



berAlweld®

WIRE SOLUTIONS

FOR BRAZING OF
ALUMINUM ALLOYS

bedra
intelligent wires

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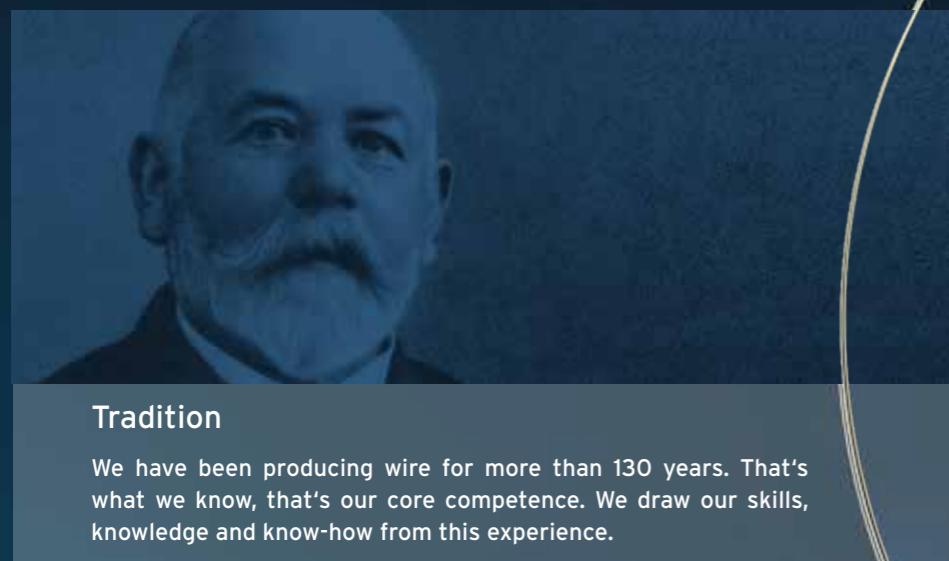
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bedra and Aluminum

Added value for our customers. That is our claim. As early as 1889, it was a matter of course for Carl Berkenhoff to offer its customers more than others. Today, customers worldwide appreciate bedra as a reliable partner for sustainable solutions in the field of high-tech precision wires made of copper and copper-based alloys for electrical discharge machining, brazing and welding, electronics applications and many others. We listen to our customers, understand their needs and offer them solutions tailored to them. More than 100 alloys are impressive proof of our know-how. But we are not resting on our laurels. We are already working today on the innovations for tomorrow. We are expanding our brazing and welding wire portfolio to include high-quality aluminum alloy filler metals. For this purpose, we have combined our experience of more than 130 years in wire production with the latest technologies and specialists from the aluminum sector. That's why we can now produce aluminum wires in well-known high bedra quality.



Tradition

We have been producing wire for more than 130 years. That's what we know, that's our core competence. We draw our skills, knowledge and know-how from this experience.



Research and Development

The engineers in our research and development department are close to the market and in close contact with our customers. This is how our innovations and new products are created.



Quality

We are one of the few global suppliers to offer all services from a single source. This allows us to trace our processes back 100% and thus ensure consistently high quality.



Foundry

Our own foundry is our unique selling point. This enables us to respond to requests on the market and to produce alloys for our customers according to their specifications.



Competence

Know-how is one of the keys to success. We are always expanding our knowledge and drawing on our many years of experience. For new areas we expand our competence team.

	Standard name	Chemical Composition (acc. DIN EN ISO 18273)											Physical Properties of the Material					Mechanical Properties of the Weld Joint				Application		
		Si	Fe	Cu	Mn	Mg	Cr	Zn	Zr	Ti	Al	Be	Others	Electrical conductivity (mΩ mm²)	Heat conductivity (W/mK)	Coefficient of expansion (20-100°C) (1/K)	Melting range (°C)	Density (g/cm³)	Yield strength (MPa)	Tensile strength (MPa)	Elongation A5 (%)	Modulus of elasticity (MPa)		
berAlweld® M1070	S Al 1070 (Al99.7) 3.0259 ER 1070	<0.20	<0.25	<0.04	<0.03	<0.03	-	<0.04	-	<0.03	≥99.70	<0.0003	-	34-36	210-230	23.5*10⁻⁶	647-658	2.7	≥20	≥65	≥35	68000	Chemical, construction, electronics and food industry	
berAlweld® M1450	S Al 1450 (Al99.5Ti) 3.0805 ER 1450	<0.25	<0.40	<0.05	<0.05	<0.05	-	<0.07	-	0.10 - 0.20	≥99.50	<0.0003	-	≥ 35	210-230	23.5*10⁻⁶	647-658	2.7	≥20	≥65	≥35	68000	Chemical, construction and food industry	
berAlweld® M4043	S Al 4043A (AlSi5(A)) 3.2245 ER 4043	4.5 - 6.0	<0.6	<0.30	<0.15	<0.05	-	<0.10	-	<0.15	Balance	<0.0003	<0.15	24-32	<170	22.1*10⁻⁶	573-625	2.68	≥40	≥120	≥8	69000	Automotive parts Bicycle and motor bike frames Furniture	
berAlweld® M4047	S Al 4047 (AlSi12) 3.2285 ER 4047	11.0 - 13.0	<0.8	<0.30	<0.15	<0.10	-	<0.20	-	-	Balance	<0.0003	<0.15	17-27	150-170	20*10⁻⁶	573-585	2.65	≥60	≥130	≥5	75000	Automotive parts Heat exchangers Body panels Brazing of aluminium sheets, profiles & castings	
berAlweld® M5087	S Al 5087 (AlMg4.5MnZr(A)) 3.3546 ER 5087	<0.25	<0.40	<0.05	0.7 - 1.1	4.5 - 5.2	0.05 - 0.25	<0.25	0.10 - 0.20	<0.15	Balance	<0.0003	<0.15	15-19	130-170	23.7*10⁻⁶	574-638	2.66	≥140	≥285	≥18	69000	Automotive parts Shipbuilding Offshore applications Railway Storage tanks Structural industry Cryogenic applications	
berAlweld® M5183	S Al 5183 (AlMg4.5Mn0.7(A)) 3.3548 ER 5183	<0.40	<0.40	<0.10	0.50 - 1.0	4.3 - 5.2	0.05 - 0.25	<0.25	-	<0.15	Balance	<0.0003	<0.15	16-19	110-120	23.7*10⁻⁶	574-638	2.66	≥130	≥275	≥18	69000	Automotive parts Shipbuilding Offshore applications Railway Storage tanks Structural industry Cryogenic applications	
berAlweld® M5356	S Al 5356 (AlMg5Cr(A)) 3.3556 ER 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	Balance	<0.0003	<0.15	15-19	130-170	23.9*10⁻⁶	575-633	2.64	≥120	≥250	≥18	69000	Automotive parts Shipbuilding Construction industry Tank construction	
berAlweld® M5554	S Al 5554 (AlMg2.7Mn) 3.3538 ER 5554	<0.25	<0.40	<0.10	0.50 - 1.0	2.4 - 3.0	0.05 - 0.20	<0.25	-	0.05 - 0.20	Balance	<0.0003	<0.15	-	-	602-648	2.68	≥100	≥215	≥18	-	Chemical storage tanks Automotive wheels Trailers Rail tank cars		
berAlweld® M5754	S Al 5754 (AlMg3) 3.3536 ER 5754	<0.40	<0.40	<0.10	<0.50	2.6 - 3.6	<0.30	<0.20	-	<0.15	Balance	<0.0003	<0.15	Mn+Cr: 0.10 - 0.60	20-23	130-170	23.9*10⁻⁶	610-642	2.66	≥80	≥190	≥20	70500	Tank construction Shipbuilding Automotive parts Construction industry Outdoor furniture

berAlweld® M1070

AISI filler metal for MIG and TIG welding of pure and mostly pure aluminium

Features

- good fluidity

Applications

- chemical industry
- construction industry
- electronics
- food industry

Standards

- DIN EN ISO 18273: S Al 1070(Al99.7)
- DIN 1732: 3.0259
- AWS A5.10: ER 1070

Shielding gas (EN ISO 14175)

- Ar (I1)
- Ar/He mixture (I3)

Chemical Composition (%)

Si	Fe	Cu	Mn	Mg	Cr	Zn	Zr	Ti	Al	Be	Others
<0.20	<0.25	<0.04	<0.03	<0.03	-	<0.04	-	<0.03	≥99.70	<0.0003	-

Physical Properties of the Material

Electrical conductivity (m/Ω mm²)	Heat conductivity (W/mK)	Coefficient of expansion (20-100°C) (1/K)	Melting range (°C)	Density (g/cm³)
34-36	210-230	23.5*10⁻⁶	647-658	2.7

Mechanical Properties of the Weld Joint

Yield strength (MPa)	Tensile strength (MPa)	Elongation A5 (%)	Modulus of elasticity (MPa)
≥ 20	≥ 65	≥ 35	68000

Overview Packaging

Make-up	Wire diameter (mm)
Spool (0.5/2/7kg)	0.8 - 1.6
Drum (80/150/250kg)	1.0 - 1.6
Rods (1000mm/10kg)	1.6 - 6.0

berAlweld® M1450

AISI filler metal for MIG and TIG welding of pure and mostly pure aluminium

Features

- good fluidity
- Ti acts as a grain refiner
- enhanced corrosion resistance

Applications

- chemical industry
- construction industry
- food industry

Standards

- DIN EN ISO 18273: S Al 1450 (Al99.5Ti)
- DIN 1732: 3.0805
- AWS A5.10: ER 1450

Typical base materials

- pure aluminum
- mostly pure aluminium (max. 0.5% of alloying elements)

Shielding gas (EN ISO 14175)

- Ar (I1)
- Ar/He mixture (I3)

Chemical Composition (%)

Si	Fe	Cu	Mn	Mg	Cr	Zn	Zr	Ti	Al	Be	Others
<0.25	<0.40	<0.05	<0.05	<0.05	-	<0.07	-	0.10-0.20	≥99.5	<0.0003	-

Physical Properties of the Material

Electrical conductivity (m/Ω mm²)	Heat conductivity (W/mK)	Coefficient of expansion (20-100°C) (1/K)	Melting range (°C)	Density (g/cm³)
≥ 35	210-230	23.5*10⁻⁶	647-658	2.7

Mechanical Properties of the Weld Joint

Yield strength (MPa)	Tensile strength (MPa)	Elongation A5 (%)	Modulus of elasticity (MPa)
≥ 20	≥ 65	≥ 35	68000

Overview Packaging

Make-up	Wire diameter (mm)
Spool (0.5/2/7kg)	0.8 - 1.6
Drum (80/150/250kg)	1.0 - 1.6
Rods (1000mm/10kg)	1.6 - 6.0

berAlweld® M4043

AISI filler metal for MIG and TIG welding in various applications
Also available as spray wire in dimensions from 1.60 to 4.00 mm

Features

- low sensitivity to weld cracking
- Si enhances the fluidity and is therefore favored by welding workers
- bright and almost smut free welding
- not recommended for anodizing

Standards

- DIN EN ISO 18273: S Al 4043A(AISi5(A))
- DIN 1732: 3.2245
- AWS A5.10: ER 4043

Shielding gas (EN ISO 14175)

- Ar (I1)
- Ar/He mixture (I3)

Chemical Composition (%)

Si	Fe	Cu	Mn	Mg	Cr	Zn	Zr	Ti	Al	Be	Others
4.5-6.0	<0.6	<0.30	<0.15	<0.05	-	<0.10	-	<0.15	Balance	<0.0003	<0.15

Physical Properties of the Material

Electrical conductivity (m/Ω mm²)	Heat conductivity (W/mK)	Coefficient of expansion (20-100°C) (1/K)	Melting range (°C)	Density (g/cm³)
24-32	<170	22.1*10⁻⁶	573-625	2.68

Mechanical Properties of the Weld Joint

Yield strength (MPa)	Tensile strength (MPa)	Elongation A5 (%)	Modulus of elasticity (MPa)
≥ 40	≥ 120	≥ 8	69000

Applications

- automotive parts
- bicycle and motor bike frames
- furniture

Typical base materials

- AISI alloys
- AIMgSi alloys
- cast alloys with Si content of max. 7%

Approvals

- TÜV
- DB

berAlweld® M4047

AISI filler metal for MIG and TIG welding in various applications
Also available as spray wire in dimensions from 1.60 to 4.00 mm

Features

- high Si content reduces sensitivity to weld cracking and generates higher shear strength in fillet welding
- even higher fluidity compared to berAlweld® M4043
- bright and almost smut free welding
- not recommended for anodizing

Standards

- DIN EN ISO 18273: S Al 4047 (AISi12)
- DIN 1732: 3.2585
- AWS A5.10: ER 4047

Shielding gas (EN ISO 14175)

- Ar (I1)
- Ar/He mixture (I3)

Chemical Composition (%)

Si	Fe	Cu	Mn	Mg	Cr	Zn	Zr	Ti	Al	Be	Others
11.0-13.0	<0.8	<0.30	<0.15	<0.10	-	<0.20	-	-	Balance	<0.0003	<0.15

Physical Properties of the Material

Electrical conductivity (m/Ω mm²)	Heat conductivity (W/mK)	Coefficient of expansion (20-100°C) (1/K)	Melting range (°C)	Density (g/cm³)
17-27	150-170	20*10⁻⁶	573-585	2.65

Overview Packaging

Make-up	Wire diameter (mm)
Spool (0.5/2/7kg)	0.8 - 1.6
Drum (80/150/250kg)	1.0 - 1.6
Rods (1000mm/10kg)	1.6 - 6.0

Mechanical Properties of the Weld Joint

Yield strength (MPa)	Tensile strength (MPa)	Elongation A5 (%)	Modulus of elasticity (MPa)
≥ 60	≥ 130	≥ 5	75000

Overview Packaging

Make-up	Wire diameter (mm)
Spool (0.5/2/7kg)	0.8 - 1.6
Drum (80/150/250kg)	1.0 - 1.6
Rods (1000mm/10kg)	1.6 - 6.0

berAlweld® M5087

AlMg based filler metal for MIG and TIG welding of various Al alloys

Features

- low sensitivity to weld cracking due to Cr and Zr
- excellent corrosion resistance to seawater and sea atmosphere
- for highest requirements on high tensile strength
- suitable for sustained elevated temperature service up to 80°C
- not recommended for anodizing

Standards

- DIN EN ISO 18273: S Al 5087 (AlMg4.5MnZr)
- DIN 1732: 3.3546
- AWS A5.10: ER 5087

Shielding gas (EN ISO 14175)

- Ar (I1)
- Ar/He mixture (I3)

Chemical Composition (%)

Si	Fe	Cu	Mn	Mg	Cr	Zn	Zr	Ti	Al	Be	Others
<0.25	<0.40	<0.05	0.7-1.1	4.5-5.2	0.05-0.25	<0.25	0.10-0.20	<0.15	Balance	<0.0003	<0.15

Physical Properties of the Material

Electrical conductivity (m/Ω mm²)	Heat conductivity (W/mK)	Coefficient of expansion (20-100°C) (1/K)	Melting range (°C)	Density (g/cm³)
15-19	130-170	23.7*10⁻⁶	574-638	2.66

Mechanical Properties of the Weld Joint

Yield strength (MPa)	Tensile strength (MPa)	Elongation A5 (%)	Modulus of elasticity (MPa)
≥ 140	≥ 285	≥ 18	69000

Applications

- automotive parts
- shipbuilding
- offshore applications
- railway
- storage tanks
- structural industry
- cryogenic applications

Typical base materials

- AlMg, AlMn, AlMgSi, AlMgMn and AlZnMg alloys

Approvals

- TÜV
- DB
- DNV/GL

berAlweld® M5183

AlMg based filler metal for MIG and TIG welding of various Al alloys

Features

- excellent corrosion resistance to seawater and sea atmosphere
- for highest requirements on tensile strength
- not recommended for anodizing

Standards

- DIN EN ISO 18273: S Al 5183 (AlMg4.5Mn0.7)
- DIN 1732: 3.3548
- AWS A5.10: ER 5183

Applications

- automotive parts
- shipbuilding
- offshore applications
- railway
- storage tanks
- structural industry
- cryogenic applications

Typical base materials

- AlMg, AlMn, AlMgSi, AlMgMn and AlZnMg alloys

Approvals

- TÜV
- DB
- DNV/GL

Chemical Composition (%)

Si	Fe	Cu	Mn	Mg	Cr	Zn	Zr	Ti	Al	Be	Others
<0.40	<0.40	<0.10	0.50-1.0	4.3-5.2	0.05-0.25	<0.25	-	<0.15	Balance	<0.0003	<0.15

Physical Properties of the Material

Electrical conductivity (m/Ω mm²)	Heat conductivity (W/mK)	Coefficient of expansion (20-100°C) (1/K)	Melting range (°C)	Density (g/cm³)
16-19	110-120	23.7*10⁻⁶	574-638	2.66

Overview Packaging

Make-up	Wire diameter (mm)
Spool (0.5/2/7kg)	0.8 - 1.6
Drum (80/150/250kg)	1.0 - 1.6
Rods (1000mm/10kg)	1.6 - 6.0

Mechanical Properties of the Weld Joint

Yield strength (MPa)	Tensile strength (MPa)	Elongation A5 (%)	Modulus of elasticity (MPa)
≥ 130	≥ 275	≥ 18	69000

Overview Packaging

Make-up	Wire diameter (mm)
Spool (0.5/2/7kg)	0.8 - 1.6
Drum (80/150/250kg)	1.0 - 1.6
Rods (1000mm/10kg)	1.6 - 6.0

berAlweld® M5356

AlMg based filler metal for MIG and TIG welding of various AlMg alloys

Features

- high shear strength
- excellent corrosion resistance to seawater and sea atmosphere
- very good color match on anodized parts
- not suitable for sustained elevated temperature service (>65°C)

Standards

- DIN EN ISO 18273: S Al 5356 (AlMg5Cr(A))
- DIN 1732: 3.3556
- AWS A5.10: ER 5356

Shielding gas (EN ISO 14175)

- Ar (I1)
- Ar/He mixture (I3)

Chemical Composition (%)

Si	Fe	Cu	Mn	Mg	Cr	Zn	Zr	Ti	Al	Be	Others
<0.25	<0.40	<0.10	0.05-0.20	4.5-5.5	0.05-0.20	<0.10	-	0.06-0.20	Balance	<0.0003	<0.15

Physical Properties of the Material

Electrical conductivity (m/Ω mm²)	Heat conductivity (W/mK)	Coefficient of expansion (20-100°C) (1/K)	Melting range (°C)	Density (g/cm³)
15-19	130-170	23.9*10⁻⁶	575-633	2.64

Mechanical Properties of the Weld Joint

Yield strength (MPa)	Tensile strength (MPa)	Elongation A5 (%)	Modulus of elasticity (MPa)
≥120	≥ 250	≥18	69000

Applications

- automotive parts
- shipbuilding
- construction industry
- tank construction

Typical base materials

- AlMg, AlMgSi and AlMgMn wrought alloys with a Mg content up to 5%
- AlMg cast alloys with a Mg content up to 10%

Approvals

- TÜV
- DB
- DNV/GL

berAlweld® M5554

AlMg based filler metal for MIG and TIG welding of AlMg based alloys

Features

- high corrosion resistance
- suitable for sustained elevated temperature service (65-160°C)

Applications

- chemical storage tanks
- automotive wheels
- trailers
- rail tank cars

Standards

- DIN EN ISO 18273: S Al 5554 (AlMg2.7Mn)
- DIN 1732: 3.3538
- AWS A5.10: ER 5554

Typical base materials

- AlMg and AlMgMn alloys with Mg content of up to 3%

Shielding gas (EN ISO 14175)

- Ar (I1)
- Ar/He mixture (I3)

Chemical Composition (%)

Si	Fe	Cu	Mn	Mg	Cr	Zn	Zr	Ti	Al	Be	Others
<0.25	<0.40	<0.10	0.50-1.0	2.4-3.0	0.05-0.20	<0.25	-	0.05-0.20	Balance	<0.0003	<0.15

Physical Properties of the Material

Electrical conductivity (m/Ω mm²)	Heat conductivity (W/mK)	Coefficient of expansion (20-100°C) (1/K)	Melting range (°C)	Density (g/cm³)
-	-	-	-	602-648

Overview Packaging

Make-up	Wire diameter (mm)
Spool (0.5/2/7kg)	0.8 - 1.6
Drum (80/150/250kg)	1.0 - 1.6
Rods (1000mm/10kg)	1.6 - 6.0

Mechanical Properties of the Weld Joint

Yield strength (MPa)	Tensile strength (MPa)	Elongation A5 (%)	Modulus of elasticity (MPa)
≥100	≥ 215	≥18	-

Overview Packaging

Make-up	Wire diameter (mm)
Spool (0.5/2/7kg)	0.8 - 1.6
Drum (80/150/250kg)	1.0 - 1.6
Rods (1000mm/10kg)	1.6 - 6.0

berAlweld® M5754

AlMg based filler metal for MIG and TIG welding of AlMg based alloys

Features

- excellent corrosion resistance
- very good color match on anodized parts

Standards

- DIN EN ISO 18273: S Al 5754(AlMg3)
- DIN 1732: 3.3536
- AWS A5.10: ER 5754

Shielding gas (EN ISO 14175)

- Ar (I1)
- Ar/He mixture (I3)

Chemical Composition (%)

Si	Fe	Cu	Mn	Mg	Cr	Zn	Zr	Ti	Al	Be	Others
<0.40	<0.40	<0.10	<0.50	2.6-3.6	<0.30	<0.20	-	<0.15	Balance	<0.0003	<0.15

Physical Properties of the Material

Electrical conductivity (m/Ω mm²)	Heat conductivity (W/mK)	Coefficient of expansion (20-100°C) (1/K)	Melting range (°C)	Density (g/cm³)
20-23	130-170	23.9*10⁻⁶	610-642	2.66

Mechanical Properties of the Weld Joint

Yield strength (MPa)	Tensile strength (MPa)	Elongation A5 (%)	Modulus of elasticity (MPa)
≥ 80	≥ 190	≥ 20	70500

Applications

- automotive parts
- shipbuilding
- construction industry
- tank construction
- outdoor furniture

Typical base materials

- AlMg, AlMgSi and AlMgMn wrought and cast alloys with a Mg content up to 3%

Packaging

Spools

Plastic spool S100 (Filling weight: 0.5kg)	Plastic spool S200 (Filling weight: 2kg)	Plastic spool S300 (Filling weight: 7kg)	Wire basket BS300 (Filling weight: 7kg)	Wire basket B300 (Filling weight: 7kg)

Packaging Spools:



Each unit contains a spool of welding wire, enclosed in a PE bag with desiccant and packed in a sturdy cardboard box.

Packaging Rods:

Each welding rod is marked with its alloy name and dimension and packed in a sturdy carton.



bedrabox

	Filling weight (kg)	Dimensions (mm)	Core Ø (mm)
bedrabox 510 (a)	80	510x770	315
bedrabox 620 (b)	150	620x770	400

Accessories:
For accessories, please refer to our separate accessories brochure

The bedrabox is made from recycled and recyclable cardboard. That's good for the environment and good for you as the bedrabox can easily be returned into the raw material cycle.



Drums

	Filling weight (kg)	Dimensions (mm)	Core Ø (mm)
Round drum 750(a)	200-250	750x1130	315
Square drum 600 (b)	130	600x600 x900	315
Square drum 600½ (c)	65	600x600 x410	315

Accessories:
For accessories, please refer to our separate accessories brochure

Finding the right berAlweld® alloy

base material to base material	356.0, A356.0 357.0, A357.0, 359.0, 443.0, A444.0	7005	6005, 6061, Alclad 6061, 6063, 6351	5454	5154, 5254	5086, 514.0, 535.0	5083, 5456	5052, 5652	5005, 5050	3004, Alclad 3004	1060, 1070, 1080, 1350, 1450
1060, 1070, 1080, 1350, 1450	4043	5356	4043	4043	4043	5356	5356	4043	4043	4043	1070, 1450
3004, Alclad 3004	4043	5356	5356	5356	5356	5356	5356	4043	4043	4043	
5005, 5050	4043	5356	4043 5356	5356	5356	5356	5356	4043 5356	4043 5356		
5052, 5652	4043	5356	4043 5356	5356	5356	5356	5356	5356			
5083, 5456	5356	5556	5356	5356	5356	5356	5356	5556 5183			
5086, 514.0, 535.0	5356	5356	5356	5356	5356	5356	5356				
5154, 5254	4043	5356	5356	5356	5356						
5454	4043	5356	5356	5554							
6005, 6061, Al- clad 6061, 6063, 6351	4043	5356	4043 5356								
7005	4043	5356									
356.0, A356.0, 357.0, A357.0, 359.0, 443.0, A444.0	4043										

Note:

1. The listed filler metals are the optimal choice for most structural material applications. If two filler metals are listed in the table, both can be used.
2. Applications with 4043 filler metal can also use 4047 as a substitution.
3. Applications with 5356 filler metal can also use 5556 or 5183 as a substitution.
4. Al-Mg alloy with Mg content above 3% cannot be used in applications with long-term temperature above 65°C (150°F).
5. For applications with special requirements, the selection of filling metal is different from the above list.