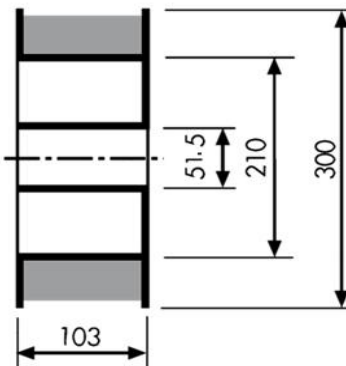
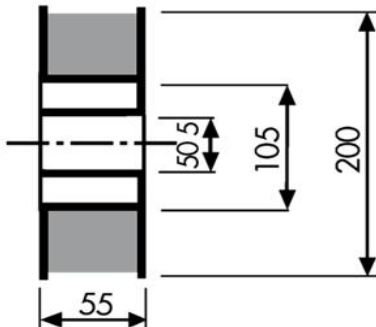
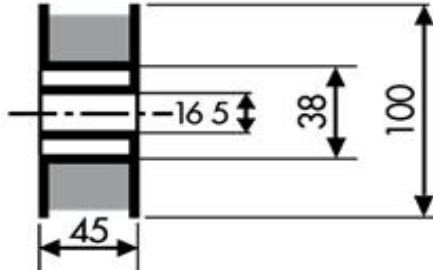
Approvals

Typical Application

- General construction sector
- Structural industry
- Ship building
- Automotive components
- Storage tanks

Standard Packaging Data – MIG / Spool

MIG Welding Wire Packaging

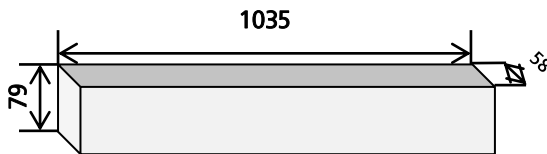
Spool Type	Dimension (mm)	Net Weight (kg)
 Basket Spool BS 300 (acc. to EN ISO 544)	 Diagram showing dimensions for Basket Spool BS 300: Total height 300 mm, inner height 189 mm, outer diameter 103 mm, and a central section height of 51.5 mm.	7
 Spool S 300 (acc. to EN ISO 544)	 Diagram showing dimensions for Spool S 300: Total height 300 mm, inner height 210 mm, outer diameter 103 mm, and a central section height of 51.5 mm.	6~7
 Spool S 200 (acc. to EN ISO 544)	 Diagram showing dimensions for Spool S 200: Total height 200 mm, inner height 105 mm, outer diameter 55 mm, and a central section height of 50.5 mm.	2
 Spool S 100 (acc. to EN ISO 544)	 Diagram showing dimensions for Spool S 100: Total height 100 mm, inner height 38 mm, outer diameter 45 mm, and a central section height of 16.5 mm.	1

Standard Packaging Data – TIG / DRUM

TIG / DRUM Welding Wire Packaging

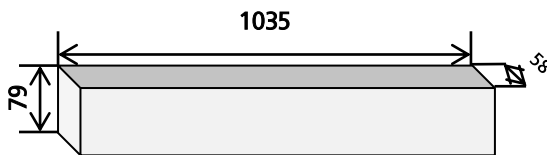
Package Type	Dimension (mm)	Net Weight (kg)
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Cardboard box A(1)



5

PVC box A(2)



5

Guide to the Choice of Filler Metal for General Purpose Welding

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710.0 711.0 7005 7021 7039 7046 7146	ER4043 ER4047 ER5087 ER5183 ER5356 ER5556	ER4043 ER4047 ER5087 ER5183 ER5356 ER5556	ER4043 ER4047	ER4043 ER4047	ER4043 ER4047 ER5087 ER5183 ER5356 ER5556	ER4043 ER4047 ER5087 ER5183 ER5356 ER5554 ER5556 ER5754	ER4043 ER4047 ER5087 ER5183 ER5356 ER5554 ER5754	ER4043 ER4047 ER5087 ER5183 ER5356 ER5554 ER5754
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Guide to the Choice of Filler Metal for General Purpose Welding

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6005 6005A 6063 6082 6101 6151 6201 6351 6951	ER4043 ER4047 ER5087 ER5183 ER5356 ER5554 ER5556 ER5754	ER4043 ER4047 ER5087 ER5183 ER5356 ER5554 ER5556 ER5754	ER4043 ER4047 ER5087 ER5183 ER5356 ER5554 ER5556 ER5754	ER4043 ER4047 ER5087 ER5183 ER5356 ER5554 ER5556 ER5754	ER4043 ER4047 ER5087 ER5183 ER5356 ER5554 ER5556 ER5754			
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511.0 512.0 513.0 514.0 535.0 5154 5254	ER5087 ER5183 ER5356 ER5554 ER5556 ER5754	ER5087 ER5183 ER5356 ER5554 ER5556 ER5754	ER5087 ER5183 ER5356 ER5554 ER5556 ER5754					
5056 5086	ER5087 ER5183 ER5356 ER5556	ER5087 ER5183 ER5356 ER5556						
5083 5456	ER5087 ER5183 ER5356 ER5556							
5052 5652								
5005 5050								
3004								
3003 Alc.3003								
2219 2519								
2014 2036								
1100								
1060 1070 1080 1350								

Typical Aluminium Welding Parameters

Square - Groove Weld



Nominal Plate Thickness		Gap		Filler Wire Diameter		Amps	Volts	Wire Speed		Travel Speed		Wire Consumption	
in.	mm	in.	mm	in.	mm			ipm	m/min	ipm	cm/min	lbs/100ft	kg/m
5/64 (.078)	2	0	0	.030	0.8	85	18-22	460	11.7	40	102	0.67	.01
1/8 (.125)	3	0-1/32	0-0.5	.035	0.9	135	19-21	480	12.2	40	102	0.75	.01
5/32 (.156)	4	0-3/64	0-1	.040	1.0	155	20-24	450	11.4	40	102	1.25	.02

Single V-Groove Weld

(Groove Angle= 60°)



Nominal Plate Thickness		Gap		Filler Wire Diameter		Amps	Volts	Wire Speed		Travel Speed		Wire Consumption	
in.	mm	in.	mm	in.	mm			ipm	m/min	ipm	cm/min	lbs/100ft	kg/m
3/16 (.187)	5	0	0	.035	0.9	180	20-23	750	19.1	40	102	2.6	.04
1/4 (.250)	6	0	0	.047	1.2	200	21-24	430	10.9	40	102	4.6	.07
5/16 (.313)	8	0	0	.047	1.2	225	22-26	465	11.8	35	89	7.2	.11
3/8 (.375)	10	0-1/16	0-1	.062	1.6	240	23-27	320	8.1	35	89	10.3	.15
1/2 (.500)	12	0-1/16	0-1	.062	1.6	280	24-28	380	9.7	30	76	18.3	.27
3/4 (.750)	19	0-3/32	0-2	.071	1.8	295	25-29	335	8.5	24	61	41.3	.61

Horizontal Fillet Weld



Nominal Plate Thickness		Gap		Filler Wire Diameter		Amps	Volts	Wire Speed		Travel Speed		Wire Consumption	
in.	mm	in.	mm	in.	mm			ipm	m/min	ipm	cm/min	lbs/100ft	kg/m
5/64 (.078)	2	N/A		.030	0.8	105	17-20	500	12.7	41	104	0.4	.01
1/8 (.125)	3	N/A		.035	0.9	145	19-21	580	14.7	31	78 0	0.6	.01
5/32 (.156)	4	N/A		.040	1.0	155	20-22	425	10.8	20	51	1.6	.02
5/32 (.156)	4	N/A		.047	1.2	175	20-22	410	10.4	25	64	1.6	.02
3/16 (.187)	5	N/A		.047	1.2	190	21-23	425	10.8	22	56	2.2	.03
3/16 (.187)	5	N/A		.062	1.6	225	21-23	285	7.2	26	66	2.2	.03
1/4 (.250)	6	N/A		.047	1.2	215	22-24	480	12.2	20	51	4.0	.06
1/4 (.250)	6	N/A		.062	1.6	235	22-25	300	7.6	25	64	4.0	.06
5/16 (.313)	8	N/A		.062	1.6	235	23-26	300	7.6	20	51	6.2	.09
3/8 (.375)	10	N/A		.062	1.6	240	23-26	325	8.3	18	46	8.9	.13

Typical Aluminium Welding Parameters

Outside Corner Joint

Nominal Plate Thickness		Gap		Filler Wire Diameter		Amps	Volts	Wire Speed		Travel Speed		Wire Consumption	
in.	mm	in.	mm	in.	mm			ipm	m/min	ipm	cm/min	lbs/100ft	kg/m
5/64 (.078)	2	N/A		0.03	0.8	85	17-20	460	11.7	40	101.6	0.4	.01
1/8 (.125)	3	N/A		0.035	0.9	115	18-21	480	12.2	30	76.2	0.6	.01
5/32 (.156)	4	N/A		0.04	1	125	19-22	433	11.0	26	66.4	1.6	.02
3/16 (.187)	5	N/A		0.047	1.2	160	20-23	365	9.3	22	55.9	2.2	.03
1/4 (.250)	6	N/A		0.047	1.2	185	21-24	420	10.7	20	50.8	4.0	.06
5/16 (.313)	8	N/A		0.062	1.6	200	23-27	260	6.6	12	30.5	6.2	.09
3/8 (.375)	10	N/A		0.062	1.6	230	23-27	300	7.6	8	20.3	8.9	.13
1/2 (.500)	12	N/A		0.071	1.8	260	25-28	315	8.0	8	20.3	15.9	.24



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