

Welding consumables for aluminum and aluminum alloys

◆ **Content**

- OVERVIEW..... 577
- STICK ELECTRODES..... 580
- GTAW RODS..... 583
- SOLID WIRES 595

Stick electrodes

Product name	Si	Mn	Ti	Fe	Cu
UTP 48	11.80	0.04	0.18	0.80	0.23
UTP 49	0.40	1.30		0.30	
UTP 485	5.00				

GTAW rods

Product name	Si	Mn	Cr	Ti	Fe
Union 99,5 Ti	< 0.25	< 0.05		0.1 0.2	< 0.4
Union Al 99,7	< 0.20			< 0.03	< 0.25
Union AlMg 2,7 Mn 0,8	< 0.25	0.5 – 0.8	0.05 0.20	0.05 0.15	< 0.40
Union AlMg 3		0.10 – 0.6	< 0.3	< 0.15	
Union AlMg 4,5 Mn		0.6 – 1.0	0.05 – 0.25	< 0.15	
Union AlMg 4,5 Mn Zr		0.75 – 1.0	0.05 – 0.25	< 0.15	
Union AlMg 5		0.2 – 0.5	< 0.3	< 0.15	
Union AlMg 5 Mn Ti		0.5 1.0	0.05 0.20	0.05 0.20	< 0.4
Union AlMg 5 Mn		0.6 1.0	0.05 0.20	0.05 0.20	< 0.4
Union AlSi 5	4.5 – 6.0				
Union AlSi 10 Cu 4	9.3 10.7	< 0.15	< 0.15		
Union AlSi 12	11.0 – 13.0	< 0.15			

Solid wires

Product name	Si	Mn	Cr	V	Ti
Union 99,5 Ti	< 0.25				0.15
Union Al 99,7	< 0.20				< 0.03
Union AlMg 2,7 Mn 0,8		0.5 – 0.8	0.05 – 0.20		0.05 – 0.15
Union AlMg 3	< 0.4	< 0.5	< 0.3		< 0.15
Union AlMg 4,5 Mn		0.5 – 1.0	0.05 – 0.25		< 0.15
Union AlMg 4,5 Mn Zr	< 0.25	0.75 – 1.0	0.05 – 0.25		< 0.15
Union AlMg 5	< 0.25	0.05 0.2	0.05 0.2		0.06 0.2
Union AlMg 5 Mn		0.6 – 1.0	< 0.2		< 0.20
Union AlMg 5 Mn Ti		0.5 1.0	0.05 0.20		0.05 0.20
Union AlSi 5	4.5 – 6.0				
Union AlSi 7 Mg	6.5 7.5	< 0.05			0.04 0.15
Union AlSi 10 Cu 4	9.3 10.7	< 0.15	< 0.15		
Union AlSi 12	11.0 – 13.0	< 0.15			< 0.15
Union AlCu 6 Mn		0.2 – 0.4		0.05 0.15	0.1 – 0.2

Al	Mg	Zn
Bal.	0.04	0.08
Bal.		
95.00		

Cu	Al	Zr	Mg	Zn	Others
< 0.05	≥ 99.5		< 0.05	< 0.07	< 0.5
	min. 99.7				
	bal.		2.4 2.8		
	bal.		2.6 – 3.6		
	bal.		4.3 – 5.2		
	bal.	0.1 – 0.2	4.5 – 5.2		
	bal.		4.8 – 5.5		
	bal.		4.7 5.5	< 0.25	
	bal.		5.0 5.5	< 0.20	
	bal.				
3.3 4.7	bal.		< 0.15	< 0.2	
	bal.				

Fe	Cu	Al	Zr	Mg	Zn
< 0.40		min. 99.5			
< 0.25		min. 99.7			
		bal.		2.4 – 2.8	
< 0.4	< 0.1	bal.		2.6 – 3.6	< 0.2
		bal.		4.3 – 5.2	
		bal.	0.1 – 0.2	4.5 – 5.2	< 0.25
< 0.4	< 0.1	bal.		4.5 5.5	< 0.1
		Bal.		4.8 – 5.5	
< 0.4		bal.		4.7 5.5	< 0.25
		bal.			
< 0.1	< 0.05	bal.		0.5 0.8	
	3.3 4.7			< 0.15	< 0.2
< 0.6	< 0.3	bal.		< 0.1	< 0.2
	5.8 – 6.8	Bal.	0.10 – 0.25	< 0.02	

UTP 48

Stick electrode, aluminium

Classifications

EN ISO 18273
 E Al 4047 (AlSi12)

Characteristics and typical fields of application

UTP 48 contains 12% Si for welding of aluminium alloyed with copper, silicon, and magnesium. Also excellent for joining dissimilar grades of aluminium.

Unique self-lifting slag.

Pure white coating outlasts conventional products in moisture resistance.

Available in hermetically sealed aluminium tins

Base materials

EN AC-42100 G-AlSi7Mg 3.2371

EN AC-43000 G-AlSi10Mg 3.2381

EN AC-43200 G-AlSi10Mg(Cu) 3.2383

EN AC-43300 G-AlSi9Mg 3.2373

EN AC-44000 G-AlSi11 3.2211

EN AC-44200 G-AlSi12 3.2581

EN AC-47000 G-AlSi12(Cu) 3.2583

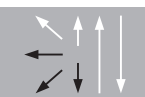
Typical analysis of all-weld metal

wt.-%	Si	Mn	Ti	Fe	Cu	Al	Mg	Zn
	11.8	0.04	0.18	0.8	0.23	Bal.	0.04	0.08

Mechanical properties of all-weld metal - typical values (min. values)

Condition	Yield strength R_e	Tensile strength R_m	Elongation A ($L_0=5d_0$)
	MPa	MPa	%
u	80	180	5
u untreated, as welded			

Operating data



Polarity

DC+

Dimension mm

Current A

2.5 × 350

50 – 80

3.2 × 350

70 – 120

4.0 × 350

110 – 150

Re-drying at bei 100°C, 1 – 1,5 h (not necessary straight out of the tin)

The stick electrode should be leaded almost at 90° to the base material, holding a short arc. For thicker walls (> 6 mm) pre-heating at 100 – 250°C is necessary to ensure a good bonding to the base material. If the seam is overarched the pre-heating was too low.

Approvals

CE

Classifications

EN ISO 18273 -
E Al 3103 (AlMn1)

AWS A5.3 / SFA-5.3
E3003

Characteristics and typical fields of application

UTP 49 for welding of aluminium alloyed with manganese and magnesium. Also excellent for joining dissimilar grades of aluminium.

Suitable for sea water applications.

Unique self-lifting slag.

Pure white coating outlasts conventional products in moisture resistance.

Available in hermetically sealed aluminium tins

Base materials

AlMn0.6 - 3.0506

AlMn 1 - 3.0515

AlMn 1 Mg0.5 - 3.0525

AlMn 1 Mg 1 - 3.0526

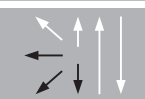
AlMg3 - 3.3535

Typical analysis of all-weld metal

wt.-%	Si	Mn	Fe	Al
	0.4	1.3	0.3	Bal.

Mechanical properties of all-weld metal - typical values (min. values)

Condition	Yield strength $R_{p0.2}$ MPa	Tensile strength R_m MPa	Elongation A ($L_0=5d_0$) %
u u untreated, as welded	40	110 (≥ 95)	20

Operating data**Polarity**

DC+

Dimension mm

2.5 × 355

3.2 × 355

Current A

50 - 90

70 - 120

Re-drying at 100°C, 1 – 1,5 h (not necessary straight out of the tin)

The stick electrode should be leaded almost at 90° to the base material, holding a short arc. For thicker walls (> 6 mm) pre-heating at 100 – 250°C is necessary to ensure a good bonding to the base material. If the seam is overarched the pre-heating was too low.

Approvals

CE

UTP 485

Stick electrode, aluminium

SMAW

Classifications

EN ISO 18273 -
E Al 4043 (AlSi5)

AWS A5.3 / SFA-5.3
E4043

Characteristics and typical fields of application

UTP 485 is an aluminium stick electrode with 5% Si and a special coating. It is suitable for joining and surfacing AlSi alloys with a Si content of up to 7% and for dissimilar joints of different Al-alloys, such as:

3.3206 AlMgSi 0.5 - 3.2371 G-AlSi 7 Mg

3.3210 AlMgSi 0.7 - 3.2341 G-AlSi 5 Mg

3.2315 AlMgSi 1 - 3.2151 G-AlSi 6 Cu 4

3.3211 AlMg 1 SiCu

UTP 485 is suitable for welding of plates of wall-thicknesses > 2 mm. The soft arc produces a flat, finely-rippled weld seam. Easy slag removal.

Typical analysis of all-weld metal

wt.-%	Si	Al
	5.0	95.0

Mechanical properties of all-weld metal - typical values (min. values)

Condition	Yield strength $R_{p0.2}$ MPa	Tensile strength R_m MPa	Elongation A ($L_0=5d_0$) %
u	> 40	> 120	> 8

Operating data



Polarity DC+

Dimension mm	Current A
2.5 × 355	50 – 70
3.2 × 355	80 – 100
4.0 × 355	90 – 130

The angle between plate and electrode should be kept between 80 - 90°. Weld with a short arc. Preheat bigger work pieces with wall thicknesses > 6 mm to 100 - 250°C in order to ensure a good fusion with the base metal. Raised weld seams indicate too low preheating temperatures. Re-drying: 1 - 1.5 hours at 100°C.

Approvals

Classifications

EN ISO 18273

S Al 1070 (Al99,7)

AWS A5.10 / SFA-5.10

ER1070

Characteristics and typical fields of application

Pure aluminium welding rod for joining and surfacing of aluminium with maximum of 0.5% of alloyed elements. The welding consumable contains Ti for grain refinery. Base material should be cleaned near the seam.

Base materials

EN AW-1200 Al99,0 3.0205

EN AW-1050A Al99,5 3.0255

EN AW-1070A Al99,7 3.0275

EN AW-1350A E-Al 3.0257

and similar.

Typical analysis of the wire rod

wt.-%	Si	Mn	Ti	Fe	Cu	Al	Mg	Zn	Others
	< 0.25	< 0.05	0.1 - 0.2	< 0.4	< 0.05	≥ 99.5	< 0.05	< 0.07	< 0.5

Mechanical properties of all-weld metal - typical values (min. values)

Condition	Yield strength $R_{p0.2}$ MPa	Tensile strength R_m MPa	Elongation A ($L_0=5d_0$) %
u	20	65	35

Operating data

	Polarity	AC	Dimension mm
	Shielding gas (EN ISO 14175)	11, 13	2.4 × 1000
			3.2 × 1000

Approvals

-

Union Al 99,7

TIG Rod, aluminium

Classifications

EN ISO 18273

S Al 1070 (Al99,7)

AWS A5.10 / SFA-5.10

ER1070

Characteristics and typical fields of application

Aluminium solid wire rod for welding of very pure aluminium materials according to EN ISO 18273 for applications in electro technical and mechanical construction, food and chemical industry.

Base materials

EN AW-1200 Al99 3.0205

EN AW-1050A Al99,5 3.0255

EN AW-1070A Al99,7 3.0275

EN AW-1350A E-Al 3.0257

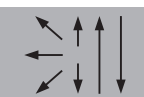
Typical analysis of the wire rod

wt.-%	Si	Ti	Fe	Al
	< 0.20	< 0.03	< 0.25	min. 99.7

Mechanical properties of all-weld metal - typical values (min. values)

Condition	Yield strength R _{p0.2} MPa	Tensile strength R _m MPa	Elongation A (L ₀ =5d ₀) %
u	20	65	35

Operating data



Polarity AC
Shielding gas
 (EN ISO 14175) I1, I3

Dimension mm

1.6 × 1000

2.0 × 1000

4.0 × 1000

Approvals



Union AlMg 2,7 Mn 0,8

TIG rod, Aluminium

Classifications

EN ISO 18273

S Al 5554 (AlMg2,7Mn)

AWS A5.10 / SFA-5.10

ER5554

Characteristics and typical fields of application

Solid wire for GTAW of AlMg alloys. The limited Mg-content of max. 2.8% to obtains intergranular corrosion resistance. Sea water resistant. Recommended for high temperature applications. For obtaining near matching coloured joints where anodizing is required.

Base materials

EN AW-5754 AlMg3 3.3535

EN AW-5454 AlMg2,7Mn 3.3537

EN AW-5251 AlMg2Mn0,3 3.3523

EN AW-5005A AlMg 3.3315

EN AW-3004A AlMn1Mg 3.0526

EN AC-51100 G-AlMg3 3.3541

and similar.

Typical analysis of the wire rod

wt.-%	Si	Mn	Cr	Ti	Fe	Al	Mg
	< 0.25	0.5 - 0.8	0.05 - 0.20	0.05 - 0.15	< 0.40	bal.	2.4 - 2.8

Mechanical properties of all-weld metal - typical values (min. values)

Condition	Yield strength R _{0.2}	Tensile strength R _m	Elongation A (L ₀ =5d ₀)
	MPa	MPa	%
u	90	200	17

Operating data



Polarity AC
Shielding gas
 (EN ISO 14175) I1, I3

Dimension mm

1.6 x 1000
 2.0 x 1000
 2.4 x 1000
 3.2 x 1000
 4.0 x 1000

Approvals

-

GTAW

Union AlMg 3

TIG Rod, aluminium

Classifications

EN ISO 18273
S Al 5754 (AlMg3)

AWS A5.10 / SFA-5.10
ER5754(mod.)

Characteristics and typical fields of application

Rods for GTAW of AlMg containing up to 3% Mg. Seawater resistant weld metal. Good colour matching with base metal after anodizing. Base material should be cleaned near the seam. Pre-heating 150°C for plates > 15 mm

Base materials

EN AW-5754 AlMg3 3.3535
 EN AW-5251 AlMg2Mn0,3 3.3525
 EN AW-500SA AlMg 3.3315
 EN AW-6060 AlMgSi0,5 3.3206
 EN AW-5454 AlMg2,7Mn 3.3537
 EN AC-51100 G-AlMg3 3.3541
 - G-AlMg3Si 3.3241

Typical analysis of the wire rod

wt.-%	Mn	Cr	Ti	Al	Mg
	0.10 – 0.6	< 0.3	< 0.15	bal.	2.6 – 3.6

Mechanical properties of all-weld metal - typical values (min. values)

Condition	Yield strength R _{p0.2} MPa	Tensile strength R _m MPa	Elongation A (L ₀ =5d ₀) %
u	80	180	18

Operating data



Polarity AC
Shielding gas
 (EN ISO 14175) I1

Dimension mm

1.6 × 1000
 2.0 × 1000
 2.4 × 1000
 3.2 × 1000
 4.0 × 1000

Approvals

-

Classifications

EN ISO 18273
S Al 5183

AWS A5.10 / SFA-5.10
ER5183

Characteristics and typical fields of application

TIG-rod for welding of AlMg alloys. The weld metal is resistant against sea water.

Base material should be cleaned near the seam. Pre-heating 150°C for plates > 15 mm

Base materials

EN AW-5083 AlMg4,5Mn 3.3547

EN AW-5086 AlMg4Mn 3.3545

EN AW-5019 AlMg5 3.3555

EN AW-6060 AlMgSi0,5 3.3206

EN AW-6005A AlMgSi0,7 3.3210

EN AW-6082 AlMgSi1 3.2315

EN AW-6061 AlMg1SiCu 3.3211

EN AW-7020 AlZn4,5Mg 3.4335

EN AC-51300 G-AlMg5 3.3561

EN AC-51400 G-AlMg5Si 3.3261

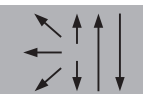
Typical analysis of the wire rod

wt.-%	Mn	Cr	Ti	Al	Mg
	0.6 – 1.0	0.05 – 0.25	< 0.15	bal.	4.3 – 5.2

Mechanical properties of all-weld metal - typical values (min. values)

Condition	Yield strength $R_{p0.2}$	Tensile strength R_m	Elongation A ($L_0=5d_0$)
	MPa	MPa	%
u	125	275	17

Operating data



Polarity AC

Shielding gas
(EN ISO 14175) I1

Dimension mm

1.6 × 1000

2.0 × 1000

2.4 × 1000

3.2 × 1000

4.0 × 1000

Approvals

TÜV (02196), DB (61.132.03), CE

Union AlMg 4,5 Mn Zr

TIG Rod, aluminium

Classifications

EN ISO 18273

S Al 5087 (AlMg4,5MnZr)

AWS A5.10 / SFA-5.10

ER5087

Characteristics and typical fields of application

Zirconium micro-alloyed aluminium TIG rod. The weld metal is uncritical in terms of hot cracks. Suitable especially for complicated welding constructions with critical tensions. Base material should be cleaned near the seam. Pre-heating 150°C for plates > 15 mm

Base materials

EN AW-5083 AlMg4,5Mn 3.3547

EN AW-5086 AlMg4Mn 3.3545

EN AW-5019 AlMg5 3.3555

EN AW-6060 AlMgSi0,5 3.3206

EN AW-6005A AlMgSi0,7 3.3210

EN AW-6082 AlMgSi1 3.2315

EN AW-6061 AlMg1SiCu 3.3211

EN AW-7020 AlZn4,5Mg 1 3.4335

EN AC-51300 G-AlMg5 3.3561

EN AC-51400 G-AlMg5Si 3.3261

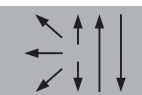
Typical analysis of the wire rod

wt.-%	Mn	Cr	Ti	Al	Zr	Mg
	0.75 – 1.0	0.05 – 0.25	< 0.15	bal.	0.1 – 0.2	4.5 – 5.2

Mechanical properties of all-weld metal - typical values (min. values)

Condition	Yield strength $R_{p0.2}$	Tensile strength R_m	Elongation A ($L_0=5d_0$)
	MPa	MPa	%
u	125	275	17

Operating data



Polarity AC

Shielding gas
(EN ISO 14175) 11

Dimension mm

1.6 × 1000

2.0 × 1000

2.4 × 1000

3.2 × 1000

Approvals

DB (61.132.04), CE

Classifications

EN ISO 18273

S Al 5356 (AlMg5Cr(A))

AWS A5.10 / SFA-5.10

ER5356

Characteristics and typical fields of application

Rods for GTAW of AlMg containing up to 5 % Mg. Seawater resistant weld metal.

Base material should be cleaned near the seam. Pre-heating 150 °C for plates > 15 mm

Base materials

EN AW-5019 AlMg5 3.3555

EN AW-5754 AlMg3 3.3535

EN AW-5086 AlMg4Mn 3.3545

EN AW-6060 AlMgSi0,5 3.3206

EN AW-6005A AlMgSi0,7 3.3210

EN AW-6082 AlMgSi1 3.2315

EN AW-6061 AlMg1SiCu 3.3211

EN AW-5454 AlMg2,7Mn 3.3537

EN AW-7020 AlZn4,5Mg1 3.4335

EN AC-51300 G-AlMg5 3.3561

EN AC-51400 G-AlMg5Si 3.3261

EN AC-51100 G-AlMg3 3.3541

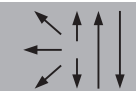
Typical analysis of the wire rod

wt.-%	Mn	Cr	Ti	Al	Mg
	0.2 – 0.5	< 0.3	< 0.15	bal.	4.8 – 5.5

Mechanical properties of all-weld metal - typical values (min. values)

Condition	Yield strength $R_{p0.2}$ MPa	Tensile strength R_m MPa	Elongation A ($L_0=5d_0$) %
u	110	240	17

Operating data



Polarity AC

Shielding gas
(EN ISO 14175) I1

Dimension mm

1.6 × 1000

2.0 × 1000

2.4 × 1000

3.2 × 1000

4.0 × 1000

5.0 × 1000

Approvals

TÜV (02198), DB (61.132.01), CE

Union AlMg 5 Mn Ti

TIG rod, Aluminium

Classifications

EN ISO 18273

S Al 5556 (AlMg5Mn1Ti(A))

AWS A5.10 / SFA-5.10

ER5556

Characteristics and typical fields of application

Rod for GTAW of AlMg alloys containing up to 5% Mg. Seawater resistant weld metal. Susceptible to stress corrosion cracking if exposed to service temperatures >65°C. Good colour matching with base metal after anodizing. The welding consumable contains Ti for grain refinery. Thorough cleaning of the workpiece bevels is necessary prior to welding.

Base materials

EN AW-5019 AlMg5 3.3555

EN AW-5754 AlMg3 3.3535

EN AW-5086 AlMg4Mn 3.3545

EN AW-6060 AlMgSi_{0,5} 3.3206EN AW-6005A AlMgSi_{0,7} 3.3210EN AW-6082 AlMgSi₁ 3.2315

EN AW-6061 AlMg1SiCu 3.3211

EN AW-7020 AlZn_{4,5}Mg 3.4335

EN AC-51300 G-AlMg5 3.3561

and similar.

Typical analysis of the wire rod

wt.-%	Mn	Cr	Ti	Fe	Al	Mg	Zn
	0.5 - 1.0	0.05 - 0.20	0.05 - 0.20	< 0.4	bal.	4.7 - 5.5	< 0.25

Mechanical properties of all-weld metal - typical values (min. values)

Condition	Yield strength R _{p0.2} MPa	Tensile strength R _m MPa	Impact values ISO-V KV J %
u	125	275	17

Operating data



Polarity AC
Shielding gas
 (EN ISO 14175) 11, 13

Dimension mm

1.6 x 1000
 2.0 x 1000
 2.4 x 1000
 3.2 x 1000
 4.0 x 1000

Approvals

-

Classifications

EN ISO 18273

S Al 5556A (AlMg5Mn1(A))

AWS A5.10 / SFA-5.10

ER5556A

Characteristics and typical fields of application

Rod for GTAW of AlMg alloys containing up to 5% Mg. Seawater resistant weld metal. Susceptible to stress corrosion cracking if exposed to service temperatures > 65°C. Good colour matching with base metal after anodizing. Thorough cleaning of the workpiece bevels is necessary prior to welding.

Base materials

EN AW-5019 AlMg5 3.3555

EN AW-5754 AlMg3 3.3535

EN AW-5086 AlMg4Mn 3.3545

EN AW-6060 AlMgSi0,5 3.3206

EN AW-6005A AlMgSi0,7 3.3210

EN AW-6082 AlMgSi1 3.2315

EN AW-6061 AlMg1SiCu 3.3211

EN AW-7020 AlZn4,5Mg 3.4335

EN AC-51300 G-AlMg5 3.3561

and similar.

Typical analysis of the wire rod

wt.-%	Mn	Cr	Ti	Fe	Al	Mg	Zn
	0.6 - 1.0	0.05 - 0.20	0.05 - 0.20	< 0.4	bal.	5.0 - 5.5	< 0.20

Mechanical properties of all-weld metal - typical values (min. values)

Condition	Yield strength R _{p0.2} MPa	Tensile strength R _m MPa	Elongation A (L ₀ =5d ₀) %
u	125	275	17

Operating data



Polarity AC
Shielding gas
 (EN ISO 14175) 11, 13

Dimension mm

1.6
 2.0
 2.4
 3.2
 4.0

Approvals

CE

Union AlSi 5

TIG Rod, aluminium

Classifications

EN ISO 18273

S Al 4043A (AlSi5(A))

AWS A5.10 / SFA-5.10

ER4043A

Characteristics and typical fields of application

Rods for GTAW of AlSi containing up to 5% Si. Oxyacetylene welding respectively brazing with suitable fluxes possible. The weld metal is not suitable for anodizing for decorative purposes. Very fluid weld pool. Base material should be cleaned near the seam. Pre-heating 150 - 200°C for plates > 15 mm. Do not use for welding hardenable alloys in high stressed zones.

Base materials

EN AW-6060 AlMgSi0,5 3.3206

EN AW-6005A AlMgSi0,7 3.3210

EN AW-6082 AlMgSi1 3.2315

EN AW-6061 AlMg1SiCu 3.3211

EN AC-45000 G-AlSi6Cu4 3.2151

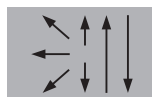
Typical analysis of the wire rod

wt.-%	Si	Al
	4.5 – 6.0	bal.

Mechanical properties of all-weld metal - typical values (min. values)

Condition	Yield strength R _{p0.2} MPa	Tensile strength R _m MPa	Elongation A (L ₀ =5d ₀) %
u	70	130	16

Operating data



Polarity AC

**Shielding gas
(EN ISO 14175)** I1

Dimension mm

1.6 × 1000

2.0 × 1000

2.4 × 1000

3.2 × 1000

4.0 × 1000

Approvals

DB (61.132.02), CE

Classifications

EN ISO 18273

S Al 4145 (AlSi10Cu4)

AWS A.10 / SFA-5.10

ER4145

Characteristics and typical fields of application

Rod for GTAW of AlCu alloys. Low melting point and excellent penetration characteristics. Provides superior wetting characteristics compared to Union AlCu 6 Mn when welding AlCu alloys, the strength, on the other hand, is lower. Superior resistance to stress corrosion cracking where high temperature properties are required. The weld metal is not suitable for anodizing for decorative purposes. Thorough cleaning of the workpiece bevels is necessary prior to welding.

Base materials

EN AW-2219 AlCu6Mn

EN AW-2014 AlCu4SiMg 3.1255

EN AW-2036 AlCu2,6Si0,5Mg0,3

EN AC-45000 G-AlSi5Cu3

and similar.

Typical analysis of the wire rod

wt.-%	Si	Mn	Cr	Cu	Al	Mg	Zn
	9.3 - 10.7	< 0.15	< 0.15	3.3 - 4.7	bal.	< 0.15	< 0.2

Operating data



Polarity AC

**Shielding gas
(EN ISO 14175)** I1, I3

Dimension mm

1.6 x 1000

2.0 x 1000

2.4 x 1000

3.2 x 1000

4.0 x 1000

Approvals

Union AISi 12

TIG Rod, aluminium

Classifications

EN ISO 18273

S Al 4047A (AISi12(A))

AWS A5.10 / SFA-5.10

ER4047A

Characteristics and typical fields of application

Rods for GTAW of AISi containing more than 10% Si. Very fluid weld pool. The weld metal is not suitable for anodizing. Pre-heating 150 – 200°C for plates > 15 mm.

Base materials

EN AC-42100 G-AISi7Mg 3.2371

EN AC-43000 G-AISi10Mg 3.2381

EN AC-43200 G-AISi10Mg(Cu) 3.2383

EN AC-43300 G-AISi9Mg 3.2373

EN AC-44000 G-AISi11 3.2211

EN AC-44200 G-AISi12 3.2581

EN AC-47000 G-AISi12(Cu) 3.2583

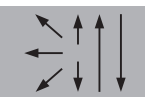
Typical analysis of the wire rod

wt.-%	Si	Mn	Al
	11.0 – 13.0	< 0.15	bal.

Mechanical properties of all-weld metal - typical values (min. values)

Condition	Yield strength $R_{p0.2}$ MPa	Tensile strength R_m MPa	Elongation A ($L_0=5d_0$) %
u	60	130	≥ 5

Operating data



Polarity AC

Shielding gas
(EN ISO 14175) I1

Dimension mm

1.6 × 1000

2.0 × 1000

2.4 × 1000

3.2 × 1000

Approvals

-

Classifications

EN ISO 18273

S Al 1450 (Al99,5Ti)

AWS A5.10 / SFA-5.10

ER1450

Characteristics and typical fields of application

Is a pure aluminium welding wire for joining and surfacing of aluminium materials according to EN ISO 18273. It is a welding consumable with Ti for grain refinement and weldable in all positions.

Base materials

Al99.5 3.0255

Al99.7 3.0275

Al99.8 3.0285

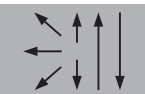
Typical analysis of the solid wire

wt.-%	Si	Ti	Fe	Al
	< 0.25	0.15	< 0.40	min. 99.5

Mechanical properties of all-weld metal - typical values (min. values)

Condition	Yield strength $R_{p0.2}$ MPa	Tensile strength R_m MPa	Elongation A ($L_0=5d_0$) %
u	20	65	35

Operating data



Dimension mm

1.2

1.6

Approvals

Union Al 99,7

Solid Wire, aluminium

Classifications

EN ISO 18273

S Al 1070 (Al99,7)

AWS A5.10 / SFA-5.10

ER1070

Characteristics and typical fields of application

Aluminium solid wire for welding of very pure aluminium materials according to EN ISO 18273 for applications in electro technical and mechanical construction, food and chemical industry.

Base materials

EN AW-1200 Al99 3.0205

EN AW-1050A Al99,5 3.0255

EN AW-1070A Al99,7 3.0275

EN AW-1350A E-Al 3.0257

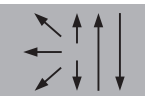
Typical analysis of the solid wire

wt.-%	Si	Ti	Fe	Al
	< 0.20	< 0.03	< 0.25	min. 99.7

Mechanical properties of all-weld metal - typical values (min. values)

Condition	Yield strength $R_{p0.2}$ MPa	Tensile strength R_m MPa	Elongation A ($L_0=5d_0$) %
u	20	65	35

Operating data



Dimension mm

1.0

Approvals



Union AlMg 2,7 Mn 0,8

Solid Wire, aluminium

Classifications

EN ISO 18273

S Al 5554 (AlMg2,7Mn)

AWS A5.10 / SFA-5.10

ER5554

Characteristics and typical fields of application

Rods for GTAW of AlMg alloys. Mg-content max. 2,8% to obtain intergranular corrosion resistance.

Seawater resistant weld metal. For obtaining near matching coloured joints where anodizing is required. Pre-heating 150°C for plates > 15 mm

Base materials

EN AW-5754 AlMg3 3.3535

EN AW-5454 AlMg2,7Mn 3.3537

EN AW-5251 AlMg2Mn0,3 3.3525

EN AW-500SA AlMg 3.3315

EN AW-3004A AlMn1Mg1 3.0526

EN AC-51100 G-AlMg3 3.3541

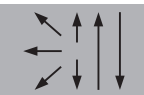
Typical analysis of the solid wire

wt.-%	Mn	Cr	Ti	Al	Mg
	0.5 – 0.8	0.05 – 0.20	0.05 – 0.15	bal.	2.4 – 2.8

Mechanical properties of all-weld metal - typical values (min. values)

Condition	Yield strength $R_{p0.2}$ MPa	Tensile strength R_m MPa	Elongation A ($L_0=5d_0$) %
u	90	200	17

Operating data



Dimension mm

1.2

1.6

2.4

Approvals

Union AlMg 3

Solid Wire, aluminium

Classifications

EN ISO 18273

S Al 5754 (AlMg3)

AWS A5.10 / SFA-5.10

ER5754

Characteristics and typical fields of application

Solid wire for AlMg alloys containing up to 3% Mg. Seawater resistant weld metal. Good colour matching with base metal after anodizing. Thorough cleaning of the workpiece bevels is necessary. Thicker plate materials require preheating to 150°C.

Base materials

AlMg 3 3.3535 EN AW-5754

AlMg 2 Mn 0.3 3.3525 EN AW-5251

AlMg 3.3315 EN AW-500SA

AlMgSi 0.5 3.3206 EN AW-6060

AlMg 2.7 Mn 3.3537 EN AW-5454

G-AlMg 3 3.3541 EN AC-51100

G-AlMg 3 Si 3.3241 -

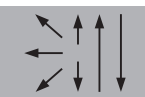
Typical analysis of the solid wire

wt.-%	Si	Mn	Cr	Ti	Fe	Cu	Al	Mg	Zn
	< 0.4	< 0.5	< 0.3	< 0.15	< 0.4	< 0.1	bal.	2.6 – 3.6	< 0.2

Mechanical properties of all-weld metal - typical values (min. values)

Condition	Yield strength $R_{p0.2}$ MPa	Tensile strength R_m MPa	Elongation A ($L_0=5d_0$) %
u	80	190	20

Operating data



Dimension mm

1.0
1.2
1.6

Approvals

-

Classifications

EN ISO 18273

S Al 5183 (AlMg 4,5Mn0,7(A))

AWS A5.10 / SFA-5.10

ER5183

Characteristics and typical fields of application

Solid wire for GMAW and GTAW of AlMg alloys. The weld metal is resistant against sea water.

Base material should be cleaned near the seam. Pre-heating 150°C for plates > 15 mm

Base materials

EN AW-5083 AlMg4,5Mn 3.3547

EN AW-5086 AlMg4Mn 3.3545

EN AW-5019 AlMg5 3.3555

EN AW-6060 AlMgSi0,5 3.3206

EN AW-6005A AlMgSi0,7 3.3210

EN AW-6082 AlMgSi1 3.2315

EN AW-6061 AlMg1SiCu 3.3211

EN AW-7020 AlZn4,5Mg 3.4335

EN AC-51300 G-AlMg5 3.3561

EN AC-51400 G-AlMg5Si 3.3261

Typical analysis of the solid wire

wt.-%	Mn	Cr	Ti	Al	Mg
	0.5 – 1.0	0.05 – 0.25	< 0.15	bal.	4.3 – 5.2

Mechanical properties of all-weld metal - typical values (min. values)

Condition	Yield strength $R_{p0.2}$	Tensile strength R_m	Elongation A ($L_0=5d_0$)
	MPa	MPa	%
u	125	275	17

Operating data



Dimension mm

0.8

1.0

1.2

1.6

Approvals

TÜV (02195), DB (61.132.03), ABS, BV, DNV GL, LR, CE

Union AlMg 4,5 Mn Zr

Solid Wire, aluminium

Classifications

EN ISO 18273

S Al 5087 (AlMg4,5MnZr)

AWS A5.10 / SFA-5.10

ER5087

Characteristics and typical fields of application

Zirconium micro-alloyed aluminium wire. The weld metal is uncritical in terms of hot cracks.

Suitable especially for complicated welding constructions with critical tensions. Base material should be cleaned near the seam. Pre-heating 150°C for plates > 15 mm

Base materials

EN AW-5083 AlMg4,5Mn 3.3547

EN AW-5086 AlMg4Mn 3.3545

EN AW-5019 AlMg5 3.3555

EN AW-6060 AlMgSi0,5 3.3206

EN AW-6005A AlMgSi0,7 3.3210

EN AW-6082 AlMgSi1 3.2315

EN AW-6061 AlMg1SiCu 3.3211

EN AW-7020 AlZn4,5Mg 1 3.4335

EN AC-51300 G-AlMg5 3.3561

EN AC-51400 G-AlMg5Si 3.3261

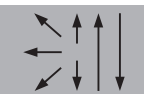
Typical analysis of the solid wire

wt.-%	Si	Mn	Cr	Ti	Al	Zr	Mg	Zn
	< 0.25	0.75 – 1.0	0.05 – 0.25	< 0.15	bal.	0.1 – 0.2	4.5 – 5.2	< 0.25

Mechanical properties of all-weld metal - typical values (min. values)

Condition	Yield strength R _{p0.2}	Tensile strength R _m	Elongation A (L ₀ =5d ₀)
	MPa	MPa	%
u	125	275	16

Operating data



Dimension mm

1.2

Approvals

DB (61.132.04), DNV GL, CE

Classifications

EN ISO 18273

S Al 5356 (AlMg5Cr(A))

AWS A5.10 / SFA-5.10

ER5356

Characteristics and typical fields of application

Solid wire for AlMg alloys containing up to 5% Mg. Seawater resistant weld metal. Good colour matching with base metal after anodizing. Thorough cleaning of the workpiece bevels is necessary.

Thicker plate materials require preheating to 150°C.

Base materials

EN AW-5019 AlMg5 3.3555

EN AW-5754 AlMg3 3.3535

EN AW-5086 AlMg4Mn 3.3545

EN AW-6060 AlMgSi0,5 3.3206

EN AW-6005A AlMgSi0,7 3.3210

EN AW-6082 AlMgSi1 3.2315

EN AW-6061 AlMg1SiCu 3.3211

EN AW-5454 AlMg2,7Mn 3.3537

EN AW-7020 AlZn4,5Mg1 3.4335

EN AC-51300 G-AlMg5 3.3561

EN AC-51400 G-AlMg5Si 3.3261

EN AC-51100 G-AlMg3 3.3541

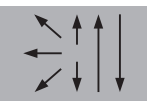
Typical analysis of the solid wire

wt.-%	Si	Mn	Cr	Ti	Fe	Cu	Al	Mg	Zn
	< 0.25	0.05 - 0.2	0.05 - 0.2	0.06 - 0.2	< 0.4	< 0.1	bal.	4.5 - 5.5	< 0.1

Mechanical properties of all-weld metal - typical values (min. values)

Condition	Yield strength $R_{p0.2}$ MPa	Tensile strength R_m MPa	Elongation A ($L_0=5d_0$) %
u	110	240	17

Operating data



Dimension mm
0.8
1.0
1.2
1.6

Approvals

TÜV (02197), DB (61.132.01), ABS, BV, DNV GL, LR, CE

Union AlMg 5 Mn

Solid Wire, aluminium

Classifications

EN ISO 18273

S Al 5556A (AlMg5Mn1(A))

AWS A5.10 / SFA-5.10

ER5556A

Characteristics and typical fields of application

Solid wire for GMAW of AlMg alloys containing up to 5% Mg. Seawater resistant weld metal. Susceptible to stress corrosion cracking if exposed to service temperatures > 65°C. Good colour matching with base metal after anodizing. Thorough cleaning of the workpiece bevels is necessary prior to welding.

Base materials

EN AW-5019 AlMg5 3.3555

EN AW-5754 AlMg3 3.3535

EN AW-5086 AlMg4Mn 3.3545

EN AW-6060 AlMgSi0,5 3.3206

EN AW-6005A AlMgSi0,7 3.3210

EN AW-6082 AlMgSi1 3.2315

EN AW-6061 AlMg1SiCu 3.3211

EN AW-7020 AlZn4,5Mg 3.4335

EN AC-51300 G-AlMg5 3.3561

and similar.

Typical analysis of the solid wire

wt.-%	Mn	Cr	Ti	Al	Mg
	0.6 – 1.0	< 0.2	< 0.20	Bal.	4.8 – 5.5

Mechanical properties of all-weld metal - typical values (min. values)

Condition	Yield strength $R_{p0.2}$ MPa	Tensile strength R_m MPa	Elongation A ($L_0=5d_0$) %	Electrical conductivity Sm/mm ²
u	125	275	17	14 - 19

Operating data



Dimension mm

1.2

1.6

Approvals

-



Union AlMg 5 Mn Ti

Solid wire, Aluminium

Classifications

EN ISO 18273

S Al 5556 (AlMg5Mn1Ti(A))

AWS A5.10 / SFA-5.10

ER5556

Characteristics and typical fields of application

Solid wire for GMAW of AlMg alloys containing up to 5% Mg. Seawater resistant weld metal. Susceptible to stress corrosion cracking if exposed to service temperatures > 65°C. Good colour matching with base metal after anodizing. The welding consumable contains Ti for grain refinery. Thorough cleaning of the workpiece bevels is necessary prior to welding.

Base materials

EN AW-5019 AlMg5 3.3555

EN AW-5754 AlMg3 3.3535

EN AW-5086 AlMg4Mn 3.3545

EN AW-6060 AlMgSi0,5 3.3206

EN AW-6005A AlMgSi0,7 3.3210

EN AW-6082 AlMgSi1 3.2315

EN AW-6061 AlMg1SiCu 3.3211

EN AW-7020 AlZn4,5Mg 3.4335

EN AC-51300 G-AlMg5 3.3561

and similar.

Typical analysis of the solid wire

wt.-%	Mn	Cr	Ti	Fe	Al	Mg	Zn
	0.5 - 1.0	0.05 - 0.20	0.05 - 0.20	< 0.4	bal.	4.7 - 5.5	< 0.25

Mechanical properties of all-weld metal - typical values (min. values)

Condition	Yield strength $R_{p0.2}$ MPa	Tensile strength R_m MPa	Elongation A ($L_0=5d_0$) %
u	125	275	17

Operating data



Dimension mm

1.0

1.2

1.6

Approvals

Union AlSi 5

Solid Wire, aluminium

Classifications

EN ISO 18273

S Al 4043A (AlSi5(A))

AWS A5.10 / SFA-5.10

ER4043A

Characteristics and typical fields of application

Rods for GTAW of AlSi containing up to 5% Si. Oxyacetylene welding respectively brazing with suitable fluxes possible. The weld metal is not suitable for anodizing for decorative purposes. Very fluid weld pool. Base material should be cleaned near the seam. Pre-heating 150 - 200°C for plates > 15 mm. Do not use for welding hardenable alloys in high stressed zones.

Base materials

EN AW-6060 AlMgSi0,5 3.3206

EN AW-6005A AlMgSi0,7 3.3210

EN AW-6082 AlMgSi1 3.2315

EN AW-6061 AlMg1SiCu 3.3211

EN AC-45000 G-AlSi6Cu4 3.2151

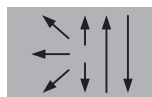
Typical analysis of the solid wire

wt.-%	Si	Al
	4.5 – 6.0	bal.

Mechanical properties of all-weld metal - typical values (min. values)

Condition	Yield strength $R_{p0.2}$ MPa	Tensile strength R_m MPa	Elongation A ($L_0=5d_0$) %
u	70	130	16

Operating data



Polarity DC+

Shielding gas
(EN ISO 14175) I1, I3

Dimension mm

1.0

1.2

1.6

2.4

Approvals

DB (61.132.02), CE



Union AlSi 7 Mg

Solid wire, Aluminium

Classifications

EN ISO 18273

S Al 4018 (AlSi7Mg)

AWS A5.10 / SFA-5.10

ER4018

Characteristics and typical fields of application

Union AlSi 7 Mg is a modified 4010 alloy (alloy 4008) with low levels of impurities, specially designed for joining or repairing of 7% Si aluminium cast components like 356.0, A356.0 and A357.0.

The mechanical properties can be increased by heat treatment. Thorough cleaning of the workpiece bevels is necessary prior to welding.

Base materials

EN AC-42000

EN AC-42100

EN AC-42200

and similar.

Typical analysis of the solid wire

wt.-%	Si	Mn	Ti	Fe	Cu	Al	Mg
	6.5 - 7.5	< 0.05	0.04 - 0.15	< 0.1	< 0.05	bal.	0.5 - 0.8

Mechanical properties of all-weld metal - typical values (min. values)

Condition	Yield strength $R_{p0.2}$ MPa	Tensile strength R_m MPa	Elongation A ($L_0=5d_0$) %
u	55	165	18

Operating data



Polarity DC+

Shielding gas
(EN ISO 14175) I1, I3

Dimension mm

1.2

1.6

Approvals

Union AlSi 10 Cu 4

Solid wire, Aluminium

Classifications

EN ISO 18273

S Al 4145 (AlSi10Cu4)

AWS A5.10 / SFA-5.10

ER4145

Characteristics and typical fields of application

Solid wire for GMAW of AlCu alloys. Low melting point and excellent penetration characteristics. Provides superior wetting characteristics compared to Union AlCu 6 Mn when welding AlCu alloys, the strength, on the other hand, is lower. Superior resistance to stress corrosion cracking where high temperature properties are required. The weld metal is not suitable for anodizing for decorative purposes. Thorough cleaning of the workpiece bevels is necessary prior to welding.

Base materials

EN AW-2219 AlCu6Mn

EN AW-2014 AlCu4SiMg 3.1255

EN AW-2036 AlCu2,6Si0,5Mg0,3

EN AC-45000 G-AlSi5Cu3

and similar.

Typical analysis of the solid wire

wt.-%	Si	Mn	Cr	Cu	Mg	Zn
	9.3 - 10.7	< 0.15	< 0.15	3.3 -4.7	< 0.15	< 0.2

Operating data



Polarity DC+

Shielding gas
(EN ISO 14175) 11, 13

Dimension mm

1.0

1.2

1.6

Approvals

Classifications

EN ISO 18273

S Al 4047A (AlSi12(A))

AWS A5.10 / SFA-5.10

ER4047A

Characteristics and typical fields of application

Is used for aluminium-silicium casting alloy with a Si-content up to 12%. Good mechanical characteristics, an excellent corrosion resistance and a low melting point ensure high quality welding results.

Base materials

G-AlSi12, G-AlSi10Mg(Cu), G-AlSi11, G-AlSi5Mg, G-AlSi7Mg, ,G-AlSi6Cu 4, AlMgSi0.8, 3.2581, 3.2383, 3.2373

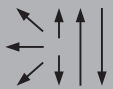
Typical analysis of the solid wire

wt.-%	Si	Mn	Ti	Fe	Cu	Al	Mg	Zn	Be
	11.0 – 13.0	< 0.15	< 0.15	< 0.6	< 0.3	Al bal.	< 0.1	< 0.2	< 0.0003

Mechanical properties of all-weld metal - typical values (min. values)

Condition	Yield strength R _{p0.2} MPa	Tensile strength R _m MPa	Elongation A (L ₀ =5d ₀) %	Melting range °C
u	60	130	≥ 5	573 – 585

Operating data

	Polarity	DC+	Dimension mm
	Shielding gas (EN ISO 14175)	I1, I3	1.0
			1.2
			1.6

Approvals

Union AlCu 6 Mn

Solid wire, Aluminium

Classifications

EN ISO 18273

S Al 2319 (AlCu6MnZrTi)

AWS A5.10 / SFA-5.10

ER2319

Characteristics and typical fields of application

Solid wire for GMAW of AlCu alloys. Provides higher strength and better ductility than AlSi filler alloys when welding AlCu alloys. Superior resistance to stress corrosion cracking where high temperature properties are required. Thorough cleaning of the workpiece bevels is necessary prior to welding.

Base materials

EN AW-2219 AlCu6Mn

EN AW-2014 AlCu4SiMg 3.1255

EN AW-2036 AlCu2,6Si0,5Mg0,3

EN AC-45000 G-AlSi5Cu3

and similar.

Typical analysis of the solid wire

wt.-%	Mn	V	Ti	Cu	Al	Zr	Mg
	0.2 – 0.4	0.05 - 0.15	0.1 – 0.2	5.8 – 6.8	Bal.	0.10 – 0.25	< 0.02

Mechanical properties of all-weld metal - typical values (min. values)

Condition	Yield strength R _{p0.2} MPa	Tensile strength R _m MPa	Elongation A (L ₀ =5d ₀) %
u	150	250	12
u			

Operating data



Polarity DC+

Shielding gas (EN ISO 14175) 11, 13

Dimension mm
1.2

Approvals

-

Welding consumables for titanium and titanium alloys

◆ **Content**

OVERVIEW..... 609

GTAW RODS..... 611

GTAW rods

Product name	C	Ni	Mo	V	N	Ti	Fe	Al	H	O
BÖHLER ER Ti 2-IG	< 0.03				< 0.015	Bal.	< 0.12		< 0.008	0.10
BÖHLER ER Ti 5-IG	< 0.05			3.5 – 4.5	< 0.03	Bal.	< 0.15	5.5 – 6.75	< 0.010	0.12 – 0.20
BÖHLER ER Ti 7-IG	< 0.03				< 0.015	Bal.	< 0.12		< 0.008	0.08 – 0.16
BÖHLER ER Ti 12-IG	< 0.03	0.6 – 0.9	0.2 – 0.4		< 0.015	Bal.	< 0.15		< 0.008	0.08 – 0.16



BÖHLER ER Ti 2-IG

TIG rod, Titanium alloy

Classifications

EN ISO 24034
S Ti 0120 (Ti99,6)

AWS A5.16 / SFA-5.16
ERTi-2

Material-No.
3.7035

Characteristics and typical fields of application

GTAW rod for welding pure Titanium and Titanium alloys with similar chemical composition. Suited for welding Titanium grades 1 to 4. Material Nr. 3.7035

Base materials

Pure Titanium and Titanium alloys with a similar composition.

ASTM Grade 1-4

UNS R50400H

Typical analysis of the wire rod

wt.-%	C	N	Ti	Fe	H	O
	< 0.03	< 0.015	bal.	< 0.12	< 0.008	0.10

Mechanical properties of all-weld metal - typical values (min. values)

Condition	Yield strength R _e MPa	Tensile strength R _m MPa	Elongation A (L ₀ =5d ₀) %	Impact values ISO-V KV J 20°C
u	295*	500*	42*	76*

u untreated, as welded – shielding gas 100 % Argon

* depend of the pollutants in the weld metal

Operating data



Polarity DC –
Shielding gas I1
(EN ISO 14175)

Dimension mm

1.6 × 1000
2.0 × 1000
2.4 × 1000
3.0 × 1000

TIG welding of titanium requires a high standard of cleanness and an additional gas protection to avoid any contact of the weld pool and cooling weld bead with air.

Approvals

GTAW

BÖHLER ER Ti 5-IG



TIG rod, Titanium alloy

Classifications

EN ISO 24034

S Ti 6402 (TiAl6V4B)

AWS A5.16 / SFA-5.16

ERTi-5

Material-No.

3.7165

Characteristics and typical fields of application

GTAW rod for welding pure Titanium and Titanium alloys with similar chemical composition. Good weldability and can be heat treated for higher strength or toughness. ER Ti 5-IG is used in aircraft components, medical, marine, and chemical process industry.

Base materials

Titanium alloys with a similar composition.

UNS R56402

Typical analysis of the wire rod

wt.-%	C	V	N	Ti	Fe	Al	H	O
	< 0.05	3.5 - 4.5	< 0.03	bal.	< 0.15	5.5 - 6.75	< 0.010	0.12 - 0.20

Mechanical properties of all-weld metal - typical values (min. values)

Condition	Yield strength R _e	Tensile strength R _m	Elongation A (L ₀ =5d ₀)
	MPa	MPa	%
u	830 / 120 ksi*	895 / 130 ksi*	10

u untreated, as welded – shielding gas 100 % Argon

* depend of the pollutants in the weld metal

Operating data



Polarity	DC -
Shielding gas (EN ISO 14175)	I1

Dimension mm

1.6 x 1000
2.0 x 1000
2.4 x 1000
3.0 x 1000

TIG welding of titanium requires a high standard of cleanliness and an additional gas protection to avoid any contact of the weld pool and cooling weld bead with air.

Approvals

-



BÖHLER ER Ti 7-IG

TIG rod, Titanium alloy

Classifications

EN ISO 24034
ERTi-7

AWS A5.16 / SFA-5.16
ERTi-7

Material-No.
3.7235

Characteristics and typical fields of application

GTAW rod for welding pure Titanium and Titanium alloys with similar chemical composition. The small quantity of Palladium added gives it enhanced crevice corrosion resistance at low temperatures. ER Ti 7-IG can be used for welding grade 2 or grade 16 titanium with improved corrosion performance. Chemical process and production equipment components. Werkstoff Nr. 3.7235

Base materials

Pure Titanium and Titanium alloys with a similar composition.

ASTM Grade 1-4; 16

UNS R52401

Typical analysis of the wire rod

wt.-%	C	N	Ti	Fe	H	O
	< 0.03	< 0.015	bal.	< 0.12	< 0.008	0.08 - 0.16

Mechanical properties of all-weld metal - typical values (min. values)

Condition	Yield strength R _e MPa	Tensile strength R _m MPa	Elongation A (L ₀ =5d ₀) %
u	275 / 40 ksi*	345 / 50 ksi*	20

u untreated, as welded – shielding gas 100 % Argon

* depend of the pollutants in the weld metal

Operating data



Polarity DC –
Shielding gas (EN ISO 14175) 11

Dimension mm
1.6 x 1000
2.0 x 1000
2.4 x 1000
3.0 x 1000

TIG welding of titanium requires a high standard of cleanliness and an additional gas protection to avoid any contact of the weld pool and cooling weld bead with air.

Approvals

-

GTAW

BÖHLER ER Ti 12-IG



TIG rod, Titanium alloy

Classifications

EN ISO 24034

S Ti 3401 (TiNi0,7Mo0,3)

AWS A5.16 / SFA-5.16

ERTi-12

Material-No.

3.7105

Characteristics and typical fields of application

GTAW rod for welding pure Titanium and Titanium alloys with similar chemical composition.

Provides enhanced crevice corrosion resistance at higher temperatures. Pressure vessels, piping, corrosion applications. Werkstoff Nr. 3.7105

Base materials

Titanium alloys with a similar composition.

UNS R53400

Typical analysis of the wire rod

wt.-%	C	Ni	Mo	N	Ti	Fe	H	O
	< 0.03	0.6 - 0.9	0.2 - 0.4	< 0.015	bal.	< 0.15	< 0.008	0.08 - 0.16

Mechanical properties of all-weld metal - typical values (min. values)

Condition	Yield strength R _e	Tensile strength R _m	Elongation A (L ₀ =5d ₀)
	MPa	MPa	%
u	345 / 50 ksi*	485 / 70 ksi*	12

u untreated, as welded – shielding gas 100 % Argon

* depend of the pollutants in the weld metal

Operating data

**Polarity** DC –**Shielding gas**
(EN ISO 14175) I1**Dimension mm**

1.6

2.0

2.4

3.0

TIG welding of titanium requires a high standard of cleanliness and an additional gas protection to avoid any contact of the weld pool and cooling weld bead with air.

Approvals