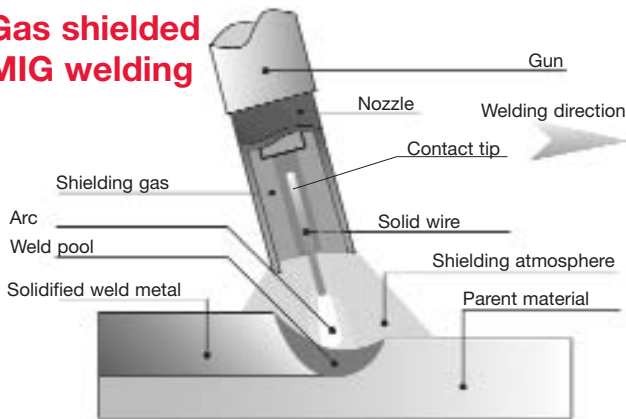


MIG and TIG Process

Gas shielded MIG welding



The MIG/MAG welding process (or GMAW - Gas Metal Arc Welding) is when an electric arc is created between a continuous consumable wire and the work piece to be welded, protected within a gas atmosphere. This atmosphere can be either inert (Argon) or active (CO₂ or mixture of Argon and CO₂). The wire is continuously fed through a gun to the weld pool by a wire feeder.

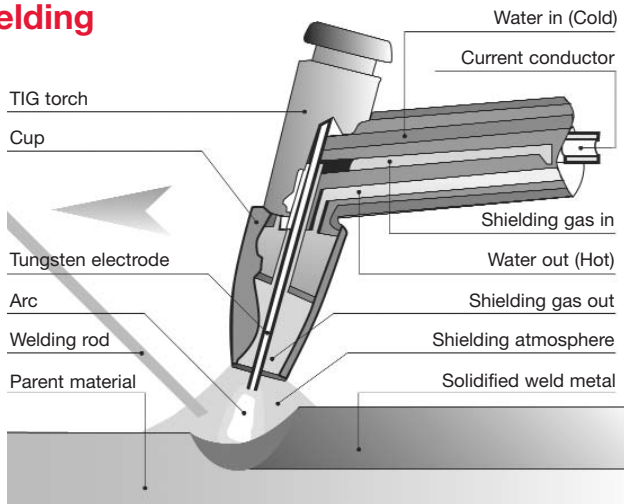
Gas Tungsten Arc Welding

In this welding process, the electric arc is generated between a non-consumable tungsten electrode and the work piece to be welded. An inert gas atmosphere, usually argon, protects the weld pool. Welding can be done by simply fusing of the parent material together, or with the addition of welding rod similar to the parent material. The rod is allowed to melt in the electric arc and will fill and reinforce the weld joint.

Arc ignition is achieved by touching the work piece with the electrode and lifting it by a few millimetres (contact ignition and lift ignition) or by using a high frequency voltage discharge, a gap of about 4 millimetres is maintained from the tungsten electrode and the work piece, high frequency spark is generated, this makes the air gap conductive, and allows the arc to be established without touching of the work piece with the tungsten electrode, no tungsten contamination can occur (High Frequency ignition).

The following can be used:

- DC (continuous) current is used with most metals (steel / stainless steel).
- AC (alternative) current is ideal for welding aluminium and other materials containing surface refractory oxide.



Mild steel solid wire

Classification

AWS A5.18/A5.18M : ER70S-3
ISO 14341 : G 42 2 M G2Si

General description

Solid wire for welding general construction in mild steel

High impact values

Stable arc and excellent feedability

Shielding gases (acc. ISO 14175)

M21 Mixed gas Ar+ >5-25% CO₂
C1 Active gas 100% CO₂

Approvals

BV	DNV	GL	LR
SA3,3YM	IIYMS	3YS	3S,3YS

Chemical composition (w%) typical wire / rod

C	Mn	Si
0.08	1.1	0.6

Mechanical properties, typical, all weld metal

	Shielding gas	Condition	Yield strength (N/mm ²)	Tensile strength (N/mm ²)	Elongation (%)	Impact ISO-V(J) -20°C
Typical values	M21	AW	500	575	25	95

Materials to be welded

Steel grades	Code	Type
General structural steel	EN 10025	S185, S235, S275, S355
Ship plates	ASTM A131	Grade A, B, D, AH32 to DH36
Cast steel	EN10213-2	GP240R
Pipe material	EN 10208-1	L210, L240, L290, L360
	EN 10208-2	L240NB, L290NB, L360NB, L360QB, L240MB, L290MB, L360MB, L451MB, L415NB
	API 5LX	X42, X46, X52, X60
	EN 10216-1/	P235T1, P235T2, P275T1
	EN 10217-1	P275T2, P355N
Boiler & pressure vessel steel	EN 10028-2	P235GH, P265GH, P295GH, P355GH
Fine grained steel	EN 10113-2	S275, S275, S355, S420
	EN 10113-3	S275M, S275ML, S355M, S355ML, S420M, S420ML

Packaging and available sizes

Unit type	Diameter (mm)		
	0.8	1.0	1.2
15 kg spool B300	X	X	X
300 kg metal coil		X	
Other sizes and packaging on request			

LNM 25: rev. EN 22

Liability: All information in this data sheet is based on the best available knowledge, is subject to change without notice and can only be considered as suitable for general guidance **Fumes:** Consult information on Welding Safety Sheet, available upon request

Mild steel solid rod

Classification

AWS A5.18/A5.18M : ER70S-3
EN 1668 : W 42 5 W2Si

General description

Solid rod for welding general construction in mild steel
High impact values

Shielding gases (acc. ISO 14175)

I1 Inert gas Ar (100%)

Approvals

TÜV

+

Chemical composition (w%) typical wire / rod

C	Mn	Si
0.08	1.1	0.6

Mechanical properties, typical, all weld metal

	Shielding gas	Condition	Yield strength (N/mm ²)	Tensile strength (N/mm ²)	Elongation (%)	Impact ISO-V(J)	
						-20°C	-50°C
Typical values	I1	AW	450	560	26	170	100
		SR 15h/620°C	410	525	26		80

Materials to be welded

Steel grades	Code	Type
General structural steel	EN 10025	S185, S235, S275, S355
Ship plates	ASTM A131	Grade A, B, D, AH32 to DH36
Cast steel	EN10213-2	GP240R
Pipe material	EN 10208-1	L210, L240, L290, L360
	EN 10208-2	L240NB, L290NB, L360NB, L360QB, L240MB, L290MB, L360MB, L451MB, L415NB
	API 5LX	X42, X46, X52, X60
	EN 10216-1/ EN 10217-1	P235T1, P235T2, P275T1 P275T2, P355N
Boiler & pressure vessel steel	EN 10028-2	P235GH, P265GH, P295GH, P355GH
Fine grained steel	EN 10113-2	S275, S275, S355, S420
	EN 10113-3	S275M, S275ML, S355M, S355ML, S420M, S420ML

Packaging and available sizes

Unit type	Diameter (mm)			
	1.6	2.0	2.4	3.0
2 and 5 kg tube	X	X	X	X
Other sizes and packaging on request				

LNT 25: rev. EN 22

Liability: All information in this data sheet is based on the best available knowledge, is subject to change without notice and can only be considered as suitable for general guidance **Fumes:** Consult information on Welding Safety Sheet, available upon request

Mild steel solid wire

Classification

AWS A5.18/A5.18M : ER70S-6
ISO 14341 : G 46 4 M G3Si1

General description

Solid wire for welding general construction in mild steel
Smooth bead appearance
Stable arc and excellent feedability

Shielding gases (acc. ISO 14175)

M21 Mixed gas Ar+ >5-25% CO₂
C1 Active gas 100% CO₂

Approvals

ABS	BV	DNV	GL	LR	RINA	TÜV	RMRS
3SA,3YSA	SA3YM	IIIYMS	3YS	3S,3YS	3YS	+	3S,3YS

Chemical composition (w%) typical wire / rod

C	Mn	Si
0.08	1.4	0.8

Mechanical properties, typical, all weld metal

	Shielding gas	Condition	Yield strength (N/mm ²)	Tensile strength (N/mm ²)	Elongation (%)	Impact ISO-V(J)	
						-20°C	-40°C
Typical values	M21	AW	520	600	25	110	70

Materials to be welded

Steel grades	Code	Type
General structural steel	EN 10025	S185, S235, S275, S355
Ship plates	ASTM A131	Grade A, B, D, AH32 to DH 36.
Cast steel	EN 10213-2	GP240R
Pipe material	EN 10208-1	L210, L240, L290, L360
	EN 10208-2	L240NB, L290NB, L360NB, L360QB, L240MB, L290MB, L360MB, L415MB, L415NB
	API 5LX	X42, X46, X52, X60
	EN 10216-1/ EN 10217-1	P235T1, P235T2, P275T1 P275T2, P355N
	Boiler & pressure vessel steel	EN 10028-2
Fine grained steel	EN 10113-2	S275, S275, S355, S420
	EN 10113-3	S275M, S275ML, S355M, S355ML, S420M, S420ML

Packaging and available sizes

Unit type	Diameter (mm)				
	0.6	0.8	1.0	1.2	1.6
5 kg plastic spool S200	X	X	X		
15 kg spool B300		X	X	X	X
15 kg spool S300	X				
250 kg Accutrak® Drum		X	X	X	
300 kg metal coil				X	
Other sizes and packaging on request					

LNM 26: rev. EN 22

Liability: All information in this data sheet is based on the best available knowledge, is subject to change without notice and can only be considered as suitable for general guidance **Fumes:** Consult information on Welding Safety Sheet, available upon request

Mild steel solid rod

Classification

AWS A5.18/A5.18M : ER70S-6
EN 1668 : W 42 5 W3Si1

General description

Solid rod for welding general construction in mild steel
Smooth bead appearance

Shielding gases (acc. ISO 14175)

I1 Inert gas Ar (100%)

Approvals

TÜV

+

Chemical composition (w%) typical wire / rod

C	Mn	Si
0.08	1.4	0.8

Mechanical properties, typical, all weld metal

	Shielding gas	Condition	Yield strength (N/mm ²)	Tensile strength (N/mm ²)	Elongation (%)	Impact ISO-V(J)		
						-20°C	-30°C	-50°C
Typical values	I1	AW	460	580	26	170	170	120

Materials to be welded

Steel grades	Code	Type
General structural steel	EN 10025	S185, S235, S275, S355
Ship plates	ASTM A131	Grade A, B, D, AH32 to DH 36.
Cast steel	EN 10213-2	GP240R
Pipe material	EN 10208-1	L210, L240, L290, L360
	EN 10208-2	L240NB, L290NB, L360NB, L360QB, L240MB, L290MB, L360MB, L415MB, L415NB
	API 5LX	X42, X46, X52, X60
	EN 10216-1/	P235T1, P235T2, P275T1
	EN 10217-1	P275T2, P355N
Boiler & pressure vessel steel	EN 10028-2	P235GH, P265GH, P295GH, P355GH
Fine grained steel	EN 10113-2	S275, S275, S355, S420
	EN 10113-3	S275M, S275ML, S355M, S355ML, S420M, S420ML

Packaging and available sizes

Unit type	Diameter (mm)	
	2.0	2.4
2 and 5 kg tube	X	X
Other sizes and packaging on request		

LNT 26: rev. EN 22

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Mild steel solid wire

Classification

AWS A5.18/A5.18M : ER70S-6
ISO 14341 : G 42 3 M G4Si1

General description

Solid wire with increased manganese content for GMA welding of structural steel

Shielding gases (acc. ISO 14175)

M21 Mixed gas Ar+ >5-25% CO₂
C1 Active gas 100% CO₂

Approvals

TÜV

+

Chemical composition (w%) typical wire

C	Mn	Si
0.08	1.70	0.85

Mechanical properties, typical, all weld metal

	Shielding gas	Condition	Yield strength (N/mm ²)	Tensile strength (N/mm ²)	Elongation (%)	Impact ISO-V(J)		
						+20°C	-20°C	-50°C
Typical values	M21	AW	500	650	26	150	80	50

Materials to be welded

Steel grades	Code	Type
General structural steel	EN 10025	S185, S235, S275, S355
Ship plates	ASTM A131	Grade A, B,D, AH32 to DH 36.
Cast steel	EN 10213-2	GP240R
Pipe material	EN 10208-1	L210, L240, L290, L360
	EN 10208-2	L240NB, L290NB, L360NB, L360QB, L240MB, L290MB, L360MB, L415MB, L415NB
	API 5LX	X42, X46, X52, X60
	EN 10216-1/	P235T1, P235T2, P275T1
	EN 10217-1	P275T2, P355N
Boiler & pressure vessel steel	EN 10028-2	P235GH, P265GH, P295GH, P355GH
Fine grained steel	EN 10113-2	S275, S275, S355, S420
	EN 10113-3	S275M, S275ML, S355M, S355ML, S420M, S420ML

Packaging and available sizes

Unit type	Diameter (mm)			
	0.8	1.0	1.2	1.6
15 kg spool B300	X	X	X	X
Other sizes and packaging on request				

LNM 27: rev. EN 22

Liability: All information in this data sheet is based on the best available knowledge, is subject to change without notice and can only be considered as suitable for general guidance **Fumes:** Consult information on Welding Safety Sheet, available upon request

Mild steel solid wire

Classification

AWS A5.18/A5.18M : ER70S-6
ISO 14341 : G 42 4 M G3Si1 / G 42 2 C G3Si1

General description

Solid wire for semi-automatic and automatic welding applications
Good feedability, consistent welding performance
Very good weldability, stable arc, and low spatter
High productivity

Shielding gases (acc. ISO 14175)

M21 Mixed gas Ar+ >15-25% CO₂
C1 Active gas 100% CO₂

Approvals

ABS	BV	DB	DNV	GL	LR	RINA	TÜV	RS
+	+	+	+	+	+	+	+	+

Chemical composition (w%) typical wire

C	Mn	Si
0.07	1.45	0.85

Mechanical properties, typical, all weld metal

	Shielding gas	Condition	Yield strength (N/mm ²)	Tensile strength (N/mm ²)	Elongation (%)	Impact ISO-V(J)		
						-20°C	-30°C	-40°C
Typical values	M21	AW	471	580	25		102	73
	C1		439	547	28	102		
	Required		min. 420	500-640	min. 20		min. 47	

Materials to be welded

Steel grades	Code	Type
General structural steel	EN 10025	S185, S235, S275, S355
Ship plates	ASTM A131	Grade A, B, D, AH32 to DH 36.
Cast steel	EN 10213-2	GP240R
Pipe material	EN 10208-1	L210, L240, L290, L360
	EN 10208-2	L240NB, L290NB, L360NB, L360QB, L240MB, L290MB, L360MB, L415MB, L415NB
	API 5LX	X42, X46, X52, X60
	EN 10216-1/	P235T1, P235T2, P275T1
	EN 10217-1	P275T2, P355N
	Boiler & pressure vessel steel	EN 10028-2
Fine grained steel	EN 10113-2	S275, S275, S355, S420
	EN 10113-3	S275M, S275ML, S355M, S355ML, S420M, S420ML

Packaging and available sizes

Unit type	Diameter (mm)				
	0.8	1.0	1.2	1.4	1.6
15 kg metal basket - K300	X	X	X	X	X
15 kg spool B300 - D300	X	X	X	X	X
250 kg Accutrak® Drum	X	X	X		
380 kg Accutrak® Drum	X	X	X	X	X
500 kg Accutrak® Drum	X	X	X	X	X

Other sizes and packaging on request

UltraMag™: rev. EN 22

Liability: All information in this data sheet is based on the best available knowledge, is subject to change without notice and can only be considered as suitable for general guidance **Fumes:** Consult information on Welding Safety Sheet, available upon request

Mild steel solid wire

Classification

AWS A5.18/A5.18M : ER70S-6
ISO 14341 : G 46 5 M G4Si1/G 42 4 C G4Si1

General description

Solid wire for semi-automatic and automatic welding applications

Good feedability, consistent welding performance

Very good weldability, stable arc, and low spatter

High productivity

Shielding gases (acc. ISO 14175)

M21 Mixed gas Ar+ >15-25% CO₂
C1 Active gas 100% CO₂

Approvals

DB	TÜV	RS
+	+	+

Chemical composition (w%) typical wire

C	Mn	Si
0.07	1.65	0.90

Mechanical properties, typical, all weld metal

	Shielding gas	Condition	Yield strength (N/mm ²)	Tensile strength (N/mm ²)	Elongation (%)	Impact ISO-V(J)	
						-40°C	-50°C
Typical values	M21	AW	478	595	27	89	
	C1		462	558	30	73	
	Required		min. 460	530-680	min. 20	min. 47	

Materials to be welded

Steel grades	Code	Type
General structural steel	EN 10025	S185, S235, S275, S355
Ship plates		Grade A, B, D, AH32 to DH 36.
Cast steel	EN 10213-2	GP240R
Pipe material	EN 10208-1	L210, L240, L290, L360
	EN 10208-2	L240NB, L290NB, L360NB, L360QB, L240MB, L290MB, L360MB, L415MB, L415NB
	API 5LX	X42, X46, X52, X60
	EN 10216-1/	P235T1, P235T2, P275T1
	EN 10217-1	P275T2, P355N
	EN 10028-2	P235GH, P265GH, P295GH, P355GH
Boiler & pressure vessel steel	EN 10113-2	S275, S275, S355, S420
Fine grained steel	EN 10113-3	S275M, S275ML, S355M, S355ML, S420M, S420ML, S460

Packaging and available sizes

Unit type	Diameter (mm)				
	0.8	1.0	1.2	1.4	1.6
15 kg metal basket - K300	X	X	X	X	X
15 kg spool B300 - D300	X	X	X	X	X
250 kg Accutrak® Drum	X	X	X		
380 kg Accutrak® Drum	X	X	X	X	X
500 kg Accutrak® Drum	X	X	X	X	X

Other sizes and packaging on request

UltraMag™ SG3: rev. EN 04

Mild steel solid wire

Classification

AWS A5.18/A5.18M : ER70S-6
ISO 14341 : G 42 4 M G3Si1 / G 38 3 C G3Si1

General description

Solid wire for welding of structural steels
Excellent feedability and very consistent welding performance
No adjustments of welding parameters
Tight and stable arc with extremely low spatter
Better bead profile and appearance
Ultimate GMAW wire for robotics and hard automation
Also available in AccuTrak®

Shielding gases (acc. ISO 14175)

M21 Mixed gas Ar+ >5-25% CO₂
C1 Active gas 100% CO₂

Approvals

BV	DNV	GL	LR	TÜV
S3YM	IVY40	4Y40S	3S,3Y40S	+

Chemical composition (w%) typical wire

C	Mn	Si
0.08	1.55	0.85

Mechanical properties, typical, all weld metal

	Shielding gas	Condition	Yield strength (N/mm ²)	Tensile strength (N/mm ²)	Elongation (%)	Impact ISO-V(J)		
						-30°C	-40°C	-50°C
Typical values	M21	AW	490	590	27	100	60	40

Materials to be welded

Steel grades	Code	Type
General structural steel	EN 10025	S185, S235, S275, S355
Ship plates	ASTM A131	Grade A, B, D, AH32 t/m DH36
Cast steel	EN 10213-2	GP240R
Pipe material	EN 10208-1	L210, L240, L290, L360
	EN 10208-2	L240NB, L290NB, L360NB, L360QB, L240MB, L290MB, L360MB, L415MB, L415NB
	API 5LX	X42, X46, X52, X60
	EN 10216-1/	P235T1, P235T2, P275T1
	EN 10217-1	P275T2, P355N
Boiler & pressure vessel steel	EN 10028-2	P235GH, P265GH, P295GH, P355GH
Fine grained steel	EN 10113-2	S275, S275, S355, S420
	EN 10113-3	S275M, S275ML, S355M, S355ML, S420M, S420ML

Packaging and available sizes

Unit type	Diameter (mm)			
	0.8	1.0	1.2	1.6
15 kg spool B300	X	X	X	
15 kg spool S300	X	X	X	X
250 kg Accutrak® Drum	X	X	X	
Other sizes and packaging on request				

Supra MIG®: rev. EN 22

Liability: All information in this data sheet is based on the best available knowledge, is subject to change without notice and can only be considered as suitable for general guidance **Fumes:** Consult information on Welding Safety Sheet, available upon request

Mild steel solid wire

Classification

AWS A5.18/A5.18M : ER70S-6
ISO 14341 : G 46 4 M G4Si1 / G 42 3 C G4Si1

General description

Solid wire with increased manganese for semi-automatic welding and robotic applications
Excellent feedability and very consistent welding performance
Very good weldability, tight and stable arc with extremely low spatter, low fume productions
Better bead profile and appearance
Highest productivity
Also available in AccuTrak®

Shielding gases (acc. ISO 14175)

M21 Mixed gas Ar+ >5-25% CO₂
C1 Active gas 100% CO₂

Approvals

BV	DNV	GL	TÜV
S3Y40M	IVY40MS	4Y42S	+

Chemical composition (w%) typical wire

C	Mn	Si
0.08	1.70	0.85

Mechanical properties, typical, all weld metal

	Shielding gas	Condition	Yield strength (N/mm ²)	Tensile strength (N/mm ²)	Elongation (%)	Impact ISO-V(J)	
						-20°C	-40°C
Typical values	M21	AW	500	650	26	80	80

Materials to be welded

Steel grades	Code	Type
General structural steel	EN 10025	S185, S235, S275, S355
Ship plates	ASTM A131	Grade A, B, D, AH32 t/m DH36
Cast steel	EN 10213-2	GP240R
Pipe material	EN 10208-1	L210, L240, L290, L360
	EN 10208-2	L240NB, L290NB, L360NB, L360QB, L240MB, L290MB, L360MB, L415MB, L415NB
	API 5LX	X42, X46, X52, X60
	EN 10216-1/ EN 10217-1	P235T1, P235T2, P275T1 P275T2, P355N
	EN 10028-2	P235GH, P265GH, P295GH, P355GH
Boiler & pressure vessel steel	EN 10113-2	S275, S275, S355, S420
Fine grained steel	EN 10113-3	S275M, S275ML, S355M, S355ML, S420M, S420ML, S460

Packaging and available sizes

Unit type	Diameter (mm)		
	0.8	1.0	1.2
15 kg spool B300	X	X	X
250 kg Accutrak® Drum	X	X	X
Other sizes and packaging on request			

Supra MIG Ultra®: rev. EN 22

Liability: All information in this data sheet is based on the best available knowledge, is subject to change without notice and can only be considered as suitable for general guidance **Fumes:** Consult information on Welding Safety Sheet, available upon request

Low alloy solid wire

Classification

AWS A5.28 : ER80S-G

General description

Solid wire for welding of weather resisting steels

Shielding gases (acc. ISO 14175)

M21 Mixed gas Ar+ >5 to 25% CO₂
 C1 Active gas 100% CO₂

Chemical composition (w%) typical wire / rod

C	Mn	Si	Ni	Cu
0.1	1.4	0.75	0.8	0.3

Mechanical properties, typical, all weld metal

	Shielding gas	Condition	Yield strength (N/mm ²)	Tensile strength (N/mm ²)	Elongation (%)	Impact ISO-V(J) -20°C
Typical values	M21	AW	570	620	26	80

Materials to be welded

Steel grades	Code	Type
Weather resisting steels	EN 10155	S 235 J 0 W
		S 235 J 2 W
		S 355 J 0 W
		S 355 J 2 W
		S 355 K 2 G 1 W

Packaging and available sizes

Unit type	Diameter (mm)	
	1.0	1.2
15 kg spool B300	X	X

Other sizes and packaging on request

LNM 28: rev. EN 21

Liability: All information in this data sheet is based on the best available knowledge, is subject to change without notice and can only be considered as suitable for general guidance **Fumes:** Consult information on Welding Safety Sheet, available upon request

Low alloy solid rod

Classification

AWS A5.28 : ER80S-G

General description

Solid rod for welding of weather resisting steels

Shielding gases (acc. ISO 14175)

I1 Inert gas Ar (100%)

Chemical composition (w%) typical wire / rod

C	Mn	Si	Ni	Cu
0.1	1.4	0.75	0.8	0.3

Mechanical properties, typical, all weld metal

	Shielding gas	Condition	Yield strength (N/mm ²)	Tensile strength (N/mm ²)	Elongation (%)	Impact ISO-V(J) -20°C
Typical values	I1	AW	570	620	26	80

Materials to be welded

Steel grades	Code	Type
Weather resisting steels	EN 10155	S 235 J 0 W
		S 235 J 2 W
		S 355 J 0 W
		S 355 J 2 W
		S 355 K 2 G 1 W

Packaging and available sizes

Unit type	Diameter (mm)
	2.4
5 kg tube	X
Other sizes and packaging on request	

LNT 28: rev. EN 21

Liability: All information in this data sheet is based on the best available knowledge, is subject to change without notice and can only be considered as suitable for general guidance **Fumes:** Consult information on Welding Safety Sheet, available upon request

Low alloy solid wire

Classification

AWS A5.28 : ER100S-G
 EN 12534 : G 62 4 M Mn3NiCrMo

General description

Solid wire for welding high strength steels with a yield up to 620 Mpa
 Good impact values at -40 °C

Shielding gases (acc. ISO 14175)

M21 Mixed gas Ar + >5 to 25% CO₂
 C1 Active gas 100% CO₂

Chemical composition (w%) typical wire

C	Mn	Si	Ni	Cr	Mo	Cu
0.10	1.65	0.75	0.55	0.60	0.30	0.08

Mechanical properties, typical, all weld metal

	Shielding gas	Condition	Yield strength (MPa)	Tensile strength (MPa)	Elongation (%)	Impact ISO-V(J)		
						-20 °C	-40 °C	-60 °C
Typical values	M21	AW	635	770	19	100	90	70

Materials to be welded

Steel grades	Code	Type
Pipe material	API-5LX EN 10208-2	X60, X65, X70, X80 L480, L550
Fine grained steel	EN 10137-2	S460, S500, S550, S620

Packaging and available sizes

Unit type	Diameter (mm)		
	0.8	1.0	1.2
15 kg spool B300	X	X	X

Other sizes and packaging on request

LNM MoNi: rev. EN 21

Liability: All information in this data sheet is based on the best available knowledge, is subject to change without notice and can only be considered as suitable for general guidance **Fumes:** Consult information on Welding Safety Sheet, available upon request

Low alloy solid wire

Classification

AWS A5.28 : ER100S-G
EN 12534 : G 69 4 M Mn3Ni1CrMo

General description

Solid wire for welding high strength steels with yield strength up to 690 N/mm²
Good impact values at -50°C

Shielding gases (acc. ISO 14175)

M21 Mixed gas Ar+ >5 to 25% CO₂
C1 Active gas 100% CO₂

Approvals

ABS	DB	TÜV
+	+	+

Chemical composition (w%) typical wire

C	Mn	Si	Ni	Cr	Mo	V	Cu
0.08	1.7	0.44	1.35	0.23	0.3	0.08	0.25

Mechanical properties, typical, all weld metal

	Shielding gas	Condition	Yield strength (N/mm ²)	Tensile strength (N/mm ²)	Elongation (%)	Impact ISO-V(J) -40°C
Typical values	M21	AW	710	790	20	70

Materials to be welded

Steel grades	Code	Type
Pipe material	API-5LX	X65, X70, X80
	EN 10208-2	L480, L550
Fine grained steel	EN 10137-2	S460, S500, S550, S620 S690

Packaging and available sizes

Unit type	Diameter (mm)		
	0.8	1.0	1.2
15 kg spool B300	X	X	X
250 kg Accutrak® Drum		X	X
Other sizes and packaging on request			

LNM MoNiVa: rev. EN 21

Liability: All information in this data sheet is based on the best available knowledge, is subject to change without notice and can only be considered as suitable for general guidance **Fumes:** Consult information on Welding Safety Sheet, available upon request

Low alloy solid wire

Classification

AWS A5.28 : ER120S-G
 EN 12534 : G 89 4 M Mn4Ni2CrMo

General description

Solid wire for welding high strength steels with yield strength up to 890MPa
 Good impact toughness value down to -60°C

Shielding gases (acc. ISO 14175)

M21 Mixed gas Ar+ >5 to 25% CO₂
 C1 Active gas 100% CO₂

Approvals

TÜV
 +

Chemical composition (w%) typical wire

C	Mn	Si	Ni	Cr	Mo
0.09	1.8	0.80	2.20	0.30	0.55

Mechanical properties, typical, all weld metal

	Shielding gas	Condition	Yield strength (N/mm ²)	Tensile strength (N/mm ²)	Elongation (%)	Impact ISO-V(J)	
						-40°C	-60°C
Typical values	M21	AW	>890	950	>15	70	>50

Materials to be welded

Steel grades	Code	Type
Fine grained steel	EN 10137-2	S890

Packaging and available sizes

Unit type	Diameter (mm)	
	1.0	1.2
15 kg spool B300	X	X
Other sizes and packaging on request		

LNM MoNiCr: rev. EN 02

Liability: All information in this data sheet is based on the best available knowledge, is subject to change without notice and can only be considered as suitable for general guidance **Fumes:** Consult information on Welding Safety Sheet, available upon request

Low alloy solid wire

Classification

AWS A5.28 : ER80S-Ni1
ISO 14341 : G 46 5 M G3Ni1

General description

Solid wire for welding fine grained and low alloyed nickel steels
High impact value at low temperature (-60°C)
Typical offshore applications
Stable arc and excellent feedability

Shielding gases (acc. ISO 14175)

M21 Mixed gas Ar+ >5 to 25% CO₂

Approvals

TÜV

+

Chemical composition (w%) typical wire / rod

C	Mn	Si	Ni
0.09	1.2	0.6	0.9

Mechanical properties, typical, all weld metal

	Shielding gas	Condition	Yield strength (N/mm ²)	Tensile strength (N/mm ²)	Elongation (%)	Impact ISO-V(J) -60°C
Typical values	M21	AW	480	580	31	60

Materials to be welded

Steel grades	Code	Type
General structural steel	EN 10025	S275, S355
Ship plates	ASTM A131	Grade A, B, D, E, AH32 to EH36
Cast steel	EN 10213-2	GP240R
Pipe material	EN 10208-1	L290 GA, L360GA
	EN 10208-2	L290, L360, L415
	API 5LX	X42, X46, X52, X60
	EN 10216-1	P275T1
	EN 10217-1	P275 T2, P355 N
Fine grained steel	EN 10113-2	S275, S355, S420
	EN 10113-3	S274, S355, S420

Packaging and available sizes

Unit type	Diameter (mm)		
	0.8	1.0	1.2
15 kg spool B300	X	X	X
5 kg plastic spool S200		X	
Other sizes and packaging on request			

LNM Ni1: rev. EN 22

Liability: All information in this data sheet is based on the best available knowledge, is subject to change without notice and can only be considered as suitable for general guidance **Fumes:** Consult information on Welding Safety Sheet, available upon request

Low alloy solid rod

Classification

AWS A5.28 : ER80S-Ni1
 EN 1668 : W 42 6 W3Ni1

General description

Solid rod for welding fine grained and low alloyed nickel steels
High impact value at low temperature (-60°C)
Typical offshore applications
Stable arc and excellent feedability

Shielding gases (acc. ISO 14175)

I1 Inert gas Ar (100%)

Approvals

GL	TÜV
4Y42	+

Chemical composition (w%) typical wire / rod

C	Mn	Si	Ni
0.09	1.2	0.6	0.9

Mechanical properties, typical, all weld metal

	Shielding gas	Condition	Yield strength (N/mm ²)	Tensile strength (N/mm ²)	Elongation (%)	Impact ISO-V(J) -60°C
Typical values	I1	AW	480	560	24	80

Materials to be welded

Steel grades	Code	Type
	EN 10025	S275, S355
Ship plates	ASTM A131	Grade A, B, D, E, AH32 to EH36
Cast steel	EN 10213-2	GP240R
Pipe material	EN 10208-1	L290 GA, L360GA
	EN 10208-2	L290, L360, L415
	API 5LX	X42, X46, X52, X60
	EN 10216-1	P275T1
	EN 10217-1	P275 T2, P355 N
Fine grained steel	EN 10113-2	S275, S355, S420
	EN 10113-3	S274, S355, S420

Packaging and available sizes

Unit type	Diameter (mm)		
	1.6	2.0	2.4
2 and 5 kg tube	X	X	X
Other sizes and packaging on request			

LNT Ni1: rev. EN 22

Liability: All information in this data sheet is based on the best available knowledge, is subject to change without notice and can only be considered as suitable for general guidance **Fumes:** Consult information on Welding Safety Sheet, available upon request

Low alloy solid wire

Classification

AWS A5.28 : ER80S-Ni2
ISO 14341 : G 46 6 M G2Ni2

General description

Solid wire for welding fine grained and low alloyed nickel steels
High impact value at low temperature (-70°C).
Typical offshore applications

Shielding gases (acc. ISO 14175)

I1 Inert gas Ar (100%)
M21 Mixed Gas Ar+ >5% to 25 CO₂

Approvals

TÜV

+

Chemical composition (w%) typical wire / rod

C	Mn	Si	Ni
0.1	1.1	0.6	2.5

Mechanical properties, typical, all weld metal

	Shielding gas	Condition	Yield strength (N/mm ²)	Tensile strength (N/mm ²)	Elongation (%)	Impact ISO-V(J)		
						-62°C	-70°C	-90°C
Typical values	M21	AW	490	580	24	105	50	
	M21	SR 580°C/15 h	420	535	29	150		140

Materials to be welded

Steel grades	Code	Type
General structural steel	EN 10025	S355
Pipe material	EN 10208-2	L360, L415, L445
	API 5 LX	X52, X56, X60, X65
Fine grained steel	EN 10113-2	S355, S420
	EN 10113-3	S355, S420
Low temperature steels	EN 10028-4	11 MnNi 5-3, 13 MnNi 6-3, 15 NiMn 6 (12 Ni 14 G 1, G 2)
	EN 10222-3	13 MnNi 6-3, 15 NiMn 6

Packaging and available sizes

Unit type	Diameter (mm)	
	1.0	1.2
15 kg spool B300	X	X
Other sizes and packaging on request		

LNM Ni2.5: rev. EN 22

Liability: All information in this data sheet is based on the best available knowledge, is subject to change without notice and can only be considered as suitable for general guidance **Fumes:** Consult information on Welding Safety Sheet, available upon request

Low alloy solid rod

Classification

AWS A5.28 : ER80S-Ni2
EN 1668 : W 46 6 W2Ni2

General description

Solid rod for welding fine grained and low alloyed nickel steels
High impact value at low temperature (-70°C).
Typical offshore applications

Shielding gases (acc. ISO 14175)

I1 Inert gas Ar (100%)

Approvals

TÜV
+

Chemical composition (w%) typical wire / rod

C	Mn	Si	Ni
0.1	1.1	0.6	2.5

Mechanical properties, typical, all weld metal

	Shielding gas	Condition	Yield strength (N/mm ²)	Tensile strength (N/mm ²)	Elongation (%)	Impact ISO-V(J)	
						-62°C	-90°C
Typical values	I1	AW	525	610	28	280	170
	I1	SR 580°C/15 h	500	570	30	230	180

Materials to be welded

Steel grades	Code	Type
General structural steel	EN 10025	S355
Pipe material	EN 10208-2	L360, L415, L445
	API 5 LX	X52, X56, X60, X65
Fine grained steel	EN 10113-2	S355, S420
	EN 10113-3	S355, S420
Low temperature steels	EN 10028-4	11 MnNi 5-3, 13 MnNi 6-3, 15 NiMn 6 (12 Ni 14 G 1, G 2)
	EN 10222-3	13 MnNi 6-3, 15 NiMn 6

Packaging and available sizes

Unit type	Diameter (mm)	
	2.0	2.4
2 and 5 kg tube	X	X
Other sizes and packaging on request		

LNT Ni2.5: rev. EN 22

Liability: All information in this data sheet is based on the best available knowledge, is subject to change without notice and can only be considered as suitable for general guidance **Fumes:** Consult information on Welding Safety Sheet, available upon request

Low alloy solid wire

Classification

AWS A5.28 : ER70S-A1
 ISO 14341 : G 46 3 M G2Mo

General description

Solid wire for welding creep resistant 0.5%Mo steels and fine grained steels for low temperature applications in the as welded condition with service temperatures in range -30°C to +500°C

Shielding gases (acc. ISO 14175)

M21 Mixed gas Ar+ >5 to 25% CO₂
 C1 Active gas 100% CO₂

Approvals

TÜV
 +

Chemical composition (w%) typical wire / rod

C	Mn	Si	Mo
0.12	1.2	0.6	0.5

Mechanical properties, typical, all weld metal

	Shielding gas	Condition	Yield strength (N/mm ²)	Tensile strength (N/mm ²)	Elongation (%)	Impact ISO-V(J)		
						+20°C	-20°C	-30°C
Typical values	M21	AW	540	640	22	130	90	70
		SR 620°C/1h	500	600	25	120		

Materials to be welded

Steel grades	Code	Type
Elevated temperature steel	EN 10028-2	P295 G H, P355 G H, 16 Mo 2
	EN 10222-2	17 Mo 3, 14 Mo 6
Fine grained steel	EN 10113-2	S275, S355, S420
	EN 10113-3	S275, S355, S420

Application advice

Preheating welding joint acc. EN 1011-1
 Stress relieving 580-650°C if necessary

Packaging and available sizes

Unit type	Diameter (mm)	
	1.0	1.2
15 kg spool B300	X	X

Other sizes and packaging on request

LNM 12: rev. EN 22

Liability: All information in this data sheet is based on the best available knowledge, is subject to change without notice and can only be considered as suitable for general guidance **Fumes:** Consult information on Welding Safety Sheet, available upon request

Low alloy solid rod

Classification

AWS A5.28	: ER70S-A1
ISO 21952	: W MoSi
EN 1668	: W 46 3 W2Mo

General description

Solid rod for welding creep resistant 0.5%Mo steels and fine grained steels for low temperature applications in the as welded condition with service temperatures in range -30°C to +500°C

Shielding gases (acc. ISO 14175)

I1 Inert gas Ar (100%)

Approvals

DNV	TÜV
For NV 0,3 Mo	+

Chemical composition (w%) typical wire / rod

C	Mn	Si	Mo
0.12	1.2	0.6	0.5

Mechanical properties, typical, all weld metal

	Shielding gas	Condition	Yield strength (N/mm ²)	Tensile strength (N/mm ²)	Elongation (%) ¹	Impact ISO-V(J)	
						+20°C	-30°C
Typical values	I1	AW	550	650	24	170	90
		SR 620°C/1h	520	610	23	190	120

Materials to be welded

Steel grades	Code	Type
Elevated temperature steel	EN 10028-2	P295 G H, P355 G H, 16 Mo 2
	EN 10222-2	17 Mo 3, 14 Mo 6
Fine grained steel	EN 10113-2	S275, S355, S420
	EN 10113-3	S275, S355, S420

Application advice

Preheating welding joint acc. EN 1011-1
Stress relieving 580-650°C if necessary

Packaging and available sizes

Unit type	Diameter (mm)			
	1.6	2.0	2.4	3.0
2 and 5 kg tube	X	X	X	X
Other sizes and packaging on request				

LNT 12: rev. EN 22

Liability: All information in this data sheet is based on the best available knowledge, is subject to change without notice and can only be considered as suitable for general guidance **Fumes:** Consult information on Welding Safety Sheet, available upon request

Low alloy solid wire

Classification

AWS A5.28 : ER80S-B2*
 ISO 14341 G CrMo1Si

* Nearest classification

General description

Solid wire for welding creep and hydrogen resistant Cr-Mo steels
Service temperature up to 550°C

Shielding gases (acc. ISO 14175)

M21 Mixed gas Ar+ >5 to 25% CO₂
 C1 Active gas 100% CO₂

Approvals

TÜV

+

Chemical composition (w%) typical wire / rod

C	Mn	Si	Cr	Mo
0.1	1.0	0.5	1.2	0.5

Mechanical properties, typical, all weld metal

	Shielding gas	Condition	Yield strength (N/mm ²)	Tensile strength (N/mm ²)	Elongation (%)	Impact ISO-V(J) +20°C
Typical values	M21	AW	480	590	24	125
	M21	SR 700°C/1h	530	635	23	160

Materials to be welded

Steel grades	Code	Type
Elevated temperature steel	EN 10028-2	13 CrMo4-5
	EN 10083-1	25 CrMo 4
	EN 10222-2	14 CrMo 4-5
Tool steel	DIN 17210	16 MnCr 5

Application advice

Preheating welding joint acc. EN 1011-1, 200-250°C
 Post weld heat treatment at 660-700°C

Packaging and available sizes

Unit type	Diameter (mm)			
	0.8	1.0	1.2	1.6
15 kg spool B300	X	X	X	X
Other sizes and packaging on request				

LNM 19: rev. EN 21

Liability: All information in this data sheet is based on the best available knowledge, is subject to change without notice and can only be considered as suitable for general guidance **Fumes:** Consult information on Welding Safety Sheet, available upon request

Low alloy solid rod

Classification

AWS A5.28 : ER80S-B2*
 ISO 21952 : W CrMo1Si

* Nearest classification

General description

Solid rod for welding creep and hydrogen resistant Cr-Mo steels
 Service temperature up to 550°C

Shielding gases (acc. ISO 14175)

I1 Inert gas Ar (100%)

Approvals

TÜV

+

Chemical composition (w%) typical wire / rod

C	Mn	Si	Cr	Mo
0.1	1.0	0.5	1.2	0.5

Mechanical properties, typical, all weld metal

	Shielding gas	Condition	Yield strength (N/mm ²)	Tensile strength (N/mm ²)	Elongation (%)	Impact ISO-V(J) +20°C
Typical values	I1	SR 700°C/1h	540	640	22	250

Materials to be welded

Steel grades	Code	Type
Elevated temperature steel	EN 10028-2	13 CrMo4-5
	EN 10083-1	25 CrMo 4
	EN 10222-2	14 CrMo 4-5
Tool steel	DIN 17210	16 MnCr 5

Application advice

Preheating welding joint acc. EN 1011-1, 200-250°C
 Post weld heat treatment at 660-700°C

Packaging and available sizes

Unit type	Diameter (mm)		
	1.6	2.0	2.4
2 and 5 kg tube	X	X	X
Other sizes and packaging on request			

LNT 19: rev. EN 21

Liability: All information in this data sheet is based on the best available knowledge, is subject to change without notice and can only be considered as suitable for general guidance **Fumes:** Consult information on Welding Safety Sheet, available upon request

Low alloy solid wire

Classification

AWS A5.28 : ER90S-B3*
 ISO 21952 : G CrMo2Si

* Nearest classification

General description

Solid wire for welding creep and hydrogen resistant Cr-Mo steels
 Service temperature up to 600°C

Shielding gases (acc. ISO 14175)

M21 Mixed gas Ar+ >5 to 25% CO₂
 C1 Active gas 100% CO₂

Chemical composition (w%) typical wire / rod

C	Mn	Si	Cr	Mo
0.09	1.0	0.6	2.5	0.9

Mechanical properties, typical, all weld metal

	Shielding gas	Condition	Yield strength (N/mm ²)	Tensile strength (N/mm ²)	Elongation (%)	Impact ISO-V(J) +20°C
Typical values	M21	SR 700°C/1h	560	680	20	100

Materials to be welded

Steel grades	Code	Type
Creep and hydrogen resistant steels	EN 10028-2	10CrMo 9-10
	EN 10222-2	12CrMo 9-10

Application advice

Preheating welding joint acc. EN 1011-1, 200-250°C
 Post weld heat treatment at 690-740°C

Packaging and available sizes

Unit type	Diameter (mm)		
	0.8	1.0	1.2
15 kg spool B300	X	X	X

Other sizes and packaging on request

LNM 20: rev. EN 21

Liability: All information in this data sheet is based on the best available knowledge, is subject to change without notice and can only be considered as suitable for general guidance **Fumes:** Consult information on Welding Safety Sheet, available upon request

Low alloy solid rod

Classification

AWS A5.28 : ER90S-B3*
 ISO 21952 : W CrMo2Si

* Nearest classification

General description

Solid rod for welding creep and hydrogen resistant Cr-Mo steels
 Service temperature up to 600°C

Shielding gases (acc. ISO 14175)

I1 Inert gas Ar (100%)

Chemical composition (w%) typical wire / rod

C	Mn	Si	Cr	Mo
0.09	1.0	0.6	2.5	0.9

Mechanical properties, typical, all weld metal

	Shielding gas	Condition	Yield strength (N/mm ²)	Tensile strength (N/mm ²)	Elongation (%)	Impact ISO-V(J) +20°C
Typical values	I1	SR 700°C/1h	560	640	22	140

Materials to be welded

Steel grades	Code	Type
Creep and hydrogen resistant steels	EN 10028-2	10CrMo 9-10
	EN 10222-2	12CrMo 9-10

Application advice

Preheating welding joint acc. EN 1011-1, 200-250°C
 Post weld heat treatment at 690-740°C

Packaging and available sizes

Unit type	Diameter (mm)		
	2.0	2.4	3.0
2 and 5 kg tube	X	X	X
Other sizes and packaging on request			

LNT 20: rev. EN 21

Liability: All information in this data sheet is based on the best available knowledge, is subject to change without notice and can only be considered as suitable for general guidance **Fumes:** Consult information on Welding Safety Sheet, available upon request

Low alloy solid rod

Classification

AWS A5.28 : ER80S-B6
 ISO 21952 : W CrMo5Si

General description

Solid rod for welding of creep and hydrogen resistant 5%Cr, 0.5%Mo steels
 Service temperature up to 550°C

Shielding gases (acc. ISO 14175)

I1 Inert gas Ar (100%)

Chemical composition (w%), Typical, rod

C	Mn	Si	Cr	Mo
0.08	0.5	0.5	5.8	0.6

Mechanical properties, typical, all weld metal

	Shielding gas	Condition	Yield strength (N/mm ²)	Tensile strength (N/mm ²)	Elongation (%)	Impact ISO-V(J) +20°C
Typical values	I1	AW	480	625	18	70
	I1	SR 750°C/1h	560	650	20	80

Materials to be welded

Steel grades	Code	Type
Creep and hydrogen resistant steels	SEW 028	12CrMo 19-5 and corresponding steels
	ASTM A182	F5
	ASTM A213	T5
	ASTM A335	P5
	ASTM A336	F5
	ASTM A369	FP5
	ASTM A387	Grade 5

Application advice

Recommended preheat and interpass temperature 200-300°C
 Recommended post weld heat treatment at range 675-750°C (time depending on material thickness)

Packaging and available sizes

Unit type	Diameter (mm)		
	1.6	2.0	2.4
2 and 5 kg tube	X	X	X
Other sizes and packaging on request			

LNT 502: rev. EN 21

Liability: All information in this data sheet is based on the best available knowledge, is subject to change without notice and can only be considered as suitable for general guidance **Fumes:** Consult information on Welding Safety Sheet, available upon request

Low alloy solid rod

Classification

AWS A5.28 : ER90S-B9
 ISO 21952 : W CrMo91

General description

Solid rod for welding of creep and hydrogen resistant 9% Cr, 1% Mo steels
 Service temperature up to 650°C

Shielding gases (acc. ISO 14175)

I1 Inert gas Ar (100%)

Chemical composition (w%), Typical, rod

C	Mn	Si	Cr	Mo	Ni	Nb	V	N
0.07	0.7	0.4	8.7	0.9	0.7	0.04	0.2	0.05

Mechanical properties, typical, all weld metal

	Shielding gas	Condition	Yield strength (N/mm ²)	Tensile strength (N/mm ²)	Elongation (%)	Impact ISO-V(J) +20°C
Typical values	I1	SR 750°C/3h	500	700	18	70

Materials to be welded

Steel grades	Code	Type	Code	Type
Creep and hydrogen resistant steels	EN 10222-2	X10CrMo V9-1		
	ASTM	A199 Grade T91	ASME	SA 182-F91
		A200 Grade T91		
		A213 Grade T91		SA 213-T91
		A335 Grade P91		SA 335-P91
		A336 Grade F91		SA 336-F91
				SA 369-FP91
				SA 387-Grade 91
		SA 387-Grade 91		

Packaging and available sizes

Unit type	Diameter (mm)	
	2.0	2.4
2 and 5 kg tube	X	X
Other sizes and packaging on request		

LNT 9Cr(P91): rev. EN 21

Liability: All information in this data sheet is based on the best available knowledge, is subject to change without notice and can only be considered as suitable for general guidance **Fumes:** Consult information on Welding Safety Sheet, available upon request

Stainless steel solid wire

Classification

AWS A5.9	: ER308LSi
ISO 14343-A	: G 19 9 LSi

General description

Solid wire with extra low carbon for welding austenitic CrNi-steels
With increased silicon for improved wettability

Shielding gases (acc. ISO 14175)

M12	Mixed gas Ar+ >0-5% O ₂
M13	Mixed gas Ar+ >0-3% CO ₂

Approvals

ABS	BV	DNV	GL	LR	TÜV
ER308LSi	308L	308L	4306S	304L S	+

Chemical composition (w%) typical wire / rod

C	Mn	Si	Cr	Ni	Mo
0.010	1.7	0.8	20	10	0.2

Mechanical properties, typical, all weld metal

	Shielding gas	Condition	0.2% Proof strength (N/mm ²)	Tensile strength (N/mm ²)	Elongation (%)	Impact ISO-V(J)	
						-20°C	-196°C
Typical values	M12	AW	420	570	45	85	55

Materials to be welded

Steel grades	EN 10088-1/-2	EN 102 13-4	W.Nr.	ASTM/ACI A240/A312/A351	UNS
Extra low carbon (C < 0.03%)					
	X2CrNi19 11		1.4306	(TP)304 L	S30403
				CF-3	J92500
	X2CrNiN18 10		1.4311	(TP)304LN	S30453
				302, 304	S30400
Medium carbon (C > 0.03%)					
	X4CrNi18 10		1.4301	(TP)304	S30409
		GX5CrNi19 10	1.4308	CF-8	J92600
Ti-,Nb stabilized					
	X6CrNiTi18 10		1.4541	(TP)321	S32100
				(TP)321H	S32109
	X6 CrNiNb 18 10		1.4550	(TP)347	S34700
		GX5 CrNiNb 19 10	1.4552	CF-8C	J92710

Packaging and available sizes

Unit type	Diameter (mm)			
	0.8	1.0	1.2	1.6
5 kg plastic spool S200	X			
15 kg spool BS300	X	X	X	X
Other sizes and packaging on request				

LNM 304LSi: rev. EN 21

Liability: All information in this data sheet is based on the best available knowledge, is subject to change without notice and can only be considered as suitable for general guidance **Fumes:** Consult information on Welding Safety Sheet, available upon request

Stainless steel solid rod

Classification

AWS A5.9	: ER308LSi
ISO 14343-A	: W 19 9 LSi

General description

Solid rod with extra low carbon for welding austenitic CrNi-steels
With increased silicon for improved wettability

Shielding gases (acc. ISO 14175)

I1	Inert gas Ar (100%)
----	---------------------

Approvals

ABS	DNV	LR	TÜV
ER 308LSi	308L	+	+

Chemical composition (w%) typical wire / rod

C	Mn	Si	Cr	Ni	Mo
0.010	1.7	0.8	20	10	0.2

Mechanical properties, typical, all weld metal

	Shielding gas	Condition	0.2% Proof strength (N/mm ²)	Tensile strength (N/mm ²)	Elongation (%)	Impact ISO-V(J)	
						+20°C	-196°C
Typical values	I1	AW	390	590	36	120	50

Materials to be welded

Steel grades	EN 10088-1/-2	EN 102 13-4	W.Nr.	ASTM/ACI A240/A312/A351	UNS
Extra low carbon (C < 0.03%)					
	X2CrNi19 11		1.4306	(TP)304 L CF-3	S30403 J92500
	X2CrNiN18 10		1.4311	(TP)304LN 302, 304	S30453 S30400
Medium carbon (C > 0.03%)					
	X4CrNi18 10		1.4301	(TP)304	S30409
		GX5CrNi19 10	1.4308	CF-8	J92600
Ti-,Nb stabilized					
	X6CrNiTi18 10		1.4541	(TP)321 (TP)321H	S32100 S32109
	X6 CrNiNb 18 10		1.4550	(TP)347	S34700
		GX5 CrNiNb 19 10	1.4552	CF-8C	J92710

Packaging and available sizes

Unit type	Diameter (mm)					
	1.0	1.2	1.6	2.0	2.4	3.2
2 and 10 kg tube	X	X	X	X	X	X

Other sizes and packaging on request

LNT 304LSi: rev. EN 21

Liability: All information in this data sheet is based on the best available knowledge, is subject to change without notice and can only be considered as suitable for general guidance **Fumes:** Consult information on Welding Safety Sheet, available upon request

Stainless steel solid wire

Classification

AWS A5.9 : ER308L
ISO 14343-A : G 19 9 L

General description

Solid wire with extra low carbon for welding austenitic CrNi-steels
High resistance to intergranular corrosion and oxidizing environments

Shielding gases (acc. ISO 14175)

M12 Mixed gas Ar+ >0-5% CO₂
M13 Mixed gas Ar+ >0-3% O₂

Chemical composition (w%) typical wire / rod

C	Mn	Si	Cr	Ni	Mo
0.010	1.6	0.5	20	10	0.2

Mechanical properties, typical, all weld metal

	Shielding gas	Condition	0.2% Proof strength (N/mm ²)	Tensile strength (N/mm ²)	Elongation (%)
Typical values	M12	AW	390	590	35

Materials to be welded

Steel grades	EN 10088-11-2	EN 102 13-4	W.Nr.	ASTM/ACI A240/A312/A351	UNS
Extra low carbon (C < 0.03%)					
	X2CrNi19 11		1.4306	(TP)304 L CF-3	S30403 J92500
	X2CrNi18 10		1.4311	(TP)304LN 302, 304	S30453 S30400
Medium carbon (C > 0.03%)					
	X4CrNi18 10		1.4301	(TP)304	S30409
		GX5CrNi19 10	1.4308	CF-8	J92600
Ti-,Nb stabilized					
	X6CrNiTi18 10		1.4541	(TP)321 (TP)321H	S32100/ S32109
	X6 CrNiNb 18 10		1.4550	(TP)347	S34700
		GX5 CrNiNb 19 10	1.4552	CF-8C	J92710

Packaging and available sizes

Unit type	Diameter (mm)
	1.0
15 kg spool BS300	X
Other sizes and packaging on request	

LNM 304L: rev. EN 21

Liability: All information in this data sheet is based on the best available knowledge, is subject to change without notice and can only be considered as suitable for general guidance **Fumes:** Consult information on Welding Safety Sheet, available upon request

Stainless steel solid rod

Classification

AWS A5.9 : ER308L
ISO 14343-A : W 19 9 L

General description

Solid rod with extra low carbon for welding austenitic CrNi-steels
High resistance to intergranular corrosion and oxidizing environments

Shielding gases (acc. ISO 14175)

I1 Inert gas Ar (100%)

Approvals

TÜV

+

Chemical composition (w%) typical wire / rod

C	Mn	Si	Cr	Ni	Mo
0.010	1.6	0.5	20	10	0.2

Mechanical properties, typical, all weld metal

	Shielding gas	Condition	0.2% Proof strength (N/mm ²)	Tensile strength (N/mm ²)	Elongation (%)	Impact ISO-V(J)	
						+20°C	-196°C
Typical values	I1	AW	390	590	35	120	50

Materials to be welded

Steel grades	EN 10088-11-2	EN 102 13-4	W.Nr.	ASTM/ACI A240/A312/A351	UNS
Extra low carbon (C < 0.03%)					
	X2CrNi19 11		1.4306	(TP)304 L CF-3	S30403 J92500
	X2CrNi18 10		1.4311	(TP)304LN 302, 304	S30453 S30400
Medium carbon (C > 0.03%)					
	X4CrNi18 10		1.4301	(TP)304	S30409
		GX5CrNi19 10	1.4308	CF-8	J92600
Ti-,Nb stabilized					
	X6CrNiTi18 10		1.4541	(TP)321 (TP)321H	S32100/ S32109
	X6 CrNiNb 18 10		1.4550	(TP)347	S34700
		GX5 CrNiNb 19 10	1.4552	CF-8C	J92710

Packaging and available sizes

Unit type	Diameter (mm)			
	1.6	2.0	2.4	3.2
5 and 10 kg tube	X	X	X	X
Other sizes and packaging on request				

LNT 304L: rev. EN 21

Liability: All information in this data sheet is based on the best available knowledge, is subject to change without notice and can only be considered as suitable for general guidance **Fumes:** Consult information on Welding Safety Sheet, available upon request

Stainless steel solid wire

Classification

AWS A5.9 : ER347Si
 ISO 14343-A : G 19 9 NbSi

General description

Solid wire for welding Ti or Nb stabilized stainless CrNi-steels
High resistance to intergranular corrosion and oxidizing environments

Shielding gases (acc. ISO 14175)

M12 Mixed gas Ar+ >0-5% CO₂ Inert gas Ar (100%)
 M13 Mixed gas Ar+ >0-3% O₂

Approvals

LR	TÜV
+	+

Chemical composition (w%) typical wire / rod

C	Mn	Si	Cr	Ni	Mo	Nb
0.04	1.3	0.9	19.2	9.9	0.30	0.6

Mechanical properties, typical, all weld metal

	Shielding gas	Condition	0.2% Proof strength (N/mm ²)	Tensile strength (N/mm ²)	Elongation (%)	Impact ISO-V(J) +20°C
Typical values	M12	AW	460	650	35	100

Materials to be welded

Steel grades	EN 10088-11-2	EN 102 13-4	W.Nr.	ASTM/ACI A240/A312/A351	UNS
Ti,Nb stabilized	X6CrNiTi 18-10		1.4541	(TP)321 (TP)321H	S32100 S32109
	X6 CrNiNb 18-10		1.4550	(TP)347 (TP)347h	S34700 S34709
		GX5 CrNiNb 19-10	1.4552	CF-8C	J92710
Non stabilized				302	
	X4 CrNi 18-10		1.4301	(TP)304	S30400
	X2 CrNi 19-11		1.4306	(TP)304L	S30403
		GX5 CrNi 19-10	1.4308	CF-8	J92600
			1.4312	(TP)304H	S30409

Packaging and available sizes

Unit type	Diameter (mm)		
	0.8	1.0	1.2
15 kg spool BS300	X	X	X
Other sizes and packaging on request			

LNM 347Si: rev. EN 21

Liability: All information in this data sheet is based on the best available knowledge, is subject to change without notice and can only be considered as suitable for general guidance **Fumes:** Consult information on Welding Safety Sheet, available upon request

Stainless steel solid rod

Classification

AWS A5.9 : ER347Si
 ISO 14343-A : W 19 9 NbSi

General description

Solid rod for welding Ti or Nb stabilized stainless CrNi-steels
High resistance to intergranular corrosion and oxidizing environments

Shielding gases (acc. ISO 14175)

I1 Inert gas Ar (100%)

Approvals

TÜV
 +

Chemical composition (w%) typical wire / rod

C	Mn	Si	Cr	Ni	Mo	Nb
0.04	1.3	0.9	19.2	9.9	0.30	0.6

Mechanical properties, typical, all weld metal

	Shielding gas	Condition	0.2% Proof strength (N/mm ²)	Tensile strength (N/mm ²)	Elongation (%)	Impact ISO-V(J) +20°C -196°C
Typical values	I1	AW	400	650	35	80 45

Materials to be welded

Steel grades	EN 10088-11-2	EN 102 13-4	W.Nr.	ASTM/ACI A240/A312/A351	UNS
Ti,Nb stabilized	X6CrNiTi 18-10		1.4541	(TP)321 (TP)321H	S32100 S32109
	X6 CrNiNb 18-10		1.4550	(TP)347 (TP)347h	S34700 S34709
		GX5 CrNiNb 19-10	1.4552	CF-8C	J92710
Non stabilized	X4 CrNi 18-10		1.4301	302 (TP)304	S30400
	X2 CrNi 19-11		1.4306	(TP)304L	S30403
		GX5 CrNi 19-10	1.4308	CF-8	J92600
			1.4312	(TP)304H	S30409

Packaging and available sizes

Unit type	Diameter (mm)			
	1.6	2.0	2.4	3.2
2 and 10 kg tube	X	X	X	X
Other sizes and packaging on request				

LNT 347Si: rev. EN 21

Liability: All information in this data sheet is based on the best available knowledge, is subject to change without notice and can only be considered as suitable for general guidance **Fumes:** Consult information on Welding Safety Sheet, available upon request

Stainless steel solid rod

Classification

AWS A5.9 : ER316L
ISO 14343-A : W 19 12 3 L

General description

Solid rod with extra low carbon for welding austenitic CrNiMo-steels
High resistance to intergranular corrosion and general corrosion conditions

Shielding gases (acc. ISO 14175)

I1 Inert gas Ar (100%)

Chemical composition (w%), Typical, rod

C	Mn	Si	Cr	Ni	Mo
0.010	1.5	0.5	18.5	12	2.7

Mechanical properties, typical, all weld metal

Shielding gas	Condition	0.2% Proof strength (N/mm ²)	Tensile strength (N/mm ²)	Elongation (%)	Impact ISO-V(J)			
					+20°C	-120°C	-196°C	
Typical values	I1	AW	400	620	35	100	80	40

Materials to be welded

Steel grades	EN 10088-11-2	EN 102 13-4	W.Nr.	ASTM/ACI A240/A312/A351	UNS
Extra low carbon (C < 0.03%)					
	X2CrNiMo17 12 2		1.4404	(TP)316L CF-3M	S31603 J92800
	X2CrNiMo18 14 3		1.4435	(TP)316L	S31603
	X2CrNiMoN 17 11 2		1.4406	(TP)316LN	S31653
	X2CrNiMoN 17 13 3		1.4429		
Medium carbon (C > 0.03%)					
	X4 CrNiMo 17 12 2		1.4401	(TP)316	S31600
	X4 CrNiMo 17 13 3		1.4436		
		GX5 CrNiMo 19-11	1.4408	CF 8M	J92900
Ti-,Nb stabilized					
	X6 CrNiMoTi 17 12 2		1.4571	316 Ti	S31635
	X6 CrNiMoNb 17 12 2		1.4580	316 Cb	S31640
	X6 CrNiNb 18-10		1.4550	(TP)347	S34700
		GX5 CrNiNb 19-10	1.4552	CF-8C	J92710

Packaging and available sizes

Unit type	Diameter (mm)			
	1.6	2.0	2.4	3.2
10 kg tube	X	X	X	X

Other sizes and packaging on request

LNT 316L: rev. EN 21

Liability: All information in this data sheet is based on the best available knowledge, is subject to change without notice and can only be considered as suitable for general guidance **Fumes:** Consult information on Welding Safety Sheet, available upon request

Stainless steel solid wire

Classification

AWS A5.9	: ER316LSi
ISO 14343-A	: G 19 12 3 LSi

General description

Solid wire with extra low carbon for welding stainless CrNiMo-steels
See also LNM 316L, high silicon for improved wettability

Shielding gases (acc. ISO 14175)

M12	Mixed gas Ar+ >0-5% CO ₂
M13	Mixed gas Ar+ >0-3% O ₂

Approvals

ABS	BV	DNV	GL	LR	TÜV
ER316LSi	316L	316L	4571S	316L S	+

Chemical composition (w%) typical wire / rod

C	Mn	Si	Cr	Ni	Mo
0.010	1.6	0.8	18.5	12.2	2.5

Mechanical properties, typical, all weld metal

	Shielding gas	Condition	0.2% Proof strength (N/mm ²)	Tensile strength (N/mm ²)	Elongation (%)	Impact ISO-V(J)		
						+20°C	-120°C	-196°C
Typical values	M12	AW	420	620	39	150	70	45

Materials to be welded

Steel grades	EN 10088-11-2	EN 102 13-4	W.Nr.	ASTM/ACI A240/A312/A351	UNS
Extra low carbon (C < 0.03%)					
	X2CrNiMo17 12 2		1.4404	(TP)316L CF-3M	S31603 J92800
	X2CrNiMo18 14 3		1.4435	(TP)316L	S31603
	X2CrNiMoN 17 11 2		1.4406	(TP)316LN	S31653
	X2CrNiMoN 17 13 3		1.4429		
Medium carbon (C > 0.03%)					
	X4 CrNiMo 17 12 2		1.4401	(TP)316	S31600
	X4 CrNiMo 17 13 3		1.4436		
	GX5 CrNiMo 19-11		1.4408	CF 8M	J92900
Ti-,Nb stabilized					
	X6 CrNiMoTi 17 12 2		1.4571	316 Ti	S31635
	X6 CrNiMoNb 17 12 2		1.4580	316 Cb	S31640
	X6 CrNiNb 18-10		1.4550	(TP)347	S34700
		GX5 CrNiNb 19-10	1.4552	CF-8C	J92710

Packaging and available sizes

Unit type	Diameter (mm)			
	0.8	1.0	1.2	1.6
5 kg plastic spool S200	X	X		
15 kg spool BS300	X	X	X	X
Other sizes and packaging on request				

LNM 316LSi: rev. EN 21

Liability: All information in this data sheet is based on the best available knowledge, is subject to change without notice and can only be considered as suitable for general guidance **Fumes:** Consult information on Welding Safety Sheet, available upon request

Stainless steel solid rod

Classification

AWS A5.9	: ER316LSi
ISO 14343-A	: W 19 12 3 Lsi

General description

Solid rod with extra low carbon for welding stainless CrNiMo-steels
See also LNT 316L, high silicon for improved wettability

Shielding gases (acc. ISO 14175)

I1	Inert gas Ar (100%)
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Approvals

ABS	DNV	LR	TÜV
ER 316LSi	316L MS	+	+

Chemical composition (w%) typical wire / rod

C	Mn	Si	Cr	Ni	Mo
0.010	1.6	0.8	18.5	12.2	2.5

Mechanical properties, typical, all weld metal

	Shielding gas	Condition	0.2% Proof strength (N/mm ²)	Tensile strength (N/mm ²)	Elongation (%)	Impact ISO-V(J)	
						+20°C	-196°C
Typical values	I1	AW	400	620	35	100	40

Materials to be welded

Steel grades	EN 10088-11-2	EN 102 13-4	W.Nr.	ASTM/ACI A240/A312/A351	UNS
Extra low carbon (C < 0.03%)					
	X2CrNiMo17 12 2		1.4404	(TP)316L CF-3M	S31603 J92800
	X2CrNiMo18 14 3		1.4435	(TP)316L	S31603
	X2CrNiMoN 17 11 2		1.4406	(TP)316LN	S31653
	X2CrNiMoN 17 13 3		1.4429		
Medium carbon (C > 0.03%)					
	X4 CrNiMo 17 12 2		1.4401	(TP)316	S31600
	X4 CrNiMo 17 13 3		1.4436		
	GX5 CrNiMo 19-11		1.4408	CF 8M	J92900
Ti-,Nb stabilized					
	X6 CrNiMoTi 17 12 2		1.4571	316 Ti	S31635
	X6 CrNiMoNb 17 12 2		1.4580	316 Cb	S31640
	X6 CrNiNb 18-10		1.4550	(TP)347	S34700
		GX5 CrNiNb 19-10	1.4552	CF-8C	J92710

Packaging and available sizes

Unit type	Diameter (mm)					
	1.0	1.2	1.6	2.0	2.4	3.2
2,5 and 10 kg tube	X	X	X	X	X	X
Other sizes and packaging on request						

LNT 316LSi: rev. EN 21

Liability: All information in this data sheet is based on the best available knowledge, is subject to change without notice and can only be considered as suitable for general guidance **Fumes:** Consult information on Welding Safety Sheet, available upon request

Stainless steel solid wire

Classification

AWS A5.9 : ER318*
ISO 14343-A : G 19 12 3 NbSi

* Nearest classification

General description

Solid wire for welding Ti or Nb stabilized stainless CrNiMo-steels
High resistance to intergranular corrosion and general corrosion conditions

Shielding gases (acc. ISO 14175)

M12 Mixed gas Ar+ >0-5% CO₂
M13 Mixed gas Ar+ >0-3% O₂

Approvals

TÜV
+

Chemical composition (w%) typical wire / rod

C	Mn	Si	Cr	Ni	Mo	Nb
0.04	1.4	0.85	18.9	11.7	2.7	0.5

Mechanical properties, typical, all weld metal

	Shielding gas	Condition	0.2% Proof strength (N/mm ²)	Tensile strength (N/mm ²)	Elongation (%)	Impact ISO-V(J) +20°C
Typical values	M12	AW	410	630	35	100

Materials to be welded

Steel grades	EN 10088-11-2	EN102 13-4	W.Nr.	ASTM/ACI A240/A312/A35	UNS
Extra low carbon (C < 0.03%)	X2 CrNiMo 17-12-2		1.4404	(TP)316L CF-3M	S31603 J92800
	X2 CrNiMo 18-14-3		1.4435	(TP)316L	S31603
	X2 CrNiMoN 17-11-2		1.4406	(TP)316LN	S31653
	X2 CrNiMoN 17-13-3		1.4429		
Medium carbon (C > 0.03%)	X4 CrNiMo 17-12-2		1.4401	(TP)316	S31600
	X4 CrNiMo 17-13-3		1.4436		
		GX5 CrNiMo19-11	1.4408	CF 8M	J92900
Ti,-Nb stabilized	X6 CrNiMoTi 17-12-2		1.4571	316Ti	S31635
	X6 CrNiMoNb 17-12-2		1.4580	316Cb	S31640
	X6 CrNiNb 18-10		1.4550	(TP)347	S34700
		GX5 CrNiNb 19-10	1.4552	Cf-8C	J92710

Packaging and available sizes

Unit type	Diameter (mm)			
	0.8	1.0	1.2	1.6
15 kg spool BS300	X	X	X	X

Other sizes and packaging on request

LNM 318Si: rev. EN 21

Liability: All information in this data sheet is based on the best available knowledge, is subject to change without notice and can only be considered as suitable for general guidance **Fumes:** Consult information on Welding Safety Sheet, available upon request

Stainless steel solid rod

Classification

AWS A5.9 : ER318*
ISO 14343-A : W 19 12 3 NbSi

* Nearest classification

General description

Solid rod for welding Ti or Nb stabilized stainless CrNiMo-steels
High resistance to intergranular corrosion and general corrosion conditions

Shielding gases (acc. ISO 14175)

I1 Inert gas Ar (100%)

Approvals

TÜV

+

Chemical composition (w%) typical wire / rod

C	Mn	Si	Cr	Ni	Mo	Nb
0.04	1.4	0.85	18.9	11.7	2.7	0.5

Mechanical properties, typical, all weld metal

	Shielding gas	Condition	0.2% Proof strength (N/mm ²)	Tensile strength (N/mm ²)	Elongation (%)	Impact ISO-V(J)	
						+20°C	-196°C
Typical values	I1	AW	420	680	35	70	45

Materials to be welded

Steel grades	EN 10088-11-2	EN102 13-4	W.Nr.	ASTM/ACI A240/A312/A35	UNS
Extra low carbon (C < 0.03%)					
	X2 CrNiMo 17-12-2		1.4404	(TP)316L CF-3M	S31603 J92800
	X2 CrNiMo 18-14-3		1.4435	(TP)316L	S31603
	X2 CrNiMoN 17-11-2		1.4406	(TP)316LN	S31653
	X2 CrNiMoN 17-13-3		1.4429		
Medium carbon (C > 0.03%)					
	X4 CrNiMo 17-12-2		1.4401	(TP)316	S31600
	X4 CrNiMo 17-13-3		1.4436		
		GX5 CrNiMo19-11	1.4408	CF 8M	J92900
Ti-,Nb stabilized					
	X6 CrNiMoTi 17-12-2		1.4571	316Ti	S31635
	X6 CrNiMoNb 17-12-2		1.4580	316Cb	S31640
	X6 CrNiNb 18-10		1.4550	(TP)347	S34700
		GX5 CrNiNb 19-10	1.4552	Cf-8C	J92710

Packaging and available sizes

Unit type	Diameter (mm)				
	1.2	1.6	2.0	2.4	3.2
2 and 10 kg tube	X	X	X	X	X
Other sizes and packaging on request					

LNT 318Si: rev. EN 21

Liability: All information in this data sheet is based on the best available knowledge, is subject to change without notice and can only be considered as suitable for general guidance **Fumes:** Consult information on Welding Safety Sheet, available upon request

Stainless steel solid wire

Classification

ISO 14343-A : G 18 16 5 N L*

* Nearest classification

General description

Solid wire for welding AISI 317L, 317LN or equivalent stainless steels

For welding 316L if increased molybdenum content is important

High resistance to pitting, intergranular and stress corrosion

Fully austenitic weld metal

Shielding gases (acc. ISO 14175)

M12 Mixed gas Ar+ >0-5% CO₂
 M13 Mixed gas Ar+ >0-3 O₂

Chemical composition (w%) typical wire / rod

C	Mn	Si	Cr	Ni	Mo	N
0.02	7	0.7	19.1	16.9	4.6	0.15

Mechanical properties, typical, all weld metal

	Shielding gas	Condition	0.2% Proof strength (N/mm ²)	Tensile strength (N/mm ²)	Elongation (%)	Impact ISO-V(J)		
						+20°C	-120°C	-196°C
Typical values	M12	AW	410	620	30	120	80	50

Materials to be welded

Steel grades	EN10088-1/-2	EN 102 13-4	W.Nr.	ASTM/ACI	UNS
Fully austenitic CrNiMo corrosion resistant steels					
X2 CrNiMoN 17-11-2			1.4406	(TP)316LN	S31653
X2 CrNiMoN 17-13-3			1.4429	(TP)316LN	S31653
X2 CrNiMo 18-14-3			1.4435	(TP)316L	S31603
X2 CrNiMo 18-15-4			1.4438	317L	S31725
X2 CrNiMoN 17-13-5			1.4439	317LN	S31726
G-X2 CrNiMoN 17-13-4		GX2 CrNiMo 17-13-4	1.4446		
G-X6 CrNiMo 17-13		GX6 CrNiMo 17-13	1.4448		

Packaging and available sizes

Unit type	Diameter (mm)		
	0.8	1.0	1.2
15 kg spool BS300	X	X	X
Other sizes and packaging on request			

LNM 4439Mn: rev. EN 21

Liability: All information in this data sheet is based on the best available knowledge, is subject to change without notice and can only be considered as suitable for general guidance **Fumes:** Consult information on Welding Safety Sheet, available upon request

Stainless steel solid rod

Classification

ISO 14343-A : W 18 16 5 N L*

* Nearest classification

General description

Solid rod for welding AISI 317L, 317LN or equivalent stainless steels

For welding 316L if increased molybdenum content is important

High resistance to pitting, intergranular and stress corrosion

Fully austenitic weld metal

Shielding gases (acc. ISO 14175)

I1 Inert gas Ar (100%)

Chemical composition (w%) typical wire / rod

C	Mn	Si	Cr	Ni	Mo	N
0.02	7	0.7	19.1	16.9	4.6	0.15

Mechanical properties, typical, all weld metal

	Shielding gas	Condition	0.2% Proof strength (N/mm ²)	Tensile strength (N/mm ²)	Elongation (%)	Impact ISO-V(J) -196°C
Typical values	I1	AW	440	650	35	80

Materials to be welded

Steel grades	EN10088-1/-2	EN 102 13-4	W.Nr.	ASTM/ACI	UNS
Fully austenitic CrNiMo corrosion resistant steels					
	X2 CrNiMoN 17-11-2		1.4406	(TP)316LN	S31653
	X2 CrNiMoN 17-13-3		1.4429	(TP)316LN	S31653
	X2 CrNiMo 18-14-3		1.4435	(TP)316L	S31603
	X2 CrNiMo 18-15-4		1.4438	317L	S31725
	X2 CrNiMoN 17-13-5		1.4439	317LN	S31726
	G-X2 CrNiMoN 17-13-4	GX2 CrNiMo 17-13-4	1.4446		
	G-X6 CrNiMo 17-13	GX6 CrNiMo 17-13	1.4448		

Packaging and available sizes

Unit type	Diameter (mm)			
	1.6	2.0	2.4	3.2
2 and 5 kg tube	X	X	X	X

Other sizes and packaging on request

LNT 4439Mn: rev. EN 21

Liability: All information in this data sheet is based on the best available knowledge, is subject to change without notice and can only be considered as suitable for general guidance **Fumes:** Consult information on Welding Safety Sheet, available upon request

Stainless steel solid wire

Classification

AWS A5.9 : ER316LMn
ISO 14343-A : G 20 16 3 Mn L

General description

Solid wire for welding fully austenitic CrNiMnMo stainless steels and low temperature steels
Not susceptible for hot cracking

Shielding gases (acc. ISO 14175)

M12 Mixed gas Ar+ >0-5% CO₂
M13 Mixed gas Ar+ >0-3% O₂

Approvals

TÜV
+

Chemical composition (w%) typical wire / rod

C	Mn	Si	Cr	Ni	Mo	N
0.015	7	0.35	20	16	2.8	0.15

Mechanical properties, typical, all weld metal

	Shielding gas	Condition	0.2% Proof strength (N/mm ²)	Tensile strength (N/mm ²)	Elongation (%)	Impact ISO-V(J) -196°C
Typical values	M12	AW	400	600	30	50

Materials to be welded

Steel grades	Code		W.Nr.	ASTM/ACI	UNS
N-alloyed stainless CrNi-and CrNiMo steels	EN 10088-1/-2	X2 CrNiN 18-10	1.4311	(TP)304LN	S30453
		X2 CrNiMoN 17-11-2	1.4406	(TP)316LN	S31653
		X2 CrNiMoN 17-13-3	1.4429		
		X2 CrNiMoN 17-13-5	1.4439	317LN	S31726
Austenitic anti-magnetic steels	SEW 390	X2 CrNiMoN 22-15	1.3951		
		X2 CrNiMoN18-14-3	1.3952		
		X2 CrNiMo 18-15	1.3953		
		X8 CrMnNi 18-8	1.3965		
Low temperature steels	SEW 685	GX6 CrNi 18-10	1.6902		
		GX5 CrNiNb 18-10	1.6905		
	EN 10028-4	12 Ni 14	1.5637		
		X12 Ni 5	1.5680		

Packaging and available sizes

Unit type	Diameter (mm)	
	1.2	1.6
15 kg spool BS300	X	X
Other sizes and packaging on request		

LNM 4455: rev. EN 21

Liability: All information in this data sheet is based on the best available knowledge, is subject to change without notice and can only be considered as suitable for general guidance **Fumes:** Consult information on Welding Safety Sheet, available upon request

Stainless steel solid rod

Classification

AWS A5.9 : ER316LMn
 ISO 14343-A : W 20 16 3 Mn L

General description

Solid rod for welding fully austenitic CrNiMnMo stainless steels and low temperature steels
 Not susceptible for hot cracking

Shielding gases (acc. ISO 14175)

I1 Inert gas Ar (100%)

Approvals

TÜV

+

Chemical composition (w%) typical wire / rod

C	Mn	Si	Cr	Ni	Mo	N
0.015	7	0.35	20	16	2.8	0.15

Mechanical properties, typical, all weld metal

	Shielding gas	Condition	0.2% Proof strength (N/mm ²)	Tensile strength (N/mm ²)	Elongation (%)	Impact ISO-V(J) -196°C
Typical values	I1	AW	430	650	35	75

Materials to be welded

Steel grades	Code		W.Nr.	ASTM/ACI	UNS
N-alloyed stainless CrNi-and CrNiMo steels					
	EN 10088-1/-2	X2 CrNiN 18-10	1.4311	(TP)304LN	S30453
		X2 CrNiMoN 17-11-2	1.4406	(TP)316LN	S31653
		X2 CrNiMoN 17-13-3	1.4429		
		X2 CrNiMoN 17-13-5	1.4439	317LN	S31726
Austenitic anti-magnetic steels					
	SEW 390	X2 CrNiMoN 22-15	1.3951		
		X2 CrNiMoN18-14-3	1.3952		
		X2 CrNiMo 18-15	1.3953		
		X8 CrMnNi 18-8	1.3965		
Low temperature steels					
	SEW 685	GX6 CrNi 18-10	1.6902		
		GX5 CrNiNb 18-10	1.6905		
	EN 10028-4	12 Ni 14	1.5637		
		X12 Ni 5	1.5680		

Packaging and available sizes

Unit type	Diameter (mm)	
	2.0	2.4
2 and 10 kg tube	X	X
Other sizes and packaging on request		

LNT 4455: rev. EN 21

Liability: All information in this data sheet is based on the best available knowledge, is subject to change without notice and can only be considered as suitable for general guidance **Fumes:** Consult information on Welding Safety Sheet, available upon request

Stainless steel solid wire

Classification

ISO 14343-A : G 25 22 2 N L

General description

Solid wire for welding high CrNiMo-alloyed austenitic steels of type 25/22/2
Excellent resistance to strong oxidizing and moderate reducing conditions
Especially for urea applications

Shielding gases (acc. ISO 14175)

M12 Mixed gas Ar+ >0-5% CO₂
M13 Mixed gas Ar+ >0-3% O₂

Approvals

TÜV
+

Chemical composition (w%) typical wire / rod

C	Mn	Si	Cr	Ni	Mo	N
0.018	5.0	0.4	25.0	23.0	2.0	0.15

Mechanical properties, typical, all weld metal

	Shielding gas	Condition	0.2% Proof strength (N/mm ²)	Tensile strength (N/mm ²)	Elongation (%)	Impact ISO-V(J) +20°C
Typical values	M12	AW	360	620	30	80

Materials to be welded

Steel grades	EN 10088-1/-2	W.Nr.	ASTM / ACI	UNS
Fully austenitic corrosion resistant CrNiMo steels				
	X1 CrNiMoN 25-25-2	1.4465		
	X3 CrNiMoTi 25-25	1.4577		
	X2 CrNi 19-11	1.4306	(TP)304L	S30403
			CF-3	J92500
	X2 CrNiN 18-10	1.4311	(TP)304LN	S30453
			310S	S31008

Also very well applicable for build-up welding on low alloyed steel, such as pipe plates
Buffer layer -120 ...+350°C

Packaging and available sizes

Unit type	Diameter (mm)		
	0.8	1.0	1.2
15 kg spool BS300	X	X	X
Other sizes and packaging on request			

LNM 4465: rev. EN 21

Liability: All information in this data sheet is based on the best available knowledge, is subject to change without notice and can only be considered as suitable for general guidance **Fumes:** Consult information on Welding Safety Sheet, available upon request

Stainless steel solid rod

Classification

ISO 14343-A : W 25 22 2 N L

General description

Solid rod for welding high CrNiMo-alloyed austenitic steels of type 25/22/2
Excellent resistance to strong oxidizing and moderate reducing conditions
Especially for urea applications

Shielding gases (acc. ISO 14175)

I1 Inert gas Ar (100%)

Approvals

TÜV

+

Chemical composition (w%) typical wire / rod

C	Mn	Si	Cr	Ni	Mo	N
0.018	5.0	0.4	25.0	23.0	2.0	0.15

Mechanical properties, typical, all weld metal

	Shielding gas	Condition	0.2% Proof strength (N/mm ²)	Tensile strength (N/mm ²)	Elongation (%)	Impact ISO-V(J) -10°C
Typical values	I1	AW	360	620	30	80

Materials to be welded

Steel grades	EN 10088-1/-2	W.Nr.	ASTM / ACI	UNS
Fully austenitic corrosion resistant CrNiMo steels				
	X1 CrNiMoN 25-25-2	1.4465		
	X3 CrNiMoTi 25-25	1.4577		
	X2 CrNi 19-11	1.4306	(TP)304L	S30403
			CF-3	J92500
	X2 CrNiN 18-10	1.4311	(TP)304LN	S30453
			310S	S31008

Also very well applicable for build-up welding on low alloyed steel, such as pipe plates

Buffer layer -120 ...+350°C

Packaging and available sizes

Unit type	Diameter (mm)	
	2.0	2.4
2 and 5 kg tube	X	X
Other sizes and packaging on request		

LNT 4465: rev. EN 21

Liability: All information in this data sheet is based on the best available knowledge, is subject to change without notice and can only be considered as suitable for general guidance **Fumes:** Consult information on Welding Safety Sheet, available upon request

Stainless steel solid wire

Classification

AWS A5.9 : ER385
ISO 14343-A : G 20 25 5 Cu L

General description

Solid wire for welding of fully austenitic steels of type 20%Cr / 25%Ni / 4.5%Mo / 1.5%Cu
Highly corrosion resistant in sulphuric and phosphoric acid

Shielding gases (acc. ISO 14175)

M12 Mixed gas Ar+ >0-5% CO₂
M13 Mixed gas Ar+ >0-3% O₂

Approvals

TÜV
+

Chemical composition (w%) typical wire / rod

C	Mn	Si	Cr	Ni	Mo	Cu
0.009	1.7	0.3	20	25	4.4	1.5

Mechanical properties, typical, all weld metal

	Shielding gas	Condition	0.2% Proof strength (N/mm ²)	Tensile strength (N/mm ²)	Elongation (%)	Impact ISO-V(J) +20°C
Typical values	M12	AW	350	610	35	100

Materials to be welded

Steel grades	EN 10088-1/-2	EN 102 13-4	W.Nr.
Fully austenitic NiCrMoCu and CrNiMoCu steels			
		GX7 NiCrMoCuNb 25-20	1.4500
	X5 NiCrMoCuTi 20 18		1.4506
		G-X2 NiCrMoCuN 20 18	1.4531
		G-X2 NiCrMoCuN 25 20	1.4536
	X1 NiCrMoCuN 25 20 5		1.4539
		G-X7 CrNiMoCuNb 18 18	1.4585
	X5 NiCrMoCuNb 22 18		1.4586

Packaging and available sizes

Unit type	Diameter (mm)		
	0.8	1.0	1.2
15 kg spool BS300	X	X	X
Other sizes and packaging on request			

LNM 4500: rev. EN 21

Liability: All information in this data sheet is based on the best available knowledge, is subject to change without notice and can only be considered as suitable for general guidance **Fumes:** Consult information on Welding Safety Sheet, available upon request

Stainless steel solid rod

Classification

AWS A5.9 : ER385
 ISO 14343-A : W 20 25 5 Cu L

General description

Solid rod for welding of fully austenitic steels of type 20%Cr / 25%Ni / 4.5%Mo / 1.5%Cu
 Highly corrosion resistant in sulphuric and phosphoric acid

Shielding gases (acc. ISO 14175)

I1 Inert gas Ar (100%)

Approvals

TÜV

+

Chemical composition (w%) typical wire / rod

C	Mn	Si	Cr	Ni	Mo	Cu
0.009	1.7	0.3	20	25	4.4	1.5

Mechanical properties, typical, all weld metal

	Shielding gas	Condition	0.2% Proof strength (N/mm ²)	Tensile strength (N/mm ²)	Elongation (%)	Impact ISO-V(J) -196°C
Typical values	I1	AW	380	560	35	80

Materials to be welded

Steel grades	EN 10088-1/-2	EN 102 13-4	W.Nr.
Fully austenitic NiCrMoCu and CrNiMoCu steels			
		GX7 NiCrMoCuNb 25-20	1.4500
	X5 NiCrMoCuTi 20 18		1.4506
		G-X2 NiCrMoCuN 20 18	1.4531
		G-X2 NiCrMoCuN 25 20	1.4536
	X1 NiCrMoCuN 25 20 5		1.4539
		G-X7 CrNiMoCuNb 18 18	1.4585
	X5 NiCrMoCuNb 22 18		1.4586

Packaging and available sizes

Unit type	Diameter (mm)		
	1.6	2.0	2.4
2 and 5 kg tube	X	X	X
Other sizes and packaging on request			

LNT 4500: rev. EN 21

Liability: All information in this data sheet is based on the best available knowledge, is subject to change without notice and can only be considered as suitable for general guidance **Fumes:** Consult information on Welding Safety Sheet, available upon request

Stainless steel solid wire

Classification

No EN or AWS standard

General description

Solid wire for welding Lean Duplex stainless steels

Corrosion resistance is equal to 316L in most applications

Shielding gases (acc. ISO 14175)

M11	Mixed gas Ar+ >0-5% CO ₂ +>0-5%H ₂
M12	Mixed gas Ar+ >0-5% CO ₂
M13	Mixed gas Ar+ >0-3% O ₂

Chemical composition (w%) typical wire

C	Mn	Si	Cr	Ni	Mo	P	S
0.020	1.7	0.7	23.0	7.0	0.3	0.025	0.005

Mechanical properties, typical, all weld metal

	Shielding gas	Condition	0.2% Proof strength (N/mm ²)	Tensile strength (N/mm ²)	Elongation (%)	Impact ISO-V(J)	
						+20°C	-20°C
Typical values	M12	AW	525	710	25	170	150

Materials to be welded

Steel grades

LDX 2101 and similar

Packaging and available sizes

Unit type	Diameter (mm)	
	1.0	1.2
15 kg spool BS300	X	X
Other sizes and packaging on request		

LNM 4362: rev. EN 02

Liability: All information in this data sheet is based on the best available knowledge, is subject to change without notice and can only be considered as suitable for general guidance **Fumes:** Consult information on Welding Safety Sheet, available upon request

Stainless steel solid wire

Classification

AWS A5.9 : ER2209
 ISO 14343-A : G 22 9 3 N L

General description

Solid wire for welding duplex stainless steels
High resistance to general corrosion, pitting and stress corrosion conditions

Shielding gases (acc. ISO 14175)

M12 Mixed gas Ar+ >0-5% CO₂
 M13 Mixed gas Ar+ >0-3% O₂

Approvals

BV	GL	TÜV
2209	4462S	+

Chemical composition (w%) typical wire / rod

C	Mn	Si	Cr	Ni	Mo	N
0.018	1.5	0.5	22.7	8.5	3.0	0.15

Mechanical properties, typical, all weld metal

	Shielding gas	Condition	0.2% Proof strength (N/mm ²)	Tensile strength (N/mm ²)	Elongation (%)	Impact ISO-V(J)	
						+20°C	-46°C
Typical values	M12	AW	625	810	28	110	40

Materials to be welded

Steel grades	En 10088-1/-2	W.Nr.	UNS
Duplex stainless steels			
	X2 CrNiMoN 22 5 3	1.4462	S31803
		1.4417	S31500
	X2 CrNiN 23-4	1.4362	S32304
	X3 CrNiMoN 27-5-2	1.4460	S31200

Dissimilar joints such as un- and low alloyed steel to duplex stainless steel

Packaging and available sizes

Unit type	Diameter (mm)			
	0.8	1.0	1.2	1.6
15 kg spool BS300	X	X	X	X
Other sizes and packaging on request				

LNM 4462: rev. EN 21

Stainless steel solid rod

Classification

AWS A5.9 : ER2209
ISO 14343-A : W 22 9 3 N L

General description

Solid rod for welding duplex stainless steels
High resistance to general corrosion, pitting and stress corrosion conditions

Shielding gases (acc. ISO 14175)

I1 Inert gas Ar (100%)

Approvals

TÜV
+

Chemical composition (w%) typical wire / rod

C	Mn	Si	Cr	Ni	Mo	N
0.015	1.6	0.5	22.5	8.5	3.0	0.15

Mechanical properties, typical, all weld metal

	Shielding gas	Condition	0.2% Proof strength (N/mm ²)	Tensile strength (N/mm ²)	Elongation (%)	Impact ISO-V(J)		
						+20°C	-20°C	-60°C
Typical values	I1	AW	600	800	28	85	60	45

Materials to be welded

Steel grades	En 10088-1/-2	W.Nr.	UNS
Duplex stainless steels	X2 CrNiMoN 22 5 3	1.4462	S31803
		1.4417	S31500
	X2 CrNiN 23-4	1.4362	S32304
	X3 CrNiMoN 27-5-2	1.4460	S31200

Dissimilar joints such as un- and low alloyed steel to duplex stainless steel

Packaging and available sizes

Unit type	Diameter (mm)			
	1.6	2.0	2.4	3.2
2 and 10 kg tube	X	X	X	X

Other sizes and packaging on request

LNT 4462: rev. EN 21

Liability: All information in this data sheet is based on the best available knowledge, is subject to change without notice and can only be considered as suitable for general guidance **Fumes:** Consult information on Welding Safety Sheet, available upon request

LNМ Zeron 100X

Stainless steel solid wire

Classification

AWS A5.9 : ER2594
ISO 14343-A : G 25 9 4 N L

General description

Solid wire for welding Zeron 100® and other super duplex stainless steel grades
High resistance to pitting and crevice corrosion in seawater

Shielding gases (acc. ISO 14175)

M12 Mixed gas Ar+ >0-5% CO₂
M13 Mixed gas Ar+ >0-3% O₂

Chemical composition (w%) typical wire / rod

C	Mn	Si	Cr	Ni	Mo	Cu	W	N
0.015	0.7	0.4	25.0	9.8	3.7	0.6	0.7	0.22

Mechanical properties, typical, all weld metal

	Shielding gas	Condition	0.2% Proof strength	Tensile strength	Elongation	Impact ISO-V(J)	
			(N/mm ²)	(N/mm ²)	(%)	-20°C	-46°C
Typical values	M12	AW	655	845	23	75	55

Materials to be welded

Steel grades	EN 10088-1/-2	E 102 13-4	W.Nr.	ASTM/ACI A276/A351/A473	UNS
Regular and super duplex stainless steels					
	X4 CrNiMoN 27-5-2		1.4460		
	X2 CrNiMoN 22-5-3		1.4462	2205	S31803
		GX6 CrNiMo 24-8-2	1.4463		
				CD-4MCu Zeron 100	S32550 S32760

Super duplex stainless steel grades: chemical composition approximately:
24-27% Cr, 6-9% Ni, 3-4% Mo, 0.10-0.25% N alloyed also with Cu and/or W (Zeron 100)

Packaging and available sizes

Unit type	Diameter (mm)		
	1.0	1.2	1.6
12.5 kg spool B300	X	X	X
Other sizes and packaging on request			

LNМ Zeron 100X: rev. EN 21

LNT Zeron 100X

Stainless steel solid rod

Classification

AWS A5.9 : ER2594
ISO 14343-A : W 25 9 4 N L

General description

Solid rod for welding Zeron 100® and other super duplex stainless steel grades
High resistance to pitting and crevice corrosion in seawater

Shielding gases (acc. ISO 14175)

I1 Inert gas Ar (100%)

Approvals

TÜV
+

Chemical composition (w%) typical wire / rod

C	Mn	Si	Cr	Ni	Mo	Cu	W	N
0.015	0.7	0.4	25.0	9.8	3.7	0.6	0.7	0.22

Mechanical properties, typical, all weld metal

	Shielding gas	Condition	0.2% Proof strength (N/mm ²)	Tensile strength (N/mm ²)	Elongation (%)	Impact ISO-V(J)	
						-20°C	-46°C
Typical values	I1	AW	680	885	26	80	60

Materials to be welded

Steel grades	EN 10088-1/-2	E 102 13-4	W.Nr.	ASTM/ACI A276/A351/A473	UNS
Regular and super duplex stainless steels					
	X4 CrNiMoN 27-5-2		1.4460		
	X2 CrNiMoN 22-5-3		1.4462	2205	S31803
		GX6 CrNiMo 24-8-2	1.4463		
				CD-4MCu Zeron 100	S32550 S32760

Super duplex stainless steel grades: chemical composition approximately:
24-27% Cr, 6-9% Ni, 3-4% Mo, 0.10-0.25% N alloyed also with Cu and/or W (Zeron 100)

Packaging and available sizes

Unit type	Diameter (mm)		
	1.6	2.4	3.2
2 kg tube	X	X	X

Other sizes and packaging on request

LNT Zeron 100X: rev. EN 21

Liability: All information in this data sheet is based on the best available knowledge, is subject to change without notice and can only be considered as suitable for general guidance **Fumes:** Consult information on Welding Safety Sheet, available upon request

Stainless steel solid wire

Classification

AWS A5.9	: ER309LSi
ISO 14343-A	: G 23 12 L Si

General description

Solid wire for welding stainless steel to carbon steel
With high silicon for improved wettability

Shielding gases (acc. ISO 14175)

M12	Mixed gas Ar+ >0-5% CO ₂
M13	Mixed gas Ar+ >0-3% O ₂

Approvals

ABS	BV	DB	DNV	GL	LR	TÜV
ER309LSi	309L	+	309	4332S	SS/CMn S	+

Chemical composition (w%) typical wire / rod

C	Mn	Si	Cr	Ni	Mo
0.010	1.8	0.8	23.3	13.8	0.14

Mechanical properties, typical, all weld metal

	Shielding gas	Condition	0.2% Proof strength (N/mm ²)	Tensile strength (N/mm ²)	Elongation (%)	Impact ISO-V(J)	
						-20°C	-120°C
Typical values	M12	AW	430	565	35	96	65

Materials to be welded

Steel grades	EN 10088-1/-2	W.Nr.	ASTM/ACI A240/A312/A351	UNS
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Corrosion resistant cladsteels

X2 CrNi 18-10	1.4311	(TP)304LN	S30453
X2 CrNi 19-11	1.4306	(TP)304L	S30403
		CF-3	J92500
X4 CrNi 18-10	1.4301	(TP)304	S30400

Dissimilar metals (mild and low alloyed steel to stainless steel)
 Build-up welding on mild and low alloyed steel

Packaging and available sizes

Unit type	Diameter (mm)			
	0.8	1.0	1.2	1.6
15 kg spool BS300	X	X	X	X
Other sizes and packaging on request				

LNM 309LSi: rev. EN 21

Liability: All information in this data sheet is based on the best available knowledge, is subject to change without notice and can only be considered as suitable for general guidance **Fumes:** Consult information on Welding Safety Sheet, available upon request

Stainless steel solid rod

Classification

AWS A5.9 : ER309LSi
 ISO 14343-A : W 23 12 L Si

General description

Solid rod for welding stainless steel to carbon steel
 With high silicon for improved wettability

Shielding gases (acc. ISO 14175)

I1 Inert gas Ar (100%)

Approvals

ABS	LR	TÜV
ER 309LSi	+	+

Chemical composition (w%) typical wire / rod

C	Mn	Si	Cr	Ni	Mo
0.010	1.8	0.8	23.3	13.8	0.14

Mechanical properties, typical, all weld metal

	Shielding gas	Condition	0.2% Proof strength (N/mm ²)	Tensile strength (N/mm ²)	Elongation (%)	Impact ISO-V(J) -46°C
Typical values	I1	AW	400	600	35	65

Materials to be welded

Steel grades	EN 10088-1/-2	W.Nr.	ASTM/ACI A240/A312/A351	UNS
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Corrosion resistant cladsteels

X2 CrNiN 18-10	1.4311	(TP)304LN	S30453
X2 CrNi 19-11	1.4306	(TP)304L	S30403
		CF-3	J92500
X4 CrNi 18-10	1.4301	(TP)304	S30400

Dissimilar metals (mild and low alloyed steel to stainless steel)

Build-up welding on mild and low alloyed steel

Packaging and available sizes

Unit type	Diameter (mm)					
	1.0	1.2	1.6	2.0	2.4	3.2
2,5 and 10 kg tube	X	X	X	X	X	X

Other sizes and packaging on request

LNT 309LSi: rev. EN 21

Liability: All information in this data sheet is based on the best available knowledge, is subject to change without notice and can only be considered as suitable for general guidance **Fumes:** Consult information on Welding Safety Sheet, available upon request

Stainless steel solid rod

Classification

AWS A5.9 : ER309L
ISO 14343-A : W 23 12 L

General description

Solid rod for welding stainless steel to carbon steel
Low susceptibility to embrittlement
Minimum 18FN ferrite in weldmetal

Shielding gases (acc. ISO 14175)

I1 Inert gas Ar (100%)

Chemical composition (w%), Typical, rod

C	Mn	Si	Cr	Ni	Mo
0.010	1.65	0.35	24	13	0.05

Mechanical properties, typical, all weld metal

Shielding gas	Condition	0.2% Proof strength (N/mm ²)	Tensile strength (N/mm ²)	Elongation (%)	
Typical values	I1	AW	390	600	35

Materials to be welded

Steel grades	EN 10088-1/-2	W.Nr.	ASTM/ACI A240/A312/A351	UNS
Corrosion resistant cladsteels				
	X2 CrNiN 18-10	1.4311	(TP)304LN	S30453
	X2 CrNi 19-11	1.4306	(TP)304L	S30403
	X4 CrNi 18-10	1.4301	CF-3 (TP)304	J92500 S30400

Dissimilar metals (mild and low alloyed steel to stainless steel)

Build-up welding on mild and low alloyed steel

Packaging and available sizes

Unit type	Diameter (mm)		
	1.6	2.0	2.4
2 and 10 kg tube	X	X	X
Other sizes and packaging on request			

LNT 309LHF: rev. EN 21

Liability: All information in this data sheet is based on the best available knowledge, is subject to change without notice and can only be considered as suitable for general guidance **Fumes:** Consult information on Welding Safety Sheet, available upon request

Stainless steel solid wire

Classification

AWS A5.9 : ER307*
 ISO 14343-A : G 18 8 Mn

* Nearest classification

General description

Solid wire for welding Steel with difficult weldability
 Often used as a buffer layer in hardfacing applications

Shielding gases (acc. ISO 14175)

M12 Mixed gas Ar+ >0-5% CO₂
 M13 Mixed gas Ar+ >0-3% O₂

Approvals

TÜV

+

Chemical composition (w%) typical wire / rod

C	Mn	Si	Cr	Ni
0.08	7.1	0.8	19.2	9

Mechanical properties, typical, all weld metal

	Shielding gas	Condition	0.2% Proof strength (N/mm ²)	Tensile strength (N/mm ²)	Elongation (%)	Impact ISO-V(J)	
						+20°C	-120°C
Typical values	M12	AW	400	630	40	80	50

Materials to be welded

Various steel grades, such as:

- Armour plate
- Hardenable steels including steels difficult to weld
- Non-magnetic steels
- Work hardening austenitic manganese steels
- Dissimilar joints (CMn-steels to stainless steels)

Packaging and available sizes

Unit type	Diameter (mm)	
	1.0	1.2
15 kg spool BS300	X	X

Other sizes and packaging on request

LNM 307: rev. EN 21

Liability: All information in this data sheet is based on the best available knowledge, is subject to change without notice and can only be considered as suitable for general guidance **Fumes:** Consult information on Welding Safety Sheet, available upon request

Stainless steel solid rod

Classification

AWS A5.9 : ER307*
 ISO 14343-A : W 18 8 Mn

* Nearest classification

General description

Solid rod for welding Steel with difficult weldability
 Often used as a buffer layer in hardfacing applications

Shielding gases (acc. ISO 14175)

I1 Inert gas Ar (100%)

Approvals

TÜV

+

Chemical composition (w%) typical wire / rod

C	Mn	Si	Cr	Ni
0.08	7.1	0.8	19.2	9

Mechanical properties, typical, all weld metal

	Shielding gas	Condition	0.2% Proof strength (N/mm ²)	Tensile strength (N/mm ²)	Elongation (%)	Impact ISO-V(J) +20°C -120°C
Typical values	I1	AW	400	650	34	100 50

Materials to be welded

Various steel grades, such as:

- Armour plate
- Hardenable steels including steels difficult to weld
- Non-magnetic steels
- Work hardening austenitic manganese steels
- Dissimilar joints (CMn-steels to stainless steels)

Packaging and available sizes

Unit type	Diameter (mm)
	2.0
2 kg tube	X
Other sizes and packaging on request	

LNT 307: rev. EN 21

Liability: All information in this data sheet is based on the best available knowledge, is subject to change without notice and can only be considered as suitable for general guidance **Fumes:** Consult information on Welding Safety Sheet, available upon request

Stainless steel solid wire

Classification

AWS A5.9 : ER308H
 ISO 14343-A : G 19 9 H

General description

Solid wire for welding austenitic CrNi-steels
Especially for high temperature applications (up to 730°C)
Low sensitivity to precipitation of intermetallic phases

Shielding gases (acc. ISO 14175)

M12 Mixed gas Ar+ >0-5% CO₂ Inert gas Ar (100%)
 M13 Mixed gas Ar+ >0-3% O₂

Chemical composition (w%) typical wire / rod

C	Mn	Si	Cr	Ni	Mo
0.05	1.8	0.5	20	10	0.2

Mechanical properties, typical, all weld metal

	Shielding gas	Condition	0.2% Proof strength (N/mm ²)	Tensile strength (N/mm ²)	Elongation (%)
Typical values	M12	AW	370	590	34

Materials to be welded

Steel grades	EN 10088-1/-2	EN 102 13-4	W.Nr.	ASTM/ACI 302	UNS
Medium carbon (C > 0.03%)	X4 CrNi 18-10		1.4301	(TP)304	S30400
		GX5 CrNi 19-10	1.4308	(TP)304H	S30409
			1.4948	CF 8	J92600

Packaging and available sizes

Unit type	Diameter (mm)	
	1.0	1.2
15 kg spool BS300	X	X

Other sizes and packaging on request

LNM 304H: rev. EN 21

Liability: All information in this data sheet is based on the best available knowledge, is subject to change without notice and can only be considered as suitable for general guidance **Fumes:** Consult information on Welding Safety Sheet, available upon request

Stainless steel solid rod

Classification

AWS A5.9 : ER308H
 ISO 14343-A : W 19 9 H

General description

Solid rod for welding austenitic CrNi-steels
 Especially for high temperature applications (up to 730°C)
 Low sensitivity to precipitation of intermetallic phases

Shielding gases (acc. ISO 14175)

I1 Inert gas Ar (100%)

Chemical composition (w%) typical wire / rod

C	Mn	Si	Cr	Ni	Mo
0.05	1.8	0.5	20	10	0.2

Mechanical properties, typical, all weld metal

	Shielding gas	Condition	0.2% Proof strength (N/mm ²)	Tensile strength (N/mm ²)	Elongation (%)	Impact ISO-V(J) +20°C
Typical values	I1	AW	370	600	35	80

Materials to be welded

Steel grades	EN 10088-1/-2	EN 102 13-4	W.Nr.	ASTM/ACI 302	UNS
Medium carbon (C > 0.03%)					
	X4 CrNi 18-10		1.4301	(TP)304 (TP)304H	S30400 S30409
		GX5 CrNi 19-10	1.4308 1.4948	CF 8	S30409 J92600

Packaging and available sizes

Unit type	Diameter (mm)		
	2.0	2.4	3.2
2 and 10 kg tube	X	X	X
Other sizes and packaging on request			

LNT 304H: rev. EN 21

Liability: All information in this data sheet is based on the best available knowledge, is subject to change without notice and can only be considered as suitable for general guidance **Fumes:** Consult information on Welding Safety Sheet, available upon request

Stainless steel solid wire

Classification

AWS A5.9 : ER309
ISO 14343-A : G 23 12 L*

* Nearest classification

General description

Solid wire for high temperature applications like industrial furnaces
High resistance to oxidation up to 1050°C

Shielding gases (acc. ISO 14175)

M12 Mixed gas Ar+ >0-5% CO₂
M13 Mixed gas Ar+ >0-3% O₂

Chemical composition (w%) typical wire

C	Mn	Si	Cr	Ni	Mo
0.05	1.8	0.5	24.0	13.5	0.2

Mechanical properties, typical, all weld metal

	Shielding gas	Condition	0.2% Proof strength (N/mm ²)	Tensile strength (N/mm ²)	Elongation (%)	Impact ISO-V(J) +20°C
Typical values	M12	AW	400	640	35	110

Materials to be welded

Steel grades	EN 10088-1/-2	EN 102 13-4	W.Nr.	ASTM/ACI	UNS
		GX30 CrSi6	1.4710		
	X10 CrAl7		1.4713	502	
	X10 CrAl13		1.4724	410/414-TP405-CA15	
		GX40 CrSi13	1.4729		
		GX40 CrSi17	1.4740		
	X10 CrAl18		1.4742	430-TP430-CB30	
	X10 CrAl24		1.4762	TP443	
		GX25 CrNiSi18-9	1.4825		J92502
		GX40 CrNiSi22-9			
	X15 CrNiSi20-12		1.4828	TP309	S30900
		GX25 CrNiSi20-14	1.4832		
	X12 CrNiTi18-9				

Packaging and available sizes

Unit type	Diameter (mm)	
	1.0	1.2
15 kg spool BS300	X	X
Other sizes and packaging on request		

LNM 309H: rev. EN 21

Liability: All information in this data sheet is based on the best available knowledge, is subject to change without notice and can only be considered as suitable for general guidance **Fumes:** Consult information on Welding Safety Sheet, available upon request

Stainless steel solid wire

Classification

AWS A5.9 : ER310
ISO 14343-A : G 25 20

General description

Solid wire for welding heat resistant Cr- and CrNi-steels (25%Cr-20%Ni)
High resistance to oxidation and scaling up to approx. 1100°C

Shielding gases (acc. ISO 14175)

M12 Mixed gas Ar+ >0-5% CO₂
M13 Mixed gas Ar+ >0-3% O₂

Chemical composition (w%) typical wire / rod

C	Mn	Si	Cr	Ni	Mo
0.1	1.8	0.45	26	21	0.2

Mechanical properties, typical, all weld metal

Shielding gas	Condition	0.2% Proof strength (N/mm ²)	Tensile strength (N/mm ²)	Elongation (%)	Impact ISO-V(J) +20°C	
Typical values	M12	AW	355	610	35	110

Materials to be welded

Steel grades	EN 10088-1/-2	EN 102 13-4	W.Nr.	ASTM/ACI	UNS
	X10 CrAl24		1.4762		
		GX25 CrNiSi18-9	1.4825		
		GX40 CrNiSi22-9	1.4826		
	X15 CrNiSi20-12		1.4828		
		GX25 CrNiSi20-14	1.4832		
	X15 CrNiSi25-20		1.4841	310S	S31008
				CK20	J94202
	X12 CrNi25-21		1.4845		
		GX40 CrNiSi 25-20	1.4848	HK40	

Packaging and available sizes

Unit type	Diameter (mm)		
	0.8	1.0	1.2
15 kg spool BS300	X	X	X
Other sizes and packaging on request			

LNM 310: rev. EN 21

Liability: All information in this data sheet is based on the best available knowledge, is subject to change without notice and can only be considered as suitable for general guidance **Fumes:** Consult information on Welding Safety Sheet, available upon request

Stainless steel solid rod

Classification

AWS A5.9 : ER310
ISO 14343-A : W 25 20

General description

Solid rod for welding heat resistant Cr- and CrNi-steels (25%Cr-20%Ni)
High resistance to oxidation and scaling up to approx. 1100°C

Shielding gases (acc. ISO 14175)

I1 Inert gas Ar (100%)

Chemical composition (w%) typical wire / rod

C	Mn	Si	Cr	Ni	Mo
0.1	1.8	0.45	26	21	0.2

Mechanical properties, typical, all weld metal

	Shielding gas	Condition	0.2% Proof strength (N/mm ²)	Tensile strength (N/mm ²)	Elongation (%)	Impact ISO-V(J) +20°C
Typical values	I1	AW	360	600	35	100

Materials to be welded

Steel grades	EN 10088-1/-2	EN 102 13-4	W.Nr.	ASTM/ACI	UNS
X10 CrAl24			1.4762		
			1.4825		
			1.4826		
X15 CrNiSi20-12			1.4828		
			1.4832		
X15 CrNiSi25-20			1.4841	310S	S31008
			1.4845	CK20	J94202
X12 CrNi25-21			1.4845		
			1.4848		

Packaging and available sizes

Unit type	Diameter (mm)			
	1.6	2.0	2.4	3.2
2 and 10 kg tube	X	X	X	X

Other sizes and packaging on request

LNT 310: rev. EN 21

Liability: All information in this data sheet is based on the best available knowledge, is subject to change without notice and can only be considered as suitable for general guidance **Fumes:** Consult information on Welding Safety Sheet, available upon request

Lincoln MIG 308LSi

Stainless steel solid wire

Classification

AWS A5.9 : ER308LSi
ISO 14343-A : G 19 9 Lsi

General description

Solid wire with extra low carbon for welding austenitic CrNi-steels
With increased silicon for improved wettability

Shielding gases (acc. ISO 14175)

M12 Mixed gas Ar+ >0-5% CO₂
M13 Mixed gas Ar+ >0-3% O₂

Chemical composition (w%) typical wire / rod

C	Mn	Si	Cr	Ni	Mo
0.010	1.7	0.8	20	10	0.2

Mechanical properties, typical, all weld metal

	Shielding gas	Condition	0.2% Proof strength	Tensile strength	Elongation	Impact ISO-V(J)	
			(N/mm ²)	(N/mm ²)	(%)	-20°C	-196°C
Typical values	M12	AW	420	570	45	85	55

Materials to be welded

Steel grades	EN 10088-1/-2	EN 102 13-4	W.Nr.	ASTM/ACI A240/A312/A351	UNS
Extra low carbon (C < 0.03%)					
	X2CrNi19 11		1.4306	(TP)304 L CF-3	S30403 J92500
	X2CrNiN18 10		1.4311	(TP)304LN 302, 304	S30453 S30400
Medium carbon (C > 0.03%)					
	X4CrNi18 10		1.4301	(TP)304	S30409
		GX5CrNi19 10	1.4308	CF-8	J92600
Ti-,Nb stabilized					
	X6CrNiTi18 10		1.4541	(TP)321 (TP)321H	S32100 S32109
	X6 CrNiNb 18 10		1.4550	(TP)347	S34700
		GX5 CrNiNb 19 10	1.4552	CF-8C	J92710

Packaging and available sizes

Unit type	Diameter (mm)			
	0.8	1.0	1.2	1.6
15 kg spool BS300	X	X	X	X
Other sizes and packaging on request				

Lincoln MIG 308LSi: rev. EN 02

Liability: All information in this data sheet is based on the best available knowledge, is subject to change without notice and can only be considered as suitable for general guidance **Fumes:** Consult information on Welding Safety Sheet, available upon request

Lincoln TIG 308LSi

Stainless steel solid rod

Classification

AWS A5.9 : ER308LSi
ISO 14343-A : W 19 9 LSi

General description

Solid rod with extra low carbon for welding austenitic CrNi-steels
With increased silicon for improved wettability

Shielding gases (acc. ISO 14175)

I1 Inert gas Ar (100%)

Chemical composition (w%) typical wire / rod

C	Mn	Si	Cr	Ni	Mo
0.010	1.7	0.8	20	10	0.2

Mechanical properties, typical, all weld metal

	Shielding gas	Condition	0.2% Proof strength (N/mm ²)	Tensile strength (N/mm ²)	Elongation (%)	Impact ISO-V(J)	
						+20°C	-196°C
Typical values	I1	AW	390	590	36	120	50

Materials to be welded

Steel grades	EN 10088-1/-2	EN 102 13-4	W.Nr.	ASTM/ACI A240/A312/A351	UNS
Extra low carbon (C < 0.03%)					
	X2CrNi19 11		1.4306	(TP)304 L CF-3	S30403 J92500
	X2CrNiN18 10		1.4311	(TP)304LN 302, 304	S30453 S30400
Medium carbon (C > 0.03%)					
	X4CrNi18 10		1.4301	(TP)304	S30409
		GX5CrNi19 10	1.4308	CF-8	J92600
Ti,Nb stabilized					
	X6CrNiTi18 10		1.4541	(TP)321 (TP)321H	S32100 S32109
	X6 CrNiNb 18 10		1.4550	(TP)347	S34700
		GX5 CrNiNb 19 10	1.4552	CF-8C	J92710

Packaging and available sizes

Unit type	Diameter (mm)				
	1.2	1.6	2.0	2.4	3.2
5 kg tube	X	X	X	X	X
Other sizes and packaging on request					

Lincoln TIG 308LSi: rev. EN 02

Liability: All information in this data sheet is based on the best available knowledge, is subject to change without notice and can only be considered as suitable for general guidance **Fumes:** Consult information on Welding Safety Sheet, available upon request

Lincoln TIG 308L

Stainless steel solid rod

Classification

AWS A5.9 : ER308L
ISO 14343-A : W 19 9 L

General description

Solid rod with extra low carbon for welding austenitic CrNi-steels
High resistance to intergranular corrosion and oxidizing environments

Shielding gases (acc. ISO 14175)

I1 Inert gas Ar (100%)

Chemical composition (w%), Typical, rod

C	Mn	Si	Cr	Ni	Mo
0.010	1.6	0.5	20	10	0.2

Mechanical properties, typical, all weld metal

	Shielding gas	Condition	0.2% Proof strength (N/mm ²)	Tensile strength (N/mm ²)	Elongation (%)	Impact ISO-V(J)	
						+20°C	-196°C
Typical values	I1	AW	390	590	35	120	50

Materials to be welded

Steel grades	EN 10088-11-2	EN 102 13-4	W.Nr.	ASTM/ACI A240/A312/A351	UNS
Extra low carbon (C < 0.03%)					
	X2CrNi19 11		1.4306	(TP)304 L CF-3	S30403 J92500
	X2CrNiN18 10		1.4311	(TP)304LN 302, 304	S30453 S30400
Medium carbon (C > 0.03%)					
	X4CrNi18 10		1.4301	(TP)304	S30409
		GX5CrNi19 10	1.4308	CF-8	J92600
Ti,Nb stabilized					
	X6CrNiTi18 10		1.4541	(TP)321 (TP)321H	S32100/ S32109
	X6 CrNiNb 18 10		1.4550	(TP)347	S34700
		GX5 CrNiNb 19 10	1.4552	CF-8C	J92710

Packaging and available sizes

Unit type	Diameter (mm)				
	1.2	1.6	2.0	2.4	3.2
5 kg tube	X	X	X	X	X
Other sizes and packaging on request					

Lincoln TIG 308L: rev. EN 02

Liability: All information in this data sheet is based on the best available knowledge, is subject to change without notice and can only be considered as suitable for general guidance **Fumes:** Consult information on Welding Safety Sheet, available upon request

Lincoln MIG 316LSi

Stainless steel solid wire

Classification

AWS A5.9	: ER316LSi
ISO 14343-A	: G 19 12 3 Lsi

General description

Solid wire with extra low carbon for welding stainless CrNiMo-steels
With increased silicon for improved wettability

Shielding gases (acc. ISO 14175)

M12	Mixed gas Ar+ >0-5% CO ₂
M13	Mixed gas Ar+ >0-3% O ₂

Chemical composition (w%) typical wire / rod

C	Mn	Si	Cr	Ni	Mo
0.010	1.6	0.8	18.5	12.2	2.5

Mechanical properties, typical, all weld metal

	Shielding gas	Condition	0.2% Proof strength (N/mm ²)	Tensile strength (N/mm ²)	Elongation (%)	Impact ISO-V(J)		
						+20°C	-120°C	-196°C
Typical values	M12	AW	420	620	35	150	70	40

Materials to be welded

Steel grades	EN 10088-11-2	EN 102 13-4	W.Nr.	ASTM/ACI A240/A312/A351	UNS
Extra low carbon (C < 0.03%)					
	X2CrNiMo17 12 2		1.4404	(TP)316L CF-3M	S31603 J92800
	X2CrNiMo18 14 3		1.4435	(TP)316L	S31603
	X2CrNiMoN 17 11 2		1.4406	(TP)316LN	S31653
	X2CrNiMoN 17 13 3		1.4429		
Medium carbon (C > 0.03%)					
	X4 CrNiMo 17 12 2		1.4401	(TP)316	S31600
	X4 CrNiMo 17 13 3		1.4436		
	GX5 CrNiMo 19-11		1.4408	CF 8M	J92900
Ti-,Nb stabilized					
	X6 CrNiMoTi 17 12 2		1.4571	316 Ti	S31635
	X6 CrNiMoNb 17 12 2		1.4580	316 Cb	S31640
	X6 CrNiNb 18-10		1.4550	(TP)347	S34700
		GX5 CrNiNb 19-10	1.4552	CF-8C	J92710

Packaging and available sizes

Unit type	Diameter (mm)			
	0.8	1.0	1.2	1.6
15 kg spool BS300	X	X	X	X
Other sizes and packaging on request				

Lincoln MIG 316LSi: rev. EN 02

Liability: All information in this data sheet is based on the best available knowledge, is subject to change without notice and can only be considered as suitable for general guidance **Fumes:** Consult information on Welding Safety Sheet, available upon request

Lincoln TIG 316LSi

Stainless steel solid rod

Classification

AWS A5.9 : ER316LSi
ISO 14343-A : W 19 12 3 LSi

General description

Solid rod with extra low carbon for welding stainless CrNiMo-steels
With increased silicon for improved wettability

Shielding gases (acc. ISO 14175)

I1 Inert gas Ar (100%)

Chemical composition (w%) typical wire / rod

C	Mn	Si	Cr	Ni	Mo
0.010	1.6	0.8	18.5	12.2	2.5

Mechanical properties, typical, all weld metal

Shielding gas	Condition	0.2% Proof strength (N/mm ²)	Tensile strength (N/mm ²)	Elongation (%)	Impact ISO-V(J)		
					+20°C	-196°C	
Typical values	I1	AW	400	620	35	100	45

Materials to be welded

Steel grades	EN 10088-11-2	EN 102 13-4	W.Nr.	ASTM/ACI A240/A312/A351	UNS
Extra low carbon (C < 0.03%)					
	X2CrNiMo17 12 2		1.4404	(TP)316L CF-3M	S31603 J92800
	X2CrNiMo18 14 3		1.4435	(TP)316L	S31603
	X2CrNiMoN 17 11 2		1.4406	(TP)316LN	S31653
	X2CrNiMoN 17 13 3		1.4429		
Medium carbon (C > 0.03%)					
	X4 CrNiMo 17 12 2		1.4401	(TP)316	S31600
	X4 CrNiMo 17 13 3		1.4436		
	GX5 CrNiMo 19-11		1.4408	CF 8M	J92900
Ti-,Nb stabilized					
	X6 CrNiMoTi 17 12 2		1.4571	316 Ti	S31635
	X6 CrNiMoNb 17 12 2		1.4580	316 Cb	S31640
	X6 CrNiNb 18-10		1.4550	(TP)347	S34700
		GX5 CrNiNb 19-10	1.4552	CF-8C	J92710

Packaging and available sizes

Unit type	Diameter (mm)				
	1.2	1.6	2.0	2.4	3.2
5 kg tube	X	X	X	X	X

Other sizes and packaging on request

Lincoln TIG 316LSi: rev. EN 02

Liability: All information in this data sheet is based on the best available knowledge, is subject to change without notice and can only be considered as suitable for general guidance **Fumes:** Consult information on Welding Safety Sheet, available upon request

Lincoln TIG 316L

Stainless steel solid rod

Classification

AWS A5.9 : ER316L
ISO 14343-A : W 19 12 3 L

General description

Solid rod with extra low carbon for welding austenitic CrNiMo-steels
High resistance to intergranular corrosion and general corrosion conditions

Shielding gases (acc. ISO 14175)

I1 Inert gas Ar (100%)

Chemical composition (w%), Typical, rod

C	Mn	Si	Cr	Ni	Mo
0.010	1.5	0.5	18.5	12	2.7

Mechanical properties, typical, all weld metal

	Shielding gas	Condition	0.2% Proof strength (N/mm ²)	Tensile strength (N/mm ²)	Elongation (%)	Impact ISO-V(J)		
						+20°C	-120°C	-196°C
Typical values	I1	AW	400	620	35	100	80	40

Materials to be welded

Steel grades	EN 10088-11-2	EN 102 13-4	W.Nr.	ASTM/ACI A240/A312/A351	UNS
Extra low carbon (C < 0.03%)					
	X2CrNiMo17 12 2		1.4404	(TP)316L CF-3M	S31603 J92800
	X2CrNiMo18 14 3		1.4435	(TP)316L	S31603
	X2CrNiMoN 17 11 2		1.4406	(TP)316LN	S31653
	X2CrNiMoN 17 13 3		1.4429		
Medium carbon (C > 0.03%)					
	X4 CrNiMo 17 12 2		1.4401	(TP)316	S31600
	X4 CrNiMo 17 13 3		1.4436		
		GX5 CrNiMo 19-11	1.4408	CF 8M	J92900
Ti-,Nb stabilized					
	X6 CrNiMoTi 17 12 2		1.4571	316 Ti	S31635
	X6 CrNiMoNb 17 12 2		1.4580	316 Cb	S31640
	X6 CrNiNb 18-10		1.4550	(TP)347	S34700
		GX5 CrNiNb 19-10	1.4552	CF-8C	J92710

Packaging and available sizes

Unit type	Diameter (mm)				
	1.2	1.6	2.0	2.4	3.2
5 kg tube	X	X	X	X	X
Other sizes and packaging on request					

Lincoln TIG 316L: rev. EN 02

Liability: All information in this data sheet is based on the best available knowledge, is subject to change without notice and can only be considered as suitable for general guidance **Fumes:** Consult information on Welding Safety Sheet, available upon request

Lincoln MIG 309LSi

Stainless steel solid wire

Classification

AWS A5.9 : ER309LSi
ISO 14343-A : G 23 12 Lsi

General description

Solid wire for welding stainless steel to carbon steel
With high silicon for improved wettability

Shielding gases (acc. ISO 14175)

M12 Mixed gas Ar+ >0-5% CO₂

Chemical composition (w%) typical wire / rod

C	Mn	Si	Cr	Ni	Mo
0.010	1.8	0.8	23.3	13.8	0.14

Mechanical properties, typical, all weld metal

	Shielding gas	Condition	0.2% Proof strength (N/mm ²)	Tensile strength (N/mm ²)	Elongation (%)	Impact ISO-V(J)	
						-20°C	-120°C
Typical values	M12	AW	430	565	35	96	65

Materials to be welded

Steel grades	EN 10088-1/-2	W.Nr.	ASTM/ACI A240/A312/A351	UNS
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Corrosion resistant cladsteels

X2 CrNiN 18-10	1.4311	(TP)304LN	S30453
X2 CrNi 19-11	1.4306	(TP)304L	S30403
		CF-3	J92500
X4 CrNi 18-10	1.4301	(TP)304	S30400

Dissimilar metals (mild and low alloyed steel to stainless steel)

Build-up welding on mild and low alloyed steel

Packaging and available sizes

Unit type	Diameter (mm)			
	0.8	1.0	1.2	1.6
15 kg spool BS300	X	X	X	X

Other sizes and packaging on request

Lincoln MIG 309LSi: rev. EN 02

Lincoln TIG 309LSi

Stainless steel solid rod

Classification

AWS A5.9 : ER309LSi
ISO 14343-A : W 23 12 LSi

General description

Solid rod for welding stainless steel to carbon steel
With high silicon for improved wettability

Shielding gases (acc. ISO 14175)

I1 Inert gas Ar (100%)

Chemical composition (w%) typical wire / rod

C	Mn	Si	Cr	Ni	Mo
0.010	1.6	0.8	23.5	13.0	0.20

Mechanical properties, typical, all weld metal

	Shielding gas	Condition	0.2% Proof strength (N/mm ²)	Tensile strength (N/mm ²)	Elongation (%)	Impact ISO-V(J) -46°C
Typical values	I1	AW	400	600	35	65

Materials to be welded

Steel grades	EN 10088-1/-2	W.Nr.	ASTM/ACI A240/A312/A351	UNS
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Corrosion resistant cladsteels

X2 CrNiN 18-10	1.4311	(TP)304LN	S30453
X2 CrNi 19-11	1.4306	(TP)304L CF-3	S30403 J92500
X4 CrNi 18-10	1.4301	(TP)304	S30400

Dissimilar metals (mild and low alloyed steel to stainless steel)

Build-up welding on mild and low alloyed steel

Packaging and available sizes

Unit type	Diameter (mm)				
	1.2	1.6	2.0	2.4	3.2
5 kg tube	X	X	X	X	X

Other sizes and packaging on request

Lincoln TIG 309LSi: rev. EN 02

Liability: All information in this data sheet is based on the best available knowledge, is subject to change without notice and can only be considered as suitable for general guidance **Fumes:** Consult information on Welding Safety Sheet, available upon request

Lincoln TIG 309L

Stainless steel solid rod

Classification

AWS A5.9 : ER309L
ISO 14343-A : W 23 12 L

General description

Solid rod for welding stainless steel to carbon steel

Shielding gases (acc. ISO 14175)

I1 Inert gas Ar (100%)

Chemical composition (w%), Typical, rod

C	Mn	Si	Cr	Ni	Mo
0.010	1.65	0.35	24	13	0.05

Mechanical properties, typical, all weld metal

Shielding gas	Condition	0.2% Proof strength (N/mm ²)	Tensile strength (N/mm ²)	Elongation (%)	
Typical values	I1	AW	390	600	35

Materials to be welded

Steel grades	EN 10088-1/-2	W.Nr.	ASTM/ACI A240/A312/A351	UNS
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Corrosion resistant cladsteels

X2 CrNiN 18-10	1.4311	(TP)304LN	S30453
X2 CrNi 19-11	1.4306	(TP)304L CF-3	S30403 J92500
X4 CrNi 18-10	1.4301	(TP)304	S30400

Dissimilar metals (mild and low alloyed steel to stainless steel)

Build-up welding on mild and low alloyed steel

Packaging and available sizes

Unit type	Diameter (mm)		
	1.6	2.0	2.4
5 kg tube	X	X	X
Other sizes and packaging on request			

Lincoln TIG 309L: rev. EN 02

Lincoln MIG 307

Stainless steel solid wire

Classification

AWS A5.9 : ER307*
ISO 14343-A : G 18 8 Mn

* Nearest classification

General description

Solid wire for welding steel with difficult weldability
Often used as a buffer layer in hardfacing applications

Shielding gases (acc. ISO 14175)

M12 Mixed gas Ar+ >0-5% CO₂
M13 Mixed gas Ar+ >0-3% O₂

Chemical composition (w%) typical wire / rod

C	Mn	Si	Cr	Ni
0.08	7.1	0.8	19.2	9

Mechanical properties, typical, all weld metal

	Shielding gas	Condition	0.2% Proof strength (N/mm ²)	Tensile strength (N/mm ²)	Elongation (%)	Impact ISO-V(J)	
						+20°C	-120°C
Typical values	M12	AW	400	630	40	80	50

Materials to be welded

Various steel grades, such as:

- Armour plate
- Hardenable steels including steels difficult to weld
- Non-magnetic steels
- Work hardening austenitic manganese steels
- Dissimilar joints (CMn-steels to stainless steels)

Packaging and available sizes

Unit type	Diameter (mm)	
	1.0	1.2
15 kg spool BS300	X	X
200kg Accutrak® drum	X	X

Other sizes and packaging on request

Liability: All information in this data sheet is based on the best available knowledge, is subject to change without notice and can only be considered as suitable for general guidance **Fumes:** Consult information on Welding Safety Sheet, available upon request

Ni-base solid wire

Classification

AWS A5.9 : ER383
ISO 14343-A : G 27 31 4 Cu L

General description

Solid wire for welding of Cu-alloyed NiCrMo-steels

Excellent resistance to general corrosion, pitting and stress corrosion in acid and alkaline environments

Especially for applications in phosphoric and sulphuric acid

Chemical composition (w%) typical wire / rod

C	Mn	Si	Ni	Cr	Mo	Cu
0.01	1.5	0.2	31.0	27.0	3.5	1.0

Mechanical properties, typical, all weld metal

	Shielding gas	Condition	0.2% Proof strength	Tensile strength	Elongation	Impact ISO-V(J)	
			(N/mm ²)	(N/mm ²)	(%)	+20°C	-196°C
Typical values	It	AW	400	610	35	100	50

Materials to be welded

Steel grades	EN 10088-1/2	W.Nr.	ASTM/ACI	UNS
Copper alloyed CrNiMo and NiCrMo-steels				
	X1NiCrMoCu 31-27-4	1.4563		N08028
	X1NiCrMoCu 25-20-5	1.4539	Alloy 904L	N08904
	DIN 17744			
	NiCr 21 Mo	2.4858	Alloy 825	N08825
	NiCr 21 Mo 6Cu	2.6410	Alloy 825 h	MoN08821
	X3NiCrMoTi 27-23	1.4503		

Packaging and available sizes

Unit type	Diameter (mm)
	1.2
15 kg spool B300	X
Other sizes and packaging on request	

LNM NiCro 31/27: rev. EN 21

Liability: All information in this data sheet is based on the best available knowledge, is subject to change without notice and can only be considered as suitable for general guidance **Fumes:** Consult information on Welding Safety Sheet, available upon request

LNT NiCro 31/27

Ni-base solid rod

Classification

AWS A5.9 : ER383
ISO 14343-A : W 27 31 4 Cu L

General description

Solid rod for welding of Cu-alloyed NiCrMo-steels
Excellent resistance to general corrosion, pitting and stress corrosion in acid and alkaline environments
Especially for applications in phosphoric and sulphuric acid

Shielding gases (acc. ISO 14175)

I1 Inert gas Ar (100%)
I3 Inert gas Ar+ >0-95% He

Chemical composition (w%) typical wire / rod

C	Mn	Si	Ni	Cr	Mo	Cu
0.01	1.5	0.2	31.0	27.0	3.5	1.0

Mechanical properties, typical, all weld metal

	Shielding gas	Condition	0.2% Proof strength (N/mm ²)	Tensile strength (N/mm ²)	Elongation (%)	Impact ISO-V(J)	
						+20°C	-196°C
Typical values	I1	AW	400	600	35	120	80

Materials to be welded

Steel grades	EN 10088-1/2	W.Nr.	ASTM/ACI	UNS
Copper alloyed CrNiMo and NiCrMo-steels				
	X1NiCrMoCu 31-27-4	1.4563		N08028
	X1NiCrMoCu 25-20-5	1.4539	Alloy 904L	N08904
	DIN 17744			
	NiCr 21 Mo	2.4858	Alloy 825	N08825
	NiCr 21 Mo 6Cu	2.6410	Alloy 825 h	MoN08821
	X3NiCrMoTi 27-23	1.4503		

Packaging and available sizes

Unit type	Diameter (mm)	
	2.0	2.4
2 kg tube	X	X

Other sizes and packaging on request

LNT NiCro 31/27: rev. EN 21

Liability: All information in this data sheet is based on the best available knowledge, is subject to change without notice and can only be considered as suitable for general guidance **Fumes:** Consult information on Welding Safety Sheet, available upon request

Ni-base solid wire

Classification

AWS A5.14/A5.14M : ERNiCrMo-3
ISO 18274 : S Ni 6625 (NiCr22Mo9Nb)

General description

Solid wire for welding of nickel alloys
Extreme resistance to various corrosion forms
High chromium and molybdenum content

Shielding gases (acc. ISO 14175)

I1 Inert gas Ar (100%)
I3 Inert gas Ar+ >0-95% He

Chemical composition (w%) typical wire / rod

C	Mn	Si	Ni	Cr	Mo	Nb	Fe
0.02	0.06	0.07	64	21.9	9	3.5	0.4

Mechanical properties, typical, all weld metal

	Shielding gas	Condition	0.2% Proof strength (N/mm ²)	Tensile strength (N/mm ²)	Elongation (%)	Impact ISO-V(J)	
						+20°C	-196°C
Typical values	I1	AW	520	770	34	80	60

Materials to be welded

Steel grades	DIN/EN	W.Nr	ASTM/ACI	UNS
NiCrMo-steel type alloy 625 and welding dissimilar high NiCrMo-steels for corrosion and heat resisting purposes				
	X1NiCrMoCuN25-20-6	1.4529	Alloy 925	N08925
	X1NiCrMoCu25-20-5	1.4539	Alloy 904L	N08904
	X1CrNiMoCuN20-18-7	1.4547	Alloy 254	S31254
	X2NiCrAlTi32-20	1.4558	Alloy 800L	N08800
	G-X10NiCrNb32-20	1.4859		
	X10NiCrAlTi32-20	1.4876	Alloy 800/800H	N08800/-10
	NiCr22Mo6Cu	2.4618	Alloy G	N06007
	NiCr22Mo7Cu	2.4619	Alloy G-3	N06985
	NiCr21Mo6Cu	2.4641	Alloy 825hMo	N08821
	NiCr20CuMo	2.4660	Alloy 20	N08020
	NiCr15Fe	2.4816	B168-Alloy 600	N06600
	NiCr22Mo9Nb	2.4856	B443-Alloy 625	N06625
	NiCr21Mo	2.4858	B424-Alloy 825	N08825
	NiCr20Ti	2.4951	Alloy 75	N06075
	NiCr20TiAl	2.4952	Alloy 80A	N07080
Low alloyed steels				
	10Ni14 (3.5% Ni)	1.5637	ASTM A333 Grade 3	-
	12Ni19, X12Ni5	1.5680	-	K41583
9% Ni-steel for LNG storage tanks				
	X8Ni9	1.5662	A353/A353M	-
	X8Ni9 / 8%Ni	1.5662	A553/A553M Type I/II	- / K71340

Packaging and available sizes

Unit type	Diameter (mm)		
	0.8	1.0	1.2
5 kg plastic spool S200		X	
15 kg spool BS300	X	X	X
Other sizes and packaging on request			

LNM NiCrO 60/20: rev. EN 21

Ni-base solid rod

Classification

AWS A5.14/A5.14M : ERNiCrMo-3
ISO 18274 : S Ni 6625 (NiCr22Mo9Nb)

General description

Solid rod for welding of nickel alloys
Extreme resistance to various corrosion forms
High chromium and molybdenum content

Shielding gases (acc. ISO 14175)

I1 Inert gas Ar (100%)
I3 Inert gas Ar+ >0-95% He

Approvals

TÜV
+

Chemical composition (w%) typical wire / rod

C	Mn	Si	Ni	Cr	Mo	Nb	Fe
0.02	0.06	0.07	64	21.9	9	3.5	0.4

Mechanical properties, typical, all weld metal

Typical values	Shielding gas	Condition	0.2% Proof strength	Tensile strength	Elongation	Impact ISO-V(J)	
			(N/mm ²)	(N/mm ²)	(%)	+20°C	-196°C
	I1	AW	520	800	35	130	100

Materials to be welded

Steel grades	DIN/EN	W.Nr	ASTM/ACI	UNS
NiCrMo-steel type alloy 625 and welding dissimilar high NiCrMo-steels for corrosion and heat resisting purposes				
	X1NiCrMoCuN25-20-6	1.4529	Alloy 925	N08925
	X1NiCrMoCu25-20-5	1.4539	Alloy 904L	N08904
	X1CrNiMoCuN20-18-7	1.4547	Alloy 254	S31254
	X2NiCrAlTi32-20	1.4558	Alloy 800L	N08800
	G-X10NiCrNb32-20	1.4859		
	X10NiCrAlTi32-20	1.4876	Alloy 800/800H	N08800/-10
	NiCr22Mo6Cu	2.4618	Alloy G	N06007
	NiCr22Mo7Cu	2.4619	Alloy G-3	N06985
	NiCr21Mo6Cu	2.4641	Alloy 825hMo	N08821
	NiCr20CuMo	2.4660	Alloy 20	N08020
	NiCr15Fe	2.4816	B168-Alloy 600	N06600
	NiCr22Mo9Nb	2.4856	B443-Alloy 625	N06625
	NiCr21Mo	2.4858	B424-Alloy 825	N08825
	NiCr20Ti	2.4951	Alloy 75	N06075
	NiCr20TiAl	2.4952	Alloy 80A	N07080
Low alloyed steels				
	10Ni14 (3.5% Ni)	1.5637	ASTM A333 Grade 3	-
	12Ni19, X12Ni5	1.5680	-	K41583
9% Ni-steel for LNG storage tanks				
	X8Ni9	1.5662	A353/A353M	-
	X8Ni9 / 8%Ni	1.5662	A553/A553M Type I/II	- / K71340

Packaging and available sizes

Unit type	Diameter (mm)			
	1.6	2.0	2.4	3.2
2 and 10 kg tube	X	X	X	X

Other sizes and packaging on request

LNT NiCro 60/20: rev. EN 21

Liability: All information in this data sheet is based on the best available knowledge, is subject to change without notice and can only be considered as suitable for general guidance **Fumes:** Consult information on Welding Safety Sheet, available upon request

Ni-base solid wire

Classification

AWS A5.14/A5.14M : ERNiCr-3
ISO 18274 : S Ni 6082 (NiCr20Mn3Nb)

General description

Solid wire for welding nickel based alloys, dissimilar metals and cladding
High resistance to oxidation and high impact toughness at low temperature

Shielding gases (acc. ISO 14175)

I1 Inert gas Ar (100%)
I3 Inert gas Ar+ >0-95% He

Approvals

TÜV

+

Chemical composition (w%) typical wire / rod

C	Mn	Si	Ni	Cr	Nb	Fe	Cu
0.03	3.1	0.08	72.5	20.5	2.6	0.8	0.01

Mechanical properties, typical, all weld metal

	Shielding gas	Condition	Yield strength (N/mm ²)	Tensile strength (N/mm ²)	Elongation (%)	Impact ISO-V(J) +20°C -196°C
Typical values	I1	AW	390	640	35	150 50

Materials to be welded

Steel grades	BS3076	DIN 17744/17465 SEW 595	W.Nr.	ASTM/ACI B366	UNS
Ni-base high Cr alloyed steel for low and high corrosion searching application					
	Na 14	NiCr15Fe LC-NiCr15Fe NiCr20Ti NiCr20TiA1	2.4816 2.4817 2.4951 2.4952	B168-Alloy 600 Alloy 600L Alloy 75 Alloy 80A	N06600 N06600 N07080
	Na 15	X10NiCrAlTi32 20 NiCr23Fe	1.4876 2.4851	Alloy 800/800H Alloy 601(H)	N0800/10 N06601
	Na 17	X12NiCrSi36 16 G-X40NiCrNb35 25 G-X40NiCrSi35 25	1.4864 1.4852 1.4857	330 HP	N08330

Un- and low alloyed heat and creep resistant steel to stainless steel

Application advice

Limit heat-input (H<1.5kJ/mm) and interpass temperature (Ti<150°C)

Packaging and available sizes

Unit type	Diameter (mm)	
	1.0	1.2
15 kg spool BS300	X	X
Other sizes and packaging on request		

LNM NiCro 70/19: rev. EN 21

Ni-base solid rod

Classification

AWS A5.14/A5.14M : ERNiCr-3
ISO 18274 : S Ni 6082 (NiCr20Mn3Nb)

General description

Solid rod for welding nickel based alloys, dissimilar metals and cladding
High resistance to oxidation and high impact toughness at low temperature

Shielding gases (acc. ISO 14175)

I1 Inert gas Ar (100%)
I3 Inert gas Ar+ >0-95% He

Approvals

TÜV

+

Chemical composition (w%) typical wire / rod

C	Mn	Si	Ni	Cr	Nb	Fe	Cu
0.03	3.1	0.08	72.5	20.5	2.6	0.8	0.01

Mechanical properties, typical, all weld metal

	Shielding gas	Condition	Yield strength (N/mm ²)	Tensile strength (N/mm ²)	Elongation (%)	Impact ISO-V(J) +20°C -196°C
Typical values	I1	AW	400	680	40	150 120

Materials to be welded

Steel grades	BS3076	DIN 17744/17465 SEW 595	W.Nr.	ASTM/ACI B366	UNS
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Ni-base high Cr alloyed steel for low and high corrosion searching application

Na 14	NiCr15Fe	2.4816	B168-Alloy 600	N06600
	LC-NiCr15Fe	2.4817	Alloy 600L	N06600
	NiCr20Ti	2.4951	Alloy 75	
	NiCr20TiA1	2.4952	Alloy 80A	N07080
Na 15	X10NiCrAlTi32 20	1.4876	Alloy 800/800H	N0800/10
	NiCr23Fe	2.4851	Alloy 601(H)	N06601
Na 17	X12NiCrSi36 16	1.4864	330	N08330
	G-X40NiCrNb35 25	1.4852		
	G-X40NiCrSi35 25	1.4857	HP	

Un- and low alloyed heat and creep resistant steel to stainless steel

Application advice

Limit heat-input (H<1.5kJ/mm) and interpass temperature (Ti<150°C)

Packaging and available sizes

Unit type	Diameter (mm)		
	2.0	2.4	3.2
2 and 10 kg tube	X	X	X
Other sizes and packaging on request			

LNT NiCro 70/19: rev. EN 21

Liability: All information in this data sheet is based on the best available knowledge, is subject to change without notice and can only be considered as suitable for general guidance **Fumes:** Consult information on Welding Safety Sheet, available upon request

LNT NiCrMo 59/23

Ni-base solid rod

Classification

AWS A5.14/A5.14M : ERNiCrMo-13
ISO 18274 : S Ni 6059 (NiCr23Mo16)

General description

Solid rod for welding nickel base alloys with high CrMo content
Excellent resistance against pitting, stress, and crevice corrosion in acid sulfur phosphorus and chlorine surroundings
Suitable for dissimilar joints

Shielding gases (acc. ISO 14175)

I1 Inert gas Ar (100%)
I3 Inert gas Ar+ >0-95% He

Approvals

TÜV
+

Chemical composition (w%), Typical, rod

C	Mn	Si	Ni	Cr	Mo	Fe	Al
0.015	0.5	0.06	59	23	16	1.5	0.4

Mechanical properties, typical, all weld metal

	Shielding gas	Condition	0.2% Proof strength (N/mm ²)	Tensile strength (N/mm ²)	Elongation (%)
Typical values	I1	AW	400	720	30

Materials to be welded

Steel grades	DIN 17744	W.Nr.	ASTM / ACI	UNS
Ni-base high CrMo steel	NiCr23Mo16	2.4605		N06059
	NiMo16Cr16Ti	2.4610	C-4	N06455
	NiMo16Cr15Ti	2.4819	C-276	N10276
	NiCr21Mo 14W	2.4602	C-22	N06022
	NiCr22Mo 9Nb	2.4856	625	N06625
High Mo stainless steel for high corrosion environments	EN 10088-1/-2			
	X1 NiCrMoCuN25-20-7		1.4529	904hMo N08925
	X1 CrNiMoCuN20-18-7		1.4547	S31254

Packaging and available sizes

Unit type	Diameter (mm)
	2.0
2 kg tube	X
Other sizes and packaging on request	

LNT NiCrMo 59/23: rev. EN 21

LNM NiCrMo 60/16

Ni-base solid wire

Classification

AWS A5.14/A5.14M : ERNiCrMo-4
ISO 18274 : S Ni 6276 (NiCr15Mo16Fe6W4)

General description

Solid wire for welding CrMoW-alloyed nickel alloys (e.g. Alloy C276)

Depending on the corrosion requirements also applicable for welding C-22 and C-4

Extreme resistance to corrosion environments containing sulphuric acid and chlorides

Applicable for surfacing in high temperature applications (up to 1200°C)

Shielding gases (acc. ISO 14175)

I1 Inert gas Ar (100%)
I3 Inert gas Ar+ >0-95% He

Chemical composition (w%) typical wire / rod

C	Mn	Si	Ni	Cr	Mo	W	Fe
0.006	0.5	0.04	57.8	15.5	16.0	3.6	5.8

Mechanical properties, typical, all weld metal

Shielding gas	Condition	Yield Strength (N/mm ²)	Tensile Strength (N/mm ²)	Elongation (%)	Impact ISO-V(J) +20 °C	
Typical values	I1	AW	400	700	25	90

Materials to be welded

Steel grades	DIN/EN	Mat. Nr.	ASTM/ACI	UNS
Ni Base high CrMo steel for high corrosion environments				
	NiMo 16Cr15W	2.4819	C-276	N10276
	NiCr21Mo14W	2.4602	C-22	N06022
	NiMo 16Cr16Ti	2.4610	C-4	N06455

- LNT/LNM NiCrMo 60/16 is developed for welding C-276 material
- Can also be applied for welding C-22 and C-4, depending on the corrosion requirements

Packaging and available sizes

Unit type	Diameter (mm)	
	1.0	1.2
15 kg spool B300	X	X

LNM NiCrMo 60/16: rev. EN 21

Liability: All information in this data sheet is based on the best available knowledge, is subject to change without notice and can only be considered as suitable for general guidance **Fumes:** Consult information on Welding Safety Sheet, available upon request

LNT NiCrMo 60/16

Ni-base solid rod

Classification

AWS A5.14/A5.14M : ERNiCrMo-4
 ISO 18274 : S Ni 6276 (NiCr15Mo16Fe6W4)

General description

Solid rod for welding CrMoW-alloyed nickel alloys (e.g. Alloy C276)
 Depending on the corrosion requirements also applicable for welding C-22 and C-4
 Extreme resistance to corrosion environments containing sulphuric acid and chlorides
 Applicable for surfacing in high temperature applications (up to 1200°C)

Shielding gases (acc. ISO 14175)

I1 Inert gas Ar (100%)
 I3 Inert gas Ar+ >0-95% He

Chemical composition (w%) typical wire / rod

C	Mn	Si	Ni	Cr	Mo	W	Fe
0.006	0.5	0.04	57.8	15.5	16.0	3.6	5.8

Mechanical properties, typical, all weld metal

	Shielding gas	Condition	Yield Strength (N/mm ²)	Tensile Strength (N/mm ²)	Elongation (%)	Impact ISO-V(J) +20 °C
Typical values	I1	AW	410	720	27	100

Materials to be welded

Steel grades	DIN/EN	Mat. Nr.	ASTM/ACI	UNS
Ni Base high CrMo steel for high corrosion environments				
	NiMo 16Cr15W	2.4819	C-276	N10276
	NiCr21Mo14W	2.4602	C-22	N06022
	NiMo 16Cr16Ti	2.4610	C-4	N06455

- LNT/LNM NiCrMo 60/16 is developed for welding C-276 material
- Can also be applied for welding C-22 and C-4, depending on the corrosion requirements

Packaging and available sizes

Unit type	Diameter (mm)			
	1.6	2.0	2.4	3.2
2 kg tube	X	X	X	X

LNT NiCrMo 60/16: rev. EN 21

Liability: All information in this data sheet is based on the best available knowledge, is subject to change without notice and can only be considered as suitable for general guidance **Fumes:** Consult information on Welding Safety Sheet, available upon request

Ni-base solid wire

Classification

AWS A5.14/A5.14M : ERNiCu-7
ISO 18274 : S Ni 4060 (NiCu30MnTi)

General description

Solid wire for welding Monel and NiCu-alloys to mild and low-alloyed steels
High resistance to seawater corrosion

Shielding gases (acc. ISO 14175)

I1 Inert gas Ar (100%)
I3 Inert gas Ar+ >0-95% He

Approvals

TÜV

+

Chemical composition (w%) typical wire / rod

C	Mn	Si	Ni	Cu	Fe	Ti
0.10	3.3	0.6	64	29	1.5	2.4

Mechanical properties, typical, all weld metal

	Shielding gas	Condition	Yield strength (N/mm ²)	Tensile strength (N/mm ²)	Elongation (%)	Impact ISO-V(J) +20°C
Typical values	I1	AW	300	500	35	150

Materials to be welded

Steel grades	BS3076	DIN 17743	W.Nr.	ASTM/ACI	UNS
	NA 13	NiCu30Fe	2.4360	Monel 400	N04400
		G-NiCu30Nb	2.4365		
	NA 18	NiCu30Al	2.4375	Monel K500	N05500

Packaging and available sizes

Unit type	Diameter (mm)	
	1.0	1.2
15 kg spool BS300	X	X

Other sizes and packaging on request

LNM NiCu 70/30: rev. EN 21

Liability: All information in this data sheet is based on the best available knowledge, is subject to change without notice and can only be considered as suitable for general guidance **Fumes:** Consult information on Welding Safety Sheet, available upon request

Ni-base solid rod

Classification

AWS A5.14/A5.14M : ERNiCu-7
 ISO 18274 : S Ni 4060 (NiCu30MnTi)

General description

Solid rod for welding Monel and NiCu-alloys to mild and low-alloyed steels
 High resistance to seawater corrosion

Shielding gases (acc. ISO 14175)

I1 Inert gas Ar (100%)
 I3 Inert gas Ar+ >0-95% He

Approvals

TÜV

+

Chemical composition (w%) typical wire / rod

C	Mn	Si	Ni	Cu	Fe	Ti
0.06	3.5	0.5	65	30	1.1	2.0

Mechanical properties, typical, all weld metal

	Shielding gas	Condition	Yield strength (N/mm ²)	Tensile strength (N/mm ²)	Elongation (%)	Impact ISO-V(J)	
						+20°C	-196°C
Typical values	I1	AW	350	550	40	160	140

Materials to be welded

Steel grades	BS3076	DIN 17743	W.Nr.	ASTM/ACI	UNS
	NA 13	NiCu30Fe	2.4360	Monel 400	N04400
		G-NiCu30Nb	2.4365		
	NA 18	NiCu30Al	2.4375	Monel K500	N05500

Packaging and available sizes

Unit type	Diameter (mm)			
	1.6	2.0	2.4	3.2
2 and 10 kg tube	X	X	X	X

Other sizes and packaging on request

LNT NiCu 70/30: rev. EN 21

Liability: All information in this data sheet is based on the best available knowledge, is subject to change without notice and can only be considered as suitable for general guidance **Fumes:** Consult information on Welding Safety Sheet, available upon request

Ni-base solid wire

Classification

AWS A5.14/A5.14M : ERNi1
 ISO 18274 : S Ni 2061 (NiTi3)

General description

Solid wire for welding pure nickel and nickel alloys and joining these materials with unalloyed/low-alloyed steel
 Suitable for surfacing carbon steels

Shielding gases (acc. ISO 14175)

I1 Inert gas Ar (100%)
 I3 Inert gas Ar+ >0-95% He

Approvals

TÜV
 +

Chemical composition (w%) typical wire / rod

C	Mn	Si	Ni	Ti	Fe
0.02	0.4	0.2	96.2	3.1	0.06

Mechanical properties, typical, all weld metal

	Shielding gas	Condition	0.2% Proof strength (N/mm ²)	Tensile strength (N/mm ²)	Elongation (%)	Impact ISO-V(J) +20°C
Typical values	I1	AW	250	460	30	120

Materials to be welded

DIN-classification	W.Nr.	ASTM/ACI
Ni 99.6	2.4060	
Ni 99.8	2.4050	
Ni 99.6Si	2.4056	
Ni 99.4Fe	2.4062	
Ni 99.2	2.4066	Alloy 200
LC-Ni 99	2.4068	Alloy 201
LC-Ni 99.6	2.4061	Alloy 205
NiMn 10	2.4108	
NiMn 5	2.4116	

Packaging and available sizes

Unit type	Diameter (mm)
	1.2
15 kg spool BS300	X
Other sizes and packaging on request	

LNМ NiTi: rev. EN 21

Liability: All information in this data sheet is based on the best available knowledge, is subject to change without notice and can only be considered as suitable for general guidance **Fumes:** Consult information on Welding Safety Sheet, available upon request

Ni-base solid rod

Classification

AWS A5.14/A5.14M : ERNi1
ISO 18274 : S Ni 2061 (NiTi3)

General description

Solid rod for welding pure nickel and nickel alloys and joining these materials with unalloyed/low-alloyed steel
Suitable for surfacing carbon steels

Shielding gases (acc. ISO 14175)

I1 Inert gas Ar (100%)
I3 Inert gas Ar+ >0-95% He

Chemical composition (w%) typical wire / rod

C	Mn	Si	Ni	Ti	Fe
0.03	0.5	0.4	bal.	2.8	0.06

Mechanical properties, typical, all weld metal

	Shielding gas	Condition	0.2% Proof strength (N/mm ²)	Tensile strength (N/mm ²)	Elongation (%)	Impact ISO-V(J) +20°C
Typical values	I1	AW	250	460	30	120

Materials to be welded

DIN-classification	W.Nr.	ASTM/ACI
Ni 99.6	2.4060	
Ni 99.8	2.4050	
Ni 99.6Si	2.4056	
Ni 99.4Fe	2.4062	
Ni 99.2	2.4066	Alloy 200
LC-Ni 99	2.4068	Alloy 201
LC-Ni 99.6	2.4061	Alloy 205
NiMn 10	2.4108	
NiMn 5	2.4116	

Packaging and available sizes

Unit type	Diameter (mm)	
	2.0	2.4
2 and 10 kg tube	X	X
Other sizes and packaging on request		

LNT NiTi: rev. EN 21

Liability: All information in this data sheet is based on the best available knowledge, is subject to change without notice and can only be considered as suitable for general guidance **Fumes:** Consult information on Welding Safety Sheet, available upon request

Ni-base solid wire

Classification

AWS A5.15 : ENiFe-CI
 ISO 1071 : S NiFe-CI

General description

Solid wire for butt welds and hardfacing application in cast iron
 Suitable for dissimilar joints cast iron/steel
 Hardness approximately 200HB
 Optimal welding characteristics

Shielding gases (acc. ISO 14175)

I1 Inert gas Ar (100%)
 I3 Inert gas Ar+ >0-95% He

Chemical composition (w%) typical wire

C	Mn	Si	Ni	Fe	Cu
0.05	0.83	0.14	54.8	43.8	0.4

Mechanical properties, all weld metal

Typical hardness values
 2 Layers, AW approx. 200 HB

Packaging and available sizes

Unit type Diameter (mm)
 1.2
 15 kg spool BS300 X
 Other sizes and packaging on request

LNM NiFe: rev. EN 21

Liability: All information in this data sheet is based on the best available knowledge, is subject to change without notice and can only be considered as suitable for general guidance **Fumes:** Consult information on Welding Safety Sheet, available upon request

Cu-base solid wire

Classification

AWS A5.7 : ERCuAl-A1
 EN 14640 : S Cu 6100 (CuAl8)

General description

Solid wire for welding copper-aluminium alloys, as aluminiumbronze
 High resistance to corrosion and wear

Shielding gases (acc. ISO 14175)

I1 Inert gas Ar (100%)
 I3 Inert gas Ar+ >0-95% He

Chemical composition (w%) typical wire

Cu	Al	Mn
bal.	8	0.3

Mechanical properties, typical, all weld metal

Shielding gas	Condition	0.2% Proof strength (N/mm ²)	Tensile strength (N/mm ²)	Elongation (%)	Hardness HB	
Typical values	I1	AW	185	430	30	95

Materials to be welded

Steel grades	Code	Type	W.Nr.
Copper-aluminium wrought alloys			
	DIN 17665	CuAl5As	2.0918
		CuAl8	2.0920
Copper-aluminium cast alloys			
	DIN 1714	G-CuAl8Mn	2.0962

Packaging and available sizes

Unit type	Diameter (mm)				
	0.8	1.0	1.2	1.6	2.0
12 kg spool B300	X	X	X	X	X

Other sizes and packaging on request

LNM CuAl8: rev. EN 21

Liability: All information in this data sheet is based on the best available knowledge, is subject to change without notice and can only be considered as suitable for general guidance **Fumes:** Consult information on Welding Safety Sheet, available upon request

Cu-base solid rod

Classification

AWS A5.7 : ERCuAl-A1
 EN 14640 : S Cu 6100 (CuAl8)

General description

Solid rod for welding copper-aluminium alloys, as aluminiumbronze
 High resistance to corrosion and wear

Shielding gases (acc. ISO 14175)

I1 Inert gas Ar (100%)
 I3 Inert gas Ar+ >0-95% He

Chemical composition (w%) typical wire

Cu	Al	Mn
bal.	8	0.3

Mechanical properties, typical, all weld metal

Shielding gas	Condition	0.2% Proof strength (N/mm ²)	Tensile strength (N/mm ²)	Elongation (%)	Hardness HB	
Typical values	I1	AW	185	430	30	95

Materials to be welded

Steel grades	Code	Type	W.Nr.
Copper-aluminium wrought alloys			
	DIN 17665	CuAl5As	2.0918
		CuAl8	2.0920
Copper-aluminium cast alloys			
	DIN 1714	G-CuAl8Mn	2.0962

Packaging and available sizes

Unit type	Diameter (mm)
	2.0
2 kg tube	X
Other sizes and packaging on request	

LNT CuAl8: rev. EN 21

Liability: All information in this data sheet is based on the best available knowledge, is subject to change without notice and can only be considered as suitable for general guidance **Fumes:** Consult information on Welding Safety Sheet, available upon request

Cu-base solid wire

Classification

AWS A5.7 : ERCuNi
EN 14640 : S Cu 7158 (CuNi30)

General description

Solid wire for welding copper-nickel alloys containing 10-30%Ni

Shielding gases (acc. ISO 14175)

I1 Inert gas Ar (100%)
I3 Inert gas Ar+ >0-95% He

Chemical composition (w%) typical wire / rod

Cu	Mn	Ni
bal.	0.8	31

Mechanical properties, typical, all weld metal

	Shielding gas	Condition	Yield strength (N/mm ²)	Tensile strength (N/mm ²)	Elongation (%)	Hardness HB
Typical values	I1	AW	220	380	30	70

Materials to be welded

Steel grades	Code	Type	W.Nr.	UNS
Copper-nickel wrought alloys	DIN 17664	CuNi10Fe1Mn	2.0872	C 70600
		CuNi30Mn1Fe	2.0882	C 71500
		CuNi30Fe2Mn2	2.0883	C 71600
Copper-nickel cast alloys	DIN 17658	G-CuNi10	2.0815	
		G-CuNi30	2.0835	

Packaging and available sizes

Unit type	Diameter (mm)	
	0.8	1.2
12 kg spool B300	X	X
Other sizes and packaging on request		

LNM CuNi30: rev. EN 21

Liability: All information in this data sheet is based on the best available knowledge, is subject to change without notice and can only be considered as suitable for general guidance **Fumes:** Consult information on Welding Safety Sheet, available upon request

Cu-base solid rod

Classification

AWS A5.7 : ERCuNi
EN 14640 : S Cu 7158 (CuNi30)

General description

Solid rod for welding copper-nickel alloys containing 10-30%Ni

Shielding gases (acc. ISO 14175)

I1 Inert gas Ar (100%)
I3 Inert gas Ar+ >0-95% He

Approvals

TÜV

+

Chemical composition (w%) typical wire / rod

Cu	Mn	Ni	Si	Ti	Fe
bal.	0.75	30	0.05	0.35	0.5

Mechanical properties, typical, all weld metal

	Shielding gas	Condition	Yield strength (N/mm ²)	Tensile strength (N/mm ²)	Elongation (%)	Impact ISO-V(J) +20°C	Hardness HB
Typical values	I1	AW	250	400	30	100	70

Materials to be welded

Steel grades	Code	Type	W.Nr.	UNS
Copper-nickel wrought alloys	DIN 17664	CuNi10Fe1Mn	2.0872	C 70600
		CuNi30Mn1Fe	2.0882	C 71500
		CuNi30Fe2Mn2	2.0883	C 71600
Copper-nickel cast alloys	DIN 17658	G-CuNi10	2.0815	
		G-CuNi30	2.0835	

Packaging and available sizes

Unit type	Diameter (mm)			
	1.6	2.0	2.4	3.2
2 kg tube	X	X	X	X
Other sizes and packaging on request				

LNT CuNi30: rev. EN 21

Liability: All information in this data sheet is based on the best available knowledge, is subject to change without notice and can only be considered as suitable for general guidance **Fumes:** Consult information on Welding Safety Sheet, available upon request

Cu-base solid wire

Classification

AWS A5.7 : ERCu
 EN 14640 : S Cu 1898 (CuSn1)

General description

Solid wire for GMA-welding of copper

Shielding gases (acc. ISO 14175)

I1 Inert gas Ar (100%)
 I3 Inert gas Ar+ >0-95% He

Chemical composition (w%) typical wire

Cu	Mn	Si	Sn	Ni
bal.	0.2	0.3	0.8	0.1

Mechanical properties, typical, all weld metal

	Shielding gas	Condition	0.2% Proof strength (N/mm ²)	Tensile strength (N/mm ²)	Elongation (%)	Hardness HB
Typical values	I1	AW	100	220	60	35

Materials to be welded

Steel grades	Code	Type	W.Nr.
Copper	DIN 1787	OF-Cu	2.0040
		SE-Cu	2.0070
		SW-Cu	2.0076
		SF-Cu	2.0090
Wrought low alloyed copper alloys	DIN 17666	CuFe2P	2.1310
		CuSP	2.1498
		CuTeP	2.1546

Packaging and available sizes

Unit type	Diameter (mm)	
	1.0	1.2
12 kg spool B300	X	X
Other sizes and packaging on request		

LNM CuSn: rev. EN 21

Liability: All information in this data sheet is based on the best available knowledge, is subject to change without notice and can only be considered as suitable for general guidance **Fumes:** Consult information on Welding Safety Sheet, available upon request

Cu-base solid rod

Classification

AWS A5.7 : ERCuSn-A
 EN 14640 : S Cu 5180 (CuSn6P)

General description

Solid rod for GTA-welding of copper-tin alloys

Shielding gases (acc. ISO 14175)

I1 Inert gas Ar (100%)
 I3 Inert gas Ar+ >0-95% He

Chemical composition (w%), Typical, rod

Cu	Sn	P
bal.	6	0.2

Mechanical properties, typical, all weld metal

	Shielding gas	Condition	Yield strength (N/mm ²)	Tensile strength (N/mm ²)	Elongation (%)	Impact ISO-V(J) +20°C	Hardness HB
Typical values	I3	AW	150	260	20	80	75

Materials to be welded

Steel grades	Code	Type	W.Nr.	
Copper-tin wrought alloys	DIN 17662	CuSn4	2.1016	
			CuSn6	2.1020
			CuSn8	2.1030
Copper-tin cast alloys	DIN 1705	G-CuSn2ZnPb	2.1098	
		G-CuSn5ZnPb	2.1096	
		G-CuSn6ZnNi	2.1093	

Packaging and available sizes

Unit type	Diameter (mm)			
	2.0	2.4	3.2	4.0
2 kg tube	X	X	X	X

Other sizes and packaging on request

LNT CuSn6: rev. EN 21

Liability: All information in this data sheet is based on the best available knowledge, is subject to change without notice and can only be considered as suitable for general guidance **Fumes:** Consult information on Welding Safety Sheet, available upon request

Cu-base solid wire

Classification

EN 14640 : S Cu 5410 (CuSn12P)

General description

Solid wire for GMA-welding of copper-tin and copper-zinc alloy

Shielding gases (acc. ISO 14175)

I1 Inert gas Ar (100%)
 I3 Inert gas Ar+ >0-95% He

Chemical composition (w%) typical wire

Cu	Sn	P
bal.	12	0.2

Mechanical properties, typical, all weld metal

	Shielding gas	Condition	0.2% Proof strength (N/mm ²)	Tensile strength (N/mm ²)	Elongation (%)
Typical values	I1	AW	100	250	30

Materials to be welded

Copper-tin alloys, e.g. bronze with 10-12% tin
 Copper-zinc alloys e.g. brass

Packaging and available sizes

Unit type	Diameter (mm)
	0.8
12 kg spool B300	X
Other sizes and packaging on request	

LNM CuSn12: rev. EN 21

Liability: All information in this data sheet is based on the best available knowledge, is subject to change without notice and can only be considered as suitable for general guidance **Fumes:** Consult information on Welding Safety Sheet, available upon request

Cu-base solid rod

Classification

AWS A5.7 : ERCuSi-A
 EN 14640 : S Cu 6560 (CuSi3Mn1)

General description

Solid rod for GTA-welding of low-alloyed copper grades
 High temperature and corrosion resistant

Shielding gases (acc. ISO 14175)

I1 Inert gas Ar (100%)
 I3 Inert gas Ar+ >0-95% He

Chemical composition (w%), Typical, rod

Cu	Mn	Si	Sn	Zn
bal.	1.0	3.0	0.1	0.1

Mechanical properties, typical, all weld metal

	Shielding gas	Condition	Yield strength (N/mm ²)	Tensile strength (N/mm ²)	Elongation (%)	Impact ISO-V(J) +20°C	Hardness HB
Typical values	I1	AW	120	350	40	60	95

Materials to be welded

Copper, low alloyed copper and copper-zinc alloys

Packaging and available sizes

Unit type	Diameter (mm)	
	2.0	2.4
2 kg tube	X	X

Other sizes and packaging on request

LNT CuSi3: rev. EN 21

Liability: All information in this data sheet is based on the best available knowledge, is subject to change without notice and can only be considered as suitable for general guidance **Fumes:** Consult information on Welding Safety Sheet, available upon request

Aluminium wire

Classification

AWS A5.10 : ER4043
 ISO 18273 : S Al 4043 A (AlSi5)

General description

Solid wire for welding of aluminium-silicium alloys
Excellent feedability and very consistent welding performance
Tight and stable arc
Also available in 120 kg AccuPak®, that increases productivity by reducing time to change spools

Shielding gases (acc. ISO 14175)

I1 Inert gas Ar (100%)
 I3 Inert gas Ar+ >0-95% He

Approvals

TÜV
 +

Chemical composition (w%) typical wire / rod

Al	Mn	Si	Ti	Fe	Zn	Cu	Mg
bal.	0.01	4.7	0.001	0.3	0.002	0.01	0.004

Mechanical properties, typical

	Shielding gas	Condition	0.2% Proof strength (N/mm ²)	Tensile strength (N/mm ²)	Elongation (%)	Impact ISO-V(J)	
						+20°C	-60°C
Typical values	I1	AW	100	160	15	20	20

Physical properties

Melting range 573 - 625°C
 Density approximately 2680 kg/m³

Materials to be welded

Steel grades	Code	Type	W.Nr.	Int.Reg.Nr.	Int.Cast.Nr.
Aluminium cast alloys	DIN 1725-1	Al Mg Si 0.5	3.3206	6060	
		Al Mg Si 0.7	3.3210	6005A	
		Al Mg Si 0.8	3.2316	6181	
Aluminium cast alloys	DIN 1725-2	G-Al Si 5			443.0

Packaging and available sizes

Unit type	Diameter (mm)			
	0.8	1.0	1.2	1.6
0.5 kg plastic spool S100	X	X	X	X
7.26 kg spool S300	X	X	X	X
7.0 kg spool BS300	X	X	X	X
120 kg AccuPak			X	

Other sizes and packaging on request

SuperGlaze® MIG 4043: rev. EN 21

Liability: All information in this data sheet is based on the best available knowledge, is subject to change without notice and can only be considered as suitable for general guidance **Fumes:** Consult information on Welding Safety Sheet, available upon request

Aluminium rod

Classification

AWS A5.10 : ER4043
 ISO 18273 : S Al 4043 A (AlSi5)

General description

Solid rod for welding of aluminium-silicium alloys
 Excellent feedability and very consistent welding performance
 Tight and stable arc

Shielding gases (acc. ISO 14175)

I1 Inert gas Ar (100%)

Approvals

TÜV

+

Chemical composition (w%) typical wire / rod

Al	Mn	Si	Ti	Fe	Zn
bal.	0.005	5.0	0.15	0.4	0.1

Mechanical properties, typical

	Shielding gas	Condition	0.2% Proof strength (N/mm ²)	Tensile strength (N/mm ²)	Elongation (%)	Impact ISO-V(J)	
						+20°C	-60°C
Typical values	I1	AW	100	160	15	20	20

Physical properties

Melting range 573 - 625°C
 Density approximately 2680 kg/m³

Materials to be welded

Steel grades	Code	Type	W.Nr.	Int.Reg.Nr.	Int.Cast.Nr.
Aluminium cast alloys	DIN 1725-1	Al Mg Si 0.5	3.3206	6060	
		Al Mg Si 0.7	3.3210	6005A	
		Al Mg Si 0.8	3.2316	6181	
Aluminium cast alloys	DIN 1725-2	G-Al Si 5			443.0

Packaging and available sizes

Unit type	Diameter (mm)				
	1.6	2.0	2.4	3.2	4.0
2 and 5 kg tube	X	X	X	X	X
Other sizes and packaging on request					

SuperGlaze® TIG 4043: rev. EN 21

Liability: All information in this data sheet is based on the best available knowledge, is subject to change without notice and can only be considered as suitable for general guidance **Fumes:** Consult information on Welding Safety Sheet, available upon request

Aluminium wire

Classification

AWS A5.10 : ER5183
ISO 18273 : S Al 5183 (AlMg4.5Mn0,7)

General description

Solid wire for welding of high strength aluminium alloys and low temperature applications (-196°C)

Excellent feedability and very consistent welding performance

Tight and stable arc

Also available in 90 kg AccuPak®, that increases productivity by reducing time to change spools

Shielding gases (acc. ISO 14175)

I1 Inert gas Ar (100%)
I3 Inert gas Ar+ >0-95% He

Approvals

ABS	BV	DNV	GL	LR	TÜV
WC	WC	5183	S AlMg4.5Mn	+	+

Chemical composition (w%) typical wire / rod

Al	Mn	Si	Ti	Mg	Zn	Cr	Fe	Cu
bal.	0.8	0.09	0.02	4.5	0.15	0.15	0.14	0.02

Mechanical properties, typical

	Shielding gas	Condition	0.2% Proof strength (N/mm ²)	Tensile strength (N/mm ²)	Elongation (%)
Typical values	I1	AW	140	300	30

Physical properties

Melting range 568 - 638°C
Density approximately 2400 kg/m³

Materials to be welded

Steel grades	Code	Type	W.Nr.	Int.Reg.Nr.	Int.Cast.Nr.
Aluminium wrought alloys	DIN 1725-1	Al Mg 3	3.3535	5754	
		Al Mg 4.5 Mn	3.3547	5083	
		Al Mg 5	3.3555	6082	
		Al Mg Si 1			
Aluminium cast alloys	DIN 1725-2	G-Al Mg 3	3.3541		
		G-Al Mg 3 Si	3.3241		512.0
		G-Al Mg 5	3.3561		B 535.0
		G-Al Mg 5 Si	3.3261		

Packaging and available sizes

Unit type	Diameter (mm)			
	0.8	1.0	1.2	1.6
7.26 kg spool S300	X	X	X	X
7.0 kg spool BS300	X	X	X	X
90 kg AccuPak			X	
Other sizes and packaging on request				

SuperGlaze® MIG 5183: rev. EN 21

Liability: All information in this data sheet is based on the best available knowledge, is subject to change without notice and can only be considered as suitable for general guidance **Fumes:** Consult information on Welding Safety Sheet, available upon request

Aluminium rod

Classification

AWS A5.10 : ER5183
 ISO 18273 : S Al 5183 (AlMg4.5Mn0,7)

General description

Solid rod for welding of high strength aluminium alloys and low temperature applications (-196°C)
 Excellent feedability and very consistent welding performance
 Tight and stable arc

Shielding gases (acc. ISO 14175)

I1 Inert gas Ar (100%)

Approvals

TÜV

+

Chemical composition (w%) typical wire / rod

Al	Mn	Si	Ti	Mg	Zn	Cr	Fe
bal.	0.8	0.09	0.02	4.5	0.15	0.15	0.2

Mechanical properties, typical

	Shielding gas	Condition	0.2% Proof strength (N/mm ²)	Tensile strength (N/mm ²)	Elongation (%)
Typical values	I1	AW	150	290	25

Physical properties

Melting range 568 - 638°C
 Density approximately 2400 kg/m³

Materials to be welded

Steel grades	Code	Type	W.Nr.	Int.Reg.Nr.	Int.Cast.Nr.
Aluminium wrought alloys	DIN 1725-1	Al Mg 3	3.3535	5754	
		Al Mg 4.5 Mn	3.3547	5083	
		Al Mg 5	3.3555	6082	
		Al Mg Si 1			
Aluminium cast alloys	DIN 1725-2	G-Al Mg 3	3.3541		
		G-Al Mg 3 Si	3.3241		512.0
		G-Al Mg 5	3.3561		B 535.0
		G-Al Mg 5 Si	3.3261		

Packaging and available sizes

Unit type	Diameter (mm)				
	1.6	2.0	2.4	3.2	4.0
5 kg tube	X	X	X	X	X

Other sizes and packaging on request

SuperGlaze® TIG 5183: rev. EN 21

Liability: All information in this data sheet is based on the best available knowledge, is subject to change without notice and can only be considered as suitable for general guidance **Fumes:** Consult information on Welding Safety Sheet, available upon request

Aluminium wire

Classification

AWS A5.10 : ER5356
 ISO 18273 : S Al 5356 (AlMg5Cr)

General description

Solid wire for welding aluminium alloys containing more than 3% Mg
Excellent feedability and very consistent welding performance
Tight and stable arc
Also available in 90 kg AccuPak®, that increases productivity by reducing time to change spools

Shielding gases (acc. ISO 14175)

I1 Inert gas Ar (100%)
 I3 Inert gas Ar+ >0-95% He

Approvals

ABS	BV	DNV	GL	LR	TÜV
WB	WB	5356	S ALMg5	+	+

Chemical composition (w%) typical wire / rod

Al	Mn	Si	Ti	Mg	Cr	Cu	Fe	Zn
bal.	0.11	0.08	0.06	4.9	0.07	0.01	0.2	0.03

Mechanical properties, typical

	Shielding gas	Condition	0.2% Proof strength (N/mm²)	Tensile strength (N/mm²)	Elongation (%)
Typical values	I1	AW	110	250	25

Physical properties

Melting range 562 - 633°C
 Density approximately 2640 kg/m³

Materials to be welded

Steel grades	Code	Type	W.Nr.	Int.Reg.Nr.	Int.Cast.Nr.
Aluminium wrought alloys	DIN 1725-1	Al Mg 3	3.3535	5754	
		Al Mg 4,5	3.3345	5082	
		Al Mg 5	3.3555	5056A	
		Al Mg 2 Mn 0,8	3.3527	5049	
		Al Mg 2,7 Mn	3.3537	5454	
		Al Mg 4 Mn	3.3545	5086	
		Al Zn 4,5 Mg 1	3.4335	7020	
Aluminium cast alloys	DIN 1725-2	G-Al Mg 3	3.3541		
		G-Al Mg 3 Si	3.3241		512.0
		G-Al Mg 5	3.3561		B 535.0
		G-Al Mg 5 Si	3.3261		

Packaging and available sizes

Unit type	Diameter (mm)			
	0.8	1.0	1.2	1.6
0.5 kg plastic spool S100	X	X	X	X
2.0 kg plastic spool S200			X	
7.26 kg spool S300	X	X	X	X
7.0 kg spool BS300	X	X	X	X
90 kg AccuPak			X	

Other sizes and packaging on request

SuperGlaze® MIG 5356: rev. EN 21

Liability: All information in this data sheet is based on the best available knowledge, is subject to change without notice and can only be considered as suitable for general guidance **Fumes:** Consult information on Welding Safety Sheet, available upon request

Aluminium rod

Classification

AWS A5.10 : ER5356
ISO 18273 : S Al 5356 (AlMg5Cr)

General description

Solid rod for welding aluminium alloys containing more than 3% Mg
Excellent feedability and very consistent welding performance
Tight and stable arc

Shielding gases (acc. ISO 14175)

I1 Inert gas Ar (100%)

Approvals

TÜV
+

Chemical composition (w%) typical wire / rod

Al	Mn	Si	Ti	Mg	Cr
bal.	0.10	0.01	0.10	5.0	0.15

Mechanical properties, typical

	Shielding gas	Condition	0.2% Proof strength (N/mm ²)	Tensile strength (N/mm ²)	Elongation (%)
Typical values	I1	AW	130	285	25

Physical properties

Melting range 562 - 633°C
Density approximately 2640 kg/m³

Materials to be welded

Steel grades	Code	Type	W.Nr.	Int.Reg.Nr.	Int.Cast.Nr.
Aluminium wrought alloys	DIN 1725-1	Al Mg 3	3.3535	5754	
		Al Mg 4,5	3.3345	5082	
		Al Mg 5	3.3555	5056A	
		Al Mg 2 Mn 0,8	3.3527	5049	
		Al Mg 2,7 Mn	3.3537	5454	
		Al Mg 4 Mn	3.3545	5086	
		Al Zn 4,5 Mg 1	3.4335	7020	
		Aluminium cast alloys	DIN 1725-2	G-Al Mg 3	3.3541
G-Al Mg 3 Si	3.3241				512.0
G-Al Mg 5	3.3561				B 535.0
G-Al Mg 5 Si	3.3261				

Packaging and available sizes

Unit type	Diameter (mm)					
	1.6	2.0	2.4	3.2	4.0	5.0
5 kg tube	X	X	X	X	X	X
Other sizes and packaging on request						

SuperGlaze® TIG 5356: rev. EN 21

Liability: All information in this data sheet is based on the best available knowledge, is subject to change without notice and can only be considered as suitable for general guidance **Fumes:** Consult information on Welding Safety Sheet, available upon request

Aluminium wire

Classification

AWS A5.10 : ER1100*

* Nearest classification

General description

Solid wire for welding pure aluminium with maximum of 0.5% alloying elements

Shielding gases (acc. ISO 14175)

I1 Inert gas Ar (100%)
I3 Inert gas Ar+ >0-95% He

Chemical composition (w%) typical wire / rod

Al	Zn	Ti	Cu	Mn	Si	Si+Fe	Fe
bal.	0.02	0.04	0.04	<0.01	0.05	0.2	0.12

Mechanical properties, typical

	Shielding gas	Condition	0.2% Proof strength (N/mm ²)	Tensile strength (N/mm ²)	Elongation (%)
Typical values	I1	AW	30	80	40

Physical properties

Melting range 647 - 658°C
Density approximately 2700 kg/m³

Materials to be welded

Code	Type	W.Nr.	Int.Reg.Nr.
DIN 1712-3	Al 99.8	3.0285	1080 A
	Al 99.7	3.0275	1070 A
	Al 99.5	3.0255	1050 A
	E-Al	3.0257	1350 A
	Al 99	3.0205	1200

Packaging and available sizes

Unit type	Diameter (mm)		
	1.0	1.2	1.6
7 kg spool B300	X	X	X
Other sizes and packaging on request			

LNM AI99.5: rev. EN 21

Liability: All information in this data sheet is based on the best available knowledge, is subject to change without notice and can only be considered as suitable for general guidance **Fumes:** Consult information on Welding Safety Sheet, available upon request

Aluminium rod

Classification

AWS A5.10 : ER1100*

* Nearest classification

General description

Solid rod for welding pure aluminium with maximum of 0.5% alloying elements

Shielding gases (acc. ISO 14175)

I1 Inert gas Ar (100%)

Chemical composition (w%) typical wire / rod

Al	Zn	Ti	Cu	Mn	Si
bal.	0.02	0.04	0.04	<0.01	0.05

Mechanical properties, typical

	Shielding gas	Condition	0.2% Proof strength (N/mm ²)	Tensile strength (N/mm ²)	Elongation (%)
Typical values	I1	AW	30	80	40

Physical properties

Melting range 647 - 658°C
Density approximately 2700 kg/m³

Materials to be welded

Code	Type	W.Nr.	Int.Reg.Nr.
DIN 1712-3	Al 99.8	3.0285	1080 A
	Al 99.7	3.0275	1070 A
	Al 99.5	3.0255	1050 A
	E-Al	3.0257	1350 A
	Al 99	3.0205	1200

Packaging and available sizes

Unit type	Diameter (mm)			
	2.0	2.4	3.2	4.0
5 kg tube	X	X	X	X

Other sizes and packaging on request

LNT AI99.5: rev. EN 21

Liability: All information in this data sheet is based on the best available knowledge, is subject to change without notice and can only be considered as suitable for general guidance **Fumes:** Consult information on Welding Safety Sheet, available upon request

Aluminium wire

Classification

ISO 18273 : S Al 5754 (AlMg3)

General description

Solid wire for welding of aluminium alloys up to 3%Mg

Shielding gases (acc. ISO 14175)

I1 Inert gas Ar (100%)
I3 Inert gas Ar+ >0-95% He

Approvals

TÜV

+

Chemical composition (w%) typical wire / rod

Al	Mg	Zn	Cr	Ti	Mn	Si	Cu	Fe
bal.	3.4	0.1	0.19	0.09	0.01	0.06	0.01	0.13

Mechanical properties, typical

	Shielding gas	Condition	0.2% Proof strength (N/mm ²)	Tensile strength (N/mm ²)	Elongation (%)
Typical values	I1	AW	100	210	30

Physical properties

Melting range 580 - 642°C
Density approximately 2660 kg/m³

Materials to be welded

Steel grades	Code	Type	W.Nr.	Int.Reg.Nr.	Int.Cast.Nr.
Aluminium wrought alloys	DIN 1725-1	Al Mg 1	3.3315	5005 A	
		Al Mg 1.5	3.3316	5050 B	
		Al Mg 1.8	3.3326	5051 A	
		Al Mg 2.5	3.3523	5052	
		Al Mg 3	3.3535	5754	
		Al Mg 1	3.0515	3103	
		Al Mg Si 0.5	3.3206	6060	
		Al Mg Si 0.7	3.3210	6005 A	
		Al Mg Si 0.8	3.2316	6181	
		Aluminium cast alloys	DIN 1725-2	G-AlMg 3	3.3541
G-AlMg 3 Si	3.3241				512.0

Packaging and available sizes

Unit type	Diameter (mm)		
	1.0	1.2	1.6
7 kg spool B300	X	X	X
Other sizes and packaging on request			

LNM AlMg3: rev. EN 21

Liability: All information in this data sheet is based on the best available knowledge, is subject to change without notice and can only be considered as suitable for general guidance **Fumes:** Consult information on Welding Safety Sheet, available upon request

Aluminium rod

Classification

ISO 18273 : S Al 5754 (AlMg3)

General description

Solid rod for welding of aluminium alloys up to 3%Mg

Shielding gases (acc. ISO 14175)

I1 Inert gas Ar (100%)

Approvals

TÜV

+

Chemical composition (w%) typical wire / rod

Al	Mg	Zn	Cr	Ti	Mn	Si	Cu
bal.	3.2	0.1	0.20	0.10	0.01	0.06	0.01

Mechanical properties, typical

	Shielding gas	Condition	0.2% Proof strength (N/mm ²)	Tensile strength (N/mm ²)	Elongation (%)
Typical values	I1	AW	100	220	33

Physical properties

Melting range 580 - 642°C
Density approximately 2660 kg/m³

Materials to be welded

Steel grades	Code	Type	W.Nr.	Int.Reg.Nr.	Int.Cast.Nr.
Aluminium wrought alloys	DIN 1725-1	Al Mg 1	3.3315	5005 A	
		Al Mg 1.5	3.3316	5050 B	
		Al Mg 1.8	3.3326	5051 A	
		Al Mg 2.5	3.3523	5052	
		Al Mg 3	3.3535	5754	
		Al Mg 1	3.0515	3103	
		Al Mg Si 0.5	3.3206	6060	
		Al Mg Si 0.7	3.3210	6005 A	
		Al Mg Si 0.8	3.2316	6181	
		Aluminium cast alloys	DIN 1725-2	G-AlMg 3	3.3541
G-AlMg 3 Si	3.3241				512.0

Packaging and available sizes

Unit type	Diameter (mm)				
	1.6	2.0	2.4	3.2	4.0
5 kg tube	X	X	X	X	X
Other sizes and packaging on request					

LNT AlMg3: rev. EN 21

Liability: All information in this data sheet is based on the best available knowledge, is subject to change without notice and can only be considered as suitable for general guidance **Fumes:** Consult information on Welding Safety Sheet, available upon request

Aluminium wire

Classification

AWS A5.10	: ER5356
ISO 18273	: S Al 5356 (AIMg5Cr)

General description

Solid wire for welding aluminium alloys containing more than 3% Mg

Shielding gases (acc. ISO 14175)

I1	Inert gas Ar (100%)
I3	Inert gas Ar+ >0-95% He

Approvals

ABS	BV	DNV	GL	LR	TÜV
WB	WB	5356	S ALMg5	+	+

Chemical composition (w%) typical wire / rod

Al	Mn	Si	Ti	Mg	Cr	Cu	Fe	Zn
bal.	0.11	0.08	0.06	4.9	0.07	0.01	0.2	0.03

Mechanical properties, typical

	Shielding gas	Condition	0.2% Proof strength (N/mm ²)	Tensile strength (N/mm ²)	Elongation (%)
Typical values	I1	AW	110	250	25

Physical properties

Melting range	562 - 633°C
Density	approximately 2640 kg/m ³

Materials to be welded

Steel grades	Code	Type	W.Nr.	Int.Reg.Nr.	Int.Cast.Nr.
Aluminium wrought alloys	DIN 1725-1	Al Mg 3	3.3535	5754	
		Al Mg 4,5	3.3345	5082	
		Al Mg 5	3.3555	5056A	
		Al Mg 2 Mn 0,8	3.3527	5049	
		Al Mg 2,7 Mn	3.3537	5454	
		Al Mg 4 Mn	3.3545	5086	
		Al Zn 4,5 Mg 1	3.4335	7020	
		Aluminium cast alloys	DIN 1725-2	G-Al Mg 3	3.3541
G-Al Mg 3 Si	3.3241				512.0
G-Al Mg 5	3.3561				B 535.0
G-Al Mg 5 Si	3.3261				

Packaging and available sizes

Unit type	Diameter (mm)			
	0.8	1.0	1.2	1.6
7 kg spool B300	X	X	X	X

Other sizes and packaging on request

LNM AIMg5: rev. EN 21

Liability: All information in this data sheet is based on the best available knowledge, is subject to change without notice and can only be considered as suitable for general guidance **Fumes:** Consult information on Welding Safety Sheet, available upon request

Aluminium rod

Classification

AWS A5.10 : ER5356
ISO 18273 : S Al 5356 (AlMg5Cr)

General description

Solid rod for welding aluminium alloys containing more than 3% Mg

Shielding gases (acc. ISO 14175)

I1 Inert gas Ar (100%)

Approvals

RINA	TÜV
RC	+

Chemical composition (w%) typical wire / rod

Al	Mn	Si	Ti	Mg	Cr
bal.	0.10	0.10	0.10	5.0	0.15

Mechanical properties, typical

	Shielding gas	Condition	0.2% Proof strength (N/mm ²)	Tensile strength (N/mm ²)	Elongation (%)
Typical values	I1	AW	130	285	25

Physical properties

Melting range 562 - 633°C
Density approximately 2640 kg/m³

Materials to be welded

Steel grades	Code	Type	W.Nr.	Int.Reg.Nr.	Int.Cast.Nr.
Aluminium wrought alloys	DIN 1725-1	Al Mg 3	3.3535	5754	
		Al Mg 4,5	3.3345	5082	
		Al Mg 5	3.3555	5056A	
		Al Mg 2 Mn 0,8	3.3527	5049	
		Al Mg 2,7 Mn	3.3537	5454	
		Al Mg 4 Mn	3.3545	5086	
		Al Zn 4,5 Mg 1	3.4335	7020	
		Aluminium cast alloys	DIN 1725-2	G-Al Mg 3	3.3541
G-Al Mg 3 Si	3.3241				512.0
G-Al Mg 5	3.3561				B 535.0
G-Al Mg 5 Si	3.3261				

Packaging and available sizes

Unit type	Diameter (mm)					
	1.6	2.0	2.4	3.2	4.0	5.0
5 kg tube	X	X	X	X	X	X
Other sizes and packaging on request						

LNT AIMg5: rev. EN 21

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Aluminium wire

Classification

AWS A5.10	: ER5183
ISO 18273	: S Al 5183 (AlMg4.5Mn0,7)

General description

Solid wire for welding of high strength aluminium alloys and low temperature applications (-196°C)

Shielding gases (acc. ISO 14175)

I1	Inert gas Ar (100%)
I3	Inert gas Ar+ >0-95% He

Approvals

ABS	BV	DNV	GL	LR	TÜV
WC	WC	5183	S AlMg4.5Mn	+	+

Chemical composition (w%) typical wire / rod

Al	Mn	Si	Ti	Mg	Zn	Cr	Fe	Cu
bal.	0.65	0.09	0.02	5	0.03	0.06	0.14	0.02

Mechanical properties, typical

	Shielding gas	Condition	0.2% Proof strength (N/mm ²)	Tensile strength (N/mm ²)	Elongation (%)
Typical values	I1	AW	150	290	25

Physical properties

Melting range	568 - 638°C
Density	approximately 2400 kg/m ³

Materials to be welded

Steel grades	Code	Type	W.Nr.	Int.Reg.Nr.	Int.Cast.Nr.
Aluminium wrought alloys	DIN 1725-1	Al Mg 3	3.3535	5754	
		Al Mg 4.5 Mn	3.3547	5083	
		Al Mg 5	3.3555	6082	
		Al Mg Si 1			
Aluminium cast alloys	DIN 1725-2	G-Al Mg 3	3.3541		
		G-Al Mg 3 Si	3.3241		512.0
		G-Al Mg 5	3.3561		B 535.0
		G-Al Mg 5 Si	3.3261		

Packaging and available sizes

Unit type	Diameter (mm)		
	1.0	1.2	1.6
7 kg spool B300	X	X	X
Other sizes and packaging on request			

LNMAIMg4.5Mn: rev. EN 21

Liability: All information in this data sheet is based on the best available knowledge, is subject to change without notice and can only be considered as suitable for general guidance **Fumes:** Consult information on Welding Safety Sheet, available upon request

LNT AlMg4.5Mn

Aluminium rod

Classification

AWS A5.10 : ER5183
ISO 18273 : S Al 5183 (AlMg4.5Mn0,7)

General description

Solid rod for welding of high strength aluminium alloys and low temperature applications (-196°C)

Shielding gases (acc. ISO 14175)

I1 Inert gas Ar (100%)

Approvals

TÜV

+

Chemical composition (w%) typical wire / rod

Al	Mn	Si	Ti	Mg	Zn	Cr	Fe
bal.	0.80	0.10	0.02	4.5	0.15	0.15	0.20

Mechanical properties, typical

	Shielding gas	Condition	0.2% Proof strength (N/mm ²)	Tensile strength (N/mm ²)	Elongation (%)	Impact ISO-V(J) +20°C
Typical values	I1	AW	150	290	25	40

Physical properties

Melting range 568 - 638°C
Density approximately 2400 kg/m³

Materials to be welded

Steel grades	Code	Type	W.Nr.	Int.Reg.Nr.	Int.Cast.Nr.
Aluminium wrought alloys	DIN 1725-1	Al Mg 3	3.3535	5754	
		Al Mg 4.5 Mn	3.3547	5083	
		Al Mg 5	3.3555	6082	
Aluminium cast alloys	DIN 1725-2	Al Mg Si 1			
		G-Al Mg 3	3.3541		
		G-Al Mg 3 Si	3.3241		512.0
		G-Al Mg 5	3.3561		B 535.0
G-Al Mg 5 Si	3.3261				

Packaging and available sizes

Unit type	Diameter (mm)			
	2.0	2.4	3.2	4.0
5 kg tube	X	X	X	X

Other sizes and packaging on request

LNT AlMg4.5Mn: rev. EN 21

Liability: All information in this data sheet is based on the best available knowledge, is subject to change without notice and can only be considered as suitable for general guidance **Fumes:** Consult information on Welding Safety Sheet, available upon request

LNM AlMg4.5MnZr

Aluminium wire

Classification

ISO 18273 : S Al 5087 (AlMg4.5MnZr)

General description

Solid wire for welding of high strength aluminium alloys and low temperature applications (-196°C)
Zr added to increase hot cracking resistance and improve structure

Shielding gases (acc. ISO 14175)

I1 Inert gas Ar (100%)
I3 Inert gas Ar+ >0-95% He

Approvals

TÜV

+

Chemical composition (w%) typical wire

Al	Mn	Si	Ti	Mg	Zn	Cr	Zr
bal.	0.8	0.2	0.15	4.5	0.15	0.15	0.1

Mechanical properties, typical

	Shielding gas	Condition	0.2% Proof strength (N/mm ²)	Tensile strength (N/mm ²)	Elongation (%)	Impact ISO-V(J)	
						+20°C	-196°C
Typical values	I1	AW	140	300	30	25	15

Physical properties

Melting range 568 - 638°C
Density approximately 2400 kg/m³

Materials to be welded

Steel grades	Code	Type	W.Nr.	Int.Reg.Nr.	Int.Cast.Nr.
Aluminium wrought alloys	DIN 1725-1	Al Mg 3	3.3535	5754	
		Al Mg 4,5 Mn	3.3547	5083	
		Al Mg 5	3.3555	6082	
		Al Mg Si 1			
Aluminium cast alloys	DIN 1725-2	G-Al Mg 3	3.3541		
		G-Al Mg 3 Si	3.3241		512.0
		G-Al Mg 5	3.3561		B 535.0
		G-Al Mg 5 Si	3.3261		

Packaging and available sizes

Unit type	Diameter (mm)		
	1.0	1.2	1.6
7 kg spool B300	X	X	X
Other sizes and packaging on request			

LNM AlMg4.5MnZr: rev. EN 21

Liability: All information in this data sheet is based on the best available knowledge, is subject to change without notice and can only be considered as suitable for general guidance **Fumes:** Consult information on Welding Safety Sheet, available upon request

Aluminium wire

Classification

AWS A5.10 : ER4043
 ISO 18273 : S Al 4043A (AlSi5(Al))

General description

Solid wire for welding of aluminium-silicium alloys

Shielding gases (acc. ISO 14175)

I1 Inert gas Ar (100%)
 I3 Inert gas Ar+ >0-95% He

Approvals

TÜV

+

Chemical composition (w%) typical wire / rod

Al	Mn	Si	Ti	Fe	Zn	Cu	Mg
bal.	0.01	4.7	0.001	0.3	0.002	0.01	0.004

Mechanical properties, typical

	Shielding gas	Condition	0.2% Proof strength (N/mm ²)	Tensile strength (N/mm ²)	Elongation (%)	Impact ISO-V(J)	
						+20°C	-60°C
Typical values	I1	AW	100	160	15	20	20

Physical properties

Melting range 573 - 625°C
 Density approximately 2680 kg/m³

Materials to be welded

Steel grades	Code	Type	W.Nr.	Int.Reg.Nr.	Int.Cast.Nr.
Aluminium cast alloys	DIN 1725-1	Al Mg Si 0.5	3.3206	6060	
		Al Mg Si 0.7	3.3210	6005A	
		Al Mg Si 0.8	3.2316	6181	
Aluminium cast alloys	DIN 1725-2	G-Al Si 5			443.0

Packaging and available sizes

Unit type	Diameter (mm)				
	0.8	1.0	1.2	1.6	2.4
7 kg spool B300	X	X	X	X	X

Other sizes and packaging on request

LNM AISi5: rev. EN 21

Liability: All information in this data sheet is based on the best available knowledge, is subject to change without notice and can only be considered as suitable for general guidance **Fumes:** Consult information on Welding Safety Sheet, available upon request

Aluminium rod

Classification

AWS A5.10 : ER4043
ISO 18273 : S Al 4043A (AlSi5(Al))

General description

Solid rod for welding of aluminium-silicium alloys

Shielding gases (acc. ISO 14175)

I1 Inert gas Ar (100%)

Approvals

TÜV
+

Chemical composition (w%) typical wire / rod

Al	Mn	Si	Ti	Fe	Zn
bal.	0.05	5.0	0.15	0.4	0.10

Mechanical properties, typical

	Shielding gas	Condition	0.2% Proof strength (N/mm ²)	Tensile strength (N/mm ²)	Elongation (%)	Impact ISO-V(J)	
						+20°C	-60°C
Typical values	I1	AW	100	160	15	20	20

Physical properties

Melting range 573 - 625°C
Density approximately 2680 kg/m³

Materials to be welded

Steel grades	Code	Type	W.Nr.	Int.Reg.Nr.	Int.Cast.Nr.
Aluminium cast alloys	DIN 1725-1	Al Mg Si 0.5	3.3206	6060	
		Al Mg Si 0.7	3.3210	6005A	
		Al Mg Si 0.8	3.2316	6181	
Aluminium cast alloys	DIN 1725-2	G-Al Si 5			443.0

Packaging and available sizes

Unit type	Diameter (mm)				
	1.6	2.0	2.4	3.2	4.0
5 kg tube	X	X	X	X	X
Other sizes and packaging on request					

LNT AISi5: rev. EN 21

Liability: All information in this data sheet is based on the best available knowledge, is subject to change without notice and can only be considered as suitable for general guidance **Fumes:** Consult information on Welding Safety Sheet, available upon request

Aluminium wire

Classification

AWS A5.10 : ER4047
 ISO 18273 : S Al 4047A (AlSi12 (A))

General description

Solid wire for welding of cast aluminium alloys containing up to 12% Si

Shielding gases (acc. ISO 14175)

I1 Inert gas Ar (100%)
 I3 Inert gas Ar+ >0-95% He

Chemical composition (w%) typical wire / rod

Al	Si	Ti	Fe	Zn	Mn	Cu
bal.	11.4	0.01	0.4	0.10	0.01	0.04

Mechanical properties, typical

	Shielding gas	Condition	0.2% Proof strength (N/mm ²)	Tensile strength (N/mm ²)	Elongation (%)
Typical values	I1	AW	80	180	6

Physical properties

Melting range 573 - 585°C
 Density approximately 2650 kg/m³

Materials to be welded

Steel grades	Code	Type	W.Nr.	Int.Cast.Nr.
Aluminium cast alloys	DIN 1725-2	G-Al Si 12	3.3581	A 413.0
		G-Al Si 12 (Cu)	3.3583	
		G-Al Si 11		
		G-Al Si 10 Mg	3.2381	361.0
		G-Al Si 10 Mg (Cu)	3.2383	
		G-Al Si 9 Mg	3.2373	359.0
		G-Al Si 9 Cu 3	3.2161	
		G-Al Si 7 Mg	3.2371	356.0
		G-Al Si 6 Cu 4	3.2151	319.0

Packaging and available sizes

Unit type	Diameter (mm)		
	1.0	1.2	1.6
7 kg spool B300	X	X	X
Other sizes and packaging on request			

LNM AISi12: rev. EN 21

Liability: All information in this data sheet is based on the best available knowledge, is subject to change without notice and can only be considered as suitable for general guidance **Fumes:** Consult information on Welding Safety Sheet, available upon request

Aluminium rod

Classification

AWS A5.10 : ER4047
 ISO 18273 : S Al 4047A (AlSi12 (A))

General description

Solid rod for welding of cast aluminium alloys containing up to 12% Si

Shielding gases (acc. ISO 14175)

I1 Inert gas Ar (100%)

Chemical composition (w%) typical wire / rod

Al	Si	Fe	Zn	Mg
bal.	12.0	0.5	0.10	0.10

Mechanical properties, typical

	Shielding gas	Condition	0.2% Proof strength (N/mm ²)	Tensile strength (N/mm ²)	Elongation (%)
Typical values	I1	AW	80	180	5

Physical properties

Melting range 573 - 585°C
 Density approximately 2650 kg/m³

Materials to be welded

Steel grades	Code	Type	W.Nr.	Int.Cast.Nr.
Aluminium cast alloys	DIN 1725-2	G-Al Si 12	3.3581	A 413.0
		G-Al Si 12 (Cu)	3.3583	
		G-Al Si 11		
		G-Al Si 10 Mg	3.2381	361.0
		G-Al Si 10 Mg (Cu)	3.2383	
		G-Al Si 9 Mg	3.2373	359.0
		G-Al Si 9 Cu 3	3.2161	
		G-Al Si 7 Mg	3.2371	356.0
		G-Al Si 6 Cu 4	3.2151	319.0

Packaging and available sizes

Unit type	Diameter (mm)			
	2.0	2.4	3.2	4.0
5 kg tube	X	X	X	X
Other sizes and packaging on request				

LNT AISi12: rev. EN 21

Liability: All information in this data sheet is based on the best available knowledge, is subject to change without notice and can only be considered as suitable for general guidance **Fumes:** Consult information on Welding Safety Sheet, available upon request

Hardfacing solid wire

Classification

DIN 8555 : MSG 6-GZ-60-PS

General description

Solid wire for wear resistant overlays

High resistance against corrosion, abrasion and impact deformation

Hardness approximately 55-60HRC

Optimal weldability

Ferritic and martensitic structure

Shielding gases (acc. ISO 14175)

M21 Mixed gas Ar+ >5-25% CO₂

Application

Dies

Matrix

Parts for agricultural machinery

Transport rolls

Sand pumps

Chemical composition (w%) typical wire

C	Mn	Si	Cr
0.5	0.4	3	9

Mechanical properties, all weld metal

Typical hardness values

2 Layers, AW

approx. 60 HRC

Heat resistant to 450°C

Packaging and available sizes

Unit type	Diameter (mm)
	1.2
15 kg spool B300	X

LNM 420FM: rev. EN 21

Liability: All information in this data sheet is based on the best available knowledge, is subject to change without notice and can only be considered as suitable for general guidance **Fumes:** Consult information on Welding Safety Sheet, available upon request

Hardfacing solid wire

Classification

DIN 8555 : MSG 2-GZ-350

General description

Solid wire for hardfacing applications

Hardness approximately HB 325-375

Optimal welding characteristics

Martensitic structure

Shielding gases (acc. ISO 14175)

M21 Mixed gas Ar+ >5-25% CO₂

Application

Forming dies

Dies

Impact resistance tools

Chemical composition (w%) typical wire

C	Mn	Si	Cr
0.7	1.9	0.45	1.0

Mechanical properties, all weld metal

	Typical hardness values
2 Layers, AW	approx. 38 HRC (360 HB)

Packaging and available sizes

Unit type	Diameter (mm)
	1.2
15 kg spool B300	X

LNM 4M: rev. EN 21

Liability: All information in this data sheet is based on the best available knowledge, is subject to change without notice and can only be considered as suitable for general guidance **Fumes:** Consult information on Welding Safety Sheet, available upon request

Autogenous wire

Classification

AWS A5.2 : R45*
EN 12536 : O I

* Nearest classification

General description

Rods for oxy-acetylene gas welding of general construction steel
Suitable for mild steel
max. design temperature 350°C

Chemical composition (w%), Typical, rod

C	Mn	Si	P	S
0.07	0.4	0.07	0.01	0.01

Mechanical properties, typical, all weld metal

	Condition	Yield strength (N/mm ²)	Tensile strength (N/mm ²)	Elongation (%)	Impact ISO-V(J) +20°C
Typical values	AW	280	390	16	50

Packaging and available sizes

Unit type	Diameter (mm)			
	2.0	3.0	4.0	5.0
5 kg / 25 kg box	X	X	X	X

LNG I: rev. EN 21

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Autogenous wire

Classification

AWS A5.2 : R60*
EN 12536 : O II

* Nearest classification

General description

Rods for oxy-acetylene gas welding of general construction steel

Suitable for mild steel

max. design temperature 350°C

Higher strength than LNG I

Chemical composition (w%), Typical, rod

C	Mn	Si	P	S
0.10	1.1	0.15	0.01	0.01

Mechanical properties, typical, all weld metal

	Condition	Yield strength (N/mm ²)	Tensile strength (N/mm ²)	Elongation (%)	Impact ISO-V(J) +20°C
Typical values	AW	320	430	17	60

Packaging and available sizes

Unit type	Diameter (mm)					
	1.6	2.0	2.5	3.0	4.0	5.0
5 kg / 25 kg box	X	X	X	X	X	X

LNG II: rev. EN 21

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Autogenous wire

Classification

AWS A5.2 : R60*
EN 12536 : O III

* Nearest classification

General description

Rods with 0.4% Ni for oxy-acetylene gas welding of joints in pipes
Excellent rootwelding
Applicable for design temperatures from -20°C to +350°C

Chemical composition (w%), Typical, rod

C	Mn	Si	P	S	Ni
0.06	1.1	0.15	0.01	0.01	0.40

Mechanical properties, typical, all weld metal

	Condition	Yield strength (N/mm ²)	Tensile strength (N/mm ²)	Elongation (%)	Impact ISO-V(J) +20°C
Typical values	AW	340	470	26	65

Packaging and available sizes

Unit type	Diameter (mm)				
	2.0	2.5	3.0	4.0	5.0
5 kg / 25 kg box	X	X	X	X	X

LNG III: rev. EN 21

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Autogenous wire

Classification

AWS A5.2 : R65*
EN 12536 : O IV

* Nearest classification

General description

Rods with 0.5% Mo for oxy-acetylene gas welding of fine grained and creep resisting steel
Design temperature max. 500°C

Chemical composition (w%), Typical, rod

C	Mn	Si	P	S	Mo
0.09	1.0	0.19	0.010	0.010	0.5

Mechanical properties, typical, all weld metal

Condition	Yield strength (N/mm ²)	Tensile strength (N/mm ²)	Elongation (%)	Impact ISO-V(J) +20°C
Typical values AW	380	500	22	60

Packaging and available sizes

Unit type	Diameter (mm)			
	2.0	2.5	3.0	4.0
5 kg / 25 kg box	X	X	X	X

LNG IV: rev. EN 21

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